286XX 176 SE

Seattle-King County/**Department of Public Health**

SITE APPLICATION DEFICIENCIES

Address or legal description 286XX 176th Ave. SE

Parcel # 362205-9171

Designer W. L. Casper

Sanitarian Olivia Chamberlain

The attached site application cannot be accepted at this time because of the following:

1) 13.28.010 C the physical features of the property are not not adequate for effective operation of the proposed OSSDS for the following reasons:

a) The topography of the lot is steep and uneven. Topographic lines are inconsistant with the design. It would not be possible to install this design as shown without a large variation in installation depth.

b) The pits used to evaluate the soil are very large and have distrubed a good portion of the proposed drainfield and reserve areas.

c) The depth of suitable soil above a restrictive layer varies within the pits from 36" to 60" plus. Because the slope of the site ranges from approximately

THIS DECISION MAY BE APPEALED TO THE KING COUNTY SEWAGE REVIEW BOARD IF DONE WITHIN 60 DAYS OF RECEIPT OF THE DECISION.

Date April 2, 1992

Sanitarian ______________

OC:vh

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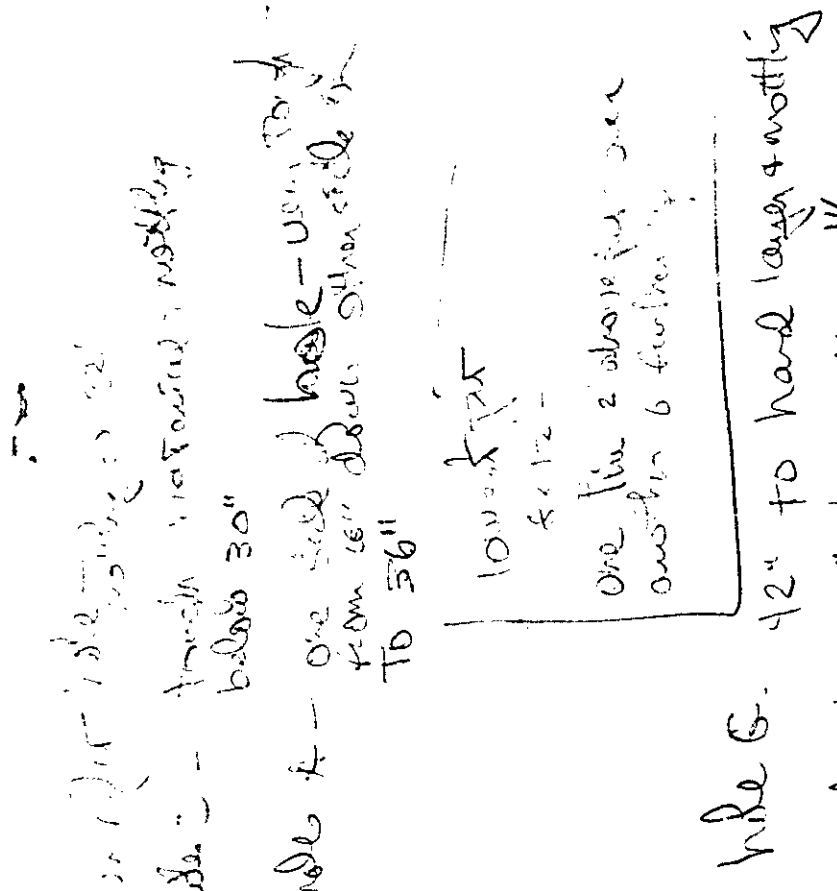

SOIL INVESTIGATION
for
Jeff Poschwatta

Per a verbal request and authorization from Mr. Burton Staton I personally examined and made descriptions of the salient features of soils at 5 locations on your lot at 286XX 176th Ave. S.E., Kent, Washington 98042. The purpose of the investigation was to identify characteristics that affect on-site sewage disposal.

Conclusion:

The site has several standing Douglas fir trees, and has slope gradients ranging from 26 percent to about 33 percent; the more gently sloping area is near the southeasterly portion of the lot. Soils are representative of the Alderwood series (Soil Survey of King County Area Washington. 1973; Snyder, D.E, USDA, Soil Conservation Service) or an unnamed soil similar to the Alderwood soils. Permeability rates above the very dense lodgement till are about 2.0 to 6.0 inches per hour (10 to 30 minutes per inch); percolation rate within the lodgement till is more than 90 minutes per inch.

It is my opinion that the soils are generally suitable for on-site sewage disposal, if the drain field system is skillfully designed and installed with extreme care. Great care ensure installation of the leach line at design depths and grade.

Soil Descriptions:

Terminology used is that of the National Cooperative Soil Survey, of which the Soil Conservation Service is a part. Log hole identifiers are those provided by Mr. Staton and used with his descriptions dated 10-17-91. Only features affecting on-site sewage disposal are reported.

A. Slope gradient measured at 33 percent.
Soil Name: Alderwood like
Soil Profile:
0 - 55", 10YR 4/3 gravelly sandy loam
55 - 65", gravelly sandy loam; extremely firm (very dense lodgement till).

B. Slope gradient measured at 26 percent.
Soil Name: Alderwood/Alderwood-like
Soil Profile:
0 - 43", 10YR 4/3 - 4/2 gravelly sandy loam; very friable.
43 - 65", grayish gravelly sandy loam; extremely firm (very dense lodgement till).
Depth to the lodgement till generally exceeds 40 inches in this pit; however, it is only 33" in a few places.

Soil Investigation: Poschwatta - 2

C. Slope gradient measured at 33 percent.
Soil Name: Alderwood-like
Soil Profile:
0 - 50 ", 10YR 4/3 - 4/2 gravelly sandy loam; very friable.
50 - 65", grayish gravelly sandy loam; extremely firm (very dense lodgement till).
Depth to the lodgement till ranges from 43 to 60 inches in this pit.

D. Slope gradient measured at 27 percent.
Soil Name: Alderwood
Soil Profile:
0 - 33", 10YR 4/3 gravelly sandy loam; very friable.
33 - 65", grayish gravelly sandy loam; extremely firm. (very dense lodgement till).
Depth to lodgement till ranges from 27 to 35 inches in this pit.

G. Slope gradient measured at 29 to 33 percent.
Soil Name: Alderwood-like
Soil Profile:
0 - 41", 10YR4/3 very gravelly sandy loam; very friable.
41 - 65", grayish very gravelly sandy loam or loamy sand; extremely firm.
(Very dense lodgement till).

Note: Pits made for examining the soils were of excellent size and depth; they permit unobstructed viewing of the full range of soil characteristics, including depth to underlying restrictive layers. Their presence will have no adverse impact on the functioning of any drain field line that may be placed above or near them.

Dale E Snyder

Dale E. Snyder, CPSS

15 June 1992
Redmond, Washington

Seattle-King County / DEPARTMENT OF PUBLIC HEALTH

SITE APPLICATION DEFICIENCIES

Address or legal description 286XX 176th Ave. SE

Parcel # 362205-9171

Designer W. L. Casper

Sanitarian Olivia Chamberlain

The attached site application cannot be accepted at this time because of the following:

25-35% a minimum of 42" of suitable soil is required. This requirement will not be met if the design is installed as shown.

2) The lowest soil evaluation pit is 8-10' higher on the upslope side than the downslope side and is actually a cut. The drainfield lines must be at least 50' from this cut.

3) Insufficient data submitted with site application to evaluate proposed design. Among the omissions are:

a) The specifications for the filter media

b) Calculations for sizing the filter

c) Precise schematic showing direction of flow from point to point in system

Pressure distribution design not evaluated.

THIS DECISION MAY BE APPEALED TO THE KING COUNTY SEWAGE REVIEW BOARD IF DONE WITHIN 60 DAYS OF RECEIPT OF THE DECISION.

Date April 2, 1992

OC:vh

Sanitarian Olivia L Chamberlain

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

Seattle-King County Department of Public Health

Site Application for On-Site Sewage Disposal System
(Submit 5 copies of application with 4 copies of plans)

Activity Number
H 9115616
Department Use Only

Approximate Site Address: 286XX 176TH AVE S.E. KENT 98042

ATTACH A DETAILED ROUTE/ DIRECTION MAP FOR LOCATING THE PROPERTY.

Applicant Name: Poschwatta (Last) Jeff (First) — Street Address: 17603 S.E 295TH — City-Zip Code: Kent 98042 — Phone: 630-2427

Designer: Casper, Phillips + Assoc — Street Address: 3540 E 11th — City-Zip Code: Tacoma, 9842 — Phone: 927-7440

PROPERTY INFORMATION:

Parcel #: 362205-9171 Section: 36 Township: 22N Range: 5E
Subdivision Name: Lot: 3 Block: 9171
Property Size: 16080 sq. ft. Acreage:
Distance from property line to nearest sewer: ft. Within ULID? (Y?N)
Water Supply P (IP) I = Individual P = Public (More than One Connection)
Public Water Supply Name: COVINGTON Water DIST ID#
Sensitive Area: N (Y?N) If yes, specify (L,W,O) (L = Landslide W = Wetlands O = Other)

SYSTEM INFORMATION:

New System X Repair Design Detailed Plans Attached (4 sets) Y (Y/N)
Type of Building SF SF = Single Family MF = Multiple Family COMM = Commercial INST = Institutional
Type of System Proposed: S.F – G = Gravity GP = Gravity with pump M = Mound
PD = Pressure Distribution SF = Sand Filter HT = Holding Tank CT = Composting Toilet E = Experimental O = Other
Dates Soils Logged: 101791 Soil Logs Data Attached: (Min. 4/lot) Y (Y/N)
Depth to Watertable or Restrictive Layer: 51+ inches Maximum Slope in Drainfield/Reserve Area: 29 %

CALCULATIONS:

Number of bedrooms: 4 Total Gallons/Day (450 minimum): 480 gal. Soil Texture Type (1-5): 3
Application Rate: .8 gal/sq ft/day Total Absorption Area: 600 sq. ft.
Total Drainfield Length: 300 ft. Septic Tank Size: 1000 gal.
Pump Chamber Size (if needed) 1000 gal. Trench Depth (min/max): 24 / 27 inches

I understand that failure to comply with the Code of King County Board of Health Title 13 may result in the disapproval of the sewage system being proposed in this application. Non-compliance may also lead to revocation of my Designer's Certificate of Competency and/or appropriate legal action by the Health Department.

Designer's Signature: M.T. Casper K.C.ID# PE139 Date 12/5/91

FOR HEALTH DEPARTMENT USE ONLY

APPROVED (date) BY:

SYSTEM MUST BE INSTALLED BY A KING COUNTY CERTIFIED INSTALLER UNLESS OTHERWISE PROVIDED BY CODE

Comments/Conditions:

APPROVAL OF THIS DESIGN APPLICATION IS BASED SOLELY ON INFORMATION PROVIDED IN THIS APPLICATION AND DOES NOT CONSTITUTE PERMISSION TO BEGIN CONSTRUCTION OF THE PROPOSED SEWAGE DISPOSAL SYSTEM OR ANY OTHER IMPROVEMENTS ON THE SITE. THIS APPROVAL SHALL *NOT* BE CONSIDERED AN ASSURANCE, EITHER EXPRESSED OR IMPLIED, THAT DEVELOPMENT PERMITS FOR THE SITE WILL BE ISSUED.

THIS APPLICATION EXPIRES TWO YEARS FROM DATE OF APPROVAL.

DISAPPROVED 4/2/92 (date) BY: Olivia L Chamberlain

See attached Site Deficiency Sheet.

Any person aggrieved by any decision or final order of the Health Officer may make written application for appeal to the King County Board of Sewage Review if done so within 60 days of the above decision.

RECEIVED
DEC 07 1991
ALDER SQUARE

WHITE - DISTRICT/GREEN - AUDIT/YELLOW - DESIGNER/PINK - OWNER/YELLOW - LICENSES & PERMITS CS 13.15 97 REV. 6/90

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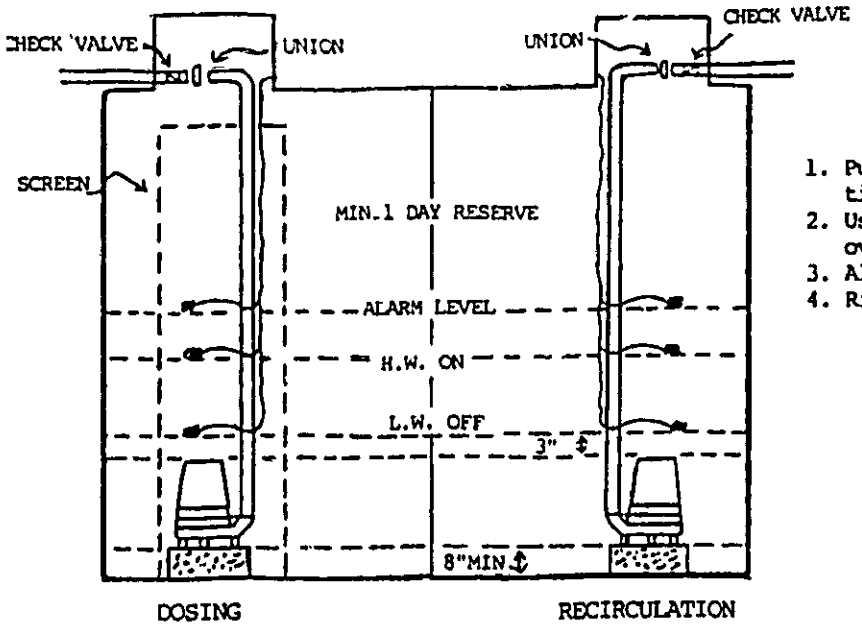
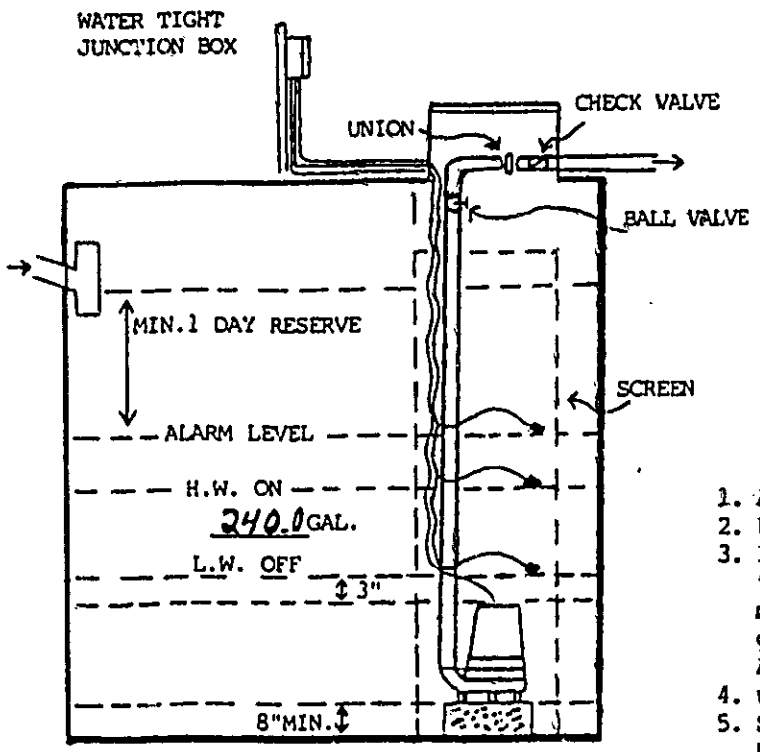


NOTES

1. Pump cycles to meet A.I.R.R. System timing requirements.
2. Use liquid control levels as emergency override.
3. All tanks must be water tight.
4. Risers to bring lids above ground level.

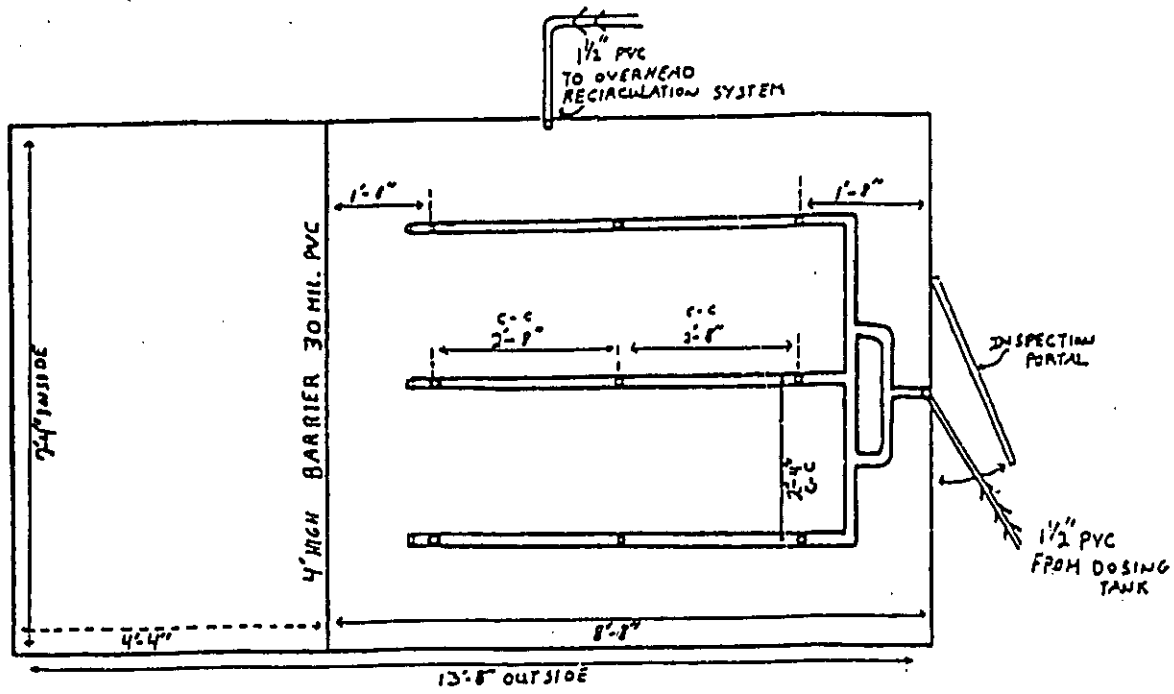
PUMP TANK
PLAN REVIEW



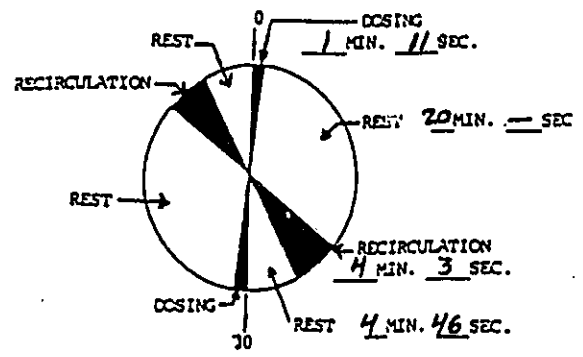
DISCHARGE

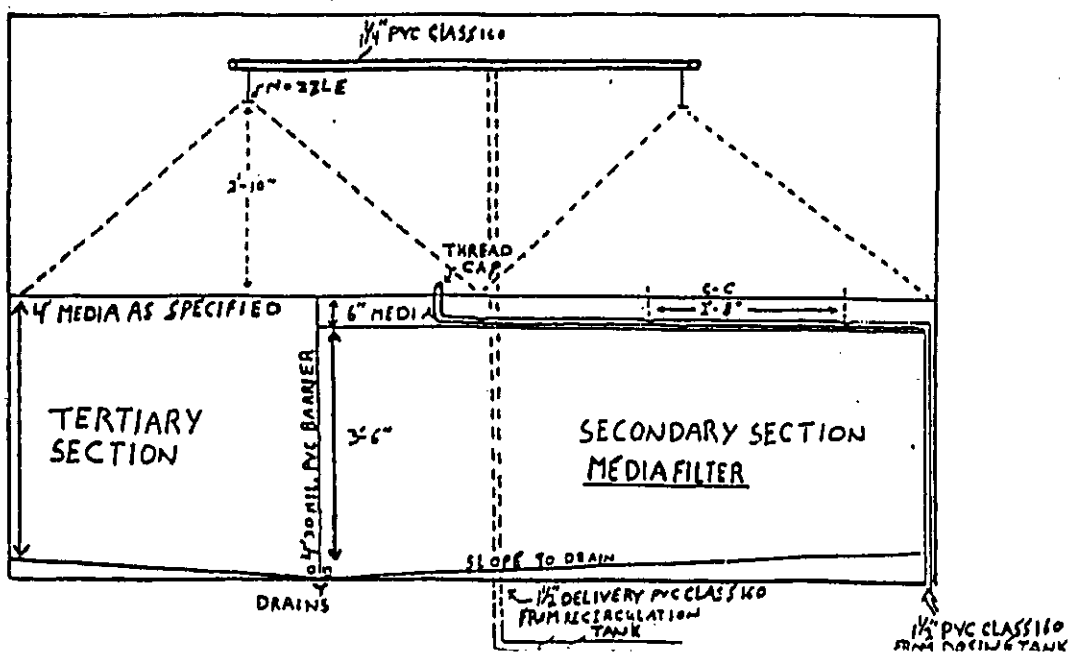
NOTES

1. All tanks to be county approved
2. Pump cycle not to exceed 10 minutes.
3. If risers are used ; bring lid level to within 12" of finished grade with marker to remain visible above finish grade or extend manhole to grade. All joints to be sealed water tight.
4. use liquid control levels.
5. Screen material to meet current DSHS guidelines, non-corrosive material, zable filter, or approved filter in septic tank outlet.
6. Use separate electrical circuit for pump & alarm system.



AIRR SYSTEM
PLAN REVIEW





SOILS LOG SHEET

Client Jeff Poschwatta

DATE 10-17-91

JOB # 91-1017

Site Address : 286XX 176th AVE. SE
Kent 98042

Date soils loged: 10/17/91

SOIL LOG (E2): Roots to 51" 10% gravel & cobbles
0-72" loamy sand

SOIL LOG (F2): Roots to 64" 10% gravel & cobbles
0-34" loam
34-50" loamy sand
slight mottling 50"-51"

SOIL LOG (G3): Roots to 53" 10% gravel & cobbles
0-38" loamy sand
38"-62" sandy loam

SOIL LOG (H3): Roots to 44" 10% gravel & cobbles
0-30" loamy sand
30"-72"+ loamy sand

SOILS LOG SHEET

Client Jeff Poschwatta

DATE 10-17-91

JOB # 91-1017

Site Address : 28622 176th AVE S.E
Kent 98042

Date soils loged: 10/17/91

SOIL LOG (A): Roots to 60" 10% gravel & cobbles
0-48" Brown loamy sand.
48-80" compacted loamy sand

SOIL LOG (B): Roots to 54" 10% gravel & cobbles
0-42" Brown loamy sand
42-54" slight mottling
54"+ Compacted silty medium sand

SOIL LOG (C): Roots to 57" 10% gravel & cobbles
0-35" - loamy sand
35-58" loamy sand (slightly compacted)

SOIL LOG (D): Roots to 60" 10% gravel & cobbles
0-52" Brown loamy sand
52-60" grey loamy sand
hard layer at 60"

DATE
JOB # 91-1017

PRESSURE DISTRIBUTION CALCULATION WORKSHEET
FIGURES BASED ON CURRENT DSHS GUIDELINES FOR PRESSURE DIST. FOR SLOPING SITES

DRAINFIELD

DETERMINE ABSORPTION AREA :

OF BEDROOMS : 4
SOIL TYPE : 3
APPLICATION RATE : .8 gal/ft^2/day
DAILY WASTEWATER FLOW : 480 GALLONS

ABSORPTION AREA = 600 ft^2 = (D.W.F.) / APP.RATE

MIN 300 Lineal feet of 2 foot wide trench.

USE 300 LINEAL FT.

NETWORK CONFIGURATION CALCULATIONS

RESIDUAL HEAD = 5.0 ft. AT DISTAL END OF UPPERMOST LATERAL.
LATERAL LENGTH = 30.0 ft.
LATERAL SPACING = 6.0 ft. (10'?
OF LATERALS = 10.0
MANIFOLD LENGTH = 24.0 ft.
TRANSPORT PIPE = 42.0 ft. OF 3" DIAMETER CLASS 40 PVC.
LATERAL DIAMETER = 1" CLASS 40 PVC.

ORIFICE DIAMETER = 3/16"
ORIFICE SPACING = 6.0 ft.
OF ORIFICES = 5 PER LATERAL

ACCORDING TO CURRENT DSHS GUIDELINES LATERAL DESIGN TABLE A1-1.

MAXIMUM ALLOWABLE LATERAL LENGTH 60 ft.

MANIFOLD SELECTION

USE 5 ft. RESIDUAL HEAD

ORIFICE DISCHARGE RATE IN GPM. = $Q = 11.79\ d^2\ h^{1/2}$
ORIFICE DISCHARGE RATE 0.93 GPM. X 5 ORIFICES = 4.65 GPM. PER LATERAL

USE TABLE 1

END( ) CENTRAL(✓) MANIFOLD MAXIMUM ALLOWABLE LENGTH 48 ft.
A 24 ft. MANIFOLD/ 3" DIAMETER IS APPROPRIATE.

MANIFOLD TO BE INSTALLED ABOVE(✓) BELOW( ) LATERALS

PRESSURIZATION SYSTEM DESIGN
FIGURES BASED ON CURRENT DSHS GUIDELINES PRESSURE DIST.

DOSE VOLUME CALCULATIONS.
SOIL TYPE

DAILY WASTEWATER FLOW 480 GPD.

SOIL TYPE 3

DOSING FREQUENCY 2

480 / 2 = 240 GAL. PER DOSE

DOSAGE/PIPE VOLUME RATIO

(V_M) = MANIFOLD VOLUME = (.385 GAL./FT.)(24 FT.) = 9.24 GALLONS

(V_L) = LATERAL VOLUME = (.045 GAL./FT.)(300 FT.) = 13.5 GALLONS

(V_T) = TRANSPORT LINE VOLUME = (— GAL./FT.)(— FT.) = — GALLONS
(ONLY IF IT DRAINS.)

DAILY DOSE VOLUME = $7(V_M+V_L)+V_T$ = 159.18 GAL. PER DOSE

*SOIL TYPE DOSE VOLUME = 240 GALLONS
*PIPE/DOSE VOLUME = 159.18 GALLONS

CHOOSE LARGER VOLUME: 240 GALLONS

SYSTEM DISCHARGE

ORIFICE DISCHARGE RATE IN GPM. = $Q = 11.79\ d^2h^{1/2}$

(ORIFICE DISCHARGE RATE)(# OF ORIFICES/LATERAL)(# OF LATERALS)

(0.93 GPM PER ORIFICE)(5 ORIFICES/LATERAL)(10 LATERALS)

SYSTEM DISCHARGE = 46.5 GPM.

