

**CIVIL AND DRAINAGE NOTES:**

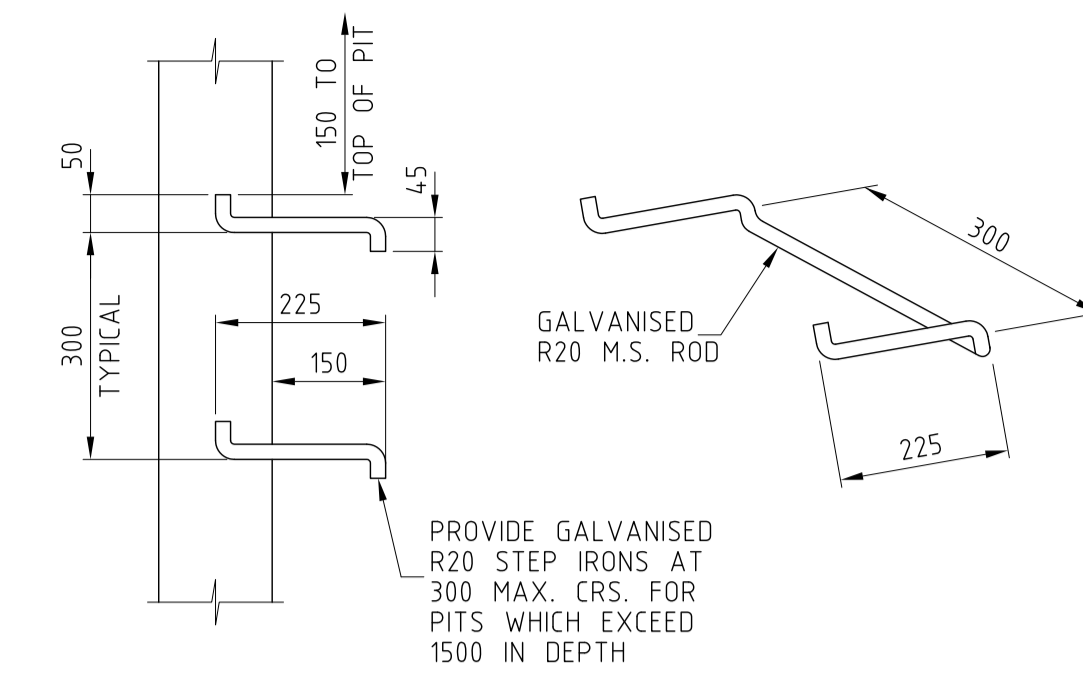
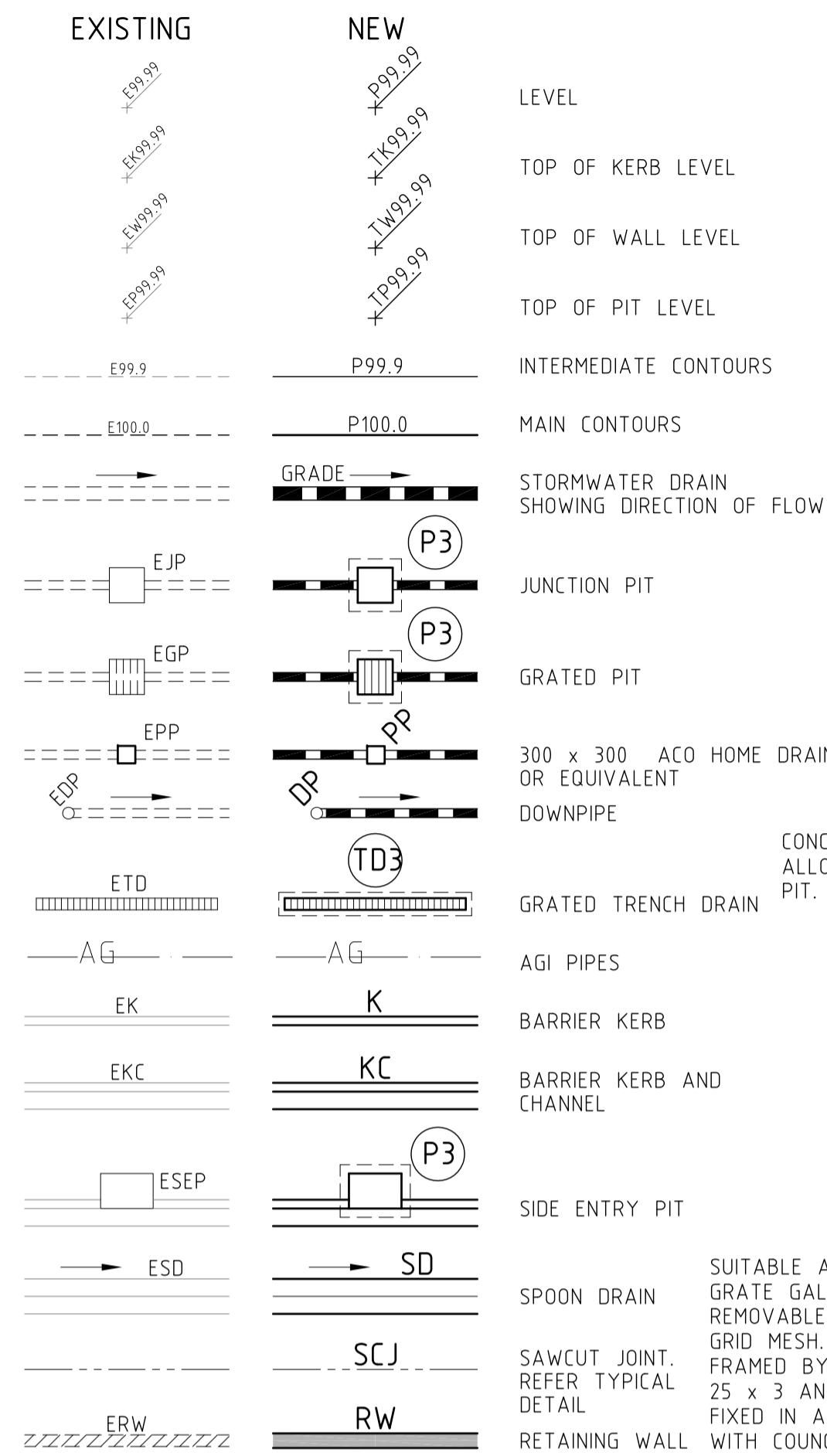
- C1. All levels on Structural/Civil drawings are to datum nominated by project surveyor. Refer survey drawings for existing boundaries, levels etc. All levels are in metres.
- C2. Pavement Levels are finished levels throughout.
- C3. Any existing pavement, kerb and channel, kerb or the like that is damaged during construction is to be reinstated to its original condition prior to the completion of works.
- C4. All existing levels shown are to be confirmed on site.
- C5. All earth batters are to be in the ratio of 1 to 4 or less unless noted otherwise. Batters are to be kept a minimum 1 metre from buildings, roads, walls and the like.
- C6. Paving subgrade preparation. All vegetation, top soil and fill material shall be removed from the paving area and extending 300mm past the edge of the paving to expose the subgrade material as noted in the geotechnical report. The subgrade (prior to any compacted fill being placed) shall be proof rolled with a heavy duty roller and witnessed by the relevant authority. Any soft spots encountered shall be excavated and replaced with compacted fill in layers not greater than 150mm thick. Excavated clay may be used as fill compacted to achieve a minimum compacted density of 95% S.D.D measured in accordance with AS 1289. The material to be used as fill shall be approved by the Engineer prior to placement.
- C7. All drainage to comply with AS 3500
- C8. Paving adjacent to buildings is to fall 50mm min away from building for the first metre.
- C9. It is the contractors responsibility to locate and identify all existing services prior to commencing construction.
- C10. Prior to commencing work the contractor is to ensure that all necessary investigation is undertaken to ensure that the works can be constructed as designed. If the work cannot be carried out as shown the project manager is to be notified immediately.
