

STANDARD SQUARE SIEVE OPENING
GRADING DISTRIBUTION CURVE
 (TNZ M/4 : 1995 GRADING LIMITS)

A. PROPORTION OF BROKEN ROCK:

THE PERCENTAGE BY WEIGHT OF MATERIAL IN EACH OF THE FRACTIONS BETWEEN THE 19mm AND 4.75mm SIEVES HAVING TWO OR MORE BROKEN FACES SHALL NOT BE LESS THAN 70%

B. CRUSHING RESISTANCE:

THE CRUSHING RESISTANCE SHALL NOT BE LESS THAN 130kN

C. WEATHERING RESISTANCE:

THE AGGREGATE SHALL FALL INTO ONE OF THE FOLLOWING WEATHERING RESISTANCE CATEGORIES:- AA AB AC BA BB CA.

D. SAND EQUIVALENT:

THE SAND EQUIVALENT SHALL NOT BE LESS THAN 40 WHEN THE AGGREGATE IS TESTED ACCORDING TO NZS 4407: 1991.

**NELSON
CITY
COUNCIL**

20mm BASECOURSE AGGREGATE

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

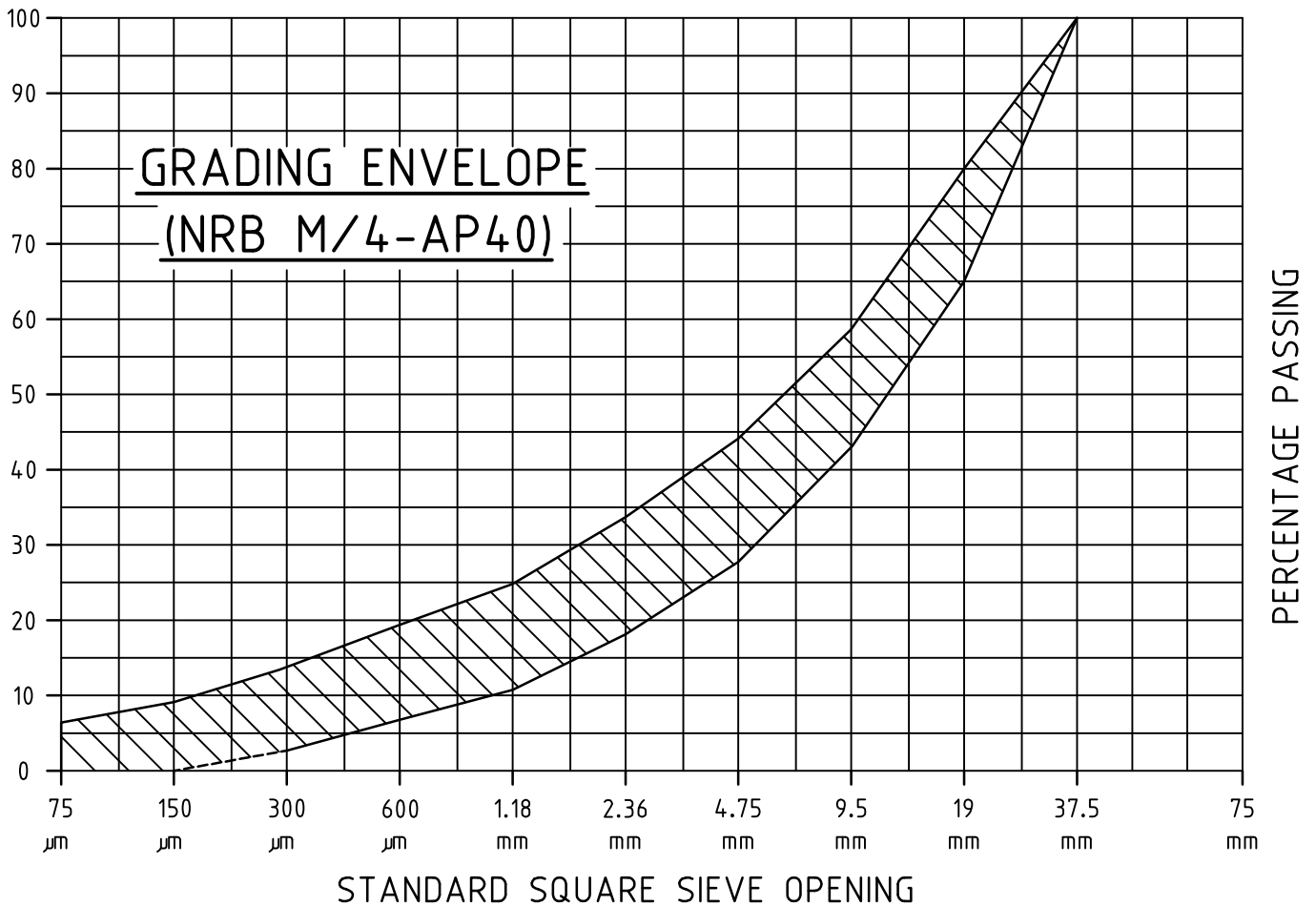
Jan. 2003

DATE

PLAN No.

21/300

SHEET 1



A. PROPORTION OF BROKEN ROCK:

THE PERCENTAGE BY WEIGHT OF MATERIAL IN EACH OF THE FOUR FRACTIONS BETWEEN THE 37.5mm AND 4.5mm SIEVES HAVING TWO OR MORE BROKEN FACES SHALL NOT BE LESS THAN 70%

B. CRUSHING RESISTANCE:

THE CRUSHING RESISTANCE SHALL NOT BE LESS THAN 130kN

C. WEATHERING RESISTANCE:

THE AGGREGATE SHALL FALL INTO ONE OF THE FOLLOWING WEATHERING RESISTANCE CATEGORIES:- AA AB AC BA BB CA.

D. SAND EQUIVALENT:

THE SAND EQUIVALENT SHALL NOT BE LESS THAN 40 WHEN THE AGGREGATE IS TESTED ACCORDING TO NZS 4407: 1991.

**NELSON
CITY
COUNCIL**

40mm BASECOURSE AGGREGATE

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

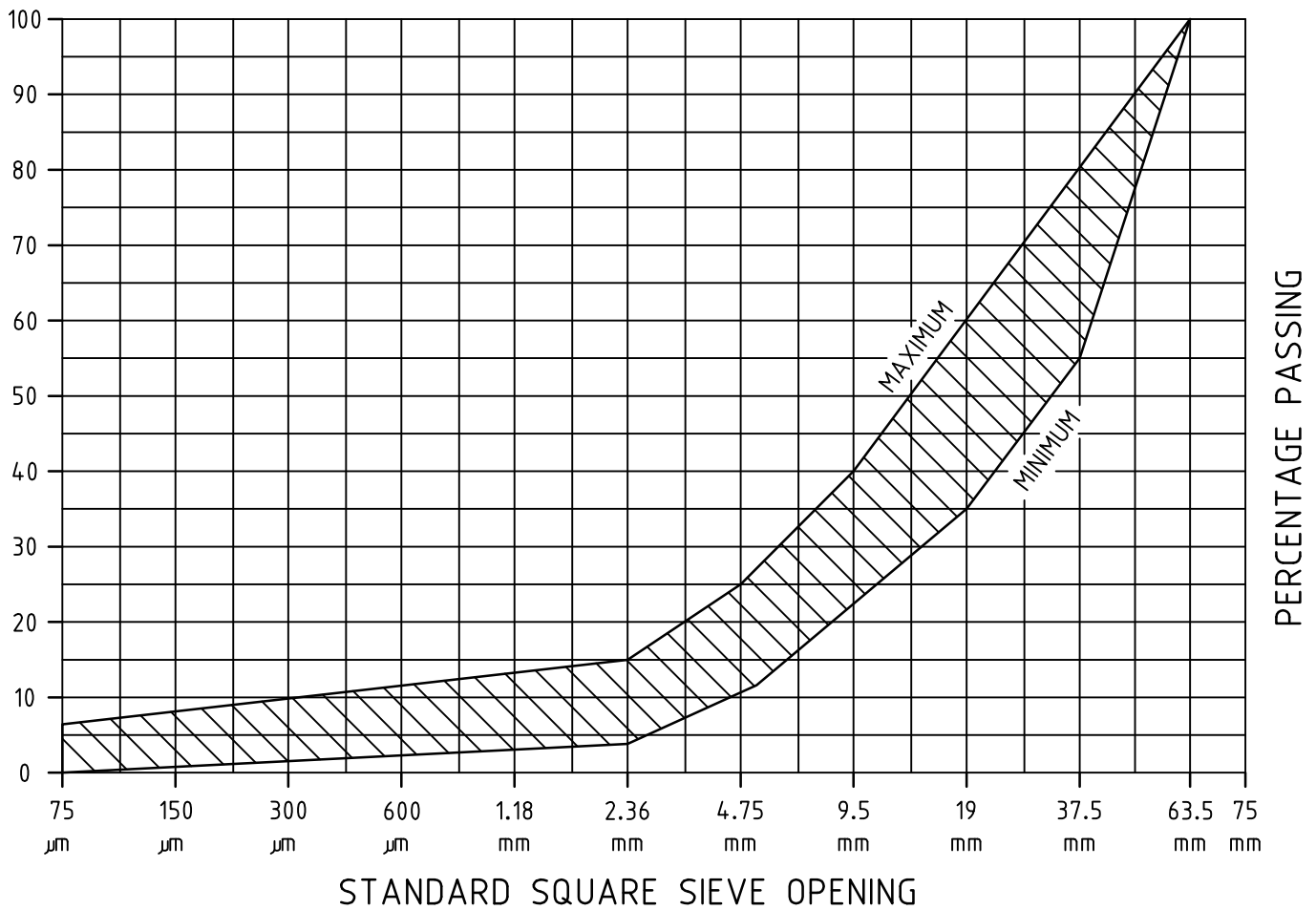
Jan. 2003

DATE

PLAN No.

21/300

SHEET 2



A. PROPORTION OF BROKEN ROCK:

THE PERCENTAGE BY WEIGHT OF MATERIAL IN EACH OF THE FOUR FRACTIONS BETWEEN THE 37.5mm AND 4.5mm SIEVES HAVING TWO OR MORE BROKEN FACES SHALL NOT BE LESS THAN 70%

B. CRUSHING RESISTANCE:

THE CRUSHING RESISTANCE SHALL NOT BE LESS THAN 110kN

C. WEATHERING RESISTANCE:

THE AGGREGATE SHALL FALL INTO ONE OF THE FOLLOWING WEATHERING RESISTANCE CATEGORIES:- AA AB AC BA BB CA.

D. SAND EQUIVALENT:

THE SAND EQUIVALENT SHALL NOT BE LESS THAN 40 WHEN THE AGGREGATE IS TESTED ACCORDING TO NZS 4407: 1991.

**NELSON
CITY
COUNCIL**

**65mm SUB-BASECOURSE
AGGREGATE**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

Jan. 2003

DATE

PLAN No.

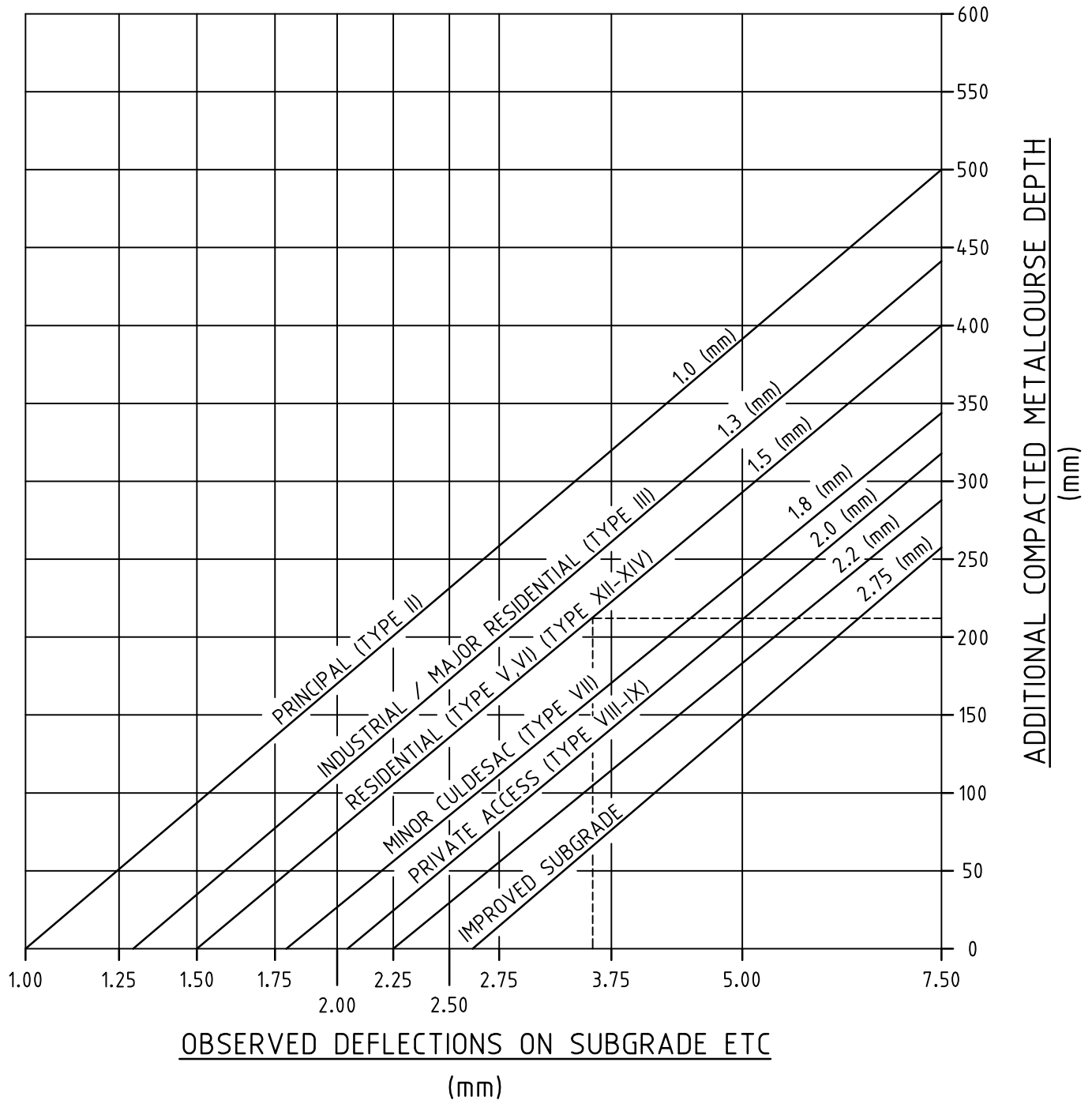
21/300

SHEET 3

EXAMPLE: (SHOWN IN DOTTED LINE)

RESIDENTIAL ROAD

OBSERVED DEFLECTIONS 3.6mm EXTRA DEPTH OF METALCOURSE REQUIRED = 210mm



**NELSON
CITY
COUNCIL**

DESIGN GRAPH FOR FLEXIBLE PAVEMENTS BENKLEMAN BEAM DEFLECTIONS

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

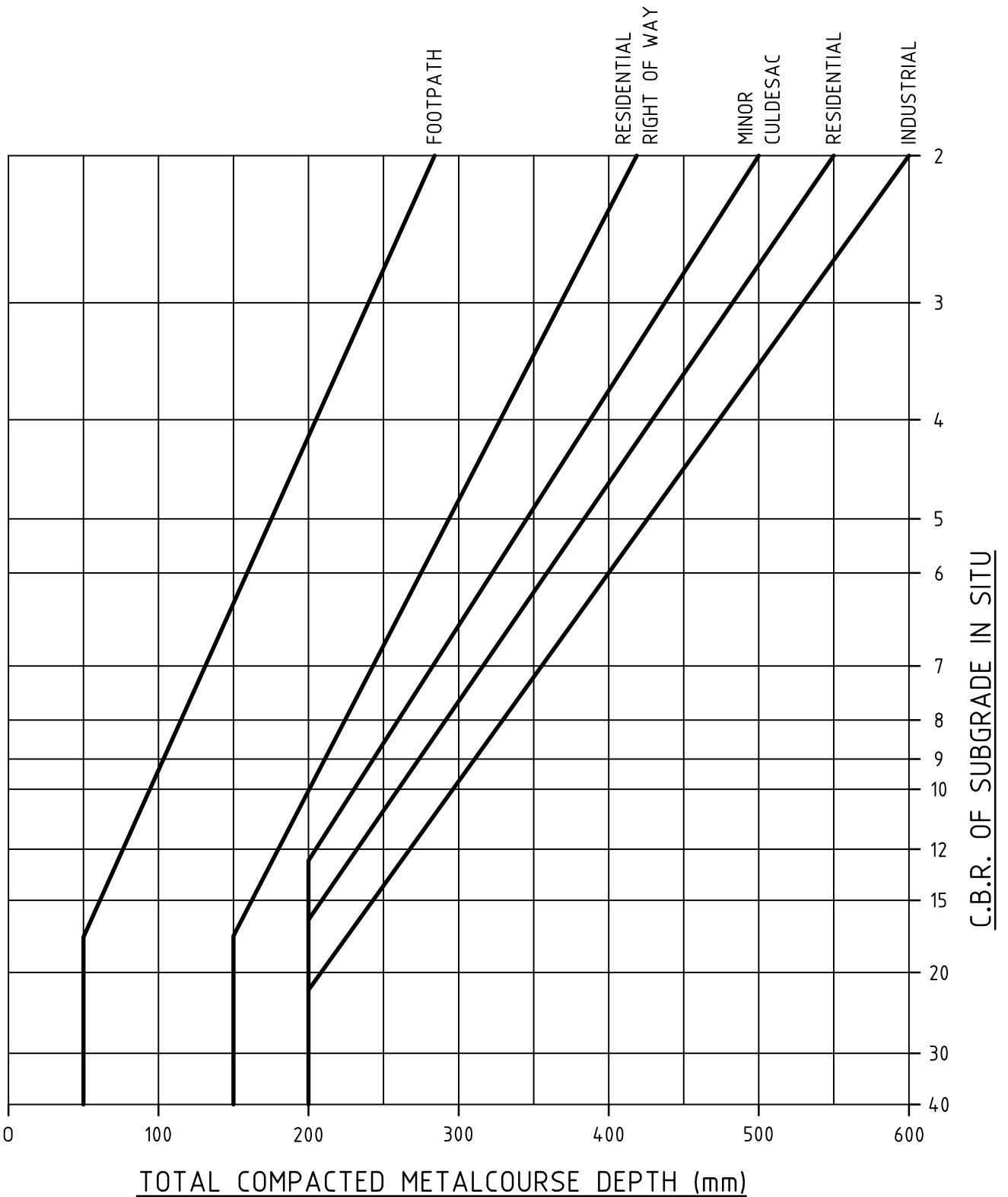
Jan. 2003

DATE

PLAN No.

