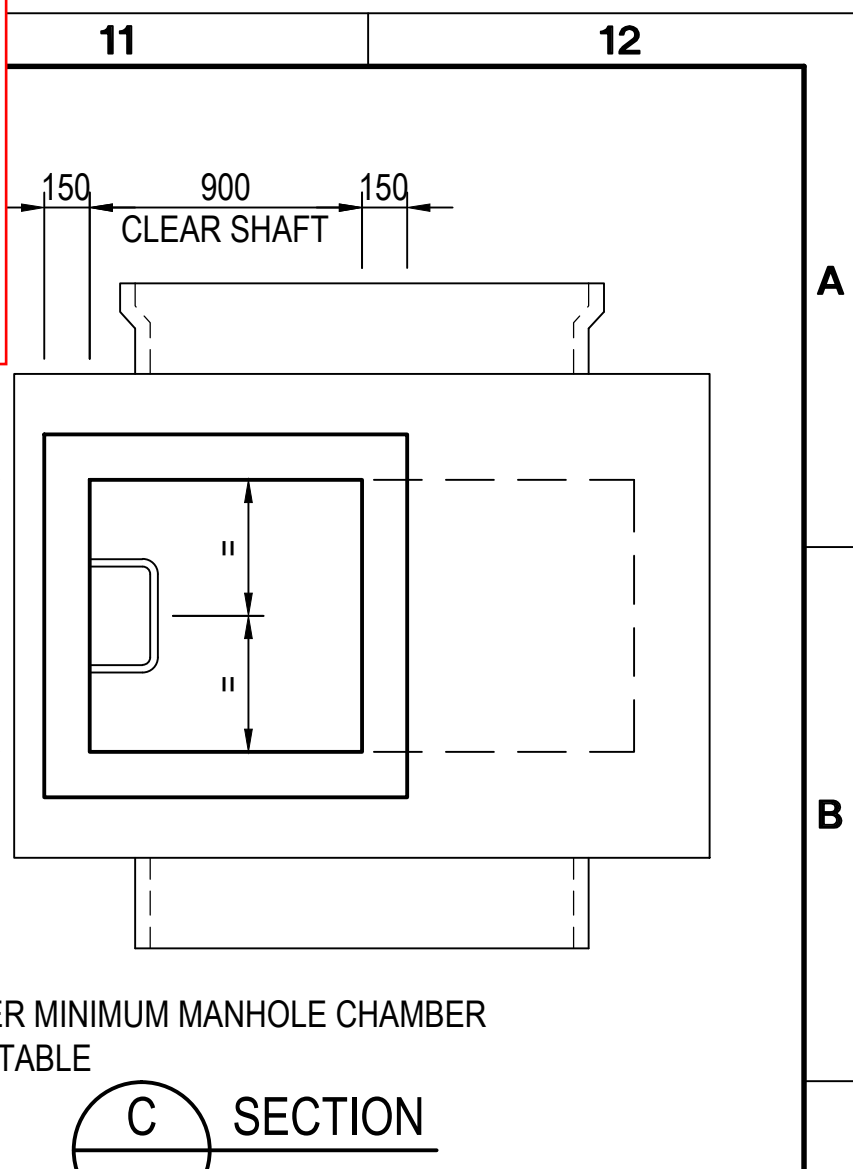
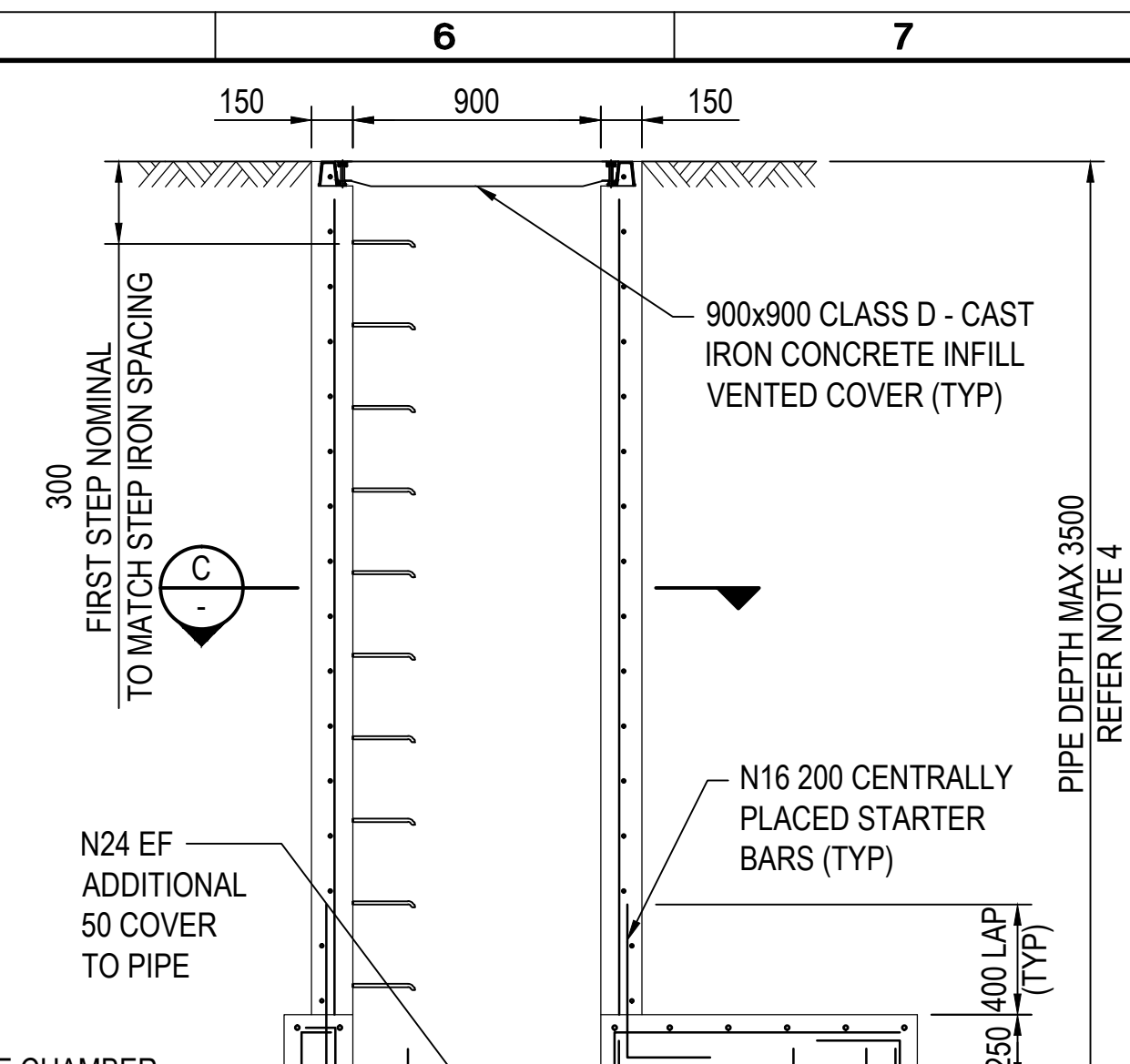