PRESSURE DISTRIBUTION CALCULATION WORKSHEET
FIGURES BASED ON CURRENT DSHS GUIDELINES FOR PRESSURE DIST.

SYSTEM FRICTION LOSSES

FITTINGS IN EQUIVALENT FT.

REDUCER = 5.0 ft.

90° ELL (2) = 16.0 ft.

22° ELL = 2.2 ft.

GATE VALVE = 1.7 ft.

CHECK VALVE SWING = 20.0 ft.

TRANSPORT PIPE LENGTH = 42.0 ft.

TRANSPORT PIPE IN EQUIVALENT FT.= 86.9 FT.

TOTAL FRICTION LOSSES
SEE APPENDIX 3

$f = (L) \times (Q/K)^{1.85}$

TRANSPORT PIPE: $f = (86.9)(46.5/803.9)^{1.85}$ = 0.005 ft.

MANIFOLD PIPE : $f = (24/3)(46.5/803.9)^{1.85}$ = 0.005 ft.
" " FITTINGS = 20.0 ft.

LATERAL PIPE : $f = (20/3)(46.5/47.8)^{1.85}$ = 0.950 ft.
" " FITTINGS = 10.0 ft.

STATIC HEAD = 16 ft.

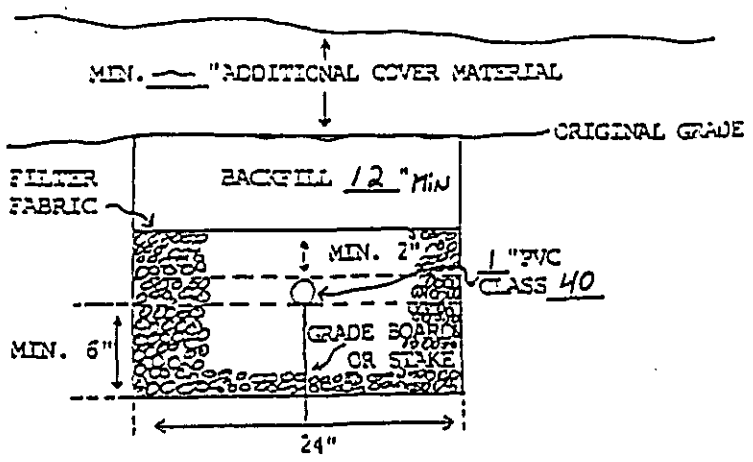
RESIDUAL HEAD = 5 ft.

TOTAL DYNAMIC HEAD = 52.0 ft.

PUMP CHOSEN

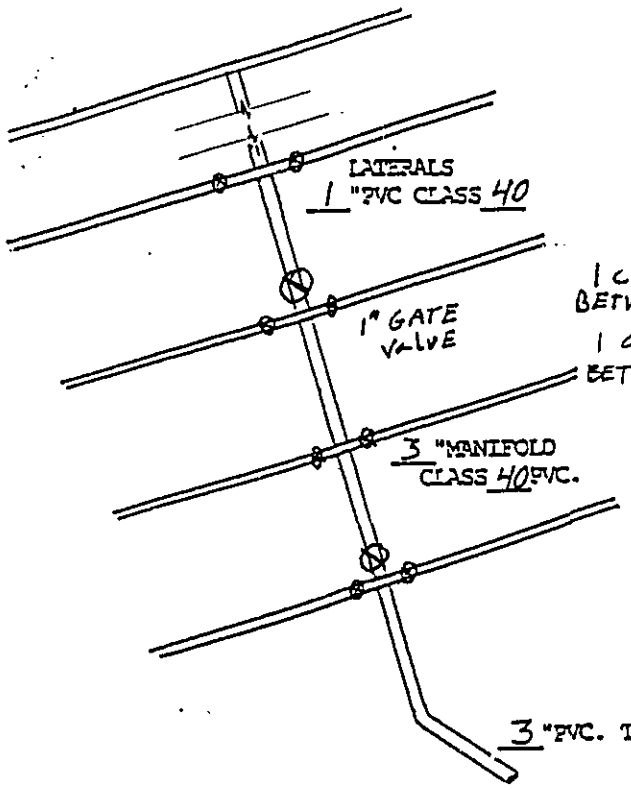
PUMP # 2

NOTES: IF any tank location and/or elevation changes System Friction losses must be recalculated.
IF "AIR.R System location and/or elevation changes Friction losses must be recalculated (pump sizes may change).

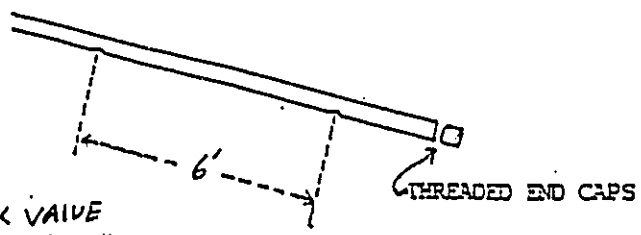


NOTES
1. MIN. 24"/MAX. 27" DEPTH OF TRENCHES.
2. BOTTOM OF TRENCHES & DRAIN LINES TO BE LEVEL.
3. TRENCHES TO FOLLOW GROUND SURFACE CONTOURS.
4. IF HOUSE LOCATION VARIES FROM PLAN SPECIFIED PUMP MAY HAVE TO BE CHANGED.

LATERAL LAYOUT



LATERAL DETAIL



NOTES
1. 3/16" HOLES DRILLED IN 6 O'CLOCK POSITION.
2. USE THREADED END CAPS FOR CLEAN CUTS.
3. LAST ORIFICE DRILLED IN 12 O"CLOCK POSITION FOR PRESSURE TESTING.

DOSING PUMP SELECTION

HEAD LOSS SUMMARY

Static Head	=	5.0 ft.
Friction Loss	=	0.32 ft.
Bed Loss	=	5.0 ft.
Manifold Loss	=	0.2 ft.
Total Head Loss	=	10.34 ft.

Flow gpm = 8.47 gpm Total Head Loss = 10.42 ft.

Use OSP 33M HYDROMATIC pump STANDARD Impeller

PUMP CAPACITY 52.5 gpm @ 100 ft. Head

PUMPING TIME

Dosing Volume per cycle/dosing gpm.

10.0 gal. per cycle/ 8.47 gpm = 1 minutes 11 seconds

Equivalent Pipe Calculation for Pressure Delivery Pipe

Riser from Pump	5.0
Horizontal in Tank	3.0
Tank to AIRR Unit	19.0
Riser in AIRR Unit	4.0
90° Ells 3x	= 12.9
Tees	9.0
Check Valve Swing	11.0
Gate Valve	1'
Equiv. Pipe	64.9

HEAD LOSS CALCULATION FOR RECIRCULATION SYSTEM

Daily Volume 480 gpd

Recirculation Volume/cycle = Daily volume /16 = 30.0 gal.

FullJet Spray Brass Nozzle No. SSQ-37 Flow rate gpm 3.7

STATIC HEAD COMPUTATION

Spray head (recirc. system) elevation 88.2 ft.

Low water elevation (pump tank) elevation 76.4 ft.

Total Static Head 11.8 ft.

DELIVERY PIPE FRICTION LOSS

Pipe Dia. 1½" Equivalent Pipe Length 53 ft.

No. of heads 2 Flow Rate 3.7 gpm

Total gpm = No. of Heads 2 x 3.7 gpm = 7.4 gpm

h_f = 0.3889 (from friction loss charts)

Length/100 x h_f @ Total gpm = Head Loss ft.

53 /100 x h_f 0.3889 = 0.21 ft. Loss

_____ /100 x h_f _____ = _____ ft. Loss

SPRINKLER SYSTEM BED LOSS

Length of longest run 3 ft. Pipe dia. 1¼"

No. of heads 1 x 3.7 gpm = 3.7 gpm

h_f = 0.2085 (from friction loss charts)

Length/100 x (h_f x 0.33) + Nozzle Pressure Head = Bed Loss

3' /100 x 0.2085 x 0.33) + 11.5 NPH) = 11.51 ft. Bed Loss

Manifold Pipe dia. NA Manifold Length NA ft.

No. of ~~Nozzles~~ Laterals ____ ~~Nozzle~~ Lateral Flow Rate ____ gpm Total ____

_____ /100 x (____ x 0.33) = ____ ft. Manifold head loss

HEAD LOSS CALCULATION FOR DOSING SYSTEM

Daily Design Volume 480 gpd Pipe- Class 160 PVC

Dosing Volume/cycle = Daily Volume/48= 10 gal. Cycle

STATIC HEAD COMPUTATION

Top of orifice (dosing bed) 85.0 ft.

Low water elevation (pump tank) 80.0 ft.

Total Static Head 5.0 ft.

DOSING SYSTEM PRESSURE PIPE FRICTION LOSS

Pipe Dia. 1½" Equivalent Pipe Length 64.9 ft.

Orifice size 3/16" No. of orifices 9 Orifice Flow Rate 0.941

No. of orifices 9 OFR 0.941 = Total flow 8.47 gpm

h_f from friction loss chart 0.4993

h_f from friction loss chart ____

Length/100 x h_f = Head Loss

64.9 x 0.4993 - 0.32 ft.

____ x ____ = ____ ft.

DOSING SYSTEM BED AND MANIFOLD LOSS

Dosing Bed Pipe dia. 1¼" Length of longest run 6'-2" ft.

Orifice Size 3/16" No. of orifices 3 Flow Rate 0.941 gpm

No. of orifices 3 x Flow Rate 0.941 = 2.82 gpm

h_f = 0.1262 (from friction loss charts)

Length/100 x (h_f x 0.33) +5 ft. = Bed loss

0.06 /100 x (0.1262 x 0.33) + 5 ft. = 5 ft. Bed Loss

Pressure Manifold Head Loss

Manifold pipe dia. 1¼ Manifold length 5 ft.

No. of ~~orifices~~ Laterals 3 ~~Orifice~~ Lateral flow rate 2.84 Total Flow 8.37 gpm

5 /100 x (0.1415 x 0.33) = 0.2 ft. Manifold head loss

RECIRCULATION SYSTEM PUMP SELECTION

HEAD LOSS SUMMARY

Static Head = 11.8 ft.

Friction Loss = 0.21 ft.

Bed Loss = 11.51 ft.

Manifold Loss = ——— ft.

Total Loss = 23.52 ft.

PUMP SELECTION

Total Flow = 7.4 gpm

Total Head Loss = 23.52 ft.

Use OSP 33M HYDROMATIC pump

PUMP CAPACITY 11 gpm @ 24 ft. Head

RECIRCULATION PUMP CYCLE TIME

Recirculation Cycle volume/Recirculation gpm = 4 Min. 3 Sec.

TOTAL RECIRCULATION CYCLE

Pumping time + Resting time = 30 min. - (Dosing Pump time + Dosing Rest Time)

Recirc. Cycle = 30 - (1.11 DPT + 20.0 DRT) = 8 Min. 53 Sec.

Equivalent Delivery Pipe

Riser	= 5.0
Horizontal	= 7.0
Riser inside AIRR	= 7.0
90° Ells	= 13.0
Tees	= 9.0
Check Valve Swing	= 11.0
Gate Valve	= 1.0
Total	= 53.0 Feet

This certificate provides the Department of Health and Building and Land Development with information necessary to evaluate development proposals.

Please Return to:
BUILDING AND LAND DEVELOPMENT
3600 - 136th Pl. SE
Bellevue, WA 98006-1400
(206) 296-6600

KING COUNTY CERTIFICATE OF WATER AVAILABILITY

Do not write in this box

number _____ name _____

COPY

[X] SFD Building Permit
[ ] Commercial Building Permit
[ ] Short Subdivision
[ ] Preliminary Plat
[ ] Rezone
[ ] Lot Line Adjustment

APPLICANT NAME Jeffrey Poschwatta

PROPOSED USE Single Family Dwelling

LOCATION Tax Parcel No. 362205-9171

****

1. a.[X] Water will be provided by service connection ~~only~~ to an 8 " size existing water main approx. 400 feet from site upon Temporary Service Approval by the Board of Water Commissioners.

b.[ ] Water service will require an improvement to the water system of:

[ ](1)Approx. _____ feet of water main to reach the site;and/or

[ ](2)The construction of a distribution system on the site and/or

c.(x) [xx](3)Other ~~Easements per Covington Water District Requirements. Payment of all usual fees and charges in effect at the time service is requested.~~ Private Individual Booster Pump may be required for customer to achieve desired flow.

ALL EXTENSIONS MUST BE ENGINEERED BY A CERTIFIED ENGINEER AND APPROVED BY COVINGTON WATER DISTRICT. ALL EXTENSIONS MUST BE CONSTRUCTED TO COVINGTON WATER DISTRICT CONDITIONS AND STANDARD SPECIFICATIONS.

2. a.[x] The water system is in conformance with a County approved Water Comprehensive Plan
b.[ ] The water system improvement will require a comprehensive plan amendment

3. a.[x] The proposed project is within the corporate limits of the District, ~~has been granted BRB Approval for extension of service outside of the District, or is within the County approved service area of a private water purveyor.~~
b.[ ] Annexation of BRB approval will be necessary to provide service.

4. a.[x] Water is/~~will be~~ available at the rate of flow and duration indicated below at no less than 20 PSI measured at the nearest fire hydrant approx. 700 feet from the property.

RATE OF FLOW	DURATION
[ ]less than 500 GPM	[ ]less than 1 hour
[ ]500 to 999 GPM	[ ]1 hour to 2 hours
[x]1000 GPM	[x]2 hours or more
[ ]Flow test of _____GPM	[ ]other
Calculation of _____GPM	(Commercial Building Permits require flow test or calculation).

b.[ ] Water System is not capable of providing fire flow.

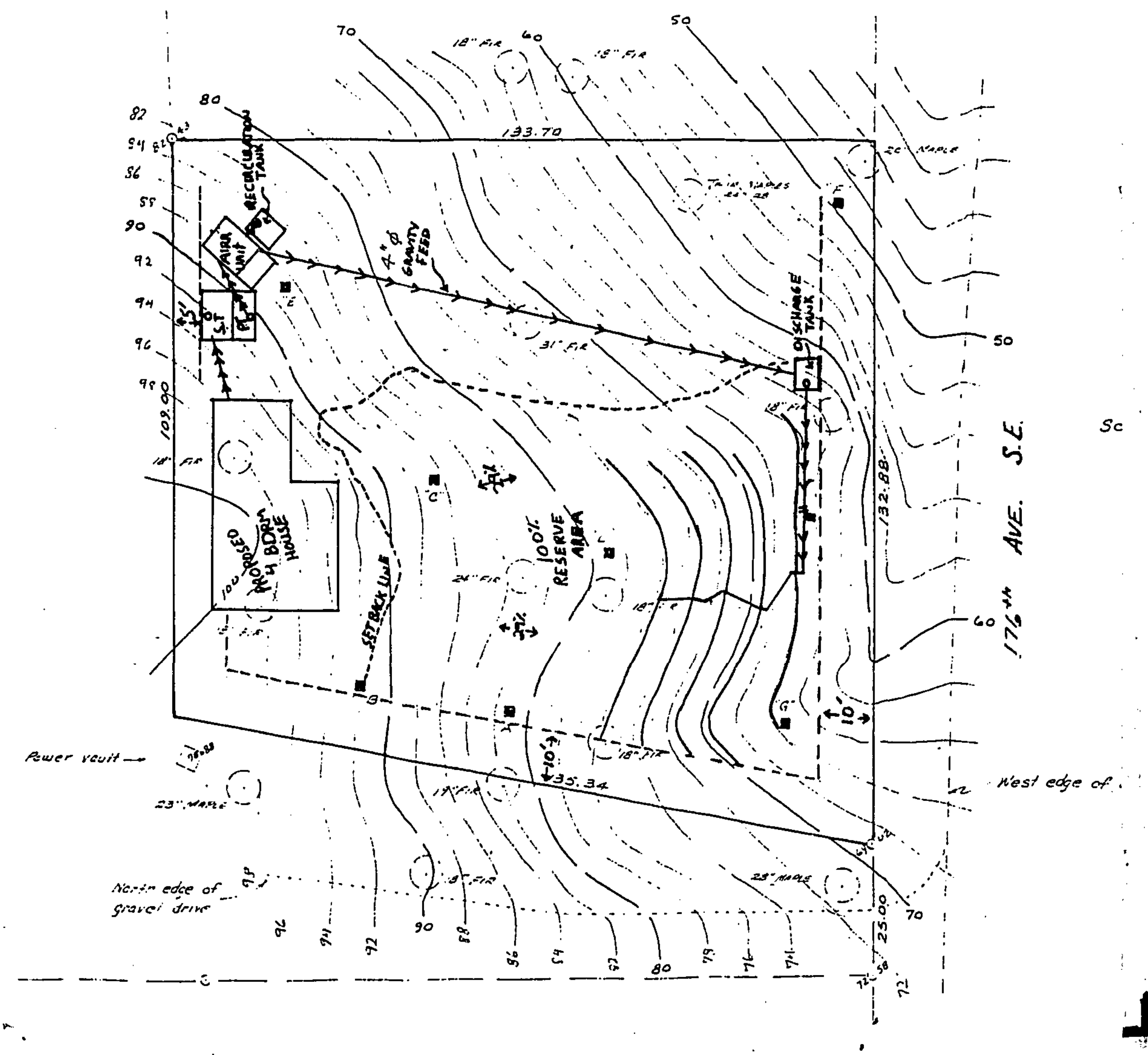
COVINGTON WATER DISTRICT REQUIRES ALL BUILDING LOTS TO BE FRONTED ON ONE FULL SIDE BY A STANDARD SIZED WATER MAIN. WHEN SUCH MAINS DO NOT EXIST, THE OWNER/DEVELOPER MUST EXTEND THE SYSTEM PER COVINGTON WATER DISTRICT CONDITIONS AND STANDARD SPECIFICATIONS.

THIS CERTIFIES THAT THE ABOVE WATER PURVEYOR INFORMATION IS TRUE. THIS INFORMATION WILL BE VALID FOR ONE YEAR FROM DATE OF SIGNATURE.

Date December 2", 1991
COVINGTON WATER DISTRICT
Agency

Steve Glass, District Engineer
for Judith L. Nelson, General Manager

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.



133.70
109.00
132.88
135.34
25.00
RECIRCULATION TANK
AIR UNIT
S.T.
4" ∅ GRAVITY FEED
DISCHARGE TANK
PROPOSED 4 BDRM HOUSE
100% RESERVE AREA
SETBACK LINE
31" FIR
18" FIR
24" FIR
23" MAPLE
Power vault
North edge of gravel drive
West edge of
176th AVE. S.E.

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

LEGEND:

C indicates existing rebar & cap

C indicates existing perc hole

BASIS OF ELEVATION: ASSUMED

ale: 1" = 20'

WILLIAM L. CASPER
STATE OF WASHINGTON
17512
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES: 3-30-92

LEGAL DESCRIPTION:

Lot 3, King County Short Plat No 676097, Recording No. 7708220785, records of King County, Washington.

DISAPPROVED
4/2/92
DATE
NOT IN COMPLIANCE WITH

CASPER, PHILLIPS & ASSOCIATES
3340 East 11th Street
Tacoma, Washington 98421
206 627-7400
FAX 206 627-4715

SEATTLE-KING CO. DEPT. OF PUBLIC HEALTH
BY

286XX 176th SE

Seattle-King County / DEPARTMENT OF PUBLIC HEALTH

SITE APPLICATION DEFICIENCIES

Address or legal description 286XX 176th SE

Parcel #362205-9171

Designer W.L. Casper

Sanitarian Sid Forman

The attached site application cannot be accepted at this time because of the following:

1) 13.28.010 C- the physical features of the property are not adequate for effective operation of the proposed OSSDS for the following reasons:

a) the pits used to evaluate the soil are very large and have been disturbed (a good portion of the proposed drainfield and reserve areas)

b) the lowest soil evaluation pit is 8-10' higher on the up-slope side than the downslope side and is actually a cut. The drainfield lines must be at least 50 ft from this cut.

2) Design does not indicate drainage ditch on east side of property with proper setback to septic system.

3) No construction or details - insufficient detail for design or construction.

4) No way to verify dosing calculations.

5) No maintenance and operation manual.

6) Need to specify dosing cycles and pump specs, times.

7) Flow diagrams do not match.

8) PD System confusing particularly the details for manifold installation.

THIS DECISION MAY BE APPEALED TO THE KING COUNTY SEWAGE REVIEW BOARD IF DONE WITHIN 60 DAYS OF RECEIPT OF THE DECISION.

Date 10-8-92

Sanitarian Sid Forman

CS 11.15.57

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

5f

Seattle-King County Department of Public Health

Site Application for On-Site Sewage Disposal System
(Submit 5 copies of application with 4 copies of plans)

paid $210.00

Activity Number: H92R0547 (Department Use Only)

0717 e-7

Approximate Site Address: 286XX 176TH AVE S.E. KENT 98042

ATTACH A DETAILED ROUTE/ DIRECTION MAP FOR LOCATING THE PROPERTY.

Applicant Name: POSCHWATTA JEFF (Last First)
Street Address: 17603 SE 295TH
City-Zip Code: KENT 98042 Phone: 630-2427

Designer: CASPER PHILIPS + ASSOC.
Street Address: 33 40 E 11TH
City-Zip Code: TACOMA 98421 Phone: 627-7400

PROPERTY INFORMATION:

Parcel #: 362205-9171 Section: 36 Township: 22N Range: 5E
Subdivision Name: Lot: 3 Block: 9171
Property Size: 16080 sq. ft. Acreage:
Distance from property line to nearest sewer: ft. Within ULID? (Y?N)
Water Supply: P (IP) I = Individual P = Public (More than One Connection)
Public Water Supply Name: COVINGTON WATER DIST. ID#
Sensitive Area: (Y?N) If yes, specify (L,W,O) (L = Landslide W = Wetlands O = Other)

SYSTEM INFORMATION:

New System: X Repair Design: Detailed Plans Attached: (4 sets) Y (Y/N)
Type of Building: SF SF = Single Family MF = Multiple Family COMM = Commercial INST = Institutional
Type of System Proposed: SF - PD G = Gravity GP = Gravity with pump M = Mound
PD = Pressure Distribution SF = Sand Filter HT = Holding Tank CT = Composting Toilet E = Experimental O = Other
Dates Soils Logged: 71592 Soil Logs Data Attached: (Min. 4/lot) Y (Y/N)
Depth to Watertable or Restrictive Layer: 33-55 inches Maximum Slope in Drainfield/Reserve Area: 33 %

CALCULATIONS:

Number of bedrooms: 3 Total Gallons/Day (450 minimum): 450 gal. Soil Texture Type (1-5): 3
Application Rate: .8 gal/sq ft/day Total Absorption Area: ~~600~~ 562.5 sq. ft.
Total Drainfield Length: 331 ft. Septic Tank Size: 1000 gal.
Pump Chamber Size (if needed) 750 gal. Trench Depth (min/max): 24 / 27 inches

I understand that failure to comply with the Code of King County Board of Health Title 13 may result in the disapproval of the sewage system being proposed in this application. Non-compliance may also lead to revocation of my Designer's Certificate of Competency and/or appropriate legal action by the Health Department.

Designer's Signature: K.C.ID# PE134 Date 8/25/92

FOR HEALTH DEPARTMENT USE ONLY

APPROVED (date) BY:

SYSTEM MUST BE INSTALLED BY A KING COUNTY CERTIFIED INSTALLER UNLESS OTHERWISE PROVIDED BY CODE

Comments/Conditions:

APPROVAL OF THIS DESIGN APPLICATION IS BASED SOLELY ON INFORMATION PROVIDED IN THIS APPLICATION AND DOES NOT CONSTITUTE PERMISSION TO BEGIN CONSTRUCTION OF THE PROPOSED SEWAGE DISPOSAL SYSTEM OR ANY OTHER IMPROVEMENTS ON THE SITE. THIS APPROVAL SHALL *NOT* BE CONSIDERED AN ASSURANCE, EITHER EXPRESSED OR IMPLIED, THAT DEVELOPMENT PERMITS FOR THE SITE WILL BE ISSUED.

THIS APPLICATION EXPIRES TWO YEARS FROM DATE OF APPROVAL.

DISAPPROVED (date) 10-7-92 BY:

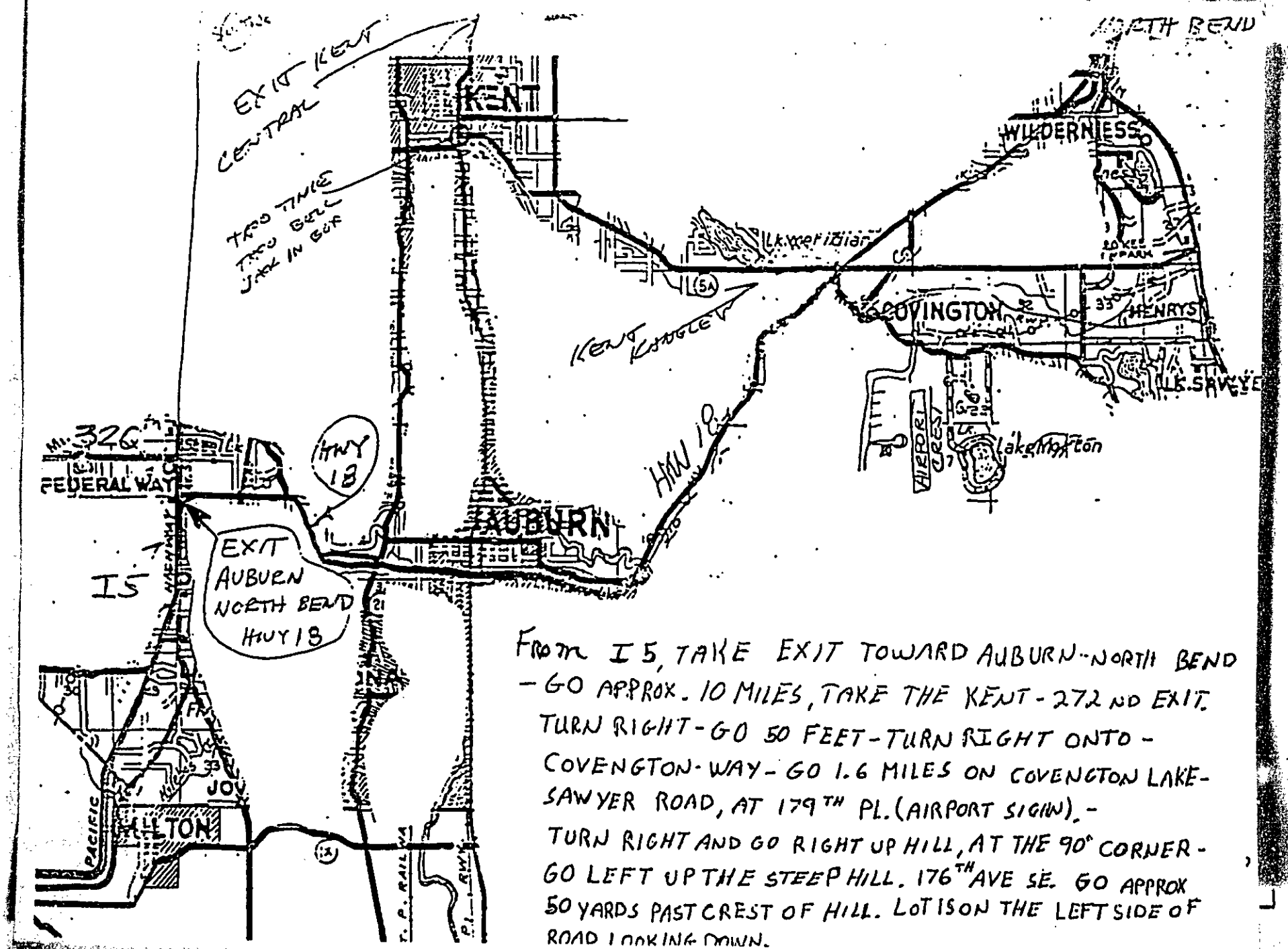
See attached Site Deficiency Sheet.

