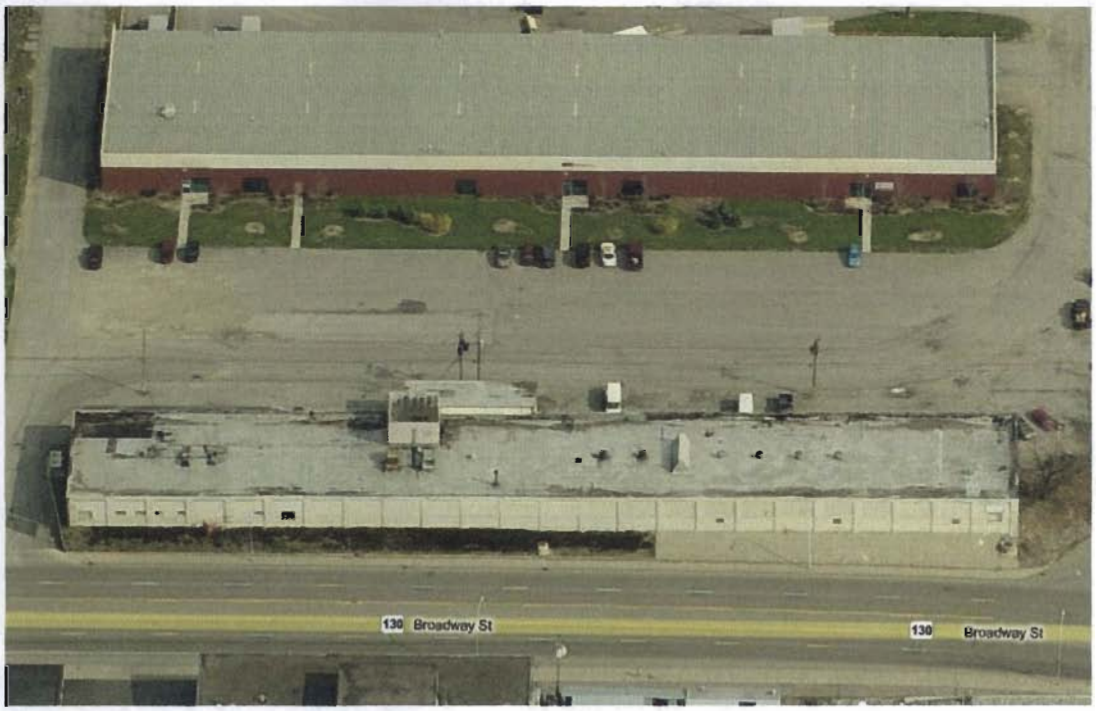
Buffalo Business Park
Interim Remedial Measures
Groundwater Contamination/Soil Vapor Intrusion



April, ~~2007~~ 2008

JSW —
edoc —

V00663

Buffalo Business Park

1800 Broadway
Buffalo, NY

April 30, 2008

New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

Attn: Mr. Jaspal S. Walia, P.E.

Re: Implementation of Remedial Action, Interim Corrective Measures
Operable Unit #2

Dear Mr. Walia:

In response to your letter of March 27, 2008 enclosed please find a document entitled "Buffalo Business Park, Interim Remedial Measures" which details actions Buffalo Business Park is willing to take to begin implementation of remedial actions at our facility. We believe that these actions should be successful in achieving reasonable control of contaminated groundwater associated with Operable Unit #2. Barring any unforeseen circumstances we expect these actions to become the final remedial measure at the site. At such time as we have made the technical demonstration we will submit a final engineering report containing the appropriate elements required in the checklist that was attached to your correspondence.

We anticipate that the first round of sampling will occur on Friday, May 2, 2008.

With respect to the requested reports, we have contacted the consultants that prepared these reports and requested copies. We will forward copies as soon as they are received.

If you have any questions or require additional information please contact me at 716-896-8800 or Mr. Peter Tarnawskyj at 716 523-1796.

Sincerely,

Gary Crewson

cc: Mr. Peter M Tarnawskyj; LTP Services, Inc
Mr. Cameron O'Connor, NYSDOH (w/enclosure)

enc.

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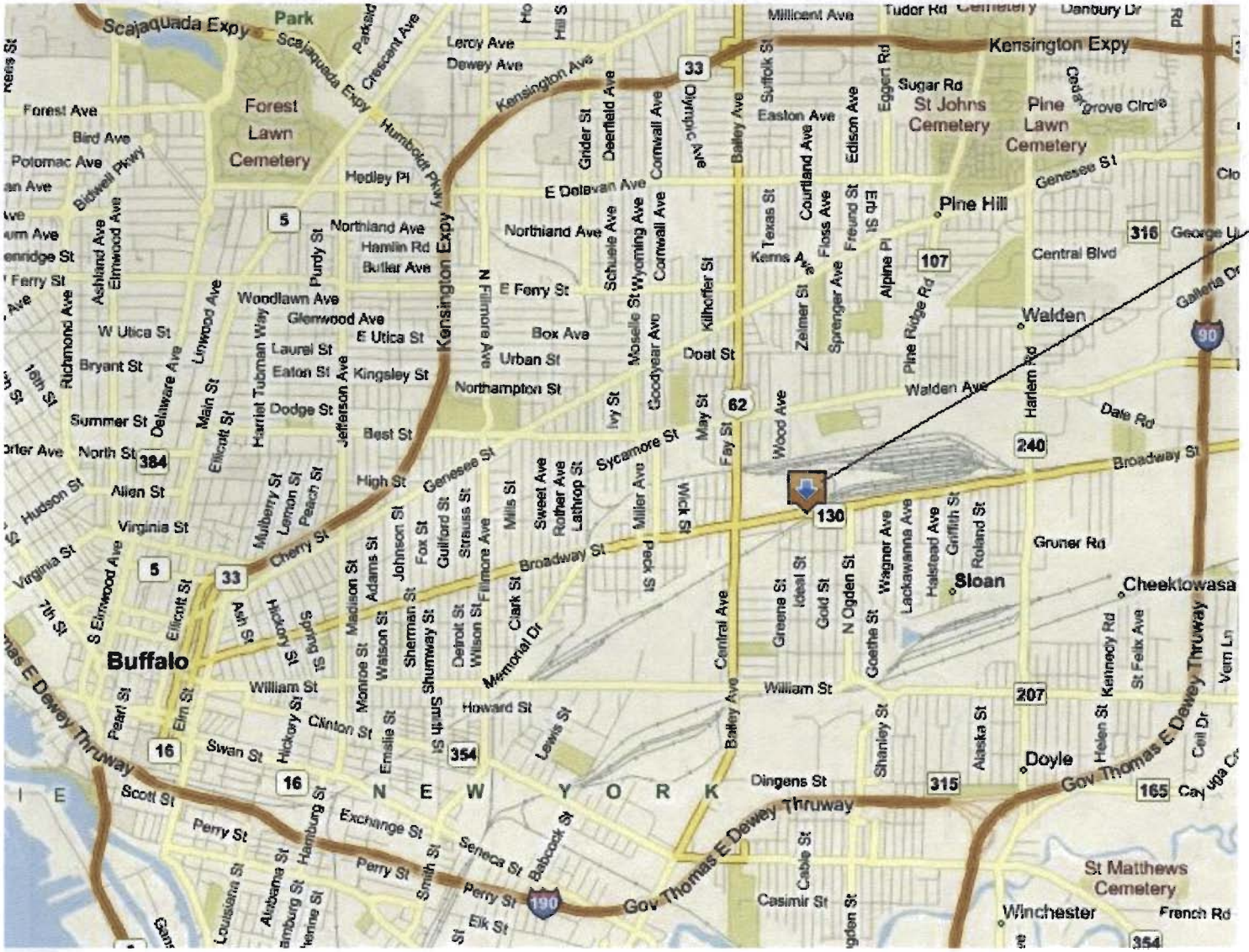
1.0 Current Overview

Buffalo Business Park (BBP) is currently implementing a Voluntary Cleanup at the facility located at 1800 Broadway Avenue in the City of Buffalo, New York (Voluntary Site Cleanup #V00663-9, Fig. 1). To accomplish this objective, BBP has entered into a Voluntary Cleanup Agreement with the New York State Department of Environmental Conservation (NYSDEC) for the investigation and/or remediation of two operable units. Operable Unit #1 (OU #1) in the southwest central area of the Site consists of an area where soil contamination was delineated. OU#1 underwent remedial activities in mid April, 2006 in the form of excavation and removal of contaminated soils.

Operable Unit #2 (OU #2) is also located along the southwest property boundary, and consists of an area where previous investigations have encountered contaminated groundwater. Golder Associates, Inc. (Golder) implemented an investigative work plan to further characterize and delineate the groundwater contamination associated with OU#2. For groundwater issues related to OU#2, the work plan specified the installation and sampling of four (4) additional bedrock wells. Groundwater levels were also measured in all bedrock wells and potentiometric contour maps were developed to characterize bedrock groundwater flow and direction. The conclusion of the Golder report did not specify additional remedial action.

In response to the report, NYSDEC indicated that they did not agree with the Golder conclusions and that additional remedial action was required to prevent contaminant migration. Further, there were discussions as to the need for additional data to determine if sub slab venting was required for the western portion of the building closest to Broadway (New York Frame Building). Both issues appeared to require additional study.

In order to expedite completion of the voluntary cleanup activities, and in lieu of additional studies, BBP has elected to implement interim remedial measures to effect control of contaminant migration and to provide venting of the west end of the New York Frame Building.


Buffalo Business Park
1800 Broadway
Buffalo, NY 14212
Scajaquada Expy
Park
Forest Lawn Cemetery
Kensington Expy
Sugar Rd
St Johns Cemetery
Pine Lawn Cemetery
Pine Hill
Walden
Central Blvd
Walden Ave
Broadway St
Gruner Rd
Sloan
Cheektowaga
Doyle
Winchester
St Matthews Cemetery
Buffalo
N E W Y O R K
Gov Thomas E Dewey Thruway
Northland Ave
E Ferry St
E Utica St
W Utica St
Bryant St
Summer St
North St
Allen St
Virginia St
High St
Genesee St
Cherry St
William St
Howard St
Clinton St
Swan St
Scott St
Perry St
Exchange St
Seneca St
Dingens St
Casimir St
Elk St
French Rd
Northampton St
Urban St
Box Ave
Doat St
Sycamore St
Best St
Dodge St
Eaton St
Laurel St
Glenwood Ave
Woodlawn Ave
Hamlin Rd
Butler Ave
Hedley Pl
E Delavan Ave
Leroy Ave
Dewey Ave
Forest Ave
Bird Ave
Potomac Ave
Ferry St
Millicent Ave
Tudor Rd
Danbury Dr
Sugar Rd
Easton Ave
Genesee St
Central Blvd
Walden Ave
Date Rd
Gruner Rd
Broadway St
Cheektowaga
Doyle
Winchester
St Matthews Cemetery
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E Ferry St
E Utica St
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Bryant St
Summer St
North St
Allen St
Virginia St
High St
Cherry St
William St
Howard St
Clinton St
Swan St
Scott St
Perry St
Exchange St
Seneca St
Dingens St
Casimir St
Elk St
French Rd
Northampton St
Urban St
Box Ave
Doat St
Sycamore St
Best St
Dodge St
Eaton St
Laurel St
Glenwood Ave
Woodlawn Ave
Hamlin Rd
Butler Ave
Hedley Pl
E Delavan Ave
Leroy Ave
Dewey Ave
Forest Ave
Bird Ave
Potomac Ave
Ferry St
Millicent Ave
Tudor Rd
Danbury Dr
Sugar Rd
Easton Ave
Genesee St
Central Blvd
Walden Ave
Date Rd
Gruner Rd
Broadway St
Cheektowaga
Doyle
Winchester
St Matthews Cemetery
Gov Thomas E Dewey Thruway

Figure 1

2.0 Soil Vapor Intrusion

Although the result of sub slab sampling was not conclusive as to the need for sub slab depressurization. BBP will install a sub slab depressurizations system rather than incur the additional sub slab sampling costs. Attachment II provides design detail for the venting system. Upon approval by the NYS Health Department, BBP will install this system.

3.0 Groundwater Pumping

In place of additional studies to determine parameters for design of a groundwater control system, BBP is proposing interim remedial measures consisting of:

- Additional sampling
- Installation of a pumping system in the monitoring well with the highest levels of contamination (VCA-MW4-BR)
- Ongoing pumping of groundwater from VCA-MW4-BR ;and
- Follow up monitoring to demonstrate contaminant control by either reduction in contaminant levels, hydraulic control, or both.

A. Additional sampling

The most recent sampling event for MW4 occurred on 2/15/06. Subsequent to this sampling event, remediation of OU #1 occurred. The Investigative Work Plan for Operable Unit #2 consisted of installation of 4 additional bedrock wells, sampling of the newly installed wells and development of bedrock potentiometric contour maps utilizing all eight bedrock wells. Sampling of the original bedrock wells (VCA-MW1-BR through VCA-MW4-BR) was not included in this work.

The removal of a presumed source of groundwater contamination (OU#1) has been completed. Thus, prior to implementation of active remedial measures (i.e. pumping) it is appropriate to resample the wells in close proximity to OU#1 to evaluate if there has been an impact from the source removal. BBP proposes to resample wells VCA-MW3-BR, VCA-MW4-BR and VCA-MW5-BR and analyze for TCL volatile organics (Method 8260). Results from this sampling event would be compared to results from the 2/15/2006 sampling event for VCA-MW3-BR and VCA-MW4-BR and the 8/31/2007 sampling event for VCA-MW5-BR. Should the results show a significant decrease in contaminant levels, BBP proposes to meet with the NYSDEC prior to implementation of the pumping system described below to reassess if additional remedial actions are appropriate.

