

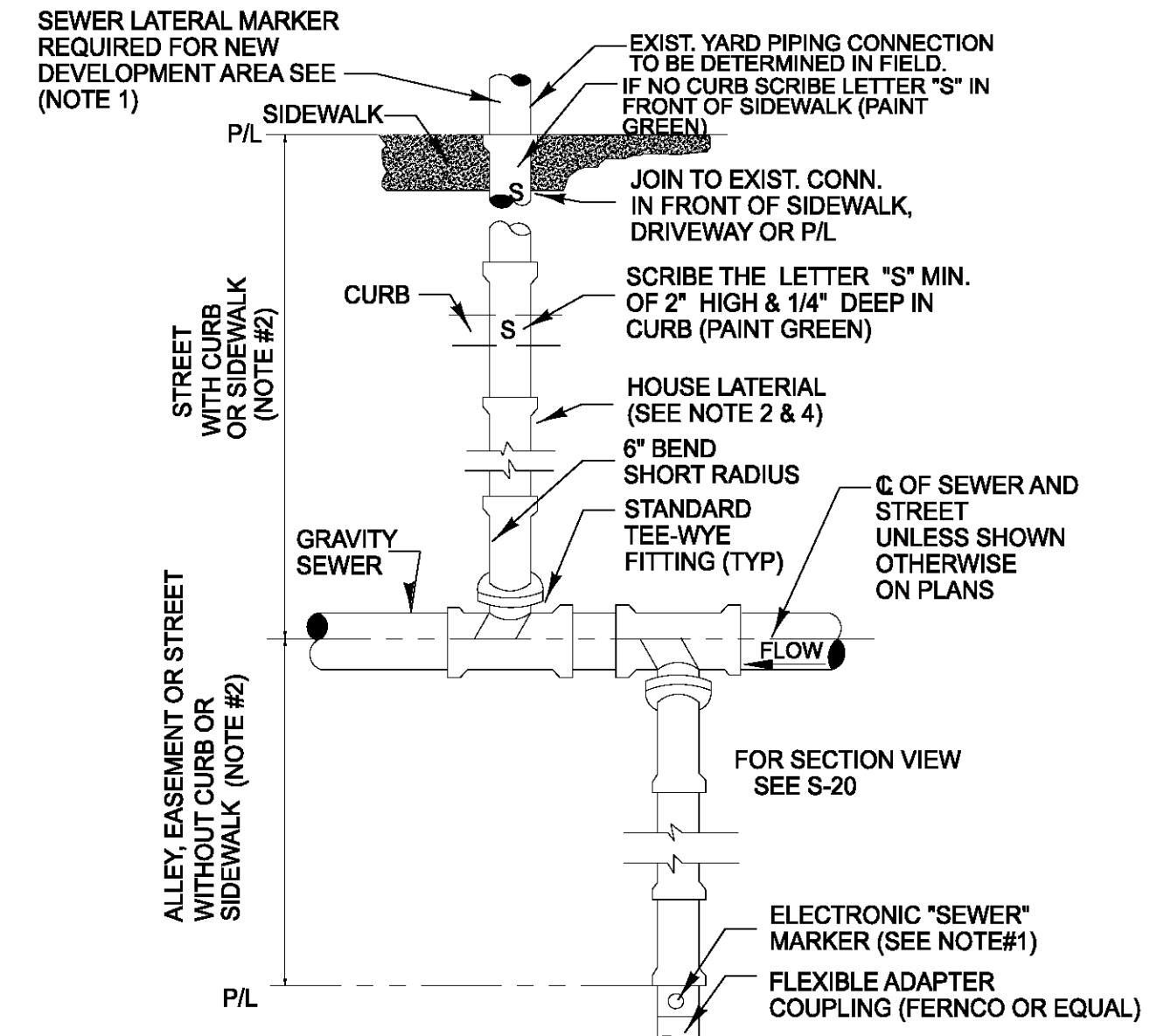
SECTION "A-A"

NOTES:

- IN LIEU OF BELL/ROD RESTRAINTS, MECHANICAL JOINT RESTRAINTS MAYBE USED.
- LOCATING WIRE REQUIRED, UTILIZING A LOCATE WIRE BOX INSTALLED AT PLUG LOCATION.
- THE LOCATION OF THE DEAD END PLUG SHALL NOT BE UNDER PAVEMENT, IF POSSIBLE. THE STUB OUT SHALL EXTEND BEYOND THE INTERSECTION AREAS OR ROAD CROSSING BY 10 FEET (MIN.) WHERE POSSIBLE.