21/301

SHEET 1



**NELSON
CITY
COUNCIL**

**DESIGN GRAPH FOR FLEXIBLE
PAVEMENTS
CBR METHOD**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

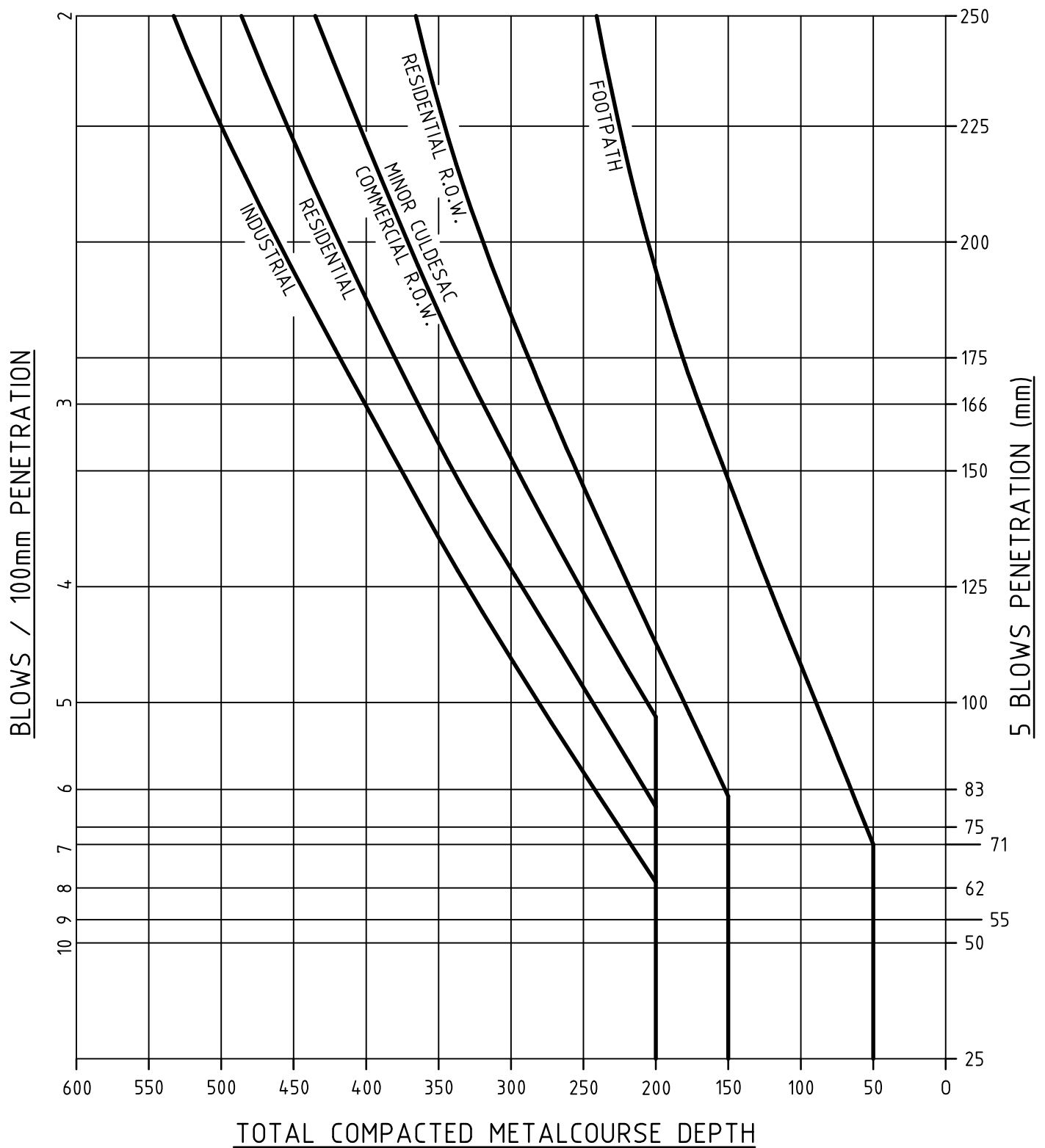
Jan. 2003

DATE

PLAN No.

21/301

SHEET 2



**NELSON
CITY
COUNCIL**

**DESIGN GRAPH FOR FLEXIBLE PAVEMENTS
SCALA DYNAMIC CONE PENETROMETER**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

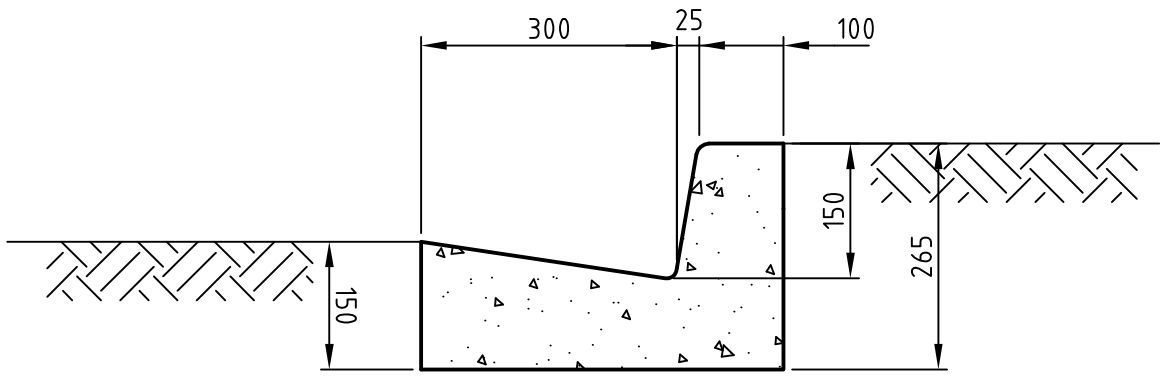
Jan. 2003

DATE

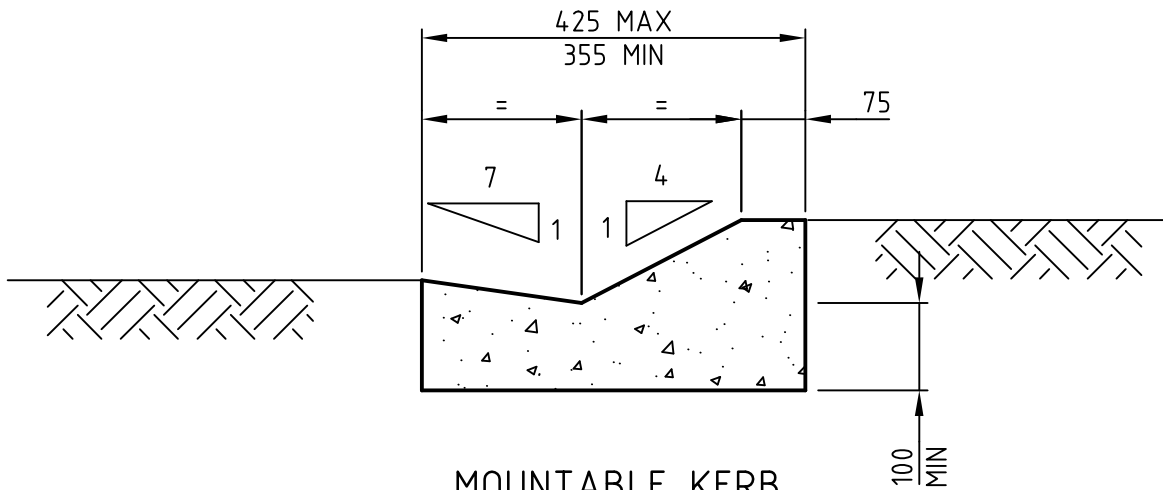
PLAN No.

21/301

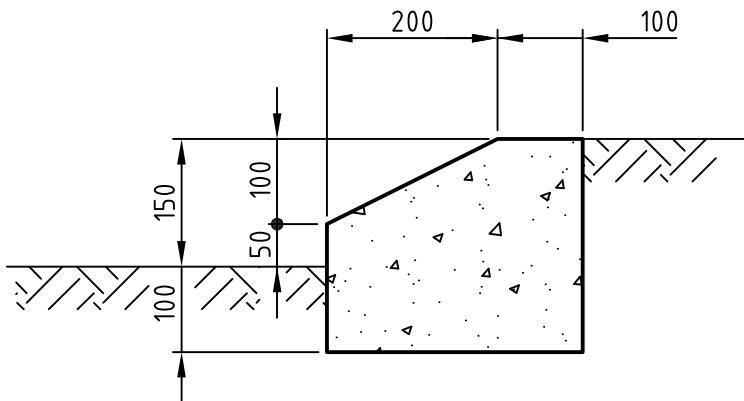
SHEET 3



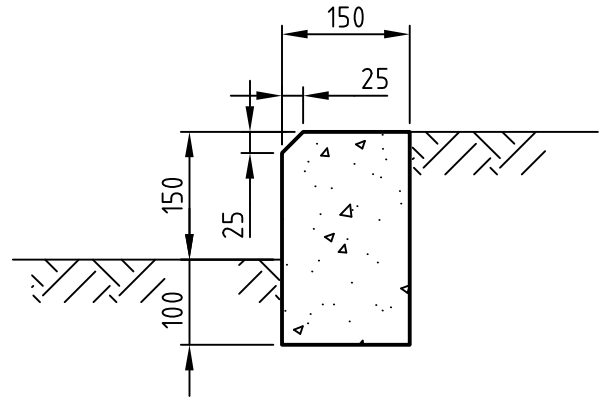
KERB & CHANNEL



MOUNTABLE KERB
& CHANNEL



MOUNTABLE KERB



UNMOUNTABLE KERB

**NELSON
CITY
COUNCIL**

**STANDARD DETAILS KERB &
CHANNEL PROFILES**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

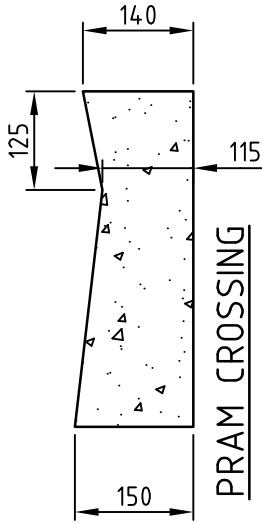
Jan. 2003

DATE

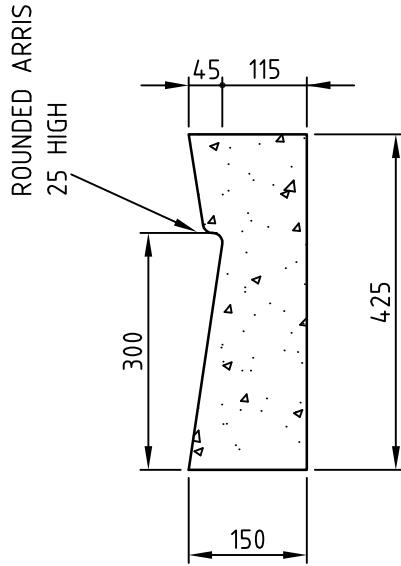
PLAN No.

