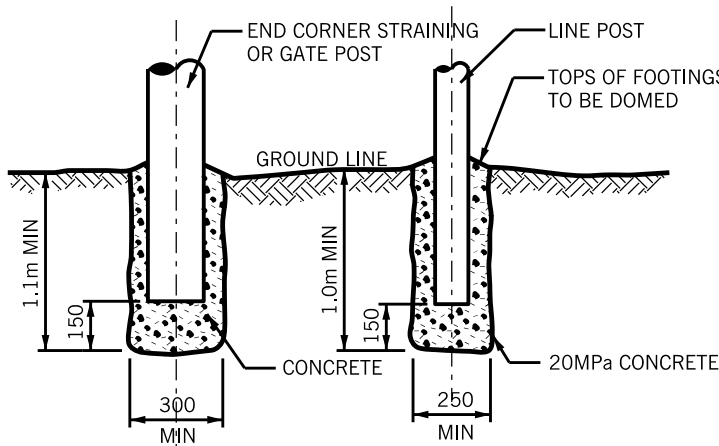


FENCE DETAILS



IN EARTH OR WALKWAY

ON RETAINING WALL

NOTES:

1. FOR FABRIC WIDTH OF 1.8m INSTALL KNUCKLED EDGE AT BOTTOM & BARBED EDGE AT TOP. FOR FABRIC WIDTH OF 1.2m & 1.5m INSTALL KNUCKLED EDGE AT TOP.
2. CHAIN LINK FABRIC TO BE BLACK VINYL COATED 3.5mm O.D., WITH 3.2m GALVANIZED STEEL CORE WOVEN INTO A 38mm MESH. TOP & BOTTOM SALVAGE TO HAVE A KNUCKLED FINISH. TENSILE STRENGTH OF INDIVIDUAL PICKETS TO STAND TEST OF 550MPa.
3. SEE SPECIFICATIONS FOR CHAIN LINK FENCE.
4. ALL POST, RAILS, CONNECTOR & FITTINGS TO BE GALVANIZED & BLACK COATED AS PER STANDARD CITY SPECIFICATIONS FOR CHAIN LINK FENCE 1.2m HT.
5. ALL DIMENSIONS IN mm EXCEPT AS NOTED.



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CHAIN LINK SECURITY FENCE

PARKS & RECREATION

APPROVED:
1992/01/11

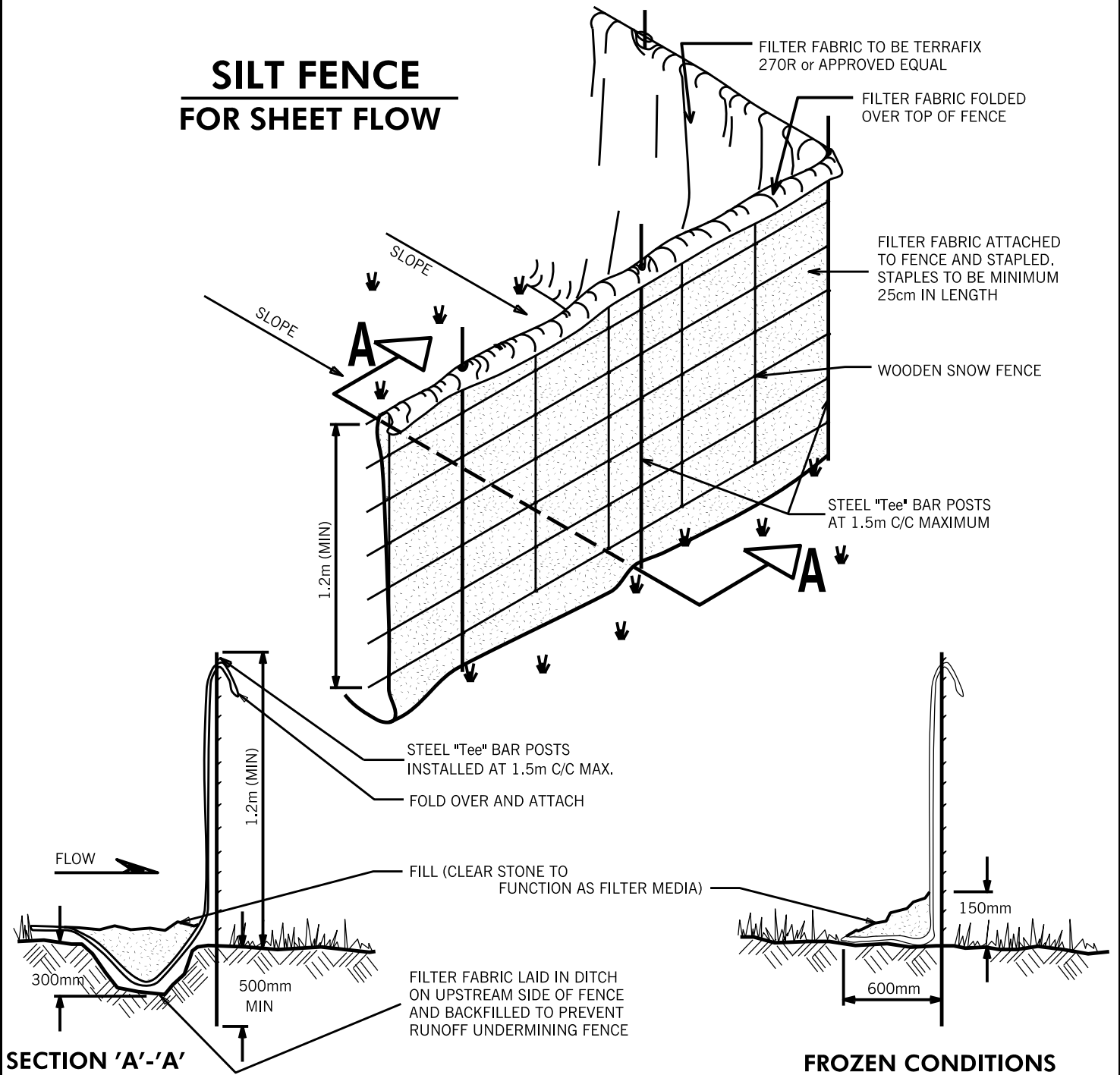
ORIGINAL:
1992/01/11

REV. 0

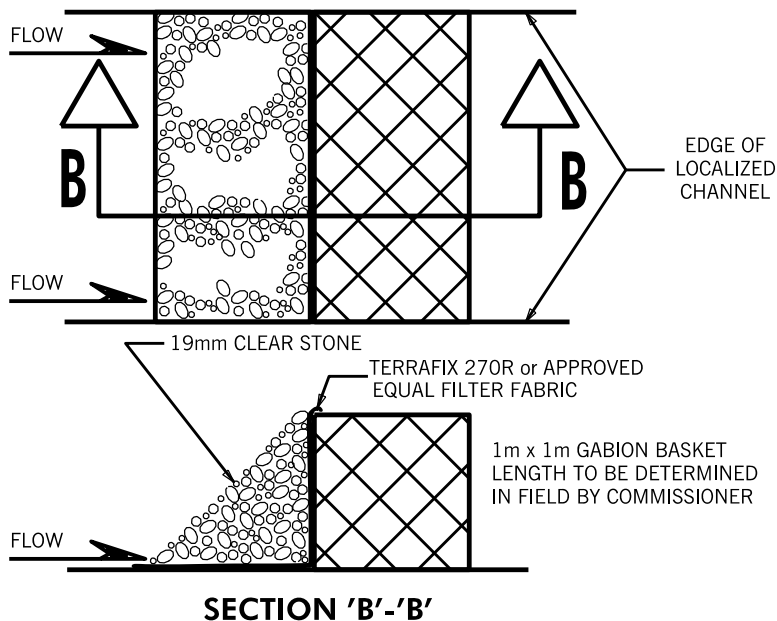
402

N.T.S

SILT FENCE FOR SHEET FLOW



SEDIMENT TRAP FOR LOCALIZED OUTFALLS



NOTES:

1. EXACT LOCATION TO BE DETERMINED IN THE FIELD AND APPROVED BY CITY ENGINEER
2. SILT FENCE & SEDIMENT TRAP TO BE CLEANED PERIODICALLY AS REQUIRED BY CITY ENGINEER
3. ALL SILT FENCE & SEDIMENT TRAPS ARE TO BE REMOVED WHEN CONSTRUCTION IS COMPLETED. THE REMAINING SEDIMENT IS TO BE GRADED, PREPARED AND SEEDING OR SODDED.
4. FROZEN CONDITIONS USE IS TO BE CONFIRMED BY CITY ENGINEER



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SILT FENCE
&
SEDIMENT TRAP

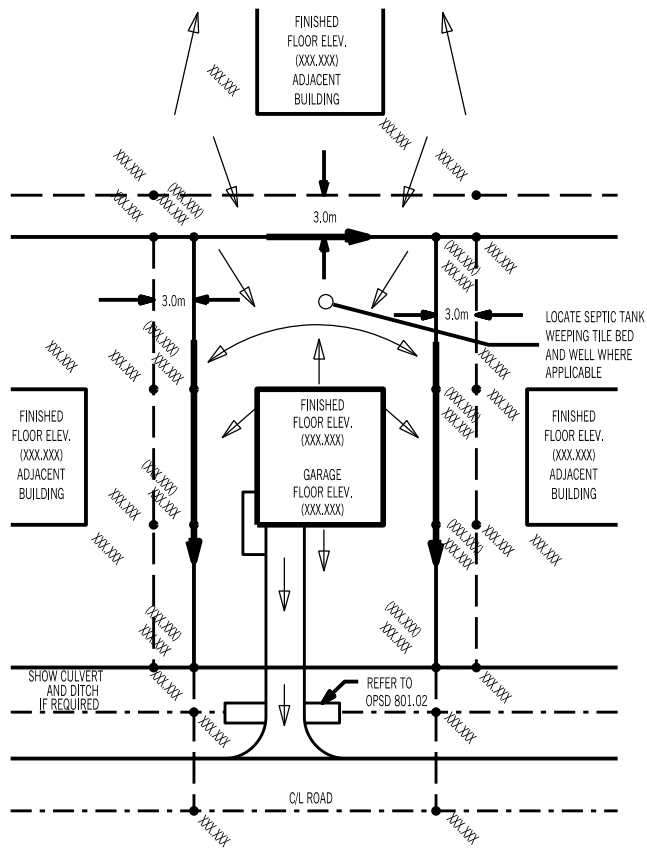
APPROVED:
2011/11/17

ORIGINAL:
1990/11/01

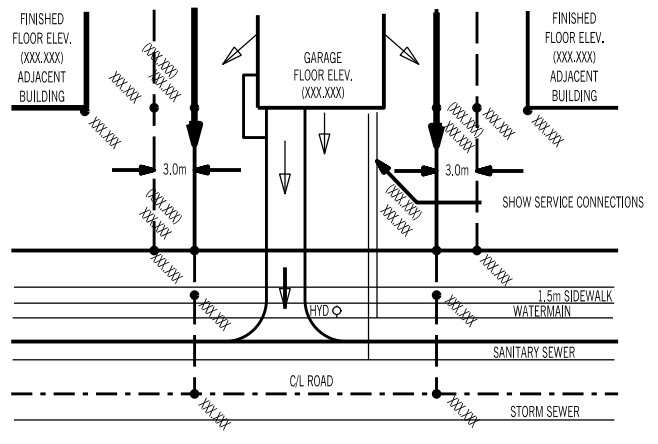
REV. 3

406

N.T.S



STREET NAME
TYPICAL RURAL PLAN



STREET NAME
TYPICAL URBAN PLAN

CRITERIA

- (1) HOUSE PLAN MUST BE IN METRIC AND INCLUDE THE FOLLOWING - TITLE BLOCK, LEGEND, SCALE, KEY PLAN, NORTH ARROW, LEGAL DESCRIPTION AND MUNICIPAL ADDRESS IF AVAILABLE
- (2) WATER SERVICE CONNECTION OR WELL LOCATION MUST BE SHOWN
- (3) SANITARY SERVICE CONNECTION OR SEPTIC BED MUST BE SHOWN
- (4) ALL DRAINAGE MUST BE CONTAINED ON SITE. GRADING MUST BE DIRECT DRAINAGE TO A CITY R.O.W. OR EASEMENT OR WATERCOURSE AS DIRECTED BY THE COMMISSIONER
- (5) WHERE SITE IS ADJACENT TO A WATERCOURSE, THE PERTINENT CONSERVATION AUTHORITY MUST BE CONTACTED TO DETERMINE WHETHER A SPECIAL FILL PERMIT IS REQUIRED
- (6) ALL TREES ON THE PROPERTY MUST BE SHOWN
- (7) ALL UTILITY STRUCTURES (TO BE) LOCATED ON, OR IN FRONT OF SITE, MUST BE SHOWN
- (8) LAWN AND SWALES SHALL HAVE A MINIMUM SLOPE OF 2% AND MAXIMUM SLOPE OF 6%
- (9) SUFFICIENT GROUND ELEVATIONS ON ADJACENT LANDS TO BE SHOWN TO DETERMINE EXISTING DRAINAGE PATTERNS THE MINIMUM INFORMATION REQUIRED SHOULD INCLUDE:
 - a) FINISHED FLOOR ELEVATIONS OF ALL ADJACENT BUILDINGS
 - b) EXISTING GROUND SURFACE ELEVATIONS FOR 5 AND 10 METRES OUTSIDE THE PROPERTY BOUNDARY AT 20m INTERVALS
- (10) DRIVEWAY GRADES SHOULD NOT BE LESS THAN 2% AND NOT GREATER THAN 8%
- (11) WHERE GRADES IN EXCESS OF 6% ARE REQUIRED, THE MAXIMUM SLOPE SHALL BE 3:1 IN ANY CASE, GRADE CHANGES IN EXCESS OF 0.6m ARE TO BE ACCOMPLISHED BY USE OF RETAINING WALL, RETAINING WALLS HIGHER THAN 0.6m SHALL HAVE A FENCE INSTALLED ON HIGH SIDE
- (12) DOWNSPOUTS TO DISCHARGE ONTO GROUND ON SPLASH PADS. DOWNSPOUTS SHALL NOT DISCHARGE ACROSS WALKWAYS
- (13) THE MINIMUM CLEAR DISTANCE BETWEEN THE EDGE OF DRIVEWAY AND A UTILITY STRUCTURE IS 1.5m
- (14) BRICKLINE TO BE 150mm TO 200mm ABOVE FINAL GRADE AT HOUSE
- (15) ALL DISTURBED AREAS MUST BE SEEDED OR SODDED. TOPSOIL TO BE AT LEAST 200mm THICK
- (16) BELOW GRADE WALKOUTS AND REVERSE GRADED DRIVEWAYS WILL NOT BE PERMITTED
- (17) AN APPROVED SILTATION CONTROL METHOD MUST BE PROVIDED DURING CONSTRUCTION.
- (18) LEGEND = xxx.xxx DENOTES EXISTING GRADE (xxx.xxx) DENOTES PROPOSED GRADE



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APPROVED:
2011/11/17

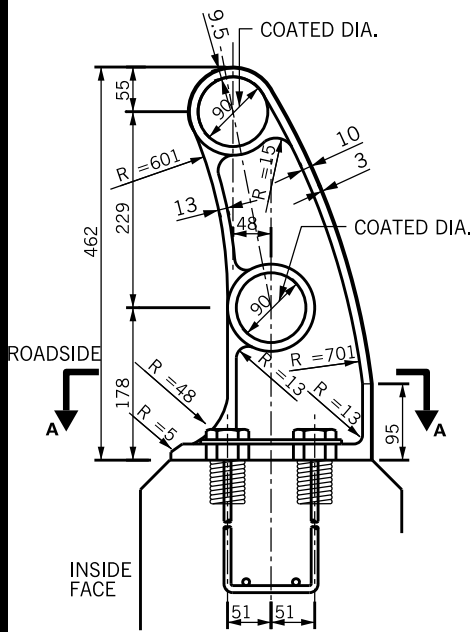
HOUSE PLAN
REQUIREMENTS

ORIGINAL:
1990/11/01

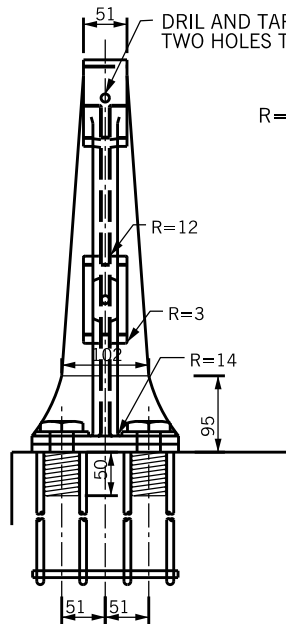
REV. 4

409

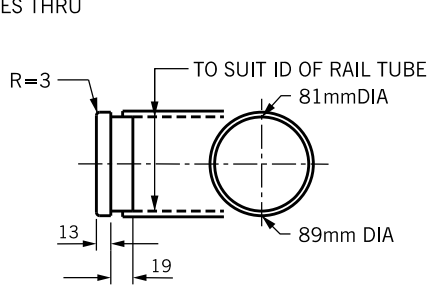
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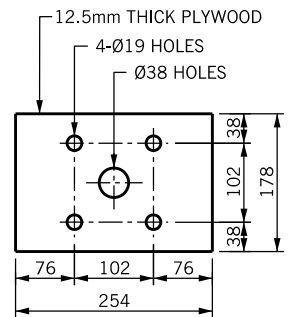
SIDE ELEVATION



FRONT ELEVATION

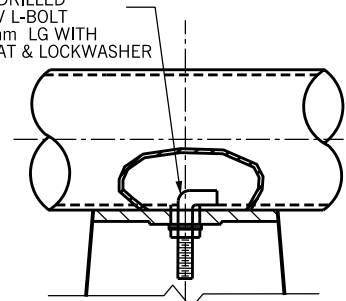


RAIL CAP

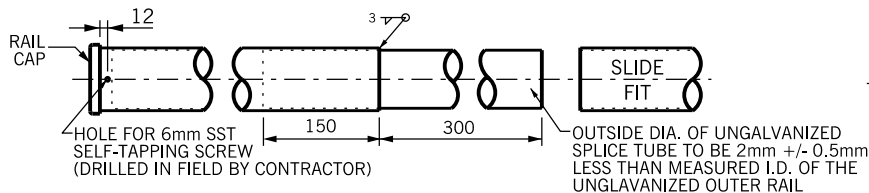


TEMPLATE

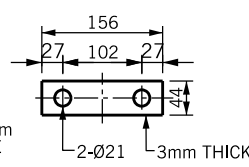
TUBE TO BE DRILLED TO SUIT GALV L-BOLT 12 DIA x 75mm LG WITH HEX NUT, FLAT & LOCKWASHER



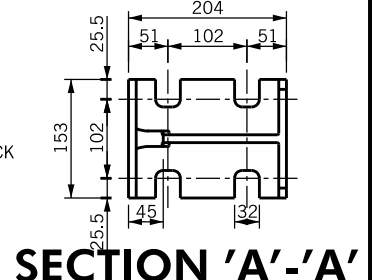
FASTENING STEEL TUBING TO POST DETAIL



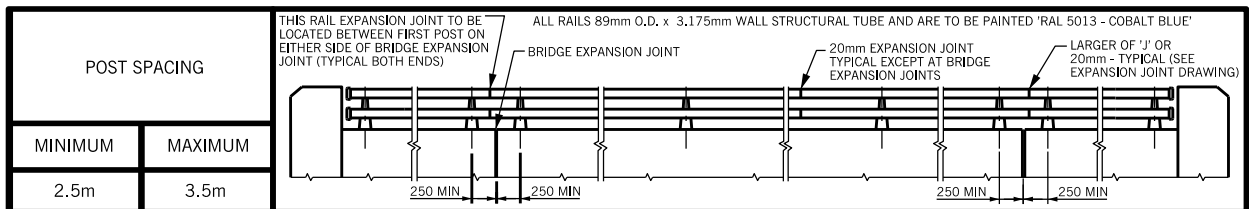
RAIL ASSEMBLY



WASHER DETAIL



SECTION 'A'-'A'



ELEVATION

NOTES:

- RAIL ELEMENTS SHALL BE STRUCTURAL TUBING SUPPLIED IN ACCORDANCE WITH CSA G40.21-04 GRADE 350.
- STEEL IN POSTS SHALL BE CAST STEEL SUPPLIED IN ACCORDANCE WITH ASTM A27-60 GRADE 65-35.
- RAIL SHALL BE SUPPLIED WITH SPLICE IN LENGTHS OF 6980mm (EXCLUDING SPLICE) EXCEPT AS NOTED.
- GALVANIZED ON MATING SURFACES OF TUBES TO HAVE UNIFORM THICKNESS NOT EXCEEDING 0.15mm TO ENSURE SLIDING FIT.
- POSTS AND RAILS SHALL BE GALVANIZED IN ACCORDANCE WITH CSA G164-M. ALL GALVANIZING SHALL BE DONE AFTER FABRICATION.
- ELECTRODES SHALL BE A LOW HYDROGEN SPECIFICATION E7015, E7016 OR E7018.
- POST AND ANCHORAGE TO INCLUDE ALL BOLTS AND WASHERS.
- END CAP TO INCLUDE SST SELF TAPPING FASTENERS.
- L-BOLT, NUT AND WASHERS FOR FASTENING STEEL TUBING TO POSTS SHALL BE GALVANIZED (CSA G164-M).
- RAIL TUBING SHALL BE PREBENT TO FOLLOW CURVATURE OF ROAD WHERE RADIUS IS LESS THAN 150m.
- RAIL POSTS SHALL BE SET PERPENDICULAR TO GRADE.
- WHERE LAYOUT OF POSTS IS NOT SHOWN, POST LOCATION SHALL BE DETERMINED BY THE CONTRACTOR.
- RAIL MAY BE CUT AS REQUIRED IN FIELD WITH PIPE CUTTERS. CUT TO BE SURFACE TREATED WITH ZINC RICH PAINT.
- WHEN CONNECTING TO EXISTING RAILING, RAIL MUST BE MADE CONTINUOUS AND POST SPACING DETERMINED WITH REFERENCE TO EXISTING POSTS.
- ALTERNATIVE ALUMINUM RAIL AND POST DESIGNS WILL BE PERMITTED. THE RAIL SHALL BE 6061 ALLOY T 6 HEAT TREATED. WHEN AN EXTRUDED POST IS USED, THE ALLOY AND HEAT TREATMENT SHALL BE THE SAME AS SPECIFIED FOR THE RAIL. WHEN A CAST POST IS USED THE ALLOY SHALL BE A 444.2-T4.
- LENGTH FOR 88.9mm OD PIPE WITH SPLICE GIVEN IN TABLE DOES NOT INCLUDE 300mm PROTRUSION OF SPLICE TUBE.
- SPLICING OF RAIL TUBES MAY BE DONE BY WELDING ON OF SPLICE PIECE OR BY SWEDGING OF RAIL END.
- RAILING ANCHORAGE INSERT TO BE PLACED PRIOR TO CONCRETING.
- THE COMBINATION OF STEEL RAIL AND ALUMINUM POSTS IS PERMITTED.
- ALL 'L' BOLTS SHALL BE INSTALLED AT THE MIDDLE OF THE SLOT AND SHALL BE TIGHTENED TO A CONDITION THAT WILL ALLOW RAIL MOVEMENT.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



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APPROVED:
2012/03/13

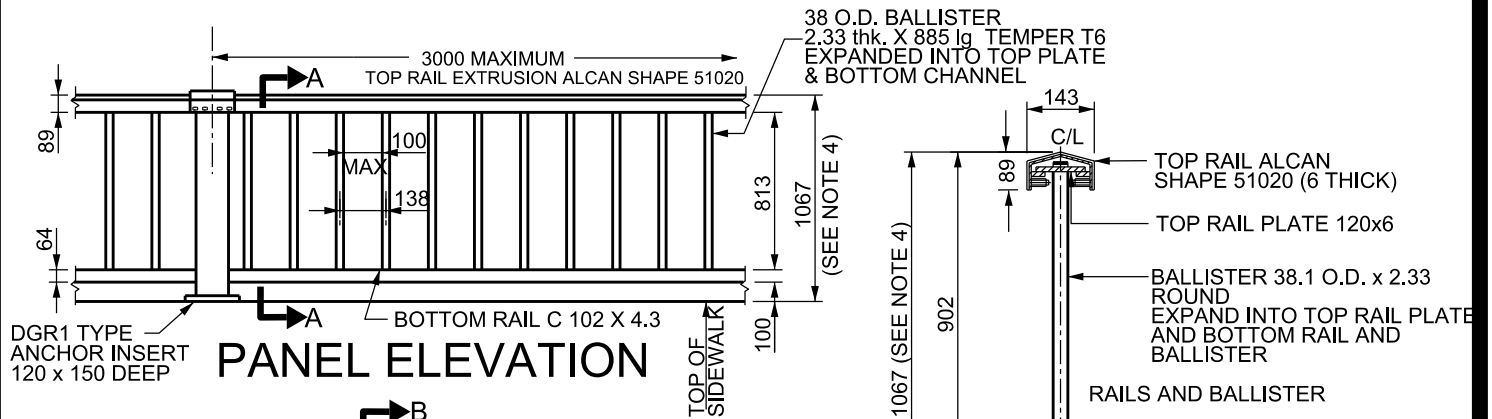
REV. 4

DOUBLE RAILING
FOR BARRIER WALL

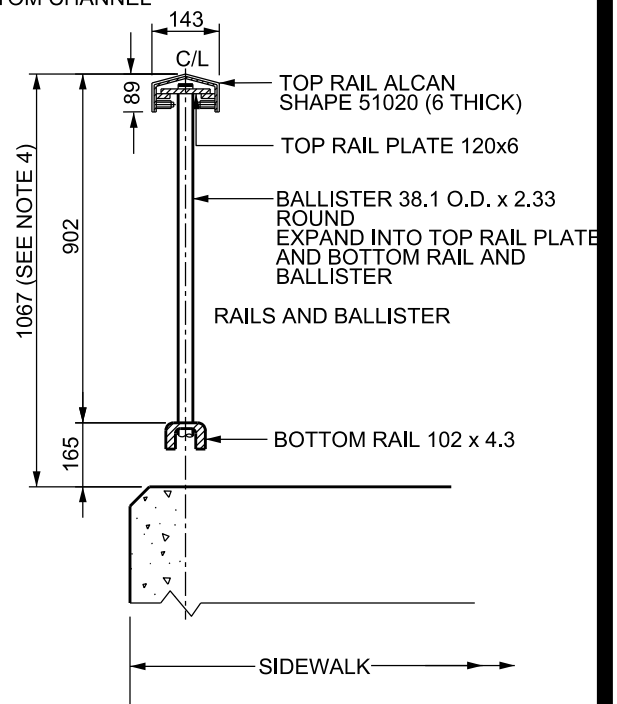
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ORIGINAL:
1993/11/01

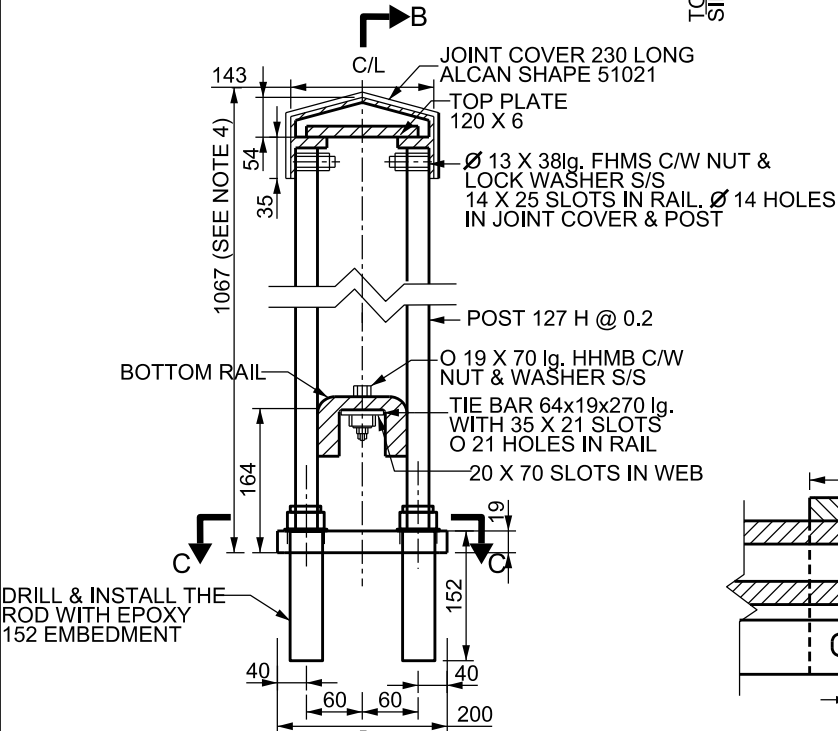
N.T.S



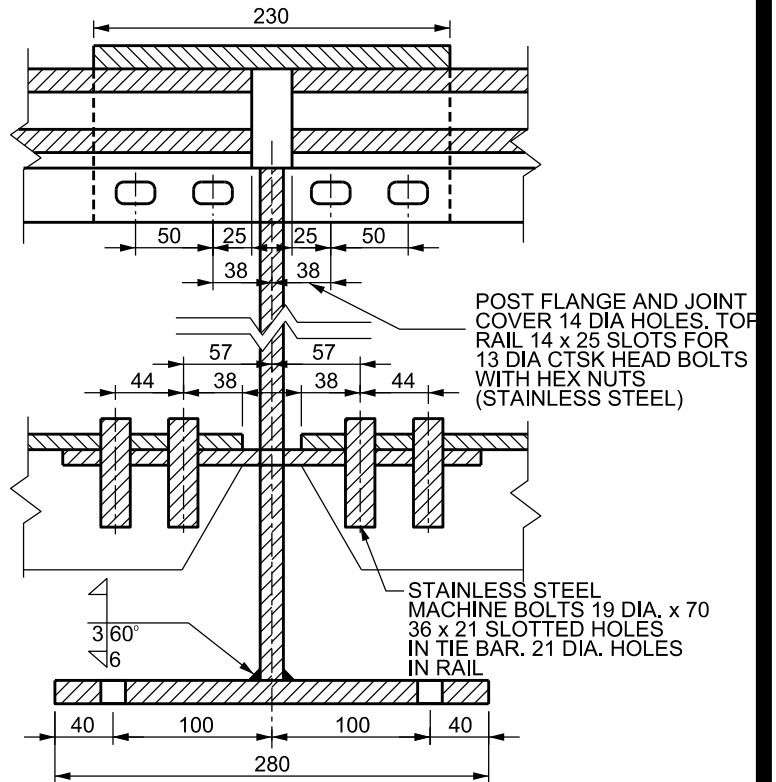
PANEL ELEVATION



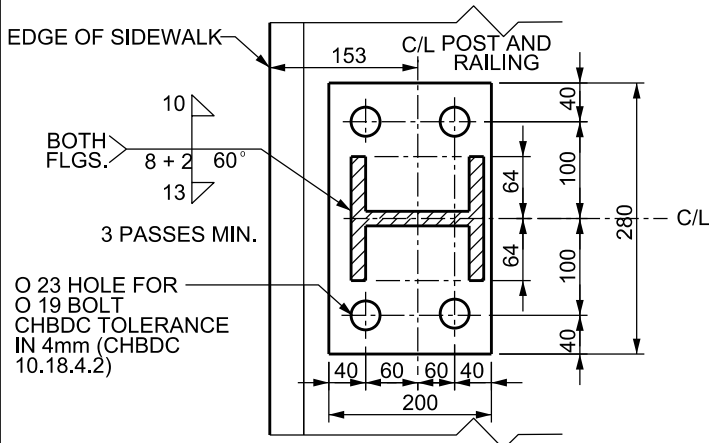
SECTION 'A'-A'



