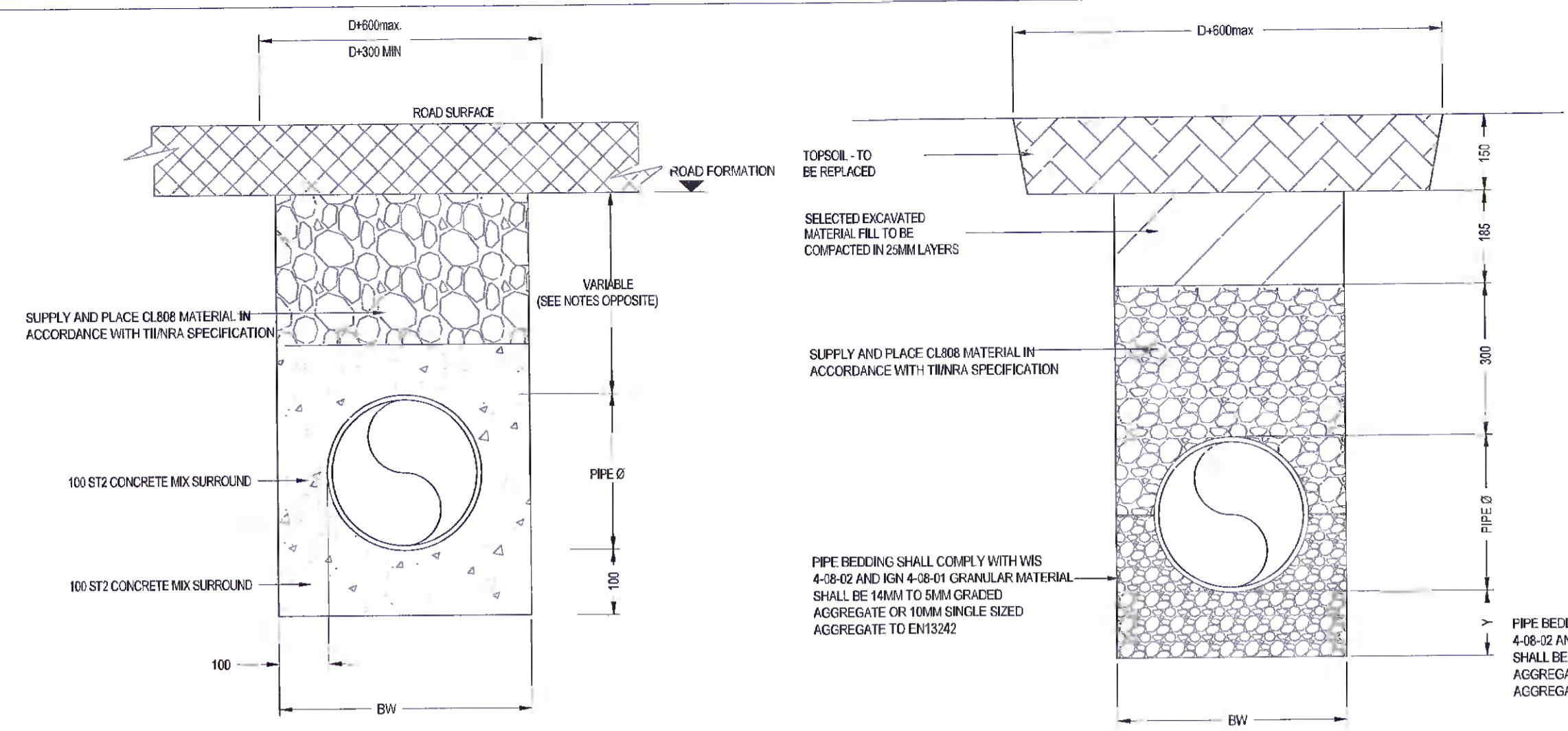
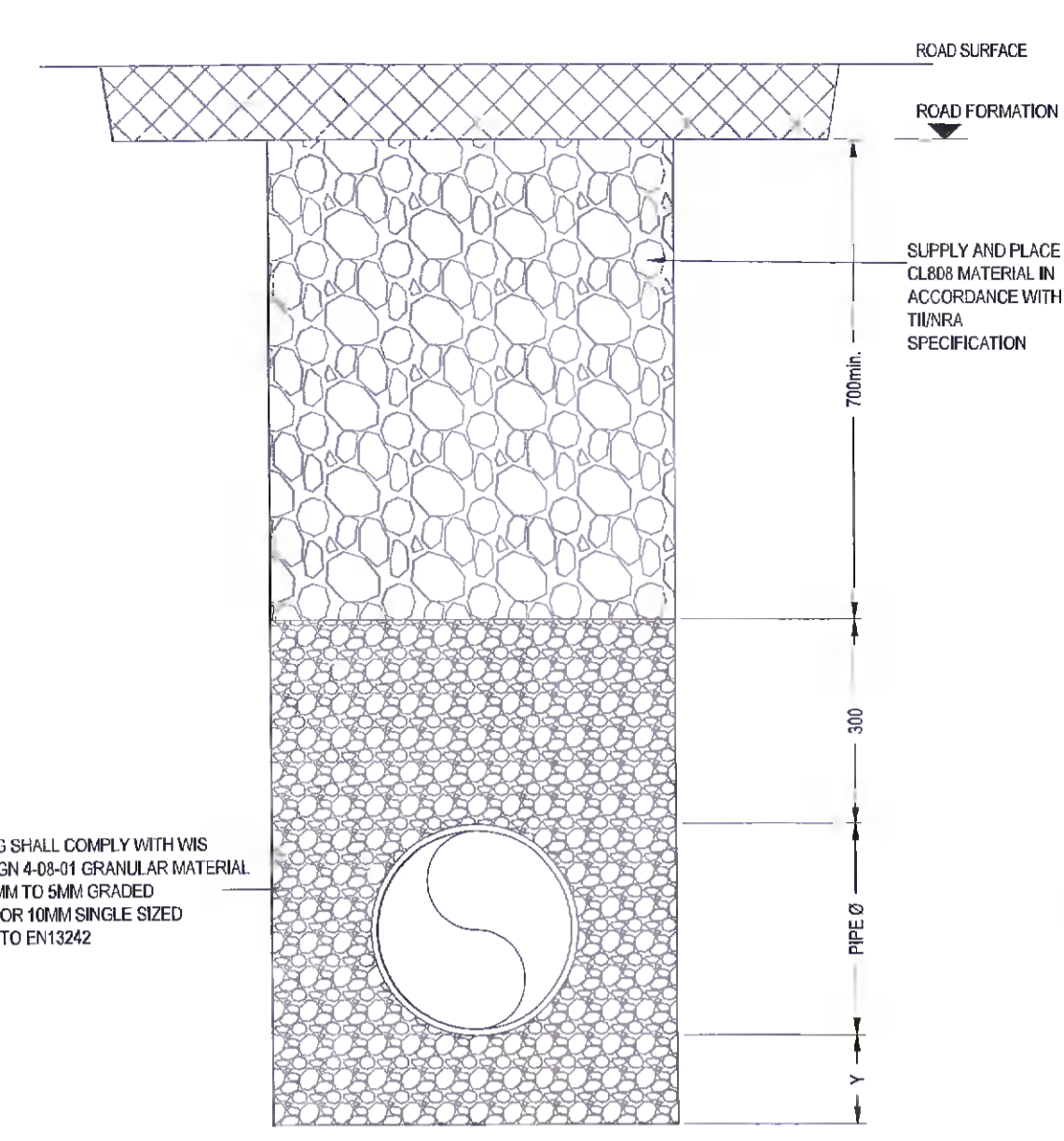