N16 200  
EW / EF  
IN WALL

1:10

1:10

400 LAP  
(TYP)

250 WALL  
(TYP)

150 MIN

400 LAP  
(TYP)

150

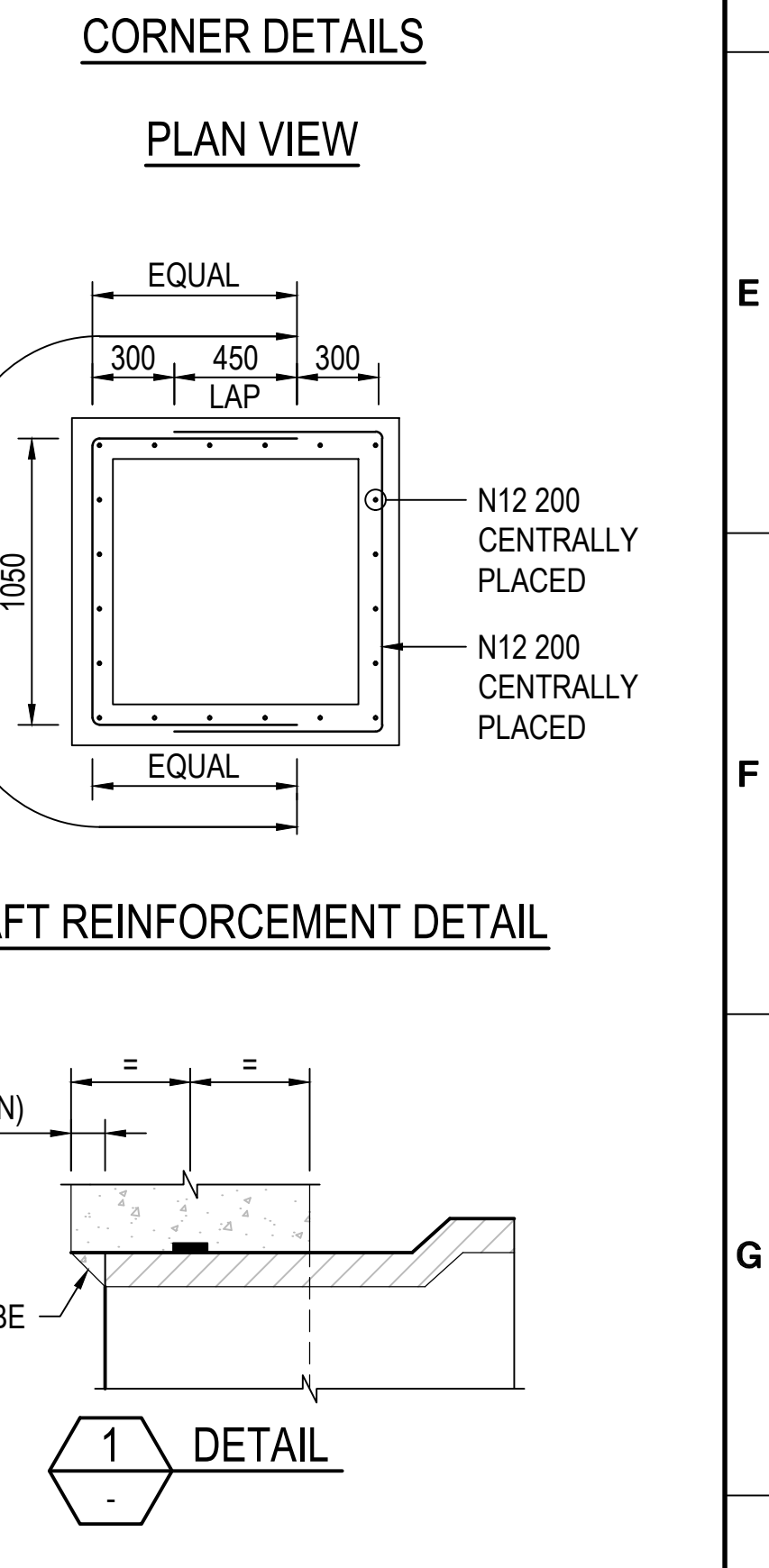
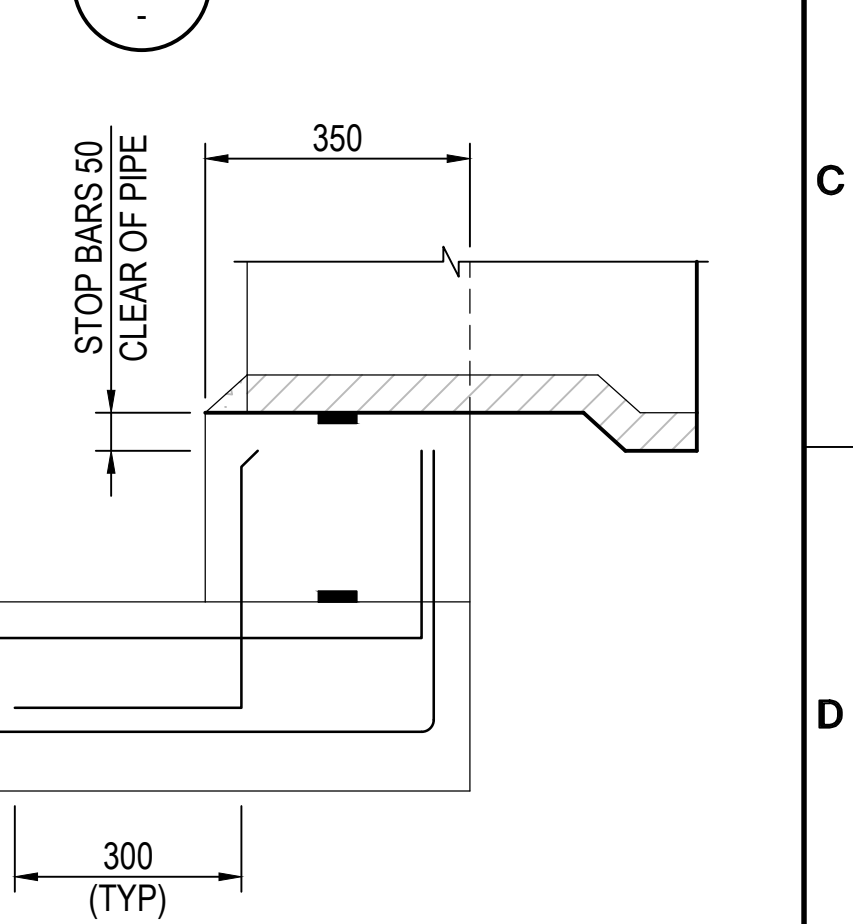
250

A SECTION

PIPES GREATER

150 900 150

- 
- 900x900 CLASS D - CAST IRON CONCRETE INFILL VENTED COVER (TYP)
- OPPORTUNITY TO INVESTIGATE FUTURE PROOFING
- PIPE DEPTH MAX 3500  
REFER NOTE 4
- N16 200 CENTRALLY SPACED
- OPPORTUNITY TO INVESTIGATE PRE-EXISTING CONDITIONS
- 400 LAP (TYP)
- 400 LAP (TYP)
- 250 WALL (TYP)
- 300 LAP (TYP)
- N16-200 EF EW IN WALL
- CONSTRUCTION JOINT
- 1:10 1:10
- D SECTION
- PIPES 600 DI



|               |  |                               |                    |                    |
|---------------|--|-------------------------------|--------------------|--------------------|
| PROJECT DATUM |  | Original<br>Size<br><b>A1</b> | MELBOURNE WATER CO |                    |
| SCALE         |  |                               |                    | 7251/08/40         |
| NTS           |  |                               | CODE               | MWC DRAWING NUMBER |

\* DIMENSIONS OF PIT ARE BASED ON THE O.D. OF CLASS 3 PIPE

**KEY PLAN**

\* REFER MINIMUM MANHOLE CHAMBER SIZE TABLE

JOINT

N16 200 EF

N16 200 EF

AS SHOWN AND SMOOTH

**1** **DETAIL**

NOTES:

- [illegible]



7251/08/408

MWC DRAWING NUMBER

CODE

REV

B

C

D

E

F

G

H

1

2

3

4

5

6

7

8

9

10

11

12

NOTES:

1. THIS DRAWING DETAILS JUNCTION PITS FOR MAIN PIPE DIAMETERS 675mm TO 1800mm DIAMETER.

2. THE WIDTH AND HEIGHT OF THE PIT SHALL BE DETERMINED FROM THE MAIN DRAIN DIAMETER AS SHOWN IN TABLE.

3. THE LENGTH OF THE PIT SHALL BE THE GREATER OF "M" OR "L" AND IS DETERMINED BY THE BRANCH PIPE DIAMETER AND WHETHER THE BRANCH PIPE IS ADJACENT TO THE LADDER OR NOT.

4. THE ACCESS SHAFT SHALL BE LOCATED ON THE SIDE WITH THE SMALLER BRANCH PIPE.

5. ASSETS TO BE VESTED IN THE COUNCIL SHALL BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT COUNCIL STANDARDS.

6. PREFERENCE SHALL BE GIVEN TO ANGLING BRANCH DRAINS DOWNSTREAM AT 45 DEGREES FROM THE PERPENDICULAR.

7. BRANCH PIPE SHALL NOT BE LOCATED IN THE ACCESS SHAFT AND SHALL BE 300mm CLEAR OF STEP IRONS.

8. BRANCH PIPES SHALL NOT BE CONNECTED TO ANY PIT CORNERS. 200mm CLEARANCE IS REQUIRED BETWEEN THE OUTSIDE FACE OF THE PIPE AND THE INTERNAL CORNER OF THE PIT. PIPE OBVERTS ARE TO MATCH WHERE POSSIBLE.

9. USE HEAVY DUTY CLASS D CAST IRON, CONCRETE INFILL VENTED COVERS IN ACCORDANCE WITH AS 3996. VENTS IN COVERS TO BE FORMED IN THE MANUFACTURING PROCESS, NOT ON SITE.

10. COVERS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE.

11. WHERE THE PIT IS REQUIRED FOR SURFACE DRAINAGE:

A PIPE GRILL COVER SHALL BE PROVIDED AS PER DRAWING 7251/08/423 WHERE DEBRIS BUILD UP IS LIKELY.

THE SURROUNDING SURFACE SHALL BE SHAPED TO DIVERT RUNOFF TO THE PIT.

12. JUNCTION PITS SHOWN ON THIS DRAWING HAVE BEEN DESIGNED FOR A LATERAL AT REST EARTH PRESSURE OF 0.50 AND A WHEEL LOAD OF 80 kN. THE REQUIREMENTS OF WALL THICKNESS AND REINFORCEMENT SHALL BE DETERMINED BY THE DESIGNER HAVING REGARD TO SITE CONDITIONS.

13. IT IS DESIGNER'S THE RESPONSIBILITY TO ENSURE THAT THE NOMINATED MELBOURNE WATER STANDARD DRAWINGS ARE SUITABLE FOR PROJECT USE.

14. DESIGN ENGINEER TO CARRY OUT SAFETY IN DESIGN RISK ASSESSMENT FOR ANY DESIGN. MELBOURNE WATER STANDARD DRAWINGS.

15. THE DESIGNER IS TO CONSIDER JUNCTION PIT BACKFILLING METHODOLOGY DURING THE DESIGN PROCESS. PIPE BACKFILLING TO COMPLY WITH DRAWING 7251/08/419.

16. JUNCTION PITS ARE TO BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS 3600 AND AS 3735.

17. ALL CONCRETE SHALL BE S40 WITH MAXIMUM WATER CEMENT RATIO OF 0.50.

18. MINIMUM CONCRETE COVER TO REINFORCEMENT TO BE 50mm.

19. THE CONTRACTOR TO OBTAIN NECESSARY PERMITS AND APPROVALS FROM MELBOURNE WATER PRIOR TO COMMENCING WORKS ON MELBOURNE WATER ASSETS.

20. THE DESIGN DOES NOT COVER JUNCTION PIT OVER EXISTING ASBESTOS PIPE LINES. FURTHER DESIGN ADVICE IS REQUIRED FROM MELBOURNE WATER IN THIS SITUATION.

21. ALL CONCRETE TO BE CAST IN SITU.

22. FOR MANHOLES LOCATED IN NON-PAVED AREAS, CAST IN 600mm CONCRETE APRON SURROUND ALL AROUND THE MANHOLE AS SHOWN ON THE CONCRETE APRON ARRANGEMENT DETAIL ON DRAWING 7251/08/417.

