Board of Adjustment Staff Report

Meeting Date: September 2, 2021 **Agenda Item: 8D**

SPECIAL USE PERMIT CASE NUMBER: WSUP21-0007 (Hidden Valley Reclaimed Water Tank)

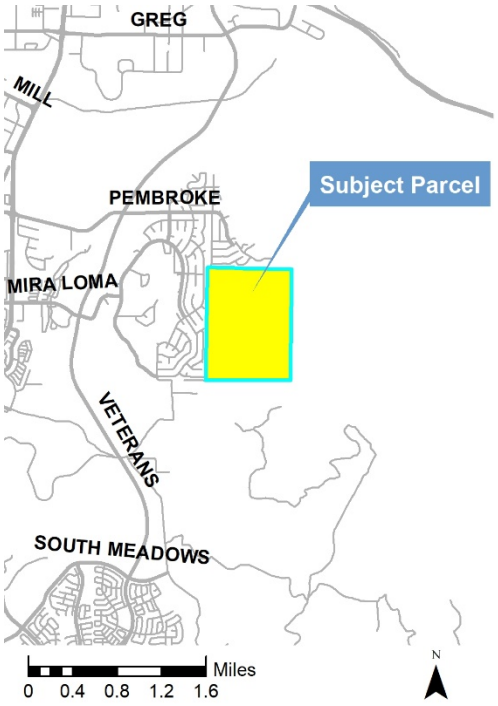
BRIEF SUMMARY OF REQUEST: To approve the construction of a 1,000,000-gallon water tank, and to modify landscaping and grading requirements.

STAFF PLANNER: Planners Name: Chris Bronczyk
Phone: 775.328.3612
Email: cbronczyk@washoecounty.us

CASE DESCRIPTION

For hearing, discussion, and possible action to approve the construction of a 1-million-gallon water tank. The request also involves modifying and varying grading standards and approving major grading to facilitate the construction of the water tank. The proposal includes the excavation of 22,863 cubic yards of earthen material, the importation of 6,000 cubic yards of earthen material, and the disturbance of 5.8 acres.

Applicant/Property Owner:	Washoe County
Location:	4740 Parkway Drive – Hidden Valley Regional Park
APN:	051-330-01
Parcel Size:	480 Acres
Master Plan:	Suburban Residential (SR)
Regulatory Zone:	Parks and Recreation (PR)
Area Plan:	Southeast Truckee Meadows
Development Code:	Authorized in Article 810, Special Use Permits; and Article 438, Grading Standards
Commission District:	2 – Commissioner Lucey



Vicinity Map

STAFF RECOMMENDATION

APPROVE **APPROVE WITH CONDITIONS** **DENY**

POSSIBLE MOTION

I move that, after giving reasoned consideration to the information contained in the staff report and information received during the public hearing, the Washoe County Board of Adjustment approve with conditions Special Use Permit Case Number WSUP21-0007 for the Hidden Valley Water Tank, with the conditions included as Exhibit A to this matter, having made all five findings in accordance with Washoe County Code Section 110.810.30:

(Motion with Findings on Page 10)

Staff Report Contents

Exhibits Contents

Special Use Permit

The purpose of a special use permit is to allow a method of review to identify any potential harmful impacts on adjacent properties or surrounding areas for uses that may be appropriate within a regulatory zone; and to provide for a procedure whereby such uses might be permitted by further restricting or conditioning them so as to mitigate or eliminate possible adverse impacts. If the Board of Adjustment grants an approval of the special use permit, that approval is subject to conditions of approval. Conditions of approval are requirements that need to be completed during different stages of the proposed project. Those stages are typically:

- Prior to permit issuance (i.e. a grading permit, a building permit, etc.)
- Prior to obtaining a final inspection and/or a certificate of occupancy on a structure
- Prior to the issuance of a business license or other permits/licenses
- Some conditions of approval are referred to as "operational conditions." These conditions must be continually complied with for the life of the business or project.

The conditions of approval for Special Use Permit Case Number WSUP21-0007 are attached to this staff report and will be included with the action order, if approved.

The subject property is designated as Parks and Recreation (PR). The proposed use of a 1-million-gallon water tank, which is classified as a civic use type, is permitted in the PR regulatory zone with a special use permit per Washoe County Code (WCC) Table 110.302.05.02. Additionally, this project triggers the major grading thresholds as established in WCC Section 110.438.35(a)(1)(C); Section 110.438.35(a)(2)(C); Section 110.438.35(a)(2)(C)(ii)(A); and Section 110.438.35(a)(2)(C)(ii)(B). Major grading also requires special use permit (SUP) approval. Therefore, the applicant is seeking approval of this SUP from the Board of Adjustment.

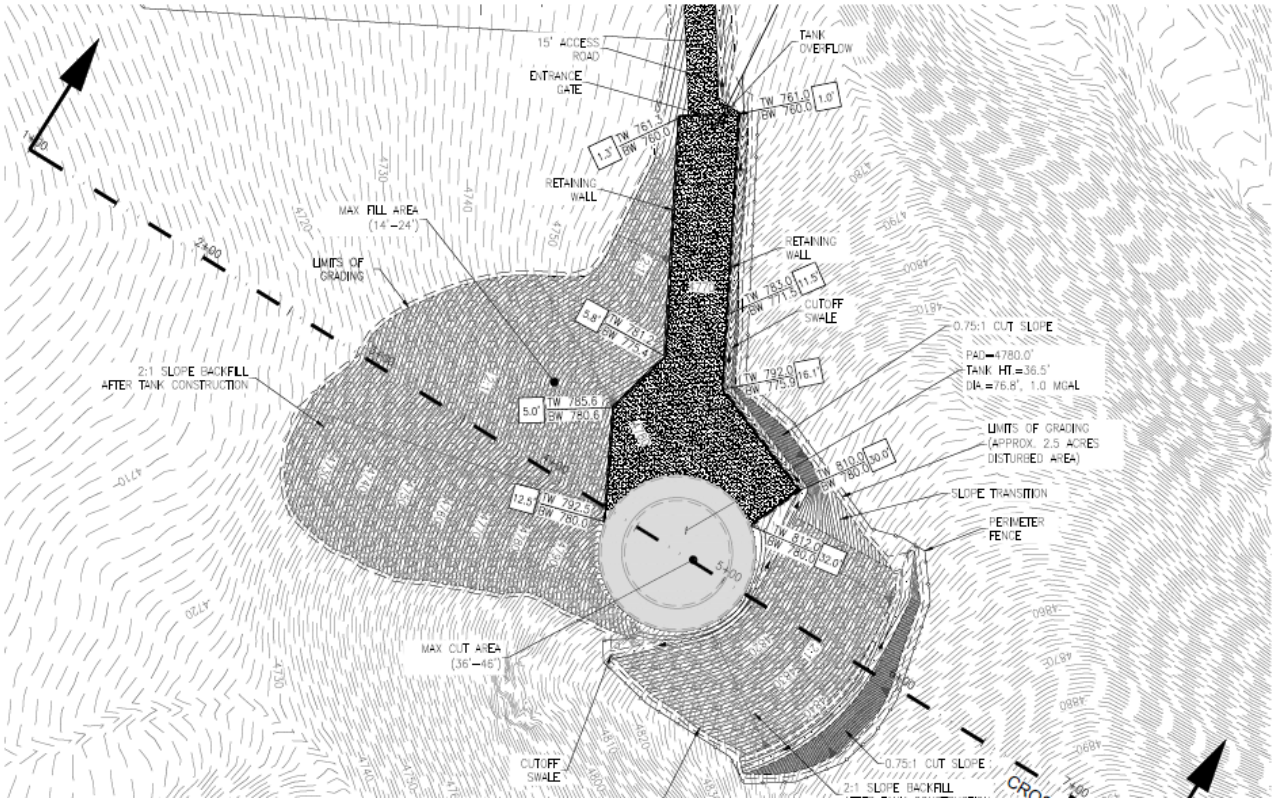
Further, Article 810, Special Use Permits, allows the Board of Adjustment to vary development code standards in conjunction with the approval process per WCC 110.810.20(e). Board of Adjustment will be ruling on the request(s) to vary standards below:

Relevant Code	Existing Code	Requested Variance
110.412.40(a)	A minimum twenty (20) percent of the total developed land area shall be landscaped. Any disturbance to undeveloped portions of a site shall be mitigated.	Remove the required 20% of the total developed land area to be landscaped.
110.438.45(a)	Grading shall not result in slopes in excess of, or steeper than, three horizontal to one vertical (3:1)	Allow for slopes greater than 3:1.
110.438.45(c)	Finish grading shall not vary from the natural slope by more than ten (10) feet in elevation.	Grading to vary more than 10 feet in elevation.

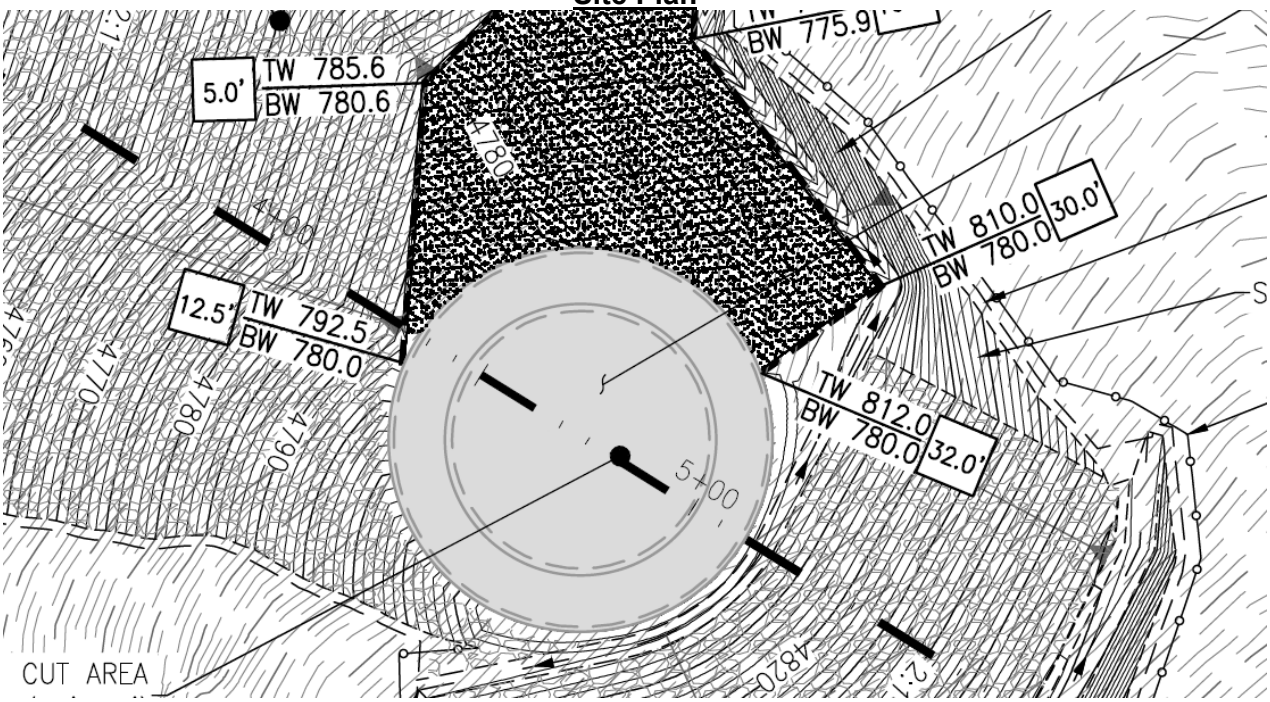
In addition to the above requested variances, the proposal will also need to vary Area Plan modifiers found in Article 212.

Relevant Code	Existing Code	Requested Variance
110.212.10(b)(1)	Grading shall not result in slopes on fill in excess of or steeper than four to one (4:1)	Allow for slopes greater than 3:1.
110.212.10(b)(2)	Not result in elevations or fill that differ from the natural grade by more than forty-eight (48) inches	Grading to vary more than 10 feet in elevation.
110.212.10(b)(3)	Be limited on cut slopes to equal to, or steeper than, three to one (3:1) and may include a rockery or manufactured masonry retaining wall with a maximum height of eight (8) feet. If necessary, one (1) additional retaining wall set	Allow for slopes greater than 3:1, and allow for retaining walls greater than 8 feet in elevation.

	back eight (8) feet from the first wall will be allowed.	



Site Plan



Site Plan Close Up

Project Evaluation

This application is a request for a special use permit to allow Washoe County to construct a 1,000,000-gallon water tank. The subject parcel is located in Hidden Valley Regional Park (APN: 051-330-01). The subject parcel has a Parks and Recreation (PR) regulatory zone designation, and the proposed water tank is classified as a civic use type. Per Table 110.302.05.2, utility services are permissible within the PR regulatory zone subject to the approval of a special use permit by the Board of Adjustment.

The tank design included within the proposed special use permit application was presented to the Washoe County Open Space and Regional Parks Commission on February 2, 2021, by Washoe County Planning and Building Division staff. Washoe County's Utility Program is responsible for the management and treatment of wastewater. Washoe County's Utility Program treats an average of five million gallons of wastewater per day at three regional wastewater plants, including the South Truckee Meadows Water Reclamation Facility (STMWRF). STMWRF is undergoing an expansion to align with current and future growth. As part of the expansion project, the Utility Team is identifying potential locations for the distribution of treated effluent water and one of those potential locations is Hidden Valley Regional Park. The region, as a whole, is likely to generate more reclaimed/treater effluent than can currently be used since only commercial, industrial, and civic projects can use it, and the use can generally only go towards landscaping and golf course irrigation. In order to distribute treated effluent water at the park, a new water tank would need to be constructed and the park's existing potable water irrigation system would need to be converted to a reclaimed water irrigation system. This new water source would ultimately allow for additional landscaping and other potential amenities and would also allow for a portion of the potable water, currently in use, at the park to be utilized for other municipal purposes.

The reclaim water from the proposed expansion will be used to irrigate park facilities, potential service to the Hidden Valley Country Club golf course, and future park greenbelt improvements. The proposed reclaim facility will also be integrated with the City of Reno's reclaim system for regional benefits. With the transition from potable water use within Hidden Valley Regional Park to reclaim water, the potable water use within the park can be reallocated for other purposes.

The tank is proposed to be located within an undeveloped area of the Hidden Valley Regional Park, at the eastern portion of the park site, within the foothills of the Virginia Range. The site was chosen due to the elevation needed to meet system pressure criteria, but also due to the topographic features that will help to mitigate the visual impact of the project. The proposed tank would be partially buried and 'tucked' into the hillside and would be painted an earth tone color to provide the least visual impacts to the park and surrounding areas. The tank location does not conflict with any park amenities, nor does it conflict with any trails.

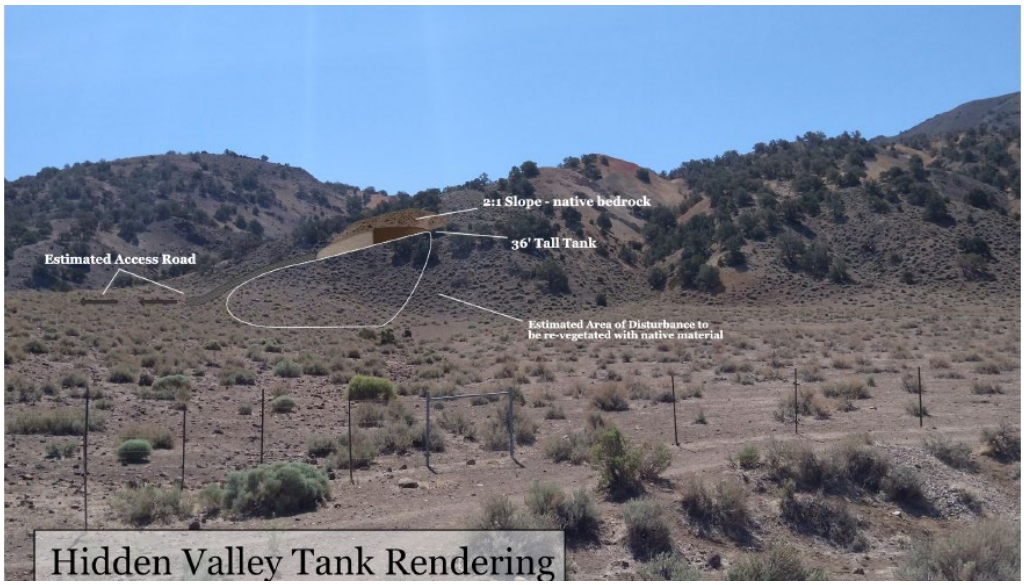


Photo Simulation

The proposed 1-million-gallon prestressed concrete tank would be 36 feet 6 inches tall at the center and 77 feet in diameter. The tank pad is set at an elevation of 4,780 feet, giving a top of tank elevation of approximately 4,816.5 feet. Both welded steel and prestressed concrete were evaluated for the subject site, and prestressed concrete was chosen due to the ability to place backfill against the tank. The applicant states that by backfilling the reinforced concrete tank and constructing walls interior of the backfilled areas at the tank access point on the north side, a significant portion of the tank will be hidden from view. The applicant further states that the tank material selection and grading strategy proposed provide the smallest disturbed area and the largest amount of screening of the proposed tank of all scenarios analyzed during the preliminary design stage.

Other project elements would include a 6-foot-tall vinyl coated chain link fence surrounding the tank for security purposes and the installation of ±11,000 lineal feet of 20/24-inch pipeline to connect the tank to STMWRF of which 3,865-feet of this pipeline is located within the park boundary. The project also includes the construction of a 15-foot-wide gravel road, approximately 2,000 lineal feet in length, which will provide access to the tank for operations and maintenance purposes. The disturbed area associated with construction, excluding the access road, is proposed to be ±2.5 acres, with ±1.6 acres proposed to be revegetated. Below is a table anticipating total disturbance.

Park Benefits

Construction of the water tank and pipeline would allow for the conversion of the park's existing potable water irrigation system to a reclaimed water irrigation system. Potable water would be maintained for drinking fountains, but any landscaping could utilize reclaimed water. Additionally, this less expensive, sustainable water source would allow for the installation of further landscaping improvements and other park amenities. The potable water rights currently in use at the park could also be utilized for other purposes.

Landscaping Waiver

Per WCC Section 110.412.40(a), development classified under the civic use type, such as a water tank, requires a minimum of 20% of the total developed land area to be landscaped. The applicant has requested to vary this standard, and Washoe County Parks included a condition requesting no ornamental landscaping around the proposed development. Staff agrees that ornamental landscaping around the proposed development would be inappropriate as it would not blend in with the native vegetation (actually drawing attention to the site), as well as require the installation of additional permanent irrigation infrastructure.

Due to the grading that is required as part of the proposed water tank, the applicant is proposing temporary irrigation in an effort to ensure slope stability. Geofabric will be used along with revegetation with a native seed mix to provide vegetation similar to what exists in the area of disturbance. The revegetated areas will be provided with temporary irrigation to ensure that the native seed mix becomes established vegetation. The water for the temporary irrigation is likely to be reclaimed water that is stored in the proposed water tank and will require a temporary booster pump on a temporary generator to provide spray irrigation for the revegetated slope. The applicant states that once the vegetation is successfully established, the temporary irrigation facilities will be removed.

Grading

The proposed project triggers the following code sections related to major grading:

Section 110.438.35(a)(1)(C)	Grading of an area of more than four (4) acres on a parcel of any size
Section 110.438.35(a)(2)(i)(C)	Grading of more than two (2) acres on any size parcel on slopes of fifteen (15) percent or greater (steeper)
Section 110.438.35(a)(2)(ii)(A)	Excavation of one thousand (1,000) cubic yards or more whether the material is intended to be permanently located on the project site or temporarily stored on a site for relocation to another, final site, or;
Section 110.438.35(a)(2)(ii)(B)	Importation of one thousand (1,000) cubic yards or more whether the material is intended to be permanently located on the project site or temporarily stored on a site for relocation to another, final site; or

The proposed project includes the excavation of 22,863 cubic yards of earthen material, the importation of 6,000 cubic yards of earthen material, and the disturbance of 5.8 acres.

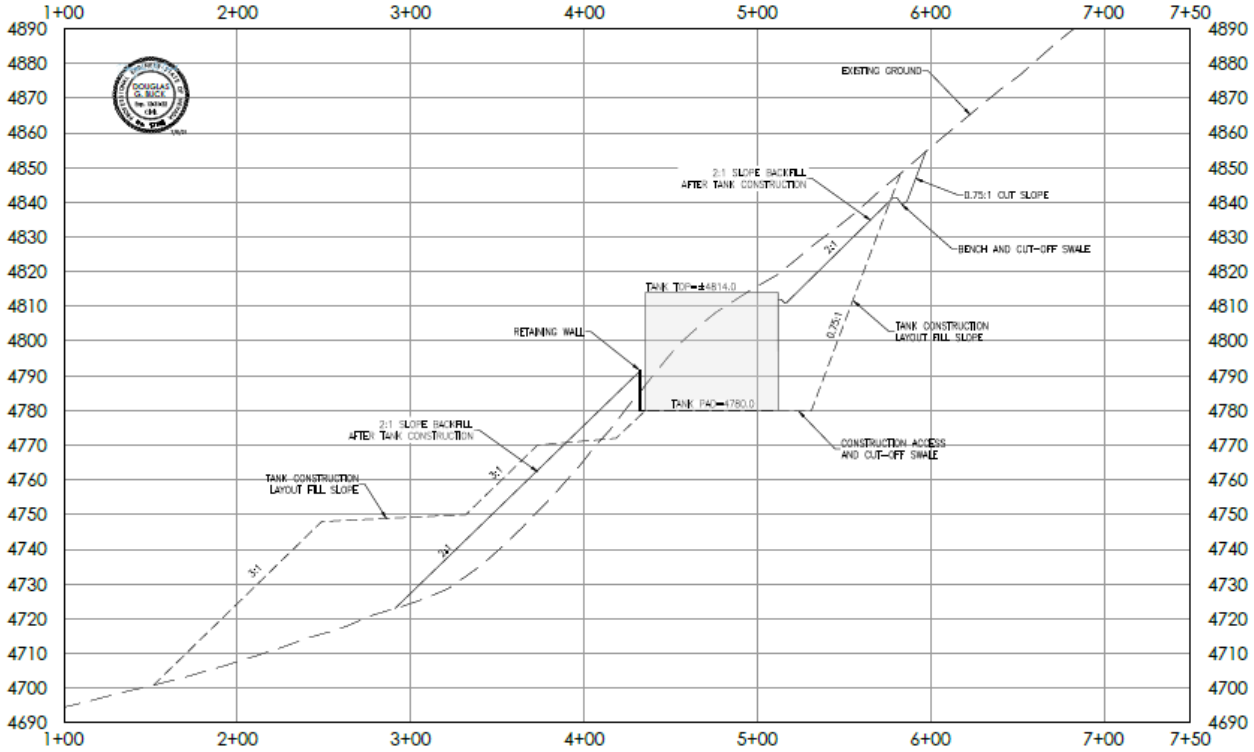
Section 110.438.35(a)(1)(C) applies to grading on slopes less than 15%. This section of code requires a special use permit for grading of an area larger than 4 acres on a parcel of any size. With the additional grading required for the access roadway, the tank construction process, and the grading required for the tank pad site, the total amount of grading will result in a total of 3.5 acres on slopes less than 15%. The applicant included discussion of this section of code to ensure that they were in full compliance with Washoe County standards.

Section 110.438.35(a)(2)(i)(C) applies to grading on slopes that are 15% or greater (steeper). The special use permit will allow for grading on slopes of 15% or greater to exceed the 2-acre threshold, the proposed disturbance area is 2.5 acres. Sections 110.438.35(a)(2)(ii)(A) and (B) are specific to grading volume standards on slopes greater than 15%. The tank site will require approximately 29,163 cubic yards of grading, specifically 22,863 cubic yards of cut and 6,000 cubic yards of importation. Section 110.438.35(a)(2)(ii)(B) is specific to importation, the major grading criteria are required to allow for greater than 1,000 cubic yards of importation. The request includes 6,000 cubic yards of importation.

Modification and Variance of Grading Standards

As part of the proposal, the applicant is requesting to vary 3 grading standards. First, they are requesting cut slopes to be greater than 3:1 slope, which is not allowed per WCC Section 110.438.45(a). The applicant argues that allowing greater than 3:1 will greatly reduce the amount of overall disturbance and scarring of the surrounding areas. Additionally, it is argued that greater than 3:1 slope will allow for a better blend with the natural slopes and existing terrain. The area

behind the tank will be excavated at 0.75:1 but will remain permanently stable due to existing bedrock, this slope is a permanently stable slope. This area behind the tank will extend roughly 43 feet above the tank (4,816 feet), to approximately 4,859 feet.



Cross Section of Tank

The applicant is also requesting to vary WCC Section 110.438.45(c), which states that finish grading shall not vary from the natural slope by more than ten feet in elevation unless approved by a director's modification of standards or upon recommendation by the County Engineer for cuts into stable rock, as supported by a geotechnical report. The maximum cut slope and retaining wall height proposed for the water tank is ±32 feet, which exceeds the standard by ±22 feet.

The proposed finished grading would vary from the natural slope significantly, rather than the required 10 feet, and the retaining wall height does exceed the maximum height permissible with a director's modification of standard. The retaining walls themselves would be substantially screened by the water tank, and by the overall layout of the proposed water tank and access roads.

In addition to the standards found in Article 438, the proposal will also require varying the grading standards found within the Hidden Valley Modifiers. Section 110.212.10(a)(1)(b)(1) prohibits slopes on fill to be in excess of or steeper than four to one (4:1). Section 110.212.10(a)(1)(b)(2) states that finished grades shall not vary from the natural slope by more than four feet in elevation, and Section 110.212.10(a)(1)(b)(3) limits the slope on cuts to three to one (3:1), as well as retaining walls to a maximum height of 8 feet. The design and paint colors proposed are intended to mitigate visual impacts significantly. Staff is supportive of the applicant's proposal as construction of a 4:1 or 3:1 slope and requiring the applicant to construct multiple retaining walls with a terrace between would result in significantly more overall ground disturbance. Therefore, staff recommends approval of the proposed varied standards.

Area Plan Evaluation

The subject parcel is located within the Southeast Truckee Meadows Area Plan. The following are the pertinent policies from the Area Plan:

Relevant Area Plan Policies Reviewed

Policy	Brief Policy Description	Complies	Condition of Approval
SETM 8.2	The Washoe County Departments of Community Development and Public Works will establish and oversee compliance with standards for grading that minimize the visual impact of all residential and non-residential hillside development.	Yes	None
SETM 8.3	The grading design standards referred to in Policy SETM.8.2 will, at a minimum, ensure that disturbed areas shall be finished, and fill slopes will not exceed a 3:1 slope, and that hillside grading will establish an undulating naturalistic appearance by creating varying curvilinear contours	No	No condition, applicant is requesting to waive the 3:1 slope requirement as part of this proposed application.
SETM 8.6	New water storage tanks will be sited on hillsides in such a way as to be shielded from view by the natural topography as much as possible and will not be located within areas designated as Open Space or near trails.	Yes	No condition

Reviewing Agencies

The following agencies/individuals received a copy of the project application for review and evaluation.

Agency	Sent to Review	Responded	Provided Conditions	Contact
Nevada Div. of Wildlife	☒	☐	☐	
Washoe County Building & Safety	☒	☐	☐	
Washoe County Parks & Open Spaces	☒	☒	☐	Sophia Kirschenman, skirschenman@washoecounty.us
Washoe County Planning	☒	☒	☒	Chris Bronczyk, cbronczyk@washoecounty.us
Washoe County Water Rights	☒	☐	☐	
Washoe County Engineering	☒	☒	☒	Walt West, wwest@washoecounty.us
Washoe County Sherriff	☒	☐	☐	
WCHD – Air Quality	☒	☒	☒	Genine Rosa, grosa@washoecounty.us
WCHD – Environment Health	☒	☒	☒	David Kelly, dakelly@washoecounty.us
WCHD - EMS	☒	☒	☐	
Truckee Meadows Fire Protection District	☒	☒	☒	Brittany Lemon, blemon@tmfpd.us
RTC Washoe	☒	☒	☐	

Washoe Storey Conservation District	☒	☒	☐	

All conditions required by the contacted agencies can be found in Exhibit A, Conditions of Approval.

Staff Comment on Required Findings

WCC Section 110.810.30, Article 810, *Special Use Permits*, requires that all of the following findings be made to the satisfaction of the Washoe County Board of Adjustment before granting approval of the request. Staff has completed an analysis of the special use permit application and has determined that the proposal is in compliance with the required findings as follows.

1. Consistency. That the proposed use is consistent with the action programs, policies, standards and maps of the Master Plan and the Southeast Truckee Meadows Area Plan.

   Staff Comment: The proposed water tank is consistent with the action programs, policies, standards, and maps of the Master Plan and the Southeast Truckee Meadows Area Plan.

2. Improvements. That adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities have been provided, the proposed improvements are properly related to existing and proposed roadways, and an adequate public facilities determination has been made in accordance with Division Seven.

   Staff Comment: The proposed 1-million-gallon water tank will be accessed via existing access roads and will connect to a proposed waterline.

3. Site Suitability. That the site is physically suitable for a 1-million-gallon water tank, and for the intensity of such a development.

   Staff Comment: The subject site is a public park with a mix of developed area, trails, and steep hills. The proposed location for the water tank is steep and will require significant grading to allow for the construction of the proposed water tank. It should be noted that a multiple locations within the park were looked at for the proposed water tank, and multiple designs were looked at. The design submitted results in the most amount of natural shielding.

4. Issuance Not Detrimental. That issuance of the permit will not be significantly detrimental to the public health, safety or welfare; injurious to the property or improvements of adjacent properties; or detrimental to the character of the surrounding area.

   Staff Comment: As proposed and with the Conditions of Approval, the proposed uses are expected to create minimal impacts and not cause significant detriment or injury to the public, adjacent properties, or surrounding area.

5. Effect on a Military Installation. Issuance of the permit will not have a detrimental effect on the location, purpose or mission of the military installation.

   Staff Comment: No military installations are located within the required noticing distance; therefore, this finding does not apply to this project.

Recommendation

After a thorough analysis and review, Special Use Permit Case Number WSUP21-0007 is being recommended for approval with conditions. Staff offers the following motion for the Board's consideration.

Motion

I move that, after giving reasoned consideration to the information contained in the staff report and information received during the public hearing, the Washoe County Board of Adjustment approve with conditions Special Use Permit Case Number WSUP21-0007 for Applicant Name, with the

conditions included as Exhibit A to this matter, having made all five findings in accordance with Washoe County Code Section 110.810.30:

1. Consistency. That the proposed use is consistent with the action programs, policies, standards and maps of the Master Plan and the Southeast Truckee Meadows Area Plan;
2. Improvements. That adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities have been provided, the proposed improvements are properly related to existing and proposed roadways, and an adequate public facilities determination has been made in accordance with Division Seven;
3. Site Suitability. That the site is physically suitable for a 1-million gallon water tank, and for the intensity of such a development;
4. Issuance Not Detrimental. That issuance of the permit will not be significantly detrimental to the public health, safety or welfare; injurious to the property or improvements of adjacent properties; or detrimental to the character of the surrounding area;
5. Effect on a Military Installation. Issuance of the permit will not have a detrimental effect on the location, purpose or mission of the military installation.

Appeal Process

Board of Adjustment action will be effective 10 calendar days after the written decision is filed with the Secretary to the Board of Adjustment and mailed to the applicant, unless the action is appealed to the Washoe County Board of County Commissioners, in which case the outcome of the appeal shall be determined by the Washoe County Board of County Commissioners. Any appeal must be filed in writing with the Planning and Building Division within 10 calendar days from the date the written decision is filed with the Secretary to the Board of Adjustment and mailed to the applicant.

