

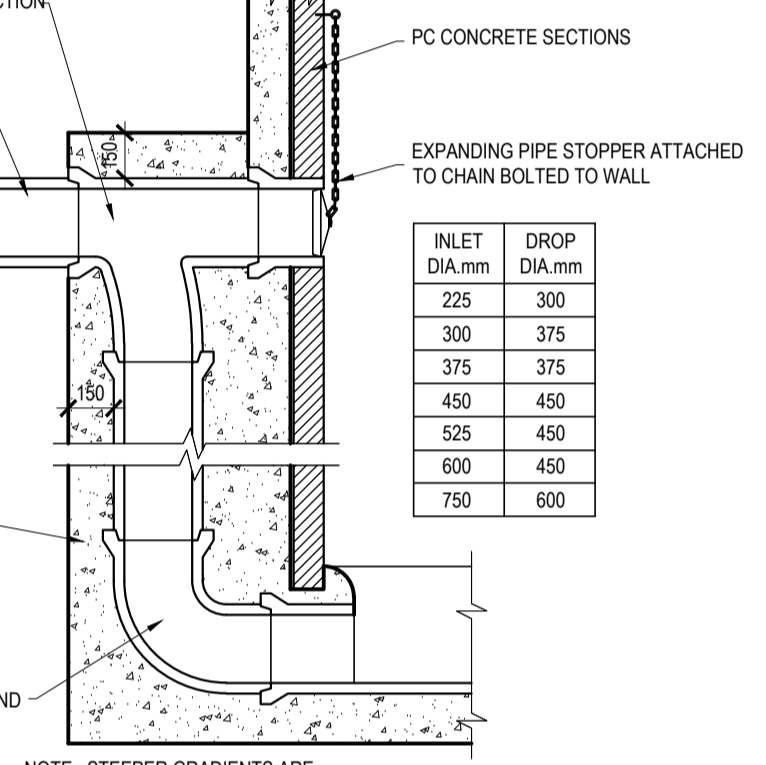
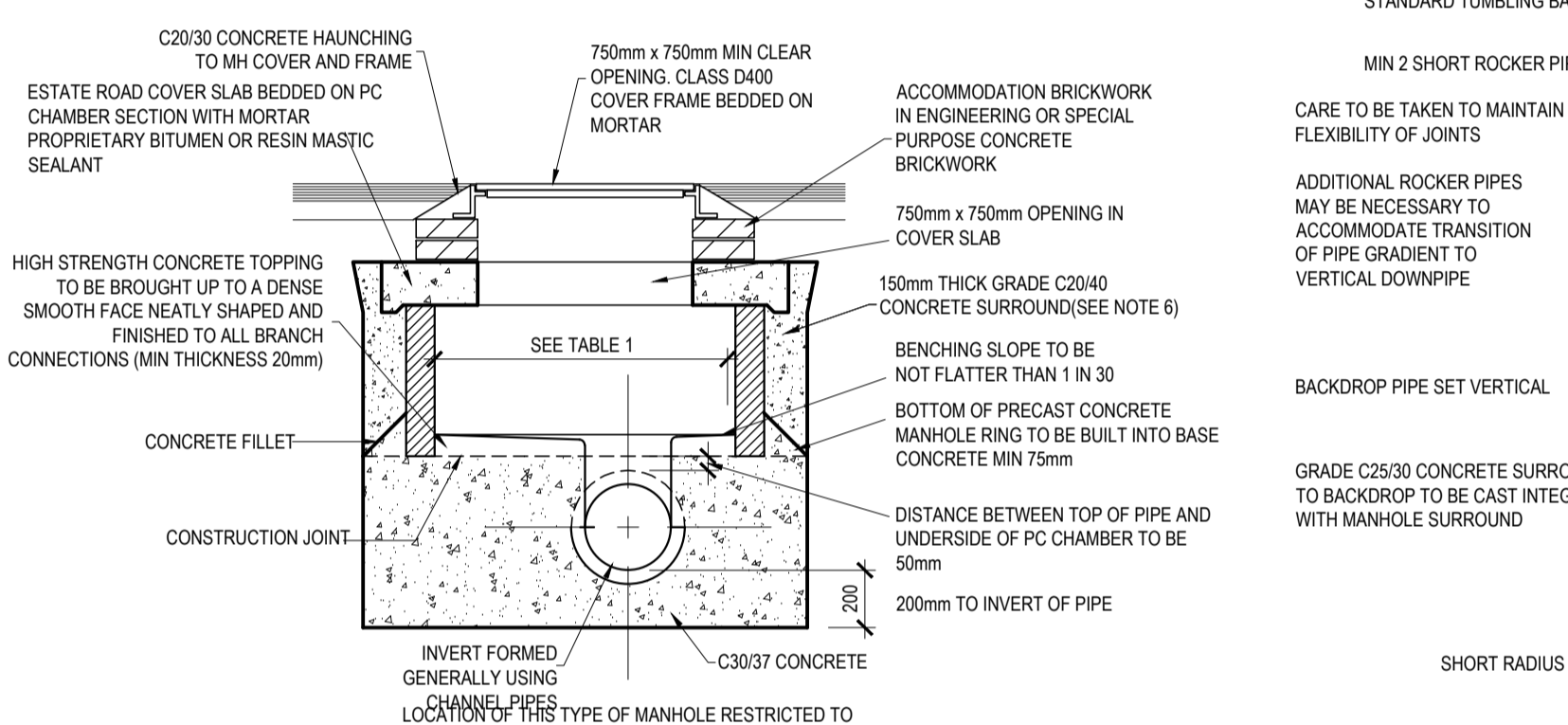
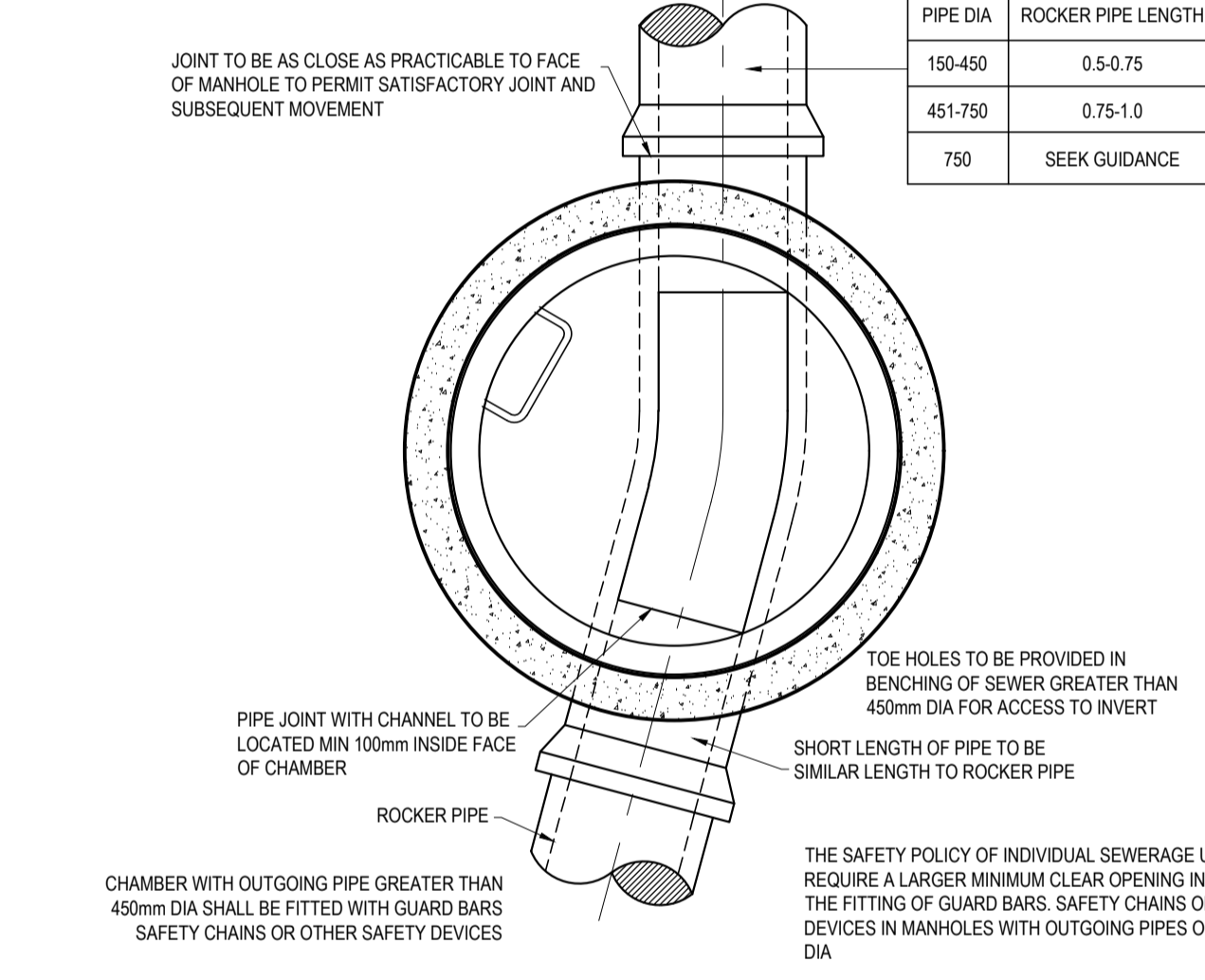
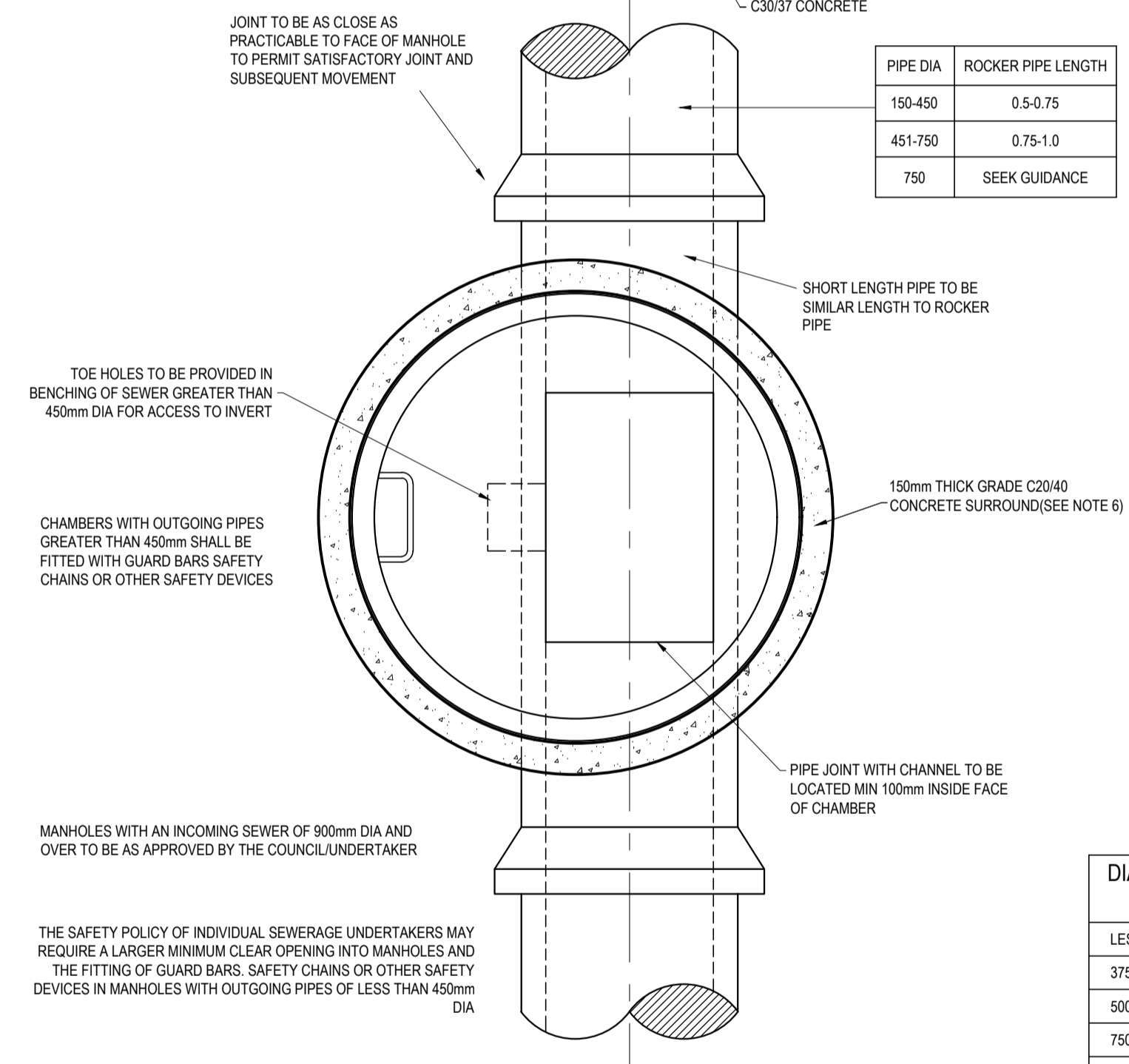
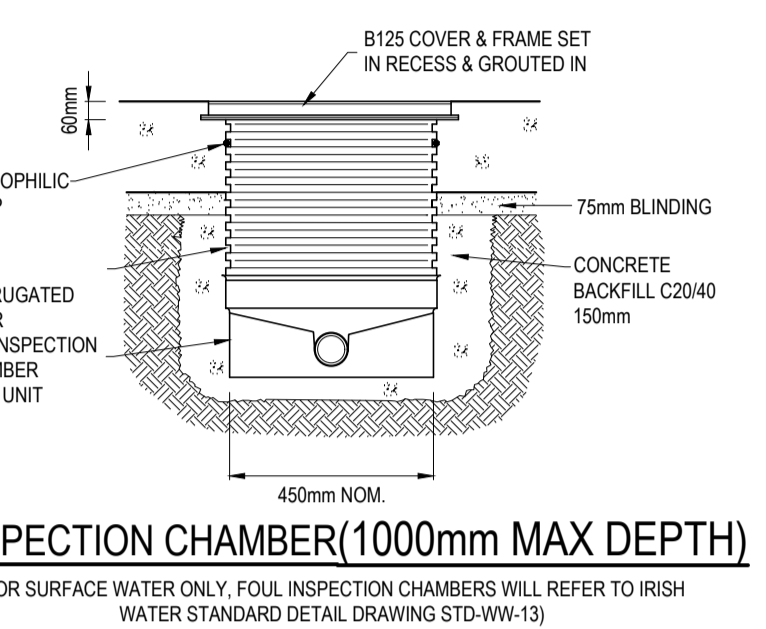
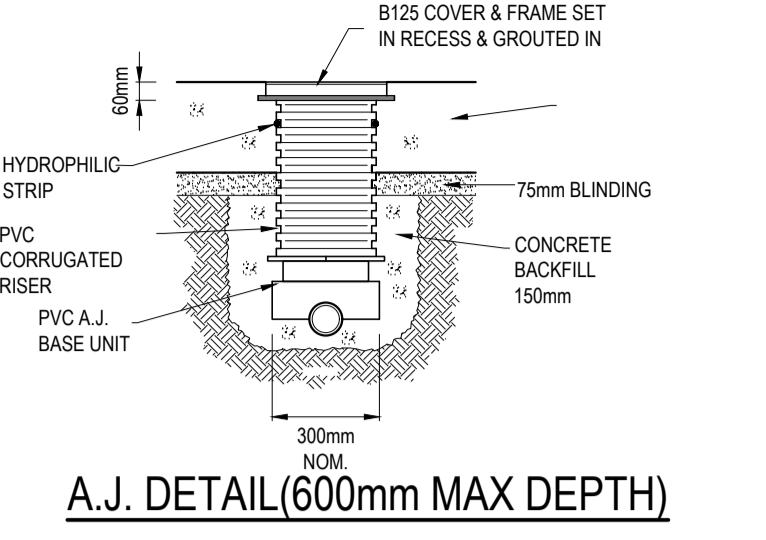
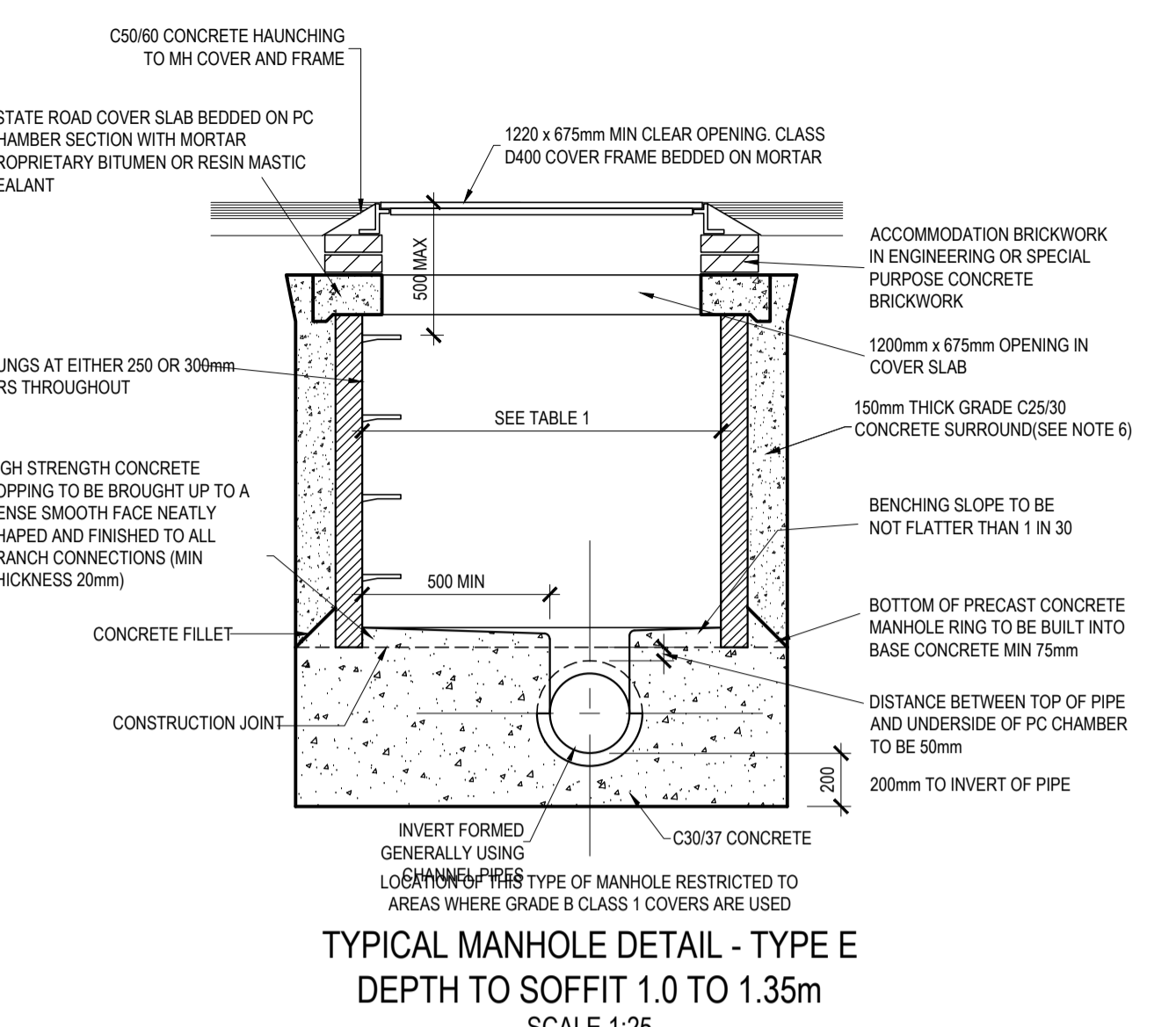
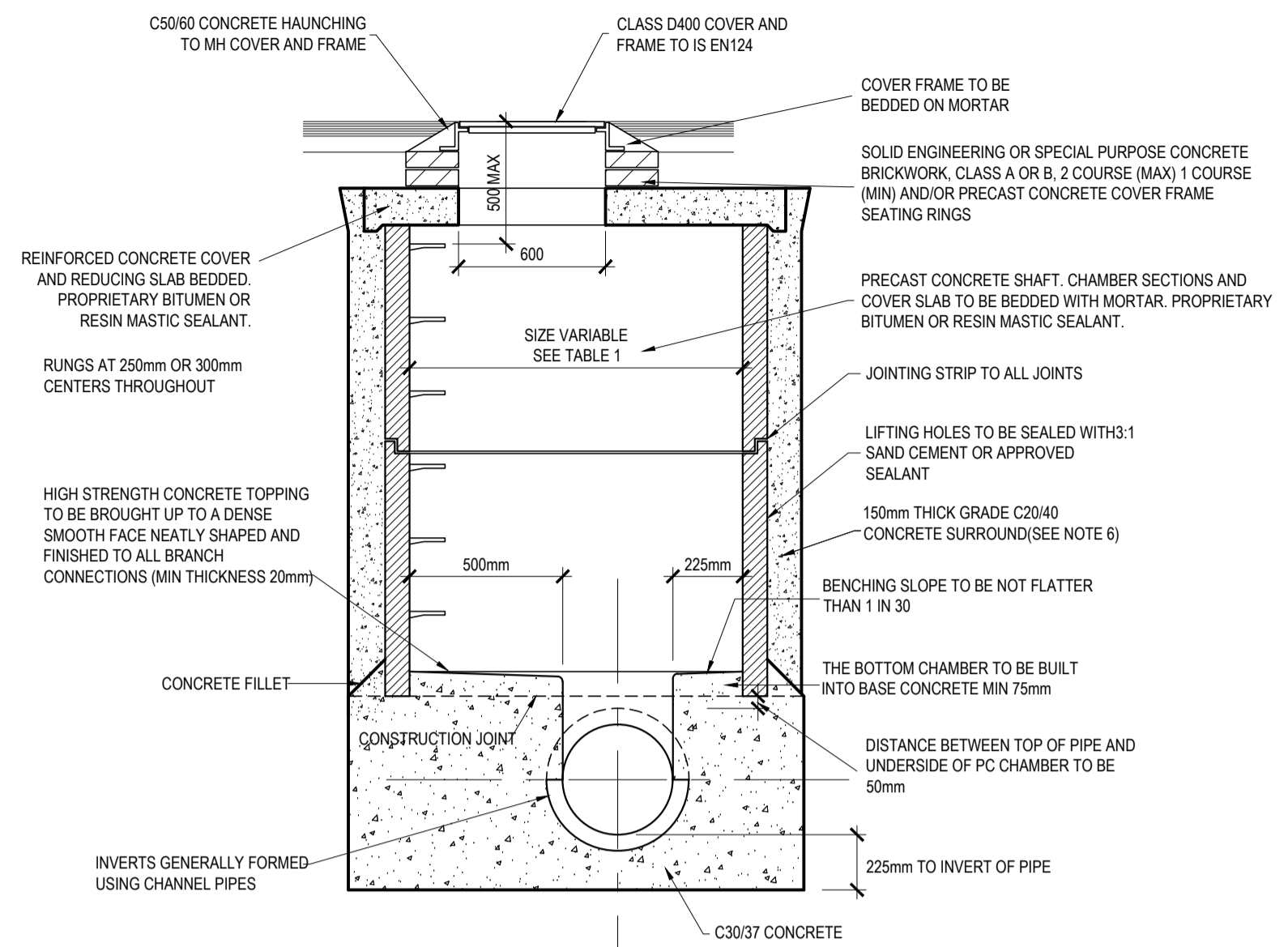
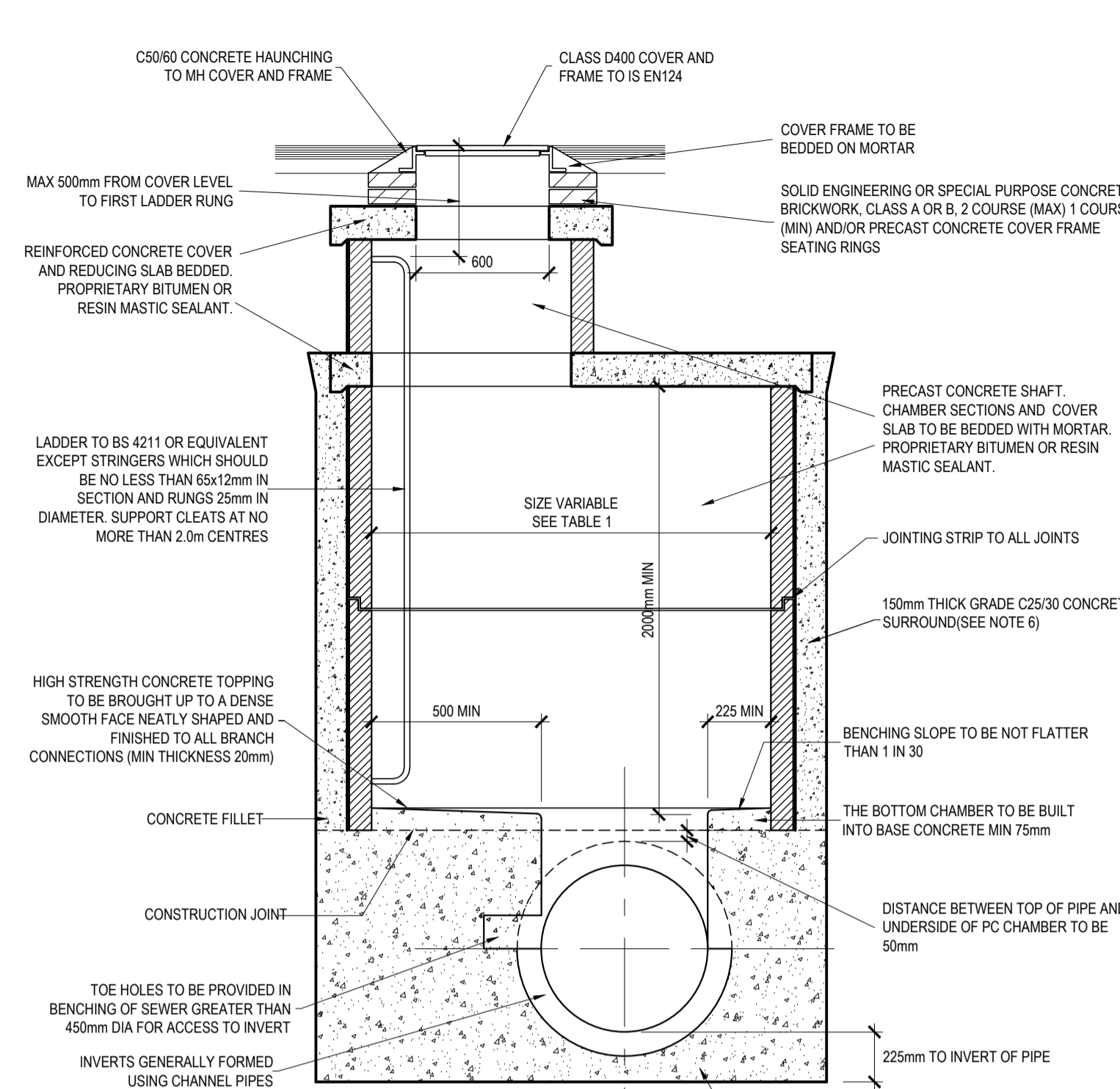
© COPYRIGHT OF THIS DRAWING IS RESERVED BY DBFL CONSULTING ENGINEERS. NO PART SHALL BE REPRODUCED OR TRANSMITTED WITHOUT THEIR WRITTEN PERMISSION.