21/302

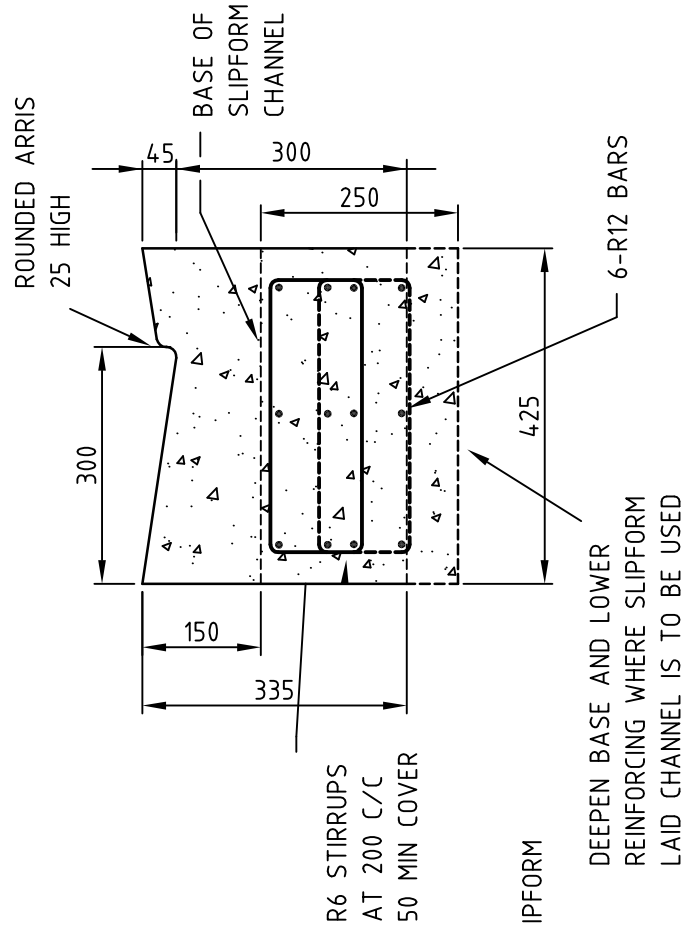
SHEET 1



PRAM CROSSING

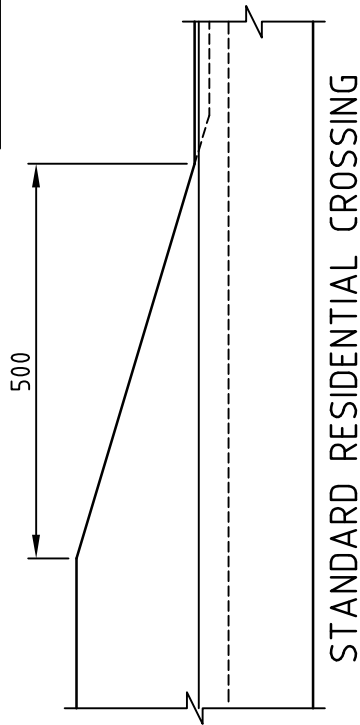


MOUNTABLE KERB CROSSING

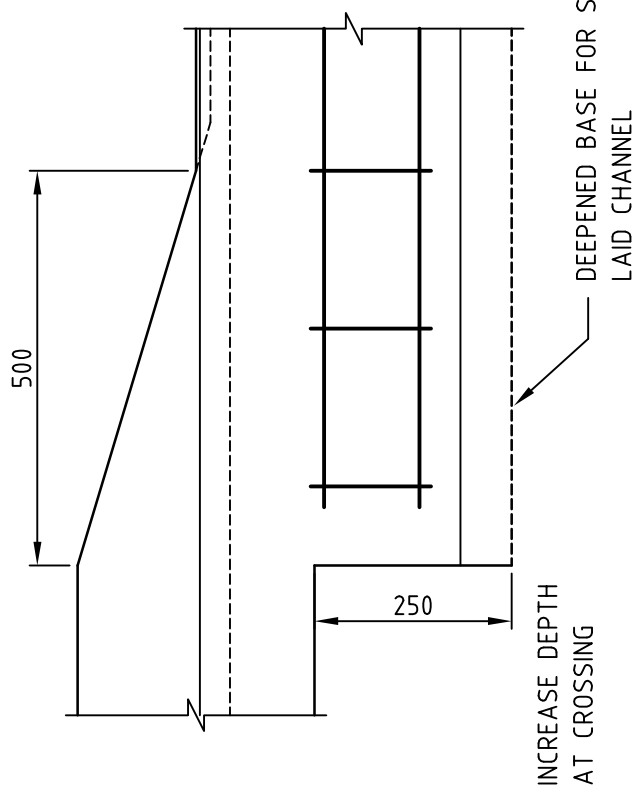


R6 STIRRUPS
AT 200 C/C
50 MIN COVER

DEEPEN BASE AND LOWER
REINFORCING WHERE SLIPFORM
LAID CHANNEL IS TO BE USED



STANDARD RESIDENTIAL CROSSING



INCREASE DEPTH
AT CROSSING

DEEPEMED BASE FOR SLIPFORM
LAID CHANNEL

CONCRETE STRENGTH AT 28 DAYS = 28MPa

STANDARD INDUSTRIAL CROSSING

**NELSON
CITY
COUNCIL**

**STANDARD DETAILS
KERB & CHANNEL CROSSINGS**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

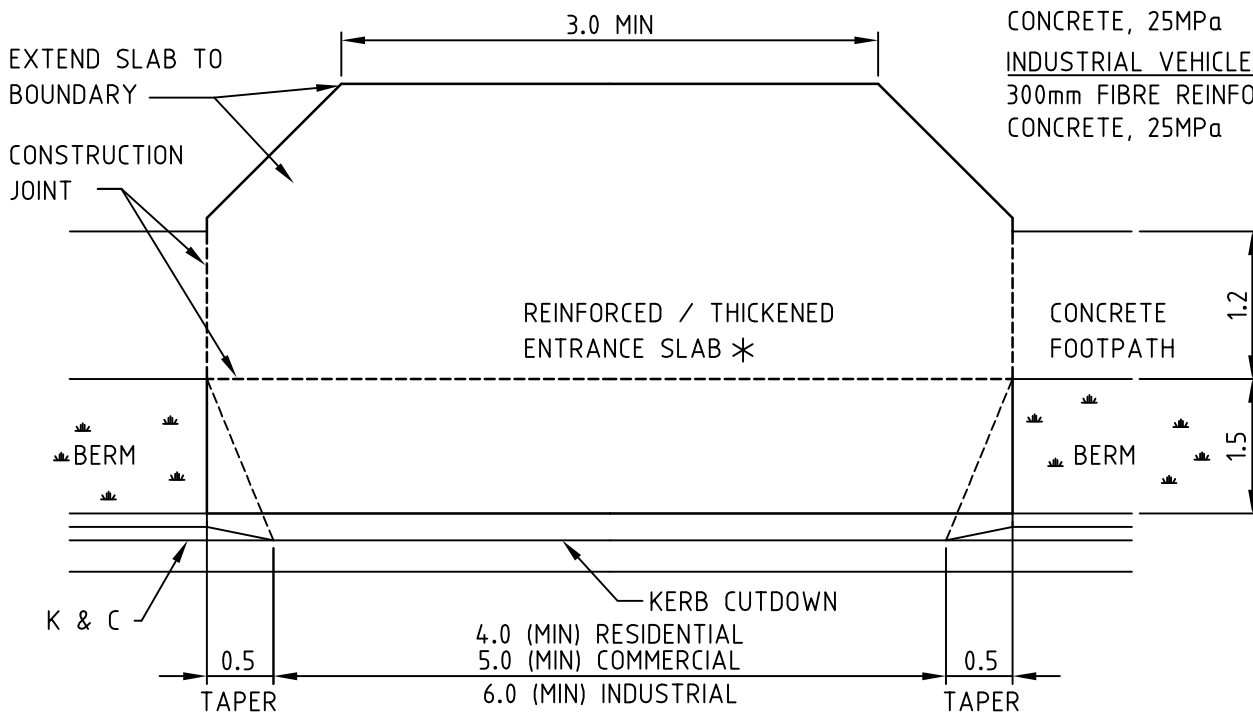
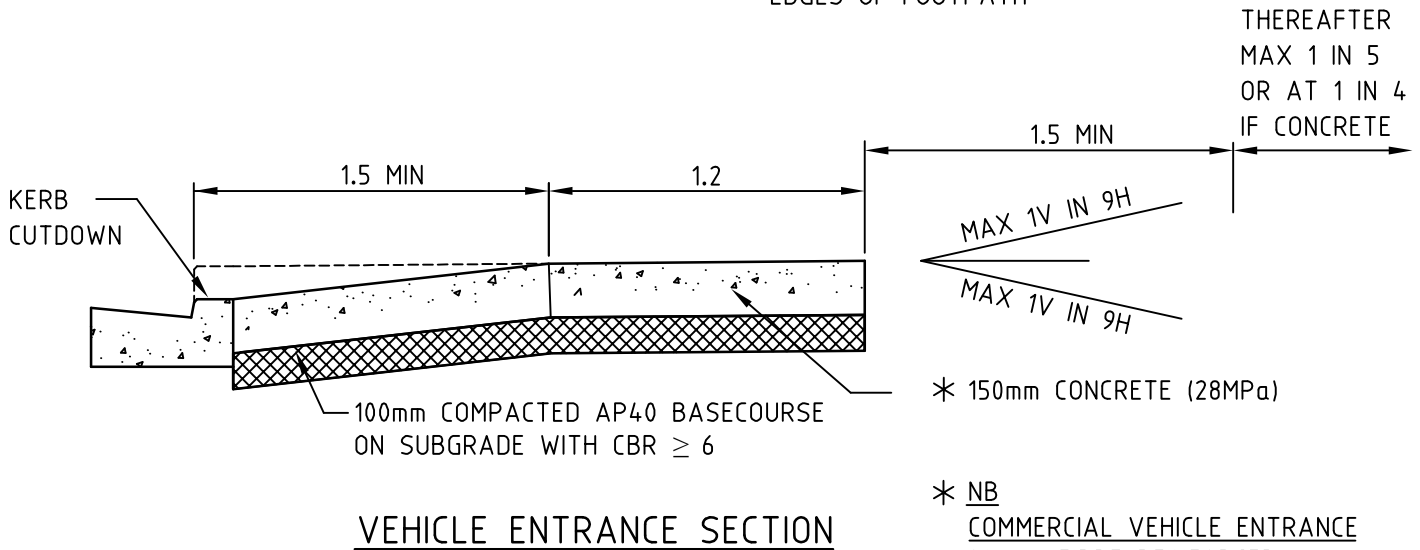
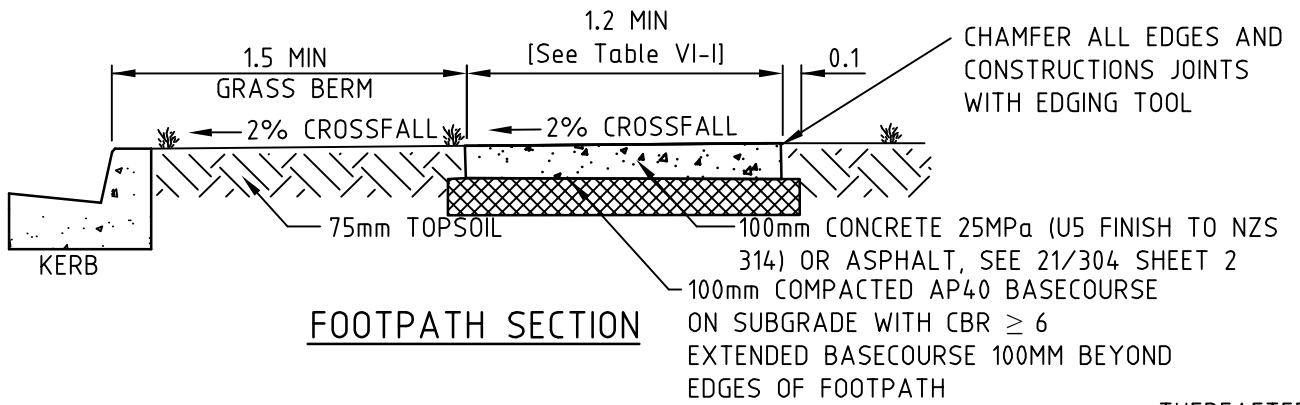
Jan. 2003

DATE

PLAN No.

21/303

SHEET 1



**NELSON
CITY
COUNCIL**

**FOOTPATH
OFFSET FROM KERB**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

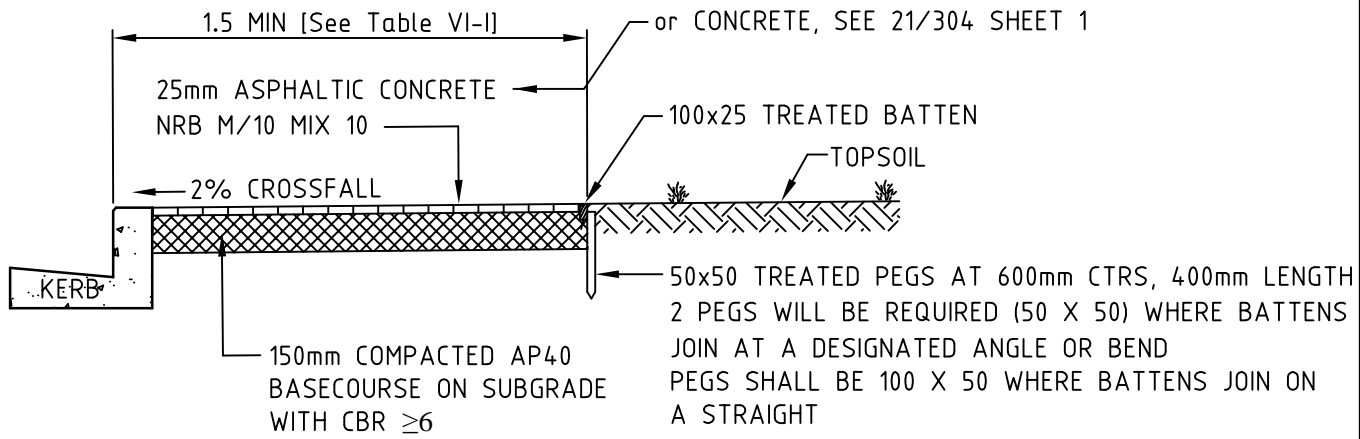
Feb. 2006

DATE

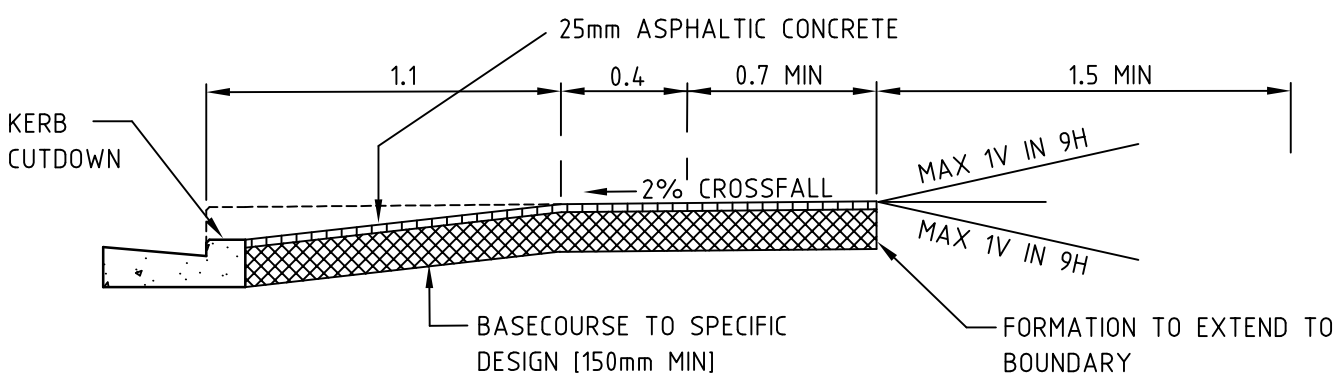
PLAN No.

21/304

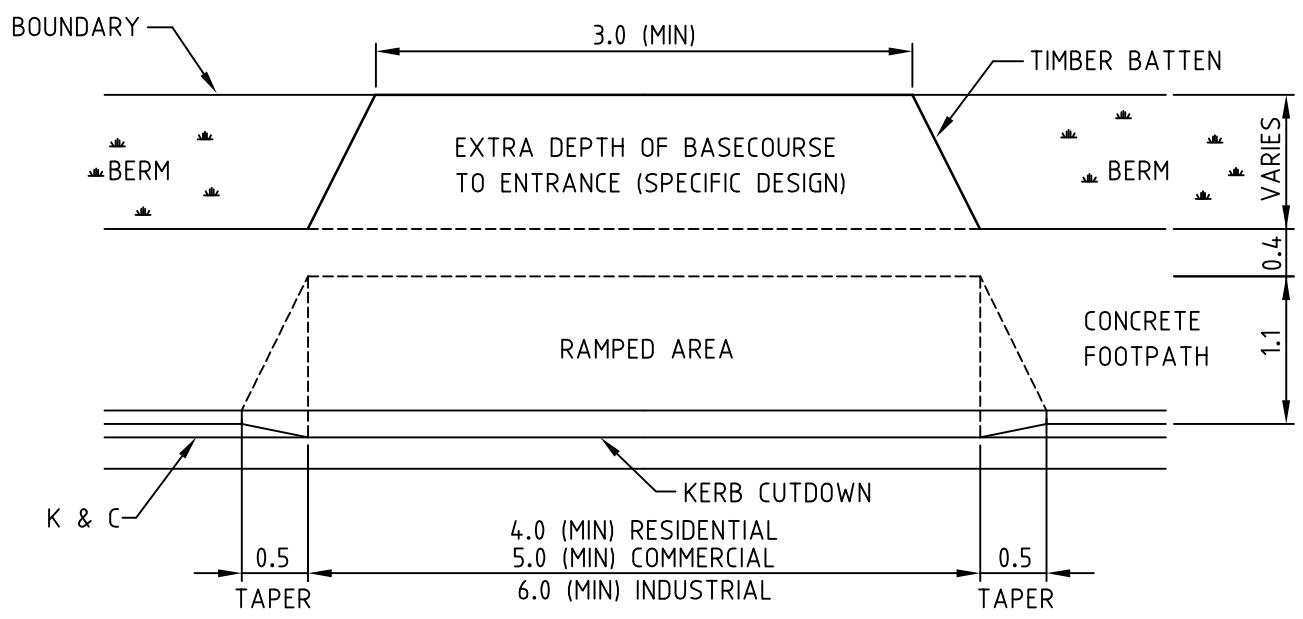
SHEET 1



FOOTPATH SECTION



VEHICLE ENTRANCE SECTION



VEHICLE ENTRANCE PLAN

**NELSON
CITY
COUNCIL**

**FOOTPATH
ADJACENT KERB**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

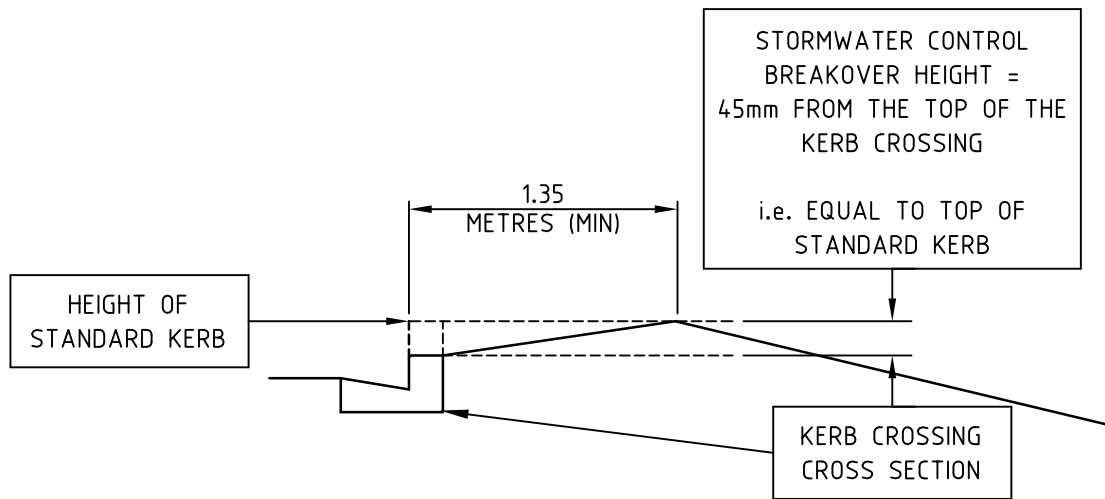
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DATE

