

CLARK RANCH

AFFORDABLE HOUSING FEASIBILITY STUDY

DECEMBER 19, 2023



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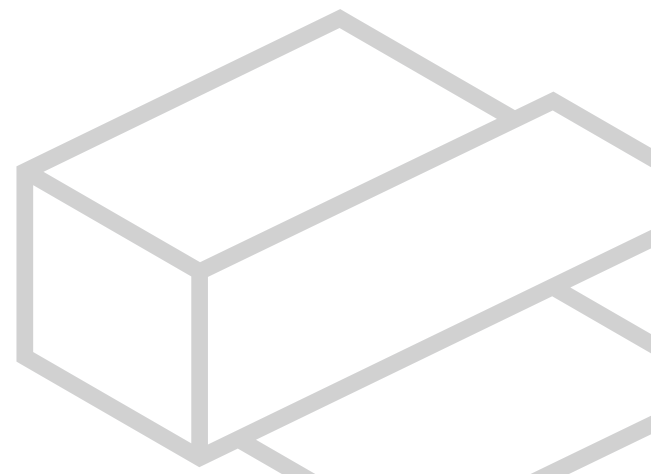
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Introduction

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Mr. Browne Sebright
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Dear Browne,

We appreciate the opportunity to assist in the preliminary planning phases of this exciting new potential to service the community through affordable housing. In an effort to provide the requested data as a means for assisting city staff and elected officials to further define a path forward for the project, we initiated a (3) phase process in an effort to provide clarity.

For the course of the study, we executed an extensive site analysis phase, examining the natural and existing infrastructure statistics surrounding the city owned property identified for development. As well as analyzing two separate entitlements processes; the Master Plan development process and the Affordable Master Plan development process defined by the city's Land Management Code (LMC).

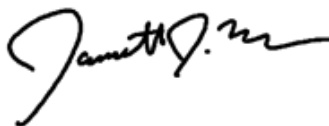
We then established baseline estimates per each of the scenario's outlined in the scope of services, by creating baseline numbers using the optimum unit balance as requested per our various conversations.

The final step included balancing the statistical goals with an architectural test fit, including basic massing studies using computer aided processes.

The results of the steps outlined above are then included in the subsequent pages of this study. As the project is advanced forward, careful development of the site planning, as well as refinement of the visual logic should be carefully considered to provide the type of function and aesthetics which will compliment the existing adjacent open space.

We hope the information contained here will provide significant clarity to you and your team. As always, please feel free to reach out with any questions you may have as you implement the information.

Sincerely,



Principal-in-Charge,
AIA, NCARB, LEED AP, BD+C
Stereotomic Architecture + design

executive summary



The following information provided in the study is presented as a means to help guide city management and elected officials with a basic, high level analysis of the existing Clark Ranch - West Parcel (Clark Ranch West - CRW) and the potential of the site for affordable housing development. The approach utilized a 3 phase approach. Phase I, represented here in the site analysis section, looks to gather critical information on the current site and infrastructure to form a comprehensive understanding of the project constraints and attributes.

The Alta Survey and Title Report do not indicate any encumbrances to the sites development. The topographic survey illustrates the magnitude to which the sloping site will dictate the overall layout. With slopes between 11% to +70%, the land absolutely dictates many aspects to the design. Fortunately, the Topographic site survey and the visual impact analysis show the areas which are the most prime for development coincide with the lowest slopes and the least amount of visual impact. Based on the current Sensitive Lands Overlay defined in the Land Management Code, it would be most advantageous to include a minimum site area of 125 acres to include in any future entitlements procedure even though we've targeted a clustered approach on +/- 12 acres in the northeast corner of the west parcel.

Any pursuit of development entitlements would require a rezone of the property, as the current zoning (RO - Recreation Open Space) do not allow for the addition of residential units. Based on our review of the current zoning and Land Management code, several possible existing zones could be re designated for the site to allow for the options represented here. Of course, there is the possibility of creation of a new zone, but in most instances our team has looked into approaches which could be satisfied with existing zones and regulations already defined by the code.

The overall location and sloping topography of the site provide substantive challenges, both to the overall cost to develop the project as well as structural challenges to provide a simple, yet welcoming environments. With a substantial price tag for the horizontal infrastructure (installation of roads, utilities, storm-water controls, etc...) it challenges the design to develop a site sensitive project which can offset the increased infrastructure costs by maximizing the unit count. The initial carrying capacity of the existing infrastructure (water, sewer, traffic volume) would support upwards of 275 units.

Through our overall analysis, we propose a simplified road layout which balances cut/fill excavation operations. The density options presented range from 90 units of grouped Town-homes, to 230 units of multifamily stacked flat configurations. We purpose the units to be provided through multiple unit types, including a mix of duplexes, town-homes and small to medium scale stacked flats. The Higher unit count maximizes the efficiency of the current carrying capacity of the infrastructure, while provided the best offset on a per unit basis of the overall development costs. The grouping of units in this fashion provide a greater potential for sustainable development (net zero energy & carbon), while still achieving a very human centric built environment.

vision statement

The Clark Ranch study provide a unique opportunity to envision a new model for Park City in the 21st century. As our community continues to grows exponentially, it becomes increasing more important to provide an equitable, sustainable development to ensure a diverse population. At the forefront of this idea is to strike an equal balance between social, environmental and financial constraints. The social aspect looks to maximize accessibility, affordability and equity. The environmental leg must exalt the preservation of natural character, and look to provide a regenerative project which limits the carbon and energy usage as a means to protect the future. Last but not least, the project must strike a fiscal balance to guarantee the vision can become reality.

The feasibility study here proposes to aid in creating an increase in available housing targeting the “missing middle”. As we’ve seen the evolution of our economy and the speculative investment in housing rapidly pushes beyond the level of affordable for many in our community, it becomes important to embrace the typologies which suit our current gap.

Our work here proposes to take a “critical regionalist” approach; in which modern ideas and solutions to more urban problems are adapted to our regional locale. This approach looks to define what may be summed up as “Mountain Urbanism”



Alta Survey

City Staff provided the Title report for the entirety of the City Owned property at Clark Ranch. Talisman Civil Consultants and Hoffman Law provided a review, and noted no notable discrepancies or identified items which would need resolutions.

As part of this study, Talisman Civil Consultants conducted an ALTA/NSPS Land Title Survey dated July 21, 2023. Upon completion of the survey, no remarkable easements, or barriers to development on the northeast portion of the west side parcel were identified. A copy of the completed Survey is included in Appendix A.

Topography / Slope Analysis

Talisman Civil Consultants has developed a preliminary Topography Survey of the parcel utilizing state topography data system. This dataset, although accurate to within 2 feet, was determined this would be the most cost effective given the significant snow cover which persisted late into the spring season.

The results of the study indicate the topography will play a major role in the layout & design of any development targeting for the CRW parcel. The predominant slope descends East through North-East, with very minor discrepancies. Slope angles vary from 11%-15% at the lower and mid elevations on the Northeast, to over 70% on the west side. It should be noted that the average slope encountered in the develop-able target (10 acres in the Northeast tip) is 17%-25% (6:1 – 4:1 ratio). Shallow to moderately shallow drainage pathways exist across the slope.

The slope analysis is key to identifying the amount of available area that can be targeted for development based on the LMC Sensitive Lands Overlay (S.L.O.) guidelines. The SLO identifies the following slope categories and development restrictions on the following slope categories:

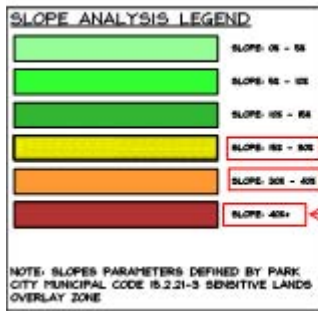
Steep Slopes (15% - 30%) – 75% of the area must remain as Open space.

Steep Slopes (30%- 40%) - 75% of the area must remain as Open space.

Very Steep Slopes (>40%) – No Development Allowed

Much of the area targeted for development lies within the Steep Slopes (15%-30%) which require 75% of the area to remain as Open space.

Considering the language of the SLO, section 15-2.21-4 (H) defines the density and outlines the amount of land development which can occur in the Steep Slopes (15%-30%). Section A defines the maximum Density as outlined by the underlying zoning, without significant adverse visual or environmental impacts. Section B recommends several organizational strategies for development, and as such it has



steep slope*
 steep slope*
 very steep slope
 no development

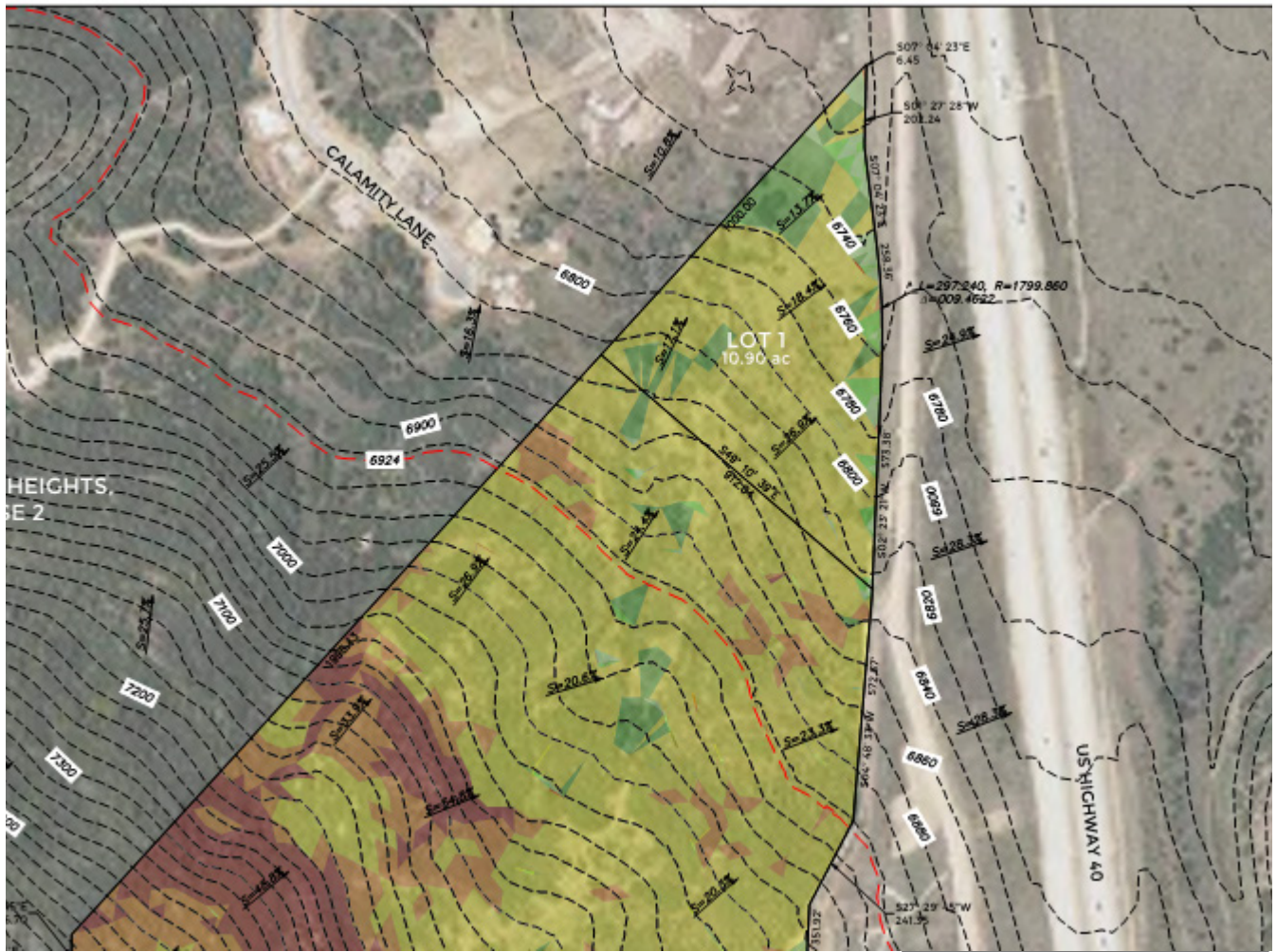


Illustration 8.1

been identified a "Clustered Development" would provide the least intrusive visual and environmental impact on the site. Section C allows for a transfer of density to the "least intrusive portion of the site". In this instance, the Northeast corner of the site provides the "least intrusive" portion of the site, both visually and through horizontal development (grading & cut/fill operations). Therefore, it should be noted that the full 125 acres of the study parcel should be kept intact, with much of the west - southwest portion of the parcel (which contain the steepest slopes) to be designated as permanent Open space for the benefit of the community as outlined in the SLO



Illustration 9.1

Access Analysis

The evaluation process of the potential access options for the Clark Ranch West parcel identified the existing frontage road grade as the best primary access option. Discussions with the Park City Engineering team offered a solution to the access point from Richardson Flats road, given its close proximity to the Piper Way intersection. (Approx. 145') A direct access as it intersects Richardson Flats Road is deemed not sufficient in its proximity with Piper way. A 300' min. separation is suggested to provide the proper safe spacing, which is not possible. An alternate option of utilizing the existing piper way intersection, then adding a roundabout at the intersection of Kinley Way and Piper Way with a spur running to the east connecting to the frontage road grade. The logistics of which would need the endorsements from UDOT, Summit County as well as Park City Engineering.

Based on our discussions with City and county officials, it has been ascertained that Summit County currently is responsible for the existing frontage road grade within the UDOT easement for highway 40. If and when developed, the process would be in cooperation with UDOT, Summit County and Park City Municipal Corporation for design, whereas long term maintenance would fall to Park City as a city public right-of-way.

Based on NFPA (National Fire Protection Assoc) section 1140 "Standard for Wild-land Fire Protection", the team recommends (2) distinct and separate vehicular access paths. Per section 11.1.4.1, these

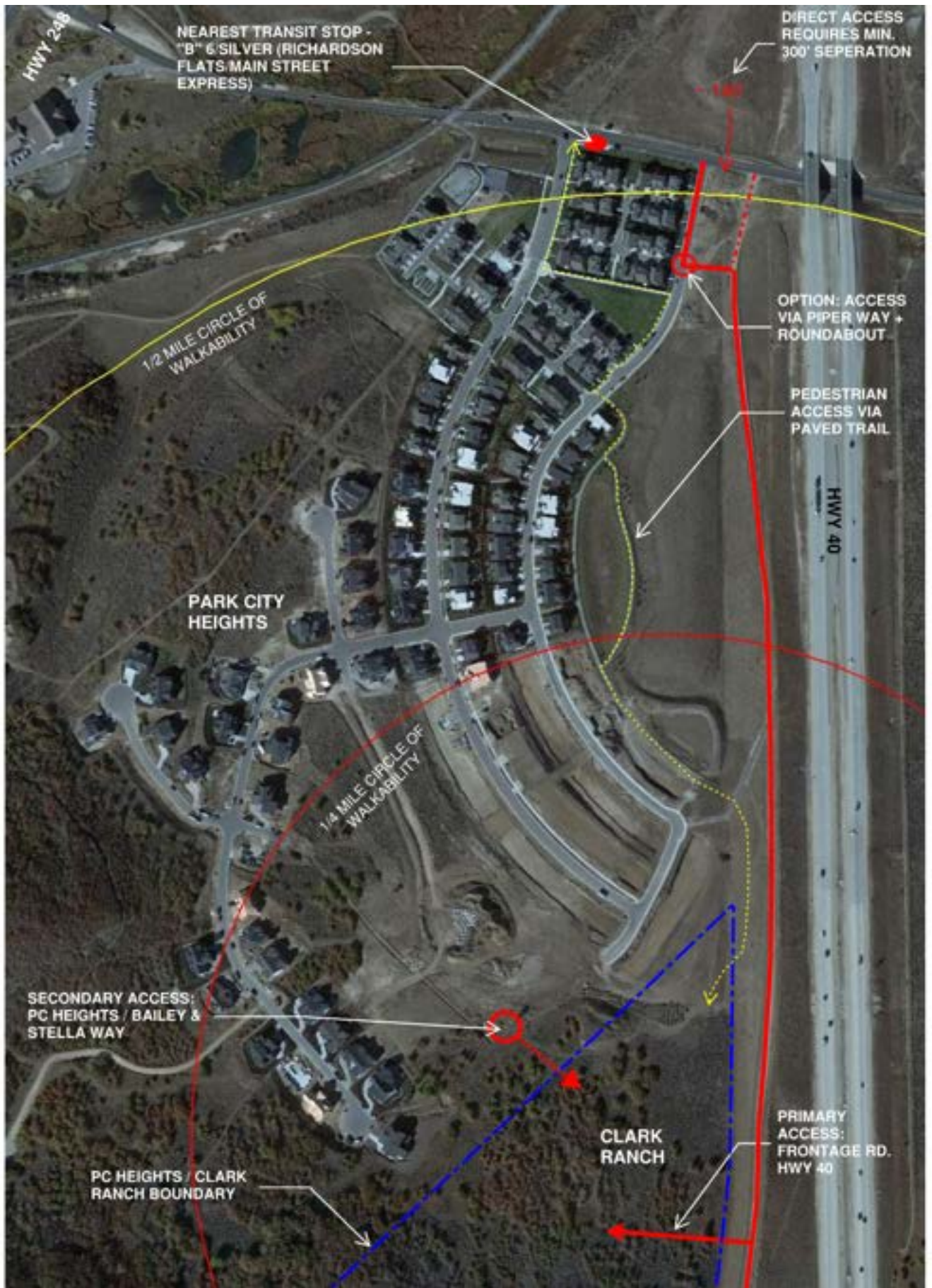


Illustration 10.1

Table 11.1.4.1(a) Required Number of Access Routes for Residential Areas

Number of Households	Number of Access Routes
0-100	1
101-600	2
>600	3

Fig. 11.1 - source National Fire Protection Assoc. (2022) Sect 1140- "Standard for Wild-land Fire Protection"

11.1.4.3 Where multiple means of access are required, one of the means of access shall be permitted to be restricted for emergency use only, when approved by the AHJ.

11.1.4.4 Where multiple means of access are required, they shall be located as remotely from each other as practical and acceptable to the AHJ.

Fig. 11.2 - source National Fire Protection Assoc. (2022)Sect 1140- "Standard for Wild-land Fire

connections should be located "as remotely from each other as practical"

Secondary access for the development was considered for both safety and functionality, and it was determined that a connection to the existing Park City Heights neighborhood directly to the north would be the most advantageous. Several provisions in the LMC provide for neighborhood connectivity. Section PCMC 15-7.3-4 (A)(1)(d) reads " Proposed Streets shall be extended to the boundary lines of the tract to be subdivided, unless prevented by topography or other physical conditions, or unless in the opinion of the Planning Commission such an extension is not necessary for the coordination of the layout of the Subdivision with the existing layout or the most advantageous future Development of adjacent tracts." Additionally, PCMC 15-7.3-4 (A)(6) "CONSTRUCTION OF DEAD-END ROADS" provides guidelines for fire protection, convenience and efficient utilities by outlining the connections between adjacent developments.

Hoffman Law has conducted a background review and finds no evidence which would preclude development of a secondary connection to the existing planned streets in the Park City Heights neighborhood. There is a stub available for the Clark Ranch West property in the next phase of Park City Heights development, and the roads in the existing neighborhood are public.



illust. 11.3- source: Park City Planning Commission, Park City Heights Plat Map

Pedestrian / Bicycle Access

Pedestrian and bicycle access provide a slight challenge given the nature of the existing topography and distances to existing public transit infrastructure. The current north edge of the proposed CRW parcel lies approximately 1/2 mile from the transit stop for Park City heights. This is what is generally at the acceptable limit for walk-ability; especially considering the elevation gain / loss from the transit stop to CRW.

In discussions with Park City Staff, a combination of micro-transit, and paved walking/biking paths would be planned to connect the north end of the parcel with the existing trail, bus stop at PCH, and eventually the rail trail. A new transit stop for the development could be possible, and would need coordination with transit staff over the logistics.

The main pedestrian connection would be via a paved 8' wide trail exiting the Clark Ranch Parcel on the Northeast end, connecting to the existing trails developed as part of the Park City Heights neighborhood. This path would have one road crossing in the Park City Heights development (Piper Way) and it is recommended further study to understand the current traffic volumes at this location. Several upgrades may be advantageous given the current volume of cars passing this location.

Within the plan for the development is a series of single track gravel and multiple use paved trails to be used for distinct pedestrian and bicycle movement between buildings. This provides two advantages; the first by decoupling the automobile traffic from the pedestrian, and second by providing alternative means of ascending and descending the natural slopes of the terrain at lower angles from the road grade with sidewalks adjacent to road.

Initial Traffic volume estimates

As preparation for the validity of our density studies, a simulated trip generation report was completed with analysis from Fehr & Peers traffic engineers. Fehr & Peers collected turning movement counts for a separate project at the SR-248 / Richardson Flat Road Intersection in January 2020. The 2020 counts at the intersection showed two-way volumes on Richardson Flat Road (east of SR-248) of 214 vehicles and 172 vehicles in the AM peak hour and PM Peak Hour, respectively. A high level assessment was performed to ascertain the peak hour trip generation on the Richardson Flat Road. The Roadway Level of Service was estimated based on planning level generalized peak hour two way volumes for roadway capacities.

Level of Service	Peak Hour Traffic Capacity Estimates
	2 Lanes
LOS B or better	≤ 1,098
LOS C	1,099 – 1,215
LOS D	> 1,215

Source: Fehr & Peers, based on FDOT Generalized Peak Hour Two-Way Volumes for developed areas less than 5,000 population, adjusted for non-state signalized roadway.

Fig. 13.1

As a generalized assessment, to preserve the existing Level of Service (LOS) B (or better), the difference between the current Peak Hour Two way traffic Thresholds and the observed use from January 2020 is approximately 884 Peak hour two way trips – AM and 926 Peak hour two way trips - PM.

View-shed Corridors / Visual Impact analysis

As outlined in accordance with the “Sensitive Lands Overlay” (SLO) outlined in the Park City Land Management Code (LMC), the visual impacts have been evaluated to understand the areas of the CRW parcel which could hold the least invasive impact to the entry corridor along highway 40 and highway 248. Often considered the “back entrance” to Park City, this corridor is quickly becoming the front door for the increasing number of workers who migrated into town from the Heber valley and eastern summit county.

Along the approach coming south on highway 40, it’s obvious the west ridge of the parcel provides the most prominent visual landmark for the area. As one would expect, the closer you get to the subject parcel, the more prominent the lower slopes of the land area become. But, as vehicles become adjacent to the CRW study area, the lower grades on the Northeast tip become obscured by the elevated grade of the Highway 40 corridor. This reinforces the initial identification of the Northeast corner of the parcel to be the least invasive for development.



Illust. 14.1 - Clark Ranch West Parcel as viewed from Hwy 40 Southbound



Illust. 14.2 - Clark Ranch West Parcel as viewed from Hwy 40 Southbound; as you approach from the north



Illust. 14.3 - The Clark Ranch West Parcel's Northeast corner becomes obscured by the grading for HWY 40 in close proximity

As you approach traveling northbound on Highway 40 from the south, the topography makes a transition from a easterly slope to more northeast facing slope. This transition in terrain obscures the view of the lowest most elevations on the parcel, which correspond to the same area in the northeast quadrant as identified by traveling in the southern direction.

As illustrated by the following illustrations, the lower Northeast corner of the site is the location of least visual impact from a variety of different locations in the vicinity.



Illust. 15.1 - The North portion of Clark Ranch West Parcel as viewed from HWY 248 near the Park City Film Studios



Illust. 15.2 - The North portion of Clark Ranch West Parcel as viewed from the roundabout at the Park City Hospital



Illust. 16.1 - The North portion of Clark Ranch West Parcel as viewed from the intersection of Piper Way and Richardson Flat Road



Illust. 16.1 - The North portion of Clark Ranch West Parcel as viewed from the intersection of the rail-trail and Richardson Flat Road

Utilities - Preliminary Assessment

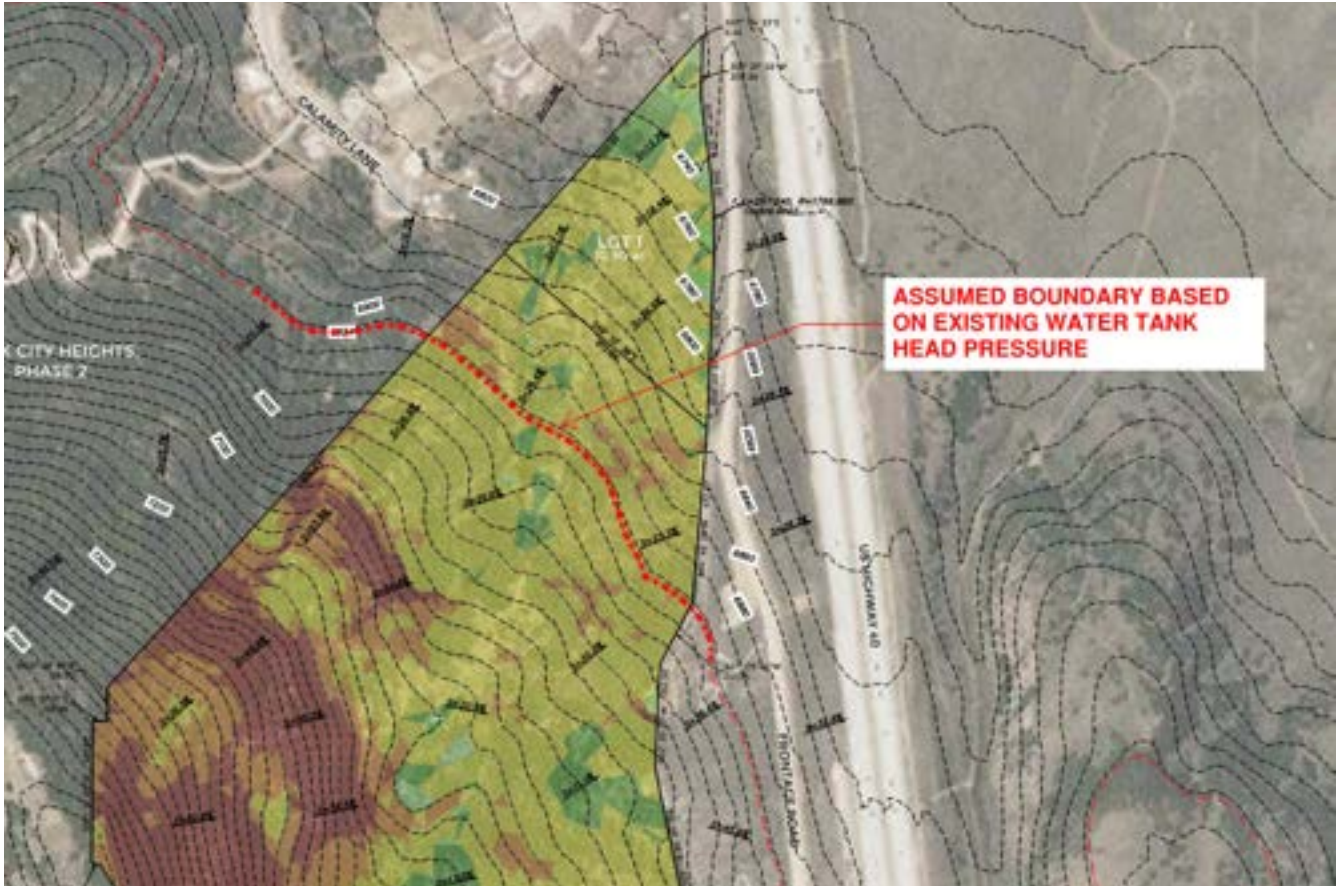
Culinary water

The culinary water system is owned, operated, and maintained by Park City's Water Division. The Equivalent Residential Connection (ERC) is a unit of measurement that represents water demand per household. Utah Administrative Code: R309-510-7 defines peak day demand to be 800 gallons per day per ERC. Utah Administrative Code: R309-510-7 also provides guidance for outdoor irrigation demand. The proposed Clark Ranch Development is located in Map Zone 2 for "Low" Normal Annual Effective Precipitation. The corresponding irrigation demand per Table 510-3 is 2.8 gpm per irrigated acre. Water access to the site is through the city's municipal water supply. The current holding tank located above and directly west of Park City Heights would be the supply branch to service any new development in the Clark Ranch Area. Currently, an existing 2,000,000-gallon storage tank services Park City Heights. The existing elevation of the storage tank is at elevation 7,017 feet. To maintain a minimum service pressure of 40 psi without booster pumps, the development of Clark Ranch may not exceed an elevation of 6917'. The proposed culinary water system for Clark Ranch will connect to an assumed 8"



Illust. 171 - Conceptual Water Connection layout

stub off the cul-de-sac of Calamity Lane in Phase 5 of Park City Heights. From the connection in the Calamity Lane, the proposed culinary water runs 2,331 linear feet of 10" C-900 PVC pipe the entire length of the new roadway, reconnecting at an intersection of the new road to provide a water loop. The development also requires a pressure reducing valve station to mitigate high water pressure due to elevation drop in the new water system.

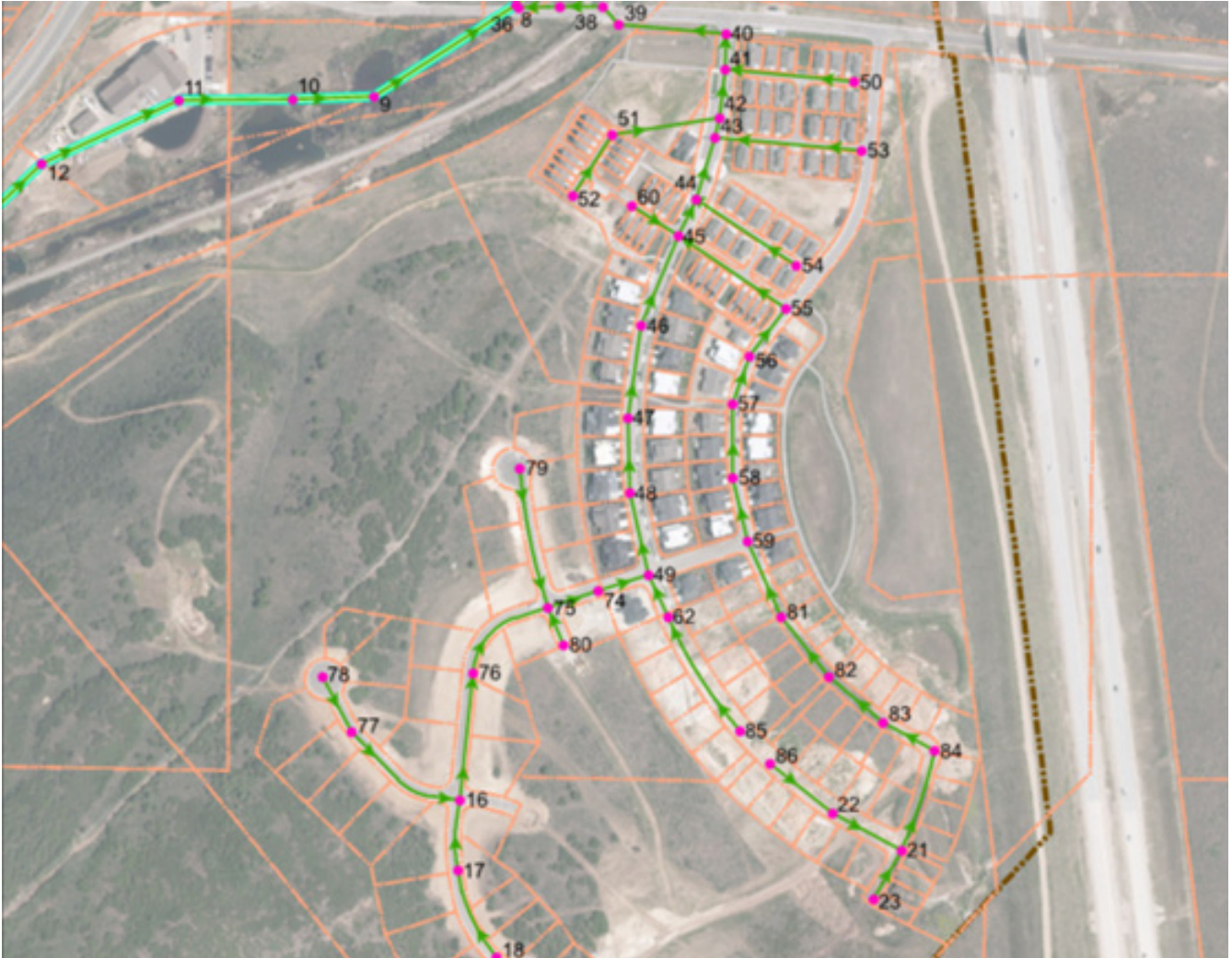


Illust. 18.1 - Assumed boundary based on existing water tank head pressure

Sanitary Sewer

Talisman Civil Consultants estimates that the Clark Ranch Development will require approximately 2,300 linear feet of 8" SDR-35 PVC pipe. See Exhibit 1 in the Appendix. The proposed sanitary sewer infrastructure will connect to existing manhole #23 and run the length of Piper Way in Park City Heights. See Figure 2 below. The conveyance system would ultimately direct wastewater flow to the Silver Creek Water Reclamation Facility where it is treated and returned to Silver Creek before eventually flowing to Echo Reservoir. According to discussions with SBWRD, the existing sewer line between manholes #58 and #59 limits the available capacity at 54.3 gpm. The existing sewer system has enough capacity to serve 229 units without requiring upgrades to the existing infrastructure. If the Clark Ranch Development were to build greater than the baseline of 229 units, the existing sewer line between manholes #8 to #58 to #59 must be upsized from an 8" pipe to a 12" pipe. Improvements to the sewer line between manhole #8 and #40 require special attention. The existing sewer line is shallow in slope

and also makes an aerial crossing over a natural waterway which will complicate design solutions.



Illust. 19.1 - Existing Sanitary Sewer map for the Park City Heights Development

Storm-water Management

The Park City Storm-water Management Program and the Park City Storm-water Drainage Design Manual dictates the parameters used to evaluate requirements for the Clark Ranch storm drain system. Important design parameters from these documents include but are not limited to:

- Pipe shall be designed to convey the 10-year storm recurrence interval
- Detention ponds shall be designed for the 100-year storm recurrence interval
- The allowable post-development discharge rate must be less than or equal to the pre-development discharge rate
- The minimum storm drain pipe diameter shall be 15"
- The source for precipitation data is NOAA Atlas 14

As of July 1st, 2020, the Utah Division of Water Quality has implemented a requirement to retain and infiltrate the 80th percentile storm event for new development projects that disturb greater than or equal to 1 acre. The 80th percentile storm depth for Park City is approximately 0.47"

Preliminary Soils Evaluation

A custom soil resource map for the CRW project area was included as part of a larger soils study on the adjacent Park City Heights project. As identified in the report, the majority of the soil consists of Loam/Clay/Cobbly Loam / Stony Loam – clay. The general depth to restrictive soils formation (Lithic Bedrock) was identified as 40"-60", with locally variable differences.

Although a complete Geotechnical report of the soils for this parcel has not been conducted, the data from the adjacent parcel for Park City Heights identified the following characteristics:

"The subsurface sequence generally consists of surficial clays underlain by clayey gravels with some sands and generally occasional cobbles. The clays generally extend to depths ranging from 2.5 – 9.5 feet....are moderately to highly plastic. These soils exhibit high expansive characteristics." Topsoil has been identified as 6"-12", containing major roots and organic materials.... Clays below the loose surface zone exhibit moderate strength and compressibility characteristics....Bedrock appears to consist of quartzite with relatively high strength and low compressibility characteristics."

A full copy of the preliminary soils investigations are available in appendix H.

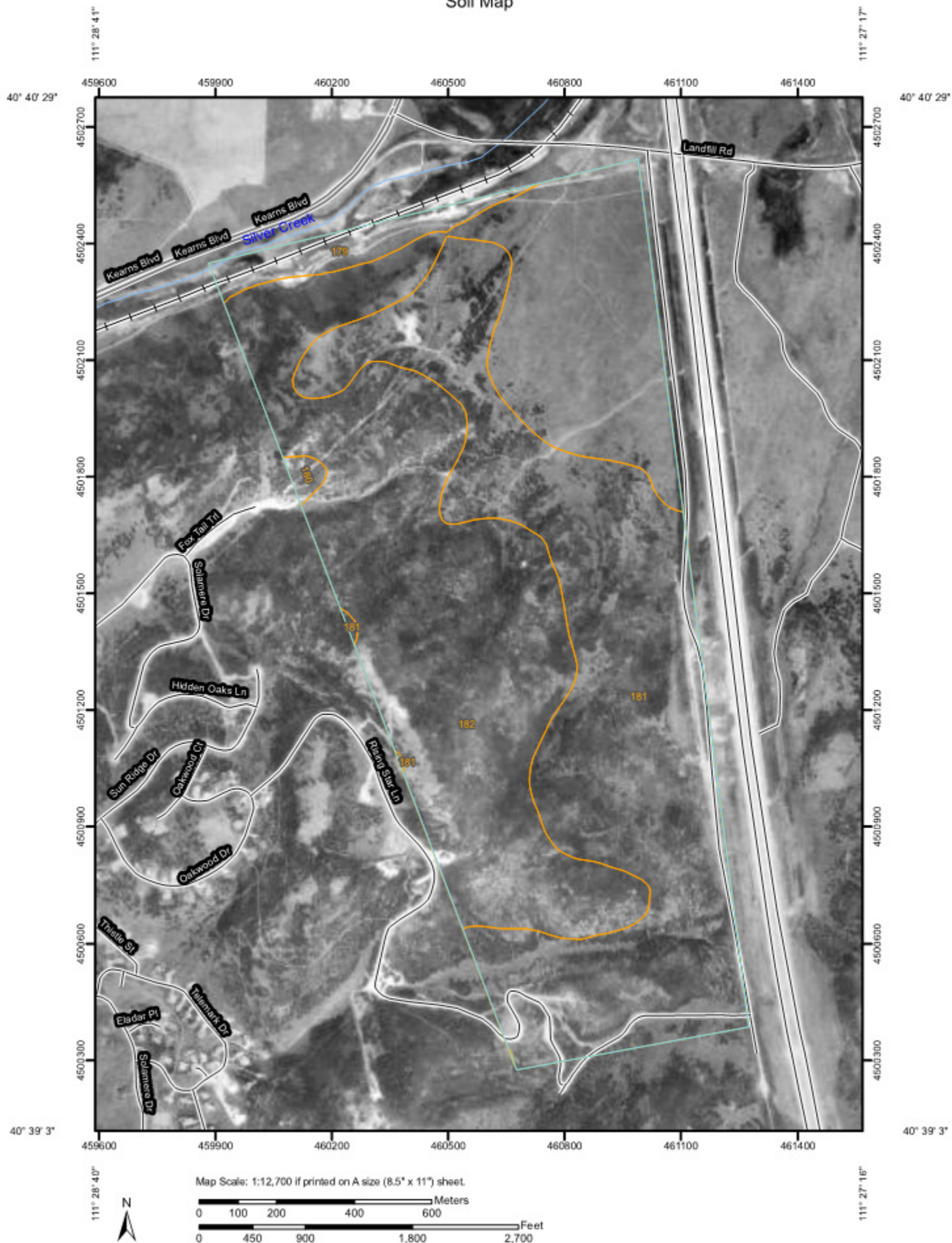
As of this study, no evidence has been found of significant soils contamination. The CLR parcel lies outside of the established Park City Soils Remediation boundary. It should be noted further exploration of development should include a soils management plan. The plan would need to be coordinated with the soils management team at Park City Municipal Corporation, and include, as a first step, a coordinated testing protocol which follows the established method outlined by the city.

Map Unit Legend

Summit Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties (UT613)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
179	Wanship-Kovich loams, 0 to 3 percent slopes	14.8	3.1%
180	Yeates Hollow-Henefer complex, 3 to 15 percent slopes	2.1	0.4%
181	Yeates Hollow-Henefer complex, 15 to 30 percent slopes	205.3	42.9%
182	Yeates Hollow-Henefer complex, 30 to 60 percent slopes	256.9	53.6%
Totals for Area of Interest		479.1	100.0%

Fig. 20.1-Major soils composition for the Clark Ranch West Parcel Source: "Custom Soil Resource Report for ...Park City heights Soil Survey", 01/2011, USDA / Natural Resources Conservation Service

Custom Soil Resource Report Soil Map



Illust. 211 - map illustrating the major soils composition for the Clark Ranch West Parcel; Source: "Custom Soil Resource Report for ...Park City heights Soil Survey", 01/2011, USDA / Natural Resources Conservation Service

site characteristics

Environmental Analysis / Hazardous assessment

The property consists of currently undeveloped lands adjacent to other residential developments and transportation infrastructure. Ground cover on the property consists mainly of grasses, sagebrush, gamble oak and small clusterings of pine near the ridge on the far west side. The existing use of the property is primarily open space, with a small collection of trails which traverse the upper portions (west side) of the study parcel.

The primary **historical use** of the property has been for livestock grazing for 3 to 4 generations. The property was originally owned by the Clark family, and subsequently purchased by the Gilmor family around the 1940's, who had previously leased the property for their livestock operations.

General indications and research suggest no direct contamination could be anticipated from the site (The Clark Ranch West Parcel). Although the Clark Ranch Conservation Resources Inventory mentions a EPA Phase 1 Environmental Assessment from 2015 (by Kleinfelder) for the Clark Ranch parcels, a GRAMA request to Park City Municipal produced no results. The Conservation Resources Inventory makes mention of reported higher than normal lead levels (pg 9), and mentions the proximity is "... located directly south of the Richardson Flats Tailings facility..." Therefore, it is assumed this is in reference to the east parcel of the Ranch. It should be of note, the western parcel, due to its proximity of the property to the Richardson Flat tailings site as well as to the Park City Heights (with historical slurry transfer ditch containing trace tailings as well as lead containing soil and cement debris), a site specific Phase I environmental site assessment should be conducted prior to any anticipated development.

Wildlife – Due to the encroaching infrastructure, the potential for wildlife habitat fragmentation is high. The Clark Ranch Conservation Resources inventory lists the parcels as a migratory area for Mule deer, Elk, and Moose. It is also listed as a potential habitat for Sage grouse, which is listed as a "Species of Concern" by the BLM and US Forest service. Although the last documented sighting of the Greater Sage Grouse is listed as 2008. It is recommended that any development be clustered to reduce habitat fragmentation, although encroachment of development to natural habitats is always a threat to the existing wildlife using the parcel. It is recommended the city "closely manage and regulate" the areas where domestic dogs may be off leash, and "actively develop" trail connectivity and discourage rouge trails from old trails and road cuts. (Wheeler, Morris and Coles-Ritchie, "Clark Ranch Conservation Resources inventory" 2015)

Vegetation – Similar threats to the native vegetation exist in parallel to those of the wildlife threats. A secondary consideration is the potential spread of noxious weeds, which can be exacerbated by grubbing, clearing and excavation activities.

Fire Hazard Assessment - Park City requires that all residential structures be fire sprinklered which will help mitigate some risk of wildfire. Pertaining to fire/life safety, the proposed Frontage Road access will need to be improved and maintained, as assumed.

The Park City Fire District adopted Appendix D of the International Fire Code. If access to the roof of

any of the buildings is more than 30 feet measured from grade, an Aerial Fire Apparatus Access Road is required. The road must be no less than 26 feet wide measured from inside edge of curb to inside edge of curb and must be between 15 and 30 feet from the structure in that case. It will be important to be careful consider the height and location of the proposed structures.

Water supply for fire suppression should be verified for the fire hydrants. The fire hydrants must be capable of 2000 GPM at 20 PSI.

One item of note is the distance from the closest fire station to the project. The distance from the nearest fire station to the cul-de-sac on Calamity Lane is 4.3 miles. Portions of the Clark Ranch development parcel may fall outside of the 5 mile limit that the Insurance Services Office (ISO) puts on projects. This may cause an insurance problem for the properties. PCFD owns a parcel of land on Round Valley Drive that will reduce that distance, but, in collaboration with PCFD during the information gathering process they have indicated there are no immediate plans to construct a station on this parcel. The call volume in that area does not warrant the cost of the station and the personnel required to staff it at the current time.

Historical Analysis

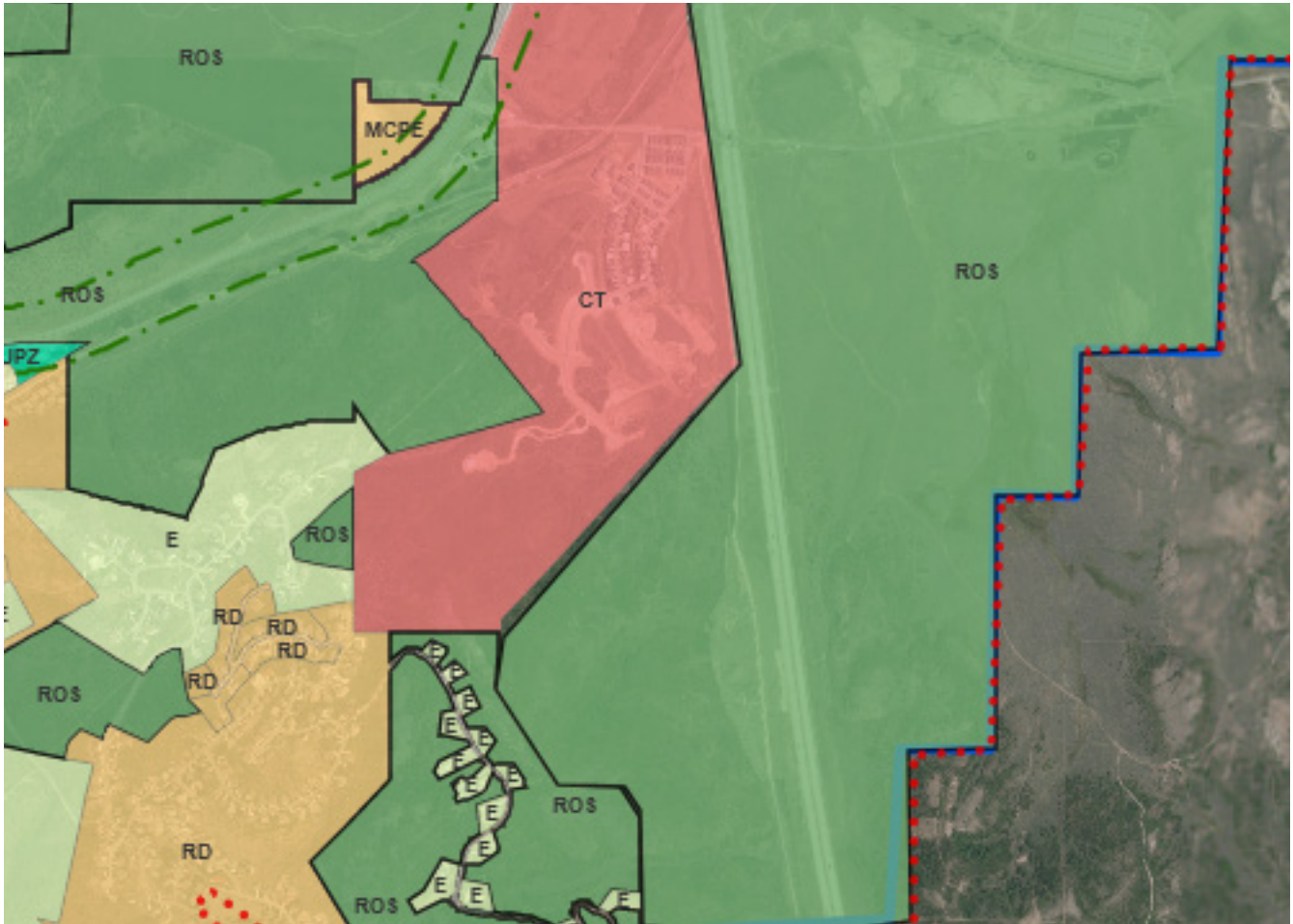
There are currently no historical structures or significant sites listed on the Clark Ranch open space parcels on file with the Park City Planning Department. The historical uses of the property include use as grazing grounds for livestock and a dairy farm operated by the Clark Family for 3 to 4 generations prior to the purchase of the property by the Gilmore Family in the early 1940's. There are mentions of existing concrete slabs on the east parcel, remnants of the structures associated with the dairy barn and farm structures prior to the 1940's.

Current Zoning & LMC assessment

The Park City "Clark Ranch" property on the west side of Highway 40 is comprised of 2 parcels of roughly equal size, totaling over 250 acres, in the Recreation Open Space (ROS) zone (the "Clark Ranch West parcels"). The ROS zone does not allow for any residential uses and is not compatible with the Affordable Master Planned Development (AMPD) provisions in the Park City Code. Any affordable project on this property would need to be re-zoned to a zone that is compatible with the AMPD provisions or utilize an entirely new zone.

Our team has developed 3 different density and site plan layouts, all of which can be accommodated through the existing AMPD process, once the subject property is re-zoned to an underlying zone that allows for the AMPD process. Any specific issues or requested changes to the AMPD provisions can be effectuated via a text amendment to the AMPD requirements. For example, in the layouts provided by our team that utilize a more dense, multi-family concept, the "10-foot step back" requirements that then allow an applicant to "earn" a maximum height of 45 feet for a given building could be removed or amended through a text amendment for projects with at least 90-95% open space. Due to the unique

nature and sheer size of this property, the City could tailor the amendments to the AMPD process to impact only this project, or to incentive well-clustered, affordable housing projects on the perimeter of ROS zoned land within the City. The most accommodating zone for this project is the Residential Multiple (RM) zone. It provides the most regulatory flexibility for a clustered, affordable, development.



Illust. 24.1 - map illustrating the current zoning district for Clark Ranch West Parcel; Source: Park City Planning Department map gallery

The entitlements process we envision for development of the property into a viable affordable housing project would involve at least sixteen steps, in the following general sequence: (1) Council's decision to include of one or both of the Clark Ranch West parcels in the proposed project (a total project size of roughly 125 acres if one parcel is included, or 250+ acres, if both parcels are included); (2) Council's initial decision regarding proposed subsidies for the affordable components of the project; (3) the selection of a private development partner who would serve as the project applicant; (4) negotiation and memorialization of the terms of a public/private partnership (Public/Private Partnership Agreement); (5) further refinement of project parameters with input from the private partner; (6) staff review, input, and eventual endorsement; (7) negotiate and draft an initial Development Agreement

as a condition of rezoning to constrain the proposal to the negotiated configuration, design, cost, construction timing, and density, (8) Planning Commission review and recommendation to rezone and AMPD to correspond to the Development Agreement; (9) modification of the project based on Planning Commission input; (10) Council input and ultimate rezone, subject to the Development Agreement; (11) as the LMC currently reads, a likely a second AMPD Development Agreement within six (6) months of the Planning Commission's approval of the AMPD; (12) a Development Improvement Agreement, infrastructure assurance, and recordation of affordable housing deed restrictions; (13) horizontal infrastructure installation; (14) vertical construction; (15) selection of qualified tenants; and (16) occupancy. This sequencing analysis assumes no text amendments to streamline the process to assure maximum public participation and scrutiny.

Once the initial Development Agreement has been negotiated with the chosen private developer, and the parcel has been rezoned to an accommodating zone, the applicant would then pursue an AMPD process with the Planning Commission to effectuate the disturbance of, and development on, only +/- 12 acres in the northeastern most portion of the property, with the remainder of the property (110 - 238+ acres) fully deed restricted as open space. This process ensures that a portion of the property can be developed as affordable housing, with most (90-95%) of the Clark Ranch West parcels remaining as open space.



Illust. 25.1 - one option for access to the Clark Ranch West parcel. Source: Talisman Civil

The road layout developed as part of option A includes a balance of cut and fill operations, while selecting the most efficient and effective circulation option. This option allows the project to be phased, with the lower section of the road to be completed first, and the potential to be built out completely before the upper phase 2 is added. All of the slopes are compatible with the utility infrastructure, while maintaining lower slopes to the road sections providing slightly more linear road distances for the location of residential units.

site circulation option A



Illust. 26.1 - second option for access to the Clark Ranch West parcel. Source: Talisman Civil

The road layout for option B looks to reduce the amount of overall site retain-age, while striking a balance between cut and fill operations. Due to the increased grading which happens at each road intersections, this option simplifies the connection and grading at the intersection of the middle access road. All of the slopes are compatible with the utility infrastructure. There is an increase in the linear distance to which this layout runs perpendicular with the topography, which slightly limits the street frontage available for the location of residential units.

site circulation option B



Illust. 27.1 - phasing illustration for the selected road layout Source: Talisman Civil



Illust. 27.2 - phasing illustration for the selected road layout Source: Talisman Civil

Part II - Conceptual Density Plan Proposals & Evaluation

Concept Density Plans



Illust. 30.1 - Illustration of the town-home unit typologies as part of the overall site design (stereotomic)

Density Option 1

The first density option plan proposes to provide a bridge between the single family & cottage typologies of the adjoining Park City Heights Development. The 90 Units proposed in this option represent the least dense option; which utilizes only a fraction of the capacity the existing infrastructure. The material and massing represent a unique approach which upholding the existing character of Park City. While providing a human centric focus to increased density, the row of town-homes is moderately spaced along the minimal road access being conscious and working in harmony with the steep topography. The overall character of the site and inherent characteristics of the parcels drive the



illust. 31.1 - conceptual visualization of the town-homes typology with shared entry access. The open areas between the units provide a unique approach to walk-ability by decoupling the pedestrian paths from the roadways. (Stereotomic)

Illust. 32.1 - Conceptual visualization of the smaller scale town homes with shared entry and shared parking as part of the overall plan. Shared open spaces allow generous access to the natural landscape and promote a sense of community (Stereotomic)



design to be sensitive to the existing open space by clustering the development to the lower north east corner of the site. The major constraints (topography, access, infrastructure and visual impact) drive the overall layout. Units are stretched along the existing topography, and provide much of the retaining necessary to install the roadways. This allows abundant green-space and pedestrian trails to weave in and out of the units, provide visual and audible access in close proximity to all units.

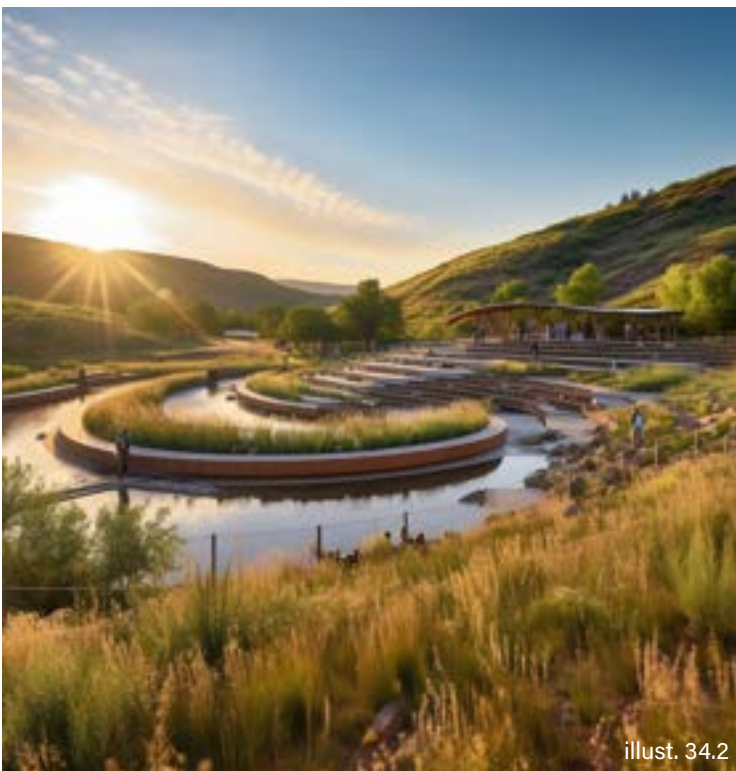
- 1 mt bike/hike single track
- 2 native vegetation (preserve or restore)
- 3 paved ped path
- 4 entrance monument
- 5 bioswale
- 6 stormwater basin
- 7 observation area
- 8 parking
- 9 outdoor amenity space
- 10 playground integrated into landscape
- 11 snow storage location
- 12 enhanced native or adaptive landscape
- 13 pavilion
- 14 amphitheater
- 15 community garden plots
- 16 possible transit stop
- 17 off leash dog area
- 18 secondary entrance
- 19 housing units



Density Option 1 - site plan

illustr. 33.1 - (Stereotomic)

Illust. 34.1 - conceptual images to illustrate the option of public park / gathering spaces which double as retention pond areas - public art benches and / or amphitheater options



illust. 34.2

Simplified road layouts and amplifying infrastructure to double as outdoor amenity spaces work to nestle the development deep into the natural fabric of the lots. By utilizing the topography to define the characteristics of the development, a unique, park city centric design emerges to embrace what it means to live efficiently in the mountain west.

While this option is test fit across phase I of the development, phase 2 could be developed to provide additional units or used to reduce the developed area density by dispersing 90 units across both phase I and phase II.

