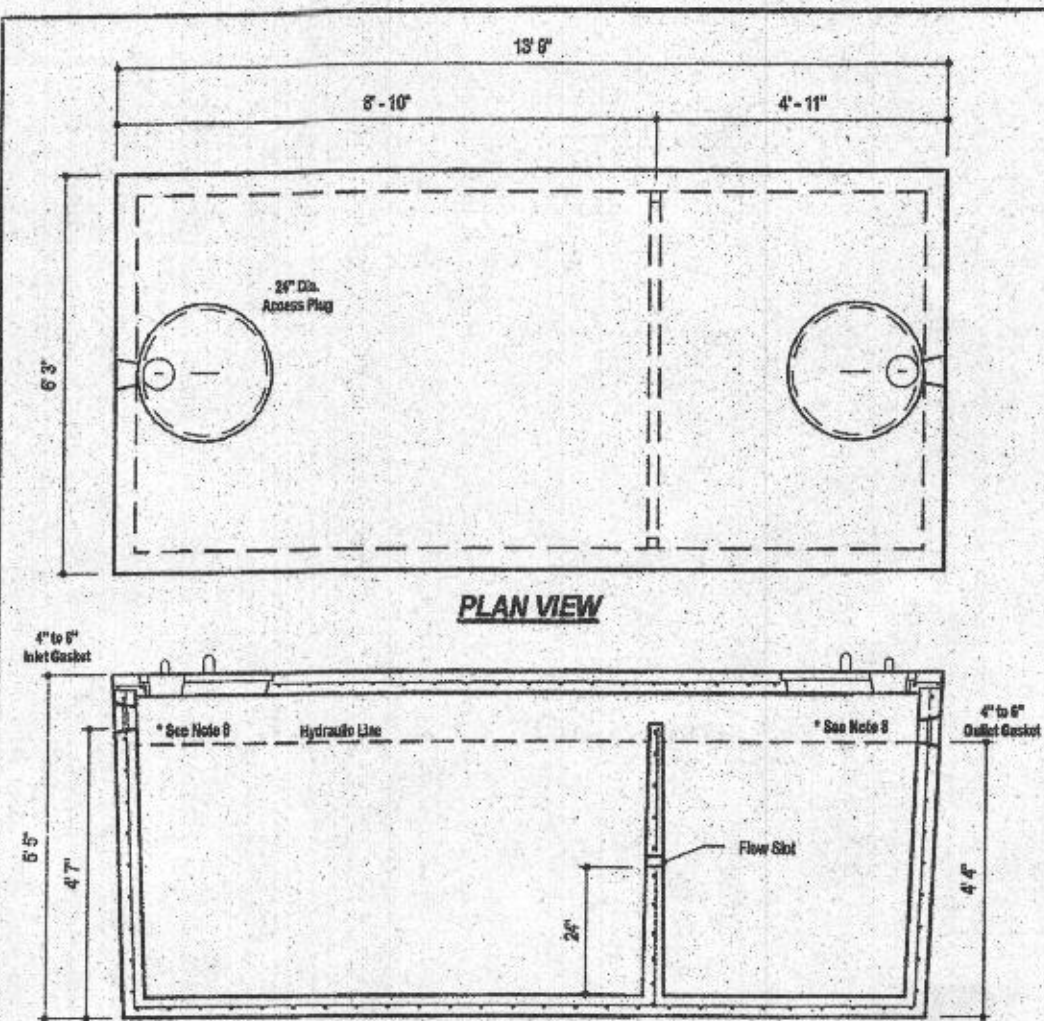
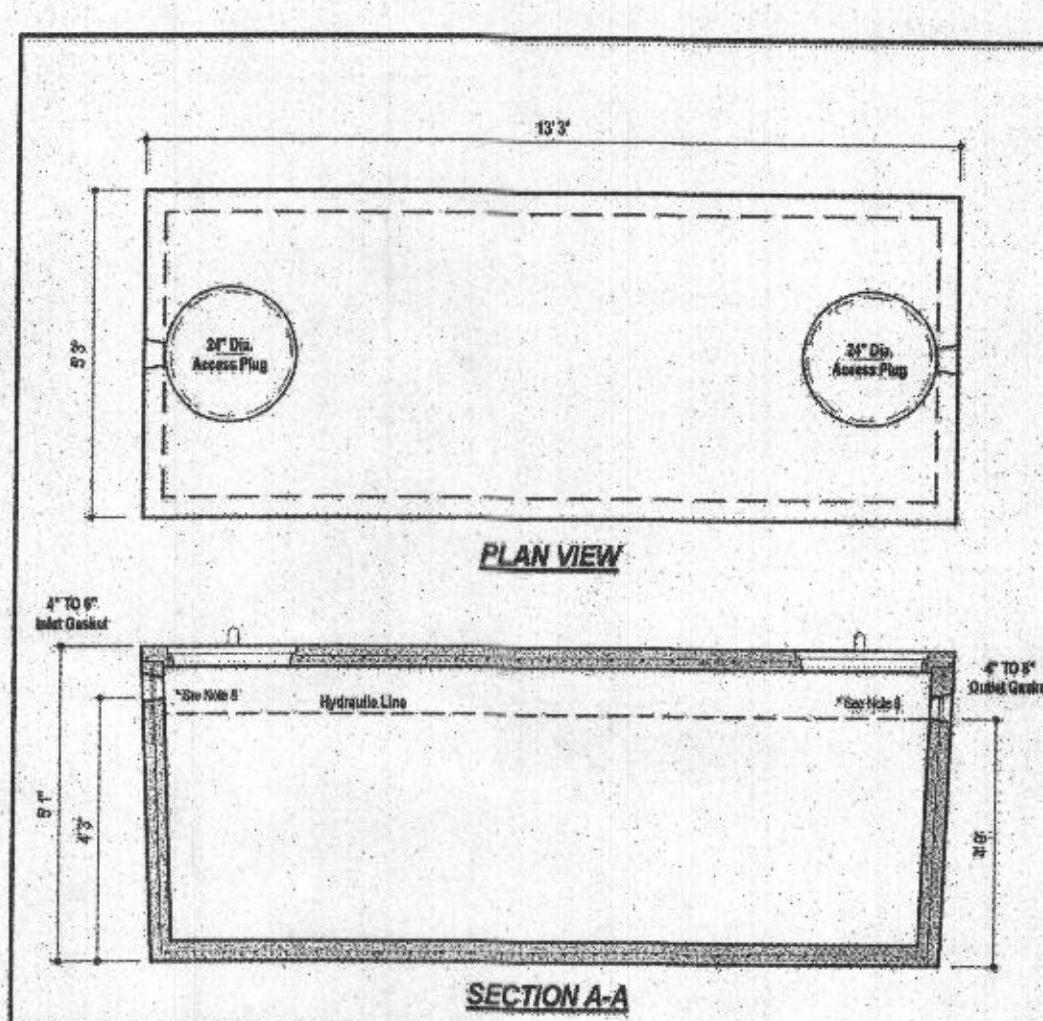




DESIGN DATA & GENERAL NOTES

- Concrete strength 4000 p.s.i. @ 28 days. Density = 150 pcf.
- Reinforced concrete per ASTM C 408 & C 409.
- Reinforcing per ASTM A 601, Min. 1/4" cover.
- Top slab sealed with butyl rope mastic.
- 4" wall, 4" base, 4" top thickness.
- Max 1" of cover.
- Depending on use of tank, inlet & outlet baffles may be required by code.

2,000 GALLON SEPTIC TANK
2-Compartment
Stock Item (Approx. 19,900 lbs.)
Mayer Bros., Inc. Dep. No. 1000-30 No Scale Aug. 11, 2008



DESIGN DATA & GENERAL NOTES

- Concrete strength 4000 p.s.i. @ 28 days. Density = 150 pcf.
- Reinforced concrete per ASTM C 408 & C 409.
- Reinforcing per ASTM A 601, Min. 1/4" cover.
- Top slab sealed with butyl rope mastic.
- 4" wall, 4" base, 4" top thickness.
- Max 1" of cover.
- Depending on use of tank, inlet & outlet baffles may be required by code.

1,500 GALLON SEPTIC/PUMP TANK
1-Compartment
NON-Traffic MAX 3 ft. OF COVER
Mayer Bros., Inc. Dep. No. 1000-30 No Scale Aug. 11, 2008

Wastewater

APPLICATIONS

Specifically designed for the following uses:
• Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

SPECIFICATIONS

Pump

- Solids handling capabilities: 1/4" maximum
- Discharge size: 2" NPT
- Capacities: up to 140 GPM
- Total heads: up to 125 feet TDH
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 1-1 1/2 HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz)

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.