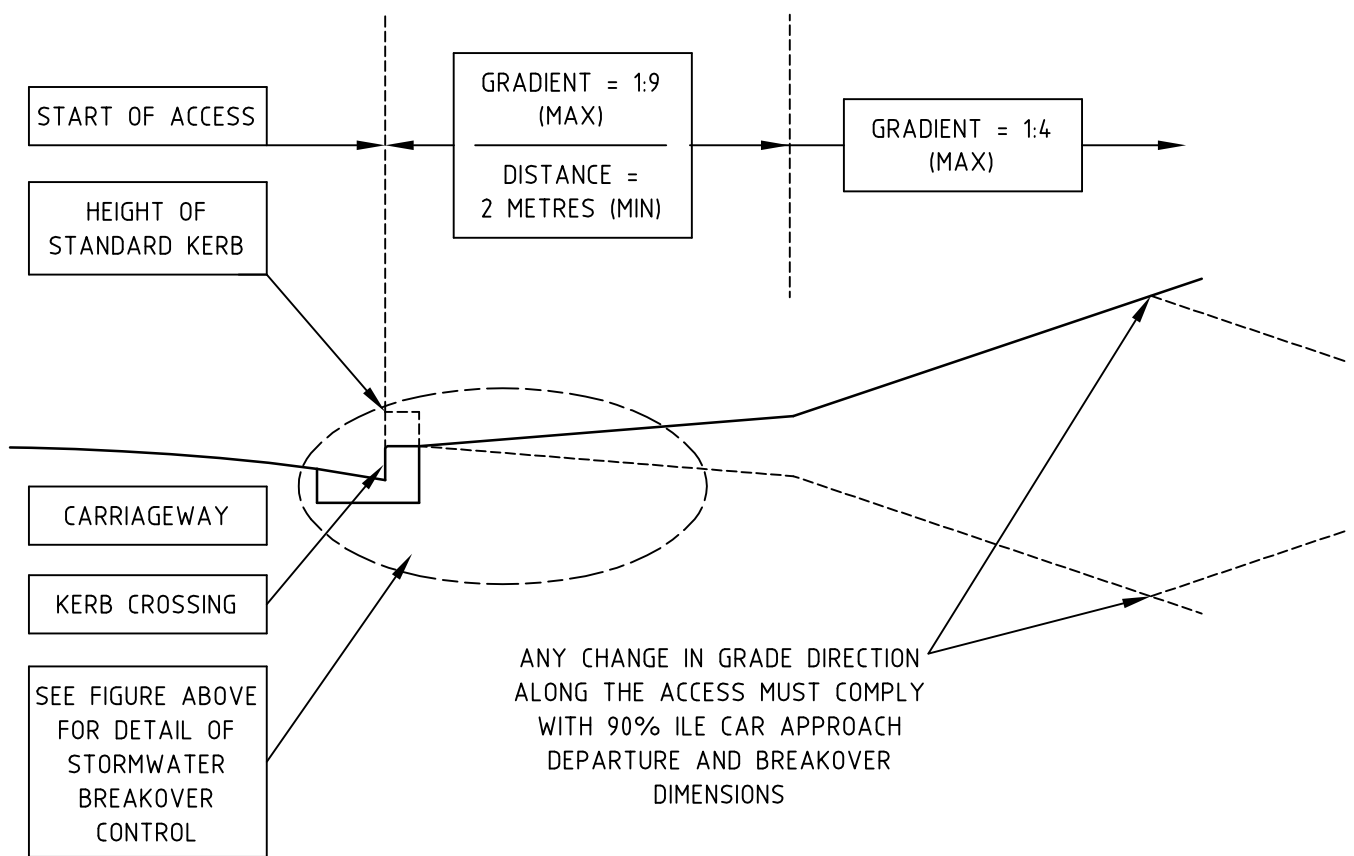
PLAN No.

21/304

SHEET 2



DIMENSIONS OF STORMWATER BREAKOVER CONTROL FOR ACCESSSES BELOW THE ROAD



GRADIENT OF ACCESS AND BREAKOVER ANGLES FOR ACCESS TO SITES WHERE THERE IS NO EXISTING OR PROPOSED FOOTPATH

**NELSON
CITY
COUNCIL**

**ACCESS BREAKOVER ANGLES WHERE
NO PROPOSED FOOTPATH**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

Jan. 2003

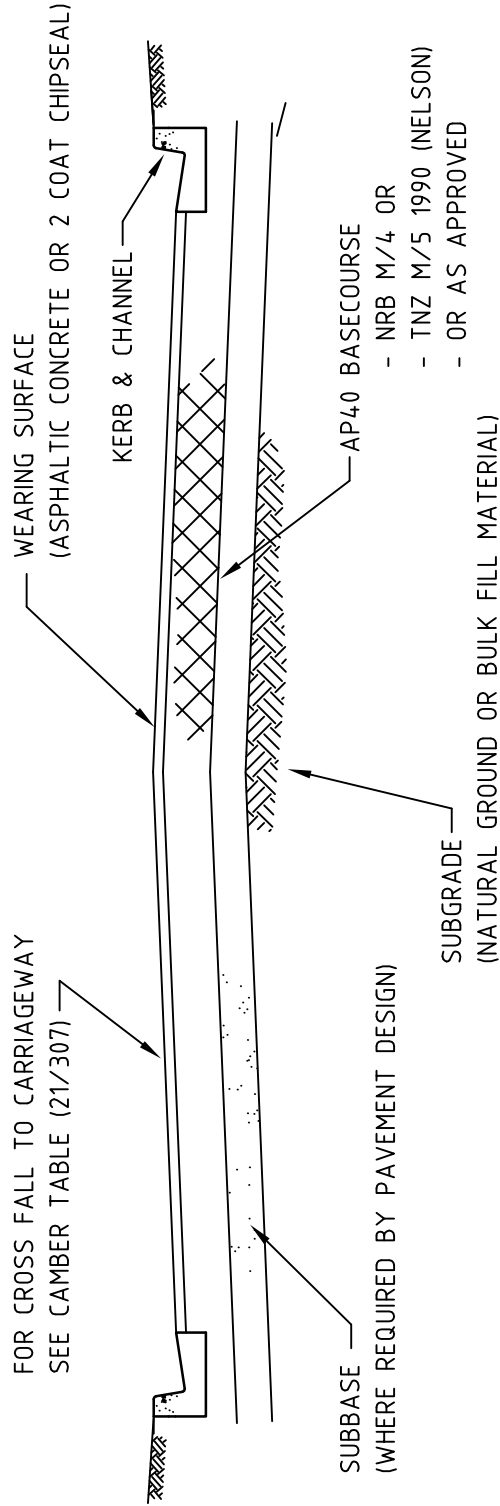
DATE

PLAN No.

21/304

SHEET 3

WIDTH VARIES ACCORDING TO ROAD TYPE
(SEE TABLE VI-1)



DEPTHS OF BASECOURSE AND SUBBASE
(WHERE REQUIRED) TO BE AS DETAILED IN
SPECIFIC PAVEMENT DESIGN FOR EACH
INDIVIDUAL STREET

**NELSON
CITY
COUNCIL**

**TYPICAL CROSS SECTION
CARRIAGEWAY**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

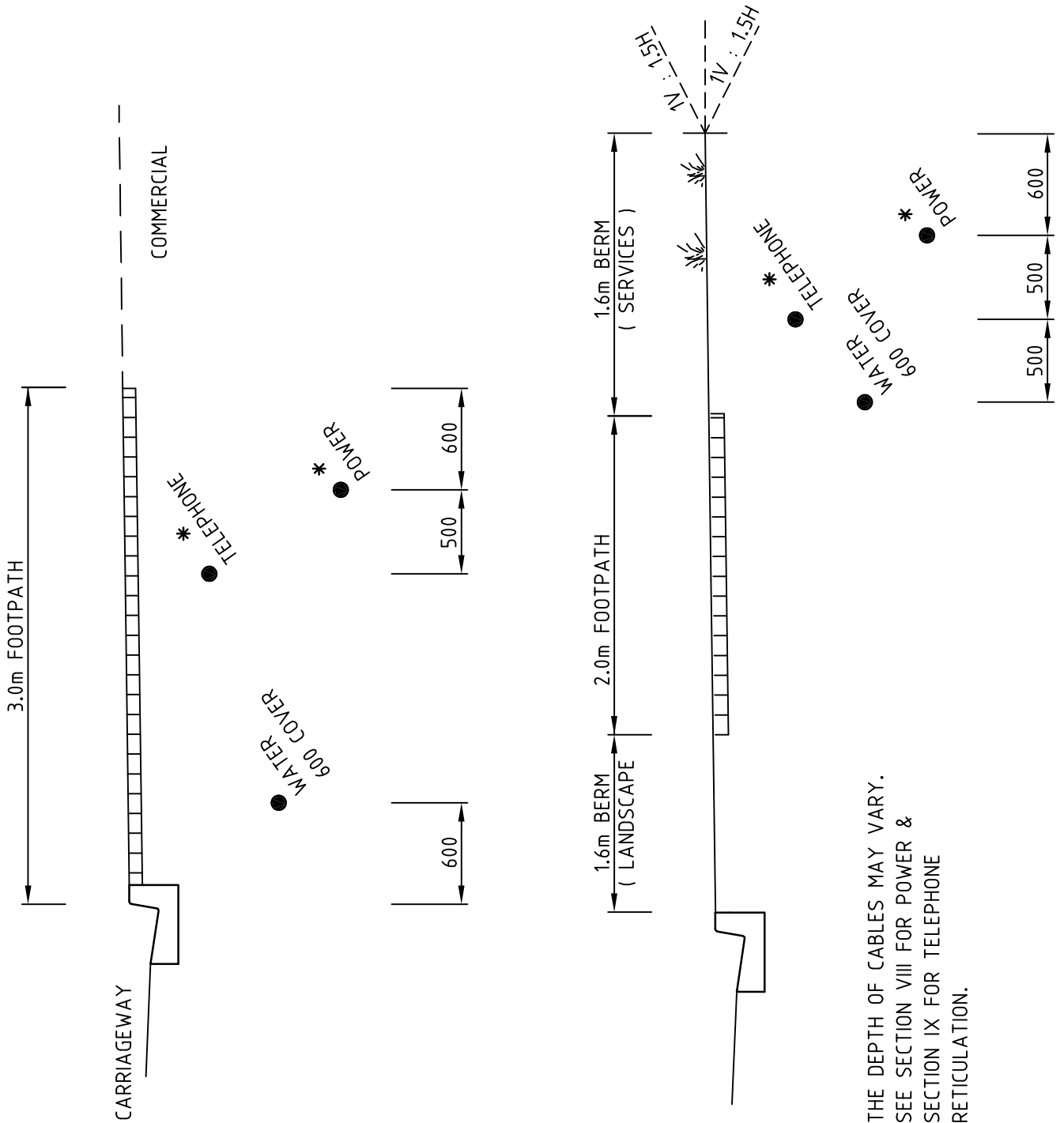
Jan. 2003

DATE

PLAN No.

21/305

SHEET 1



* THE DEPTH OF CABLES MAY VARY.
 SEE SECTION VIII FOR POWER &
 SECTION IX FOR TELEPHONE
 RETICULATION.

**NELSON
 CITY
 COUNCIL**

**TYPICAL CROSS SECTIONS (BERMS)
 TYPE I & II ROADS**

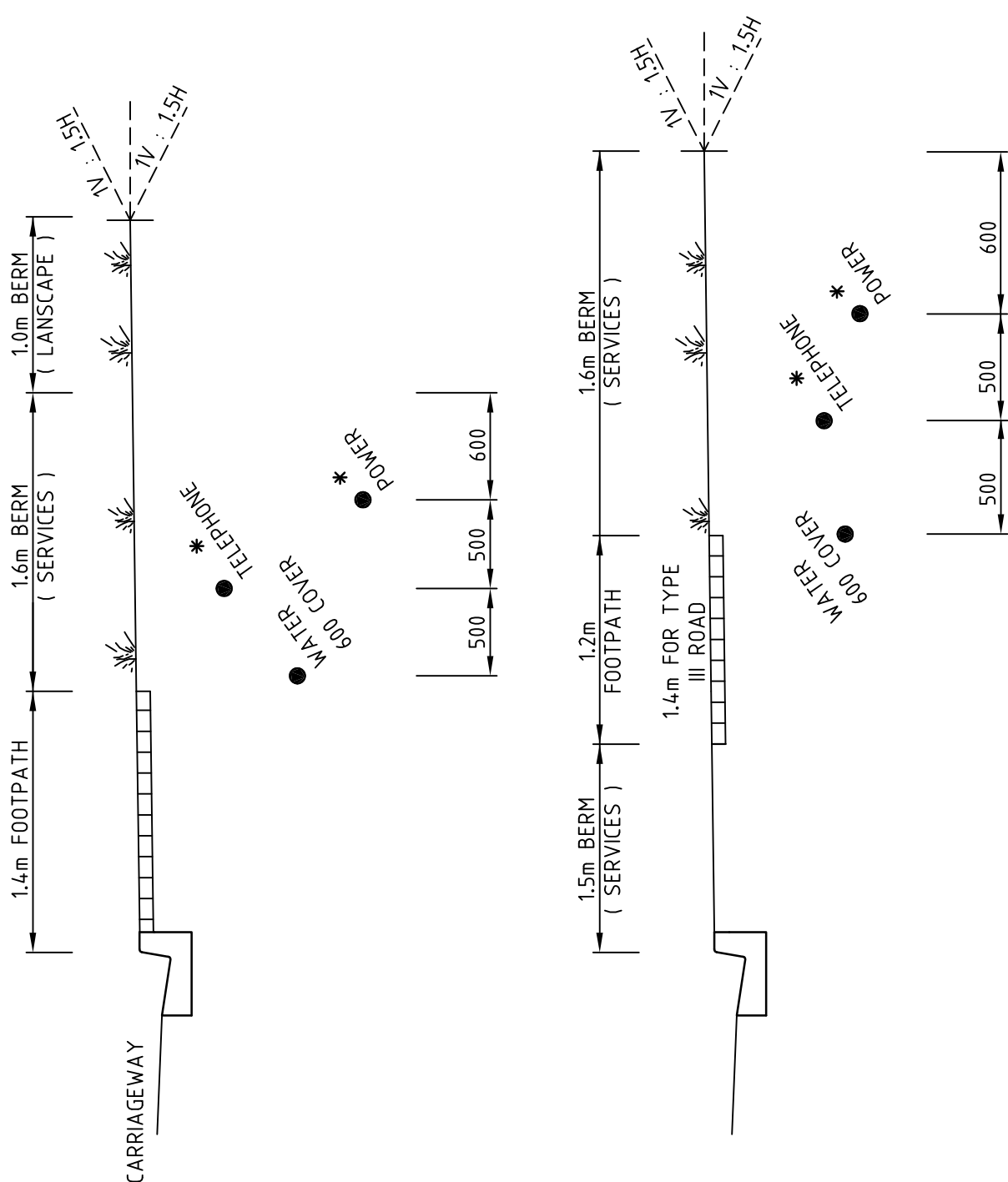
ASSET MANAGEMENT DIVISION

APPROVED 

 MANAGER INFRASTRUCTURAL ASSETS DATE

Jan. 2003

PLAN No.
21/305
 SHEET 2



* THE DEPTH OF CABLES MAY VARY.
 SEE SECTION VIII FOR POWER &
 SECTION IX FOR TELEPHONE
 RETICULATION.

**NELSON
 CITY
 COUNCIL**

**TYPICAL CROSS SECTIONS (BERMS)
 TYPE III VI & VII ROADS**

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

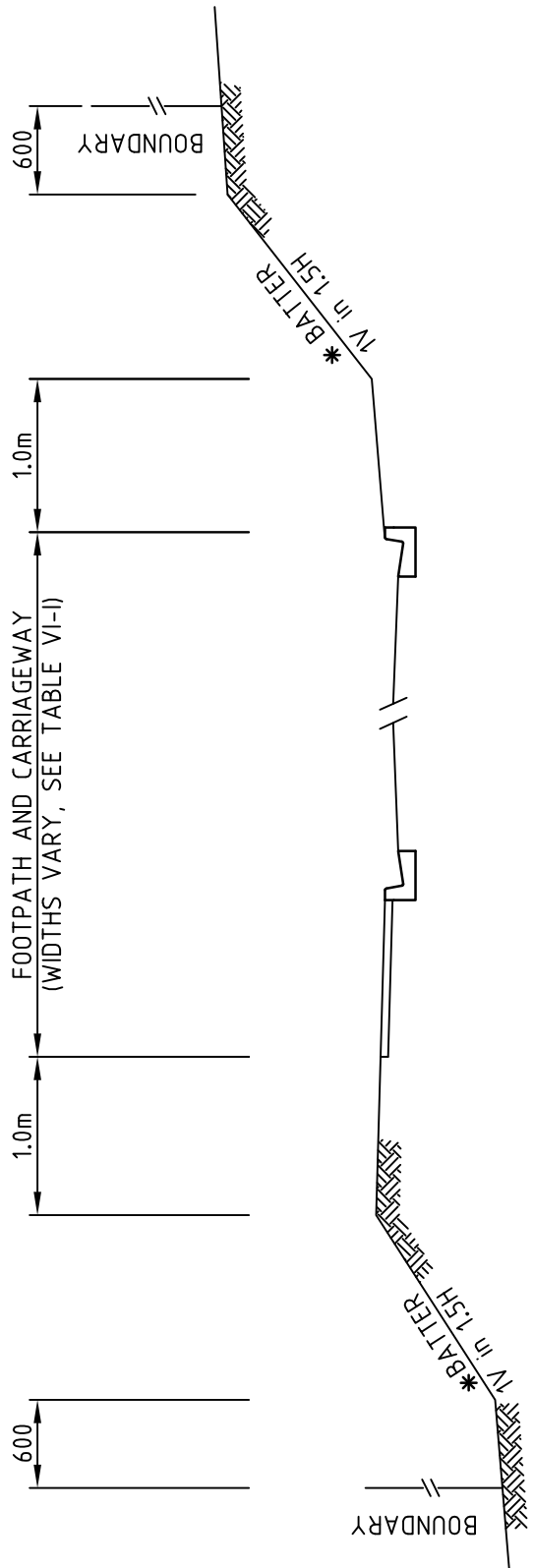
Jan. 2003

DATE

PLAN No.