PLUGGED DEAD ENDS USING MECHANICAL RESTRAINTS

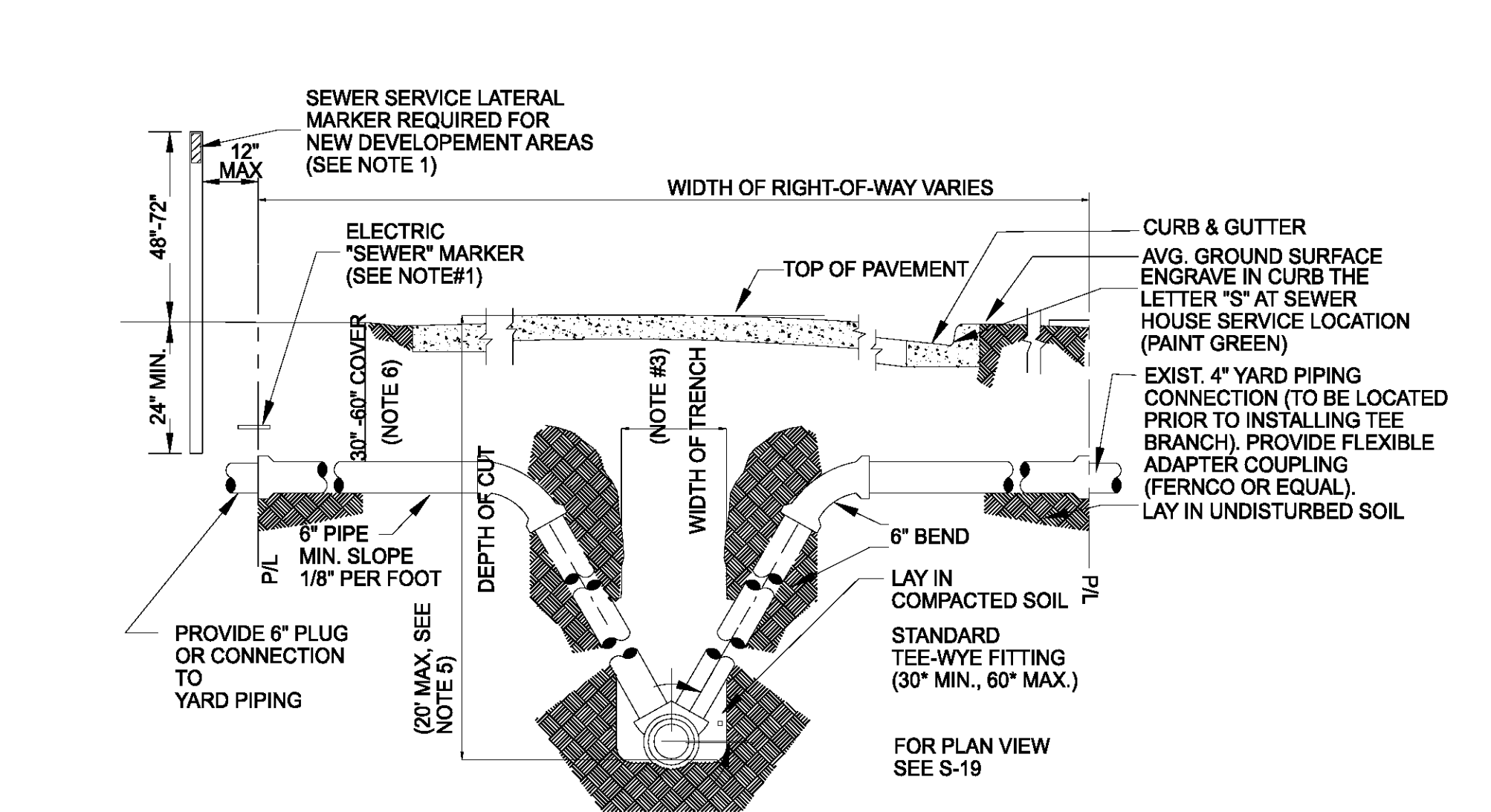
1/05 PLATE W-37



HOUSE LATERAL PLAN VIEW

NOTE

- FOR SEPTIC TANK PHASE-OUT PROJECTS WHERE NO CONCRETE CURB EXIST, AN ELECTRONIC "SEWER" MARKER IS REQUIRED FOR ALL LATERALS WHICH ARE "NOT" IN USE. FOR NEW DEVELOPMENT AREAS WHERE THE SEWER LATERAL IS "NOT" IN USE, A LANDSCAPE TIMBER OR 3x3 MIN. P.T. POST (TOP PAINTED GREEN) SHALL BE INSTALLED TO MARK THE LOCATION OF THE 6" PLUG.
- THE MINIMUM SIZE OF ALL HOUSE LATERALS SHALL BE 6 INCHES. THE MAXIMUM LENGTH OF A HOUSE LATERAL SHALL BE 60 FEET (LENGTH BETWEEN SEWER MAIN OR MANHOLE TO CUSTOMERS PROPERTY LINE).
- NO SEWER SERVICE CONNECTIONS PERMITTED ON GRAVITY SEWER PIPE WHICH ARE 16" AND LARGER.
- ALL GRAVITY SEWER MAINS AND ASSOCIATED SEWER LATERAL PIPE AND FITTINGS (INCLUDING THE TEE-WYE FITTING) WITH A "DEPTH OF CUT" EQUAL OR GREATER THAN 12 FEET, SHALL BE PVC SDR-26.



HOUSE LATERAL SECTION VIEW

NOTE

- FOR SEPTIC TANK PHASE-OUT PROJECTS WHERE NO CONCRETE CURB EXIST, AN ELECTRONIC "SEWER" MARKER IS REQUIRED FOR ALL LATERALS WHICH ARE "NOT" IN USE. FOR NEW DEVELOPEMENT AREAS WHERE THE SEWER LATERAL IS "NOT IN USE", A LANDSCAPE TIMBER OR 3x3 MIN. P.T. POST (TOP PAINTED GREEN) OR AN ELECTRONIC "SEWER" MARKER SHALL BE INSTALLED TO MARK THE LOCATION OF THE 6" PLUG.
