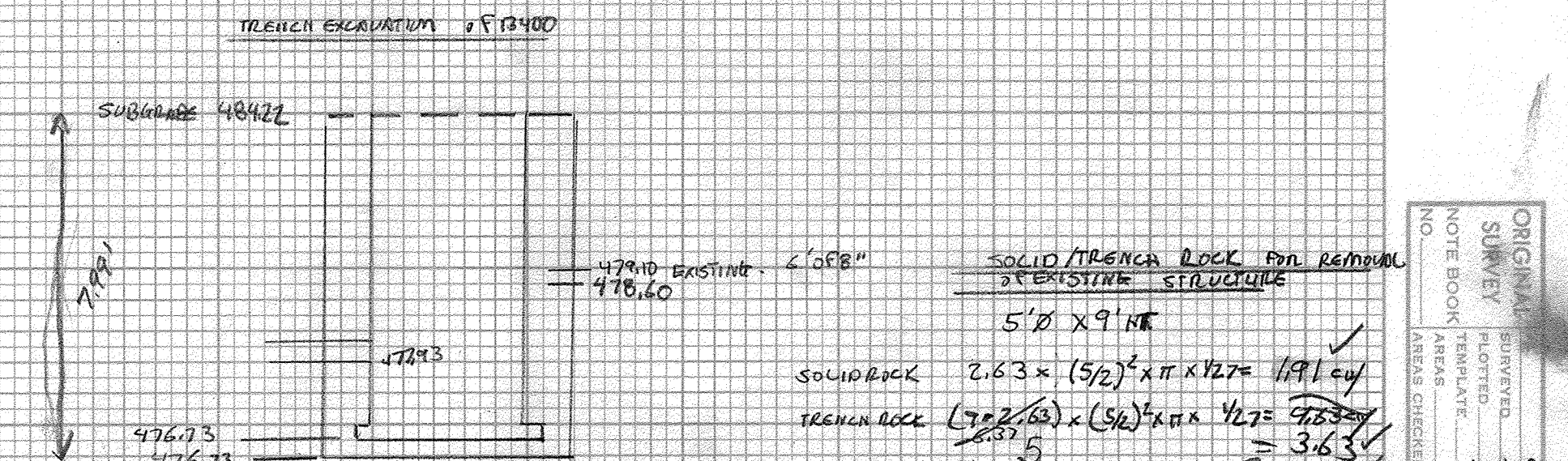
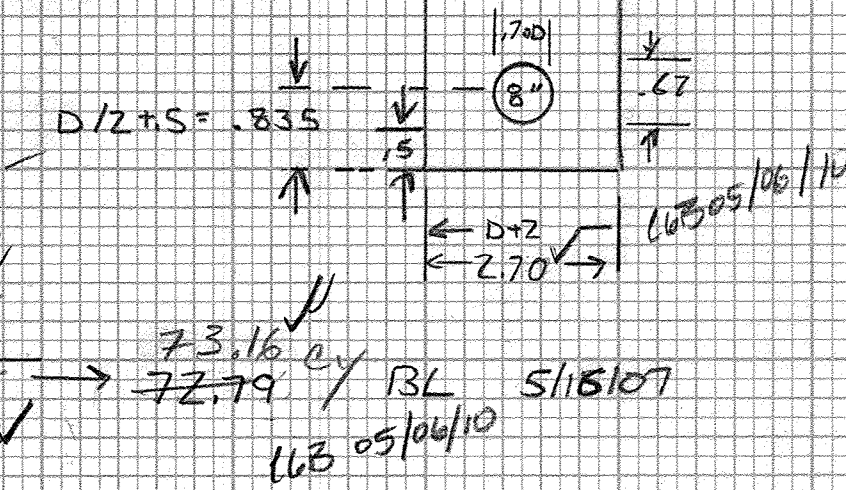