POST DETAIL



SECTION 'B'-B'



SECTION 'C'-C'

BASE PLATE 200x19x280

MATERIAL	USE	SPECIFICATION
ALUMINUM - EXTRUDED SHAPES	POST AND RAILS	C.S.A. - HA 5 GS11R-T6
ALUMINUM - TUBING	BALLISTERS	C.S.A. - HA 7 GS11R-T6
ALUMINUM - SHEET AND PLATE	BASE PLATE AND TIE BARS	C.S.A. - HA 4 GM41-HL321
STAINLESS STEEL, TYPE 304	BOLTS AND SET SCREWS NUTS AND WASHERS	A.S.T.M. - A314-63

- NOTES:
1. AN APPROVED PREFABRICATED ANCHORAGE ASSEMBLY SHALL BE USED.
 2. PAINT BOTTOM OF BASE PLATE WITH ASPHALTIC MASTIC.
 3. POST AND BALLISTERS TO BE VERTICAL. TOP AND BOTTOM RAILS TO BE PARALLEL TO TOP OF CONCRETE.
 4. RAILING HEIGHT TO BE AS PER CANADIAN HIGHWAY BRIDGE DESIGN CODE (CHBDC) REQUIREMENTS.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



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STANDARD
ALUMINUM RAILING
FOR SIDEWALKS
AND WALLS WITHOUT
CONCRETE PARAPETS

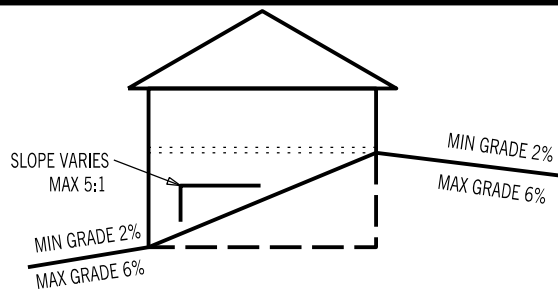
APPROVED:
2013/05/01

ORIGINAL:
2000/01/20

REV. 2

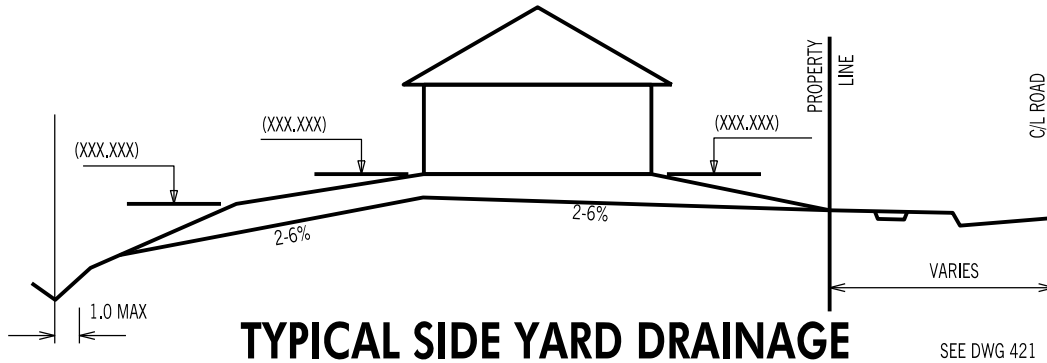
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N.T.S



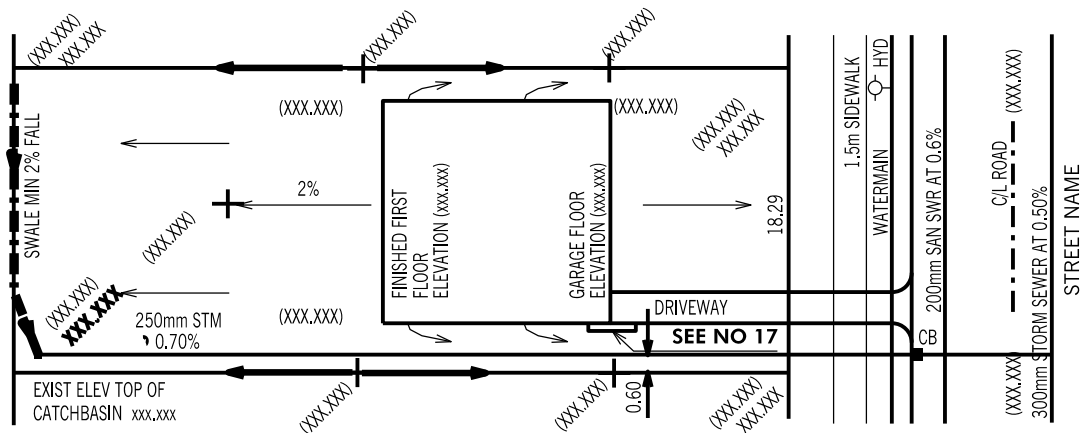
TYPICAL GRADE ADJACENT TO WALKOUT

SEE DWG 423



TYPICAL SIDE YARD DRAINAGE

SEE DWG 421



SPLIT DRAINAGE

CRITERIA

- (1) THESE STANDARDS ARE FOR URBAN LOTS AND ARE GENERAL IN NATURE. CERTAIN LOTS MAY REQUIRE CHANGES.
- (2) LAWN AND SWALES SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 6%.
- (3) WHERE GRADES IN EXCESS OF 6% ARE REQUIRED, THE MAXIMUM SLOPE SHALL BE 3:1. IN ANY CASE GRADE CHANGES IN EXCESS OF 0.6m ARE TO BE ACCOMPLISHED BY USE OF A RETAINING WALL. RETAINING WALLS HIGHER THAN 0.6m SHALL HAVE A FENCE INSTALLED ON THE HIGH SIDE. TIMBER WALL WILL NOT BE PERMITTED.
- (4) THE MAXIMUM DEPTH OF A REAR YARD SWALE SHALL BE 0.3m. THE MAXIMUM FLOW ALLOWED IN A REAR YARD SWALE SHALL BE THAT FROM 6 REAR YARDS. SWALE LENGTHS SHALL NOT BE GREATER THAN 3 LOT WIDTHS.
- (5) THE MAXIMUM DEPTH OF A SIDEYARD SWALE SHALL BE 0.2m. THE GRADE ADJACENT TO THE HOUSE SHALL FOLLOW THE GRADE OF THE SWALE. THE MAXIMUM FLOW ALLOWED IN A SIDE SWALE IS THAT FROM 4 REAR YARDS.
- (6) AT LEAST ONE SIDEYARD OF ALL UNITS SHALL HAVE A SIDE APRON (2% SLOPE) OF 0.6m MINIMUM.
- (7) A REAR APRON (2% SLOPE) OF 5m MINIMUM SHALL BE PROVIDED FOR ALL DETACHED UNITS.
- (8) REAR LOT CATCHBASIN GRATES TO BE 75mm BELOW FINISHED GRADE.
- (9) DOWNSPOUTS TO DISCHARGE ONTO GROUND ON SPLASH PADS. DOWNSPOUTS SHALL NOT DISCHARGE ACROSS WALKWAYS.
- (10) WEEPING TILE DRAINAGE TO BE IN ACCORDANCE WITH THE CITY OF BRAMPTON SUBDIVISION DESIGN STANDARDS.
- (11) 200mm OF TOPSOIL SHALL BE APPLIED TO EACH LOT PRIOR TO SODDING.
- (12) DRIVEWAY GRADES SHOULD NOT BE LESS THAN 2% AND NOT GREATER THAN 8%.
- (13) THE MINIMUM CLEAR DISTANCE BETWEEN THE EDGE OF A DRIVEWAY AND A UTILITY STRUCTURE IS 1.2m.
- (14) HOUSE STYLES ARE TO BE USED TO SUIT THE LOT GRADING.
- (15) TOWNHOUSE UNITS TO EMPLOY SPLIT DRAINAGE.
- (16) BRICKLINE TO BE 150mm TO 200mm ABOVE FINAL GRADE AT HOUSE.
- (17) PATIO STONES MUST BE INSTALLED ALONG THE SIDE ENTRANCE.
- (18) THIS IS MEANT TO BE READ IN CONJUNCTION WITH CITY OF BRAMPTON SUBDIVISION DESIGN CRITERIA.
- (19) LEGEND = (xxx.xx) DENOTES PROPOSED GRADE xxx.xxx DENOTES EXISTING GRADE
- (20) BELOW GRADE WALKOUTS AND REVERSE GRADED DRIVEWAYS WILL NOT BE PERMITTED.



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LOT GRADING STANDARD
FOR SUBDIVISION LOTS

SPLIT DRAINAGE

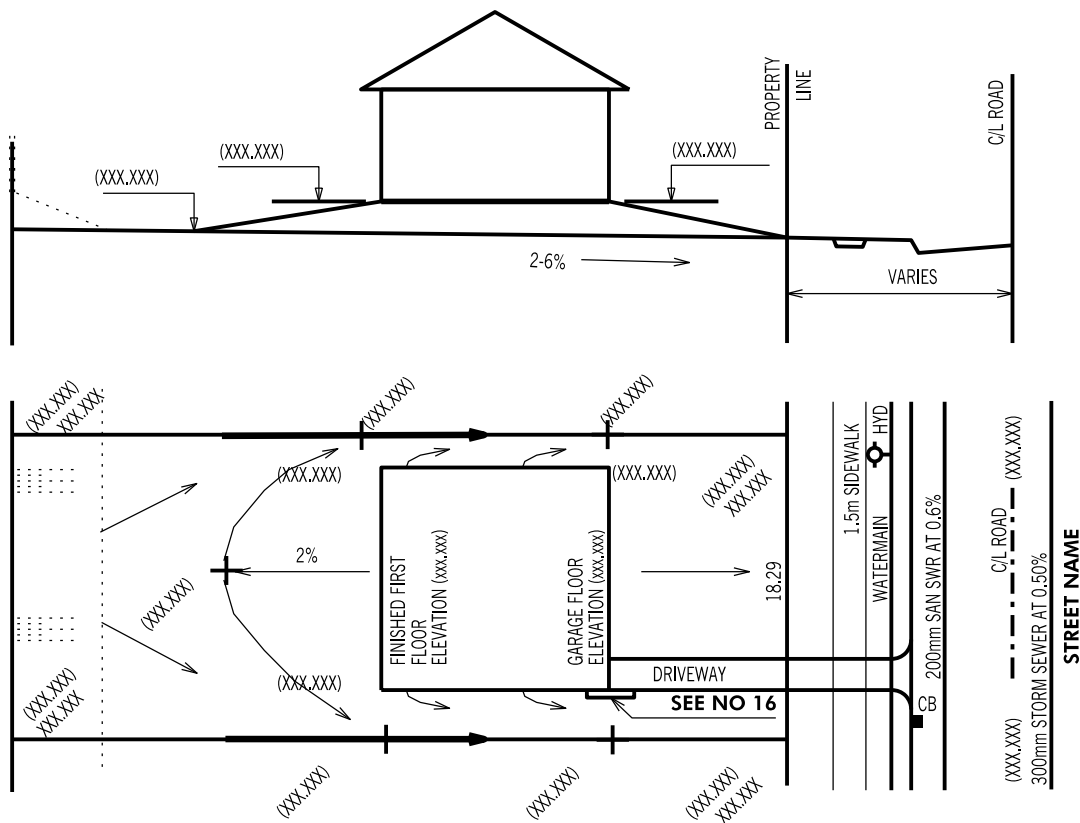
APPROVED:
2011/02/13

ORIGINAL:
1990/11/01

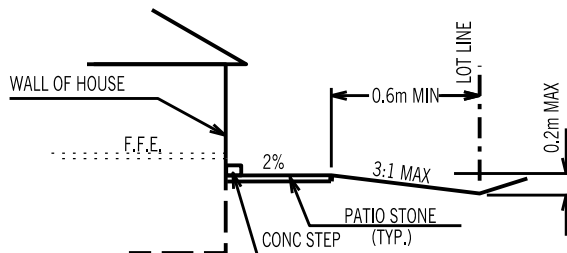
REV. 8

420

N.T.S



REAR TO FRONT DRAINAGE



TYPICAL SIDE YARD DRAINAGE

CRITERIA

- (1) THESE STANDARDS ARE FOR URBAN LOTS AND ARE GENERAL IN NATURE. CERTAIN LOTS MAY REQUIRE CHANGES.
- (2) LAWN AND SWALES SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 6%.
- (3) WHERE GRADES IN EXCESS OF 6% ARE REQUIRED, THE MAXIMUM SLOPE SHALL BE 3:1. IN ANY CASE GRADE CHANGES IN EXCESS OF 0.6m ARE TO BE ACCOMPLISHED BY USE OF A RETAINING WALL. RETAINING WALLS HIGHER THAN 0.6m SHALL HAVE A FENCE INSTALLED ON THE HIGH SIDE. TIMBER WALL WILL NOT BE PERMITTED.
- (4) THE MAXIMUM DEPTH OF A SIDEYARD SWALE SHALL BE 0.2m. THE GRADE ADJACENT TO THE HOUSE SHALL FOLLOW THE GRADE OF THE SWALE. THE MAXIMUM FLOW ALLOWED IN A SIDE SWALE IS THAT FROM 4 REAR YARDS.
- (5) AT LEAST ONE SIDEYARD OF ALL UNITS SHALL HAVE A SIDE APRON (2% SLOPE) OF 0.6m MINIMUM.
- (6) A REAR APRON (2% SLOPE) OF 5m MINIMUM SHALL BE PROVIDED FOR ALL DETACHED UNITS.
- (7) REAR LOT CATCHBASIN GRATES TO BE 75mm BELOW FINISHED GRADE.
- (8) DOWNSPOUTS TO DISCHARGE ONTO GROUND ON SPLASH PADS. DOWNSPOUTS SHALL NOT DISCHARGE ACROSS WALKWAYS.
- (9) WEEPING TILE DRAINAGE TO BE IN ACCORDANCE WITH THE CITY OF BRAMPTON SUBDIVISION DESIGN STANDARDS.
- (10) 200mm OF TOPSOIL SHALL BE APPLIED TO EACH LOT PRIOR TO SODDING.
- (11) DRIVEWAY GRADES SHOULD NOT BE LESS THAN 2% AND NOT GREATER THAN 8%.
- (12) THE MINIMUM CLEAR DISTANCE BETWEEN THE EDGE OF A DRIVEWAY AND A UTILITY STRUCTURE IS 1.2m.
- (13) HOUSE STYLES ARE TO BE USED TO SUIT THE LOT GRADING.
- (14) TOWNHOUSE UNITS TO EMPLOY SPLIT DRAINAGE.
- (15) BRICKLINE TO BE 150mm TO 200mm ABOVE FINAL GRADE AT HOUSE.
- (16) PATIO STONES MUST BE INSTALLED ALONG THE SIDE ENTRANCE.
- (17) THIS IS MEANT TO BE READ IN CONJUNCTION WITH CITY OF BRAMPTON SUBDIVISION DESIGN CRITERIA.
- (18) LEGEND = (XXX.XXX) DENOTES PROPOSED GRADE. XXX.XXX DENOTES EXISTING GRADE.
- (19) BELOW GRADE WALKOUTS AND REVERSE GRADED DRIVEWAYS WILL NOT BE PERMITTED.



BRAMPTON
Flower City

APPROVED:
2012/02/13

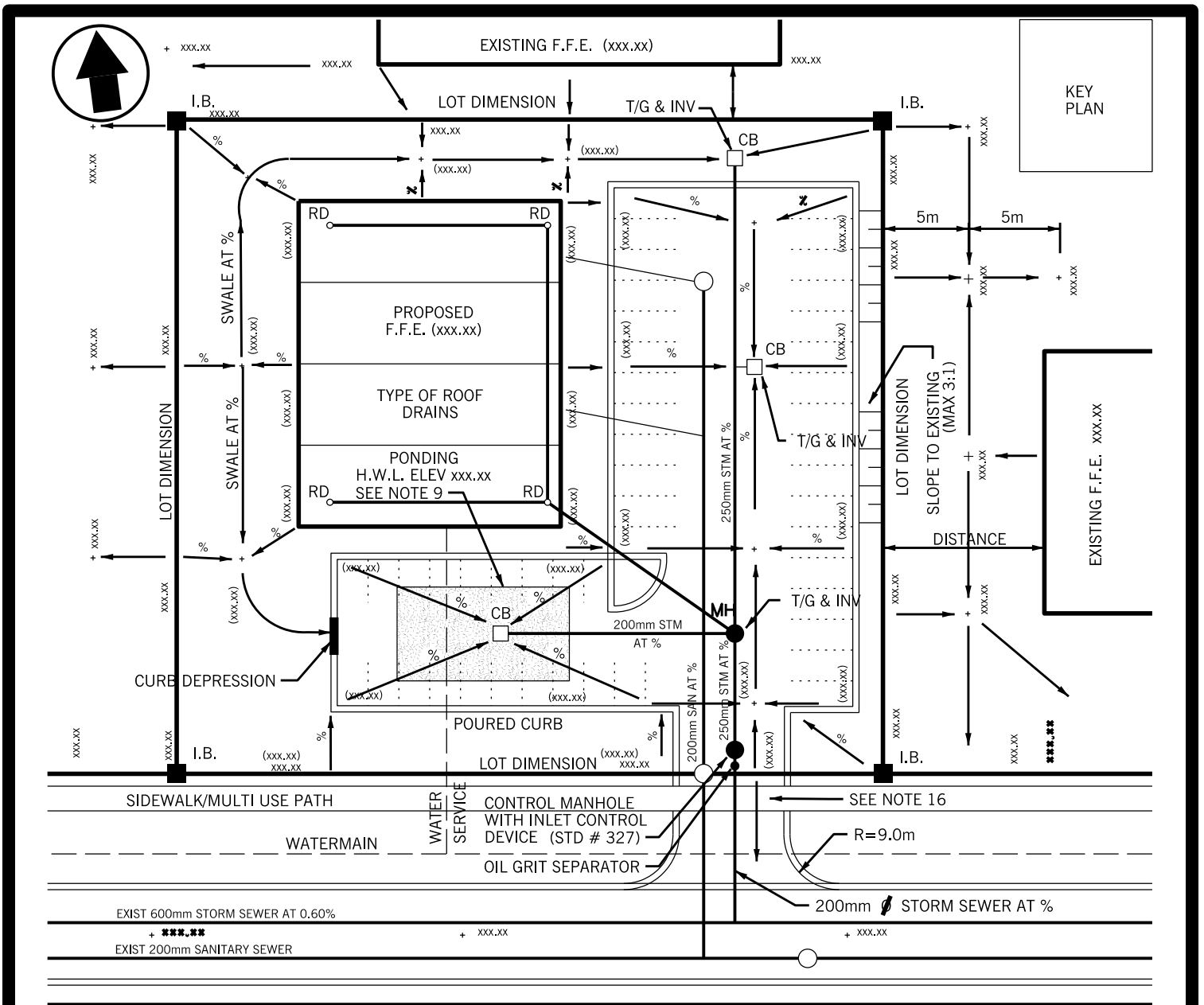
LOT GRADING STANDARD
FOR SUBDIVISION LOTS

REAR TO FRONT DRAINAGE ORIGINAL:
1990/11/01

REV. 6

421

N.T.S



CRITERIA

TYPICAL PLAN

STREET NAME

- (1) CITY OF BRAMPTON BENCHMARK TO BE SHOWN.
- (2) PLAN TO BE METRIC.
- (3) WATER SERVICE CONNECTION OR WELL LOCATION MUST BE SHOWN.
- (4) SANITARY SERVICE CONNECTION OR SEPTIC BED MUST BE SHOWN.
- (5) ALL DRAINAGE MUST BE CONTAINED ON SITE. GRADING MUST BE DIRECT DRAINAGE TO A CITY R.O.W. OR EASEMENT OR WATERCOURSE AS DIRECTED BY THE COMMISSIONER.
- (6) SUFFICIENT GROUND ELEVATIONS ON ADJACENT LANDS TO BE SHOWN TO DETERMINE EXISTING DRAINAGE PATTERNS. THE MINIMUM INFORMATION REQUIRED SHOULD INCLUDE:
 - a) FINISHED FLOOR ELEVATIONS OF ALL ADJACENT BUILDINGS,
 - b) EXISTING GROUND SURFACE ELEVATIONS FOR 5 AND 10 METRES OUTSIDE THE PROPERTY BOUNDARY AT 20m INTERVALS.
- (7) GRADES:
 - a) ASPHALT : MIN 0.5%, MAX 8.0%
 - b) GRASS : MIN 2.0%, MAX 6.0%
- (8) WHERE GRADES IN EXCESS OF 6% ARE REQUIRED, THE MAXIMUM SLOPE SHALL BE 3:1 IN ANY CASE, GRADE CHANGES IN EXCESS OF 1.0m ARE TO BE ACCOMPLISHED BY USE OF RETAINING WALL, RETAINING WALLS HIGHER THAN 0.6m SHALL HAVE A FENCE INSTALLED ON HIGH SIDE.
- (9) THE APPROPRIATE PONDING MUST BE SHOWN (IE. 2, 100yr) THE ALLOWABLE PONDING DEPTHS FOR ANY CASE ARE:
 - a) 0.3m MAX IN PARKING AREAS
 - b) 0.5m MAX IN LANDSCAPED AREAS
 - c) 1.0m IN BELOW GRADE LOADING DOCKS
- (10) ALL RELEVANT DETAILS FOR CURB, SIDEWALK, SEWERS, INLET CONTROL DEVICE, OIL GRIT SEPARATOR, ETC SHOULD BE SHOWN.
- (11) ROOF WATER LEADERS ARE NOT TO BE CONNECTED TO WEEPERS OR DRAINED TO SUMPS.
- (12) ALL CATCHBASINS TO BE SUPPLESS.
- (13) THIS IS MEANT TO BE READ IN CONJUNCTION WITH CITY OF BRAMPTON SITE PLAN GUIDELINES.
- (14) CONTROL MANHOLE OR OIL TRAP (IF REQUIRED) TO BE PLACED ON PRIVATE PROPERTY AT STREETLINE.
- (15) LEGEND: (xxx.xx) - PROP. ELEVATION ... xxx.xx - EXIST. ELEVATION ... RD - ROOF DRAIN ... CB - CATCH BASIN ... MH - MANHOLE F.F.E. - FINISHED FLOOR ELEVATION ... H.W.L. - HIGH WATER LEVEL
- (16) SIDEWALKS AT THE VEHICULAR ENTRANCE SHALL BE REMOVED & REPLACED AS PER CITY STANDARD 237.



APPROVED:
2011/11/17

INDUSTRIAL COMMERCIAL
INSTITUTIONAL

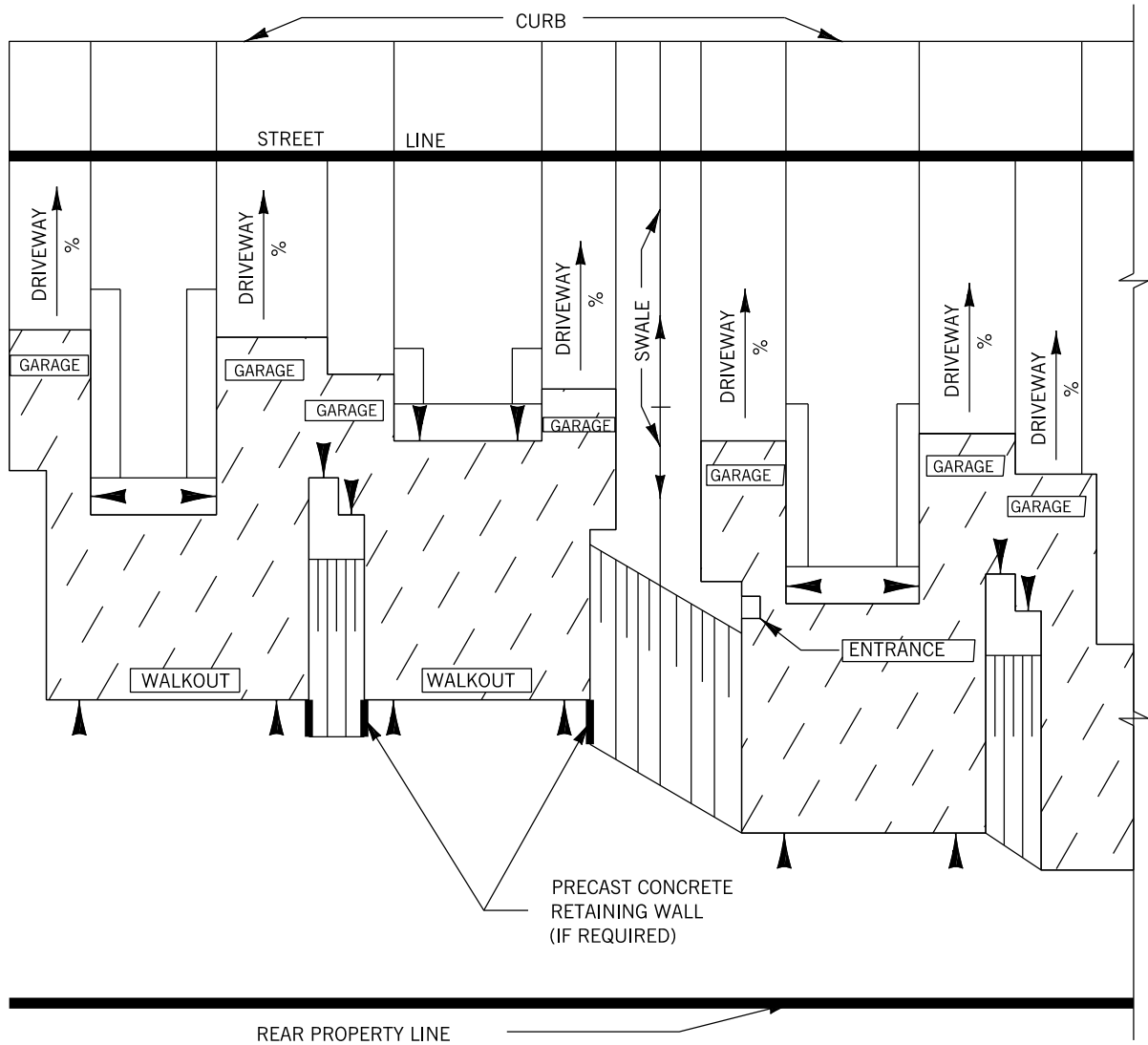
ORIGINAL:
GRADING AND SERVICE PLAN 1988/11/01

REV. 7

422

N.T.S

STREET NAME



CRITERIA

- (1) ▲-ENTRANCE TO UNITS.
- (2) FOR LOT GRADING REFER TO CITY OF BRAMPTON STANDARD DRAWING No. 420.
- (3) MAXIMUM GRADE OF SLOPE 5:1
- (4) ALL ENTRANCES ARE TO EXIT OUT A LEVEL AREA OR VIA A LANDING TO A LEVEL AREA.
- (5) IF A 5:1 SLOPE CANNOT BE ACHIEVED, CONCRETE STEPS WILL BE REQUIRED. PROVIDE DETAILS OF STEPS.
- (6) COMPLIANCE WITH THE BUILDING CODE IN CONSTRUCTION OF DECKS IS IMPERATIVE.



