

SULIT



**KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI**

**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN TINGGI**

JABATAN KEJURUTERAAN AWAM

PEPERIKSAAN AKHIR

SESI I : 2024/2025

DCQ50244: BUILDING WORKS MEASUREMENT 5

**TARIKH : 25 NOVEMBER 2024
MASA : 8.30 PAGI – 10.30 PAGI (2 JAM)**

Kertas soalan ini mengandungi **LAPAN (8)** halaman bercetak.

Bahagian A: Subjektif (2 soalan)

Bahagian B: Subjektif (4 soalan)

Dokumen sokongan yang disertakan : Standard Method of Measurement for Building Works Second Edition (SMM2), Lukisan, kertas dimensi dan senarai kuantiti

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

SECTION A: 50 MARKS**BAHAGIAN A: 50 MARKAH****INSTRUCTION:**

This section consists of **TWO (2)** subjective questions. Answer **ALL** questions.

ARAHAN:

*Bahagian ini mengandungi **TWO (2)** soalan subjektif. Jawab **SEMUA** soalan.*

Notes:

1. Taking off refers to the rules in Standard Method of Measurement for Building Works Second Edition (SMM2).
Pengiraan hendaklah merujuk kepada Kaedah Pengukuran Kuantiti Piawai Edisi Kedua (SMM2).
2. Candidates are allowed to make any assumption if the information given in the drawing is inadequate.
Pelajar boleh membuat andaian yang munasabah jika maklumat di dalam lukisan tidak memadai.
3. Marks will be given for the knowledge of the subject and systematic setting of dimensions, adequacy and accuracy of description and dimensions.
Markah akan diberikan berdasarkan pengetahuan tentang subjek dan dimensi yang sistematik, kecukupan dan ketepatan penerangan dan dimensi.

QUESTION 1**SOALAN 1**

- CLO 1 (a) Referring to SMM 2, explain the clause which refers to the description of single members and built-up members in steelworks.

Merujuk kepada SMM 2, terangkan klausa yang mana merujuk kepada keterangan 'single members' dan 'built-up members' dalam kerja-kerja keluli.

[5 marks]

[5 markah]

- CLO 1 (b) Referring to Drawing No. **DCQ50244/STEELWORK/AQ1/01-02**, complete the Table: 1(a) by preparing a complete description in Bill of Quantities for the items listed below based on the provisions in SMM2.

*Merujuk kepada lukisan No. **DCQ50244/STEELWORK/AQ1/01-02**, lengkapkan Jadual: 1(a) dalam penyediaan Senarai Kuantiti lengkap dengan merujuk kepada peruntukan di dalam SMM2.*

Table: 1(a) Description in Bill of Quantities

Jadual: 1(a) Keterangan Kerja dalam Senarai Kuantiti

No /Bil	Item/ Item	Unit/ Unit	Description /Keterangan Kerja
1	Column / tiang		
2	Beam / rasuk		
3	Rafter / kasau		
4	Painting / mengecat		

[10 marks]

[10 markah]

- CLO 1 (c) Based on Drawing No. **DCQ50244/STEELWORK/AQ1/01-02**, calculate the quantity measurement for structural steelwork for items column and universal beam (UB) of steelworks.

*Berdasarkan kepada lukisan No. **DCQ50244/STEELWORK/AQ1/01-02**, kirakan pengukuran kuantiti untuk kerja struktur besi untuk item tiang dan rasuk universal (UB) bagi kerja-kerja keluli.*

[10 marks]

[10 markah]

QUESTION 2**SOALAN 2**

- CLO 1 (a) Referring to SMM 2, explain the clause which refers to beds of pipe in water reticulation work.
Merujuk kepada SMM 2, terangkan klausa yang menerangkan pengukuran alas papak bagi kerja-kerja paip retikulasi.
[5 marks]
[5 markah]
- CLO 1 (b) Referring to Drawing No. **DCQ50244/ WATERRETICULATION/AQ2/01**, calculate the quantity measurement for items 150mm diameter MSCL pipe hydrant and hydrant.
Merujuk kepada lukisan No. DCQ50244/WATERRETICULATION/AQ2/01, kirakan pengukuran kuantiti bagi kerja sistem bekalan air untuk item 150mm diameter MSCL paip pili bomba dan pili bomba.
[10 marks]
[10 markah]
- CLO 1 (c) Based on Drawing No. **DCQ50244/ WATERRETICULATION/AQ2/01**, calculate the quantity measurement for water reticulation works for item 100mm diameter D.I pipe only.
Berdasarkan kepada lukisan No. DCQ50244/WATERRETICULATION/AQ2/01, kirakan pengukuran kuantiti bagi kerja sistem bekalan air untuk item paip jenis 100mm diameter D.I paip sahaja.
[10 marks]
[10 markah]

SECTION B: 50 MARKS**BAHAGIAN B: 50 MARKAH****INSTRUCTION:**

This section consists of **FOUR (4)** subjective questions. Answer **TWO (2)** questions.

ARAHAN:

Bahagian ini mengandungi EMPAT (4) soalan subjektif. Jawab DUA (2) soalan.

QUESTION 1**SOALAN 1**

- CLO 1 (a) Referring to Drawing No. **DCQ50244/ LANDSCAPE/BQ1/01**, calculate the quantity measurement for supply of shrub soil mixture.
Merujuk kepada lukisan No. DCQ50244/LANDSCAPE/BQ1/01, kirakan pengukuran kuantiti bagi campuran tanah untuk pokok renek.
[8 marks]
[8 markah]
- CLO 1 (b) Based on Drawing No. **DCQ50244/LANDSCAPE/BQ1/01**, conclude a bill of quantities complete with quantity measurement for planting Hopea odorata, and Axonopus compressus Trees only.
Berdasarkan kepada lukisan No. DCQ50244/LANDSCAPE/BQ1/01, rumuskan kuantiti terukur sebagai senarai kuantiti lengkap berserta pengiraan kuantiti untuk penanaman pokok Hopea odorata dan Axonopus compressus sahaja.
[17 marks]
[17 markah]

QUESTION 2**SOALAN 2**

- CLO 1 (a) Based on drawing No. **DCQ50244/DRAINAGE/BQ2/01**, prepare the quantity measurements for the reinforced concrete open drain and excavation trench to receive 450mm reinforced concrete wide-open drain.