Any person aggrieved by any decision or final order of the Health Officer may make written application for appeal to the King County Board of Sewage Review if done so within 60 days of the above decision.

RECEIVED
AUG 31 1992
ALDER SQUARE

WHITE - DISTRICT/GREEN - AUDIT/YELLOW - DESIGNER/PINK - OWNER/YELLOW - LICENSES & PERMITS CS 13.15.97 REV. 6/90

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.



From I 5, TAKE EXIT TOWARD AUBURN - NORTH BEND - GO APPROX. 10 MILES, TAKE THE KENT - 272 ND EXIT. TURN RIGHT - GO 50 FEET - TURN RIGHT ONTO - COVENGTON - WAY - GO 1.6 MILES ON COVENGTON LAKE - SAWYER ROAD, AT 179 TH PL. (AIRPORT SIGN). - TURN RIGHT AND GO RIGHT UP HILL, AT THE 90° CORNER - GO LEFT UP THE STEEP HILL. 176 TH AVE SE. GO APPROX 50 YARDS PAST CREST OF HILL. LOT IS ON THE LEFT SIDE OF ROAD LOOKING DOWN.

This certificate provides the Department of Health and Building and Land Development with information necessary to evaluate development proposals.

Please Return To:
BUILDING AND LAND DEVELOPMENT
3600 - 136th Pl. SE
Bellevue, WA 98006-1400
(206) 296-6600

KING COUNTY CERTIFICATE OF WATER AVAILABILITY

Do not write in this box

number _____ name _____

[X] SFD Building Permit
[ ] Commercial Building Permit
[ ] Short Subdivision
[ ] Preliminary Plat
[ ] Rezone
[ ] Lot Line Adjustment

APPLICANT NAME Jeffrey Poschwatta

PROPOSED USE Single Family Dwelling

LOCATION Tax Parcel No. 362205-9171

****

1. a.[X] Water will be provided by service connection ~~only~~ to an 8 " size existing water main approx. 400 feet from site. upon Temporary Service Approval by the Board of Water Commissioners.

b.[ ] Water service will require an improvement to the water system of:

[ ](1)Approx. _____ feet of water main to reach the site; and/or

[ ](2)The construction of a distribution system on the site and/or

c.(x) [xx](3)Other Easements per Covington Water District Requirements. Payment of all usual fees and charges in effect at the time service is requested. Private Individual Booster Pump may be required for customer to achieve desired flow.

ALL EXTENSIONS MUST BE ENGINEERED BY A CERTIFIED ENGINEER AND APPROVED BY COVINGTON WATER DISTRICT. ALL EXTENSIONS MUST BE CONSTRUCTED TO COVINGTON WATER DISTRICT CONDITIONS AND STANDARD SPECIFICATIONS.

2. a.[x] The water system is in conformance with a County approved Water Comprehensive Plan
b.[ ] The water system improvement will require a comprehensive plan amendment

3. a.[x] The proposed project is within the corporate limits of the District, ~~has been granted BRB Approval for extension of service outside of the District, or is within the County approved service area of a private water purveyor.~~
b.[ ] Annexation of BRB approval will be necessary to provide service.

4. a.[x] Water is/~~will~~ be available at the rate of flow and duration indicated below at no less than 20 PSI mensured at the nearest fire hydrant approx. 700 feet from the property.

RATE OF FLOW	DURATION
[ ]less than 500 GPM	[ ]less than 1 hour
[ ]500 to 999 GPM	[ ]1 hour to 2 hours
[x]1000 GPM	[x]2 hours or more
[ ]Flow test of _____GPM	[ ]other
Calculation of _____GPM	(Commercial Building Permits require flow test or calculation).

b.[ ] Water System is not capable of providing fire flow.

COVINGTON WATER DISTRICT REQUIRES ALL BUILDING LOTS TO BE FRONTED ON ONE FULL SIDE BY A STANDARD SIZED WATER MAIN. WHEN SUCH MAINS DO NOT EXIST, THE OWNER/DEVELOPER MUST EXTEND THE SYSTEM PER COVINGTON WATER DISTRICT CONDITIONS AND STANDARD SPECIFICATIONS.

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Date December 2, 1991
COVINGTON WATER DISTRICT
Agency

Steve Glass, District Engineer
for Judith L. Nelson, General Manager

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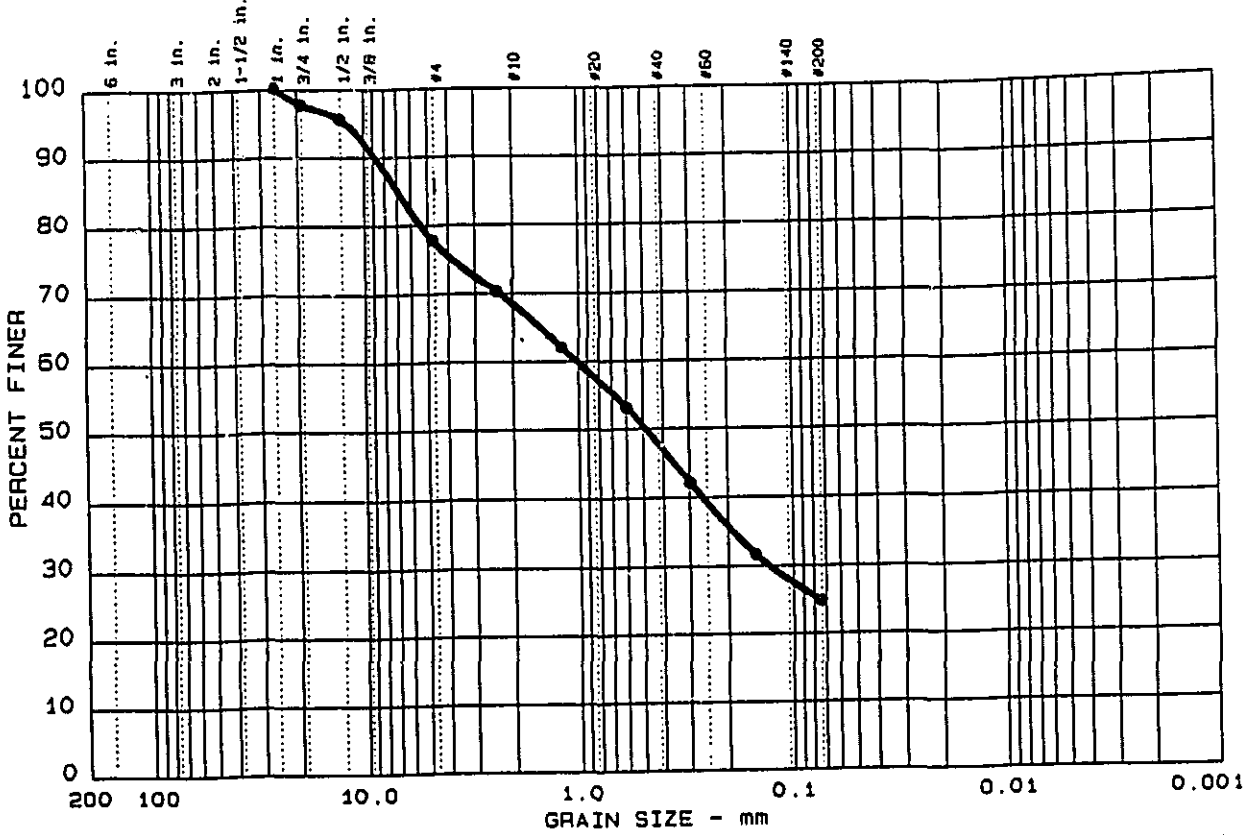
PARTICLE SIZE DISTRIBUTION TEST REPORT



	Test	%+75 mm	% GRAVEL	% SAND	% SILT	% CLAY	USCS
●	11	0.0	22.2	53.0	24.8		SM

SIEVE inches size	PERCENT FINER ●		
1	100.0		
0.75	97.7		
0.5	95.6		
GRAIN SIZE			
D_{60}	1.01		
D_{30}	0.13		
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ●		
4	77.8		
8	70.3		
16	62.0		
30	53.0		
50	42.0		
100	31.5		
200	24.8		

Sample information:
● 0-30" depth
silty gravelly sand

Tested by: D.DOSTALEK
Date: 7-14-1992
Checked by: R.BAILEY
Date: 7-20-1992
SAMPLE#9207-6540-416

PACIFIC TESTING LABORATORIES

Certificate No.: 9207-6540 LR No.:
Client: BURTON STATON
Date: 7-23-1992 Fig. No. ——

SAMPLE # 9207-6540-416

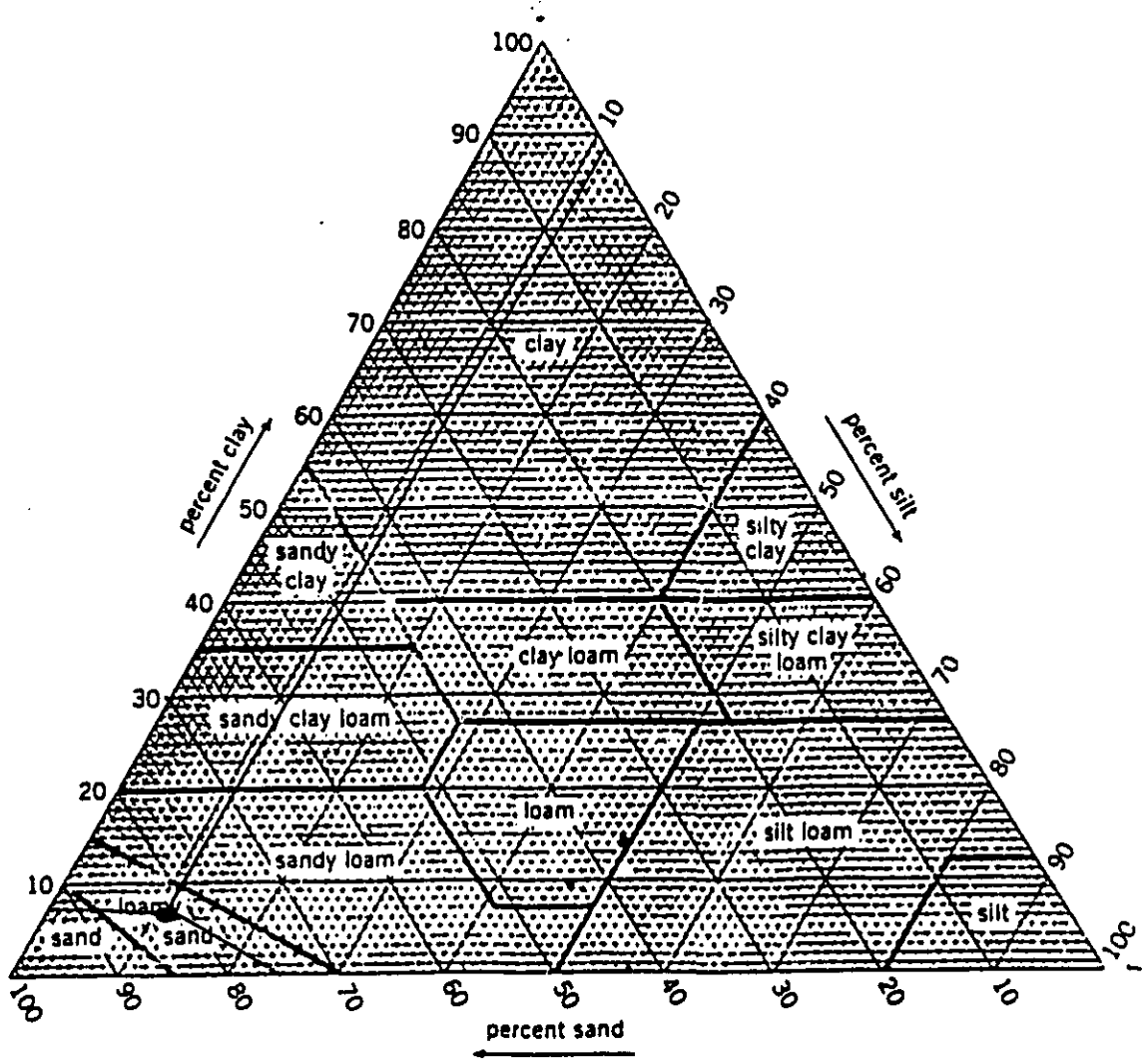


Chart showing the percentages of clay (below 0.002 mm.), silt (0.002 to 0.05 mm.) and sand (0.05 to 2.0 mm.) in the basic soil textural classes.

Excerpt from
U.S. Dept. of Agriculture Handbook 18
Soil Survey Manual

USDA TEXTURES - Approximated
From data supplied by Pacific Testing Laboratories
4 August 1992

Sample No. 9207-6540-418

Sieve size	USDA size	% passing	% each size (of total weight)	% each size (< 2mm)
3/4 inch	Gravel	100	55	
#10 (2mm)	Sand	45	33	73
<0.05mm	Si + C	12	12	27
0.05 - 0.002	Silt *			23
< 0.002	Clay *			4

* based on hydrometer analysis

Approximate USDA TExture: very gravelly loamy sand

Sample No. 9207-6540-416

Sieve size	USDA size	% passing	% each size (of total weight)	% each size (< 2mm)
3/4 inch	Gravel		32	
#10 (2mm)	Sand		?	
<0.05mm	Si + C		?	

? data is incomplete

Approximate USDA Texture: very gravelly loamy sand/sandy loam
(Estimate based on incomplete sieve data
and the laboratory classification as SM in the Unified system)

Sample No. 9207-6540-417

Sieve size	USDA size	% passing	% each size (of total weight)	% each size (< 2mm)
3/4 inch	Gravel		32	
< #10 (2mm)	Sa+Si+C		68 ??	Data incomplete
<0.05mm	Si + C		??	Data incomplete

Note: to determine USDA particle sizes, we must have the amount of material passing the 0.05mm sieve and the amount smaller than 0.002mm

Estimated USDA Texture: very gravelly loamy sand
(Based on limited particle size data & the lab.
designation of SM in the Unified system)

DALE E. SNYDER
Certified Professional Soil Scientist

SOIL INVESTIGATION
for
Jeff Poschwatta

Per a verbal request and authorization from Mr. Burton Staton I personally examined and made descriptions of the salient features of soils at 5 locations on your lot at 286XX 176th Ave. S.E., Kent, Washington 98042. The purpose of the investigation was to identify characteristics that affect on-site sewage disposal.

Conclusion:

The site has several standing Douglas fir trees, and has slope gradients ranging from 26 percent to about 33 percent; the more gently sloping area is near the southeasterly portion of the lot. Soils are representative of the Alderwood series (Soil Survey of King County Area Washington. 1973; Snyder, D.E, USDA, Soil Conservation Service) or an unnamed soil similar to the Alderwood soils. Permeability rates above the very dense lodgement till are about 2.0 to 6.0 inches per hour (10 to 30 minutes per inch); percolation rate within the lodgement till is more than 90 minutes per inch.

It is my opinion that the soils are generally suitable for on-site sewage disposal, if the drain field system is skillfully designed and installed with extreme care. Great care ensure installation of the leach line at design depths and grade.

Soil Descriptions:

Terminology used is that of the National Cooperative Soil Survey, of which the Soil Conservation Service is a part. Log hole identifiers are those provided by Mr. Staton and used with his descriptions dated 10-17-91. Only features affecting on-site sewage disposal are reported.

A. Slope gradient measured at 33 percent.
Soil Name: Alderwood like
Soil Profile:
0 - 55", 10YR 4/3 gravelly sandy loam
55 - 65", gravelly sandy loam; extremely firm (very dense lodgement till).

B. Slope gradient measured at 26 percent.
Soil Name: Alderwood/Alderwood-like
Soil Profile:
0 - 43", 10YR 4/3 - 4/2 gravelly sandy loam; very friable.
43 - 65", grayish gravelly sandy loam; extremely firm (very dense lodgement till).
Depth to the lodgement till generally exceeds 40 inches in this pit; however, it is only 33" in a few places.

2205 226th Place N.E. Redmond, Washington 98053 (206) 868-6107

Soil Investigation: Poschwatta - 2

C. Slope gradient measured at 33 percent.
Soil Name: Alderwood-like
Soil Profile:
0 - 50 ", 10YR 4/3 - 4/2 gravelly sandy loam; very friable.
50 - 65", grayish gravelly sandy loam; extremely firm (very dense lodgement till).
Depth to the lodgement till ranges from 43 to 60 inches in this pit.

D. Slope gradient measured at 27 percent.
Soil Name: Alderwood
Soil Profile:
0 - 33", 10YR 4/3 gravelly sandy loam; very friable.
33 - 65", grayish gravelly sandy loam; extremely firm. (very dense lodgement till).
Depth to lodgement till ranges from 27 to 35 inches in this pit.

G. Slope gradient measured at 29 to 33 percent.
Soil Name: Alderwood-like
Soil Profile:
0 - 41", 10YR4/3 very gravelly sandy loam; very friable.
41 - 65", grayish very gravelly sandy loam or loamy sand; extremely firm.
(Very dense lodgement till).

Note: Pits made for examining the soils were of excellent size and depth; they permit unobstructed viewing of the full range of soil characteristics, including depth to underlying restrictive layers. Their presence will have no adverse impact on the functioning of any drain field line that may be placed above or near them.

Dale E. Snyder

Dale E. Snyder, CPSS

15 June 1992
Redmond, Washington

Design volume USE 4800 gallons per day.

A.I.R.R. system area application rate 5 gal/ft^2/day.

A.I.R.R. system treatment area = 96 ft.^{2}.

A.I.R.R. system inside dimensions 7 ft. x 14 ft.

5 feet of residual head at distal dosing system orifice.

Dosing volume per cycle = 10.0 gallons.

Number of laterals in dosing system = 3.

Orifices per lateral = 4.

Orifice diameter = 5/32 ".

Dosing system pump time = 1 minutes 16 seconds.

Recirculation volume per cycle = 30 gallons.

Recirculation system pump time = 4 minutes 03 seconds.

5 psi (11.54 ft.) residual head at distal spray nozzle.

IV. FILTER BED --

A. Media specifications:

1. Filter media must meet the particle size criteria detailed below based upon a particle size analysis of the actual gravel material proposed for use. This analysis must be performed according to standard methods described in Appendix A. Each load of media used in constructing a sand filter should be sieve-tested to assure media specification compliance.

2. All four conditions must be met to satisfy media criteria.

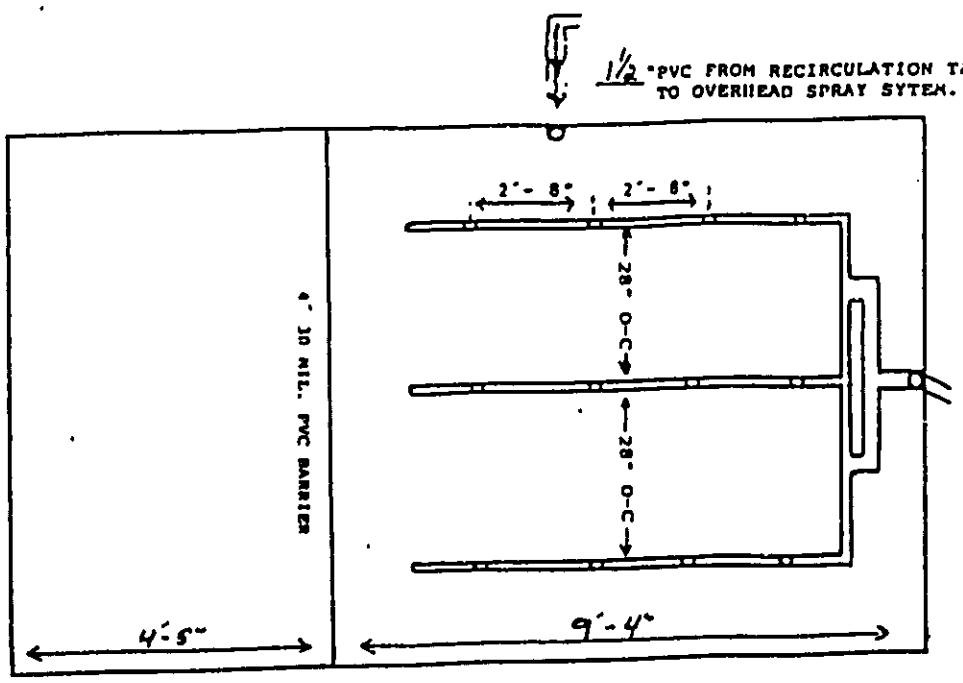
1.Particle Size Distribution:

Sieve	Particle Size	Percent Passing
3/8 inch	9.50 mm	100
No. 4	4.75 mm	0 to 95
No. 8	2.36 mm	0

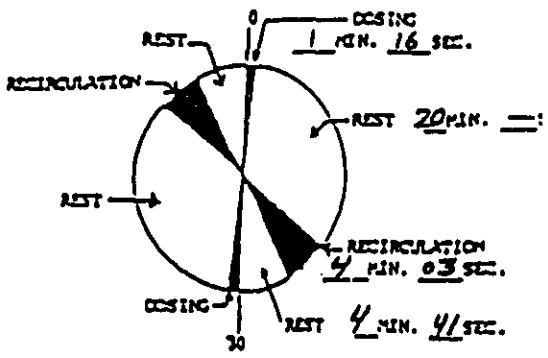
2. Effective Size: 3 mm to 5 mm.

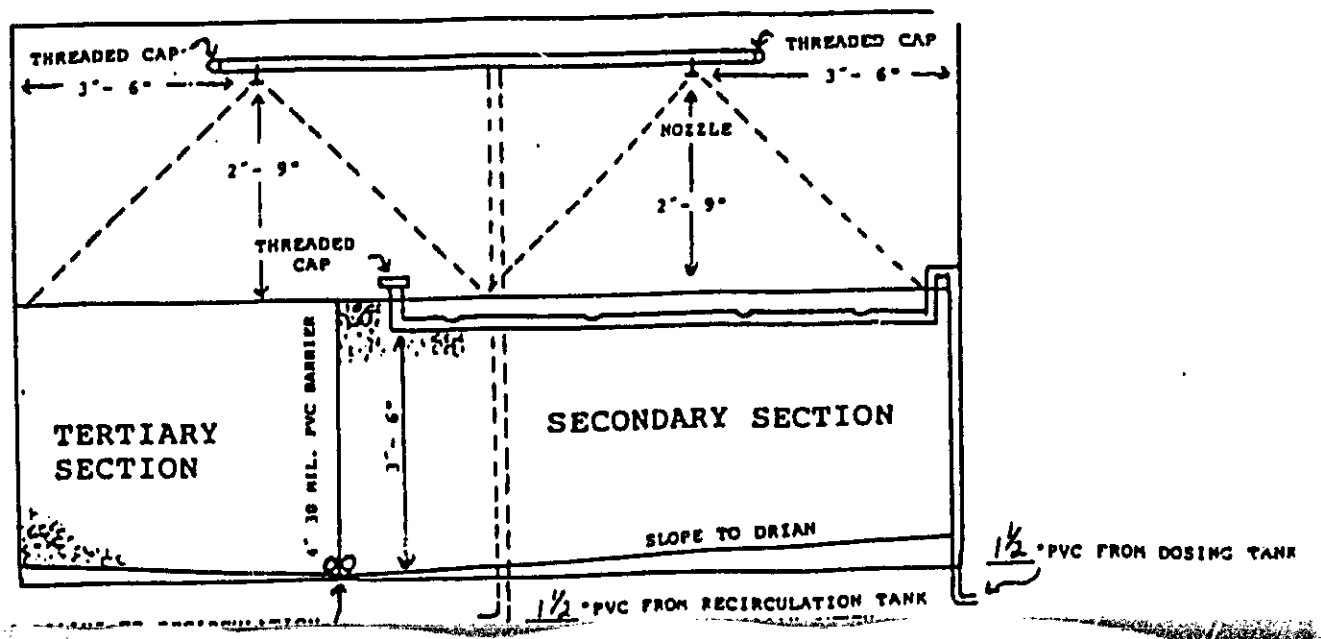
3. *Uniformity coefficient*: less than or equal to 2.