23. NO VEGETATION OBSTRUCTION TO BE LOCATED WITHIN 2m ZONE OF MANHOLES.

24. REFER TO DRAWING 7251/08/416 FOR STEP IRON AND LADDER DETAILS.

OPPORTUNITY TO INVESTIGATE PRE-CAST OPTIONS

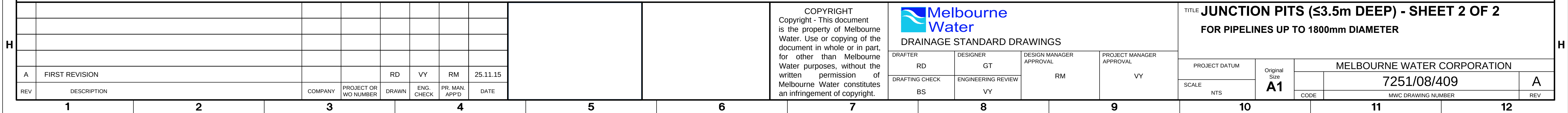
SECTIONAL PLAN

REINFORCEMENT IN MANHOLE CHAMBER WITH DEPTH TO OBVERT LESS THAN 3.5m

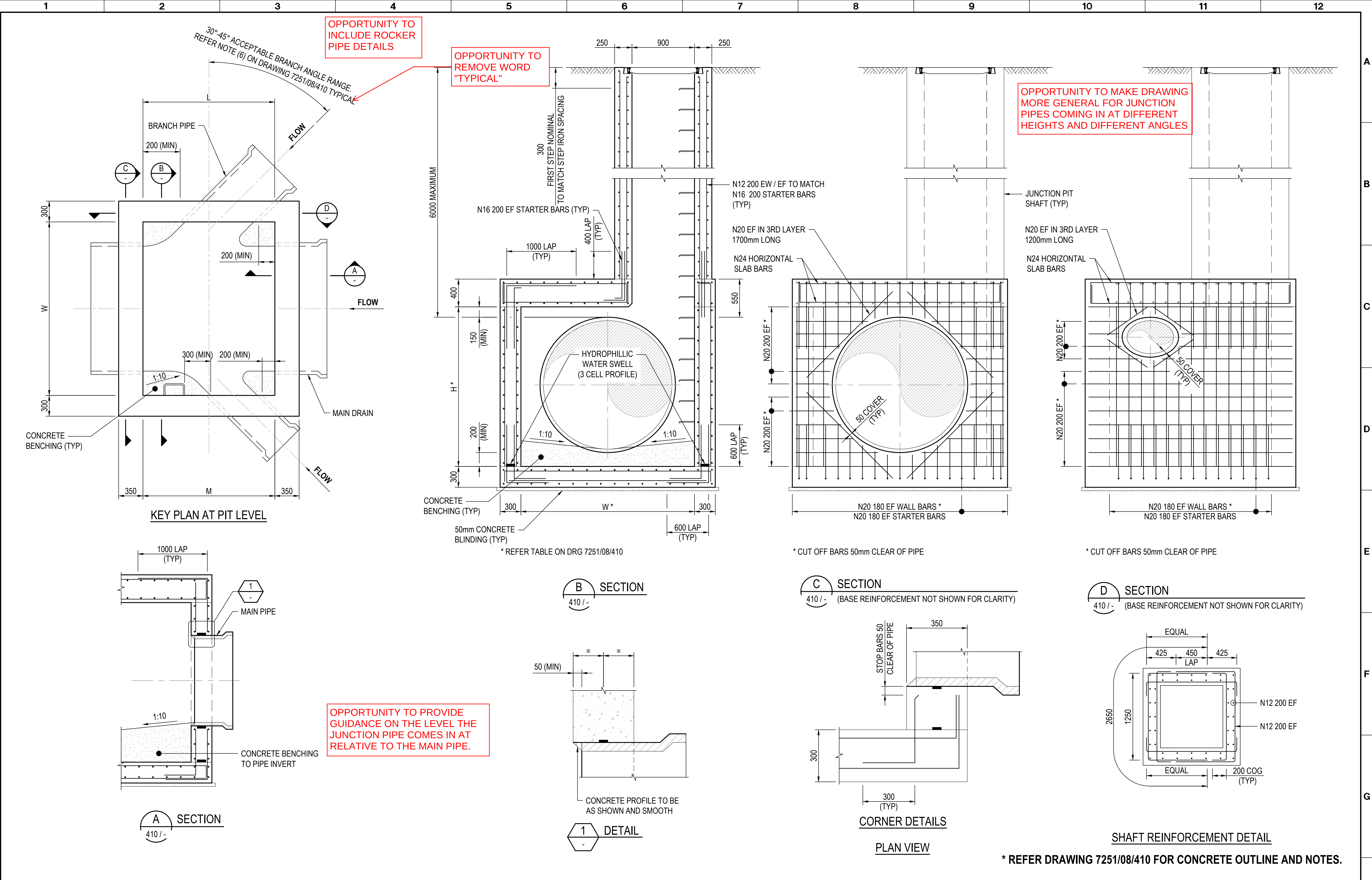
| ITEM                       | THICKNESS | REINFORCEMENT            |                          |                                                                                     |
|----------------------------|-----------|--------------------------|--------------------------|-------------------------------------------------------------------------------------|
|                            |           | TOP                      | BOTTOM                   | STARTER BARS FOR WALLS AND SLABS                                                    |
| BASE SLAB                  | 300       | N20 180 EW               | N20 180 EW               | N16 200 EF                                                                          |
| ROOF                       | 300       | N24 180 EW               | N24 180 EW               |                                                                                     |
| WALLS                      |           | VERTICAL                 | HORIZONTAL               | STARTER BARS FOR ROOF                                                               |
| WALLS WITH MAIN DRAIN PIPE | 350       | N20 180 EF               | N20 200 EF               | N20 AT 180 OUTSIDE FACE INTO TOP OF ROOF SLAB. N16 200 INSIDE FACE INTO SHAFT WALLS |
| OTHER WALLS                | 300       | N20 180 EF               | N20 200 EF               | AS FOR WALLS WITH PIPE                                                              |
| SHAFT WALLS                | 150       | N12 200 CENTRALLY PLACED | N12 200 CENTRALLY PLACED | -                                                                                   |

\* ALL DIMENSIONS ARE IN mm.

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7251/08/412

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MWC DRAWING NUMBER

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NOTES:

1. THIS DRAWING DETAILS JUNCTION PITS FOR MAIN PIPE DIAMETERS 675mm TO 1800mm DIAMETER.

2. THE WIDTH AND HEIGHT OF THE PIT SHALL BE DETERMINED FROM THE MAIN DRAIN DIAMETER AS SHOWN IN TABLE.

3. THE LENGTH OF THE PIT SHALL BE THE GREATER OF "M" OR "L" AND IS DETERMINED BY THE BRANCH PIPE DIAMETER AND WHETHER THE BRANCH PIPE IS ADJACENT TO THE LADDER OR NOT.

4. THE ACCESS SHAFT SHALL BE LOCATED ON THE SIDE WITH THE SMALLER BRANCH PIPE.

5. ASSETS TO BE VESTED IN THE COUNCIL SHALL BE CONSTRUCTED IN ACCORDANCE WITH RELEVANT COUNCIL STANDARDS.

6. PREFERENCE SHALL BE GIVEN TO ANGLING BRANCH DRAINS DOWNSTREAM AT 45 DEGREES FROM THE PERPENDICULAR.

7. BRANCH PIPE SHALL NOT BE LOCATED IN THE ACCESS SHAFT AND SHALL BE 300mm CLEAR OF STEP IRONS.

8. BRANCH PIPES SHALL NOT BE CONNECTED TO ANY PIT CORNERS. 200mm CLEARANCE IS REQUIRED BETWEEN THE OUTSIDE FACE OF THE PIPE AND THE INTERNAL CORNER OF THE PIT. PIPE OBVERTS ARE TO MATCH WHERE POSSIBLE.

9. USE HEAVY DUTY CLASS D CAST IRON, CONCRETE INFILL VENTED COVERS IN ACCORDANCE WITH AS 3996. VENTS IN COVERS TO BE FORMED IN THE MANUFACTURING PROCESS, NOT ON SITE.

10. COVERS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE.

11. WHERE THE PIT IS REQUIRED FOR SURFACE DRAINAGE:

A PIPE GRILL COVER SHALL BE PROVIDED AS PER DRAWING 7251/08/423 WHERE DEBRIS BUILD UP IS LIKELY.

THE SURROUNDING SURFACE SHALL BE SHAPED TO DIVERT RUNOFF TO THE PIT.

12. JUNCTION PITS SHOWN ON THIS DRAWING HAVE BEEN DESIGNED FOR A LATERAL AT REST EARTH PRESSURE OF 0.50 AND A WHEEL LOAD OF 80 kN. THE REQUIREMENTS OF WALL THICKNESS AND REINFORCEMENT SHALL BE DETERMINED BY THE DESIGNER HAVING REGARD TO SITE CONDITIONS.

13. IT IS DESIGNER'S THE RESPONSIBILITY TO ENSURE THAT THE NOMINATED MELBOURNE WATER STANDARD DRAWINGS ARE SUITABLE FOR PROJECT USE.

14. DESIGN ENGINEER TO CARRY OUT SAFETY IN DESIGN RISK ASSESSMENT FOR ANY DESIGN. MELBOURNE WATER STANDARD DRAWINGS.

15. THE DESIGNER IS TO CONSIDER JUNCTION PIT BACKFILLING METHODOLOGY DURING THE DESIGN PROCESS. PIPE BACKFILLING TO COMPLY WITH DRAWING 7251/08/419.

16. JUNCTION PITS ARE TO BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS 3600 AND AS 3735.

17. ALL CONCRETE SHALL BE S40 WITH MAXIMUM WATER CEMENT RATIO OF 0.50.

18. MINIMUM CONCRETE COVER TO REINFORCEMENT TO BE 50mm.

19. THE CONTRACTOR TO OBTAIN NECESSARY PERMITS AND APPROVALS FROM MELBOURNE WATER PRIOR TO COMMENCING WORKS ON MELBOURNE WATER ASSETS.

20. THE DESIGN DOES NOT COVER JUNCTION PIT OVER EXISTING ASBESTOS PIPE LINES. FURTHER DESIGN ADVICE IS REQUIRED FROM MELBOURNE WATER IN THIS SITUATION.

21. ALL CONCRETE TO BE CAST IN SITU.

22. FOR MANHOLES LOCATED IN NON-PAVED AREAS, CAST IN 600mm CONCRETE APRON SURROUND ALL AROUND THE MANHOLE AS SHOWN ON THE CONCRETE APRON ARRANGEMENT DETAIL ON DRAWING 7251/08/417.

23. NO VEGETATION OBSTRUCTION TO BE LOCATED WITHIN 2m ZONE OF MANHOLES.

24. REFER TO DRAWING 7251/08/416 FOR STEP IRON AND LADDER DETAILS.

SECTIONAL PLAN

Diagram showing a junction pit with dimensions L, W, M, and various clearances (200 MIN, 300 MIN). It includes labels for BRANCH PIPE, MAIN DRAIN, CLEAR SHAFT, and flow directions. A note indicates a 30-45 degree angle typical for branch pipes.

