EMERGENCY

SEWAGE DISPOSAL SYSTEM APPLICATION / PERMIT

RECEIVED SEP 8 WASTEWATER BRANCH

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

Owner's Name: Tomas B. & Suzanne J. Noll Phone: 736-0898

Address: 705 Maple Parkway, Dover, DE 19901

Project Location: Noll's Mobile Home Park; West side of Kent CR 97; just South of CR 173

Tax Map #: KH 53.00-01-12.03

Designer: Byron H. Jefferson License #: C 519

Designer's Address: Byron Jefferson's Engr. Services P.O. Box 161 Lincoln, DE 19960 Phone: (302) 422-9568

BYRON H. JEFFERSON REGISTERED PROFESSIONAL ENGINEER DELAWARE

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

Designer's Signature

7/17/92
Date

☐ - No Water Course Within 500'
☒ - Water Course 100+ Ft. From Tile Field (ditch)

☒ - No Central Sewer Available
☐ - Central Water Supplied

Average Percolation Rate: 30 MPI - Assigned
Gallon Per Day Flow: 2,400 (8 MHs x 300 GPD each)
Minimum Square Ft. Required: 5,521.1
Square Ft. Proposed: 6,132 total (3 beds)

– DRAW CROSS-SECTION BELOW –

D.N.R.E.C.
APPROVED
PERMIT# C 4009-92 K
SEE PERMIT CONDITIONS

--- SEE ATTACHED ---

U.I.C. CODE 5W32

CONSTRUCTION PLAN

Scale: 1" = --- ft.

Indicate North:

D.N.R.E.C.
APPROVED
PERMIT # C4009-92K
SEE PERMIT CONDITIONS

U.I.C. CODE 5W32

--- SEE ATTACHED ---

1. One (1) 2,800 gallon dosing chamber
2. Four (4) 1,500 gallon septic tanks
3. Disposal area (3 sand mounds) with all piping and appurtenances

Owner's Signature Thomas J. Mull, Suzanne J. Mull Date: 7/17/92

FOR OFFICIAL USE ONLY - DO NOT WRITE BELOW THIS LINE

Pursuant to provision of Title 7, Part VII, Del. Code Annotated, permission is granted to construct, operate and maintain (see above) for a Mobile Home Park as shown above. All current regulations governing septic tank sewage disposal systems must be followed. All conditions attached to this permit must be observed.

This permit expires 09-30-93 for construction, and Sept. 30, 2002 for operation and maintenance.

09-30-92
Date

DNREC Signature of Approval

THIS PERMIT WILL BE REVOKED UPON VIOLATION OF ANY OF THE BELOW MARKED CONDITIONS.

1. __X__ THE DIVISION OF WATER RESOURCES SHALL BE NOTIFIED WHEN THE INSTALLATION IS COMPLETE AND PRIOR TO COVERING THE APPLICANT SHALL CALL THE DIVISION OF ENVIRONMENTAL CONTROL WHEN THE INSTALLATION IS READY FOR INSPECTION. REPRESENTATIVES OF THE DIVISION MAY INSPECT SUCH WORK DURING CONSTRUCTION.

2. __X__ Connections or additions to the proposed system other than those proposed on the plans will not be allowed without prior approval from the Division.

3. __X__ Roof downspouts, foundation drains, area drains, storm sewers, combined sewers or appurtenances thereto, or any sewer or device carrying or discharging storm water, surface water, groundwater, or cooling water or oil, shall not be connected to this system.

4. __X__ The owner shall connect to the county or municipal sewer system if and when such services become available. At such time, this permit becomes void unless the Division approves continued operation.

5. __X__ This system shall be maintained in such a manner as to prevent surfacing, pooling and/or discharge of wastewater to any surface waters. If this system produces obnoxious odors which are considered to be a public nuisance, the applicant shall, with the approval of the Division, take necessary steps to eliminate such odors.

6. __X__ This permit does not cover the structural stability of the unit.

7. __X__ 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 which would adversely affect the soils. These sites shall be maintained so that they are free from encroachments by accessory buildings and additions to the main building.

8. __X__ Trees and shrubs shall not be planted within 10 feet of the perimeter of the disposal area, but may be planted on fill extensions. All trees and shrubs shall be located to prevent root intrusion into the disposal area and components of the system.

9. __X__ The bottom of the seepage area (stone) shall be installed no deeper than 24 inches ~~below~~ above the ground surface. See cross-section for details.

Permit Conditions Continued

10. __X__ All minimum isolation distances listed on Exhibit C of the 1985 Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal shall be adhered to.

11. __X__ This system shall not pollute or otherwise interfere with any groundwater supplies.

12. __X__ The average daily discharge of this system is restricted to 2,400 gallons.

13. __X__ This facility shall not be constructed in any highway right-of-way.

14. __X__ The septic tanks shall be pumped by a licensed liquid waste hauler every 3 years.

15. _____ Applicant shall attempt to complete construction as soon as possible.

16. _____ Barriers shall be installed to prevent vehicular traffic from crossing the disposal system.

17. _____ The existing septic tank must be uncovered and opened for inspection. The tank must be _____ gallons or larger with two compartments and baffles or replaced with the same.

18. __X__ A minimum of 16 inches of porous fill must be used to cover the disposal system and must extend 8 feet beyond the edges of the disposal area in all directions. Porous fill must be on-site during inspection.

19. __X__ The natural ground surface must be scraped and roughed in a 10 foot perimeter around the disposal area PRIOR to installation of the seepage system.

20. __X__ The engineer shall be on site to inspect construction, conduct equipment testing and provide as-built drawings.

21. __X__ All electrical connections shall be waterproof and corrosion resistant. Controls for systems larger than 500 gallons per day shall also be explosion proof.

22. __X__ The septic tank, dosing chamber and seepage area shall be installed according to the plans and specifications contained on pages 6 thru 22 of the permit.

Permit Conditions Continued

23. _____ If wellpointing is required during construction, the wells must be installed by a licensed well driller and a permit to construct such wells must first be obtained from the Water Resources Section.

24. __X__ A minimum area of 2.4 acres shall remain pervious and available for groundwater recharge after total project completion. This net pervious area shall be maintained so that it remains unpaved and free from encroachments by accessory buildings and additions to the main building.

25. _____ There shall be NO soil disturbance to the LPP site except the minimum required for installation.

26. _____ Lateral and manifold lines shall be installed so that all lines drain to the dosing chamber after completion of the pump cycle.

27. _____ Lateral end caps shall be removed annually and each lateral back flushed with approximately 50 gallons of clean water. End caps shall then be replaced.

