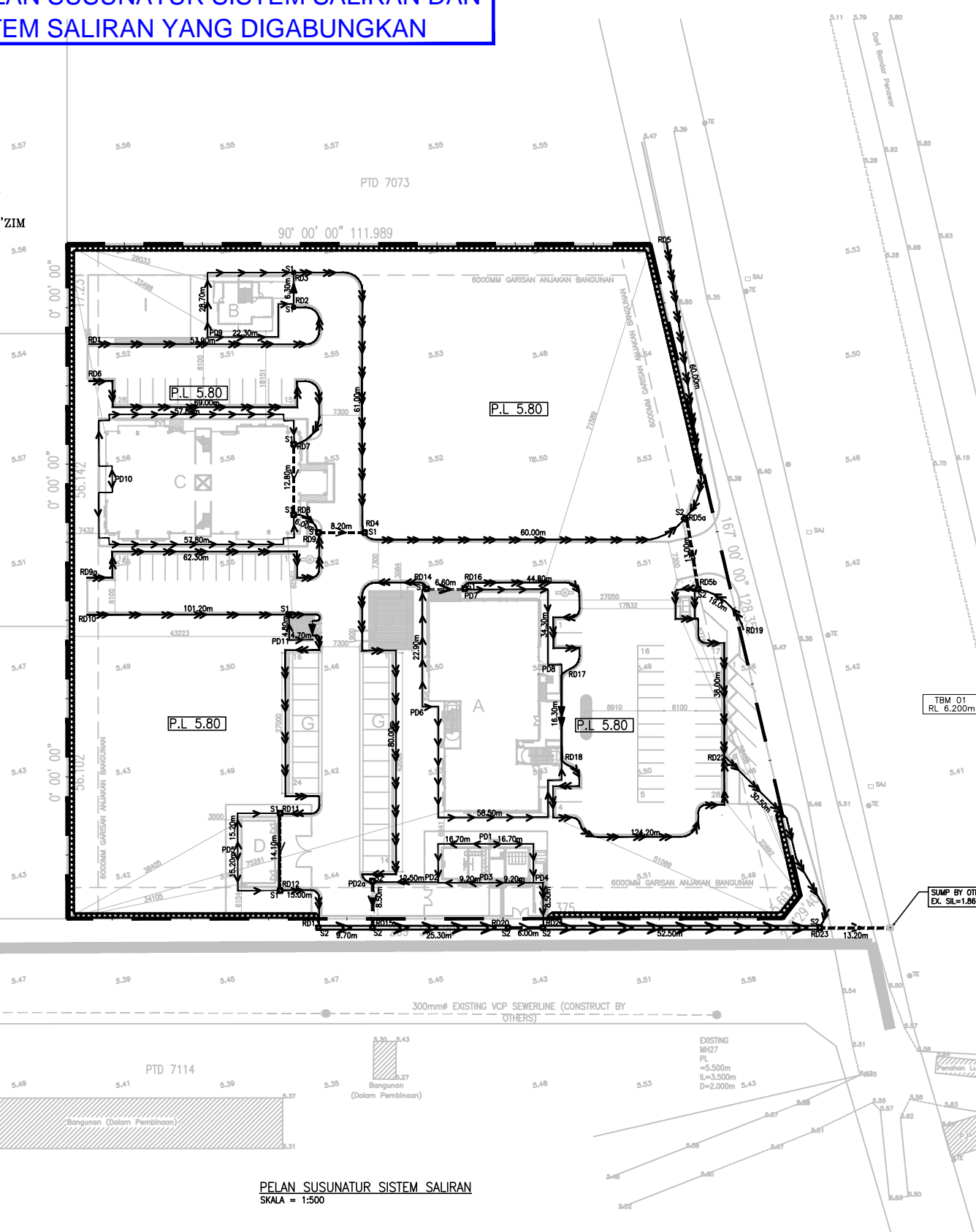


LAMPIRAN 1
CONTOH PELAN SUSUNATUR SISTEM SALIRAN DAN
JADUAL SISTEM SALIRAN YANG DIGABUNGKAN



MUKIM PANTAI TIMUR
 DAERAH KOTA TINGGI
 NEGERI JOHOR DARUL TA'ZIM
 SYT 73 D I



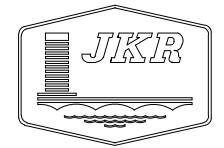
PELAN SUSUNATUR SISTEM SALIRAN
 SKALA = 1:500

DRAIN		DRAIN DETAILS							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Drain No	Start	End	Material	Finish Level	Invert Level	Invert Level	Invert Level	Depth	Depth
				FL	UP	DOWN	FL	(G.L. - I.L.)	(G.L. - I.L.)
RD1	RD1A	16.7	200	230 HRGW	8.8	8.88	8.47	0.3	0.3
RD2	RD2A	12.8	200	230 HRGW	8.8	8.47	8.40	0.3	0.4
RD3	RD3A	9.2	200	750 BC	8.8	8.08	8.04	0.7	0.8
RD4	RD4A	8.5	200	230 HRGW	8.8	8.88	8.80	0.3	0.3
RD5	RD5A	15.5	200	230 HRGW	8.8	8.88	8.47	0.3	0.3
RD6	RD6A	8.5	200	230 HRGW	8.8	8.88	8.82	0.3	0.3
RD7	RD7A	7.8	200	230 HRGW	8.8	8.88	8.28	0.3	0.8
RD8	RD8A	15.5	200	230 HRGW	8.8	8.88	8.47	0.3	0.3
RD9	RD9A	18.5	200	230 HRGW	8.8	8.88	8.47	0.3	0.3
RD10	RD10A	8.5	200	230 HRGW	8.8	8.88	8.82	0.3	0.3
RD11	RD11A	10.12	300	300 HALF ROUND	8.8	8.38	8.17	0.8	0.8
RD12	RD12A	8.3	300	300 HALF ROUND	8.8	8.17	8.18	0.6	0.7
RD13	RD13A	8.10	300	300 HALF ROUND	8.8	8.18	4.98	0.7	0.9
RD14	RD14A	10.0	300	300 HALF ROUND	8.8	4.98	4.78	0.9	1.1
RD15	RD15A	13.0	400	750 BC	8.8	4.78	4.71	1.1	1.1
RD16	RD16A	13.0	300	300 HALF ROUND	8.8	4.71	4.89	1.1	1.2
RD17	RD17A	8.90	300	300 HALF ROUND	8.8	8.38	8.12	0.8	0.7
RD18	RD18A	12.8	300	300 HALF ROUND	8.8	8.12	8.08	0.7	0.7
RD19	RD19A	8.0	300	300 HALF ROUND	8.8	8.08	8.08	0.7	0.7
RD20	RD20A	8.2	300	300 HALF ROUND	8.8	8.08	8.03	0.7	0.8
RD21	RD21A	10.12	300	300 HALF ROUND	8.8	8.38	8.01	0.8	0.8
RD22	RD22A	14.1	300	800 PC	8.8	4.90	4.88	0.9	0.9
RD23	RD23A	12.0	300	300 HALF ROUND	8.8	4.88	4.81	0.9	1.0
RD24	RD24A	8.00	300	300 HALF ROUND	8.8	8.38	8.08	0.8	0.7
RD25	RD25A	8.6	300	800 PC	8.8	4.90	4.88	0.9	0.9
RD26	RD26A	4.48	300	300 HALF ROUND	8.8	4.88	4.73	0.9	1.1
RD27	RD27A	18.3	300	300 HALF ROUND	8.8	4.73	4.67	1.1	1.1
RD28	RD28A	8.82	300	300 HALF ROUND	8.8	4.67	4.48	1.1	1.3
RD29	RD29A	20.8	300	300 HALF ROUND	8.8	4.48	4.38	1.3	1.4
RD30	RD30A	18.0	300	300 HALF ROUND	8.8	8.08	4.99	0.8	0.8
RD31	RD31A	8.00	300	300 HALF ROUND	8.8	8.08	4.88	0.8	0.7
RD32	RD32A	9.7	300	750 UDRAN	8.8	4.8	4.47	1.0	1.0
RD33	RD33A	28.3	400	750 UDRAN	8.8	4.47	4.40	1.0	1.1
RD34	RD34A	8.0	300	750 BC	8.8	4.40	4.38	1.1	1.1
RD35	RD35A	8.58	400	750 UDRAN	8.8	4.38	4.28	1.1	1.2
RD36	RD36A	13.2	300	750 BC	8.8	4.28	4.21	1.2	1.3

- NOTES :**
- All dimensions are in millimetres unless otherwise shown on the drawings.
 - These drawings shall be read in conjunction with architectural and survey drawings.
 - Drainage works shall be constructed to the lines, levels, grades and cross-sections shown on the drawings or as directed by the S.O.
 - Final discharge point shall be identified and approved by the S.O where necessary. Existing drainage system shall be upgraded to be fully functional as a drainage system on their own or as part of the new drainage system.
 - The contractor shall notify the S.O sufficiently in advance before beginning of any excavation. The excavation works shall be carried out so as not to cause any danger or obstruction to the traffic or public. All excavation shall be inspected and approved by the S.O prior to further works being carried out.
 - Excavation of drain trenches shall be to a depth of 150 mm less than the depths intended or shown on the drawings. The remaining excavation shall be carried out immediately prior to the placing of blinding materials.
 - Drainage trenches shall be backfilled immediately after the completion of drain laying or installation of culverts as soon as the S.O has inspected and given his approval.
 - Backfilling with approved fill materials shall be placed evenly in layers not exceeding 150 mm thickness. In order to provide uniform support, loose thickness of fill materials on both sides of the drain shall be thoroughly compacted with mechanical rammers. This procedure shall be followed for the whole depth of the drain section.
 - Invert level is measured from proposed formation level to the interior base of drain. The location and levels of the drainage system indicated on the drawings shall be checked and rectified if required to suit actual site condition by the S.O.
 - All drains shall have minimum gradient of 1:350 unless otherwise stated on the drawings or as directed by the S.O.
 - The maximum allowable side wall steepness for concrete, brickwork and blockwork lined drains shall be vertical; stone pitching lined drains shall be 1:1.5 and grassed / vegetated, rock and rip rap lined drains shall be 1:2.
 - All pipe drains that run under roads and hardstanding shall be encased with concrete grade 20P with a minimum thickness of 150 mm.
 - Precast concrete pipe shall comply with MS EN 1916:2011 or other equivalent standards as approved by the S.O.
 - Precast concrete box culvert shall comply to MS 1293, BS EN 1990:2002+A1:2005, BS EN 1991-1-7:2006 or other equivalent standards acceptable or approved by the S.O. The minimum concrete cube strength shall be 30MPa.
 - Cast in-situ concrete drain and precast concrete block drain section shall be of grade 25P concrete unless otherwise stated on the drawings.
 - Reinforced concrete struts shall be provided for all drain side walls exceeding 1 metre in height. Safety railings shall be provided for open drains with more than 1.2 metres depth or otherwise as directed by the S.O.
 - Where roadside drain is not provided, scupper pipes or drains shall be installed at road kerb where practicable, to the drainage system nearby at 3 metres c/c or other suitable intervals as approved by the S.O.

LEGEND

	225mm HALF ROUND GLAZED WARE (HRGW)		750mm PRECAST U-DRAIN (PROPOSED)
	300mm HALF ROUND-TYPE D2. REFER TO DRAWING NO : JKR/CKASJ/08.500/STD/DR/04(24)		SUMP 750mm x 750mm
	300mm HALF ROUND-TYPE D2 WITH ENTRANCE SLAB		SUMP 1050mm x 1050mm
	300mm HALF ROUND WITH P.C COVER		LIMIT OF WORK
	600mm PIPE CULVERT		
	750mm BOX CULVERT		



JABATAN KERJA RAYA MALAYSIA
 BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
 JABATAN KERJA RAYA MALAYSIA
 TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
 IBU PEJABAT JKR MALAYSIA
 JALAN SULTAN SALAHUDDIN
 50450 KUALA LUMPUR.
 (NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

PENGARAH KANAN:
 KAMALUDDIN BIN HJ. ABDUL RASHID

PENGARAH KHIDMAT REKABENTUK :
 Ir. MUHAMMAD AZMAN BIN JAMRUS

KETUA PENOLONG PENGARAH KANAN :
 -

PENOLONG PENGARAH KANAN :
 -

DIREKABENTUK :
 -

DISEMAK :
 -

DILUKIS :
 -

SKALA :
 1:500

NO. FAIL PROJEK :
 JKR/CKAS/14/15/J15/1

TARIKH :
 MAC 2016

HURUF	PINDAAN	TARIKH	TANDA
PETUNJUK			JANGAN

NAMA PROJEK :
 NAMA PROJEK SEPERTI DIBERI OLEH HOPT (BLOK BANGUNAN)

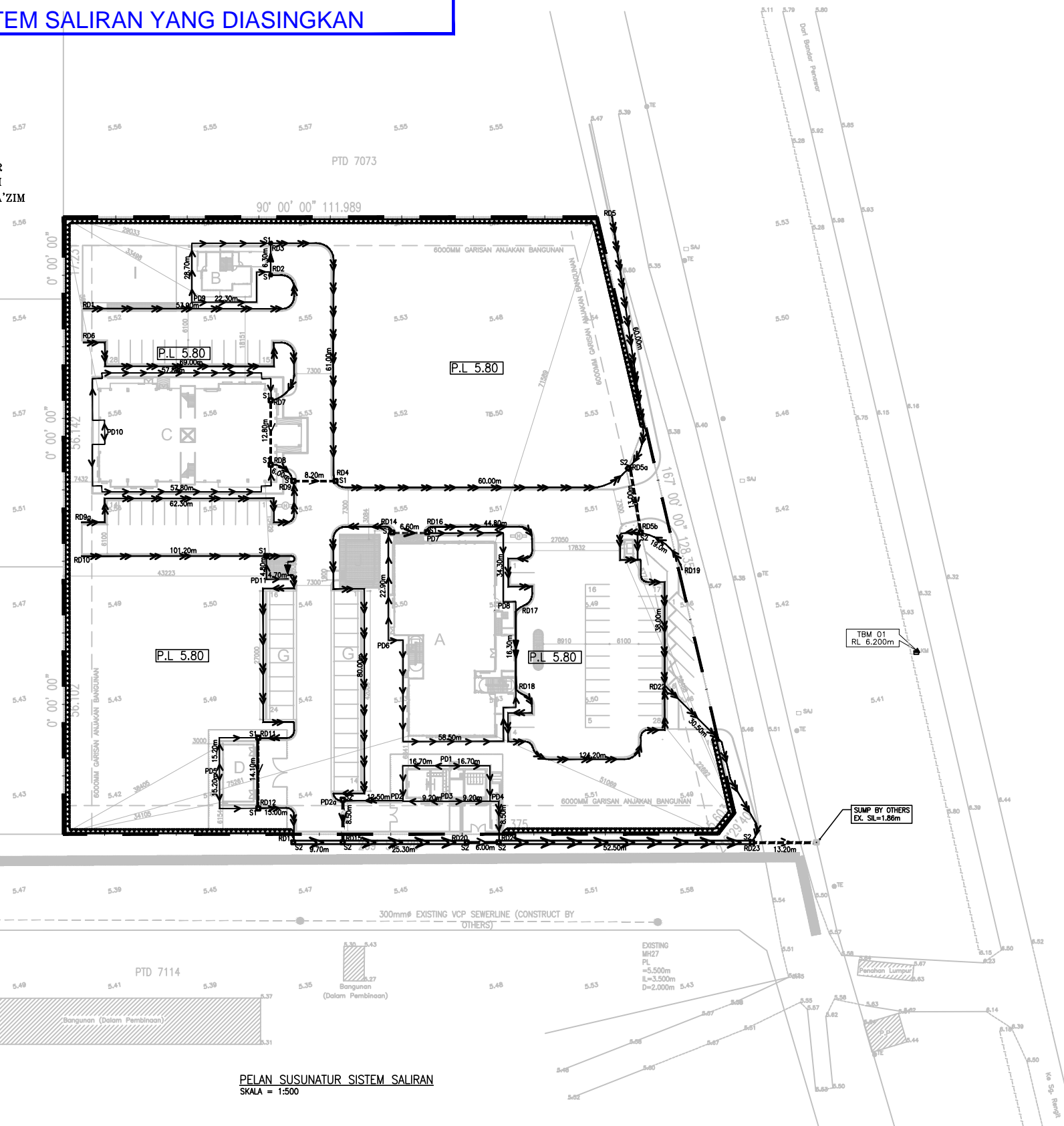
TAJUK LUKISAN :
 PELAN SUSUNATUR SISTEM SALIRAN

NO. LUKISAN :
 JKR/CKAS/14/15/J15/1/SS/01(00)

LAMPIRAN 1a
CONTOH PELAN SUSUNATUR SISTEM SALIRAN DAN
JADUAL SISTEM SALIRAN YANG DIASINGKAN



MUKIM PANTAI TIMUR
 DAERAH KOTA TINGGI
 NEGERI JOHOR DARUL TA'ZIM
 SYT 73 D I



EXISTING MH29
 PL = 5.500m
 IL = 2.382m
 D = 2.518m

PTD 7114

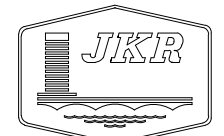
PELAN SUSUNATUR SISTEM SALIRAN
 SKALA = 1:500

NOTES :

- All dimensions are in millimetres unless otherwise shown on the drawings.
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- Final discharge point shall be identified and approved by the S.O where necessary. Existing drainage system shall be upgraded to be fully functional as a drainage system on their own or as part of the new drainage system.
- The contractor shall notify the S.O sufficiently in advance before beginning of any excavation. The excavation works shall be carried out so as not to cause any danger or obstruction to the traffic or public. All excavation shall be inspected and approved by the S.O prior to further works being carried out.
- Excavation of drain trenches shall be to a depth of 150 mm less than the depths intended or shown on the drawings. The remaining excavation shall be carried out immediately prior to the placing of blinding materials.
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- Backfilling with approved fill materials shall be placed evenly in layers not exceeding 150 mm thickness. In order to provide uniform support, loose thickness of fill materials on both sides of the drain shall be thoroughly compacted with mechanical rammers. This procedure shall be followed for the whole depth of the drain section.
- Invert level is measured from proposed formation level to the interior base of drain. The location and levels of the drainage system indicated on the drawings shall be checked and rectified if required to suit actual site condition by the S.O.
- All drains shall have minimum gradient of 1:350 unless otherwise stated on the drawings or as directed by the S.O.
- The maximum allowable side wall steepness for concrete, brickwork and blockwork lined drains shall be vertical; stone pitching lined drains shall be 1:1.5 and grassed / vegetated, rock and rip rap lined drains shall be 1:2.
- All pipe drains that run under roads and hardstanding shall be encased with concrete grade 20P with a minimum thickness of 150 mm.
- Precast concrete pipe shall comply with MS EN 1916:2011 or other equivalent standards as approved by the S.O.
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LEGEND

	225mm HALF ROUND GLAZED WARE (HRGW)		750mm PRECAST U-DRAIN (PROPOSED)
	300mm HALF ROUND-TYPE D2. REFER TO DRAWING NO : JKR.CKAS/08.500/STD/DR/04(24)		SUMP 750mm x 750mm
	300mm HALF ROUND-TYPE D2 WITH ENTRANCE SLAB		SUMP 1050mm x 1050mm
	300mm HALF ROUND WITH P.C COVER		LIMIT OF WORK
	600mm PIPE CULVERT		
	750mm BOX CULVERT		



JABATAN KERJA RAYA MALAYSIA
 BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
 JABATAN KERJA RAYA MALAYSIA
 TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
 IBU PEJABAT JKR MALAYSIA
 JALAN SULTAN SALAHUDDIN
 50450 KUALA LUMPUR.
 (NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

PENGARAH KANAN:			
KAMALUDDIN BIN HJ. ABDUL RASHID			
PENGARAH KHIDMAT REKABENTUK :			
Ir. MUHAMMAD AZMAN BIN JAMRUS			
KETUA PENOLONG PENGARAH KANAN :			
-			
PENOLONG PENGARAH KANAN :			
-			
DIREKABENTUK :			
-			
DISEMAK :			
-			
DILUKIS :			
-			
SKALA :			
1:500			
NO. FAIL PROJEK :			
JKR/CKAS/14/15/J15/1			
TARIKH :			
MAC 2016			
HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN

NAMA PROJEK :
 NAMA PROJEK SEPERTI DIBERI OLEH HOPT (BLOK BANGUNAN)

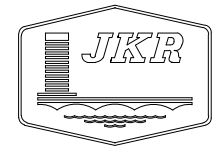
TAJUK LUKISAN :			
PELAN SUSUNATUR SISTEM SALIRAN			
NO. LUKISAN :			
JKR/CKAS/14/15/J15/1/SS/01(00)			

LAMPIRAN 1b
CONTOH JADUAL SISTEM SALIRAN

DRAIN		DRAIN DETAILS							
(1)	(2)	(13)	(18)						
Sub-area Node Number	Drain Length	Channel Gradient	Drain or Culvert Prop (n = 0.015)	FINISH LEVEL, FL	INVERT LEVEL, UP STREAM, IL US	INVERT LEVEL, DOWN STREAM, IL DS	DEPTH (GL-IL US)	DEPTH (GL-IL DS)	
u/s	d/s	(m)	1 : x	m	m	m	m	m	
FD1	FD2/FD4	16.7	200	230 HRGW	5.8	5.55	5.47	0.3	0.3
FD2	FD2a	12.5	200	230 HRGW	5.8	5.47	5.40	0.3	0.4
FD2a	RD15	8.5	200	750BC	5.8	5.08	5.04	0.7	0.8
FD3	FD2/FD4	9.2	200	230 HRGW	5.8	5.55	5.50	0.3	0.3
FD4	RD21	6.5	200	230 HRGW	5.8	5.47	5.43	0.3	0.4
FD9	RD3	15.5	200	230 HRGW	5.8	5.55	5.47	0.3	0.3
FD9	RD2	6.5	200	230 HRGW	5.8	5.55	5.52	0.3	0.3
FD10	RD7/RD8	57.8	200	230 HRGW	5.8	5.55	5.26	0.3	0.5
FD5	RD11/12	15.5	200	230 HRGW	5.8	5.55	5.47	0.3	0.3
FD6	RD14	15.5	200	230 HRGW	5.8	5.55	5.47	0.3	0.3
FD6	RD18	6.5	200	230 HRGW	5.8	5.55	5.52	0.3	0.3
FD7	RD17	6.5	200	230 HRGW	5.8	5.55	5.52	0.3	0.3
RD1	RD2	53.9	300	300 HALF ROUND	5.8	5.35	5.17	0.5	0.6
RD2	RD3	6.3	300	300 HALF ROUND	5.8	5.17	5.15	0.6	0.7
RD3	RD4	61.0	300	300 HALF ROUND	5.8	5.15	4.95	0.7	0.9
RD4	RD5a	60.0	300	300 HALF ROUND	5.8	4.95	4.75	0.9	1.1
RD5a	RD5b	13.0	400	750 BC	5.8	4.75	4.71	1.1	1.1
RD5b	RD22	38.0	300	300 HALF ROUND	5.8	4.71	4.59	1.1	1.2
RD6	RD7	69.0	300	300 HALF ROUND	5.8	5.35	5.12	0.5	0.7
RD7	RD8	12.8	300	300 HALF ROUND	5.8	5.12	5.08	0.7	0.7
RD8	RD9	6.0	300	300 HALF ROUND	5.8	5.08	5.06	0.7	0.7
RD9	RD4	8.2	300	300 HALF ROUND	5.8	5.06	5.03	0.7	0.8
RD9a	RD9	62.3	300	300 HALF ROUND	5.8	5.35	5.14	0.5	0.7
RD10	RD11	101.2	300	300 HALF ROUND	5.8	5.35	5.01	0.5	0.8
RD11	RD12	14.1	300	600 FC	5.8	4.90	4.85	0.9	0.9
RD12	RD13	12.0	300	300 HALF ROUND	5.8	4.85	4.81	0.9	1.0
RD14	FD2a	80.0	300	300 HALF ROUND	5.8	5.35	5.08	0.5	0.7
RD14	RD16	6.6	300	600 FC	5.8	4.90	4.88	0.9	0.9
RD16	RD17	44.8	300	300 HALF ROUND	5.8	4.88	4.73	0.9	1.1
RD17	RD18	16.3	300	300 HALF ROUND	5.8	4.73	4.67	1.1	1.1
RD18	RD22	65.2	300	300 HALF ROUND	5.8	4.67	4.46	1.1	1.3
RD22	RD23	30.5	300	300 HALF ROUND	5.8	4.46	4.36	1.3	1.4
RD19	RD5b	19.0	300	300 HALF ROUND	5.5	5.05	4.99	0.5	0.5
RD5	RD5a	60.0	300	300 HALF ROUND	5.5	5.05	4.85	0.5	0.7
RD13	RD15	9.7	300	750 UDRAIN	5.5	4.5	4.47	1.0	1.0
RD15	RD20	25.3	400	750 UDRAIN	5.5	4.47	4.40	1.0	1.1
RD20	RD21	6.0	300	750 BC	5.5	4.40	4.38	1.1	1.1
RD21	RD23	52.5	400	750 UDRAIN	5.5	4.38	4.25	1.1	1.2
RD23	SUMPEX	13.2	300	750BC	5.5	4.25	4.21	1.2	1.3

JADUAL SISTEM SALIRAN

PERSEMBAHAN LUKISAN



JABATAN KERJA RAYA MALAYSIA

BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
JABATAN KERJA RAYA MALAYSIA
TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
IBU PEJABAT JKR MALAYSIA
JALAN SULTAN SALAHUDDIN
50450 KUALA LUMPUR.

(NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

PENGARAH KANAN:			
KAMALUDDIN BIN HJ. ABDUL RASHID			
PENGARAH KHIDMAT REKABENTUK :			
Ir. MUHAMMAD AZMAN BIN JAMRUS			
KETUA PENOLONG PENGARAH KANAN :			
-			
PENOLONG PENGARAH KANAN :			
-			
DIREKABENTUK :			
-			
DISEMAK :			
-			
DILUKIS :			
-			
SKALA :			
1:500			
NO. FAIL PROJEK :			
JKR/CKAS/14/15/J15/1			
TARIKH :			
MAC 2016			
HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN

NAMA PROJEK :

NAMA PROJEK SEPERTI DIBERI
OLEH HOPT
(BLOK BANGUNAN)

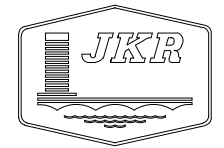
TAJUK LUKISAN :

JADUAL SISTEM SALIRAN

NO. LUKISAN :

JKR/CKAS/14/15/J15/1/SS/01(00)

LAMPIRAN 2
CONTOH 'TITLE BLOCK' UNTUK BAHAGIAN
KEJURUTERAAN AWAM, CKAS



JABATAN KERJA RAYA MALAYSIA
 BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
 JABATAN KERJA RAYA MALAYSIA
 TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
 IBU PEJABAT JKR MALAYSIA
 JALAN SULTAN SALAHUDDIN
 50450 KUALA LUMPUR.
 (NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

PENGARAH KANAN:
 KAMALUDDIN BIN HJ. ABDUL RASHID
 PENGARAH KHIDMAT REKABENTUK :
 Ir. MUHAMMAD AZMAN BIN JAMRUS
 KETUA PENOLONG PENGARAH KANAN :
 Ir. HJ. AZHARI BIN SHAHARUDDIN
 PENOLONG PENGARAH KANAN :

HASLINA BT SALIM
 DIREKABENTUK :
NUR FARHANA BT MOHD SALIM
 DISEMAK :
 Ir. MOHD AZMAN SHUKRI BIN MOHAMED SAFIAN
 DILUKIS :
 HAZRUL
 SKALA :
 1:500
 NO. FAIL PROJEK :
JKR.CKASJ/09.500/020/MOE/P3
 TARIKH :

JULAI 2016			
HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN

NAMA PROJEK :
**CADANGAN MEMBINA DAN MENYAPKAN
 BANGUNAN BARU BENGKEL
 KEJURUTERAAN ELEKTRIK DAN
 ELEKTRONIK DAN LAIN-LAIN
 KEMUDAHAN DI KOLEJ VOKASIONAL
 BALIK PULAU, BALIK PULAU,
 PULAU PINANG.**

TAJUK LUKISAN :
**PELAN SUSUNATUR SISTEM
 PEMBETUNGAN**

NO. LUKISAN :
JKR.CKASJ/09.500/020/MOE/P3/SP/01(01)

RUANGAN UNTUK ALAMAT
CAWANGAN PEREKABENTUK

RUANGAN UNTUK CAWANGAN
PEREKABENTUK

RUANGAN UNTUK PINDAAN

RUANGAN UNTUK NAMA PROJEK

RUANGAN UNTUK TAJUK LUKISAN

RUANGAN UNTUK NO. LUKISAN

LAMPIRAN 2a
 CONTOH 'TITLE BLOCK' UNTUK KEBENARAN
 MERANCANG (KM)

RUANGAN UNTUK JABATAN
 PERANCANG BANDAR DAN DESA

RUANGAN UNTUK KEMENTERIAN
 / PEMILIK BERSERTA
 TANDATANGAN PEMILIK

RUANGAN UNTUK JURUTERA YANG
 BERKELAYAKAN DAN COP RASMI

RUANGAN UNTUK ALAMAT
 CAWANGAN PEREKABENTUK

RUANGAN UNTUK CAWANGAN
 PEREKABENTUK



RUANGAN UNTUK NAMA PROJEK
 SELARAS DENGAN TAJUK PROJEK
 CAWANGAN ARKITEK

RUANGAN UNTUK TAJUK LUKISAN

RUANGAN UNTUK NO. LUKISAN

TANDATANGAN DAN COP KELULUSAN
 JABATAN PERANCANG BANDAR DAN DESA


KEMENTERIAN PELANGGAN

KEMENTERIAN PENDIDIKAN MALAYSIA
 BAHAGIAN PEMBANGUNAN DAN PEROLEHAN
 (BAHAGIAN PENDIDIKAN TEKNIK DAN VOKASIONAL)
 ANAS 1, 5 DAN 6 BLOK E2, KOMPLEKS KERAJAAN PARCEL E, 62804
 PUTRAJAYA, WILAYAH PERSEKUTUAN MALAYSIA
 Tel : (03) 8884 9045 Faks : (03) 8886 649

 TANDATANGAN PEMILIK

For and behalf of
 BAHAGIAN KEJURUTERAAN AWAM,
 CAWANGAN KEJURUTERAAN AWAM & STRUKTUR,
 IBU PEJABAT JKR MALAYSIA



JABATAN KERJA RAYA MALAYSIA
 BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
 JABATAN KERJA RAYA MALAYSIA
 TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
 IBU PEJABAT JKR MALAYSIA
 JALAN SULTAN SALAHUDDIN
 50450 KUALA LUMPUR.
 (NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

PENGARAH KANAN:
 KAMALUDDIN BIN HJ. ABDUL BASHID
 PENGARAH KHIDMAT REKABENTUK :

Ir. MUHAMMAD AZMAN BIN JAMRUS
 KETUA PENOLONG PENGARAH KANAN :

Ir. HJ. AZHARI BIN SHAHARUDDIN
 PENOLONG PENGARAH KANAN :

HASINA BT SALIM
 DIREKABENTUK :

NUR FARHANA BT MOHD SALIM
 DISEMAK :

Ir. M. AZMAN SHUKRI BIN M. SAFIAN
 DILUKIS :

HAZRIL
 SKALA :
 1:500
 NO. FAIL PROJEK :
 JKR.CKASJ/09.500/020/MOE/P3
 TARIKH :
 JULAI 2016

NAMA PROJEK :
 CADANGAN MEMBINA DAN MENYAPKAN BLOK
 TAMBAHAN YANG MENGANDUNGI :
 - 1 UNIT BLOK 3T-A BENGKEL ELEKTRIK DAN
 ELETRONIK (3-TINGKAT)
 - 1 UNIT BLOK WB 2 BENGKEL KEJURUTERAAN
 ELEKTRIK (2-TINGKAT)
 - 1 UNIT BLOK TANDAS BERPUSAT (1-TINGKAT)
 - 1 UNIT BLOK PENCAWANG ELEKTRIK (1-TINGKAT)
 - 1 UNIT BLOK RUMAH PAM TANGKI SEDUT
 (1-TINGKAT)
 - 1 UNIT BLOK RUMAH PAM PENCEGAH KEBAKARAN
 (1-TINGKAT)
 - 1 UNIT BLOK TANGKI SEPTIK

DI ATAS SEBAGIAN LOT NO.109 PT 5 DI KOLEJ
 VOKASIONAL BALK PULAU, BALK PULAU, PULAU PINANG

TAJUK LUKISAN :
 PELAN SUSUNATUR SISTEM
 SALIRAN

NO. LUKISAN :
 JKR.CKASJ/09.500/020/MOE/P3/SS/01(01)

LAMPIRAN 2b
CONTOH 'TITLE BLOCK' UNTUK PENYERAHAN
LUKISAN (SUBMISSION DRAWING) KE
SYARIKAT PEMBETUNGAN

TANDATANGAN DAN COP KELULUSAN
 INDAH WATER KONSORTIUM SDN. BHD:

RUANGAN UNTUK SYARIKAT
 PEMBETUNGAN

RUANGAN UNTUK KEMENTERIAN
 / PEMILIK

RUANGAN UNTUK JURUTERA YANG
 BERKELAYAKAN DAN COP RASMI

RUANGAN UNTUK NOTA

PEMILIK

KEMENTERIAN PENDIDIKAN MALAYSIA
BAHAGIAN PEMBANGUNAN DAN PEROLEHAN,
 ARAS 1, 5 DAN 6 BLOK E2, KOMPLEKS KERAJAAN
 PARCEL E, 62604 PUTRAJAYA, WILAYAH
 PERSEKUTUAN MALAYSIA.
 Tel : (03) 8884 6000 Faks : (03) 8886 6651

TANDATANGAN JURUTERRA PROFESIONAL :
 "I hereby certify that these works have been designed by
 me in accordance with sound engineering practice and
 that I take full responsibility for the design and property
 performance of the same"

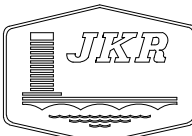
NOTA

RUANGAN UNTUK ALAMAT
 CAWANGAN PEREKABENTUK

RUANGAN UNTUK CAWANGAN
 PEREKABENTUK

RUANGAN UNTUK PINDAAN

RUANGAN UNTUK NAMA
 PROJEK, TAJUK LUKISAN
 DAN NO. LUKISAN

 BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN) CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR JABATAN KERJA RAYA MALAYSIA TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G) IBU PEJABAT JKR MALAYSIA JALAN SULTAN SALAHUDDIN 50450 KUALA LUMPUR. (NO. TEL: 03-26189171 & NO. FAX: 03-26189155) JABATAN KERJA RAYA MALAYSIA	DIREKABENTUK :	PENGARAH KANAN:	HURUF	PINDAAN	TARIKH	TANDA TANGAN	NAMA PROJEK :	CADANGAN MEMBINA DAN MENYIAPKAN BANGUNAN BARU BENGKEL KEJURUTERAAN ELEKTRIK DAN ELEKTRONIK DAN LAIN-LAIN KEMUDAHAN DI KOLEJ VOKASIONAL BALIK PULAU, BALIK PULAU, PULAU PINANG.
	NUR FARHANA BT MOHD SALIM	KAMALUDDIN BIN HJ. ABDUL RASHID	PENGARAH KHIDMAT REKABENTUK :				NAMA PROJEK :	
	Ir. MOHD AZMAN SHUKRI BIN MOHAMED SAFIAN	Ir. MUHAMMAD AZMAN BIN JAMRUS	KETUA PENOLONG PENGARAH KANAN :				TAJUK LUKISAN :	
	HAZRUL	Ir. HJ. AZHARI BIN SHAHARUDDIN	PENOLONG PENGARAH KANAN :				NO. LUKISAN :	
NO. FAIL PROJEK :	JKR.CKASJ/09.500/020/MOE/P3	HASLINA BT SALIM	SKALA :	TARIKH :			NO. LUKISAN :	JKR.CKASJ/09.500/020/MOE/P3/SP/01(01)
1:500	JULAI 2016							

LAMPIRAN 2b(i)
 CONTOH 'TITLE BLOCK' UNTUK PENYERAHAN
 LUKISAN (SUBMISSION DRAWING) KE
 SYARIKAT PEMBETUNGAN

RUANGAN UNTUK SYARIKAT
 PEMBETUNGAN

TANDATANGAN DAN COP KELULUSAN
 INDAH WATER KONSORTIUM SDN. BHD:

RUANGAN UNTUK KEMENTERIAN
 / PEMILIK

PEMILIK

KEMENTERIAN PENDIDIKAN MALAYSIA
BAHAGIAN PEMBANGUNAN DAN PEROLEHAN,
 ARAS 1, 5 DAN 6 BLOK E2, KOMPLEKS KERAJAAN
 PARCEL E, 62604 PUTRAJAYA, WILAYAH
 PERSEKUTUAN MALAYSIA.
 Tel : (03) 8884 6000 Faks : (03) 8886 6651

RUANGAN UNTUK JURUTERA YANG
 BERKELAYAKAN DAN COP RASMI

TANDATANGAN JURUTERA PROFESIONAL :
 "I hereby certify that these works have been designed by
 me in accordance with sound engineering practice and
 that I take full responsibility for the design and property
 performance of the same"

RUANGAN UNTUK ALAMAT
 CAWANGAN PEREKABENTUK


JABATAN KERJA RAYA MALAYSIA
 BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
 JABATAN KERJA RAYA MALAYSIA
 TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK C)
 IBU PEJABAT JKR MALAYSIA
 JALAN SULTAN SALAHUDDIN
 50450 KUALA LUMPUR.
 (NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

RUANGAN UNTUK CAWANGAN
 PEREKABENTUK

PENGARAH KANAN:
 KAMALUDDIN BIN HJ. ABDUL RASHID
 PENGARAH KHIDMAT REKABENTUK :
 Ir. MUHAMMAD AZMAN BIN JAMRUS
 KETUA PENOLONG PENGARAH KANAN :
 Ir. HJ. AZHARI BIN SHAHARUDDIN
 PENOLONG PENGARAH KANAN :
 HASINA BT SALIM
 DIREKABENTUK :
 NIUR FARHANA BT MOHD. SALIM
 DISEMAK :
 Ir. MOHD AZMAN SHUKRI BIN MOHAMED SAFIAN
 DILUKIS :
 HAZRUL
 SKALA :
 1:500
 NO. FAIL PROJEK :
 JKR.CKASJ/09.500/020/MOE/P3
 TARIKH :
 JULAI 2016
 NAMA PROJEK :

RUANGAN UNTUK NAMA PROJEK
 SELARAS DENGAN TAJUK PROJEK
 CAWANGAN ARKITEK

CADANGAN MEMBINA DAN MENYAPKAN
 BANGUNAN BARU BENGKEL
 KEJURUTERAAN ELEKTRIK DAN
 ELEKTRONIK DAN LAIN-LAIN
 KEMUDAHAN DI KOLEJ VOKASIONAL
 BALIK PULAU, BALIK PULAU,
 PULAU PINANG.

RUANGAN UNTUK TAJUK LUKISAN

TAJUK LUKISAN :
**PELAN SUSUNATUR SISTEM
 PEMBETUNGAN**

RUANGAN UNTUK NO. LUKISAN

NO. LUKISAN :
 JKR.CKASJ/09.500/020/MOE/P3/SP/01(01)

LAMPIRAN 2c
 CONTOH 'TITLE BLOCK' UNTUK PENYERAHAN
 LUKISAN (SUBMISSION DRAWING) KE
 SYARIKAT AIR NEGERI

RUANGAN UNTUK SYARIKAT AIR NEGERI

RUANGAN UNTUK KEMENTERIAN / PEMILIK

RUANGAN UNTUK JURUTERA YANG BERKELAYAKAN DAN COP RASMI

RUANGAN UNTUK NOTA

TANDATANGAN DAN COP KELULUSAN SYARIKAT AIR DARUL AMAN SDN BHD (SADA) :

PEMILIK

 KEMENTERIAN PENDIDIKAN MALAYSIA
 BAHAGIAN PEMBANGUNAN DAN PEROLEHAN,
 ARAS 1, 5 DAN 6 BLOK E2, KOMPLEKS KERAJAAN
 PARCEL E, 62604 PUTRAJAYA, WILAYAH
 PERSEKUTUAN MALAYSIA.
 Tel : (03) 8884 6000 Faks : (03) 8886 6651

TANDATANGAN JURUTERRA PROFESIONAL :
 "I hereby certify that these works have been designed by me in accordance with sound engineering practice and that I take full responsibility for the design and proper performance of the same"

NOTA

RUANGAN UNTUK ALAMAT CAWANGAN PEREKABENTUK

RUANGAN UNTUK CAWANGAN PEREKABENTUK

RUANGAN UNTUK PINDAAN

RUANGAN UNTUK NAMA PROJEK, TAJUK LUKISAN DAN NO. LUKISAN



BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
 JABATAN KERJA RAYA MALAYSIA
 TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
 IBU PEJABAT JKR MALAYSIA
 JALAN SULTAN SAHAHUDDIN
 50450 KUALA LUMPUR.
 (NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

JABATAN KERJA RAYA MALAYSIA

DIREKABENTUK :
 NUR FARHANA BT MOHD SALIM
 DISEMAK :
 Ir. MOHD AZMAN SHUKRI BIN MOHAMED SAFIAN
 DILUKIS :
 HAZRUL
 NO. FAIL PROJEK :
 JKR.CKASJ/09.500/020/MOE/P3
 SKALA :
 1:500

PENGARAH KANAN:
 KAMALUDDIN BIN HJ. ABDUL RASHID
 PENGARAH KHIDMAT REKABENTUK :
 Ir. MUHAMMAD AZMAN BIN JAMRUS
 KETUA PENOLONG PENGARAH KANAN :
 Ir. HJ. AZHARI BIN SHAHARUDDIN
 PENOLONG PENGARAH KANAN :
 HASUNA BT SALIM

HURUF PETUNJUK
 PINDAAN

TARIKH
 TANDA TANGAN
 NAMA PROJEK : CADANGAN MEMBINA DAN MENYIAPKAN BANGUNAN BARU BENGKEL KEJURUTERAAN ELEKTRIK DAN ELEKTRONIK DAN LAIN-LAIN KEMUDAHAN DI KOLEJ VOKASIONAL BALIK PULAU, BALIK PULAU, PULAU PINANG.
 TAJUK LUKISAN : PELAN SUSUNATUR SISTEM RETIKULASI AIR
 NO. LUKISAN : JKR.CKASJ/09.500/020/MOE/P3/RA/01(01)

LAMPIRAN 2c(i)
 CONTOH 'TITLE BLOCK' UNTUK PENYERAHAN
 LUKISAN (SUBMISSION DRAWING) KE
 SYARIKAT AIR NEGERI

RUANGAN UNTUK SYARIKAT AIR
 NEGERI

TANDATANGAN DAN COP KELULUSAN
 SYARIKAT AIR DARUL AMAN SDN BHD (SADA) :

RUANGAN UNTUK KEMENTERIAN
 / PEMILIK

PEMILIK

KEMENTERIAN PENDIDIKAN MALAYSIA
BAHAGIAN PEMBANGUNAN DAN PEROLEHAN,
 ARAS 1, 5 DAN 6 BLOK E2, KOMPLEKS KERAJAAN
 PARCEL E, 62604 PUTRAJAYA, WILAYAH
 PERSEKUTUAN MALAYSIA.
 Tel : (03) 8884 6000 Faks : (03) 8886 6651

RUANGAN UNTUK JURUTERA YANG
 BERKELAYAKAN DAN COP RASMI

TANDATANGAN JURUTERA PROFESIONAL :
 "I hereby certify that these works have been designed by
 me in accordance with sound engineering practice and
 that I take full responsibility for the design and property
 performance of the same"

RUANGAN UNTUK ALAMAT
 CAWANGAN PEREKABENTUK


JABATAN KERJA RAYA MALAYSIA
 BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
 JABATAN KERJA RAYA MALAYSIA
 TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK C)
 IBU PEJABAT JKR MALAYSIA
 JALAN SULTAN SALAHUDDIN
 50450 KUALA LUMPUR.
 (NO. TEL: 03-26189171 & NO. FAKS: 03-26189155)

RUANGAN UNTUK CAWANGAN
 PEREKABENTUK

PENGARAH KANAN:
 KAMALUDDIN BIN HJ. ABDUL RASHID
 PENGARAH KHIDMAT REKABENTUK :
 Ir. MUHAMMAD AZMAN BIN JAMRUS
 KETUA PENOLONG PENGARAH KANAN :
 Ir. HJ. AZHARI BIN SHAHARUDDIN
 PENOLONG PENGARAH KANAN :
 HASINA BT SALIM
 DIREKABENTUK :
 NIUR FARHANA BT MOHD. SALIM
 DISEMAK :
 Ir. MOHD AZMAN SHUKRI BIN MOHAMED SAFIAN
 DILUKIS :
 HAZRUL
 SKALA :
 1:500
 NO. FAIL PROJEK :
 JKR.CKASJ/09.500/020/MOE/P3
 TARIKH :
 JULAI 2016
 NAMA PROJEK :

RUANGAN UNTUK NAMA PROJEK
 SELARAS DENGAN TAJUK PROJEK
 CAWANGAN ARKITEK

CADANGAN MEMBINA DAN MENYAPKAN
 BANGUNAN BARU BENGKEL
 KEJURUTERAAN ELEKTRIK DAN
 ELEKTRONIK DAN LAIN-LAIN
 KEMUDAHAN DI KOLEJ VOKASIONAL
 BALIK PULAU, BALIK PULAU,
 PULAU PINANG.

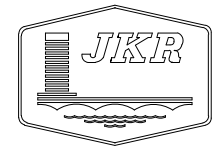
RUANGAN UNTUK TAJUK LUKISAN

TAJUK LUKISAN :
**PELAN SUSUNATUR SISTEM
 RETIKULASI AIR**

RUANGAN UNTUK NO. LUKISAN

NO. LUKISAN :
 JKR.CKASJ/09.500/020/MOE/P3/RA/01(01)

LAMPIRAN 3 - CONTOH PELAN KERJA TANAH



JABATAN KERJA RAYA MALAYSIA

BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
 CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
 JABATAN KERJA RAYA MALAYSIA
 TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
 IBU PEJABAT JKR MALAYSIA
 JALAN SULTAN SALAHUDDIN
 50450 KUALA LUMPUR.

(NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

PENGARAH KANAN:

KAMALUDDIN BIN HJ. ABDUL RASHID

PENGARAH KHIDMAT REKABENTUK :

Ir. MUHAMMAD AZMAN BIN JAMRUS

KETUA PENOLONG PENGARAH KANAN :

-

PENOLONG PENGARAH KANAN :

-

DIREKABENTUK :

-

DISEMAK :

-

DILUKIS :

-

SKALA :

1:500

NO. FAIL PROJEK :

JKR/CKAS/14/15/J15/1

TARIKH :

MAC 2016

HURUF

PETUNJUK

PINDAAN

TARIKH

TANDA

JANGAN

NAMA PROJEK :

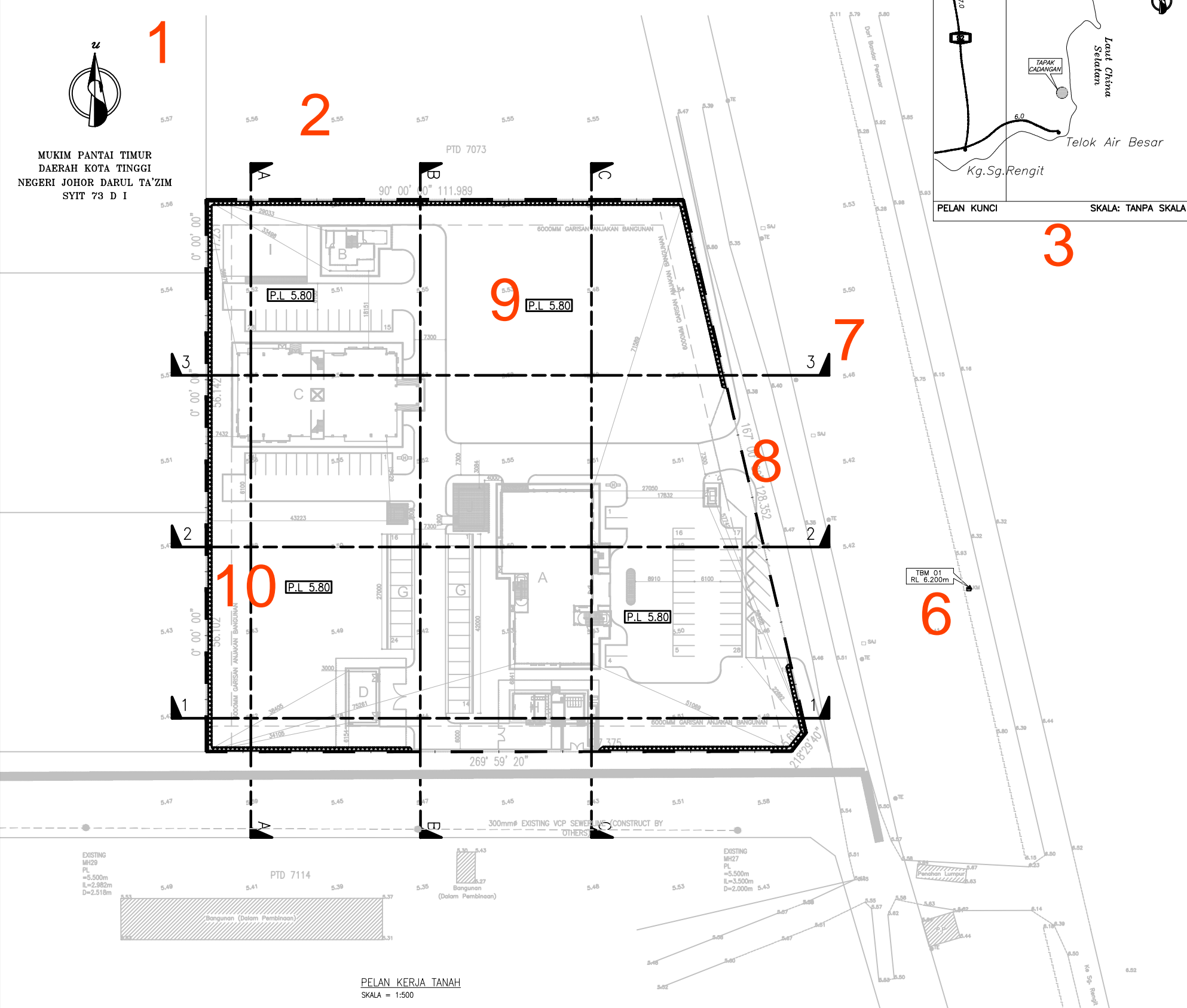
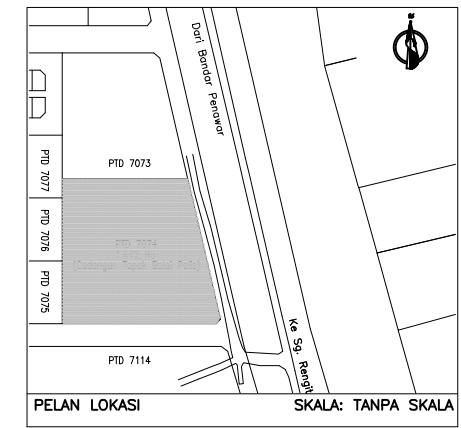
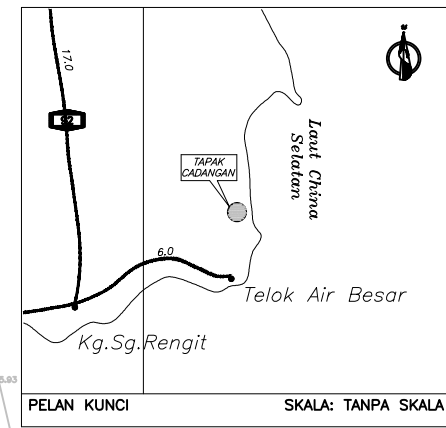
NAMA PROJEK SEPERTI DIBERI
 OLEH HOPT
 (BLOK BANGUNAN)

TAJUK LUKISAN :

PELAN KERJA TANAH

NO. LUKISAN :

JKR/CKAS/14/15/J15/1/KT/01(00)



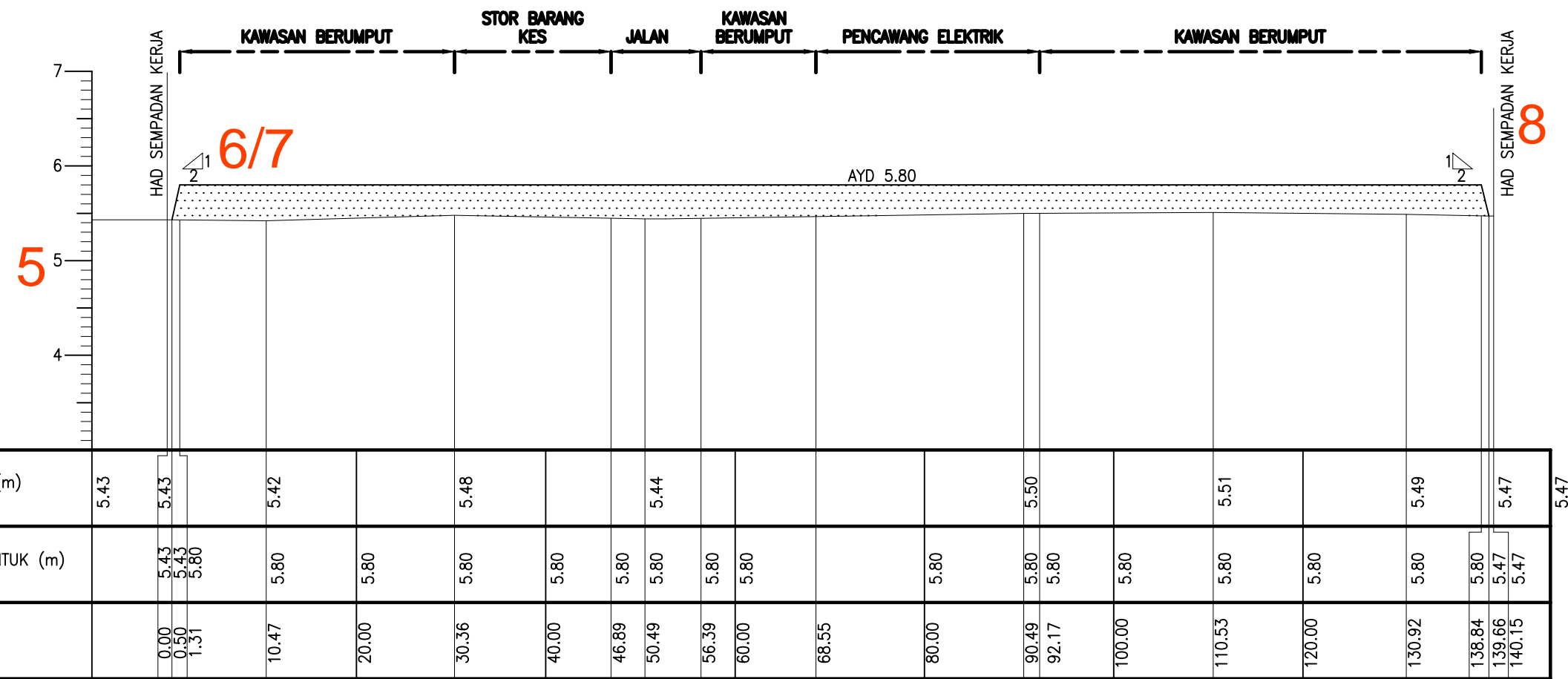
- NOTES :
- All dimensions are in millimetres unless otherwise shown on the drawings.
 - These drawings shall be read in conjunction with architectural and survey drawings.
 - If there is any discrepancy between two sets of drawings, it must be brought to the attention of the S.O.
 - All survey levels shown are in metres unless otherwise stated.
 - Site clearing shall be carried out in stages to suit Environmental Management Plan (EMP)/ Erosion and Sediment Control Plan (ESCP).
 - All fill platforms are to be well compacted and comply with the JKR Specification.
 - All imported fill materials shall be tested and comply with the JKR Specification.
 - Standard Proctor Test (2.5 kg rammer) shall be carried out on all backfilling materials.
 - The compaction requirements of backfilling materials shall be as follow:
 - Road and drain \geq 90% Standard Proctor maximum dry density for cohesive materials and 95% for cohesionless materials
 - Building area \geq 90% Standard Proctor maximum dry density
 - Open area \geq 90% Standard Proctor maximum dry density
 - All gradients for cut slope shall be a minimum of 1:1.5 and fill slope shall be a minimum of 1:2 unless otherwise shown on the drawings.
 - All unprotected slope shall be close turfed immediately after the embankment is constructed to prevent erosion. All level ground shall be spot turfed unless otherwise stated.
 - Soil erosion control measures shall be implemented before earthworks commences.
 - The contractor shall lay and compact a minimum of 200 mm thickness crusher run on the temporary road access to the site.
 - The contractor shall ensure that the works caused no silting, ponding and flooding to the neighbouring properties. The contractor shall be solely responsible to make good of all damages and pay any claims in the event of such silting and flooding occurs.
 - The contractor shall repair all damages caused by soil erosion or construction equipment at or before the end of each working day.
 - The contractor shall regularly maintain access roads to the satisfaction of the S.O.
 - Unsuitable materials, rubbish and demolished structures / temporary works shall be carted off site to contractor's own dump sites.

LEGEND

	PROPOSED NEW SLOPE
	PROPOSED PLATFORM LEVEL
	LIMIT OF WORK


11


LAMPIRAN 3a - CONTOH KERATAN TANAH



KERATAN 1-1
SKALA : HORI=1:500, VER=1:50

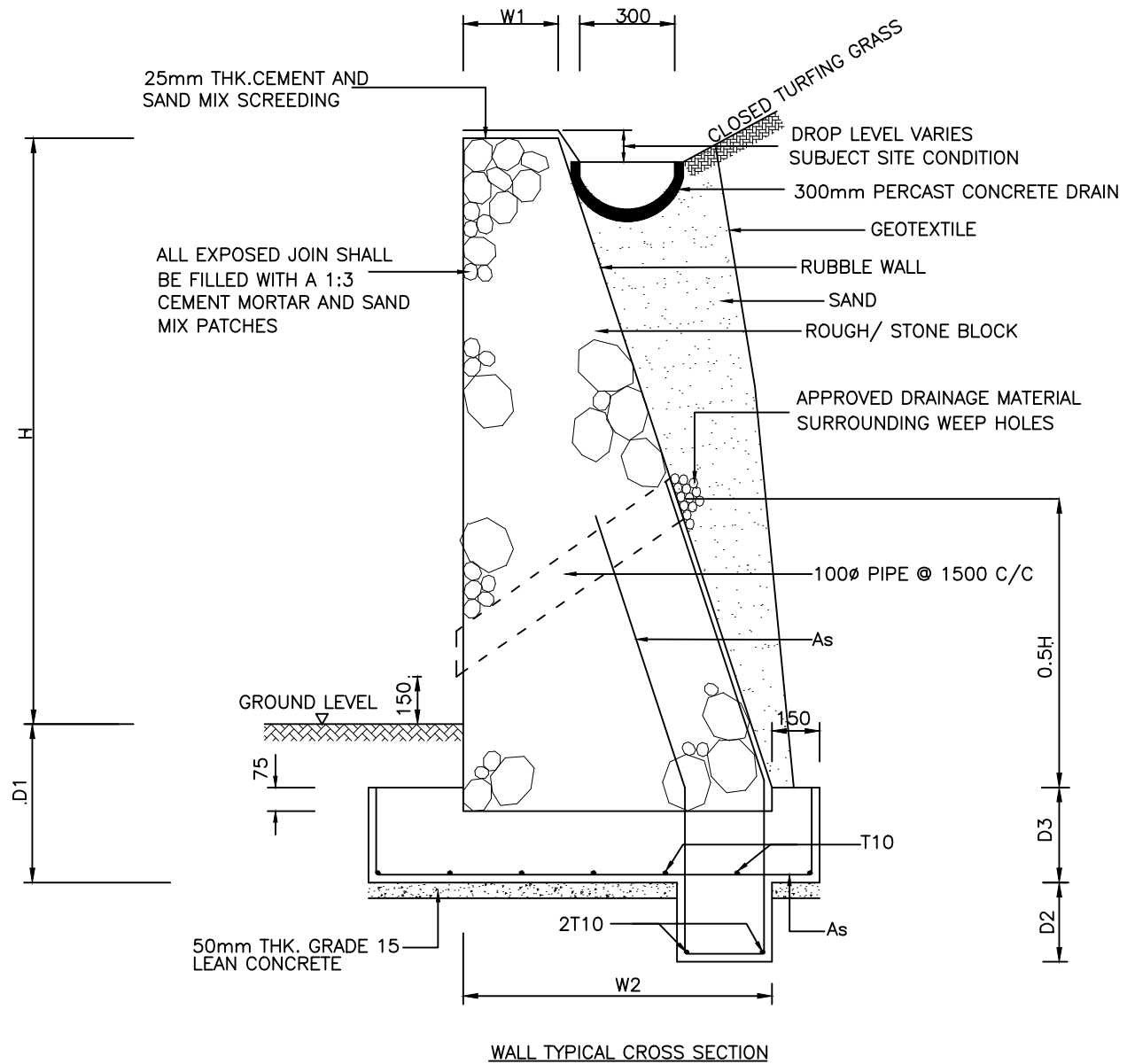
PETUNJUK

POTONGAN 

TAMBAKAN 

LAMPIRAN 3b
 CONTOH LUKISAN BUTIRAN KERJA TANAH -
 RUBBLE BLOCK RETAINING WALL

MAXIMUM SLOPE
 1 : 1.5 TRIM
 1 : 2 FILL



H	W1	W2	D1	D2	D3	As
> 900 < 1200	250	600	300	250	200	T10 @ 300/C/C
> 1200 < 1500	250	750	400	250	200	T10 @ 300/C/C
> 1500 < 1850	300	975	500	300	250	T10 @ 250/C/C
> 1850 < 2150	300	1200	600	350	250	T10 @ 200/C/C

- GENERAL NOTES :
- ASSUMED BEARING LOAD IS 48 kN/M²
 - ALL CONCRETE USE ON THE CONSTRUCTION OF SLOPE SHALL BE GRADE 30 AND WITH MINIMAL CEMENT CONTENT 360kg/m³
 - ALL CEMENT USE FOR THIS RETAINING WALL CONSTRUCTION MUST BE ORDINARY PORTLAND CEMENT (OPC) AND SHALL COMPLY TO MS522 CONCRETE WORKS
 - LEAN CONCRETE MUST BE GRADE 15
 - ALL STEEL REINFORCEMENT BAR THAT WILL BE USE FOR THIS CONSTRUCTION SHALL CONFORM TO MS 146 WITH STEEL HIGH YIELD STRENGTH OF 480 N/mm²
 - REBAR COVER SHALL BE 40mm
 - IF DO NOT SHOWN IN THE DRAWING THE DETAIL OF REBAR OVERLAPPING ARE AS FOLLOWS:-
 a) STEEL REINFORCEMENT IN STRESS = 65#
 b) STEEL REINFORCEMENT IN COMPRESSION = 40#
 - ALL ROUGH STONE BLOCK MUST BE FROM GRANITE OR OTHER TYPES APPROVED BY S.O
 - ALL ROUGH STONE BLOCK SHALL BE BINDED WITH A MORTAR MIXTURE OF CEMENT AND SAND WITH A RATIO OF 1:3
 - ALL EXPOSED JOINTING SHALL BE PATCH AND FILL WITH A MORTAR CEMENT AND SAND MIXTURE WITH 1:3 RATIO
 - ROUGH STONE BLOCK THAT WILL BE USED MUST BE OVER THAN 150mm BUT NOT EXCEED 300mm PLACED THE STONE BLOCK SHALL BE PLACED OR STACKED PRIOR TO ENSURE THE SLOPE'S WALL IS STRUCTURALLY STABLE, THE FINISHES OF THE WALL MUST BE FIRM AND SOUND AND ALL THE VOIDS OR CAVITY SHALL BE PATCHES OR FILLED IN
 - ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED

	PINDAAN	TARIKH	TANDA TANGAN



BAHAGIAN KEJURUTERAAN AWAM
 CAWANGAN KEJURUTERAAN AWAM,
 STRUKTUR DAN JAMBATAN
 IBU PEJABAT JKR MALAYSIA

PENGARAH KANAN:
 Ir.Dr.ABDUL AZIZ BIN HJ ARSHAD
 PENGARAH 1:
 DATIN NORLAINAH BT AB GHANI
 KETUA PENOLONG PENGARAH KANAN :
 WAN SOHAMI BIN WAN MOHAMED
 KETUA PENOLONG PENGARAH :
 Ir.ATIKAH BINTI ABDUL HAMID
 PENYEMAK :
 MOHD AZLAN BIN NOBIRAN
 PEREKA :
 AMALLUDIN BIN ZULKIFLI

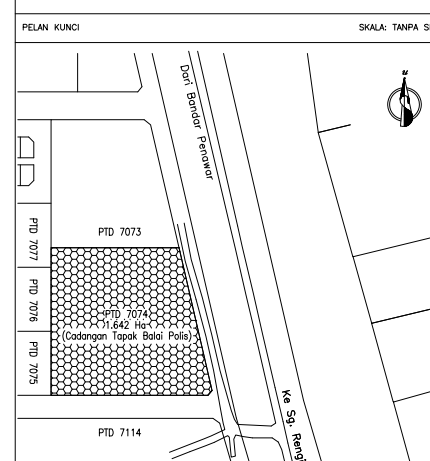
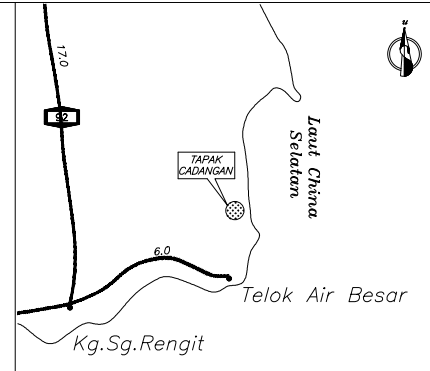
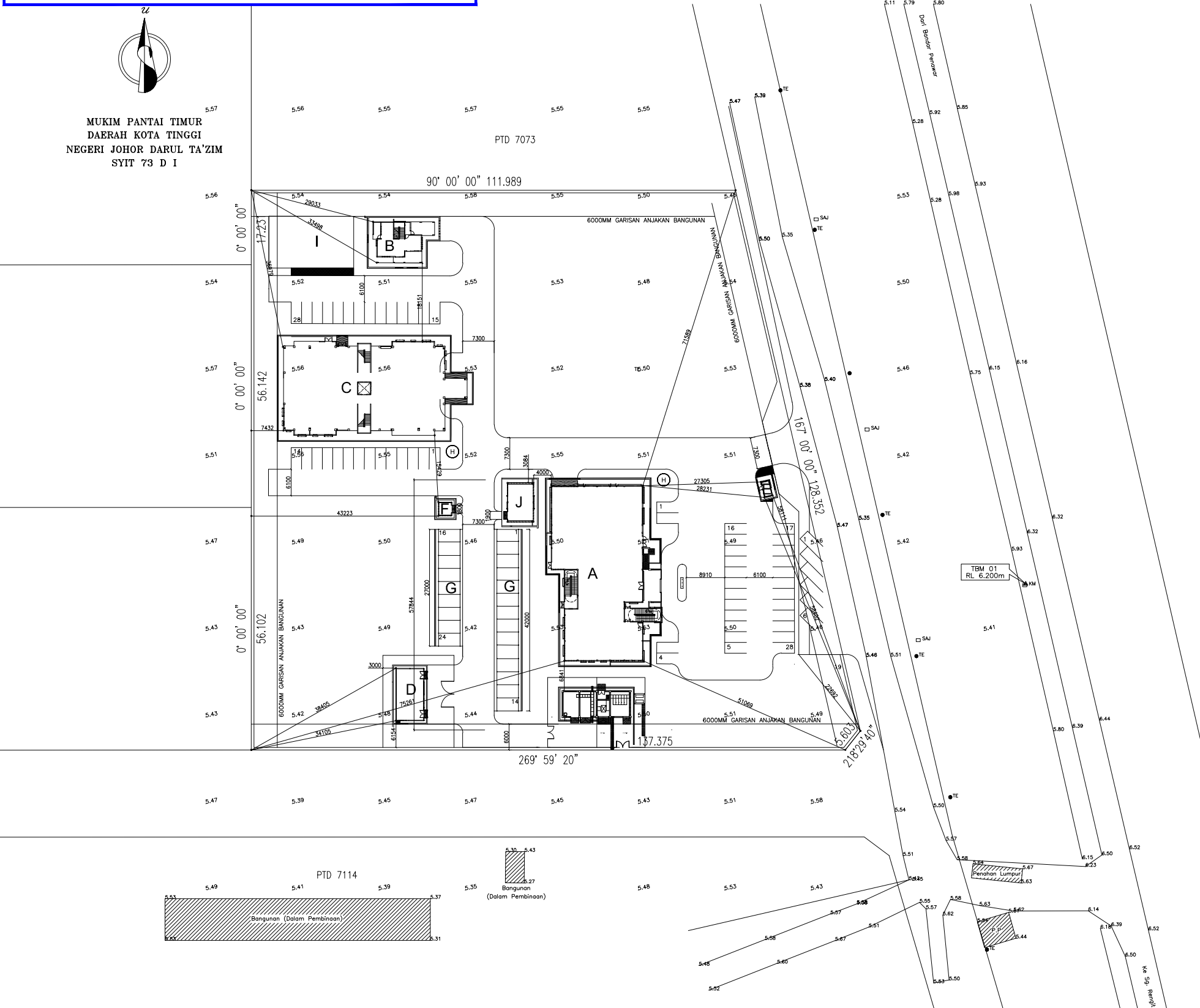
PROJEK :
 LUKISAN PIAWAI
 KERJA TANAH

TAJUK LUKISAN :
 STANDARD DRAWING RUBBLE
 BLOCK RETAINING WALL

SKALA : N.T.S
 DILUKIS : YATIE/LINDA/RUBY/ALIN
 TARIKH : JUN 2011
 FAIL KOMPUTER :

NO. LUKISAN :
 JKR/CKASJ/08/500/PEL/KT/15(15)

LAMPIRAN 3c - CONTOH PELAN KERJA TANAH



PELAN KUNCI SKALA: TANPA SKALA

PELAN LOKASI SKALA: TANPA SKALA

KERJA-KERJA BARU

PETUNJUBLOK	TINGKAT	BIL.
A	BALAI POLIS	3 Tingkat 1 Blok
B	KUARTERS E BANGLO	2 Tingkat 1 Blok
C	KUARTERS F	5 Tingkat 1 Blok
D	STOR BARANG KES	1 Tingkat 1 Blok
E	PONDOK PENGAWAL	1 Tingkat 1 Blok
F	RUMAH SAMPAH	1 Tingkat 2 Blok
G	TEMPAT LETAK KERETA BERBUMBUNG	1 Tingkat 1 Blok
H	PENCAWANG ELEKTRIK, MSB DAN GENSET	TB TB
I	TAMAN PERMAINAN KANAK-KANAK	TB TB
J	RUMAH PAM DAN TANGKI	TB TB
	PINTU DAN PAGAR KESELAMATAN KESELAMATAN	TB TB
	PAGAR BERHIAS	TB TB
	CDGN. "PAVEMENT", JENIS YG. DILULUSKAN OLEH ARKITEK	TB TB
	PENANAMAN RUMPUT TOMPOK	TB TB
	JALAN BERTURAP	TB TB
	BEBENDUL JALAN	TB TB
	TEMPAT MELETAK KENDERAAN	TB TB
	ARAS YANG DIBENTUK	TB TB
	PILI BOMBA	TB TB

PETUNJUK SEDIAADA

Jalan Tar	Tanda Laluan Paip Syarikat Air Johor
Jalan Tanah Merah	Pintu Dan Pagar
Tiang Elektrik	Pondok Pengawal
Penanda Kilometer	Temporary Bench Mark (TBM)

RULUKAN JABATAN PERANCANG BANDAR DAN DESA

TAJUK PERMOHONAN

PERMOHONAN RUNDINGAN CADANGAN PEMBINAAN BALAI POLIS TAMAN BAYU DAMAI, Pengerang, JOHOR

KERAJAAN MALAYSIA

PEMILIK TANAH

Disahkan;

a) Bahawa hak milik bagi tanah di mana bangunan-bangunan ini akan dibina tidak mengandungi perjanjian atau syarat-syarat khas yang melarang pembinaan bangunan-bangunan tersebut.

b) Bahawa pemilik-pemilik tanah mematuhi sepenuhnya dengan kehendak-kehendak di dalam perjanjian seperti atau syarat-syarat yang terkandung dalam hak milik.

