



SEWAGE PUMP

Technical Data

cornish

K 156

8-E 158

60 HZ

84 12 01

CLASSIFICATION: Electric submersible sewage pump for wet sump or dry pit installation. Suitable for intermittent and continuous operation.
Nominal pressure for the whole pump: 6 kp/sq.cm (85 psig) at discharge branch.
Pumps for dry pit installation equipped with cooling jacket.
Maximum depth of submerison: 20 m. (66 ft.).

IMPELLER: KP/KE: Double channel impeller with free passage dia. 100 mm.
KL/KF: Vortex impeller with free passage dia. 88 mm.

CONNECTION KE/KF: Outlet, directed vertically upward, with 6" (150 mm) hose connection.

CONNECTION KP/KL: Pressure side: slotted flange Ø 150 (6") which will fit international standard ISO R13 Table J4 and most corresponding national standards, such as SMS, BS, DIN, NF, ANSI, etc. See dimension print 10-A241.
Suction side: Ø 150 mm. Pumps for dry pit installation: suction side with 8 threaded holes providing same variation of connections as for pressure side. If no other requests are made, holes located according to metric flange standard.

MOTOR:

Pump Type	Power Rating		Power Input max. kW	Motor Efficiency	Frequency Hz	R.p.m.	Vol- Max. Current		
	kW	hp					tage Nom. V	Operating A	A
KP/KE 156-3200			10.3						36
→ -3215	13.5	18	13.8	0.89	60	1740	230	48	42
-3225			17.2						56
-3230	18	24	19.0	0.89	60	1740	230	60	59
KL/KF 156-3240			11.2						37
→ -3260	13.5	18	14.0	0.89	60	1740	230	48	44
-3275			15.6						50
-3290	18	24	19.3	0.89	60	1740	230	60	60

The table shows values at 230 V. Amperage-values at 460 V = 0.5 x table-value, at 575 V = 0.4 x table-value.

The motor is equipped for connection to automatic motor protector. Overload and temperature protection provided by 3 thermocouples located in the stator windings. Start: direct-on-line or star-delta as requested.
Insulation class F (155°C).

SHAFT: Shaft with bearings designed in accordance with Pumpex bearing system 50. Radial deflection (at shaft seal) and distortion of shaft: max. 0.05 mm (0.002") - corresponding to American standards (ASA 1962).

SHAFT SEAL: Double mechanical seal in oil bath.
Primary and secondary seals: Silicon carbide against ceramics.
Oil type: SAE 10-20, viscosity 25-30 cSt at 50°C.
Oil quantity: 7.1 litres for pump without cooling jacket.
13 litres for pump with cooling jacket.

BEARINGS: Axial and radial bearings: double angular contact ball bearing 3310/C3.
Radial bearing: single-row deep groove ball bearing 6306-2RS.
Bearing arrangement with special grease. no need of subsequent greasing.

MATERIALS: Volute, motor casing and cooling jacket: grey cast iron SIS 0120 (BS 1452, grade 14).
Impeller, feet and latch bolts: ductile iron SIS 0717 (BS 2789, SNG 27/12).

CABLES: Type H07RN-F - heavy-duty, oil and weather resistant.

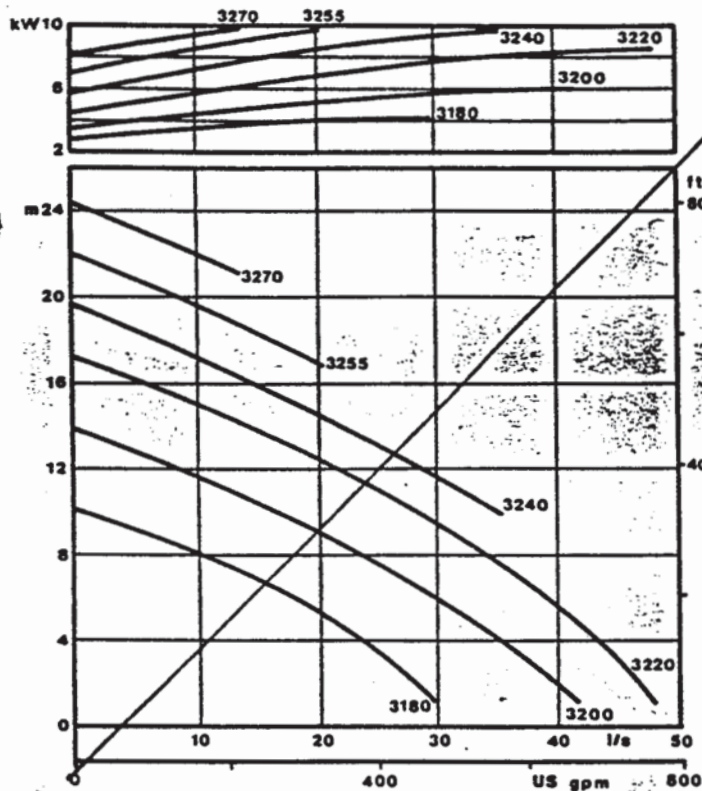
Mains voltage		230 Volts		460-600 Volts	
Motor cable - D.O.L. start	13.5 kW	8 m 4x10 sq.mm		8 m 4x4 sq.mm	
Motor cable - D.O.L. start	18 kW	8 m 4x10 sq.mm		8 m 4x6 sq.mm	
Motor cable - star-delta start	13.5 kW	2x8 m 4x6 sq.mm		2x8 m 4x2.5 sq.mm	
Motor cable - star-delta start	18 kW	2x8 m 4x10 sq.mm		2x8 m 4x4 sq.mm	
Manoeuvre cable		8 m 2x1.5 sq.mm		8 m 2x1.5 sq.mm	