Applicant:	Washoe County 1001 East Ninth Street, Building A Reno, NV 89512 Attn: Alan Jones
Email:	Ajones@washoecounty.us
Owner:	Washoe County 1001 East Ninth Street, Building A Reno, NV 89512
Representatives:	Christy Corporation, Ltd. 1000 Kiley Parkway Sparks, NV 89436 Attn: Mike Railey
Email:	mike@christynv.com

Conditions of Approval

Special Use Permit Case Number WSUP21-0007

The project approved under Special Use Permit Case Number WSUP21-0007 shall be carried out in accordance with the conditions of approval granted by the Board of Adjustment on September 2, 2021. Conditions of approval are requirements placed on a permit or development by each reviewing agency. These conditions of approval may require submittal of documents, applications, fees, inspections, amendments to plans, and more. These conditions do not relieve the applicant of the obligation to obtain any other approvals and licenses from relevant authorities required under any other act.

Unless otherwise specified, all conditions related to the approval of this special use permit shall be met or financial assurance must be provided to satisfy the conditions of approval prior to issuance of a grading or building permit. The agency responsible for determining compliance with a specific condition shall determine whether the condition must be fully completed or whether the applicant shall be offered the option of providing financial assurance. All agreements, easements, or other documentation required by these conditions shall have a copy filed with the County Engineer and the Planning and Building Division.

Compliance with the conditions of approval related to this special use permit is the responsibility of the applicant, his/her successor in interest, and all owners, assignees, and occupants of the property and their successors in interest. Failure to comply with any of the conditions imposed in the approval of the special use permit may result in the institution of revocation procedures.

Washoe County reserves the right to review and revise the conditions of approval related to this Special Use Permit should it be determined that a subsequent license or permit issued by Washoe County violates the intent of this approval.

For the purpose of conditions imposed by Washoe County, “may” is permissive and “shall” or “must” is mandatory.

Conditions of approval are usually complied with at different stages of the proposed project. Those stages are typically:

- Prior to permit issuance (i.e., grading permits, building permits, etc.).
- Prior to obtaining a final inspection and/or a certificate of occupancy.
- Prior to the issuance of a business license or other permits/licenses.
- Some “ conditions of approval” are referred to as “operational conditions.” These conditions must be continually complied with for the life of the project or business.

FOLLOWING ARE CONDITIONS OF APPROVAL REQUIRED BY THE REVIEWING AGENCIES. EACH CONDITION MUST BE MET TO THE SATISFACTION OF THE ISSUING AGENCY.

Washoe County Planning and Building Division

1. The following conditions are requirements of Planning and Building, which shall be responsible for determining compliance with these conditions.

   Contact Name – Chris Bronczyk; 775.328.3612; cbronczyk@washoecounty.us

a. The applicant shall attach a copy of the action order approving this project to all permits and applications (including building permits) applied for as part of this special use permit.

b. The applicant shall demonstrate substantial conformance to the plans approved as part of this special use permit. The Planning and Building Division shall determine compliance with this condition.

c. The applicant shall submit construction plans, with all information necessary for comprehensive review by Washoe County, and initial building permits shall be issued within two years from the date of approval by Washoe County. The applicant shall complete construction within the time specified by the building permits. Compliance with this condition shall be determined by the Planning and Building Division.

d. A note shall be placed on all construction drawings and grading plans stating:

NOTE

> Should any cairn or grave of a Native American be discovered during site development, work shall temporarily be halted at the specific site and the Sheriff's Office as well as the State Historic Preservation Office of the Department of Conservation and Natural Resources shall be immediately notified per NRS 383.170.

e. All undeveloped disturbed areas shall be revegetated utilizing a native, dryland seed mix as reviewed and approved by the Washoe County Parks Program. Revegetation shall occur as soon as practicable after construction.

f. The tank shall be painted in a muted color to blend with its surroundings.

g. The following **Operational Conditions** shall be required for the life of the business:

i. This special use permit shall remain in effect until or unless it is revoked or is inactive for one year.

ii. Failure to comply with any of the conditions of approval shall render this approval out of conformance and subject to revocation.

Washoe County Parks and Open Space

2. The following conditions are requirements of the Washoe County Parks and Open Space program, which shall be responsible for determining compliance with these conditions.

Contact Name – Sophia Kirschenman; skirschenman@washoecounty.us

a. All imported fill materials shall be "certified weed free" to prevent the spread of noxious weeds in the park.

b. Prior to the issuance of building or grading permits, a Revegetation Plan shall be reviewed and approved by the Washoe County Parks Program. At a minimum, the plan shall include: existing site conditions; the area of impact; restoration goals; selection of native/perennial adapted plants or seed mixes; revegetation methods; measures to prevent the spread of noxious weeds; revegetation success criteria; and appropriate monitoring provisions.

c. The applicant shall provide temporary irrigation to support revegetation efforts, but the Parks Program does not support the installation of ornamental landscaping in the project area as this would not blend with the native vegetation or the surrounding environment.

d. Prior to the issuance of building or grading permits, the Bureau of Land Management must provide written confirmation that the proposal is in conformance with the terms of the Recreation and Public Purposes Act.

e. Construction hours will be limited to Monday – Friday between 8:00 am and 7:00 pm.

f. The tank shall be painted a color that better blends with the natural environment including all retaining walls.

g. The applicant shall notify Park Program staff at least five (5) business days prior to the start of construction and shall coordinate any trail closures or re-routes with Parks Program staff.

h. Should any fences or gates need to be taken down for access purposes, the applicant shall be responsible for repairing and/or replacing the fences and/or gates.

Washoe-Storey Conservation District

3. The following conditions are requirements of the Washoe-Storey Conservation District, which shall be responsible for determining compliance with these conditions.

   Contact Name – Jim Shaffer, shafferjam51@gmail.com

   a. A revegetation plan prepared by a qualified professional that includes a seed mix based on soil type, a contingency water plan, fertilizer plan, erosion control structures and a monitoring plan with updates provided to the Conservation District after the completion of the growing season (October 31) every year for a three year period. The revegetation must have a contingency irrigation plan for our approval.

   b. To prevent the spread of noxious weeds concerning the importation of material, the applicant shall collaborate with the Conservation District to develop an onsite noxious weeds management plan to ensure weed seeds do not impact other areas, utilizing certified weed free material.

Washoe County Engineering and Capital Projects

4. The following conditions are requirements of the Engineering Division, which shall be responsible for determining compliance with these conditions.

   Contact Name – Robert Wimer, P.E.; 775.328.2059; rwimer@washoecounty.us

GENERAL CONDITIONS

   a. A complete set of construction improvement drawings, including an on-site grading plan, shall be submitted when applying for a building/grading permit. Grading shall comply with best management practices (BMPs) and shall include detailed plans for grading, site drainage, erosion control (including BMP locations and installation details), slope stabilization, and mosquito abatement. Placement or removal of any excavated materials shall be indicated on the grading plan. Silts shall be controlled on-site and not allowed onto adjacent property.

   b. The developer shall obtain from the Nevada Division of Environmental Protection a Stormwater Discharge Permit and submit a copy to the Engineering Division prior to issuance of a grading permit.

   c. The Truckee Meadows Regional Stormwater Quality Management Program Construction Permit Submittal Checklists and Inspection Fee shall be submitted with the grading permit.

d. Other than grading standards modified by this SUP, all grading shall be in accordance with Article 110.438 Grading Standards. This SUP approval allows for the construction of 2:1 slopes and select areas of 0.75:1 as per preliminary plan submittal with this application.

e. Appropriate drainage facilities for tank overflow and drainage shall be extended to a natural or improved drainage system.

f. All slopes steeper than 3:1 shall be mechanically stabilized to control erosion. As an alternative to riprap, an engineered solution (geo-fabric, etc.) may be acceptable.

g. All disturbed areas left undeveloped for more than 30 days shall be treated with a dust palliative. Disturbed areas left undeveloped for more than 45 days shall be revegetated. Specifications for revegetation procedure and seed mix shall be prepared by a licensed landscape architect.

Washoe County Air Quality Management

5. The following conditions are requirements of the Washoe County Air Quality Management Division, which shall be responsible for determining compliance with these conditions.

   Contact Name – Genine Rosa, grosa@washoecounty.us

   a. A Dust Control Permit will be required prior to breaking ground, failure to do so may result in enforcement action resulting in a Notice of Violation with associated fines. For Dust Control Permit questions call AQMD at 775-784-7200 or visit www.OurCleanAir.com.

Truckee Meadows Fire Protection District (TMFPD)

6. The following conditions are requirements of the Fire Protection District, which shall be responsible for determining compliance with these conditions.

   Contact Name – Dale Way/Brittany Lemon, 775.326.6000, dway@tmfpd.us/blemon@tmfpd.us

   a. This project shall meet and comply with all requirements of currently adopted TMFPD fire codes, ordinances, and standards at the time of construction to include infrastructure for fire apparatus access roads and water supply. https://tmfpd.us/fire-code/

Washoe County Health District

7. The following conditions are requirements of the Washoe County Health District, which shall be responsible for determining compliance with these conditions.

   Contact Name – David Kelly, dakelly@washoecounty.us

   a. EHS has no objections with the project as proposed provided that all reclaimed water lines utilize the appropriate colored piping and any connections are adequately back flow protected.

*** End of Conditions ***

From: Rosa, Genine
To: Bronczyk, Christopher
Subject: Third Review of Applications Submitted July 2021
Date: Tuesday, July 20, 2021 4:49:50 PM

Administrative Permit Case Number WADMIN21-0009 (5100 W 1st)
Dust Control Permit will be required prior to breaking ground, failure to do so may result in enforcement action resulting in a Notice of Violation with associated fines. For Dust Control Permit questions call AQMD at 775-784-7200 or visit www.OurCleanAir.com.
Link to application: Dust Control Permit Application

Special Use Permit Case Number WSUP21-0007 (Hidden Valley Reclaimed Water Tank)
Dust Control Permit will be required prior to breaking ground, failure to do so may result in enforcement action resulting in a Notice of Violation with associated fines. For Dust Control Permit questions call AQMD at 775-784-7200 or visit www.OurCleanAir.com.
Link to application: Dust Control Permit Application

Special Use Permit Case Number WSUP21-0009 (Cheyenne Drive)
Dust Control Permit will be required prior to breaking ground, failure to do so may result in enforcement action resulting in a Notice of Violation with associated fines. For Dust Control Permit questions call AQMD at 775-784-7200 or visit www.OurCleanAir.com.
Link to application: Dust Control Permit Application

P.S. – Please be sure to click the link below and sign up to receive air quality news, updates, public notices and more via e-mail.

Genine Rosa
Environmental Engineer II | Air Quality Management Division | Washoe County Health District
grosa@washoecounty.us | O: (775) 784-7204 | 1001 E. Ninth St., Bldg. B, Reno, NV 89512

*My schedule is 4 x 10's M-Th 7-5:30 off on Fridays.

www.OurCleanAir.com | Subscribe to get Air Quality Updates!

WASHOE COUNTY HEALTH DISTRICT
ENHANCING QUALITY OF LIFE
Public Health

Please take our customer satisfaction survey by clicking here

WASHOE COUNTY
COMMUNITY SERVICES DEPARTMENT
Engineering and Capital Projects

1001 EAST 9TH STREET
RENO, NEVADA 89512
PHONE (775) 328-3600
FAX (775) 328.3699

Date: July 28, 2021

To: Chris Bronczyk, Planner

From: Robert Wimer, P.E., Licensed Engineer

Re: Special Use Permit Case **WSUP21-0007 – Hidden Valley Reclaimed Water Tank**
APN 051-330-01

GENERAL PROJECT DISCUSSION

Washoe County Engineering staff has reviewed the above referenced application. The Special Use Permit is to modify and vary grading standards and approve major grading to facilitate the construction of a 1 million gallon water tank. The proposal includes the excavation of 22,863 cubic yards of earthen material, the importation of 6,000 cubic yards of earthen material, and the disturbance of 5.8 acres. The Engineering and Capital Projects Division recommends approval with the following comments and conditions of approval which supplement applicable County Code and are based upon our review of the site and the application prepared by Christy Corporation. The County Engineer shall determine compliance with the following conditions of approval.

For questions related to sections below, please see the contact name provided.

GENERAL CONDITIONS
Contact Information: Robert Wimer, P.E. (775) 328-2059

1. A complete set of construction improvement drawings, including an on-site grading plan, shall be submitted when applying for a building/grading permit. Grading shall comply with best management practices (BMPs) and shall include detailed plans for grading, site drainage, erosion control (including BMP locations and installation details), slope stabilization, and mosquito abatement. Placement or removal of any excavated materials shall be indicated on the grading plan. Silts shall be controlled on-site and not allowed onto adjacent property.

2. The developer shall obtain from the Nevada Division of Environmental Protection a Stormwater Discharge Permit and submit a copy to the Engineering Division prior to issuance of a grading permit.

3. The Truckee Meadows Regional Stormwater Quality Management Program Construction Permit Submittal Checklists and Inspection Fee shall be submitted with the grading permit.

4. Other than grading standards modified by this SUP, all grading shall be in accordance with Article 110.438 Grading Standards. This SUP approval allows for the construction of 2:1 slopes and select areas of 0.75:1 as per preliminary plan submittal with this application.

5. Appropriate drainage facilities for tank overflow and drainage shall be extended to a natural or improved drainage system.

6. All slopes steeper than 3:1 shall be mechanically stabilized to control erosion. As an alternative to riprap, an engineered solution (geo-fabric, etc.) may be acceptable.

7. All disturbed areas left undeveloped for more than 30 days shall be treated with a dust palliative. Disturbed areas left undeveloped for more than 45 days shall be revegetated. Specifications for revegetation procedure and seed mix shall be prepared by a licensed landscape architect.

TRAFFIC AND ROADWAY (COUNTY CODE 110.436)
Contact Information: Mitchell Fink, P.E. (775) 328-2050

1. There are no traffic related conditions of approval.

UTILITIES (County Code 422 & Sewer Ordinance)
Contact Information: Tim Simpson, P.E. (775) 954-4648

1. There are no utility related conditions of approval.

From: Lemon, Brittany
To: Bronczyk, Christopher
Cc: Way, Dale
Subject: WSUP21-0007 (Hidden Valley Reclaimed Water Tank)
Date: Wednesday, July 21, 2021 8:40:30 AM
Attachments: image001.png

Good Morning Chris,

This project shall meet and comply with all requirements of currently adopted TMFPD fire codes, ordinances, and standards at the time of construction to include infrastructure for fire apparatus access roads and water supply.
https://tmfpd.us/fire-code/

Thank you!

Brittany Lemon

Fire Captain - Fire Prevention | Truckee Meadows Fire & Rescue
blemon@tmfpd.us | Office: 775.326.6079 | Cell: 775.379.0584
3663 Barron Way, Reno, NV 89511

"Committed to excellence, service, and the protection of life and property in our community"

WASHOE COUNTY
HEALTH DISTRICT
ENHANCING QUALITY OF LIFE

March 24, 2021

Washoe County Community Services
Planning and Development Division
PO Box 11130
Reno, NV 89520-0027

RE: 4740 Parkway Dr; 051-330-01
Hidden Valley Reclaimed Water Tank; WSUP21-0007

Dear Washoe County Staff:

The following conditions are requirements of the Washoe County Health District, Environmental Health Division (EHS), which shall be responsible for determining compliance with these conditions.

Contact Name – David Kelly

a) EHS has no objections with the project as proposed provided that all reclaimed water lines utilize the appropriate colored piping and any connections are adequately back flow protected.

If you have any questions or would like clarification regarding the foregoing, please contact Dave Kelly, EHS Supervisor at dakelly@washoecounty.us regarding all Health District comments.

Sincerely,

Dave Kelly, REHS
EHS Supervisor
Environmental Health
Washoe County Health District

WASHOE COUNTY
COMMUNITY SERVICES DEPARTMENT
Regional Parks and Open Space

1001 EAST 9TH STREET
RENO, NEVADA 89520-0027
PHONE (775) 328-3600
FAX (775) 328.3699

TO: **Chris Bronczyk, Planner**

FROM: **Sophia Kirschenman, Park Planner**

DATE: **July 26, 2021**

SUBJECT: **Special Use Permit Case Number WSUP21-0007 (Hidden Valley Reclaimed Water Tank)**

I have reviewed the updated application for WSUP21-0007 on behalf of the Washoe County Regional Parks and Open Space Program (Parks Program) and prepared the following comments:

If approved, this special use permit would approve major grading to facilitate the construction of a one-million-gallon reclaimed water storage tank in Hidden Valley Regional Park. The proposal includes the excavation of 22,863 cubic yards of earthen material, the importation of 6,000 cubic yards of earthen material, and the disturbance of 5.8 acres within the park. This proposal was reviewed and supported by the Washoe County Park Commission on February 2, 2021. Parks Program staff notified the Hidden Valley Homeowner's Association (HOA) about the proposal and the Park Commission meeting. The HOA distributed Park Commission meeting information to their mailing list to ensure that local community members had multiple opportunities to learn about the project and provide input. Updated renderings of the tank will be presented to the Park Commission on August 3, 2021.

The Parks Program holds a Recreation & Public Purposes (R&PP) Act patent from the Bureau of Land Management (BLM) for the park parcels. All development activities within the park must be consistent with the terms of the R&PP Act or the patent can be revoked. Based on correspondence with BLM staff, it is the opinion of Parks Program staff that the water tank proposal conforms to the terms of the legislation, but BLM consent will be required prior to construction.

Parks Program staff have worked closely with staff from the Washoe County Community Services Department Sewer Utility on this proposal to ensure that the project results in a net benefit to the park and park users, and to ensure that any negative impacts will be mitigated. Several alternative tank locations were considered. Areas to the north of the park were eliminated due to steep topography. Staff did inquire as to whether the new tank could be built adjacent to the existing Truckee Meadows Water Authority (TMWA) water tanks at the park. However, hydraulic modeling showed that this tank needs to be constructed at a higher elevation than the TMWA water tanks, so that location was eliminated as well. Two other tank locations were also explored, but ultimately, the proposed location would require the least amount of grading, would be better shielded by existing topography and would not impact existing trails.

In addition to alternative tank locations, the applicant also considered the construction of two smaller, welded-steel tanks in lieu of the larger, pre-stressed concrete tank. The two-tank option would provide for better maintenance abilities and the flexibility to take one tank offline during the winter when reclaim demand is lower. The construction costs for the two-tank option would also be significantly lower than the single-tank option. However, the larger, reinforced concrete tank option was ultimately selected because it would result in a smaller overall site footprint and it can be partially buried to better integrate into the surrounding environment

While there will be visual impacts associated with the project, there are multiple benefits as well. First, onsite reclaimed water offers the opportunity to expand green areas within the park at a lower cost. Second, irrigating with reclaimed water maximizes an existing resource and preserves potable water for our community. Third, converting the park's existing irrigation to reclaimed water will result in a lower monthly/annual cost. Finally, the exiting potable water rights utilized in the park may be reviewed for options.

Given these considerations, Parks Program staff are supportive of the proposal and provide the following conditions of approval:

1. All imported fill materials shall be "certified weed free" to prevent the spread of noxious weeds in the park.
2. Prior to the issuance of building or grading permits, a Revegetation Plan shall be reviewed and approved by the Washoe County Parks Program. At a minimum, the plan shall include: existing site conditions; the area of impact; restoration goals; selection of native/perennial adapted plants or seed mixes; revegetation methods; measures to prevent the spread of noxious weeds; revegetation success criteria; and appropriate monitoring provisions.
3. The applicant shall provide temporary irrigation to support revegetation efforts, but the Parks Program does not support the installation of ornamental landscaping in the project area as this would not blend with the native vegetation or the surrounding environment.
4. Prior to the issuance of building or grading permits, the Bureau of Land Management must provide written confirmation that the proposal is in conformance with the terms of the Recreation and Public Purposes Act.
5. Construction hours will be limited to Monday – Friday between 8:00 am and 7:00 pm.
6. The tank shall be painted in a muted color to blend with its surroundings.
7. The applicant shall notify Park Program staff at least five (5) business days prior to the start of construction and shall coordinate any trail closures or re-routes with Parks Program staff.
8. Should any fences or gates need to be taken down for access purposes, the applicant shall be responsible for repairing and/or replacing the fences and/or gates.

Washoe-Storey Conservation District

Bret Tyler Chairmen
Jim Shaffer Treasurer
Cathy Canfield Storey app
Jean Herman Washoe app

1365 Corpotate Blvd.
RenoNV 89502
775 857-8500 ext. 131
nevadaconservation.com

July 27, 2021

Washoe County Community Services Department

C/O Chris Bronczyk, Planner

1001 E Ninth Street, Bldg. A

Reno, NV 89512

R: WSUP21-0007 Hidden Valley Reclaimed Water Tank

Dear Chris,

In reviewing the special use permit to modify the grading standards, please refer to our March 29, 2021, letter.

Thank you for providing us the opportunity to review the project that may have impacts on our natural resources and if there are any questions contact us at (775-750-8272.

Sincerely,

Shaffer-Tyler

From:	Program, EMS
To:	Bronczyk, Christopher
Cc:	Lawson, Jacqueline
Subject:	FW: July Agency Review Memo III
Date:	Wednesday, July 28, 2021 1:12:00 PM
Attachments:	July Agency Review Memo III.pdf image001.png image002.png

Good afternoon Christopher,

The EMS Oversight Program has reviewed Memo III #2 and #3 and does not have any comments or concerns regarding these two cases.

Thank you,

Julie

Julie D Hunter, M.S.
EMS Coordinator | Division of Epidemiology and Public Health Preparedness | Washoe County Health District
jdhunter@washoecounty.us | O: (775) 326-6043 C: (775) 343-2143 | 1001 E. Ninth St., Bldg. B, Reno, NV 89512

Please take our customer satisfaction survey by clicking here

---

From: Fagan, Donna <DFagan@washoecounty.us>
Sent: Tuesday, July 13, 2021 2:56 PM
To: Rosa, Genine <Grosa@washoecounty.us>; Restori, Joshua <JRestori@washoecounty.us>; English, James <JEnglish@washoecounty.us>; Rubio, Wesley S <WRubio@washoecounty.us>; Kelly, David A <DAKelly@washoecounty.us>; Program, EMS <EMSProgram@washoecounty.us>
Cc: EHS Plan Review <EHSPlanReview@washoecounty.us>
Subject: July Agency Review Memo III

Genine, Josh, James, Wes, David, and EMS,

Please find the attached Agency Review Memo with cases received this month by CSD, Planning and Building.

You've each been asked to review the items as indicated below:

Genine/Josh: Items #1 thru #4

Jim/Wes/David: Items #1 thru #4

EMS: Items #1 thru #4

Click on the highlighted item description for a link to the application.

Please send any questions, comments or conditions to the planner for that item.

Thank you,
Donna

Donna Fagan
Planning and Building Division| Community Services Department
dfagan@washoecounty.us | Office: 775.328.3616
1001 E. 9th Street, Reno, NV 89521
Email: planning@washoecounty.us

Washoe-Storey Conservation District

Bret Tyler Chairmen
Jim Shaffer Treasurer
Cathy Canfield Storey app
Jean Herman Washoe app

1365 Corpotate Blvd.
RenoNV 89502
775 857-8500 ext. 131
nevadaconservation.com

March 29, 2021

Washoe County Community Services Department

C/O Chris Bronczyk, Planner

1001 E Ninth Street, Bldg. A

Reno, NV 89512

R: WSUP21-0007 Hidden Valley Reclaimed Water Tank

Dear Chris,

In reviewing the special use permit for grading of a water tank, the Conservation District has the following comments.

With disturbance of 5.8 acres, the applicant submits to the District for approval a revegetation plan prepared by a qualified professional that includes a seed mix based on soil type, a contingency water plan, fertilizer plan, erosion control structures and a monitoring plan with updates provided to the Conservation District after the completion of the growing season (October 31) every year for a three-year period. The revegetation must have a contingency irrigation plan for our approval.

To prevent the spread of noxious weeds concerning the importation of material, the applicant shall collaborate with the Conservation District to develop an onsite noxious weeds management plan to ensure weed seeds do not impact other areas, utilizing certified weed free material.

With slopes mechanically stabilized, the District will require 3/4 to 1 1/2-inch D size rock in the voids of the rip rap slope to reduce undermining by small animals. In addition, the cutoff swale flow lined covered with 3–4-inch rock to reduce impacts from storm water runoff downstream.

We recommend as a condition a lighter brown tank color to better blend with the natural environment including all retaining walls.

With the loss of pinyon juniper pines with major grading of the site, the District requires to mitigate this loss with a 1:1 planting of the same specie tree.

Thank you for providing us the opportunity to review the project that may have impacts on our natural resources.

Sincerely,

Shaffer-Tyler

From: Andy and Kerry Barber
To: Bronczyk, Christopher
Subject: hidden valley park effluent water tank
Date: Sunday, May 23, 2021 9:44:09 AM

[NOTICE: This message originated outside of Washoe County -- DO NOT CLICK on links or open attachments unless you are sure the content is safe.]

This E-mail is to voice our opposition to the Hidden Valley reclaimed water tank that is proposed for the Hidden Valley County Park. I cant think of a worse spot for this project. Why is the tank being built over a mile from where the treated sewer water is being produced. There is a semi flat spot leaving the waste water treatment plant that isn't in a populated park and housing area. The area is just south of the sewer plant following NV Energy's transmission lines that leave Clean water way. This area is out of sight and mind, less expense for piping into and leaving the tank. The idea of digging up what are the most colorful hills in the Reno area is absurd, as well as cutting off hiking trails that are used daily in the area. Your proposal said that the proposed tank would not effect trails but it will and does, not sure where they got their information. As a resident of the area we will be left with an unsightly tank and noise and dust while being constructed, as well as dust when nothing grows back. The other concern is your proposal for the “proposed pipe” that will be dug in between Lone horse dr and Mia Vista Park. This will also cause unnecessary dust and construction noise and possibly flooding of homes along the route if a pipe breaks as well as plant destruction that will never grow back. Just look at the feeble attempt to reseed along veterans Parkway. I agree that effluent water needs to be reused, but the park area is not the best spot. Is this spot because the county ownes it and permitting will be easier and screw the residence of hidden valley. or is it because a county commissioner lives here and goes to the golf course and is pushing for the project to water the grass area of the golf course. I hope those two concerns arent true. t

From: edward vehorn
To: Bronczyk, Christopher
Subject: 1 million gallon water tank
Date: Wednesday, May 12, 2021 8:01:38 AM

Chris
We are Ed and Lyn Vehorn and we live in Hidden Valley our property borders the Hidden Valley park. The tank that Washoe county wants to
construct will be directly east of us and will be seen from our family room and back yard looking out. I walk this site again which I walk in this area daily. I can not see a lot of elevation change where the two existing tanks are and the proposed site of the new one. If the tank is built
it should be located back behind the other two in my opinion. The propose site will be seen by most of the Hidden Valley residents and my
wife and I are completely opposed of it.I have included a picture from our back yard. Hidden valley resident ED

CHRISTY CORPORATION

April 6, 2021

Chris Bronczyk
Washoe County Planning and Building Division
1001 East 9th Street, Building A
Reno, Nevada 89512

RE: Hidden Valley Reclaimed Water Tank Special Use Permit – Landscape Waiver Request

Dear Chris,

The purpose of this letter is to request that a waiver of formal landscaping requirements be added to the Special Use Permit request submitted for the proposed Hidden Valley reclaimed water tank. Washoe County Regional Parks and Open Space staff concur that formal landscaping at the tank site will result in additional visual impacts rather than screen the new tank. As described in the submitted application report, native revegetation is proposed in lieu of formal landscaping. This, coupled with partially burying the tank and using earth tone colors, will serve to visually screen the tank and allow it to better blend with its surroundings.

Please do not hesitate to contact me at mike@christynv.com or (775) 250-3455 with any questions or concerns. Thank you for your ongoing assistance with the project.

Sincerely,

Mike Railey
Planning Manager

cc: Alan Jones, P.E. – Washoe County Engineering and Capital Projects
Sophia Kirschenman – Washoe County Regional Parks and Open Space
Scott Benedict, P.E. – SB Engineering

WSUP21-0007
EXHIBIT D

Technical Memorandum

To: Alan Jones, PE
Senior Licensed Engineer
Washoe County Community Services Department
1001 East Ninth Street, Reno, NV 89512

July 1st 2020

From: Scott Benedict, PE
Doug Buck, PE (Christy Corporation)
Steve Jones, (Christy Corporation)

CC: John Hulett, PE

RE: Hidden Valley Phase 2 Design Report – Hidden Valley Phase 2 Main Extension and Hidden Valley Tank Planning and Design Criteria

Summary:

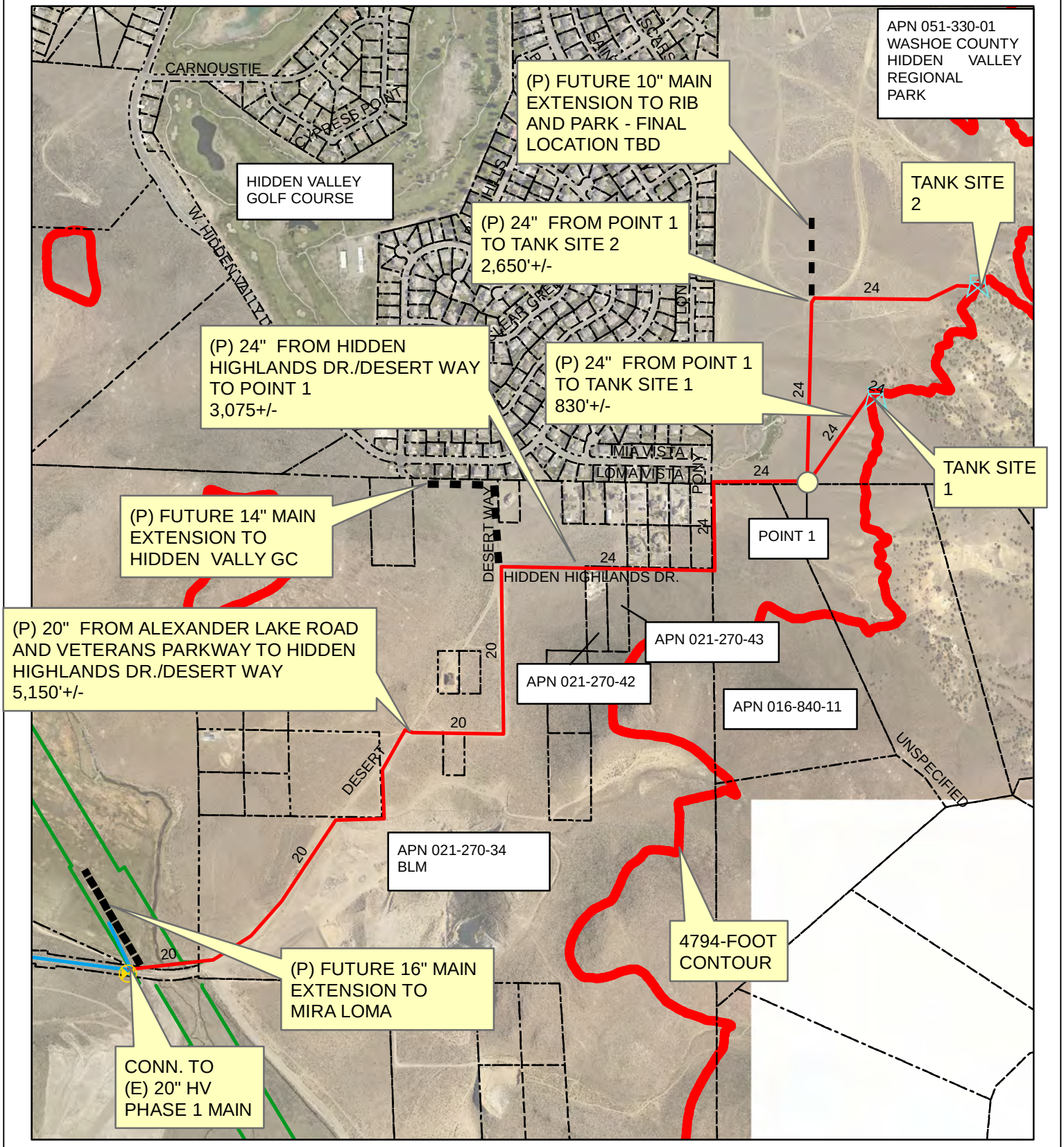
- This Technical Memorandum (TM) provides the planning and design criteria for the 20-inch and 24-inch main extensions to the Hidden Valley (HV) expansion area from the intersection of Alexander Lake Road and Veterans Parkway to the proposed Hidden Valley storage tank addition. Comprehensive planning for the Hidden Valley expansion areas is provide in the "Washoe County Community Services Department 2050 Water Reclamation Distribution Facility Plan", SB Engineering April 6th 2020. This TM is limited to detailing the planning and design criteria for the Hidden Valley Phase 2 improvements.
- Included in this TM is the design criteria for the proposed 1.40 million gallons of reclaim storage to be located in the foothills east of Hidden Valley.

