



ON-SITE WASTEWATER SYSTEM CONSTRUCTION REPORT



MAR 05 2013

(Please Type or Print Legibly)

Curtis & Christina McDonald

PERMIT #: 218904

GROUNDWATER

TAX MAP #: 2-30-12.00-26.00

INSTALLER'S NAME: Midway Services, Inc. LICENSE #: 2019 PHONE #: 302-422-8603

CONSTRUCTION START DATE: 2/28/2013 AUTHORIZATION #: 3041 COMPLETION DATE: 3/4/2013

THIS FORM MUST BE SUBMITTED WITHIN 10 DAYS OF COMPLETION

(Please check all boxes that apply)

CF = Cap & Fill / FD = Full Depth

Type of Construction:

System Type:

- Replacement
New Construction
Component Replacement
Repair to Existing System

- Low Pressure Pipe (FD)
Low Pressure Pipe (CF)
Pressure Dose (FD)
Pressure Dose (CF)
Gravity (FD)
Gravity (CF)

- Elevated Sand Mound
Wisconsin At-Grade
Subsurface Micro Irrigation
Peat Bio- Filter
Other

Bed or Trench Sand-lined Yes No

Gravelless Chamber Stone/Gravel Tire Chips

Existing System Malfunctioning Yes No N/A

Pre-Treatment Units

- Septic Tank
Other grease trap

-AS -BUILT CONSTRUCTION CHANGES-

(Please describe any changes different from approved permit) ANY LOCATION CHANGE MUST BE MARKED (USE RED INK) ON COPY OF ORIGINAL PERMIT (PLEASE ATTACH)

No Changes (See Engineers Report)

I hereby affirm that the sewage disposal system for permit number 218904 was constructed in accordance with all requirements and conditions of the permit. I further certify that if I made any changes that the copy of the original permit (with red markings) is an accurate representation of the installation.

Certificate of Satisfactory Completion

Approved By [Signature] Date 4-1-13 Date 3/5/2013

[Signature] Contractor's Signature

RECEIVED

MAR 05 2013



STATE OF DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL GROUND WATER DISCHARGES SECTION ENGINEER'S INSPECTION REPORT

GROUNDWATER

Dover Office serving Kent and New Castle Counties Tel: (302) 739-9947 \* Fax: (302) 739-7764

Georgetown Office serving Sussex County Tel: (302) 856-4561 \* Fax: (302) 856-5088

PERMIT #: 218904 TAX MAP #: Q30-12 00-26.00

AUTH #: 3041 PERMITTEE: Curtis & Christina Medina

PROPERTY LOCATION: East side Rt 13 North bound App: 1050' side of Hafflinger Rd

DESIGNER: Sharon Cruz LIC #: 4328 PHONE #: 302-684-8030

CONTRACTOR: Midway Services LIC #: 2019 PHONE #: 422-9603

DATE / TIME OF SYSTEM REVIEW: 3/4/2013 11:00am FAX # 422-6761

SEPTIC TANK New Existing Level Size (New) Size (Existing) Bldg Watercourse Baffles Filter Risers

DOSING TANK Size Inside Dimensions Vent Installed Diameter Height Pump(s) Screened Check Valve Electrical Alarm Sep. Circuit Wiring Complete Alarm Loc. Pressure Tested Floats Alarm

Comments GENERAL COMMENTS: As-Built Required Reason for As-Built

Comments N/A = NOT INSTALLED

DRAINFIELD Bed Length of B or T Width of B or T Depth of B or T Depth to top of Stone/Chamber Depth to top of Pipe Piping Level Dams per Plan Stone Thickness Isolation Distances Bldgs Trees Easements Watercourses Location per Plan GPS Points for Drainfield

Isolation Distances Bldgs Watercourses Comments

PIPING Manifold Length Manifold Diameter Trans. Length Trans. Diameter PVC Sch 40 # of Laterals Spacing of Laterals # Holes per Lateral Spacing of Holes Diameter of Holes Joints Glued

CERTIFICATE OF CONSTRUCTION The undersigned Class E System Contractor hereby attests that all construction specified in the permit and conditions has been completed using accepted construction techniques and installation practices as specified in The Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems.

Signature of Class E System Contractor

The Class C Designer (or Designee) has examined all visible on-site wastewater treatment and disposal system components on (date) and issues this Engineer's Inspection Report in the belief that the system is installed in conformance with the DNREC permit. All observed deviations from this permit are noted on the as-built drawing.

This On-Site Wastewater Treatment and Disposal System substantially conforms to the approved permit conditions: yes no

Class C Designer (or Designee) Signature: Date:

2nd

STATE OF DELAWARE
Department of Natural Resources and Environmental Control
Groundwater Management Section

Dover Office
(302) 739-9947

Georgetown Office
(302) 856 - 4561

Inspection Report/Certificate of Completion

1. Permittee: McDonald, Curtis & Christina Permit #: 218904 auth 3041
2. Contractor: Bob Bauer Midway License #: 2019 Phone #: 422-8603
3. Date/Time of Call: 3/5/12 System Ready: New
4. Property Location: East side of N bound US 113 1650' S. of Hoffinger Rd

A. HOLDING TANK:

- 1. size
2. ft./dwelling
3. anchored
4. on gravel bed
5. manhole ext.
6. Alarms audible
visual

B. SEPTIC TANK:

- 1. size
2. concrete
3. baffles
4. 2 compt.
5. ft./dwelling
6. on gravel bed
7. manhole ext
8. inspection port

C. GREASE TRAP:

- 1. size
2. concrete
3. multi-compt.
4. on gravel bed
5. ft./dwelling

D. DIST. BOX:

- 1. concrete
2. baffle
3. ft./tank
4. outlets
5. solid pipe
6. on gravel bed
7. cover ext.

E. DOSING CHAMBER:

- 1. size
2. concrete
3. ft./dwelling
4. ft./manifold
5. Vent diameter
above grade
6. Pumps: simplex
duplex
7. check valves
8. Alarm: audible
visual
separate circuit
9. Alarm location:

F. PRESSURE PIPING:

- 1. Sch. 40; SDR 26
2. dia. of trans. line
below frostline
on compacted soil
3. dia. manifold
4. dia. dist. laterals
a) laterals
b) hole size
c) spacing of hole
5. tested

G. TILE FIELD/SERIAL DIST./ SEEPAGE BED:

- 1. trenches
2. width of each
3. length of each
4. X S.B.
5. depth to top of stone
6. depth to top of pipe
7. spacing: c/l to c/l
8. dist. to watercourse
9. closed loop
Sch. 40 pipe

H. MISCELLANEOUS:

- 1. untreated paper
2. filter fabric
3. joints sealed
4. sealer
5. dwelling on site
6. driveway as shown
7. ft./trees
8. building connected
a) pipe size
b) cleanout
9. check adjacent wells for compliance

I. WELL:

- 1. installed
2. central water
3. ft./tank
4. ft./seepage area
5. ft./dosing chamber
6. ft./grease trap
7. Well Permit #:

J. CAPPING FILL INSPECTIONS:

- 1. Pre-inspection of fill: N/A
2. System Construction: 3-4-13
3. Completed cap: 4-2-13
4. Final site restoration: 21" of fill with topsoil & straw

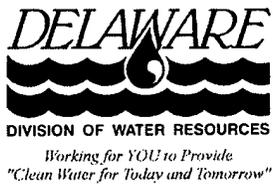
5. Fill Material - Textures: Thickness (Extent)
6. Disposal Site Conditions:
7. This Sewage Disposal System Conforms to Permit Conditions: [ ] Yes [ ] No
8. System may be Covered: [ ] Yes [ ] No
9. Comments

10 This Certificate of Satisfactory Completion is Issued: [X] Yes [ ] No

Violation Notice Posted ( )
Inspector's Signature: Donald M. Moran Date: 4-2-13

12. Authorized to Cover Without Benefit of Department Inspection By:

13 Contractor's Certificate of Completion Report Required: [X] Yes [ ] No



**PERMIT  
218904**



Tax Parcel Number: 2-30-12.00-0026.00

Site Evaluation Number: 544160

**Pursuant to provisions of Title 7, Delaware Code, Chapter 60, permission is hereby granted to:**

**McDonald, Curtis & Christina**

**24937 Bethesda Road, Georgetown, DE 19947 US**

**to construct, operate and maintain an onsite wastewater system.**

**Construction must be completed on or before 03/09/2013 , two years from permit issuance date. Construction must be performed by a person duly licensed by Delaware DNREC for such activity.**

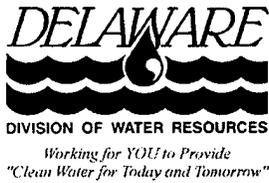
**All current regulations governing wastewater system installation shall be followed.**

**All attached permit conditions shall be complied with.**

**The applicant is responsible for obtaining all additionally required permits and approvals.**

**DNREC APPROVED**  
**See Permit Conditions**  
  
\_\_\_\_\_  
AUTHORIZED SIGNATURE

**3-9-11**  
\_\_\_\_\_  
Date



**PERMIT  
218904**



Tax Parcel Number: **2-30-12.00-0026.00**

Site Evaluation Number: **544160**

**Conditions for both Owner and Contractor**

§ 1 This system MUST be installed by a licensed Class E System Contractor. The Contractor must call the Ground Water Discharges Section (GWDS) at (302) 739-9947 in Kent and New Castle Counties and (302) 856-4561 in Sussex County for system construction start-up authorization. The Contractor must call the GWDS for this authorization 24 hours prior to system construction start for Standard and I/A Systems and 72 hrs. prior for Large Systems. The Contractor must have an DNREC-approved permit copy on site during construction of this system.

§ 5 Connections and/or additions to the system other than what are proposed on the approved plot plan (s) are prohibited without prior approval from the Ground Water Discharges Section(GWDS).

§ 6 Roof downspouts, foundation drains, storm sewers, combined sewers or appurtenances thereto, or any sewer or device carrying or discharging either storm, surface, ground or cooling water, oil or water softener discharge brine shall not be connected to the system.

§ 20 The average daily discharge of this system is restricted to 420 gallons per day. Changes to permitted system flow must be pre-approved by the GWDS and may require a new permit(s) to be issued.

§ 23 A Certificate of Satisfactory Completion must be issued by the GWDS for this system prior to its use. The system is NOT approved for operation and maintenance until the required certificate has been issued.