WEIGHT:

Volute compl. KE/KF 156	80 kg (176 lbs)
Volute compl. KP/KL 156	70 kg (154 lbs)
Motor unit without cooling jacket	13.5 kW 155 kg (340 lbs)
Motor unit with cooling jacket	18 kW 175 kg (385 lbs)
Motor unit without cooling jacket	13.5 kW 175 kg (385 lbs)
Motor unit with cooling jacket	18 kW 195 kg (430 lbs)

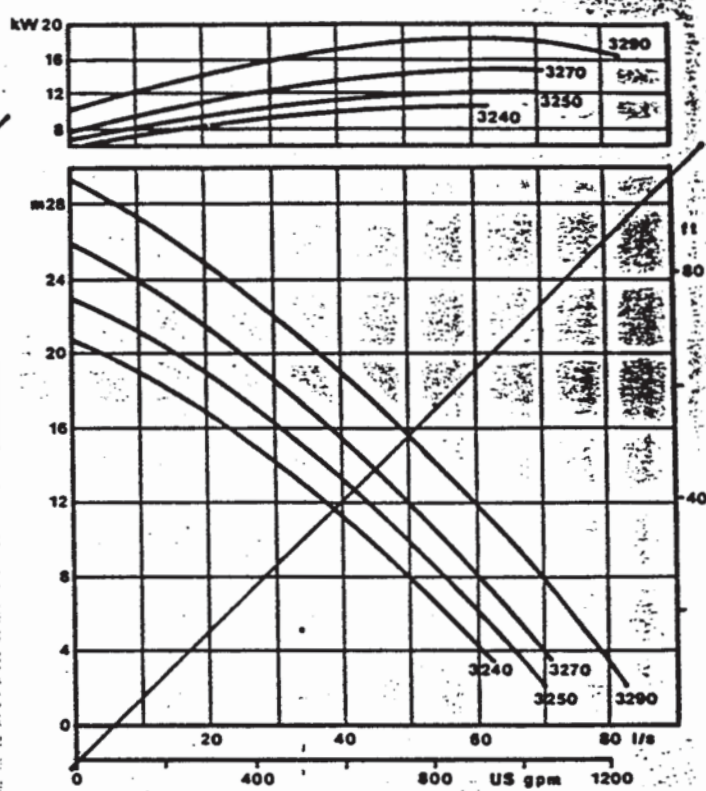
WATERWORKS & WASTE DISPOSAL DEPARTMENT
APPROVED AS TO ENGINEERING DETAILS
Director

KL/KF 102



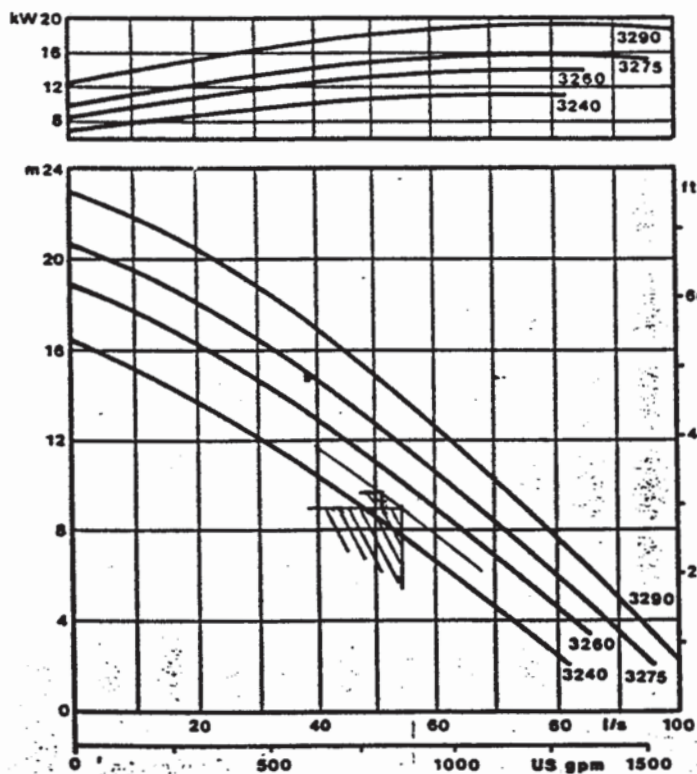
Impeller	Type	Discharge conn. mm	Motor rating kW	Speed R.P.M.
3180	Vortex	100	4.8	1740
3200	Vortex	100	6.3	1740
3220-3270	Vortex	100	8.1	1740

