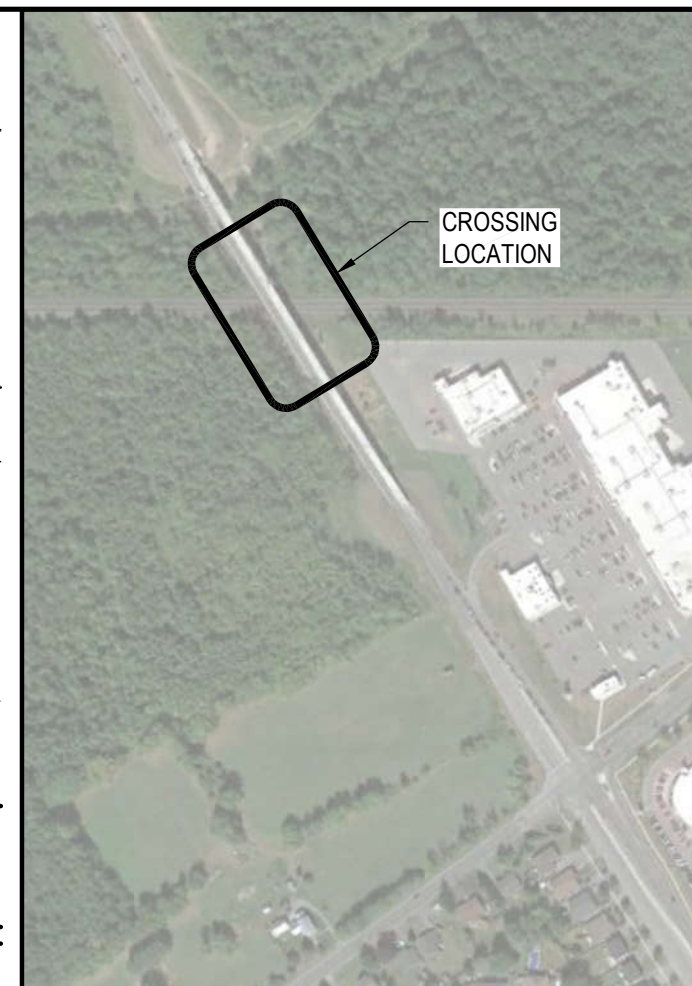


**KEY PLAN**  
SCALE: 1:5000



## SETTLEMENT MONITORING NOTES:

1. SURFACE SETTLEMENT MONITORING POINTS ARE TO CONSIST OF PLATES WITH RODS INSTALLED BELOW THE FROST DEPTH (1.8m) AND EXTENDING NO HIGHER THAN THE TOP OF RAILROAD TIES.
2. DEEP SETTLEMENT MONITORING POINTS SHALL BE INSTALLED IN PRE-AUGERED HOLES TO A DEPTH OF 1.0m ABOVE THE CASING OBVERT, AND SHALL CONSIST OF CONTINUOUS STEEL RODS INSERTED INTO A 0.3m THICK CEMENT GROUT INSTALLED AT THE BOTTOM OF THE HOLE AND CAPPED WITH MIN. 0.3m SAND. AT THE TOP OF THE SAND, STEEL ROD SHOULD BE ENCASED IN A PLASTIC SLEEVE, AND THE SPACE BETWEEN THE SLEEVE AND THE HOLE GROUTED WITH BENTONITE OR CEMENT. STEEL ROD SHALL EXTEND NO HIGHER THAN THE TOP OF RAIL ROAD TIES.
3. MONITORING POINTS ARE TO BE SURVEY USING A LEVEL ACCURATE TO 1mm (OR LESS) AND BY A LICENSED SURVEYOR.
4. MONITORING FREQUENCY SHALL BE AS FOLLOWS:
  - a. PRIOR TO TUNNELING: BASELINE SURVEY CONSISTING OF TWO SETS OF INITIAL READING, ONE DAY APART.
  - b. DURING TUNNELING: THREE SETS OF READING PER DAY (EVERY 3-4 HOURS)
  - c. POST-TUNNELING: ONE SET OF READING PER DAY FOR ONE WEEK, THEN ONE SET OF READINGS PER WEEK FOR ONE MONTH.
5. SUBMIT READING TO CN RAIL DAILY, SHOWING COMPARISON TO BASELINE READING AT ALL MONITORING POINTS.
6. CN RAIL AND ENGINEER MUST BE NOTIFIED IMMEDIATELY IF MOVEMENT AT ANY MONITORING POINT EXCEEDS 5mm.
7. CN RAIL AND ENGINEER MUST BE NOTIFIED IMMEDIATELY AND WORK MUST STOP IMMEDIATELY IF MOVEMENT AT ANY MONITORING POINT EXCEEDS 10mm. PRE-PLANNED RESPONSE ACTION MEASURES TO SECURE THE SITE AND TO MITIGATE FURTHER MOVEMENT IS TO BE IMPLEMENTED.