- THE MINIMUM SIZE OF ALL HOUSE LATERALS SHALL BE 6 INCHES. THE MAXIMUM LENGTH OF A HOUSE LATERAL SHALL BE 60 FEET (LENGTH BETWEEN SEWER MAIN OR MANHOLE TO CUSTOMERS PROPERTY LINE).
- SEE MEASUREMENT AND PAYMENT SECTION FOR MAXIMUM PAYMENT WIDTHS.
- ALL GRAVITY SEWER MAINS AND ASSOCIATED SEWER LATERAL PIPE AND FITTINGS (INCLUDING THE TEE-WYE FITTING) WITH A "DEPTH OF CUT" EQUAL OR GREATER THAN 12 FEET, SHALL BE PVC SDR-26.
- UNLESS APPROVED OTHERWISE BY A JEA O&M MANAGER, NO GRAVITY SEWER MAIN WITH SEWER SERVICE LATERALS SHALL BE CONSTRUCTED WITH A "DEPTH OF CUT" GREATER THAN 20 FEET. SEWER SERVICE LATERALS ASSOCIATED WITH GRAVITY SEWER MAINS WHICH ARE DEEPER THAN 20 FEET, MUST BE ROUTED TO A GRAVITY SEWER HIGH-LINE, A MANHOLE OR OTHER JEA APPROVED METHOD. THE SEWER SERVICE LATERAL SHALL BE CONSTRUCTED AT A DEPTH TO ALLOW A GRAVITY CONNECTION BY THE CUSTOMER, WHERE POSSIBLE (CONTINGENT UPON MEETING THE CUSTOMER'S ON-SITE CONDITIONS AND LOCAL CONSTRUCTION STANDARDS). A LATERAL REQUIRING MORE THAN 60" OF COVER MUST BE APPROVED, PRIOR TO CONSTRUCTION, BY JEA.