B. Pumping System

Should groundwater analytical results from the sampling described in A. above not show a significant decrease in contaminant levels, BBP proposes to convert VCA-MW4-BR into a pumping well. Conversion would be accomplished as follows:

i. The area around MW4 would be excavated and a precast vault installed around the well.

ii. A submersible pump (Grundfos REDI-FLO3-100 or equivalent) and associated controller would be installed in VCA-MW4-BR. (Fig. 2).

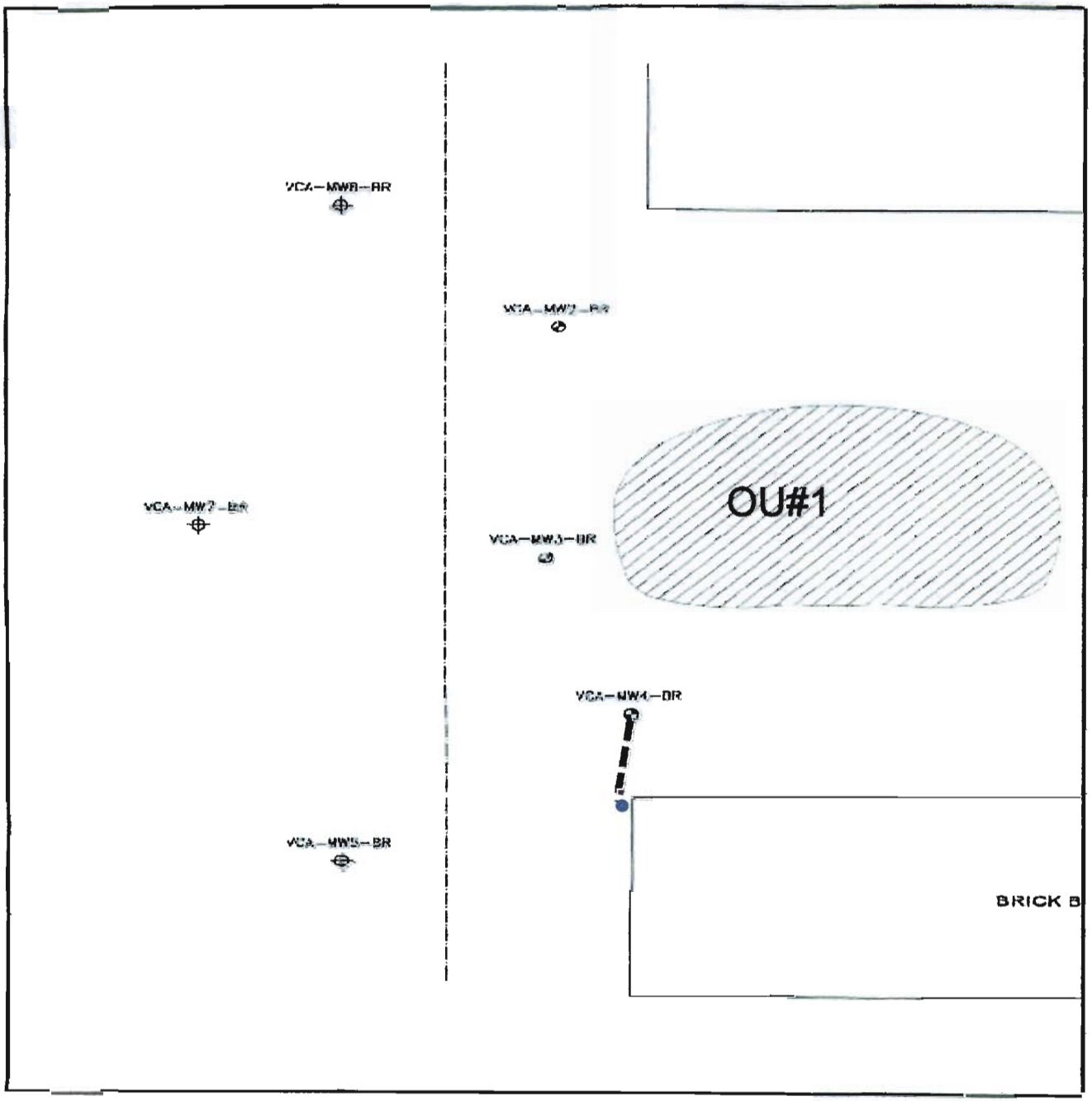


Figure 2
Buffalo Business Park
Discharge line
location

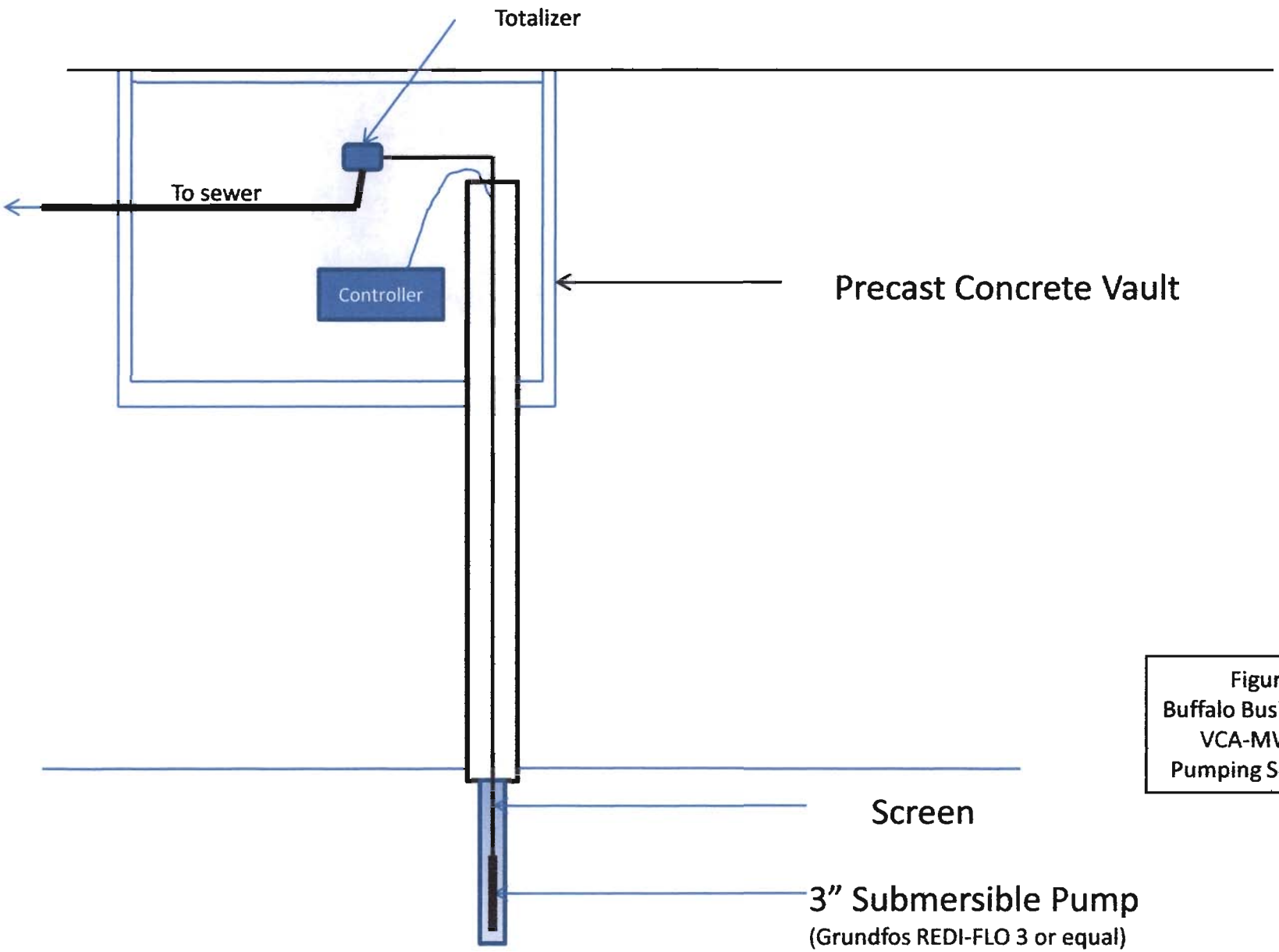


Figure 3
Buffalo Business Park
VCA-MW4-BR
Pumping Schematic

iii. A discharge line, including a totalizer, would be installed from VCA-MW4-BR to a location at the northeast corner of the New York Frame Building where a sewer inlet is available. (Fig. 2; Fig. 4)

iv. Application for a discharge Permit from the Buffalo Sewer Authority has been made on April 22, 2008. It is anticipated that the permit will be in place at such time as construction is complete. Since the permit is not yet in place, BBP does not have details as to what the BSA will require with respect to contingency plans for heavy rainy days. We would expect that a plan would call for temporary shutdown of the pumping system until the rain event has ended. We anticipate that temporary shut downs of the pumping system (on the order of a few days) would not have a significant impact on the efficacy of the pumping system.

Once installed, the pumping system would be adjusted to achieve maximum sustainable pumping from VCA-MW4-BR. While a formal pumping test for VCA-MW4-BR has not been performed, it is anticipated that the proposed system, which has a maximum pumping capacity of 9 gpm, will be adequate. Operation of the system is described in Attachment III, O&M Plan for Groundwater Pumping. This plan contains details on the pump and controller proposed for use..

C. Follow up monitoring

Once the pumping system has been in operation for a minimum of three months an additional round of groundwater levels will be obtained to produce a potentiometric contour map for bedrock groundwater. Also, an additional round of groundwater samples will be collected for wells VCA-MW3-BR, VCA-MW4-BR and VCA-MW5-BR and analyzed for TCL volatile organics (Method 8260).

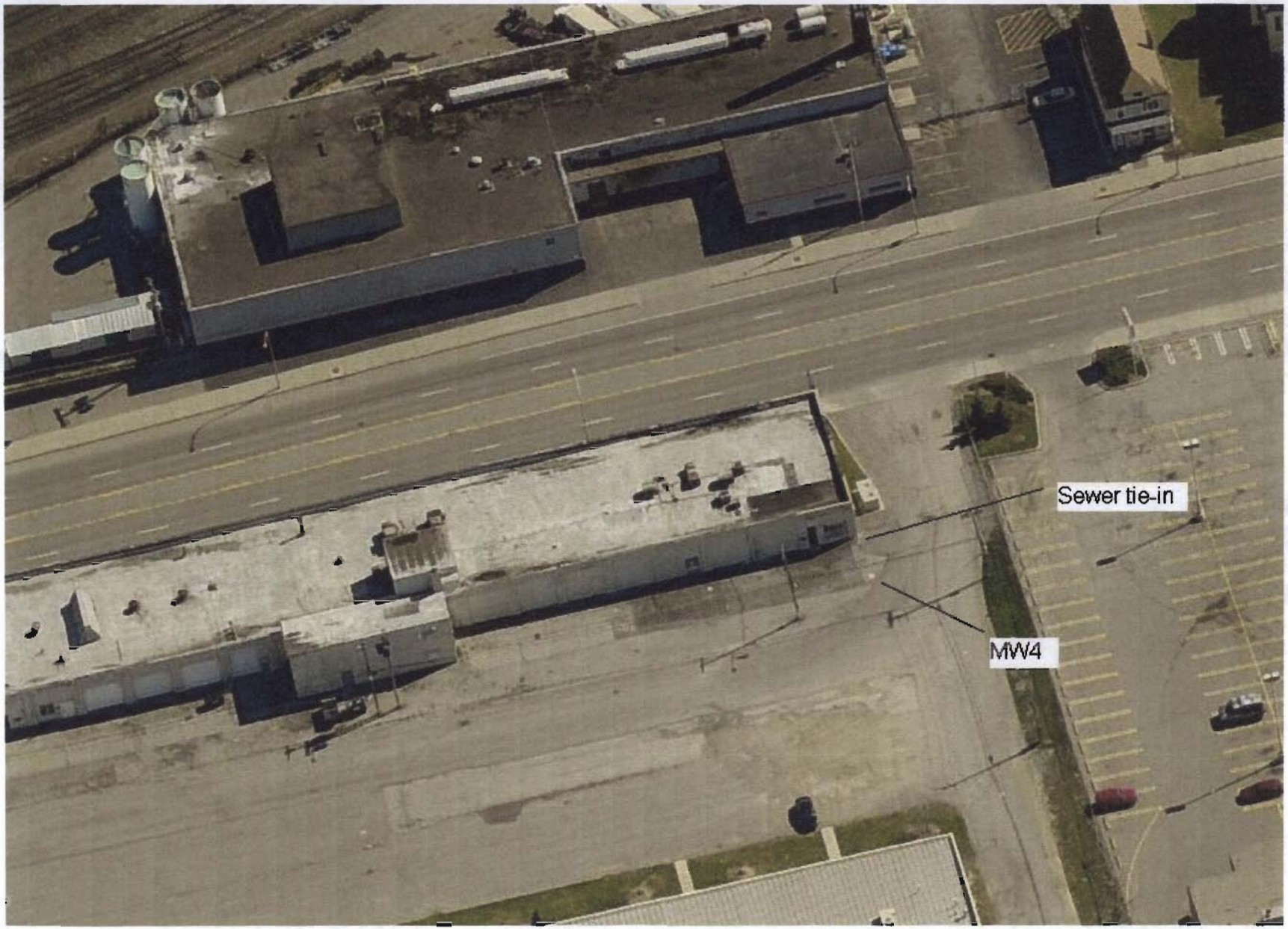


Figure 4

4.0 Final Remedial Action

It is anticipated that the actions described previously will result in acceptable control of groundwater contamination, either chemically, hydraulically or both. Should this be the result, BBP will prepare a Final Engineering Report for NYSDEC approval. The final engineering report will include a Site Management Plan describing Institutional Controls.