The total density (90 units total, 0.72 units / acre) make the least efficient use of the carrying capacity of the site (culinary & wastewater capacities) with a trade-off of lower overall budget to construct, and the least overall scale of the massings.



illust. 35.1

illust. 35.2 - conceptual images to illustrate the option of public park / gathering spaces which double as retention pond areas - public art benches and / or amphitheater options Source: Stereotomic Arch & Design





illust. 36.1 - east view of the massing as it relates to the lower hillside (Stereotomic)



illust. 36.2 - south birdseye view looking north east towards the junction of hwy 248 & hwy 40 (Stereotomic)



illust. 37.1 - West view of the massing as it relates to the lower hillside (Stereotomic)



illust. 37.2 - north birdseye view looking south along hwy 40 (Stereotomic)

Density Option 1 Statistics

Density	Unit size (SF)	# of units	Units per acre	0.72	
Parcels		acre			
PC-SS-121-X	5455377	124.98			
	0				
Open Space		112	89.6%		
Developed area		12.98	10.4%	6.9	
	5,455,377	124.98	124.98		
Units total				90	
Parking total (req'd)				115	
Total F/A/R				0.05	
Open Space					
Unit distribution				*PARKING PER MPD	**PARKING PER AMPD
Phase 1+2 - TH units			SF subtotal		
studio	400	10	5000	0%	10.0
1 bdr	600	50	36250	0%	50.0
2 bdr	900	50	55000	0%	50.0
3 bdr	1100	30	41250	0%	45.0
bldg units		140			
bldg park required				155	2
bldg park provided					
Phase 1 - TH units					
3+ bdr	1800	5	9000	6%	5
1 bdr	900	30	27000	33%	30
2 bdr	1300	30	39000	33%	30
3 bdr	1600	25	40000	28%	50
bldg units		90			
bldg park required				115	2
bldg park provided					
Total Residential	Phase 1	90	115,000.00 SF	115	3
	Phase 2	140	137,500.00		
Commerical			0 SF	0	0
Total SF			115,000		
Max F/A/R				5,455,377	124,681
				5,340,377	9,681
Total Parking, Req'd				115	3
Total Parking, Potential				0	0

Total F/A/R **0.05**

Preliminary Budget

	\$ / sf		Per Unit Avg
Phase 1	450	\$51,750,000.00	\$575,000.00
	350	\$40,250,000.00	\$447,222.22
Phase 1+2	450	\$61,875,000.00	\$441,964.29
	350	\$48,125,000.00	\$343,750.00

fig. 38.1 - (Stereotomic)

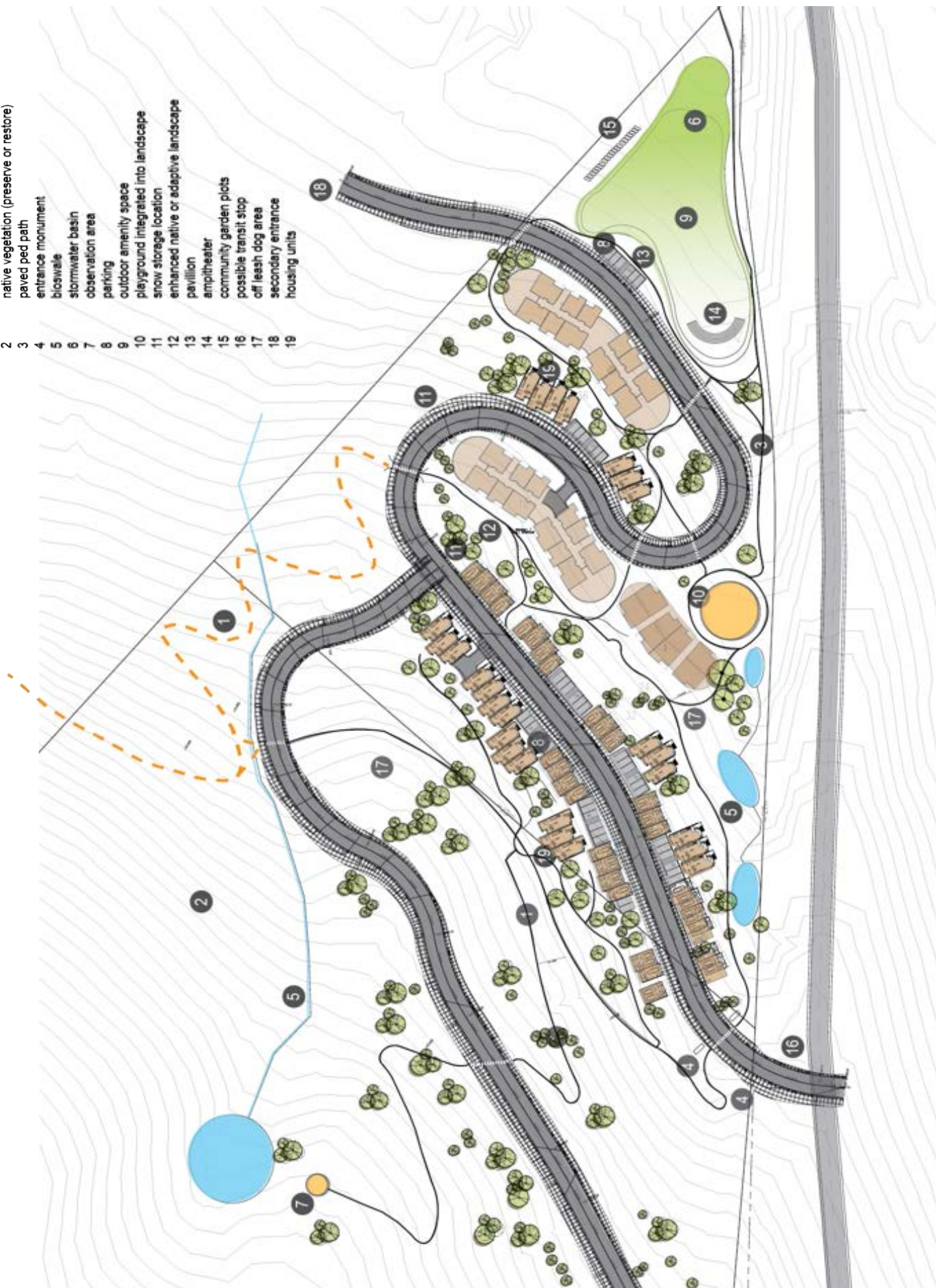
Alternative Density Option 2

Alternative option 2 explores an increase in centralized massing as a means to soften the increase in the overall number of total units. This option holds the potential to reduce the overall vertical construction costs through increased efficiency with units clustered into larger massing of 3 multifamily, stacked flat units. In exchange for the increase in massing, the larger massed units are limited to the lowest elevation, Northeast corner of the site which has the least overall visual impact.



illust. 39.1 (Stereotomic)

- 1 mt bike/hike single track
- 2 native vegetation (preserve or restore)
- 3 paved ped path
- 4 entrance monument
- 5 bioswale
- 6 stormwater basin
- 7 observation area
- 8 parking
- 9 outdoor amenity space
- 10 playground integrated into landscape
- 11 snow storage location
- 12 enhanced native or adaptive landscape
- 13 pavillion
- 14 amphitheater
- 15 community garden plots
- 16 possible transit stop
- 17 off leash dog area
- 18 secondary entrance
- 19 housing units



Alternative Density Option 2 - site plan

illust. 40.1 (Stereotomic)

The second option in this feasibility plan provides 150 units, consisting of both town-home units and stacked flat units. The stacked flats would be constructed of 3 stories or less above ground, with the potential for structured parking on the lowest level which could be contained fully subterranean. This unit yield is currently distributed across the first phase of the road layout, and a phase II could provide either an increase in units or spread the units out over a larger land area. The overall character of the site and inherent characteristics of the parcels drive the design to be sensitive to the existing open space by clustering the development to the lower north east corner of the site. The major constraints (topography, access, infrastructure and visual impact) drive the overall layout. Units are stretched along the existing topography, and provide much of the retaining necessary to install the roadways. This allows abundant green-space and pedestrian trails to weave in and out of the units, provide visual and audible access in close proximity to all units.

While this option is test fit across phase I of the development, phase 2 could be developed to provide additional units or used to reduce the developed area density by dispersing the total (150) units across both phase I and phase II.



illust. 41.1 - conceptual visualization of the medium scale multifamily structures with shared entry and shared parking. (Stereotomic)

illust. 42.1 - The larger units of stacked flats occupy the lowest, North east corner of the sight with the least visual impact on the community. (Stereotomic)





illust. 43.1 - West view of the massing as it relates to the lower hillside (Stereotomic)



illust. 43.2 - north birdseye view looking south along hwy 40 (Stereotomic)



illust. 44.1 - east view of the massing as it relates to the lower hillside (Stereotomic)



illust. 44.2 - south birdseye view looking north east towards the junction of hwy 248 & hwy 40 (Stereotomic)

Alternative Density Option 2 Statistics

Density	Unit size (SF)	# of units	Units per acre	1.20	
Parcels		acre			
PC-SS-121-X	5455377	124.98			
	0				
Open Space		112	89.6%		
Developed area		12.98	10.4%	11.6	
	5,455,377	124.98	124.98		
Units total				150	
Parking total (req'd)				163	
Total F/A/R				0.06	
Open Space					
Unit distribution				*PARKING PER MPD	**PARKING PER AMPD
MF / stacked flat Units			SF subtotal		
studio	400	9	3600	9%	9.0
1 bdr	600	35	21000	37%	35.0
2 bdr	900	35	31500	37%	35.0
3 bdr	1100	16	17600	17%	24.0
bldg units		95			
bldg park required				103	2
bldg park provided					
Townhome Units					
3+ bdr	1800	10	18000	18%	10
1 bdr	900	20	18000	36%	20
2 bdr	1300	20	26000	36%	20
3 bdr	1600	5	8000	9%	10
bldg units		55			
bldg park required				60	2
bldg park provided					
Total Residential Phase 1		150	143,700.00 SF	163	3
Total Residential Phase 1+2		200	181,200.00		
Commerical			0 SF	0	0
Total SF			143,700		
Max F/A/R				5,455,377	124,681
				5,311,677	-19,019
Total Parking, Req'd				163	3
Total Parking, Potential				0	0

Total F/A/R **0.06**

Preliminary Budget

	\$ / sf		Per Unit Avg
Phase 1	450	\$64,665,000.00	\$431,100.00
	350	\$50,295,000.00	\$335,300.00
Phase 1+2	450	\$81,540,000.00	\$407,700.00
	350	\$63,420,000.00	\$317,100.00

Alternative Density Option 3

Density Option 3 provides a smaller scale alternative to increased unit counts. Spreading and staggering the units across the land, while stepping the massing complimentary with the landscape, allows a reduction in the overall massing while occupying a higher percentage of the overall developable area. The unit typology is a morphed version of the standard stacked flats typology. While the overall number of units is increased to 230 total units, the majority of the units are smaller in scale and area. The overall massing of the units and the amount of relief in the massing is increased to minimize the scale of the visual impact. This option may have the highest upfront cost to develop, it would be more financially effective, as it is assumed this unit type will generally be more cost effective to build.



illust. 46.1 - (Stereotomic)

Several optimization strategies could be used within this scheme to not only increase the overall energy efficiency, but significantly offset the carbon footprint. Shared, or chained, heating/cooling systems utilizing a ground source heat exchange system hold the potential to decrease the overall energy use by up to 50%. Prefabricated elements could be used to lower the overall cost to produce, as well as minimize the time to erect on site. The massings for this option would be limited to generally 2 stories or less, and offset with the topography to lower the overall footprint.

This option incorporates both Phase I & Phase II of road development. Access to the upper portions of the residential units would be required for adequate fire protection access.



illust. 471 - conceptual visualization of the scale of the multifamily structures with shared entry and shared parking. The low profile structures with shared open areas between the units provide a unique approach to walk-ability and close access to nature. (stereotomic)

illust. 48.1 - Conceptual visualization of the smaller scale express of the increased density, 230 units total. (stereotomic)



- 1 mt bike/hike single track
- 2 native vegetation (preserve or restore)
- 3 paved ped path
- 4 entrance monument
- 5 bioswale
- 6 stormwater basin
- 7 observation area
- 8 parking
- 9 outdoor amenity space
- 10 playground integrated into landscape
- 11 snow storage location
- 12 enhanced native or adaptive landscape
- 13 pavilion
- 14 amphitheater
- 15 community garden plots
- 16 possible transit stop
- 17 off leash dog area
- 18 secondary entrance
- 19 housing units



Alternative Density Option 3 - site plan

illustr. 49.1 - (Stereotomic)



illustr. 50.1 - east view of the massing as it relates to the lower hillside (Stereotomic)



illustr. 50.2 - south birdseye view looking north east towards the junction of hwy 248 & hwy 40 (Stereotomic)



illust. 51.1 - West view of the massing as it relates to the lower hillside (Stereotomic)



illust. 51.2- north birdseye view looking south along hwy 40 (Stereotomic)

Alternative Density Option 3 Statistics

Density	Unit size (SF)	# of units	Units per acre	1.84	
Parcels		acre			
PC-SS-121-X	5455377	124.98			
	0				
Open Space		112	89.6%		
Developed area		12.98	10.4%	17.7	
	5,455,377	124.98	124.98		
Units total				230	
Parking total (req'd)				265	
Total F/A/R				0.08	
Open Space					
Unit distribution				*PARKING PER MPD	**PARKING PER AMPD
BLDG - Stacked Flats			SF subtotal		
studio	400	20	8000	11%	20.0
1 bdr	600	65	39000	35%	65.0
2 bdr	900	60	54000	32%	60.0
3 bdr	1100	40	44000	22%	60.0
		185			
bldg units					
bldg park required				205	2
bldg park provided					
BLDG - Townhomes					
MF Units	1800	0	0	0%	0
1 bdr	900	15	13500	33%	15
2 bdr	1300	15	19500	33%	15
3 bdr	1600	15	24000	33%	30
		45			
bldg units					
bldg park required				60	2
bldg park provided					
Total Residential		230	202,000.00 SF	265	3
		275	235,750.00		
Commerical			0 SF	0	0
Total SF			202,000		
Max F/A/R				5,455,377	124,681
				5,253,377	-77,319
Total Parking, Req'd				265	3
Total Parking, Potential				0	0

Total F/A/R

0.08

Preliminary Budget

	\$ / sf		Per Unit Avg
phase 1	450	\$90,900,000.00	\$395,217.39
	350	\$70,700,000.00	\$307,391.30
Phase 1+2	450	\$106,087,500.00	\$385,772.73
	350	\$82,512,500.00	\$300,045.45

Density Option Comparisons

To frame the scale of each density option presented as part of the study, two distinct precedents have been analyzed, to provide a context to the proposed density relative scale. The Kings Crown development adjacent to Park City Mountain Resort was selected based on the similarity to the sloped topography to Clark Ranch West as well as the moderate density. Park City Heights was selected



KINGS CROWN - 2019

illust. 53.1 - (<https://www.parkcitykingscrown.com/>)



PARK CITY HEIGHTS - 2013

illust. 53.2- (<https://ivoryhomes.com/community-details/>)

because of its relative proximity to the project, and its context, which includes a significant open space contained on 2 sides of the development.

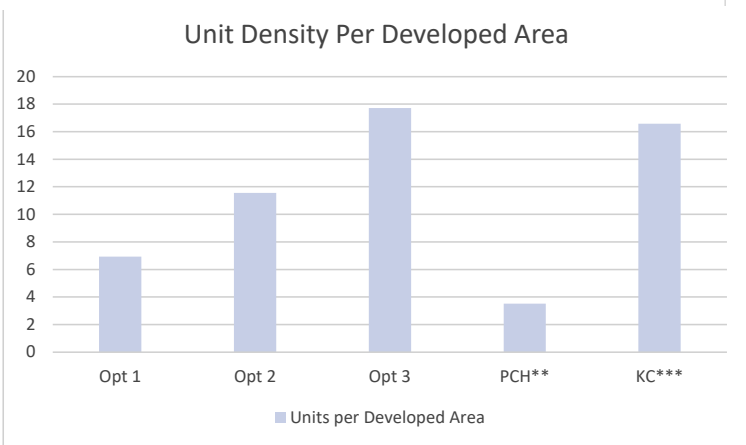
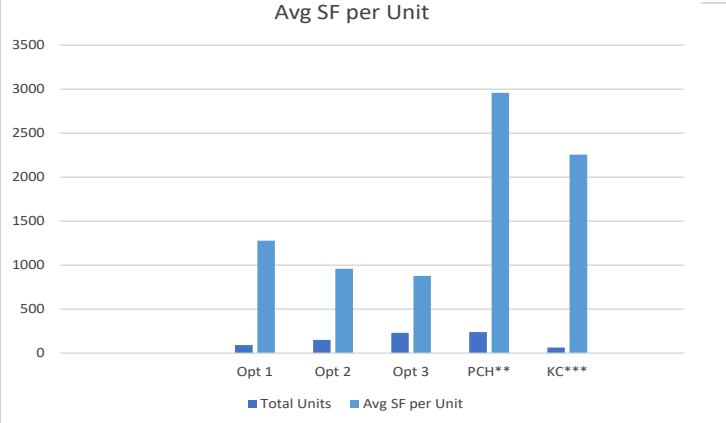
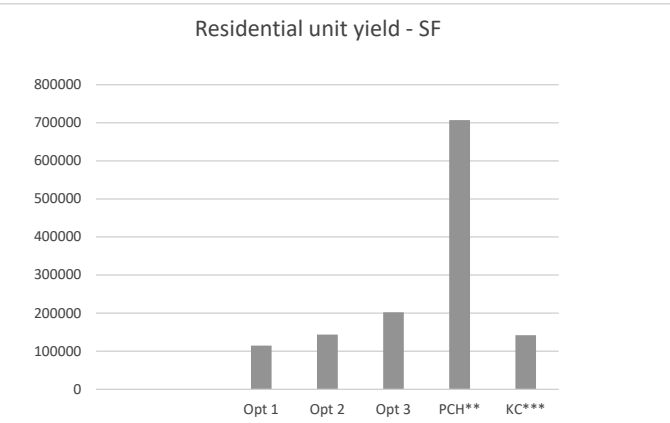
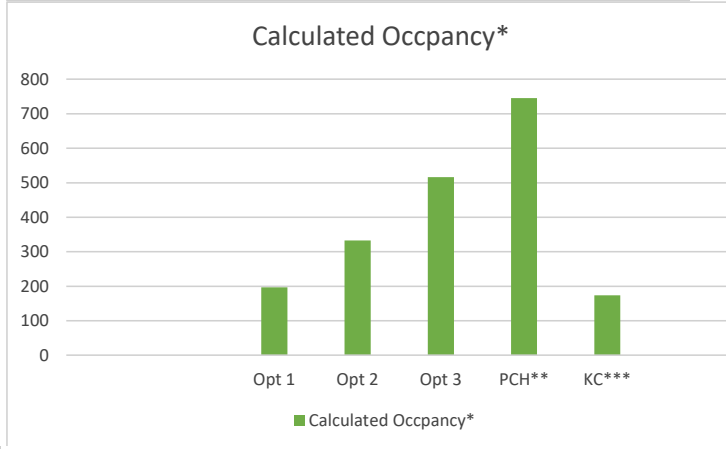
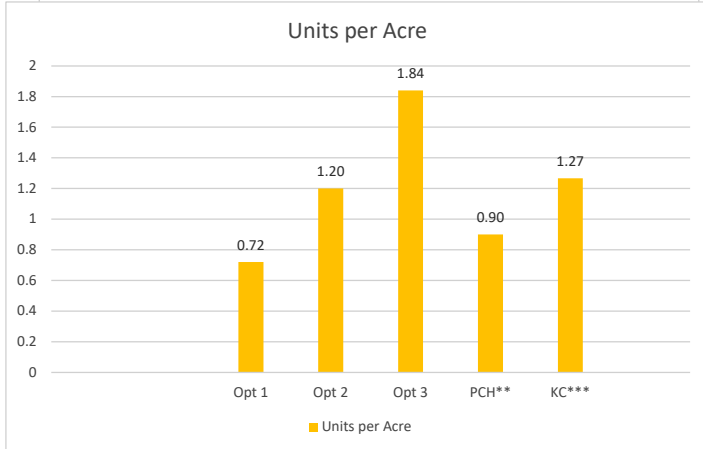
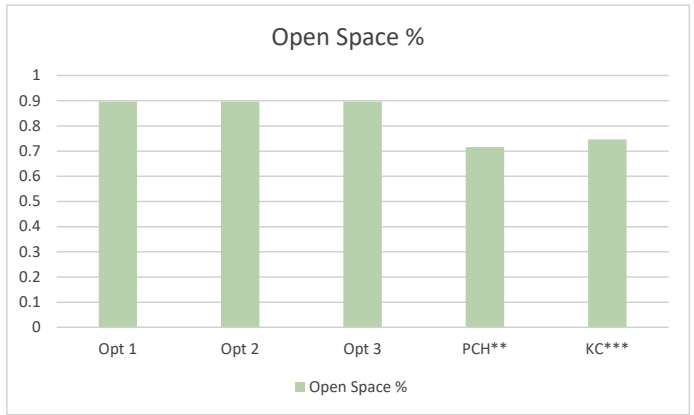
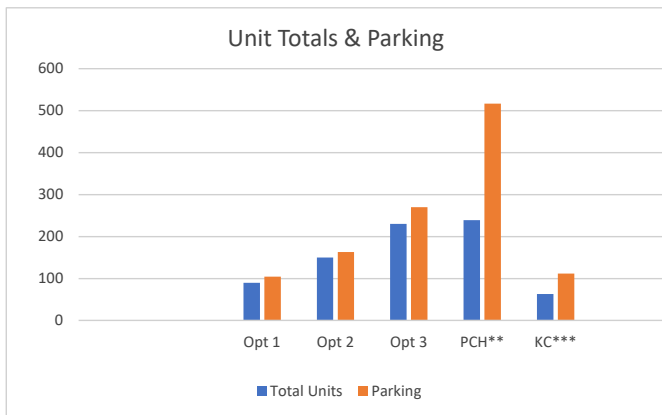
As figure 53.3 illustrates, both Kings Crown and Park City Heights include a significant portion of the overall land included as dedicated open space. All three options for Clark Ranch included as part of this study increase the dedicated open space to more than 89% (given the 125 unit parcel PC-SS-121-X is included as a minimum). This increase of open space comes with a trade-off; the units used for comparison for Clark Ranch are significantly smaller in overall scale. A second strategy to maximize the open space is the density of units within the developed area. This measurement is a means to understand the compactness of the density proposed. All but density option 3 are lower in the number of units per developable area when compared to Kings Crown. All of the density options are higher in the number of units per developable area when balanced against Park City Heights.

There are 2 decisive factors which must be considered when using this stat as a comparison. The first is the average unit size; even option 1 of this feasibility study, which has the highest average square foot per unit, is less than half (56%) of the Kings Crown Development. The second consideration is the steep topography of the site, and the SLO considerations. Both the moderate slopes and the Sensitive

Comps	Total Units	Parking	Residential unit yield	Units per Acre	Avg SF per Unit	Calculated Occupancy*	Open Space %	Units per Developed Area
Opt 1	90.00	115	115,000	0.72	1,277.78	198.00	89.61%	6.93
Opt 2	150.00	163	143,700	1.20	958.00	332.40	89.61%	11.56
Opt 3	230.00	265	202,000	1.84	878.26	498.00	89.61%	17.72
PCH**	239.00	517	707,000	0.90	2,958.16	745.20	71.55%	3.51
KC***	63.00	112	142,129	1.27	2,256.02	174.00	74.67%	16.58

fig. 53.3 (Stereotomic)

* based on Mountainlands Community housing occupancy survey for Western Summit county,



Lands Overlay Zone constrain the amount of area which should be developed. This compliments the current idea to preserve as much of the Clark Ranch Acreage as dedicated open space. We are suggesting a concentration of small units into a smaller area, as opposed to spreading larger units over a significant area.

fig. 54.1 the Graphs Above illustrate the comparisons of Each Density Option with the Existing Kings Crown and Park City Heights developments (Stereotomic)

** based on Park City Municipal Corporation planning commission documents, 03/2011

*** based on Park City Municipal Corporation planning commission documents & information from <https://www.parkcitykingscrown.com/> accessed 08/2023

Feasibility Infrastructure Assessment

The following sections describe proposed utility infrastructures for the Clark Ranch Development including culinary water, sanitary sewer, storm-water, electrical, and communications. Natural gas is not included in this infrastructure assessment as the project stakeholders do not intend to use gas as part of this project.

Culinary Water Infrastructure

The Equivalent Residential Connection (ERC) is a unit of measurement that represents water demand per household. Utah Administrative Code: R309-510-7 defines peak day demand to be 800 gallons per day per ERC. For this analysis, it is conservatively estimated that 1 unit is equal to 1 ERC.

Utah Administrative Code: R309-510-7 also provides guidance for outdoor irrigation demand. The proposed Clark Ranch Development is located in Map Zone 2 for "Low" Normal Annual Effective Precipitation. The corresponding irrigation demand per Table 510-3 is 2.8 gpm per irrigated acre. The densest Clark Ranch Development concept comprises 230 units (or ERCs) and an estimated 5 acres of irrigable outdoor space. At 800 gpd per ERC, the indoor demand for the proposed units is 184,000 gpd, or 127.78 gpm. The outdoor water demand for 5 irrigable acres is estimated to be 24,408 gpd, or 16.95 gpm.

The total peak water demand for the Clark Ranch Development is conservatively estimated to be 208,408 gpd, or 144.73 gpm.

Additionally, Utah Administrative Code R309-510-8 requires 400 gallons of storage per ERC (indoor demand), and 1,873 gallons of storage per irrigated acre (outdoor demand) per Table 510-5 of Map Zone 2. For 230 ERC's, the indoor storage requirement is 92,000 gallons. The outdoor storage requirement for 5 acres is 9,365 gallons.

The total indoor and outdoor storage requirement is 101,365 gallons.

The culinary water system is owned, operated, and maintained by Park City's Water Division. Currently, an existing 2,000,000-gallon storage tank services Park City Heights. Park City Water Division determined that the existing storage tank has adequate source and storage capacity to provide additional service to the Clark Ranch Development's 230 units and 5 acres of irrigable outdoor space. It is assumed that the existing tank has enough fire flow storage to allow for 2 hours of flow at 2,000 gpm.

The existing elevation of the storage tank is at elevation 7,017 feet. To maintain a minimum service pressure of 40 psi without booster pumps, the development of Clark Ranch may not exceed an elevation of 6917'

table 56.1 - Clark Ranch Culinary Water Demand & Storage Estimates (Talisman Civil)

Indoor Demand					
ERC's	Peak Day Demand per ERC	Peak Day Demand (GPD)	Peak Day Demand (GPM)	Storage per ERC (Gal)	Required Storage (Gal)
230	800	184,000	127.78	400	92,000
Outdoor Demand					
Acres	Demand Per Acre (GPM)	Peak Day Demand (GPD)	Peak Day Demand (GPM)	Storage Per Acre (Gal)	Required Storage (Gal)
5.00	3.39	24,408	16.95	1,873	9,365
	GPD	GPM		Indoor Storage	92,000
Indoor Demand	184,000	127.78		Outdoor Storage	9,365
Outdoor Demand	24,408.00	16.95		Total Required Storage (Gal)	101,365
Total Demand	208,408	144.73			

The proposed culinary water system for Clark Ranch will connect to an assumed 8" stub off the cul-de-sac of Calamity Lane in Phase 5 of Park City Heights.

Sanitary Sewer Infrastructure

The sanitary sewer infrastructure in this area is and will be owned, operated, and maintained by Snyderville Basin Water Reclamation District (SBWRD). Per Utah Administrative Code R317-3, Residential Equivalent (RE) is a unit of measurement that represents the volume of wastewater per residential connection. SBWRD considers an RE to be 100 gpd per person, with an average of 3.2 people per household such that 1 RE is equal to 320 gpd demand of wastewater.

Wastewater demand is based off the estimated occupancy rates for each unit. Local occupancy ratios were provided by Park City and Mountainlands. For this analysis, we have utilized an occupancy ratio of 1.2 occupants per bedroom, which while being more conservative, is also consistent with observed occupancy levels in affordable housing projects across Utah. See Table below.

table 56.2 - Clark Ranch Sanitary Sewer Demand per occupancy equivalent (Talisman Civil)

Unit Type	# of Occupants per Unit (Local)	# of Occupants per Unit (Clark Ranch Analysis)
Studio	1.2	1.2
1 Bedroom	1.1	1.2
2 Bedroom	1.9	2.4
3 Bedroom	N/A	3.6
Multi Family (4BR)	3.7	4.8

The densest Clark Ranch Development concept comprises 230 units total. Of these, there are 10 studios, 80 one-bedroom units, 80 two-bedroom units, and 60 three-bedroom units. There are an estimated 516 occupants. At 100gpd/person, the wastewater demand is conservatively estimated at 516,000 gpd or 161.25 REs or. See Table 57.1

table 571 - Clark Ranch Sanitary Sewer Demand Calculation, for highest proposed density (230 units) (Talisman Civil)

Unit Type	Unit Count	Occupants per Unit	# of Occupants	Demand (GPD) (100gpd/occupant)	Demand (GPM)	Demand (RE)
Studio	10	1.2	12	1,200	0.83	3.75
1 Bedroom	80	1.2	96	9,600	6.67	30
2 Bedroom	80	2.4	192	19,200	13.33	60
3 Bedroom	60	3.6	216	21,600	15.00	67.5
Multi Family (4BF)	0	4.8	0	0	0.00	0
Total			516	51,600	36	161.25

It is intended to connect the Clark Ranch wastewater system into the existing system in Park City Heights. according to discussions with SBWRD, after the full build out of Park City Heights, the limiting factor in the existing wastewater system lies between manholes #58 and #59 with an available capacity at 229 REs or 50.89 gpm.

The wastewater demand for 230 units from the densest Clark Ranch concept is conservatively estimated at 36 gpm, far less than the 50.89 gpm of available capacity. Therefore, it is estimated that the existing sewer system has enough capacity to accommodate the Clark Ranch Development without requiring upgrades to the existing infrastructure.

If the Clark Ranch wastewater demand were to exceed 51gpm or 229 REs, the existing sewer line between manholes #59 & Manhole #8 must be upsized from an 8" pipe to a 12" pipe. Improvements to the sewer line between manholes #40 and #8 require special attention. The existing sewer line is shallow in slope and makes an aerial crossing over a natural waterway which will complicate design solutions.

It is also worth discussing reducing wastewater demand requirements from 100gpd per person to 75gpd per person, or 320 gpd per RE to 240 gpd per RE. This number is based off analogous developments in Park City which have received such a reduction. If SBWRD accepts a reduction in demand, the existing sewer system capacity of 50.89 gpm could support 305 RE's, which is nearly double the densest Clark Ranch development concept.

TCC estimates that the Clark Ranch Development will require approximately 2,300 linear feet of 8" SDR35 PVC pipe. See Exhibit X101 in the Appendix. The proposed sanitary sewer infrastructure will connect to existing manhole #23 and run the length of Piper Way in Park City Heights. The conveyance system would ultimately direct wastewater flow to the Silver Creek Water Reclamation Facility where it is treated and returned to Silver Creek before eventually flowing to Echo Reservoir.

Storm-water Infrastructure

The Park City Storm-water Management Program and the Park City Storm-water Drainage Design Manual dictates the parameters used to evaluate requirements for the Clark Ranch storm drain system.

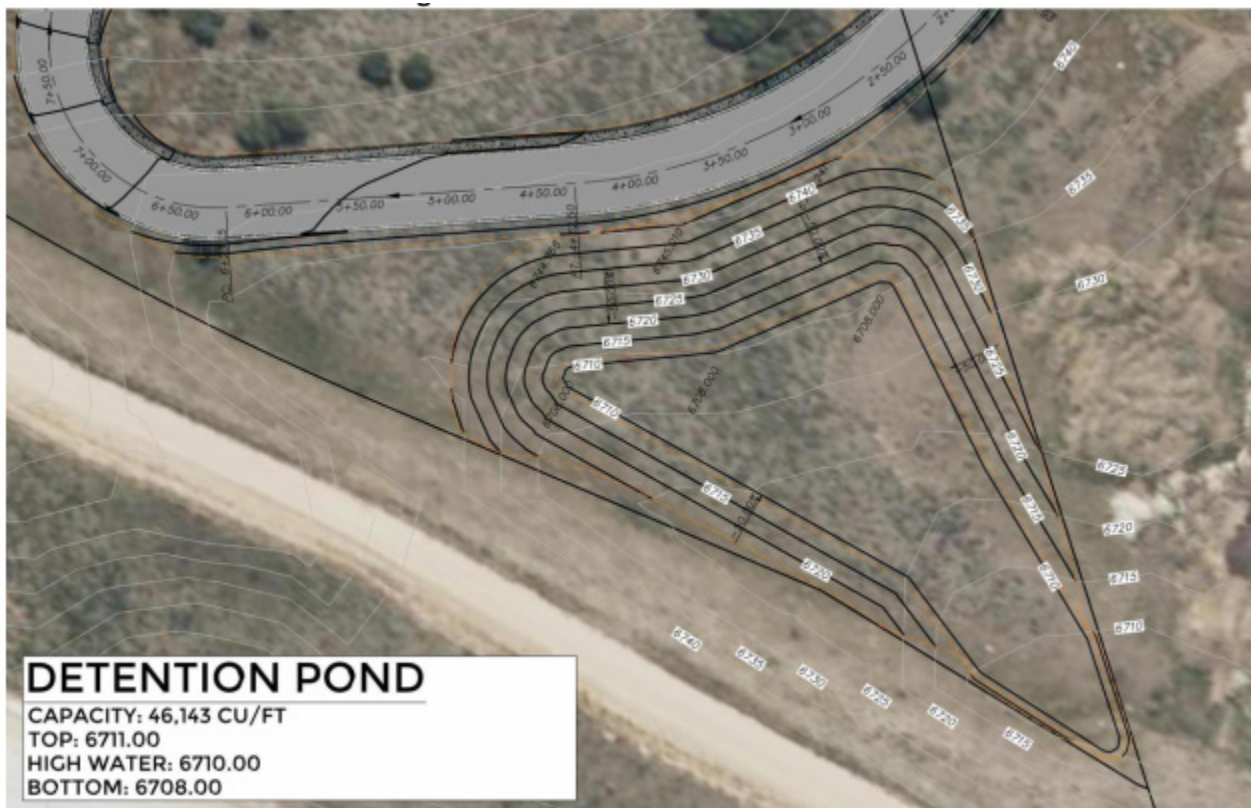
Important design parameters from these documents include but are not limited to:

- Pipe shall be designed to convey the 10-year storm recurrence interval.
- Detention ponds shall be designed for the 100-year storm recurrence interval.
- The allowable post-development discharge rate must be less than or equal to the predevelopment discharge rate.
- The minimum storm drain pipe diameter shall be 15"
- The source for precipitation data is NOAA Atlas 14.

As of July 1st 2020, the Utah Division of Water Quality has implemented a requirement to retain and infiltrate the 80th percentile storm event for new development projects that disturb greater than or equal to 1 acre. The 80th percentile storm depth for Park City is approximately 0.47"

Using the above criteria along with a hydraulic model based on SCS curve number methodology, TCC calculates that the densest Clark Ranch Development concept disturbs approximately 400,000 square feet and must be able to retain 15,666 cubic feet and detain approximately 45,000 cubic feet of storm drain runoff. The open space in the northern corner of the Clark Ranch Development is relatively flat and sufficient in area for a basin with the capacity to detain and retain runoff for the entire site.

illust. 58.1 - Clark Ranch Detention Basin (Talisman Civil)



The detention pond will maintain water quality and control discharge to the greater storm-water system in Highway 40. It may also serve as a secondary recreational purpose for the surrounding community when not detaining storm-water.

TCC also anticipates incorporating bio swales throughout the project which will capture a portion of runoff and reduce the required capacity of the detention basin.

There are limited areas where the proposed road profile slopes toward Frontage Road, storm-water will be unable to drain to the detention basin. UDOT may grant permission for runoff to flow downhill to the UDOT storm drain system in US-40, in which case discharge will be limited to 0.2 cfs/acre.

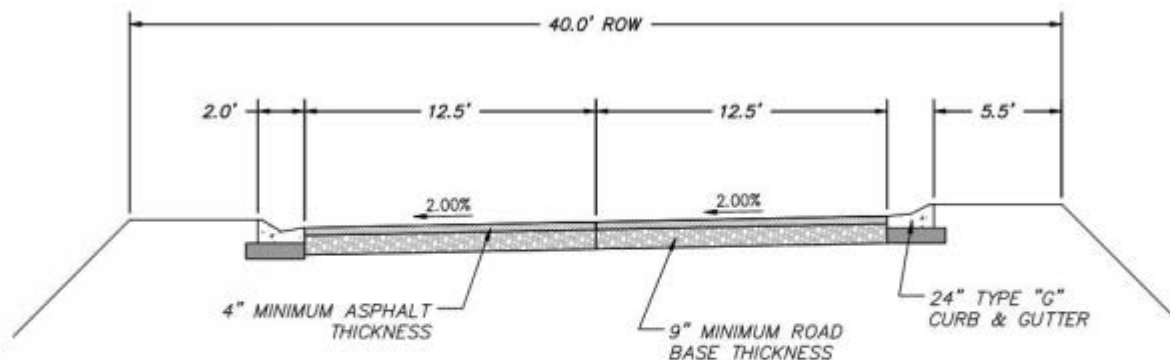
ROADWAY INFRASTRUCTURE

The following sections describe roadway infrastructure for the Clark Ranch Development.

Roadway Design Parameters

TCC proposes the design of two new roads in the Clark Ranch Development – Phase 1, which consists of “Road 1” the lower road that connects to Park City Heights and the frontage road, and Phase 2 which consists of “Road 2” which sits above Road 1. The design for both roadways adhere to Park City Engineering standards and AASHTO guidelines for a 25 mph design speed. Park City’s Engineering Department has also specified the cross-section widths as follows:

- 40’ Right-of-Way Width
- 25’ of Asphalt Surface
- 24” Type “G” Curb and Gutter on Either Side
- 5.5’ of Landscaped Shoulder
- No Sidewalk
- Able to Support an 80,000 lb Fire Truck



CLARK RANCH ROAD SECTION
SCALE: N.T.S.

illust. 59.1 - Clark Ranch Road Section (Park City Municipal Corp.)

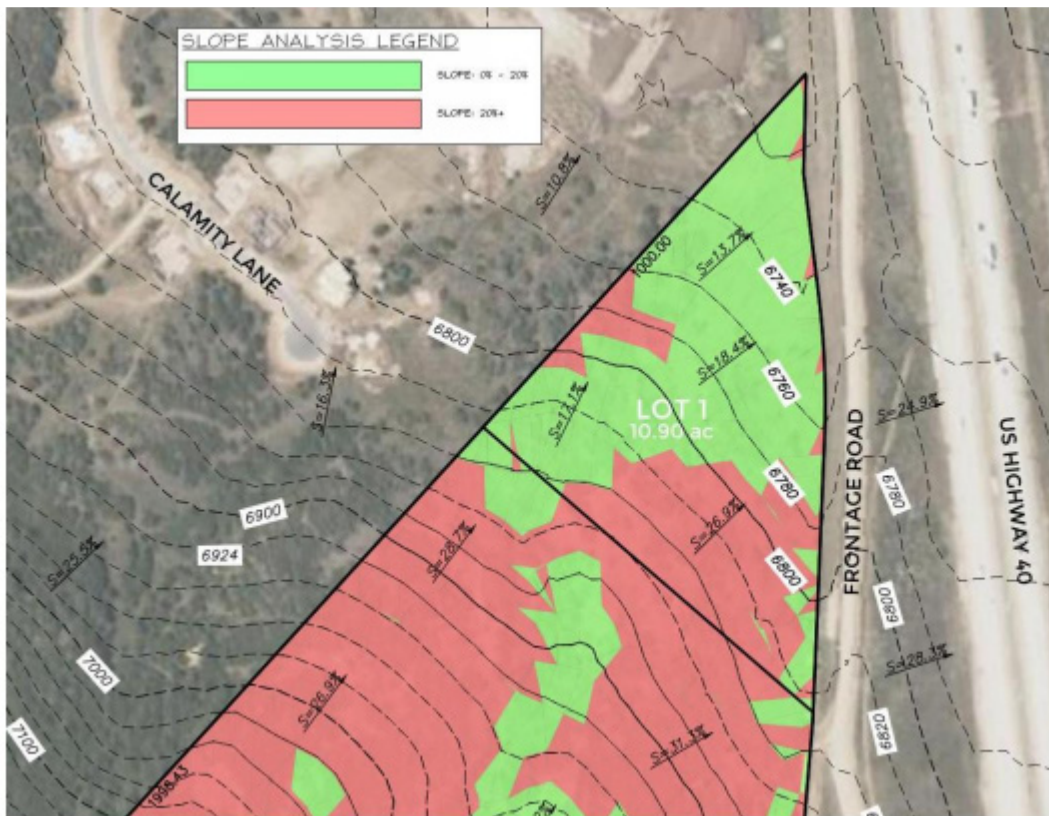
The road will feature a minimum of 4" thick asphalt on a minimum of 9" thick commercial road base.

Regarding life safety, Road 2 which provides the second connection to Frontage Road could be designed as a dead-end, however Park City Municipal Code 15-7.3-4 stipulates that, For greater convenience to traffic and more effective police and fire protection, permanent dead-end Streets shall, in general, be limited in length to six hundred and fifty feet (650').

Appendix D of the International Fire Code would also require a 70' hammer head or other acceptable turnaround for fire apparatus access for any dead end greater than 150' in length. Furthermore, the Park City Fire District will have the final say and may require at least two roadway entrances/exits to both Phase 1 and Phase 2 of the Clark Ranch development.

The primary road alignment and associated right-of-way is the main conduit for the primary utilities listed in Section 2.0 that service the Clark Ranch Development.

A slope analysis exhibit shows that the existing topography is steep in areas with slopes that exceed 25%.



illustr. 60.1 - Clark Ranch Slope Analysis (Talisman Civil)

The horizontal road design intends to mitigate steep slopes by utilizing oblique approaches to the topography where possible, small radius curves, and a 2.0% cross-slope over the roadway width. The maximum centerline profile grade of the roads does not exceed the 10% prescribed by Park City Engineers. Due to the steep nature of the topography and the profile design limits, TCC anticipates areas where significant retaining walls greater than 10' will be necessary. For this analysis, TCC assumes using concrete retaining walls, however a variety of slope treatments may be considered at varying costs.

The frontage road providing access to Clark Ranch will also need to be developed. Assuming a 36' paved section (2x12' lanes with 6' shoulders & curb and gutter) it is estimated improvements to the frontage road will cost around \$1.32M (see table 67.1 below.)

Pedestrian Circulation

The Park City Engineering Department has specified that, due to the steep slopes of the vertical road alignments, sidewalks would not be practical and therefore are not to be included in the road cross section. Instead, as the design for the entire project continues to develop, TCC anticipates incorporating pedestrian walkways throughout the Clark Ranch Development between proposed units, to access existing trailheads, and community recreation spaces.

Preliminary Traffic Assessment

The proposed development will be composed of affordable multifamily housing units, and is in the process of determining land use numbers. Currently the following three options are in consideration:

- Option 1: 90 - 160 total dwelling units
- Option 2: 150 - 225 total dwelling units
- Option 3: 230 - 290 total dwelling units

To assess the greatest impact, option 3 with up to a maximum of 290 dwelling units was analyzed for this study (site plan attached in Appendix). Fehr & Peers used trip generation rates published in the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, 2021, to estimate trip generation rates for this study. The following ITE land use code was assumed for the proposed Clark Ranch development.

- Multifamily Housing (Mid-Rise) (ITE Land Use 221) – 290 dwelling units

The ITE Trip Generation includes a land use code for affordable housing. However, it is a new land use code with a low sample size and limited data. Therefore, the affordable housing land use code was not used for this study.

The calculated trip generation for the proposed Clark Ranch development is shown below in Table 62.1

Land Use ¹	Number of Units	Unit Type	Daily Trip Generation ²	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New Daily Trips
Multifamily Housing (Mid-Rise) (221)	290	Dwelling Units	1,338	50%	50%	669	669	1,338
Net Weekday Trips						669	669	1,338
Land Use ¹	Number of Units	Unit Type	AM Peak Hour Trip Generation ²	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New AM Peak Hour Trips
Multifamily Housing (Mid-Rise) (221)	290	Dwelling Units	116	23%	77%	27	89	116
Net Weekday AM Peak Hour Trips						27	89	116
Land Use ¹	Number of Units	Unit Type	PM Peak Hour Trip Generation ²	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New PM Peak Hour Trips
Multifamily Housing (Mid-Rise) (221)	290	Dwelling Units	113	61%	39%	69	44	113
Net Weekday PM Peak Hour Trips						69	44	113

1. (XXX) Indicates ITE Land Use Code. Land Use Code from the Institute of Transportation Engineers - 11th Edition Trip Generation Manual (ITE Manual)

2. Traffic Generated by the development according to trip generation rates provided in the ITE Manual

3. Percentage of trips Entering and Exiting the development according to the ITE Manual.

SOURCE: Fehr & Peers

Table 62.1 - Clark Ranch trip generation

As shown in Table 62.1, the proposed Clark Ranch development is estimated to generate 1,338 daily trips, 116 AM peak hour trips, and 113 PM peak hour trips.

PROJECT IMPACTS

Fehr & Peers collected turning movement counts for another project at the SR-248 / Richardson Flat Road intersection in January 2020 (attached in Appendix). The 2020 counts at the intersection showed two-way volumes on Richardson Flat Road (east of SR-248) of 214 vehicles and 172 vehicles in the AM peak hour and PM peak hour, respectively.

Fehr & Peers performed a high-level assessment of the project impacts of the peak hour trip generation on the roadway capacity of Richardson Flat Road. The roadway Level of Service (LOS) was

estimated based on planning level generalized peak hour two-way volumes for roadway capacities. These volumes are published by the Florida Department of Transportation (FDOT) based on planning applications of the Highway Capacity Manual (HCM) and are widely used for planning level evaluation of roadway capacity. Table 2 below shows the peak hour two-way capacity estimates for a 2-lane undivided roadway in developed areas less than 5,000 population.

Table 61.1 - Roadway Level of Service Peak Hour Two-Way Traffic Thresholds

Level of Service	Peak Hour Traffic Capacity Estimates
	2 Lanes
LOS B or better	≤ 1,098
LOS C	1,099 – 1,215
LOS D	> 1,215

Source: Fehr & Peers, based on FDOT Generalized Peak Hour Two-Way Volumes for developed areas less than 5,000 population, adjusted for non-state signalized roadway.

Table 3 below shows the projected peak hour two-way volumes on Richardson Flat Road with the proposed Clark Ranch development.

Table 61.2 - Peak Hour Two-Way Volumes on Richardson Flat Road

Peak Hour	Background ¹	Project ²	Plus Project
AM	214	116	330
PM	172	113	285

1. From turning movement counts at the SR-248 / Richardson Flat Road intersection counted in 2020.

2. Estimated for proposed Clark Ranch development, as shown in Table 1.

Source: Fehr & Peers

As shown in Table 3, the AM and PM peak hour estimated trips on Richardson Flat Road are 330 vehicles and 285 vehicles, respectively, with the proposed Clark Ranch development. This is well below the LOS B threshold as shown in Table 2.

CONCLUSION

Fehr & Peers evaluated the total trips generated by the proposed Clark Ranch development. The estimated trips generated by the development are 1,338 daily trips, 116 AM peak hour trips, and 113 PM peak hour trips. Fehr & Peers also estimated the projected peak hour two-way volumes on Richardson Flat Road with the proposed development. The estimated trips are 330 vehicles and 285 vehicles in the AM peak hour and PM peak hour, respectively. This is well below the LOS B threshold, indicating that Richardson Flat Road has the capacity to receive the additional trips from the proposed Clark Ranch development.

Preliminary Cost Analysis

HORIZONTAL INFRASTRUCTURE

Based on the roadway alignment and assumption that utilities generally run parallel to the roadway centerline, TCC calculated the following quantities and associated cost estimates for the proposed Clark Ranch Development. The Phase 1 costs consisting of Road 1 and associated utilities is found below.

Table 64.1 - Clark Ranch Phase I Estimate / Horizontal Infrastructure (Talisman Civil)

Clark Ranch, Phase 1 Estimate					
Item	Unit	Unit Price	Quantity	Cost	
Site Preparation and Demolition					
1	Clear and Grub	S.F.	\$2	110,645	\$221,290
				Subtotal	\$221,290
Site Improvements					
2	Cut	C.Y.	\$20	3,737	\$74,740
3	Fill	C.Y.	\$10	8,653	\$86,530
4	4" Asphalt Paving	S.Y.	\$27	6,264	\$169,128
5	9" Road Base Material	C.Y.	\$52	1,566	\$81,432
6	Type "G" Curb and Gutter - Catch	L.F.	\$28	2,286	\$64,008
7	Type "G" Curb and Gutter - Spill	L.F.	\$28	2,155	\$60,340
8	Retaining Walls (Concrete)	S.F.	\$50	21,194	\$1,059,700
9	Shoulder Landscape	S.F.	\$2	24,298	\$48,596
				Subtotal	\$1,644,474
Utility Improvements					
10	Connect to Existing Water Stub	Each	\$2,000	1	\$2,000
11	10" C-900 PVC Pipe	L.F.	\$125	2,221	\$277,625
12	PRV Station	Each	\$100,000	1	\$100,000
13	Connect to Existing Sewer Stub	Each	\$2,000	1	\$2,000
14	8" SDR-35 PVC Pipe	L.F.	\$100	2,218	\$221,800
15	Sewer Manhole	Each	\$5,000	5	\$25,000
16	15" Class III RCP Pipe	L.F.	\$150	2,215	\$332,250
17	Detention/Retention Volume	C.Y.	\$20	2,250	\$45,000
18	Storm Drain Inlet	Each	\$5,000	9	\$45,000
19	4" PVC Electrical Conduit	L.F.	\$10	2,214	\$22,140
20	4" PVC Communications Conduit	L.F.	\$10	2,215	\$22,150
21	Additional Electrical Appurtenances	L.S.	\$250,000	1	\$250,000
				Subtotal	\$1,344,965
Summary					
Sub Total		\$3,210,729			
20% Contingency		\$642,146			
Total		\$3,852,875			

The second phase comprises the development of remaining Road 2 and associated utilities.

Table 64.1 - Clark Ranch Phase II Estimate / Horizontal Infrastructure (Talisman Civil)

Clark Ranch, Phase 2 Estimate					
Item	Unit	Unit Price	Quantity	Cost	
Site Preparation and Demolition					
1	Clear and Grub	S.F.	\$2	99,980	\$199,960
				Subtotal	\$199,960
Site Improvements					
2	Cut	C.Y.	\$20	32,275	\$645,500
3	Fill	C.Y.	\$10	1,228	\$12,280
4	4" Asphalt Paving	S.Y.	\$27	4,375	\$118,125
5	9" Road Base Material	C.Y.	\$52	1,094	\$56,888
6	Type "G" Curb and Gutter - Catch	L.F.	\$28	1,533	\$42,924
7	Type "G" Curb and Gutter - Spill	L.F.	\$28	1,619	\$45,332
8	Retaining Walls (Concrete)	S.F.	\$50	37,226	\$1,861,300
9	Shoulder Landscape	S.F.	\$2	17,239	\$34,478
				Subtotal	\$2,816,827
Utility Improvements					
10	Connect to Existing Water Stub	Each	\$2,000	1	\$2,000
11	10" C-900 PVC Pipe	L.F.	\$125	1,615	\$201,875
12	Connect to Existing Sewer Stub	Each	\$2,000	1	\$2,000
13	8" SDR-35 PVC Pipe	L.F.	\$100	1,598	\$159,800
14	Sewer Manhole	Each	\$5,000	4	\$20,000
15	15" Class III RCP Pipe	L.F.	\$150	1,583	\$237,450
16	Storm Drain Inlet	Each	\$5,000	9	\$45,000
17	4" PVC Electrical Conduit	L.F.	\$10	1,574	\$15,740
18	4" PVC Communications Conduit	L.F.	\$10	1,578	\$15,780
19	Additional Electrical Appurtenances	L.S.	\$250,000	1	\$250,000
				Subtotal	\$949,645
Sub Total				\$3,966,432	
20% Contingency				\$793,286	
Total				\$4,759,718	

The following table shows the combined total of Phase 1 and Phase 2.

Table 66.1 - Clark Ranch Total combined Estimate / Horizontal Infrastructure (Talisman Civil)

Clark Ranch Total Estimate					
Item	Unit	Unit Price	Quantity	Cost	
Site Preparation and Demolition					
1	Clear and Grub	S.F.	\$2	210,625	\$421,250
				Subtotal	\$421,250
Site Improvements					
2	Cut	C.Y.	\$20	36,012	\$720,240
3	Fill	C.Y.	\$10	9,881	\$98,810
4	4" Asphalt Paving	S.Y.	\$27	10,639	\$287,253
5	9" Road Base Material	C.Y.	\$52	2,660	\$138,320
6	Type "G" Curb and Gutter - Catch	L.F.	\$28	3,819	\$106,932
7	Type "G" Curb and Gutter - Spill	L.F.	\$28	3,774	\$105,672
8	Retaining Walls (Concrete)	S.F.	\$50	58,420	\$2,921,000
9	Shoulder Landscape	S.F.	\$2	41,537	\$83,074
				Subtotal	\$4,461,301
Utility Improvements					
10	Connect to Existing Water Stub	Each	\$2,000	2	\$4,000
11	10" C-900 PVC Pipe	L.F.	\$125	3,836	\$479,500
12	PRV Station	Each	\$100,000	1	\$100,000
13	Connect to Existing Sewer Stub	Each	\$2,000	2	\$4,000
14	8" SDR-35 PVC Pipe	L.F.	\$100	3,816	\$381,600
15	Sewer Manhole	Each	\$5,000	9	\$45,000
16	15" Class III RCP Pipe	L.F.	\$150	3,798	\$569,700
17	Detention/Retention Volume	C.Y.	\$20	2,250	\$45,000
18	Storm Drain Inlet	Each	\$5,000	18	\$90,000
19	4" PVC Electrical Conduit	L.F.	\$10	3,788	\$37,880
20	4" PVC Communications Conduit	L.F.	\$10	3,793	\$37,930
21	Additional Electrical Appurtenances	L.S.	\$500,000	1	\$500,000
				Subtotal	\$2,294,610
Summary					
Sub Total				\$7,177,161	
20% Contingency				\$1,435,432	
Total				\$8,612,593	

The electrical costs in Section 4.0 include proposed electrical conduit for a total of \$37,880. This excludes costs for conductors, transformers, or other electrical equipment. For the purpose of this report, TCC estimates remaining electrical infrastructure improvements to be roughly \$250,000 for each phase, or \$500,000 total. This assumes existing Rocky Mountain infrastructure in the area such as substations, etc., will not require a significant upgrade to service the Clark Ranch Development. TCC

recommends further coordination with Rocky Mountain Power and performing an Electric Service Study (ESSA), and System Impact Study, to determine any necessary upgrades.

The frontage road providing access to Clark Ranch will also need to be developed. Assuming a 36' paved section (2x12' lanes with 6' shoulders & curb and gutter) it is estimated improvements to the frontage road will cost around \$1.32M per table 67.1 included here).

Table 67.1 - Clark Ranch Frontage Road Improvements Cost Estimate (Talisman Civil)

Frontage Road					
Item	Unit	Unit Price	Quantity	Cost	
Site Preparation and Demolition					
1	Clear and Grub	S.F.	\$1	211,640	\$211,640
				Subtotal	\$211,640
Site Improvements					
2	4" Asphalt Paving	S.Y.	\$27	16,600	\$448,200
3	9" Road Base Material	C.Y.	\$52	4,150	\$215,800
4	Type "G" Curb and Gutter	L.F.	\$28	7,645	\$232,400
				Subtotal	\$896,400
Sub Total				\$1,108,040	
20% Contingency				\$221,608	
Total				\$1,329,648	

SUMMARY & CONCLUSION

In summary, the total estimated costs of utility and road infrastructure for the Clark Ranch Development is conservatively estimated at \$8,612,593. Improvements to the frontage road will cost an additional \$1,330,000. It is important to note that the retaining walls contribute a large portion of the overall cost. Due to the steepness of the overall project topography, maintaining a maximum road grade of 10% will have a significant impact on the height and quantity of retaining walls.

At a conceptual level, even for the densest Clark Ranch Development Option, there is adequate source and storage capacity for water infrastructure, and adequate capacity within the existing sewer infrastructure in Park City Heights. Storm drain infrastructure will be addressed by an 45,000 cubic feet detention and 15,666 cubic feet retention ponds built on-site, and ultimately discharging to the UDOT drainage system in US-40.

VERTICAL INFRASTRUCTURE

Given the very preliminary nature of the density studies included here, and the volatile nature of the construction environment in the last 2 years, the following estimates are for comparisons only. The process for deriving the following estimates included proposing a basic unit type breakdown, and

assigning a rough estimate of typical square footages for each unit size.

By using a total rough estimate in each density summary, the total square footage estimates then allows us to assign a basic cost per square foot number. For general comparison, we have assumed the high end costs to be \$450 per square foot cost. To generate a range, and to help understand the shifting nature of the current economy and potential economies of scale, a \$350 per square foot cost has been assigned for the low end. The result of the totals generates a range of anticipated costs for this type of project.

In the summary, the total estimated costs and the breakdown for comparisons assumes the high end of the range.

Based on the Low and High cost ranges, we have estimated the following basic cost parameters for each of the density options illustrated previously.

Infrastructure Costs						
	Initial Land Cost*	Frontage road	Roads	Utilities	Misc**	Total
phase 1+2	\$216,000	\$1,241,287	\$4,882,551	\$2,294,610	\$1,435,432	\$10,069,880
phase 1	\$216,000	\$1,241,287	\$1,865,764	\$1,344,965	\$642,146	\$5,310,162

* assumes \$18,000 per acre x 12.0 acres

** Misc costs includes contingency

Building Costs - Phase 1					
	Low Range \$350	High Range \$450	BLDG Cost Per Unit	Infrastructure Cost Per Unit	Total Avg Per Unit
Opt 1	\$40,250,000	\$51,750,000	\$575,000	\$59,002	\$634,002
Opt 2	\$50,295,000	\$64,665,000	\$431,100	\$35,401	\$466,501
Opt 3	\$70,700,000	\$90,900,000	\$395,217	\$23,088	\$418,305

Building Costs - Phase 1+2					
	Low Range \$350	High Range \$450	BLDG Cost Per Unit	Infrastructure Cost Per Unit	Total Avg Per Unit
Opt 1	\$48,125,000	\$61,875,000	\$441,964	\$71,928	\$513,892
Opt 2	\$50,295,000	\$64,665,000	\$323,325	\$50,349.40	\$373,674
Opt 3	\$70,700,000	\$90,900,000	330545.4545	\$36,617.75	\$367,163

Table 68.1 - Clark Ranch Vertical & Horizontal Construction Cost Estimate (Talisman Civil & Stereotomic)

The projected lowest cost option would be option 1, (90 units of town-homes) which could range from \$40.2 mil to \$51.7 mil. The Highest cost option 3, ranges from \$70.7 mil to \$90.9, consists of Multifamily units of stacked flat apartments.