28. __X__ THE SYSTEM MUST BE INSTALLED BY A LICENSED CLASS E CONTRACTOR.

29. __X__ This permit does not constitute a well permit. The depth of the well and type of well construction will be determined by the Water Supply Branch (302/736-3665). The location of the well must be 100 feet from the on-site system when possible but not less than 50 feet.

30. __X__ A satisfactory Certificate of Completion must be issued by the Department for this system prior to its use. This permit is not valid for operation and maintenance until the required Certificate has been issued.

31. __X__ WARNING! - Regarding Elevated Sand Mound (ESM) systems. Wet conditions during the period of December 1 thru May 15 may preclude the installation of the system approved by this permit. Please contact the Department to inquire the status of soil moisture conditions prior to installation.

32. _____ WARNING! - Regarding Low Pressure Pipe (LPP) systems. Wet conditions may preclude the installation of the system approved by this permit. Please contact the Department to inquire the status of soil moisture conditions prior to installation. A site check of the approved soils area will be conducted by the Department.

TRANSMISSION LINE FROM VALVE TO MOUNDS SEE MOUND DETAILS FOR DIA. & LENGTH (3" DIA.- TYPICAL)

2" SOLENOID VALVE (SEE SHEETS 3, 4 & 5) TYPICAL

4" DIA. SCH40 PVC 36" MIN. BELOW GRADE (135' LONG TOTAL)

2,800 GAL. DOSING TANK 150' MIN. TO WELL REQ'D (SEE SHEET 2)

TO ADJ. WELL FOR 2 HOMES 100'± TO MOUND

ELEVATED SAND MOUND "A" & "C"- 30'×68' "B"- 36'×57' w/ 8' PERIMETER (SEE SHEETS 6 THRU 10)

ADJ. SEPTIC

ADJ. WELL

TELEPHONE BOX- CONTRACTOR TO CONTACT "MISS UTILITY" (1-800-282-8555) 3 WORKING DAYS PRIOR TO EXCAVATION. EXIST'G LINES TO BE RELOCATED AS NECESSARY. (TYPICAL)

APPROVED SOILS LINE

4" DIA. SCH40 PVC w/ C.O. AT HOME ENCASE IN CONCRETE OR USE 4" C.I. UNDER DRIVES (TYPICAL)

DITCH

FOUND TBS TYP

EXISTING 4" WELL #79740

POND

EXIST'G MH

DRIVE

TO MOUNDS & TANKS 150'±

TO WELL 150'±

C.O.

EXIST'G SEPTIC MH (TYP.)

FIELD LINE

- VACANT -

- CO. RD. 97 -

1162'

215'

300'

108'±

D.N.R.E.C.
APPROVED
PERMIT# C4009-92K
SEE PERMIT CONDITIONS

U.I.C. CODE 5W32

NOTES:
1. 10' SEPARATION REQUIRED BETWEEN WATER LINES & ALL SEPTIC COMPONENTS. SEPTIC LINES LESS THAN 10' FROM WATER LINES ARE TO BE ENCASED IN CONCRETE.
2. EXISTING SEPTIC TANKS/CESSPOOLS TO BE PUMPED, FILLED w/ SAND & ABANDONED IN PLACE.
3. IF EXIST'G DRAINFIELD IS ENCOUNTERED IN AREA OF MOUNDS, EXCAVATE SPOILED MATERIALS & BACKFILL w/ SANDY FILL.

4" DIA. SCH40 PVC w/ CLEAN-OUTS @ 100' MAX. INTERVALS ENCASE IN CONCRETE OR USE 4" C.I. UNDER DRIVES (TYPICAL)

UTILITY POLE (TYP)

SMALL DITCH TO BE FILLED

HEDGEROW

1,500 GAL. PRECAST SEPTIC TANK (150' MIN. TO WELL) 10' MIN. TO HOME (TYPICAL-4)

4" DIA. SCH40 PVC w/ C.O. AT HOME (TYPICAL)

SPARE: SAND-LINED SYSTEM IN AREA OF INITIAL SYSTEM, WHICH IS TO BE EXCAVATED.