PVC PIPE RESTRAINT JOINT SCHEDULE

LENGTH (L) TO BE RESTRAINED (SEE PLATE Nos. 38C & 38D FOR ADDITIONAL DETAILS)

NOMINAL PIPE SIZE (IN.)	90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	45° BENDS (SEE NOTE 4) L (FT.)	VALVES OR DEAD-ENDS L (FT.)	SIZE (FT.)	RUN SIZE (FT.)	BRANCH SIZE (FT.)	L (FT.)	
4	20	8	4	2	20	3	5 x 4	35	4"	4"	F.O.
6	28	10	5	2	28	4	8 x 6	35	6"	6"	F.O.
8	36	14	6	3	36	5	8 x 4	65	8"	8"	30
10	40	16	8	4	45	6	10 x 8	35	8" < LESS	F.O.	18
12	50	20	9	4	52	8	12 x 10	35	10"	10"	48
14	56	23	10	5	60	9	12 x 8	65	8" < LESS	F.O.	35
16	60	26	11	6	67	10	16 x 12	65	12"	12"	130
18	69	29	12	6	74	12	18 x 10	35	10" < LESS	F.O.	80
20	75	32	13	7	80	13	20 x 12	120	12"	12"	20
24	78	33	15	7	81	14	24 x 20	65	16"	16"	60
30	88	36	18	9	87	16	24 x 18	65	10" < LESS	F.O.	130
36	100	40	20	10	110	20	24 x 18	120	20"	20"	80
42	115	48	23	11	125	25	30 x 24	80	12" < LESS	F.O.	140
48	125	52	25	12	140	30	30 x 20	150	24"	24"	130
							36 x 30	80	20"	20"	50
							42 x 36	80	12" < LESS	F.O.	140
							48 x 42	80	30"	30"	180
							48 x 36	120	30"	30"	120
							48 x 36	120	24"	24"	50
							48 x 36	120	16" < LESS	F.O.	130
							48 x 36	120	42"	42"	220
							48 x 36	120	30"	30"	180
							48 x 36	120	24"	24"	50
							48 x 36	120	20" < LESS	F.O.	130
							48 x 36	120	48"	48"	250
							48 x 36	120	42"	42"	180
							48 x 36	120	30"	30"	140
							48 x 36	120	24" < LESS	F.O.	40

D.I.P. PIPE RESTRAINT NOTES:

- THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM.
- ASSUMPTIONS: DUCTILE IRON PIPE (WITHOUT POLY WRAP, SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL-GM OR SN, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE. FOR D.I.P. W/POLY WRAP USE RESTRAINT JOINT SCHEDULE FOR PVC PIPE.
- BENDS AND VALVES SHALL BE RESTRAINED ON EACH SIDE OF FITTING.
- VERTICAL OFFSETS ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS L_u IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. L_b IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.
- TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE "BRANCH" LINE.
- HOPS TO D.I.P. TRANSITIONS: THE D.I.P. PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).
- THE INSTALLATION OF BELL-HARNESS RESTRAINTS AT PVC JOINTS (DR-18 & 25 PIP) SHALL BE COMPLETED PER THE MANUFACTURERS RECOMMENDATION, WHICH INCLUDES NOT OVER TIGHTENING THE NUTS AND RODS. THESE NUTS SHOULD ONLY BE SHLOU-TIGHT. THE HOME MARKS ON THE PIPE SHOULD ALWAYS BE VISIBLE AFTER THE RESTRAINT IS INSTALLED. OVER-TIGHTENING THE JOINT MAY CAUSE A FAILURE AT THE BELL RESULTING IN A SERVICE OUTAGE.