Total Development - Phase 1								
	bldg cost		infrastructure cost				totals	
	Low Range (\$350 sf)	High Range (\$450)	Initial Land Cost	utilities	roads	misc.	low	high
Opt 1	\$40,250,000	\$51,750,000	\$216,000	\$1,344,965	\$1,865,764	\$642,146	\$44,318,875	\$55,818,875
Opt 2	\$50,295,000	\$64,665,000	\$216,000	\$1,344,965	\$1,865,764	\$642,146	\$54,363,875	\$68,733,875
Opt 3	\$70,700,000	\$90,900,000	\$216,000	\$1,344,965	\$1,865,764	\$642,146	\$74,768,875	\$94,968,875

Total Development - Phase 1 + 2								
	bldg cost		infrastructure cost				totals	
	Low Range (\$350 sf)	High Range (\$450)	Initial Land Cost	utilities	roads	misc.	low	high
Opt 1	\$40,250,000	\$51,750,000	\$216,000	\$431,100	\$4,882,551	\$1,435,432	\$47,215,083	\$58,715,083
Opt 2	\$50,295,000	\$64,665,000	\$216,000	\$431,100	\$4,882,551	\$1,435,432	\$57,260,083	\$71,630,083
Opt 3	\$70,700,000	\$90,900,000	\$216,000	\$431,100	\$4,882,551	\$1,435,432	\$77,665,083	\$97,865,083

Table 68.2 - Clark Ranch Total Construction Cost Estimates (Talisman Civil & Stereotomic)

When factoring in the associated horizontal costs, we arrive at the general projected "total development" costs. These costs do not include soft costs associated with the pre-development (testing, further analysis, and entitlements process) as well as the design and engineering costs, utility infrastructure fees, and other associated soft costs.

As anticipated, Option 1 is the lowest cost option for total development while Option 3 is the largest. Although Option 3 has the largest total cost of development, it also has the greatest value when considering the average cost per unit. The average cost per unit does not account for different sizes and unit types, but is a simple calculation of total development costs divided by the units provided in the scenario.

Further analysis gives a clear picture on the nature of our tight affordable housing situation. The

Affordable Unit Cost Limit+						
	30%-50% AMI		50%-80% AMI		80%-100% AMI	
	Max. Mortgage Loan Amt.	Deficit	Max. Mortgage Loan Amt.	Deficit	Max. Mortgage Loan Amt.	Deficit
Opt 1	278,650	-\$355,352	\$445,780	-\$188,222	557,270	-\$76,732
Opt 2	278,650	-\$187,851	\$445,780	-\$20,721	557,270	\$90,769
Opt 3	278,650	-\$139,655	\$445,780	\$27,475	557,270	\$138,965

Table 69.1 - Clark Ranch Affordable Unit Cost Comparison table, "for sale" model. This table assumes all the units developed as part of each of the density options would be affordable units. The "Maximum Mortgage Loan Amount" is referenced from Afford-ability Calculator from the Utah Afford-ability Housing Forecast tool, 2021 - Table 6, "Park City's Housing Needs Assessment 2021" prepared by Wood, James. pg 24 (Talisman Civil & Stereotomic)

following table illustrates three (3) distinct affordable housing ranges, (30%-50% AMI, 50%-80% AMI, & 80%-100% AMI) and compares the cost to develop the project (on a per unit basis), with the maximum mortgage loan amount calculated for each affordable category.

Based on the assumptions outlined previously, all the options would need significant subsidies to be financially viable. Only Option 2 and Option 3 become financially viable without subsidies when targeting the 80%-100% AMI income level.

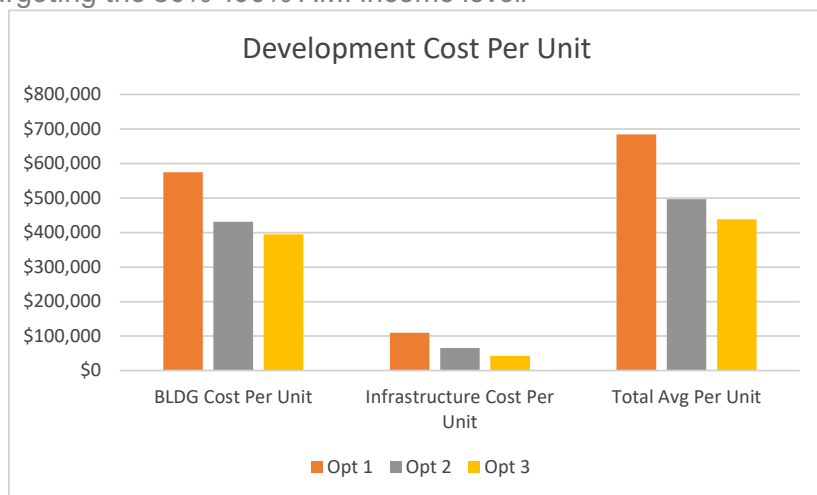


Table 69.2 - Project Development Cost Analysis - Factoring in Building (vertical) Costs as well as Infrastructure (horizontal) costs divided between the total number of units per option. (Stereotomic)

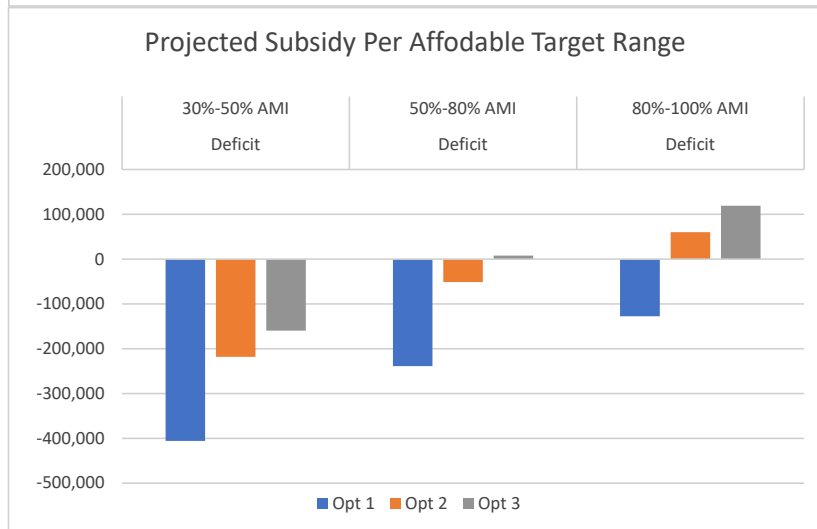


Table 69.3 - Project Development Cost Analysis - Negative numbers denote a financial shortage which would be needed to subsidize the project(Stereotomic)

following table illustrates three (3) distinct affordable housing ranges, (30%-50% AMI, 50%-80% AMI, & 80%-100% AMI) and compares the cost to develop the project (on a per unit basis), with the maximum mortgage loan amount calculated for each affordable category.

Based on the assumptions outlined previously, all the options would need significant subsidies to be financially viable. Only Option 2 and Option 3 become financially viable without subsidies when targeting the 80%-100% AMI income level.

Affordable Unit Cost Limit+ (phase 1 only)						
	30%-50% AMI		50%-80% AMI		80%-100% AMI	
	Max. Monthly housing cost	Payback (yrs)	Max. Monthly housing Cost	Payback (yrs)	Max. Monthly Housing Cost	Payback (yrs)
Opt 1	\$1,472	36	\$2,355	22	2,944	18
Opt 2	\$1,472	26	\$2,355	17	2,944	13
Opt 3	\$1,472	24	\$2,355	15	2,944	12

Table 70.1 - Clark Ranch Affordable Unit Cost Comparison table, "for rent" model. This table assumes all the units developed as part of each of the density options would be affordable units. The "Maximum Monthly Housing Cost" is referenced from Affordability Calculator from the Utah Afford-ability Housing Forecast tool, 2021 - Table 6, "Park City's Housing Needs Assessment 2021" prepared by Wood, James. pg 24 (Talisman Civil & Stereotomic)

A second mode of comparison was used to understand the potential for return on the project; this model specifically looked at units as rental option. The maximum monthly mortgage amount was figured into each of the three affordability ranges (30%-50%AMI / 50%-80% AMI / 80%-100% AMI) and projected out the years to return the initial capital invested, forgoing any interest rates. The results of these payback timeschedule are illustrated in Table 70.1. The comparisons show the length of time it would take to recoporate the original investment to develop, without factoring in the cost to borrow money.

Using this model as comparison, one can see from Table 70.1 and 70.2 the payback for the 30%-50% AMI ranges from 24 to 36 years. In contrast, the 80%-100% AMI, assumed accross the development as a whole, ranges from 12-18 years. This model also does not include ancitpated upkeep, maintainence and annual expeditures commonly associated with rental properties.

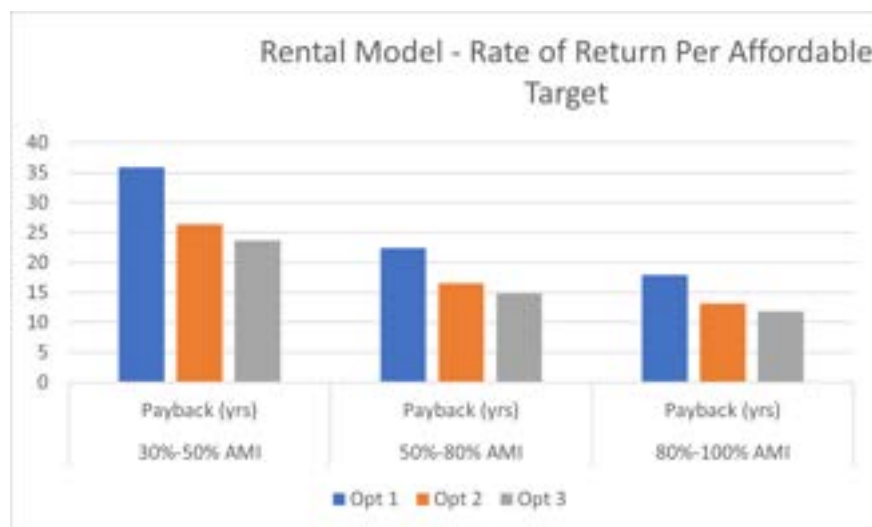


Table 70.2- Project Development Cost Analysis for potential hold and rent scenario - payback projected out in years and doesnt not assume interest or cost to finance debt. (Stereotomic)

Financing Options



Through a public-private partnership between the City and a private developer, there are several financing strategies that could promote development of an affordable project on this site.

Public Options

First, the City could dedicate the land necessary to the affordable project, through a Development Agreement (a Development Agreement is a requirement in the AMPD process). Second, the City can dedicate and/or construct all, or a portion, of the infrastructure required for the project. Third, the City can apply for Federal infrastructure grants, like grants available through the Inflation Reduction Act or through remaining opportunities in the COVID-19 relief funds and dedicate the revenues from such grants to the affordable portions of the project. Fourth, if the City retains ownership of certain units, the City can use general fund monies to subsidize the project. Fifth, the City can waive fees such as building permit fees, plan check fees, and impact fees for the affordable project. And finally, the City can encourage other service providers, such as the Snyderville Basin Water Reclamation District, to waive impact fees.

Private Options

The City's private developer partner can further take advantage of Low-Income Housing Tax Credits (LIHTCs) from the federal government and either use the tax credits internally, to offset ordinary income or capital gains generated by that business or sell such credits to interested parties. The proceeds of such tax credits sale or utilization would then be applied to offset a portion of the affordable development.

There are two types of LIHTCs, a 4% tax credit, which typically offsets 30% of the gross construction cost of the affordable units, and a 9% tax credit, which offsets roughly 70% of the gross construction cost of the affordable units. The 4% LIHTC is not competitive, meaning: if applied for, a qualifying project will receive the 4% LIHTC.

The 9% LIHTC is competitive annually among a variety of LIHTC applicants across the state. Not all applicants receive requested tax credits. The 9% LIHTC is prioritized for "higher needs" or "very low-income" populations. Projects that utilize LIHTCs are required to include at least: (1) 20% of units rented to families or individuals who earn less than 50% AMI; or (2) 40% of units rented to families who earn less than 60% AMI. (Units up to 80% AMI are allowed in option 2 if the average income of all subsidized units is not more than 60%). LIHTCs can be applied for on a building-by-building basis, so that an entire project would not be required to meet the LIHTC occupancy requirements, only the portion subsidized by the LIHTC.

On larger affordable housing projects, a private developer can pair a LIHTC with a tax-exempt bond to further subsidize the project. Tax exempt bonds for low-income housing have the same AMI occupancy requirements as LIHTCs. Typically, tax exempt bonds for low-income housing cost at least 5-6% in fees for offerings in excess of \$5 Million.

Additionally, Council should be aware that all federally assisted new construction of five (5) or more residential units must construct at least 5% of units as Americans with Disabilities Act accessible.

Density Scenario - Pros and Cons Comparison		
	Con's	Pro's
Opt 1	<p>Highest cost per unit</p> <p>Least efficient use of existing infrastructure</p> <p>Highest level of financial subsidies required for affordable prices</p>	<p>Lowest density per developable acres</p> <p>lowest footprint on the land</p> <p>Lowest Calculated Occupancy</p>
Opt 2	<p>MF stacked flat units have a larger massing & visual impact</p> <p>Requires financial subsidies to provide affordable prices</p> <p>groups unit types together (townhomes vs stacked flats)</p>	<p>Balance between Density and infrastructure cost</p> <p>Stacked flat massing in the least intrusive portion of lot</p> <p>Mix of Unit Typologies (MF stacked flats + Town homes)</p>
Opt 3	<p>Greatest Footprint on the land</p> <p>Highest density per developable area</p> <p>Stepped massing is complex to build</p>	<p>Lowest cost per unit</p> <p>Makes the most of the existing site / infrastructure</p> <p>Greatest Potential for positive cash flow (no subsidies)</p>

Table 72.1 - Project option Pro vs. Con for each scenario (Stereotomic)

Appendices

Appendix A - ALTA / NSPS Land Title Survey

Appendix B - Topographic Slope Analysis

Appendix C- Clark Ranch Conservation Resources Inventory, 2015

Appendix D- Clark Ranch Management Plan, 2015

Appendix E - Traffic - Trip Generation Memorandum

Appendix F - Access Road Layouts and Profiles

Appendix G - Storm-water Retention Pond Exhibit

Appendix H - Soils Survey - Park City Heights / Clark Ranch

Appendix I - Environmental Assessment / Phase 1 - Park City Heights

Appendix J - Clark Ranch Infrastructure Assessment, Talisman Civil

- end -

ALTA/NSPS LAND TITLE SURVEY

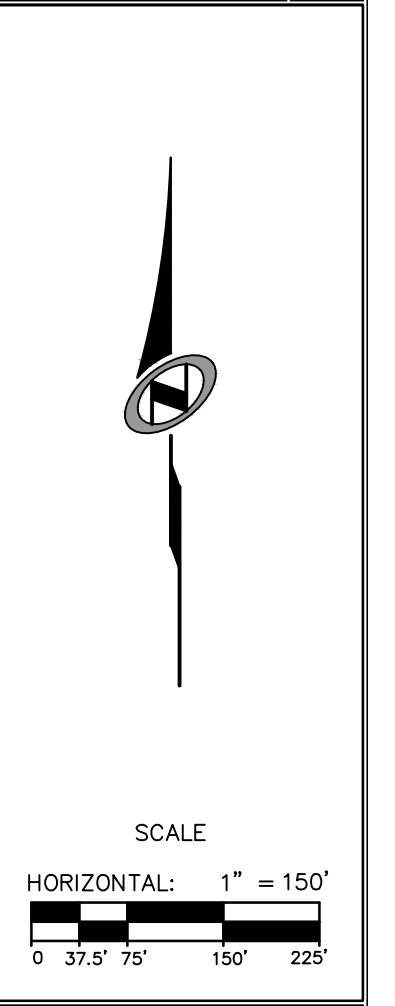
LOCATED IN THE NORTH HALF OF SECTION II
TOWNSHIP 2 SOUTH, RANGE 4 EAST, SALT LAKE BASE AND MERIDIAN
PARK CITY, SUMMIT COUNTY, UTAH



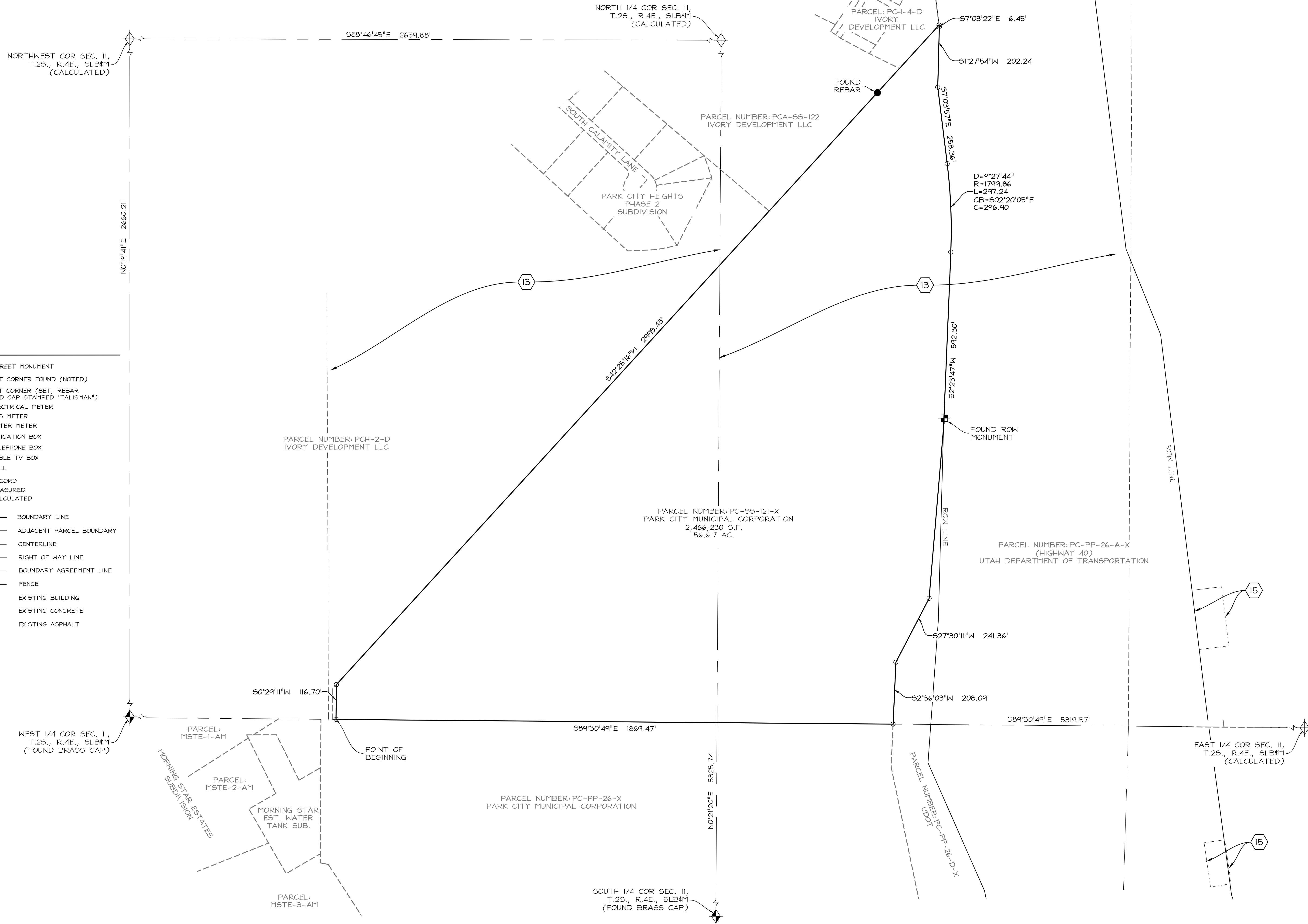
TALISMAN
CIVIL CONSULTANTS
1588 SOUTH MAIN STREET
SUITE 200
SALT LAKE CITY, UT 84115
801.743.1300

REVISIONS	DATE	BY	NO.

ALTA/NSPS SURVEY
PARCEL NO. PC-SS-121-X
PARK CITY, SUMMIT COUNTY, UTAH
DATE SUBMITTED: 2023-07-21
TCC JOB NUMBER: 23-038



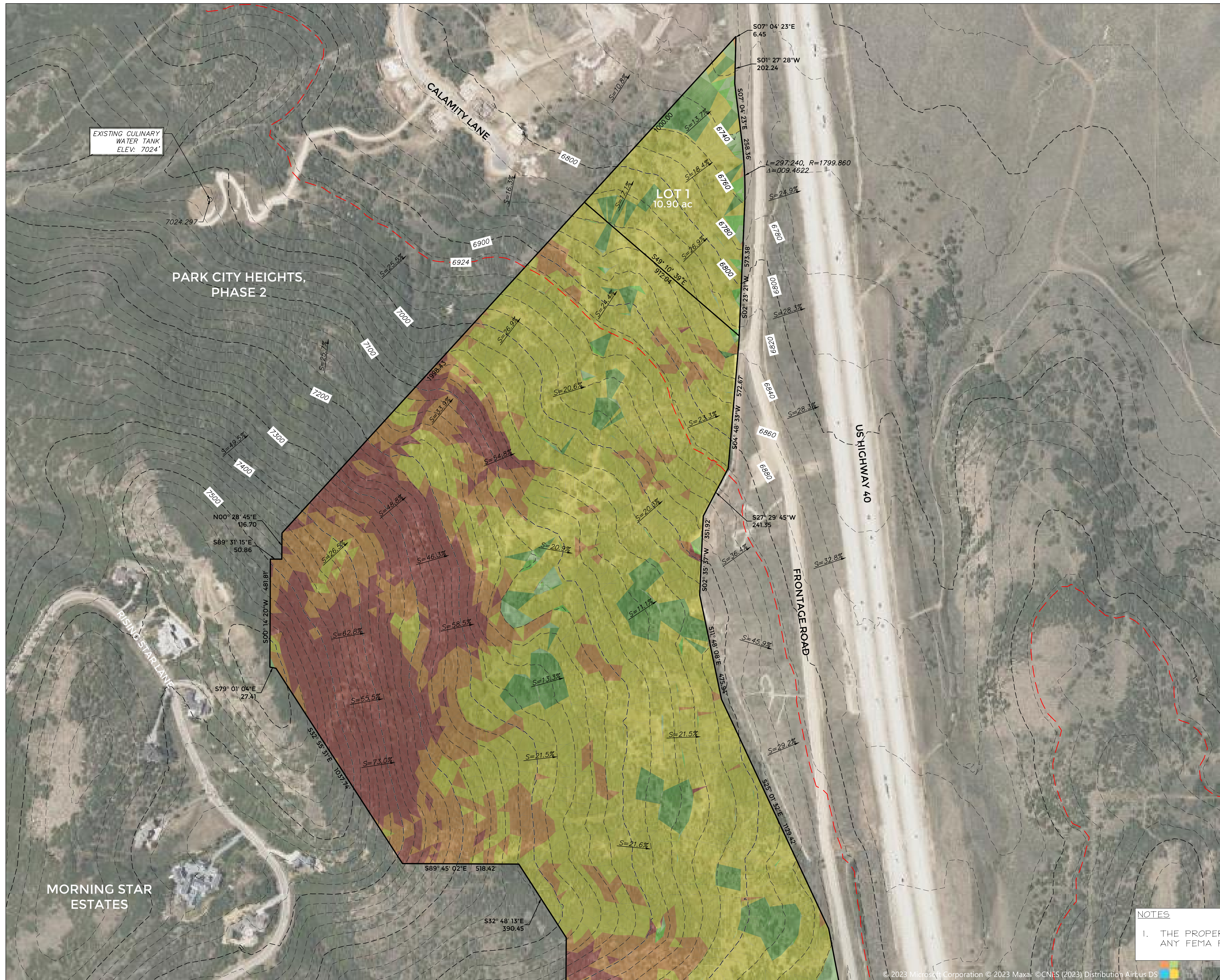
SHEET NUMBER
1
OF



- LEGEND**
- ⊕ STREET MONUMENT
 - LOT CORNER FOUND (NOTED)
 - LOT CORNER (SET, REBAR AND CAP STAMPED "TALISMAN")
 - ⊞ ELECTRICAL METER
 - ⊞ GAS METER
 - ⊞ WATER METER
 - ⊞ IRRIGATION BOX
 - ⊞ TELEPHONE BOX
 - ⊞ CABLE TV BOX
 - ⊞ WELL
 - (R) RECORD
 - (M) MEASURED
 - (CALC.) CALCULATED
- BOUNDARY LINE
 - - - - ADJACENT PARCEL BOUNDARY
 - CENTERLINE
 - RIGHT OF WAY LINE
 - - - - BOUNDARY AGREEMENT LINE
 - x ——— FENCE
 - ▨ EXISTING BUILDING
 - ▨ EXISTING CONCRETE
 - ▨ EXISTING ASPHALT

DATE: 5/4/2023 11:23 AM

PATH: N:\23-038 - Clark Ranch_Cood\Exhibits\EXHIBIT-1\OT-1.dwg



PROPOSED MAPPING

●	PRMABN	BENCHMARK
—	PRMABN	BOUNDARY LINE
- - -	PRMABS	BUILDING SETBACK/WINDOW CENTERLINE
---	PRMACL	CENTERLINE
- - -	PRMAE1	EASEMENT
---	PRMALO	IRON PIPE
---	PRMALO	LOT LINE
---	PRMALO	MAPPING MISCELLANEOUS
---	PRMALO	CITY/ COUNTY MONUMENT
●	PRMALO	PROPERTY LINE
●	PRMALO	NAIL
●	PRMALO	FIN
●	PRMALO	REBAR
●	PRMALO	RIGHT OF WAY
●	PRMALO	SECTION CORNER
●	PRMALO	CONTROL POINT (DESC)

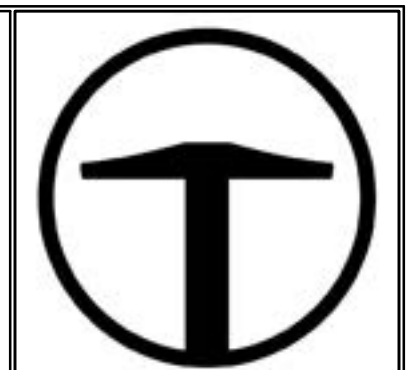
SLOPE ANALYSIS LEGEND

Light Green	SLOPE: 0% - 5%
Green	SLOPE: 5% - 10%
Dark Green	SLOPE: 10% - 15%
Yellow	SLOPE: 15% - 30%
Orange	SLOPE: 30% - 40%
Red	SLOPE: 40%+

NOTE: SLOPES PARAMETERS DEFINED BY PARK CITY MUNICIPAL CODE 15.2.21-3 SENSITIVE LANDS OVERLAY ZONE

NOTES

1. THE PROPERTY LIES ENTIRELY OUTSIDE OF ANY FEMA FLOOD PLANE ZONES



TALISMAN
CIVIL CONSULTANTS
1588 SOUTH MAIN STREET
SUITE 200
SALT LAKE CITY, UT 84115
801.743.1300

NO.	DATE	BY	REVISIONS

CLARK RANCH
US-40 WEST FRONTAGE ROAD, PARK CITY, UTAH
EXHIBIT-1

TCC JOB NUMBER: 23-038

DATE SUBMITTED: xx.xx.xx

SCALE: 1" = 200'

SHEET NUMBER
C001
OF 1

Clark Ranch Report

Purpose Statement

The Clark Ranch conservation resources inventory is a preliminary analysis of the natural features, ecological condition, unique character and current conditions found on the property known as the Clark Ranch. The inventory includes consideration of and analysis provided to Utah Open Lands by the Park City Citizen's Open Space Advisory Committee. Recommendations found within the report are preliminary.

The analysis of future uses, goals and management of the property is limited and intended to be used as a tool to evaluate the impacts, significance and benefits of future uses. The resource inventory is not intended to make determinations for the eventual uses defined by the conservation easement nor does this inventory serve as a baseline documentation necessary to accompany an eventual conservation easement granted on this property. The resource inventory is a cursory guide to aid the Park City Council on the appropriate reserved rights and prohibited uses to be contemplated in any eventual conservation easement document.

**CLARK RANCH
CONSERVATION RESOURCES INVENTORY**



Compiled April through December 2015

Prepared by

Utah Open Lands Conservation Association

with

**Mindy Wheeler, M.S.
Arthur E. L. Morris, Ph.D.
Marc Coles-Ritchie, Ph.D.**

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Notes about this inventory:

- This document was created by the Utah Open Lands Team including Wendy Fisher - Executive Director, Russell Milholland - Stewardship Director, and Julia Pace - Conservation Program Associate in collaboration with Arthur Morris Ph.D., Marc Coles-Ritchie Ph.D., and Mindy Wheeler M.S.
- This inventory is intended to inform the baseline documentation, management plan and conservation easement for the Clark Ranch conservation project. It does not replace the baseline documentation but instead is a supplement provided to inform decision making and provide reference for both the baseline documentation and management plan
- All photos are from Clark Ranch, taken by the authors unless otherwise noted.
- "Photopoint" numbers refer to locations on the map in Fig. 23 in Appendix 1.
- Common names are used for plants and animals. Scientific names for plants can be seen in Appendix 2. For animal species, the scientific names are included in the text.

INTRODUCTION

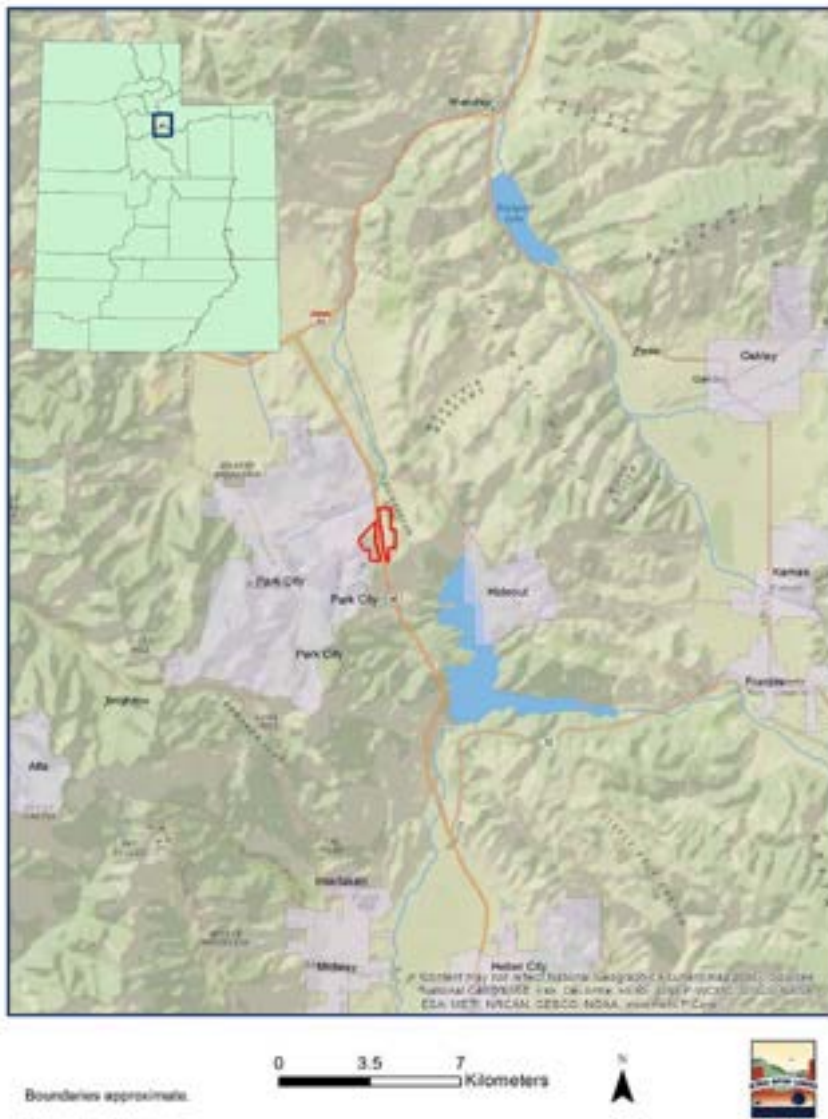


Figure 1. Locator map for the Clark Ranch Property, which is near Park City in Summit County, Utah.



Figure 2: Orthophoto of Clark Ranch Property. Project boundaries in this and other maps are approximate and were copied from the Summit County Parcel GIS layer (SGID10_CADASTRE_Parcels_Summit).

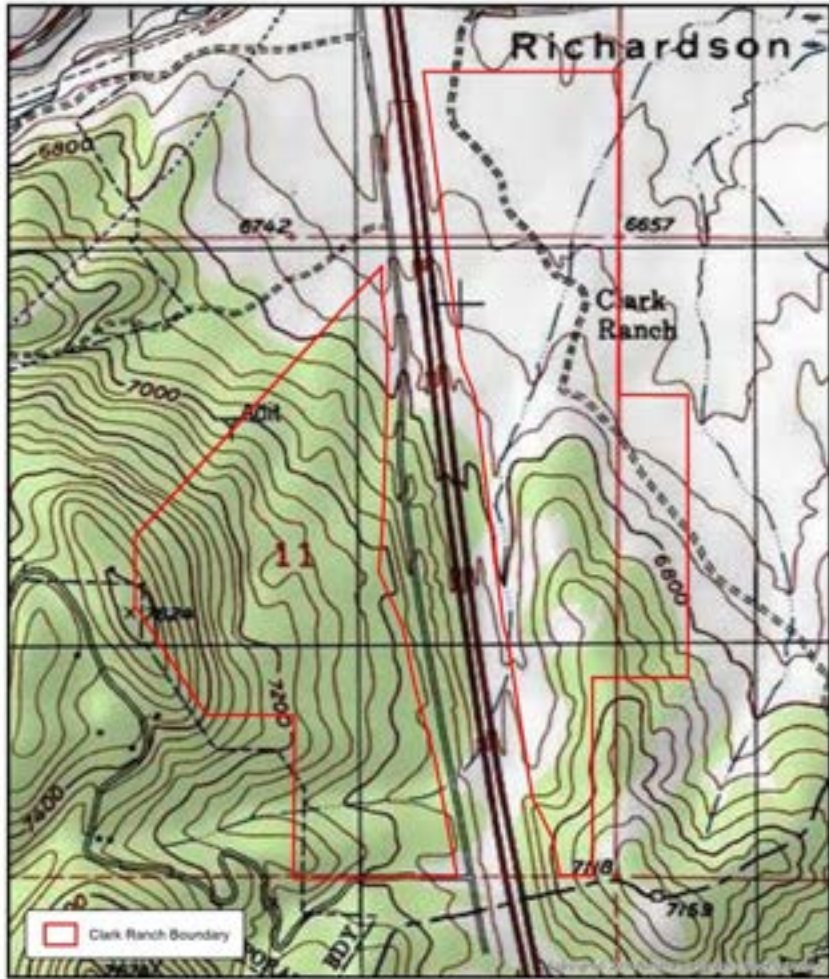


Figure 3: Topographic map of Clark Ranch Property.

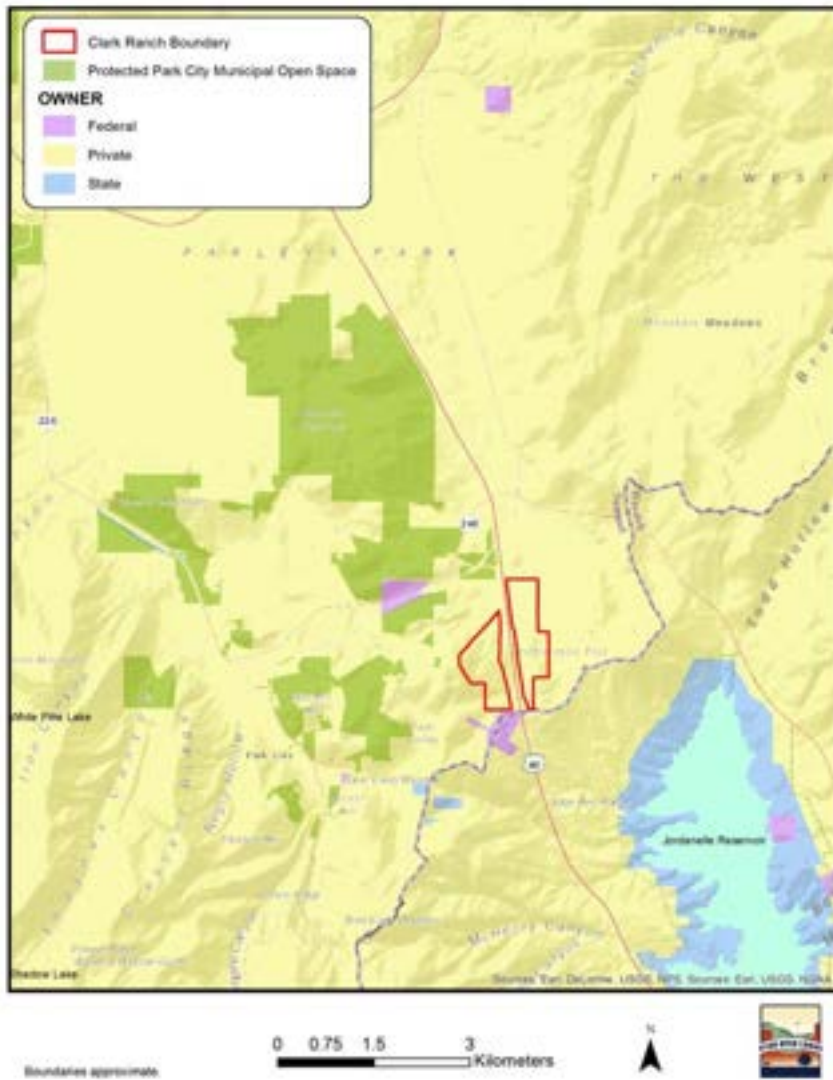


Figure 4: Map of public and private property ownership in the area of the Clark Ranch Property, as well as nearby dedicated open space and conservation easements. Federal land just to the south of the Property is owned by the Bureau of Land Management (LandOwnership GIS data from AGRC; accessed 6 Jul 2015).

PROPERTY DESCRIPTION

The open space described in this inventory commonly referred to as Clark Ranch (hereafter also referred to as “the Property”) is approximately 350 acres of open land in the Upper Weber River drainage, Summit County, Utah. It is located in a portion of Sections 2, 11, 12 and 14 of Township 2S Range 4E, Salt Lake base and meridian. The exact parcel description will be recorded in the Deed of Conservation Easement and includes tax parcels SS-91-X, SS-121-X, PP-26-X and PP-26-A-1-AX. The Property covers both sides of U.S. Route 40 in the Quinn’s Junction entry corridor approximately .75 miles south of Exit 4 for Park City/Kamas.

The Property is divided longitudinally by U.S. Route 40 and thus fundamentally split into two management units: East Parcel and West Parcel. Although some management objectives such as noxious weed control easily bridge both Parcels, others such as access, recreation, grazing and scenery management require examining each management unit in its own unique context.

Ownership

The Property is owned by Park City Municipal Corporation and managed by the PCMC Sustainability Department.

Access

Access to the Property is currently from a frontage road along Highway 40 on the West Parcel of the highway, or from Richardson Flat Road on the East Parcel of the Property. Several informal dirt roads exist on the eastern portion of the Property that appear to have been used for agricultural purposes. There is also a dirt road on the West Parcel that narrows to a trail. Several informal trails are found on the western portion of the Property and are currently used by the public to access the Property.

Adjacent Land

Most surrounding land is privately owned. Sixty-eight acres of Federal Land managed by the Bureau of Land Management abuts the West Parcel to the south (Fig 3). West and north of the West Unit are the Morning Star Estates and Park City Heights (currently under construction) housing developments. North and east of the East Unit is approximately 550 acres United Park City Mining Property which holds development restrictions. A portion of this property is known as the Richardson Flat Tailing site, is a contaminated superfund site. The remaining property east and south of the East Unit is privately owned and is leased together with Clark Ranch as part of the Mayflower grazing area.

Existing Encumbrances

Both the East and West Units of Clark Ranch have been leased for many years by Gillmor Livestock for grazing. It is intended for the lease on the East Unit to be continued while the West Unit will most likely be discontinued due in part to proximity to development.

There are additional right-of-way agreements through the Property on old roads. At this point, the extent of these encumbrances is unknown, most of which are used primarily by the grazing operators.

There are no other known encumbrances on the Property.

Existing Structures

The remnants of the Clark family dairy operation occur on the Property, although the structures have been removed. What remains are several concrete pads, and occasional debris. Livestock fencing occurs on the East Parcel Property, which closes off an approximately 60 acre pasture from the Mayflower grazing area. Wildlife fencing follows the Highway 40 corridor for the length of the Property on both sides, although the fence on the West Parcel is located between the Highway and frontage road on UDOT property.

HISTORICAL CONTEXT

Use of the area by Native Americans occurred, but no documentation has been found specifically for the Property. Nearby areas were settled by early pioneers in the late 1800's. Grazing of livestock such as cattle, sheep, and horses began around that time, and is thought to have occurred on the Property more or less continuously since then.

The Property used to be operated as a dairy farm by the Clark Family during mining boom in Park City, although it is generally assumed that no part of the Property has been irrigated for agricultural production. Clark Ranch was purchased by the Gillmor family in the 1940's and has been used since primarily as open range for the grazing of sheep and cattle. In response to recent human and livestock use, plant and wildlife communities have been altered somewhat from their native state. Non-native grasses are found in many areas on the Property, either due to purposeful planting across the Property sometime in the past, or as a result of dispersal from other areas.

Mining was very common in Greater Park City from the middle of the 19th to the middle of the 20th century. It is likely that prospecting occurred on the hillsides although there is no record of any mines located on the Property. Heavy metals associated with this mining history have been found on the Property. It is theorized that the traces of lead found on the Property are the result of livestock watering in Silver creek and carrying deposited mine tailings in their hoofs as they traveled back to graze the property. Concentrations under this theory would be more concentrated in the vicinity of the original location of the dairy barn.

HAZARDOUS AND TOXIC MATERIALS

A Phase 1 Environmental Site Assessment (ESA) was conducted for the Property by Kleinfelder during the spring of 2015. The full report is on file at both Park City Municipal and Utah Open

Lands, and the following is a direct quote of the Recognized Environmental Conditions (REC's) identified in the Executive Summary of the ESA:

- *The Site is located directly south of the Richardson Flats Tailings facility; therefore, soils on the Site may have become impacted by air-transported concentrations of heavy metals.*
- *The Site contained two concrete pads that are reportedly associated with a former dairy farm operation. Concentrated debris including glass and steel drums were observed in a garbage pit and within the drainage leading to the northeast. Additionally, a groundwater well was observed near the concrete pads. This area is considered an REC due to potential impacts from burned and buried debris in the garbage pit and potential impacts to groundwater through the groundwater well.*
- *Lead impacted soils were identified at concentrations above EPA established clean-up levels in soil at the Site. The identified soil impacts may be associated with impacted water diverted from the irrigation canal identified within the Park City Heights VCP or from air-transmitted deposits from the Richardson Flat tailings or activities related to the concrete pads located on the Site.*

The ESA recommends proper investigation and classification of soils suspected to be impacted by heavy metals before any disturbance or development occurs on the Property. Additionally, education of the public about the environmental conditions of the Property may be necessary. For additional information regarding the identified REC's and recommendations therein, the full ESA should be consulted.

CONSERVATION VALUES

The Property provides open space worthy of conservation for a variety of reasons. Utah Open Lands recognizes the conservation value of a project as informed by the Conservation Purposes listed in U.S. Internal Revenue Code § 170(h)(4)(a). The code states: “for purposes of this subsection, the term ‘**conservation purposes**’ means – (i) the preservation of land areas for outdoor recreation by, or the education of, the general public, (ii) the protection of a relatively natural habitat of fish, wildlife, or plants, or similar ecosystem, (iii) the preservation of open space (including farmland and forest land) where such preservation is – (I) for the scenic enjoyment of the general public, or (II) pursuant to a clearly delineated Federal, State, or local governmental conservation policy, and will yield a significant public benefit, or (iv) the preservation of a historically important land area or a certified historic structure.”

The Clark Ranch Property provides the following Conservation Values:

OPEN SPACE - SCENIC

The expansive and unbroken views of the Property from Highway 40 are of high value, and increasingly so because of the current development pressures along the route. The property has a high degree of visual vulnerability due to the vegetative structure which is mainly a sage-brush steppe environment with low-lying vegetation and topography which has little variation making alterations to the land and specifically structures highly visible. The Park City planning goals have long included the preservation of the City’s entry corridors. These corridors serve to provide a sense of place and provide distinction for the mountain resort character. Clark Ranch sits on a prominent entry corridor into the community thus increasing the scenic value of the property within the stated goals of the community. Highway 40 is travelled by thousands of individuals on a daily basis and Clark Ranch is easily viewed by those traveling both North and South on the highway. For a more in-depth analysis of the Scenic value refer to the Scenic Inventory section.

NATURAL HABITAT OF WILDLIFE AND PLANTS

The Property contains relatively natural and highly functioning ecosystem including components of several biotic communities native to the area, including Northern Oak, Shrubsteppe (sagebrush/grassland), Aspen Forest, Mountain Shrub, Wetland and Wet Meadow. Wetlands are listed by the Utah Division of Wildlife Resources, Comprehensive Wildlife Conservation Strategy (CWCS) and Utah Partners in Flight Avian Conservation Strategy as highest priority habitats for wildlife and birds in Utah. Shrubsteppe, mountain shrub, and wet meadow habitats are also listed as priorities for conservation in Utah.

The Property is crucial value habitat for mule deer. Mule deer are currently a priority species for conservation in Utah (CWCS) in part because of habitat loss and degradation. Conservation of high-value habitat is important for the species. The Property is also part of the seasonal migratory pathway for mule deer as deer need to move to higher and lower elevations depending upon the

season as well as to find water (see Fig. 19). The Property is also crucial value habitat for elk and moose and is included in the range known to be occupied by greater sage grouse in recent years (see Figs. 20, 21 and 22).

The following additional wildlife species of particular interest for conservation have been documented in the general area of the Property: ferruginous hawk, smooth greensnake, western toad, Lewis' woodpecker, bobolink, and Columbia spotted frog (UDWR data are mapped by topographic quad). Incidental use of the Property by these species is possible, however no known threatened, endangered, or sensitive species of plants or animals were noted on the Property during this survey.

OUTDOOR RECREATION AND EDUCATION

Currently, the Property does not include any formal recreation or education opportunities, however its proximity to the Park City Municipal multi-use trail system and existing neighborhoods and developments provides significant potential for outdoor recreation. An old informal multi-use trail crosses the hillside on the West Parcel of the Property, which is maintained by community members and used occasionally for mountain biking, hiking and trail running. Additionally, old road beds and game trails are occasionally used for hiking, wildlife viewing and dog walking by local residents. The relatively intact ecosystem and proximity of the property to the Park City schools and community provides for casual or formal education opportunities on the Property.

OPEN SPACE - AGRICULTURAL

Agricultural production has been an important component of Clark Ranch for multiple generations. The protection of rangeland for agriculture is recognized by the State of Utah as a conservation value through the Utah Farmland Assessment Act. The grazing of sheep and cattle has occurred on the Property in recent years, and it is understood that the Property will continue grazing activities into the future. Forage on the Property includes a variety of native shrubs, grasses, and forbs. Permanent surface water source (spring) exist on the East Parcel of the Property (Figs. 11 and 12).

OPEN SPACE - COMMUNITY VALUE

The Park City Community has placed a significant value on the preservation of open space as part of the quality of life residents enjoy. Open Space bonds have been passed numerous times with a majority of support from residents and provided the primary source of funding for the Clark Ranch project. Open space is valued for multiple reasons including the ability to control and limit growth and development. Protecting open entry space corridors, limiting unfettered growth and ensuring the integrity its natural setting are all designated community value in existing City masterplans.

THREATS TO CONSERVATION VALUES

Damage to the conservation values may result from the threats described below. Details about how to manage the Property to prevent damage from these threats are provided in the Management Plan.

Improper Maintenance: While maintenance of the Property is necessary to keep it clean, attractive and safe, some maintenance decisions could also degrade Conservation Values of the Property. For example, improper or no control of noxious weeds could change plant communities in an undesirable manner and/or harm wildlife. Additionally, inappropriately relaxed monitoring and enforcement of necessary restrictions may result in unsafe and unsightly conditions.

Invasive Species: Invasive plants and animals pose threats to the ecological integrity of the natural area. Effective management should encourage a diversity of healthy native plant and animal species. Consistent control of scattered populations of invasive plants will be necessary to prevent further establishment and extent of invasive plant populations on the Property. Control of invasive species on the Property should be a priority.

Habitat Loss, Fragmentation or Degradation: Habitat loss, fragmentation or degradation is likely the highest threat to all species on the Property. Plants and animals maintain ecological function and structure through their interactions. Considerations for potential habitat alterations (including ecological restoration) should include habitat requirements for listed priority species, as well as other vulnerable species, such as nesting raptors and neotropical migrant birds. Further, emphasis should be placed on conserving key habitats for wildlife in the area, including wetlands, wet meadows, mountain shrub, shrubsteppe and aspen forest. Healthy ecosystems typically contain a shifting mosaic of habitat patches through natural disturbances such as fire, disease outbreaks, and animal population ebbs and flows among other natural cycles. However, habitat fragmentation (i.e., breaking of habitat patches into smaller parts) artificially by roads, trails, usage patterns, or structures that present unnatural obstacles to wildlife movement is a form of habitat degradation. Additional protection of adjacent open space is highly recommended to ensure a healthy and connected ecosystem on the property.

Improper pest control: Some plants and animals on the Property may be undesirable; however, attempts to control these undesirable species introduce the potential for harm to the Conservation Values of the Property. Some organisms may simply be perceived as pests, while actually presenting little or no threat and great benefits (bats for example). Many wild animals have the potential to present problems for humans (for example, coyotes, deer, mountain lions, wasps, mosquitoes), but solving these issues should not target complete local eradication of the wild animals. Outreach may be important to create a cultural climate that accepts or appropriately manages interactions with wild animals.

Feral and loose domestic cats and dogs: Feral and loose domestic cats present predation threats to wild animals including small mammals and birds. A recent study suggested that free-ranging

cats are responsible for the deaths of high numbers of birds and small mammals in the United States (Loss et al. 2013); however, these threats are probably restricted when larger predators such as coyotes are present (Kays et al. 2015). Domestic dogs may pose threats to the Conservation Values of the Property, particularly if dogs are allowed to roam freely and/or are aggressive toward wild animals. Unless provided for in the Conservation Easement through an off-leash dog area, pet owners should comply with City and County laws. In addition to threats from the domestic animals to the ecosystem, loose cats and dogs in the natural area face threats themselves such as exposure to wild animals, disease, parasites, and possibly the ingestion of poisonous or harmful plants or animals.

Inappropriate Trails: Trails serve valuable purposes socially and can be ecologically beneficial by focusing use and helping to ensure appropriate movement of people through landscapes. Trails can also be indirectly beneficial to wildlife and plants by helping people to experience and learn about and feel affection for nature and special places. However, some kinds of trails or trail uses have potential to degrade wildlife habitat, introduce invasive species or disturb scenic integrity. Trails should be well-designed and maintained to prevent damage to the natural areas, especially the wet areas, the bench on the western hillside, and aspen forests.

Improper Grazing Practices: It is possible that some grazing practices could harm the stated Conservation Values. Improper grazing practices are listed by the UDWR as primary threats to mountain shrub, wet meadow, shrubsteppe, and other habitats like those found on the Property (Sutter et al. 2005). Grazing in many areas has been associated with habitat and natural-systems degradation (Fleischner 1994). Excessive clearing and trampling of riparian areas is a potential threat to wildlife values on the Property, even if it only occurs in some places. Harm to the Conservation Values would likely result from traditionally managed livestock grazing in which livestock is allowed to graze at will within the boundaries of a property for long periods of time. A goal of a grazing management plan should be to seek maintain abundant, diverse vegetation and wildlife and other Conservation Values.

Improper Fire and Fire Suppression: Although fire is a natural occurrence in the ecosystem of the Property, uncontrolled fire on the Property can now threaten the safety of people and nearby structures. Removal of wood from the Property can degrade ecological processes, particularly if the removal is widespread and or involves removal of valuable large wood habitat.

Predator Eradication: Predators are valuable to ecosystems historically and currently. For example, predators help to keep populations of herbivores in check, which can benefit native plant communities. In addition, the presence of relatively large predators, such as coyotes, has been found to limit the detrimental effects of smaller, non-native predators such as feral cats (Kays et al. 2015). A general predator eradication program for the Property is not recommended. If individual predators become problems, appropriate removal or deterrence strategies will need to be considered.

Dumping/Storage: Dumping, storing, or disposing of materials on the Property has the potential to introduce harmful or toxic materials onto the Property. Dumping of any materials can set a

precedent of using the Property for disposal purposes. Therefore, no materials should be dumped, stored, or disposed of on the Property.

Climate Change: Large-scale climate change may affect the environment local to the Property. If predicted temperature increases of a few degrees occur, native organisms on the Property will respond both to higher temperatures and side effects such as increased drought or invasion by other plants and animals. Therefore, stewardship of the Property would do well to emphasize conservation of water resources including wetlands and wet meadows, and encourage a variety of native species to help bolster ecosystem resilience and adaptability (see climate data in "Climate" section).

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SCENIC INVENTORY

Due to Clark Ranch’s unique location along a main entry corridor to Greater Park City, the Scenic quality of the Property is identified as a key conservation value. As elaborated in the Open Space inventory, recommendations from the Park City Citizens Open Space Advisory Committee identified this entry corridor value as a key value for conservation under the *Aesthetics* portion of matrix. Additional conservation values under the matrix include: *Recreation, Critical Conservation* and *Community Character*. Priorities associated with the *Aesthetics* value include: protect resort and open view sheds, Greater Park City entry corridor, preserves open space buffers against new development encroachment, prevention of new residential or commercial construction.

Council Goals

1. World Class Multi-Seasonal Resort Destination
2. Preserving & Enhancing Natural Environment
3. An Inclusive Community of Economic & Cultural Opportunities, Progressive
4. Cutting Edge and Effective Government

Categories (Purpose)	Recreational	Aesthetics	Critical Conservation	Community Character
<p>Item 1</p> <p>Will the open space purchase advance and/or protect stated goals in the Park City General Plan and specifically add/enhance one or more of the following four primary purposes?</p>				
<p>Item 2</p> <p>Values and Priorities (Intent/Unweighted)</p> <p>The following sections are intended to narrow the prioritization of allowed uses and preserved values which may further enable COSAC to identify funding sources and the appropriate protection tool.</p>	<ul style="list-style-type: none"> • improves trail connectivity and new trail development. • Acquisition needed for public access. • Passive recreation higher priority (private/non-motorized activities on established trails; related trail infrastructure, parking). • Active recreation (includes improved fields, parks, facilities, group camping, restrooms). • multiple public uses permitted 	<ul style="list-style-type: none"> • protect resort and open view sheds; • Greater Park City Area entry corridor. • preserves open space buffers against new development • prevention of new residential or commercial construction-land may or may not have specific additional conservation values 	<ul style="list-style-type: none"> • Protection of the natural habitat of fish, wildlife or plants; • Enhances stream corridor or watershed; • Protects wetlands; • Existing natural characteristics and conservation values essentially preserved as is and primary over other uses 	<ul style="list-style-type: none"> • The preservation of open space in-conjunction with agriculture, farmland and forestland, or the preservation of historically important land or a historic structure. Appropriate support related infrastructure • Preservation is for the scenic enjoyment of the general public, which will yield a significant public benefit; may include views, view structures or repositories provided open-character of land is maintained and environmental issues mitigated; secondary uses permitted

Figure 5. COSAC Matrix for the Clark Ranch Project.

Key Observation Points

The primary public observation area for Clark Ranch is U.S. Route 40, which bisects the Property longitudinally from north to south. U.S. Route 40 (also referred to in this document as Highway 40 or the Highway) is a federal highway which travels from Silver Summit Junction to Heber City,

and onward to Denver, CO and the eastern United States. Highway 40 is a four-lane divided freeway as it crosses through the property and it is traveled by many tourists and commuters on their way into and out of Greater Park City.

In addition to traveling through the property on Highway 40, Quinn's Junction (the intersection between Highway 40 and State Route 248) is a key observation point as it is a primary entry point for much of the workforce of Park City traveling from Heber City or Snyderville Basin on Highway 40 or from the Kamas/Oakley area on 248. Quinn's Junction is undergoing development including a new movie studio, the Park City Heights housing development an addition to Park City Medical Center. Currently, the junction houses a sports facility, hospital, industrial park, office park and the Richardson's Flat tailings area. Quinn's junction is backdropped by primarily open land including the protected Round Valley open space, the 2700 acre restricted Greater Park City Mining property, and the Clark Ranch property. Finally, the Property is also visible from the lightly used West Parcel frontage road and Richardson Flats roads.



Figure 6. View of the Property from the eastbound lane (towards Heber City) of Highway 40 near the Quinn's Junction exit. Much of the natural landscape visible in this photo is included in the Clark Ranch Property.