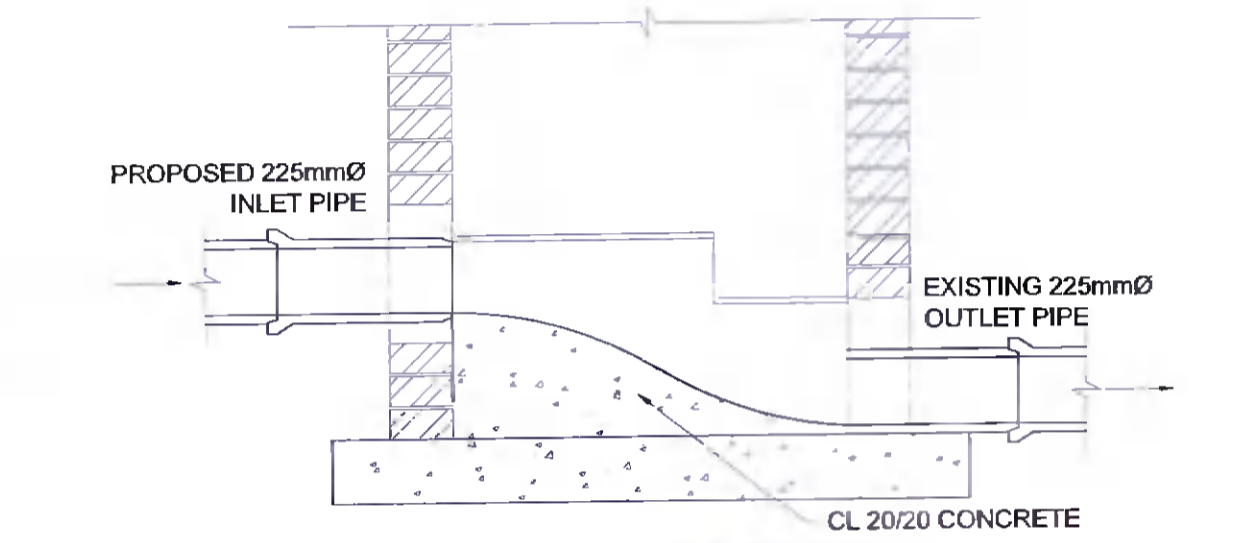
TYPICAL GULLY CONNECTION TO EXISTING SW LINE
SCALE 1:25



