

SCHEDULE I
STANDARDS FOR THE PREPARATION OF
ENGINEERING DRAWINGS

This is Schedule I of the Village of Fruitvale Subdivision and Development Servicing
Bylaw No. ____, 1995

Clerk

SCHEDULE I

STANDARDS FOR THE PREPARATION OF ENGINEERING DRAWINGS

1.0 GENERAL REQUIREMENTS

These requirements pertain to the preparation of drawings for: sanitary sewers, storm sewers, water, gas, underground power, telephone, cablevision, street lighting, roads, curbs and gutters, sidewalks, culverts, bridges, and other permanent structures.

Where no standard is defined in this schedule for the preparation of a drawing to portray a particular service, structure, or other items, instructions and requirements may be obtained by discussion with the Village of Fruitvale, or its appointed representative.

As-built plans are to be completed and approved before securities are released.

As-built drawings are to be submitted within four (4) weeks of the completion of all services to be installed by the Applicant. The Design Engineer shall deliver as-built drawings as specified in this schedule to the Village Engineer. These drawings shall be signed and sealed by the Design Engineer.

A plan profile is a detailed engineering drawing record containing the permanent and temporary features within a public right-of-way. The plan profile is divided into two parts:

Part One: The top plan view shows all surface features, legal descriptions and bordering property data, all underground utilities and their locations within the public right-of-way and related data.

Part Two: The bottom profile shows, elevations, chainages, surface and utility grades with related data.

2.0 DRAWING STANDARDS

2.01 Sheet Size

Pre-cut sheets to be 841 mm x 594 mm (A-1 sheet size).

2.02 Sheet Material

3 mil mylar matte both sides with half plan and half profile.

2.03 Grid Standards

2 mm x 10 mm as shown on sample sheet.

2.04 Sheet Border

Border line width to be 1.0 mm. Top, bottom and right border to be 15 mm respectively from edge of sheet. Left border to be 42 mm from edge of sheet.

2.05 Title Block

- .1 Located along the bottom of the sheet.
- .2 Size of the title block is 46 mm wide.
- .3 Title block to be pre-printed. Stick-on type is not acceptable.
- .4 Title block shall describe the contents of the drawing (eg. key plan, roadworks, etc.) and shall clearly indicate the location of the works by road name(s) and/or legal description. See sample sheet.
- .5 Lettering to be an open style of Vertical Gothic - Leroy or Autocad. If using Autocad, use text font Roman. If using some other computer graphic system, it should be compatible with Autocad. See sample sheet for lettering height and pen size.
- .6 Design Engineers must use the Village of Fruitvale A-1 standard sheets. Design Engineers identifications are to be placed on each drawing.
- .7 A sample of a prepared plan/profile sheet, and an Autocad disk of the Standard Drawing block shell may be obtained by contacting the Village of Fruitvale.

3.0 PREPARATION OF DRAWING

Drawings are to be prepared in a manner as illustrated on the attached standard plan/profile sample sheet.

3.02 Sheet Layout

- .1 Maintain a minimum clearance of 40 mm from all borders.
- .2 The profile SHALL NOT be drawn over the title block.
- .3 Place north arrow close to the top right hand side of the sheet whenever possible.
- .4 North arrow shall point either towards the top of the page or towards the left hand edge of the page. The north arrow may point not more than 60° to the right hand side of the page.

- .5 Show distances and location dimensions in metres and to 3 decimal places.
- .6 Show pipe sizes in mm as per A.S.T.M. specifications using 1" = 25 mm.
- .7 Existing imperial dimensions except for pipe sizes are to be soft converted using the factor:

1 inch (1") = 25.4 mm

1 foot (1') = 0.3048 m

3.03 Lettering

- .1 Lettering is to be an open style of Vertical Gothic (eg. Leroy or Autocad - Romans) minimum height being 1.8 mm. The standard lettering height is 2.5 mm.
- .2 Lettering to be applied by using a Leroy, a computer graphics system compatible to Autocad, or equivalent.
- .3 Use BLACK INDIA ink on all as-built drawings.