§ 25 The battery in the timer shall be replaced at least once every year and can be accomplished by the property owner.

§ 70 If the approved disposal area is wooded, at the discretion of the Class E System Contractor, it is recommended that after tree-clearing the disposal area be checked again by a Class D Soil Scientist prior to system installation. Refer to the GWDS for lot clearing guidance.

§ 90 It is the responsibility of the Class E Contractor, with cooperation of the property owner, to establish and make visible all property corners that define the property boundaries prior to system inspection. Failure to comply with this condition may necessitate additional Inspection(s) and delay subsequent site approval.

§ 94 The proposed/existing septic tank must be upgraded with risers(2) for each compartment finished to above grade and a GWDS-approved outlet filter. The above-grade access covers shall be watertight and secure from vandalism. The outlet filter should be removed, inspected, cleaned and replaced per manufacturer's recommendations.

**Conditions for Contractor**

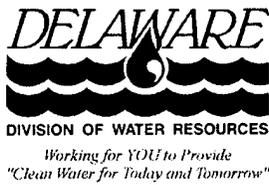
§ 3 The Class E System Contractor shall notify the Class C Design Engineer for an inspection prior to covering the installation. Approval to cover must be given by the Engineer/Authorized Designee. The Engineer shall provide As-Built drawings within ten (10) days after system inspection.

§ 4 The Class E System Contractor shall notify the GWDS for an inspection prior to covering the installation. Approval to cover must be given by the GWDS.

§ 7 The drainfield area, either above or below grade, must be installed according to the cross section in the permit design plan(s). Any changes to system depth/height will require pre-approval from the Class D Soil Scientist, the Class C Design Engineer(if applicable) and the GWDS.

§ 10 All electrical connections shall be waterproof, corrosion-resistant and explosion proof.

§ 12 There shall be no soil disturbance within the primary and spare absorption areas except the minimum required for system/component installation and/or repair.



**PERMIT  
218904**



Tax Parcel Number: **2-30-12.00-0026.00**

Site Evaluation Number: **544160**

§ 13 The existing sewage disposal system shall be abandoned as required in Section 5.06000 of the Regulations. The existing tank(s) and/or cesspool(s)/seepage pit(s), as shown/indicated on the permit plot plan, shall be pumped and either filled or removed/backfilled and an Abandonment Report (exhibit "Z") submitted.

§ 14 If the existing sewage disposal system is encountered during excavation and the proposed new system is not designed to be sand-lined, STOP construction and contact the Class B or C Designer/Engineer and the GWDS.

§ 16 The Class E Contractor shall install a battery in the timer.

§ 24 It is the responsibility of the Class E System Contractor to verify that ALL isolation distances, as noted and approved in the permit, can be maintained. Furthermore, the contractor shall notify the Class B or C Designer/Engineer AND the GWDS if field conditions exist that prohibit the ability to maintain the approved isolation distances and/or requirements of the Regulations.

§ 30 The existing septic tank must be replaced. The replacement tank must have a minimum capacity of 1000 gallons and meet all requirements for septic tanks as set forth in the Regulations.

§ 33 This system must be pressure-tested by a Class C Engineer/Authorized Designee.

§ 40 A licensed Class D Soil Scientist must be present during drainfield installation to determine depth of sand-lining required due to restrictive and/or inconsistent soil morphologies.

§ 48 Final Site Restoration must comply with Section 6.01070 of the Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems.

§ 66 A construction report must be prepared by the Class E System Contractor and submitted to the GWDS within ten (10) days of system completion. This is to include any changes that require a post-construction "As-Built" drawing. "As-Built drawings detailing changes to engineered (pressurized) systems must be submitted by the Class C Engineer.

§ 77 The Class E System Contractor shall comply with all Occupational Safety and Health Act (OSHA) regulations. OSHA regulations can be found at the website [www.osha.gov](http://www.osha.gov) or by contacting the U.S. Department of Labor.

§ 86 Sand-lining is required. Sand-line to a depth of 58 inches below grade/ground surface.

§ 91 All proposed changes to permit design MUST be submitted and approved in the form of a preconstruction "as-built" drawing prior to system installation. Contact the GWDS for guidance. Post-construction "as-built" drawings are subject to GWDS approval and MUST be submitted to the GWDS within ten(10) calendar days of system completion. All "as-built" drawings (pre or post) detailing changes to engineered systems MUST be generated by the Class C design engineer.

§ 92 This system type is classified as "mound" or "capping fill" and thus requires a second inspection to ensure sufficient soil "cap" or cover over the drainfield. The Class E Contractor is to call for a "cap" inspection within ten(10) calendar days after receiving a satisfactory pre-cover inspection or authorization to cover without Departmental inspection, weather permitting.

**Conditions for Owner**

§ 17 The property owner shall connect to the county or municipal sewer system if and when such services become available and shall be in accordance with County and/or Municipal rules and regulations. At time of connection the existing septic disposal system shall be abandoned per DNREC Regulations and permit voided unless the GWDS approves continued operation.

§ 18 This system shall be maintained in such a manner as to prevent abnormal odors or surfacing, pooling and/or discharging of wastewater onto any surface waters.



*Working for YOU to Provide  
"Clean Water for Today and Tomorrow"*

**PERMIT  
218904**



Tax Parcel Number: **2-30-12.00-0026.00**

Site Evaluation Number: **544160**

§ 19 The sites of the initial and replacement absorption facilities shall not be covered by asphalt or concrete or subject to vehicular traffic or any activity or similar loadings that would adversely affect the soils. These sites shall be maintained so that they are free from encroachments by ancillary buildings and additions to main structures.

§ 21 The septic tank must be pumped by a licensed Class F Liquid Waste Hauler at a minimum of once every three(3) years. Septic tanks constructed of non-masonry materials should be pumped only when the seasonal water table is low to minimize possible flotation risk and must be immediately refilled by the owner.

§ 76 The effluent filter, proposed in either the outlet baffle of the septic tank, septic tank lift station (Exhibit "V") or separate lift station vault, shall be cleaned and maintained as necessary to prevent clogging of the disposal system and can be performed by the property owner.

§ 84 The permittee shall allow, at reasonable times, the Secretary of DNREC or other such authorized representative(s), upon presentation of credentials and/or other such required documentation as required by law, to enter permittee's property to inspect the on-site wastewater treatment and disposal system installed under this permit. This is required to ensure conformance with permit conditions and DNREC Regulations in accordance with 7 Del. C. Chapter 60.

§ 93 The site evaluation supporting this permit will expire five(5) years after site evaluation approval date. System replacement after this date will require a new site evaluation and subsequent GWDS approval.



RECEIVED 218904  
DEC 14 2010 APPLICATION - PERMIT  
ON SITE WASTEWATER SYSTEM  
GROUNDWATER



(Please Type or Print Legibly)  
OWNER'S NAME: Curtis and Christina McDonald PHONE: \_\_\_\_\_

ADDRESS: 24937 Bethesda Road, Georgetown, DE 19947

PROJECT LOCATION: EAST side of northbound U.S. 113 approx 1650' south of

Haflinger Road TAX/MAP #: 2-30-12 Parcel 26.00

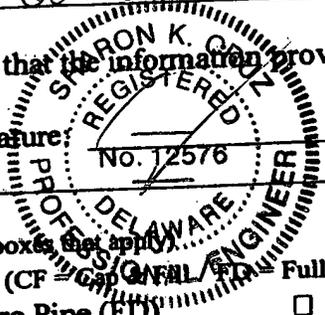
APPLICATION PREPARER: Sharon K. Cruz DNREC LICENSE #: 4328

PREPARER'S ADDRESS: 14072 Dawson Drive, Milton, DE 19968

PHONE: 302-624-8030

I hereby affirm that the information provided on this document is accurate and complete.

Preparer's Signature: \_\_\_\_\_ Date: 11/30/10



**-SEPTIC DESIGN CRITERIA-**

(Please check all boxes that apply)

- System Type:** (CF = Gravity, FD = Full Depth)
- Low Pressure Pipe (FD)
  - Elevated Sand Mound
  - Pressure Dose (FD)
  - Holding Tank
  - Gravity (FD)
  - Std. Pressure Dose (FD)
  - Std. Pressure Dose (CF)

- Full Depth**
- Low Pressure Pipe (CF)
  - Wisconsin At-Grade
  - Pressure Dose (CF)
  - Subsurface Micro Irrigation
  - Gravity (CF)
  - Other \_\_\_\_\_

- Type of Construction:**
- Replacement
  - New Construction
  - Component Replacement
  - Repair to Existing System
- Component: \_\_\_\_\_  
Reason: \_\_\_\_\_

- Bed or  Trench
- Gravelless Chamber or  Stone/Gravel
- Sand-lined  Yes  No

Existing System Malfunctioning  Yes  No  N/A

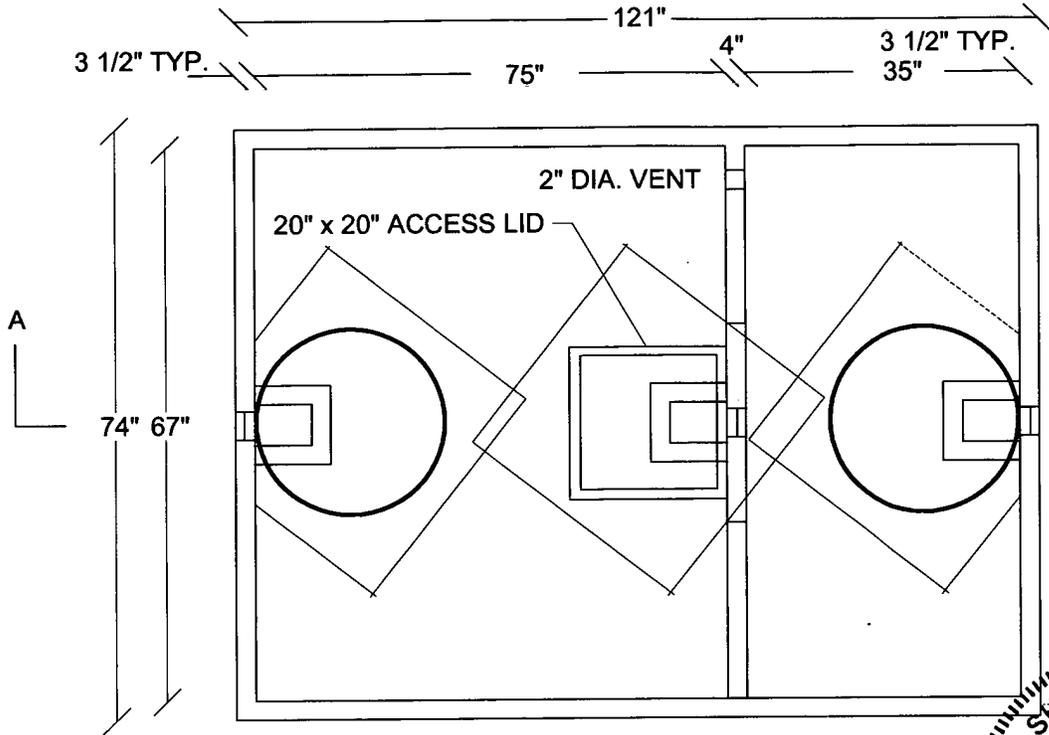
- Pre-Treatment Units**
- Septic Tank  Recirculating Sand Filter
  - Other grease trap

