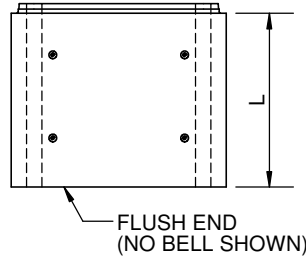SPIGOT

RIGHT SIDE

FLOW

LEFT SIDE

L

BELL

STANDARD UNIT

- DESIGNED AND MANUFACTURED TO OPSS 1821, APRIL 2013.
- AVAILABLE IN 9 STANDARD SIZES LISTED IN OPSS 1821.
- DRY CAST PRODUCTION PROCESS.
- SWIFT LIFT ANCHOR SYSTEM BY DAYTON/SUPERIOR OR EQ.EQV.
- TYLOX SUPERSEAL RUBBER GASKET BY HAMILTON KENT OR EQ. EQV.
- PRODUCED WITH WELDED WIRE REINFORCEMENT.
- INSTALLED WITH SPIGOT END DOWNSTEAM.
- STANDARD LAY LENGTH (L) = 2438.
- MIN LAY LENGTH (L) = 610.
- LAY LENGTH INTERVAL = 152.

L

FLUSH END
(NO BELL SHOWN)
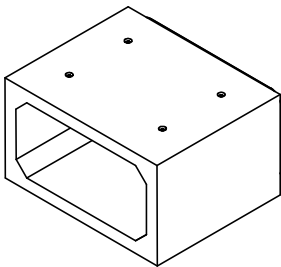
FLUSH END UNIT

- FLUSH END AVAILABLE FOR BOTH BELL OR SPIGOT END.
- STANDARD LAY LENGTHS (L):
= 2438 FOR FLUSH END, NO SPIGOT.
= 2300 FOR FLUSH END, NO BELL.

$\varnothing$1200 MH SPIGOT

$\varnothing$1219

L
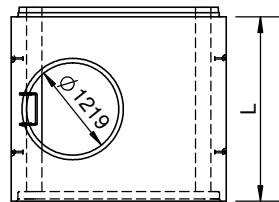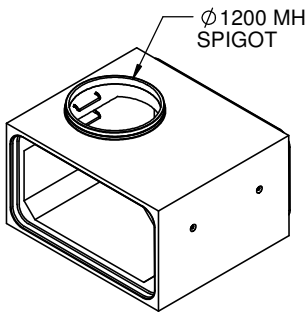
- MAINTENANCE HOLE TEE AS PER OPSD 707.010.
- ACCOMMODATE STANDARD 1200 mm DIA. MH COMPONENTS.
- STANDARD LAY LENGTH (L) = 2438.
- MANHOLE TEE RIGHT IS SHOWN
- MANHOLE TEE LEFT IS ALSO AVAILABLE

MANHOLE TEE

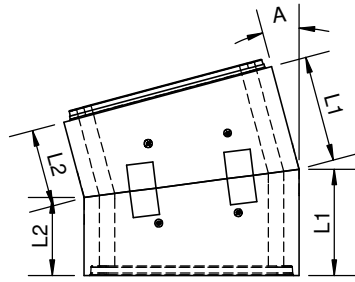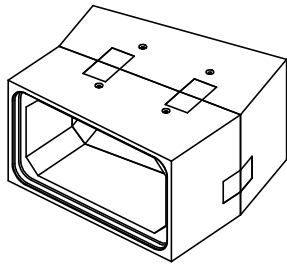| ALL DIMENSIONS ARE IN mm DRAWINGS ARE NOT TO SCALE	MIN. CONC STRENGTH 35 MPa CLEAR COVER = 40mm ± 5 mm TOLERANCES TO OPSS 1821	CON CAST PIPE (CCP) STANDARD DRAWING				
		STD. OPSS 1821			DOC ID BA-FIT	
		TITLE PRECAST BOX UNITS END TREATMENTS AND FITTINGS				
1	SW RELEASE	KE	10/AUG/13			
0	ORIGINAL RELEASE	PI	8/MAR/05	DRAWN BY KE	CHECKED BY SW	DATE 8/MAR/15
REV.	DESCRIPTION	ENG.	DATE		FILE BA FIT	PAGE 1 OF 4