BRAMPTON
Flower City

APPROVED:
2004/09/01

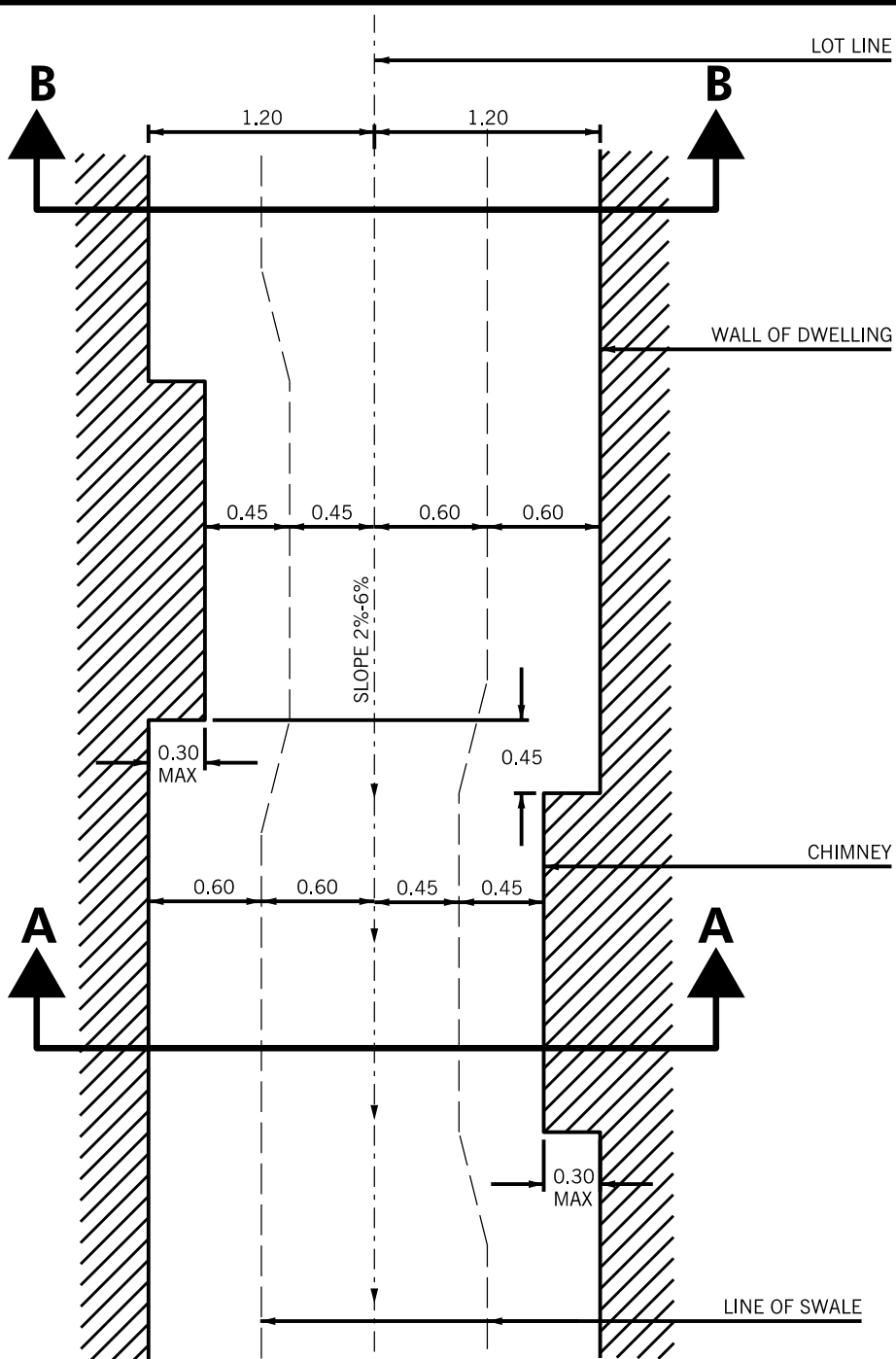
SLOPE TREATMENT FOR
RESIDENTIAL WALKOUT UNITS

ORIGINAL:
1989/10/11

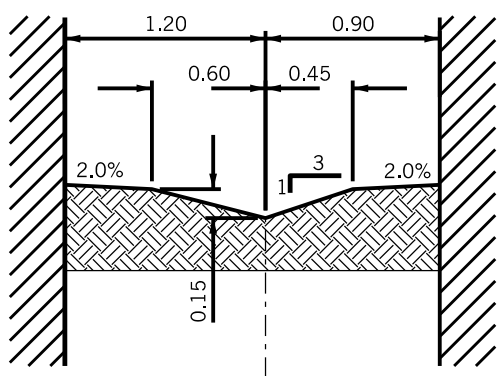
REV. 2

423

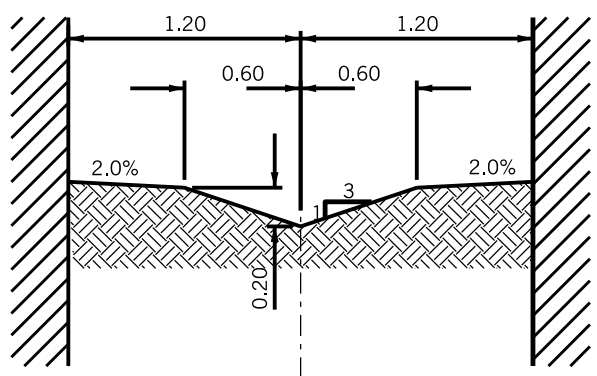
N.T.S



PLAN VIEW



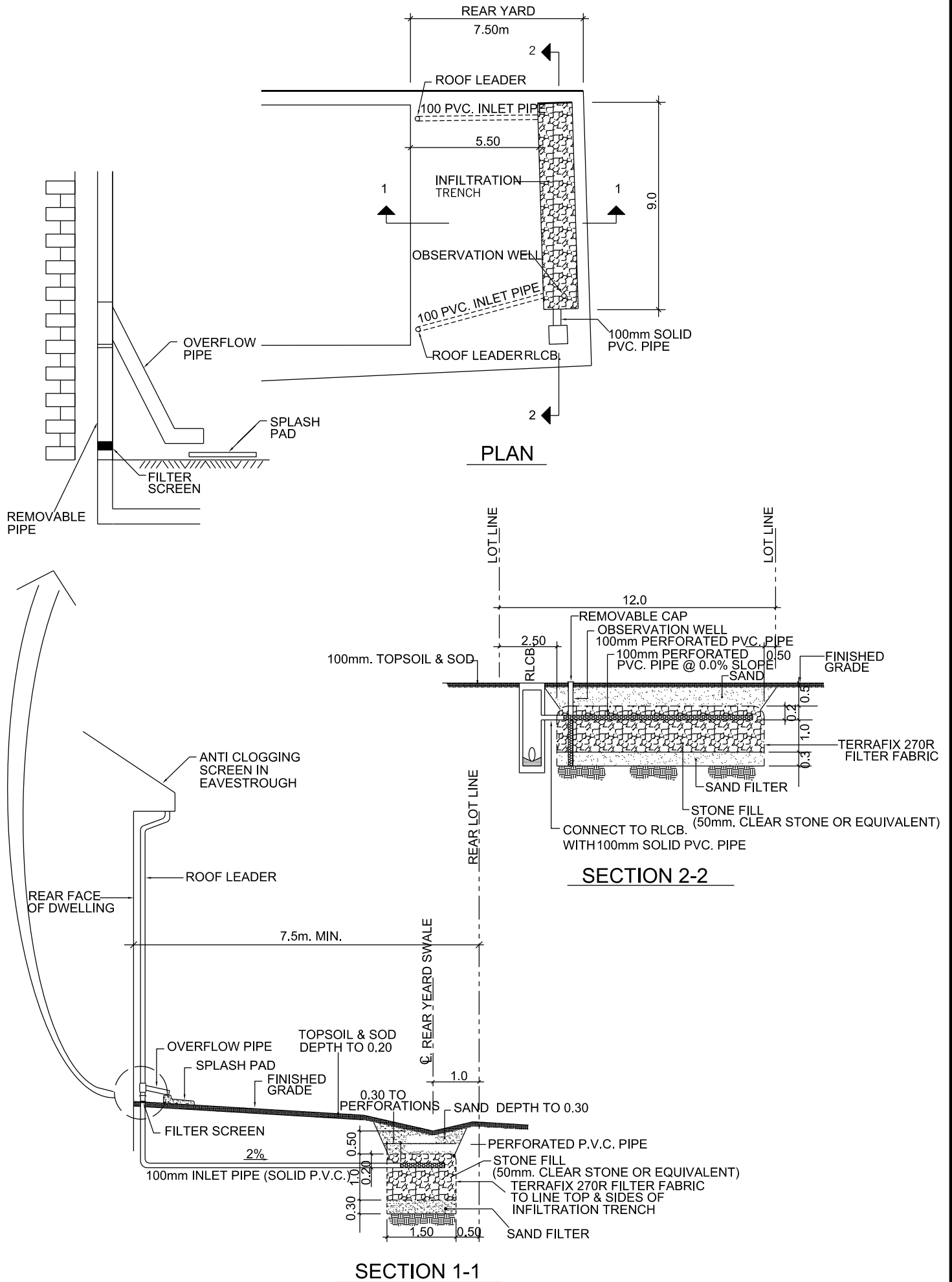
SECTION 'A'-'A'
(With Chimney)



SECTION 'B'-'B'
(Without Chimney)

NOTE:

0.6m WALKWAY ON OTHER SIDE OF HOUSE



NOTE: FILTER FABRIC SHALL BE PLACED ON THE TOP AND SIDES ONLY
 ALL DIMENSIONS IN METERS UNLESS OTHERWISE NOTED



BRAMPTON
 Flower City

FRENCH
 DRAIN

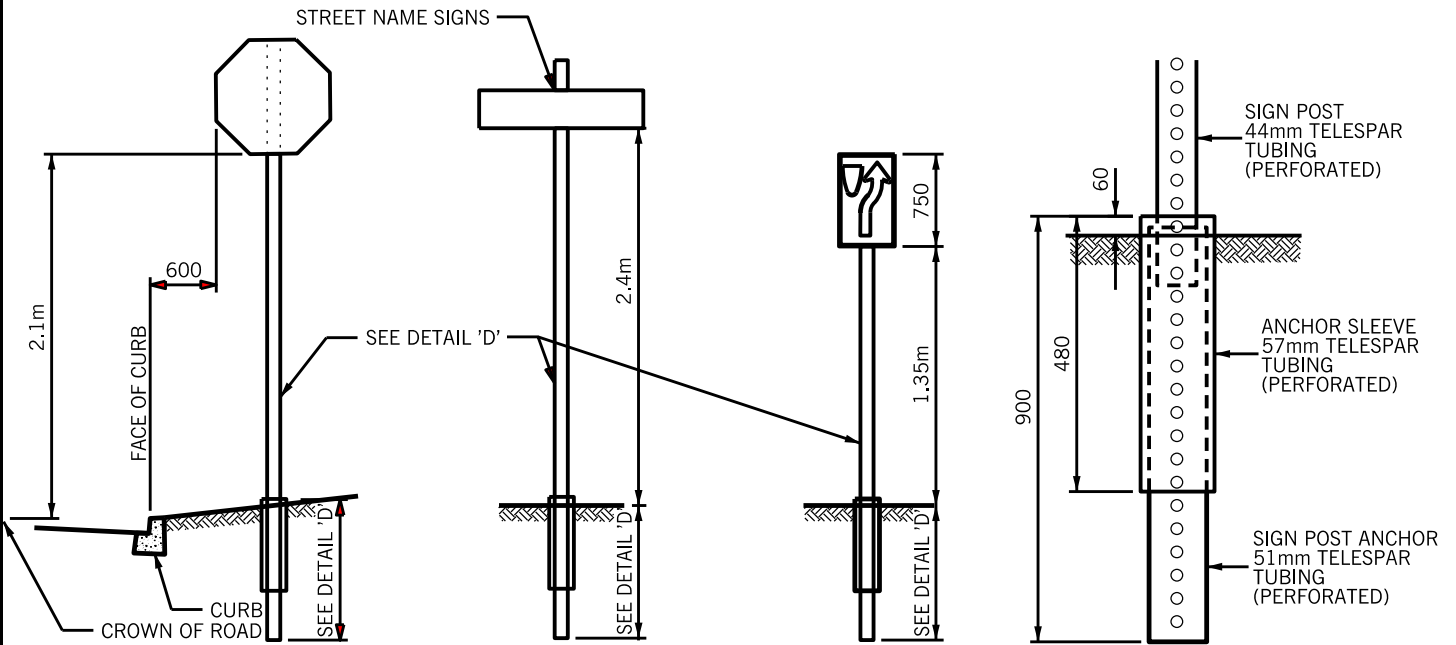
APPROVED:
 2012/10/08

ORIGINAL:
 2007/05/30

REV. 1

427

N.T.S

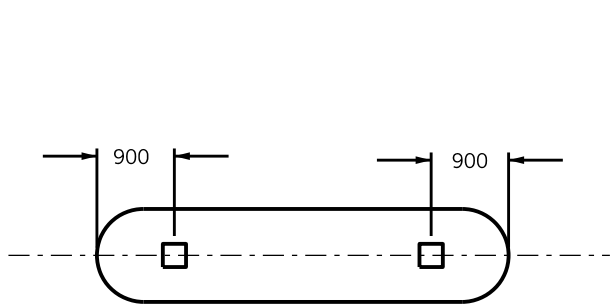


DETAIL 'A'
YIELD & STOP SIGN
ELEVATION

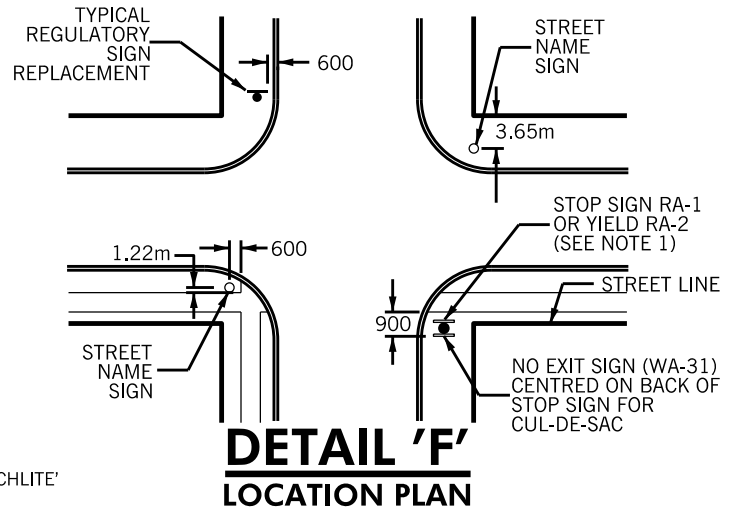
DETAIL 'B'
STREET NAME SIGN
ELEVATION

DETAIL 'C'
KEEP RIGHT SIGN
ELEVATION

DETAIL 'D'
ANCHOR
ELEVATION



DETAIL 'E'
(see note 5)



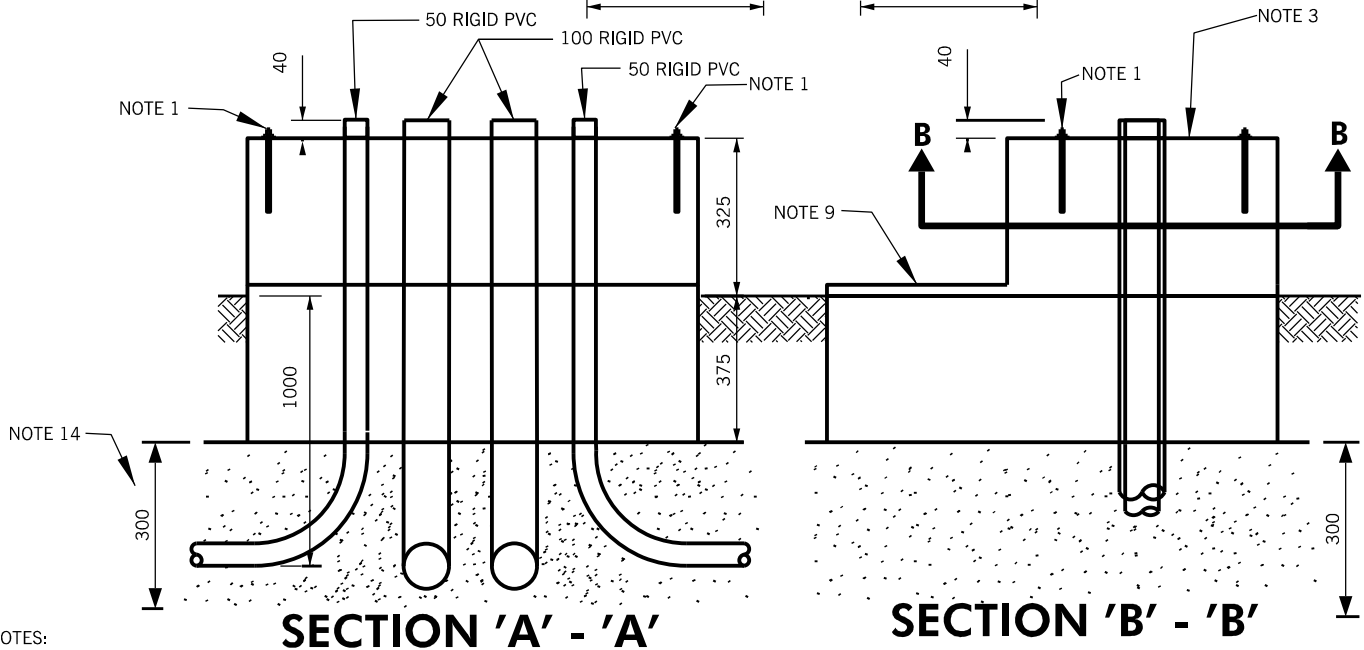
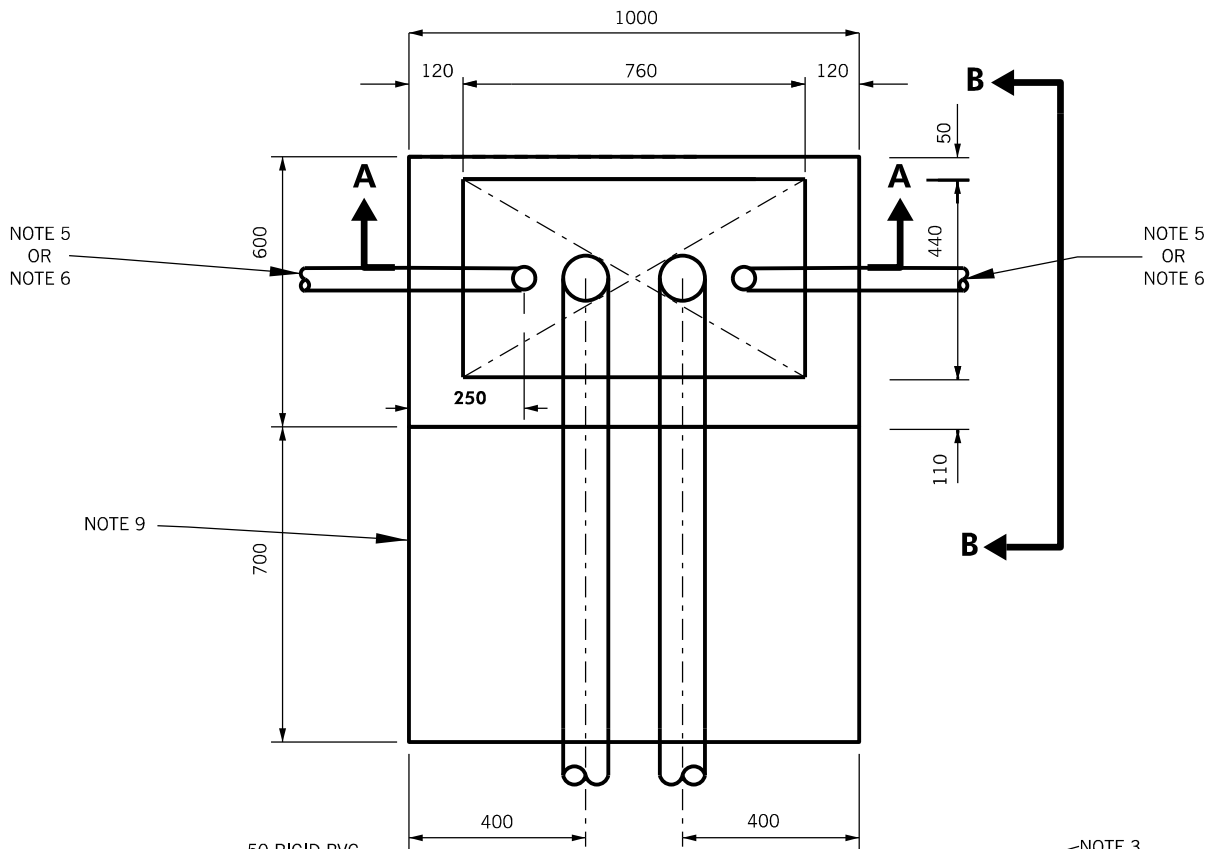
DETAIL 'F'
LOCATION PLAN

NOTES:

1. ALL STOP, YIELD AND KEEP RIGHT SIGNS TO BE REFLECTORIZED WITH 'SCOTCHLITE' HIGH INTENSITY PRISMATIC REFLECTIVE SHEETING (3M # 3930).
2. COLOUR, SHAPE AND SIZE OF ALL REGULATORY SIGNS SHALL CONFORM TO THE ONTARIO TRAFFIC MANUAL.
3. IN URBAN OR RESIDENTIAL APPLICATIONS THE RA-1 (STOP SIGN), THE RA-2 (YIELD SIGN) AND THE RB-25 (KEEP RIGHT SIGN) SHALL BE USED.
4. IN RURAL APPLICATIONS THE RA-101 (STOP SIGN), THE RA-102 (YIELD SIGN) AND THE RB-25 (KEEP RIGHT SIGN) SHALL BE USED.
5. DETAIL 'E' IS A TYPICAL PLACEMENT FOR 'KEEP RIGHT' SIGNING ON AN ISLAND. SIGNS SHALL BE PLACED 900mm FROM THE END OF THE ISLAND. HOWEVER IF A STREETLIGHT POLE, TRAFFIC SIGNAL POLE IS ERECTED ON THE ISLAND BETWEEN 900mm AND 3m FROM THE END OF THE ISLAND, SIGNING SHALL BE MOUNTED ON THIS POLE. IF DURING THE CONSTRUCTION OF NEW ISLANDS, SUITABLE STREETLIGHT POLES OR TRAFFIC SIGNAL POLES ARE NOT PLACED IN ACCEPTABLE LOCATIONS THEN A BOX 80mm SQUARE OR SONOTUBE SHALL BE LEFT AT A POINT 900mm FROM THE END OF THE ISLAND. THIS POINT SHALL BE USED FOR THE PLACING OF A 'TELESPAR' ANCHOR IN THE ISLAND FOR USE WITH 'KEEP RIGHT' SIGNING.
6. EACH STREET SIGN IS TO BE FABRICATED FROM 150mm BULB 'T' EXTRUSION, 50T6 SHAPE NO. 7615. SIGNS ARE TO BE DEGREASED, ETCHED AND BONDERIZED AS PER CGSB SPECIFICATIONS 31-GP-101 AND 31-GP-208, TO WHICH "MUNICIPAL ROAD" STREET SIGNS BE APPLIED HI-INTENSITY PRISMATIC PRESSURE SENSITIVE VINYL, WHITE, 3M#3930. ELECTRONIC CUTTABLE FILM, GREEN, 3M #1177C IS USED TO COVER THE HIGH-DENSITY PRISMATIC PRESSURE SENSITIVE SHEETING, WHITE, WITH THE LETTERS OF THE STREET NAME REMOVED. "PRIVATE ROAD" STREET NAME SIGNS BE APPLIED USING HI-DENSITY PRISMATIC PRESSURE SENSITIVE SHEETING, WHITE, 3M#3930. ELECTRONIC CUTTABLE FILM, GREEN, 3M#1177C LETTERS ARE USED WITH THE REMAINING FILM REMOVED. ALL SHALL BE DOUBLE FACED WITH A MINIMUM BLADE LENGTH OF 600MM, LETTER SIZES AND FONTS SHALL CONFORM TO CITY OF BRAMPTON SUBDIVISION DESIGN STANDARDS
7. ALL TRAFFIC CONTROL SIGNS SHALL BE MOUNTED ON 'TELESPAR' GALVANIZED PERFORATED TUBING (EXCEPT WHERE CO-USAGE OF EXISTING UTILITY OR TRAFFIC POLES IS POSSIBLE). 'TELESPAR' TO BE INSTALLED AS PER MANUFACTURERS SPECIFICATIONS.
8. FOR SIGNS 900mm SQUARE OR SMALLER SEE DETAIL 'D'.
9. FOR SIGNS LARGER THAN 900mm SQUARE 2 'TELESPAR' SIGN POSTS TO BE USED FOR THE INSTALATION OF THE SIGN SEE DETAIL D. ANCHOR SLEEVE TO BE 63mm 'TELESPAR' TUBING.
10. SIGNS TO BE ATTACHED TO TUBING BY DRIVE RIVETS (3/8" X 3/4" JUMBO HEAD ALUMINUM DRIVE RIVETS) OR 3/8" X 2-1/2" STAINLESS STEEL BOLT, 3/8" ZINC TREATED NUT AND 3/8" STAINLESS STEEL FENDER WASHERS 1.5" OUTSIDE DIAMETER.
11. SIGN BLANKS 0.4m² OR LESS SHALL BE 0.064 ALUMINUM. SIGN BLANKS FROM 0.4m² TO 0.9m² INCLUSIVE SHALL BE 0.081 ALUMINUM. SIGN BLANKS OVER 0.9m² INCLUDING 'BEGINS' TABS AND 'ALL-WAY' TABS SHALL BE 0.125 ALUMINUM.
12. 'TELESPAR' REFERS TO TELESPAR TYPE PERFORATED TUBING OR APPROVED ALTERNATE.
13. HIGH INTENSITY PRISMATIC SHEETING REFERS TO MATERIAL MANUFACTURED BY THE 3M COMPANY.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

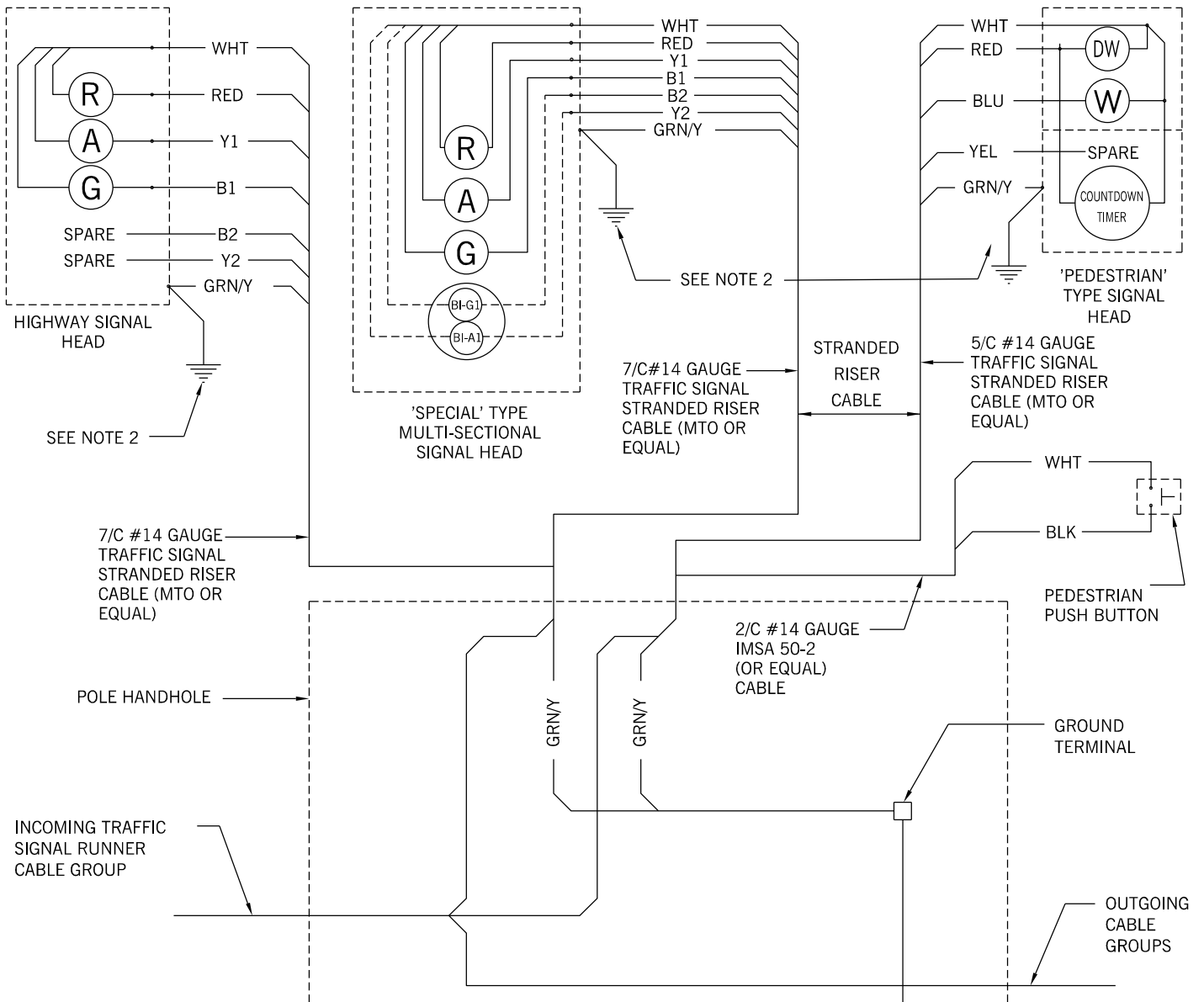
PLAN VIEW



NOTES:

1. ALL ANCHOR BOLTS 19mm x 450mm FOR CABINET TO BE FIELD DRILLED AND CONCRETE GROUTED TO SUIT CABINET DESIGN (4 REQUIRED). THE THREADS SHALL EXTEND NO LONGER THAN 25mm FROM THE NUT.
2. TWO (2) - 100mm RIGID P.V.C. WHICH WILL GO INTO AN ELECTRICAL CHAMBER UNLESS OTHERWISE NOTED IN THE CONTRACT DRAWINGS OR DIRECTED BY THE CONTRACT ADMINISTRATOR.
3. 35MPa CONCRETE, SEALED WHEN FULLY CURED WITH AN APPROVED SEALANT.
4. CONCRETE BASE SHALL BE TRULY LEVEL.
5. 50mm RIGID P.V.C. TO THE NEAREST ELECTRICAL CHAMBER FOR POWER SERVICE OR AS INDICATED IN THE LAYOUT DRAWINGS.
6. 50mm RIGID P.V.C. FOR FUTURE COMMUNICATION CABLE SHALL EXTEND 2m FROM THE CONTROLLER CABINET. THE CONDUIT SHALL BE TERMINATED BELOW EARTH GRADE OR BY THE NEAREST FINISHED EARTH BOULEVARD.
7. APPROVED CAPPING TO BE USED ON ALL UNUSED CONDUITS FOR FUTURE USE.
8. ALL RIGID P.V.C. CONDUIT SHALL MEET OR EXCEED CSA STANDARD C22.2 NO. 211.2
9. TOP OF THE CONCRETE STEP SHALL BE INSTALLED ADJACENT TO THE SIDEWALK AT THE SAME GRADE UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
10. CONCRETE SHALL BE VIBRATED TO ELIMINATE HONEYCOMBING.
11. PLACE No. 10 ANNEALED FISH WIRE OR EQUAL STRENGTH POLYLINE THROUGH EACH CONDUIT.
12. THE DIRECTION OF THE CONDUIT SHALL BE IDENTIFIED ON THE BASE WITH AN "X".
13. ALL CONDUITS ENTERING THE CONTROLLER CABINET SHALL BE SEALED WITH STEEL WOOL AND ELECTRICAL DUCT SEAL PUTTY.
14. PLACE 300mm OF CRUSHED CLEAR STONE DRAIN (MAX 20mm) OR APPROVED EQUAL BELOW THE BASE FOR DRAINAGE.
15. CONCRETE SHALL BE CHLORIDE PENETRATION RESISTANT CLASS C-1 (MINIMUM) AS PER C.S.A. STANDARD A23.1.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



ABBREV.	COLOUR/ MARK
B1	BLUE WITH "GREEN ONE" MARKER
B2	BLUE WITH "GREEN TWO" MARKER
Y1	YELLOW WITH "AMBER ONE" MARKER
Y2	YELLOW WITH "AMBER TWO" MARKER
RED	RED
BLU	BLUE
GRN/Y	GREEN WITH YELLOW TRACER
BLK	BLACK
WHT	WHITE
YEL	YELLOW

NOTES

1. DETAILS SHOWN ARE TYPICAL ONLY. FOR MULTIPLE EQUIPMENT INSTALLATIONS ON THE SAME POLE, MAINTAIN RISER CABLE TYPE AND COLOUR CODING.

2. GROUND WIRE IF APPLICABLE SHALL BE USED AS PER LATEST ELECTRICAL CODE/ ESA. OTHERWISE THE WIRE SHALL BE FOLDED, TAPED AND MARKED AS "NOT USED".

