WHATCOM COUNTY HEALTH DEPARTMENT

ON-SITE SEWAGE SYSTEM PERMIT APPLICATION

509 Girard Street
Bellingham, WA 98225
Telephone: 360-778-6000
Fax: 360-778-6001

Property ID: 117549
Tax Parcel # 400120 052355 Date 1-14-19
Applicant MATT MAHAFFIE
Applicant Mailing Address c/o 5280 Northwest DR. Applicant Phone (360) 391-9571
BELLINGHAM WA 98226

Site Address 8358 BLAINE RD Lot Size 7.35 AC.
N (S) (E) W side of BLAINE Rd. 1/2 Miles (N) S E W of BBAY LYNDEN Rd.
Subdivision Name JAMES S.P Lot B Blk — Div —
No. of Bedrooms 4 GPD 480 Water Supply ☐ Private ☒ Public B BAY
Property is within the boundaries of a recognized sewer utility ☒ No ☐ Yes
APPLICATION TYPE: ☒ New Construction ☐ Repair ☐ Expansion ☐ As-built ☐ Operational
SEWAGE TYPE: ☒ Residential ☐ Commercial ☐ Food Service ☐ Other

DESIGNER/ENGINEER Michael D. Eaton
Print Name

COMMENTS: 4 BDRM GLENDON M-31 +5% Slope

Name and Signature of Fee Simple Owner, Contract Purchaser, or Owner's Authorized Agent.
Print michael d. eaton Signature Date

If you do not agree with the decision made regarding this application you may request that the decision be reviewed. See Whatcom County Code section 24.07.090 for more information. Contact Whatcom County Health Department for further information and procedures. A fee is charged.

☒ ***Application Reviewed & Design Approved*** Date 06-15-2021
OSS Permit Type Glendon Biofilter
Conditions 1) Water/Sewer line crossing must remain open for Construction inspection

☐ ***Application Not Approved*** Date
Reasons

Office Use Only;
Received By JDeptula Date 1-11-19 Amount Paid $950 - Receipt # 1178
+$28.50

1

WHATCOM COUNTY HEALTH DEPARTMENT

FILE NOTES

509 Girard Street
Bellingham, WA 98225
Telephone: 360-778-6000
Fax: 360-778-6001

Address 8358 Blaine Rd

Tax Parcel # 400120 052 355

Page # _____

Date	EHS/Clerk	Notes
04-24-19	PM	Minimum vertical separation not available in desired location. E-mail sent to Mike Eaton. Re-V 05-27-19
5-2-19	DB	Paid $91. Reinspection.
05-08-19	PM	2019-2020 wet season check required. Re-V 12-02-19
01-03-19	PM	Design items need to be addressed. E-mail sent to Mike Eaton. Re-V 01-20-20
01-07-2020	PM	Design items need to be addressed. E-mail sent to Mike Eaton

WHATCOM COUNTY HEALTH DEPARTMENT

ON-SITE SEWAGE SYSTEM SOIL LOGS

509 Girard Street
Bellingham, WA 98225
Telephone: 360-778-6000
Fax: 360-778-6001

Tax Parcel # 400120 052355 Date 5/2/2019 Page No. 1 of 2

Subdivision Name _____ SSS/LSS # _____

Owner MATT MAHAffee Designer Michael D. Eaton

Soil Loading Rate

Coarsest Textured Soil 0.6 gal/ft²/day Designed Treatment Level A

Finest Textured Soil 0.6 gal/ft²/day

- DESIGNER -

- HEALTH DEPARTMENT USE ONLY -

1

0-14"
14-19"
19" ↓

0-14 fsL
~~FSL~~ LFS
Roots to 20"
clay loam w/mottles

Restrictive Layer Depth 19"
Wet Season Water Table Depth _____

05-07-19 PM: SL-1
Soils, roots & Mottling as stated
~~12-31-19 PM: water @ 2"~~
~~01-02-20 PM: water @ 8"~~ PM
01-07-20 PM: Dry to 19"

2

0-13"
13-19"

fSL
LfS
Roots to 15"
Mottling @ 16"

Restrictive Layer Depth 16"
Wet Season Water Table Depth _____

05-07-19 PM: SL-2
Soils, roots & Mottling as stated
~~12-31-19 PM: water @ 9"~~ PM
~~01-02-20 PM: water @ 10"~~
01-07-20 PM: Dry to 19"

ON-SITE WASTEWATER TREATMENT SYSTEM
STATE OF WASHINGTON
51100374
MICHAEL D EATON
LICENSED DESIGNER
EXPIRES 10/08/2020

MAY 02 2019

Professional Designer/Engineer Stamp

Soil log holes must conform to Chapter 24.05 WCC. Use additional pages for additional soil log test holes.

REDESIGN

(2)

WHATCOM COUNTY HEALTH DEPARTMENT

ON-SITE SEWAGE SYSTEM SOIL LOGS

509 Girard Street
Bellingham, WA 98225
Telephone: 360-778-6000
Fax: 360-778-6001

Tax Parcel # 400120 052.355 Date 5/2/2019 Page No. 2 of 2

Subdivision Name _____ SSS/LSS # _____

Owner MATT MAHAFFEE Designer Michael D. Eaton

Soil Loading Rate

Coarsest Textured Soil 0.6 gal/ft²/day Designed Treatment Level A

Finest Textured Soil 0.6 gal/ft²/day

# 3	- DESIGNER -	- HEALTH DEPARTMENT USE ONLY -
		05-07-19 PM: SL 3
0-13"	fSL	Soils, roots & Mottling as stated
13-22"	LfS	wet Soil @ 16"
	Roots to 20"	~~12-31-19 PM: water @ 3"~~ PM
	mottles @ 17"	~~01-02-20 PM: water @ 8"~~ PM
	Restrictive Layer Depth 17"	01-07-20 PM; water @ 12"
	Wet Season Water Table Depth _____	

# 4		
		05-07-19 PM; SL-4
0-14"	fSL	Soils roots & Mottling as Stated
14-24"	LfS	~~12-31-19 PM: water @ 3"~~ PM
	Roots to 20"	~~01-02-20 PM: water @ 10"~~ PM
	Light mottles @ 18"	01-07-20 PM; water @ 17"
	Restrictive Layer Depth 18"	
	Wet Season Water Table Depth _____	

ON-SITE WASTEWATER TREATMENT SYSTEM
STATE OF WASHINGTON
5100874
MICHAEL D EATON
LICENSED DESIGNER
EXPIRES 11-02-20

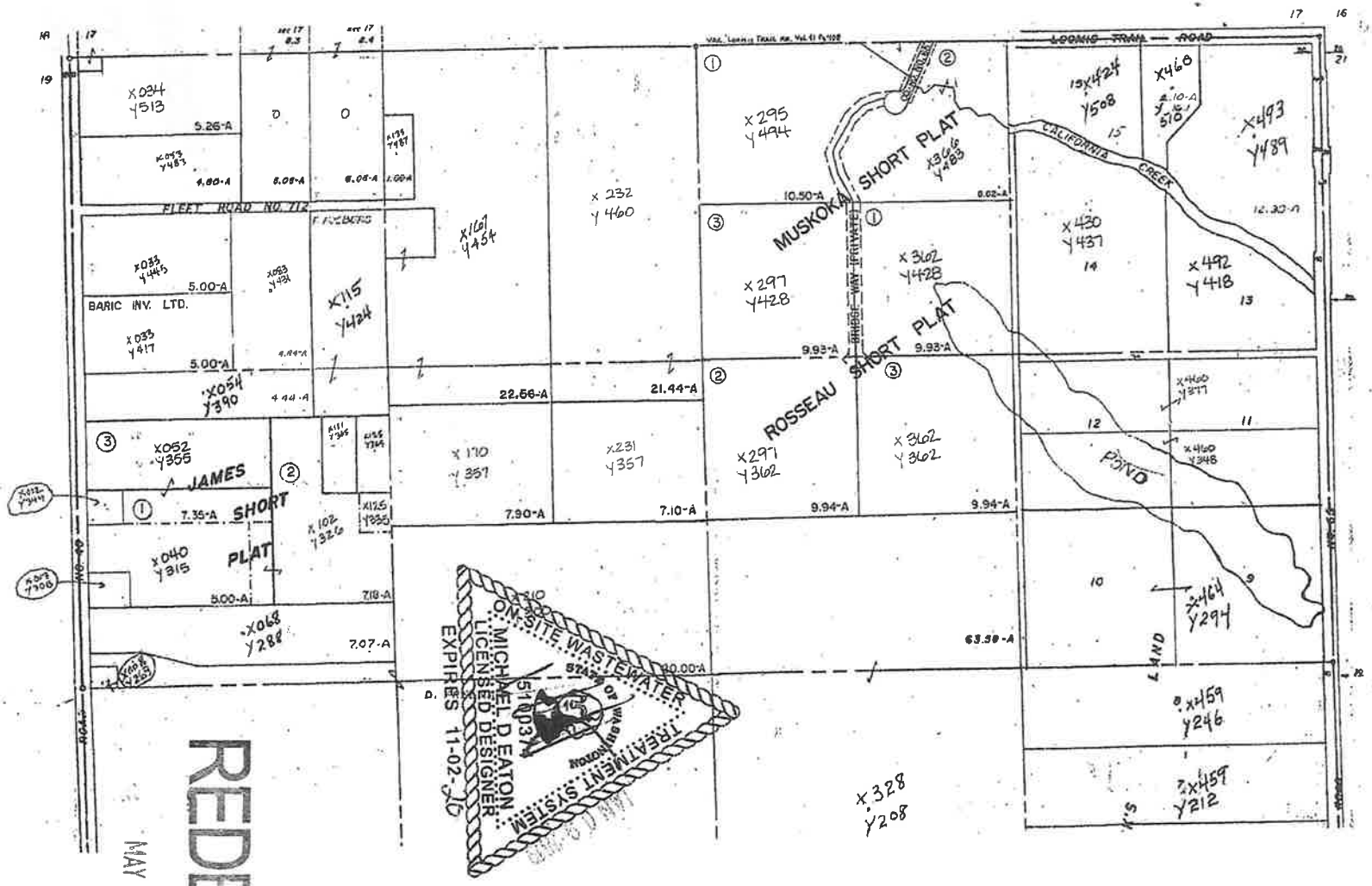
Professional Designer/Engineer Stamp

MAY 02 2019

REDESIGN

Soil log holes must conform to Chapter 24.05 WCC. Use additional pages for additional soil log test holes.