OPPORTUNITY TO INVESTIGATE PRE-CAST OPTIONS

OPPORTUNITY TO REMOVE WORD "TYPICAL"

| MAIN DRAIN Ø | MINIMUM PIT |           | MAX. BRANCH DRAIN Ø | VARIATIONS TO PIT LENGTH "L" / "M" |                          |
|--------------|-------------|-----------|---------------------|------------------------------------|--------------------------|
|              | HEIGHT "H"  | WIDTH "W" |                     | PIPE OPPOSITE LADDER "L"           | PIPE ADJACENT LADDER "M" |
|              |             |           |                     | 30° - 45°                          | 30° - 45°                |
| 1950         | 2800        | 2600      | 900                 | 1900                               | 2600                     |
| 2100         | 3000        | 2800      | 1050                | 2150                               | 2850                     |
| 2250         | 3150        | 3000      | 1050                | 2150                               | 2850                     |
| 2400         | 3350        | 3200      | 1200                | 2350                               | 3050                     |

\* ALL DIMENSIONS ARE IN mm.

REINFORCEMENT IN MANHOLE CHAMBER WITH DEPTH TO OBVERT LESS THAN 3.5m

| ITEM                       | THICKNESS | REINFORCEMENT                          |                             |                                                                                     |
|----------------------------|-----------|----------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|
|                            |           | TOP                                    | BOTTOM                      | STARTER BARS FOR WALLS AND SLABS                                                    |
| BASE SLAB                  | 300       | N20 180 EW                             | N20 180 EW                  | N16 200 EF                                                                          |
| ROOF                       | 350       | N24 180 EW                             | N24 180 EW                  |                                                                                     |
| WALLS                      |           | VERTICAL                               | HORIZONTAL                  | STARTER BARS FOR ROOF                                                               |
| WALLS WITH MAIN DRAIN PIPE | 350       | N20 180 EF<br>N16 LIGATURES ABOVE PIPE | N20 200 EF                  | N20 AT 180 OUTSIDE FACE INTO TOP OF ROOF SLAB. N16 200 INSIDE FACE INTO SHAFT WALLS |
| OTHER WALLS                | 300       | N20 180 EF<br>N16 LIGATURES ABOVE PIPE | N20 200 EF                  | AS FOR WALLS WITH PIPE                                                              |
| SHAFT WALLS                | 150       | N12 200<br>CENTRALLY PLACED            | N12 200<br>CENTRALLY PLACED | -                                                                                   |

\* REFER DRAWING 7251/08/413 FOR REINFORCEMENT DETAILS

B

SECOND REVISION: CORRECT TABLE HEADING

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FIRST REVISION

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DESCRIPTION

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DRAINAGE STANDARD DRAWINGS

DRAFTER RD

DESIGNER GT

DESIGN MANAGER APPROVAL RM

PROJECT MANAGER APPROVAL VY

DRAFTING CHECK BS

ENGINEERING REVIEW VY

TITLE

JUNCTION PITS (≤3.5m DEEP) - SHEET 1 OF 2

FOR PIPELINES 1950mm TO 2400mm DIAMETER

PROJECT DATUM

SCALE NTS

Original Size A1

MELBOURNE WATER CORPORATION

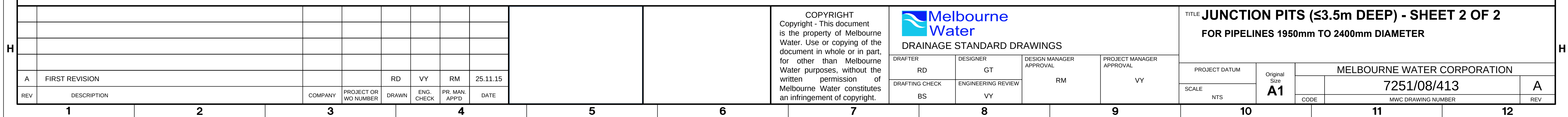
7251/08/412

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CODE

MWC DRAWING NUMBER

REV



7251/08/414

7251/08/414

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- BRANCH PIPE SHALL NOT BE LOCATED IN THE ACCESS SHAFT AND SHALL BE 300mm CLEAR OF STEP IRONS.
- BRANCH PIPES SHALL NOT BE CONNECTED TO ANY PIT CORNERS. 200mm CLEARANCE IS REQUIRED BETWEEN THE OUTSIDE FACE OF THE PIPE AND THE INTERNAL CORNER OF THE PIT. PIPE OBVERTS ARE TO MATCH WHERE POSSIBLE.
- USE HEAVY DUTY CLASS D CAST IRON, CONCRETE INFILL VENTED COVERS IN ACCORDANCE WITH AS 3996. VENTS IN COVERS TO BE FORMED IN THE MANUFACTURING PROCESS NOT ON SITE.
- COVERS SHALL FINISH FLUSH WITH THE SURROUNDING SURFACE.
- WHERE THE PIT IS REQUIRED FOR SURFACE DRAINAGE:
  - A PIPE GRILL COVER SHALL BE PROVIDED AS PER DRAWING 7251/08/423 WHERE DEBRIS BUILD UP IS LIKELY.
  - THE SURROUNDING SURFACE SHALL BE SHAPED TO DIVERT RUNOFF TO THE PIT.
- JUNCTION PITS SHOWN ON THIS DRAWING HAVE BEEN DESIGNED FOR A LATERAL AT REST EARTH PRESSURE OF 0.50 AND A WHEEL LOAD OF 80 kN. THE REQUIREMENTS OF WALL THICKNESS AND REINFORCEMENT SHALL BE DETERMINED BY THE DESIGNER HAVING REGARD TO SITE CONDITIONS.
- IT IS DESIGNER'S THE RESPONSIBILITY TO ENSURE THAT THE NOMINATED MELBOURNE WATER STANDARD DRAWINGS ARE SUITABLE FOR PROJECT USE.
- DESIGN ENGINEER TO CARRY OUT SAFETY IN DESIGN RISK ASSESSMENT FOR ANY DESIGN. MELBOURNE WATER STANDARD DRAWINGS.
- THE DESIGNER IS TO CONSIDER JUNCTION PIT BACKFILLING METHODOLOGY DURING THE DESIGN PROCESS. PIPE BACKFILLING TO COMPLY WITH DRAWING 7251/08/419.
- JUNCTION PITS ARE TO BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS 3600 AND AS 3735.
- ALL CONCRETE SHALL BE S40 WITH MAXIMUM WATER CEMENT RATIO OF 0.50.
- MINIMUM CONCRETE COVER TO REINFORCEMENT TO BE 50mm.
- THE CONTRACTOR TO OBTAIN NECESSARY PERMITS AND APPROVALS FROM MELBOURNE WATER PRIOR TO COMMENCING WORKS ON MELBOURNE WATER ASSETS.
- THE DESIGN DOES NOT COVER JUNCTION PIT OVER EXISTING ASBESTOS PIPE LINES. FURTHER DESIGN ADVICE IS REQUIRED FROM MELBOURNE WATER IN THIS SITUATION.
- ALL CONCRETE TO BE CAST IN SITU.
- FOR MANHOLES LOCATED IN NON-PAVED AREAS, CAST IN 600mm CONCRETE APRON SURROUND ALL AROUND THE MANHOLE AS SHOWN ON THE CONCRETE APRON ARRANGEMENT DETAIL ON DRAWING 7251/08/417.
- NO VEGETATION OBSTRUCTION TO BE LOCATED WITHIN 2m ZONE OF MANHOLES.
- REFER TO DRAWING 7251/08/416 FOR STEP IRON AND LADDER DETAILS.

SECTIONAL PLAN

REINFORCEMENT IN MANHOLE CHAMBER WITH DEPTH TO OBVERT GREATER THAN 3.5m AND LESS THAN 6.0m

| ITEM                       | THICKNESS | REINFORCEMENT                          |                                  |                                                                                     |
|----------------------------|-----------|----------------------------------------|----------------------------------|-------------------------------------------------------------------------------------|
|                            |           | TOP                                    | BOTTOM                           | STARTER BARS FOR WALLS AND SLABS                                                    |
| BASE SLAB                  | 300       | N20 180 EW                             | N20 180 EW                       | N16 200 EF                                                                          |
| ROOF                       | 500       | N24 180 EW                             | N24 180 EW                       |                                                                                     |
| WALLS                      |           | VERTICAL                               | HORIZONTAL                       | STARTER BARS FOR ROOF                                                               |
| WALLS WITH MAIN DRAIN PIPE | 350       | N20 180 EF<br>N16 LIGATURES ABOVE PIPE | N20 200 EF<br>2N24 EF ABOVE PIPE | N20 AT 180 OUTSIDE FACE INTO TOP OF ROOF SLAB. N16 200 INSIDE FACE INTO SHAFT WALLS |
| OTHER WALLS                | 300       | N20 180 EF<br>N16 LIGATURES ABOVE PIPE | N20 200 EF<br>2N24 EF ABOVE PIPE | AS FOR WALLS WITH PIPE                                                              |
| SHAFT WALLS                | 250       | N12 200 EF                             | N12 200 EF                       | -                                                                                   |

\* REFER DRAWING 7251/08/415 FOR REINFORCEMENT DETAILS

| MAIN DRAIN Ø | MINIMUM PIT |           | MAX. BRANCH DRAIN Ø | VARIATIONS TO PIT LENGTH "L" / "M" |                          |
|--------------|-------------|-----------|---------------------|------------------------------------|--------------------------|
|              | HEIGHT "H"  | WIDTH "W" |                     | PIPE OPPOSITE LADDER "L"           | PIPE ADJACENT LADDER "M" |
|              |             |           |                     | 30° - 45°                          | 30° - 45°                |
| 1950         | 2800        | 2600      | 900                 | 1900                               | 2600                     |
| 2100         | 3000        | 2800      | 1050                | 2150                               | 2850                     |
| 2250         | 3150        | 3000      | 1050                | 2150                               | 2850                     |
| 2400         | 3350        | 3200      | 1200                | 2350                               | 3050                     |

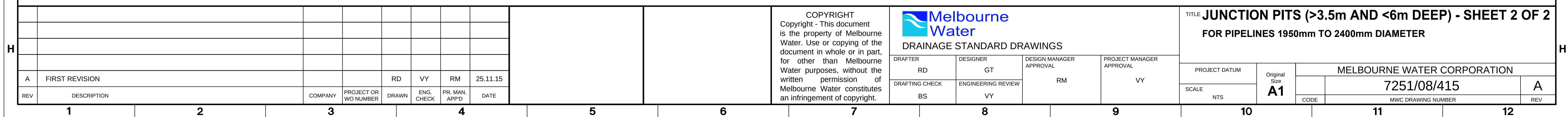
\* ALL DIMENSIONS ARE IN mm.

Melbourne Water

DRAINAGE STANDARD DRAWINGS

TITLE: JUNCTION PITS (>3.5m AND <6m DEEP) - SHEET 1 OF 2 FOR PIPELINES 1950mm TO 2400mm DIAMETER

| PROJECT DATUM |     | Original Size<br>A1 | MELBOURNE WATER CORPORATION |   |
|---------------|-----|---------------------|-----------------------------|---|
| SCALE         | NTS |                     | 7251/08/414                 | A |
|               |     |                     | MWC DRAWING NUMBER          |   |



7251/08/416

MMWC DRAWING NUMBER

CODE

1

2

3

4

5

6

7

8

9

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12

A

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F

G

H

FACE OF WALL

MIN Ø20 RUNGS  
DRILL STILES &  
PLUG WELD  
RUNGS IN HOLES

PLAN

10PLx65 WIDE

4M16/4.60  
HOT DIP GALV. WITH  
NUT & WASHER

50

25 (TYP)

25

5

FACE OF WALL

60x10 BRACKET

SECTION

NOTES:

- WHERE PIT DEPTH TO INVERT IS LESS THAN OR EQUAL TO 3.5m, STEP IRONS SHALL BE USED. FOR DEEPER MANHOLES RUNG LADDERS SHALL BE USED.
- CRANKED AND CAST IN-SITU STEP IRONS SHALL BE GALVANISED, MILD STEEL. UNLESS OTHERWISE APPROVED BY MELBOURNE WATER.
- STEEL CORE, PLASTIC COATED STEP IRONS MAY BE USED FOR DRAINS.
- TO AVOID SLIPS, GALVANISED STEEL STEP IRONS MUST BE CRANKED, PLASTIC COATED STEP IRONS SHOULD BE TEXTURED FOR GRIP & MUST HAVE FORMED RETURNS ON SIDES.
- INSTALL THE STEP IRONS / LADDERS IN A CONTINUOUS STRAIGHT RUN FROM TOP TO BOTTOM OF PIT/MANHOLE. STEP IRON / LADDERS MUST BE ALIGNED WITH THE CENTRE OF THE PIT/MANHOLE OPENING. CONSIDERATION MUST BE GIVEN TO LOCATION OF STEP IRONS SO THAT THEY DO NOT CLASH WITH PIPE CONNECTIONS & CORBELS. IT IS THE DESIGNER'S RESPONSIBILITY TO DESIGN PITS SO THAT THE ABOVE REQUIREMENTS CAN BE MET.
- ALL STEEL WORK TO BE HOT DIPPED GALVANISED. ABRASIVE BLAST CLEAN TO AS 1627 PART 4 CLASS SA 2½, WITH A MINIMUM SURFACE PROFILE OF 75 MICRONS. GALVANIZE THE STEELWORK IN ACCORDANCE WITH THE REQUIREMENTS OF AS/NZS 4680. APPLY THE GALVANIZED COATING TO AS/NZS 2312.2, TABLE 6.2 SYSTEM HGD900, WITH A NOMINAL THICKNESS OF 125 MICRON OR THE EQUIVALENT MASS OF 900 G/M2. REPAIR DAMAGED GALVANIZING IN ACCORDANCE WITH AS/NZS 4680, SECTION 8, BY APPLYING A ZINC-RICH EPOXY COATING USING A SUFFICIENT NUMBER OF APPLICATIONS TO ACHIEVE A TOTAL DFT OF 150 MICRON, (WITHIN 4 HOURS) TO THE PREPARED SURFACE, BY BRUSH OR SPRAY IN ACCORDANCE WITH THE COATING MANUFACTURER'S RECOMMENDATIONS (TYPICALLY TWO COATS ARE REQUIRED TO ACHIEVE THE DFT). EXTEND THE PATCH OF ORGANIC ZINC-RICH COATING A MINIMUM OF 50 MICRON OVER THE UNDAMAGED ZINC COATED SURFACE. ALL NUTS, BOLTS AND WASHERS TO BE GALVANIZED TO AS 1214 HOT-DIP GALVANIZED COATINGS ON THREADED FASTENERS (ISO METRIC COARSE THREAD SERIES).
- PROVIDE, AS REQUIRED, ADDITIONAL HAND GRIPS (HOLDS) ADJACENT TO INDIVIDUAL RUNGS AND VERTICAL LADDERS LOCATED WITHIN CONCRETE BENCHING LANDINGS.
- IT IS THE DESIGNER'S RESPONSIBILITY TO ENSURE THAT THE NOMINATED MELBOURNE WATER STANDARD DRAWINGS ARE SUITABLE FOR PROJECT USE.
- DESIGN ENGINEER TO CARRY OUT SAFETY IN DESIGN RISK ASSESSMENT FOR ANY DESIGN INCORPORATING MELBOURNE WATER STANDARD DRAWINGS.
- WHERE CONCRETE BENCHING IS STEEPER THAN 1:10 AND "H" IS GREATER THAN 300mm, PROVIDE STEP IRONS AT MAXIMUM 300mm CENTRES AND SPACED EQUALLY.
- ALL STEP IRONS / LADDERS TO BE SPACED EQUALLY AS PER CLAUSE C7.4.3.2 OF AS1657. ACCEPTABLE RUNG SPACING IS BETWEEN 250mm MINIMUM TO 300mm MAXIMUM, TO SUIT PIT DEPTH.
- FOR PITS WITH VERTICAL DROP PIPE INCORPORATED WITH STEP IRONS / LADDERS, SEEK ADVICE FROM MELBOURNE WATER.

60x10 PL STILES

60x10 BRACKETS

CONSIDER MISALIGNMENT STEPS DETAILS

TOP OF BENCHING AT LANDING

CONCRETE BENCHING

ADDITIONAL STEP IRONS IN BENCHING REFER NOTES 7 AND 10 (TYP)

300 MAX

PIT FLOOR LEVEL

WHERE DIMENSION "H" IS GREATER THAN 300 mm PROVIDE 600 mm (MIN) LANDING IN CONCRETE BENCHING OR PIT FLOOR SLOPE OF LANDING TO BE LESS THAN 1 IN 10 (WHERE POSSIBLE)

SIDE ELEVATION

RUNG LADDERS

PIT ACCESS LEVEL

FIRST RUNG 300 mm NOMINAL TO MATCH REMAINING RUNG SPACING 4575 MAX IN ANY ONE SECTION

1525 MAX

1525 MAX

300 mm NOMINAL REFER NOTE 11

300 mm NOMINAL REFER NOTE 11

ISOMETRIC VIEW

FRONT ELEVATION

Ø18 HOLE M16 POST INSTALLED CHEMICAL ANCHOR HOT DIP GALVANISED 90mm MIN EMBEDMENT WITH WASHER AND NUT

FORMED RETURN

350

SECTIONAL PLAN (REFER NOTES 2, 3 & 4)

PLASTIC COATED STEEL STEP IRONS

CAST IN SITU - SECTIONAL ELEVATION

M.S GALVANISED CRANKED STEP IRONS

DRILLED HOLES - SECTIONAL PLAN

150mm MIN. WALL THICKNESS

Ø20 MIN STEEL CORE

CRANKED STEP IRON

DRIVE STEP IRONS INTO DRILLED HOLES TO ENSURE TIGHT FIT. HOLES TO BE SEALED WITH MORTAR. STEP IRONS MAY ALSO BE CHEMSET INTO POSITION

150

300

REFER NOTE (11)

