

Seal of the Commonwealth of Virginia Professional Engineer. The seal is circular with a scalloped border. Inside the border, the text "COMMONWEALTH OF VIRGINIA" is at the top and "PROFESSIONAL ENGINEER" is at the bottom. In the center, it reads "CHRISTOPHER A. TAYLOR" and "Lic. No. 018688".

Christopher A Taylor  
 2014.08.28 11:11:59 -00'00'  
 Johnson, Mirmiran & Thompson  
 Virginia Beach, Virginia  
 UTILITY ENGINEER

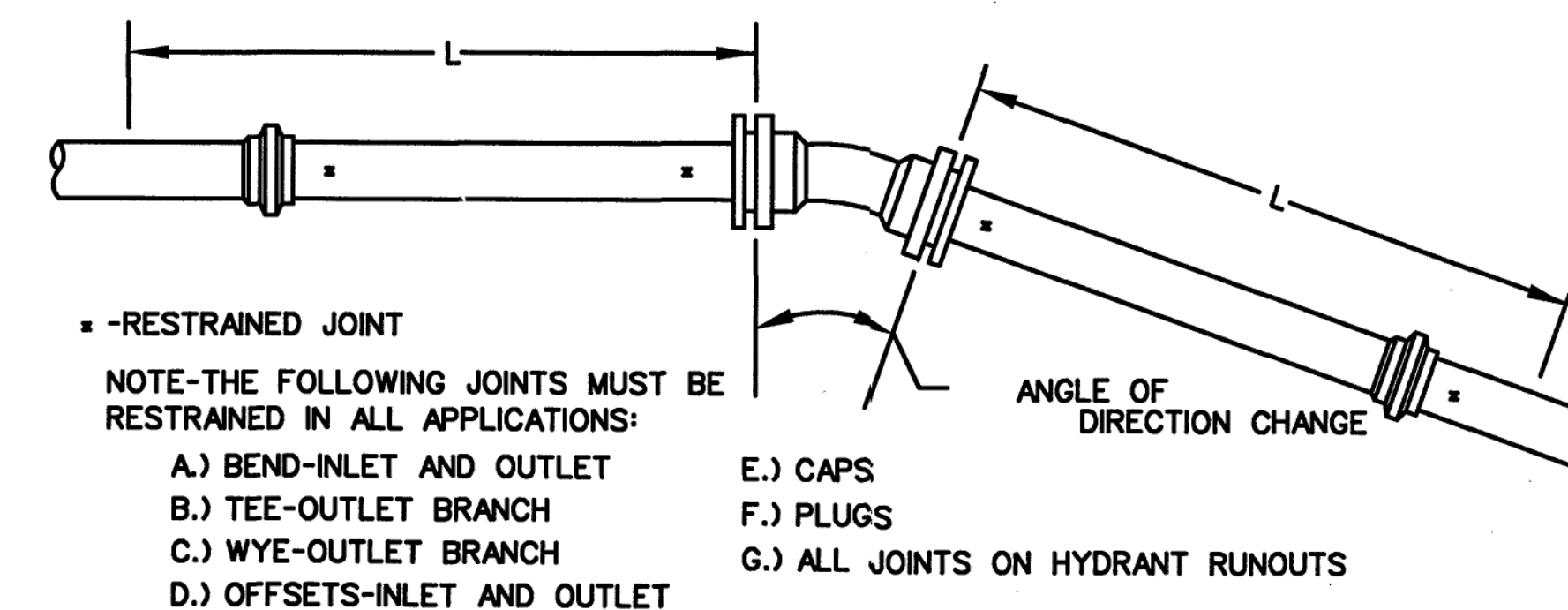
REVISED	STATE	STATE		SHEET NO.
		ROUTE	PROJECT	
	VA.	688	0688-080-301, RW-201, C-501	10(1)

DESIGN FEATURES RELATING TO CONSTRUCTION  
OR TO REGULATION AND CONTROL OF TRAFFIC  
MAY BE SUBJECT TO CHANGE AS DEEMED  
NECESSARY BY THE DEPARTMENT

## An aerial photograph showing a residential neighborhood. A road labeled 'COTTON HILL RD' runs diagonally across the upper left. Another road labeled 'MONEY FOR' runs diagonally across the lower right. The area is filled with houses, some with large porches, and a winding path or driveway cuts through the center. The image is in black and white.

