

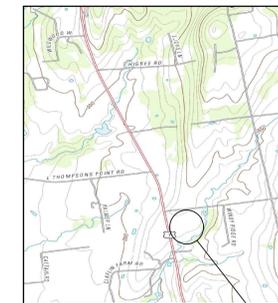


ENGINEERING SURVEY

PLANNING • ENVIRONMENTAL

478 BLAIR PARK ROAD | WILLISTON, VERMONT 05495
802.879.6331 | WWW.TCEVT.COM

Revisions	No.	Description	Date	By
Revisions per State Comment			08/21/2018	ALR



PROJECT LOCATION

BASIS OF DESIGN FOR A PERFORMANCE-BASED MOUND:

THE DESIGN FOR THE PROPOSED HOUSE IS PERFORMANCE BASED.

- DESIGN FLOW FOR 3 BEDROOM HOUSE: 140 GPD/BDRM X 3 BDRM = 420 GPD
- LOADING RATE: 2.0 GPD / SF FOR FILTRATE
- DISPOSAL AREA REQUIRED: 420 GPD / 2.0 GPD/SF = 210 SF
- DISPOSAL AREA PROVIDED: 1 BED @ 4.5' WIDE x 80' LONG = 270 SF
- BASAL AREA REQUIRED = 420 GPD/0.24 GPD/SF = 1750 SF
- BASAL AREA PROVIDED = 1850 SF (SHOWN SHADED)
- ORIFICE SPACING: (1) ORIFICE PER 25 SF
- ORIFICES REQUIRED: 270 SF / 25 SF/ORIFICE = 11 ORIFICES
- USE 26 ORIFICES AT 1/4" (MAINTAIN MINIMUM 1 PSI PER ORIFICE)
- REQUIRED FLOW: 26 ORIFICES @ 1.28 GPM/ORIFICE = 33 GPM
USE 37 GPM @ 20' TDH
- PUMP SELECTION: REFER TO DESIGN BRIEF AND CONFIRM CONDITIONS BASED ON ACTUAL ELEVATION OF HOUSE AND RESPECTIVE PUMP STATION.

VARIANCE REQUEST

THIS SITE HAS LIMITATIONS THAT MAKE IT UNABLE TO MEET THE CURRENT ENVIRONMENTAL PROTECTION RULES DATED SEPTEMBER 29, 2007. LISTED BELOW ARE THE VARIANCES REQUESTED AS PART OF THIS DESIGN. ALTHOUGH THIS SYSTEM DOES NOT MEET THE MINIMUM STANDARDS, IT IS AN IMPROVEMENT OVER EXISTING CONDITIONS. THE EXISTING SYSTEM IS FAILED WITH EFFLUENT SURFACING. THE PROPOSED SYSTEM USES FILTRATE, THEREFORE, PARTIALLY TREATED WASTEWATER IS BEING APPLIED TO THE LAND. ALTHOUGH IT IS NOT ANTICIPATED, SHOULD THE RECEIVING SOILS INFILTRATE SLOWER THAN EXPECTED, AN EXTENDED TOE DOWN SLOPE HAS BEEN INCORPORATED INTO THE DESIGN TO HELP REDUCE THE RISK OF UNTREATED WASTEWATER FROM SURFACING. ADDITIONALLY, THE MOUND AREA IS OVERSIZED BY 60 SF TO PROVIDE MORE VOID STORAGE. THIS DESIGN IS INTENDED TO ABATE A HEALTH HAZARD AND FUNCTION WITHOUT POSING ENVIRONMENTAL CONCERNS.

MINIMUM LENGTH BASED ON LLR APPENDIX 7

DISTANCE FROM MOUND SYSTEM TOE TO PROPERTY LINE

DISTANCE FROM THE MOUND SYSTEM TOE TO DRIVEWAY

DISTANCE FROM THE MOUND SYSTEM TO A TREE

EXISTING	PROVIDED
MINIMUM = 191'	PROVIDED = 60'
MINIMUM = 10' UPHILL	PROVIDED = 1'
MINIMUM = 25' DOWNHILL	PROVIDED = 9'
MINIMUM = 10' UPHILL	PROVIDED = 8'
MINIMUM = 25' DOWNHILL	PROVIDED = 11'
MINIMUM = 10'	PROVIDED = 7' TO DRIP LINE 14' TO TRUNK