4. Filter media must be washed.



A.I.R.R. SYSTEM
PLAN REVIEW





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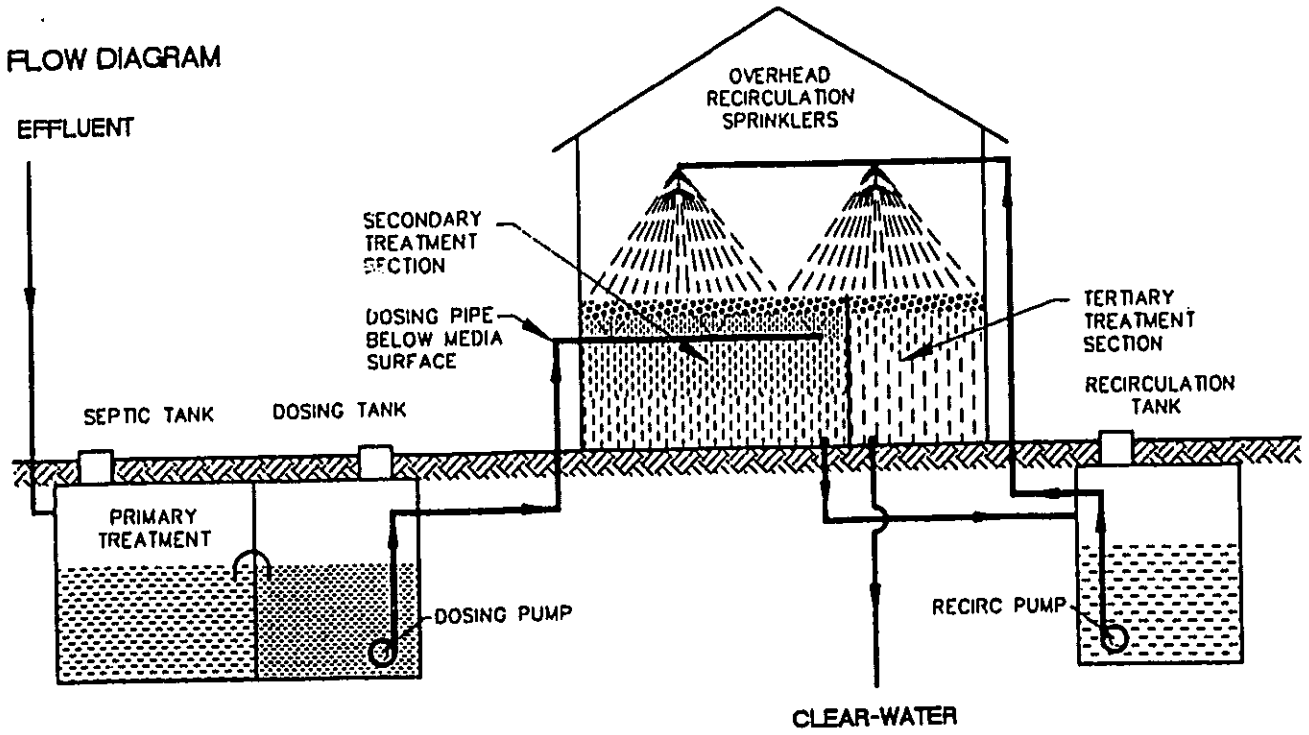
AIRR SYSTEM

(ALTERNATING INTERMITTENT RECIRCULATING REACTOR)

SPEC INDUSTRIES, Inc.

FLOW DIAGRAM



FILTRATE TO DISCHARGE (GRAVITY OR PUMP)

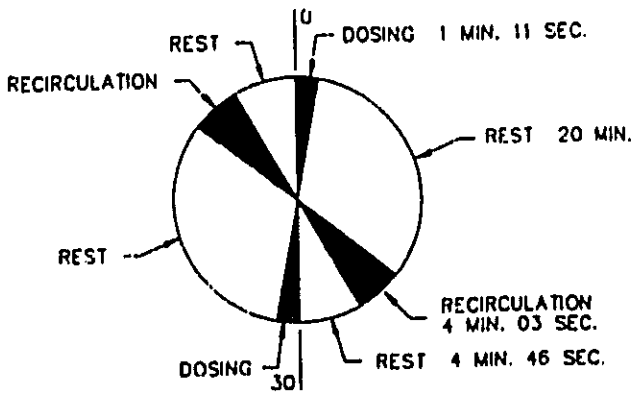
WASTEWATER RECOVERY PROCESS

WATER
IRRIGATION
OTHER RE-USE

DISINFECTION (AS REQUIRED)

SUB SURFACE (QUATERNARY TREATMENT)

TYPICAL HOURLY CYCLE
(EXAMPLE)



AIRR SYSTEM
(PATENT NO. 4,251,359)

THE SECONDARY SECTION PROCESSED FLUID IS CAUGHT BY AN UNDERDRAIN AND THEN RECIRCULATED THROUGH THE SPRINKLERS OVER BOTH THE SECONDARY AND TERTIARY SECTIONS. THAT TREATMENT FLUID FALLING ON THE TERTIARY SECTION MUST GO TO DISCHARGE.

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
2.0	20.0	24.0	24.0	0.0136	25.0	12.2	0.0335	10.7
5.0	20.0	23.0	23.0	0.0136	24.0	12.4	0.0213	10.3
15.0	20.0	18.0	18.0	0.0136	19.0	13.2	0.0127	8.0
30.0	20.0	16.1	16.1	0.0136	17.1	13.5	0.0091	7.2
60.0	20.0	14.4	14.4	0.0136	15.4	13.8	0.0065	6.4
120.0	20.0	12.1	12.1	0.0136	13.1	14.1	0.0047	5.4
240.0	20.0	11.2	11.2	0.0136	12.2	14.3	0.0033	5.0
570.0	20.0	9.0	9.0	0.0136	10.0	14.7	0.0022	4.0
1440.0	20.0	8.8	8.8	0.0136	9.8	14.7	0.0014	3.9

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 21.1 % SAND = 64.7
% SILT = 10.3 % CLAY = 3.9

D85= 6.17 D60= 2.979 D50= 2.336
D30= 0.2682 D15= 0.08008 D10= 0.01899
Cc = 1.2720 Cu = 156.8556

GRAIN SIZE DISTRIBUTION TEST DATA — Test No.: 3

Date: 7-28-1992
Certificate No.: 9207-6540
Client: BURTON STATON

Sample Data

Location of Sample: G 42"-47"depth
Sample Description: silty sand
USCS Class: SM — Liquid limit:
AASHTO Class: — Plasticity index:

Notes

Remarks: SAMPLE#9207-6540-418
Tested by, date: M.BEKEY,7-16-1992
Checked by, date: D.DOSTALER,7-20-1992
LR No.: — Fig. No.:

Mechanical Analysis Data

	Initial	After wash
Dry sample and tare=	521.90	447.80
Tare =	0.00	0.00
Dry sample weight =	521.90	447.80

Minus #200 from wash= 14.2 %
Tare for cumulative weight retained= 0

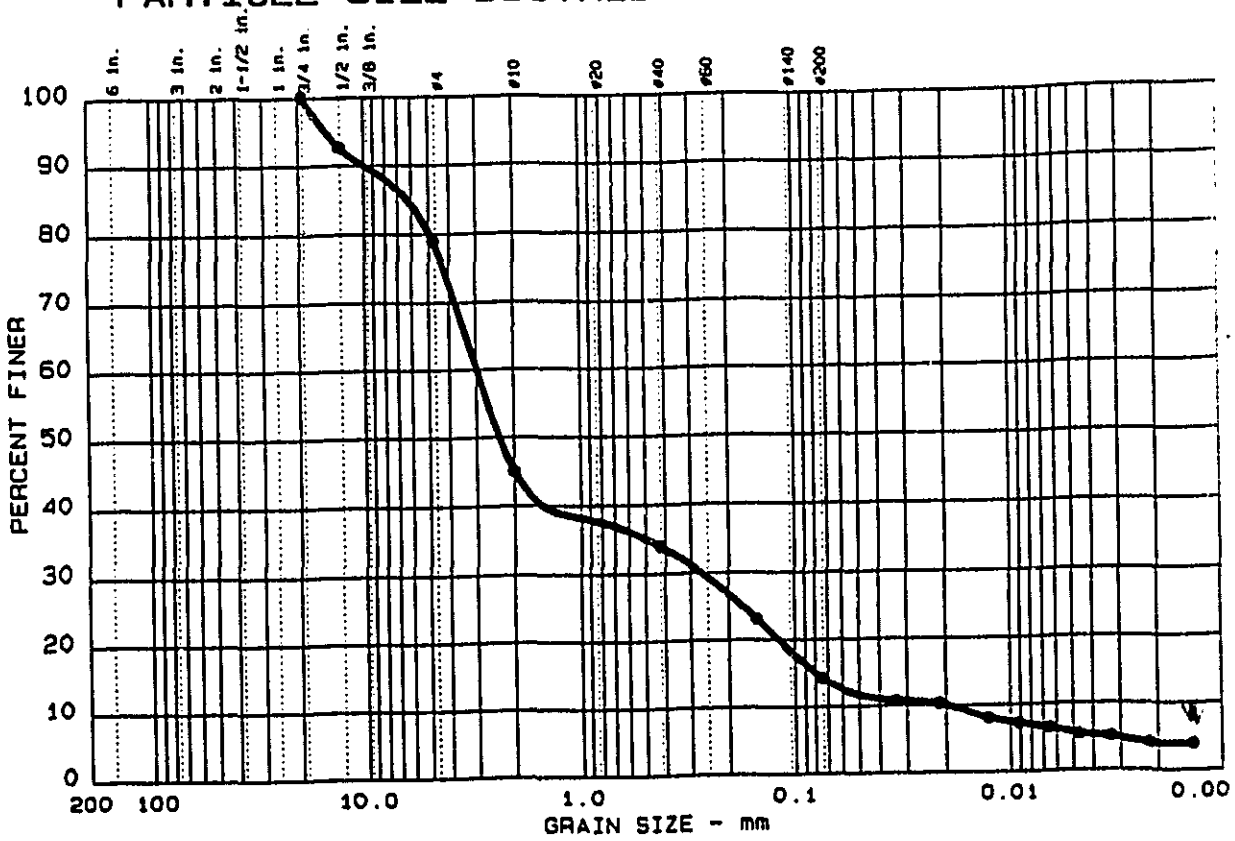
Sieve	Cumul. Wt. retained	Percent finer
0.75 inches	0.00	100.0
0.5 inches	38.70	92.6
# 4	110.00	78.9
# 10	287.20	45.0
# 40	345.50	33.8
# 100	401.60	23.1
# 200	447.80	14.2

Hydrometer Analysis Data

Separation sieve is number 10
Percent -# 10 based on complete sample= 45.0
Weight of hydrometer sample: 100
Calculated biased weight= 222.37
Automatic temperature correction
Composite correction at 20 deg C = 0

Meniscus correction only= 1
Specific gravity of solids= 2.67
Specific gravity correction factor= 0.995

PARTICLE SIZE DISTRIBUTION TEST REPORT



	Test	%+75 mm	% GRAVEL	% SAND	% SILT	% CLAY	USCS
●	3	0.0	21.1	64.7	10.3	3.9	SM

SIEVE inches size	PERCENT FINER ●		
0.75	100.0		
0.5	92.6		
	GRAIN SIZE		
D_{60}	2.98		
D_{30}	0.27		
D_{10}	0.02		
	COEFFICIENTS		
C_C	1.27		
C_U	156.9		

SIEVE number size	PERCENT FINER ●		
4	78.9		
10	45.0		
40	33.8		
100	23.1		
200	14.2		

Sample information:
● G 42'-47'depth
silty sand

Tested by: M.BEKEY
Date: 7-16-1992
Checked by: D.DOSTALER
Date: 7-20-1992
SAMPLE#9207-6540-418

PACIFIC TESTING LABORATORIES

Certificate No.: 9207-6540 LR No.:
Client: BURTON STATON
Date: 7-28-1992 Fig. No. —

SAMPLE # 9207-6540-418

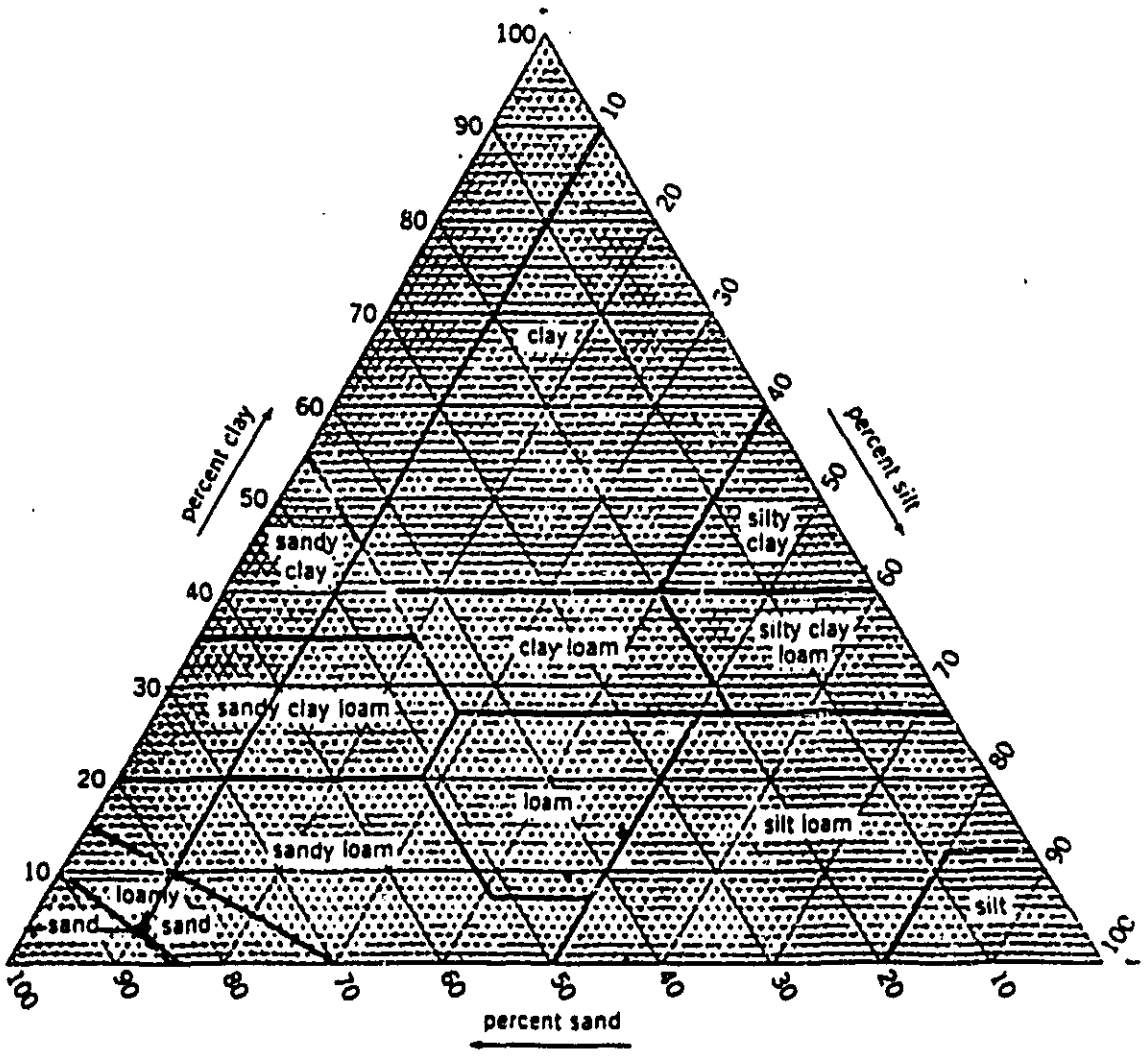


Chart showing the percentages of clay (below 0.002 mm.), silt (0.002 to 0.05 mm.) and sand (0.05 to 2.0 mm.) in the basic soil textural classes.

Excerpt from
U.S. Dept. of Agriculture Handbook 18
Soil Survey Manual

GRAIN SIZE DISTRIBUTION TEST DATA — Test No.: 12

Date: 7-23-1992
Certificate No.: 9207-6540
Client: BURTON STATON

Sample Data

Location of Sample: G-34-37" depth
Sample Description: silty gravelly sand
USCS Class: SM — Liquid limit:
AASHTO Class: — Plasticity index:

Notes

Remarks: SAMPLE#9207-6540-417
Tested by, date: D.DOSTALER,7-14-1992
Checked by, date: R.BAILEY,7-20-1992
LR No.: — Fig. No.:

Mechanical Analysis Data

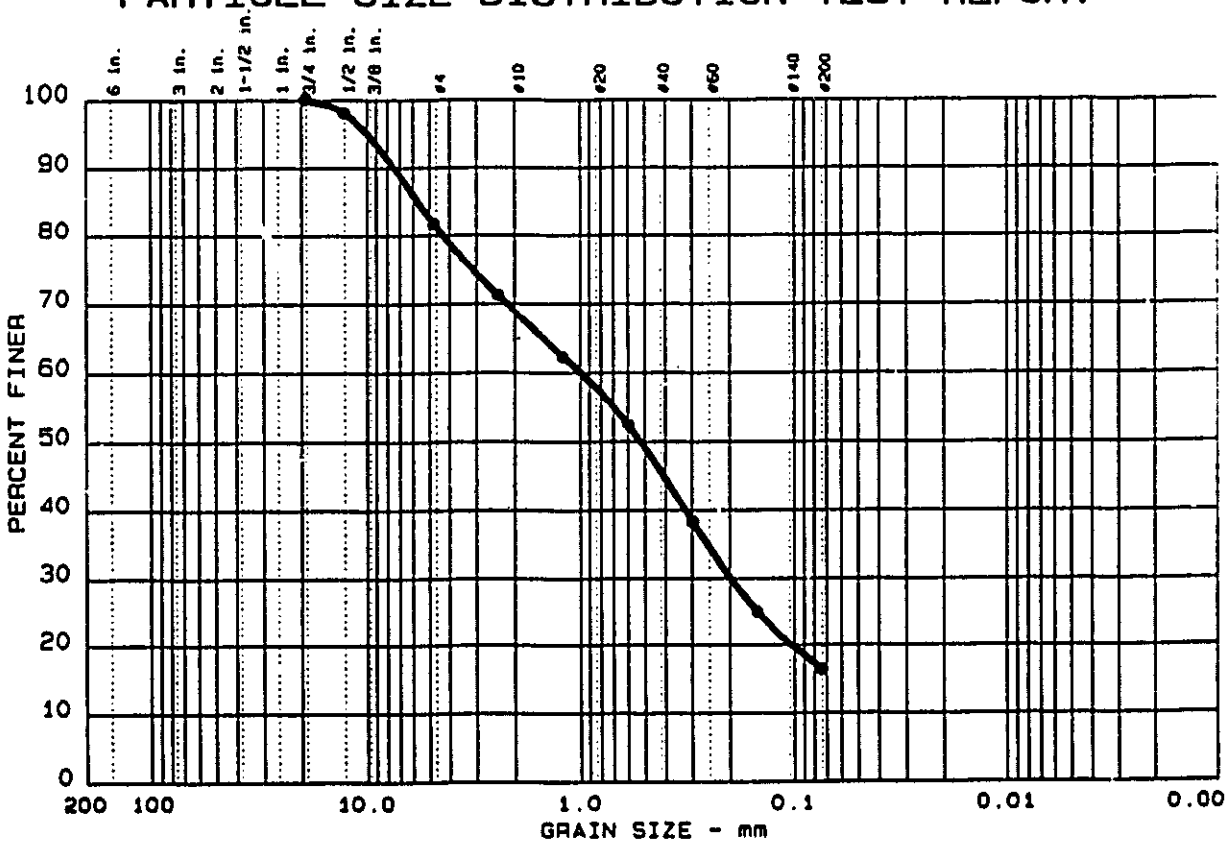
Sieve	Size, mm	Percent finer
0.75 inches	19.05	100.0
0.5 inches	12.70	98.0
# 4	4.760	81.7
# 8	2.380	71.2
# 16	1.190	62.2
# 30	0.590	52.3
# 50	0.297	38.2
# 100	0.149	24.9
# 200	0.074	16.4

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 18.3 % SAND = 65.3
% FINES = 16.4

D85= 5.68 D60= 0.999 D50= 0.518
D30= 0.1993

PARTICLE SIZE DISTRIBUTION TEST REPORT



	Test	%+75 mm	% GRAVEL	% SAND	% SILT	% CLAY	USCS
●	12	0.0	18.3	65.3	16.4		SM

SIEVE inches size	PERCENT FINER ●		
0.75	100.0		
0.5	98.0		
	GRAIN SIZE		
D_{60}	1.00		
D_{30}	0.20		
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ●		
4	81.7		
8	71.2		
16	62.2		
30	52.3		
50	38.2		
100	24.9		
200	16.4		

Sample information:
● G-34-37" depth
silty gravelly sand

Tested by: D.DOSTALER
Date: 7-14-1992
Checked by: R.BAILEY
Date: 7-20-1992
SAMPLE#9207-6540-417

PACIFIC TESTING LABORATORIES

Certificate No.: 9207-6540 LR No.:
Client: BURTON STATON
Date: 7-23-1992 Fig. No. ——

GRAIN SIZE DISTRIBUTION TEST DATA — Test No.: 11

Date: 7-23-1992
Certificate No.: 9207-6540
Client: BURTON STATON

Sample Data

Location of Sample: D-30" depth
Sample Description: silty gravelly sand
USCS Class: SM — Liquid limit:
AASHTO Class: — Plasticity index:

Notes

Remarks: SAMPLE#9207-6540-416
Tested by, date: D.DOSTALER,7-14-1992
Checked by, date: R.BAILEY,7-20-1992
LR No.: — Fig. No.:

Mechanical Analysis Data

Sieve		Size, mm	Percent finer
1	inches	25.40	100.0
0.75	inches	19.05	97.7
0.5	inches	12.70	95.6
# 4		4.760	77.8
# 8		2.380	70.3
# 16		1.190	62.0
# 30		0.590	53.0
# 50		0.297	42.0
# 100		0.149	31.5
# 200		0.074	24.8

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 22.2 % SAND = 53.0
% FINES = 24.8

D85= 6.84 D60= 1.612 D50= 0.479
D30= 0.1303

SAMPLE# 9207-6540-417

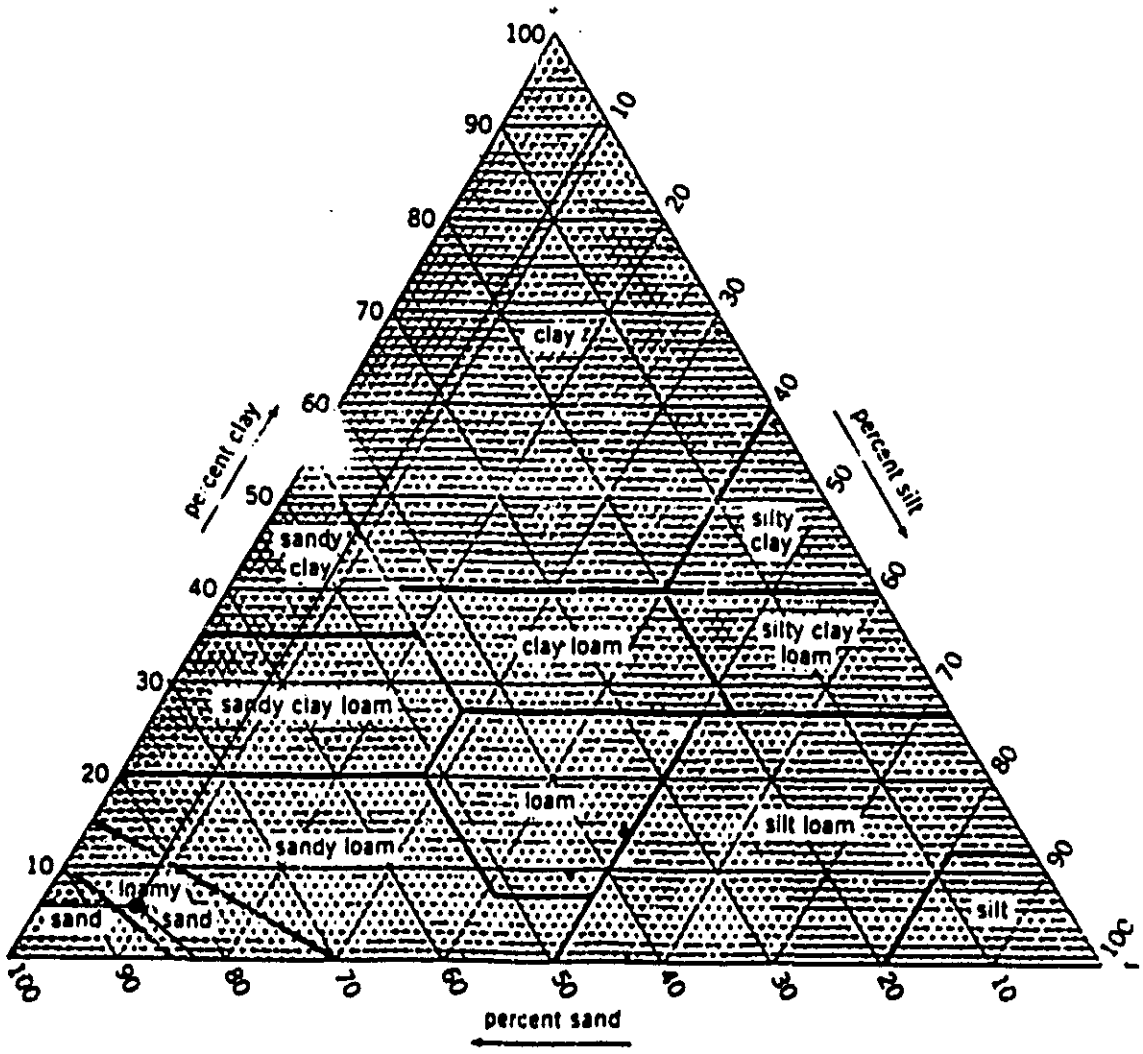


Chart showing the percentages of clay (below 0.002 mm.), silt (0.002 to 0.05 mm.) and sand (0.05 to 2.0 mm.) in the basic soil textural classes.

Excerpt from
U.S. Dept. of Agriculture Handbook 18
Soil Survey Manual

HEAD LOSS CALCULATION FOR DOSING SYSTEM

Daily Design Volume USE 480 gpd Pipe- Class 160 PVC

Dosing Volume/cycle = Daily Volume/48= 10.0 gal. Cycle

STATIC HEAD COMPUTATION

Top of orifice (dosing bed) 57 ft.

Low water elevation (pump tank) 52 ft.

Total Static Head 5.0 ft.

DOSING SYSTEM PRESSURE PIPE FRICTION LOSS

Pipe Dia. 1½" Equivalent Pipe Length 64.9 ft.

Orifice size 3/16 No. of orifices 9 Orifice Flow Rate 0.941

No. of orifices 9 OFR 0.941 = Total flow 8.47 gpm

h_f from friction loss chart 0.4993

h_f from friction loss chart ____

Length/100 x h_f = Head Loss

64.9 x 0.4993 = 0.32 ft.

___ x ___ = ___ ft.

No way to verify these calculations

DOSING SYSTEM BED AND MANIFOLD LOSS

Dosing Bed Pipe dia. 1¼ Length of longest run 6'-2" ft.

Orifice Size 3/16" No. of orifices 3 Flow Rate 0.941 gpm

No. of orifices 3 x Flow Rate 0.941 = 2.82 gpm

h_f = 0.1262 (from friction loss charts)

Length/100 x (h_f x 0.33) +5 ft. = Bed loss

0.06 /100 x (0.1262 x 0.33) + 5 ft. = 5 ft. Bed Loss

Pressure Manifold Head Loss

Manifold pipe dia. 1¼" Manifold length 5 ft.

No. of ~~orifices~~ Laterals 3 ~~Orifice~~ Lateral flow rate 2.82 Total Flow 8.37 gpm

5 /100 x (0.1415 x 0.33) = 0.2 ft. Manifold head loss

DOSING PUMP SELECTION

HEAD LOSS SUMMARY

Static Head	=	5.0 ft.
Friction Loss	=	0.32 ft.
Bed Loss	=	5.0 ft.
Manifold Loss	=	0.2 ft.
Total Head Loss	=	10.34 ft.