The facility additions noted above comprise the Hidden Valley Phase 2 Improvements.

Discussion:

The proposed Hidden Valley Phase 2 main extension will connect to the existing 20-inch Hidden Valley Phase 1 main on the west side of the Alexander Lake Road and Veterans Parkway Intersection (refer to Figure 1). From the Alexander Lake Road and Veterans Parkway intersection the proposed 20-inch main will cross Steamboat Creek and traverse Bureau of Land Management (BLM) property to the intersection of Hidden Highlands Drive and Desert Way. From the Hidden Highlands Drive and Desert Way intersection the main will increase to 24-inch and traverse BLM and private property to the northeast until it enters Washoe County property (APN 051-330-01). Once within Washoe County property the proposed 24-inch main will be routed to the preferred tank site.

The final location of the main alignment within the Washoe County parcel will need to be coordinated with a proposed rapid infiltration basin (RIB) addition and regional park wetlands



engineering
775-223-0922 scott@sbcivilengineering.com
586 CITADEL WAY
RENO, NV 89503

FIGURE 1: HIDDEN VALLEY PHASE 2 MAIN EXTENSION AND PROPOSED TANK SITES - HV DESIGN REPORT 2

0 250 500 1,000 1,500 2,000 Feet

DATE: 4/27/20

MAP BY: SWB

WORK ORDER #: 20-0010

SCALE: 1 inch = 1,000 feet

N

WSUP21-0007
EXHIBIT E

improvements. In addition, the final tank site/type selection will require permitting approvals that will be completed at a later time.

Due to the future RIB, Regional Park improvements and tank permitting to be completed at a later time updates to the proposed 24-inch tank supply main routing and proposed tank site(s) provided in this memorandum may be warranted.

Main Design Criteria: The anticipated range in working pressures at various locations within the Hidden Valley Phase 2 main extension is provide in Table 1 assuming the Hidden Valley Tank Site 1 is utilized.

Table 1: Range in Working Pressures for the Proposed Phase 2 Hidden Valley Main Extension with Tank Site 1 Assumed

Location	Elevation, ft.	Upper Working Pressure, PSI	Lower Working Pressure, PSI	Upper HGL, ft. (NAVD 88)	Lower HGL, ft. (NAVD 88)
Alexander/Veterans-HV Phase 2	4432.0	183	158	4855	4796
Desert Way/Hidden Highlands - HV Phase 2	4476.0	151	139	4825	4797
Point 1 (Figure 1) – HV Phase 2	4652.0	72	63	4818	4798
Alexander/Veterans-Future	4432.0	171	147	4827	4771
Desert Way/Hidden Highlands - Future	4476.0	142	135	4804	4787
Point 1 (Figure 1) – Future	4652.0	64	62	4800	4795

The upper working pressures anticipated are with demands at half of the maximum day and three pumps operating at the Export Pump Station with the proposed Hidden Valley Tank level at 23-feet. Lower working pressures are based on peak hour demands with no pumping at the Export Pump Station and the proposed Hidden Valley Tank at 5-feet. The HV Phase 2 scenarios assume all the Hidden Valley Phase 1 and Phase 2 facilities are in-service. The future condition is with all expansion area demands and proposed facilities installed. The pressures in Table 1 do not include surge pressures. A surge allowance will need to be added to the working pressures provided to obtain the pipeline design pressure.

The Hidden Valley Tank maximum fill rate will be on the order of 4,000 gpm, future condition with 3 pumps operating and demands at ½ of maximum day. The peak Hidden Valley Tank drain rate will be on the order of 7,400 gpm, future condition peak hour demands and no

pumps operating at the Export Pump Station. These can be considered the anticipated peak flows for the proposed HV Phase 2 transmission mains.

To facilitate future main additions, a provision for a future 16-inch main extension should be provided on the west side of the Veterans Parkway and the Alexander Lake Road intersection (refer to Figure 1). This future main extension will be an unregulated main that will be routed within the western side of the Veterans Parkway right of way to approximately 1,100-feet south of the Mira Loma Boulevard and Veterans Parkway intersection where it will connect to an existing 24-inch City of Reno (COR) reclaim main. At the intersection of Desert Way and Hidden Highlands Drive a provision for a future 14-inch main extension that will be routed to the Hidden Valley Golf Course is recommended (refer to Figure 1).

Once within the Hidden Valley Regional Park (APN 051-330-01) the routing of the 24-inch main will require coordination with the proposed rapid infiltration basin (RIB) and greenbelt/wetlands additions. A main extension (either 8-inch or 10-inch) is anticipated to be installed to the north end of the Hidden Valley Regional Park from the location the 24-inch tank supply main goes due east.

Hidden Valley Tank Design Criteria: The Hidden Valley Tank emergency storage component is proposed to provide ½ of the maximum day demand for the Hidden Valley Golf Course, Hidden Valley Regional Park and Bella Vista demands. Emergency storage is not proposed for the rapid infiltration basin (RIB), or the existing COR-UNR reclaim demands. It is assumed during an emergency condition the supply to the RIB can be terminated, while the COR-UNR demands would be placed back on the COR reclaim system. Table 2 provides the estimated demands that are associated with the proposed Hidden Valley Tank addition.

The summation of the maximum day demand for locations to have emergency storage provided is 1,830 gpm (Hidden Valley GC, Hidden Valley Reginal Park, Hidden Valley Greenbelt/wetlands and Bella Vista/Daybreak). Utilizing half of this demand the emergency storage volume calculated is 1.32 million gallons.

The operating storage volume was calculated by evaluating the maximum day supply rate to the Hidden Valley/Bella Vista and COR-UNR Farms expansion areas against the estimated hourly demands. It is assumed two pumps will operate at the Export Pump Station when only supply to the Hidden Valley/Bella Vista and COR-UNR Farms Expansion areas is needed, while three pumps would operate if supply to the Southwest Expansion is also required simultaneously.

The modeled maximum day supply rate in the 20-inch transmission main just west of the intersection of Alexander Lake Road and Veterans Parkway (prior to Bella Vista/Daybreak demand location) varied from 5,200 gpm to 5,900 gpm. The 5,200 gpm supply level is with two pumps operating and no supply to the Southwest Expansion Area and was utilized for the determination of the Hidden Valley operating storage needed. Utilizing the Field Creek diurnal pattern for non-constant demands the volume of operational storage was calculated

for the hours during the day demands exceed the supply. The operational storage calculations are provided in Appendix A.

Table 3 provides the proposed total storage required, with a recommended storage volume of 1.40 million gallons.

Table 2: Hidden Valley and City of Reno/UNR Farms Expansion Area Demands Utilized for Hidden Valley Storage Sizing

Description	Average Day Demand (ADD), gpm	Maximum Day Demand (MDD), gpm	Peak Hour Demand (PHR), gpm	Comments
Hidden Valley Golf Course	496	992	2,182	
Hidden Valley Regional Park	25	50	110	
Rapid Infiltration Basin	620	620	620	Held constant and assumed interruptible in an emergency
Hidden Valley Park Greenbelt Addition/Wetlands	94	188	414	
Bella Vista/Daybreak	300	600	600	
Mira Loma Park (Reno)	44	87	191	No emergency storage provided. Assumed to be supplied by COR's system in an emergency.
Rosewood Golf Course (Reno)	53	106	233	
UNR Farms South (Reno)	750	1,500	1,500	
UNR Farms North (Reno)	750	1,500	1,500	
Totals =	3,132	5,643	7,350	

Table 3: Proposed Hidden Valley Storage Tank Sizing

Storage Component or Tank Geometry	Hidden Valley Storage	Comments
Emergency, gallons	1,317,600	½ of Retail MDD
Operating, gallons	76,638	Refer to Appendix A
Total Storage Required, gallons =	1,394,238	
Recommended Storage, Mgal =	1.40	

The following are the proposed tank(s) design parameters:

Welded Steel Tank Option AWWA D100:

Tank PAD Elevation:	4,793-feet (NAVD 88) ± 2-feet
Number of Tanks and Volume per Tank:	Two at 0.70 million gallons each
Diameter:	71.2-feet for each tank
Tank Overflow Level:	23.5-feet
Gallons per Foot of Tank Level:	59,575-gal/ft
Bottom of Operating Storage Level:	22.2-feet
Access:	Provide 15-foot wide perimeter road with 3-foot drainage swale. Slopes exceeding 3:1 will be required and dictate rip-rap stabilization and/or benches.
Basis for Tank Design:	AWWA D100-11, geotechnical report and IBC

Prestressed Concrete Tank Option:

Tank PAD Elevation:	4,784-feet (NAVD 88) ± 2-feet
Number of Tanks and Volume per Tank:	One at 1.40 million gallons
Diameter:	86.3-feet
Tank Overflow Level:	32.0-feet
Gallons per Foot of Tank Level:	43,750-gal/ft
Bottom of Operating Storage Level:	30.2-feet

Access:	Permanent roof access for inspection and cleaning. Temporary perimeter road 10-wide for construction. To extent possible backfill to pre-existing.
Basis of Design:	AWWA D110-13, geotechnical report and IBC.
<u>Common to Both Tank Type Options</u>:	
Drain/Overflow Capacity, gpm:	Per hydraulic modeling maximum fill rate is approximately 4,000 gpm, propose to design overflow for 5,000 gpm.
Venting Capacity, gpm:	Per hydraulic modeling (non-main break) the maximum drain rate is on the order of 7,400 gpm. Propose to design venting for 8,400 gpm. Vents to be designed/located to avoid obstruction from snow.
Inlet/Outlet:	Avoid a common inlet and outlet under normal conditions, all storage is in-service. The inlet and out to the tank should be placed to minimize short circuiting. Provide/locate check valves and isolation valves as required to prevent short-circuiting during normal operation (full 1.40 MGal of storage) and allow either tank (steel) or cell (prestressed concrete) to be isolated from service. Due to seismic considerations for this location consider the use of a Flex-Tend type of fitting as manufactured by EBAA Iron for all connections made in/out of the tank.
Yard Piping Size:	24-inches
Tank Access:	Per OSHA requirements with a minimum of two locations in/out of the tank/cell in question.
Site Access:	Gravel road with maximum slopes on the order of 10 percent. Security fence around tank site, with locked gate.
Foundation Location:	Refer to the geotechnical report (to be provided at a later date), but is recommended the foundation be located on 100 percent fill or cut, not portions of either due to concerns with differentiation

	settlement. Evaluate site location to confirm not on/adjacent to earthquake fault, to be provided in Geotech Report at a later date.
Power Supply/SCADA Control	Utility power to be provided to site. Continuous SCADA monitoring of tank level and intrusion alarms is required. Provide high and low-level alarms.

Tank Configuration Types and Options: To facilitate tank maintenance as well as reduce water age during non-peak demands it is proposed to either provide two 0.70 Mgal welded steel tanks, or a single pre-stressed 1.40 Mgal concrete tank with an internal partition that divides the tank into two 0.70 Mgal cells. Bolted steel tanks are not currently being considered as an option for this application due to the difficulty to maintain (re-coatings).

Steel Tank Discussion: Welded steel tanks are free standing and typically are erected in 8-foot increments due to standard steel plate widths. Steel tanks cannot withstand backfill and to facilitate access/maintenance a perimeter road is typically provided with a 10 to 15-foot width. Steel tanks typically have a lower initial construction cost compared to prestressed concrete tanks, but unlike a concrete tank steel tanks require blasting and re-coating every 15 to 20 years. The blasting and re-coating of a steel tank requires substantial downtime and over the life of the tank the cost of the multiple re-coatings can be a significant consideration.

Due to the inability to backfill the walls and being located within the Washoe County Hidden Valley Regional Park a maximum wall height of 24-feet is proposed to reduce the visible tank profile.

To allow service levels (non-emergency) to be maintained during steel tank maintenance two equally sized 0.70 Mgal tanks are recommended. A secondary benefit of providing two tanks is during non-peak demands one tank can be removed from service to reduce the water residence times and better maintain chlorine residuals in the distribution system.

Concrete Prestressed Tank Discussion: A prestressed concrete tank is reinforced with post-tensioning tendons that apply compression to the tank floor, walls and roof to counteract the applied loads. Prestressed concrete tanks are circular and can be designed for any height, typically a 34-foot wall height is most economical. Unlike a welded steel tank, the walls and roof can be buried, which for locations visibility is not desired offers a substantial benefit.

For construction, typically a temporary 10-foot track is installed around the perimeter. Prestressed concrete tanks can potentially result in reduced site work cost compared to a welded steel tank due to the ability to backfill against the walls and not require a permanent perimeter road. Concrete circular pre-stressed tanks do not require blasting and re-coating, no significant maintenance over the life of the tank is required (typically 100 years).

For utilizing a prestressed tank in this application, it is recommended to construct a single tank with an internal water tight partition that would divide the tank into two equally sized cells. Having the two cells would facilitate downtime for inspection and maintenance and allow for removing storage from service during non-peak demands to reduce water residence times. For this application a wall height of 34-foot is recommended due to the ability to backfill all/portion of the wall to reduce visibility.

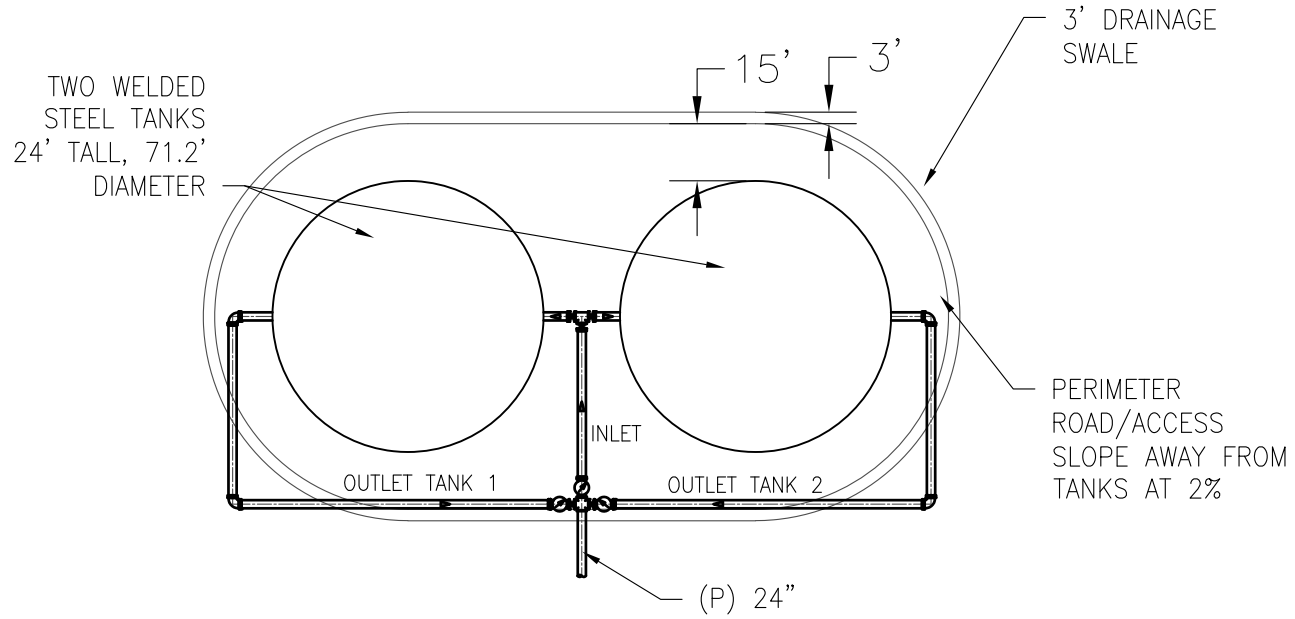
Tank Site Options: Conceptual tank plan layouts and yard piping for both the welded steel and prestressed tank options are provided in Figure 2.

For the steel tank option, with both tanks in-service a common inlet supply to both tanks would be utilized, while to minimize short circuiting each tank would have its own outlet located 180 degrees from the inlet. Check valves would be installed on the common inlet and two outlets to direct flow accordingly. Isolation valves would need to be provided to allow either tank to be removed from service, while the remaining tank stays on-line.

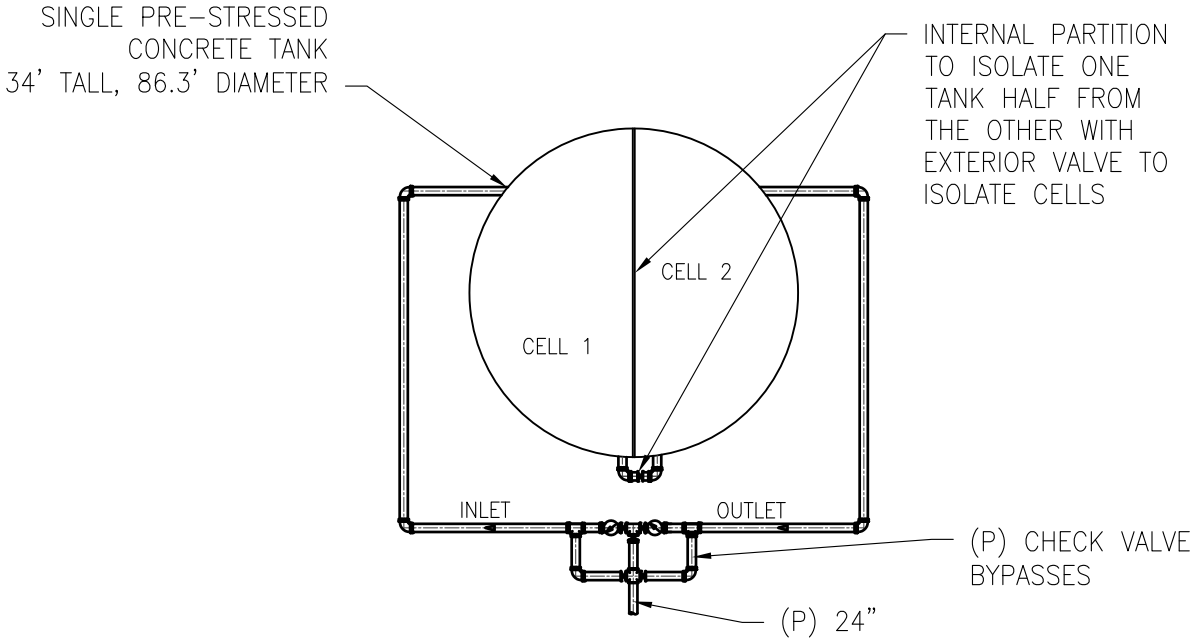
For prestressed tank option two tanks identical to the steel tank option could be utilized, but to reduce the site footprint it is proposed to install a single tank with an internal partition. Unlike a steel tank a load bearing wall can be installed within the tank which can be used to isolate on half of the tank from the other. Under normal operation both cells of the tank would be in-service with the inlet and outlet located in the upper two quadrants. To by-pass the interior partition the outlet from cell 1 and inlet to cell 2 would be located in the bottom two quadrants (refer to Figure 2). The proposed tank inlet/outlet and partition by-pass locations are intended to reduce the potential for short-circuiting.

The proposed storage addition is to be located within the Washoe County Hidden Valley Regional Park with a floor elevation of approximately 4,793-feet for the steel option versus 4,784-feet for the taller prestressed option (refer to Figure 3). The most viable site needs to take into consideration topography, ability to provide an access road, visibility from homeowners to the west and park, and ability to route the overflow/drain to drainage course. The storage addition appears feasible anywhere between tank sites 1 and 2 in Figure 3. Locating the tank south of site 1 seems problematic due to the difficulty to provide an access road, while going to the north of site 2 the topography gets steeper. These appear to be the most viable tank sites on the Washoe County Parks property at the elevation required.

Tank site 1 is more visible than site 2 and would require substantial hillside cuts/fills to provide an access road. In addition, approximately 750-feet to the west of site 1 there is a developed park, which has direct line of sight to site 1. Site 2 has similar topography as site 1, but will require less hillside cuts/fills for an access road and be less visible than sight 1. Site 2 is also located adjacent to a drainage channel that would be ideal to route the tank drain/overflow discharge. At this level of evaluation site 2 is deemed more desirable than site 1 and is utilized to compare tank/access road site alternatives



STEEL TANK OPTION



PRESTRESSED CONCRETE TANK OPTION

SCALE: 1"=50'

50 0 25 50 100

engineering
775-223-0922
586 CITADEL WAY
RENO, NV 89503

FIGURE 2: PROPOSED HIDDEN VALLEY STORAGE TANK OPTIONS – CONCEPTUAL PLAN LAYOUT AND YARD PIPING

DATE:	5/12/20
DRAWN BY:	SWB
WORK ORDER #:	20-0010
SCALE:	1" = 50'

FIGURE 2

~~WSUP21-0007~~
EXHIBIT E

D:\SB Eng\Project\20-0010 WC HV PH 1-4 DRs\DR 2\CAD\Tank Options.dwg
Jun 16, 2020 - 4:48pm

engineering
775-223-0922 scott@sbcivilengineering.com
586 CITADEL WAY
RENO, NV 89503

FIGURE 3: HIDDEN VALLEY TANK SITE OPTIONS ON WASHOE COUNTY REGIONAL PARK PROPERTY

0 200 400 800 1,200 1,600 Feet

DATE: 5/13/20

MAP BY: SWB

WORK ORDER #: 20-0010

SCALE: 1 inch = 800 feet
2'-CONTOURS

N

WSUP21-0007
EXHIBIT E

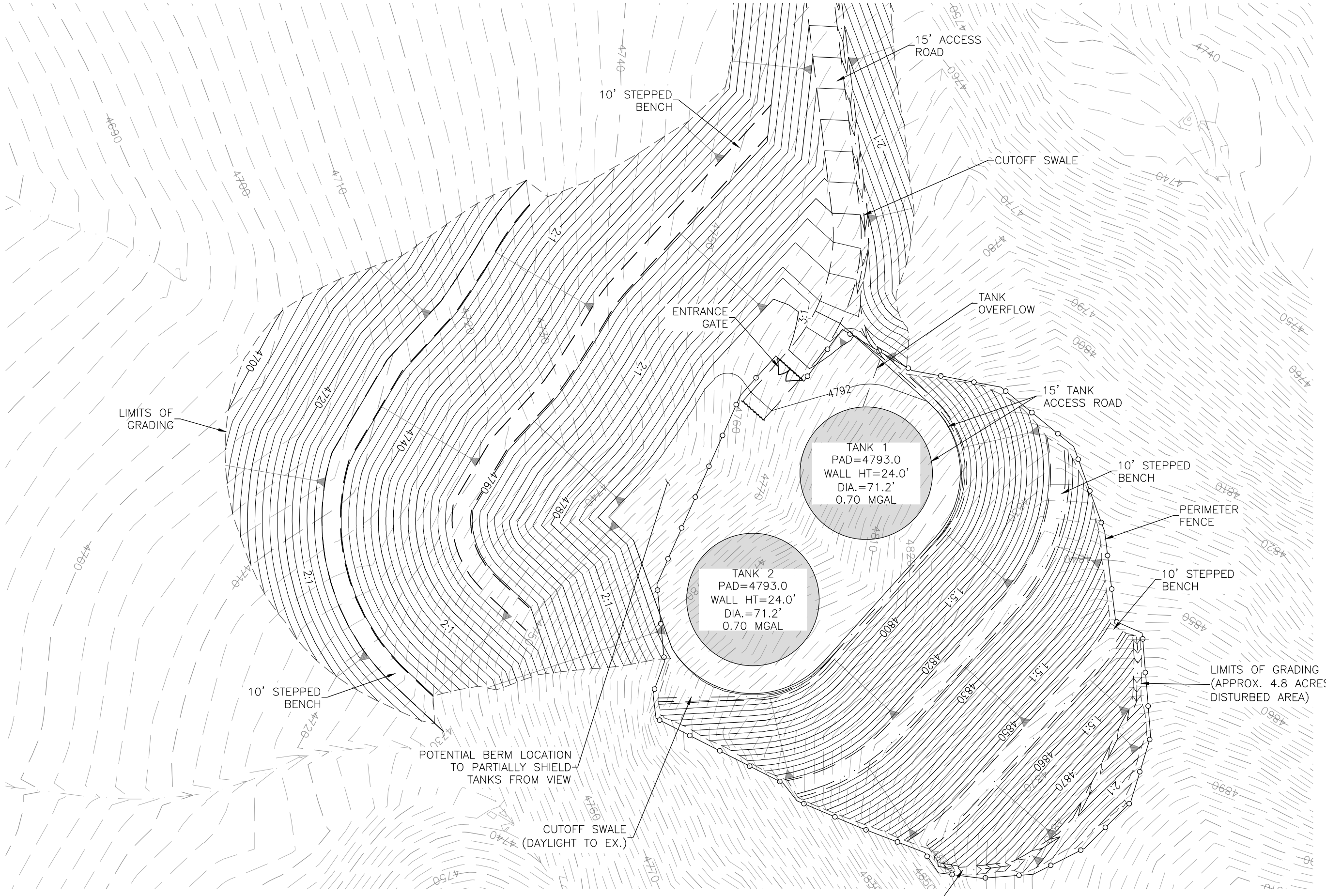
The conceptual layouts in Figure 2 were overlain on site 2 to allow for the completion of preliminary grading plans by Christy Corporation. Figure 4 provides a conceptual grading plan for the welded steel tank option, while Figure 5 illustrates the prestressed option. Appendix B contains preliminary grading plans that illustrate the extents needed for construction of both the steel and prestressed concrete tank options.

For both options the steep topography will require slopes steeper than 3:1 and/or retaining walls. For the purposes of comparing alternatives slopes steeper than 3:1 are assumed to be viable with the utilization of stepped benches with slope erosion stabilization, no retaining walls are proposed.

Referring to Figure 4 the welded steel tank conceptual layout has proposed finished slopes of 1.5:1, which represents cut into native material that is anticipated to be similar to the 1.5:1 cut slopes at the existing tanks north of this site. The prestressed tank option with the smaller footprint utilizes 2:1 maximum slopes, which represent backfilled slopes after construction of the tank (refer to Figure 5). Even with the steeper slopes proposed, the welded tank option results in larger disturbed area than the prestressed tank option. The smaller disturbed area for the prestressed tank is attributed to its smaller footprint, while it is also proposed to bury the first 10-feet on the NW half of the tank, while the SE half located within the hillside will be buried to approximately 3-feet below the top of tank (refer to Figure 5). Riprap slopes for both tank options may be backfilled with striping material from grading operations and revegetated to reduce the visual impact of the slopes. This is a common requirement in Washoe County for slopes steeper than 3:1.

The tank access road is similar for both options away from the tank site (refer to Figure 6), but due to the higher ending access road elevation for the welded steel tank option more fill is needed as well as a slightly steeper average and maximum slope. Figure 6 illustrates the preliminary tank access road alignment from an existing unpaved service road within the Washoe County Parks property for the prestressed tank option.

In addition to completing the preliminary grading plans Christy Corporation evaluated the line of sight for the steel tank option utilizing a motion path animation along the Washoe County Parks western property line, which is depicted in Figure 6. With the prestressed tank being partially buried its line of sight from the Hidden Valley residences would be less, while adding an earthen berm to shield from view could be an option. Visibility to the Hidden Valley residences and Park users is deemed a significant factor in evaluating the best tank option. Due to the prestressed tank having a smaller footprint, less disturbed area and ability to backfill against its walls it can be more readily screened from view. Table 4 summarizes the preliminary grading and site work parameters for each tank option.



