








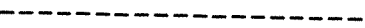
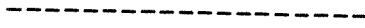


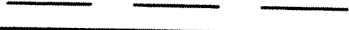








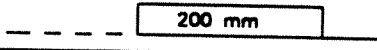

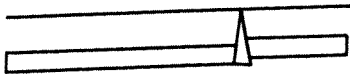
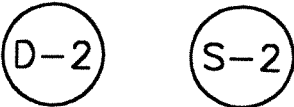
APPENDIX "C" - SUPPLEMENTARY DETAIL DRAWINGS

General Notes and Numbering Systems

The *Supplementary Detail Drawings* as contained in this Schedule are primarily concerned with clarifying the Design Criteria. Construction details and practices are specified in the *Standard Detail Drawings* in the *Master Municipal Construction Documents* (MMCD). The *Supplementary Detail Drawings* are supplemental to the *Standard Detail Drawings*. However, in case of conflict, the *Supplementary Detail Drawings* take precedence over the *Standard Detail Drawings*.

The *Standard Detail Drawing* numbers in the MMCD are prefixed by a single letter to indicate works or services. To avoid possible confusion, the *Supplementary Detail Drawing* numbers are further prefixed by "SD". The 2 numbering systems are summarised as follows:

	Supplementary Detail Drawings	Standard Detail Drawings in MMCD
General	SDG 1, 2, 3 ...	G1, 2, 3 ...
Road	SDR 1, 2, 3 ...	R1, 2, 3 ...
Drainage	SDD 1, 2, 3 ...	S1, 2, 3 ...
Sanitary Sewers	SDS 1, 2, 3 ...	S1, 2, 3 ...
Water	SDW 1, 2, 3 ...	W1, 2, 3 ...
Street Trees	SDT 1, 2, 3 ...	-
Concrete & Misc	-	C1, 2, 3 ...
Electrical	SDE 1, 2, 3 ...	E1, 2, 3 ...

PLAN	PROFILE	DESCRIPTION
		PRESSURE REDUCING VALVE
		TEMPORARY CLEANOUT
		CULVERT
		CONDUIT
		FENCE LINES
		R/R TRACKS
		WHEELCHAIR LETDOWN
		EXISTING ϕ PAVEMENT
		EXISTING GROUND LINE
		S. OR E. EDGE PAVEMENT
		N. OR W. EDGE OF PAVEMENT
		N. OR W. DITCH OR GUTTER
		S. OR E. DITCH OR GUTTER
		N. OR W ϕ
		S. OR E. ϕ
		CULVERT
		CATCHBASIN
		MANHOLE
		MANHOLE NO.

NOTE: SEE OTHER LEGEND IN MMS STANDARD DETAIL DRAWING G 1

ADDITIONAL LEGEND
FOR CONTRACT DRAWINGS

DISTRICT OF PORT HARDY

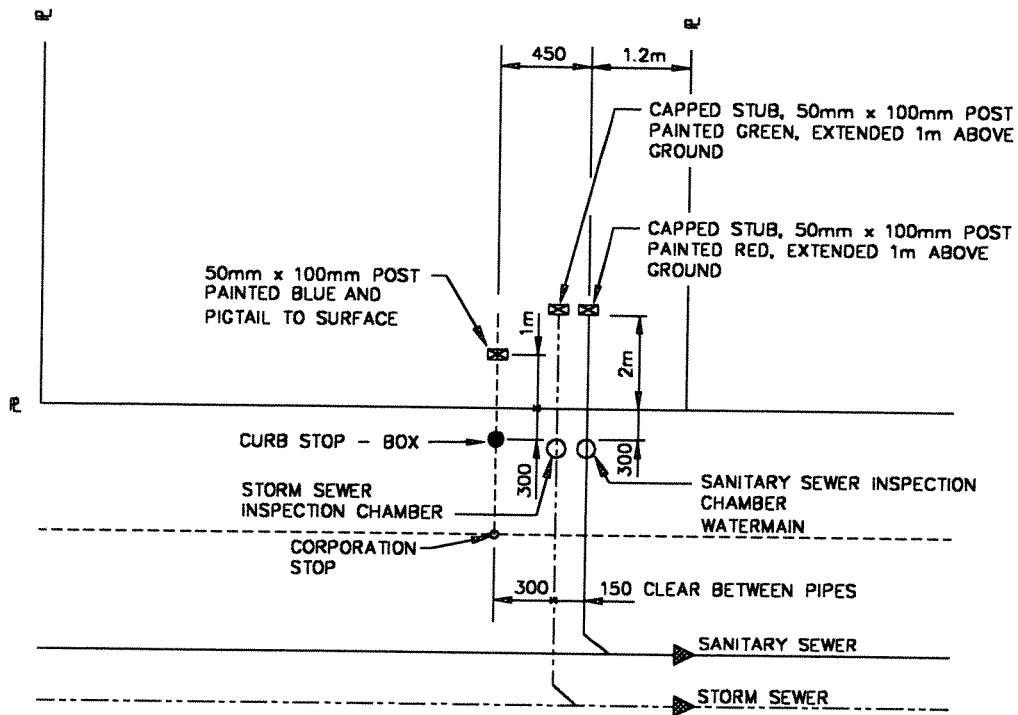
DATE APR / 98

APPROVED

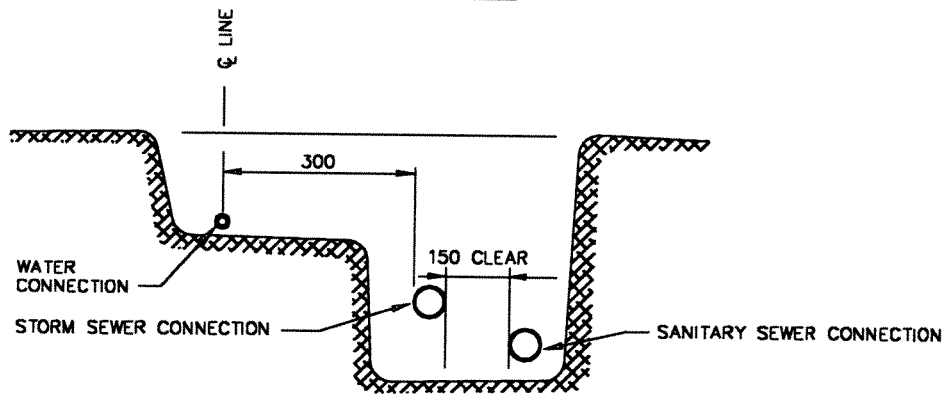
S.C.B.No. SCBE0037

PG
113

SDG 1



PLAN



NOTE:
 FOR WATER CONNECTION SEE STD. DWG. W2
 FOR SANITARY CONNECTION SEE STD. DWG. S7
 FOR STORM CONNECTION SEE STD. DWG. S8
 CONNECTIONS TO BE PLACED AT LOWEST SIDE OF LOT

TITLE
 TYPICAL LOT SERVICE CONNECTION

DISTRICT OF PORT HARDY

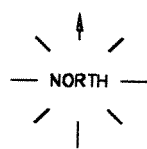
DATE APR / 98

APPROVED

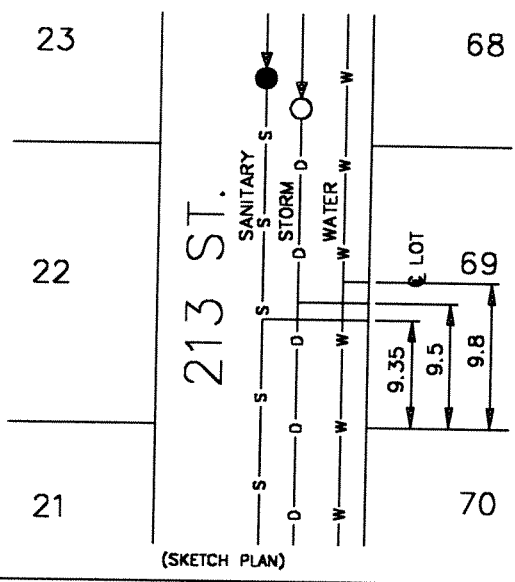
S.C.E. No. SCBE0018

114.

SDG 2



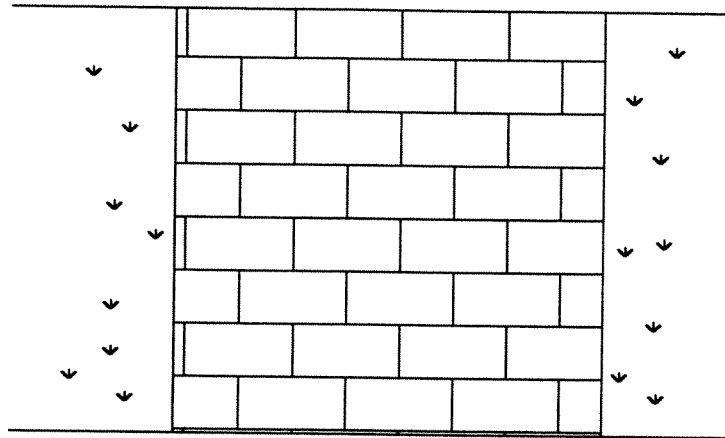
District of Port Hardy
SERVICE RECORD CARD



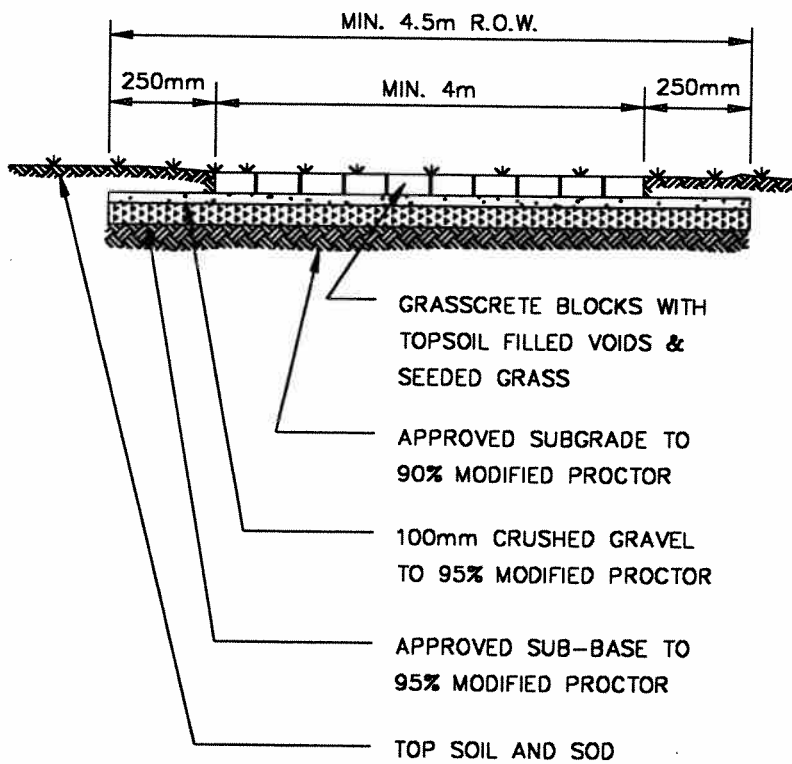
Address		Project #
6907 - 213 ST.		8-13-10
Type of Building	Lot No.	Roll No.
S.F.D.	69	7133-KA
W A T E R	CONNECTION DATE MARCH 30, 1996	
	SIZE & TYPE 20mm Ø POLY TUBING	
	METER N/A	
	LOCATION TO R 9.8m NORTH OF SOUTH WEST CORNER OF PROPERTY	
S A N I T A R Y	CONNECTION DATE MARCH 29, 1996	
	SIZE & TYPE 100mm Ø PVC	
	LOCATION TO R 9.35m NORTH OF SOUTH WEST CORNER OF PROPERTY	
	DEPTH 1.4m	
S T O R M	CONNECTION DATE MARCH 29, 1996	
	SIZE & TYPE 150mm Ø PVC	
	LOCATION TO R 9.5m NORTH OF SOUTH WEST CORNER OF PROPERTY	
	DEPTH 1.45m	

TITLE		115
SAMPLE SERVICE RECORD CARD		
DISTRICT OF PORT HARDY	DATE	APR / 98
	APPROVED	
	S.C.No.	SCBE0019
		SDG 3

PLAN VIEW



SECTION



NOTES:

- 1.) ACCESS TO BE CONSTRUCTED PRIOR TO SUBSTANTIAL COMPLETION
- 2.) ACCESS TO CONFORM TO FINAL LOT GRADE
- 3.) ACCESS TO HAVE MIN. 1.0% CROSSFALL

TITLE

TYPICAL TRAVELLED ACCESS
IN RIGHT OF WAY

DISTRICT OF PORT HARDY

DATE APR / 98

APPROVED

S.C.B.No. SCBE0021

SDG 5

116

- 1.) If only one sidewalk and/or one row of streetlights are required, place them on the side opposite to the Power & Telephone corridor.
- 2.) Streetlights are required on both sides where pavement width is greater than 11 metres.
- 3.) Place streetlights at lot lines where practical. Alternate the streetlights with P & T boxes. Fire hydrants and catch basins to be located within 1.0m of lot lines whenever possible
- 4.) 3 Phase wiring may require a wider P & T corridor. Consult B.C. Hydro for corridor requirements.
- 5.) Where a road serves properties with different zonings, the higher zoning standard will determine the road standard.
- 6.) French drains shall be provided behind curbs in all wet areas.
- 7.) All permanent works on private property shall be protected by a registered right of way.
- 8.) Frontage road elevation may be designed to match the adjacent land and does not need to match the arterial road profile.
- 9.) Arterial road boulevard designs, including sidewalk widths may be varied by the Municipal Engineer, to suit adjacent land uses, frontage widths, landscaping, utility poles, retaining walls, or other structures.
- 10.) Where there is temporarily no alternative access serving a development adjacent to a divided arterial road, the planned curbed median may be temporarily replaced by a 5 metre wide 2-way left turn lane or median openings. Installation of the permanent curbed median shall be at the discretion of the Municipal Engineer, depending on traffic volumes and other safety considerations.
- 11.) All ditches more than 1 metre deep, in rural roads, shall be replaced by storm sewers properly designed with allowance for upstream needs.
- 12.) Utilities shall not be installed in ditches unless the section of the ditch is replaced by a culvert. The alternative is to secure additional right of way for the utilities on private property.
- 13.) Where a utility pole or hydrant location conflicts with a ditch, the ditch shall be diverted with a proper culvert.
- 14.) Road drains under a half road shall be designed to include the flow from the future half of the road.
- 15.) The ultimate right of way width for a half road, when fully built, shall be a minimum of 20 metres. The Municipal Engineer may specify a different pavement width for the unfinished portion.
- 16.) All dimensions are in metres unless otherwise indicated.

TITLE

TYPICAL NOTES FOR ROADWORKS

DISTRICT OF PORT HARDY

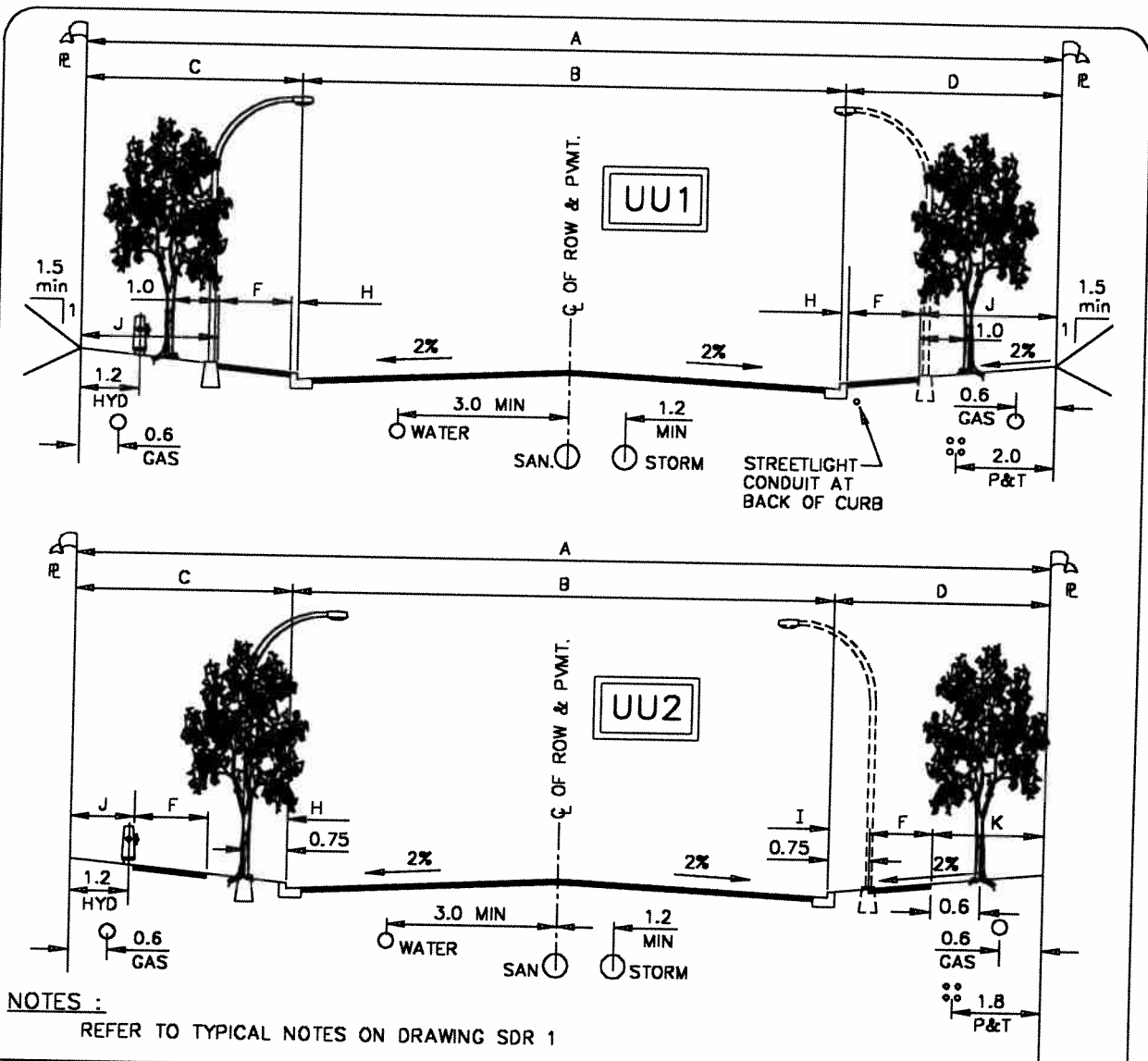
DATE APR / 98

APPROVED

S.C.B.No. SCBE0009

117

SDR 1



NOTES :
REFER TO TYPICAL NOTES ON DRAWING SDR 1

TYPICAL ZONING & STREET CLASS	ROAD TYPE	CURB TYPE	No. OF S/W's	ROW A	PVMT B	BLVD C (=0)	S/W WIDTH F	Curb to S/W H/I	P/L to S/W J/K	OPERATIONAL CHARACTERISTICS
Residential - sf local (limited)	UU1-A	R	1	18	8.6	4.7	1.5	0.15	3.05	Cul-de-sacs only
Residential - sf (local)	UU1-B	R	2	20	8.6	5.7	1.5	0.15	4.05	Parking, 1 mvg lane
Residential-collector (mf)	UU1-C	B	2	22	12.2	4.9	1.5	0.15	3.25	2 mvg, 2 pkg, wide turns
Residential-collector (sf)	UU1-D	R	2	20	11	4.5	1.5	0.15	2.85	2 pkg lanes, 2 mvg lanes
Industrial - local	UU1-E	B	1	22	12.2	4.9	1.5	0.15	3.25	Rtg parking, wide turns, 1 mvg
Comm/High Den Residential local	UU2-A	B	2	20	11	4.5	1.5	1.35/0.15	1.65/2.85	Some Parking, 3.5 mvg lanes
Comm/Indust - collector	UU2-B	B	2	25	15	5.0	1.5	1.35/0.75	2.15/2.75	4 mvg pk hr/2 mvg+2 pkg base
Arterial 4 lane undivided	UU2-C	B	2	25	15	5.0	see Notes	Varies	Varies	4 mvg pk hr/2 mvg+2 pkg base