350

Ø20

150

30

OPPORTUNITY TO CONSIDER SAFETY FROM FALLING

MELBOURNE WATER

DRAINAGE STANDARD DRAWINGS

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DRAFTER RD

DESIGNER GT

DESIGN MANAGER APPROVAL RM

PROJECT MANAGER APPROVAL VY

DRAFTING CHECK BS

ENGINEERING REVIEW VY

PROJECT DATUM

Original Size A1

SCALE NTS

MELBOURNE WATER CORPORATION

7251/08/416

A

REV

DESCRIPTION

COMPANY

PROJECT OR WO NUMBER

DRAWN

ENG. CHECK

PR. MAN. APP'D

DATE

RD

VY

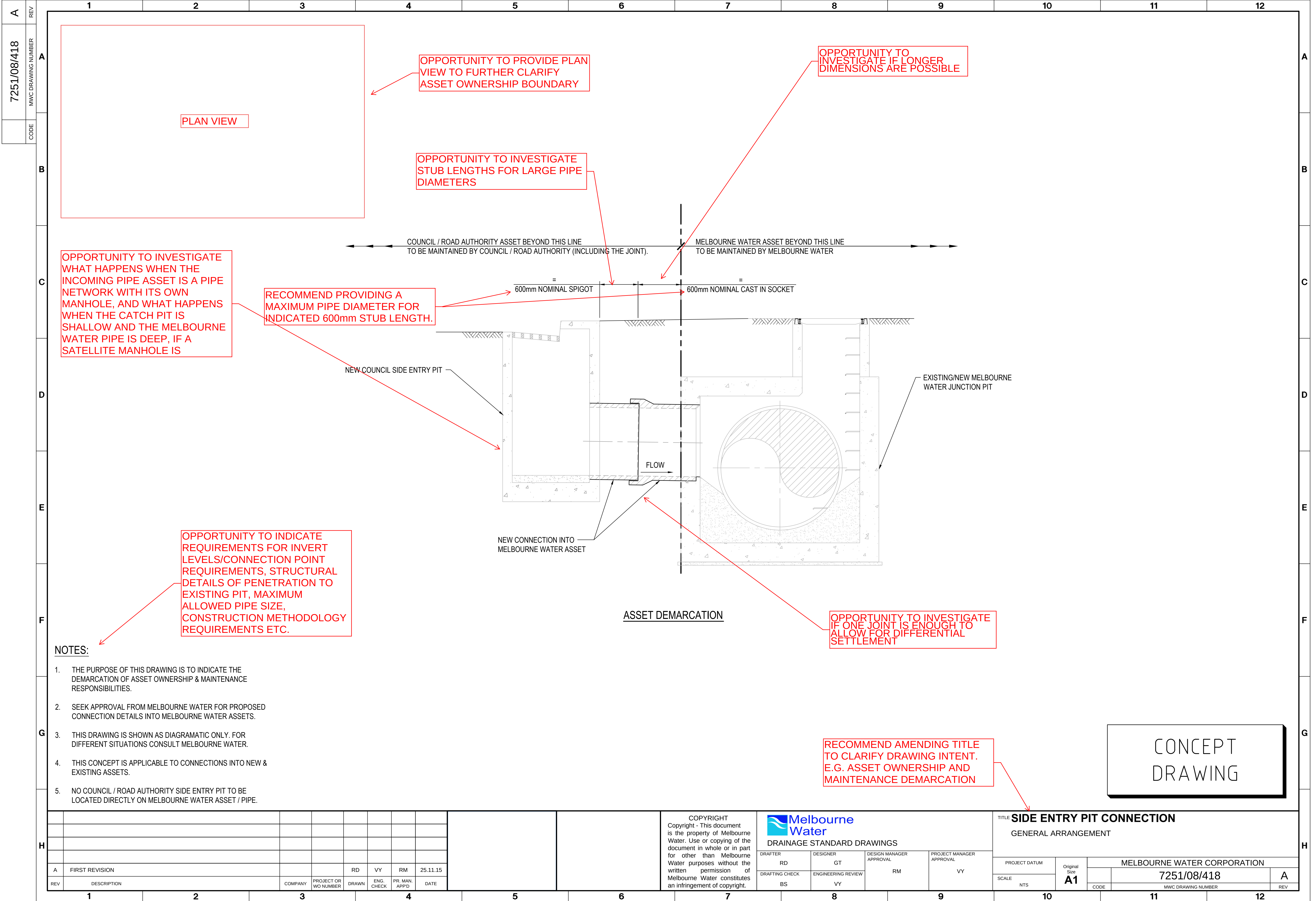
RM

25.11.15

A

FIRST REVISION

[illegible]



7251/08/418

REV

MWC DRAWING NUMBER

CODE

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| REV | DESCRIPTION    | COMPANY | PROJECT OR WO NUMBER | DRAWN | ENG. CHECK | PR. MAN. APPD. | DATE     |
|-----|----------------|---------|----------------------|-------|------------|----------------|----------|
| A   | FIRST REVISION |         |                      | RD    | VY         | RM             | 25.11.15 |

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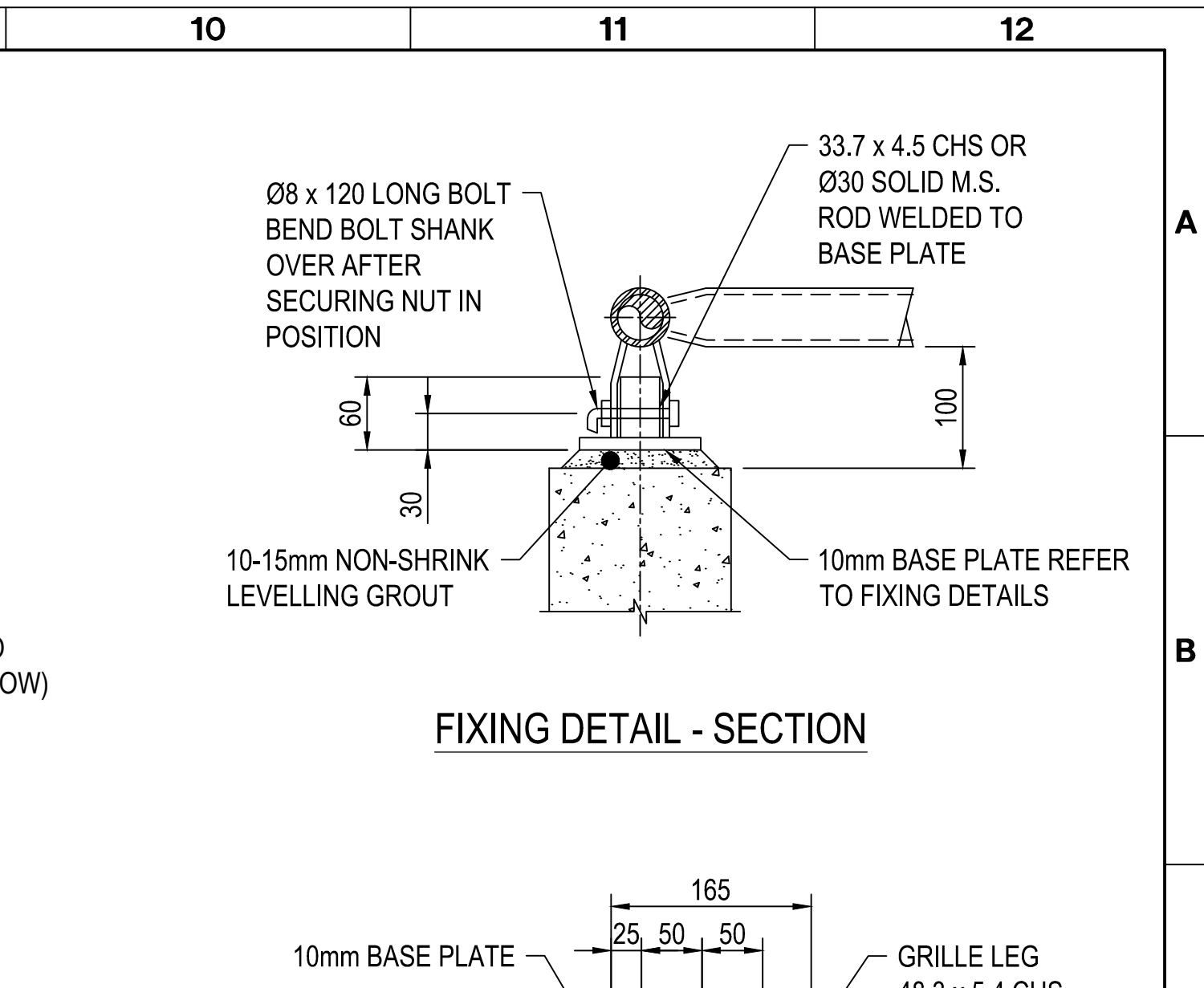
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|-----------------------------------------------|--------------------------|-------------------------------|--------------------------------|
| Melbourne Water<br>DRAINAGE STANDARD DRAWINGS |                          |                               |                                |
| DRAFTER<br>RD                                 | DESIGNER<br>GT           | DESIGN MANAGER APPROVAL<br>RM | PROJECT MANAGER APPROVAL<br>VY |
| DRAFTING CHECK<br>BS                          | ENGINEERING REVIEW<br>VY |                               |                                |

|                                                                  |                            |                             |     |
|------------------------------------------------------------------|----------------------------|-----------------------------|-----|
| TITLE<br><b>SIDE ENTRY PIT CONNECTION</b><br>GENERAL ARRANGEMENT |                            |                             |     |
| PROJECT DATUM                                                    | Original Size<br><b>A1</b> | MELBOURNE WATER CORPORATION |     |
| SCALE<br>NTS                                                     |                            | 7251/08/418                 | A   |
|                                                                  |                            | MWC DRAWING NUMBER          | REV |