PURPOSE OF PLAN

THE PURPOSE OF THIS PROJECT IS TO REPLACE A CURRENTLY FAILED ON-SITE WASTEWATER DISPOSAL SYSTEM SERVING THE 3-BEDROOM SINGLE FAMILY HOME ON THIS PARCEL. THE WASTEWATER SYSTEM WAS DAMAGED DURING ROUTE 7 CONSTRUCTION AND CANNOT BE REPAIRED IN PLACE. THIS IS A BEST-FIX DESIGN AND VARIANCES ARE REQUESTED. NO CHANGES TO DESIGN FLOW OR WATER SUPPLY.

"I HEREBY CERTIFY THAT THE DESIGN RELATED INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT, AND THAT, IN THE EXERCISE OF MY REASONABLE PROFESSIONAL JUDGMENT, THE DESIGN INCLUDED IN THIS APPLICATION FOR A PERMIT COMPLIES WITH THE VERMONT WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES AND THE VERMONT WATER SUPPLY RULES" (REF. ENVIRONMENTAL PROTECTION RULES CHAPTER 1 S 1-302 (b)(1)).

ELEVATION KEY:

FINISH FLOOR	= 265.6+/-
HOUSE INV. OUT	= 262.0+/-
SEPTIC TANK INV. IN	= 260.43
SEPTIC TANK INV. OUT	= 260.18
PUMP STATION INV. IN	= 260.08
PUMP STATION INV. OUT	= 257.24
RISER INV.	= 263.1

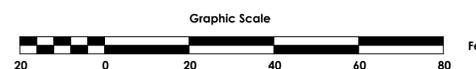
EXISTING CONDITIONS NOTES:

- THE PURPOSE OF THE EXISTING CONDITIONS PLAN IS TO DEPICT PERTINENT EXISTING CONDITIONS AS OF THE DATE OF SURVEY, JULY 24TH, 2018.
- BEARINGS SHOWN ARE BASED UPON VERMONT GRID NORTH.
- VERTICAL DATUM IS BASED ON NAVD88 (GEOID 12). A TRIMBLE R6 RTK GPS UNIT WAS EMPLOYED FOR THESE OBSERVATIONS.
- COORDINATE SYSTEM IS BASED ON VERMONT STATE PLANE (U.S. SURVEY FEET).
- THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS SHOWN ARE BASED ON RESEARCH, UTILITY PLANS PROVIDED BY OTHERS, AND/OR SURFACE EVIDENCE ENCOUNTERED AND WERE OBTAINED IN A MANNER CONSISTENT WITH THE ORDINARY STANDARD OF PROFESSIONAL CARE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE DESIGN ENGINEER. ADDITIONAL UTILITIES NOT SHOWN MAY EXIST. ENGINEER SHALL BE NOTIFIED IF ANY DISCREPANCIES ARE ENCOUNTERED. ACTUAL LOCATION OF UNDERGROUND UTILITIES MAY VARY. DIGSAFE MUST BE CONTACTED PRIOR TO ANY EXCAVATION. CALL 1-888-DIG SAFE (344-7233).
- UTILITIES SHOWN HEREIN HAVE NOT BEEN FIELD VERIFIED AND ARE DRAWN FROM REFERENCE PLANS WITH EACH UTILITY'S REFERENCE LABELED.
- BOUNDARY INFORMATION REGARDING ACQUISITION ALONG ROUTE 7 FROM PLAN BY VTRANS, PROJECT NAME "CHARLOTTE" PROJECT NUMBER "F EGO 019-4(20)" SHEET 20 & 21 OF 132 DATED 08-FEB-2013.
- PERIMETER BOUNDARIES SHOWN HEREON ARE STRICTLY FROM TAX PARCEL INFORMATION. A FORMAL BOUNDARY SURVEY WAS NOT CONDUCTED BY THIS OFFICE.
- OTHER EASEMENTS MAY EXIST.