▶ DENOTES REVISED ITEMS

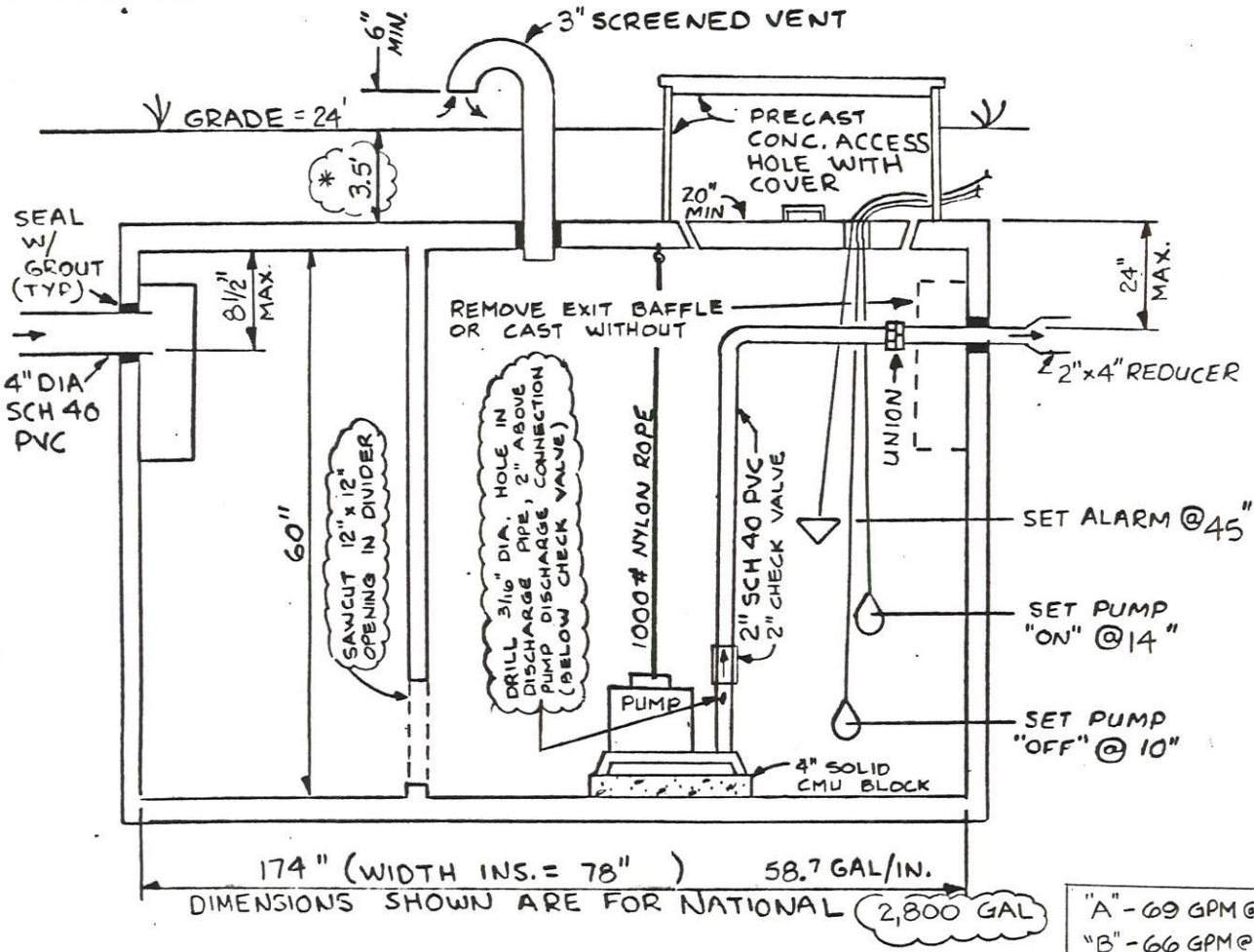
BYRON H. JEFFERSON REGISTERED NO. 6050 DELAWARE PROFESSIONAL ENGINEER

SEPTIC PLOT PLAN

NOLL

BYRON H. JEFFERSON, P.E.
P.O. BOX 161
LINCOLN, DE 19960
302-422-9568

DATE: 7/2/92
SCALE: 1"=60'
SHEET 1



ELEVATION VIEW

EFFECTIVE DOSE PER CYCLE = 235 GAL

NOTE:
TANKS SHALL BE RATED BY MANUFACTURER FOR ADEQUATE STRUCTURAL STRENGTH AT THE INSTALLATION DEPTH.

NOTES:

1. All electrical connections inside tank to be explosion-proof, corrosion resistant, and waterproof.
2. Contact engineer for check-out of system installation & operation PRIOR to placing dosing chamber in operation.
3. Engineer to submit as-builts with inspection report to DNREC.
4. EQUIPMENT:
   Float switches: Mercury tube type sealed in polyurethane float ball. Circuit:lamp max.
   Control box: NEMA-3R for outside mount or NEMA-1 inside. Use control box of same manufacturer as pump.
   Alarm (high-level): Use alarm integral with control or separate, but alarm to operate on 115 volt AC and separate circuit from pumps. Use NEMA-3R for outside, NEMA-1 for inside. Alarm to show both red-lite & bell or buzzer.

"A" - 69 GPM @ 25.8 FT.
"B" - 66 GPM @ 26.4 FT
"C" - 67 GPM @ 26.6 FT

PUMP: Goulds Model 3887 or equal (1 HP, 230 Volt AC, 1ø, gpm at ft., submersible sewage)