KL/KF 106



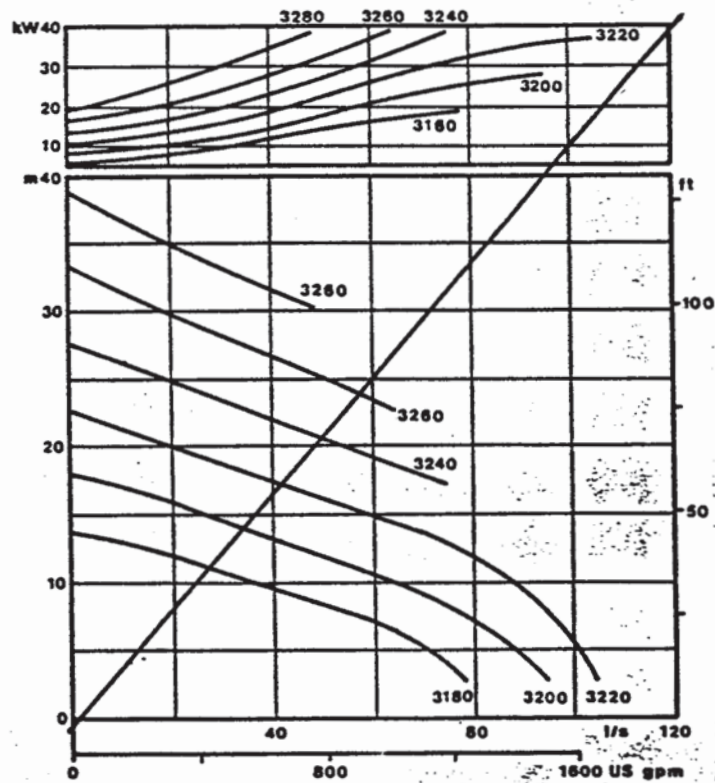
Impeller	Type	Discharge conn. mm	Motor rating kW	Speed R.P.M.
3240-3270	Vortex	100	13.5	1740
3290	Vortex	100	18	1740

KL/KF 156



Impeller	Type	Discharge conn. mm	Motor rating kW	Speed R.P.M.
3240-3260	Vortex	150	13.5	1740
3275-3290	Vortex	150	18	1740

KL/KF 152



Impeller	Type	Discharge conn. mm	Motor rating kW	Speed R.P.M.
3180-3200	Vortex	150	18	1735
3200-3240	Vortex	150	27	1740
3220-3280	Vortex	150	36	1760

CORNISH

M34

Pumping Sta. Location Control Mechanism Pipes

M39

Pump Sta. Location 4" Dia. Ejector Pipe

81A

162

0731 1491

Pump Motor - 2

MAINTENANCE SCHEDULE

DAILY	WEEKLY	MONTHLY	QUARTERLY	SEMI-ANNUAL	YEARLY
				X	

PLANT &
MACHINERY
RECORD

ITEM NO.	ITEM NAME	DATE INSTALLED	LOCATION	DEPARTMENT
	Pump		Cornish	Collection System
LUBRICATION & MAINTENANCE				
ITEM		PERIOD	SERVICE REQUIRED	
MAKE	Domnion Bridge Co.		semi-an. grease bearings	
SERIAL NO.	218			
HORSE POWER	15			
R.P.M.				
MODEL NO.				
FRAME NO.				
TYPE				
DRIVE				
CAPACITY	1400			
PRESSURE				
SIZE	14.75"			
VOLTS				
AMPERES				
PHASE				
CYCLE				
WATTS				
SERVICE FACTOR				
RATING				
TEMP. RISE				
DESIGN				
CODE				
BEARINGS				
		MANUFACTURER :-		
		REPRESENTATIVE :-		
		REVISIONS TO MACHINERY :-		

HORFIELD
9985-011

TITLE BELOW
THIS LINE

DESCRIPTION

FILE NO.

Cornish

Pump

J F M A M J J A S O N D

MAINTENANCE SCHEDULE

DAILY

WEEKLY

MONTHLY

QUARTERLY

SERIAL NO.

YEARLY

X

6731420N
119-534
NORFOLK

Cornish

Pump

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044

DESCRIPTION

MAINTENANCE SCHEDULE

SEMI-ANNUAL

YEARLY

[illegible]

NOV 11 1966

Cornish

Blower

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AV

44

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DESCRIPTION

FILE NO.

MOBILE 37414

Cornish

Blower

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AV

44

2

9

DAILY

ATKINS
MAN

TEN AN
MONTHLY

MAINTENANCE SCHEDULE

X

[illegible]

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
 WATERWORKS AND WASTE DISPOSAL DIVISION

FILE No. _____

SUBJECT Cornish PumpsDATE JUNE 16, 1996SHEETS No. 1COMPUTED BY B. Lewis

CHECKED BY _____

MADE IN CONNECTION WITH G. LongSTATION LOSSES1400 U.S.GPM SYSTEMEQUIV. 8" ϕ .

Suction:	ENTRANCE LOSS	$\frac{1}{2}(\frac{V^2}{2g})$	
	8" ϕ SLEEVE - 15"		1.5
	1-8" G.V.		4.5
	1'-8" ϕ PIPE		1.0

DISCHARGE			
	1-6" ϕ 90° ELBOW		5.8
	1-6" C.V.		15.2
	1-6" G.V.		13.5
	1-8" 16" STD. INCREASER		5.
	11'-8" ϕ PIPE		11.
	1-8" 90° ELBOW		18.
	4'-8" ϕ PIPE		4.

264' + $\frac{1}{2}(\frac{V^2}{2g})$
 of 8" ϕ PIPE.