NO CHANGES OF WHATSOEVER NATURE ARE TO BE MADE TO ANY DETAILS SET OUT OR CONTAINED IN ANY DBFL SPECIFICATIONS OR DRAWINGS UNLESS THE EXPRESS CONSENT HAS BEEN OBTAINED IN ADVANCE IN WRITING, FROM DBFL.

- NOTES:
- ALL REINFORCED CONCRETE ON THIS DRAWING SHALL BE U.N.O.: 35N20 COVER = 50mm MIN.
 - SURFACE FINISHES FOR CONCRETE:
 - CLASS F1 FOR ALL CONCRETE 100mm OR MORE BELOW GROUND LEVEL.
 - CLASS F3 FOR ALL EXPOSED CONCRETE ABOVE 100mm BELOW GROUND LEVEL.
 - ALL EXPOSED CORNERS ON CONCRETE SHALL BE CHAMFERED WITH 25mm x 25mm CHAMFERS.
 - ALL STRUCTURAL CONCRETE (HEADWALLS, RC MANHOLES, PETROL INTERCEPTOR SLABS) TO RECEIVE MC DUR 1680 (OR SIMILAR APPROVED TAR MODIFIED EPOXY RESIN) TO ALL BURIED SURFACES, TO FINISH 100mm BELOW GROUND LEVEL.
 - ALL SEWERS SHALL BE PRESSURE TESTED PRIOR TO BACKFILLING.
 - TYPE 1 GRANULAR MATERIAL - BROKEN STONE OR GRAVEL TO PASS 10mm SIEVE AND BE RETAINED ON 5mm SIEVE.
 - TYPE 2 GRANULAR MATERIAL - BROKEN STONE OR GRAVEL TO PASS 10mm - 25mm SIEVE, ACCORDING TO PIPE SIZE, (SEE TABLE) AND BE RETAINED ON 5mm SIEVE.
 - TYPE 3 SELECTED FILL - UNIFORM READILY COMPACTED MATERIAL FREE FROM TREE ROOTS, VEGETABLE MATTER, BUILDING DEBRIS, AND FROZEN SOIL AND EXCLUDING CLAY LUMPS RETAINED ON A 75mm SIEVE AND STONES RETAINED ON A 37.5mm SIEVE.
 - RIGID PIPES SHALL MEAN CAST OR SPUN IRON, CONCRETE, ASBESTOS CEMENT OR CLAY.

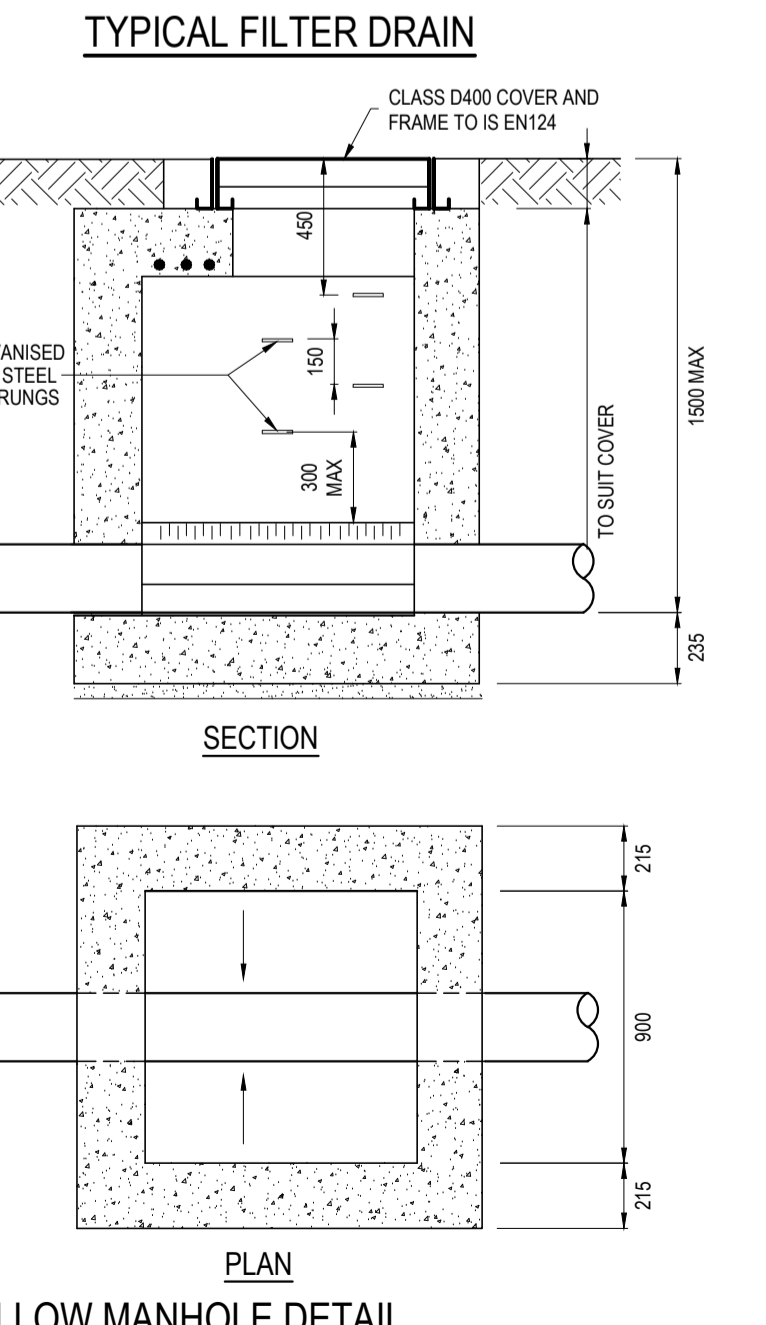
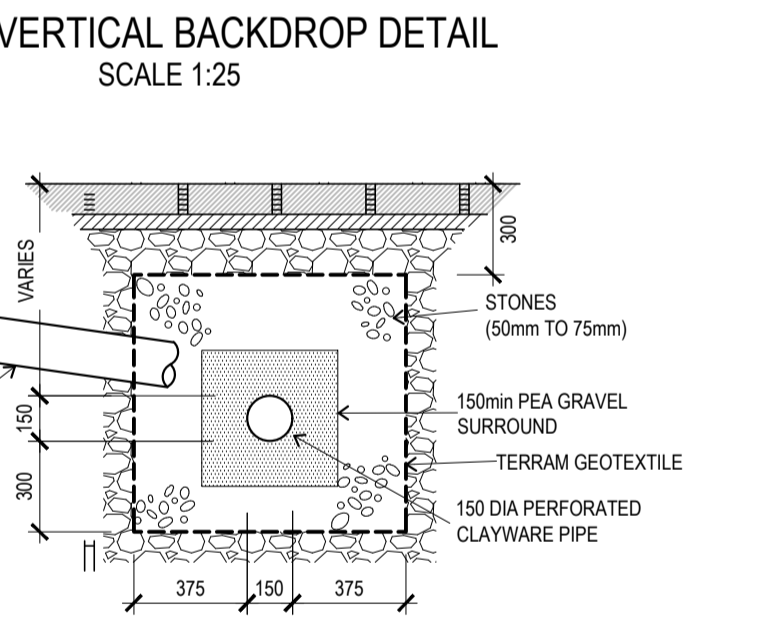
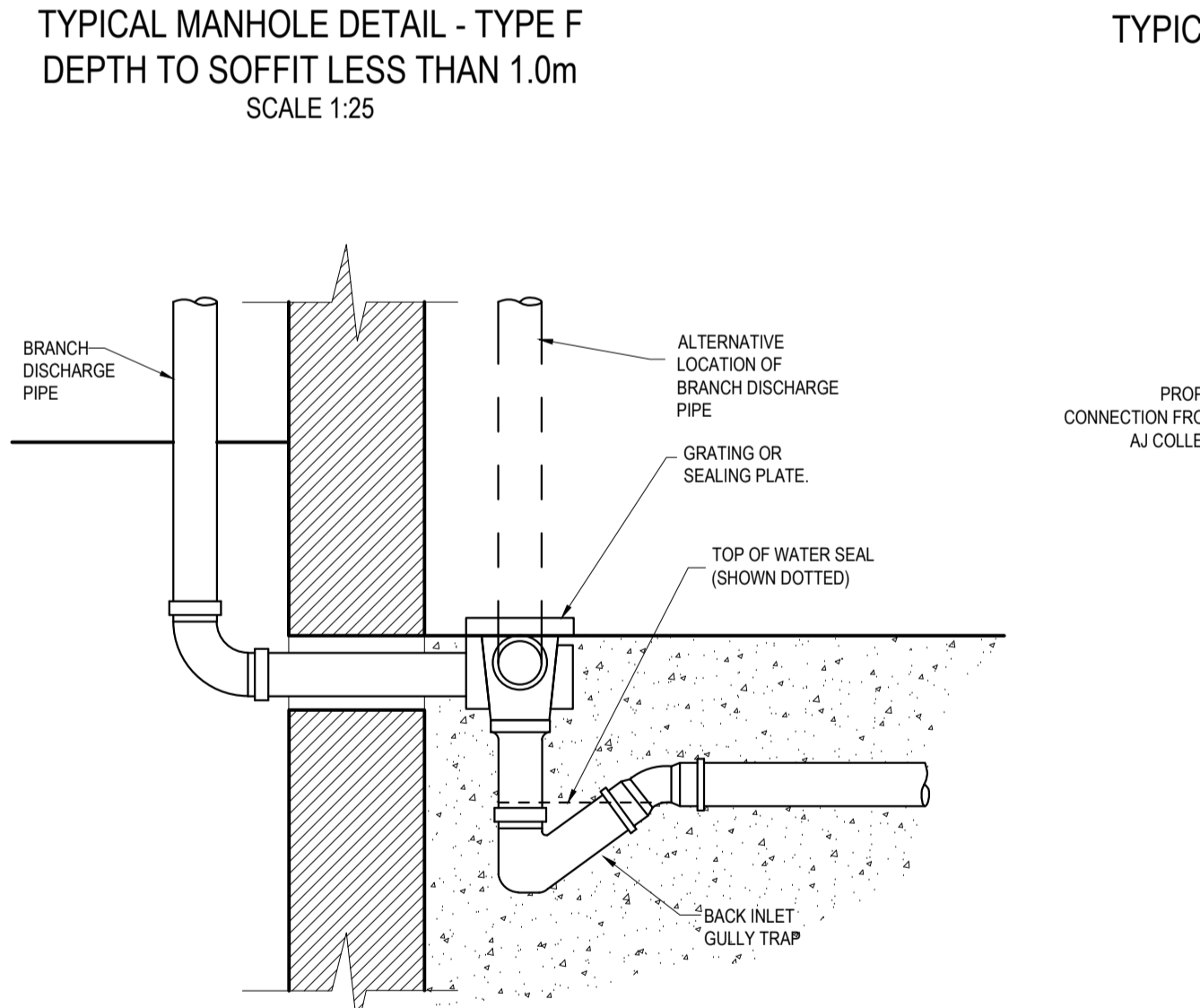
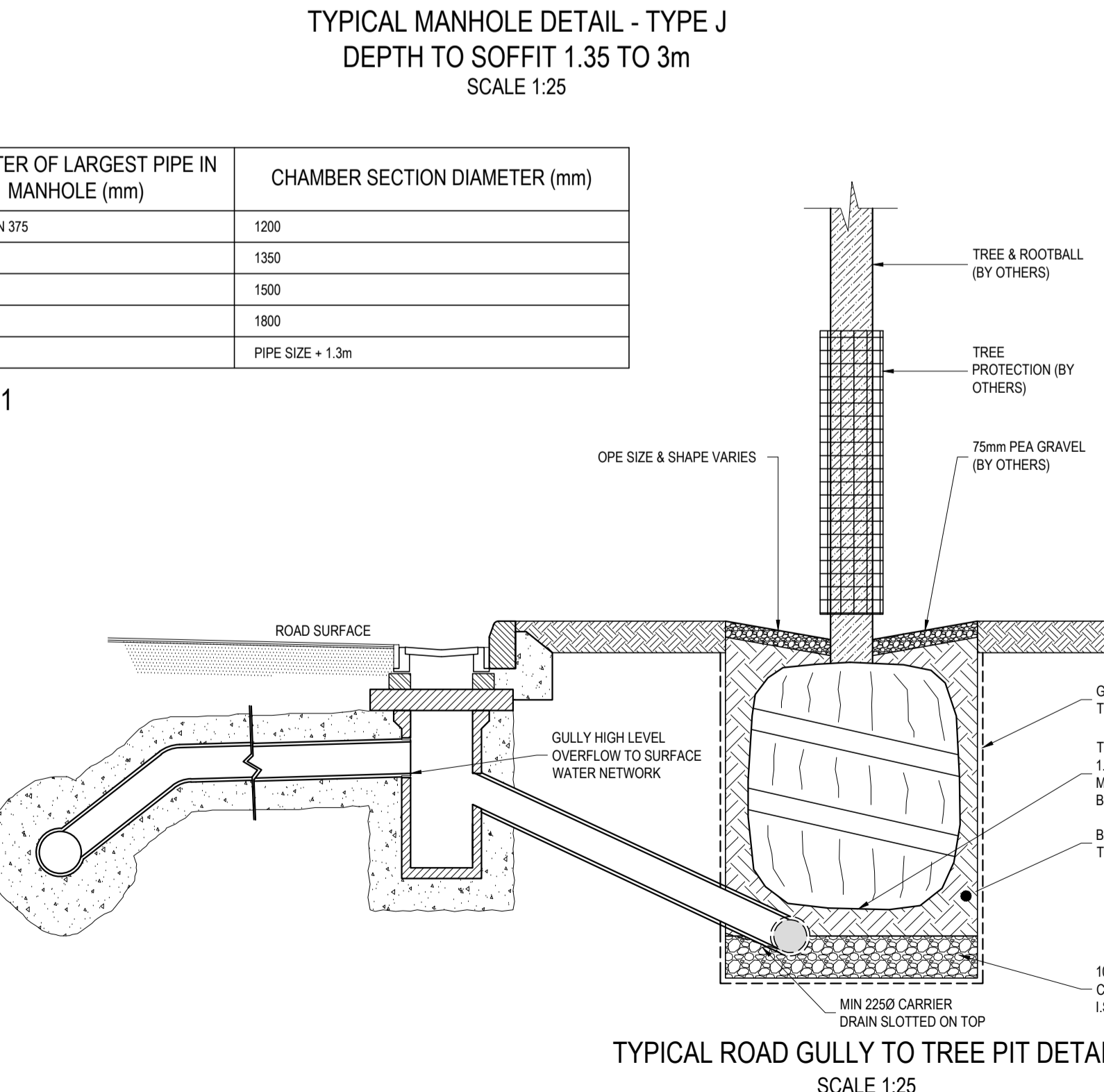
TYPE 2 GRANULAR MATERIAL:

PIPE SIZE	100% PASSING
UP TO 225mm	10mm SIEVE
225 TO 450mm	25mm SIEVE
ABOVE 450mm	25mm SIEVE



DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	CHAMBER SECTION DIAMETER (mm)
LESS THAN 375	1200
375 - 450	1350
500 - 700	1500
750 - 900	1800
> 750	PIPE SIZE + 1.3m

TABLE 1



rev	date	description	PGC	ED
0	26-06-25	LRD APPLICATION		

P3 - PLANNING PERMISSION S - ISSUED

DBFL
CONSULTING ENGINEERS

T - 353 1 400 4000 | E: info@dbfl.ie | W: www.dbfl.ie
DUBLIN | CORK | GALWAY | WATERFORD

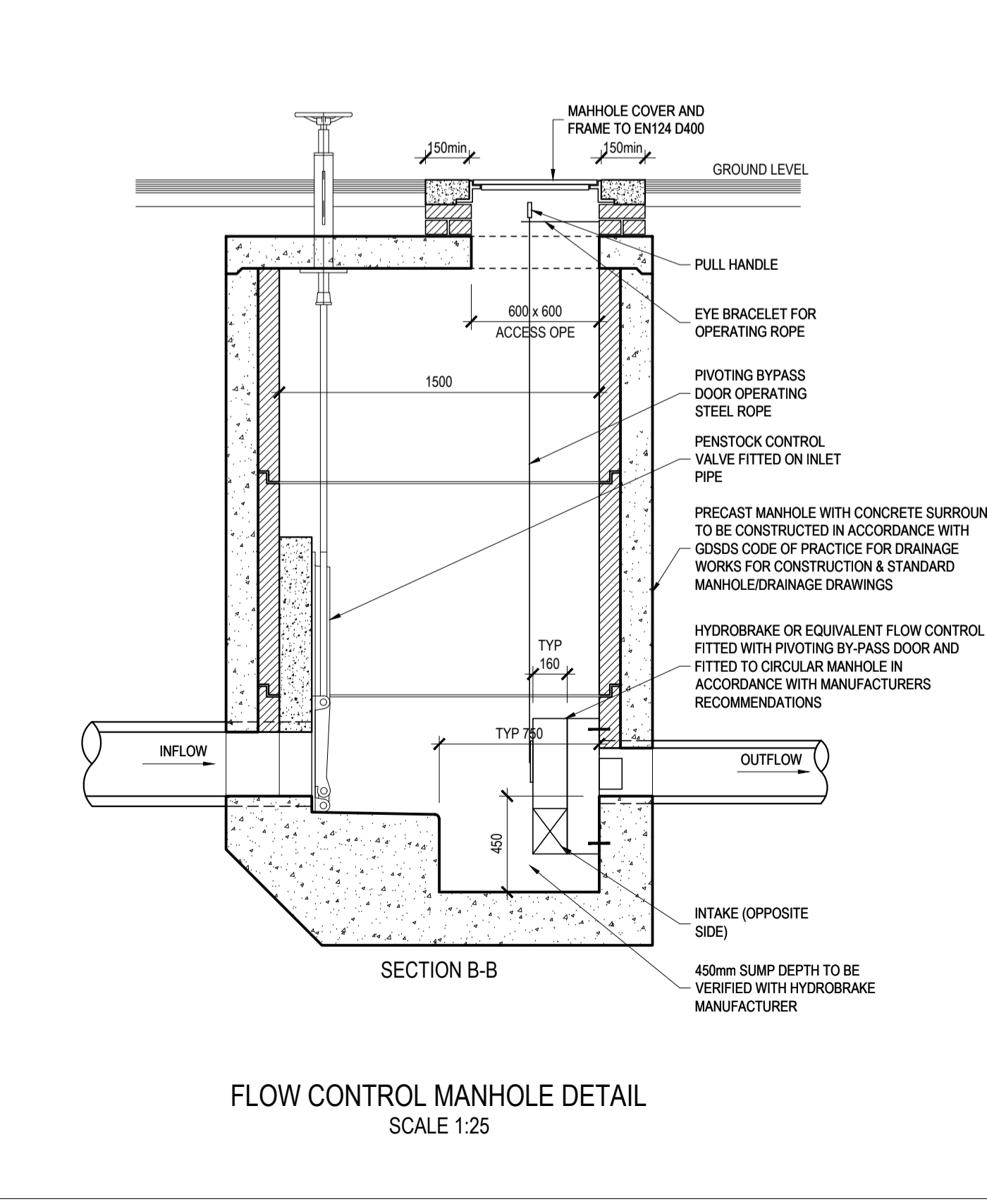
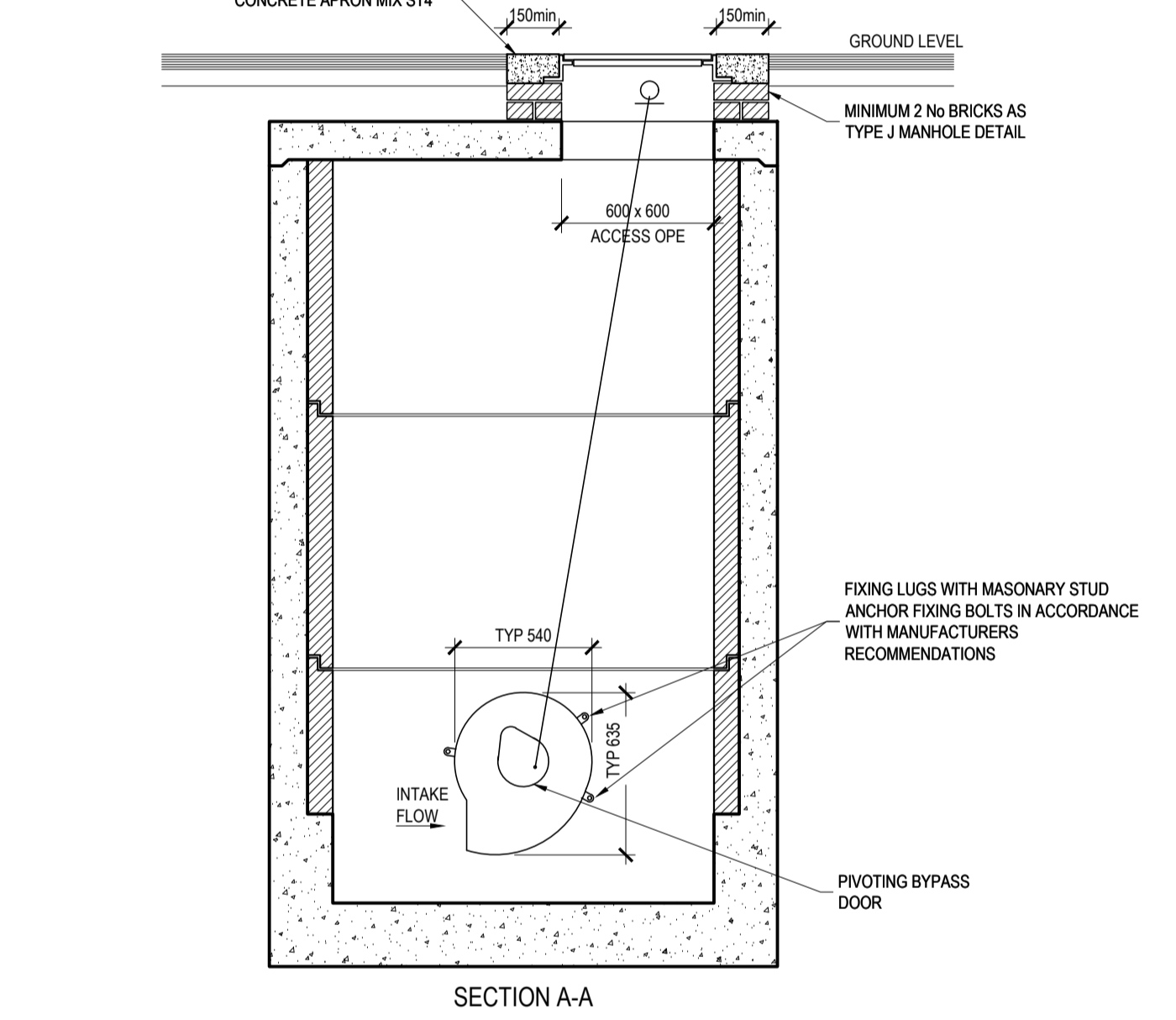
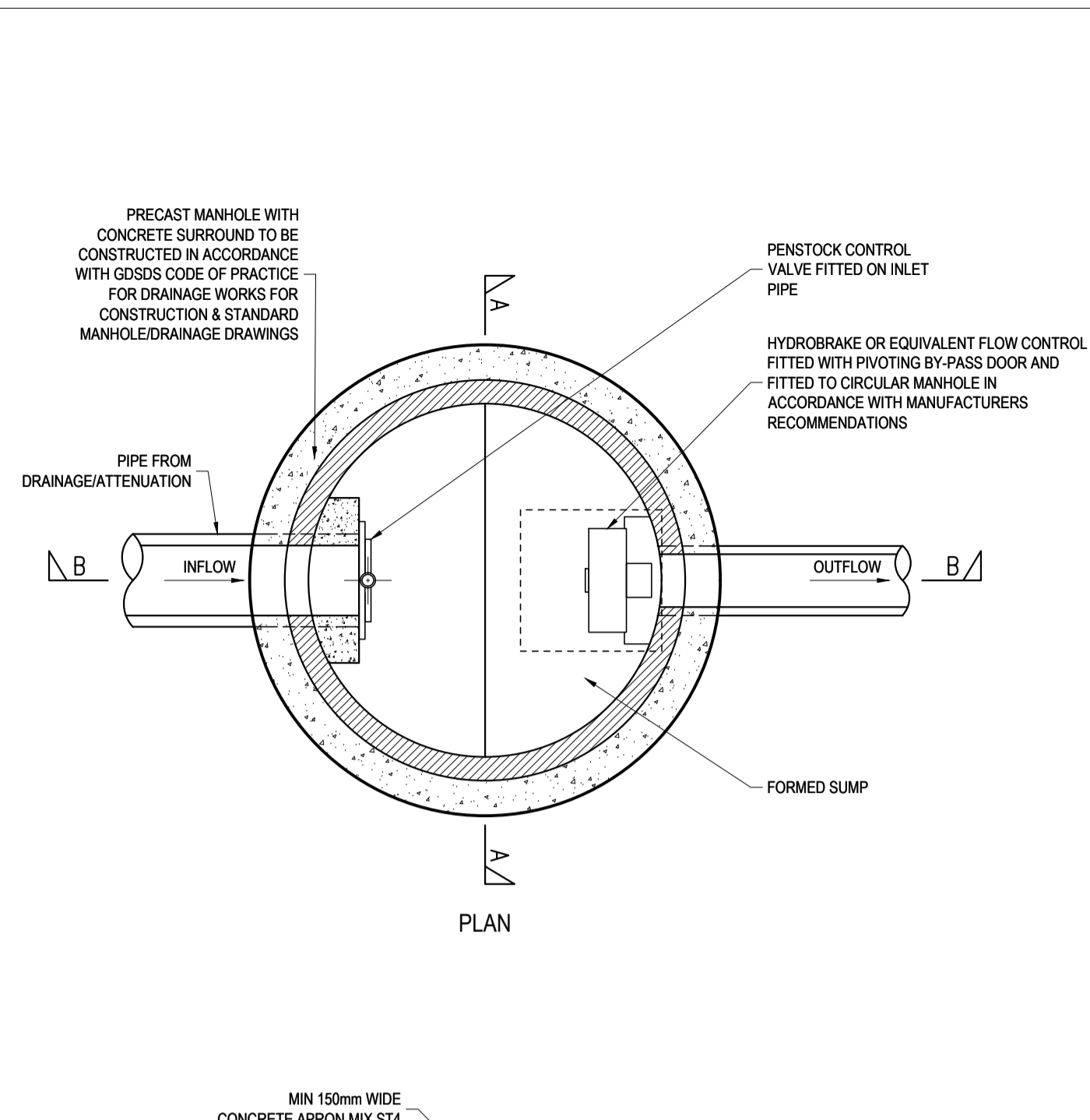
project ref:
SANDFORD ROAD, MILLTOWN