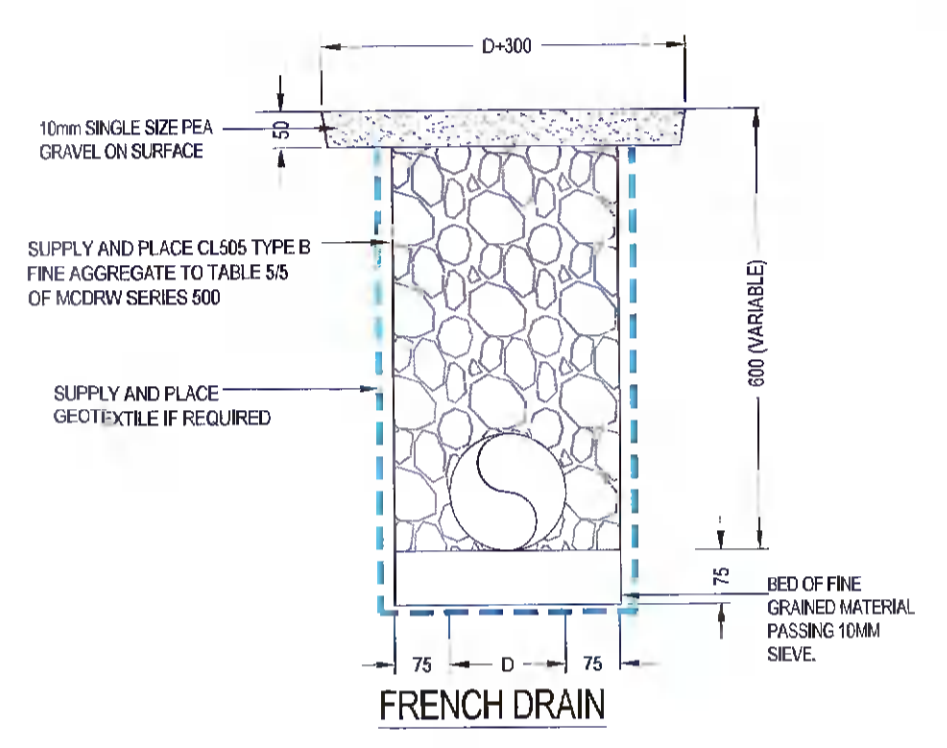
TYPICAL SECTION FOR CONCRETE SURROUND IN ROADWAYS