850 U.S.GPM SYSTEMEQUIV. 6" ϕ .

Suction:	ENTRANCE LOSS	$\frac{1}{2}(\frac{V^2}{2g})$	
	6" ϕ SLEEVE - 15"		1.5
	1'-6" ϕ PIPE		1.0
	1-6" G.V.		3.5

DISCHARGE			
	1-5" C.V.		80.5
	1-6" x 5" REDUCING ELBOW (90°)		15.
	1-6" G.V.		3.5
	12'-6" ϕ PIPE		12.0
	1-6" 90° ELBOW		11.
	8'-6" ϕ PIPE		8.0

156' + $\frac{1}{2}(\frac{V^2}{2g})$ of 6" ϕ PIPE

**THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
WATERWORKS AND WASTE DISPOSAL DIVISION**

FILE No. _____

SUBJECT _____

DATE June 16, 1969SHEETS No. 2COMPUTED BY BA

CHECKED BY _____

MADE IN CONNECTION WITH _____

Static Head

INVERT OF F.M. AT DISCHARGE $16.51 + 727.57 = 744.08$
 ASSUME 18" ϕ PIPE FULL 1.50

$\therefore$ DISCHARGE WATER LEVEL 745.58

AVG. SUMP ELEVATION $\frac{1.45 + 1.45}{2} = 1.70 + 727.57 = 729.27$
 ASSUME AVG. SUMP LEVEL @ $\frac{1}{2}$ FULL 3.25

$\therefore$ SUCTION WATER LEVEL 732.52

$\therefore$ STATIC HEAD 13'

THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
 WATERWORKS AND WASTE DISPOSAL DIVISION

FILE No. _____

SUBJECT _____

DATE

JUNE 16 1969

SHEETS No. 3

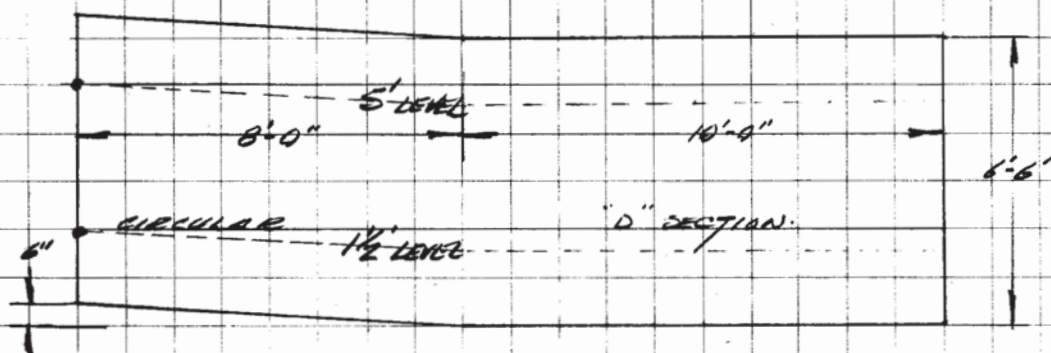
COMPUTED BY

BA.

CHECKED BY _____

MADE IN CONNECTION WITH _____

Sump Volumes



VOLUME AT 5' LEVEL

 if ratio $\frac{5.5}{6.5}$ yields
 a ratio of 0.90

$$\text{'D' SECTION: } \left[(3.25)^2 \times 10 \right] + \left[.90(\pi)(3.25)^2 - \frac{1}{4}\pi(3.25)^2 \right] 10$$

$$= 321' ^3$$

$$\text{'O' SECTION: (AVG. DEPTHS } 4.75 \div 1.25)$$

$$\left[(0.786) \pi (3.25)^2 \times 8 \right]$$

$$= 209' ^3$$

$$\text{TOTAL } 530' ^3$$

VOLUME AT 1 1/2' LEVEL

$$\text{'D' SECTION: } \left[(2)(3.25) + \left\{ \frac{1}{2} \pi (3.25)^2 (.27) \right\} \right] 10 = 109.8$$

$$\text{'O' SECTION: } \left[(0.14) \pi (3.25)^2 \times 8 \right] = 37.1$$

$$\text{TOTAL } 147' ^3$$

**THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
WATERWORKS AND WASTE DISPOSAL DIVISION**

FILE No. _____

SUBJECT _____ DATE 16/6 1969SHEETS No. 4COMPUTED BY BA CHECKED BY _____

MADE IN CONNECTION WITH _____

DIFFERENCE BETWEEN $5' \pm 1\frac{1}{2}'$ LEVELS

$$\begin{array}{r}
 530 \\
 147 \\
 \hline
 383'3 \\
 \times 7.48 \\
 \hline
 = 2865 \text{ U.S. Gals.}
 \end{array}$$

Say 1800 usgpm $\frac{2865}{1800} \approx 2 \text{ min.}$

VOLUME OF $5\frac{1}{2}'$ LEVEL

'D' SECTION $[(3.25)^2 \times 10] + [0.965(\pi)(3.25)^2 - \frac{1}{4}\pi(3.25)^2]10$

= 342

'O' SECTION $[(0.87)\pi(3.25)^2 \times 8]$

= 231

TOTAL $573'3$

DIFFERENCE BETWEEN $5\frac{1}{2}' \pm 1\frac{1}{2}'$ LEVELS.

$$\begin{array}{r}
 573 \\
 147 \\
 \hline
 426'3 \\
 \times 7.48 \\
 \hline
 3185 \text{ U.S. Gals.}
 \end{array}$$

USE $5\frac{1}{2}' \pm 1\frac{1}{2}'$ LEVELS FOR 3185 U.S. Gallons.

