STATE OF NEW MEXICO
VILLAGE OF TAOS SKI VALLEY

RESOLUTION NO. 2019-389

A RESOLUTION TO APPROVE OF THE DISPOSAL OF CAPITAL EQUIPMENT OWNED BY THE VILLAGE OF TAOS SKI VALLEY

WHEREAS, the Village of Taos Ski Valley owns certain property which the Village cannot utilize in daily operations or items are obsolete; and,

WHEREAS, The Village has specifically identified such property herein; and,

WHEREAS, following the requirements of the New Mexico Department of Finance, it is mandatory to have Council approval by resolution prior to disposal of any assets; and,

WHEREAS, Village Staff believes it is in the best interest of the Village to dispose of assets via surplus auction, pursuant to State and Village requirements.

NOW, THEREFORE, BE IT HEREBY RESOLVED that the governing body of the Village of Taos Ski Valley, State of New Mexico hereby approves authorizes and directs that the Village of Taos Ski Valley dispose of the obsolete capital equipment.

PASSED, ADOPTED, AND APPROVED this 12th day of March, 2019.

VOTES: _____ Yes _____No

MUNCIPAL GOVERNING BOARD OF
VILLAGE OF TAOS SKI VALLEY, NEW MEXICO

_____
Mayor

ATTEST:

_____
Village Clerk

VILLAGE OF TAOS SKI VALLEY
Village Council
Agenda Item

AGENDA ITEM TITLE: **Discussion and Consideration to Approve a Change Order to the RMCI Contract for Not-to-Exceed $250,000 in the Construction of the Kachina Water Tank project.**

DATE: March 12, 2019

PRESENTED BY: John Avila, Village Administrator

STATUS OF AGENDA ITEM: New Business

CAN THIS ITEM BE RESCHEDULED: Not Recommended

BACKGROUND INFORMATION: This project is underway with engineering and preliminary construction in last year's building season. The extra cost associated with removing unusable fill and importing usable fill for the tank has been requested by RMCI through a change order. The Village has investigated various options to reduce costs and presented the analysis in the Council Workshop on February 12, 2019. Of the different workable options, the Contractor Change Order to replace material appears to be the most likely choice considering the time constraints of the climate and the Village's primary funding source.

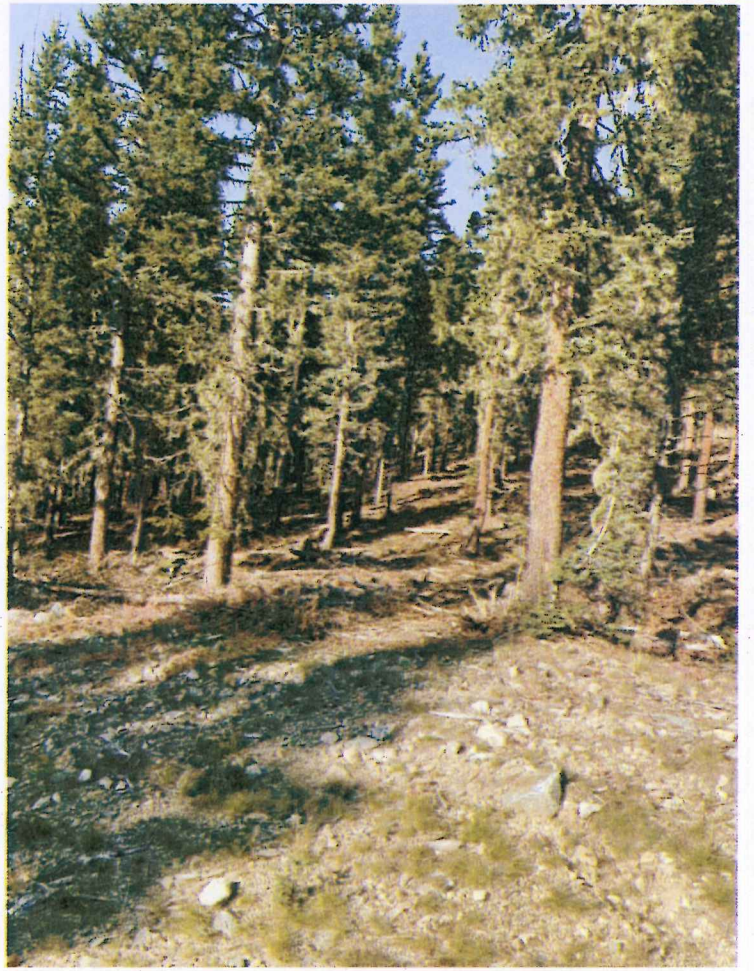
Once informal agreement has been reached, (FEI) Allen Plummer Associates, Inc. (APAI) will prepare the change order paperwork. The change order will be signed by RMCI, APAI, and the Village Authorization is requested for the Administrator to sign on behalf of the Village.