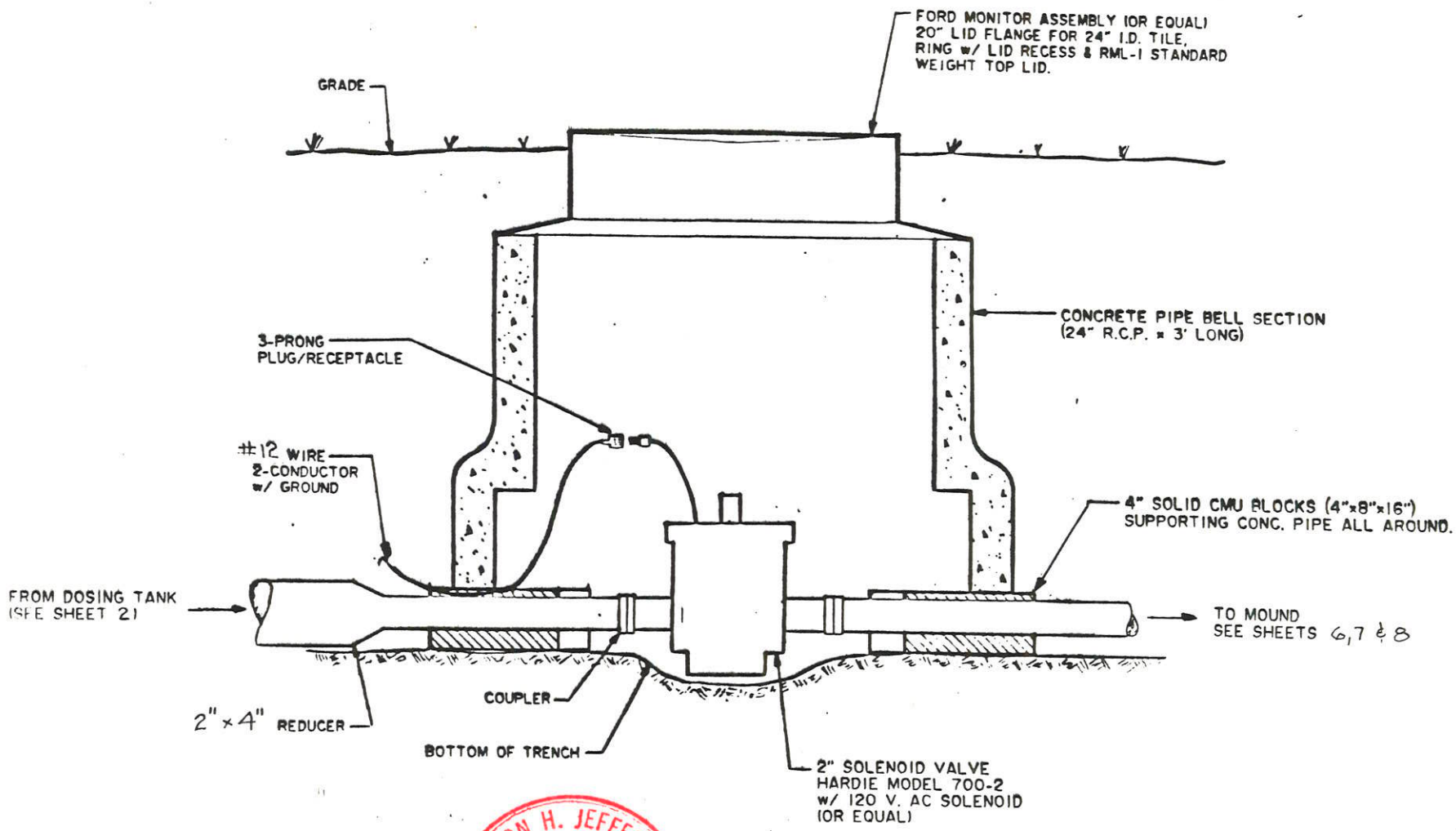
BYRON H. JEFFERSON REGISTERED NO. 6050 DELAWARE PROFESSIONAL ENGINEER

▶ DENOTES REVISED ITEMS

DOSING TANK DETAILS FOR NOLL

BYRON H. JEFFERSON
P.O. BOX 161
LINCOLN, DE 19960

DATE 7/2/92
SCALE: N.T.S.
SHEET 2



BYRON H. JEFFERSON
REGISTERED
NO. 6050
DELAWARE
PROFESSIONAL ENGINEER

▶ DENOTES REVISED ITEMS

SOLENOID VALVE DET'L

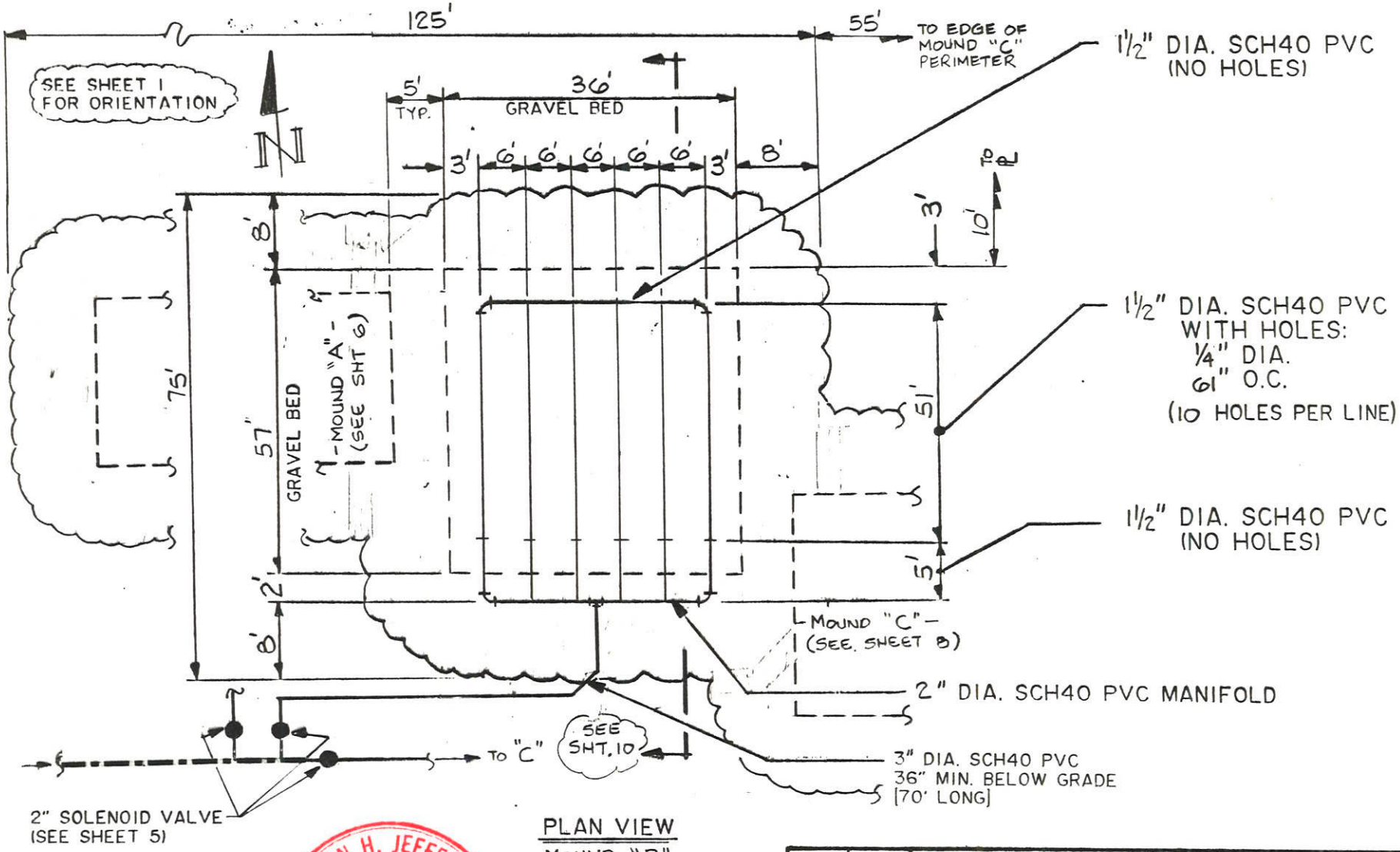
NOLL

BYRON H. JEFFERSON, P.E.
P.O. BOX 161
LINCOLN, DE 19960
302-422-9568

DATE: 7/2/92

SCALE: NTS

SHEET 5



PLAN VIEW
MOUND "B"