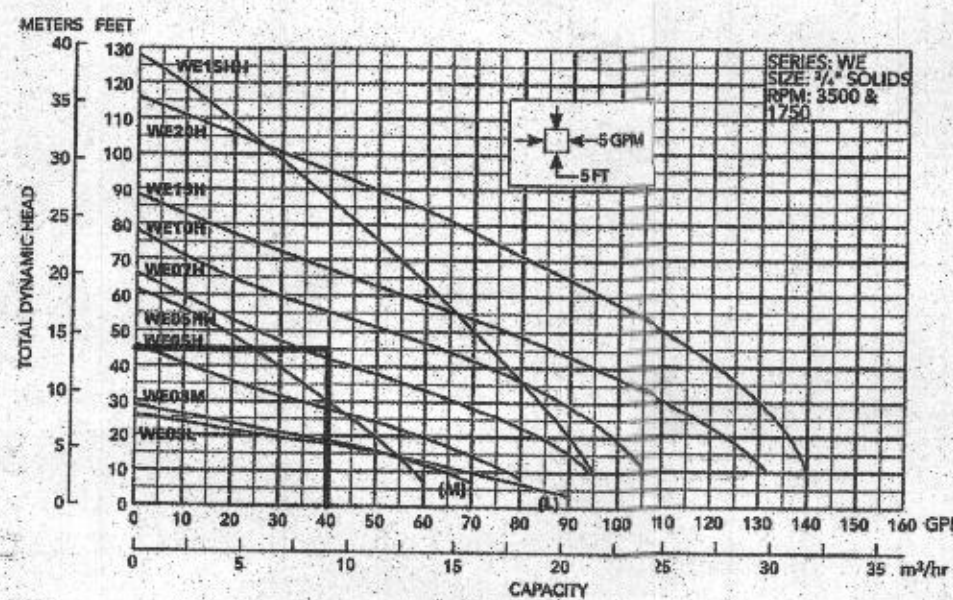
- SJTOW or STOW severe duty oil and water resistant power cords
- 1-1 1/2 HP models have NEMA three prong grounding plugs
- 1 1/4 HP and larger units have bare lead cord ends.

Three phase (60 Hz)

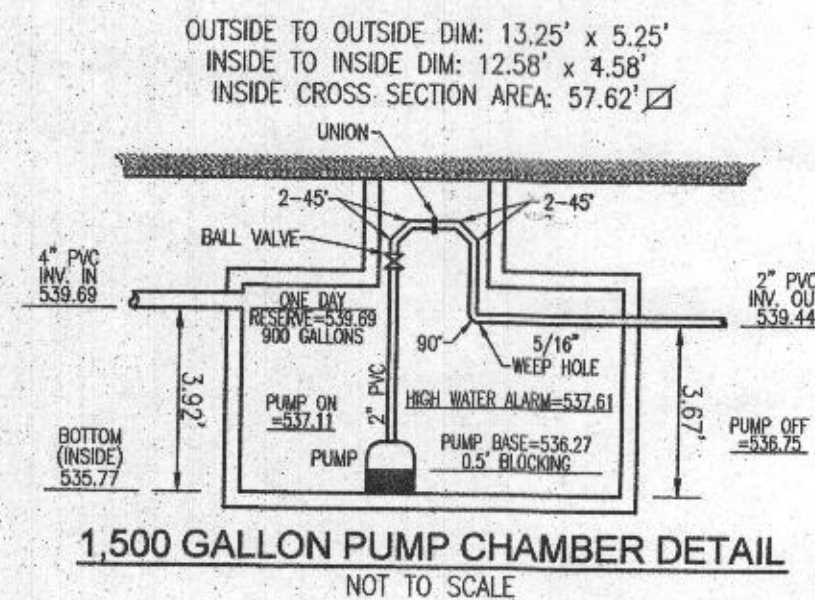
- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- Bearings: Upper and lower heavy duty ball bearing construction
- Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor and provides secondary moisture barrier in case of outer jacket damage and to prevent oil seepage. Standard cord is 20'. Optional lengths are available.
- O-ring: Assure positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

Tested to A 778 and CSA 22.2 108 Standards
By Canadian Standards Association File #252849



FLOW: 40 GPM
H=24.00
USE GOULDS WEISH



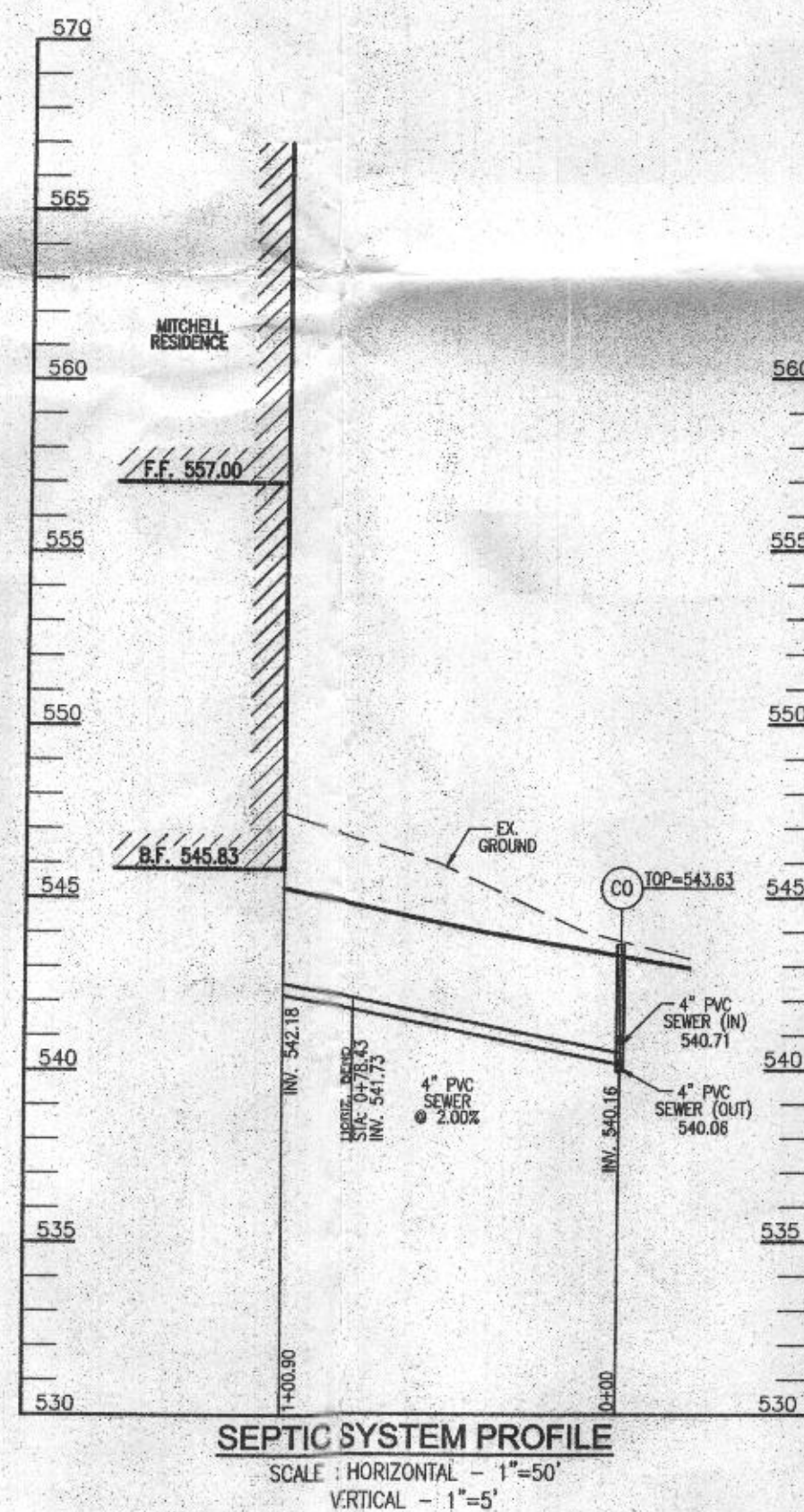
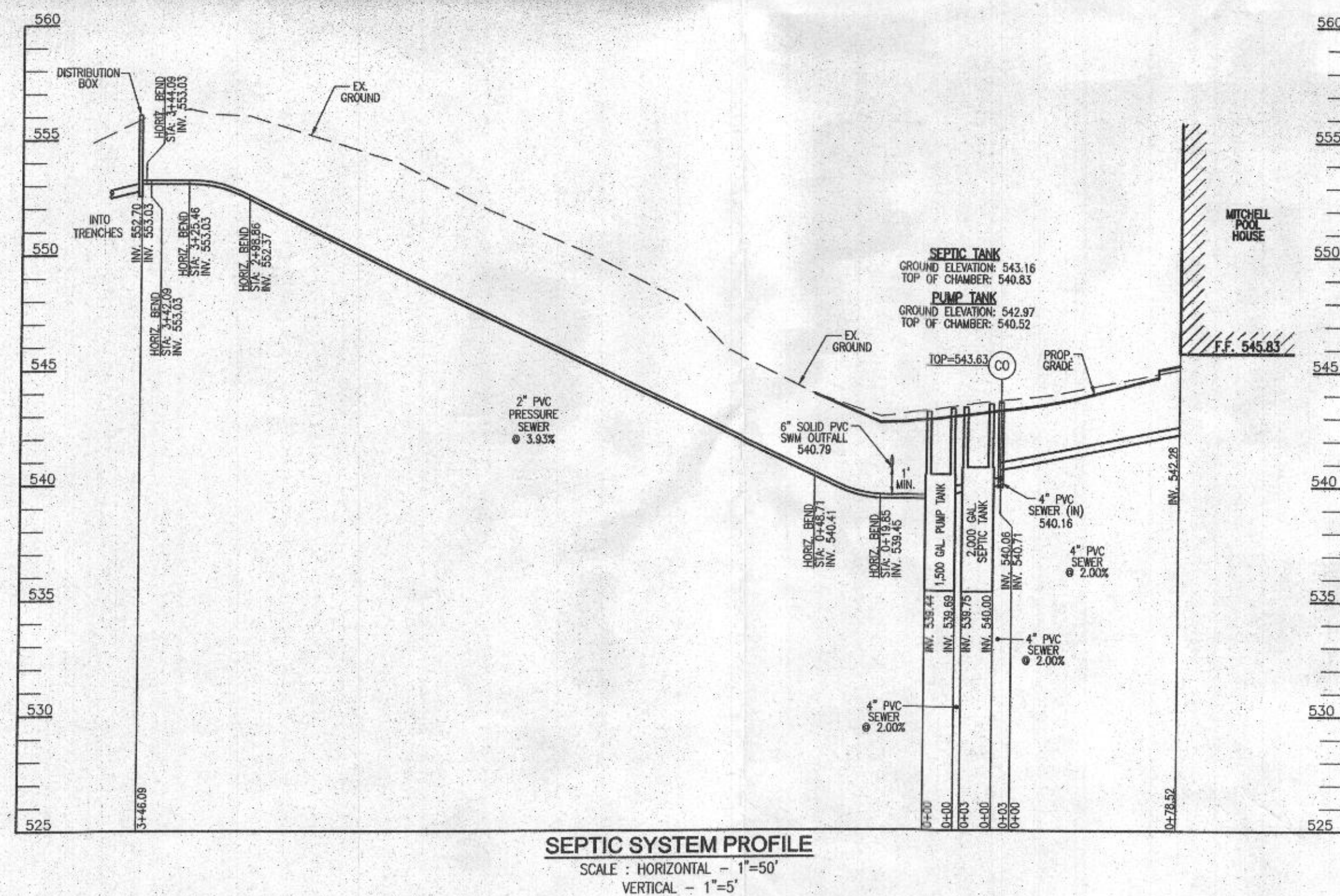
NO. BEDROOMS = 6
DESIGN FLOW = 6(150 GPD) = 900 GPD
DOSE: 1/6 DESIGN FLOW = 150 GPD
150 GALLONS/7.48 FT³/GAL = 20.05 FT³
20.05 FT³/57.61 SF = 0.35'
ONE DAY RESERVE: 900 GALLONS/7.48 FT³/GAL = 120.0 FT³
120.0 FT³/57.61 SF = 2.08 FT