TITLE

URBAN UNDIVIDED ROADS

DISTRICT OF PORT HARDY

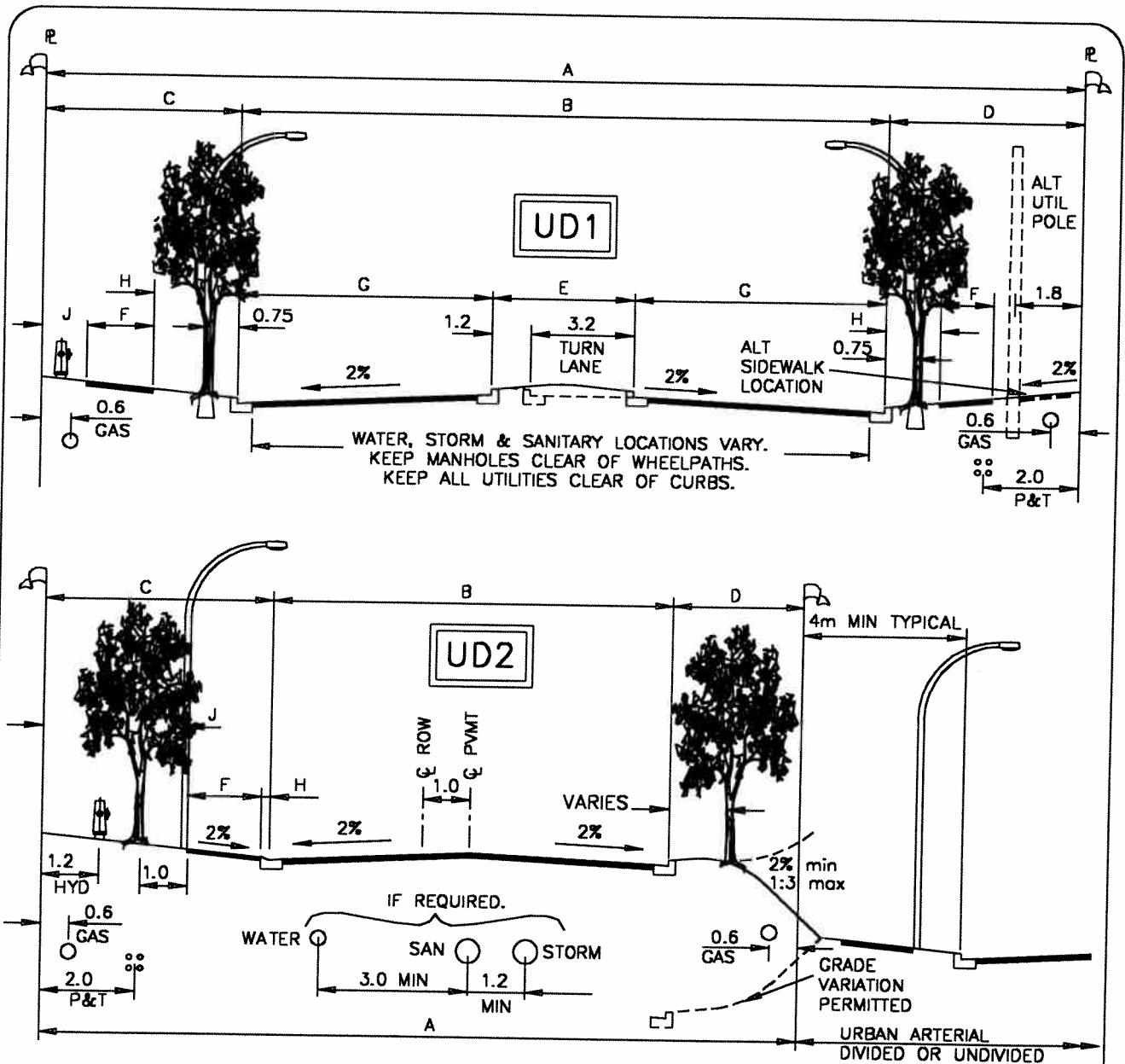
DATE APR / 98

APPROVED

S.C. & No. SCBE0005

118

SDR 2



NOTES :

REFER TO TYPICAL NOTES ON DRAWING SDR 1

TYPICAL ZONING LAND USE	ROAD TYPE	CURB TYPE	No. OF S/W	ROW A	PVMT B	BLVD -S/W C	BLVD w/P&T D	Median E	S/W F	W/DM PVMT G	CURB toS/W H	P/L toS/W J	OPERATIONAL CHARACTERISTICS
Arterial 4lane divided (min)	UD1-A	B	2	26	16.8	4.6	4.6	1.2	see Notes	7.8	1.35	1.75	4 mvg pk hr/2 mvg+2pkg base
Arterial 4lane divided (ltb)	UD1-B	B	2	28	20	4	4	4.4	see Notes	7.8	1.35	1.15	4 mvg pk hr/2 mvg+2pkg base
Arterial 6lane divided (ltb)	UD1-C	B	2	35	27	4	4	4.4	see Notes	11.3	1.35	1.15	6 mvg pk hr/4 mvg+2pkg base
SF-Resid'l frontage road	UD2-A	R,B	1	16	8.6	4.7	2.7	N/A	1.5	N/A	0.15	3.05	

TITLE

URBAN DIVIDED ROADS

DISTRICT OF PORT HARDY

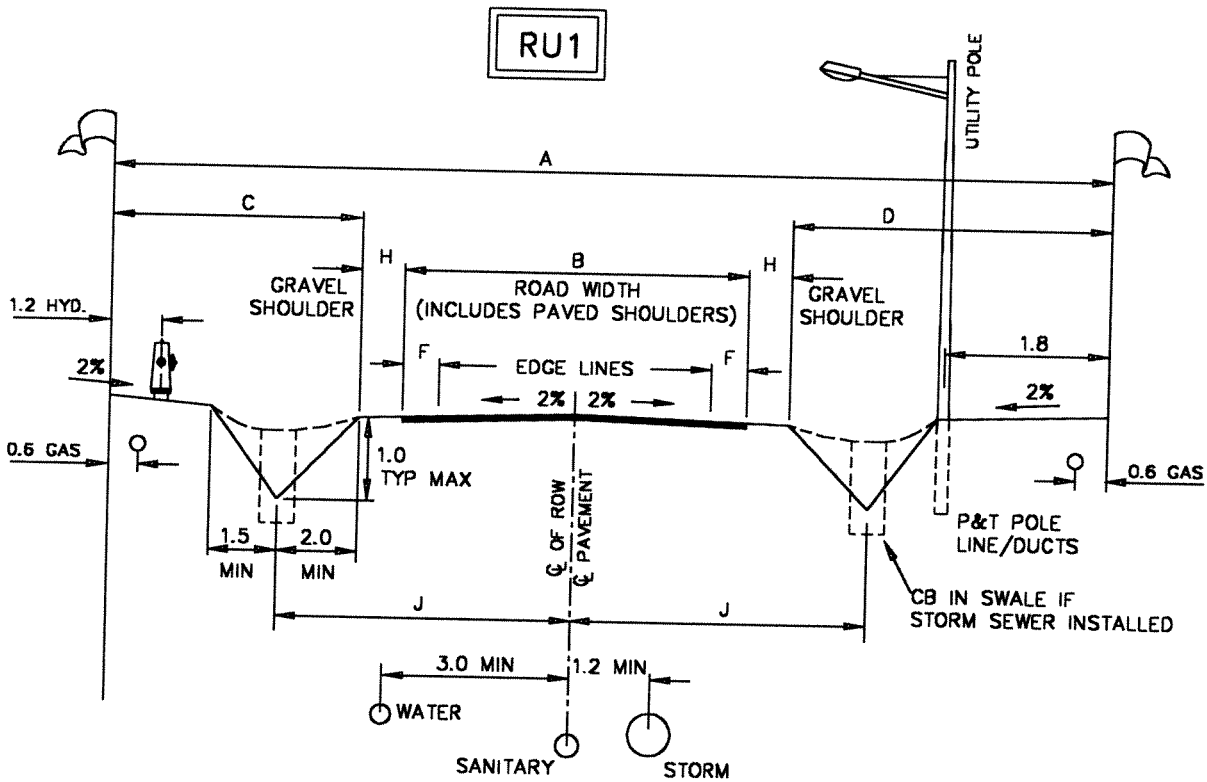
DATE APR / 98

APPROVED

S.C.S.No. SCBE0001

SDR 3

119



NOTES :

REFER TO TYPICAL NOTES ON DRAWING SDR 1

TYPICAL ZONING LAND USE	ROAD TYPE	CURB TYPE	LOC. OF S/W	ROW A	PVMT B	BLVD C	BLVD w/P&T D	w/pav shldr F	w/grvl shldr H	max ditch & to Pvmt J	OPERATIONAL CHARACTERISTICS
Rural - limited local	RU1-A	N/A	on road	18	6.8	3.6	3.6	0	2	7.5	cul-de-sac
Rural - residential	RU1-B	N/A	on road	20	6.8	4.6	4.6	0	2	7.5	2x3.5m mvg lanes, no pav shldr
Rural-art'l/coll/grid local	RU1-C	N/A	an shldr	20	10.3	4.35	4.35	1.5	0.5	7.65	2x3.65 mvg lanes, pav shldr

TITLE

RURAL ROADS

DISTRICT OF PORT HARDY

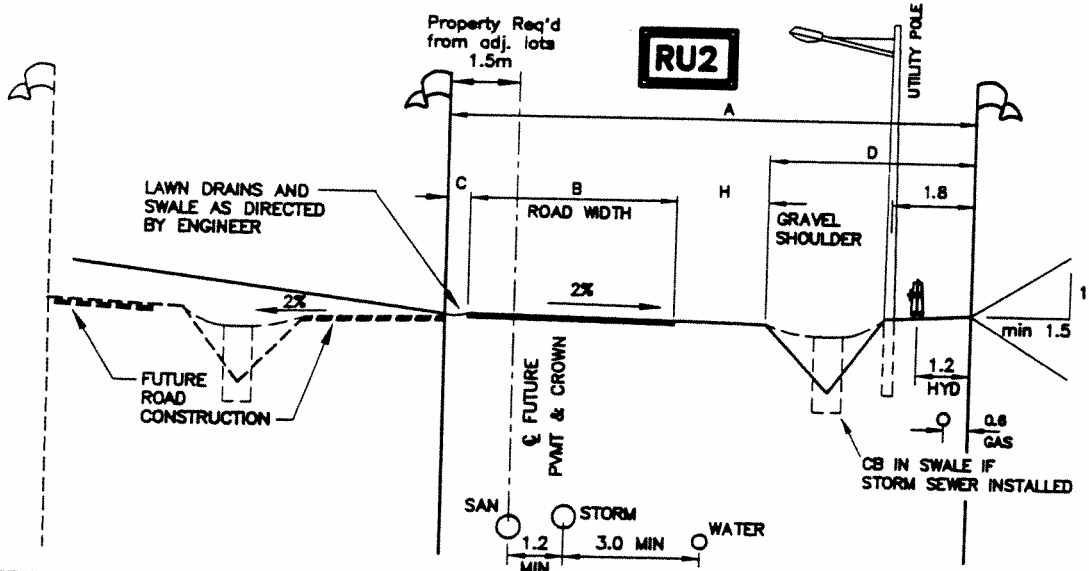
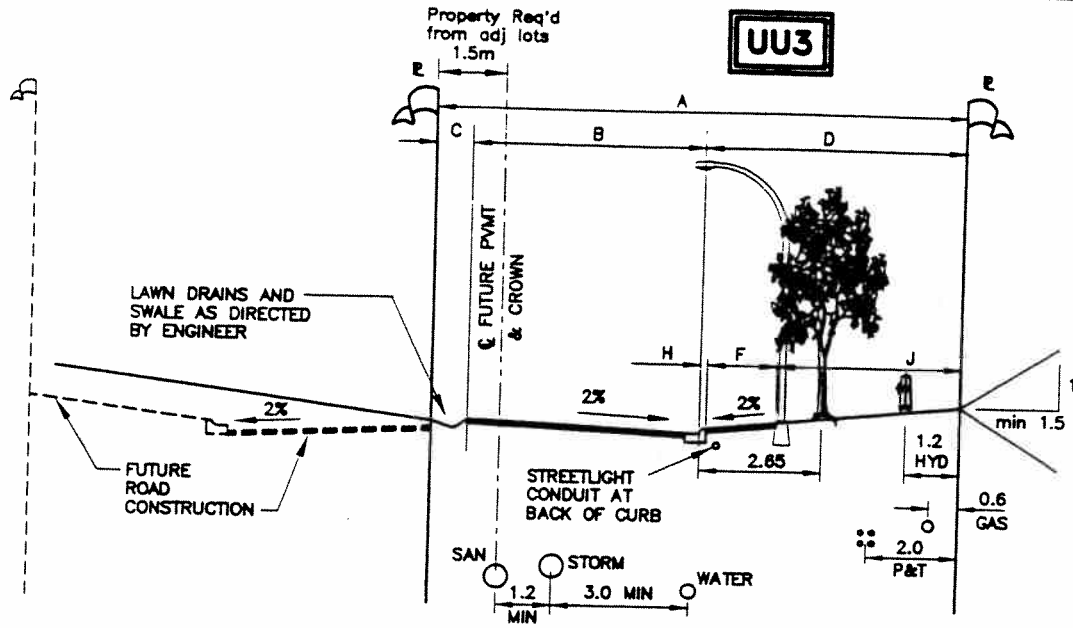
DATE APR / 98

APPROVED

S.C.B.No. SCBE0006

20

SDR 4



NOTES :
REFER TO TYPICAL NOTES ON DRAWING SDR 1

TYPICAL ZONING LAND USE	ROAD TYPE	CURB TYPE	No. OF S/W	ROW A	PVMT B	BLVD C	BLVD w/P&T D	width S/W F	CURB -S/W H	PL to S/W J	OPERATIONAL CHARACTERISTICS
Urban Half Road	UU3-A	R	1	11.5	5	0.8	5.7	1.5	0.15	4.05	Interim; no parking
Rural Half Road	RU2-A	N/A	On Road (Loc'n of S/W)	11.5	4.5	0.5	4.5		2 (w/grvt shldr)	N/A	Interim; no parking

TITLE

HALF ROADS

DISTRICT OF PORT HARDY

DATE

APPROVED

S.C.B.No.

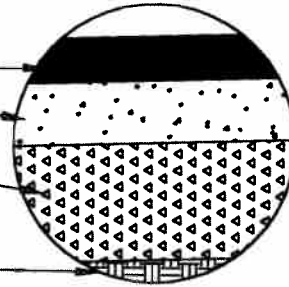
121

SDR 5

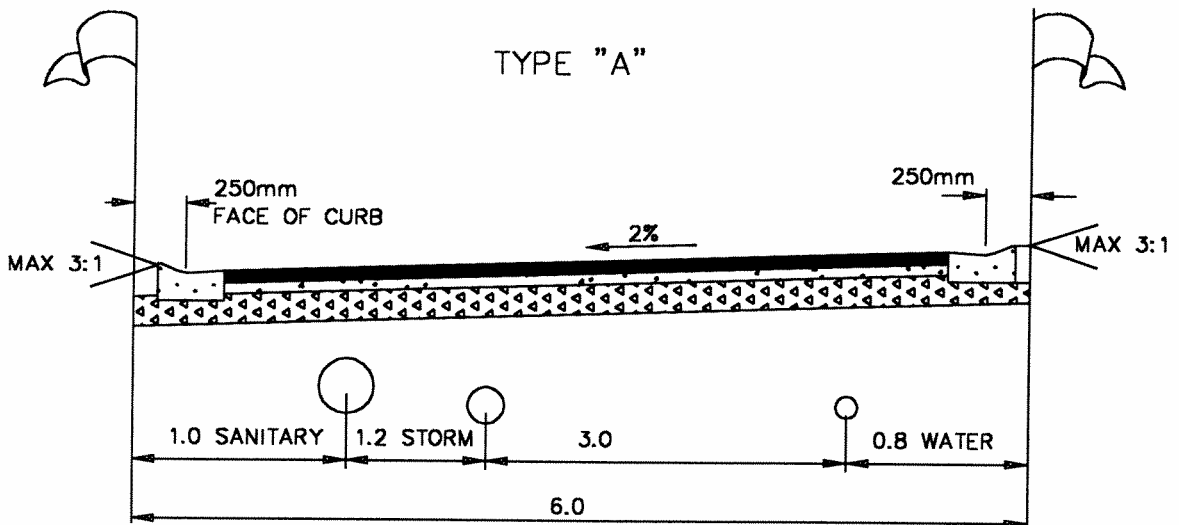
MIN 65mm ASPHALT COURSE
 MIN 100mm OF 20mm MINUS CRUSH
 BASE TO 95% MODIFIED PROCTOR

MIN 200mm OF 100mm GRAVEL SUBBASE
 TO 95% MODIFIED PROCTOR

SUBGRADE TO 90% MODIFIED PROCTOR



TYPE "A"



NOTES :

REFER TO TYPICAL NOTES ON DRAWING SDR 1

TITLE

LANE

DISTRICT OF PORT HARDY

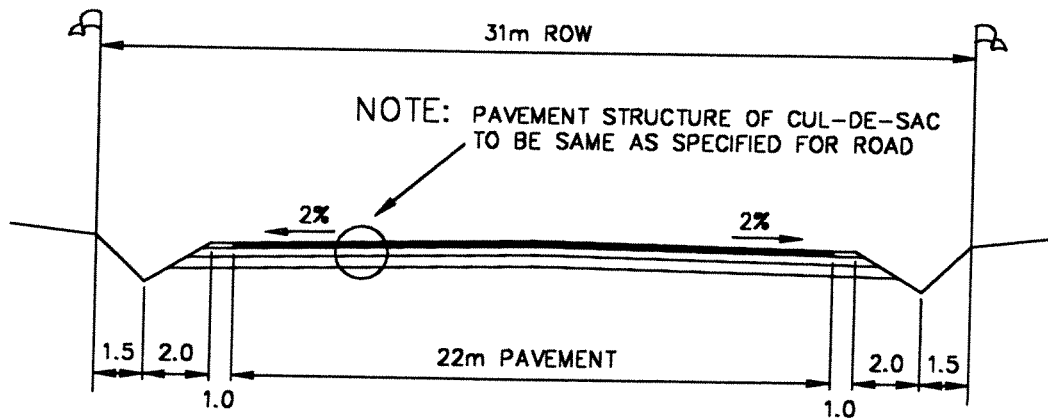
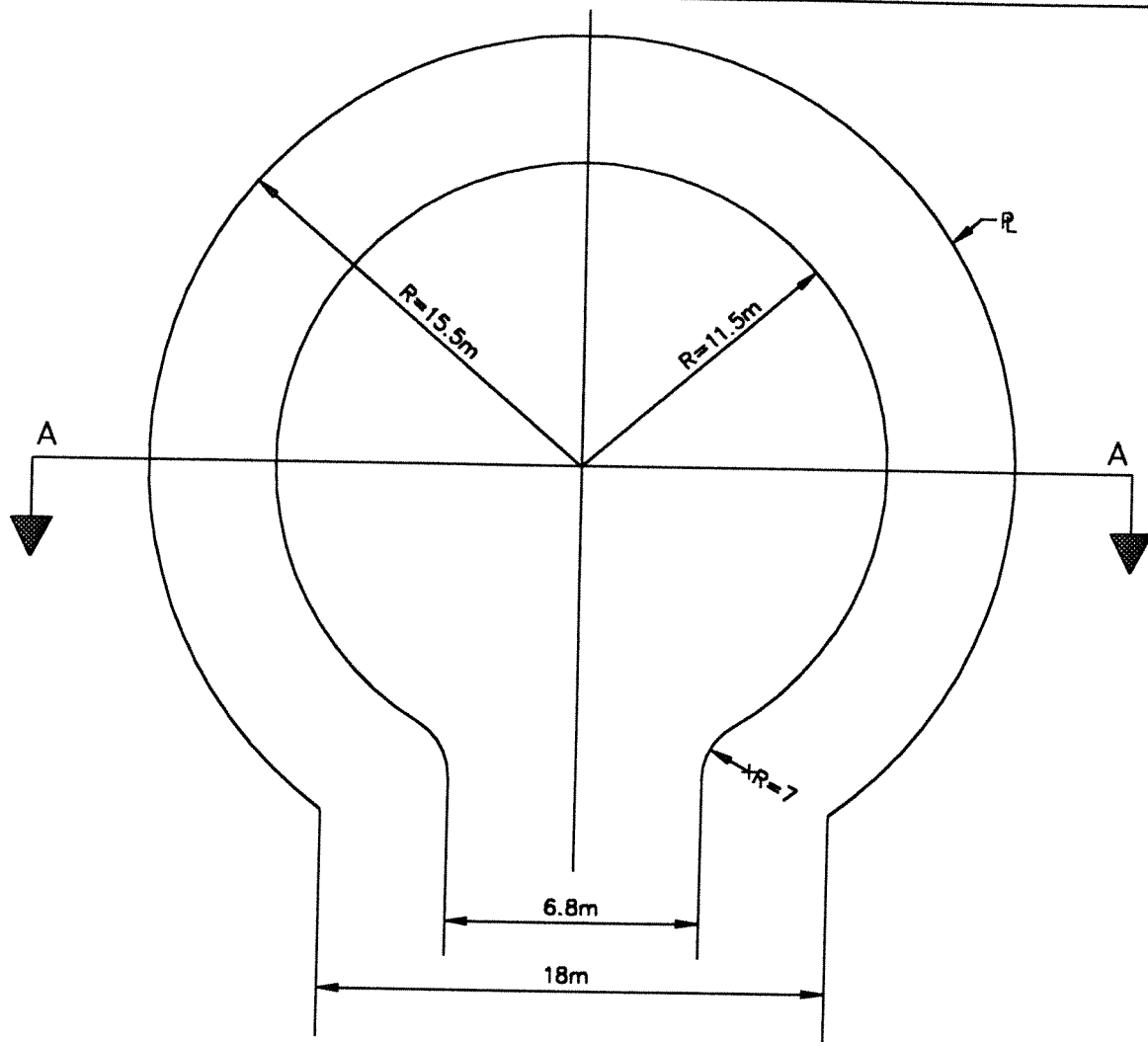
DATE APR / 98