TANDATANGAN PEMILIK TANAH:

PEMILIK BANGUNAN

KEMENTERIAN DALAM NEGERI
POLIS DIRAJA MALAYSIA

TANDATANGAN DAN COP PEMILIK BANGUNAN:

PELAKSANA

JABATAN KERJA RAYA
CIKARANG AJERHAT
NO. PRASAT JKR MALAYSIA
TKY. 7 - 15, MENJALAN TUN SRI RAZALI MOHAMMAD ALI,
JALAN BAKA LAYU,
50082 KUALA LUMPUR.

PENGARAH KANAN CIMANGKAN ARKITEK

BAHARUDIN BIN ABD. JALIL
KETUA PENOLONG PENGARAH KANAN URUF KESELAMATAN DAN PERTAHANAN

Ar. ROSLIA BINTI MOHAMMAD
PENOLONG PENGARAH KANAN URUF KESELAMATAN DAN PERTAHANAN

AZLITA BINTI OTHMAN
PENOLONG PENGARAH (ARHITEK) URUF KESELAMATAN DAN PERTAHANAN

MUHAMMAD IMRAN BIN MOHD. ANNUJAR

TAJUK LUKISAN

PELAN TAPAK

DISEKAN	DISEKAN	UKURAN	TARIKH
ROSMAZURA	MUHAMMAD IMRAN	1 : 500	FEB 2014

NO. LUKISAN

CA/16/04/J13/056/PTD

KETERANGAN

BALAI POLIS PIAWAI	UNIT	KELUASAN (m ²)
BALAI POLIS PIAWAI	1	1910
KUARTERS KELAS E BANGLO 2 TINGKAT	1	160
KUARTERS KELAS F 5 TINGKAT	18	2430 (135/unit)
STOR BARANG KES	1	73
PONDOK PENGAWAL	1	7
RUMAH SAMPAH	1	8
PENCAWANG ELEKTRIK, MSB DAN GENSET	1	88
RUMAH PAM DAN TANGKI	1	52
JUMLAH		4718

BUATAN PEMBANGUNAN

1. LUAS TAPAK = 16423 m²

2. LUAS TAPAK PEMBANGUNAN = 14145 m²

NISBAH PLOT = JUMLAH LUAS LANTAI KASAR (Tidak termasuk RLK) / JUMLAH LUAS TAPAK PEMBANGUNAN

= 4718 m² / 14145 m² = 0.33 m²

RUANG LETAK KERETA (RLK) YANG DISEDIAKAN

RLK yang terbuka = 62

RLK Berbumbung = 23

Jumlah = 85

CATATAN KEHENDAK JAB. BOMBA

KEHENDAK-KEHENDAK JABATAN PERKHIDMATAN BOMBA MALAYSIA
BAHU BANGUNAN 1-5 TINGKAT

Pelan Tapak:

- Adakan 1 buah pili bomba jenis tiang pengeluaranda hala dengan pengeluaran air sebanyak 11.35 liter seminit bagi setiap pili bomba sebagaimana yang ditandakan di dalam pelan.
- Adakan jalan akses perkaras bomba (access road) dengan kelebaran tidak kurang 6 meter yang boleh menanggung beban 25 tan sebagaimana yang ditandakan di dalam pelan.
- Kecerunan jalan akses adalah perkaras bomba hendaklah tidak kurang 1:12.
- Ketinggian kegunaan hendaklah tidak kurang daripada 5 meter.
- Jarak antara bangunan hendaklah mematuhi Jajual Ke Enam UBEL 1984.

Kehendak-kehendak Ar:

- Semua pendawaian elektrik hendaklah dalam konduktif logam atau daripada kabel yang mempunyai penempatan mineral tahan. Pemasangannya hendaklah sepanjang kawasan yang paling kurang risiko kebakaran dan mematuhi UUK 253, UUKBS 1984 mengikut UBEL 1984.
- Semua elemen struktur hendaklah mempunyai tempoh ketahanan api mengikut UBEL 1984.
- Adakan sistem pengudaraan bagi tangga keselamatan sama ada secara biasa atau mekanikal.
- Semua papan tanda keselamatan kebakaran hendaklah mematuhi MS982:1985.
- Adakan "graphic design of floor" berlatarbelakang warna putih yang menunjukkan tangga keselamatan, laluan keselamatan, jalan keluar dan kedudukan alat pemadam kebakaran. Penempatannya hendaklah di tempat yang mudah dilihat.
- Adakan alat pemadam api yang bersesuaian menurut MS 1539:Part 1:2002 sebagaimana yang ditandakan di dalam pelan.
- Adakan lampu tanda "KELUAR" kecemasan yang menggunakan dua kuasa karan sebagaimana yang ditandakan di dalam pelan. Lampu-lampu tersebut hendaklah dari jenis yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia.

- Adakan lampu kecemasan yang menggunakan dua kuasa karan sebagaimana yang ditandakan di dalam pelan. Lampu-lampu tersebut hendaklah dari jenis yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia.
- Penggunaan siling bangunan hendaklah menepati kehendak-kehendak UBEL 1984 Jabat Kelipan.
- Semua tangga keselamatan hendaklah dikedang dengan tembok batu bata setebal 115mm atau tangga terbuka yang memenuhi kehendak-kehendak UBEL 1984 sebagaimana yang ditandakan di dalam pelan.
- Adakan pintu rintangan api satu/ dua jam sebagaimana yang ditandakan di dalam pelan. Pemasangannya hendaklah tertutup sendiri dan tertutup rapat.
- Dinding balk setor yang diletakkan merentasi hendaklah setebal 100mm batu bata dan piliunya dari jenis rintangan api satu jam dipasang dengan "door closer".
- Dinding pemisah hendaklah dari jenis batu-bata setebal 200mm jenis yang menanggung beban dan 100mm jenis yang tidak menanggung beban. Dinding ini hendaklah dinaikkan 220mm melebihi paras bumbung atau mematuhi rekabentuk yang diperuntukkan oleh Jabatan Bomba dan Penyelamat Malaysia.
- Semua dinding pembahagi dalaman hendaklah dari jenis rintangan api 1/2 jam dan dari jenis yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia.

Peringatan:

- Sepada syarat-syarat yang dikemukakan adalah tertakluk kepada rekabentuk dan kegunaan serta lokasi bangunan tersebut. Sekiranya sebarang perubahan yang dilakukan ke atas rekabentuk atau kegunaannya seperti yang dicatatkan di atas pelan maka hendaklah dirujuk ke jabatan ini untuk dikaji semula.
- Sepada pemilikan bahan dan penggunaannya yang berkaitan dengan keselamatan kebakaran bagi projek cadangan serta sistem pemadaman kebakaran hendaklah mematuhi UBEL 1984 dan peraturan-peraturan yang diterima sahaja dan yang dibenarkan oleh Jabatan Bomba dan Penyelamat Malaysia.

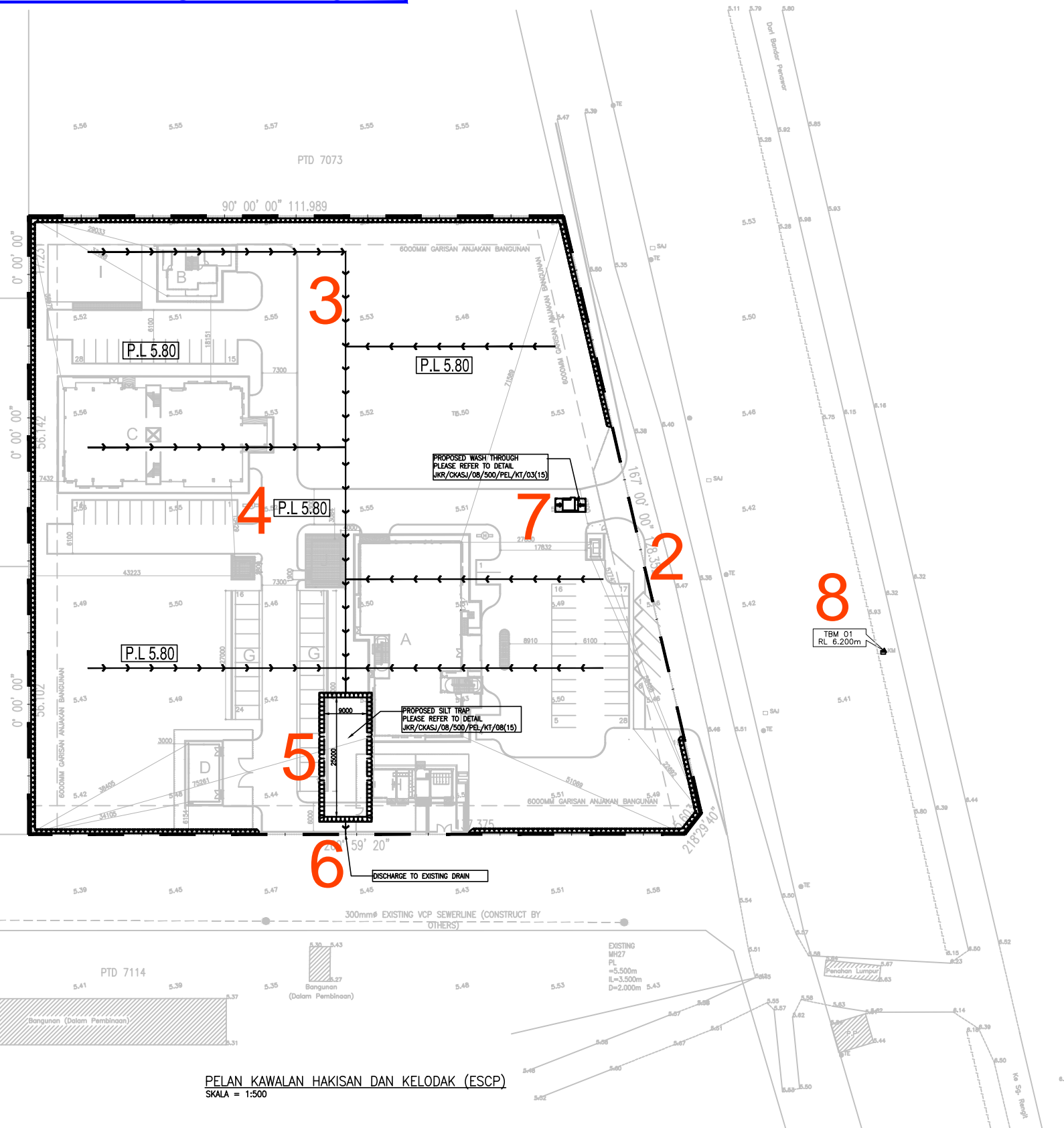
- Bagi bangunan yang direkabentuk melebihi 18.5 meter hingga ke lantai penuh yang tertinggi sekali, sesulur-sesulur naik mengikut Undang-Undang Kecil 232 hendaklah di pasang sebuah sajak sebagai selapas bangunan itu melebihi tinggi tersebut untuk memudahkan kemudahan-kemudahan menegoh kebakaran dalam masa berbagai peringkat pembinaan itu.
- Pengesehan pelan ini adalah tidak tertakluk kepada penyimpanan, penggunaan, pemerosanan dan penghasilan bahan berbahaya atau kimia berbahaya. Sekiranya terdapat sebarang penyimpanan, penggunaan, pemerosanan dan penghasilan bahan berbahaya atau kimia berbahaya setelah pelan disahkan maka pelan bangunan tersebut hendaklah dirujuk kembali ke jabatan ini untuk dikaji semula.
- Pelan lukisan dan pengiraan bagi semua pemasangan letak hendaklah dikemukakan ke Jabatan Bomba dan Penyelamat Malaysia. Jumlah pelan-pelan yang perlu dikemukakan hendaklah tidak kurang tiga perengga.
- Mono-mono premis yang mengedalikan, memproses atau menyimpan bahan-bahan bahay hendaklah didaftarkan dalam khas simbol Hazchem code. Tanda-tanda ini hendaklah mudah dilihat.

LAMPIRAN 4
CONTOH PELAN KAWALAN HAKISAN DAN KELODAK



1

MUKIM PANTAI TIMUR
DAERAH KOTA TINGGI
NEGERI JOHOR DARUL TA'ZIM
SYT 73 D I



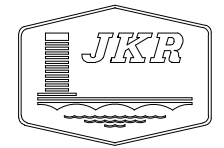
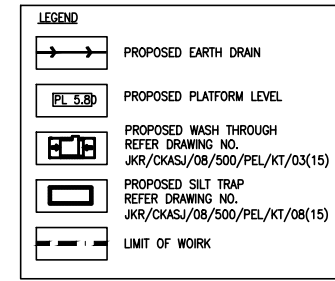
9

- NOTES :**
1. All dimensions are in millimetres unless otherwise shown on the drawings.
 2. These drawings shall be read in conjunction with the earthwork drawings.
 3. All vegetation and top soil shall be removed from the site of sedimentation basin construction.
 4. Place a "full of sediment" marker in sediment basin to show the level of sediment in the basin that requires removal.
 5. All temporary silt traps, earthdrains and perimeter earthdikes shall be removed / backfilled after earthworks are completed and proper drainage has been constructed.
 6. The actual location of wash trough shall be determined on site by the S.O.
 7. The contractor shall at all times maintain all necessary Erosion and Sediment Control counter measures throughout construction period.
 8. The contractor shall provide an additional 450 mm height earth bund along the site perimeter if necessary as approved by the S.O.

8

TBM 01
RL 6.200m

10



JABATAN KERJA RAYA MALAYSIA

BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
JABATAN KERJA RAYA MALAYSIA
TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
IBU PEJABAT JKR MALAYSIA
JALAN SULTAN SALAHUDDIN
50450 KUALA LUMPUR.

(NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

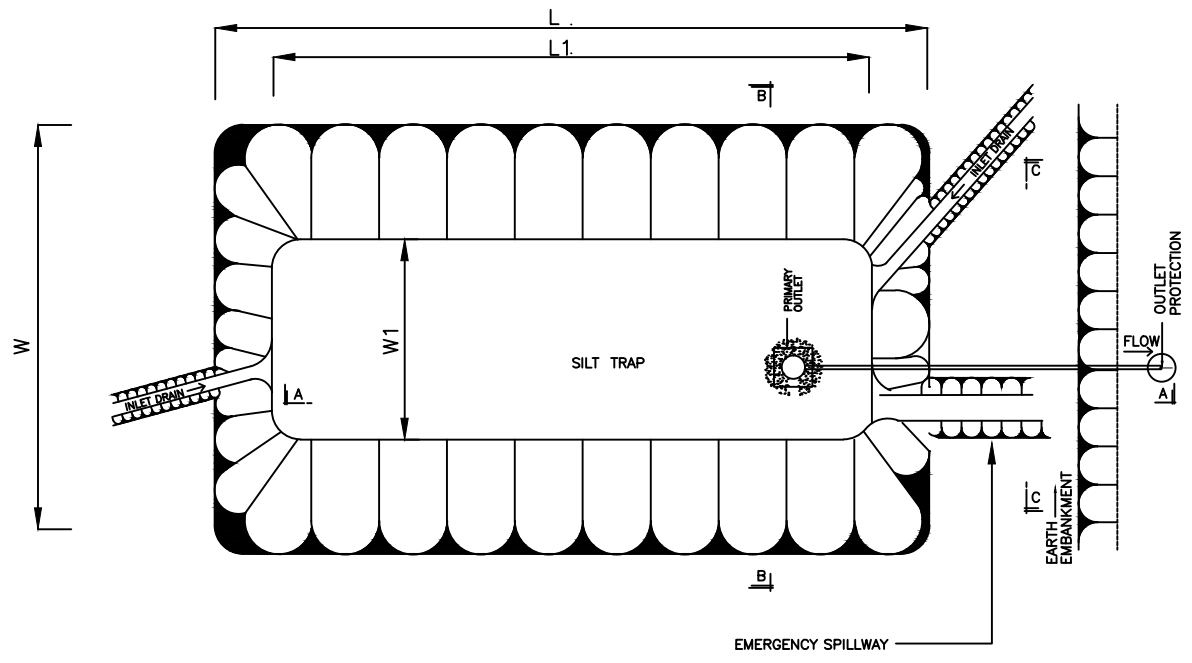
PENGARAH KANAN:			
KAMALUDDIN BIN HJ. ABDUL RASHID			
PENGARAH KHIDMAT REKABENTUK :			
Ir. MUHAMMAD AZMAN BIN JAMRUS			
KETUA PENOLONG PENGARAH KANAN :			
-			
PENOLONG PENGARAH KANAN :			
-			
DIREKABENTUK :			
-			
DISEMAK :			
-			
DILUKIS :			
-			
SKALA :			
1:500			
NO. FAIL PROJEK :			
JKR/CKAS/14/15/J15/1			
TARIKH :			
MAC 2016			
HURUF	PINDAAN	TARIKH	TANDA TANGAN

NAMA PROJEK :

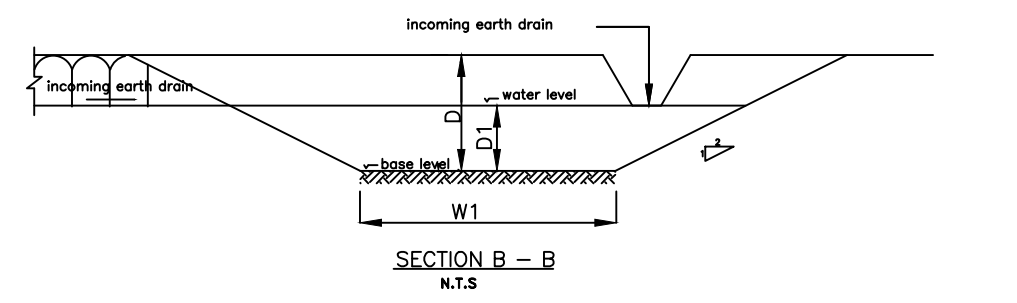
NAMA PROJEK SEPERTI DIBERI OLEH HOPT (BLOK BANGUNAN)

TAJUK LUKISAN :			
PELAN KAWALAN HAKISAN DAN KELODAK			
NO. LUKISAN :			
JKR/CKAS/14/15/J15/1/KHK/01(01)			

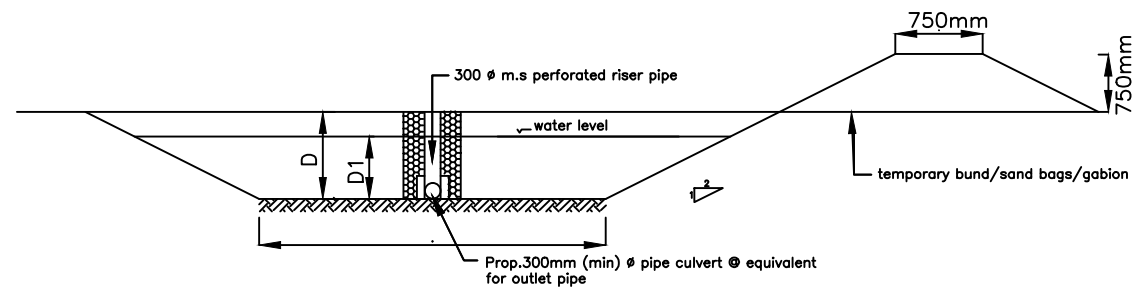
PELAN KAWALAN HAKISAN DAN KELODAK (ESCP)
SKALA = 1:500



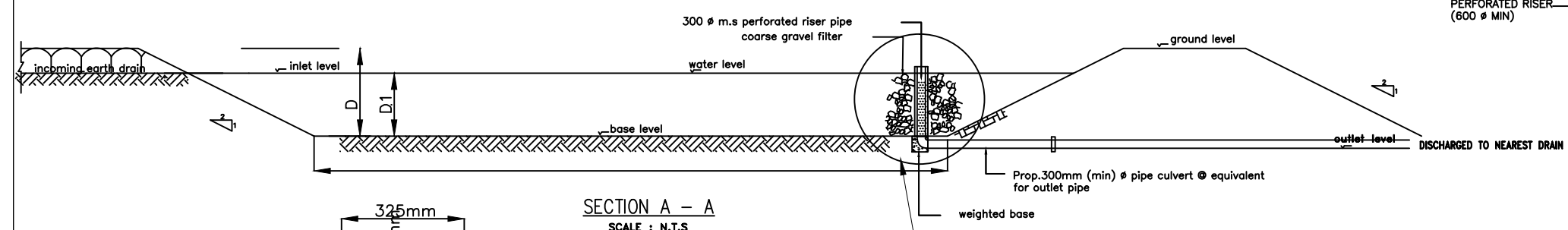
TYPICAL PLAN
SCALE N.T.S



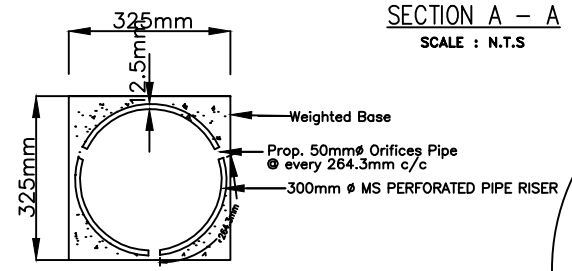
SECTION B - B
N.T.S



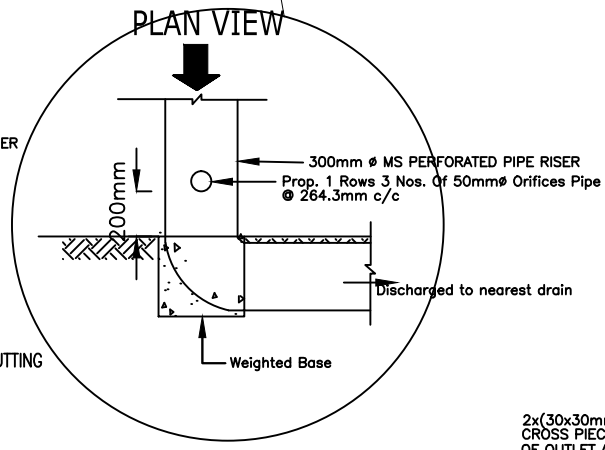
SECTION C - C
SCALE : n.t.s



SECTION A - A
SCALE : N.T.S

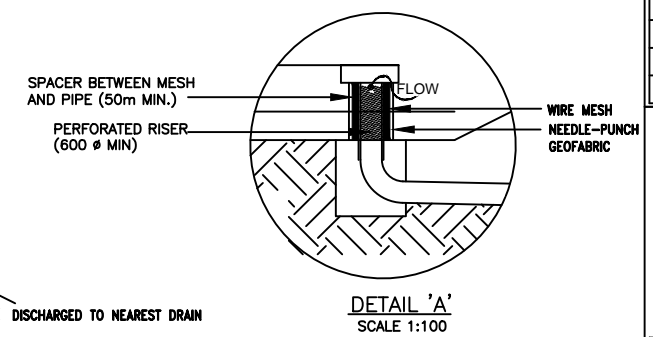


PLAN VIEW
[PLAN OF MS PIPE RISER]
SCALE : N.T.S

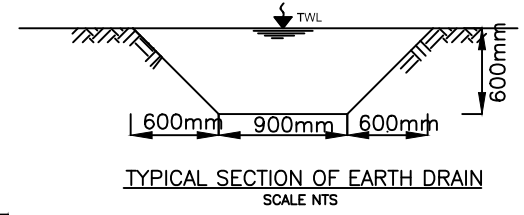


PLAN VIEW

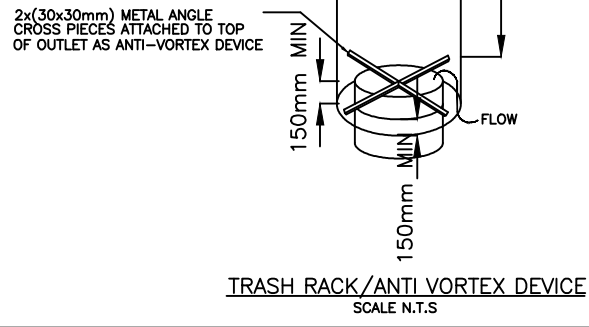
- NOTE : 1. TRENCH STRUCTURE 200mm INTO GROUND SURFACE WHEREVER THE STRUCTURE CONTACTS THE GULLY BASE. FILL TRENCHES TO 100mm ABOVE GROUND SURFACE TO REDUCE RISK OF UNDERCUTTING
2. ENSURE HEIGHT OF SPILLWAY IS LESS THAN 1 METRE ABOVE THE GULLY FLOOR
3. SPARE CHECKS SO THE TOE OF THE UPSTREAM DAM IS LEVEL WITH THE SPILLWAY OF THE NEXT DOWNSTREAM DAM