Should the impact of the proposed IRM be such that effective control of contamination cannot be demonstrated, BBP will propose additional corrective action as appropriate (i.e. an additional pumping well).

Attachment I

Buffalo Sewer Authority Application

April 22, 2008

Buffalo Sewer Authority
1038 City Hall
65 Niagara Square
Buffalo, NY 14202-3378

Attn: Industrial Waste Section

Re: Buffalo Business Park
B.P.D.E.S. Discharge Permit Application for Groundwater

Enclosed please find a discharge permit application for discharge of groundwater at our property at 1800 Broadway, Buffalo, NY.

Buffalo Business Park (BBP) is conducting a Voluntary Cleanup at our property pursuant to NYSDEC Voluntary Agreement Index No. B9-0637-03-06. As part of this activity, BBP is proposing to control groundwater migration from the site by pumping one of the existing wells.

BBP is seeking approval to discharge this groundwater to the Buffalo Sewer Authority System.

Should you have any questions or require additional information please feel free to contact me at (716) 867-2369 or Mr. Peter Tarnawskyj at (716) 523-1796.

Sincerely,

Gary Crewson

President

enc.

BUFFALO SEWER AUTHORITY
B.P.D.E.S. DISCHARGE PERMIT APPLICATION

FOR BSA USE ONLY
DATE APPLICATION REC'D:
INDUSTRIAL NUMBER:
INVESTIGATOR:

PART A - GENERAL INFORMATION

A1. Applicant Business Name: BUFFALO BUSINESS PARK, INC.

A2. Address of premises discharging wastewater: 1800 BROADWAY, BUFFALO NY 14212
Street City State Zip

A3a. Business Address (if different than above): SAME
Street City State Zip

b. Mailing Address (if different than above): SAME
Street City State Zip

A4. Chief Business Official:

Name: GARY CREWSON Title: PRESIDENT

A5. Facility Representative:

Name: GARY CREWSON Title: PRESIDENT Phone: (716)-894-1044
Fax: (716) 592-0555 Cell Phone: (716) 867-2369
E-mail address gcrewson@AOL.com

A6. Person to be contacted about this application, if different from above:

Name: PETER TARNAWSKI Title: _____ Phone: 716 523-1796

A7. Person to be contacted in case of emergency, if different from above:

Name: G. CREWSON Day Phone: PRESIDENT Night Phone: 716 867 2369

A8. Confidentiality:
Please indicate those sections of this questionnaire that you wish to remain confidential and your basis for requesting confidentiality.

_____

_____

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of those individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information.

_____ _____
Date Signature of Official (Seal if Applicable)

PART B - BUSINESS DESCRIPTION

PURPOSE The business description is primarily used to determine the substances which may enter into the wastewater discharge from the business activity.

B1. Brief Description: BUFFALO BUSINESS PARK IS CONDUCTING SITE REMEDIATION PURSUANT TO A NYSDEC VOLUNTARY CLEANUP AGREEMENT. THE PROPERTY IS OPERATED AS A COMMERCIAL, WHOLESALE AND MANUFACTURING INDUSTRIAL PARK.

B2. Business Activity: North American Industry Classification System (NAICS) Codes for Principal Products or Services:

Activity	NAICS Code (5-6 Digits)	Production (Monthly Avg.)*
GROUNDWATER REMOVAL	N/A	N/A

B3. Is there a scheduled shutdown? Yes_____ No_X_ If yes, when?_____

B4. Is production seasonal? Yes___ No_X_ If yes, explain, indicating month(s) of peak production:

_____

_____

B5. Average number of employees per shift: 1st N/A 2nd _____ 3rd _____

Shift start times: 1st N/A 2nd _____ 3rd _____

Shift end times: 1st N/A 2nd _____ 3rd _____

Shifts normally worked each day:

	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
1st							
2nd							
3rd							

* Monthly average stated shall be the highest monthly average production in the previous three years.

PART C - WATER SOURCE AND USE

PURPOSE - The Water Source and Use information will enable BSA to determine the Volumes and Sources of wastewater discharged to the BSA sewer.

WATER/WASTEWATER DATA

C1. Water Sources	Average Volume (Gallons per Day)	Peak Flow & Estimated Duration (Gallons per Minute & Time)
Municipal System	—	
Recycled	—	
Private Wells	4,500	4,500
Other (Specify)_____		
Water Account No.(s)		

C2. Water Usage	Average Volume (Gallons per Day)	Peak Flow & Estimated Duration (Gallons per Minute & Time)
Cooling Water	N/A	
Boiler Makeup	N/A	
Process Water	N/A	
Sanitary Purposes	N/A	
Other (Specify) _____		

C3. Waste Water Discharge	Average Discharge (Gallons per Day)	Peak Discharge & Estimated Duration (Gallons per Minute & Time)
Municipal Sewer/Sanitary		
- Process		
- Sanitary:		
- Cooling		
- GROUNDWATER	4,500	4,500 3 6PM
Non-Sewered Discharges		
- Natural Receiving Water	N/A	
- Storm Drain	N/A	
- Waste Hauler	N/A	
- Evaporation	N/A	
- Contained in Product	N/A	
- Recycled	N/A	
- Other (Specify) _____	N/A	

C4. Is your facility permitted to discharge liquid wastes under a State (S.P.D.E.S.) Permit?

Yes _____ No X Permit No. _____

C5. Does your facility have a wastewater discharge from any air pollution control equipment?

Yes _____ No X If so what discharge point _____

PART D - SUBSTANCES OF CONCERN
(REFER TO ATTACHED TABLE I)

Complete all information for those substances your facility has used, produced, stored, distributed, listed under the TRI report or otherwise disposed of since last application. Do not include chemicals used only in analytical laboratory work. Enter the name and code from Table I. If facility uses a substance in any of the Classes A-M which is not specified in the list, enter it as code class plus 99, e.g. B99 with name, usage, etc.

NAME OF SUBSTANCE	CLASS	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	PURPOSE OF USE (STATE WHETHER PRODUCED, REACTED BLENDED PACKAGED, DISTRIBUTED, NO LONGER USED)
NONE				
SEE ATTACHED GROUNDWATER QUALITY DATA				

TABLE 1 - SUBSTANCES OF CONCERN

CLASS A - HALOGENATED HYDROCARBONS AROMATICS

A01. Methyl chloride
A02. Methylene chloride
A03. Chloroform
A04. Carbon tetrachloride
A05. Freon/Genatron
A06. Other halomethanes
A07. 1, 1, 1-Trichlorethane
A08. Other haleothanes
A09. Vinyl fluoride
A10. Vinyl chloride
A11. Dichlorethylene
A12. Trichloroethylene
A13. Tetrachloroethylene
A14. Chlorinated propane
A15. Chlorinated propene
A16. Hexachlorobutadiene
A17. Hexachlorocyclopentadiene
A18. Chlorinated benzene
A19. Chlorinated toluene
A20. Fluorinated toluene
A21. Polychlorinated biphenyl (PCB)
A22. Chlorinated naphthalene
A23. Dechlorane ($C_{10}C1_{12}$)
A99. Halogenated hydrocarbons not specified above

CLASS D - AROMATIC HYDROCARBONS

D01. Benzene
D02. Toluene
D03. Xylene
D04. Biphenyl
D05. Naphthalene
D06. Ethylbenzene
D07. Styrene
D08. Acenaphthene
D09. Fluranthene
D99. Aromatic hydrocarbons not specified above

CLASS E - TARS

E01. Coal tar
E02. Petroleum tar

CLASS B - HALOGENATED ORGANICS

(other than hydrocarbons)

B01. Phosgene
B02. Methyl Chloromethyl ether
B03. bis-chloromethyl ether
B04. Other chloroalkyl ethers
B05. Benzoyl chloride
B06. Chlorothymol
B07. Chlorinated phenol
B08. Chlorinated cresols or xylenols
B09. Chlorendic acid
B10. Chloraryl ethers
B11. Dichlorophene or hexachlorophene
B12. Chlorinated aniline (including methylene bis (2-chloroaniline))
B13. Dichlorobenzidine
B14. Chlorinated diphenyl oxide
B15. Chlorinated toluidine
B16. Kepone
B17. Dichlorovinyl sulfonyl pyridine
B18. Chloropicrin
B20. Tricloro-propylsulfonyl pyridine
B21. Tetrachloro-methylsulfonyl pyridine
B22. Tetrachloro-isophthalonitrile
B99. Halogenated organics not specified above

CLASS G - MISCELLANEOUS

G01. Asbestos
G02. Acrolein
G03. Acrylonitrile
G04. Isophorone
G05. Nitrosamines
G06. Ethyleneimine
G07. Propiolacetone
G08. Nitrosodimethylamine
G09. Dimethyl hydrazine
G10. Maleic anhydride
G11. Methyl isocyanate
G12. Expoxides
G13. Nitrofurans
G14. Cyanide

CLASS C - PESTICIDES (including herbicides algaecides, biocides, slimicides and mildewcides)

C01. Aldrin/Dieldrin
C02. Chlordane and metabolites
C03. DDT and metabolites
C04. Endosulfan/Thiodan and metabolites
C05. Endrin and metabolites
C06. Heptachlor and metabolites
C07. Malathion
C08. Methoxychlor
C09. Parathion
C10. Toxaphene
C11. Sevin
C12. Kelthane
C13. Diazinon
C15. Carbaryl
C16.Silvex
C17. Dithiocarbamates
C18. Maneb
C19. Dioxathion
C20. Tandex/Karbutilate
C21. Carbofurans
C22. Pentac
C23. Folpet
C24. Dichlone
C25. Rotenone
C26. Lindane/Isotox
C27. Simazine
C28. Methoprene
C99. Pesticides not specified above

CLASS F – SUBSTITUTE

(other than hydrocarbons and non-halogenated)

F01. Phenol, cresol, or xylenol
F02. Catechol, resorcinol, or hydroqinone
F03. Nitrophenols
F04. Nitrobenzenes
F05. Nitrotoluenes
F06. Aniline
F07. Toluidines
F08. Nitroanilines
F09. Nitroanisole
F10. Toluene diisocyanate
F11. Dimethylaminoazobenzene
F12. Benzoic Acid (and Benzoate salts)
F13. Phthalic, isophthalic or terephthalic acid
F14. Phthalic anhydride
F15. Phthalate esters
F16. Phenoxyacetic acid
F17. Phenylphenols
F18. Nitrobiphenyls
F19. Aminobiphenyls (including benzidine)
F20. Diphenylhydrazine
F21. Naphthylamines
F22. Carbazole
F23. Acetylaminofluorene
F24. Dyes and organic pigments
F25. Pyridine
F99. Substituted aromatics not specified above

CLASS M - METALS AND THEIR COMPOUNDS

M01. Anthimony	M08. Mercury	M15. Manganese
M02. Arsenic	M09. Nickel	M18. Titanium
M03. Beryllium	M10. Selenium	M21. Tungster
M04. Cadmium	M11. Silver	M22. Gold
M05. Chromium	M12. Thallium	M83. Pladium
M06. Copper	M13. Zinc	M84. Platinum
M07. Lead	M14. Boron	M99. Metals not specified

If you use chemicals of unknown composition, list trade name or other identification, name of supplier and complete information.

NAME	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	SUPPLIER	PURPOSE OF USE (STATE WHETHER PRODUCED, REACTED, BLENDED, PACKAGED, DISTRUBUTED, NO LONGER USED)
NONE				

Are you presently permitted to discharge radiological waste by the N.Y.S.D.E.C.? Yes ____ No ____

PART E - MISCELLANEOUS

E1. Do you have automatic sampling equipment or continuous wastewater flow metering equipment currently in use or included in future plans?

Current: Flow Metering Yes ____ No X Sampling Equipment Yes ____ No X
Planned: Flow Metering Yes X No ____ Sampling Equipment Yes ____ No X

E2. Does your facility pretreat any wastewater prior to discharge to a sanitary sewer? Yes ____ No X

If so, please show locations of pretreatment processes on attached schematic process diagram (Part F) and describe below:

_____

_____

_____

E3. Do you have a Spill Prevention, Containment and Control Plan (SPCC) and/or Slug Discharge Control Plan for your plant? Yes ____ No X

E4. Do you have a Solvent Management Plan or a Toxic Organic Management Plan? Yes ____ No X

E5. Do you generate any liquid or solid waste such as solvents, electroplating sludges, thinners, oils, still bottoms, fly ash, filler, etc? Yes ____ No X. If yes, please fill out the following table:

TYPE OF WASTE	IF THIS WASTE IS PRODUCED BY PRETREATMENT CHECK HERE	AMOUNT PER YEAR (SPECIFY LBS, TONS OR GALS)	METHOD OF DISPOSAL CHECK EACH METHOD USED				
			ON-SITE	SANITARY LANDFILL	HAZARDOUS WASTE FACILITY	RECLAIMED OR RESUED	OTHER

E6. Description of Disposal Method:

a. Disposal Site _____

b. Hazardous Waste Hauler - Please give name and address _____

_____

c. Reclaimed or Reused - Please describe process, if on-site, or give name and address of reclaimer

_____

_____

d. Other - Please describe _____

_____

E7. Do you store any hazardous wastes on-site? Yes ____ No X

E8. Have you filed an EPA Form 8700-12 (Notification of Hazardous Waste Activity)? Yes ____ No X
If yes, please attach.