## LEGAL DESCRIPTION

PART OF WEST HALF OF LOT 12,  
CONCESSION 3,  
CITY OF CORNWALL, COUNTY OF STORMONT

RAILWAY SUBDIVISION & MILEAGE  
KINGSTON SUBDIVISION, MILE 68.95

## NOTES:

1. CONTRACTOR TO VERIFY LOCATION OF ALL BURIED SERVICES PRIOR TO START OF CONSTRUCTION.
2. TOPOGRAPHIC INFORMATION PROVIDED BY .
3. ELEVATIONS SHOWN ON THIS PLAN ARE GEODETIC.
4. ALL DISTURBED AREAS TO BE REINSTATED WITH TOPSOIL AND SOD UNLESS OTHERWISE NOTED.
5. INSULATE FORCEMAINS AS PER 3/C4.1 WHEN 2.0m COVER CANNOT BE ACHIEVED.
6. PROVIDE SAFETY PLATFORM AS PER OPSD 404.020/C5.2 IN MAINTENANCE HOLES WHEN STRUCTURE DEPTH EXCEEDS 5.0m.
7. INSTALL SANITARY LATERALS AT MINIMUM SLOPE OF 1.0% AND MAXIMUM SLOPE OF 8.0% UNLESS OTHERWISE NOTED.
8. INSTALL SANITARY LATERALS ACROSS BROOKDALE AVENUE USING TRENCHLESS METHODS.
9. CONTRACTOR IS TO REPLACE ANY ASPHALT, CURB, GUTTER, OR SIDEWALK DAMAGED BY THE WORK. NO PAYMENT WILL BE MADE FOR REINSTATEMENT OF DAMAGED AREAS OUTSIDE THE IMMEDIATE WORK AREA AND/OR DUE TO LACK OF CARE FROM THE CONTRACTOR.
10. CONSTRUCTION AND MAINTENANCE TO BE IN ACCORDANCE WITH TRANSPORT CANADA STANDARDS RESPECTING PIPELINE CROSSING UNDER RAILWAYS.
11. CONTRACTOR TO COORDINATE WITH CN RAIL TO ARRANGE FOR FLAGGING.

## CASING PIPES:

INSIDE DIA. = 725mm  
OUTSIDE DIA. = 750mm  
MIN. WALL THICKNESS = 12.7mm  
LENGTH = 56.2m & 54.0m  
MIN. YIELD STRENGTH = 240 MPA  
MATERIAL = STEEL  
PROTECTION = NIL

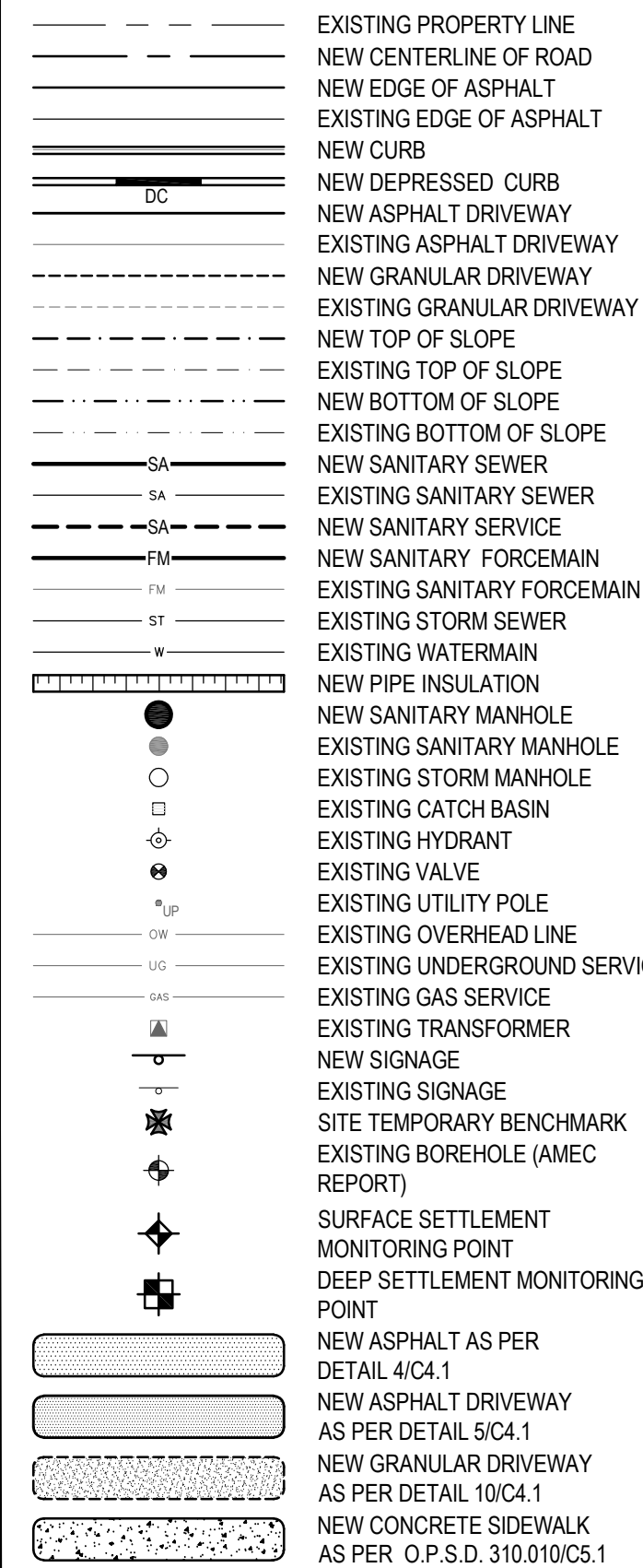
## CARRIER PIPE 1 (GRAVITY SEWER)