APPROVED

S.C.B.No. SCBE0012

122

SDR 6



SECTION A-A

TITLE

RURAL CUL-DE-SAC

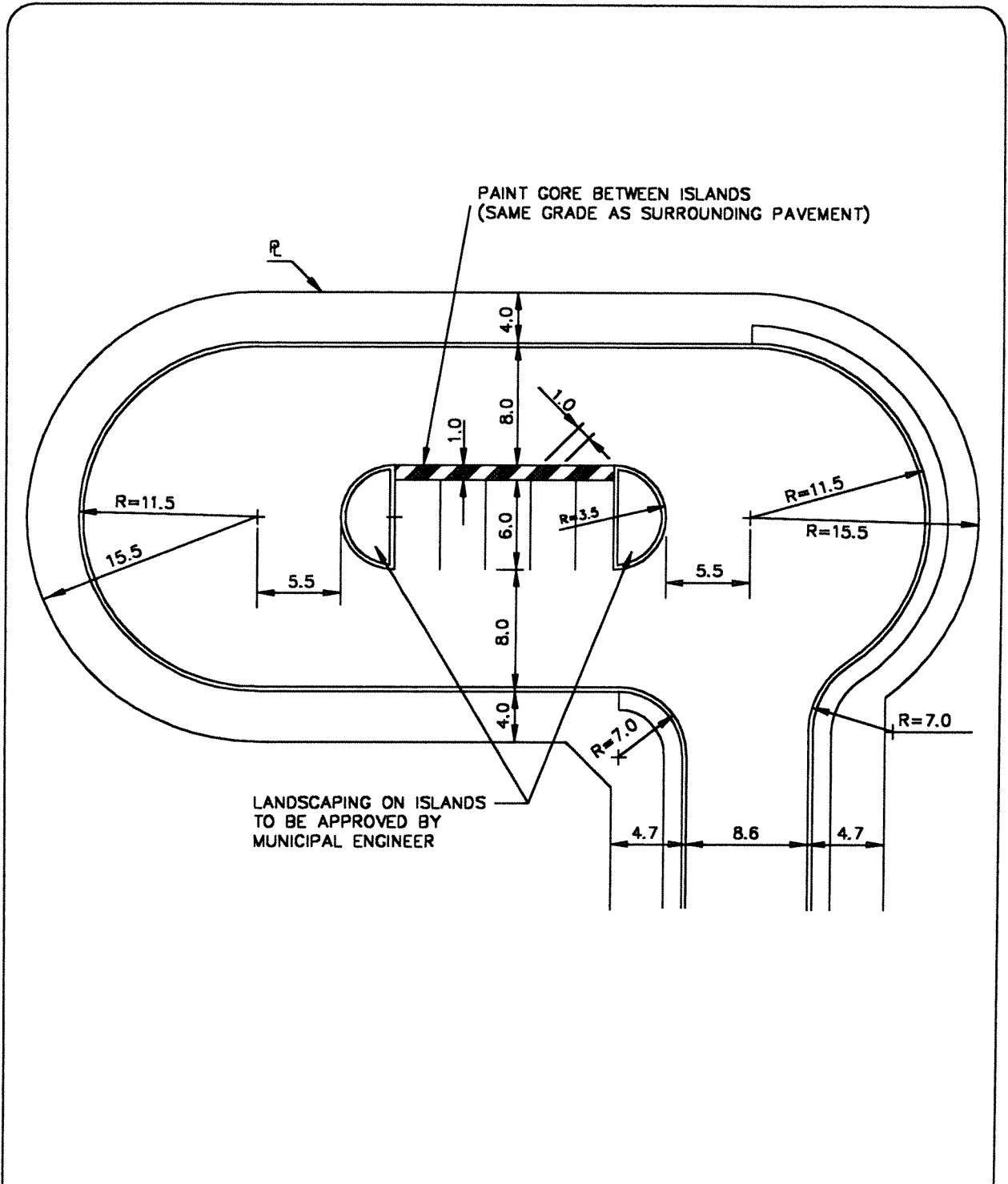
DISTRICT OF PORT HARDY

DATE APR / 98

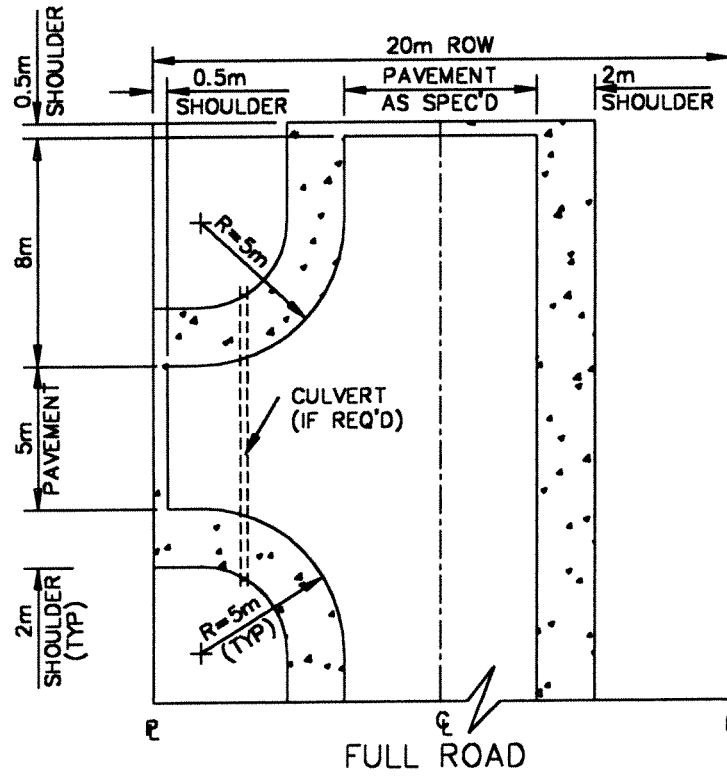
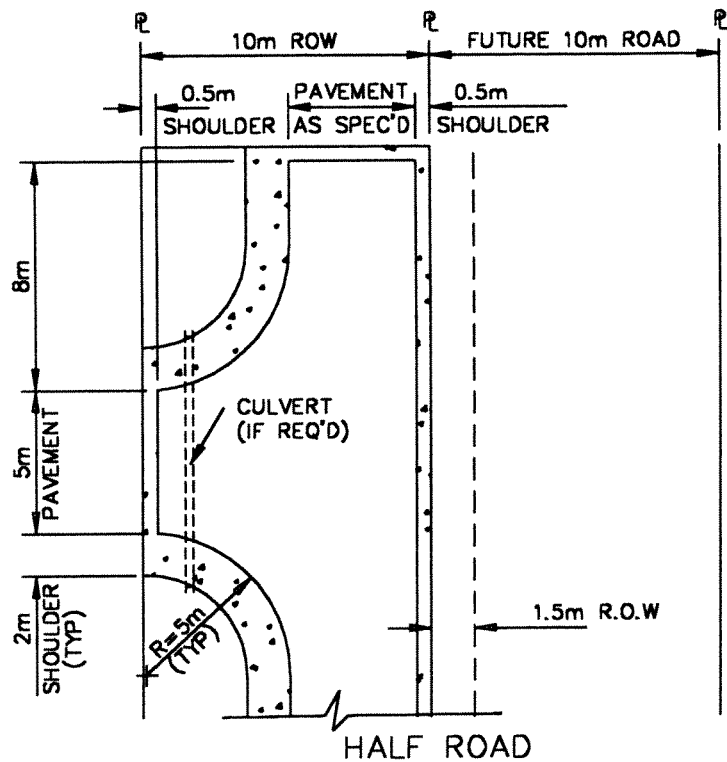
APPROVED

S.C.B.No. SCBE0013

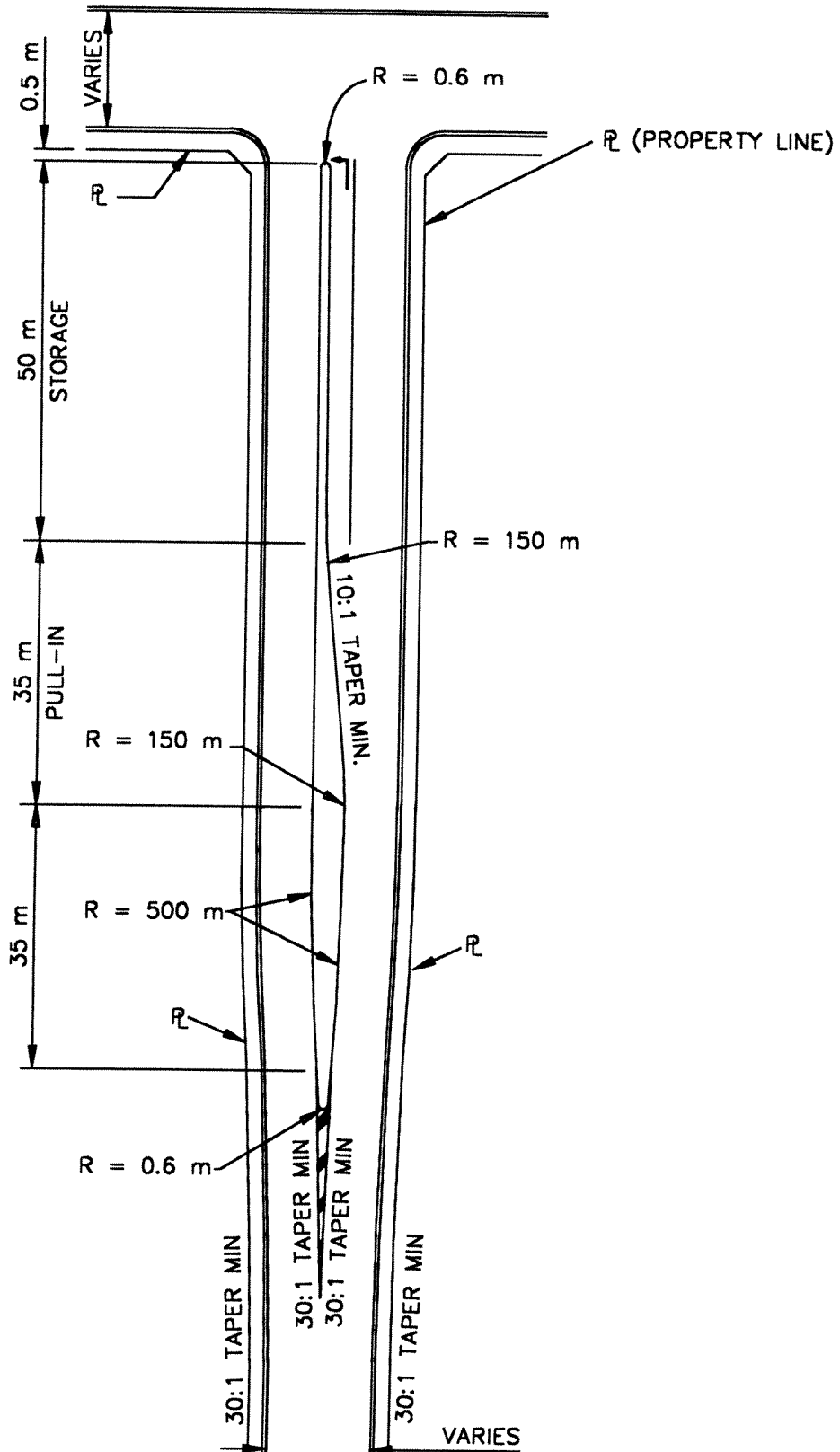
123
SDR 7



TITLE		125
ISLAND IN RESIDENTIAL CUL-DE-SAC		
DISTRICT OF PORT HARDY		SDR 9
DATE	APR / 98	
APPROVED		
S.C.B. No.	SCBE0008	



TITLE		126
HAMMERHEAD TURNAROUND		
DISTRICT OF PORT HARDY		DATE APR / 98
		APPROVED
		S.C.B.N. SCBE0014
		SDR 10



NOTE: SEE STANDARD DRAWINGS FOR CROSS SECTION DIMENSIONS.

TITLE

TYPICAL LEFT TURN LANE

DISTRICT OF PORT HARDY

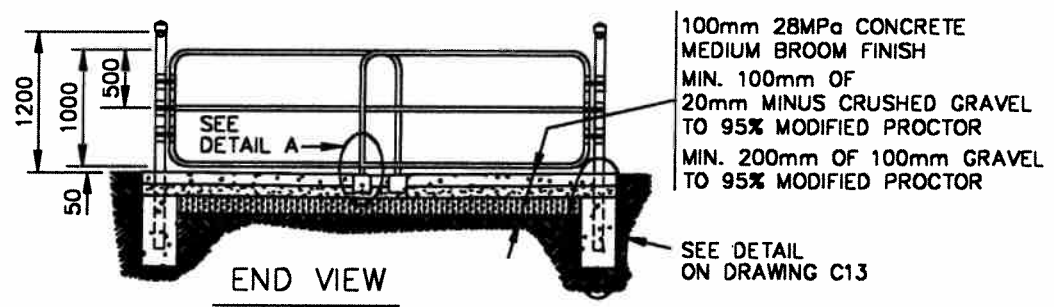
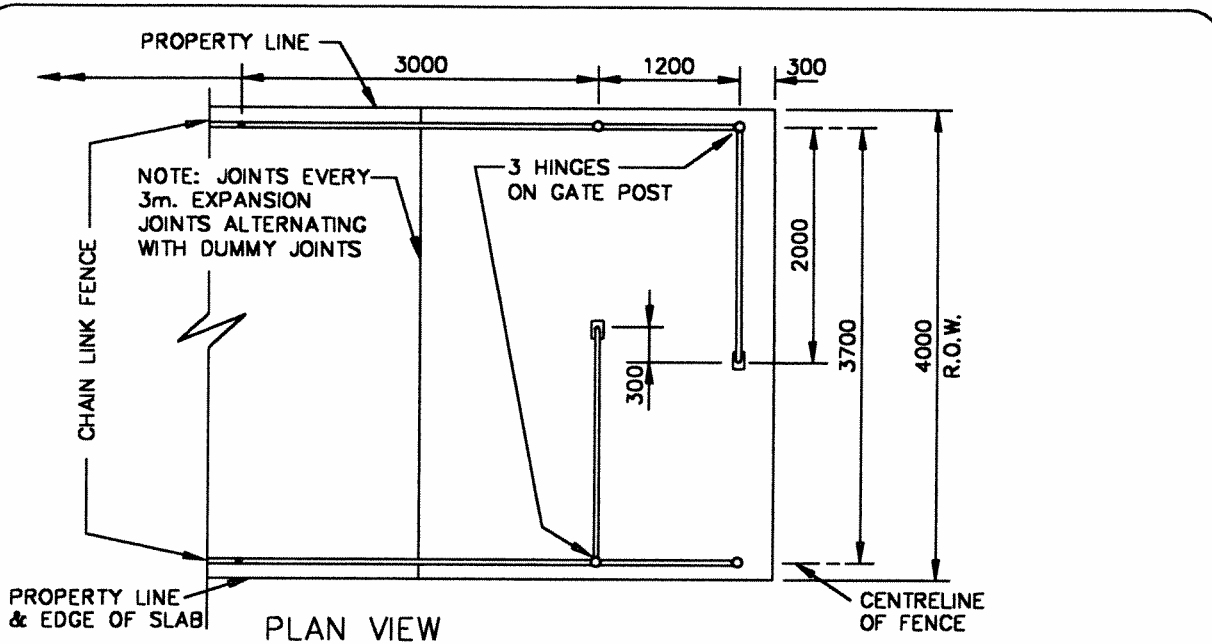
DATE APR / 98

APPROVED

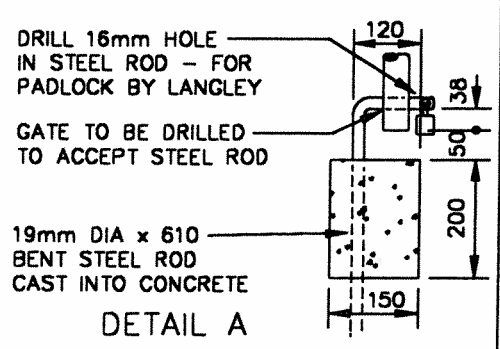
S.C.B.No. SCBE0003

127

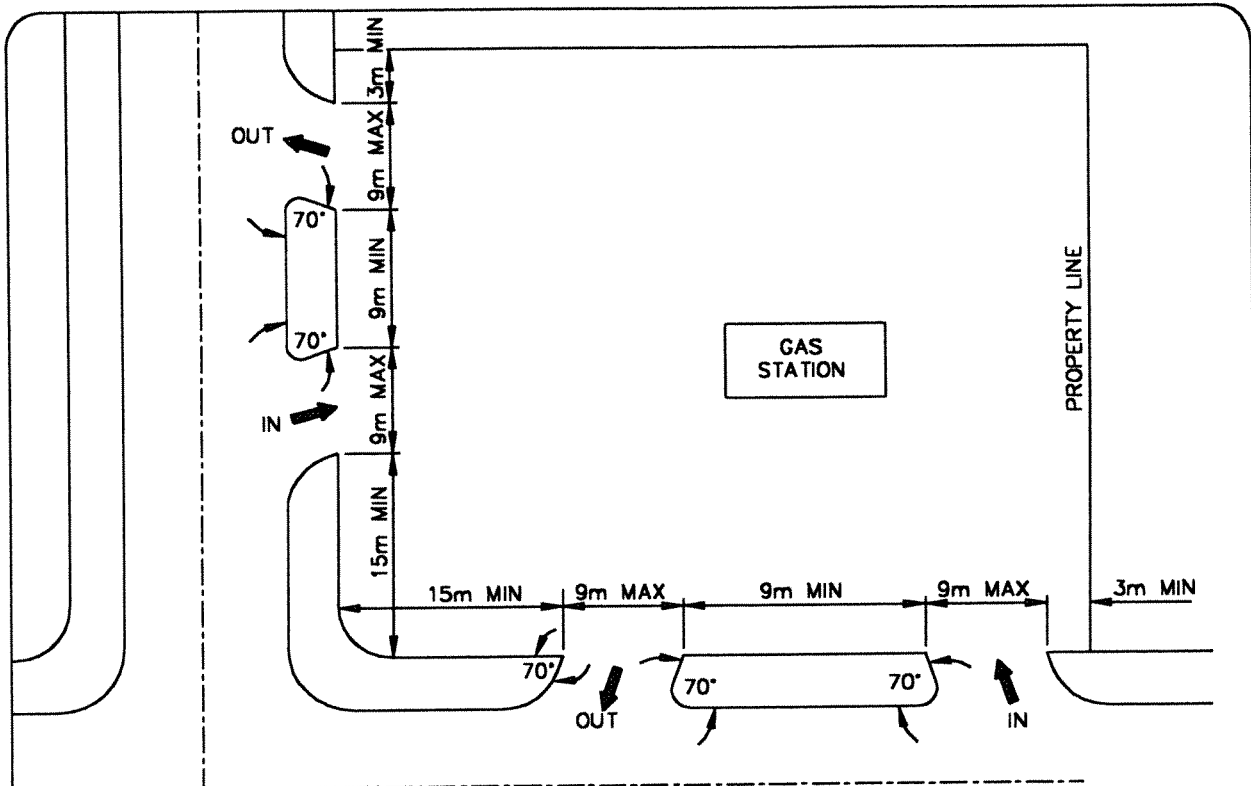
SDR 11



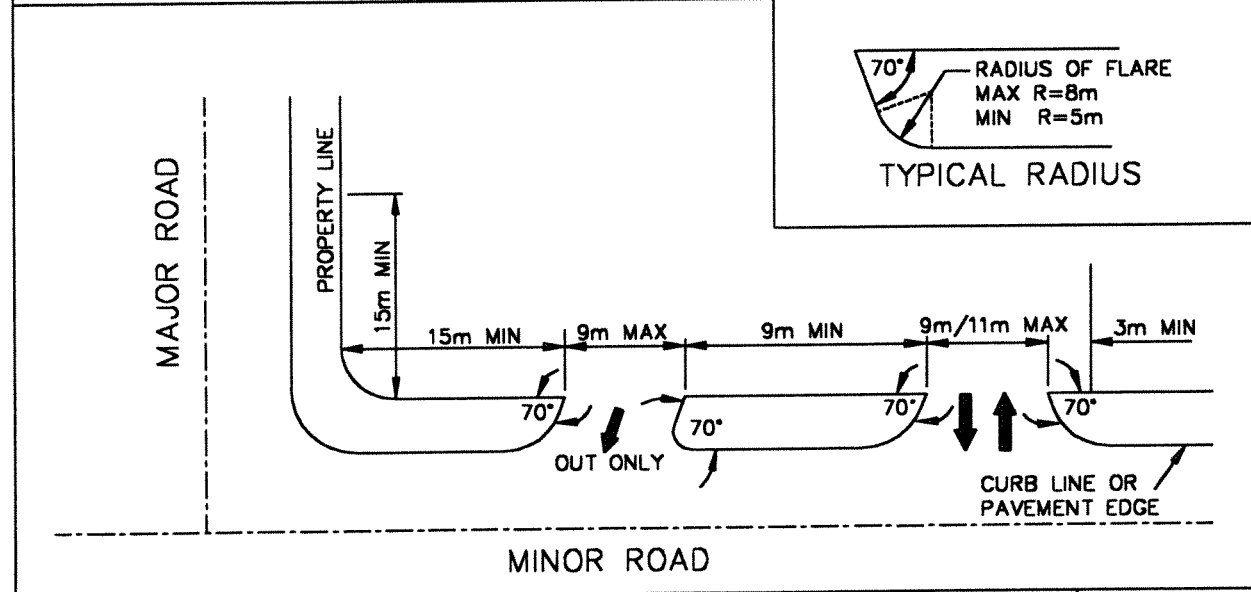
- NOTES: 1. JOINTS TO BE WELDED AND GROUND SMOOTH
 2. GATES TO BE GALVANIZED AFTER FABRICATION
 3. SWALE AND CATCH BASINS TO BE PROVIDED FOR DRAINAGE AS PER STANDARD DRAWING C10
 4. 1% MIN. LONGITUDINAL GRADE
 5. ALL DIMENSIONS ARE IN MILLIMETRES



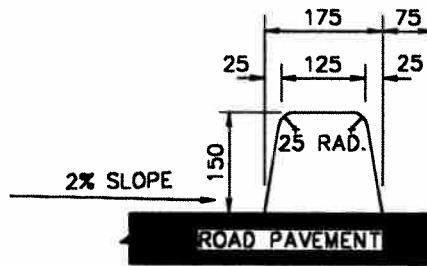
TITLE		128
EMERGENCY ACCESS		
DISTRICT OF PORT HARDY		SDR 12
DATE	APR / 98	
APPROVED		
SCALE	SCBE0015	