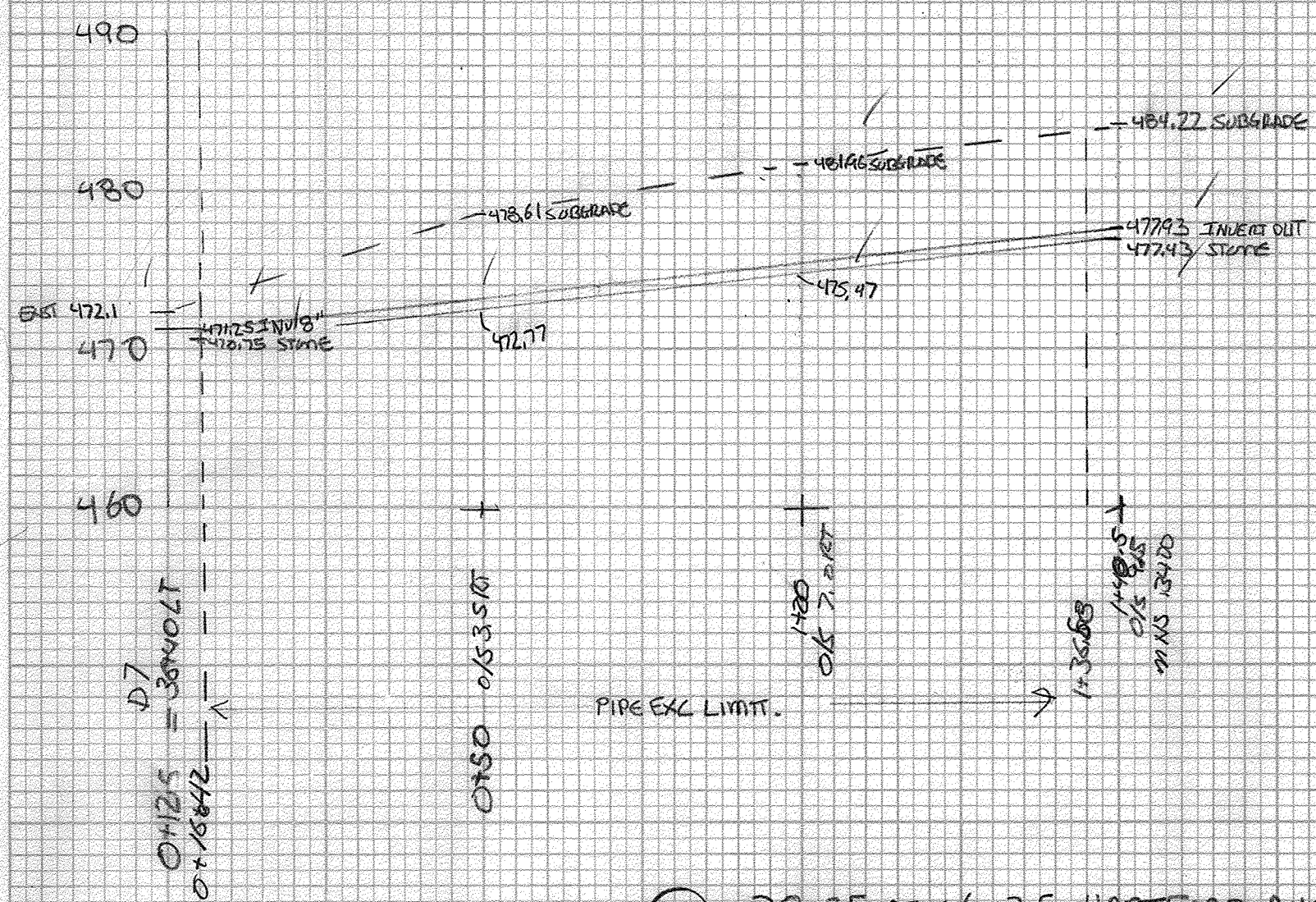