Berdasarkan lukisan bernombor DCQ50244/DRAINAGE/BQ2/01, sediakan kuantiti kerja bagi konkrit tetulang saliran terbuka dan pengorekan parit untuk menerima longkang konkrit bertetulang jenis terbuka 450mm.

[8 marks]

[8 markah]

- CLO 1 (b) Based on drawing No. **DCQ50244/DRAINAGE/BQ2/02**, conclude a bill of quantities complete with quantity measurements for excavation pit to receive drain sump, reinforced concrete drain sump and lean concrete.

Berdasarkan lukisan bernombor DCQ50244/DRAINAGE/BQ2/02, rumuskan satu senarai kuantiti lengkap dengan pengukuran kuantiti bagi pengorekan pit untuk saliran 'sump' dan konkrit tetulang saliran 'sump' dan konkrit 'lean'.

[17 marks]

[17 markah]

QUESTION 3**SOALAN 3**

- CLO 1 (a) Based on Drawing No. **DCQ50244/SEWERAGE/BQ3/01-02**, prepare the quantities measurement for excavation pipe trenches from MH1 to MH3 in sewerage works.

Berdasarkan kepada Lukisan No. DCQ50244/SEWERAGE/BQ3/01-02, sediakan pengukuran kuantiti bagi pengorekan perparitan paip dari MH1 hingga MH3 dalam kerja-kerja pembentungan.

[8 marks]

[8 markah]

- CLO 1 (b) Based on Drawing No. **DCQ50244/SEWERAGE/BQ3/01-02**, conclude a bill of quantities complete with quantities measurement for manholes excavation in sewerage works.

Berdasarkan Lukisan No. DCQ50244/SEWERAGE/BQ3/01-02, rumuskan satu senarai kuantiti yang lengkap dengan pengukuran kuantiti bagi pengorekan lurang-lurang dalam kerja-kerja pembentungan.

[17 marks]

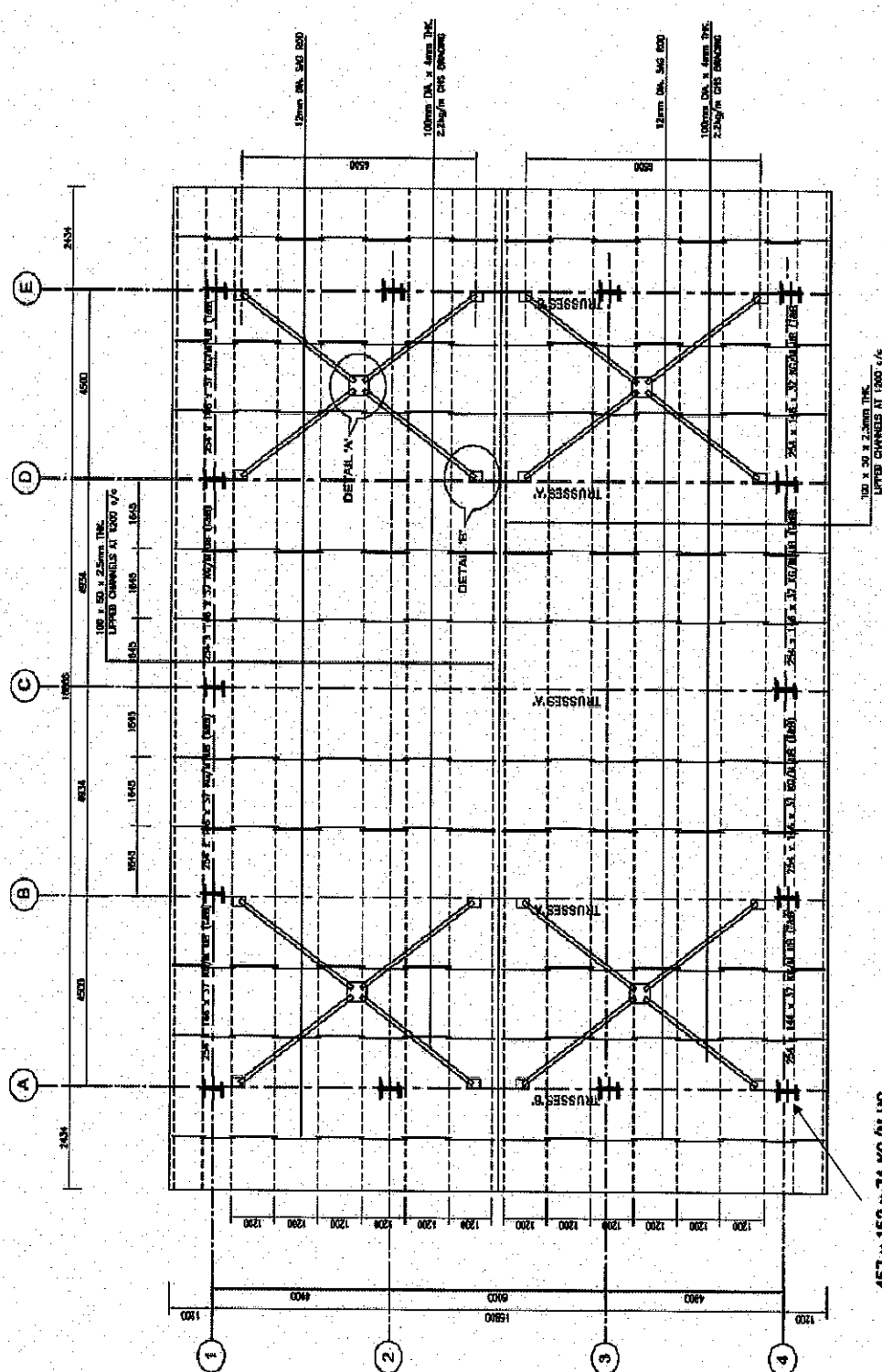
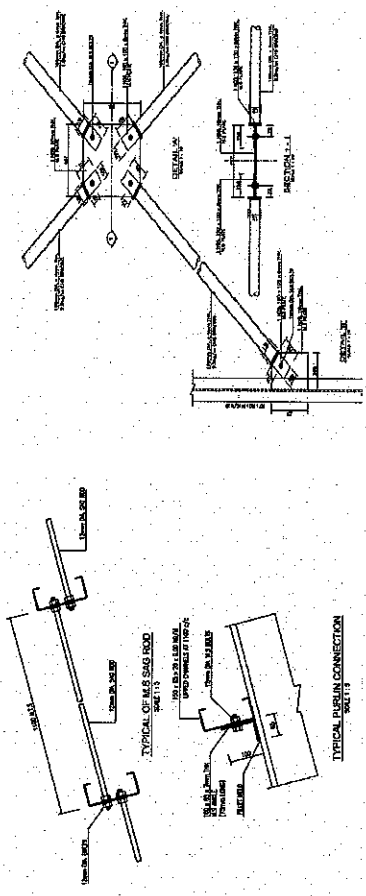
[17 markah]