PVC PIPE RESTRAINT JOINT SCHEDULE
4/06 PLATE W-31a

DUCTILE IRON PIPE RESTRAINT JOINT SCHEDULE

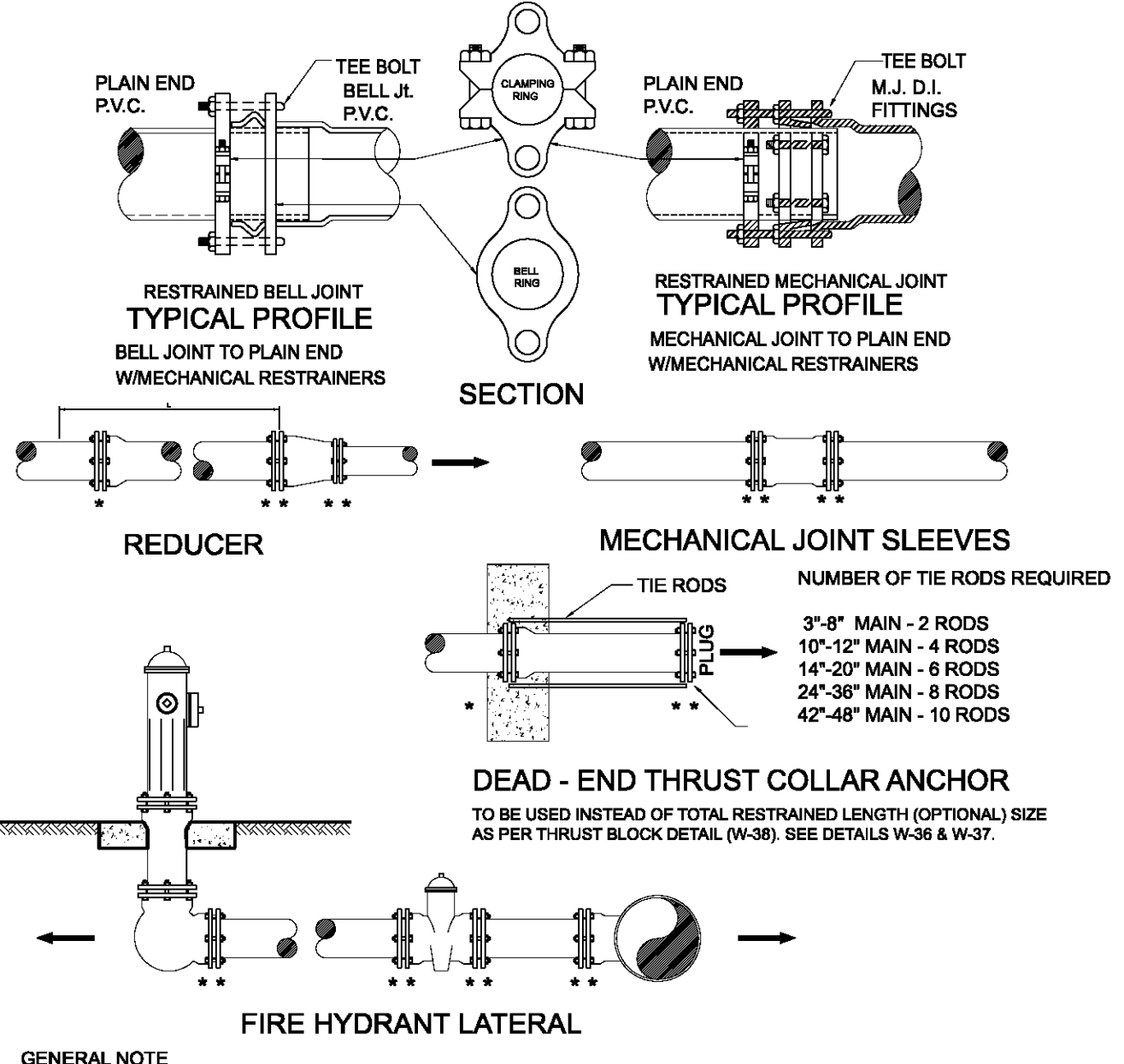
LENGTH (L) TO BE RESTRAINED (SEE PLATE Nos. 38c & 38D FOR ADDITIONAL DETAILS)