- Authorization to Use Existing System
- Permit #: \_\_\_\_\_  
Present Condition: \_\_\_\_\_  
Structure to be connected: \_\_\_\_\_

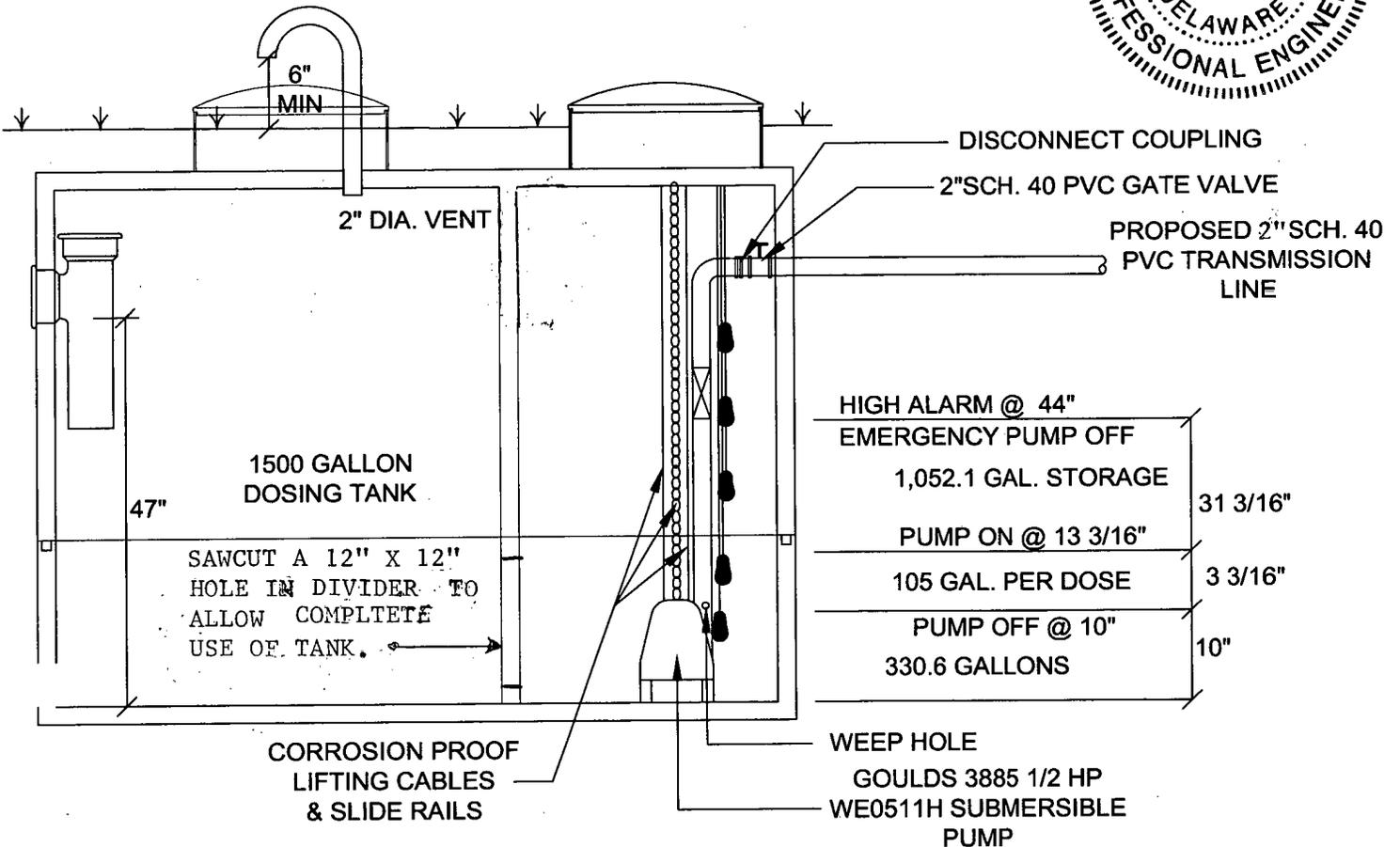
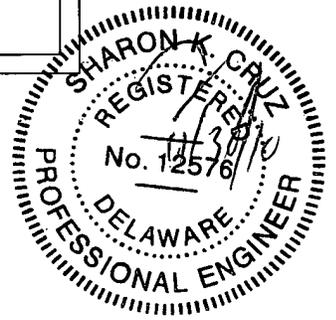
# of Bedrooms: see attached sheet  
 Avg. Percolation Rate: 40 MPE  
 Gallons Per Day Flow: see attached sheet  
 Minimum Sq. Ft. Rcq'd: 1129 s.f.  
 Sq. Ft. Proposed: 1130 s.f.

Central Water Available  Yes  No  
(If yes, please state Utility Name: \_\_\_\_\_)

Revised 02/22.00

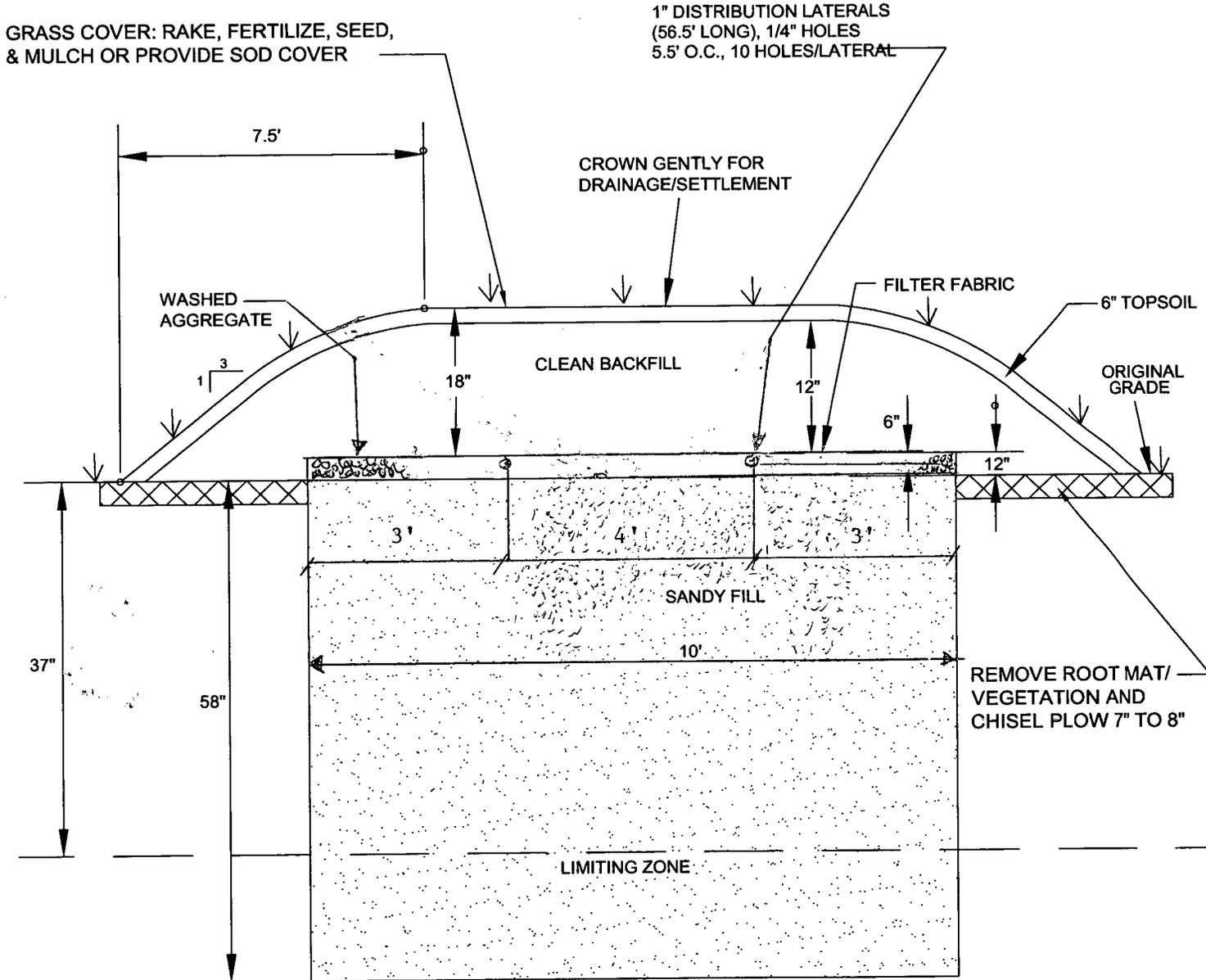


PLAN VIEW  
NOT TO SCALE



1500 GALLON PRECAST DOSING  
TANK STANDARD DETAIL  
(MAX. BURY 2 FT.)

218904



\*\*\*SAND LINE TO 58"\*\*\*

PAGE 7 OF 14 PAGES



# DC GROUP

DESIGN CONSULTANTS GROUP, L.L.C.  
18072 Davidson Drive (302) 684-8030 FAX: (302) 684-8054  
Milton, DE 19968 www.info@dcgengineering.net

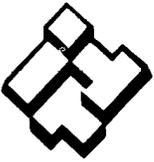
SURVEYING • ENGINEERING • LAND PLANNING

NOT TO SCALE

PROJECT: CURTIS McDONALD  
TM 230-12.00 PARCEL 26.00

TITLE: CROSS SECTION

DESIGNED BY:	SKC
SURVEYED BY:	OTHERS
DRAWN BY:	MW
CHECKED BY:	SKC
JOB #:	080110
TAX MAP:	2-30-12.00, PARCEL 26
DATE:	NOVEMBER 5, 2010
SHEET NO:	2 OF 3



# ITT

## Wastewater

# Goulds Pumps

## WE Series Model 3885

### Submersible Effluent Pump

PROSURANCE AVAILABLE FOR  
RESIDENTIAL APPLICATIONS.



