

Site Survey

Survey Details				
Surveyor Name: Dallas Churcher		Customer: McAllister Group		
Site Contact Name: Kevin Woolf		Site Name: Sea Road Littlehampton Phase (2)		
Site Contact Number: 07767111189		Site Address: Sea Road Littlehampton West Sussex		
Contact Email: kevin.woolf@mcallistergroup.com				
Out of Hours Contact: TBC				
Out of Hours Contact Number: TBC				
Scope of Works: Over-pump flows from MH (TQ4017301) to MH (TQ4011301) 500ls				
Installation Required: Yes		Subcontract: No		
Application	Pump 1	Pump 2	Pump 3	Pump 4
Operation (Duty / Standby / Assist):	Duty	Assist	Stand-By	
Liquid / Material to be pumped:	Sewage	Sewage	Sewage	
Suction Lift:	4.5m	4.5m	4.5m	
Static Head:	6m	6m	6m	
Total Head (if Known):	14.91m	14.91m	14.91m	
Flow Rate:	500 ls	500 ls	500 ls	
Total Suction Distance:	6m	6m	6m	
Total Discharge Distance:	568m	560m	568m	
Discharge Location Type:	Manhole	Manhole	Manhole	
Discharge Point Dimensions (L x W x D)	Client to remove cover slab to remove cover slab	Client to remove cover slab to remove cover slab	Client to remove cover slab to remove cover slab	
Working Pressure:	-	-	-	
Chalwyn Valve / Spark Arrestor	-	-	-	
Telemetry:	Yes	Yes	Yes	
24hr Running:	Yes	Yes	Yes	

Site Survey

Comments / Special Considerations:	
Electrical Requirements	
Electrical Supply Available: No	If Yes, What Size Available:
Generators Required: Yes	If Yes, Size Required:
Are Duty/Standby Generators Required: Yes	Who will Install the Generators? Selwood
Lifting Requirements	
Contract Lift Required: Yes	Weight: Multiple, GM lifting to survey
Overhead Hazards: No	Distance (Radius): Max 24m
Site Restrictions: Costal Area Wind may affect lifting operations	
This information will be required for the crane subcontractor to survey the Contract Lift	

Health and Safety Considerations	
Requires Solutions Input: Yes	Permit to Work Required: Yes
Specific Safety Schemes: H&S460	Induction Required: Yes
Hazardous Areas:	Induction Procedure: All Staff S/W inducted
Environmental Considerations: Client to provide a tanker to drain pipeline and clean out prior to dismantling to ensure no sewage is spilt onto the ground.	

Site Survey

Work Restrictions:		
none		
Hazard Checklist:	Present	Comments
1. Moving Vehicles:	Yes	Site next to road.
2. Access and Egress:	Yes	Via site fencing.
3. Housekeeping:	Yes	Live site and public areas, all excess equipment to be kept within compound and clear of walkways.
4. Working at Heights:	Yes	During off loading of delivery vehicles, edge protection to be used, pipework to be pre slung.
5. Falling Objects:	Yes	Ensure there are no loose items within the load that is to be lifted.
6. Slips and Trips:	Yes	All pipework and cables
7. Electricity:	Yes	Only trained electricians to undertake electrical work
8. Fire:	Yes	Potential for electrical fire
9. Noise and Vibration:	Yes	During the use of impact wrench
10. Manual Handling:	Yes	Ensure mechanical aid is used as much as possible (do not over lift)
11. Chemicals and Harmful Substances:	No	
12. Body of Water:	No	
13. Weather / Lighting:	Yes	Site is costal wind may affect lifting operations, also ensure correct PPE is used According to weather conditions
14. Time Constraints:	No	
15. Lifting & Slinging:	Yes	Contract lift RAMS to follow
Additional hazards:		

Site Survey

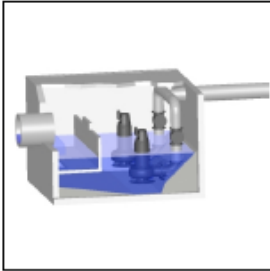
Confined Space Health and Safety Considerations				
Confined Space	No	Explosive Atmosphere	Yes / No	Zone: 0 / 1 / 2
Location of Confined Space:		Classification:	NC1 / NC2 / NC3 / NC4 Low / Medium / High	
Characteristics of Confined Space:		Type of Access / Egress:		
Known Hazards:		Entry Dimensions:		
Rescue Arrangements:				