**THE METROPOLITAN CORPORATION OF GREATER WINNIPEG
WATERWORKS AND WASTE DISPOSAL DIVISION**

FILE No. _____

SUBJECT _____ DATE _____ 19__

SHEETS No. _____

COMPUTED BY _____ CHECKED BY _____

MADE IN CONNECTION WITH _____

STATION LOSSES 1400 U.S.G.P.M. SYSTEM

U.S.G.P.M.	C = 80	90	100	110	120	130
200	.68	.55	.45	.38	.32	.28
400	2.42	1.96	1.61	1.35	1.14	1.00
600	5.16	4.20	3.44	2.89	2.44	2.15
800	8.79	7.15	5.86	4.92	4.16	3.63
1000	13.4	10.9	8.93	7.50	6.34	5.54
1400	25.1	20.4	16.7	14.0	11.6	10.4
1800	40.1	32.6	26.7	22.4	19.0	16.6
2200	58.4	47.5	38.9	32.7	27.6	24.1
2400	68.5	55.7	45.7	38.4	32.4	28.3

STATION LOSSES

U.S.G.P.M.	C = 80	90	100	110	120	130
200	1.21	.99	.81	.68	.56	.50
400	5.19	4.22	3.46	2.91	2.46	2.15
600	10.7	8.67	7.11	5.97	5.05	4.41
800	18.3	14.9	12.2	10.2	8.66	7.56
1000	27.9	22.7	18.6	15.6	13.2	11.5
1400	52.2	42.5	34.8	29.2	24.7	21.6
1800	83.3	67.7	55.5	46.6	39.4	34.4
2200	101	82.7	67.8	56.9	48.1	42.0
2400	122	104	85.5	71.8	60.7	53.0

VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

Dec 21st 1936

*12 PUMP (6" S) - IMPELLER 12 1/2" DIA

MANITOBA BRIDGE & I.W. - CONT #11000

HEAD

TOTAL HEAD

IMPELLER

TOTAL HEAD IN FEET

CAPACITY - U.S. GALLS. PER MIN.

RUNNING TEST

PUMP - SERIAL # 223

1200

1100

1000

900

800

700

600

500

400

CORNISH

400

500

600

700

800

900

1000

1100

1200

PUMP - SERIAL # 223

RUNNING TEST

IMPELLER

TOTAL HEAD

HEAD

CAPACITY - U.S. GALLS. PER MIN.

TOTAL HEAD IN FEET

400

500

600

700

800

900

1000

1100

1200

PUMP - SERIAL # 223

RUNNING TEST

IMPELLER

TOTAL HEAD

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TOTAL HEAD IN FEET

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1100

1200

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PUMP - SERIAL # 223

RUNNING TEST

IMPELLER

TOTAL HEAD

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TOTAL HEAD IN FEET

400

500

600

700

800

900

1000

VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 4TH 1936

15 PUMP (8" x 6") - IMPELLER # 142

MANHOLE BRIDGE IN TOWN M1000

RUNNING TEST

PUMP - SERIAL NO. 212

CAPACITY - U.S. GALLS PER MIN.

