

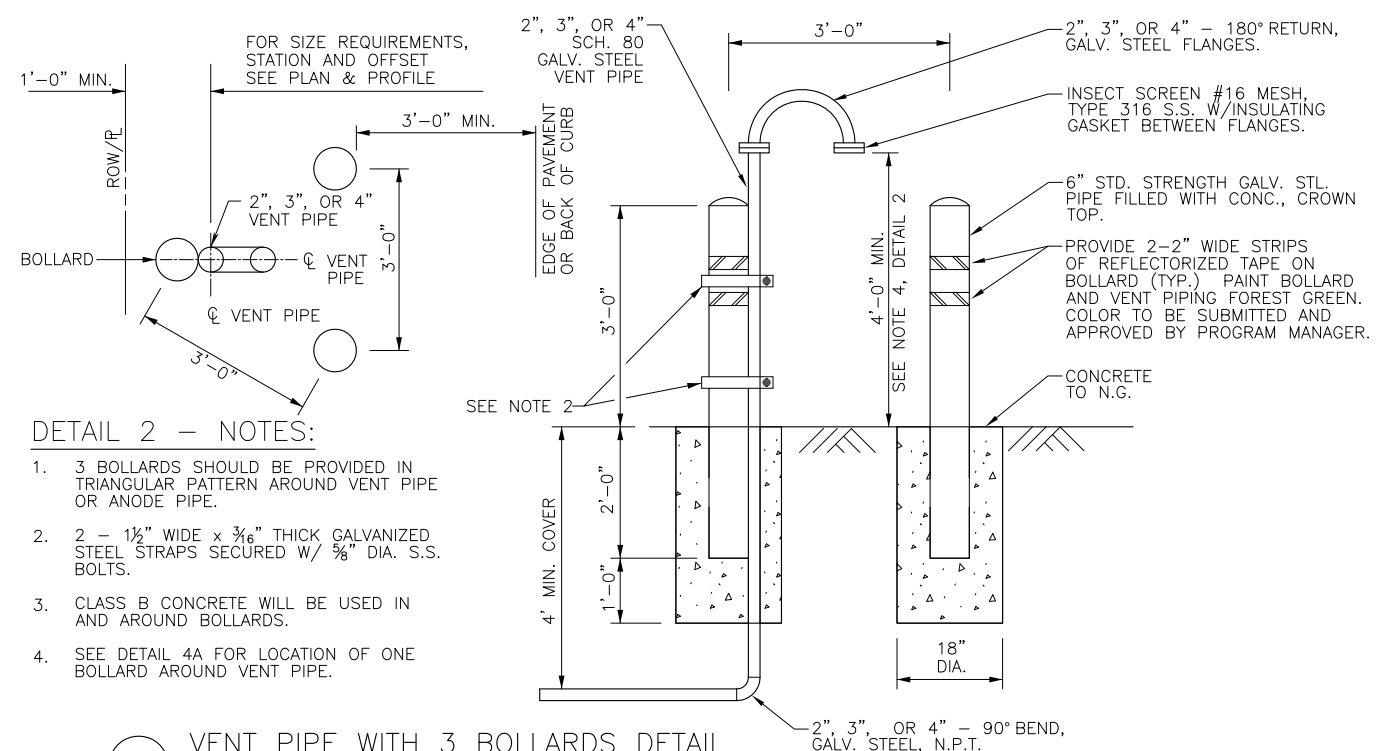
**1** COMBINATION AIR VALVE ASSEMBLY IN SERVICE MANHOLE  
(FOR WATER LINES SMALLER THAN 36-INCHES DIAMETER)

		VACUUM (AI/VR)	
WATER MAIN DIAMETER	MANUFACTURER (1)	SERIES	ORIFICE SIZE
<=36"	APCO	140C	
	CLAVAL	36	
	PRATT	WCV 01	

COMBINATION AIR VALVE & TYPE TABLE  
(FOR WATER LINES SMALLER THAN 36" DIAMETER)  
(1) OR APPROVED EQUAL.

**DETAIL 1 - NOTES:**

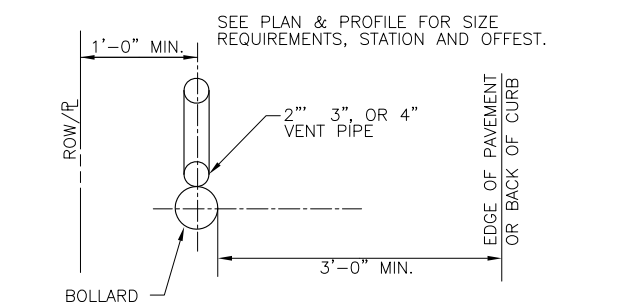
1. PROVIDE RAM-NEK OR APPROVED EQUAL BETWEEN PRECAST SEGMENTS OF THE MANHOLE.
2. FOR MANHOLES DEEPER THAN 20 FEET, SAFETY CLIMBING RAIL MUST BE PROVIDED (SAF-T-CLIMB OR APPROVED EQUAL). SEE COH DETAIL 02082-11.
3. PIPING AND APPURTENANCES OF THE SAME DIAMETER AND CONSTRUCTED OF THE SAME MATERIAL AND CLASS.
4. VERIFY THAT LOCATION OF VENT PIPE SCREEN IS 1 FOOT ABOVE 100-YEAR FLOOD PLAIN ELEVATION OR 4 FEET ABOVE NATURAL GROUND WHICHEVER IS HIGHER.
5. REFER TO PLAN AND PROFILE SHEETS FOR LOCATIONS OF AIR VALVES.
6. FOR PAVEMENT REPAIR, SEE COH DETAILS 02902-01 & 02902-02.
7. PROVIDE AN APPROVED PETROLATUM BASED TAPE ENCAPSULATING ALL BOLTS IN ACCESS MANHOLE.



**DETAIL 2 - NOTES:**

1. 3 BOLLARDS SHOULD BE PROVIDED IN TRIANGULAR PATTERN AROUND VENT PIPE OR ANODE PIPE.
2. 2 - 1 1/2" WIDE x 3/16" THICK GALVANIZED STEEL STRAPS SECURED W/ 5/8" DIA. S.S. BOLTS.
3. CLASS B CONCRETE WILL BE USED IN AND AROUND BOLLARDS.
4. SEE DETAIL 4A FOR LOCATION OF ONE BOLLARD AROUND VENT PIPE.

**2** VENT PIPE WITH 3 BOLLARDS DETAIL



**2A** VENT PIPE WITH 1 BOLLARD DETAIL

**CITY OF HOUSTON**  
HOUSTON PUBLIC WORKS

**LDWL**  
**COMBINATION AIR VALVE ASSEMBLY**  
**IN SERVICE MANHOLE DETAILS**  
(NOT TO SCALE)

REVISED ON: \_\_\_\_\_  
REVISED BY: \_\_\_\_\_

EFF DATE: **MAR-20-2018**      DWG NO: **02524-02**