3.04 Scales

Use metric scales:

PLAN VIEW SCALE 1:500

PROFILE VIEW SCALE Horizontal 1:500

Vertical 1:50

3.05 Plan View

- .1 Show utility and utility access R.O.W.'s.
- .2 In case of R.O.W.'s less than 6.0 m larger scales may be permitted.
- .3 Show control station monuments with identification number.
- .4 The PLAN VIEWS should not be fragmented or broken due to slight curves in the road right-of-way.
- .5 The PLAN VIEWS shall be fragmented or broken if the vertical alignment of the utilities in the PROFILE SECTION when shown at true length and when projected above to the utilities in the PLAN VIEW cannot be maintained in as close a relationship as possible without too much discrepancy.

- .6If using co-ordinates for layouts, calculate and plot distances at SEA LEVEL, but show ground level distances on the plan.
- .7Show the legal layout, dimensions, bearings, lot numbers, block numbers, legal plan numbers, street names, sidewalks with related data and catch basin installations with elevations.
- .8All lots need not be numbered providing they are in sequence. Show first and second and next to last and last lots. If not in sequence, all lots shall be numbered.
- .9All lot dimensions shall be given in metres and to three (3) decimal places. If the lots are of same dimensions and side by side, only the two outside lots need have the dimensions shown, the remainder with ditto marks.
- .10Curb information should be shown and should include radius, delta angle, tangent length, and arc length
- .11Face of curb information must be complete.
ie. Rollover Face of Curb - Roll F.C.

If other than concrete face of curb specify material used.
ie. Rollover Asphalt Face of Curb - Roll Asph F.C.
- .12Show Right of Way road widths and the actual roadway widths between curbs or between curbs and edge of pavement.
- .13Show all utilities such as sanitary and storm sewers, water, hydro, telephone, gas, cable TV, manholes, valves, cleanouts, hydrants, service boxes, etc.
- .14Reference each utility to the nearest property line or boundaries of right-of-ways.
- .15Show flow directions of sewers.
- .16Manholes in midblock shall be referenced to the nearest lot line (I.P)
- .17Lot services (sanitary, storm, water) shall be shown and referenced to the nearest or convenient lot line of said lot.

3.06Profile

- .1The profile and related data are shown on the bottom half of the sheet. Establish 0+00 station on accented vertical grid line.

- .2The original groundline (centreline) and related data prior to construction should be shown, along with date surveyed.
- .3The profile shall be shown at true centreline length and projected above to the PLAN VIEW in as close a relationship as possible.
- .4Show as constructed centreline for streets and lanes and date constructed.
- .5Show centreline percent grade to two (2) decimal places, together with the following information on vertical curves:
 - the chainage and elevations of B.C., E.C., and V.P.I.
 - the external value, "e"
 - the length of vertical curve
 - the chainage and elevation of the low spot of sag curves or high point of crest curves
 - on super elevated curves and crossfall sections, percent crossfall, transition length and crown should be noted.
- .6Show profiles of invert and crown of pipes for sanitary, storm, and water mains as well as length, size, type, grade, and class of pipe (eg. 75 m - 200 mm SAN SDR 35 PVC).
- .7Show manholes with rim elevations, and invert elevations at both inlet and outlet.
- .8Crown of pipes shall be shown at all locations where there is the possibility of conflicts with other utilities.
- .9Show location type and elevation of all crossing utilities.
- .10Elevations are placed at the right and left hand side of the profile and repeated when there is a break in the profile.
- .11Elevations are to be shown at every even metre graduation and placed on the heavy accented line.
- .12All elevations shall be relative to GEODETIC DATUM and in metric.

4.0DRAFTING GUIDELINES

The format of the Technical Legend places the symbol as it appears on the drawing on the left hand page with drafting guidelines on the right hand page.

The symbols presented in the Legend are sized for use on Plan Profile drawings. Dimensions used are given in millimetres. Pen and template sizes refer to the widely used Leroy equipment.

Metric pen and template sizes are given in millimetres along with their imperial equivalent.