E9. What is your Hazardous Waste Number? N/A

E10. Do you discharge into the Buffalo Sewer Authority a waste identified by 40 CFR 261 as hazardous waste?
Yes ____ No X

E11. If your facility is discharging a hazardous waste, have you properly notified the Buffalo Sewer Authority?
Yes _____ No _____ N/A

Attachment II

Building Venting System Plan

Building Venting System Plan

I. Vent Location

The sub slab depressurization system consists of the installation of two active vents at the west end of the New York Frame building. Because of interior walls and fixtures, the location of the vents will be approximately equidistant from the north and south walls and spaced approximately 60 and 120 feet east of the west wall of the building. Final locations will be determined based on interior wall/structure restrictions. Vents will be placed a minimum of 20 feet from any outside wall. (See Figure 6)

II. Vent Detail

Installation of the vent will consist of drilling a 4" hole through the slab and extending the hole approximately one foot below the bottom of the slab. The one foot distance below the slab will be filled with #1 washed stone. A 4" PVC pipe will be installed in the hole and run through the suspended ceiling. The joint between the slab and the PVC pipe will be sealed with silicone adhesive sealant. (See Figure 5)

A Festa Radon Technology extraction fan (Model AMG Fury, see Table 1) will be installed above the ceiling and below the roof line. The outlet of the extraction fan will be connected to another 4" PVC pipe which will penetrate the roof. A 180 elbow will be installed at the end of the PVC pipe to prevent rain intrusion.

III. Testing

Prior to installation of the vent a diagnostic test will be performed. Suction will be applied to the hole and a smoke test will be performed at the sampling hole installed during the previous investigation to confirm that the system works.

IV. Monitoring

A power warning light will be installed at the location of the vent pipe. The warning light will be wired to be on when the extraction fan is operating. The occupants of the space (New York Frame) will be advised to immediately notify the property manager if the light is not on.

An access port (1/2" diameter hole with seal) will be installed on each vent to allow for verification that the fan is operational. The vent piping will be labeled with the words "Sub slab depressurization system. Do not alter or remove"

Table 1

Performance Figures-AMG Fury, Radon Extract Fan

				CFM at STATIC PRESSURE in. w.g.									
Model	***Volts***	***Watts***	***Max. Amps***	***0"***	***0.25"***	***0.5"***	***1.0"***	***1.25"***	***1.5"***	***1.75"***	***2.0"***	***2.25"***	***2.48"***
AMG Fury	120V 60Hz	175	1.46	541	490	437	335	290	244	195	137	76	0

Weight:12.8 lbs. Fan Speed: 2940 rpm

Performance shown is for installation type D – Ducted inlet, Ducted outlet. Speed (rpm) shown is nominal. Performance is based on actual speed of test. Performance ratings do not include the effects of appurtenances in the airstream. The performance figures shown have been corrected to standard air density.

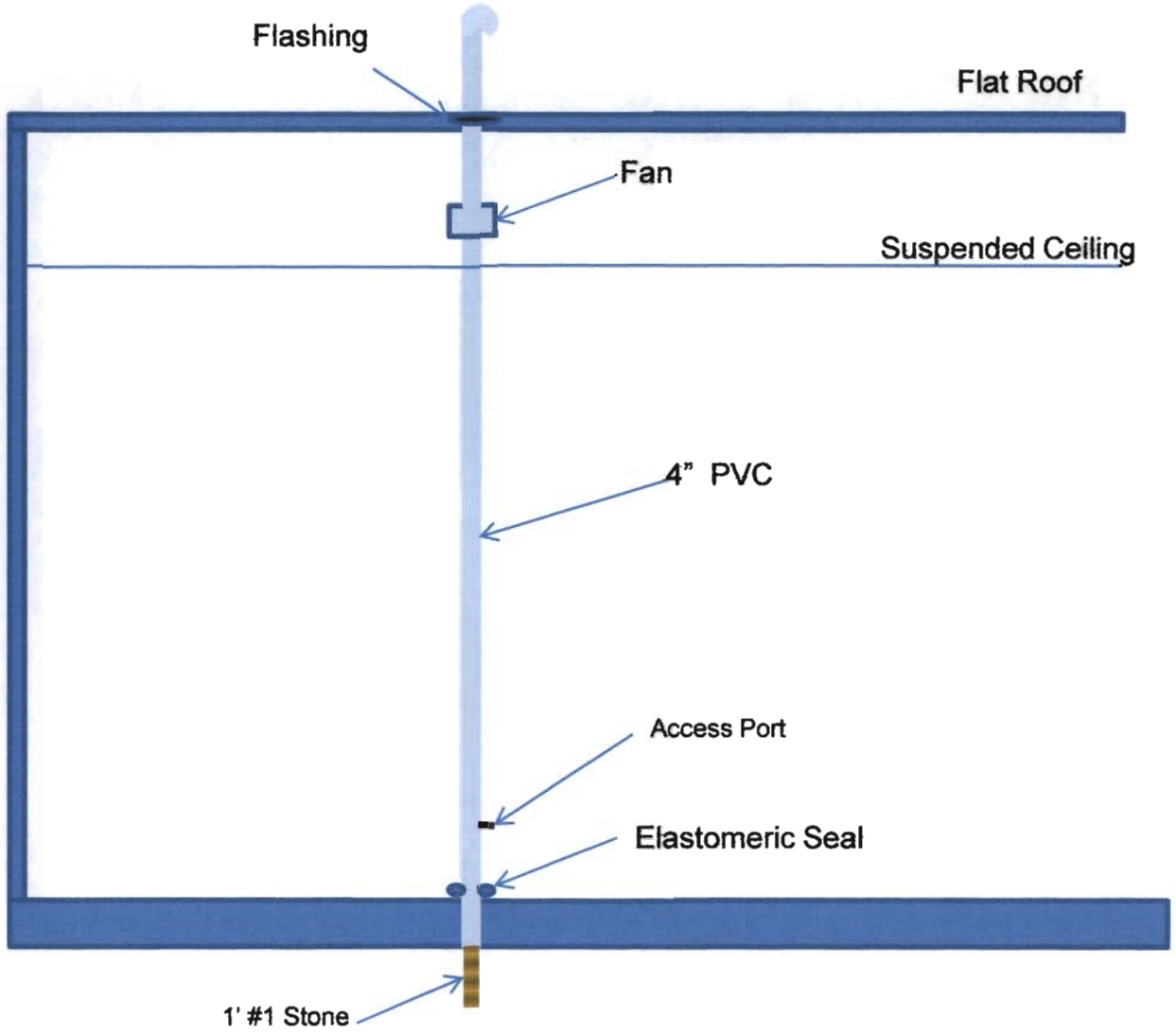
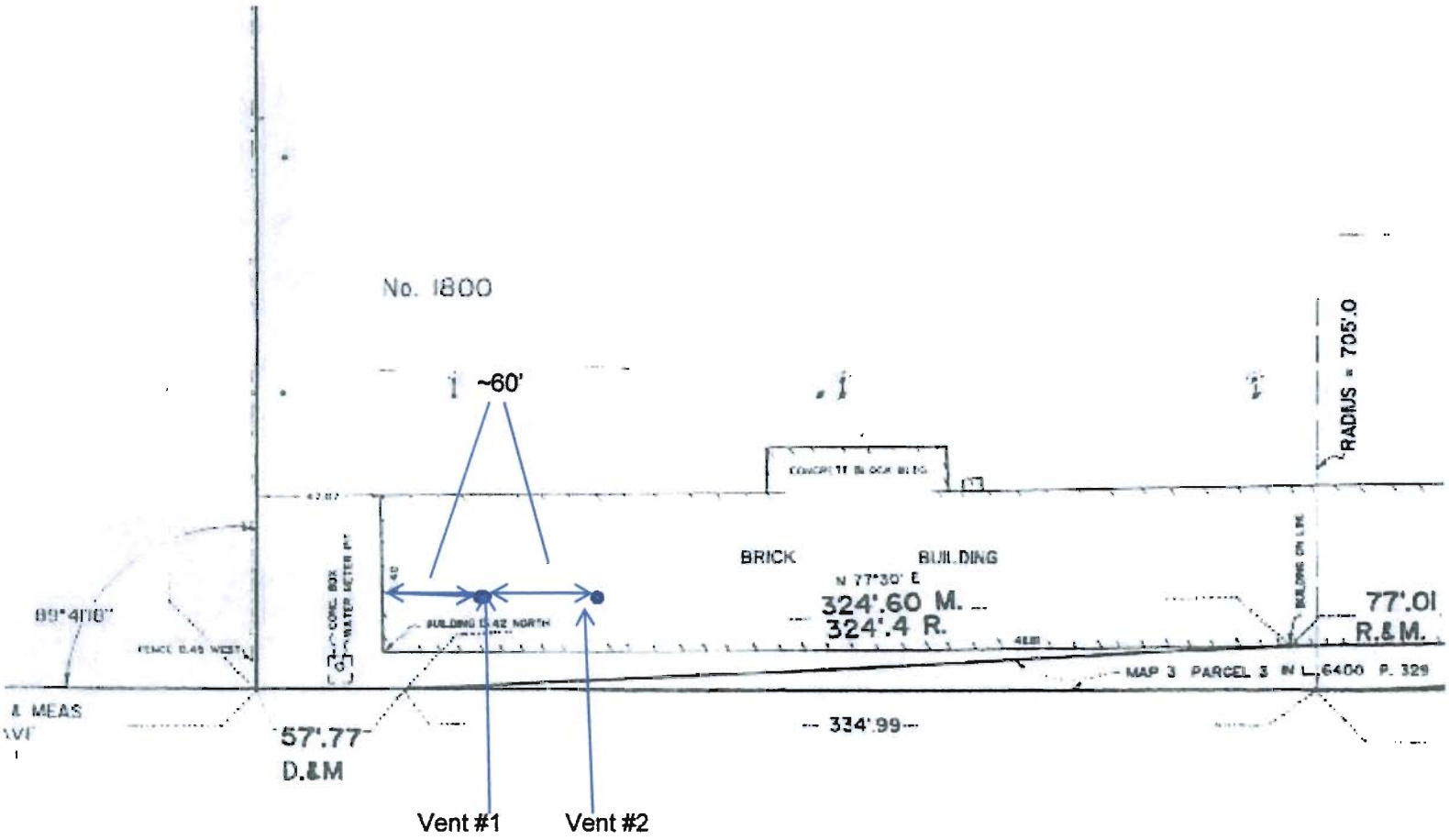


Figure 5
Buffalo Business Park
Sub slab Depressurization Vent



Sub slab depressurization vents
Located no closer than 20 feet from
outside wall

BRO,

(FORMERLY BATAVI

Figure 6
Buffalo Business Park
Sub slab Depressurization Vent
Locations

Attachment III

O&M Plan for Groundwater Pumping

Operation and Maintenance Plan for Groundwater Pumping

I. Pre- Start up

A. Pump Test

Prior to installation of a permanent pumping system, a temporary system will be set up utilizing a pump in MW4 and temporary piping to determine the ability of this well to achieve adequate pumping volume. Since the well is located approximately 20 feet from the sewer inlet the temporary set up will not interfere with site access.

Should there be problems encountered in achieving sufficient pumping volume BBP will first re-develop the well. If re-development fails a new well may need to be installed. Prior to installation, BBP will contact the NYSDEC to propose a location for a new pumping well.

B. Temporary Pumping System

If the results of the pump test are such that utilization of MW4 for remedial pumping is appropriate, the temporary system will continue to be operated until the permanent system is in place.

II. Permanent System

A. Start up

Once the permanent system is in place the pump will be adjusted to achieve optimum flow rates. The system will be checked on a daily basis during the first week of operation to assure that the pump is working properly and that the totalizer is operational.

B. Continued operation

During the first two months of operation the pumping system will be checked twice weekly. Checks will consist of observations to assure that the power is on and that the pump is working. Totalizer readings will be taken weekly. Should the weekly totalizer reading be significantly different from the pump rate that was initially established, further action will be taken to verify that the difference in readings is not caused by a malfunctioning pumping system. Subsequently, the system will be checked weekly.

C. Documentation

Documentation of pumping system inspections will be maintained using the Pumping Well Log Sheet (Figure 7)

Figure 7
Buffalo Business Park
Pumping Well Log Sheet

Date:_____ Time: _____

Checked by: _____

Totalizer Reading: _____

Previous Totalizer Reading:_____ Date:_____

Time:_____

Total Gallons Pumped:_____

Total Hours Pumped: _____

Avg. Gallons / hr. pumped _____

Power on: Y____ N _____ If no provide reason:

_____

When was problem corrected?_____

Pump Operational: Y____ N _____ If no provide reason:

_____

When was problem corrected?_____

Attachment IV

O&M Plan for Building Venting

O&M Plan for Building Venting

I. Pre Start-up

Prior to the start of the system the tenant (New York Frame) will be advised as to the design and operation of the sub slab depressurization system. The tenant will also be advised that the facility maintenance department be contacted immediately should the operating light at either Vent #1 or Vent # 2 not be illuminated.

II. Post Start-up

During the first month of operation the sub slab depressurization system will be checked weekly. Checks will consist of observations to assure that the power is on and that the fan is working. Should the power be off or the fan not be operating, the facility maintenance department will take steps to correct the problem and bring the system back on-line. Subsequently, the system will be checked monthly.

If notified of a problem by the tenant, the facility maintenance department will take steps to correct the problem and bring the system back on-line. Subsequent to the repair, the system will be checked the following week and then monthly.