Flow gpm = 8.47 gpm Total Head Loss = 10.42 ft.

Use OSP 33M HYDROMATIC pump STANDARD Impeller

PUMP CAPACITY 52.5 gpm @ 10.0 ft. Head

PUMPING TIME

Dosing Volume per cycle/dosing gpm.

10 gal. per cycle/ 8.47 gpm = 1 minutes 11 seconds

Equivalent Pipe Calculation for Pressure Delivery Pipe

Riser from Pump	5'
Horizontal in Tank	3'
Tank to AIRR Unit	19'
Riser in AIRR Unit	4'
.90° Ells (3)	=12.9'
Tees	9.0
Check Valve Swing	11.0
Gate Valve	1'
Equiv. Pipe	64.9'

HEAD LOSS CALCULATION FOR RECIRCULATION SYSTEM

Daily Volume USE 480 gpd

Recirculation Volume/cycle = Daily volume /16 = 30.0 gal.

FullJet Spray Brass Nozzle No. 5509 3.7 . Flow rate gpm 3.7

STATIC HEAD COMPUTATION

Spray head (recirc. system) elevation 60.2 ft.

Low water elevation (pump tank) elevation 48.4 ft.

Total Static Head 5.0 ft.

DELIVERY PIPE FRICTION LOSS

Pipe Dia. 1½" Equivalent Pipe Length 53.0 ft.

No. of heads 2 Flow Rate 3.7 gpm

Total gpm = No. of Heads 2 x 3.7 gpm = 7.4 gpm

h_f = 0.3889 (from friction loss charts)

Length/100 x h_f @ Total gpm = Head Loss ft.

53 /100 x h_f 0.3989 = 0.21 ft. Loss

_____/100 x h_f _____ = _____ft. Loss

SPRINKLER SYSTEM BED LOSS

Length of longest run 3 ft. Pipe dia. 1¼"

No. of heads 1 x 3.7 gpm = 3.7 gpm

h_f = 0.2095 (from friction loss charts)

Length/100 x (h_f x 0.33) + Nozzle Pressure Head = Bed Loss

3 /100 x 0.2095 x 0.33) + 11.5 NPH) = 11.51 ft. Bed Loss

Manifold Pipe dia. NA Manifold Length NA ft.

No. of ~~Nozzles~~ Laterals ___ ~~Nozzle~~ Lateral Flow Rate _____gpm Total _____

_____/100 x (____ x 0.33) = _____ft. Manifold head loss

RECIRCULATION SYSTEM PUMP SELECTION

HEAD LOSS SUMMARY

Static Head = 11.8 ft.

Friction Loss = 0.21 ft.

Bed Loss = 11.51 ft.

Manifold Loss = ---- ft.

Total Loss = 23.52 ft.

PUMP SELECTION

Total Flow = 7.4 gpm

Total Head Loss = 23.52 ft.

Use OSP 33M HYDROMATIC pump

PUMP CAPACITY 11 gpm @ 24 ft. Head

RECIRCULATION PUMP CYCLE TIME

Recirculation Cycle volume/Recirculation gpm = 4 Min. 3 Sec.

TOTAL RECIRCULATION CYCLE

Pumping time + Resting time = 30 min. - (Dosing Pump time + Dosing Rest Time)

Recirc. Cycle = 30 - (1.11 DPT + 20.0 DRT) = 8 Min. 53 Sec.

Equivalent Delivery Pipe.

Riser	= 5.0'
Horizontal	= 7.6
Riser inside MRR	= 7.0'
90° Ells	= 13.0'
Tees.	= 9.0'
Check Valve Swing.	= 11.0'
Gate Valve	= 1.0'
Total	= 53.0' Feet

DATE_____
JOB #_____

PRESSURE DISTRIBUTION CALCULATION WORKSHEET
FIGURES BASED ON CURRENT DSHS GUIDELINES FOR PRESSURE DIST.

DRAINFIELD

DETERMINE ABSORPTION AREA :

OF BEDROOMS : 3
SOIL TYPE : 3
APPLICATION RATE : .8 gal/ft^2/day
DAILY WASTEWATER FLOW : 450.0 GALLONS

ABSORPTION AREA = 562.5 ft^2 = $\frac{\text{(D.W.F.)}}{\text{APP.RATE}}$

MIN. 281.25 lineal feet of 2 foot wide trench.
USE 331.0 LINEAL FT.

NETWORK CONFIGURATION

LATERAL LENGTH = VARIES ft.
LATERAL SPACING = 6' ft. MIN
OF LATERALS = 10.0
MANIFOLD LENGTH = 30.0 ft.
TRANSPORT PIPE = 70.0 ft. OF 3" DIAMETER CLASS 40 PVC.
LATERAL DIAMETER = 1¼" CLASS 40 PVC.

ORIFICE DIAMETER = 3/16"
ORIFICE SPACING = 6.0 ft.
OF ORIFICES = VARIES PER LATERAL

ACCORDING TO CURRENT DSHS GUIDELINES LATERAL DESIGN TABLE A1-1.

MAXIMUM ALLOWABLE LATERAL LENGTH 60.0 ft.

MANIFOLD DIAMETER SELECTION

USE ft. RESIDUAL HEAD

ORIFICE DISCHARGE RATE IN GPM. = $Q = 11.79\ d^2\ h^{1/2}$

ORIFICE DISCHARGE RATE 0.93 GPM. X 52 ORIFICES = 48.36 GPM. PER LATERAL SYSTEM

USE TABLE 1

END( ) CENTRAL(✓) MANIFOLD MAXIMUM ALLOWABLE LENGTH 30.0 ft.
A 30 ft. MANIFOLD/ 3" DIAMETER IS APPROPRIATE.

MANIFOLD TO BE INSTALLED ABOVE (✓) BELOW ( ) LATERALS.

PRESSURIZATION SYSTEM DESIGN
FIGURES BASED ON CURRENT DSHS GUIDELINES PRESSURE DIST.

DOSE VOLUME CALCULATIONS.
SOIL TYPE

DAILY WASTEWATER FLOW 450 GPD.
SOIL TYPE 3
DOSING FREQUENCY 2
$\frac{450}{2}$ = 225.0 GAL. PER DOSE

DOSAGE/PIPE VOLUME RATIO

(V_M) = MANIFOLD VOLUME = (.385 GAL./FT.)(30.0 FT.) = 11.55 GALLONS
(V_L) = LATERAL VOLUME = (.078 GAL./FT.)(331.4 FT.) = 25.8 GALLONS
(V_T) = TRANSPORT LINE VOLUME = (___ GAL./FT.)(___ FT.) = ___ GALLONS
(ONLY IF IT DRAINS.)

DAILY DOSE VOLUME = $7(V_M+V_L)+V_T$ = 261.45 GAL. PER DOSE

*SOIL TYPE DOSE VOLUME = 225.0 GALLONS
*PIPE/DOSE VOLUME = 262.1 GALLONS

CHOOSE LARGER VOLUME: 262.0 GALLONS

SYSTEM DISCHARGE

ORIFICE DISCHARGE RATE IN GPM. = $Q = 11.79\ d^2h^{1/2}$

(ORIFICE DISCHARGE RATE)(# OF ORIFICES/LATERAL)(# OF LATERALS)

(0.93 GPM PER ORIFICE)(52 ORIFICES/LATERAL)(___ LATERALS)

SYSTEM DISCHARGE = 48.36 GPM.

PRESSURE DISTRIBUTION CALCULATION WORKSHEET
FIGURES BASED ON CURRENT DSHS GUIDELINES FOR PRESSURE DIST.

SYSTEM FRICTION LOSSES

FITTINGS IN EQUIVALENT FT.

REDUCER = 5.0 ft.

90° ELLS (2) = 16.0 ft.

22° ELL = 2.2 ft.

GATE VALVE = 1.7 ft.

QUICK CHECK VALVE = 20.0 ft.

TRANSPORT PIPE LENGTH = 70 ft.

TRANSPORT PIPE IN EQUIVALENT FT. = 114.9 FT.

TOTAL FRICTION LOSSES
SEE APPENDIX 3

$f = (L) \times (Q/K)^{1.85}$

TRANSPORT PIPE: $f = (114.9)(48.36/90.29)^{1.85}$ = 0.005 ft.

MANIFOLD PIPE : $f = (30.0)(48.36/90.29)^{1.85}$ = 0.005 ft.
" " FITTINGS = ____ ft.

LATERAL PIPE : $f = (390)(48.36/98.3)^{1.85}$ = 0.267 ft.
" " FITTINGS = ____ ft.

STATIC HEAD = 26.0 ft.

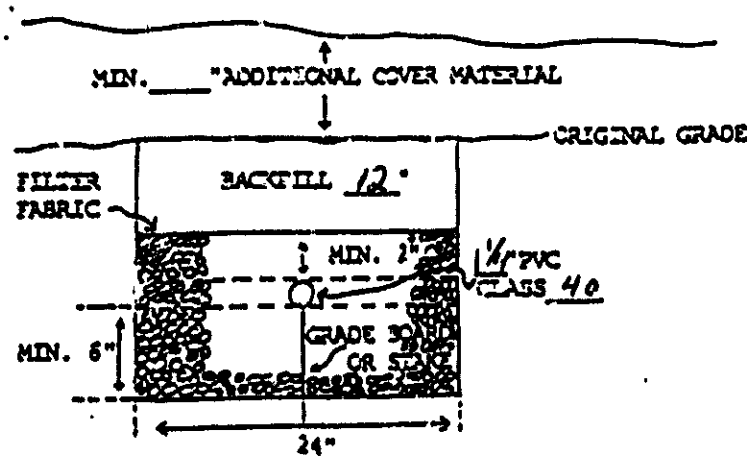
RESIDUAL HEAD = 5.0 ft.

TOTAL DYNAMIC HEAD = 31.5 ft.

PUMP CHOSEN QSPD.50 II

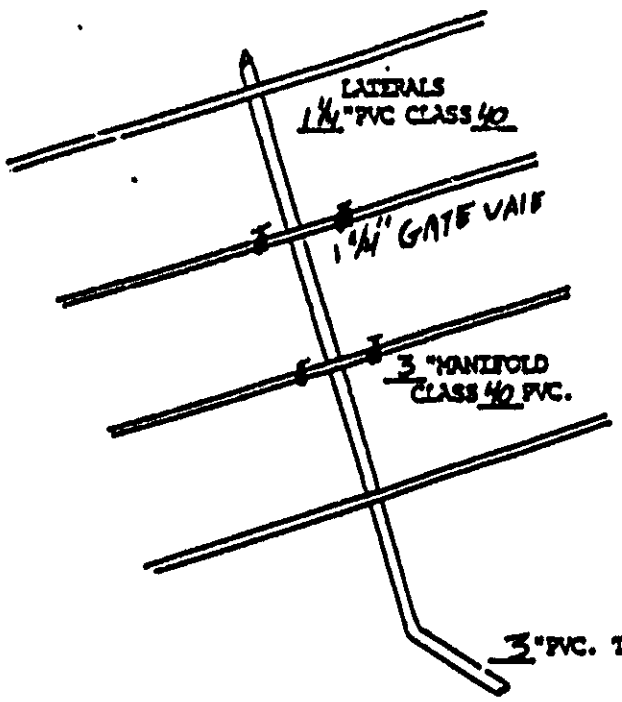
PUMP # 2 ____

NOTES: IF ANY TANK LOCATION AND OR ELEVATION CHANGES SYSTEM FRICTION LOSSES MUST BE RECALCULATED. IF A.J.R.B. SYSTEM LOCATION AND OR ~~FRICTION~~ ELEVATION CHANGES FRICTION LOSSES MUST BE RECALCULATED. (PUMP SIZE MAY CHANGE)

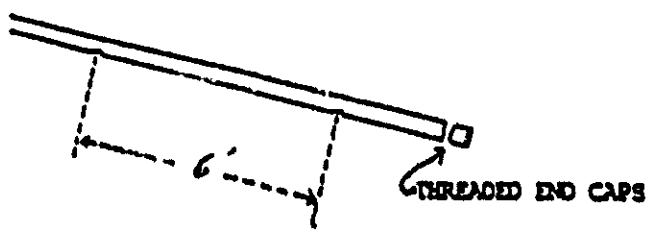


NOTES
1. MIN. 24/MAX. 27 DEPTH OF TRENCHES.
2. BOTTOM OF TRENCHES & DRAIN LINES TO 5% LEVEL.
3. TRENCHES TO FOLLOW GROUND SURFACE CONTOURS.
4. IF HOUSE LOCATION VARIES FROM PLAN SPECIFIED PUMP MAY HAVE TO BE CHANGED.

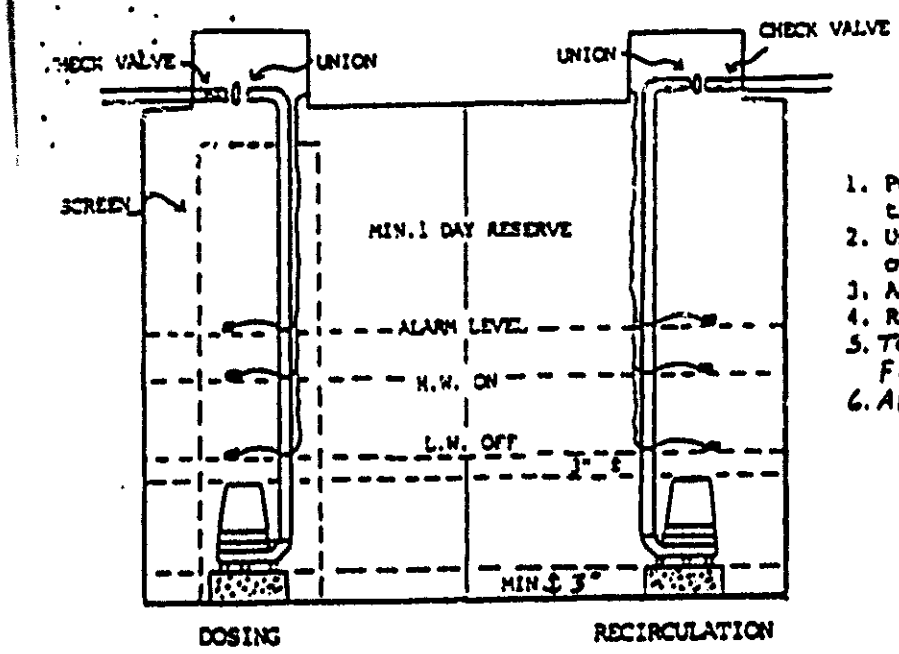
LATERAL LAYOUT



LATERAL DETAIL



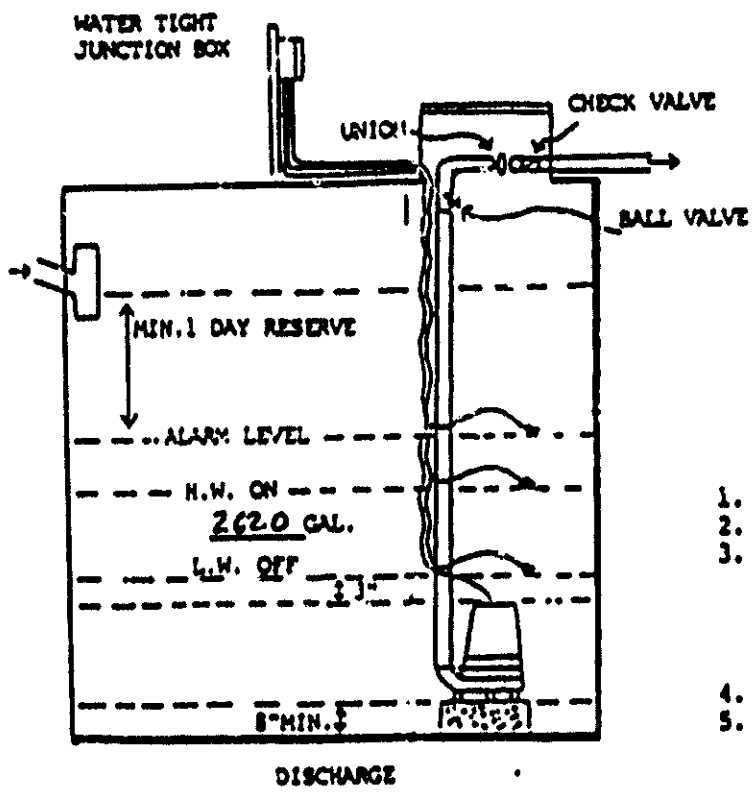
NOTES
1. 3/16" HOLES DRILLED IN 6 O'CLOCK POSITION.
2. USE THREADED END CAPS FOR CLEAN OUTS.
3. LAST ORIFICE DRILLED IN 12 O'CLOCK POSITION FOR PRESSURE TESTING.



NOTES

1. Pump cycles to meet A.I.R.R. System timing requirements.
2. Use liquid control levels as emergency override.
3. All tanks must be water tight.
4. Risers to bring lids above ground level
5. TO USE PLASTIC RISERS WITH FIBERGLAS LIDS.
6. APPROVED FILTER TO BE PLACED IN THE 2/3 SIDE OF CENTER BAFFLE OF SEPTIC TANK.

PUMP TANK
PLAN REVIEW



NOTES

1. All tanks to be county approved
2. Pump cycle not to exceed 10 minutes.
3. If risers are used ; bring lid level to within 12" of finished grade with marker to remain visible above finish grade or extend manhole to grade. All joints to be sealed water tight.
4. use liquid control levels.
5. Screen material to meet current DSHS guidelines, non-corrosive material, cable filter, or approved filter in septic tank outlet.
6. Use separate electrical circuit for pump & alarm system.

28(31

1.717

CASPER, PHILLIPS & ASSOCIATES

3340 EAST 11TH STREET
TACOMA, WA 98421

PHONE: (206) 627-7400
FAX: (206) 627-4715

M E M O

DATE: August 25, 1992 PAGE 1 OF 1

FROM: William L. Casper
Civil Engineer

TO: HEALTH OFFICER AT: SEATTLE-KING CTY D.O.P.H.

SUBJECT: POSCHWATTA

MESSAGE:

Enclosed is a redesign which addresses the Health Officer's concerns about the previous design. The previous concerns had to do with the size of the test pits, the depth of what appeared to be a restrictive layer and the slope % of the drainfield.

In our opinion none of the previous concerns were cause for rejection but, to better substantiate this opinion we have obtained more technical backup. This backup consists of a soil scientist report, laboratory soil tests and a professionally made topographic survey.

The test pits should never have been a cause for concern but to take away all question they will be filled with ASTM C33 sand or other material acceptable to the Health Officer. Note only two pits are within the actual drainfield area.

The soil layer that appeared to be a restrictive layer is highly compacted USDA loamy sand. This material is not impervious, nor will it become impervious later. Rather it should loosen as it is exposed to oxygen and water. Furthermore, the layer is deep enough that there should be no cause for concern about having adequate separation.

Drainfield slope is within permissible limits as shown on the topo. We have also increased the drainfield length to 50 feet more than code minimum. This reduces application rate from .8 to .68 gal/sq.ft. Considering that the effluent comes from a recirculating sand filter we trust the Health Officer will agree there is no threat to public health with this revised design.

Best Regards,

W. Casper

SH-SID/SIL

RECEIVED
JAN 27 1993
ALDER SQUARE

City of Seattle
Norman B. Rice, Mayor

King County
Tim Hill, Executive

Seattle-King County Department of Public Health

David M. Lurie, *Director*

January 22, 1993

Jeff Poschwatta
17603 S.E. 295th
Kent, WA 98042

Re: Decision of the King County Board of Sewage Review:
Application #92-90
28600 176th Avenue S.E., Kent
Parcel Number 362205-9171

Dear Mr. Poschwatta:

The King County Sewage Review Board met on January 12, 1993 to consider your application for waiver of the Code of the King County Board of Health, Title 13 (Rules and Regulations No. 3).

The Board has considered your application for reduction in setback between the proposed drainfield trenches and the roadside cut installed immediately downslope of the northeasterly portion of the proposed drainfield area, waiver of the Health Department reviewer's findings that the site generally does not qualify due to steeper slopes versus soil depths (insufficient vertical separation), insufficient setback to the roadside ditch from the proposed drainfield area and also disturbed soils as a result of large soil test pits. In addition, the application petitioned for the use of the A.I.R.R. proprietary recirculating gravel filter.

After reviewing the application and making a site visit, it is the decision of the Board to deny the waiver request on the grounds that site and soil conditions, in the opinion of the Board, preclude an on-site sewage system if installed as designed from providing adequate treatment and disposal for a sufficiently long time expected to support a newly constructed dwelling. Specifically, the Board's concerns include:

1. The depth of permeable soil is not commensurate with the slope conditions existing on the site, i.e., 60 inches of original undisturbed soil depth is required above a restrictive layer on sites with slopes exceeding 30%.

2. The proposed drainfield site has slopes which are presented as ranging up to 33%. The proposed drainfield is sized based upon a proposed effluent application rate of .8 gallons per square foot per day which exceeds the maximum loading rate of .5 gallons per square foot per day for drainfield sites with slopes exceeding 30%.

3. The exposed face of the slope adjacent to the road does constitute a cut in the soil horizon and therefore an adequate drainfield setback should be maintained in accordance with the design standards.

4. It is the opinion of the Board that insufficient vertical separation is available on this site for the design submitted. The drainfield trench depth specified ranges from 24 to 27 inches and the depth to the restrictive layer is specified as ranging between 33 to 55 inches. Even if the site slopes were not a factor, this soil depth relevant to the specified trench depth would only provide. in places, as little as 9 inches of vertical separation which is clearly insufficient for an on-site treatment and disposal system. This condition becomes even more pronounced with the addition of the site slope factor.

5. In the opinion of the Board, soil test pits installed by backhoe are more conducive to adequate determination of soil profiles. than hand dug post holes. However, the designer must take the amount of soil disturbance created by backhoe pits into consideration relative to the over-all size of the site and number of test pits installed as well as the soil conditions encountered.

6. It appears that the driveway location as specified on the plot plan would necessitate the creation of additional soil cuts for which additional drainfield setbacks would need to be maintained.

7. Use of the proposed proprietary device does not reduce the vertical separation requirements.

All decisions of the Board shall be final unless within twenty (20) days from the date of decision an aggrieved person obtains a writ of certiorari from Superior Court in and for the County of King, State of Washington, for the purpose of review of the decision.

Sincerely,

John P. Nordin, Chairman
King County Sewage Review Board

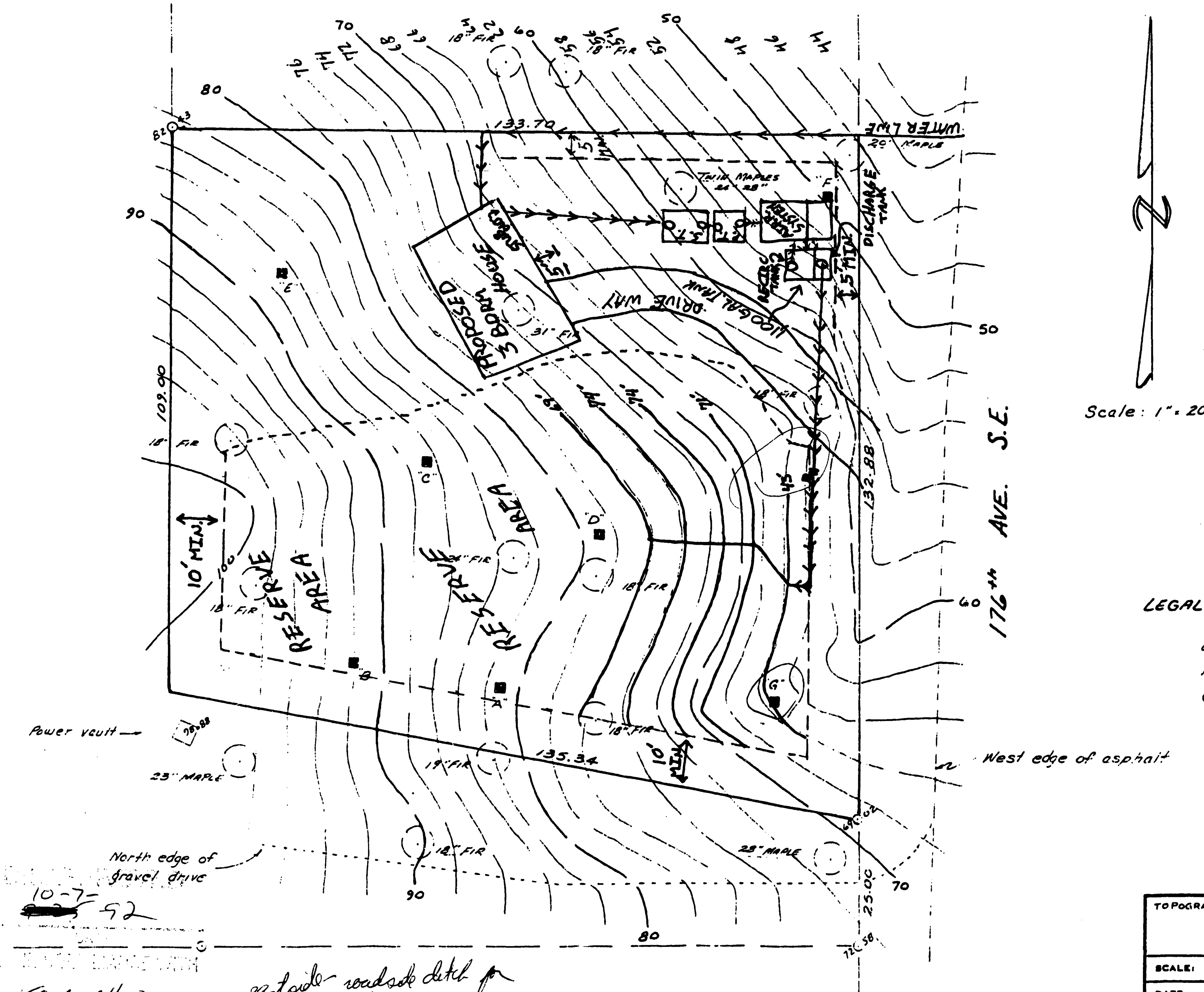
by James Henriksen R. Davis

James Henriksen, Secretary

JPN:jhm

cc: Alder Square District Service Center
Attn: Gale Yuen/Sid Forman
W.L. Casper

286XX 176th SE



LEGEND:

○ indicates existing rebar & cap

■ indicates existing perc. hole.

BASIS OF ELEVATION: ASSUMED

11/11/91

LEGAL DESCRIPTION:

Lot 3, King County Short Plat No 676097, Recording No. 7708220785, records of King County, Washington.