5.0 ABBREVIATIONS

TECHNICAL LEGEND PLAN PROFILE ABBREVIATIONS

ABANDONED ABAND.
ABBREVIATION ABBREV.
ACRE AC.
ASBESTOS CONCRETE AC.
ASPHALT ASPH.
ASPHALT WALK ASPH.W.
AIR VALVE A.V.
AVENUE AVE.
AVERAGE AVG.

BACK OF CURB B.O.C.
BACK OF WALK B.O.W. or B.W.
BASEMENT BSMT
BEARING BRG.
BEDDING BED.
BEGINNING OF CURVE B.C.
BENCH MARK B.M.
BETWEEN BTWN
BLOCK BLK
BOTTOM BTM
BOTTOM OF PIPE B.O.P.
BOULEVARD BLVD.
BOUNDARY BDY
BUILDING BLDG
BEGINNING OF VERTICAL CURVE B.V.C.

CABLE TELEVISION T.V.
CALCULATED CALC
CANADIAN NATIONAL RAILWAY C.N.R.
CANADIAN PACIFIC RAILWAY C.P.R.
CANADIAN STANDARDS ASSOCIATION C.S.A.
CAPACITY CAP
CAST IRON C.I.
CATCH BASIN C.B.
CATHODIC PROTECTION C.P.
CENTIMETER CM
CENTRE LINE
CHECKED CHKD
CHECK VALVE C.V.
CHORD CH
CIRCLE CIR
CLASS CL

TECHNICAL LEGENDPLAN PROFILE ABBREVIATIONS

CLEAN OUTC.O.
CONCRETECONC
CONCRETE WALKC.W.
CONDUITCOND
CONSTRUCTION/CONSTRUCTCONSTR or CONST
CONTOURCONT
CONTRACTORCONTR
COPPERCU
CORNERCOR.
CORRUGATED METAL PIPEC.M.P.
COUPLINGCPLG
COURTCT
CREEKCR
CRESCENTCRES
CROSSFALLX-FALL
CROSS SECTIONX-SECTION
CULVERTCULV
CURB AND GUTTERC & G

DEGREEDEG or °
DELTA
DEPARTMENTDEPT
DIAMETERDIA. or
DIMENSIONDIM
DISTANCEDIST
DITCHD
DOUBLEDDBL
DRAWINGDWG
DRIVEWAYDWY
DRY WELLD.W.
DRIVEDR
DUCTILE IRONDI
DWELLINGDWLG
EASEMENTESMT
EASTE
EDGE OF MEDIANE.M.
EDGE OF PAVEMENTE.P.
EDGE OF SHOULDERE.S.
ELECTRICELEC
ELECTRIC LIGHTE.L.

TECHNICAL LEGEND PLAN PROFILE ABBREVIATIONS

ELEVATION ELEV
END OF CURVE E.C.
END OF VERTICAL CURVE E.V.C.
ESTIMATE EST.
EXISTING EXIST
FACE OF CURB F.C. (Roll F.C., Std. F.C., Asph.
(Rolled, Standard, Asphalt) F.C.)
FACE OF WALK F.W.
FEET OR FOOT FT
FLANGE FLG
FLANGED OUTLET F/O
FLOOR FLR
FOOTING FTG
FORCE MAIN F.M.
FOUND FD

GALVANIZED GALV
GARAGE GAR
GARDEN GDN
GRAVEL GRAV
GRADE GR
GUARD RAIL GDR

HECTARE HA
HECTOMETRE HM
HEIGHT HT
HIGHWAY HWY
HORIZONTAL HOR
HORIZONTAL CURVE HOR
HOSPITAL HOSP
HYDRANT HYD

INCH IN or "
INLET CHAMBER I.C.
INSIDE DIAMETER I.D.
INTERSECTION INT
INVERT INV
IRON PIN, FOUND IRON PIN I.P., F.I.P.
INSULATE INS
INTAKE STRUCTURE I.S.

TECHNICAL LEGENDPLAN PROFILE ABBREVIATIONS

JOINTJT

KILOGRAMKG

KILOMETRESKM

KILOMETRES PER HOURKM/H

LATERALLAT

LEADL

LENGTHLGTH

LENGTH OF CURVEL.C.