21/305

SHEET 3



*** NOTES:**

- BATTER SLOPES MAY BE REPLACED BY RETAINING WALLS TO SPECIFIC DESIGN WHERE APPROVED BY THE COUNCIL
- THE 1.0m DISTANCE FROM BACK OF FOOTPATH/KERB MAY BE INCREASED WHERE THE AREA IS REQUIRED AS SERVICE STRIPS BY TABLE VI-1

**NELSON
CITY
COUNCIL**

**TYPICAL CROSS SECTIONS ROADSIDE
BATTERS**

ASSET MANAGEMENT DIVISION

APPROVED 

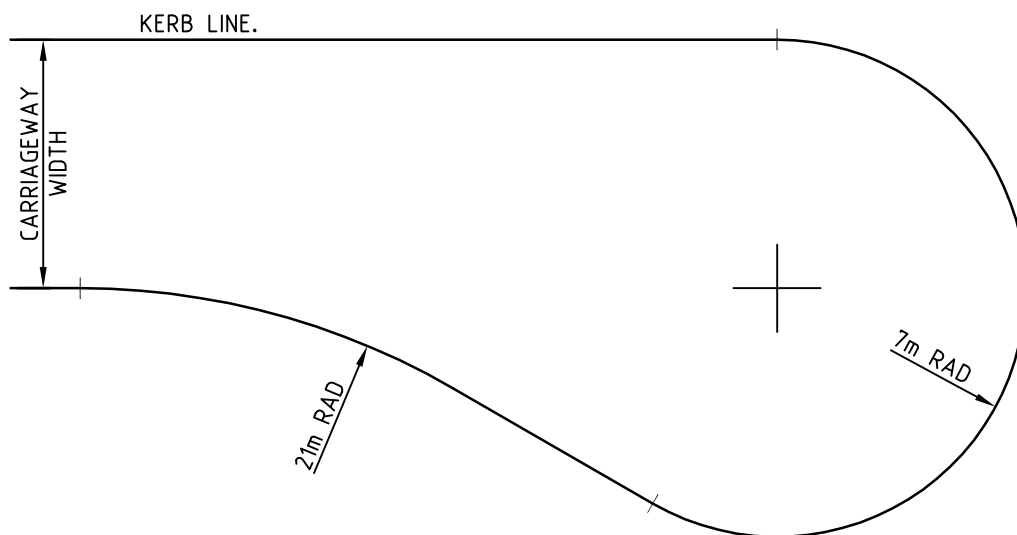
 MANAGER INFRASTRUCTURAL ASSETS

Jan. 2003

 DATE

PLAN No.
21/305

SHEET 4



NOTE:

1. NO KERBSIDE PARKING WITHIN THE TURNING CIRCLE
2. ALL ROAD MARKING TO BE 100mm WIDE WHITE PAINTED LINES.
3. FOR STEEP HILLSIDE DEVELOPEMENT THE TURNING AREA CAN BE A 'FISH-TAIL' OR 'HAMMERHEAD' DESIGN PROVIDED THE TURNING AREA PERMITS A 90 PERCENTILE 2 AXLE TRUCK TO UNDERTAKE A 3 POINT TURN

**NELSON
CITY
COUNCIL**

CUL-DE-SAC TURNING CIRCLES

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

Jan. 2003

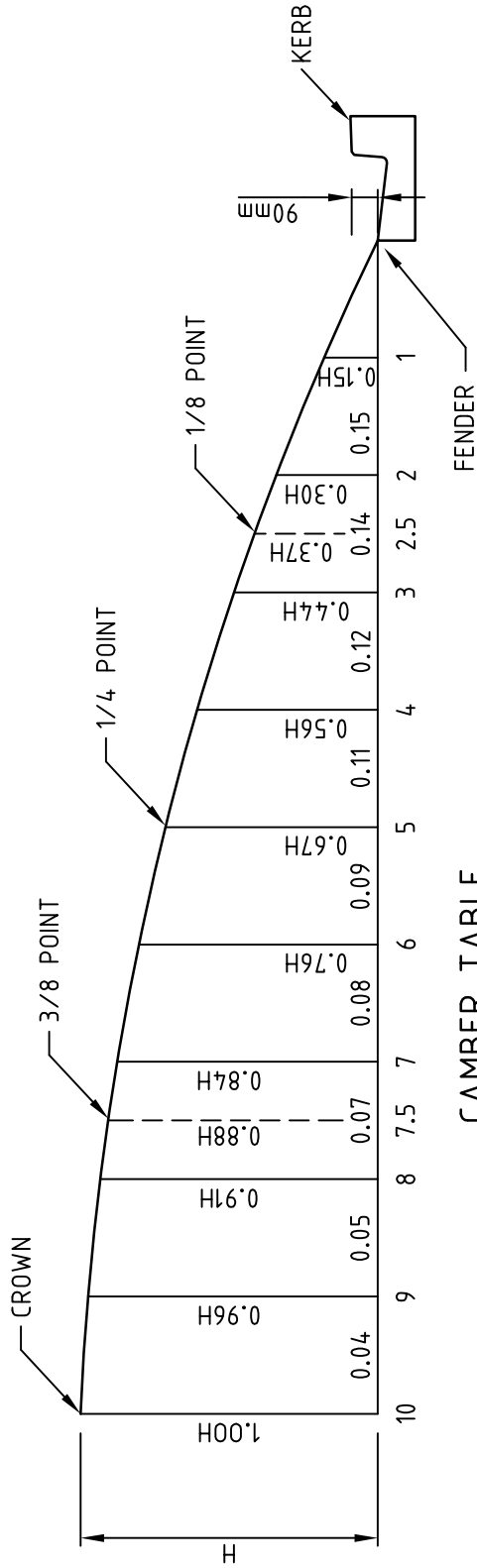
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PLAN No.

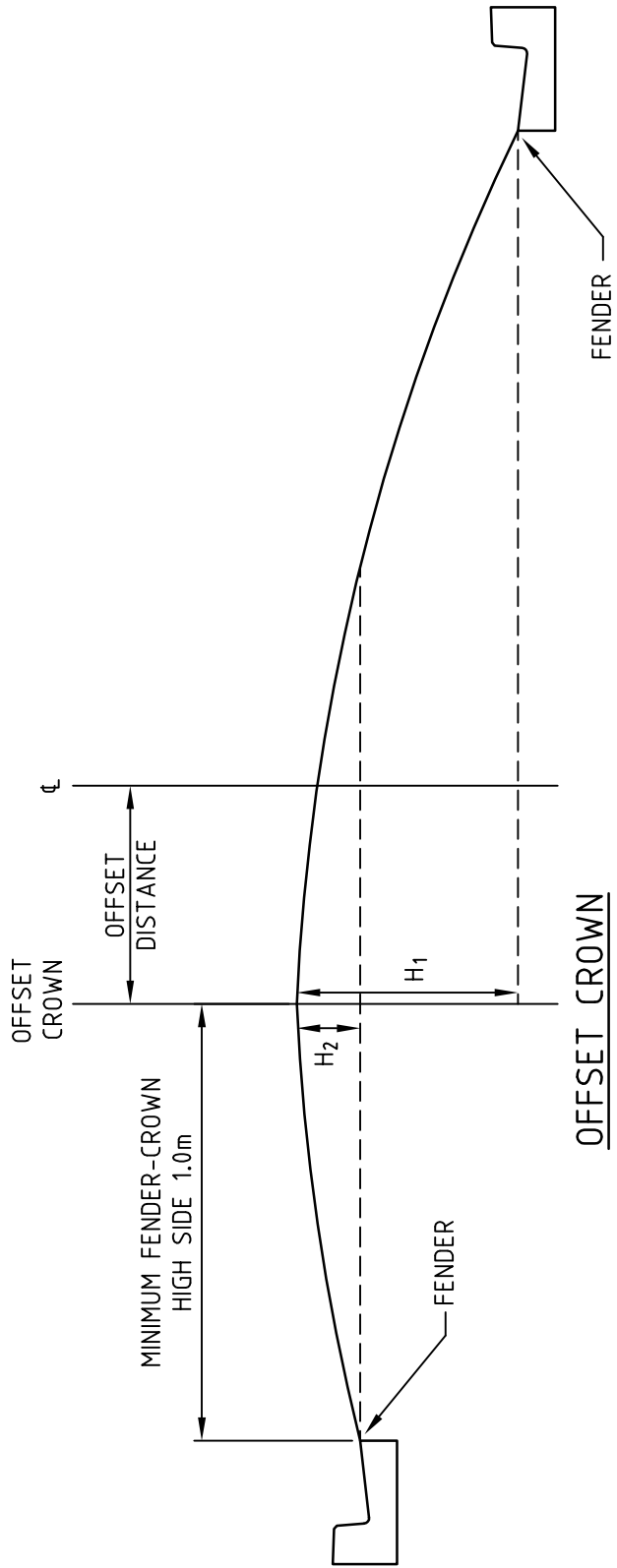
21/306

SHEET 1

CROSSFALL FOR ROADWAY 3%-4% (1 IN 33 - 1 IN 25)



CAMBER TABLE



NOTE:
CARRIAGEWAY CAMBER ON EITHER SIDE OF OFFSET CROWN SHOULD BE BALANCED IN TERMS OF THE ABOVE CAMBER TABLES.

**NELSON
CITY
COUNCIL**

CAMBER TABLE

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

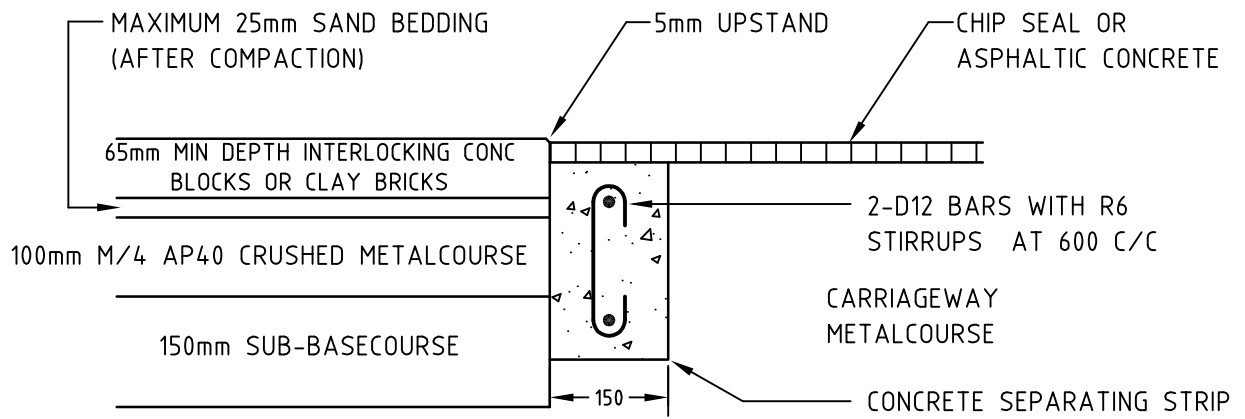
Jan. 2003

DATE

PLAN No.

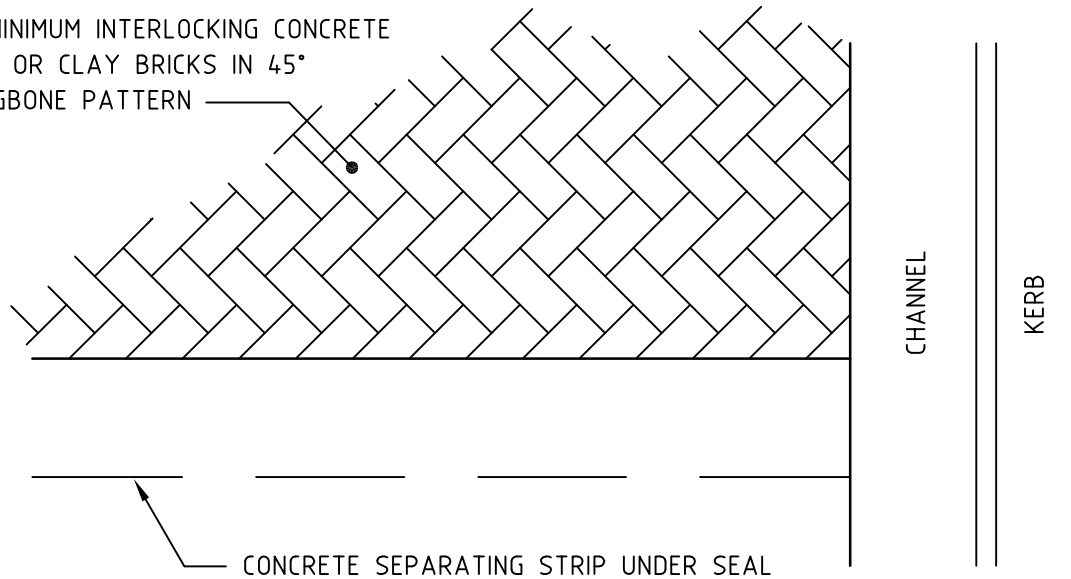
21/307

SHEET 1



CARRIAGEWAY THRESHOLDS (LONGITUDINAL SECTION)

65mm MINIMUM INTERLOCKING CONCRETE
BLOCKS OR CLAY BRICKS IN 45°
HERRINGBONE PATTERN



CARRIAGEWAY THRESHOLDS PART PLAN

NOTES:

1. CONCRETE BLOCKS SHALL COMPLY WITH NZS 3116: 1981
2. CLAY BRICKS SHALL COMPLY WITH THE AUSTRALIAN BRICK DEVELOPMENT RESEARCH INSTITUTES "SPECIFICATION FOR FIRED CLAY PAVERS FOR SITES SUBJECTED TO VEHICULAR AND PEDESTRIAN TRAFFIC"
3. LAYING OF PAVERS SHALL COMPLY WITH THE CEMENT AND CONCRETE ASSOCIATION OF NZ "INTERLOCKING CONCRETE BLOCK ROAD PAVEMENTS" (SEPT 1988)

**NELSON
CITY
COUNCIL**

CARRIAGEWAY THRESHOLDS (CONCRETE BLOCKS OR CLAY BRICKS)

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

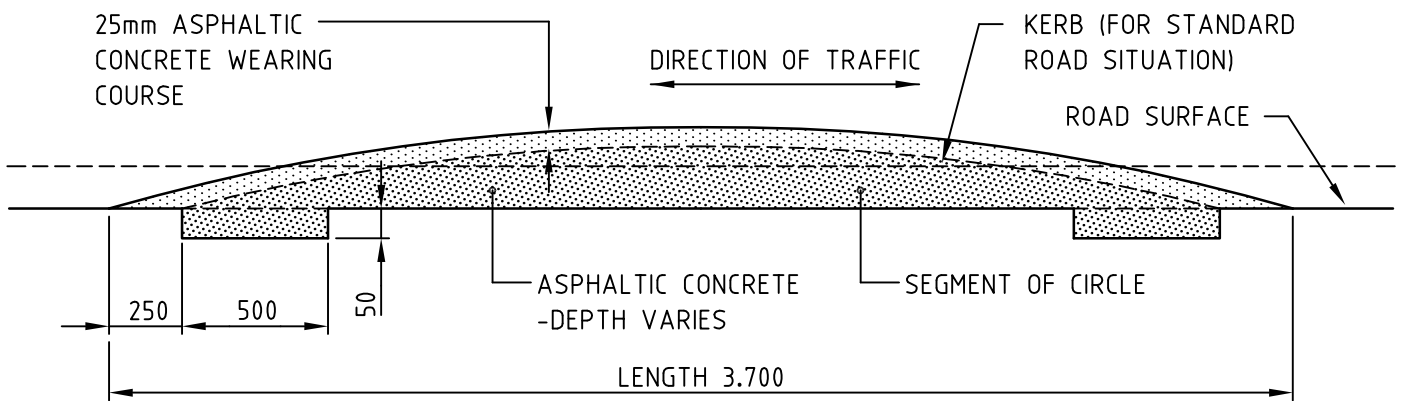
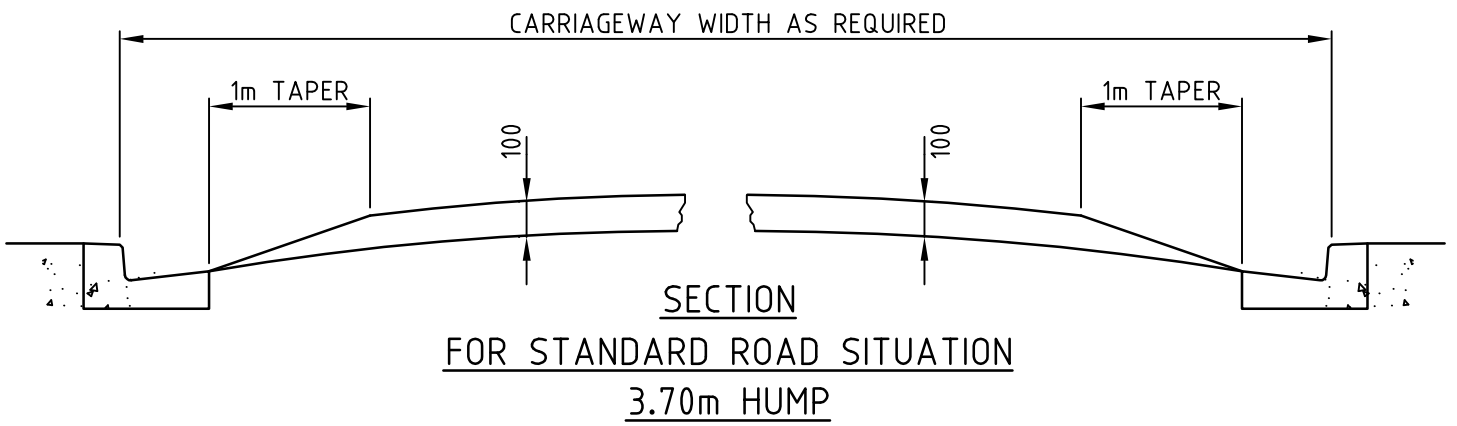
Jan. 2003