JUNE 2020

CHRISTY CORPORATION
1000 Kiley Parkway | Sparks Nevada 89436
775.502.8552 christynv.com

FIGURE 4

HIDDEN VALLEY TANK PLANNING
WELDED STEEL TANK OPTION
(PRELIMINARY SITE LAYOUT)

WSUP21-0007
EXHIBIT E

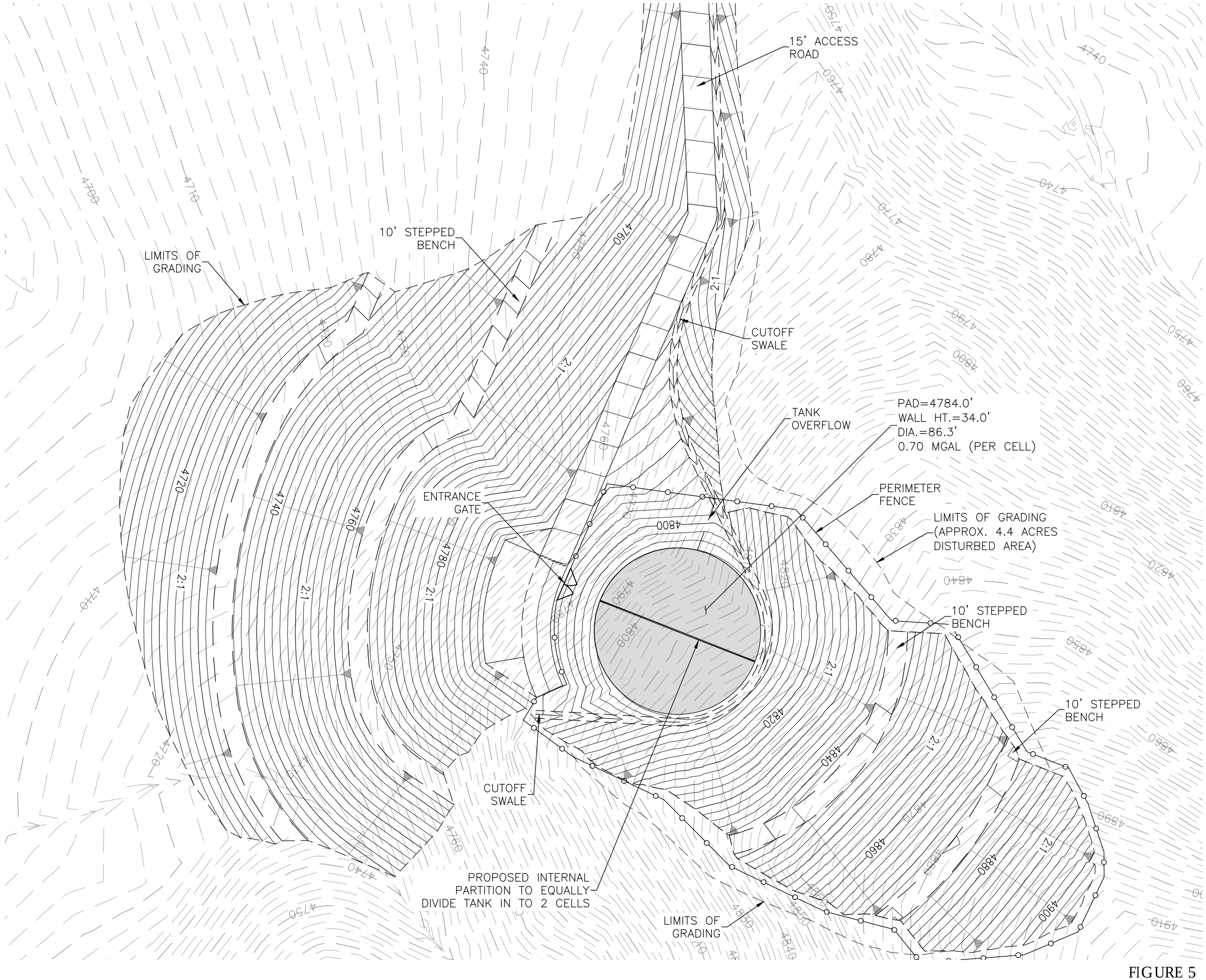
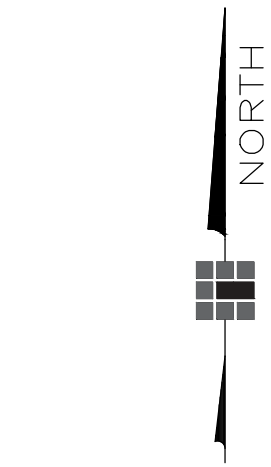


FIGURE 5



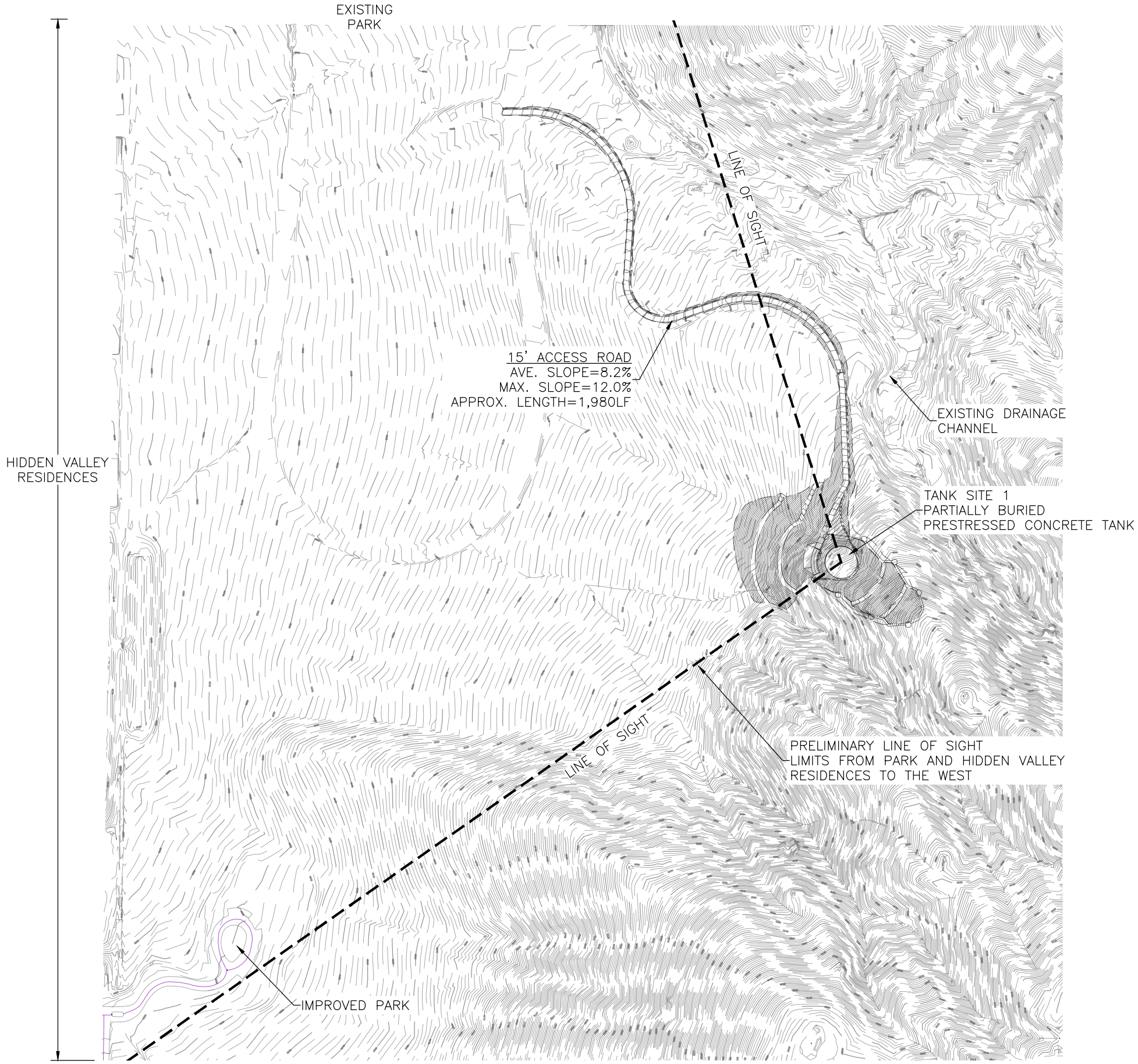
1"=50' (11x17 SHEET)

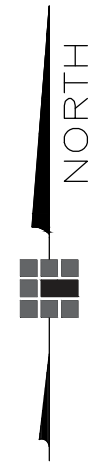
JUNE 2020

CHRISTY CORPORATION
1000 Kiley Parkway | Sparks Nevada 89436
775.502.8552 | christynv.com

HIDDEN VALLEY TANK PLANNING
PRE-STRESSED CONCRETE TANK OPTION
(PRELIMINARY SITE LAYOUT)

WSUP21-0007
EXHIBIT E





0 300' 600'

1"=300' (11x17 SHEET)

FIGURE 6

JUNE 2020

CHRISTY CORPORATION
1000 Kiley Parkway | Sparks Nevada 89436
775.502.8552 christynv.com

HIDDEN VALLEY TANK PLANNING
PRE-STRESSED CONCRETE TANK OPTION
(PRELIMINARY OVERALL LINE OF SITE)

WSUP21-0007
EXHIBIT E

Description	Welded Steel Tanks	Prestressed Concrete Tank
Access Road Length, ft	1825	1980
Access Road Average Slope/Maximum slope, %	8.7/12	8.2/12
<u>Construction Grading</u> Initial Cut, CY Initial Import, CY Net Cut/Fill, CY	 20,782 (cut) 78,673 (fill) 57,891 (fill)	 39,318 (cut) 73,350 (fill) 34,032 (fill)
<u>Finished Site Grading</u> Finished Cut, CY Finished Fill, CY Net Cut/Fill, CY	 12,899 (cut) 1,553 (fill) 11,346 (cut)	 25,599 (cut) 31,336 (fill) 5,737 (fill)
Maximum Slopes for Final Site Grading	1.5:1	2:1
Grading Limits, acres	4.8	4.4

Lands and Permitting Transmission Mains: The proposed 20-inch transmission main would connect to the east end of the Hidden Valley Phase 1 within the right of way (ROW) of Alexander Lake Road (refer to Figure 1). Alexander Lake Road is owned/maintained by Washoe County, so it is assumed permission to install the 20-inch pipeline will be granted. The main will go within Alexander Lake Road under Veterans Parkway prior to crossing the Steamboat Creek. Currently, the Veterans Parkway right of way is under ownership of the Regional Transportation Commission (RTC), but will be dedicated to the City of Reno. For the crossing of the Veterans Parkway ROW it is recommended to solicit comments from both RTC and City of Reno (COR).

Once the pipeline leaves the Veteran's Parkway ROW it enters Bureau of Land Management (BLM) parcel 021-270-31 (refer to Figure 7). The proposed 20-inch transmission main would parallel an existing 16-inch Truckee Meadows Water Authority (TMWA) potable transmission main that is within a 30-foot right of way grant for a 30-year term. The BLM ROW grant expires on December 31, 2035 with provisions for renewal. SB has contacted TMWA to solicit comments and conditions to allow the proposed 20-inch reclaim main to parallel the existing main. From preliminary discussions with TMWA staff, it is anticipated the reclaim main will be installed 10-feet away horizontally while for any crossings needed it would be installed a minimum of 1-foot below. The proposed pipeline will need its own BLM right of way grant and SB has requested a pre-application meeting with BLM staff to initiate this process, but due to the current COVID-19 situation no timeframe for conducting this meeting was provided by BLM.

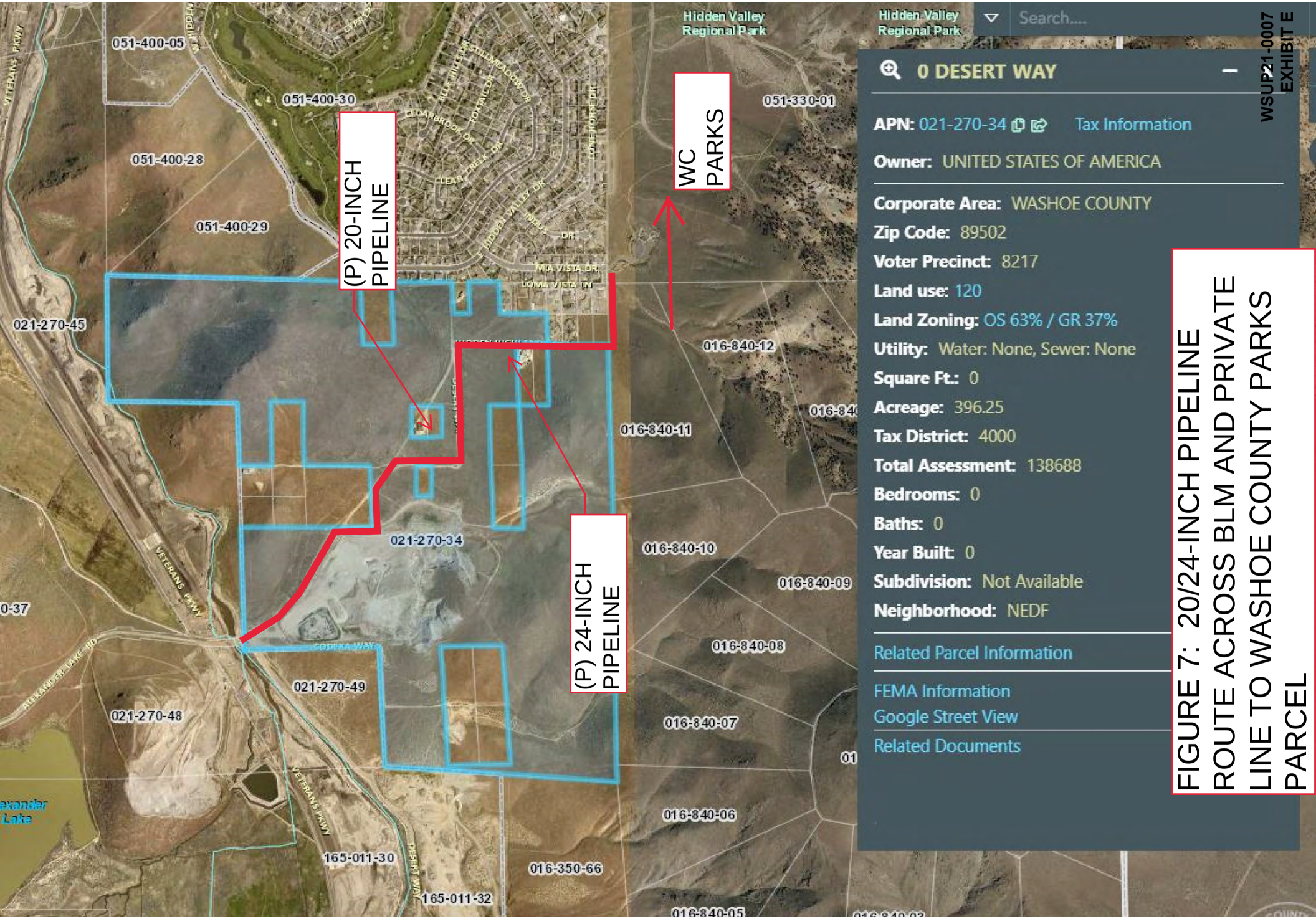


FIGURE 7: 20/24-INCH PIPELINE ROUTE ACROSS BLM AND PRIVATE LINE TO WASHOE COUNTY PARKS PARCEL

Referring to Assessor map number 021-27 provided in Appendix C the proposed 20-inch pipeline would stay within/adjacent to the 30-foot wide TMWA pipeline right of way grant to the intersection of Desert Way and Hidden Highlands Drive. From the intersection of Desert Way and Hidden Highlands the pipeline is proposed to be increased to 24-inches and go east within an existing 25-foot public utility access easement across the BLM parcel APN 021-270-34 to private lands with APNs 021-270-42 and 021-270-43. The 25'-wide public utility/access easement extends across APNs 021-270-42 and 43 where it is proposed to install the 20-inch pipeline. Once to the east of APN 021-270-43 it is proposed to extend the 24-inch pipeline within the existing 50'-wide access and public utility easement on the BLM parcel APN 021-270-34 to private land owned by Sunny Hills Ranchos APN 016-840-11 (refer to Figure 8).

Once on APN 016-840-11 it is proposed to parallel its western property line within a new 30-foot wide pipeline easement to the southwest corner of the Hidden Valley Regional Park owned by Washoe County (APN 051-330-01). The total length of easement needed is 650-feet±, resulting in a total area of approximately 19,500 square feet (.45 acres).

Once with APN 051-330-01 the 24-inch pipeline would traverse the Hidden Valley Regional Park owned and maintained by Washoe County. The final main alignment will be determined in coordination with finalizing the tank site as well as the proposed RIB and wetlands additions. Assuming tank site 2 is selected an approximate main route that is anticipated is provided in Figure 9. A pipeline easement will need to be granted across the Washoe County Parks land to the final tank site.

Pipeline permitting requirements are anticipated to entail the following:

- Work within the Alexandra Lake Road Right of Way:
  - Washoe County excavation and encroachment permit.
- Work within Veterans Parkway Right of Way:
  - Regional Transportation Commission review and comment, while City of Reno excavation and encroachment permit is assumed needed.
- Steamboat Creek Crossing:
  - Steamboat Creek is a waters of the United States and work within its ordinary high water level requires a United States Army Corp of Engineers (USACE) 404 nationwide permit (NWP).
  - Work within and adjacent to Steamboat Creek will also require a Nevada Department of Environmental Protection (NDEP) 401 water quality permit, which to some extent can reference the information contained in the 404 NWP.
  - An NDEP temporary permit for working in waterways shall also be required, which requires the completion of a best management plan (BMP) to protect Steamboat Creek from construction activities.
  - An NDEP damming and/or dewatering permit shall also be required.
  - Hazardous Waste Management is anticipated due to mercury contaminated soils within the Steamboat Creek sediments.
  - Nevada Division of Wildlife permitting may be needed for Fish Salvage.

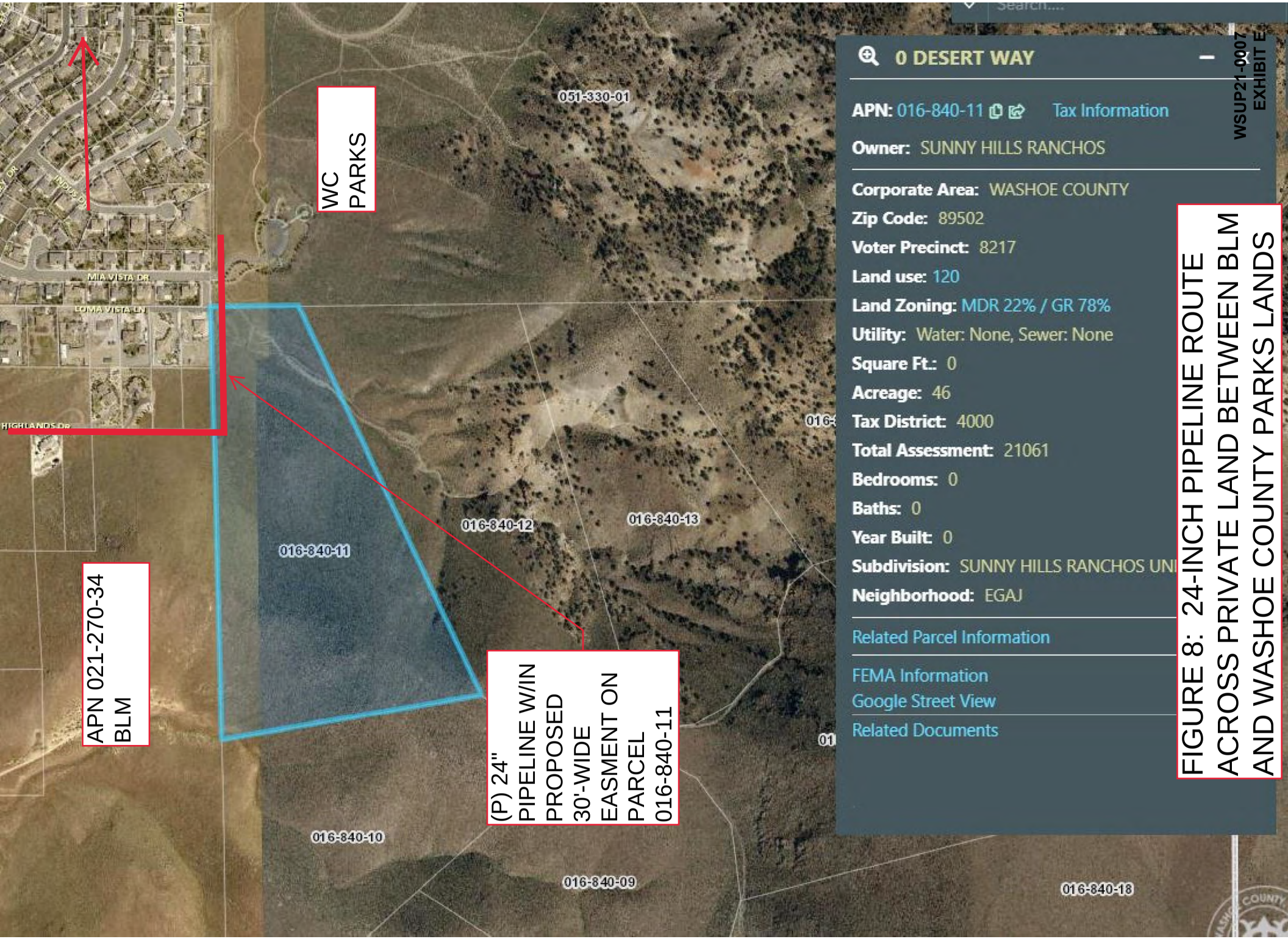


FIGURE 8: 24-INCH PIPELINE ROUTE ACROSS PRIVATE LAND BETWEEN BLM AND WASHOE COUNTY PARKS LANDS

FIGURE 9: 24-INCH PIPELINE ROUTE ACROSS WASHOE COUNTY PARCEL APN 051-330-01

WSUP21-0007
EXHIBIT E

Pipeline permitting cont.-

  - Construction Stormwater Permit is needed due to the anticipated total disturbed area of the project to exceed one acre and impacts to Steamboat Creek.

- The proposed 20-inch pipeline installation across BLM Parcel APN 021-270-34 will require obtaining a right of way grant from BLM. The approval of a utilities right-of-way permit, including environmental assessment is required. It is proposed to amend the Environmental Assessment EA-NV-030-06-011 completed for the TMWA pipeline as needed to encompass the proposed reclaim main addition. Note: Cultural and/or Archeological amendments including the field work and submissions to BLM for approval can take substantial periods of time (8-15 months) and it is recommended to commence this work in the early phases to avoid delays in moving ahead to construction. As noted, SB has requested a pre-application meeting with BLM, but due to COVID-19 BLM is not currently conducting staff meetings and is unable to provide a timeframe.
- Once the pipeline enters the Hidden Valley Regional Park permitting and approval from the Washoe County Parks Administration shall be required.

Lands and Permitting Proposed Storage Tank Addition: The reclaim storage tank addition is proposed to be located within the Hidden Valley Regional Park at the elevation required to meet system planning hydraulics. The Hidden Valley Regional Park is under the jurisdiction of Washoe County Parks. Selecting the final tank site and configuration will require soliciting Washoe County Park review and approvals. The tank site as well as access road will need an easement dedicated.

The proposed tank shall require the following permits:

- Special Use Permit
  - It is envisioned that due to both to steep hillside development and grading volumes required a Washoe County Special Use Permit (SUP) shall be required. The SUP for the tank site/construction could potentially be combined under the same permit for the proposed RIB and wetlands addition.
- Grading Permit
  - Due to the volumes of cut/fills anticipated a grading permit shall be required.
- Washoe County Building Permit
  - The tanks plans will need to be approved by the Washoe County Community Services prior to construction.
- Stormwater Construction Permit
  - The disturbed area will exceed one acre a notice of intent will need to be filed with NDEP and it is anticipated revegetation will be required as a condition of this permit.
- WC AQMD Dust Control Permit

Construction Cost Opinions: The majority of the proposed 20 and 24-inch mains will not be installed in pavement, but will traverse rocky terrain from the east side of the Alexander Lake Road and Veterans Parkway intersection to the proposed tank site. The area in question is rocky and it is anticipated additional construction effort will be needed. Assuming tank site 2 is selected the construction cost opinion for the proposed transmissions mains including a 10 percent contingency is on the order of $5.4 million dollars (refer to Table 4). The cost opinion provided does not include lands, permits and engineering.

The construction cost option for common items associated with both tank options is provided in Table 6. Common items appear limited to yard piping and electrical, which has an estimated construction cost opinion of $550,000.

Table 5: Construction Cost Opinion for Hidden Valley Phase 2 Transmission Mains

Description	Quantity	Unit	Unit Cost	Cost	Comments
Tie-In to Existing 20-inch East Side of Veterans Parkway	1	LS	$40,000	$40,000	
20-inch Restrained DIP Across Veterans Parkway ROW	500	LFT	$500	$250,000	Assume $25 per in-dia. Pavement
20-inch Steamboat Creek Crossing – Dewatering and Soil Mitigation	1	LS	$250,000	$250,000	
20-inch Restrained DIP East Side of Veterans ROW to Desert Way and Hidden Highlands Intersection	4,650	LFT	$400	$1,860,000	Assume $20 per in-dia. No pavement or traffic control needed. Assume restrained DIP required to parallel TMWA main.
24-inch from Intersection Desert Way and Hidden Highlands Intersection to Tank Site 2	5,725	LFT	$432	$2,473,200	Assume $18 per in-dia. No pavement or traffic control needed.
			Total =	$4,873,200	
			10% Contingency =	$487,320	
			Total Construction Cost Estimate =	$5,360,520	

Table 6: Construction Cost Opinion for Hidden Valley Phase 1.40 Mgal Storage Addition – Common to Both Tank Options

Description	Quantity	Unit	Unit Cost	Cost	Comments
Yard Piping Including Tank Fill/Drain, Check Valves and Vaults and Overflow Piping	1	LS	$350,000	$350,000	
Electrical – Provide Power and Control/Monitoring Equipment	1	LS	$150,000	$150,000	

Total	=	$500,000
10% Contingency	=	$50,000
Total Construction Cost Estimate Common Items	=	$550,000

The construction cost opinion for the site work and steel tank installation with including a 10 percent contingency is $2.8 million dollars (Table 7), while per Table 8 the construction cost opinion for the prestressed concrete tank option is $3.7 million. At this level of analysis the prestressed concrete tank will have an additional construction cost of approximately $1.0 million dollars.

Table 7: Welded Steel Construction Cost Opinion – Site Work and Tank

Description	Quantity	Unit	Unit Cost	Cost	Comments
Grade Site – Steel Tank Option	1	LS	$1,490,000	$1,490,000	Cost includes import and two stage grading
15-wide Tank Access Road	1,825	LF	$55,640	$56,640	6” Agg. Base Surface
Construct (2) 0.70 Mgal Welded Steel Tanks	1,400,000	Per Gallon	$0.60	$840,000	Includes final grading, ringwall and all appurtenances
Interior/Exterior Blasting and Recoating of Steel Tanks	1	LS	$120,000	$120,000	

Total	=	$2,506,640
10% Contingency	=	$250,664
Total Construction Cost Estimate Common Items	=	$2,757,304

Table 8: Prestressed Concrete Tank Construction Cost Opinion – Site Work and Tank

Description	Quantity	Unit	Unit Cost	Cost	Comments
Grade Site – Prestressed Tank Option	1	LS	$1,368,000	$1,368,000	Cost includes import and two stage grading
15-wide Tank Access Road	1980	LF	$61,750	$61,750	6" 'Agg. Base Surface
Construct 1.40 Mgal Prestressed Concrete Tank with Internal Partition	1,400,000	Per Gallon	NA	$1,925,000	Budgetary cost per DN Tanks (refer to budget letter in Appendix D) Includes internal partition
			Total =	$3,354,750	
			10% Contingency =	$335,475	
			Total Construction Cost Estimate Common Items =	$3,690,225	

SB contacted DN Tanks who provide design and installation services for prestressed concrete tanks. Included in Appendix D is an informational package on prestressed concrete tanks that includes a life cycle cost analysis versus steel tanks. Unlike steel tanks concrete tanks do not need to be re-coated approximately every 20 years. Per the DN Tank life cycle cost analysis the maintenance cost every 20 years would be on the order of $400,000 and $25,000 for a 1.5 Mgal welded and prestressed concrete tank, respectively. The analysis may be slightly biased in terms of the total cost of ownership amount, but it can be expected that a prestressed tank will have lower maintenance cost over a 100-year life versus a steel tank.

Included in this packet is a discussion on the benefits of utilizing a prestressed concrete tank to reduce site work, which is applicable in this case. The picture of the differentially backfilled tank on page 4 is a good example of what the prestressed tank would look like built into an existing hillside.

Summary and Recommendations:

The Hidden Valley Phase 2 proposed pipelines require permits and easements prior to construction. It is recommended to initiate the permit process with BLM and finalize the conditions TMWA will require to parallel the existing potable pipeline. The BLM permitting should include the future main extension to west Hidden Valley Drive that will serve the Hidden Valley Golf course. Permits for crossing Steamboat Creek can be coordinated with the design, but they will be required prior to construction. Once within the Washoe County Parks property the routing of the pipeline to the preferred tank site will need to be coordinated with the proposed RIB and wetlands additions. The critical path for the pipeline appears to be obtaining the BLM right of way grant as well as the private easement needed between BLM and WC Parks parcels. In coordination with design the Steamboat Creek crossing

permits would be pursued as well as final pipeline routing in coordination with the RIB and wetlands additions.

The 1.4 Mgal storage tank addition also requires permits and easements, but to move these ahead the final tank location and type will need to be determined. To some extent selecting a final tank type can be subjective, but in an attempt to quantify this the selection matrix in Table 9 was developed. Due to the prestressed concrete tank being less visible primarily due to being able to backfill against its walls as well as its lower annual maintenance cost it appears to be the preferred option for this application.

Table 9: Tank Option Selection Matrix
Ranking from 1 (Poor) to 4 (Excellent)

Description	Welded Steel Tank	Prestressed Concrete Tank
Permitting/Lands	2	3
Access Road	2	2
Site Disturbance	2	3
Visibility	2	3
Initial Construction Cost	3	1
Maintenance Cost	1	3
Totals=	**12**	**15**

The next course of action for the proposed storage tank addition is to obtain WC Parks approval for the preferred tank site. Upon getting approval and any related conditions from WC Parks the Special Use Permit (SUP) needs to be obtained. A SUP can dictate conditions that need to be incorporated into the final design, while there is no guarantee the SUP will be approved. Upon obtaining both WC Parks and SUP approvals final design can be completed.

Please do not hesitate to contact Scott Benedict (775-223-0922) if there are any questions and/or more information is needed for the proposed Hidden Valley Phase 2 Improvements.

