MINIMUM RESTRAINT LENGTH (FT) ON BOTH SIDES OF THE FITTING				
FITTING TYPE / NOMINAL SIZE	6"	8"	12"	16"
11 1/4° BEND	2	3	4	6
22 1/2° BEND	5	6	9	11
45° BEND	10	13	18	23
90° BEND	23	30	43	56
DEAD END	31	40	57	46
TOP SIDE OF A VERTICAL OFFSET 1	19	25	35	46
TEE RUN X BRANCH 2 6" BY	24	-		
TEE RUN X BRANCH 2 8" BY	22	34		
TEE RUN X BRANCH 2 12" BY	18	31	51	
TEE RUN X BRANCH 2 16" BY	14	28	48	67
REDUCER 3 8" BY	17			
REDUCER <sup>3</sup> 12" BY	42	30		
REDUCER 3 16" BY	62	54	31	

<sup>1</sup> ALL JOINTS WITHIN THE LOWERED SECTION OF THE WATERMAIN SHALL BE RESTRAINED OR SHALL BE SOLID PIPE. THE ABOVE DISTANCES REFLECT THE REQUIRED RESTRAINT DISTANCE ON THE NORMALLY ELEVATED WATERMAIN EITHER SIDE OF THE 45° FITTING OF THE VERTICAL OFFSET OR LOWERING)

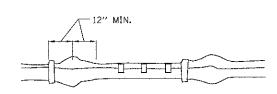
 $^2$  Minimum of 8 ft solid pipe is required on both sides of the fitting on the Run side. Distance indicates the length of restraint on the branch side or the side perpendicular to the tee Run Watermain.

 $^{\rm 3}$  INDICATES THE DISTANCE FROM THE LARGER END OF THE REDUCER.

### NOTES:

- 1) ALL NUTS AND BOLTS SHALL BE STAINLESS STEEL.
- 2) THE ENTIRE RESTRAINT SYSTEM FROM THE FITTING TO THE MINIMUM RESTRAINT DISTANCE MUST BE INSPECTED BY THE CITY OF DEKALB OR IT'S REPRESENTATIVE PRIOR TO BACKFILLING.

### WATERMAIN RESTRAINT LENGTH TABLE



ONE LENGTH OF POLYETHYLENE TUBE FOR EACH LENGTH OF PIPE, OVERLAPPED AT JOINT.



TAKE UP SLACK ON THE TUBE ALONG THE BARREL OF THE PIPE TO MAKE A SNUG, BUT NOT TIGHT, FIT.



FOLD EXCESS POLY-ETHYLENE BACK OVER THE TOP OF THE PIPE.

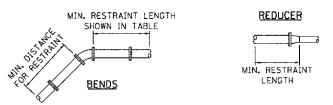


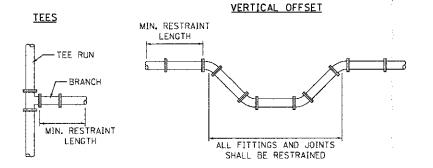
SECURE THE FOLD AT SEVERAL LOCATIONS ALONG THE PIPE BARREL (APPROX. EVERY THREE FEET).

NOTE: REPAIR ALL SMALL RIPS, TEARS OR OTHER TUBE DAMAGE WITH ADHESIVE TAPE.

## **POLYETHYLENE ENCASEMENT**

NTS



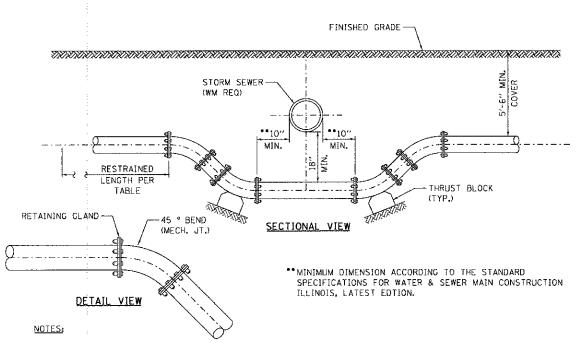


#### NOTES:

THE EXACT LENGTHS FOR RESTRAINTS ARE SHOWN IN THE WATERMAIN RESTRAINT LENGTH TABLE SHOWN IN THESE PLANS.