- C11. Refer to architects drawings for construction levels, refer any discrepancies to architects.
- C12. All existing underground services are to be located prior to excavation for new pipe lines and no existing service shall be disconnected or disturbed without the approval of the Engineer.
- C13. Pit covers to be light duty to approved detail unless noted otherwise.
- C14. Stormwater drains suspended under slabs or along walls shall be to approved details.
- C15. Any misalignments that may be solved by corbelling of pit walls may only be carried out with the written approval of the Engineer.
- C16. All downpipe collector pipes shall match downpipe size (100mm) at a grade of 1 in 100 unless noted otherwise.
- C17. All pipe junctions shall be made with a 45° joint.
- C18. Class of Pipes:
  - a) Concrete Pipes (RC) shall conform to AS 1342 "Precast Concrete Drainage Pipes" and shall be class 2 pipe with spigot and socket rubber ring joints unless notes otherwise. All concrete pipes under pavements to be class 4.
  - b) Fibre Reinforced Cement Pipes (FRC) shall conform to AS 1342 "Precast Concrete Drainage Pipes" and shall be tested to the requirements of AS 1712 Appendix D "Asbestos Cement Sewer Pipes". All FRC pipes shall be Class X pipe with Adcol "V" ring joints. For pipe sizes greater than 300mm, alternative jointing may be permitted with the approval of the City Engineer.
  - c) Unplasticised PVC Pipes (UPVC):
    - 1. Within Property:
      - All UPVC Pipes shall conform to AS 2032 "Code of Practice for the installation of UPVC Pipes" Part 7 and shall be Class 6 sewer quality or heavy duty, stormwater, depending on the application. All jointing procedures shall conform to AS 2032 Part 3 and shall be either solvent welded or rubber ring joints.
    - 2. Within Road Reserve:
      - All UPVC Pipes shall conform to AS 1260 "Unplasticised P.V.C. (U.P.V.C.) pipes and fittings for sewerage applications" Parts 1 to 5 and shall be Class S.H. pipes.