The Water Trust Board has allowed an extension of funding until November 2019 (see attached).

The Notice to Proceed needs to be approved before the construction season.

STAFF RECOMMENDATION: A motion is requested to approve proceeding with the Change Order to the RMCI contract to continue with construction of a subterranean Kachina Water Tank, and approval for the Village Administrator to sign the change order.

KACHINA WATER TANK
COST SAVING ALTERNATIVES



VILLAGE OF TAOS SKI VALLEY

COUNCIL WORK SESSION

FEBRUARY 12TH, 2019 12:30PM – 1:30PM

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PART OF ALAN PLUMMER ASSOCIATES

ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS AND SCIENTISTS

AGENDA

- Introduction: Kelly Fearney, PE Project Manager
- Kachina History Overview & Current Status
- Concrete Tank Alternatives
  - Option 1: Current Design Buried
  - Option 2: Redesign Raised and Buried
  - Option 3: Redesign Raised and Partially Buried
- Concrete vs. Steel Tank
  - Advantages and Disadvantages
  - Life Cycle Costs
- Conclusion
- Q&A

KACHINA TANK PROJECT LONG TERM HISTORY

- Long term planning
- Proposed in the McLaughlin June 2007 Water System Master Plan
- Original Geotech report by V&A in 2009
- Easement agreement finalized in 2011 and extended in 2015

RECENT HISTORY

- 2016: Designed as 250,000-gallon below grade concrete tan
- 2017: Bid Project
- 2017: TSVI asked the Village to look at alternative tank locations and/or a joint tank project
- Late 2017: Council decided to keep the Kachina Tank in the easement location
- Early 2018: Project re-bid
- Early 2018: Awarded to the lowest qualified bidder, RMCI

CURRENT STATUS

- In 2018 RMCI cleared and grubbed the site
- Extended the access road
- Completed/coordinated with Geo-Test to finalize the geotechnical report
- Installed the waterline and dry utilities up to the tank site
- Additional dry utilities extension also needed (to be performed by the Village)
- Tank overflow/drain line installed

CURRENT STATUS

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- Large cobbles and boulders have been encountered in the excavation
- The backfill specification was modified to allow for use of material up to 2 foot diameter in the backfill
- The Contract has unit bid pricing for rock excavation, hauling of cobbles, and import of fill
- RMCI's initial estimates for additional costs ranged from $400,000 to $900,000
- On December 11, 2018, the Village, FEI, and RMCI met for a special construction meeting
- RMCI had revisited their estimated and made modifications based on Geo-Tests latest recommendations
- RMCI now estimates the additional cost at $240,000

COST SAVINGS ALTERNATIVES

- **The Village has requested an evaluation of cost savings alternatives such as:**
  - Use of crushed glass as backfill
  - Use of rock crusher
  - Raising the tank
  - Installing a steel tank instead of concrete tank
- **However, to implement these cost savings ideas, redesign (more cost) would be required**
- **Additionally, aesthetics are a concern and changes may delay the project again and risk funding**

