## **MEMORANDUM**



**J.L. Richards & Associates Limited** 700 - 1565 Carling Avenue Ottawa, ON Canada K1Z 8R1 Tel: 613 728 3571 Fax: 613 728 6012

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To: Dave Markell Ontario Clean Water Agency (OCWA) 5 Industrial Dr. Chesterville, ON K0C 1H0 Date:August 28, 2020JLR No.:28855-000.1CC:Angela Rutley, Township of North Dundas<br/>Khurram Tunio, Township of North Dundas<br/>Mary-Lynn Plummer, Township of North<br/>Dundas<br/>Mark Buchanan, P.Eng. J.L. Richards &<br/>Associates Limited

From: Annie Williams, P.Eng.

#### Re: Township of North Dundas - Hydraulic Water Model

#### **Background**

J.L. Richards & Associates Limited (JLR) has been retained by the Township of North Dundas (Township) to develop a hydraulic water model in support of the Municipal Environmental Assessment (Class EA) for the North Dundas Drinking Water Supply System Capacity Expansion works. Prior to completing this exercise, the Township had no hydraulic water model for their water distribution system.

#### Water Supply and Distribution System

The Township is comprised of two urban areas, Winchester and Chesterville, which are serviced by an interconnecting water distribution system involving multiple wells, storage reservoirs and pumping stations.

Until 2011, Winchester and Chesterville were serviced by two separate water distribution systems. Winchester was supplied by four wells (Winchester Well No. 1, Winchester Well No. 5, Winchester Well No. 6, and Winchester Well field No. 7, which consists of Wells No. 7A, 7B, and 7C) and had one elevated water tower. Chesterville was supplied by two well stations (Chesterville Well No. 5 and Chesterville Well No. 6) along with a standby well (Chesterville Well No. 1) and had one elevated water tower and a reservoir and pumping station located off of Brannen Drive.

In 2011, a reservoir and pumping station was constructed in Winchester on Gypsy Lane, east of St. Lawrence Street, and a transmission watermain was installed to connect the two systems. The valve arrangement at Chesterville Wells No. 5 and 6 allow water to be transferred in both directions, from Winchester to Chesterville or from Chesterville to Winchester.

#### Watermain Distribution Network

The Township's hydraulic water model was built within Bentley's WaterCAD® software platform. The scaled water distribution network was imported from GIS data consisting of pipes, junctions and hydrants. The GIS data included pipe diameters, materials and lengths. In accordance with the Ministry of the Environment, Conservation and Parks (MECP) design guidelines, the actual inside pipe diameters were modelled as follows:

Nominal Diameter (mm)	Inside Diameter (mm) (PVC, Ductile Iron)	Inside Diameter (mm) (AC)
100	108	101
150	155	152
200	204	203
250	250	254
300	297	305

#### Table 1: Pipe Diameters

Roughness coefficients or Hazen-Williams C-Factors were developed based on past experience and from the work done by Peter A. Lamont, entitled "Common pipe flow formulas compared with the theory of roughness" published in the American Water Works Association (AWWA) Journal in May 1981. Based on available information, consideration was given to pipe material and approximate pipe age. The modelled C-Factors are presented in the table below.

Material	Installation Veer	C-Factor for Nominal Diameter (mm)				
Wateria	Installation Year	100	150	200	250	300
Polyvinyl Chloride (PVC)	All	100	100	110	110	120
Asbestos-Cement (AC)	All		80	80		
Ductile Iron (DI)	1990-1999		87	90	90	95

Junction and hydrant topographical elevations were obtained from the Ontario Provincial Digital Elevation Model (PDEM). Three (3) pressure zones were assigned in the model: Winchester, Chesterville, and Transmission that interconnects the Winchester and Chesterville systems.

#### System Operating Parameters: Wells and Pumping Stations

The well stations and pumping stations were modelled based on information shown on the following drawings:

- Water Supply Expansion Contract No. 2, Wells 7A, 7B & 7C Wellhead Works, Drawing No. 14946-02-M1, Rev. 2 dated October 30, 1997 prepared by JLR
- Chesterville Well No.6 Upgrade, Drawing No. E-2, Rev. 3 dated September 20, 2004 prepared by Stantec Consulting Ltd.
- Winchester Water Supply Upgrades- Phase 2, Part A, Reservoir and Pump Station, Drawing No. PR03, Rev. 2 dated April 14, 2014 prepared by Stantec Consulting Ltd.
- Village of Chesterville Waterworks Improvements, Drawings M1, M2, M3, Rev. 1 dated June 1990 prepared by Totten Sims Hubicki Associates

Pump curves and water tower levels were provided within several documents received from the Township (refer to Attachment 1 for Pump curves and water tower levels).

The following table summarizes the water tower operating levels input in the model.

#### Table 3: Winchester and Chesterville Water Tower Operating Levels

Description	Winchester Tower Elevation (m)	Chesterville Tower Elevation (m)
Base Elevation	104.50	103.77
Low Water Level	104.59	103.77
Normal Water Level	113.17	110.77
High Water Level	114.85	111.97
Overflow	115.50	112.67

#### Water Demands

The modelled water demands were based on monthly average day demand data provided by the Township. The total Township average and maximum day demands were obtained from the past five (5) years (2015 – 2019) of water production data provided by OCWA. The MECP peaking factors in accordance with Table 3-1 of their design guidelines were used to estimate the total peak hour demand. Based on the estimated population for 2019 (4,355 people), a peaking factor of 1.5 x maximum day demand was used for the peak hour demand.

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Two (2) high water users were also accounted for in Winchester: Lactalis (formerly Parmalat) and the Winchester District Memorial Hospital. The Township provided monthly average day demand data for these two users. The average day demand for Lactalis was taken as the monthly average over the past three (3) years (2017 – 2019). Due to the overall increase in water usage in 2017 as compared to 2016, the past three (3) years were considered to provide the most representative data for Lactalis. The average day demand for the hospital was taken as the monthly average in 2018, which was the most recent year with complete data. The City of Ottawa peaking factors in accordance with Table 4.2 of their design guidelines were used to estimate the hospital's maximum day and peak hour demands. A peaking factor of 1.5 x average day demand was used for maximum day demand and peak hour demand, respectively. The peaking factor of 1.5 x average day demand was used to estimate the maximum day demand for Lactalis, while its peak hour demand was assumed to be equal to its maximum day demand. MECP peaking factors were not used for the high water users because the Lactalis demand is expected to remain relatively consistent, and the resulting maximum day and peak hour demands obtained using MECP peaking factors were deemed too high. It is noted that the City of Ottawa peaking factors are still anticipated to provide a conservative assessment.

The table below summarizes the water demands for the high water users and the total for the Township.

Water User	Water Demand Scenario			
Water User	Average Day (L/s)	Maximum Day (L/s)	Peak Hour (L/s)	
Lactalis (formerly Parmalat)	14.68	22.02	22.02	
Winchester District Memorial Hospital	0.70	1.05	1.89	
Township of North Dundas (Winchester & Chesterville, including high water users)	27.90	54.90	66.08	

#### **Table 4: Water Demand Summary**

The water demands for the high water users were deducted from the total Township demands and assigned to the nearest nodes. The remaining water demands were distributed amongst the representative junctions and hydrants, based on the parcel count assigned to each node. All parcels were equally weighted and any vacant parcels based on satellite imagery were not included. No rural properties situated along the transmission mains (watermain from Winchester Well No. 6 and Winchester Well Field No. 7, and watermain between Winchester and Chesterville) were considered to be connected to the water distribution system.

#### Model Scenarios

The newly constructed hydraulic water model was used to simulate the performance of the current system under existing flow conditions. The following operating conditions were assumed for these simulations:

- The existing average day scenario assumes that no pumps are operating, while the Winchester elevated storage tank level is at 113.17 m (tower start elevation provided from OCWA) and the Chesterville elevated storage tank level is at 110.77 m.
- The existing maximum day plus fire flow scenario assumes that several pumps (in Winchester: Well 1, Well 5, Well 6, Well 7B, Reservoir Duty Pump 1; and in Chesterville: Well 5, Well 6, Reservoir High Capacity Pump 3) are operating, while the Winchester elevated storage tank level is at 113.17 m and the Chesterville elevated storage tank level is at 110.77 m. In addition, the Winchester reservoir level is at 78.81 m and the Chesterville reservoir level is at 71.80 m.
- The existing peak hour scenario assumes that several pumps (in Winchester: Well 1, Well 5, Well 6, Well 7B, Reservoir Duty Pump 1; and in Chesterville: Well 5, Well 6, Reservoir Duty Pump 1) are operating, while the Winchester elevated storage tank level is at 113.17 m and the Chesterville elevated storage tank level is at 110.77 m. In addition, the Winchester reservoir level is at 78.81 m and the Chesterville reservoir level is at 71.80 m.

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Note that under the average day, maximum day and peak hour scenarios, the following MECP Design Guidelines are applicable:

- The maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi), and in occupied areas shall not exceed 552 kPa (80 psi).
- Maximum Day: Pressure is to be within the range of 345 kPa (50 psi) and 480 kPa (70 psi).
- <u>Maximum Day + Fire Flow</u>: Residual pressure at any point in the distribution system shall not be less than 140 kPa (20 psi).
- Peak Hour: Pressure is to be above 275 kPa (40 psi).

A summary of the results of these simulations is provided in Table 5.

#### Table 5: Hydraulic Water Model Results – Existing Conditions

Demand Scenario	General Results	Notes
Average Day	Good. Pressure Range: 248-418 kPa	These results are for the junctions and hydrants in the Winchester and Chesterville pressure zones only. All pumps are off in this simulation. Only two (2) hydrants experience pressures below 275 kPa and there are no customer connections in the vicinity of these hydrants.
Maximum Day + Fire Flow	Good. Fire Flow Availability: 26-314 L/s	These results are for the hydrants in the Winchester and Chesterville pressure zones only. Normal pumps are operating in this simulation, with the exception of the Chesterville reservoir where only one high capacity pump is operating. There are twenty-one (21) hydrants which are currently expected to have lower fire flow availability (less than 45 L/s). These hydrants are located along dead-end watermains or at the outer extents of the distribution system. All other nodes have expected fire flow availability in excess of 45 L/s.
Peak Hour	Good. Pressure Range: 276-548 kPa	These results are for the junctions and hydrants in the Winchester and Chesterville pressure zones only. Normal pumps are operating in this simulation. All nodes experience pressures above 275 kPa.

The following tables summarize the model results under existing conditions for the Winchester and Chesterville pressure zones based on the percentage of junctions in the model within each stated pressure range or available fire flow range. Model schematics for all scenarios are included in Attachment 2.

#### Average Day Demand

Table 6 presents the average day simulation results.

#### Table 6: Hydraulic Water Model Results - Average Day Demand

Pressure (kPa)			
From	То	Existing	
	<=275	0.5%	
>275	<=350	26.5%	
>350	<=480	73.0%	

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>480	<=550	0.0%
>550	<=700	0.0%
>700		0.0%

Under average day demand, system pressures under existing conditions are found to be above the minimum recommended pressure of 275 kPa (40 psi), in accordance with the MECP Design Guidelines. Only two (2) hydrants do not achieve 275 kPa: hydrant H-194 along the transmission main from Well Field #7 (topographical high point), and hydrant H-174 near Well #6. No customers are connected to the water distribution system in the vicinity of these two hydrants.

#### Maximum Day Demand + Fire Flow

Table 7 presents the maximum day plus fire flow simulation results.

Available F	ire Flow (L/s)		
From	То	Existing	
	<=30	2.3%	
>30	<=45	7.3%	
>45	<=75	41.7%	
>75	<=100	22.0%	
>100	<=150	20.2%	
>150	<=250	6.0%	
>250		0.5%	

#### Table 7: Hydraulic Water Model Results – Maximum Day Demand + Fire Flow

Under maximum day demand plus fire flow, available fire flows under existing conditions are generally found to be above 45 L/s, which is the minimum required fire flow per the Ontario Building Code (OBC) for a typical single family home. Hydrants which are expected to have less than 45 L/s of available fire flow are located along dead-end watermains or at the outer extents of the distribution system. All other hydrants have expected fire flow availability in excess of 45 L/s.

#### Peak Hour Demand

Table 8 presents the peak hour simulation results.

Pressu	re (kPa)		
From	То	Existing	
	<=275	0.0%	
>275	<=350	17.5%	
>350	<=480	79.4%	
>480	<=550	3.2%	
>550	<=700	0.0%	
>700		0.0%	

#### Table 8: Hydraulic Water Model Results – Peak Hour Demand

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Under peak hour demand, system pressures under existing conditions are found to be above the minimum recommended pressure of 275 kPa (40 psi), in accordance with the MECP Design Guidelines. One of the two hydrants which experienced low pressures in the average day demand simulation (H-194) is expected to experience pressures slightly above but close to 275 kPa, and no customers are connected to the water distribution system in the vicinity of this hydrant. The other of the two hydrants which experienced low pressures in the average day demand simulation (H-174) experiences an increase in pressure under the peak hour scenario because the nearby well pump is set to operate.

#### **Recommendations and Conclusions**

It is recommended that the Township update their water model periodically as new and better information becomes available over time regarding watermain rehabilitation or extensions and system operation. A pressure and flow monitoring field testing program in support of a model validation exercise would be beneficial in further refining the model's ability to accurately simulate real world conditions. Development of an extended period simulation (EPS) scenario within the model would also be beneficial in assessing water quality aspects of the distribution system.

Based on the model results, the existing water distribution system is operating in accordance with the pressure and flow recommendations of the current MECP Water Design Guidelines.

J.L. RICHARDS & ASSOCIATES LIMITED

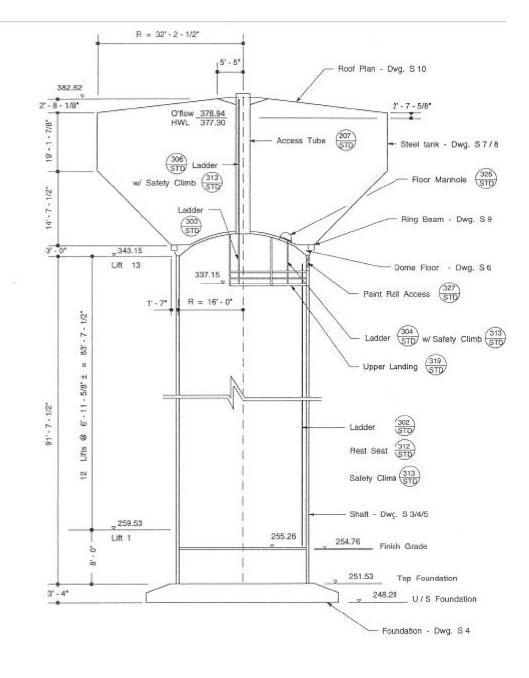
Prepared by:

Reviewed by:

Annie Williams, P.Eng. Civil Engineer Mark Buchanan, P.Eng. Senior Civil Engineer

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## **ATTACHMENT 1**



### WINCHESTER ELEVATED TANK \_

# DESIGN DATA

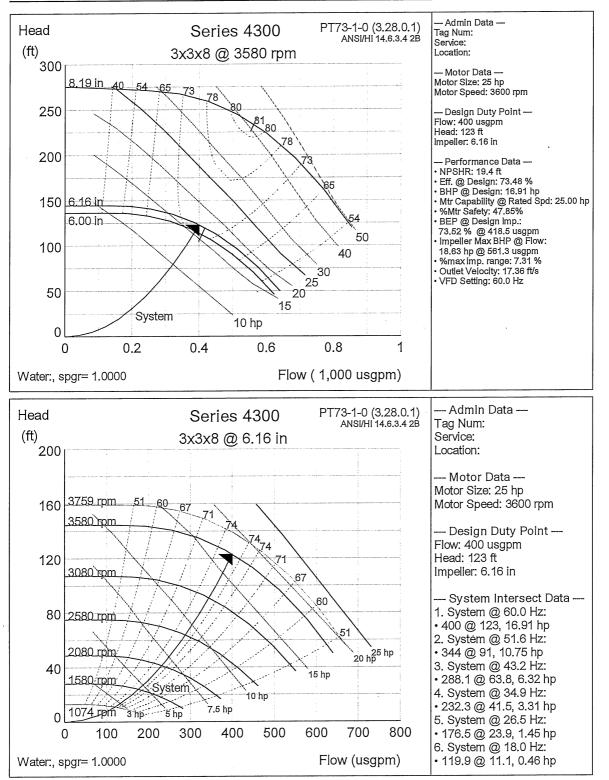
Volume	506,000	Imp. gals
HWL (High Water Level)	377.30	ft
LWL (Low Water Level)	347.30	ft
Range	30.00	fi
HWL to Overflow	1.64	ft.
GL (Finished Grade Level)	254.76	ft
Service Load Soil Bearing Capacity	7,310	psf
Underside of Footing	248.20	ft
Footing Thickness	3.33	ft
Snow Load	33.4	pst
Wind	100	mph
Earthquake Zone	2	

2,300

c.m

6/6/96

Performance curve



#### TOWNSHIP OF NORTH DUNDAS APPLICATION FOR AN AMENDMENT TO CERTIFICATE OF APPROVAL (WATER)

## Appendix B Winchester Booster Pump Technical Info

## PACO. PUMPS

#### Grundfos Quotation System 7.0.1.33

Impeller diameter: 6.83 in

Customer Price Sheet				
Project name / location	: WINCHESTER BPS	Tag Number	: 1634_00948_VIS_100201	
Consulting engineer	: Stantec Consulting, Jean Hebert	Service	:	
Customer	:	Pump size	: 50707 VL	
Customer ref. / PO	:	Quantity of pumps	: 2	
Quote number	: 100204-087	Quoted By (Sales Office)	: Grundfos Canada Inc.	
Date last saved	: 02/04/2010 13:27 PM	Quoted By (Sales Engineer)	: Grant Stanley, VSC	

### Construction

Construction Code: 16N6 - 50707 - 14010X - XXXX Flow: 54.50 l/s

Totals	•	 *** j	. 7	r		<u>نه</u>
Grand Total		\$ 21,086.00	Lead Time Total		N/A	

Head: 70.00 psi.g

10000		Average Unit Price	Extended Price
)ty 2	Description 5070-7 VL	\$ 10,543.00	\$ 21,086.00
-	Scope of Supply: Complete Unit (Pump and Motor)	+,	
	Pump Rotation: Clockwise		
	Pump Case material: Cast Iron, ASTM A48 - Class 30		
	Nozzle Configuration: 125# ANSI flange		
	Impeller Material: Silicon Bronze, ASTM B584 C87600		
	Impeller Cap Screw and Washer: Stainless Steel, AISI-303		
	Impeller Key: Steel, Cold Drawn C1018		
	Hardware Material: Steel, Grade 5		
	Wear Ring Material: Ni-Aluminum -Bronze, ASTM-B148, C95400		
	Wear Ring Configuration: Single (Case) Wear Ring		
	Shaft material: Steel, AISI-1040		
	Shaft sleeve material: Bronze, III932, C89835		
	Bearing Types: Rolling Element Bearing (Upper & Lower)		
	Bearing Lubrication: Regreasable		
	O Rings: Buna N		
	Insert: Provided		
	Seal Material (Elastomer/Rotating Element/Stationary Seat): Single Seal, Type 21S Buna/Carbon/Ceramic/SS-Spring&Hardware		
	Recirculation Lines: Nylon Tubing with Brass Fittings		
	Base: None		
	Motor size: NA 60 HP, 575/3/60hz, 3600 RPM, TEFC, Premium, Baldor -Weight not included in GA		
	Motor Manufacturer: Baldor		
	Motor Enclosure: TEFC		
	Motor efficiency: NEMA Premium		
	Motor phase: Three Phase		
	Motor Application: Suitable for Variable Speed Drive		
	Motor bracket: Motor bracket provided		
	Motor Bracket Material: Cast Iron, ASTM-A48, CL 30		
	Test level: No test		
	CAD drawing:		
	Leadtime: Custom leadtime/Contact factory for leadtime		
	Estimated Weights: 210Lbs		
	Coating: Standard Manufacturers Paint		
	Certifications: NSF-61 Certified (drinking water)		