TYPICAL SERVICE STATION ENTRANCES

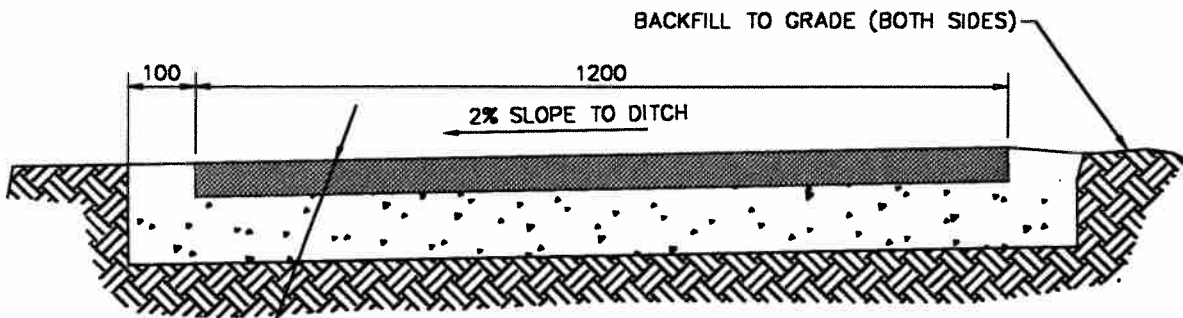


TITLE	COMMERCIAL AND INDUSTRIAL PROPERTY VEHICLE ENTRANCES		29
	DISTRICT OF PORT HARDY		
	DATE	APR / 98	SDR 13
	APPROVED		
	S.C.B.N.	SCBE0016	



USE ASPHALT TACK COAT TO BOND CURB TO ASPHALT

EXTRUDED CONCRETE CURB

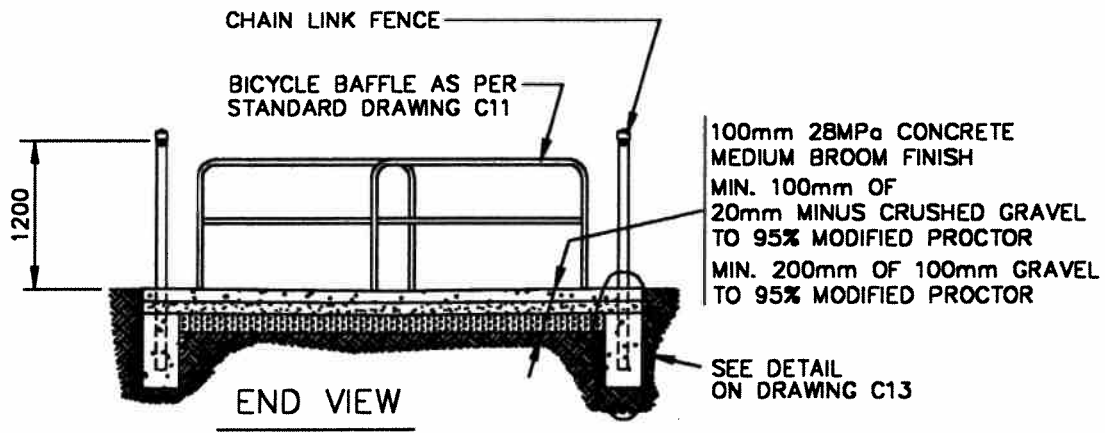
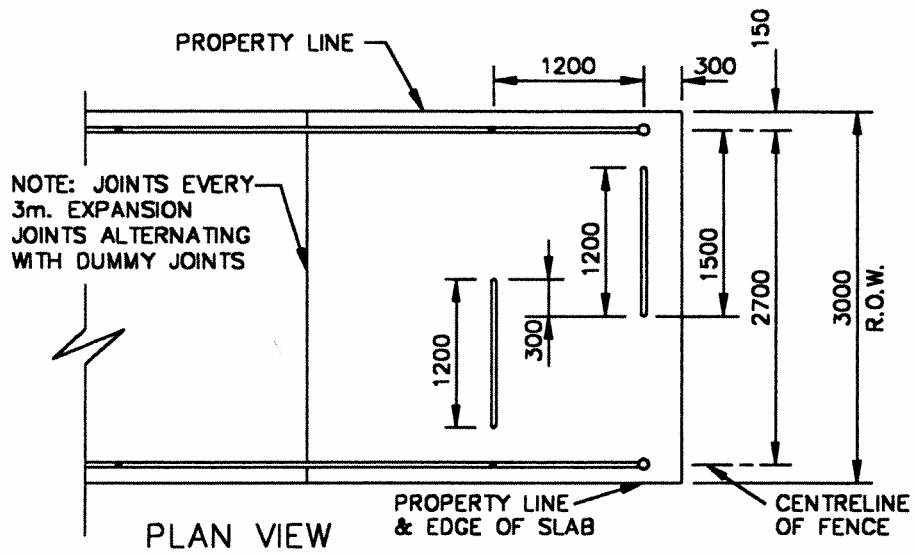


- 0.15mm POLYETHYLENE
- 50mm ASPHALT
- 100mm OF 20mm CRUSH TO 95% MODIFIED PROCTOR
- SUBGRADE TO 90% MODIFIED PROCTOR

ASPHALT SIDEWALK

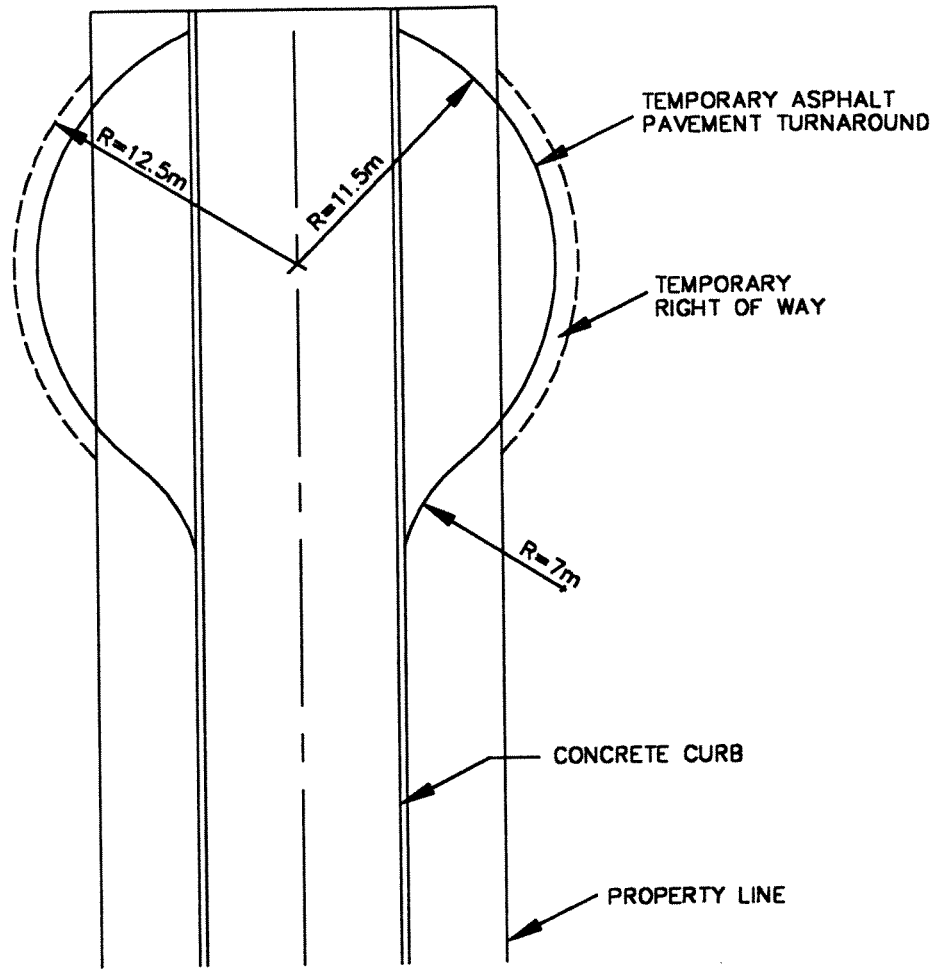
- NOTE: 1.) REMOVE ALL VEGETATION AND TOPSOIL PRIOR TO INSTALLING BASE
 2.) ALL DIMENSIONS ARE IN MILLIMETRES

TITLE		130
EXTRUDED CURB & ASPHALT SIDEWALK		
DISTRICT OF PORT HARDY	DATE	APR / 98
	APPROVED	
	S.C.B.No.	SCBE0017
		SDR 14



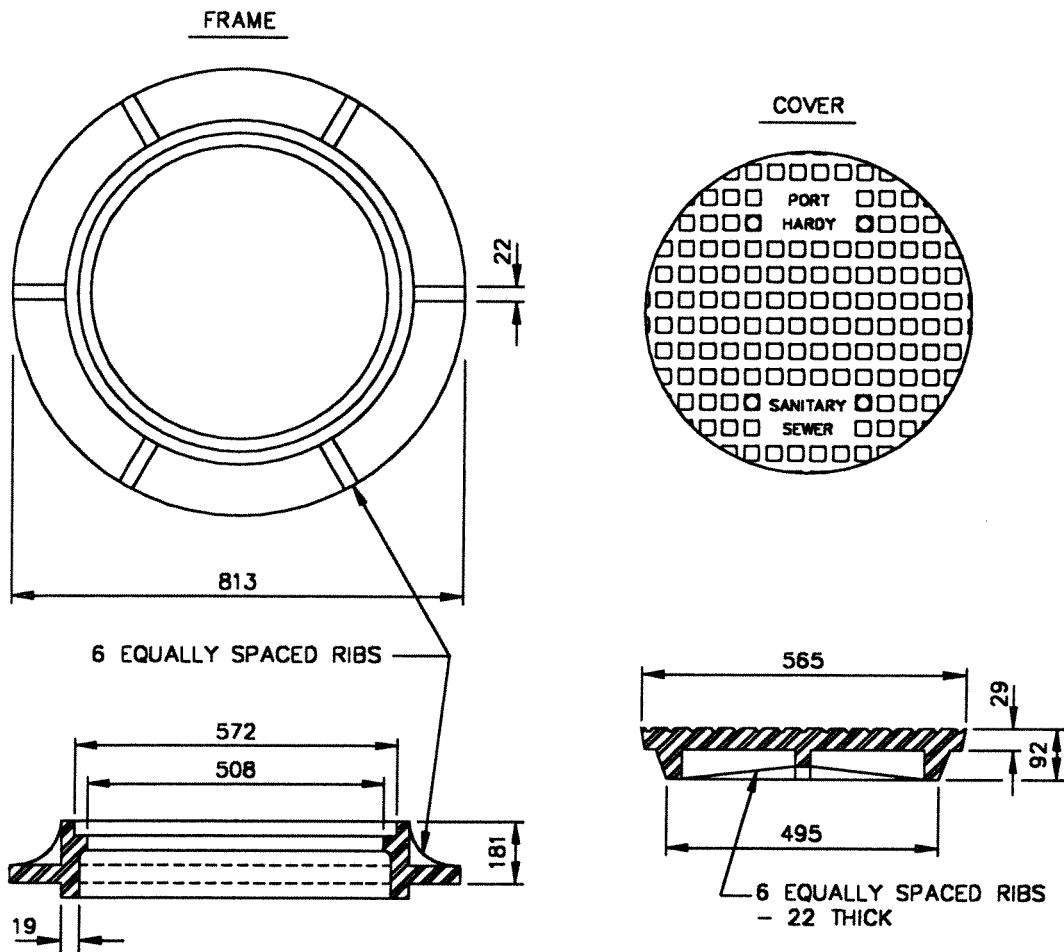
- NOTES: 1. JOINTS TO BE WELDED AND GROUND SMOOTH
 2. SWALE AND CATCH BASINS TO BE PROVIDED FOR DRAINAGE AS PER STANDARD DRAWING C10
 3. 1% MIN. LONGITUDINAL GRADE
 4. ALL DIMENSIONS ARE IN MILLIMETRES

TITLE	CONCRETE WALKWAY		131
	DISTRICT OF PORT HARDY		
	DATE	APR / 98	SDR 15
	APPROVED		
	S.C.B.No.	SCBE0053	



NOTES: 1) DEVELOPER TO SUPPLY A NON-REFUNDABLE DEPOSIT FOR REMOVAL & RESTORATION OF ADDITIONAL PAVEMENT REQUIRED FOR TURNAROUND.

TITLE		132
TEMPORARY URBAN TURNAROUND		
DISTRICT OF PORT HARDY	DATE	APR / 98
	APPROVED	
	S.C.S.No.	SCBE0057
		SDR 16



MANHOLE FRAME AND COVER

NOTES:

- 1.) LETTERING SHALL BE 25mm FLATTENED FACE GOTHIC LETTERING WITH FACE OF LETTERS AT THE SAME LEVEL AS THE TOP OF THE PATTERNS.
- 2.) SERVICE IDENTIFICATION TO BE "STORM SEWER", "SANITARY SEWER" OR "WATER" AS APPROPRIATE.
- 3.) BOTH FRAME AND COVER SHALL BE MACHINED FOR A NONROCKING FIT IN ALL POSITIONS.
- 4.) FRAME AND COVER TO BE APPROVED BY THE DIRECTOR OF ENGINEERING.

TITLE

MANHOLE FRAME AND COVER

DISTRICT OF PORT HARDY

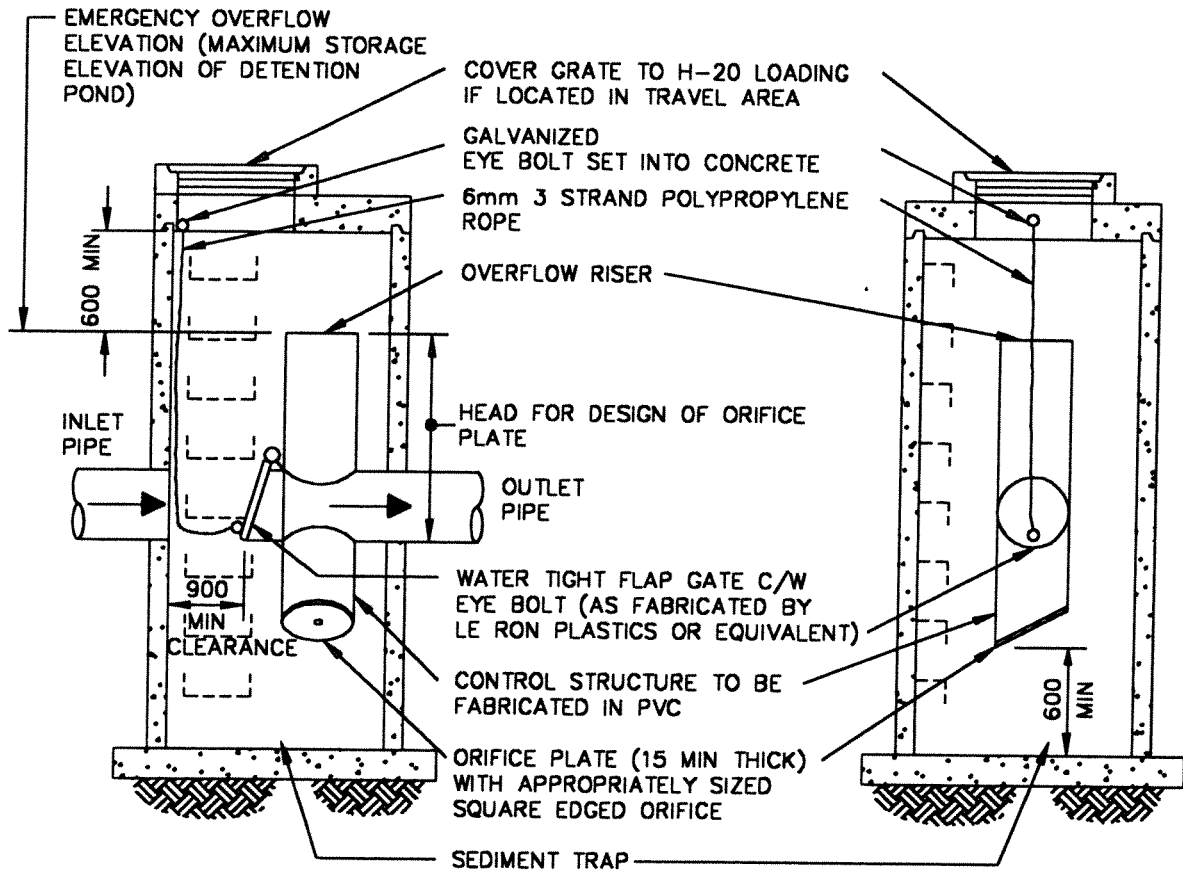
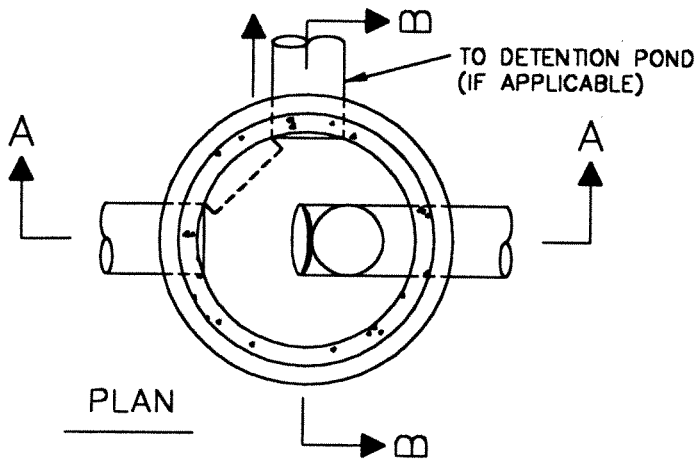
DATE APR / 98

APPROVED

S.C.B.N. SCBE0022

133

SDD 1



STANDARD 1800 ϕ MANHOLE
SECTION A-A

STANDARD 1800 ϕ MANHOLE
SECTION B-B

NOTE: ALL DIMENSIONS SHOWN IN MILLIMETRES
UNLESS OTHERWISE STATED

TITLE

STORM FLOW CONTROL MANHOLE

DISTRICT OF PORT HARDY

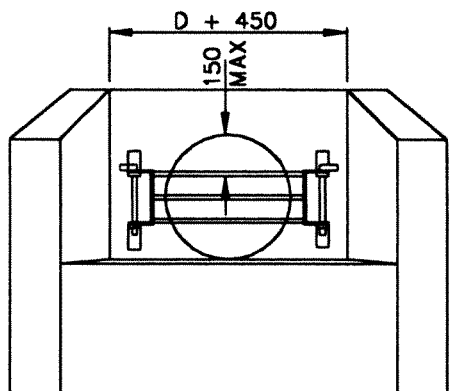
DATE APR / 98

APPROVED

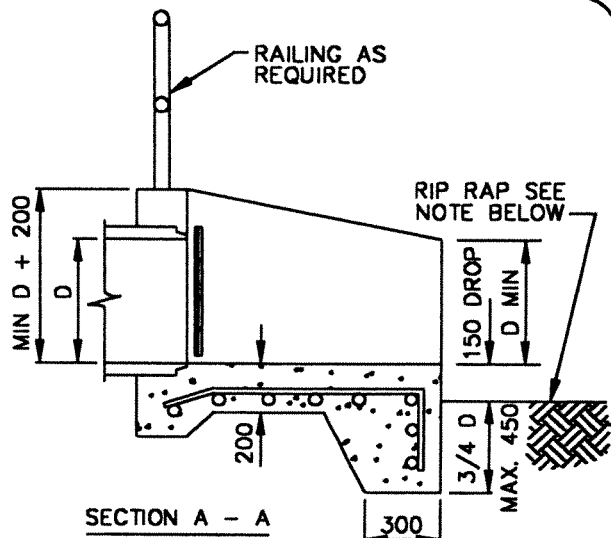
S.C.B.No. SCBE0010

134

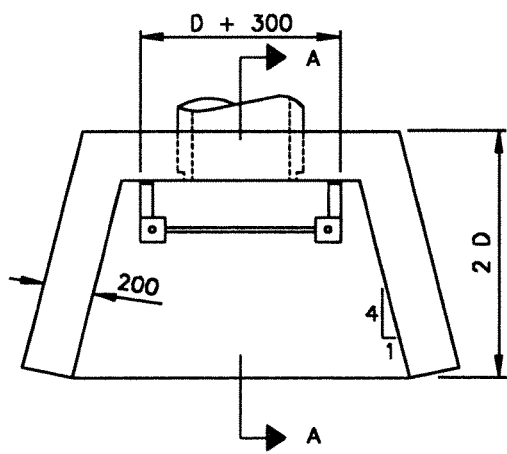
SDD 2



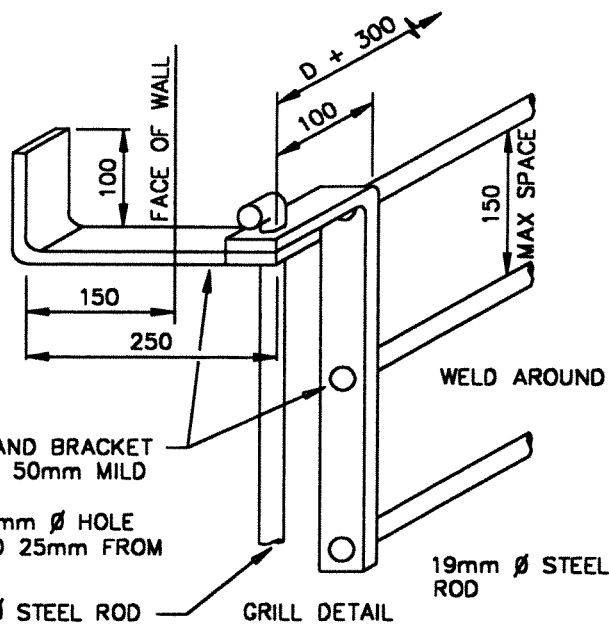
ELEVATION



SECTION A - A



PLAN



STRAP AND BRACKET
13mm x 50mm MILD
STEEL
C/W 25mm ϕ HOLE
CENTRED 25mm FROM
END

22mm ϕ STEEL ROD

GRILL DETAIL

- NOTES:**
1. RIP RAP SUITABLY SIZED OR GABIONS C/W FILTER BED SHALL BE PLACED ON BOTTOM AND SIDES TO DESIGN WATER LEVEL AND DOWNSTREAM DISTANCE OF 1.5 TIMES THE DESIGN WATER VELOCITY (MINIMUM 1m).
 2. PIPE SIZES LARGER THAN 1200mm ϕ , WATER VELOCITIES GREATER THAN 2.13m / sec OR WALLS HIGHER THAN 2m SHALL REQUIRE A SPECIAL DESIGN FOR THE STRUCTURE.
 3. 10M REBAR AT 200mm BOTH WAYS AND CENTRED PLUS ONE 10M AROUND PIPE.
 4. REBARS TO HAVE MINIMUM 50mm COVER.
 5. CONCRETE TO BE 21 MPa AT 28 DAYS.
 6. CHAMFER ALL EXPOSED CORNERS 25mm.
 7. PLACE GRANULAR BACKFILL BEHIND WALL FOR DRAINAGE .
 8. GRILLAGE NOT REQUIRED ON PIPE LESS THAN 450mm ϕ .
 9. ALL GRILLAGE MATERIALS TO BE GALVANIZED.