**C18. Cover details:**

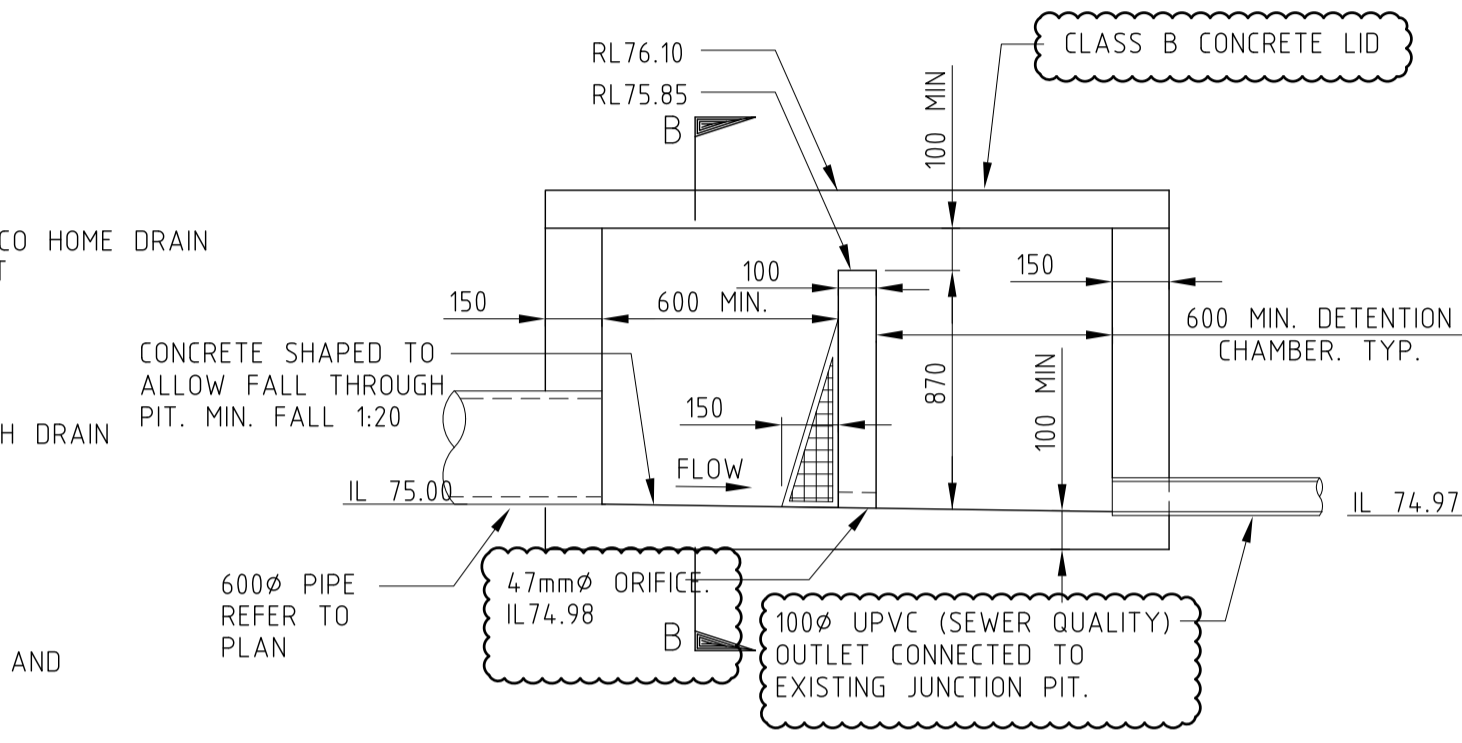
Location	Minimum pipe cover	
	Cast iron, ductile iron, galvanized steel	Other authorized products
1. Not subject to vehicular loading- a) without pavement i) for single dwelling ii) for other than item (i) b) with pavement of brick or unreinforced concrete	Nil	100
	Nil	300
2. Subject to vehicular loading a) other than roads i) without pavement ii) with pavement of A) reinforced concrete for heavy vehicular loading B) brick or unreinforced concrete for light vehicular loading.	300	450
	Nil+	100+
b) roads i) sealed ii) unsealed	300	500#
	300	500#
3. Subject to construction equipment loading or in embankment conditions	300	500#

- # includes a depth of overlay above the top of the pipe of not less than 50mm thick
- Below the underside of the pavement
- \* Subject to compliance with AS 1762, AS/NZS 2566.1, AS 3725 or 4060
- 1. For site stormwater under buildings:
  - a) The thickness of overlay between the top of the pipe and the underside of a reinforced concrete slab shall be not less than 25mm; and
  - b) There shall be adequate protection from mechanical damage.
- 2. Where minimum cover requirements cannot be achieved the pipe shall be encased with a minimum of 100mm thick concrete (f<sub>c</sub>≥20MPa)
- C19. Where a drain is laid parallel to a footing it is to be located such that the base of any of the trench is not below the line of influence of the footing which is 1H : 1V in clay or 2H : 1V in sand soils.
- C20. All drainage pipes are to be laid in a 50mm minimum depth, layer of crushed rock.
- C21. All drainage excavations are to be backfilled with a suitable approved material. Under sealed pavements and building slabs, this shall be 20mm, Class 2 crushed rock.
- C22. For Concrete Headwall details refer VicRoads standard drawing No. SD 1921.
- C23. Concrete for kerbs shall be 32MPa strength grade complying with the requirements of AS1379/1991.
- C24. All piping that penetrates a footing/structure is to be lagged with a compressible material, 50mm minimum.