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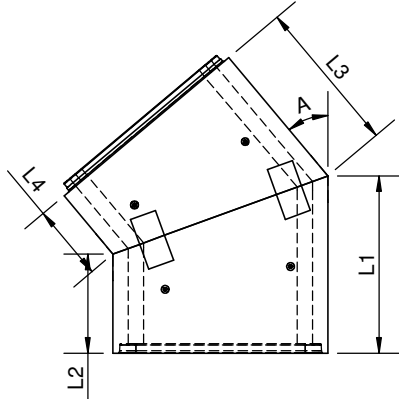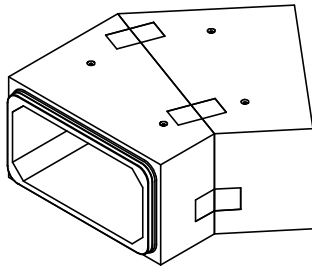
BEND (EVEN)

- TYPICAL DEFLECTION ANGLE (A) IN A SINGLE BOX UNIT IS
  FROM 15 UP TO 45 DEGREES.
- ACTUAL MAXIMUM DEFLECTION ANGLE DEPENDS ON SPAN
- LENGTHS L1 + L2 = 2438.
- FOR SMALLER DEFLECTION ANGLE THAN (A) <10°,
  ALSO CONSIDER RADIUS BOX.
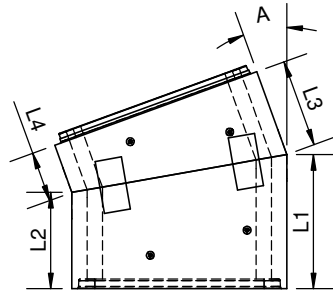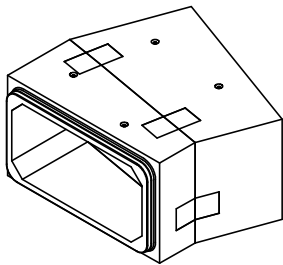
BEND (UNEVEN)

- UNEVEN BEND UNIT ACCOMODATES CULVERTS WITH
  MULTIPLE BEND POINTS
- LENGTHS L1 + L4 <= 2438 AND L2 + L3 <= 2438.
- FOR SMALLER DEFLECTION ANGLE THAN (A) <10°,
  ALSO CONSIDER RADIUS BOX.

BEND (EXTRA LONG)

- EXTRA LONG BEND UNIT IS MADE FROM TWO STANDARD
  BOX UNITS FOR SPECIAL APPLICATIONS
- ACTUAL MAXIMUM DEFLECTION ANGLE DEPENDS ON SPAN
- LENGTHS L1,L3 <= 2438
- FOR SMALLER DEFLECTION ANGLE THAN (A) <10°,
  ALSO CONSIDER RADIUS BOX.

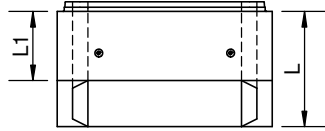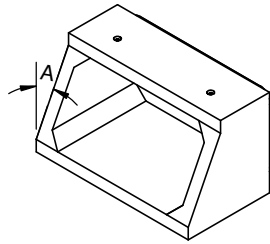| ALL DIMENSIONS ARE IN mm DRAWINGS ARE NOT TO SCALE	MIN. CONC STRENGTH 35 MPa CLEAR COVER = 40mm ± 5 mm TOLERANCES TO OPSS 1821	CON CAST PIPE (CCP) STANDARD DRAWING					
		STD. OPSS 1821			DOC ID BA-FIT		
		TITLE PRECAST BOX UNITS END TREATMENTS AND FITTINGS					
1	SW RELEASE	KE	10/AUG/15				
0	ORIGINAL RELEASE	PI	8/MAR/PI	DRAWN BY KE	CHECKED BY SW	DATE 8/MAR/15	FILE BA FIT	PAGE 2 OF 4
REV.	DESCRIPTION	ENG.	DATE				