drawing title:
DRAINAGE TYPICAL DETAILS SHEET 1

client:
SANDFORD LIVING LIMITED

designed by	author	scale	sheet size
EDA	RMC	AS SHOWN	A1

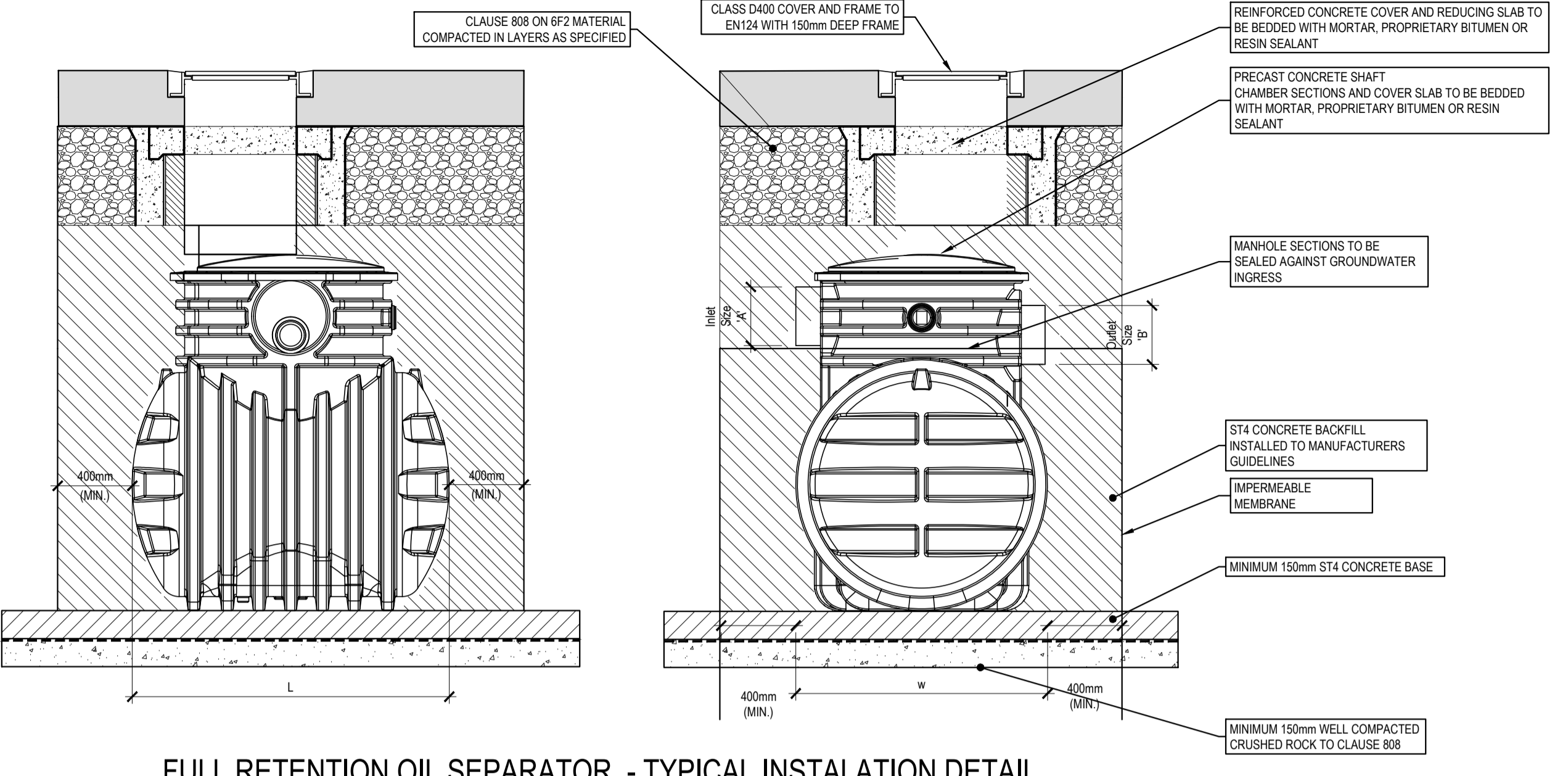
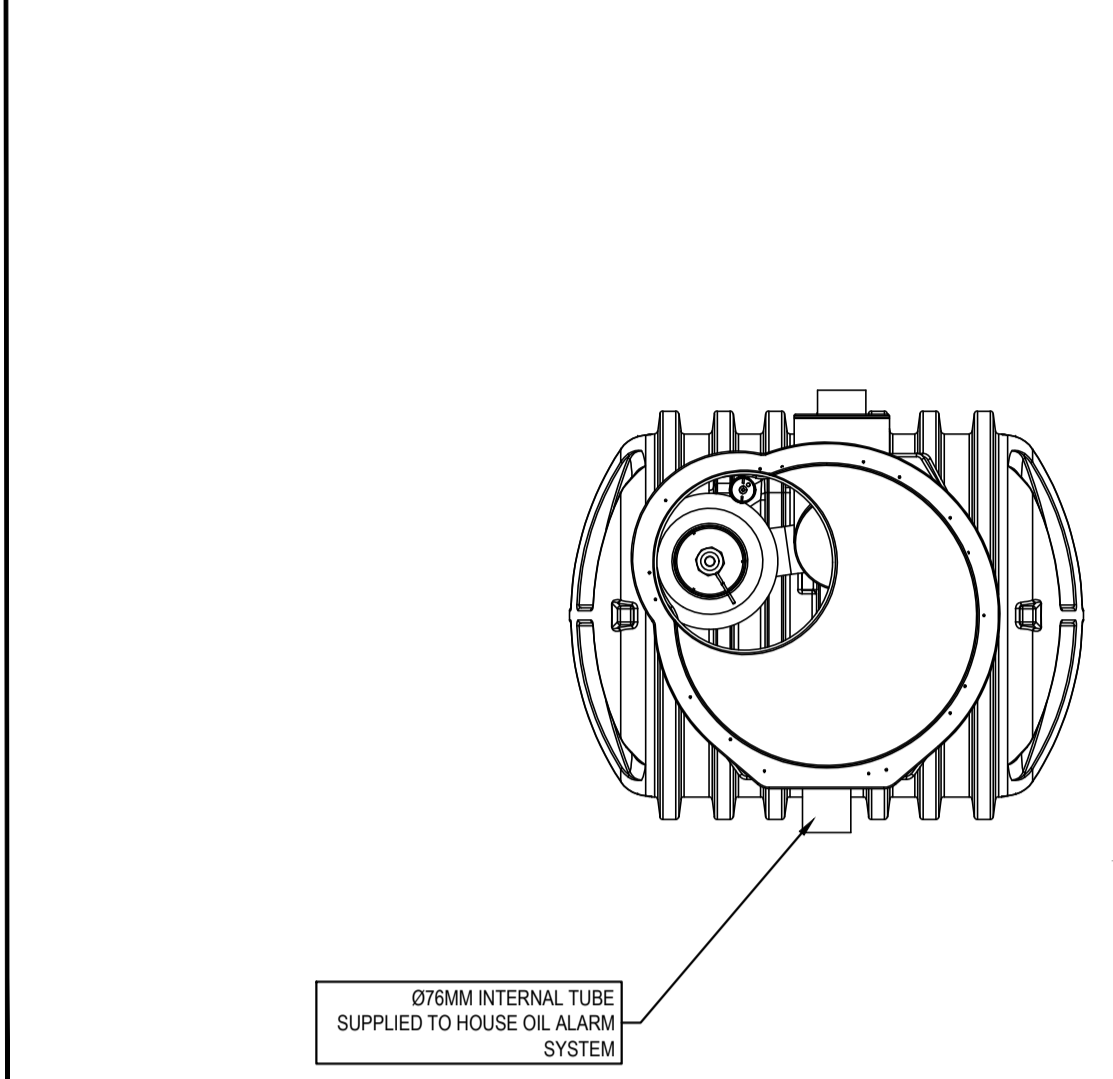
drawing no. 190226-X-05-200-DTM-DR-DBFL-CE-5301 revision 0



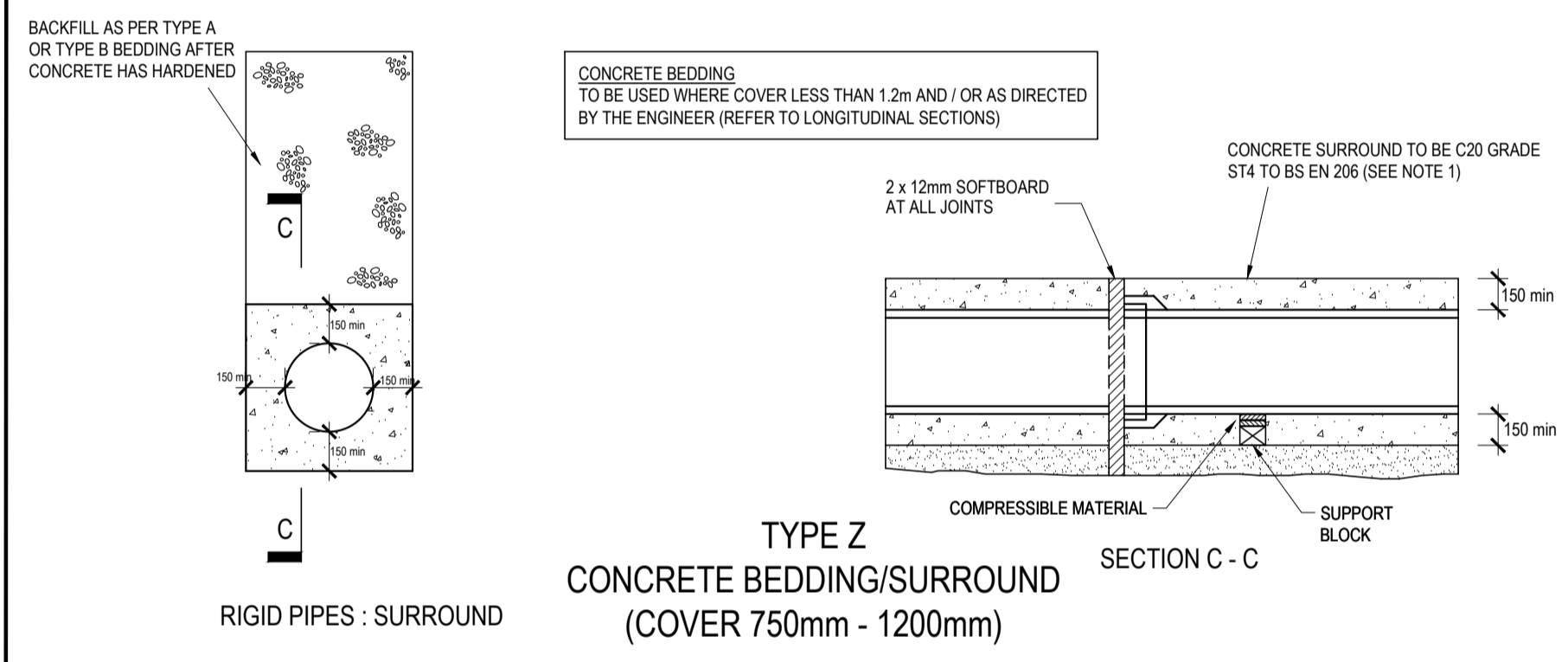
FLOW CONTROL MANHOLE DETAIL
SCALE 1:25

DIMENSIONS

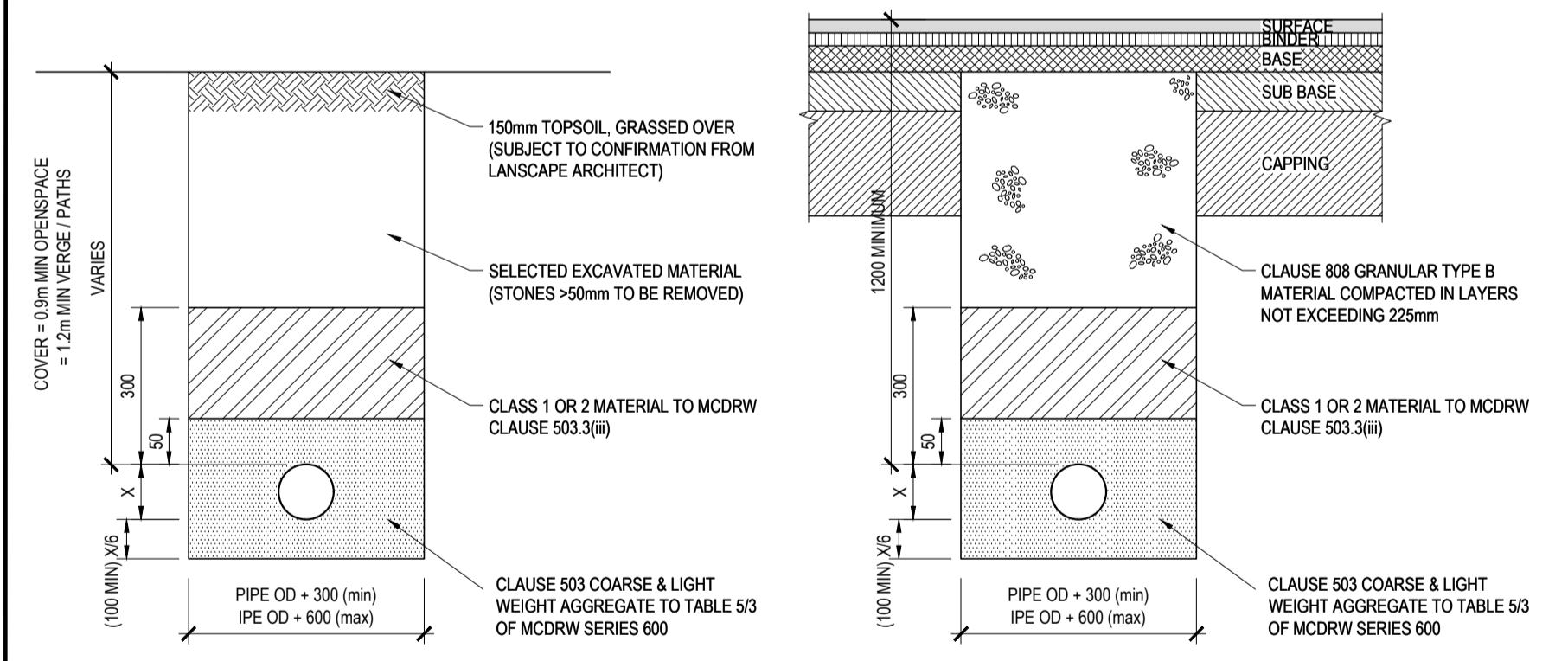
UNIT REF No.	Length L(mm)	Width W(mm)	NOMINAL FLOW	STD. PIPED	FALL ACROSS UNIT	INLET SIZE 'A'	INLET SIZE 'B'
NSFA 010	2610	1225	10 US	200	50	225	225



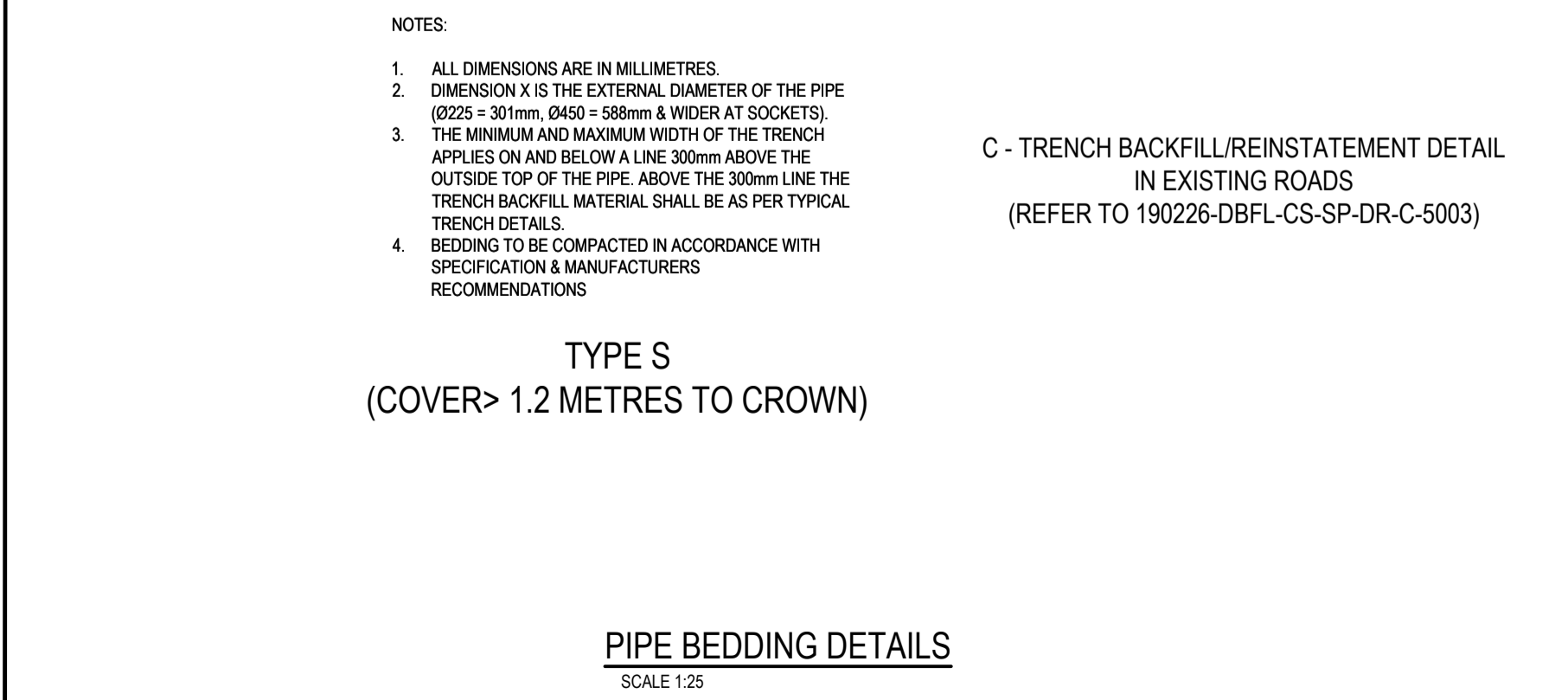
FULL RETENTION OIL SEPARATOR - TYPICAL INSTALATION DETAIL
SCALE 1:25



TYPE Z
CONCRETE BEDDING/SURROUND
(COVER 750mm - 1200mm)



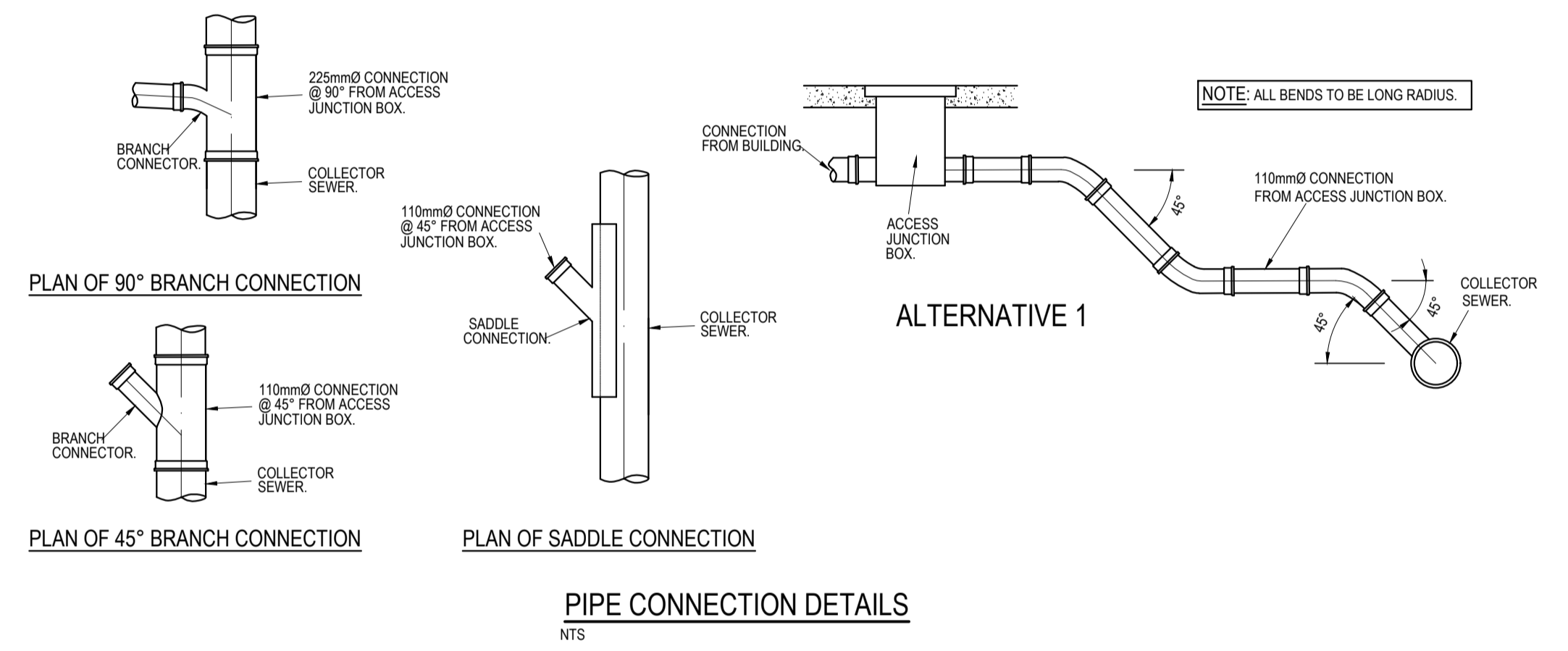
A - BEDDING/BACKFILL DETAIL ACROSS OPEN SPACE (SIMILAR)
B - BEDDING/BACKFILL DETAIL IN ROADWAYS/VERGES/PATHS



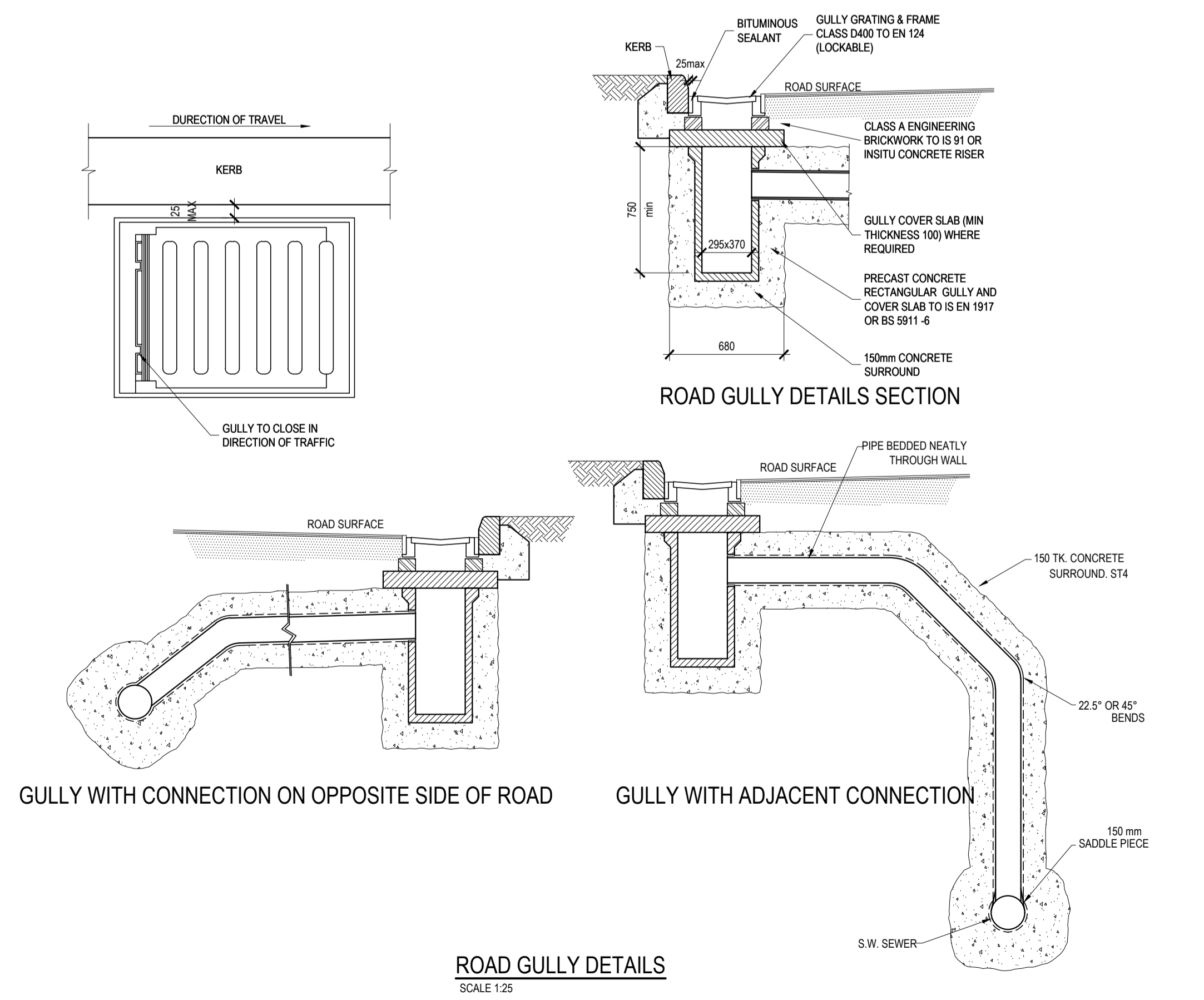
C - TRENCH BACKFILL/REINSTATEMENT DETAIL IN EXISTING ROADS (REFER TO 190226-DBFL-CS-SP-DR-C-5003)

TYPE S
(COVER > 1.2 METRES TO CROWN)

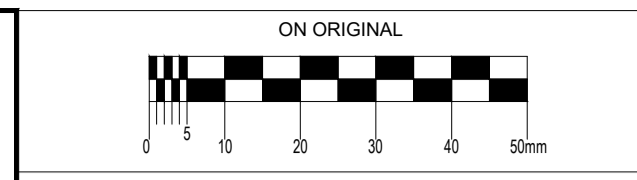
PIPE BEDDING DETAILS
SCALE 1:25



PIPE CONNECTION DETAILS
NTS



ROAD GULLY DETAILS
SCALE 1:25



ON ORIGINAL

© COPYRIGHT OF THIS DRAWING IS RESERVED BY DBFL CONSULTING ENGINEERS. NO PART SHALL BE REPRODUCED OR TRANSMITTED WITHOUT THEIR WRITTEN PERMISSION.