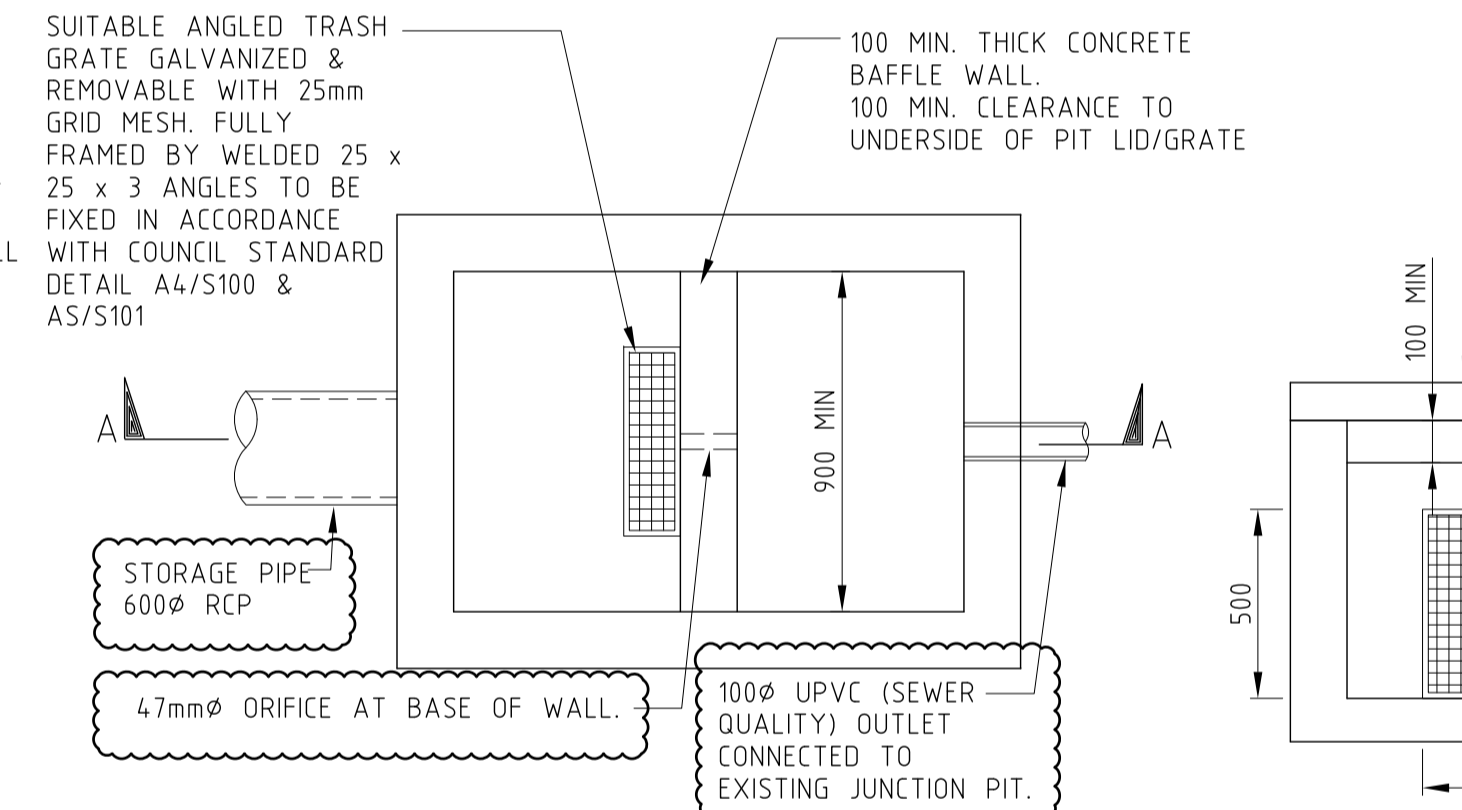
**CIVIL LEGEND.**



**TYPICAL PIT STEP IRON DETAILS**  
SCALE 1:10



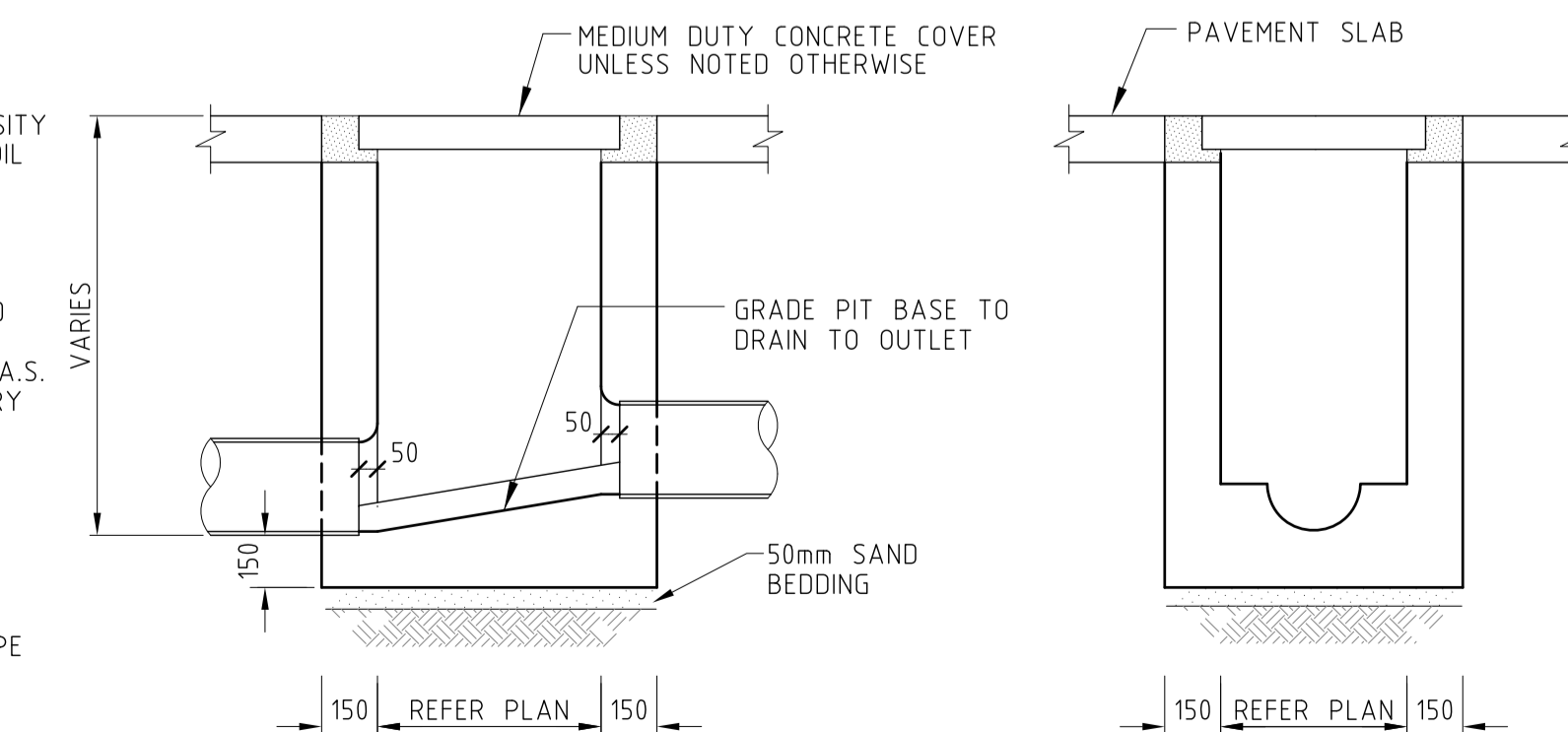
**SECTION A-A**  
SCALE 1:20



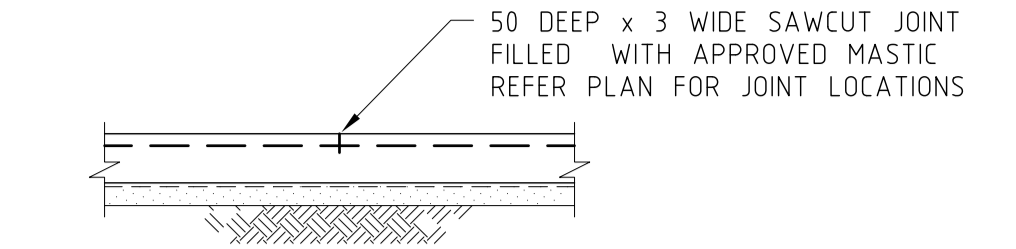
**TYPICAL CONTROL PIT DETAIL**  
SCALE 1:20