III. Documentation

Documentation of pumping system inspections will be maintained using the Sub Slab Depressurization System Log Sheet (Figure 8)

Figure 8
Buffalo Business Park
Sub Slab Depressurization System Log Sheet

Date:_____ Time: _____

Checked by: _____

Vent #1
Power on: Y____ N _____ If no provide reason:

_____
When was problem corrected?_____

Fan opeational: Y____ N _____ If no provide reason:

_____

When was problem corrected?_____

Vent #2
Power on: Y____ N _____ If no provide reason:

_____
When was problem corrected?_____

Fan opeational: Y____ N _____ If no provide reason:

_____

When was problem corrected?_____

Attachment V

Monitoring Plan

Monitoring Plan

I. Introduction

Monitoring during the implementation of interim corrective measures will consist of two elements. The first is water quality monitoring of three wells as outlined in section 3.0 A. of the report. It is anticipated that this monitoring will occur the week of April 28, 2008. Water levels will also be taken at the wells being sampled. Subsequent to this monitoring event, the pumping system will be activated. Once the pumping system has been operational for two months an additional round of samples will be collected from the three wells sampled previously and water levels will be obtained from all the bedrock wells.

II. Initial round

Samples will be collected from the following wells:

- VCA-MW3-BR
- VCA-MW4-BR
- VCA-MW4-BR (duplicate)
- VCA-MW5-BR

Samples will be analyzed for TCL volatiles (Method 8260)

Groundwater elevations will be collected from the following wells:

- VCA-MW3-BR
- VCA-MW4-BR
- VCA-MW5-BR

III. Post Pumping Round

Samples will be collected from the following wells:

- VCA-MW3-BR
- VCA-MW4-BR
- VCA-MW4-BR (duplicate)
- VCA-MW5-BR

Samples will be analyzed for TCL volatiles (Method 8260)

Groundwater elevations will be collected from the following wells:

- VCA-MW1-BR
- VCA-MW2-BR
- VCA-MW3-BR
- VCA-MW4-BR
- VCA-MW5-BR
- VCA-MW6-BR
- VCA-MW7-BR
- VCA-MW8-BR

IV. Ongoing Sampling

Should the post pumping round of sampling demonstrate adequate control of groundwater contamination, either chemically, hydraulically, or both the ongoing monitoring program would consist of an annual sampling event as follows:

Samples will be collected from the following wells:

- VCA-MW3-BR
- VCA-MW4-BR
- VCA-MW4-BR (duplicate)
- VCA-MW5-BR

Samples will be analyzed for TCL volatiles (Method 8260)

Groundwater elevations will be collected from the following wells:

- VCA-MW1-BR
- VCA-MW2-BR
- VCA-MW3-BR
- VCA-MW4-BR
- VCA-MW5-BR
- VCA-MW6-BR
- VCA-MW7-BR
- VCA-MW8-BR

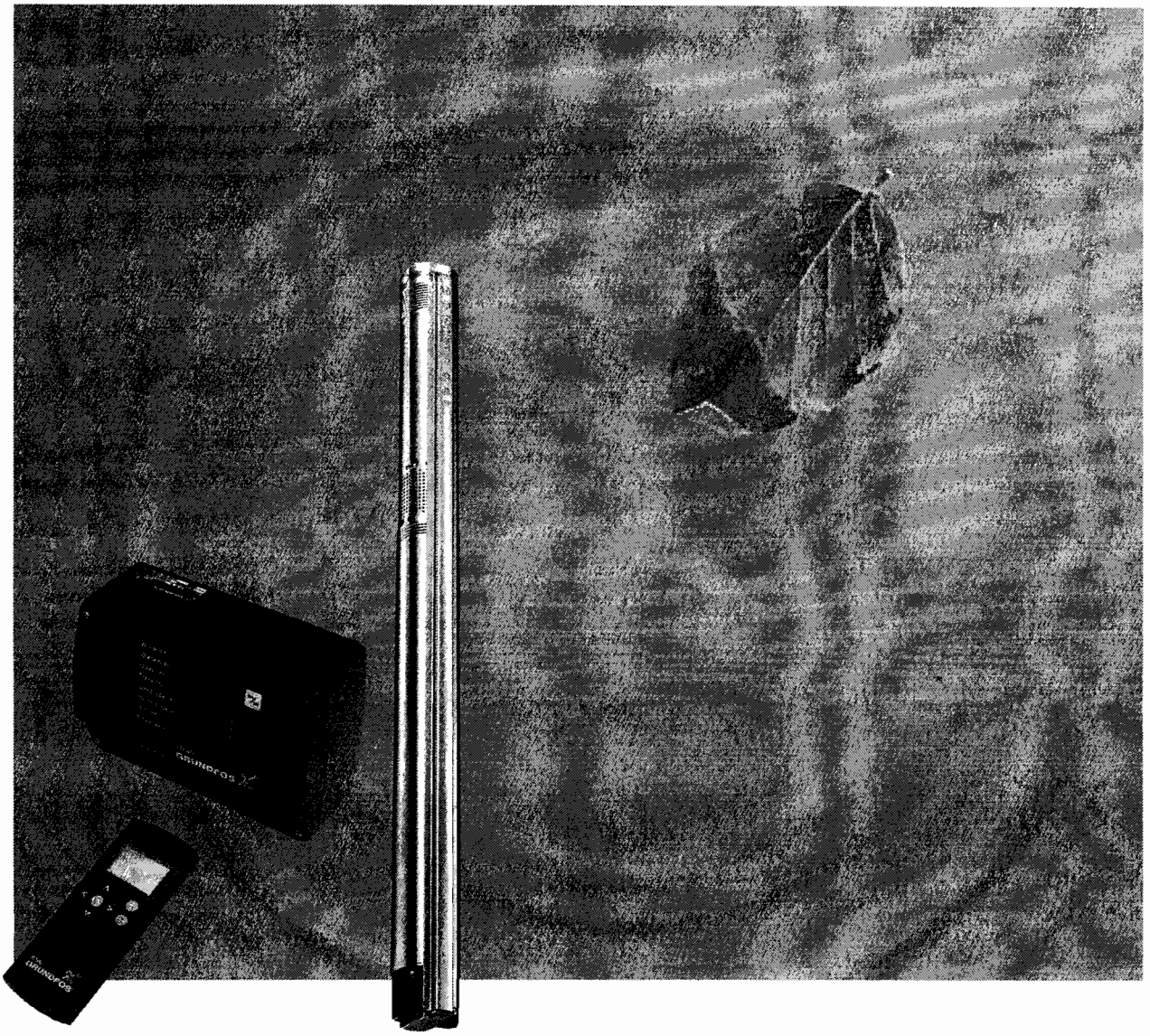
Attachment VI

Pump Specifications

GRUNDFOS **PRODUCT GUIDE**

Redi-Flo3™ and CU 300

Environmental Pumps
60Hz



BE > THINK > INNOVATE >

GRUNDFOS

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Communications . . . . . .pages 8-12

Performance and Technical Data . . . . . .pages 13-17

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Features and Benefits

Redi-Flo3 Submersible Pumps

Redi-Flo3 pumps are suitable for both continuous and intermittent operation for a variety of environmental applications including:

- Remediation
- Pollution Recovery
- Leachate Recovery
- Dewatering
- Tank Applications

Redi-Flo3 pumps offer the following features:

- Dry-Run Protection
- High Efficiency Pump End and Motor
- High Starting Torque
- Protection Against Up-Thrust
- Soft-Start
- Over- and Under-Voltage Protection
- Overload Protection
- Over-temperature Protection
- Variable Speed
- Electronic Control and Communication

Redi-Flo3 pumps incorporate a totally new motor design. With the use of permanent-magnet technology within the motor, Redi-Flo3 pumps deliver unmatched performance. The combination of permanent-magnet motors and Grundfos' own micro frequency converter, we are now able to communicate with the pump in ways never before possible. Just a few of the features that come out of this combination are constant level control, soft-start and integrated dry-run protection. These are just a few of the many features that Redi-Flo3 pumps can offer.

Redi-Flo3 pumps use the Grundfos "Smart Motor". This permanent-magnet motor is single phase input and with a 2-wire design makes installation easy. The combination of integrated microelectronics in the pump with the optional CU300 status box and R100 at the surface allows communication with the pump through standard electrical motor power leads. No additional wires are required. This feature allows the direct use of multiple sensors, digital input and relays without adding extra control electronics and costs.

The surface CU300 status box allows communication with the "Smart Motor" through the R100 infrared remote control unit or via the CU300 PC Software Tool. This gives you the ability to monitor and setup or change your pumping system to meet the specific needs of your application.

The Redi-Flo3 can operate without the status control box much like a traditional submersible electric pump. Some communication and program functions will not be available in this configuration, but the internal motor protection features are still active.

Pump and Motor Range

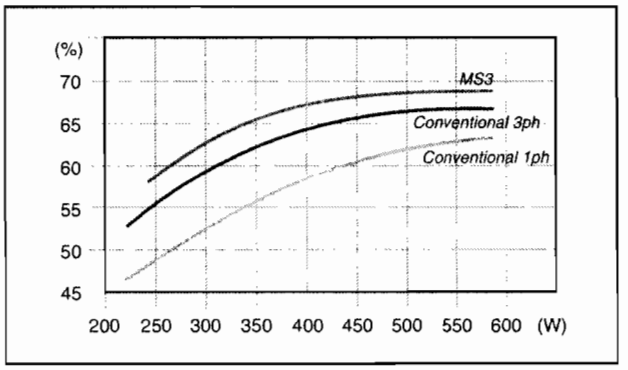
Product	Description
Redi-Flo3 Pump End	10, 22, GPM
MSE3NE Motor	Single Phase 1/2 - 1.5 Hp

Dry-Run Protection

The Redi-Flo3 incorporates integrated Dry-Run protection. When the fluid level falls below the inlet of the pump, the pump automatically shuts off. After a programmable period of time, the pump automatically starts up again.

High Motor Efficiency

Redi-Flo3 motors are based on a permanent magnet rotor, which produce high efficiency within a wide load range. The high and flat efficiency curve of the Permanent-Magnet (PM) motor allows for coverage of a wide power range with the same motor as compared to conventional submersible AC motors. For Redi-Flo3 pumps, this means only three motors to cover the horsepower range from 1/2 to 1.5Hp.

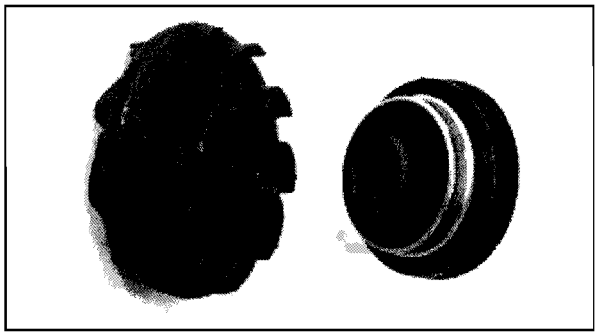


High Pump Efficiency

The pump end components are made from Polyvinylidene Fluoride (PVDF). The pumps are designed to deliver at peak efficiency levels. Because of high pump efficiencies, overall power consumption will be reduced.

Wear Resistance

Redi-Flo3 pump design uses "floating" impellers. Each impeller has its own tungsten carbide/ceramic bearing. This design and the environmental quality of materials make this pump an excellent choice for environmental application projects.



Protection Against Up-Thrust

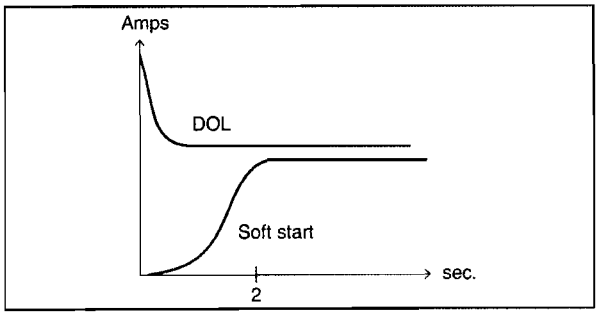
During start-up many pumps start in an up-thrust condition. To prevent damage caused by up-thrust, a top bearing has been placed in the motor to protect both the pump and the motor against up-thrust.

Soft-Start

Redi-Flo3 have a soft-start feature possible because of the integrated electronics. Soft-start reduces the starting current and gives the pump a smooth and steady acceleration.

High Starting Torque

Because of the permanent-magnet motor, the Redi-Flo3 pumps have excellent starting capabilities. The high locked rotor torque produced by the PM motor provides a starting torque that is 1.5 times greater than conventional submersible pump motors. Even if the voltage is low, the PM motor will still maintain a high starting torque.



Overvoltage and Undervoltage Protection

Overvoltage and undervoltage may occur at any time, especially if you have an unstable voltage supply. The integrated protection in the Redi-Flo3 motor protects itself when voltage falls outside of permissible voltage range. The 230V pump motor will cut out if voltage falls below 150V or above 280V. The motor will automatically start when the voltage is within the permissible range. It is not necessary to have additional voltage protection.

Overload Protection

When the pump load rises above the maximum amp level, the motor will automatically compensate and reduce the speed to maintain its maximum amp level. If the speed drops to 65% of the nominal speed, the motor will shut off.

Overtemperature Protection

Permanent-magnet motors emit very little heat because of their high efficiency. Redi-Flo3 motors are designed with an internal circulation system to effectively cool all the internal components.

As extra protection, the electronic unit also has a built-in temperature sensor. When the temperature rises too high, the motor will automatically shut-off; when the temperature drops the motor will automatically restart.

Variable Speed

The Redi-Flo3 "Smart" motor enables continuous variable speed control within 30%-100% (3,000-10,700 rpm). The pump can be set to operate at any duty point in the range between 30% and 100% of the pumps performance curve. The pump can be adapted to any specific requirement. The variable speed control requires the status box and R100 or potentiometer.