NO CHANGES OF WHATSOEVER NATURE ARE TO BE MADE TO ANY DETAILS SET OUT OR CONTAINED IN ANY DBFL SPECIFICATIONS OR DRAWINGS UNLESS THE EXPRESS CONSENT HAS BEEN OBTAINED IN ADVANCE, IN WRITING, FROM DBFL.

NOTE: ROCKS OR OTHER HARD TRENCH BOTTOM IS ENCOUNTERED, THE FIGURE DENOTED BY * IS TO BE DOUBLED.

- TYPE 1 GRANULAR MATERIAL: BROKEN STONE OR GRAVEL TO PASS 10mm SIEVE AND BE RETAINED ON 5mm SIEVE.
- TYPE 2 GRANULAR MATERIAL: BROKEN STONE OR GRAVEL TO PASS 10mm - 25mm SIEVE, ACCORDING TO PIPE SIZE. (SEE TABLE) AND BE RETAINED ON 5mm SIEVE.
- CLAUSE 601 S.R.W. BACKFILL: UNIFORM READILY COMPACTED MATERIAL FREE FROM TREE ROOTS, VEGETABLE MATTER, BUILDING DEBRIS, AND FROZEN SOIL AND EXCLUDING CLAY LUMPS RETAINED ON A 75mm SIEVE AND STONES RETAINED ON A 37.5mm SIEVE.
- RIGID PIPES SHALL MEAN CAST OR SPUN IRON, CONCRETE OR CLAY.
- GULLY GRATINGS AND FRAMES SHALL COMPLY WITH THE REQUIREMENTS OF I.S./E.N./124 1994. GULLIES SHALL BE CLASS D400.
- GULLY WALLS SHALL BE CONSTRUCTED IN CLASS 30N/m² PRECAST OR INSITU CONCRETE OR ALTERNATIVELY IN SOLID CONCRETE BLOCKS DESIGNATED S10, STRENGTH 10N/m²
- ALL PIPES TO BE BEDDED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS
- SURFACE WATER SEWERS TO BE CLASS H CONCRETE TO IS EN1916 AND IS 6 2004.

rev	date	description	PGC	ED
0	26-06-25	LRD APPLICATION		

purpose: P3 - PLANNING PERMISSION

STATUS CODES: acceptance S - ISSUED

DBFL
CONSULTING ENGINEERS

T: +353 1 400 4000 | E: info@dbfl.ie | W: www.dbfl.ie

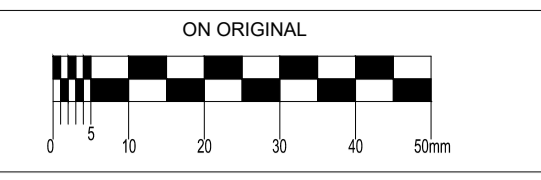
DUBLIN | CORK | GALWAY | WATERFORD

project ref: SANDFORD ROAD, MILLTOWN

drawing title: DRAINAGE TYPICAL DETAILS SHEET 2

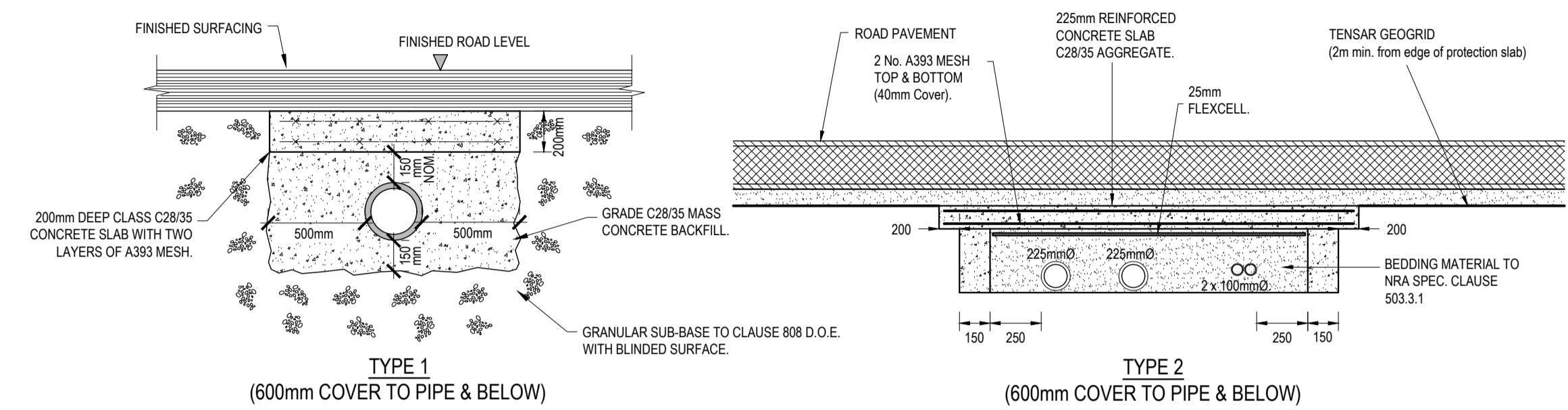
client: SANDFORD LIVING LIMITED

designed by: BK author: ICD scale: AS NOTED sheet size: A1 drawing no: 190226-X-05-200-DTM-DR-DBFL-CE-5302 revision: 0



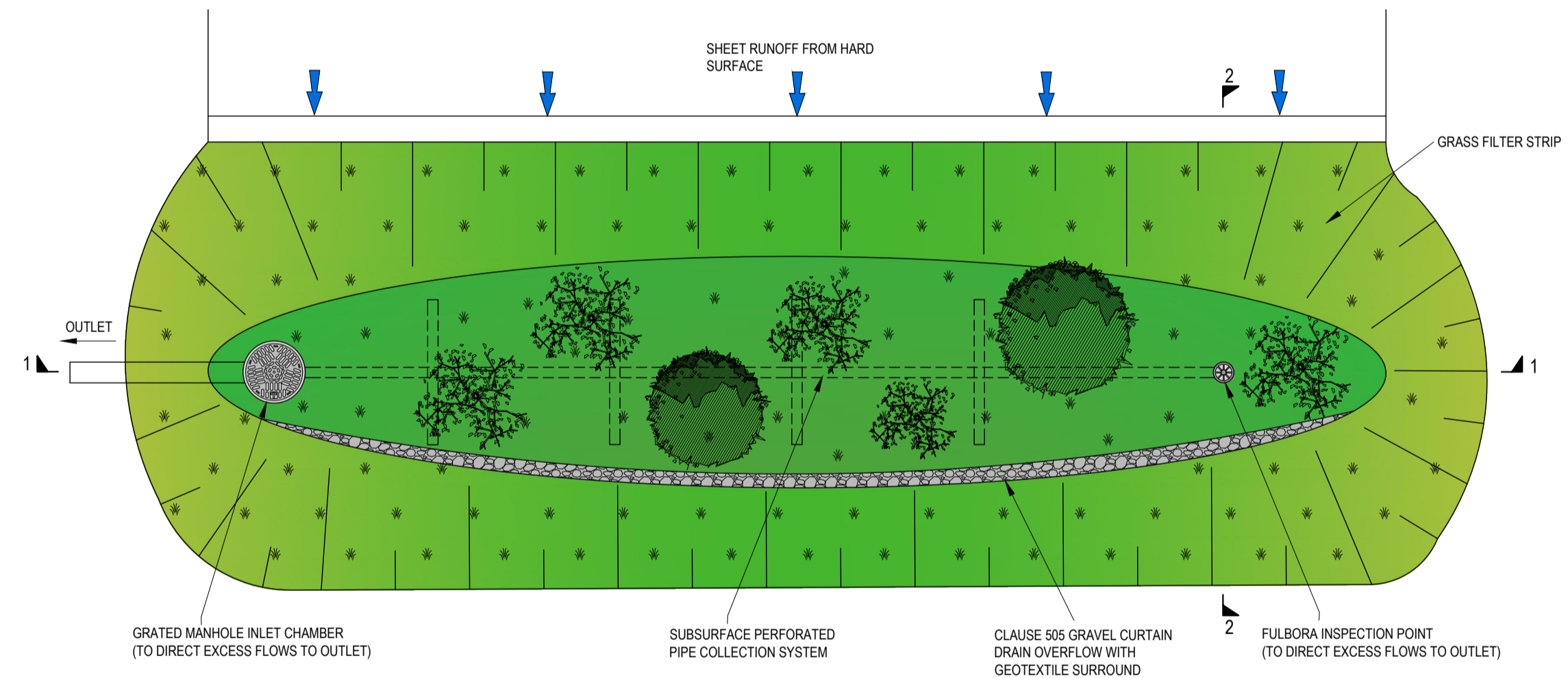
© COPYRIGHT OF THIS DRAWING IS RESERVED BY DBFL CONSULTING ENGINEERS. NO PART SHALL BE REPRODUCED OR TRANSMITTED WITHOUT THEIR WRITTEN PERMISSION.
 NO CHANGES OF WHATSOEVER NATURE ARE TO BE MADE TO ANY DETAILS SET OUT OR CONTAINED IN ANY DBFL SPECIFICATIONS OR DRAWINGS UNLESS THE EXPRESS CONSENT HAS BEEN OBTAINED IN ADVANCE, IN WRITING, FROM DBFL.

NOTE: ROCKS OR OTHER HARD TRENCH BOTTOM IS ENCOUNTERED, THE FIGURE DENOTED BY * IS TO BE DOUBLED.

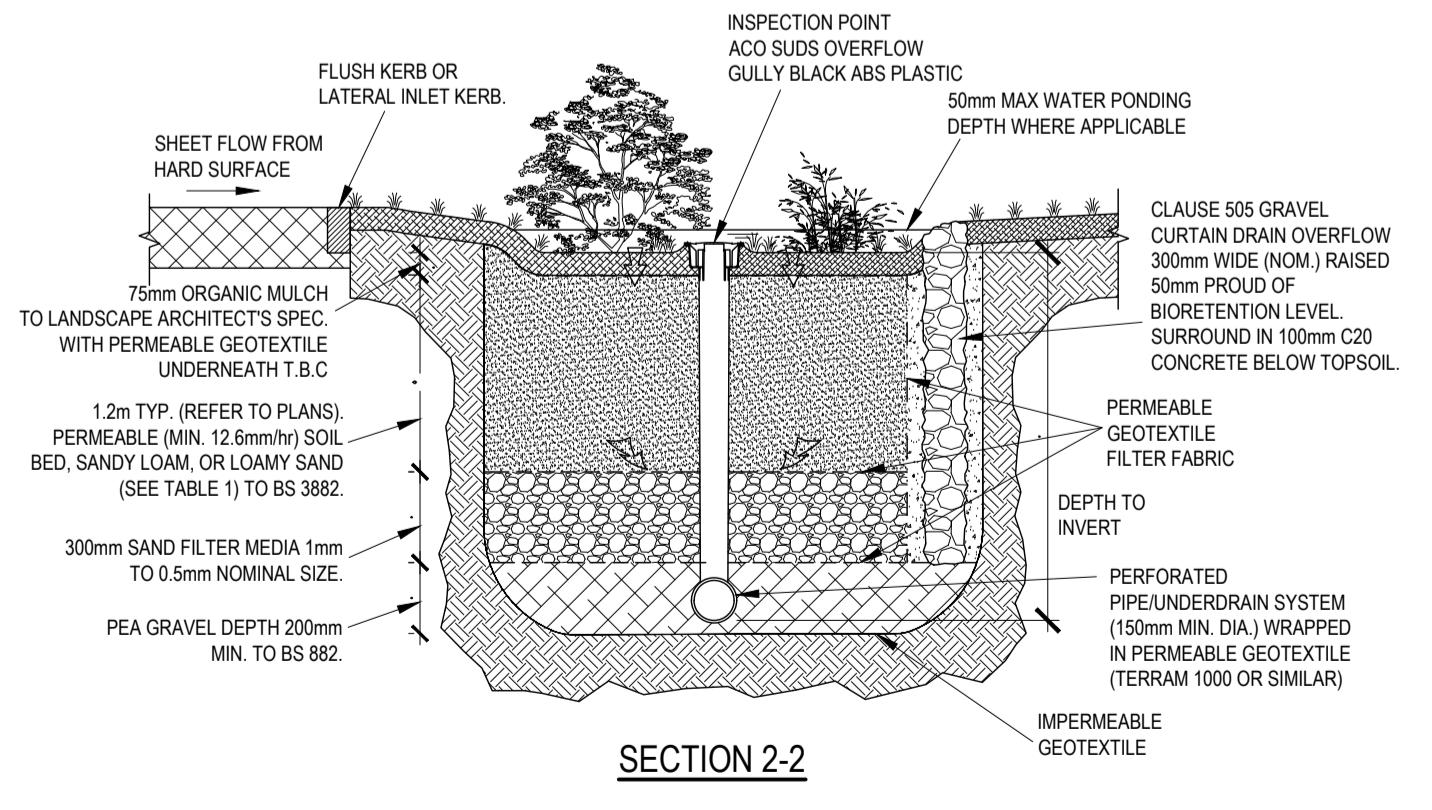
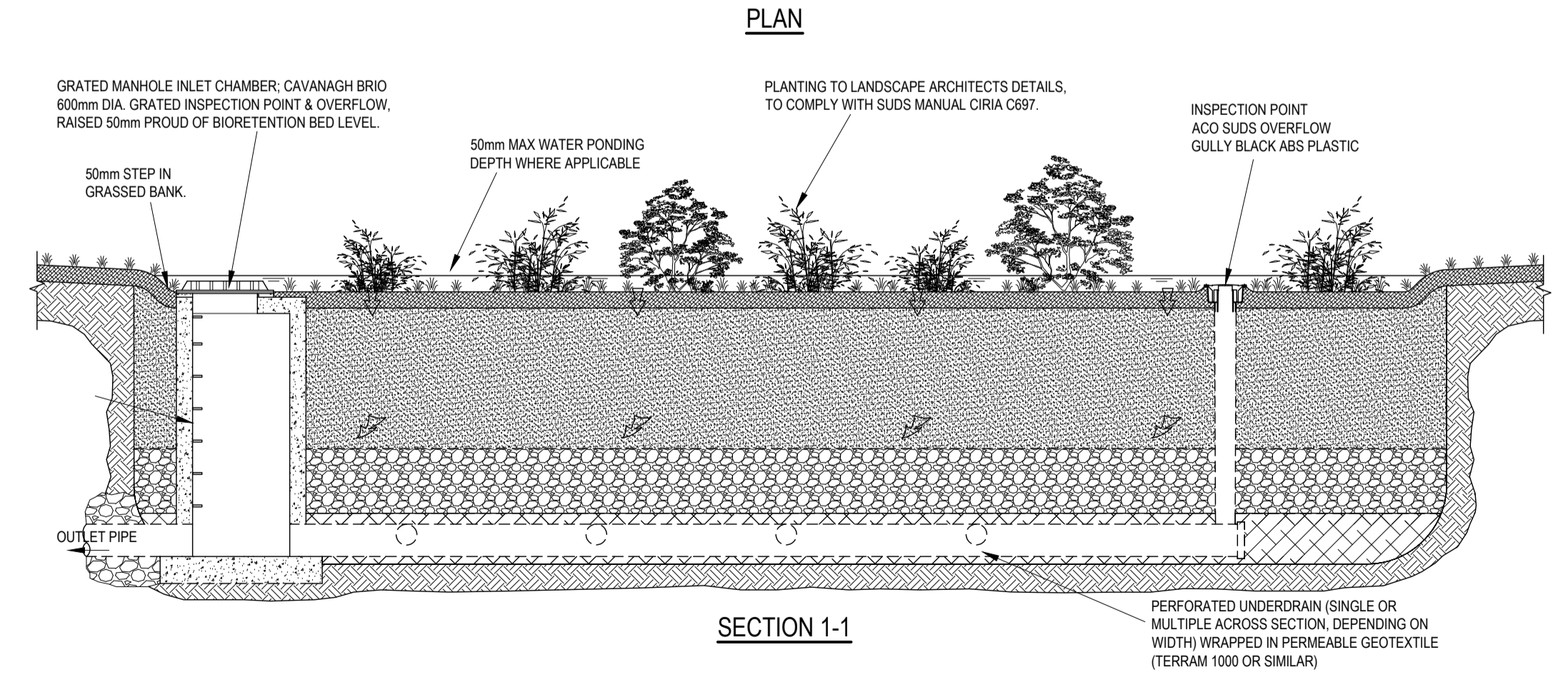


TYPICAL SERVICES PROTECTION DETAIL
 SCALE 1:25

2. TYPE 1 GRANULAR MATERIAL: BROKEN STONE OR GRAVEL TO PASS 10mm SIEVE AND BE RETAINED ON 5mm SIEVE.
3. TYPE 2 GRANULAR MATERIAL: BROKEN STONE OR GRAVEL TO PASS 10mm - 25mm SIEVE, ACCORDING TO PIPE SIZE. (SEE TABLE) AND BE RETAINED ON 5mm SIEVE.
4. CLAUSE 601 S.R.W. BACKFILL: UNIFORM READILY COMPACTED MATERIAL FREE FROM TREE ROOTS, VEGETABLE MATTER, BUILDING DEBRIS, AND FROZEN SOIL AND EXCLUDING CLAY LUMPS RETAINED ON A 75mm SIEVE AND STONES RETAINED ON A 37.5mm SIEVE.
5. RIGID PIPES SHALL MEAN CAST OR SPUN IRON, CONCRETE OR CLAY.
6. GULLY GRATINGS AND FRAMES SHALL COMPLY WITH THE REQUIREMENTS OF I.S./E.N./124 1994. GULLIES SHALL BE CLASS D400.
7. GULLY WALLS SHALL BE CONSTRUCTED IN CLASS 30N/mm² PRECAST OR IN-SITU CONCRETE OR ALTERNATIVELY IN SOLID CONCRETE BLOCKS DESIGNATED S10, STRENGTH 10N/mm²
8. ALL PIPES TO BE BEDDED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS
9. SURFACE WATER SEWERS TO BE CLASS H CONCRETE TO IS EN1916 AND IS 6 2004.



COMPONENT	PERCENTAGE MIXTURE
SAND	35-60%
SILT	30-50%
CLAY	10-25%
ORGANIC MATTER	0-4%
TOP SOIL	-



BIORETENTION AREA/RAIN GARDEN - SCHEMATIC LAYOUT
 SCALE: 1:25

rev	date	description	PGC	ED
0	26-06-25	LRD APPLICATION		

purpose: P3 - PLANNING PERMISSION
 status: S - ISSUED

DBFL
 CONSULTING ENGINEERS
 T: + 353 1 400 4000 | E: info@dbfl.ie | W: www.dbfl.ie
 DUBLIN | CORK | GALWAY | WATERFORD

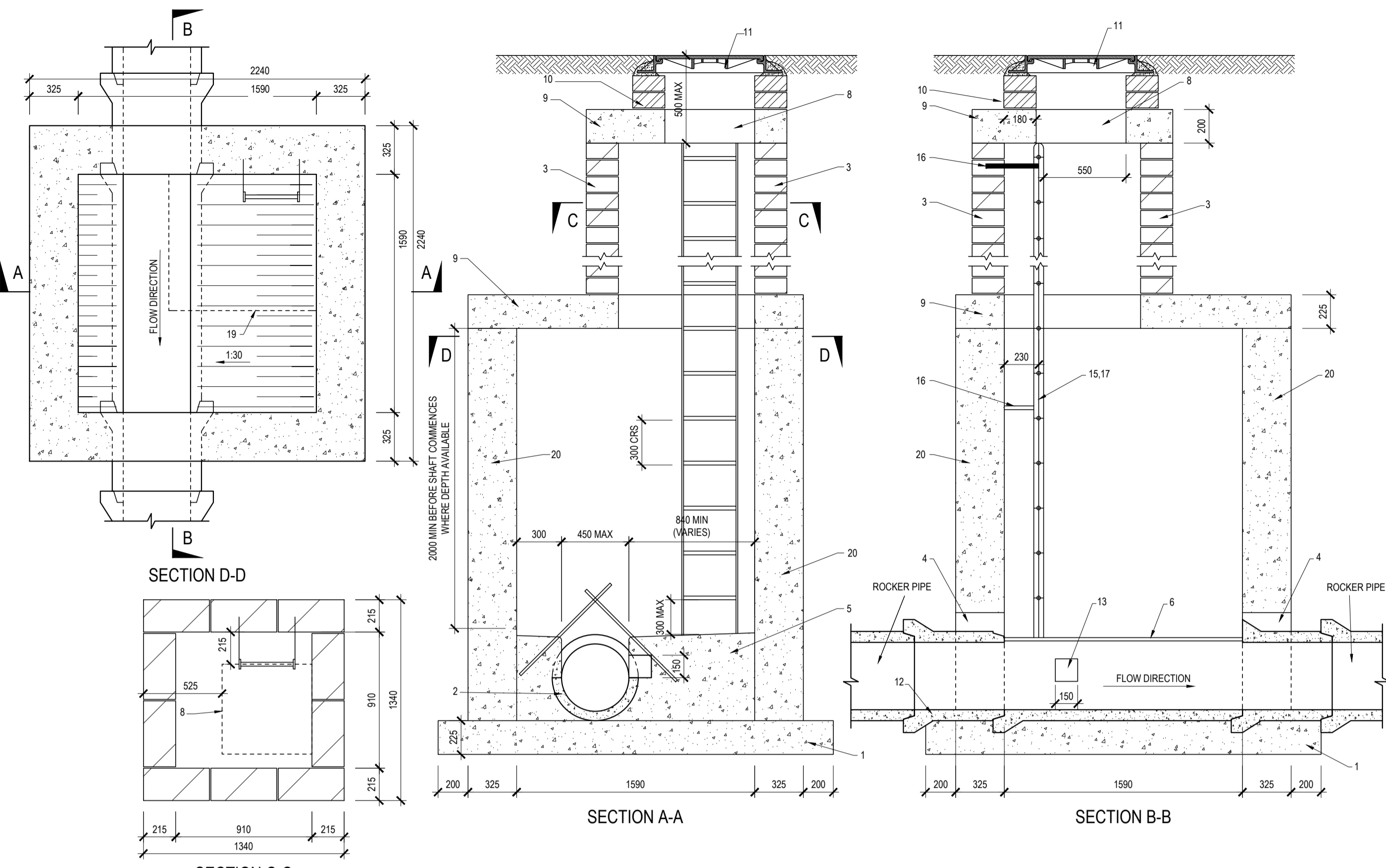
project ref: SANDFORD ROAD, MILLTOWN

drawing title: DRAINAGE TYPICAL DETAILS SHEET
 3

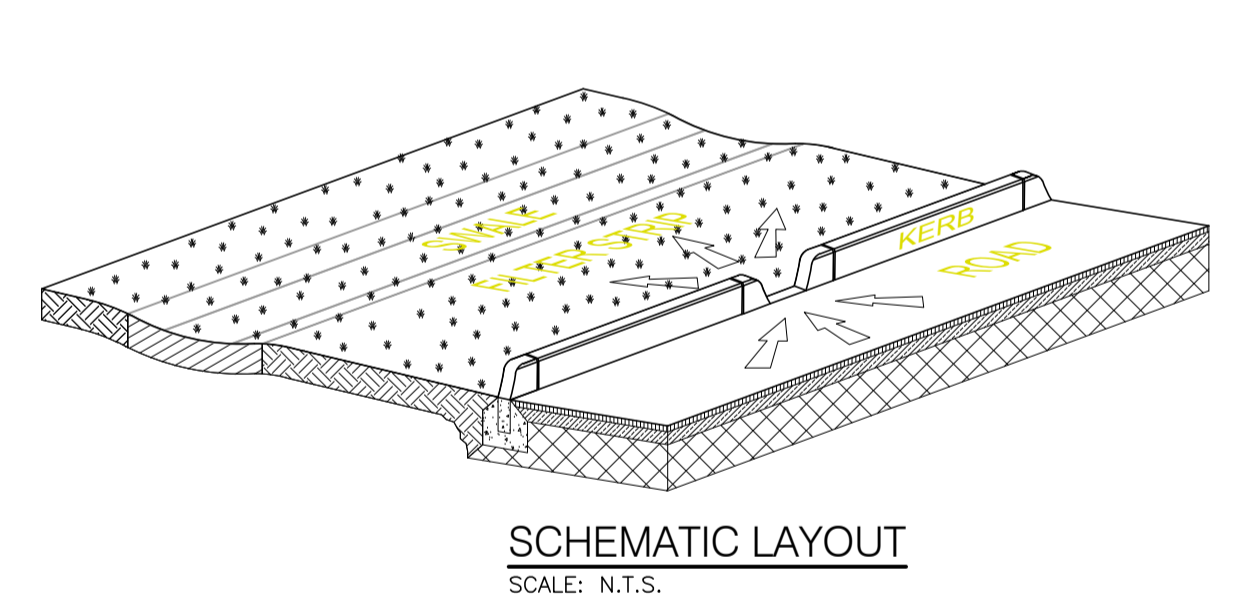
client: SANDFORD LIVING LIMITED

designed by	author	scale	sheet size
BK	ICD	AS NOTED	A1

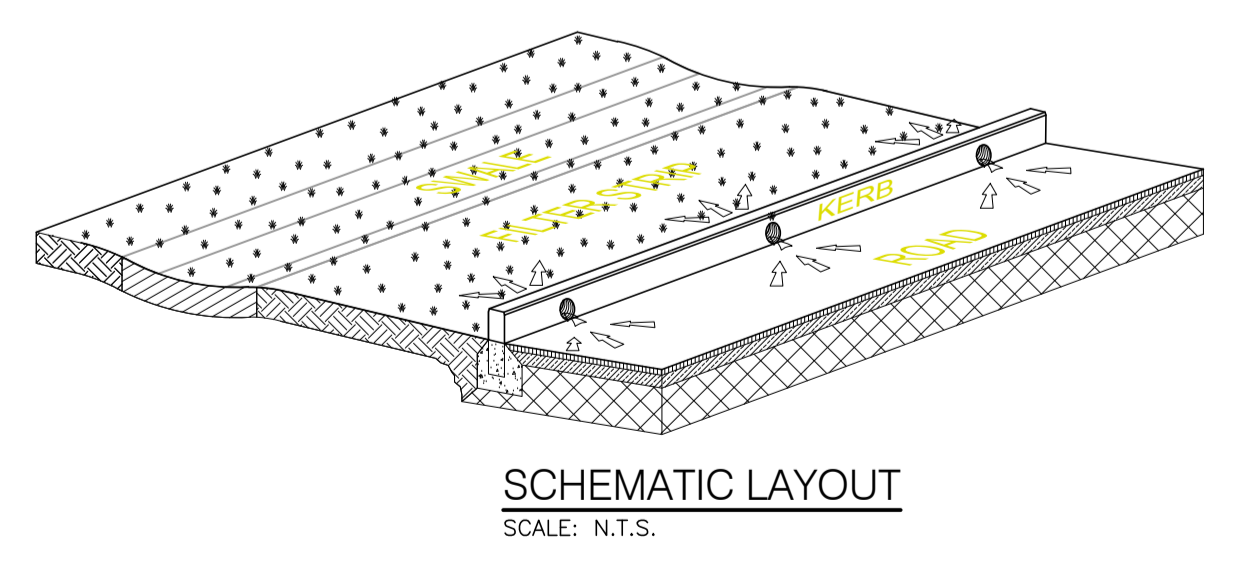
drawing no: 190226-X-05-Z00-DTM-DR-DBFL-CE-5303 | revision: 0