## PACO PUMPS

Grundfos Quotation System 7.0.1.33

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## PACO PUMPS

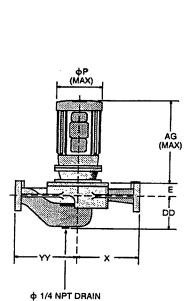
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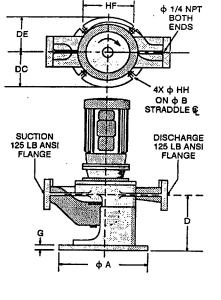
Project name / location       : WINCHESTER BPS       Tag Number       : 1634_00948_VIS_100201         Consulting engineer       : Stattec Consulting, Jean Habet       Sovice       :	GRUNDFOS		Cons	tructio	n Datasheet	Quotation System 7.0.1.35
Customer rf. / PO     :     Model     : 50707 VL       Customer rf. / PO     :     Quantity     : 2       Quate number     : 100204-087     Quantity     : 2       Quate hast saved     : 0204/2010 10.27 AM     Quade dby (Sales Office)     : Grant Stanley, VSC       Customer     : 125# ANSI     Side     Frame Size     : 325JM       Nozzle     5     125# ANSI     Side     Frame Size     : 326JM       Discharge     5     125# ANSI     Side     Frame Size     : 326JM       Citation     : Clockwise     Frame Size     : 326JM     : 6000 hp       Citation     : Clockwise     Enclosure     : TEFC       Wear Ring Configuration     : Single - Case     Operating Power Supply     : 575/3/60hz       Discharge Eibow Size     : -     Savioe factor     : -       Subplate     : -     Motor Application     : Suitable for Variable Speed Drive       Bearing Frame     : -     Motor Options/Accesories     : -       Bearing Type (Radia/Thrust)     : In motor     : -       Bearing Type (Radia/Thrust)     : In motor     : Case     : Case tron, ASTM A48 - Case 30       Intermediate Bearing     : -     : -     : -       Construction code     : 1NN - S0707 - 14010X - X0XX     : Case in motor	Project name / location		: WINCHESTER BPS		Tag Number	: 1634_00948_VIS_100201
Customer ref. / PO       :       Quantity       : 2         Quote number       : 100204-087       Quoted By (Sales Office)       : Grundfos Canada Inc.         Date last saved       : 0204/2010 10:27 AM       Quoted By (Sales Office)       : Grundfos Canada Inc.         Nozzie       Size (in.)       Nozzie Configuration       Perin       Manufacturer       : Baldor         Suction       5       125# ANSI       Side       Preme Size       : 8000         Orientation / Configuration       : Vertical       RPM       : 3600         Rotation       : Clockwise       Operating Power Supply       : 575/360hz         Discharge Elbow Size       : -       Efficiency       : FEF C         Subplate       : -       Service factor       : -         Subplate       : -       Motor Application       : Suitable for Variable Speed Drive         Bearing Frame Foot       : -       Motor Application       : Suitable for Variable Speed Drive         Bearing Frame Foot       : -       Motor Application       : -         Bearing Frame Foot       : -       Case       : Cast Iron, ASTM A43 - Class 30         Intermediate Bearing       : -       Motor Application       : Suitable for Variable Speed Drive         Bearing Frame Foot	Consulting engineer		: Stantec Consulting, Jea	n Hebert	Service	:-
Quote number     : 100204-087     Quoted By (Sales Office)     : Grant Stanley, VSC       Date last saved     : 2020/4/2010 10:27 AM     Quoted By (Sales Engineer)     : Grant Stanley, VSC       Nozzle     Size (In)     Nozzle Configuration     Posin     Manufacturer     : Baldor       Suction     5     125# ANSI     Side     Frame Size     : 326.JM       Discharge     5     125# ANSI     Side     Power     : 60.00 hp       Collentation / Configuration     : Vertical     Frame Size     : 326.JM     : 60.00 hp       Rotation     : Vertical     Frame Size     : 326.JM     : 60.00 hp       Rotation     : Vertical     Frame Size     : 7573/60/nz     : 7573/60/nz       Rotation     : Single - Case     Operating Power Supply     : 5753/60/nz     : 7573/60/nz       Subplate     : -     Sarvice factor     : -     : 7573/60/nz       Subplate     : -     Sarvice factor     : -       Subplate     : -     Cord Length (feet)     : Subplate       Bearing Frame Foot     : -     Cord Length (feet)     : -       Bearing Trame Foot     : In motor     Case     : Cast Iron, ASTM A48 - Class 30       Intermediate Bearing     : -     Motor Application     : Sattiron, ASTM A48, Class 30       Inter	Customer		:		Modei	: 50707 VL
Date last saved     : 02/04/2010 10:27 AM     Quoted By (Sales Engineer)     : Grant Stanley, VSC       Nozzle     Nozzle       Nozzle     Size (n.)     Nozzle Configuration     Posh     Manufacturer     : Baldor       Sucion     5     1254 ANSI     Side     Frame Size     : 226/M       Discharge     5     1254 ANSI     Side     Frame Size     : 226/M       Orientation / Configuration     : Vertical     RPM     : 6000 hp       Orientation / Configuration     : Vertical     RPM     : 5600       Orientation / Configuration     : Single - Case     Operating Power Supply     : 575/3/60hz       Wear Ring Configuration     : Single - Case     Operating Power Supply     : 575/3/60hz       Subplate     : Clockwise     Enclosure     : Fremium       Subplate     : -     Motor Application     : Sutable for Variable Speed Drive       Bearing Type (Radial/Trust)     : -     Motor Application     : Sutable for Variable Speed Drive       Bearing Type (Radial/Trust)     : Regressable     : Motor Options/Accessories     : -       Bearing Type (Radial/Trust)     : Regressable     : Motor Options/Accessories     : Cast Iron, ASTM A48 - Class 30       Thrust Bearing Ivousing Accessories     : In motor     Motor Application     : Salion Rozza, ASTM A58, 43	Customer ref. / PO		:		Quantity	: 2
Construction         Moszle         Stee (III)         Noszle Configuration         Pesin         Manufacturer         Baldor           Suction         5         125# ANSI         Side         Frame Size         : 326.JM           Discharge         5         125# ANSI         Side         Power         : 60.00 hp           Orientation / Configuration         : Vertical         RPM         : 3600           Rotation         : Clockwise         Enclosure         : TEFC           Operating Power Supply         : 575/3/60hz         Discharge Elbow Size         :           Subplate         : -         Motor Application         : Suitable for Variable Speed Drive           Bearing Frame         : -         Motor Options/Accessories         : -           Bearing Trame         : -         Cord Length (feet)         : -           Bearing Trame         : -         Motor Options/Accessories         : -           Bearing Trame         : -         Motor Difons/Accessories         : -           Bearing Trame         : -         Motor Bracket         : Cast Iron, ASTM A48 - Class 30           Intrust Bearing         : -         Motor Bracket         : Cast Iron, ASTM A48 - Class 30           Intermediate Bearing         : -         Impelier	Quote number		: 100204-087		Quoted By (Sales Office)	: Grundfos Canada Inc.
Nozzle         Size (in,)         Nozzle Configuration         Posh         Manufacturer         Baldor           Suction         5         125# ANSI         Side         Frame Size         326.MM           Discharge         5         125# ANSI         Side         Power         60.00 hp           Orientation / Configuration         Vertical         RPM         3600           Rotation         : Clockwise         Enclosure         : TEFC           Wear Ring Configuration         : Single - Case         Operating Power Supply         : 575/3/60hz           Discharge Elbow Size         : -         Efficiency         : Premium           Subplate         : -         Motor Application         : Suitable for Variable Speed Drive           Bearing Frame         : -         Motor Application         : Suitable for Variable Speed Drive           Bearing Frame Frame Frame Frame         : -         Kotor Options/Accessories         : -           Bearing Lubrication         : Regreasable         Motor Bracket         : Cast Iron, ASTM A48 - Class 30           Intermediate Bearing         : -         Kergreasable         : Cast Iron, ASTM A48 - Class 30           Construction code         : Shole - 5070 - 14010X - XXXX         Motor Bracket         : Cast Iron, ASTM A48 - Class 30	Date last saved		: 02/04/2010 10:27 AM		Quoted By (Sales Engineer)	: Grant Stanley, VSC
Suction         5         125# ANSI         Side         Frame Size         326JM           Discharge         5         125# ANSI         Side         Power         60.00 hp           Orientation / Configuration         : Vertical         RPM         3600           Rotation         : Clockwise         Refolsure         : TEFC           Wear Ring Configuration         : Single - Case         Operating Power Supply         : 575/3/60hz           Subplate         : -         Service factor         : -           Sump Deph (feet)         : -         Motor Application         : Suitable for Variable Speed Drive           Bearing Frame         : -         Motor Application         : Suitable for Variable Speed Drive           Bearing Type (Radial/Thrust)         In motor         Kotor Application         : Suitable for Variable Speed Drive           Bearing Lubrication         : Regressable         Case         : Cast Iron, ASTM A48 - Clases           Cord Length (feet)         : -         Motor Bracket         : Cast Iron, ASTM A48 - Clases           Discharge         : -         Motor Bracket         : Cast Iron, ASTM A48 - Clase           Bearing Union (or Cord         : -         Motor Bracket         : Cast Iron, ASTM A48 - Clase           Construction code         : 16		Ciolos	struction		Motori	plomation
Discharge     5     125# ANSI     Side     Power     60.00 hp       Orientation / Configuration     : Vertical     RPM     : 3600       Rotation     : Clockwise     Enclosure     : TEFC       Wear Ring Configuration     : Single - Case     Operating Power Supply     : 575/3/60hz       Discharge Elbow Size     : -     Efficiency     : Premium       Subplate     : -     Motor Application     : Suitable for Variable Speed Drive       Bearing Frame Foot     : -     Motor Application     : Suitable for Variable Speed Drive       Bearing Frame Foot     : -     Motor Application     : Suitable for Variable Speed Drive       Bearing Trame Foot     : -     Motor Application     : Suitable for Variable Speed Drive       Bearing Trame Foot     : -     Cord Length (feet)     : -       Bearing Trame Foot     : -     Cord Length (feet)     : -       Intermediate Bearing     : -     Motor Application     : Suiton Bronze, ASTM A48 - Class 30       Intermediate Bearing     : -     Motor Bracket     Cast Iron, ASTM A48, Class 30       Intermediate Bearing     : -     Impelier     Sillon Bronze, AITM 8564       Lower Bearing     : -     Impelier Cas Screw and Washer     Sillon Bronze, ASTM-48148, Class 30       Drip Pan     : -     Seele AISI-1040	Nozzle	Size (in.)	Nozzle Configuration	Pos'n	Manufacturer	: Baldor
Orientation / Configuration     : Vertical     RPM     : 3600       Rotation     : Clockwise     Enclosure     : TEFC       Wear Ring Configuration     : Single - Case     Operating Power Supply     : 575/3/60hz       Discharge Elbow Size     : -     Efficiency     : Premium       Subplate     : -     Service factor     : -       Sump Depth (feet)     : -     Motor Application     : Suitable for Variable Speed Drive       Bearing Frame     : -     Motor Application     : Suitable for Variable Speed Drive       Bearing Type (Radia/Thrust)     : In motor     Mater of Legendriftee       Bearing Type (Radia/Thrust)     : In motor     Mater of Legendriftee       Bearing Type (Radia/Thrust)     : In motor     Mater of Legendriftee       Dearing Lubrication     : Regreasable     Case     : Cast Iron, ASTM A48 - Class 30       Intermediate Bearing     : -     Motor Bracket     : Cast Iron, ASTM A48 - Class 30       Intermediate Bearing     : -     Motor Bracket     : Cast Iron, ASTM A48 - Class 30       Intermediate Bearing     : -     Impeller Case Screw and Washer     : Stanliness Steal, ASI-303       Intermediate Bearing     : -     Impeller Case Screw and Washer     : Steel, Cold Drawn C1018       Construction code     : 1616 - 50707 - 14010X - XXXX     Case wear ring     : - </td <td>Suction</td> <td>5</td> <td>125# ANSI</td> <td>Side</td> <td>Frame Size</td> <td>: 326JM</td>	Suction	5	125# ANSI	Side	Frame Size	: 326JM
Rotation: ClockwiseEnclosure: TEFCWear Ring Configuration: Single - CaseOperating Power Supply: 575/3/60hzDischarge Elbow Size: -Efficiency: PrenulumSubplate: -Motor Application: Suitable for Variable Speed DriveBearing Frame: -Motor Application: Suitable for Variable Speed DriveBearing Frame: -Motor Application: Suitable for Variable Speed DriveBearing Type (Radial/Thrust): -Cord Length (feet): -Bearing Type (Radial/Thrust): In motorCase: Cast Iron, ASTM A48 - Class 30Thrust Bearing: -Motor Bracket: Cast Iron, ASTM A48 - Class 30Intermediate Bearing: -Impeller: Silion Bronze, ASTM B584Construction code: 16N6 - 50707 - 14010X - XXXXSilion Bronze, ASTM B584Construction code: 16N6 - 50707 - 14010X - XXXXCase wear ring: Silion Bronze, ASTM-B148, Class 30Drip Pan: -Impeller Cap Screw and Washer: Steel, Cold Drawn Clo16Coupling: -Impeller Wear ring: -Guard: OSHA ApprovedElevee: Bronze, III332, C89835Seal Material: Single Seal, Type 21SDischarge Pipo: -Seal Material: Short, Carb, Syspring&HardSucton Elbow: -Packing Cland: Steel, Grade 5Steel, Grade 5Steel, Grade 5Seal Material: Short, Syspring&HardDischarge Pipo: -Packing Cland: Short, Syspring&HardSucto	Discharge	5	125# ANSI	Side	Power	: 60.00 hp
Wear Ring ConfigurationSingle - CaseOperating Power Supply: 575/3/60hzDischarge Elbow Size: -Efficiency: PremiumSubplate: -Service factor: -Sump Depth (feet): -Motor Application: Suitable for Variable Speed DriveBearing Frame Foot: -Cord Length (feet): -Bearing Type (Radial/Thrust)In motorCase: -Bearing Type (Radial/Thrust): RegreasableCase: Cast Iron, ASTM A48 - Class 30Thrust Bearing: -Motor Daroket: Cast Iron, ASTM A48 - Class 30Intermediate Bearing: -Motor Bracket: Sillcon Brozze, ASTM B564Lower Bearing: -Impeller Cap Screw and Washer: Sillcon Brozze, ASTM B564Lower Bearing: -Impeller Cap Screw and Washer: Steel, Coid Drawn C1018Construction code: Not ApplicableImpeller Wear ring: Steel, Coid Drawn C1018Drip Pan: -Serve and Masher: Steel, Coid Drawn C1018Case Wear ring:Pump Shaft: -Case Mear ring: Single Seal, Type 21SSelve String Pipe: -Seal Material: Single Seal, Type 21SSublat: -Seal Material: Suna/Carb/Cer //SS-Spring&HadrSubplat: -Purup Caclustor Lines: Nylon Tubing with Brass Fitting:Purup: 210: Subplat:Seal Material: Nylon Tubing with Brass Fitting: Steel, Grade 5-Purup<	Orientation / Configuration	on ,	: Vertical		RPM	: 3600
Discharge Elbow Size:-Efficiency: PremiumSubplate:-Service factor:-Sump Depth (feet):-Motor Application: Sultable for Variable Speed DriveBearing Frame Foot:-Cord Length (feet):-Bearing Type (Radial/Thrust): In motorCord Length (feet):-Bearing Type (Radial/Thrust): In motorCase: Cast Iron, ASTM A48 - Class 30Intermediate Bearing:-Motor Bracket: Cast Iron, ASTM A48 - Class 30Intermediate Bearing:-Motor Bracket: Sultables Branz, ASTM A564Lower Bearing:-Impelier Cap Screw and Washer: Stainless Steel, AISI-303Lower Bearing:-Impelier Cap Screw and Washer: Stainless Steel, AISI-304Disp Pan:-Impelier Washer: Steel, Cold Drawn C1018Coupling:-Steeve arring: NicAluminum -Bronze, ASTM-B148, Casew are ring: Steel, AISI-1040Drip Pan:-Steeve: Steel, AISI-1040Coupling:-Steeve: Steel, AISI-1040Seal Material: Sundard/Type 21SSteel, Marce: Steel, Cold Drawn C1018Seal Material: Sundard/Type 21SSteel, Grade 5: Steel, Grade 5Packing Cland: Sundard/Type 21SSteel, Grade 5: Steel, Grade 5Seal Material: Nyton Tubing with Brass Fitting: Steel, Grade 5: Steel, Grade 5Pump: 210: Staindard Manufacturers Paint: Steel, Grade 5Pump: 210: Coulings <td: st<="" td=""><td>Rotation</td><td></td><td>: Clockwise</td><td></td><td>Enclosure</td><td>: TEFC</td></td:>	Rotation		: Clockwise		Enclosure	: TEFC
Subplate:-Service factor:-Sump Depth (feet):-Motor Application: Suitable for Variable Speed DriveBearing Frame:-Motor Options/Accessories:-Bearing Frame Foot:-Cord Length (feet):-Bearing Type (Radial/Thrust):In motorImmotorCast Iron, ASTM A48 - Class 30Bearing Lubrication: RegreasableCase: Cast Iron, ASTM A48 - Class 30Thrust Bearing:-Motor Bracket: Cast Iron, ASTM A48 - Class 30Intermediate Bearing:-Impeller: Cast Iron, ASTM A48 - Class 30Lower Bearing:-Impeller Cap Screw and Washer: Stainless Steel, AISI-303Intermediate Bearing:-Impeller Cap Screw and Washer: Stainless Steel, AISI-303Bearing Housing Accessories:-Impeller Key: Steel, Cold Drawn C1018Construction code: 16N6 - 50707 - 14010X - XXXCase wear ring: Cast Von, ASTM-B148, Case wear ringBeaseplateNot ApplicableImpeller Key: Steel, Cold Drawn C1018Drip Pan:-Steele, AISI-1040:Coupling:-Ithe Shaft: Cast Iron, ASTM-B148, Case wear ring: Steel, AISI-1040Guard:OSHA Approved:Ithe Shaft: Cast Iron, ASTM-B148, Case wear ring: Cast Iron, ASTM-B148, Case wear ringCase wear ring:-::: Cast Iron, ASTM-B148, Case wear ring: Cast Iron, ASTM-B148, Case wear ring: Cast Iron, ASTM-B148, Case wear ring: Cast Iron, ASTM-B148, Case	Wear Ring Configuratior	ı	: Single - Case		Operating Power Supply	: 575/3/60hz
Sump Depth (feet):Motor Application: Suitable for Variable Speed DriveBearing Frame:Motor Options/Accessories:Bearing Frame Foot:Cord Length (feet):Bearing Type (Radial/Thrust):In motorCase: Cast Iron, ASTM A48 - Class 30Brust Bearing Lubrication:RegreasableCase: Cast Iron, ASTM A48 - Class 30Intrust Bearing:.Impeller: Silicon Broze, ASTM 558Lower Bearing:.Impeller: Silicon Broze, ASTM 558Lower Bearing:.Impeller Cap Screw and Washer: Stainless Steel, AISI-303Bearing Housing Accessories:.Impeller Key: Steel, Cold Drawn C1018Construction code: 16N6 - 50707 - 14010X - XXXXCase wear ring: Casteo, Cold Drawn C1018Baseplate: Not ApplicableImpeller Key: Steel, AISI-1040Drip Pan:Coupling:Guard: OSHA ApprovedBaseplate: Single Seal, Type 21SSeal Material: Buna/Carb/Cer./SS-Spring&Hardw: CarbonaPacking Gland: Single Seal, Type 21SSeal Material: Nylon Tubing with Brass FittingsPump: 210Pump: 210<	Discharge Elbow Size		:-		Efficiency	: Premium
Bearing Frame: - Cord Length (feet): - Acat Length (feet)Bearing Type (Radial/Thrust): In motorCord Length (feet): -Bearing Type (Radial/Thrust): In motorCase: Cast Iron, ASTM A48 - Class 30Brunst Bearing Lubrication: RegreasableMotor Bracket: Cast Iron, ASTM A48, Class 30Intermediate Bearing: -Impeller Cap Screw and Washer: Stailcons Brotze, ASTM B584Lower Bearing: -Impeller Cap Screw and Washer: Stailenes Steel, AISI-303Bearing Housing Accessories: -Impeller Cap Screw and Washer: Stailenes Steel, AISI-303Baseplate: -Impeller Key: Steel, Cold Drawn C1018Coupling: -Impeller Wear ring: -Drip Pan: -Pump Shaft: Steel, AISI-1040Coupling: -Steel, AISI-1040: -Guard: OSHA ApprovedImeshaft: -Sealing Method: Single Seal, Type 21SDischarge Elbow: -Sealing Method: -Sudo Elbow: -Packing Gland: Nylon Tubing with Brass Fitting: Steel, Grade 5Pump: 210: Sudard Manufacturers PaintPump Coatings: 210: Stailard Manufacturers PaintPump Coating: 210: Stailard Manufacturers Paint	Subplate		:-		Service factor	:-
Bearing Frame Foot: -Cord Length (feet): -Bearing Type (Radial/Thrust)In molorKagreasableCase: Cast Iron, ASTM A48 - Class 30Bearing Lubrication: RegreasableCase: Cast Iron, ASTM A48 - Class 30Thrust Bearing: -Motor Bracket: Cast Iron, ASTM-A48, CL 30Intermediate Bearing: -Impeller: Sillicon Bronze, ASTM B64Lower Bearing: -Impeller Cap Screw and Washer: Stainless Steel, AISI-303Bearing Housing Accessories:Impeller Key: Steel, Coid Drawn C1018Construction code: 16N6 - 50707 - 14010X - XXXXCase wear ring: Cast Valuminum - Bronze, ASTM-B148, CasoBaseplate: Not ApplicableImpeller wear ring: Cast Valuminum - Bronze, ASTM-B148, CasoCoupling: -Seeve: Bronze, III932, C39835Guard: OSHA ApprovedCloumn: -Sealing Method: Single Seal, Type 21SDischarge Pipe: -Sealing Method: Single Seal, Type 21SDischarge Elbow: -Sealing Material: Buna/Carb/Cer//SS-Spring&Hardw: -Suction Elbow: -Yump: 210: -Hardwara: Steel, Grade 5Orings: 210: -Orings: Steel, Grade 5Driver: 0: -:Driver: 210: -: -Baseplate <td: -<="" td="">: -: -Driver<td: -<="" td="">: -: -Driver: 210: -Baseplate<td: -<="" td=""><td>Sump Depth (feet)</td><td></td><td>:-</td><td></td><td>Motor Application</td><td>: Suitable for Variable Speed Drive</td></td:></td:></td:>	Sump Depth (feet)		:-		Motor Application	: Suitable for Variable Speed Drive
Bearing Type (Radial/Thrust)In motorMotor BacketBearing LubricationRegreasableCase: Cast Iron, ASTM A48 - Class 30Thrust Bearing: -Motor Bracket: Cast Iron, ASTM A48, Cl 30Intermediate Bearing: -Impeller: Cast Iron, ASTM A48, Cl 30Lower Bearing: -Impeller: Cast Iron, ASTM A48, Cl 30Lower Bearing: -Impeller Cap Screw and Washer: Stainless Steel, AISI-303Bearing Housing Accessories: -Impeller Key: Steel, Cold Drawn C1018Construction code: 16N6 - 50707 - 14010X - XXXXCase wear ring: -Baseplate, Coupling and GuardImpeller wear ring: -: -Baseplate: Not ApplicableImpeller wear ring: -Drip Pan: -Sleeve: Bronze, III932, C89835: -Guard: OSHA Approved: -Column: -Sealing Method: Single Seal, Type 21SDischarge Pipe: -Sealing Matrial: Buna/Carb/Cer//SS-Spring&Hardw,Suction Eloow: -Packing Gland: -Suction Eloow: -Lantern Ring: Nylon Tubing with Brass Fittings: -Steel, Grade 5Pump: 210Standard Manufacturers PaintBaseplate:Driver: 0:Torver: 0:Marcel Intermediation Lines:Column:Column:Sealing Method<	Bearing Frame		:-		Motor Options/Accessories	:-
Bearing Lubrication: RegreasableCase: Cast Iron, ASTM A48 - Class 30Thrust Bearing: -Motor Bracket: Cast Iron, ASTM A48 - Class 30Intermediate Bearing: -Impeller: Cast Iron, ASTM A48 - Class 30Lower Bearing: -Impeller: Cast Iron, ASTM A48 - Class 30Bearing Housing Accessories: -Impeller Cap Screw and Washer: Stainless Steel, AISI-303Beaseplate, Gouring and Quark: Hot ApplicableImpeller Key: Steel, Cold Drawn C1018Drip Pan: -Reser ring: Steel, AISI-1040Couring: -Pump Shaft: Steel, AISI-1040Seal Method: OSHA ApprovedElseve: Bronze, III932, C89835Caurd: OSHA ApprovedColumn: -Seal Material: Buna/Carb/Cer./SS-Spring&Hardw: -Packing Gland: -Subplate: -Action Lines: Nylon Tubing with Brass Fittings: -Pump: 210: -Subplate: -Pump Coating: 210: -Pump Coatings: -Pump Coating: 210: -: -: -Baseplate: 210: -: -: -Pump Coating: 210: -: -: -Pump Coating: 210: -: -: -Baseplate: 210: -: -: -Pump Coatings: 210: -: -: -Baseplate: -: -: -: -Pump Coatings: 210: - <td>Bearing Frame Foot</td> <td></td> <td>:-</td> <td></td> <td>Cord Length (feet)</td> <td>:-</td>	Bearing Frame Foot		:-		Cord Length (feet)	:-
Thust Bearing-Motor Bracket: Cast Iron, ASTM-A48, CL 30Intermediate Bearing-impellerSilicon Bronze, ASTM B584 C67600Lower Bearing-Impeller Cap Screw and Washer: Stainless Steel, AISI-303Bearing Housing Accessories-Impeller Key: Steel, Cold Drawn C1018Construction code: 16N6 - 50707 - 14010X - XXXXCase wear ring: Steel, Cold Drawn C1018Baseplate, Courling and GuardImpeller wear ring: Steel, Cold Drawn C1018Drip Pan:Steeve arring: Steel, AISI-1040Coupling: OSHA ApprovedLine Shaft: Steel, AISI-1040Seal & Mich Metrid: OSHA ApprovedColumn: ColumnSeal & Metrial: Single Seal, Type 21SDischarge Pipe: ColumnSeal Material: Sungle Seal, Type 21SDischarge Elbow: Case used in ElbowRecirculation Lines: Nyon Tubing with Brass FittingsSubplate: Case used in ElbowPump: 210Sungle Seal Case in Elbow: Steel, Grade 5Pump: 210: Standard Manufacturers PaintBaseplate: 210: Standard Manufacturers PaintPump Coatlings: 210: Standard Manufacturers PaintPump Coatlings: 210: Standard Manufacturers PaintPump Coatlings: 210: 310Baseplate: 210: 310Baseplate: 210: 310Baseplate: 210Baseplate: 210Baseplate <td: 210<="" td="">Baseplate<td: 210<="" td="" td<=""><td>Bearing Type (Radial/Th</td><td>rust)</td><td>: In motor</td><td></td><td>Me</td><td>terials</td></td:></td:>	Bearing Type (Radial/Th	rust)	: In motor		Me	terials
Intermediate Bearing:	Bearing Lubrication		: Regreasable		Case	: Cast Iron, ASTM A48 - Class 30
ImpairsC87600Lower Bearing:-ImpairsC87600Bearing Housing Accessories:-Impeiler Cap Screw and Washer: Stainless Steel, AISI-303Bearing Housing Accessories:6Impeiler Key: Steel, Cold Drawn C1018Construction code: 16N6 - 50707 - 14010X - XXXXCase wear ring: Ni-Aluminum-Bronze, ASTM-B148, C95400Baseplate: Not ApplicableImpeiler wear ring: -Drip Pan: -Pump Shaft: Steel, AISI-1040Coupling: -Steeve: Bronze, III932, C89835Guard: OSHA ApprovedColumn: -Sealing Method: Single Seal, Type 21SDischarge Pipe: -Seal Material: Buna/Carb/Cer./SS-Spring&HardwSuction Elbow: -Packing Gland: -Subplate: -Lantern Ring: -Subplate: -Pump: 210O Rings: Buna NPump: 210: -: -Baseplate: -: -Driver: 0: -	Thrust Bearing		:-		Motor Bracket	: Cast Iron, ASTM-A48, CL 30
Bearing Housing Accessories: -Impelier Cap Screw and washer: Stainliss Steer, AIS-503Construction code: 16N6 - 50707 - 14010X - XXXXImpelier Cap Screw and washer: Steel, Cold Drawn C1018Baseplate, Goupling and GuardImpelier Key: Steel, Cold Drawn C1018Baseplate: Not ApplicableImpelier wear ring: -Drip Pan: -Sleeve: Bronze, III932, C89835Coupling: -Sleeve: Bronze, III932, C89835Guard: OSHA ApprovedLine Shaft: -Sealing Method: Single Seal, Type 21SDischarge Pipe: -Seal Material: Buna/Carb/Cer./SS-Spring&HardwSuction Elbow: -Packing Gland: -Subplate: -Lantern Ring: -Subplate: -Worl/Mic (Amatod): Nylon Tubing with Brass FittingsO Rings: Buna NPump: 210: -Pump Coatings: Standard Manufacturers PaintBaseplate: -: -: -Driver: 0: -: -	Intermediate Bearing		:-		Impeller	. Silicon Bronze, ASTM B584 C87600
Construction code: 16N6 - 50707 - 14010X - XXXXIntpelier KeyStele, Stele, Stel	Lower Bearing		:-		Impeller Cap Screw and Washer	: Stainless Steel, AISI-303
BaseplateCase wear ringCase wear ringC95400Baseplate: Not ApplicableImpeller wear ring: -Drip Pan: -Pump ShaftSteel, AISI-1040Coupling: -SleeveBronze, III932, C89835Guard: OSHA ApprovedLine Shaft: -Seal K Packing Construction: -Column: -Seal Material: Single Seal, Type 21SDischarge Pipe: -Seal Material: Buna/Carb/Cer./SS-Spring&Hardw, Nether Mith Brass FittingsSuction Elbow: -Recirculation Lines: Nylon Tubing with Brass FittingsSubplate: -Yuter Mith: 210Pump Coatings: Standard Manufacturers PaintBaseplate: -: -: -Driver: 0: -: -	Bearing Housing Access	ories	;-		Impeller Key	: Steel, Cold Drawn C1018
BaseplateNot ApplicableImpeller wear ring-Drip Pan-Pump Shaft: Steel, AISI-1040Coupling-Sleeve: Bronze, III932, C89835Guard: OSHA ApprovedLine Shaft: -Seel & Boote KBackling: Construction: -Seal & Boote KBackling: Single Seal, Type 21SDischarge Pipe: -Seal Material: Buna/Carb/Cer./SS-Spring&Hardw, I antern Ring: -: -Recirculation Lines: Nylon Tubing with Brass Fittings: -: -Wardwit: Nylon Tubing with Brass FittingsORings: Steel, Grade 5Pump: 210Pump Coatings: Standard Manufacturers PaintBaseplate: -: -: -Driver: 0: -: -Driver: 0: -: -: 0: -: -: -: 0: -: -: -: 0: -: -: -: 0: -: -: -: 0: -: -: -: 0: -: -: -: 0: -: -: -: 0 <td: 0<="" td="">: -: -: 0<td: 0<="" td=""><td: 0<="" td="">: -: 0<td: 0<="" td=""><td: 0<="" td=""><td: 0<="" td="">: -: 0: -: -: -: 0<td: 0<="" td=""><td: 0<="" td="">: -: 0<td: 0<="" td=""><td: 0<="" td="">: -: 0<td: 0<="" td=""><td: 0<="" td="">: -: 0<td: 0<="" td=""><td: 0<="" td=""><td: 0<="" td="">: 0<td: 0<="" td=""><td: 0<="" td="">: -<td></td><td></td><td></td><td>- XXXX</td><td>Case wear ring</td><td></td></td:></td:></td:></td:></td:></td:></td:></td:></td:></td:></td:></td:></td:></td:></td:></td:></td:>				- XXXX	Case wear ring	
Drip Pan:	Contraction of the second s	49101(e, 19(8)			Impeller wear ring	:-
Coupling Guard-SleeveBronze, III932, C89835GuardOSHA ApprovedLine Shaft-Seal MaterialSingle Seal, Type 21SDischarge Pipe-Seal MaterialBuna/Carb/Cer./SS-Spring&HardwDischarge Elbow-Packing Gland-Subplate-Lantern Ring-Subplate-Recirculation LinesNylon Tubing with Brass FittingsVet/dist CampositHardwareSteel, Grade 5Pump210Pump CoatingsStandard Manufacturers PaintPriver0Diver0Diver0Diver0Diver0Diver0Diver0Diver0Diver10Diver0DiverDiverDiverDiverDiverDiverDiverDiverDiverDiverDiver <t< td=""><td></td><td></td><td>: Not Applicable</td><td></td><td>Pump Shaft</td><td>: Steel, AISI-1040</td></t<>			: Not Applicable		Pump Shaft	: Steel, AISI-1040
GuardOSHA ApprovedLine Shaft	-		-		Sleeve	: Bronze, III932, C89835
Bed & Bachler ConductionColumn:			:-		Line Shaft	:-
Sealing MethodSingle Seal, Type 21SDischarge Pipe-Seal MaterialBuna/Carb/Cer./SS-Spring&HardwDischarge Elbow-Packing Gland-Suction Elbow-Lantern Ring-Subplate-Recirculation LinesNylon Tubing with Brass FittingsO Rings: Buna NWer/ds/-Pump210Pump Coatings: Standard Manufacturers PaintBaseplate-0Import Standard Manufacturers PaintDriver:0Import Standard Manufacturers Paint				- 199	Column	:-
Sealing Method       Single Seal, Type 21S         Seal Material       Buna/Carb/Cer./SS-Spring&Hardw,         Packing Gland       -         Lantern Ring       -         Recirculation Lines       Nylon Tubing with Brass Fittings         Vertrist       (Applace)         Pump       210         Baseplate       -         Driver       0		d a saaan			Discharge Pipe	:-
Packing Gland     :-     Suction Elbow     :-       Lantern Ring     :-     Subplate     :-       Recirculation Lines     : Nylon Tubing with Brass Fittings     Hardware     : Steel, Grade 5       O Rings     : Buna N       Pump     :210     Pump Coatings     : Standard Manufacturers Paint       Baseplate     :-     : Standard Manufacturers Paint	-		• • •			:-
Packing Gland        Lantern Ring        Recirculation Lines     : Nylon Tubing with Brass Fittings       Mitcr/bit     (Applicid)       Pump     : 210       Baseplate        Driver     : 0				ng&Hardw.	Suction Elbow	:-
Lantern Ring     :-       Recirculation Lines     : Nylon Tubing with Brass Fittings       Weither (Approx.)     Hardware       Pump     : 210       Baseplate     :-       Driver     :0			· ·			
Recirculation Lines     : Nylon 1 ubing with Brass Fittings     O Rings     : Buna N       Viet/ubit (Annicol)     Pump Coalings     : Standard Manufacturers Paint       Paseplate     : -     Driver     : 0	-		i - Maria Table and the P	F1441-		: Steel, Grade 5
Pump     : 210       Baseplate     : -       Driver     : 0	Recirculation Lines			Fillings		
Baseplate :- Driver :0	Pump		FRENCISSIES, LECENSIS		-	: Standard Manufacturers Paint
Driver : 0						
		s weight	: 210			

