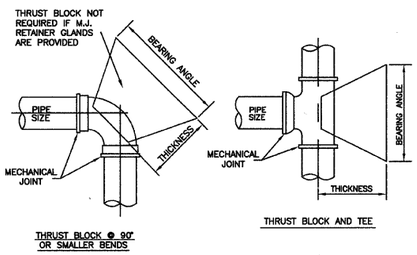
F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
3603	03-00049-00-FP	COOK	045	026
STA.	TO STA.			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT M8003 (559)		

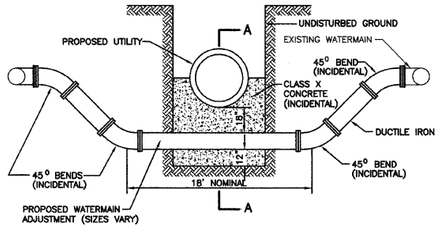
CONTRACT #63078

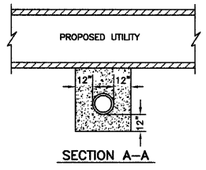
THRUST BLOCK BEARING AREA (SQUARE FEET)				
MAIN PIPE SIZE	TEE	90° BEND	45° BEND	BLOCK THICKNESS
3"				
4"				
6"				
8"				
10"				
12"				
14"	18.0	23.5	13.75	18"
16"	23.0	33.0	18.0	24"
18"	31.0	44.25	24.0	24"
20"	38.5	54.25	28.5	30"
24"	55.0	78.0	42.25	30"

FIGURES BASED ON 100 PSI WATER PRESSURE AND 10,000 PSI SOIL BEARING. PROVIDE "CLOW F-1058" MECHANICAL JOINT RETAINER GLANDS ON WATER MAIN FITTINGS 3" DIA. TO 12" DIA.. ALL WATER MAIN FITTINGS TO BE MECHANICAL JOINTS.



THRUST BLOCK PLAN





DETAIL OF WATERMAIN ADJUSTMENT

653.119 PROTECTION OF WATER MAIN AND WATER SERVICE LINES

WATER MAINS AND WATER SERVICE LINES SHALL BE PROTECTED FROM SANITARY SEWERS, STORM SEWERS,COMBINED SEWERS,HOUSE SEWER SERVICE CONNECTIONS AND DRAINS AS FOLLOWS:

A) WATER MAINS:

1) HORIZONTAL SEPARATION:

A) WATER MAINS SHALL BE LAID AT LEAST TEN FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED DRAIN,STORM SEWER,SANITARY SEWER,COMBINED SEWER OR SEWER SERVICE CONNECTION.

B) WATER MAINS MAY BE LAID CLOSER THAN TEN FEET TO A SEWER LINE WHEN:

I) LOCAL CONDITIONS PREVENT A LATERAL SEPARATION OF TEN FEET;
II) THE WATER MAIN INVERT IS AT LEAST 18 INCHES ABOVE THE CROWN OF THE SEWER: AND

III) THE WATER MAIN IS EITHER IN A SEPARATE TRENCH OR IN THE SAME TRENCH ON AN UNDISTURBED EARTH SHELF LOCATED TO ONE SIDE OF THE SEWER.

C) BOTH THE WATER MAIN AND DRAIN OR SEWER SHALL BE CONSTRUCTED OF SLIP-ON OR MECHANICAL JOINT CAST OR DUCTILE IRON PIPE, ASBESTOS-CEMENT PRESSURE PIPE, PRE STRESSED CONCRETE PIPE, OR PVC PIPE MEETING THE REQUIREMENTS OF SECTION 653.111 WHEN IT IS IMPOSSIBLE TO MEET (A) OR (B) ABOVE. THE DRAIN OR SEWER SHALL BE PRESSURE TESTED TO THE MAXIMUM EXPECTED SURCHARGE HEAD BEFORE BACKFILLING.

2) VERTICAL SEPARATION:

A) A WATER MAIN SHALL BE LAID SO THAT ITS INVERT IS 18" INCHES ABOVE THE CROWN OF THE DRAIN OR SEWER WHENEVER WATER MAINS CROSS STORM SEWERS, SANITARY SEWERS OR SEWER SERVICE CONNECTIONS. THE VERTICAL SEPARATION SHALL BE MAINTAINED FOR THAT PORTION OF THE WATER MAIN LOCATED WITHIN TEN FEET HORIZONTALLY OF ANY SEWER OR DRAIN CROSSED. A LENGTH OF WATER MAIN PIPE SHALL BE CENTERED OVER THE SEWER TO BE CROSSED WITH JOINTS EQUIDISTANT FROM THE SEWER OR DRAIN.

B) BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF SLIP-ON MECHANICAL JOINT CAST OR DUCTILE IRON PIPE, ASBESTOS-CEMENT PRESSURE PIPE, PRE STRESSED CONCRETE PIPE, OR PVC PIPE MEETING REQUIREMENTS OF SECTION 653.111 WHEN:

I) IT IS IMPOSSIBLE TO OBTAIN THE PROPER VERTICAL SEPARATION AS DESCRIBED IN (A) ABOVE: OR
II) THE WATER MAIN PASSES UNDER A SEWER OR DRAIN.