# WATERMAIN RESTRAINT DETAIL

N.T.S.



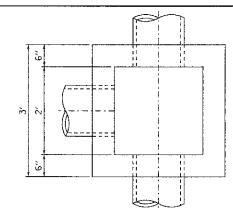
1) FOR SIZES LARGER THAN 16", SPECIAL DESIGN WILL BE REQUIRED.

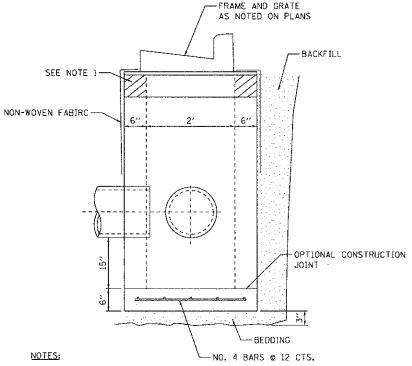
2) THE MECHANICAL JOINTS SHALL BE RESTRAINED WITH THE MEGALUG SERIES 1100
AS MANUFACTURED EBBA IRON INC. OR APPROVED EQUAL. ALSO, THE BELL AND SPICOT JOINTS
SHALL BE RESTRAINED ON EITHER SIDE OF THE MECHANICAL JOINTS BY EBBA IRON 1700 SERIES
RESTRAINT OR APPROVED EQUAL AND THE RESTRAINT DISTANCE SHALL BE IN ACCORDANCE WITH
THE WATERMAIN RESTRAINT LENGTH TABLE AND WATERMAIN RESTRAINT DETAIL SHOWN IN
THESE PLANS.

## WATERMAIN ADJUSTMENT DETAIL

N.T.S.

SCALE:





- THE HEIGHT OF THE BOX MAY BE CONSTRUCTED 6" SHORT TO ALLOW FOR FIELD ADJUSTMENTS. THE ADJUSTMENTS SHALL BE MADE WITH SOURCE ADJUSTMENT RINGS OF THE SAME DIMENSIONS OF THE STORETHER.
- THE INLET SHAL BE CAST-IN-PLACE OR PRECAST AND SHALL CONSTRUCTED WITH CLASS SI CONCRETE THROUGHOUT. THE SIDE WALLS MAY BE BUILT AS PRECAST SEGMENTED SECTIONS.
- 3. THE TOP OF THE STRUCTURE SHALL BE WRAPPED WITH A CONTINOUS NON-WOVEN FABRIC MADE UP OF POLYPROPYLENE FIBERS (ADS 4420). THE FABRIC SHALL OVERLAP THE LIB OF THE FRAME BY 6" AND EXTEND DOWNWARD 30" BELOW THE BOTTOM OF THE FRAME.
- 4. THE ONLY BEDDING AND BACKFILL MATERIAL THAT WILL BE ALLOWED IS ¾0" OR №0" CHIPS OR WASHED CONCRETE STONE. THE STRUCTURE SHALL BE BACKFILLED TO THE HEIGHT OF 2" BELOW THE BOTTOM OF THE CASTING FLANGE.
- ALL VOIDS AROUND THE PIPE ENTRANCE SHALL BE SEALED WITH MORTAR ON BOTH INSIDE AND OUTSIDE.
- EXCEPT AS NOTED HEREON, INLET SPECIAL SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 602 OF THE STANDARD SPECIFICATIONS OMITTING ARTICLES 602.05 AND 602.06.
- STEPS SHALL BE OMITTED WHEN THE DEPTH OF THE INLET IS LESS THAN 5 FEET.
- HOLES SHALL BE MADE FOR UNDERDRAINS AND/OR SUMP LINES PER PLAN LOCATIONS DURING PRECAST PROCESS.

### DRAINAGE STRUCTURE SPECIAL

N.T.S

WILLS BURKE KELSEY ASSOCIATES LTD
WISK 116 West Main Street, Suite 201
St. Cherles, Binois 60174

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

UTILITY DETAILS

SHEET NO. 1 OF 3 SHEETS STA. TO STA.

F.A.U. RTE. SECTION COUNTY TOTAL SHEET NO. 5355 10-00167-01-WR DEKALB 78 54

CONTRACT NO.87544