PACO. PUMPS

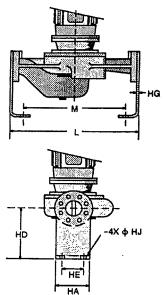
#### A3-1c.1 DIMENSIONS **IN-LINE CENTRIFUGAL PUMPS** TYPE VL

IN-LINE WITH SUPPORT STAND & WITH FLANGE SUPPORTS --- MODELS 4070-7 THRU 5095-9





HF



#### PUMP DIMENSIONS

Pump	Suct.	A	В	D	E	G	L	M	DC	DD	DE
Model	Disch.								(1)	(1)	(1)
4070-7	4	12	11	8-11/16	2		21	16	5-1/8	6-11/16	7-3/8
4095-7	4	16	13-1/2	8-3/4	2-1/8		25-1/2	20-1/2	6-5/8	6-3/4	8-7/8
4012-1, -7	4	16	13-1/2	8-3/4	2	3/4	27	20	7-3/4	6-3/4	9-3/4
5070-7	5	12	和書	10-1/8	2-1/8		24	19	6-1/8	7-3/4	8-5/8
5095-7, -9	5	16	13-1/2	9-3/4	2-1/4		27	22	7-1/8	7-1/8	9-1/2
(cont.)											
Pump	HA	HO	HE	HF	HG	НН	HJ	X	YY	1	
Model						(2)					
4070-7	6	8	4	7-13/16	1/2	·······	3/4	10	10		
4095-5	6	8	4	9-9/16	1/2		3/4	12	12-1/2		
4012-1, -7	6	8	4	9-9/16	1/2	3/4	3/4	13	13	1	
5070-7	7	10	5	7-13/16	1/2	127007	7/8	11-1/2	11-1/2		
5095-79	7	10	5	9-9/16	1/2		7/8	13	13	1	

MOTOR DIMENSIONS

		X3 CON	ST.			Х4		X5 CONST.			
	143TC/	182TC/	213TC/	254	213TC/	254TC/	284TC/	324TC/	364TC/	326TC	364TC/
	145JM	184JM	215JM	TC/JM	215JM	256JM	286JM	326JM	JM		365TC
P(max)	8	10	12	14	12	14	15	17	19	17	19
AG(max)											
(3)	18	20	22	24	22	24	26	30	31	30	31

SINGLE PHASE MOTORS

	X3 CONST.									
	143JM	145JM	182JM	184JM	213JM	215JM				
P(max)	8	8	10	10	12	12				
AG(max)	15	15	17	17	22	22				

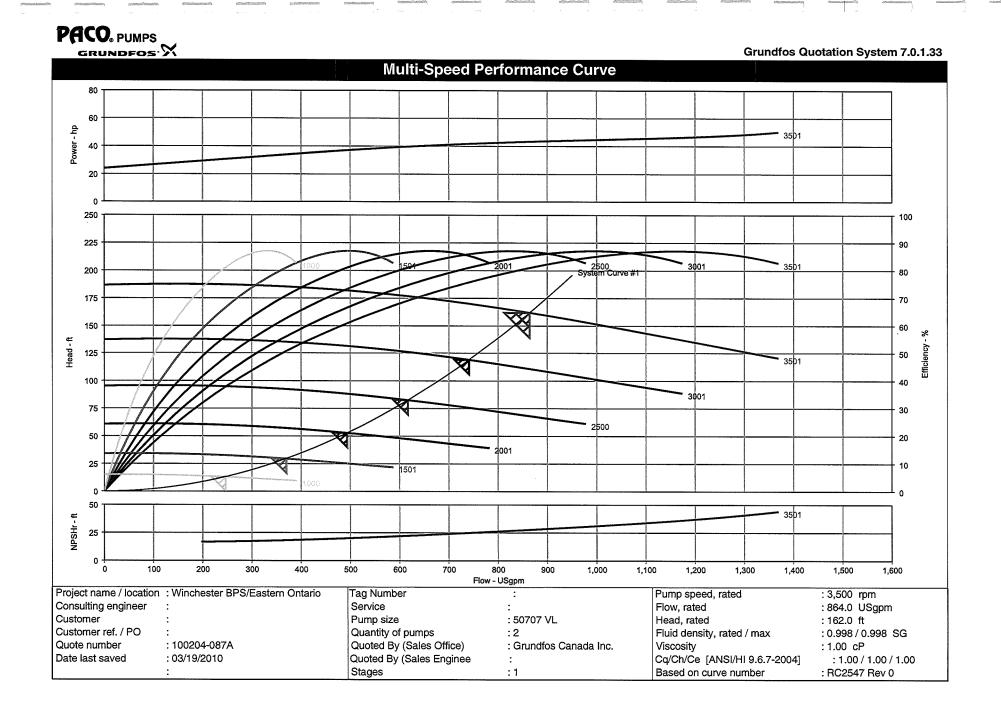
(1) Dimensions of cast surfaces vary  $\pm 1/4$ .

(2) 'HH' Dimension is slot, except 6095, 6012, & 8012 are holes.

(3) If head space requirement is critical, contact Factory.

In the interest of Product Improvement, dimensions are subject to change without notice. ALL DIMENSIONS ARE IN INCHES.

Customer	P.O. No	Job No	
Project	Item NoC	Certified ByDate	
HP, RPM, HZ	, V, ENCL	, FR, Total Wgt	



Grundfos Canada Inc. · 2941 Brighton Rd. · Oakville, ON L6H 6C9 phone: (905) 829-9533 · fax: (905) 829-9512 · www.grundfos.ca

#### TOWNSHIP OF NORTH DUNDAS APPLICATION FOR AN AMENDMENT TO CERTIFICATE OF APPROVAL (WATER)

## **Appendix C** Winchester Well #1 Pump Curve

### **Performance Curves**

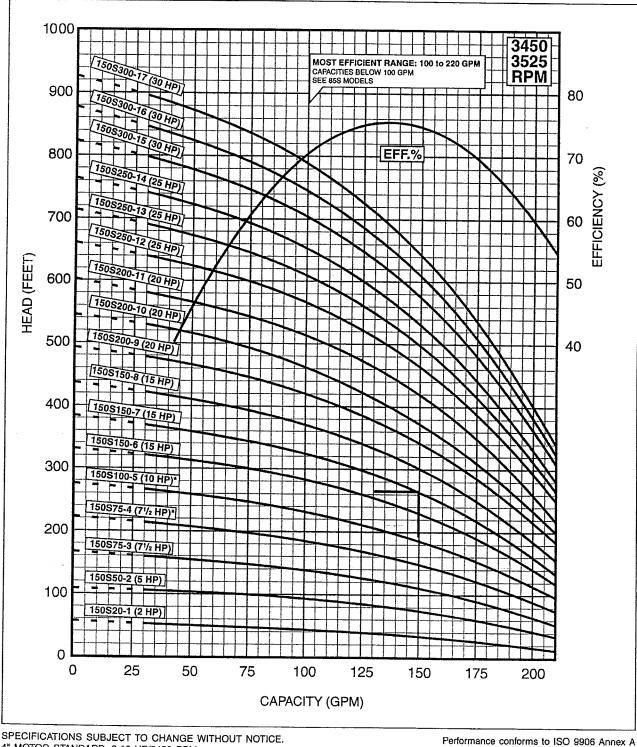
150 GPM

### Model 150S

FLOW RANGE: 30 -220 GPM

#### **OUTLET SIZE: 3" NPT**

#### NOMINAL DIA, 6"



4" MOTOR STANDARD, 2-10 HP/3450 RPM 6" MOTOR STANDARD, 7.5-60 HP/3450 RPM.

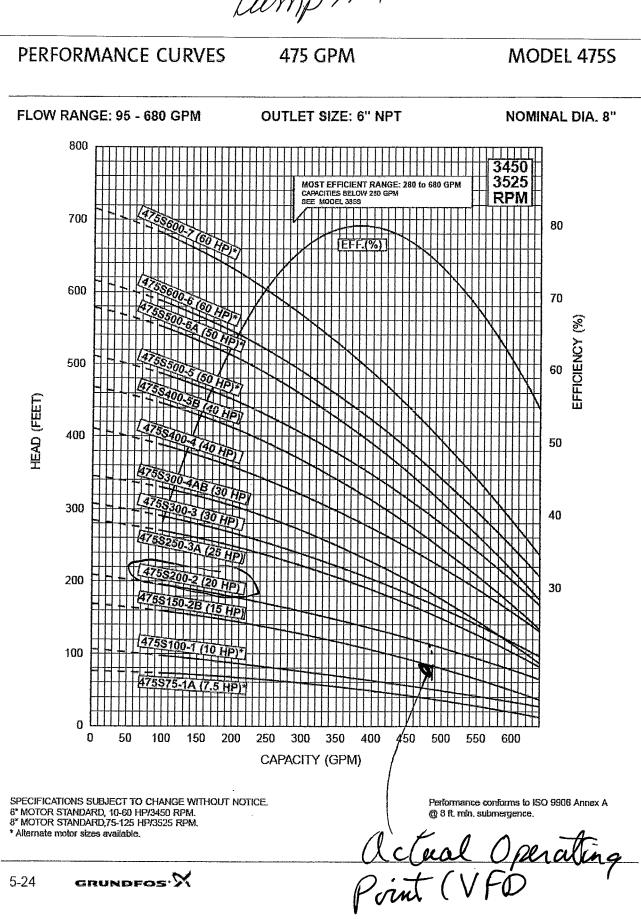
8" MOTOR STANDARD, 75 HP/3525 RPM.

\* Alternate motor sizes available.

incitiate motor sizes available.

Performance conforms to ISO 9906 Annex A @ 5 ft. min. submergence.