### FEATURES

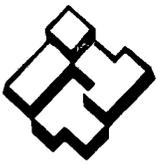
- **Impeller:** Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.
- **Casing:** Cast iron volute type for maximum efficiency. 2" NPT discharge.
- **Mechanical Seal:** Silicon Carbide vs. Silicon Carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers.
- **Shaft:** Corrosion-resistant, stainless steel. Threaded design. Locknut on all models to guard against component damage on accidental reverse rotation.
- **Fasteners:** 300 series stainless steel.
- **Capable of running dry** without damage to components.
- **Designed for continuous operation** when fully submerged.

 **GOULDS PUMPS**

Goulds Pumps is a brand of ITT Corporation.

[www.goulds.com](http://www.goulds.com)

*Engineered for life*



# ITT

## GOULDS PUMPS Wastewater

### APPLICATIONS

Specifically designed for the following uses:

- Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

### SPECIFICATIONS

#### Pump

- Solids handling capabilities: 3/4" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 140 GPM.
- Total heads: up to 128 feet TDH.
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

### MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1/3 - 1 1/2 HP models.
- Class F insulation on 2 HP models.

#### Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.
- SJTOW or STOW severe duty oil and water resistant power cords.

- 1/3 - 1 HP models have NEMA three prong grounding plugs.
- 1 1/2 HP and larger units have bare lead cord ends.

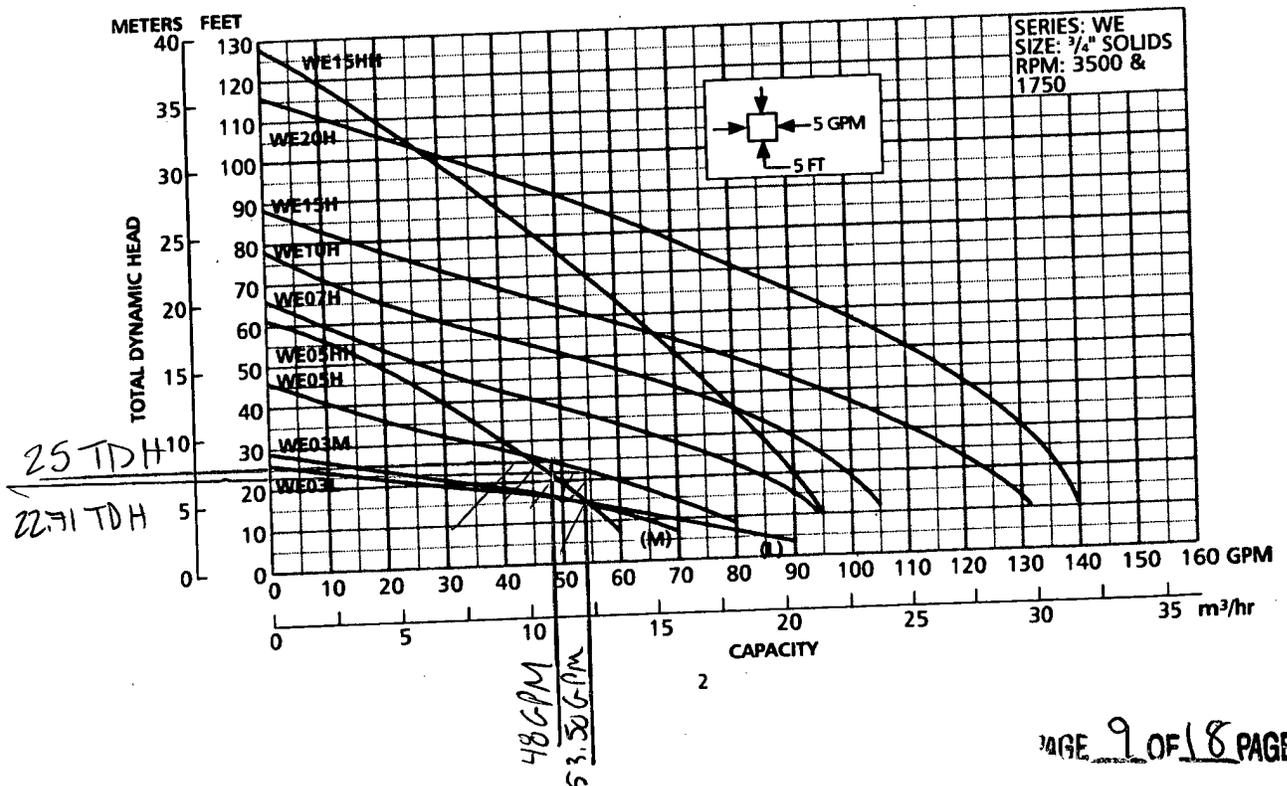
#### Three phase (60 Hz):

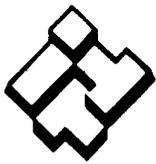
- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- **Designed for Continuous Operation:** Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- **Bearings:** Upper and lower heavy duty ball bearing construction.
- **Power Cable:** Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.
- **O-ring:** Assures positive sealing against contaminants and oil leakage.

### AGENCY LISTINGS



Tested to UL 778 and CSA 22.2 108 Standards  
By Canadian Standards Association File #LR38549  
Goulds Pumps is ISO 9001 Registered.



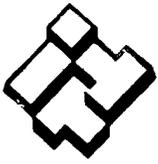


**ITT**

**GOULDS PUMPS**  
Wastewater

**MODELS**

Order Number	HP	Phase	Volts	RPM	Impeller Diameter (in.)	Maximum Amps	Locked Rotor Amps	KVA Code	Full Load Efficiency %	Resistance		Power Cable Size	Weight (lbs.)			
										Start	Line-Line					
WE0311L	0.33	1	115	1750	5.38	10.7	30.0	M	54	11.9	1.7	16/3	56			
WE0318L			208			6.8	19.5	K	51	9.1	4.2					
WE0312L			230			4.9	14.1	L	53	14.5	8.0					
WE0311M			115			10.7	30.0	M	54	11.9	1.7					
WE0318M			208			6.8	19.5	K	51	9.1	4.2					
WE0312M			230			4.9	14.1	L	53	14.5	8.0					
WE0511H		0.5	1		115	3450	3.56	14.5	46.0	M	54	7.5	1.0	14/3	60	
WE0518H					208			8.1	31.0	K	68	9.7	2.4	16/3	60	
WE0512H					230			7.3	34.5	M	53	9.6	4.0	14/4	60	
WE0538H					3			200	4.9	22.6	R	68	NA			3.8
WE0532H								230	3.3	18.8	R	70	NA			5.8
WE0534H								460	1.7	9.4	R	70	NA	23.2		
WE0537H	3		575	1.4	7.5		R	62	NA	35.3	14/3	60				
WE0511HH			1	115	14.5		46.0	M	54	7.5			1.0			
WE0518HH				208	8.1		31.0	K	68	9.7			2.4	16/3	60	
WE0512HH				230	7.3		34.5	M	53	9.6			4.0			
WE0538HH			3	200	4.9		22.6	R	68	NA			3.8	14/4	60	
WE0532HH				230	3.6		18.8	R	70	NA			5.8			
WE0534HH	460			1.8	9.4		R	70	NA	23.2						
WE0537HH	575		1.5	7.5	R		62	NA	35.3							
WE0718H	0.75		1	208	3450		4.06	11.0	31.0	K	68	9.7	2.4	14/3	70	
WE0712H				230				10.0	27.5	J	65	12.2	2.7	14/4	70	
WE0738H				3				200	6.2	20.6	L	64	NA			5.7
WE0732H								230	5.4	15.7	K	68	NA			8.6
WE0734H		460	2.7			7.9	K	68	NA	34.2						
WE0737H		575	2.2			9.9	L	78	NA	26.5						
WE1018H		1	1	208		3450	4.44	14.0	59.0	K	68	9.3	1.1	14/3	70	
WE1012H				230				12.5	36.2	J	69	10.3	2.1	14/4	70	
WE1038H	3			200	8.1			37.6	M	77	NA	2.7				
WE1032H				230	7.0			24.1	L	79	NA	4.1				
WE1034H			460	3.5	12.1		L	79	NA	16.2						
WE1037H			575	2.8	9.9		L	78	NA	26.5						
WE1518H	1.5		1	208	3450		4.56	17.5	59.0	K	68	9.3	1.1	14/3	80	
WE1512H				230				15.7	50.0	H	68	11.3	1.6	14/4	80	
WE1538H		3		200		10.6		40.6	K	79	NA	1.9				
WE1532H				230		9.2		31.7	K	78	NA	2.9				
WE1534H				460		4.6		15.9	K	78	NA	11.4				
WE1537H		575		3.7		13.1		K	75	NA	16.9					
WE1518HH		3	1	208		3450	5.50	17.5	59.0	K	68	9.3	1.1			14/3
WE1512HH				230				15.7	50.0	H	68	11.3	1.6	14/4	80	
WE1538HH				3				200	10.6	40.6	K	79	NA			1.9
WE1532HH			230					9.2	31.7	K	78	NA	2.9			
WE1534HH			460					4.6	15.9	K	78	NA	11.4			
WE1537HH			575	3.7				13.1	K	75	NA	16.9				
WE2012H	2	1	230	3450	5.38	18.0	49.6	F	78	3.2	1.2	14/3	83			
WE2038H			3			200	12.0	42.4	K	78	NA	1.7	14/4	83		
WE2032H						230	11.6	42.4	K	78	NA	1.7				
WE2034H		460				5.8	21.2	K	78	NA	6.6					
WE2037H		575	4.7			16.3	L	78	NA	10.5						



