Table 1 shows the proposed hours based on the tasks from the team's proposed Gantt Chart. The four team roles are the senior engineer, professional engineer, engineering intern, and administrative assistant. The total proposed hours for the completion of the project was 602 hours.

Table 1: Proposed Hours

Task	SENG Hours	ENG Hours	INT Hours	ADM Hours
Task 1: Site Investigation	4	4	8	4
Task 2: Analyze Site Documents	-	12	24	-
Task 2.1: Geotechnical Data Collection and Analysis		4	8	
Task 2.2: Hydroprobe Data Collection and Analysis		4	8	
Task 2.3: Landfill Layer Data and Analysis		4	8	
Task 3: Modeling	8	58	36	4
Task 3.1: Create Updated HELP Model	2	12	4	
Task 3.1.1 : Create and Run Updated HELP Model	2	8		
Task 3.1.2: Compare HELP Model Results		4	4	
Task 3.2: Alternative Model Research		6	8	
Task 3.3: Model Comparison	6	32	16	
Task 3.3.1: Sensitivity Analysis	4	16	8	
Task 3.3.2: Cost Estimate Comparison	2	16	8	
Task 3.4: Justification Report for Selected Model		8	8	4
Task 4: Research and Compare Geophysical Methods	6	44	24	-
Task 4.1: Develop List of Alternative Modeling Technologies	2	8	8	
Task 4.2: Cost Analysis of Alternative Modeling Technologies	2	16	4	
Task 4.3: Efficiency Analysis of Alternative Modeling Technologies	2	16	4	
Task 4.4: Compare Alternative Methods to Hydroprobe		4	8	
Task 5: Develop 3-D Plume Visualization	8	80	16	
Task 5.1: Interpolate 2-D Geophysical Data	2	20	4	
Task 5.2: Create 3-D Plume Migration Map	2	24	4	
Task 5.3: Sensitivity Analysis for Potential Moisture Exceedance	2	24	4	
Task 5.4: Identify Portions of Landfill Requiring Excavation	2	12	4	
Task 6: Analysis of Project Impacts	-	24	16	16
Task 6.1: Social Impacts		6	4	4
Task 6.2: Economic Impacts		6	4	4
Task 6.3: Environmental Impacts		6	4	4
Task 6.4: Human Health Impacts		6	4	4
Task 7: Project Deliverables	24	44	24	48
Task 8: Project Management	12	12	22	20
Total Expected Hours	62	278	170	92

Table 2 shows the completed hours for the tasks from the final Gantt chart. The completed hours were reduced from the proposed hours due to a loss of a teammate from the proposal phase to the design phase. Additionally, the completed hours were reduced from the proposed hours because the team eliminated the research and comparing geophysical monitoring methods due to the loss of a teammate. The number of hours completed by each engineer team member are shown in yellow. The total number of hours for project completion was 334 hours.

Table 2: Completed Hours

Task	SENG Hours	ENG Hours	INT Hours	ADM Hours
Task 1: Site Investigation	3	3	3	0
Task 1.1: Site visit	2	2	2	
Task 1.2: Obtain Past Sampling Data	1	1	1	
Task 2: Analyze Site Documents	1.5	5.5	6	0
Task 2.1: Geotechnical Data Collection and Analysis		3	3	
Task 2.2: Hydroprobe Data Collection and Analysis		1	1	
Task 2.3: Landfill Layer Data and Analysis	1.5	1.5	2	
Task 3: Landfill Leachate Modeling	8	22	22	0
Task 3.1 Calibrate HELP Model	0	8	8	
Task 3.2:HELP Model Prediction at Closure	6	8	8	
Task 3.2: HELP Model Sensitivity Analysis	2	6	6	
Task 4: 3-D Vadose Zone Plume Model Research	1	11	11	0
Task 4.1: Model Comparison	0	5	6	
Task 4.1.1: Model Ease of Use		4	5	
Task 4.1.2: Cost Estimate Comparison		1	1	
Task 4.2: Model Selection Decision Matrix	1	2	1	2
Task 5: Develop 3-D Plume Visualization	24	21.5	20.5	0
Task 5.1: Calculations for Leachate to Reach Aquifer	4	4	4	
Task 5.2: Develop 3-D Plume Migration Map	15	12.5	12.5	
Task 5.3: Sensitivity Analysis for Potential Moisture Exceedance	3	3	2	
Task 5.4: Analyze Landfill Excavation Requirements	2	2	2	
Task 6: Analysis of Project Impacts	0	4	4	4
Task 7: Project Deliverables	8	10	24	35
Task 8: Project Management	18	16	20	28
Total Hours Worked	63.5	93	110.5	67

Table 3 shows the proposed cost of the project, which includes the hourly rate of each team member, travel to and from the site, and an estimation of potential modeling software costs.

Table 3: Proposed Cost

1.0 Personnel	Classification	Hours	Rate, $/hr	Cost
	SENG	62	194	$ 12,058
	ENG	278	98	$ 27,244
	INT	170	26	$ 4,342
	ADM	92	39	$ 3,618
	Total Personnel			$ 47,262
2.0 Travel	2 meetings @ 26 mi/meeting	$0.40/mi		$ 21
3.0 Supplies	Modeling Software	$5,000		$ 5,000
4.0 Subcontract	N/A	N/A		N/A
5.0 Total				$ 52,283

Table 4 shows the actual cost of engineering services, which includes the hourly rates of the team members and travel to and from the site. The actual cost was significantly less than the proposed cost due to the reduction in hours needed to complete the project compared to the proposed hours. Additionally, the team selected a free modeling software, so there were no modeling costs.

Table 4: Final Cost of Engineering Services

1.0 Personnel	Classification	Hours	Rate, $/hr	Cost
	SENG	63.5	194	$ 12,319
	ENG	93	78	$ 7,254
	INT	110.5	26	$ 2,873
	ADM	67	39	$ 2,613
	Total Personnel			$ 25,059
2.0 Travel	1 meeting @ 26 mi/meeting	$0.40/mi		$ 10
3.0 Supplies	Modeling Software	N/A		$ -
4.0 Total				$ 25,069