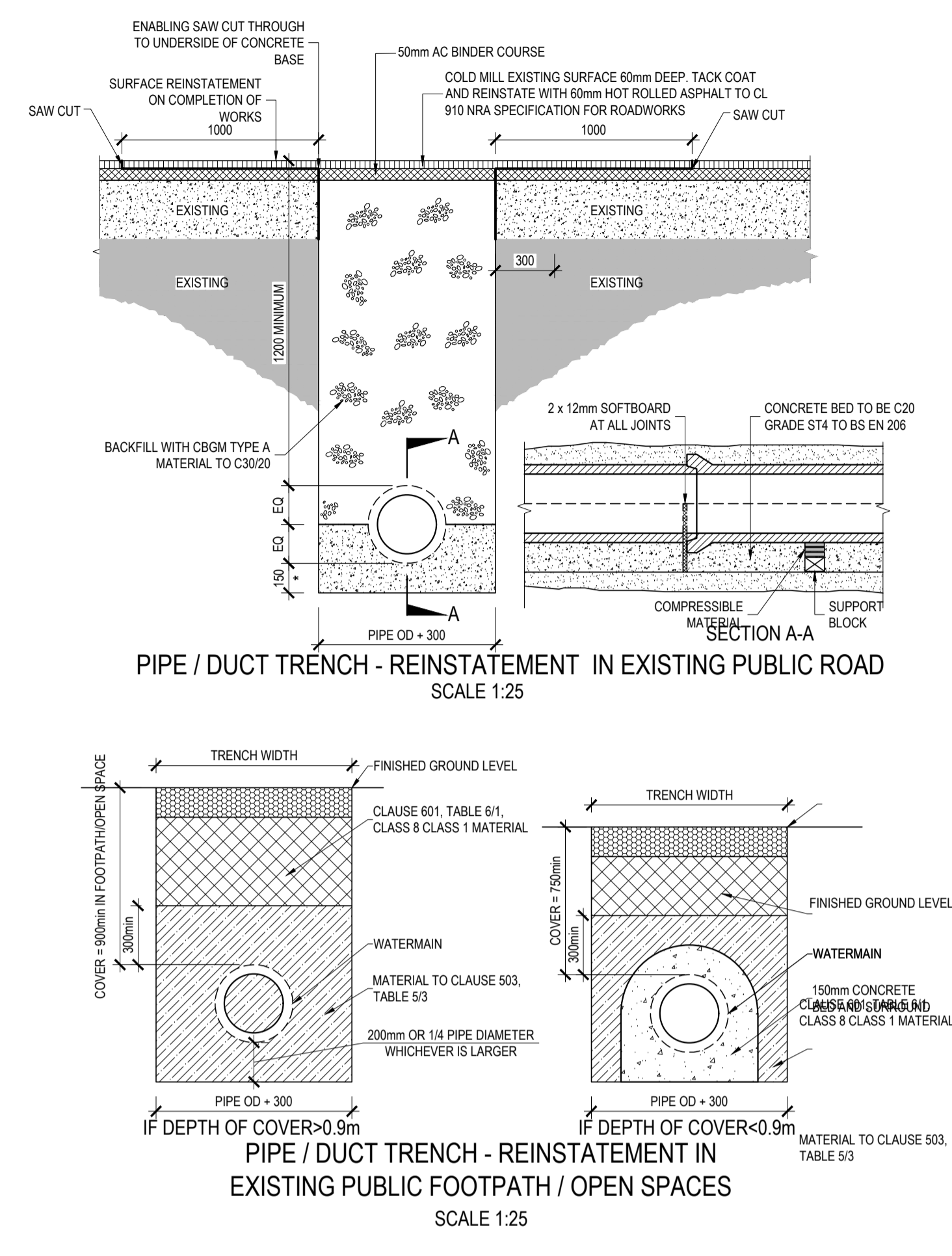
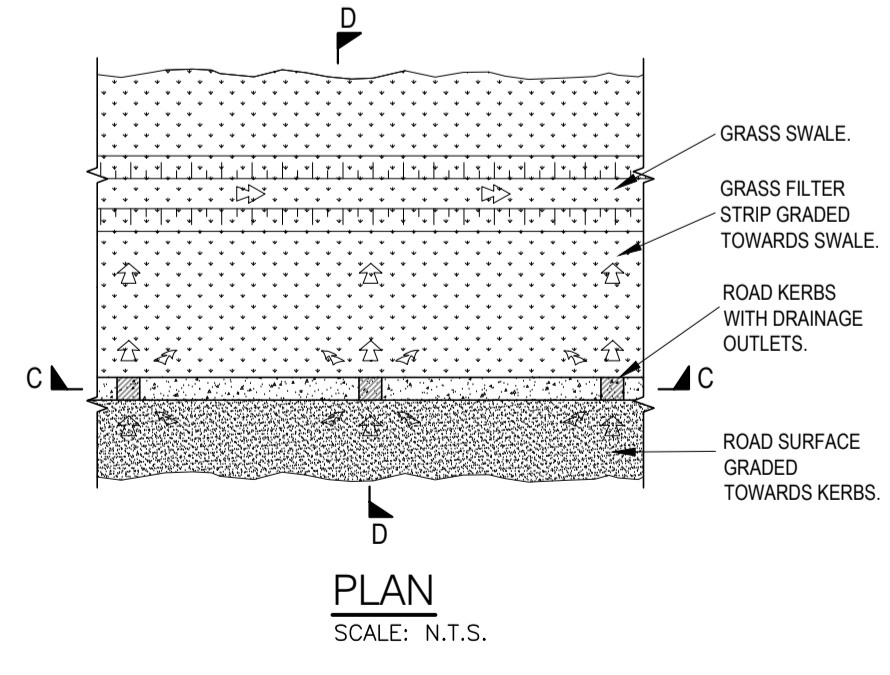
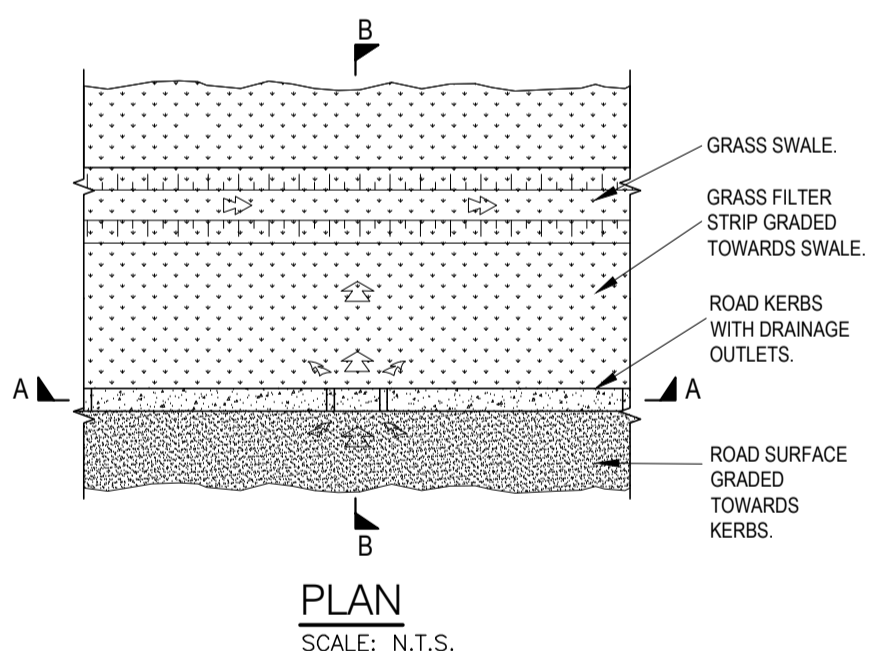
TYPE C MANHOLE
MANHOLE DETAILS FOR PIPE DIA's 225,300,375 & 450
DEPTH TO INVERT 3.0m TO 6.0m



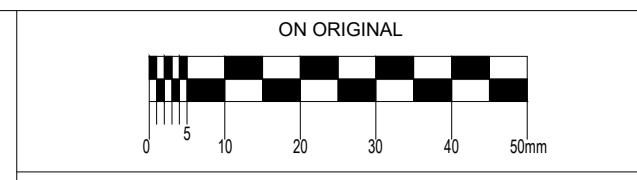
TYPICAL ROADSIDE LATERAL KERB INLET (NON-CONTINUOUS KERB)



TYPICAL ROADSIDE LATERAL KERB INLET (KERB WITH PIPE OUTLETS)



- GENERAL NOTES:
- WHERE ROCKS OR OTHER HARD TRENCH BOTTOM IS ENCOUNTERED THE FIGURE DENOTED BY 'I' IS TO BE DOUBLED.
 - TYPE 1 GRANULAR MATERIAL - BROKEN STONE OR GRAVEL TO PASS 10mm SIEVE AND BE RETAINED ON 5mm SIEVE.
 - TYPE 2 GRANULAR MATERIAL - BROKEN STONE OR GRAVEL TO PASS 10mm - 25mm SIEVE. ACCORDING TO PIPE SIZE, (SEE TABLE) AND BE RETAINED ON 5mm SIEVE.
 - CLAUZE 601 S.R.W. BACKFILL - UNIFORM READILY COMPACTED MATERIAL FREE FROM TREE ROOTS, VEGETABLE MATTER, BUILDING DEBRIS, AND FROZEN SOIL AND EXCLUDING CLAY LUMPS RETAINED ON A 75mm SIEVE AND STONES RETAINED ON A 37.5mm SIEVE.
 - RIGID PIPES SHALL MEAN CAST OR SPUN IRON, CONCRETE OR CLAY.
 - GULLY GRATINGS AND FRAMES SHALL COMPLY WITH THE REQUIREMENTS OF I.S./EN/124 1994. GULLIES SHALL BE CLASS D400.
 - GULLY WALLS SHALL BE CONSTRUCTED IN CLASS 30/100/2 PRECAST OR INSITU CONCRETE OR ALTERNATIVELY IN SOLID CONCRETE BLOCKS DESIGNATED S10, STRENGTH 10N/100/2.
 - ALL PIPES TO BE BEDDED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
 - SURFACE WATER SEWERS TO BE CLASS H CONCRETE TO IS EN1916 AND IS E 2004.



ON ORIGINAL
0 10 20 30 40 50mm

NO CHANGES OF WHATSOEVER NATURE ARE TO BE MADE TO ANY DETAILS SET OUT OR CONTAINED IN ANY OTHER SPECIFICATIONS OR DRAWINGS UNLESS THE EXPRESS CONSENT HAS BEEN OBTAINED IN ADVANCE. IN ACCORDANCE WITH THE DUBLIN REGIONAL CODE OF PRACTICE V6.0

- NOTES:
- 25mm THK CL. 20/20mm MASS CONCRETE FOUNDATIONS. PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY, WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE AND THE CROWN CUT OUT TO HALF DIAMETER. PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF THE MANHOLE WALL.
 - FOR SURFACE WATER MANHOLES HIGH-DENSITY BLOCKS TO CL. S10 OR S10/100/2 OR CL. 30/20mm INSITU CONCRETE. BLOCK WORK SHALL BE BEDDED AND JOINTED USING MORTAR TO S405. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID. JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS.
 - ALL FOUL MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN. CLASS A OR B) OR INSITU CONCRETE FOR 1 METRE ABOVE BENCHING LEVEL.
 - BRICK TO BE BOND TO BLOCK WORK USING ENGLISH GARDEN WALL BOND.
 - RELIEVING ARCH FORMED BY 215x103x65 SOLID ENGINEERING BRICK CLASS A OR B AS PER DRAWING. PROVIDE FLEXIBLE JOINTS TO EXTEND OVER FULL THICKNESS OF WALL. A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETERS GREATER THAN 600mm.
 - BENCHING AND PIPE CHANNEL PIPE SURROUND - CL. 20/20 CONCRETE.
 - BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH A SMOOTH FROWEL FINISH AT 1:1 IN SLOPE TOWARDS CHANNEL.
 - STANDARD RINGS AT 300 CRS VERTICALLY AND GALVANISED TO LATEST VERSION OF B.S. 729 OR EQUIVALENT. NOTE: STEP IRONS ARE NOT ACCEPTABLE.
 - 500mm SQUARE OPE IN ROOF SLAB.
 - PRECAST R.C. ROOF SLAB SHALL BE 200mm THICK IN CLASS 30/20mm WITH 40mm COVER TO STEEL.
 - 1 TO 2 COURSES OF SOLID ENGINEERING BRICKS CL.B TO IS 91:1983 SET IN 1:3 CEMENT AND MORTAR.
 - CLASS S400 OR S600 MANHOLE COVER AND FRAME TO IS/EN 124 150mm DEEP FRAME FOR ROADS AND 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON-ROCK DESIGN. CLOSED KEYWAYS. MANUFACTURED FROM SPHERICAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600 x 600 (600 DIA.) CLEAR OPENING. COVER AND FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL. COVER TO HAVE A MINIMUM MASS OF 140kg/m². FRAME BEARING AREA SHALL BE 80,000mm² MIN. FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURERS INSTRUCTIONS.
 - SHORT LENGTH PIPE AND PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
 - TOE HOLES OF 230mm MINIMUM DEPTH AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 500mm DIA. AND DEPTH TO INVERT >3m FOR ACCESS TO INVERT.
 - A SAFETY CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M16 NON-CALIBRATED CHAIN.
 - TYPE 1 COMPLYING WITH B.S. 842 PART 2 OR EQUIVALENT WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m. LADDERS SHALL BE USED INSTEAD OF RINGS TO B.S. 4211 OR EQUIVALENT EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65mm x 12mm IN SECTION AND RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF B.S. 4211 OR EQUIVALENT.
 - LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.0m. STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEWAL.
 - ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC SHALL BE HOT DIP GALVANISED TO B.S. 729 OR EQUIVALENT.
 - PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL SO THAT THE CHANNEL EXTENDS THE FULL LENGTH OF THE MANHOLE (EXCEPT FOR PRE-CAST MANHOLES).
 - POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLAB.
 - ALL MANHOLES SHALL BE WATER TIGHT TO THE SATISFACTION OF THE ENGINEER.
 - FORMWORK TO REINFORCED CONCRETE AND MASS CONCRETE SHALL COMPLY WITH CLASS 2, SECTION 6.2.7, B.S. 8110: PART 1: 1997.
 - FINISH TO THE TOP OF THE SLABS SHALL COMPLY WITH TYPE A SECTION 6.2.7, B.S. 8110: PART 1: 1997.
 - PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCK WORK HAVING A CO-ORDINATING SIZE OF 450 X 225 X 100. MANHOLES ARE DESIGNED TO B.S. 8005 AND WALL THICKNESS TO LS 325 BLOCK WORK DESIGN CODE TAKING GRANULAR FILL PRESSURE AND H.B. SURCHARGE.
 - REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
 - FOR MANHOLES >3m DEPTH TO INVERT USE 30x20mm INSITU CONCRETE. REINFORCING MESH REF. A393 @ 6.19kg/m² TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
 - FOR PRE-CAST MANHOLES, CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 AND IS 420 2004.
 - MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS / ACCESS TO BE POSITIONED TO ALLOW VIEWING OF INCOMING TRAFFIC.
 - FOR BEDDING AND SEALING OF CHAMBER RINGS, THE TOP RING (TO PRE-CAST COVER SLAB) AND BOTTOM RING TO BE BEDDED WITH GEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
 - PRE-CAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C20/40 CONCRETE.

- GENERAL NOTES:
- ALL BRICK TO BE SOLID ENGINEERING BRICK CLASS A OR B.
 - FOR PIPE DIAMETER >750mm USE MANHOLE WITH INTERNAL DIAMETER SIZE + PIPE SIZE + 1 METRE + 300mm.
 - DISTANCE FROM THE TOP RING OF THE LADDER TO GROUND LEVEL MUST BE MAXIMUM OF 500mm.

rev	date	description	PGC	ED
0	26-06-25	LRO APPLICATION		

STATUS CODES

purpose acceptance
P3 - PLANNING PERMISSION S - ISSUED

DBFL
CONSULTING ENGINEERS

T - 353 1 400 4000 | E: info@dbfl.ie | W: www.dbfl.ie

DUBLIN | CORK | GALWAY | WATERFORD

project ref. SANDFORD ROAD, MILLTOWN

drawing title DRAINAGE TYPICAL DETAILS SHEET
4

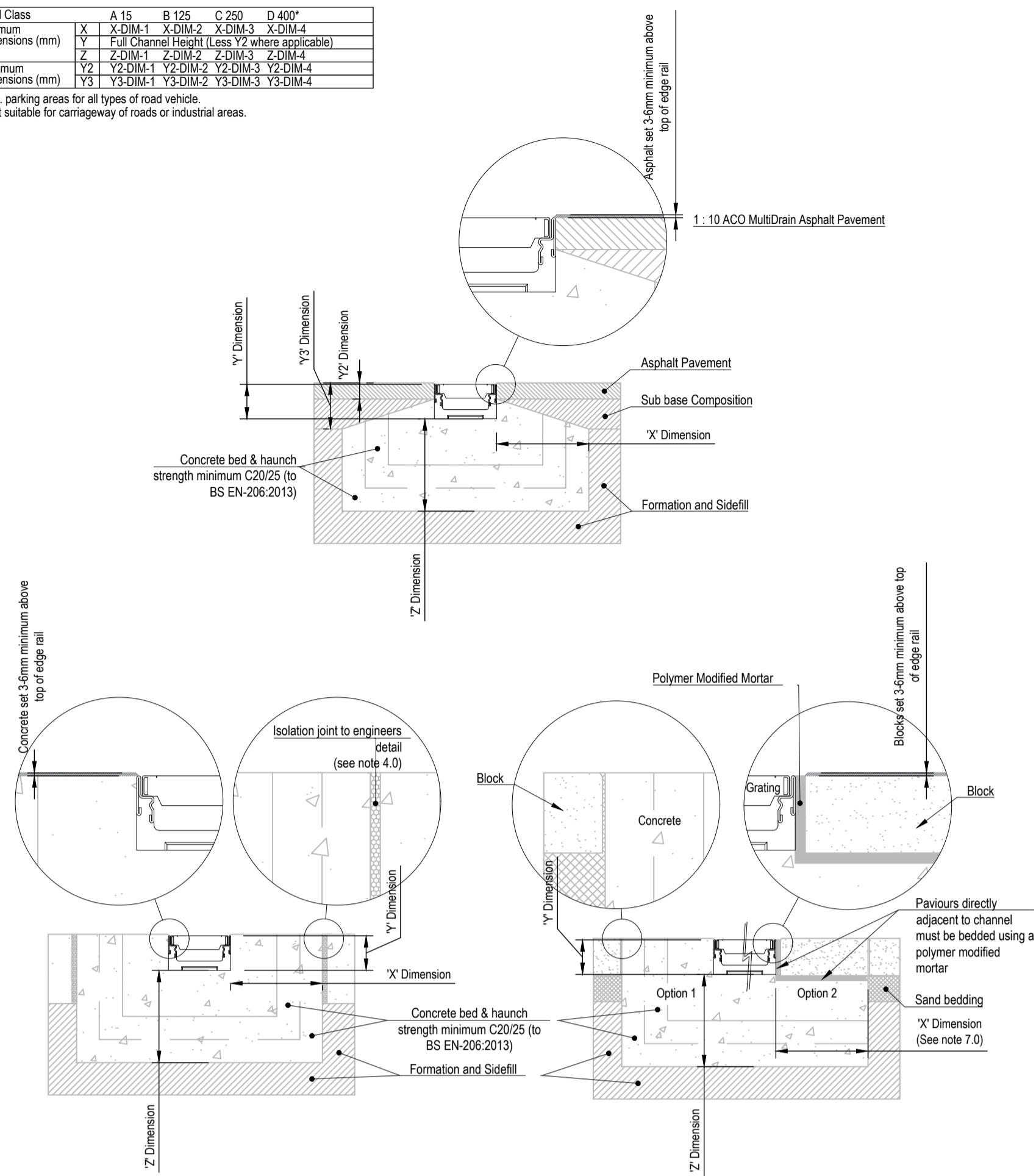
client SANDFORD LIVING LIMITED

designed by BK author OWF scale AS SHOWN sheet size A1

drawing no. 190226-X-05-200-DTM-DR-DBFL-CE-5304 revision 0

Load Class	A 15	B 125	C 250	D 400*
Minimum Dimensions (mm)	X 2-DIM.1	X-DIM.2	X-DIM.3	X-DIM.4
Maximum Dimensions (mm)	Y1	Y2-DIM.1	Y2-DIM.2	Y2-DIM.3
Minimum Dimensions (mm)	Y3	Y3-DIM.1	Y3-DIM.2	Y3-DIM.3
Maximum Dimensions (mm)	Y4	Y4-DIM.1	Y4-DIM.2	Y4-DIM.3

* e.g. parking areas for all types of road vehicle.
Not suitable for carriageway of roads or industrial areas.