DATE

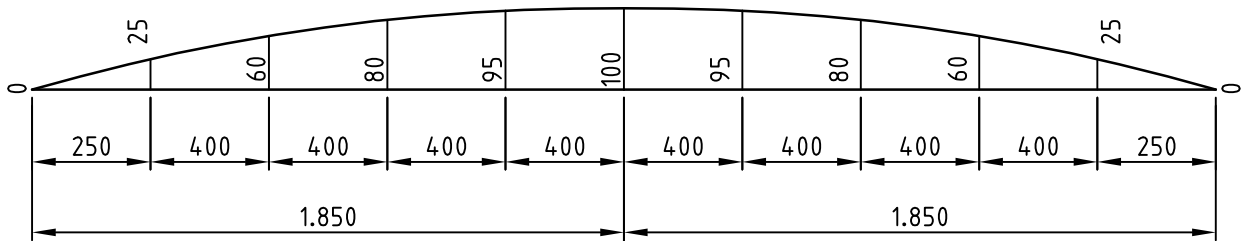
PLAN No.

21/308

SHEET 1



SECTION-ROAD HUMP PROFILE
FOR KERB AND CHANNEL
STANDARD ROAD SITUATION



SETTING OUT PROFILE
FOR SECTION (ALL CASES)

**NELSON
 CITY
 COUNCIL**

ROAD HUMP DETAILS

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

Jan. 2003

DATE

PLAN No.

21/309

SHEET 1

PLAN 21-310 has been
REMOVED from the
2003 STANDARDS
This sheet is maintained
to ensure Numbering continuity.

**NELSON
CITY
COUNCIL**

PLAN REMOVED FROM
2003 STANDARDS

ASSET MANAGEMENT DIVISION

APPROVED



.....
MANAGER INFRASTRUCTURAL ASSETS

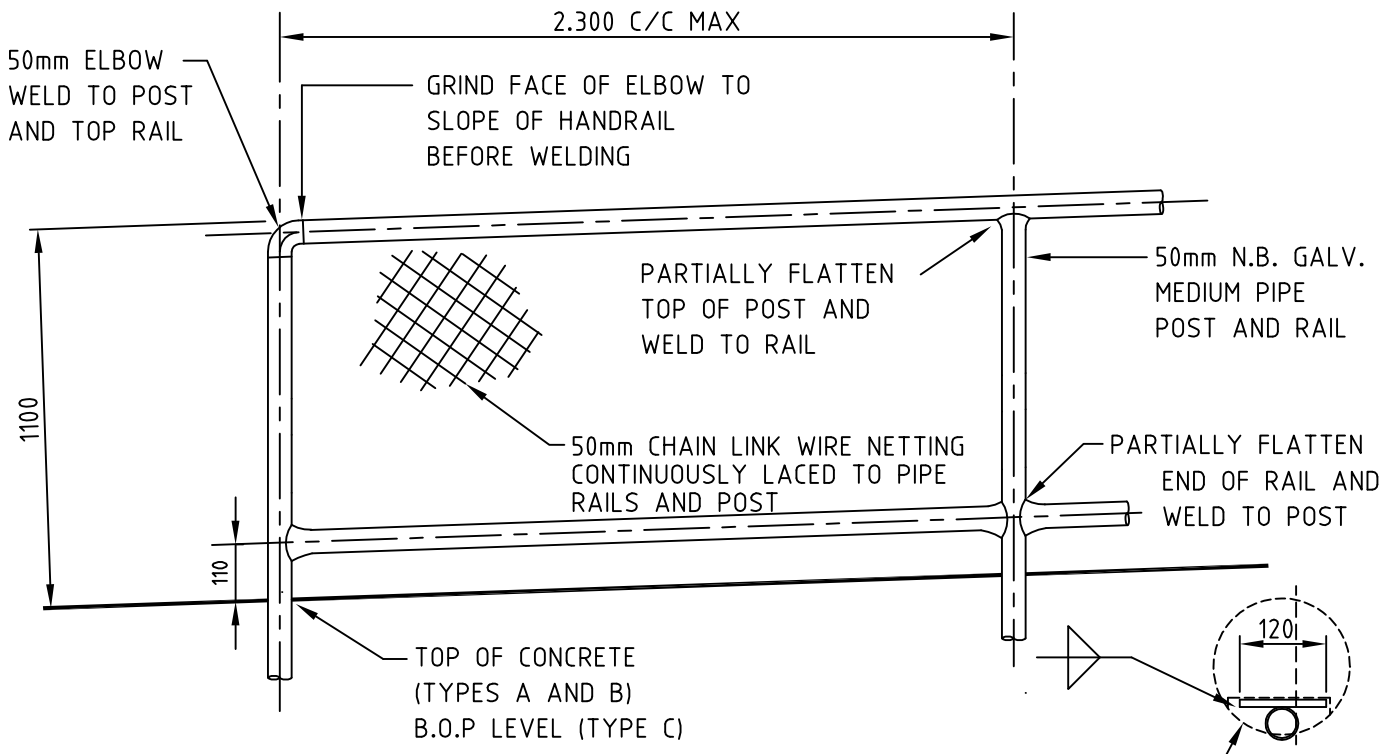
Jan. 2003

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DATE

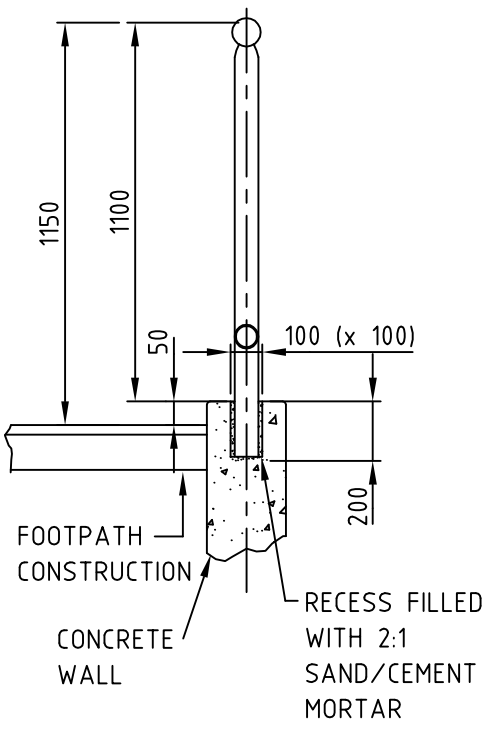
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21/310

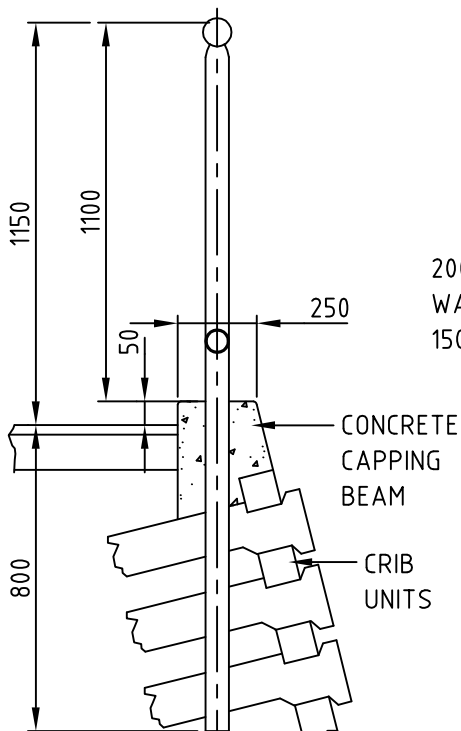
SHEET 1



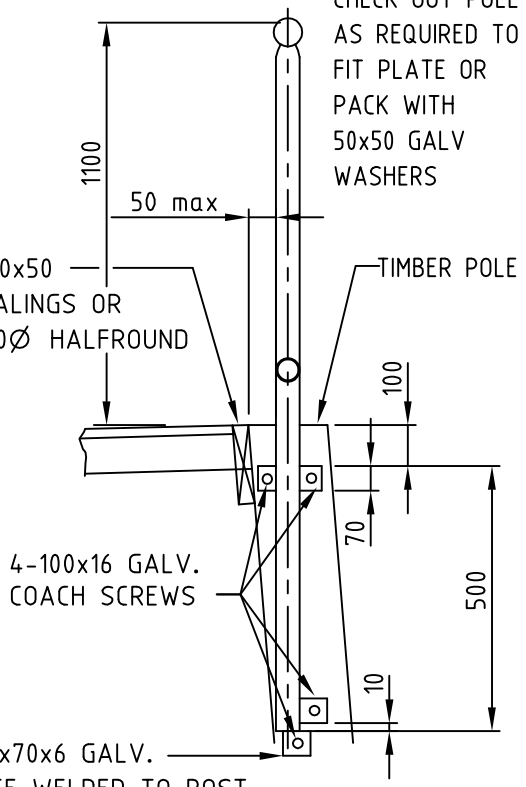
TYPICAL ELEVATION



**TYPE A
RECESSED**



**TYPE B
CRIB WALL**



**TYPE C
TIMBER WALL**

**NELSON
CITY
COUNCIL**

HANDRAILS

ASSET MANAGEMENT DIVISION

APPROVED

MANAGER INFRASTRUCTURAL ASSETS

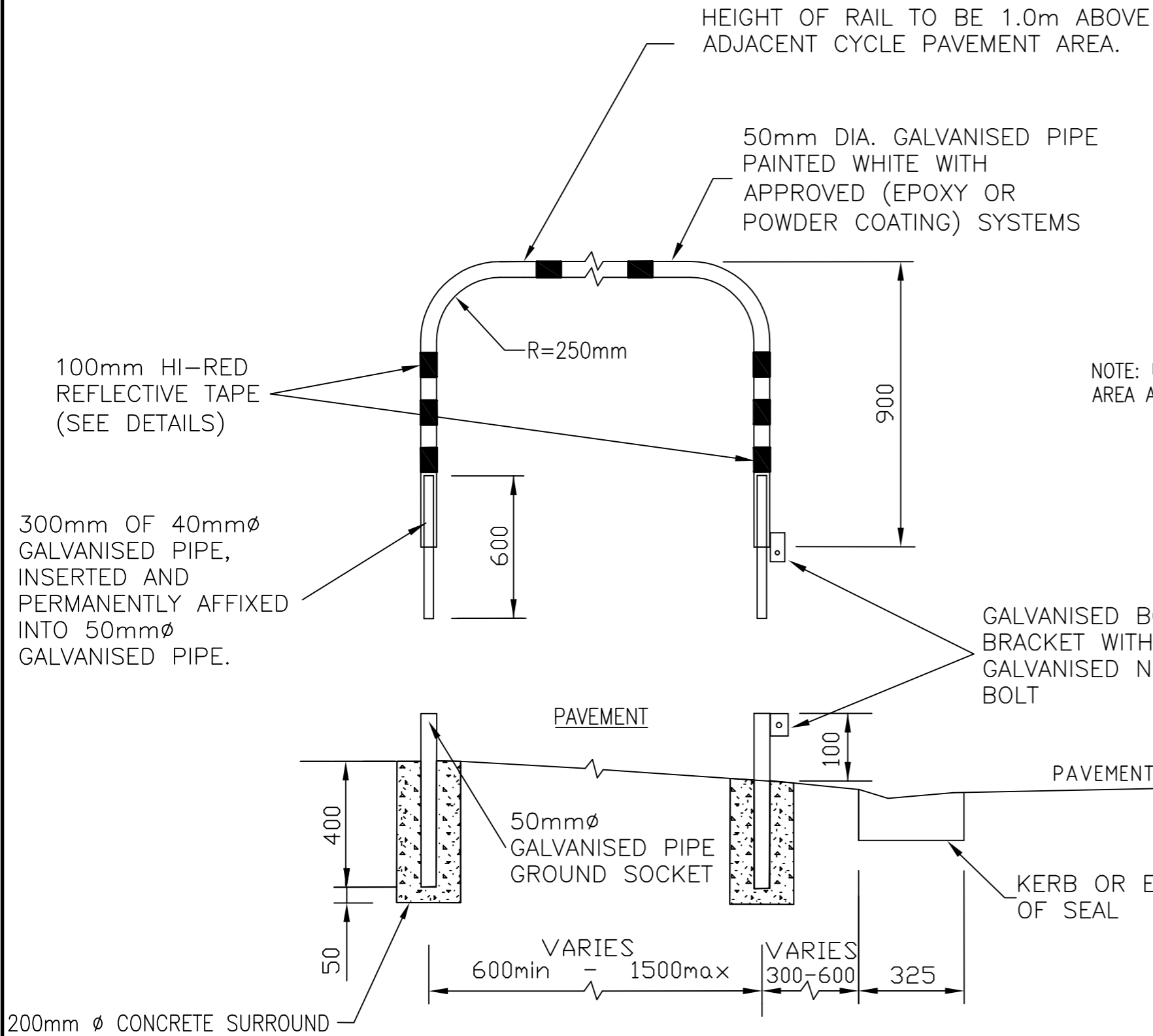
Jan. 2003

DATE

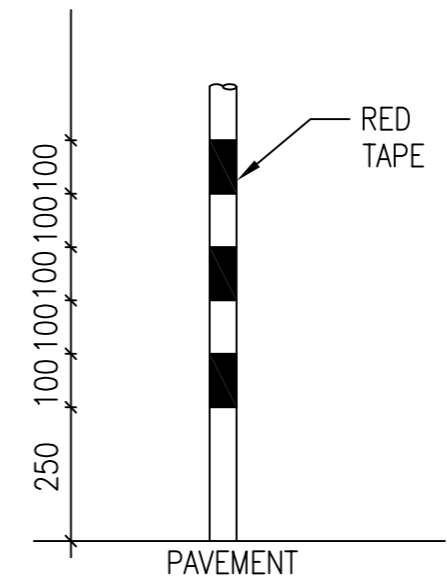
PLAN No.

21/311

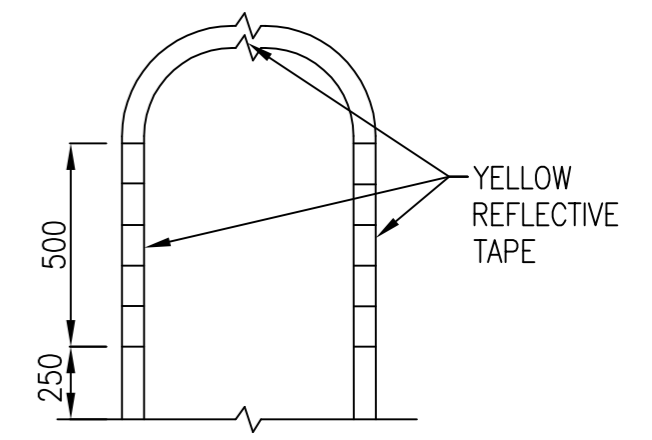
SHEET 1



HOLDING RAIL ELEVATION



NOTE: USE THIS DETAIL WHEN RAILS ARE WITHIN CARRIAGEWAY AREA AND SEEN BY MOTOR VEHICLES.