QUESTION 4**SOALAN 4**

- CLO 1 (a) Based on Drawing No. **DCQ50244/DEMOLISH/BQ4/01**, prepare the quantities measurement for gate and gate post works.
Merujuk kepada Lukisan No. DCQ50244/DEMOLISH/BQ4/01, sediakan pengukuran kuantiti kerja-kerja pintu pagar dan tiang pagar.
[8 marks]
[8 markah]
- CLO 1 (b) Based on Drawing No. **DCQ50244/DEMOLISH/BQ4/01**, conclude a bill of quantities complete with quantity measurement for renovation works.
Berdasarkan Lukisan No. DCQ50244/DEMOLISH/BQ4/01, rumuskan satu senarai kuantiti yang lengkap dengan pengukuran kuantiti bagi kerja-kerja pengubahsuaian.
[17 marks]
[17 markah]

SOALAN TAMAT

- NOTES FOR STRUCTURAL STEELWORKS**
- 1) ALL STRUCTURAL STEEL TO BE AS SPECIFIED
 - 2) ALL WELDS SHALL BE FULL PENETRATION BUTT JOINTS UNLESS OTHERWISE STATED
 - 3) ALL BOLT HOLES SHALL BE 1.5mm LARGER
 - 4) ALL HIGH STRENGTH FRUSTON (HPS) BOLTS (A490) SHALL BE TO BS 4395-PART 1
 - 5) PAINTING AND PREPARATION REFER AS FOLLOWS:
 a) COAT OF UNDERCOAT TO BE APPLIED TO ALL EXPOSED SURFACES OF STEEL
 b) COAT OF PRIMER TO BE APPLIED TO ALL EXPOSED SURFACES OF STEEL
 c) COAT OF TOPCOAT TO BE APPLIED TO ALL EXPOSED SURFACES OF STEEL
 - 6) CORROSION SURFACES FOR HIGH STRENGTH FRUSTON (HPS) BOLTS CONNECTIONS SHOULD NOT BE SAND BLASTED AND PRIMERED.



ROOF TRUSSES PLAN
SCALE 1 : 25

PROJECT TITLE:	CADANGAN MENDIRIKAN SEBUAH DEWAN TERBUKA BERBUMBUNG SI SEKOLAH PUUTRAJAYA PAKEJ 1 BAGI SEKOLAH PRESINT 14, PUTRAJAYA
	POLITEKNIK MALAYSIA
STEELWORKS	
DCQ50244 BUILDING WORKS MEASUREMENT 5	
DRAWING TITLE:	ROOF TRUSSES PLAN
SCALE:	N.T.S
DRAWINGS NO :	DCQ50244/STEELWORK/AQ1/01

PROJECT TITLE:

CADANGAN MENDIRIKAN SEBUAH
DEWAN TERBUKA BERBUMBUNG SI
SEKOLAH PUUTRAJAYA PAKEJ 1
BAGI SEKOLAH PRESINT 14,
PUTRAJAYA



STEELWORKS

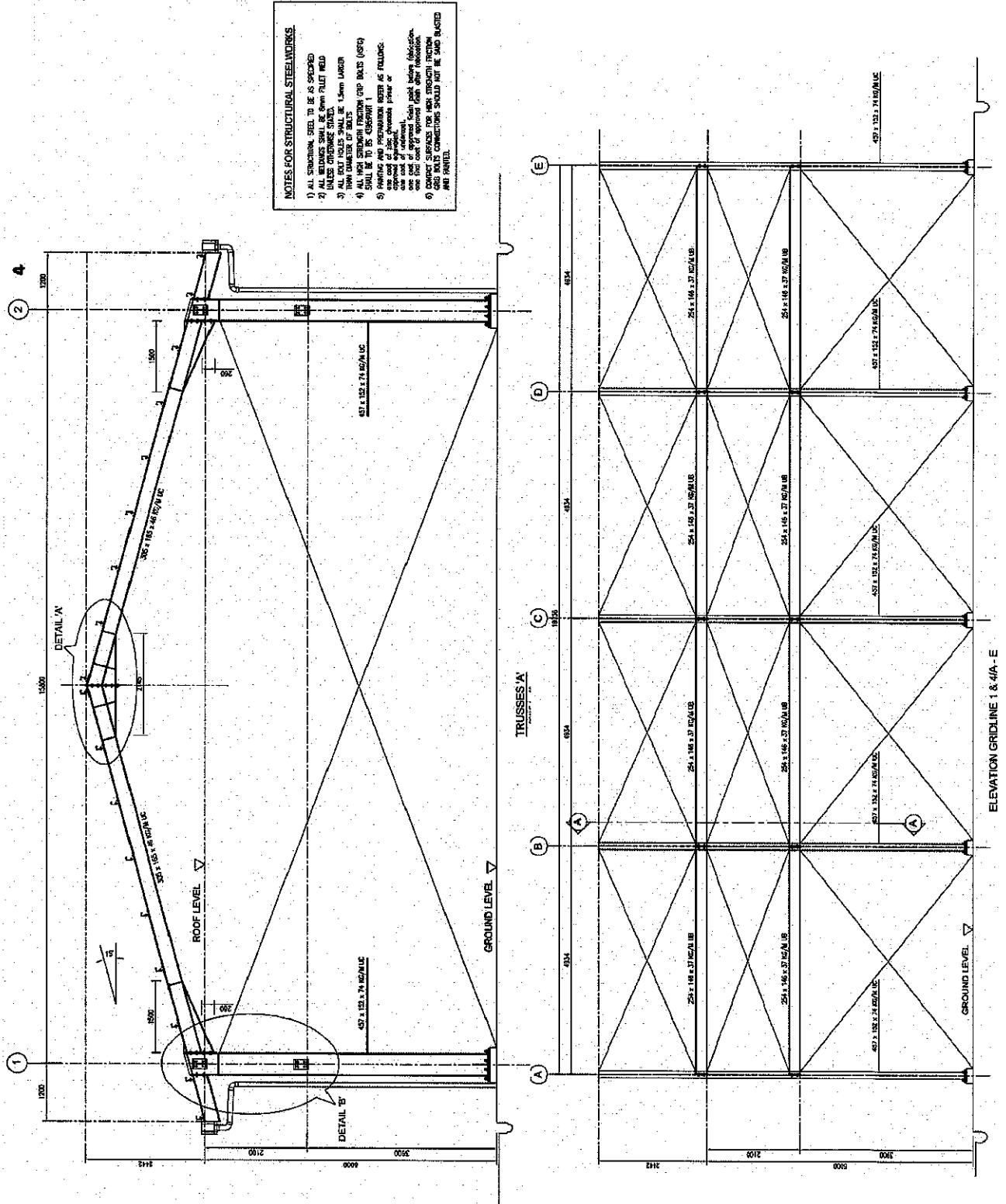
DCQ50244
BUILDING WORKS
MEASUREMENT 5

DRAWING TITLE:
ROOF TRUSSES
DETAILS

SCALE: N.T.S

DRAWINGS NO:
DCQ50244/STEELWORK/AQ1/02

TS NOOR



PROJECT TITLE:

CADANGAN MEMBINA & MENYIAPKAN
KOMPLEKS KILANG INDUSTRI KECIL
DAN SEDERHANA DI ATAS PTB 1470,
JALAN INDUSTRI B1, BANDAR
PENAWAR, MUKIM TG SURAT,
DAERAH KOTA TINGGI,
JOHOR DARUL TAKZIM



LANDSCAPE WORKS

DCQ50244
BUILDING WORKS
MEASUREMENT 5

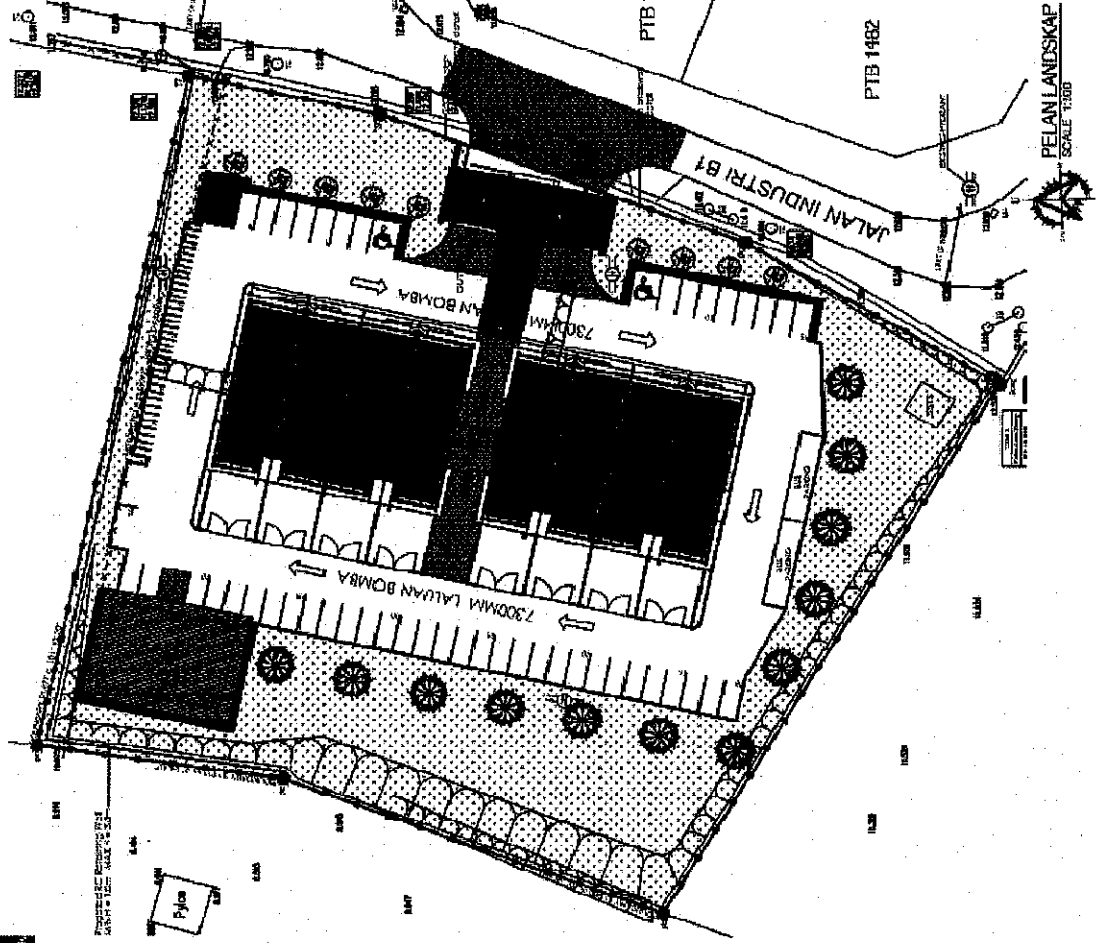
DRAWING TITLE:
LANDSCAPE LAYOUT PLAN &
DETAILS