## **Appendix D** Chesterville Well #6 Pump Curve



Rump#6

PERFORMANCE CURVES

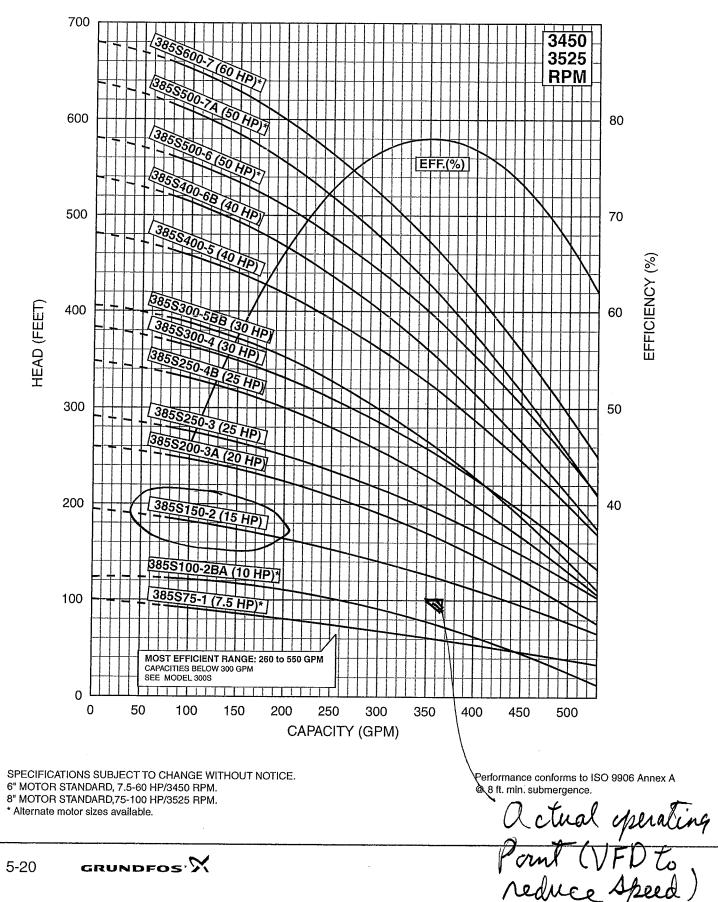


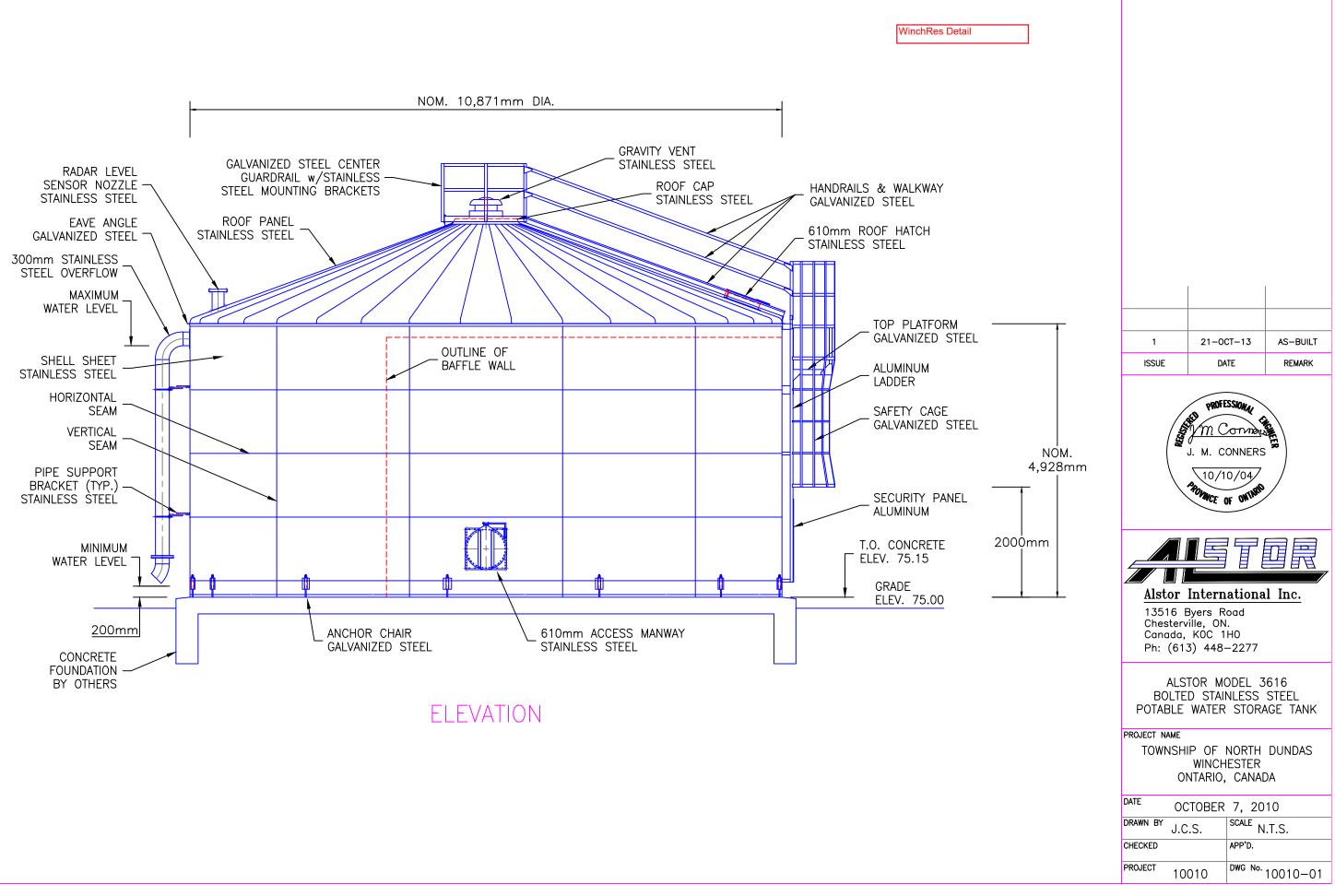
**MODEL 385S** 

#### FLOW RANGE: 75 - 550 GPM

**OUTLET SIZE: 4" NPT** 

NOMINAL DIA. 8"





#### INTERNATIONAL WATER SUPPLY LTD.

Ground Water Development - Drilling Services Pumps - Water Treatment - Service & Maintenance BARRIE ST. URSULE, PQ SASKATOON 342 Bayview Dr., Post Office Box 310 Barrie, Ontario, Canada L4M 4T5

Tel. 705-733-0111 • 800-461-9636 • Fax 705-721-0138 email iws@iws.ca

October 6, 2003

Ontario Clean Water Agency Chesterville Hub 5 Industrial Drive Chesterville, Ontario K0C 1H0

3648-



Attention: Dave Markell

#### Reference: Township of North Dundas Winchester Water Well No. 1

Enclosed we submit our Invoices No. 030930 for supply and installation of new Grundfos 150S150-6 pump, complete with 15 hp Franklin Electric motor, power cable and drop pipe, and No. 030931 for supply of Franklin Subtrol-Plus and replacement Start Control.

Also, enclosed for your records is Pump and Motor Installation, Operation and Maintenance manual complete with copy of our Installer's Report.

If you have any questions, please do not hesitate to call.

Regards,

John A. Harris, P. Eng. JAH/lw

### **Performance Curves**

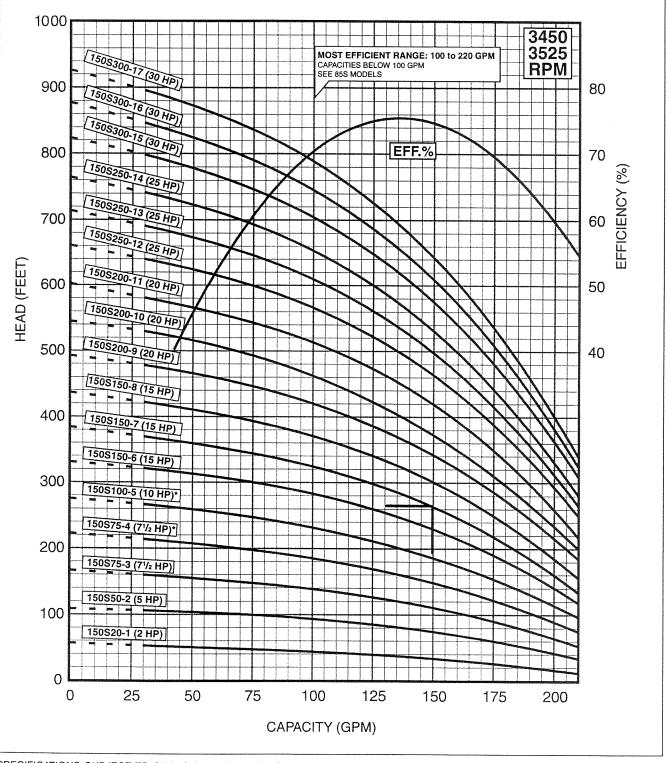
#### FLOW RANGE: 30 -220 GPM

**OUTLET SIZE: 3" NPT** 

**150 GPM** 

NOMINAL DIA. 6"

Model 150S



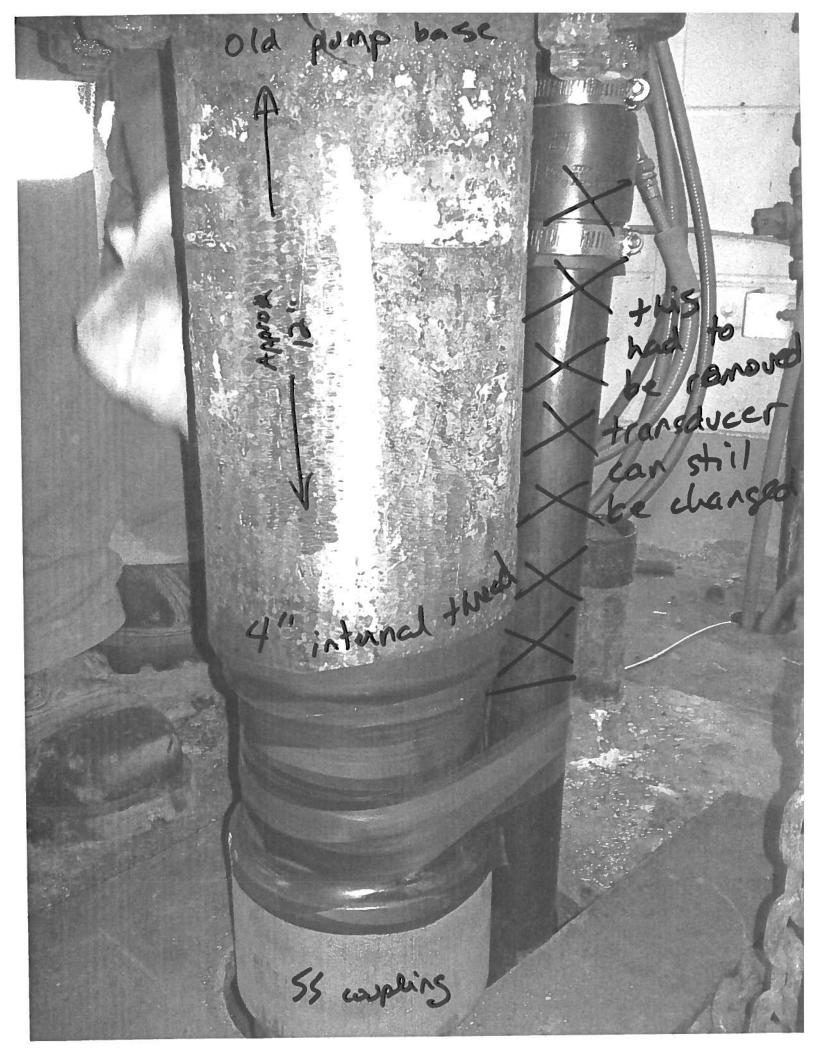
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. 4" MOTOR STANDARD, 2-10 HP/3450 RPM 6" MOTOR STANDARD, 7.5-60 HP/3450 RPM. 8" MOTOR STANDARD, 75 HP/3525 RPM.

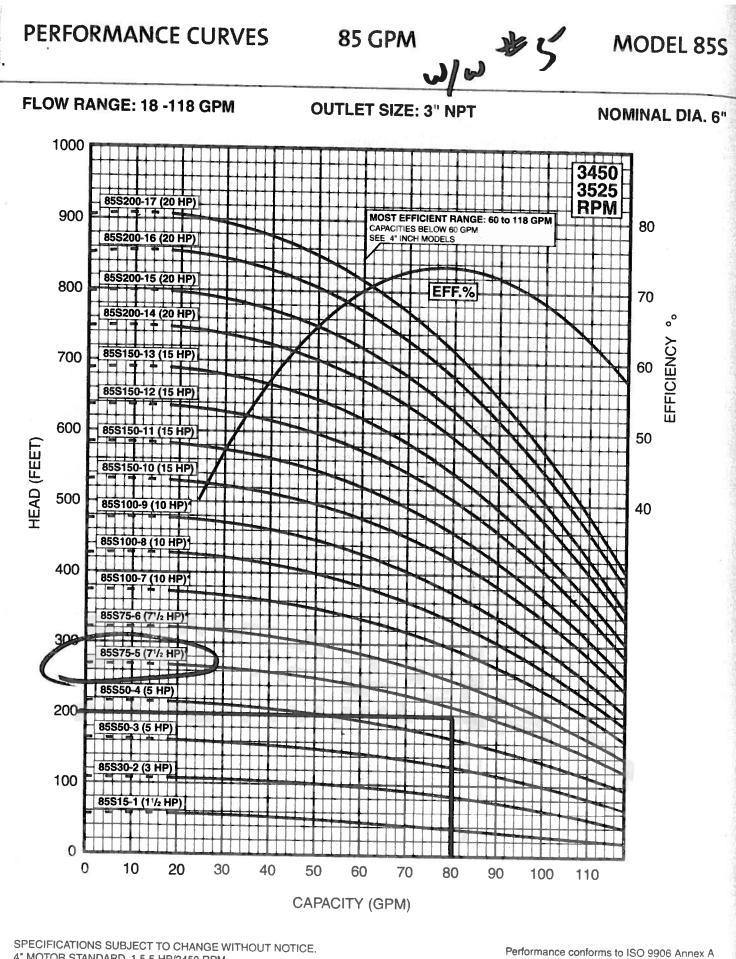
\* Alternate motor sizes available.



Performance conforms to ISO 9906 Annex A @ 5 ft. min. submergence.

20' ss 4" priper end. 20' welded to each end. A poly pipe for translos 55 couplins 4″ Œ FI Ticonsducer Set at 20' 55 4" pipe 4" SS coupling 20'55 4" pipe 4" SS coupling, 44"×3" SS reduced # 35575-5 Grund Fors model 12B60005 + 7.5 HP Franklin motor model 2343388602





4" MOTOR STANDARD, 1.5-5 HP/3450 RPM 6" MOTOR STANDARD, 7.5-50 HP/3450 RPM. \* Alternate motor sizes available.

GRUNDFOS

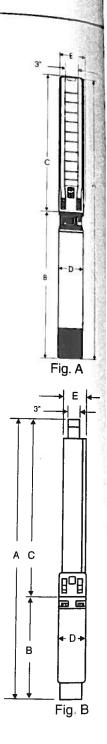
Performance conforms to ISO 9906 Annex A @ 5 ft. min. submergence.

## 85 GPM

MODEL 855

#### **DIMENSIONS AND WEIGHTS**

			MOTOR		D	IMENS	IONS I	N INCH	IS	APPROX.
MODEL NO.	FIG.	HP	SIZE	SIZE	A	В	С	D	Е	SHIP WT.
85S15-1	A	1 1/2	4"	<u>3" NPT</u>	25.9	13.6	12.3	3.75	5.2	37
85\$30-2	A	3	4"	3" NPT	35.3	20.6	14.7	3.75	5.2	61
85\$50-3	A	5	4"	<u>3" NPT</u>	40.7	23.6	17.1	3.75	5.2	75
PFC-00-1		5	4	O" NPT	431	-22.0	10.5	0.75	J.Z.	
85S75-5	A	7 1/2	4"	3" NPT	51.5	29.6	21.9	3.75	5.2	95
<u>95975-6</u>		7 1/2	4"		620	20.0	210	0.75	5.0	31
85S100-7	A	10	4"	3" NPT	70.5	43.9	26.6	3.75	5.2	151
85S100-8	<u> ^                                   </u>	- 10 )	4 <sup>n</sup>	3" NPT	72.9	43.9	29.0	3.75	52	1 154
8551000	-	-10/-		O" NPT	757	49.9	01.4	3.75	5.2	A
85576-6	A	<b>V</b> /12	6"	3" NPT	6.7	24.2	2	5.38	6.6	135
000/0-0	A	A1/2	<b>C</b> "	- OUNPT	404	21.2	2	5 38	L.K.	14/
856100-7	A	10		3" NPT	52.7	25.4	27.3	5.38	5.6	118
85S100-8	A	10	6"	<u>3" NPT</u>	55.0	25.4	29.6	5.38	5.6	151
85S100-9	A	10	6"	3" NPT	57.4	25.4	32.0	5.38	5.6	153
85S150-10	A	15	6"	<u>3" NPT</u>	62.4	28.0	34.4	5.38	5.6	170
85S150-11	A	15	6"	3" NPT	64.8	28.0	36.8	5.38	5.6	174
85S150-12	A	15	6"	3" NPT	67.2	28.0	39.2	5.38	5.6	176
85S150-13	A	15	6"	<u>3" NPT</u>	69.6	28.0	41.6	5.38	5.6	178
85S200-14	A	20	<u>6</u> "	3" NPT	74.5	30.6	43.9	5.38	5.6	193
85S200-15	A	20	6"	3" NPT	76.9	30.6	46.3	5.38	5.6	198
85S200-16	A	_20	6°	3" NPT	79.3	30.6	48.7	5.38	5.6	200
85S200-17	A	20	6"	3" NPT	81.7	30.6	51.1	5.38	5.6	202
85S200-18	A	20	6"	3" NPT	84.1	30.6	53.5	5.38	5.6	204
85S250-19	A	25	6"	3" NPT	88.9	33.1	55.8	5.38	5.6	240
85S250-20	A	25	6"	3" NPT	91.9	33.1	58.8	5.38	5.6	244
85S250-21	A	25	6"	3" NPT	94.3	33.1	61.2	5.38	5.6	246
85S250-22	A	25	6"	3" NPT	96.7	33.1	63.6	5.38	5.6	249
855300-23	A	30	6"	3" NPT	101.9	35.7	66.2	5.38	5.6	264
85S300-24	A	30	6"	3" NPT	104.1	35.7	68.4	5.38	5.6	266
85\$300-25	A	30	6"	3" NPT	106.4	35.7	70.7	5.38	5.6	271
85S300-26	A	30	6"	3" NPT	108.8	35.7	73.1	5.38	5.6	273
85\$300-27	A	30	6"	3" NPT	116.3	40.8	75.5	5.38	5.6	278
85S400-28	A	40	6"	3" NPT	118.7	40.8	77.9	5.38	5.6	281
855400-29	Α	40	6"	3" NPT	121.1	40.8	80.3	5.38 `	5.6	283
85S400-30	A	40	6"	3" NPT	123.4	40.8	82.6	5.38	5.6	287
85S400-33*	В	40	6"	3" NPT	139.7	40.8	98.9	5.38	6.9	343
85S400-36*	В	40	6"	3" NPT	146.9	40.8	106.1	5.38	6.9	354
85S500-39*	В	50	6"	3" NPT	171.0	57.8	113.2	5.38	6.9	448
85S400-33*	В	40	8"	3" NPT	134.7	35.8	98.9	7.5	6.9	377
85\$400-36*	В	40	8"	3" NPT	141.9	35.8	106.1	7.5	6.9	390
85S500-39*	В	50	8"	3" NPT	152.0	38.8	113.2	7.5	6.9	498



NOTES: All models suitable for use in 6" wells, unless otherwise noted.

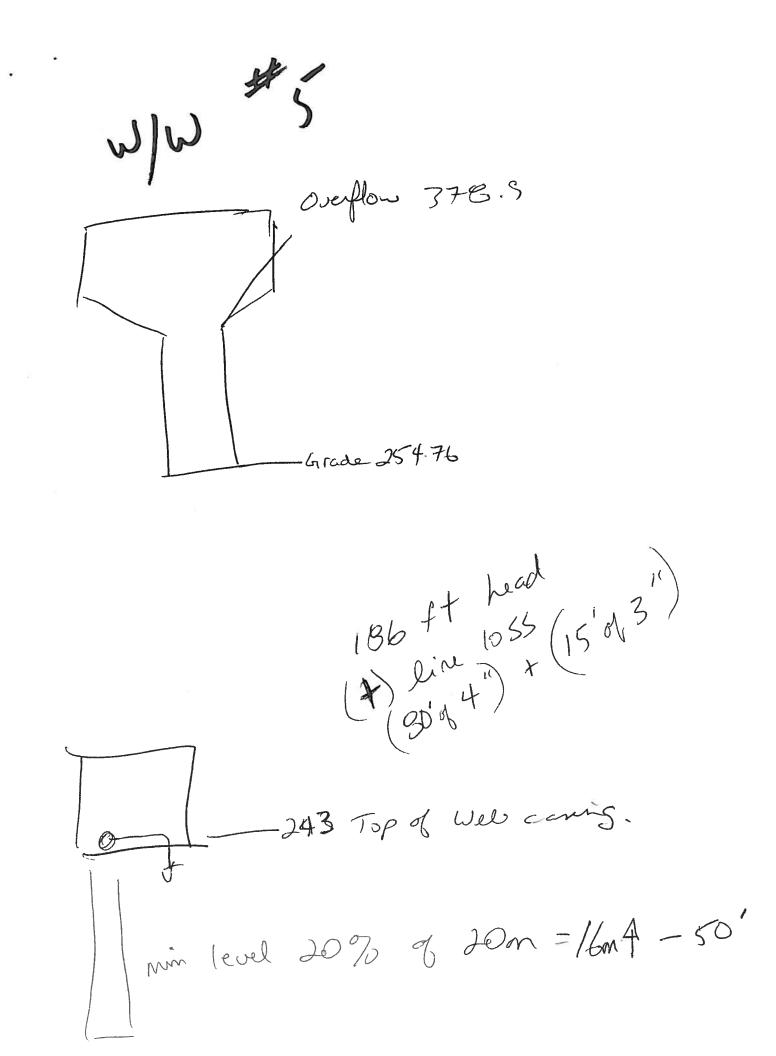
Weights include pump end with motor in lbs.