Installation

Redi-Flo3 pumps can be installed vertically or horizontally (Note: the pump must not fall below the horizontal level in relation to the motor). For horizontal installations, a flow sleeve is recommended to ensure sufficient flow past the motor to provide proper cooling and prevent the unit from being buried in sand or silt.

Remediation/Pollution Recovery/Dewatering

Connection of a sensor such as a submersible pressure sensor enables the pump via the status control box to maintain a constant level by starting and stopping the pump based on a desired water level.

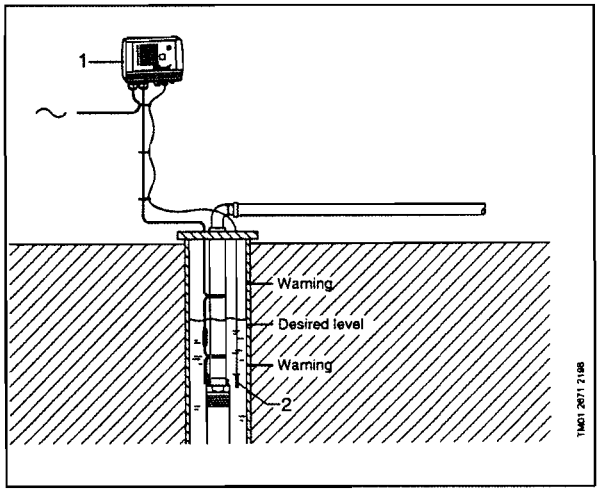
Maintaining a Constant Water Table

Introduction

By monitoring the water table and controlling the pump, the water table can be maintained at a constant level.

EXAMPLES OF APPLICATION:
For example maintaining a constant water table is useful in the following situations:

- When the groundwater should be kept out of a building site.
- When the salt water should be kept from penetrating a borehole with potable water.



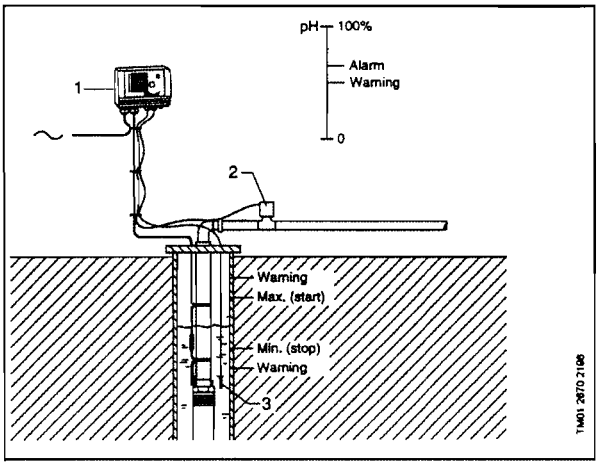
Description

Pos.	Description
1	CU300
2	Level sensor

Remedial Pumping with Water Quality Monitoring

Introduction

By means of sensor signals it is possible to carry out remedial pumping where the water contains contamination e.g. chemicals, oils, etc.

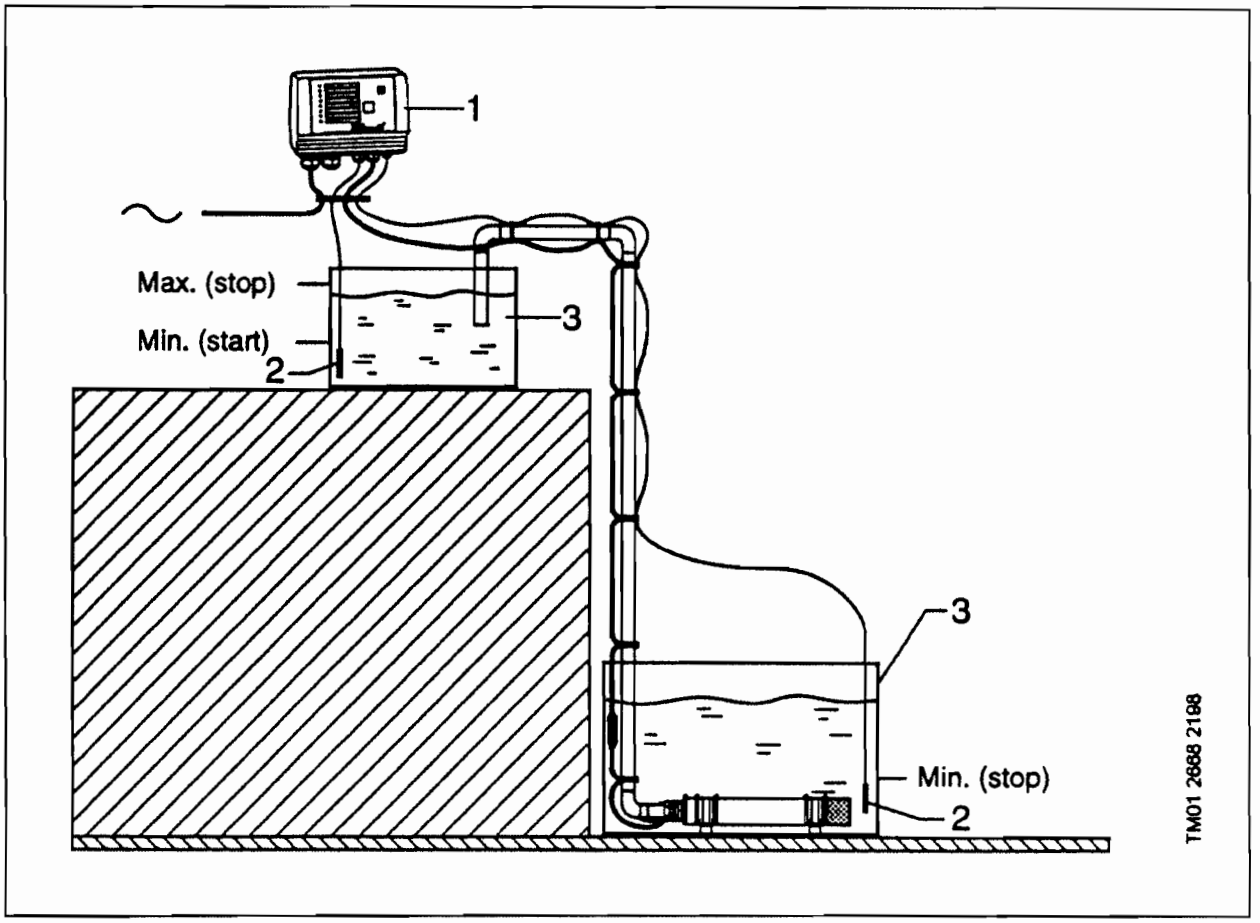


Description

Pos.	Description
1	CU300
2	pH sensor Detects the water quality
3	Level sensor

Pumping from One Tank to Another

Where there is a need to move water from one tank to another, the Redi-Flo3 is ideal.



Description

Pos.	Description
1	CU300
2	Level sensor
3	Water tank

NOTE: When the Redi-Flo3 pump is installed horizontally, it is recommended that a flow sleeve be fitted. The motor must be fully submerged in the water.

Sensor 1 (tank at top)

Level	Description
Max. (stop)	When the water has reached this level, the pump stops. Green indicator light in on/off-button flashes.
Min. (start)	When the water has dropped to this level, the pump starts. Green indicator light in on/off-button is constantly lit.

Sensor 2 (bottom tank)

Level	Description
Min. (stop)	When water has dropped to this level, tank is empty, stop pump.

Status Control Box Communication

Redi-Flo3 CU300 Status Box

The CU300 status box is a control and communication unit especially developed for the Redi-Flo3 submersible pumps.

The CU300 status box provides:

- Easy adjustment to a specific well
- Full control of Redi-Flo3 pumps
- Two-way communication with the Redi-Flo3 pumps
- Indicator lights on the front to indicate alarms
- The ability to start and stop the pump with the push of a button.

The CU300 communicates with the pump using the power leads. It is not necessary to run any extra cables between the pump and the CU300 status box.

The following alarms can be indicated by the CU300:

- No Contact
- Overvoltage
- Undervoltage
- Dry-run
- Speed Reduction
- Overtemperature
- Overload
- Sensor Alarm

The CU300 incorporates:

- External signal input for three sensors
- relay output for external alarm control
- Control according to the signals received, e.g. flow, pressure, water level and conductivity

The CU300 can communicate with the R100 infrared remote control or R100 PC software tool.

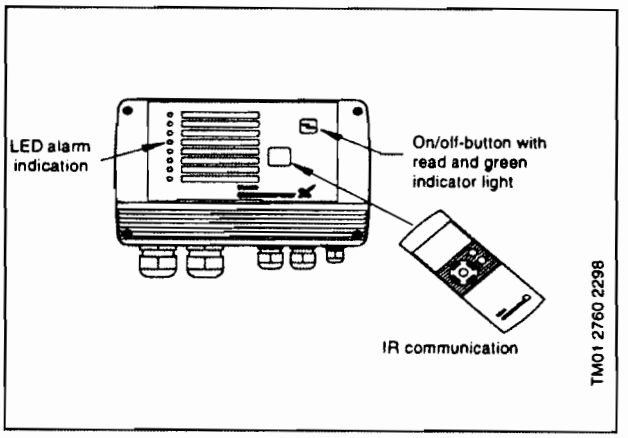
R100 Remote Control or PC Software Tool

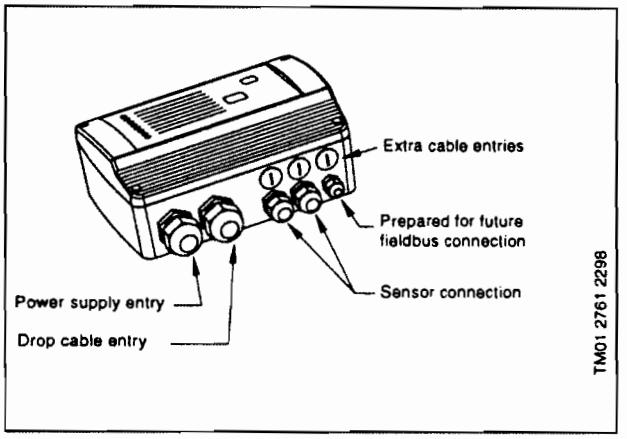
The R100 allows you to monitor the installation by reading current operating parameters, such as:

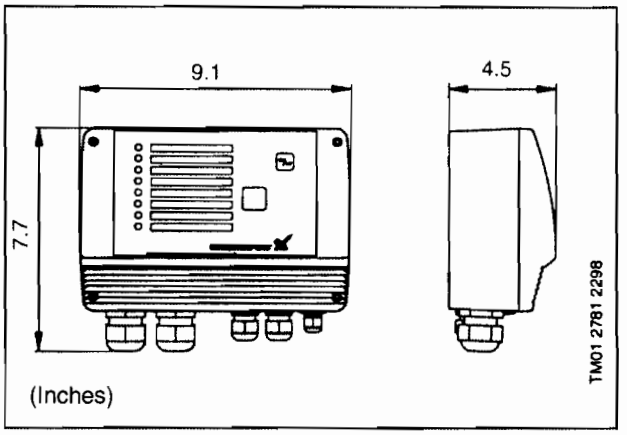
- Power Consumption
- Energy Consumption
- Number of Operating Hours

It allows you to change factory settings. A number of settings can be made, such as:

- Speed (Performance)
- Constant Pressure Control Mode
- De-watering Function
- Automatic Restart Time







Multiple CU300 Installation Requirements

The CU300 Redi-Flo3 control panel communicates with the Redi-Flo3 motors via the pump power cable to turn the pumps on and off, set motor speed and monitor pump status. The technique used for performing this communication impresses a high frequency data signal on the pump power cable that is picked off by internal pump electronics and then decoded into command instructions. This is the reason for assigning unique numbers to each CU300 in a multiple unit installation. The unique number serves as a communication address between each CU panel/motor pair.

In situations where multiple CU300 pump power cables are run parallel in wiring trays or conduit and less than 10-12 inches apart, the possibility for undesired communication between units exists. When this occurs, intermittent or continuous NO CONTACT is typically seen. Other unexpected errors may also be seen.

There are two approaches available to eliminating the possibility of this occurring:

1. Physical separation of cables – maintain a minimum distance of 10-12 inches between pump power cables, and never place more than one cable in a conduit.

2. Use shielded cable – The use of shielded cable prevents cross communication between parallel cables and allows sharing of conduit and cable trays. Tie the cable shield to earth only at the CU control panel.