SCALE: 1:300

DRAWINGS NO:
DCQ50244/LANDSCAPE/BQ1/01

TS NC08

JADUAL LANDSKAP LEMBU						
SIMBOL	NAMA TUMBUHAN		SPEKIFIKASI (MM)		SAHAK	
	NAMA BOTANI	NAMA UMUM	TM001	ENL BTG	TRUSMI BTG	DA. BTG
POKOK UTAMA						
	ROSEA	ROSEA	3300	50	2000	10,000
	CHENOPODIUM MERS	Kayu Manis	3300	75	2000	9000
POKOK REKAP						
	Abiesus Rosa Sinesis	Rosea Raya	300	-	-	350
RUMPUT						
	Axonopus compressus	Cow Grass	-	-	-	1000



GAMBAR TANAMAN

POKOK UTAMA

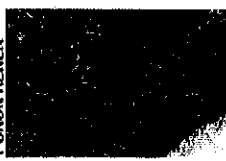


Hajaja adarata
Marawan Sport Jantan



Cirandara inas
Kayu Mampu

POKOK REKAP



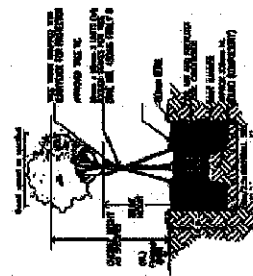
Abiesus Rosa Sinesis
Bunga Raya



Axonopus compressus
Cow Grass

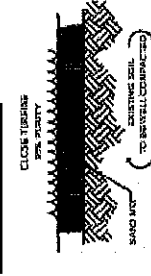
KADHATANAN

KADHATANAN POKOK UTAMA



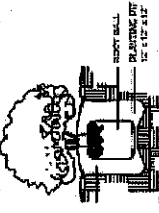
0.80m size of subvention root
System, girth 1.00m clear stem spaced 10.00

KADHATANAN POKOK REKAP



225mm x 225mm as specified laid on
and including black vegetable earth

KADHATANAN POKOK REKAP



2 parts rich
topsoil.
2 parts organic
manure (rotted
chicken
manure),
1 part C.I.R.P
and 1/2 part
approved
slow-release
N.P.K
fertilizer to fill
excavated
holes 150mm
above
surround area
planting holes
12 X12 X12

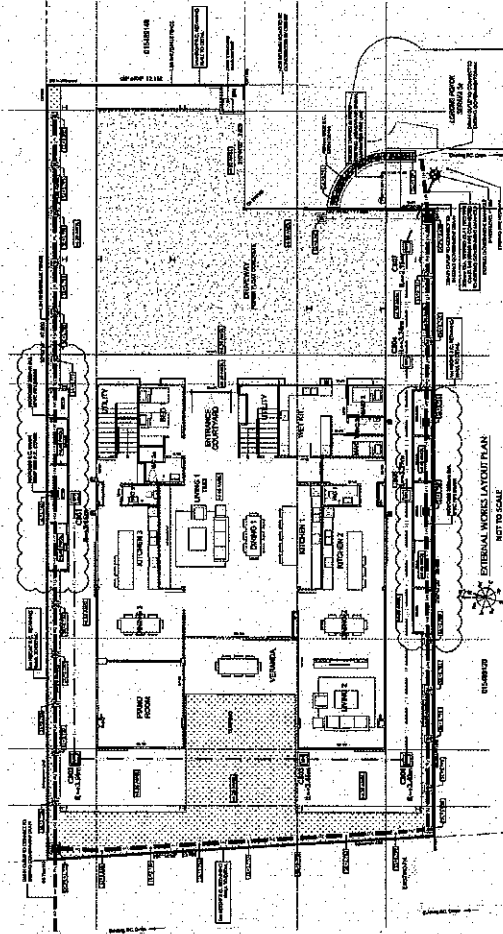
NOTES:

YOU CAN MAKE
ALL NECESSARY
ASSUMPTIONS
WHERE APPLICABLE

PROJECT TITLE:

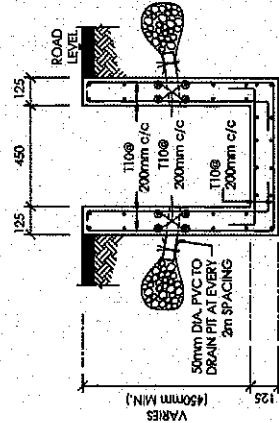
DRAWING TITLE:
DRAINAGE LAYOUT
& DETAILS

DRAWING NO:
DCQ50244/DRAINAGE/
BQ2/01



LEGEND:

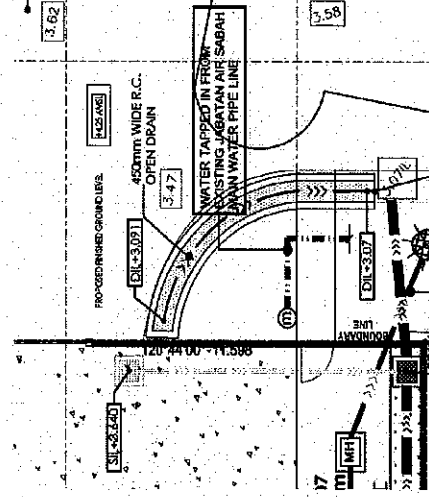
1. PROPOSED 300mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	11. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	21. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
2. PROPOSED 200mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	12. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	22. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
3. PROPOSED 150mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	13. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	23. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
4. PROPOSED 100mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	14. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	24. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
5. PROPOSED 75mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	15. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	25. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
6. PROPOSED 50mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	16. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	26. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
7. PROPOSED 40mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	17. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	27. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
8. PROPOSED 30mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	18. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	28. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
9. PROPOSED 20mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	19. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	29. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER
10. PROPOSED 15mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	20. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER	30. PROPOSED 450mm DIA. UNPVC SUMP PIPE WITH 150mm GRATING COVER