BYRON H. JEFFERSON REGISTERED NO. 6050 DELAWARE PROFESSIONAL ENGINEER

▶ DENOTES REVISED ITEMS

SAND MOUND DETAILS

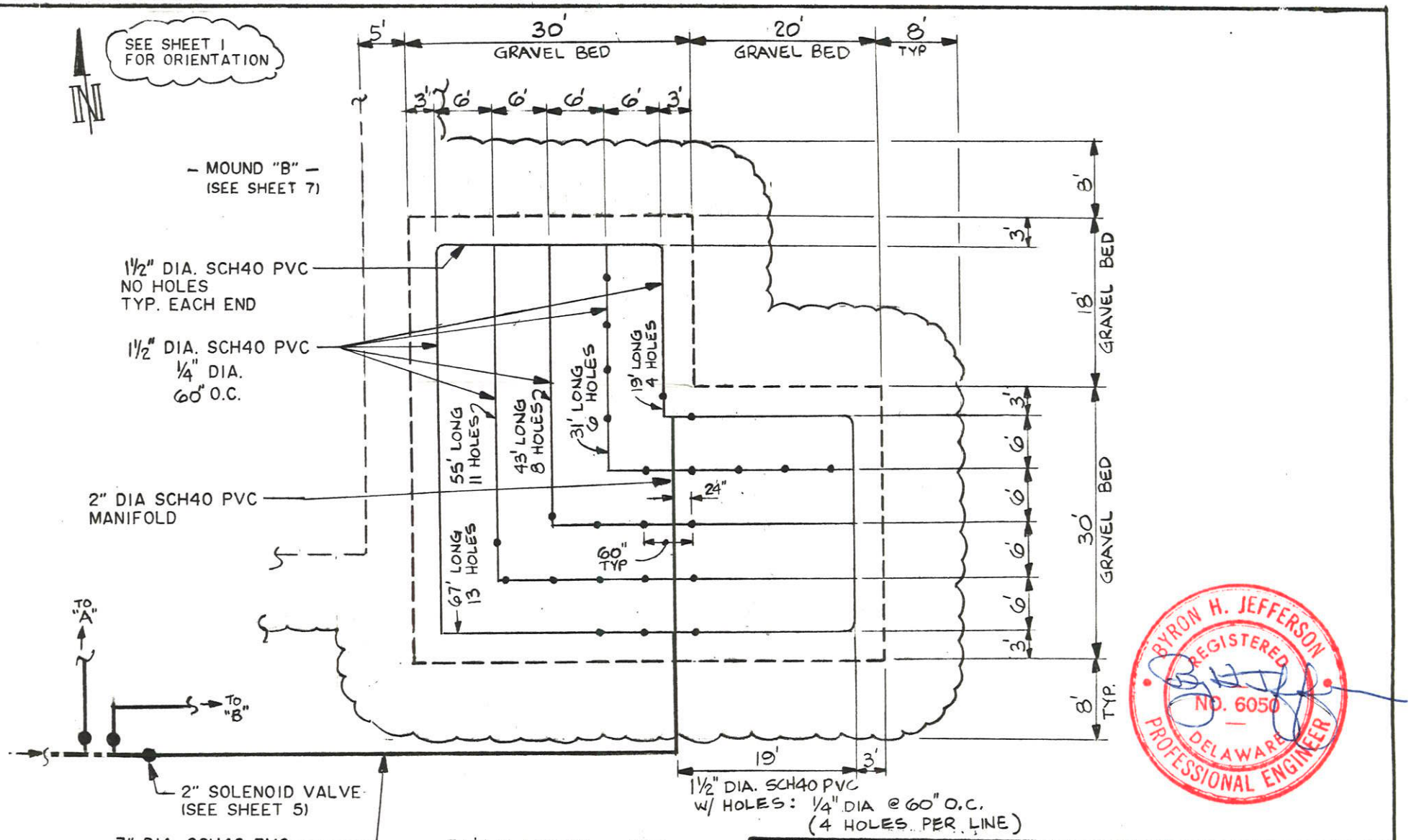
NOLL

BYRON H. JEFFERSON, P.E.
P.O. BOX 161
LINCOLN, DE 19960
302-422-9568

DATE: 7/2/92

SCALE: NTS

SHEET 7



PLAN VIEW - "C"

BYRON H. JEFFERSON
REGISTERED
NO. 6050
DELAWARE
PROFESSIONAL ENGINEER

DENOTES REVISED ITEMS

SAND MOUND DETAILS

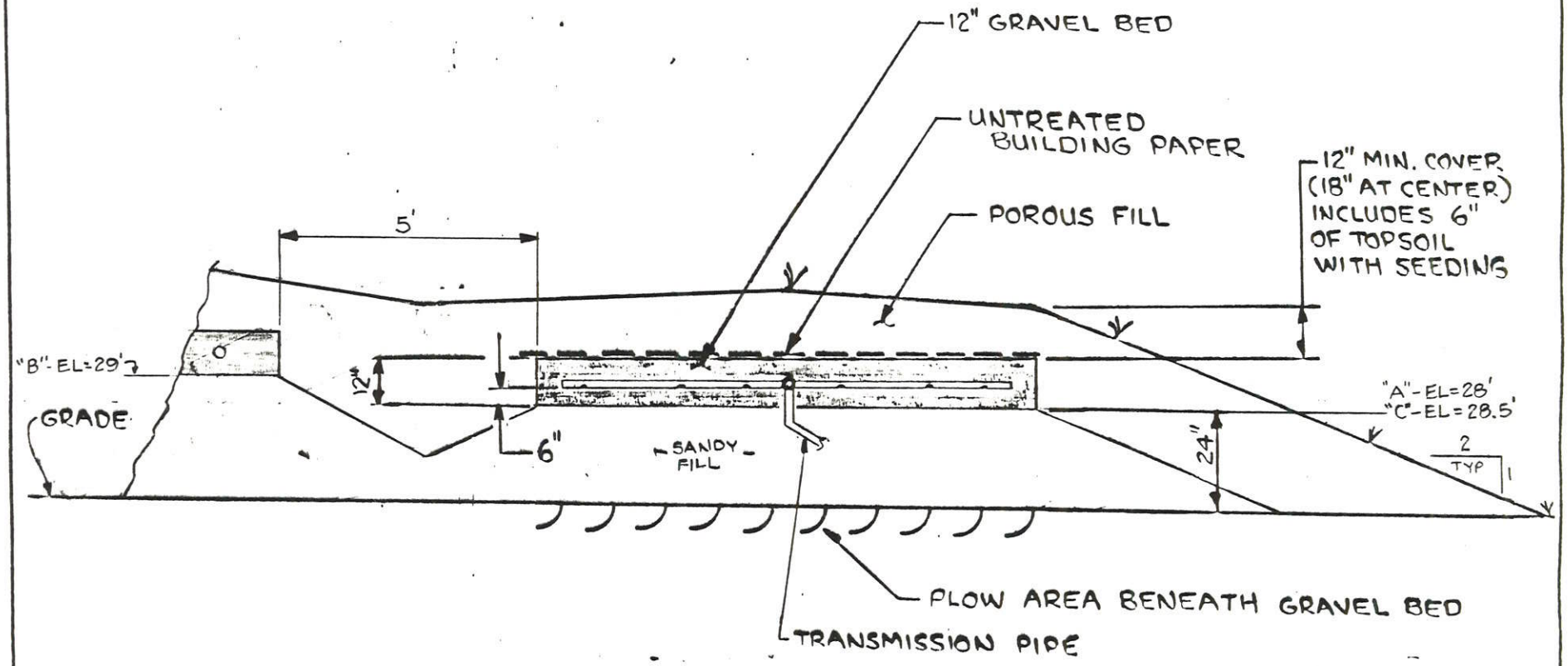
NOLL

BYRON H. JEFFERSON, P.E.
P.O. BOX 161
LINCOLN, DE 19960
302-422-9568

DATE: 7/2/92

SCALE: NTS

SHEET 8



ELEVATION VIEW (SECTION) - MOUNDS "A" & "C"