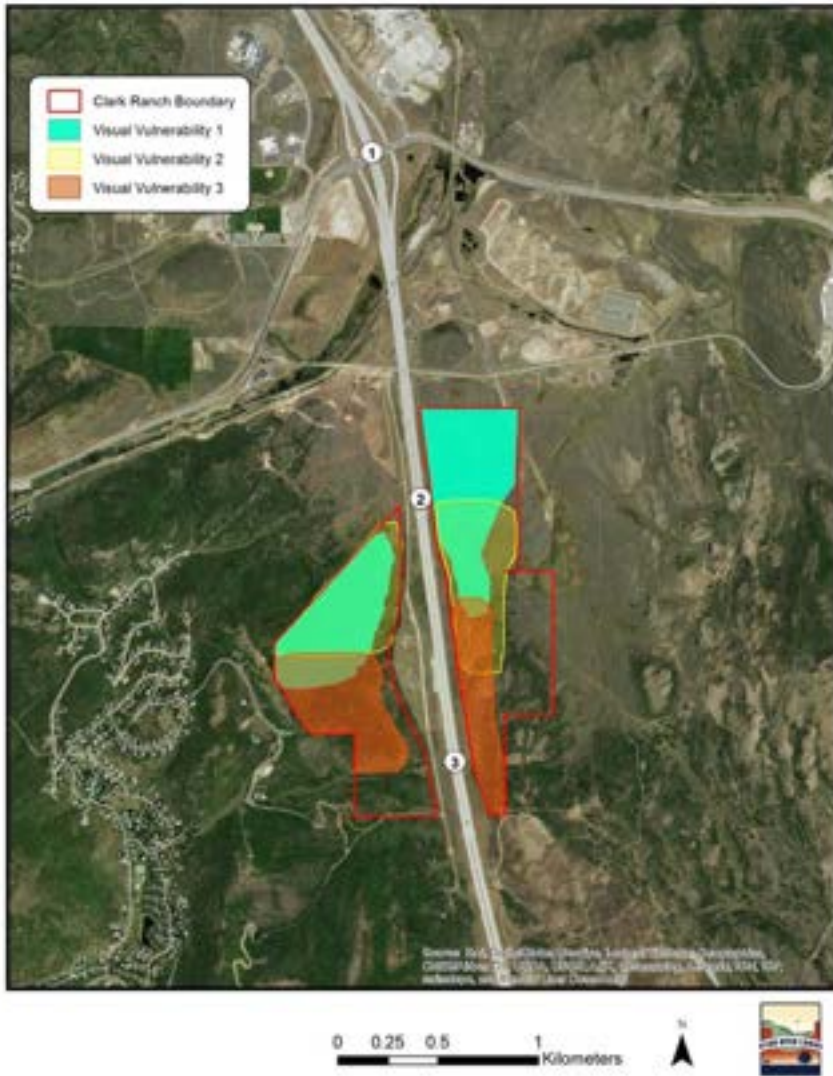


Figure 7: Map of visual vulnerability for Clark Ranch Property. Visual vulnerability is defined as the degree to which alterations of the landscape (i.e. road cuts or structures) can be seen.

EAST PARCEL

Visibility

Much of the East Parcel of Clark Ranch is visible from Highway 40, especially the northbound lane, due to its lowered position in the landscape. Portions of the East Parcel is also visible from parts of State Road 248 and Quinn's Junction.



Figure 8. View of the Property heading north towards Park City on Highway 40.

Scenic Quality

The East Parcel exhibits unobstructed views of shrubsteppe and wet meadow flats, as well as a small oak covered hillside. The variety in textures and colors is not highly pronounced, regardless, the East Parcel provides high scenic value for its undeveloped natural condition and its prominence in the landscape. The current condition of the greater Richardson Flat, Clark Ranch viewscape is mostly unbroken with occasional visible road, boundary or fenceline cuts. The scenery is impacted somewhat by the presence of the tailing facility and a park and ride lot, both of which are located north of the Richardson Flat road and off the property. South of the road, the Property blends seamlessly with the adjacent Property in an entirely open condition.

Sensitivity and Vulnerability

The scenic quality of the East Parcel is sensitive and vulnerable due in part to its prominence and location within the open landscape. Structures or active recreation facilities (manicured parks or ball fields) would alter the natural textures and tones and have the potential to stand out and not blend well with the surrounding landscape, looking out of place, depending on the alteration to the topography and turf or vegetative cover decisions. An important part of the scenic quality of the Property is its relationship to the surrounding undeveloped private lands. Development or visual disturbance on adjacent private land has the potential to affect the scenic vista of the region, though significant development of the area would raise the scenic value of the Property for its role as an open space buffer and protected entry corridor.

WEST PARCEL

Visibility

Due to its steep slopes the West Parcel is more visible from a distance than the East Parcel. Views of the West Parcel are prominent from Highway 40 near Quinn's Junction and SR 248, while a cutbank on adjacent UDOT owned property obstructs visibility from the Highway as it transects the Property. The hillside on the West Parcel is visible from the westbound (heading north) lane of the Highway as it is further away from the cutbank and raised frontage road. (see Fig. 9)



Figure 9. View of the hillside on the West Parcel from the westbound lane of Highway 40.

Scenic Quality

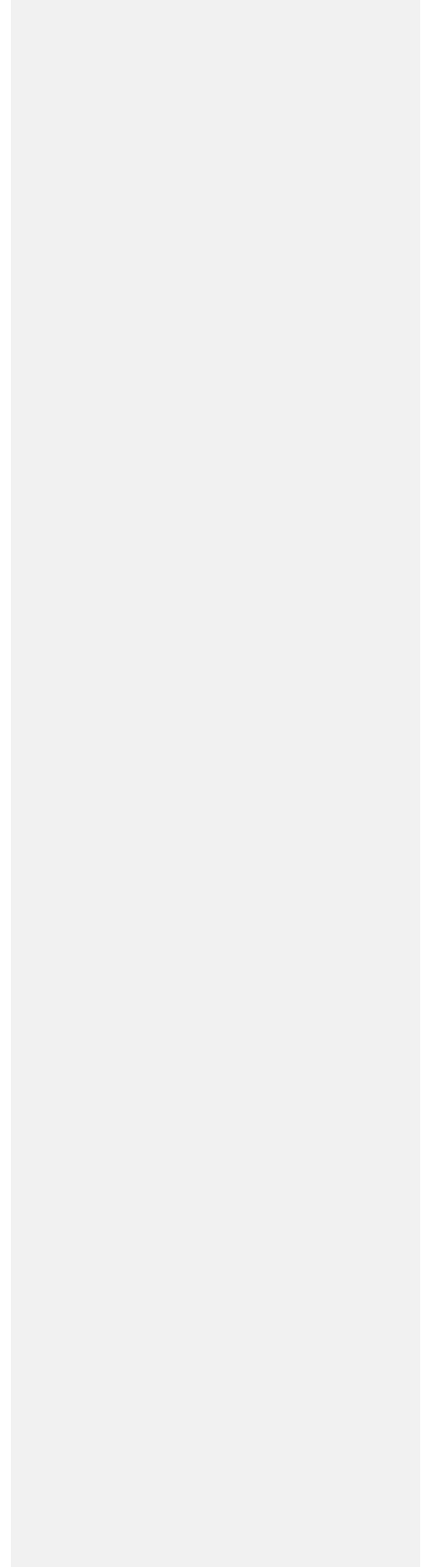
The views of the West Parcel consist of undisturbed natural hillside covered primarily in oak, maple and mahogany with small pockets of aspen stands. The West Parcel displays more variety in texture, color and shape due to the multiple vegetation types and the topography. Currently, there are no visual obstructions or development features and existing roads and trails are not visible from key observation points. The Property blends nicely with adjacent property behind the current phase of the Park City Heights development and the BLM managed parcel.

Sensitivity and Vulnerability

Since the West Parcel covers much of a distinct hillside, it is less reliant on the surrounding landscape for its scenic quality and is thus less at risk to be diminished by development of adjacent lands. Additionally, the views of the West Parcel from the highway are blocked in many places by the cut bank, limiting its vulnerability. Development of the adjacent Park City Heights may introduce structures and landscaping in close proximity to the northern corner of the West Parcel, which would limit the vulnerability of introducing structures or other manmade features to this area. Additionally, limited trailhead parking could be developed on the property with minimal impact to the scenic quality if located adjacent to the development, or adjacent to the frontage road which is raised above the Highway. The introduction of singletrack trails is not likely to create significant impact to the viewscape if they are created thoughtfully, however large

machine built cuts could affect visual characteristics due to the slope vulnerability aspects as it is highly visible from Quinn's Junction.

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RECREATION INVENTORY

Park City Municipal and the Greater Park City community consider outdoor recreation to be an important part of its character. The region prides itself on its designation as a year round destination in part because of its extensive open space and non-motorized multi-use trail network. The Clark Ranch property is the newest addition to this network and has high potential for

EXISTING RECREATIONAL RESOURCES

Although the Property does not currently have any developed recreational resources, it does currently serve several recreational uses. An illegally built multi-use singletrack known as the "Two Fingers" trail, crosses the West Parcel on the upper slopes of the hillside. This narrow trail is used for mountain biking, hiking, and trail running, but extends on to private property on both sides of the Property boundary. The trail is narrow and not heavily used but is apparently maintained as we noticed recent vegetation trimming along the trail in the summer of 2015. In addition to the two fingers trail, an old road on the West Parcel which leads out from the Park City Heights development currently serves as an informal hiking route. A use trail continues past the end of the road up into the aspen stand before it becomes impassable. It is likely that this trail is used rarely for hiking, wildlife viewing or dog walking. The development of Park City Heights has cut off the entrance to this road, however it will likely be used by residents of the new development if an alternative is not presented.

A common current use of the Property is for dog walking, either by individuals or by professional dog walking services. Several routes have been noticed to be used by dog walkers, though they have not worn in footpaths or created trails. Other times, dog walkers will just walk along the frontage road of the West Parcel or the fenceline on the East Parcel and let the dogs roam throughout the sage or oak landscape. This current use may be hard to curb, but has the potential to significantly impact the natural value of the Property as dogs have a tendency to chase wildlife, damage vegetation, and introduce excess nitrogen into the ecosystem.



Figure 10: Map of infrastructure on the Clark Ranch Property.

FUTURE POTENTIAL

Access Points

Currently, recreational access to the Property is limited and undefined. Official access should be determined, many options are available. One option is to block the West Parcel frontage road with a locked gate. The feasibility of this has not been determined, though the primary reason for the construction of the frontage road was for the potential development of Clark Ranch. The main access point on the East Parcel is through the Greater Park City Mines property and it is unknown whether public access through those properties would be allowed.

The most obvious access point would be an access point or trailhead developed in conjunction with the Park City Heights development. This could allow recreational use to be concentrated onto approved trails and limit widespread dispersed use. Due its small size, lack of connection to protected open space or existing trails and agricultural use, extensive summer trail development on the East Parcel is not recommended. If additional open space is protected in the Mayflower area, further access and trail development could be warranted.

A common access point is near the south end of the West Parcel where there is a flat grassy area at the bottom of a small draw. If a trailhead is desired on the Property and the utilization of Park City Heights is not available, this is the most appropriate alternative location. This area would be limited to a few cars (1-5) and would require leaving the access road ungated and open to the public.

Finally, the proximity of the Property to the Richardson's Flat Park-and-Ride suggests that using the existing lot as a hub for recreation in the area could provide significant parking capacity while limiting the visual impact of additional parking facilities. Unfortunately, the Park-and-Ride lot is approximately 1/3rd of a mile away from the East Unit and would require additional trail agreements through the United Park City Mining property.

Singletrack Trails

Due to its proximity extensive multi-use singletrack trail network, multi-use trail development has high potential for the Clark Ranch property. The small size of the Property does not warrant an exclusive trail network, but new trails could be connected into the existing networks. The exception would be the creation of a hiking only trail which could be appropriate leading up to an overlook near the top of the hill on the West Parcel.

The most obvious and easiest trail connection would be a connection on the West Unit from the Fox Tail trail to the Snowtop trail. This connection is called for in the Park City Trails Master Plan, but would require working with the adjacent Park City Heights and Morning Star neighborhoods. The unauthorized "Two Fingers" trail currently creates this connection, and sections or the entirety of this alignment could be formalized for this purpose if the access issues are formalized.

Another option would be to create a trail (either hiking only or multi-use) that climbs out of the Park City Heights development into the Property. The old road bed and existing footpath could be used for part or all of this alignment, or a small loop could be constructed.

Finally, if a trailhead is constructed adjacent to the frontage road, a trail leading up to the Solamere/Snowtop trails or a hiking trail leading up to the top of the hill on the West Parcel could be appropriate.

Paved Pathways

Due to its location in the entry corridor, it is possible that the Property may be appropriate for a paved pathway connecting into Wasatch County. Highway 40 is the only public route from residents of Wasatch County into Greater Park City, and because it is a divided highway serves as a poor option for cycling or human powered commuting. A paved path through Clark Ranch connecting Quinn's Junction with Wasatch County would be a benefit to the community, though the design of this project would be outside the scope of this inventory.

Winter Trails

If any singletrack trails are constructed or adopted on the Property it is likely that they would act as winter trails for snowshoeing and fat-bikes. A paved pathway, if constructed, could be groomed as a cross-country ski trail. Due to the size and topography of the Property, a cross-country ski trail network may be less feasible, however the East Parcel is already dotted with old roads which could serve as a base for additional groomed cross-country ski trail network. Due to its importance as wintering habitat for mule deer and elk, winter recreation should include consideration for minimizing impacts to the wildlife. Signage, limitations on how recreation is conducted could be prudent.

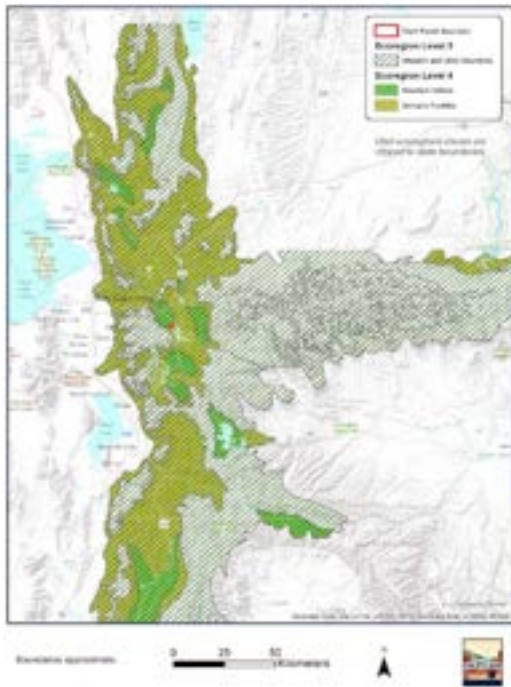
Active Recreation (parks and fields)

The potential for active recreation through the creation of parks or fields is limited on Clark Ranch. Because of the topography of the West Parcel, developed fields or recreational amenities are not very feasible. On the East Parcel, the topography is appropriate but access could present a challenge. The development of recreation amenities on the East Parcel have the potential to impact the scenic quality of the Property based on height, alterations to natural topography and vegetation and breadth of alternation needed for the anticipated amenity.

ECOLOGICAL INVENTORY

CLIMATE

The climate in the Eastern Summit County of the Property consists of generally cool summers and cold winters. Snowfall can begin in September, with snow cover generally from November through April. Snow may get several feet deep on the Property, especially on the east facing aspects of the West Parcel. At the nearby Snyderville Basin weather station: mean annual precipitation is about 20 inches, mean annual temperature is about 39 F, with maximum daily temperatures near 90 F and minimum temperatures below 0 F¹.



The Clark Ranch Property falls on the interface between the mountain valleys (19g; to the north) and the semiarid foothills (19f; to the south) of the Wasatch and Uinta Mountain Ecoregion (19; Woods et al. 2001) (see Fig. 14). The region is marked by fewer than 40 to 80 frost-free days, and long, cold winters (Woods et al. 2001).

Global climate change has the potential to significantly change climate and weather patterns and thus effect local-scale ecosystems. Scientific analyses of temperature changes are available for the nearby Park City² and Snyderville Basin³ weather stations which do not suggest significant local temperature changes. Utah in general appears to be showing a warming trend, based on data from several thousand weather stations across the state⁴.

Figure 11: Map of ecoregions in Utah, showing the location of the Property in the Wasatch and Uinta Mountains.

¹Utah State University climate data center <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?utkama>

² <http://berkeleyearth.lbl.gov/stations/35929>

³ <http://berkeleyearth.lbl.gov/stations/35989>

⁴ <http://berkeleyearth.lbl.gov/regions/utah>

GEOLOGY AND SOILS

Significant Features

→Interesting Geology - The intersection of the Wasatch Mountains and the Uinta Mountains in this vicinity created a complex and interesting geological history of the area.

→Soils that support native biotic communities – Soils on the property are the basis for habitat for plants and animals.

Significant Threats

→Erosive Soils- Soils with a high vulnerability of eroding are a natural feature of the Property, which can provide challenges for vegetation management.

→Newly Cut Roads on the Property- Recently, a new road was cut near boundary of the property on the East Parcel. This clearing has introduced numerous noxious weeds and could cause excessive erosion that should be addressed immediately.

→Old Roads and Trails - Parts of an old road on the West Parcel of the property has some deep ruts in it that serves to cause further excessive erosion.

The underlying physical properties of the geology and soils of the Property is the foundation upon which the ecosystem has developed. The understanding of this foundation can result in better informed decisions regarding how management actions may be the impetus for changes in land health and ecosystem stability.

The geology exhibited at Clark Ranch is of interest as the property is near the intersection of the Wasatch and Uinta Mountains, two dominant topographic features on the Utah landscape. The geologic history of this area extends back at least 300 million years, while rocks of much older age are located at depth and not exposed at the surface.

Rock formations in the Clark Ranch area include a mixture of sedimentary materials such as mudstone, limestone and sandstone ranging in age from Pennsylvanian to Triassic (approximately 200 to 300 million years old). In addition, Tertiary volcanoclastic rocks, composed of volcanic debris and ash deposited from centers of distant volcanic activity approximately 30-40 million years old, are present. Exposures and outcroppings revealing underlying structural geology occur in limited locations on the Property and are assumed to be associated with the Frog Valley Fault and members of the Park City Formation (Bromfield and Crittenden 1971).

Mining potential at the Property was not fully determined as part of this inventory. Historically, small and medium sized mines were prevalent on adjacent properties and produced quantities of gold, silver, lead, copper and zinc (SGID_U250_MineralDeposits1988). Although the area is in a historical mining area for precious metals (Doelling and Toeker 1983), no current mines are

known near the Property (Bon and Heuscher 2008), suggesting that the economically viable mineral potential of the area is low⁵.

Soils on much of the Property are considered alluvium or colluvium originating from conglomerate, andesite, sandstone, quartzite, or shale. Mountain soils such as those on the Property are relatively fragile because of the steep slopes and fairly thin layers of organic soil. The soils associated with the springs and wetlands in the northeastern portion of the Property are listed as both hydric (wetland soils) and farmland of statewide importance; no other soils on the Property are rated hydric or of high significance for farming (NRCS 2015). The characteristics and distribution of soil types on the Property are summarized below in Table 1 and in the Soils Map(Fig 12).

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⁵ Also referenced were know deposits of phosphate (SGID_U250_PhosphateDeposits1988), coal(SGID_U250_CoalDepositAreas1988) and potash(SGID_U250_PotashDeposits1988) which do not appear to occur on the Property.

Table 1: Dominant soils found on the Property and adjacent areas and associated potential management issues⁶

Name	Erosion Potential	Location on Property	Ponding Hazard	Soil origination	Ecological Site Description	Potential Management Issues
106— Ayoub Cobbly loam 2-15% slopes	Slight to moderate	Under slopes on East Parcel just west of open meadows	None	From slope alluvium derived from andesite over residuum weathered from andesite	Mountain gravelly loam (Mtn big sagebrush)	Has susceptibility to moderate erosion on natural surface roads
125- Dunford- Ayoub-Melling complex 30-60 percent slopes	Severe	On East Parcel slopes in southern region	None	Derived from andesite	(Dunford)- Mountain Gravelly Loam (Oak) (Ayoub) Mountain Gravelly loam (Mtn big sagebrush) (Melling) Mountain shallow loam (Mtn big sagebrush)	Low soil strength; natural surface roads tend to erode
127 – Echocreek – Kovich loams – 0-10 percent slopes	Slight to moderate	Lies under spring on East Parcel and under wet meadows outside property	None	Alluvium from sandstone, quartzite, and shale	Upland Loam (Basin wildrye)	Farmland of statewide importance, moderately susceptible to frost action
181- Yeates Hollow-Henefer Complex 15-30 percent slopes	Moderate to severe	Mid-slope on West Parcel of property	None	derived from colluvium derived from conglomerate, sandstone and quartzite	(Yeates) Mountain Stony Loam (Mtn Big sagebrush) (Henefer) mountain loam (oak)	Moderate to severe erosion potential, moderate susceptibility to frost action, low soil strength
182- Yeates Hollow-Henefer Complex 30-60 percent slopes	Severe	Upper slopes on West Parcel as well as under sagebrush dominated areas on East Parcel in the northern region	None	derived from colluvium derived from conglomerate, sandstone and quartzite	(Yeates) Mountain Stony Loam (Mtn Big sagebrush) (Henefer) mountain loam (oak)	Severe erosion potential, moderate susceptibility to frost action

⁶ Source: NRCS Soil Survey of Summit County Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties (NRCS 2004)

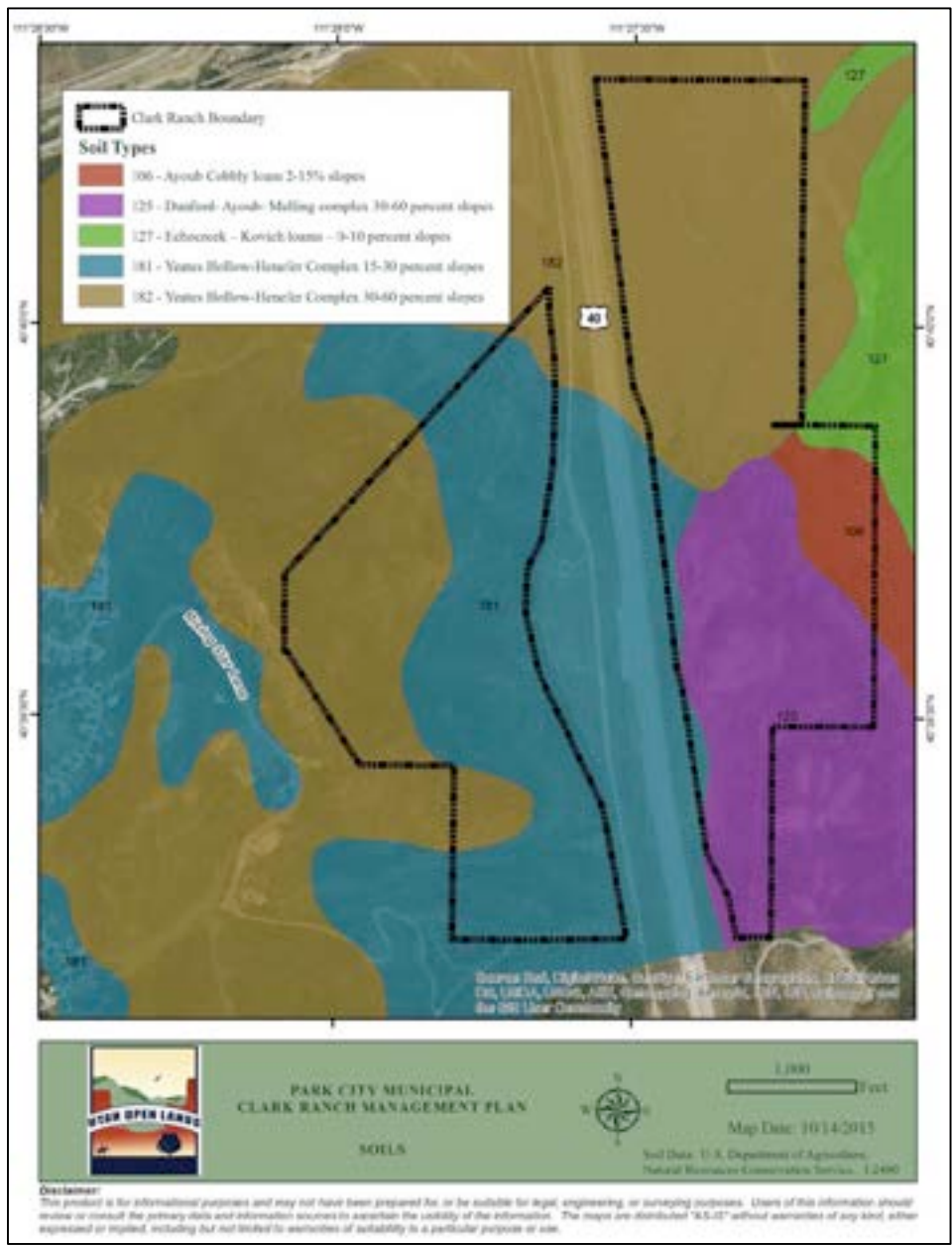


Figure 12. Soil Types at Clark Ranch

WATER

Significant Features

- Wetland Habitat –The Property provides open water and wet meadows. Each of these wetland habitats satisfies different needs of wildlife as well as function to maintain or improve water quality.

Significant Threats

- Water Quality A large storm water culvert discharges directly into the main intermittent drainage on the East Parcel of the Ranch. Pollutants and debris from roads will end up on the property and could decrease water quality.
- Potential Decline in Groundwater – It is possible that increased groundwater extraction by humans and the possibility of more frequent and severe droughts may reduce the amount of water that discharges at the wetlands of the Property and thus reduce the ecological values and functions of these wetlands.
- Inappropriate Herbicide Application – Noxious weeds are scattered throughout the Property, and will be a constant management task to maintain suitable wildlife habitat. Particular care should be taken around the spring and intermittent drainages when using herbicides.

Surface Water

The Property is located in the Silver Creek subwatershed of the Upper Weber River watershed. An intermittent stream flows across the Property. Prior to the construction of Highway 40, the stream appears to have flowed out of the drainages on the West Parcel toward the flats on the East Parcel of the Property. Today, this channel occasionally still carries surface water, but it appears to be largely runoff from heavy storms or from snowmelt. The dense vegetation in the channel helps to filter sediment, debris and nutrients, and the channel contains significant debris as a result. The culvert that brings both intermittent flow from the West Parcel of the Property as well as stormwater from Highway 40 is becoming undercut likely from large amounts of water emanating from the highway during storms.

Permanent surface water on the Property consists of two springs on the eastern portion of the Property (seen map in Fig. 13). These springs have been excavated probably to improve access for watering livestock, and support small ponds of a few meters extent, as well as larger wetland areas sustained by the groundwater discharge. Both springs usually have standing water in them, but in 2015 the spring to the east dried up completely by late summer. According to the livestock lessee, this spring has not dried up since it was excavated 5 to 10 years ago.

Ground water

No observations of groundwater depths or conditions were done during baseline documentation. Vegetation communities, identified wetlands (NWI) and soil reports for nearby soils (NRCS 2015) indicate that water is near the surface regularly, for some length of time near the springs (eastern portion of the Property) and in the low-lying areas and stream channel to the east of Highway 40. It appeared from the presence of wetland-associated plants and wet soils that more areas are functional wetlands than were delineated as wetlands by the National Wetland Inventory (Fig. 13).

Water Rights

There are two registered water rights on the Property – the point of diversion for water right 35-5580 is on the West Parcel of Highway 40 and is owned by Nadine Gillmor. This water right is for 9.45 acre-feet with a priority year of 1862. The other water right is on the East Parcel of the Property and belongs to John Clark for 0.022 cubic feet per second (CFS) (Water right # 35-8832).

Comment [RM1]: Is this all accurate?



Figure 13: Map of surface water and wetlands on the Property. The stream shown crossing the Property is an intermittent stream. Wetlands were estimated by the National Wetland Inventory, but do not indicate the full extent of wetland areas on the Property (see Fig. 14 Vegetation Communities).

VEGETATION

Significant Features

- Aspen stands – Although the extent of aspen on the property is relatively small aspen is uncommon for this region. This species is an extremely important browse species for large ungulates in the area (mule deer and moose).
- Mosaic of vegetation communities – The mosaic of different vegetation communities provides a high level of landscape diversity. The relatively good health of the vegetation communities and their respective positions on the landscape provides for effective wildlife habitat.
- Wetland – Open water is an extremely rare feature in the arid west landscape and it is highly important for both wildlife and livestock.
- Alderleaf mountain mahogany (*Cercocarpus montanus*) patches – This particular species of mountain mahogany is uncommon in this region. This species is an extremely important browse species for large ungulates in the area (mule deer and moose).

Potential Threats

- Noxious weeds are in many areas of the Property, which is of concern because they can displace the native vegetation, reduce biodiversity and degrade wildlife habitat.
- Potential improper grazing practices could include not enough rest between grazing rotations and too many animals, which could compromise the Conservation Values of the Property. However, with proper management, livestock grazing can be compatible and even complementary to land stewardship.

The natural vegetation of Clark Ranch provides the underlying basis for many of the properties Conservation Values. Habitat and food provided by the individual plants and vegetation communities are the foundation for nearly all of the wildlife use of the Property. Additionally, the vegetation provides the agricultural utility of the property and the colors, textures and shapes are the basis of the scenic quality.

Seven vegetation community types were mapped (see Fig. 14 on next page) on the Property. The vegetation community types were delineated in accordance with habitat classifications of the Utah Comprehensive Wildlife Conservation Strategy (Sutter et al 2005) and Utah Partners in Flight (Parrish et al 2002). Two additional landcover delineations were mapped which do not match with the classification standards, disturbed grassland and roads. As with most vegetation maps, the delineations of communities are not an exact boundary because the vegetation communities intergrade. The acreage of each mapped vegetation type is presented in Table 2.

Specific data about each community collected during the course of this inventory can be found in Appendix 2.

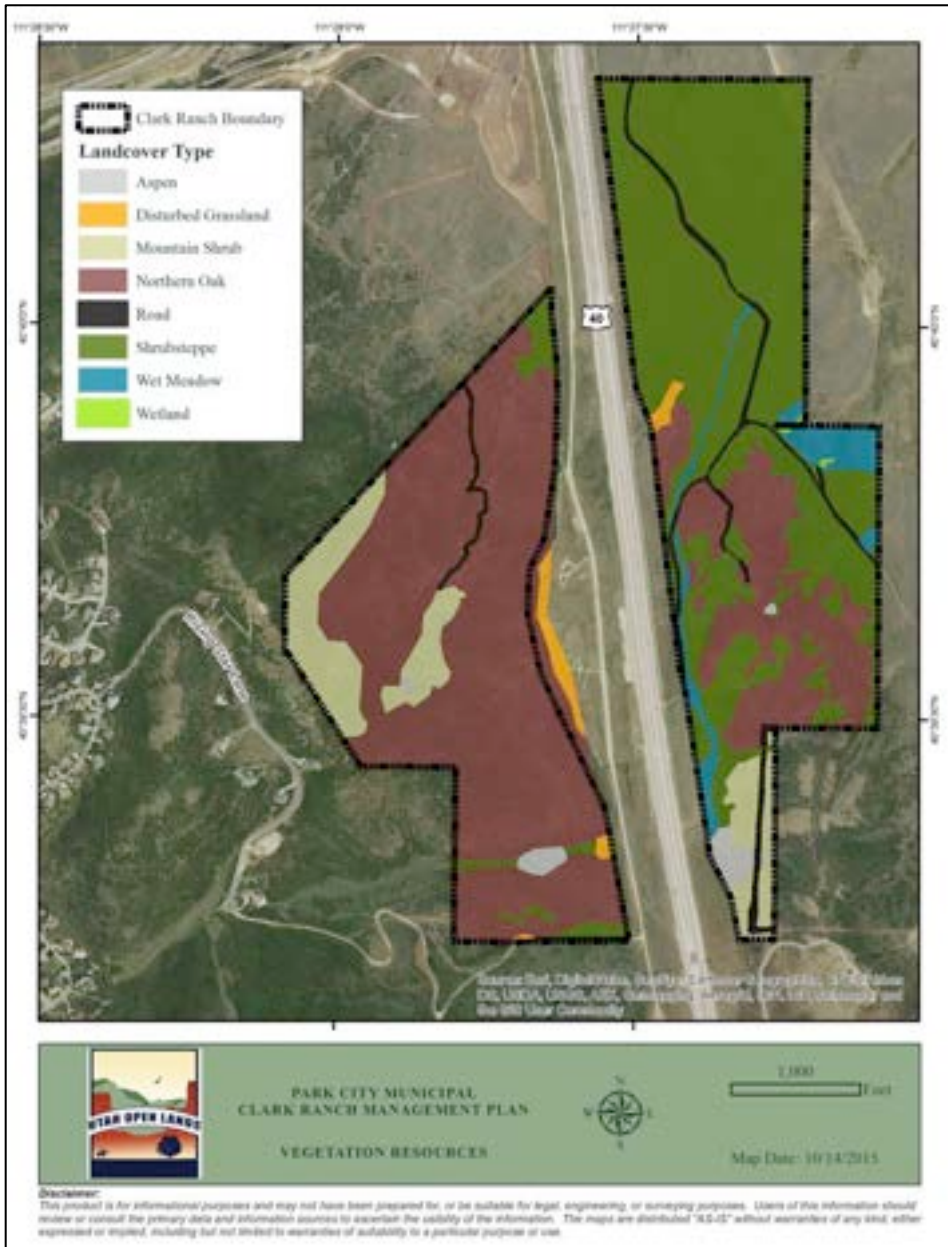


Figure 11. Vegetation Communities of Clark Ranch.

Notes on Figure 14:

1. Vegetation communities were delineated based on extensive field surveys of the property during the spring and summer of 2015 by three professional ecologists.
2. The name of this file is ClarkRanchVegetation2015.shp and is on file with both Utah Open Lands and the Park City Municipal Sustainability Department.
3. In order to be able to cross walk vegetation communities to a national level, additional classifications were used including:
 - National Vegetation Classification Standard (NVSC) (<http://usnvc.org/>),
 - Ecological Site Descriptions (ESD's) (<https://esis.sc.egov.usda.gov/Welcome/pgReportLocation.aspx?type=ESD>)
 - Accepted common names for the most dominant species.
4. Additionally, a professional opinion is included in the data with regards to the condition of the diversity, structure, presence of non-native species, and plant health.

Table 2.Vegetation Communities at Clark Ranch.

Type	Acres	Percent
Northern Oak	167.8	47.5
Shrubsteppe	132.2	37.4
Mountain Shrub	28.7	8.1
Wet Meadow	10.2	2.9
Dirt Road	5.3	1.5
Aspen	4.5	1.3
Disturbed Grassland	4.4	1.2
Wetland	0.3	<1
Total	353.3	

Notes on Table 2:

1. Northern oak and mountain shrub intergrade and are not always distinct. At Clark Ranch Northern oak has more Gambel oak whereas mountain shrub has more bigtooth maple, but both species occur in both communities.
2. Wetland and wet meadow landcover was determined from site visits and aerial photographs; it has not been formally delineated for jurisdictional purposes.
3. Landcover was delineated manually as polygons in ArcMap (v. 10.3), based on field observations. Map projection: UTM NAD83 Zone12N. Features were traced from high-resolution 2011 aerial imagery (ESRI Basemap) and compared with features in 2014 aerial imagery (NAIP, UTM NAD83 Zone12N). All boundaries are approximate.

Oak

The Northern Oak woodlands cover the greatest area of any vegetation type at Clark Ranch (167.8 acres or 47.5%). These woodlands are dominated by Gambel oak which grows as a shrub or small tree and naturally varies in density and height depending upon climate, soil depth, slope aspect, land use history and other variables. In northern and central Utah, Gambel oak often shares dominance with bigtooth maple on more northern facing slopes and in drainages. Over decades, oak stands will often give way to bigtooth maple stands since maple is more shade tolerant and can have higher reproductive success. The oak density varies widely, from

continuous cover (difficult to impossible to walk through) to widely spaced clumps (a nice stroll through the woods). The differences in density can result from a combination of soil depth, topography, aspect, fire history and past land uses. For example, south facing slopes with shallow soils will hold less moisture and thus will tend to harbor oak stands that are shorter and have reduced stem diameters (Clary et al 1986).

In addition to the differences in density and stem size, the oak stands also have differences in understory plant composition. On the Property, snowberry was common in the understory of some stands, but in others, elk sedge and grasses were more common. Other common species in this vegetation type include Utah serviceberry, sagebrush, and Oregon grape. Common herbaceous species include slender wheatgrass, mountain brome, and Mule's ears. Mule's ears is also an indicator of relatively intense past grazing practices, as livestock generally avoid this species (Mueggler 1988). There are isolated patches of Dalmatian toadflax and cheatgrass throughout the oak stands.



Figure 15. Different growth habits of Gambel oak - a dense stand on the left vs relatively open clumps on the right.

Much of the oak on the Property appears to be healthy and persisting well. Oak is an important forage species for deer and elk. However, it is possible for oak to become overly dense such that it hinders wildlife movement. Natural disturbances such as wildfire, disease, competition and herbivore interactions are important to the ecology of oak stands in order to maintain a mosaic of oakbrush and other vegetation types on the landscape. The construction of roads on the Property has created openings as well as structural diversity in some of the oak stands. Oak is a vigorous re-sprouter and these openings will likely fill in with oak in a few decades, but the openings can create habitat for a different suite of plants to increase diversity, but can also create openings for noxious and/or undesirable weed species. Research has shown that fires in natural oak systems generally occurred between every 35 and 100 years (Brown et al 2000). Should disturbances such as fire not be allowed to occur naturally, these areas will likely trend toward more conifer trees or big tooth maple stands over hundreds of years.

Aspen Forests

The Aspen vegetation type is a small portion of Clark Ranch (1.3%) but its ecological importance far outweighs its extent. Aspen forests are known to be among the most diverse and productive in western landscapes (Chong et al 2000). A healthy aspen stand generally has several different age and size classes, which assures good regeneration (reproduction) and recruitment (growth above browse height). Greater precipitation in the drainages and some north facing slopes on the Property allow aspen stands to persist due to the localized increase in moisture content and availability compared to the drier surrounding areas. In recent years, there has been a decline in the health and extent of aspen stands in the West. Although each aspen stem's life span averages only between 80 to 120 years, consistent replacement should be occurring through the aspen's underground network of roots and shoots to become new trees. The Aspen stands on the Property are relatively small and isolated and are not exhibiting high levels of recruitment or regeneration.

The most abundant plants of the Aspen forests are quaking aspen in the overstory and mountain snowberry and bigtooth maple in the understory. Other shrubs present at low cover are: Saskatoon serviceberry, Woods' rose and Scouler's willow. There are numerous forbs in the understory including: western valerian, starry false lily of the valley, Fendler's meadow-rue, elkweed, sticky purple geranium and sweetcicky. Graminoids in the Aspen forest understory include: Kentucky bluegrass, Geyer's sedge, brome. Complete data on the aspen forest plots at Clark Ranch are found in Appendix 2.



Figure 12. Left image: aspen stand in the southern region of the western side of the Property; note lack of regeneration of young aspen in the stand (Photopoint 12). Right image: aspen stand with higher density of understory shrubs and tall forbs (near Photopoint 10).

There are two distinct types of aspen forest at Clark Ranch (see images in Fig. 16). One type of aspen forest is drier and seems to be more impacted by ungulate grazing, creating a relatively open understory (lower density of trees and shrubs), a limited amount of forbs and an abundance of grasses (Fig. 16 left image). The other type of aspen forest seems to have more soil moisture and a higher density of trees and shrubs, abundant tall forbs and a lower

abundance of grasses (Fig. 16 right image). Some species that were much more abundant in the moist aspen forest were the wildflowers: roughfruit fairybells, elkweed, sweet cicely and starry false lily of the valley; and the shrubs Scouler's willow and Saskatoon serviceberry.

Aspen forests are valuable for wildlife for many reasons. Aspen forests naturally include standing dead trees that are valuable for nesting, roosting, and feeding. Fallen trees (called down wood) are useful for shelter, nesting, feeding, and in soil formation. The structure of the trees and branches create vertical layers many feet above the ground that are useful for nesting, roosting, shelter, and feeding. The naturally lush and diverse understory provides abundant opportunities for feeding, breeding, and sheltering. The rapid turnover (growth and death) of aspen trees creates a diversity of habitat components that are valuable for colonization, resilience to disturbance, and as refugia.

Shrubsteppe

The Shrubsteppe communities (sometimes called sagebrush/grasslands) are a large part of the Property (37.4% or 132.2 acres). The shrubsteppe is dominated by mountain big sagebrush and in some areas is co-dominated by snowberry. Although the ecological importance of sagebrush is sometimes overlooked, it provides important habitat to many sagebrush obligate species and is considered a particularly imperiled vegetation type around the west (Knick and Connelly, 2011; Miller et al., 2011). Due in part to past land use patterns, the shrubsteppe communities of Clark Ranch vary widely in their ecological condition.

The north and eastern regions generally have very low diversity with chiefly sagebrush and an understory of one of two introduced grasses – crested wheatgrass or Kentucky bluegrass. These areas are also interspersed with weeds such as cheatgrass, musk thistle and Dalmatian toadflax.

Shrubsteppe areas in the southeastern portion of the Property have much higher diversity and resemble high quality native areas. In these areas, the shrubsteppe is interspersed with other shrubs such as bitterbrush, snowberry, Gambel oak and Douglas rabbitbrush. The area also has a plethora of native grasses such as Letterman's needlegrass, thickspike wheatgrass, bluebunch wheatgrass and slender wheatgrass. Common native forbs include hoary tansyaster, Munro's globemallow, showy goldeneye, sulphur-flower buckwheat, wavyleaf thistle, and Wyoming Indian paintbrush.



Figure 17. Shrubsteppe with an understory of a single species (crested wheatgrass) vs shrubsteppe community with a diversity of other shrubs and forbs and grasses

The differences in condition are likely due to a combination of past land use patterns and the construction of the highway. Crested wheatgrass and Kentucky bluegrass were seeded to provide forage for livestock around 1987⁷. Crested wheatgrass has been shown to outcompete native grasses and forbs over time (Newman and Redente 2001). Kentucky bluegrass was also likely seeded, however, Kentucky bluegrass is a shallow-rooted species and thus does not prevent erosion as well as native grasses (Weaver and Darland 1949). Erosion in the midst of the East Parcel is likely evidence of these conditions (Fig.18).



Figure 18. Erosion under area dominated by Kentucky bluegrass – a non-native, shallow rooted species

Shrubsteppe areas should ideally consist of a mosaic of different size classes of sagebrush with an abundant and diverse understory of grasses and forbs in order to support the numerous obligate sagebrush wildlife species. Higher forb (wildflower) diversity is important for insect populations, which in turn is extremely important for many birds and other wildlife species. A

⁷ Luke Gillmor, personal communication, Oct 2015

high quality sagebrush steppe can support livestock grazing if managed and monitored carefully.

Wetland

Wetlands constitute less than 1% of the land cover (0.3 acre) at the Clark Ranch, the small extent of this area is also disproportionate to the important ecological functions it serves. The southeast part of the Property has some springs that create ponds that feed into wet meadows downslope. This wetland area is fed by a spring and was excavated between 5 and 10 years ago to provide more accessible water for livestock⁸. The repeated use of these springs by livestock can decrease the health of the open water areas by shearing the banks or edges of the wet areas as well as potential animal waste in the open water

The largest and most natural-looking spring-fed pond has a diameter of about 45 ft (Fig. 19 left). There is open water with a significant amount of algae and duckweed on the surface. Around the margin of the standing water the vegetation is dominated by wetland graminoids including: common spikerush, longstyle rush, Northwest Territory sedge and arctic rush. Forbs in this wetland include: water speedwell, Canada thistle, alkali buttercup, willowherb and seep monkeyflower. Complete data on Wetland is found in Appendix 2.

There is another spring-fed wetland to the south although it has much less wetland vegetation. This spring had water in March but it had no water in August of 2015. It had significant bare ground and weeds. It should be noted that according to Luke Gillmor, the open water area to the East is usually the larger open water area on the property of the two⁹. 2015 was a particularly dry year but the livestock lessee has never lost water completely as has happened this year.



Figure 19. The image on the left shows the western spring-fed wetland. The image on the right shows the eastern spring that dried up completely in 2015, and has significant bare ground and weeds.

⁸ Luke Gillmor, personal communication, Oct 2015

⁹ Ibid.

A better understanding of how the hydrology of the spring may be affected by drought and wet years is desirable to realize the potential for improvement toward a fully functional wetland. It may be warranted to find alternatives to water livestock so as to minimize the trampling, heavy grazing and soil shearing of the edges of the pond.

Wet Meadow

Downslope of the springs and in the drainage from Highway 40 are Wet Meadows which are characterized by a seasonally high water table. The Wet Meadow community is dominated by Arctic rush (also known as Baltic rush or wiregrass) which, in some cases, expresses over 90% cover within the community. Other graminoids (with low cover) were: Nebraska sedge, broadleaf cattail and Kentucky bluegrass. Forbs in the wet meadow (with very low cover) were: bull thistle, Canada thistle, meadow thistle and willowherb. The drainage near Highway 40 also has some patches of narrowleaf willow. Complete data on Wet Meadow plot is found in Appendix 2.



Figure 20. The image on the right shows a mosaic of wet meadows downslope from a spring. The image on the left shows a wet meadow in an ephemeral channel just east of Highway 40, dominated by wiregrass.

The Wet Meadow communities are generally in fair condition as noxious weeds such as musk and Canada thistle are relatively dense in the ephemeral drainage, and the diversity of plant species found in these areas is relatively low when compared to intermittent drainages in better condition. In better condition areas, there is a diverse suite of plants that are adapted to a predictable hydrological regime. Since the hydrology on the Property has been somewhat modified by the Highway, excavation of the springs and external water management, fewer species are able to adapt. Although the ephemeral draw has a few willows, most of the Wet Meadow areas are heavily dominated by Arctic rush. Although Arctic Rush is a native plant and binds soil well, it is often associated with areas with historically modified, intense land uses, such as modified hydrology or high intensity livestock grazing (Hurd et al 1996). Wiregrass is better able to adapt to a lowered water table than other common wetland plants (Dwire et al 2006, Manning et al 1989).

Mountain Shrub

The Mountain Shrub communities consist of 14.3% of the area of Clark Ranch. The Mountain Shrub vegetation type on the Property has a higher diversity of shrub species than the Northern Oak communities. In western landscapes, both Northern Oak and Mountain Shrub occupy the elevation between the Shrubsteppe at the lower elevations and the conifer forests in the upper elevations. The Property does not support conifer forests due to conditions associated with the moderate elevation, although there are a few small white fir and Douglas-fir trees on the Property.

The most abundant plants of the Mountain Shrub communities are bigtooth maple (typically well over 50% cover) and Gambel oak (sometimes 25% cover). Other shrubs present at very low cover are: Mountain snowberry, Scouler's willow and Saskatoon serviceberry. There are some forbs at low cover including: Engelmann's aster, Nevada pea, houndstongue, narrowleaf goosefoot and sweetcicely. There are a few grasses present at low cover including: blue wildrye and Kentucky bluegrass. Complete data on Mountain Shrub plot is found in Appendix 2.

The mountain shrub communities are generally in good to excellent condition due to their high bio-diversity, relatively low cover from noxious weeds, good stand structure (age and size class variation) and good health. There is, however, some small patches of the noxious weed houndstongue within the mountain shrub communities. Houndstongue disperses and establishes easily as its seed attaches readily to animal fur and this area is favorable habitat for this noxious weed.



Figure 21. Dense big tooth maple stand and open birch leaf mountain mahogany – both mountain shrub communities.

These communities are highly valuable as wildlife habitat for large ungulates as evidenced by the heavy browsing of the alder leaf mountain mahogany and high density of ungulate scat in these areas. Further, the big tooth maple areas provide cover and multiple spots for animals to bed down. It will be important to carefully monitor the condition of the mountain shrub areas

as all alderleaf mountain mahogany were heavily browsed on the Property and thus may be challenged to produce seed to reproduce.

Disturbed Grassland

The disturbed grasslands on the Property are areas that have been significantly modified by humans, either by clearing and revegetating for roads, or in one case, by excessive runoff from the highway that has high concentrations of road salts in it. The grasses in these areas are common species used in revegetation that are primarily non-native. Grass species in revegetated areas include smooth brome and crested wheatgrass. The dominant grass species where the excess salt-contaminated water enters the Property are foxtail barley and Canada bluegrass.

Invasive species

Invasive species on the Property include musk thistle, Canada thistle, garlic mustard, Dalmatian toadflax, yellow toadflax, houndstongue, Russian knapweed, dyer's woad and Scotch thistle. Invasive weeds have the potential to decrease the Conservation Values if left unchecked. Active control of particularly dense or problematic weeds is recommended. An infestation of note is a patch of garlic mustard on the West Parcel close to the lower road/ trail. Dalmatian toadflax, musk thistle and Canada thistle are common, particularly on the East Parcel of the Property. Most of the Dalmatian toadflax infestations are somewhat diffuse, making them even more difficult to control.

Plant species listed as special concern for conservation

No known threatened, endangered, or sensitive plant species were observed or reported on the Property.

Species of Special Concern for Conservation

Attempts were made during field data collection to find plant or animal species on the Property that warrant special concern for conservation. Observations during these visits were not definitive. More thorough surveys would be needed to determine their existence or to fully describe the occurrence of many species of special concern on the Property.

WILDLIFE

The large extent of the open land contiguous with the Property helps to ensure the presence of many species of wildlife, including those that require relatively extensive landscapes, such as mountain lions, elk, mule deer, and raptors. Wildlife species of special conservation need that have been documented on or near the site are listed in the tables below.

Table 3. Wildlife species of concern that have been found in the general area of Clark Ranch and for which habitat may still be viable (other species may also be possible).

Common Name	Scientific Name	Last Documented	CWCS Status	State Status	UPIF Score	Primary Habitat	Secondary Habitat	Notes
Bald Eagle	<i>Haliaeetus leucocephalus</i>	2003	Tier I	SPC	27	Lowland Riparian	Agriculture	1
Bobolink	<i>Dolichonyx oryzivorus</i>	2005	Tier II	SPC	36	Wet Meadow	Agriculture	1
Columbia Spotted Frog	<i>Rana luteiventris</i>	pre-1931	Tier I	CS	NA	Wetland	Wet Meadow	1
Ferruginous Hawk	<i>Buteo regalis</i>	1988	Tier II	SPC	33	Pinyon-Juniper	Shrubsteppe	1
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	2008	Tier II	S-ESA	36	Shrubsteppe	NA	1
Lewis's Woodpecker	<i>Melanerpes lewis</i>	1913	Tier II	SPC	40	Ponderosa Pine	Lowland Riparian	1
Short-eared Owl	<i>Asio flammeus</i>	2003	Tier II	SPC	29	Wetland	Grassland	1
Western Toad	<i>Bufo boreas</i>	1976	Tier II	SPC	NA	Wetland	Mountain Riparian	1
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>	2015	Tier III	-	33	Lowland Riparian	Mountain Riparian	2
Mule Deer	<i>Odocoileus hemionus</i>	2015	Tier III	-	NA	Shrubsteppe	Mountain Shrub	2
Brewer's Sparrow	<i>Spizella breweri</i>	2015	Tier III	-	34	Shrubsteppe	High Desert Scrub	3
Smooth Greensnake	<i>Opheodrys vernalis</i>	2011	Tier II	SPC	NA	Mountain Riparian	Wet Meadow	3
Long-billed Curlew	<i>Numenius americanus</i>	NA	Tier II	-	34	Grassland	Agriculture	4
Sage Sparrow	<i>Amphispiza belli</i>	NA	Tier III	-	32	Shrubsteppe	High Desert Scrub	4
Sage Thrasher	<i>Oreoscoptes montanus</i>	NA	Tier III	-	29	Shrubsteppe	High Desert Scrub	4
Virginia's Warbler	<i>Vermivora virginiae</i>	NA	Tier III	-	36	Northern Oak	Pinyon Juniper	4

CWCS: Utah's Comprehensive Wildlife Conservation Strategy 2005-2015. Sutter et al. 2005; Tier I is highest priority for conservation.

UPIF: Utah Partners in Flight Conservation Strategy v.2.0. Parrish et al. 2002; higher score indicates higher priority for conservation; 40 is highest.

State Status Codes from Utah's State Listed Species by County (<http://dwr.cdc.nr.utah.gov/ucdc/viewreports/sscounty.pdf>): **S-ESA** Federally-listed or candidate species under the Endangered Species Act; **SPC** Wildlife species of concern; **CS** Species receiving special management under a Conservation Agreement in order to preclude the need for Federal listing.

Primary and secondary habitat from CWCS.

Summit County bird observations from the county checklist (<http://www.utahbirds.org/counties/xChecklists/SummitChecklist.pdf>)

Notes:

- 1 Documented in this quad; habitat may exist on Property (UDWR, TES_20140808).
- 3 Observed nearby; habitat appears appropriate on Property.
- 2 Observed on Property.
- 4 Observed in Summit County; habitat may be appropriate on the Property.

Mammals

The Property provides food, water, and shelter resources for mammals. The activities of these mammals have a strong influence on all trophic levels and are integral to the ecosystem. Examples include:

- Small mammal herbivores feed on seeds and fruits which influences vegetation and disperses seeds to allow the spread and persistence of plant species.
- Other small mammals, such as bats, feed on invertebrates such as crickets and grasshoppers.
- Burrows of small mammals can provide shelter for other animals and likely aid in soil aeration and water infiltration.
- Small mammals form a base of prey species for predatory birds, reptiles, and mammals.

The following small and mid-sized mammals were observed on or very near the Property

- American badger (*Taxidea taxus*)
- Chipmunk (*Neotamius* spp.)
- Coyote (*Canis latrans*)
- Pocket gopher (probably *Thomomys talpoides*)
- Uinta ground squirrel (*Urocitellus armatus*)
- Vole (*Microtus* spp.)
- White-tailed jackrabbit (*Lepus townsendii*)
- Yellow-bellied marmot (*Marmota flaviventris*)

Larger mammals on the Property can influence soil structure, and their herbivory may influence vegetation abundance and species. Large herbivores provide prey for large predators, and are commonly culturally desirable as game animals and for aesthetic reasons. Mule deer are present on the Property. Evidence of elk, moose, and mountain lion was found on or near the Property, and black bears are known to occur in the vicinity. The following large mammals were detected in the area of the Property:

- Elk (*Cervus canadensis*)
- Moose (*Alces alces*)
- Mountain lion (*Puma concolor*)
- Mule deer (*Odocoileus hemionus*)

Black bears (*Ursus americanus*) are known to occur in the vicinity.

Mammals listed as special concern for conservation: The Property provides critical habitat for mule deer. Abundant evidence of mule deer bedding and feeding was seen on the Property on both the East and West parcels. Mule deer are considered a priority for conservation in Utah (Sutter et al. 2005).

Birds

The Property provides resources for many species of birds, some that visit incidentally and others that are specialized for particular habitats on the Property or nearby. Birds create vertical linkages in ecosystems, feeding on and providing prey for organisms at ground level and higher. Birds are mobile vectors for nutrients and seeds.

Birds observed on the Property included:

- American goldfinch (*Spinus tristis*)
- American robin (*Turdus migratorius*)
- Blue-gray gnatcatcher (*Poliopitila caerulea*)
- Broad-tailed hummingbird (*Selasphorus platycercus*)
- Brown-headed cowbird (*Molothrus ater*)
- Chipping sparrow (*Spizella passerina*)
- Great-horned owl (*Bubo virginianus*)
- House wren (*Troglodytes aedon*)
- Long-eared owl (*Asio otus*)
- MacGillivray's warbler (*Geothlypis tolmei*)
- Mallard (*Anas platyrhynchos*)
- Mourning dove (*Zenaida macroura*)
- Northern harrier (*Circus cyaneus*) (Appeared to have a nest on the Property in the low shrubs at the northern end of the ridge on the East parcel.)
- Red-tailed hawk (*Buteo jamaicensis*)
- Spotted towhee (*Pipilo maculatus*)
- Violet-green swallow (*Tachycineta thalassina*)

Birds listed as special concern for conservation: Broad-tailed hummingbirds, which have been observed on the Property, are a priority species for conservation in Utah. Habitat on the Property also may be appropriate for several other priority species for conservation, such as short-eared owl (*Asio flammeus*), Brewer's sparrow, sage sparrow (*Amphispiza belli*) and Virginia's warbler (*Vermivora virginiae*). Bobolinks (*Dolichonyx oryzivorus*) have been documented in the general area, but are not likely to use habitat on the Property. Greater sage grouse are still known to occupy some sagebrush areas in the vicinity, but roads and development have increasingly fragmented the shrubsteppe habitat on which they depend, which has caused changes in their distribution and use patterns. The level of use by sage grouse on the Property is currently unknown. No evidence of sage grouse was detected during baseline observations.

Reptiles and Amphibians

Reptiles and amphibians prey on invertebrates and small vertebrates and form part of the prey base for other predators. Frogs may help keep insect populations in check. Frogs can be

considered biological indicators they are so sensitive to water quality. Conservation of frogs has gained international attention due to widespread declines in frog populations.¹⁰

Western terrestrial garter snakes (*Thamnophis elegans*) were observed on the Property. Habitat appears good for sagebrush lizards (*Sceloporus graciosus*) and other reptiles adapted to the area.

Reptiles and amphibians listed as special concern for conservation: Columbia spotted frogs are known to breed in Summit and Wasatch Counties, and habitat on the Property may be able to support small populations, given wetlands and adjacent wet meadows and wetlands. Habitat on the Property appears appropriate for western toads (*Bufo boreas*), northern leopard frogs (*Rana pipiens*), common garter snakes (*Thamnophis sirtalis*) and smooth greensnakes (*Opheodrys vernalis*), all of which are priority conservation species with ranges that include the area of the Property.

Fish

No fish were observed on the Property. Habitat on the Property does not appear appropriate for any species of fish native to the area.

Invertebrates

Invertebrates are important ecological elements on the Property as they support other wildlife species, interact with vegetation, link vegetation and wildlife, function in decomposition, and connect other ecological elements in nutrient cycles and energy transfers. The naturalist E. O. Wilson (1987) wrote: "*It needs to be repeatedly stressed that invertebrates as a whole are even more important in the maintenance of ecosystems than are vertebrates.*"

Terrestrial riparian invertebrates and aquatic larvae of terrestrial invertebrates are important in the diets of fish in systems like the Provo River and tributaries. Aquatic insects and mollusks such as fly larvae and freshwater mussels filter water, contributing to clean, high-quality water conditions.