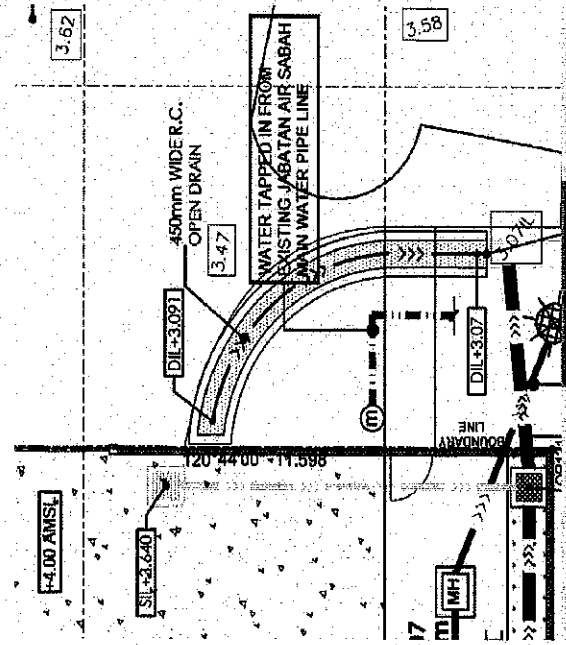


DETAILS OF 450mm WIDE
R.C. OPEN DRAIN

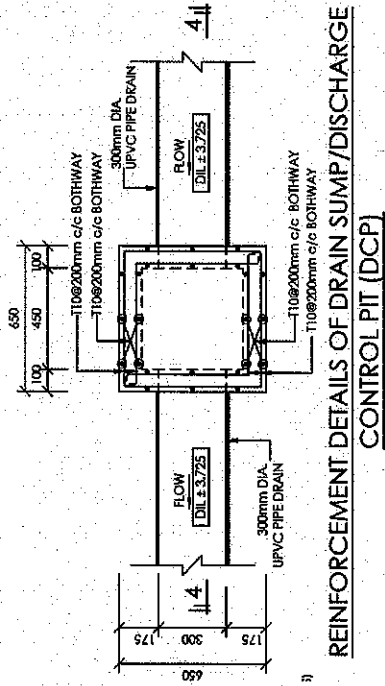
ENLARGEMENT OF OPEN DRAIN

SCALE 1:100





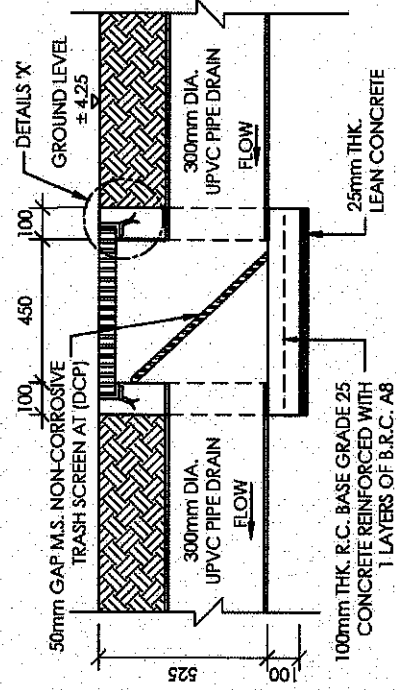
Not To Scale



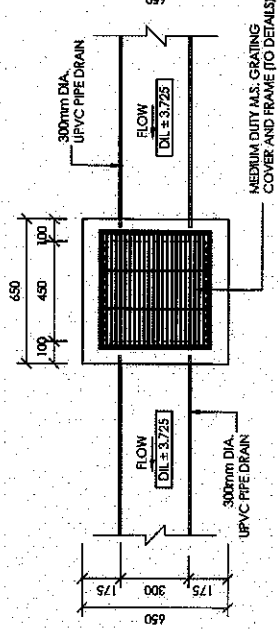
REINFORCEMENT DETAILS OF DRAIN SUMP/DISCHARGE CONTROL PIT (DCP)

LEGEND:

1. PROPOSED 200mm DIA. UPVC LEAK PIPE	11. PROPOSED DISCHARGE CONTROL PIT (DCP) WITH A.S. GRATING COVER
2. PROPOSED 200mm DIA. WIDENED CLAY (PO) PIPE CHAS. (M)	12. PROPOSED DRAIN SUMP (W/INLET LEVEL)
3. PROPOSED INJECTION CHAMBER WITH COVER	13. PROPOSED DISCHARGE CONTROL PIT (DCP) INLET LEVEL
4. PROPOSED BACKWALL CHAMBER INLET LEVEL	14. PROPOSED WATER METER ROOM (W/INLET LEVEL)
5. PROPOSED 200mm DIA. UPVC PIPE DRAIN	15. PROPOSED WATER METER ROOM TO BE CONSTRUCTED BY OWNER
6. PROPOSED 100mm DIA. UPVC PIPE DRAIN	16. PROPOSED 100mm DIA. R.C. BRICKS WALL
7. PROPOSED 450mm WIDE R.C. BOX DRAIN	17. PROPOSED FINISHED GROUND LEVEL
8. PROPOSED 450mm WIDE R.C. OPEN DRAIN	18. EXISTING GROUND LEVEL
9. PROPOSED D.C. DRAIN SUMP WITH A.S. GRATING COVER	
10. PROPOSED D.C. DRAIN SUMP WITH A.S. GRATING COVER	



SECTION 4 - 4



PLAN VIEW OF DRAIN SUMP/DISCHARGE CONTROL PIT (DCP)

NOTES:

YOU CAN MAKE ALL NECESSARY ASSUMPTIONS WHERE APPLICABLE

PROJECT TITLE:

DRAWING TITLE:
DRAIN SUMP

DRAWING NO:
DCQ50244/DRAINAGE/
BQ2702

NOTES:

ALL SEWER PIPES UNDER THE ROAD PAVEMENT SHALL BE ENCASED WITH REINFORCED CONCRETE.

CONCRETE MIX TO BE GRADE 25.