TITLE

OUTLET STRUCTURE

DISTRICT OF PORT HARDY

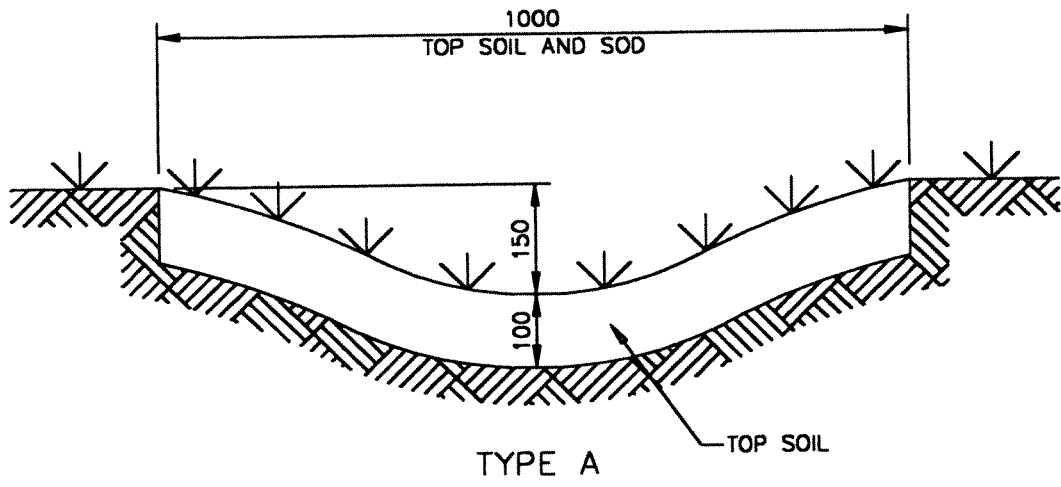
DATE APR / 98

APPROVED

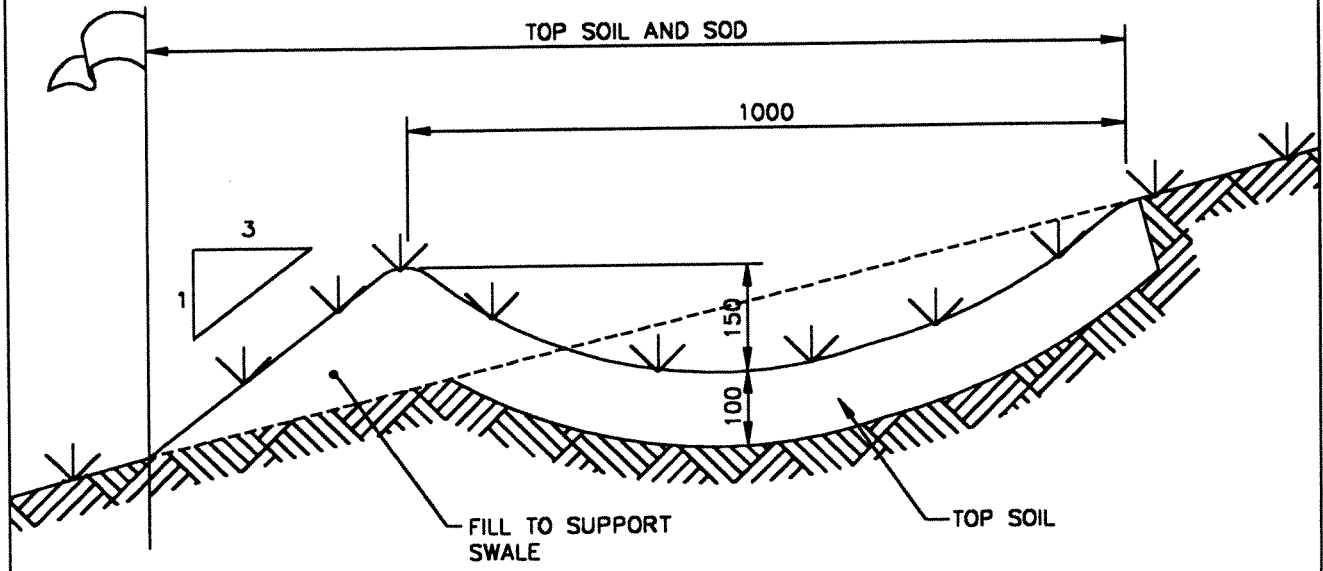
S.C.B.No. SCBE0023

135

SDD 3

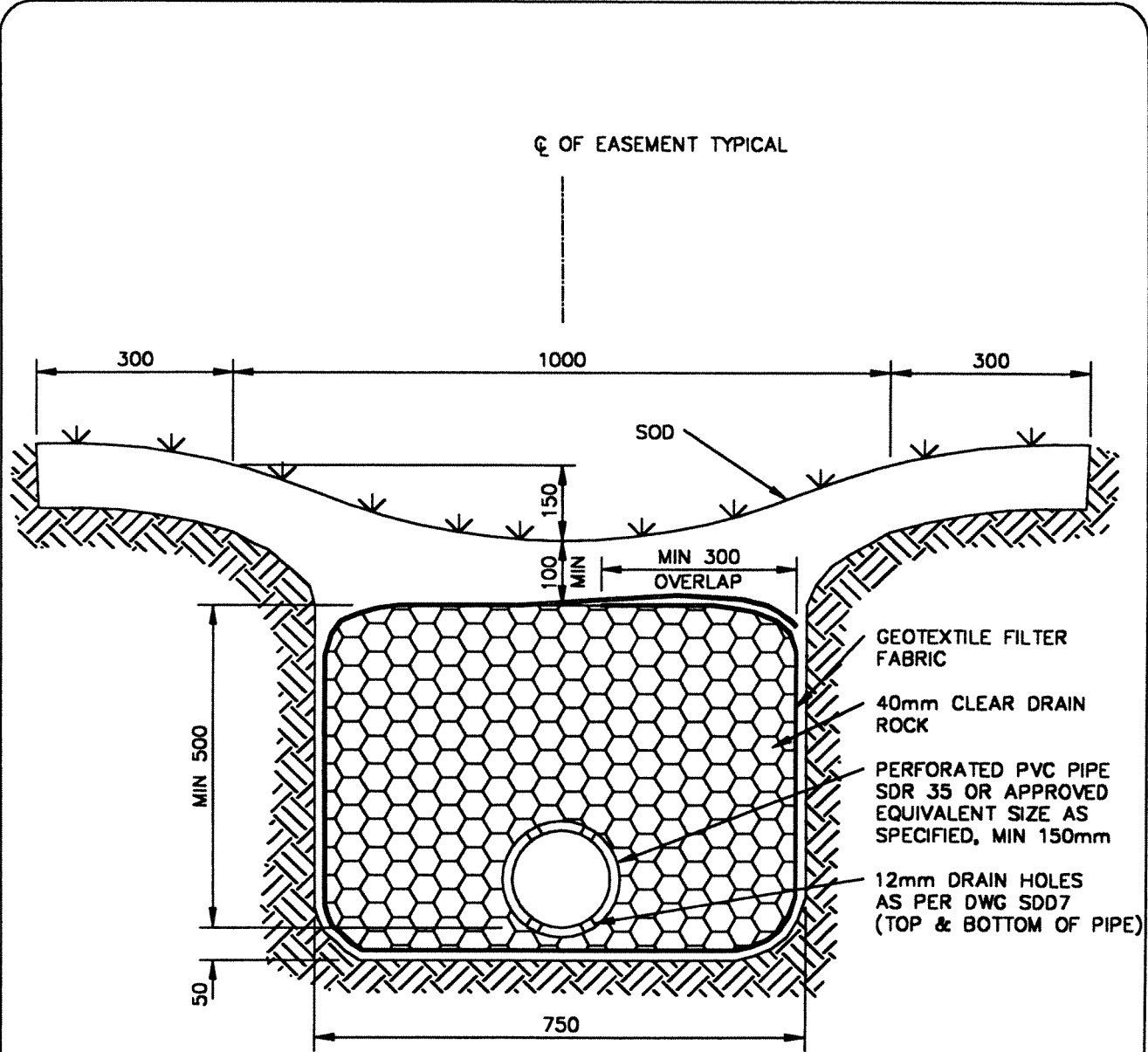


NOTES:
 1. SWALE TYPICALLY CENTRED ON EASEMENT



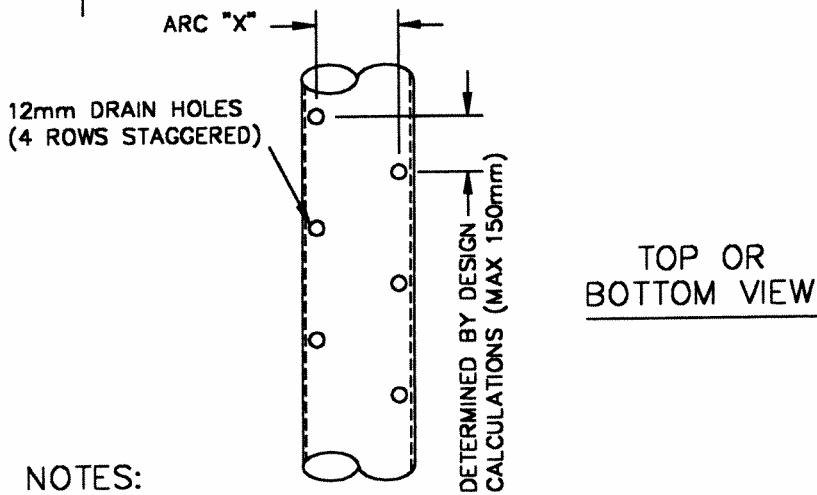
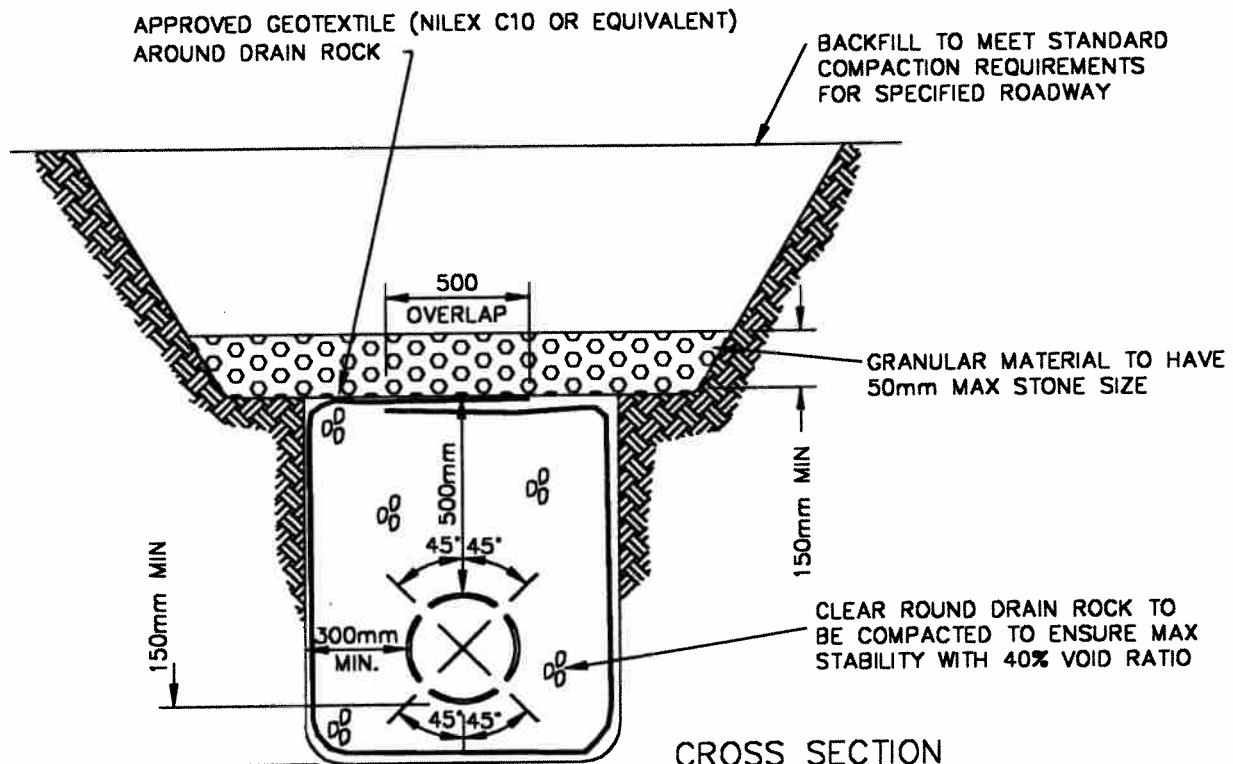
NOTES:
 1. EASEMENT WIDTH AS REQUIRED TO SUPPORT PROPOSED SWALE

TITLE	SWALE		136
DISTRICT OF PORT HARDY	DATE	APR / 98	
	APPROVED	S.C.B.No. SCBE0025	



- NOTES: 1.) SWALE TO BE CENTERED ON EASEMENT
 2.) SOD TO BE PLACED ON MINIMUM 100mm TOPSOIL
 3.) GEOTEXTILE FILTER FABRIC TO BE APPROVED BY MUNICIPAL ENGINEER

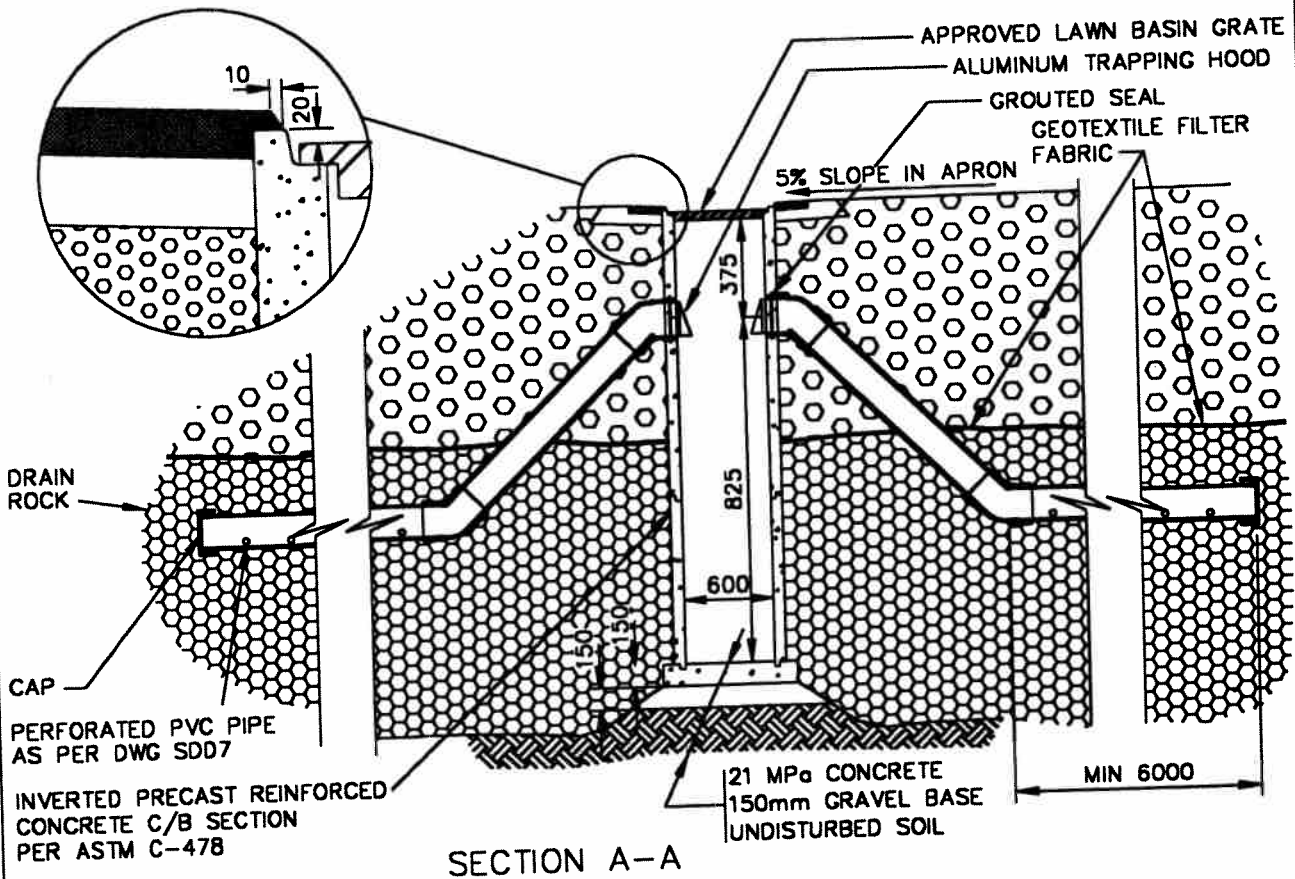
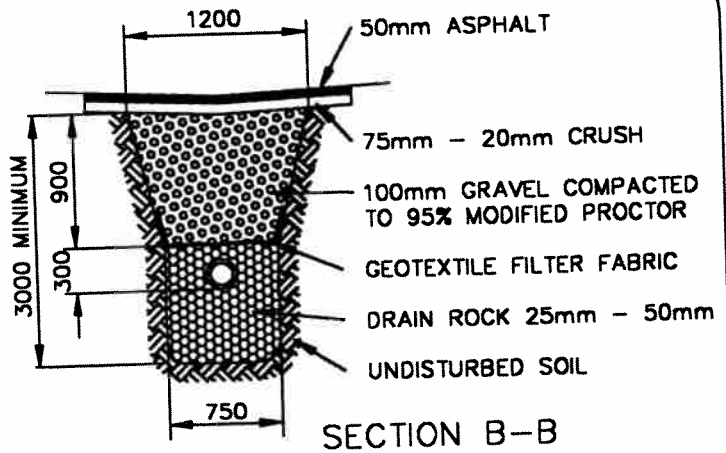
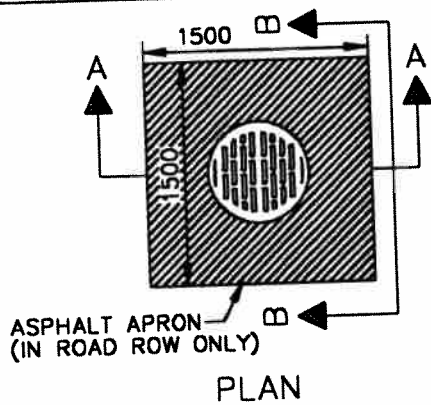
TITLE		137
FRENCH DRAIN		
DISTRICT OF PORT HARDY		SDD 6
DATE	APR / 98	
APPROVED		
S.C.B.N.	SCBE0026	



NOTES:

- 1.) USE PERFORATED PVC PIPES.
- 2.) FIELD PERFORATION OF PIPE SHALL BE TO THIS STANDARD. FACTORY PERFORATED PIPE MUST BE APPROVED BY THE MUNICIPAL ENGINEER.
- 3.) PROVIDE 0.5m MIN OVERLAP FOR LONGITUDINAL OR TRANSVERSE JOINTS IN FABRIC.
- 4.) FILTER FABRIC TO BE APPROVED BY THE MUNICIPAL ENGINEER.
- 5.) CLEAR DRAIN ROCK TO BE SIZED 20mm
- 6.) ENSURE NO SILT OR CLAY LENS ADJACENT TO TRENCH WALL.