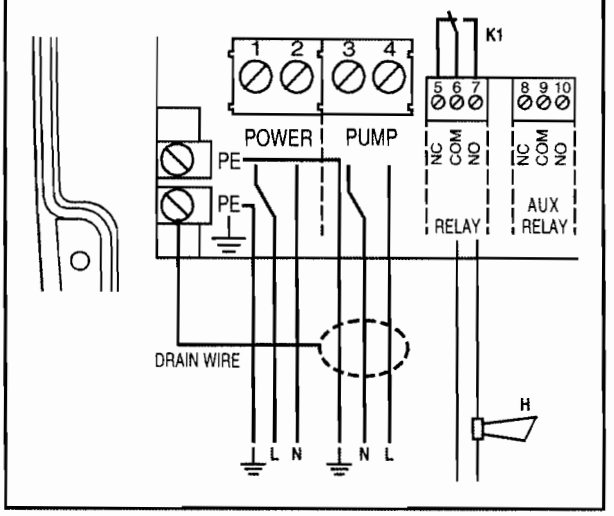
Suitable cables:

Manf.	Part #	Gage
Anixter	2A-1403S	14
Anixter	2A-1203S	12
Anixter	2A-1003S	10

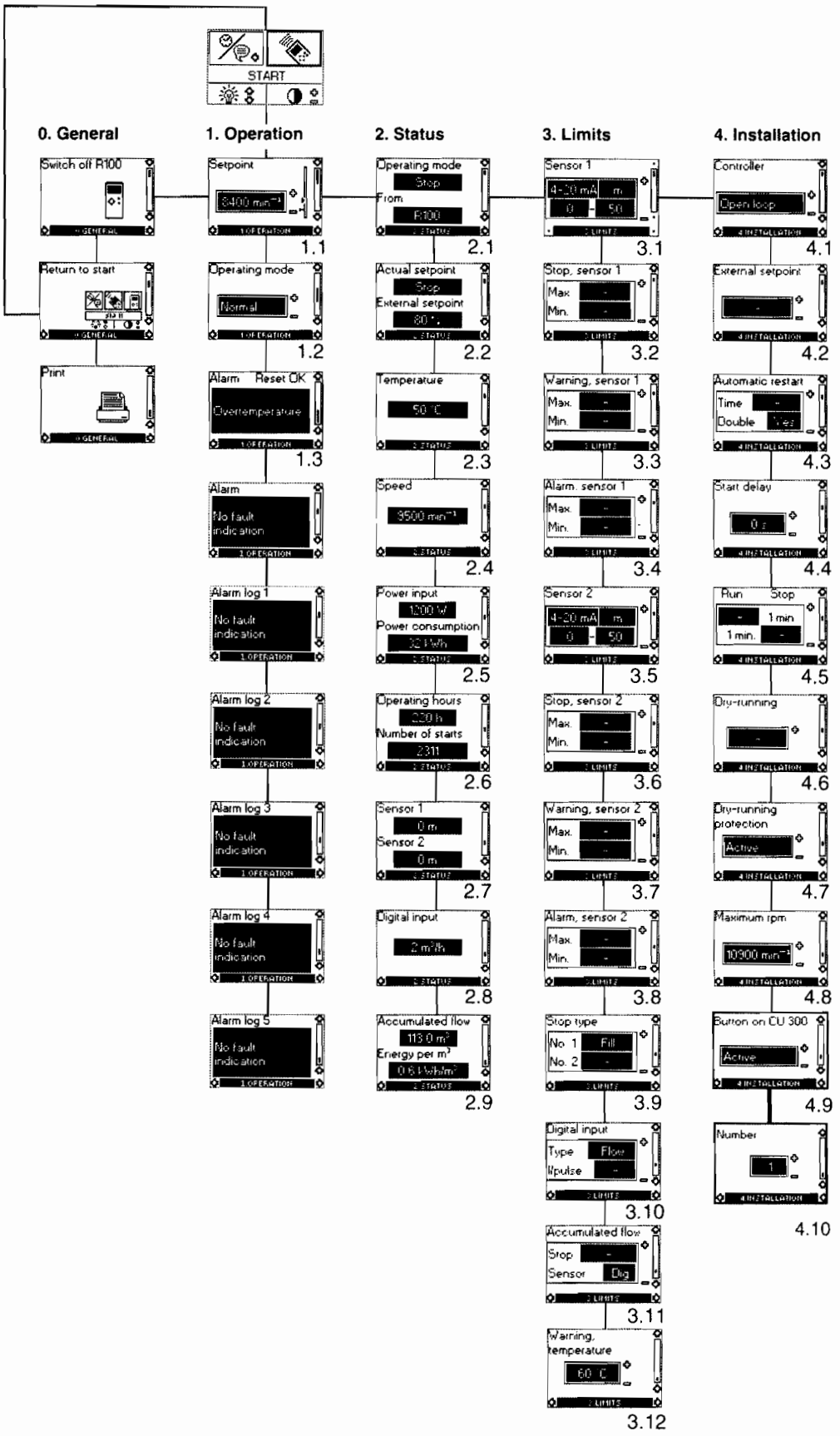
Anixter (1-800-321-1486)

In addition, Grundfos recommends applying power to only one CU panel/motor at a time while programming the CU number with the R100. This will prevent the possibility of two pumps receiving the same number assignment command.

SHIELDED CABLE WIRING DIAGRAM



R100 Menu Structure



R100 Menu Structure for the CU300
(ref. CU300 I&O)

0. General

1. Operation
1.1 Set-point setting
1.2 Selection of operating mode
1.3 Alarm indication

2. Status
The indication of:
2.1 Actual operating mode
2.2 Actual and external set point
2.3 Actual motor temperature
2.4 Actual motor speed
2.5 Actual power input and accumulated motor power consumption.
2.6 Accumulated number of operating hours and accumulated number if starts.
2.7 Actual values of sensors 1 and 2 respectively
2.8 Actual values of the digital input
2.9 Accumulated flow, and the power used to pump 1 gal.

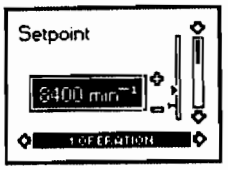
R100 allows you to make a number of settings:

3. Limits
The setting of:
3.1 Sensor 1
3.2 Min. and max. stop limit of sensor 1
3.3 Min. and max. warning limit of sensor 1
3.4 Min. and max. alarm limit of sensor 1
3.5 Sensor 2
3.6 Min. and max. stop limit of sensor 2
3.7 Min. and max. warning limit of sensor 2
3.8 Min. and max. alarm limit of sensor 2
3.9 Filling or emptying
3.10 Setting of the function of the digital sensor connected to the digital input
3.11 The setting of the water quantity stop limit and the setting of the sensor to detect water quantity
3.12 The setting of the temperature warning limits of the motor electronics

4. Installation
4.1 Selection of controller
4.2 Setting of external set-point
4.3 Setting of automatic restart time
4.4 Allocation of individual start delays
4.5 Setting of the stop and run times for the de-watering function
4.6 Setting of the value of the Dry-Run shutdown
4.7 Activating or deactivating the Dry-Run protection
4.8 Setting of the maximum motor speed
4.9 Activating or deactivating the on/off-button on the CU 300
4.10 Allocation of number where more than one CU300 is installed

Examples of R100 displays

Menu OPERATION



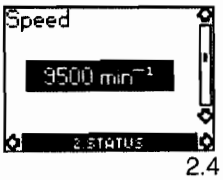
1.1

Set-point Setting
From the factory, the pump is set to maximum speed, 10,700 rpm. R100 allows you to reduce the pump speed by changing the setpoint. The speed can be set from 3,000–10,700 rpm, at 100 rpm intervals.

The unit of the set-point is automatically changed according to the unit of the sensor connection to sensor input no. 1 if closed loop.

EXAMPLE: Sensor input no. 1 is connected to a pressure sensor using the unit feet (ft.) and the range 0 – 200 (dependent on the actual sensor characteristics). Therefore, the set-point of display 1.1 can be set to between 0 – 200 ft.

Menu STATUS



2.4

The displays appearing in this menu are status displays only. You cannot change settings in this menu.

Example
In display 2.4, the actual speed of the pump is shown.

Accumulated Number of Operating Hours and Number of Starts

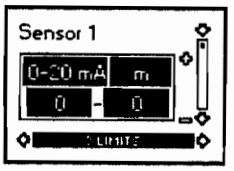
2.6

The value of operating hours and the number of starts are values accumulated from the time of installation and they cannot be reset.

Both values are stored in the motor electronics, and are kept even if the CU300 is replaced.

The number of operating hours is measured every two minutes of continuous operation, but the display value is updated every two hours.

Menu LIMITS



3.1

The Setting of Sensor 1

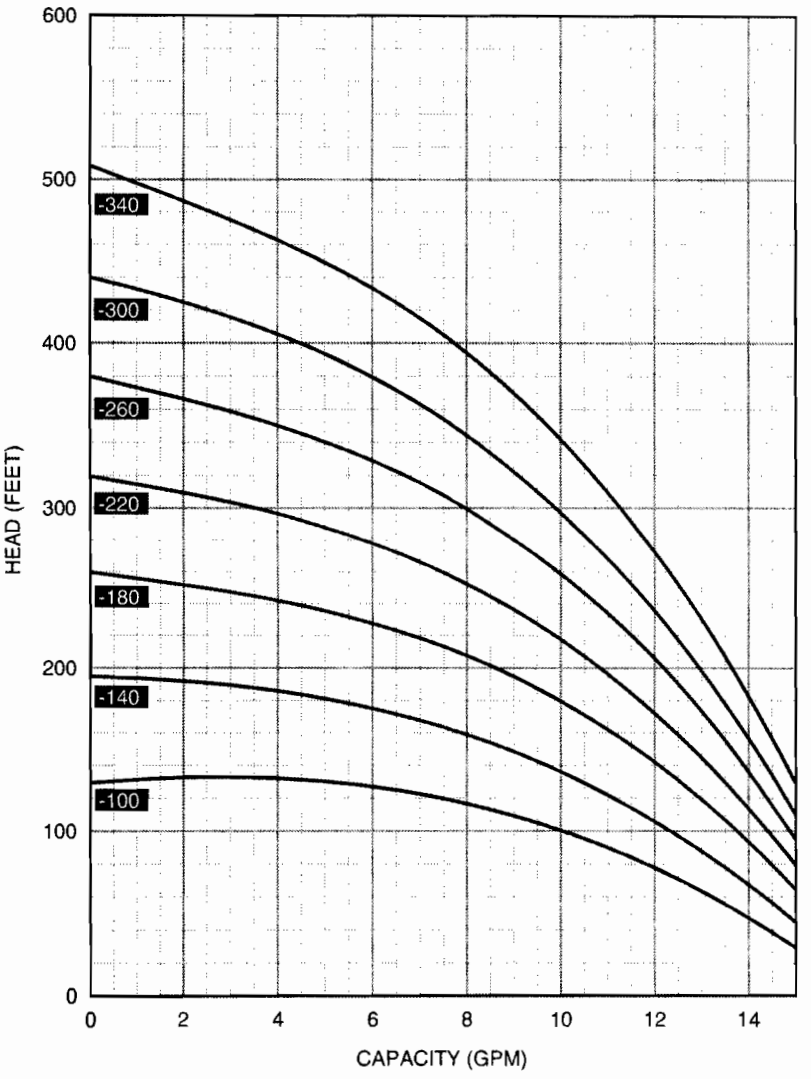
Depending on the type of sensor, the following settings can be made:

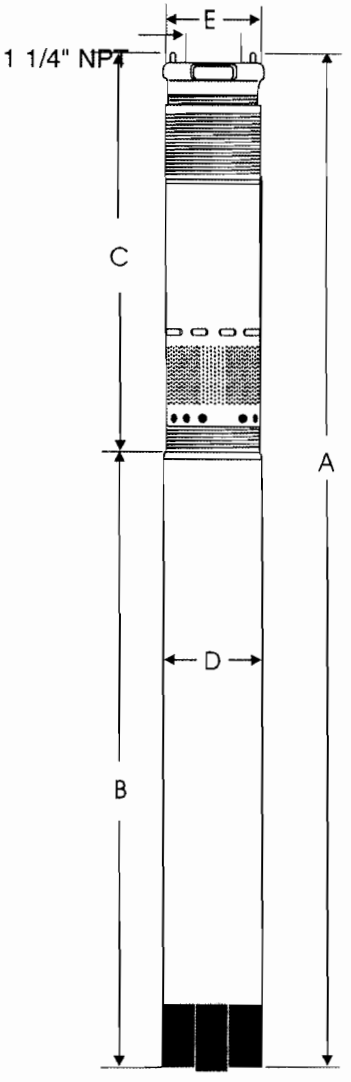
Sensor outputs:
(not active), 0-10V, 2-10V, 0-20mA, 4-20mA.

Setting range unit: M3/h, m, %, gpm, ft.