11 STATION 0+25 WORCESTER AVE TO 1+40 S RT WORCESTER AVE = 128 LF.
 MNS D7 8" PVC S = .0539 FT/FT EXCAVATION LENGTH 119.16
 (MNS B400 9.5 FT)

STATION	HEIGHT	AUG HT	S.S	+5	WIDTH	LENGTH	C.Y	150%
0+16.42	1.35	2.6	3.6		2.7	33.58	72.09	
0+50	5.84	6.17	5		2.7	50	25.00	
1+00	6.49			1.17	2.7	50	18.29	8.78
1+36.58	6.79			1.64	2.7	36.88	18.09	8.88

ITEM 204.20 TRENCH EXCAVATION OF EARTH
 EXCAVATION FOR MNS B400 TO BE BASED ON SHOP DRAWING
 ITEM 204.30 GRANULAR BACKFILL FOR STRUCTURES
 (20.16 + S + S + D) x 2.7 x .835 x 1/27 = 12.28 C.Y.
 UNDER MNS B400 = 1.20 C.Y.
 = PIPE 123.16 (T² = 3.14(20)² / 4) = 123.16 / 1.7 = 72.45 C.Y.

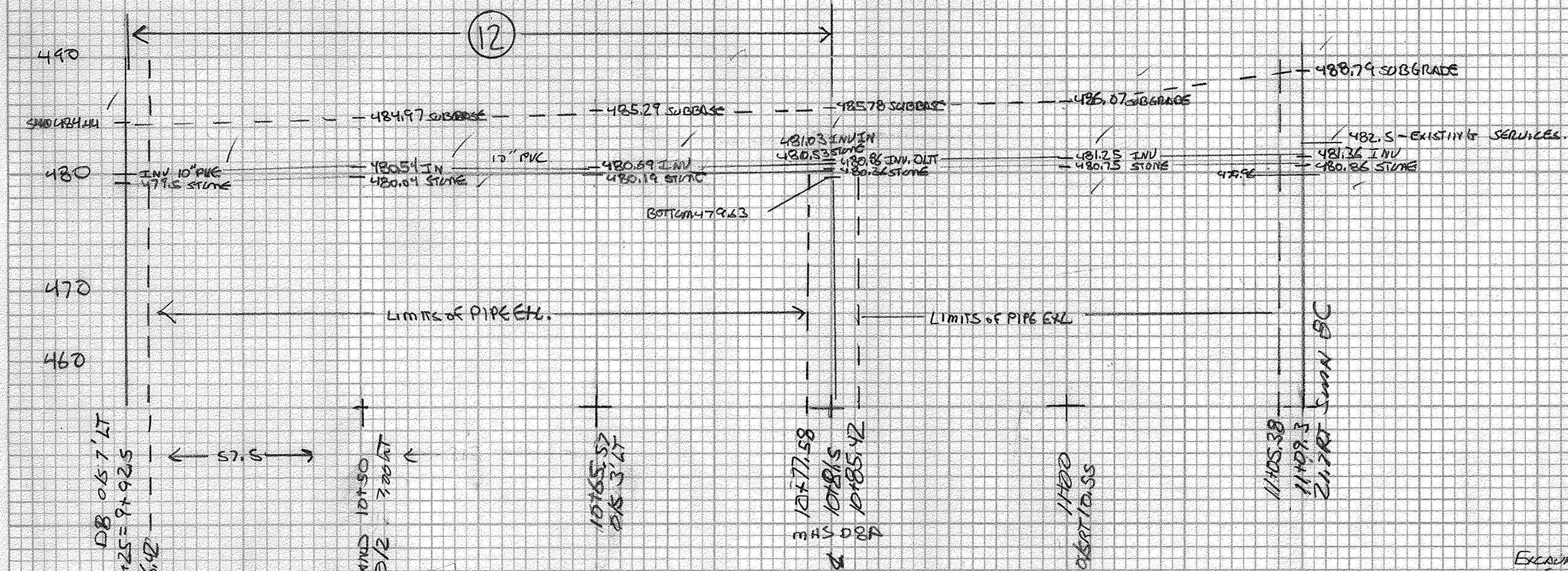


NEW SEWER #11 ITEM 204.20
 MNS B400 VOL = 14.84 C.Y.
 PIPE VOL = 73.16 C.Y.
 S = .0539 FT/FT
 CUB 05/06/10
 RCD 1/31/11

ITEM 204.30 GRANULAR BACKFILL FOR STRUCTURES
 (20.16 + S + S + D) x 2.7 x .835 x 1/27 = 12.28 C.Y.
 UNDER MNS B400 = 1.20 C.Y.
 = PIPE 123.16 (T² = 3.14(20)² / 4) = 123.16 / 1.7 = 72.45 C.Y.