TDH (FRICTION + STATIC)
FRICTION FITTINGS: UNION: 2
VALVE: 1.3
45° ELBOW (H+V): 10x4 = 40
90° ELBOW: 7x1 = 7

FITTING EQ. LENGTH: 50.3 LF
PIPE LENGTH: 346 LF
TOTAL LENGTH: 396 LF

FRICTION LOSS (40 GPM): (2.63)(396)/100 = 10.41'
STATIC: 533.03-539.44 (PUMP OFF) = 13.59
TDH: 13.59+10.41 = 24.00'

USE GOULDS WEISH



OWNER
KEVIN MITCHELL
LYNETTE MITCHELL
9110 DUNDLOUGH RD.
ELLICOTT CITY, MD 21042
(410) 280-0332

DEVELOPER
BETHEL DESIGN CONSTRUCT, INC.
4815 PRINCE GEORGE'S AVE., SUITE 204
BELTSVILLE, MD 21075
(301) 937-7500

ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN

MITCHELL RESIDENCE
THE KNOLLS - LOT 4
3415 SHADY LANE
GLENWOOD, MD 21738
5.13 AC.

L 16830 / F. 495
4TH ELECTION DISTRICT
TAX MAP: 21 GRID: 5

PARCEL: 95
ZONED: RR-DEO
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
9407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410-461-7666
FAX: 410-461-5961



DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: MAY 2018
SCALE: AS SHOWN
W.O. NO.: 17-17

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 06-27-2018.

2 SHEET OF 2

GENERAL NOTES:

1. ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REISED SITE PLAN MAY BE REQUIRED.
2. THE MAXIMUM EARTH COVER OVER THE TANK IS 3 FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
3. ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
4. ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS AND/OR SEPTIC SYSTEMS HAVE BEEN SHOWN.
5. THE EXISTING TOPOGRAPHY IS BASED ON A FIELD RUN TOPOGRAPHICAL SURVEY PREPARED BY SURVEYS, INC., DATED AUGUST 16, 2016 AND IS SUPPLEMENTED WITH HOWARD COUNTY GIS.
6. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
7. EXISTING WELLS, SEPTIC SYSTEMS, AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWNGRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN USING ALL REASONABLE EFFORTS.
8. THE LOT SHOWN HEREON COMPLIES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.

SYSTEM CALCULATIONS:

INITIAL SYSTEM:

6 BEDROOMS AT 900gpd / 0.8 ABSORPTION RATE = 1,125 SQ. FT.
1,125 SQ. FT. / 3 (TRENCH WIDTH) x .50 (SIDEWALL REDUCTION) = 188 LINEAR FEET
188 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE INITIAL SYSTEM.
(2 TRENCHES OF 94 FEET IN LENGTH)

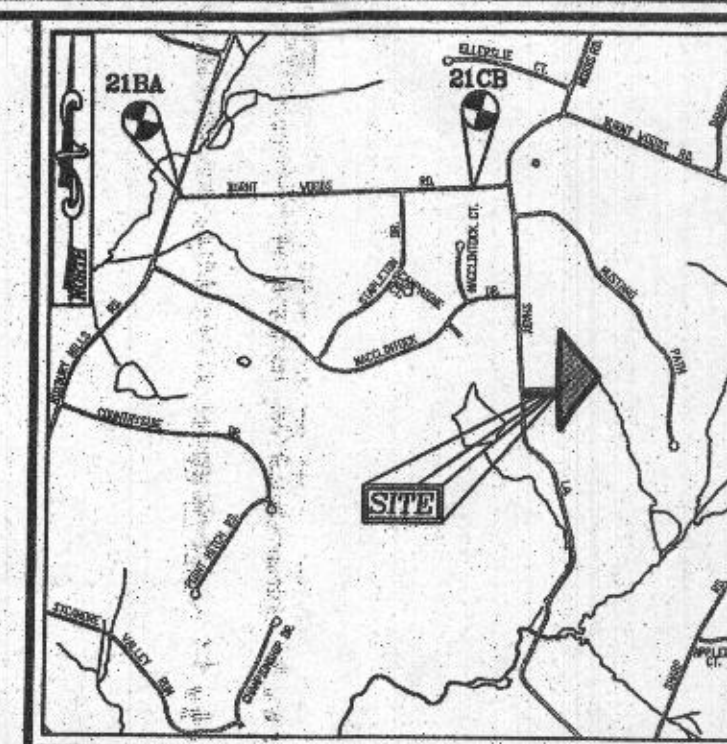
FIRST REPLACEMENT SYSTEM:

6 BEDROOMS AT 900gpd / 0.8 ABSORPTION RATE = 1,125 SQ. FT.
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188 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE FIRST REPLACEMENT SYSTEM.
(2 TRENCHES OF 94 FEET IN LENGTH)

SECOND REPLACEMENT SYSTEM:

6 BEDROOMS AT 900gpd / 1.2 ABSORPTION RATE = 750 SQ. FT.
750 SQ. FT. / 3 (TRENCH WIDTH) x .83 (SIDEWALL REDUCTION) = 208 LINEAR FEET
210 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE FIRST REPLACEMENT SYSTEM.
(3 TRENCHES OF 70 FEET IN LENGTH)

THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 1000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECORDED OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.