Invertebrates listed as special concern for conservation: Western pearlshell (*Margaritifera falcata*) is a freshwater mussel that has been documented in the area of the Property (see Table 2); however, habitat on the Property does not currently appear appropriate for western pearlshells (they are typically found in clear, fast streams).

¹⁰ <http://www.amphibianark.org/>, <http://www.savethefrogs.com/why-frogs/index.html>, April 28, 2011 was worldwide Save the Frog Day as reported by CNN <http://news.blogs.cnn.com/2011/04/30/frog-lovers-worldwide-unite-for-save-the-frogs-day/>

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Links

Summaries of top priority habitats for conservation in the CWCS that are found on the Clark Ranch:

- Wetland <http://wildlife.utah.gov/cwcs/02.pdf>
- Shrubsteppe <http://wildlife.utah.gov/cwcs/04.pdf>
- Mountain shrub <http://wildlife.utah.gov/cwcs/05.pdf>
- Wet meadows <http://wildlife.utah.gov/cwcs/07.pdf>
- Aspen forest <http://wildlife.utah.gov/cwcs/10.pdf>

APPENDIX 1. PHOTOS

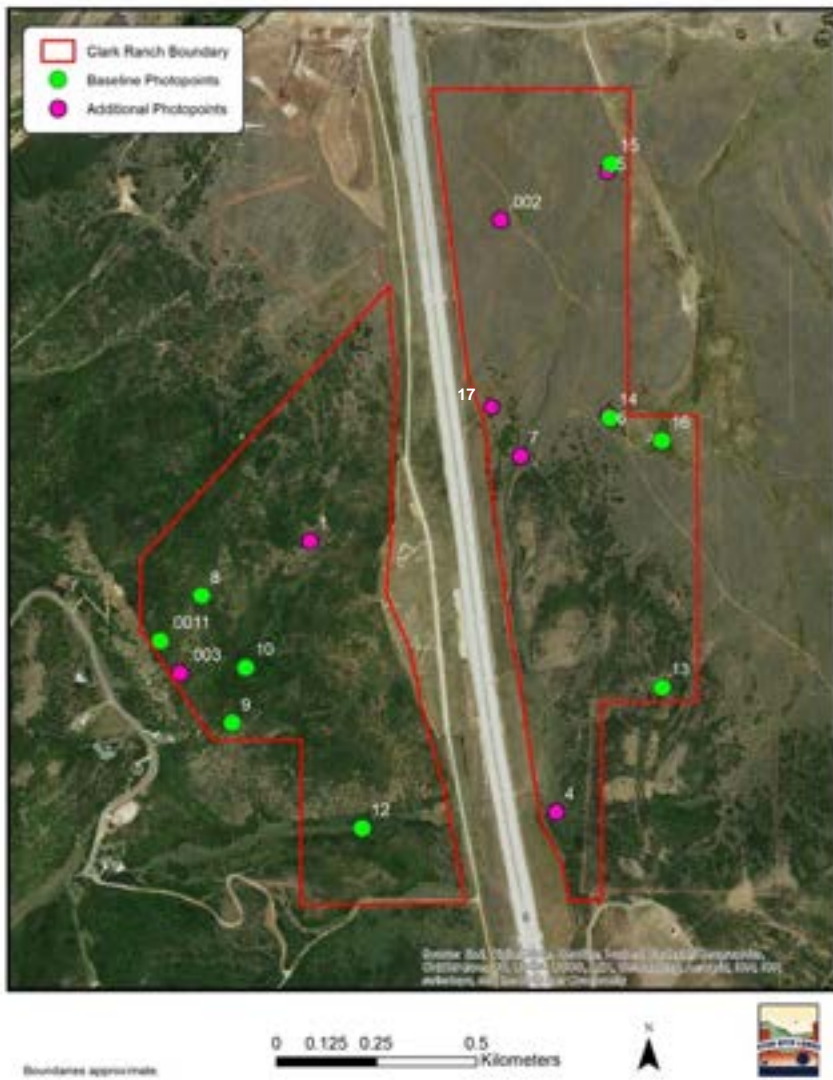


Figure 22: Map of photopoints for photos included in this baseline (including this appendix). All points are approximate.



Figure 23: Two-track road on West Parcel of the Property. Photopoint 1.



Figure 24: Shrubsteppe of northeastern portion of the Property. Photopoint 5.



Figure 25: Culvert that carries water from the Highway to the drainage on the East Parcel of the Property. Photopoint 17.



Figure 26: Outflow from spring flowing north and east toward wet meadows important for sage grouse habitat. Photopoint 14 (Photo date 07/14/2015).



Figure 27: Aspen stand on the East Parcel of the Property. Photopoint 4.



Figure 28: Abundant debris in the old intermittent stream bed on the East Parcel of the Property. Photopoint 002 (Photo date 03/23/2015).



Figure 29: Trampling and erosion at spring on the southeast part of Property. Photopoint 14 (Photo date 03/07/2015).



Figure 30: Nebraska sedge (foreground) and Arctic rush or wiregrass (background) in drainage on the East Parcel. Photopoint 7 (Photo date 07/14/2015).



Figure 31: A highly browsed mountain mahogany shrub. Photopoint 003.



Figure 32: A closely cropped antelope bitterbrush shrub. Photopoint 003.

APPENDIX 2. PLANTS OF CLARK RANCH

The table below lists all of the plants observed at Clark Ranch as well as summarized plot data, with average cover values for vegetation types (if multiple plots were sampled). Common name, scientific name and native status are from the USDA PLANTS database (<http://plants.usda.gov/>) except for a few common names that were updated to locally familiar names. Weed status is from the Utah Noxious Weed List (<http://ag.utah.gov/plants-pests/noxious-weeds.html>). Vegetation Types are from the Utah Division of Wildlife Resources Comprehensive Wildlife Conservation Strategy. There are 175 species in this list, which represent all of the species we observed at Clark Ranch during the 2015 field season. There are certainly a few other species present that we did not observe.

The cover values below are based on data collected in each of the vegetation types at multiple places at Clark Ranch during the 2015 field season by Mindy Wheeler, Arthur Morris and Marc Coles-Ritchie for Utah Open Lands. The Ocular-Macroplot method of the Forest Service (USDA 2008) was used. Those methods use circular plots with a diameter of 74.4 ft, which produces a 1/10th acre plot. In each plot the percent of the ground covered by each plant species was recorded. The plot locations were selected to represent the variability in these vegetation types that were observed at Clark Ranch, but these data only represent a few places on Clark Ranch, and do not necessarily represent the entire ranch. Similarly, these data cannot be used to monitor changes at the ranch.

Common Name (Scientific name)	Native Status	Weed Status	Vegetation Types and Cover Values						Observed but not in plots
			Aspen	Mountain Shrub	Northern Oak	Shrubsteppe	Wetland	Wet Meadow	
Number of Plots			3	1	2	3	1	1	
Trees									
Douglas-fir (<i>Pseudotsuga menziesii</i>)	Native		<1						
quaking aspen (<i>Populus tremuloides</i>)	Native		30						
Rocky Mountain juniper (<i>Juniperus scopulorum</i>)	Native								x
white fir (<i>Abies concolor</i>)	Native								x

Common Name (Scientific name)	Native Status	Weed Status	Vegetation Types and Cover Values						
			Aspen	Mountain Shrub	Northern Oak	Shrubsteppe	Wetland	Wet Meadow	Observed but not in plots
Shrubs									
alderleaf mountain mahogany (<i>Cercocarpus montanus</i>)	Native								x
antelope bitterbrush (<i>Purshia tridentata</i>)	Native								x
big sagebrush (<i>Artemisia tridentata</i>)	Native				8	19			
bigtooth maple (<i>Acer grandidentatum</i>)	Native		27	70					
chokecherry (<i>Prunus virginiana</i>)	Native			<1	4				
creeping barberry (<i>Mahonia repens</i>)	Native		1	1	2				
curl-leaf mountain mahogany (<i>Cercocarpus ledifolius</i>)	Native								x
elderberry (<i>Sambucus</i>)	Native								x
Gambel oak (<i>Quercus gambelii</i>)	Native		<1	25	60				
mountain snowberry (<i>Symphoricarpos oreophilus</i>)	Native		39	5	16				
narrowleaf willow (<i>Salix exigua</i>)	Native								x
Oregon boxleaf (<i>Paxistima myrsinites</i>)	Native		1	1	1				
rubber rabbitbrush (<i>Ericameria nauseosa</i>)	Native					<1			
Saskatoon serviceberry (<i>Amelanchier alnifolia</i>)	Native		3	3					
Scouler's willow (<i>Salix scouleriana</i>)	Native		2	3					
snowbrush ceanothus (<i>Ceanothus velutinus</i>)	Native								x
Utah serviceberry (<i>Amelanchier utahensis</i>)	Native				2				
Woods' rose (<i>Rosa woodsii</i>)	Native		3	<1	1				
yellow rabbitbrush (<i>Chrysothamnus viscidiflorus</i>)	Native								x
Graminoids									
arctic rush (<i>Juncus arcticus</i>)	Native						3	98	
basin wildrye (<i>Leymus cinereus</i>)	Native								x
blue wildrye (<i>Elymus glaucus</i>)	Native			3					
bluebunch wheatgrass (<i>Pseudoroegneria spicata</i>)	Native					<1			

Common Name (Scientific name)	Native Status	Weed Status	Vegetation Types and Cover Values						Observed but not in plots
			Aspen	Mountain Shrub	Northern Oak	Shrubsteppe	Wetland	Wet Meadow	
bulbous bluegrass (<i>Poa bulbosa</i>)	Introduced								x
Canada bluegrass (<i>Poa compressa</i>)	Introduced					<1			
cheatgrass (<i>Bromus tectorum</i>)	Introduced								x
clustered field sedge (<i>Carex praegracilis</i>)	Native								x
common spikerush (<i>Eleocharis palustris</i>)	Native					14			
common wheat (<i>Triticum aestivum</i>)	Introduced								x
creeping bentgrass (<i>Agrostis stolonifera</i>)	Introduced					1			
crested wheatgrass (<i>Agropyron cristatum</i>)	Introduced					23			
Douglas' sedge (<i>Carex douglasii</i>)	Native								x
field brome (<i>Bromus arvensis</i>)	Introduced				<1	<1			
foxtail barley (<i>Hordeum jubatum</i>)	Native					<1			
Geyer's sedge (<i>Carex geeyeri</i>)	Native		2		11				
Hood's sedge (<i>Carex hoodii</i>)	Native		1						
Kentucky bluegrass (<i>Poa pratensis</i>)	Introduced		11	2	10	2		1	
Letterman's needlegrass (<i>Achnatherum lettermanii</i>)	Native					<1			
Liddon sedge (<i>Carex petasata</i>)	Native								x
longstyle rush (<i>Juncus longistylis</i>)	Native						10		
mountain brome (<i>Bromus marginatus</i>)	Native				1				
muttongrass (<i>Poa fendleriana</i>)	Native								x
Nebraska sedge (<i>Carex nebrascensis</i>)	Native							3	
needle and thread (<i>Hesperostipa comata</i>)	Native								x
needleleaf sedge (<i>Carex duriuscula</i>)	Native								x
nodding brome (<i>Bromus anomalus</i>)	Native		1	<1					
Northwest Territory sedge (<i>Carex utriculata</i>)	Native						4		
prairie Junegrass (<i>Koeleria macrantha</i>)	Native								x

Common Name (Scientific name)	Native Status	Weed Status	Vegetation Types and Cover Values						Observed but not in plots
			Aspen	Mountain Shrub	Northern Oak	Shrubsteppe	Wetland	Wet Meadow	
purple oniongrass (<i>Melica spectabilis</i>)	Native								x
reedgrass (<i>Calamagrostis</i>)	Native						<1		
Sandberg bluegrass (<i>Poa secunda</i>)	Native								x
slender wheatgrass (<i>Elymus trachycaulus</i>)	Native			<1	4	<1			
smooth brome (<i>Bromus inermis</i>)	Native				<1	<1			
squirreltail (<i>Elymus elymoides</i>)	Native					<1			
thickspike wheatgrass (<i>Elymus lanceolatus</i>)	Native					<1			
Wasatch bluegrass (<i>Poa arnowiae</i>)	Native								x
water whorlgrass (<i>Catabrosa aquatica</i>)	Native						<1		
western wheatgrass (<i>Pascopyrum smithii</i>)	Native					<1			
woolly sedge (<i>Carex pellita</i>)	Native								x
Forbs/herbaceous									
Algae (on surface of pond)							50		
alkali buttercup (<i>Ranunculus cymbalaria</i>)	Native						1		
American vetch (<i>Vicia americana</i>)	Native		1		2				
arnica (<i>Arnica</i>)	Native								x
arrowleaf balsamroot (<i>Balsamorhiza sagittata</i>)	Native				2				
Aster					1				
ballhead waterleaf (<i>Hydrophyllum capitatum</i>)	Native				1				
bastard toadflax (<i>Comandra umbellata</i>)	Native								x
bird's-beak (<i>Cordylanthus</i>)						<1			
broadleaf cattail (<i>Typha latifolia</i>)	Native						<1	1	
bull thistle (<i>Cirsium vulgare</i>)	Introduced							<1	
buttercup (<i>Ranunculus</i>)							<1		
Canada thistle (<i>Cirsium arvense</i>)	Introduced	C	<1				2	<1	

Common Name (Scientific name)	Native Status	Weed Status	Vegetation Types and Cover Values						Observed but not in plots
			Aspen	Mountain Shrub	Northern Oak	Shrubsteppe	Wetland	Wet Meadow	
common dandelion (<i>Taraxacum officinale</i>)	Introduced		1						
common bugloss (<i>Anchusa officinalis</i>)	Introduced								x
common mullein (<i>Verbascum thapsus</i>)	Introduced				<1	<1			
common plantain (<i>Plantago major</i>)	Introduced						<1		
common yarrow (<i>Achillea millefolium</i>)	Native		1		2	1			
curlycup gumweed (<i>Grindelia squarrosa</i>)	Native					<1			
cutleaf balsamroot (<i>Balsamorhiza macrophylla</i>)	Native								x
cutleaf nightshade (<i>Solanum triflorum</i>)	Native								x
Dalmatian toadflax (<i>Linaria dalmatica</i>)	Introduced	B				<1			
Douglas' knotweed (<i>Polygonum douglasii</i>)	Native				<1	<1			
duckweed (<i>Lemna</i>)	Native						2		
Dyer's woad (<i>Isatis tinctoria</i>)	Introduced	B							x
elkweed (<i>Frasera speciosa</i>)	Native		2	<1					
Engelmann's aster (<i>Eucephalus engelmannii</i>)	Native		4	3					
Fendler's meadow-rue (<i>Thalictrum fendleri</i>)	Native		2						
foothill deathcamas (<i>Zigadenus paniculatus</i>)	Native				<1				
Garlic mustard (<i>Alliaria petiolata</i>)	Introduced	A							x
Gardner's yampah (<i>Perideridia gairdneri</i>)	Native				<1				
goldenrod (<i>Solidago</i>)	Native				1	<1			
Great Basin Indian potato (<i>Orogenia linearifolia</i>)	Native								x
gypsyflower (<i>Cynoglossum officinale</i>)	Introduced	C		1					
hoary tansyaster (<i>Machaeranthera canescens</i>)	Native					<1			
hollyleaf clover (<i>Trifolium gymnocarpon</i>)	Native								x
horned spurge (<i>Euphorbia brachycera</i>)	Native								x
houndstongue (<i>Cynoglossum officinale</i>)	Introduced	C							x

Common Name (Scientific name)	Native Status	Weed Status	Vegetation Types and Cover Values						
			Aspen	Mountain Shrub	Northern Oak	Shrubsteppe	Wetland	Wet Meadow	Observed but not in plots
Jessica sticktight (<i>Hackelia micrantha</i>)	Native		<1						
lambstongue ragwort (<i>Senecio integerrimus</i>)	Native		<1						
lanceleaf figwort (<i>Scrophularia lanceolata</i>)	Native								x
largeflower triteleia (<i>Triteleia grandiflora</i>)	Native								x
largeleaf avens (<i>Geum macrophyllum</i>)	Native		1						
lesser rushy milkvetch (<i>Astragalus convallarius</i>)	Native								x
Lewis flax (<i>Linum lewisii</i>)	Native								x
littleflower penstemon (<i>Penstemon procerus</i>)	Native								x
longleaf phlox (<i>Phlox longifolia</i>)	Native								x
maiden blue eyed Mary (<i>Collinsia parviflora</i>)	Native								x
meadow thistle (<i>Cirsium scariosum</i>)	Native							<1	
mouse-ear chickweed (<i>Cerastium</i>)					<1				
mule-ears (<i>Wyethia amplexicaulis</i>)	Native				2				
Munro's globemallow (<i>Sphaeralcea munroana</i>)	Native					<1			
musk thistle (<i>Carduus nutans</i>)	Introduced	B	<1			<1			
narrowleaf goosefoot (<i>Chenopodium leptophyllum</i>)	Native			1	<1				
nettleleaf giant hyssop (<i>Agastache urticifolia</i>)	Native		1						
Nevada pea (<i>Lathyrus lanszwertii</i>)	Native		1	2	2				
nodding microseris (<i>Microseris nutans</i>)	Native								x
northern bedstraw (<i>Galium boreale</i>)	Native								x
Nuttall's violet (<i>Viola nuttallii</i>)	Native								x
pale agoseris (<i>Agoseris glauca</i>)	Native								x
parsnipflower buckwheat (<i>Eriogonum heracleoides</i>)	Native								x
pepperweed (<i>Lepidium</i>)									x
pinyon groundsmoke (<i>Gayophytum ramosissimum</i>)	Native				1				

Common Name (Scientific name)	Native Status	Weed Status	Vegetation Types and Cover Values						
			Aspen	Mountain Shrub	Northern Oak	Shrubsteppe	Wetland	Wet Meadow	Observed but not in plots
povertyweed (<i>Iva axillaris</i>)	Native					1			
pricklypear (<i>Opuntia</i>)	Native								x
pussytoes (<i>Antennaria</i>)	Native								x
redroot buckwheat (<i>Eriogonum racemosum</i>)	Native								x
roughfruit fairybells (<i>Prosartes trachycarpa</i>)	Native		1						
Russian knapweed (<i>Acroptilon repens</i>)	Introduced	B							x
Scotch cottonthistle (<i>Onopordum acanthium</i>)	Introduced	B							x
scrambled eggs (<i>Corydalis aurea</i>)	Native				1				
seep monkeyflower (<i>Mimulus guttatus</i>)	Native						<1		
sego lily (<i>Calochortus nuttallii</i>)	Native								x
shortstyle bluebells (<i>Mertensia brevistyla</i>)	Native								x
showy goldeneye (<i>Heliomeris multiflora</i>)	Native				1	<1			
silky lupine (<i>Lupinus sericeus</i>)	Native		<1			<1			
slender cinquefoil (<i>Potentilla gracilis</i>)	Native		1		<1				
snakeweed (<i>Gutierrezia</i>)									x
spotted stickseed (<i>Hackelia patens</i>)	Native								x
spreading fleabane (<i>Erigeron divergens</i>)	Native								x
starry false lily of the valley (<i>Maianthemum stellatum</i>)	Native		3						
sticky cinquefoil (<i>Potentilla glandulosa</i>)	Native				<1				
sticky purple geranium (<i>Geranium viscosissimum</i>)	Native		2						
stinging nettle (<i>Urtica dioica</i>)	Native								x
sulphur-flower buckwheat (<i>Eriogonum umbellatum</i>)	Native					<1			
sweetcicely (<i>Osmorhiza berteroi</i>)	Native		2	1					
sweetclover (<i>Melilotus</i>)									x
tiny trumpet (<i>Collomia linearis</i>)	Native				<1				

Common Name (Scientific name)	Native Status	Weed Status	Vegetation Types and Cover Values						
			Aspen	Mountain Shrub	Northern Oak	Shrubsteppe	Wetland	Wet Meadow	Observed but not in plots
tuber starwort (<i>Pseudostellaria jamesiana</i>)	Native		<1		1				
twolobe larkspur (<i>Delphinium nuttallianum</i>)	Native								x
unknown forb w long leaves						<1			
unknown forb w ovate, toothed leaf					<1				
unknown forb, very thin						<1			
Wasatch beardtongue (<i>Penstemon cyananthus</i>)	Native								x
water speedwell (<i>Veronica anagallis-aquatica</i>)	Native						3		
wavyleaf thistle (<i>Cirsium undulatum</i>)	Native					<1			
western aster (<i>Symphyotrichum ascendens</i>)	Native				1	1			
western coneflower (<i>Rudbeckia occidentalis</i>)	Native		<1						
western tansymustard (<i>Descurainia pinnata</i>)	Native				<1				
western valerian (<i>Valeriana occidentalis</i>)	Native		5						
western wallflower (<i>Erysimum asperum</i>)	Native								x
white sagebrush (<i>Artemisia ludoviciana</i>)	Native		1			<1			
whiteweed (<i>Cardaria draba</i>)	Introduced								x
willowherb (<i>Epilobium</i>)	Native						1	<1	
Wyoming Indian paintbrush (<i>Castilleja linariifolia</i>)	Native					<1			
yellow salsify (<i>Tragopogon dubius</i>)	Introduced				<1	<1			
yellow toadflax (<i>Linaria vulgaris</i>)	Introduced	A							x

More data from the vegetation plots are presented below.

Northern Oak woodlands at Clark Ranch

Attribute	Data (from 2 plots)
Native species count	86-100% of the species at a plot
Native species cover	99% cover
Invasive species	none (undesirable species: common mullein and yellow salsify with cover of 1% each)
Tree density	approximately 900 Gambel oak stems/acre (about 3 inch diameter stems)
Ground cover	about 90% plant litter and 2% bare ground
Browsing	low to moderate browsing on shrubs (Gambel oak, mountain snowberry and chokecherry)

Aspen Forest at Clark Ranch

Attribute	Data (from 3 plots)
Native species count	86-100% of the species at a plot
Native species cover	99% cover
Invasive species	Canada thistle and musk thistle (cover <1% each). Other plants indicative of disturbance: common dandelion, Kentucky bluegrass
Tree density	not recorded
Ground cover	not recorded
Browsing	not recorded

Shrubsteppe at Clark Ranch

Attribute	Data (from 3 plots)
Native species count	65-85% of the species at a plot
Native species cover	70% cover
Invasive species	Dalmatian toadflax, musk thistle (undesirable species: common mullein and yellow salsify with cover of 1% each)
Tree density	none

Ground cover	about 85% plant litter, 5% bare ground, 4% ungulate droppings and 1% moss (remainder is basal cover of plants)
Browsing	high level of browsing of the rabbitbrush and Indian paintbrush

Wetland areas at Clark Ranch

Attribute	Data (from 1 plot)
Native species count	77% of the species at a plot
Native species cover	92% cover
Invasive species	Canada thistle, musk thistle
Tree density	none
Ground cover	Plant litter is abundant; bare ground was only about 4%
Browsing	graminoids and forbs were browsed

Wetland measurements: open water about 31 x 13 ft and a total wetland area of 59 x 31 ft.

Wet Meadows at Clark Ranch

Attribute	Data (from 1 plot)
Native species count	71% of the species at a plot
Native species cover	highly variable (50-90% cover)
Invasive species	musk thistle, Canada thistle,
Tree density	none
Ground cover	Plant litter is abundant; bare ground was only about 4%
Browsing	grazing and trampling was evident

Mountain Shrub communities at Clark Ranch

Attribute	Data (from 1 plot)
Native species count	95% of the species at a plot
Native species cover	99% cover
Invasive species	houndstongue (cover 1%)
Tree density	approximately 2,000 maple trees/acre (about 2 inch diameter stems) and 400 Gambel oak stems/acre
Ground cover	plant litter was very abundant and thick (mostly maple leaves); no bare ground visible.
Browsing	high level of browsing on the Scouler's willow



Park City Clark Ranch



Management Plan



November 2015

Submitted by:

Utah Open Lands

Prepared by:

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Executive Summary

Park City Municipality recently purchased the Clark Ranch as community open space (heretofore "Property") in 2014. As part of the city's efforts to conserve and effectively manage high-quality open space into the foreseeable future, the City invested in a collaborative process to develop the following:

- **Conservation Easement:** a permanent easement for protecting the public values of the open space.
- **Baseline Document:** A comprehensive description of the current condition of the Property.
- **Management Plan:** A document to guide management choices in accordance with the Conservation Easement.

The development of these documents required natural resource surveys and assessments to be completed over the spring and summer of 2015. From these assessments, guidelines regarding the Property management were created in order to encourage the most favorable outcome for both the health of the land as well as Park City's interests.

Structure of Management Plan

This management plan is a document to describe considerations for management for each of the listed Conservation Values for this Property. The Conservation Values include the various interactions of humans and Clark Ranch and how these interactions may affect the ecological health of the Property as a whole. The Conservation Values include human principles such as recreation, education, human ideals such as agriculture and scenic values as well as all of the elements of the natural world. Chapter 1 offers a general background of the purpose and need of the Clark Ranch Management Plan. Chapter 2 discusses each of the Conservation Values and gives details on topics that need to be considered for proper management of the property. The next chapter describes the influences on the Conservation Values that originate both inside and outside the property boundaries (Chapter 3). These influences can be natural or human induced and can be either positive or negative on the health of the ecosystem of the property. From these descriptions and influences, specific, prioritized management actions are given to assure the various influences do not diminish the Conservation Values (Chapter 4). These management priorities include suggestions for managing the interface of the physical ecosystem and potential visitor impacts. Chapter 5 describes monitoring ideas and methods to help measure the positive or negative changes in the ecosystem function and Conservation Values such as effectiveness of public education.

Chapter 1 – Introduction

Purpose of this Plan

To maintain the Conservation Values stated in the baseline documentation, will require a balance of upholding the stated conservation values while meeting the interests of the community of Park City Municipal.

The integration of the stated objectives into this and successive (updated) Management Plans for the Property is key to ensuring the sustainability of the resources and should be updated every five years.

The actions, plans or studies will require financial and personnel resources to implement. As a result, they are prioritized to assure more pressing management actions take place first. The City staff can then turn the remainder of the management actions into a long term budget and a set of work priorities for each year. City staff can likely involve some academics, volunteers or state or federal agency personnel to accomplish some of the studies or plans for a lower cost. It may also be possible to procure grants to address some of the issues.

Guiding Documents

This property is owned by Park City Municipal and a **Conservation Easement** is over XX acres of the property and is held by Utah Open Lands. Utah Open Lands will be responsible for *annual* monitoring to assure the Conservation Values stated in the Conservation Easement are being upheld. As the landowner, Park City is responsible for the day to day management responsibilities of the Property.

The **Conservation Easement** for this Property outlines the legal requirements and details regarding the Conservation Values. The Conservation Easement explicitly states the purpose of protecting **Conservation Values**, and defines a set of prohibited and permitted uses to help achieve that purpose.

Conservation values refer to aspects of the open space that are valued by the public that have warranted conservation of the Property, and originate from ecological features and processes of the Property. The Conservation Easement for this property considers each of the following conservation values and are described in the Baseline Assessment:

- Relatively Natural Habitat
- Scenic
- Recreation
- Education
- Agriculture

These Conservation Values need to be maintained to meet the legally-binding requirements of the Conservation Easement.

The **baseline document** describes the current conditions of the conservation values as a reference against which to evaluate the effects of use and management choices, and this **Management Plan** provides guidelines and suggestions to assure the current conditions are preserved and/or improved. The Management plan is an effort to synthesize existing information about the Property's ecological resources and incorporate information and data collected during the Baseline Resource Assessment to direct proper land management. Updates to the Management Plan will be necessary to address current and/or ongoing issues.

Property Description

Clark Ranch is approximately 350 acres in the Upper Weber River drainage in Summit County, Utah. It is located in a portion of Sections 2, 11, 12 and 14 of Township 2S Range 4E, Salt Lake base and meridian.

The Property consists of parcels in relatively natural conditions on both sides of Highway 40 in a semi-arid environment. The Highway divides the Property into two portions, with the western portion consisting of a predominantly east-facing hillside with 900 ft elevation difference from bottom to top. The west portion supports Northern oak (Gambel oak) and mountain shrub (dominated by bigtooth maple) communities, with small patches of aspen and sagebrush. On the upper part of the west hillside, up to the ridge, alderleaf mountain mahogany is present, which is unusual for nearby areas. The eastern portion of the Property is dominated by sagebrush in the northern region and a swale with a small hill rising to almost 7,000 ft elevation in the southwest region.

The Property is surrounded by privately owned, primarily open land, except for a 68-acre, federally-owned (Bureau of Land Management) parcel that abuts the western part of the Property on the south, and a residential subdivision that abuts the Property in the northern region of the west side. New, relatively high density development is occurring on land adjacent to the Property on the north and west side.

The Property has been used for livestock grazing for 3 to 4 generations. Remains of a house and dairy farm are on the property. The Property was originally owned by the Clark family and then bought by the Gilmore family around the 1940's. Even when the property belonged to the Clark family, the Gilmors leased the property for their livestock operations.

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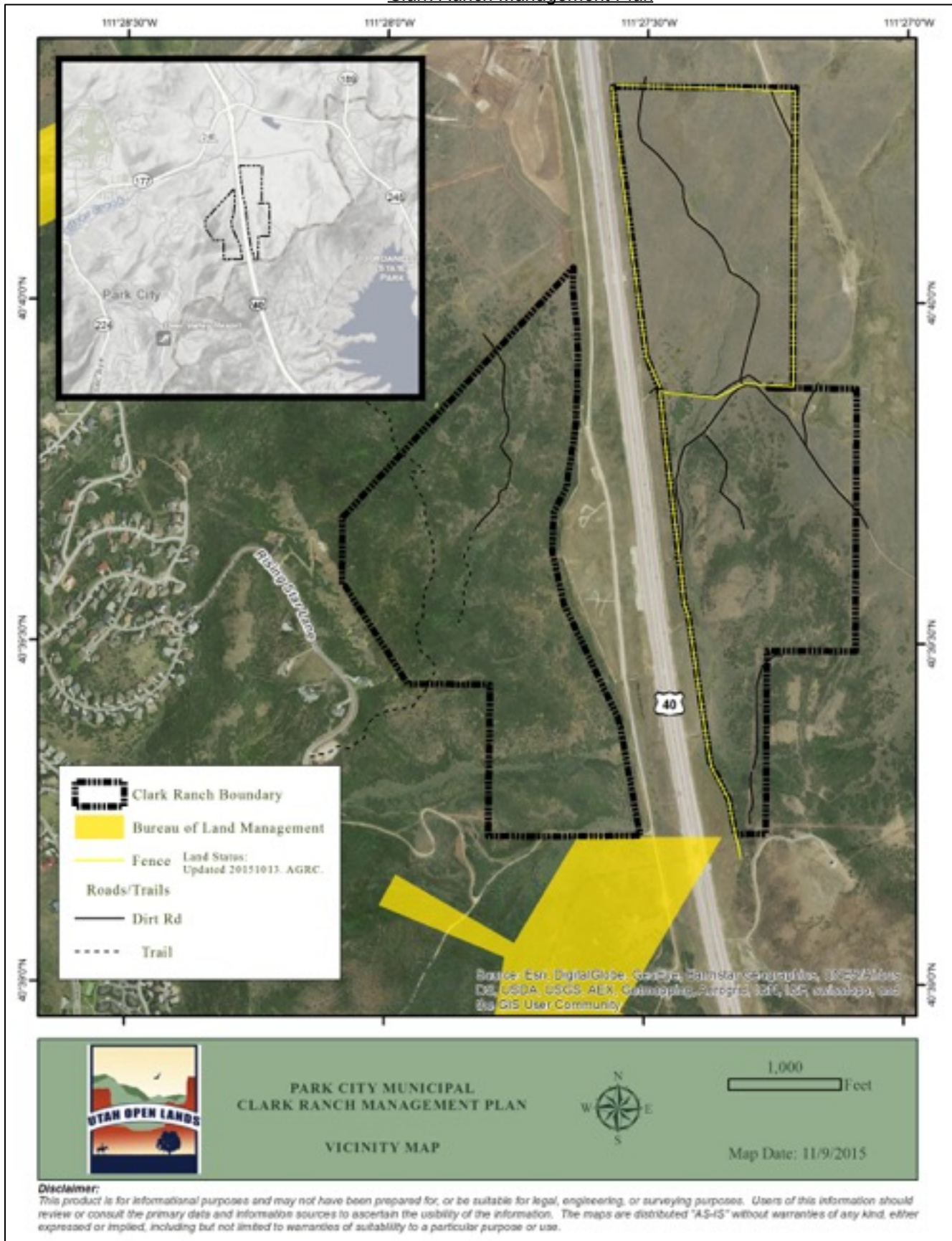


FIGURE 1 - Clark Ranch Vicinity and Land Ownership

Chapter 2 - Descriptions of Conservation Values

As mentioned, Clark Ranch is protected by a Conservation Easement held by Utah Open Lands. Conservation Values outlined in the Conservation Easement vary from entirely human constructs and values (recreation, education), some are an interplay of the science of ecology and human values (scenic and agriculture), and there are Conservation Values that can be strongly supported by only the science of ecology (elements of natural habitat). It is important to consider how the interplay of human values and uses of the Property may affect its underlying ecology. If the underlying ecology is negatively affected, all conservation values of the Property are subsequently negatively affected.

This section describes each of the Conservation Values listed in the Conservation Easement with a focus on how to protect the land health as a means to maintain and/or improve the conservation values.

The *Significant Features*, *Threats* and *Description* of each Conservation Value are discussed.

Prioritized *Management Recommendations* to preserve the ecosystem as a whole while allowing public access where appropriate are found in Chapter 4.

The following Conservation Values are discussed:

❖ Conservation Values

- **Relatively Natural Habitat**
 - **Geology and Soils**
 - **Water**
 - **Vegetation**
 - **Wildlife**
- **Scenic Value and Open Space**
- **Recreation and Education**
- **Agriculture**

Relatively Natural Habitat

Geology and Soils

The underlying physical properties of the geology and soils of the Property is the foundation upon which the ecosystem has developed. The understanding of this foundation can result in better informed decisions regarding how management actions may be the impetus for changes in land health and ecosystem stability.

Significant Features

→ **Interesting Geology** - The intersection of the Wasatch Mountains and the Uinta Mountains in this vicinity created a complex and interesting geological history of the area.

→ **Soils that support native biotic communities** – Soils on the property are the basis for habitat for plants and animals.

Significant Threats

→ **Erosive Soils**- Soils with a high vulnerability of eroding are a natural feature of the Park, which can provide challenges for vegetation management.

→ **Newly Cut Roads on the Property**- Recently, boundary lines were cut near the boundary of the property on the east side. This clearing has introduced numerous noxious weeds and could cause excessive erosion that should be addressed immediately.

→ **Old Roads and Trails** - Parts of an old road on the west side of the property has some deep ruts in it that serves to cause further excessive erosion.

Geology

The geology exhibited at Clark Ranch is of interest as the property is near the intersection of the Wasatch and Uinta Mountains, two dominant topographic features on the Utah landscape. The geologic history of this area extends back at least 300 million years, while rocks of much older age are located at depth and not exposed at the surface. Uplift of the Wasatch Mountains began 12 to 17 million years ago whereas the most recent uplift of the older Uintah Mountains began approximately 60 to 65 million years ago. In fact, a much older uplift associated with the ancestral Rocky Mountains occurred in the Uinta Mountains up to 300 million years ago. The older geologic structure beneath the Uinta Mountains results in the orientation of the range being perpendicular to the Wasatch Mountains.

Rock formations in the Clark Ranch area include a mixture of sedimentary materials such as mudstone, limestone and sandstone ranging in age from Pennsylvanian to Triassic (approximately 200 to 300 million years old). In addition, Tertiary volcanoclastic rocks, composed of volcanic debris and ash deposited from centers of distant volcanic activity approximately 30-40 million years old, are present. More recent alluvium and colluvium of Pleistocene age (most of which are younger than 2 million years old) cover the valley floor.

Structural geology of the area is influenced by the Mount Raymond thrust fault to the north, where the Park City Formation (265 million years old) was thrust over Nugget Sandstone (200 million years old) and Twin Creek Limestone (170 million years old). While the Frog Valley Fault is likely related to the Mount Raymond thrust, it has resulted in the development of escarpments in younger materials of middle Quaternary age (less than 1.6 million years old). The Park City Formation was deposited when the area was a large inland sea approximately 260 million years ago and is interbedded limestone, sandstone, siltstone and shale (Ashland et al 2001). The Nugget Sandstone was also deposited when interior North America was an inland sea. The sandstone is an aeolian deposit formed along the coastline of an inland sea as large dune fields resulting in a

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deposit uneven in depth and extent. The Twin Creek limestone was also deposited in a shallow sea that extended from Canada to southern Utah in the vicinity of Zion National Park (Ashland et al 2001).

Awareness of the geology of the area can inform land managers of characteristics such as the likelihood of landslides, soil physical and chemical properties and how each of these characteristics can affect revegetation or restoration projects.

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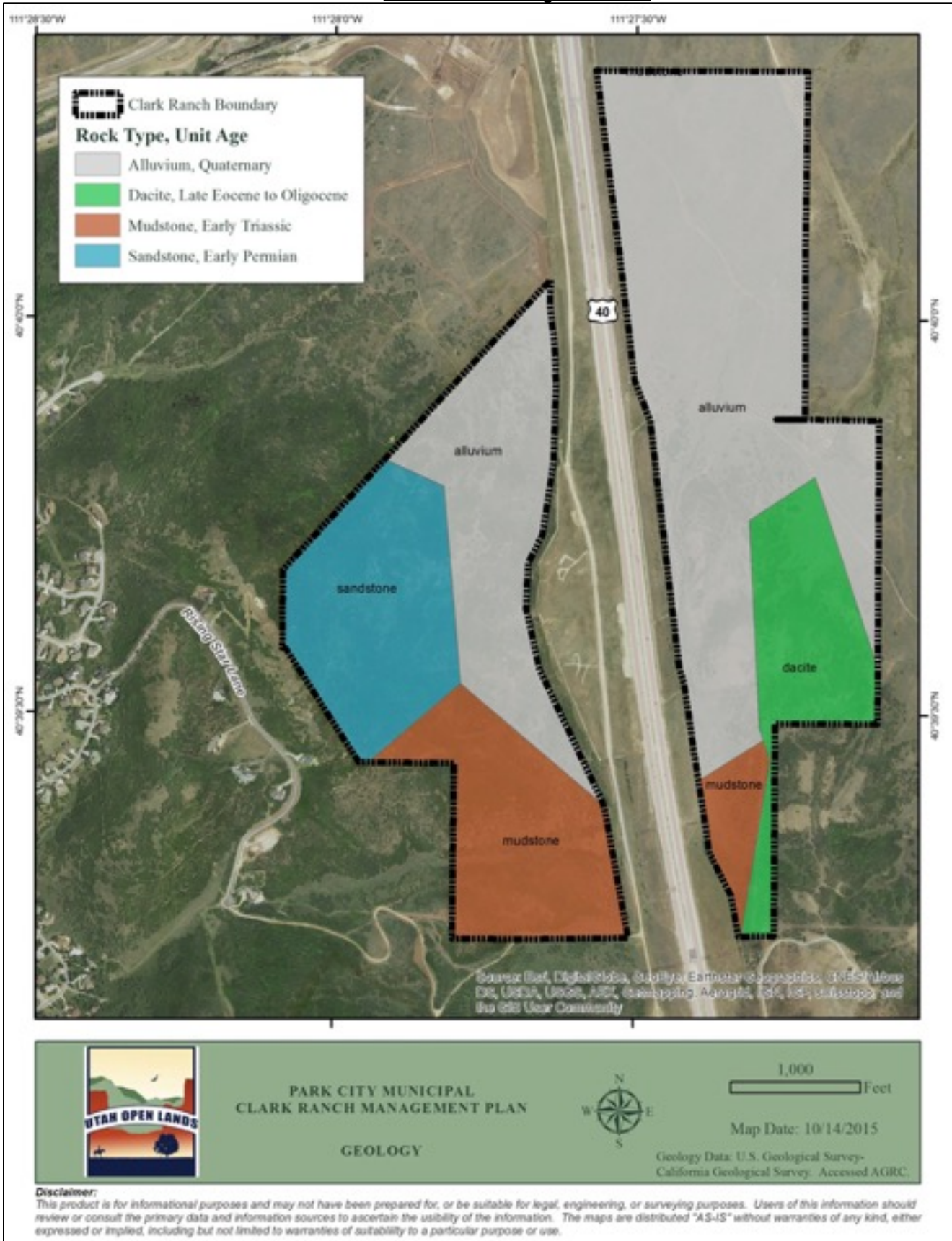


Figure 2: Underlying Geology of the Park

Soils

Condition Considerations

Soils reflect mineral inputs such as those from many years of decomposing rocks as well as organic inputs from decomposing plants and animals. Mountain soils such as those on the Property are relatively fragile because of the steep slopes and fairly thin layers of organic soil. It is important to associate the underlying soils with the vegetation types as soil chemical and physical properties strongly influence the vegetation community that develops upon it. It is important to note that the soils in the area were mapped at a scale that may not capture the inherent variability of soil at a finer scale. However, the soil map provides good context for both the current and past vegetation types, as well as the vegetation the soils may be able to support possible management actions. The soil types on the properties are summarized below in Table 1 and are depicted on Figure 4.

In some areas, erosion has been exacerbated by human activities. For example, the cut for Highway 40 on the west side of the highway slumped in the 1980's due to presence of the combination of excess groundwater and undercut soils. There are drains and other features on the west side next to Highway 40 to try to keep any excessive moisture off the slope to keep it from slumping further.

Areas of bare soil exposed due to newly cut roads and other activities facilitate weed establishment and spread. The clearing of vegetation along much of the boundary on the east side has caused an increase in noxious weed introductions and will likely continue to increase unless action is taken. The current trail on the upper west side averages approximately XX cm wide with a few scattered populations of cheatgrass alongside the trail.



Figure 3. Newly cut road on the east side with abundant weeds establishing

All roads and trails should be watched carefully for excessive erosion, newly introduced weeds and/or weed expansion and actions taken if road ruts have become too deep for safe travel or the erosion threatens the integrity and usability of roads (e.g. water bar construction, filling in of ruts, etc). Actions should also be taken if trails are unintentionally widened.

Consider weed presence and soil characteristics in detail if any activity or building occurs on the Property. Soil drainage, tendency to erode, and soil physical characteristics can affect long trail maintenance needs and/or level of success of proposed habitat enhancements and/or revegetation efforts. It is desirable to maintain trails at their current width so as to not disturb soil that often increases weeds.

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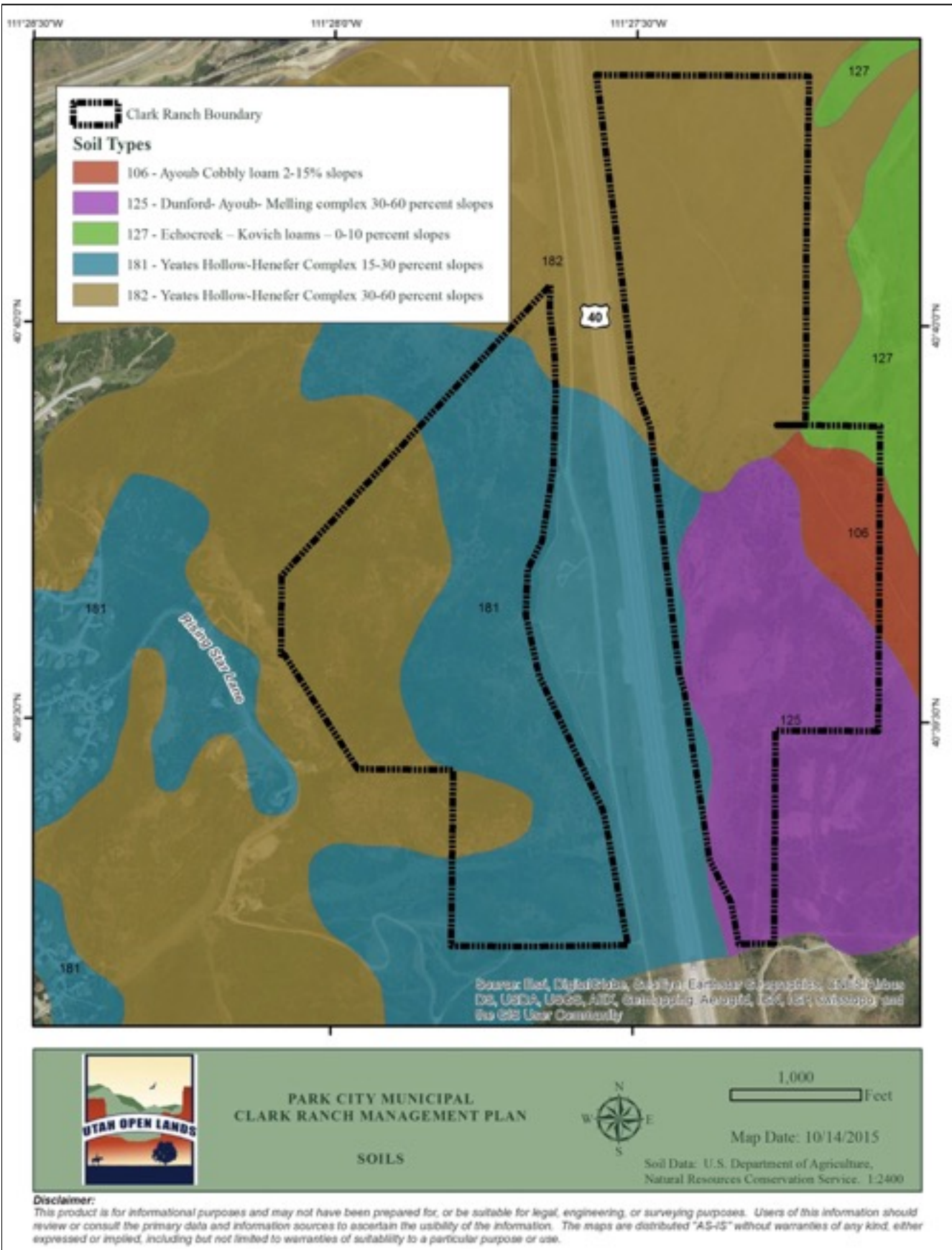


Figure 4. Soil Types at Clark Ranch

Table 1: Dominant soils found on the Property and adjacent areas and associated potential management issues

Name	Erosion Potential	Location on Property	Ponding Hazard	Soil origination	Ecological Site Description	Potential Management Issues
106— Ayoub Cobbly loam 2-15% slopes	Slight to moderate	Under slopes on East side just west of open meadows	None	from slope alluvium derived from andesite over residuum weathered from andesite	Mountain gravelly loam (Mtn big sagebrush)	Has susceptibility to moderate erosion on natural surface roads
125- Dunford-Ayoub-Melling complex 30-60 percent slopes	Severe	On East side slopes in southern region	None	Derived from andesite	(Dunford)-Mountain Gravelly Loam (Oak) (Ayoub) Mountain Gravelly loam (Mtn big sagebrush) (Melling) Mountain shallow loam (Mtn big sagebrush)	Low soil strength; natural surface roads tend to erode
127 – Echocreek – Kovich loams – 0-10 percent slopes	Slight to moderate	Lies under spring on East side and under wet meadows outside property	None	Alluvium from sandstone, quartzite, and shale	Upland Loam (Basin wildrye)	Farmland of statewide importance, moderately susceptible to frost action
181- Yeates Hollow-Henefer Complex 15-30 percent slopes	Moderate to severe	Mid-slope on west side of property	None	derived from colluvium derived from conglomerate, sandstone and quartzite	(Yeates) Mountain Stony Loam (Mtn Big sagebrush) (Henefer) mountain loam (oak)	Moderate to severe erosion potential, moderate susceptibility to frost action, low soil strength
182- Yeates Hollow-Henefer Complex 30-60 percent slopes	Severe	Upper slopes on West side as well as under sagebrush dominated areas on East side in the northern region	None	derived from colluvium derived from conglomerate, sandstone and quartzite	(Yeates) Mountain Stony Loam (Mtn Big sagebrush) (Henefer) mountain loam (oak)	Severe erosion potential, moderate susceptibility to frost action

Source: NRCS Soil Survey of Summit County Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties (NRCS 2004).

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Water

Significant Features

- **Wetland Habitat** –The Property provides open water and wet meadows. Each of these wetland habitats satisfies different needs of wildlife as well as function to maintain or improve water quality.

Threats

- **Noxious Weeds** – Noxious weeds are scattered throughout the Property, and will be a constant management task to maintain suitable wildlife habitat. Particular care should be taken around the spring and intermittent drainages when using herbicides
- **Water Quality** A large storm water culvert discharges directly into the main intermittent drainage on the East side of the Ranch. Pollutants and debris from roads will end up on the property and could decrease water quality.
- **Potential Decline in Groundwater** – It is possible that increased groundwater extraction by humans and the possibility of more frequent and severe droughts may reduce the amount of water that discharges at the wetlands of the Property and thus reduce the ecological values and functions of these wetlands.

Condition Considerations

Surface water exists at two springs on the northeastern portion of the Property. These springs have been excavated to improve livestock access. Both springs usually have standing water in them, but this year the spring to the east dried up completely by late summer. According to the livestock lessee, this pond has not dried up since it was excavated 5 to 10 years ago. The spring to the west still has standing water in it, as it still supports a permanent surface water at a pond a few meters extent,. These springs have outflow wetlands that support wetland vegetation.

An historic intermittent stream flows across the Property. Prior to the construction of Highway 40, the stream flowed from the drainages on the west side toward the wet meadows on the east side of the Property. Intermittent surface water still flows on the East side of the Property, but appears to be largely surface stormwater runoff from the highway.

Runoff across the Property occurs naturally from storm events and from snow melt; it also occurs from runoff from the roads. Naturally, dense vegetation helps to prevent erosion from surface runoff and increase infiltration into the soil by slowing the surface flows. Dense vegetation also helps to filter surface runoff, cleaning it from sediment, debris, some nutrients, and pollutants.

The culvert that brings both intermittent flow from the West side of the Property as well as stormwater from Highway 40 is becoming undercut likely from large amounts of water emanating from the highway during storms (see Figure below). This culvert likely brings various contaminants from the road into the intermittent drainage as well as causes excessive erosion and sediment delivery into the drainage.

As water rights continue to be used and transferred throughout the county, it may become more likely that more water will be used for human uses. Further, some predictions of climate change state that the region will experience less winter precipitation and more summer precipitation. Moreover, some predict a higher frequency of intense storm events than previous decades (Karl et al 1998). It is likely the stormwater will continue to erode this culvert outlet, unless action is taken.



Figure 5. Eroded culvert outflow on the East side of the property degrading soil, vegetation and wildlife conditions

Either planting of native vegetation or installation of rock armor around and below this culvert may be warranted to slow the erosion and sediment delivery from the area around the culvert into the intermittent drainage. Through data collection of outflow from this culvert and engineering, it may be possible to construct a retention basin to slow the energy of the water prior to it being discharged onto the Property. Further, trash racks, trash grates and/or drain guards on the storm drain that discharge onto the Property can reduce the debris and pollutants being released onto the Property with every storm. It should be noted that these installations will likely require more maintenance to assure they remain clear of debris that would appear unsightly or cause blockage to the storm drains.

Vegetation

The vegetation of Clark Ranch is valuable in and of itself and is also the foundation for the habitat for wildlife that use the Ranch. The productivity of the vegetation communities also provides forage for livestock grazing, an agricultural use consistent with the Conservation Values.

Significant Features

- **Aspen stands** – Although the extent of aspen on the property is relatively small aspen is uncommon for this region. This species is an extremely important browse species for large ungulates in the area (mule deer and moose).
- **Mosaic of vegetation communities** – The mosaic of different vegetation communities provides a high level of landscape diversity. The relatively good health of the vegetation communities and their respective positions on the landscape provides for effective wildlife habitat.
- **Wetland** – Open water is an extremely rare feature in the arid west landscape and it is highly important for both wildlife and livestock.
- **Alderleaf mountain mahogany (*Cercocarpus montanus*) patches** – This particular species of mountain mahogany is uncommon in this region. This species is an extremely important browse species for large ungulates in the area (mule deer and moose).

Potential Threats

- **Noxious weeds** are in many areas of the Property, which is of concern because they can displace the native vegetation, reduce biodiversity and degrade wildlife habitat.
- **Potential improper grazing practices** could include not enough rest between grazing rotations and too many animals, which could compromise the Conservation Values of the Property. However, with proper management, livestock grazing can be compatible and even complementary to land stewardship.

Condition Considerations

The vegetation communities each have distinctive characteristics and provide various wildlife habitats. A vegetation map (Fig __) delineates each of these communities, based on extensive field surveys of the property during the spring and summer of 2015 by three professional ecologists. Figure 3 shows the vegetation classification following the Utah Partners in Flight classifications. In order for land managers to cross walk the vegetation communities to vegetation classifications that are used on a more national level, the vegetation communities were classified by the National Vegetation Classification Standard (NVSC) (<http://usnvc.org/>) as well as by Ecological Site Descriptions (ESD's) (<https://esis.sc.egov.usda.gov/Welcome/pgReportLocation.aspx?type=ESD>) put forth by the Natural Resource Conservation Service (NRCS). Additionally, the vegetation was classified using accepted common names for the 2 most dominant species in each polygon. The name of this file is ClarkRanchVegetation2015.shp.

A professional opinion can be given on the general condition of each vegetation type as a whole as well as each mapped polygon. Four different aspects of condition were considered, then each of these four conditions were averaged to yield the overall condition:

- 1) Diversity- Is the diversity of species suitable for the community?

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- 2) Structure- Is the structure (age class distribution of species, presence of appropriate stratification – trees, shrubs, herbaceous layers-) appropriate for the vegetation community)?
- 3) Presence/absence of non-native species- Do noxious weeds threaten the persistence of the native plant community?
- 4) Plant health/ vigor- Are the plants free of disease or other afflictions that threaten the ongoing existence of the plant community?

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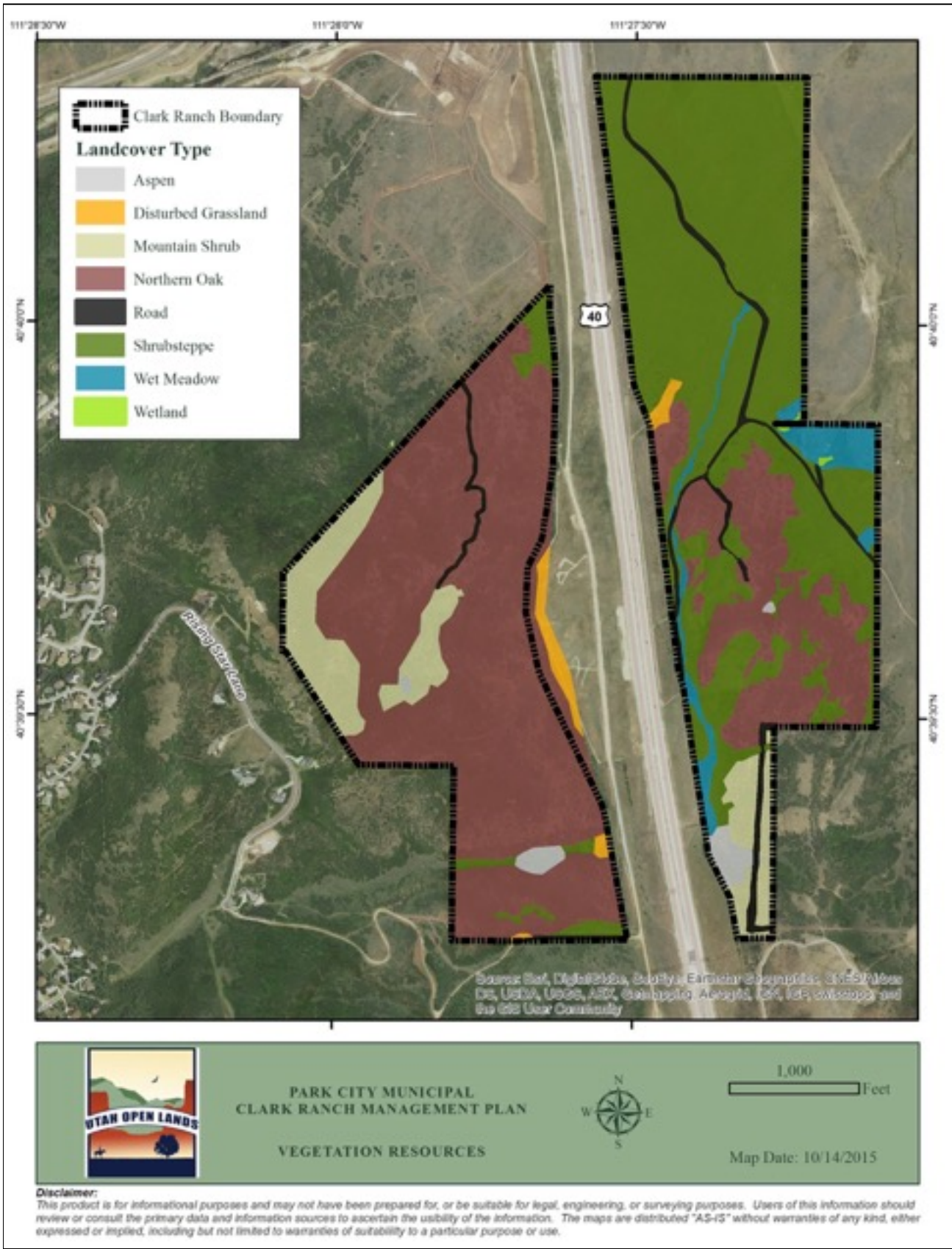


FIGURE 6 - Vegetation Communities mapped per Utah Partners in Flight Classifications at Clark Ranch

Table 2. Vegetation types and the amount of area of each at Clark Ranch, based on field surveys and reviews of aerial photos by ecologists for Utah Open Lands.