RAISING THE CONCRETE TANK ELEVATION

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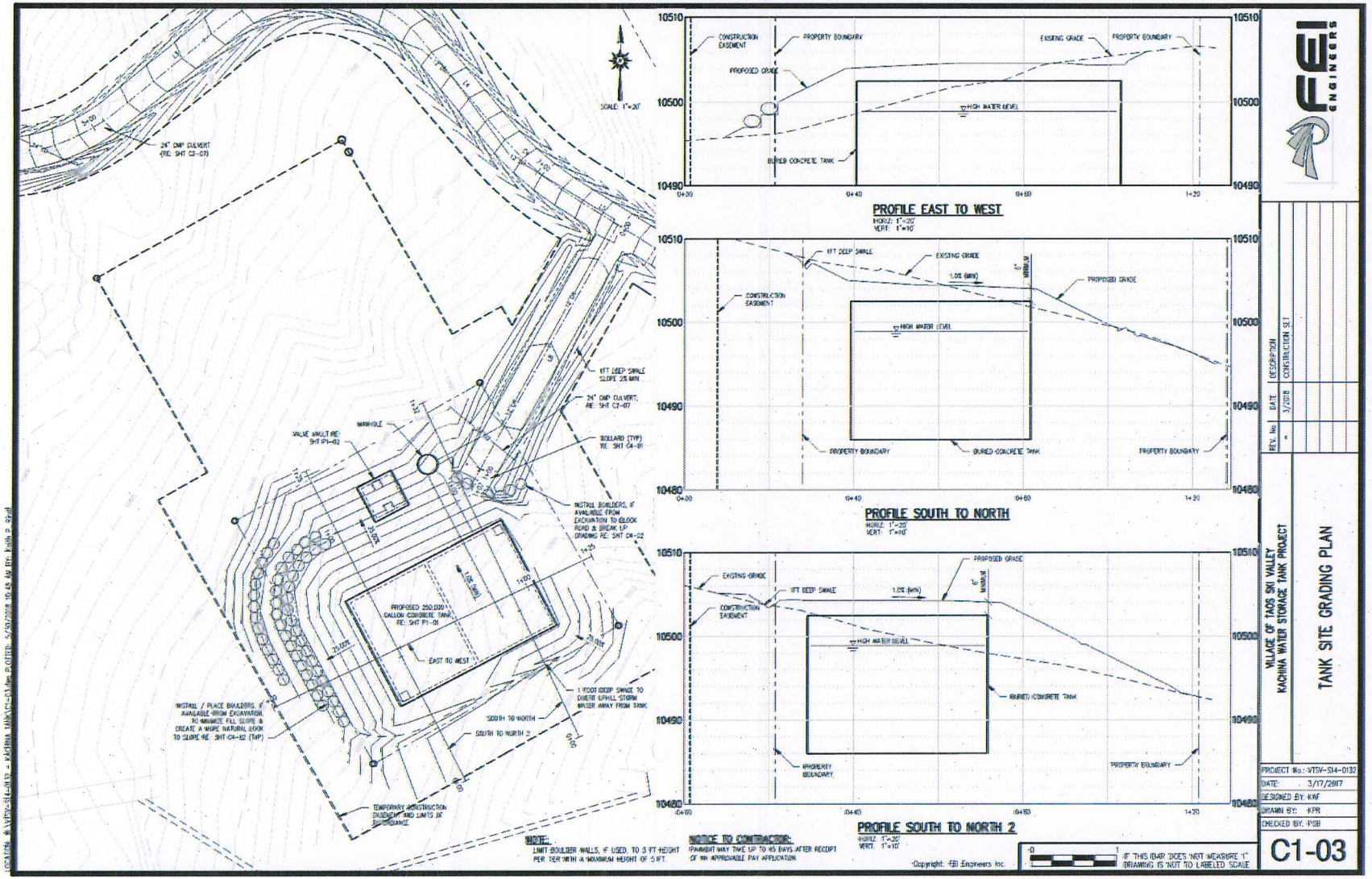