3. ALL RISER CABLES SHALL BE STRANDED MTO CABLES AS PER OPSS 2409.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



TRAFFIC SIGNALS
RISER CABLE WIRING LAYOUT

ORIGINAL:
TRAFFIC DETAILS - SERIES 400 APRIL 2014

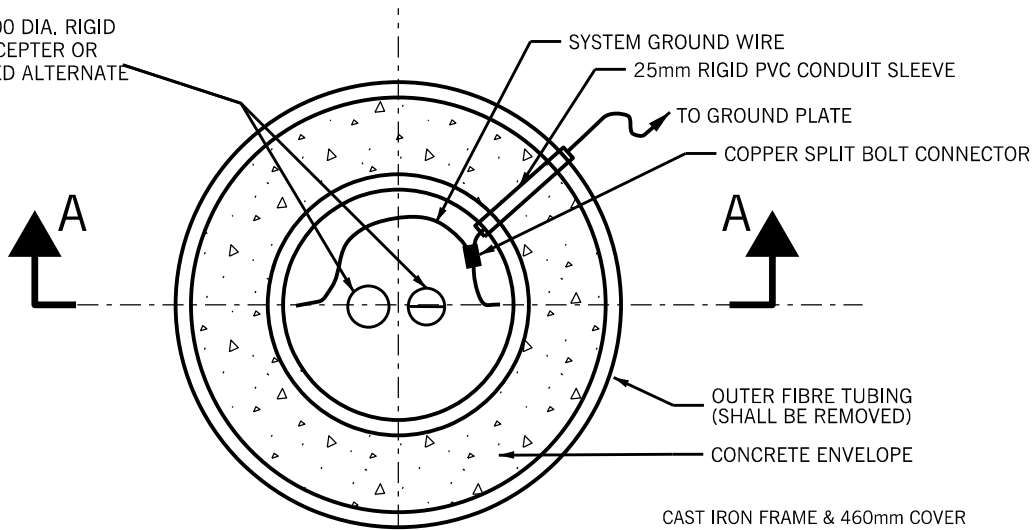
APPROVED:
APRIL 2014

REV. 1

432

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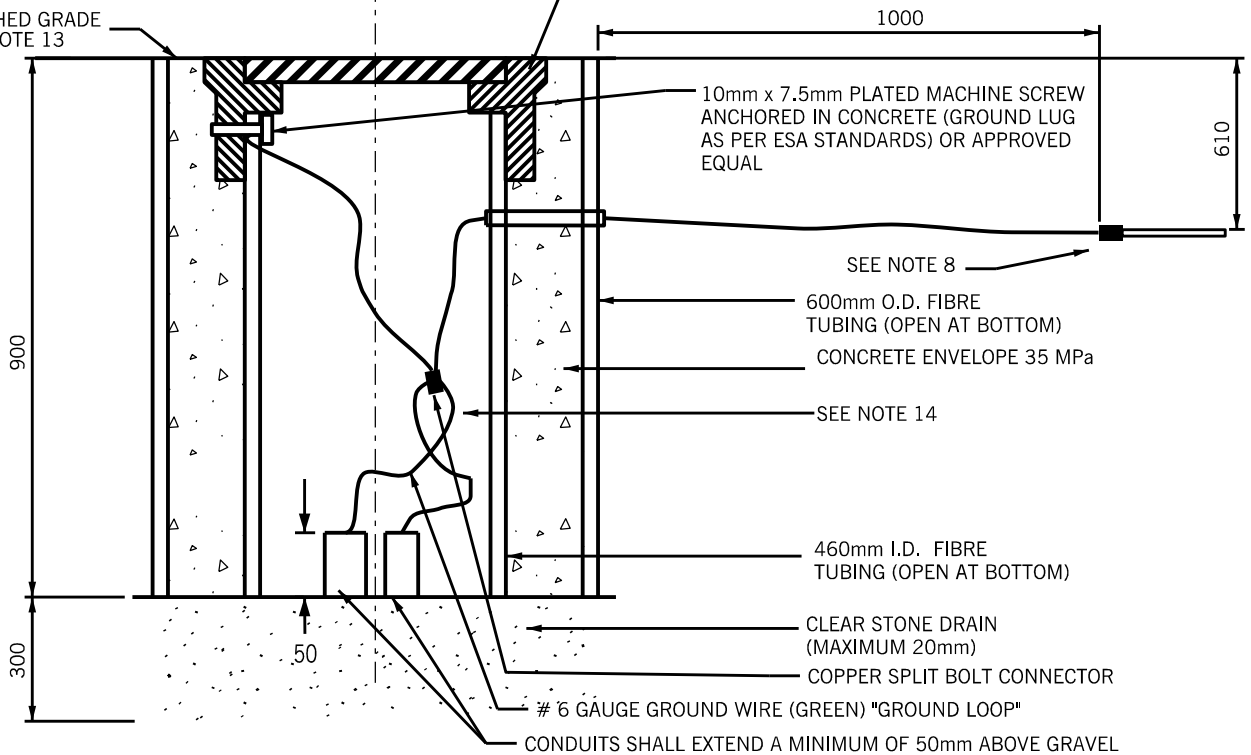
50 OR 100 DIA. RIGID P.V.C. (SCEPTER OR APPROVED ALTERNATE)



PLAN VIEW

CAST IRON FRAME & 460mm COVER (MATERIAL-ANSI/ASTM STANDARD A48-1990, GREY IRON CASTING, CLASS NO. 30C) TO BE RETAINED WITH (2) 12 DIA. - 13 NC X 20 LONG STAINLESS STEEL HEX (WITH ANTI-SEIZE COMPOUND) BOLTS TO BE FLUSH WITH THE TOP OF COVER WHEN FASTENED. COVER SHALL BE A (US) UTILITY STRUCTURES INCORPORATED OR AN APPROVED EQUAL.

FINISHED GRADE SEE NOTE 13



SECTION 'A'-'A' DETAIL

NOTES:

1. CONDUITS SHALL BE LOCATED AT LEAST 1000mm BELOW FINISHED GRADE FOR ALL ROAD CROSSINGS.
2. APPROVED CAPPING TO BE USED ON ALL UNUSED CONDUITS FOR FUTURE USE.
3. PLACE No. 10 ANNEALED FISH WIRE OR EQUAL STRENGTH POLYLINE THROUGH EACH CONDUIT.
4. WHEREVER POSSIBLE, CONDUITS SHALL BE BROUGHT INTO ELECTRICAL CHAMBERS AT RIGHT ANGLES TO EACH OTHER AND TO THE WALLS OF THE ELECTRICAL CHAMBER. CONDUITS ENTERING FROM BOTTOM OF ELECTRICAL CHAMBER SHALL EXTEND A MINIMUM OF 50mm ABOVE THE GRAVEL.
5. AN ELECTRICAL CHAMBER TO BE PLACED IN A RAISED MEDIAN ISLAND SHALL BE LOCATED 5.0m FROM THE BULLNOSE & CENTERED OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
6. PLACE 300mm OF CLEAR STONE (MAX 20mm) BELOW EACH ELECTRICAL CHAMBER FOR DRAINAGE.
7. ALL RIGID P.V.C. PIPE SHALL MEET OR EXCEED C.S.A. STANDARD C22.2 NO. 211.2
8. GROUND WIRE SHALL BE SECURED TO GROUND PLATES BY MECHANICAL CONNECTION AS PER APPROVED E.S.A. STANDARDS.
9. FOR NUMBER OF CONDUITS AND ORIENTATION, SEE LAYOUT DRAWINGS.
10. THE FIBRE TUBING INSIDE THE ELECTRICAL CHAMBER SHALL BE REMOVED ONCE THE FINISHED CONCRETE HAS SET AND THE INSIDE SHALL BE PARGED.
11. ALL CONDUITS ENTERING THE ELECTRICAL CHAMBER WALL SHALL HAVE STANDARD END BELLS.
12. ELECTRICAL CHAMBER COVER BOLTS MUST BE APPLIED WITH AN APPROVED ANTI-SEIZE COMPOUND.
13. THE TOP OF THE ELECTRICAL CHAMBER SHALL BE FLUSH TO FINISHED CONCRETE/ ASPHALT GRADE OR SHALL BE 50mm MAX ABOVE FINISHED EARTH GRADE.
14. THE CONTRACTOR SHALL LEAVE A 1.5m MINIMUM LENGTH OF EACH TYPE OF CABLE COILED IN EVERY ELECTRICAL CHAMBER.
15. CONCRETE SHALL BE CHLORIDE PENETRATION RESISTANT CLASS C-1 (MINIMUM) AS PER C.S.A. STANDARD A23.1.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



TRAFFIC SIGNALS
460mm ELECTRICAL CHAMBER

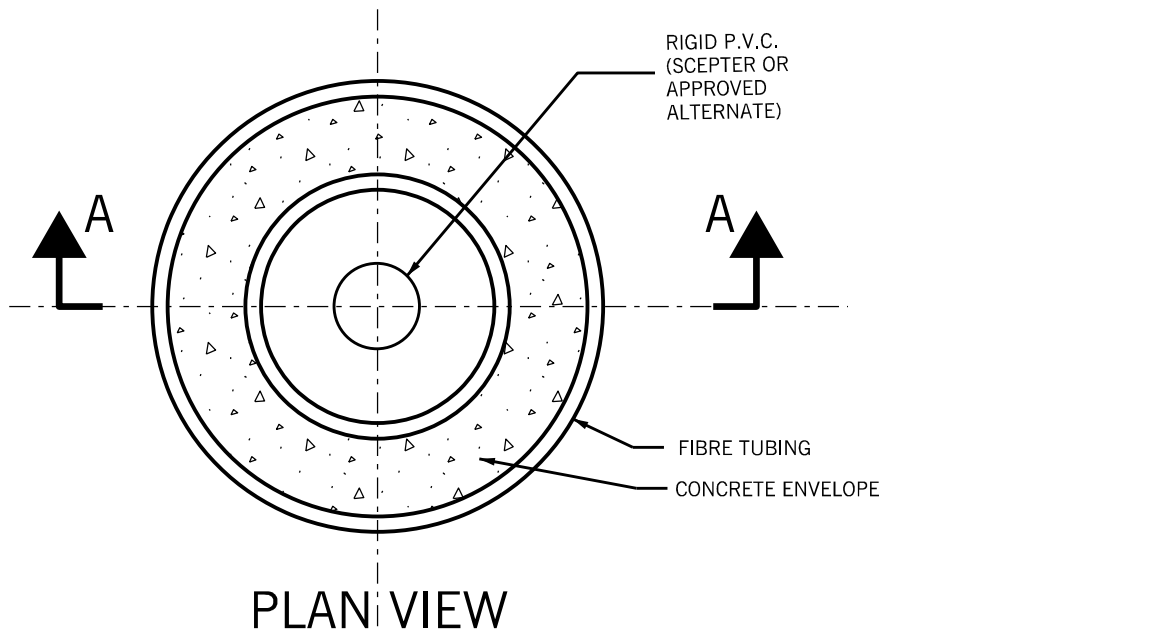
ORIGINAL:
TRAFFIC DETAILS - SERIES 400 NOV. 1993

APPROVED:
APRIL 2014

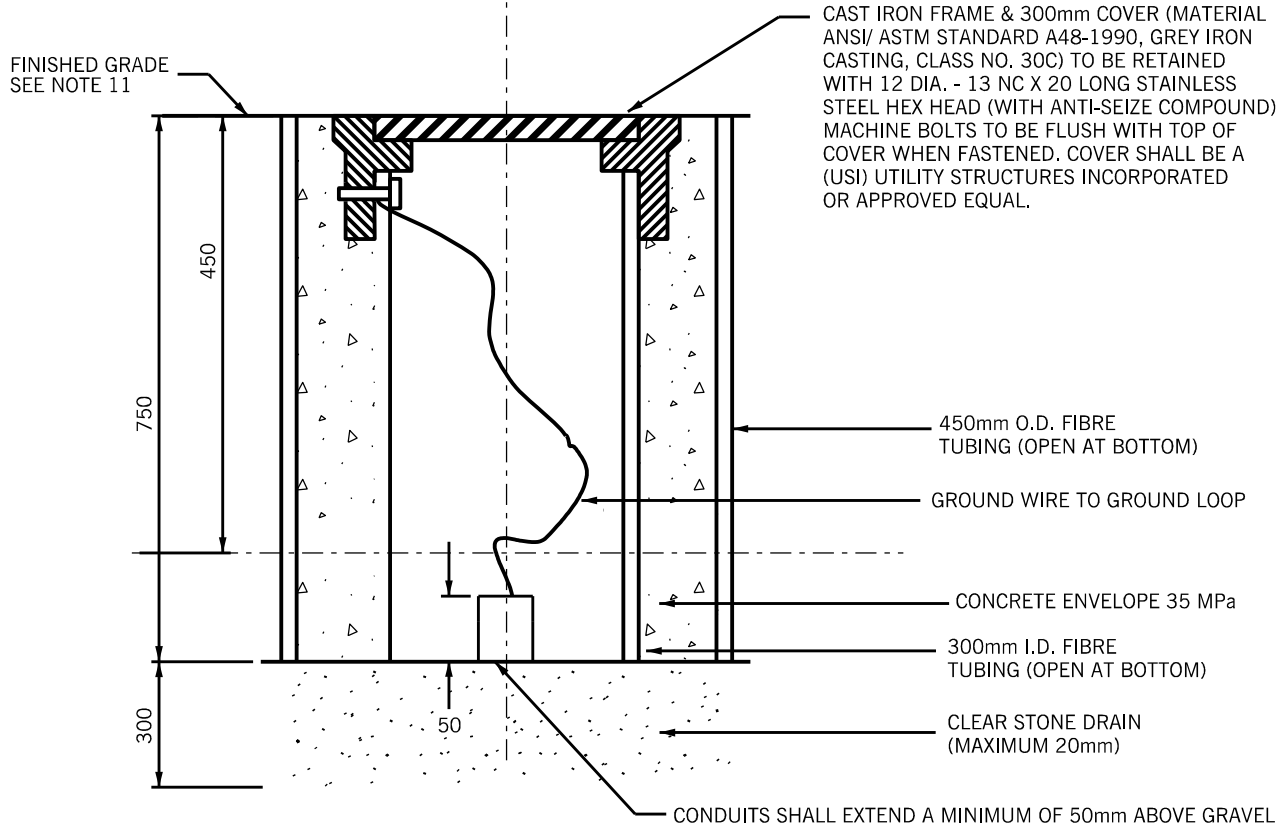
REV. 4

434

N.T.S



PLAN VIEW



SECTION 'A'-'A' DETAIL

NOTES:

1. APPROVED CAPPING TO BE USED ON ALL UNUSED CONDUITS FOR FUTURE USE.
2. PLACE No. 10 ANNEALED FISH WIRE OR EQUAL STRENGTH POLYLINE THROUGH EACH CONDUIT.
3. WHEREVER POSSIBLE, CONDUITS SHALL BE BROUGHT INTO ELECTRICAL CHAMBERS AT RIGHT ANGLES TO EACH OTHER AND TO THE WALLS OF THE ELECTRICAL CHAMBER. CONDUITS ENTERING FROM THE BOTTOM OF ELECTRICAL CHAMBER SHALL EXTEND A MINIMUM OF 50mm ABOVE THE GRAVEL.
4. AN ELECTRICAL CHAMBER PLACED IN A RAISED MEDIAN ISLAND SHALL BE LOCATED 15.0m FROM THE BULLNOSE CLOSE TO THE EDGE OF CURB OR AS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
5. PLACE 300mm OF CLEAR STONE (MAX 20mm) BELOW EACH ELECTRICAL CHAMBER FOR DRAINAGE.
6. ALL RIGID P.V.C. PIPE SHALL MEET OR EXCEED C.S.A. STANDARD C22.2 NO. 211.2.
7. FOR NUMBER OF CONDUITS AND ORIENTATION, SEE LAYOUT DRAWINGS.
8. THE FIBRE TUBING INSIDE THE ELECTRICAL CHAMBER SHALL BE REMOVED ONCE THE FINISHED CONCRETE HAS SET AND THE INSIDE SHALL BE PARGED.
9. ALL CONDUITS ENTERING THE ELECTRICAL CHAMBER WALL SHALL HAVE STANDARD END BELLS.
10. ELECTRICAL CHAMBER COVER BOLTS MUST BE APPLIED WITH AN APPROVED ANTI-SEIZE COMPOUND.
11. THE TOP OF THE ELECTRICAL CHAMBER SHALL BE FLUSH TO FINISHED CONCRETE/ ASPHALT GRADE OR SHALL BE 50mm MAX ABOVE FINISHED EARTH GRADE.
12. CONCRETE SHALL BE CHLORIDE PENETRATION RESISTANT CLASS C-1 (MINIMUM) AS PER C.S.A. STANDARD A23.1.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



BRAMPTON
Flower City

TRAFFIC SIGNALS
300mm ELECTRICAL CHAMBER

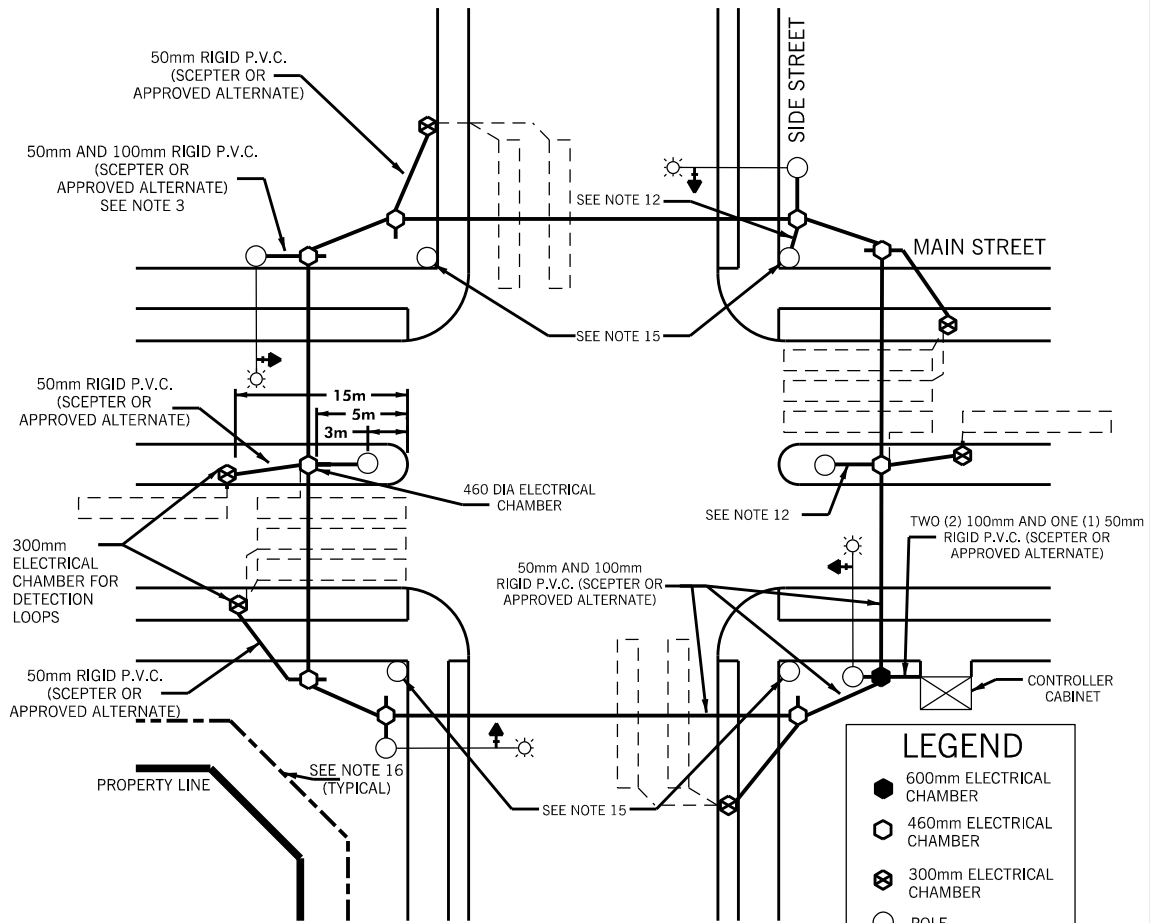
ORIGINAL:
TRAFFIC DETAILS - SERIES 400 MAY 2006

APPROVED:
APRIL 2014

REV. 2

435

N.T.S



TYPICAL PLAN VIEW

NOTES:

- ALL CONDUITS SHALL BE LOCATED TO A DEPTH OF 1.0m (MIN) BELOW FINISHED GRADE WITH THE EXCEPTION OF LOOP ELECTRICAL CHAMBER CONNECTIONS AND SITE SPECIFIC SITUATIONS APPROVED BY THE CONTRACT ADMINISTRATOR. CONDUIT JOINTS SHALL BE MADE WITH THE USE OF SLEEVES WHICH PERMIT A SMOOTH JOINT BETWEEN CONDUITS. ALL JOINTS SHALL BE MADE WATERPROOF BY MEANS OF COUPLERS & WATERPROOF SEALANTS.
- WHERE TWO OR MORE CONDUIT RUNS ARE TO BE INSTALLED BESIDE EACH OTHER, THE CONTRACTOR SHALL PLACE THE CONDUIT RUNS IN THE SAME TRENCH.
- WHERE A 50mm CONDUIT RUNS PARALLEL TO A 100mm CONDUIT, THE STREET LIGHT CABLES SHALL BE PLACED IN THE 50mm CONDUIT AND THE TRAFFIC SIGNAL CABLES SHALL BE PLACED IN THE 100mm CONDUIT.
- THE CONTRACTOR SHALL LEAVE 1.5m (MIN) SLACK OF EACH TYPE OF CABLE IN EVERY ELECTRICAL CHAMBER LOCATION.
- PLACE No. 10 ANNEALED FISH WIRE OR EQUAL STRENGTH POLYLINE THROUGH EVERY CONDUIT.
- ALL 460mm ELECTRICAL CHAMBERS SHALL BE CONSTRUCTED WITH AT LEAST 2 STUB-OUTS EACH OF 100mm AND 50mm RIGID P.V.C. (SCEPTER OR APPROVED ALTERNATE), RESPECTIVELY. ELECTRICAL CHAMBERS ON THE APPROACH CORNERS SHALL BE CONSTRUCTED WITH A STUB-OUT OF 50mm RIGID P.V.C. (SCEPTER OR APPROVED ALTERNATE) FOR FUTURE LOOP INSTALLATIONS.
- ALL RIGID P.V.C. PIPE SHALL MEET OR EXCEED C.S.A. STANDARD C22.2 NO. 211.2.
- SUBSURFACE INSTALLATION OF CONDUIT SHALL CONFORM TO LATEST O.P.S.D. MANUAL.
- A CONTINUOUS 'GROUND LOOP' (WIRE SHALL BE #6 GAUGE RWU GREEN CABLE) SHALL BE INSTALLED ALONG WITH THE TRAFFIC SIGNAL CABLES CONDUIT GOING AROUND THE INTERSECTION. POLES, ELECTRICAL CHAMBERS, POWER SUPPLY AND THE CONTROLLER SHALL BE GROUNDED TO THIS 'GROUND LOOP'.
- APPROVED CAPPING SHALL BE USED ON ALL UNUSED CONDUITS FOR FUTURE USE.
- THE ELECTRICAL CHAMBER BY THE CONTROLLER CABINET SHALL BE 600mm OR AS PER CONTRACT
- WHERE A PEDESTRIAN POLE OR AN '8315 POLE' IS USED THE CONDUIT GOING INTO THE POLE SHALL BE A 75mm RIGID P.V.C. CONDUIT OR APPROVED EQUAL.
- TRAFFIC SIGNAL LAYOUT SHALL BE AS PER CONTRACT DRAWINGS, BUT NECESSARY FIELD MODIFICATIONS SHALL BE MADE TO MEET OTM BOOK 12.
- ANY LAYOUT CONCERNS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
- TRAFFIC SIGNAL DESIGN SHALL TAKE INTO ACCOUNT AND APPLY REQUIREMENT SET FORTH BY THE ACCESSIBILITY FOR ONTARIANS WITH DISABILITIES ACT, 2005, (ONTARIO REGULATION 413/12). IF PEDESTRIAN POLE CANNOT BE PLACED WITHIN 1.5m (MEASURED FROM FACE OF POLE BASE TO BACK OF CURB), DUE TO SAFETY REASONS, A MAXIMUM OF 2.5m WILL BE TOLERATED.
- UTILITIES MUST FOLLOW DAYLIGHTING AT INTERSECTIONS TO ALLOW CLEARANCE FOR TRAFFIC SIGNAL INFRASTRUCTURE.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



BRAMPTON
Flower City

TRAFFIC SIGNALS
TYPICAL INTERSECTION LAYOUT
TRAFFIC DETAILS - SERIES 400

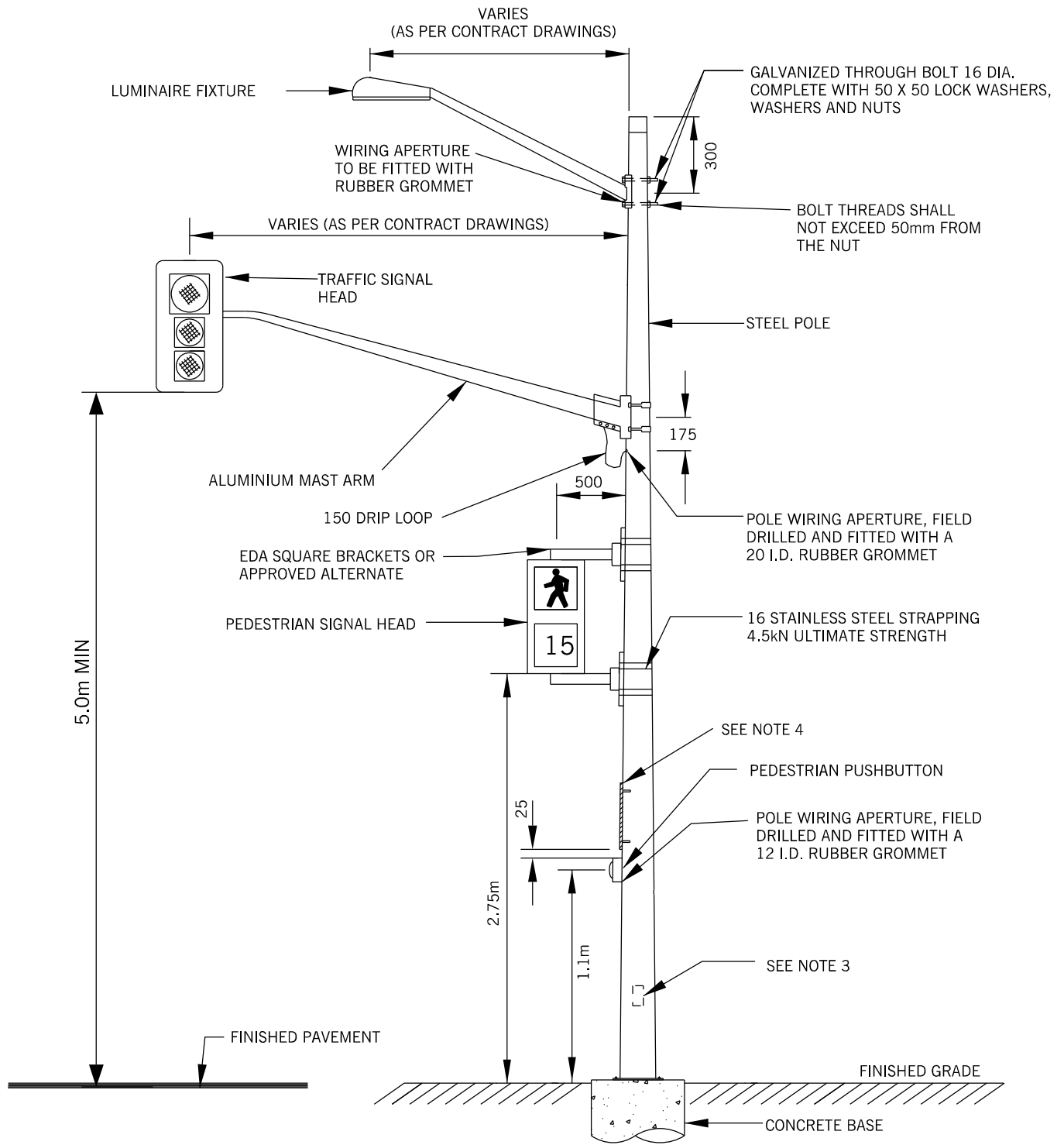
APPROVED:
APRIL 04, 2016

ORIGINAL:
NOV. 1993

REV. 7

436

N.T.S



NOTES

1. ALL WIRING APERTURES ARE TO BE DE-BURRED AND PROTECTED WITH GREY ZINC RICH PAINT.
2. FOR ORIENTATION AND LOCATION OF POLES AND EQUIPMENT SEE CONTRACT DRAWINGS.
3. THE POLE'S HANDHOLE SHALL FACE AWAY FROM THE DIRECTION OF TRAFFIC UNLESS OTHERWISE NOTED IN THE CONTRACT DRAWINGS OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
4. PEDESTRIAN INSTRUCTION SIGN TO BE TAPPED AND BOLTED TO THE POLE WITH TWO (2) 1/4" - 20 X 1" THREADED SCREWS OR APPROVED EQUAL. (SIGN TO BE SUPPLIED BY THE CITY)

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED



BRAMPTON
Flower City

TRAFFIC SIGNALS
TYPICAL EQUIPMENT ON POLE

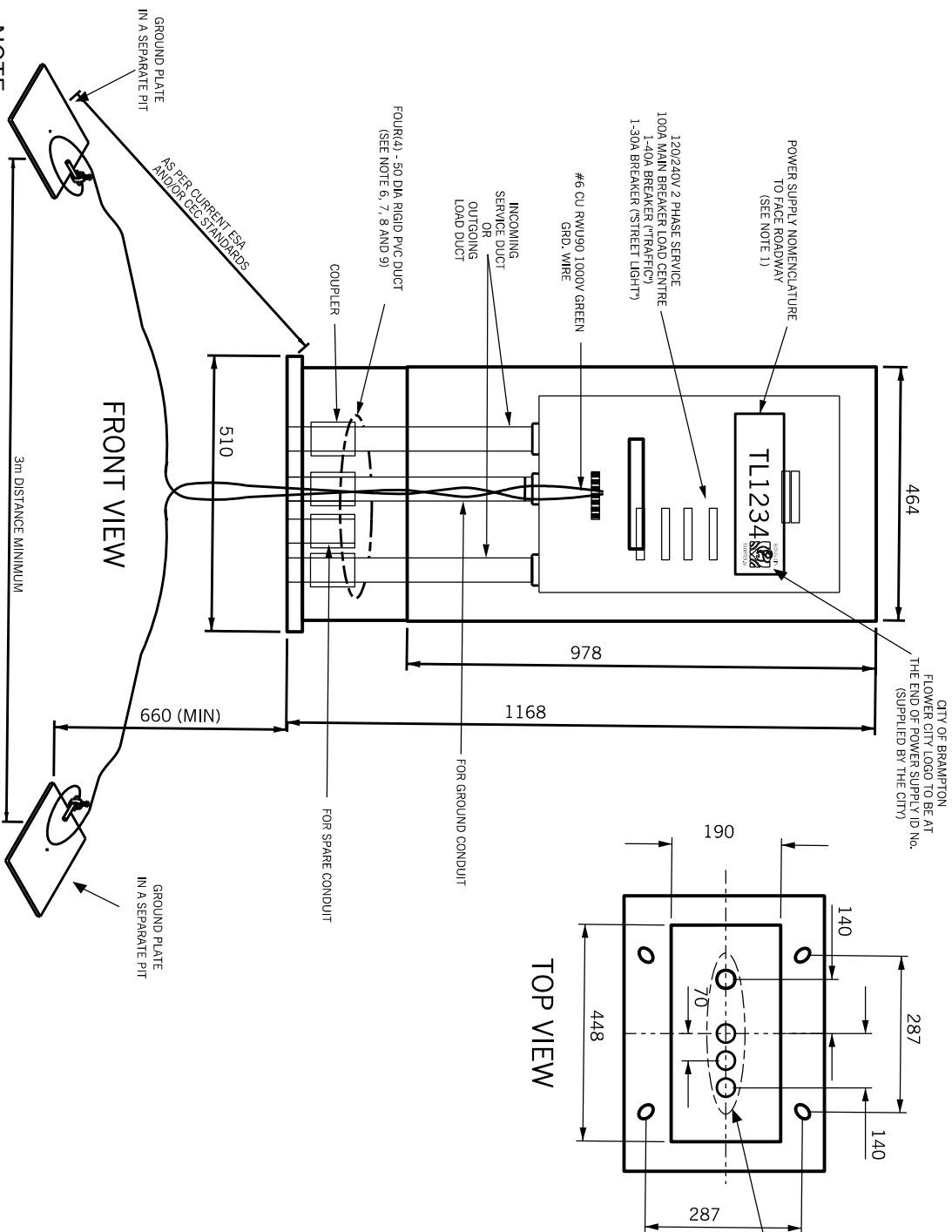
ORIGINAL:
TRAFFIC DETAILS - SERIES 400 APRIL 2014