DETAIL 'A'
SCALE 1:100



TYPICAL SECTION OF EARTH DRAIN
SCALE NTS



TRASH RACK/ANTI VORTEX DEVICE
SCALE N.T.S

GENERAL NOTES :
ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED

PINDAAN	TARIKH	TANDA TANGAN



BAHAGIAN KEJURUTERAAN AWAM
CAWANGAN KEJURUTERAAN AWAM,
STRUKTUR DAN JAMBATAN
IBU PEJABAT JKR MALAYSIA

PENGARAH KANAN:
Ir. Dr. ABDUL AZIZ B. HJ. ARSHAD

PENGARAH 1:
DATIN NORLAINAH BT AB. GHANI

KETUA PENOLONG PENGARAH KANAN :
WAN SOHAIMI BIN WAN MOHAMED

KETUA PENOLONG PENGARAH :
Ir. ATIKAH ABDUL HAMID

PENYEMAK :
HASRUL NIZAM BIN ABDUL RAHMAN

PEREKA :
MOHD AZLAN BIN NOBIRAN

PROJEK :
LUKISAN PIAWAI KERJA TANAH

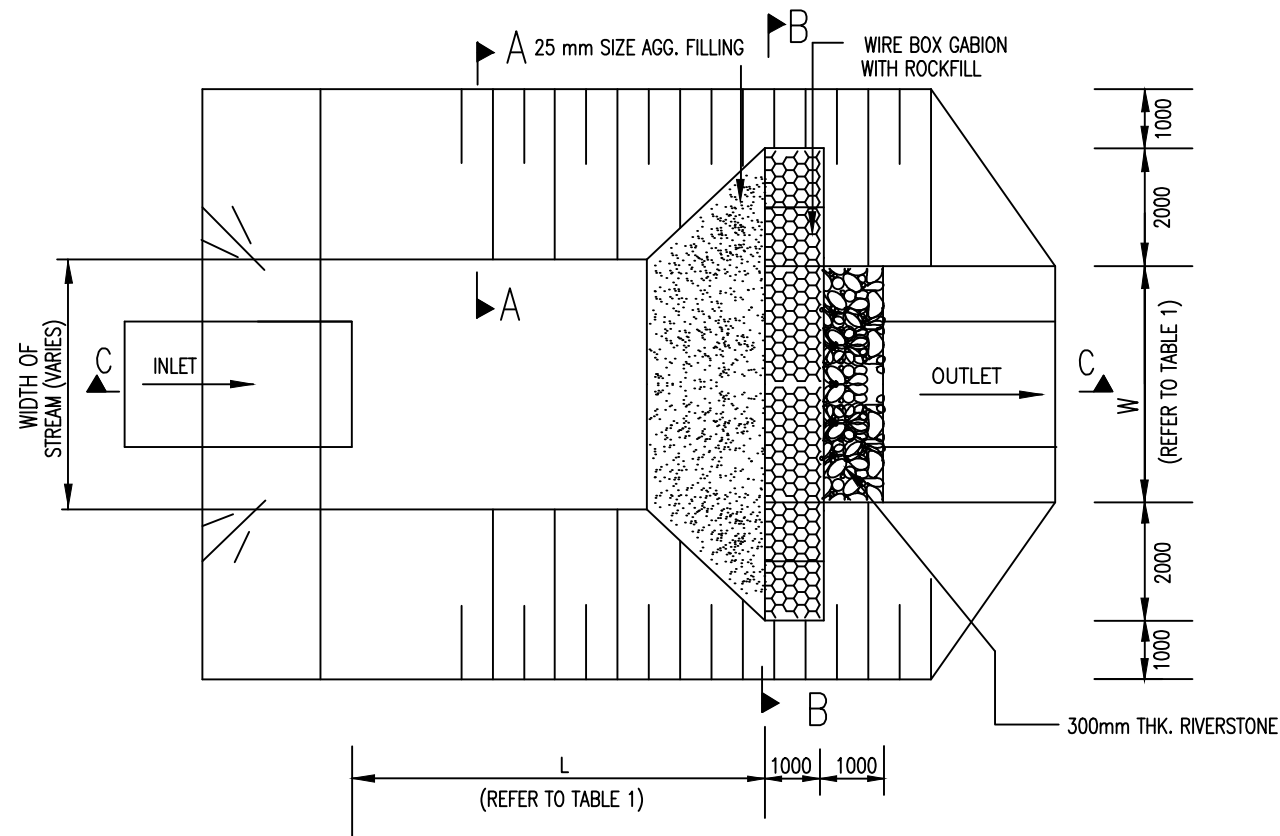
TAJUK LUKISAN :
DRY SEDIMENT BASIN

SKALA :	NTS
DILUKIS :	ZULHISAM BIN SAPECIAY
TARIKH :	JUN 2011
FAIL KOMPUTER :	Pelan Awam-Hala C2D.dwg

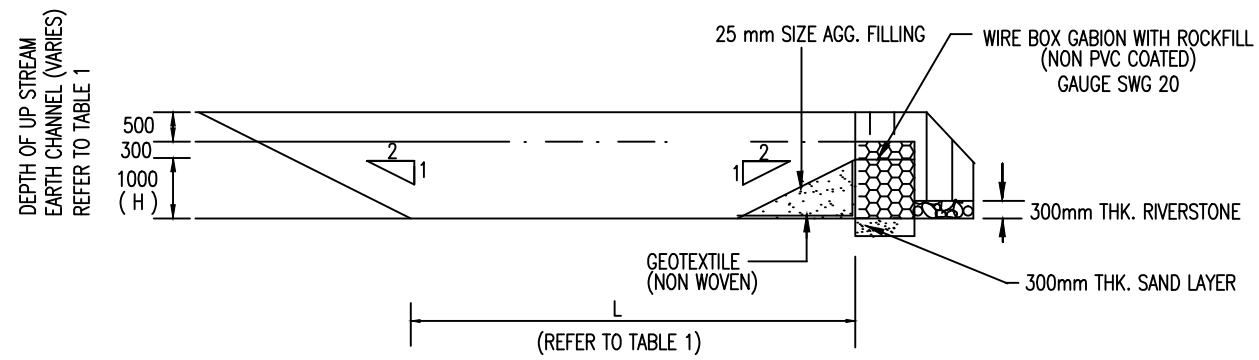
NO. LUKISAN :
JKR CKAJ/08.500/PEL/KT/07(15)

LAMPIRAN 4a
CONTOH LUKISAN BUTIRAN KAWALAN HAKISAN DAN
KELODA K - DRY SEDIMENT BASIN

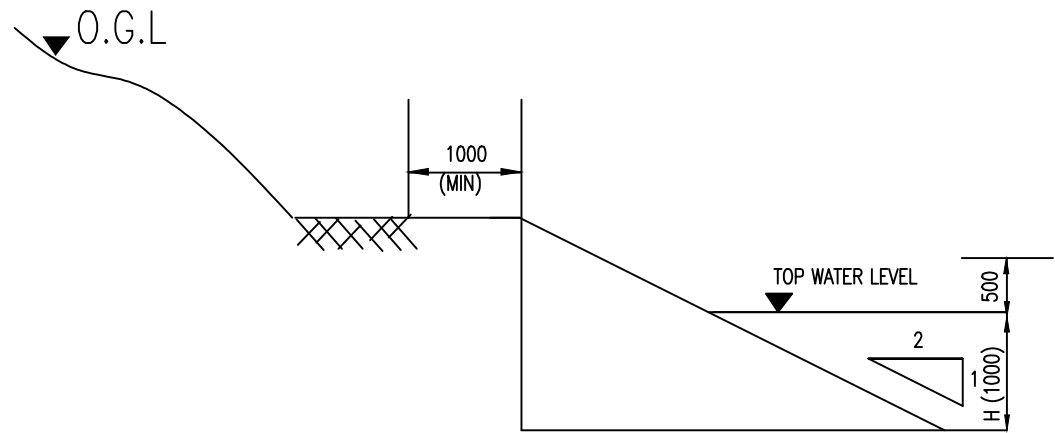
LAMPIRAN 4b
 CONTOH LUKISAN BUTIRAN KAWALAN HAKISAN DAN
 KELODAK - SILT TRAPS



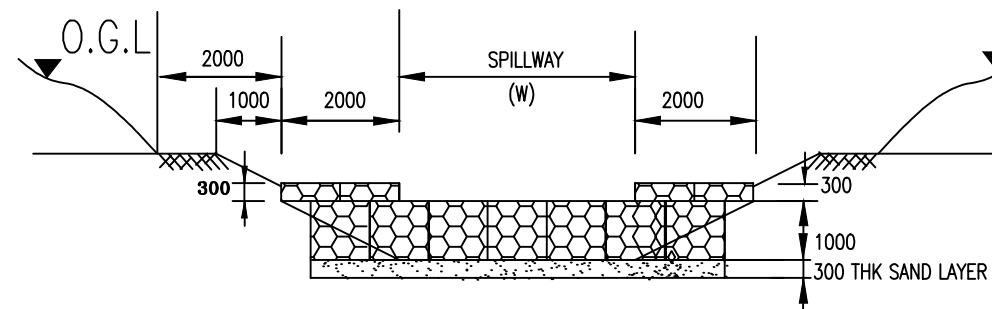
PLAN



SECTION C - C



SECTION A - A



SECTION B - B

CATCHMENT AREA (ACRE)	DIMENSION (m) (L x W)	DEPTH (m) (H)	DEPTH OF CLEANOUT LEVEL (m)	SPILLWAY HEIGHT (mm)
0.5	7 x 4	1.0	0.3	300
1.0	15 x 4	1.0	0.3	300
2.0	15 x 7	1.0	0.3	300
4.0	25 x 9	1.0	0.3	300

TABLE 1

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE STATED

GENERAL NOTES :
 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED

PINDAAN	TARIKH	TANDA TANGAN



BAHAGIAN KEJURUTERAAN AWAM
 CAWANGAN KEJURUTERAAN AWAM,
 STRUKTUR DAN JAMBATAN
 IBU PEJABAT JKR MALAYSIA

PENGARAH KANAN:
 Ir. DR ABDUL AZIZ BIN HJ ARSHAD

PENGARAH 1:
 DATIN NORLAINAH BINTI AB. GHANI

KETUA PENOLONG PENGARAH KANAN :
 WAN SOHAIMI BIN WAN MOHAMED

KETUA PENOLONG PENGARAH :
 Ir. ATIKAH BINTI ABDUL HAMID

PENYEMAK :
 MOHD AZLAN BIN NOBIRAN

PEREKA :

PROJEK :

LUKISAN PIAWAI
 KERJA TANAH

TAJUK LUKISAN :

SILT TRAPS

SKALA : NOT TO SCALE

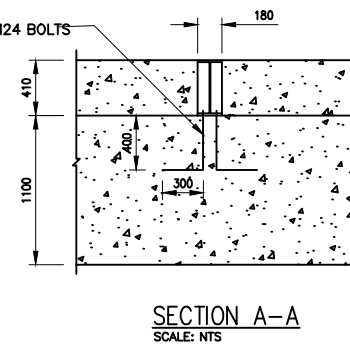
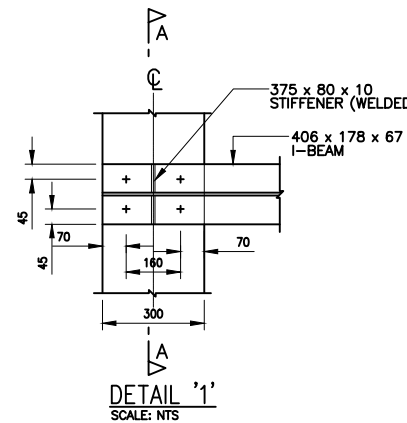
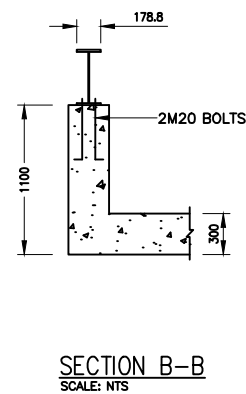
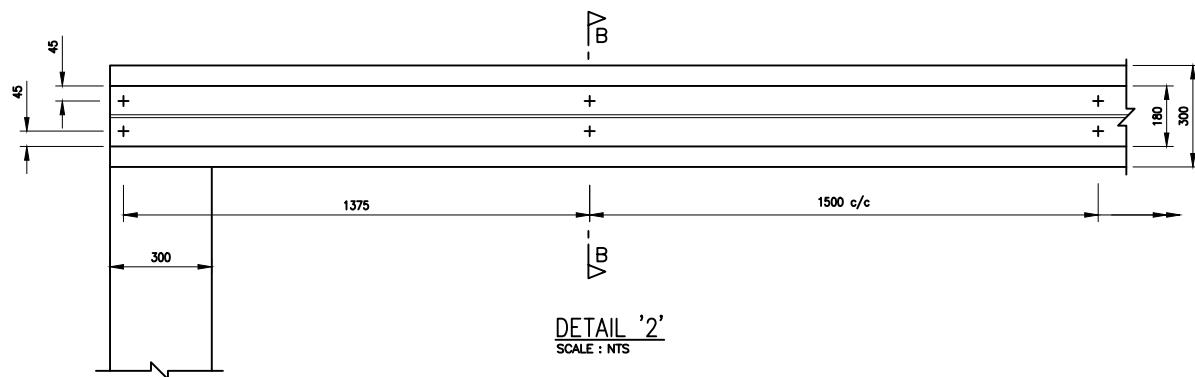
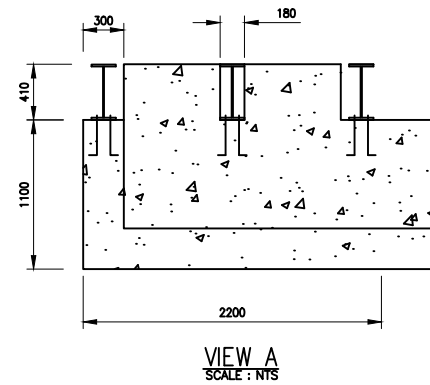
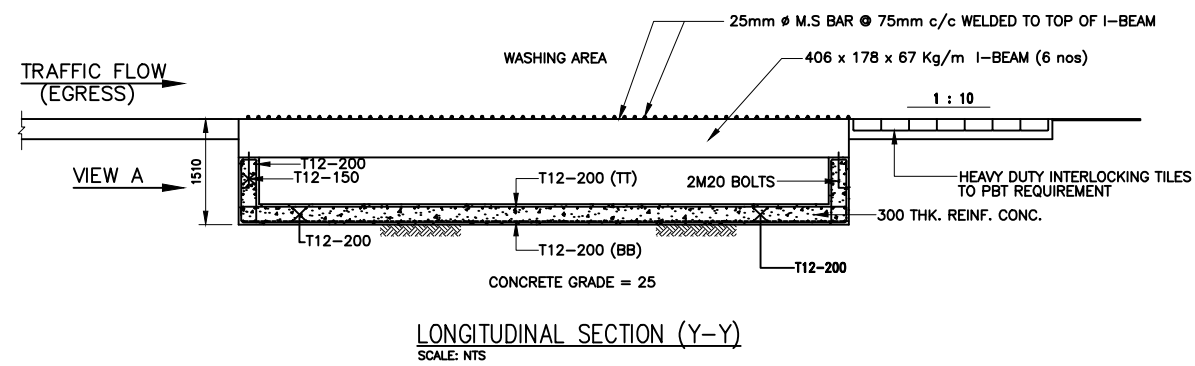
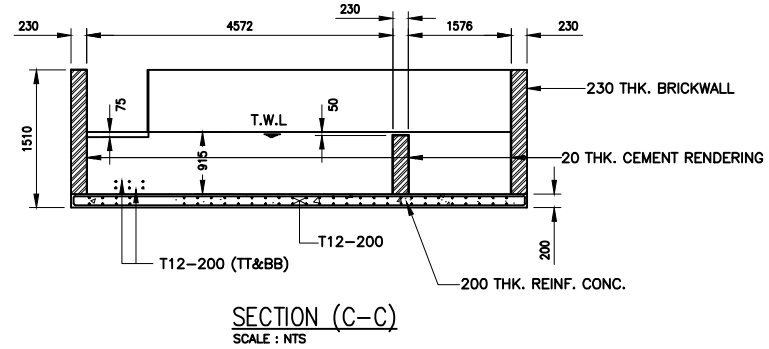
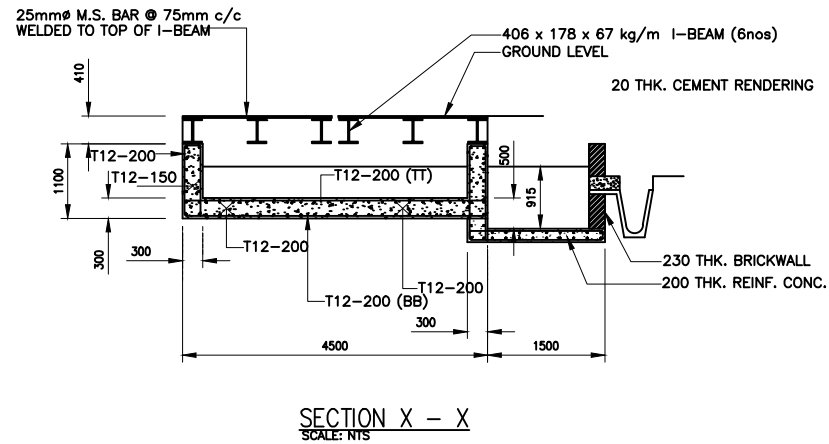
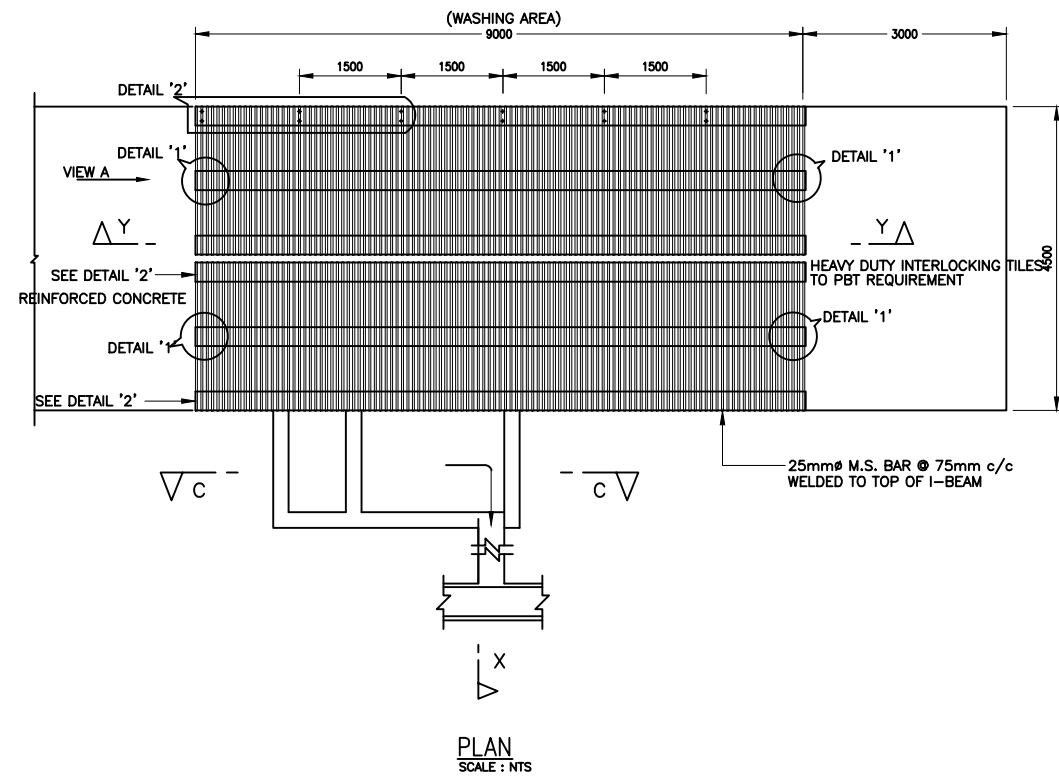
DISURUH : DRAWING ARAHAN TEKNIK (JALAN) 16/03 (PINDAAN 2008)

TARIKH : JUN 2011

FAIL KOMPUTER : P:\plan Awam-Hala C2D.dwg

NO. LUKISAN : JKR/CKASJ/08/500/PEL/KT/08(15)

LAMPIRAN 4c
CONTOH LUKISAN BUTIRAN KAWALAN HAKISAN DAN
KELODAK - SILT WASH TROUGH (URBAN AREA)



GENERAL NOTES :
 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED

PINDAAN	TARIKH	TANDA TANGAN



BAHAGIAN KEJURUTERAAN AWAM
 CAWANGAN KEJURUTERAAN AWAM,
 STRUKTUR DAN JAMBATAN
 IBU PEJABAT JKR MALAYSIA

PENGARAH KANAN: Ir. DR ABDUL AZIZ BIN HJ ARSHAD
PENGARAH 1: DATIN NORLAINAH BINTI AB. GHANI
KETUA PENOLONG PENGARAH KANAN : WAN SOHAIMI BIN WAN MOHAMED
KETUA PENOLONG PENGARAH : Ir. ATIKAH BINTI ABDUL HAMID
PENYEMAK : HASRUL NIZAM BIN ABDUL RAHMAN
PEREKA : NURZALISA BINTI ABDUL RAHIM