BYRON H. JEFFERSON REGISTERED NO. 6050 DELAWARE PROFESSIONAL ENGINEER

▶ DENOTES REVISED ITEMS

SAND MOUND DETAILS

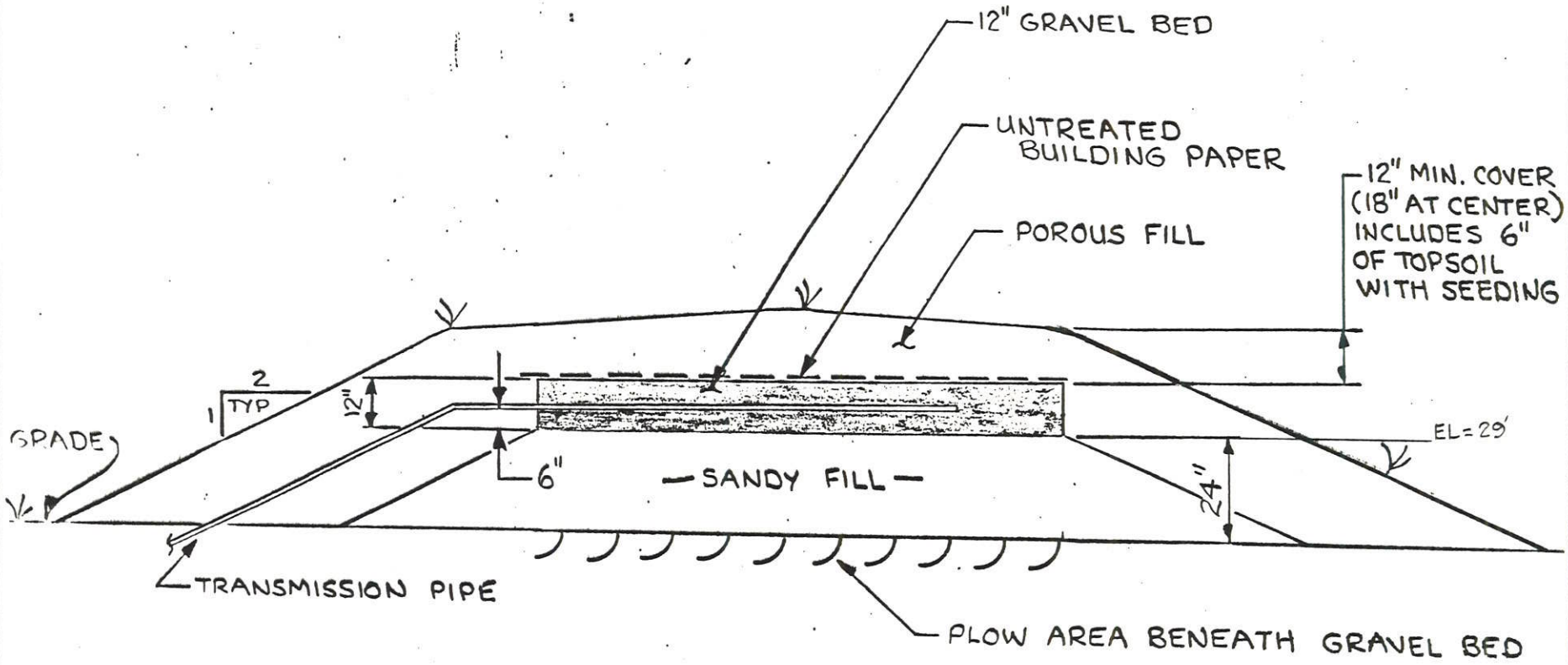
NOLL

BYRON H. JEFFERSON
P.O. BOX 161
LINCOLN, DE 19960

DATE 7/2/92

SCALE NTS

SHEET 9



ELEVATION VIEW (SECTION) - MOUND "B"