NOMINAL PIPE SIZE (IN.)	90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	45° BENDS (SEE NOTE 4) L (FT.)	VALVES OR DEAD-ENDS L (FT.)	SIZE (FT.)	RUN SIZE (FT.)	BRANCH SIZE (FT.)	L (FT.)	
4	18	6	4	2	12	2	5 x 4	20	4"	4"	F.O.
6	22	10	5	2	17	3	8 x 4	40	6"	6"	F.O.
8	30	13	6	3	22	4	8 x 4	50	8"	8"	18
10	35	14	7	4	26	5	10 x 8	20	8" < LESS	F.O.	27
12	42	16	8	4	31	6	12 x 10	20	10"	10"	8
14	46	20	9	5	35	7	12 x 8	40	8" < LESS	F.O.	40
16	53	22	11	6	40	8	16 x 12	40	12"	12"	38
18	57	24	12	6	44	9	16 x 10	57	10"	10"	20
20	62	26	13	6	48	10	20 x 18	40	16"	16"	60
24	64	27	14	6	50	11	24 x 20	40	12"	12"	20
30	73	30	15	7	57	13	24 x 18	50	10" < LESS	F.O.	78
36	85	34	18	8	66	17	24 x 18	60	16"	16"	40
42	93	38	20	9	75	20	30 x 24	50	12" < LESS	F.O.	110
48	102	43	22	10	82	22	36 x 30	50	24"	24"	76
							36 x 24	66	20"	20"	53
							42 x 36	40	16"	16"	20
							42 x 30	88	12" < LESS	F.O.	110
							48 x 42	40	30"	30"	99
							48 x 36	60	24"	24"	60
							48 x 36	60	16" < LESS	F.O.	37
							48 x 36	60	36"	36"	115
							48 x 36	60	30"	30"	88
							48 x 36	60	24"	24"	52
							48 x 36	60	20"	20"	20
							48 x 36	60	16" < LESS	F.O.	136
							48 x 36	60	42"	42"	220
							48 x 36	60	30"	30"	110
							48 x 36	60	24" < LESS	F.O.	78
							48 x 36	60	48"	48"	154
							48 x 36	60	42"	42"	132
							48 x 36	60	30"	30"	99
							48 x 36	60	24" < LESS	F.O.	59

D.I.P. PIPE RESTRAINT NOTES:

- THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM.
- ASSUMPTIONS: DUCTILE IRON PIPE (WITHOUT POLY WRAP, SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL-GM OR SN, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE. FOR D.I.P. W/POLY WRAP USE RESTRAINT JOINT SCHEDULE FOR PVC PIPE.
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- HOPS TO D.I.P. TRANSITIONS: THE D.I.P. PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).