LIFT STATIONL.STA

LIGHT STANDARDL.S.

LIP OF GUTTERL.G.

MAIN VALVEM.V.

MANHOLEM.H.

MANHOLE RIMM.H.R.

MAXIMUMMAX

MECHANICAL JOINTM.J.

METRE_m

METRE CHAMBERM.C.

MEDIANM. or MED

MILES PER HOURM.P.H.

MILLIMETRE_{mm}

MINIMUM_{min}

MINISTRY OF TRANSPORTM.O.T.

MONOLITHIC SIDEWALKMONO

MONUMENTMON

MORTAR JOINTM.J.

MINUTES_{MIN} or '

NORTHN

NORTH SIDEN/S

NOT TO SCALEN.T.S.

NUMBERNO. or #

OBLITERATEDOBL

ON CENTREO.C. or O/C

ORIGINAL GROUND_{O.G.}

OPPOSITE FACE_{O.F.}

OUTLET CHAMBER_{O.C.}

OUTSIDE DIAMETER_{O.D.}

TECHNICAL LEGEND PLAN PROFILE ABBREVIATIONS

PARALLELPAR
PARKWAYPKWY
PAVEMENTPVMT

PER/
PERCENT%
PHASEPH
PIPEP
PLACEPL
PLAN PROFILEP.P.
PLUGPLUG
POINTPT
POINT ON CURVEP.C.
POINT ON COMPOUND CURVEP.C.C.
POINT ON TANGENTP.T.
POINT ON INTERSECTIONP.I.
POUNDSlbs
POUNDS PER SQUARE INCHP.S.I.
POWER POLESP-P
PRESSURE REDUCING VALVEP.R. V.
PROPERTY LINE or P.L.
PROPOSEDPROP
PUMP STATIONP.S.

QUANTITYQTY

RADIUSRAD OR R
RAILWAYRWY
RAISED FACER.F.
RECTIFIERRECT
REDUCERRED
REFERENCEREF
REGISTERED PLANR.P.
REINFORCEDREIN
RESTOREDRSTD
REPLACEMENTREPL
RESERVOIRRES
REVISIONREV
RIGHTRT
ROADRD
ROUND

RIGHT OF WAYR/W or R.O.W.

TECHNICAL LEGENDPLAN PROFILE ABBREVIATIONS

SANITARYSAN
SECONDSEC
SECTIONSECT
SERVICESERV
SERVICE ROADSERV.RD.
SET IN FIELDS.I.F.
SIDEWALK PROFILES.W.P.
SLOPESLP
SOUTHS
SOUTH SIDES/S
SPECIFICATIONSPEC
SPIRAL TO CURVES.C.
SQUARESQ OR
STANDARDSTD
STATIONSTA
STEELSTL
STORMSTM
STREETST
STRUCTURESTR
SUPPLYSUP
SWALESWL
SYMBOLSYM

TANGENTTAN
TANGENT TO SPIRALT.S.
TECHNICALTECH
TEMPERATURETEMP
TEMPORARYTEMPO
TEST HOLET.H.
TONGUE AND GROOVET.G.
TOWNSHIPT.W.P.
TOP OF CURVET.O.C.
TOP OF PIPET.O.P.
TRAFFIC CONTROLT.C.
TRAILTR.
TRANSFORMERTRANSF
TRANSITETRANS
TYPICALTYP

UNDERGROUNDU.G. or U/G/
UNDER CONSTRUCTIONU/C

TECHNICAL LEGENDPLAN PROFILE ABBREVIATIONS

VELOCITYVEL

VERTICALVERT

VERTICAL CURVEV.C.

VOLUMEVOL

WALL THICKNESSW.T.

WASH OUTW/O

WATERW

WESTWest

WEST SIDEW/S

WEEPING TILEW.TILE

WEIGHTWt

WIDTHWDTH

WITNESS PINW.PIN

WOODEN POSTW.P.

YARDYD2