\* Built into sleeve 3" NPT discharge, 8" min. well dia.

4-2

+ 200' total head. Pump 35575-5 7.5 4" motor 3" NPT 51"457 overall length 75' cable 600 V. Check value

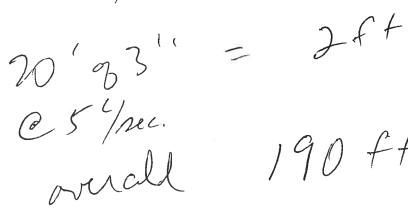
Rideau Pipe 267-5880



PTTW = 6.4 L/sec.

136' total Lift

80' q 4" = 1ft. @ 5 /pec



190 ft head.

54 pec = 80 gpm (015)

## Nominal Pipe Size: 3"

Inside Diameter: 0.078 m (3.1 inches)

	Flow		Velo	ocity	Pressure Drop					
2		(US gpm)	(m/s)	(ft/s)	(Pa/100m)	(mmH <sub>2</sub> O/100m)	(psi/100ft)	(ftH2O/100ft)		
(m³/s)	(liter/s)		0.25	0.82	1170	119	0.052	0.119		
0.0012	1.2	19.0		0.89	1326	135	0.059	0.135		
0.0013	1.3	21	0.27	0.96	1538	157	0.068	0.157		
0.0014	1.4	22	0.29		1766	180	0.078	0.18		
0.0015	1.5	24	0.31	1.03		198	0.086	0.198		
0.0016	1.6	25	0.33	1.1	1937	223	0.097	0.22		
0.0017	1.7	27	0.36	1.17	2187		0.108	0.25		
0.0018	1.8	29	0.38	1.24	2452	250	0.116	0.27		
0.0019	1.9	30	0.4	1.3	2631	268	0.129	0.3		
0.0020	2.0	32	0.42	1.37	2915	297		0.62		
0.0030	3.0	48	0.63	2.1	6054	617	0.27	1.05		
0.0040	4.0	63	0.84	2.7	10314	1052	0.46	1.64		
0.0050	5.0	79	1.05	3.4	16116	1643	0.71			
	6.0	95	1.26	4.1	22197	2263	0.98	2.3		
0.0060	7.0	111	1.46	4.8	30213	3081	1.34	3.1		
0.0070		127	1.67	5.5	39462	4024	1.74	4.0		
0.0080	8.0	143	1.88	6.2	47674	4861	2.1	4.9		
0.0090	9.0	145	2.1	6.9	58857	6002	2.6	6.0		
0.01	10.0		2.1	76	71017	7060	21	73		
0 011	11 0	17/	· · ·	11						

## Nominal Pipe Size: 4"

• Inside Diameter: 0.102 m (4.0 inches)

1

	Flow		Velo	ocity		Pressure	e Drop	
(m <sup>3</sup> /s)	(liter/s)	(US gpm)	(m/s)	(ft/s)	(Pa/100m)	(mmH <sub>2</sub> O/100m)	(psi/100ft)	(ftH2O/100ft)
0.0030	3.0	48	0.37	1.2	1649	168	0.073	0.168
	4.0	63	0.49	1.61	2814	287	0.124	0.29
0.0040	5.0	79	0.61	2.0	4214	430	0.186	0.43
0.0050	6.0	95	0.73	2.4	5805	592	0.26	0.59
0.0060	7.0	111	0.86	2.8	7901	806	0.35	0.81
0.0070	8.0	127	0.98	3.2	10319	1052	0.46	1.05
0.0080		143	1.1	3.6	12467	1271	0.55	1.27
0.0090	9.0	145	1.22	4.0	15391	1569	0.68	1.57
0.01	10.0	174	1.35	4.4	18623	1899	0.82	1.9
0.011	11.0	174	1.33	4.8	22163	2260	0.98	2.3
0.012	12.0	206	1.59	5.2	24772	2526	1.09	2.5
0.013	13.0	208	1.33	5.6	28730	2930	1.27	2.9
0.014	14.0		1.84	6.0	32981	3363	1.46	3.4
0.015	15.0	238	1.94	6.4	37525	3826	1.66	3.8
0.016	16.0	254		6.8	42362	4320	1.87	4.3
0.017	17.0	269	2.1	7.2	47493	4843	2.1	4.8
0.018	18.0	285	2.2	7.6	52916	5396	2.3	5.4
0.019	19.0	301	2.3		58633	5979	2.6	6.0
0.02	20	317	2.4	8.0		12780	5.5	12.8
0.03	30	476	3.7	12.0	125328	12700	0.0	12.10

**Dave Markell** 

From: Sent: To: Subject:

Eric Dubuc [eric@tricountystainless.ca] Wednesday, December 03, 2014 10:08 AM Dave Markell **RE: OCWA Drop Pipe Quote** 



Éric Dubuc eric@tricountystainless.ca Tel: (613) 537-8515 Cell: (450) 802-1496 2 railway street ingleside ont k0c1m0

De : Dave Markell [mailto:DMarkell@ocwa.com] Envoyé : Wednesday, December 03, 2014 9:45 AM À: eric@tricountystainless.ca Objet : OCWA Drop Pipe Quote

Could you provide a price for the following;

3 pcs 4" sched 40 SS pipe with threaded ends (cut or welded on) 1950.00\$ 5 pcs 4" SS couplings 260.00\$ 1 pc (4" X 3") SS reducer male threads 160.00\$ 1 pc 3" SS nipple 25.00\$ of Vilk Do

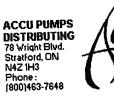
**Dave Markell** 1-613-448-3098 1-613-223-1571



#### THE RIDEAU GROUP INC. RIDEAU PIPE & DRILLING SUPPLIES LTD. Amherst Office Barrie Office **Head Office** P.O. Box 844 Amherst, NS B4H 4B9 P.O. Box 354 Perth, ON

Phone : (800)565-1575

18 Napier Court Utopia, ON LOM 1TO Phone : (855)728-4144



QUOTE 00112868

Date: 02-Dec/2014 Page #: 1

K7H 3E4 Phone : (800)268-7156

Our GST/HST No: 104529599

QUOTE FOR	ONTARIO CLEAN 5 INDUSTRIAL DI CHESTERVILLE, KOC 1H0		SHIP '	(	ONTARIO CLEAN 5 INDUSTRIAL DI CHESTERVILLE, 40C 1H0				
			CONTAC TEL		JOHN 613-448-3098	FAX 613-	448-1616		
REFERENCE CUSTOMER NO.	SHIP TO	SALES PERSO	DN		FOLLOW UP DATE	EXPIRY	ENTERED BY		
		Daryl Mawhinn				01-Jan/2015	ANDREWR2		
ONTCHE	ONTCHE	Daryi Mawillin							
	RMS 0 Days	F.O.B. Prepaid & Charge			SHIP VİA		P.S.T.		
PRODUCT		DELI	IVERY	UON	QUANTITY	PRICE	AMOUNT		
12B60005				EA	1	\$2,714.00	\$2,714.00		
85S75-5 PUMP E	ND ONLY 6" 7-1/2HP 8	ISGPM - FITS 4"		EA	1	\$1,226.40	\$1,226.40		
2343388602 MOTOR - FRANK TWU1447F7	LIN 7-1/2HP 575V 4" 3	PH		FT	200	\$0.71	\$142.00		

1 77 SUB WIRE 4C14(7) SOLD /FT TWU14-4

pump end stock in Oakville

motor stock in Bolton

pump end does not come with a check vavive

you will need to confirm what size of check valve you need me to quote

1		 MISCELLANEOUS	FREIGHT	HST	SALES TAX	TOTAL
	SUBTOTAL \$4,082.40	\$0.00	\$0.00	\$530.71	\$0.00	\$4,613.11 CANADIAN DOLLAR

### **Dave Markell**

From:Dave MarkellSent:Wednesday, December 03, 2014 9:45 AMTo:'eric@tricountystainless.ca'Subject:OCWA Drop Pipe Quote

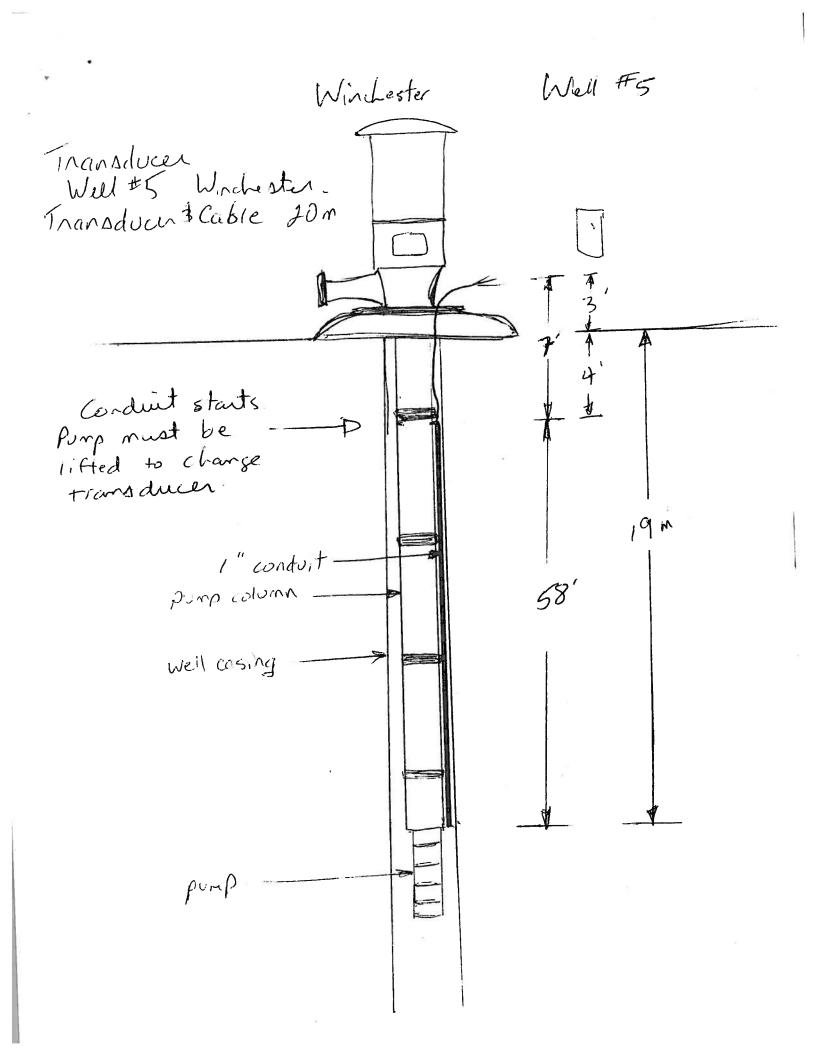
Could you provide a price for the following;

3 pcs 4" sched 40 SS pipe with threaded ends (cut or welded on) 5 pcs 4" SS couplings 1 pc (4" X 3") SS reducer male threads 1 pc 3" SS nipple

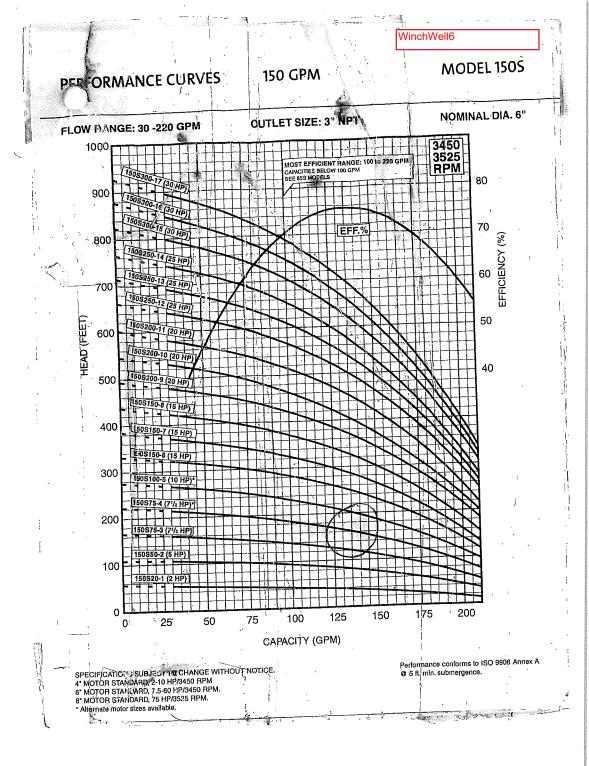
Dave Markell 1-613-448-3098 1-613-223-1571

<ul> <li>Test Well 3 Well #5</li> <li>Driller's log of formations: <ul> <li>0 to 8 feet</li> <li>b to 14 feet</li> <li>hardpan</li> <li>14 to 92 feet</li> <li>grey dolomite and limestone</li> </ul> </li> <li>Diameter of hole: 8 inches</li> <li>Casing diameter and position: 8 inches, 0 to 15 féet</li> <li>Water-bearing zones: 46 to 52 feet</li> <li>64 to 75 feet</li> <li>80 to 92 feet</li> </ul> <li>Static level: 0 feet <ul> <li>Depth: 92 feet</li> <li>Grouting: cement 0 to 10 feet</li> <li>History:</li> <li>May 1/72 - drilling commenced</li> <li>May 15/72 - well at a depth of 86 feet</li> <li>May 24, 25</li> <li>26/72 - 54-hour test at 100 gpm</li> </ul> </li>	•	2 Well # J					
O to 8 feet sand and gravel 8 to 14 feet hardpan 14 to 92 feet grey dolomite and limestone Diameter of hole: 8 inches Casing diameter and position: 8 inches, 0 to 15 feet Water-bearing zones: 46 to 52 feet 64 to 75 feet 80 to 92 feet Static level: 0 feet Depth: 92 feet Grouting: cement 0 to 10 feet History: May 1/72 - drilling commenced May 24/72 - 2-hour step test at 30, 70, 110 and 142 gpm May 24/72 - 54-hour test at 100 gpm	Driller's	les of format					
Casing diameter and position: 8 inches, 0 to 15 feet Water-bearing zones: 46 to 52 feet 64 to 75 feet 80 to 92 feet Static level: 0 feet Depth: 92 feet Grouting: cement 0 to 10 feet History: May 1/72 - drilling commenced May 15/72 - well at a depth of 86 feet May 24/72 - 2-hour step test at 30, 70, 110 and 142 gpm May 24, 25 & 26/72 - 54-hour test at 100 gpm	8	to 8 feet to 14 feet	sa ha	ardpan		imestone	
Water-bearing zones: 46 to 52 feet 64 to 75 feet 80 to 92 feet <u>Depth</u> : 92 feet <u>Grouting</u> : cement 0 to 10 feet <u>History</u> : May 1/72 - drilling commenced May 15/72 - well at a depth of 86 feet May 24/72 - 2-hour step test at 30, 70, 110 and 142 gpm May 24, 25 & 26/72 - 54-hour test at 100 gpm	Diameter	of hole: 8 i	inches				
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4"x3" -> WinchWell6 Material required ft. 4 2 - 3" × 4" Couplings A 4" jft. 2 - 4" × IFt. PIPE 3"x4" 2 - 3"× 11A. PIPE 1 - 3"X IDA. Hin PIPE 3" X 7ft. PIPE -Hft. 13" 4 - 3" couplings All pipe ends threaded. 3" - At Uft. 3" 10ff. 4in 3" 



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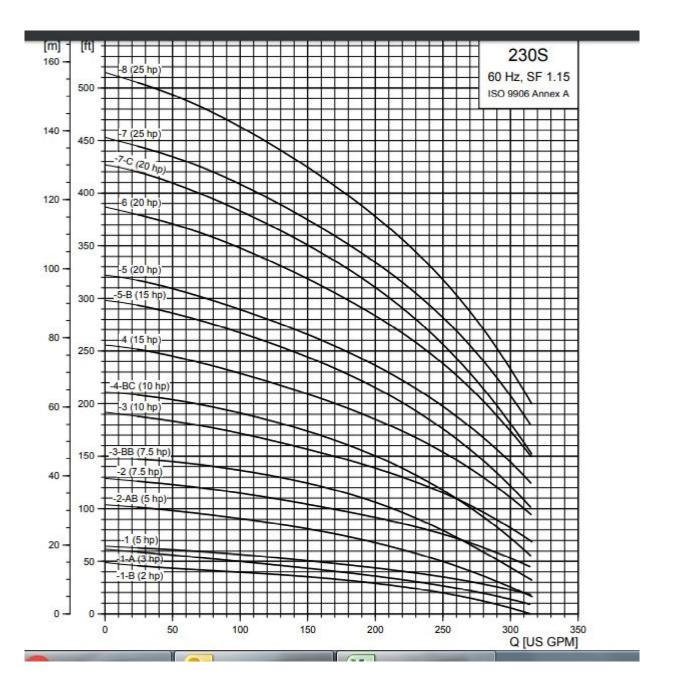
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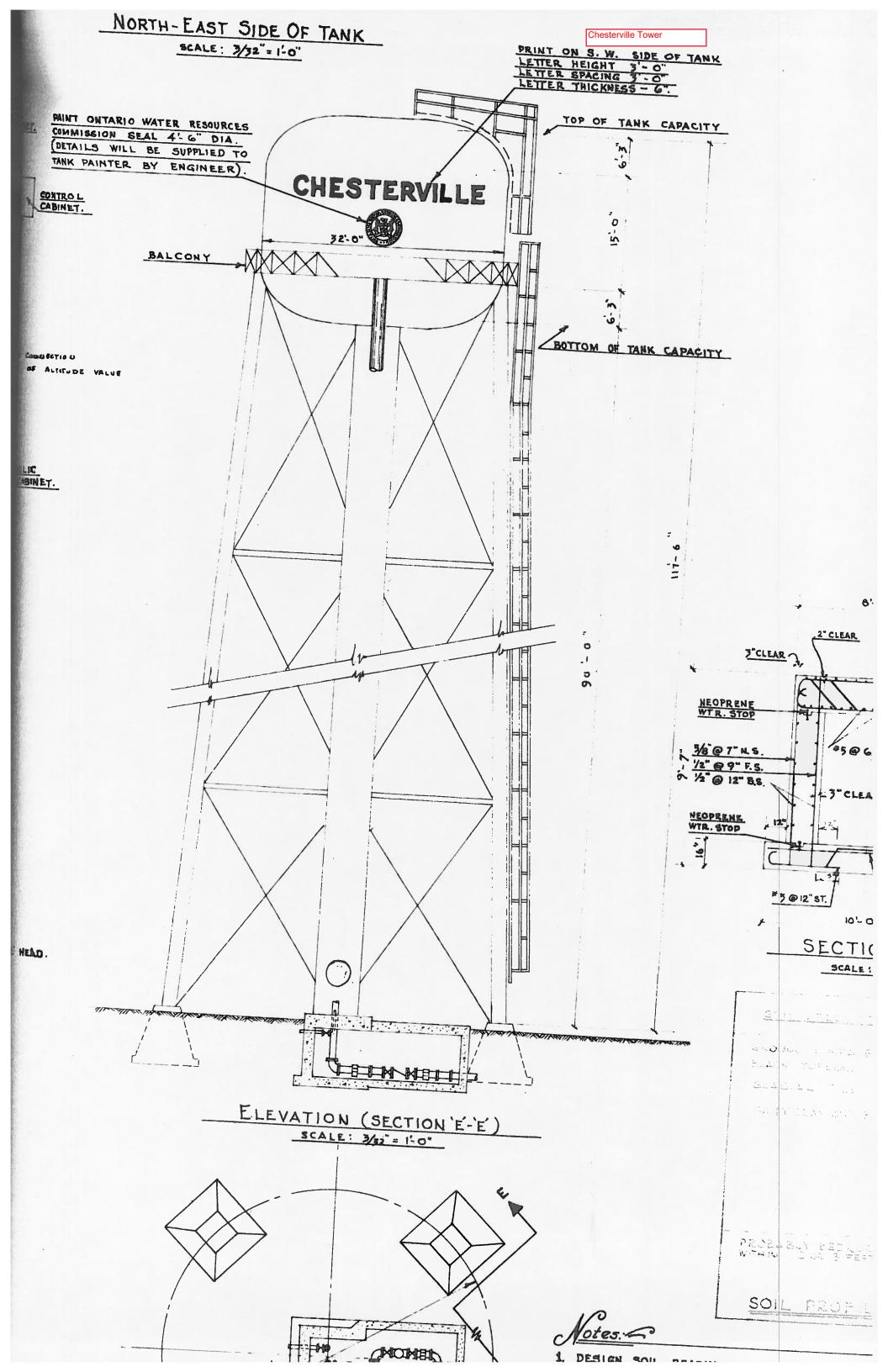
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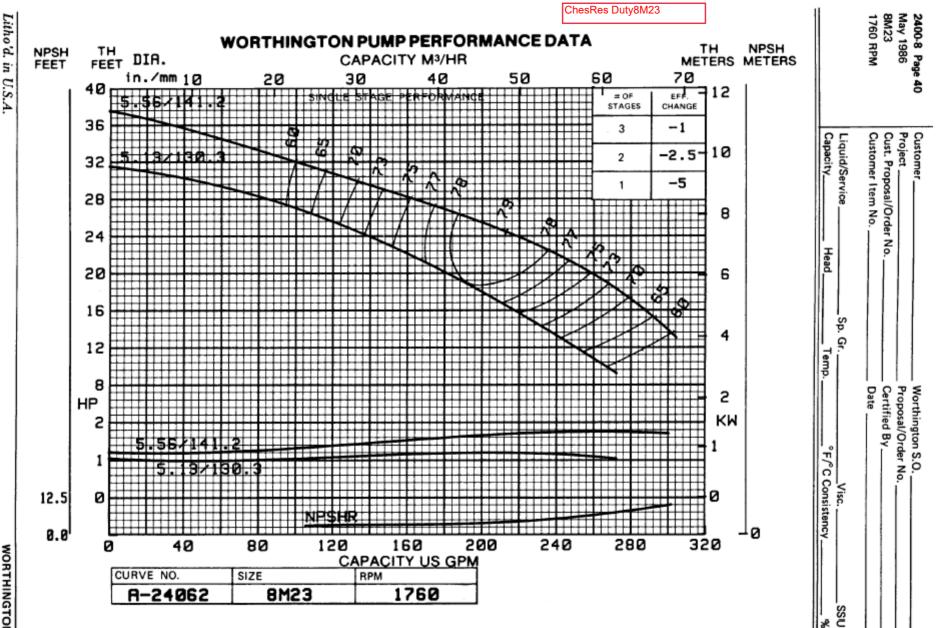
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#6 ground elevation 79 m Tower overflow 115.8 m 36.8 m + weel Depth 12 m 2 = 48.8 m or 160' total lift. This pump should be very close 135 spin or 10 L/Dec. to