APPROVED:
APRIL 2014

REV. 1

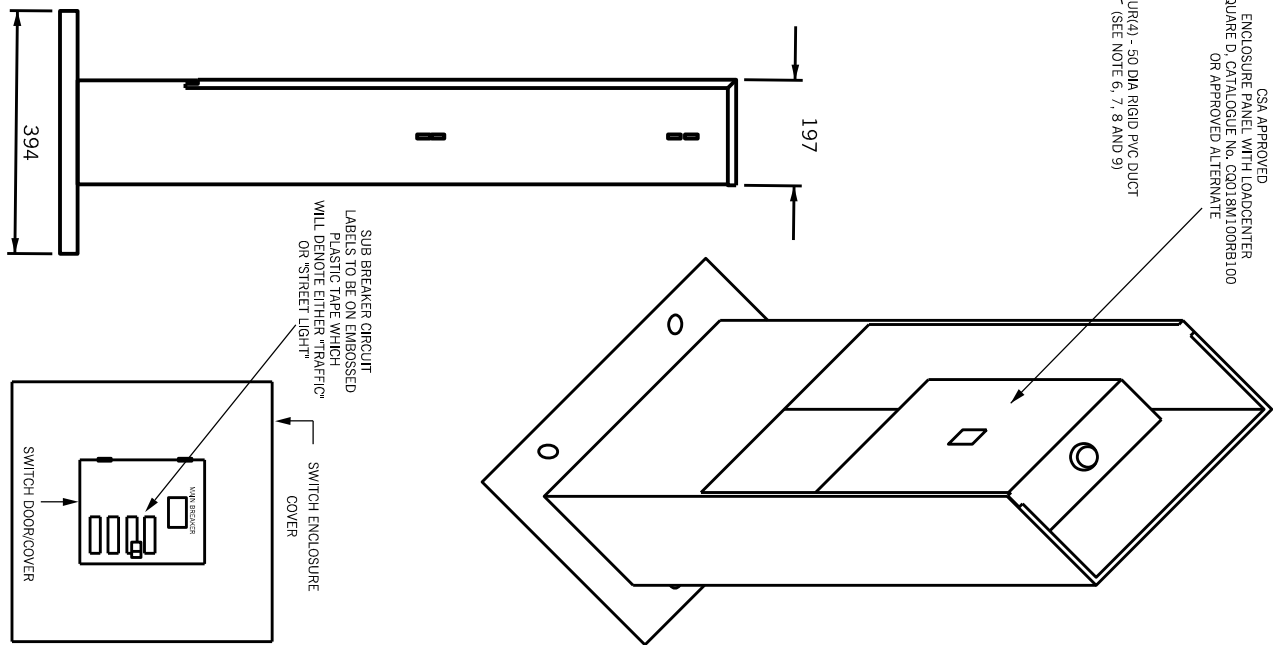
437

N.T.S



CITY OF BRAMPTON
FLOWER CITY LOGO TO BE AT
THE END OF POWER SUPPLY ID No.
(SUPPLIED BY THE CITY)

CSA APPROVED
ENCLOSURE PANEL WITH LOADCENTER
SQUARE D. CATALOGUE NO. C0013M.100RB.100
OR APPROVED ALTERNATE



NOTE:

1. NOMENCLATURE TO REFLECT TRANSFORMER NUMBER SHALL FACE THE ROADWAY TO BE EASILY SEEN WHEN DRIVING. TO BE INSTALLED BY HYDRO ONE BRAMPTON.
2. CONCRETE FOOTING SHALL CONFORM WITH CITY STANDARD DRAWING NUMBER 454.
3. APPROVED CAPPING MUST BE USED ON ALL UNUSED CONDUITS FOR FUTURE USE.
4. THE PANEL COVER SHALL BE INSTALLED FACING AWAY FROM THE INTERSECTION UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
5. ALL CONDUITS ENTERING THE PEDESTAL SHALL BE SEALED WITH STEEL WOOL AND ELECTRICAL DUCT SEALANT PUTTY.
6. 50mm DIA RIGID PVC CONDUIT, FOR INCOMING SERVICE CONDUIT, TO BE RUN (DIRECT BURIED) TO THE UNDERGROUND HYDRO ONE BRAMPTON "POINT OF THE ON" AS SHOWN ON THE LAYOUT DRAWINGS.
7. 50mm DIA RIGID PVC CONDUIT, FOR OUTGOING LOAD CONDUIT, TO BE RUN (DIRECT BURIED) TO THE NEAREST ELECTRICAL CHAMBER OR AS PER LAYOUT DRAWINGS.
8. 50mm RIGID PVC CONDUIT FOR GROUND CONNECTION. THE VERTICAL RUN OF THE CONDUIT MUST BE AT LEAST 660mm (MIN) BELOW FINISHED GRADE.
9. SPARE 50mm RIGID PVC CONDUIT (FOR FUTURE USE)
10. ALL RIGID PVC CONDUIT SHALL MEET C.S.A. C22.2 NO 211.2 MINIMUM SPECIFICATIONS.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



APPROVED:
APRIL 2014

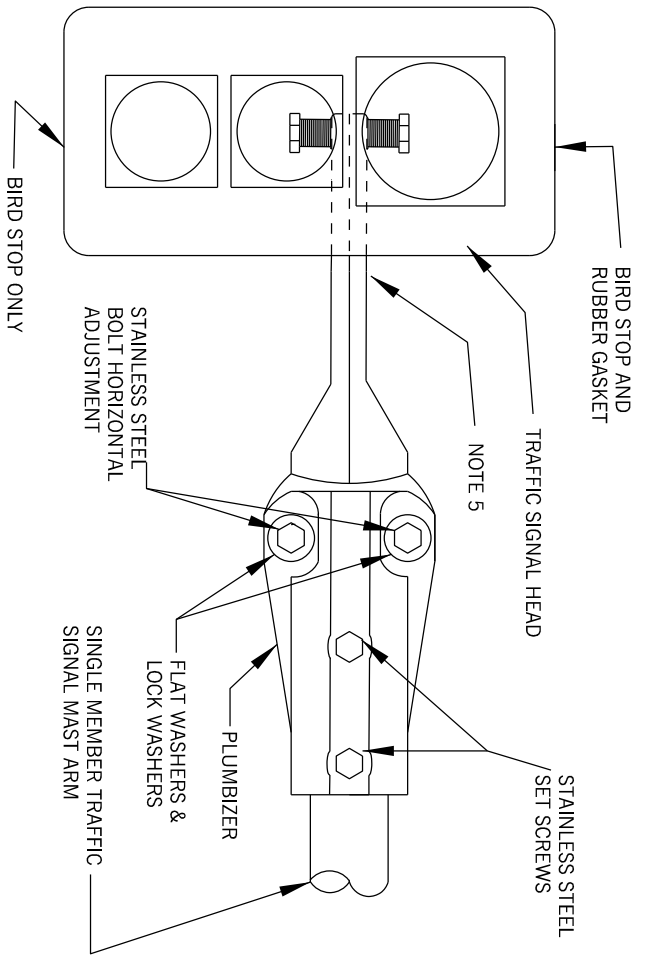
**TRAFFIC SIGNALS
POWER SUPPLY PEDESTAL
120/240 VAC - 100A**

ORIGINAL:
TRAFFIC DETAILS - SERIES 400 APRIL 2014

REV. 1

438

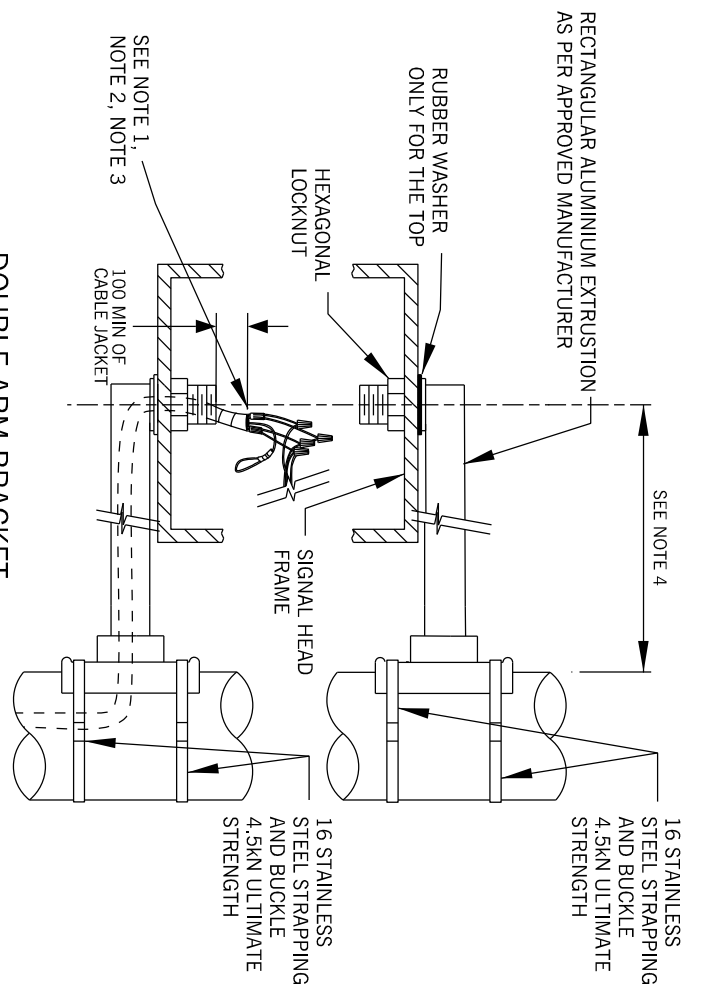
N.T.S



PLUMBIZER ATTACHMENT
SIDE VIEW

NOTES

1. ALL WIRE CONNECTIONS SHALL BE MARRETTED WITH THE MARRETT'S ORIENTED UPWARDS AND GROUPED MARRETT CONNECTIONS SHALL BE TAPED TOGETHER, INSULATING THE MARRETT CONNECTIONS SIMULATING A CABLE JACKET, TO REDUCE POTENTIAL MOISTURE DAMAGE TO THE CONNECTIONS.
2. CABLE JACKETS MUST BE STRIPPED TO AN APPROPRIATE LENGTH TO PROVIDE PROTECTION TO THE CONDUCTORS. CABLES SHALL HAVE ENOUGH SLACK WITHIN EACH HEAD FOR FUTURE MAINTENANCE. A MINIMUM OF 100mm OF THE CABLE JACKET SHALL LEAD FROM THE EQUIPMENT'S ENCLOSURE ENTRANCE INTO THE ENCLOSURE.
3. UNUSED CONDUCTORS SHALL BE LOOPED AND TAPED.
4. USE ARM ASSEMBLY EDA 500 OR AN APPROVED ALTERNATE.
5. WIRES SHALL GO IN BETWEEN THE AMBER AND RED SECTION OF THE TRAFFIC SIGNAL HEAD.



DOUBLE ARM BRACKET

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



APPROVED:
APRIL 2014

VEHICLE AND PEDESTRIAN
HEAD MOUNTING DETAILS

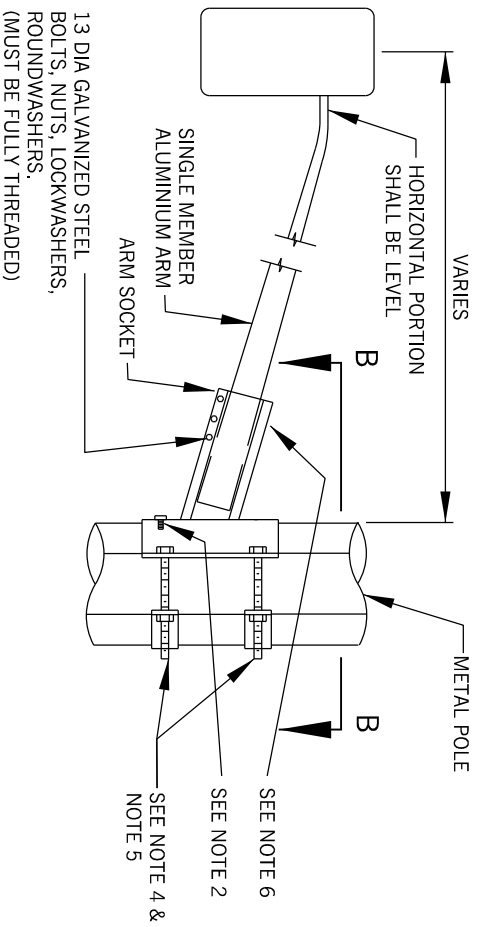
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TRAFFIC DETAILS - SERIES 400 APRIL 2014

REV. 1

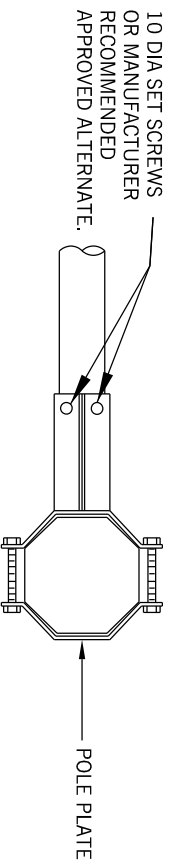
439

N.T.S

STEEL POLE ATTACHMENT (SEE NOTE 3)



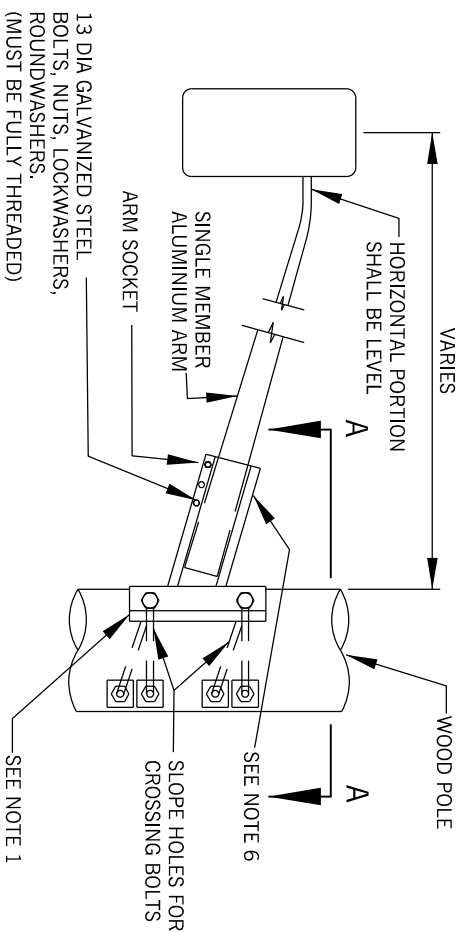
SECTION B-B



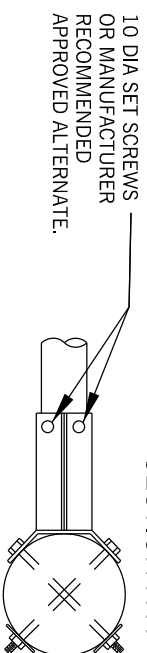
NOTES

1. A METAL REINFORCING PLATE AT THE POLE PLATE/POD WILL PREVENT THE POD FROM DIGGING INTO THE WOOD WHEN TIGHTENED. THE POLE PLATE BOLTS SHALL BE ADJUSTED SO THAT THE HORIZONTAL PORTION OF THE ARM IS LEVEL.
2. FOR ROUND METAL POLES THE POLE PLATE/POD SHALL BE PINNED TO THE POLE USING 9.5mm DIA SET SCREW OR MANUFACTURER RECOMMENDED APPROVED ALTERNATE SET SCREWS AND INSTALLED AS PER MANUFACTURER'S RECOMMENDATION TO REDUCE POTENTIAL TORQUE OF THE ARM AND ASSEMBLY AROUND THE POLE.
3. THE APPROPRIATE POLE PLATE/POD AND BOLTS SHALL BE USED, AS PER TYPE OF POLE, AND INSTALLED AS PER MANUFACTURER'S RECOMMENDATION OR AS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
4. THE BOLT SHALL EXTEND 50mm (MAX) FROM THE LOCK WASHER AND NUT.
5. A 3m ARM OR SHORTER SHALL USE A 16mm BOLT. A 3.6m ARM OR LONGER SHALL USE A 19mm BOLT.

WOODEN POLE ATTACHMENT (SEE NOTE 3)



SECTION A-A



6. THE ARM SOCKET SHALL HAVE TWO (2) SET SCREWS AT THE TOP TO REDUCE POTENTIAL TORSIONAL MOVEMENTS OF THE ALUMINIUM SINGLE MEMBER ARM. THE SET SCREWS SHALL BE AS PER MANUFACTURER'S (I.E. SECTION A-A OR SECTION B-B) RECOMMENDATIONS OR AS DIRECTED BY THE CONTRACT ADMINISTRATOR.

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED



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Flower City

APPROVED:
APRIL 2014

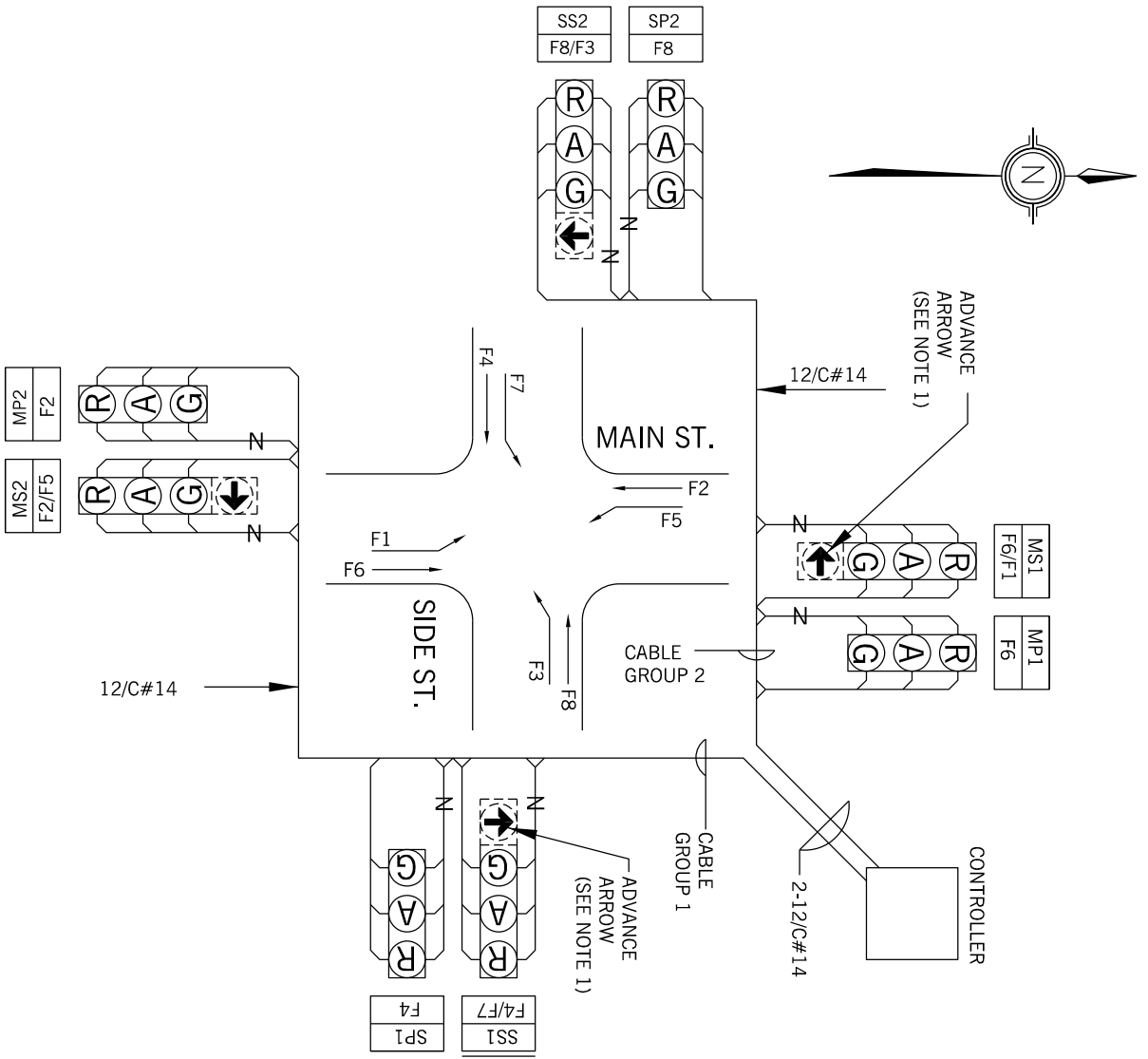
TRAFFIC SIGNALS
ALUMINIUM SINGLE MEMBER MAST
ARM ATTACHMENT DETAILS

ORIGINAL:
TRAFFIC DETAILS - SERIES 400 APRIL 2014

REV. 1

440

N.T.S



12/C #14 MTO RUNNER CABLE			
COND #	COLOUR/MARK	CABLE GROUP 1	CABLE GROUP 2
1	WHITE	NEUTRAL	NEUTRAL
2	BLACK	NOTE 1	NOTE 1
3	ORANGE	NOTE 1	NOTE 1
4	RED /"RED ONE"	MAIN STREET RED	MAIN STREET RED
5	RED /"RED TWO"	SIDE STREET RED	SIDE STREET RED
6	RED /"RED THREE"	SPARE	SPARE
7	YELLOW/"AMBER ONE"	MAIN STREET AMBER	MAIN STREET AMBER
8	YELLOW/"AMBER TWO"	SIDE STREET AMBER	SIDE STREET AMBER
9	YELLOW/"AMBER THREE"	NOTE 1	NOTE 1
10	BLUE/"GREEN ONE"	MAIN STREET GREEN	MAIN STREET GREEN
11	BLUE/"GREEN TWO"	SIDE STREET GREEN	SIDE STREET GREEN
12	BLUE/"GREEN THREE"	NOTE 1	NOTE 1

NOTES

1. WHERE ARROW ADVANCE GREENS ARE USED, USE COND. #12, BLUE/"GREEN THREE" AND COND. #9, YELLOW/"AMBER THREE" FOR THE MAIN STREET AND COND. #2, BLACK AND COND. #3, ORANGE FOR THE SIDE ROAD HEADS.
2. CONNECTIONS SHOWN ARE GENERAL AND TYPICAL AND SHALL BE ADJUSTED TO SUIT THE INTERSECTION LAYOUT.
3. THE SYSTEM SHOWN REQUIRES CONDUITS ALL AROUND THE INTERSECTION.
4. ALL SIGNAL HEAD RUNNER CABLE SHALL BE AS PER OPSS 2409 AND/OR CONTRACT SPECIFICATIONS.

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED



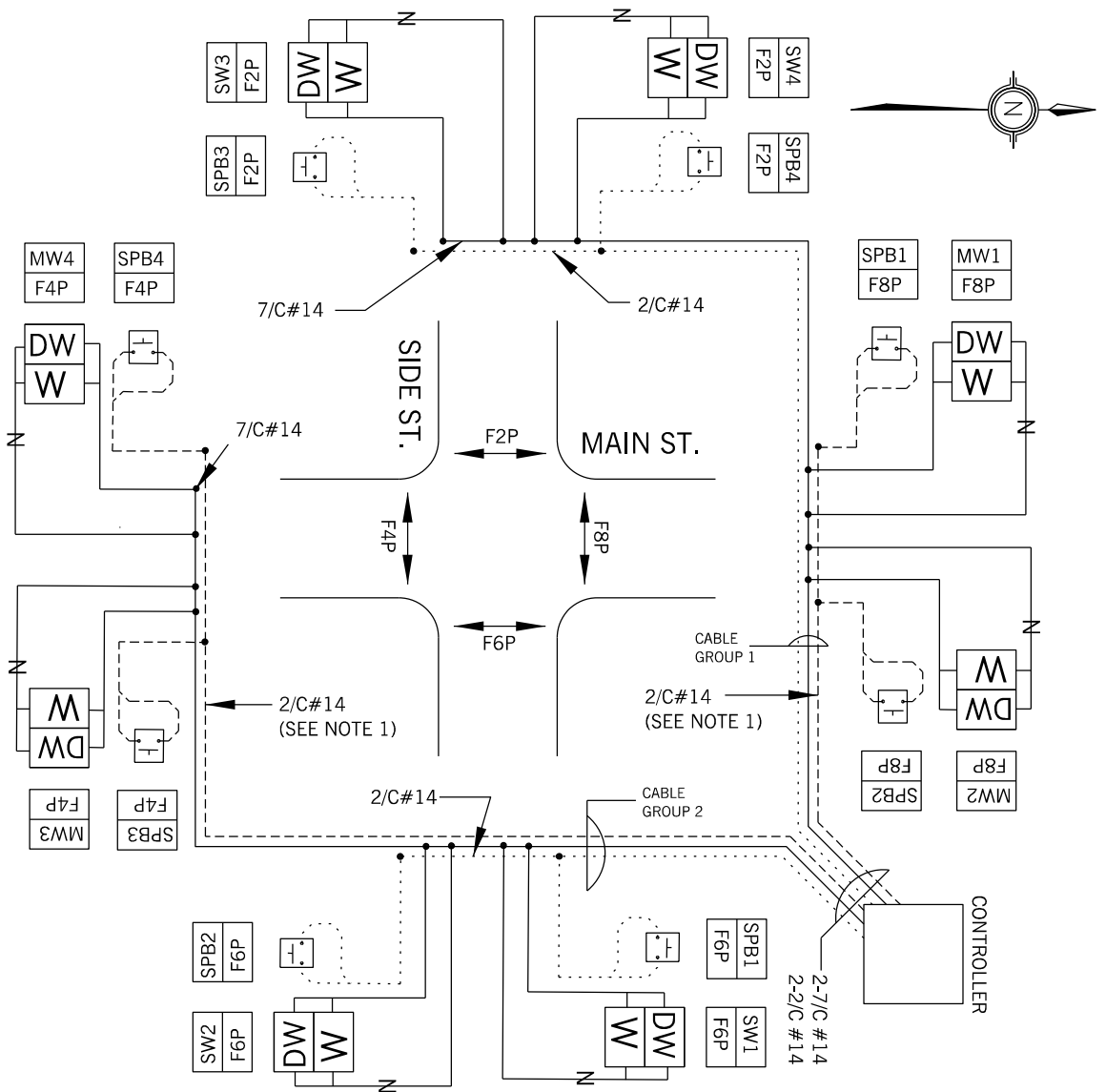
BRAMPTON
Flower City

TRAFFIC SIGNALS
TYPICAL 2 TO 8 PHASE WIRING
WITH 12/C CABLE

ORIGINAL:
TRAFFIC DETAILS - SERIES 400 APRIL 2014

APPROVED:
APRIL 2014

REV. 1
441
N.T.S



COND #	COLOUR/ MARK	CABLE GROUP	
		GROUP 1	GROUP 2
1	WHITE	NEUTRAL	NEUTRAL
2	RED/ "RED ONE"	DW(F2P)	DW(F4P)
3	RED/ "RED TWO"	DW(F8P)	DW(F6P)
4	YELLOW/ "AMBER ONE"	SPARE	SPARE
5	YELLOW/ "AMBER TWO"	SPARE	SPARE
6	BLUE/ "GREEN ONE"	W(F2P)	W(F4P)
7	BLUE/ "GREEN TWO"	W(F8P)	W(F6P)
1	WHITE	F2P	F6P
2	BLACK	F2P	F6P
3	GROUND BARE COND.	F2P	F6P

NOTES

1. WHEN "MAIN STREET CROSSING" PEDESTRIAN PUSHBUTTONS ARE REQUIRED, ONE ADDITIONAL 2/C #14 GAUGE IMSA 50-2 CABLE OR APPROVED EQUAL IN EACH CABLE GROUP SHALL BE ADDED AS SHOWN ON THE DIAGRAM.
2. ANY UNUSED CONDUCTORS ARE TO BE LEFT UNCONNECTED, FOLDED, TAPED AND DESIGNATED AS SPARES.
3. CONNECTIONS SHOWN ARE GENERAL AND TYPICAL AND SHALL BE ADJUSTED TO SUIT THE INTERSECTION LAYOUT.
4. ALL PEDESTRIAN HEAD RUNNER CABLE SHALL BE AS PER OPSS 2409 AND/ OR CONTRACT SPECIFICATIONS.