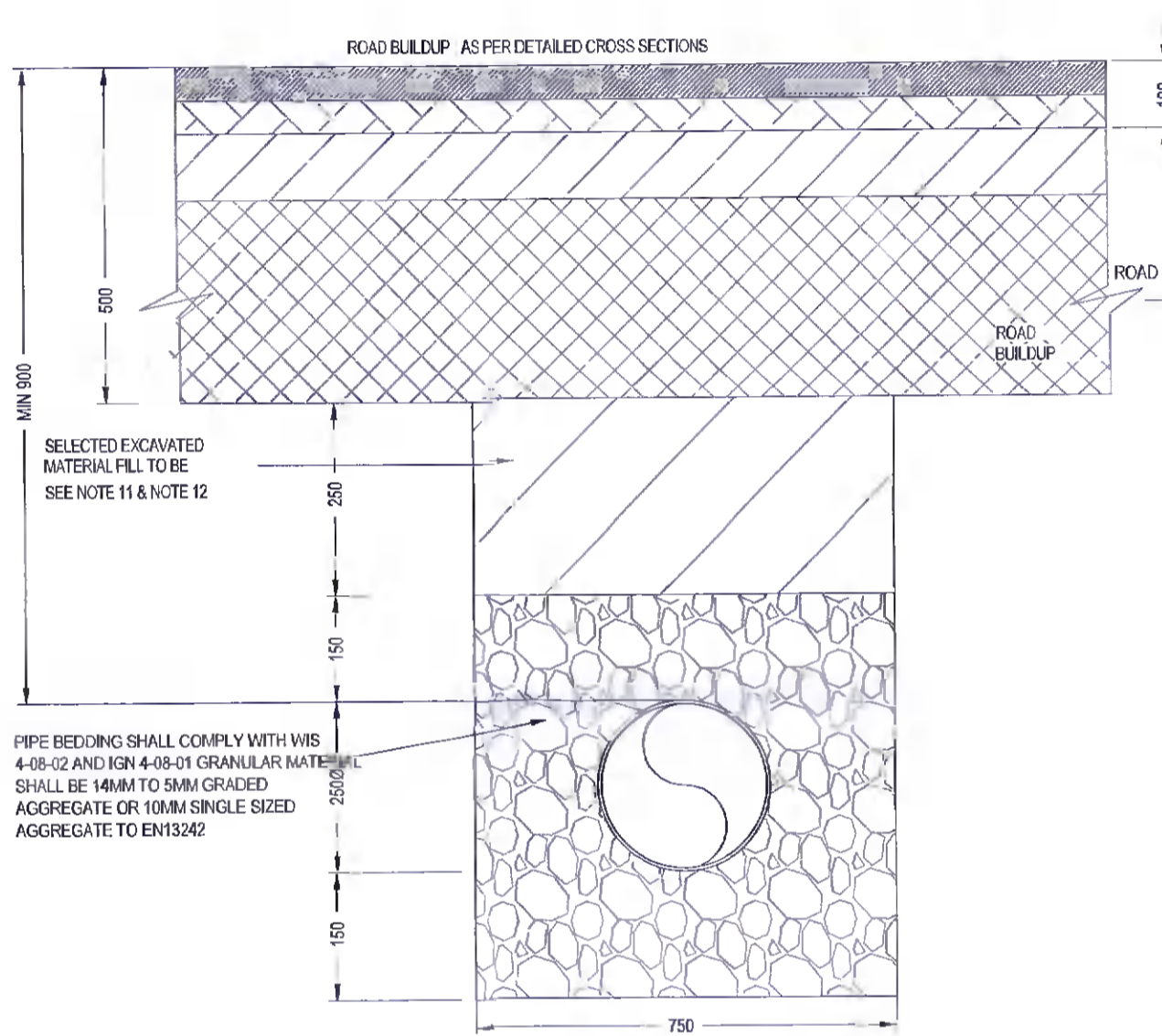
TYPICAL SECTION UNDER ROADWAY



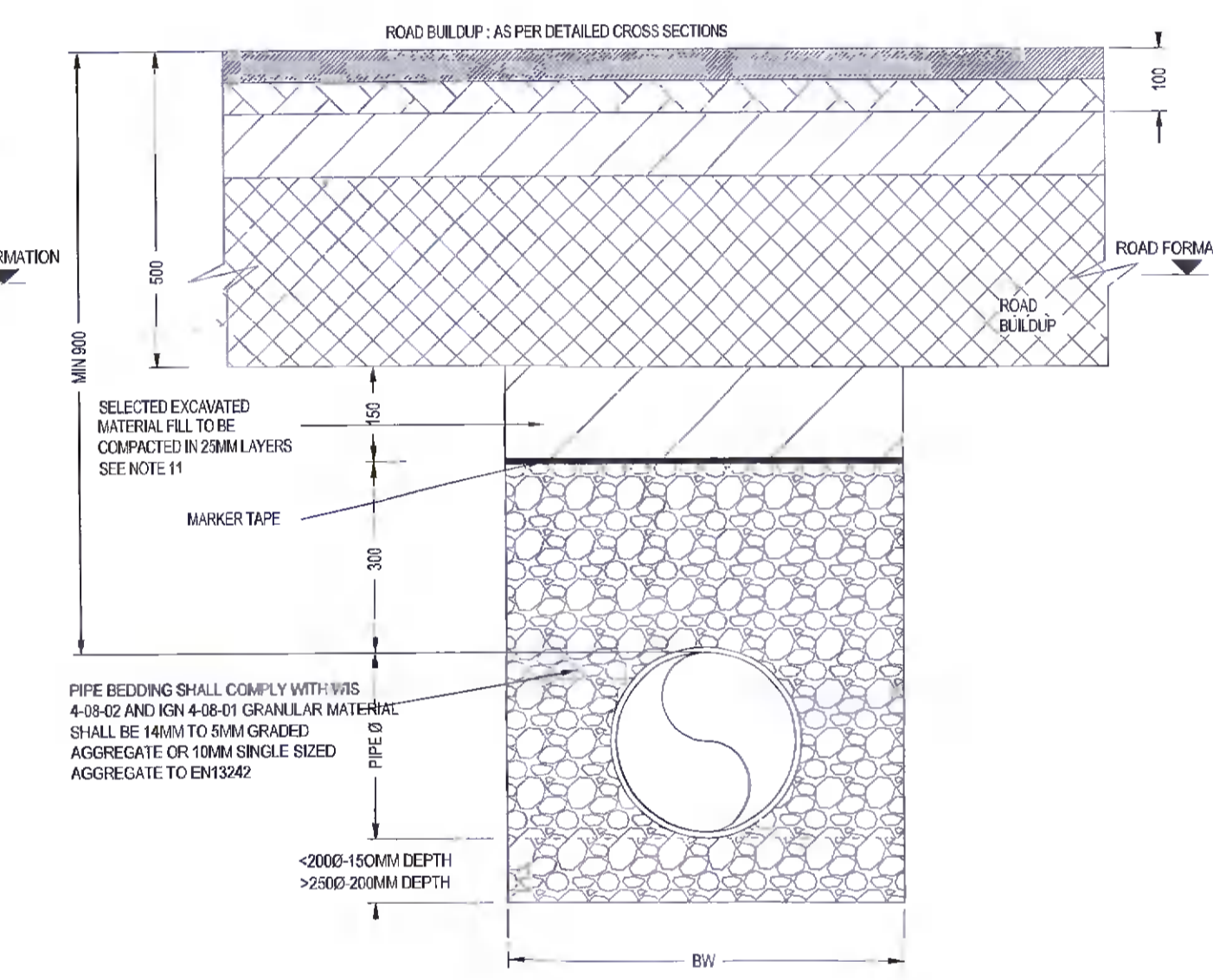
RAMP IN EXISTING MANHOLE
SCALE 1:25



FRENCH DRAIN