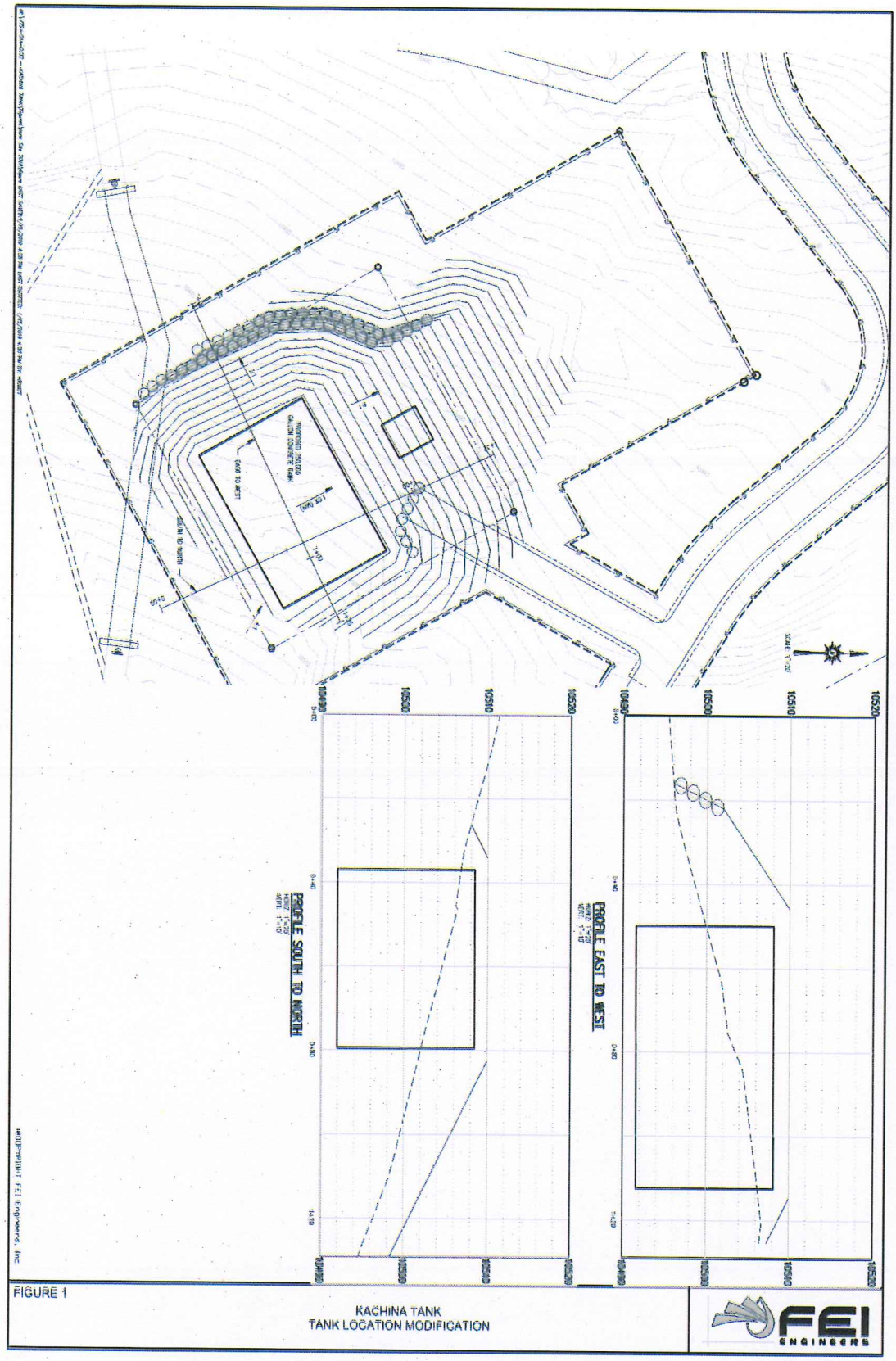
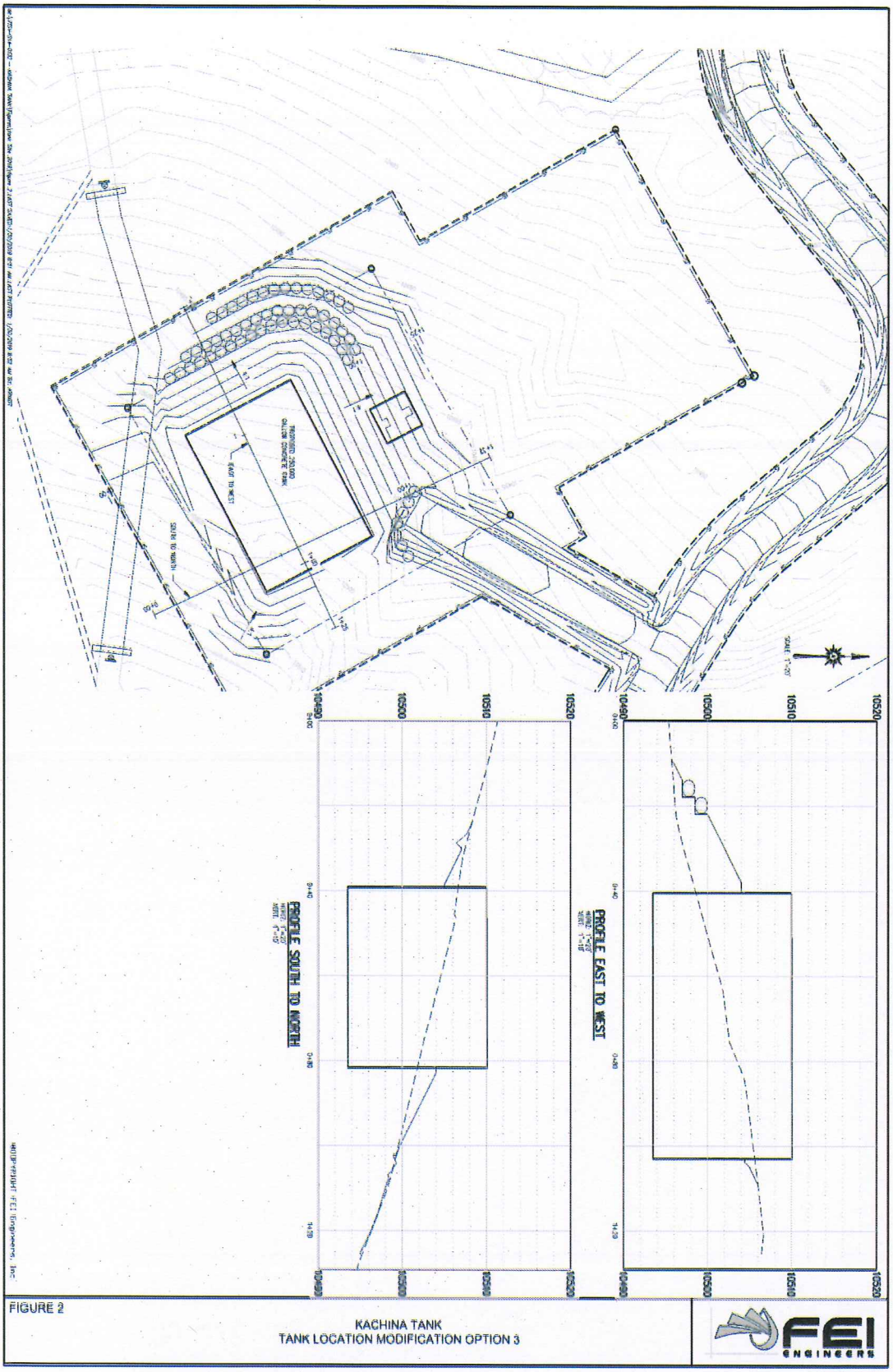
- **Concrete Tank Alternatives**
  - Option 1: Current Design Buried
  - Option 2: Redesign Raised and Buried
  - Option 3: Redesign Raised and Partially Buried