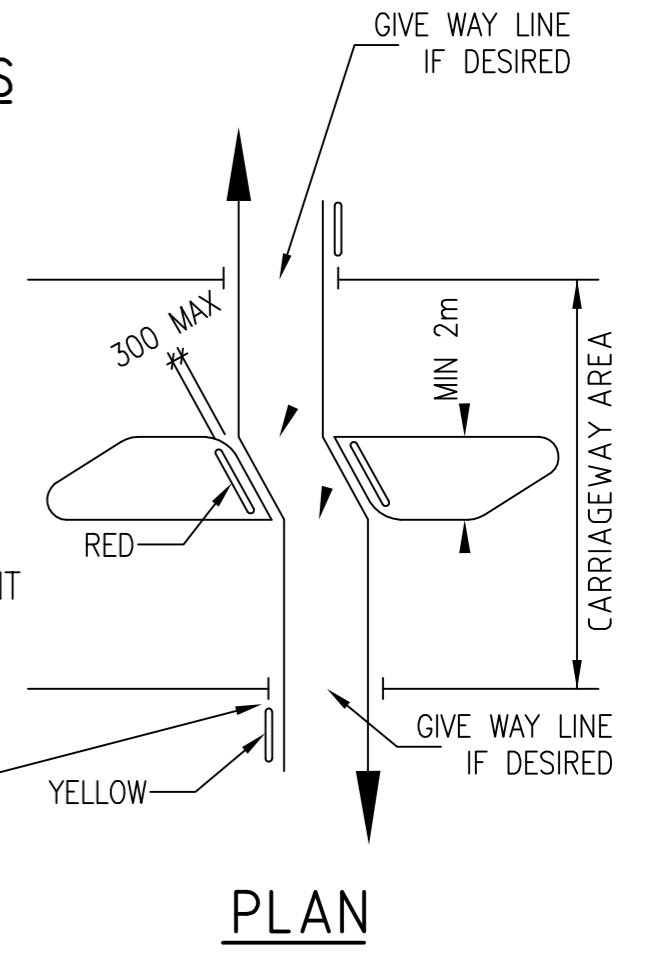
NOTE: USE THIS DETAIL WHEN RAILS ARE OUTSIDE CARRIAGEWAY AREA AND SEEN BY CYCLISTS.


DETAILS

NOTE:

- 1 RAIL TO BE PLACED AT EDGE OF CYCLEWAY PAVEMENT OR 300mm FROM EDGE OF PEDESTRIAN REFUGES.
- 2 TOP RAIL SHALL BE 1.0m ABOVE ADJACENT PAVEMENT

HOLD RAILS TO BE FREE FROM FOOTPATH TO PREVENT OBSTRUCTING PEDESTRIANS



NELSON CITY COUNCIL	CYCLE HOLDING RAIL	
	ASSET MANAGEMENT DIVISION APPROVED  06/04/2005 MANAGER INFRASTRUCTURAL ASSETS DATE	PLAN No. 21/311 SHEET 2

PLASTER CAP PERMANENTLY AFFIXED WITH DOWEL STARTER AND PAINTED WHITE.

300mm OF 140mmØ GALVANISED PIPE, 4mm THICK, INSERTED AND PERMANENTLY AFFIXED INTO 150mmØ GALVANISED PIPE.

PADLOCK BRACKET (SEE DETAIL BELOW)

150mm GALVANISED PIPE 4mm THICK

FINISHED SURFACE

D12 STIRRUP

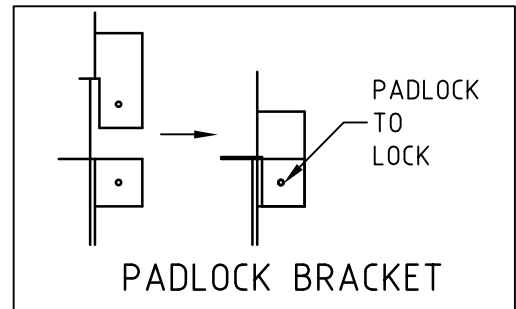
4 - D12 BARS
MIN 50mm FROM PIPE
MIN COVER 50mm

600mm x 500mm DEEP 28 MPa CONCRETE FOUNDATION.

ELEVATION

NOTES:

- * ALL STEELWORK SHALL BE PRIMED AND PAINTED WHITE
- * PADLOCK TO BE POSITIONED FACING DIRECTION OF CYCLE TRAFFIC



NELSON CITY COUNCIL

REMOVABLE CYCLE BOLLARD

ASSET MANAGEMENT DIVISION

PLAN No.

APPROVED

Jan. 2003

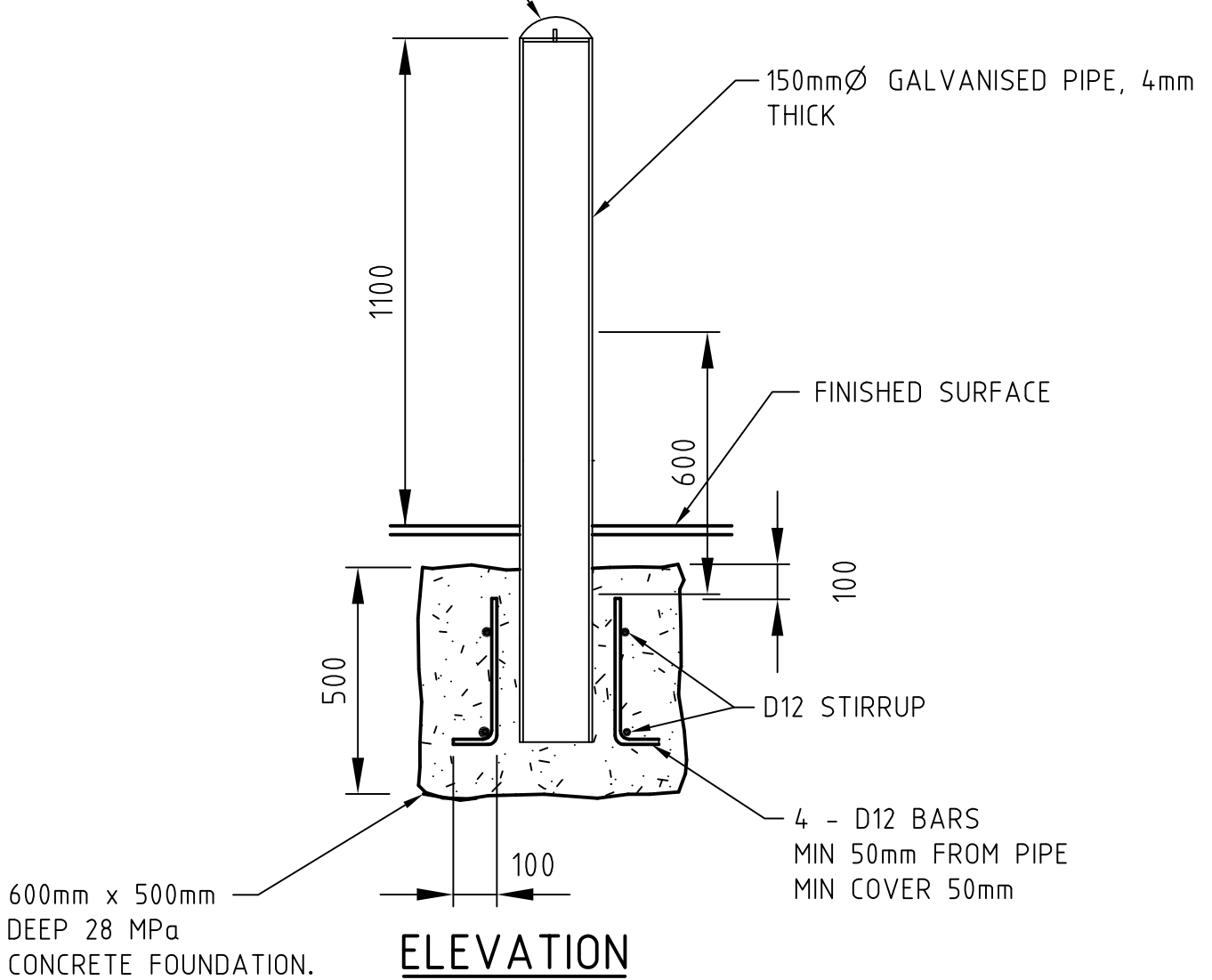
21/312

MANAGER INFRASTRUCTURAL ASSETS

DATE

SHEET 1

PLASTER CAP PERMANENTLY
AFFIXED WITH DOWEL STARTER
AND PAINTED WHITE.



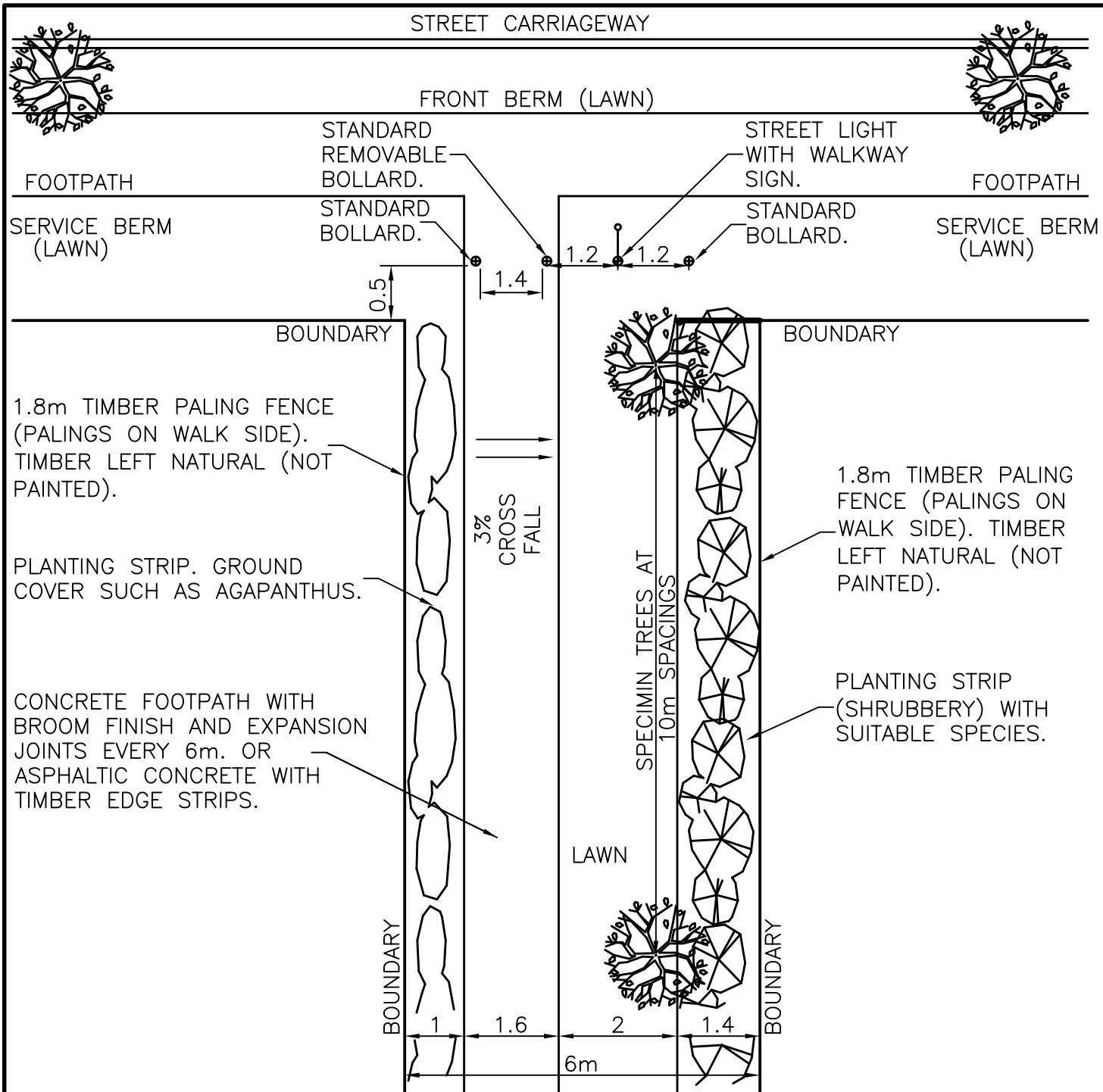
NOTES:

* ALL STEELWORK SHALL BE PRIMED AND PAINTED WHITE WITH REFLECTORISED STRIPS VISABLE FROM BOTH WAYS

<p>NELSON CITY COUNCIL</p>	<p>STANDARD CYCLE BOLLARD</p>	
	<p>ASSET MANAGEMENT DIVISION</p> <p>APPROVED <i>[Signature]</i></p> <p>MANAGER INFRASTRUCTURAL ASSETS</p>	<p>PLAN No.</p> <p>21/312</p> <p>SHEET 2</p>

Jan. 2003

DATE



NOTE:

WITH WALKWAYS ORIENTED EAST/WEST PLANT TREES ON THE NORTHERN SIDE OF THE FOOTPATH.

IF STEPS ARE REQUIRED FOR GRADES GREATER THAN 1:5 THEN STREET LIGHTING SHALL BE PROVIDED AS WELL AS A HANDRAIL TO ONE SIDE.

STEPS SHALL BE NO NARROWER THAN 300mm TREAD WITH 150-180 RISER. A LANDING SHALL BE PROVIDED EVERY 20 STEPS.

FOR BOLLARD DETAILS SEE 21/312, SHEETS 1 AND 2

**NELSON
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STANDARD WALKWAY REQUIREMENTS

ASSET MANAGEMENT DIVISION

APPROVED

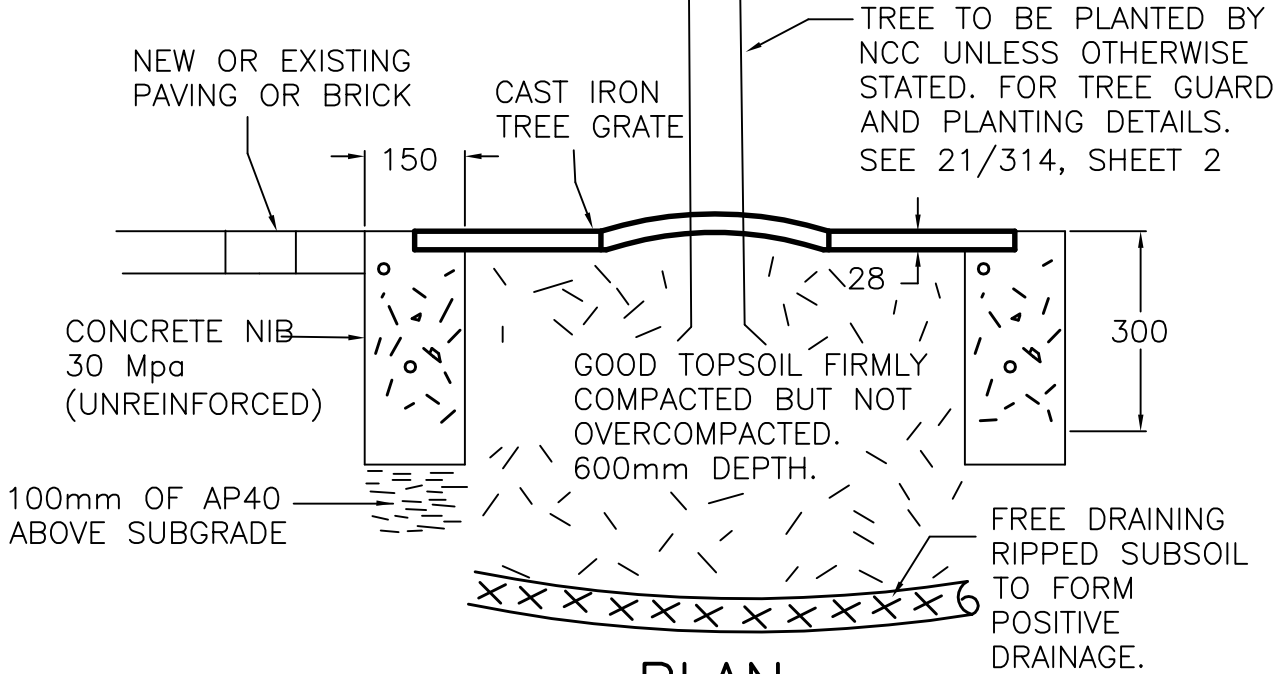
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MANAGER BUSINESS & COMMUNITY ASSETS DATE

PLAN No.