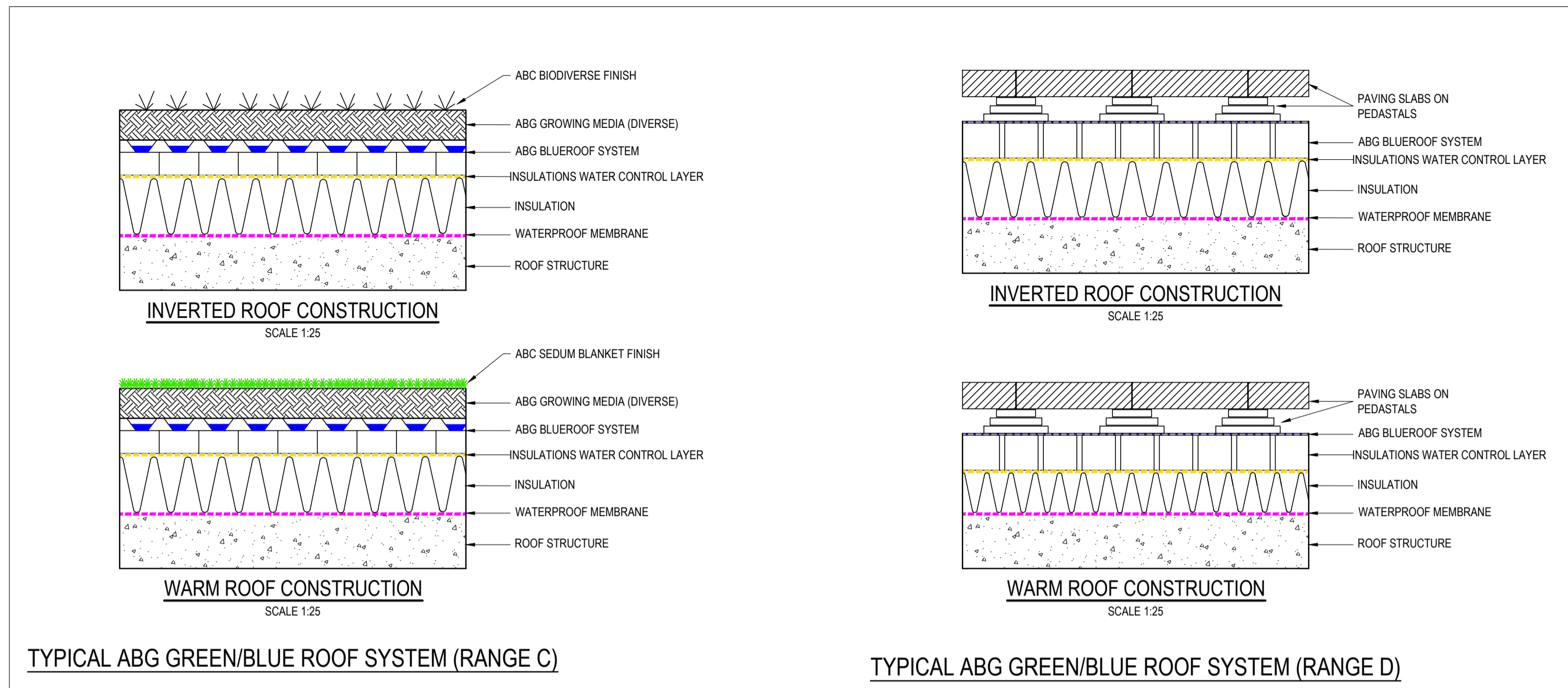
ACO MultiDrain Concrete Pavement
SCALE 1:10

ACO MultiDrain Block Pavement (Option 1 and 2)
SCALE 1:10

NOTES

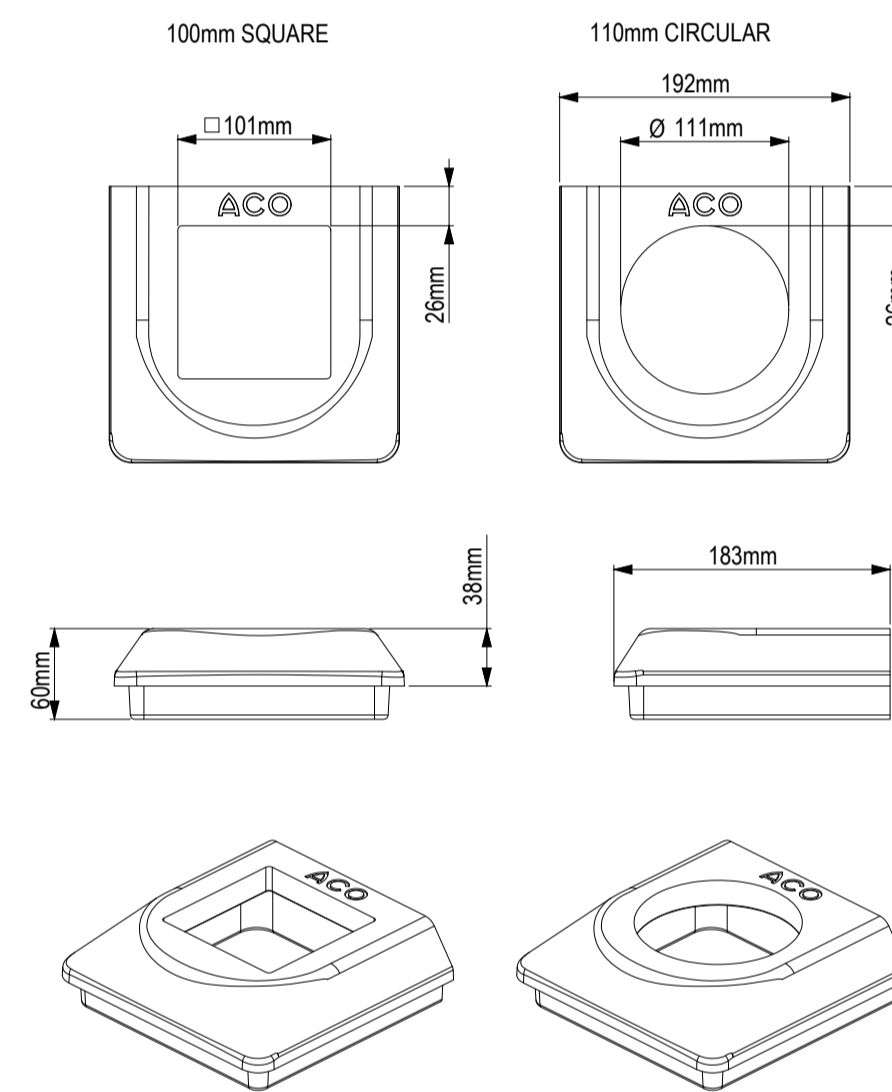
- 1.0 Load Class**
Installation recommendations shown are ACO minimum recommendations for BS EN 1433:2002 load class requirements.
- 2.0 Ground Conditions**
The long term performance of a channel installation to sustain vertical and lateral loads depends upon A) ground conditions B) stability of the adjacent pavement and C) a durable concrete bed and surround. The recommended installation detail may require the minimum dimensions to be revised to achieve site specific load class requirements (referred to in 1.0 above).
- 3.0 Cutting and Jointing**
Mitre joints are formed by cutting the channels to the required angle and butting them together with appropriate sealant (e.g. Sikaflex 11FC or similar) or ACO Repair Kit. Where possible 90° joints and T's should be formed so that gratings do not have to be cut. Angles can be formed by connecting them using proprietary PVCu pipework attached to ACO inlet/outlet enclosures. For further details please contact ACO Design Services Team.
Note: For Load Classes higher than C 250, mitred joints are not recommended in vehicular areas. Where requested ACO can custom manufacture angled junctions to order.
- 4.0 Isolation Joints**
The channel must be isolated from the surrounding environment. An isolation joint must be positioned up to 1500mm from the channel wall. Any dowel bars must be located no nearer than 150mm from the channel wall. Other isolation joints in surrounding slab must be continued through the channel. Additional crack control may be required to comply with specifier requirements.
- 5.0 Installation into in-situ Slab**
Where a channel is to be installed into an existing concrete slab it is necessary to cut a suitably sized pocket in the slab. The channel will then need to be bedded in polymer modified mortar of 25mm minimum thickness (this may vary depending on the type of mortar used). Engineering advice may be necessary.
- 6.0 Temporary Installation**
A channel installation is not complete until the final surfacing is laid. In any temporary condition, i.e. with the channel walls projecting above adjacent ground, site traffic should not cross channels. Loose boards, stone fill or cover plates will not protect the channel walls or grating. A temporary channel crossing should be formed by raising the ground level locally, to 3 - 6mm above top of edge rail, either side of a channel for a distance of 750 to 1000mm, to form ramps. Note that the channel load class should be adequate to carry the site traffic.
- 7.0 Block Pavements**
The channel must be supported laterally. Blocks laid directly against a channel must be laid as a solid course and restrained from movement by bedding securely on the concrete haunch e.g. by using a polymer modified mortar for bed and perpendicular joints (e.g. RONAFIX mortar mix C or similar). Blocks or slabs bedded on sand remote from the channel should be set at a higher level to compensate for possible settlement of the paving in service.
- 8.0 Grate Locking System**
Gratings should be securely fixed to the channel, where required, using an appropriate grate lock system (where available).
- 9.0 Channel Protection**
Avoid contact between compaction equipment and top of ACO channel edge rail. The installer must ensure that the finished surface level lies above the top of the edge rail (by at least 3-5mm). Covering or protecting the grating, before concrete is poured, removes the time and cost associated with cleaning the channel and grating of cement material and embedded stones. (Please note that ACO channels must be installed with the grating in place to prevent deformation of the channel).
- 10.0 Watertight Installation to BS EN 1433:2002**
Where ACO channel joints/tings and channel/pavement interfaces are to be sealed, an appropriate sealant should be used (e.g. Sikaflex 11FC or similar). Guidance on the necessary surface preparation and/or priming should be sought from the sealant manufacturer.
For Guidance a typical method of application follows:
 - The end faces of the channels are to be sound and free from dust, oil, and grease, with any loose material or dirt removed, e.g. by mechanical wire brush. No water drops should be evident.
 - Using a standard cartridge gun, apply the sealant evenly and with no flaws. The detail on the ends of a channel varies from one product to another.
 - Products with a basically flat face - apply the sealant in a layer approximately 5mm thick to one face of the joint.
 - Products with a sealing groove within the end face - apply the sealant in a bead of approximately 10mm diameter into the sealing groove.
 - Products with a sealing groove following the inside shape of the channel - apply the sealant to the end face of the channel and to the sealant groove, such that when the joint is completed, the sealant will both cover the end face and fill the groove.
 - The channel unit should be placed on the prepared concrete bedding and pressed against the previously placed channel unit. A sealed joint of approximately 1-2mm width should be formed between adjacent channel units.
 - Excess sealant should be wiped from the inside face of the channel to leave a smooth finish.
 - The sealant is to be left to cure for 24 hours, during which time the sealant should be kept as dry as possible.

Note: Galvanised steel and iron products have good corrosion resistance to concrete and mortar products but may experience corrosion if high chloride and/or sulphate content is present. Use only good quality concrete and consider using corrosion inhibitors where necessary. The use of protective coatings, such as paint, can minimise the risk of corrosion.

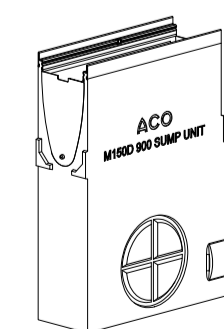
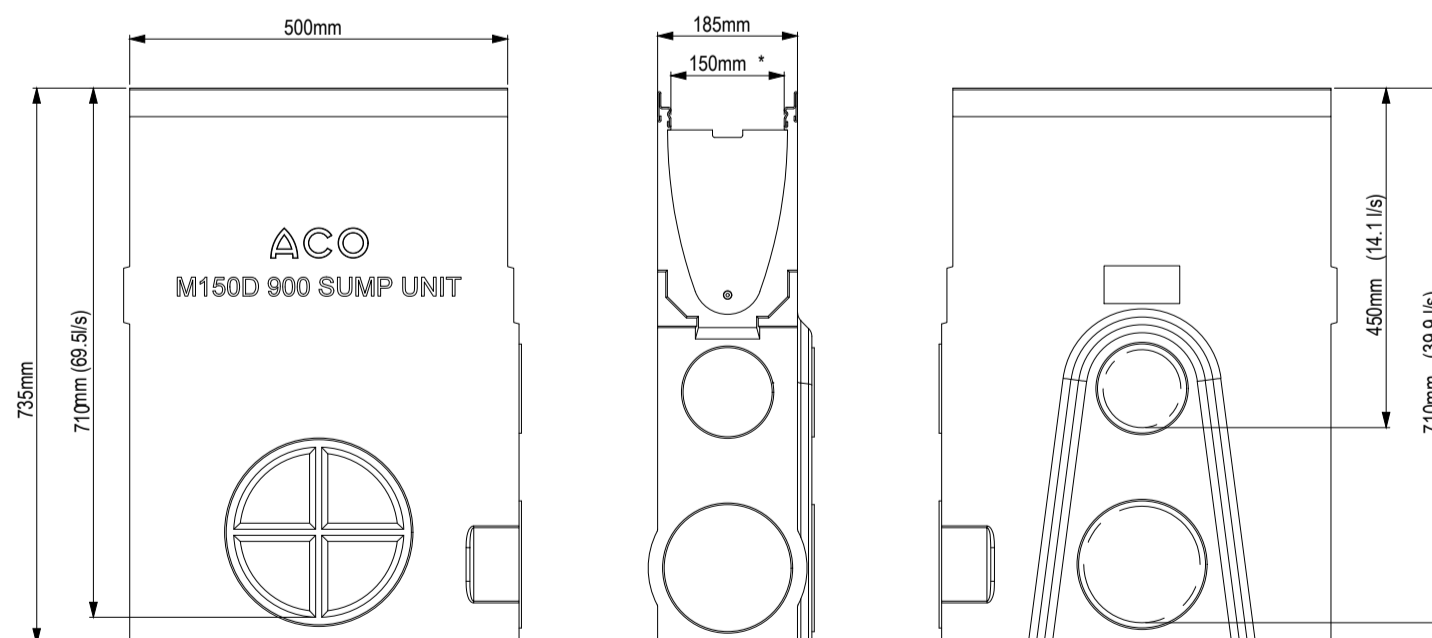


TYPICAL ABG GREEN/BLUE ROOF SYSTEM (RANGE C)

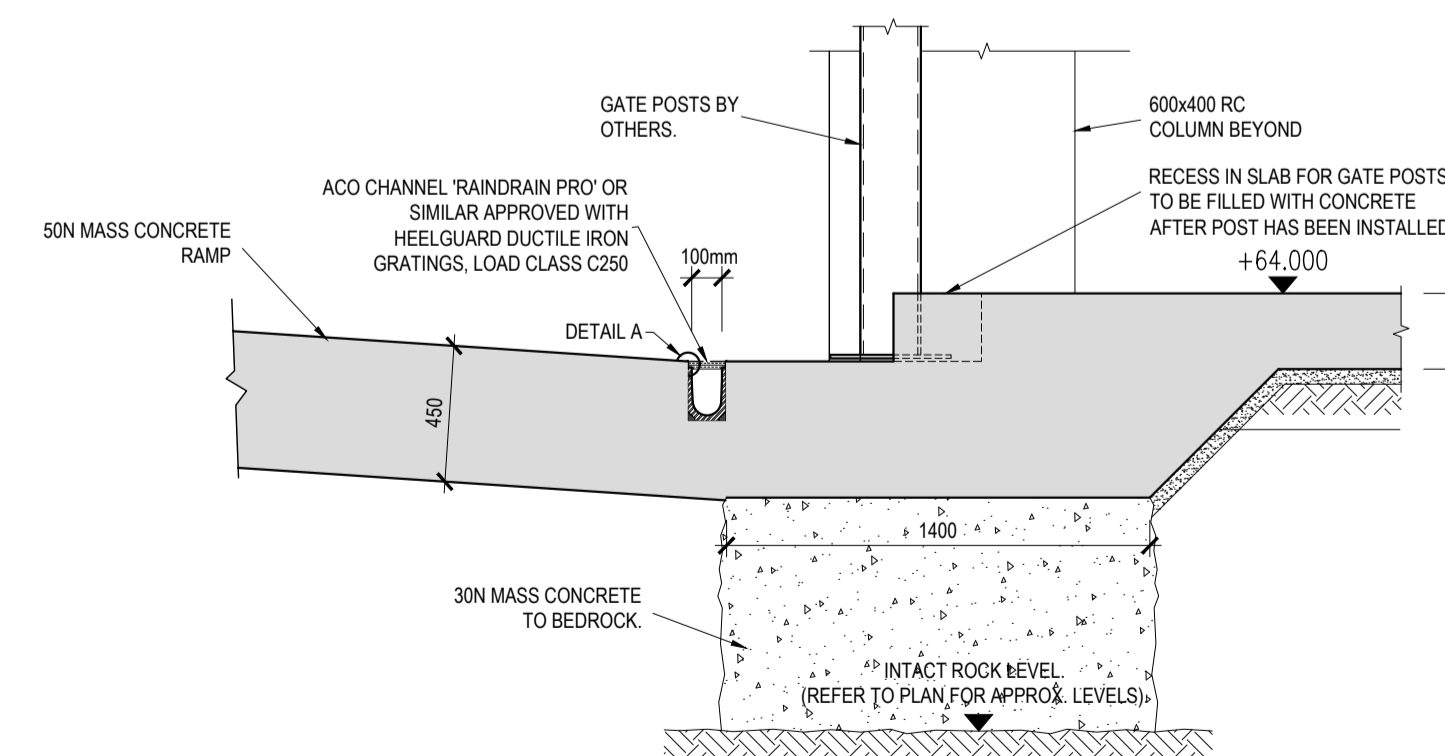
TYPICAL ABG GREEN/BLUE ROOF SYSTEM (RANGE D)



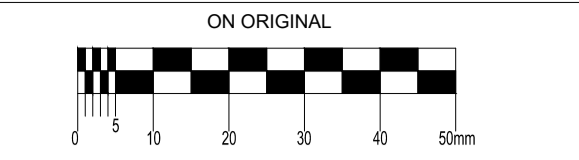
DOWNPIPE CONNECTOR, M150D / M150PPD
110mm DIAMETER, 100mm SQUARE
SCALE 1:5



MULTIDRAIN UNIVERSAL SUMP
M150D & M150DS
SCALE 1:10



TYPICAL SECTION THROUGH ACO CHANNEL AT BOTTOM OF RAMP TO BASEMENT
SCALE 1:25



© COPYRIGHT OF THIS DRAWING IS RESERVED BY DBFL CONSULTING ENGINEERS. NO PART SHALL BE REPRODUCED OR TRANSMITTED WITHOUT THEIR WRITTEN PERMISSION.

NO CHANGES OF WHATSOEVER NATURE ARE TO BE MADE TO ANY DETAILS SET OUT OR CONTAINED IN ANY DBFL SPECIFICATIONS OR DRAWINGS UNLESS THE EXPRESS CONSENT HAS BEEN OBTAINED IN ADVANCE, IN WRITING, FROM DBFL.

NOTES

- ALL SEWERS SHALL BE PRESSURE TESTED PRIOR TO BACKFILLING.
- TYPE 1 GRANULAR MATERIAL:**
BROKEN STONE OR GRAVEL TO PASS 10mm SIEVE AND BE RETAINED ON 5mm SIEVE.
- TYPE 2 GRANULAR MATERIAL:**
BROKEN STONE OR GRAVEL TO PASS 10mm - 25mm SIEVE, ACCORDING TO PIPE SIZE, (SEE TABLE) AND BE RETAINED ON 5mm SIEVE.
- TYPE 3 SELECTED FILL:**
UNIFORM READILY COMPACTED MATERIAL FREE FROM TREE ROOTS, VEGETABLE MATTER, BUILDING DEBRIS, AND FROZEN SOIL AND EXCLUDING CLAY LUMPS RETAINED ON A 75mm SIEVE AND STONES RETAINED ON A 37.5mm SIEVE.
- RIGID PIPES SHALL MEAN CAST OR SPUN IRON, CONCRETE OR CLAY.
- CONCRETE SURROUND REQUIRED TO ALL MANHOLE RINGS FROM 3.0m BELOW FINISHED GROUND LEVEL.
- ALL LADDERS, RINGS, SAFETY CHAINS etc SHALL BE HOT DIPPED GALVANISED TO BS F29 OR EQUIVALENT

rev	date	description	PGC	ED	by	chkd.
1	11-12-25	LRD APPLICATION	JMG	SWM		
0	26-06-25	LRD APPLICATION	PGC	ED		

STATUS CODES

purpose P3 - PLANNING PERMISSION acceptance S - ISSUED



T: +353 1 400 4000 | E: info@dbfl.ie | W: www.dbfl.ie
DUBLIN | CORK | GALWAY | WATERFORD

project ref. SANDFORD ROAD, MILLTOWN

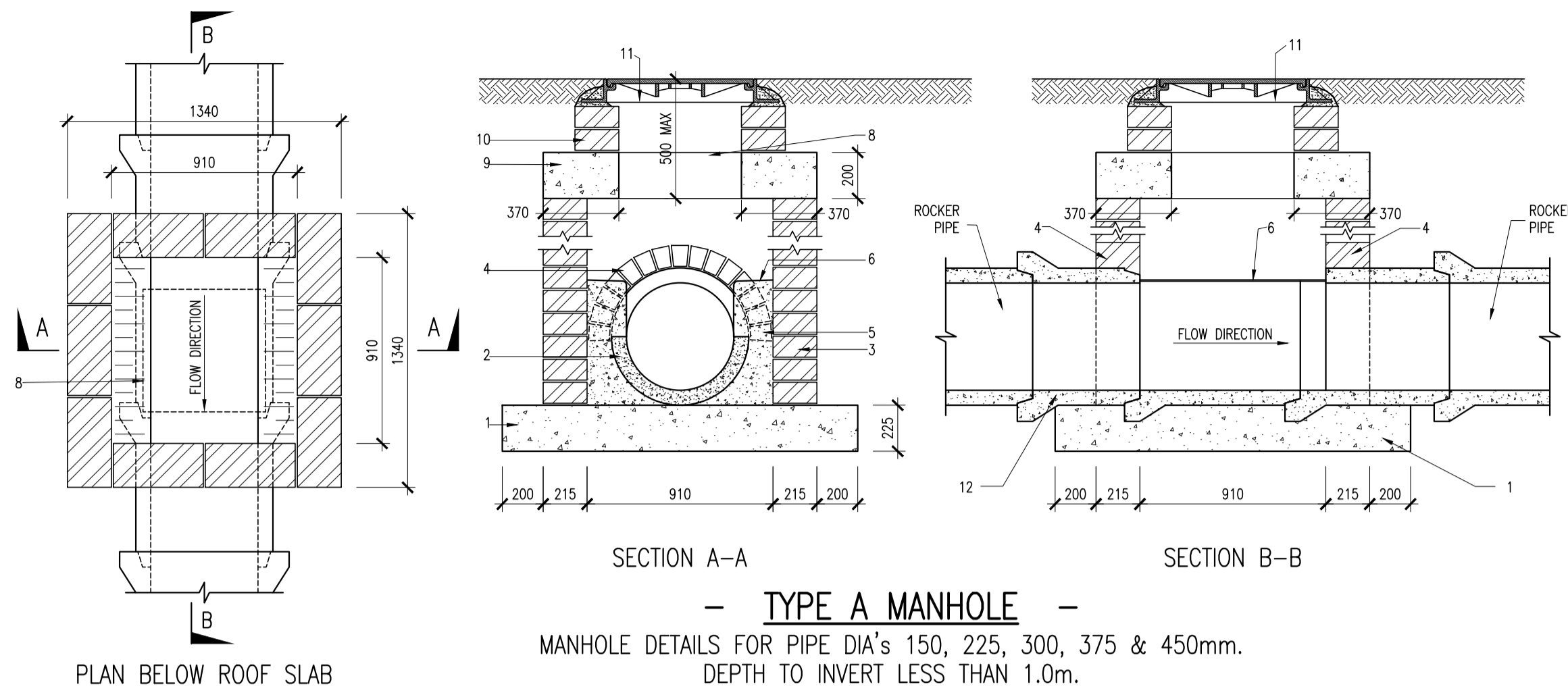
drawing title DRAINAGE TYPICAL DETAILS SHEET

5

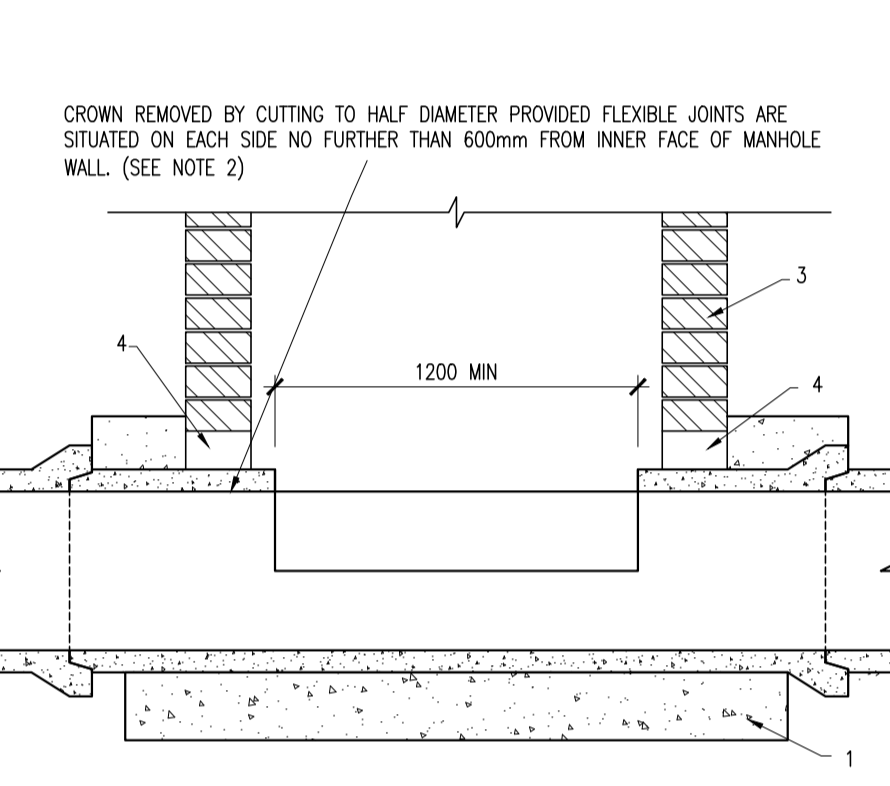
client SANDFORD LIVING LIMITED

designed by BK author ICD scale AS NOTED sheet size A1

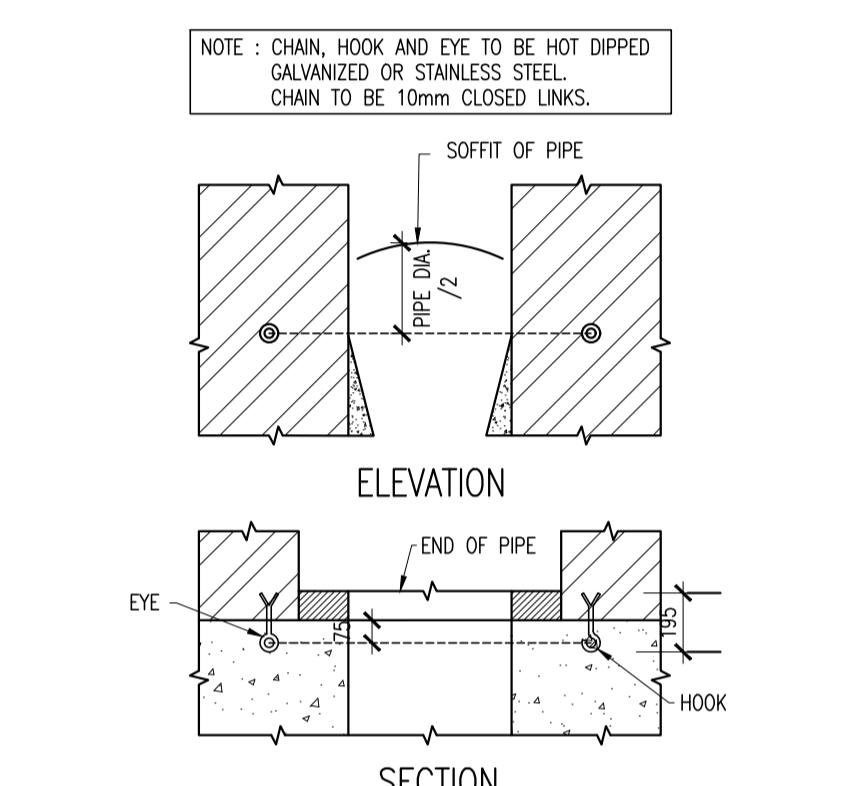
drawing no. 190226-X-05-200-DTM-DR-DBFL-CE-5305 revision 1



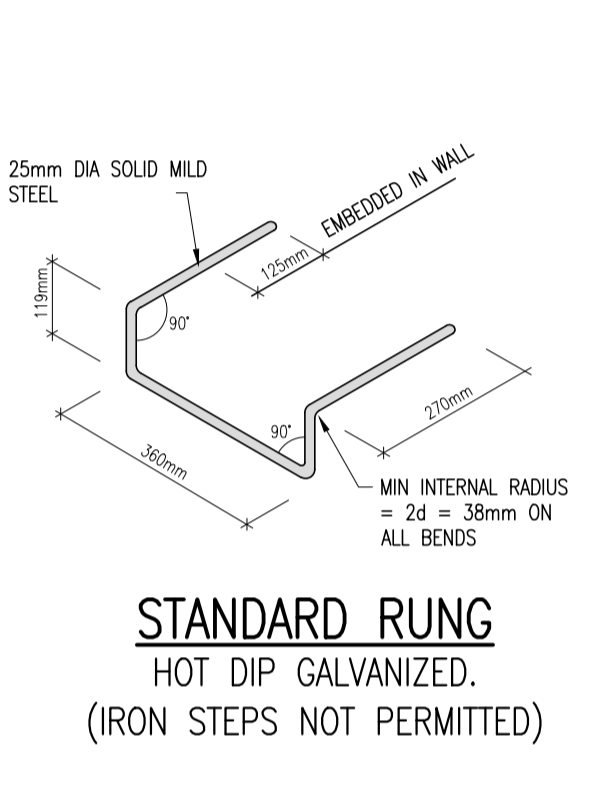
SECTION A-A
SECTION B-B
- TYPE A MANHOLE -
 MANHOLE DETAILS FOR PIPE DIA'S 150, 225, 300, 375 & 450mm.
 DEPTH TO INVERT LESS THAN 1.0m.