OPTION 1 – CURRENT DESIGN
FULLY BURIED





OPTION 2 – REDESIGN RAISED & FULLY BURIED



OPTION 3 – REDESIGN RAISED & PARTIALLY BURIED

COMPARISON OF FULLY VS. PARTIALLY BURIED CONCRETE TANK: OPTION 1

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	Option 1 (Current Design) – Fully Buried	
	Advantage	**Disadvantage**
Function & Design	○ Fully buried helps minimize freezing ○ Design is complete	○ Requires a significant amount of excavation (e.g. 20-ft below native grade in some areas) ○ Requires most material export
Cost	○ Site "balances"	○ CO#3 $240,000
Aesthetics	○ Fully buried will allow for site grading to revegetate	

COMPARISON OF FULLY VS. PARTIALLY BURIED CONCRETE TANK: OPTION 2

	Option 2 (Re-design) – Raised and Buried	
	Advantage	**Disadvantage**
Function & Design	○ Burial helps minimize freezing	○ Re-design required ○ Steeper slopes on sides of tank make access more challenging ○ Requires most material import
Cost		○ CO #3 $330,000 ○ Most expensive capital cost
Aesthetics	○ Fully buried	○ Use rock slopes (to minimize scree or talis fields) ○ Limited revegetation

COMPARISON OF FULLY VS. PARTIALLY BURIED CONCRETE TANK: OPTION 3

	Option 3 (Re-design) – Partially Buried	
	Advantage	**Disadvantage**
Function & Design	○ Partial burial and snow cover in the winter will help protect against freezing, along with mixers	○ Re-design required ○ Additional opportunities for vandalism (all hatches locked, but no fencing) ○ Still required material import
Cost	○ $40,000 construction cost savings	○ CO #3 $210,000
Aesthetics		○ 62.5-ft x 42.5-ft (2656-sf) concrete tank would stick up approximately 6-ft higher than surrounding grade

TANK MATERIAL

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Long Term Planning proposed a Concrete Tank…

What about using a Steel Tank?

PROS & CONS OF CONCRETE

	Concrete Tank	
	Advantage	**Disadvantage**
Design	o Fully or Partially Buried o Two Chambers to allow for one side to be isolated during low demand periods o Custom dimensions that fit the site o ~40'L x 60'W x 18'H	
Longevity, Safety, and Security	o Longest life 60-80 years o Difficult to vandalize o No fencing. Locked hatches	
Additional Considerations	o Fully buried will allow for site grading to revegetate o Above grade structures to include hatches and vents o Buried tank and thick walls less subject to freezing	
Cost	o Least expensive life cycle costs	o Most expensive capital (construction) cost

PROS & CONS OF STEEL

	Steel Tank (Welded or Bolted)	
	Advantage	**Disadvantage**
Design	o Material: Carbon Steel o Paint: Welded is Field Applied Epoxy/Urthane and Bolted is Factory Glass Fused to Steel o Roof: Aluminum Geodesic Dome o Foundation Concrete Ring Footer or Piers (TBD)	o Re-design required o Typically fully above grade (allows for maintenance) o 44' diameter x 24' high or 50' diameter x 16' high or 72' diameter x 8-1/2' high o Cathodic protection may be needed o More subject to freezing (above grade)
Longevity, Safety, and Security	o Welded steel can have comparable life, if maintained properly o Glass fused to steel does not require maintenance, but has shorter life 25-40 years	o Steel less likely to withstand possible impact from nearby avalanche shoot o More susceptible to vandalism such as gunshots
Additional Considerations	o Possibly less expensive capital costs o Shorter construction/erection once the site is prepped	o Longer water age (inability to create two chambers) o May be required to re-bid project o Contract may not be ready by start of 2019 construction season (risk of losing funding and/or easement)
Costs	o Less expensive capital (construction) cost	o More expensive capital (construction) cost

