

DUCTILE IRON TELESCOPIC FRAME SET TO SUIT  
DEPTH TO FINISHED GRADE (ADJUSTMENT RANGE  
FROM 70mm TO 200mm)

DEPTH VARIES  
(MIN. 70mm)

FINISHED GRADE (ROAD)

CAST IRON COVER

FINISHED GRADE  
(ROAD)

100 MIN. TO  
550 MAX.  
(50mm  
INCREMENTS)

25 TO  
100mm

300 MAX. TO  
FIRST STEP

PRECAST CONCRETE ADJUSTMENT UNIT  
(100mm TO 550mm)

SINGLE STEP ANCHORED IN ADJUSTMENT UNITS  
(AS REQUIRED) (SEE NOTE 5)

ENGINEERED GROUT AS PER MANUFACTURER'S  
RECOMMENDATION (SEE NOTE 3)

150 MIN. FROM  $\phi$  OF LADDER RUNG OR STEP  
TO WALL SURFACE (SEE NOTE 5)

ONE LADDER SEGMENT FOR EACH RISER SECTION  
C/W LADDER RUNGS AT 300 O/C MAX, AND  
MIN, TWO ANCHORS PER RISER SECTION

PRECAST TAPERED TOP SECTION

LADDER SPLICE AT EACH RISER SECTION  
(SEE NOTE 5)

WATERPROOF MEMBRANE TYPICAL ALL JOINTS  
AS PER MANUFACTURER'S RECOMMENDATION

1200 DIAMETER

PRECAST RISER  
SECTION

**NOTES:**  
1. THIS FRAME AND  
COVER SYSTEM FOR  
USE WITHIN PAVED  
PORTION OF ROW.

DUCTILE IRON TELESCOPIC  
FRAME SET TO SUIT DEPTH  
TO FINISHED GRADE  
(ADJUSTMENT RANGE FROM  
70mm TO 200mm)

GROUT TO BE POURED UNTIL  
KEYWAY IS COMPLETELY  
SUBMERGED AND NO LONGER  
VISIBLE (TYPICALLY 80-90mm  
ON AVERAGE).

CAST IRON COVER

PRECAST CONCRETE  
ADJUSTMENT UNIT  
(100mm TO 550mm)

DEPTH  
VARIES  
(MIN.  
70mm)

FINISHED GRADE  
(ROAD)

915

FINISHED GRADE  
(ROAD)

100 MIN. TO 550  
MAX. (50mm  
INCREMENTS)

MIN. 50mm  
ENGAGEMENT IN  
GROUT

300 MAX. TO  
FIRST STEP

685

300  
MAX.

SINGLE STEP ANCHORED  
IN ADJUSTMENT UNITS  
(AS REQUIRED) (SEE  
NOTE 5)

ENGINEERING GROUT AS  
PER MANUFACTURER'S  
RECOMMENDATION (SEE  
NOTE 3)

HDPE SHIMS AS  
REQUIRED TO  
MATCH FINAL  
SURFACE GRADE AS  
PER  
MANUFACTURER'S  
RECOMMENDATION

1016 $\phi$  SONOTUBE CUT  
TO FIT (APPROX.  
150-200mm) TO  
PROVIDE FORM FOR  
ENGINEERING GROUT

PRECAST MONOLITHIC  
TOP SECTION

150MIN. FROM  $\phi$  OF  
LADDER RUNG OR STEP  
TO WALL SURFACE  
(SEE NOTE 5)

ENSURE SURFACE OF  
MONOLITHIC TOP  
SECTION OPENING IS  
SCARIFIED AND  
CLEANED PRIOR TO  
GROUT BEING POURED

DRILL 4 - 75mm $\phi$  HOLES  
(100mm DEPTH MIN.)  
AROUND PRECAST MONOLITHIC  
TOP SECTION OPENING AT  
954 $\pm$ mm. CLEAN HOLES AND  
SET 4-15m, 200mm ANCHOR  
DOWELS IN HOLES

ONE LADDER SEGMENT  
FOR EACH RISER SECTION  
C/W LADDER RUNGS AT  
300 O/C MAX. AND MIN.  
TWO ANCHORS PER RISER  
SECTION (SEE NOTE 5)

**NOTE:** THE INTEGRATED  
SYSTEM MUST BE GROUTED  
IN POSITION TO MATCH ROAD  
GRADE ANGLE. FINAL HEIGHT  
ADJUSTMENT MADE WITH  
TELESCOPIC FRAME SET. TOP  
OF PRECAST ADJUSTMENT  
UNIT TO BE MINIMUM 70mm  
BELOW PAVED ROAD  
SURFACE.

**NOTES:**

1. TOP OF BENCHING SHALL BE SLOPED AT 2% TO CHANNEL.
2. ANY PIPES ENTERING THE PRECAST SECTION OF MAINTENANCE HOLE ABOVE POURED BASE MUST NOT ENTER AT A MAINTENANCE HOLE SECTION JOINT.
3. GROUT REQUIREMENTS: NON-SHRINK, MINIMUM 50 MPa at 28 DAYS, TO BE INSTALLED ONLY AS PER MANUFACTURER'S APPLICATION GUIDELINES.
4. LIFTING HOLES IN PRECAST SECTIONS SHALL BE COMPLETELY FILLED WITH 3 PARTS SAND, 1 PART CEMENT MORTAR AND POINTED BEFORE BACKFILLING.
5. MAINTENANCE HOLE STEPS SHALL BE POSITIONED AS PER OPSD 405.010 OR OPSD 405.020 / MAINTENANCE HOLE LADDERS SHALL BE POSITIONED AS PER OPSD 406.010.
6. PRECAST FLAT TOP SHALL BE USED WHEN TOTAL HEIGHT OF PRECAST SECTION IS LESS THAN 1.80m.
7. GASKETS / WATERPROOF MEMBRANCES SHALL BE PLACED AS PER MANUFACTURERS SPECIFICATIONS.
8. FOR MAINTENANCE HOLE DEPTHS GREATER THAN 5.0m, A MAINTENANCE HOLE SAFETY GRATING IS REQUIRED.
9. FOR DEPTHS GREATER THAN 7.5m, THE MAINTENANCE HOLE MUST BE INDIVIDUALLY DESIGNED IF NECESSARY.
10. BENCHING DETAIL AS PER OPSD 701.021.

ALL DIMENSIONS IN METRES EXCEPT WHERE NOTED.



WORKS DEPARTMENT

# INTEGRATED FRAME AND COVER SYSTEM FOR MAINTENANCE HOLES IN PAVEMENT

DWG. DATE: 2023 03

REVISION NO.: 2

REV. DATE: 2024 12

SCALE: N.T.S.

S-100.071