12 38+25 RT O/S 7.5 HARTFORD AVE = 9+92.5 TO 10+81.5 & HIGHLAND AVE (DBA)
 (DB) 8" SDR 10" S = .0104 FT/FT

13 HIGHLAND AVE 10+81.5 & TO 11+09.3 RT
 MNS DBA TO MNS B400 217 RT
 8" SDR (38 LF) S = .0100 FT/FT USE 30.16*



STATION	HEIGHT	AUG HT	S.S	+5	WIDTH	LENGTH	C.Y	150%
9+96.42	4.94	4.935	4.935		2.875	53.58	28.16	
10+50	4.93	5.02	5.02		2.875	15.57	8.32	
10+65.57	5.10	5.26	5.0		2.875	12.01	6.39	
10+77.58	5.42			.26	2.875	12.01	6.39	

ITEM 204.30 GRANULAR BACKFILL FOR STRUCTURES
 (81.16 LF + S + S + D) x 2.875 x .835 x 1/27 = 7.48 C.Y.
 10" PIPE = 10.50 x 2.875 = EXC LIMITS = 2.875

EXCAVATION OF MNS DBA
 485.78 - 479.63 = 6.15 RT 7.5 STAGE
 5' x (7.84/2) x π x 1/27 = 8.94
 150% 1.65 (7.84/2) x π x 1/27 = 7.43 C.Y.
 113.37 C.Y. BL 11/6/07

STATION	HEIGHT	AUG HT	S.S	+5	WIDTH	LENGTH	C.Y	150%
10+85.42	5.25	5.29	5.0		2.7	31.48	15.74	
11+00	5.08			1.4	2.7	31.48	15.74	
11+16.9	5.08	6.87	5.0	1.87	2.7	33.1	16.55	9.28
11+50	8.65				2.7	33.1	16.55	
12+00	8.51	8.52	5.0		2.7	169.58	84.79	
12+150	8.53			3.52	2.7	145.58	72.79	87.54
13+19.58	8.4				2.7	169.58	84.79	76.87

ITEM 204.3 GRANULAR BACKFILL FOR STRUCTURES
 (210.16 + S + S + D) x 2.7 x .835 x 1/27 = 17.80 C.Y.
 UNDER MNS DBB = 1.20 C.Y.

EXCAVATION FOR MNS DBB TO BE BASED ON SHOP DRAWING

NEW SEWER #14 204.20
 MNS DBB = 29.84 V
 PIPE = 216.56 V
 S = .0100 FT/FT
 CUB 05/06/10
 RCD 1/31/11

STATION	HEIGHT	AUG HT	S.S	+5	WIDTH	LENGTH	C.Y	150%
10+85.42	5.25	5.29	5.0		2.7	15.0	7.5	
11+00	5.32			.29	2.7	15.0	.65	
11+05.38	7.93	6.63	5.0		2.7	15.16	7.58	3.71
					2.7	15.16	7.58	