SPEC. = PVC SDR 35  
CONTENTS = SEWAGE (GRAVITY)  
INSIDE DIA. = 447.8mm  
WALL THICKNESS = 13.6mm  
OPER. MAX. PRESSURE = N/A

## CARRIER PIPE 2 & 3 (FORCEMAINS)

SPEC. = PVC DR21  
CONTENTS = SEWAGE (PUMPED)  
INSIDE DIA. = 245mm  
WALL THICKNESS = 14mm  
OPER. MAX. PRESSURE = 362 kPa/689 kPa

## LEGEND:



2019/12/03	2	ISSUED FOR ADDENDUM #1
2019/11/18	1	ISSUED FOR TENDER
DATE	No.	REVISION

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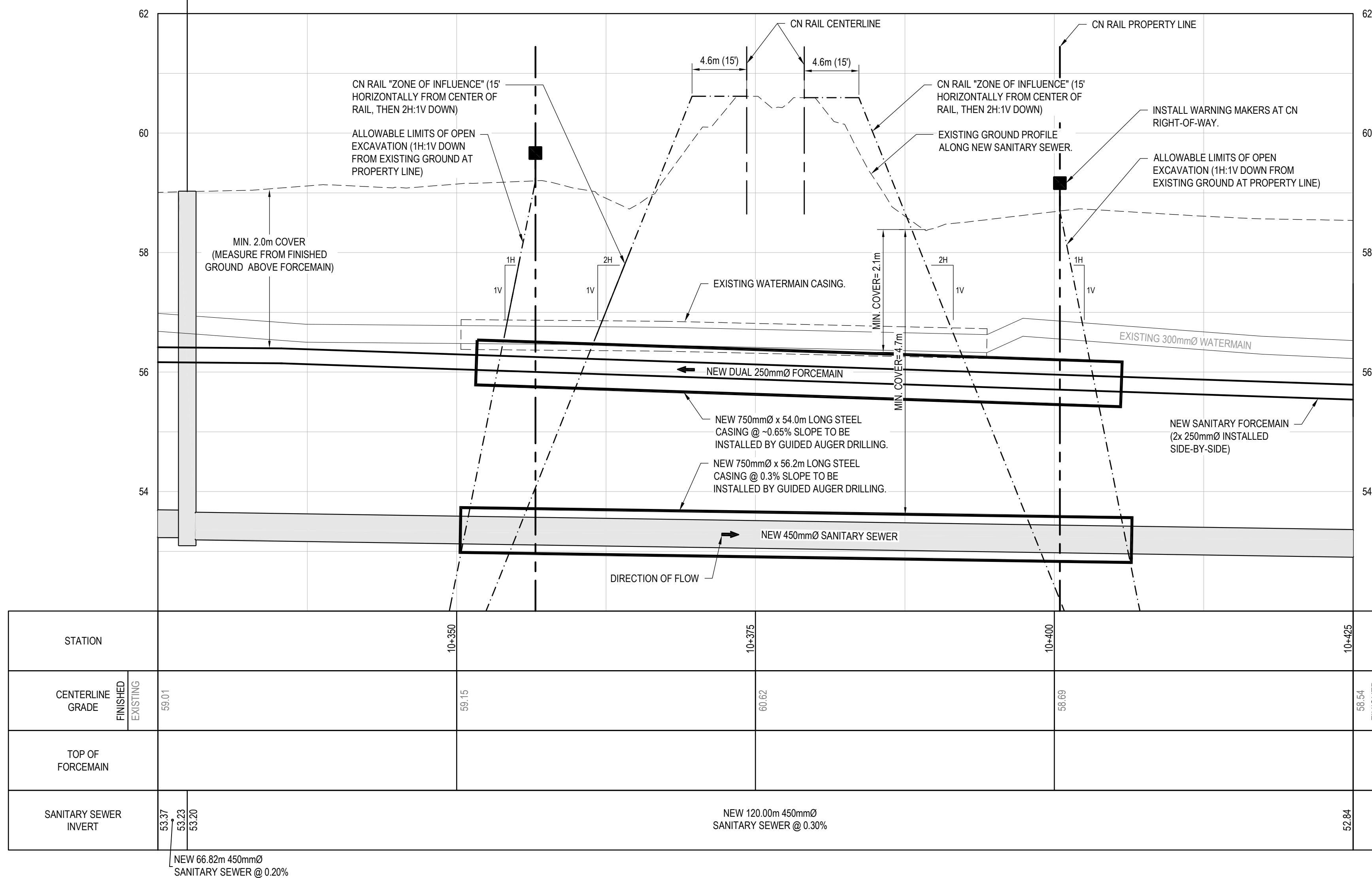