Sheet Number	24" D.I. WATER MAIN	ABANDON EX. 24" D.I. WATER MAIN *	24" BEND, 11 1/4" (VERTICAL)	24" BEND, 22 1/2" (HORIZONTAL)	24" BEND, 45" (HORIZONTAL)	24" PLUG OR CAP	ADJUST EX. WTR. MH FRAME & COVER	8" D.I. WATER MAIN	ABANDON EX. 8" D.I. WATER MAIN *	ADJUST EX. WTR. VALVE BOX	ADJUST EX. FIRE HYDRANT	1" AIR RELEASE VALVE AND BOX	18" STEEL ENCASEMENT PIPE	2" BLOW OFF VALVE AND BOX	24" THRUST COLLAR *	8" THRUST COLLAR *							
	LF	LF	EA	EA	EA	EA	EA	LF	LF	EA	EA	EA	LF	EA	EA	EA							
10(4)	67	61		1		1	1	54	50	1		1	5										
10(5)	224	210		1	1	1				2	1			1									
10(6)			6												2	1							
TOTAL	291	271	6	2	1	2	1	54	50	3	1	1	5	1	2	1							

### Construction Data - Mechanical Joint Restraining Devices



NOM. PIPE SIZE	L-MINIMUM LENGTH TO BE RESTRAINED ON EACH SIDE OF FITTING (ft.)												
	HORIZONTAL					VERTICAL					DEAD ENDS	TEE	
	ELBOWS (deg.)					ELBOWS (deg.)							
	1½	2½	45	90		1½	2½	45	90				
8	6	12	24	57		10	19	39	N/A	93		4	
24	14	28	58	139		24	47	98	N/A	235		17	

[illegible]

**NOTES:**

1. THE RESTRAINED LENGTH OF WATER MAIN IS BASED ON THE FOLLOWING: AN INTERNAL PRESSURE OF 200 PSI, 3' - 0" OF PIPE COVER, A SOIL TYPE CLASSIFICATION OF "MH", AND A DESIGN SAFETY FACTOR OF 2.
2. VALVES AND WYES SHALL BE RESTRAINED BASED ON THE RESTRAINED LENGTH FOR 45° HORIZONTAL BENDS.
3. EXISTING MAIN ADJACENT TO PROPOSED BENDS, WYES, VALVES, TEES, AND PLUGS SHALL BE UNCOVERED AND THE EXISTING JOINTS SHALL BE RESTRAINED FOR THE LENGTH INDICATED. IF THE EXISTING MAIN WILL NOT ACCEPT THE MECHANICAL JOINT RESTRAINING MECHANISM, THE EXISTING MAIN SHALL BE REPAIRED WITH DUCTILE IRON MAIN FOR THE LENGTH INDICATED. MECHANICAL JOINT RESTRAINING MECHANISMS SHALL NOT BE USED ON EXISTING POLYVINYLCHLORIDE (PVC) PIPE.
4. MECHANICAL JOINT RESTRAINING DEVICES SHALL BE EBAA IRON, INC. MEGALUG WITH WORKING PRESSURE OF 250 PSI AND A MINIMUM DESIGN SAFETY FACTOR OF 2.
5. WHEN PIPING IS PARTIALLY OR FULLY EXPOSED, ALL JOINTS MUST BE RESTRAINED.
6. AS A MINIMUM, RESTRAIN ONE (1) JOINT FROM THE FITTING.

	PROJECT <b>0688-080-301</b>	SHEET NO. <b>10(1)</b>
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CHARLES CRUSH  
AS-BUILTS  
11-29-2016

Cotton Hill Road

COTTON HILL ROAD