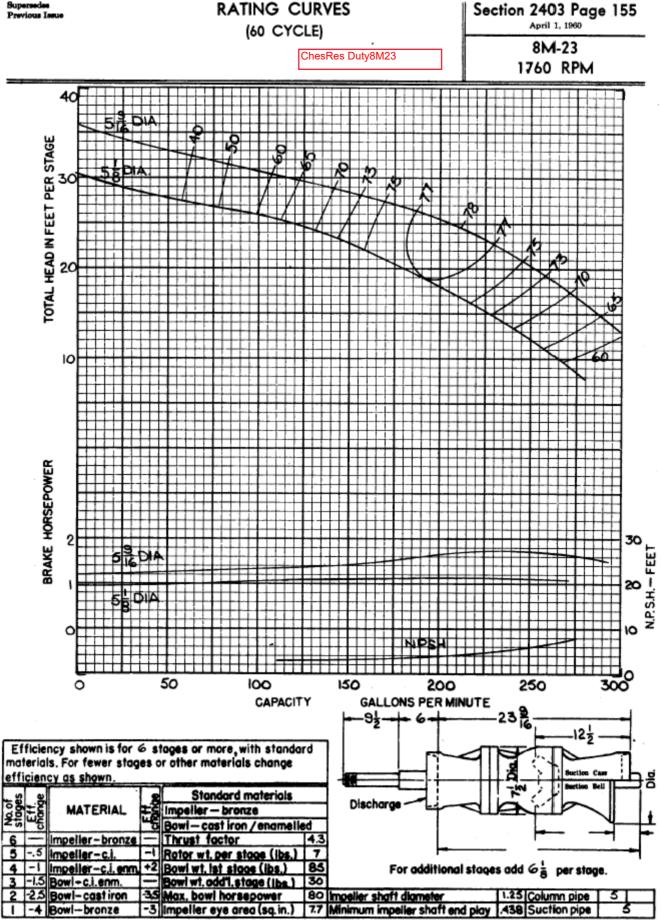
WinchWell6



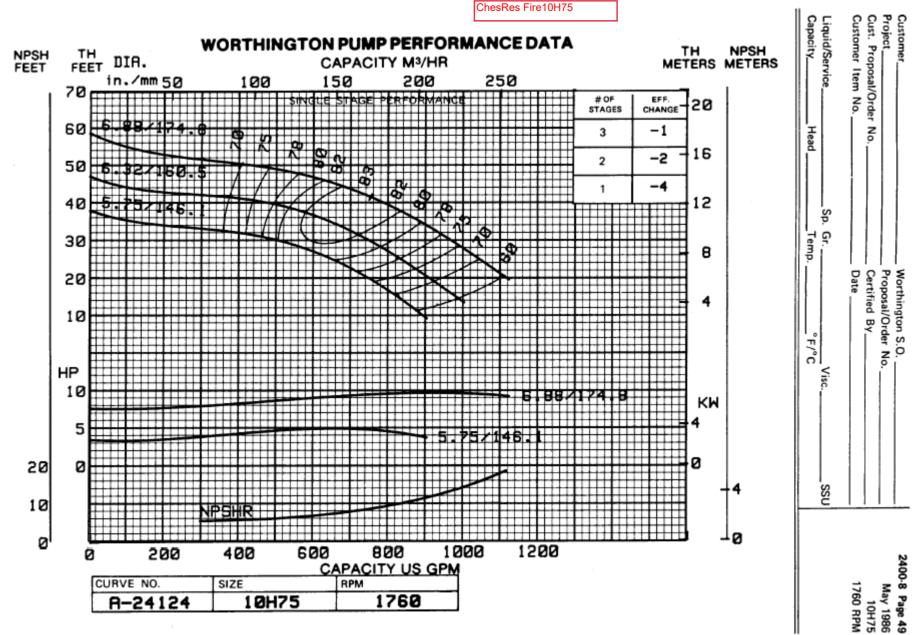




WORTHINGTON

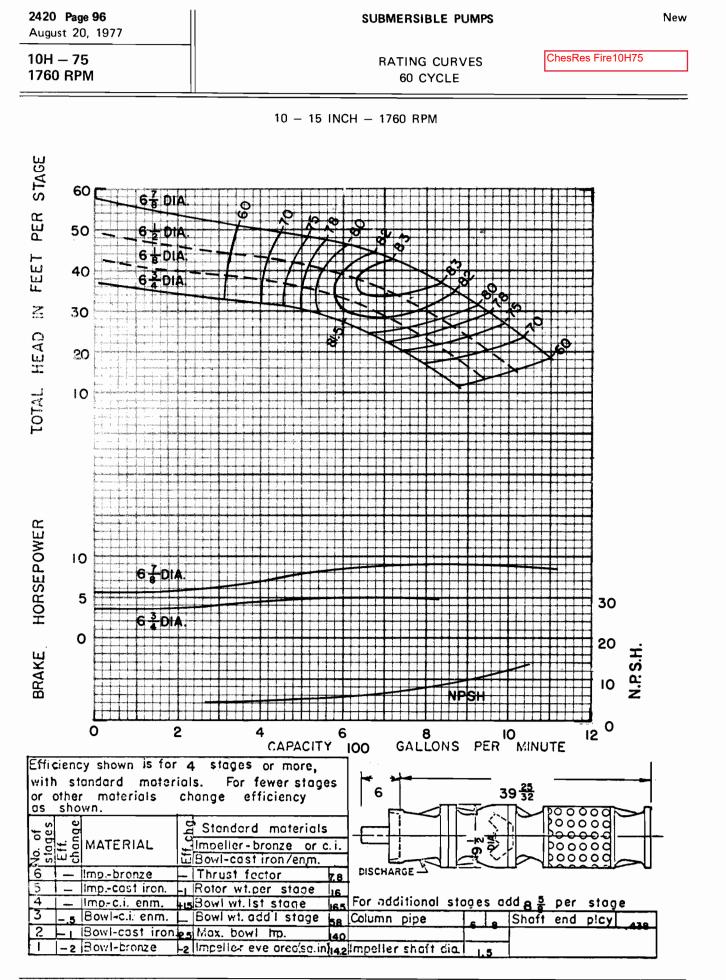


VERTICAL TURBINE PUMP DIVISION, DENVER. COLORADO Litho'd in U.S.A.



WORTHINGTON

Page 49



Litho'd. in U.S.A.

WORTHINGTON

### TOWNSHIP OF NORTH DUNDAS APPLICATION FOR AN AMENDMENT TO CERTIFICATE OF APPROVAL (WATER)

## Appendix B Winchester Booster Pump Technical Info

# PACO. PUMPS

#### Grundfos Quotation System 7.0.1.33

Impeller diameter: 6.83 in

	Custom	er Price Sheet	
Project name / location	: WINCHESTER BPS	Tag Number	: 1634_00948_VIS_100201
Consulting engineer	: Stantec Consulting, Jean Hebert	Service	:
Customer	:	Pump size	: 50707 VL
Customer ref. / PO	:	Quantity of pumps	: 2
Quote number	: 100204-087	Quoted By (Sales Office)	: Grundfos Canada Inc.
Date last saved	: 02/04/2010 13:27 PM	Quoted By (Sales Engineer)	: Grant Stanley, VSC

### Construction

Construction Code: 16N6 - 50707 - 14010X - XXXX Flow: 54.50 l/s

Totals	•	 *** j	. 7	r		<u>نه</u>
Grand Total		\$ 21,086.00	Lead Time Total		N/A	

Head: 70.00 psi.g

10000	Imp	Average Unit Price	Extended Price
)ty 2	Description 5070-7 VL	\$ 10,543.00	\$ 21,086.00
2	Scope of Supply: Complete Unit (Pump and Motor)		¢ =:,000,000
	Pump Rotation: Clockwise		
	Pump Case material: Cast Iron, ASTM A48 - Class 30		
	Nozzle Configuration: 125# ANSI flange		
	Impeller Material: Silicon Bronze, ASTM B584 C87600		
	Impeller Cap Screw and Washer: Stainless Steel, AISI-303		
	Impeller Key: Steel, Cold Drawn C1018		
	Hardware Material: Steel, Grade 5		
	Wear Ring Material: Ni-Aluminum -Bronze, ASTM-B148, C95400		
	Wear Ring Configuration: Single (Case) Wear Ring		
	Shaft material: Steel, AISI-1040		
	Shaft sleeve material: Bronze, Ill932, C89835		
	Bearing Types: Rolling Element Bearing (Upper & Lower)		
	Bearing Lubrication: Regreasable		
	O Rings: Buna N		
	Insert: Provided		
	Seal Material (Elastomer/Rotating Element/Stationary Seat): Single Seal, Type 21S Buna/Carbon/Ceramic/SS-Spring&Hardware		
	Recirculation Lines: Nylon Tubing with Brass Fittings		
	Base: None		
	Motor size: NA 60 HP, 575/3/60hz, 3600 RPM, TEFC, Premium, Baldor -Weight not included in GA		
	Motor Manufacturer: Baldor		
	Motor Enclosure: TEFC		
	Motor efficiency: NEMA Premium		
	Motor phase: Three Phase		
	Motor Application: Suitable for Variable Speed Drive		
	Motor bracket: Motor bracket provided		
	Motor Bracket Material: Cast Iron, ASTM-A48, CL 30		
	Test level: No test		
	CAD drawing:		
	Leadtime: Custom leadtime/Contact factory for leadtime		
	Estimated Weights: 210Lbs		
	Coating: Standard Manufacturers Paint		
	Certifications: NSF-61 Certified (drinking water)		