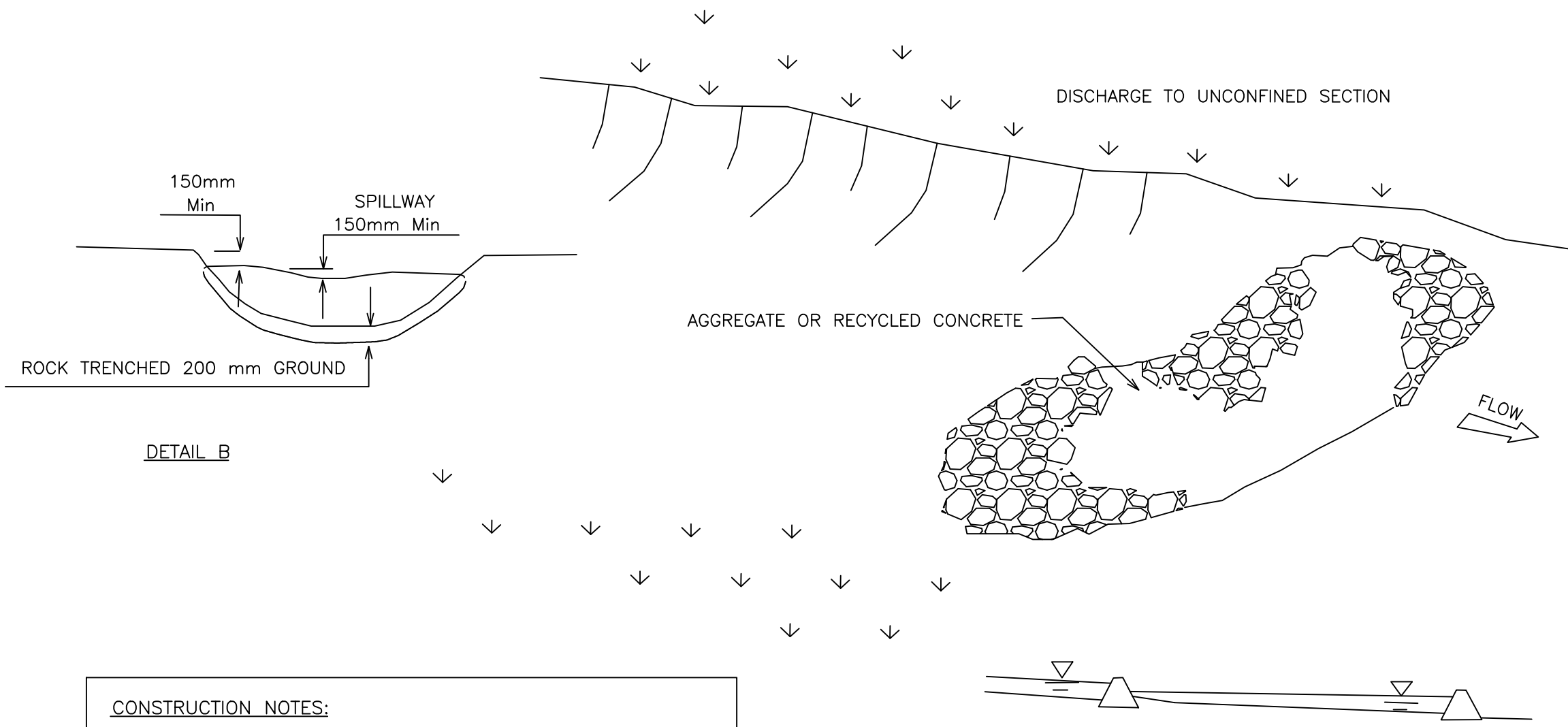
PROJEK :
LUKISAN PIAWAI
KERJA TANAH

TAJUK LUKISAN :
WASH TROUGH DETAILS
(URBAN AREA)

SKALA :	NTS
DILUKIS :	YATI/LINDA/ALIN/RUBY
TARIKH :	JUN 2011
FAIL KOMPUTER :	Pelan Awam-Hala C2D.dwg

NO. LUKISAN :
 JKR/CKASJ/08/500/PEL/KT/03(15)

LAMPIRAN 4d
 CONTOH LUKISAN BUTIRAN KAWALAN HAKISAN DAN
 KELODAK - CHECK DAM



- CONSTRUCTION NOTES:**
1. TRENCH STRUCTURE 200mm INTO GROUND SURFACE WHEREVER THE STRUCTURE CONTACTS THE GULLY BASE. FILL TRENCHES TO 100mm ABOVE GROUND SURFACE TO REDUCE RISK OF UNDERCUTTING.
 2. ENSURE HEIGHT OF SPILLWAY IS LESS THAN 1 METRE ABOVE THE GULLY FLOOR.
 3. SPACE CHECKS SO THE TOE OF THE UPSTREAM DAM IS LEVEL WITH THE SPILLWAY OF THE NEXT DOWNSTREAM DAM AS PER DETAIL A.
 4. ENSURE HEIGHT OF CHECK DAM IS MAINTAINED TO BE 150MM FROM GROUND LEVEL AS PER DETAIL B.

SPACING OF CHECK DAMS ALONG CENTRELINE AND SCOUR PROTECTION BELOW EACH CHECK DAM TO BE SPECIFIED ON ESCP

GENERAL NOTES :
 ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED

PINDAAN	TARIKH	TANDA TANGAN

BAHAGIAN KEJURUTERAAN AWAM
 CAWANGAN KEJURUTERAAN AWAM,
 STRUKTUR DAN JAMBATAN
 IBU PEJABAT JKR MALAYSIA

PENGARAH KANAN:
 Ir. DR ABDUL AZIZ BIN HJ ARSHAD

PENGARAH 1:
 DATIN NORLAINAH BINTI AB. GHANI

KETUA PENOLONG PENGARAH KANAN :
 WAN SOHAIMI BIN WAN MOHAMED

KETUA PENOLONG PENGARAH :
 Ir. ATIKAH BINTI ABDUL HAMID

PENYEMAK :
 MOHD AZLAN BIN NOBIRAN

PEREKA :

PROJEK :

LUKISAN PIAWAI
 KERJA TANAH

TAJUK LUKISAN :

BMP FOR ESCP
 - CHECK DAM

SKALA :	NOT TO SCALE
DISURUH :	DRAWING ARAHAN TEKNIK (JALAN) 16/03 (PINDAAN 2008)
TARIKH :	JUN 2011
FAIL KOMPUTER :	Pelan Awam-Hala C2D.dwg

NO. LUKISAN :	JKR/CKASJ/08/500/PEL/KT/11(15)
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LAMPIRAN 5
CONTOH PELAN SUSUNATUR SISTEM SALIRAN

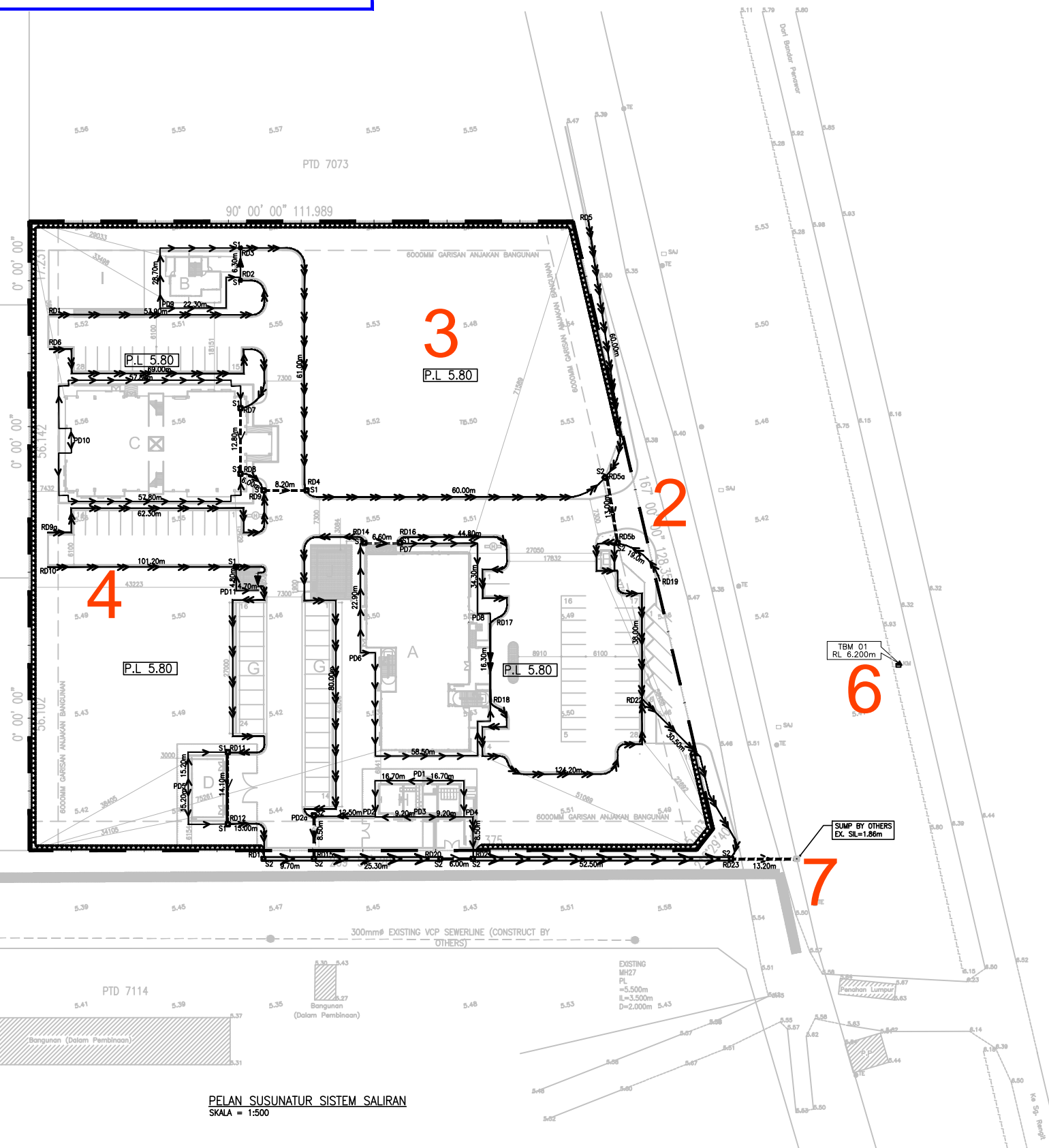


1

MUKIM PANTAI TIMUR
DAERAH KOTA TINGGI
NEGERI JOHOR DARUL TA'ZIM
SYT 73 D I

PTD 7073

90° 00' 00" 111.989



3

2

4

6

7

5

NOTES :

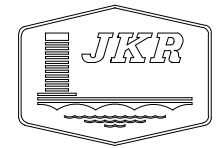
- All dimensions are in millimetres unless otherwise shown on the drawings.
- These drawings shall be read in conjunction with architectural and survey drawings.
- Drainage works shall be constructed to the lines, levels, grades and cross-sections shown on the drawings or as directed by the S.O.
- Final discharge point shall be identified and approved by the S.O where necessary. Existing drainage system shall be upgraded to be fully functional as a drainage system on their own or as part of the new drainage system.
- The contractor shall notify the S.O sufficiently in advance before beginning of any excavation. The excavation works shall be carried out so as not to cause any danger or obstruction to the traffic or public. All excavation shall be inspected and approved by the S.O prior to further works being carried out.
- Excavation of drain trenches shall be to a depth of 150 mm less than the depths intended or shown on the drawings. The remaining excavation shall be carried out immediately prior to the placing of blinding materials.
- Drainage trenches shall be backfilled immediately after the completion of drain laying or installation of culverts as soon as the S.O has inspected and given his approval.
- Backfilling with approved fill materials shall be placed evenly in layers not exceeding 150 mm thickness. In order to provide uniform support, loose thickness of fill materials on both sides of the drain shall be thoroughly compacted with mechanical rammers. This procedure shall be followed for the whole depth of the drain section.
- Invert level is measured from proposed formation level to the interior base of drain. The location and levels of the drainage system indicated on the drawings shall be checked and rectified if required to suit actual site condition by the S.O.
- All drains shall have minimum gradient of 1:350 unless otherwise stated on the drawings or as directed by the S.O.
- The maximum allowable side wall steepness for concrete, brickwork and blockwork lined drains shall be vertical; stone pitching lined drains shall be 1:1.5 and grassed / vegetated, rock and rip rap lined drains shall be 1:2.
- All pipe drains that run under roads and hardstanding shall be encased with concrete grade 20P with a minimum thickness of 150 mm.
- Precast concrete pipe shall comply with MS EN 1916:2011 or other equivalent standards as approved by the S.O.
- Precast concrete box culvert shall comply to MS 1293, BS EN 1990:2002+A1:2005, BS EN 1991-1-7:2006 or other equivalent standards acceptable or approved by the S.O. The minimum concrete cube strength shall be 30MPa.
- Cast in-situ concrete drain and precast concrete block drain section shall be of grade 25P concrete unless otherwise stated on the drawings.
- Reinforced concrete struts shall be provided for all drain side walls exceeding 1 metre in height. Safety railings shall be provided for open drains with more than 1.2 metres depth or otherwise as directed by the S.O.
- Where roadside drain is not provided, scupper pipes or drains shall be installed at road kerb where practicable, to the drainage system nearby at 3 metres c/c or other suitable intervals as approved by the S.O.

LEGEND

	225mm HALF ROUND GLAZED WARE (HRGW)		750mm PRECAST U-DRAIN (PROPOSED)
	300mm HALF ROUND-TYPE D2. REFER TO DRAWING NO : JKR.CKAS/08.500/STD/DR/04(24)		SUMP 750mm x 750mm
	300mm HALF ROUND-TYPE D2 WITH ENTRANCE SLAB		SUMP 1050mm x 1050mm
	300mm HALF ROUND WITH P.C COVER		LIMIT OF WORK
	600mm PIPE CULVERT		
	750mm BOX CULVERT		

8

PELAN SUSUNATUR SISTEM SALIRAN
SKALA = 1:500



JABATAN KERJA RAYA MALAYSIA

BAHAGIAN KEJURUTERAAN AWAM (PENDIDIKAN)
CAWANGAN KEJURUTERAAN AWAM DAN STRUKTUR
JABATAN KERJA RAYA MALAYSIA
TINGKAT 4 - 10, MENARA KERJA RAYA (BLOK G)
IBU PEJABAT JKR MALAYSIA
JALAN SULTAN SALAHUDDIN
50450 KUALA LUMPUR.

(NO. TEL: 03-26189171 & NO. FAX: 03-26189155)

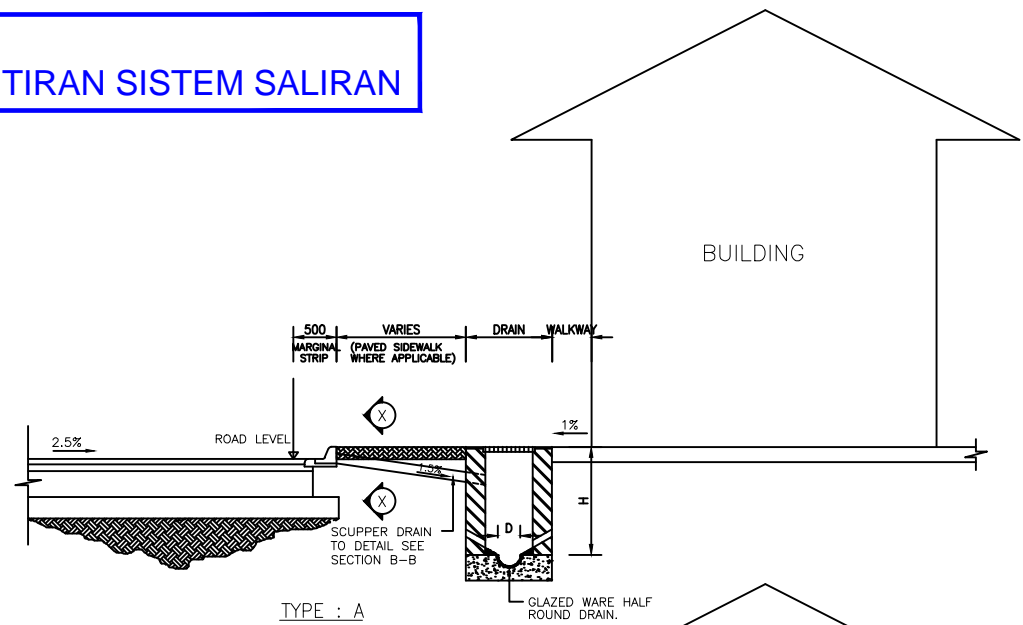
PENGARAH KANAN:			
KAMALUDDIN BIN HJ. ABDUL RASHID			
PENGARAH KHIDMAT REKABENTUK :			
Ir. MUHAMMAD AZMAN BIN JAMRUS			
KETUA PENOLONG PENGARAH KANAN :			
-			
PENOLONG PENGARAH KANAN :			
-			
DIREKABENTUK :			
-			
DISEMAK :			
-			
DILUKIS :			
-			
SKALA :			
1:500			
NO. FAIL PROJEK :			
JKR/CKAS/14/15/J15/1			
TARIKH :			
MAC 2016			
HURUF	PINDAAN	TARIKH	TANDA
PETUNJUK			TANGAN

NAMA PROJEK :

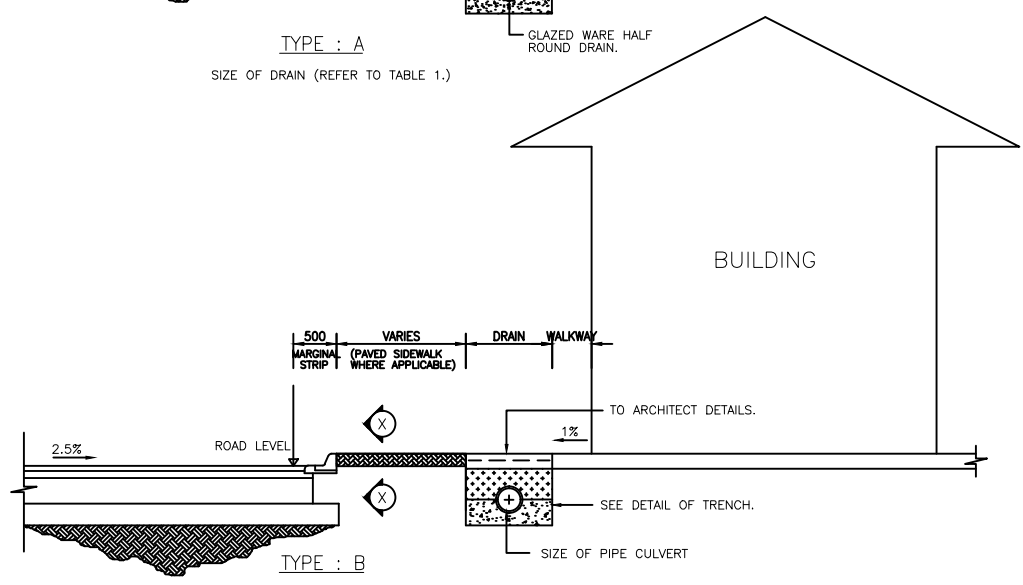
NAMA PROJEK SEPERTI DIBERI OLEH HOPT (BLOK BANGUNAN)

TAJUK LUKISAN :			
PELAN SUSUNATUR SISTEM SALIRAN			
NO. LUKISAN :			
JKR/CKAS/14/15/J15/1/SS/01(00)			

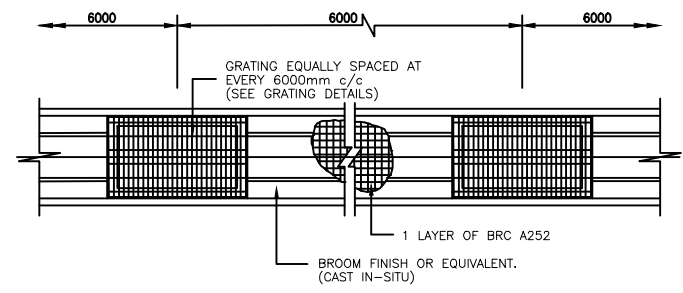
LAMPIRAN 5a
CONTOH LUKISAN BUTIRAN SISTEM SALIRAN



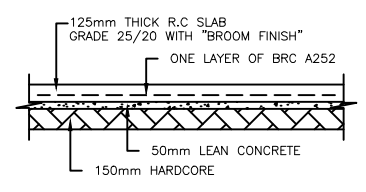
TYPE : A
SIZE OF DRAIN (REFER TO TABLE 1.)



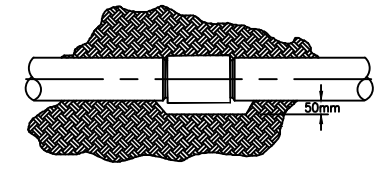
TYPE : B
SIZE OF PIPE (REFER TO TABLE 2.)



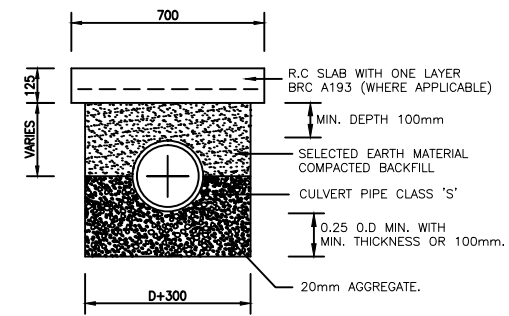
TYPICAL DETAILS OF DRAIN TYPE B
SCALE 1:25



SECTION X-X
SCALE 1:25



DETAILS OF JOINT
WHEN THE TRENCH HAS A LEVELLED BOTTOM, A MINIMUM 50mm DEEP CLEARANCE SHOULD BE DUG AT PIPE-END POSITIONS TO ACCOMMODATE THE COUPLING JOINTS.



DETAILS OF TRENCH
SCALE 1:12.5

TABLE 1.

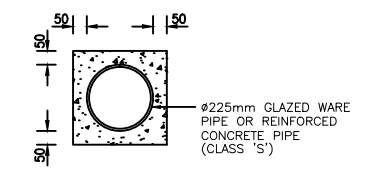
CATCHMENT AREA (ROOF, PARKING ETC.) (SQUARE METER)	H (DEPTH) (mm)	D (DIAMETER) (mm)
5,000	200	300
10,000	250	300
15,000	300	300
20,000	350	300
25,000	450	300
30,000	450	300
35,000	600	300
40,000	600	300

- NOTE:**
- THE CALCULATION HAS BEEN DESIGN BASE ON RAINFALL INTENSITY 35mm / HOUR AND 50 YEARS RETURN PERIOD.
 - ADDITIONAL 10% OF THE ROOF AREA FOR PARKING AND PARKLAND AND FOOTPATH.
 - H IS THE RECOMMENDED DEPTH AT THE OUTLET OF THE BUILT UP AREA.
 - THE MINIMUM DEPTH OF H SHALL BE 100mm.
 - THE DRAIN WAS DESIGNED BASE ON = 1:200 GRADIENT.

TABLE 2.

CATCHMENT AREA (ROOF, PARKING ETC.) (SQUARE METER)	D (DIAMETER) (mm)
5,000	300
10,000	450
15,000	450
20,000	600
25,000	600
30,000	600
35,000	600
40,000	750

- NOTE:**
- THE CALCULATION HAS BEEN DESIGNED BASED ON RAINFALL INTENSITY 35mm/hour AND 50 YEARS RETURN PERIOD.
 - ADDITIONAL 10% OF THE ROOF AREA FOR PARKING AND PARKLAND AND FOOTPATH.



SECTION B-B
SCALE 1:25

- NOTES:**
- ALL EXPOSED BRICKWALL SURFACES SHALL BE RENDERED WITH 15mm 1:3 CEMENT MOTAR.
 - D = SIZE OF HALF ROUND GLAZE DRAIN.
 - MAXIMUM H=2M , h=1/3H.
 - THE THICKNESS OF DRAINSIDE BRICKWALL SHALL BE:
- | HEIGHT OF DRAIN WALL | THICKNESS OF BRICKWALL |
|----------------------|------------------------|
| LESS THAN 1m | 225mm |
| 1.05m TO 1.5m | 338mm |
| 1.5m TO 2.0m | 450mm |
- R.C STRUT TO BE PROVIDED FOR ALL DRAINSIDE WALL EXCEEDING 1.0M HEIGHT.
 - WEEPHOLES TO BE PROVIDED IN ALL CASES.
 - ALL DIAMETERS ARE IN MILLIMETERS OR UNLESS OTHERWISE STATED.

HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN



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KETUA PENOLONG PENGARAH :
RAIHAN BIN MOHD NOOR

PENYEMAK :
IR. H.J.H. ATIKAH BINTI ABDUL HAMID

DISEDIAKAN OLEH :
DAYANG SHERRYLSUSILA BINTI AWANG SHARKAWI

PROJEK :
LUKISAN PIAWAI

TAJUK LUKISAN :
TYPICAL DETAILS OF PERIMETER DRAIN

SKALA : NOT TO SCALE

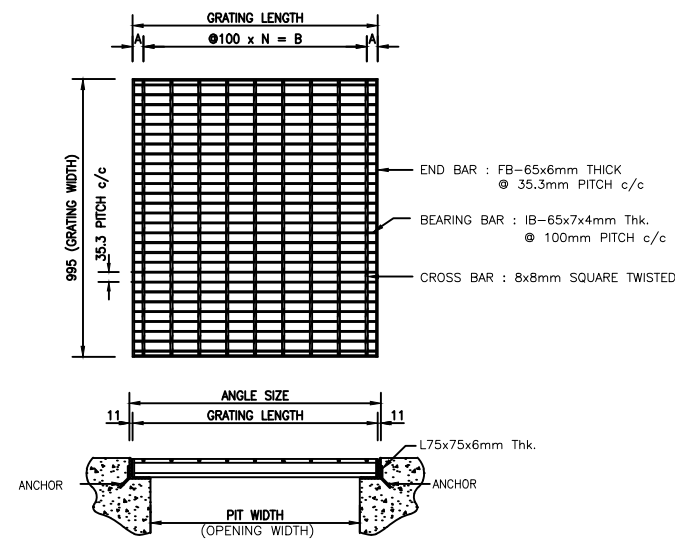
DILUKIS : HAZRUL / ERIN

TARIKH : MEI 2011

FAIL KOMPUTER : 01(24), 08(24) & 13(24).dwg

NO. LUKISAN :
JKR.CKASJ/08.500/STD/DR/01(24)

LAMPIRAN 5b
CONTOH LUKISAN BUTIRAN SISTEM SALIRAN

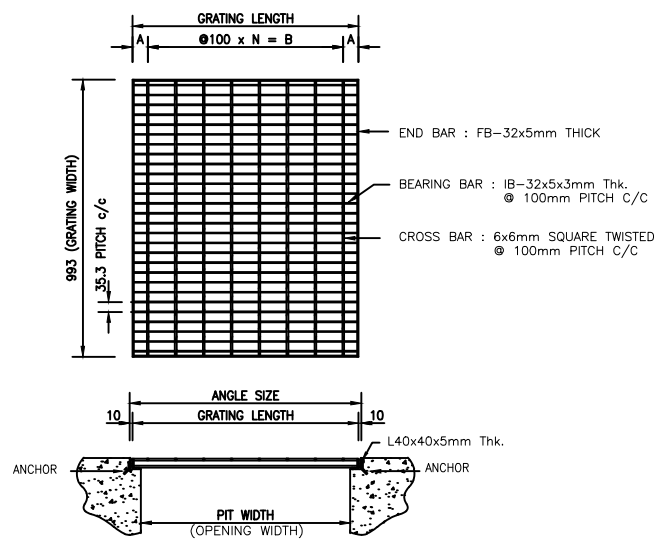


HEAVY DUTY TYPE

DRAIN SIZE	OPENING WIDTH	GRATING SIZE (L x W)	A	N
225mm	375mm	503 x 995	51.5	5
300mm	450mm	578 x 995	39	6
450mm	600mm	728 x 995	64	7
600mm	750mm	878 x 995	39	9

MATERIAL: HEAVY DUTY

BEARING BAR : I-BAR - 65 x 7mm x 4mm Thk. @ 35.3mm PITCH c/c
 CROSS BAR : 8 x 8mm SQ. TWISTED BAR @ 100mm PITCH c/c
 END BAR : FLAT BAR 65 x 6mm Thk. WELDED TO EVERY LOAD BEARING BAR (BS 4592)
 ANGLE FRAME : L75x75x6mm THICK
 SURFACE FINISH : HOT DIPPED GALVANIZED TO ASTM A123 OR B.S.729

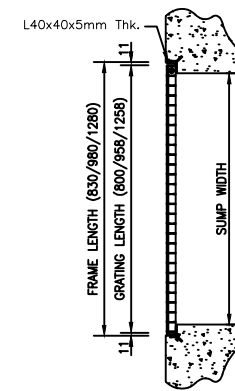


LIGHT DUTY TYPE

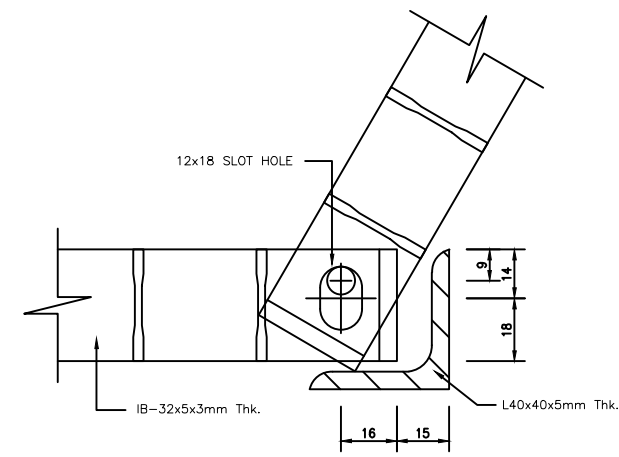
DRAIN SIZE	OPENING WIDTH	GRATING SIZE (L x W)	A	N
225mm	375mm	435 x 993	67.5	4
300mm	450mm	510 x 993	55	5
450mm	600mm	660 x 993	80	6
600mm	750mm	810 x 993	55	8

MATERIAL: LIGHT DUTY

BEARING BAR : I-BAR - 32 x 5mm x 3mm Thk. @ 35.3mm PITCH C/C
 CROSS BAR : 6 x 6mm SQ. TWISTED BAR @ 100mm PITCH C/C
 END BAR : FLAT BAR 32 x 5mm Thk. WELDED TO EVERY LOAD BEARING BAR (BS 4592)
 ANGLE FRAME : L40x40x5mm THICK
 SURFACE FINISH : HOT DIPPED GALVANIZED TO ASTM A123 OR B.S.729



KERATAN



END PLATE HINGE HOLE DET'

SCALE 1:1

GRATING SPECIFICATIONS

- GRATINGS ARE PRODUCED FROM HIGH QUALITY STEEL WHICH CONFORMS TO THE FOLOWING EQUIVALENT STANDARDS: ASTM A36, BS 4360 GRADE 43A & JIS G3101 SS400
- GRATINGS ARE GALVANISED TO CONFORM TO ASTM A123, BS729 OR JIS H8641 GIVING AVERAGE MINIMUM COATING OF 610gm/sq m
- GRATINGS ARE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH RELEVANT INTERNATIONAL STANDARDS WHICH CONFORM TO THE REQUIREMENT OF B.S. 4592

HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN



BAHAGIAN KEJURUTERAAN AWAM
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 IBU PEJABAT JKR MALAYSIA

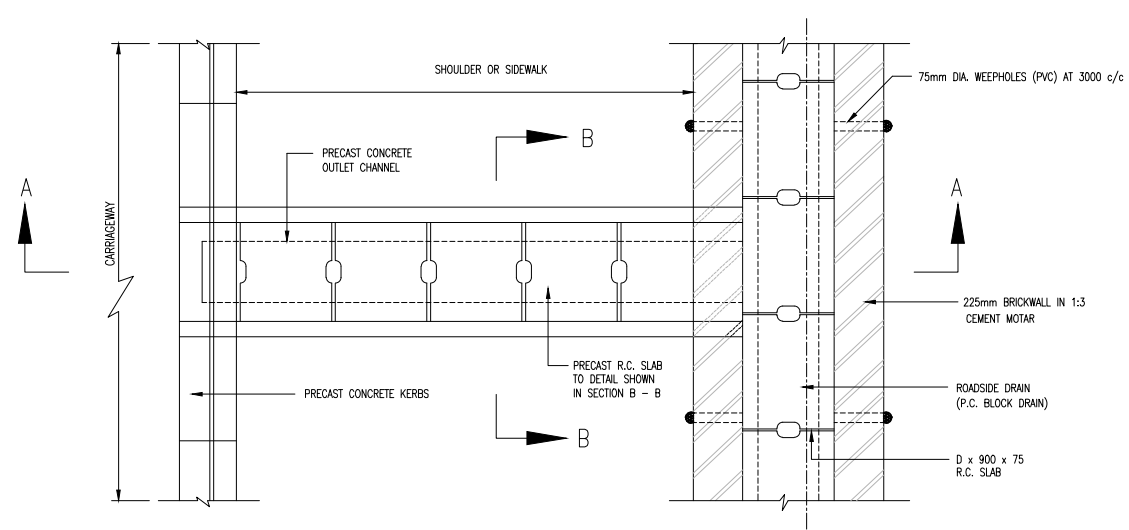
PENGARAH KANAN : IR. DR. ABDUL AZIZ BIN HJ. ARSHAD
PENGARAH 1 : IR. HJ.H. NORMA BINTI NORMAN
KETUA PENOLONG PENGARAH KANAN : WAN SOHAMI BIN WAN MOHAMED
KETUA PENOLONG PENGARAH : RAIHAN BIN MOHD NOOR
PENYEMAK : IR. HJ.H. ATIKAH BINTI ABDUL HAMID
DISYAKAN OLEH : DAYANG SHERRYLSUSILA BINTI AWANG SHARKAWI

PROJEK :
LUKISAN PIAWAI

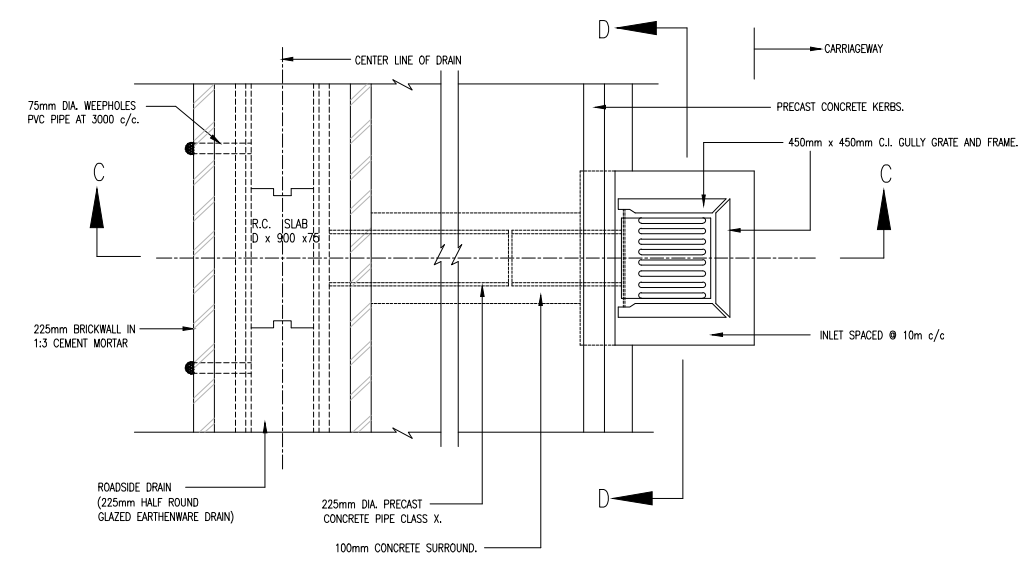
TAJUK LUKISAN :
DETAILS OF M.S GRATING FOR DRAIN

SKALA :	NOT TO SCALE
DILUKIS :	HAZRUL / ERIN
TARIKH :	MEI 2011
FAIL KOMPUTER :	01(24), 08(24) & 13(24).dwg

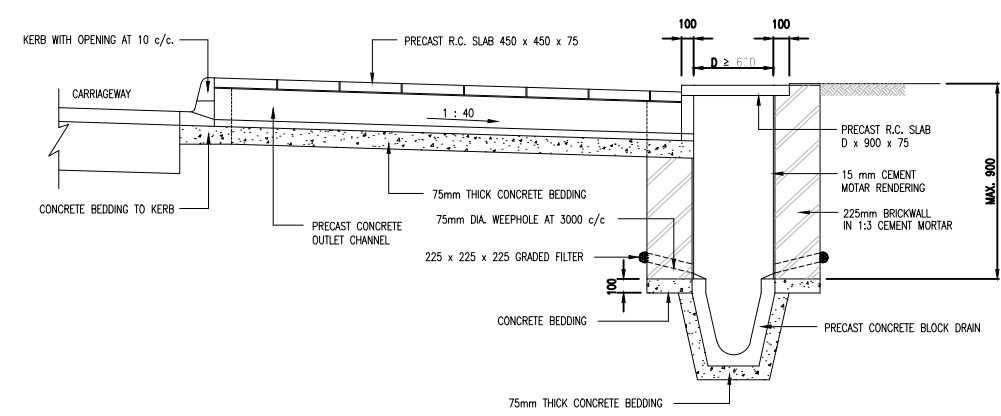
NO. LUKISAN :
JKR.CKASJ/08.500/STD/DR/08(24)



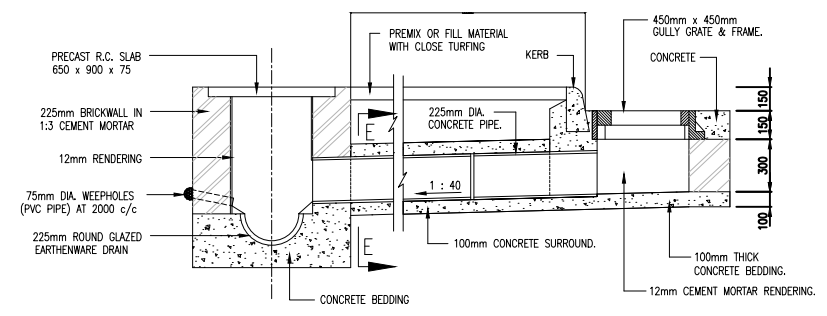
PLAN OF ROADSIDE DRAIN TYPE U1 (RSDU 1)
(PRECAST CONCRETE BLOCK DRAIN)



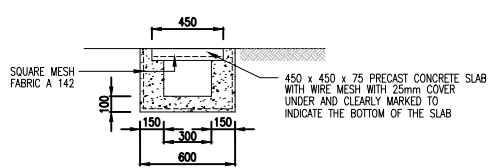
PLAN OF ROADSIDE DRAIN TYPE U2 (RSDU 2)
(225mm HALF ROUND GLAZED EARTHENWARE DRAIN)



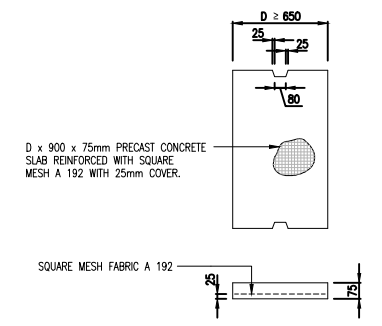
SECTION A - A OF ROADSIDE DRAIN TYPE U1 (RSDU 1)



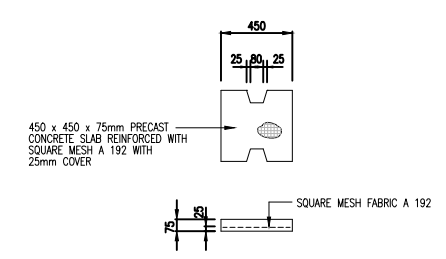
SECTION C - C ROADSIDE DRAIN TYPE U2 (RSDU 2)



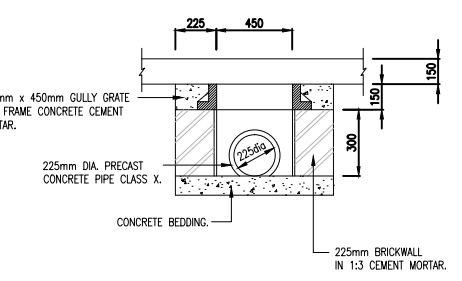
SECTION B - B
PRECAST CONCRETE OUTLET CHANNEL
WITH PRECAST R.C. SLAB



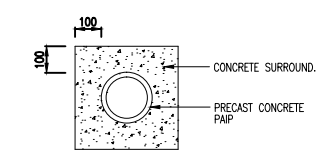
PRECAST R.C. SLAB (OPTIONAL)



PRECAST R.C. SLAB FOR CHANNEL



SECTION D - D



SECTION E - E
CONCRETE PIPE WITH
CONCRETE SURROUND.

NOTES :

HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN



BAHAGIAN KEJURUTERAAN AWAM
CAWANGAN KEJURUTERAAN AWAM,
STRUKTUR & JAMBATAN
IBU PEJABAT JKR MALAYSIA

PENGARAH KANAN :
IR. DR. ABDUL AZIZ BIN HJ. ARSHAD

PENGARAH 1 :
IR. H.J.H. NORMA BINTI NORMAN

KETUA PENOLONG PENGARAH KANAN :
WAN SOHAMI BIN WAN MOHAMED

KETUA PENOLONG PENGARAH :
RAIHAN BIN MOHD NOOR

PENYEMAK :
IR. H.J.H. ATIKAH BINTI ABDUL HAMID

DISEDIAKAN OLEH :
DAYANG SHERRYLSUSILA BINTI AWANG SHARKAWI

PROJEK :
LUKISAN PIAWAI

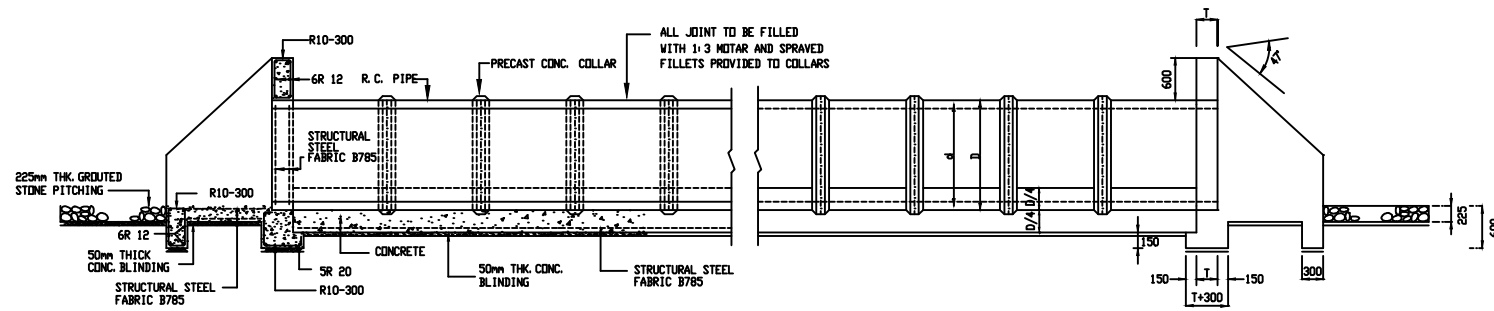
TAJUK LUKISAN :
ROADSIDE DRAINAGE FOR
URBAN AREA

SKALA :	NOT TO SCALE
DILUKIS :	HAIRUL BARIAH BINTI MOHAMED SUHAIMI
TARIKH :	MEI 2011
FAIL KOMPUTER :	02(24), 03(24), 06(24), 07(24).dwg

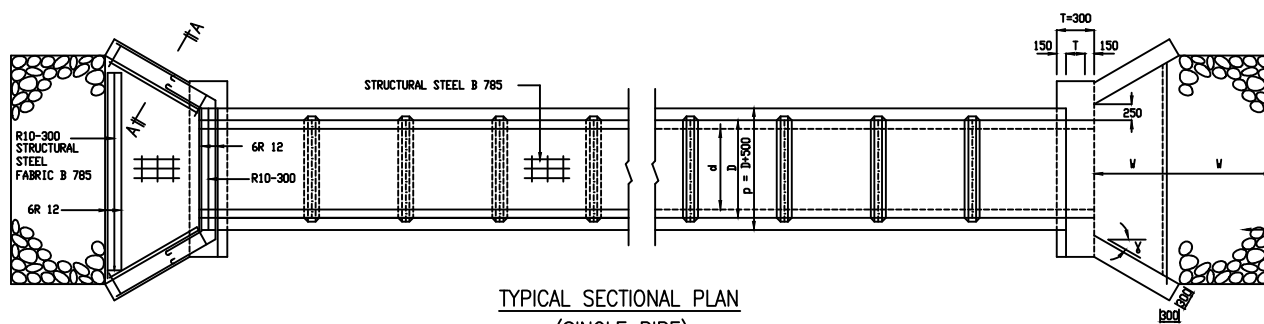
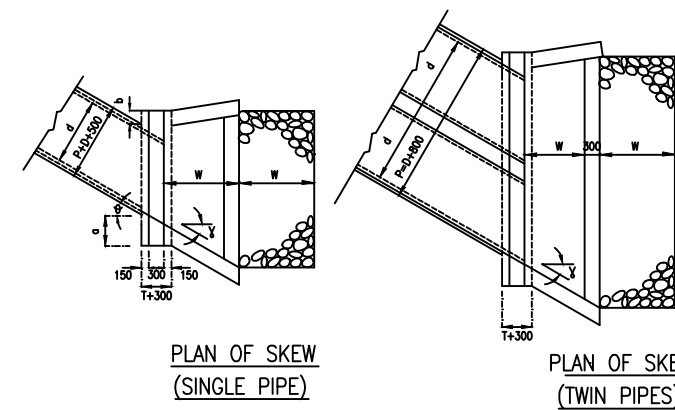
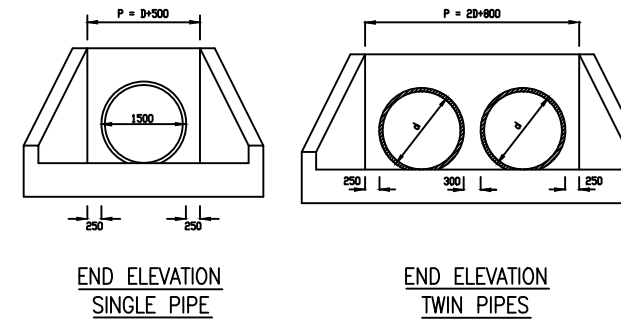
NO. LUKISAN :
JKR.CKASJ/08.500/STD/DR/06(24)

LAMPIRAN 5c
CONTOH LUKISAN BUTIRAN SISTEM SALIRAN

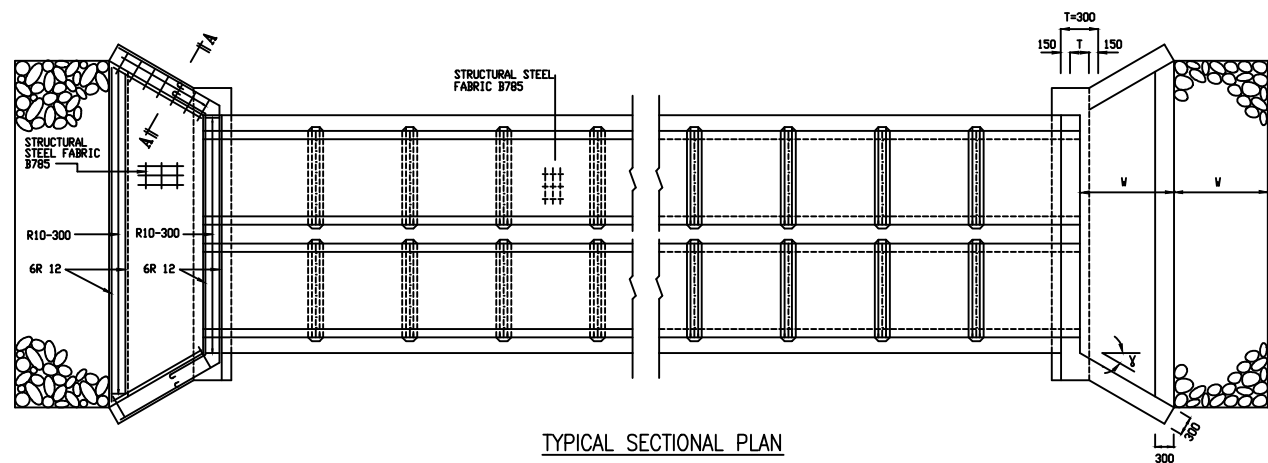
Disurih sebahagian daripada
No. Lukisan = KPKR/J/R/STD/AM 308



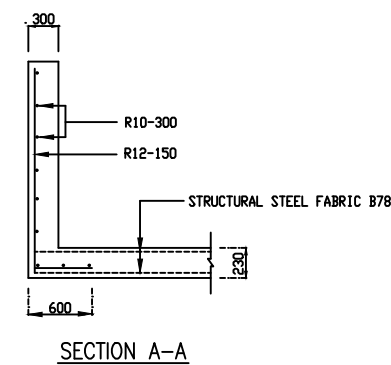
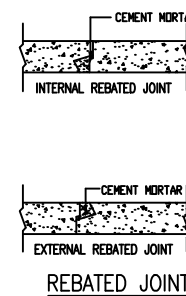
TYPICAL SECTIONAL ELEVATION