	LEGEND	
	EXISTING	PROPOSED
PAVED DRIVE OR ROAD	—	—
GRAVEL DRIVE OR ROAD	—	—
TOPOGRAPHIC CONTOURS	--- 394 ---	--- 394 ---
STREAM	—	—
SEWER MAINS AND SERVICES	—	—
SEWER FORCEMAIN	— FM —	— FM —
WATER MAINS AND SERVICES	— WP —	— WP —
OVERHEAD POWER	— OP —	— OP —
UNDERGROUND POWER	— UP —	— UP —
PROPERTY LINE	—	—
FORMER PROPERTY LINE	—	—
ADJOINING PROPERTY LINE	—	—
EASEMENTS	—	—
UTILITY POLE	—	—
WELL	—	—

LEGEND NOTE:

SOME INFORMATION MAY BE PROVIDED BY OTHERS AND COULD BE SHOWN WITH A DIFFERENT SYMBOL NOT SHOWN ON THIS LEGEND. HOWEVER, THEY ARE LABELED ON RESPECTIVE PLANS. IN SOME CASES A CHANGE IN SCALE OR PRINTER CAN ALTER INFORMATION TO NOT SHOW AN EXACT MATCH ON THIS LEGEND. IF ANY QUESTIONS EXIST CONTACT THE ENGINEER TO CLARIFY. ADDITIONAL LEGEND INFORMATION IS SUPPLIED SEPARATELY ON EROSION CONTROL PLANS AND SOME SURVEY PLATS.



N/F STEWART, JAY R.
5665 ETHAN ALLEN HIGHWAY

N/F CHARTRAND, BENJAMIN
100 STATE PARK ROAD

N/F AUBE, PAULA C.
5721 ETHAN ALLEN HIGHWAY

PROJECT INFORMATION:

- OWNER OF RECORD: BRUCE BARRY
1907 WILLISTON ROAD
WILLISTON, VERMONT 05495
- TAX PARCEL ID: 00100-5697
- SPAN: 138-043-11767
- PHYSICAL ADDRESS OF PROPERTY: 5697 ETHAN ALLEN HIGHWAY
CHARLOTTE, VERMONT 05445
- PARCEL SIZE: 0.73 ± ACRES
FORMERLY 0.96 ± ACRES
(0.23 ACRES RECENTLY GRANTED TO STATE VIA. WIDENED RT. 7 ROW)

TEST PIT LOGS

DATE OF PERC TEST: 7/26/2018
PERSONS ON-SITE: TCE: AMANDA RAAB,
RYAN RUGGIERO
PT-1: 84 MIN/IN

TEST PIT LOGS
DATE OF TEST PITS: 7/26/2018
PERSONS ON-SITE: TCE: AMANDA RAAB, RYAN RUGGIERO
STATE OF VERMONT: BRIAN TREMBACK

TEST PIT 1 ESHWT @ 12"
0-5" TOPSOIL, DARK BROWN VERY FINE SANDY LOAM, FRIABLE, FEW ROOTS, NO PEBBLES, MOIST, SUB-ANGULAR BLOCKY
5-17" TAN BROWN FINE SANDY LOAM, EXTRA FIRM, NO ROOTS, SOME PEBBLES AND COBBLES, VERY DRY, SUB-ANGULAR BLOCKY

TEST PIT 2 ESHWT @ 18"
0-8" TOPSOIL, BROWN FINE SANDY LOAM, FRIABLE, FEW ROOTS, NO PEBBLES, MOIST, SUB-ANGULAR BLOCKY
8-24" BROWN FINE SANDY LOAM, EXTRA FIRM, FEW ROOTS, SOME PEBBLES WITH LARGER COBBLES, VERY DRY, SUB-ANGULAR BLOCKY

TEST PIT 3 ESHWT @ 12"
0-3" TOPSOIL, BROWN FINE SANDY LOAM, FRIABLE, FEW ROOTS, NO PEBBLES, MOIST, SUB-ANGULAR BLOCKY
3-12" BROWN FINE SANDY LOAM, EXTRA FIRM, DRY, SUB-ANGULAR BLOCKY, MANY PEBBLES AND COBBLES OVER 9"

TEST PIT 4 ESHWT @ 13"
0-4" TOPSOIL, BROWN FINE SANDY LOAM, SUB-ANGULAR BLOCKY, MOIST, FRIABLE, FEW PEBBLES, ROOTS
4-13" TAN BROWN FINE SANDY LOAM, DRY, SUB-ANGULAR BLOCKY, LARGE TREE ROOT, COBBLES UPTO 7", FIRM, DRY