VICINITY MAP
SCALE: 1"=2,000'
ADJ. MAP COORDINATE:
PAGE 17, GRID B7

LEGEND:

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING TREELINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 24.99% SLOPES)
- EXISTING WELL LOCATION
- PASSED PERC. TEST
- EXISTING PUBLIC 100-YEAR FLOOD PLAIN
- EXISTING PRIVATE SDA
- PROPOSED PRIVATE SDA
- PROPOSED WELL BOX
- PROPOSED TREELINE
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION

INITIAL SYSTEM
TRENCH DETAIL
NOT TO SCALE

1ST REPLACEMENT
TRENCH DETAIL
NOT TO SCALE

2ND REPLACEMENT
TRENCH DETAIL
NOT TO SCALE

TRENCH	LENGTH	WIDTH	DEPTH	EXISTING	GROUND
1	94'	551.80	548.80	554.80	
2	94'	551.80	548.80	554.80	

PLAN VIEW

SCALE: 1"=50'

SCALE: 1"=50'

SCALE: 1"=50'

SCALE: 1"=50'

OWNER
KEVIN MITCHELL
LYNETTE MITCHELL
9110 DUNLOGGON RD.
ELLICOTT CITY, MD 21042
(443) 280-0332

DEVELOPER
BETHEL DESIGN CONSTRUCT, INC.
4815 PRINCE GEORGE'S AVE., SUITE 204
BELTSVILLE, MD 20705
(301) 937-7500

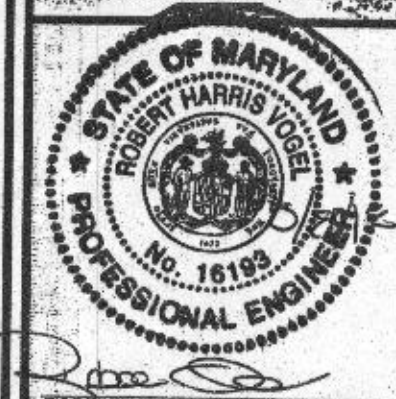
ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN

MITCHELL RESIDENCE
THE KNOLLS - LOT 4
3415 SHADY LANE
GLENWOOD, MD 21738
5.13 AC.

L 16930 / F. 495
4TH ELECTION DISTRICT
TAX MAP: 21 GRID: 5

PARCEL: 95
ZONED: RR-DEO
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL
ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961



DESIGN BY: RHM
DRAWN BY: JMR
CHECKED BY: RHM
DATE: MAY 2018
SCALE: AS SHOWN
W.O. NO.: 17-17

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16195, EXPIRATION DATE: 06-27-2019.

1 SHEET OF 2

GENERAL NOTES:

1. ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
2. THE MAXIMUM EARTH COVER OVER THE TANK IS 3 FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
3. ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
4. ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS AND/OR SEPTIC SYSTEMS HAVE BEEN SHOWN.
5. THE EXISTING TOPOGRAPHY IS BASED ON A FIELD RUN TOPOGRAPHICAL SURVEY PREPARED BY SURVEYS, INC., DATED AUGUST 15, 2016 AND IS SUPPLEMENTED WITH HOWARD COUNTY GIS.
6. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
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8. THE LOT SHOWN HEREON COMPLEES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.

SYSTEM CALCULATIONS:

INITIAL SYSTEM:

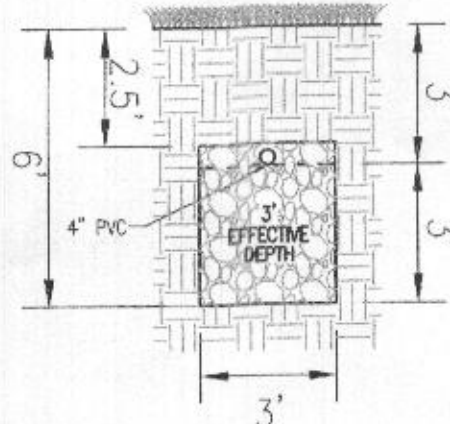
6 BEDROOMS AT 900gpd / 0.8 ABSORPTION RATE = 1,125 SQ. FT.
1,125 SQ. FT. / 3 (TRENCH WIDTH) x .50 (SIDEWALL REDUCTION) = 188 LINEAR FEET
188 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE INITIAL SYSTEM.
(2 TRENCHES OF 94 FEET IN LENGTH)

FIRST REPLACEMENT SYSTEM:

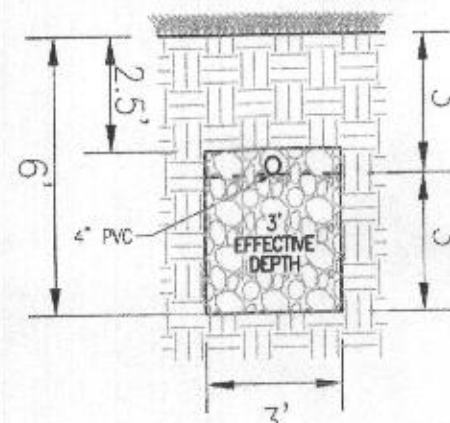
6 BEDROOMS AT 900gpd / 0.8 ABSORPTION RATE = 1,125 SQ. FT.
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(2 TRENCHES OF 94 FEET IN LENGTH)

SECOND REPLACEMENT SYSTEM:

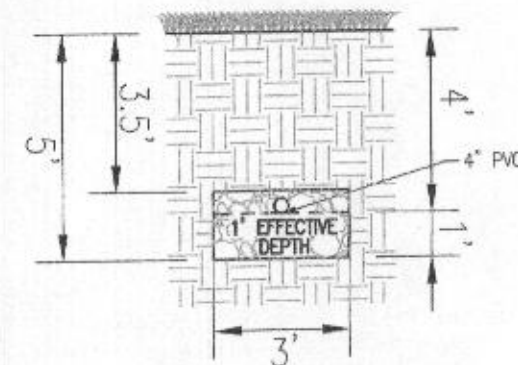
6 BEDROOMS AT 900gpd / 1.2 ABSORPTION RATE = 750 SQ. FT.
750 SQ. FT. / 3 (TRENCH WIDTH) x .83 (SIDEWALL REDUCTION) = 208 LINEAR FEET
210 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE FIRST REPLACEMENT SYSTEM.
(3 TRENCHES OF 70 FEET IN LENGTH)



INITIAL SYSTEM
TRENCH DETAIL
NOT TO SCALE



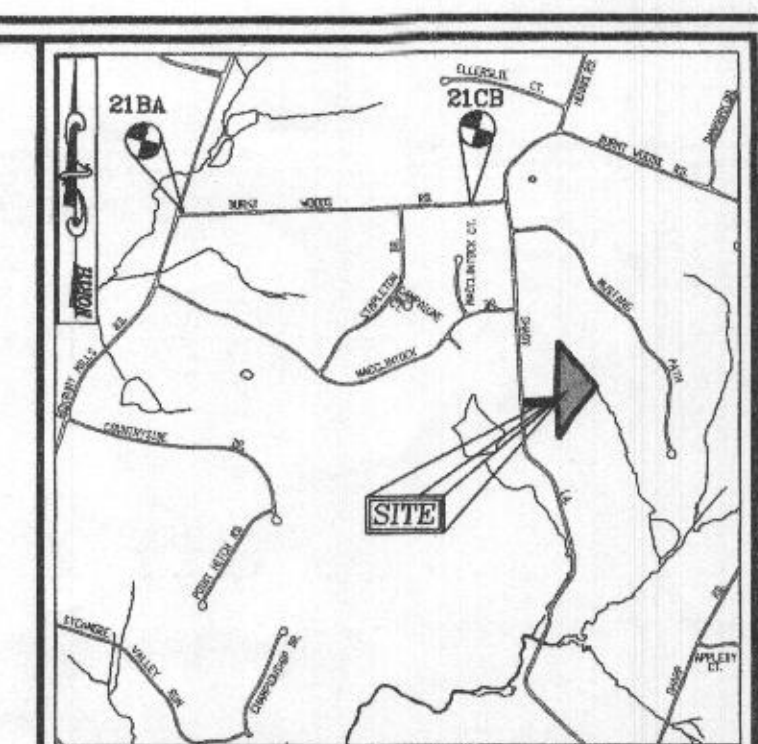
1ST REPLACEMENT
TRENCH DETAIL
NOT TO SCALE



2ND REPLACEMENT
TRENCH DETAIL
NOT TO SCALE

INITIAL SYSTEM TRENCH INFO.				
TRENCH	LENGTH	WIDTH	DEPTH	EXISTING GROUND
1	94'	3.0'	3.0'	554.80
2	94'	3.0'	3.0'	554.80

THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RECORDED OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.



