2 : 1 SLOPE										
PIPE DIAMETER	H	L	W	Longitudinal Pipe			Cross Tube			
				S	No.	Length	No.	Length	S1	S2
300	610	1220	610	1360	1	1720	–	–	1570	–
375 or 450	760	1530	610	1700	1	2060	1	800	1450	460
525 or 600	920	1830	920	2050	2	2400	–	–	2250	–
675 or 750	1070	2140	920	2390	2	2740	–	–	2590	–
825 or 900	1220	2440	1220	2730	3	3080	–	–	2930	–
1050	1370	2750	1220	3070	3	3420	–	–	3270	–
1200	1530	3050	1530	3410	3	3770	–	–	3600	–
1350	1680	3360	1830	3750	4	4100	1	2020	3040	920
1500	1830	3660	1830	4090	4	4450	1	2020	3380	920

3 : 1 SLOPE										
PIPE DIAMETER	H	L	W	Longitudinal Pipe			Cross Tube			
				S	No.	Length	No.	Length	S1	S2
300	610	1830	610	1930	1	2360	1	800	1630	610
375 or 450	760	2290	610	2410	1	2840	1	800	1650	1070
525 or 600	920	2740	920	2890	2	3330	1	1110	2130	1070
675 or 750	1070	3200	920	3370	2	3810	1	1110	2610	1070
825 or 900	1220	3660	1220	3860	3	4290	1	1410	3090	1070
1050	1370	4120	1220	4340	3	4770	1	1410	3270	1370
1200	1530	4580	1530	4820	3	5250	1	1720	3760	1370
1350	1680	5030	1830	5300	4	5740	1	2020	3170	2440
1500	1830	5490	1830	5790	4	6220	1	2020	3650	2440

4 : 1 SLOPE										
PIPE DIAMETER	H	L	W	Longitudinal Pipe			Cross Tube			
				S	No.	Length	No.	Length	S1	S2
300	610	2440	610	2520	1	3040	1	800	1700	1220
375 or 450	760	3050	610	3150	1	3670	2	800	1720	920
525 or 600	920	3660	920	3770	2	4300	1	1110	2800	1370
675 or 750	1070	4270	920	4400	2	4920	1	1110	2820	1980
825 or 900	1220	4880	1220	5030	3	5550	1	1410	3450	1980
1050	1370	5490	1220	5660	3	6190	1	1410	3780	2290
1200	1530	6100	1530	6290	3	6810	1	1720	3490	3200
1350	1680	6710	1830	6920	4	7440	1	2020	3820	3510
1500	1830	7320	1830	7540	4	8070	2	2020	3830	2060

5 : 1 SLOPE										
PIPE DIAMETER	H	L	W	Longitudinal Pipe			Cross Tube			
				S	No.	Length	No.	Length	S1	S2
300	610	3050	610	3110	1	3730	2	800	1890	860
375 or 450	760	3810	610	3890	1	4510	2	800	1800	1300
525 or 600	920	4580	920	4660	2	5290	1	1110	2810	2360
675 or 750	1070	5340	920	5430	2	6060	2	1110	2930	1530
825 or 900	1220	6100	1220	6220	3	6840	1	1410	3980	2750
1050	1370	6860	1220	7000	3	7620	1	9030	4000	3510
1200	1530	7620	1530	7780	3	8390	2	1720	4010	2140
1350	1680	8380	1830	8550	4	9170	2	2020	4030	2520
1500	1830	9150	1830	9330	4	9950	2	2020	3590	3130

6 : 1 SLOPE										
PIPE DIAMETER	H	L	W	Longitudinal Pipe			Cross Tube			
				S	No.	Length	No.	Length	S1	S2
300	610	3660	610	3710	1	4430	2	800	1880	1220
375 or 450	760	4580	610	4640	1	5350	2	800	2050	1600
525 or 600	920	5490	920	5570	2	6280	2	1110	2970	1600
675 or 750	1070	6400	920	6490	2	7210	2	1110	2990	2060
825 or 900	1220	7320	1220	7420	3	8140	2	1410	4060	1980
1050	1370	8230	1220	8350	3	9060	2	1410	4080	2440
1200	1530	9150	1530	9280	3	10m	2	1720	4090	2900
1350	1680	10.1m	1830	10.2m	4	10.9	2	2020	3950	3430
1500	1830	11.0m	1830	11.1m	4	11.8	3	2020	3960	2590

APPROXIMATE QUANTITIES																								
PIPE DIAMETER	2 : 1 SLOPE				3 : 1 SLOPE				4 : 1 SLOPE				5 : 1 SLOPE				6 : 1 SLOPE			
	Concrete, m^3		Reinf. Steel, kg	Str. Steel, kg	Concrete, m^3		Reinf. Steel, kg	Str. Steel, kg	Concrete, m^3		Reinf. Steel, kg	Str. Steel, kg	Concrete, m^3		Reinf. Steel, kg	Str. Steel, kg	Concrete, m^3		Reinf. Steel, kg	Str. Steel, kg
	Conc. Pipe	C.M. Pipe			Conc. Pipe	C.M. Pipe			Conc. Pipe	C.M. Pipe			Conc. Pipe	C.M. Pipe			Conc. Pipe	C.M. Pipe		
300	0.8	0.8	132	40	1.1	1.1	160	70	1.3	1.3	200	90	1.6	1.6	250	130	1.8	1.8	300	140
375 or 450	1.0	1.0	157	70	1.4	1.4	200	80	1.7	1.7	240	120	2.0	2.0	312	140	2.3	2.3	370	160
525 or 600	1.5	1.5	209	100	1.9	1.9	280	170	2.4	2.4	330	210	2.8	2.9	420	250	3.3	3.4	490	320
675 or 750	1.6	1.7	240	110	2.2	2.3	320	190	2.7	2.8	390	230	3.4	3.4	500	310	4.0	4.1	580	350
825 or 900	2.1	2.2	304	190	2.9	2.3	412	300	3.7	3.7	530	370	4.5	4.6	630	450	5.3	5.4	740	570
1050	2.4	2.5	340	200	3.4	3.4	450	326	4.3	4.4	590	410	5.2	5.3	720	490	6.1	6.2	850	620
1200	3.1	3.1	413	230	4.2	4.3	570	360	5.4	5.5	720	450	6.5	6.7	880	590	7.7	7.8	1040	690
1350	3.7	3.9	494	380	5.2	5.3	680	510	6.6	6.7	870	640	8.0	8.2	1060	840	9.5	9.6	1250	970
1500	4.1	4.3	535	410	5.8	5.9	740	550	7.3	7.5	950	750	8.9	9.1	1165	890	10.6	10.7	1380	1100

All dimensions are in mm unless otherwise specified.

INDIANA DEPARTMENT OF TRANSPORTATION

GRATED BOX END SECTION TYPE I
DIMENSIONS AND QUANTITIES

JANUARY 1999

STANDARD DRAWING NO. **715-GBTO-05**

ANTHONY L. UREMOVICH REGISTERED No. 18095 STATE OF INDIANA PROFESSIONAL ENGINEER

/s/ Anthony L. Uremovich 1-04-99
DESIGN STANDARDS ENGINEER DATE

/s/ Donald W. Lucas 1-04-99
CHIEF HIGHWAY ENGINEER DATE

DESIGN STANDARDS ENGINEER

Source Sheet: GBES 1