Site Sketch (Request Site Drawings)



Site Survey

Pump Selection Calculations & Determining Factors (Internal use only)



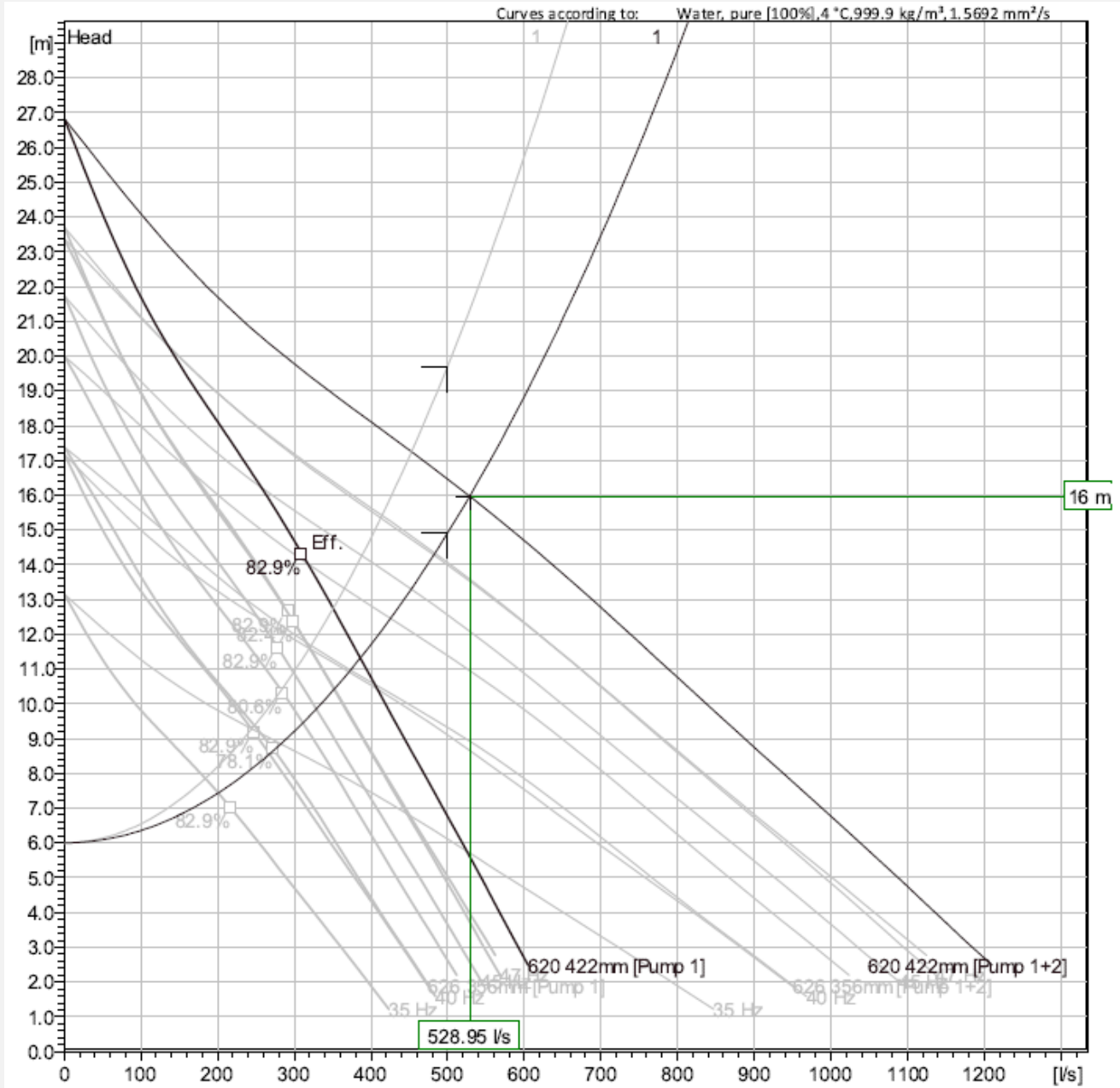
Friction loss calculation

Pumped fluid Water, pure	Static head 6	Layout Wet well installation
Flow 500 l/s	Number of pumps 2	Calculation model Colebrook-White
Viscosity 1.569 mm ² /s	Nature of system Single pumps as parallel circuit	