(3)



TOWNSHIP 40

RANGE 1E

SECTION 20

MAP NO. 01

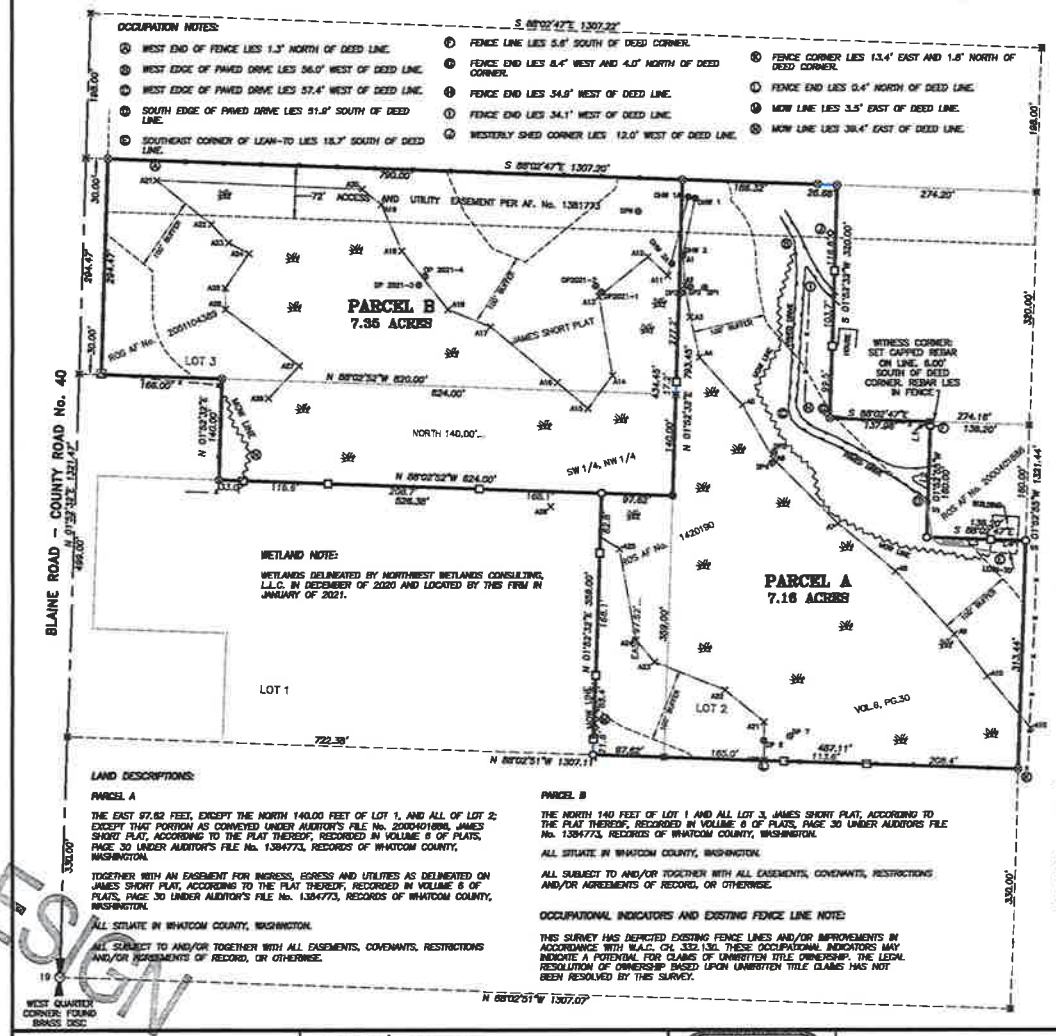
SCALE

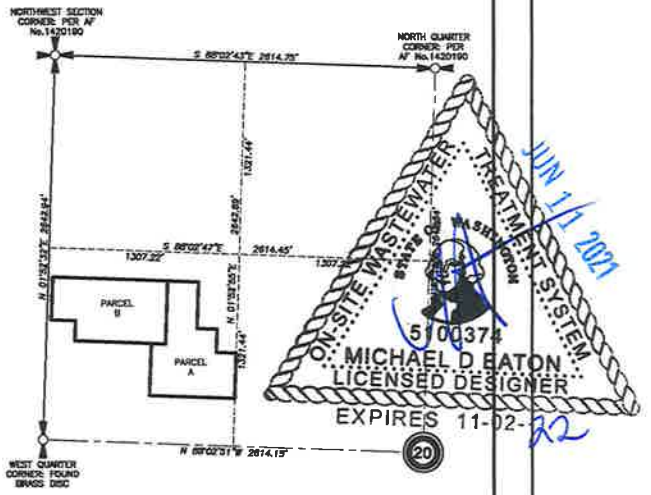
REDESIGN

MAY 02 2019

(4)

SURVEY IN SECTION 20, TOWNSHIP 40 NORTH, RANGE 1 EAST OF W.M.





JUN 11 2021

SUBDIVISION OF THE SOUTHEAST QUARTER OF SECTION 20, TOWNSHIP 40 NORTH, RANGE 1 EAST OF W.M. PER RECORD OF SURVEY FILED UNDER AF No. 1420190

SCALE: 1 INCH = 500 FEET

WETLAND NOTE:

WETLANDS DELINEATED BY NORTHWEST WETLANDS CONSULTING, L.L.C. IN DECEMBER OF 2020 AND LOCATED BY THIS FIRM IN JANUARY OF 2021.

LAND DESCRIPTIONS:

PARCEL A

THE EAST 97.62 FEET, EXCEPT THE NORTH 140.00 FEET OF LOT 1, AND ALL OF LOT 2; EXCEPT THAT PORTION AS CONVEYED UNDER AUDITOR'S FILE No. 2000401886, JAMES SHORT PLAT, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 8 OF PLATS, PAGE 30 UNDER AUDITOR'S FILE No. 1384773, RECORDS OF WHATCOM COUNTY, WASHINGTON.

TOGETHER WITH AN EASEMENT FOR INGRESS, EGRESS AND UTILITIES AS DELINEATED ON JAMES SHORT PLAT, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 8 OF PLATS, PAGE 30 UNDER AUDITOR'S FILE No. 1384773, RECORDS OF WHATCOM COUNTY, WASHINGTON.

ALL SITUATE IN WHATCOM COUNTY, WASHINGTON.

ALL SUBJECT TO AND/OR TOGETHER WITH ALL EASEMENTS, COVENANTS, RESTRICTIONS AND/OR AGREEMENTS OF RECORD, OR OTHERWISE.

PARCEL B

THE NORTH 140 FEET OF LOT 1 AND ALL LOT 3, JAMES SHORT PLAT, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 8 OF PLATS, PAGE 30 UNDER AUDITORS FILE No. 1384773, RECORDS OF WHATCOM COUNTY, WASHINGTON.

ALL SITUATE IN WHATCOM COUNTY, WASHINGTON.

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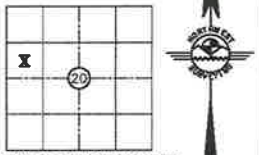
OCCUPATIONAL INDICATORS AND EXISTING FENCE LINE NOTE:

THIS SURVEY HAS DEPICTED EXISTING FENCE LINES AND/OR IMPROVEMENTS IN ACCORDANCE WITH W.A.C. CH. 332.130. THESE OCCUPATIONAL INDICATORS MAY INDICATE A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE OWNERSHIP. THE LEGAL RESOLUTION OF OWNERSHIP BASED UPON UNWRITTEN TITLE CLAIMS HAS NOT BEEN RESOLVED BY THIS SURVEY.

SURVEYOR'S NOTES:

1. "O" DENOTES 5/8 INCH REBAR WITH 1 INCH PLASTIC CAP MARKED "NWS & GPS 49276 & 50982" SET BY THIS SURVEY.
2. "⊕" DENOTES IRON PIPE WITH CAP MARKED "GHR LS.6947" FOUND BY THIS SURVEY.
3. "●" DENOTES REBAR AND CAP MARKED "MILLER LS.32590" FOUND BY THIS SURVEY.
4. "⊡" DENOTES 1 INCH CONCRETE MONUMENT FOUND BY THIS SURVEY.
5. "□" DENOTES HUB AND LATH SET FOR POINTS ON LINE BY THIS SURVEY.
6. "M" DENOTES CALCULATED POINT ONLY.
7. THIS SURVEY WAS PERFORMED BY STANDARD FIELD TRAVERSE USING A GEOMAX ZOOM90 TOTAL STATION WITH A CARLSON SURVEYOR 2 COLLECTOR/FIELD COMPUTER IN JANUARY OF 2021. ACCURACY EXCEEDS 1:10000.
8. THIS SURVEY TIED INTO WEST QUARTER CORNER AND LOT CORNERS AS SHOWN AND RELIED UPON RECORD OF SURVEY FILED UNDER AF No. 1420190 FOR BASIS OF BEARINGS AND SECTION SUBDIVISION.

Course	Bearing	Distance
L1	S 01°52'53" W	6.00'
L2	S 01°52'53" W	154.00'
L3	N 88°03'11" E	97.89'
L4	N 88°02'17" E	46.22'



SECTION 20, TOWNSHIP 40 NORTH, RANGE 1 EAST OF W.M.

100 0 100 200 300
GRAPHIC SCALE - FEET

SCALE: 1 INCH = 100 FEET

BASIS OF BEARINGS = RECORD OF SURVEY FILED UNDER AUDITOR'S FILE No. 1420190

REDESIGN

AUDITOR'S CERTIFICATE:

FILED FOR RECORD THIS _____ DAY OF _____ 2021 AT _____ M., IN BOOK _____ OF SURVEYS ON PAGE _____, AT THE REQUEST OF NORTHWEST SURVEYING & GPS. FILED UNDER AF No.2021-_____

COUNTY AUDITOR

DEPUTY AUDITOR

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT, AT THE REQUEST OF MATT MAHAFFIE IN DECEMBER OF 2020.

DATE CERTIFICATE No. 50982

JEROMY M. DEMEYER STATE OF WASHINGTON 50982 REGISTERED PROFESSIONAL LAND SURVEYOR
03-09-21

PORTION OF THE SW 1/4, NW 1/4 OF SECTION 20, TOWNSHIP 40 NORTH, RANGE 1 EAST OF W.M., WHATCOM COUNTY, WASHINGTON

NORTHWEST SURVEYING & GPS, INC.
Jeromy M. DeMeyer, L.S. No.50982
Brett W. De Vries, L.S. No.49276
407 5TH STREET, LYNDEN WASHINGTON, 98264
PH.(360) 354-1950 NWSURVEY.COM

RECORD OF SURVEY FOR DEAD GOAT PROPERTIES

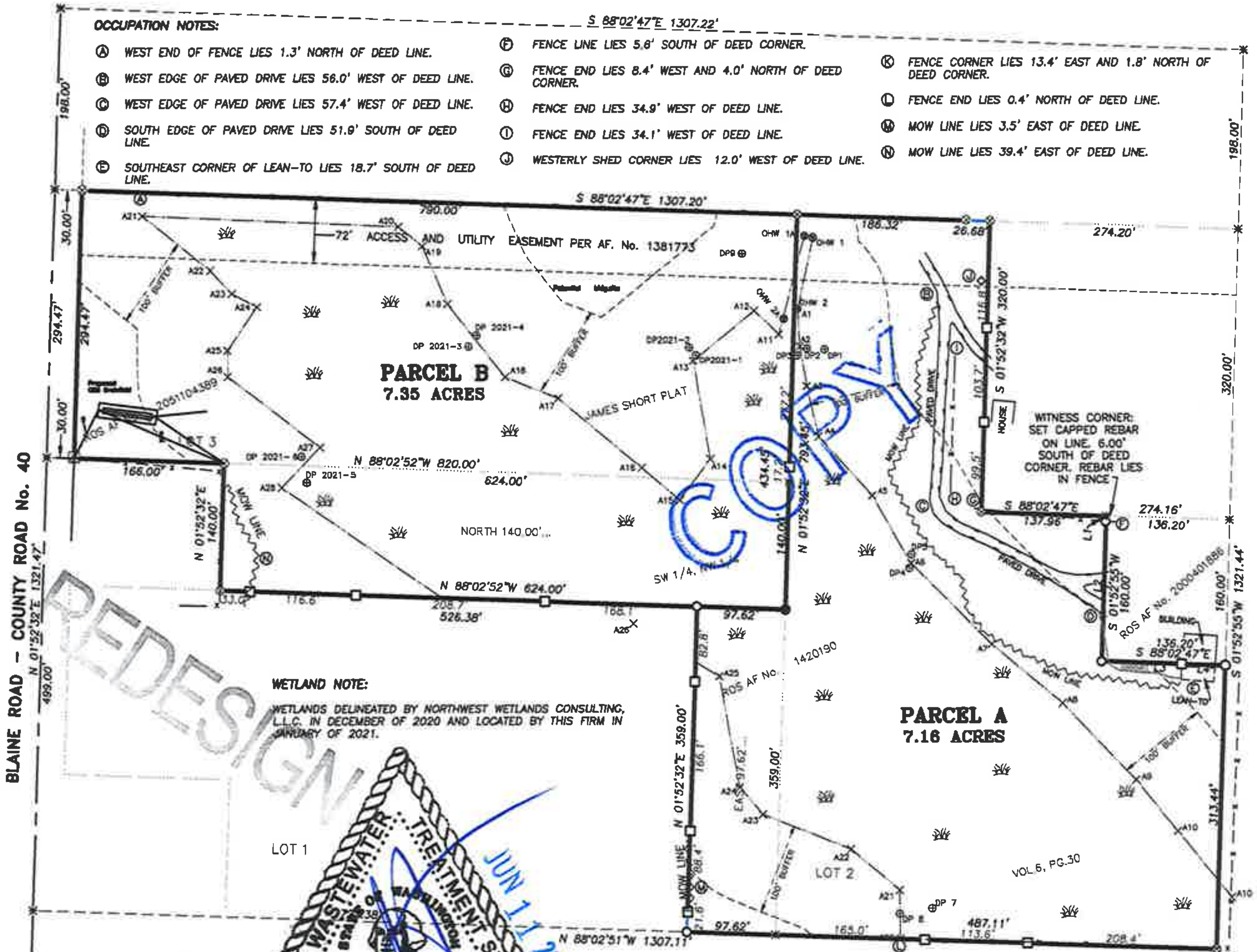
DRAWN BY:	DATE:	JOB NO.:
CHRIS	03-09-21	20-486
REVIEWED BY:	DIR: \174001	SHEET:
JEROMY	CRD: 174001.CRD	1 OF 1

51

SURVEY IN SECTION 20, TOWNSHIP 40 NORTH, RANGE 1 EAST OF W.M.

OCCUPATION NOTES:

- Ⓐ WEST END OF FENCE LIES 1.3' NORTH OF DEED LINE.
- Ⓑ WEST EDGE OF PAVED DRIVE LIES 56.0' WEST OF DEED LINE.
- Ⓒ WEST EDGE OF PAVED DRIVE LIES 57.4' WEST OF DEED LINE.
- Ⓓ SOUTH EDGE OF PAVED DRIVE LIES 51.9' SOUTH OF DEED LINE.
- Ⓔ SOUTHEAST CORNER OF LEAN-TO LIES 18.7' SOUTH OF DEED LINE.
- Ⓕ FENCE LINE LIES 5.8' SOUTH OF DEED CORNER.
- Ⓖ FENCE END LIES 8.4' WEST AND 4.0' NORTH OF DEED CORNER.
- Ⓗ FENCE END LIES 34.9' WEST OF DEED LINE.
- Ⓘ FENCE END LIES 34.1' WEST OF DEED LINE.
- Ⓙ WESTERLY SHED CORNER LIES 12.0' WEST OF DEED LINE.
- Ⓚ FENCE CORNER LIES 13.4' EAST AND 1.8' NORTH OF DEED CORNER.
- Ⓛ FENCE END LIES 0.4' NORTH OF DEED LINE.
- Ⓜ MOW LINE LIES 3.5' EAST OF DEED LINE.
- Ⓝ MOW LINE LIES 39.4' EAST OF DEED LINE.



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SITE WASTEWATER TREATMENT SYSTEMS
STATE OF WASHINGTON
5100374
MICHAEL D. EATON
LICENSED DESIGNER
EXPIRES

JUN 11 2021

COPY

REDESIGN

PARCEL B

THE NORTH 140 FEET OF LOT 1 AND ALL LOT 3, JAMES SHORT PLAT, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 6 OF PLATS, PAGE 30 UNDER AUDITORS FILE No. 1384773, RECORDS OF WHATCOM COUNTY, WASHINGTON.

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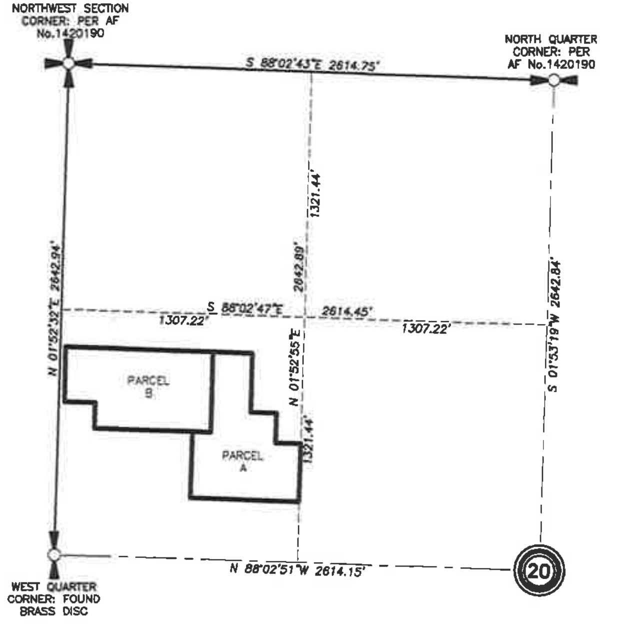
19

N 88°02'51"W 1307.07'

WEST QUARTER
CORNER: FOUND
BRASS DISC



SUBDIVISION OF THE SOUTHEAST QUARTER OF SECTION 20,
TOWNSHIP 40 NORTH, RANGE 1 EAST OF W.M. PER
RECORD OF SURVEY FILED UNDER AF No. 1420190

SCALE: 1 INCH = 500 FEET

SURVEYOR'S NOTES:

1. "○" DENOTES 5/8 INCH REBAR WITH 1 INCH PLASTIC CAP MARKED "NWS & GPS 49276 & 50982" SET BY THIS SURVEY.
2. "⊗" DENOTES IRON PIPE WITH CAP MARKED "GHR LS.9947" FOUND BY THIS SURVEY.
3. "●" DENOTES REBAR AND CAP MARKED "MILLER LS.32560" FOUND BY THIS SURVEY.
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Course	Bearing	Distance
L1	S 01°52'55" W	6.00'
L2	S 01°52'55" W	154.00'
L3	S 88°03'03" E	87.99'
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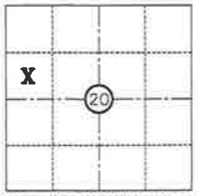


SECTION 20, TOWNSHIP 40 NORTH,
RANGE 1 EAST OF W.M.

100 0 100 200 300
GRAPHIC SCALE - FEET

SCALE: 1 INCH = 100 FEET

BASIS OF BEARINGS =
RECORD OF SURVEY FILED UNDER
AUDITOR'S FILE No. 1420190

AUDITOR'S CERTIFICATE:

FILED FOR RECORD THIS ________ DAY OF ____________ 2021 AT ______M., IN BOOK ______ OF SURVEYS ON PAGE _____, AT THE REQUEST OF NORTHWEST SURVEYING & GPS. FILED UNDER AF No.2021-____________

COUNTY AUDITOR

DEPUTY AUDITOR

SURVEYOR'S CERTIFICATE

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT, AT THE

REQUEST OF MATT MAHAFFIE

IN DECEMBER OF 2020.

DATE

CERTIFICATE No. 50982

JEROMY M. DEMEYER
50982
03-09-21

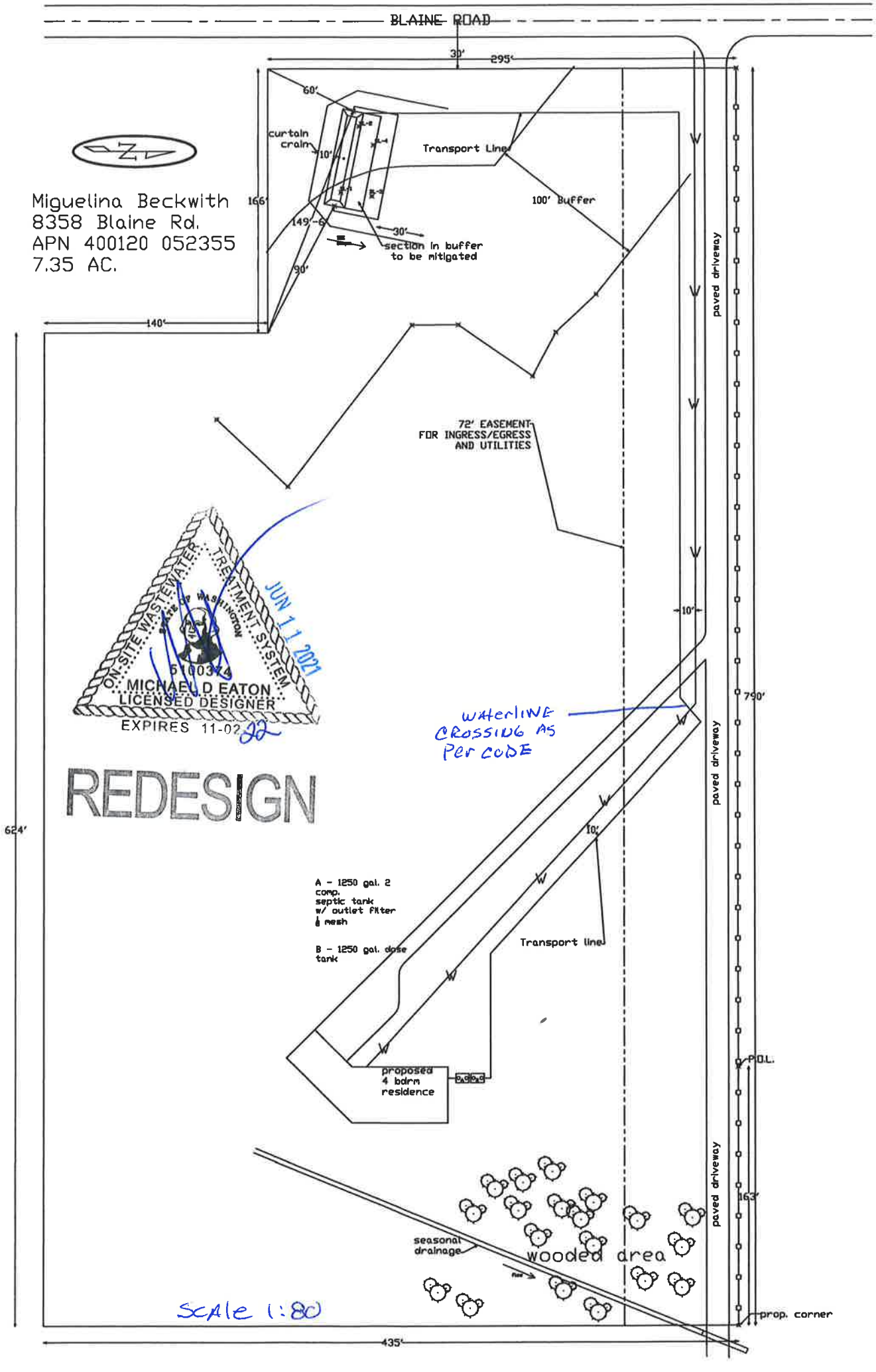
PORTION OF THE SW 1/4, NW 1/4 OF SECTION 20, TOWNSHIP 40 NORTH, RANGE 1 EAST OF W.M., WHATCOM COUNTY, WASHINGTON

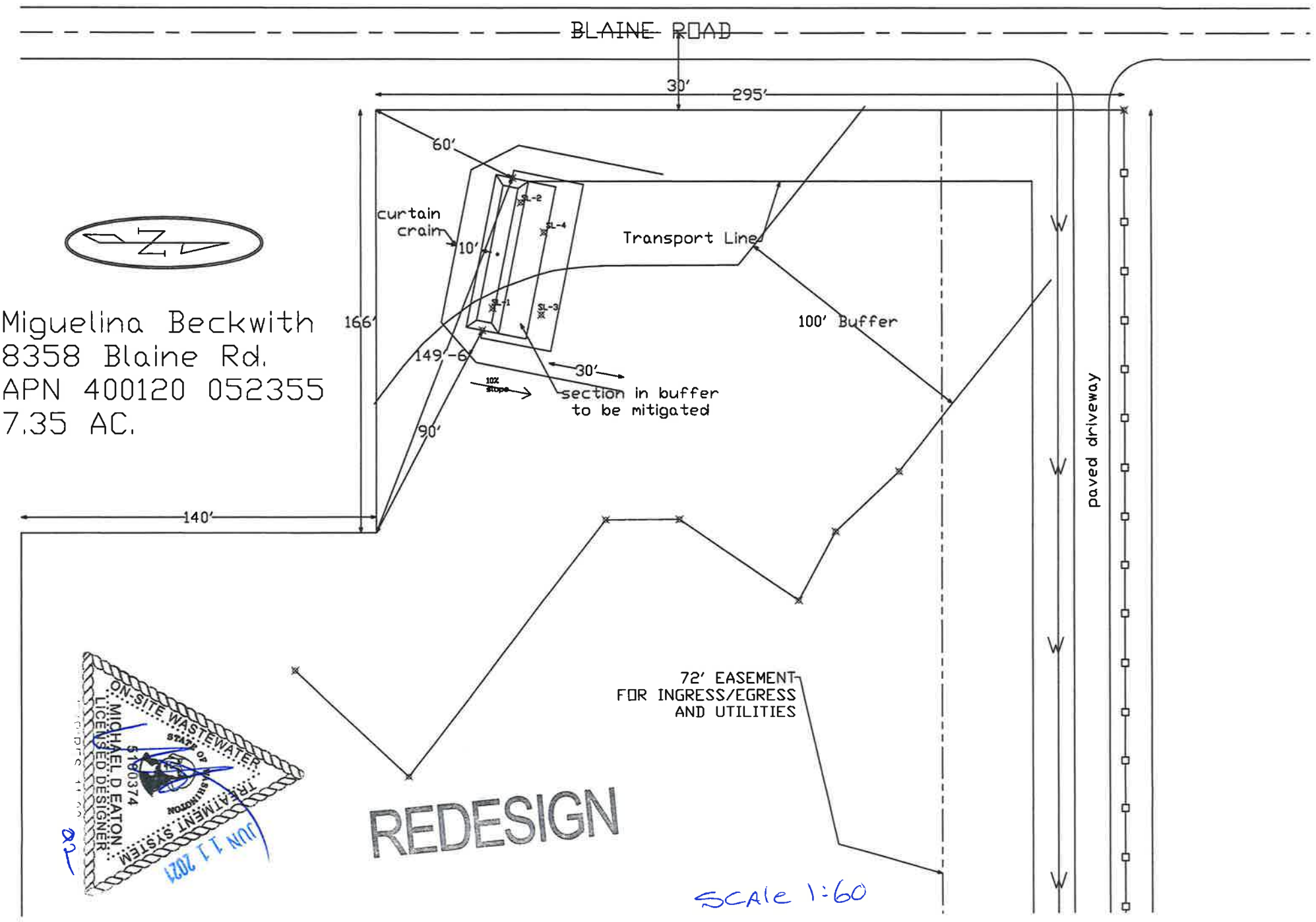
NORTHWEST SURVEYING & GPS, INC.
Jeromy M. DeMeyer, L.S. No.50982
Brett W. De Vries, L.S. No.49276
407 5TH STREET, LYNDEN WASHINGTON, 98264
PH.(360) 354-1950 NWSURVEY.COM

R E C O R D OF S U R V E
FOR
DEAD GOAT PROPERTIES

DRAWN BY:	DATE:	JOB NO.:
CHRIS	03-09-21	20-486
REVIEWED BY:	DIR: \174001	SHEET:
JEROMY	CRD: 174001.CRD	1 OF 1

6


BLAINE ROAD
30'
295'
60'
curtain drain
10'
Transport Line
100' Buffer
166'
149'-6"
30'
section in buffer to be mitigated
90'
140'
Miguelina Beckwith
8358 Blaine Rd.
APN 400120 052355
7.35 AC.
72' EASEMENT FOR INGRESS/EGRESS AND UTILITIES
paved driveway
10'
790'
ON-SITE WASTEWATER TREATMENT SYSTEM
STATE OF WASHINGTON
20100374
MICHAEL D EATON
LICENSED DESIGNER
EXPIRES 11-02-22
JUN 11 2021
REDESIGN
waterline CROSSING AS Per CODE
624'
A - 1250 gal. 2 comp. septic tank w/ outlet filter & mesh
B - 1250 gal. dose tank
Transport line
proposed 4 bdrm residence
P.O.L.
163'
seasonal drainage
wooded area
prop. corner
435'
Scale 1:80


BLAINE ROAD
30'
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10'
Transport Line
100' Buffer
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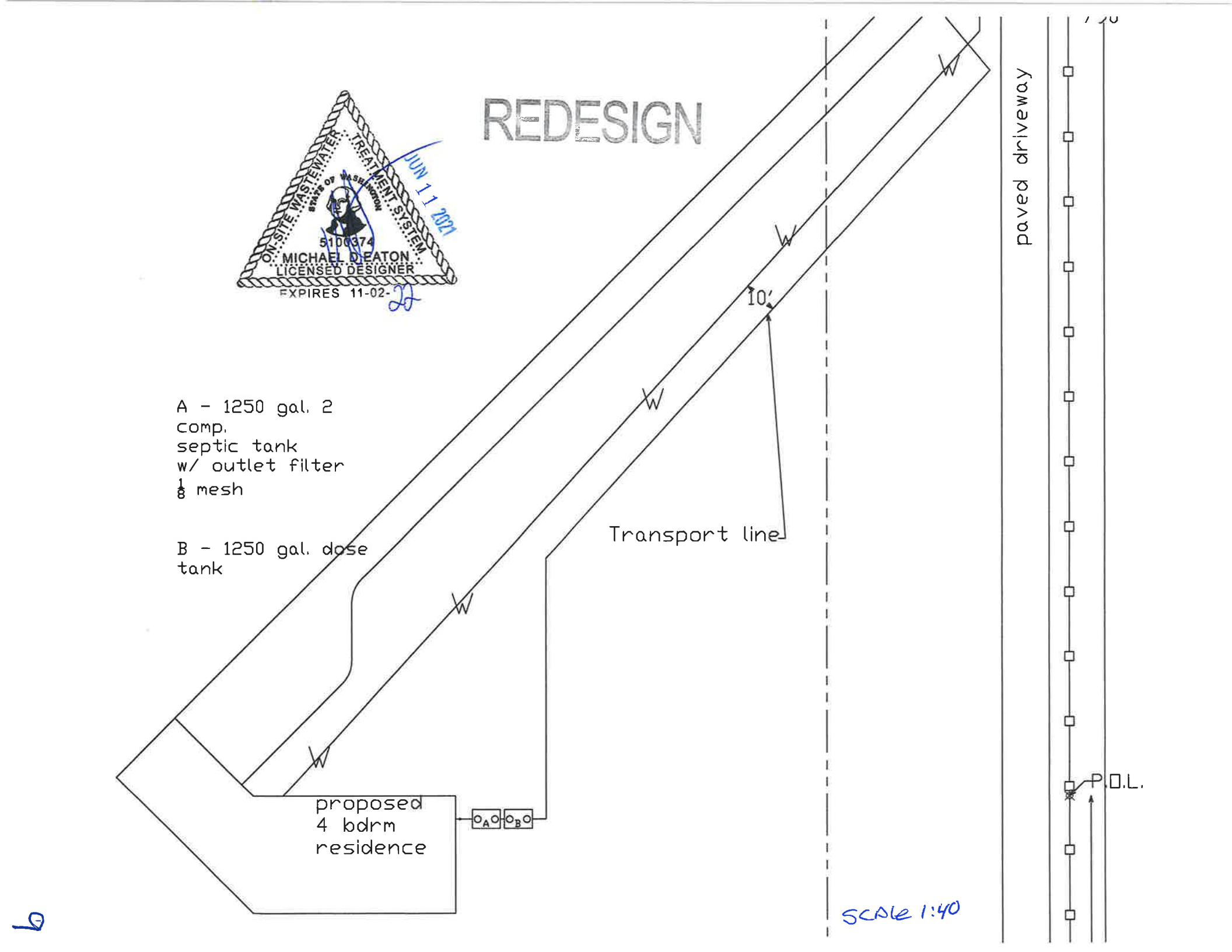
90'
30'
10% slope
section in buffer to be mitigated
140'
paved driveway
72' EASEMENT FOR INGRESS/EGRESS AND UTILITIES
SL-1
SL-2
SL-3
SL-4
N
Miguelina Beckwith
8358 Blaine Rd.
APN 400120 052355
7.35 AC.
ON-SITE WASTEWATER TREATMENT SYSTEM
LICENSED DESIGNER
MICHAEL D EATON
STATE OF WASHINGTON
51800374
JUN 11 2021
REDESIGN
SCALE 1:60

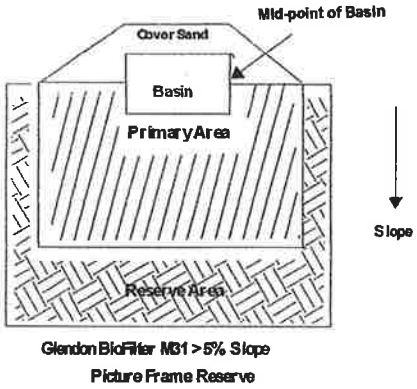

REDESIGN
ON-SITE WASTEWATER TREATMENT SYSTEM
STATE OF WASHINGTON
5100374
MICHAEL D EATON
LICENSED DESIGNER
EXPIRES 11-02-22
JUN 11 2021
A - 1250 gal. 2 comp. septic tank w/ outlet filter 1/8 mesh
B - 1250 gal. dose tank
10'
Transport line
proposed 4 bdrm residence
A
B
paved driveway
P.O.L.
SCALE 1:40

Glendon® BioFilter Model M31 Worksheet
Slopes > 5 - ≤ 30 %

Basin Capacity, GPD 480

Basin Dimensions[8] 7′ L 55′ W 5′ D

Soil Absorption Rate, Gal/Ft²/Day 0.6



M31 Cross Section Perpendicular to Slope

REDESIGN

Rim required = 480 GPD X 1'/4 GPD =120′

Rim available = (54x2)=(6x2)=120′

Basin volume required = 480 GPD X 2.2ft.³/GPD 1056 cu ft

Basin volume available = (6x54)x5=1,620 cu ft

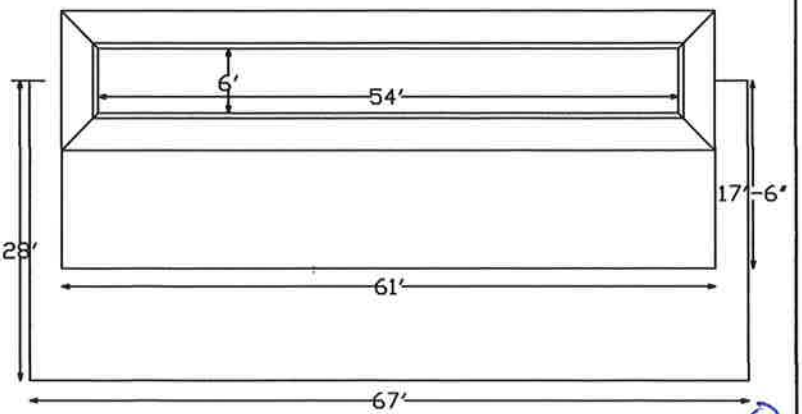
Absorption area required = 480 GPD / 0.6 Gal/Ft²/Day = 800 Ft.²

Primary area calculations

[(61x17.5)-(55x3.5)]=875 sq ft

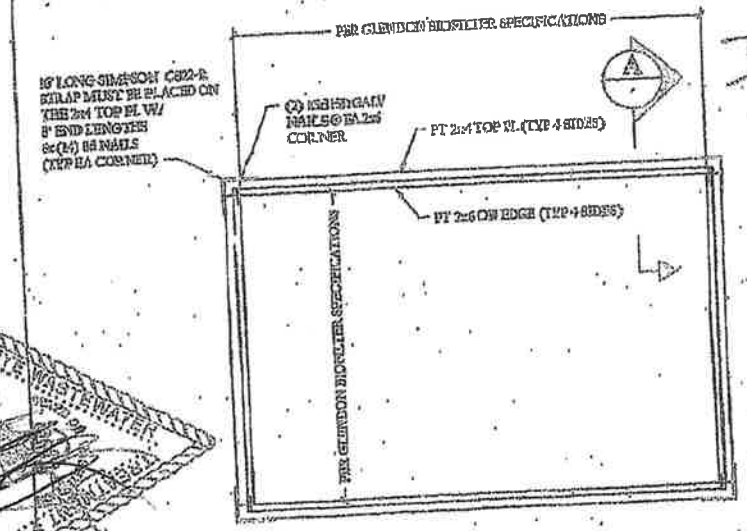
Reserve area calculations[9]

[(67x28)-1067.5]=808.5 sq ft



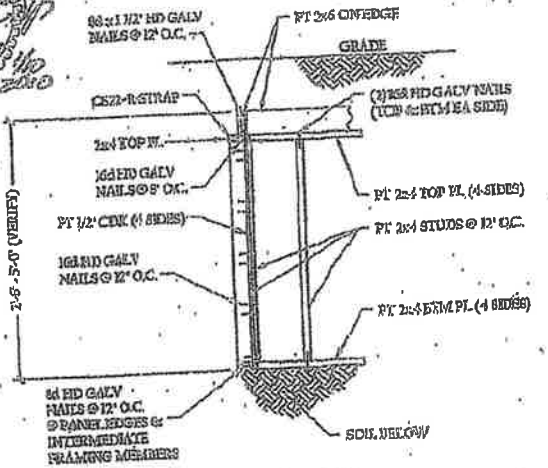
[8] Including the annular space.

[9] "Legs" of the picture frame are 2' to 3' wide.



M31 & M32 CONTAINMENT VESSEL PLAN

SCALE: 1/2"=1'-0"



A SECTION

SCALE: 1/2"=1'-0"

GLENDON BIOFILTER CONTAINMENT VESSEL FOR GLENDON LICENSED INSTALLERS ONLY

THIS STICKER MUST BE COMPLETED IN FULL BY WESTBAIL INC, AND PLACED ON THE FRONT OF THE CONTROL PANEL TO MAKE CONTAINMENT VESSEL LEGAL

Glendon Biofilter Containment Vessel

Installer: _____

Engineer: _____

Permit#: _____

Dimensions: _____ Min. Ft.

Installed: _____

Date Passed Completely Watertight: _____

Notes: _____

SAMPLE

NOTES:

1. RIM LENGTH AND MATERIAL VOLUME MUST MEET GLENDON BIOFILTER SPECIFICATIONS FOR THE DAILY FLOW OF THE DESIGN IT IS BEING USED FOR.
2. ALL LUMBER TO BE TREATED FOR GROUND CONTACT.
3. ALL GLENDON CONTAINMENT VESSELS MUST BE BUILT AND INSTALLED BY A GLENDON BIOFILTER LICENSED INSTALLER.
4. THE INSTALLER IS RESPONSIBLE FOR THE RIM TO BE LEVEL AND ON A STABLE BASE SO THAT THE RIM WILL REMAIN LEVEL.
5. BACKFILL MUST BE PLACED EVENLY ON BOTH SIDES OF THE CONTAINMENT VESSEL WALLS TO ELIMINATE UNDO STRESS BOWING.
6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AS REQUIRED TO STABILIZE THE CONTAINMENT VESSEL WHILE BILL IS BEING PLACED.
7. ALL FASTENERS MUST BE CORROSION RESISTANT.
8. IT IS THE COMPLETE RESPONSIBILITY OF THE GLENDON BIOFILTER INSTALLER WHO IS PLACING THE CONTAINMENT VESSEL(S), THAT ALL THE CORRECT MATERIALS ARE USED AND NOT DAMAGED AND PLACED AS PER THE GLENDON BIOFILTER SPECIFICATIONS, IN THE PROPER LOCATION AND FUNCTIONING PROPERLY AT THE TIME OF INSTALLATION.
9. ALTERNATE FASTENERS: 3" #9 DECK SCREWS, AND 1 1/2" #9 DECK SCREWS.

Job No.: 10032

Date: 1/11

DVBT Engineering, Inc.
Structural Engineering
(360) 933-1345

DVBT

Project: Westbail Inc. Glendon Biofilter Containment Vessel Plan, Section & Notes

File: S1

Rev: 3

REDESIGN

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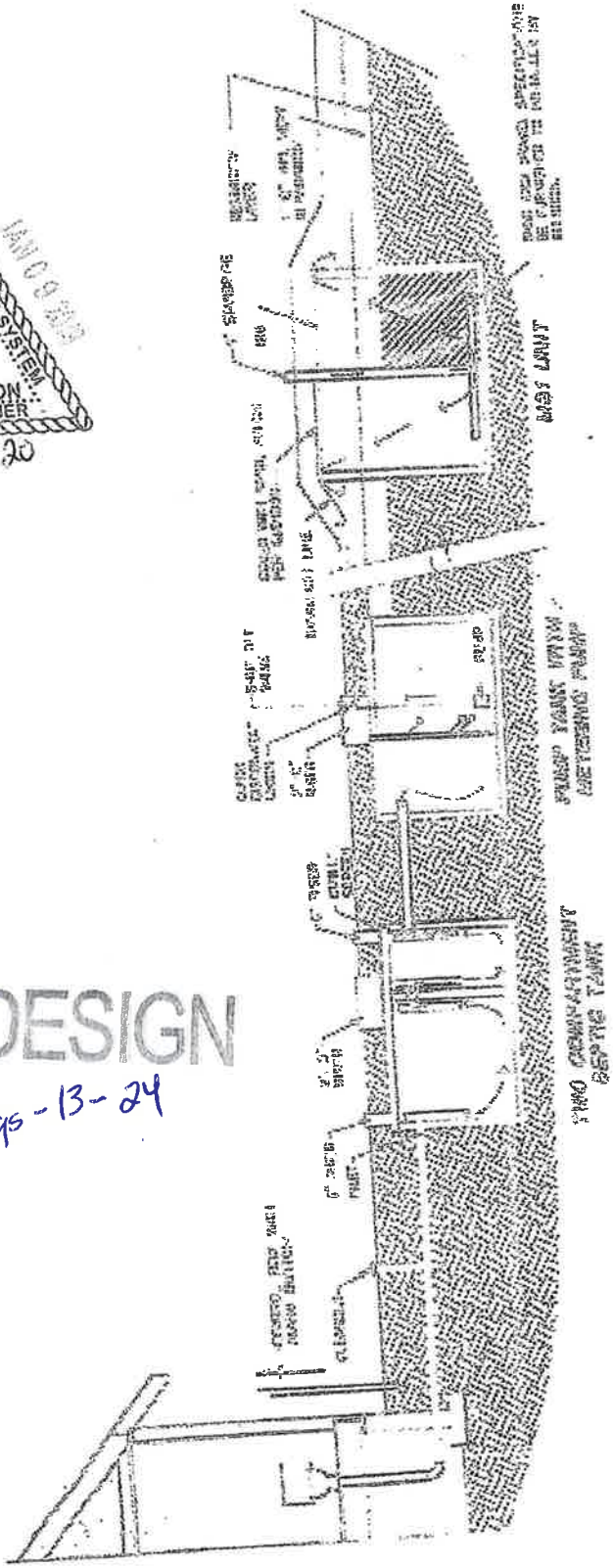
Pgs - 13 - 24



GLENDON® BIOFILTER TECHNOLOGIES, Inc.

Keys to Maintainability:

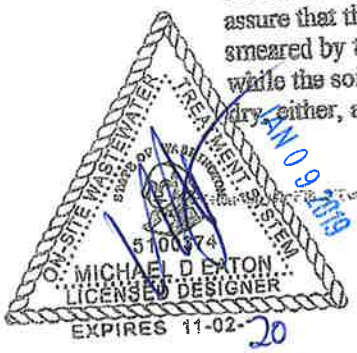
1. Control panel located within line of site of pump tank at accessible height
2. Installer's contact information located on control panel
3. Instructions for balancing hydro-splitter located in control panel
4. Cleanout installed between building and septic tank inlet
5. Two 24" risers on each tank - both septic tank and pump tank over inlet and outlet – to facilitate filter cleaning, pumping, maintenance, etc.
6. Gas-tight, water-tight lids properly fitted to risers and easy to remove and replace using standard tools
7. Rigid effluent filter installed in septic tank outlet
8. Cross-over pipe from septic tank to pump tank properly secured to prevent settling which can cause effluent filter to become difficult to remove
9. Hydro-splitter that is accessible from surface and can be re-balanced by maintenance personnel on a routine call without digging up the system
10. Surface access over ALL valves in the system (including check valves) so they can be checked, adjusted and replaced in the future if necessary.

(4)

Section 2 – Installation

General Construction Notes

1. The septic design site plan is not a survey. It is the installer's responsibility to make a good faith effort to identify property line locations prior to installation. When in doubt, do not proceed without clarifying locations with the owner and, if necessary, a surveyor.
2. Install Glendon® BioFilter during dry weather and soil conditions.
3. Keep wheeled vehicles off the drainfield area before, during and after installation – tracked vehicles only. Minimize traffic across absorption area with any vehicle.
4. Cut trees to ground level; remove excess vegetation by mowing. Rake the cut vegetation if it is or will become, matted. Prepare the site with the following goals in mind:
   - To break up the vegetative mat so there is no continuous restriction to the vertical flow of water, to slow the movement of water at the sand-soil interface, and to stabilize the sand at the sand-soil interface.
   - To avoid compacting the soil with heavy, wheeled equipment (light track mounted equipment should be used for any traffic on the infiltrative surface and on the area 30 feet downslope of the infiltrative surface).
   - To avoid smearing the soil.
   - To avoid breaking of the structure of the soil.
   - To remove excessive vegetation so that it does not form a biomat at the sand-soil interface as it degrades.
   - To disturb the soil no deeper than necessary. Depth is determined by the thickness of the vegetation and should be no greater than 8 inches. The goal is to loosen the matted layer.
5. Soil Preparation Process – A spring-loaded agricultural chisel plow is the implement of choice because it is less likely to smear the soil. An implement attached to a backhoe bucket that reaches in is preferred to driving over the basal area. Agricultural cultivators the same shape as a chisel plow are also acceptable implements for soil preparation. Both of these implements are narrow rectangular shapes, which present a diamond shape to the soil. Cutting the soil with backhoe teeth is not acceptable, but chisel plows and other agricultural implements described above can be mounted on the leading edge of the bucket using a bar on the outside with the teeth attached to the bar. Alternatively, they can be mounted on a wheeled implement that is dragged across the slope where the infiltrative area is planned. Hand-spading the surface is also an acceptable alternative and may be the preferred method on some sites. Rototilling is not an acceptable substitute and must not be used.
6. Soil Moisture Content – The important point is that a rough, unsmeared surface should be left, especially in fine textured soils. Careful observation is required to assure that the soil moisture content is not too high so that the soil surface is not smeared by the action of the soil preparation process. Preparation should not proceed while the soil moisture content is too high. The finer textured soils should not be too dry, either, as the preparation process will pulverize it, destroying the structure.



JAN 09 2019

Immediate construction after soil preparation is desirable. Avoid rutting and compaction of the prepared area by traffic. If it rains after the soil preparation is completed, wait until the soil dries out before continuing construction.

7. All ground and surface water (including roof drains) must be diverted away from the BioFilter and tank areas. Ensure that final grade slopes away from these areas and that water does not pool around/behind the BioFilter. Use swales, berms, catch-basins, tight-lines, curtain drains, etc. to divert ground and surface water.
8. Curtain drains, foundation drains, French drains, etc. can be no closer than 10' uphill or 30' downhill from the BioFilter.
9. Exposed restrictive layers, cuts, banks, etc. can be no closer than 50' downhill from the BioFilter.
10. Use Schedule 40 pipe in inlet/outlet of tanks to ensure proper water-tight fit with flexible couplers/gaskets.
11. Install two 24" risers on septic tank and two 24" risers on pump chamber.
12. Make sure risers are epoxyed to cast-in riser rings on tanks for water-tight seal.
13. Lids must form water and gas-tight seals with the risers.
14. Install rigid effluent filter at the septic tank outlet.
15. Install only a Glendon® BioFilter labeled control panel.
16. Install check valve/ball valve/quick-disconnect in pump outlet line to prevent transport line drain-back and to facilitate maintenance.
17. Install pump to draw effluent from 18-24" off the bottom of the pump tank.
18. All mechanical components and valves should be accessible from surface.
19. Cover entire primary absorption area with sand, no matter how far from the modules it extends.
20. Cover finished BioFilter with jute or straw matting to prevent erosion. Plastic sheeting is not allowed.
21. Fence the BioFilter to prevent damage to module shape and sand foot from animal or pedestrian traffic. Light metal posts and wire fence are inexpensive and effective.
22. Seed the BioFilter with clover or other landscaping plants to add structure to the units and prevent erosion. A waiver form that is signed by the owner is required to avoid this step. A form is provided in the Owner's Manual.
23. All materials and workmanship must meet specifications of Glendon® BioFilter Technologies, as well as County and State regulations.

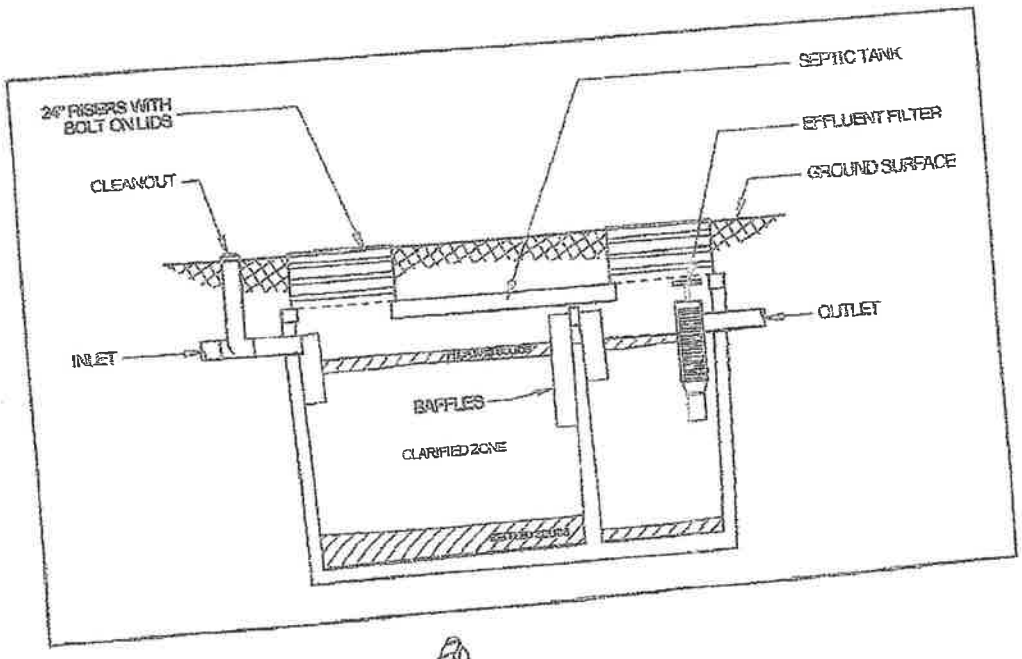
ONSITE WASTEWATER TREATMENT SYSTEM
MICHAEL D EATON
LICENSED DESIGNER
EXPIRES 11-02-20

JAN 09 2019

GLENDON® BIOFILTER TECHNOLOGIES, Inc.

Septic Tank

- A WA DOH approved two compartment tank must be used.
- Minimum septic tank size should be 1000 gallons.
- Septic tanks must have two risers, one over the inlet and one over the outlet filter for proper pumping and access.
- Residential septic tanks should be sized for 3 days hydraulic retention time (daily flow X 3).
- If a higher waste strength is anticipated, consider using 3-5 days retention time (daily flow X 3 – 5).
- In a system with food prep, i.e. a restaurant, the black water tank should always be at least 2.5 X the daily flow regardless of the size of the grease interceptor.
- If septic tank effluent strength is anticipated to be higher than residential strength for a Glendon® system, pretreatment is required. We recommend Nibbler® system. Influent to Glendon® units should not be greater than residential strength characteristics, typically: BOD_5 130 – 174 mg/L; TSS 47 – 62 mg/L; FOG 10 – 20 mg/L.



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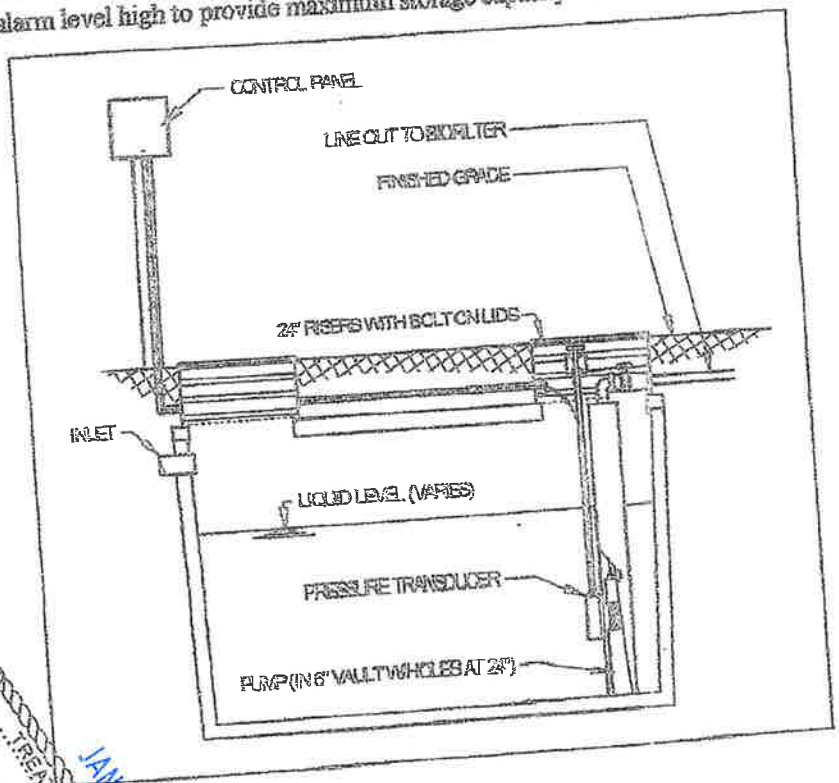
GLENDON® BIOFILTER TECHNOLOGIES, Inc.

Pump Tank

- Tank must be WA DOH approved.
- To accommodate time dosing, all pump tanks should be sized at least 2.5 x daily flow. This applies to both residential and nonresidential systems. Systems with heavy intermittent flows (church, vacation home, etc.) may need larger pump tanks to accommodate surges for buffering with low flow periods.
- Minimum pump tank size should be 1000 gallons.
- Pump tanks must have two 24" risers – one over each end of the tank – for proper pumping and access.
- Choose a low-flow, high head pump. A ½ hp turbine pump with a 10 GPM flow restrictor is ideal for most Glendons sites. A pump vault/flow inducer with an inlet at 18" and integrated hose assembly for reliability and maintainability is recommended. The 18" height prevents solids accumulation in the pump tank from being sucked into the pump and moved into the BioFilter. Solids WILL accumulate in pump tank.
- Pump discharge line should have an accessible union valve and ball valve.
- If pumping to an uphill BioFilter, the discharge line should have a check valve installed.
- If pumping to a downhill BioFilter, the discharge line should have an anti-siphon valve installed.
- Set alarm level high to provide maximum storage capacity between doses.



JAN 09 2018

AQUAWORX IPC PANEL
INSTALLATION INSTRUCTIONS

The Aquaworx IPC (Intelligent Pump Control) Panel provides an innovative approach to pump control. Designed specifically for the onsite industry, the IPC Panel leverages simple pressure transducer technology for the enhancement of pump system performance, and ease of installation. Relying on an embedded microprocessor in the pump controller and a floatless pressure transducer in the pump chamber, the IPC Panel monitors liquid levels, controls pumping time intervals, and logs events in real time. Using the Mountable and Removable Controller (MARC) as the user interface, the IPC Panel offers a cost-effective solution with expanded capability.

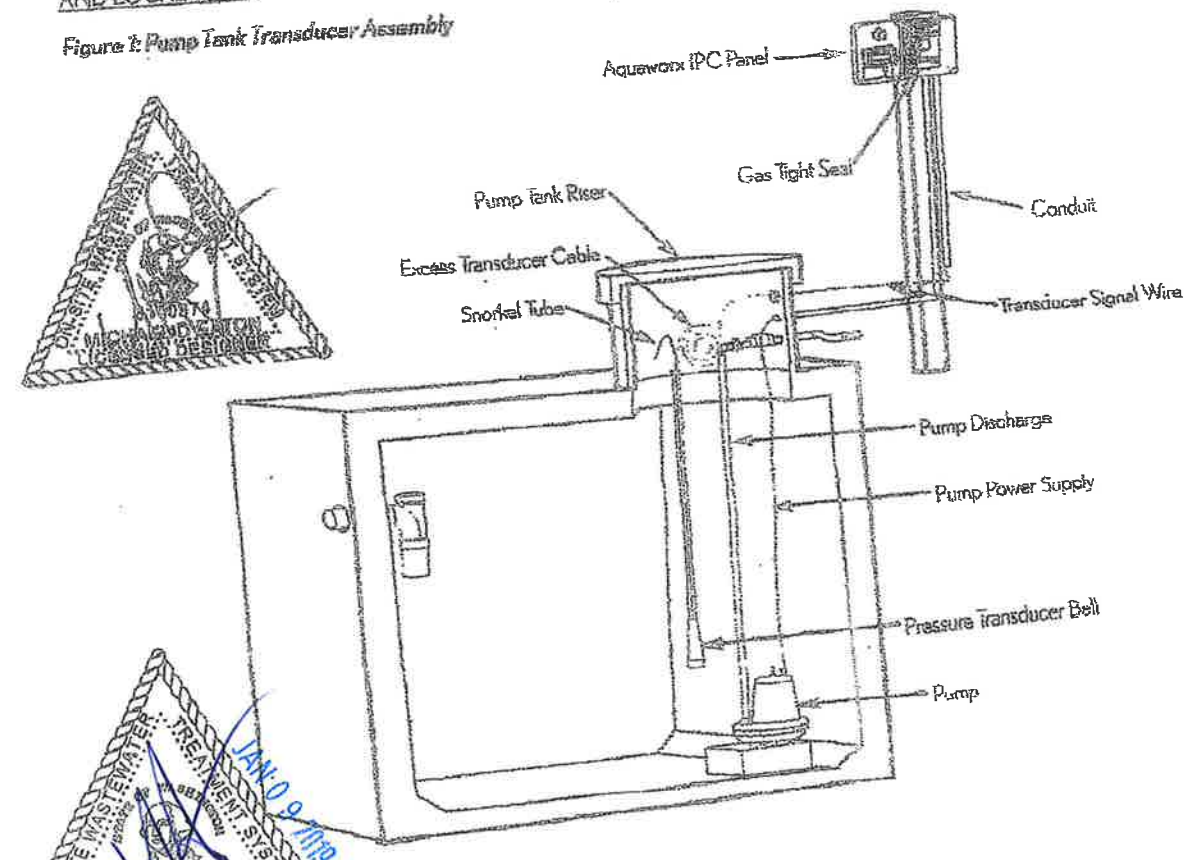
Aquaworx offers three models of the IPC Panel; Simplex, Duplex and Sand Filter, to meet a variety of system design requirements. The Simplex Panel has the ability to time control a single pump, while the Duplex Panel can control two pumps in an alternating design with independent timing. The Sand Filter Panel has the ability to time control two individual pumps having independent level sensors, allowing for a design which will simultaneously time dose a treatment system and drainfield. All three IPC Panel models have the option of including a built-in MARC.

I. General

Unpack the Aquaworx IPC Panel and check for any visible damage both external and internal. Also verify that there are no cracks or damage to the pressure transducer bell. *Note: You will need to identify the number on the pressure transducer bell as it is needed during the MARC setup.* Notify Aquaworx immediately at 1-877-278-2979 if any damage has occurred.

ALL INSTALLATIONS MUST BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE.

Figure 1: Pump Tank Transducer Assembly



AQUAWORX IPC PANEL PRESSURE TRANSDUCER BELL ASSEMBLY INSTALLATION INSTRUCTIONS

The pressure transducer bell assembly replaces the traditional float free assembly. The 1" PVC stand pipe may be mounted by applying the same methods used to install a float free assembly.

1) Determine the position of the pressure transducer bell assembly. The pressure transducer bell assembly must be mounted so that it allows the liquid level to pump below the bottom of the pressure transducer bell. This allows the pressure transducer bell to get a fresh air bubble.

2) Feed the transducer signal wire and snorkel tube through the 1" PVC stand pipe and glue to the pressure transducer bell using a 1" tee. The length of the stand pipe when secured should position the bottom of the pressure transducer bell above the top of the pump.

3) Cut off the snorkel tube approximately 9" lower than the top of the stand pipe and secure it to the transducer signal wire. The snorkel tube should be positioned in the form of an upside-down U as high as possible in the riser. This allows the snorkel tube to create an air lock in the event of a flooded tank.

4) Note the Z-bias value labeled on the side of the pressure transducer bell. Later in the set-up, you will be instructed to program the Z-bias into the IPC Panel.

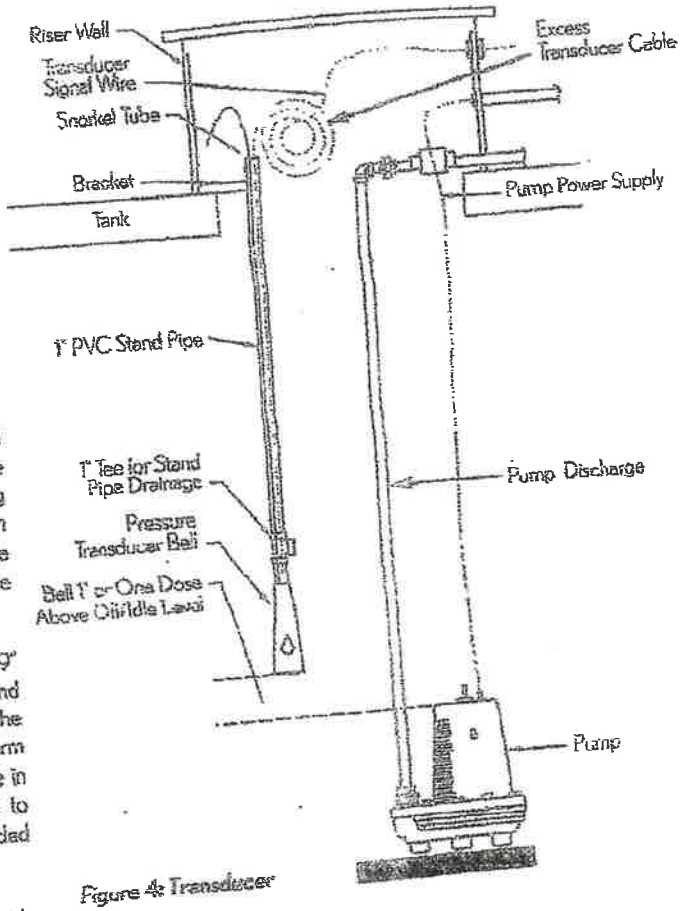


Figure 4: Transducer

5) Run the transducer signal wire back to the IPC Panel and connect to the transducer signal wire terminal strip. Connect Red to RD, blue to BL, and black to BK (first three positions). Make sure to leave enough cable in the riser to allow for removal of the pressure transducer bell assembly during maintenance. The transducer signal wire is rated for direct burial. However, it can be run in a conduit. Site specific codes have final authority on installation requirements.

Note: Do not attach the pressure transducer bell assembly to the pump discharge pipe. Do not pinch or crimp the snorkel tube tubing.

Glendon® BioFilter Landscaping and Plantings[1]

The Glendon® system has a septic tank and a pump tank like other systems and the septic tank effluent is pumped to one or more Glendon® BioFilter units. Concrete basins or membrane lined containment vessels receive the septic tank effluent for processing and take the place of the typical, in the ground, leach field. The basins or containment vessels have a rim above ground level and are covered with sand and not with soil. The sand above and outside the basin form the dispersal area which is the equivalent of the drain field of a conventional septic system. The shape and extent of the Glendon® units are critical to proper treatment and dispersal of the effluent and should be maintained in the "as built" configuration.

The "units" are the most conspicuous feature of this type of a system. Generally when installed they are covered over with a fibrous, biodegradable netting and often seeded with white clover. Owners or contractors are encouraged to discuss possible landscape options with the installer prior to the start of installation who, when authorized by the owner, can leave the units with the jute mat installed to provide stability for the cover sand at the completion of the installation. If this occurs, the owner accepts the responsibility for landscaping to assure long term stabilization of the cover sand, and can then landscape the Glendon units with plants of their choice. In time, the plant roots will cover sufficient area to maintain the shape and stability of the cover sand and the jute mat will eventually erode in the soil.

Topsoil, sod, and mulches such as "beauty bark" are not recommended on Glendon units as they tend to reduce oxygen transfer to the upper horizons of the cover sand.

Tree and shrub set backs

Large trees and shrubs should be avoided over the entire area and the setback for these larger plants, including vine maple, should be at least 30' away from the dispersal area. If this is followed it stands to reason that the homeowner is left with an open expanse over the dispersal area.

Many homeowners block off the view of the Glendon area with hedge plantings or decorative fencing. Care should be taken that the plants chosen for a hedge should be kept about 4 feet away from the units to allow for maintence of both the units and the hedge. The plants chosen should not have aggressive runners or roots. Avoid hedges of any of the native evergreen trees such as Western Red Cedar and Hemlock. The laurels should also be avoided. Use more "friendly" plants such as the California Wax myrtle (Myrica californica) or smaller, slower growing boxwoods. The wax myrtle will grow tall and will need to be pruned.

It is also desirable to plant the Glendon units with a ground cover type of plant to prevent erosion of the sand and to help them blend into the landscaping. There are many ground

[1] Adapted August 18, 2011 from Septic Landscaping and Plantings, Undated, and Septic Landscaping and Plantings for Glendon BioFilters, 2009, both by Ms. Fay Linger, WSU Kitsap County Master Gardener.

cover plants available in the nurseries and their tags will tell you which are suitable for sun or shade.

There is a group of plants marketed as "Stepables" - they are great options for Glendon units.

Here's the link: http://www.stepables.com/1/Plants.html

They are all good for Glendon units as long as they are not on the noxious weed lists for a particular state and/or they are tolerant of weather conditions, temperatures and sun/shade conditions for the state that has the Glendon units in their landscapes.

Basically any shallow rooted, non-invasive plant that will cover a lot of ground and shade out weeds is a good option. You would also not want to choose any plants that need fertilizing given the makeup of the Glendon units. That practice (very little fertilizer) is used in all leach field practices too.

Some bulbs are ok if they're a bulb that thrives in sandy soil with good drainage. Definitely not dahlias or any bulb/corm/rhizomes that require frequent watering in the summer time.

There are many ornamental shallow rooted grasses that will do well on a Glendon unit.

In other words many of the plants that work well in leach fields would work well on the Glendon units - as long as they are shallow rooted and low growing.

There are also a wide variety of sedums that would work well on Glendon units; as well as plants that thrive in sandy soil.

Perennial gardens:
In sunnier locations perennial gardens can be created with mixes of ornamental grasses of different heights and can be inter planted with ground covers, small bulbs, and sun loving perennials as well as smaller, shallow rooted shrubs.

In shadier locations ferns can be used in place of the grasses and the choice of bulbs, ground covers, perennials and shrubs made accordingly. The larger ferns such as the Sword fern and the Giant Chain fern should be avoided. There are many smaller hardy ferns available in the plant nurseries.

Grasses:
The larger grasses are known to harm septic fields such as Miscanthus, Pampas grass and any Bamboo. Make your selections from the many smaller varieties, evergreen or deciduous.

Sun loving perennials and bulbs:
daffodils,

JAN 0 9 2019

(37)

narcissus,
tulips
daylilies,
crocosmia
lavendars
heathers
astilbes
meadow rue (Thalictrum aquilegifolia)

Shade tolerant perennials:
Solomon's seal (Polygonatum biflorum)
trillium (Trillium sp.)
Pachysandra (Pachysandra terminalis)
Wintergreen (Gaultheria procumbens)
Lily-of-the-valley (Convallaria majalis)
False lily-of-the-valley* (Aalanthemum dilatatum)
Fringe Cups (Tellima grandiflora)

Some plants that are suitable for a ground cover on the units:

Coastal strawberry * (Fragaria chiloensis)
Kinnikinnick* (Arctostaphylos uva-ursi)
Wintergreen (Gaultheria procumbens)
Creeping rubus (Rubus pentalobus)
Sweet Woodruff * (Galium odoratum)
Dwarf periwinkle (Vinca minor)

Also see the WSU Power Point presentation Plants for Glendon® BioFilters Ground Covering Plants.[2]

Once your plants are in be prepared to weed the units until the plants fill in. Watering should only be needed for the first summer, of in case of extended absence in months with little or no rainfall.

* Northwest native plants

20

[2] Plants for Glendon® BioFilters Ground Covering Plants, Peg Tillery, WSU Extension Educator, March, 2011.

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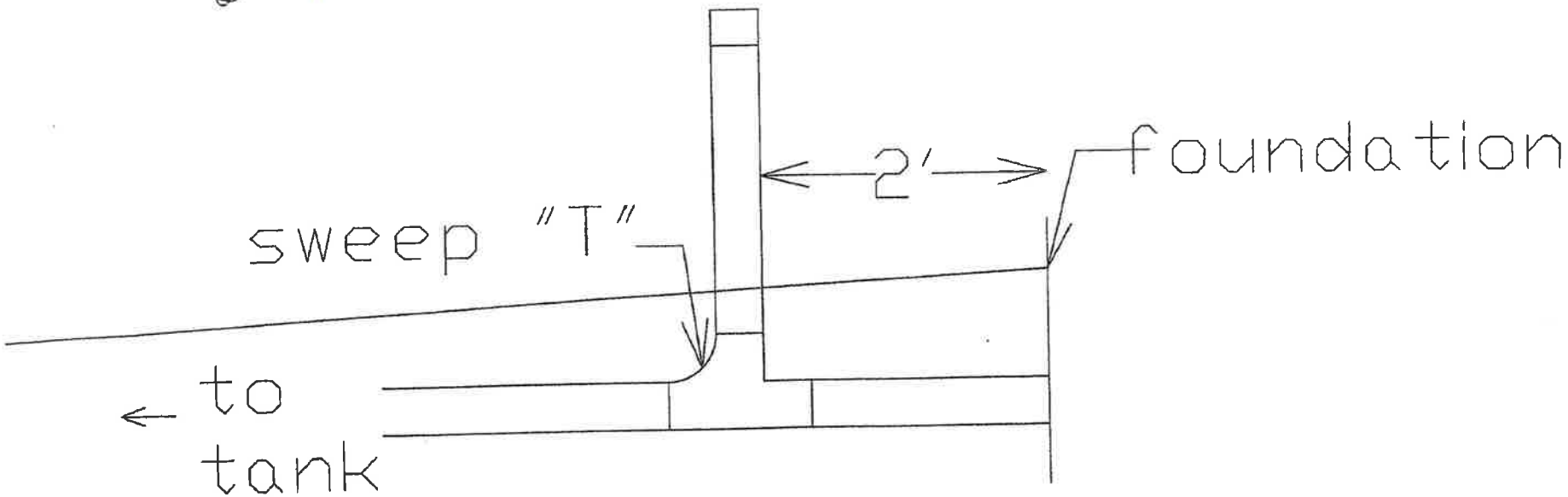
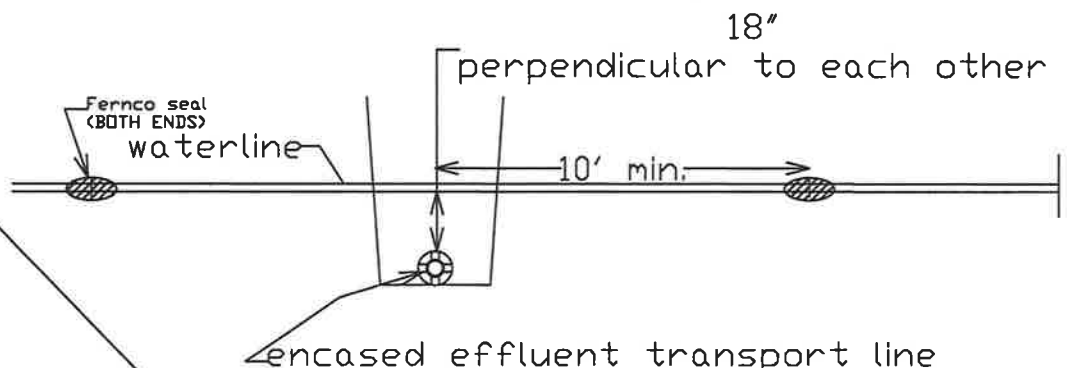
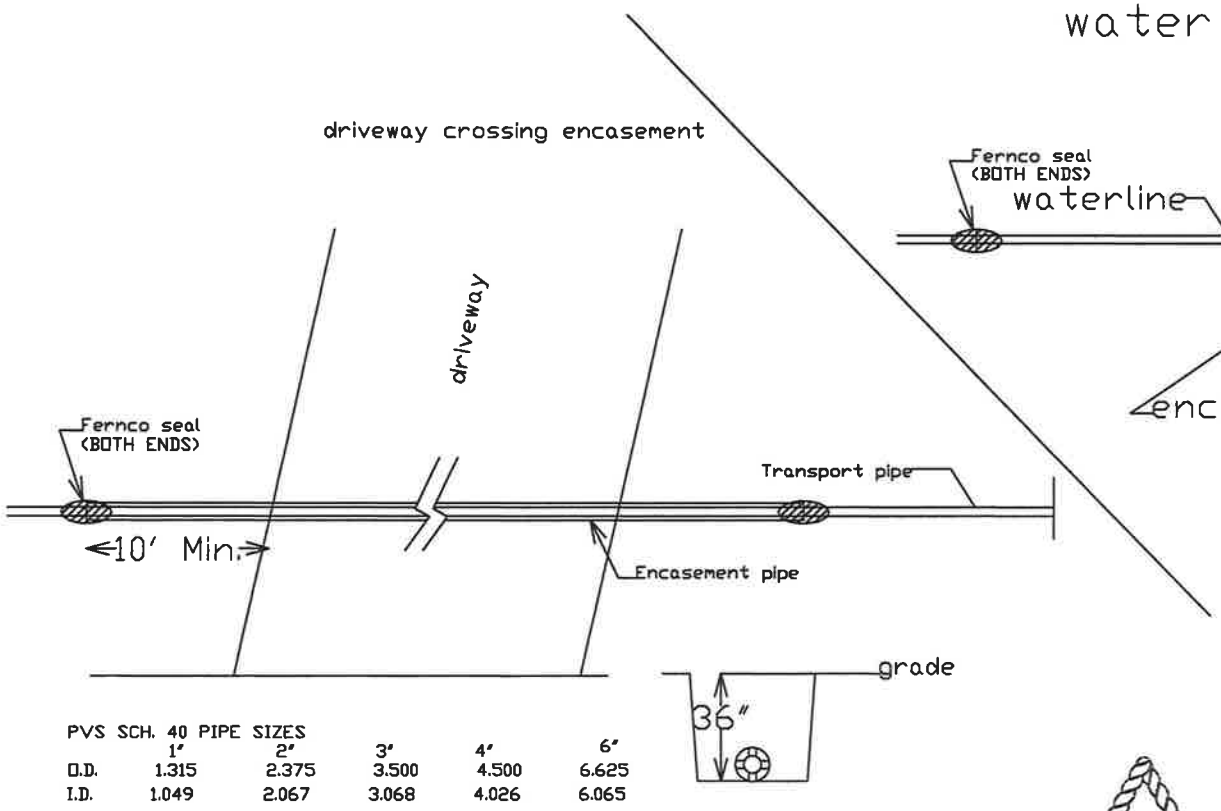


cleanout at building

water line crossing





PVS SCH. 40 PIPE SIZES

	1"	2"	3"	4"	6"
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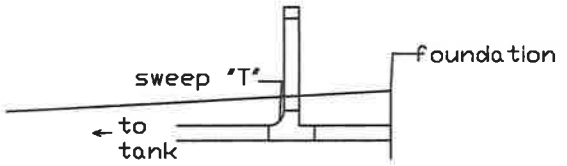
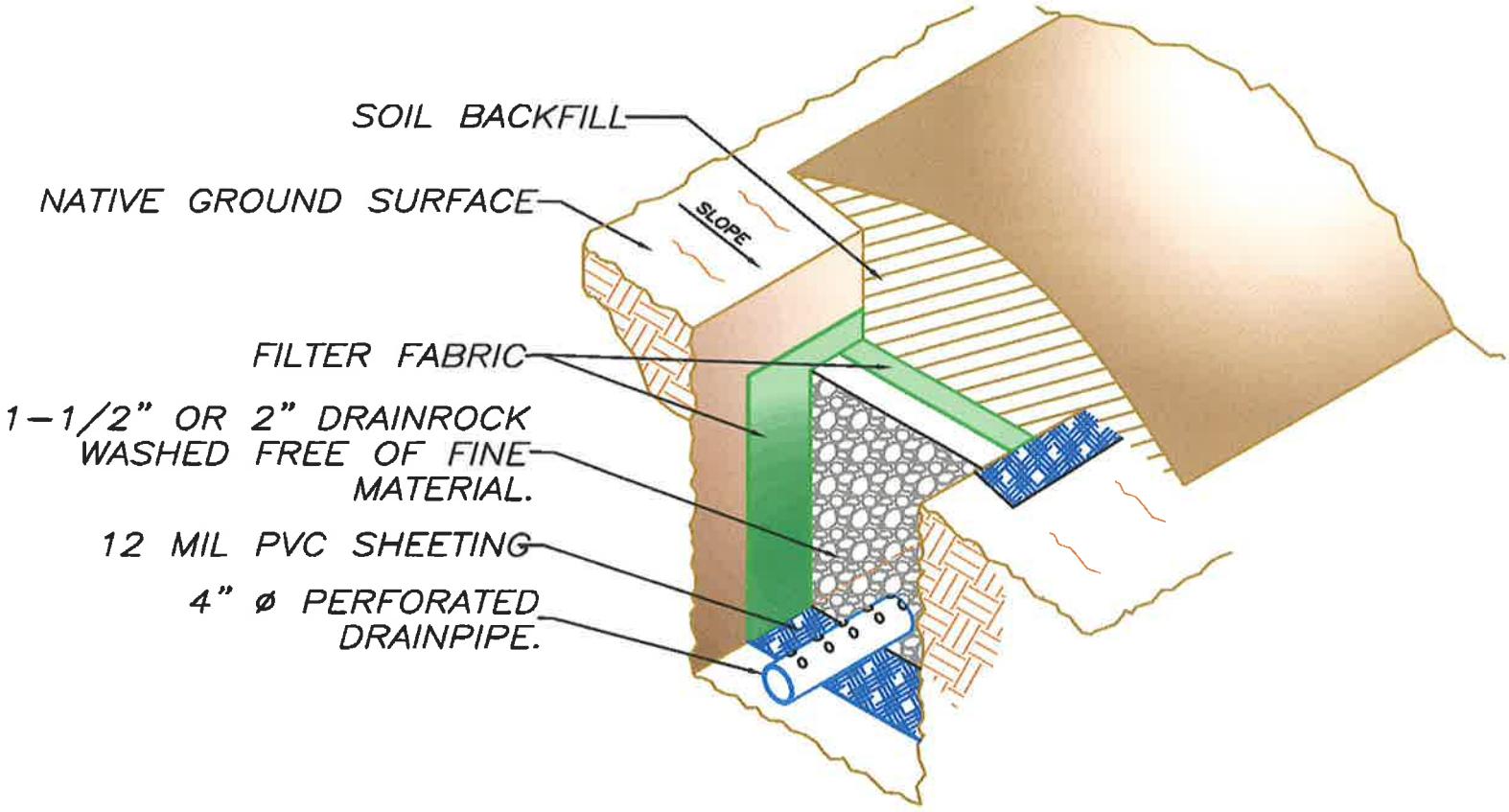
I.D.	1.049	2.067	3.068	4.026	6.065



cleanout at building

REDESIGN

JUN 11 2021



TYPICAL CURTAIN DRAIN

ON-SITE WASTEWATER TREATMENT SYSTEM
STATE OF WASHINGTON
51000374
MICHAEL D EATON
LICENSED DESIGNER
EXPIRES 11-02-22

JUN 11 2021

onsiteseptic20@gmail.com

From: Matt Mahaffie <mahaffim@hotmail.com>
Sent: Wednesday, June 9, 2021 4:01 PM
To: onsiteseptic20@gmail.com
Subject: Re: 8358 Blaine Road Septic

Yes, mitigation will be provided. In this case however, the mitigation would be rolled into the home site development as a single development (the LDP from planning for installation would be under the SFR). Only if an LDP was applied for ahead of time would an early mitigation plan be prepared. SFR permitting cannot commence until there is verification of septic though. If I need to work it through with Phil, no biggie.

From: onsiteseptic20@gmail.com <onsiteseptic20@gmail.com>
Sent: Wednesday, June 9, 2021 9:44 AM
To: 'Matt Mahaffie' <mahaffim@hotmail.com>
Subject: RE: 8358 Blaine Road Septic

Are you going to mitigate the section that is in the buffer?

From: Matt Mahaffie <mahaffim@hotmail.com>
Sent: Friday, June 4, 2021 2:03 PM
To: onsiteseptic20@gmail.com
Subject: Fw: 8358 Blaine Road Septic

COPY

From: Matt Mahaffie
Sent: Thursday, June 3, 2021 12:02 PM
To: mike@onsiteseptic.net <mike@onsiteseptic.net>
Subject: 8358 Blaine Road Septic

Hi Mike,

Finally got the wetland work on paper for this parcel's septic design that Phil had asked for. Please see attached for delineation report, pdf of survey, and CAD file of same. I think Katrina located the primary drainfield well (last page of report for site plan).

If I remember correctly your design needed modified with a curtain drain and showing wetland boundaries. Lines can also be routed in access easement to what will be the home location to avoid wetland impacts. Hopefully this will be sufficient to get this design approved.

Let me know if you have any questions or need anything else.

RECEIVED
JUN 14 2021
W.C.H.D.

Matt Mahaffie
360-391-9571