- LEGEND:**
- PROPERTY LINE
 - EXISTING RIGHT-OF-WAY LINE
 - ADJACENT PROPERTY LINE
 - EXISTING EDGE OF FINING
 - EXISTING TRENCH
 - EXISTING 10' CONTOUR
 - EXISTING 2' CONTOUR
 - EXISTING STREAM BUFFER
 - EXISTING STREAM
 - EXISTING WETLANDS
 - EXISTING WETLAND BUFFER
 - EXISTING STEEP SLOPES (25% SLOPES OR GREATER)
 - EXISTING MODERATE SLOPES (15% TO 24.99% SLOPES)
 - EXISTING WELL LOCATION
 - PASSED PERC. TEST
 - EXISTING PUBLIC 100-YEAR FLOOD PLAN
 - EXISTING PRIVATE SDA
 - PROPOSED PRIVATE SDA
 - PROPOSED WELL BOX
 - PROPOSED TRENCH
 - PROPOSED 10' CONTOUR
 - PROPOSED 2' CONTOUR
 - PROPOSED SPOT ELEVATION

Approved Septic System Plan
Howard County Health Department
Hank Oswald 9/22/21
Signature Date

OWNER
KEVIN MITCHELL
LYNETTE MITCHELL
9110 DUNLOGG RD.
ELLICOTT CITY, MD 21042
(443) 280-0332

DEVELOPER
BETHEL DESIGN CONSTRUCT, INC.
4815 PRINCE GEORGE'S AVE., SUITE 204
BELTSVILLE, MD 20705
(301) 937-7500

ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN

MITCHELL RESIDENCE
THE KNOLLS - LOT 4
3415 SHADY LANE
GLENWOOD, MD 21738
5.13 AC.

PARCEL: 95
ZONED: RR-DEO
HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

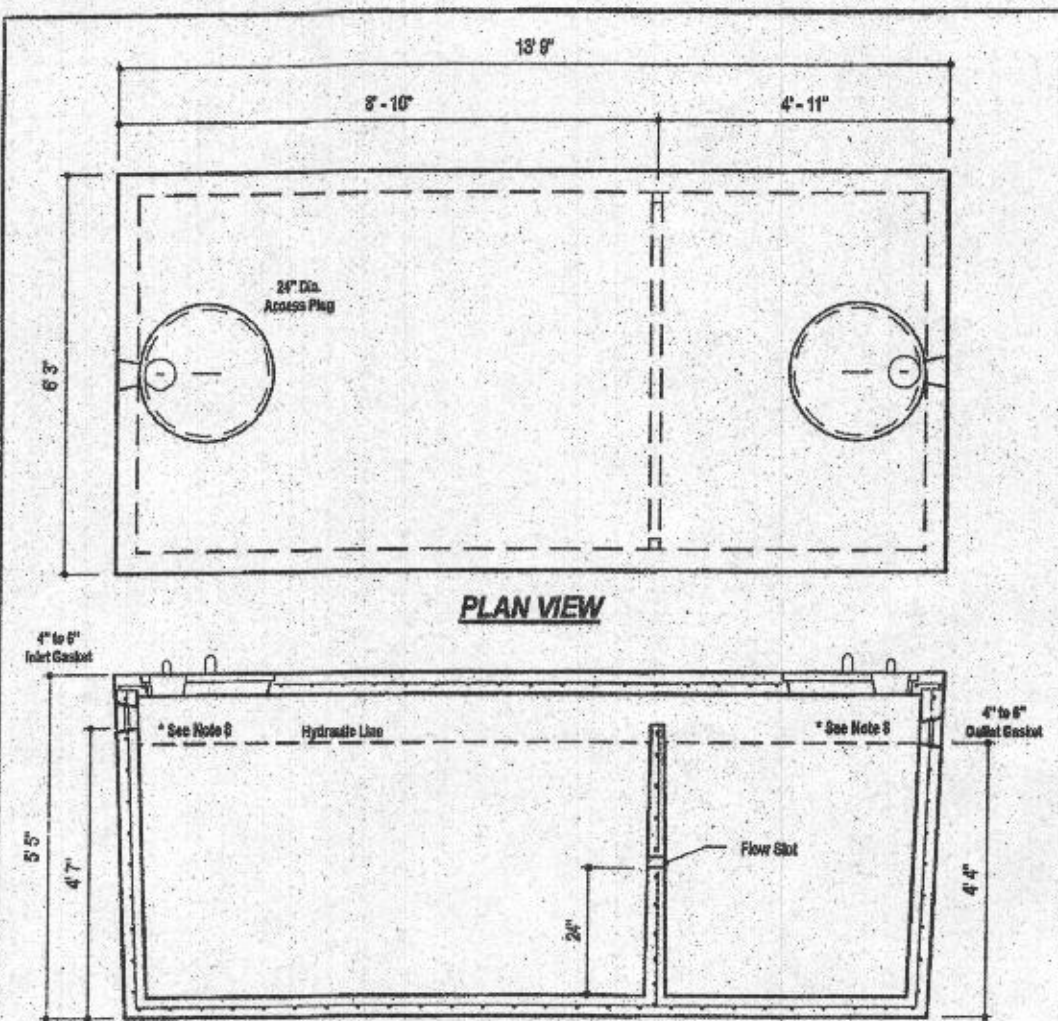
PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022.

DESIGN BY: RHW
DRAWN BY: JMR
CHECKED BY: RHW
DATE: SEPTEMBER 2021
SCALE: AS SHOWN
W.O. NO.: 17-17

1 SHEET OF 2

WELL LOCATION CERTIFICATION:
THE EXISTING WELL SHOWN ON THIS PLAN (TAG #HO-17-0210) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN.