Type	Ø (mm)	? or L	Qty.	v (m/s)	k (mm)	ΔH (m)
Ø = Diameter v = Velocity k = Pipe roughness ΔH = Head loss Individual discharge side pipe - Metal / Steel galvanized PN 16 / DN 300 (323,9x7,1 mm) / EN 10224 / DIN 2460						
Pipe length	309.7	6 m	1	3.319	0.2	0.1993
Elbows	309.7	0.9	3	3.319		0.5052
Non-return valves	309.7	0.9	1	3.319		0.5052
T-piece	309.7	0.4	1	3.319		0.2245
VALVE	309.7	0.3	1	3.319		0.1684
Total friction head						1.603
Common discharge side pipe - Metal / Steel galvanized PN 16 / DN 500 (508,0x8,0 mm) / EN 10224 / DIN 2460						
Pipe length	492	567 m	1	2.63	0.2	6.762
Elbows	492	0.9	3	2.63		0.3173
Elbow 45°	492	0.5417	4	2.63		0.2278
Total friction head						7.307
Friction loss head						8.91 m
Total static head						6 m
Total head						14.91 m

Site Survey

1 Pump Values



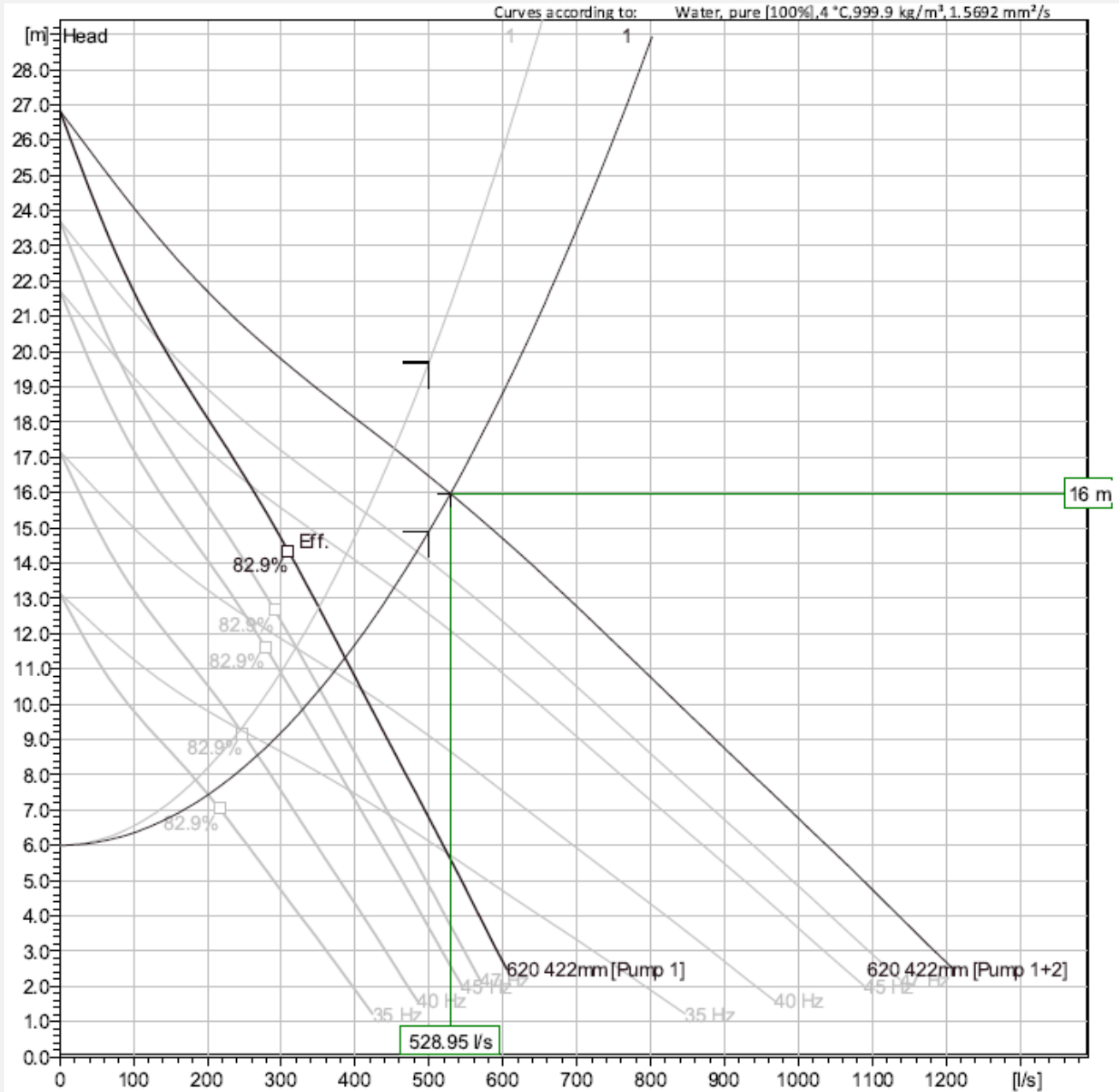
Curve: ISO 9906

Operating Characteristics

Pumps/System	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr. eff.	Specific Energy	NPSHr
1 / 1	47 Hz	320 l/s	11.6 m	44.3 kW	320 l/s	11.6 m	44.3 kW	82.3 %	0.0422 kWh/n	5.34 m
1 / 1	45 Hz	299 l/s	10.9 m	38.7 kW	299 l/s	10.9 m	38.7 kW	82.6 %	0.0395 kWh/n	4.91 m
1 / 1	40 Hz	244 l/s	9.27 m	26.8 kW	244 l/s	9.27 m	26.8 kW	82.9 %	0.0337 kWh/n	3.93 m
1 / 1	35 Hz	184 l/s	7.85 m	17.4 kW	184 l/s	7.85 m	17.4 kW	81.4 %	0.0299 kWh/n	3.13 m

Site Survey

2 Pump Values



Curve: ISO 9906

Operating Characteristics

Pumps/Syste s	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr. eff.	Specific Energy	NPSHr