CORNISH

EFFICIENCY - PER CENT

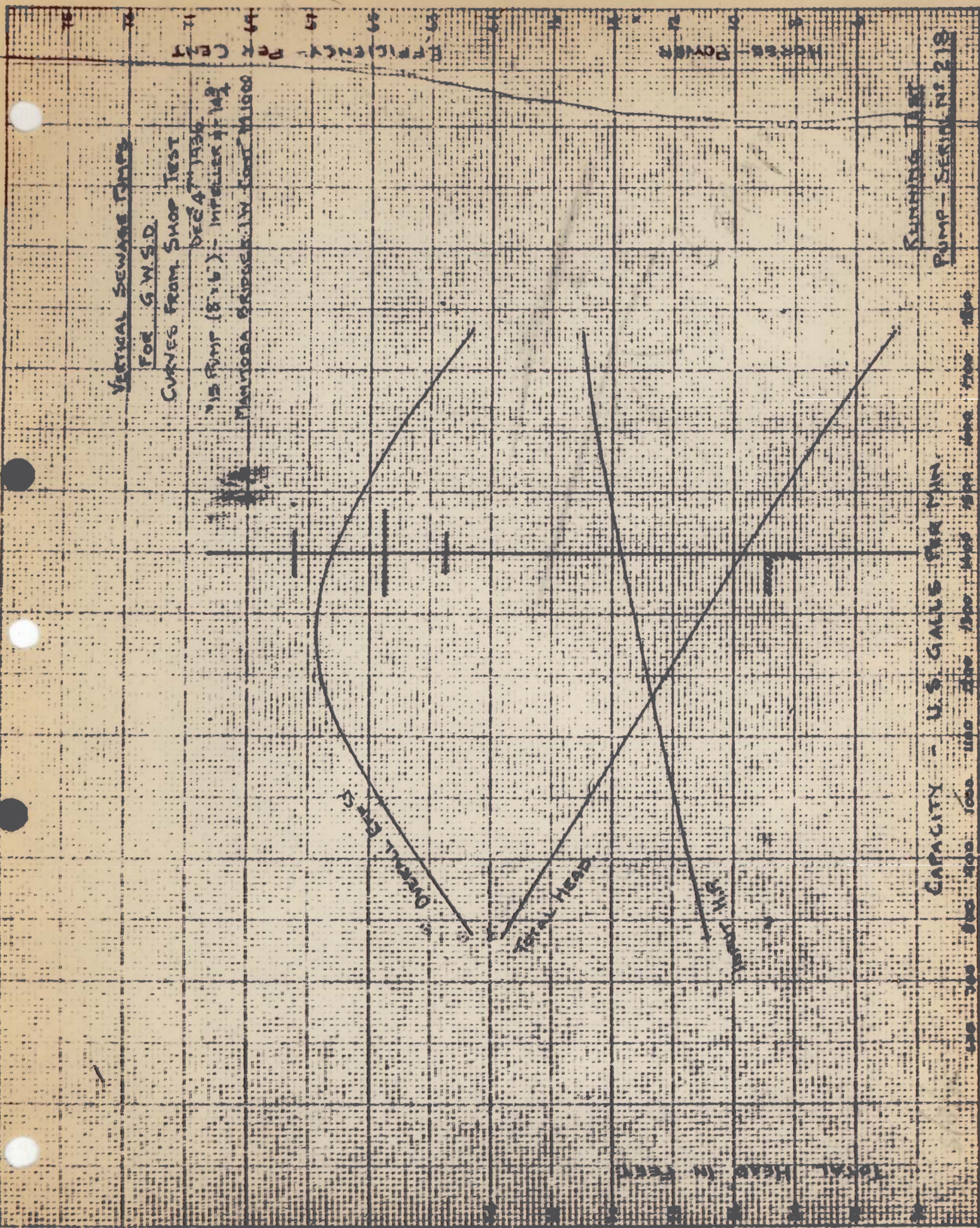
HORSE-POWER

OVERALL EFF.

TOTAL HEAD

WATER LOSS

TOTAL HEAD IN FEET



VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 31ST 1936

*12 PUMP (6" x 5") - IMPELLER 12 1/2" DIA

MANITOBA BRIDGE & I.W. - CONT. M1000

OVERALL EFF.

TOTAL HEAD.

INLET H. P.

TOTAL HEAD IN FEET.

POWER - H.P.

RUNNING TEST

CAPACITY - U.S. GALLS. PER MIN.

PUMP - SERIAL NO 223

CORNISH

THE LITTLE OAK CO. LIMITED

1200

1100

1000

900

800

700

600

500

400

116

118

120

122

124

126

128

130

132

134

136

138

140

142

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146

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742

744

746

748

750

752

VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 31 1936

"12 PUMP (6" x 5") - IMPELLER 12 1/2" DIA

MANITOBA BRIDGE & I.W. - CONT "M1090

75

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VERTICAL SEWAGE PUMPS

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VERTICAL SEWAGE PUMPS

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VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 31 1936

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MANITOBA BRIDGE & I.W. - CONT "M1090

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VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 31 1936

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VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 31 1936

"12 PUMP (6" x 5") - IMPELLER 12 1/2" DIA

MANITOBA BRIDGE & I.W. - CONT "M1090

VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 4th 1936

115 PUMP (8" x 6") - IMPELLER 9" 142

MANTON & BAKER L.W. CO. LTD. M1000

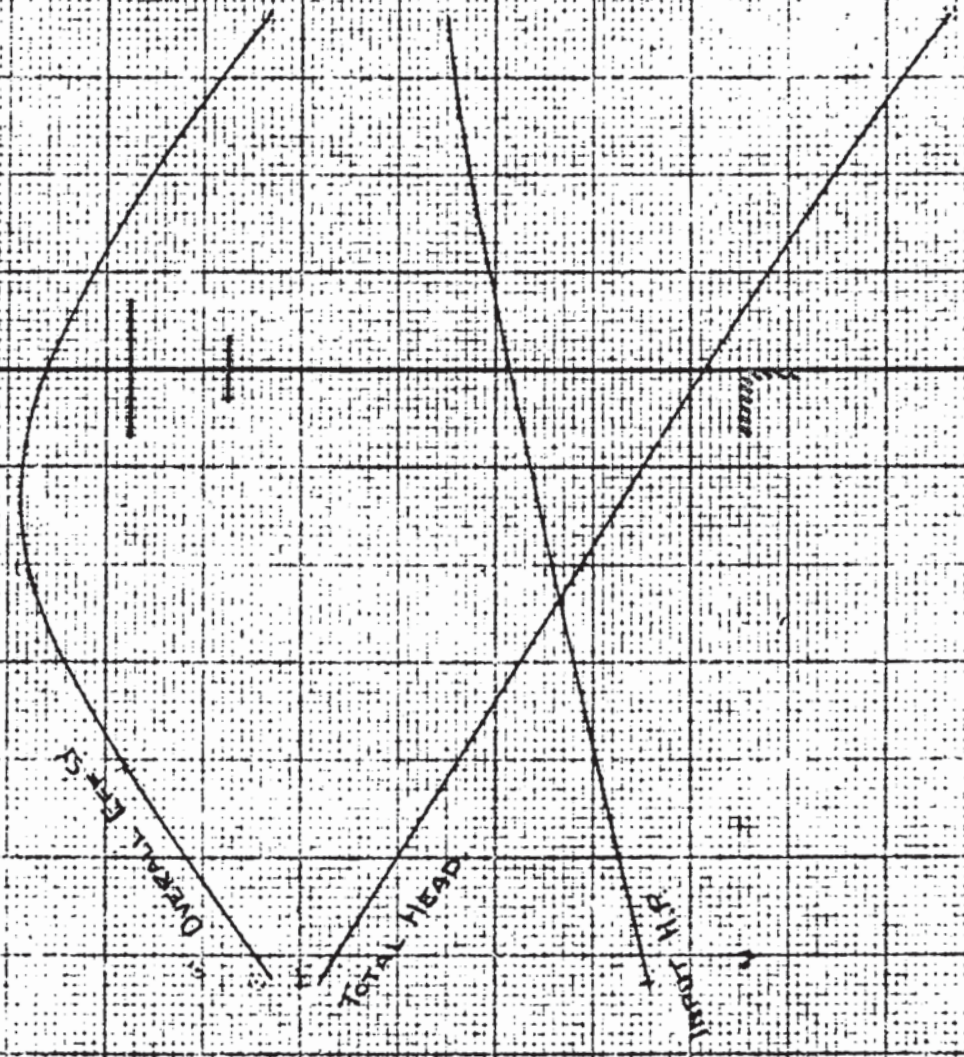
EFFICIENCY - PER CENT

RUNNING TEST

PUMP - SERIAL NO. 218

CAPACITY - U.S. GALLONS PER MIN.