TITLE		138
EXFILTRATION TRENCH		
DISTRICT OF PORT HARDY		DATE APR / 98
		APPROVED
		S.C.B.No. SCBE0011
		SDD 7



- NOTES: 1.) DISCHARGE PIPES TO BE ALIGNED PARALLEL TO THE ROAD CENTRELINE.
 2.) TRENCH DEPTH SHALL BE AS REQUIRED TO REACH A PERVIOUS UNDISTURBED SOIL.
 3.) USE ROCK PIT ONLY WITH POSITIVE DRAINAGE OUTLET (ie AN OVERLAND ROUTE)

TITLE

ROCK PIT

139

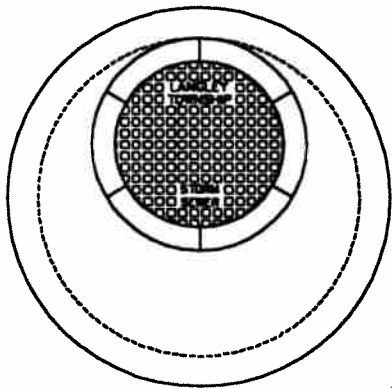
DISTRICT OF PORT HARDY

DATE APR / 98

APPROVED

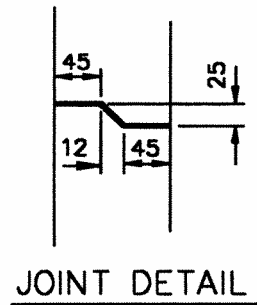
S.C.B.No. SCBE0027

SDD 8

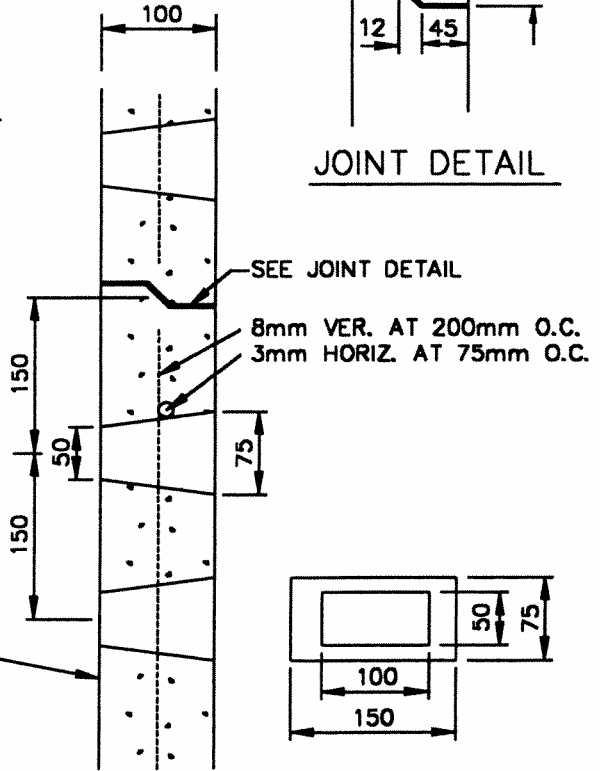
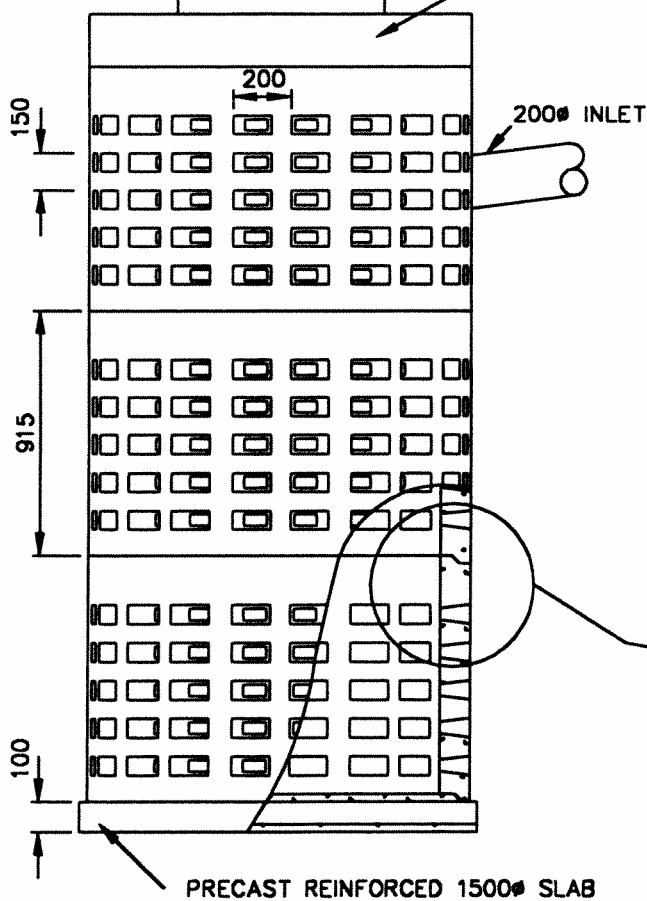


APPROVED
MANHOLE FRAME & COVER

PRECAST REINFORCED
200mm LID FOR H-20 LOADING

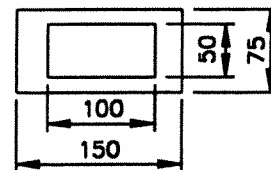


JOINT DETAIL



SEE JOINT DETAIL

8mm VER. AT 200mm O.C.
3mm HORIZ. AT 75mm O.C.



PRECAST 1200# REINFORCED SECTIONS
HOLES SPACED 200mm O.C. HORIZONTALLY
150mm O.C. VERTICALLY

- NOTE: 1) RUNGS SHALL BE INSTALLED AS PER STANDARD MANHOLE
2) SEE SDD 10 FOR INSTALLATION DETAILS

TITLE

DRAINAGE DRYWELL

DISTRICT OF PORT HARDY

DATE APR / 98

APPROVED

S.C.No. SCBE0028

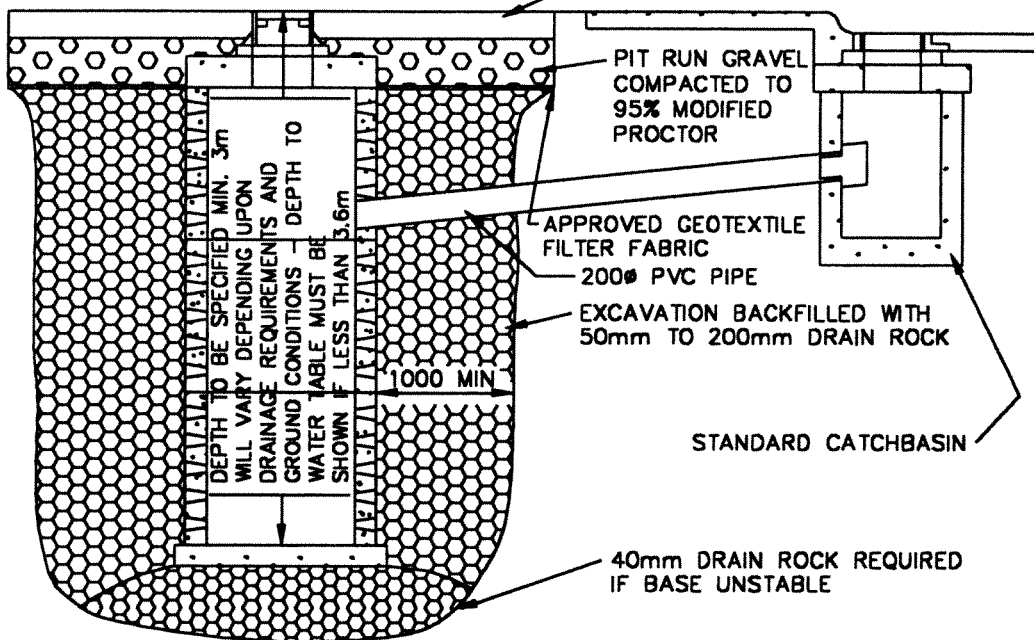
140

SDD 9

TYPICAL INSTALLATION

100mm CRUSH COMPACTED TO 95% MODIFIED PROCTOR IF UNDER ROADWAY,
TOP SOIL IF UNDER BOULEVARD

1% SLOPE



PIT RUN GRAVEL
COMPACTED TO
95% MODIFIED
PROCTOR

APPROVED GEOTEXTILE
FILTER FABRIC
200Ø PVC PIPE

EXCAVATION BACKFILLED WITH
50mm TO 200mm DRAIN ROCK

STANDARD CATCHBASIN

40mm DRAIN ROCK REQUIRED
IF BASE UNSTABLE

DEPTH TO BE SPECIFIED MIN. 3m
WILL VARY DEPENDING UPON
DRAINAGE REQUIREMENTS AND
GROUND CONDITIONS - DEPTH TO
WATER TABLE MUST BE
SHOWN IF LESS THAN 3.6m

1000 MIN

- NOTE:
- 1.) THE NUMBER AND SPACING OF DRAINAGE DRYWELLS MUST BE DETERMINED IN ACCORDANCE WITH DRAINAGE DESIGN CALCULATIONS, AND WILL DEPEND UPON THE AREA DRAINED AND EXISTING GROUND CONDITIONS.
 - 2.) FILTER FABRIC TO BE PLACED OVER TOP OF BARREL PRIOR TO PLACING COVERSLAB. ACCESS TO DRYWELL NOT TO BE CUT THROUGH FILTER FABRIC UNTIL FINAL INSPECTION.
 - 3.) THE DRYWELL SHALL BE INSTALLED ON THE UPHILL SIDE OF THE RIGHT OF WAY.
 - 4.) SEE SDD9 FOR DRYWELL DETAILS

TITLE

DRAINAGE DRYWELL INSTALLATION

DISTRICT OF PORT HARDY

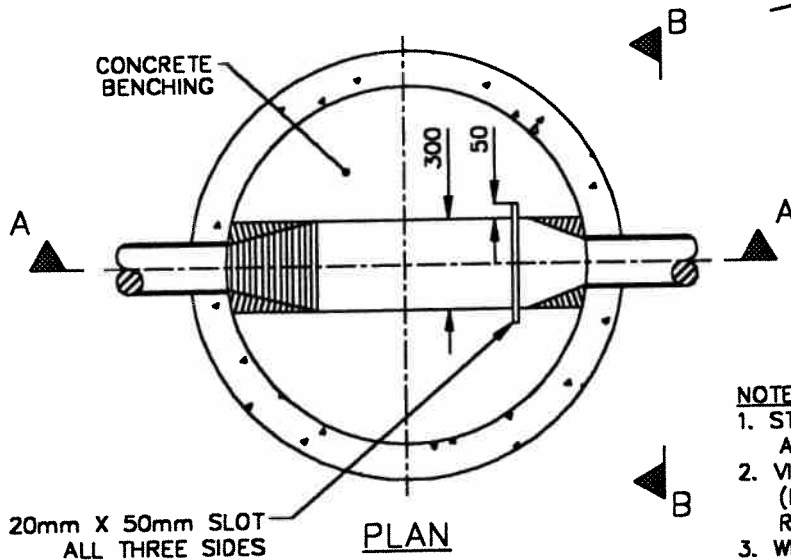
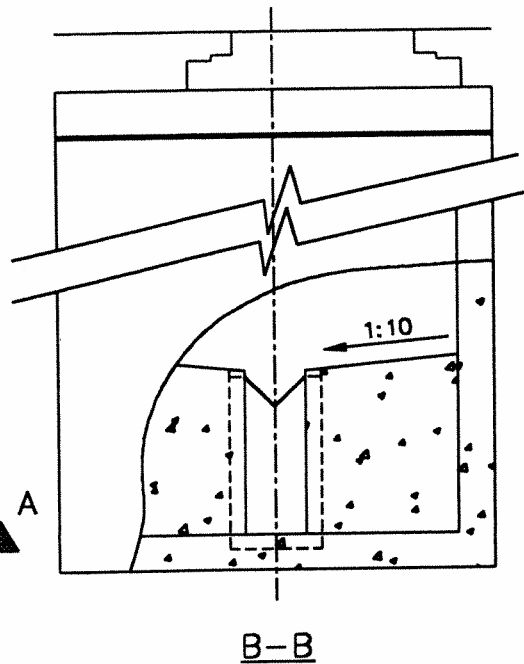
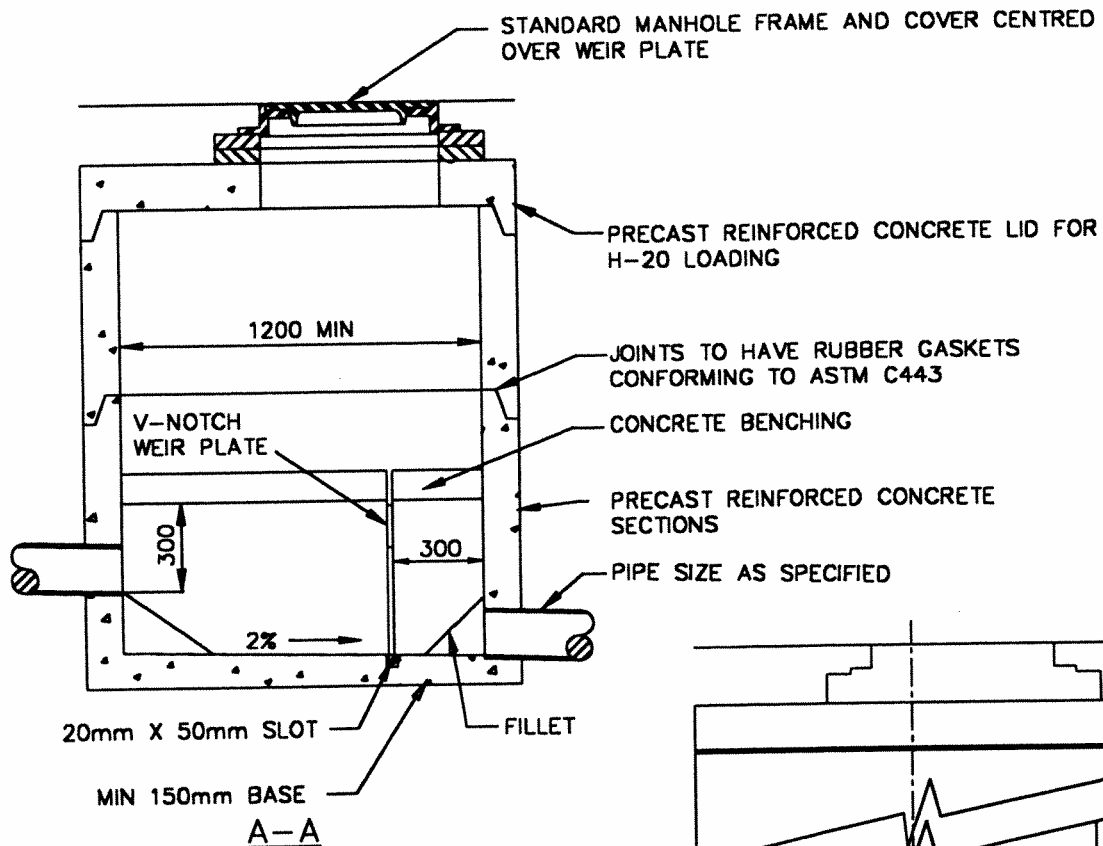
DATE APR / 98

APPROVED

S.C.S.No. SCBE0029

141

SDD 10



- NOTES:**
1. STANDARD RUNGS TO BE PROVIDED FOR ACCESS
 2. VINYL MANHOLE SEAL OR EQUIVALENT (DENSOTAPE OR SANDED NIPPLES) REQUIRED FOR P.V.C. PIPES.
 3. WEIR PLATE SUPPLIED BY MUNICIPALITY.

TITLE
SANITARY FLOW CONTROL MANHOLE

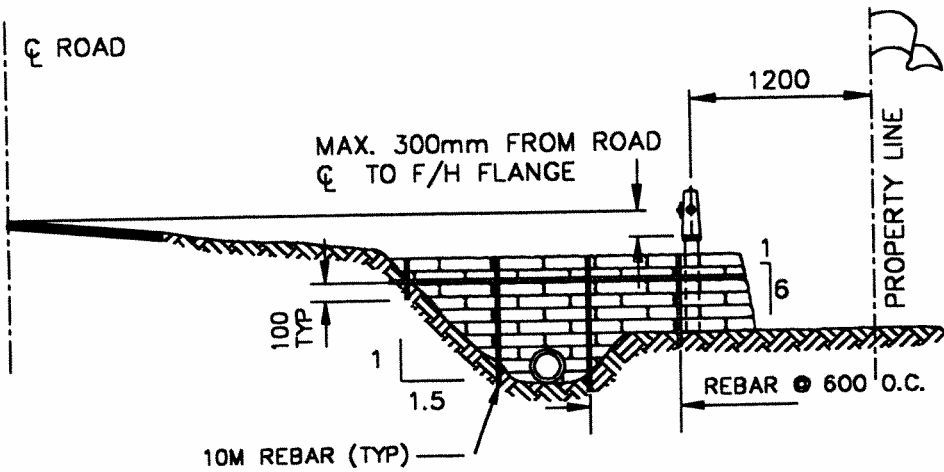
DISTRICT OF PORT HARDY

DATE
APR / 98

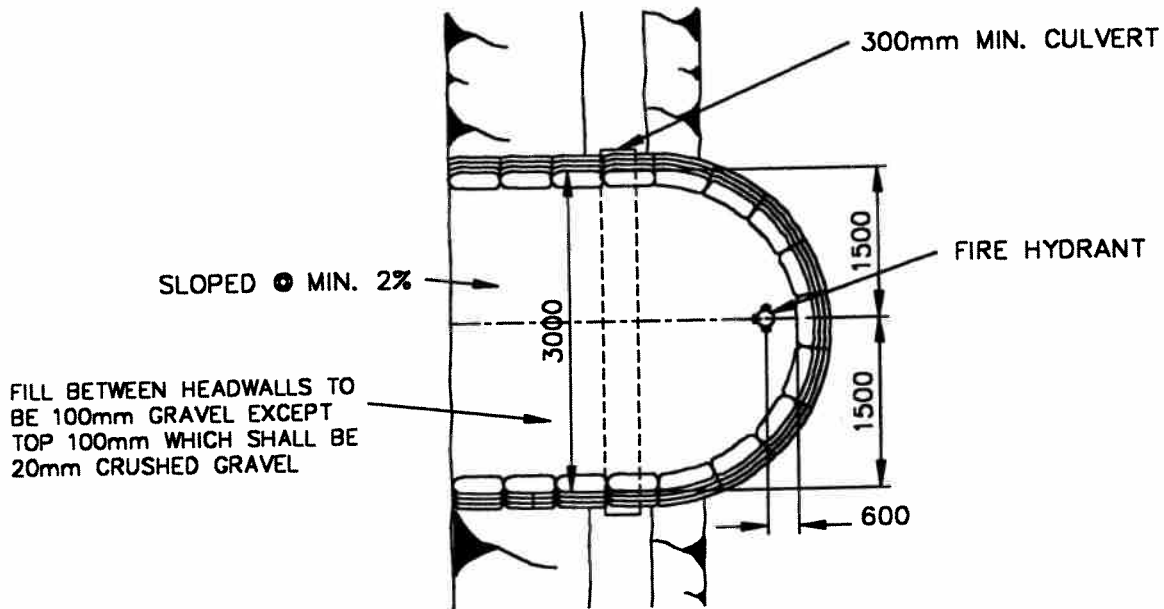
APPROVED

S.C.B.N.
SCBE0030

142
SDS 1



CONSTRUCT HEADWALL WITH CONCRETE BAGS



NOTES:

- 1.) IN RURAL AREAS WHERE A HYDRANT IS REQUIRED IN A CUT, THE AREA AS SHOWN ABOVE SHALL BE RETAINED BY SUITABLE SIDESLOPES OR RETAINING WALLS.
- 2.) MINIMUM CULVERT LENGTH IS 4m.
- 3.) CONCRETE USED TO BE 21 MPa AT 28 DAYS.
- 4.) REINFORCING BARS TO HAVE MINIMUM 50mm COVER ON ALL SIDES AND ENDS.
- 6.) MAXIMUM HEADWALL HEIGHT 1.2m.