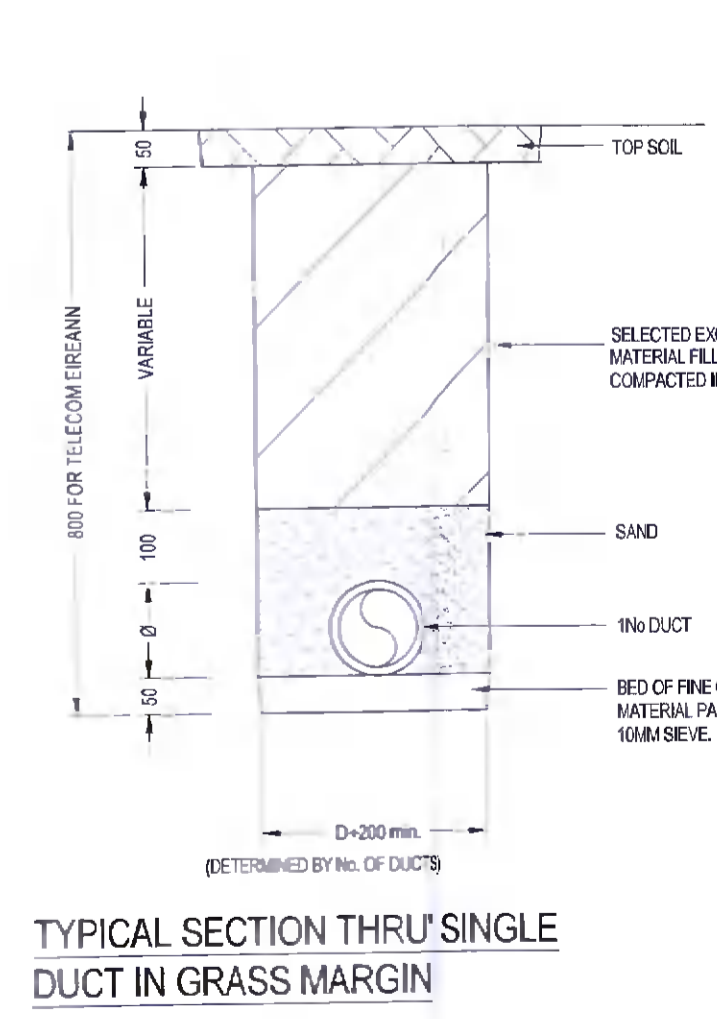
TYPICAL SECTION FIRE MAIN



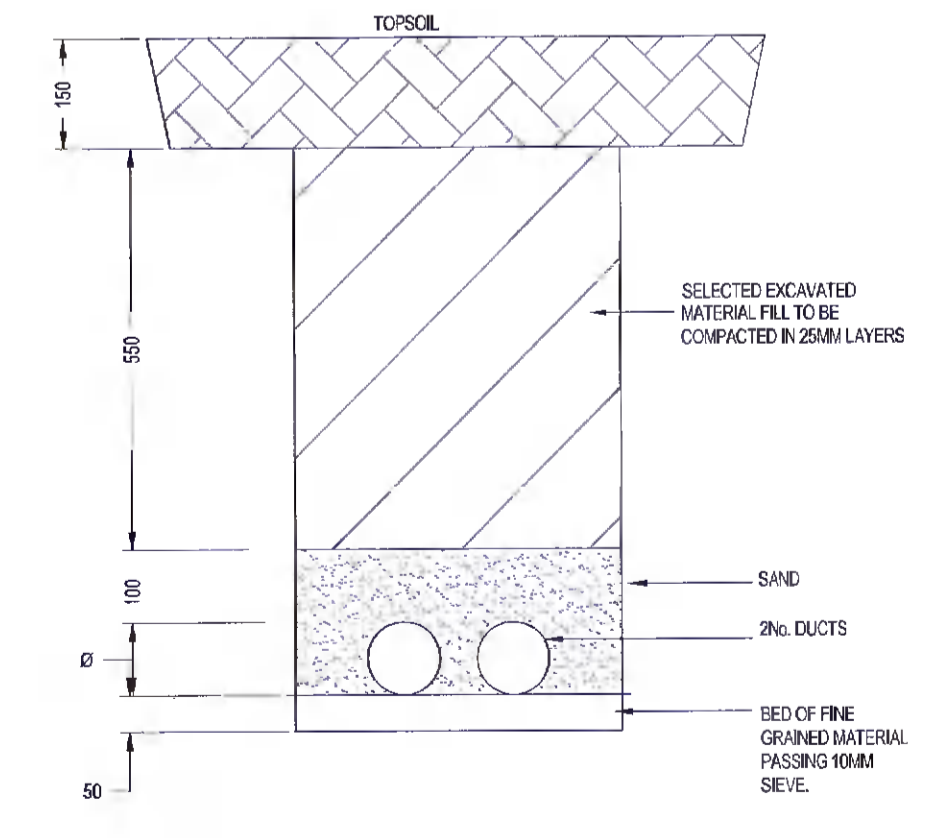
TYPICAL SECTION WATERMAIN

PIPE Ø	BW BED WIDTH	Y-BED THICKNESS
<80	500	150
100	500	150
150	600	100
225	700	100
300	750	100
375	1000	100
450	1100	110
525	1200	120
600	1200	130
750	1500	160
900	1950	190
1050	2100	220
1200	2300	245
1350	2400	280
1500	2600	290

