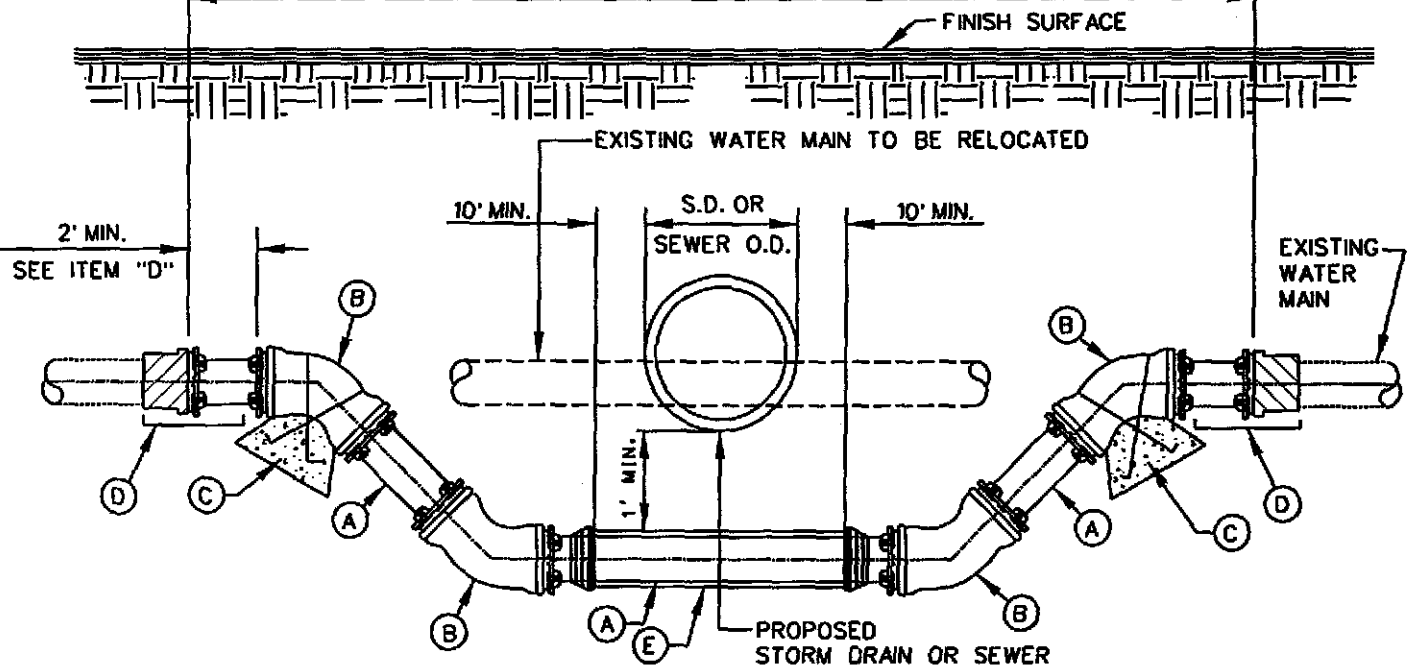


**JOINT RESTRAINT ZONE**



**TYPE 2- VERTICAL OFFSET PROFILE**

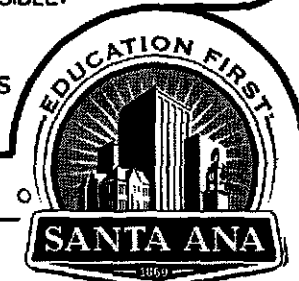
ITEM	CONSTRUCTION NOTES
(A)	CONSTRUCT MINIMUM CLASS 250 DUCTILE IRON PIPE, SIZE AS NECESSARY TO MATCH EXISTING MAIN.
(B)	CONSTRUCT 45° BEND (MJ X MJ) WITH MEGALUG JOINT RESTRAINTS AT EACH END.
(C)	CONSTRUCT THRUST BLOCK WITH VERTICAL BEND ANCHOR PER CITY STD. PLAN NO. 1420.
(D)	IF EXISTING MAIN IS ASBESTOS-CEMENT (A.C.) PIPE, CONNECT D.I. PIPE TO EXISTING A.C. PIPE USING AN APPROVED D.I. TO A.C. TRANSITION COUPLING, A 2 FOOT SECTION OF D.I. PIPE, AND MEGALUG RESTRAINTS. DO NOT TIE ONTO EXISTING A.C. PIPE WITH MEGALUG RESTRAINTS.
(E)	CONSTRUCT WATER PIPE CASING PER CITY OF SANTA ANA STD. PLAN NO. 1429.

**NOTES:**

1. WATER MAIN CONSTRUCTION SHALL COMPLY WITH CALIFORNIA CODE OF REGULATIONS TITLE 22, CALIFORNIA WATER WORKS STANDARDS, CHAPTER 16.
2. ALL BURIED IRON SHALL BE WRAPPED WITH 1 LAYER OF 10 MIL POLYETHYLENE SHEETING TAPED IN PLACE.
3. ALL BURIED BOLTS SHALL BE COATED WITH 2 COATS OF MASTIC SUCH AS "3M" BRAND EC 244 OR EQUAL.
4. ALL D.I. PIPE, FITTINGS, AND MORTAR LINING SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA STANDARDS C150, C110, & C104.
5. NO UNRESTRAINED JOINTS BETWEEN FITTINGS.
6. CONTRACTOR IS NOT PERMITTED TO TURN (OR EXERCISE) WATER VALVES. THE CONTRACTOR SHALL CONTACT THE CITY OF SANTA ANA P.W.A. INSPECTOR A MINIMUM OF FOUR (4) WORKING DAYS PRIOR TO REQUIRING VALVE SHUT DOWN AT EACH LOCATION.
7. THE CITY OF SANTA ANA WATER DEPARTMENT CAN NOT GUARANTEE A COMPLETE SHUT DOWN OF EXISTING MAIN, THE DEPARTMENT WILL ATTEMPT TO SHUT DOWN MAINS AS COMPLETELY AS POSSIBLE; HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND ISOLATION FOR TESTING PURPOSES.
8. THIS STANDARD PLAN SHALL APPLY ONLY TO 12" AND SMALLER WATER MAINS. OFFSETS IN LARGER WATER MAINS MUST BE DESIGNED BY A REGISTERED CIVIL ENGINEER AND APPROVED BY THE CITY'S WATER ENGINEERING DIVISION.

APPROVED: *[Signature]* DATE: *11/2/08*

**CITY OF SANTA ANA**  
**PUBLIC WORKS AGENCY**



DATE	REVISION
9/2/08	R.R. CASING REQUIREMENT

**WATER MAIN**  
**TYPE 2 - VERTICAL OFFSET**

**STD. PLAN**  
**NUMBER**  
**1413B**