Vegetation Type	Acres	Percent
Wet Meadow	10.2	2.9
Wetland	0.3	<1
Shrubsteppe	132.2	37.4
Northern Oak	167.8	47.5
Mountain Shrub	28.7	8.1
Aspen	4.5	1.3
Disturbed Grassland	4.4	1.2
Dirt Road	5.3	1.5
Total	353.3	

The current condition and ecological characteristics of each vegetation type is described briefly, followed by their desired conditions. Management actions to reach desired conditions are outlined in Chapter 4.

Wet Meadow

Condition Considerations

Wet meadows on the Property are formed by a combination of topographic position, soil type, springs and localized seasonal high water table. The wet meadow retains the moisture close to the soil surface longer into the season than does the surrounding areas. Old topographic maps show an intermittent channel that was piped under Highway 40 when the road was constructed in the 1980s. The culvert brings water to the east side from both the intermittent channel as well as storm water that is collected off the highway. Although wet meadows are a very small percentage of Clark Ranch (10 acres or ~3 % of the property), they serve critical ecological functions disproportionate to their size. These functions include high primary productivity, water retention, nutrient cycling, sediment and pollutant filtration high bio-diversity and support for many species of wildlife.

The wet meadows in the area are generally in fair condition as noxious weeds such as musk and Canada thistle (*Cirsium arvense*) are relatively dense in the ephemeral drainage, and the diversity of plant species found in these areas is relatively low when compared to intermittent drainages in better condition. In better condition areas, there is a diverse suite of plants that are adapted to a predictable hydrological regime. Since the hydrology on the Property has been somewhat modified due to water management, fewer species are able to adapt. Although the ephemeral draw has a few willows, most of the wet meadow areas are dominated by wiregrass (*Juncus arcticus*). Although wiregrass is a native plant and binds soil well, it is often associated with areas with historically modified, intense land uses, such as modified hydrology or high intensity livestock grazing (Hurd et al 1996). Wiregrass is better able to adapt to a lowered water table than other common wetland plants (Dwire et al 2006, Manning et al 1989).

Further, there is a potential new invader found just adjacent to the ephemeral drainage called common bugloss (*Anchusa officinalis*). Although it is currently not on the county's noxious weed list, it is a listed noxious weed in the state of Washington, and was competing effectively with Canada thistle - in other words, this plant is likely an invasive and should be controlled. A photo of this invasive weed is in the weed section below.



Figure 7. The image on the right shows a mosaic of wet meadows downslope from a spring. The image on the left shows a wet meadow in an ephemeral channel just east of Highway 40, dominated by wiregrass.

Wetland

Condition Considerations

Wetlands constitute less than 1% of the land cover (0.3 acre) at the Clark Ranch, but like the wet meadows, the small extent of this area is also disproportionate to the critical ecological functions it serves. The southeast part of the property has some springs that create ponds that feed into wet meadows downslope. This wetland area is fed by a spring and was excavated between 5 and 10 years ago to provide more accessible water for livestock. The repeated use of these springs by livestock can decrease the health of the open water areas by shearing the banks or edges of the wet areas as well as potential animal waste in the open water

The largest and most natural-looking spring-fed pond (the western-most of the two) had an area of open water with a wetland associated with it. The pond has significant algae and duckweed on the surface. In and around the standing water the vegetation was dominated by wetland graminoids, particularly common spikerush (*Eleocharis palustris*) and longstyle rush (*Juncus longistylis*). The sides of the open pond have been eroded from repeated livestock and wildlife use, which has resulted in erosion of soil, degraded water quality, disturbed ground and establishment of weeds.

It should be noted that according to Luke Gilmor, the open water area to the East is usually the larger open water area on the property of the two (Luke Gilmor, personal communication Oct. 2015). 2015 was a particularly dry year but the livestock lessee has never lost water completely as has happened this year.

A better understanding of how the hydrology of the spring may be affected by drought and wet years is desirable to realize the potential for improvement toward a fully functional wetland. It may be warranted to find alternatives to water livestock so as to minimize the trampling, heavy grazing and soil shearing of the edges of the pond.



Figure 8. The image on the left shows the western spring-fed wetland. The image on the right shows the eastern spring that has dried up completely in 2015, and has significant bare ground and weeds.

Shrubsteppe

Conditions Considerations

The shrubsteppe communities on the Property vary widely in their ecological condition and comprises 37.4% of the lands at Clark Ranch (132.2 acres).

The north and eastern regions generally have very low diversity with chiefly sagebrush (*Artemisia tridentata* ssp. *vaseyana*) with an understory of one of two introduced grasses – crested wheatgrass (*Agropyron cristatum*) or Kentucky bluegrass (*Poa pratensis*). These areas are also interspersed with weeds such as cheatgrass (*Bromus tectorum*), musk thistle (*Carduus nutans*) and Dalmatian toadflax (*Linaria dalmatica*).

Shrubsteppe areas in the southeastern portion of the Property have much higher diversity and resemble high quality native areas,. In these areas, the shrubsteppe is interspersed with a other shrubs such as bitterbrush (*Purshia tridentata*), snowberry (*Symphoricarpos oreophilus*), Gambel oak (*Quercus gambelii*) and Douglas rabbitbrush (*Chrysothamnus viscidiflorus*). The area also has a plethora of native grasses such as Letterman's needlegrass (*Nasella lettermanii*), thickspike wheatgrass, (*Elymus lanceolatus*), bluebunch wheatgrass (*Pseudoroegneria spicata*) and slender wheatgrass (*Elymus trachycaulus*). Common native forbs include hoary tansyaster (*Heterotheca villosa*) Munro's globemallow (*Sphaeralcea munroana*), showy goldeneye (*Viguera multiflora*), sulphur-flower buckwheat (*Eriogonum umbellatum*), wavyleaf thistle (*Cirsium undulatum*), and Wyoming Indian paintbrush (*Castilleja chromosa*).

The differences in condition are likely due to a combination of past land use patterns and the construction of the highway. Crested wheatgrass and Kentucky bluegrass were seeded to provide forage for livestock around 1987. Crested wheatgrass has been shown to outcompete native grasses and forbs over time (Newman and Redente 2001). Kentucky bluegrass was also likely seeded, however, Kentucky bluegrass is a shallow-rooted species and thus does not prevent erosion as well as native grasses (Weaver and Darland 1949). Erosion in the midst of the east side is likely evidence of these conditions (See Figure 10).

Shrubsteppe areas should ideally consist of a mosaic of different size classes of sagebrush with an abundant and diverse understory of grasses and forbs in order to support the numerous obligate sagebrush wildlife species. Higher forb (wildflower) diversity is important for insect populations, which in

turn is extremely important for many birds and other wildlife species. A high quality sagebrush steppe can support livestock grazing if managed and monitored carefully.



Figure 9. Shrubsteppe with an understory of a single species (crested wheatgrass) vs shrubsteppe community with a diversity of other shrubs and forbs and grasses



Figure 10. Erosion under area dominated by Kentucky bluegrass – a non-native, shallow rooted species

A total of 3 shrubsteppe vegetation plots were installed on the Ranch (See Baseline Assessment). Much more specific information regarding vegetation cover by species in each plot can be found there.

Northern Oak

Condition Considerations

The characteristic plant of the Northern Oak woodland is Gambel oak and this vegetation type occupies the largest proportion of the Property (167.8 acres or 47.5 %). The oak density varies widely, from continuous cover (difficult to impossible to walk through) to widely spaced clumps (a nice stroll through the woods). The differences in density can result from a combination of soil depth, topography, aspect, fire history and past land uses. For example, south facing slopes with shallow soils will hold less moisture and thus will tend to harbor oak stands that are shorter and have reduced stem diameters (Clary et al 1986). In addition to the differences in density and stem size, the oak stands also have differences in understory plant composition. On the Property, snowberry was common in the understory of some stands, but in others, elk sedge (*Carex geyeri*) and grasses were more common. Other common species in this vegetation type include Utah serviceberry (*Amelanchier utahensis*), sagebrush, and Oregon grape (*Mahonia repens*). Common herbaceous species include slender wheatgrass, mountain brome (*Bromus marginatus*), and Mule's ears (*Wyethia amplexicaulis*). Mule's ears is also an

indicator of relatively intense past grazing practices, as livestock generally avoid this species (Mueggler 1988). Two vegetation plots were placed in the northern oak community type (see Baseline Documentation). There are isolated patches of Dalmatian toadflax and cheatgrass throughout the oak stands.

Gambel oak is known as a fire adapted species, therefore, in natural conditions, fire is important in maintaining these shrublands in a sustainable condition. Burning reduces the presence of conifer trees and other competitive shrubs and can reduce oak density for a more healthy understory. Oak (as well as other fire adapted shrubs such as mountain mahogany) responds favorably to fire as fire stimulates sprouting of Gambel oak after top kill. Research has shown that fires in natural oak systems generally occurred between every 35 and 100 years (Brown et al 2000). During field assessments, several conifer trees of various sizes were noted within the oak stands.

Should fire not be allowed to occur naturally, these areas will likely trend toward more conifer trees or big tooth maple stands (over hundreds of years). The noxious weeds are relatively sparse in these areas, however Dalmatian toadflax will likely increase with time as this weed is not dependent on disturbance to become established and spread.



Figure 11. Different growth habits of Gambel oak - a dense stand on the left vs relatively open clumps on the right

Mountain Shrub

Condition Considerations

The mountain shrub community can sometimes be dominated by big tooth maple (*Acer grandidentatum*) or alder leaf mountain mahogany (*Cercocarpus montanus*), with other shrubs such as Utah serviceberry, chokecherry (*Prunus virginiana*) and bitterbrush being common. The community also has Gambel oak in it, but it is not dominant. On the Property, this community is found in higher elevations and on some north facing slopes. Other common shrubs in this vegetation type include Saskatoon serviceberry (*Amelanchier alnifolia*), chokecherry and Scouler's willow (*Salix scouleri*). Common forbs include: Engelmann's aster (*Eucephalus engelmannii*), pea (*Lathyrus lanzwertii*), sweetcicely (*Osmorhiza berteroi*) and elkweed (*Frasera speciosa*). Common grasses and grass like species include elk sedge, blue wildrye (*Elymus glaucus*), Kentucky bluegrass, nodding brome (*Bromus anomalus*) and slender wheatgrass. See Baseline documentation for locations of vegetation plots.



Figure 12. Dense big tooth maple stand and open birch leaf mountain mahogany – both mountain shrub communities.

The mountain shrub communities are generally in good to excellent condition due to their high biodiversity, relatively low cover from noxious weeds, good stand structure (age and size class variation) and good health. There is, however, some small patches of the noxious weed houndstongue (*Cynoglossum officinale*) within the mountain shrub communities. Houndstongue disperses and establishes easily as its seed attaches readily to animal fur and this area is favorable habitat for this noxious weed.

These communities are highly valuable as wildlife habitat for large ungulates as evidenced by the heavy browsing of the alder leaf mountain mahogany and high density of ungulate scat in these areas. Further, the big tooth maple areas provide cover and multiple spots for animals to bed down. It will be important to carefully monitor the condition of the mountain shrub areas as all alderleaf mountain mahogany were heavily browsed on the Property and thus may be challenged to produce seed to reproduce.

Aspen

Condition Considerations

Although aspen is a very small portion of Clark Ranch (4.5 acres or 1.3%), their ecological significance is disproportionate to their size. Aspen forest communities are known to be the most productive and diverse vegetation communities on western landscapes (Chong et al 2000). As a result, they provide a unique setting for many plant and wildlife species to thrive.

Aspen forest health and persistence can be driven by landscape forces such as disease, fire and ecological succession (conifers can establish and grow much easier in the shade, thus will succeed aspen in the absence of fire) and management practices such as grazing and timber management. Aspen stands should naturally have diverse age and size classes of trees as well as standing dead trees that are valuable for nesting, roosting, and feeding birds. Fallen trees also provide structure for highly effective habitat elements for birds such as shelter, nesting, feeding, and roosting. The naturally lush and diverse understory provides abundant opportunities for feeding, breeding, and shelter for other wildlife. Further, the relatively rapid turnover (growth and death) of aspen trees creates a diversity of habitat components that are valuable for colonization and affords a strong resilience to disturbance.

The aspen stands on the Property vary in condition due to differences in apparent health of the aspen trees, the structure of the stands (age and size class variation) and understory health. The stands in the northwest and southwest sections of the property appear to be in better health than the others as they have a much richer and more diverse understory . On the other hand, one of the stands on the

southwest and one on the southeast have a lower diversity in the understory and have fewer stems per acre as well as a reduced size and age class diversity, and are dominated by lower growing grasses and a few forbs that are indicative of drier or disturbed settings. Three vegetation plots were placed in aspen stands on the Property (See Baseline documentation).



Figure 13. Differences in understory composition in aspen stands on the property. The left photo shows a stand that retains moisture with abundant understory vegetation of shrubs (willow, maple, etc.) and tall forbs. The photo on the right shows a drier aspen stand with mostly grasses in the understory and less cover of shrubs and forbs.

The drier aspen stands on the Property may slowly disappear as the Property lies slightly outside aspen's relatively narrow physiographic and climate limitations as much of the Property it is too dry, too low in elevation, and soils are too shallow. As a result of the combination of climate change/ drought years, a lack of natural fire regime, and possible past land management (excessive browse from cattle and/or sheep), these drier aspen stands may shrink in size. The more mesic aspen stands will likely persist as they are located in areas that hold moisture better into the growing season and are slightly protected from the hot summer sun.



Figure 14. An aspen stand that appears to be tenuously persisting on the east side of the Property where environmental conditions are not very conducive to aspen forests.

As aspen are highly adapted to dynamic changes due to normal processes in the natural environment (such as fire, disease outbreaks and succession), it is desirable to have appropriate amounts of regeneration (establishment of new trees) and recruitment (growth of new trees to various size classes

above elk or cattle browse height). Monitoring of stems per acre as well as level of browsing in the mesic aspen stands would help to determine the trend of the health of the aspen stand. Further, it is desirable to maintain standing dead trees and down wood on the ground, as these are habitat characteristics that are valuable to wildlife.



Figure 15. Excavated bird nests in a dead standing aspen

Noxious Weeds

The weed mapping on the Clark Ranch was completed throughout the summer of 2015. The property was traversed several times and weeds listed on the Utah State Noxious Weed list – as well as those known to be particularly invasive and one species that may be a new invader - were located with a Trimble XH GPS- then differentially corrected to < 1 meter accuracy. Particularly large infestations were drawn on aerial maps in the field, then digitized into ArcView. Three shp files are provided with this plan ClarkRanchWeedPoints2015_11_30.shp, ClarkRanchWeedLine2015_11_30.shp and ClarkRanchWeedPoly2015_11_30.shp. Each point has estimated dimensions of the infestation in the number of total feet North to South as well as East to West. Table 3 shows the approximate acres of each weed found on the property. It should be noted that not all cheatgrass was mapped – only those particularly troublesome areas and/or areas that would have a higher tendency to spread should the soil be disturbed (such as for a new trail).

As these non-native populations grow, the amount of effort, time and money required also increases exponentially to restore these areas to a functioning native ecosystem. As such, it is imperative to understand the type and extent of infestations on the Property to utilize all methods available to control current weed infestations, prevent new infestations as well as to protect non-infested lands.

In addition to serious economic concerns, the ecological problems associated with noxious weeds are numerous. Noxious weeds are exotic, non-native species that can spread quickly. The following issues can ensue:

- Loss of biodiversity
- Loss of wildlife habitat
- Decrease in forage value for livestock and wildlife
- Decrease in land value
- Loss/ reduction of recreational opportunities such as hiking, biking, and wildlife and wildflower viewing.
- Disruption of soil and vegetation communities from changes in soil nutrient cycling.

The State of Utah currently lists 27 species as designated noxious, however, within a few months, the number of species will likely increase to about 54. The state has also classified each species with a letter A, B or C. list. Class A weeds are considered to have a small population and are targeted for eradication. Class B weeds have a wider range and are targeted for systematic control. Class C weeds are common and the main goal for Class C weeds is containment. Additionally, each county can classify the state list to prioritize noxious weeds as they see fit as well as add weeds to the county list through the County’s Weed Board.

Table 3. Noxious weeds located at Clark Ranch and *approximate* extent*

<i>Noxious Weeds of Clark Ranch Conservation Easement</i>		
<i>Class A</i>	<i>Class B</i>	<i>Class C</i>
<i>Garlic mustard (Common)</i>	<i>Musk thistle (Abundant)</i>	
<i>Yellow toadflax (Scarce)</i>	<i>Canada thistle (Common)</i>	
	<i>Houndstongue (Scarce)</i>	

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	<i>Russian knapweed (Scarce)</i>	
	<i>Dalmation toadflax (Common)</i>	
	<i>Dyer's Woad (Scarce)</i>	
	<i>Scotch thistle (Scarce)</i>	

*Extent descriptors

- Scarce - <0.1 acre
- Common 0.1 – 1 are
- Abundant – 1- 10 acres
- Ubiquitous - >10 acres

Other invasive weeds present on the Ranch:

- Common bugloss (*Anchusa officinalis*) - Scarce
- Bull thistle (*Cirsium vulgare*) - Scarce
- Cheatgrass (*Bromus tectorum*) – Ubiquitous
- Japanese brome (*Bromus japonicus*) – Common
- Common mullein (*Verbascum thapsus*) – Scarce

Common bugloss is a new invader found on the property that may pose an issue as this plant is listed on the State of Washington noxious weed list. It was found along the intermittent stream on the East side of the property (see Figure 16)



Figure 16. Common bugloss (*Anchusa officinalis*)

Grazing has likely kept Canada and musk thistle at a relatively consistent level through the years as sheep will eat musk thistle flower heads prior to the plant producing weeds. Cattle will graze on Canada thistle to reduce its growth and spread. It should be noted that if grazing is ceased on the East side of the property, weed control will likely need to increase for a few years.

Weed management should become an annual activity at Clark Ranch, as noxious and invasive weeds can continue to increase to further degrade the ecological health and condition of the Property.

Appendix 1 of this management plan outlines a detailed, strategic and integrated noxious weed management plan for this property. A variety of control methods that should be used are described, guidelines for prevention of weed introduction and spread, and monitoring recommendations are given.

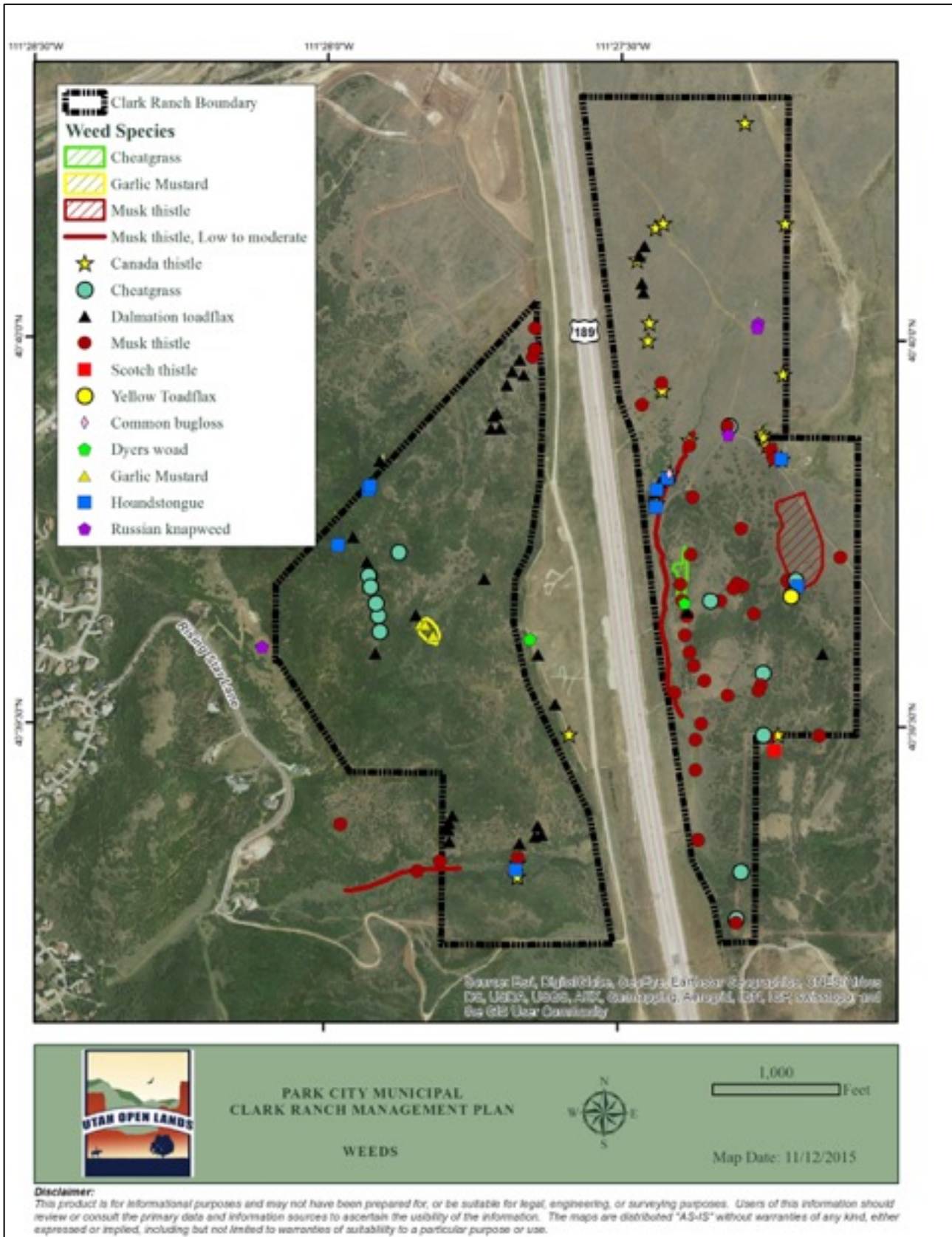


Figure 17. Overview of high priority weeds and infestations observed at Clark Ranch.

Wildlife

The Property occurs in the midst of other currently open land. The relatively extensive open land context helps to ensure the presence of many species of wildlife, including those that require large habitats in the landscape, such as mountain lions, elk, mule deer, sage grouse and raptors. The wildlife value of the Property is directly related to the extent and type of adjacent open space.

Significant Wildlife Features

- **Wild Ungulate Use** - Much of the Property has evidence of wild ungulate (deer, elk, moose) use. Several deer and some elk have been seen using the park, and there is evidence of use by moose as well.
- **Wetlands and Wet Meadows** – The wetlands and wet meadows on the East side of the Property provide water – a critical need for all wildlife as well as livestock.
- **Raptor and other Bird Use** Many raptors have been seen hunting on the Property and there is evidence of at least one northern harrier nest on the Property. Most birds are protected by the Migratory Bird Treaty Act and actions should be taken to assure any nests are not disturbed by humans.

Potential Threats

- **Loss of habitat through development** – Current and potential future development surrounding the Ranch, as well as trails and within the Ranch can create a direct loss of habitat, and also loss of “effective” habitat through increased human activity associated with Open Space properties.
- **Noxious weeds** – Most noxious weeds have little wildlife value, and greatly reduce the quality of wildlife habitat as they can have negative impacts on the diversity and quantity of native wildlife species.
- **Porous fences** The fence on the east side directly adjacent to the highway is in disrepair in many places. Until a better solution for wildlife crossing is implemented, this fence should be repaired to reduce wildlife death on Highway 40.

Condition Considerations

Wildlife at Clark Ranch is challenged by the highway that splits the property. Not only is the highway physical dangerous to wildlife, but the noise of the highway also provides challenges for wildlife to communicate with one another. Although the highway does present challenges, many wildlife species still use the property on a regular basis as the habitats still provide many life history needs. Some wildlife is better able to adapt to the highway presence, while others may take more time and/or may not adapt at all. Wildlife that migrates on the ground is blocked by the highway. For example, the highway presents a dangerous and largely impassable barrier to mule deer, which typically migrate east/west through the area. Unless a safer east/west migration route is created and/or used in the near future, there will likely continue to be extensive road kill in this area as the animals attempt to migrate to meet all their life history needs.

It is important to continually survey and document the type and intensity of use of key wildlife species on the property in order to make informed decisions on habitat management.

Several wildlife species were documented during the 2015 field season (See Baseline Assessment), however, continued and comprehensive wildlife surveys should continue to be done to understand the changing extent, type, seasonal and annual wildlife use of the Property.

Large Mammals

Elk, Deer, and Moose (ungulates)

There is evidence that each of these large mammals use the Property, although continued detailed information regarding seasonal and intensity of use would be helpful to better plan wildlife friendly future uses of the Property. A high concentration of large ungulate scat was found on the ridgeline and slopes on the West side of the Property. Relatively high levels of browse by wild ungulates was also observed on the shrubs in this area.



Figure 18. Closely browsed bitterbrush shrub – evidence of high intensity use from wild ungulates- likely mule deer

Further, many large ungulate ‘beds’ were observed during the 2015 field season on the West side of the Property. The dense shrubs provide a cool, isolated, relatively quiet respite in the area. Although calving is not a likely use of this property, mule deer fawns were observed on the Property. The Property provides shelter and other resources needed for mule deer does and fawns

As elk are generally grazers (feed on grasses and forbs), and deer and moose are generally browsers (feed on shrubs), most vegetation on the property is used by wild ungulates. As such, it will be important to consider the ungulate use of the aspen stands as well as high value shrubs in the area to assure these stands can be sustained with the current level of browse on the young trees.

Mountain Lion

Mountain lions are present in the area. Mountain lions often prey on mule deer, following mule deer migrations and living in the same areas as the mule deer. Mountain lions generally have relatively large home ranges, and can move fairly quickly over long distances. The Clark Ranch provides a small

proportion of the lifelong needs of mountain lions, yet its combination of location, connectivity to other large tracts of land and few chances of human interaction increases its value to mountain lions.

Coyote

Coyotes are native to northern Utah. Research by the USDA (Julie Young, USDA National Wildlife Research Center, Carnivore Behavior and Ecology, in Logan, Utah) suggests that many coyotes do not kill sheep, that coyotes without pups kill fewer sheep, and that the presence of sheep-friendly coyotes helps to keep sheep-killing coyotes away. In some cases, trapping and sterilizing resident coyotes has been found to be more cost-effective at reducing sheep losses than general predator killing. Coyotes are part of the ecosystem at Clark Ranch and should be allowed to live there.

Birds

It should be noted that most birds found on the Property are protected by the federal Migratory Bird Treaty Act (MBTA) that makes it "...illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird." If a bird is forced to abandon its nest due to human activity, it is a violation of the MBTA, and is technically punishable by law.

Raptors and owls

Several raptors were noted during the 2015 field season, particularly on the East side of the Property as the open meadows and sagebrush areas provide good hunting grounds for these birds. Additionally, a northern harrier was nesting on the East side in 2015. Red –tailed hawks were noted on a regular basis in the area. Both great-horned owls and long-eared owls were detected on the Property. It is possible that other raptors such as short-eared owls and Ferruginous hawk (raptors of conservation concern) could use the Property.



Figure 19: Raptors: Northern harrier

Red-tailed hawk (photos: Martin Myers)

Neotropical migrants

Birds known as neotropical migrants are birds that migrate to the new-world tropics, such as Mexico, Central America, South America or the Caribbean islands, but breed in North America. Examples of neo-tropical birds that have been document using the Property include barn swallow, chipping sparrow, blue- gray gnatcatcher, MacGillivray's warbler, Violet-green swallow, sandhill cranes and broad-tailed hummingbird. A breeding bird survey would be useful to fully understand the level and type of use the Property offers these birds.



Figure 20: Broad-tailed hummingbird (Photo Courtesy of Cornell Lab of Ornithology)

Sage grouse

Greater sage grouse have been a species of conservation concern for many years now as their numbers have been declining for years due to habitat loss and habitat fragmentation. The Property is included in the range known to be occupied by sage grouse and the birds have seasonal breeding grounds within a few miles of the Property. These birds are sagebrush obligate species as they depend on the sagebrush ecosystem for all of their lives. The proximity and extent of the wet meadows to the shrubsteppe in and around the Property is extremely important for the bird and is often the limiting factor for sage grouse survival. Wet meadows provide needed insects for the young birds prior to them being able to eat sagebrush exclusively.



Figure 21: Sage grouse chicks in Wyoming (Courtesy of Cornell Bird Laboratory)

Figure 22 shows the potential use of the property by some large mammals and sage grouse.

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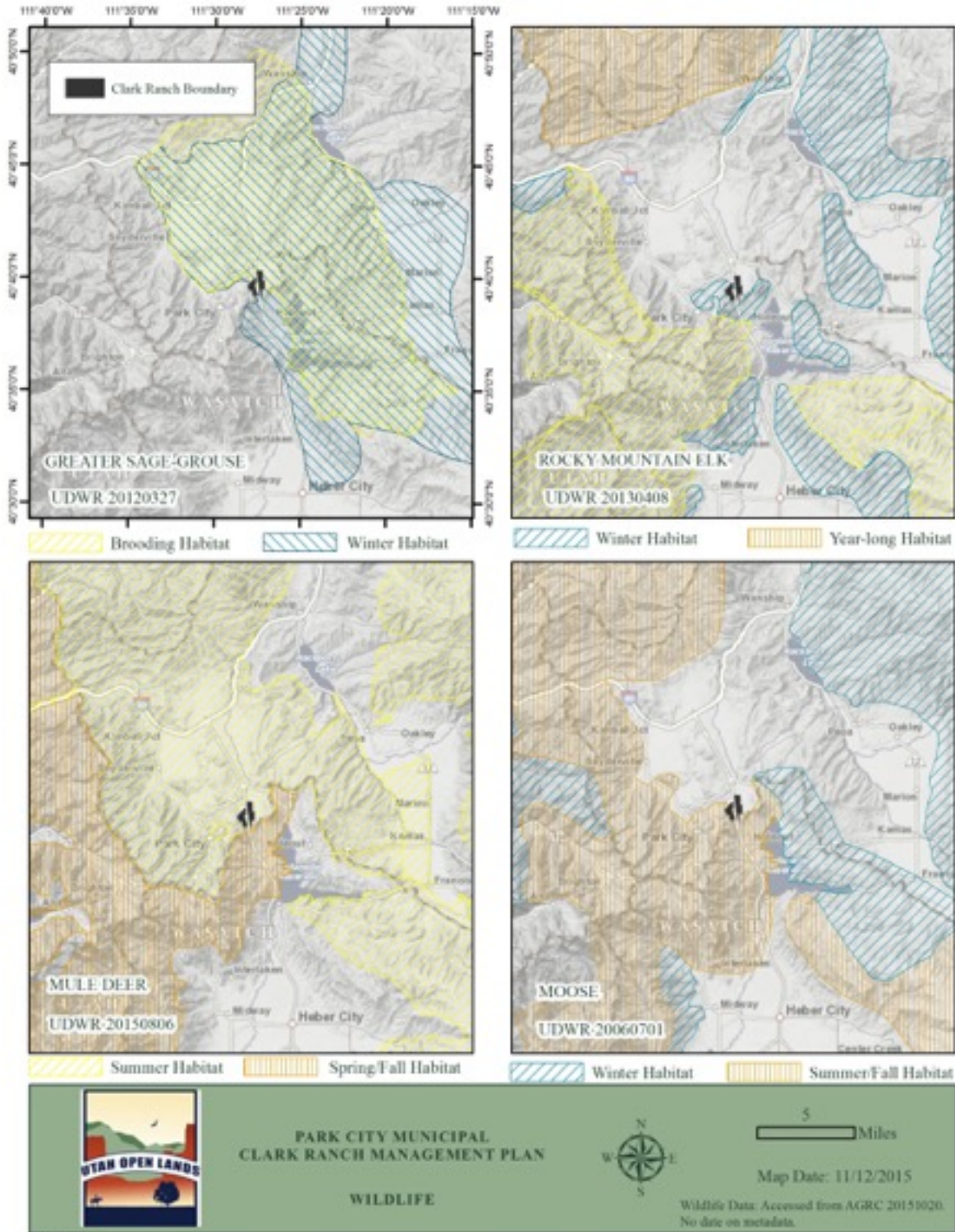


Figure 22. Potential Wildlife Use of the Property UDWR data is created by professional wildlife biologists at a much larger scale than may be appropriate for this 300-acre parcel. However, these maps do give a regional picture of wildlife use in the area.

Small mammals

Numerous small mammals were observed on the property during the field season of 2015. (See Baseline Documentation) As with many areas in the region, the East side of the Property recently experienced a large increase in vole populations in 2015; this increase is likely a part of a naturally occurring cycle. The high vole population provided an abundant prey base for many raptors and other predators in the region. Observations have been made in the Oquirrh Mountains where this increase in voles was noted, it was common for all bird chicks in a raptor clutch not only survived, but thrived. In 'normal' years, it is common for at least a portion of the chicks to perish prior to fledging the nest.



The expansive meadows and shrub habitats provide good quality habitat for small mammals since most of their life history needs can be met in a relatively small area. Additionally, small mammals are integral to the ecosystem in dispersing seed and small scale round disturbances that can sustain and/or improve the health and diversity of the vegetation.

Figure 23: Meadow vole (*Microtus pennsylvanicus*) – Photo: courtesy of John White

Amphibians and Reptiles

Amphibians and reptiles contribute to ecosystems in many ways. For example, they eat many species of insects and are also food for many other species of larger animals. Amphibians are particularly sensitive to environmental conditions and can serve as “bioindicators” for dangerous or degraded conditions. There is adequate habitat for several species of amphibians and reptiles on the property. Wandering garter snakes were observed in 2015 on both sides of the Property. Consider targeted surveys for these species to understand their distribution and extent on the property.

Invertebrates

Invertebrates, including insects, spiders, mites, springtails, and worms are critical to ecosystem functions such as pollination, decomposition, and nutrient cycling, and sometimes can be very specialized as to the role they play in the ecosystem. Many invertebrates were observed on the Property.

WILDLIFE SUMMARY

Overall, conditions on the Property should include a mosaic of productive, diverse habitat types, such as those that currently exist. Habitat on the Property depends critically on adjacent open space, which needs to be in a relatively natural condition, with ample area for wildlife movement. In order to allow for the most uninhibited wildlife movement on the Property, wildlife should experience a lack of disturbance from humans, dogs, and domestic cats. This means that conditions are relatively free from artificial light, noise, loose dogs and domestic cats, and intense human presence away from carefully designated trails.

A concerted effort is recommended to maintain and improve habitat quality in order to continue to yield effective habitat for all wildlife that depend on this area. This would include intensive weed abatement efforts, tightening the fence around the property to try to direct wildlife to safer crossings and targeted and comprehensive surveys of key wildlife.

Habitat improvements can take many forms, but all improvements should consider how each action may affect other aspects of the ecosystem or visitor experience. It may be desirable to 'stack' uses of the Property by using current characteristics of the park (existing roads, trails, etc) for an improved trail or for routing a new trail. Another example could be the construction of a stormwater retention pond on the property, but in such a way as to also improve habitat conditions in the ephemeral drainage. This could serve a primary ecological goal of increased residence time of water flowing through or over the property for improved water quality as well as increased wetland and riparian extents.



Figure 24. Two examples of porous fences on the East side of the property

Recreation and Education

Recreation and education are critical offerings of any community open space property. These activities can foster a greater appreciation of the open space as well as a sense of ownership and stewardship.

Significant Features

- **Potential Additional Recreation Opportunities** – Clark Ranch may afford opportunities for sanctioned trail connections in the area. Further, many forms of recreation are appropriate for the Property, such as hiking, bird watching, and mountain biking..
- **Education opportunities for all ages** – Outdoor education can include a wide variety of topics and tailored to any age to engender a greater appreciation of nature and specifically the features of the Property.
- **Significant Community Volunteer Opportunities** – The combination of recreation and education provides ample opportunities for community volunteer days that have an intentional management objective.

Potential Threats

- **Potential Improper Recreational Use and Management-** The ecological health of the Property could be degraded from such issues as excessive dog waste, excessive trail erosion or trails placed through high quality wildlife habitat.

Condition Considerations

The Property is conveniently located in close proximity to the community of Park City and its current network of recreation and education opportunities. Clark Ranch can likely offer additional, potentially multi-use trails, as well as an opportunity for ecologically based education for all ages.

It will be important going forward to assure all future recreation opportunities balance the recreational needs of the community with the ecological vulnerabilities of the Property. As an example,

Educational opportunities at the Property can not only serve as intellectual enrichment for the community, but can also easily evolve into abundant volunteer opportunities intended to both educate the public, and to provide a mechanism to accomplish some management goals. Community volunteer days can vary from gathering information regarding wildlife use, to picking up trash, to fixing fences, to community weed pulls.

The level and types of recreation offered at the property should be synchronized with the management objectives and the long-term protection of the property's natural resources. This will further ensure that the Conservation Values are maintained and/or improved per the Conservation Easement. The Property is not yet officially open to public use, thus the levels and types of use are relatively low and perhaps unclear. There is currently evidence of mountain biking, hiking and dog walking on the West side of the property.

There is a plethora of educational opportunities regarding all aspects of ecology and other topics on this property for all ages – from grade school to local retirees. These educational opportunities could easily turn into a large volunteer base to help manage the property to assure all Conservation Values are maintained and/or improved.

Visitor Types and Numbers

As mentioned, visitor numbers are not known for the Clark Ranch at this time. It would be beneficial to not only pay attention to the number of visitors, but also the type of recreation in which each visitor partakes, as well as the seasonal trends in visitor numbers and activities. Each recreation activity will have a different impact on the various resources on the property. The combination of the knowledge of visitor interests and activities and the natural resources at Clark Ranch will help direct the management of the Property as to prioritization and allocation of resources to sustain and uphold the Conservation Values.

Trail Use

Trail use by visitors will provide the best means of experiencing the quality of the Property first hand. It is also important to recognize how trails and trail use from different user groups may have implications on wildlife populations and productivity, vegetation health and distribution, and the possibility of soil erosion. Different user groups on trails can also have different effects on wildlife mitigation requirements and overall maintenance costs.

Many studies have been conducted on the effects of trail construction and subsequent human use of these trails has on wildlife populations (Whittaker and Knight 1999, Cole and Landres 1995, Taylor and Knight 2003). Recreational trails can affect larger ecosystem processes by provoking changes in the distribution of wildlife across the landscape. The effects of trails such as altered vegetation structure, modified bird and mammal assemblages, and different tolerance levels of wildlife species to human recreationists can all potentially alter wildlife community structure in the vicinity and the distribution of wildlife across the landscape.

Trail corridors can also facilitate predator invasions by providing predators with a travel corridor and creating smaller fragments, which are often easier for predators to penetrate. This can become the case for stray and/or feral pets.

Further, increased human disturbance is often an instigator for shifting wildlife use patterns on the landscape. Many wildlife species will become adapted to predictable, benign disturbances, such as consistent noise from a road. Unpredictable but infrequent disturbances (people infrequently walking down a trail) allows birds to return to their nests after the disturbance had passed; but with unpredictable, high level disturbances (many humans walking down a trail throughout the day), most birds were displaced all of the time, and only very few tolerant species remained in the area (Hockin et al. 1992). Gutzwiller et al. (1998) reported that the presence of people can cause behavioral changes that can negatively influence avian fitness. Increased stress, prevention of access to important resources, and a reduction of fecundity and survival were all noted in this study. Knight and Cole (1991) reported that recreationists primarily affect wildlife through unintentional disturbance.

The following are considerations for trail construction and use to best preserve effective wildlife habitat while continuing to offer recreational pursuits:

- Place trails in less sensitive habitats- away from riparian corridors, deciduous- bushy vegetation, aspen stands and old growth forests. Trails should be 30' from creeks and riparian brushy vegetation, where many neotropical migrants nest.
- Restrict or modify trail use during seasons of the year when wildlife is especially vulnerable or sensitive to disturbance (nesting and fledging season).
- Establish secure areas that trails do not penetrate to ensure that wildlife have a refuge from human visitors.
- Concentrate recreational activities in areas not as important for wildlife habitat in order to maintain a high level of intact habitat-
- Consolidate trails so there is less fragmentation and more interior core habitat, and less anthropogenic edge effects

Domestic Pets

The presence of dogs accompanying their owners while at the park creates special concerns. Most domestic dogs still retain instincts to hunt and/or chase other animals. Even if dogs are controlled and not allowed to chase wildlife, their very presence has been shown to be disruptive to many wildlife species. Especially during winter, harassment by dogs results in excessive energy expenditures by wildlife.

Domestic dogs can potentially introduce diseases (distemper, parvovirus, and rabies) and transport parasites into wildlife habitats. Cumulative impacts of domestic dogs may have important implications for wildlife populations. Because of these factors, careful consideration of dog policies for the property will be critical in controlling the possible profound effects. Dog feces and marking areas with urination may impact sensitive wildlife species, can increase weedy species (due to the excess nitrogen) and create clean-up issues for City staff.

Further, both domestic and feral cats can have a severe negative effect on the small mammal and bird populations that can reverberate up the food chain. Reduction in small mammals and birds can negatively affect hawks and other native carnivores of the area as they will need to hunt further away from their nests or home areas and could potentially reduce survival.

Recreational Capacity and Ecological Resources

Recreational capacity is a term generally defined as the reasonable maximum load or population that an area will support without undergoing deterioration. In theory, the recreational capacity for a tract of Open Space such as this one may be to allow the maximum number of visitors that would not compromise the ecological resources or Conservation Values. In reality, because of the many factors involved (i.e. visitor behavior, types of activities, property maintenance, surrounding land use, etc.) it is difficult to develop an exact number of visitors for the capacity based on any equations or statistical relationship to the resources. Some recreational areas base carrying capacity on the number of parking spaces, however, these methods do not address effects on the ecological resources.

For Clark Ranch, quantitative as well as qualitative monitoring that can be performed by City staff and/or volunteers could be used to try to determine the carrying capacity. As an example, the following may be discerned through proper monitoring that may indicate an unacceptable level of ecological degradation and conservation value loss:

- Increased exotic vegetation cover, loss of species, or undesirable compositional changes.
- Wildlife changes such as loss of species, a decrease or increase in utilization by certain species.
- Erosion from social trail formation or wetland bank trampling.
- A decrease in water quality

The results from this type of monitoring will provide important information on resource trends and provide insight into the possible effects of visitor numbers. These trends would inform City staff as to whether the activities on the Ranch are causing impacts beyond the sustainable recreational capacity. At that point it will be up to the City to decide the best courses of action to sustain the Conservation Values and ecological resources.

Scenic Value and Open Space

The property provides uninterrupted views of an iconic western rural landscape - a Conservation Value strongly held in the Park City community.

Significant Features

- **Uninterrupted Views of the Natural Beauty of Open Space** – Clark Ranch and the surrounding areas presently provide for uninterrupted views of many different habitat types.
- **Preservation of western Open Spaces** – The Property provides for iconic open space of the semi-arid West. The open space provides for a rural feel as well as .

Potential Threats

- **Potential Improper Trail Placement-** An improperly placed trail could result in a noticeable visual scar from both within the Property as well as from Highway 40 to reduce the Scenic value.
- **Potential Local and/or Regional Development** –A delicate balance of the development pressures of the area and the preservation of scenic values will need to be carefully considered to assure the maintenance of scenic conservation value.

Condition Considerations

The scenic value of Clark Ranch is derived from the combination of the ecosystem and the prominent landscape position of much of the Property. The ecosystem of the area has developed over the millennia and the various plant communities provide visual interest in all seasons. The unique setting of the Property at the intersection of mountains and valleys has created unimpeded views of sagebrush shrublands as well as oakbrush and mountain shrub hillsides – all signature vegetation communities of the arid West. Park City and Summit County value open hillsides and ridgetops as endorsed in their building codes. (Park City General Plan and Summit County Zoning)

The Property currently provides views of natural areas that are in keeping with the natural open sense of the Wasatch Mountains. Further, goal #4 of the Park City General Plan concerns the City's desire to preserve the natural setting. The goal is to 'Conserve a connected, healthy network of open space for continued access to and respect for the Natural Setting.' (Park City General Plan, 2014)

Currently, highway 40 is the greatest public interface with the Property because of the high volume of traffic on the highway that bisects the Property. Since more people see the Property from Highway 40 than from any other area, the view from the Highway is generally the basis for scenic value.

The property has areas of high visual vulnerability when viewed from the interchange of US Highway 40 and state road 248. The entire East Parcel is visible from Highway 40 and has different degrees of visual vulnerability (i.e. existing road cuts cannot be seen from 40). Unhindered views from the property of surrounding areas are noteworthy, from both the East and West sides of the Property.



Figure 25. View from the Eastern central region of the Property looking ESE



Figure 26. View from southwest region of Property looking NNE

Strong community support exists to keep the property as is, with open scenic views of natural topography and visual landscapes similar to those found there now. Thus, the Property should remain free from visual impediments that would degrade the natural sense and open nature of the scenery. Human development such as trails or other structures should not be easily seen from Highway 40.

Agriculture

The East side of the Property has been used for livestock grazing and other agricultural uses for 3 to 4 generations. This continued use not only provides for local agriculture, but also for continued oversight of the Property regarding trespass or other illegal uses or misuses.

Significant Features

- **Local Agriculture** – Clark Ranch can provide the benefits of local agriculture from ranchers with familiarity and experience with stewardship of the Property.
- **Preservation of iconic landscape use** – The livestock grazing support the scenic values with iconic western landscapes and preserving a functional biotic community.

Potential Threats

- **Potential Improper Livestock Management-** If livestock numbers are too high, if the length of time livestock are on the Property to graze is too long, or if length of time between grazing episodes does not allow for adequate vegetation recovery, the health of the ecosystem can be diminished.

Livestock Grazing

Both sides of the property have been used for livestock grazing of both sheep and cattle for 3 to 4 Utah ranching generations. Currently, livestock grazing is only occurring on the East side of the property, as grazing ceased on the West side in XX. The property is part of an approximately 2,000-acre pasture used on a rotational basis to raise both cattle and sheep.

Livestock grazing in the West has been a long term use of the lands for at least 150 years. When grazing first took place in the West, enthusiastic ranchers placed livestock on the lands generally far above its carrying capacity. As a result, many public rangelands in the West were often grazed too heavily. The Taylor Grazing Act of 1934 set regulations of grazing on public lands to improve rangeland conditions and regulate their use. This regulation set many rangelands toward recovery (sufficient ground cover with a diversity of species), and the effects can still be seen today in terms of species composition. It is useful to understand in more detail the grazing history of the property to fully understand the current condition of the vegetation and the ecosystem.

In order to better understand the current condition of the Property, it is important to recognize as much of the grazing history of the property as possible. It is important to know (for as many years as possible) the rotation of the livestock between pastures, the types of livestock, the pasture layout, when (and how long) the pastures are (and were) used, and how long they are (and were) rested between uses.

This information coupled with ongoing monitoring data from range cages placed on the Property can help inform the suitability of the current grazing program. Vegetation data should be collected on the level of forage utilization as well as composition to help determine whether the vegetation communities remain healthy and ecologically functional. As an outcome, monitoring of pastures can occur with the knowledge of the true grazing pressure and will better inform future livestock grazing on the property to assure Conservation Values are being upheld while the agricultural use is maintained. Regular discussions between the livestock lessee, Park City and Utah Open Lands will likely need to take place to assure Park City's management objectives are clearly stated, the conservation values are maintained and the grazing lessee remains willing to try to meet the landowner's management objectives

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As such, it will be important to have bi-annual communication between the lessee and the Park and City staff regarding dates of grazing in each pasture, number of animals, type of animals, and any brand information.

Chapter 3 – Influences on the Property

The previous chapter discussed ecological elements in detail. This chapter highlights the influences that can affect the condition of ecological resources on the Property. Impacts and influences interacting with natural resources may be regional or localized, originate inside or outside the property boundary, and occur naturally or from human activities. These influences may have beneficial effects, detrimental effects, or both. The following information outlines sources of the most significant or likely influences, and recommendations to help stem negative impacts.

Influences From Outside Property Boundaries

Climate

Climatic patterns influence the nature of geophysical resources with differences in moisture availability, length of growing seasons, and overall ecosystem development. Most precipitation comes as snow in the winter or rains in the early spring (April and May). The vegetation communities establish, develop and adapt to the combination of climate, topography and geology of the area that in turn serves as a basis for the characteristic wildlife of the area.

Population Growth and Development

Both Summit County and the Wasatch Front has seen extraordinary population growth in the last 10 years as many find Summit County as a desirable place to live and still able to work in a large metropolitan area. As this area becomes an integral part of the regional recreation and trail system, property visitation is expected to increase.

Adjacent Land Uses

Land uses adjacent to the property can create increased pressure on the ecological resources as different land management practices or activities can create inconsistencies of overall land management goals, and thus land management activities. The following is a brief description of adjacent landowners and/or activities:

- On the north and west side of the Property is the new subdivision of **Park City Heights**. This subdivision is slated to have 211 single family homes and 28 townhouses (Park Record 6/26/2015). Sales of the homes are to begin shortly and residents are likely to move in by March or April 2016.

A number of impacts due to infilling of these suburbs adjacent to the Property can have daily impacts on the Parks natural resources, including:

1. Domestic and feral pets- Homeowner's dogs and cats will intermittently escape and venture onto the Property, where they can be a nuisance to both visitors and wildlife. In particular, feral cats can have a devastating effect on bird and small mammal populations, thus affecting the rest of the ecosystem.
 2. Increased refuse and debris. - Increased use of the Property will likely mean more refuse from pets as well as picnic refuse and other debris onto the property
- On the north and west side of the Property is **Richardson Flat**. The area includes a 160-acre tailings pond that holds about seven million tons of tailings. Between 1953 and 1982, United Park City Mines (UPCM) leased the site and their mines to various mining firms. These firms

operated the mines, used the site for tailings disposal and left 450,000 tons of tailings on site. These activities contaminated soil, air, surface water and groundwater with heavy metals.

After clean up, EPA's vision is to make Silver Creek (known as Poison Creek within Park City) a Blue Ribbon trout stream, conducting revegetation efforts along with remediation. However, other uses are currently being discussed for this property when it is fully cleaned up.

➤ **Habitat Fragmentation**

Effects of further fragmentation of habitat in this area could be somewhat subtle or have irreversible effects on the property and the effects difficult to predict. Habitat fragmentation can take the form of different visitor use patterns and trail use, and/or the type and extent of additional development near the property (e.g. sports fields, open space facility development). It would be best to keep any future trails (or expansion of current trails) out of the areas mapped as 'Full Protection' areas (See Figure 28). to assure as little disturbance to the wildlife as possible.

Chapter 4 - Management Recommendations

The goals and objectives below have been outlined to help sustain this part of the Wasatch Mountains of Utah. Each recommendation is meant to preserve and/or improve the Conservation Values as set forth in the Conservation Easement for this property.

The prioritized management actions below are a result of the consideration of the current and desired conditions of the ecological and community resources of the Property in concert with the legal requirement that the Conservation Values continue to be maintained per the Conservation Easement. Some of the management actions are ongoing, some are singular issues that deserve attention.

Prioritized Management Actions in Management Zones

Management actions are prioritized by conceptual management zones to maintain and/or improve the ecological resources and overall visitor experience on the Property. Monitoring actions to determine whether these actions are reaching the stated objectives are explained in Chapter 6.

The management zones correspond with major physical features of the Property as shown in Figure 27. Although some management suggestions apply to the entire Property, it should be noted there are sometimes higher priority areas. The zones where management actions particularly apply are shown in the recommendations tables below.

Abbreviation	Management Zone or Special Area
As	Aspen Forest
Be	Bench (West side)
Da	Disturbed area
Dr	Draw (West side)
Fl	Flats (East side)
Ga	Grazing area (East side)
Hi	Hill (East side)
Ls	Lower Slope (West side)
Ms	Mountain Shrubland
Ro	Road
Sw	Swale (East side)
Tr	Trails
Us	Upper Slope (West side)
We	Weedy area
Wc	Weed controlled area
Wt	Wetland
Wm	Wet Meadow

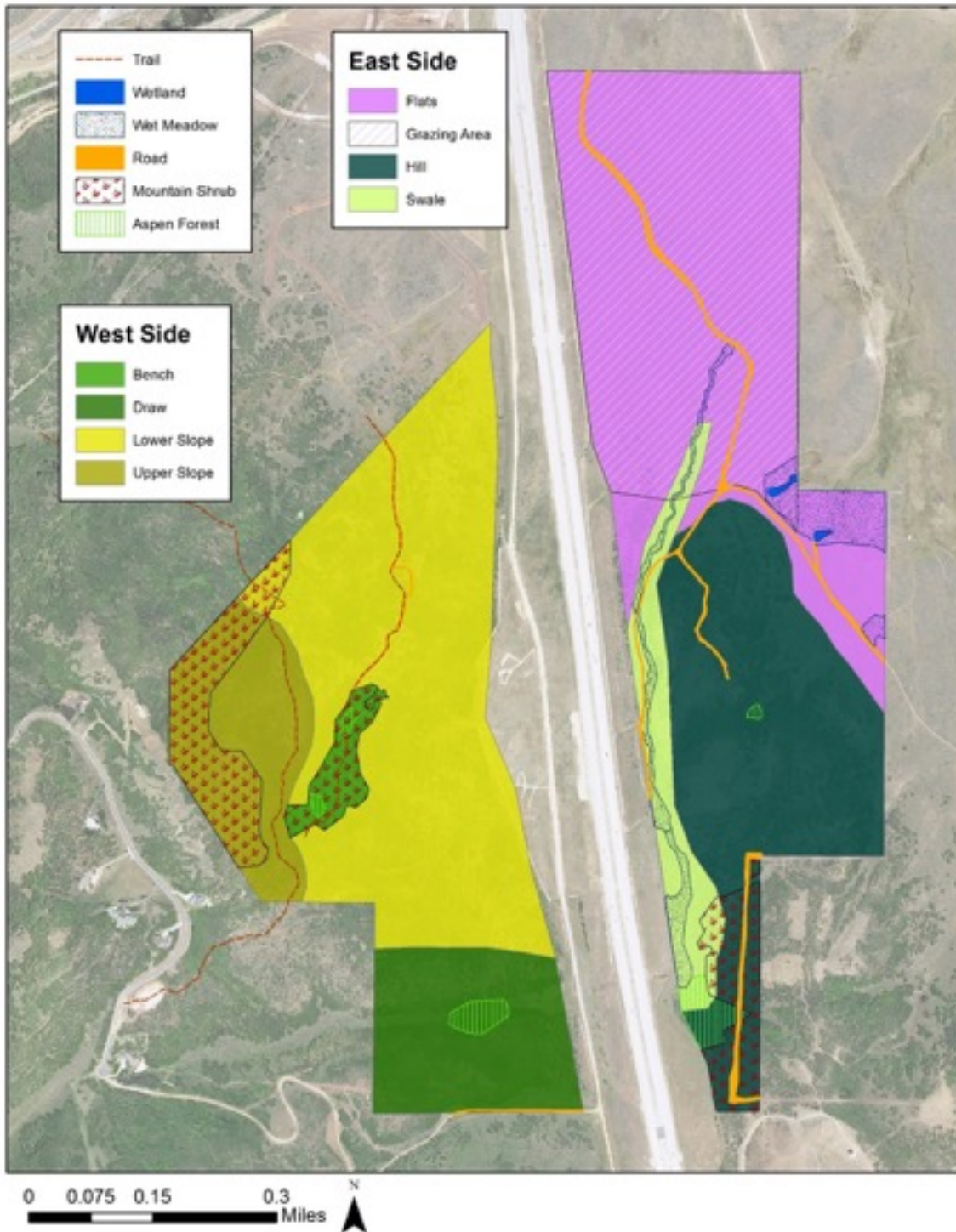


Figure 27. Management action zones. In addition to management in these areas, special attention will be warranted for management actions in weedy areas in general, areas where weed control is done, and other disturbed areas.

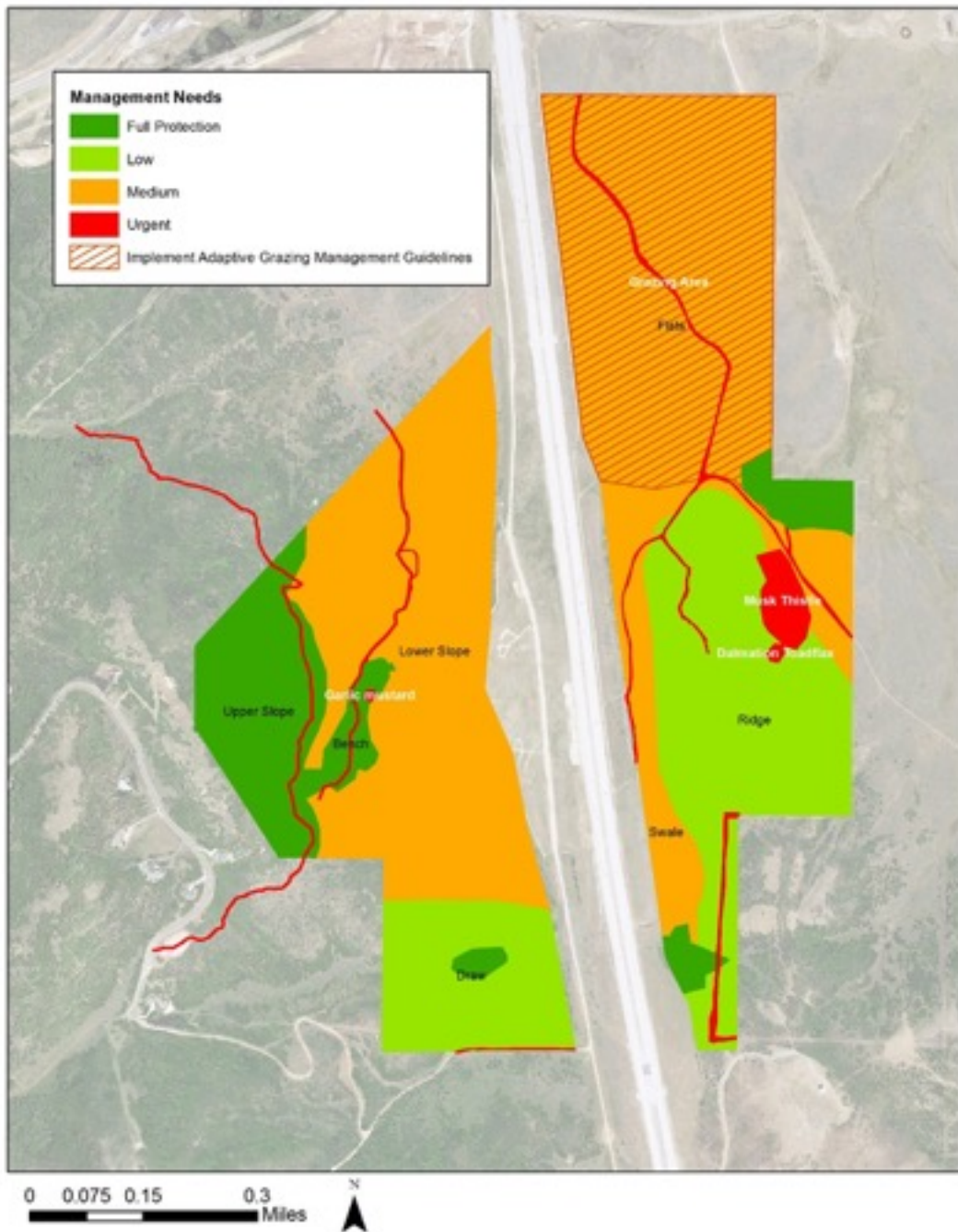


Figure 28. Prioritized Management Action Needs. **Full Protection:** No interventions or development except for weed control and possibly restoration. **Low:** Little or no management needed. **Medium:** Some management needed within the next few years, but is limited. **Urgent:** Management action will be valuable as soon as possible over much or all of the indicated area. **Implement Adaptive Grazing Management Guidelines:** Apply management recommendations from this document.