BYRON H. JEFFERSON REGISTERED NO. 6050 DELAWARE PROFESSIONAL ENGINEER

▶ DENOTES REVISED ITEMS

SAND MOUND DETAILS

NOLL

BYRON H. JEFFERSON
P.O. BOX 161
LINCOLN, DE 19960

DATE 7/2/92

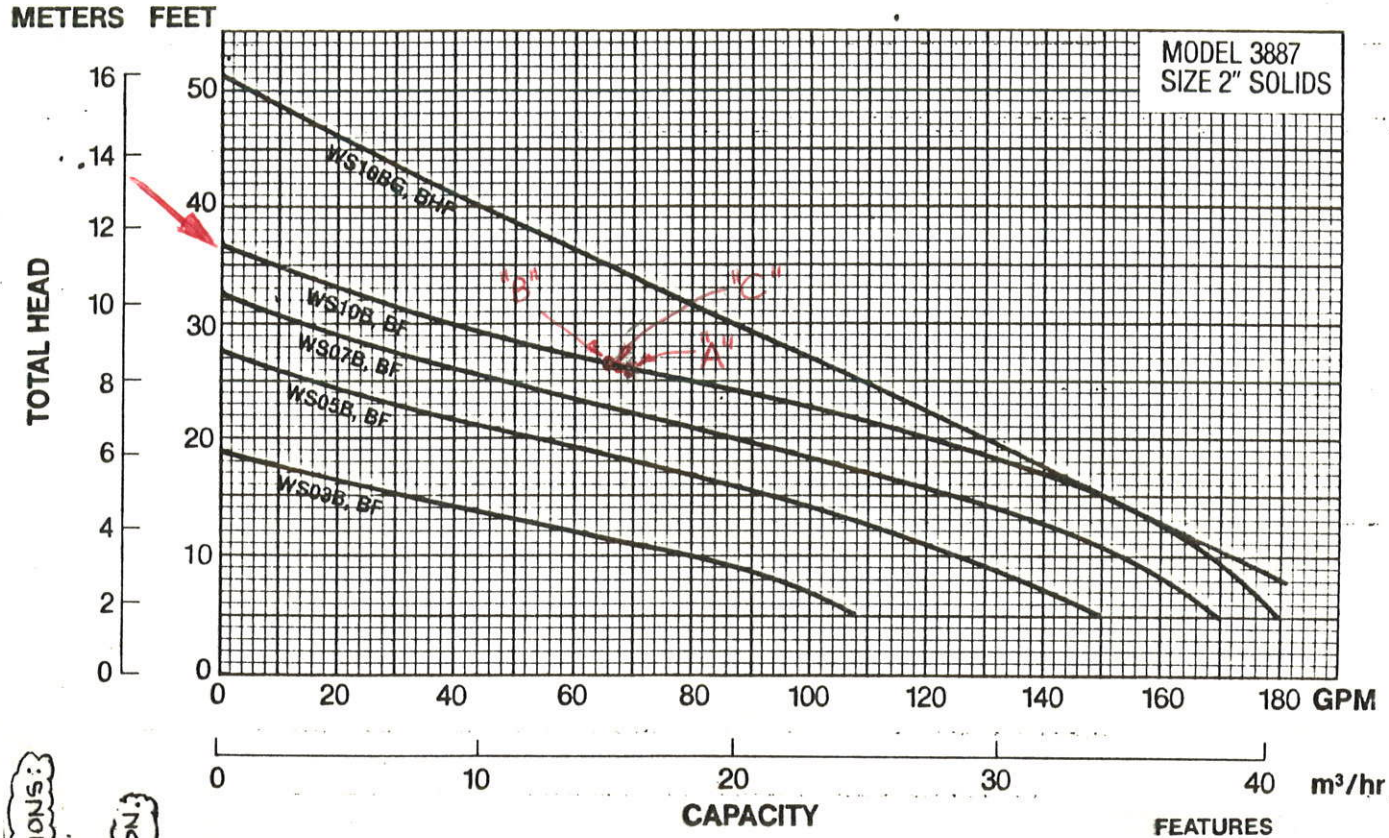
SCALE: NTS

SHEET 10

Performance Curve

MODEL **3887**

Submersible Sewage Pumps



SPECIFICATIONS

Pump:

Solids Handling Capabilities: 2" maximum

Capacities: Up to 180 GPM

Total Heads: Up to 49 feet TDH

Discharge types available: 2" NPT threaded casing. 2" NPT threaded companion flange — "BF" or "BHF" units. Optional 3" NPT threaded companion flange — "BF" or "BHF" units, must order (A1-3) companion flange separately.

Mechanical Seal: Carbon rotary/ceramic stationary, 300 series stainless steel metal parts, BUNA-N elastomers.

Temperature: 160°F (71°C) maximum.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components

Motor:

Single Phase: ⅓-½ HP 115V or 230V, 60 Hz, 1750 RPM; ¾-1 HP 230V, 60 Hz, 1750 RPM; 1 HP, 230V, 60 Hz, 3500 RPM. Built in overload with automatic reset.

Three Phase: ½-1 HP 208/230-460V, 60 Hz, 1750 RPM; 1 HP 208/230-460V, 60 Hz, 3500 RPM. Overload protection must be provided in starter unit.

Shaft: Threaded 400 series stainless steel.

Bearings: Ball bearings — upper and lower.

Power Cord: 15' standard (optional lengths available).

Single Phase: ⅓-½ HP, 16/3 SJTO with three prong plug; ¾ and 1 HP, 14/3 STO with bare leads.

Three Phase: ½-1 HP 14/4 STO with bare leads.

On CSA listed models: 20' length SJTW or STW are standard.

FEATURES

Impeller: Cast iron — semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation.

Casing: Cast iron volute type for maximum efficiency. 2" NPT discharge adaptable for slide rail systems.

Mechanical Seal: Ceramic vs carbon sealing faces, stainless steel metal parts, Buna N elastomers.

Shaft: Corrosion resistant stainless steel. Threaded design. Locknut on three phase models to guard against component damage on accidental reverse rotation.

Motor: Fully submerged in high grade turbine oil for lubrication and efficient heat transfer. Designed for continous operation. All ratings are within the working limits of the motor.

Bearings: Upper and lower heavy duty ball bearings 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.

O-Ring: Assures positive sealing against contaminants and oil leakage.

TANK ALERT® II *PLUS*

ALARM SYSTEM/PUMP CONTROL

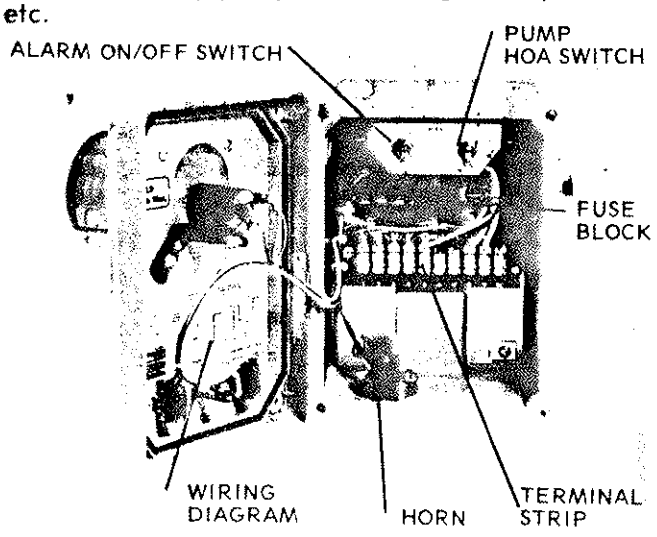
An economical, quality indoor or outdoor liquid level alarm system/pump control.

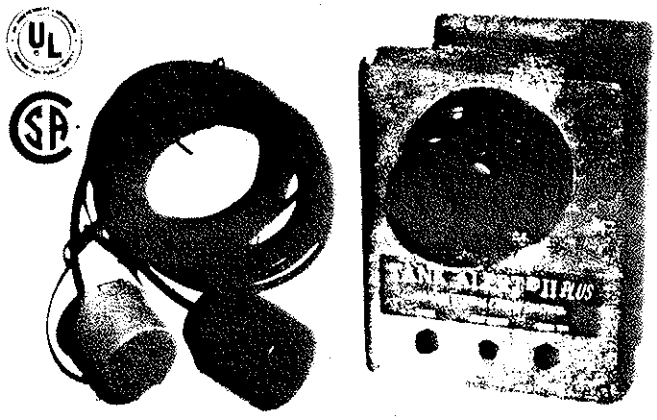
ADVANTAGES

* Controls your pump and warns of high or low liquid level.
* If pump should fail, pulsating horn and flashing red light are activated by a reliable alarm float.
* The pump float assures of correct pump on-off level.
* Mounting straps for both alarm float and pump float included with unit.
* Both alarm float and pump float come standard with twenty feet of cable.
* HOA switch allows for Hand (manual), Off, or Automatic pump operation.
* Alarm on/off switch controls power to the float circuitry. This and the pump HOA switch provide an additional safety feature when servicing.
* Green pump run light.
* Horn silence switch has automatic reset feature.
* Push-to-test switch assures of proper horn and light alarm operation.
* NEMA 4X non-metallic enclosure—exposed parts are corrosion, wind and rain resistant.
* Simple terminal strip and wiring diagram also provides for Double Float pump switch installation.(Double Float pump switch may be substituted for Super Single pump switch at a nominal extra cost. See page 4.)
* **ENTIRE UNIT** UL Listed and CSA Certified.
* **Two-year limited warranty.**

APPLICATION

A single control panel, plus two easily installed floats, provides residential and commercial customers with a reliable means of controlling simplex (one pump) systems in a water or sewage installation. Common applications include pump chambers, sump pump basins, irrigation systems, etc.