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED



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**TRAFFIC SIGNALS
TYPICAL PEDESTRIAN
WIRING LAYOUT**

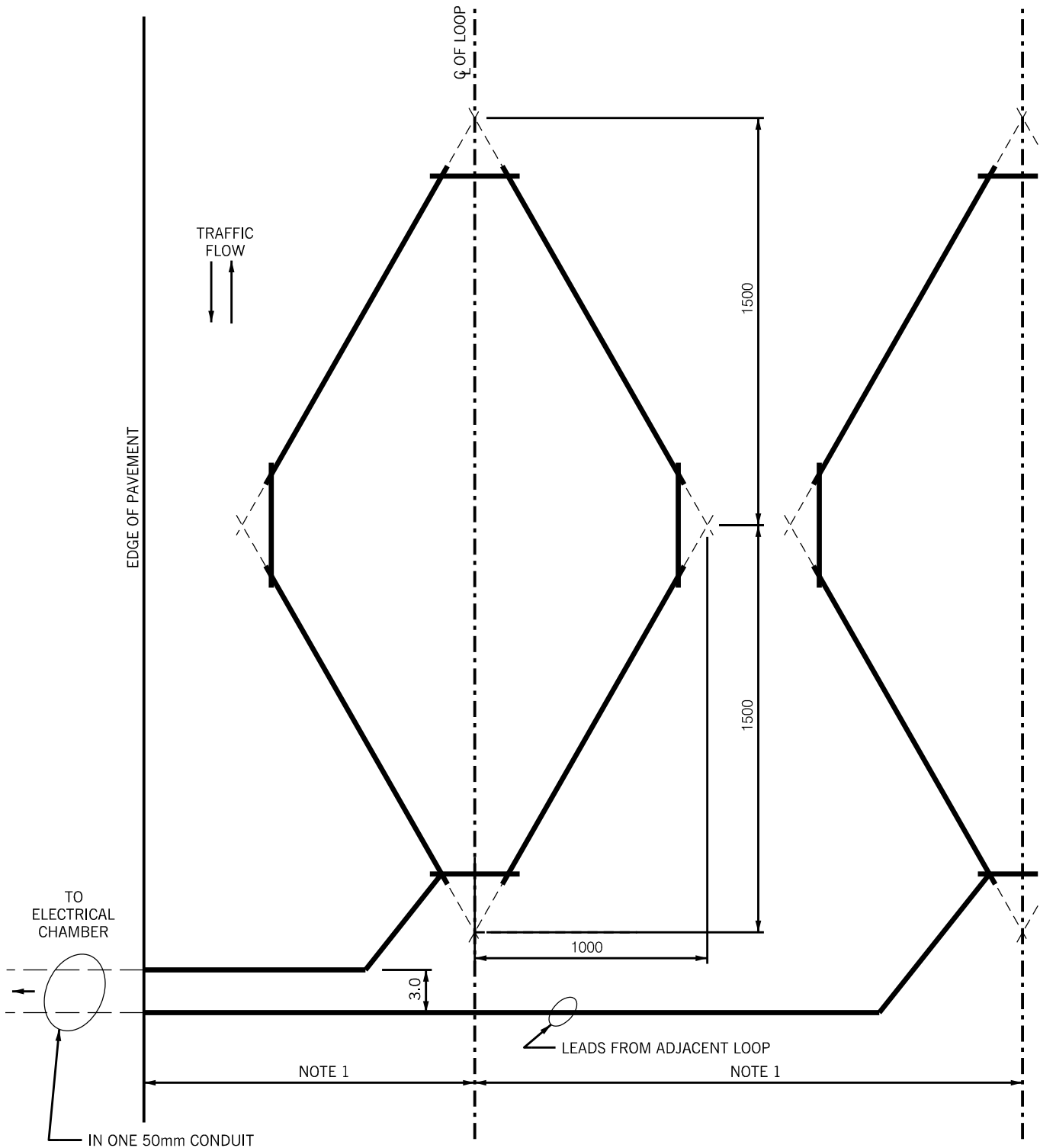
ORIGINAL:
TRAFFIC SIGNALS - SERIES 400 APRIL 2014

APPROVED:
APRIL 2014

REV. 1

442

N.T.S



NOTE:
 1. LOOPS TO BE CENTRED IN THE TRAFFIC LANES.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



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TRAFFIC SIGNALS
 SYSTEM DETECTOR LOOP LAYOUT

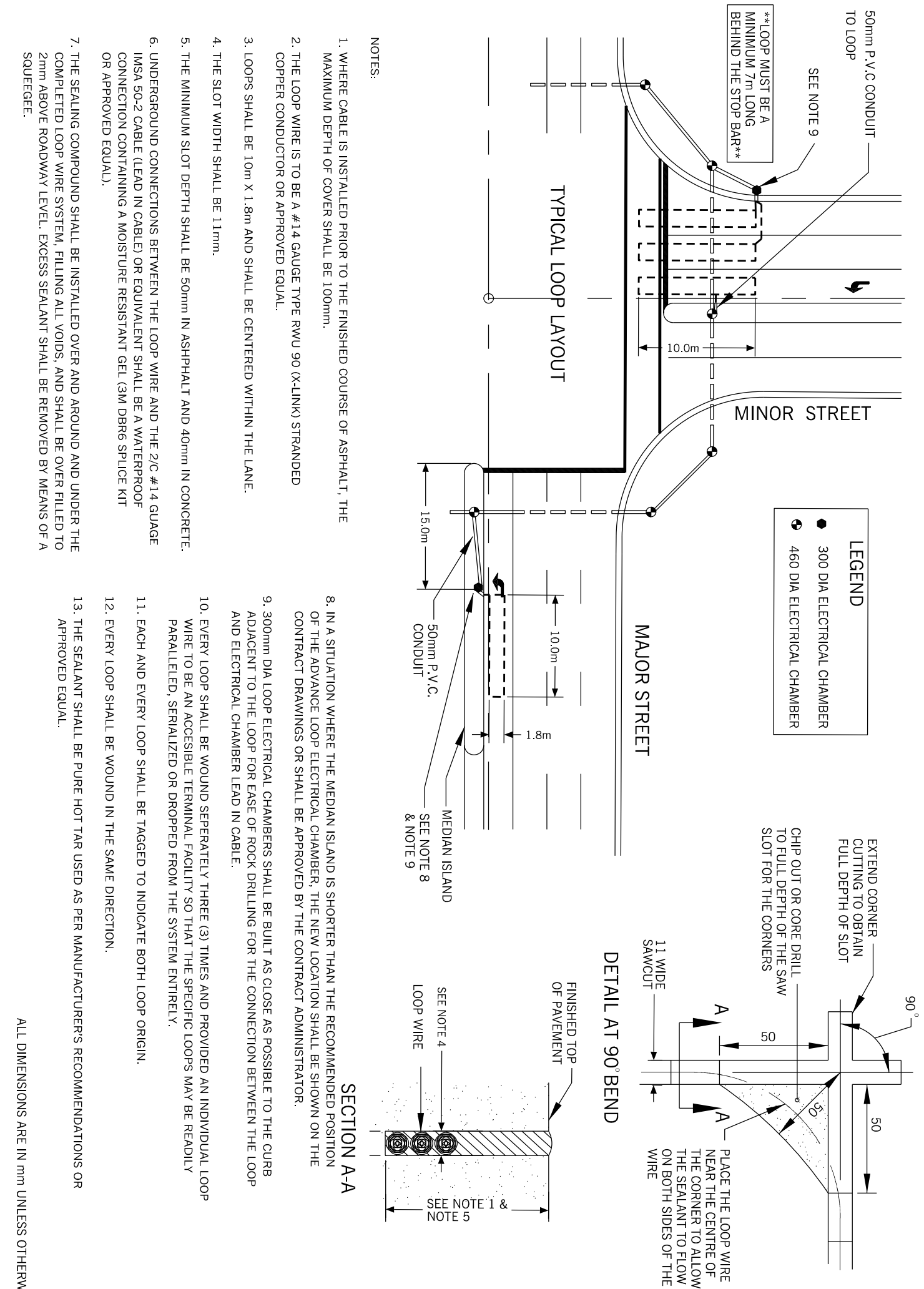
TRAFFIC DETAILS - SERIES 400 ORIGINAL:
 NOV. 1993

APPROVED:
 APRIL 2014

REV. 2

443

N.T.S



NOTES:

1. WHERE CABLE IS INSTALLED PRIOR TO THE FINISHED COURSE OF ASPHALT, THE MAXIMUM DEPTH OF COVER SHALL BE 100mm.
2. THE LOOP WIRE IS TO BE A #14 GAUGE TYPE RWU 90 (X-LINK) STRANDED COPPER CONDUCTOR OR APPROVED EQUAL.
3. LOOPS SHALL BE 10m X 1.8m AND SHALL BE CENTERED WITHIN THE LANE.
4. THE SLOT WIDTH SHALL BE 11mm.
5. THE MINIMUM SLOT DEPTH SHALL BE 50mm IN ASPHALT AND 40mm IN CONCRETE.
6. UNDERGROUND CONNECTIONS BETWEEN THE LOOP WIRE AND THE 2/C #14 GAUGE IMSA 50-2 CABLE (LEAD IN CABLE) OR EQUIVALENT SHALL BE A WATERPROOF CONNECTION CONTAINING A MOISTURE RESISTANT GEL (3M DBR6 SPLICE KIT OR APPROVED EQUAL).
7. THE SEALING COMPOUND SHALL BE INSTALLED OVER AND AROUND AND UNDER THE COMPLETED LOOP WIRE SYSTEM, FILLING ALL VOIDS, AND SHALL BE OVER FILLED TO 2mm ABOVE ROADWAY LEVEL. EXCESS SEALANT SHALL BE REMOVED BY MEANS OF A SQUEEGEE.

8. IN A SITUATION WHERE THE MEDIAN ISLAND IS SHORTER THAN THE RECOMMENDED POSITION OF THE ADVANCE LOOP ELECTRICAL CHAMBER, THE NEW LOCATION SHALL BE SHOWN ON THE CONTRACT DRAWINGS OR SHALL BE APPROVED BY THE CONTRACT ADMINISTRATOR.
9. 300mm DIA LOOP ELECTRICAL CHAMBERS SHALL BE BUILT AS CLOSE AS POSSIBLE TO THE CURB ADJACENT TO THE LOOP FOR EASE OF ROCK DRILLING FOR THE CONNECTION BETWEEN THE LOOP AND ELECTRICAL CHAMBER LEAD IN CABLE.
10. EVERY LOOP SHALL BE WOUND SEPARATELY THREE (3) TIMES AND PROVIDED AN INDIVIDUAL LOOP WIRE TO BE AN ACCESSIBLE TERMINAL FACILITY SO THAT THE SPECIFIC LOOPS MAY BE READILY PARALLELED, SERIALIZED OR DROPPED FROM THE SYSTEM ENTIRELY.
11. EACH AND EVERY LOOP SHALL BE TAGGED TO INDICATE BOTH LOOP ORIGIN.
12. EVERY LOOP SHALL BE WOUND IN THE SAME DIRECTION.
13. THE SEALANT SHALL BE PURE HOT TAR USED AS PER MANUFACTURER'S RECOMMENDATIONS OR APPROVED EQUAL.

SECTION A-A

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED



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**TRAFFIC SIGNALS
TYPICAL LOOP DETECTION
LAYOUT AND DETAILS**

ORIGINAL:
TRAFFIC DETAILS - SERIES 400 APRIL 2014

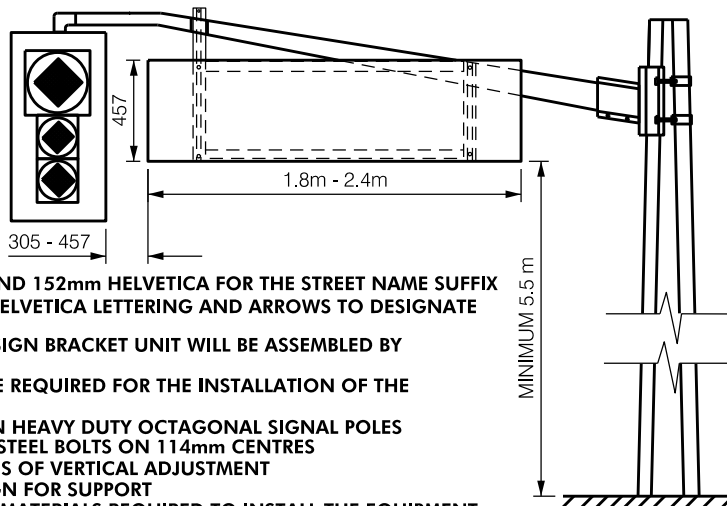
APPROVED:
APRIL 2014

REV. 1

444

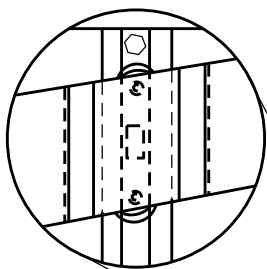
N.T.S

FRONT VIEW

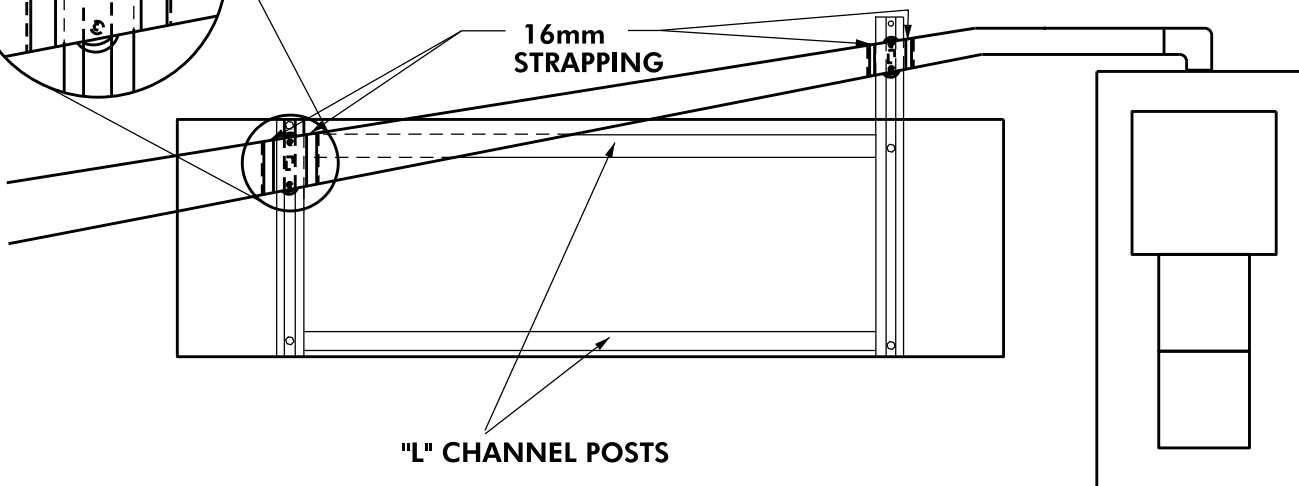


NOTES:

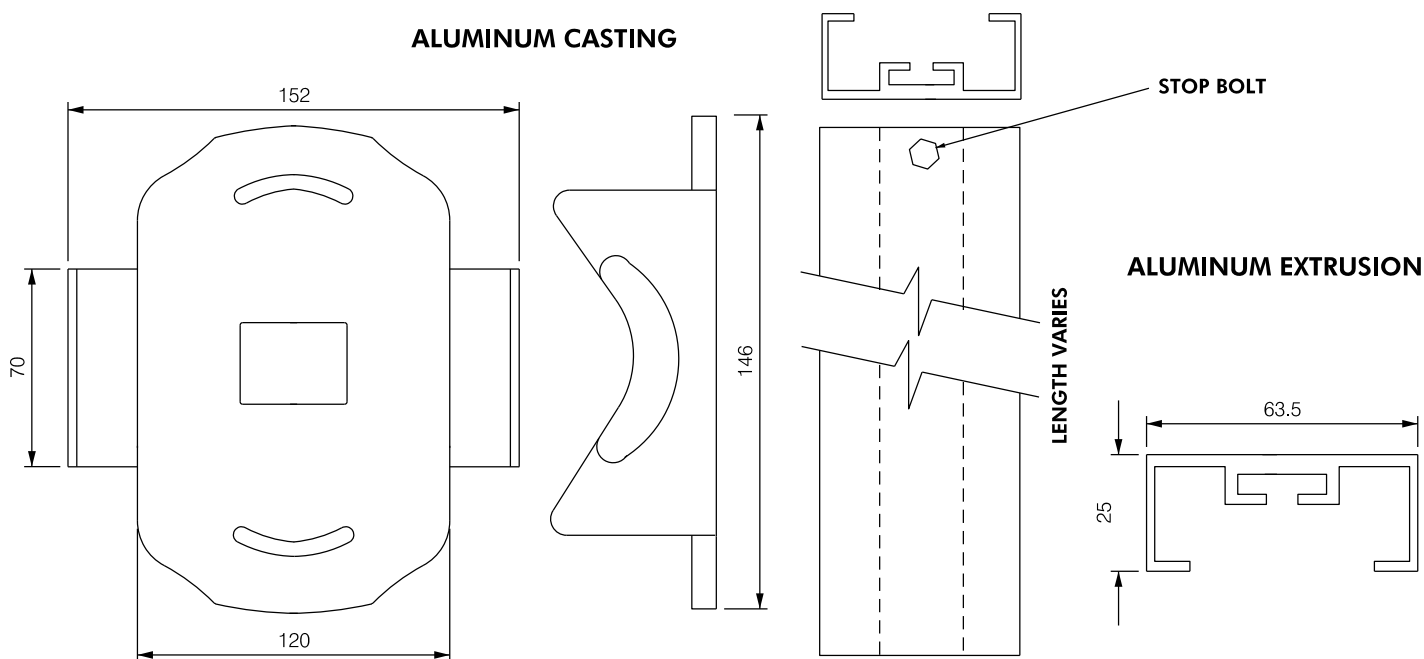
1. STREET NAME LETTERING MUST BE 305mm HELVETICA AND 152mm HELVETICA FOR THE STREET NAME SUFFIX
2. INTERSECTIONS WITH SPLIT NAMES MUST USE 152mm HELVETICA LETTERING AND ARROWS TO DESIGNATE THE STREET LOCATION
3. OVERSIZED STREET NAME SIGNS WITH THE ALUMINUM SIGN BRACKET UNIT WILL BE ASSEMBLED BY THE CITY OF BRAMPTON TRAFFIC SIGN SHOP
4. A BUCKET TRUCK OR A PLATFORM LIFT MACHINE WILL BE REQUIRED FOR THE INSTALLATION OF THE OVERSIZED STREET NAME SIGNS
5. OVERSIZED STREET NAME SIGNS MUST BE INSTALLED ON HEAVY DUTY OCTAGONAL SIGNAL POLES
6. THE ALUMINUM SIGN BRACKET USES 9.5mm STAINLESS STEEL BOLTS ON 114mm CENTRES
7. THE ALUMINUM SIGN BRACKET ALLOWS FOR 15 DEGREES OF VERTICAL ADJUSTMENT
8. "L" CHANNEL POSTS ARE INSTALLED ON THE BACK OF SIGN FOR SUPPORT
9. THE BID SHALL INCLUDE ALL LABOUR, EQUIPMENT AND MATERIALS REQUIRED TO INSTALL THE EQUIPMENT SPECIFIED, INCLUDING ALL HARDWARE AND ADJUSTMENT REQUIRED. THE CONTRACTOR SHALL INSTALL EITHER A 16mm GRADE 5 BOLT OR A 19mm BOLT FOR THE MAST ARM SHOE.
10. TO BE USED FOR ARTERIAL ROADS



BACK VIEW



ALUMINUM SIGN BRACKET EXTRUSION & CASTING



ALL DIMENSIONS IN MILLIMETERS (mm) UNLESS OTHERWISE NOTED



BRAMPTON
Flower City

APPROVED:
2007/05/30

TYPICAL OVERSIZED STREET
NAME SIGN INSTALLATION

ALUMINUM SIGN BRACKET
EXTRUSION & CASTING

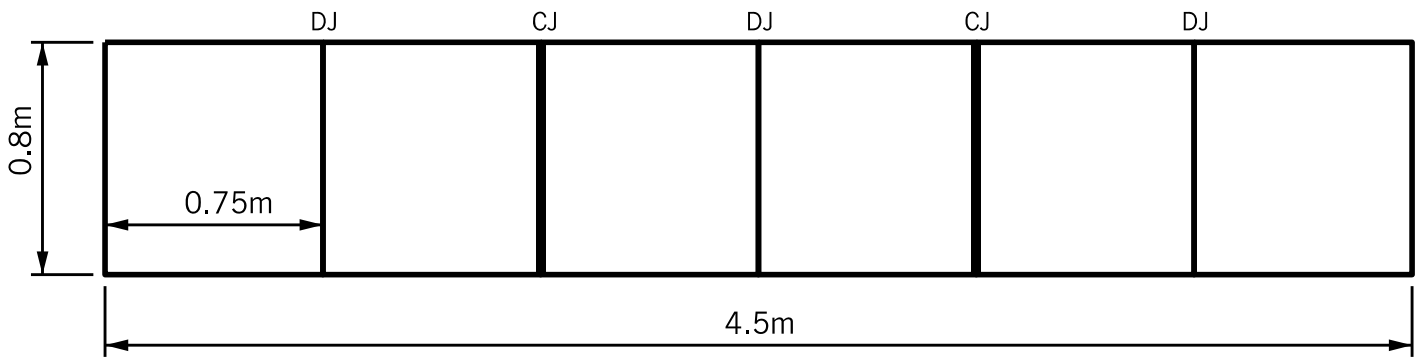
ORIGINAL:
2003/11/03

REV. 2

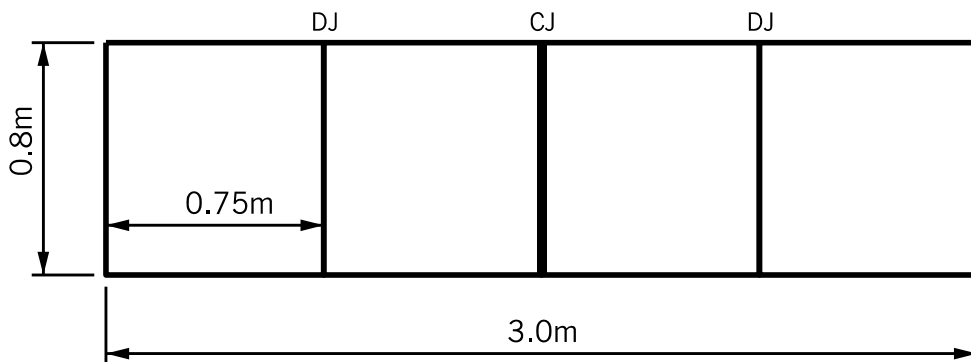
445

N.T.S

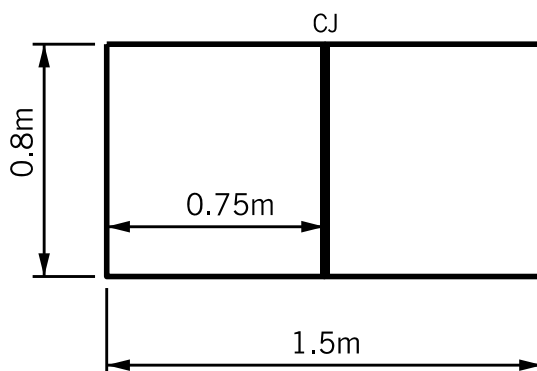
6-BOX CONCRETE PAD



4-BOX CONCRETE PAD



2-BOX CONCRETE PAD



CJ = CONTRACTION JOINT
 DJ = DUMMY JOINT
 (See O.P.S.D. 310.010)

- NOTES: CONCRETE PADS TO MEET LOCAL STANDARD (O.P.S.D. 310.010 FOR SIDEWALK CONSTRUCTION)
- CONCRETE PADS TO BE 30MPa CONCRETE WITH A THICKNESS OF 125mm
- ALL PADS TO BE SLOPED A MINIMUM OF 2% TOWARDS THE ROAD OR AS OTHERWISE DIRECTED
- THE SURFACE ELEVATION OF THE PAD MUST MATCH OR BE EQUAL TO THE SURFACE ELEVATION OF ADJACENT GRADE (SIDEWALK OR BOULEVARD)
- ALL JOINTS WILL BE CUT AS PER DRAWING
- O.P.S.D. - ONTARIO PROVINCIAL STANDARDS DRAWING



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APPROVED:
2003/11/03

REV. 0

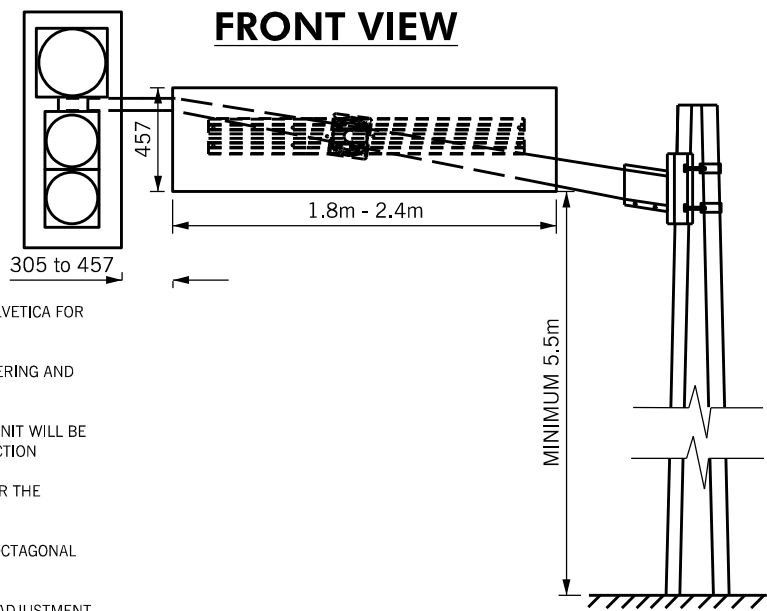
TYPICAL CONCRETE PAD

446

DESIGN SPECIFICATIONS
FOR NEWSPAPER BOXES

ORIGINAL:
2003/11/03

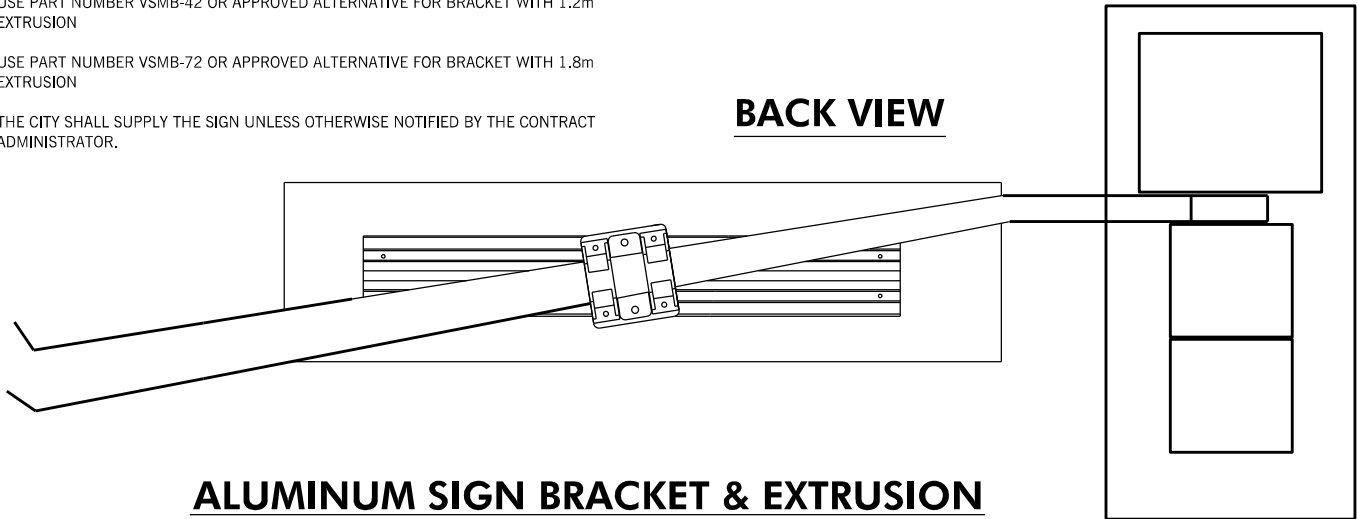
N.T.S



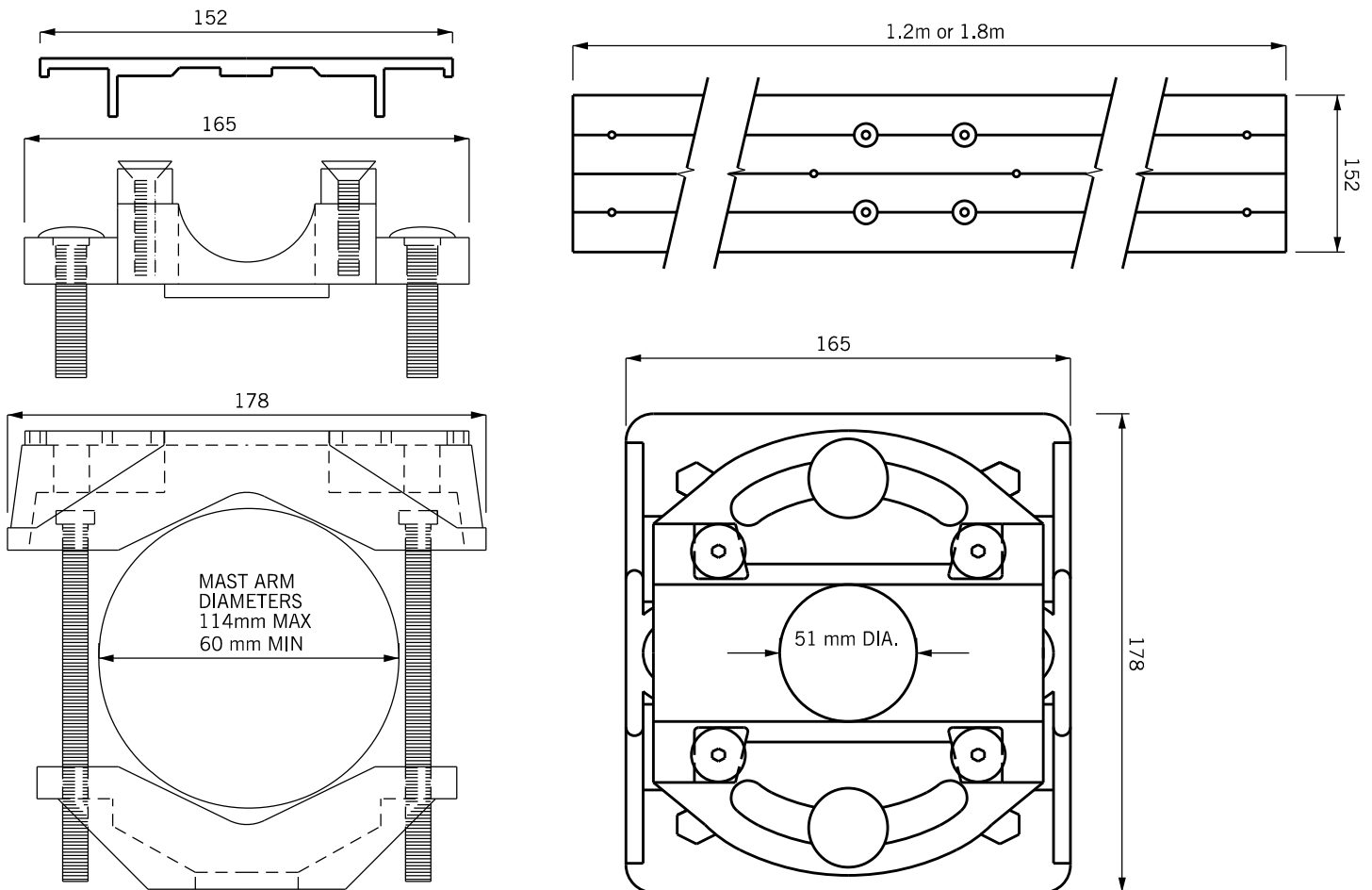
NOTES:

1. STREET NAME LETTERING MUST BE 305mm HELVETICA AND 152mm HELVETICA FOR THE STREET NAME SUFFIX
2. INTERSECTIONS WITH SPLIT NAMES MUST USE 152mm HELVETICA LETTERING AND ARROWS TO DESIGNATE THE STREET LOCATION
3. OVERSIZED STREET NAME SIGNS WITH THE ALUMINUM SIGN BRACKET UNIT WILL BE ASSEMBLED BY THE CITY OF BRAMPTON TRAFFIC OUTSIDE SERVICES SECTION
4. A BUCKET TRUCK OR A PLATFORM LIFE MACHINE WILL BE REQUIRED FOR THE INSTALLATION OF OVERSIZED STREET NAME SIGNS
5. OVERSIZED STREET NAME SIGNS MUST BE INSTALLED ON HEAVY DUTY OCTAGONAL SIGNAL POLES
6. THE ALUMINUM SIGN BRACKET ALLOWS FOR 15 DEGREES OF VERTICAL ADJUSTMENT
7. USE PART NUMBER VSMB-42 OR APPROVED ALTERNATIVE FOR BRACKET WITH 1.2m EXTRUSION
8. USE PART NUMBER VSMB-72 OR APPROVED ALTERNATIVE FOR BRACKET WITH 1.8m EXTRUSION
9. THE CITY SHALL SUPPLY THE SIGN UNLESS OTHERWISE NOTIFIED BY THE CONTRACT ADMINISTRATOR.

BACK VIEW



ALUMINUM SIGN BRACKET & EXTRUSION



ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



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Flower City

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ANGLE OF INTERSECTION
BETWEEN 70° - 90°

ORIGINAL:
1993/11/10

**MINIMUM SIGHTLINE
REQUIREMENTS
FOR 8.0m, 8.5m, 10.0m
ROADWAYS**

APPROVED:
1993/11/10

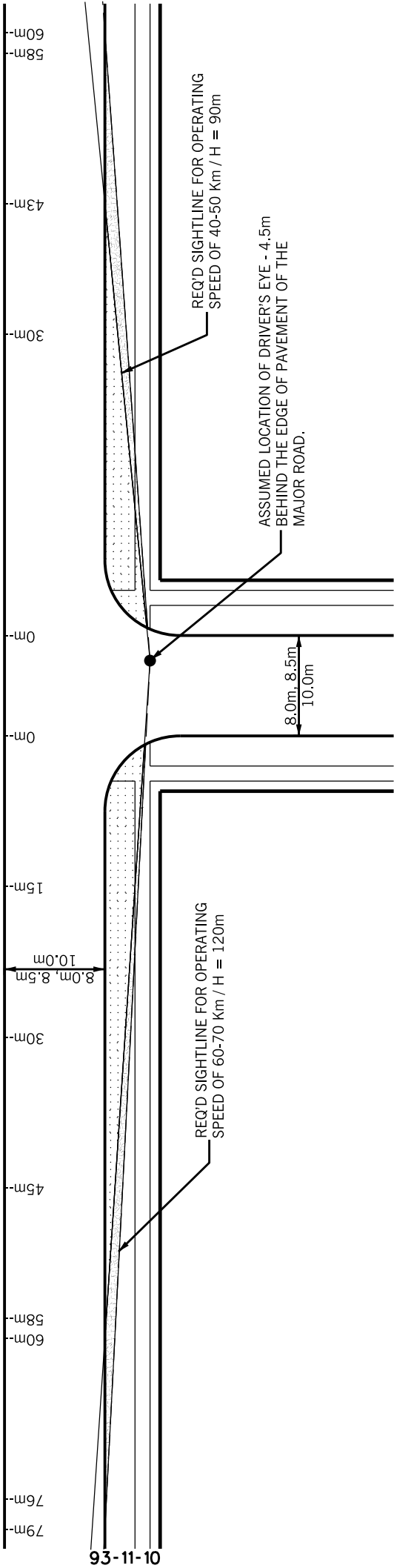
REV. 0

448

N.T.S

LEFT VIEW

RIGHT VIEW



NOTES:

1. SHADED AREAS REPRESENT CRITICAL SIGHT REQUIREMENTS & ARE NOT TO BE ENCROACHED UPON BY OBJECTS OF HEIGHT BETWEEN 914mm - 2.4m MEASURED FROM ROAD GRADE

2. [Dotted pattern] CORRESPONDS TO THE 90m SIGHT REQUIREMENT.