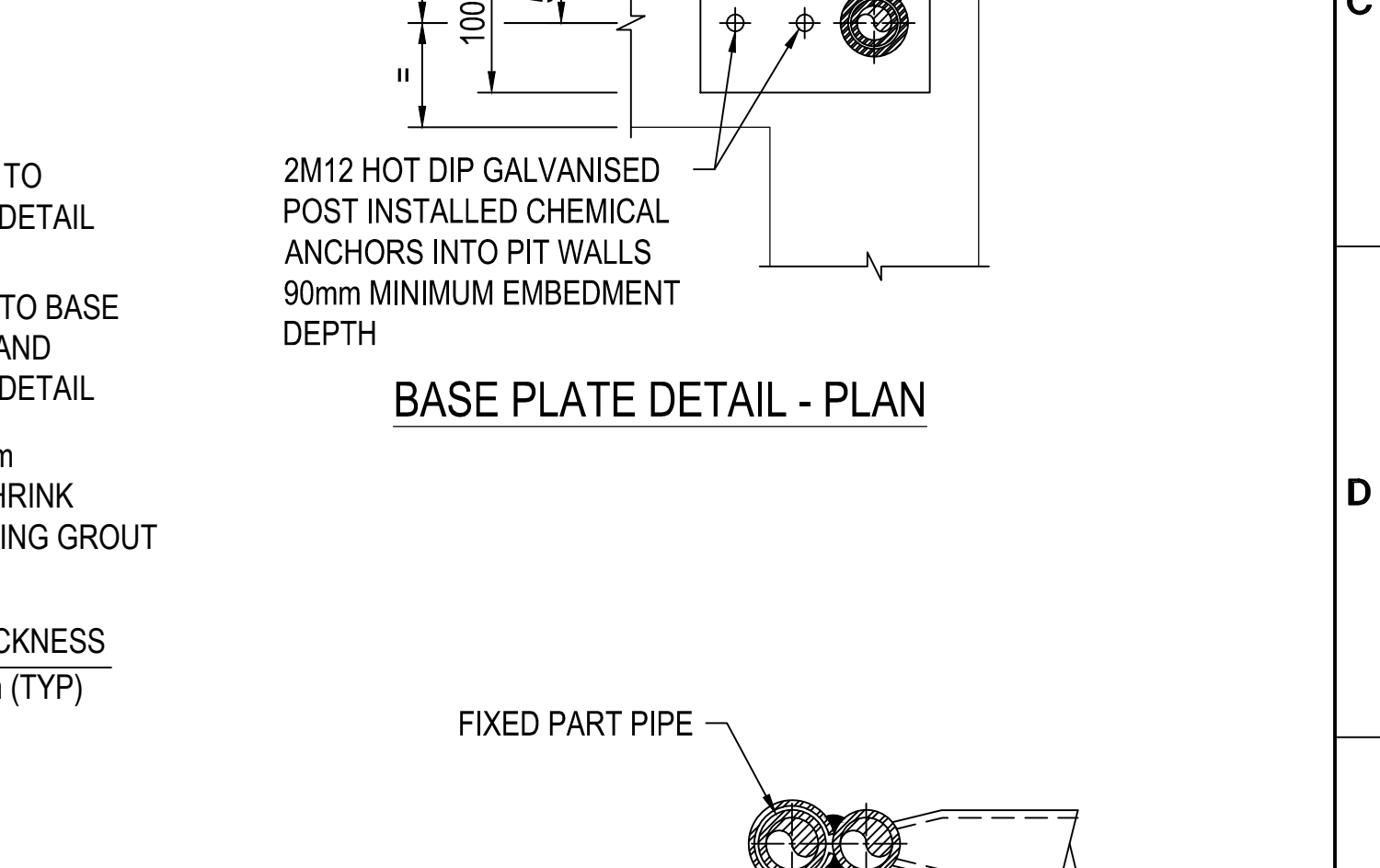




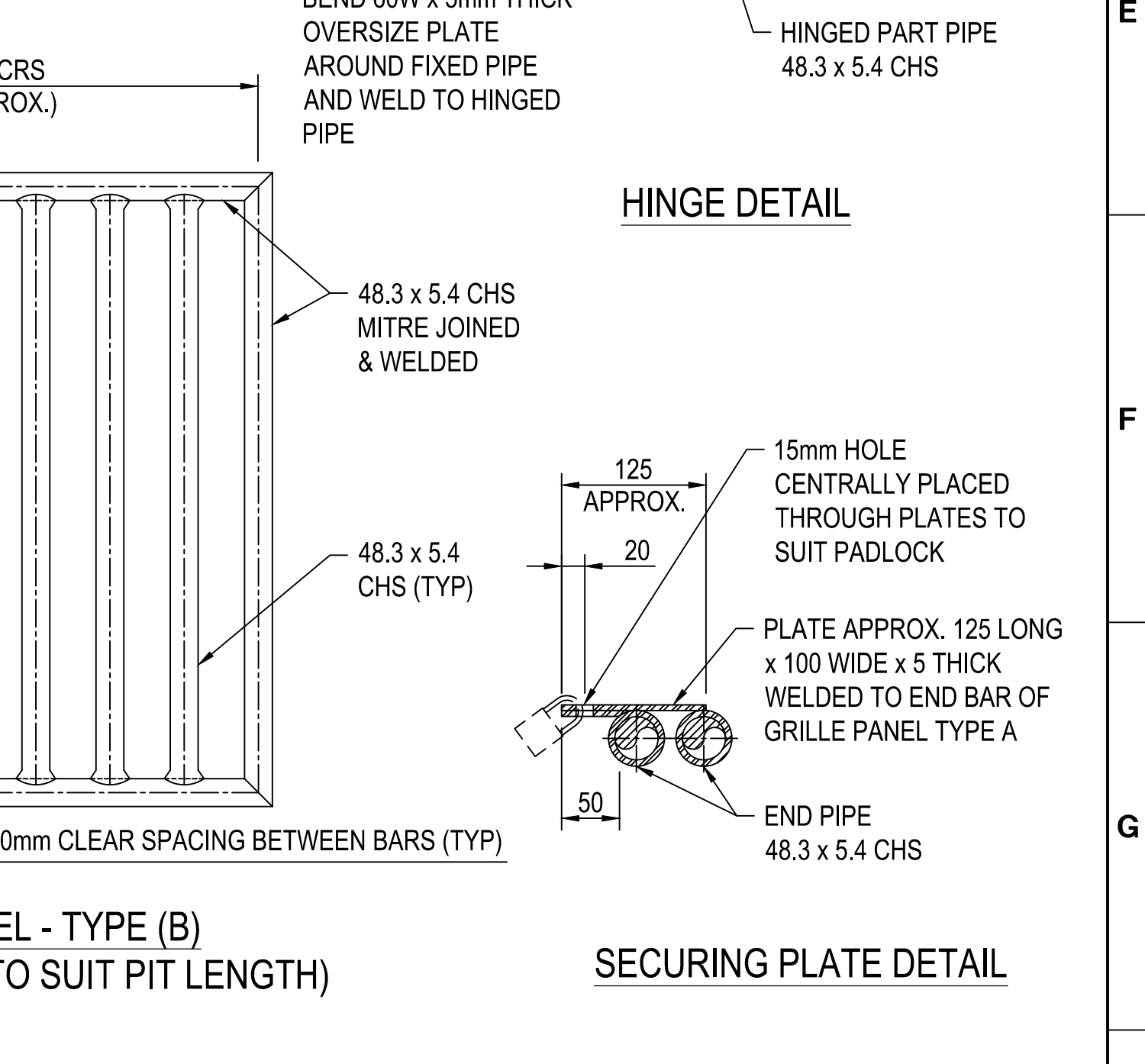
11

60

48.3 x 5.4 CHS  
SHOWN IN  
POSITION



BEND 60W x 5mm THICK



**HINGE DETAIL**

Diagram illustrating the Hinge Detail of the Flat Pipe Grills Arrangement. The main assembly consists of a rectangular frame with vertical bars. The bars are labeled "48.3 x 5.4 CHS (TYP)". The frame is labeled "OVERSIZE PLATE AROUND FIXED PIPE AND WELD TO HINGED PIPE". The hinged part of the frame is labeled "HINGED PART PIPE 48.3 x 5.4 CHS". The hinge detail shows a "HINGE DETAIL" with a "HINGED PART PIPE 48.3 x 5.4 CHS" and a "HINGE DETAIL" showing a "HINGED PART PIPE 48.3 x 5.4 CHS". The hinge detail shows a "HINGE DETAIL" with a "HINGED PART PIPE 48.3 x 5.4 CHS".

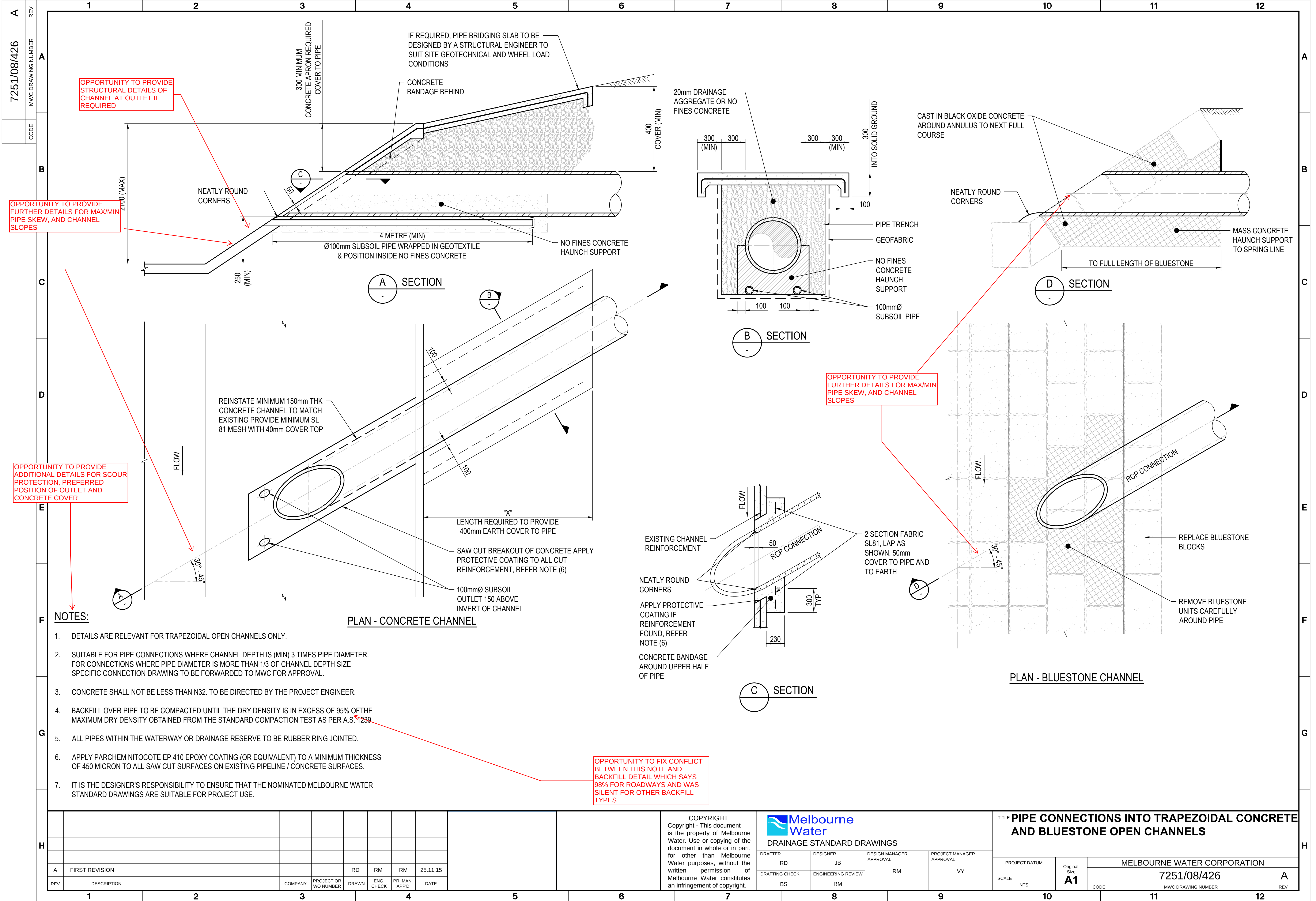
**SECURING PLATE DETAIL**

Diagram illustrating the Securing Plate Detail of the Flat Pipe Grills Arrangement. The main assembly consists of a rectangular frame with vertical bars. The bars are labeled "48.3 x 5.4 CHS (TYP)". The frame is labeled "OVERSIZE PLATE AROUND FIXED PIPE AND WELD TO HINGED PIPE". The hinged part of the frame is labeled "HINGED PART PIPE 48.3 x 5.4 CHS". The securing plate detail shows a "SECURING PLATE DETAIL" with a "SECURING PLATE DETAIL" showing a "SECURING PLATE DETAIL". The securing plate detail shows a "SECURING PLATE DETAIL" with a "SECURING PLATE DETAIL" showing a "SECURING PLATE DETAIL".