DESCRIPTION

The Tank Alert® II Plus consists of a control panel, a pump float, and an alarm float.

CONTROL PANEL EXTERIOR: The non-corrosive, indoor and/or outdoor enclosure comes preassembled. The green pump run light, silence switch (with automatic reset feature), and alarm test switch are conveniently accessible on the front of the panel.

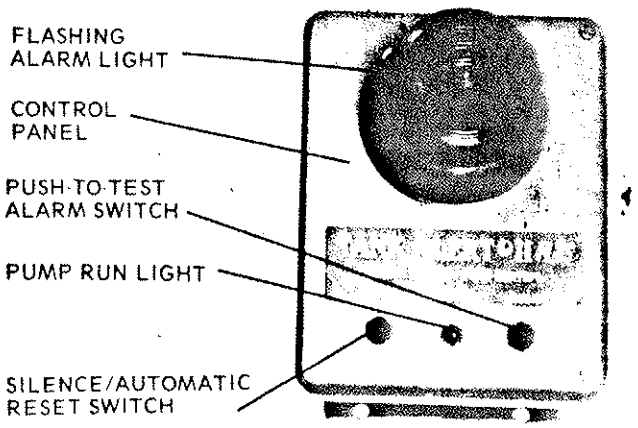
CONTROL PANEL INTERIOR: The interior alarm system consists of a high-quality alarm relay, a solid-state flasher, a weather-proof horn, and a standard light bulb that are all fuse protected.

A handy HOA switch allows for either Hand (manual), Off, or Automatic pump operation. A second switch is provided as an on/off for control panel alarm system. These switches are located inside the panel to protect against activation by unauthorized personnel.

PUMP FLOAT: SJE's Super Single pump switch model 20SS WOP.

ALARM FLOAT: SJE's Sensor Float model 20PC.

A terminal strip with easy-to-follow wiring diagram provides for simple installation of both alarm and pump floats.



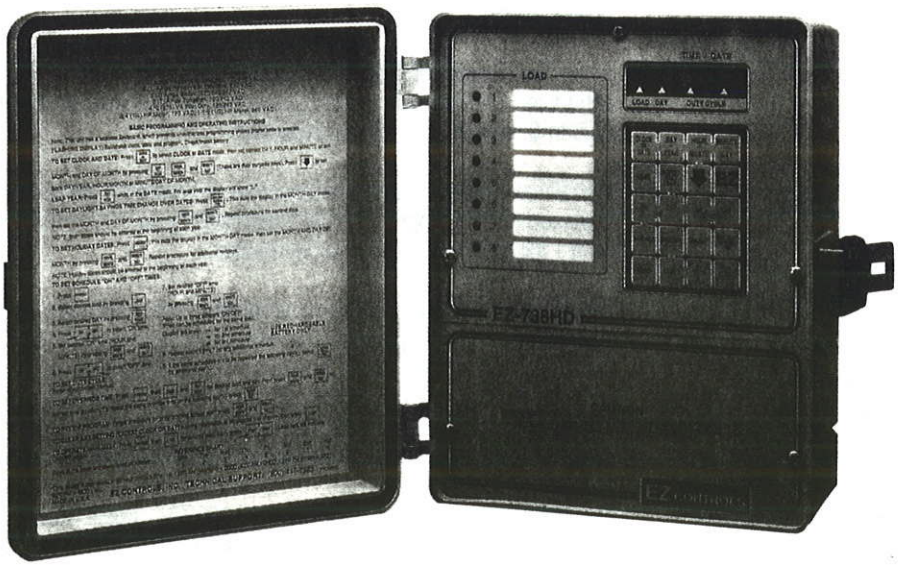
Easy to use electronic controls for lighting, HVAC, security and in-plant equipment.

EZ CONTROLS®

Multi-Channel Electronic Time Switches

- For Line Voltage Applications
- 7 Day Plus 365 Holiday Scheduling
- Heavy Duty 20AMP/240V Contacts
- Daylight Savings Time Adjustment
- 4 and 8 Channels
- Holiday Programming
- Duty Cycling
- Lockable Case

EZ-734HD
EZ-738HD



DESCRIPTION:

Designed for line voltage applications to control lighting, heating, ventilating, air conditioning, security and other loads in small and medium size buildings.

With flexible 365 day scheduling, battery backup, 10 year memory retention and 20AMP/240V contacts, it reduces energy consumption by operating equipment more efficiently, inexpensively, and with simple operation, without sacrificing comfort or convenience.

Extremely easy to install and operate, they are the ideal alternative to mechanical time clocks or energy management systems, at a fraction of the cost.

FEATURES AND BENEFITS:

- Extremely easy to operate and uderstand.
- 20AMP/240V heavy duty switch contacts, NO and NC.
- Rechargeable battery back-up, eliminates resetting.
- 10 year memory retention. No reprogramming required.
- Fully independent 7 day plus 365 day scheduling, up to 3 ON and OFF operations per channel per day.
- 20 holidays programmable up to a year in advance.
- Programmable Daylight Savings Time adjustment.
- Duty cycling, up to 3 patterns per channel per day.
- Programmable timed override, for manual operation.
- Automatic 4 second load staggering.
- Outdoor lockable case, NEMA type 3R
- Low cost, ideal alternative to mechanical time clocks or energy management systems.

USES AND APPLICATIONS:

- Offices
- Hospitals
- Factories
- Schools
- Banks
- Fast food restaurants
- Retail stores
- Libraries
- Grocery Stores
- Car dealerships

CRAFTED WITH PRIDE IN THE U.S.A.

EZ CONTROLS, INC. 555 W. ALLEN AVE., BLDG. 13, SAN DIMAS, CA 91773 (800)445-7623 (714)599-8893

*The **UltraFlow** family includes sizes from 1" all the way up to 2". Whatever your flow requirements, we have a valve to handle it.*

¾" (700-.75) 1" (700-1) 1½" (700-1.5) 2" (700-2)

proof rubber encased pressure gauge.

HARDIE IRRIGATION

Western Region
1588 N. Marshall
El Cajon, CA 92020
(619) 562-2950
FAX (619) 258-9973

Central Region
228 North Interurban
Richardson, TX 75081
(214) 783-1683
FAX (214) 690-5855

Eastern Region
3000 Mellonville Ave., Bldg. 422
Sanford, FL 32771
(407) 321-2900
FAX (407) 322-8104

International
1588 N. Marshall
El Cajon, CA 92020
(619) 562-2950
FAX (619) 258-7960
Telex 3719648

P/N HHA 10986 1-90