TITLE

RURAL FIRE HYDRANT ASSEMBLY

DISTRICT OF PORT HARDY

DATE APR / 98

APPROVED

S.C.B.No. SCBE0031

143

SDW 1

WATERMAIN FITTING			SOIL BEARING CAPACITY AND MINIMUM THRUST BLOCK AREAS					
			SOFT CLAY	SAND	SAND & GRAVEL	SAND & GRAVEL WITH CLAY	SAND & GRAVEL CEMENTED WITH CLAY	HARDPAN
Diam.	TYPE	THRUST	23.94 Kpa	47.88 Kpa	71.82 Kpa	95.76 Kpa	191.52 Kpa	239.40 Kpa
100mm	Cap, Tee or Wye	11 kN	0.5 m2	0.3 m2	0.2 m2	0.2 m2	0.1 m2	0.1 m2
	11 1/4 Bend	3 kN	0.1 m2	0.1 m2	0.1 m2	0.1 m2	0.1 m2	0.1 m2
	22 1/2 Bend	5 kN	0.2 m2	0.1 m2	0.1 m2	0.1 m2	0.1 m2	0.1 m2
	45 Bend	9 kN	0.4 m2	0.2 m2	0.2 m2	0.1 m2	0.1 m2	0.1 m2
	90 Bend	16 kN	0.7 m2	0.4 m2	0.3 m2	0.2 m2	0.1 m2	0.1 m2
150mm	Cap, Tee or Wye	1.1 kN	1.1 m2	0.6 m2	0.4 m2	0.3 m2	0.2 m2	0.2 m2
	11 1/4 Bend	5 kN	0.1 m2	0.1 m2	0.1 m2	0.1 m2	0.1 m2	0.1 m2
	22 1/2 Bend	10 kN	0.2 m2	0.2 m2	0.2 m2	0.1 m2	0.1 m2	0.1 m2
	45 Bend	19 kN	0.8 m2	0.4 m2	0.3 m2	0.2 m2	0.1 m2	0.1 m2
	90 Bend	35 kN	1.5 m2	0.8 m2	0.5 m2	0.4 m2	0.2 m2	0.2 m2
200mm	Cap, Tee or Wye	44 kN	1.9 m2	1.0 m2	0.7 m2	0.5 m2	0.3 m2	0.2 m2
	11 1/4 Bend	9 kN	0.4 m2	0.2 m2	0.2 m2	0.1 m2	0.1 m2	0.1 m2
	22 1/2 Bend	17 kN	0.8 m2	0.4 m2	0.3 m2	0.2 m2	0.1 m2	0.1 m2
	45 Bend	34 kN	1.4 m2	0.7 m2	0.5 m2	0.4 m2	0.2 m2	0.2 m2
	90 Bend	62 kN	2.6 m2	1.3 m2	0.9 m2	1.1 m2	0.4 m2	0.3 m2
250mm	Cap, Tee or Wye	68 kN	2.9 m2	1.5 m2	1.0 m2	0.8 m2	0.4 m2	0.3 m2
	11 1/4 Bend	14 kN	0.6 m2	0.3 m2	0.2 m2	0.2 m2	0.1 m2	0.1 m2
	22 1/2 Bend	27 kN	1.2 m2	0.6 m2	0.4 m2	0.3 m2	0.2 m2	0.2 m2
	45 Bend	52 kN	2.2 m2	1.1 m2	0.8 m2	0.6 m2	0.3 m2	0.3 m2
	90 Bend	96 kN	4.1 m2	2.1 m2	1.4 m2	1.1 m2	0.6 m2	0.5 m2
300mm	Cap, Tee or Wye	98 kN	4.1 m2	2.1 m2	1.4 m2	1.1 m2	0.6 m2	0.5 m2
	11 1/4 Bend	20 kN	0.8 m2	0.4 m2	0.3 m2	0.2 m2	0.1 m2	0.1 m2
	22 1/2 Bend	39 kN	1.6 m2	0.8 m2	0.6 m2	0.4 m2	0.2 m2	0.2 m2
	45 Bend	75 kN	3.2 m2	1.6 m2	1.1 m2	0.8 m2	0.4 m2	0.4 m2
	90 Bend	138 kN	5.8 m2	2.9 m2	2.0 m2	1.5 m2	0.8 m2	0.6 m2
350mm	Cap, Tee or Wye	133 kN	5.6 m2	2.8 m2	1.9 m2	1.4 m2	0.7 m2	0.6 m2
	11 1/4 Bend	27 kN	1.1 m2	0.6 m2	0.4 m2	0.3 m2	0.2 m2	0.2 m2
	22 1/2 Bend	52 kN	2.2 m2	1.1 m2	0.8 m2	0.6 m2	0.3 m2	0.3 m2
	45 Bend	102 kN	4.3 m2	2.2 m2	1.5 m2	1.1 m2	0.6 m2	0.5 m2
	90 Bend	188 kN	7.9 m2	4.0 m2	2.7 m2	2.0 m2	1.0 m2	0.8 m2
400mm	Cap, Tee or Wye	174 kN	7.3 m2	3.7 m2	2.5 m2	1.9 m2	1.0 m2	0.8 m2
	11 1/4 Bend	34 kN	1.5 m2	0.8 m2	0.5 m2	0.4 m2	0.2 m2	0.2 m2
	22 1/2 Bend	68 kN	2.9 m2	1.5 m2	1.0 m2	0.8 m2	0.4 m2	0.3 m2
	45 Bend	133 kN	5.6 m2	2.8 m2	1.9 m2	1.4 m2	0.7 m2	0.6 m2
	90 Bend	246 kN	10.3 m2	5.2 m2	3.5 m2	2.6 m2	1.3 m2	1.1 m2

Note: 1) SOIL BEARING STRENGTHS ARE APPROXIMATE ONLY AND SHALL BE VERIFIED BY FIELD INVESTIGATIONS
2) THRUST AND BEARING AREAS ARE BASED ON A TEST PRESSURE OF 1380 KPa (200 Psi)

TITLE

WATERMAIN FITTING
MINIMUM THRUST BLOCK AREA

DISTRICT OF PORT HARDY

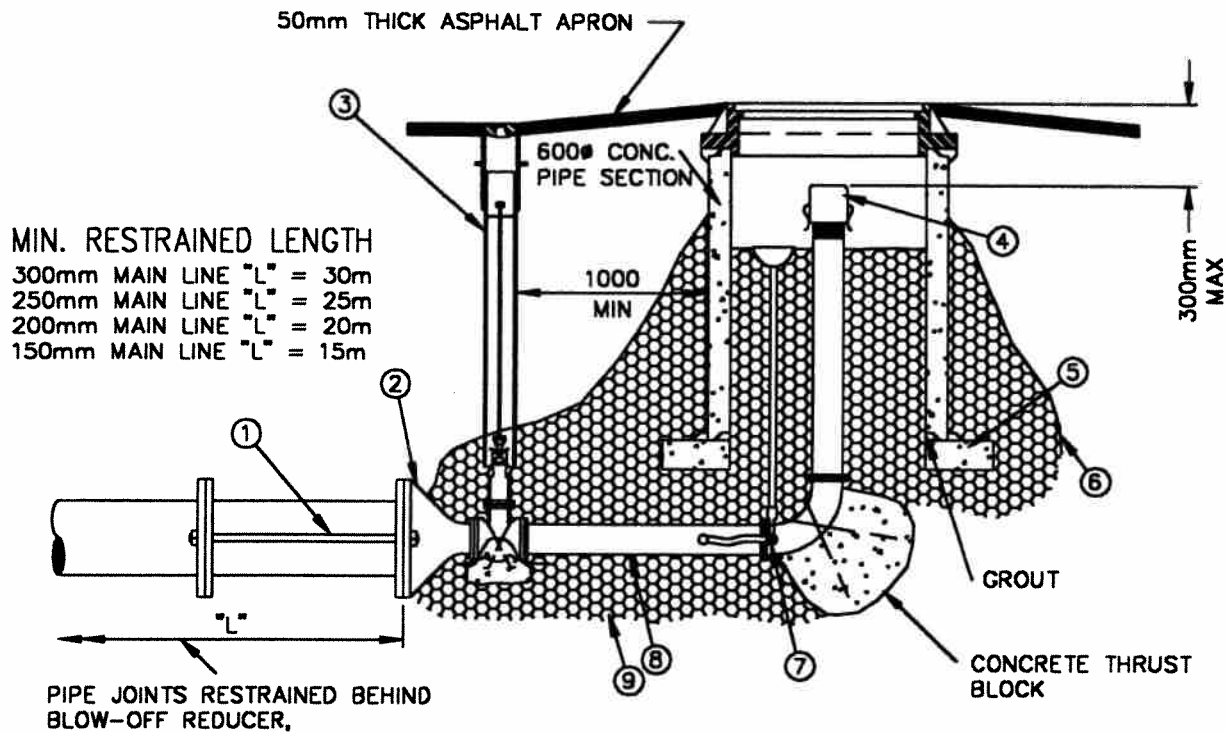
DATE APR / 98

APPROVED

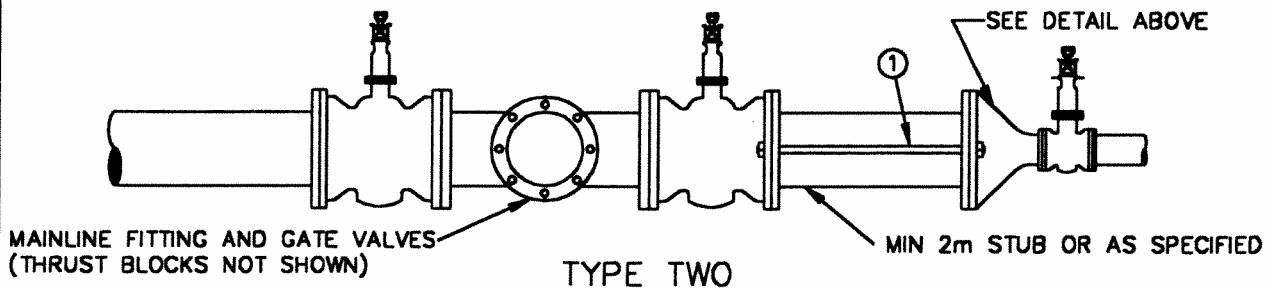
S.C.S.No. SCBE0055

144

SDW 3



TYPE ONE (DEAD END)



- 1.) 19mm TIE-RODS (OR AS SPECIFIED)
- 2.) HUB x FLANGE REDUCER
- 3.) 100mm F x F GATE VALVE AND VALVE BOX
- 4.) 100mm CAM-LOCK CONNECTOR AND CAP
- 5.) PRECAST CONCRETE MANHOLE RISER RING
- 6.) 6 MIL POLY OVER DRAIN ROCK
- 7.) 19mm CURB STOP AND BURY BOX, CONNECT TO BLOW OFF WITH THREADED COMPRESSION COUPLING AND 19mm POLY TUBE.
- 8.) 100mm ϕ GALVANIZED SCH. 40 STEEL PIPE (TYP)
- 9.) DRAIN ROCK - 20mm TO 50mm BROKEN STONE

NOTE: 1.) INSTALLATION TO BE INSPECTED BY THE MUNICIPAL INSPECTOR PRIOR TO BACK FILLING
 2.) SPECIAL DESIGN REQUIRED FOR MAIN LINE PIPE LARGER THAN 300mm ϕ .

TITLE

WATERMAIN BLOW-OFF

DISTRICT OF PORT HARDY

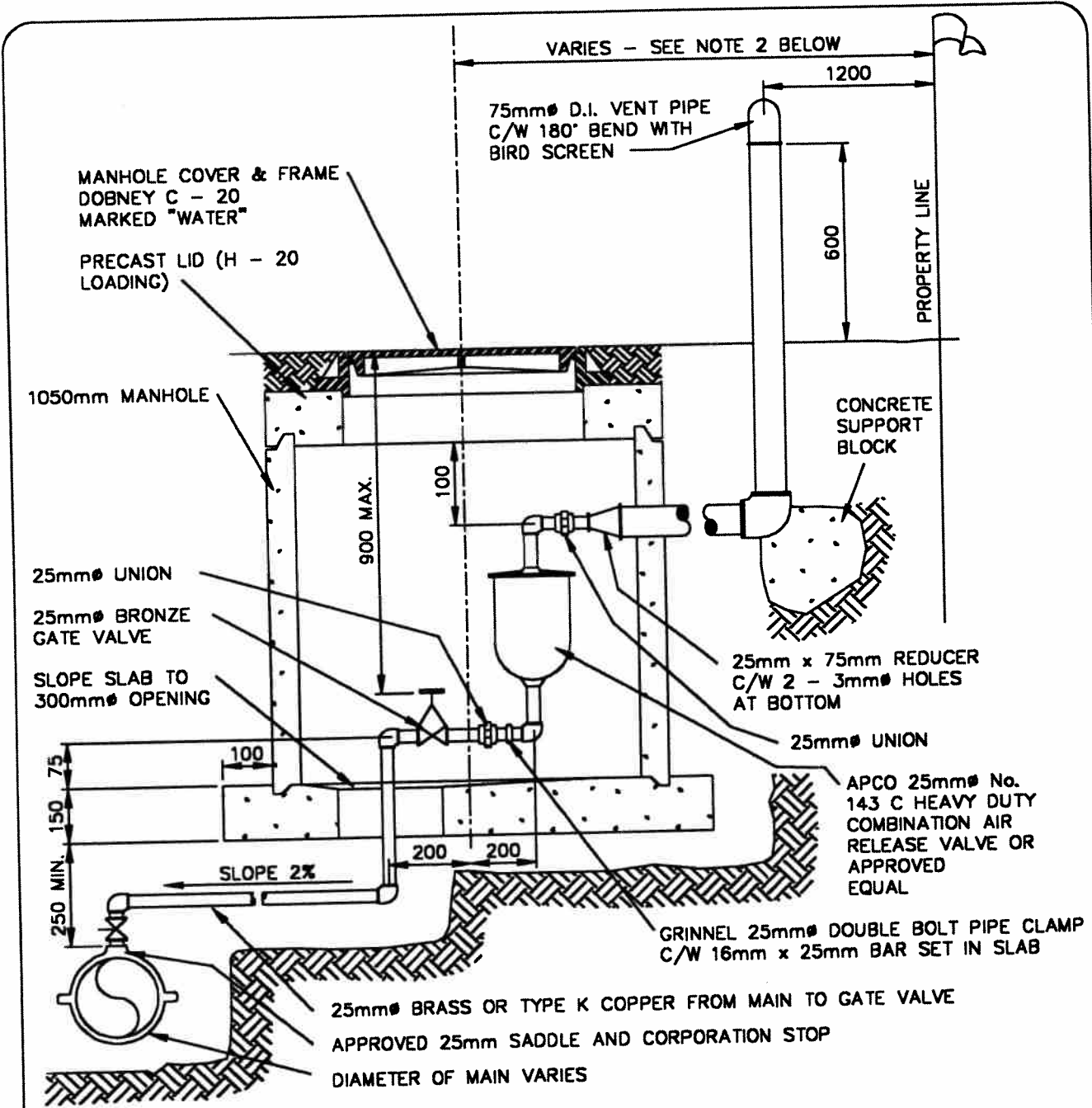
DATE APR / 98

APPROVED

S.C.B.No. SCBE0054

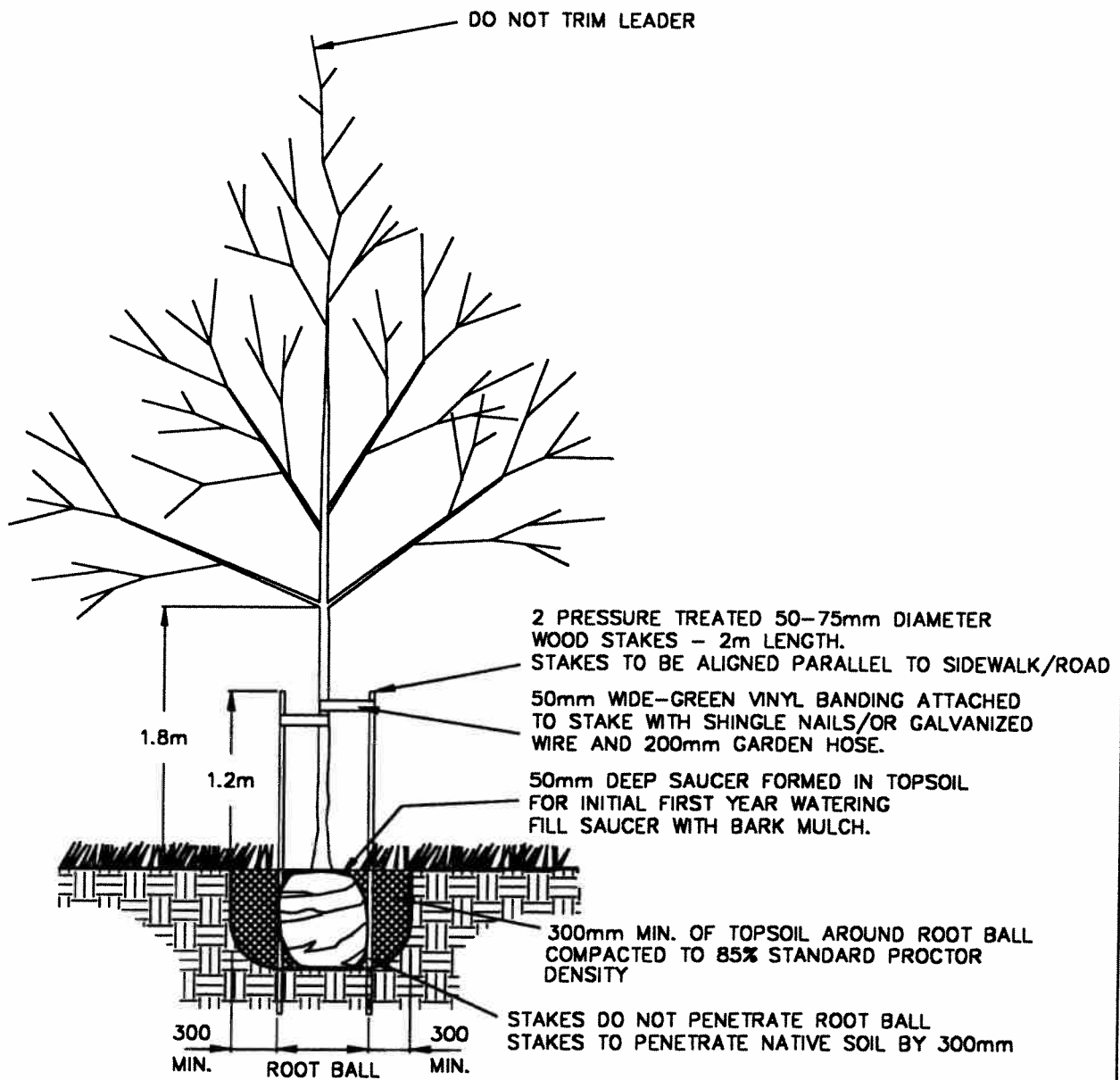
SDW 4

145



- NOTES:**
- 1.) SPECIAL DESIGN REQUIRED WHEN DISTANCE FROM TOP OF MAIN TO MANHOLE COVER IS LESS THAN 1.2m.
 - 2.) MANHOLE TO BE CENTERED 525mm FROM BACK OF SIDEWALK WHERE SIDEWALK IS ON THE SAME SIDE OF ROAD AS WATERMAIN OTHERWISE LOCATE IN BOULEVARD CENTRED AT 3m FROM PROPERTY LINE IN URBAN AREAS OR 4m FROM PROPERTY LINE IN RURAL AREAS C/W ACCESS PAD AND APPROVED CULVERT WHERE REQUIRED.

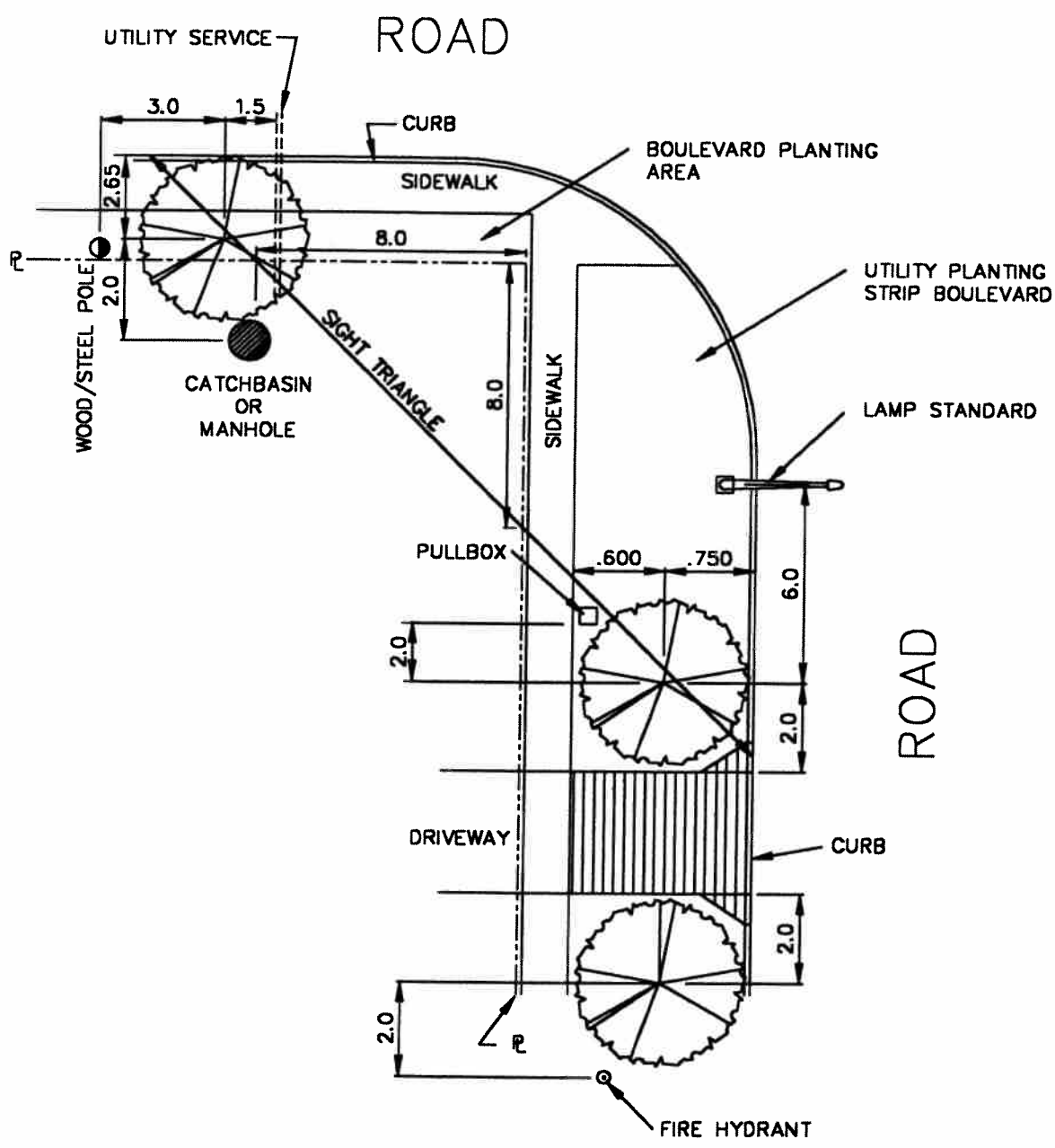
TITLE	AIR AND VACUUM VALVE CHAMBER	146
DISTRICT OF PORT HARDY	DATE APR / 98	SDW 5
	APPROVED	
	S.C.B.No. SCBE0056	



NOTES

- 1) SACKING/BURLAP TO BE LOOSENED AND DROPPED TO THE BOTTOM OF THE PLANTING HOLE. ALL STRING, TWINE, ETC. TO BE REMOVED.
- 2) ALL WIRE BASKETS SHALL HAVE THE TOP 1/3 OF THE WIRE REMOVED PRIOR TO PLANTING.
- 3) ALL TREES SHALL BE SINGLE STEMMED.