2 / 1	50 Hz	264 l/s	16 m	50.9 kW	529 l/s	16 m	102 kW	81.5 %	0.0588 kWh/n	5.53 m
2 / 1	47 Hz	242 l/s	14.3 m	42 kW	484 l/s	14.3 m	84 kW	81 %	0.0529 kWh/n	5.01 m
2 / 1	45 Hz	226 l/s	13.3 m	36.7 kW	453 l/s	13.3 m	73.3 kW	80.5 %	0.0494 kWh/n	4.68 m
2 / 1	40 Hz	186 l/s	10.9 m	25.3 kW	372 l/s	10.9 m	50.6 kW	78.7 %	0.0419 kWh/n	3.89 m
2 / 1	35 Hz	141 l/s	8.85 m	16.4 kW	283 l/s	8.85 m	32.9 kW	74.7 %	0.0368 kWh/n	3.18 m
1 / 1	50 Hz	351 l/s	12.7 m	53.6 kW	351 l/s	12.7 m	53.6 kW	81.8 %	0.0468 kWh/n	6.03 m

Site Survey

Installation Support Required	Required	Dates Required On-Site
Installation Team	Yes	TBC
Electrician	Yes	TBC
Crane	Yes	TBC
Generators	Yes	TBC
Selwood Delivery	Yes	TBC
Additional Items Timber mats for pipeline	Yes	TBC

Electrical Panel and Cable Route Photographs

NZ 3301 LT 3~ 620

Technical specification

Motor - General

Motor number N3301.090 35-29-6AA-D 55KW	Phases 3~	Rated speed 985 rpm	Rated power 55 kW
Approval EN	Number of poles 6	Rated current 113 A	Stator variant 1
Frequency 50 Hz	Rated voltage 400 V	Insulation class H	Type of Duty S1
Version code 090			

Motor - Technical

Power factor - 1/1 Load 0.78	Motor efficiency - 1/1 Load 90.6 %	Total moment of inertia 1.41 kg m ²	Starts per hour 30
Power factor - 3/4 Load 0.72	Motor efficiency - 3/4 Load 91.2 %	Starting current, direct starting 660 A	
Power factor - 1/2 Load 0.60	Motor efficiency - 1/2 Load 90.5 %	Starting current, star-delta 220 A	

Site Survey

Sign Off with Client	
Prepared by: Dallas Churcher	Customer Name:
Signature: 	Signature:
Date: 18/03/2020	Date: