• I. S. D. S. PERMIT •
TO INSTALL, CONSTRUCT, ALTER OR REPAIR
AN INDIVIDUAL SEWAGE DISPOSAL SYSTEM

Permit: EH-10-010

New: Y
Repair: N
Alteration: N
Addition: N

ROUTT COUNTY DEPARTMENT OF ENVIRONMENTAL HEALTH • P.O. BOX 770087 • STEAMBOAT SPRINGS, CO • 970-870-5588

This permit effective only on premises located at: **27285 WHITEWOOD DRIVE C**
Legal description of property: LOT 23-A RE-SUB OF LOTS 15,22,23 □WHITEWOOD SUBD ASPEN HIGHLANDS □FILING
Parcel Id.: 173701023 Lot No.: 023

Owner: DOWSKI, ROBERT P.
Address: 8805 MARY MEAD CT
POTOMAC MD 20854-4471
Phone: 301-814-9998

Applicant: DOWSKI, ROBERT
Address: 8805 MARY MEAD COURT
POTOMAC MD 20854
Phone: 301-814-9998

As authorized and required by Chapter 25, Article 10 C.R.S., permission is hereby granted to the owner or a Routt County licensed ISDS installer to construct or repair an I.S.D.S. system at the property indicated above. All work must comply with the specifications on this permit and the Guidelines on Individual Sewage Disposal Systems - Revised 1988 - Colorado State Board of Health, 5 CCR 1003-6. This permit expires one year from date of issue.

SPECIFICATIONS

Y Residential N Commercial Other:
Percolation Rate: 32 MPI
Minimum Septic Tank Capacity: 1250 gallon
Tank Material: Y Concrete N Polyethylene
Design: 1: Engineer shall certify that construction complies with permitted design.
Comments:
Notice: All Sewage *HOLDING* Tanks must be Concrete. Inspections required (24 hour advanced notice required).

Number of bedrooms: 4 House has 2 bdrm, garage addition has 3 for a total of 5. System designed in 2010 can accommodate 5 bedrooms. Using criteria from Reg 43 - field size required is 1200ft² (1188 ft² installed) and 2,000 gal. 3-compartment tank addition for 1500 gal of treatment + 500 gal of disp. See attached. HS 3/31/16.
B-16-36

Environmental Health Specialist: [signature] **Date of Issue:** 6/9/2010

The above individual sewage disposal system installed by _____ has received a final inspection. The system is hereby approved for use.

Environmental Health Specialist: **Date** 1/14/11

Fee:	**State fee**	**$23.00**
	Percolation	**$0.00**
	Permit	**$252.00**
		$275.00

RECEIPT

RECEIPT NUMBER: R100000612

Routt County Environmental Health Department
P.O. Box 770087 Phone 970-870-5588
Steamboat Springs, CO 80477

APD #: EH-10-010 TYPE: EH-Ind. Sewage Disp Sys
SITE ADDRESS: 27285 WHITEWOOD DRIVE C
PARCEL: 173701023

May include fees collected within the jurisidiction.

TRANSACTION DATE: 06/08/2010

TOTAL PAYMENT:	275.00
TOTAL PAID FROM TRUST:	.00
TOTAL PAID FROM CURRENCY:	275.00

TRANSACTION LIST:

Type	Method	Description	Amount
Payment	Check	#12758	275.00
		TOTAL:	275.00

ACCOUNT ITEM LIST:

Description	Account Code	Current Pmts
I.S.D.S. Permit Fee	01-20-22-000-568	252.00
State Surcharge for ISDS	01-20-22-000-546	23.00
	TOTAL:	275.00

RECEIPT ISSUED BY: SG INITIALS: SAG
ENTERED DATE: 06/08/2010 TIME: 02:16 PM

Elt-10-010
BUILDING PERMIT # EB-10-128
PERMIT PD 285 pd
PERC PD 225
Mt Architecture MTN
$ 275.00 ck # 12758

APPLICATION FOR INDIVIDUAL SEWAGE SYSTEM PERMIT

NEW X REMODEL ___ REPAIR ___ EMERGENCY USE ___

Name of Owner ROBERT DOWSKI Mailing Address 8805 MACY MEAD CT. POTOMAC, MD 20854 Phone 301-814-9998

Name of Applicant SAME Mailing Address ___ Phone ___

LOCATION OF PROPOSED SYSTEM: Street Address 27285 Whitewood Drive

Legal Description Lot 23 a Re-Sub of Lots 15, 22, 23 Whitewood Subd Aspen Highlands (Lot# and Subdivision if applicable) Parcel ID# 1737101023 (this# can be found in the Assessor's Office)

Size of Lot 7.84 ac (X)Residential ( )Commercial ( )Other (Describe) ___

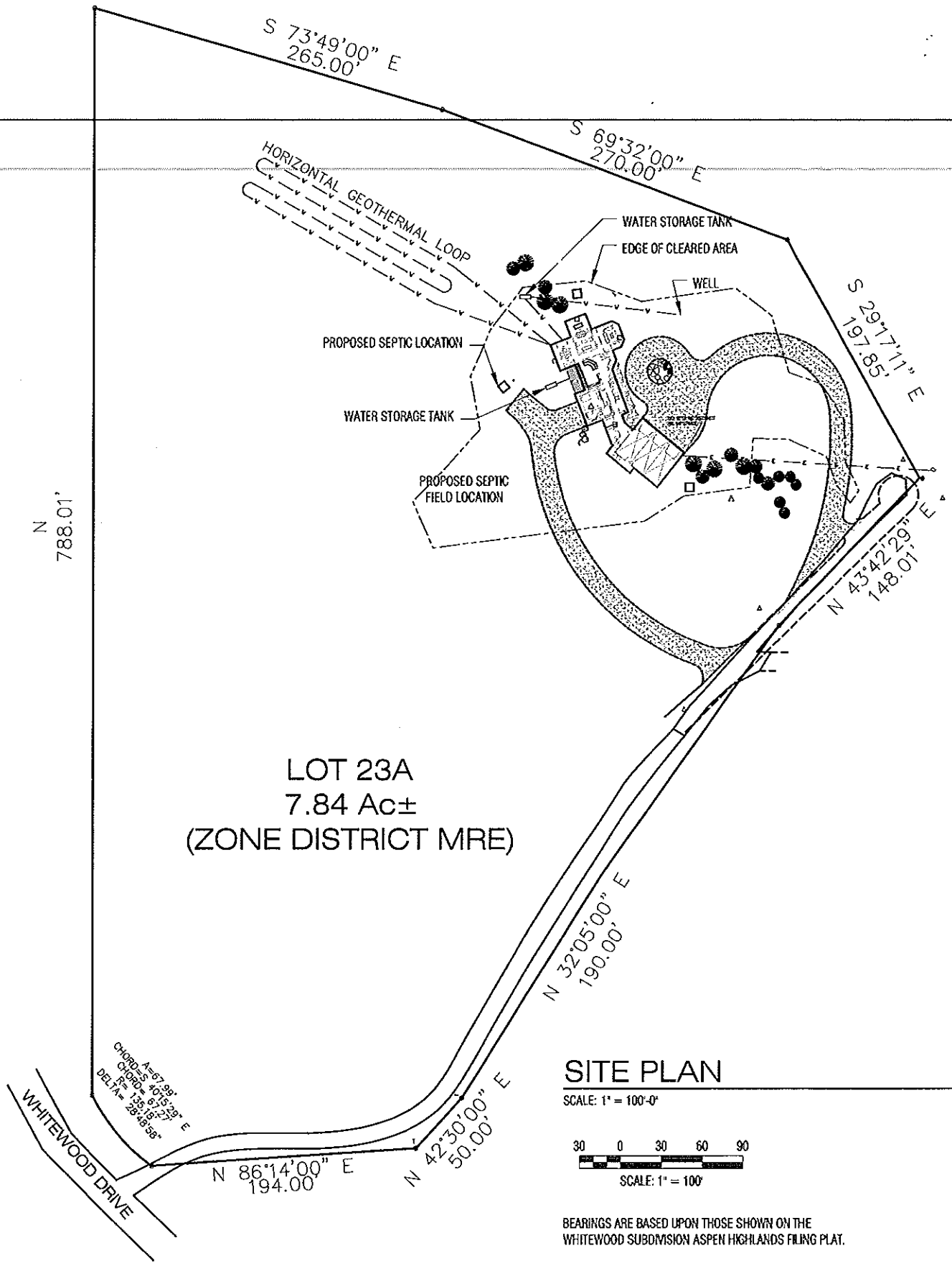
Number of: Bedrooms 4

Water Supply: (X) Private Well
( ) Public (give name of supply) ___

An appropriate plot plan must accompany this application showing required information. Percolation tests and an on-site inspection must be arranged with the Routt County Department of Environmental Health after receipt of the application and plot plan. The permit, upon approval of this application may be obtained at the Routt County Department of Environmental Health with payment of the required fee.

Application for an individual sewage disposal system is hereby submitted. The individual sewage disposal system will be constructed, installed and operated in accordance with the regulations governing individual sewage disposal systems within Routt County and will comply with applicable State Regulations adopted pursuant to Article 10 of Title 25, C.R.S. 1973, as amended. The undersigned acknowledges that the above information is true and that false information will invalidate the application or subsequent permit. The owner assumes all responsibility in case of failure or inadequacy of this sewage disposal system. (*Hot tubs and Jacuzzis shall not be connected on-site sewage disposal systems.)

Signature of Applicant [signature] chancie keenan, for applicant Date 05/21/10



SITE PLAN

SCALE: 1" = 100'-0"

30 0 30 60 90

SCALE: 1" = 100'

BEARINGS ARE BASED UPON THOSE SHOWN ON THE WHITEWOOD SUBDIVISION ASPEN HIGHLANDS FILING PLAT.

A New Residence for:

ROBERT DOWSKI

27285 E. Whitewood Drive
Lot 23, Whitewood Subdivision, Aspen Highlands
Steamboat Springs, Colorado

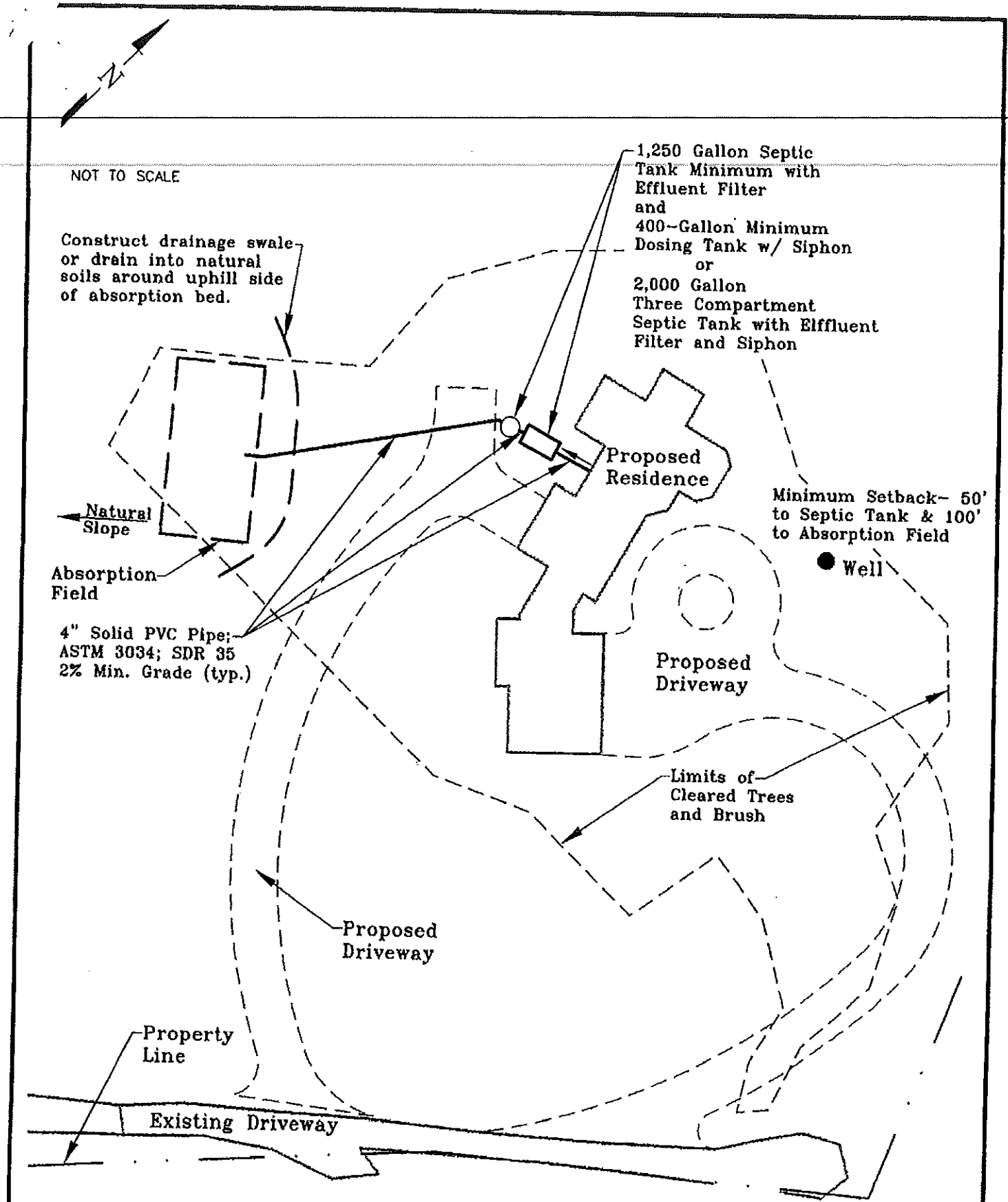
MOUNTAIN ARCHITECTURE DESIGN GROUP P.C.

TITLE: SITE PLAN

JOB NO. 0923
DRAWN bjs
CHECKED jmk
DATE 04.15.10
REVISIONS:
NO. DATE

DRAWING NUMBER A1

OF 1 DRAWINGS



Title: O.W.S.-SITE PLAN	Date: 5/18/10	NWCC North West Colorado Consultants, Inc.
Job Name: Proposed Dowski Residence	Job No. 09-8482	
Location: 27285 E. Whitewood Drive, Routt County, Colorado	Figure #1	

F:\Jobs\09-8482 Dowski Residence\OWS\OWS Site Plan.dwg

NWCC
NorthWest Colorado Consultants, Inc.
Geotechnical / Environmental Engineering • Materials Testing

May 21, 2010

Bob Dowski
8805 Mary Mead Court
Potomac, MD 20854

Job Number: 09-8482

Subject: On-site Wastewater System Design,
Proposed Dowski Residence, 27285 East
Whitewood Drive, Routt County, Colorado.

Dear Mr. Dowski,

As requested, NWCC, Inc. (NWCC) has completed the design of an On-site Wastewater System (OWS) for the proposed Dowski Residence to be constructed at 27285 East Whitewood Drive in Routt County, Colorado. This design was conducted in accordance with generally accepted guidelines for the industry, the Routt County Department of Environmental Health (RCDEH) Individual Sewage Disposal System Regulations and within budget limitations. Enclosed are two copies of the OWS design report and an invoice for the work completed as of this date. We have also provided Mountain Architecture Design Group with a copy of the report. It should be noted that a copy of this report and an application must be submitted to the Routt County Department of Environmental Health to obtain a permit.

As noted in the attached report, this office must complete periodic inspections during the construction of the system, and a final summary/as-built construction report must be submitted to RCDEH at the completion of the project by NWCC.

If you have any questions regarding this report, or if we can be of further service, please contact this office.

Sincerely,
NWCC, INC.,

Brian D. Len, P.E.
President

(970) 879-7888 • Fax (970) 879-7891
2580 Copper Ridge Drive • Steamboat Springs, CO 80487

to brown in color. Groundwater was not encountered in the profile pit at the time of our investigation and no evidence of a seasonal groundwater table was observed.

Percolation testing in the area of the proposed OWS was completed by NWCC on May 13, 2010. A set of 6-percolation test holes ranging from 10 to 30 inches in depth were advanced in the vicinity of the proposed OWS to determine the percolation rate of the natural, near surfaces soils. The percolation tests conducted indicate that the upper 30 inches of natural topsoil and organic materials and natural sands in this portion of the site yielded percolation rates of 20 to 40 minutes per inch (mpi) with an average percolation rate of 32 mpi.

OWS Design: Based on the percolation test results of the natural topsoil and organic materials and sands encountered at the site and our understanding of the proposed construction, we recommend that the OWS design consist of a modified seepage bed or trench soil absorption system constructed in the upper 6 to 12 inches of natural topsoil and organic materials.

Seepage Bed System: The OWS design presented below is based on the total anticipated number of bedrooms and appurtenances for the structures, as well as the average percolation rate for the natural soils. Considering the anticipated construction, we have calculated a peak effluent flow of 1,050 gallons per day (gpd) for the system. Based on the percolation test results, a minimum absorption area of 1,188 square feet is required for a bed absorption system. Any fill materials required to level the site on the downhill side of the bed should consist of a granular material approved by the design engineer prior to placement. A minimum of 18 inches of topsoil should be placed over the seepage bed and a layer of compacted clay fill materials should be placed along the sides of the gravel bed that are constructed above the existing ground surface.

Trench System: An alternate OWS to the seepage bed design presented above would be to use a modified trench absorption system utilizing Standard or EQ36 Infiltrator chambers placed in the upper 6 to 12 inches of natural topsoil and organic materials.

Using the peak effluent flow and required absorption area calculated above and a 40% reduction in the required absorption area with Infiltrator chambers, we have calculated that the system can be constructed using seventy-two (72) Quick-4 Standard Infiltrator chambers. As an alternate, we have calculated that the system can also be constructed using sixty-eight (68) Quick-4 EQ36 Infiltrator chambers. We recommend that the trenches for the chambers be placed a maximum of 6 to 12 inches below the natural ground surface. In addition, we recommend that a distribution box be installed to ensure that equal flow is distributed to all of the chambers. A minimum of 18 inches of soil cover should be placed over the chambers in accordance with the chamber manufacturer's recommendations.

We recommend that the base and sides of the chambers be wrapped with a ¼-inch galvanized steel or synthetic mesh to help prevent rodent intrusion. We also recommend that the system be fenced off to livestock. If the system is not activated within 30 days of installation or if extended periods of inactivity occur at the residence, the Infiltrator chambers must be periodically flooded with water, every 30 days, to prevent rodents from nesting and burrowing in the chambers, which could result in

the high water alarm sounds, the system should be inspected and serviced immediately.

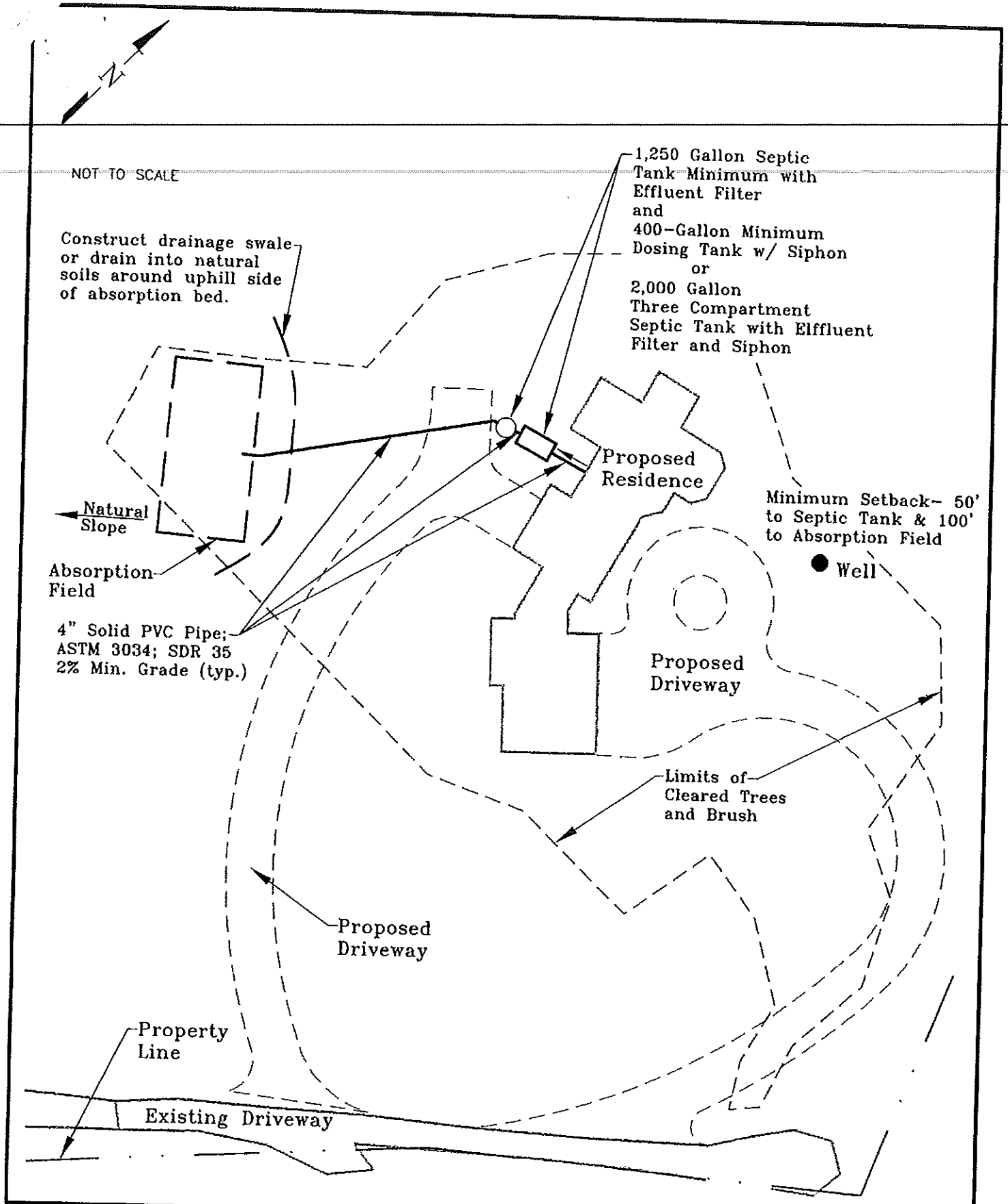
3) *Absorption Field*: If an Infiltrator system is opted for and is not activated within 30 days of installation or is inactive for an extended period of time, we recommend that water be run into the Infiltrator chambers periodically (once every 30 days) to prevent rodents from nesting and burrowing in the chambers, which could result in premature failure of the system. We also recommend that the absorption field be fenced off to livestock. The surface area around the absorption field should be observed monthly for signs of failure, such as lush vegetation growth or ponding. Liquid levels within each run of Infiltrators should be observed through the observation/vent pipes.

4) *Treated Water*: We do not recommend that the water softeners or water treatment systems be connected to the OWS. The chemical and hydraulic loading from the backwash of these treatment systems may be detrimental to the OWS. If a treatment system is used, a separate dry well should be constructed for the backwash waste. In addition, chemically treated water from a swimming pool or spa must not be discharged into the OWS.

5) *General Notes*: The owner should be aware that the operation of the OWS is different from a public sewer service. Plastic and other non-biodegradable materials should not be placed into the system. Water use should be monitored so fixtures are not allowed to run if a seal malfunctions. Allowing fixtures to flow continuously to prevent water lines from freezing or a malfunctioning faucet or toilet can consume in excess of 1,000 gallons per day. Excessive flows could continually flood and cause premature failure of the system. No plastic or landscaping that requires additional irrigation should be placed over the absorption field.

Limitations: The procedures and design criteria used in this design were obtained from the EPA "Design Manual - On-site Wastewater Treatment and Disposal Systems", 1980, as well as the Colorado Department of Health "Guidelines on Individual Sewage Disposal Systems", revised 2000, and the Routt County Individual Sewage Disposal Regulations, February 1999. The OWS design presented is based on currently accepted design procedures, the proposed structures and usage of the facilities. If the usage of the structure or addition of new facilities to those currently planned in the building changes, the OWS design will also most likely change. It should also be noted that all on-site wastewater systems require periodic maintenance as noted above. The failure of the owner to provide periodic inspection and maintenance of the system can lead to premature system failure.

Please be advised that Colorado law requires that a permit must be obtained prior to construction, alteration or use of an on-site wastewater system.



Title: O.W.S.-SITE PLAN	Date: 5/18/10	NWCC Northwest Colorado Consultants, Inc. Geotechnical / Environmental Engineering • Materials Testing (970)879-7588 • Fax (970)879-7851 2580 Copper Ridge Drive Steamboat Springs, Colorado 80487
Job Name: Proposed Dowski Residence	Job No. 09-8482	
Location: 27285 E. Whitewood Drive, Routt County, Colorado	Figure #1	

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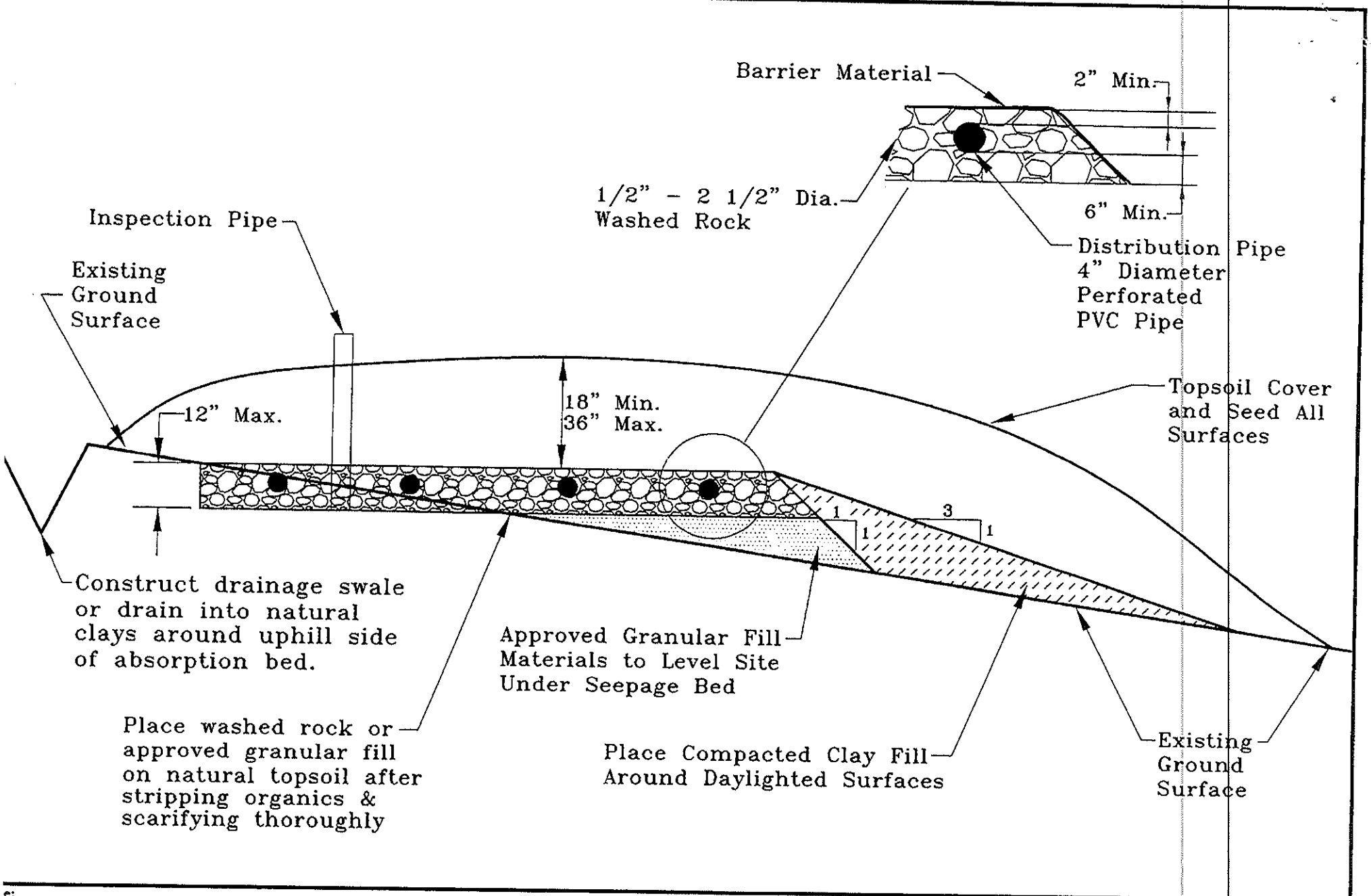


e:

SEEPAGE BED CROSS SECTION

Name: Proposed Dowski Residence

ATION: 27285 E. Whitewood Drive, Routt County, Colorado

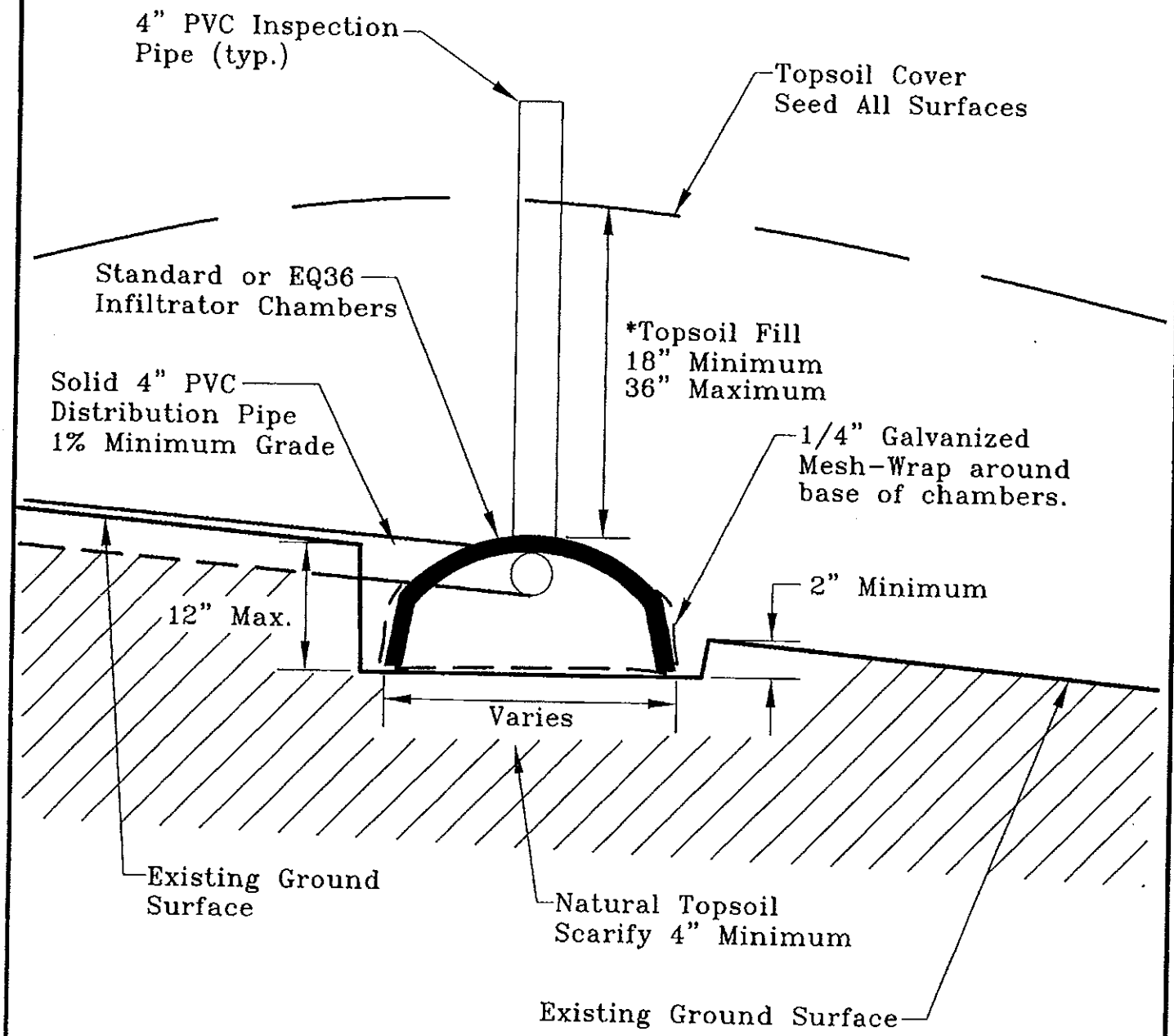
Date: 5/18/10

Job No. 09-8482

Figure #3

NWCC
North West Colorado Consultants, Inc.
Geotechnical / Environmental Engineering - Materials Testing
(970)879-7868 - Fax (970)870-7691
2580 Copper Ridge Drive
Steamboat Springs, Colorado 80487

* The chambers should be backfilled in accordance with the manufacturer's recommendations.



Title: INFILTRATOR SYSTEM CROSS SECTION	Date: 5/18/10	NWCC Northwest Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing (970)879-7656 - Fax (970)879-7251 2560 Copper Ridge Drive Steamboat Springs, Colorado 80487
Job Name: Proposed Dowski Residence	Job No. 09-8482	
Location: 27285 E. Whitewood Drive, Routt County, Colorado	Figure #5	

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APPENDIX B

1) The Rules and Regulations of the Routt County Department of Environmental Health must be complied with during the installation/construction of the system.

2) Periodic inspections must be made by the Design Engineer from NWCC at the following points during construction:

a. After subgrade excavation and septic tank and solid PVC pipe installation.
b. After placement of gravel and perforated PVC pipe or Infiltrator chambers, prior to backfilling.
c. Upon final completion of the project.

3) The PVC pipe, perforated or non perforated, shall conform to ASTM 3034 or better quality. The perforated pipe or trenches should be constructed level.

4) The soils beneath the pipes entering and leaving a septic or aeration tank, which has been excavated, shall be backfilled in 6 inch lifts and mechanically compacted to a minimum of 95% of the maximum standard Proctor density. Cast iron pipe or pvc pipe meeting ASTM 3034-SDR 35 or schedule 40 shall be used for 5 feet on the inlet and outlet sides of the tank.

5) Provide a minimum of 12 inches of soil cover over the septic tank, 18 inches of soil over the absorption bed and 24 inches of soils cover over all pipes. Any piping placed under a driveway or other plowed areas should have a minimum of 48 inches of soil cover or be protected from freezing using insulation or other approved means. A layer of compacted clay fill materials should be placed along the sides of the seepage bed that are constructed above the existing ground surface. The clays should be compacted to at least 95% of the maximum standard Proctor density and have at least 70% passing the No. 200 sieve. Special care should be taken when backfilling the system to prevent disturbance/crushing of the distribution lines and chambers. The manufacturers recommendations should be closely followed when backfilling the chambers. In addition, the distribution lines should be carefully bedded to minimize the settlement in these lines.

6) The surface drainage shall be ditched and diverted away from the absorption field.

7) The disturbed surfaces, mounds and berms shall be covered with topsoil and heavily seeded. Heavy farm equipment and livestock should be fenced or kept off of the absorption field or Infiltrators.

8) The washed rock shall be covered with straw and untreated building paper or synthetic filter fabric before overlying soils layers are placed. The washed rock will consist of gravel from 0.5 to 2.5 inches in size.

9) Inspection pipes to be constructed of PVC pipe with the portion of the pipe penetrating the gravel bed being perforated. Cleanouts must be placed in the solid distribution line at maximum intervals of 100' downstream of the septic tank and at a maximum interval of 50' upstream of the septic tank.

10) It is the responsibility of the owner and the installer to comply with all of the minimum setback requirements.

11) The fill materials placed below the bed must be approved prior to use by the design engineer from NWCC and consist of a clean, well graded sand or sand and gravel mixture with less than 7 percent passing the No. 200 sieve.

10-010

NorthWest Colorado Consultants, Inc.
Geotechnical / Environmental Engineering • Materials Testing

January 4, 2011

Bob Dowski
8805 Mary Mead Court
Potomac, MD 20854

Job Number: 09-8482

Subject: On-Site Wastewater System Observations,
Dowski Residence, 27285 East Whitewood Drive,
Routt County, Colorado.

Ladies and Gentlemen:

As requested, NWCC, Inc. (NWCC) visited the project site on October 19 and November 3 and 19, 2010 to observe the construction of the On-site Wastewater System (OWS) for the Dowski Residence under construction at 27285 East Whitewood Drive in Routt County, Colorado. NWCC previously designed the OWS for the residence under this job number and dated May 20, 2010.

At the time of our visit on October 19, 2010, the client had installed a 2,000-gallon (3-compartment) concrete septic tank to the west-northwest of the residence, currently under construction. The inlet and outlet 'T' connections visually appeared to be properly constructed in the septic tank at the time of our site visit. An effluent filter had not been placed in the outlet 'T' connection, between the 2nd and 3rd compartments of the septic tank. We advised the client that an effluent filter must be placed in the outlet 'T' of the septic tank. An automatic dosing siphon (Fluid Dynamics 417) had been installed in the third compartment of the septic tank. The piping from the residence to the septic tank had been placed and backfilled at the time of our site visit.

At the time of this visit, the client advised us that he would like to construct the absorption field over the geothermal heating system being constructed several hundred feet west of the residence. We advised the client that the OWS could not be constructed in this location due to a very large amount of disturbance from the excavation of the trenches for the heating system. We advised the client that the absorption field should be constructed in the area where the percolation testing had been completed.

At the time of our site visit on November 3, 2010, the client had constructed the absorption field with approximately 6 inches of washed rock placed over the site. The absorption field appeared to be constructed to meet the minimum required area. The absorption field appeared to be constructed in the upper 12 inches of natural topsoil materials on the uphill portion of the field. It appeared that 1 to 2 feet of granular fill materials had been placed on the downhill portion of the absorption field to level the site. The perforated pipe had been placed and appeared to be set level. We advised the client that washed rock should be placed to a minimum of 2 inches over the piping. An inspection pipe had been placed at each end of the absorption field at the time of our visit. The client was in the process of constructing the clay berm

around the exposed areas on the downhill sides of the absorption field. The piping between siphon in the dosing chamber of the septic tank and the absorption field had been placed and backfilled at the time of our site visit.

We advised the client that a minimum of 18 inches of soil cover should be placed over the absorption field after the washed rock, barrier material and clay berm had been placed, a minimum of 12 inches of soil cover should be placed over the septic tank and a minimum of 24 inches of soil cover should be placed over the solid piping, when completed.

At the time of our site visit on November 19, 2010, the absorption field, septic tank and distribution piping had been backfilled. It appeared that sufficient amount of fill had been placed over the septic tank, distribution pipes and absorption field. The disturbed areas of the site were covered with snow and we could not determine if these areas had been seeded at the time of our site visit. The risers on the septic tank had been raised to the finished ground surface. The lids were locked and we could not determine if the effluent filter had been placed in the outlet 'T' of the septic tank.

Based on our part-time observations, it appears that the portions of the system, which were completed and observed at the time of our site visits, had been constructed in general accordance with the design previously completed by our firm, with the noted exceptions. We believe that the system should function properly with proper care and maintenance, as outlined below, if the components backfilled or not completed at the time of our visits were properly constructed. An as-built drawing taken from field measurements of the system is presented in Figure #1.

Operation and Maintenance: Observing the operation and performing routine maintenance of the OWS is essential to allow proper, long term functioning of the system. We recommend that the operation be periodically monitored and a qualified, licensed maintenance contractor perform maintenance of the system.

1) *Septic Tank*: The scum and sludge accumulation in the septic tank should be monitored yearly. Once the scum or sludge thickness reaches 25% of the chamber depth, the septic tank should be pumped. A pumping frequency of 1 to 3 years is likely at the design flows. Depending on use, pumping may only be required every 3 to 5 years.

2) *Effluent Filter*: The effluent filter at the septic tank outlet should be cleaned when the septic tank is inspected or as required.

3) *Absorption Field*: We recommend that the absorption field be fenced off to vehicular traffic and livestock. The surface area around the absorption field should be observed monthly for signs of failure, such as lush vegetation growth or ponding. Liquid levels in the absorption bed should be observed through the inspection pipes.

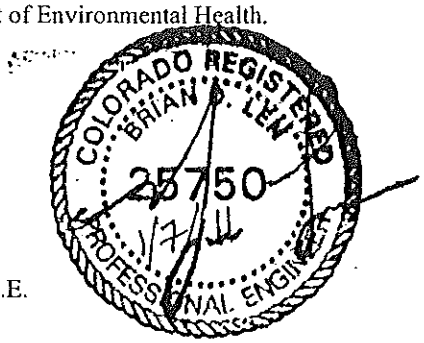
4) *Treated Water*: We do not recommend that the water softeners or water treatment systems be connected to the OWS. The chemical and hydraulic loading from the backwash of these treatment systems may be detrimental to the OWS. If a treatment system is used, a separate dry well should

be constructed for the backwash waste. In addition, chemically treated water from a swimming pool or spa must not be discharged into the OWS.

5) *General Notes*: The owner should be aware that the operation of the OWS is different from a public sewer service. Plastic and other non-biodegradable materials should not be placed into the system. Water use should be monitored so fixtures are not allowed to run if a seal malfunctions. Allowing fixtures to flow continuously to prevent water lines from freezing or a malfunctioning faucet or toilet can consume in excess of 1,000 gallons per day. Excessive flows could flood and cause premature failure of the system. No plastic or landscaping that requires additional irrigation should be placed over the absorption field.

If you have any questions regarding this report, our observations or recommendations or if we may be of further service, please contact this office. A copy of this report and as-built drawing has been provided to the Routt County Department of Environmental Health.

Sincerely,
NWCC, INC.,

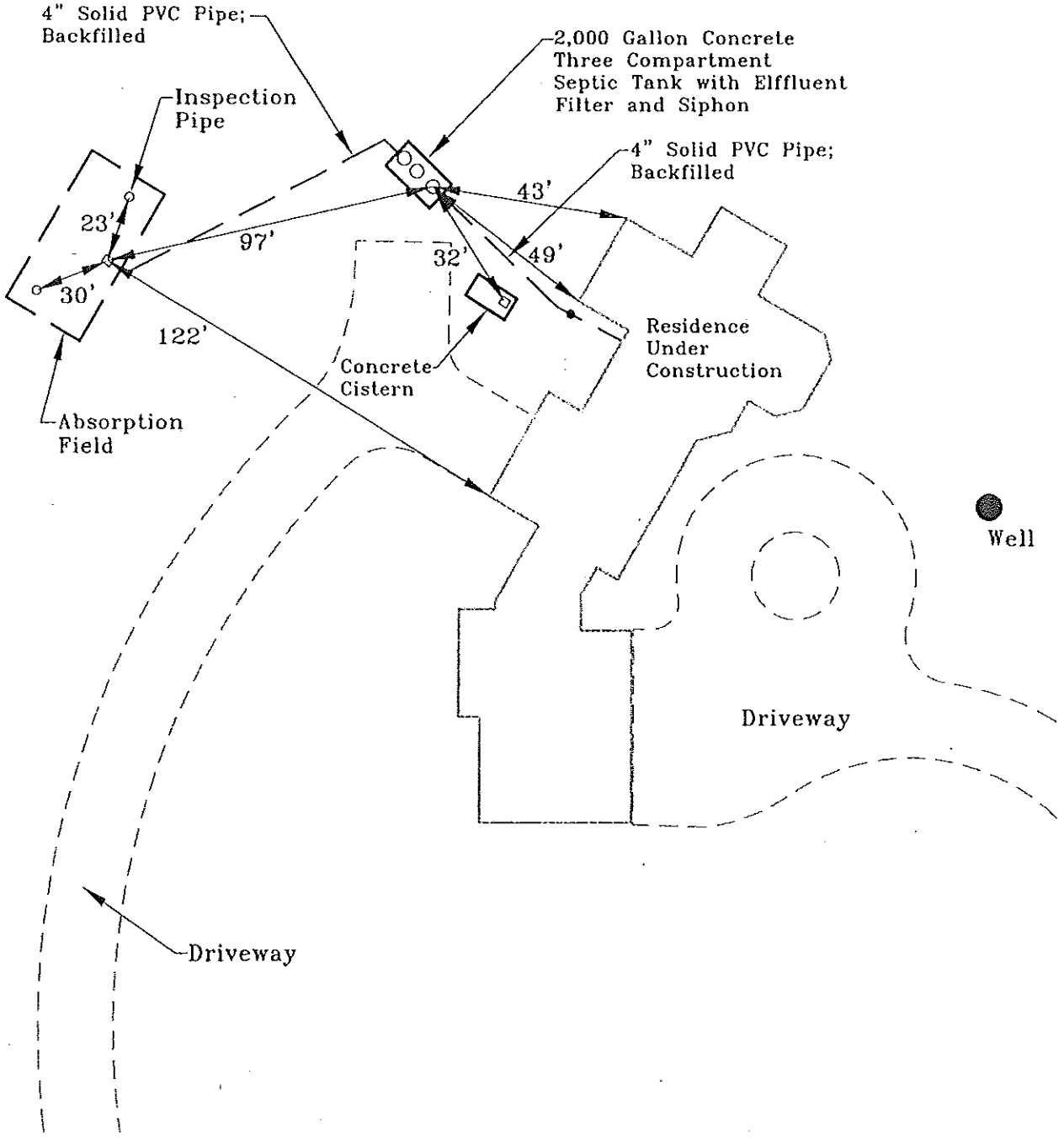


Timothy S. Travis, P.E.

Reviewed by Brian D. Len, P.E.

cc: Routt County Department of Environmental Health

NOT TO SCALE



Title: O.W.S.-AS BUILT	Date: 1/4/11	NWCC Northwest Colorado Consultants, Inc. Geotechnical / Environmental Engineering - Materials Testing (970)879-7988 • Fax (970)879-7995 2555 Copper Ridge Drive Steamboat Springs, Colorado 80487
Job Name: Dowski Residence	Job No. 09-8482	
Location: 27285 E. Whitewood Drive, Routt County, Colorado	Figure #1	

E:\Jobs\09-8482 Dowski Residence\OWS\8482 Dowski OWS As Built.dwg

2000 Gal. Three Compartment Single Auto Siphon Septic Tank

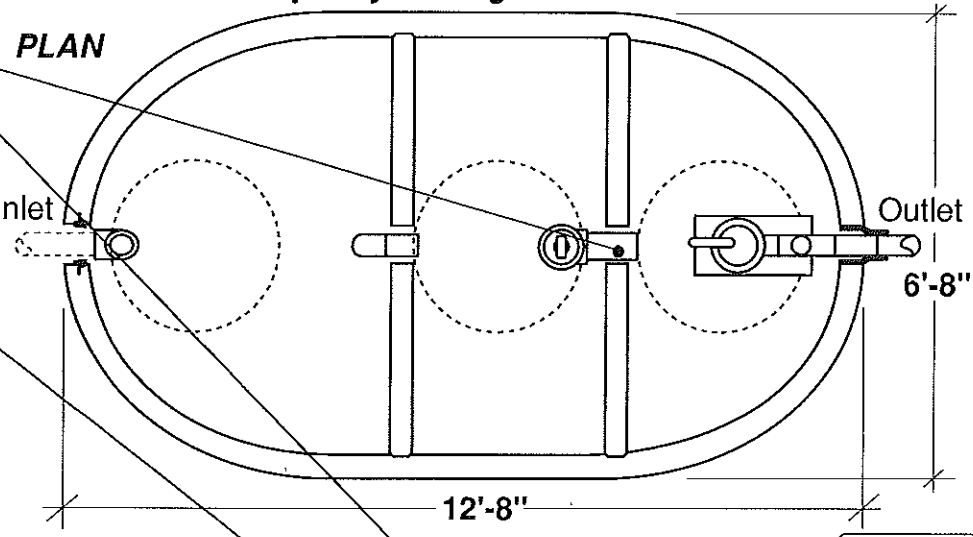
FLXX® FLXX®

Total Capacity: 2000 gallons

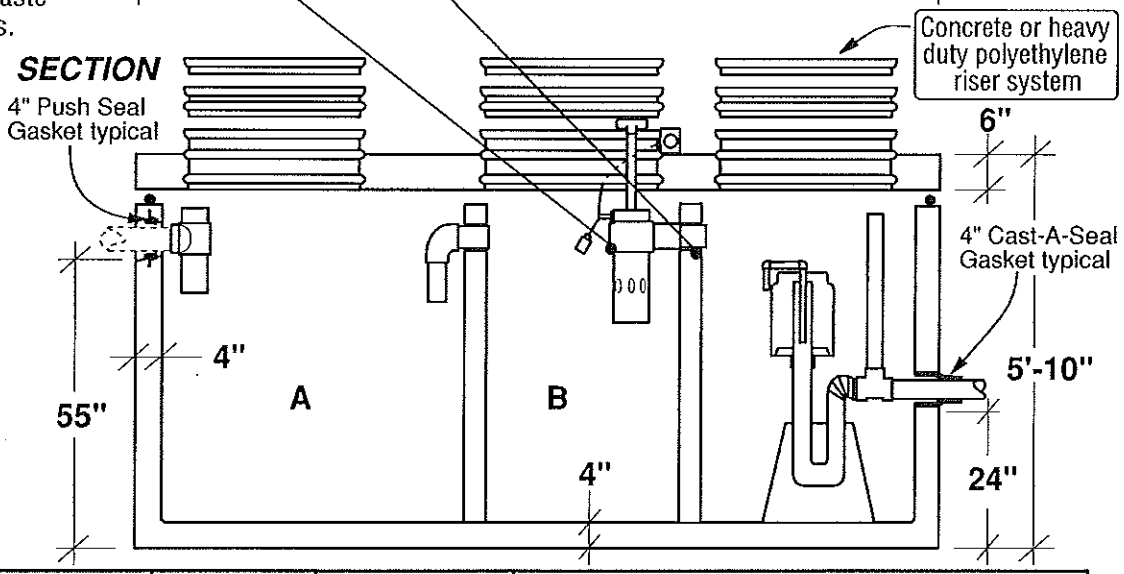
Sealed baffle wall. Install effluent filter at this location.

Filter monitor: Optional liquid level alarm box, float control switch with bracket and J-box.

Connections to electrical source by others.



- Monolithic tank meets ASTM-C-1227 Spec. for water and wastewater structures.
- Butyl rubber sealant meets Fed. Spec. SS-S-210A. (Provided with tank)
- All plumbing shown in diagram is 4" SDR 35. (Provided with tank)



Part #	Capacities (gallons) A	Capacities (gallons) B	Siphon Chamber (gallons)	Siphon / Discharge		Approximate Weights Tank*	Lid	Baffle Walls	Total
PCA-000-265	1,000	500	500	#413	130 Gal.	11,890 lbs	5,145 lbs	2,220 lbs	19,255 lbs
PCA-001-265				#417	170 Gal.				
PCA-002-265				#423	230 Gal.				

Note: N.T.S.

* Includes 200 lbs. siphon / foundation

FLXX® Watertight
Front Range Precast Concrete, Inc.
5439 N. Foothills Highway, Boulder, Colorado 80302
Phone (303) 442-3207 • (800) 783-3207 • Fax (303) 442-3209
www.flxx.com

treatment ok