**ITT**

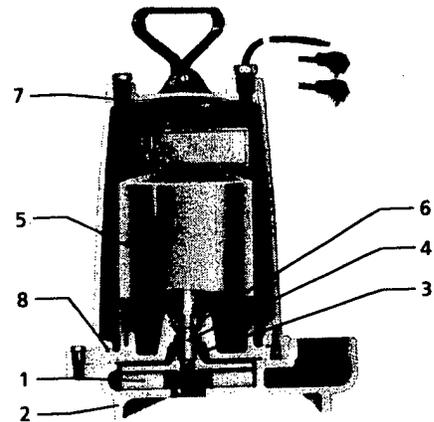
**Wastewater**

**PERFORMANCE RATINGS** (gallons per minute)

Order No.	WE03L	WE03M	WE05H	WE07H	WE10H	WE15H	WE05HH	WE15HH	WE20H
	1/8	1/8	1/4	3/8	1	1 1/2	1/2	1 1/2	2
HP	1/8	1/8	1/4	3/8	1	1 1/2	1/2	1 1/2	2
RPM	1750	1750	3500	3500	3500	3500	3500	3500	3500
5	86	-	-	-	-	-	-	-	-
10	70	63	78	94	-	-	58	95	-
15	52	52	70	90	103	128	53	93	138
20	27	35	60	83	98	123	49	90	136
25	5	15	48	76	94	117	45	87	133
30	-	-	35	67	88	110	40	83	130
35	-	-	22	57	82	103	35	80	126
40	-	-	-	45	74	95	30	77	121
45	-	-	-	35	64	86	25	74	116
50	-	-	-	25	53	77	-	70	110
55	-	-	-	-	40	67	-	66	103
60	-	-	-	-	30	56	-	63	96
65	-	-	-	-	20	45	-	58	89
70	-	-	-	-	-	35	-	55	81
75	-	-	-	-	-	25	-	51	74
80	-	-	-	-	-	-	-	47	66
90	-	-	-	-	-	-	-	37	49
100	-	-	-	-	-	-	-	28	30

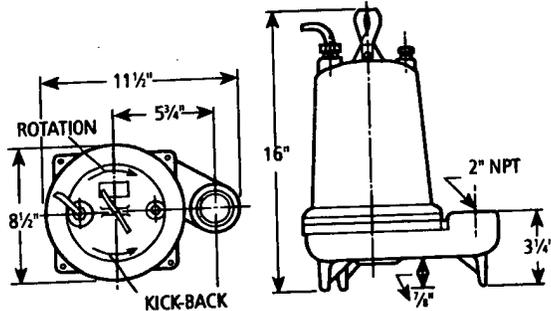
**COMPONENTS**

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring



**DIMENSIONS**

(All dimensions are in inches. Do not use for construction purposes.)



Goulds Pumps and the ITT Engineered Blocks Symbol are registered trademarks and tradenames of ITT Corporation.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

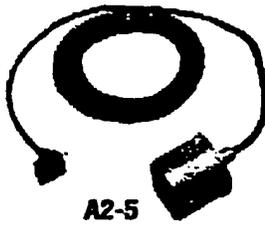
B3885 June, 2008  
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*Engineered for life*

218904



A2-9



A2-5



A2-11



A2-1

**A2-9I**

**Features**

- Mechanically activated tilt switch with heavy duty non-mercury contacts, not sensitive to rotation.
- Rated for up to ½ HP, 115 V, single phase within amp rating below.
- Normally open design.
- Adjustable start/stop range from 5.5° to 36°.
- Non-corrosive PVC plastic housing for use in liquids up to 140°F (60°C).
- Automatic operation by directly controlling pump. (No control panel required.)
- UL and CSA listed.

**Specifications**

- 10 foot Neoprene flexible 16 gauge 2 conductor (UL) SJOW-A, SJOW (CSA) cord with molded piggy-back plug NEMA 5-15 P.
- Rated for: 85 start up amps, 13 running amps maximum.
- Not sensitive to turbulence.

**A2-9F**

- Same as A2-9I, except with 20 foot cord.

**A2-5**

**Features**

- Mechanically activated tilt switch with heavy duty non-mercury contacts, not sensitive to rotation.
- Rated for up to ¼ HP, 115 V, single phase operation, within amp rating below.
- Normally open design for pump down operation.
- Adjustable start/stop level from 5.5° to 36°.
- Epoxy sealed switch and cord conductors.

- PVC plastic float housing can be used in liquids up to 140° F (60° C).
- Automatic operation directly controlled by pump. (No control panel required.)
- UL and CSA listed.

**Specifications**

- 15 foot Neoprene flexible 14 gauge 2 conductor (UL) SJOW-A, SJOW (CSA) water resistant cord with piggy-back plug NEMA 5-15.
- Rated for .85 start up amps, 115 V, 15 running amps.
- Not sensitive to turbulence.

**A2-6**

**Features**

- Mechanically activated tilt switch with heavy duty non-mercury contacts, not sensitive to rotation.
- Rated for up to 2 HP, 230 V, single phase operation, within amp rating below.
- Normally open design for pump down operation.
- Adjustable start/stop level from 5.5° to 36°.
- Epoxy sealed switch and cord conductors.
- PVC plastic float housing can be used in liquids up to 140° F (60° C).
- Automatic operation directly controlled by pump. (No control panel required.)
- UL and CSA listed.

**Specifications**

- 15 foot Neoprene flexible 14 gauge 2 conductor (UL) SJOW-A, SJOW (CSA) water resistant cord with piggy-back plug NEMA 6-15.
- Rated for 85 start up amps, 230 V, 15 running amps.
- Not sensitive to turbulence.

**A2-11 and A2-12**

**Features**

- Double float switch consisting of two sealed floats, two cables molded to one piggy-back plug cord.
- Both sealed floats contain a heavy-duty mechanical switch with a holding relay sealed inside one float.
- A2-11 is rated for up to ¼ HP, 115 V. A2-12 is rated for up to 2 HP, 230 V, within amp rating below.
- Adjustable start/stop range from 1° to 48°.
- Automatic operation by directly controlling pump. (No control panel required)
- UL and CSA listed.

**Specifications**

- 15 foot Neoprene flexible 14 gauge (UL) SJOW (CSA) water resistant cord from float to splice. 14 gauge 3 conductor (UL) SJOW-A, SJTW (CSA) thermoplastic water resistant cord with molded piggy-back plug.
- Rated for 85 start up amps, 115 V, 15 running amps maximum. 85 start up amps, 230 V, 15 running amps maximum.
- Not sensitive to turbulence.

**A2-1 / A2-4**

- Pressure actuated switch.
- Liquid level differential permanently set at 6". Requires 12" submergence.
- A2-1: rated for up to ½ HP, 115 V, single phase. A2-1: 15 foot power cord equipped with piggy-back plug NEMA 5-15.
- A2-4: rated for up to ½ HP, 208/230 V, single phase.
- A2-4: 15 foot power cord equipped with piggy-back plug NEMA 6-15.

- Cast iron body with stainless steel fasteners and bracket.
- Ideal when limited space is available.



SJE

**SJE**

- The SJE VerticalMaster™ pump switch is designed to operate in applications with limited space, such as small sump chambers and laundry trays, as well as in large tanks. This pump switch is capable of directly controlling pumps up to ½ HP at 120 V and 1 HP at 230 V. The SJE VerticalMaster™ is designed for easy attachment and is available in pump down models only.

**Features**

- Magnetically activated.
- Heavy duty contacts.
- Adjustable pumping range of ¼ to 6½ inches.
- Not sensitive to turbulence.
- Available in pump down models only.
- UL and CSA listed for water and sewage.

Model	Description
10VM1WP	10 ft. cord with plug - 115 V
10VM2WP	10 ft. cord with plug - 230 V
20VM1WP	20 ft. cord with plug - 115 V
20VM2WP	20 ft. cord with plug - 230 V

Goolds Pumps is ISO 9001 Registered.

**Goolds Pumps**



**ITT Industries**

# MODEL TD Control Panel

218904

Single phase, simplex timed dosing pump control.

The Model TD control panel provides a reliable means of controlling one single phase pump in onsite septic installations. A programmable timer activates a magnetic motor contactor to turn the pump on and off. A low level cutout float overrides the timer to prevent the pump from running dry. An alarm float activates the audio/visual alarm system indicating a high liquid level. Common applications include sand filter systems, pressure distribution systems, mound systems, or any application requiring a timed dose.

## PANEL COMPONENTS

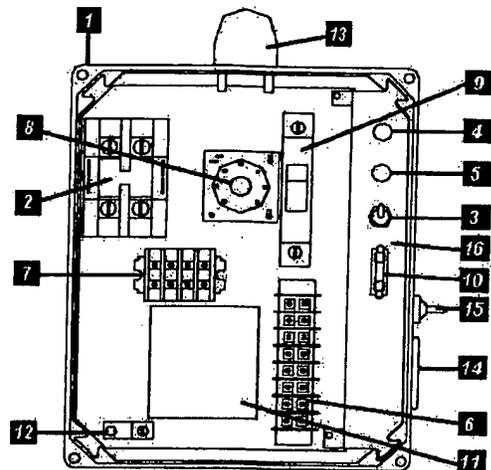
1. Enclosure measures 10 x 8 x 4 inches (25.40 x 20.32 x 10.16 cm) NEMA 4X (ultraviolet stabilized thermoplastic with removable flanges for outdoor or indoor use).
2. Magnetic Motor Contactor controls pump by switching electrical lines.
3. HOA Switch for manual pump control.
4. Control Fuse
5. Alarm Fuse
6. Float Switch Terminal Block
7. Incoming Power Terminal Block
8. Programmable Timer with separate variable controls allows for setting the on and off times from .05 seconds to 30 hours.
9. Circuit Breaker provides pump disconnect and branch circuit protection.
10. Spare Fuse
11. Backplate Label includes diagram of float, pump, and power connections.
12. Ground Lug

NOTE: Timer Installation Label and Pump/Float Switch Installation Specification Label are located inside the panel on enclosure cover.

### STANDARD ALARM PACKAGE

13. Red Alarm Beacon provides 360° visual check of alarm condition.
14. Alarm Horn provides audio warning of alarm condition (83 to 85 decibel rating).
15. Exterior Alarm Test/Normal/Silence Switch allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition is cleared.
16. Horn Silence Relay (mounted under bracket).