TITLE		147
TREE PLANTING DETAIL		
DISTRICT OF PORT HARDY	DATE	APR / 98
	APPROVED	
	SCALE	SCBE0033
		SDT 1

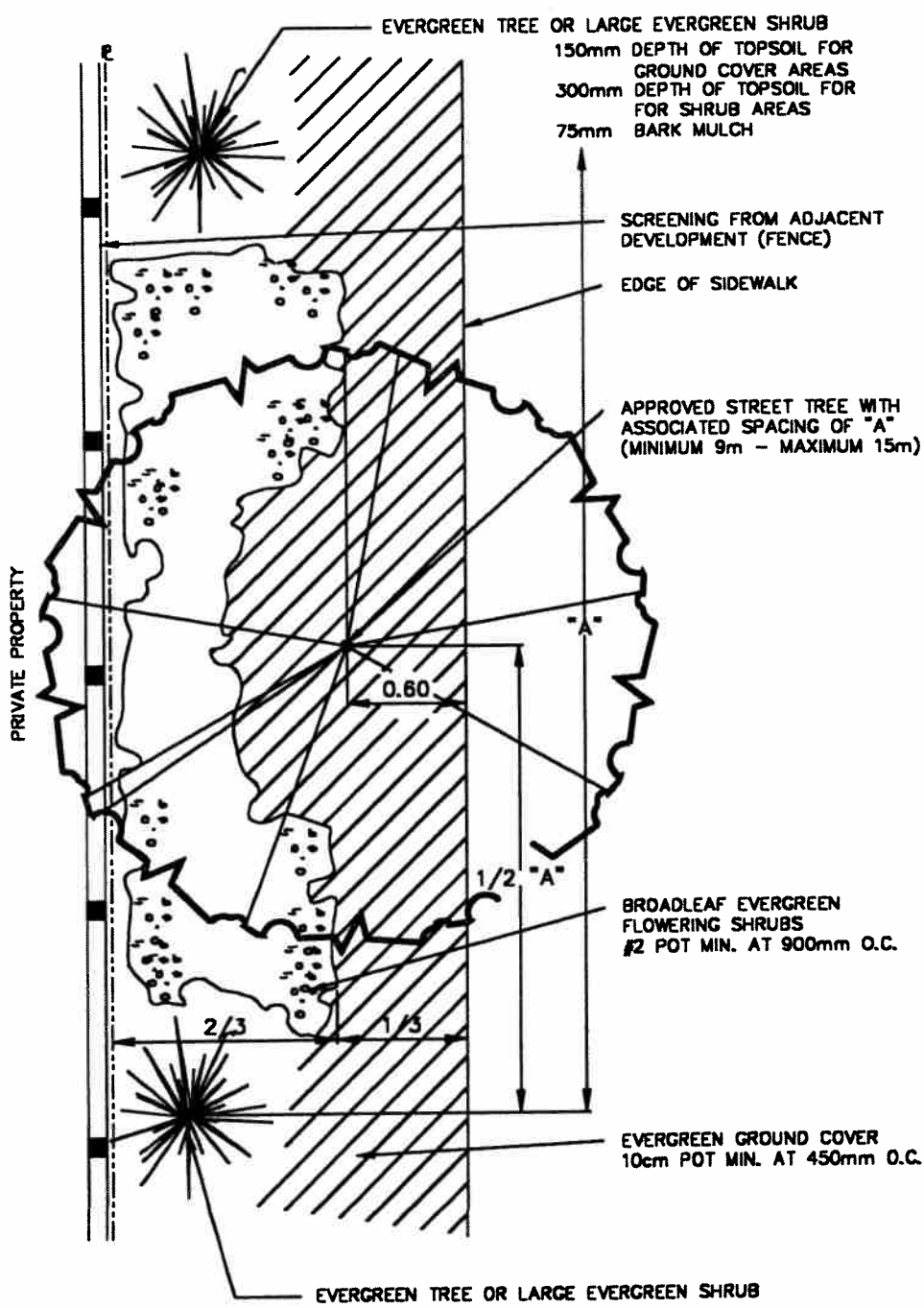


TITLE
 MINIMUM TREE PLANTING DISTANCES

DISTRICT OF PORT HARDY

DATE APR / 98
 APPROVED
 S.C.B.No. SCBE0034

148
 SDT 2

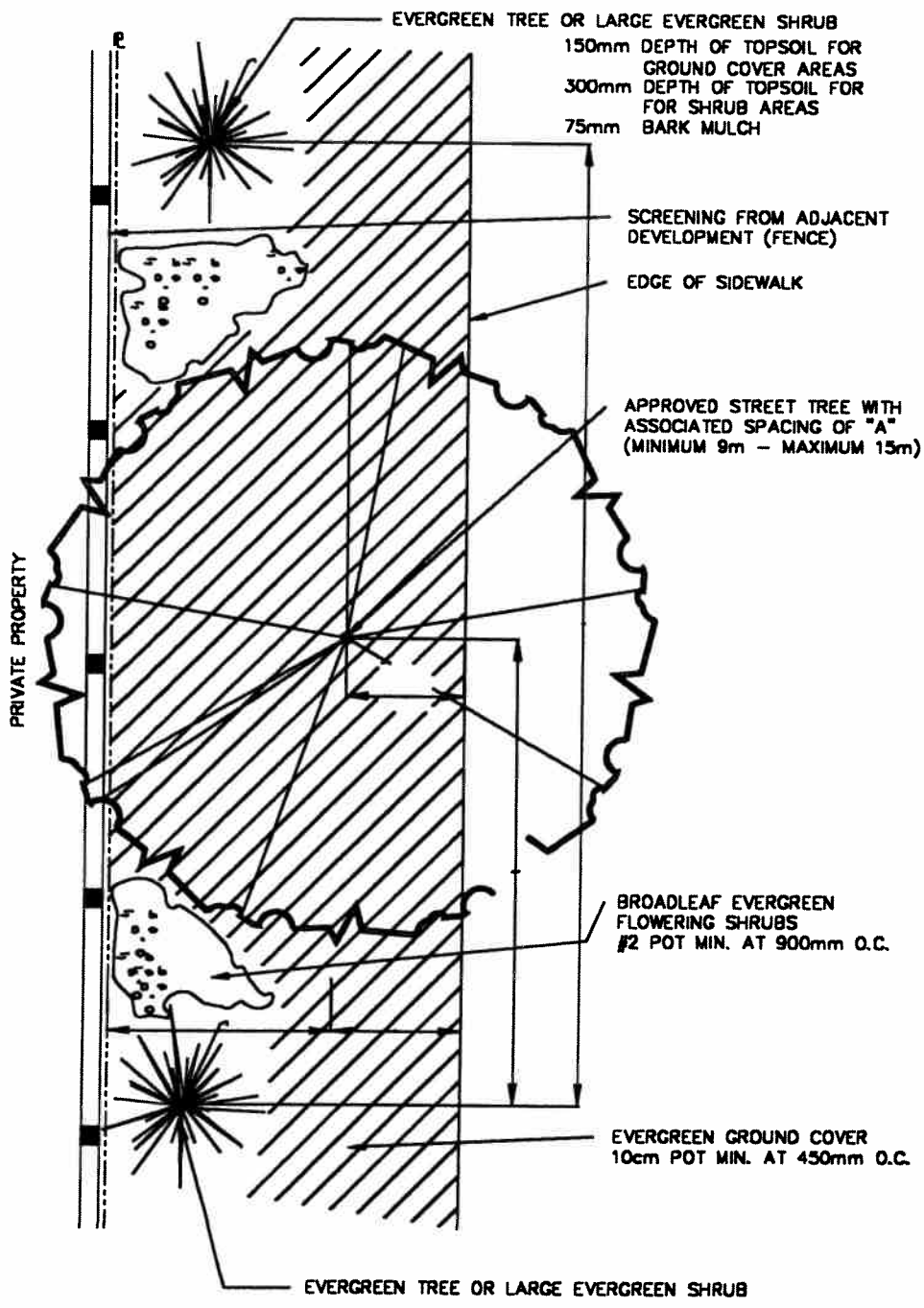


TITLE **BOULEVARD PLANTING SEQUENCE**
SLOPES UNDER 1:4

DISTRICT OF PORT HARDY

DATE **APR / 98**
 APPROVED _____
 S.C.B.N. **SCBE0035**

149
SDT 3



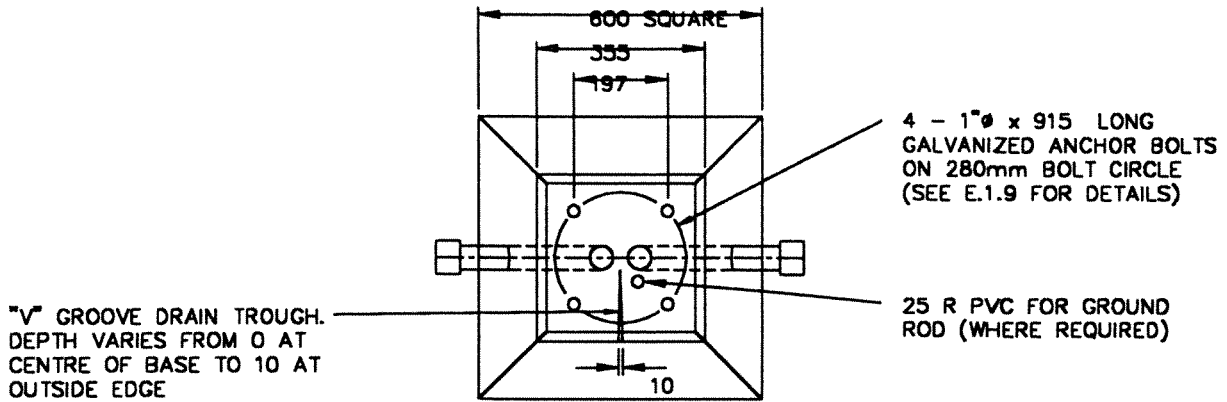
TITLE	BOULEVARD PLANTING SEQUENCE SLOPES OVER 1:4	150
DISTRICT OF PORT HARDY	DATE APR / 98	
	APPROVED	SDT 4
	S.C.B.N. SCBE0036	

CONCRETE BASE INDEX

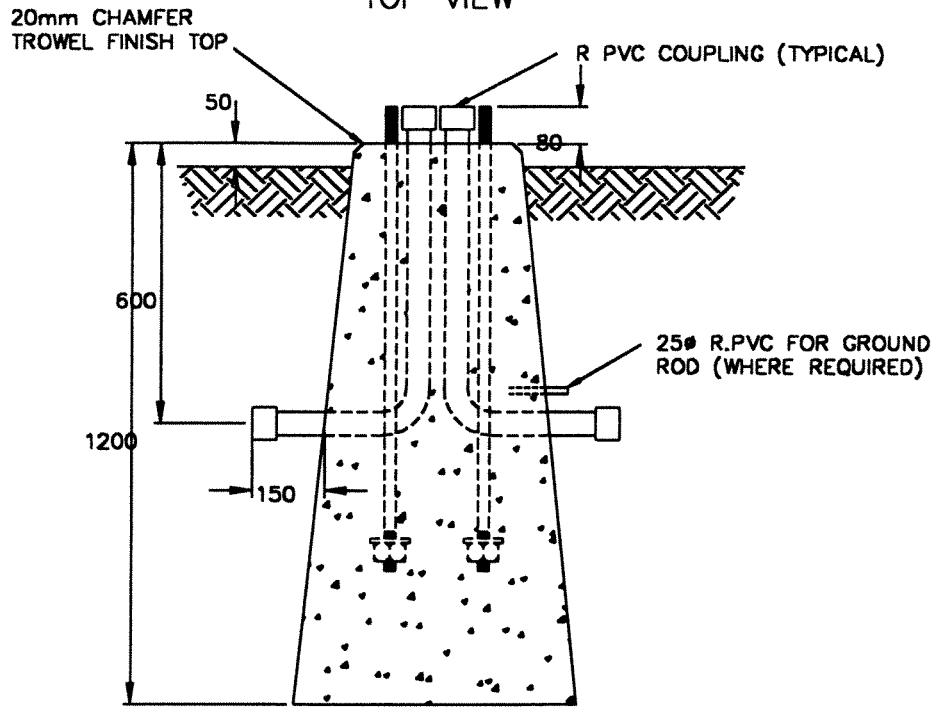
TYPE	DRAWING	POLE TYPES
-	SDE-2	7.5m AND 9.0m SINGLE UNIT DAVIT LUMINAIRE POLES & TYPE 4, 4A AND 5 SIGNAL POSTS & 4.0m, 6.0m AND 7.5m POST TOP LUMINAIRE POLES
A	E 1.2	TYPE 4 SIGNAL POST
B	E 1.2	TYPE 4A AND 5 SIGNAL POST & 4.0m, 6.0m AND 7.5m POST TOP LUMINAIRE POLES
C	E 1.3 & E 1.4	11.0m DAVIT LUMINAIRE POLE
C1	E 1.3 & E 1.4	6.6m AND 8.1m SINGLE UNIT DAVIT LUMINAIRE POLES & 6.6m, 8.1m AND 10.1m LUMINAIRE POLES & 3.1m, 5.1m AND 6.6m POST TOP LUMINAIRE POLES ON 0.9m HIGH SERVICE BASE
E2	E 1.5 & E 1.6	TYPE 1 AND 3 SIGNAL POLES
F	E 1.7 & E 1.8	TYPE 6 AND 7 SIGNAL POLES
L	E 1.12	POST MOUNTED FLASHER CONCRETE BASE

NOTES: 1.) REFER TO CONTRACT DRAWINGS AND SECTION 16650 FOR DETAILED SPECIFICATIONS.

TITLE	CONCRETE BASE INDEX	151
DISTRICT OF PORT HARDY	DATE APR / 98	
	APPROVED	SDE1
	S.C.B.No. SCBE0064	



TOP VIEW



SIDE VIEW

- NOTES:**
- 1.) REFER TO CONTRACT DRAWINGS AND SECTION 16650 FOR DETAILED SPECIFICATIONS.
 - 2.) CONCRETE SHALL HAVE ATTAINED A COMPRESSIVE STRENGTH OF 30MP_a PRIOR TO POLE INSTALLATION.
 - 3.) SEE STANDARD DETAIL DRAWINGS E 1.13 AND E 1.14 FOR BACKFILL REQUIREMENTS, DIMENSION A = 500.

TITLE

STD TRAPEZOIDAL CONC BASE

DISTRICT OF PORT HARDY

DATE APR / 98

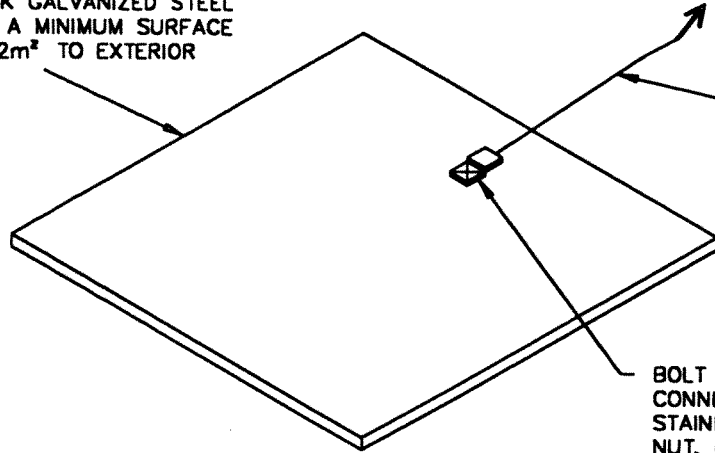
APPROVED

S.C.B.N. SCBE0061

152

SDE2

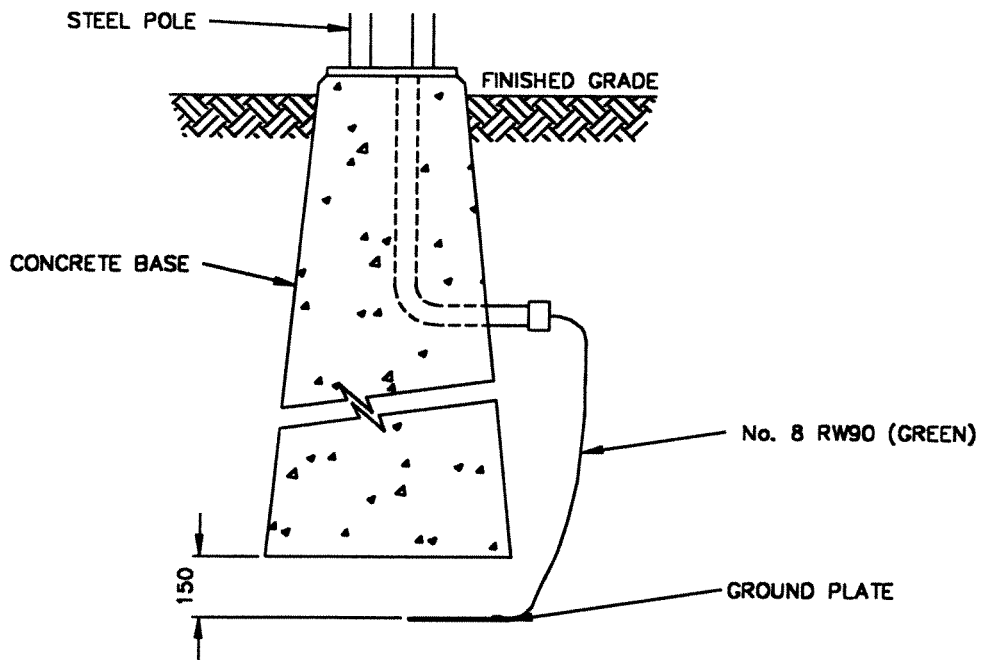
6.4mm THICK GALVANIZED STEEL
 PLATE WITH A MINIMUM SURFACE
 AREA OF 0.2m² TO EXTERIOR
 SOIL



No. 8 RW90
 GROUND CONDUCTOR

BOLT Cu/Al COMPRESSION
 CONNECTOR TO PLATE WITH
 STAINLESS STEEL BOLT &
 NUT. (SIZED TO SUIT)

GROUND PLATE



NOTES:

- 1.) THIS GROUNDING METHOD TO BE USED ONLY WHERE SPECIFIED ON CONTRACT DRAWINGS, OR AS DIRECTED BY CONTRACT ADMINISTRATOR.
- 2.) REFER TO CONTRACT DRAWINGS AND SECTION 16650 FOR DETAILED SPECIFICATIONS.
- 3.) WHERE PLATE CAN NOT BE INSTALLED UNDER THE BASE IT SHALL BE INSTALLED AT A SIMILAR DEPTH UNDER THE JUNCTION BOX BESIDE THE BASE.

TITLE

GROUND PLATE INSTALLATION

DISTRICT OF PORT HARDY

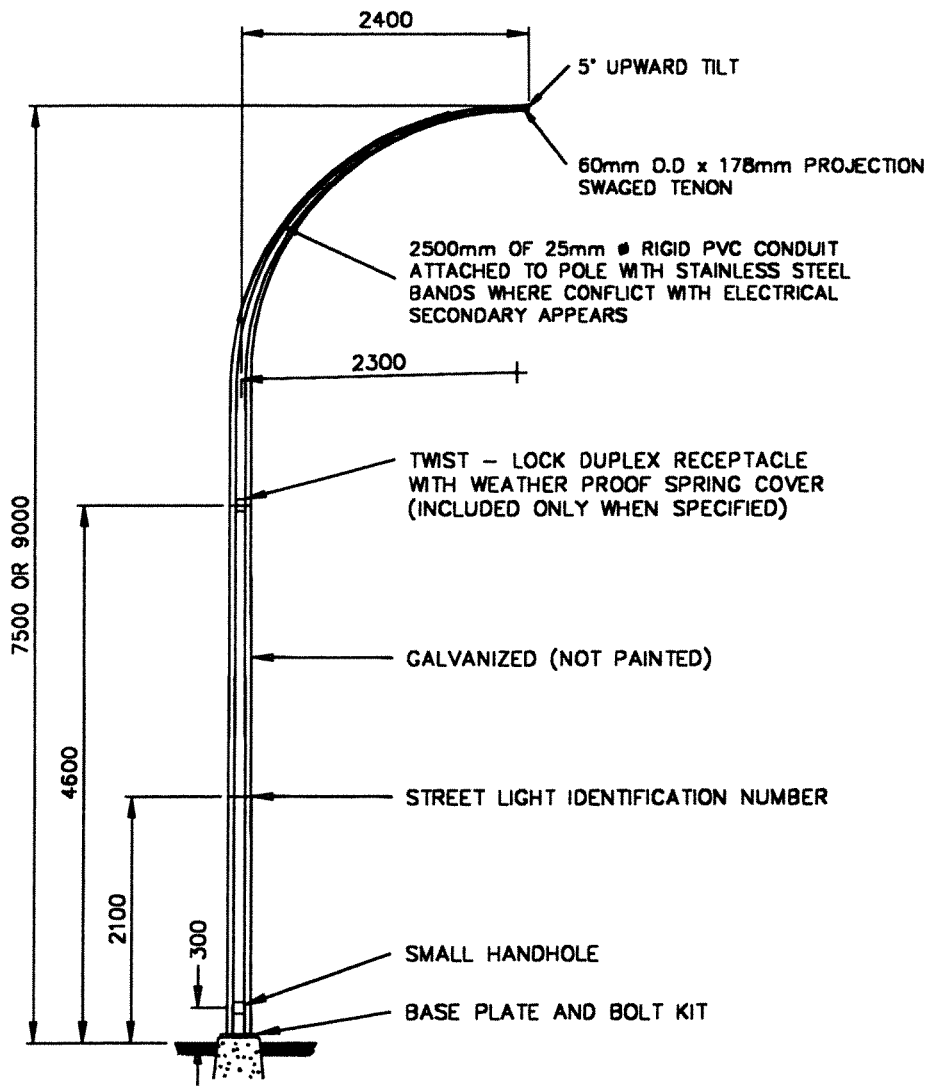
DATE APR / 98

APPROVED

SCALE SCBE0063

153

SDE3



NOTES:

- 1.) REFER TO CONTRACT DRAWINGS AND SECTION 16650 FOR DETAILED SPECIFICATIONS.
- 2.) SEE STANDARD DETAIL DRAWINGS E 5.1 AND E 5.2 FOR BASE PLATE, BOLT KIT AND ASSEMBLY DETAILS
- 3.) POLE SHAFT TO BE SUPPLIED 0.9m SHORTER WHERE BEING INSTALLED ON SERVICE BASE.

TITLE

SINGLE UNIT DAVIT LUMINAIRE POLE

DISTRICT OF PORT HARDY

DATE APR / 98

APPROVED

S.C.E.N. SCBE0062

154

SDE4