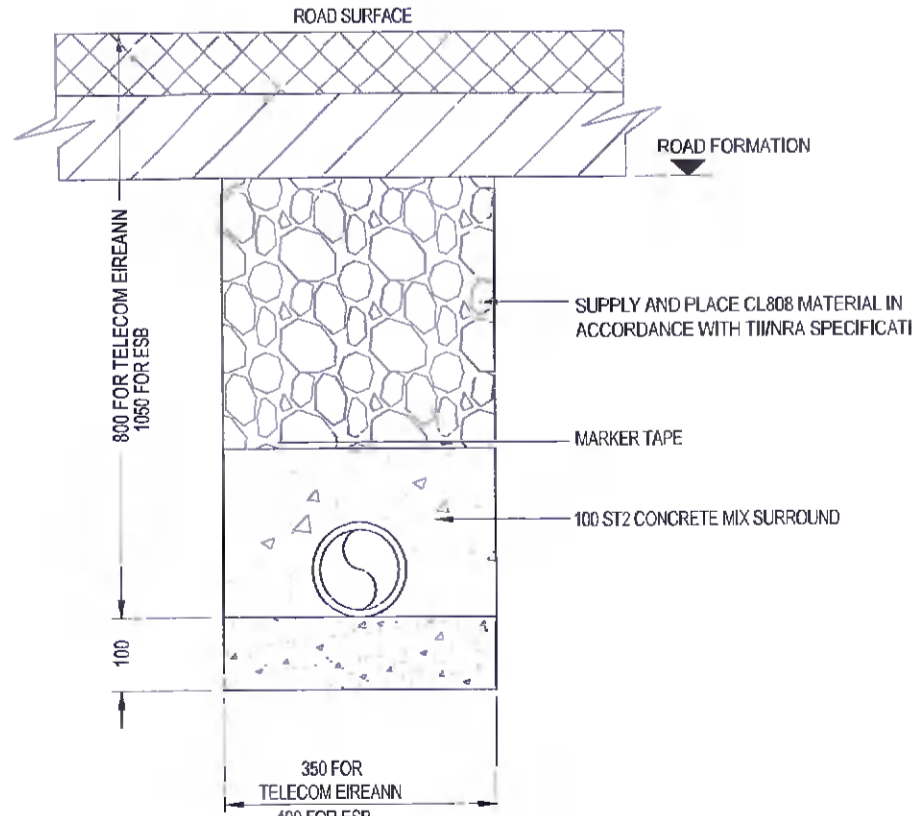
Y = 1/6 BC OR 100MM MIN. (UNIFORM SOIL)
Y = 1/4 BC OR 200MM MIN. (TRENCH IN ROCK)



TYPICAL SECTION THRU SINGLE DUCT IN GRASS MARGIN



TYPICAL SECTION THRU MULTI DUCTS IN GRASS MARGINS



TYPICAL SINGLE DUCTS ROAD CROSSING

NOTE: DUCTING FOR UTILITY MUST MEET REQUIREMENTS OF SERVICE PROVIDERS.