Weed Management Guidelines

Appendix 1 provides details on an integrated weed management plan for this property that includes specific priorities, and various methods for control and prevention. Table A here provides a good overview and priorities for effective weed control.

Table A. Summary of weed control recommendations.

Objective	Recommended Actions		Time Frame to Implement	Zone
1. Maintain and foster conditions that prevent weeds from establishing	Support native biotic communities	Avoid unnecessary ground disturbance.	Ongoing	A (Wt, We, Gr)
		Revegetate disturbed areas in appropriate season with native plants.	Ongoing	Tr, Rd, Wc
		Limit the use of herbicides, particularly persistent herbicides.	Ongoing	A (Wt, Wm, As)
	Avoid ground disturbance	Encourage people to stay on trails.	Ongoing	A (Us)
		Keep livestock in areas designated for livestock grazing and move them if excessive bare ground or ground disturbance becomes apparent.	Ongoing	Gr
		Keep dogs leashed or restrained (as per Summit County ordinance) and on trails.	Ongoing	A (Tr, Rd)
2. Prevent the spread of weeds by minimizing weed vectors	Minimize movement of vehicles, people, and animals off-trail and in weed-susceptible areas.		Ongoing	A
	Post signs on the property warning how humans and pets carry weed propagules (stickers, burrs, seeds, etc.) before entering the Property.		Within 1 year	A (Tr, Rd)
	Reduce seed sources on the Property by removing existing weeds (see below).		Immediate	na
3. Strategically remove existing weeds	Follow weed control guidance in the weed management plan, which includes prioritizing weed control efforts to concentrate first on the most problematic weeds in terms of tendency to spread and abundant seed sources.		Immediate	A (tr, Rd, Gr)

Notes: In the “Zone” column, “A” stands for “all zones.” Where “A” is indicated, zones in parentheses indicated special areas where management should focus. “na” indicates that the management recommendation is not focused on a particular part of the Property. Other abbreviations are shown in the “Management Zones” section above.

Recreation Management Guidelines**

**It is understood that Park City has recreation needs that may not specifically be addressed here. It is strongly suggested that Park City work closely with UOL on an over-arching recreation plan as recreation desires arise.

Table B. Summary of recreation management recommendations.

Objective	Recommended Actions		Priority	Zone
1. Provide recreational opportunities	Formalize trails, if trails are part of the plan for the Property	Consider designating upper trail on the west side as a hiking and mountain bike trail, and keep the surface relatively rough and unimproved.	Immediate	Us (Tr)
		Consider designating the lower dirt road and trail on the west side as trail for foot traffic only.	Immediate	Ls, Be (Tr)
		Reclaim other user-created trails (particularly on the west side) and unneeded dirt roads (particularly on the east side).	Within 1 year	A (Wm, As, Gr)
		Do not establish other trails on the Property, particularly no paved trails.	Ongoing	A (Full Protection areas in Figure X)
	Develop and provide access to educational material		Within 3 years	A
2. Prevent harm to the open space	Regulate dogs	Enforce Summit County ordinance about restraining dogs.	Immediate	A (Tr, Rd)
		Limit the number of dogs to two per person and keep dogs on trails.	Immediate	A (Tr, Rd)
		Require removal of all dog feces.	Immediate	A (Tr, Rd)
		Install signs about dog policies listed above.	Immediate	Tr, Rd
	Educate public about prohibitions in conservation easement.		Within 1 year	na
	Ensure that the Property does not exceed use patterns that are beyond ecosystem and management capacity		Within 3 years	A
	Use Best Management practices for trail construction		Ongoing	A
	Avoid accumulation of trash and garbage on the Property. Install trash cans near trailheads. Remove existing trash, including the washing machine and flagging on shrubs.		Within 1 year	Tr, Rd, Sw, Gr

Notes: In the “Zone” column, “A” stands for “all zones.” Where “A” is indicated, zones in parentheses indicated special areas where management should focus. “na” indicates that the

management recommendation is not focused on a particular part of the Property. Other abbreviations are shown in the “Management Zones” section above.

Community Outreach Guidelines

Education is a very important aspect of open space to encourage a collective affinity for the property and assure that good intentions are also appropriate recreation. The creation of an over-arching educational program could be the beginnings of a very fruitful volunteer program. School kids, teachers, retirees and interested citizenry may be willing to conduct monitoring, conduct ‘clean up days,’ mend fences or other duties. It is important however, to have someone from the City to have a well-defined program to oversee all volunteer activities.

Table E. Summary of community engagement recommendations.

Objective	Recommended Actions	Priority	
1. Engage public in cooperative stewardship of the open space	Erect signs for trails, boundaries, and educational purposes.	Immediate	Tr, Rd
	Develop social media mechanisms for community involvement in stewardship.	Within 5 years	na
	Construct a list of projects suitable for volunteer support from the community to get them engaged in open space stewardship	Within 1 year	na
	Develop and support a website that provides meaningful materials.	Within 3 years	na
	Celebrate community involvement with special events, awards, or acknowledgements.	Within 3 years	na
2. Support education	Develop and provide to local schools and home-schools an ecosystem-based curriculum focused on the Property and other open spaces in the area.	Within 3 years	na
	Develop and provide to teachers and others effective guides to plants, animals, birds and ecosystem features.	Within 3 years	na
	Maps showing trails, biotic communities, and points of interest on the Property. This could be formatted for smart-phone access or printable brochures with GPS locations for the points of interest	Within 1 year	na
	Work with local schools and other student groups to support service learning on the Property. Service-learning projects could include weed pulling, fence construction and repair, curriculum development, revegetation, and monitoring.	Within 1 year	A

Notes: In the “Zone” column, “A” stands for “all zones.” Where “A” is indicated, zones in parentheses indicated special areas where management should focus. “na” indicates that the

management recommendation is not focused on a particular part of the Property. Other abbreviations are shown in the “Management Zones” section above.

Wildlife Management Guidelines

Wildlife conservation is a high priority for much of the community and thus the following management actions will help to assure the habitat remains suitable for the wildlife that may be present.

Table C. Summary of wildlife conservation recommendations.

Objective	Recommended Actions	Priority	Zone
1. Conserve habitat	Prohibit destruction of native vegetation.	Ongoing	A (Gr, Ms)
	Leave standing dead and down wood as much as possible.	Ongoing	As, Ms
	Preserve springs, wetlands and any other surface water features and their surrounding wetland or riparian areas.	Immediate	Wt
2. Improve movement corridors	A wildlife overpass would be beneficial for wildlife to connect the east and west sides of the Property across Highway 40 (as mentioned in Park City's general plan (p. 38).	Within 5 years	Hwy 40
	Improve fences bordering Highway 40 so that wildlife are effectively steered to safe crossing points.	Immediate	Hwy 40
	For areas not along the highway, make fences wildlife friendly; this includes fencing for livestock management.	Within 3 years	Gr
3. Encourage appreciation of wildlife	Encourage bird watching, wildlife viewing, wildflower observation, butterfly identification, photography, wildlife artwork, etc. (see also Recreation Management).	Within 3 years	A (Wt, Be, As)
	Provide outreach materials providing helpful insights about wildlife roles in systems that provide value and services to humans (see also Recreation Management).	Within 3 years	na
	Engage public and conservation groups (like Audubon Society) in doing monitoring of ecosystem components (such as breeding bird surveys).	Immediate	A (Wt, Gr, Ms, As)
4. Prevent harm to wildlife	Minimize the use of chemical herbicides as possible (see Weed Control).	Ongoing	See other
	Prohibit general predator killing programs (see Livestock Management).	Ongoing	See other
	Keep dogs on trails, and leashed (see Recreation Management).	Ongoing	See other
	Prohibit poisoning, shooting, hunting, trapping, or harassing wildlife on the Property.	1	A (Tr, Rd, Gr)
	Consider implementing surveys of specific wildlife species.	1	Varies
5. Conserve priority animal species	Be aware of recommendations from Utah's Comprehensive Wildlife Conservation Strategy and Utah Partners in Flight Avian Conservation Strategy for identified priority species on or near the Property.	1	Varies by species

Notes: In the "Zone" column, "A" stands for "all zones." Where "A" is indicated, zones in parentheses indicated special areas where management should focus. "na" indicates that the

management recommendation is not focused on a particular part of the Property. Other abbreviations are shown in the “Management Zones” section above.

Vegetation Conservation Guidelines

Since vegetation is a major feature of the ecosystem, providing wildlife habitat and other conservation values, while having value in its own right, it is important to assure the vegetation communities remain dynamic and healthy.

Table D. Summary of vegetation management recommendations.

Objective	Recommended Actions	Priority	Zone
1. Prevent harm to native vegetation	Prevent harm to desirable vegetation from chemicals, particularly persistent herbicides (see Weed Control).	Ongoing	See other
	Prevent weeds from displacing native vegetation (see Weed Control).	Ongoing	See other
	Prevent damage to native vegetation from overgrazing (see Livestock Management).	Ongoing	See other
	Limit human disturbance that creates excessive bare ground (see Weed Control).	Ongoing	See other
	Establish policies and signs about restrictions on practices that can harm vegetation (see Recreation Management).	Immediate	See other
	Allow casual picking of wildflowers, berries, or mushrooms, but prevent picking that is so excessive that it degrades vegetation communities.	3	A (Tr, Rd)
2. Revegetate disturbed areas	Use established ecosystem restoration methods, including guidance from professional specialists as needed. (See Appendix 2 - Native Revegetation Guide	Ongoing	Varies
	Develop and use native species for revegetation projects (See Appendix 2).	Ongoing	Da
	Revegetate or otherwise reduce the amount of bare ground and erosion around the culvert from the highway on the east side.	Immediate	Sw
	Mitigate highway runoff (which may be contaminated) onto central region on the east side.	Within 1 year	Sw

Notes: In the “Zone” column, “A” stands for “all zones.” Where “A” is indicated, zones in parentheses indicated special areas where management should focus. “na” indicates that the management recommendation is not focused on a particular part of the Property. Other abbreviations are shown in the “Management Zones” section above.

Livestock Management Guidelines

Table F. Summary of livestock management recommendations.

Objective	Recommended Actions	Priority	Zone
1. Develop management plans cooperatively	Initiate at least bi-annual communication with the livestock lessee to plan livestock types, numbers and length of time in the pasture(s). Lessee should also provide a map of pastures in the area.	Immediate	Gr
2. Protect sensitive areas	Fence wetlands and springs.	1	Wt
	Provide water away from wetlands and springs as needed.	within a year	Gr
	Graze for appropriate periods of time to allow sufficient recovery of vegetation after grazing each season (duration determined as part of Objective 1). [follow CWCS guidelines]	Within a year	Gr
3. Manage timing and duration of grazing	Consider having some rest years from grazing if needed (deferment determined as part of Objective 1).	Within 3 years	Gr
	Defer grazing for that year before 50% utilization of forage (see monitoring discussion below).	Immediate	Gr
4. Adjust grazing according to actual vegetation conditions			
	Permit the number of livestock as appropriate for actual range conditions, in conjunction with an appropriate grazing schedule.	Within 5 years	Gr
	Regulate grazing levels to accommodate wild ungulates as needed.	Within 5 years	Gr
5. Prevent harm to wildlife	Prohibit general killing of wild carnivores (coyotes, mountain lions, etc.).	Within 1 year	Gr

Notes: In the “Zone” column, “A” stands for “all zones.” Where “A” is indicated, zones in parentheses indicated special areas where management should focus. “na” indicates that the management recommendation is not focused on a particular part of the Property. Other abbreviations are shown in the “Management Zones” section above.

Chapter 5 - Monitoring

A well structured, but relatively simple monitoring program will be the most efficient and useful method for evaluating potential positive or negative changes occurring to the ecological resources present on the Property. Monitoring will help to assure the Conservation Values are maintained. Effective monitoring applications provide a qualitative and quantifiable approach to the improvement or degradation in wildlife presence and distribution, plant community health, as well as trail sustainability and soil protection.

The following tables are provided to assist in identifying particular issues to monitor within each specific resource.

Vegetation/Weed Monitoring

Monitoring Actions	Priority	Suggested contact
<u>Monitor weed populations-</u> Track weed patch size and distribution in strategic places with photo monitoring and incorporate into GIS. Volunteers may be utilized to assist City staff in this effort. Put all information regarding control efforts into a database including date sprayed, name and rate of herbicide used (or species of biological control used) and target species to monitor effectiveness of methods used. Periodically walk the entire property to watch for introductions of new, isolated weed infestations. See Appendix 2 for more information.	High	City staff, volunteers
<u>Monitoring of livestock grazing</u> – Place 4 range cages; 2 in the northern most pasture, and 2 in the southern most pasture. Use range cages to measure forage utilization. The information will help to determine the appropriate grazing intensity when used in conjunction with the information submitted to the City by the lessee in the Spring and Fall (type and number of animals, length (dates) of stay in each pasture, and size of pasture(s))	High	UOL
<u>Vegetation community monitoring</u> – Place photo monitoring points in the most ecologically vulnerable areas on the Property such as aspen stands or wetland areas.	Moderate	City Staff, UOL
<u>Closely monitor any newly revegetated or worked areas.</u> Close and regular inspections of any new disturbance are important to assure erosion is under control, invasive weeds won't impede the recovery of the area, nor become problematic weed populations going forward	High	City Staff

- ❑ The **monitoring of weed populations** should concentrate on strategic areas such as the edges of large weed populations (to assure the weed infestation is shrinking in size with appropriate management), areas with excessive bare ground and/or areas where recent weed control work has taken place, as these are the areas that are most susceptible to weed establishment or weed expansion.

- The use of GIS to track weed populations is the most effective way to know whether efforts have been successful and the maps that can be generated from these efforts easily communicate the progress or regression of weed control efforts.
- In order to detect infestations of new invasive weed populations, the entire property should be walked every couple of years to catch these infestations early prior to them becoming a larger problem.
- The **monitoring of livestock grazing** on the vegetation communities can be a multi-faceted approach. Prior to monitoring taking place, it is imperative to know details such as livestock type and numbers, the length of time in each pasture and the size of the pasture. Another important aspect of livestock monitoring is to clearly state the landowner's overall objectives that may assist in setting quantitative thresholds that may trigger a change in livestock management.
 - The placement of range cages and subsequent reading of the utilization can have a direct relationship on the health of the pasture as a whole. More detailed information can be gathered if the range cages are a bit larger and permanent so as to take detailed objective measurements regarding vegetation cover and composition.
- **Vegetation community monitoring** should take place in areas that are particularly vulnerable such as aspen stands and wetland areas, as these areas will likely be highly susceptible to negative changes. The following are suggestions for monitoring vegetation communities
 - Photopoints – GPS'd photo points that are taken from the exact same location in upcoming years can show signs of trends. These photopoints should be taken in the 4 cardinal directions (using magnetic north not true north). Two photos should be taken in each direction; one toward the ground (about 2 m out) to show the ground cover and one that shows the horizon.
 - If quantitative measurements of vegetation cover and composition are desired, point line intercept transects can be employed by using a fixed laser pointer to record what plant or plants that laser 'hits'. Transects can be established in strategic areas and re-read through time to assess differences. It is important to read these transects at the same time of year (or similar plant morphology).
- Similar to a patient in the hospital after a medical procedure, a newly disturbed area requires 'after-care' to assure the area is recovering in the manner intended and expected. Interventions need to occur if the area is not trending toward recovery such as increased weed control, erosion control measures or re-seeding with native species as needed.

Wildlife Monitoring

Monitoring Actions	Best time to conduct	Priority	Suggested contact
<u>Continue use of wildlife cameras</u> - These cameras can elucidate the seasonal use of the property by all forms of wildlife	All seasons	High	UOL, City Staff, volunteers
<u>Establish targeted photo points</u> set in high quality habitat and/or highly vulnerable habitats	All seasons	Moderate	UOL
<u>Regular wildlife surveys</u> for counts of species and/or evidence of presence.	Spring	High	Community groups
Walk the property in the spring to look for any nesting birds or other important wildlife activities, and initiate trail closures if necessary	Spring	High	Audubon Society
<u>Inspect fences and animal crossing areas for signs of wildlife use</u>	All seasons	Moderate	Community groups
<u>Implement special focus monitoring as needed</u>	All seasons	Moderate	UOL, City Staff, Community Groups

- The use of **wildlife cameras** can be very informative as to the types and frequency of wildlife use on the property and management can be adapted as needed. Wildlife cameras can also be used as educational tools for the public to introduce people to wildlife movement and life history information.
- Photopoints** – Targeted photopoints can be established in particularly vulnerable areas that may be particularly susceptible to habitat degradation. GPS'd photo points that are taken from the exact same location in upcoming years can show signs of trends. These photopoints should be taken in the 4 cardinal directions (using magnetic north not true north). Two photos should be taken in each direction; one toward the ground (about 2 m out) to show the ground cover and one that shows the horizon.
- Wildlife surveys** should likely be done every year to assure as little harm to wildlife as possible. A marsh hawk was noted to be nesting on the property in 2015. It should be noted that the Federal Migratory Bird Treaty Act (MBTA) prohibits the taking or harassing of nesting birds (to the point of abandoning their nest). If a bird is knowingly taken, it is an offense of the MBTA.
- Inspections of fences and animal crossings** should be done annually to get an idea of wildlife movement and use and how that may change with recreation use of the Property.
- Special-focus monitoring** can provide information for guiding future management choices. For example, if improvements of the spring-fed wetland are attempted, subsequent amphibian surveys would probably be valuable. For another example, if overgrazing of shrublands becomes apparent, and mule deer, elk, or moose are considered likely to be contributing to the problem, special surveys of those species may be warranted

Recreation and Education Monitoring

Monitoring Actions	Priority	Suggested contact
Walk the property regularly and monitor for any rogue trail building or other non-compliant activity and assure those activities are ceased if found	High	Volunteers, City Staff
<u>Monitor types and numbers of visitors</u> on the property to understand the types and frequency of uses to better know the potential impact on the trails	Moderate	Trail counter companies
<u>Monitor dog use</u> - Monitor the number of dogs entering the property as well as the condition of trailside vegetation, evidence of excessive nitrogen from dog waste (increased weeds)	Moderate	Volunteers, City Staff
<u>Monitor trail width</u> - Choose strategic places along the trail to prevent trail braiding, increased erosion or increased weed populations.	High	Volunteers
<u>To monitor the use of educational materials,</u> quantify access to electronic outreach material and survey users of outreach material	Moderate	City Staff, UOL

- Rogue trail building** has sometimes been an issue in the region. Due to the potential negative effects of this and other disturbances, it is important to catch these prior to them causing too much damage.
- Monitoring of visitor type and numbers** can be done with a hidden trail counter. Efforts usually need to be taken to hide the cameras due to visitor curiosity and potential vandalism.
- The monitoring of dog use** can be part of the enforcement of the County's dog policy, however, notations of injured vegetation near or off-trail, increased weeds by the trailside, and other indications of ecological injury should also be noted.
- The monitoring of trail width** can be informational regarding problematic erosion or increased ground disturbance. Targeted GPS points should be established and repeat photographs taken as well as actual trail widths measurements taken
- To monitor the use of educational resources** given to various school groups or other community groups, keep track of how many times outreach material is accessed over the web or the number of brochures requested.

Chapter 6 - Conclusion

Through the combination of the Conservation Easement, Baseline Assessment and this Management Plan, the regulations, ecology and reasoning behind management recommendations for the Clark Ranch Property are meant to be well understood.

The emphasis of this plan is to provide information and guidelines to balance the needs of the ecosystem resources to maintain a healthy and functional ecosystem with community enjoyment and use of the property. This sometimes delicate balance is required to assure all the Conservation Values set out in the Conservation easement are maintained.

Since the Property is not yet officially open to the public as an Open Space property, the three documents together are well suited to guide the potential development of the Property for community enjoyment. All management guidelines are meant to maintain or improve the ecosystem and Conservation Values.

It should be noted that as use increases and changes over time, the need for proper management will also increase and change, and thus this management plan will be needed to be updated about every 5 years. Monitoring data collected over that 5 years can be used to modify management guidelines and/or actions. The desired outcome of this plan and subsequent updated plans is to carry out highly informed management decisions that will both meet the needs of the public while assuring the conservation values are being preserved.

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Clark Ranch Management Plan

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Appendix 1. Weed Management Plan

Appendix 2. Native Plants Restoration Guidance

MEMORANDUM

Date: September 1, 2023
To: Jarrett Moe, AIA, NCARB, LEED AP, Stereotomic PLLC
From: Seishi Yamagata, PE, PTOE Fehr & Peers
Preston Stinger, PTP, Fehr & Peers
Subject: Clark Ranch Trip Generation Evaluation

UT23-2453

INTRODUCTION

The purpose of this memorandum is to summarize the evaluation of trip generation for the proposed Clark Ranch development located in Park City, Utah. This memorandum summarizes the evaluation of trip generation for the proposed land use.

LAND USE

The proposed development will be composed of affordable multifamily housing units, and is in the process of determining land use numbers. Currently the following three options are in consideration:

- Option 1: 160 total dwelling units
- Option 2: 225 total dwelling units
- Option 3: 290 total dwelling units

To assess the greatest impact, option 3 with 290 dwelling units was analyzed for this study (site plan attached in Appendix).



TRIP GENERATION

Fehr & Peers used trip generation rates published in the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, 2021, to estimate trip generation rates for this study. The following ITE land use code was assumed for the proposed Clark Ranch development.

- Multifamily Housing (Mid-Rise) (ITE Land Use 221) – 290 dwelling units

The ITE Trip Generation includes a land use code for affordable housing. However, it is a new land use code with a low sample size and limited data. Therefore, the affordable housing land use code was not used for this study.

Fehr & Peers submitted a Trip Generation Memo for the Ski Rail Housing in August, 2023. The proposed development for that included 10 studio apartments and 192 dormitory-style bedrooms, and unique elements to significantly reduce the vehicle trips generated. To account for the unique characteristics of that project site, Fehr & Peers estimated the trip generation using the ITE land use codes for Multifamily Housing (Mid-Rise) (ITE Land Use 221) for the studio apartments and Off-Campus Student Apartment (ITE Land Use 226) for the dormitory-style bedrooms. The proposed Clark Ranch development does not include the unique characteristics and restrictions imposed by the Ski Rail Housing, so the Off-Campus Student Apartment land use was not used for this study.

The calculated trip generation for the proposed Clark Ranch development is shown below in **Table 1**.

Table 1 Clark Ranch Trip Generation

Land Use ¹	Number of Units	Unit Type	Daily Trip Generation ²	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New Daily Trips
Multifamily Housing (Mid-Rise) (221)	290	Dwelling Units	1,338	50%	50%	669	669	1,338
Net Weekday Trips						669	669	1,338
Land Use ¹	Number of Units	Unit Type	AM Peak Hour Trip Generation ²	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New AM Peak Hour Trips
Multifamily Housing (Mid-Rise) (221)	290	Dwelling Units	116	23%	77%	27	89	116
Net Weekday AM Peak Hour Trips						27	89	116
Land Use ¹	Number of Units	Unit Type	PM Peak Hour Trip Generation ²	% Entering ³	% Exiting ³	Trips Entering	Trips Exiting	New AM Peak Hour Trips
Multifamily Housing (Mid-Rise) (221)	290	Dwelling Units	113	61%	39%	69	44	113
Net Weekday PM Peak Hour Trips						69	44	113

1. (XXX) Indicates ITE Land Use Code. Land Use Code from the Institute of Transportation Engineers - 11th Edition Trip Generation Manual (ITE Manual)

2. Traffic Generated by the development according to trip generation rates provided in the ITE Manual

3. Percentage of trips Entering and Exiting the development according to the ITE Manual.

SOURCE: Fehr & Peers



As shown in **Table 1**, the proposed Clark Ranch development is estimated to generate 1,338 daily trips, 116 AM peak hour trips, and 113 PM peak hour trips.

PROJECT IMPACTS

Fehr & Peers collected turning movement counts for another project at the SR-248 / Richardson Flat Road intersection in January 2020 (attached in Appendix). The 2020 counts at the intersection showed two-way volumes on Richardson Flat Road (east of SR-248) of 214 vehicles and 172 vehicles in the AM peak hour and PM peak hour, respectively.

Fehr & Peers performed a high-level assessment of the project impacts of the peak hour trip generation on the roadway capacity of Richardson Flat Road. The roadway Level of Service (LOS) was estimated based on planning level generalized peak hour two-way volumes for roadway capacities. These volumes are published by the Florida Department of Transportation (FDOT) based on planning applications of the Highway Capacity Manual (HCM) and are widely used for planning level evaluation of roadway capacity. **Table 2** below shows the peak hour two-way capacity estimates for a 2-lane undivided roadway in developed areas less than 5,000 population.

Table 2: Roadway Level of Service Peak Hour Two-Way Traffic Thresholds

Level of Service	Peak Hour Traffic Capacity Estimates
	2 Lanes
LOS B or better	≤ 1,098
LOS C	1,099 – 1,215
LOS D	> 1,215

Source: Fehr & Peers, based on FDOT Generalized Peak Hour Two-Way Volumes for developed areas less than 5,000 population, adjusted for non-state signalized roadway.

Table 3 below shows the projected peak hour two-way volumes on Richardson Flat Road with the proposed Clark Ranch development.

Table 3: Peak Hour Two-Way Volumes on Richardson Flat Road

Peak Hour	Background ¹	Project ²	Plus Project
AM	214	116	330
PM	172	113	285

1. From turning movement counts at the SR-248 / Richardson Flat Road intersection counted in 2020.

2. Estimated for proposed Clark Ranch development, as shown in Table 1.

Source: Fehr & Peers



As shown in **Table 3**, the AM and PM peak hour estimated trips on Richardson Flat Road are 330 vehicles and 285 vehicles, respectively, with the proposed Clark Ranch development. This is well below the LOS B threshold as shown in **Table 2**.

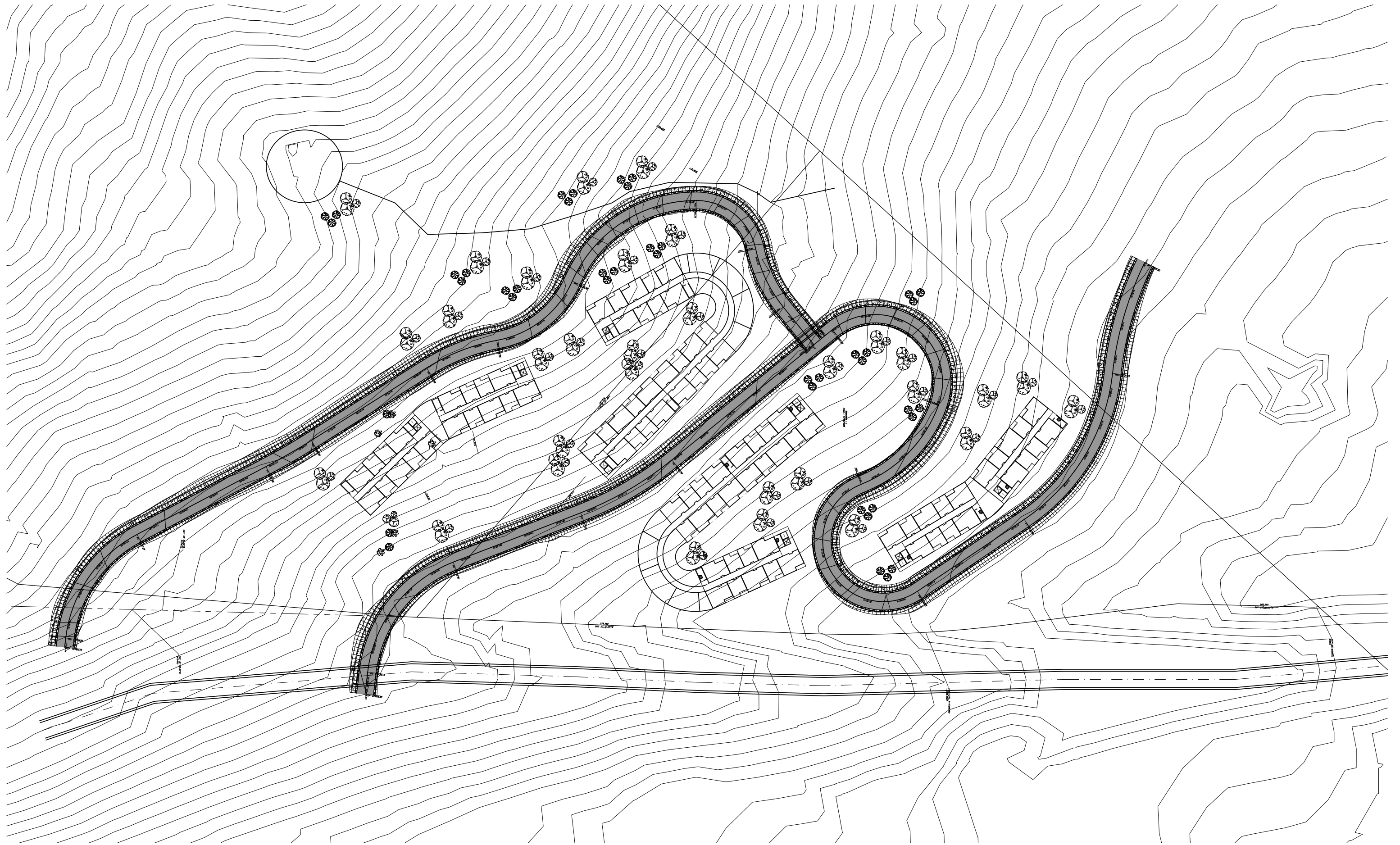
CONCLUSION

Fehr & Peers evaluated the total trips generated by the proposed Clark Ranch development. The estimated trips generated by the development are 1,338 daily trips, 116 AM peak hour trips, and 113 PM peak hour trips. Fehr & Peers also estimated the projected peak hour two-way volumes on Richardson Flat Road with the proposed development. The estimated trips are 330 vehicles and 285 vehicles in the AM peak hour and PM peak hour, respectively. This is well below the LOS B threshold, indicating that Richardson Flat Road has the capacity to receive the additional trips from the proposed Clark Ranch development.

APPENDIX

Site Plan

Previous Intersection Turning Movement Counts



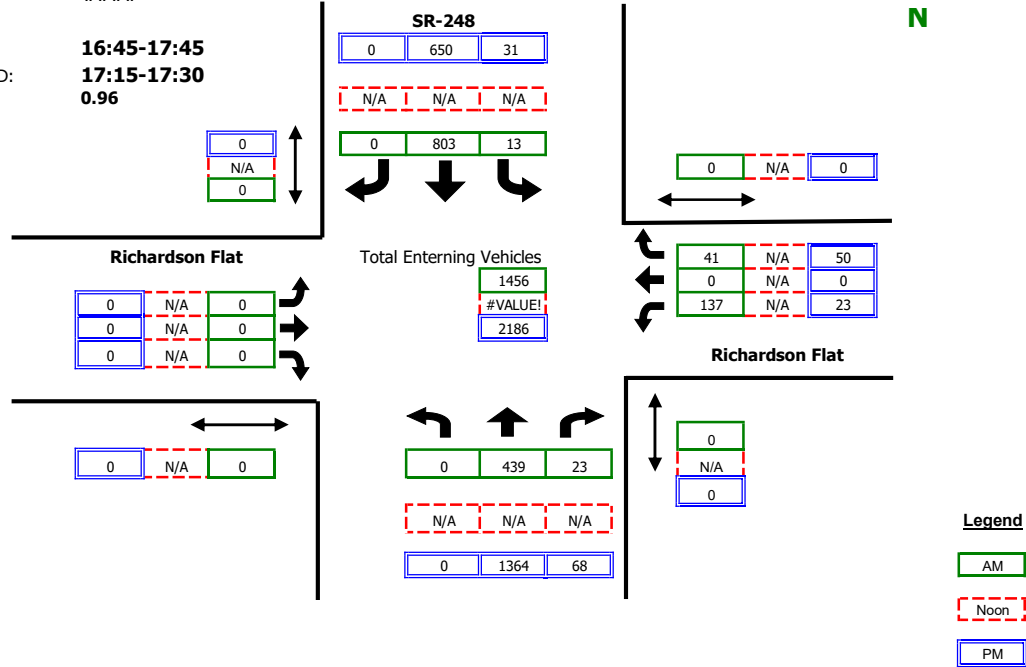
Intersection Turning Movement Summary

Intersection:	SR-248/Richardson Flat	Date:	1-15-20, Wed
	North/South: SR-248	Day of Week Adjustment:	100.0%
	East/West: Richardson Flat	Month of Year Adjustment:	100.0%
Jurisdiction:	UDOT	Adjustment Station #:	
Project Title:	Richardson Flat Development	Growth Rate:	0.0%
Project No:	UT20-2201	Number of Years:	0
Weather:	Clear		

AM PEAK HOUR PERIOD: **7:30-8:30**
 AM PEAK 15 MINUTE PERIOD: **7:30-7:45**
 AM PHF: **0.92**

NOON PEAK HOUR PERIOD:
 NOON PEAK 15 MINUTE PERIOD:
 NOON PHF: **####**

PM PEAK HOUR PERIOD: **16:45-17:45**
 PM PEAK 15 MINUTE PERIOD: **17:15-17:30**
 PM PHF: **0.96**



RAW COUNT SUMMARIES	SR-248 Northbound				SR-248 Southbound				Richardson Flat Eastbound				Richardson Flat Westbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds

AM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00-7:15	0	56	6	0	5	292	0	0	0	0	0	0	12	0	3	0	374
7:15-7:30	0	100	4	0	13	238	0	0	0	0	0	0	32	0	6	0	393
7:30-7:45	0	137	8	0	1	213	0	0	0	0	0	0	29	0	6	0	394
7:45-8:00	0	106	2	0	3	206	0	0	0	0	0	0	33	0	12	0	362
8:00-8:15	0	81	7	0	3	201	0	0	0	0	0	0	38	0	8	0	338
8:15-8:30	0	115	6	0	6	183	0	0	0	0	0	0	37	0	15	0	362
8:30-8:45	0	88	3	0	4	232	0	0	0	0	0	0	43	0	4	0	374
8:45-9:00	0	96	3	0	1	228	0	0	0	0	0	0	43	0	3	0	374

NOON PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
14:00-14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45-14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PERIOD COUNTS

Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00-16:15	0	297	19	0	4	155	0	0	0	0	0	0	1	0	17	0	493
16:15-16:30	0	346	13	0	4	146	0	0	0	0	0	0	10	0	10	0	529
16:30-16:45	0	315	11	0	3	160	0	0	0	0	0	0	7	0	10	0	506
16:45-17:00	0	309	19	0	5	161	0	0	0	0	0	0	6	0	20	0	520
17:00-17:15	0	355	12	0	7	159	0	0	0	0	0	0	3	0	6	0	542
17:15-17:30	0	345	21	0	10	169	0	0	0	0	0	0	7	0	15	0	567
17:30-17:45	0	355	16	0	9	161	0	0	0	0	0	0	7	0	9	0	557
17:45-18:00	0	261	16	0	8	161	0	0	0	0	0	0	8	0	7	0	461



PROPOSED MAPPING

•	PRMABN	BENCHMARK
---	PRMABN	BOUNDARY LINE
---	PRMABS	BUILDING SETBACK/WINDOW
---	PRMACL	CENTERLINE
---	PRMAEH	EASEMENT
---	PRMAFO	IRON PIPE
---	PRMALO	LOT LINE
---	PRMAMC	MAPPING MISCELLANEOUS
---	PRMAPO	CITY/COUNTY MONUMENT
•	PRMAPO	NAIL
•	PRMAPO	PIN
•	PRMABN	PROPERTY LINE
•	PRMAPO	REBAR
•	PRMARH	RIGHT OF WAY
•	PRMARK	SECTION CORNER
•	PRMATA	CONTROL POINT (DESC)

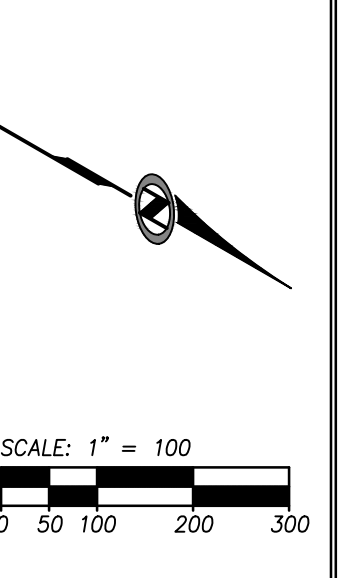
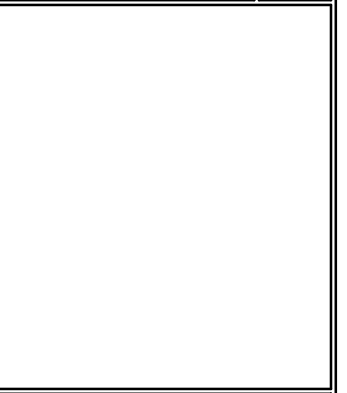


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EXHIBIT-1

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DATE SUBMITTED: 6.13.2023



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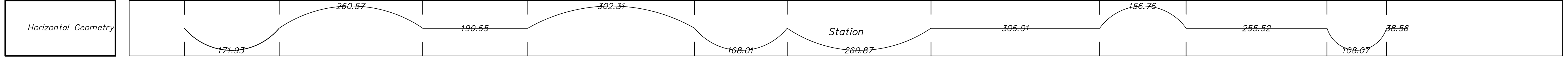
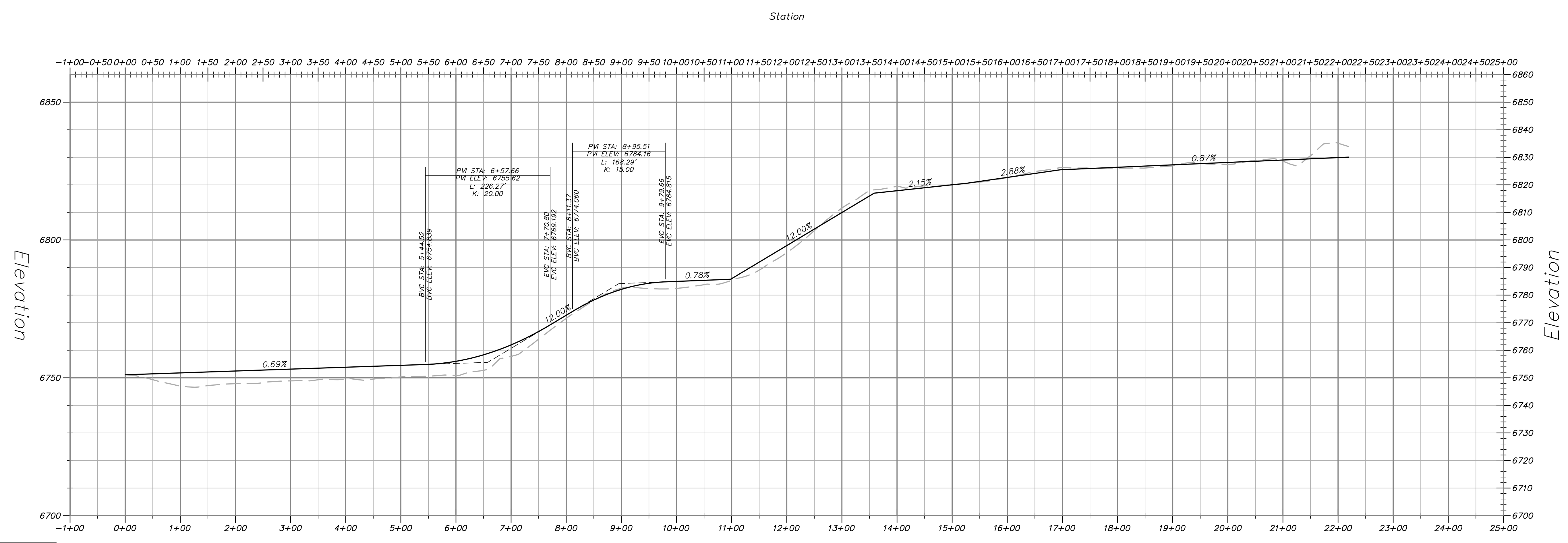
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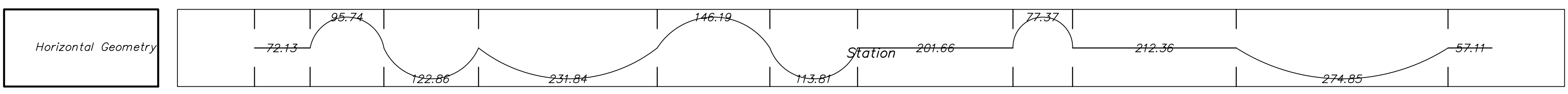
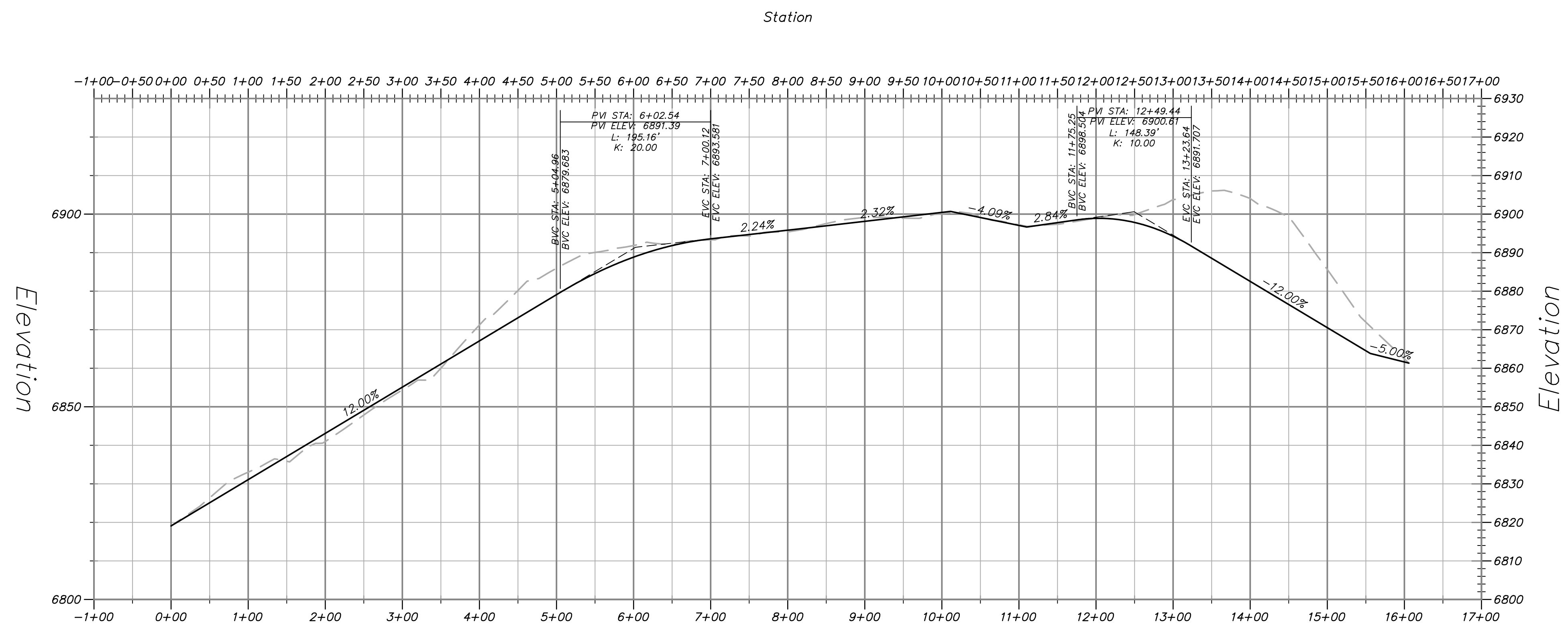
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ROAD-1 PROFILE



ROAD-2 PROFILE

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PROPOSED MAPPING

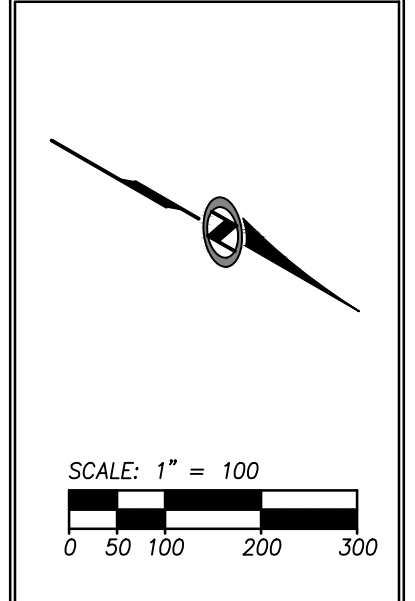
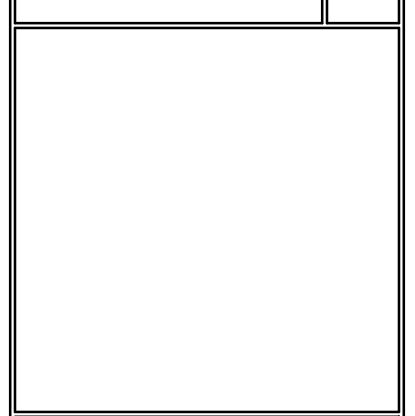
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---	PRMAEH	EASEMENT
---	PRMALO	IRON PIPE
---	PRMALO	LOT LINE
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●	PRMAIO	NAIL
●	PRMAIO	PIN
●	PRMABN	PROPERTY LINE
●	PRMABN	REBAR
●	PRMARK	RIGHT OF WAY
●	PRMARK	SECTION CORNER
▲	PRMATA	CONTROL POINT (DESC)

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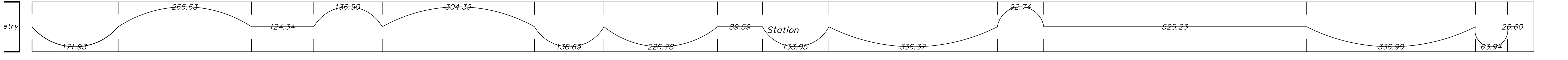
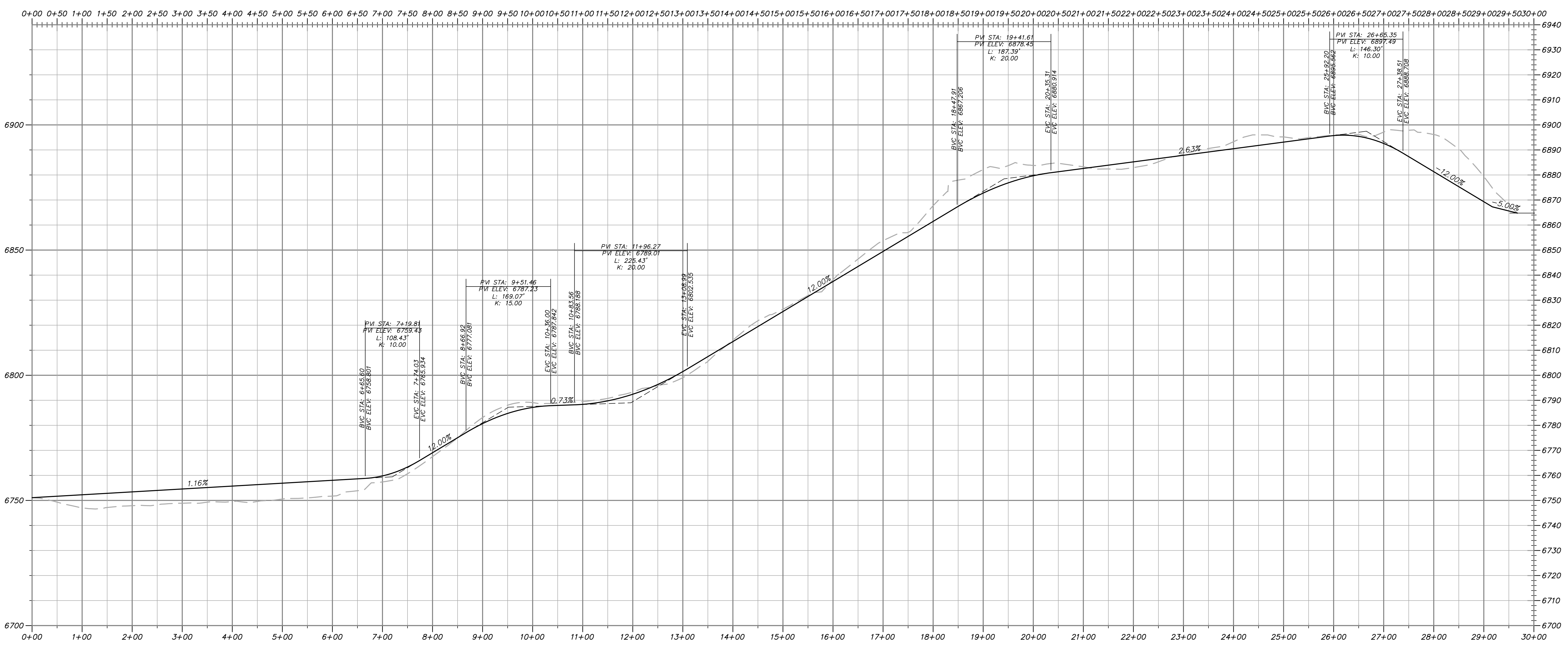
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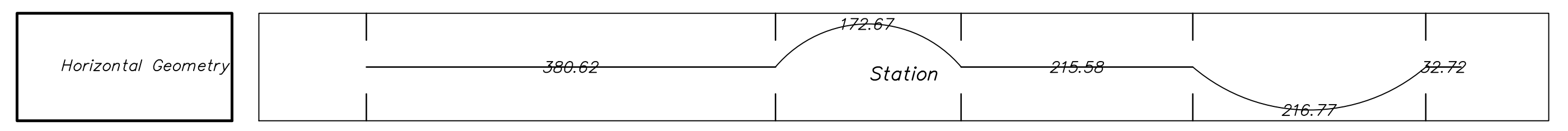
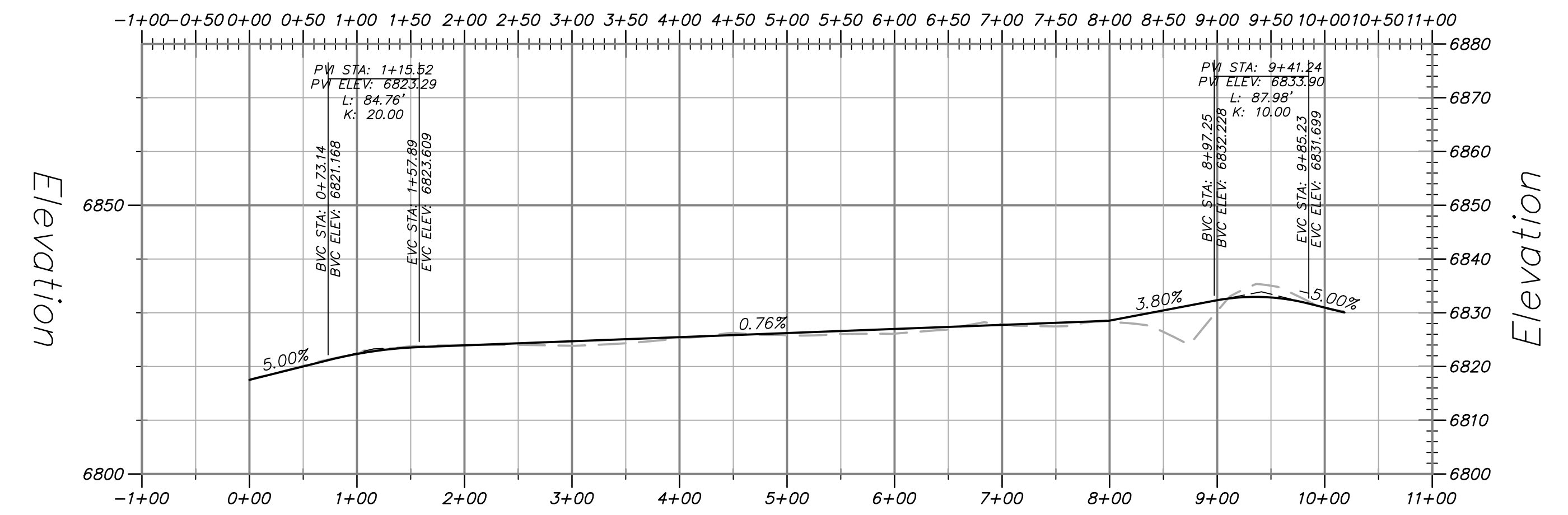
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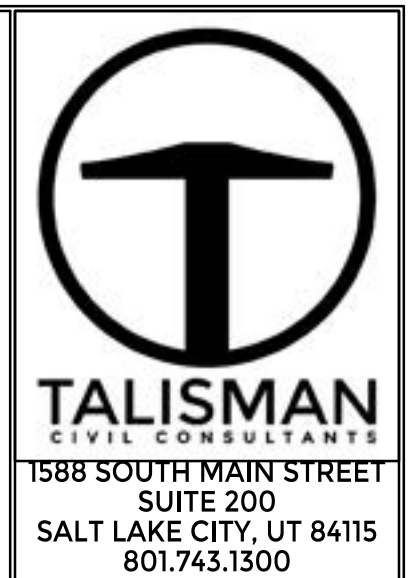
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ROAD-1 PROFILE



ROAD-2 PROFILE



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NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Summit Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties

Park City Heights Soil Survey



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

Custom Soil Resource Report

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

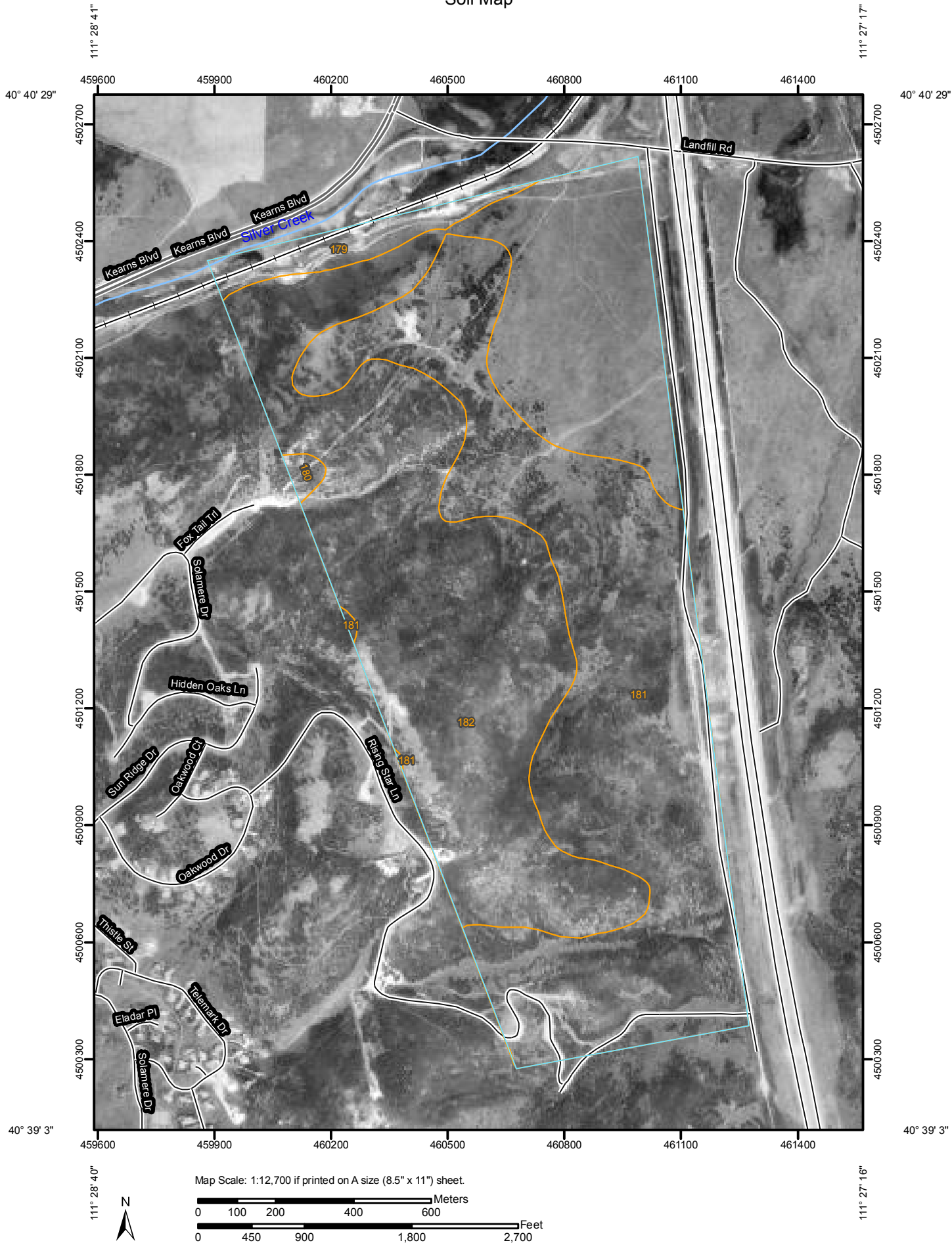
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

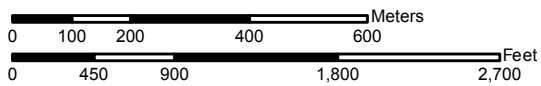
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:12,700 if printed on A size (8.5" x 11") sheet.