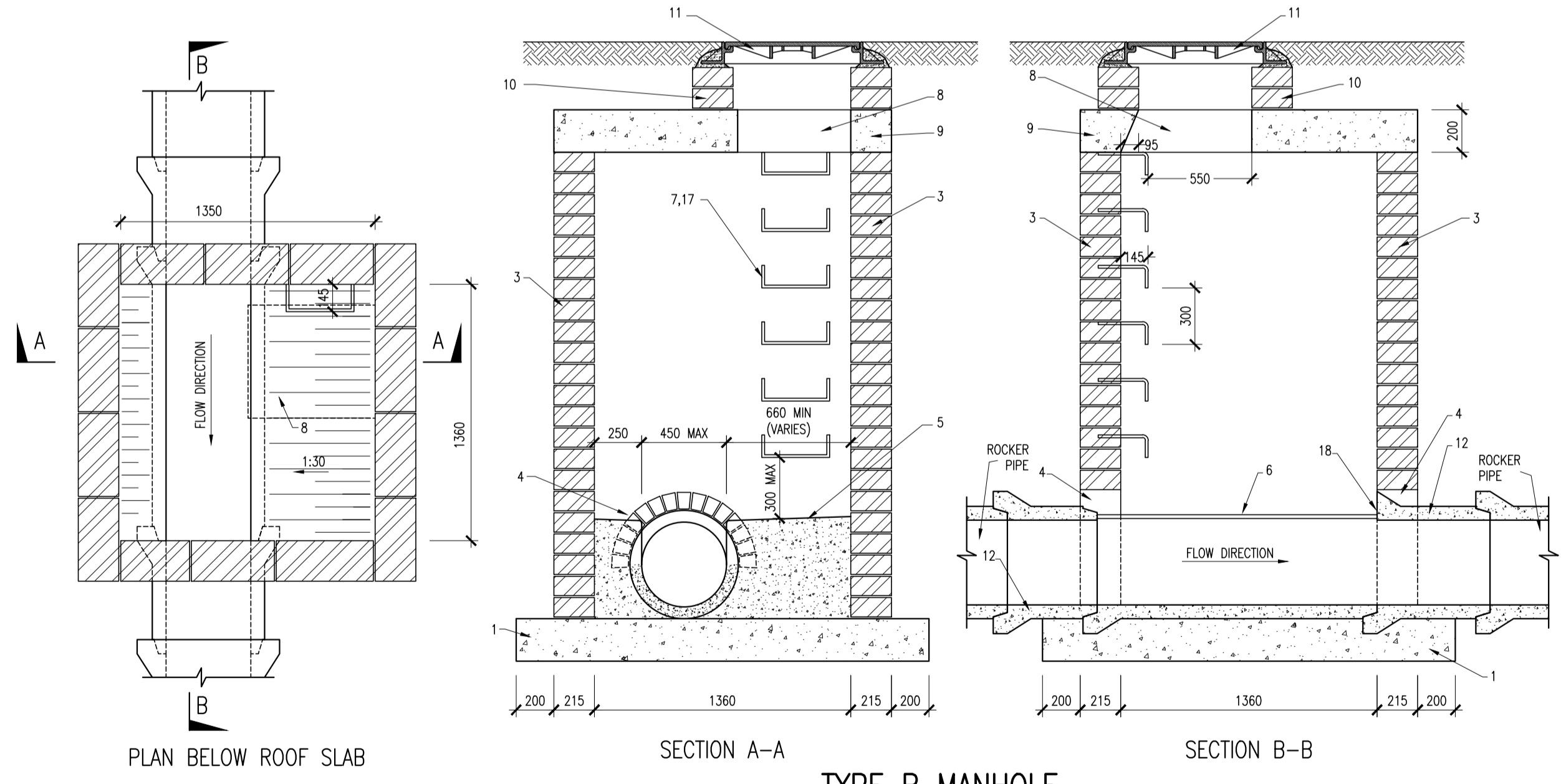
ALTERNATIVE METHOD OF FORMING CHANNEL THROUGH MANHOLE



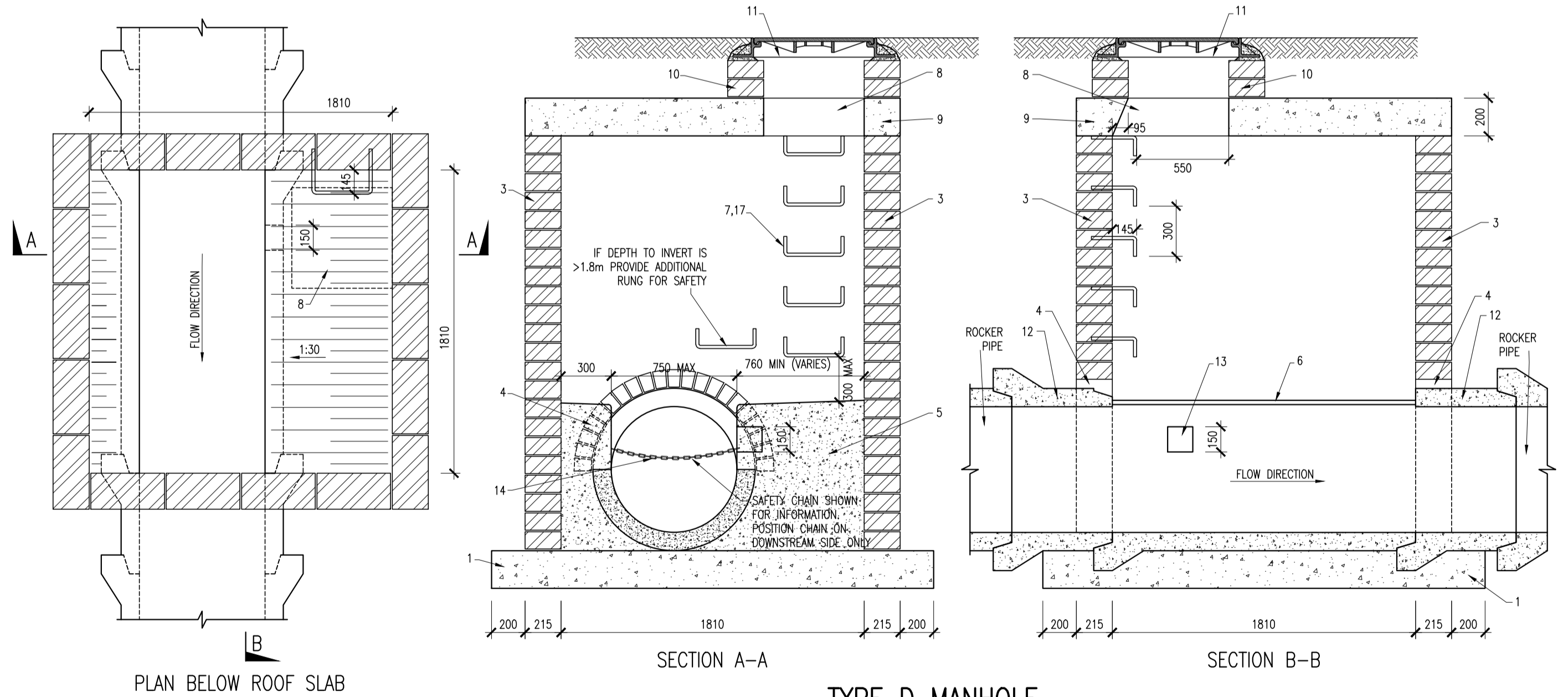
SAFETY CHAIN, HOOK AND EYE PLAN



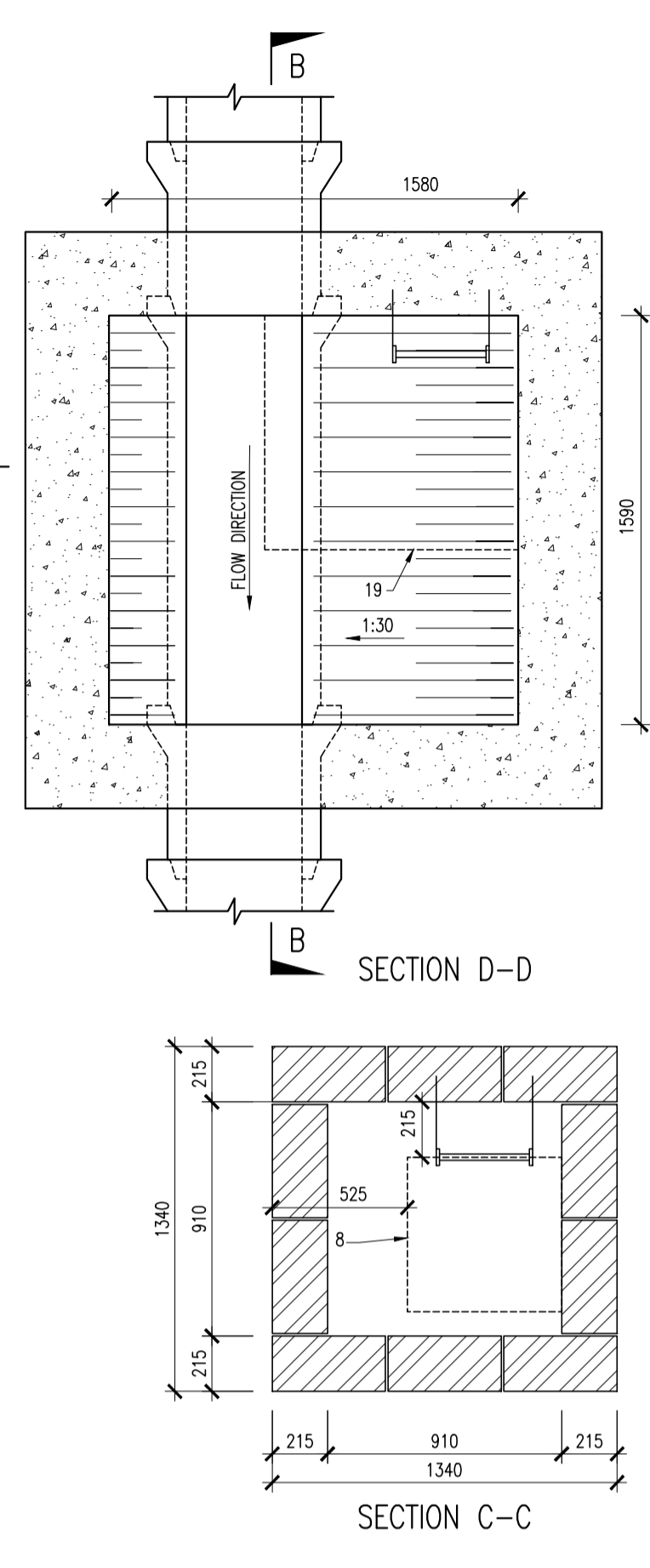
STANDARD RUNG
 HOT DIP GALVANIZED.
 (IRON STEPS NOT PERMITTED)



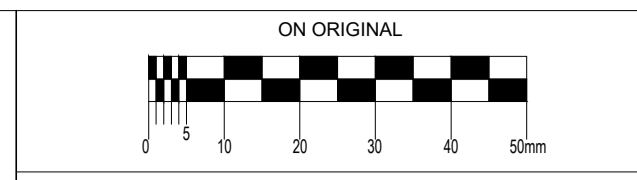
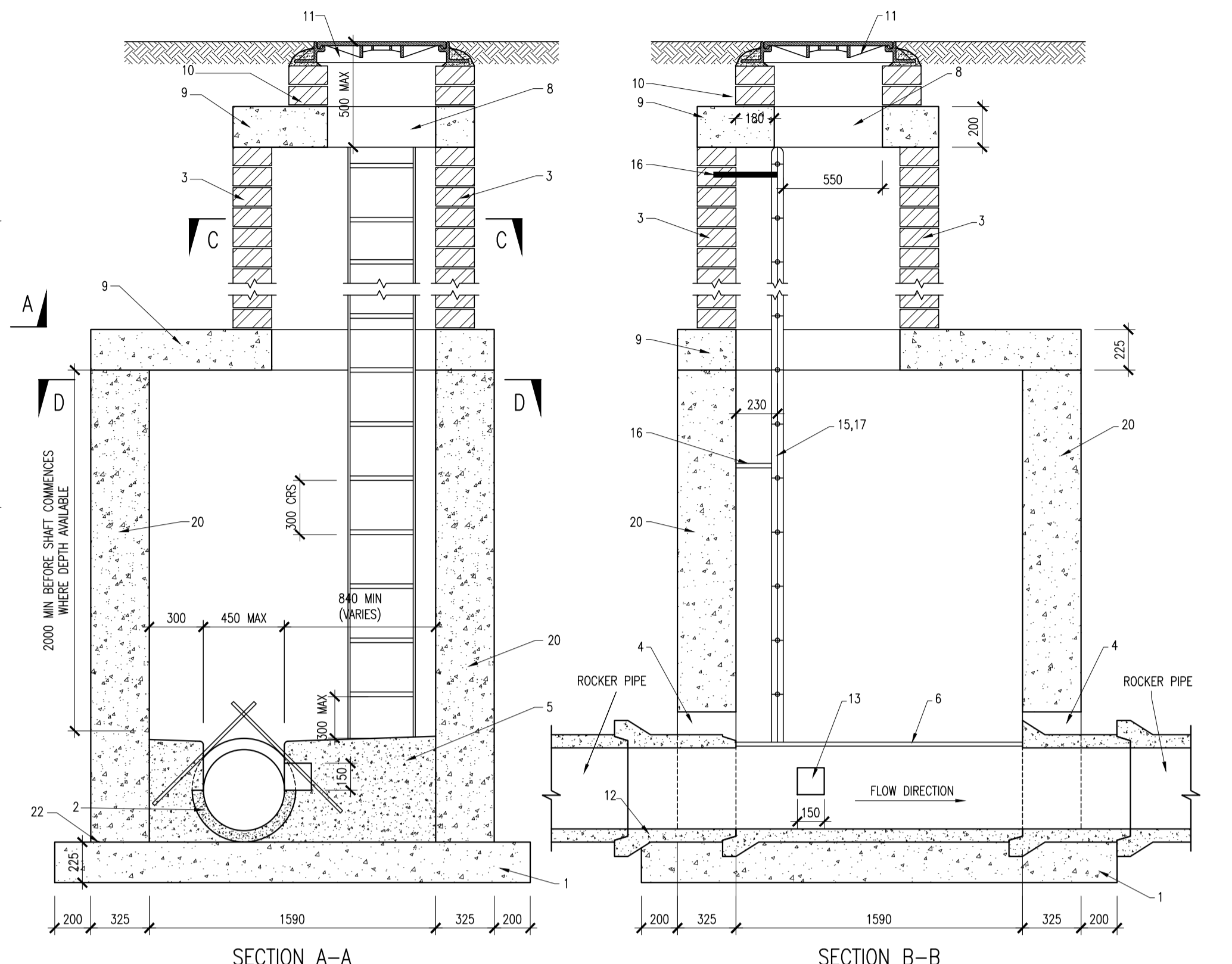
SECTION A-A
SECTION B-B
- TYPE B MANHOLE -
 MANHOLE DETAILS FOR PIPE DIA'S 225, 300, 375 & 450mm.
 DEPTH TO INVERT GREATER THAN 1.0m & LESS THAN 3.0m.



SECTION A-A
SECTION B-B
- TYPE D MANHOLE -
 MANHOLE DETAILS FOR PIPE DIA'S 525, 600, 675 & 750mm.
 DEPTH TO INVERT 1.0m TO 3.0m.



SECTION D-D
SECTION C-C
- TYPE C MANHOLE -
 MANHOLE DETAILS FOR PIPE DIA'S 225, 300, 375 & 450mm.
 DEPTH TO INVERT 3.0m TO 6.0m.



ON ORIGINAL
 0 10 20 30 40 50mm

© COPYRIGHT OF THIS DRAWING IS RESERVED BY DBFL CONSULTING ENGINEERS. NO PART SHALL BE REPRODUCED OR TRANSMITTED WITHOUT THEIR WRITTEN PERMISSION.

- NO CHANGES OF WHATSOEVER NATURE ARE TO BE MADE TO ANY DETAILS SET OUT OR CONTAINED IN ANY DBFL SPECIFICATIONS OR DRAWINGS UNLESS THE EXPRESS CONSENT HAS BEEN OBTAINED IN ADVANCE, IN WRITING, FROM DBFL.
- NOTES:
- ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH NRA SPECIFICATION FOR ROADWORKS UNLESS OVERRIDDEN BY GREATER DUBLIN REGIONAL CODES OF PRACTICE FOR DRAINAGE WORKS AS AMENDED BY DUBLIN CITY COUNCIL.
 - ALL DRAWINGS TO BE CHECKED BY CONTRACTOR ON SITE AND ENGINEER INFORMED OF DISCREPANCIES BEFORE WORK COMMENCES.
 - ALL LEVELS ARE IN METRES AND ARE RELATED TO THE ORDINANCE DATUM.
 - CONTRACTOR SHALL SATISFY HIMSELF AS TO THE ACCURACY OF PAVEMENT LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORKS.

EXTRACTED FROM GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS

- 225mm THK CL 20/20 MASS CONCRETE FOUNDATIONS.
- PRE-FORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE AND THE CROWN BROKEN OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF THE MANHOLE WALL.
- MANHOLE CONSTRUCTION.
 - FOR SURFACE WATER MANHOLES SOLID CONCRETE BLOCKS CL.S10 TO L.S.20 PART 1 : 1987 OR CL.30/20 INSITU CONCRETE.
 - BLOCKWORK SHALL BE BEDDED AND JOINTED USING MORTAR DESIGNATION THREE TO L.S.406. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCK ARE LAID.
 - JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS.
 - ALL FOUL MANHOLES MUST BE FACED IN ENGINEERING BRICK FOR 1 METRE ABOVE INVERT LEVEL.
 - BRICK TO BE BOND TO BLOCKWORK USING USING BOND OR WALL TIES.
- RELIEVING ARCH FORMED BY 215x103x65 BRICK AS PER DRAWING/RELIEVING ARCHES IN BRICK OR BLOCKWORK MANHOLES TO EXTEND OVER FULL THICKNESS OF WALL.
- BENCHING AND PIPE CHANNEL PIPE SURROUND - CL. 20/20 CONCRETE.
- BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH A SMOOTH FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
- STANDARD RUNGS AT 300 CRS VERTICALLY AND GALVANIZED TO BS 729.
- 600mm SQUARE OPE IN ROOF SLAB.
- 225mm THK PRECAST R.C. ROOF SLAB IN CL.30/20 CONCRETE. COVER TO STEEL SHALL BE 40mm.
- ENGINEERING BRICK CL.B TO L.S.91:1983 SET IN 1:3 (CEMENT SAND MORTAR).
- CLASS D400 MANHOLE COVER AND FRAME TO IS/EN 124. 150mm DEEP FRAME FOR ALL ROADS, 100mm DEEP FOR FOOTPATHS AND GREEN AREAS ROADS. NON ROCK DESIGN, CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600 x 600 (OR 600 DIA.) CLEAR OPENING. COVER AND FRAME COATED IN BUTYR OR OTHER APPROVED MATERIAL. COVER SHALL BE QUIET IN USE WITH A MINIMUM MASS OF 140kg/m². FRAME BEARING AREA SHALL BE 80,000mm² MIN. FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURERS INSTRUCTIONS. THE FINAL LEVEL OF MANHOLE COVER AND FRAME IS TO BE SET PRIOR TO THE WEARING COURSE BEING LAID.
- SHORT LENGTH PIPE. PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
- TOE HOLES OF 230mm MINIMUM DEPTH AND GALVANIZED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SENSERS GREATER THAN 525mm DIA. AND DEPTH TO INVERT >3m FOR ACCESS TO INVERT.
- SAFETY CHAIN TO BE PROVIDED IN ALL MANHOLES WITH PIPE DIAMETERS GREATER THAN 450mm. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M (H) NON CALIBRATED CHAIN, TYPE 1, COMPLYING WITH B.S.4942 PART 2.
- WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3m LADDERS SHALL BE USED TO B.S.4211 EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 86mm x 12mm IN SECTION AND RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF B.S.4211.
- LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.4m. STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEWAL.
- ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANIZED TO B.S.729.
- SOCKET OF PIPE SHOULD BE CUT WITH THE INSIDE SURFACE OF THE MANHOLE WALL.
- POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLAB.
- FOR MANHOLES >3m DEPTH TO INVERT USE REINFORCED INSITU CONCRETE. REFER TO DBFL REINFORCEMENT DRAWINGS.

- WARNING**
- IF UNCERTAIN OF A DETAIL OR NOTE. DO NOT PROCEED UNTIL CLARIFICATION IS SOUGHT FROM THE ENGINEER AND SUITABLE INFORMATION PROVIDED.
 - ALL ANOMALIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY TO ALLOW TIME FOR REMEDIAL ACTION.

0	27-11-25	LRO APPLICATION	JMG	SWM
rev	date	description	by	chkd.
STATUS CODES				
purpose	acceptance			
P3 - PLANNING PERMISSION	S - ISSUED			

DBFL
 CONSULTING ENGINEERS
 T - 353 1 400 4000 | E: info@dbfl.ie | W: www.dbfl.ie
 DUBLIN | CORK | GALWAY | WATERFORD

DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	CHAMBER SECTION DIAMETER (mm)
LESS THAN 375	1200
375 - 450	1350
500 - 700	1500
750 - 900	1800
> 750	PIPE SIZE + 1.3m

TABLE 1

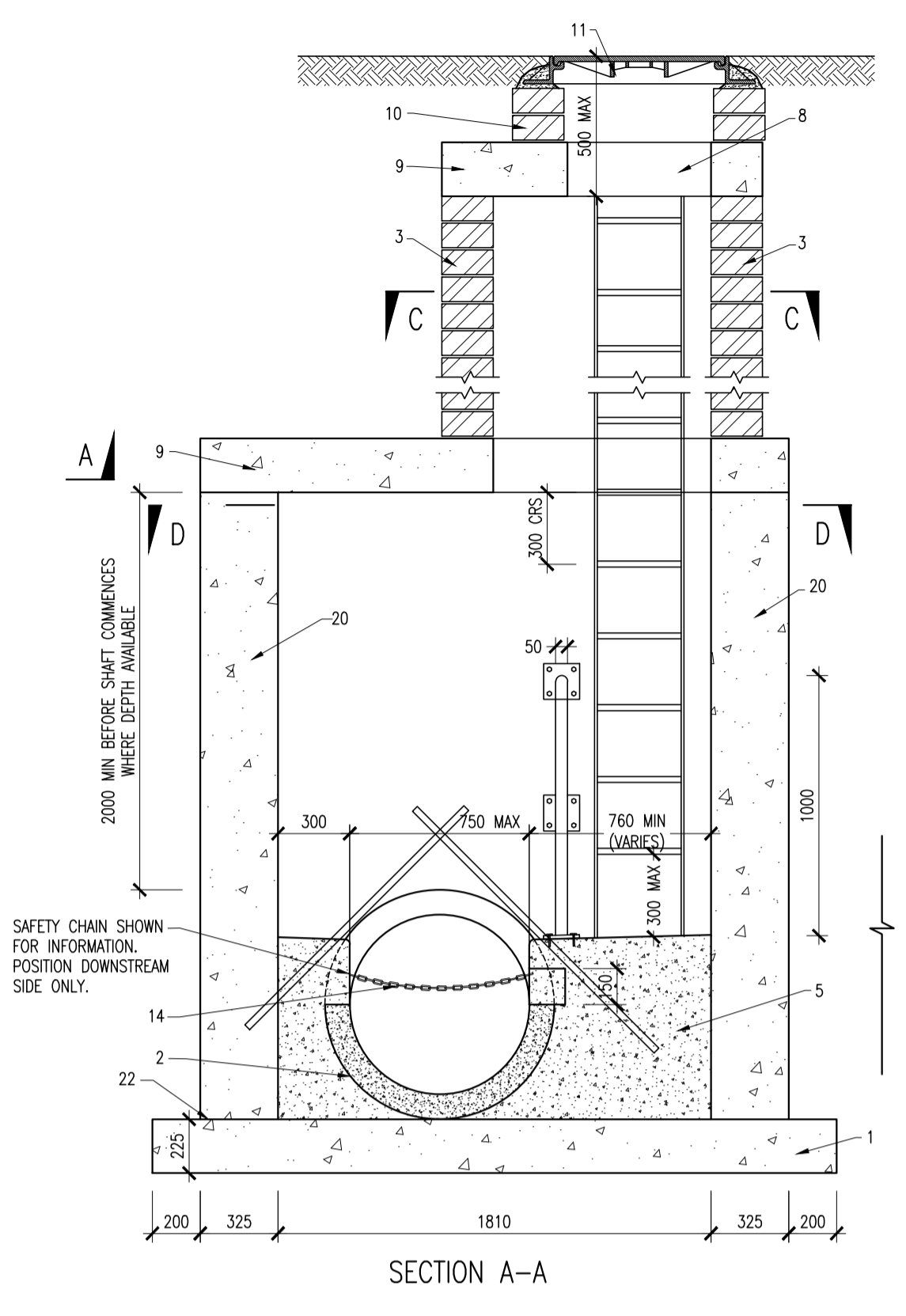
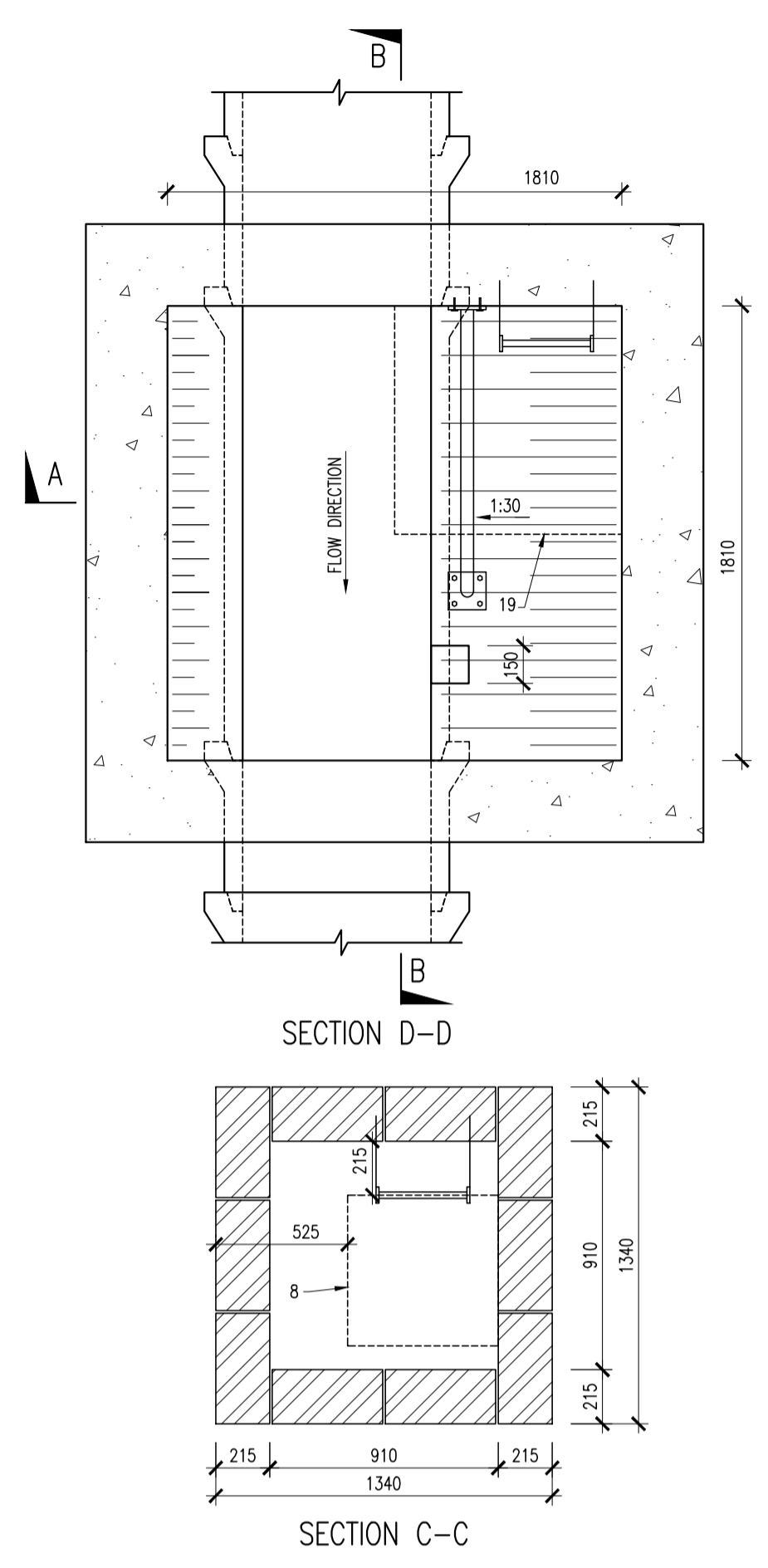
SOURCE: GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS (V6.0)