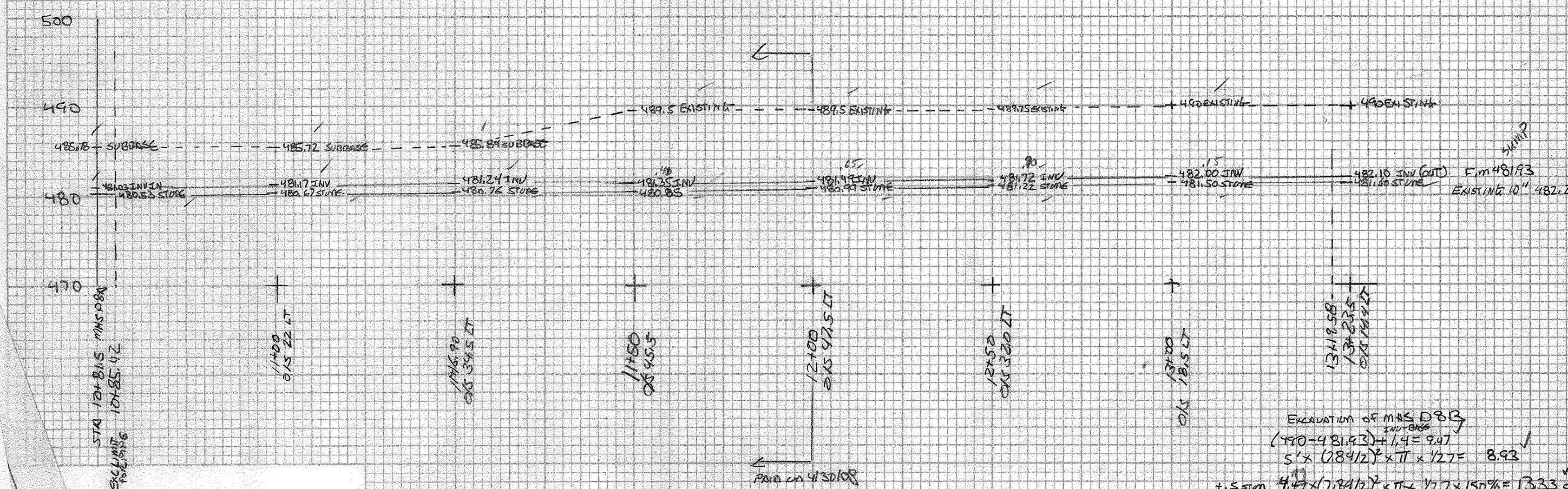
ITEM 204.30 GRANULAR BACKFILL FOR STRUCTURES
 (30.16 + S + S + D) x 2.7 x .835 x 1/27 = 2.77 C.Y.
 UNDER MNS DBA = 1.2
 UNDER MNS DBB = 1.2

STRUCTURE HT 488.79 - 479.96 = 8.83 + .5 = 9.33
 5' x (7.84/2) x π x 1/27 = 8.94
 4.33 x (7.84/2) x π x 1/27 x 150% = 11.01
 20.55 16.68 C.Y. BL 11/6/07

STRUCTURE 488.79 - 482.5 = 6.29
 8" PIPE (7.84 - 4.72 - 1) x 2.7 x 150% = 2.59 C.Y.
 5.08 x 2.7 x 150% = 1.98
 6" PIPE 5.08 x 2.52 x 150% = 2.37
 5.08 x 2.52 x 150% = 1.92
 6.81 C.Y. BL 11/6/07

TOTAL SEWER #12 = 46.80 C.Y.
 CUB 02/08/08
 RCD 1/31/11

14 HIGHLAND AVE 10+81.5 & TO 13+23.5 O/S 14.4 LEFT
 MNS DBA 8" SDR S = .0050 FT/FT 218 LF USE 210.16 FOR EXCAVATION.



EXCAVATION OF MNS DBB
 (490 - 481.92) x π x 1/27 = 9.11
 5' x (7.84/2) x π x 1/27 = 8.93
 + 5' x π x (7.84/2) x π x 1/27 x 150% = 13.33 C.Y.
 4.97

EXCAVATION TO EXISTING
 492.5 - 482.15 = 10.35
 (490 - 1' backfill) = 482.25 - 6.75 RT + SURFACE = 7.25
 15" PVC = 8.8 + 11 = 21.88 LF
 12.28 C.Y.

NEW SEWER #14 204.20
 MNS DBB = 29.84 V
 PIPE = 216.56 V
 S = .0100 FT/FT
 CUB 05/06/10
 RCD 1/31/11

NEW SEWER #14 204.20
 MNS DBB = 29.84 V
 PIPE = 216.56 V
 S = .0100 FT/FT
 CUB 05/06/10
 RCD 1/31/11

HARTFORD RS 0113(40)
 SEWER SECTIONS