Appendix A

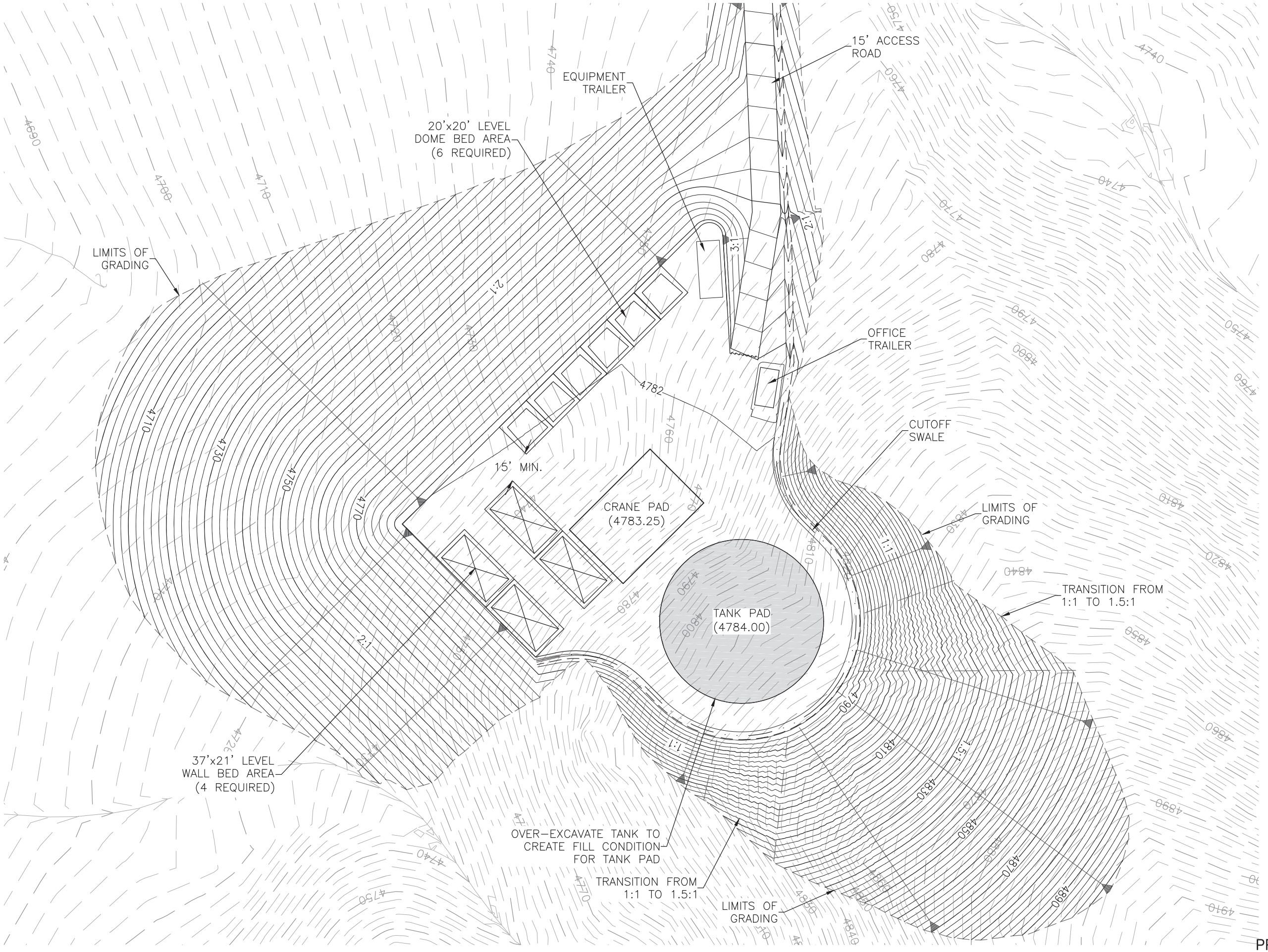
Operating Storage Evaluation Spreadsheet

Hidden Valley Proposed Tank - Operating Storage Sizing

Hour	DI Pattern	GC Demand, gpm	Park Demand, gpm	RIB Demand, gpm	Bella Vista Daybreak	Mira Loma Park	Rosewood	UNR-South	UNR-North	Total Demand, gpm	Main Supply Capacity, gpm (2 pumps)	Excess Capacity, gpm	Operating Storage Req'd, Gallons
0-1	2.2	2207	530	620	600	194	236	1500	1500	7387	5200	-2187	13120
1-2	1.6	1608	386	620	600	141	172	1500	1500	6526	5200	-1326	7958
2-3	1.3	1333	320	620	600	117	142	1500	1500	6133	5200	-933	5597
3-4	1.6	1603	385	620	600	141	171	1500	1500	6519	5200	-1319	7916
4-5	1.3	1321	317	620	600	116	141	1500	1500	6115	5200	-915	5490
5-6	1.9	1871	449	620	600	164	200	1500	1500	6904	5200	-1704	10225
6-7	0.7	672	161	620	600	59	72	1500	1500	5184	5200	16	0
7-8	0.7	743	178	620	600	65	79	1500	1500	5285	5200	-85	0
8-9	0.6	579	139	620	600	51	62	1500	1500	5051	5200	149	0
9-10	0.8	787	189	620	600	69	84	1500	1500	5349	5200	-149	0
10-11	0.7	651	156	620	600	57	70	1500	1500	5154	5200	46	0
11-12	0.8	819	196	620	600	72	88	1500	1500	5395	5200	-195	0
12-13	0.7	697	167	620	600	61	74	1500	1500	5219	5200	-19	0
13-14	0.7	687	165	620	600	60	73	1500	1500	5205	5200	-5	0
14-15	0.8	816	196	620	600	72	87	1500	1500	5391	5200	-191	0
15-16	0.3	313	75	620	600	27	33	1500	1500	4669	5200	531	0
16-17	0.2	150	36	620	600	13	16	1500	1500	4435	5200	765	0
17-18	0.0	0	-1	620	600	0	0	1500	1500	4218	5200	982	0
18-19	0.5	481	115	620	600	42	51	1500	1500	4910	5200	290	0
19-20	0.7	682	164	620	600	60	73	1500	1500	5199	5200	1	0
20-21	1.2	1194	287	620	600	105	128	1500	1500	5933	5200	-733	4400
21-22	1.4	1398	335	620	600	123	149	1500	1500	6225	5200	-1025	6149
22-23	1.4	1406	337	620	600	123	150	1500	1500	6237	5200	-1037	6221
23-24	1.8	1794	430	620	600	157	192	1500	1500	6794	5200	-1594	9562
												Total Gallons =	**76638**

Appendix B

Temporary Grading Plans for Tank Construction Welded Steel and Prestressed Concrete

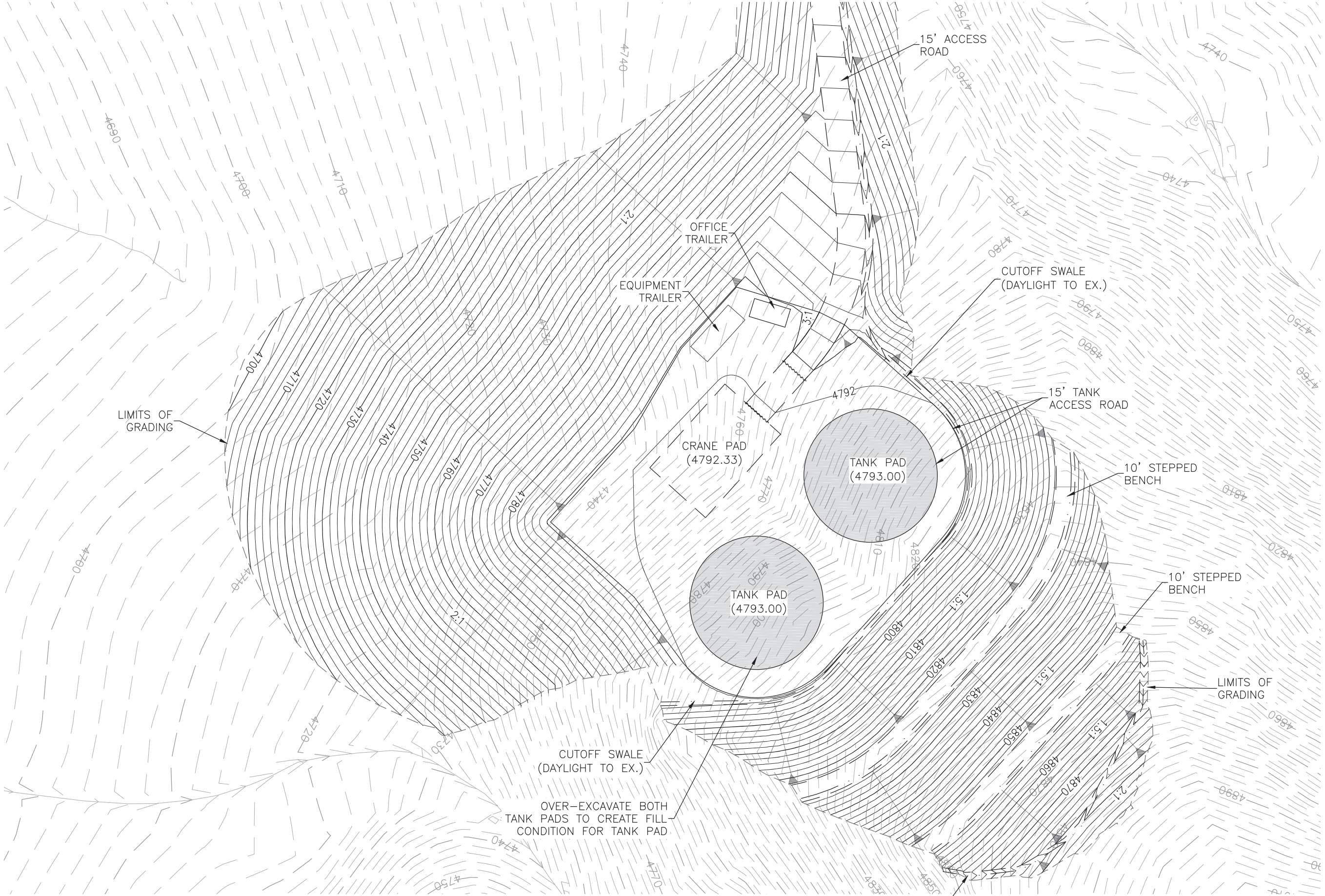


JUNE 2020

CHRISTY CORPORATION
1000 Kiley Parkway | Sparks Nevada 89436
775.502.8552 christynv.com

HIDDEN VALLEY TANK PLANNING
PRE-STRESSED CONCRETE TANK OPTION
(PRELIMINARY CONSTRUCTION SITE LAYOUT)

WSUP21-0007
EXHIBIT E



JUNE 2020

CHRISTY CORPORATION
1000 Kiley Parkway | Sparks Nevada 89436
775.502.8552 | christynv.com

HIDDEN VALLEY TANK PLANNING
WELDED STEEL TANK OPTION
(PRELIMINARY CONSTRUCTION SITE LAYOUT)

WSUP21-0007
EXHIBIT E

Appendix C

Pertinent Parcel Maps

SECTION 34 & PORTIONS OF SECTIONS 28 & 33 T19N - R20E

Assessor's Map Number

021-27

STATE OF NEVADA

WASHOE COUNTY

ASSESSOR'S OFFICE

1001 East Ninth Street, Building D
Reno, Nevada 89512
(775) 328-2231

Feet
0 200 400 600 800

1 inch = 800 feet

021-16
021-28
021-62
021-76
021-76
016-84
016-35

PAR. A
RS 5840

POR.PAR 3A
RS 5840
PAR.A
RS 6011

021-270-50
185.31 ac.

021-270-45
171.11 ac.

Future R/W

STEAMBOAT SLOUGH

HOMBRE WAY
ESCUELA WAY
RIO POCO ROAD
REGGIE ROAD
BELLA VISTA RANCH ROAD
HUFFAKER ALEXANDER LAKE ROAD
HILLS

HIDDEN VALLEY DRIVE
HIDDEN HIGHLANDS DR.

City of Reno
Washoe County

WASHOE COUNTY PARKS

1.25 ac. each
021-270-07
021-270-06
021-270-05
021-270-04
021-270-03
021-270-02

R.S. 2157
021-270-01
50832 sf
021-270-09
1.25 ac.
021-270-10
1.25 ac.

50' ACCESS & PUE
021-270-18
5 ac.
021-270-08
1.25 ac.
021-270-12
1.25 ac.
25' ACCESS & PUE
50' ACCESS & PUE
159.97
021-270-11
1.25 ac.

(E) 25' PUE

021-270-42
2.33 ac.
PAR. 1
PM 3473
021-270-43
2.33 ac.
PAR. 2
PM 3473

021-270-16
1.25 ac.
021-270-17
1.25 ac.
021-270-20
5 ac.
021-270-21
2.5 ac.
2.5 ac.
021-270-22
021-270-33
10 ac.
021-270-19
1.25 ac.
021-270-14
5 ac.
021-270-15
5 ac.

(P) 20-INCH PIPELINE W/IN 30'-WIDE TMWA EASEMENT

021-270-24
2.5 ac.

(E) 50' PUE

021-270-34
396.25 ac.

DESERT WAY

021-270-37
151.83 ac.

Washoe County
Industrial Haul Road
(No Public Access)

021-270-44
7.582 ac.

PAR. 2A
RS 5840

PAR. B
RS 5840

PAR. 2B
RS 5840

021-270-48
79.227 ac.

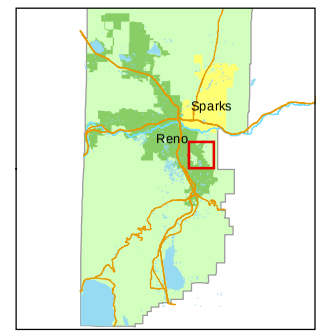
021-270-49
24.35 ac.

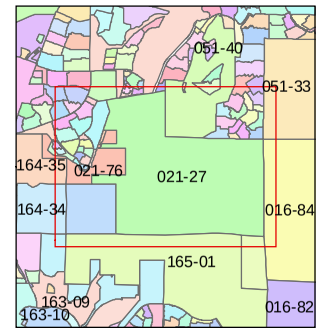
25' ACCESS & PUE
021-270-25
5 ac.
021-270-26
5 ac.
021-270-28
5 ac.
021-270-27
5 ac.

Future R/W
021-270-47
16.798 ac.

T19N - R20E
T18N - R20E

ALEXANDER LAKE





created by: TWT 10/23/2015

updated: KSB 1/18/17 KSB 7/14/17

SR 2/5/19

area previously shown on map(s):

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent a survey of the premises. No liability is assumed as to the sufficiency or accuracy of the data delineated hereon.

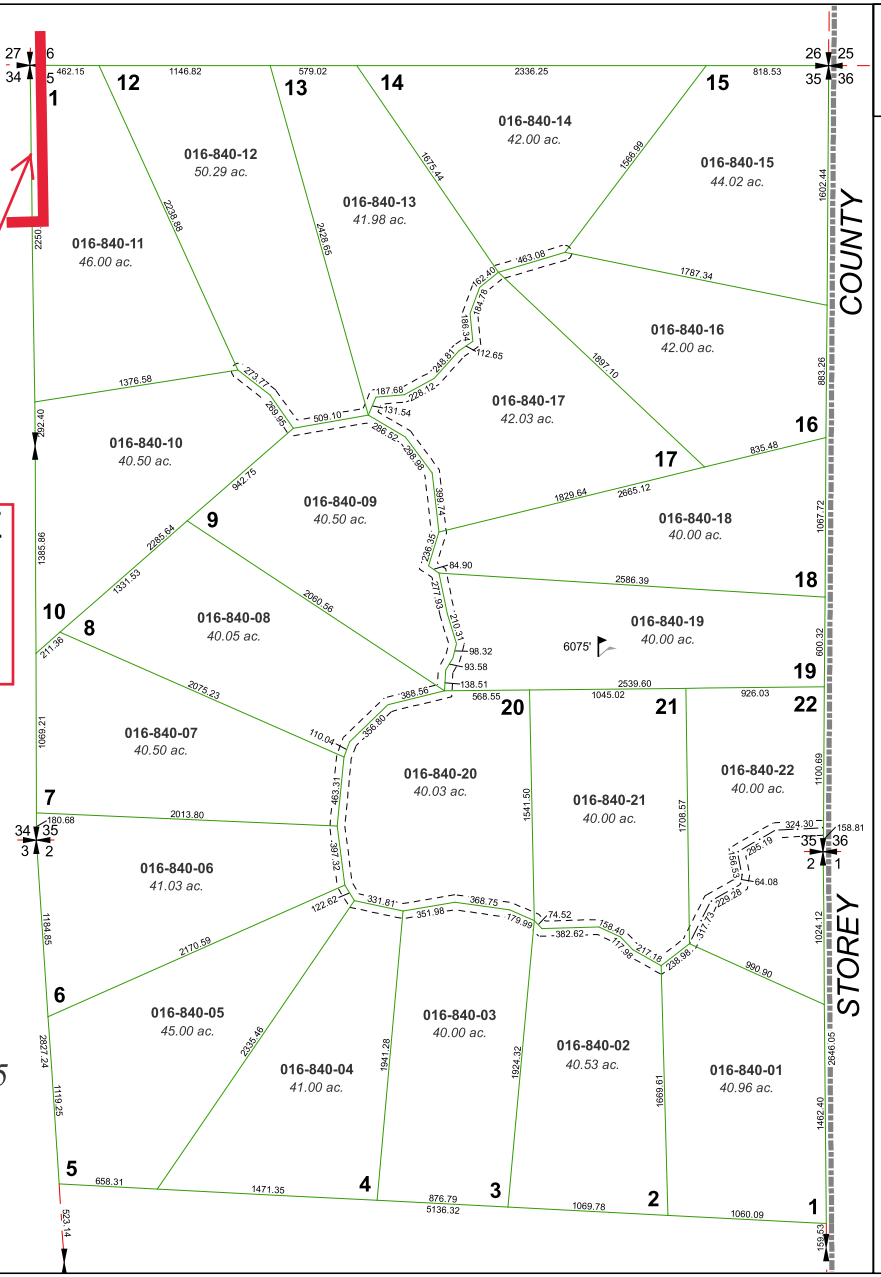
WSUP21-0007
EXHIBIT E

DIVISION OF LAND MAP #44
SUNNY HILLS RANCHOS
UNIT 3

DOCUMENT # 601870

SEC. 35, T19N - R20E
& POR. OF NORTH 1/2 OF SEC. 2
T18N - R20E

(P) 30' WIDE
PIPELINE
EASMENT
LOCATION



016-35

Assessor's Map Number

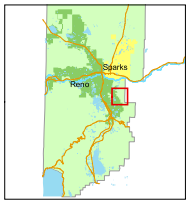
016-84

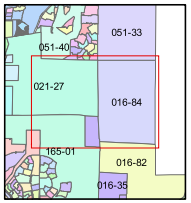
STATE OF NEVADA
WASHOE COUNTY
ASSESSOR'S OFFICE
Joshua G. Wilson, Assessor

1001 East Ninth Street
Building D
Reno, Nevada 89512
(775) 328-2231

Feet
0 200 400 600 800

1 inch = 800 feet





created by: TWT 4/2/2014

last updated:

area previously shown on map(s)

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent a survey of the premises. No liability is assumed as to the sufficiency or accuracy of the data delineated hereon.

WSUP21-0007
EXHIBIT E

Appendix D

DN Tanks Informational Package

DN Tanks Informational Package for:

Scott Benedict, PE
Owner
SB Engineering

Shown Above: 2 MG Tank – Tumwater, OR

SEAN SUDOL, P.E.

REGIONAL MANAGER, NEVADA

SCOTTSDALE, AZ 85251

Phone: (619) 820-5327| Sean.Sudol@dntanks.com

www.dntanks.com

Generations Strong
P.O. Box 696, El Cajon, CA 92022 | 619.440.8181 | Fax 619.440.8653

May 13, 2020

Scott Benedict, PE
Principal / Owner
SB Engineering

REFERENCE: Prestressed Concrete Tank Informational Package
AWWA D110 vs. Welded Steel Tanks

Mr. Benedict,

DN Tanks is pleased to provide information and budgeting for the proposed Prestressed Concrete water storage tanks. The tank will be designed in accordance with all local and National building codes, and National standards including but not limited to: AWWA D110, ASCE 7-16, ACI 350, IBC, etc.

To assist you in your review and evaluation, we included the following attachments:

A. Benefits of a DN Tanks Prestressed Concrete Tank Compared to Welded Steel
B. Life Cycle Analysis
C. Welded Steel Maintenance Bid Results
D. ~~Example Photos of Prestressed Concrete Tanks~~
E. Prestressed Concrete Tank Budget Letter

AVAILABLE UPON REQUEST-REMOVED FOR INCLUSION IN REPORT

Thank you for the opportunity to submit this information. We look forward to working with you further on your upcoming tank project. If you have any questions or need additional information, please call me direct at (619) 820-5327.

Sincerely,
DN TANKS | *Generations Strong*

Sean Sudol, PE
Regional Manager – Southwest
Mobile: (619) 820-5327

WSUP21-0007
EXHIBIT E

Attachment A

Benefits of a DN Tanks Prestressed Concrete Tank

WSUP21-0007
EXHIBIT E

Generations Strong
P.O. Box 696, El Cajon, CA 92022 | 619.440.8181 | Fax 619.440.8653

May 13, 2020

Scott Benedict, PE
Principal / Owner
SB Engineering

Thank you for your interest in prestressed concrete tanks. We have prepared this letter to demonstrate the value of selecting a DN Tanks Prestressed Concrete Tank for your proposed future projects in Washoe County, NV. This letter includes information about DN Tanks, and addresses some of the concerns you are familiar with regarding welded steel tanks.

BENEFITS OF A PRESTRESSED CONCRETE TANK

Reduced Freeboard Requirements:
For welded steel tanks, per AWWA D100, the amount of freeboard typically matches that of the calculated sloshing wave height. Prestressed concrete tanks can be designed to resist a portion of the sloshing wave due to the concrete roof structure. For a Prestressed Concrete Tank, freeboard can typically be **reduced** by 2.0' to 7.0' depending on the roof type, seismic accelerations, and connection detailing. Because of this resistance to sloshing, concrete tank roofs have lower overall profiles, which are ideal in projects located in residential areas or wherever overall structure heights are a concern.

Reduced Site Work Costs For the Project:
For constructability, the concrete tank requires only 10' temporary track from the outside face of the tank wall for the prestressing application. A welded steel tank typically requires a permanent 15'-20' maintenance track around the exterior of the tank foundation. Furthermore, if a steel tank is placed in a depression, it will require expensive retaining walls to allow for these permanent maintenance tracks. By selecting a concrete tank, the Owner can significantly reduce the amount of excavation required for the project due to the track's reduction. Concrete tanks can also be partially and differentially buried without adding significant cost to the tank. This can assist in balancing the sites excavated material, thus reducing site work costs. Partially burying the tank will also help blend the tank into its natural surroundings, enhancing the aesthetics of the tank, with or without the selection of exterior aesthetic treatments. Partially or fully buried tanks also have the option to utilize multiple use roof structures.

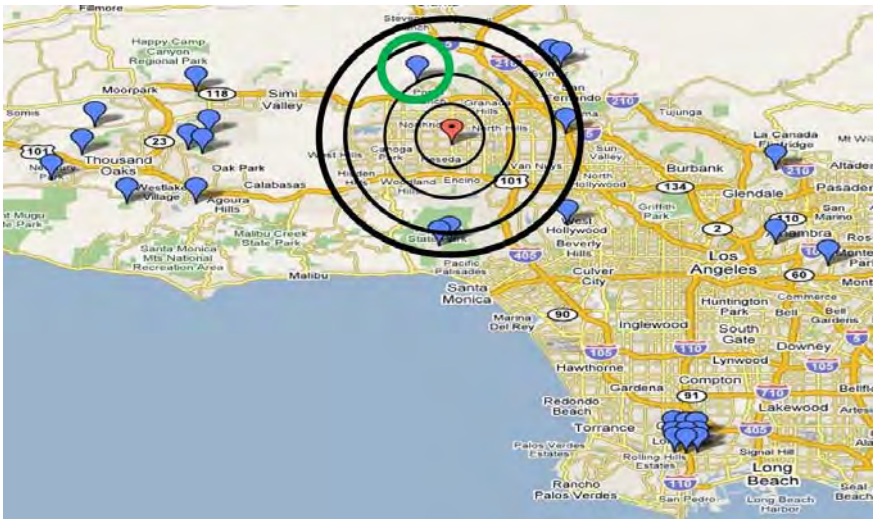

Differentially Backfilled

Seismic Reliability:
Prestressed concrete tanks have shown outstanding seismic performance for several decades. The design of prestressed concrete tanks takes into consideration vertical and horizontal accelerations, the sloshing of the water, and overturning moments. With numerous prestressed concrete tanks located in the Western United States in areas of high seismic activity, DN Tanks has never experienced any earthquake-induced structural problems. For example, a significant number of our tanks were located just a few miles from the epicenter of both of the San Fernando earthquakes (1971 and 1994). None of our tanks

WSUP21-0007
EXHIBIT E

experienced any damage during these earthquakes and are still serving well today. Alternatively, several steel tanks located near the epicenters of these two earthquakes had their walls buckle inducing catastrophic failures.

As further tribute to the ductility of prestressed concrete tank walls, during the 1994 Northridge earthquake one of our tanks, located within a mile of the hard hit downtown area, experienced no damage whatsoever. Several houses adjacent to the tank site, however, were severely damaged.



Pictured to the Left:

The 6.8M Northridge Earthquake of 1994.

The red pin represents the epicenter of the earthquake and the black circles represent the areas most affected by it. The blue pins depict local DN Tanks and the circled blue pin is our 10.0 MG Susana Water Storage Tank that experienced no damage.

Steel Tank Coating Concerns and Maintenance Costs:

Concrete tanks offer reliable, no maintenance service for the life of the tank. The selection of a DN Tanks Prestressed Concrete Tank is made to provide a water storage facility that does not require expensive long-term maintenance and disruption to the servicing area. DN Tanks, while typically slightly higher in initial construction cost, will provide the Owner with the lowest long-term ownership costs.

The life cycle analysis included with this package depicts a comparison of the impact of an initial construction cost along with maintenance costs between a prestressed concrete tank and a welded steel tank.

The comparison is shown for several sizes, but in this letter we will base the analysis on a 1.4 MG tank with a 100 year life term expectancy. We assume the steel tank is designed in accordance with AWWA D100, Section 3 with the additional required corrosion allowance. A typical maintenance cycle of a welded steel tank requires a sandblast and recoating of the tank's surface area. We have calculated the maintenance for both the interior and the exterior of a welded steel tank using the average steel tank painting cost of $8.00 / $8.00 respectively per square foot at these sizes.

As shown in the Life Cycle Analysis for the 1.4 MG tank, by choosing a DN Tanks Prestressed Concrete Tank, the Owner is expected to save approximately $403,725 (in today's costs) every 20 years, and $1,615,000 over the expected life span of the tank. This costly maintenance is a requirement of steel tanks, as steel tank life is dependent upon the prevention of corrosion and the performance of said maintenance. You will notice that a prestressed concrete tank often becomes the more economical option within one maintenance cycle for the steel tank.

In additional to these mandatory coating costs, the issue of coatings for steel tanks seems to have become considerably more controversial as of late. The traditional coatings have fallen out of favor in many parts of the country due to the health and taste problems sometimes attributed to volatile organics leaching out of the coatings and into the water. Furthermore, the maintenance requirements for a steel tank dictate that the tank be removed from service while undergoing its maintenance. This can typically last about 1 to 2 months and is usually done during the summer months when the water storage is needed most. The selection of a DN Tank eliminates the need to take the tank out of service. Lastly, many new coatings experience much shorter lifespans due changes in coating chemistry mandated by environmental regulations, which has also negatively impacted coatings costs.

Concrete Reinvests 70% of Tank Cost Into Local Involvement:
An additional benefit of constructing a DN Tank is the high degree of local involvement. When the investment is made in a prestressed concrete tank, a large portion of the construction cost is immediately reinvested into the local economy. While we supply the supervisory personnel and key specialty skills and equipment, the majority of the material and expense cost for construction of the concrete tank is from local sources including concrete suppliers, lumber yards, equipment rentals, and local labor. The economy within and around the Owner's area shares with us the investment in the water storage tank. The majority of the cost of a steel tank, on the other hand, is in the manufacturing and shipping of the steel plates, which results in very little stimulus to the local economy.

Concrete Provides Enhanced Water Quality – Reducing Stratification Concerns:
In warm weather climates it has been observed that steel tanks will transfer heat to the water, creating stratification due to the warmer water rising to the top of the tank. This stratification can create dead zones at the top of the tank leading to water quality issues. A prestressed concrete tank's total wall thickness is typically 12", meaning it provides enhanced insulation properties. This insulation keeps the water cooler and assists in maintaining a more consistent temperature, thus increasing overall water quality.

INFORMATION ON TANK DESIGNER AND BUILDER

DN Tanks is a tank manufacturer specializing in the design and construction of prestressed concrete tanks. DN Tanks has constructed more than 3,00 tanks since 1930's with capacities ranging from 40,000 gallons to upwards of 42,000,000 gallons and has been working with clients for over 80 years to deliver the highest quality tanks, on-time and within budget throughout the United States and around the world. DN Tanks has significant experience in the high seismic regions of the Pacific Rim and Southwest. To date, all of DN Tanks 900 Southwest tank structures have performed successfully in every major earthquake since our first project built.

Local DN Tanks' headquarters located in El Cajon, CA

DN Tanks designs and constructs a strand-wound, circular prestressed concrete potable water storage tank as defined as Type I in ANSI/AWWA Standard D110. The tank is designed and constructed in accordance with the following standards and codes: ANSI/AWWA D110; ACI 350; ACI 350.1; ACI 350.3; ACI 372R, ASCE 7, CBC, International Building Code and Local Codes.

Design:

DN Tanks' California based in-house engineering staff includes **12 Professional Engineers registered in California & Nevada, 4 EITs and 4 CAD designers** who are available to support the design or inspection processes. Having local engineering resources available at any time allows our Engineering staff to quickly and efficiently complete the tank design and shop drawings. The engineering team assigned to your project will be led by our Engineering Manager who has over 20 years of design and construction experience in the Southwest.

Construction:
DN Tanks has **46 tank construction crews, 17 of which are California based.** Our on-site superintendents have an average of over 10 years of experience with DN Tanks. In addition, our San Diego, CA corporate office houses our project management, engineering, procurement, safety, warehousing, accounting, etc. All of the vital support services that are key to a successful project. In summary, our expertise and resources will allow for the project to move forward expeditiously with a focus on quality and safety. In addition, any tank construction questions will be quickly addressed by DN Tanks while we work in partnership with your team to find solutions that best fit the project needs.

Safety:

DN Tanks is committed to safety in all aspects of our tank construction. Our safety team is led by a Safety Director who is also located in our California Corporate office. DN Tanks takes the safety of our employees and all persons on the job site with the utmost priority. We have developed and implemented an extensive safety program that addresses all aspects of our tank construction activities to ensure our employees remain safe at all times.

In addition, Sean Sudol serves as the Regional Manager to Southern Nevada and is available in person as a dedicated resource to the City of North Las Vegas to guide your project from conception through commissioning.

Proven Premium Product:
Concrete tanks are considered a premium product in the water industry due to many of the benefits described in this letter. DN Tanks' long and successful track record of experience is the result of a proven quality tank product designed for long-term durability and exposure to actual climate conditions.

<u>Benefits of Prestressed Concrete Tanks in Summary:</u>

A. Concrete tanks require less down-time for maintenance (down-time will cost you more money and could present operational and safety problems).
B. No safety or liability problem from having an open pit around the tank if it is placed in a depression. Steel tanks will often require expensive retaining walls to allow for permanent maintenance tracks.
C. No potential health, taste or liability problems from interior coatings.
D. Prestressed Concrete Tanks are less conductive, and therefore less susceptible to exterior temperature fluctuations, enhancing water quality.
E. Lower profile since the roofs can be flat and can resist sloshing.
F. Partially or fully buried structures with multiple use roof structures.
G. Aesthetically pleasing since architectural treatment can be added.
H. Less susceptible to sabotage damage such as from rifle shooting.

I. Less susceptible to fire damage.

J. Less susceptible to earthquakes since the wall, roof and footings do not have "fixed" connections, which allow all three components of the tank structure to move independently of each other in an earthquake.

K. Concrete tanks require only a temporary 10’ wide work road around the tank where steel tanks require a permanent 15’-20’ wide maintenance track. For some sites the requirement for a maintenance track can lead to costly retaining walls for steel tank installations.

Thank you for the opportunity to provide this package. If you have further questions on any of the above information, please feel free to contact me directly at (619) 820-5327.

Sincerely,
DN TANKS | *Generations Strong*

Sean Sudol, PE
Regional Manager - Nevada
Mobile: (619) 820-5327
Email: sean.sudol@dntanks.com

Attachment B

Life Cycle Analysis

1.4 MG Life Cycle Cost Analysis
Welded Steel Tank vs. Prestressed Concrete Tank

Tank Dimensions For Usable Water Volume

Tank Diameter =	86.5	FT.
Side Water Depth =	32.00	FT.
Usable Tank Capacity (Floor Slope 0%) =	**2.50**	MG

NOTE: Usable is defined as the full side water depth (Finish floor to overflow)

Welded Steel Tank Dimensions

Assumed Freeboard =	3	FT.
Total Steel Tank Volume =	**1.54**	MG
Assumed Steel Tank Cost =	$ 1,350,000.00	DOLLARS

NOTE: Steel tank cost includes steel shell, foundation ringwall, and interior & exterior coatings

Prestressed Concrete Tank Dimensions

Assumed Freeboard =	2	FT.
Total Prestressed Concrete Tank Volume =	**1.49**	MG
Assumed Prestressed Concrete Tank Cost =	$ 1,575,000.00	DOLLARS

Welded Steel Tank Maintenance Costs

Return Period	Maintenance Scheduled	Sq Ft	Unit Price	Total Price
20	Blast exterior and re-application of coating	15,754	$9.00	$141,786.00
20	Blast interior and re-application of coating	21,628	$9.00	$194,652.00
20	Engineering Design Cost (Estimate 10%)			$33,643.80
20	Construction Management / Inspection Cost (Estimate 10%)			$33,643.80
TOTAL MAINTENANCE COST PER 20 YEAR RETURN PERIOD				**$403,725.60**

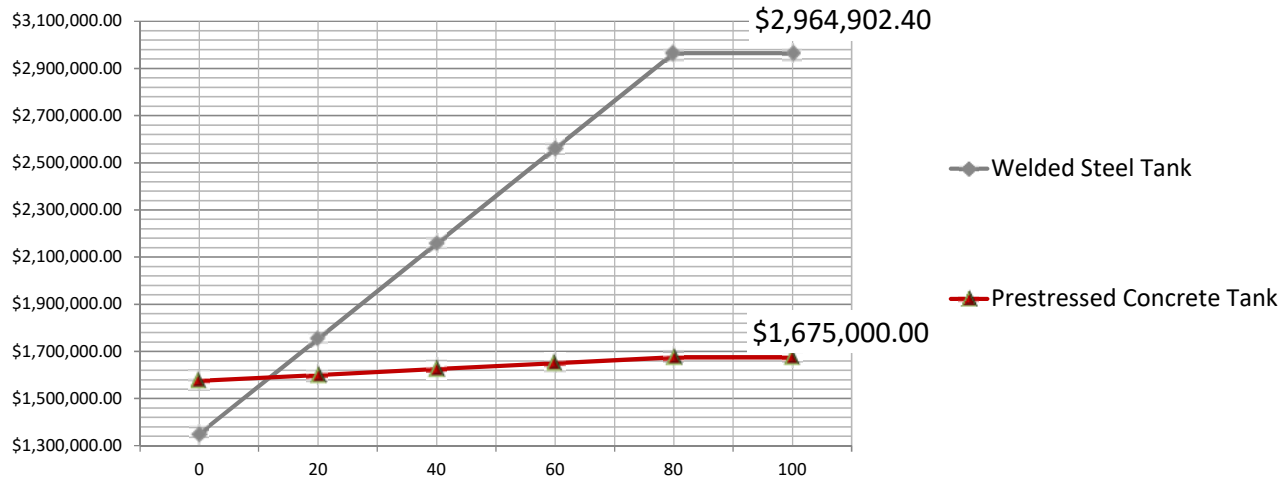
Prestressed Concrete Tank Maintenance Costs

Return Period	Maintenance Scheduled	LS	Unit Price	Total Price
20	Powerwashing, Routine Maintenance, and Inspection	LS	$25,000.00	$25,000.00
TOTAL MAINTENANCE COST PER 20 YEAR RETURN PERIOD				**$25,000.00**

100 Year Total Cost of Ownership Comparison

	Capital and Maintenance Cost Schedule		Cumulative Total Cost of Ownership	
Year	Prestressed Concrete	Welded Steel	Prestressed Concrete	Welded Steel
0	$1,575,000.00	$1,350,000.00	$1,575,000.00	$1,350,000.00
20	$25,000.00	$403,725.60	$1,600,000.00	$1,753,725.60
40	$25,000.00	$403,725.60	$1,625,000.00	$2,157,451.20
60	$25,000.00	$403,725.60	$1,650,000.00	$2,561,176.80
80	$25,000.00	$403,725.60	$1,675,000.00	$2,964,902.40
100			**$1,675,000.00**	**$2,964,902.40**

100 Year Total Cost of Ownership Comparison By Tank Type



WSUP21-0007
EXHIBIT E

Attachment C

Welded Steel Maintenance Bid Results

PWP-WA-2020-038

2019/2020 Tank Improvements

				Farr Construction Corp dba Resource Development Co		Paso Robles Tank - Brown-Minneapolis Tank, Inc.	
				Total Price	$924,180.00	Total Price	$997,000.00
Line #	Description	QTY	UOM	Unit	Extended	Unit	Extended
1	**STMGID 3 TANK**	1		$414,180.00	$414,180.00	$446,500.00	$446,500.00
1.1	1A. Mobilization, Insurance, Bonds, Submittals, and Permits as Required. This item is to include only items necessary and preliminary to performance of the work. Obviously unbalanced bids may be considered to be unresponsive. See Section 7.01 of the General Conditions for details.	1	LS	$15,000.00		$15,000.00	
1.2	2A. Modify Existing Ladder. The existing ladder on this tank is vulnerable to climbing, and shall receive a cage of expanded metal over the lower 8-ft of the existing cage as shown on the ladder detail in the Improvement Plans.	1	LS	$3,000.00		$10,500.00	
1.3	3A. Seal Unused/Abandoned Penetrations. This item includes removal of such items as the existing level indicator and pressure sender from the roof, sealing of supplementary vent openings, and cutting pipe and conduit penetrations flush with the roof. All openings shall be sealed by continuous welding of plate matching or exceeding the thickness of the host tank plate.	1	LS	$2,500.00		$8,500.00	
1.4	4A. Air Gap. This item includes construction of an air gap to prevent backflow and contamination through the existing 6 overflow pipe. The existing overflow pipe outlet is fitted with a rubber duckbill just above a storm drain inlet that is to be removed and replaced with pipe. See Improvement Plans for complete details.	1	LS	$4,000.00		$10,500.00	
1.5	5A. Install New Inward-Swing 36 Manways. The existing bolted, outward-swing manways are to be removed and replaced with inward-swing manways as shown on the Improvement Plans. This bid item shall include removal and disposal of the existing manway, and modifying the shell opening to accommodate the new manway.	2	EA	$9,900.00		$8,500.00	
1.6	6A. Tank Vent. Contractor shall provide and install an AWWA center roof vent, gasket, and hardware as shown on the Improvement Plans. The tank center vent pipe and flange shall be modified as necessary to accommodate the vent diameter, gasket, and bolt pattern. The vent shall be sized to accommodate the air flow shown on the Improvement Plans.	1	EA	$8,500.00		$5,500.00	
1.7	7A. Roof Railing and Safety Cable. Install wing extensions to the existing roof railing at the top of the ladder; install welded roof posts; thread stainless steel cable through posts and secure at each end. See Improvement Plans for details.	1	LS	$7,500.00		$5,000.00	
1.8	8A. Paving. This bid item includes removal of excess material, final grading, placement and compaction of Type 2 Class B aggregate base, and placement and compaction of AC pavement to the limits shown on the Improvement Plans.	5800	Sq Ft	$9.60		$7.50	

PWP-WA-2020-038

2019/2020 Tank Improvements

				Farr Construction Corp dba Resource Development Co		Paso Robles Tank - Brown-Minneapolis Tank, Inc.	
				Total Price	$924,180.00	Total Price	$997,000.00
Line #	Description	QTY	UOM	Unit	Extended	Unit	Extended
1.9	9A. Drainage Swale. The Contractor shall cut a drainage swale along the edge of the proposed paved area to catch and divert runoff. The Improvement Plans show details and alignment.	250	LF	**$90.00**		$120.00	
1.10	10A. Install New 36 Square Roof Hatch. Contractor shall fabricate and install a new 36 square roof hatch meeting the requirements of AWWA D100. This bid item shall include removal and disposal of the existing hatch, and modifying the roof opening to accommodate the new hatch. See the Improvement plans for details.	1	EA	**$3,500.00**		$5,000.00	
1.11	11A. Sample Tap. This tank will require the installation of a two-tap water quality sampling station in the tank shell with valves and internal tank piping. Both taps are to be located in the same hand hole. The taps will require fabrication and assembly as detailed in the Improvement Plans.	1	EA	**$3,400.00**		$3,500.00	
1.12	12A. New Liquid Level Indicator Vault. Install a new concrete vault with lid to house the new liquid level indicator pressure transducer provided as part of Bid Item 13A. This item includes all work shown on the liquid level indicator vault detail of the Improvement Plans including the new stainless steel piping into the tank, and final grading. This work under and around the edge of the tank is critical, and shall be coordinated with, and supervised by the TMWA Project Representative.	1	EA	**$19,500.00**		$35,000.00	
1.13	13A. Telemetry Work. This bid item includes all conduit, conductors, pull boxes, equipment, and appurtenances complete and in-place per the Improvement Plans. TMWA staff will terminate/land all conductors. Any equipment not specifically called out as TMWA-provided shall be provided and installed by the Contractor.	1	LS	$37,200.00		**$30,000.00**	
1.14	14A. Exterior Blasting and Painting. This bid item includes complete blasting of all exterior steel surfaces including the removal of all mill scale, surface staining, and rust to SSPC-SP6 commercial. All welds and irregularities are to be stripe coated by hand, and the specified coating system is to be applied per manufacturers recommendations. Also to be included are dehumidification and/or heating in the event that weather does not allow completion of all Work prior to the contract completion date. All metal surfaces of the tank, except piping, valves, and electrical conduit shall be coated and painted. Electrical flex conduit shall not be painted. It may not be required to remove existing metal conduit attached to the tank prior to blasting and coating.	1	LS	**$52,300.00**		$65,000.00	

PWP-WA-2020-038

2019/2020 Tank Improvements

				Farr Construction Corp dba Resource Development Co		Paso Robles Tank - Brown-Minneapolis Tank, Inc.	
				Total Price	**$924,180.00**	**Total Price**	**$997,000.00**
Line #	**Description**	**QTY**	**UOM**	**Unit**	**Extended**	**Unit**	**Extended**
1.15	15A. Interior Blasting and Coating. This bid item includes complete interior blasting of all steel surfaces beams, columns, and appurtenances to near white, stripe-coating of all welds by hand, spray application of specified coating system per manufacturers recommendations, and final interior washdown. The contractor shall expect areas of heavy rust and mill scale, and is directed to include removal of these and all contaminants in this bid item. Also to be included are dehumidification and/or heating in the event that weather will not allow completion of the Work prior to the project completion date.	1	LS	$159,300.00		**$155,000.00**	
1.16	16A. Demobilization including cleanup, as-builts, and project closeout.	1	LS	**$500.00**		$7,500.00	
2	**STMGID 5 Tank**	**1**		**$510,000.00**	**$510,000.00**	**$550,500.00**	**$550,500.00**
2.1	1B. Mobilization, Insurance, Bonds, Submittals, and Permits as Required. This item is to include only items necessary and preliminary to performance of the work. Obviously unbalanced bids may be considered to be unresponsive. See Section 7.01 of the General Conditions for details.	1	LS	**$15,000.00**		**$15,000.00**	
2.2	2B. Modify Existing Ladder. The existing ladder on this tank is vulnerable to climbing, and shall receive a cage of expanded metal over the lower 8-ft of the existing cage as shown on the ladder detail in the Improvement Plans.	1	LS	**$3,000.00**		$10,500.00	
2.3	3B. Seal Unused/Abandoned Penetrations. This item includes removal of such items as the existing level indicator and pressure sender from the roof, sealing of supplementary vent openings, and cutting pipe and conduit penetrations flush with the roof. All openings shall be sealed by continuous welding of plate matching or exceeding the thickness of the host tank plate.	1	LS	**$2,500.00**		$8,500.00	
2.4	4B. Air Gap. This item includes construction of an air gap to prevent backflow and contamination through the existing 12 overflow pipe. See Improvement Plans for complete details.	1	EA	**$4,000.00**		$10,500.00	
2.5	5B. Install New Inward-Swing 36 Manways. The existing bolted, outward-swing manways are to be removed and replaced with inward-swing manways as shown on the Improvement Plans. This bid item shall include removal and disposal of the existing manway, and modifying the shell opening to accommodate the new manway.	2	EA	$9,900.00		**$8,500.00**	
2.6	6B. Tank Vent. Contractor shall provide and install an AWWA center roof vent, gasket, and hardware as shown on the Improvement Plans. The tank center vent pipe and flange shall be modified as necessary to accommodate the vent diameter, gasket, and bolt pattern. The vent shall be sized to accommodate the air flow shown on the Improvement Plans.	1	EA	$8,500.00		**$5,500.00**	

PWP-WA-2020-038

2019/2020 Tank Improvements

				Farr Construction Corp dba Resource Development Co		Paso Robles Tank - Brown-Minneapolis Tank, Inc.	
				Total Price	$924,180.00	Total Price	$997,000.00
Line #	Description	QTY	UOM	Unit	Extended	Unit	Extended
2.7	7B. Roof Railing and Safety Cable. Modify the existing roof railing at the top of the ladder including the installation of wing extensions to the existing roof railing at the top of the ladder; install welded roof posts; thread stainless steel cable through posts and secure at each end. See Improvement Plans for details.	1	LS	$7,500.00		**$5,000.00**	
2.8	8B. Drainage Swale Riprap. The Contractor shall place riprap in existing drainage swales as shown on the Improvement Plans.	50	CY	$520.00		**$300.00**	
2.9	9B. Modify Existing 36 Square Roof Hatch. Contractor shall remove the existing 36 roof hatch lid, rotate it 180-degrees, and reattach. Also included is a hold-open chain latch. See the Improvement plans for details.	1	EA	**$3,500.00**		$5,000.00	
2.10	10B. Sample Tap. This tank will require the installation of a two-tap water quality sampling station in the tank shell with valves and internal tank piping. Both taps are to be located in the same hand hole. The taps will require fabrication and assembly as detailed in the Improvement Plans.	1	EA	**$3,400.00**		$3,500.00	
2.11	11B. New Liquid Level Indicator Vault. Install a new concrete vault with lid to house the new liquid level indicator pressure transducer provided as part of Bid Item 13A. This item includes all work shown on the liquid level indicator vault detail of the Improvement Plans including the new stainless steel piping into the tank, and final grading. This work under and around the edge of the tank is critical, and shall be coordinated with, and supervised by the TMWA Project Representative.	1	EA	**$32,900.00**		$35,000.00	
2.12	12B. Telemetry Work. This bid item includes all conduit, conductors, pull boxes, equipment, and appurtenances complete and in-place per the Improvement Plans. TMWA staff will terminate/land all conductors. Any equipment not specifically called out as TMWA-provided shall be provided and installed by the Contractor.	1	LS	$32,600.00		**$30,000.00**	

PWP-WA-2020-038

2019/2020 Tank Improvements

				Farr Construction Corp dba Resource Development Co		Paso Robles Tank - Brown-Minneapolis Tank, Inc.	
				Total Price	**$924,180.00**	**Total Price**	**$997,000.00**
Line #	**Description**	**QTY**	**UOM**	**Unit**	**Extended**	**Unit**	**Extended**
2.13	13B. Exterior Blasting and Painting. It was determined from pre-design XRF testing that some areas of the exterior coating of the STMGID5 tank contains small amounts of lead (less than or equal to 0.19 mg/sq cm). This is NOT lead-based paint, but localized lead-containing paint. Due to the proximity of this tank to residences, and the nature of abrasive blasting, the Contractor will be required to submit and comply with an OSHA lead compliance plan for this site. The plan and associated Work shall be accounted for in this bid item. This bid item includes complete blasting of all exterior steel surfaces including the removal of all mill scale, surface staining, and rust to SSPC-SP6 commercial. All welds and irregularities are to be stripe coated by hand, and the specified coating system is to be applied per manufacturers recommendations. Also to be included are dehumidification and/or heating in the event that weather does not allow completion of all Work prior to the contract completion date. All metal surfaces of the tank, except piping, valves, and electrical conduit shall be coated and painted. Electrical flex conduit shall not be painted. It may not be required to remove existing metal conduit attached to the tank prior to blasting and coating.	1	LS	**$96,200.00**		$170,000.00	
2.14	14B. Interior Blasting and Coating. This bid item includes complete interior blasting of all steel surfaces beams, columns, and appurtenances to near white, stripe-coating of all welds by hand, spray application of specified coating system per manufacturers recommendations, and final interior washdown. The contractor shall expect areas of heavy rust and mill scale, and is directed to include removal of these and all contaminants in this bid item. Also to be included are dehumidification and/or heating in the event that weather will not allow completion of the Work prior to the project completion date.	1	LS	$254,600.00		**$210,000.00**	
2.15	15B. Demobilization including cleanup, as-builts, and project closeout.	1	LS	**$500.00**		$10,000.00	

PWP NO.: WA-2019-055

Bid Tabulation Report - 2018-2019 Tank Improvements

Bids Opened: December 17, 2018

			Bidder No. 1		Bidder No. 2		Bidder No. 3	
			Farr Construction dba Resource Development		**Olympus & Associate**		**Riley Industrial Services**	
Bonding Provided			Yes		Yes		Yes	
Bidder Acknowledges Receipt of Addendums			Yes		Yes		Yes	
Affadivit of Preferential Bidders Status / Bidder's Preference Certificate			Yes		No		No	
Description	Scheduled Value	Unit	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
Schedule A – Northgate 1 Tank								
1A. Mobilization, insurance, bonds, submittals, and misc. permits as required.	1	LS	10,100.00	10,100.00	4,500.00	4,500.00	68,520.00	68,520.00
2A. Air Gap installation on the existing 12" tank overflow pipe.	1	LS	4,000.00	4,000.00	3,850.00	3,850.00	7,475.00	7,475.00
3A. Existing Roof Hatch Removal	1	LS	1,200.00	1,200.00	660.00	660.00	2,370.00	2,370.00
4A. Roof Railing and Safety Cable installation.	1	LS	7,500.00	7,500.00	8,250.00	8,250.00	6,970.00	6,970.00
5A. Sample Tap installation in tank wall.	1	Each	2,800.00	2,800.00	3,850.00	3,850.00	4,050.00	4,050.00
6A. Conduit and Conductor Work including conduit, wire, and boxes.	1	LS	14,200.00	14,200.00	20,000.00	20,000.00	17,250.00	17,250.00
7A. Seal Unused/Abandoned Penetrations through existing tank shell and roof.	1	LS	2,000.00	2,000.00	1,650.00	1,650.00	5,940.00	5,940.00
9A. Install New Inward-Swing 36" Manways to replace existing.	2	Each	8,500.00	17,000.00	8,250.00	16,500.00	9,960.00	19,920.00
10A. Install New Liquid Level Indicator	1	LS	9,400.00	9,400.00	4,950.00	4,950.00	187,500.00	187,500.00
11A. Install New 36" Square Roof Hatch	2	Each	3,000.00	6,000.00	4,950.00	9,900.00	3,085.00	6,170.00
12A. Modify Existing Ladder to add additional expanded metal cage.	1	LS	2,600.00	2,600.00	10,450.00	10,450.00	3,545.00	3,545.00
13A. Complete Exterior Blast and Repaint including non-skid roof surface.	1	LS	161,800.00	161,800.00	242,800.00	242,800.00	246,522.00	246,522.00
14A. Complete Interior Blast and Recoat including heating/DH as	1	LS	345,600.00	345,600.00	342,800.00	342,800.00	408,220.00	408,220.00
15A. Tank Vent Provide & install new tank center vent as specified.	1	LS	8,000.00	8,000.00	12,100.00	12,100.00	11,685.00	11,685.00
16A. Demobilization including cleanup, as-builts, and project closeout	1	LS	4,000.00	4,000.00	500.00	500.00	28,130.00	28,130.00
18A. Pavement Crack Fill for cracks wider than 2"	100	Lin Ft	6.00	600.00	5.50	550.00	84.00	8,400.00
19A. Pavement Crack Seal for cracks narrower than 2"	140	Lin Ft	5.00	700.00	2.20	308.00	98.00	13,720.00
20A. Sump Pump Discharge including AC saw cut, discharge piping, and gravel pit.	1	LS	4,400.00	4,400.00	118,100.00	118,100.00	21,000.00	21,000.00
TOTAL NORTHGATE 1 BID PRICE (Sum of items in Schedule A)				**601,900.00**		**801,718.00**		**1,067,387.00**
Schedule B – Community College Tank								
1B. Mobilization, insurance, bonds, submittals, and misc. permits as required.	1	LS		10,100.00	1,000.00	1,000.00	10,150.00	10,150.00
17B. Complete Exterior Lead Abatement, Blast and Repaint including non-skid roof surface.	1	LS		101,300.00	68,000.00	68,000.00	82,845.00	82,845.00
16B. Demobilization including cleanup, as-builts, and project closeout	1	LS		2,000.00	500.00	500.00	8,800.00	8,800.00
TOTAL COMMUNITY COLLEGE BID PRICE (Sum of items in Schedule B)				**113,400.00**		**69,500.00**		**101,795.00**
Schedule C – Horizon Hills 1 Tank								

WSUP 21-0007
EXHIBIT E

PWP NO.: WA-2019-055

Bid Tabulation Report - 2018-2019 Tank Improvements

Bids Opened: December 17, 2018

			Bidder No. 1		Bidder No. 2		Bidder No. 3	
			Farr Construction dba Resource Development		Olympus & Associate		Riley Industrial Services	
1C. Mobilization, insurance, bonds, submittals, and misc. permits as required.	1	LS	10,100.00	10,100.00	4,500.00	4,500.00	58,660.00	58,660.00
2C. Air Gap installation on the existing 6" tank overflow pipe.	1	LS	3,700.00	3,700.00	3,850.00	3,850.00	4,510.00	4,510.00
4C. Roof Railing and Safety Cable installation.	1	LS	4,000.00	4,000.00	5,500.00	5,500.00	6,070.00	6,070.00
5C. Sample Tap installation in tank wall.	1	Each	2,800.00	2,800.00	3,850.00	3,850.00	4,050.00	4,050.00
6C. Conduit and Conductor Work including conduit, wire, and boxes.	1	LS	8,700.00	8,700.00	20,000.00	20,000.00	21,000.00	21,000.00
7C. Seal Unused/Abandoned Penetrations through existing tank shell and roof.	1	LS	2,000.00	2,000.00	1,650.00	1,650.00	7,225.00	7,225.00
8C. Sampling Box Removal including enclosure, piping, and tank repair.	1	LS	1,000.00	1,000.00	1,650.00	1,650.00	2,625.00	2,625.00
9C. Install New Inward-Swing 36" Manways to replace existing.	2	Each	8,500.00	17,000.00	7,150.00	14,300.00	9,960.00	19,920.00
10C. Install New Liquid Level Indicator including vault, lid, and piping.	1	LS	18,000.00	18,000.00	4,950.00	4,950.00	1,800,000.00	180,000.00
12C. Modify Existing Ladder to add expanded metal cage.	1	LS	2,600.00	2,600.00	10,450.00	10,450.00	3,542.00	3,542.00
13C. Complete Exterior Blast and Repaint including non-skid roof surface.	1	LS	55,300.00	55,300.00	58,200.00	58,200.00	82,845.00	82,845.00
14C. Complete Interior Blast and Recoat including heating/DH as requi	1	LS	107,900.00	107,900.00	89,000.00	89,000.00	150,795.00	150,795.00
15C. Tank Vent. Provide and install a new tank center vent as specified.	1	LS	8,000.00	8,000.00	12,100.00	12,100.00	11,685.00	11,685.00
16C. Demobilization including cleanup, as-builts, and project closeout	1	LS	4,000.00	4,000.00	500.00	500.00	28,350.00	28,350.00
21C. Perimeter Road Improvements including grubbing, base, and raising iron.	1	LS	7,000.00	7,000.00	46,500.00	46,500.00	14,000.00	14,000.00
TOTAL HORIZON HILLS 1 BID PRICE (Sum of items in Schedule C)			**	**252,100.00**		**277,000.00**		**595,277.00**
Total Bid Price				**$967,400.00**		**$1,148,218.00**		**$1,764,459.00**
Total Bid Price Written in Words? y/n				**Yes**		**Yes**		**Yes**
Bidder Information Provided				**Yes**		**Yes**		**Yes**
Licensing Information Provided				**Yes**		**Yes**		**Yes**
Disclosure of Principals Provided				**Yes**		**Yes**		**Yes**
Referenced Provided				**Yes**		**Yes**		**Yes**
Debarment & Safety Information Provided				**Yes**		**Yes**		**Yes**
Subcontractors Listed / Self Listed				**Yes**		**Yes**		**Yes**
Proposal Summary Executed				**Yes**		**Yes**		**Yes**

** Mathematical error total bid adjusted with correction

WSUP21-0007
EXHIBIT E

Avondale

CITY OF AVONDALE
BID TABULATION SHEET
PW18-108- Coldwater East Reservoir Rehabilitation

ITEM NO.	BID ITEM DESCRIPTION	Quantity	Unit	Revolution Industrial		Southwest Tank		Riley Industrial	
				Unit Price	Extended Price	Unit Price	Extended Price	Unit Price	Extended Price
1	Reservoir coating and Miscellaneous Structural Improvements	1	LS	$ 531,132.00	$ 531,132.00	$ 780.00	$ -	$ 594,851.00	$ 594,851.00
2	Removal & Replacement of Girder (Contingency Item No. 1)	3	EACH	$ 5,268.00	$ 15,804.00	$ 1,900.00	$ -	$ 3,000.00	$ 9,000.00
3	Install 8-inch Diamater Column Wrap (Contingency Item No. 2)	3	EACH	$ 1,163.00	$ 3,489.00	$ 3,000.00	$ -	$ 6,875.00	$ 20,625.00
4	Removal & Replacement of Outer Rafter (Contingency Item No. 3)	40	EACH	$ 850.00	$ 34,000.00	$ 15,000.00	$ -	$ 4,855.00	$ 194,200.00
5	Install 4-inch Diameter Floor Repair Plate (Contingency Item No. 4)	100	EACH	$ 47.00	$ 4,700.00	$ 29,569.00	$ -	$ 51.00	$ 5,100.00
6	Two-Man Weld Crew for Reservoir Interior Grinding (Contingency Item No. 5)	16	HOUR*	$ 140.00	$ 2,240.00	$ 50,000.00	$ -	$ 92.00	$ 1,472.00
7	Dehumidification and Ventilation System	1	ALLOW	$ 60,000.00	$ 60,000.00	$ 60,000.00	$ -	$ 60,000.00	$ 60,000.00
8	Owner's Contingency	1	ALLOW	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ -	$ 50,000.00	$ 50,000.00
	GRAND TOTAL				**$701,365.00**		**Non Responsive**		**$935,248.00**

*Hourly rate for a two-man crew.

Avondale

CITY OF AVONDALE
AS-READ BID TABULATION SHEET
Solicitation # PW20-001.2 Coldwater West Reservoir Improvements
BID DATE: October 2, 2019

	Viking Industry	TMI Coatings	Revolution Industrial	MMI Tank
TOTAL*	$1,679,867.50	$2,738,800.00	Non Responsive	$979,652.50

*All bids are presumed to include all applicable taxes

Attachment E

Prestressed Concrete Tank
Budget Letter

Generations Strong

May 13, 2020

Scott Benedict, PE
SB Engineering

REFERENCE: Prestressed Concrete Tank Budget Letter
Washoe County Reclaimed Water System

Mr. Benedict,

Thank you for your interest in a prestressed concrete water storage tank. Per our conversation, please find below a budget level estimate for the design and construction of an AWWA D110 circular prestressed concrete tank for the potential project in Washoe County, NV.

Tank Budgeting Information for Prestressed Concrete Tank					
Nominal Capacity	**Roof Type**	**Inside Diameter**	**Side Water Depth**	**Assumed Freeboard**	**Tank Estimate**
1.4 MG	Free Spanning Concrete Dome	86.5’	32’	2’	$1,575,000
1.4 MG	Column Supported Flat Slab	87.5’	32’	2.5’	$1,925,000

The above tank is designed and constructed in accordance with AWWA D110, ACI 350, ASCE 7, IBC, Local Building Codes, and National Standards. The budget-estimating figures include tank structure complete with a standard spread footing, reinforced concrete membrane floor slab, wall footing, concrete roof, permanently compressed prestressed tank walls, and shotcrete cover. The estimate assumes competent soils, if a deep foundation or structural floor slab is required, the estimate would need to be revised. Once a site-specific geotechnical report is available, we are happy to refine our estimate. The above also includes typical tank appurtenances such as vents, 4’ x 8’ hatch, 6” roof sleeve, exterior aluminum ladder, and an interior SST 304 ladder.

The figures above exclude site work, subgrade preparation, deep foundations, baffle walls, all piping, SCADA, electrical, exterior aesthetics coatings, etc. Per owner’s preference, additive appurtenances not included in the above estimate are approximately $25,000 - $50,000. (e.g. sample taps, roof sleeves, additional hatches, additional handrails, etc.)

Thank you for this opportunity to be of service. Please feel free to contact me if you have any questions or if I can be of any further assistance.

Sincerely,
DN TANKS | *Generations Strong*

Sean Sudol, PE
Regional Manager – Nevada

Hidden Valley Regional Park

Trail Access Information

Trail Name	Length	Typical Grade	Maximum Grade (Standard Ramp is 8.3%)	Typical Cross Slope	Maximum Cross Slope	Typical Tread Width	Minimum Clearance Width	Surface Type	Surface Firmness Typical	Surface Firmness Worst	Surface Stability Typical	Surface Stability Worst
Highland Loop	2.3 mi	10.8%	674 ft is 25 – 42%	11.6%	747 ft is 25 – 44%	22 in	16 in	Soil	0.19	0.21	0.48	0.56
Inner Loop	1.0 mi	3.5%	637 ft is 8 – 12%	1.9%	129 ft is 8 – 9%	23 ft	3 ft	Aggregate/ Rock	0.18	0.20	0.33	0.54
Mia Vista Trail	0.3 mi	6.1%	481 ft is 8 – 15%	3.2%	302 ft is 5 – 11%	50 in	48 in	Decomposed Granite	0.18	0.20	0.31	0.36
Perimeter Loop	2.4 mi	5.1%	169 ft is 20 – 38%	3.2%	81 ft is 15 – 28%	39 in	18 in	Soil	0.18	0.19	0.41	0.55
South Park Loop	0.8 mi	7.5%	111 ft is 20 – 38%	3.4%	52 ft is 16 – 26%	22 in	18 in	Soil	0.18	0.18	0.37	0.44

WARNING: Trail conditions may have changed since April 2009 when these trails were assessed. Secondary trails are shown in dark gray. Not all trails are shown on map. Signage created by Beneficial Designs Inc. using data collected by a certified trail assessment coordinator.

Minimum Surface Firmness (in): <0.20 Hard; 0.35 Firm; 0.55 Moderately Firm; >0.55 Not Firm

Minimum Surface Stability (in): <0.25 Hard; 0.55 Stable; 1.05 Moderately Stable; >1.05 Not Stable

WSUP21-0007
EXHIBIT F

Hidden Valley Tank Rendering
Site View: A

WSUP21-0007
EXHIBIT F

Hidden Valley Tank Rendering
Site View: B

WSUP21-0007
EXHIBIT F

Hidden Valley Tank Rendering
Site View: C

WSUP21-0007
EXHIBIT F

Hidden Valley Tank Rendering
Site View: D

WSUP21-0007
EXHIBIT F

Hidden Valley Tank Rendering
Site View: E

WSUP21-0007
EXHIBIT F

223 Parcels Noticed within 500 Feet

Community Services Department

Planning and Building

SPECIAL USE PERMIT

(see page 7)

SPECIAL USE PERMIT FOR GRADING

(see page 9)

SPECIAL USE PERMIT FOR STABLES

(see page 12)

APPLICATION

Community Services Department
Planning and Building
1001 E. Ninth St., Bldg. A
Reno, NV 89512-2845

Telephone: 775.328.6100

CHRISTY CORPORATION

July 8, 2021

Chris Bronczyk
Washoe County Planning and Building Division
1001 East 9th Street, Building A
Reno, Nevada 89512

RE: Hidden Valley Reclaimed Water Tank Special Use Permit
Additional Grading and Temporary Irrigation Narrative

Dear Chris,

The purpose of this letter is to provide updates to the Special Use Permit (SUP) request associated with the Hidden Valley Reclaimed Water Tank. Although no changes to the project are proposed from what was previously submitted, this letter addresses staff questions by providing additional narrative on the areas being graded and the stabilization of graded areas.

General Tank Information:
Proposed is a ±1.0 million gallon reinforced concrete tank. The preliminary diameter of the tank is 76.8 feet with a preliminary tank height of 36.5 feet. The tank pad is set at an elevation of 4780 feet giving a top of tank elevation of approximately 4816.5 feet.

This tank is specifically proposed as a reinforced concrete tank to allow backfill against the tank in an effort to minimize any impact to views and reduce disturbance. By backfilling the reinforced concrete tank and constructing walls interior of the backfilled areas at the tank access point on the north side of the tank, a significant portion of the tank will be hidden from view as opposed of being in full view similar to a standard steel tank, most commonly constructed in this area. The tank material selection and grading strategy proposed provide the smallest disturbed area and the largest amount of screening of the proposed tank of all scenarios analyzed during the preliminary design stage.

Slope Grading Below the Tank:
During the construction of a concrete tank, the tank walls are cast in forms set in a staging and lay down area adjacent to the proposed tank and then installed in place with a crane once the reinforced concrete panels have cured. The lay down area must be very close to the proposed tank site both horizontally and vertically to accommodate placement of the concrete walls.

The staging area for this tank will be constructed below the tank in the area of the permanent fill slope. The preliminary construction lay down area is planned at three feet below the tank pad. There will be a 3:1 fill slope below the lay down area that will removed upon completion of the tank.

Once the tank is constructed, fill from the creation of the tank lay down pad will be moved up the slope and will be placed at 2:1 slope grading up from existing ground and against the tank and adjacent retaining walls as well as above the tank pursuant to the next discussion section below. The only purpose for this fill slope and the associated retaining walls is to minimize the impact of the project as viewed from neighboring properties. Instead of viewing the full side of the tank, much of the tank wall will be screened and buffered by the fill slope. The amount of the tank wall visible will vary so that the fill slope matches with surrounding slopes as much as possible. The fill slope is proposed to be between 12 feet and 32 feet tall against the 36.5 foot tall tank. This will be completed by backfilling against the sides of the tank and sloping down to meet the original ground slope below the temporary fill for the lay down area. This 2:1 slope below the tank will closely resemble the existing adjacent slopes in the immediate vicinity of the tank and is proposed to minimize the impact of the tank grading when viewing the site from neighboring properties.

A permanent 3:1 fill slope design alternate was reviewed in the preliminary design stages of the project. The larger area of disturbance associated with modifying the fill slope to a 3:1 slope would significantly increase the area of disturbance associated with the project since the existing slopes are steeper than 3:1 and a new 3:1 slope would not "catch" existing ground grades for a significant distance. 3:1 slopes would also require a significant amount of additional import of fills for this area resulting in additional unnecessary truck traffic. Additionally a 3:1 slope would be highly visible since the 3:1 slope would project beyond the natural 2:1 and steeper slopes immediately adjacent to the site. The 2:1 slopes maintain the character of the immediately adjacent slopes while 3:1 slopes are more in the character of the slopes that lie further below the site at lower elevations. This design minimizes the visual impact of the project from adjacent properties.

Slope Grading Above the Tank:

During initial construction, the cut slope above the tank will cut at a slope of 0.75:1 in the bedrock. This is a permanently stable slope in accordance with the geotechnical report. This temporary cut slope will extend from the tank pad at 4780 feet up to approximately 4859 feet. The tank walls will be constructed during this preliminary grading stage.

To minimize the exposed area of the tank and to provide as much visible screening as possible in the final constructed condition, the tank wall and cut slope above the tank will be backfilled. At the highest point, the backfill will extend up the wall of the tank for approximately 32 feet of the tank elevation to a ground elevation of 4812, allowing for tank vents above grade. To accommodate drainage around the tank, the backfill elevation gradually decreases towards the front of the tank. A 2:1 riprap slope is proposed above the tank from the 4812 elevation to an approximate elevation of 4842. At this elevation, a bench with a cut off swale will be placed to direct water away from the fill slope. The initial 0.75:1 bedrock cut slope will remain above this bench and swale from an elevation of 4842 to the top of the cut slope at 4859 feet. This occurs at the maximum area of disturbance and the 0.75:1 slope will gradually reduce to zero feet in height at the edges of the area of disturbance.

Temporary Irrigation:
To ensure slope stability, rip-rap or geofabric (per conditions) will be used and coupled with revegetation and staining in the proposed slope below the tank to ensure a natural appearance. Regardless of the mechanical stabilization method utilized, the slope below the tank will be revegetated with a native seed mix chosen to provide vegetation similar to that in the area of disturbance. For example, areas of rip-rap and geofabric can be covered with topsoil and revegetated which will hide the mechanical slope stabilization methods. The revegetated areas will be provided with temporary irrigation will ensure the establishment of native revegetation. The water for the temporary irrigation will likely be reclaimed water stored in the tank and will require a temporary booster pump on a temporary generator to provide spray irrigation for the slope. Upon successful establishment of vegetation on the slope, the temporary irrigation facilities will be removed as the native plants selected for the revegetation will be able to survive without permanent irrigation.

Attached to this letter are photographic examples of successful revegetation of 2:1 slopes on local projects designed by Christy Corporation. This same revegetation approach is proposed at the Hidden Valley tank site.

The additional photo simulations you requested have been submitted to Sophia Kirschenman at the Parks Department for review. We are working on requested revisions and have been informed by Sophia that the photo simulations can be submitted on July 12th based on her edits.

Please do not hesitate to contact me at mike@christynv.com or (775) 250-3455 with any questions or concerns. Thank you for your ongoing assistance with the project.

Sincerely,

Mike Railey
Planning Manager

cc: Alan Jones, P.E. – Washoe County Engineering and Capital Projects
Sophia Kirschenman – Washoe County Regional Parks and Open Space
Scott Benedict, P.E. – SB Engineering

WSUP21-0007
EXHIBIT H

CHRISTY CORPORATION

April 13, 2021

Chris Bronczyk
Washoe County Planning and Building Division
1001 East 9th Street, Building A
Reno, Nevada 89512

RE: Hidden Valley Reclaimed Water Tank Special Use Permit

Dear Chris,

The purpose of this letter is to provide updates to the Special Use Permit (SUP) request associated with the Hidden Valley Reclaimed Water Tank. Although no changes to the project are proposed from what was previously submitted, this letter addresses additional sections of the Development Code to ensure that all applicable sections are applied and addressed.

It is requested that a waiver of formal landscaping requirements be added to the SUP request. Washoe County Regional Parks and Open Space staff concur that formal landscaping at the tank site will result in additional visual impacts rather than screen the new tank. As described in the submitted application report, native revegetation is proposed in lieu of formal landscaping. This, coupled with partially burying the tank and using earth tone colors, will serve to visually screen the tank and allow it to better blend with its surroundings.

In addition to the landscape waiver, it is requested that deviations to Washoe County grading standards be added to ensure all provisions of section 110.438 of the Development Code are addressed. These deviations can be approved as part of the SUP request currently under review by Washoe County. Additionally, the requested deviations are depicted on the submitted plans and will not require updated plans sets for submittal.

The following outlines the sections of code where deviation is proposed, along with justification for the variation:

Section 110.438.45(a):

Grading shall not result in slopes in excess of, or steeper than, three horizontal to one vertical (3:1) except as provided below:

(1) Storm drainage improvements.

(2) Cut and fill slopes less than thirty (30) inches in height.

(3) Cut slopes proposed to be located behind civic, commercial and industrial buildings, when the cut slope is shorter than and substantially screened by the proposed building. Such slopes are subject to approval of a Director's Modification of Standards by the Director of Community Development.

(4) The County Engineer may waive this requirement for up to fifteen (15) percent of the length of the cut and/or fill where the presence of rock or, in his determination, other practical hardships exists.

As depicted on the submitted plans, 2:1 slopes are proposed adjacent to the tank with 0.75:1 slopes included in a portion above the tank. Water tanks pose a unique challenge from a grading perspective given the fact that they must be located in steep areas to provide proper pressures, etc. In the case of the Hidden Valley tank, surrounding slopes are far steeper than 3:1. Thus, providing 3:1 slopes adjacent to the tank would result in significantly more grading, tremendous visual impacts and scarring, and an overall unnatural post-development appearance.

As proposed, grading is designed to quickly "catch" the slopes that surround the tank site. This is accomplished by utilizing 2:1 slopes. To ensure slope stability, rip-rap or geofabric (per conditions) will be used and coupled with revegetation and staining to ensure a natural appearance. For example, areas of rip-rap and geofabric can be covered with topsoil and revegetated which will hide the mechanical slope stabilization methods. Temporary irrigation will ensure the establishment of native revegetation. Once complete, the post development conditions will mimic the natural surroundings and be far less visually obtrusive compared to 3:1 slopes. The area of 0.75:1 slope is supported by the geotechnical analysis and provides transitions to steep terrain within natural bedrock.

The requested deviation is also supported by provision 110.438.45(a)3 as noted above. The cut slopes will be substantially screened by the tank (a civic use type) and are largely reflective of backfill which will further screen disturbance. Furthermore, sections 110.438.45(g) and (h) also support the requested variation. Section (g) calls for "rounding or contouring" at the intersections of manufactured and natural slopes. As shown on the submitted grading plans, this is what is being proposed with the Hidden Valley tank. The proposed grading will result in a much more natural appearance that allows manufactured slopes to quickly catch that of the adjoining natural terrain. This is encouraged per section (h). For reference, section 110.4387.45(g) and (h) are listed on the following page:

(g) Utilize a gradual transition or "rounding or contouring" of the manufactured slope at the intersection of a manufactured cut or fill slope and a natural slope. Engineered slopes shall not intersect natural slopes at an angle greater than forty-five (45) degrees (see Figure 110.438.45.2).

(h) Visually integrate all slope faces (cut or fill) into the natural terrain by a gradual transition or "contouring/rounding" of the manmade landforms into the natural terrain. To the extent practicable ensure that hillside grading results in undulating naturalistic appearance, consistent with the surrounding undisturbed terrain (see Figure 110.438.45.3).

Section 110.438.45(c):

Finish grading shall not vary from the natural slope by more than ten (10) feet in elevation. Exposed finish grade slopes greater than ten (10) feet in height may be allowed upon the approval of a director's modification of standards by the Director of Community Development upon recommendation by the County Engineer.

(1) Approval of a director's modification of standards requires a determination that:

- *(i) The proposed cut and/or fill slopes include stepped-back structural containment (retaining walls) that form terraces, and;*
- *(ii) The proposed terraces include landscaping, are a minimum of six (6) feet in width, and have a slope flatter than three horizontal to one vertical (3:1).*
- *(iii) Retaining walls used to create terraces are limited to a maximum vertical height of ten (10) feet, when located outside any required yard setback.*
- *(iv) Terrace widths shall be at least sixty (60) percent of the height of the higher of the two (2) adjacent retaining walls.*
- *(v) Bench widths shall be at least four (4) feet.*

(2) An exception to the terrace width may be allowed subject to the approval of a director's modification of standards by the Director of Community Development, upon recommendation by the County Engineer for cuts into stable rock, supported by a geotechnical report.

In the case of the Hidden Valley tank, finished grading will vary from the natural slope for a distance greater than 10 feet. As designed, the slope behind the proposed tank includes a 2:1 backfill slope that transitions to a 0.75:1 slope at a location where it meets natural bedrock. This design is consistent with recommendations of the geotechnical investigation. Overall, the disturbed area extends approximately 42.5 feet above the tank at this location.

This request is supported by section 110.438(c)2 noted above. The additional slope variation is within backfill and natural bedrock as identified in the geotechnical report. Additionally, this area will be stabilized and/or revegetated per the conditions of approval applied to the SUP.

As depicted in the submitted materials and photo simulations, the disturbed area above the tank is largely screened by the natural topography of the site and the proposed design. The tank itself is "tucked" into the saddle of the hillside. As such, the proposed disturbance is not visible from developed park facilities to the northwest or southwest. The disturbance will be visible from areas within the park that are west/southwest of the new tank. However, the purpose of the increased slopes is to allow for grading to catch more quickly with natural grade and transition smoothly with natural terrain. Once revegetation establishes, the grading will have a much more natural appearance that blends the disturbed area with natural surroundings and will not be visually obtrusive within the park. Residences to the west are over ¼ mile from the tank site further ensuring that visual impacts are more than adequately mitigated.

As presented, a retaining wall will be located around the tank. Backfill will occur behind the tank, but the wall will include heights up to 32± feet. Thus, it is proposed to vary the 10 foot height standard and eliminate the required terracing. Terracing of walls would result in significantly more disturbance. This would also result in an unnatural appearance with substantial visual impacts within the park. As designed, the increased wall heights are largely hidden by the natural topography and contouring of graded slopes. This coupled with planned revegetation will ensure a much more natural post-development appearance and eliminates the potential for significant hillside scarring.

As noted previously, water tank sites are unique in that they must be located in hillside areas. The standards included in section 110.438 are largely intended to apply to conventional development such as subdivisions. In this case, a unique use is proposed. The modifications proposed will serve to fulfill the intent of the grading standards by reducing the amount of required grading and allowing for a much more natural appearance in the post-development condition.

An updated grading plan is attached to this letter and calls out the top of wall heights proposed within the tank site. This clearly shows the areas of wall that are in excess of 10 feet in height and more clearly conveys the requested deviation from a graphical perspective.

Section 110.438.50(a):

In addition to the requirements in Section 110.438.45, cut slope design and construction will also be based on a geotechnical report as required by Section 110.438.36 unless not required by the County Engineer.

> *(a) The use of riprap and gabions as a mechanical stabilization for cut slopes is prohibited, except where essential for safe access, for passage within the rights of-way of public roads, and for storm drainage control device(s).*

With the proposed 2:1 and 0.75:1 slopes, the use of mechanical stabilization is proposed. This will occur in the form of rip rap, geo fabric, or a combination of both. Final determination of stabilization methods will be determined with final design, with consultation by a geotechnical engineer. It is requested that rip rap specifically be allowed to allow flexibility with final design. In areas where rip rap is implemented, it can then be covered with topsoil and revegetated. This will hide the mechanical stabilization and ensure a natural appearance that blends with the native slopes. In areas where rip rap is less visible or hidden, staining of the rock surface can also be implemented to reduce visual impacts.

The deviations described above are requested primarily to reduce visual impacts of the water tank project. Strict application of Development Code standards will result in significantly more disturbance and visual impacts that require additional mitigation. As proposed, visual impacts will be greatly reduced based on less grading and the ability to blend manmade slopes with the adjoining natural terrain. This will appear natural in the post development condition rather than manmade (as code would dictate). This approach is fully consistent with the intent of the code, which is to reduce visual impacts, scarring, and provide a sensitive approach to site grading.

Please do not hesitate to contact me at mike@christynv.com or (775) 250-3455 with any questions or concerns. Thank you for your ongoing assistance with the project.

Sincerely,

Mike Railey
Planning Manager

cc: Alan Jones, P.E. – Washoe County Engineering and Capital Projects
Sophia Kirschenman – Washoe County Regional Parks and Open Space
Scott Benedict, P.E. – SB Engineering

WSUP21-0007
EXHIBIT H

Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Building staff at 775.328.6100.

Project Information	**Staff Assigned Case No.:** _____
Project Name:	Hidden Valley Reclaimed Water Tank
Project Description:	A SUP to allow for the establishment ofa Utility Service use in the PR regulatory zone and to allow grading per Section 110.438.35(1) and (2).
Project Address:	Southern terminus of Parkway Drive at Hidden Valley Regional Park - 4740 Parkway Drive
Project Area (acres or square feet):	A 2.5 acre portion of an overall 480 acre parcel.
Project Location (with point of reference to major cross streets **AND** area locator):	The site is located within south-central portion of Hidden Valley Regional Park. The park is located at the southern terminus of Parkway Drive and the eastern terminus of Mira Vista Drive in the Southeast Truckee Meadows Area Plan.

Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
051-330-01	480 acres		

Indicate any previous Washoe County approvals associated with this application:
Case No.(s).

Applicant Information (attach additional sheets if necessary)

Property Owner:		**Professional Consultant:**	
Name: Washoe County		Name: Christy Corporation, Ltd.	
Address: 1001 E. Ninth St., Bldg. A		Address: 1000 Kiley Pkwy.	
Reno, NV	Zip: 89512	Sparks, NV	Zip: 89436
Phone: 775-954-4651	Fax:	Phone: 775-502-8552	Fax:
Email: ajones@washoecounty.us		Email: mike@christynv.com	
Cell:	Other:	Cell: 775-250-3455	Other:
Contact Person: Alan Jones		Contact Person: Mike Railey	
Applicant/Developer:		**Other Persons to be Contacted:**	
Name: Same as Above		Name: SB Engineering	
Address:		Address: 586 Citadel Way	
	Zip:	Reno, NV	Zip: 89503
Phone:	Fax:	Phone: 775-223-0922	Fax:
Email:		Email: scott@sbcivilengineering.com	
Cell:	Other:	Cell: 775-223-0922	Other:
Contact Person:		Contact Person: Scott Benedict, P.E.	

For Office Use Only

Date Received:	Initial:	Planning Area:
County Commission District:		Master Plan Designation(s):
CAB(s):		Regulatory Zoning(s):

Special Use Permit Application
Supplemental Information

(All required information may be separately attached)

1. What is the project being requested?

This SUP request will allow for the construction (and associated grading) of a new 1,000,000 reclaimed water tank within the PR regulatory zone (Hidden Valley Regional Park). Refer to attached report for a detailed request description.

2. Provide a site plan with all existing and proposed structures (e.g. new structures, roadway improvements, utilities, sanitation, water supply, drainage, parking, signs, etc.)

Refer to attached report, site plan, and engineering drawings.

3. What is the intended phasing schedule for the construction and completion of the project?

The project will be completed in a single phase.

4. What physical characteristics of your location and/or premises are especially suited to deal with the impacts and the intensity of your proposed use?

As described in the attached report, the tank site was carefully chosen to serve the needs of Washoe County while not im,pacting the park facility or view sheds within the area. Refer to report for a thorough analysis.

5. What are the anticipated beneficial aspects or affects your project will have on adjacent properties and the community?

The project will provide needed reclaimed water storage that will be used to irrigate park facilities and implement County water saving measures. Refer to attached report for a detailed description.

6. What are the anticipated negative impacts or affect your project will have on adjacent properties? How will you mitigate these impacts?

Impact mitigation measures include partially burying the tank, native revegetation, and painting the tank to blend with the natural environment. Refer to attached report for a detailed analysis.

7. Provide specific information on landscaping, parking, type of signs and lighting, and all other code requirements pertinent to the type of use being purposed. Show and indicate these requirements on submitted drawings with the application.

Refer to attached report and plans for specific details related the above noted items.

8. Are there any restrictive covenants, recorded conditions, or deed restrictions (CC&Rs) that apply to the area subject to the special use permit request? (If so, please attach a copy.)

❑ Yes	■ No

9. Utilities:

a. Sewer Service	Truckee Meadows Water Reclamation Facility
b. Electrical Service	NV Energy
c. Telephone Service	Charter Communications or AT&T
d. LPG or Natural Gas Service	NV Energy
e. Solid Waste Disposal Service	Waste Management
f. Cable Television Service	Charter Communications or AT&T
g. Water Service	Truckee Meadows Water Authority

For most uses, Washoe County Code, Chapter 110, Article 422, Water and Sewer Resource Requirements, requires the dedication of water rights to Washoe County. Please indicate the type and quantity of water rights you have available should dedication be required.

h. Permit #		acre-feet per year	
i. Certificate #		acre-feet per year	
j. Surface Claim #		acre-feet per year	
k. Other #		acre-feet per year	

Title of those rights (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources).

The tank will be partially buried and be painted to blend with natural surroundings. Native revegetation will also occur. Refer to attached report for mitigation measures and photo simulations.

10. Community Services (provided and nearest facility):

a. Fire Station	TMFPD - Hidden Valley Station
b. Health Care Facility	Renown Regional Medical Center
c. Elementary School	Hidden Valley Elementary School
d. Middle School	Pine Middle School
e. High School	Wooster High School
f. Parks	Hidden Valley Regional Park
g. Library	Washoe County - Sparks Branch
h. Citifare Bus Stop	McCarran Boulevard at Pembroke Drive

Special Use Permit Application
for Grading
Supplemental Information

(All required information may be separately attached)

1. What is the purpose of the grading?

The grading is required to for the tank itself and is necessary to ensure proper elevation for pressure zones, etc. Refer to attached report for a detailed rationale and analysis.

2. How many cubic yards of material are you proposing to excavate on site?

Refer to attached report and plans for specific details related the above noted items.

3. How many square feet of surface of the property are you disturbing?

2.5 acres for the tank with additional for access and pipelines. See attached.

4. How many cubic yards of material are you exporting or importing? If none, how are you managing to balance the work on-site?

The attached engineering plans include cut/fill quantities for the project.

5. Is it possible to develop your property without surpassing the grading thresholds requiring a Special Use Permit? (Explain fully your answer.)

No. The grading is needed given the fact that water tanks must include a higher elevation in order to properly function. The attached report provides a very specific description of why the tank and proposed grading are necessary.

6. Has any portion of the grading shown on the plan been done previously? (If yes, explain the circumstances, the year the work was done, and who completed the work.)

No. The site is currently undisturbed.

7. Have you shown all areas on your site plan that are proposed to be disturbed by grading? (If no, explain your answer.)

Yes. Refer to attached engineering plans.

8. Can the disturbed area be seen from off-site? If yes, from which directions and which properties or roadways?

The disturbance will be visible from within Hidden Valley Regional Park as well as homes that border the park to the west. Refer to report for visual impact mitigation measures and post-construction photo simulations.

9. Could neighboring properties also be served by the proposed access/grading requested (i.e. if you are creating a driveway, would it be used for access to additional neighboring properties)?

Not applicable.

10. What is the slope (horizontal/vertical) of the cut and fill areas proposed to be? What methods will be used to prevent erosion until the revegetation is established?

Slopes will include a mix of 2:1 and 0.75:1 as described in the attached report and noted on the engineering plans. Native revegetation and retaining walls will be used to stabilize slopes. Refer to attached report for additional details.

11. Are you planning any berms?

Yes	NoXX	If yes, how tall is the berm at its highest?

12. If your property slopes and you are leveling a pad for a building, are retaining walls going to be required? If so, how high will the walls be and what is their construction (i.e. rockery, concrete, timber, manufactured block)?

Wall height varies with a maximum of 32-feet. Refer to attached report and plans.

13. What are you proposing for visual mitigation of the work?

The tank will be partially buried and be painted to blend with natural surroundings. Native revegetation will also occur. Refer to attached report for mitigation measures and photo simulations.

14. Will the grading proposed require removal of any trees? If so, what species, how many and of what size?

A small number of pinyon pines/junipers will be removed and are noted on the attached plans.

15. What type of revegetation seed mix are you planning to use and how many pounds per acre do you intend to broadcast? Will you use mulch and, if so, what type?

Seed mix will be per Washoe County standards and best management practices.

16. How are you providing temporary irrigation to the disturbed area?

Refer to attached revegetation plan for specific irrigation information.

17. Have you reviewed the revegetation plan with the Washoe Storey Conservation District? If yes, have you incorporated their suggestions?

This application will be circulated to the WSCD for review and input on final revegetation seed mix.

18. Are there any restrictive covenants, recorded conditions, or deed restrictions (CC&Rs) that may prohibit the requested grading?

Yes	No XX	If yes, please attach a copy.

Property Owner Affidavit

Applicant Name: Washoe County

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA)
)
COUNTY OF WASHOE)

I, Eric Crump
(please print name)

being duly sworn, depose and say that I am the owner* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true, and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Building.

(A separate Affidavit must be provided by each property owner named in the title report.)

Assessor Parcel Number(s): 051-330-01

Printed Name Eric Crump

Signed

Address 1001 E. Ninth St.
Reno, NV 89512

Subscribed and sworn to before me this 11 day of February, 2021.

(Notary Stamp)

R. ANDERLINE
Notary Public in and for said county and state

Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 99-38454-2 - Expires April 02, 2023

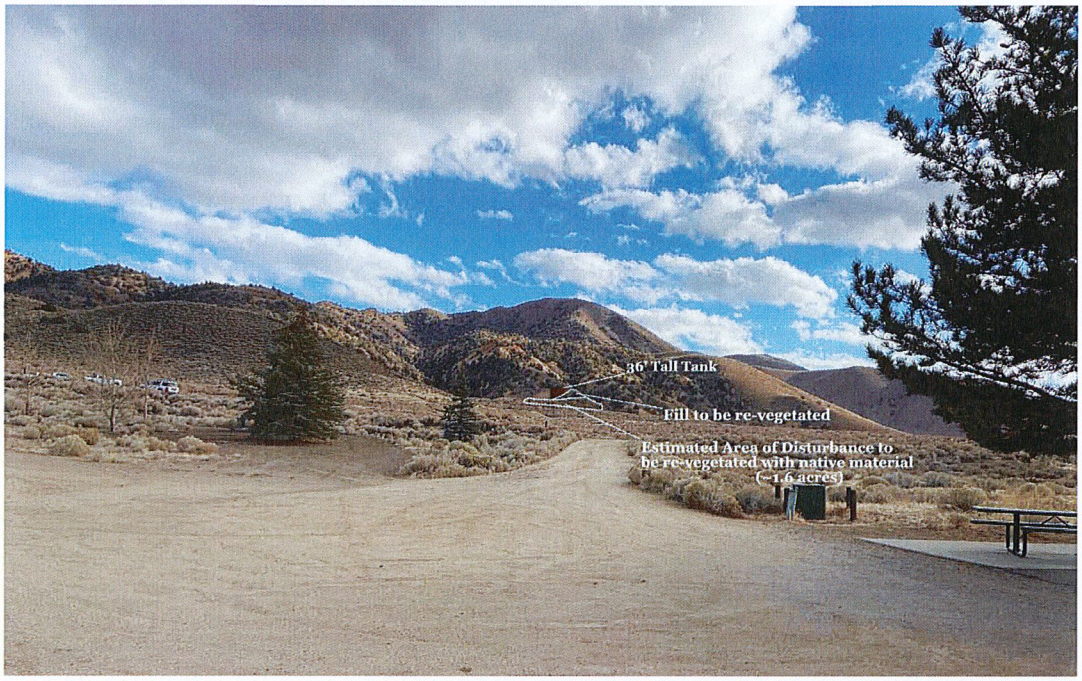
My commission expires: 4/2/2023

*Owner refers to the following: (Please mark appropriate box.)

- ☐ Owner
- ☐ Corporate Officer/Partner (Provide copy of record document indicating authority to sign.)
- ☐ Power of Attorney (Provide copy of Power of Attorney.)
- ☐ Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- ☐ Property Agent (Provide copy of record document indicating authority to sign.)
- ☐ Letter from Government Agency with Stewardship

WSUP21-0007
EXHIBIT H

Hidden Valley Reclaimed Water Tank
Special Use Permit



Prepared by:

CHRISTY CORPORATION

March 8, 2021

WSUP21-0007
EXHIBIT H

HIDDEN VALLEY RECLAIMED WATER TANK

Special Use Permit

Prepared for:

Washoe County

Attention: Community Services Department – Engineering and Utilities

1001 E. Ninth Street, Building A

Reno, Nevada 89512

Prepared by:

Christy Corporation, Ltd.

1000 Kiley Parkway

Sparks, Nevada 89436

(775) 502-8552

March 8, 2021

Table of Contents

List of Figures:

Appendices:

Washoe County Development Application
Owner Affidavit
Special Use Permit Application
Property Tax Verification

Attachments:

Preliminary Civil Improvement Plans and Reports
Preliminary Revegetation Plan
Geotechnical Study

Hidden Valley Reclaimed Water Tank - Special Use Permit

Introduction

This application includes the following request:

- A **Special Use Permit** to allow for the establishment of a Utility Services use (reclaimed water tank) in the Parks and Recreation (PR) regulatory zone and to permit grading per Sections 110.438.35(1) and 110.438.35(2) of the Washoe County Development Code.

Project Location

This application proposes to locate a new reclaimed water tank within Hidden Valley Regional Park. The park is located at the southern terminus of Parkway Drive, east of the Hidden Valley neighborhood within the Southeast Truckee Meadows Area Plan. Specifically, the tank will be located on a portion of the overall 480± acre park site (APN # 051-330-01). Figure 1 (below) depicts the location of Hidden Valley Regional Park while Figure 2 (following page) depicts the proposed tank location within the overall park parcel.

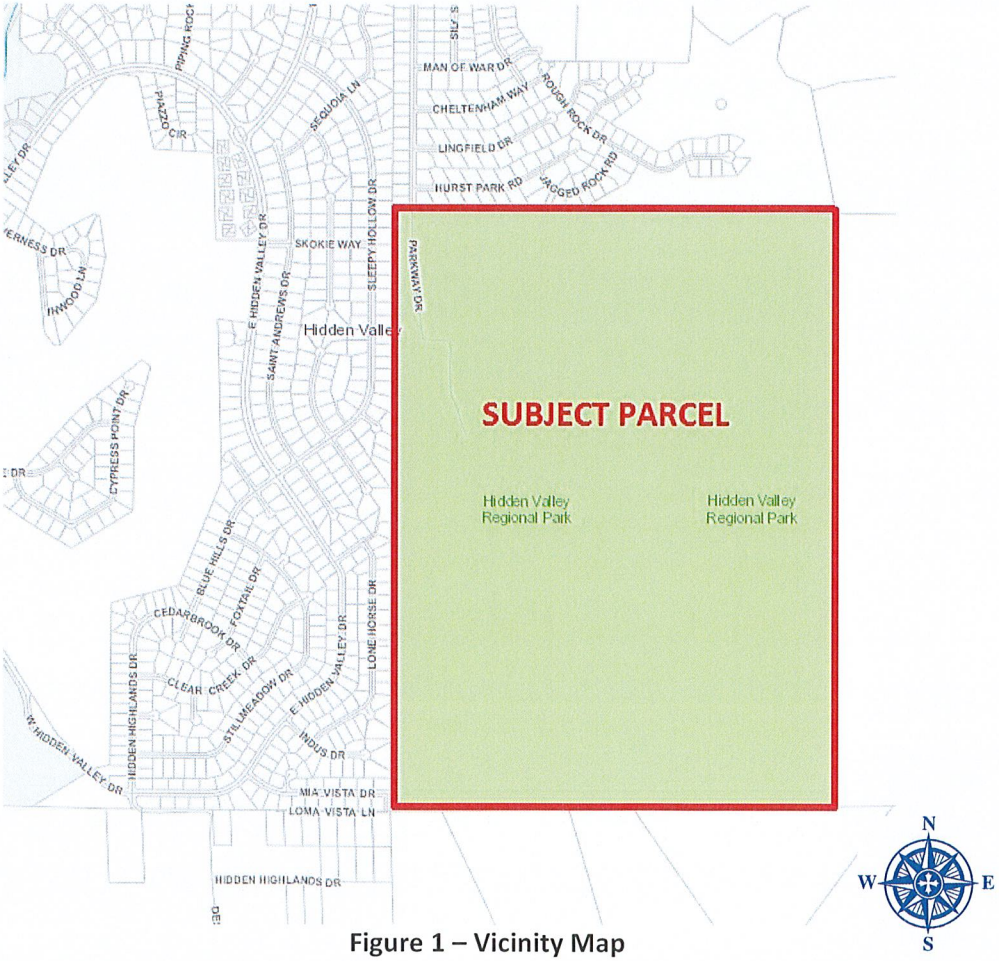


Figure 1 – Vicinity Map

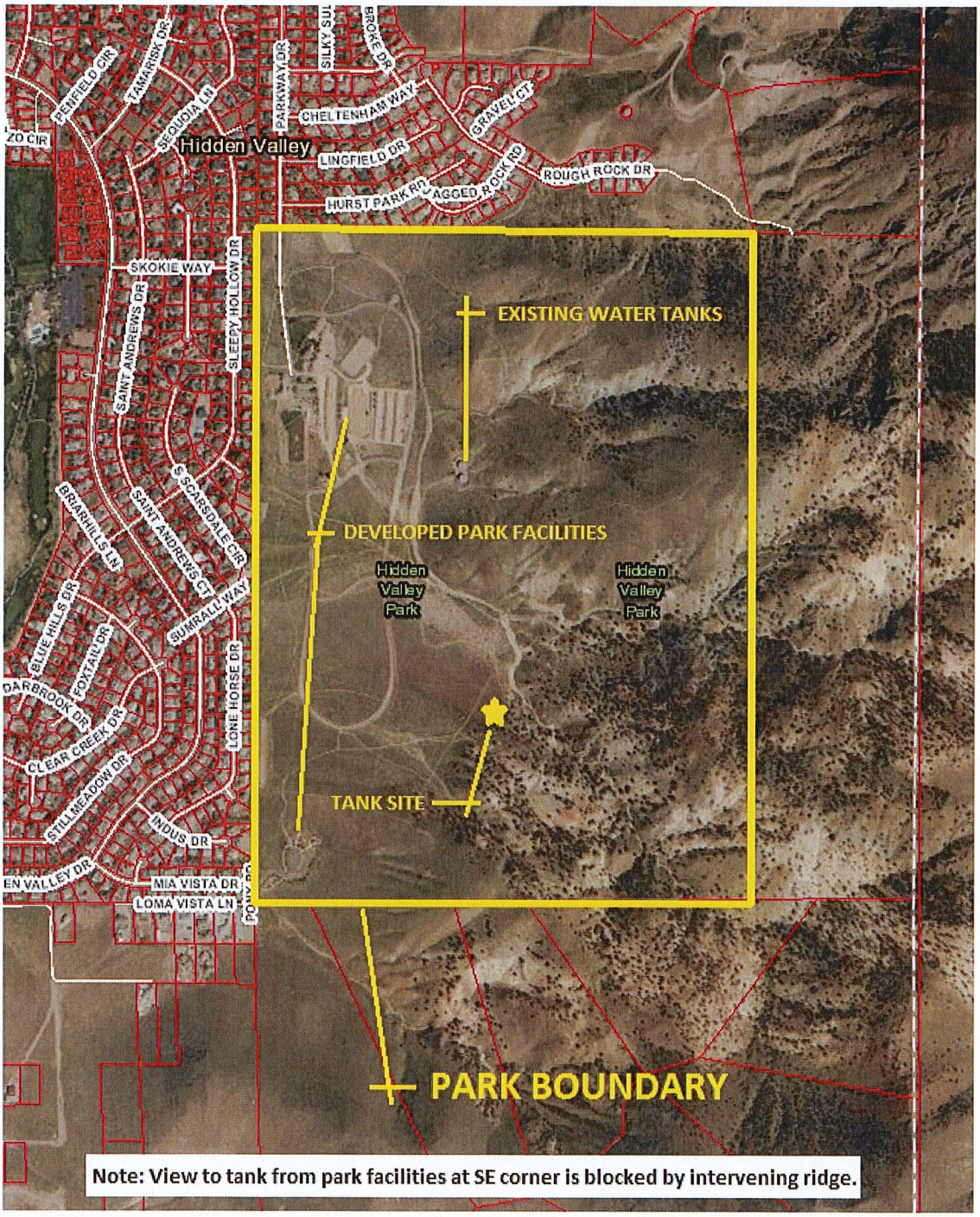


Figure 2 – Tank Location Map

Existing Conditions

The proposed reclaimed water tank will be located within an undeveloped area of Hidden Valley Regional Park at the eastern portion of the park site, within the foothills of the Virginia Range. The area surrounding the tank site includes native vegetation and scattered pinion pines. Various informal walking/hiking trails traverse this portion of the park and provide access into the Virginia Range which essentially forms the eastern park boundary. Figure 3 (below) depicts the existing onsite conditions.