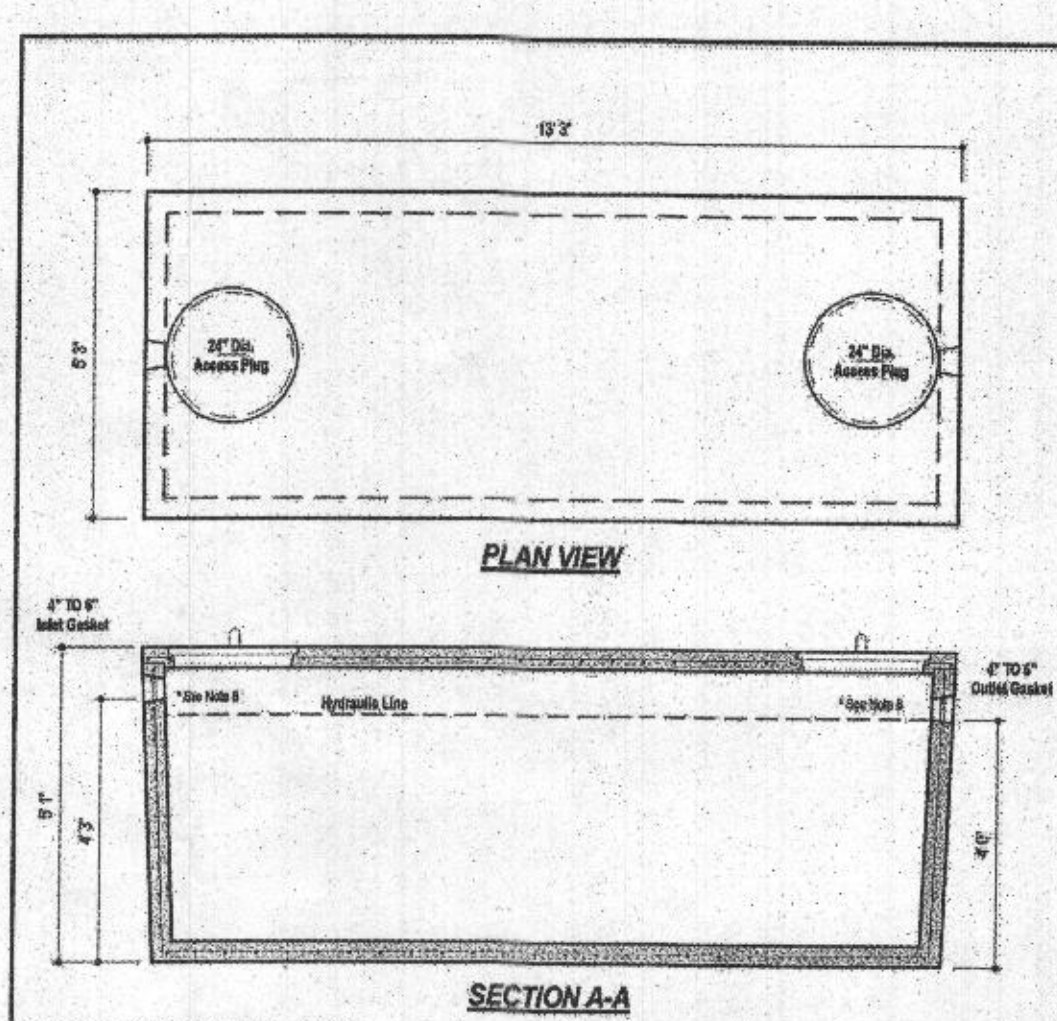




DESIGN DATA & GENERAL NOTES

- 1) Concrete strength 4000 p.s.i. @ 28 days. Density = 150 pcf.
- 2) Concrete Portland Type III per ASTM C 150-92.
- 3) Reinforcing steel per ASTM A 618, Grade 60.
- 4) Reinforcing steel per ASTM A 618, Grade 60.
- 5) Top slab sealed with butyl rope mastic.
- 6) 1" wall, 4" base, 4" top thickness.
- 7) Use 4" of cover.
- 8) Depending on use of tank, inlet & outlet baffles may be required by code.

	2,000 GALLON SEPTIC TANK 2-Compartment Stock Item (Approx. 19,900 lbs)	
	Dep. No. 1000-3C	Aug. 11, 2008



DESIGN DATA & GENERAL NOTES

- 1) Concrete strength 4000 p.s.i. @ 28 days. Density = 150 pcf.
- 2) Concrete Portland Type III per ASTM C 150-92.
- 3) Reinforcing steel per ASTM A 618, Grade 60.
- 4) Reinforcing steel per ASTM A 618, Grade 60.
- 5) Top slab sealed with butyl rope mastic.
- 6) 1" wall, 4" base, 4" top thickness.
- 7) Use 4" of cover.
- 8) Depending on use of tank, inlet & outlet baffles may be required by code.

	1,500 GALLON SEPTIC/PUMP TANK 1-Compartment NON-Traffic MAX 3" L OF COVER	
	Dep. No. 1000-3C	Aug. 11, 2008

WEIGHT = 16,000 lbs.

Wastewater

APPLICATIONS

Specifically designed for the following uses:

- Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Billiard Systems

SPECIFICATIONS

Pump

- Solids handling capabilities: 1/2" maximum
- Discharge size: 2" NPT
- Capacities up to 140 GPM
- Total heads up to 125 feet TDH
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on 3-1/2 HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz)

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.

- SJTOW or STOW severe duty oil and water resistant power cords.
- 3-1/2 HP models have NEMA three prong grounding plug.
- 1 1/2 HP and larger units have bare lead cord ends.

Three phase (60 Hz)

- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.

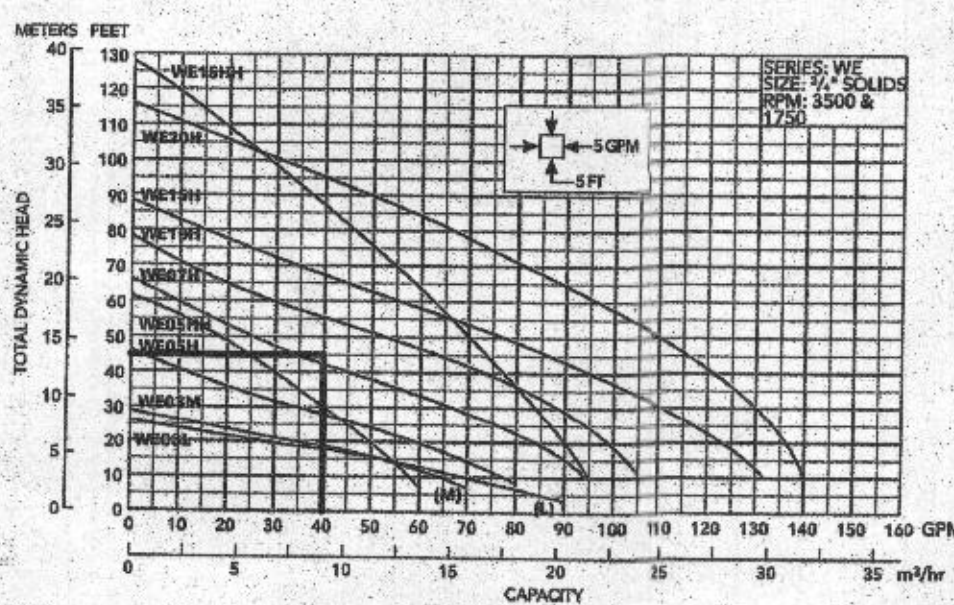
- Designed for Continuous Operation: Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.

- Bearings: Upper and lower heavy duty ball bearing construction.
- Power Cables: Severe duty rated, oil and water resistant. Epoxy seal on motor and provides secondary moisture barrier in case of outer jacket damage and to prevent oil leaking. Standard cord is 20'. Optional lengths are available.

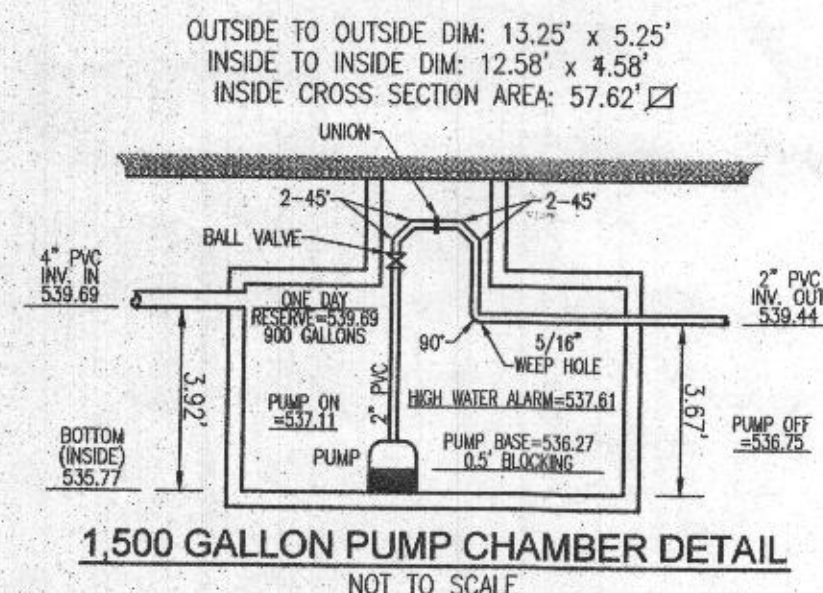
- O-ring: Assure positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

Tested to A 778 and CSA 22.2 100 Standards
By Canadian Standards Association File #125549



