

ALTERNATIVE SEPTIC SYSTEM TEAM

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PROJECT BACKGROUND



Figure 1, Map of Arizona [1]

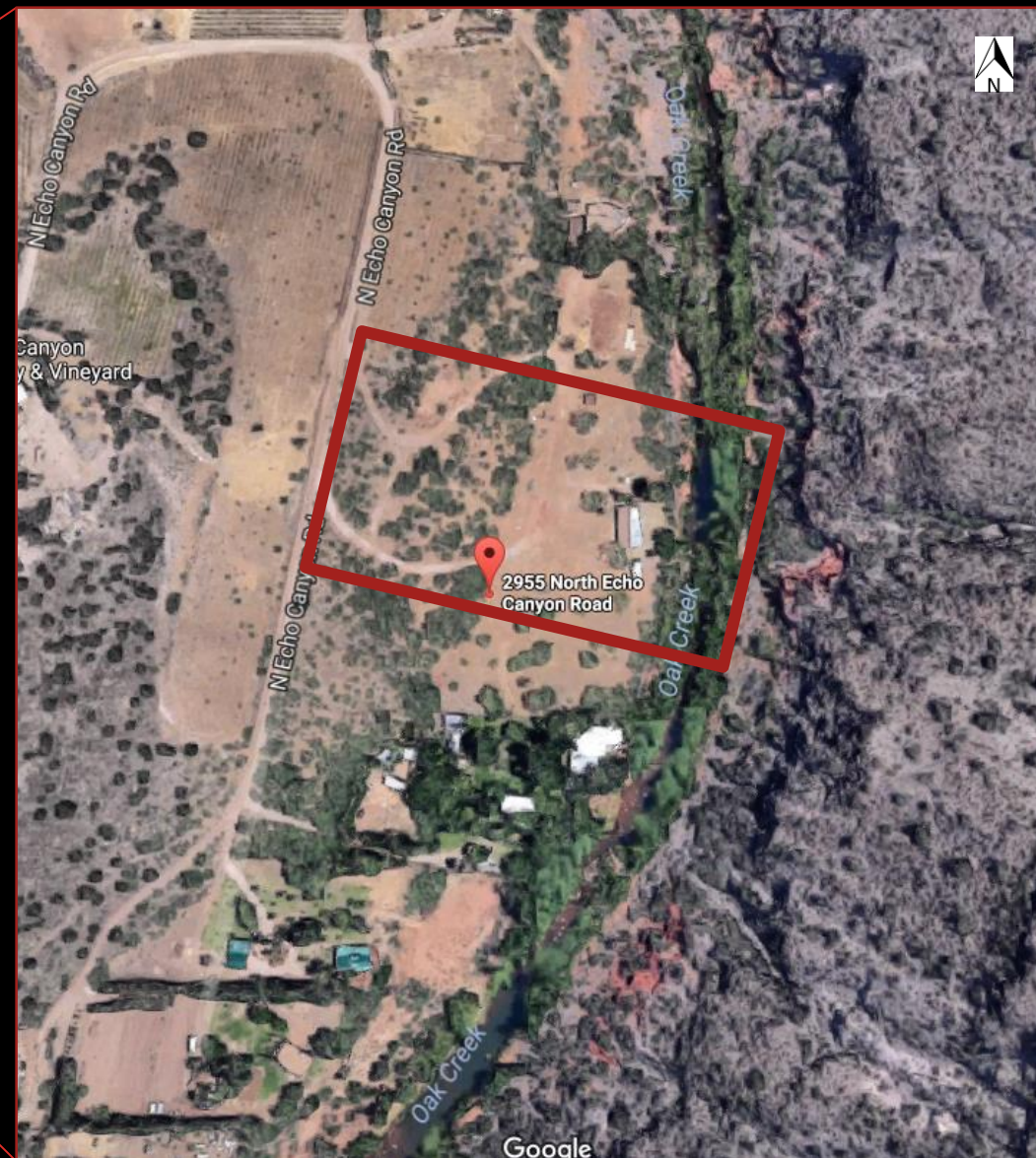


Figure 2, Aerial View of Property [1]

PROJECT BACKGROUND

- Location: Page Springs, AZ
 - 4.5 acres
- Client: Adam Bringhurst
 - Limited residency: Fall/Spring months
 - Future vineyard



Figure 3: Creek adjacent to site (Will Richardson)

PROJECT UNDERSTANDING

- Conventional septic system
 - Currently on-site
- Alternative septic system
 - Required since property is close to Oak Creek
 - Treats effluent to a higher standard than conventional septic systems
 - Mound
 - Aerobic
 - Anaerobic
- Irrigation system
 - Flood
 - Drip
 - Spray