Figure 3 – Existing Conditions

Project Request

Washoe County is requesting Special Use Permit (SUP) to construct and install a 1,000,000 gallon reclaimed water tank within Hidden Valley Regional Park. The tank is needed to expand reclaim service to the Hidden Valley and eastern Reno areas. Reclaim from this expansion will be used to irrigate park facilities, potential service to the Hidden Valley Country Club golf course, future park greenbelt improvements and integration with the City of Reno reclaim system for regional benefits. The use of reclaimed water will offset potable water use within the park that can be reallocated for other purposes.

The proposed tank location was compared to alternate sites and was deemed ideal to meet the needs of the reclaim system expansion. The proposed site is located at the elevation necessary to meet system pressure criteria. The proposed location within the park at the elevation needed provides for the least amount of visual obtrusion being partially buried and "tucked" into the adjoining hillside.

Welded steel and prestressed concrete tank options were evaluated at the preferred site. Even at a higher construction cost the prestressed tank option was selected due to the ability to place backfill directly on the walls which allows burying portions of the tank into the hillside, reducing visibility. Portions of the tank that are not buried will be painted a dark brown to blend with the surrounding terrain. The tank site will be graded into the hillside with cut occurring on the southeast side of the tank site, creating a pad fort the tank base. Retaining walls will be added to depress the access road and provide access to the base of the tank for maintenance. The addition of these walls will allow a fill slope to be built up on the northwest side of the tank that will create a berm that will partially shield the tank. The area of fill westward from the tank will be revegetated with native vegetation to blend the disturbed locations with the surrounding natural environment. The overall area of disturbance associated with tank construction (excluding the access road) is approximately 2.5± acres of which 1.6± acres will be revegetated.

The diameter of the tank is 77 feet with a total height of 36 feet 6 inches at its center. The facility will include a 6-foot vinyl coated chain link security fence for security purposes and to prevent public access to the tank. A 15-foot wide access road (approximately 2,000 lineal feet in length) will extend from the existing internal maintenance loop road within the park to the tank site. This roadway will not be paved but will include an all weather surface for year-round access by Washoe County staff. Approximately 11,000± lineal feet of 20/24-inch pipeline will be constructed from the intersection of Veterans Parkway and Steamboat Creek where the Hidden Valley Phase 1 main ends to the tank site, Approximately 3,865-feet of this main is within the park boundary.

As part of the overall project design development, careful consideration was given to the placement of the tank, access road and related pipelines. A variety of sites within the park were evaluated based on elevation, grading impacts, construction cost, long-term visual impacts. The proposed site was chosen based on the least visual impact to the park and surrounding areas. The site location also allows for the tank to be partially buried which further serves to mitigate visual impacts.

Although no homes directly abut the tank site, homes do exist along the western boundary of the park. The new tank will be located approximately 1,800 feet from the nearest residence (see Figure 4 below). Areas disturbed as a result of grading for the tank will be recontoured to blend with the natural slope of the adjoining area to provide a natural post-development appearance. Native revegetation of disturbed areas/slopes will be implemented and allow for the facility to be largely screened and blend with the surrounding natural environment. The view of existing residences eastward to the Virginia Range will not be obstructed as a result of this proposal.

Figure 4 (below) provides an overall site plan of the proposed reclaimed water tank and includes the temporary "lay down" area that will occur during construction, while Figure 5 (following page) depicts the final site plan with the lay down area restored.

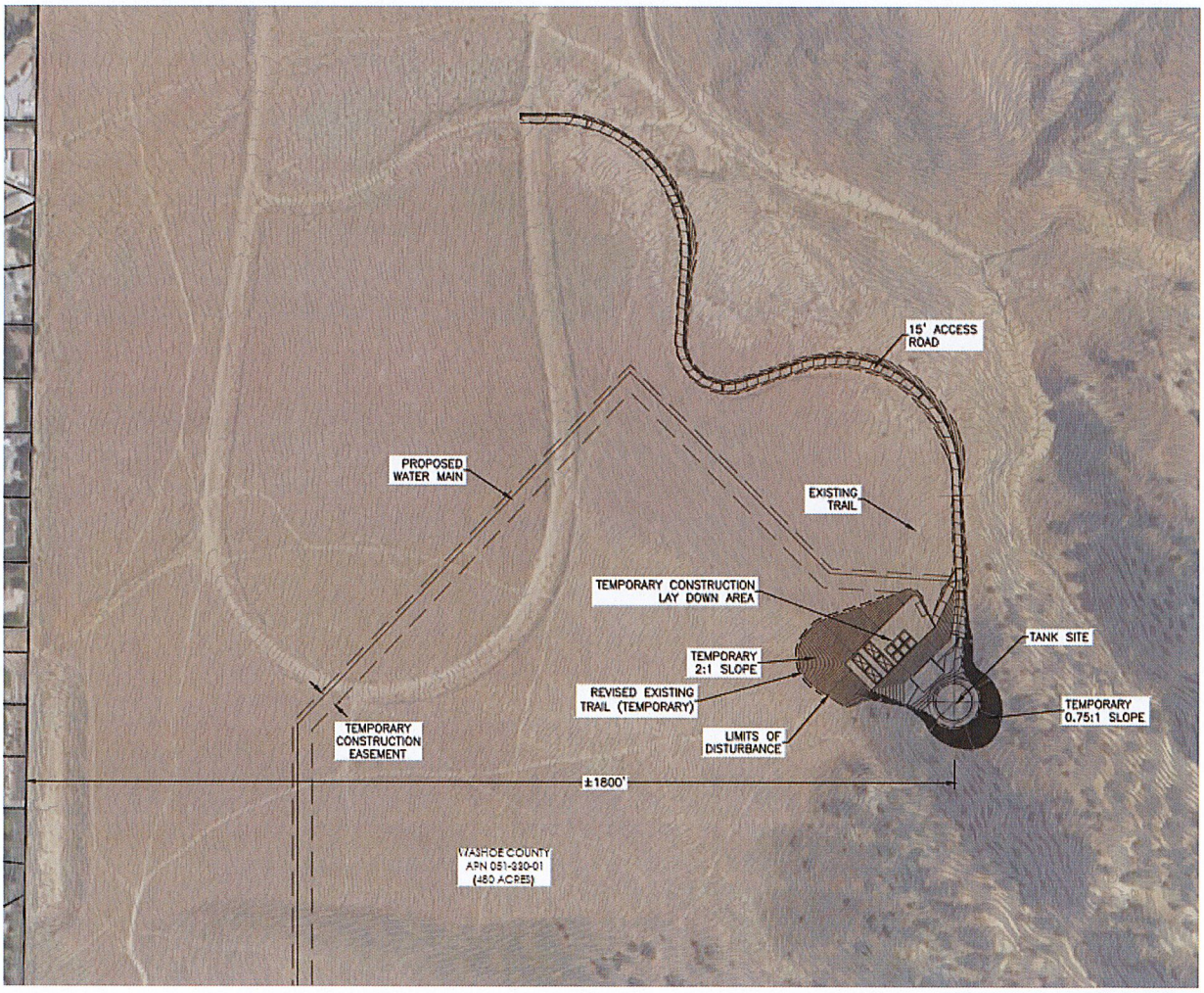


Figure 4 – Overall Construction Site Plan

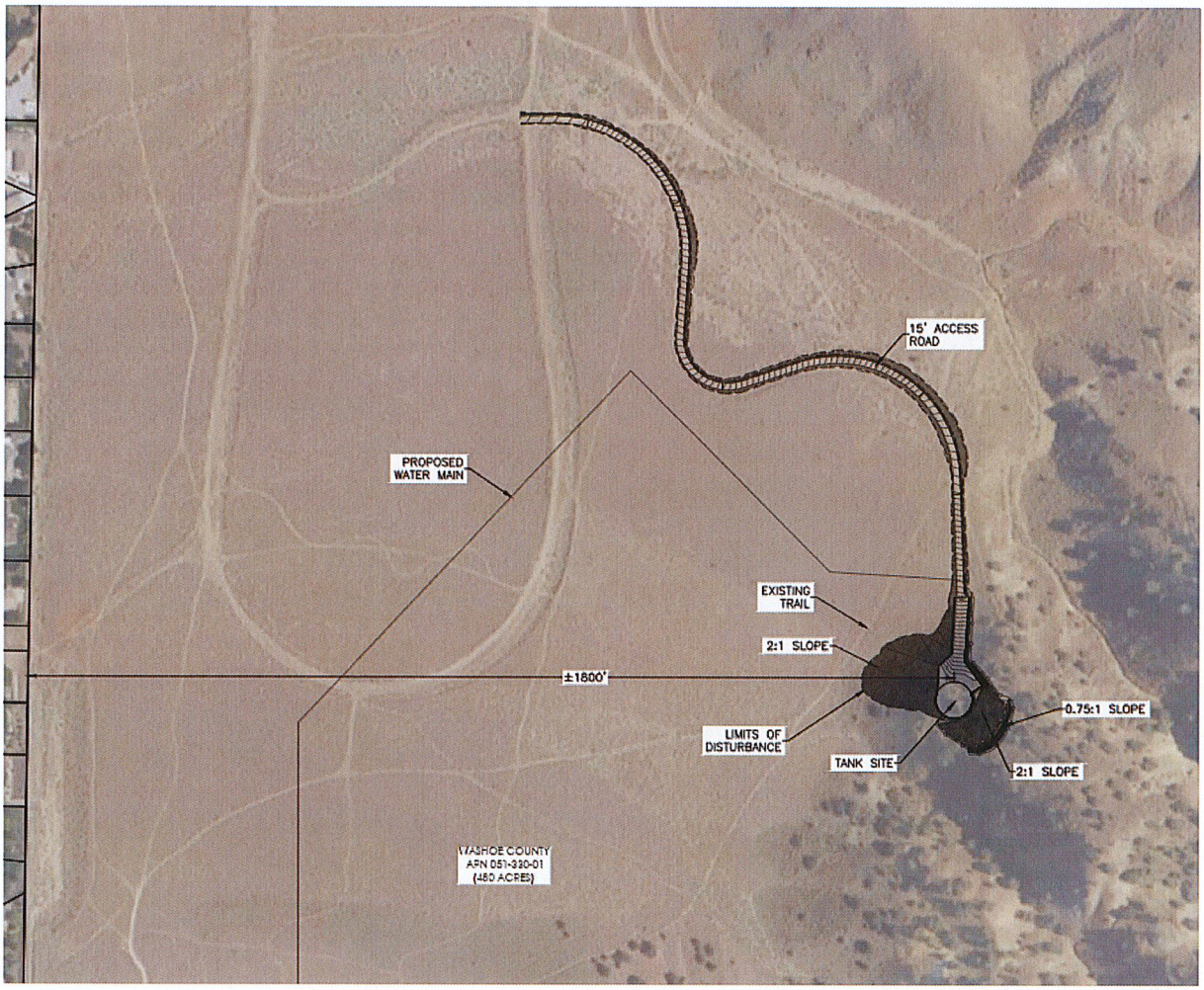
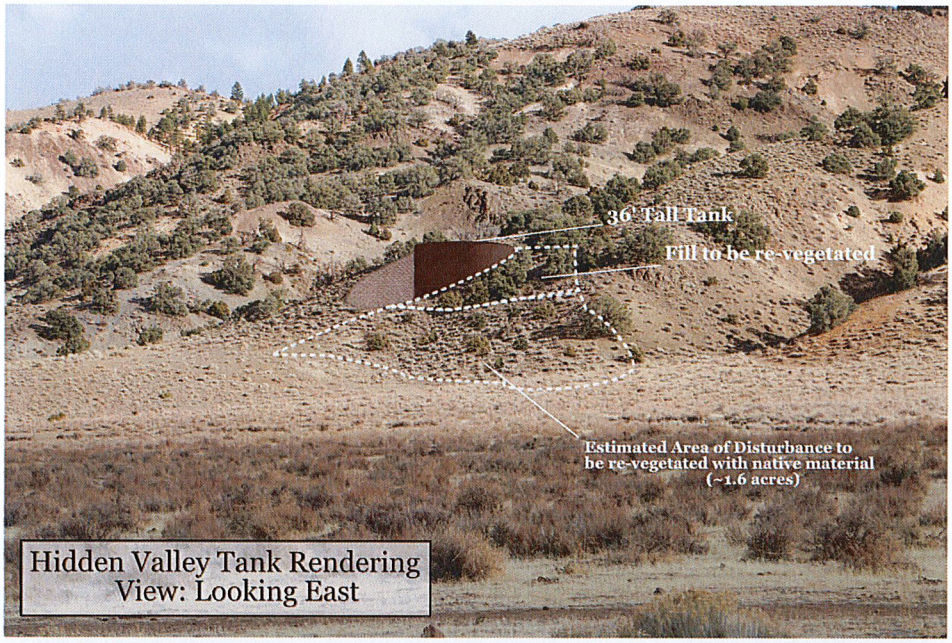


Figure 5 – Overall Final Site Plan

Figure 6 (below) provides photo simulations of the proposed tank from the existing developed facilities within Hidden Valley Regional Park, as well as from the western property boundary, near existing home



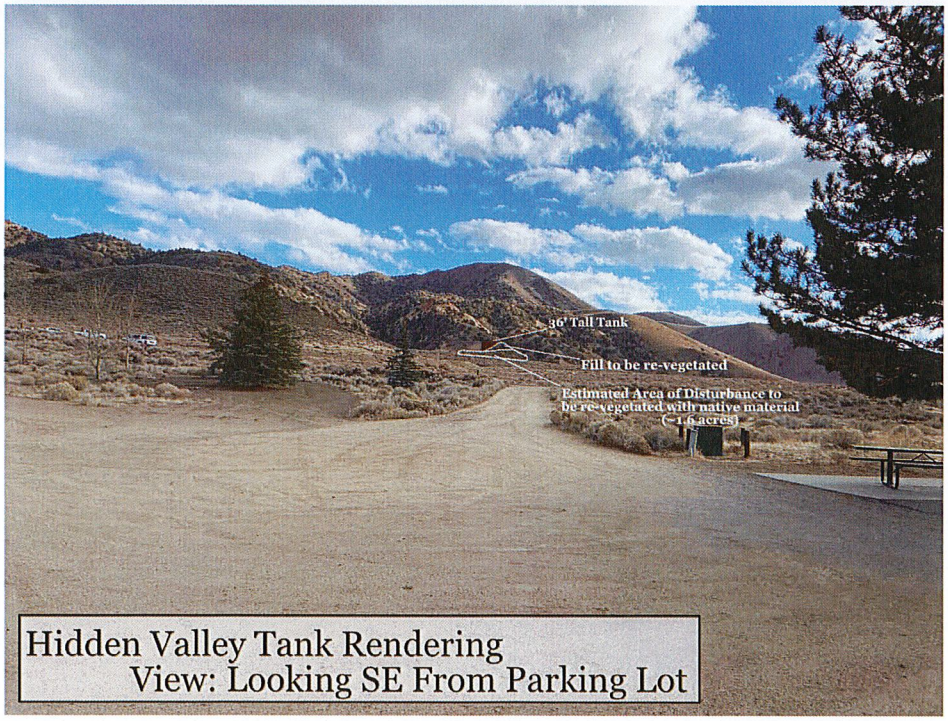


Figure 6 – Photo Simulations

Two individual SUP requests are required to establish the proposed tank. First, the Washoe County Development Code requires a SUP for Utility Service uses within the Parks and Recreation (PR) zone. A tank facility that will provide for needed reclaimed water storage to serve existing County facilities and wetland enhancement projects is completely appropriate within Hidden Valley Regional Park. In fact, two existing tanks are already located within the park boundaries.

The new tank will have little impact to the park or adjoining properties. The tank is located away from existing homes to the west and is designed to blend with the surrounding environment by incorporating a dark brown earth tone color, partially burying the tank and berming. All areas disturbed by grading will be revegetated resulting in a natural post-development appearance.

Most importantly, the tank location does not conflict with any park amenities, including trails. A temporary trail will route hikers and bikers around the construction area while the tank is being built. The existing trail will be reestablished at its current location once the temporary lay-down area is removed upon completion of the tank construction. This was a key consideration in the siting of the tank. An inventory of the existing developed and informal trails/paths located within the park was considered to ensure that facilities currently enjoyed by the public are retained and not impacted by this request.

The tank design included with this SUP request was presented to the Washoe County Open Space and Regional Parks Commission on February 2, 2021 by Washoe County Planning & Building Division staff. The Commission voted to move forward with the SUP request, as presented herein.

The second component of the SUP request is to allow for grading required to create the tank site and access road. Specifically, the project will trigger "Major Grading Permit Thresholds" established in Section 110.438.35(a) of the Washoe County Development Code. Specifically, the following thresholds included in the Development Code are triggered by this request:

- Section 110.438.35(a)(1)(C)
- Section 110.438.35(a)(2)(C)
- Section 110.438.35(a)(2)(C)(ii)(A)
- Section 110.438.35(a)(2)(C)(ii)(B)

Section 110.438.35(a)(1)(C) applies to slopes less than 15 percent and requires a SUP for grading of an area of more than 4 acres on a parcel of any size. The proposed final disturbance area of the tank is approximately 2.5± acres of which 1.6± acres will be revegetated. However, in addition to the tank site, grading of the access roadway will also be required. As part of the tank construction process, cut material generated for the tank pad site (to be used as backfill once the tank is constructed) will be temporary spread below the tanks site. This would result in a total of 3.5± acres of total grading activity on slopes less than 15%. While this is a temporary situation, this provision of the code is included in the SUP to fully ensure compliance with Washoe County standards.

Section 110.438.35(a)(2)(C) applies to grading of slopes 15% or greater. The Hidden Valley Regional Park reclaimed water tank will trigger three SUP provisions from this section of code. First, it would allow for grading of slopes 15% or greater in excess of 2 acres (2.5± acres proposed) as stipulated in Section 110.438.35(a)(2)(C). Second, Sections 4.8.35(a)(2)(ii)(A) and (B) relate to the volume of grading proposed on slopes greater than 15%. The tank site will include approximately 29,000cubic yards of excavation, triggering section (A).

Section (B) is required to allow importation of 1,000 or more cubic yards of material on sites containing slopes greater than 15%. It is anticipated that this SUP trigger will likely not apply to the Hidden Valley tank project. However, to stabilize slopes surrounding the tank, rip-rap material will be imported to the site. The precise amount will be determined with final design and recommendations of the geotechnical engineering team. Thus, the SUP includes this provision out of an abundance of caution should additional material need to be imported at the time of construction. Overall grading limits depicted with the SUP plans contained herein will not be altered regardless of whether additional import of material occurs or not.

Washoe County requires that all slopes resulting from new grading not exceed 3:1. This SUP requests that this requirement be varied and that the use of slopes greater than 3:1 be permitted. This will significantly reduce the amount of overall disturbance within the site, preserving a more natural appearance and allowing slopes to much better blend with the natural slope/terrain of the surrounding area. As proposed, 2:1 slope (in cut) will occur behind the tank with 2:1 fill slopes below the tank (west side), blending with the natural slopes that lead up to the tank site. The use of 2:1 slope will result in a much more natural appearance as they essentially match that of the existing terrain.

Construction of the tank itself will occur onsite. As part of the overall site development and construction process, area behind the tank will be excavated at 0.75:1 (per recommendations of the geotechnical study). The tank will be constructed onsite and then backfill of the area behind the tank will occur with the incorporation of 2:1 slope. Additionally, a small area of 0.75:1 slope will remain above the 2:1 area (as shown on the site). The geotechnical study supports the incorporation of these slopes and rip-rap (with native revegetation) will occur to ensure slope stabilization in the post-development condition.

As previously noted and depicted on the preliminary site plan, a retaining wall will be constructed along the access road and front of the tank. The incorporation of the walls allows access to the tank while greatly reduces the amount of visual scarring resulting from site grading. The tank itself will largely screen the wall (as depicted in Figure 5-not sure where/what figure 5 is). However, the wall itself will incorporate an earth tone color to blend with the natural surrounding environment.

Special Use Permit Findings

In order to approve a Special Use Permit, the following findings must be made. Responses are provided in **bold**.

1. Consistency. The granting of the special use permit is consistent with the policies and maps of the Comprehensive Plan Elements and the Area Plan in which the property is located.

The proposed project is consistent with the Southeast Truckee Meadows Area Plan and supports policies related to the provisions of infrastructure and water conservation within the Plan area. The new facility will provide reclaimed water storage that will be used for park irrigation and other park enhancements This also serves to reduce potable water use currently occurring within the park, allowing these resources to be reserved or utilized for other municipal uses.

2. Adequate Public Facilities. Adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities must exist or will be provided.

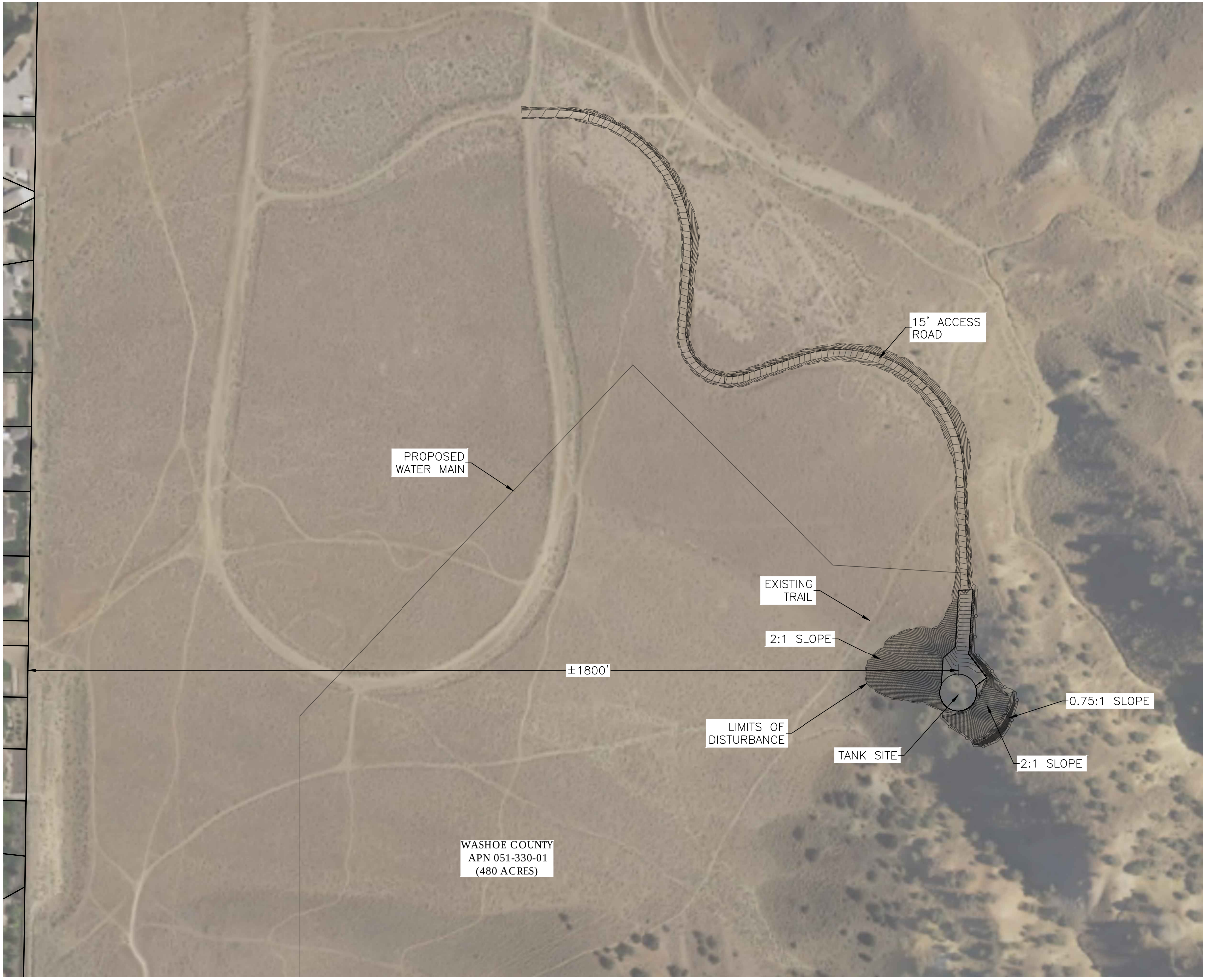
A criterion for the selection of the tank site was the ability to connect with existing infrastructure within the area. Connection to the STMWRF and to facilities within Hidden Valley Regional Park can occur without permanent disruption to the park or loss of facilities. The resulting reclaimed tank will enhance Washoe County infrastructure in the area and provide for overall better utilization of water resources.

3. Site Suitability. The site must be physically suitable for the proposed use and for the intensity of development.

Water tanks often require significant grading based on the fact that they generally must be located in steeper terrain to ensure proper pressures within the overall system. The site selected for the Hidden Valley Regional Park reclaimed water tank is best located to serve intended uses while limiting disturbance and visual impacts. The site is well suited from a geotechnical perspective and this SUP will allow for slopes and revegetation that blend the post development conditions with the surrounding native terrain and vegetation. The use of earth tone colors for the tank and retaining wall(s) will further soften the tank appearance and allow it to blend with rather than contrast with the natural environment.

4. Issuance Not Detrimental. Issuance of the permit may not be significantly detrimental to the public health, safety or welfare; have a detrimental impact on adjacent properties; or be detrimental to the character of the surrounding area.

All potential impacts associated with the tank construction will be properly mitigated. Potential impacts relate to the use of park facilities and overall visual appearance. Construction of the tank will not impact existing park amenities, including existing trails. Additionally, by partially burying the tank, incorporating slopes greater than 3:1, utilizing earth tone colors for the tank and walls, and significant revegetation, the visual appearance of the tank will be properly screened and mitigated. The tank is located over one-quarter of a mile from homes along the west side of the park boundary. Thus, views to the Virginia Range from existing residences will not be materially impacted by this request.



NORTH

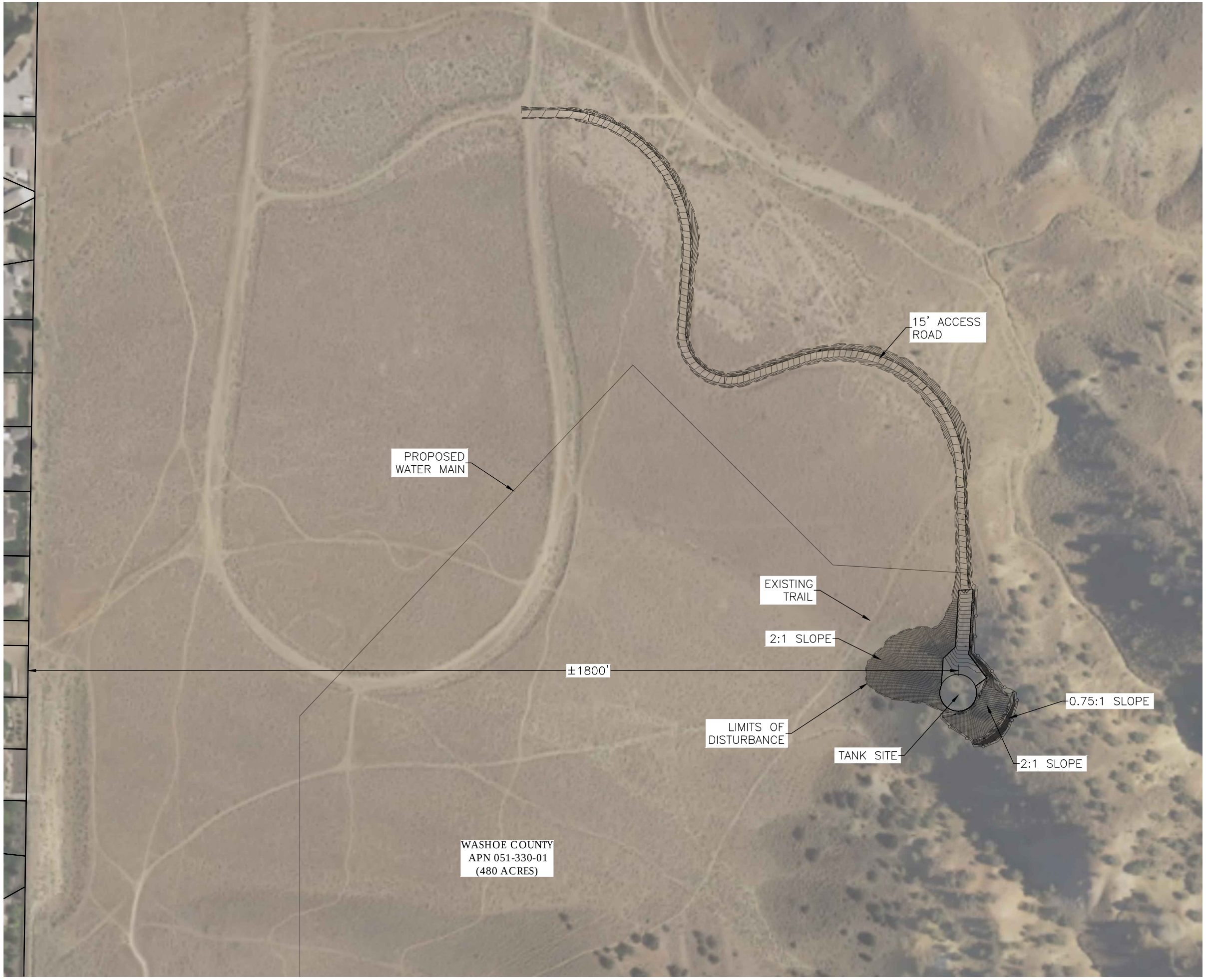
1"=200'

FEBRUARY 2021

CHRISTY CORPORATION
1000 Kiley Parkway | Sparks Nevada 89436
775.502.8552 christynv.com

HIDDEN VALLEY TANK PLANNING
PRE-STRESSED CONCRETE TANK FOOTPRINT

WSUP21-0007
EXHIBIT H



NORTH

1"=200'

FEBRUARY 2021

CHRISTY CORPORATION
1000 Kiley Parkway | Sparks Nevada 89436
775.502.8552 christynv.com

HIDDEN VALLEY TANK PLANNING
PRE-STRESSED CONCRETE TANK FOOTPRINT

WSUP21-0007
EXHIBIT H