3. [Shaded pattern] ADDED TO THE ABOVE CORRESPONDS TO THE 120m SIGHT REQUIREMENT

4. THE REQUIRED OFFSET (P) FROM CURB LINE FOR ANY DISTANCE (E) MEASURED FROM THE INTERSECTION CAN BE CALCULATED BY: $P = S_x (T_x + D_x - E)$

4b. THE REQUIRED DISTANCE (E) MEASURED FROM THE INTERSECTION FOR ANY OFFSET (P) CAN BE CALCULATED BY: $E = T_x + D_x - P/S_x$

S_1 = SLOPE OF LEFT VIEW 90m SIGHT LINE = 0.08
 S_2 = SLOPE OF LEFT VIEW 120m SIGHT LINE = 0.06
 S_3 = SLOPE OF RIGHT VIEW 90m SIGHT LINE = 0.11
 S_4 = SLOPE OF RIGHT VIEW 120m SIGHT LINE = 0.08

T_1 = 58m
 T_2 = 79m
 T_3 = 43m
 T_4 = 58m

D_1 = 6.7m
 D_2 = 6.7m
 D_3 = 1.8m
 D_4 = 1.8m

WHERE: P = OFFSET FROM CURB LINE.
 E = DISTANCE OF PROPOSED INSTALLATION FROM 0m POSITION.
 S_x = SLOPE OF APPROPRIATE SIGHT LINE.
 T_x = DISTANCE FROM THE 0m POSITION TO THE INTERSECTION POINT OF THE APPROPRIATE SIGHTLINE & CURB LINE.
 D_x = CORRECTION FACTOR BETWEEN 0m POSITION & DRIVERS EYE.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



BRAMPTON
Flower City

APPROVED: 1995/11/10
MINIMUM SIGHTLINE REQUIREMENTS FOR 14.5m ROADWAY INTERSECTING ANY ROADWAY 14.5m OR LESS
 ANGLE OF INTERSECTION BETWEEN 70 - 90
 ORIGINAL: 1995/11/10

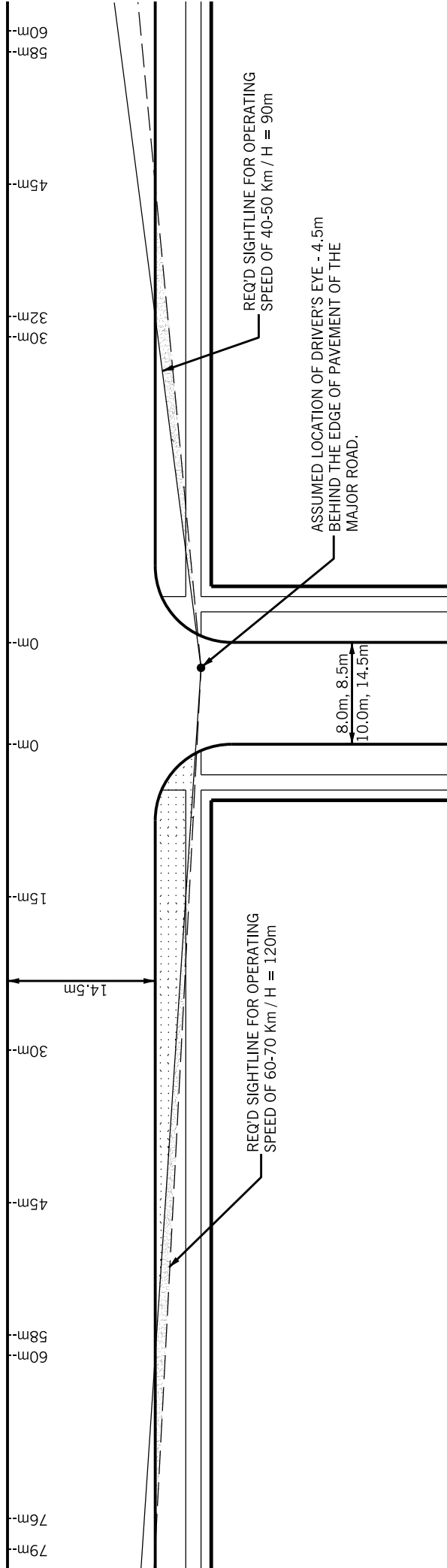
REV. 0

449

N.T.S

LEFT VIEW

RIGHT VIEW



NOTES:

1. SHADED AREAS REPRESENT CRITICAL SIGHT REQUIREMENTS & ARE NOT TO BE ENCROACHED UPON BY OBJECTS OF HEIGHT BETWEEN 914mm - 2.4m MEASURED FROM ROAD GRADE

2. [Dotted pattern] CORRESPONDS TO THE 90m SIGHT REQUIREMENT.

3. [Shaded pattern] ADDED TO THE ABOVE CORRESPONDS TO THE 120m SIGHT REQUIREMENT

4. THE REQUIRED OFFSET (P) FROM CURB LINE FOR ANY DISTANCE (E) MEASURED FROM THE INTERSECTION CAN BE CALCULATED BY: $P = S_x (T_x + D_x - E)$

4b. THE REQUIRED DISTANCE (E) MEASURED FROM THE INTERSECTION FOR ANY OFFSET (P) CAN BE CALCULATED BY: $E = T_x + D_x - P/S_x$

S_1 = SLOPE OF LEFT VIEW 90m SIGHT LINE = 0.08
 S_2 = SLOPE OF LEFT VIEW 120m SIGHT LINE = 0.05
 S_3 = SLOPE OF RIGHT VIEW 90m SIGHT LINE = 0.14
 S_4 = SLOPE OF RIGHT VIEW 120m SIGHT LINE = 0.10

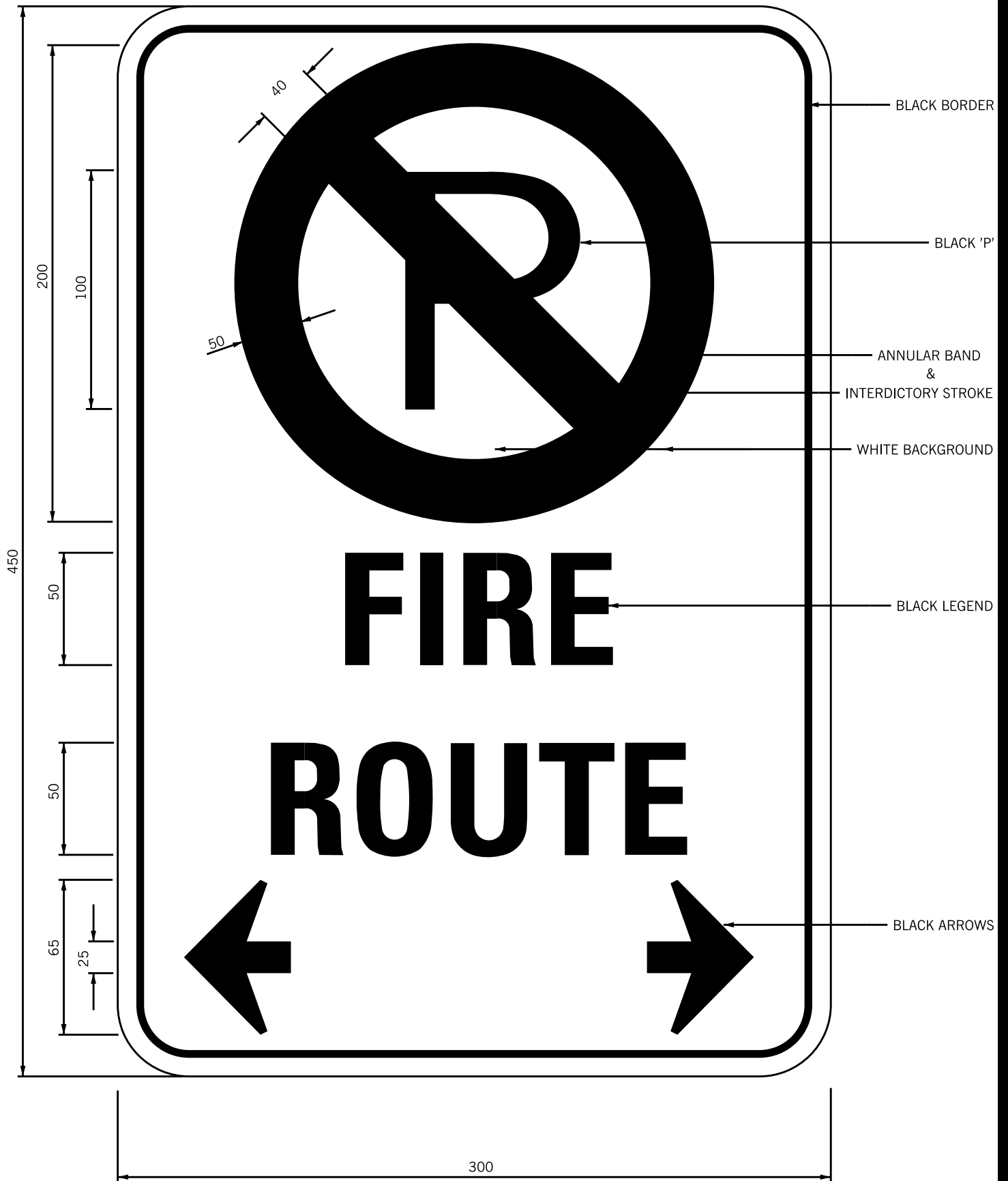
T_1 = 58m
 T_2 = 79m
 T_3 = 32m
 T_4 = 45m

D_1 = 7.9m
 D_2 = 7.9m
 D_3 = 2.1m
 D_4 = 2.1m

ANGLE OF INTERSECTION BETWEEN 70° - 90°

WHERE: P = OFFSET FROM CURB LINE.
 E = DISTANCE OF PROPOSED INSTALLATION FROM 0m POSITION.
 S_x = SLOPE OF APPROPRIATE SIGHT LINE.
 T_x = DISTANCE FROM THE 0m POSITION TO THE INTERSECTION POINT OF THE APPROPRIATE SIGHTLINE & CURB LINE.
 D_x = CORRECTION FACTOR BETWEEN 0m POSITION & DRIVERS EYE.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



NOTES:

1. SIGN TO BE USED IN ACCORDANCE WITH THE CURRENT FIRE ROUTE BY-LAW.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



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APPROVED:
1994/03/01

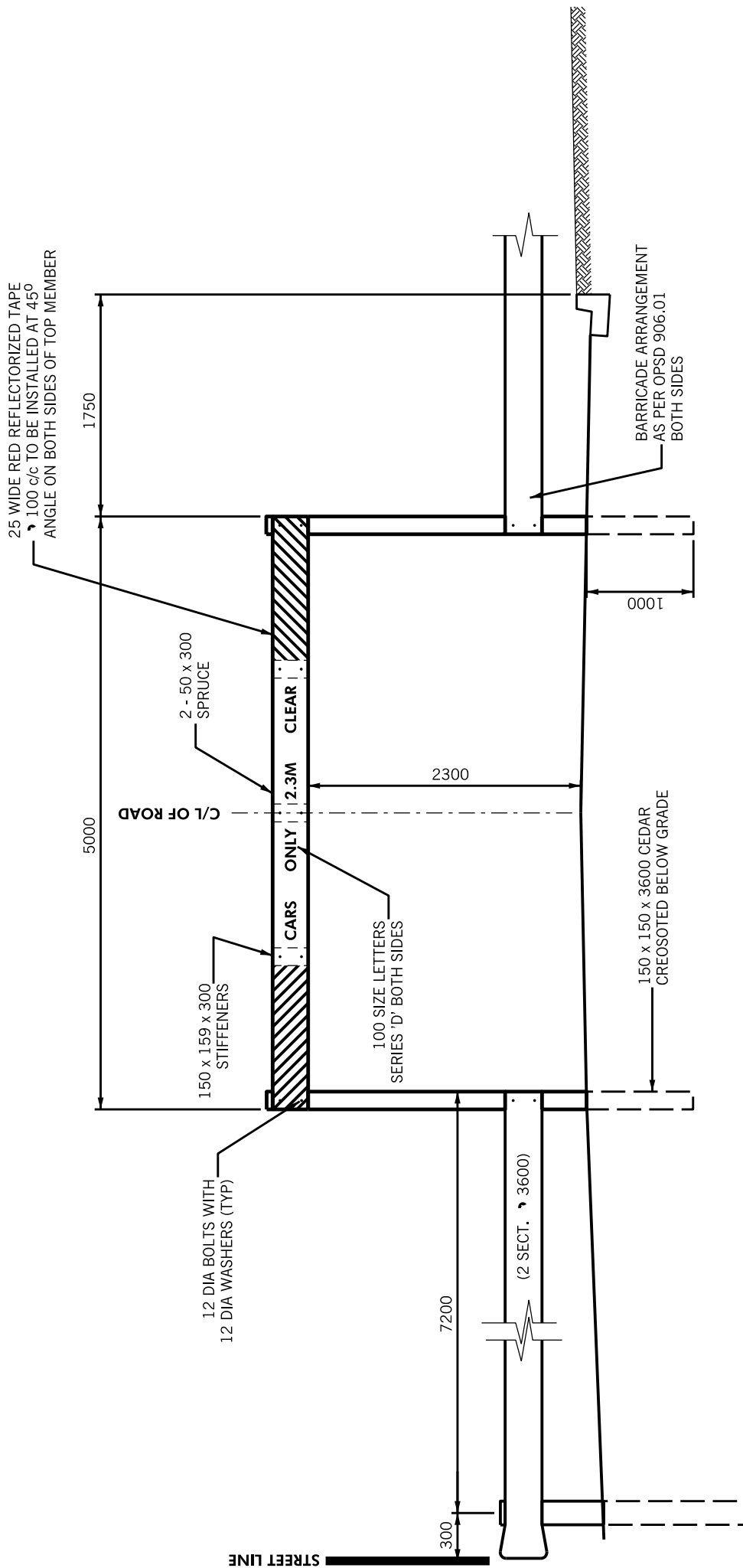
STANDARD
FIRE ROUTE SIGN

ORIGINAL:
1993/11/10

REV. 2

450

N.T.S



ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

NOTES:

1. GUIDE RAIL & POSTS TO BE GIVEN TWO COATS OF HIGHWAY YELLOW PAINT OVER AN APPROVED PRIMER.
2. STAKE-OUT BY UTILITY FIRMS REQUIRED PRIOR TO INSTALLATION OF THE BARRICADE.
3. ALL NEW LUMBER TO BE TREATED WITH TWO COATS OF CLEAR WOOD PRESERVATIVE.



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TEMPORARY
RESTRICTED
TRUCK BARRICADE

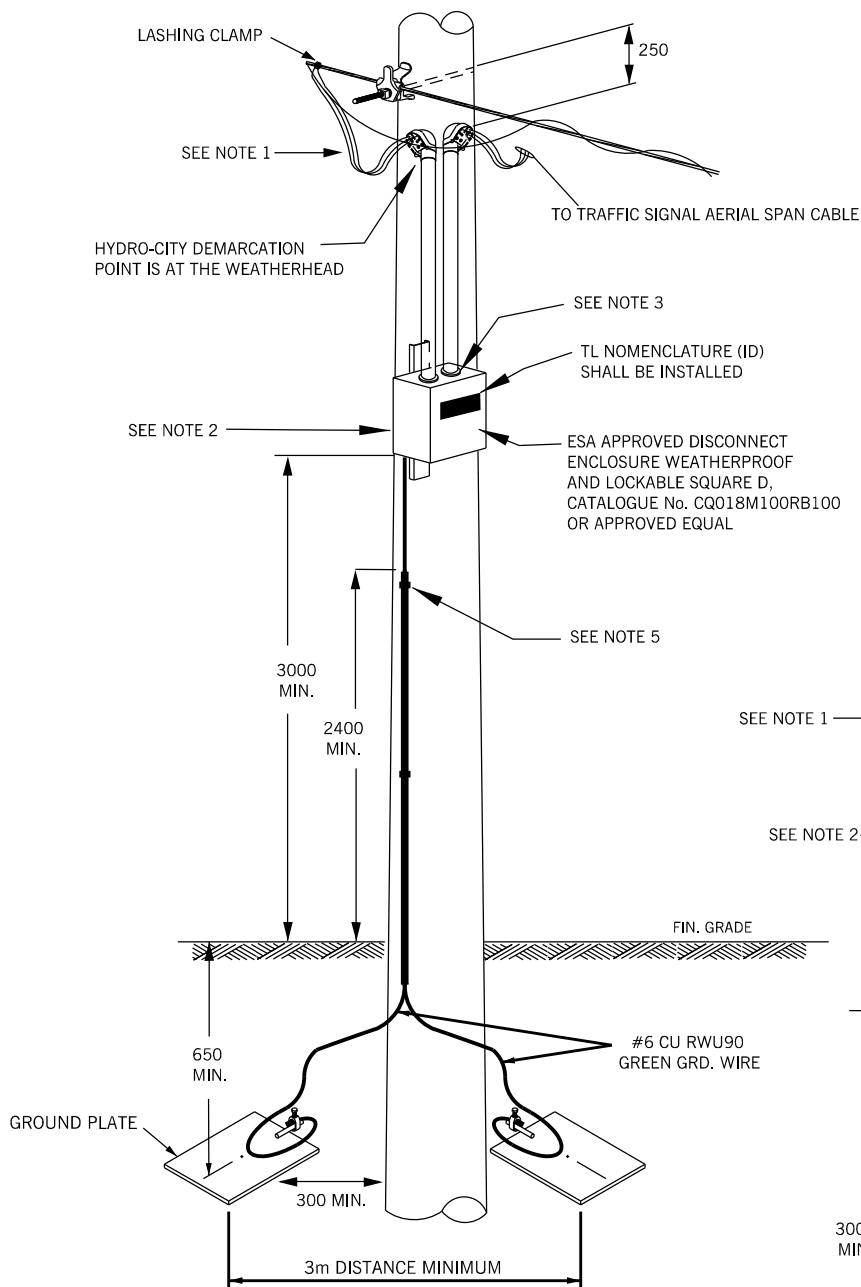
APPROVED:
1993/03/09

ORIGINAL:
1993/03/09

REV. 0

451

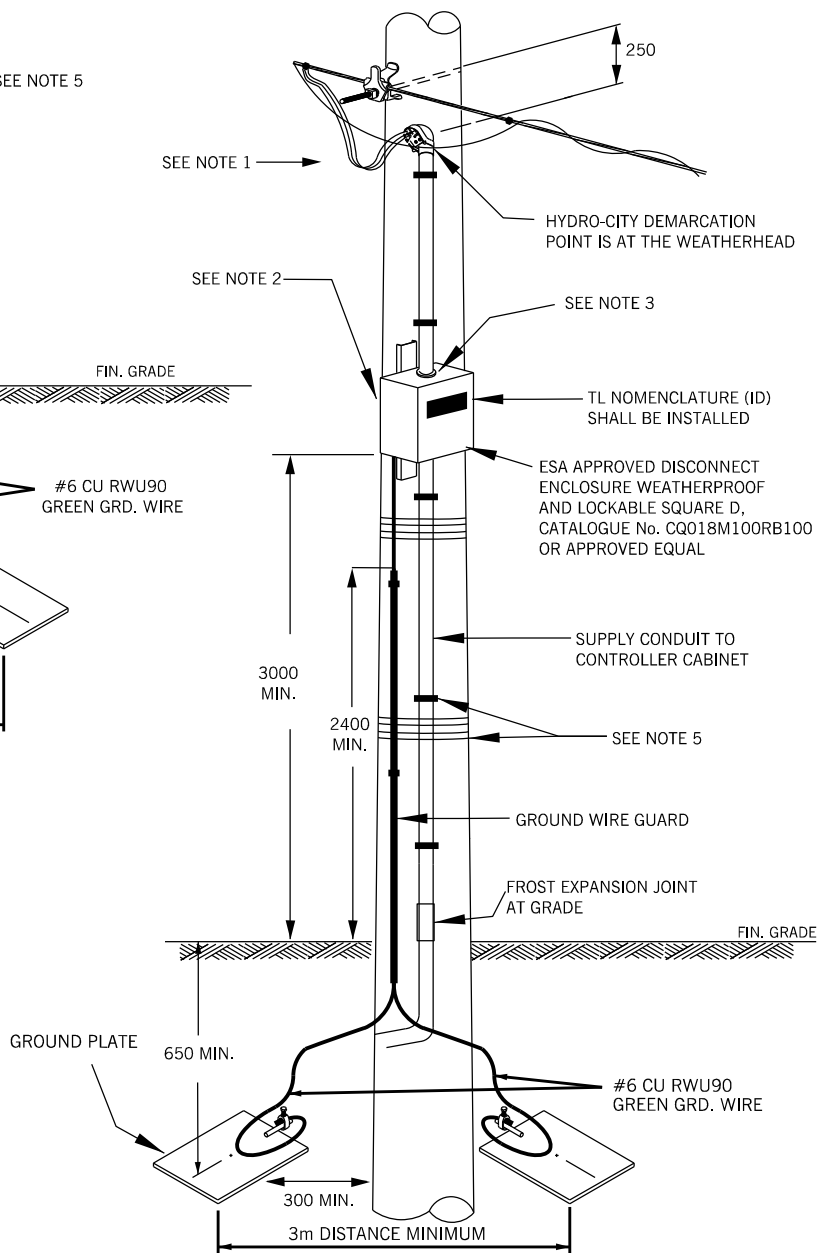
N.T.S



DETAIL 'A'
OVERHEAD TO OVERHEAD
SEE NOTE 4

NOTE:

1. CU CONDUCTOR MUST ALWAYS BE POSITIONED BELOW OR UNDERNEATH AL CONDUCTOR AT POINT OF CONNECTION.
2. NO BOLT HOLES ON HOB POLES TO BE COVERED BY ADDED HARDWARE
3. CONDUITS ENTERING FROM THE TOP OF THE ENCLOSURE SHALL BE APPLIED WITH ELECTRICAL DUCT SEALANT PUTTY.
4. AERIAL TEMPORARY TRAFFIC CONTROL SIGNAL SHALL BE AS PER OPSD 2540.01
5. WOOD POLES SHALL USE CLIPS SPACED 1.5m APART TO ATTACH THE CONDUITS ONTO THE POLE. CONCRETE POLES SHALL USE 16mm STAINLESS STEEL STRAPPING, 4.5kN ULTIMATE STRENGTH, SPACED 1.5m APART TO ATTACH THE CONDUITS ONTO THE POLE.



DETAIL 'B'
OVERHEAD TO UNDERGROUND

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



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APPROVED:
APRIL 2014

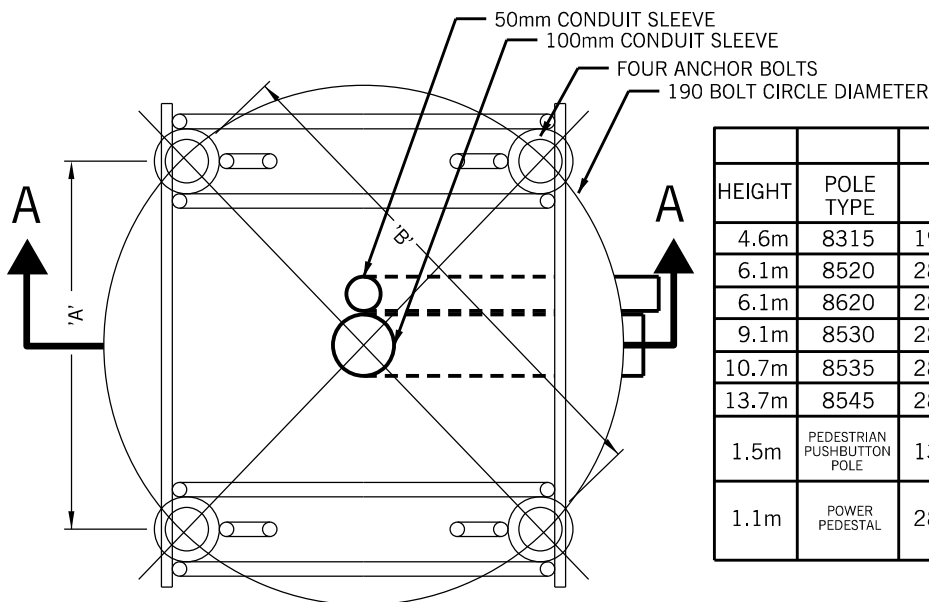
REV. 1

TRAFFIC SIGNALS
ON POLE POWER SUPPLY

452

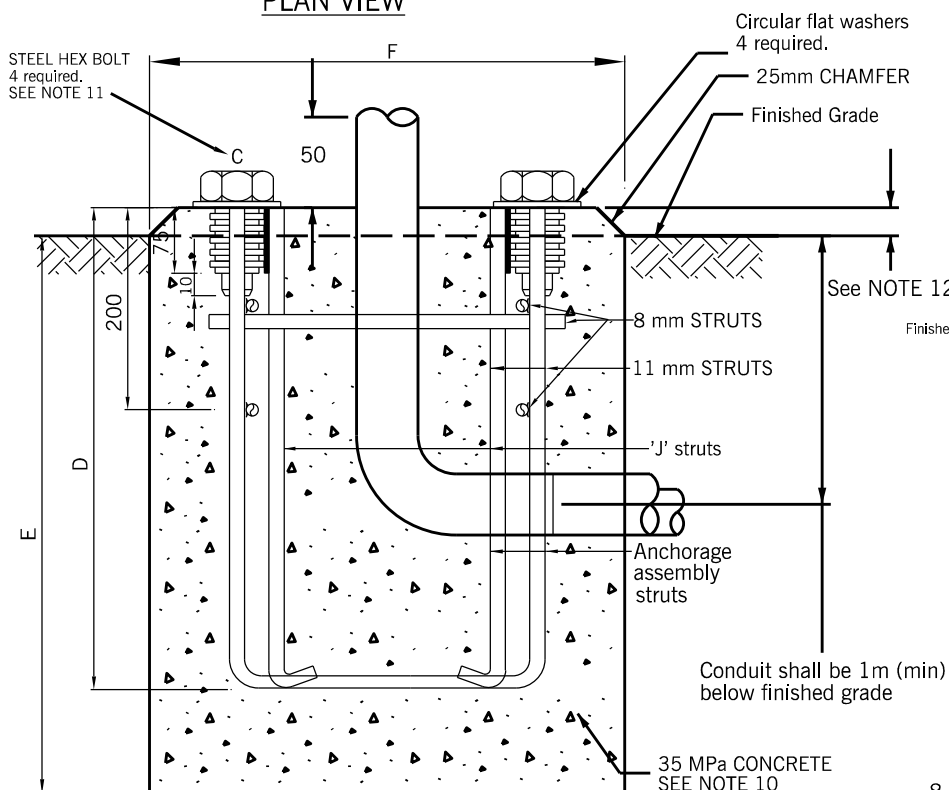
ORIGINAL:
TRAFFIC DETAILS - SERIES 400 APRIL 2014

N.T.S

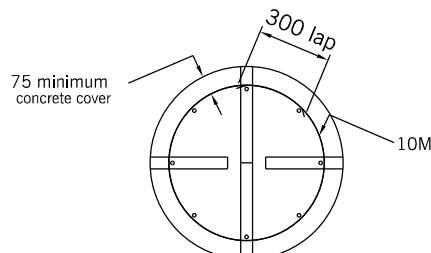


HEIGHT	POLE TYPE	DIMENSIONS (in mm)						REINFORCING STEEL REQUIRED
		A	B	C	D	E	F	
4.6m	8315	197	254	22	457	2200	600	YES
6.1m	8520	287	406	32	457	2200	660	YES
6.1m	8620	287	406	32	457	2200	760	YES
9.1m	8530	287	406	32	457	2600	760	YES
10.7m	8535	287	406	32	457	2750	760	YES
13.7m	8545	287	406	32	457	3000	760	YES
1.5m	PEDESTRIAN PUSHBUTTON POLE	135	190	19	305	1500	400	NO
1.1m	POWER PEDESTAL	287	406	25	457	1500	760	NO

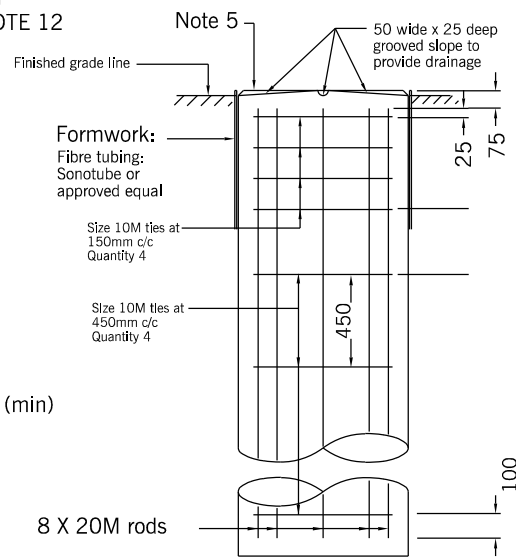
PLAN VIEW



SECTION 'A' - 'A'



PLAN VIEW



ELEVATION REINFORCEMENT

NOTES:

- EXCAVATION TO BE DONE BY AUGERING OR A NON DESTRUCTIVE METHOD.
- ONE 100mm (FOR TRAFFIC CABLES) AND ONE 50mm (FOR STREET LIGHT CABLES) RIGID PVC 90° BEND IS REQUIRED IN EACH POLE FOOTING, WITH THE EXCEPTION OF 8315 POLES WHICH SHALL USE ONE 75mm CONDUIT, ORIENTED TOWARDS THE NEAREST HANDWELL (UNLESS OTHERWISE NOTED IN THE CONTRACT DRAWINGS OR DIRECTED BY THE CONTRACT ADMINISTRATOR).
- THE POWER PEDESTAL SHALL USE CONDUITS AS PER CITY STANDARD 438.
- THE PEDESTRIAN PUSHBUTTON POLE SHALL USE CONDUITS AS PER CITY STANDARD 455.
- THE DIRECTION OF EACH CONDUIT SHALL BE IDENTIFIED ON ALL CONCRETE FOOTINGS WITH AN "X".
- APPROVED CAPPING SHALL BE USED ON ALL UNUSED CONDUITS FOR FUTURE USE.
- PRESET ANCHOR AND 19mm PLYWOOD SETTING TEMPLATE TO BE SET PRIOR TO COMPLETION OF CONCRETE VIBRATION. PLYWOOD TO BE REMOVED PRIOR TO FINAL SET OF FINISHED CONCRETE.
- TOP OF FOUNDATION TO BE FINISHED TRULY LEVEL.
- PRESET ANCHOR TO BE INSTALLED PARALLEL TO ROADWAY.
- CONCRETE SHALL BE VIBRATED TO ELIMINATE VOIDS, HONEYCOMBING AND ENTRAPPED AIR. CONCRETE SHALL BE CHLORIDE PENETRATION RESISTANT CLASS C-1 (MINIMUM) AS PER C.S.A. STANDARD A23.1.
- BOLTS SHALL BE FACTORY SET IN FERRULE WITH PRE-APPLIED ANTI-SEIZE COMPOUND.
- THE TOP OF THE CONCRETE FOOTING SHALL BE 50mm ABOVE FINISHED GRADE.
- PLACE No. 10 ANNEALED FISH WIRE OR EQUAL STRENGTH POLYLINE THROUGH EACH CONDUIT.
- ALL CONDUITS SHALL BE HIGH DENSITY RIGID P.V.C. (SEPTER OR APPROVED ALTERNATE) SHALL MEET OR EXCEED C.S.A. STANDARD C22.2 No. 211.2
- FIBRE TUBING SHALL BE REMOVED AFTER FINAL CONCRETE HAS SET.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