LIFE CYCLE COSTS

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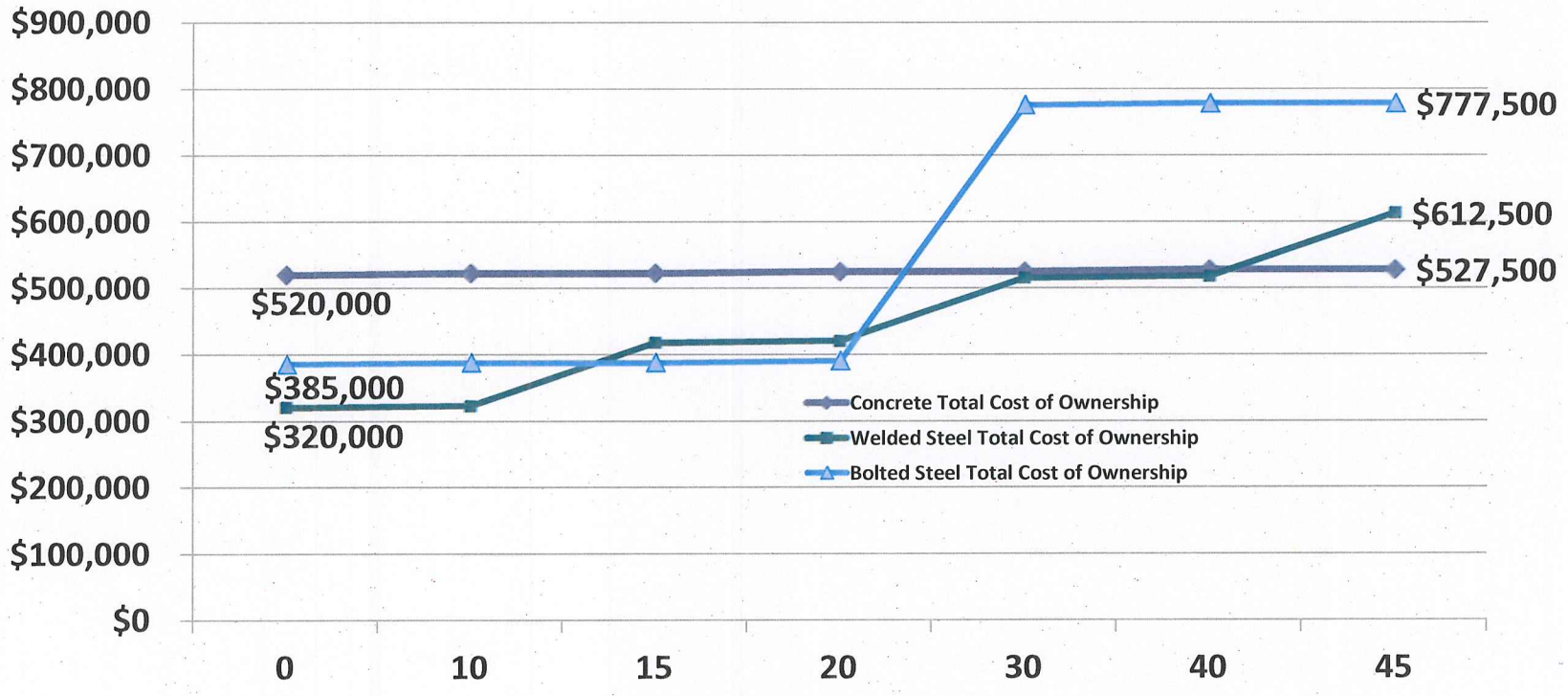
	Capital and Maintenance Cost Schedule			Cumulative Total Cost of Ownership		
Year	**Concrete**	**Welded Steel**	**Bolted Steel**	**Concrete**	**Welded Steel**	**Bolted Steel**
0	$520,000	$320,000	$385,000	$520,000	$320,000	$385,000
10	$2,500	$2,500	$2,500	$522,500	$322,500	$387,500
15	-	$95,000		$522,500	$417,500	$387,500
20	$2,500	$2,500	$2,500	$525,000	$420,000	$390,000
30	-	$95,000	$385,000	$525,000	$515,000	$775,000
40	$2,500	$2,500	$2,500	$527,500	$517,500	$777,500
45	-	$95,000		$527,500	$612,500	$777,500
Total	**$527,500**	**$612,500**	**$777,500**	**$527,500**	**$612,500**	**$777,500**

LIFE CYCLE COSTS



CONCLUSION

- For the Concrete Tank, Option 3 Raise and Partially Buried could save capital (construction costs)
- However, redesign is required, aesthetics are a concern, and TSVI may try to delay the project again
- A steel tank would likely reduce capital (construction costs), however, the life cycle costs are higher. Avalanche, aesthetics, freezing, and vandalism are also concerns
- Proceed with the current design

Questions & Discussion

Question: "How did this even happen? Didn't we have a contract with the contractor where everything is spelled out clearly? With the bid documents I saw and installation manual, it seems pretty difficult to get into the contract unaware of the risks and the situation. If we just needed to change the specifications of our fill, haven't we done that?"

Response: It is always difficult to predict subsurface conditions. The Contract documents had unit bid pricing for rock excavation, hauling and import. We have worked with Geo-Test to modify the backfill specifications to allow for use of larger cobble material.