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SLOPED END (STYLE 1)
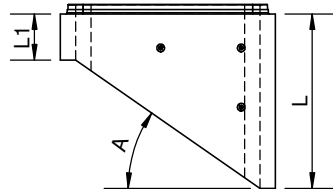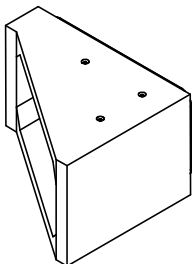
- SLOPED END AVAILABLE FOR BOTH BELL OR SPIGOT END.
- DIMENSION 'L1' SHOULD NOT BE LESS THAN 610.
- STANDARD LAY LENGTH (L) = 2438 WITH SPIGOT.
                          (L) = 2300 WITH BELL.
-MAXIMUM SLOPE (A) DEPENDS ON RISE
   GIVEN L1 = 610 IS MAINTAINED

SLOPED END (STYLE 2)
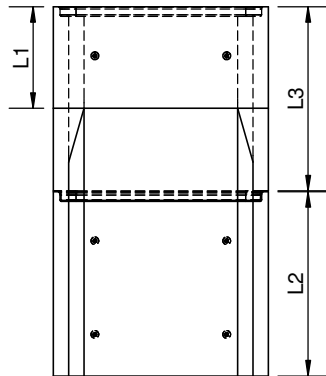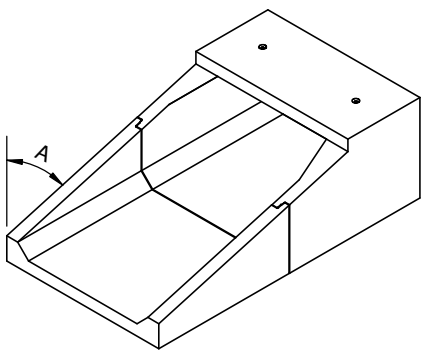
- SLOPED END AVAILABLE FOR BOTH BELL OR SPIGOT END.
- DIMENSION 'L1' SHOULD NOT BE LESS THAN 610.
- LAY LENGTH (L2) = 2438 WITH SPIGOT.
                       2300 WITH BELL.
              (L3) = 2438 MAX.
-MAXIMUM SLOPE (A) DEPENDS ON RISE
   GIVEN L1 = 610 IS MAINTAINED

BEVELLED END

- BEVELLED END AVAILABLE FOR BOTH BELL OR SPIGOT END.
- DIMENSION 'L1' SHOULD NOT BE LESS THAN 610.
- STANDARD LAY LENGTH (L) = 2438 WITH SPIGOT.
                          (L) = 2300 WITH BELL.
-MAXIMUM SLOPE (A) DEPENDS ON RUN
   GIVEN L1 = 610 IS MAINTAINED

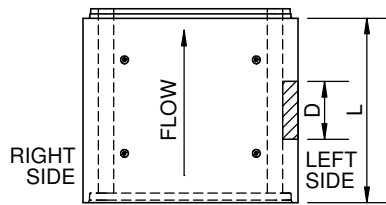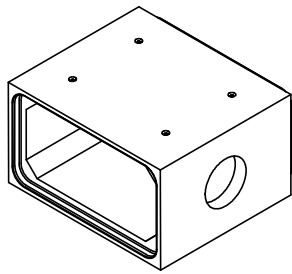| ALL DIMENSIONS ARE IN mm DRAWINGS ARE NOT TO SCALE	MIN. CONC STRENGTH 35 MPa CLEAR COVER = 40mm ± 5 mm TOLERANCES TO OPSS 1821	CON CAST PIPE (CCP) STANDARD DRAWING				
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		TITLE PRECAST BOX UNITS END TREATMENTS AND FITTINGS				