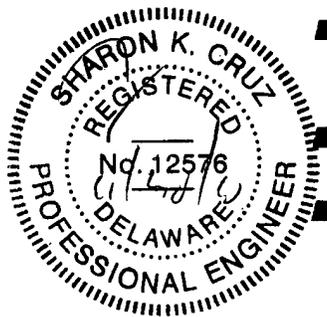
NOTE: other options available.



Model Shown: TD1W914X

## FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes one 20' SJE PumpMaster® pump switch and one 20' Sensor Float® control switch
- Complete with step-by-step installation instructions
- Three-year limited warranty



RUN TIME TO BE SET  
AT 2 minutes 15 secs  
EACH DOSE FOR 4  
DOSES PER DAY.

**SJE**  
**Rhombus**  
CONTROLS

PO Box 1708, Detroit Lakes, MN 56502  
1-888-DIAL-SJE • 1-218-847-1317  
1-218-847-4617 Fax  
email: sje@sjerhombus.com  
[www.sjerhombus.com](http://www.sjerhombus.com)

# **DC GROUP**

DESIGN CONSULTANTS GROUP, L.L.C.  
18072 DAVISON DRIVE MILTON, DE 19968  
PHONE: (302) 684-8030 FAX: (302) 684-8054

## **GENERAL AND CONSTRUCTION NOTES TO INSTALLER**

- The Contractor shall field verify all existing conditions and features prior to construction All Piping and Fittings shall be **Pressure Rated Schedule 40 PVC**. No substitutes will be permitted unless noted on the approved plans or approved by the designer prior to construction.
- The Contractor shall field verify all isolation distances prior to initiating construction of system. If discrepancies are found in the field, the Contractor shall immediately contact the designer at 302-684-8030.
- Any changes in the specified/approved equipment, i.e. pumps, alarms, timers, etc., shall be approved by the designer prior to construction.
- No System shall be installed during inclement conditions, i.e. rain, snow, saturated conditions, frozen conditions, or any other condition that would create compaction, smearing or destruction of the soil structure in the disposal area.
- The designer is not responsible for the placement of the dwelling or the actual location of the property lines shown on the approved site plan as no perimeter survey was provided or performed by Design Consultants Group, L.L.C..
- All Low Pressure Pipe (LPP) disposal systems must be installed with a trencher. **NO SYSTEM WILL BE INSPECTED OR APPROVED BY THE DESIGNER IF INSTALLED WITH A BACKHOE.**
- Any changes made to the location of the approved system must have a pre-construction as-built done and approved by The

Division of Water Resources at the expense of the contractor. NO change shall be made unless approved by the designer and The Division of Water Resources. Any change made to the approved permit without the prior approval of the designer or The Division of Water Resources shall be the responsibility of the contractor.

- All systems requiring a pump shall be pressure tested by the designer and the contractor during the final inspection. Any equipment necessary for providing this service, i.e. generator, hoses, water, pressure gauges shall be provided by the Contractor.
- The contractor or his/her representative shall be present during the final inspection. The contractor shall notify the designer 48 hours in advance to schedule the final inspection.
- The designer will complete only one site visit for final inspection. Any additional site visits required for designer approval will be billed as an extra to the contractor and shall be paid prior to initiating the inspection report.
- The system shall be installed based on the approved permit and the regulations and memorandums set forth by the Department of Natural Resources and Environmental Control, Division of Water Resources.

# **DC GROUP**

DESIGN CONSULTANTS GROUP, L.L.C.  
18072 DAVIDSON DRIVE MILTON, DE 19968  
PHONE: (302) 684-8030 FAX: (302) 684-8054

## **GENERAL NOTES TO HOMEOWNER**

- Unless otherwise stated in the Department of Natural Resources and Environmental Control (DNREC), Division of Water Resources regulations, all septic tanks shall be pumped every two (2) to three (3) years. At the time of pumping, the tank shall be inspected for any deficiencies such as: concrete deterioration, cracks, holes, leaking, etc.. The baffles should be inspected for cracks, concrete deterioration, etc..
- If a filtering devise has been installed, i.e. Zabel, Webby Bucket, etc., at the time of cleanout and/or per the manufacturers specifications, the device should be rinsed thoroughly into the septic tank with a garden hose and reinstalled. This should be done so that accumulated debris can be pumped out while the waste hauler is there.
- Be absolutely sure that your septic tank stays in good operating condition. Never allow sludge or scum to escape from the septic tank. It will clog your drain tiles and cause the drain field to fail.
- Keep automobiles and all heavy vehicles and equipment off the field and tanks.
- Do not allow stormwater ponding to collect over the field.
- Do not allow downspouts to drain onto or into your drain field or tanks.
- Do not stockpile snow or soil on the drain field and tanks.
- Dense grass cover and other shallow rooted plants are beneficial over a drain field. Think ahead when planting trees and shrubs. Although they promote moisture removal from the drain field, their

roots may clog the drain tiles. Check with The DNREC for vegetation that will be helpful to your system.

- Mark the boundaries of your system as a reminder.
- Do not use chemicals to clean or sweeten your system except on the advice of the DNREC.
- Do not use a kitchen garbage disposal.
- Do not place harmful materials in the tanks. Avoid fats, solvents, oils, disinfectants, paints, chemicals, poisons, coffee grounds, paper towels, disposable diapers, sanitary napkins, tampons and condoms.
- Inspect for scum and sludge depth once each year.
- Limit water entering your tanks.
- Use water-saving fixtures, i.e. faucets, showers, toilets, etc. as required by the local building code.
- Do not connect basement sump pump to the tanks.
- Always drain appliances one at a time.
- Spread clothes washing over the entire week and avoid half-loads.
- Always fix faucet and toilet float valve leaks.

***FAILURE TO FOLLOW THESE REQUIREMENTS AND THE REQUIREMENTS SET FORTH BY THE DNREC, DIVISION OF WATER RESOURCES, WILL RESULT IN A REDUCED LIFE SPAN OF THE SEPTIC SYSTEM, AND INCREASE THE LIKELYHOOD OF FAILURE.***



**SussexCounty, Delaware****Treasury Division**

P.O. Box 429, Georgetown, DE 19947-0429

**(302) 855-7760**

## Tax Summary

<b>Owners Name(s):</b> MCDONALD CURTIS W & CHRISTINA M	<b>District - Map - Parcel</b> 2-30 12.00 26.00
--	--

<b>Billing Address:</b> MCDONALD CURTIS W & CHRISTINA M  24937 BETHESDA RD GEORGETOWN, DE 19947	<b>Additional Owners:</b>
--	---------------------------

<b>Property Description:</b> LINCOLN TO ELLENDALE E/RT 113 1550' S/RT 625	<b>Deed Book Information:</b> Deed Book : 2773 Deed Page: 289
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**School District:**  
Milford School District

**Property Appraised Value Information:**

<b>Land Appraised Value:</b>	\$5,000.00
<b>Improvement(s) Appraised Value:</b>	\$8,900.00
<b>Total Appraised Value:</b>	\$13,900.00

**Other Property Information:****Land Use:** Residential, Single dwelling & lot**Acres:** 0**Town:****Fire Districts:** Ellendale Fire Distrct

Please note that the information provided here is based upon the annual tax billing for the selected property and does not include any quarterly or special billings.

The Assessed value of the property reflects 50% of the 1974 Appraised Value and this is what your taxes are calculated on. The Assessed value may not include recent improvements to the property due to the fact that the information here is based ONLY on the annual billing. The Assessed Value Displayed may include applicable State and/or County Exemptions.

**Total Assessed Value: \$6,950.00****County Tax Information:**

County Tax:	\$27.68	County Cap Tax:	\$0.00
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**Total County Taxes: \$27.68****School Tax Information:**

School District:	Milford School District
School Tax:	\$257.05
School Cap Tax:	\$0.00
School District:	Sussex Tech
School Tax:	\$18.53

**Total of School Taxes: \$275.58****Library Tax Information:**

Library Tax:	\$3.25
--------------	--------

**Total of Library Taxes: \$3.25**

# SITE EVALUATION

REFERENCE # 544160

RECEIVED

JUL 09 2009

PO Box 788  
Millsboro, DE 19966  
www.aedelmarva.com



**OWTDS Site Evaluation**  
by Accent Environmental, LLC

**Approval Page 1 of 2**

Job #: 52-DS09-RE

The soils on this site are approved when the following is completed in full and signed by the appropriate authority. The information contained in this site evaluation reflects Delaware Department of Natural Resources and Environmental Control (DNREC) policies and procedures at the time of the review. Exhibits and Regulations cited in this report refer to DNREC "Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems." Isolation distance requirements, limited area of suitable soils, filling, removal, and/or compaction of the soil may negate construction permit approval or modify the type of system that can be permitted. All information should be verified by interested parties prior to design and installation of the septic system. This is not a construction permit.

**Tax Map #:** 230-12.00-26.00      **Lot #:**

**Property Owner(s):** Curtis W & Christina M McDonald

**Evaluation Is For:** Replacement System

**Inland Bays Wtrshd:** No      **Early Imp. Zone:** No

**Within 100' of Inland Bays Watershed State Wetlands, Tidal Waters, or Primary Water Feature:** No

**GROUNDWATER**

**Disposal System Option 1:** Low Pressure Pipe

**Option 1 Location:** Vicinity of Boring(s) 1 and 2

**Option 1 Limiting Zone:** 37" to lithologic discontinuity and LZ.

---

**Disposal System Option 2:** Sand Lined Sand Mound

**Option 2 Location:** Vicinity of Boring(s) 1 and 2

**Option 2 Limiting Zone:** 37" to lithologic discontinuity and LZ.

**Design Considerations & Comments:** See Exhibit O (Full Depth LPP) in the 1985 Regulations (amended 4/11/2005) and Exhibit P (Sand-Lined Elevated Sand Mound) in the 1985 Regulations (amended 4/11/2005). A 100 foot isolation distance is required from all domestic and commercial wells and a 150 foot isolation distance is required from all public and industrial wells. A lesser well isolation distance may be approved for domestic wells, contact the water Supply Branch at (302) 739-9944.

The potential disposal area(s) is/are a maintained yard and located within a broad flat landscape position(s) with slopes ranging from 0 to 1 percent.

All soil borings, disposal area(s), and other pertinent features of interest were located on a plot drawing adapted from the tax map. Pertinent features were recorded with a handheld GPS unit with reported sub-meter accuracy and located from the utility pole located at the northwest corner of the parcel. The system designer should field-verify all isolation distances prior to permitting.