project ref.
 SANDFORD ROAD, MILLTOWN

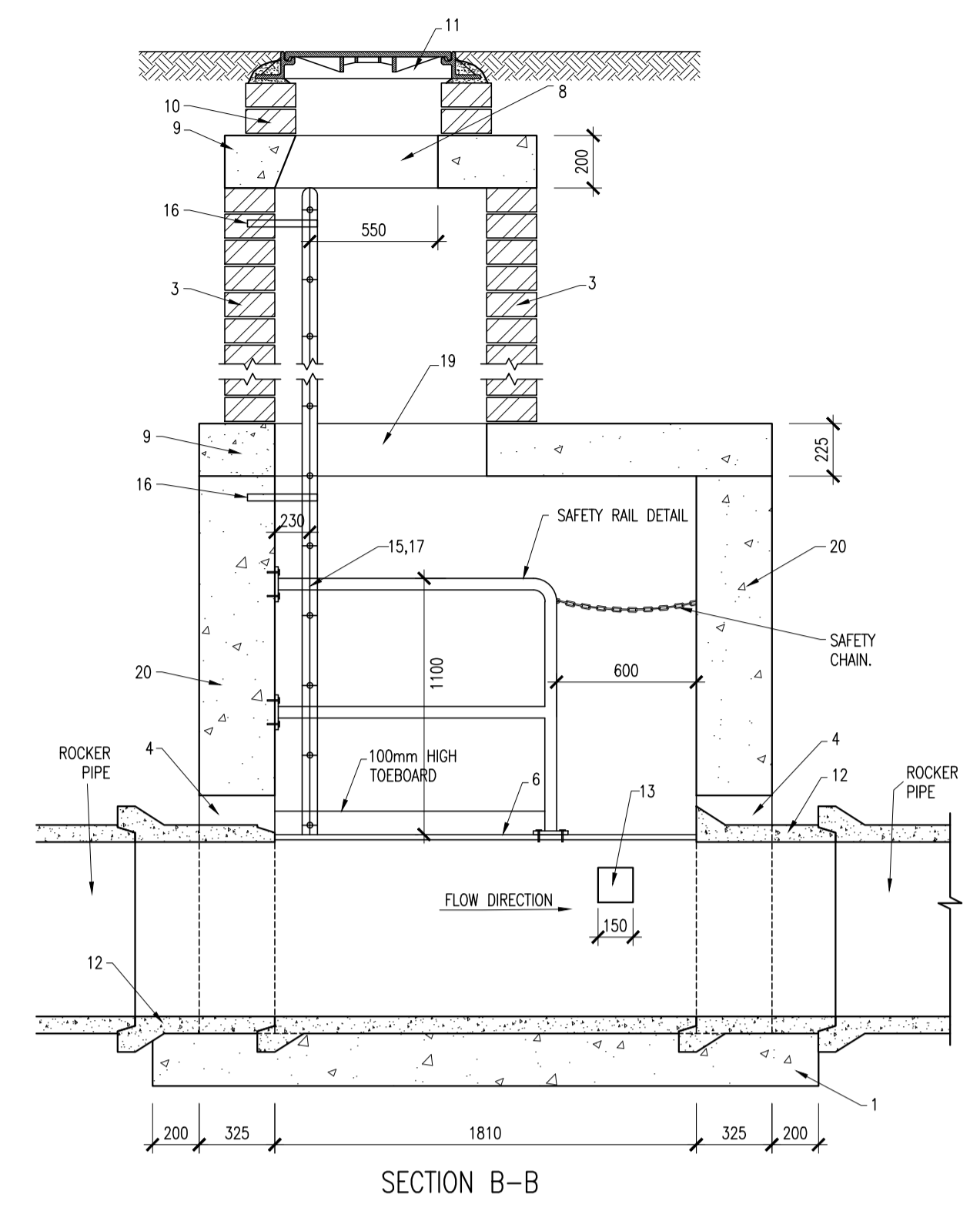
drawing title
 DRAINAGE TYPICAL DETAILS SHEET
 6- PUBLIC WORKS ALONG EGLINTON RD

client
 SANDFORD LIVING LIMITED

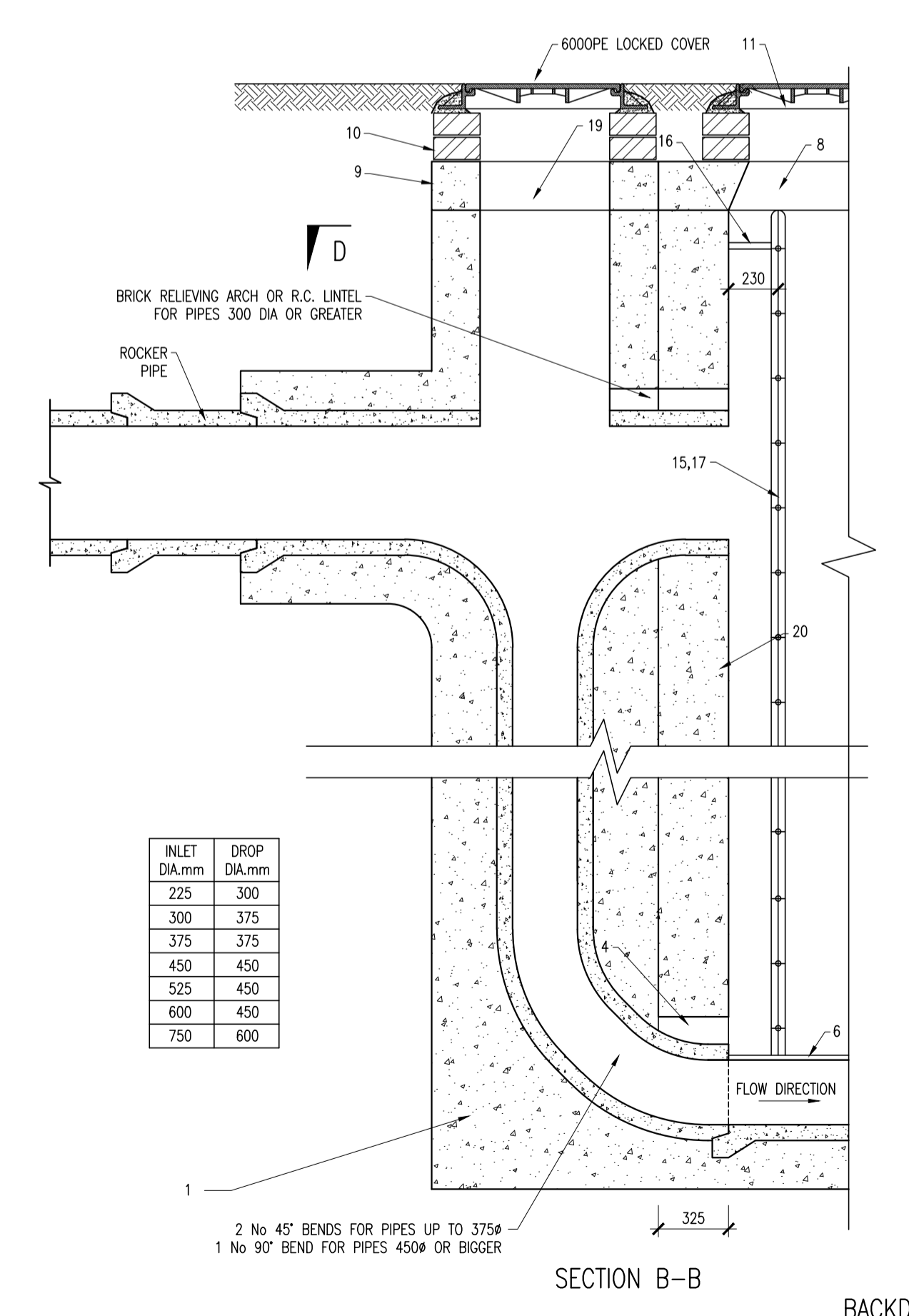
designed by	author	scale	sheet size
SWM	JMG	AS NOTED	A1
drawing no.	revision		
190226-X-05-200-DTM-DR-DBFL-CE-5306			0



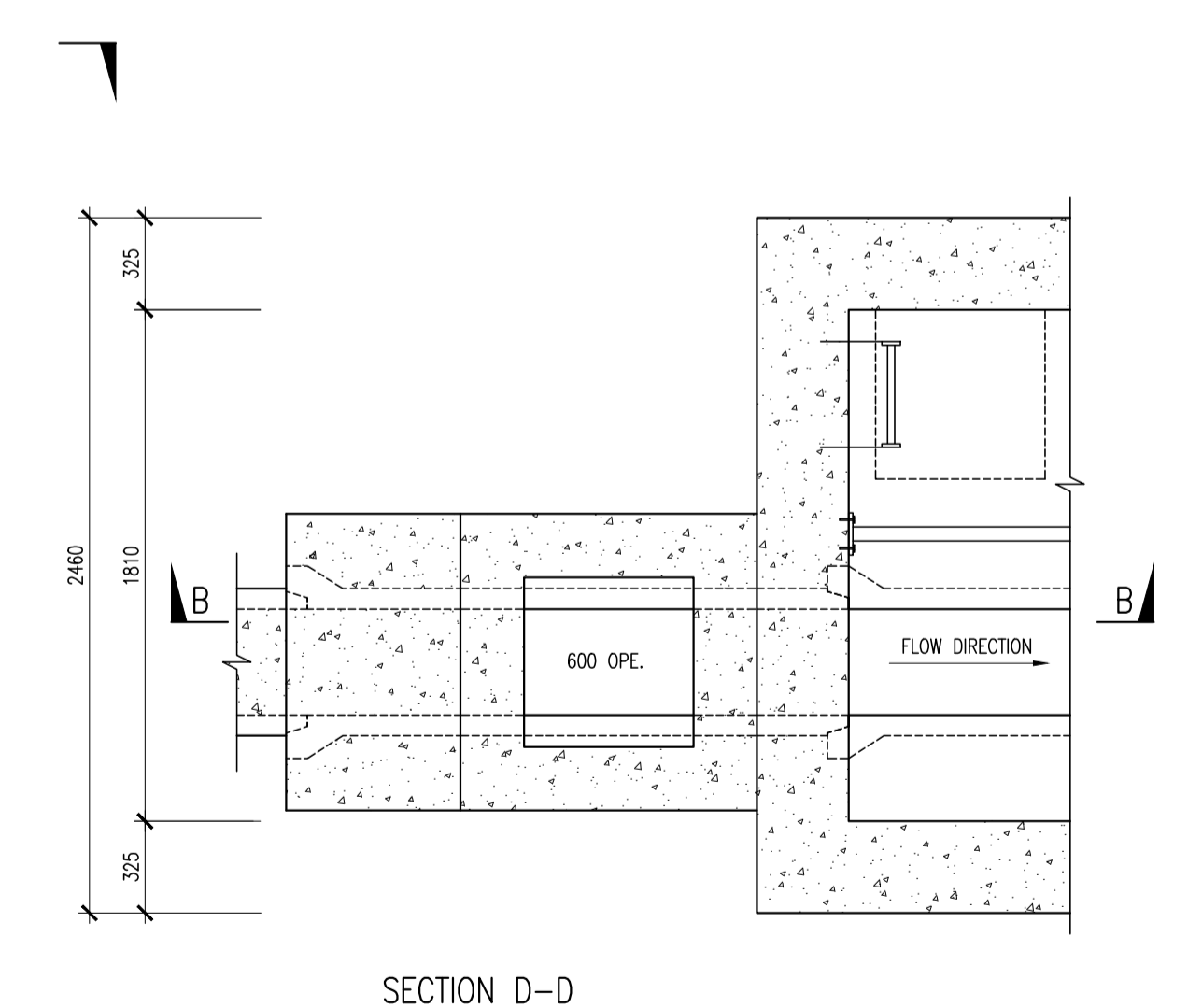
- TYPE E MANHOLE -
 MANHOLE DETAILS FOR PIPE DIA'S 525, 600, 675 & 750mm.
 DEPTH TO INVERT 3.0m TO 6.0m.



SECTION B-B

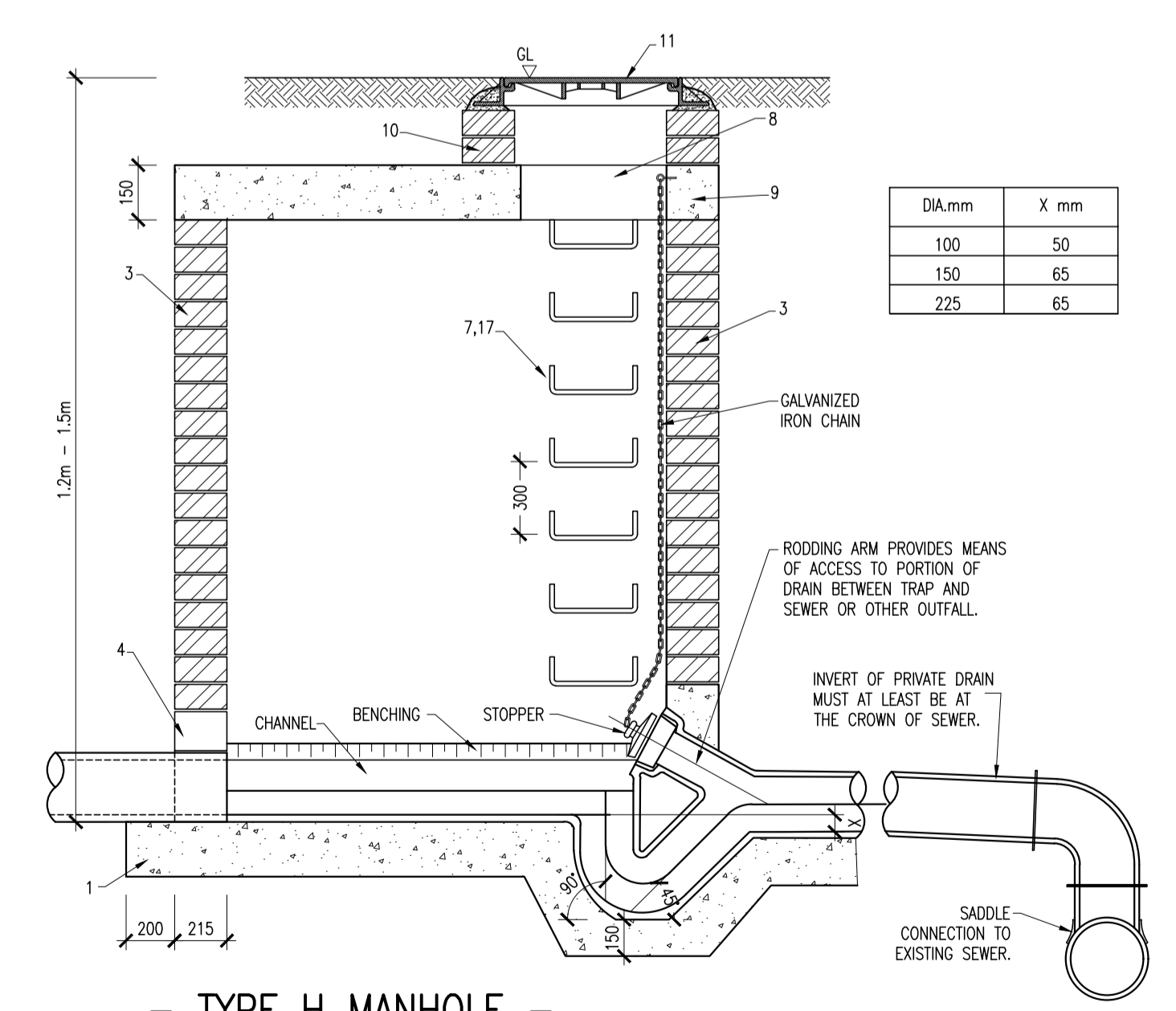


SECTION B-B



SECTION D-D

- TYPE G MANHOLE (BACKDROP) -
 BACKDROP MANHOLE DETAILS FOR PIPE DIA'S 225, 300, 375, 450, 525, 600 & 750mm.
 (DROP GREATER THAN 750mm.)



- TYPE H MANHOLE -
 DETAIL OF MANHOLE WITH INTERCEPTOR TRAP.

- NOTES:**
- ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH NRA SPECIFICATION FOR ROAD WORKS U.N.O.
 - ALL REINFORCED CONCRETE ON THIS DRAWING SHALL BE U.N.O. 35N20 COVER = 50mm MIN
 - SURFACE FINISHES FOR CONCRETE:
 - CLASS F1 FOR ALL CONCRETE 100mm OR MORE BELOW GROUND LEVEL.
 - CLASS F3 FOR ALL EXPOSED CONCRETE ABOVE 100mm BELOW GROUND LEVEL.
 - ALL EXPOSED CORNERS ON CONCRETE SHALL BE CHAMFERED WITH 25mm x 25mm CHAMFERS.
 - ALL STRUCTURAL CONCRETE (HEADWALLS, RC MANHOLES, PETROL INTERCEPTOR SLABS) TO RECEIVE MC DUR 1680 (OR SIMILAR APPROVED TAR MODIFIED EPOXY RESIN) TO ALL BURIED SURFACES TO FINISH 100mm BELOW GROUND LEVEL.
 - ALL SEWERS SHALL BE PRESSURE TESTED PRIOR TO BACKFILLING.
 - RIGID PIPES SHALL MEAN CAST OR SPUN IRON, CONCRETE, ASBESTOS CEMENT OR CLAY.
 - CLASS D400 MANHOLE COVER FRAMES TO BE 150mm DEEP IN ROADS AND 100mm DEEP IN FOOTPATHS AND GREEN AREAS.
 - ALL AGGREGATES PROPOSED FOR USE ON THIS SCHEME SHALL MEET FULLY THE REQUIREMENTS OF THE NRA SPECIFICATION FOR ROAD WORKS AND IN ADDITION THE REQUIREMENTS STATED IN STANDARD RECOMMENDATION S.R. 21.2014 GUIDANCE ON THE USE OF I.S. EN 12422:2002 +A1 2007 AGGREGATES FOR UNBOUND AND HYDRAULICALLY BOUND MATERIALS FOR USE IN CIVIL ENGINEERING WORK AND ROAD CONSTRUCTION.
 - ALL FOUL SEWERS, MANHOLES, AND CONNECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH IRISH WATER CODE OF PRACTICE AND STANDARD DETAILS.
 - ALL SURFACE WATER SEWERS, MANHOLES, AND CONNECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS.
- ON ORIGINAL**
-
- © COPYRIGHT OF THIS DRAWING IS RESERVED BY DBFL CONSULTING ENGINEERS. NO PART SHALL BE REPRODUCED OR TRANSMITTED WITHOUT THEIR WRITTEN PERMISSION.
- NO CHANGES OF WHATSOEVER NATURE ARE TO BE MADE TO ANY DETAILS SET OUT OR CONTAINED IN ANY DBFL SPECIFICATIONS OR DRAWINGS UNLESS THE EXPRESS CONSENT HAS BEEN OBTAINED IN ADVANCE, IN WRITING, FROM DBFL.
- NOTES:**
- EXTRACTED FROM GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS
- 225mm THK CL 2020 MASS CONCRETE FOUNDATIONS
 - PRE-FORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY WHERE PRACTICABLE BE LAID THROUGH THE MANHOLE AND THE CROWN BROKEN OUT TO HALF DIAMETER. PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF THE MANHOLE WALL
 - MANHOLE CONSTRUCTION.
 - FOR SURFACE WATER MANHOLES SOLID CONCRETE BLOCKS CL 510 TO I.S.20 PART 1: 1987 OR CL 3020 INSITU CONCRETE
 - BLOCKWORK SHALL BE BEDDED AND JOINTED USING MORTAR DESIGNATION THREE TO I.S.406. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCK ARE LAID.
 - JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS.
 - ALL FOUL MANHOLES MUST BE FACED IN ENGINEERING BRICK FOR 1 METRE ABOVE INVERT LEVEL.
 - BRICK TO BE BONDED TO BLOCKWORK USING ENGLISH BOND OR WALL TIES.
 - RELIEVING ARCH FORMED BY 215x103x65 BRICK AS PER DRAWING RELIEVING ARCHES IN BRICK OR BLOCKWORK MANHOLES TO EXTEND OVER FULL THICKNESS OF WALL.
 - BENCHING AND PIPE CHANNEL PIPE SURROUND - CL 2020 CONCRETE.
 - BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH A SMOOTH TROWEL FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
 - STANDARD RUNGS AT 300 CRS VERTICALLY AND GALVANISED TO BS 729
 - 600mm SQUARE OPE IN ROOF SLAB.
 - 225mm THK PRECAST R.C. ROOF SLAB IN CL 3020 CONCRETE. COVER TO STEEL SHALL BE 40mm.
 - ENGINEERING BRICK CL B TO I.S.91:1983 SET IN 1:3 (CEMENT SAND MORTAR)
 - CLASS D400 MANHOLE COVER AND FRAME TO ISEN 124. 150mm DEEP FRAME FOR ALL ROADS, 100mm DEEP FOR FOOTPATHS AND GREEN AREAS ROADS. NON ROCK DESIGN. CLOSED KEYWAYS, MANUFACTURED FROM SPHERODAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600 x 600 (OR 600 DIA) CLEAR OPENING. COVER AND FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL. COVER SHALL BE QUIET IN USE WITH A MINIMUM MASS OF 140kg/m². FRAME BEARING AREA SHALL BE 80,000mm² MIN. FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURERS INSTRUCTIONS. THE FINAL LEVEL OF MANHOLE COVER AND FRAME IS TO BE SET PRIOR TO THE WEARING COURSE BEING LAID.
 - SHORT LENGTH PIPE. PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
 - TOE HOLES OF 230mm MINIMUM DEPTH AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525mm DIA. AND DEPTH TO INVERT >3m FOR ACCESS TO INVERT.
 - SAFETY CHAIN TO BE PROVIDED IN ALL MANHOLES WITH PIPE DIAMETERS GREATER THAN 450mm. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M. (IN NON CALIBRATED CHAIN, TYPE 1, COMPLYING WITH B.S.4942 PART 2).
 - WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3m LADDERS SHALL BE USED TO S.4211 EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65mm x 12mm IN SECTION AND RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF B.S.4211
 - LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.4m. STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEVAL.
 - ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO B.S.729.
 - SOCKET OF PIPE SHOULD BE CUT WITH THE INSIDE SURFACE OF THE MANHOLE WALL.
 - POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLAB.
 - FOR MANHOLES >3m DEPTH TO INVERT USE REINFORCED INSITU CONCRETE. REFER TO DBFL REINFORCEMENT DRAWINGS

0	27-11-25	LRO APPLICATION	JMG	SVM
rev	date	description	by	chkd.
STATUS CODES				
purpose	acceptance			
P3 - PLANNING PERMISSION	S - ISSUED			
DBFL CONSULTING ENGINEERS				
T : + 353 1 400 4000 E: info@dbfl.ie W: www.dbfl.ie				
DUBLIN CORK GALWAY WATERFORD				
project ref.	SANDFORD ROAD, MILLTOWN			
drawing title	DRAINAGE TYPICAL DETAILS SHEET 7- PUBLIC WORKS ALONG EGLINTON RD			
client	SANDFORD LIVING LIMITED			
designed by	author	scale	sheet size	
SVM	JMG	AS NOTED	A1	
drawing no.	190226-X-05-200-DTM-DR-DBFL-CE-5307			revision
				0