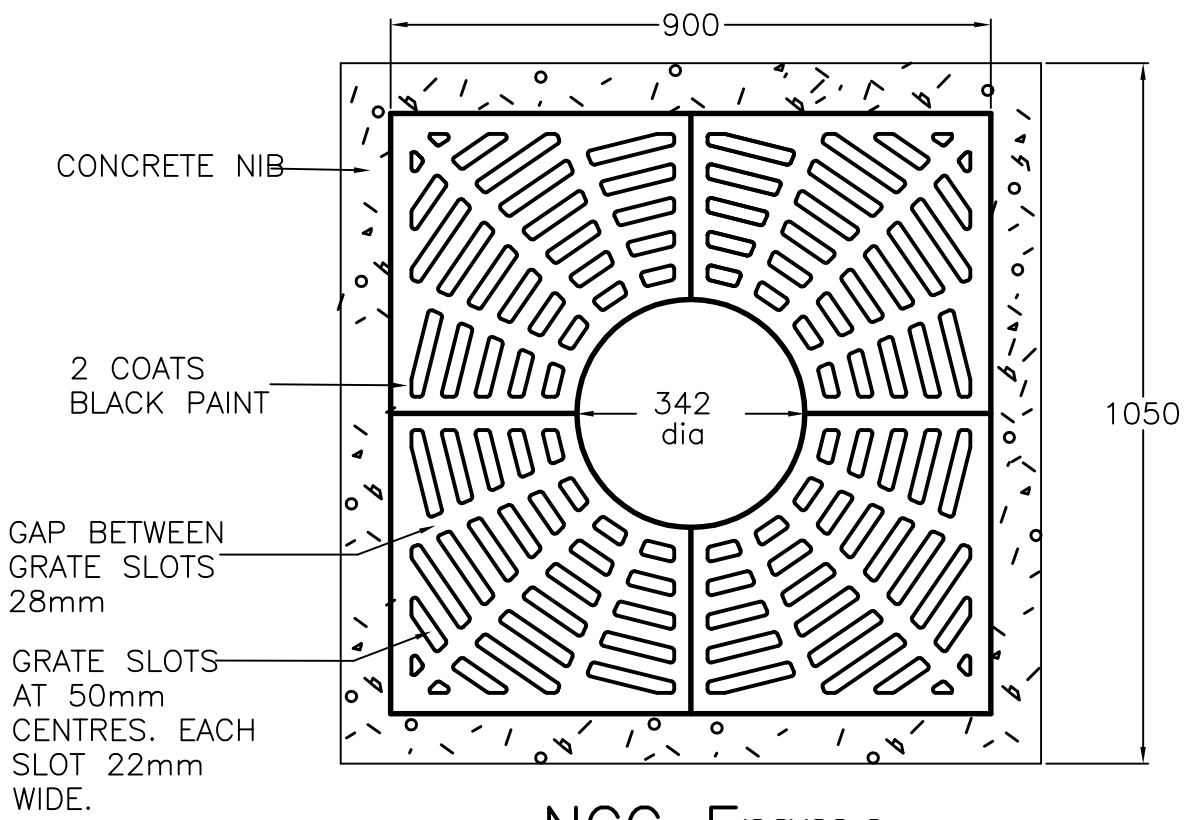
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SHEET 1



PLAN

NOT TO SCALE



NCC Frame

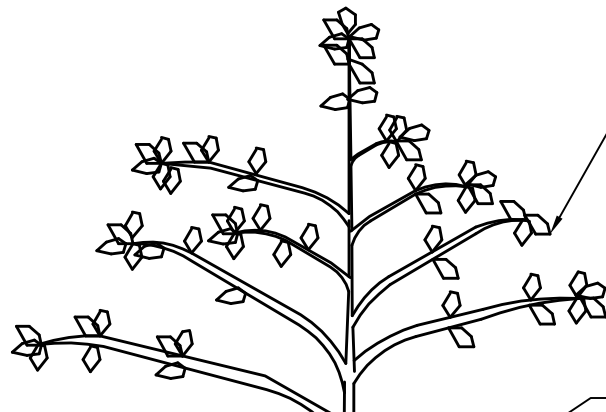
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**NELSON
CITY
COUNCIL**

TREE GRATE PLANTER DETAILS

ASSET MANAGEMENT DIVISION
 APPROVED *John Reall* 12/09/2001
 MANAGER BUSINESS & COMMUNITY ASSETS DATE

PLAN No.
21/314
 SHEET 1



SELECTED 1.8m+ TREE GROWN IN A PB90 AND TRAINED AS A STREET TREE. PRUNE TO SHAPE AFTER PLANTING. REMOVE DAMAGED BRANCHES AS REQUIRED.

FOR EXTRA INITIAL SUPPORT THE TREE SHOULD BE TIED IN TWO OPPOSITE DIRECTIONS WITH A SUITABLE LENGTH OF BIKE TUBE.

STANDARD NCC TREE GUARD PAINTED IN GLOSS BLACK ENAMEL (POWDER COAT).

IF IRRIGATION IS NOT AVAILABLE, A 50mm GAP SHOULD BE LEFT BETWEEN THE GRATE AND THE SOIL TO ALLOW A 'WELL' FOR TREE WATERING. THE GRATES WILL BE SUPPORTED BY THE CONCRETE PLANTER.

TREE GUARD BOLTED TO TREE GRATE. DRILL AND TAP GRATE IN WORKSHOP. ENSURE TREE GUARD IS PERPENDICULAR.

REINFORCED PRECAST CONCRETE PLANTER. CAREFULLY PLACED TO MATCH THE LEVELS AND GRADES OF KERB AND FOOTPATH.

TREE TO BE PLANTED BY EXPERIENCED STAFF. PRUNE ANY DAMAGED ROOTS, AND APPLY SLOW RELEASE FERTILISER.

50/50 MIX OF COMPOST AND GOOD CLEAN TOPSOIL. EVENLY COMPACTED AROUND ROOTS OR ROOT BALL.

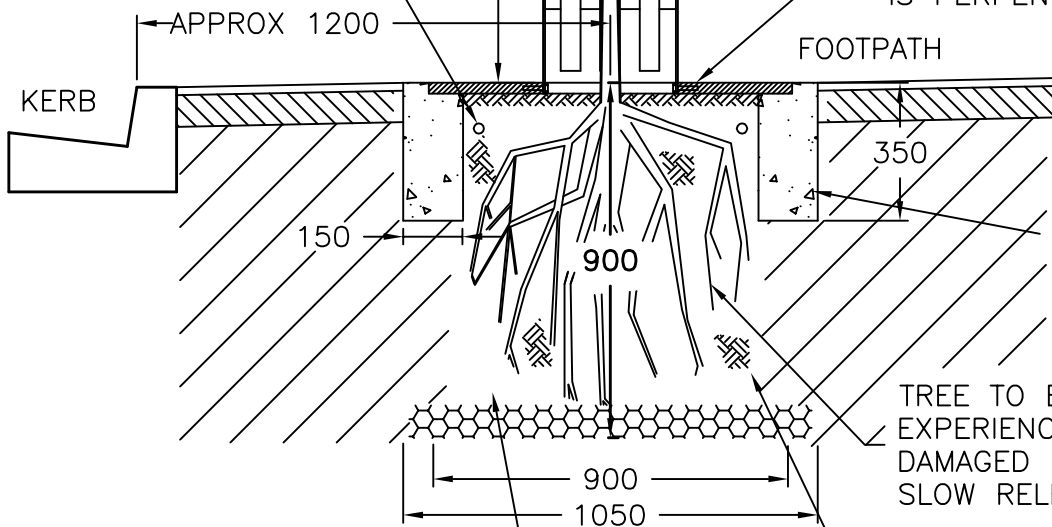
NOTE:

DO NOT APPLY SLOW RELEASE HERBICIDE GRANULES IN THE VICINITY OF STREET TREES.

REMOVE BOTH GRATES AND GUARD AFTER 5 YEARS FROM PLANTING.

TOP UP TO PATH LEVEL WITH PEA METAL OR SIMILAR.

2x4 LITRE/HOUR DRIPPER IRRIGATION IF POSSIBLE.



EXCAVATE A ROOT WELL 900mm DEEP AND ENSURE THE BOTTOM IS FREE DRAINING. BACKFILL WITH TOP QUALITY TOPSOIL.

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STREET TREE PLANTER DETAIL

ASSET MANAGEMENT DIVISION

APPROVED

John Reall

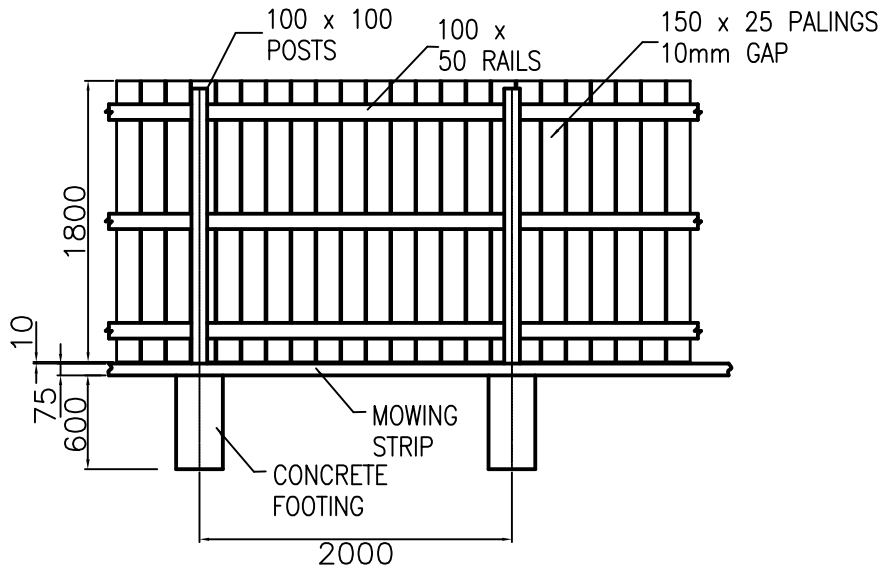
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MANAGER BUSINESS & COMMUNITY ASSETS DATE

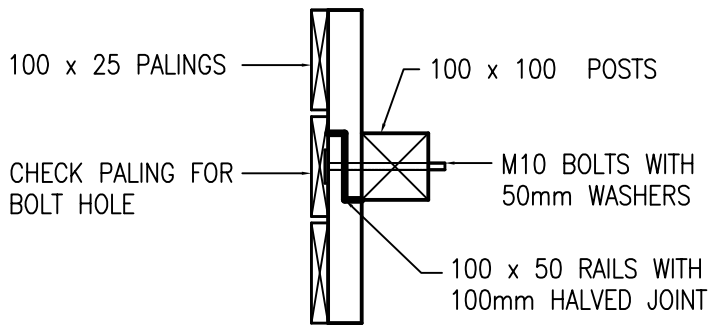
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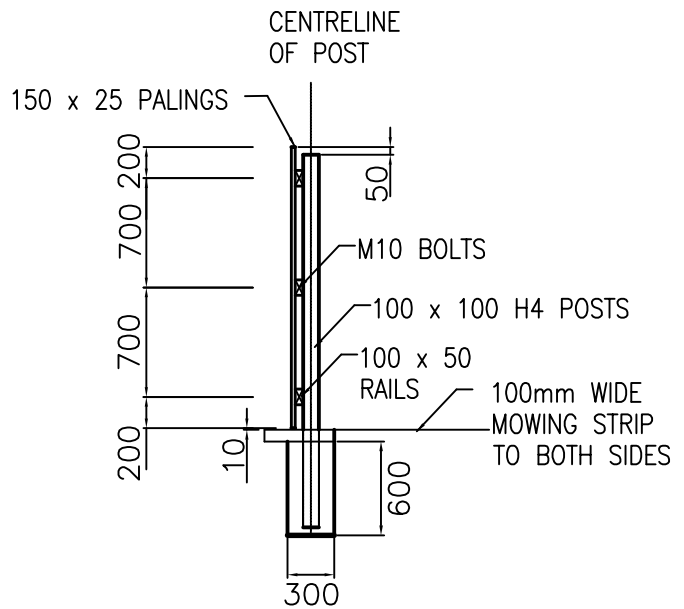
SHEET 2



ELEVATION
NTS



RAIL FIXING DETAIL
NTS



SECTION
NTS

NOTES

1. PALINGS TO BE ON PUBLIC ACCESS SIDE OF FENCE.
2. ALL NUTS, BOLTS NAILS AND WASHERS TO BE GALVANISED.
3. ALL TIMBER PALINGS AND RAILS TO BE H3 TREATED.
4. ALL POSTS TO BE H4 TREATED.
5. FENCE CAP OPTIONAL AT NEIGHBOURS EXPENSE.

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CLOSE BOARD TIMBER FENCE

ASSET MANAGEMENT DIVISION

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MANAGER BUSINESS & COMMUNITY ASSETS

12/09/2001

DATE

PLAN No.

21/315

SHEET 1

IF PLAQUE IS FITTED IT IS TO BE SET INTO THE CENTRE OF THE TOP BOARD SO THAT THE FRONT OF THE PLAQUE IS FLUSH.

LENGTH OF SEAT IS 1.8m WITH PIPE LEGS 300mm IN FROM EACH END.

CAP EACH END OF GALVANISED PIPE. PIPE IS 900mm LONG. BEND TO 100°.

EXCESS THREAD TO BE TRIMMED OFF AND ENDS PENNED OVER OR LIGHTLY WELDED TO REMOVE SHARP EDGES AND PREVENT REMOVAL.

120mm RADIUS

WELDS TO BE WIRE BRUSHED AND PAINTED WITH GREY ANTI RUST PRIMER PAINT SUCH AS COLDGALV.

CONCRETE PAD
2.2 x 1.0 x 0.1 STEEL
FLOAT FINISH WITH
EDGING TROWEL FINISH
AROUND OUTSIDE EDGE.
PAD TO HAVE 3%
CROSSFALL TO
DISPERSE RAIN.

40mm NOMINAL
GALVANISED PIPE 740mm
LONG. PRESS AND SHAPE
TO FIT AT 93° AND WELD
WITH 6mm FILLET ALL
ROUND.

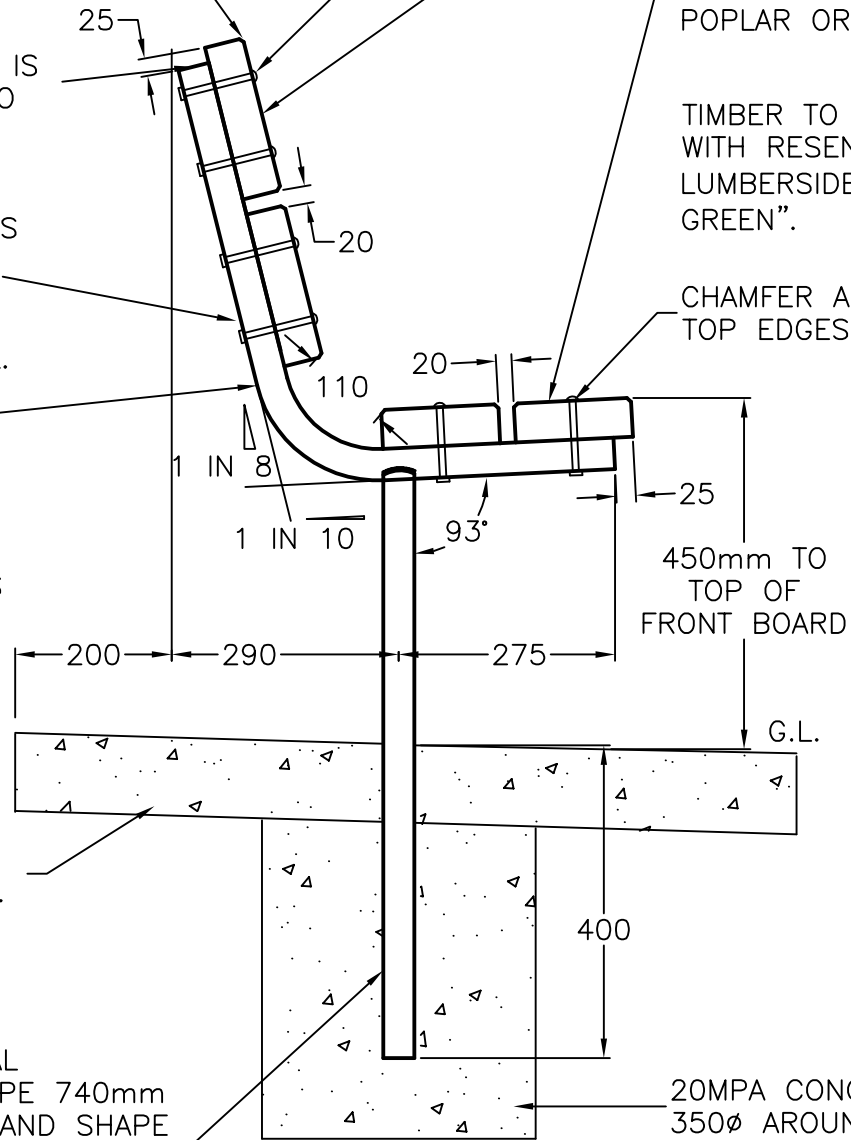
10mm Ø GALVANISED
COACH BOLTS. ROUND
HEAD.

DRESSED EX 200 x 50
No.1 H3 TREATED PINE
POPLAR OR MACROCARPA.

DRESSED 150 x 50 No. 1
H3 TREATED PINE.
POPLAR OR MACROCARPA

TIMBER TO BE PAINTED
WITH RESENE
LUMBERSIDER "DOC
GREEN".

CHAMFER AND SAND ALL
TOP EDGES.



STEEL LEGS ARE TO BE BENT IN A HYDRAULIC PIPE BENDER WITH SUITABLE FORMER AND WELDED IN A JIG TO ENSURE UNIFORMITY.

NTS

**NELSON
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STANDARD PARK BENCH

ASSET MANAGEMENT DIVISION

APPROVED

John Reell

12/09/2001

MANAGER BUSINESS & COMMUNITY ASSETS DATE

PLAN No.

21/316

SHEET 1 OF 1