S B SADLER BARNARD & ASSOC. INC

31218 PACIFIC HIGHWAY SOUTH
FEDERAL WAY, WASHINGTON 98003-5496
TELEPHONE (206) 941-1599

TOPOGRAPHIC SURVEY FOR:		
JEFF POSCHWATTA		
SCALE: 1" = 20'	APPROVED BY:	DRAWN BY GB
DATE: 11-09-91		REVISED
		DRAWING NUMBER 91-0317

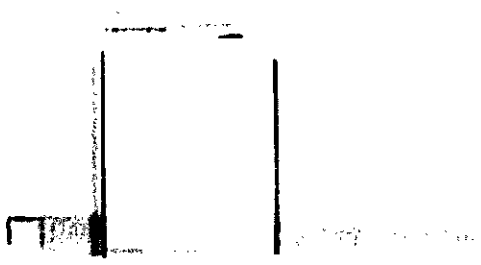
10-7-92

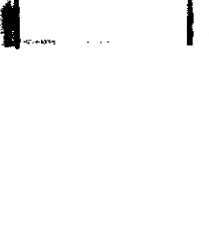
KC RD #3

SEATTLE-KING CO.
DEPT. OF PUBLIC HEALTH
BY

eastside roadside ditch for drainage

eastside bank - 7-8 ft high. and lot cut - large cut ≥ 8 ft.





28600 176th AVE SE

MEMORANDUM

SEATTLE-KING COUNTY
DEPARTMENT OF PUBLIC HEALTH

TO:	FISCAL SERVICES
FROM:	Alder Square Environmental Health Services DATE: 8/05/94
SUBJECT:	REFUND REQUEST FORM

Refund To:	Bob Barker
Address:	1317 E. Lk Samash Sh. Ln.
City/State/Zip:	Issaquah WA 98027

Reason for Refund:	Will be resubmitting for different type of system requiring different fee.

IF APPLICABLE**			
Permit #:		Permit Date:	
Permit Address:			
Amount Paid:	$ 145.00	Amount Retained:	$ 25.00
** COPY OF VALIDATED PERMIT OR APPLICATION SHOULD BE ATTACHED.			

Type of Revenue Being Refunded:	On-site Sewage Disposal System

AMOUNT OF REFUND BEING REQUESTED:	$120.00

FOR FISCAL SERVICES USE ONLY	Refund Date:				
	Voucher #:		or	Petty Cash Check #:	

11.1.33

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

RESCO
Mechanical & Civil Engineering
13232 - 138th Ave. S.E.
Renton, WA 98059
(206) 228-4244
FAX (206) 228-4292

July 27, 1994

Please refund
Designer decided
to re-submit for
P.D.
Paul

Paul Robinson, Senior Sanitarian
King County Public Health Dept.
1404 Central Ave. South
Kent, Wa. 98032
Ph.(206)296-4708

RE: On-site system design for Lot 3 of King C
plat Number 6706097 at 28[illegible]00 176th S.E. (

Dear Paul;

I have enclosed four copies of a site applications for the above referenced parcel. As I mentioned to you on the phone this morning, systems for this parcel have been designed and rejected in the past at least twice. However, the previous designs proposed an on-site system that included the drainfield on the lot and the lot does not have adequate room or suitable conditions for the system as previously proposed.

The design that I am submitting features the use of a drainfield to be located on property to the north of the site. Arrangements have been made to purchase the required easements and I would not expect you to approve my design until such time that you have recorded copies of the required easement. Hence, I am requesting that you field review the site and hold the application until conformed copied of the recorded easement are delivered to you.

Thank you for your cooperation. I am looking forward to meeting you on the site on August 2, 1994 at 1:30 P.M.

Sincerely,

Richard E. Stuth, P.E.

pl

Seattle-King County Department of Public Health

Site Application for On-Site Sewage Disposal System
(Submit 5 copies of application with 4 copies of plans)

Paid $145.10

Activity Number
H 94R0474
Department Use Only

Approximate Site Address: 28600 176th Ave. S.E., Kent

ATTACH A DETAILED ROUTE/ DIRECTION MAP FOR LOCATING THE PROPERTY.

Applicant Name: Barker, Bob H. (Last, First)
Street Address: 1317 E. Lk. Sam. Sh. Ln. S.F., Issaqua
City-Zip Code: 98027 Phone: 836-4662

Designer: R.E. Stuth, P.E.
Street Address: 13232 138th Ave. S.E., Renton
City-Zip Code: 98059 Phone: 228-4244

PROPERTY INFORMATION:

Parcel #: 3622059171 - Section: 36 Township: 22 Range: 5
Subdivision Name: K.C.S.P. #6706097 Lot: 3 Block:
Property Size: 16,100 sq. ft. Acreage: 0.37
Distance from property line to nearest sewer: 10,000 ft. Within ULID? N (Y?N)
Water Supply: P (IP) I = Individual P = Public (More than One Connection)
Public Water Supply Name: Covington Water District ID#
Sensitive Area: N (Y?N) If yes, specify (L,W,O) (L = Landslide W = Wetlands O = Other)

SYSTEM INFORMATION:

New System: N Repair Design: Detailed Plans Attached: (4 sets) Y (Y/N)
Type of Building: SF = Single Family MF = Multiple Family COMM = Commercial INST = Institutional
Type of System Proposed: G - G = Gravity GP = Gravity with pump M = Mound
PD = Pressure Distribution SF = Sand Filter HT = Holding Tank CT = Composting Toilet E = Experimental O = Other
Dates Soils Logged: 7/23/94 Soil Logs Data Attached: (Min. 4/lot) Y (Y/N)
Depth to Watertable or Restrictive Layer: None inches Maximum Slope in Drainfield/Reserve Area: 24 %

CALCULATIONS:

Number of bedrooms: 3 Total Gallons/Day (450 minimum): 450 gal. Soil Texture Type (1-5): 4
Application Rate: 0.6 gal/sq ft/day Total Absorption Area: 750 sq. ft.
Total Drainfield Length: 375 ft. Septic Tank Size: 1000 gal.
Pump Chamber Size (if needed) N.A. gal. Trench Depth (min/max) 9" / 12" inches

I understand that failure to comply with the Code of King County Board of Health Title 13 may result in the disapproval of the sewage system being proposed in this application. Non-compliance may also lead to revocation of my Designer's Certificate of Competency and/or appropriate legal action by the Health Department.

Designer's Signature: Richard E. Stuth PE ID# Date: July 26, 1994

FOR HEALTH DEPARTMENT USE ONLY

APPROVED (date) BY:

SYSTEM MUST BE INSTALLED BY A KING COUNTY CERTIFIED INSTALLER UNLESS OTHERWISE PROVIDED BY CODE

Comments/Conditions:

APPROVAL OF THIS DESIGN APPLICATION IS BASED SOLELY ON INFORMATION PROVIDED IN THIS APPLICATION AND DOES NOT CONSTITUTE PERMISSION TO BEGIN CONSTRUCTION OF THE PROPOSED SEWAGE DISPOSAL SYSTEM OR ANY OTHER IMPROVEMENTS ON THE SITE. THIS APPROVAL SHALL *NOT* BE CONSIDERED AN ASSURANCE, EITHER EXPRESSED OR IMPLIED, THAT DEVELOPMENT PERMITS FOR THE SITE WILL BE ISSUED.

THIS APPLICATION EXPIRES TWO YEARS FROM DATE OF APPROVAL.

DISAPPROVED (date) BY:

See attached Site Deficiency Sheet.
Any person aggrieved by any decision or final order of the Health Officer may make written application for appeal to the King County Board of Sewage Review if done so within 60 days of the above decision.

RECEIVED
JUL 28 1994
ALDER SQUARE

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

RESCO
Mechanical & Civil Engineering
13232 - 138th Ave. S.E.
Renton, WA 98059
(206) 226-4244
FAX (206) 228-4292

July 27, 1994

Paul Robinson, Senior Sanitarian
King County Public Health Dept.
1404 Central Ave. South
Kent, Wa. 98032
Ph.(206)296-4708

RE: On-site system design for Lot 3 of King County Short plat Number 6706097 at 28600 176th S.E. (Approx)

Dear Paul;

I have enclosed four copies of a site applications for the above referenced parcel. As I mentioned to you on the phone this morning, systems for this parcel have been designed and rejected in the past at least twice. However, the previous designs proposed an on-site system that included the drainfield on the lot and the lot does not have adequate room or suitable conditions for the system as previously proposed.

The design that I am submitting features the use of a drainfield to be located on property to the north of the site. Arrangements have been made to purchase the required easements and I would not expect you to approve my design until such time that you have recorded copies of the required easement. Hence, I am requesting that you field review the site and hold the application until conformed copied of the recorded easement are delivered to you.

Thank you for your cooperation. I am looking forward to meeting you on the site on August 2, 1994 at 1:30 P.M.

Sincerely,

Richard E. Stuth, P.E.

SOIL LOGS FOR: LOT 3 OF K.C.S.P. #6706097
@: 28600 176TH AVE. S.E., KENT

SOIL LOG #1: 0" TO 12" LOAMY TOP SOIL
12" TO 48" VERY LOOSE GRAVEL LOAM WITH ROOTS & ROOT HAIRS FULL DEPTH
48" TO 52" GRAVEL LOAM

SOIL LOG #2: 0" TO 12" LOAMY TOP SOIL
12" TO 52" VERY LOOSE GRAVEL SILT LOAM
ROOTS AND ROOT HAIRS EXTEND FULL DEPTH

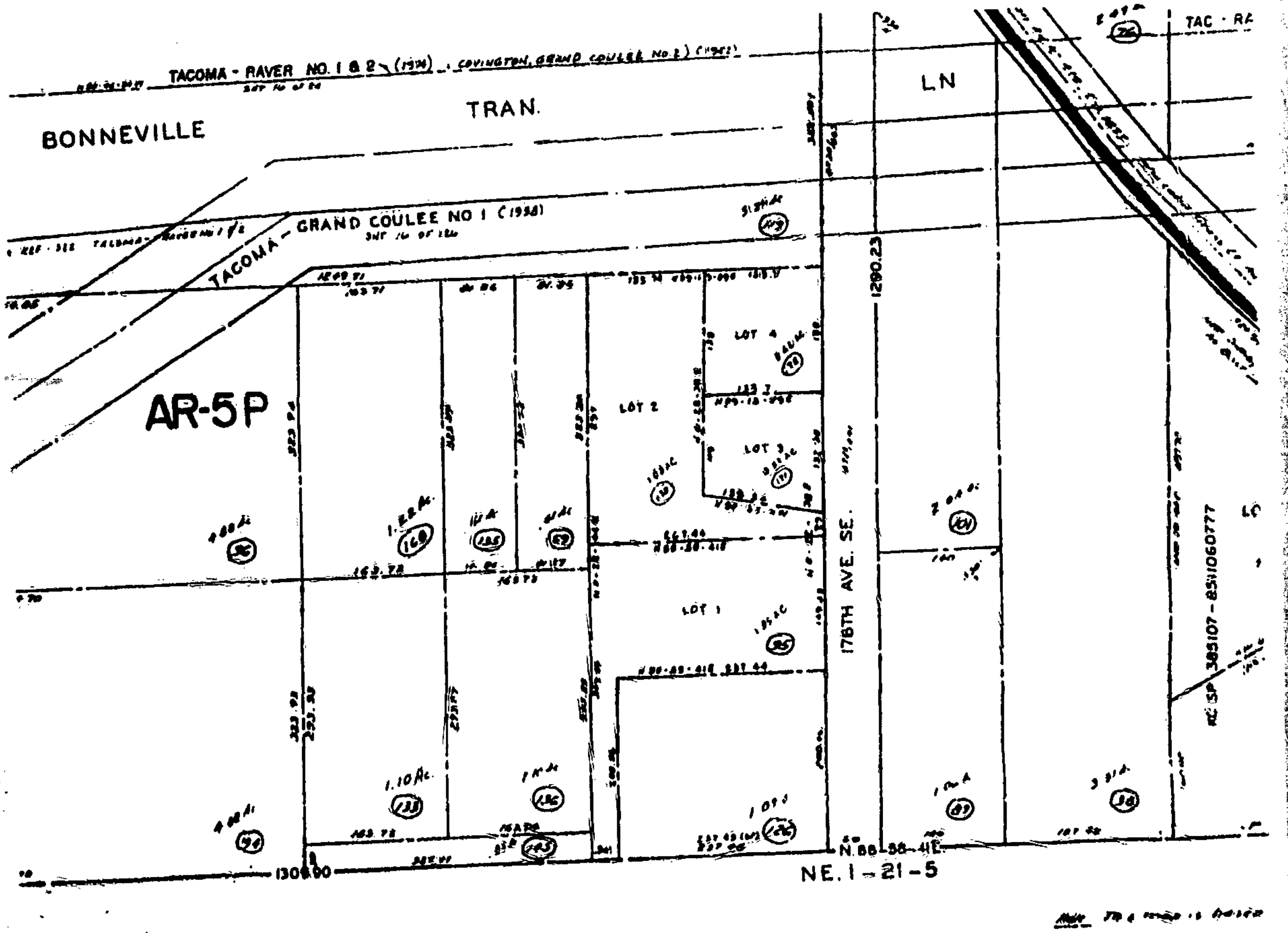
SOIL LOG #3: SAME AS #2

SOIL LOG #4: SAME AS #2

See plan sheet for soil log locations. Soil logs were covered because of the presence of horses in soil log area. Soil logs will be opened for review by appointment.

RICHARD E. STUTZ
STATE OF WASHINGTON
9017
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES 2/22/95



TACOMA - RAVER NO. 1 & 2
BONNEVILLE
TRAN.
LN
TAC - RA
TACOMA - GRAND COULEE NO 1 (1938)
AR-5P
LOT 4
LOT 2
LOT 3
LOT 1
176TH AVE. SE.
1290.23
KC SP 385107-8511060777
1308.90
N.88-58-41E.
NE. 1-21-5

PRIVATE DRAINAGE EASEMENT

For a valuable consideration, receipt of which is hereby acknowledged, the GRANTOR(s), Joseph K. Pierce and Carol J. Frary

the owner(s) in fee of that certain parcel of land, described as follows:

Parcel #3622059119 (See also attached Exhibit "A")

hereby grant(s) and convey(s) a drainage easement on over and across the following described property:

the South 80 feet of the East 120 feet of the above described parcel

Said easement is for purposes of installing and maintaining an on-site sewage disposal drainfield as approved by King County Department of Public Health. Said easement grants the right of ingress and egress as required for the installation and continued maintenance and/or improvements to an on-site sewage disposal system drainfield serving the the following described property:

Parcel #3622059171, Lot 3 of King County Short Plat Number 6706097

The easement is granted to the owner(s) (GRANTEE(S)) of said Parcel #3622059171, Lot 3 of King County Short Plat No. 6706097, who is/are responsible for operating, maintaining and repairing the sewage disposal drainfield contained within said drainage easement.

The rights and obligations contained herein shall inure to the benefit of and be binding upon the parties' respective successors and assigns.

IN WITNESS WHEREOF this easement is executed as of this ___ day of _____, 1994.

JOSEPH K. PIERCE, Grantor

CAROL J. FRARY, Grantor

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this day personally appeared before me JOSEPH K. PIERCE to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: _____

_____
Notary Public in and for the State of Washington residing at _____
My appointment expires _____

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this day personally appeared before me CAROL J. FRARY to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: _____

_____
Notary Public in and for the State of Washington residing at _____
My appointment expires _____

EXHIBIT "A"

LEGAL DESCRIPTION

King County Parcel #3622059119. also described as:

THE SOUTH HALF OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 36, TOWNSHIP 22 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY, WASHINGTON. EXCEPT ANY PORTION THERTO LYING WITH THE FOLLOWING DESCRIBED TRACT:
BEGINNING AT THE INTERSECTION OF THE EASTERLY LINE OF SAID SUBDIVISION WITH SOUTHWESTERLY LINE OF GRASS LAKE-LAKE SAWYER ROAD;
THENCE NORTHWESTERLY ALONG SAID SOUTHWESTERLY LINE 43 FEET TO POINT OF BEGGINGING;
THENCE SOUTHWESTERLY AT RIGHT ANGLES 256 FEET;
THENCE NORTHWESTERLY PARALLEL WITH SOUTHWESTERLY LINE OF SAID ROAD 170 FEET;
THENCE NORTHEASTERLY 256 FEET TO A POINT ON SOUTHWESTERLY LINE A DISTANCE OF 170 FEET NORTHWESTERLY OF THE TRUE POINT OF BEGINNING;
THENCE SOUTHEASTERLY ALONG SAID SOUTHWESTERLY LINE 170 FEET TO THE TRUE POINT OF BEGINNING.
ALSO EXCEPT ANY PORTION THERETO, WHICH MAY LIE WITHIN THE NORTH 330 FEET OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION.
ALSO, EXCEPT THE EAST 60 FEET THEREOF CONVEYED TO KING COUNTY FOR 176TH AVE. S.E., UNDER AUDITOR'S FILE NOS. 5954732,5954733, 5954734, 5954735, 5965844 AND 5965845.

PRIVATE UTILITYE EASEMENT

For a valuable consideration, receipt of which is hereby acknowledged, the GRANTOR(s), _____

the owner(s) in fee of that certain parcel of land, described as follows:

Parcel #3622059172, Lot 4 of King County Short Plat Number 6706097

hereby grant(s) and convey(s) a utility easement on over and across the following described property: _____

the East 10 feet of the above described Grantor's property parcel

Said easement is for purposes of installing and maintaining an on-site sewage system sewer line as approved by King County Department of Public Health. Said easement grants the right of ingress and egress as required for the installation and continued maintenance and/or improvements to said sewer line serving the following described property: _____

Parcel #3622059171, Lot 3 of King County Short Plat Number 6706097

The easement is granted to the owner(s) (GRANTEE(S)) of said Parcel #3622059171, Lot 3 of King County Short Plat No. 6706097, who is/are responsible for operating, maintaining and repairing the sewer line contained within said drainage easement.

The rights and obligations contained herein shall inure to the benefit of and be binding upon the parties' respective successors and assigns.

IN WITNESS WHEREOF this easement is executed as of this ___ day of _____, 1994.

_____, Grantor

_____, Grantor

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this day personally appeared before me JOSEPH K. PIERCE to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: _____

_____
Notary Public in and for the State of Washington residing at _____
My appointment expires _____

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this day personally appeared before me CAROL J. FRARY to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: _____

_____
Notary Public in and for the State of Washington residing at _____
My appointment expires _____

28600 176 SE

City of Seattle
Norman B. Rice, *Mayor*

King County
Ron Sims, *Executive*

Seattle-King County Department of Public Health

Alonzo L. Plough, Ph.D., MPH, *Director*

SITE APPLICATION DEFICIENCIES

Address or legal description: 28600 176th SE
Parcel #3622059171

Designer: Richard Stuth **Sanitarian:** Paul Robinson, R.S.

The attached site application cannot be accepted at this time because of the following:

On April 1, 1997, the designer was informed, in writing, of the following requirements:

1) To stake and string out the main and reserve drainfield, and,

2) to get written approval from B.P.A. to place drainfields on their easement.

These two requirements have not been met.

THIS DECISION MAY BE APPEALED TO THE KING COUNTY SEWAGE REVIEW BOARD IF DONE WITHIN 60 DAYS OF THE DECISION.

DATE: May 5, 1997

SANITARIAN: Paul Robinson
Paul Robinson, R.S.

PR:eh

Alder Square Environmental Health Services 1401 Central Ave. S., Suite 101 Kent, Washington 98032 (206) 296-4708 or 296-4666 FAX (206) 296-0163

City of Seattle
Norman B. Rice, *Mayor*

King County
Ron Sims, *Executive*

Seattle-King County Department of Public Health

Alonzo L. Plough, Ph.D., MPH, *Director*

April 1, 1997

R.E. Stuth
13232 138th SE
Renton, WA 98027

Dear Mr. Stuth:

Re: Site application at 28600 176th Ave SE #H97R0101

The purpose of this letter is to inform you that this office has reviewed the above-referenced Site Application. Final approval (acceptance) of this application may be granted upon satisfactory fulfillment of the following requirements:

1) Written approval of use of the property from B.P.A.

2) Staking and stringing the main and reserve drainfield lines.

You are advised that the above requirements must be fulfilled by April 27, 1997. If this is not accomplished within the designated time period, the application will be disapproved and a new application will be required. New applications will require a fee and will be reviewed for compliance with rules in effect at the time of resubmittal.

If you have any questions regarding these matters, please contact me at 296-4708, Monday through Thursday between 7:30 - 9:30 a.m.

Sincerely,

Paul Robinson, R.S.
Environmental Health Specialist

PR:ds
a:hold.mrg

Alder Square Environmental Health Services 1404 Central Ave. S., Suite 101 Kent, Washington 98032 (206) 296-4708 or 296-4666 FAX (206) 296-0163

OFFICE COPY

OFFICE COPY

Seattle-King County Department of Public Health
Site Application for On-Site Sewage Disposal System
(Submit 5 copies of application with 4 copies of plans) pd 240

Activity Number: H 97R0101 (Department Use Only) PR

ATTACH A DETAILED ROUTE/ DIRECTION MAP FOR LOCATING THE PROPERTY.

Approximate Site Address: 28600 176th Ave. S.E., Kent

Applicant Name: Barker, Bob H. (Last, First)
Street Address: 1317 E. L. Sam. Sh. Ln., S.E.
City-Zip Code: Issaquah 98027 Phone: 826-4662

Designer: Richard E. Stuth, P.E.
Street Address: 13232 138th Ave. S.E., Renton
City-Zip Code: 98027 Phone: 228-4244

PROPERTY INFORMATION:

Parcel #: 362205-9171 Section: 36 Township: 22 Range: 05
Subdivision Name: K.C.S.P. 6706097 Lot: 3 Block:
Property Size: 16,100 sq. ft. Acreage: 0.37
Distance from property line to nearest sewer: 10,000 ft. Within ULID? ___ (Y?N)
Water Supply: P (IP) I = Individual P = Public (More than One Connection)
Public Water Supply Name: Covington Water District ID# ___
Sensitive Area: N (Y?N) If yes, specify ___ (L,W,O) (L = Landslide W = Wetlands O = Other) ___

SYSTEM INFORMATION:

New System: Y Repair Design ___ Detailed Plans Attached: (4 sets) Y (Y/N)
Type of Building: SF SF = Single Family MF = Multiple Family COMM = Commercial INST = Institutional
Type of System Proposed: PD – ___ G = Gravity GP = Gravity with pump M = Mound
PD = Pressure Distribution SF = Sand Filter HT = Holding Tank CT = Composting Toilet E = Experimental O = Other
Dates Soils Logged: 7/23/94 Soil Logs Data Attached: (Min. 4 lot) Y (Y/N)
Depth to Watertable or Restrictive Layer: None inches Maximum Slope in Drainfield/Reserve Area: 24 %

CALCULATIONS:

Number of bedrooms: 3 Total Gallons/Day (450 minimum): 450 gal. Soil Texture Type (1-5): 4
Application Rate: 0.6 gal/sq ft/day Total Absorption Area: 750 sq. ft.
Total Drainfield Length: 375 ft. Septic Tank Size: 1000 gal.
Siphon Pump Chamber Size (if needed): 1000 gal. Trench Depth (min/max): 9" / 12" inches

I understand that failure to comply with the Code of King County Board of Health Title 13 may result in the disapproval of the sewage system being proposed in this application. Non-compliance may also lead to revocation of my Designer's Certificate of Competency and/or appropriate legal action by the Health Department.

Designer's Signature: [signature] ID# 0011717 Date: 2/20/97 Update

FOR HEALTH DEPARTMENT USE ONLY

SYSTEM MUST BE INSTALLED BY A KING COUNTY CERTIFIED INSTALLER UNLESS OTHERWISE PROVIDED BY CODE

APPROVED ___ (date) BY: ___

Comments/Conditions: ___

APPROVAL OF THIS DESIGN APPLICATION IS BASED SOLELY ON INFORMATION PROVIDED IN THIS APPLICATION AND DOES NOT CONSTITUTE PERMISSION TO BEGIN CONSTRUCTION OF THE PROPOSED SEWAGE DISPOSAL SYSTEM OR ANY OTHER IMPROVEMENTS ON THE SITE. THIS APPROVAL SHALL *NOT* BE CONSIDERED AN ASSURANCE, EITHER EXPRESSED OR IMPLIED, THAT DEVELOPMENT PERMITS FOR THE SITE WILL BE ISSUED.

THIS APPLICATION EXPIRES TWO YEARS FROM DATE OF APPROVAL.

DISAPPROVED 5/5/97 (date) BY: [signature]

See attached Site Deficiency Sheet.

Any person aggrieved by any decision or final order of the Health Officer may make written application for appeal to the King County Board of Sewage Review if done so within 60 days of the above decision.

RECEIVED
FEB 20 1997
ALDER SQUARE

PD240 R0100 #3923

WHITE - DISTRICT/GREEN - AUDIT/YELLOW - DESIGNER/PINK - OWNER/YELLOW - LICENSES & PERMITS CS 13.15.97 REV. 6/90

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

SOIL LOGS FOR: LOT 3 OF K.C.S.P. #6706097
@: 28600 176TH AVE. S.E., KENT

SOIL LOG #1: 0" TO 12" LOAMY TOP SOIL
12" TO 48" VERY LOOSE GRAVEL LOAM WITH ROOTS & ROOT HAIRS FULL DEPTH
48" TO 52" GRAVEL LOAM

SOIL LOG #2: 0" TO 12" LOAMY TOP SOIL
12" TO 52" VERY LOOSE GRAVEL SILT LOAM
ROOTS AND ROOT HAIRS EXTEND FULL DEPTH

SOIL LOG #3: SAME AS #2

SOIL LOG #4: SAME AS #2

See plan sheet for soil log locations. Soil logs were covered because of the presence of horses in soil log area. Soil logs will be opened for review by appointment.

RICHARD E. STU
STATE OF WASHINGTON
20177
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 2/22/ 95

LOT 3

K.C.S.P. #6706097

ON-SITE SEWAGE DISPOSAL SYSTEM

DESCRIPTION OF PROJECT:

The parcel is an existing unoccupied lot located on 176TH Avenue S.E., near crest airport. The parcel is over 16,000 square feet or 0..37 acres. The slopes downward to the street at the east property line at an average slope of about 30%. A site application for an on-site system located wholly on the parcel was submitted in 1993 and subsequently turned down by the health officer and by the board of review. The reason for the turn down related to the steep slope coupled with the limited area available for drainfield.

The problems that were encountered in the earlier submittal have been overcome by purchasing a 9600 square foot drainage easement on property located to the north of the parcel. The proposed drainfield is wholly located on the drainfield parcel, including reserve area.