Model #	HP	Size	Disch. Size	Dimensions in Inches					Approx. Ship Wt.
				A	B	C	D	E	(pounds)
10Redi-Flo3-100	1/2	3"	1 1/4" NPT	30.4	19.8	10.6	2.6	2.9	12
10Redi-Flo3-140	1/2	3"	1 1/4" NPT	30.4	19.8	10.6	2.6	2.9	12
10Redi-Flo3-180	3/4	3"	1 1/4" NPT	31.5	19.8	11.6	2.6	2.9	13
10Redi-Flo3-220	3/4	3"	1 1/4" NPT	33.6	19.8	13.7	2.6	2.9	13
10Redi-Flo3-260	1	3"	1 1/4" NPT	35.0	21.3	13.7	2.6	2.9	16
10Redi-Flo3-300	1	3"	1 1/4" NPT	36.1	21.3	14.8	2.6	2.9	16
10Redi-Flo3-340	1	3"	1 1/4" NPT	38.2	21.3	16.9	2.6	2.9	16

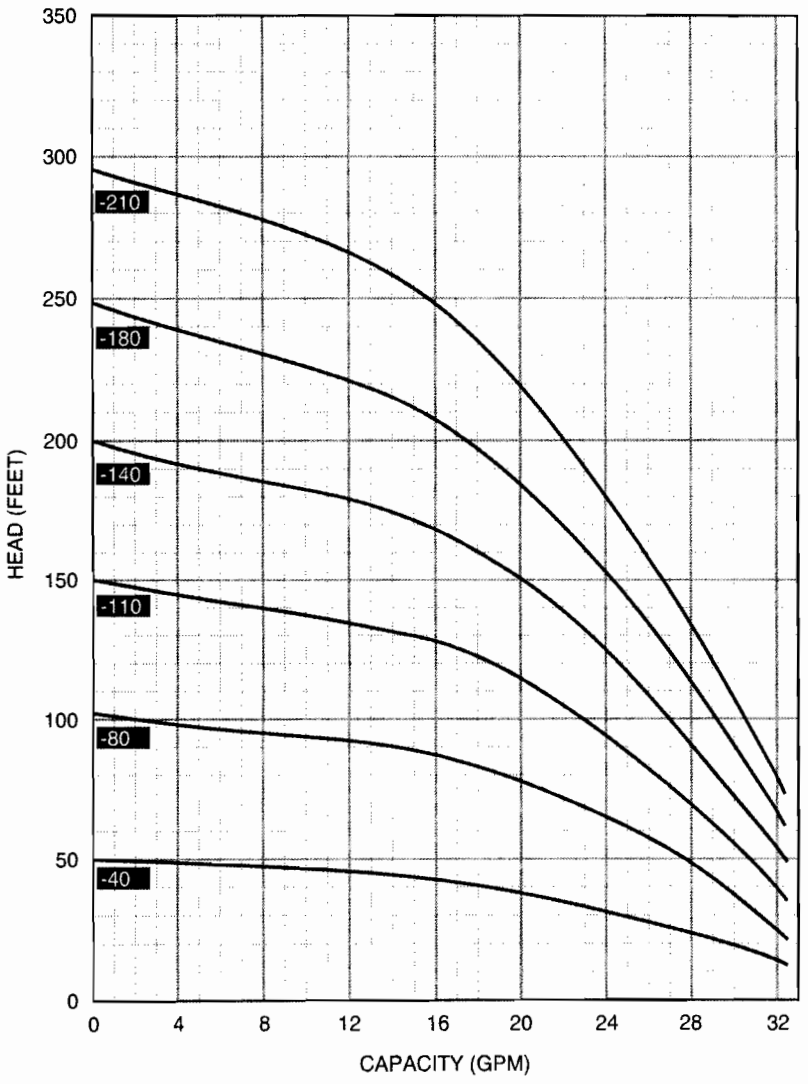
Note: Weights include pump ends with motors

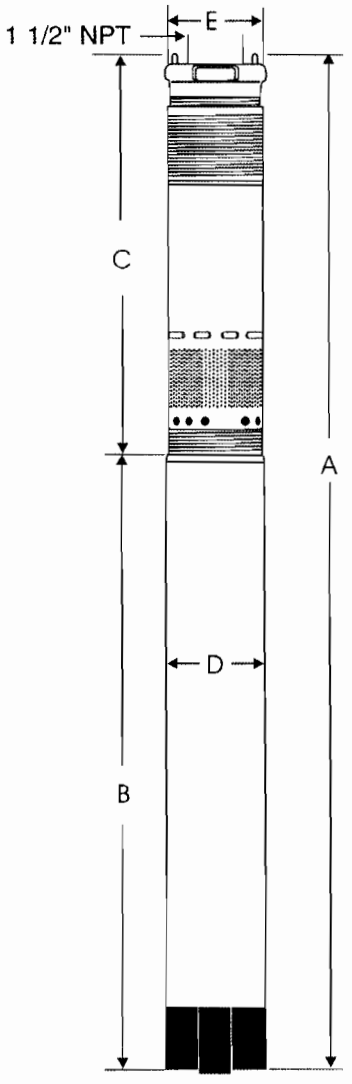




Model #	HP	Size	Disch. Size	Dimensions in Inches					Approx. Ship Wt.
				A	B	C	D	E	(pounds)
22Redi-Flo3-40	1/2	3"	1 1/2" NPT	30.4	19.8	10.6	2.6	2.9	12
22Redi-Flo3-80	1/2	3"	1 1/2" NPT	30.4	19.8	10.6	2.6	2.9	12
22Redi-Flo3-110	3/4	3"	1 1/2" NPT	31.5	19.8	11.6	2.6	2.9	13
22Redi-Flo3-140	3/4	3"	1 1/2" NPT	33.6	19.8	13.7	2.6	2.9	13
22Redi-Flo3-180	1	3"	1 1/2" NPT	38.2	21.3	16.9	2.6	2.9	16
22Redi-Flo3-210	1 1/2	3"	1 1/2" NPT	38.2	21.3	16.9	2.6	2.9	16

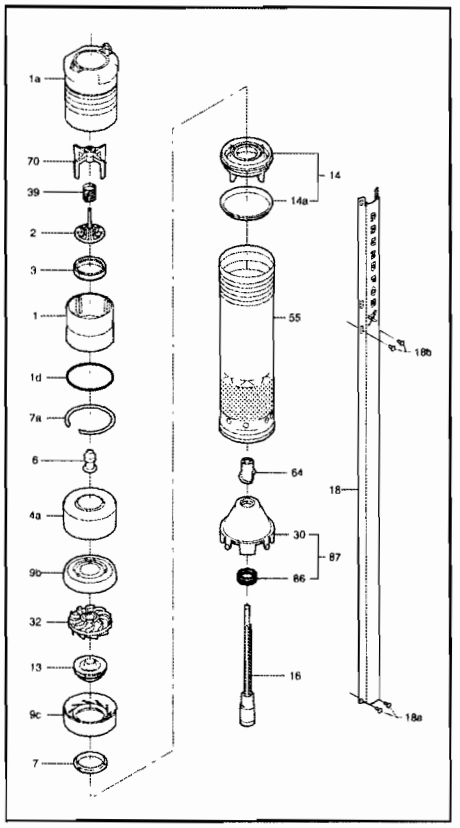
Note: Weights include pump ends with motors





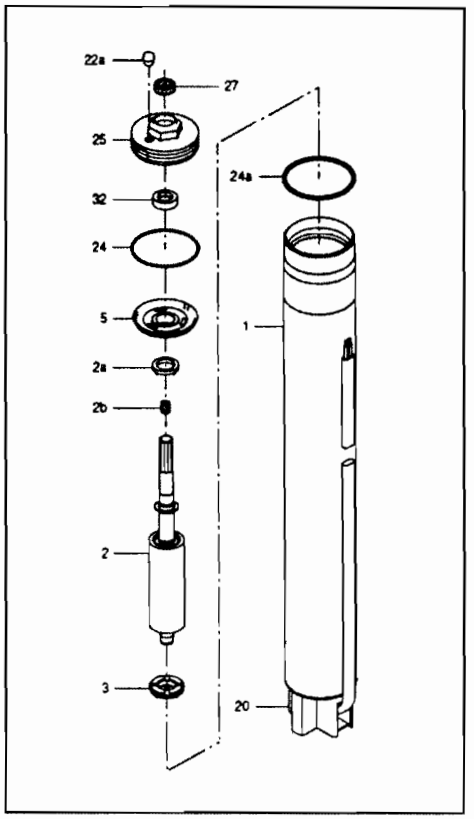
MATERIAL SPECIFICATION – REDI-FLO3 PUMP END

Pos.	Component	Material	DIN W. Nr.	AISI
1	Valve Casing	PVDF		
1a	Discharge Chamber	Stainless Steel	1.4401	316
1d	O-Ring	FPM Rubber		
2	Valve Cone	PVDF		
3	Valve Seat	FPM Rubber		
9b	Top Chamber	PVDF		
4a	Empty Chamber	PVDF		
6	Top Bearing	FPM Rubber		
7	Neck Ring	PVDF		
7a	Lock Ring	Stainless Steel	1.4401	316
32	Guide Vanes	PVDF		
9c	Bottom Chamber	PVDF		
13	Impeller w/ tungsten carbide bearing	PVDF		
14	Suction Interconnector	PVDF		
14a	Ring	Stainless Steel	1.4401	316
16	Shaft w/ coupling	Stainless Steel Sintered Steel	1.4401	316
18	Cable Guard	Stainless Steel	1.4401	316
18a-b	Cable Guard Screws	Stainless Steel	1.4401	316
30	Pressure Equalization Cone	PVDF		
39	Valve Spring	Stainless Steel	1.4406	316LN
55	Pump Sleeve	Stainless Steel	1.4401	316
70	Valve Guide	PVDF		
64	Priming Screw	PVDF		
86	Lip Seal Ring	FPM Rubber		



MATERIAL SPECIFICATION – REDI-FLO3 PUMP MOTOR

Pos.	Component	Material	DIN W. Nr.	AISI
1	Stator	Stainless Steel	1.4401	316
2	Rotor	Stainless Steel	1.4401	316
2a	Stop Ring	PP		
2b	Filter	Polyester		
3	Thrust Bearing	Carbon		
5	Radial Bearing	Ceramic/ tungsten carbide		
20	Motor Cable w/ plug	Tefzel		
		PVDF		
22a	Filling Plug	FPM Rubber		
24	O-Ring	FPM Rubber		
24a	O-Ring	FPM Rubber		
25	Top Cover	PPS		
27	Filter	Polyester		
32	Shaft Seal	FPM Rubber		
	Motor Liquid	SML-2		

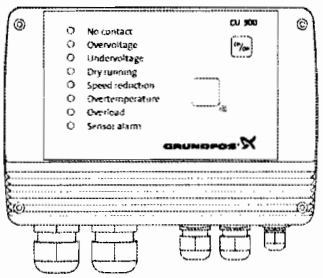


ELECTRIC	
Supply Voltage:	1x200-240V +6%/-10%, 50/60 Hz, PE 1x100-115V
Operation via Generator:	As a minimum, the generator output must be equal to the motor P1[KW] +10%
Starting Current:	The motor starting current is equal to the highest value stated on the motor nameplate
Starting:	Soft-start
Run-up Time:	Maximum: 2 seconds
Motor Protection:	The motor is protected against: Dry running, overvoltage, undervoltage, overload, overtemperature
Power Factor:	PF=1
Service Factor:	0.5[Hp]-1.85 @ 115V/230V 0.75[Hp]-2.05 @ 230V 1.0[Hp]-2.25 @ 230V 1.5[Hp]-1.65 @ 230V
Motor Cable:	3 Wire, Tefzel Cable Kit
Motor Liquid:	Type SML 2
pH Values:	2-13
Liquid Temperature:	The temperature of the pumped liquid should not exceed 104ºF.
Note: If liquids with a viscosity higher than that of water are to be pumped, please contact GRUNDFOS	
Minimum Ambient Temperature:	4° F
Maximum Ambient Temperature:	+140° F
Frost Protection:	If the pump is to be stored after use, it must be stored in a frost-free location or it must be ensured that the motor liquid is frost-proof. Otherwise motor must be stored without being filled with motor liquid.
OPERATING CONDITIONS	
Minimum Ambient Fluid Temperature:	32° F
Maximum Ambient Fluid Temperature:	+104° F
APPROXIMATE DIMENSIONS AND WEIGHT	
Motor Dimensions (MSE - NE 3):	
0.33-0.50A[Hp]	20.9" length x 2.68" diameter
0.50-0.75B[Hp]	20.9" length x 2.68" diameter
1.0-1.5C[Hp]	22.3" length x 2.68" diameter
Pump Diameter, incl. cable guard:	2.91"
Motor Weights (MSE - NE 3):	
0.33-0.50A[Hp]	6.0 lbs
0.50-0.75B[Hp]	7.1 lbs
1.0-1.5C[Hp]	8.2 lb
Pump End Dimensions:	
Pump Diameter:	2.68"
Pump Diameter, incl. cable guard:	2.91"
Pump End Dimensions (min. and max.):	
10 Redi-Flo3	10.6" to 16.9"
22 Redi-Flo3	10.6" to 16.9"
Pump End Weights (min. and max.):	
All	2.2 lbs to 3.5 lbs
Well Diameter (minimum):	3"
Installation Depth (maximum):	500 feet, below static water level

Redi-Flo3 Accessories

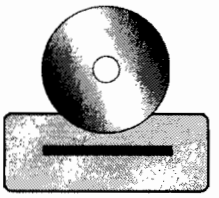
CU300 Status Box

Description	Product no.
CU300 Status Box	96422776



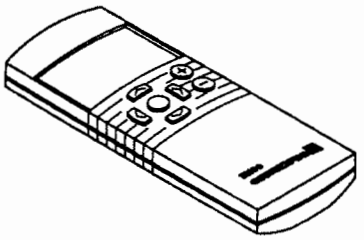
CU 300 PC Tool Software

Description	Product no.
CU 300 PC Tool Software	96432875



R100 Remote Control

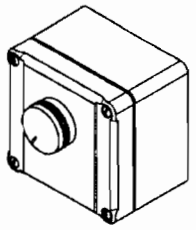
Description	Product no.
The R100 is used for wireless infrared communication with the CU300	625333

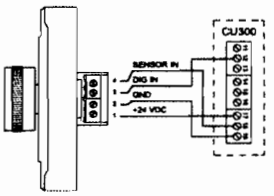


TM00 8367 2796

Potentiometer

Description	Version	Product no.
External potentiometer with cabinet for wall mounting. Screened cables, 4-wire cable, max. length of cable: 100m	Grundfos potentiometer, SPP1 Enclosure class: IP 55	655468

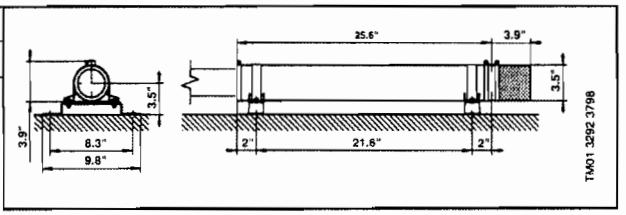




TM00 2604 4793 - TM01 3291 3798

Redi-Flo3 - Flow Sleeve

Description	Product no.
Flow Sleeve Complete	96037505



TM01 3292 3798