**SECTION B-B**  
SCALE 1:20

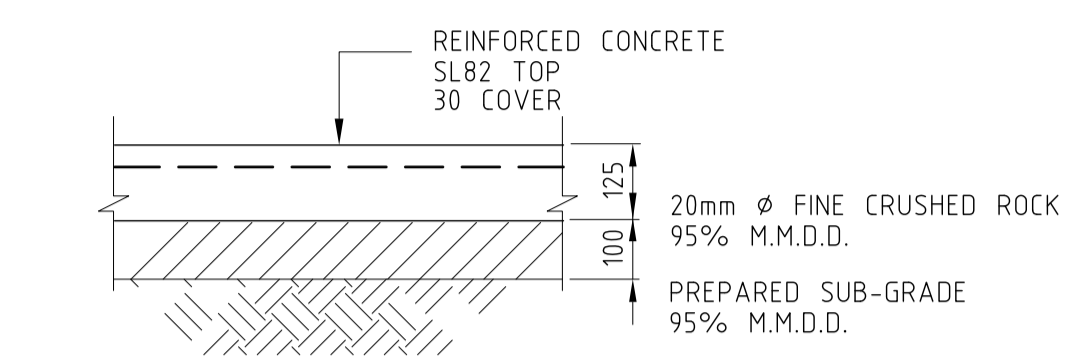
- NOTES:**
- IF REINFORCED CONCRETE OF FIBRE REINFORCED CONCRETE PIPES ARE USED, THEY SHALL BE RUBBER RING JOINED. OTHER PIPE TYPES MUST BE APPROVED BY THE COUNCIL ENGINEER.
  - STEP IRONS (S136) SHALL BE FITTED TO PITS GREATER THAN 1000mm IN DEPTH.
  - PITS GREATER THAN 1000mm IN DEPTH ARE TO BE REINFORCED WITH F81 SQUARE MESH, PLACED CENTRALLY IN PIT WALLS.
  - MEDIUM DUTY CAST IRON COVERS ARE TO BE USED IN TRAFFICABLE AREAS. ALTERNATIVELY GRATE AND FRAME TOP MAY BE USED IN CERTAIN CIRCUMSTANCES AND MUST BE APPROVED BY COUNCIL ENGINEER.
  - THIS STANDARD DETAIL SHALL BE USED IN CONJUNCTION WITH THE MANNINGHAM ON SITE DETENTION GUIDE.



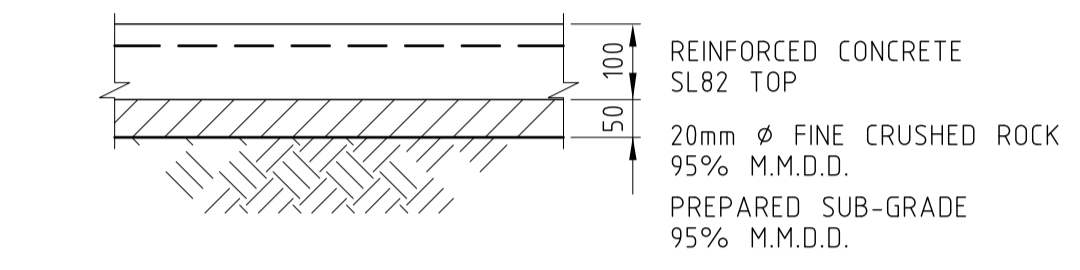
**TYPICAL JUNCTION PIT**  
**TYPICAL GRATED PIT SIMILAR**  
N.T.S.



**SAWCUT DETAIL. ( SCJ )**



**TYPICAL CONCRETE DRIVEWAY PAVEMENT**



**TYPICAL 100mm PAVING PROFILE**

- NOTES:**
- LOCATE JOINTS AT 4.0m MAX CENTRES EACH WAY. UNLESS NOTED OTHERWISE.
  - SAWCUTS ARE TO BE MADE WITHIN 24 HOURS OF SLAB BEING POURED.
  - IF THE SLAB IS TO BE POURED IN MORE THAN ONE STAGE, THEN A KEY-DOWEL JOINT SHALL BE PROVIDED AT THE CONSTRUCTION JOINTS. 24 HOURS TO ELAPSE BETWEEN POURS OF ADJACENT SLABS.
  - SLAB SUBGRADE TO BE PROOF ROLLED TO ENSURE MIN. CBR 4. ANY SOFTSPOT TO BE DUG OUT AND REPLACED WITH CRUSHED ROCK COMPACTED IN 150mm LAYERS.

C	FOR COUNCIL APPROVAL	04/08/2014
B	FOR COUNCIL APPROVAL	19/05/2014
A	CONSTRUCTION ISSUE	11/04/2014
1	PRELIMINARY ISSUE	26/03/2014

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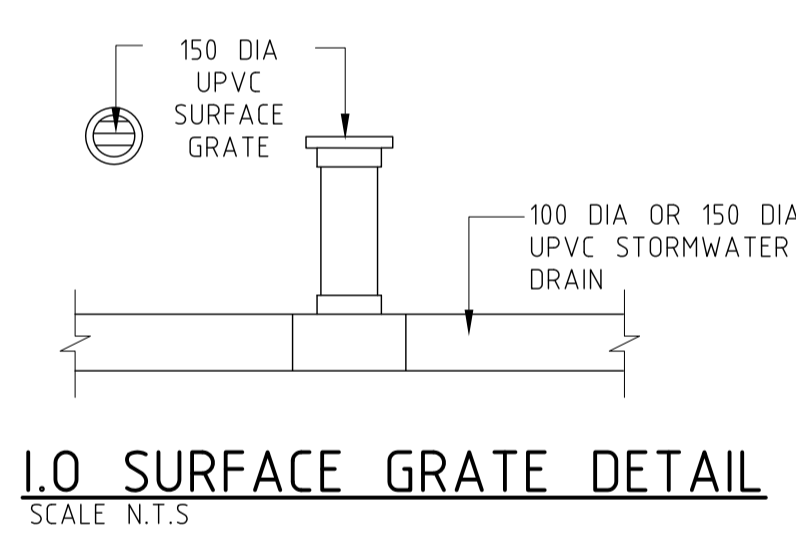
ARCHITECT:  
**PAUL SHAW AND ASSOCIATES**

DESIGNED: Nick Kandyfotis | DRAWN: DBN | APPROVED: NK | SCALE AS SHOWN

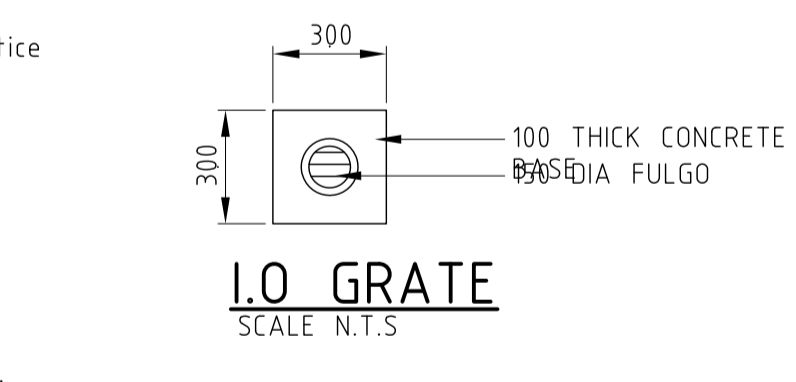
PROJECT:  
**PROPOSED NEW RESIDENCE AT LOT 4 234-238 THOMPSONS RD TEMPLESTOWE LOWER**

DRAWING TITLE:  
**CIVIL GENERAL NOTES**

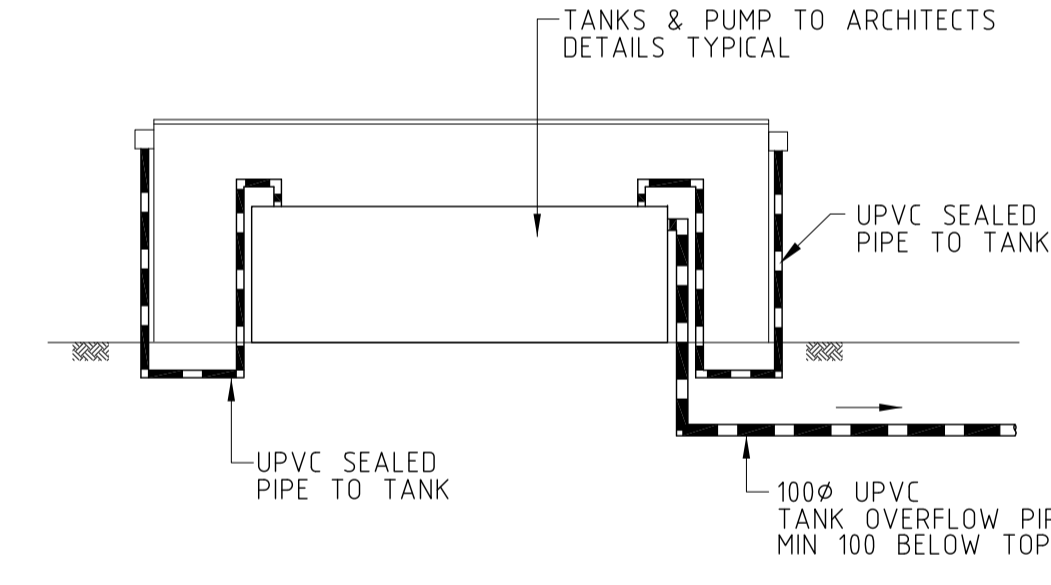
**DIAL 1100**  
DIAL BEFORE YOU DIG  
CONTRACTOR TO CONFIRM LOCATION OF EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS



**I.O SURFACE GRATE DETAIL**  
SCALE N.T.S.

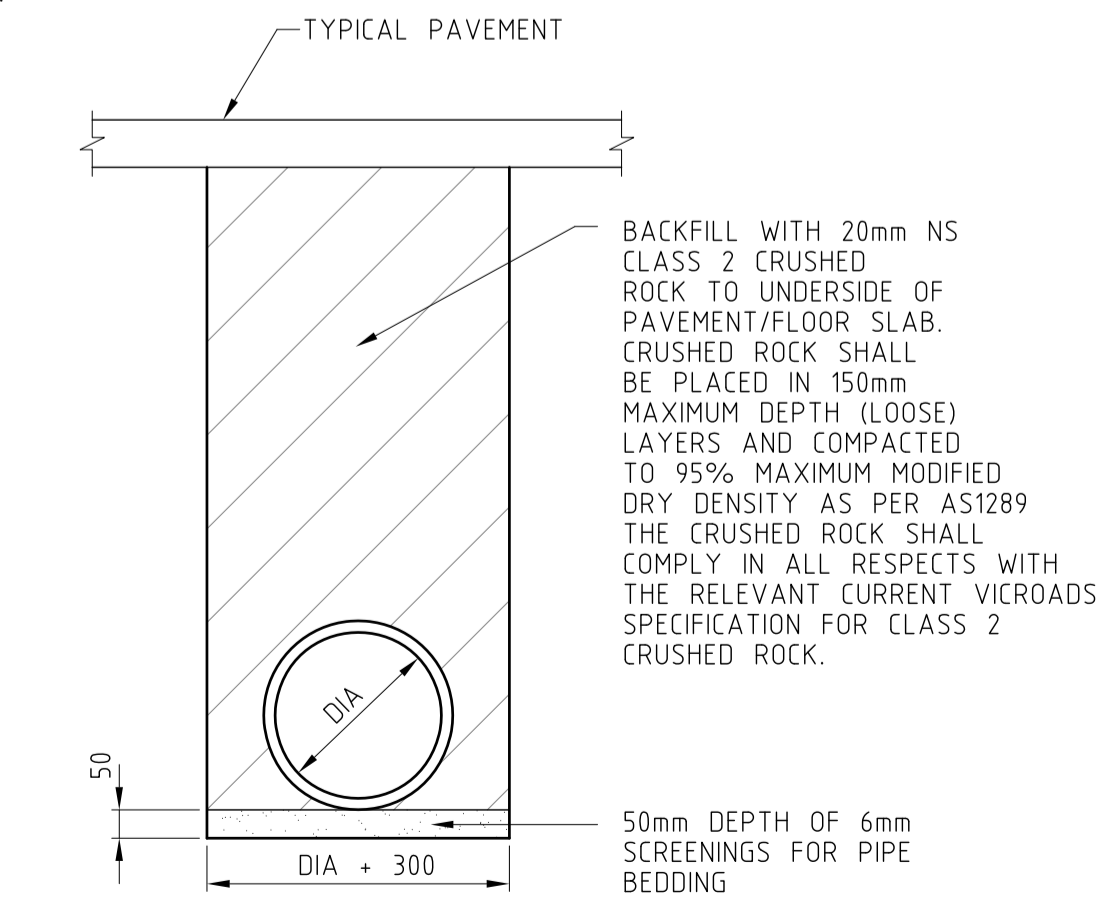


**I.O GRATE**  
SCALE N.T.S.

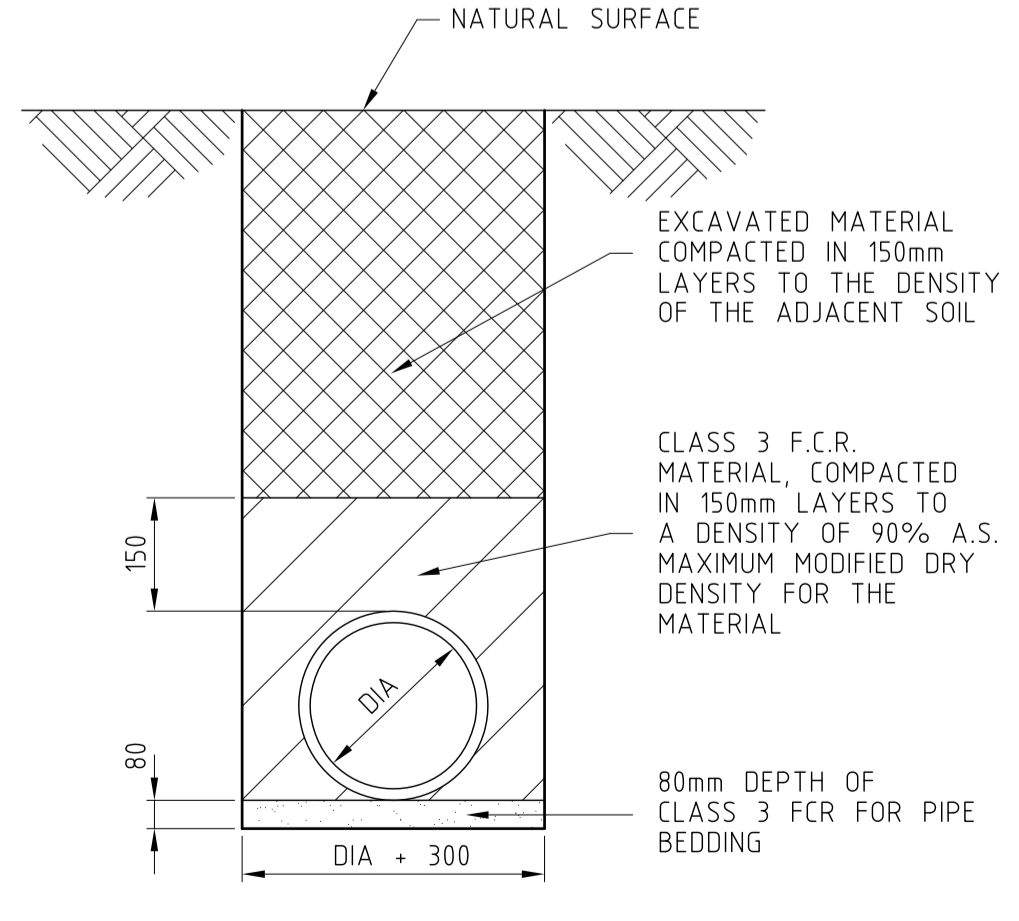


**TYPICAL WATER TANK CONNECTION DETAIL**  
SCALE 1:100

ALL PIPE WORK TO BE A SEALED SYSTEM TO RESIST LEAKAGE AGAINST HEAD PRESSURE. ALL MAKE UP WATER SUPPLY AND PUMPS TO HYDRAULIC CONSULTANT DETAILS