PROJECT:

**BROOKDALE AVENUE  
SANITARY SERVICING**

TITLE:  
**ALTERNATE PLAN AND PROFILE @  
CN CROSSING ON BROOKDALE  
AVE. FROM STA 10+325 -10+425**

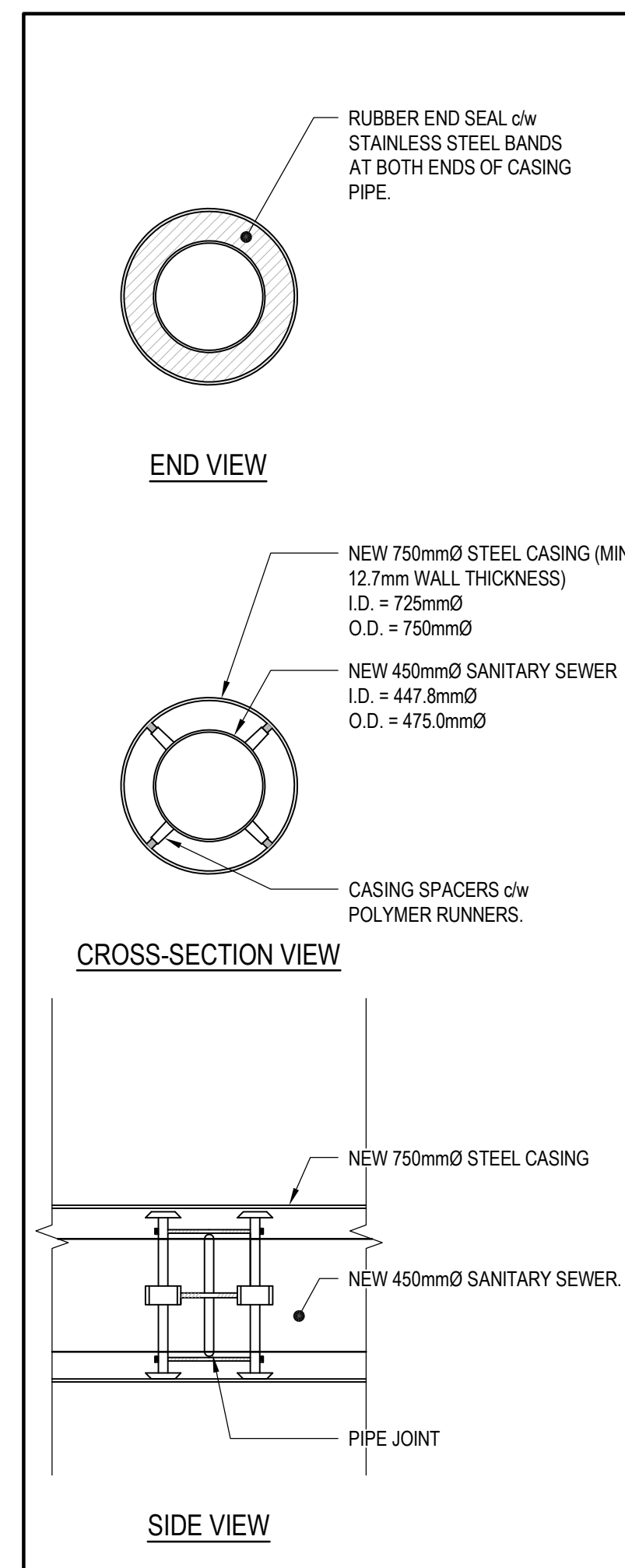
SCALE: H:1/250, V:1/50	JOB NO: 19006
DESIGNED BY: F.L.	DATE: 2019/10/17
DRAWN BY: K.B.W.	DRAWING NO.
CHECKED BY: J.E.	<b>C2.5B</b>