CORNISH



TOTAL HEAD IN FEET

INPUT H.P.

TOTAL HEAD

OVERALL EFF. %

VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 4TH 1936

715 PUMP (8"x6") - IMPELLER # 142

MANITOWA BRIDGE & IRON CO. 11000

75
72
71
70
69
68
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HORSE-POWER

RUNNING TEST

PUMP - SERIAL NO 219

CAPACITY - U.S. GALLONS PER MIN.

250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1100 1200 1300 1400 1500 1600 1700 1800

OVERALL EFFICIENCY

TOTAL HEAD

IMPELLER H.P.

TOTAL HEAD IN FEET

CORNISH

VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 4TH 1936

"15" PUMP (8"x6") - IMPELLER #143

MANITOBA BRIDGE & IRON CO. LTD. M1000

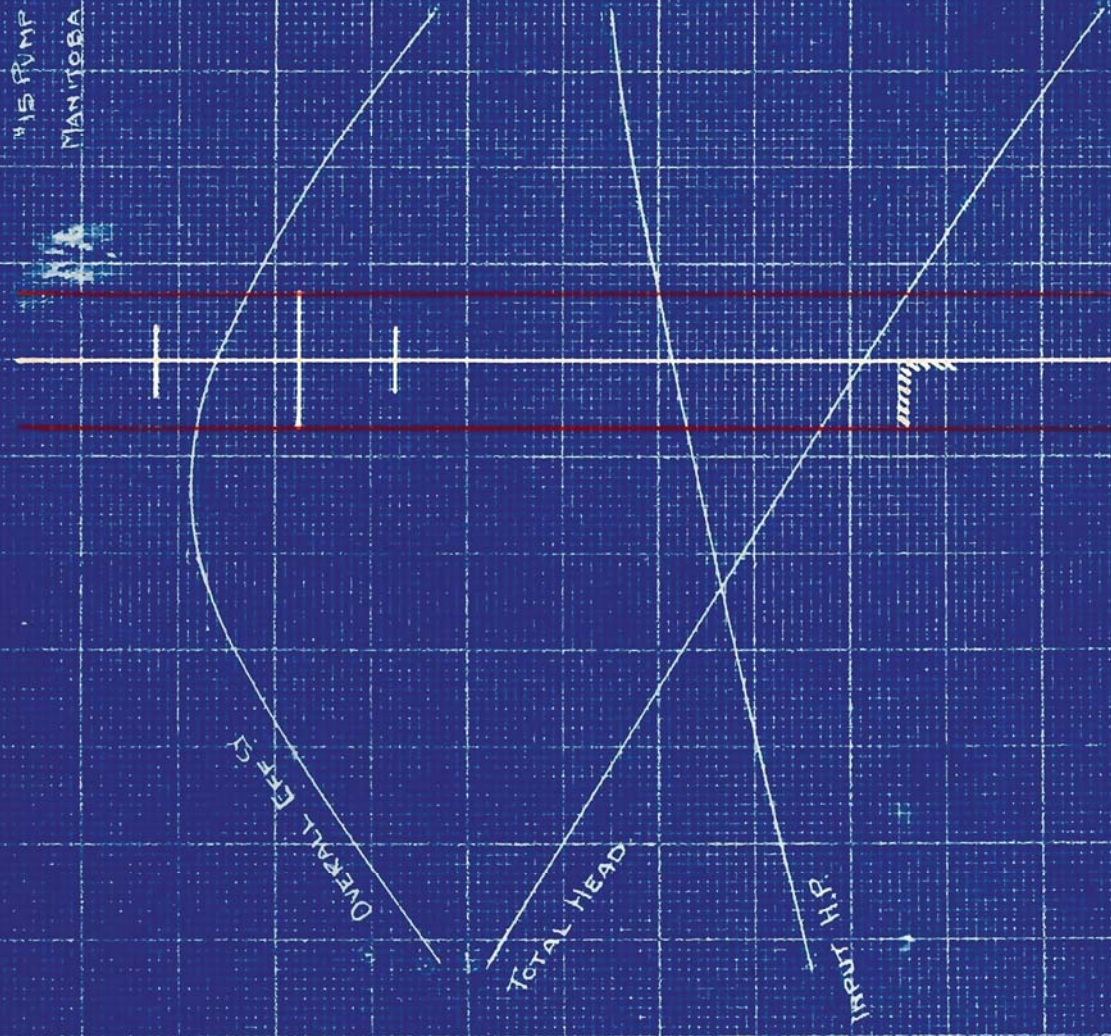
EFFICIENCY - PER CENT

HORSE-POWER

RUNNING TEST

PUMP - SERIAL NO. 218

CAPACITY - U.S. GALLONS PER MIN.



TOTAL HEAD IN FEET

CORNISH

CORNISH

VERTICAL SEWAGE PUMPS

FOR G.W.S.D.