HYDRAULIC SIZING:

SEPTIC TANK:

The septic tank specified is a three compartment Stuth Company 1620. The first two compartments are the first and second chamber of a 1000 gallon septic tank and the last chamber is a dosing chamber. The dosing chamber features a four inch outlet at the bottom of the chamber. Liquid level control floats are located in this chamber and extend to a motor valve control panel.

DRAINFIELD DESIGN:

The drainfield design is based on soil type 4 and a corresponding sewage application rate of 0.6 gallons per square foot per day. The drainfield will be sized to handle a maximum of 450 gallons per day and will be sized as follows:

L = 450 GPD X 1/0.6 GPD-Sq. Ft. X Ft./2 Sq. Ft.

L = 375 L.F.

Five 75 foot long pressure distribution trenches will be used.

Flow Calculations:

The head available is the static head less any friction losses in the piping. The minimum static available head is about:

H_t = Elev. 82 - 40 = 42 feet

Orifice Flow:

The standard accepted fluid dynamics equation for flow through a "sharp edged" round orifice is: $Q = C_d A (2gh)^{1/2}$. Where C_d is the coefficient of discharge and is equal to 0.61 when the following units are used:

Q = Cu. Ft. Per Sec.
A = Sq. Ft. (orifice area)
g = Ft. Per Sec. Sq'd
h = Ft.

When this equation is rewritten in more desirable units it becomes: $Q = 11.97\ d^2\ h^{1/2}$ where the units are:

Q = Gal. Per. Minute
d = Inches (orifice diameter)
h = Ft.

While this is the generally accepted equation for flow through a "sharp edged orifice," experimentation done by W.L. Stuth and R.E. Stuth demonstrated that a more accurate equation for flow through a typical drainfield orifice with the minimum required discharge head of **THREE** feet would be:

$$Q_{orifice} = 13\ d^2\ h^{1/2}$$

$$Q_{orifice} = 0.8\ GPM$$

Hence the maximum instantaneous flow to any drainfield lateral would be:

$Q_{lateral}$ = 25 Orifices @ 0.8 GPM/orifice = 20 GPM

And the maximum total instantaneous flow to the drainfield is:

Q_{lobe} = 5 laterals @ 20 GPM = 100 GPM

Total System Head:

The system head includes the available static head *less* the system friction losses. Since the actual available static head is over 42 feet minimum (for all laterals) and the required discharge head is only three feet for an excess head of 39 feet minimum, clearly the system friction losses are negligible.

The flow to each lateral will be controlled by globe valves. Each lateral features a globe valve that will be used as a flow control valve and a check valve to prevent system backflow following dosing cycles.

SIPHON

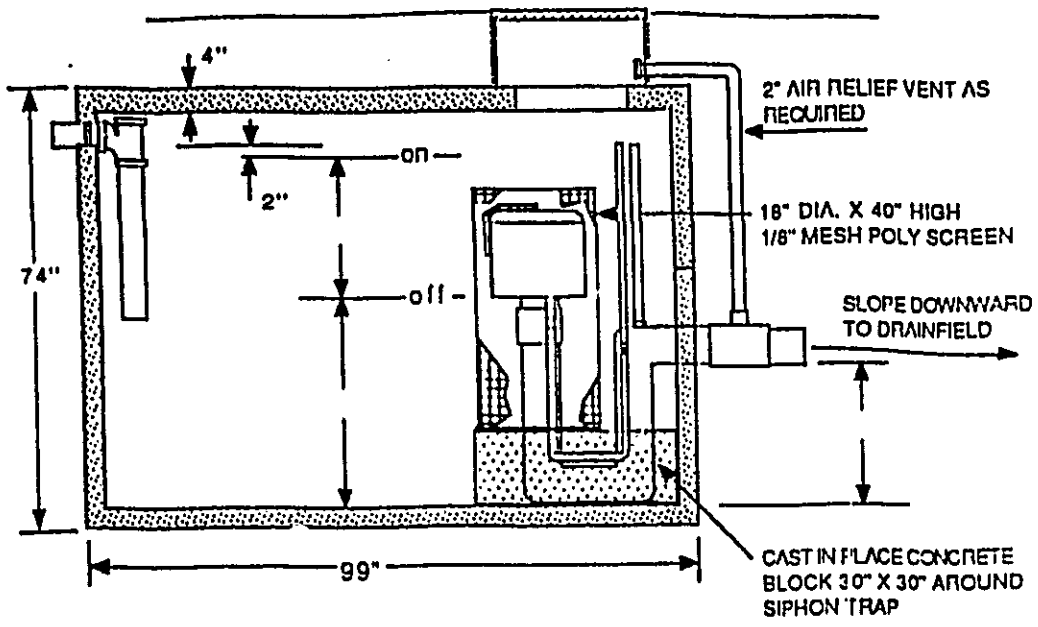
The system siphon must be an OSI Model 312 or equivalent and must be equiped with a dose counter. This siphon is available through:

Orenco Systems, Inc.
2826 Colonial Road
Roseburg, Oregon 97470
PH. (503)673-0165

It may also be purchased through H.D. Fowler of Bellevue.

OSI
Orenco Systems Inc.
2826 Colonial Road, Roseburg, Oregon 97470
503/673-0165

APRIL 1987



CAST-IN METHOD OF INSTALLATION

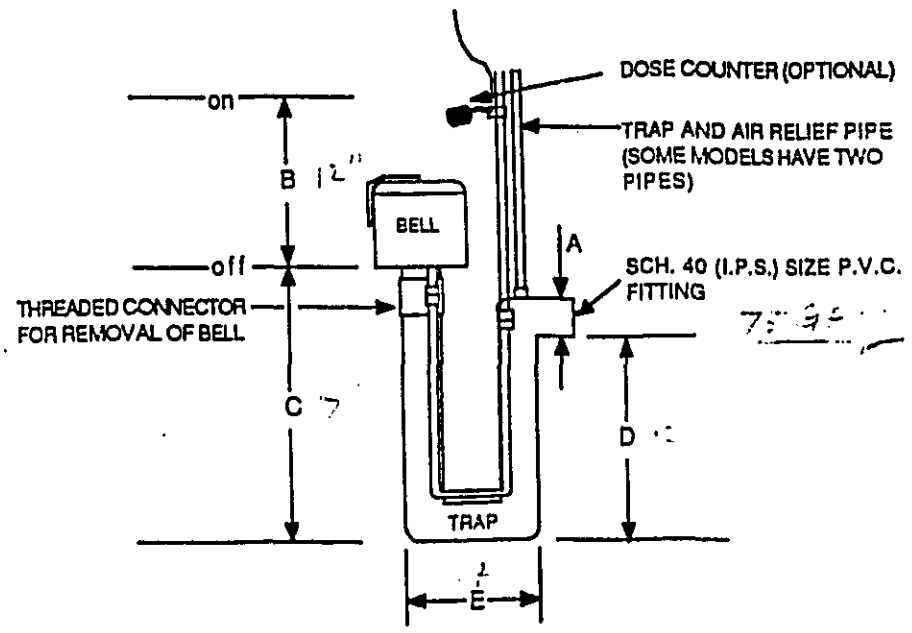
IN CONCRETE DOSING TANK

(MODEL SHOWN)

- SHOWN ABOVE IS A COMMON METHOD FOR INSTALLING LARGER SIPHONS WHEN IT IS DESIRED TO HAVE THE DISCHARGE AS HIGH AS POSSIBLE.
- THE CONCRETE BLOCK CAN BE MADE USING 2 X 12'S TO FORM A CONTAINER
- ALTHOUGH A SCREEN IS SHOWN IN THIS DRAWING, IT IS PREFERABLE TO USE AN OSI EFFLUENT FILTER IN THE SEPTIC TANK PRECEDING THE DOSING TANK
- FOR ADDITIONAL INFORMATION ON EFFLUENT FILTERS, CALL OR WRITE US AT OSI.

OSI Orenco Systems Inc.
2826 Colonial Road, Roseburg, Oregon 97470
503/673-0165

APRIL 1987



DIMENSIONS FOR DESIGN

MODEL NUMBER		312	316	318	324	330	336	342	348
SIPHON DIAMETER	A	3"	3"	3"	3"	3"	3"	3"	3"
DRAWDOWN	B	12"	16"	18"	24"	30"	36"	42"	48"
BOTTOM OF TRAP TO BELL	C	17"	21"	21"	27"	34"	39"	45"	51"
BOTTOM OF TRAP TO DISCHARGE	D	12"	16"	16"	20"	27"	32"	38"	44"
WIDTH OF TRAP	E	14"	14"	14"	14"	14"	14"	14"	14"
DISCHARGE RATE G.P.M. FOR DESIGN	Q	75	90	100	110	120	125	130	140

OFFICE COPY

Seattle-King County Department of Public Health
Site Application for On-Site Sewage Disposal System
(Submit 5 copies of application with 4 copies of plans)

paid $240.00

Activity Number: H 94R0499 (Department Use Only)

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City-Zip Code: 98027 Phone: 836-4662

Designer: R.E. Stuth, P.E.
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PD = Pressure Distribution SF = Sand Filter HT = Holding Tank CT = Composting Toilet E = Experimental O = Other
Dates Soils Logged: 7/23/94 Soil Logs Data Attached: (Min. 4/lot) Y (Y/N)
Depth to Watertable or Restrictive Layer: None inches Maximum Slope in Drainfield/Reserve Area: 24 %

CALCULATIONS:

Number of bedrooms: 3 Total Gallons/Day (450 minimum): 450 gal. Soil Texture Type (1-5): 4
Application Rate: 0.6 gal/sq ft/day Total Absorption Area: 750 sq. ft.
Total Drainfield Length: 375 ft. Septic Tank Size: 1000 gal.
Pump Chamber Size (if needed) N.A. gal. Trench Depth (min/max): 12" inches

I understand that failure to comply with the Code of King County Board of Health Title 13 may result in the disapproval of the sewage system being proposed in this application. Non-compliance may also lead to revocation of my Designer's Certificate of Competency and/or appropriate legal action by the Health Department.

Designer's Signature: Richard E. Stuth PE ID# Date: July 26, 1994

FOR HEALTH DEPARTMENT USE ONLY

APPROVED 9/14/94 (date) BY: Paul R. Busic

Comments/Conditions: drainlines will be checked when installed to guarantee minimum 375'

SYSTEM MUST BE INSTALLED BY A KING COUNTY CERTIFIED INSTALLER UNLESS OTHERWISE PROVIDED BY CODE

APPROVAL OF THIS DESIGN APPLICATION IS BASED SOLELY ON INFORMATION PROVIDED IN THIS APPLICATION AND DOES NOT CONSTITUTE PERMISSION TO BEGIN CONSTRUCTION OF THE PROPOSED SEWAGE DISPOSAL SYSTEM OR ANY OTHER IMPROVEMENTS ON THE SITE. THIS APPROVAL SHALL *NOT* BE CONSIDERED AN ASSURANCE, *EITHER EXPRESSED OR IMPLIED, THAT DEVELOPMENT PERMITS FOR THE SITE WILL BE ISSUED.*

THIS APPLICATION EXPIRES TWO YEARS FROM DATE OF APPROVAL.

WARNING
CRITICAL LOT - LIMITED SPACE!!!
Designer must stake off drainfield and reserve areas and monitor lot during preparation and construction. Road cuts, drainage cuts and other such excavation, or improper clearing may invalidate this plan.

DISAPPROVED ______ (date) BY: ______

See attached Site Deficiency Sheet.
Any person aggrieved by any decision or final order ... King County Board of Sewage Review if done so ...

RECEIVED
AUG 8 1994
ALDER SQUARE

28660 176th Ave SE

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

RESCO
Mechanical & Civil Engineering
13232 - 138th Ave. S.E.
Renton, WA 98059
(206) 228-4244
FAX (206) 228-4292

August 26, 1994

Paul Robinson, Senior Sanitarian
King County Public Health Dept.
1404 Central Ave. South
Kent, Wa. 98032
Ph.(206)296-4708

RE: On-site system design for Lot 3 of King County Short plat Number 6706097 at 28600 176th S.E. (Approx)

Dear Paul;

I have enclosed four copies the plan sheet for the above referenced parcel. Because you expressed some qualms as to whether or not there is room for 100% reserve drainfield, I have shown the potential reserve drainfield. You will note that there is more than enough room on the easement parcel even when setback for a roadside ditch is considered.

I have shown also shown an additional 120 lineal feet of drainfield on the lot proper. There is actually adequate room on the lot itself for a full drainfield but not for drainfield and reserve.

Please call me if you have any additional questions or need more information.

Sincerely,

Richard E. Stuth

Richard E. Stuth, P.E.

Enclosures: 4 prints

SOIL LOGS FOR: LOT 3 OF K.C.S.P. #6706097
@: 28600 176TH AVE. S.E., KENT

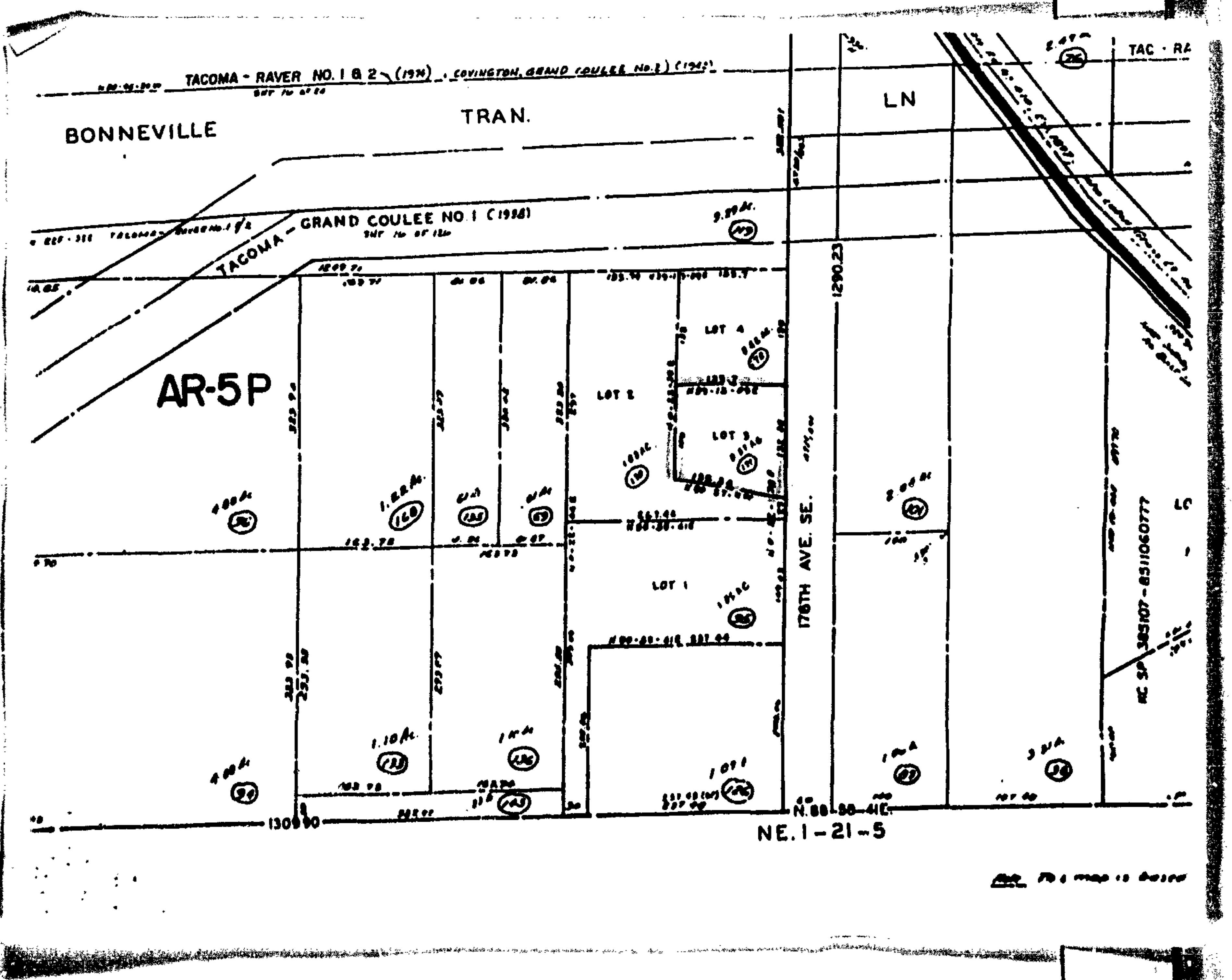
SOIL LOG #1: 0" TO 12" LOAMY TOP SOIL
12" TO 48" VERY LOOSE GRAVEL LOAM WITH ROOTS & ROOT HAIRS FULL DEPTH
48" TO 52" GRAVEL LOAM

SOIL LOG #2: 0" TO 12" LOAMY TOP SOIL
12" TO 52" VERY LOOSE GRAVEL SILT LOAM
ROOTS AND ROOT HAIRS EXTEND FULL DEPTH

SOIL LOG #3: SAME AS #2

SOIL LOG #4: SAME AS #2

See plan sheet for soil log locations. Soil logs were covered because of the presence of horses in soil log area. Soil logs will be opened for review by appointment.



TACOMA - RAVER NO. 1 & 2 (1974)
BONNEVILLE
TRAN.
LN
TAC · RA
TACOMA - GRAND COULEE NO. 1 (1938)
AR-5P
LOT 4
LOT 2
LOT 3
LOT 1
176TH AVE. SE.
1290.23
1309.90
N. 88-38-41E.
NE. 1-21-5
KC SP 385107-85110G0777

LOT 3

K.C.S.P. #6706097

ON-SITE SEWAGE DISPOSAL SYSTEM

DESCRIPTION OF PROJECT:

The parcel is an existing unoccupied lot located on 176TH Avenue S.E., near crest airport. The parcel is over 16,000 square feet or 0..37 acres. The slopes downward to the street at the east property line at an average slope of about 30%. A site application for an on-site system located wholly on the parcel was submitted in 1993 and subsequently turned down by the health officer and by the board of review. The reason for the turn down related to the steep slope coupled with the limited area available for drainfield.

The problems that were encountered in the earlier submittal have been overcome by purchasing a 9600 square foot drainage easement on property located to the north of the parcel. The proposed drainfield is wholly located on the drainfield parcel, including reserve area.

HYDRAULIC SIZING:

SEPTIC TANK:

The septic tank specified is a three compartment Stuth Company 1620. The first two compartments are the first and second chamber of a 1000 gallon septic tank and the last chamber is a dosing chamber. The dosing chamber features a four inch outlet at the bottom of the chamber. Liquid level control floats are located in this chamber and extend to a motor valve control panel.

DRAINFIELD DESIGN:

The drainfield design is based on soil type 4 and a corresponding sewage application rate of 0.6 gallons per square foot per day. The drainfield will be sized to handle a maximum of 450 gallons per day and will be sized as follows:

L = 450 GPD X 1/0.6 GPD-Sq. Ft. X Ft./2 Sq. Ft.

L = 375 L.F.

Five 75 foot long pressure distribution trenches will be used.

Flow Calculations:

The head available is the static head less any friction losses in the piping. The minimum static available head is about:

H_s = Elev. 82 - 40 = 42 feet

Orifice Flow:

The standard accepted fluid dynamics equation for flow through a "sharp edged" round orifice is: $Q = C_d A (2gh)^{1/2}$. Where C_d is the coefficient of discharge and is equal to 0.61 when the following units are used:

Q = Cu. Ft. Per Sec.
A = Sq. Ft. (orifice area)
g = Ft. Per Sec. Sq'd
h = Ft.

When this equation is rewritten in more desirable units it becomes: $Q = 11.97\ d^2\ h^{1/2}$ where the units are:

Q = Gal. Per. Minute
d = Inches (orifice diameter)
h = Ft.

While this is the generally accepted equation for flow through a "sharp edged orifice," experimentation done by W.L. Stuth and R.E. Stuth demonstrated that a more accurate equation for flow through a typical drainfield orifice with the minimum required discharge head of **THREE** feet would be:

$$Q_{orifice} = 13\ d^2\ h^{1/2}$$

$$Q_{orifice} = 0.8\ GPM$$

Hence the maximum instantaneous flow to any drainfield lateral would be:

$Q_{lateral}$ = 25 Orifices @ 0.8 GPM/orifice = 20 GPM

And the maximum total instantaneous flow to the drainfield is:

Q_{lobe} = 5 laterals @ 20 GPM = 100 GPM

Total System Head:

The system head includes the available static head less the system friction losses. Since the actual available static head is over 42 feet minimum (for all laterals) and the required discharge head is only three feet for an excess head of 39 feet minimum, clearly the system friction losses are negligible and may be neglected.

The flow to each lateral will be controlled by globe valves. Each lateral features a globe valve that will be used as a flow control valve and a check valve to prevent system backflow following dosing cycles.

Control Panel and Cycles

The system will be equipped with a free standing electrical control panel that is weather tight and suitable for outside installation.

The electrical panel must be wired according to the electric schematic provided by the engineer or a similar schematic of the manufacturers choice that is functionally the same. The electrical panel must include both audio and visual high level alarms. The panel must be wired to control the motor valve on adjustable time cycles. The panel must include an hour meter and a cycle counter.

The system must be set for a minimum of four or a maximum of 12 cycles per day (12 cycles per day are preferred). Hence, for a daily system maximum capacity of 450 gallons, each cycle or dose will be:

Dose = 450/12 = 37.5 gallons minimum.

Dose = 450/4 = 112.5 gallons maximum

Since the system flow is 100 GPM, the time for each cycle must be:

Time (dose) = 37.5 gal x 1/100 GPM = 0.37 Minutes Min.

Time (dose) = 112.5 gal x 1/100 GPM = 0.13 Minutes Max.

9408020425

PRIVATE DRAINAGE EASEMENT

For a valuable consideration, receipt of which is hereby acknowledged, the GRANTOR(s), Joseph K. Pierce and Carol J. Frary

the owner(s) in fee of that certain parcel of land, described as follows:

Parcel #3622059119 (See also attached Exhibit "A")

hereby grant(s) and convey(s) a drainage easement on over and across the following described property:

the South 80 feet of the East 120 feet of the above described parcel

Said easement is for purposes of installing and maintaining an on-site sewage disposal drainfield as approved by King County Department of Public Health. Said easement grants the right of ingress and egress as required for the installation and continued maintenance and/or improvements to an on-site sewage disposal system drainfield serving the the following described property:

Parcel #3622059171, Lot 3 of King County Short Plat Number 6706097

The easement is granted to the owner(s) (GRANTEE(S)) of said Parcel #3622059171, Lot 3 of King County Short Plat No. 6706097, who is/are responsible for operating, maintaining and repairing the sewage disposal drainfield contained within said drainage easement.

The rights and obligations contained herein shall inure to the benefit of and be binding upon the parties' respective successors and assigns.

IN WITNESS WHEREOF this easement is executed as of this 31 day of July, 1994.

JOSEPH K. PIERCE, Grantor

CAROL J. FRARY, Grantor

EASEMENT - 1 of 2

E1388438 08/02/1994 53.40 3000.00

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

9408020425 08:30:00 AM KING COUNTY RECORDS 002 PM 8.00

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this day personally appeared before me JOSEPH K. PIERCE to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: July 31, 1994

Janis L. VanderHoek
Notary Public in and for the State of Washington residing at Renton
My appointment expires 1/29/95
Janis L. VanderHoek

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this day personally appeared before me CAROL J. FRARY to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: July 31, 1994

Janis L. VanderHoek
Janis L. VanderHoek
Notary Public in and for the State of Washington residing at Renton
My appointment expires 1/29/95

9408020425

FILED for Record at Request of
NAME Bob Burton
ADDRESS 1317 E. Lk Sammamish Pkwy. S.E.
CITY Issaquah, WA 98027

EASEMENT - 2 of 2

EXHIBIT "A"

LEGAL DESCRIPTION

King County Parcel #3622059119. also described as:

THE SOUTH HALF OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 36, TOWNSHIP 22 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY, WASHINGTON. EXCEPT ANY PORTION THERTO LYING WITH THE FOLLOWING DESCRIBED TRACT:
BEGINNING AT THE INTERSECTION OF THE EASTERLY LINE OF SAID SUBDIVISION WITH SOUTHWESTERLY LINE OF GRASS LAKE-LAKE SAWYER ROAD;
THENCE NORTHWESTERLY ALONG SAID SOUTHWESTERLY LINE 43 FEET TO POINT OF BEGGINGING;
THENCE SOUTHWESTERLY AT RIGHT ANGLES 256 FEET;
THENCE NORTHWESTERLY PARALLEL WITH SOUTHWESTERLY LINE OF SAID ROAD 170 FEET;
THENCE NORTHEASTERLY 256 FEET TO A POINT ON SOUTHWESTERLY LINE A DISTANCE OF 170 FEET NORTHWESTERLY OF THE TRUE POINT OF BEGINNING;
THENCE SOUTHEASTERLY ALONG SAID SOUTHWESTERLY LINE 170 FEET TO THE TRUE POINT OF BEGINNING.
ALSO EXCEPT ANY PORTION THERETO, WHICH MAY LIE WITHIN THE NORTH 330 FEET OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION.
ALSO, EXCIPT THE EAST 60 FEET THEREOF CONVEYED TO KING COUNTY FOR 176TH AVE. S.E., UNDER AUDITOR'S FILE NOS. 5954732,5954733, 5954734, 5954735, 5965844 AND 5965845.

9406020425

NOTICE: IF THE DOCUMENT IN THIS FRAME IS LESS CLEAR THAN THIS NOTICE IT IS DUE TO THE QUALITY OF THE DOCUMENT.

. PRIVATE UTILITYE EASEMENT

For a valuable consideration, receipt of which is hereby acknowledged, the GRANTOR(s), _____

the owner(s) in fee of that certain parcel of land, described as follows:

Parcel #3622059172, Lot 4 of King County Short Plat Number 6706097

hereby grant(s) and convey(s) a utility easement on over and across the following described property: _____

the East 10 feet of the above described Grantor's property parcel

Said easement is for purposes of installing and maintaining an on-site sewage system sewer line as approved by King County Department of Public Health. Said easement grants the right of ingress and egress as required for the installation and continued maintenance and/or improvements to said sewer line serving the following described property: _____

Parcel #3622059171, Lot 3 of King County Short Plat Number 6706097

The easement is granted to the owner(s) (GRANTEE(S)) of said Parcel #3622059171, Lot 3 of King County Short Plat No. 6706097, who is/are responsible for operating, maintaining and repairing the sewer line contained within said drainage easement.

The rights and obligations contained herein shall inure to the benefit of and be binding upon the parties' respective successors and assigns.

IN WITNESS WHEREOF this easement is executed as of this ___ day of _____, 1994.