TEST PIT 5 ESHWT @ 12"
0-4" TOPSOIL, BROWN FINE SANDY LOAM, ROOTS, NO PEBBLES, MOIST, VERY FRIABLE, SUB-ANGULAR BLOCKY
4-11" LIGHT BROWN FINE SANDY LOAM, SOME ROOTS, PEBBLES, EXTRA FIRM, WEAK SUB-ANGULAR BLOCKY, DRY
11-18" LIGHT TAN BROWN FINE SANDY LOAM, VERY DRY, WEAK SUB-ANGULAR BLOCKY, SOME PEBBLES AND COBBLES, EXTRA FIRM

TEST PIT 0 ESHWT @ 16"
ABANDONED DUE TO PROXIMITY TO WELL

LIME, SEED AND MULCH AS NECESSARY TO ABATE HEALTH HAZARD

APPROXIMATE LOCATION OF EXISTING FAILED WW FIELD
EXISTING 1,000 GAL. SEPTIC TANK
RIM = 263.05
INV. IN = 260.43
INV. OUT = 260.18

TO BE CRUSHED AND ABANDONED IN PLACE OR FILLED WITH SAND - LARGE VOID SPACE SUBSURFACE WILL NOT BE ACCEPTABLE

EXISTING BUILDING

EXISTING SHED

FINISH GRADE ON EXPOSED SLAB: 263.6

EXISTING THREE BEDROOM HOME

EXISTING GRAVEL DRIVE

5697 ETHAN ALLEN HIGHWAY

EXISTING GRAVEL DRIVE

EXISTING TREE TO REMAIN UNLESS CONTRACTOR FINDS REASON OTHERWISE

EXISTING 10' UTILITY EASEMENT V. 168 P. 56
NOTE: UTILITY REFERENCE IN LAND RECORDS DOESN'T MATCH POLE NUMBERS EXISTING TODAY DUE TO RT. 7 WIDENING. CLARIFICATION PENDING

DISTRIBUTION RISER WITH CENTER MANIFOLD
UPHILL TOE OF MOUND, LIMITS OF PLOWING ARE TOE OF MOUND ON ALL SIDES

MONITOR PORT AT BOTH ENDS, TYP.
FLUSHING PORT AT BOTH ENDS, TYP.

PROPOSED DOWNHILL MOUND SAND PAD. THIS AREA MUST BE PLOWED TO A MINIMUM DEPTH OF 12" THEN FILLED WITH 12" MOUND SAND, COVERED WITH FABRIC AND TOPPED WITH 8" NATIVE FILL AND 4" OF TOPSOIL FOR THE GEOMETRY SHOWN. TOE OF MOUND TO CONTINUE AT 3:1 SLOPE AS SHOWN.

TEST PIT LOGS

DATE OF PERC TEST: 7/26/2018
PERSONS ON-SITE: TCE: AMANDA RAAB,
RYAN RUGGIERO
PT-1: 84 MIN/IN

N/F SOLOMON, MICHAEL A.
5654 ETHAN ALLEN HIGHWAY

PROPOSED NORWECO SINGLAIR MODEL 960 -500/600

LIMITS OF LANDS TO THE STATE
FORMER PROPERTY LINE PRIOR TO RT. 7 WIDENING
EXISTING PROPERTY LINE FOLLOWING RT. 7 WIDENING

EXISTING WASTEWATER DISPOSAL SYSTEM TO BE ABANDONED IN PLACE

PROPOSED 1000 GALLON PUMP STATION

INSTALL CONTROL PANEL FOR NORWECO AND PUMP STATION IN ACCORDANCE WITH DETAILS AND APPLICABLE CODE

PROPOSED 2" SDR 21 PVC FORCE MAIN
N/F HINSDALE, CAROL A.
5714 ETHAN ALLEN HIGHWAY

Project Reference:

TO SHELburne

EDGE/PANE

RECENTLY PLANTED HEDGEROW

ETHAN ALLEN HIGHWAY (VT RT 7)

EDGE/PANE

EDGE/PANE

TO NORTH FERRISBURGH

Barry Wastewater
5697 Ethan Allen Highway
Charlotte, Vermont

Wastewater Plan

Date:	08/02/18
Scale:	1" = 20'
Project Number:	18-128
Drawn By:	NPC
Project Engineer:	ALR
Approved By:	JPP
Field Book:	

C3-01