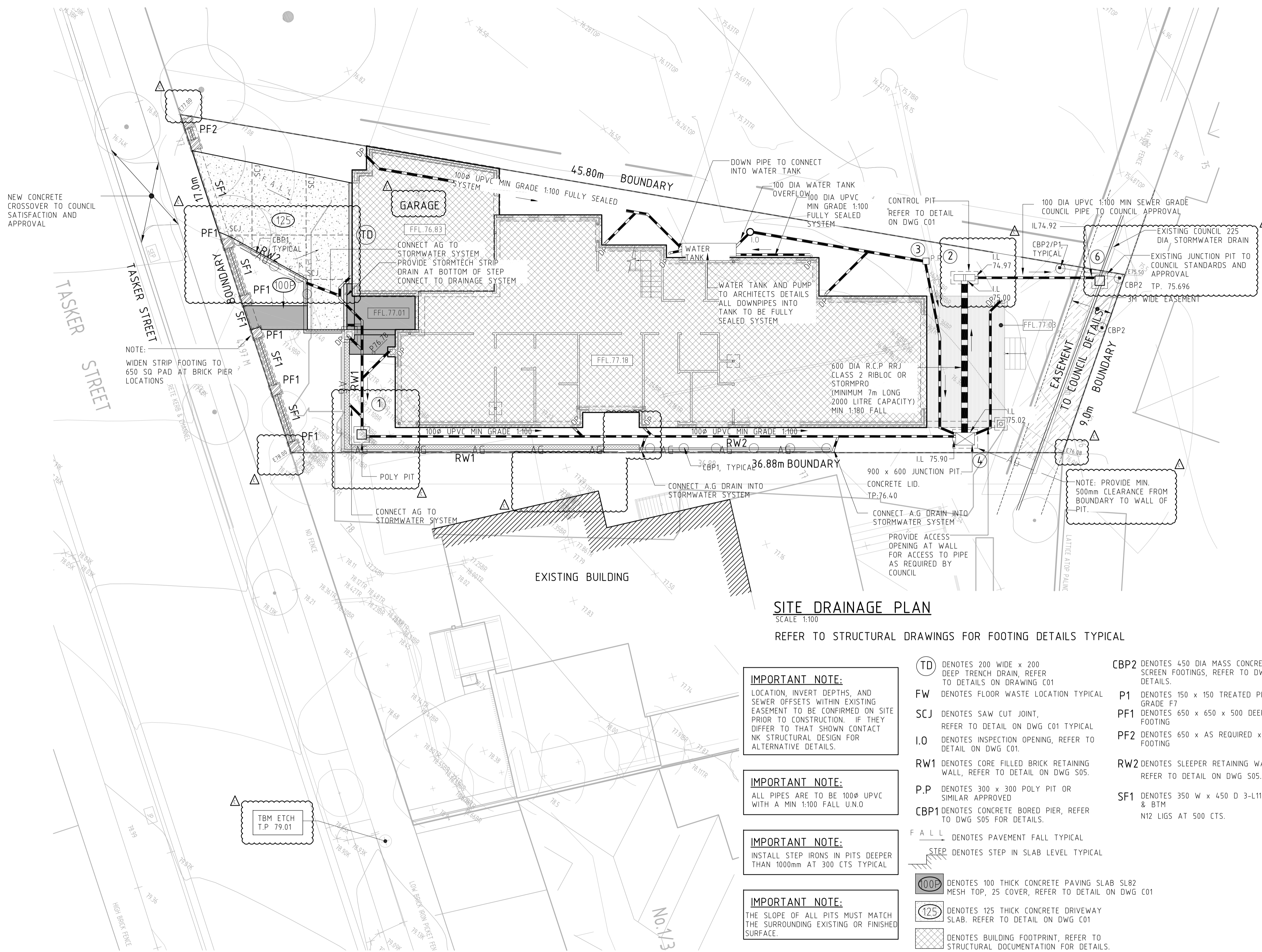


**PIPE LAYING DETAILS**  
SCALE 1:20



**PIPE LAYING DETAILS (UNDER LANDSCAPED AREAS)**  
N.T.S.

**14-018**  
C01-Rev. C



**SITE DRAINAGE PLAN**

SCALE 1:100  
REFER TO STRUCTURAL DRAWINGS FOR FOOTING DETAILS TYPICAL

**IMPORTANT NOTE:**  
LOCATION, INVERT DEPTHS, AND SEWER OFFSETS WITHIN EXISTING EASEMENT TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION. IF THEY DIFFER TO THAT SHOWN CONTACT NK STRUCTURAL DESIGN FOR ALTERNATIVE DETAILS.

**IMPORTANT NOTE:**  
ALL PIPES ARE TO BE 100Ø UPVC WITH A MIN 1:100 FALL U.N.O

**IMPORTANT NOTE:**  
INSTALL STEP IRONS IN PITS DEEPER THAN 1000mm AT 300 CTS TYPICAL

**IMPORTANT NOTE:**  
THE SLOPE OF ALL PITS MUST MATCH THE SURROUNDING EXISTING OR FINISHED SURFACE.

**DIAL 1100**  
DIAL BEFORE YOU DIG  
CONTRACTOR TO CONFIRM LOCATION OF EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS



- TD** DENOTES 200 WIDE x 200 DEEP TRENCH DRAIN, REFER TO DETAILS ON DRAWING C01
- FW** DENOTES FLOOR WASTE LOCATION TYPICAL
- SCJ** DENOTES SAW CUT JOINT, REFER TO DETAIL ON DWG C01 TYPICAL
- I.O.** DENOTES INSPECTION OPENING, REFER TO DETAIL ON DWG C01.
- RW1** DENOTES CORE FILLED BRICK RETAINING WALL, REFER TO DETAIL ON DWG S05.
- P.P.** DENOTES 300 x 300 POLY PIT OR SIMILAR APPROVED
- CBP1** DENOTES CONCRETE BORED PIER, REFER TO DWG S05 FOR DETAILS.
- F.A.L.L.** DENOTES PAVEMENT FALL TYPICAL
- STEP** DENOTES STEP IN SLAB LEVEL TYPICAL

- CBP2** DENOTES 450 DIA MASS CONCRETE BOUNDARY SCREEN FOOTINGS, REFER TO DWG S05 FOR DETAILS.
- P1** DENOTES 150 x 150 TREATED PINE POSTS. MIN GRADE F7
- PF1** DENOTES 650 x 650 x 500 DEEP PAD FOOTING
- PF2** DENOTES 650 x AS REQUIRED x 500 DEEP PAD FOOTING
- RW2** DENOTES SLEEPER RETAINING WALL, REFER TO DETAIL ON DWG S05.
- SF1** DENOTES 350 W x 450 D 3-11TM TOP & BTM N12 LIGS AT 500 CTS.

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CLIENT:

ARCHITECT:  
**PAUL SHAW AND ASSOCIATES**

DESIGNED: Nick Kandyfotis | DRAWN: DBN | APPROVED: NK | SCALE AS SHOWN

PROJECT:  
**PROPOSED NEW RESIDENCE AT LOT 4 234-238 THOMPSONS RD TEMPLESTOWE LOWER**

DRAWING TITLE:  
**SITE DRAINAGE PLAN**

**14-018**

C02-Rev. C