## PACO PUMPS

Grundfos Quotation System 7.0.1.33

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# PACO PUMPS

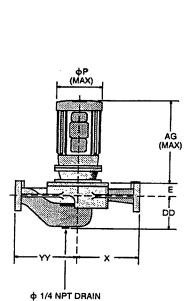
**Grundfos Quotation System 7.0.1.33** 

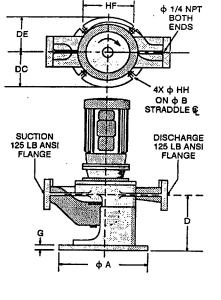
Bearing Frame       : -       Motor Options/Accessories       : -         Bearing Frame Foot       : -       Cord Length (feet)       : -         Bearing Type (Radial/Thrust)       : In motor       Materials         Bearing Lubrication       : Regreasable       Case       : Cast Iron, ASTM A48 - Class 30         Thrust Bearing       : -       Motor Bracket       : Cast Iron, ASTM-A48, CL 30         Intermediate Bearing       : -       Impeller       : Sillcon Bronze, ASTM B584         Lower Bearing Housing Accessories       : -       Impeller Cap Screw and Washer       : Stainless Steel, AISI-303         Impeller Key       : Steel, Cold Drawn C1018       Impeller Key       : Steel, Cold Drawn C1018	GRUNDFOS		Cons	tructio	n Datasheet	Quotation System 7.0.1.35		
Customer ref. / PO       :       Model       : 50707 VL         Quatemer ref. / PO       :       Quantity       : 2         Quote number       : 100204-087       Quoted By (Sales Office)       : Grundfos Canada Inc.         Date last saved       : 02/04/2010 10:27 AM       Quoted By (Sales Office)       : Grundfos Canada Inc.         Nozzle       Size (in.)       Nozzle Configuration       Poen       Handfacturer       : Baldor         Suction       5       125# ANSI       Side       Power       : 60.00 hp         Orientation / Configuration       : Vertical       RPM       : 3600         Rotation       : Colockvise       Enclosure       : TEFC         Wear Ring Configuration       : Single - Case       Operating Power Supply       : 575/3/60hz         Subplate       : -       Service factor       : -         Subplate       : -       Motor Application       : Suitable for Variable Speed Driv         Bearing Frame Fool       : -       Motor Application       : Suitable for Variable Speed Driv         Bearing Trane Fool       : -       Coat Length (feet)       : -         Bearing Trane Fool       : -       Coat Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Coat Iron, ASTM A48 - Class 30	Project name / location		: WINCHESTER BPS		Tag Number	: 1634_00948_VIS_100201		
Customer ref. / PO       :       Quantity       : 2         Quode number       : 100204-087       Quoded By (Sales Office)       : Grandfos Canada Inc.         Date last saved       : 02/04/2010 10:27 AM       Quoded By (Sales Engineer)       : Grand Stanley, VSC         Date last saved       : 02/04/2010 10:27 AM       Manufacturer       : Baldor         Suction       5       125# ANSI       Side       Frame Size       : 328.0M         Discharge       5       126# ANSI       Side       Power       : 60.00 hp         Orientation       / Vertical       RPM       : 3600         Rolation       : Clockwise       Enclosure       : TEFC         Uschplate       :-       Service factor       : -         Subplate       :-       Motor Application       : Suitable for Variable Speed Driv         Bearing Trame Foot       :-       Cord Length (feet)       : -         Bearing Trame Foot       :-       Cord Length (feet)       : -         Intermediate Bearing       :-       Cord Length (feet)       : -         Bearing Trame Foot       : files 6:5070 - 14010X - XXXX       Case       : Cast Iron, ASTM A48 - Class 30         Construction code       : files 6:5070 - 14010X - XXXX       Case       : Cast Iron,	Consulting engineer		: Stantec Consulting, Jea	n Hebert	Service	:-		
Quote number       : 100204-087       Quoted by (Sales Office)       : Grundfos Canada Inc.         Date last saved       : 202/04/2010 10:27 AM       Quoted by (Sales Engineer)       : Grant Stanley, VSC         Nozzle       Size (In)       Nozzle Configuration       Poin       Manufacturer       Baldor         Nozzle       5       125# ANSI       Side       Frame Size       : 326.0M         Discharge       5       125# ANSI       Side       Frame Size       : 326.0M         Orientation / Configuration       : Ventical       RPM       : 3600       Reclosure       : TEFC         Wear Ring Configuration       : Single - Case       Operating Power Supply       : 575/3/60hz       : Fernium         Subplate       : -       Motor Application       : Suriote factor       : -         Sump Depth (feet)       : -       Motor Application       : Suliable for Variable Speed Driv         Bearing Type (Raial/Thrust)       In motor       Regressable       Case       : Cast Iron, ASTM A48 - Class 30         Bearing Housing Accessories       : -       Cord Length (feet)       : -       Sillcon Brozze, ASTM A48 - Class 30         Intermediate Bearing       : -       Case       : Cast Iron, ASTM A48 - Class 30       Sillcon Brozze, ASTM A48 - Class 30	Customer		:		Model	: 50707 VL		
Date last saved         : 02/04/2010 10:27 AM         Quoted By (Sales Engineer)         : Grant Stanley, VSC           Construction         Velocity/construction         Velocity/construction         Velocity/construction           Nozzle         Size (In.)         Nozzle Configuration         Posh         Manufacturer         Beldor           Suction         5         125# ANSI         Side         Power         60.00 hp           Orientation / Configuration         : Vertical         RPM         : 3600           Rotation         : Clockwise         Enclosure         : TEFC           Wear Ring Configuration         : Single - Case         Operating Power Supply         : 57/37/60hz         Enclosure         : TEFC           Subplate         : -         Motor Application         : Suifable for Variable Speed Driv         Motor Application         : Suifable for Variable Speed Driv           Bearing Frame Foot         : -         Cord Length (feel)         : -         Motor Application         : Suifable for Variable Speed Driv           Bearing Tubering         : -         Cord Length (feel)         : -         Cord Length (feel)         : -           Bearing Trame Foot         : -         Cord Length (feel)         : -         -           Lower Baring	Customer ref. / PO		:		Quantity	: 2		
Construction         Posin         Manufacturer         Eldor Intermediate           Nozzle         Size (in.)         Nozzle Configuration         Posin         Manufacturer         Eldor           Suction         5         125# ANSI         Side         Frame Size         :326JM           Discharge         5         125# ANSI         Side         Power         :60.00 hp           Orientation / Configuration         : Vertical         RPM         :3600           Rotation         : Clockwise         Enclosure         : TEFC           Wear Ring Configuration         : Single - Case         Operating Power Supply         :575/3/60hz           Subplate         : -         Service factor         : -           Sump Depth (feet)         : -         Motor Application         : Suitable for Variable Speed Driv           Bearing Frame Foot         : -         Cord Length (feet)         : -           Bearing Type (RadialThrust)         : In motor         Kelstrick         Case         : Cast Iron, ASTM A48 - Class 30           Intermediate Bearing         : -         Cord Length (feet)         : -         Cord Length (feet)         : -           Bearing Housing Accessories         : -         Cord Length (Feet)         : Cast Iron, ASTM A48 - Class 30	Quote number		: 100204-087		Quoted By (Sales Office)	: Grundfos Canada Inc.		
Nozzle         Size (in.)         Nozzle Configuration         Pos'n         Manufacturer         : Baldor           Suction         5         125# ANSI         Side         Frame Size         : 326,JM           Discharge         5         125# ANSI         Side         Power         : 60.00 hp           Orientation / Configuration         : Vertical         RPM         : 36600           Rotation         : Clockwise         Enclosure         : TEFC           Wear Ring Configuration         : Single - Case         Operating Power Supply         : 575/3/60hz           Subplate         : -         Efficiency         : Premium           Sup Depth (feet)         : -         Motor Options/Accessories         : -           Bearing Frame         : -         Motor Options/Accessories         : -           Bearing Type (Radial/Thrust)         : In motor         Kotor Potions/Accessories         : -           Intermediate Bearing         : -         Motor Potions/Accessories         : -           Lower Bearing         : -         Motor Potions/Accessories         : -           Lower Bearing         : -         Motor Potions/Accessories         : -           Lower Bearing         : -         Motor Potions/Accessories         : -	Date last saved		: 02/04/2010 10:27 AM		Quoted By (Sales Engineer)	: Grant Stanley, VSC		
Suction         5         125# ANSI         Side         Frame Size         326JM           Discharge         5         125# ANSI         Side         Power         60.00 hp           Orientation / Configuration         : Vertical         RPM         3600           Rotation         : Clockwise         Discharge         : TEFC           Wear Ring Configuration         : Single - Case         Operating Power Supply         : 575/3/6/hz           Discharge Elbow Size         : -         Service factor         : -           Subplate         : -         Motor Application         : Suitable for Variable Speed Driv           Bearing Frame Foot         : -         Motor Application         : Suitable for Variable Speed Driv           Bearing Type (Radial/Thrust)         : In motor         Motor Application         : Cast Iron, ASTM A48 - Class 30           Intermediate Bearing         : -         Motor Bracket         : Cast Iron, ASTM A48 - Class 30           Lower Bearing         : -         Impelier         : Cast Iron, ASTM A48 - Class 30           Intermediate Bearing         : -         Impelier Cap Screw and Washer         : Stalinees Steel, AISH 303           Baseplate         : Not Applicable         Impelier Key         : Steel, Cold Drawn C1018           Construction code <td></td> <td>Com</td> <td>truction</td> <td></td> <td>Motori</td> <td>plormation</td>		Com	truction		Motori	plormation		
Discharge         5         125# ANS1         Side         Power         60.00 hp           Orientation / Configuration         : Vertical         RPM         :3600           Rotation         : Clockwise         BPM         :3600           Wear Ring Configuration         : Single - Case         Operating Power Supply         :575/3/60hz           Discharge Elbow Size         : -         Efficiency         : Premium           Subplate         : -         Service factor         : -           Sump Depth (feet)         : -         Motor Application         : Suitable for Variable Speed Driv           Bearing Frame         : -         Motor Options/Accessories         : -           Bearing Type (Radial/Thrust)         In motor         Regreasable         Case         : Cast Iron, ASTM A48 - Class 30           Intermediate Bearing         : -         Motor Bracket         : Cast Iron, ASTM-A48, CL 30         : Impeller           Intermediate Bearing         : -         Motor Bracket         : Cast Iron, ASTM-A48, CL 30         : Impeller Cap Screw and Washer         : Stainless Steel, ASIM-303           Intermediate Bearing         : -         : -         Steel, Cold Drawn C1018         Case600         : Cast Iron, ASTM-448, CL 303           Intermediate Bearing         : -	Nozzle	Size (in.)	Nozzle Configuration	Pos'n	Manufacturer	: Baldor		
Orientation / Configuration     : Vertical     RPM     : 3600       Rotation     : Clockwise     Enclosure     : TEFC       Wear Ring Configuration     : Single - Case     Operating Power Supply     : 575/3/60hz       Discharge Elbow Size     : -     Efficiency     : Premium       Subplate     : -     Service factor     : -       Bearing Frame     : -     Motor Options/Accessories     : -       Bearing Frame Foot     : -     Cord Length (feet)     : -       Bearing Type (Radial/Thrust)     : In motor     Motor Options/Accessories     : -       Bearing Type (Radial/Thrust)     : In motor     Motor Bracket     : Cast Iron, ASTM A48 - Class 30       Intermediate Bearing     : -     Motor Bracket     : Cast Iron, ASTM A48 - Class 30       Intermediate Bearing     : -     Impeller Cap Screw and Washer     : Stainless Steel, AISI-303       Intermediate Bearing     : -     Case wear ring     : Cast Good       Construction code     : 16N6 - 50707 - 14010X - XXXX     Case wear ring     : -       Baseplate     : Not Applicable     : -     Pump Shaft     : Steel, Cold Draw C1018       Coupling     : -     : -     Pump Shaft     : Steel, AISI-1040       Seal Material     : Buna/Carb/Cer/SS-Spring&Hardw.     : -     : -	Suction	5	125# ANSI	Side	Frame Size	: 326JM		
Rotation       : Clockwise       Enclosure       : TEFC         Wear Ring Configuration       : Single - Case       Operating Power Supply       : 575/3/60hz         Discharge Elbow Size       : -       Efficiency       : Premium         Subplate       : -       Service factor       : -         Sump Depth (feet)       : -       Motor Application       : Suitable for Variable Speed Driv         Bearing Frame       : -       Cord Options/Accessories       : -         Bearing Frame       : -       Cord Length (feet)       : -         Bearing Type (Radial/Thrust)       : In motor       Case       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Motor Bracket       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Motor Bracket       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Impeller       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Impeller       : Cast Iron, ASTM A48 - Class 30         Cord Lower Bearing       : -       Stations Steel, AISI-303       Impeller Key       : Steel, AISI-303         Baseplate       : Not Applicable       Impeller Key       : Steel, AISI-304       Case wear ring       : -         <	Discharge	5	125# ANSI	Side	Power	: 60.00 hp		
Wear Ring Configuration       : Single - Case       Operating Power Supply       : 575/3/60hz         Discharge Elbow Size       : -       Efficiency       Premium         Subplate       : -       Service factor       : -         Sump Depth (feet)       : -       Motor Application       : Suitable for Variable Speed Driv         Bearing Frame       : -       Motor Application       : Suitable for Variable Speed Driv         Bearing Frame Foot       : -       Cord Length (feet)       : -         Bearing Lubrication       : Regreasable       Case       : Cast Iron, ASTM A48 - Ctass 30         Intermediate Bearing       : -       Motor Bracket       : Cast Iron, ASTM A48 - Ctass 30         Lower Bearing       : -       Impeller       : Cast Iron, ASTM A48 - Ctass 30         Intermediate Bearing       : -       Impeller       : Cast Iron, ASTM A48 - Ctass 30         Baserplate Bearing       : -       Impeller       : Cast Iron, ASTM A48 - Ctass 30         Bearing Housing Accessories       : -       Impeller       : Cast Iron, ASTM A48 - Ctass 30         Baserplate, Coupring and Guorad       Impeller Key       : Steel, AlSI-303       Impeller Key         Drip Pan       : -       :       Steel, AlSI-1040       Impeller Key       : Steel, AlSI-1040	Orientation / Configuration	on	: Vertical		RPM	: 3600		
Discharge Elbow Size       : -       Efficiency       : Premium         Subplate       : -       Service factor       : -         Sump Depth (feet)       : -       Motor Application       : Suitable for Variable Speed Driv         Bearing Frame       : -       Motor Application       : Suitable for Variable Speed Driv         Bearing Frame Foot       : -       Cord Length (feet)       : -         Bearing Type (Radial/Thrust)       : In motor       Case       : Cast Iron, ASTM A48 - Class 30         Bearing Lubrication       : Regreasable       Case       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Motor Bracket       : Cast Iron, ASTM A48 - Class 30         Lower Bearing       : -       Impeller       : Silicon Bronze, ASTM B584         Construction code       : 16N6 - 50707 - 14010X - XXXX       Impeller Key       : Steel, Cold Drawn C1018         Baseplate       : Not Applicable       Impeller Key       : Steel, AISI-1040         Drip Pan       : -       Steeve       : Bronze, III932, C89835         Guard       : OSHA Approved       Line Shaft       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hadw       Secharge Fipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hadw	Rotation		: Clockwise		Enclosure	: TEFC		
Subplate       :-       Service factor       :-         Sump Depth (feet)       :-       Motor Application       : Suitable for Variable Speed Driv         Bearing Frame       :-       Motor Options/Accessories       :-         Bearing Type (Radial/Thrust)       :In motor       Cord Length (feet)       :-         Bearing Type (Radial/Thrust)       :In motor       Motor Options/Accessories       :-         Bearing Type (Radial/Thrust)       :In motor       Motor Dracket       : Cast Iron, ASTM A48 - Class 30         Thrust Bearing       :-       Motor Bracket       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       :-       Motor Bracket       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       :-       Impeller       : Cast Iron, ASTM A48 - Class 30         Lower Bearing       :-       Impeller       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       :-       Impeller       : Cast Iron, ASTM A48 - Class 30         Construction code       : 16N6 - 50707 - 14010X - XXXX       Impeller Case Screw and Washer       : Statelles Not Aplicable         Drip Pan       :-       Steel, Alsl-1040       :-       Coupling       :-         Guard       : OSHA Approved       Column       :-       Column       :-	Wear Ring Configuratior	า	: Single - Case		Operating Power Supply	: 575/3/60hz		
Sump Depth (feet)       : -       Motor Application       : Suitable for Variable Speed Driv         Bearing Frame       : -       Cord Length (feet)       : -         Bearing Type (Radial/Thrust)       : In motor       Motor Options/Accessories       : -         Bearing Type (Radial/Thrust)       : In motor       Motor Options/Accessories       : -         Bearing Type (Radial/Thrust)       : In motor       Motor Bracket       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Motor Bracket       : Cast Iron, ASTM-A48, CL 30         Intermediate Bearing       : -       Impeller       : Slilcon Bronze, ASTM B584         Lower Bearing       : -       Impeller Cap Screw and Washer       : Stainless Steel, AISI-303         Baseplate       : 16N6 - 50707 - 14010X - XXXX       Case wear ring       : -         Baseplate       : Not Applicable       Impeller Key       : Steel, Cold Drawn C1018         Drip Pan       : -       Sleeve       Bronze, III932, C89835       : -         Guard       : OSHA Approved       Line Shaft       : -       -         Sealing Method       : Single Seal, Type 21S       Sleakarge Pipe       : -       -         Sealing Method       : Single Seal, Type 21S       Subrafae Elbow       : -       - <td>Discharge Elbow Size</td> <td></td> <td>:-</td> <td></td> <td>Efficiency</td> <td>: Premium</td>	Discharge Elbow Size		:-		Efficiency	: Premium		
Bearing Frame       : -       Motor Options/Accessories       : -         Bearing Frame Foot       : -       Cord Length (feet)       : -         Bearing Type (Radial/Thrust)       : In motor       Motor Options/Accessories       : -         Bearing Type (Radial/Thrust)       : In motor       Case       : Cast Iron, ASTM A48 - Class 30         Thrust Bearing       : -       Motor Bracket       : Cast Iron, ASTM-A48, CL 30         Intermediate Bearing       : -       Silicon Bronze, ASTM B584         Lower Bearing       : -       Impeller       Silicon Bronze, ASTM B584         Construction code       : 16N6 - 50707 - 14010X - XXXX       Impeller Cap Screw and Washer       : Stainless Steel, AISI-303         Baseplate       : Not Applicable       Impeller Key       : Steel, Cold Drawn C1018         Drip Pan       : -       OSHA Approved       Steeve       : -         Sealing Method       : Single Seal, Type 21S       Steel Active Cart/Cert/SS-Spring&Hardw,       : -         Seal Material       : Buna/Carb/Cert/SS-Spring&Hardw,       : -       Suction Elbow       : -         Packing Gland       : -       Suction Elbow       : -       -         Packing Cland       : Nylon Tubing with Brass Fittings       : O Rings       : Buna N         W	Subplate		:-		Service factor	:-		
Bearing Frame Foot       : -       Cord Length (feet)       : -         Bearing Type (Radial/Thrust)       : In motor       Matoriats         Bearing Type (Radial/Thrust)       : In motor       Case       : Cast Iron, ASTM A48 - Class 30         Bearing Lubrication       : Regreasable       Case       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Motor Bracket       : Cast Iron, ASTM-A48, CL 30         Intermediate Bearing       : -       Silicon Bronze, ASTM B584       : Cas7000         Lower Bearing       : -       Impeller       : Silicon Bronze, ASTM B584         Lower Bearing       : -       Impeller Cap Screw and Washer       : Stanless Steel, AISI-303         Bearing Housing Accessories       : -       Impeller Key       : Steel, Cold Drawn C1018         Construction code       : 16N6 - 50707 - 14010X - XXXX       Case wear ring       : -         Baseplate       : Not Applicable       Impeller wear ring       : -         Drip Pan       : -       Pump Shaft       : Steel, AISI-1040         Coupling       : -       Sleeve       : Bronze, Ill'932, C89835         Guard       : OSHA Approved       Column       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw       : -	Sump Depth (feet)		:-		Motor Application	: Suitable for Variable Speed Drive		
Bearing Type (Radial/Thrust)       In motor       Materials         Bearing Lubrication       : Regreasable       Case       : Cast Iron, ASTM A48 - Class 30         Thrust Bearing       : -       Motor Bracket       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Impeller       : Silicon Bronze, ASTM B584         Lower Bearing       : -       Impeller       : Silicon Bronze, ASTM B584         Lower Bearing       : -       Impeller Cap Screw and Washer       : Steel, Cold Drawn C1018         Construction code       : 16N6 - 50707 - 14010X - XXXX       Impeller Key       : Steel, Cold Drawn C1018         Baseplate       : Not Applicable       Impeller wear ring       : -         Drip Pan       : -       Pump Shaft       : Steel, AISI-1040         Sealing Method       : Single Seal, Type 21S       Seal Material       Buna/Carb/Cer./SS-Spring&Hardw         Backing Gland       : -       Oclumn       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       : -       Subplate       : -         WitchNet (Annoration)       : -       : -       Suprior       : -       -         Baseplate       : Nylon Tubing with Brass Fittings <td>Bearing Frame</td> <td></td> <td>:-</td> <td></td> <td>Motor Options/Accessories</td> <td>:-</td>	Bearing Frame		:-		Motor Options/Accessories	:-		
Bearing Lubrication       : Regreasable       Case       : Cast Iron, ASTM A48 - Class 30         Thrust Bearing       : -       Motor Bracket       : Cast Iron, ASTM A48 - Class 30         Intermediate Bearing       : -       Impeller       Silicon Bronze, ASTM B584         Lower Bearing       : -       Impeller       Silicon Bronze, ASTM B584         Construction code       : 16N6 - 50707 - 14010X - XXXX       Impeller Cap Screw and Washer       : Steel, Cold Drawn C1018         Construction code       : 16N6 - 50707 - 14010X - XXXX       Case wear ring       : Steel, Cold Drawn C1018         Baseplate       : Not Applicable       Impeller wear ring       : -         Drip Pan       : -       Sleeve       : Bronze, III932, C89835         Coupling       : -       Sleeve       : Bronze, III932, C89835         Sealing Method       : Single Seal, Type 21S       Sleeve       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw,       : -       Suction Elbow       : -         Sudig Gland       : -       Subplate       : -       -         Lantern Ring       : -       Wei/Wit Karas Fittings       : -       -         Wei/Wit Karas       : Mylon Tubing with Brass Fittings       : -       -       -         Wei/Wit K	Bearing Frame Foot		:-		Cord Length (feet)	:-		
Thrust Bearing       :-       Motor Bracket       : Cast Iron, ASTM-A48, CL 30         Intermediate Bearing       :-       Impeller       : Silicon Bronze, ASTM B584         Lower Bearing       :-       Impeller       : Stainless Steel, AISI-303         Bearing Housing Accessories       :-       Impeller Cap Screw and Washer       : Steel, Cold Drawn C1018         Construction code       : 16N6 - 50707 - 14010X - XXXX       Case wear ring       : Steel, Cold Drawn C1018         Baseplate       : Not Applicable       Impeller wear ring       : -         Drip Pan       : -       Sleeve       : Bronze, III932, C89835         Guard       : OSHA Approved       Line Shaft       : -         Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw.       Paction Elbow       : -         Packing Gland       : -       Subplate       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Steel, Grade 5         O Rings       : Buna N       : -       : -         Workbit (Annoch)       : -       : -       : -         Discharge Elibow	Bearing Type (Radial/Th	nrust)	: In motor		Me	terials		
Intermediate Bearing: -ImpellerSilicon Bronze, ASTM B584 C87600Lower Bearing: -Impeller Cap Screw and WasherStainless Steel, AISI-303Bearing Housing Accessories: -Impeller Cap Screw and WasherStainless Steel, AISI-303Boseplate, Coupling and GuardImpeller Cap Screw and WasherSteel, Cold Drawn C1018Baseplate: Not ApplicableImpeller wear ring: -Drip Pan: -Sleeve: Bronze, III932, C89835Guard: OSHA ApprovedColumn: -Sealing Method: Single Seal, Type 21SDischarge Pipe: -Seal & Prokim Construction: -Discharge Elbow: -Sealing Method: Single Seal, Type 21SDischarge Elbow: -Seal Material: -Suction Elbow: -Lantern Ring: -Subplate: -Wordbit Approved: -Subplate: -Wordbit Approved: -Subplate: -Wordbit Approved: -Subplate: -Baseplate: Nylon Tubing with Brass Fittings: -: -Wordbit Approved: -Subplate: -Buna N: -: -Subplate: -Buna N: -: -: -Subplate: -: -Buna N: Buna N: -Wordbit Approved: -: -Buna N: -: -: -: -: -: -: -: -: - <td: -<="" td="">: -&lt;</td:>	Bearing Lubrication		: Regreasable		Case	: Cast Iron, ASTM A48 - Class 30		
Lower Bearing: -C87600Lower Bearing: -ImpellerC87600Bearing Housing Accessories: -Impeller Cap Screw and Washer: Stainless Steel, AISI-303Construction code: 16N6 - 50707 - 14010X - XXXXImpeller Cap Screw and Washer: Steel, Cold Drawn C1018Baseplate: 16N6 - 50707 - 14010X - XXXXCase wear ring: Ni-Aluminum -Bronze, ASTM-B1Baseplate: Not ApplicableImpeller wear ring: -Drip Pan: -Pump Shaft: Steel, AISI-1040Coupling: -Steeve: Bronze, III932, C89835Guard: OSHA ApprovedColumn: -Sealing Method: Single Seal, Type 21SDischarge Pipe: -Seal Material: Buna/Carb/Cer./SS-Spring&Hardw,Discharge Elbow: -Packing Gland: -Subplate: -Lantern Ring: -Subplate: -Wordbit Kamperkit: Nylon Tubing with Brass FittingsO Rings: Steel, Grade 5O Rings: Buna N: -: -Wordbit Kamperkit: -: -: -Wordbit Kamperkit: -: -: -Wordbit Kamperkit: -: -: -: -: -: -: -: -: -: -: -: -: -: -: -: -: - <td: -<="" td="">: -: -: -<td: -<="" td="">: -: -<td: -<="" td=""><td: -<="" td=""><td: -<="" td="">: -: -<td: -<="" td=""><td: -<="" td=""><td: -<="" td=""><td: -<="" td="">: -</td:></td:></td:></td:></td:></td:></td:></td:></td:>	Thrust Bearing		:-		Motor Bracket	: Cast Iron, ASTM-A48, CL 30		
Bearing Housing Accessories       :-       Implifier Cup Sciew and Washer       : Stainless steer, Alsr-sus         Bearing Housing Accessories       :-       Implifier Cup Sciew and Washer       : Steel, Cold Drawn C1018         Construction code       : 16N6 - 50707 - 14010X - XXXX       Impeller Key       : Steel, Cold Drawn C1018         Baseplate       : Not Applicable       Impeller wear ring       :-         Drip Pan       : -       Pump Shaft       : Steel, AlSI-1040         Coupling       : -       Sleeve       : Bronze, III932, C89835         Guard       : OSHA Approved       Column       : -         Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw,       Suction Elbow       : -         Packing Gland       : -       Subplate       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Buna N         Work/Ist (Annul)       : Annul       : Steed, Grade 5       O Rings       : Steed, Grade 5	Intermediate Bearing		:-		Impeller	Silicon Bronze, ASTM B584 C87600		
Construction code       : 16N6 - 50707 - 14010X - XXXX       Impleter Rey       : Steet, Cold Drawn Citrins         Baseplate       : 000 pling and Guard       Case wear ring       : -         Baseplate       : Not Applicable       Impeter Rey       : Steet, AISI-1040         Drip Pan       : -       Pump Shaft       : Steel, AISI-1040         Coupling       : -       Sleeve       : Bronze, III932, C89835         Guard       : OSHA Approved       Line Shaft       : -         Column       : -       Column       : -         Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Sealing Method       : Buna/Carb/Cer./SS-Spring&Hardw,       Suction Elbow       : -         Lantern Ring       : -       Subplate       : -         Word/Mr (Approved       ORings       : Buna N         Word/Mr (Approved       Subplate       : -         Discharge Elbow       : -       -         Subplate       : -       Subplate       : -         Lantern Ring       : -       Subplate       : -         Word/Mr (Approved       ORings       : Buna N         Word/Mr (Approved       ORings       : Steel, Grade 5         O Rings       : Bu	Lower Bearing		:-		Impeller Cap Screw and Washer	: Stainless Steel, AISI-303		
Baseplate       : Not Applicable       Impeller wear ring       : C95400         Drip Pan       : -       Pump Shaft       : Steel, AISI-1040         Coupling       : -       Pump Shaft       : Bronze, III932, C89835         Guard       : OSHA Approved       Line Shaft       : -         Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw,       Discharge Elbow       : -         Packing Gland       : -       Subplate       : -         Lantern Ring       : Nylon Tubing with Brass Fittings       O Rings       : Buna N	Bearing Housing Access	sories	:-		Impeller Key	: Steel, Cold Drawn C1018		
Baseplate       : Not Applicable       Impeller wear ring       : -         Drip Pan       : -       Pump Shaft       : Steel, AISI-1040         Coupling       : -       Sleeve       : Bronze, III932, C89835         Guard       : OSHA Approved       Line Shaft       : -         Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw,       Discharge Elbow       : -         Packing Gland       : -       Subplate       : -         Lantern Ring       : -       Subplate       : -         Wei/Abit       : Nylon Tubing with Brass Fittings       O Rings       : Steel, Grade 5         O Rings       : Buna N       : Steel Amount facturers Paint		CONTRACTOR OF CONTRACTOR		- XXXX	Case wear ring	Ni-Aluminum -Bronze, ASTM-B148, C95400		
Drip Pan       : -       Pump Shaft       : Steel, AISI-1040         Coupling       : -       Sleeve       : Bronze, III932, C89835         Guard       : OSHA Approved       Line Shaft       : -         Seal & Reacking Construction       Column       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw.       Discharge Pipe       : -         Packing Gland       : -       Suction Elbow       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Buna N	Contraction and the second second second second second second second second second second second second second	elatione <sup>2</sup> cont			Impeller wear ring	:-		
Coupling       : -       Sleeve       : Bronze, III932, C89835         Guard       : OSHA Approved       Line Shaft       : -         Seal K Backling Construction       Column       : -         Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw.       Discharge Elbow       : -         Packing Gland       : -       Subplate       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Buna N					Pump Shaft	: Steel, AISI-1040		
Guard       : OSHA Approved       Line Shaft       : -         Seal & Diskter Line       Column       : -         Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw.       Discharge Elbow       : -         Packing Gland       : -       Subplate       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Buna N         Wolf/NE (Approved)       : Pump Coalings       : Standard Manufacturers Paint	-				Sleeve	: Bronze, III932, C89835		
Stad & Backling Construction       Column       : -         Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw.       Discharge Elbow       : -         Packing Gland       : -       Subplate       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Buna N         Weit/Note (Approxit)       : Pump Coatings       : Standard Manufacturers Paint		*	· -		Line Shaft	:-		
Sealing Method       : Single Seal, Type 21S       Discharge Pipe       : -         Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw.       Discharge Elbow       : -         Packing Gland       : -       Suction Elbow       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Buna N         Wolf/Ms/ (Applance)       : Pump Coatings       : Standard Manufacturers Paint					Column	:-		
Seal Material       : Buna/Carb/Cer./SS-Spring&Hardw.       Discharge Elbow       : -         Packing Gland       : -       Suction Elbow       : -         Lantern Ring       : -       Subplate       : -         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Buna N         Weidebic (Applicit)       : Pump Coatings       : Standard Manufacturers Paint		di Gabattan			Discharge Pipe	:-		
Packing Gland       :-       Suction Elbow       :-         Lantern Ring       :-       Subplate       :-         Recirculation Lines       : Nylon Tubing with Brass Fittings       O Rings       : Steel, Grade 5         O Rings       : Buna N         Pumo Coatings       : Standard Manufacturers Paint	-		• •	ng 8. Hardw	Discharge Elbow	:-		
Lantern Ring :- Recirculation Lines : Nylon Tubing with Brass Fittings (Vel/U):: VApplane.				nganaruw.	Suction Elbow	:-		
Recirculation Lines : Nylon Tubing with Brass Fittings Weither Standard Manufacturers Paint	•		· -		Subplate	:-		
O Rings : Buna N	-		Fittinge	Hardware	: Steel, Grade 5			
Pump Coatings Standard Manufacturers Paint				i nunyə	O Rings	: Buna N		
	Pump	2.73 ((th)(15)).	PERSONAL REPORT OF A		Pump Coatings	: Standard Manufacturers Paint		
Baseplate :-	Baseplate							
Driver : 0			: 0					
Estimated Shipping gross weight : 210		s weight						

PACO. PUMPS

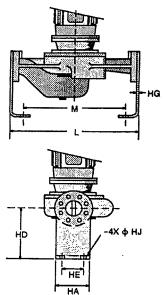
#### A3-1c.1 DIMENSIONS **IN-LINE CENTRIFUGAL PUMPS** TYPE VL

IN-LINE WITH SUPPORT STAND & WITH FLANGE SUPPORTS --- MODELS 4070-7 THRU 5095-9





HF



#### PUMP DIMENSIONS

Pump	Suct.	A	В	D	E	G	L	M	DC	DD	DE
Model	Disch.								(1)	(1)	(1)
4070-7	4	12	11	8-11/16	2		21	16	5-1/8	6-11/16	7-3/8
4095-7	4	16	13-1/2	8-3/4	2-1/8		25-1/2	20-1/2	6-5/8	6-3/4	8-7/8
4012-1, -7	4	16	13-1/2	8-3/4	2	3/4	27	20	7-3/4	6-3/4	9-3/4
5070-7	5	12	和書	10-1/8	2-1/8		24	19	6-1/8	7-3/4	8-5/8
5095-7, -9	5	16	13-1/2	9-3/4	2-1/4		27	22	7-1/8	7-1/8	9-1/2
(cont.)											
Pump	HA	HO	HE	HF	HG	НН	HJ	X	YY	1	
Model						(2)					
4070-7	6	8	4	7-13/16	1/2	·······	3/4	10	10		
4095-5	6	8	4	9-9/16	1/2		3/4	12	12-1/2		
4012-1, -7	6	8	4	9-9/16	1/2	3/4	3/4	13	13	1	
5070-7	7	10	5	7-13/16	1/2	127007	7/8	11-1/2	11-1/2		
5095-79	7	10	5	9-9/16	1/2		7/8	13	13	1	

MOTOR DIMENSIONS

		X3 CON	ST.		X4/XA CONST.					X5 CONST.		
	143TC/	182TC/	213TC/	254	213TC/	254TC/	284TC/	324TC/	364TC/	326TC	364TC/	
	145JM	184JM	215JM	TC/JM	215JM	256JM	286JM	326JM	JM		365TC	
P(max)	8	10	12	14	12	14	15	17	19	17	19	
AG(max)												
(3)	18	20	22	24	22	24	26	30	31	30	31	

SINGLE PHASE MOTORS

	X3 CONST.								
	143JM	145JM	182JM	184JM	213JM	215JM			
P(max)	8	8	10	10	12	12			
AG(max)	15	15	17	17	22	22			

(1) Dimensions of cast surfaces vary  $\pm 1/4$ .