\* Approved options to reduce well isolation distances to include: 1) incorporating advanced pretreatment, 2) including an extra 12 inches of suitable soil between the bottom of the system and the limiting zone, 3) provide documentation to indicate that the existing well is cased to a depth of forty feet and pressure-grouted with concrete or bentonite clay, or, 4) abandon the current well and relocate greater than 100 feet from the proposed disposal area.

\* If the existing system is encountered during installation sand lining will be required to one foot beneath the existing system.

\* If well is to be abandoned, it must be done by DE licensed well driller and an abandonment report filed w/ DNREC. The abandonment report must be submitted with the septic design.

\* If Disposal Option 2 is utilized, sand lining will be required to a depth of 58" to remove a layer of clay loam material.

This report has been prepared by or under the supervision of: William J. Gangloff, License # D-4455

WJG 2009 2936 EVAL REV 75.00



The soils on this site are approved when the following is completed in full and signed by the approving authority. The information contained in this site evaluation reflects Delaware Department of Natural Resources and Environmental Control (DNREC) policies and procedures at the time of the review. Exhibits and Regulations cited in this report refer to DNREC "Regulations Governing the Design, Installation, and Operation of On-Site Wastewater Treatment and Disposal Systems." Isolation distance requirements, limited area of suitable soils, filling, removal, and/or compaction of the soil may negate construction permit approval or modify the type of system that can be permitted. All information should be verified by interested parties prior to design and installation of the septic system. This is not a construction permit.

Tax Map #: 230-12.00-26.00

Property Owner(s): Curtis W & Christina M McDonald

**Design Considerations & Comments (cont.):**

\* No construction traffic is to occur in the potential disposal area. The property owner / developer is responsible for placing a substantial barrier around the potential disposal area prior to beginning any site development. Final grading must ensure that no surface water is directed towards the disposal area. Soil disturbances in the disposal area will negate this Site Evaluation (see disclaimer above) and may require a re-evaluation. System installation should occur during proper moisture conditions. Accent Environmental, LLC is not responsible for any subsurface conditions not encountered at the time of this evaluation which may become evident in the future and that may affect the placement or design criteria of the disposal system. It is important to note that conditions between borings are, in fact, unknown.

**Notes:**

**Replacement Disposal System:** Same as above if space allows or a Sand-Lined system in the area of the initial system. **Note:** Sand-lining of Low Pressure Pipe Disposal Systems is not permitted per DNREC regulations; in such situations a Sand-Lined Elevated Sand Mound or DNREC approved Alternative/Innovative system will be required.

**Location of Replacement Disposal System:** Adjacent to initial system.

**Limiting Zone for Replacement System:** Same as Above

**Instructions to Property Owner**

- 1) If the prescribed system is Full Depth Gravity or Capping Fill Gravity then contact a Class B System Designer; otherwise contact a Class C System Designer. For questions or clarification call the evaluator at (302) 352-1700 or DNREC at (302) 856-4561.
- 2) Soils in the vicinity of **Option 1** have been assigned a permeability rate of **75** minutes per inch. Soils in the vicinity of **Option 2** have been assigned a permeability rate of **40** minutes per inch. Assigned rates are based on Exhibit W (Percolation Rates) in the 1985 regulations. You may use the assigned percolation rate or, at your expense, have a percolation test conducted. If you do not choose to use the assigned percolation rate, contact the evaluator or a Licensed Class A Percolation Tester to have 3 tests conducted. Contact the Site Evaluator for testing depth and location.
- 3) If you have questions, call the evaluator at (302) 352-1700 or DNREC at (302) 856-4561

This report has been prepared by or under the supervision of: \_\_\_\_\_, License # D-4455

*William J. Gangloff*  
William J. Gangloff

**For office use only**

**Disclaimer:** Approval of this site evaluation indicates only that the site evaluation, based on information presented to us, was conducted in compliance with these regulations. It is not an indication of the correctness or quality of the evaluation nor does it guarantee the evaluation is free of omissions.

Field Checked ND  
*[Signature]*  
DNREC Reviewing Soil Scientist

Expiration Date 07/30/14  
Date 07/30/09



**Property Owner(s):** Curtis W & Christina M McDonald **Tax Map #:** 230-12.00-26.00  
**Owner(s) Address:** 24937 Bethesda Road **Lot #:**  
Georgetown DE 19947 **Contact Phone:** 302-856-3016  
**Property Location:** East side of US 113; Sussex County, DE  
**Property Size:** 0.69 **Central Sewer:** Not Available **Central Water:** Not Available

**Depth to and Type of Limiting Zone Encountered:**

**Boring 1** 42" to lithologic discontinuity and LZ; >72 inches to free water; Typic Hapludults  
**Boring 2** 37" to lithologic discontinuity and LZ; >72 inches to free water; Aquic Hapludults

**GPS Coordinates:**

**Boring 1 :** 38.85200 °N / 75.43848 °W  
**Boring 2 :** 38.85180 °N / 75.43847 °W

**Evaluator's Name:** William J. Gangloff

**License Number:** D-4455

**Evaluation Date:** Jul 2, 2009

**Summary of Evaluation:** See *Design Considerations & Comments* on the Approval Page for property information and details on system design. See the plot plan for potential disposal area(s) location(s).

**Disposal Option 1:** Soils in the potential disposal area(s) is/are moderately well drained with slowly (75 MPI) permeable subsoil. Site conditions are suited for a(n) Low Pressure Pipe disposal system (hatched) in the vicinity of Boring(s) 1 and 2. The potential disposal area(s) is/are a maintained yard and located within a broad flat landscape position(s) with slopes ranging from 0 to 1 percent. For design purposes, the limiting zone for Disposal Option 1 was assigned at 37" based on the depth to lithologic discontinuity and LZ. Free water levels ranged from >72" to >72". The slowly permeable infiltration rate of (75 MPI) was assigned to the the most hydraulically restrictive soil material encountered from 0 to 60 inches beneath the soil surface. In this area, the most restrictive soil texture was clay loam. This texture was identified in the parent material of Boring(s) 1 and 2. Clay content, soil structure and consistence, and seasonal saturation were all factored into the assigned permeability rate.

**Disposal Option 2:** Soils in the potential disposal area are moderately well drained with moderately (40 MPI) permeable subsoil. Site conditions are suited for a(n) Sand Lined Sand Mound disposal system (hatched) in the vicinity of Boring(s) 1 and 2. The potential disposal area(s) is/are a maintained yard and located within a broad flat landscape position(s) with slopes ranging from 0 to 1 percent. For design purposes, the limiting zone for Disposal Option 2 was assigned at 37" based on the depth to lithologic discontinuity and LZ. Free water levels ranged from >72" to >72". The moderately permeable infiltration rate of (40 MPI) was assigned to the the most hydraulically restrictive soil material encountered beneath the depth of proposed sand lining. In this area, the most restrictive soil texture was sandy clay loam. This texture was identified in the parent material of Boring(s) number 1. Clay content, soil structure and consistence, and seasonal saturation were all factored into the assigned permeability rate.

\* If Disposal Option 2 is utilized, sand lining will be required to a depth of 58" to remove a layer of clay loam material.

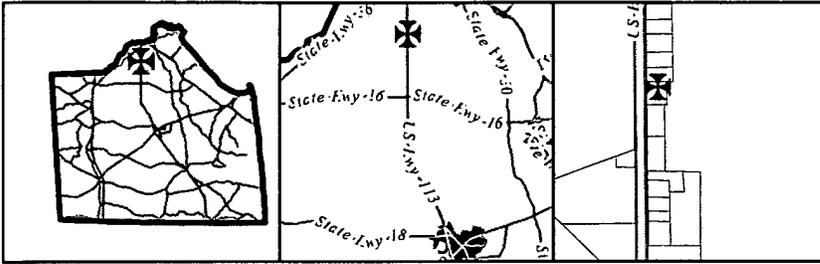
7/8/09

Date

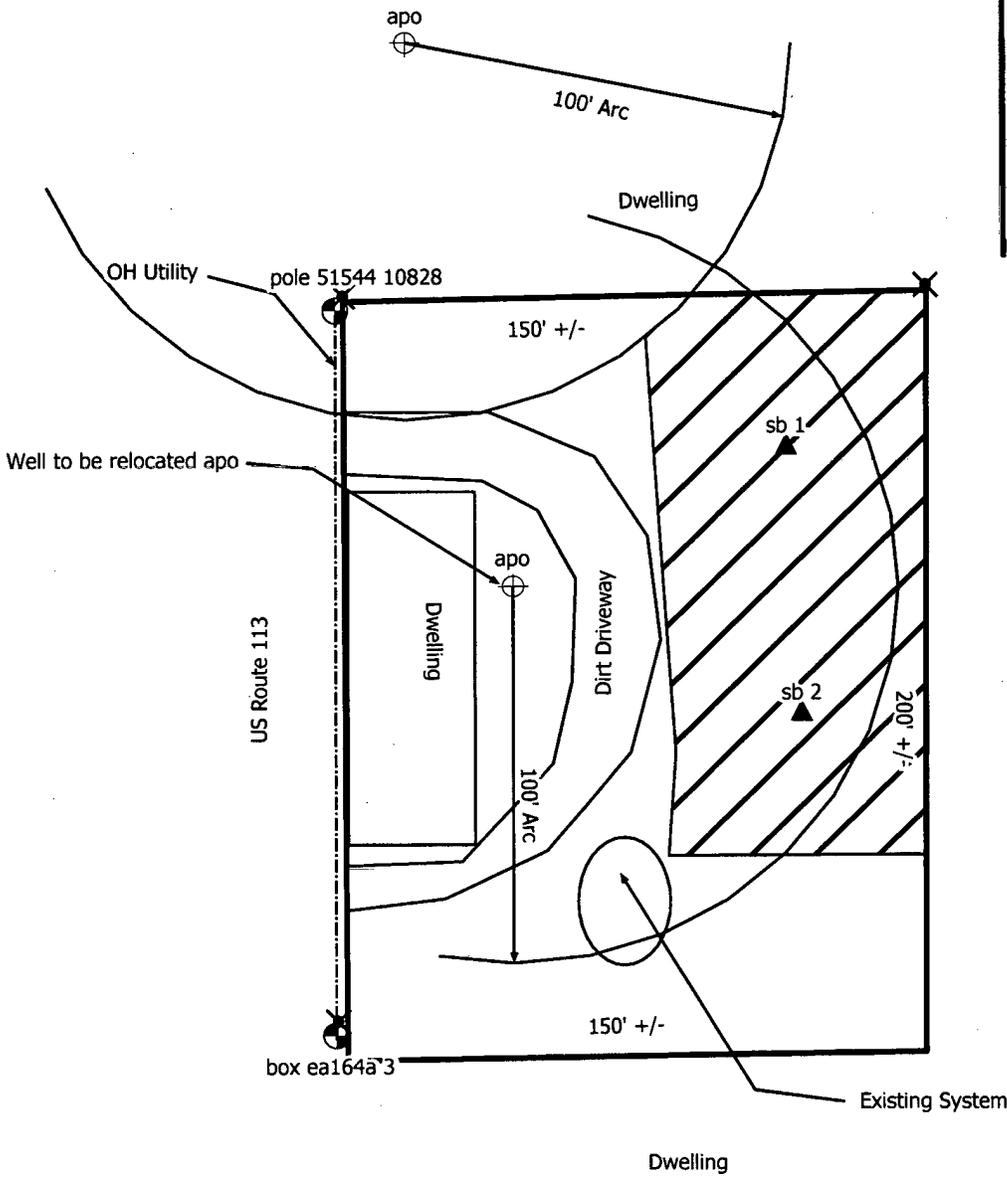
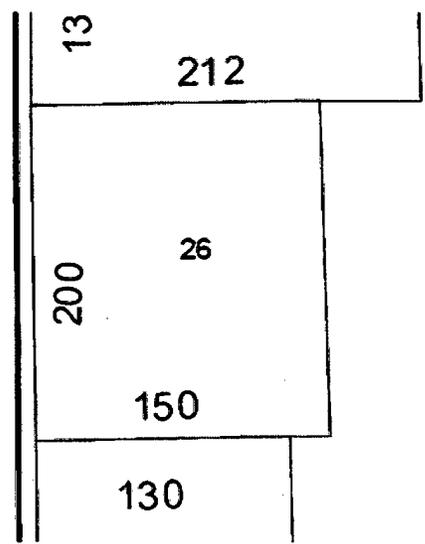
Evaluator's Signature