- GENERAL NOTES**
- 1) ROCK IN TRENCHES SHALL BE EXCAVATED AND TRIMMED TO UNDERSIDE LEVEL OF PIPE BED
 - 2) GRANULAR MATERIAL CLASS 'B' TO BE USED FOR BEDDING AND HAUNCHING
 - 3) CONCRETE MIX C25/20 TO BE USED FOR BEDDING, HAUNCHING AND SURROUND
 - 4) SEE TABLE 'A' FOR CONCRETE BED WIDTHS
 - 5) WHERE FLEXIBLE JOINTS ARE USED, VERTICAL MOVEMENT JOINTS SHALL BE PROVIDED IN THE BED AT MAX INTERVALS OF 5M AND ALIGNED WITH THE FACE OF PIPE SOCKET. JOINTS TO BE 12MM WIDE AND FILLED WITH FLEXCELL OR SIMILAR IN THE CONCRETE BED AND SURROUND.
 - 6) GRANULAR BEDS TO DRAINS SEE TABLE 'B'
 - 7) SURFACE WATER AND FOUL DRAINS SHALL BE SURROUNDED BY 150 THK C25 CONCRETE. IF COVER TO PIPE IS LESS THAN 1.2M IN ROADS & DRIVEWAYS & LESS THAN 0.5M IN OPEN SPACES AND PATHS & NEAR CARRIAGEWAYS, SURFACE WATER AND FOUL DRAINS SHALL BE SURROUNDED BY 150 THK C25 CONCRETE
 - 8) ALL CONCRETE TO BE MIX C25.
 - 9) WHERE PVC PIPES ARE ENCASED IN CONCRETE, THEY SHALL BE FIRST WRAPPED IN VISQUEEN 1000.
 - 10) ALL SERVICES TO HAVE MARKER TAPE LAID OVER FULL WIDTH OF SERVICE MINIMUM 400MM BELOW FINISHED SURFACE LEVEL.
 - 11) BACKFILL MATERIAL SHALL NOT CONTAIN ASH, CINDERS, REFUSE, ORGANIC MATTER OR OTHER CORROSIVE MATERIALS. ROCKS SHALL NOT BE USED AS BACKFILL. THE TRENCH SHALL BE BACKFILLED BETWEEN JOINTS BEFORE TESTING TO PREVENT THE MOVEMENT OF THE PIPE.
 - 12) WHERE REQUIRED FOR SAFETY MEASURES PRESENTED BY THE HAZARDS OF OPEN TRENCHES, THE PIPE AND JOINTS SHALL BE PERMITTED TO BE BACKFILLED, PROVIDED THE INSTALLING CONTRACTORS TAKE THE RESPONSIBILITIES FOR LOCATING AND CORRECTING LEAKAGE.

WATERMAIN:
TRENCH: MINIMUM WIDTH TO BE PIPE Ø + 300MM
MAXIMUM WIDTH TO BE PIPE Ø + 600MM

MINIMUM DEPTH FROM GROUND LEVEL TO TOP OF BARREL SHALL BE 900MM FOR WATERMANS AND 600MM FOR SERVICE CONNECTIONS. IF COVER IS LESS, BED AND SURROUND PIPE WITH 150MM THK CLASS C25 CONCRETE

WATERMAIN TO HAVE MARKER TAPE LAID OVER FULL WIDTH OF SERVICE MINIMUM 300MM ABOVE TOP OF PIPE.

WHERE WATERMAIN IS IN ROCK, THE ROCK SHALL BE EXCAVATED AND TRIMMED TO A DEPTH OF 100MM BELOW PIPE. LAYER OF SELECTED FILL SHALL BE 125MM TO ALLOW PIPE TO BE WORKED INTO TRUE LINE.

WHEN COVER TO PIPE IS LESS THAN 1200MM IN ROADWAYS, WATERMAIN SHALL HAVE CONCRETE BED AND SURROUND

THE CONTRACTOR IS TO ENSURE THAT ALL TRENCHES ARE SUPPORTED TO HEALTH AND SAFETY GUIDELINES

PROVIDE DRAW WIRES WITH 150MM END RODS TO ALL DUCTS

CLIENT

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STRUCTURAL ENGINEER

Clifton Scannell Emerson
Associates

ARCHITECT

Henry J Lyons

LEGEND

NOTES

DISCIPLINE

Clifton Scannell Emerson
Associates

PROJECT

ESSDUB98
KISHOGE 110KV SUBSTATION

Rev	Date	Description	By	Ckd
P03	12.04.2022	ISSUED FOR PLANNING	KB	HF

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Drawn by	Checked by	Date
IC	HF	01-12-2021

Scale (@ A1)	Status code	Project number
AS INDICATED	S1	21_100

Drawing Title

DRAINAGE DETAILS
SHEET 1 OF 2

Drawing Number

(Project Code-Originator-Volume-Level-Type-Role-Sheet no.)
ESSDUB98-CSE-01-XX-DR-C-3101 P03