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| H |     |                 |  |   |         |                         |       |               |                  |
|   | C   | THIRD REVISION  |  |   |         | -                       | MK    | -             | 05.07.18         |
|   | B   | SECOND REVISION |  |   |         | RD                      | VY    | RM            | 19.04.17         |
|   | A   | FIRST REVISION  |  |   |         | RD                      | VY    | RM            | 25.11.15         |
|   | REV | DESCRIPTION     |  |   | COMPANY | PROJECT OR<br>WO NUMBER | DRAWN | ENG.<br>CHECK | PR. MAN.<br>APPD |
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7251/08/426

OPPORTUNITY TO PROVIDE FURTHER DETAILS FOR MAX/MIN PIPE SKEW, AND CHANNEL SLOPES

OPPORTUNITY TO PROVIDE ADDITIONAL DETAILS FOR SCOUR PROTECTION, PREFERRED POSITION OF OUTLET AND CONCRETE COVER

OPPORTUNITY TO PROVIDE FURTHER DETAILS FOR MAX/MIN PIPE SKEW, AND CHANNEL SLOPES

OPPORTUNITY TO PROVIDE ADDITIONAL DETAILS FOR SCOUR PROTECTION, PREFERRED POSITION OF OUTLET AND CONCRETE COVER

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OPPORTUNITY TO PROVIDE FURTHER DETAILS FOR MAX/MIN PIPE SKEW, AND CHANNEL SLOPES

REV

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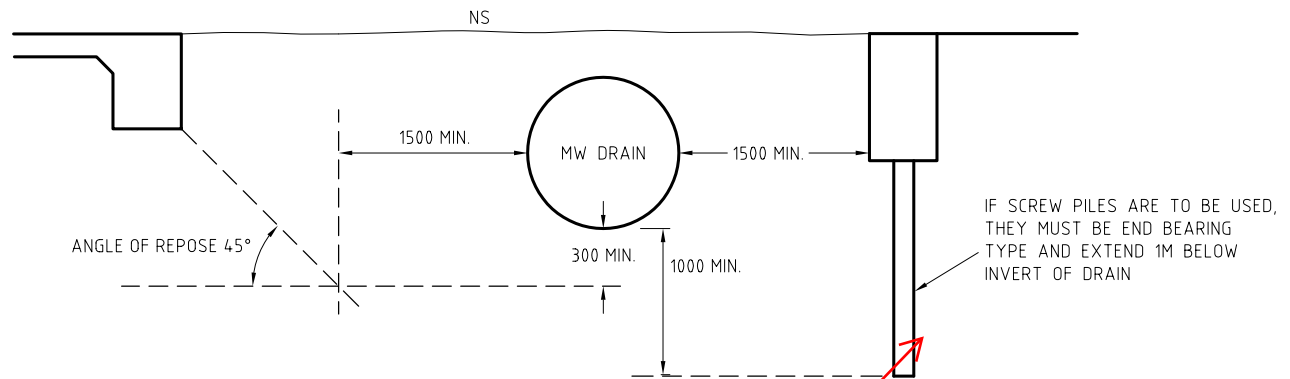
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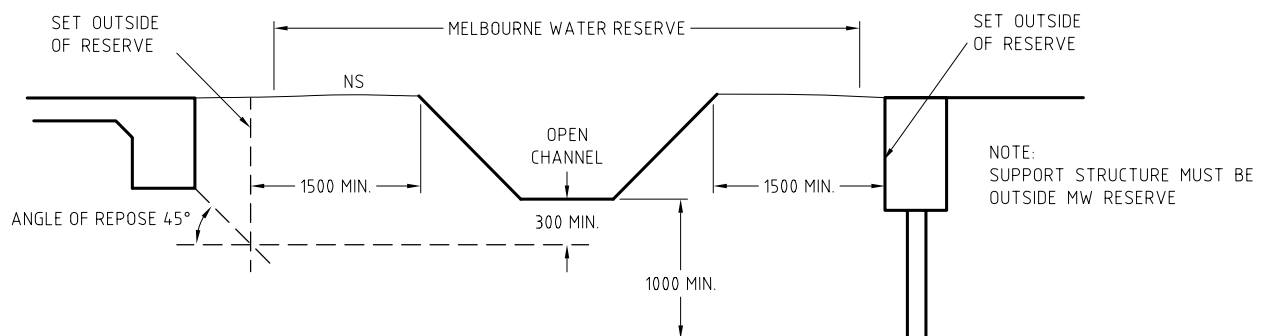
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OPPORTUNITY TO PROVIDE CLARITY ON PIPE DIMENSIONS THAT ARE NOT SCREW PILES

ADJACENT TO PIPES



### FOOTINGS ADJACENT TO OPEN CHANNELS

#### OPPORTUNITY TO PROVIDE:

- CONSOLIDATED GUIDANCE DOCUMENT - COMBINE BUILD OVER GUIDELINE, BUILD OFFSET GUIDELINE AND UTILITY INSTALLATION GUIDELINE AND ASSOCIATED DRAWINGS INTO ONE DOCUMENT TO AVOID MISSING INFORMATION.
- CLEARANCE REQUIREMENTS TO BUILDINGS/FOOTINGS OVER MELBOURNE WATER DRAINAGE ASSETS.
- REQUIREMENTS FOR PRE CONSTRUCTION DILAPIDATION SURVEY REPORT/CONDITION INSPECTION REPORT FOR NEARBY STRUCTURES OR ASSETS.
- PROTECTION FROM CONSTRUCTION PLANT LOADING
- PIPE PROTECTION OPTIONS AND VARIOUS SCENARIOS WHERE PROTECTION MAY BE REQUIRED
- MINIMUM SEPARATION TO VARIOUS TYPES OF STRUCTURES (E.G. MASONRY WALLS, TANKS, PILES, TREES, EXCAVATIONS ETC)
- NOTES FOR DRAWING INTENT AND LIMITATIONS
- CONSTRUCTION METHODOLOGY REQUIREMENTS
- WORKING SPACE REQUIREMENTS FOR MAINTENANCE
- APPROVAL REQUIREMENTS
- REFERENCES TO RELEVANT GUIDELINES, STANDARDS ETC

CONCEPT  
DRAWING

OPPORTUNITY TO UPDATE TITLE BLOCK TO MELBOURNE WATER STANDARD



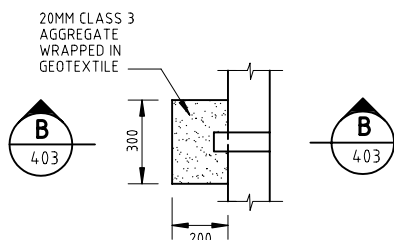
DRAINAGE CONCEPT DRAWING  
FOOTINGS ADJACENT TO  
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DRG NO. 7251/8/117 REV A

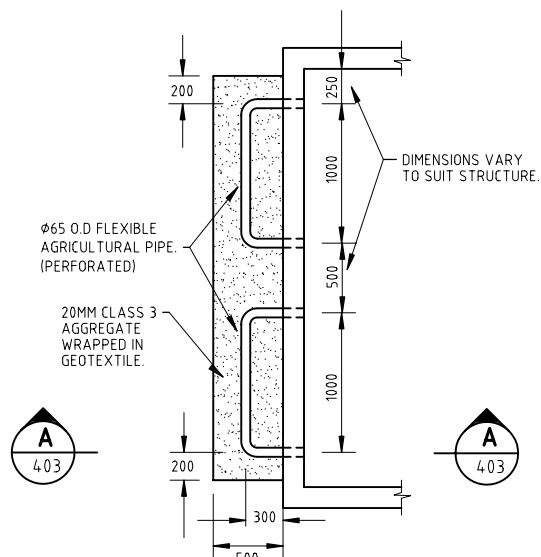
Scale N.T.S.

|     |                        |       |
|-----|------------------------|-------|
| A   | Developed for LDM 2006 | 09.06 |
| REV | NOTE                   | DATE  |

OPPORTUNITY TO PROVIDE CROSS SECTIONAL VIEWS FOR TYPE 1 AND 2



PLAN

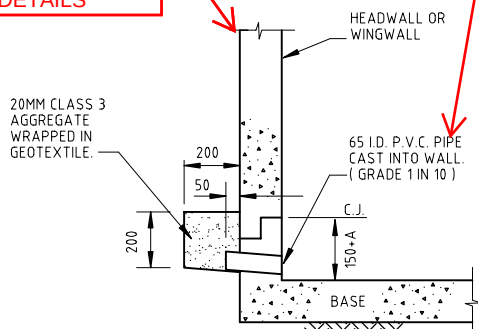


PLAN

OPPORTUNITY TO PROVIDE REFERENCE TO STRUCTURAL DETAILS

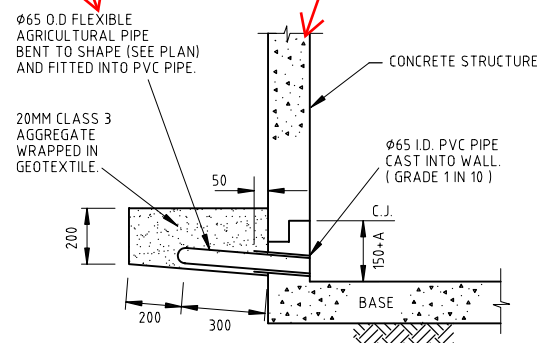
OPPORTUNITY TO PROVIDE APPLICATIONS FOR OTHER PIPE DIAMETERS

OPPORTUNITY TO PROVIDE REFERENCE TO STRUCTURAL DETAILS



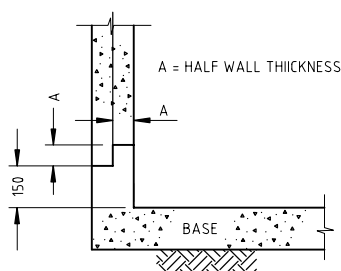
OPPORTUNITY TO PROVIDE STATEMENT OF PURPOSE OF DRAWING AND SITUATIONS IT

WEEPHOLE TYPE 1



SECTION A-A

WEEPHOLE TYPE 2



CONSTRUCTION JOINT

OPPORTUNITY TO REFERENCE APPROPRIATE AUSTRALIAN DESIGN STANDARDS, DESIGN LIFE, NUMBER OF WEEPHOLES AND SPACING, CONSTRUCTION METHODOLOGY

NOTES:

1. NEED FOR WEEPHOLES TO BE DETERMINED BY DESIGNER.

OPPORTUNITY TO UPDATE TITLE BLOCK TO MELBOURNE WATER STANDARD

|     |                        |       |
|-----|------------------------|-------|
| REV | NOTE                   | DATE  |
| A   | Developed for LDM 2006 | 09.06 |



DRAINAGE CONCEPT DRAWING  
WEEPHOLES &  
CONSTRUCTION JOINTS  
DRG NO. 7251/8/403 REV A  
Scale N.T.S.