Note: Site evaluation information was collected for on-site wastewater disposal interpretations only. The information in this site evaluation and plot plan has been compiled from any of the following sources: tax map, deed, survey, recorded plot, or field located property corners, and may include anecdotal information supplied by property owners, adjacent residents, and/or other interested parties. Locations of wells and septic systems are by direct observation where possible, but are often based on information provided by permits, property owners, adjacent residents, and/or other interested parties. This plot plan represents the site conditions at the time of evaluation but it is not a survey. No title search has been conducted; any easements shown are from subdivision record plans or deed. Subsequent alteration of the site or adjacent properties may negate approval by the regulatory agency(ies) involved in permitting. All information should be reverified prior to purchase or use.

Location Maps - Sussex County, DE



Tax Map - District 230



Vacant (Aq)

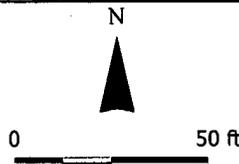
No Well ID

- Potential Disposal Area
- Soil Boring
- Well
- Stake
- Utility Pole/Box
- No Significant Slopes



Accent Environmental, LLC  
 PO Box 788  
 Millsboro, DE 19966  
 1-302-352-1700  
 www.aedelmara.com

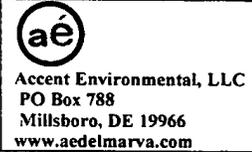
TM: 230-12.00-26.00  
 Job: 52-DS09-RE



**Soil Profile Notes**

Tax Map #: 230-12.00-26  
 Job Number: 52-DS09-RE  
 Client / Location: McDONALD - US 113

Date: 7/2/09



Evaluated by or under the supervision of William Gangloff, DE license # D-4455; ARCPACS CPSSc/CPAg # 24747; VA CPSSc

Profile #: 1      Soil Boring or Test Pit      Relief: BROAD FLAT      Slope: 0-1%

42 inch Depth to Limiting Zone  
>72 inch Depth to Free Water  
75 MPI Estimated Permeability  
 OH Utilities: (Y) / N

Vegetation: LAWN  
 Notes: LZ BASED ON LITH. DISCONT. @ 42"; IS NOT SHWT BUT IS LIMITING FOR DISPOSAL

Soil Classification:

Horizon	Depth	Colors		Redox Desc.	Texture	Structure	Consistence	Notes
		Matrix	Redox	Ab. S. Con.				
Ap	0-10	10YR <sup>4</sup> / <sub>3</sub>	NONE	NONE	LS	1FG	FR	
E	10-19	10YR <sup>5</sup> / <sub>4</sub>	"	"	LS	1F3BK	FR	
B <sub>6</sub>	19-42	7.5YR <sup>5</sup> / <sub>6</sub>	"	"	SCL	1M3BK	FR	
ZC	42-58	10YR <sup>6</sup> / <sub>4(6)</sub>	10YR <sup>7</sup> / <sub>1</sub> 10YR <sup>5</sup> / <sub>8</sub>	C1, ZP C1, ZD	CL	M	FI	
ZC	58-72	10YR <sup>7</sup> / <sub>4</sub>	10YR <sup>7</sup> / <sub>1</sub> 10YR <sup>6</sup> / <sub>8</sub>	C2A C1P	SCL-	M	FR	

Notes: → A 2<sup>nd</sup> OPTION: SL TO 58" USE INCISED ESM w/ 40 MPI PERC RATE.

Site Evaluator's Signature: WJG

**Soil Profile Notes**

Tax Map #: 230-12.00-26.00  
 Job Number: 52-DS09-RE  
 Client / Location: McDONALD - US 113

Date: 7/2/09



Accent Environmental, LLC  
 PO Box 788  
 Millsboro, DE 19966  
 www.aedemarva.com

Evaluated by or under the supervision of William Gangloff; DE license # D-4455; ARCPACS CPSSc/CPAg # 24747; VA CPSSc

Profile #: 2      Soil Boring or Test Pit      Relief: BROAD FLAT      Slope: 0-1%

37 inch Depth to Limiting Zone  
>72 inch Depth to Free Water  
75 MPI Estimated Permeability  
 OH Utilities: (Y) / N

Vegetation: LAWN  
 Notes: LZ BASED ON LITH. DISCONT.; NOT SHWT;  
2nd OPTION IS TO SL THROUGH CL

Soil Classification:

Horizon	Depth	Colors		Redox Desc. Ab. S. Con.	Texture	Structure	Consistence	Notes
		Matrix	Redox					
<u>A<sub>p</sub></u>	<u>0-9</u>	<u>10YR<sup>5</sup>/3</u>	<u>NONE</u>	<u>NONE</u>	<u>LS</u>	<u>IFGR</u>	<u>FR</u>	
<u>E<sub>1</sub></u>	<u>9-19</u>	<u>10YR<sup>5</sup>/4</u>	<u>"</u>	<u>"</u>	<u>LS</u>	<u>IFSBX</u>	<u>FR</u>	
<u>B<sub>0</sub></u>	<u>19-27</u>	<u>10YR<sup>5</sup>/6</u>	<u>"</u>	<u>"</u>	<u>SCL</u>	<u>IMSXB</u>	<u>FR</u>	
<u>C</u>	<u>27-37</u>	<u>10YR<sup>6</sup>/4</u>	<u>"</u>	<u>"</u>	<u>SL</u>	<u>M</u>	<u>FR</u>	
<u>2C<sub>g</sub></u>	<u>37-51</u>	<u>10YR<sup>7</sup>/1</u>	<u>10YR<sup>6</sup>/5</u>	<u>MIP</u>	<u>CL</u>	<u>M</u>	<u>FI</u>	
<u>3C</u>	<u>51-72</u>	<u>10YR<sup>7</sup>/4</u>	<u>10YR<sup>7</sup>/1</u> <u>10YR<sup>6</sup>/6</u>	<u>MZF</u> <u>CIP</u>	<u>SL</u>	<u>M</u>	<u>FR</u>	

- C HORIZON HAS F GALLS OF SCL 10YR<sup>7</sup>/1 MATERIAL; NOT RME

Notes:

Site Evaluator's Signature: \_\_\_\_\_

*WJG*

**Sussex County, Delaware**  
 Treasury Division  
 P.O. Box 429, Georgetown, DE 19947-0429  
**(302) 855-7760**  
 Tax Summary

**Detailed property information for : 2-30 12.00 26.00**

**Owners Name(s):**  
 MCDONALD  
 CURTIS W & CHRISTINA M

**District - Map - Parcel**  
 2-30 12.00 26.00

**Billing Address:**

MCDONALD  
 CURTIS W & CHRISTINA M  
 24937 BETHESDA RD  
 GEORGETOWN , DE 19947

**Additional Owners:**

**Deed Book Information:**

Deed Book : 2773  
 Deed Page: 289

**Property Description:**

LINCOLN TO ELLENDALE  
 E/RT 113 1550'  
 S/RT 625

**School District:**

Milford School District

**Property Appraised Value Information:**

Land Appraised Value: \$2,000.00  
 Improvement(s) Appraised Value: \$8,500.00  
 Total Appraised Value: \$10,500.00

**Other Property Information:**

Land Use: Residential, Single dwelling & lot  
 Acres: 0

**Town:**

Fire Districts: Ellendale Fire District

**Tax Information: 2008 Annual Billing Total \$232.91**

Please note that the information provided here is based upon the annual tax billing for the selected property and does not include any quarterly or special billings.

The Assessed value of the property reflects 50% of the 1974 Appraised Value and this is what your taxes are calculated on. The Assessed value may not include recent improvements to the property due to the fact that the information here is based ONLY on the annual billing. The Assessed Value Displayed may include applicable State and/or County Exemptions.

**Total Assessed Value: \$5,450.00**

**County Tax Information:**

County Tax: \$21.71 County Cap Tax: \$0.00

**Total County Taxes: \$21.71**

**School Tax Information:**

School District: Milford School District  
 School Tax: \$195.13  
 School Cap Tax: \$0.00  
 School District: Sussex Tech  
 School Tax: \$13.52

**Total of School Taxes: \$208.65**

**Library Tax Information:**

Library Tax: \$2.55

**Total of Library Taxes: \$2.55**