THE INTERNAL DIAMETER OF ALL ROUND MANHOLE TO BE 1200MM

YOU CAN MAKE ALL NECESSARY AND REASONABLE ASSUMPTIONS WHERE APPLICABLE

PROJECT TITLE ;

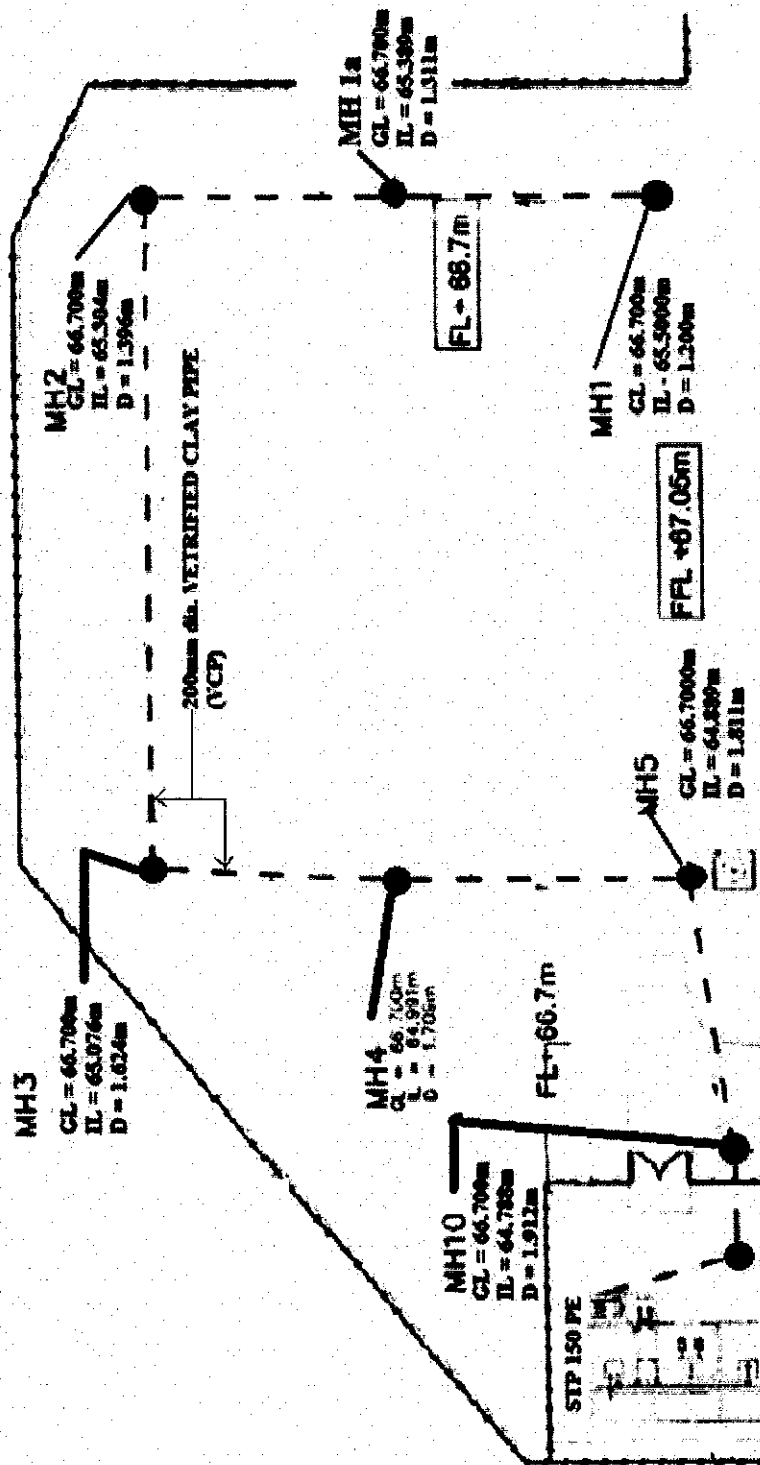
CADANGAN PEMBINAAN KUARTERS KASTAM

DRAWING TITLE ;

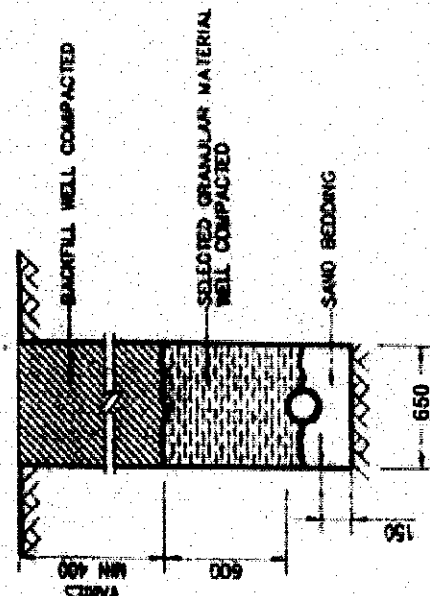
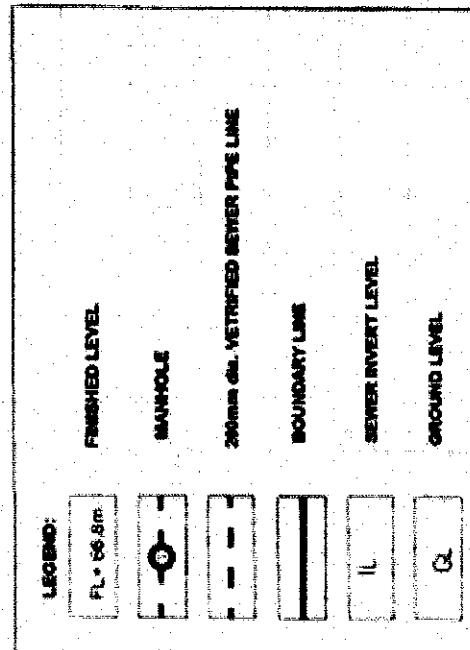
SEWERAGE LAYOUT
SEWER PIPE SECTION

DRAWING NO ;