_____, Grantor

_____, Grantor

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this day personally appeared before me JOSEPH K. PIERCE to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: _____

_____
Notary Public in and for the State of Washington residing at _____
My appointment expires _____

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

On this day personally appeared before me CAROL J. FRARY to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that she signed the same as her free and voluntary act and deed, for the uses and purposes therein mentioned.

Dated: _____

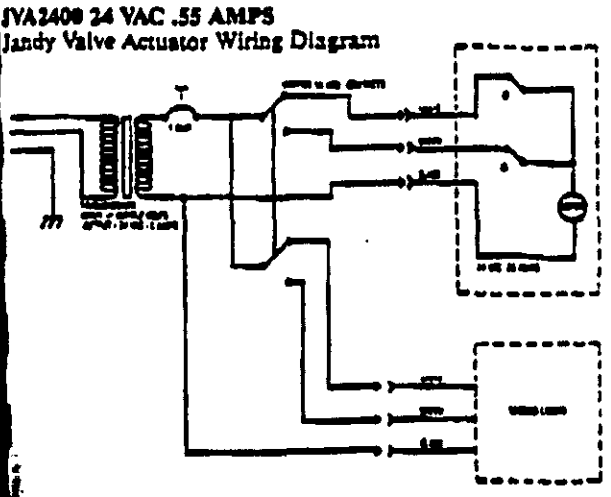
_____
Notary Public in and for the State of Washington residing at _____
My appointment expires _____

JANDY VALVE ACTUATORS

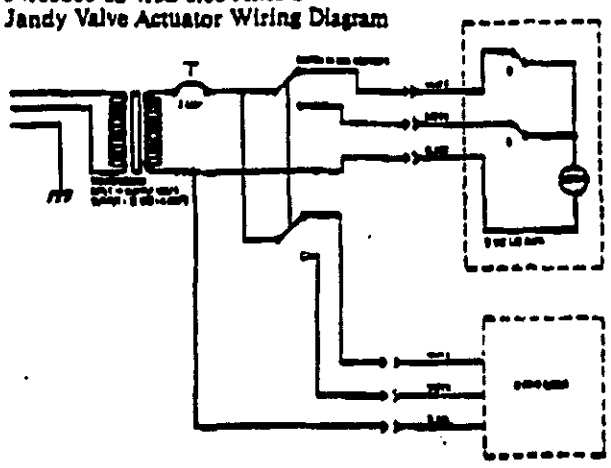
JVA2400 JVA1200

REVOLUTIONARY

JVA2400 24 VAC .55 AMPS
Jandy Valve Actuator Wiring Diagram



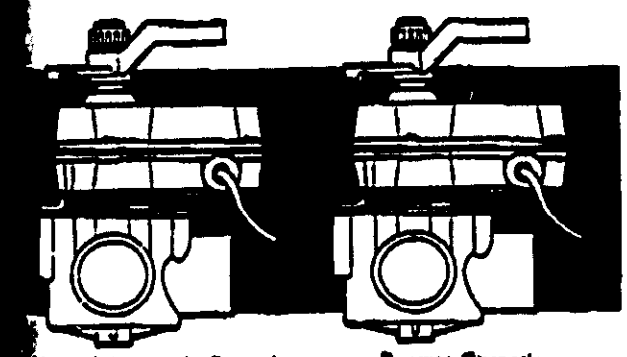
JVA1200 12 VAC 1.05 AMPS
Jandy Valve Actuator Wiring Diagram



The Jandy JVA2400 and JVA1200 Valve Actuators may be used to motorize both positive sealing and non-positive sealing Jandy 3-port Diverting Valves and 2-port Regulating Valves.

Jandy Valve Actuators are powered by reversible permanent split capacitor synchronous motors for bi-directional travel. Although factory preset to rotate 180° both actuator models can be adjusted to start and stop in any position desired thereby eliminating even momentary deadheading of the pump. Additionally, each model has a convenient manual override toggle switch which may be used to turn power off, or reverse the position of the valve diverter.

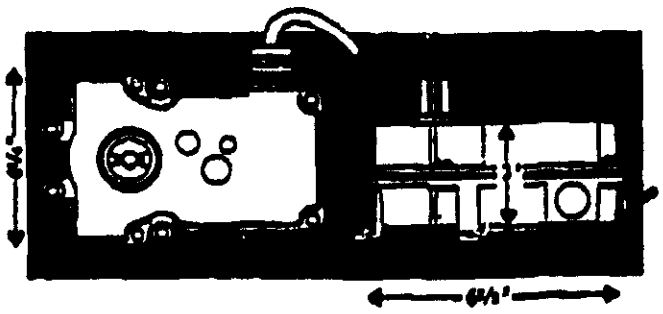
Jandy Valve Actuators comply with Nema IV specifications: all electrical components and motor control switches are UL listed. Jandy Valve Actuators are enclosed by a durable corrosion resistant metal housing completely sealed and weather resistant allowing for installation in any mounting position. Jandy Actuators are covered by a limited one year product warranty.



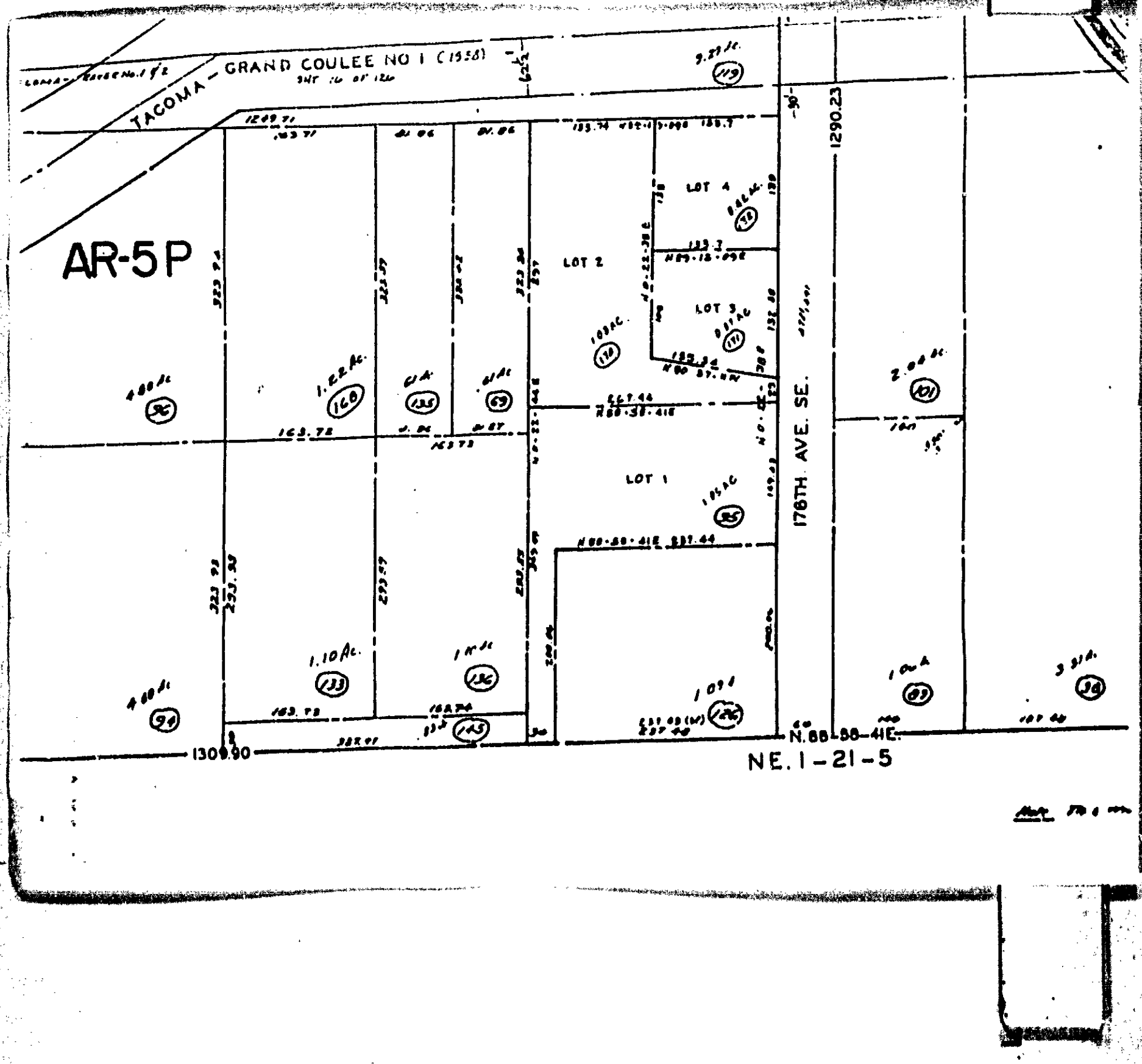
Normal Automatic Operation
Toggle Switch UP

Reverse Operation
Toggle Switch DOWN

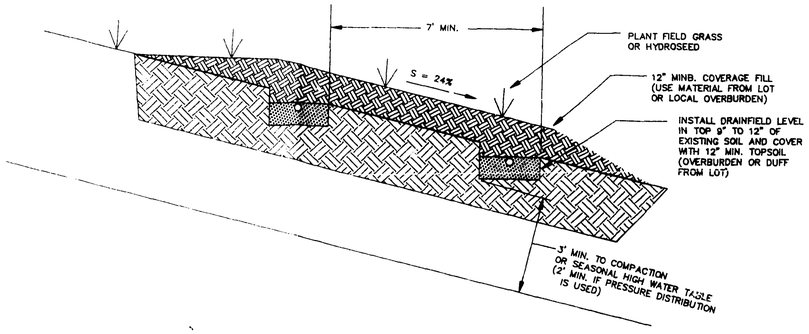
Toggle Switch in Center Position is OFF
MANUAL OVERRIDE INSTRUCTIONS



DIMENSIONS FOR JANDY VALVE ACTUATOR MODELS:
JANDY JVA2400 24 VAC: JANDY JVA1200 12 VAC

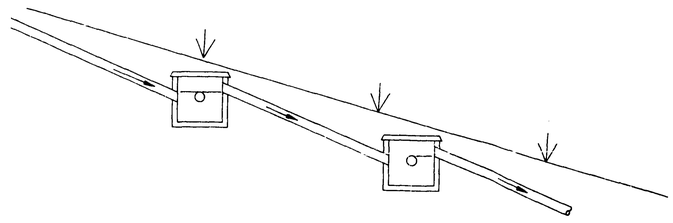

TACOMA – GRAND COULEE NO 1 (1958)
AR-5P
LOT 4
LOT 2
LOT 3
LOT 1
176TH AVE. SE.
1290.23
1309.90
N. 88-58-41E.
NE. 1-21-5

28600 176th AVE SE



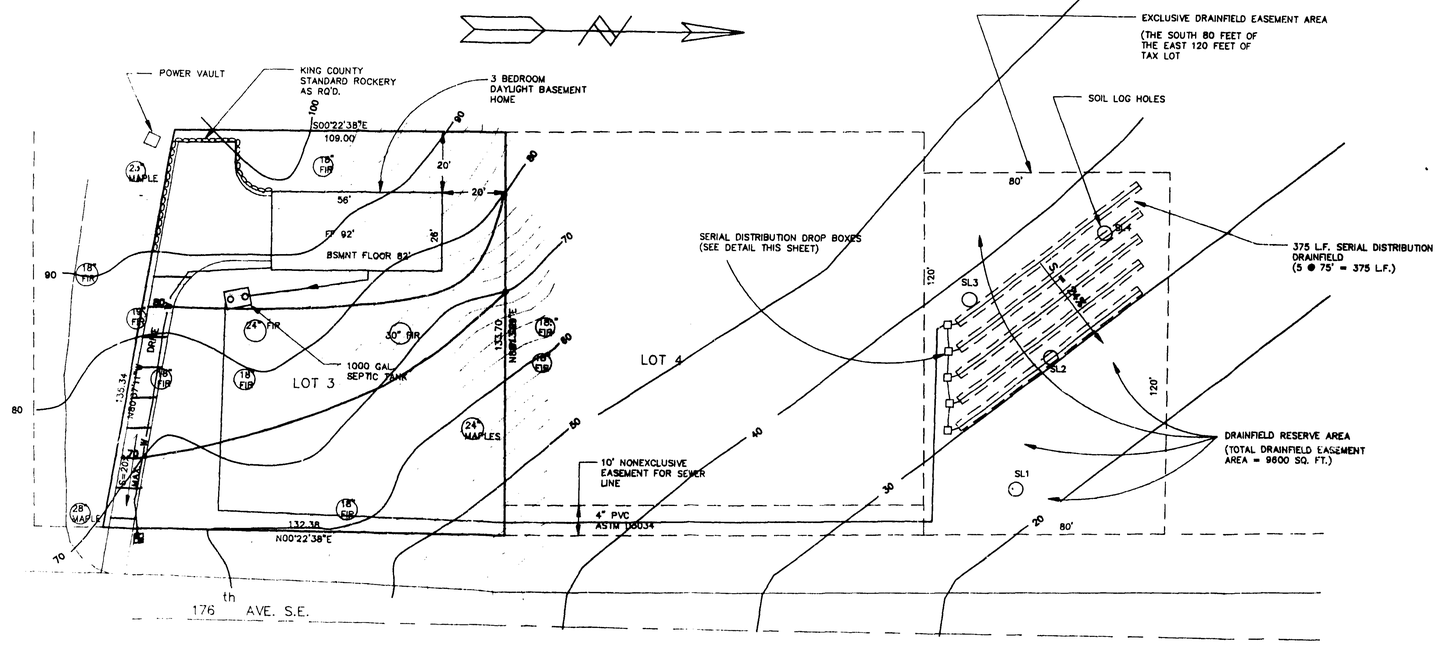
DRAINFIELD PROFILE

SCALE: 1" = 2'-0"



DROP BOX DETAIL

SCALE: 1" = 2'-0"



SITE PLAN

SCALE: 1" = 20'

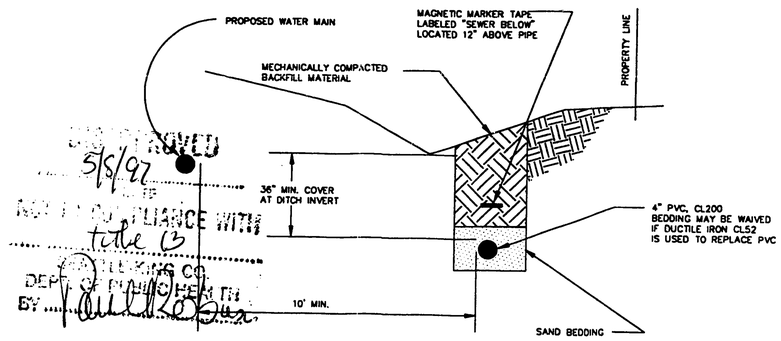
NO.	REVISIONS DESCRIPTION	DATE

RESCO
CIVIL AND MECHANICAL ENGINEERING
11255 118TH AVE. S.E., RENTON, WASH. 98056 (206) 281-4144

BOB BARKER HOME
ON-SITE SEWAGE DISPOSAL SYSTEM
SITE PLAN

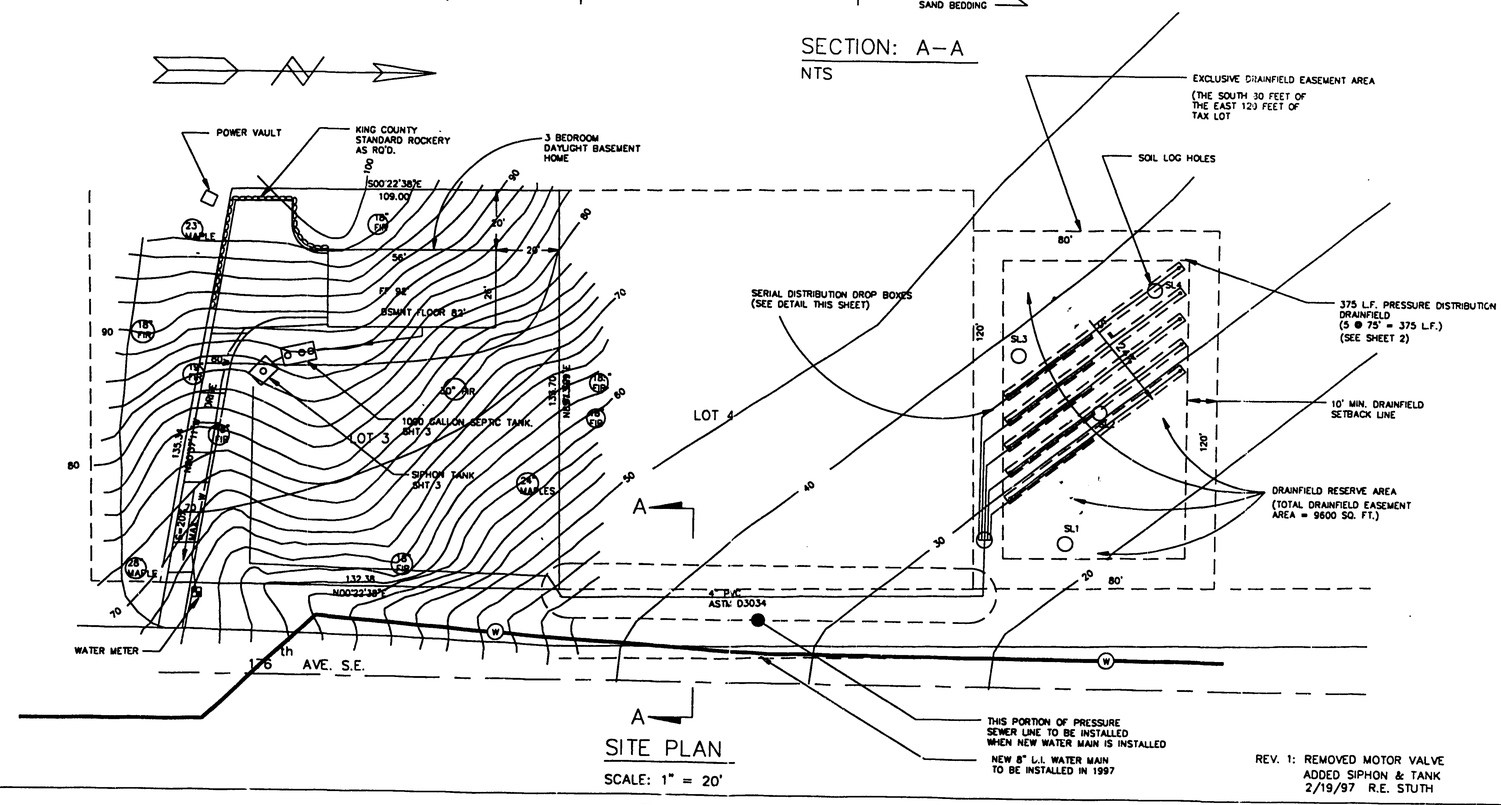
DATE	7/22/94
DRAWN	RES
CHECKED	
DWG. NO.	BOB-LOT
SHT.	1 OF 1

28600 176 SE



APPROVED
5/5/97
IN COMPLIANCE WITH
Title 13
KING CO.
DEPT. OF PUBLIC HEALTH
BY

SECTION: A–A
NTS



SITE PLAN
SCALE: 1" = 20'

REV. 1: REMOVED MOTOR VALVE
ADDED SIPHON & TANK
2/19/97 R.E. STUTH

PLOTTED @ 1"=40'

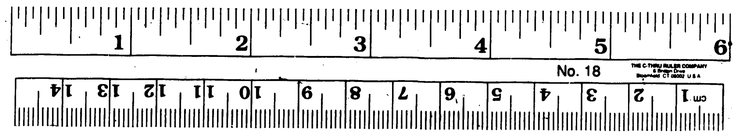
REVISIONS NO.	DESCRIPTION	DATE

EXPIRES 3/22/95

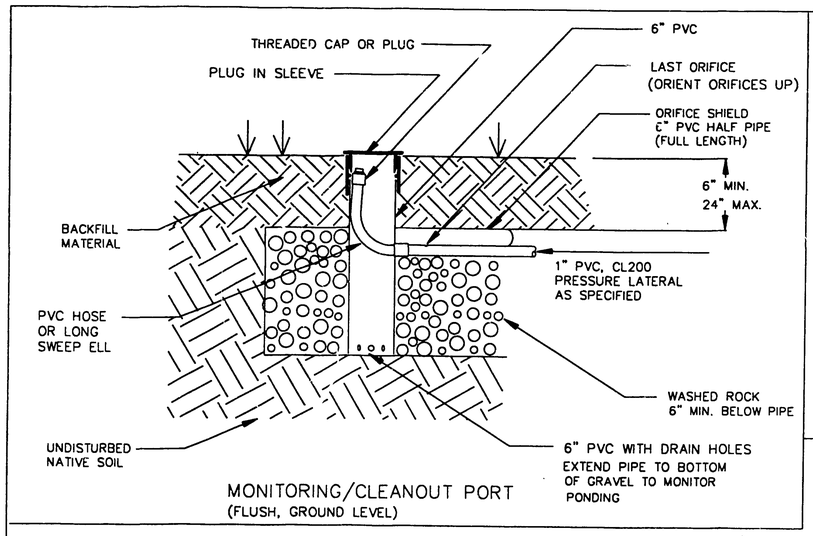
RESCO ENGINEERING
CIVIL AND MECHANICAL ENGINEERING
1323 130TH AVE. S.E., RENTON, WASH. 98056 (206) 226-4244

BOB BARKER HOME
ON-SITE SEWAGE DISPOSAL SYSTEM
SITE PLAN

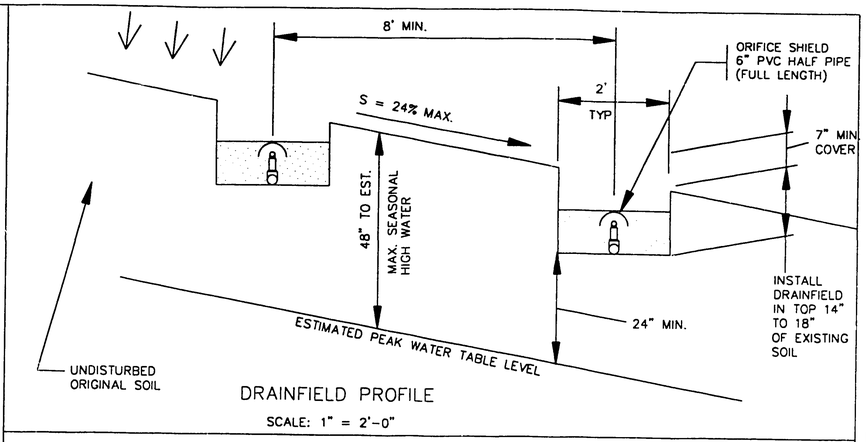
DATE	4/4/94
DRAWN	RES
CHECKED	
DWG. NO.	BARKER 1
SHT.	1 OF 3



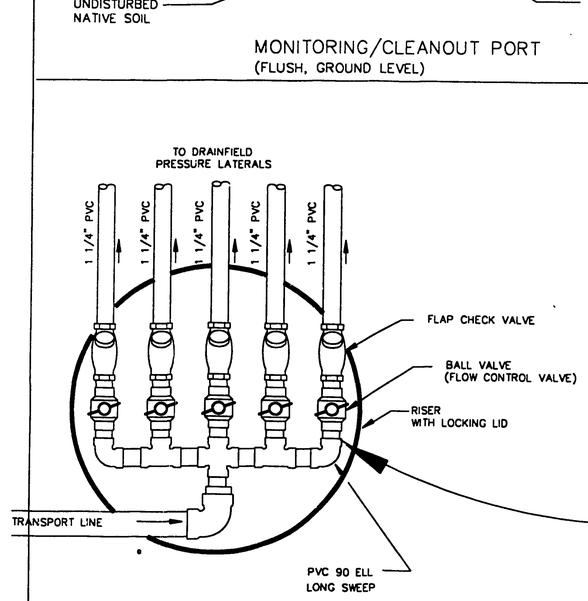
28600 176 SE



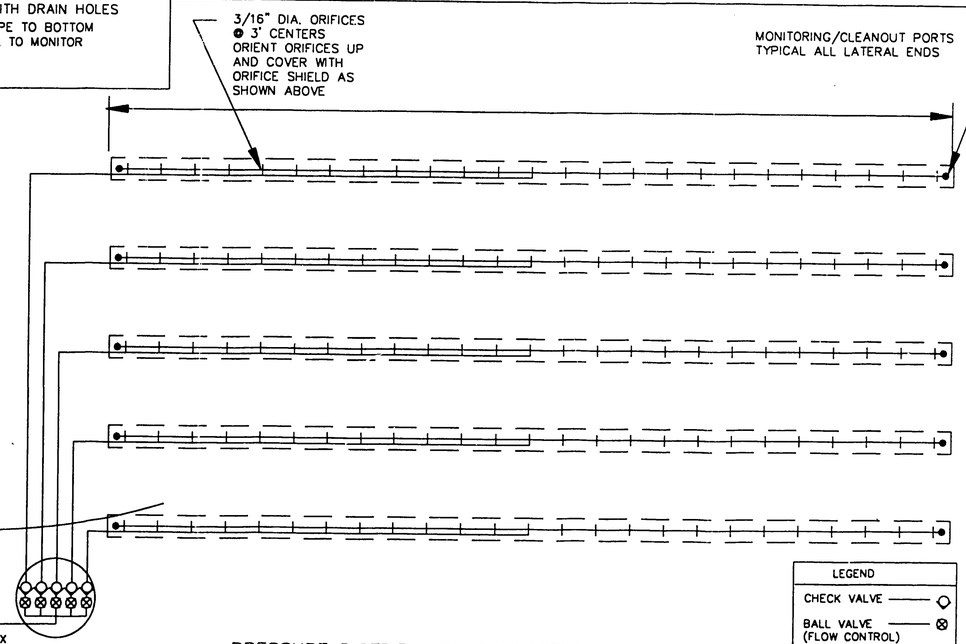
MONITORING/CLEANOUT PORT
(FLUSH, GROUND LEVEL)



DRAINFIELD PROFILE
SCALE: 1" = 2'-0"



DRAINFIELD VALVE CONTROL BOX



PRESSURE DISTRIBUTION DRAINFIELD
SCALE: 1" = 20'-0"

RESCO INC.
CIVIL AND MECHANICAL ENGINEERING
13232 138TH AVE. S.E., RENTON, WASH. 98056 (206) 228-4244

ROBERT E. SMITH — STATE OF WASHINGTON — 12177 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 2/22/97

BOB BARKER HOME
ON-SITE SEWAGE DISPOSAL SYSTEM
DRAINFIELD

DATE	2/10/97
DRAWN	RES
CHECKED	
DWG. NO.	CREST-DF
SHT.	2 OF 3