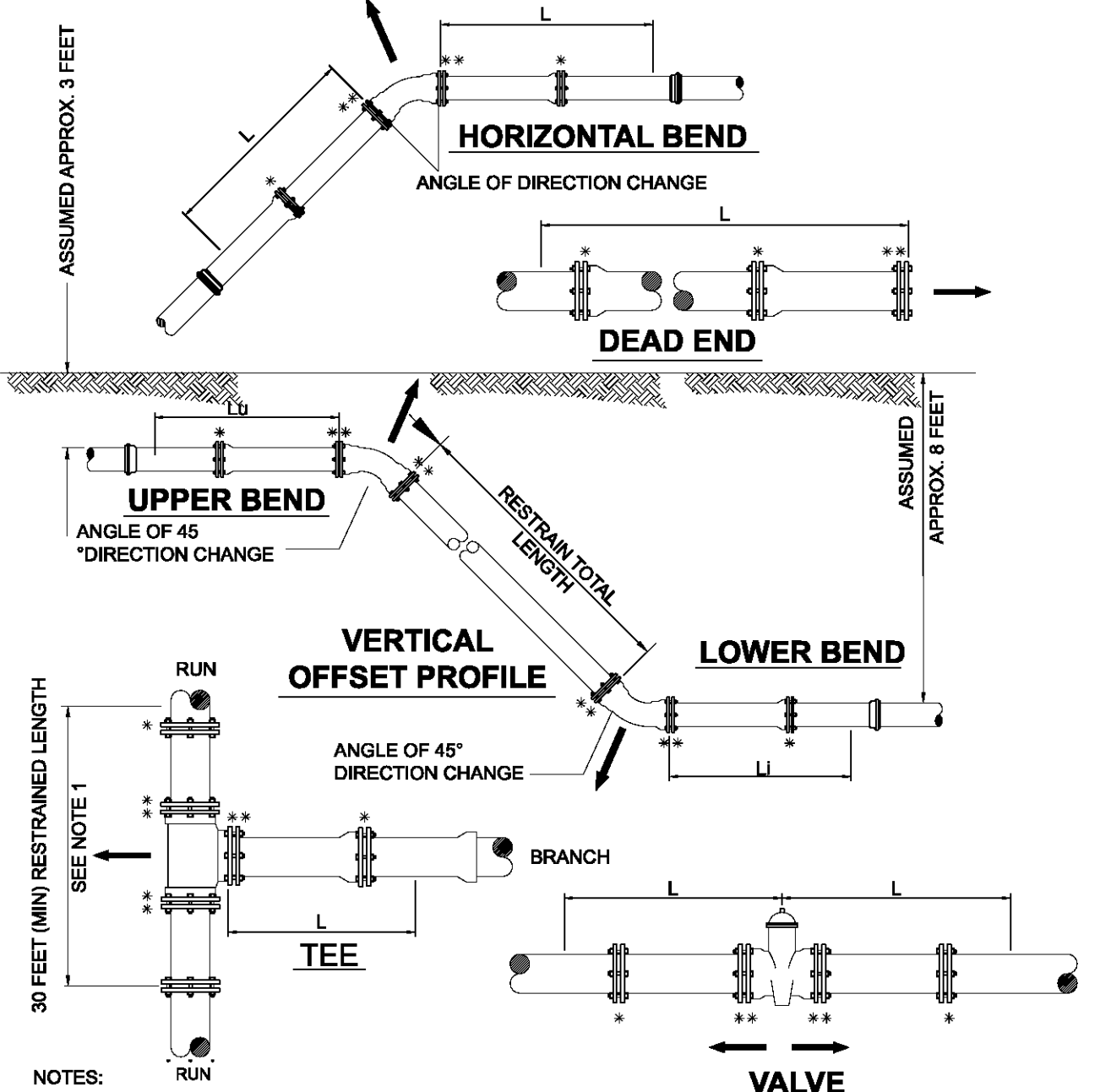
D.I.P. RESTRAINT JOINT SCHEDULE
1/05 PLATE W-31b



MECHANICAL RESTRAINT DETAILS - 1
1/05 PLATE W-31c

GENERAL NOTE

- PAY ITEM *** DENOTES A RESTRAINT WHICH IS PAID FOR ON A PER EACH BASIS.
- PAY ITEM **** DENOTES A RESTRAINT WHICH IS INCLUDED IN THE UNIT PRICE BID FOR FITTING OR VALVE.
- INDICATES DIRECTION OF THRUST FORCE.



MECHANICAL RESTRAINT DETAILS - 2
1/05 PLATE W-31d

NOTES:

- TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN).
- PAY ITEM *** DENOTES A RESTRAINT WHICH IS PAID FOR ON A PER EACH BASIS.
- PAY ITEM **** DENOTES A RESTRAINT WHICH IS INCLUDED IN THE UNIT PRICE BID FOR FITTING OR VALVE.
- INDICATES DIRECTION OF THRUST FORCE.

Professional Engineer

No.	1	02/05/2010	Date	Per Walgreens Review Comments	Description	Initials	A.R.A.
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WATER AND SEWER DETAILS

Walgreens

Jacksonville, Florida
SWC Fouraker Rd & Normandy Blvd
Store No. 13450

TAYLOR & WHITE, INC.

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8956 Meridian Way, Suite 100 - Jacksonville, Florida 32255
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www.taylorandwhite.com

Scale: N.T.S.
Project Manager: DGT
Designer: -
Drawn by: -
Certificate of Authorization: 7298
Key Map

Project No.: 08140.07
Date: November 2008
Sheet No.: C4.5

DO NOT SCALE THIS DRAWING - DIMENSIONS AND NOTES TAKE PREFERENCE

NOT RELEASED FOR CONSTRUCTION