Flow: 40 GPM
H=24.00
USE GOULDS W60SH

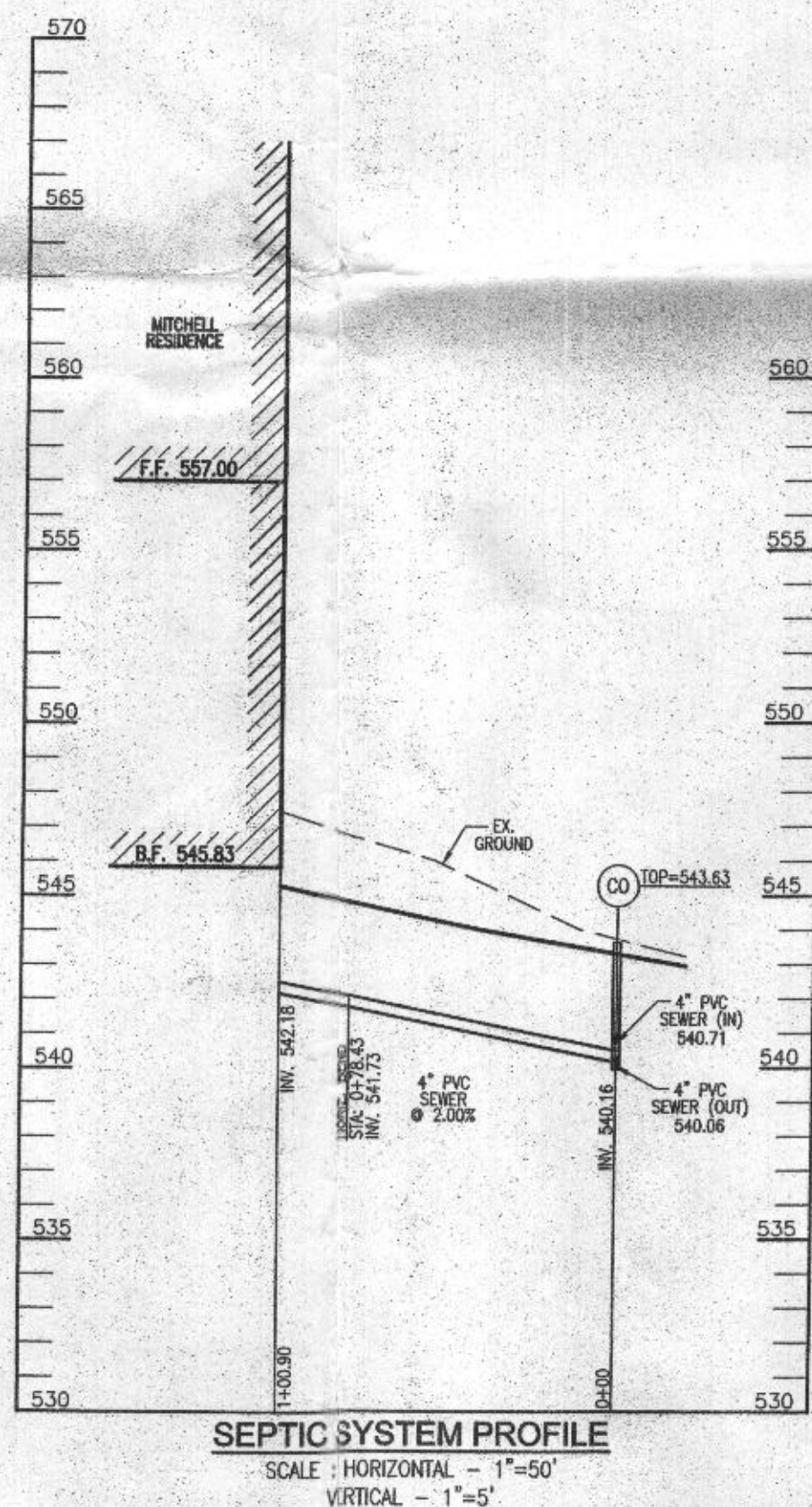
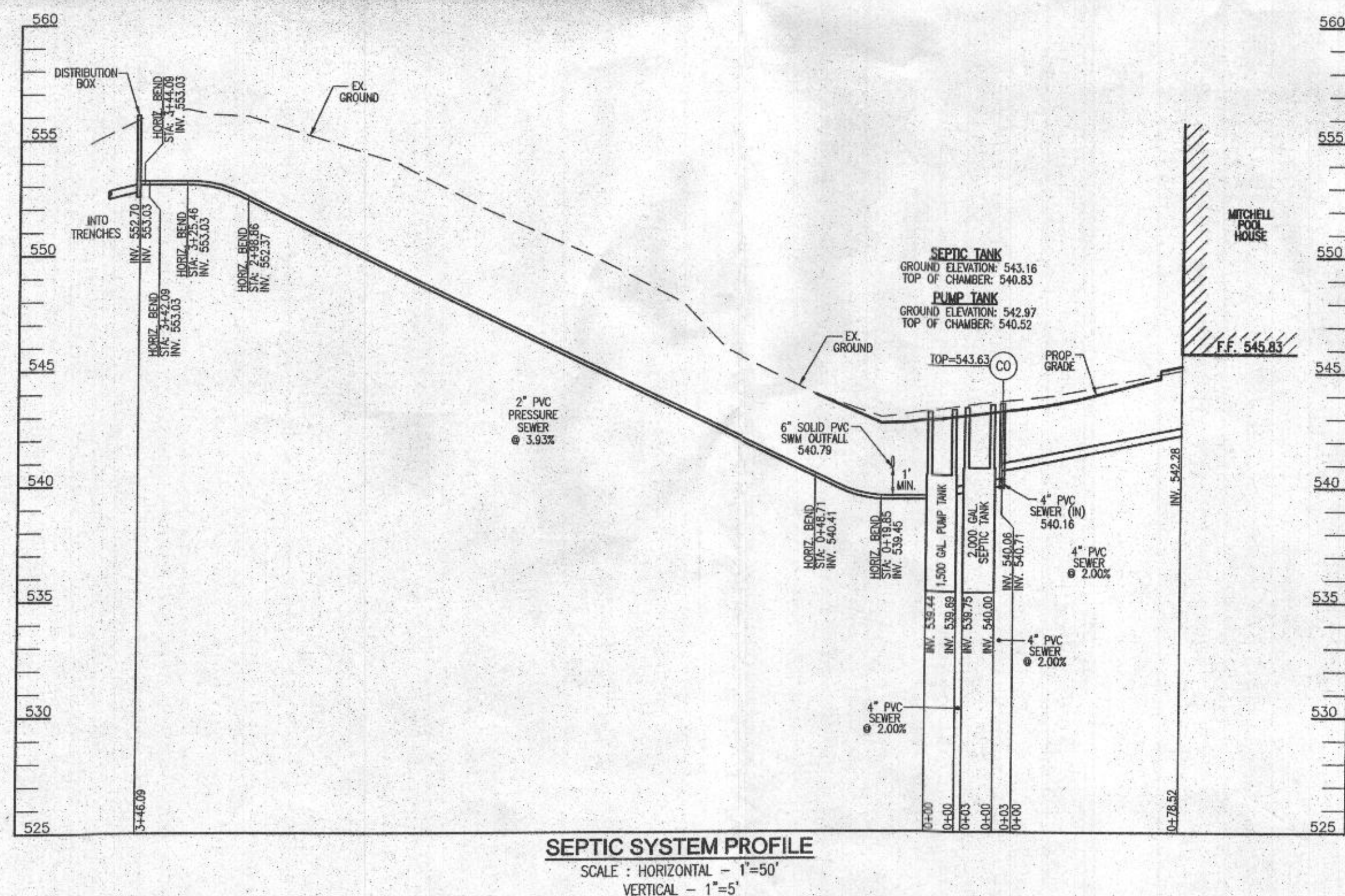


NO. BEDROOMS = 6
DESIGN FLOW = 6 (150 GPD) = 900 GPD
DOSE: 1/8 DESIGN FLOW = 150 GPD
150 GALLONS/7.48 FT³/GAL = 20.05 FT³
20.05 FT³/57.61 SF = 0.35'
ONE DAY RESERVE: 900 GALLONS/7.48 FT³/GAL = 120.0 FT³
120.0 FT³/57.61 SF = 2.08 FT

TDH (FRICTION + STATIC)
FRICTION FITTINGS: UNION: 2
VALVE: 1.3
45° ELBOW (H+V): 10x4 = 40
90° ELBOW: 7x1 = 7

FITTING EQ. LENGTH: 50.3 LF
PIPE LENGTH: 346 LF
TOTAL LENGTH: 396 LF

FRICTION LOSS (40 GPM): (2.63)(396)/100 = 10.41'
STATIC: 553.03-539.44 (PUMP OFF) = 13.59
TDH: 13.59+10.41 = 24.00'
USE GOULDS W60SH



OWNER
KEVIN MITCHELL
LYNETTE MITCHELL
9110 DUNLOCH RD.
ELICOTT CITY, MD 21042
(443) 280-0332

DEVELOPER
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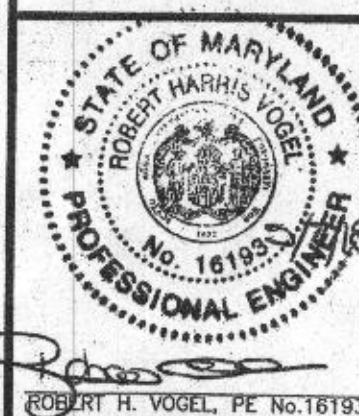
ONSITE SEWAGE DISPOSAL SYSTEM DESIGN PLAN

MITCHELL RESIDENCE
THE KNOLLS - LOT 4
3415 SHADY LANE
GLENWOOD, MD 21738
5.13 AC.

L 16930 / F 495
4TH ELECTION DISTRICT
TAX MAP: 21 GRID: 5

PARCEL: 95
ZONED: RR-DEO
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961



DESIGN BY: RHW
DRAWN BY: JMR
CHECKED BY: RHW
DATE: MAY 2018
SCALE: AS SHOWN
W.O. NO.: 17-17

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16195, EXPIRATION DATE 06-27-2018.