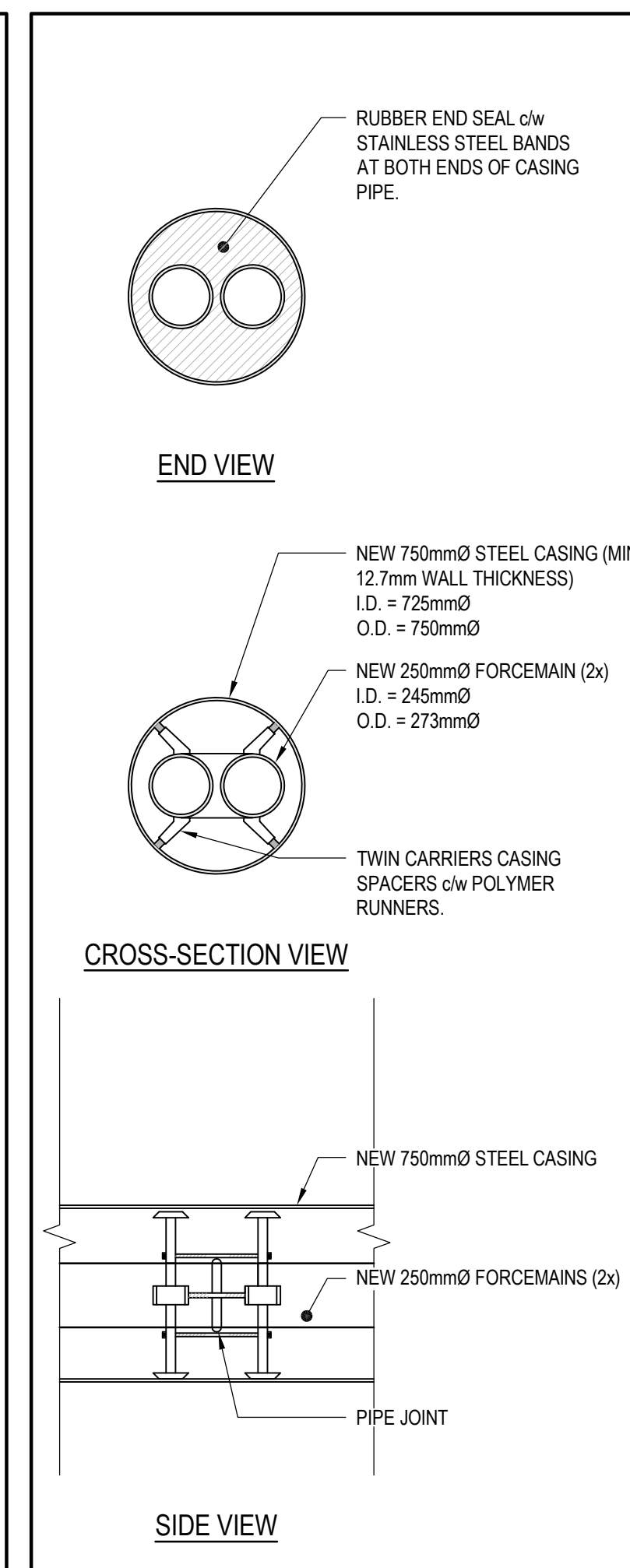
STATION	10+350	10+375	10+400	10+425	STATION
CENTERLINE GRADE	59.01	59.15	59.63	59.54	FINISHED EXISTING CENTERLINE GRADE
TOP OF FORCEMAIN					TOP OF FORCEMAIN
SANITARY SEWER INVERT	53.37 53.23 53.20			52.84	SANITARY SEWER INVERT

NEW 66.82m 450mmØ  
SANITARY SEWER @ 0.20%

NEW 120.00m 450mmØ  
SANITARY SEWER @ 0.30%



**1 SANITARY SEWER CROSSING**  
SCALE: N.T.S.



**2 FORCEMAIN CROSSING**  
SCALE: N.T.S.