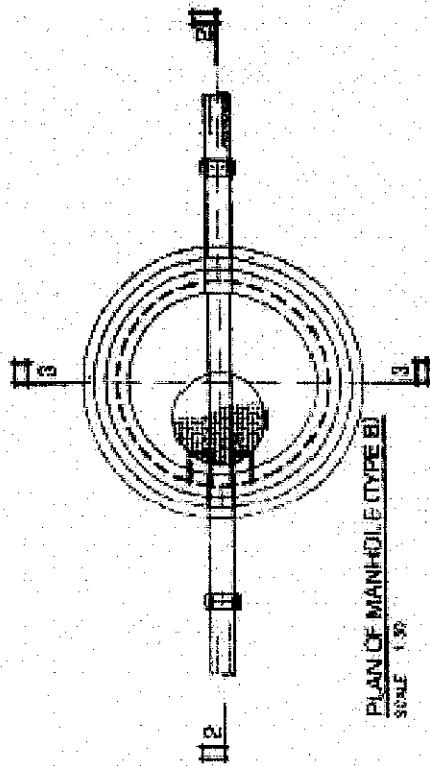
DCQ502444/SEWERAGE/
BQ3/01



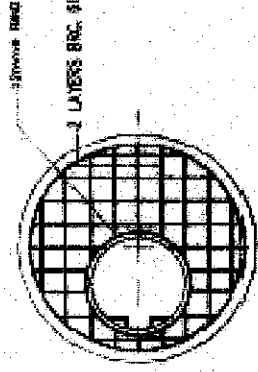
SEWERAGE LAYOUT PLAN
Scale 1:300



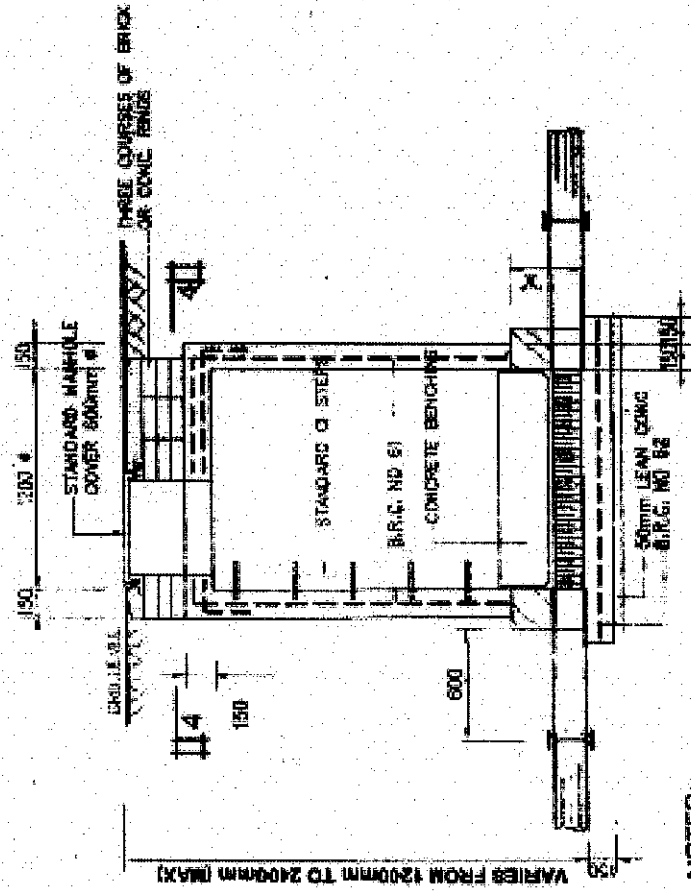
TYPICAL SEWER PIPE SECTION
BEDDING AND BACKFILL



PLAN OF MANHOLE (TYPE B)
SCALE 1:30

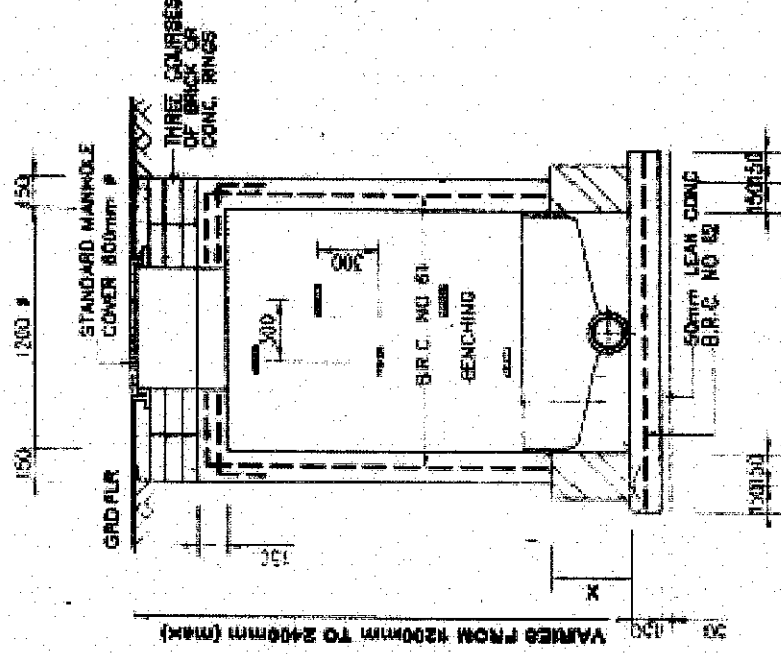


SECTION 4 - 4 (TYPE B)



SECTION 2 - 2 (TYPE B)

NOTES:
X' TO BE 225 + 8 OF THE LARGEST
PIPE IN THE MANHOLE



SECTION 3 - 3 (TYPE B)

NOTES:

LEAN CONCRETE SHALL BE
GRADE 15.

YOU CAN MAKE ALL
NECESSARY AND
REASONABLE
ASSUMPTIONS WHERE
APPLICABLE

PROJECT TITLE ;

CADANGAN PEMBINAAN
KUARTERS

DRAWING TITLE ;

PLAN AND MANHOLE
SECTIONS

DRAWING NO ;

DCQ502444/SEWERAGE/
BQ3/02