(2) 'HH' Dimension is slot, except 6095, 6012, & 8012 are holes.

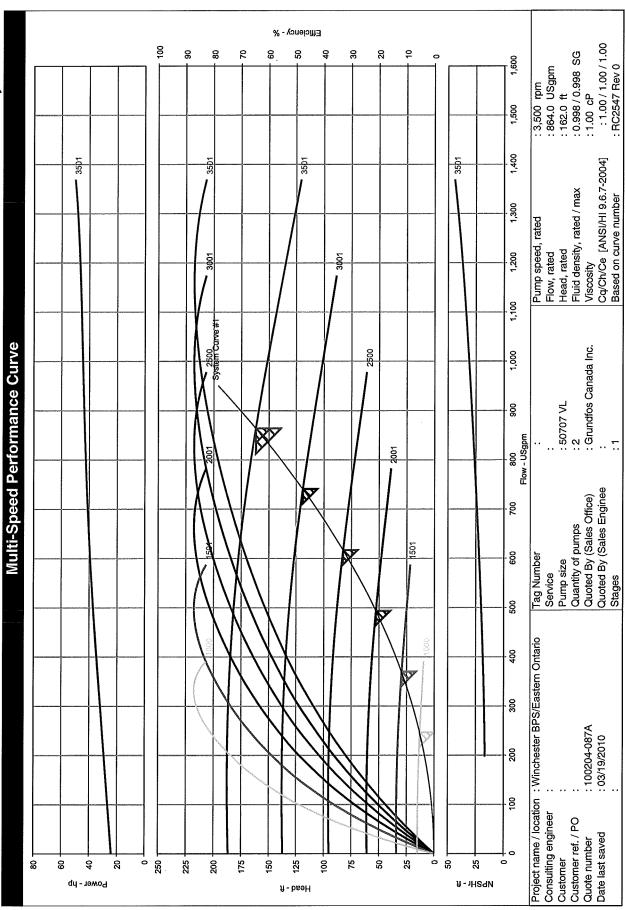
(3) If head space requirement is critical, contact Factory.

In the interest of Product Improvement, dimensions are subject to change without notice. ALL DIMENSIONS ARE IN INCHES.

Customer	P.O. No	Job No	
Project	Item NoC	Certified ByDate	
HP, RPM, HZ	, V, ENCL	, FR, Total Wgt	

PACO, PUMPS

Grundfos Quotation System 7.0.1.33



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Page 1 of 1

#### TOWNSHIP OF NORTH DUNDAS APPLICATION FOR AN AMENDMENT TO CERTIFICATE OF APPROVAL (WATER)

## **Appendix C** Winchester Well #1 Pump Curve

### **Performance Curves**

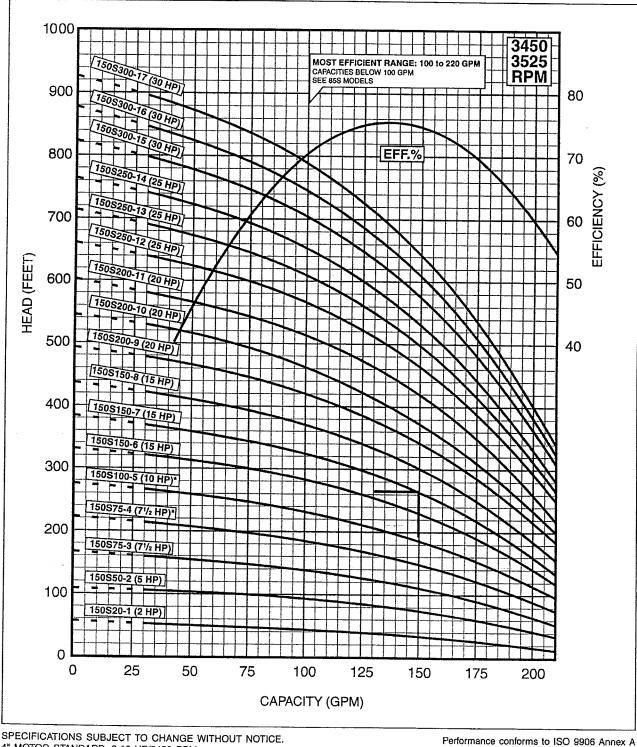
150 GPM

### Model 150S

FLOW RANGE: 30 -220 GPM

### **OUTLET SIZE: 3" NPT**

#### NOMINAL DIA, 6"



4" MOTOR STANDARD, 2-10 HP/3450 RPM 6" MOTOR STANDARD, 7.5-60 HP/3450 RPM.

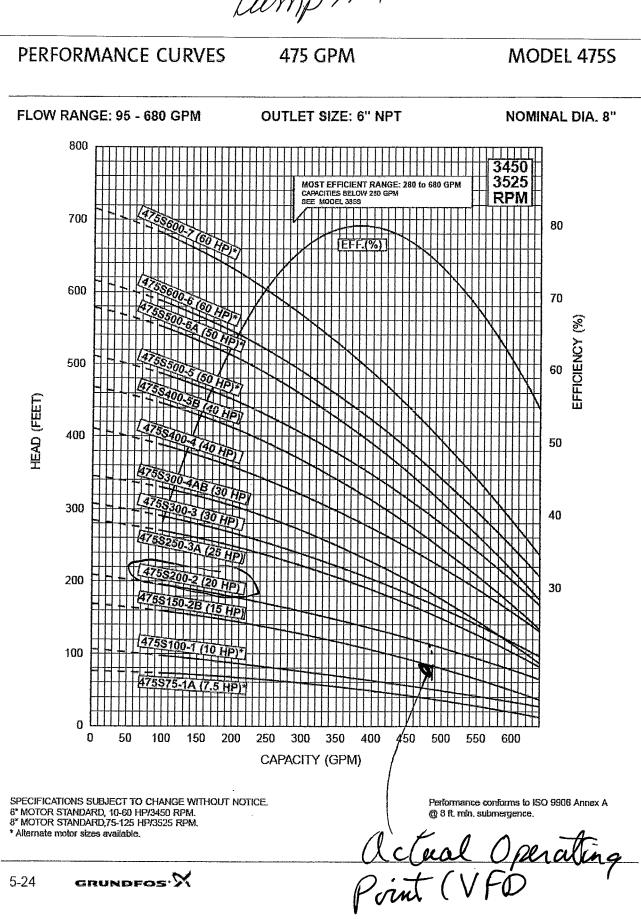
8" MOTOR STANDARD, 75 HP/3525 RPM.

\* Alternate motor sizes available.

incitiate motor sizes available.

Performance conforms to ISO 9906 Annex A @ 5 ft. min. submergence.

## **Appendix D** Chesterville Well #6 Pump Curve



Rump#6

PERFORMANCE CURVES

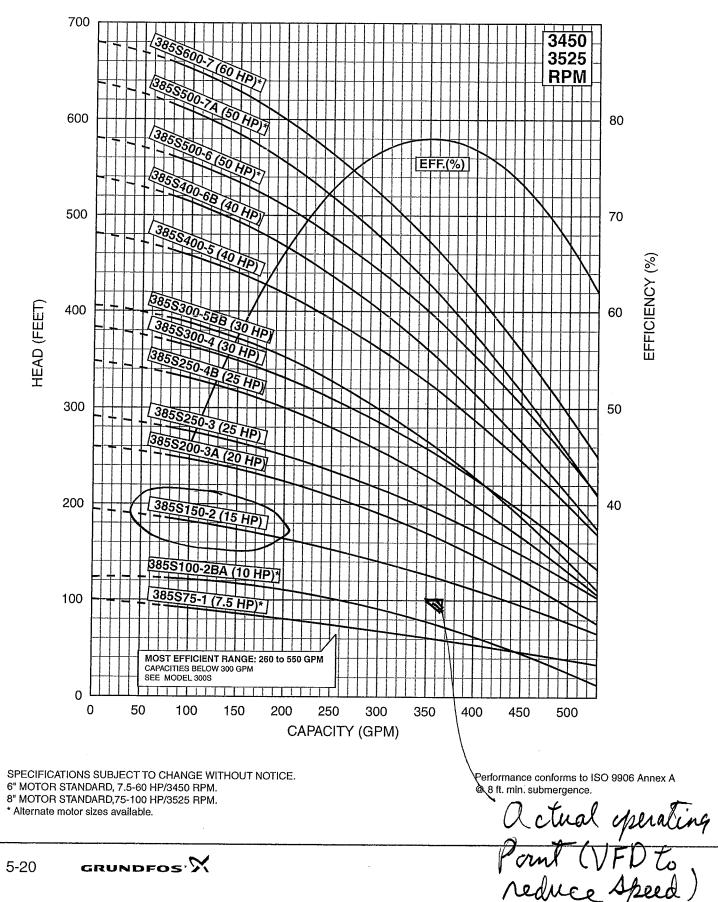


**MODEL 385S** 

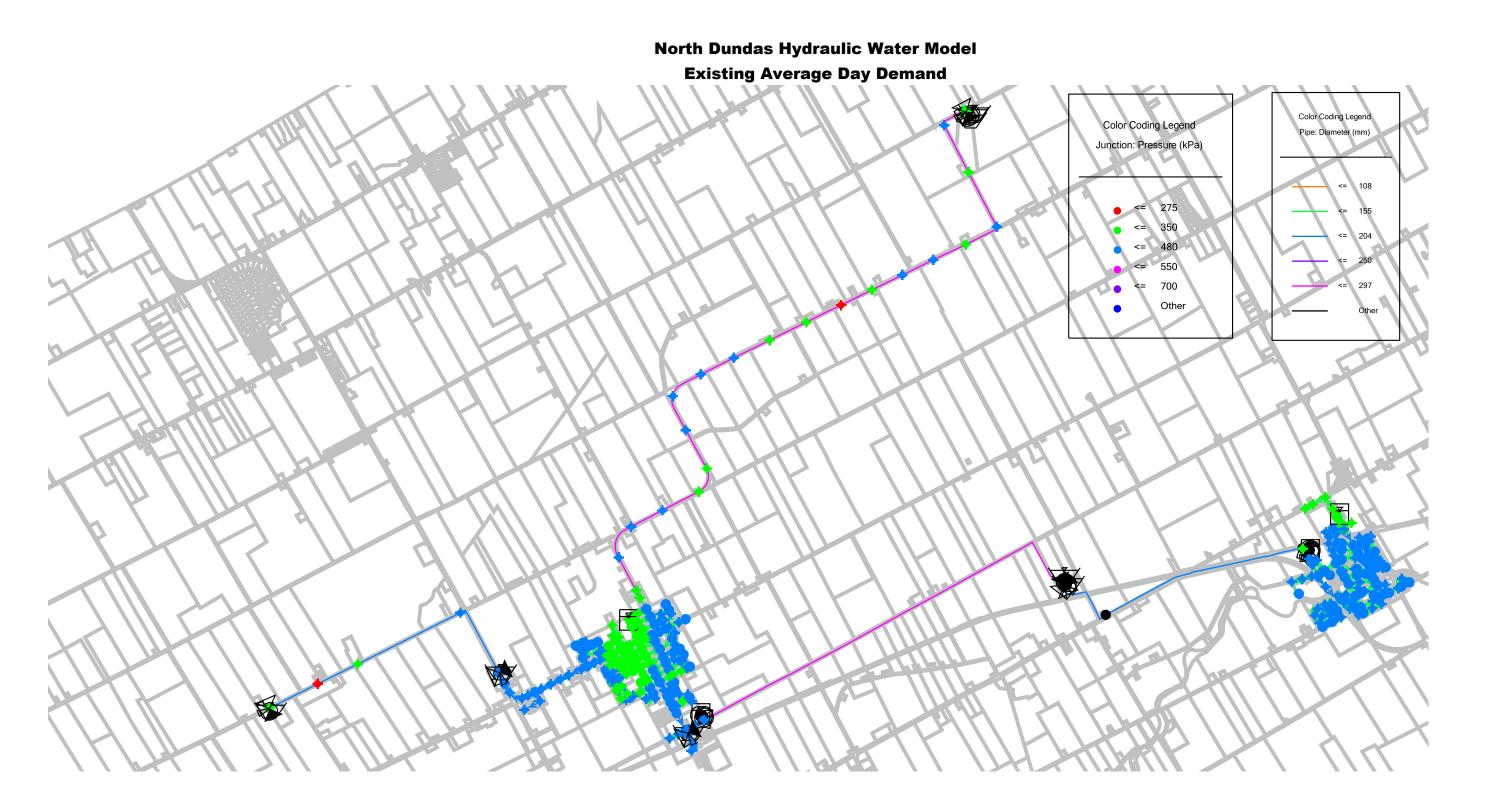
### FLOW RANGE: 75 - 550 GPM

**OUTLET SIZE: 4" NPT** 

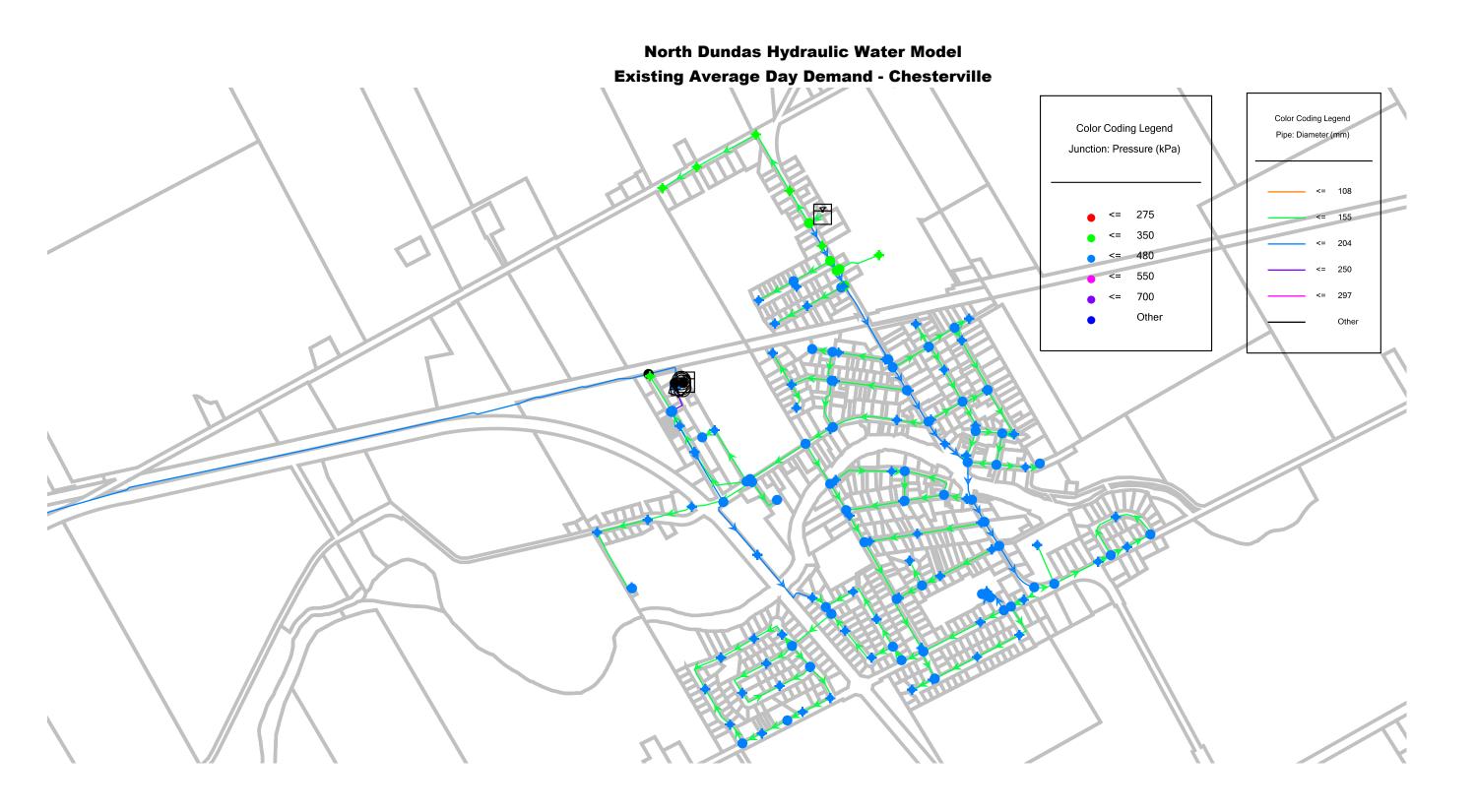
NOMINAL DIA. 8"



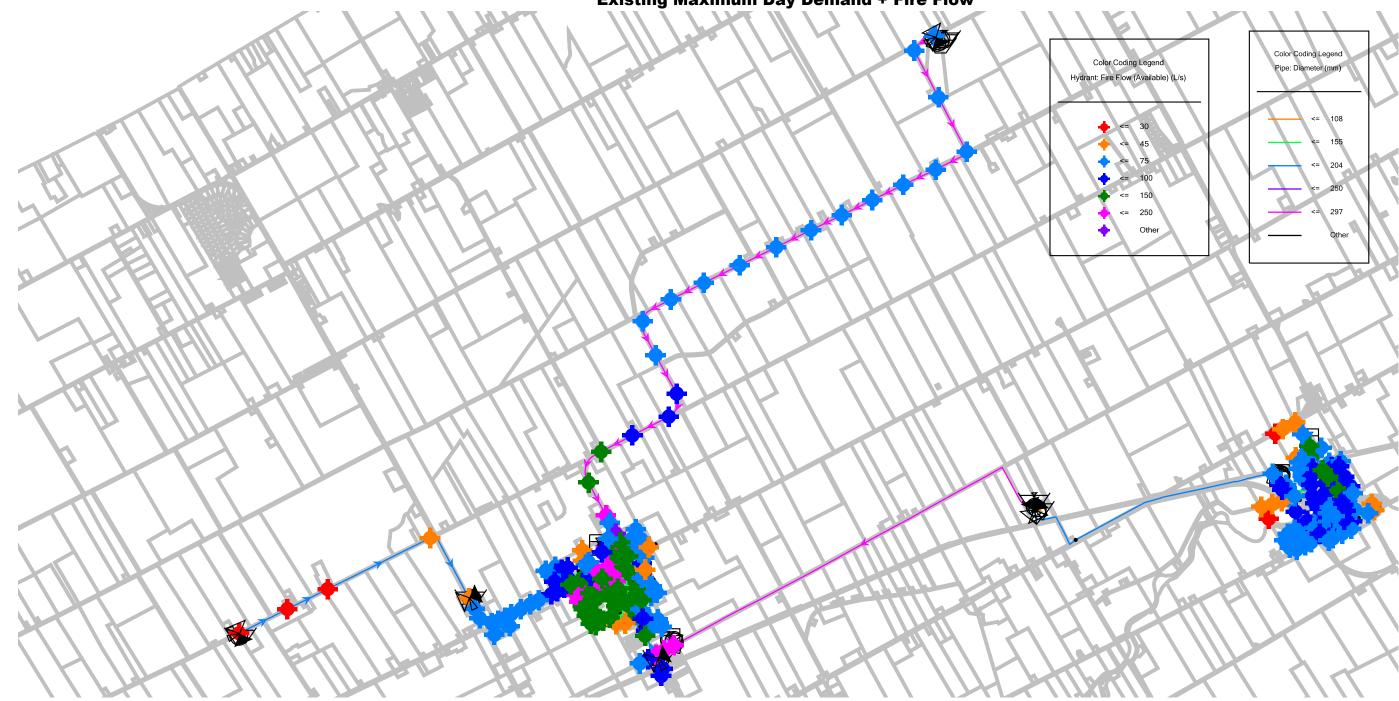
## **ATTACHMENT 2**







## North Dundas Hydraulic Water Model Existing Maximum Day Demand + Fire Flow





## North Dundas Hydraulic Water Model Existing Maximum Day Demand + Fire Flow - Chesterville



## North Dundas Hydraulic Water Model **Existing Peak Hour Demand Color Coding Legend** Junction: Pressure (kPa) 275 350 <= . <= 480 550 <= 700 Other • Z **V**