2 SHEET OF 2

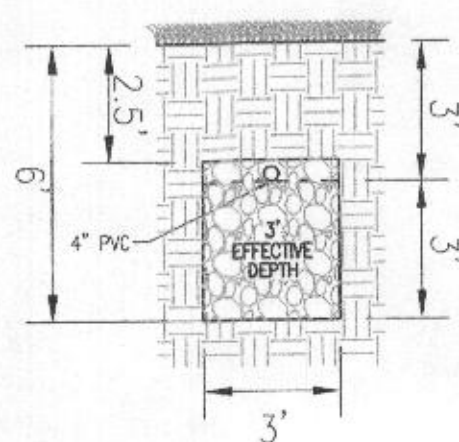
- GENERAL NOTES:**
1. ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
 2. THE MAXIMUM EARTH COVER OVER THE TANK IS 3 FEET. GREATER EARTH COVER WILL REQUIRE A HEAVY LOAD BEARING TANK.
 3. ELECTRICAL WORK FOR THE INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
 4. ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS AND/OR SEPTIC SYSTEMS HAVE BEEN SHOWN.
 5. THE EXISTING TOPOGRAPHY IS BASED ON A FIELD RUN TOPOGRAPHICAL SURVEY PREPARED BY SURVEYS, INC., DATED AUGUST 15, 2016 AND IS SUPPLEMENTED WITH HOWARD COUNTY GIS.
 6. ANY CHANGES TO A PRIVATE SEWAGE AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
 7. EXISTING WELLS, SEPTIC SYSTEMS AND SEWAGE DISPOSAL AREAS WITHIN 100' OF THE PROPERTY AND THOSE WELLS WITHIN 200' DOWNGRADIENT OF EXISTING OR PROPOSED SEPTIC SYSTEMS OR SEWAGE DISPOSAL AREAS HAVE BEEN SHOWN USING ALL REASONABLE EFFORTS.
 8. THE LOT SHOWN HEREON COMPLES WITH THE MINIMUM OWNERSHIP, WIDTH, AND LOT AREA AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT.

SYSTEM CALCULATIONS:

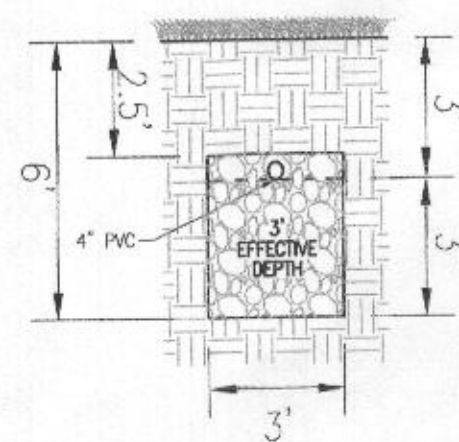
INITIAL SYSTEM
6 BEDROOMS AT 900gpd / 0.8 ABSORPTION RATE = 1,125 SQ. FT.
1,125 SQ. FT. / 3 (TRENCH WIDTH) x 50 (SIDEWALL REDUCTION) = 188 LINEAR FEET
188 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE INITIAL SYSTEM.
(2 TRENCHES OF 94 FEET IN LENGTH)

FIRST REPLACEMENT SYSTEM
6 BEDROOMS AT 900gpd / 0.8 ABSORPTION RATE = 1,125 SQ. FT.
1,125 SQ. FT. / 3 (TRENCH WIDTH) x 50 (SIDEWALL REDUCTION) = 188 LINEAR FEET
188 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE FIRST REPLACEMENT SYSTEM.
(2 TRENCHES OF 94 FEET IN LENGTH)

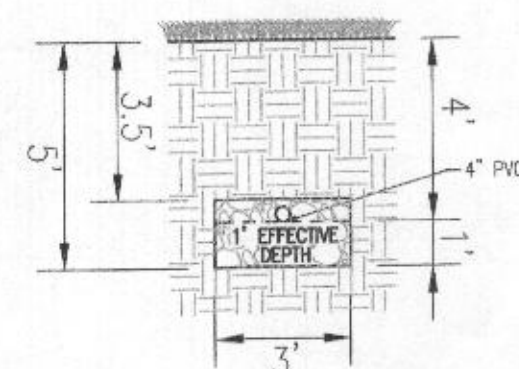
SECOND REPLACEMENT SYSTEM
6 BEDROOMS AT 900gpd / 1.2 ABSORPTION RATE = 750 SQ. FT.
750 SQ. FT. / 3 (TRENCH WIDTH) x 33 (SIDEWALL REDUCTION) = 238 LINEAR FEET
238 TOTAL LINEAR FEET OF TRENCH ARE PROVIDED WITH THE SECOND REPLACEMENT SYSTEM.
(3 TRENCHES OF 79 FEET IN LENGTH)



**INITIAL SYSTEM
TRENCH DETAIL**
NOT TO SCALE



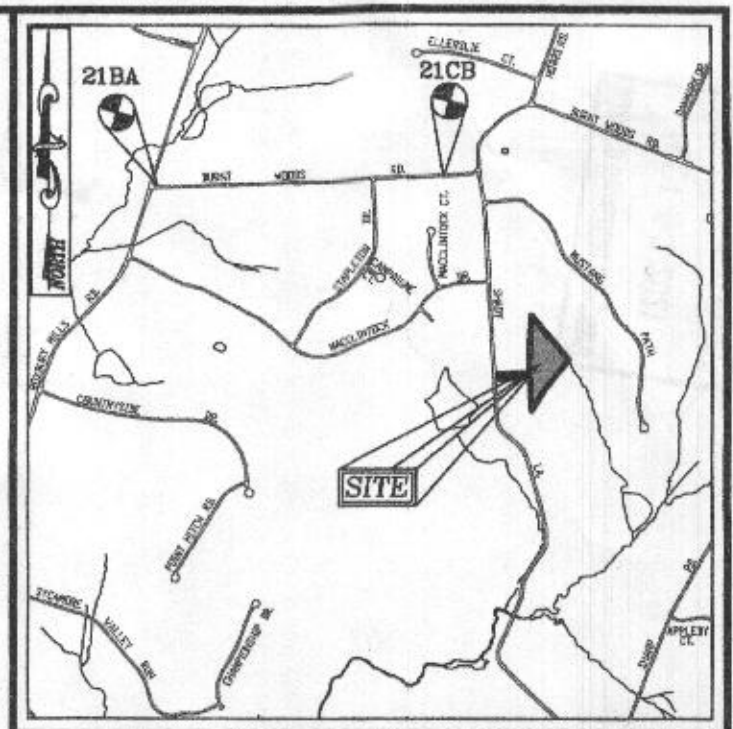
**1ST REPLACEMENT
TRENCH DETAIL**
NOT TO SCALE



**2ND REPLACEMENT
TRENCH DETAIL**
NOT TO SCALE

INITIAL SYSTEM TRENCH INFO.				
TRENCH	LENGTH	WIDTH	DEPTH	AREA
1	94'	3'	4'	1,125.00
2	94'	3'	4'	1,125.00

THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. RE-RECORDATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.



VICINITY MAP
SCALE: 1"=2,000'
AOC MAP COORDINATE:
PAGE 17; GRID B7

LEGEND:

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING TREELINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING SLOPE SLOPES (25% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 24.9% SLOPES)
- EXISTING WELL LOCATION
- PASSED PERC. TEST
- EXISTING PUBLIC 100-YEAR FLOOD PLAIN
- EXISTING PRIVATE SOA
- PROPOSED PRIVATE SOA
- PROPOSED WELL BOX
- PROPOSED TREELINE
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION

Approved Septic System Plan
Howard County Health Department
Hank Osada 9/22/21
Signature Date

OWNER
KEVIN MITCHELL
LYNETTE MITCHELL
9110 DUNLOUGH RD.
ELLICOTT CITY, MD 21042
(443) 280-0332

DEVELOPER
BETHEL DESIGN CONSTRUCT, INC.
4815 PRINCE GEORGE'S AVE., SUITE 204
BELTSVILLE, MD 20705
(301) 937-7500

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THE KNOLLS - LOT 4
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5.13 AC.

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VOGEL ENGINEERING

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P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: RHV	PROFESSIONAL CERTIFICATE I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022.
DRAWN BY: JMR	
CHECKED BY: RHV	
DATE: SEPTEMBER 2021	
SCALE: AS SHOWN	
W.O. NO.: 17-17	

1 SHEET OF 2

WELL LOCATION CERTIFICATION:
THE EXISTING WELL SHOWN ON THIS PLAN (TAG #HO-17-0210) HAS BEEN FIELD LOCATED AND IS ACCURATELY SHOWN

PLAN VIEW
SCALE: 1"=50'