CURVES FROM SHOP TEST

DEC 31, 1936

"12 PUMP (6x5") - IMPELLER 12 1/2" DIA

MANITOBA BRIDGE & I.W. - CONT. M1000

65

OVERALL EFF. %

TOTAL HEAD.

INPUT H.P.

TOTAL HEAD IN FEET.

HORSEPOWER

RUNNING TEST

CAPACITY - U.S. GALLS. PER MIN.

PUMP - SERIAL N° 223

1200

CORNISH

PUMP SIZE 3"x6" **STATION No 3** **COMMONWEALTH** **MOTOR**
DISCHARGE PIPE SIZE 6 5/8" **PUMP No 218** **15 A** **RATED DISCHARGE** 1400 GPM **550 VOLTS A.C.**
SUCKER PIPE SIZE 9" **INITIAL WATER TEMP.** 41° F. **RATED HEAD** 25' **15 H.P.**
IMPELLER DIAMETER 14 3/4" **FINAL WATER TEMP.** 42° F. **GUARANTEED EFFICIENCY** 64.5% **720 R.P.M.**

GREATER WINNIPEG SANITARY DISTRICT
CONTRACT No 28 **SMALL SEWAGE PUMPING UNITS**
TESTS MADE AT THE MANITOBA BRIDGE CO.
December 4, 1936

TEST RUN No	VENTURI READING IN FEET	SUCTION GAUGE DISTANCE FROM WATER TO DISCHARGE IN FEET	DISCHARGE GAUGE DISTANCE FROM WATER TO DISCHARGE IN FEET	MOTOR RPM	KW +20	QUANTITY		DISCHARGE VELOCITY FEET PER SECOND	SUCTION VELOCITY FEET PER SECOND	TOTAL HEAD IN FEET	PUMP OUTPUT H.P.	MOTOR INPUT H.P.	MOTOR EFFICIENCY %	PUMP INPUT H.P.	OVERALL PUMP EFFICIENCY %	REMARKS
						G.P.M.	C.F. PER SECOND									
1	3.5082	2.3750	3.2356	1.6875	.514	1409	3.14	7.13	3.163	25.72	9.16	13.775	88.30	12.21	66.5	75.4
2	1.0677	3.1250	2.8958	2.4792	.400	780	1.74	3.97	3.369	34.00	6.70	10.71	88.20	9.45	62.5	71.0
3	1.7750	2.7083	3.0313	2.1771	.442	995	2.22	5.05	3.104	30.87	7.77	11.97	88.25	10.58	65.0	77.7
4	2.5313	2.5823	3.1250	1.9427	.478	1193	2.66	6.10	3.158	28.30	8.54	12.80	88.20	11.28	66.7	75.7
5	0.3438	2.1250	3.3542	1.4740	.538	1564	3.48	7.95	3.104	23.63	9.33	14.40	88.30	12.70	64.8	73.2
6	0.4375	1.8125	3.4688	1.1927	.580	1764	3.92	8.90	2.921	20.42	8.87	15.60	88.30	13.28	59.7	65.6

PUMP SIZE 6" x 5" **STATION No 3** **COMMONWEALTH** **MOTOR**
DISCHARGE PIPE SIZE 5 3/4" **PUMP No 223** **10 H.P.** **RATED DISCHARGE** 850 GPM **550 VOLTS A.C.**
SUCKER PIPE SIZE 7 15/16" **INITIAL WATER TEMP.** 43° F. **RATED HEAD** 25' **10 H.P.**
IMPELLER DIAMETER 12 5/16" **FINAL WATER TEMP.** 45° F. **GUARANTEED EFFICIENCY** 62.4% **900 R.P.M.**

Dec. 31/36

TEST RUN No	VENTURI READING IN FEET	SUCTION GAUGE DISTANCE FROM WATER TO DISCHARGE IN FEET	DISCHARGE GAUGE DISTANCE FROM WATER TO DISCHARGE IN FEET	MOTOR RPM	KW +20	QUANTITY		DISCHARGE VELOCITY FEET PER SECOND	SUCTION VELOCITY FEET PER SECOND	TOTAL HEAD IN FEET	PUMP OUTPUT H.P.	MOTOR INPUT H.P.	MOTOR EFFICIENCY %	PUMP INPUT H.P.	OVERALL PUMP EFFICIENCY %	REMARKS
						G.P.M.	C.F. PER SECOND									
1	1.572	3.42	2.73	2.444	.251	457	1.04	5.65	3.556	32.669	3.79	6.74	89.14	6.00	56.3	63.3
2	6.30	3.11	2.84	2.180	.289	595	1.33	7.34	3.542	29.732	4.43	7.77	89.66	6.96	57.6	64.5
3	9.51	3.17	2.94	1.934	.302	732	1.63	9.03	3.521	26.844	4.97	8.12	89.74	7.27	61.2	66.2
4	1.275	3.04	3.04	1.200	.316	851	1.89	10.50	3.512	24.337	5.23	8.47	89.74	7.60	61.9	68.9
5	1.788	2.82	3.18	1.353	.327	1005	2.24	12.39	3.473	26.538	5.23	8.76	89.74	7.87	59.9	66.5
6	2.418	2.55	3.36	0.957	.326	1168	2.60	14.42	3.441	16.239	4.80	8.73	89.74	7.65	55.0	61.2
7	0.000	2.59	2.42	3.194	.131	0	0	0	0	41.120		3.53				

OBSERVATIONS BY _____
 CALCULATIONS BY _____
 CHECKED BY _____
 APPROVED BY _____