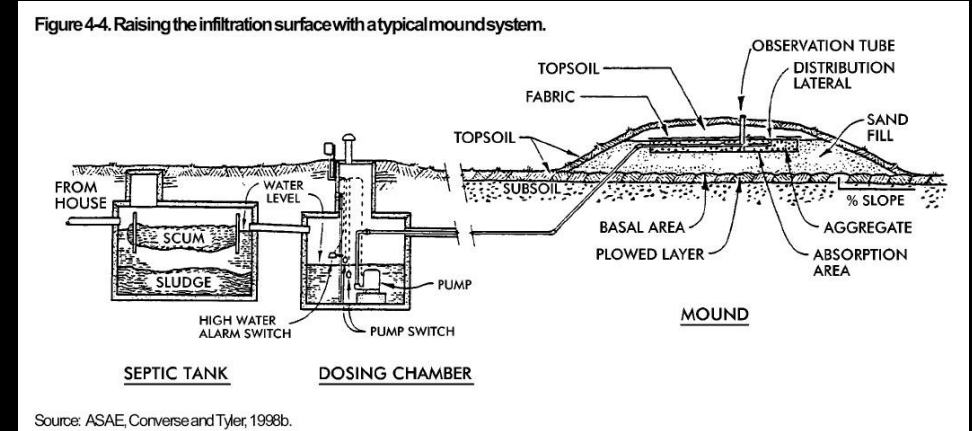


Figure 4: Mound Septic System [3]



Figure 5: Drip Irrigation [4]

PROJECT SCOPE

- Task 1.0 Site Investigation
 - Task 1.1 Site survey
 - Task 1.2 On-site water analysis
 - Task 1.3 Sample collection
- Task 2.0 Off-site Technical Analysis
 - Task 2.1 Water analysis
 - Task 2.2 Soil testing and classification
 - Task 2.3 Site topographic map



Figure 6: On-site water collection [5]

PROJECT SCOPE

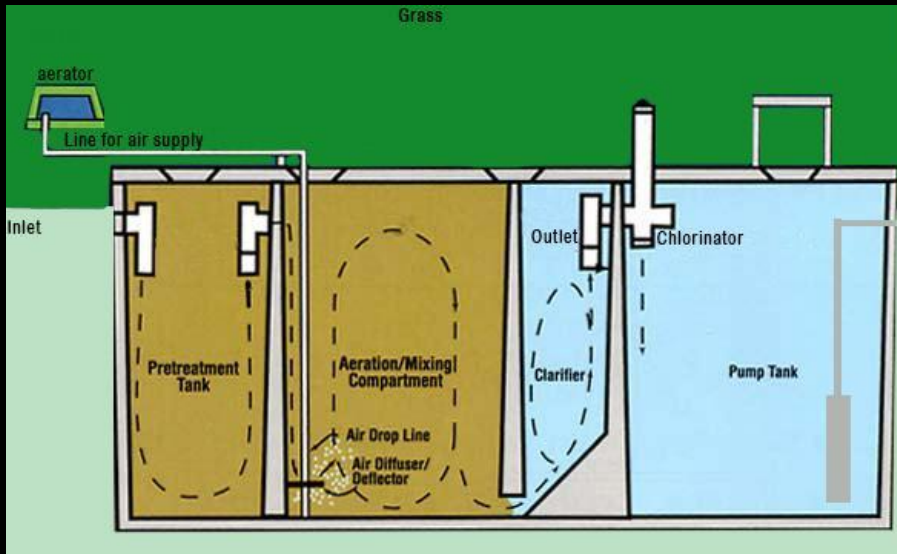


Figure 7: Aerobic Septic System Diagram [6]

- Task 3.0 Alternative Septic System Design Evaluation
 - Task 3.1 Compliant systems
 - Task 3.2 Technical requirements
 - Task 3.3 Evaluation of systems
- Task 4.0 Irrigation Design Evaluation
 - Task 4.1 Operations
 - Task 4.2 Evaluation of systems
 - Task 4.3 System analysis

PROJECT SCOPE

- Task 5.0 System Design
 - Task 5.1 Septic system design
 - Task 5.2 Irrigation system design
- Task 6.0 Project Management
 - Task 6.1 Deliverables
 - Task 6.2 Coordination
 - Task 6.3 Schedule management
 - Task 6.4 Resource management
 - Task 6.5 Risk management



Figure 8: Site Location (Will Richardson)

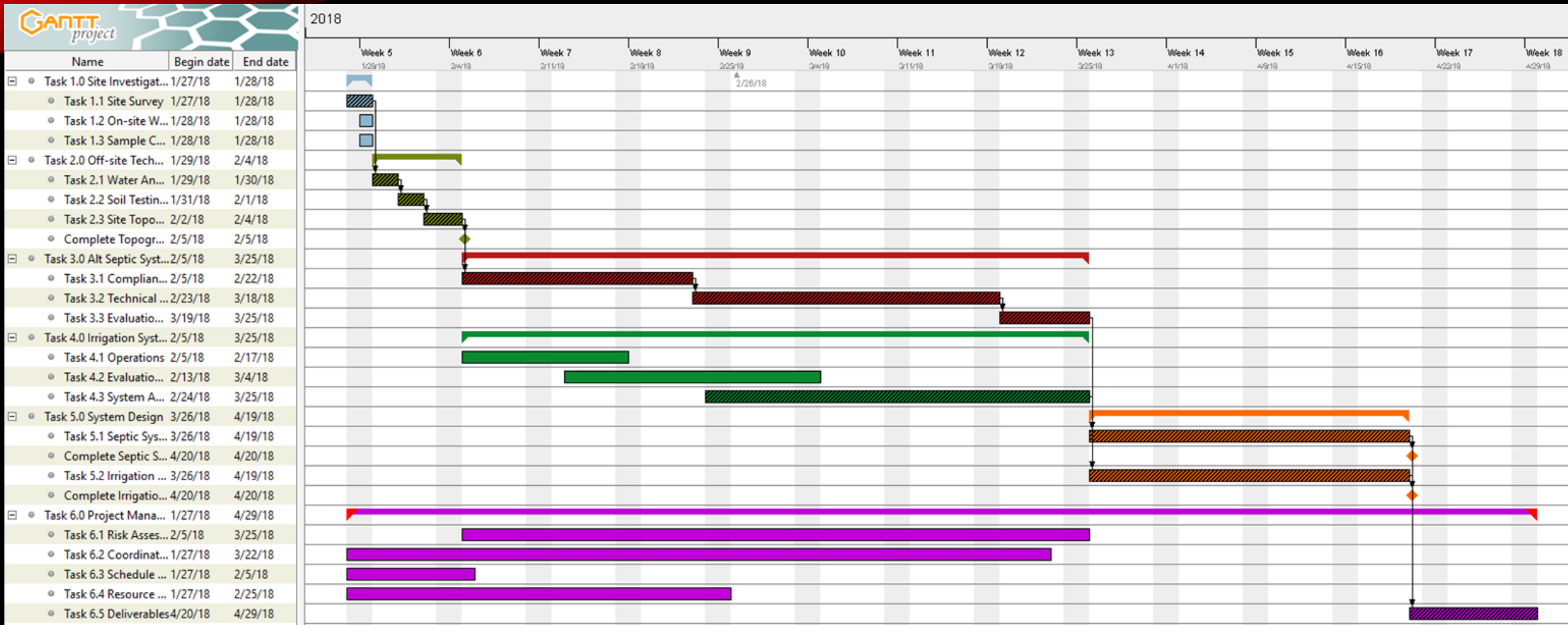


Figure 9: Gantt Chart and Critical Path

PROJECT STAFFING

- Professional Engineer (PE)
- Manager (MGR)
- Engineer-In-Training (EIT)
- Environmental Technicians (TECH)
- Administrative Assistant (AA)



Figure 10: Oak Creek [7]

COST OF ENGINEERING SERVICES

Table 1: Cost of Project

	Classification	Hours	Rate (\$/hr) [8,9]*	Cost
Personnel	PE	20	\$194.00	\$3,880.00
	MGR	70	\$95.00	\$6,650.00
	EIT	250	\$67.00	\$16,750.00
	AA	150	\$56.00	\$8,400.00
	TECH	10	\$48.00	\$480.00
	Total Personnel Cost			\$36,160.00
Travel	3 Site Visits @ 110 mi		\$0.40/mi	\$132.00
Subcontract	Site Survey [10]			\$1,000.00
Total		500		\$37,300.00
* Includes base pay and overhead				



QUESTIONS?

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- [3] D. Friedman, "Using Septic Mounds as Components of Alternative Septic Systems for Difficult Sites," *Septic Mound Systems as Components of Alternative Septic Systems*. [Online]. Available: https://inspectapedia.com/septic/Septic_Mound_Design.php. [Accessed: 30-Nov-2017].
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