TRAFFIC SIGNALS
ANCHORAGE ASSEMBLY FOR
CONCRETE FOOTING

TRAFFIC DETAILS - SERIES 400

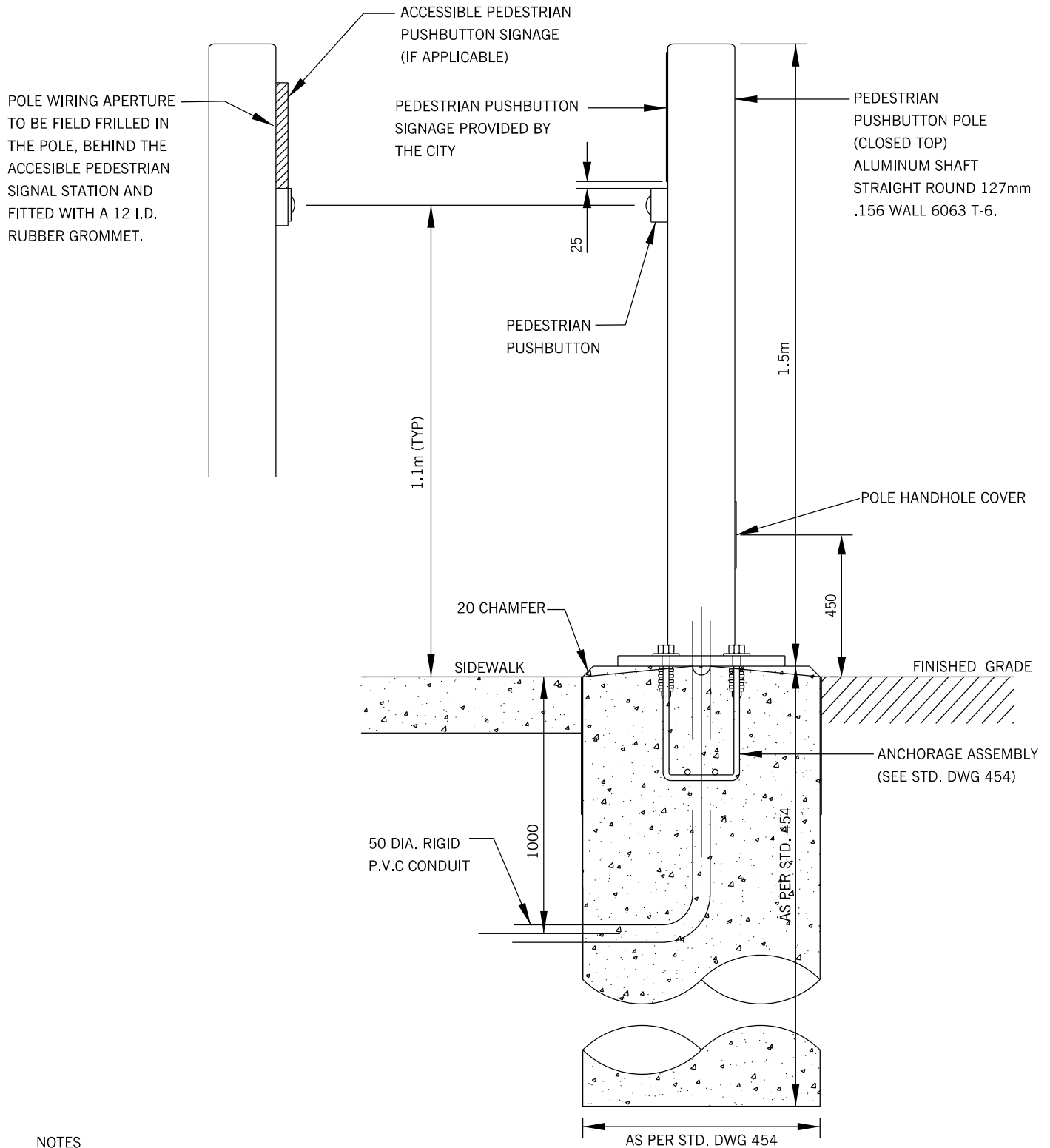
APPROVED:
APRIL 2014

ORIGINAL:
MAY 2006

REV. 3

454

N.T.S



NOTES

1. FOR ANCHORAGE ASSEMBLY AND CONCRETE FOOTING DETAILS SEE STD. DWG. 454
2. TOP OF THE FOUNDATION SHALL BE TRULY LEVEL.
3. CONDUIT SHALL BE 50mm RIGID P.V.C. CONDUIT WITH 90° BEND.
4. THE CONTRACTOR SHALL REVIEW THE CONTRACT DRAWINGS FOR THE ORIENTATION AND LOCATION OF THE PEDESTRIAN PUSHBUTTON POLE TO THE APPROPRIATE DIRECTION OF THE PEDESTRIAN CROSSWALK.
5. THE POLE'S HANDHOLE SHALL FACE AWAY FROM THE DIRECTION OF TRAFFIC UNLESS OTHERWISE NOTED IN THE CONTRACT DRAWINGS OR AS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.

ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED



BRAMPTON
Flower City

TRAFFIC SIGNALS
1.5m PEDESTRIAN
PUSHBUTTON POLE

TRAFFIC DETAILS - SERIES 400

APPROVED:
APRIL 2014

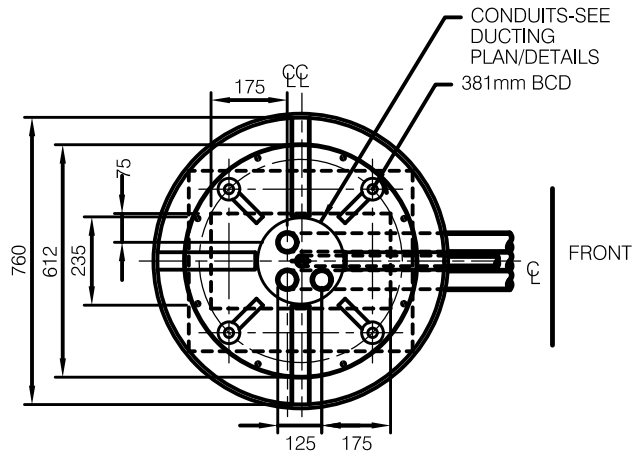
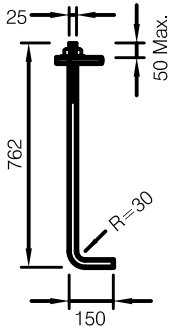
ORIGINAL:
APRIL 2014

REV. 1

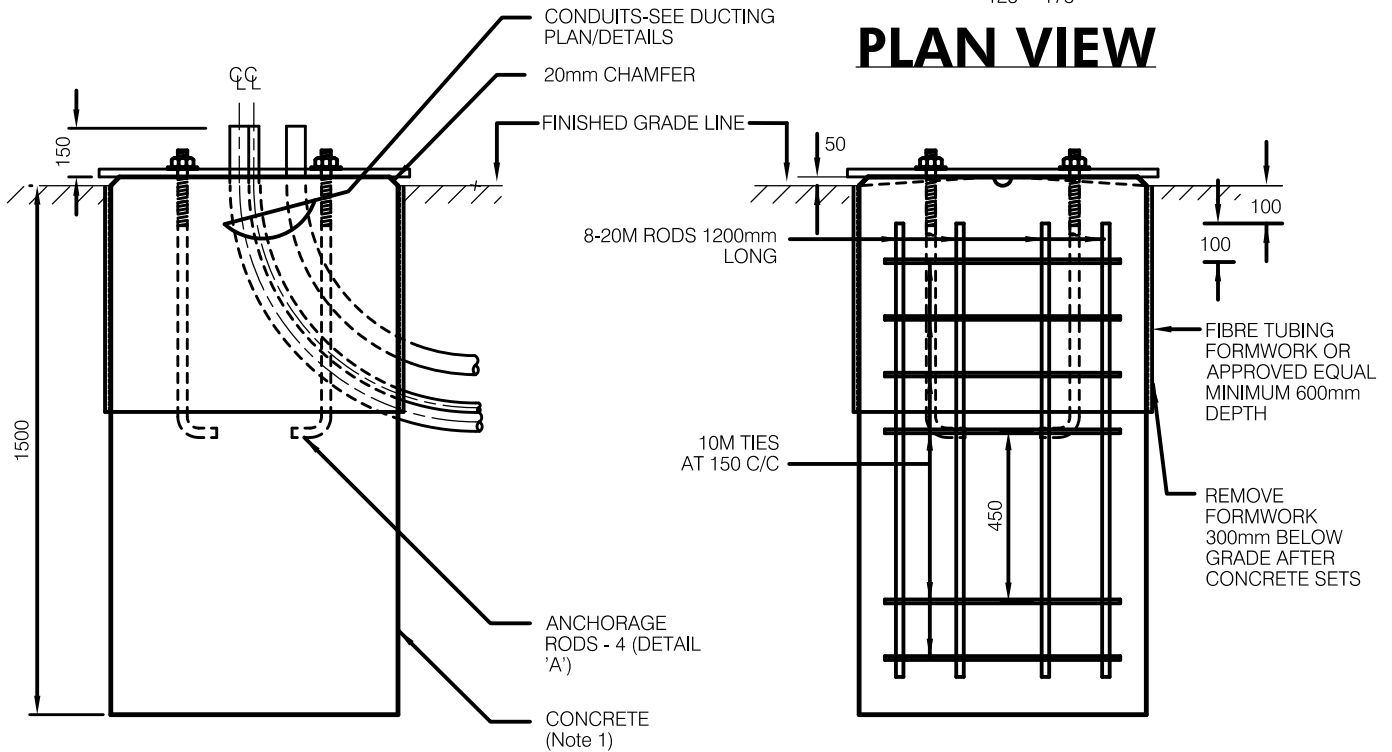
455

N.T.S

DETAIL 'A'
ANCHOR BOLT



PLAN VIEW



ELEVATION REINFORCEMENT

ELEVATION DIMENSIONS

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

REINFORCEMENTS ARE SHOWN IN SOLID LINES FOR CLARITY

TYPE (SENTINEL POLE & EQUIPMENT)	PEDESTAL HEIGHT mm	FOUNDATION		ROD LENGTH mm	CAGE			ID DIA. 'C' mm	LAP 'D' mm	ANCHOR RODS BCD mm
		'A' mm	'B' mm		NO. OF TIES					
					AT 100 c/c	AT 150 c/c	AT 450 c/c			
ZUM POWER SUPPLY PEDESTAL	1780	760	1500	1200	1	4	1	612	235	381

NOTES:

1. CONCRETE SHALL BE ACCORDING TO OPSS MUNI 1350 WITH PERFORMANCE REQUIREMENTS IN CONFORMANCE WITH CSA A23.1 OF EXPOSURE CLASS C-1 AND A NOMINAL MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 35 Mpa. THE CONCRETE SHALL BE POURED AS ONE MONOLITHIC SLAB AND FORMED, PLACED, VIBRATED, FINISHED, CURED AND PROTECTED IN ACCORDANCE WITH OPSS MUNI 904.
2. DIRECTION OF CONDUIT SLEEVE ENTRY TO BE MARKED WITH INDENTATION ON TOP OF FOOTING.
3. ANCHOR BOLTS ARE TO BE INSTALLED IN CONFORMANCE WITH CITY STANDARD DRAWING NUMBER 433.
4. EXCAVATION SHALL BE BY AUGER OR A NON-DESTRUCTIVE METHOD.
5. THE DIRECTION OF EACH CONDUIT SHALL BE IDENTIFIED ON THE POWER PEDESTAL BASE WITH AN "X".
6. CONCRETE SHALL BE VIBRATED TO ELIMINATE HONEYCOMBING AND ATTAIN 28 DAYS STRENGTH OF 35 MPa.
7. SEE DUCT ARRANGEMENTS FOR ZUM/POWER PEDESTAL FOR CONDUIT PLACEMENT INFORMATION (STD. DWG # 493).



APPROVED:
DEC 2015
**REINFORCING & ANCHOR
ARRANGEMENT FOR ZUM
POWER PEDESTAL**

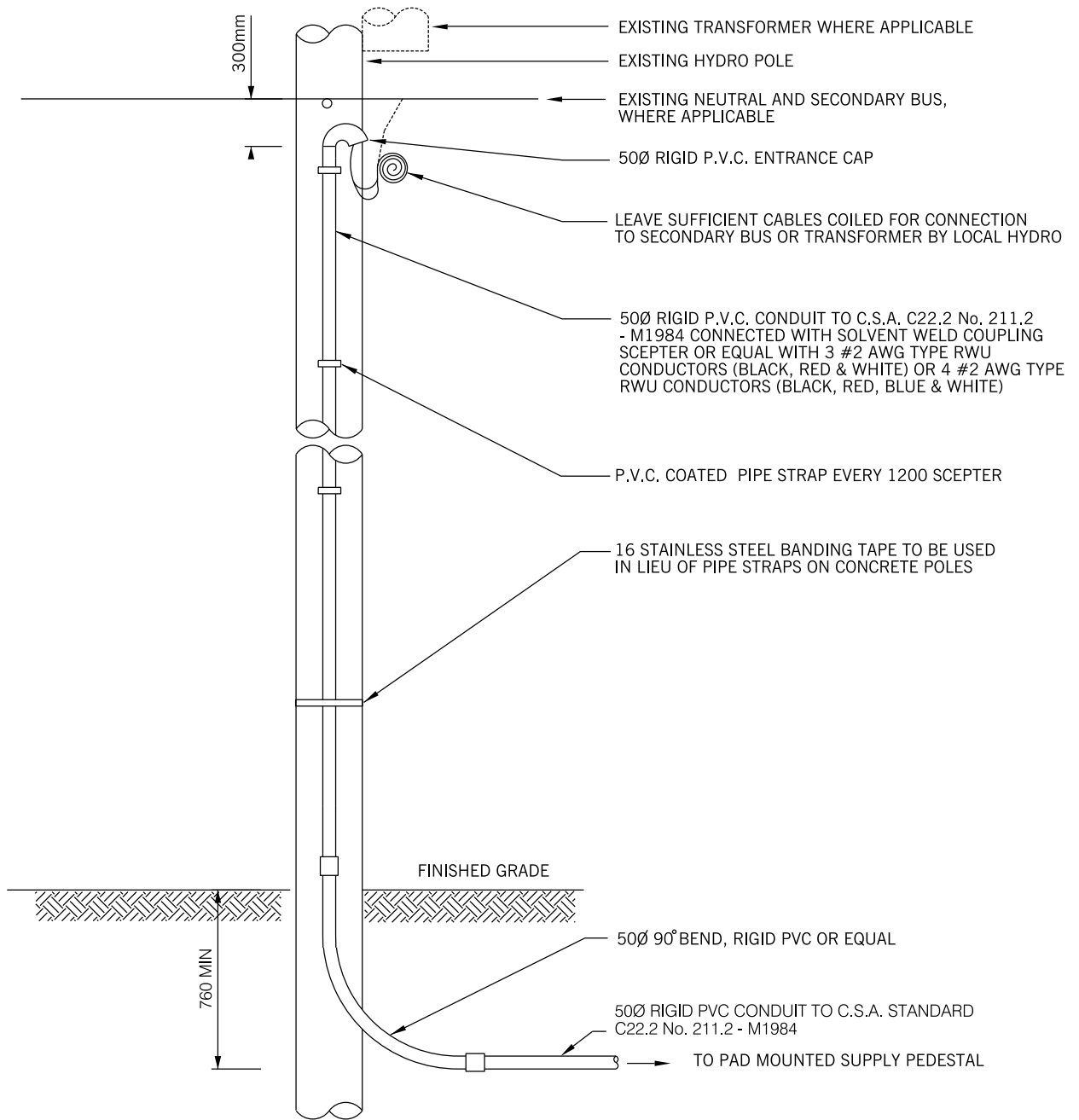
GENERAL - SERIES 400

ORIGINAL:
AUG 2015

REV. 1

490

N.T.S



ALL DIMENSIONS ARE IN MILLIMETERS
UNLESS OTHERWISE NOTED.

NOTES:

- A. WORK ON HYDRO POLE TO BE COORDINATED WITH THE LOCAL HYDRO AUTHORITY. PROVIDE NOTICE TO THE LOCAL HYDRO ONCE THE NEW SERVICE HAS PASSED THE ONTARIO HYDRO INSPECTION.
- B. MOUNTING DETAILS SHOWN ARE TYPICAL ONLY AND SHALL BE ADAPTED TO SUIT SITE CONDITIONS.



BRAMPTON
Flower City

ISOLATED METER
APPLICATION FOR ZUM
SECONDARY
SUPPLY FACILITY
GENERAL - SERIES 400

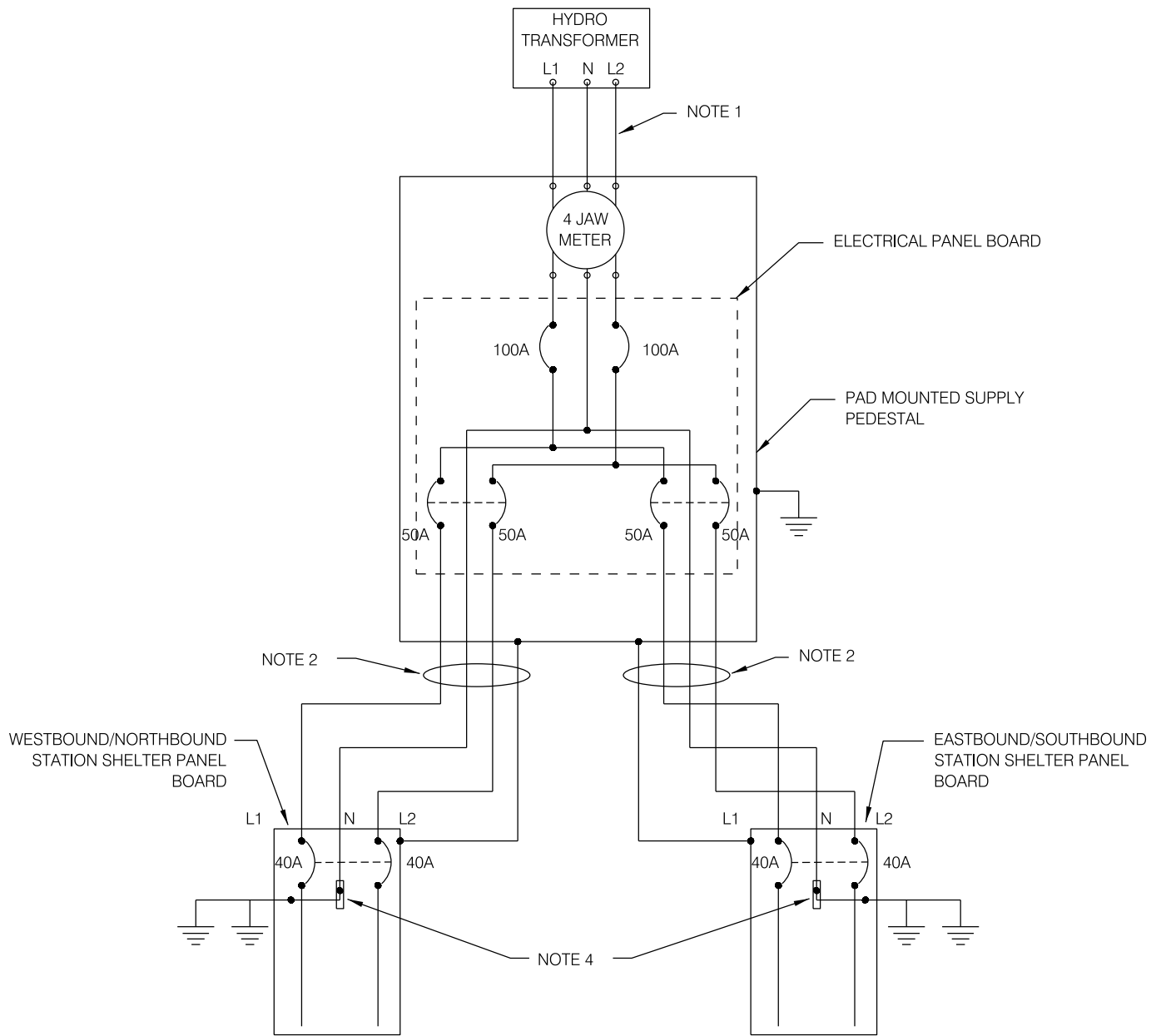
APPROVED:
DEC 2015

ORIGINAL:
AUG 2015

REV. 1

491

N.T.S



NOTES:

1. TRANSFORMER SUPPLY PEDESTAL. FEED CABLE TO BE 3 #2 COPPER (RED, BLACK & WHITE MINIMUM SIZE)
2. STATION SHELTER. FEED CABLE TO BE 3 #6 COPPER (RED, BLACK & WHITE MINIMUM SIZE) & #6 AWG GROUND
3. GROUND WIRE TO BE #6 AWG COPPER
4. NEUTRAL GROUND BONDING LOCATION

ALL DIMENSIONS ARE IN MILLIMETERS
UNLESS OTHERWISE NOTED.



BRAMPTON
Flower City

POWER SUPPLY
ARRANGEMENTS
(SINGLE PHASE)
GENERAL - SERIES 400

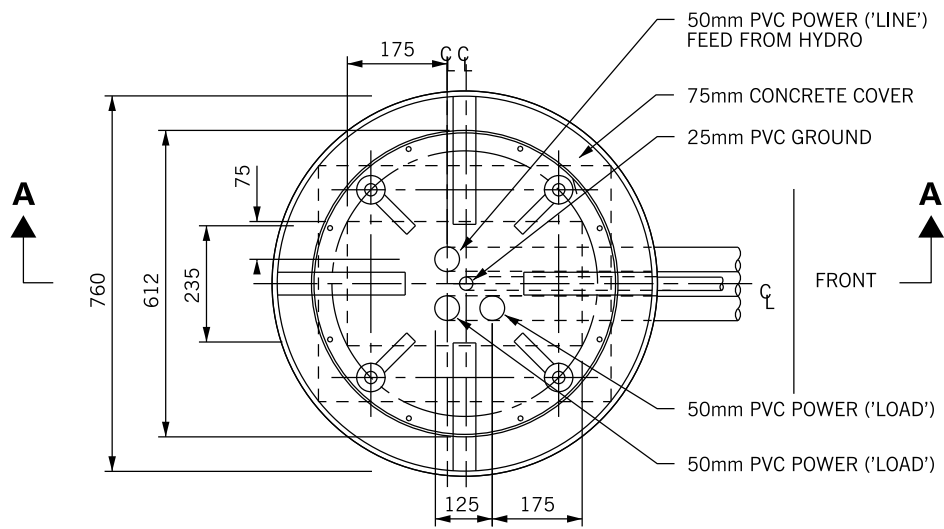
APPROVED:
DEC 2015

ORIGINAL:
AUG 2015

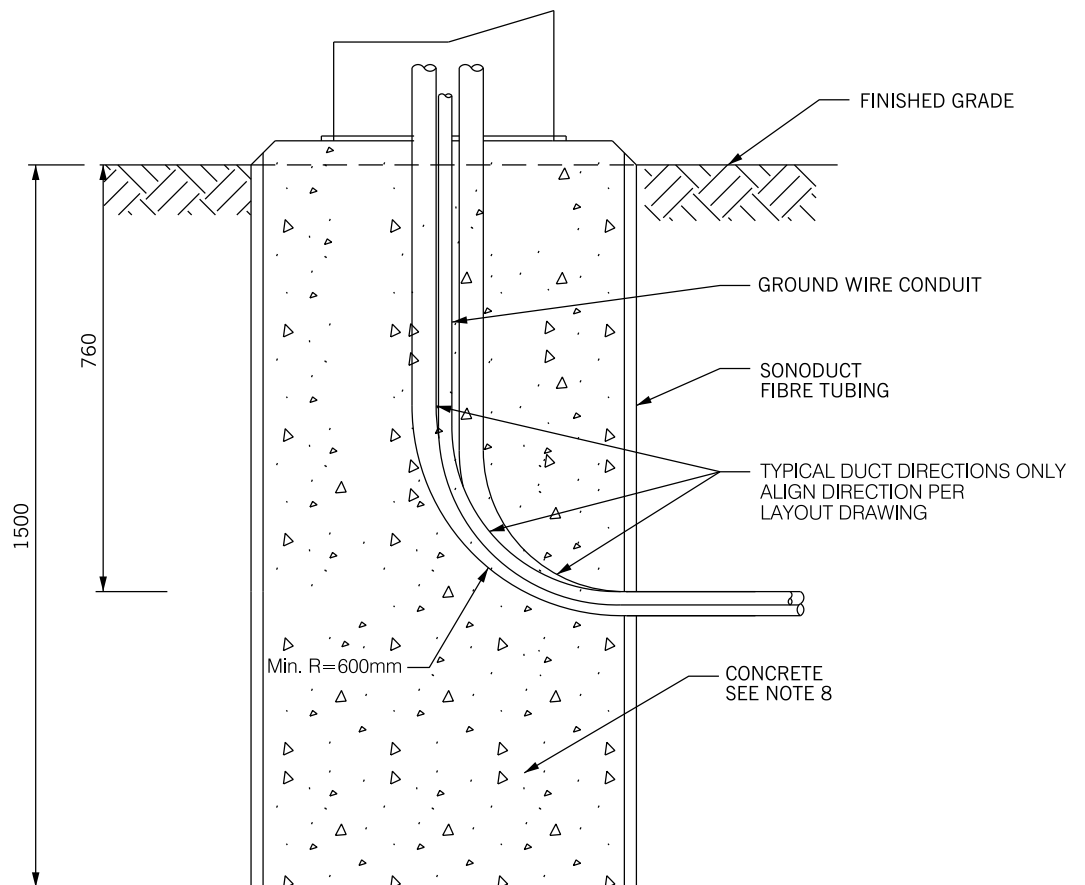
REV. 1

492

N.T.S



PLAN VIEW



SECTION 'A' - 'A'

ALL DIMENSIONS ARE IN MILLIMETERS
UNLESS OTHERWISE NOTED.

NOTES:

1. 50 mm DIA RIGID PVC CONDUIT, C.S.A. C22.2 NO 211.2 FOR INCOMING SERVICE DUCT, TO BE RUN (DIRECT BURIED) TO THE UNDERGROUND HYDRO ONE BRAMPTON "POINT OF TIE ON" AS SHOWN ON THE LAYOUT DRAWINGS.
2. 50 mm DIA RIGID PVC CONDUITS, C.S.A. C22.2 NO 211.2 FOR OUTGOING LOAD DUCTS, TO BE RUN (DIRECT BURIED) TO THE NEAREST HANDWELL OR ELECTRICAL MANHOLE SHOWN ON THE LAYOUT DRAWINGS.
3. ALL CONDUIT ENTERING POWER PEDESTAL SHALL BE SEALED WITH DUCT SEAL.
4. FOR DETAILS REGARDING CONCRETE, REINFORCEMENT & ANCHOR ARRANGEMENTS, REFER TO STD. DWG # 490.



BRAMPTON
Flower City

APPROVED:
DEC 2015

DUCT ARRANGEMENT
FOR ZUM/POWER PEDESTAL

ORIGINAL:
AUG 2015

GENERAL - SERIES 400

REV. 1

493

N.T.S



BRAMPTON
Flower City

GENERAL - SERIES 400

METERED ZUM/
POWER SUPPLY

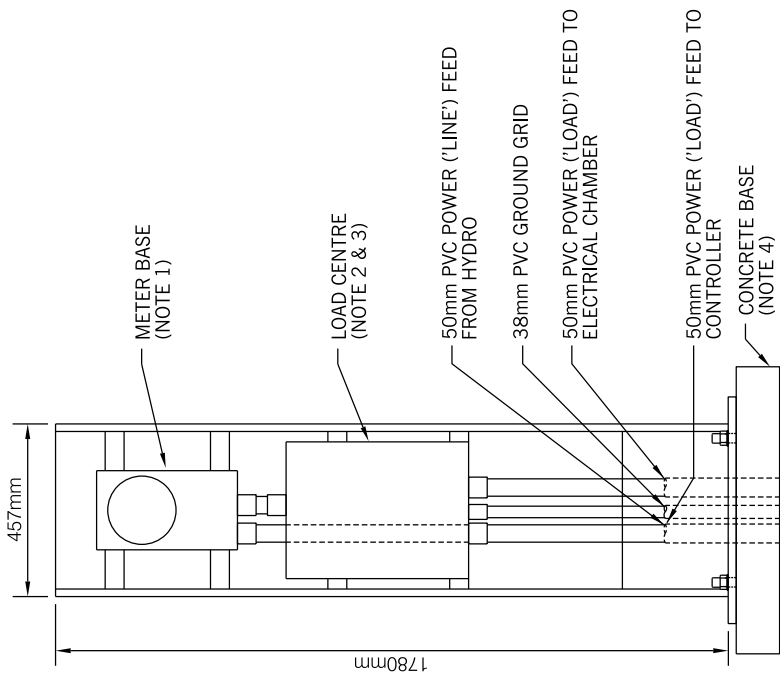
APPROVED:
DEC 2015

ORIGINAL:
AUG 2015

REV. 1

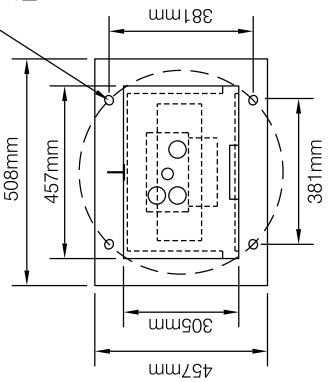
494

N.T.S

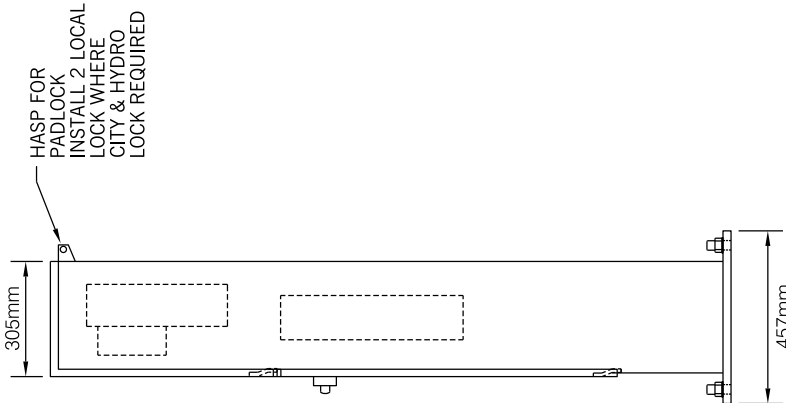


FRONT VIEW

HOLES FOR 25mm DIA. BOLTS AND WASHERS (381mm BCD)



PLAN VIEW



SIDE VIEW

SENTINEL POLE & TRAFFIC EQUIPMENT		
MODEL	INSTALLATION	TYPE OF LOCK
SINGLE PHASE MODEL	ZUM BUS SHELTER	HASP/PADLOCK FOR METER BASE COVER

ALL DIMENSION IN MILLIMETRES UNLESS OTHERWISE NOTED

NOTES:

1. MICROELECTRIC METER BASE TO BE SUPPLIED WITH PEDESTAL.
2. SQUARE "D" 100 AMP RATED, 8 CIRCUIT, 100 AMP RATED LOAD CENTRE (CATALOGUE # C0018M100RB100) C/W 2 POLE, 100 AMP MAIN BREAKER TO BE SUPPLIED WITH PEDESTAL.
3. SIZE AND NUMBER OF BRANCH BREAKERS IN 2-DOUBLE POLE 50A OR AS SPECIFIED IN CONTRACT.
4. PEDESTAL TO BE MOUNTED ON CONCRETE FOOTING - SEE STD. DWG #493.