1	SW RELEASE	KE	10/AUG/15					
0	ORIGINAL RELEASE	PI	8/MAR/05	DRAWN BY	CHECKED BY	DATE	FILE	PAGE
REV.	DESCRIPTION	ENG.	DATE	KE	SW	8/MAR/15	BA FIT	3 OF 4

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G:\Engineering\Library\Solidworks\Box\BOX END TREATMENT & FITTING\
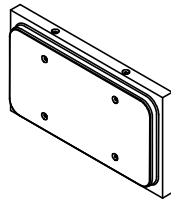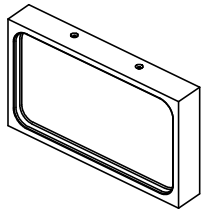
SCRIBED OR CORED HOLE

- LEFT OR RIGHT SIDE IS REFERENCED LOOKING UPSTREAM.
- STANDARD LAY LENGTH (L) = 2438
- MAXIMUM HOLE DIAMETER (D) = RISE OF BOX OR 1/2 L
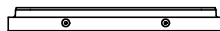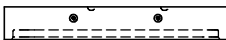 WHICH EVER IS SMALLER

SCRIBED OR CORED PARTIAL HOLE
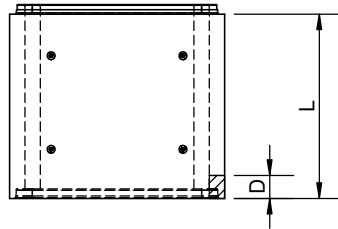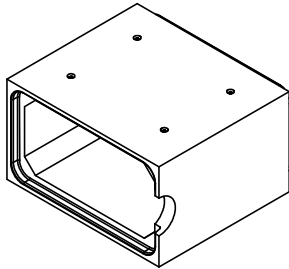
- STANDARD LAY LENGTH (L) = 2438
- MAXIMUM HOLE DIAMETER (D) = RISE OF BOX OR (L)
  WHICH EVER IS SMALLER

CAP   **PLUG**

- CAP INSTALLED ON SPIGOT END OF BOX UNIT.
- PLUG INSTALLED ON BELL END OF BOX UNIT (INCL. GASKET).
- MIN. THICKNESS = 300 mm.
- CAP/PLUG STYLE TRANSITION TO SMALLER CIRCULAR,
  ELLIPTICAL, OR BOX UNIT AVAILABLE.
- CAP AND PLUG MADE OF WET CAST CONCRETE.

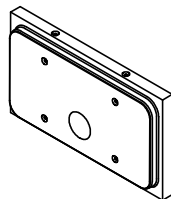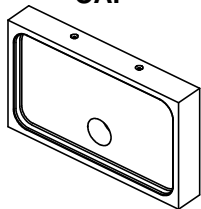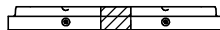**CAP WITH HOLE**   **PLUG WITH HOLE**

- CAP INSTALLED ON SPIGOT END OF BOX UNIT.
- PLUG INSTALLED ON BELL END OF BOX UNIT (INCL. GASKET).
- MIN. THICKNESS = 300 mm.
- CAP/PLUG STYLE TRANSITION TO SMALLER CIRCULAR,
  ELLIPTICAL, OR BOX UNIT AVAILABLE.

ALL DIMENSIONS ARE IN mm DRAWINGS ARE NOT TO SCALE		TOLERANCES TO OPSS 1821		CON CAST PIPE (CCP) STANDARD DRAWING				
				STD. OPSS 1821			DOC ID BA-FIT	
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REV.	DESCRIPTION	ENG.	DATE					

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