TYPICAL SECTIONAL PLAN (SINGLE PIPE)



TYPICAL SECTIONAL PLAN (TWIN PIPES)



SKEW <	B	Y
0°	30°	30°
10°	20°	30°
15°	15°	30°
30°	10°	40°
45°	10°	55°

D (mm)	900	1050	1200	1350	1500	1650	1800
W (mm)	1200	1200	1200	1500	1500	1650	1650
T (mm)	225	250	300	300	300	350	350

NOTES :

1. CONCRETE TO BE GRADE 25/20.
2. CONCRETE BLINDING TO BE GRADE 15/20.
3. MINIMUM LAP LENGTH TO BE 42 TIMES THE DIAMETER OF BAR.
4. COVER TO STEEL REINFORCEMENT TO BE 50mm UNLESS OTHERWISE STATED.
5. CONCRETE PIPE SHALL MEET THE REQUIREMENT IN MS 881.
6. MILD STEEL REINFORCEMENT TO CONFORM TO MS 146.
7. INTERNAL DIAMETER OF PRECAST CONCRETE PIPE ID 'd'
8. a = 225mm sec \sqrt{d} + 300mm tan θ
b = 225mm sec \sqrt{d} + 300mm tan θ

HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN



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KETUA PENOLONG PENGARAH :

RAIHAN BIN MOHD NOOR

PENYEMAK :

IR. HJ. ATIKAH BINTI ABDUL HAMID

DISEDIAKAN OLEH :

DAYANG SHERRYLSUSILA BINTI AWANG SHARKAWI

PROJEK :

LUKISAN PIAWAI

TAJUK LUKISAN :

R.C PIPE CULVERT
(BUTT OR REBATED JOINT)

SKALA : NOT TO SCALE

DILUKIS : HAIRUL BARAH BINTI MOHAMED SUHAIMI

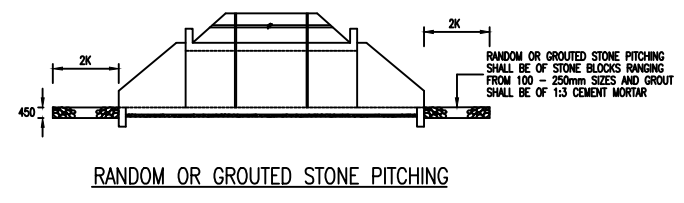
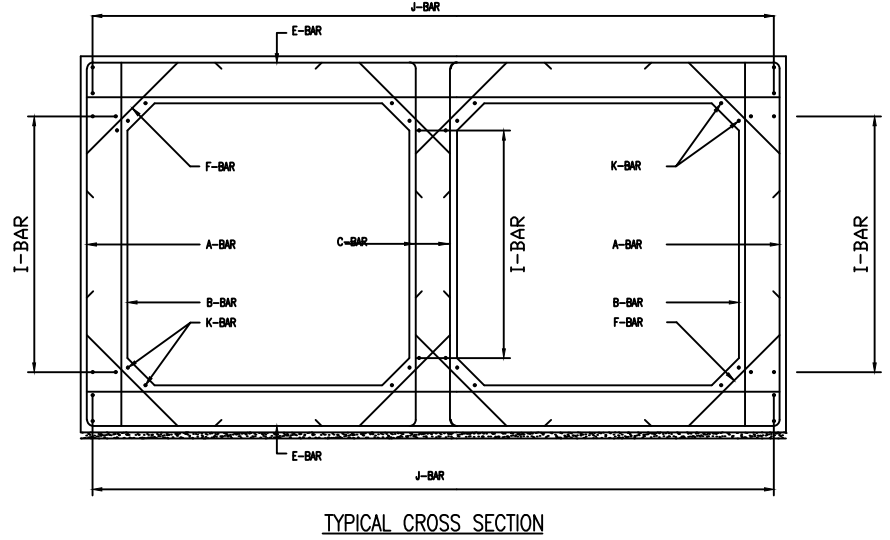
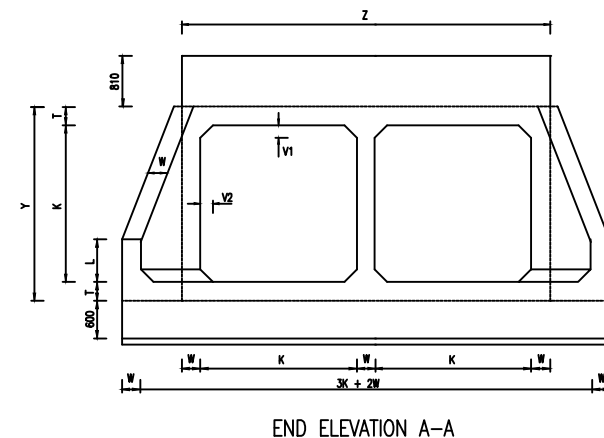
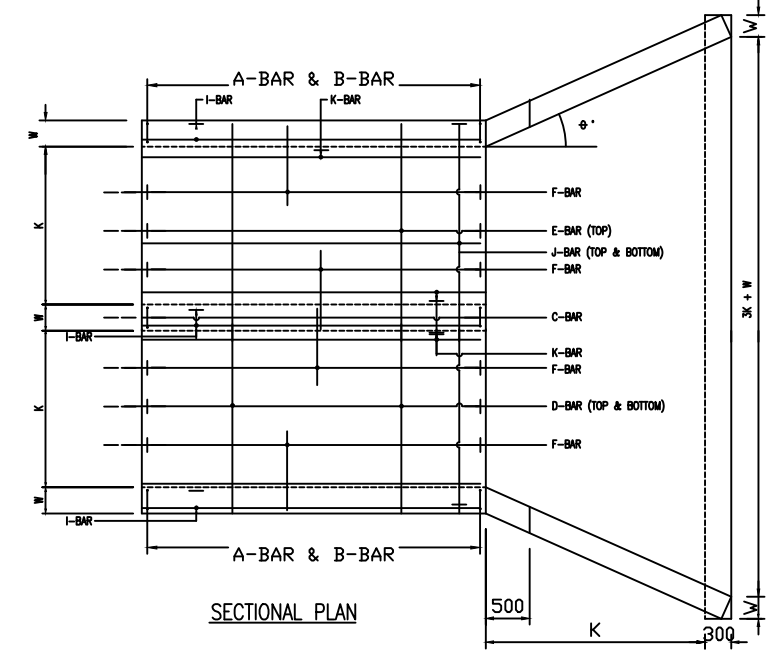
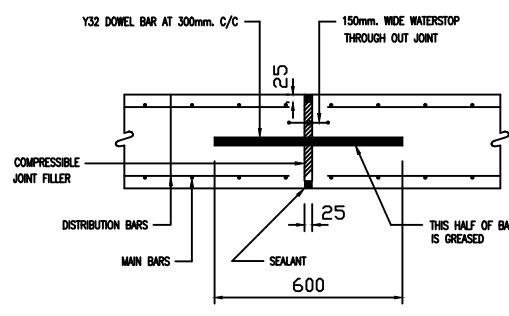
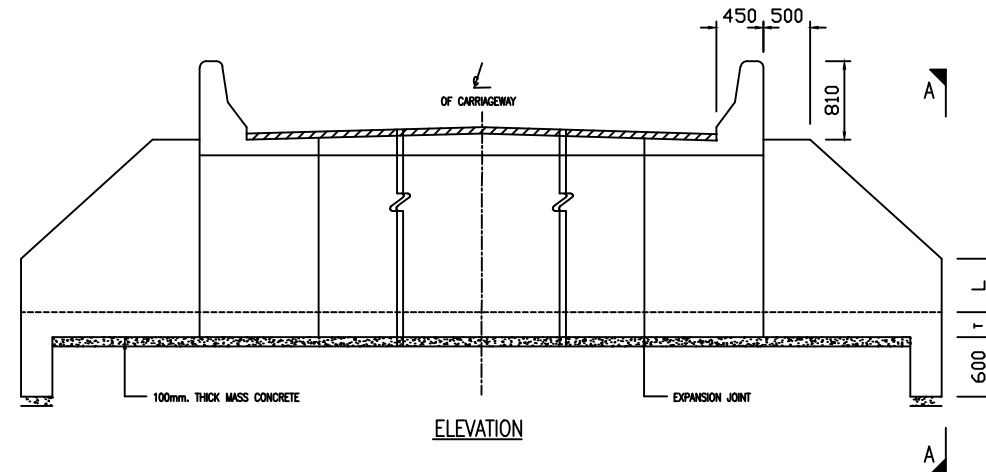
TARIKH : MEI 2011

FAIL KOMPUTER : R.c pipe culvert (butt or rebated joint).dwg

NO. LUKISAN :
JKR.CKASJ08.500/STD/DR/16(24)

LAMPIRAN 5d
CONTOH LUKISAN BUTIRAN SISTEM SALIRAN

Disurih sebahagian daripada
No. Lukisan = KPKR/J/R/STD/AM 314



NOTES :

HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN



BAHAGIAN KEJURUTERAAN AWAM
CAWANGAN KEJURUTERAAN AWAM,
STRUKTUR & JAMBATAN
IBU PEJABAT JKR MALAYSIA

PENGARAH KANAN :
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PENGARAH 1 :
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KETUA PENOLONG PENGARAH :
RAIHAN BIN MOHD NOOR
PENYEMAK :
IR. HJH. ATIKAH BINTI ABDUL HAMID
DISEDIAKAN OLEH :
DAYANG SHERRYLSUSILA BINTI AWANG SHARKAWI

PROJEK :
LUKISAN PIAWAI

TAJUK LUKISAN :
STANDARD TWIN BOX CULVERT
- CULVERT DETAILS

SKALA : NOT TO SCALE
DILUKIS : HARUL BARIAH BINTI MOHAMED SUHAMI
TARIKH : MEI 2011
FAIL KOMPUTER : Standard twin box culvert-culvert details.dwg

NO. LUKISAN :
JKR.CKASJ/08.500/STD/DR/23(24)

HEIGHT OF FILL = 0.0m. TO 2.0m

- NOTES:-
- MAXIMUM SKEW ALLOWED TO DEGREES
 - LOADING AS PER J.K.R. SPECIFICATION FOR BRIDGE LIVE ROAD DJ 1/89
 - ALL DIMENSION ARE IN mm. UNLESS OTHERWISE STATED
 - REINFORCED CONCRETE SHALL BE OF GRADE 40/20
 - MASS CONCRETE SHALL BE OF GRADE 15P/20
 - CONCRETE COVER TO MAIN REINFORCEMENT TO BE 50mm
 - ALL HIGH TENSILE STEEL REINFORCEMENT SHALL CONFORM TO M.S 146
 - MINIMUM LAP LENGTH FOR ALL BARS SHALL BE 25 X DIA. OF SMALLER BAR + 150 mm
 - FOR WINGWALL, APRON AND HEADWALL DETAILS REFER TO STANDARD DRAWING STD-1/CO2/1A.1.
 - THE FOUNDATION SHALL BE DESIGNED SUCH THAT IT CAN PROVIDE THE MINIMUM ALLOWABLE BEARING PRESSURE AS IN TABLE 1 WITH MINIMUM FACTOR OF SAFETY OF 3 OR ANY EQUIVALENT PILING SYSTEM
 - Y 12
12
SIZE OF BAR
HIGH YIELD BAR

Disurih sebahagian daripada
No. Lukisan = KPKR/JR/STD/AM 322

SIZE OF BOX CULVERT	CONCRETE DETAILS						VOLUME CONCRETE (m ³) PER METRE RUN	AREA OF FORMWORK (m ²) PER METRE RUN	MIN. BEARING PRESSURE (kN/m ²)	REMARKS
	T = W	V1	V2	Y	Z	L				
1500 x 1500	250	150	150	2000	3750	500	3.00	19.00	64	
2000 x 2000	300	200	200	2600	4900	680	5.00	27.00	65	
2500 x 2500	300	200	200	3100	5900	850	6.00	33.00	66	
3000 x 3000	350	200	200	3700	7050	1000	8.00	42.00	70	
3500 x 3500	350	200	200	4200	8050	1200	10.00	49.00	80	

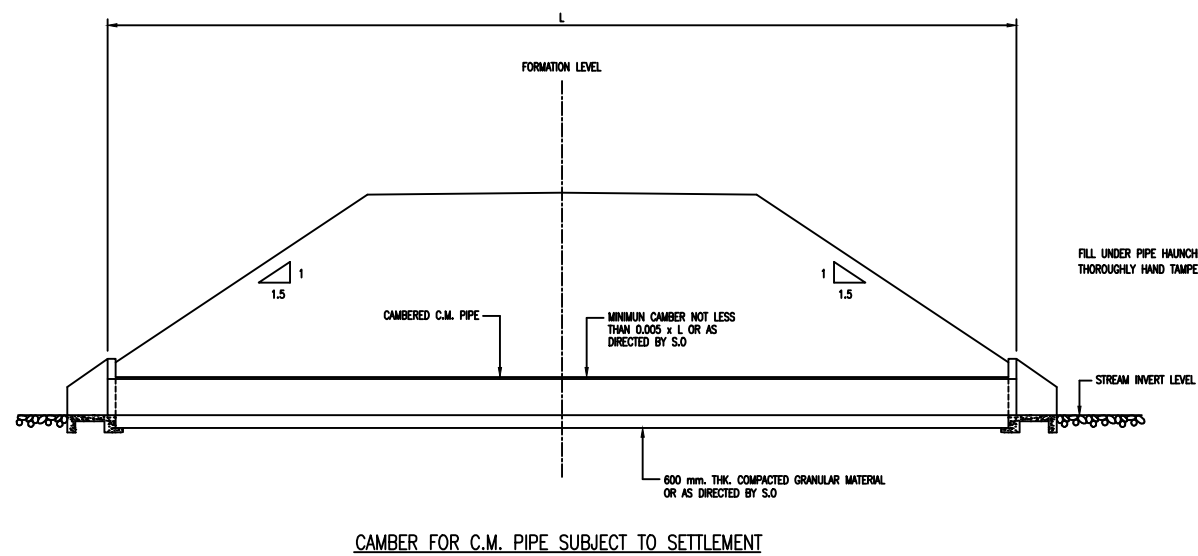
TABLE 1

SHAPE OF BAR	REINFORCEMENT DETAILS FOR ONE WINGWALL												DISTRIBUTION BARS AT 150mm SPACING				REMARKS																					
	A - BAR			B - BAR			C - BAR			D - BAR			E - BAR			F - BAR			I - BAR	J - BAR	K - BAR																	
	SIZE	SPACING	DEVELOPED LENGTH (m)	SIZE	SPACING	DEVELOPED LENGTH (m)	SIZE	SPACING	DEVELOPED LENGTH (m)	SIZE	SPACING	DEVELOPED LENGTH (m)	SIZE	SPACING	DEVELOPED LENGTH (m)	SIZE		SPACING				DEVELOPED LENGTH (m)	NO. OF BAR	NO. OF BAR	NO. OF BAR	TOTAL LENGTH (m)	TOTAL WEIGHT (kg)											
1500 x 1500	Y16	150	2500	35.00	55.3	Y16	150	1900	26.6	42.0	Y16	150	2500	35.0	55.3	Y20	150	3650	51.1	126.0	Y25	150	4250	59.5	229.3	Y12	150	1280	71.7	63.7	Y12	54	Y12	104	Y12	16	174.0	154.5
2000 x 2000	Y20	150	3100	43.1	107.0	Y20	150	2500	35.0	86.3	Y16	150	3100	43.4	58.5	Y20	150	4800	67.2	165.7	Y25	150	5400	75.6	291.4	Y12	150	1448	81.1	72.0	Y12	78	Y12	132	Y12	16	226.0	200.7
2500 x 2500	Y25	175	3600	43.2	166.5	Y25	175	3000	36.0	138.7	Y16	175	3600	43.2	68.2	Y25	175	5800	69.6	268.2	Y32	175	6400	76.8	484.8	Y12	175	144.8	69.5	61.7	Y12	96	Y12	160	Y12	16	272.0	241.5
3000 x 3000	Y25	175	4200	50.4	194.2	Y25	175	3600	43.2	166.5	Y16	175	4200	50.4	79.6	Y25	175	6950	83.4	321.4	Y32	175	7550	90.6	572.0	Y12	175	1660	79.7	70.8	Y12	114	Y12	192	Y12	16	322.0	285.9
3500 x 3500	Y25	150	4700	65.8	253.6	Y25	150	4100	57.4	221.2	Y16	150	4700	65.8	253.6	Y25	150	7950	111.3	429.0	Y32	150	8550	119.7	755.5	Y12	150	1660	83.0	82.6	Y12	138	Y12	216	Y12	16	370.0	328.6

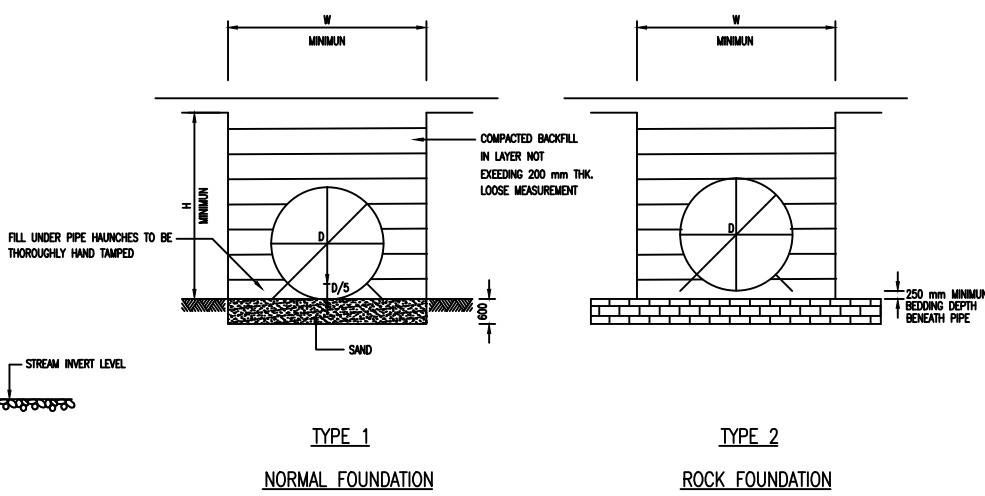
TABLE 2

LAMPIRAN 5e
CONTOH LUKISAN BUTIRAN SISTEM SALIRAN

NOTES :



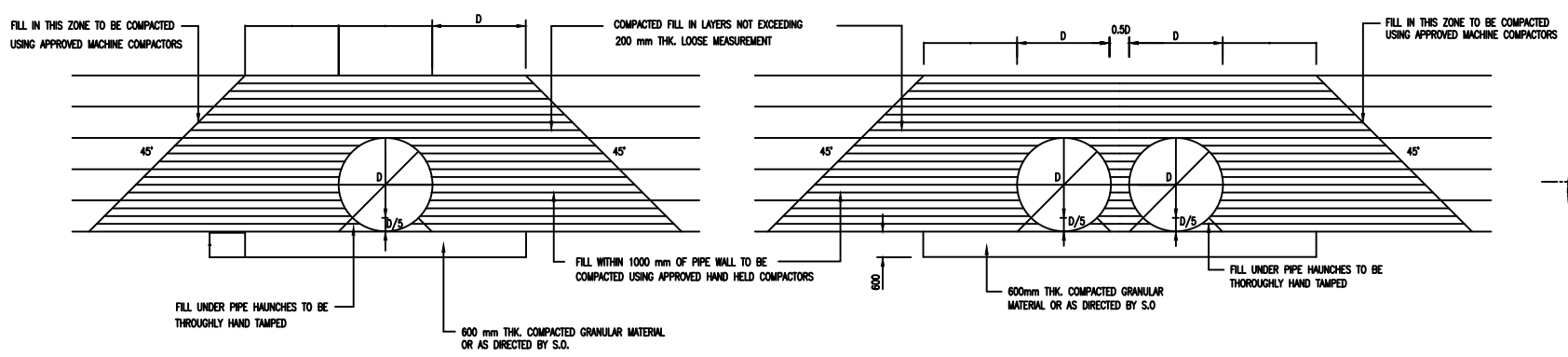
CAMBER FOR C.M. PIPE SUBJECT TO SETTLEMENT



TYPE 1
NORMAL FOUNDATION

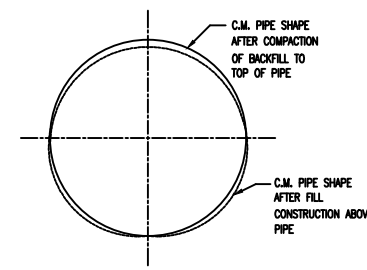
TYPE 2
ROCK FOUNDATION

TRENCH DIMENSIONS FOR C.M. PIPES		
CULVERT DIAMETER	H	W
1220	1700	1800
1520	2000	2280
1830	2300	2750
2440	3000	3660
3050	3000	4580
3660	3000	5480
4570	3000	6880



TYPE C
SOFT FOUNDATION FOR SINGLE C.M. PIPE

TYPE 4
SOFT FOUNDATION FOR TWIN C.M. PIPE



VERTICAL ELONGATION FOR
C.M. PIPES UNDER HIGH FILL LOADS

- NOTES:-
- C.M. PIPES SUBJECT TO SETTLEMENT DUE TO HIGH FILL LOADS OR SOFT FOUNDATIONS TO BE CAMBERED AS DIRECTED BY THE S.O. WITH A MINIMUM CAMBERS AS SHOWN. C.M. PIPES AT A GRADE OF GREATER THAN 2% TO BE LAID TRUE TO GRADE UNLESS OTHERWISE DIRECTED BY THE S.O.
 - C.M. PIPES GREATER THAN 1520 mm DIAMETER SHALL HAVE 5% VERTICAL ELONGATION.
 - ANCHOR BOLTS FROM C.M. PIPES TO BE HOT DIP GALVANISED TO MS 740
 - FILL AROUND PIPES TO BE PLACED IN LAYERS NOT EXCEEDING 200 mm LOOSE MEASUREMENT AND THOROUGHLY COMPACTED USING APPROVED COMPACTION EQUIPMENT.
 - ADEQUATE CARE TO BE TAKEN TO ENSURE THAT PIPE CULVERTS ARE NOT DAMAGED BY HEAVY CONSTRUCTION EQUIPMENT DURING BACKFILLING.
 - ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE AS STATED.
 - CONCRETE MIX 25/20 mm CUBE STRENGTH AT 28 DAYS TO BE 25N/mm MINIMUM.
 - LEAN CONCRETE TO BE 10/25 mm MIX.
 - MINIMUM LAP LENGTH TO BE 42 TIMES THE DIAMETER OF BAR.
 - COVER TO STEEL REINFORCEMENT TO BE 50 mm UNLESS OTHERWISE AS STATED.
 - GAUGE THICKNESS TO BE SPECIFIED REFER CULVERT SCHEDULE.
 - D DENOTES THE DIAMETER OF THE C. M. PIPE.
 - INSTALLATION PROCEDURE OF CM PIPE AS PER AS 2041 & 2041 (AUSTRALIAN STANDARD)

HURUF PETUNJUK	PINDAAN	TARIKH	TANDA TANGAN



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DISEDIAKAN OLEH :
DAYANG SHERRYLSUSILA BINTI AWANG SHARKAWI

PROJEK :
LUKISAN PIAWAI

TAJUK LUKISAN :
BEDDING DETAILS FOR CORRUGATED
METAL PIPE CULVERT

SKALA :	NOT TO SCALE
DILUKIS :	HARUL BARIAH BINTI MOHAMED SUHAMI
TARIKH :	MEI 2011
FAIL KOMPUTER :	Bedding details for corrugated metal pipe culvert.dwg

NO. LUKISAN :
JKR.CKASJ/08.500/STD/DR/19(24)

LAMPIRAN 5f
CONTOH LUKISAN BUTIRAN SISTEM SALIRAN

Disurih sebahagian daripada
No. Lukisan = KPR/J/R/STD/AM 317