C) A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE INVERT OF THE SEWER OR DRAIN AND THE CROWN OF THE WATER MAIN SHALL BE MAINTAINED WHERE A WATER MAIN CROSSES UNDER A SEWER. SUPPORT THE SEWER OR DRAIN LINES TO PREVENT SETTLING AND BREAKING THE WATER MAIN.

D) CONSTRUCTION SHALL EXTEND ON EACH SIDE OF THE CROSSING UNTIL THE NORMAL DISTANCE FROM THE WATER MAIN TO THE SEWER OR DRAIN LINE IS AT LEAST TEN FEET.

B) WATER SERVICE LINES:

1) THE HORIZONTAL AND VERTICAL SEPARATION BETWEEN WATER SERVICE LINES AND ALL STORM SEWERS, SANITARY SEWERS, COMBINED SEWERS OR ANY DRAIN OR SEWER SERVICE CONNECTION SHALL BE THE SAME AS WATER MAIN SEPARATION DESCRIBED IN (A) ABOVE.

2) WATER PIPE DESCRIBED IN (A) ABOVE SHALL BE USED FOR SEWER SERVICES LINES WHEN MINIMUM HORIZONTAL AND VERTICAL SEPARATION CANNOT BE MAINTAINED.

C) SPECIAL CONDITIONS – ALTERNATE SOLUTIONS SHALL BE PRESENTED TO THE AGENCY WHEN EXTREME TOPOGRAPHICAL, GEOLOGICAL OR EXISTING STRUCTURAL CONDITIONS MAKE STRICT COMPLIANCE WITH (A) AND (B) ABOVE TECHNICALLY AND ECONOMICALLY IMPRACTICAL. ALTERNATE SOLUTIONS WILL BE APPROVED PROVIDED WATERTIGHT CONSTRUCTION STRUCTURALLY EQUIVALENT TO APPROVED WATER MAIN MATERIAL IS PROPOSED.

D) WATER MAINS SHALL BE SEPARATED FROM SEPTIC TANKS, DISPOSAL FIELDS AND SEEPAGE BEDS BY A MINIMUM OF 25 FEET.

E) WATER MAINS AND WATER SERVICE LINES SHALL BE PROTECTED AGAINST ENTRANCE OF HYDROCARBONS THROUGH DIFFUSION THROUGH ANY MATERIAL USED IN CONSTRUCTION OF THE LINE.

JOINT RESTRAINT TABLE – Unless additional pipe restraint is shown on the Plans, the restrained length measured from the fitting joint to the end of the last restrained joint pipe for pipe fittings shall equal or exceed those tabulated below:

RESTRAINED LENGTH – FEET
FITTINGS

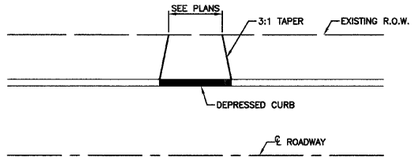
Pipe Size (inches)	Tee * Branch	90 Elbow	45 Elbow	22-1/2 Elbow	11-1/4 Elbow	Dead Ends
4	9	10	5	2	1	15
6	17	14	6	3	2	21
8	24	18	8	4	2	27
10	30	22	10	5	3	33
12	36	26	11	6	3	38
14	42	29	12	6	3	44
16	48	33	14	7	4	49
18	53	37	16	8	4	54
20	58	40	17	8	4	60
24	104	71	30	15	8	105
30	125	86	36	18	9	126
36	146	99	42	21	10	147

Test Pressure on sizes 20" and smaller based on 100 psi.
Test Pressure on sizes 24" and larger based on 150 psi.
Increase all lengths in Table by 75% for use on polyethylene wrapped pipe.
*One full length (18') of pipe on both sides of branch to be restrained.

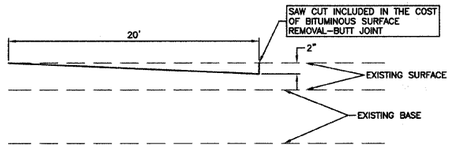
DUCTILE IRON JOINT RESTRAINT TABLE

NOTE:
FOR BIDDING PURPOSES ONLY. CONTRACTOR TO SUBMIT DESIGN CALCULATIONS PRIOR TO CONSTRUCTION.

*ALL RESTRAINED JOINTS MUST BE MEGALUC OR APPROVED EQUAL.



BITUMINOUS DRIVEWAY DETAIL



BUTT JOINT DETAIL

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

MAIN STREET IMPROVEMENTS
NORTH MAIN STREET TO CAMPBELL STREET
CONSTRUCTION DETAILS

SCALE: VERT. NA
HORIZ. NA
DATE 7-24-08

DRAWN BY EC
CHECKED BY WPD

ROBINSON ENGINEERING, LTD.
17000 SOUTH PARK AVENUE SOUTH HOLLAND, ILLINOIS 60473
(708) 331-6700 FAX (708) 331-3826
ILLINOIS DESIGN FIRM REGISTRATION NO. 184001128

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