Custom Soil Resource Report

MAP LEGEND






















Area of Interest (AOI)


 Area of Interest (AOI)

Soils

 Soil Map Units

Special Point Features




-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

 Very Stony Spot

 Wet Spot

 Other



Special Line Features

-  Gully
-  Short Steep Slope
-  Other






Political Features

 Cities

Water Features

-  Oceans
-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

Map Scale: 1:12,700 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 12N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Summit Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties
 Survey Area Data: Version 5, Sep 4, 2009

Date(s) aerial images were photographed: 7/8/1997

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Summit Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties (UT613)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
179	Wanship-Kovich loams, 0 to 3 percent slopes	14.8	3.1%
180	Yeates Hollow-Henefer complex, 3 to 15 percent slopes	2.1	0.4%
181	Yeates Hollow-Henefer complex, 15 to 30 percent slopes	205.3	42.9%
182	Yeates Hollow-Henefer complex, 30 to 60 percent slopes	256.9	53.6%
Totals for Area of Interest		479.1	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic

Custom Soil Resource Report

classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Summit Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties

179—Wanship-Kovich loams, 0 to 3 percent slopes

Map Unit Setting

Elevation: 5,200 to 8,000 feet

Mean annual precipitation: 16 to 22 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Wanship and similar soils: 55 percent

Kovich and similar soils: 30 percent

Minor components: 15 percent

Description of Wanship

Setting

Landform: Stream terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from sandstone and conglomerate

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: About 20 to 30 inches

Frequency of flooding: Rare

Frequency of ponding: None

Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): 4w

Land capability (nonirrigated): 4w

Ecological site: Interzonal Semiwet Fresh Meadow (Meadow sedge/Tufted hairgrass) (R047XA004UT)

Typical profile

0 to 8 inches: Loam

8 to 14 inches: Loam

14 to 24 inches: Loam

24 to 26 inches: Extremely cobbly loamy sand

26 to 60 inches: Extremely cobbly loamy sand

Description of Kovich

Setting

Landform: Flood plains

Down-slope shape: Linear

Across-slope shape: Concave

Parent material: Alluvium derived from sandstone, quartzite and shale

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Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: About 12 to 24 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 6w

Land capability (nonirrigated): 7w

Ecological site: Intezonal Wet Fresh Meadow (Sedge) (R047XA008UT)

Typical profile

0 to 9 inches: Loam

9 to 22 inches: Clay loam

22 to 29 inches: Clay loam

29 to 44 inches: Fine sandy loam

44 to 60 inches: Very gravelly loamy fine sand

Minor Components

Toddspan

Percent of map unit: 6 percent

Landform: Valley floors, flood plains

Down-slope shape: Linear

Across-slope shape: Convex, concave

Ecological site: Intezonal Wet Fresh Meadow (Sedge) (R047XA008UT)

Snyderville

Percent of map unit: 5 percent

Landform: Outwash terraces, stream terraces

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: Mountain Gravelly Loam (Mountain Big Sagebrush)
(R047XA406UT)

Dastrup

Percent of map unit: 4 percent

Landform: Fan remnants

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: Upland Loam (Basin Big Sagebrush) (R047XA308UT)

Other vegetative classification: Upland Loam (Mountain Big Sagebrush)
(047XA308UT_2)

180—Yeates Hollow-Henefer complex, 3 to 15 percent slopes

Map Unit Setting

Elevation: 6,400 to 8,300 feet

Mean annual precipitation: 16 to 22 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Yeates hollow and similar soils: 55 percent

Henefer and similar soils: 30 percent

Minor components: 15 percent

Description of Yeates Hollow

Setting

Landform: Mountain slopes

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Slope alluvium derived from conglomerate, sandstone and quartzite

Properties and qualities

Slope: 3 to 15 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Ecological site: Mountain Stony Loam (Mountain Big Sagebrush) (R047XA461UT)

Typical profile

0 to 12 inches: Very stony loam

12 to 25 inches: Very cobbly clay

25 to 37 inches: Very cobbly clay

37 to 43 inches: Extremely cobbly clay loam

43 to 53 inches: Bedrock

Description of Henefer

Setting

Landform: Mountain slopes

Down-slope shape: Linear

Across-slope shape: Linear

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Parent material: Slope alluvium derived from quartzite, sandstone and shale

Properties and qualities

Slope: 3 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Ecological site: Mountain Loam (Oak) (R047XA432UT)

Typical profile

0 to 7 inches: Gravelly loam

7 to 12 inches: Gravelly loam

12 to 21 inches: Cobbly clay

21 to 30 inches: Cobbly clay

30 to 37 inches: Very gravelly clay loam

37 to 43 inches: Very gravelly clay loam

43 to 50 inches: Very cobbly sandy clay loam

50 to 60 inches: Very cobbly sandy clay loam

Minor Components

Ant flat

Percent of map unit: 6 percent

Landform: Fan remnants

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: Mountain Loam (Mountain Big Sagebrush) (R047XA430UT)

Heiners

Percent of map unit: 5 percent

Landform: Ridges on mountain slopes

Down-slope shape: Convex, linear

Across-slope shape: Convex

Ecological site: Upland Shallow Loam (Wyoming Big Sagebrush) (R047XA320UT)

Other vegetative classification: Upland Shallow Loam (Mountain Big Sagebrush)
(047XA320UT_1)

Fewkes

Percent of map unit: 4 percent

Landform: Fan remnants

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: Mountain Loam (Mountain Big Sagebrush) (R047XA430UT)

181—Yeates Hollow-Henefer complex, 15 to 30 percent slopes

Map Unit Setting

Elevation: 6,200 to 8,400 feet

Mean annual precipitation: 16 to 22 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Yeates hollow and similar soils: 55 percent

Henefer and similar soils: 30 percent

Minor components: 15 percent

Description of Yeates Hollow

Setting

Landform: Mountain slopes

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Slope alluvium and colluvium derived from conglomerate, sandstone and quartzite

Properties and qualities

Slope: 15 to 30 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Ecological site: Mountain Stony Loam (Mountain Big Sagebrush) (R047XA461UT)

Typical profile

0 to 12 inches: Very stony loam

12 to 25 inches: Very cobbly clay

25 to 37 inches: Very cobbly clay

37 to 43 inches: Extremely cobbly clay loam

43 to 53 inches: Bedrock

Description of Henefer

Setting

Landform: Mountain slopes

Down-slope shape: Linear

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Across-slope shape: Linear

Parent material: Slope alluvium and colluvium derived from quartzite, sandstone and shale

Properties and qualities

Slope: 15 to 30 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Ecological site: Mountain Loam (Oak) (R047XA432UT)

Typical profile

0 to 7 inches: Gravelly loam

7 to 12 inches: Gravelly loam

12 to 21 inches: Cobbly clay

21 to 30 inches: Cobbly clay

30 to 37 inches: Very gravelly clay loam

37 to 43 inches: Very gravelly clay loam

43 to 50 inches: Very cobbly sandy clay loam

50 to 60 inches: Very cobbly sandy clay loam

Minor Components

Ant flat

Percent of map unit: 6 percent

Landform: Fan remnants

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: Mountain Loam (Mountain Big Sagebrush) (R047XA430UT)

Heiners

Percent of map unit: 5 percent

Landform: Mountain slopes

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: Upland Shallow Loam (Wyoming Big Sagebrush) (R047XA320UT)

Other vegetative classification: Upland Shallow Loam (Mountain Big Sagebrush) (047XA320UT_1)

Fewkes

Percent of map unit: 4 percent

Landform: Mountain slopes

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: Mountain Loam (Mountain Big Sagebrush) (R047XA430UT)

182—Yeates Hollow-Henefer complex, 30 to 60 percent slopes

Map Unit Setting

Elevation: 5,600 to 8,400 feet

Mean annual precipitation: 16 to 22 inches

Mean annual air temperature: 40 to 45 degrees F

Frost-free period: 60 to 90 days

Map Unit Composition

Yeates hollow and similar soils: 55 percent

Henefer and similar soils: 30 percent

Minor components: 15 percent

Description of Yeates Hollow

Setting

Landform: Mountain slopes

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Colluvium derived from conglomerate, sandstone and quartzite

Properties and qualities

Slope: 30 to 60 percent

Depth to restrictive feature: 40 to 60 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Ecological site: Mountain Stony Loam (Mountain Big Sagebrush) (R047XA461UT)

Typical profile

0 to 12 inches: Very stony loam

12 to 25 inches: Very cobbly clay

25 to 37 inches: Very cobbly clay

37 to 43 inches: Extremely cobbly clay loam

43 to 53 inches: Bedrock

Description of Henefer

Setting

Landform: Mountain slopes

Down-slope shape: Linear

Across-slope shape: Linear

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Parent material: Colluvium derived from quartzite, sandstone and shale

Properties and qualities

Slope: 30 to 60 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water capacity: Moderate (about 7.1 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Ecological site: Mountain Loam (Oak) (R047XA432UT)

Typical profile

0 to 7 inches: Gravelly loam

7 to 12 inches: Gravelly loam

12 to 21 inches: Cobbly clay

21 to 30 inches: Cobbly clay

30 to 37 inches: Very gravelly clay loam

37 to 43 inches: Very gravelly clay loam

43 to 50 inches: Very cobbly sandy clay loam

50 to 60 inches: Very cobbly sandy clay loam

Minor Components

Fewkes

Percent of map unit: 6 percent

Landform: Mountain slopes

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: Mountain Loam (Mountain Big Sagebrush) (R047XA430UT)

Heiners

Percent of map unit: 5 percent

Landform: Ridges on mountain slopes

Down-slope shape: Convex, linear

Across-slope shape: Convex

Ecological site: Upland Shallow Loam (Wyoming Big Sagebrush) (R047XA320UT)

Other vegetative classification: Upland Shallow Loam (Mountain Big Sagebrush)
(047XA320UT_1)

Rock outcrop

Percent of map unit: 4 percent

Landform: Ridges on mountain slopes, escarpments on mountain slopes

Down-slope shape: Convex

Across-slope shape: Convex

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

PARK CITY HEIGHTS

SUMMIT COUNTY, UTAH

Prepared for:

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March 27, 2012

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APPENDIX 1	SITE VICINITY MAP
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1.0 EXECUTIVE SUMMARY

This report documents the results of a Phase I Environmental Site Assessment (ESA) on an approximately 176-acre parcel of land in Summit County, Utah (Property). The parcel is presented in Appendix 1. The assessment was conducted by Resource Management Consultants, Inc. (RMC) at the request of the Ivory Development. This assessment was conducted using the protocol and limitations of the American Society for Testing and Materials Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-05. The assessment was conducted using a combination of site reconnaissance, interviews with knowledgeable persons and record reviews.

The Property is located in Summit County, Utah. There are no industrial areas in the vicinity of the Property.

The Property consists of undeveloped lands adjacent to the residential subdivisions, undeveloped properties, a county road and US Highway 40. Ground cover on the Property is primarily grasses, sagebrush and gamble oak.

A total of 102 federal, state and local governmental databases were searched. The Property was not listed in any of the government databases that were searched.

One Recognized Environmental Condition (REC) was observed on the Property:

Historical photographs indicate the presence of a linear feature connecting Silver Creek and the Richardson Flat Tailings Site in the northern portion of Parcel PCA-92. Both Silver Creek and Richardson Flat contain well documented occurrences of historic mine tailings. As described in Section 5.0, the Richardson Flat Tailings Site is listed on the NPL and CERCLIS databases. Studies conducted by the United States Bureau of Land management (BLM) and United States Geological Survey (USGS) indicate the presence of metals-contaminated mine tailings in Silver Creek. The Record of Decision (ROD) prepared by the United States Environmental Protection Agency (EPA, 2005) indicates that tailings were transported to the Richardson Flat site via a slurry pipeline. Knowledgeable persons from Park City Municipal Corporation (PCMC) indicated that a portion of the Property may be located within Richardson Flat CERCLA Site Operable Unit 3 (Richardson Flat OU3). The boundaries of Richardson Flat OU3 have not been finalized as of the date of this Phase I ESA.

A Field portable X-Ray Fluorescence Meter (XRF) was used to screen metals concentrations during the Site Reconnaissance. Observations conducted during the Site Reconnaissance (Section 6.0) indicated the presence of the following contaminants associated with linear feature described above:

- Sand-sized tailings with a lead concentration ranging from 3,500 to 10,000 parts per million (ppm) lead. Background concentrations of lead in soil are approximately 30 to 40 ppm. These tailings emanate from a low-lying area containing visible tailings in the north-west portion of Parcel PCA-92. This area is associated with Silver Creek; and
- Cement debris containing lead concentrations of approximately 3,500 ppm.

The REC area is presented in Figure 4, located in Appendix B. XRF screening was conducted to determine general conditions at the Property.

Due to snow cover, only the listed portion of the Property was screened with the XRF. The XRF screening was conducted for initial assessment purposes only.

2.0 INTRODUCTION

This report documents the findings of a Phase I Environmental Site Assessment (ESA) conducted by RMC on a 176-acre parcel of land located in Summit County, Utah (Property). The ESA was conducted at the request of Ivory Development. A Property Location Map is presented in Appendix 1.

2.1 Purpose

The purpose of this ESA is to define present and past recognized environmental conditions on a parcel of real estate. Environmental impacts investigated include the presence of a range of potential contaminants such as petroleum products and those within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). A Phase I Environmental Site Assessment is intended to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA liability: that is the practices that constitute “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” as defined at 42 U.S.C. §9601(35)(B).

2.2 Detailed Scope of Services

The scope of services of this ESA is to provide a Phase I Environmental Site Assessment consistent with 40 CFR Part 312, Standards and practices for All Appropriate Inquiries; Final Rule and ASTM Designation E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

As based on the current methodology described by EPA and ASTM the following ten mandatory components of “All Appropriate Inquiry” have been incorporated into this ESA:

1. The results of an inquiry by an environmental professional
2. Interviews with past and present owners, operators and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility.
3. Reviews of historical sources, such as chain of title documents, aerial photographs, building department records and land use records, to determine previous uses and occupancies of the real property since the property was first developed.
4. Searches for environmental cleanup liens against the facility that are filed under federal, state or local law.
5. Reviews of federal, state and local government records, waste disposal records, underground storage tank records and hazardous waste handling, generation, treatment, disposal and spill records concerning contamination at or near the facility.
6. Visual inspections of the facility and adjoining properties.
7. Specialized knowledge or experience on the part of the defendant (purchaser).
8. The relationship of the purchase price to the value of the property, if the property was not contaminated.
9. Commonly known or reasonably ascertainable information about the property.
10. The degree of obviousness of the presence or likely presence of contamination at the property and the ability to detect the contamination by appropriate investigation.

2.3 Significant Assumptions

RMC has assumed that the information obtained in record reviews and provided by sources is complete and accurate.

2.4 Limitations and Exceptions

This ESA is a compilation of many sources, including record reviews, interviews with knowledgeable persons and Site visits. The scope of this ESA does not include the validation of records compiled by other sources. RMC did not attempt to independently verify or substantiate the validity or accuracy of the information received in the process of record reviews and interviews. This ESA does not include information that may have been withheld by knowledgeable persons, information that was not reported or information that has not been made available to the public. The ESA documented by this report detailed current and known past environmental conditions.

This ESA was conducted to comply with All Appropriate Inquires (AAI) as described by EPA and ASTM. If hazardous substances or conditions were not identified during this assessment, this ESA is not a guarantee of the absence of these substances or conditions. RMC's findings, opinions and conclusions were not developed as scientific certainties,

No sampling or chemical analysis of air, soil, surface water and groundwater was performed. Liability and risk evaluations were not within the scope of this report.

2.5 Special Terms and Conditions

This ESA was conducted based on the specifications of the American Society for Testing and Materials (ASTM) and 40 CFR part 312, Standards and practices for All Appropriate Inquires. The specifications used in this ESA can be found in the ASTM Standards on Environmental Site Assessments for Commercial Real Estate, E 1527-05 and 40 CFR part 312. The ESA was conducted on the Property described by the legal description in Section 3.1. The immediate vicinity is the area contained in abutting properties. The area referenced as the vicinity are locations within the general vicinity of the Property within approximately a one-half mile radius of the Property.

2.6 User Reliance

This report has been prepared for sole use by the client or its authorized representative, to rely on the information contained in this report to assess environmental conditions and concerns associated with the subject properties as they pertain to the scope of this report.

3.0 PROPERTY DESCRIPTION

This section details the location and contains descriptions of the Property and its general vicinity. Current and past uses of the Property are also detailed in this section. A Property Location Map is presented in Appendix 1. Property photographs are included in Appendix 2.

3.1 Location and Legal Description

The Property consists of a 176-acre parcel located in Summit County, Utah. Please see Appendix 3 for a Plat Map of the parcel.

3.2 Property and Vicinity General Characteristics

The Property consists of undeveloped land with grass, sagebrush and gamble oak ground cover. One unimproved parking area is located adjacent to Richardson Flat road. The Property is located in the Wasatch Mountains, approximately one mile north of Park City, Utah. Current land use of the Property and adjoining properties is primarily open space. There is no industry located in the immediate vicinity of the Property.

3.3 Current Use of Property

With the exception of an unimproved parking area, the Property is currently unused.

3.4 Descriptions of Structures, Roads, Other Improvements on the Property

A small unimproved parking area exists on the Property. No other improvements were observed on the Property.

3.5 Current Uses of the Adjoining Properties

Uses of adjoining properties include open space and residential developments.

4.0 USER PROVIDED INFORMATION

The information provided in this section is partly based on property owner interviews conducted via telephone. Additional information was provided by Park City Municipal Corporation (PCMC).

4.1 Environmental Liens or Activity and Use Information

Brad Mackay of Ivory Development indicated that there are no environmental liens on the Property. The Property is not currently being used for any activities that would increase the potential for RECs.

4.2 Specialized Knowledge

Jim Blankenau, PCMC Sustainability Department, was contacted to determine if there are any potential RECs on the Property. Mr. Blankenau did not have any knowledge of adverse environmental conditions at the Property. Mr. Blankenau did state that any adverse environmental conditions at the Property would be related to mine tailings in Silver Creek. Mr. Blankenau stated that a portion of the Property may fall within the boundaries of Richardson Flat CERCLA Site Operable Unit 3 (Richardson Flat OU3). The Richardson Flat OU3 boundary has not been finalized as of the date of this Phase I ESA.

Phyllis Robinson, PCMC Sustainability Department, was contacted to determine if there are any potential RECs on the Property. Ms. Robinson stated that a portion of the Property may fall within the boundaries of Richardson Flat OU3.

4.3 Commonly Known or Reasonably Ascertainable Information

All commonly known or reasonably ascertainable information was obtained and provided.

4.4 Valuation Reduction for Environmental Issues

Not applicable.

4.6 Owner, Property Manager, and Occupant Information

Owner information is provided in the Title Records presented in Appendix 3.

4.7 Reason for Performing Phase I ESA

A Phase I ESA is being conducted prior to development.

5.0 RECORDS REVIEW

This section details the results of an environmental records review. In addition to records reviews, when necessary, additional information was attained during interviews with knowledgeable persons. As part of the review process an EDR Radius Map Report (Appendix 4) was obtained from Environmental Data Resources, Inc. The EDR Radius Map Report identifies sites that may have environmental problems within the distances required by the ASTM Standard Practice for Site Assessments: Phase 1 Environmental Site Assessment Process (E 1527). The EDR Radius Map Report is a result of searches of 102 federal, state and local regulatory databases. The Property was not listed in any of the databases searched. Adjoining properties were not listed in any of the databases searched. For a detailed list of all databases searched see Appendix 4. Based on physical site inspections, Orphan sites listed in the database were not located on or adjacent to the Property.

The EDR Radius Map Report does not list any sites on or in the vicinity of the Property.

The following two sites located in the vicinity of the property are listed in the EDR Radius Map:

- The Richardson Flat Tailings Site is listed on numerous databases including the National Priorities List (NPL) and CERCLIS (e.g. Superfund). The Richardson Flat Tailings Site is a historic mine tailings repository. The Richardson Flat Tailings Site is located at a lower elevation than the Property. Due to the difference in elevation, activities within the Richardson Flat Site boundary have likely not impacted the Property.
- The Phoston Siding Site is listed on the Underground and Leaking Underground Storage Tank databases. The address is listed as five miles east of Park City. Based on RMC's extensive knowledge of the area, the map location appears to be incorrect and does not coincide with the address.

Orphan sites are locations which contain insufficient location information. Based on the Site Reconnaissance and RMC's knowledge of the area, the Orphan Sites listed in the EDR Radius Map Report do not appear to be located in the vicinity of or impact the Property.

5.1 Physical Setting Sources

The Property is located within the boundaries of the Park City East 7.5 minute Quadrangle map (Appendix 1).

The Property is located in the Silver Creek Watershed, Wasatch Mountains at an elevation of approximately 6,700 feet above sea level.

5.2 Historical Use Information on the Property

The Property has been historically used for open space and grazing purposes. One area of the Property, adjacent to the Richardson Flat county road is used for an unimproved parking area.

5.3 Historical Use Information on Adjoining Properties

Adjoining properties have been historically used for rail transportation, grazing, residential development and open space.

5.4 Aerial Photography Review

Current and historical aerial photographs available on Google Earth were reviewed.

Historical photographs indicate the presence of a linear feature connecting Silver Creek and the Richardson Flat Tailings Site. Both Silver Creek and Richardson Flat contain well documented occurrences of historic mine tailings. As described in Section 5.0, Richardson Flat Tailings Site is listed on the NPL and CERCLIS databases. Studies conducted by the United States Bureau of Land management (BLM) and United States Geological Survey (USGS) indicate the presence of metals-contaminated mine tailings in Silver Creek. The Record of Decision (ROD) prepared by the United States Environmental Protection Agency (EPA, 2005) indicates that tailings were transported to the Richardson Flat site via a slurry pipeline.

With the exception of the above-described linear feature, the aerial photographs did not contain any features that would indicate the presence of RECs on the Property. The linear feature is described further in Section 6.3.

6.0 SITE RECONNAISSANCE

This section details the results of site reconnaissance. Site reconnaissance photographs are presented in Appendix 2. The site reconnaissance was conducted by Todd Leeds, P.G. on March 16, 2012.

6.1 Methodology

The Site Reconnaissance was conducted using the following methodologies:

- The Property was viewed from adjacent roads;
- On-the-ground inspections were conducted by walking through the Property; and
- Inspections were conducted for potentially hazardous products.

A field portable X-Ray Fluorescence Meter (XRF) was used to screen metals concentrations during the Site Reconnaissance. No laboratory analytical samples were collected as part of this ESA. XRF screening was conducted to determine general conditions at the Property. The results presented in Section 6.3 are not intended to provide a detailed characterization of the Property.

6.2 General Property Setting

The general setting is that the Property is vacant. Ground cover consists of grasses, sagebrush and gamble oak. One unimproved parking lot is located adjacent to Richardson Flat road.

6.3 Exterior Observations

The Property consists primarily of open space.

The Property is covered in native vegetation consisting of grass, sage, gamble oak and maple.

One unused, unpaved parking lot is located in the northern portion of the Property.

One power transmission line runs north-south through the Property. No transformers were observed.

Some trash and debris were observed on the Property.

A low-lying area of tailings was observed in the northwest area of Parcel PCA-92. The tailings were located on the upstream end of a linear ditch that crosses the northern portion of the Property. Tailings were observed in several berms located on the bottom of the ditch. These berms are orientated perpendicular to the flow direction of the ditch. A photograph of this area is presented in Figure 3, located in Appendix B. Tailings were also observed on the berm forming the north side of the ditch. The tailings contained lead concentrations ranging from 3,500 to 10,000 ppm. Concrete debris located on the north berm of the ditch contained lead concentrations ranging up to 3,500 ppm. Some wood debris was observed in the ditch. The ditch is approximately twelve feet wide and ten feet deep. It appears to have been formed by removing material on the south side and forming a berm on the north side.

Limited XRF screening on a portion of a dirt road to the south of the ditch contained lead concentrations ranging from 111 to 300 ppm.

Tailings locations are presented on an aerial photograph located in Appendix 2.

6.4 Interior Observations

No structures were observed on the Property.

6.5 Limitations

A portion of the Property was covered in snow.

7.0 INTERVIEWS

7.1 Interviews with Owners

Brad Mackay, of Ivory Development was interviewed in person on March 16, 2012. Mr. Mackay did not of know anything that would adversely impact the environmental quality or value of the Property.

7.2 Interview with Property Managers

No property managers were interviewed.

7.3 Interviews with Occupants

The Property is unoccupied.

7.4 Interviews with Local Government Officials

Jim Blankenau and Phyllis Robinson of the PCMC Sustainability Department were interviewed. The results of the interviews are presented in Section 4.2.

8.0 FINDINGS

This section identifies known, suspected, potential and de minimis RECs

One Recognized Environmental Condition (REC) was observed on the Property:

Historical photographs indicate the presence of a linear feature connecting Silver Creek and the Richardson Flat Tailings Site in the northern portion of Parcel PCA-92. Both Silver Creek and Richardson Flat contain well documented occurrences of historic mine tailings. As described in Section 5.0, the Richardson Flat Tailings Site is listed on the NPL and CERCLIS databases. Studies conducted by the United States Bureau of Land management (BLM) and United States Geological Survey (USGS) indicate the presence of metals-contaminated mine tailings in Silver Creek. The Record of Decision (ROD) prepared by the United States Environmental Protection Agency (EPA, 2005) indicates that tailings were transported to the Richardson Flat site via a slurry pipeline. Knowledgeable persons from Park City Municipal Corporation (PCMC) indicated that a portion of the property may be located within Richardson Flat CERCLA Site Operable Unit 3 (Richardson Flat OU3). The boundaries of Richardson Flat OU3 have not been finalized as of the date of this Phase I ESA.

A Field portable X-Ray Fluorescence Meter (XRF) was used to screen metals concentrations during the Site Reconnaissance. Observations conducted during the Site Reconnaissance (Section 6.0) indicated the presence of the following contaminants associated with linear feature described above:

- Sand-sized tailings with a lead concentration ranging from 3,500 to 10,000 parts per million (ppm) lead. These tailings emanate from a low-lying area containing visible tailings in the north-west portion of Parcel PCA-92. This area is associated with Silver Creek; and
- Cement debris containing lead concentrations of approximately 3,500 ppm.

The REC area is presented in Figure 4, located in Appendix B.

9.0 OPINIONS

It is the professional opinion of the preparer of this ESA that one REC exists the Property.

10.0 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527 for the property as described in Appendix 3, the Property. Any exceptions to, or deletions from, this practice are described in Section 11.0 of this report. This assessment has revealed one Recognized Environmental Condition in connection with the Property:

- Mine Tailings.

11.0 DEVIATIONS

There were no deviations from standard Phase I ESA procedures.

12.0 ADDITIONAL SERVICES

No additional services were completed as part of this Phase I ESA.

13.0 REFERENCES

ASTM International (ASTM), 2005, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Designation E 1527-05.

United States Environmental Protection Agency (EPA), 2005, 40 CFR part 312, Standards and Practices for All Appropriate Inquires; Final Rule.

United States Bureau of Land Management (BLM), 2005, Removal Site Inspection Silver Maple Claims, Park City Utah, Prepared by National Science and Technology Center, Denver CO.

United States Environmental Protection Agency (EPA), 2005, Richardson Flat Tailing's Site Record of Decision.

United States Geological Survey (USGS), 2002, Quantification of Metal Loading to Silver Creek Through the Silver Maple Claims Area, Park City, Utah, May 2002, Scientific Investigations Report 2007-5248

14.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312 and I have the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject Property. I have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



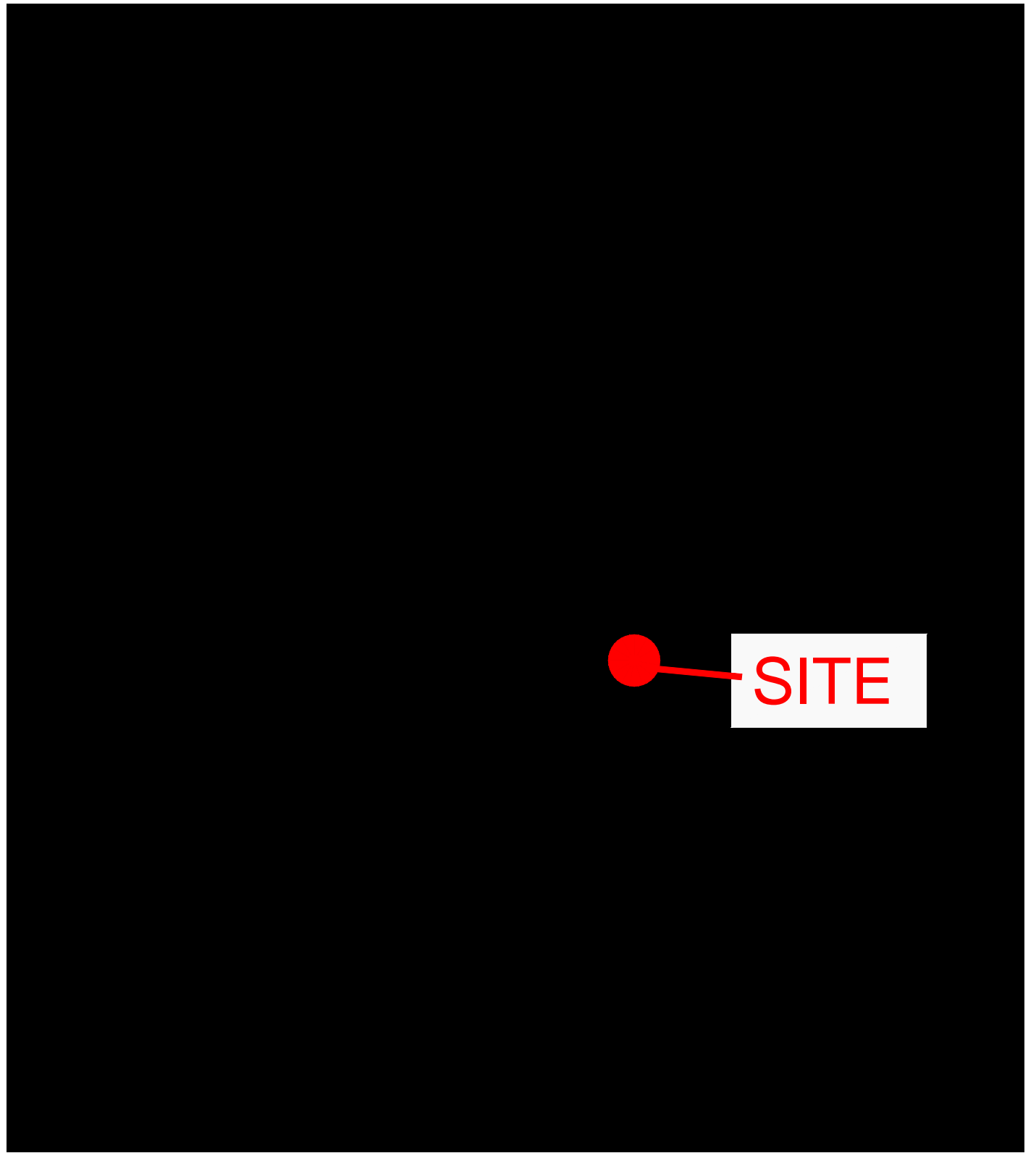
Todd Leeds – Professional Geologist, UT 5294606



15.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

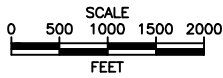
Todd Leeds, P.G. has a diverse professional and educational background which includes a Masters Degree in Geology as well as over twenty years of professional experience. Mr. Leeds' varied experience includes projects in the environmental, petroleum, mining and mapping fields. Site and environmental assessment experience includes projects ranging in size from single building environmental audits to large scale multi-phase industrial area assessments including both surface and subsurface soil and groundwater sampling. Mr. Leeds has geologic/environmental assessment experience in urban, suburban, rural, desert and alpine areas. Mr. Leeds has designed and installed both soil and groundwater remediation systems ranging from small UST related impacts to large-scale artificial wetlands for mine dewatering. Mr. Leeds background in geology and geohydrology includes water, mineral and hydrocarbon exploration. Mr. Leeds' computer mapping and 3D modeling project experience includes all aspects of computer mapping/modeling ranging from simple Site maps to complex three-dimensional models constructed from large databases. In addition, Mr. Leeds has extensive surface and subsurface mine design experience in the mineral, crushed rock and coal industries.

APPENDIX 1
SITE VICINITY MAP



SITE

NOTE: LOCATIONS NOT SURVEYED



IVORY HOMES
FIGURE 1
SITE LOCATION MAP

RESOURCE MANAGEMENT CONSULTANTS
8138 SOUTH STATE ST.
SUITE 2A
MIDVALE, UT 84047
801-255-2626



MARCH 2012
ivory homes esa

APPENDIX 2
SITE PHOTOGRAPHS



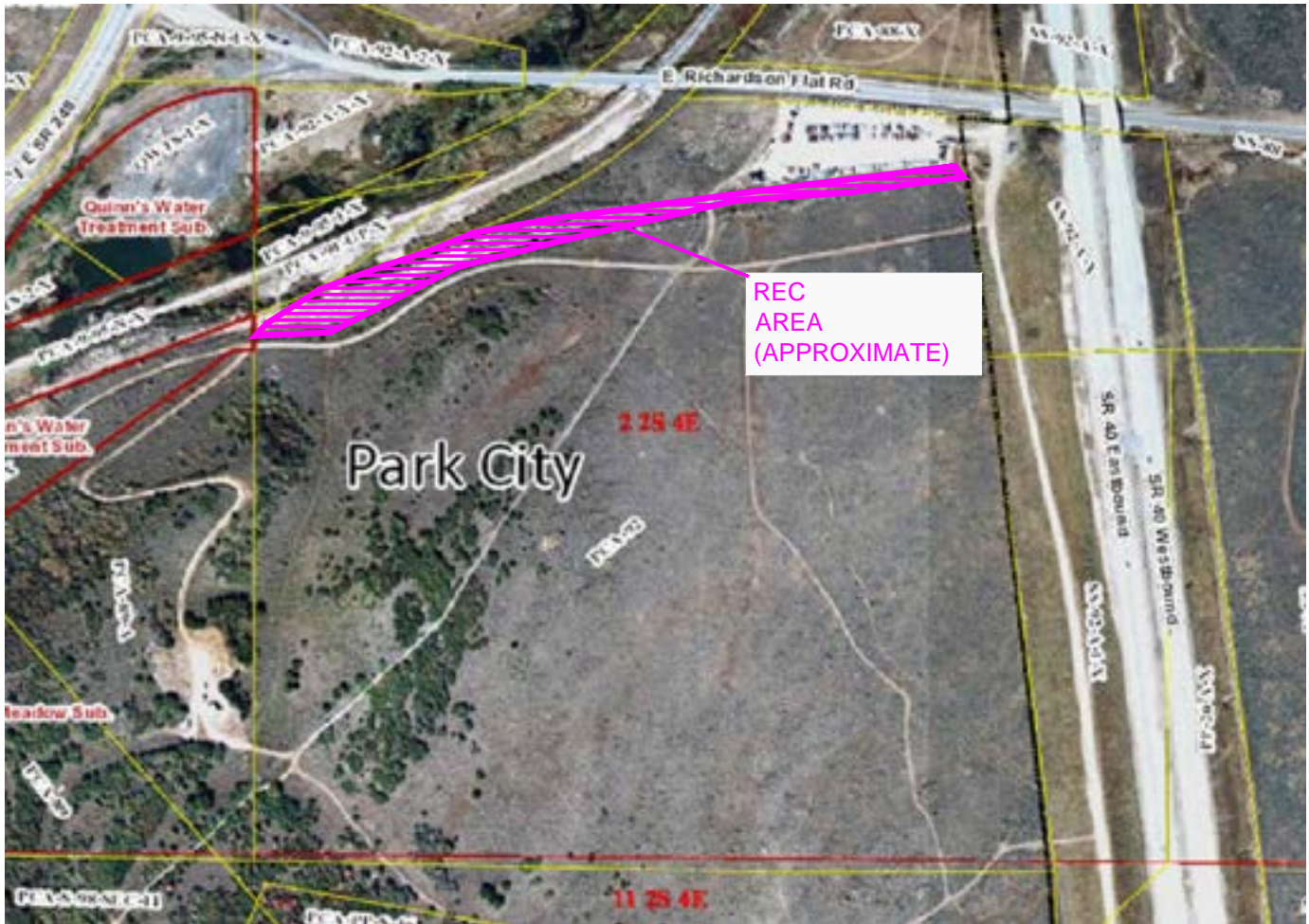
Figure 1 – Typical ground cover.



Figure 2 – Lead containing soil and cement debris. Note pad and XRF for scale.




Figure 3 – Ditch with berm consisting of tailings.



NOTES:

1. Areas approximate, not surveyed, based on initial site reconnaissance.
2. Photo source: Summit County GIS.
3. Not to scale.



IVORY HOMES	
FIGURE 4 REC AREA	
RESOURCE MANAGEMENT CONSULTANTS  8138 SOUTH STATE ST. SUITE 2A MIDVALE, UT 84047 801-255-2626	MARCH 2012 ivory homes esa

APPENDIX 3

PLAT MAP



SALT LAKE CITY
 45 West 10000 South
 Suite 500
 Sandy, UT 84070
 Phone: 801.255.0529
 Fax: 801.255.4449

LAYTON
 Phone: 801.547.1100

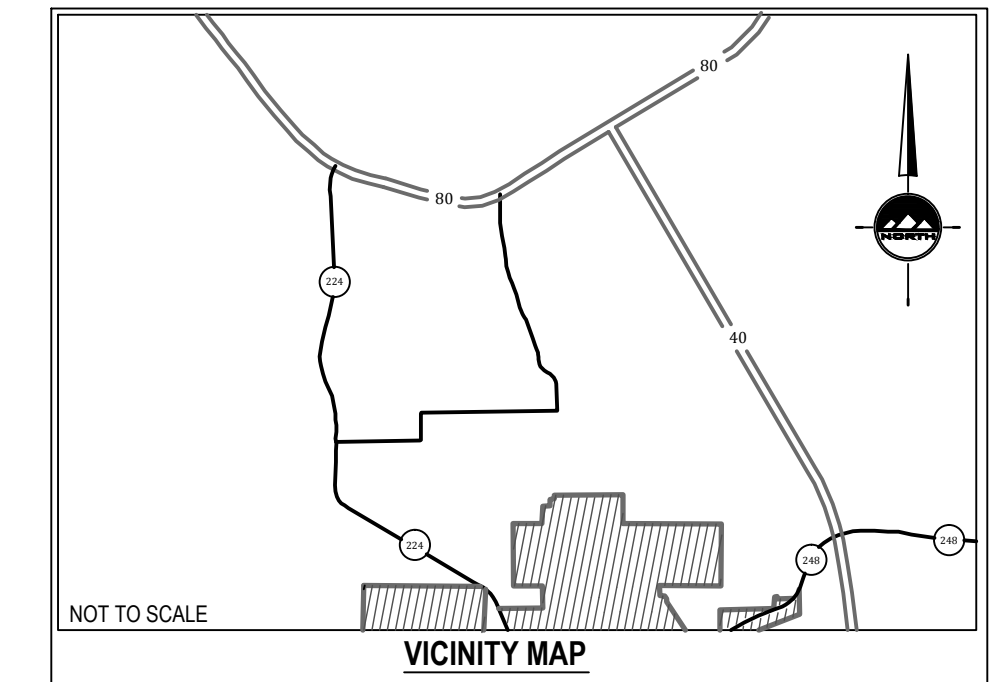
TOOELE
 Phone: 435.843.3590

CEDAR CITY
 Phone: 435.865.1453

WWW.ENSIGNUTAH.COM

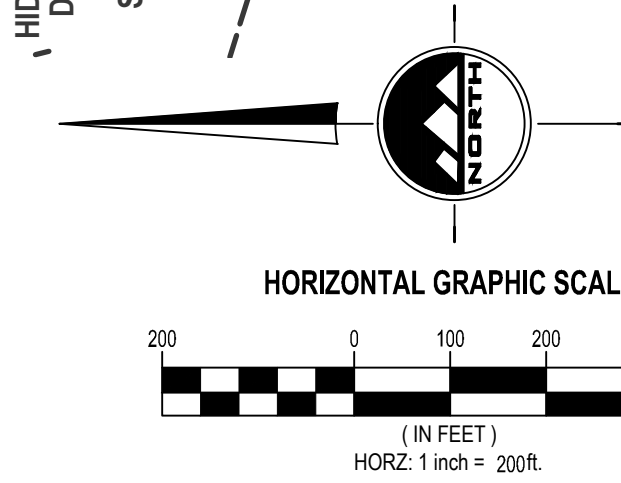
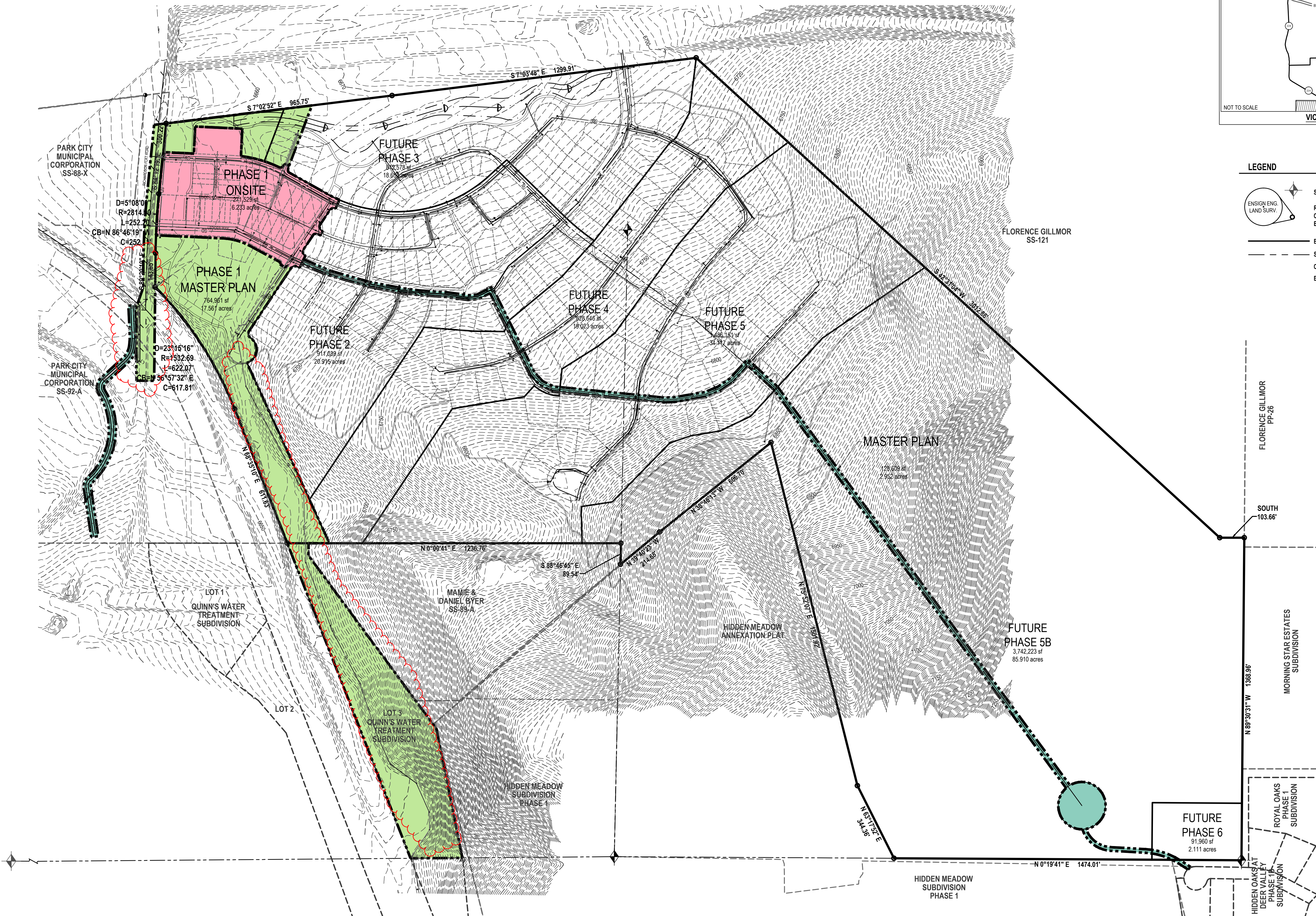
FOR:
 BOYER PARK CITY HEIGHTS, LC
 30 SOUTH 400 WEST SUITE 200
 SALT LAKE CITY, UTAH 84101

CONTACT:
 PATRICK MOFFAT
 PHONE: (801) 521-4781
 FAX:



LEGEND

- SECTION CORNER SET 5/8"
- REBAR WITH YELLOW PLASTIC CAP, OR NAIL STAMPED "ENSIGN ENG. & LAND SURV."
- BOUNDARY LINE
- SECTION LINE
- CENTER LINE
- EASEMENT LINE



**PARK CITY HEIGHTS
 PHASING EXHIBIT
 PARK CITY, UTAH**

PHASING EXHIBIT

PROJECT NUMBER: 4976
 PRINT DATE: 12/14/11
 DRAWN BY:
 CHECKED BY:

PROJECT MANAGER:

APPENDIX 4
EDR RADIUS MAP REPORT

Ivory Homes, Summit County Utah

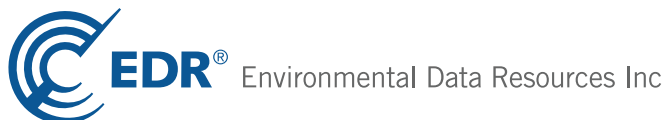
Undeveloped Property

Park City, UT 84060

Inquiry Number: 3274297.1s

March 08, 2012

The EDR Radius Map™ Report



440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

UNDEVELOPED PROPERTY
PARK CITY, UT 84060

COORDINATES

Latitude (North): 40.6728000 - 40° 40' 22.08"
Longitude (West): 111.4633000 - 111° 27' 47.88"
Universal Transverse Mercator: Zone 12
UTM X (Meters): 460842.6
UTM Y (Meters): 4502327.5
Elevation: 6662 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 40111-F4 PARK CITY EAST, UT
Most Recent Revision: 2001

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year: 2009
Source: USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL LIENS..... Federal Superfund Liens

EXECUTIVE SUMMARY

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators

RCRA-SQG..... RCRA - Small Quantity Generators

RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SHWS..... This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... List of Landfills

State and tribal leaking storage tank lists

LAST..... Leaking Aboveground Storage Tank Sites

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

AST..... Listing of Aboveground Storage Tanks

INDIAN UST..... Underground Storage Tanks on Indian Land

FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL..... Sites with Institutional Controls

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Sites List

EXECUTIVE SUMMARY

INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Assessment Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI..... Open Dump Inventory

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations

INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs

CDL..... Methamphetamine Contaminated Properties Listing

US HIST CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information

LUCIS..... Land Use Control Information System

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System

SPILLS..... Spills Data

Other Ascertainable Records

RCRA-NonGen..... RCRA - Non Generators

DOT OPS..... Incident and Accident Data

DOD..... Department of Defense Sites

FUDS..... Formerly Used Defense Sites

CONSENT..... Superfund (CERCLA) Consent Decrees

UMTRA..... Uranium Mill Tailings Sites

MINES..... Mines Master Index File

TRIS..... Toxic Chemical Release Inventory System

TSCA..... Toxic Substances Control Act

FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing

SSTS..... Section 7 Tracking Systems

ICIS..... Integrated Compliance Information System

PADS..... PCB Activity Database System

MLTS..... Material Licensing Tracking System

RADINFO..... Radiation Information Database

RAATS..... RCRA Administrative Action Tracking System

EXECUTIVE SUMMARY

DRYCLEANERS.....	Registered Drycleaners
NPDES.....	Permitted Facilities Listing
INDIAN RESERV.....	Indian Reservations
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
FINANCIAL ASSURANCE.....	Financial Assurance Information Listing
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER.....	PCB Transformer Registration Database
COAL ASH DOE.....	Sleam-Electric Plan Operation Data

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants..... EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: Also known as Superfund, the National Priority List database is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund program. The source of this database is the U.S. EPA.

A review of the NPL list, as provided by EDR, and dated 09/07/2011 has revealed that there is 1 NPL site within approximately 1.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>RICHARDSON FLAT TAILINGS</i>	<i>NW 1/4 SEC 1 T2S R 4E</i>	<i>NE 1/4 - 1/2 (0.464 mi.)</i>	<i>0</i>	<i>7</i>

Proposed NPL: Proposed NPL sites . The source of this database is the U.S. EPA.

A review of the Proposed NPL list, as provided by EDR, and dated 09/07/2011 has revealed that there is 1 Proposed NPL site within approximately 1.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>RICHARDSON FLAT TAILINGS</i>	<i>NW 1/4 SEC 1 T2S R 4E</i>	<i>NE 1/4 - 1/2 (0.464 mi.)</i>	<i>0</i>	<i>7</i>

EXECUTIVE SUMMARY

Federal CERCLIS list

CERCLIS: The Comprehensive Environmental Response, Compensation and Liability Information System contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the CERCLIS list, as provided by EDR, and dated 02/25/2011 has revealed that there is 1 CERCLIS site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>RICHARDSON FLAT TAILINGS</i>	<i>NW 1/4 SEC 1 T2S R 4E</i>	<i>NE 1/4 - 1/2 (0.464 mi.)</i>	<i>0</i>	<i>7</i>

Federal institutional controls / engineering controls registries

US ENG CONTROLS: A listing of sites with engineering controls in place.

A review of the US ENG CONTROLS list, as provided by EDR, and dated 12/30/2011 has revealed that there is 1 US ENG CONTROLS site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>RICHARDSON FLAT TAILINGS</i>	<i>NW 1/4 SEC 1 T2S R 4E</i>	<i>NE 1/4 - 1/2 (0.464 mi.)</i>	<i>0</i>	<i>7</i>

US INST CONTROL: A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

A review of the US INST CONTROL list, as provided by EDR, and dated 12/30/2011 has revealed that there is 1 US INST CONTROL site within approximately 1 mile of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>RICHARDSON FLAT TAILINGS</i>	<i>NW 1/4 SEC 1 T2S R 4E</i>	<i>NE 1/4 - 1/2 (0.464 mi.)</i>	<i>0</i>	<i>7</i>

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Environmental Quality's Potential Leaking UST Sites.

A review of the LUST list, as provided by EDR, and dated 01/24/2012 has revealed that there is 1 LUST site within approximately 1 mile of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>PHOSTON SIDING SITE</i> Date Closed: 04/16/1996	<i>5 MI E OF PARK CITY</i>	<i>NE 1/4 - 1/2 (0.327 mi.)</i>	<i>1</i>	<i>28</i>

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains a listing of Facility, Owner, Location & Tanks not Closed or Removed. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Quality's Facilities with at Least One Non-exempt Tank.

A review of the UST list, as provided by EDR, and dated 01/24/2012 has revealed that there is 1 UST site within approximately 0.75 miles of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>PHOSTON SIDING SITE</i>	<i>5 MI E OF PARK CITY</i>	<i>NE 1/4 - 1/2 (0.327 mi.)</i>	<i>1</i>	<i>28</i>

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

ROD: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 09/28/2011 has revealed that there is 1 ROD site within approximately 1.5 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>RICHARDSON FLAT TAILINGS</i>	<i>NW 1/4 SEC 1 T2S R 4E</i>	<i>NE 1/4 - 1/2 (0.464 mi.)</i>	<i>0</i>	<i>7</i>

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 10/23/2011 has revealed that there is 1 FINDS site within approximately 0.5 miles of the target property.

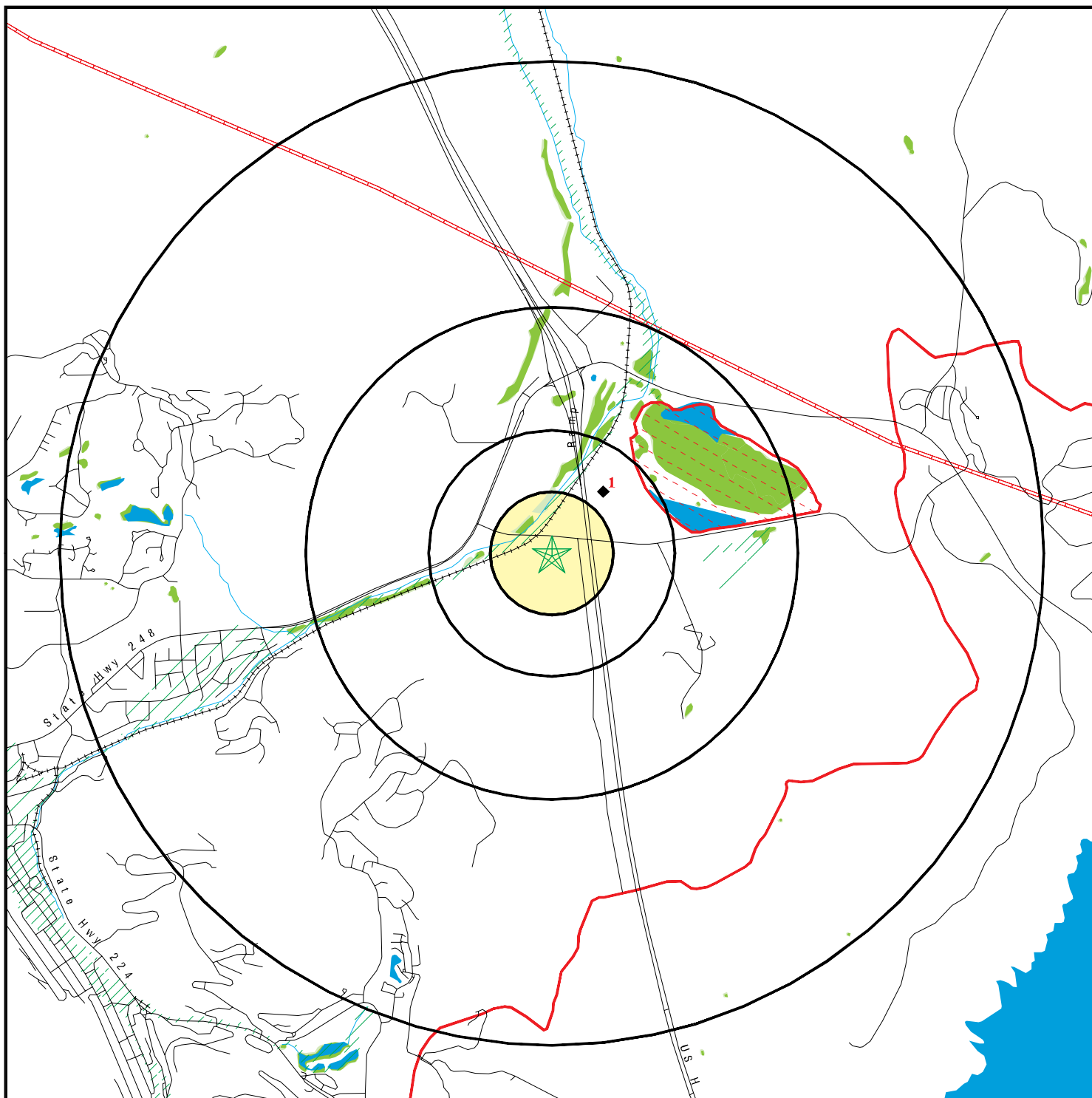
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>RICHARDSON FLAT TAILINGS</i>	<i>NW 1/4 SEC 1 T2S R 4E</i>	<i>NE 1/4 - 1/2 (0.464 mi.)</i>	<i>0</i>	<i>7</i>

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 22 records.

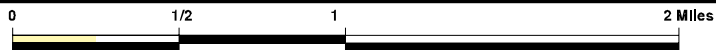
<u>Site Name</u>	<u>Database(s)</u>
SILVER MAPLE CLAIMS	CERCLIS
COALVILLE STORAGE	LUST,UST
CURRANT CREEK GAS N' GRUB	LUST,FINANCIAL ASSURANCE 2,UST
BEAR RIVER SERVICE	LUST,UST
UDOT STA. # 2436 WANSHIP	LUST,UST,FINANCIAL ASSURANCE 2
COTTAGE MKT & GOODIES INC.	UST
STAKER PARSON PARK CITY BATCH PLAN	AST
CHEVRON RESOURCES COMPANY	RCRA-SQG,FINDS
NORANDA MINING INC ONTARI	RCRA-NLR
GENEVA ROCK	RCRA-CESQG
CHEVRON PIPE LINE KIMBALL JUNCTION	FINDS,RCRA-CESQG
UNITED PARK CITY MINES CO	ICIS
WAL-MART SUPERCENTER #4696-00	NPDES
PROVO CANYON SCENIC BYWAY NON-MOTO	NPDES
JORDANELLE PARKWAY AT MAYFLOWER	NPDES
VALLEY STATION	NPDES
UVSC WASATCH CAMPUS	NPDES
VILLAGE @ KIMBALL JUNCTION SHELL	NPDES
IROQUOIS PHASES 4, 5, AND 6	NPDES
SILVER SUMMIT	NPDES
PARK CITY READY MIX FACILITY	NPDES
LANDMARK DRIVE EXTENSION	NPDES

OVERVIEW MAP - 3274297.1s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands

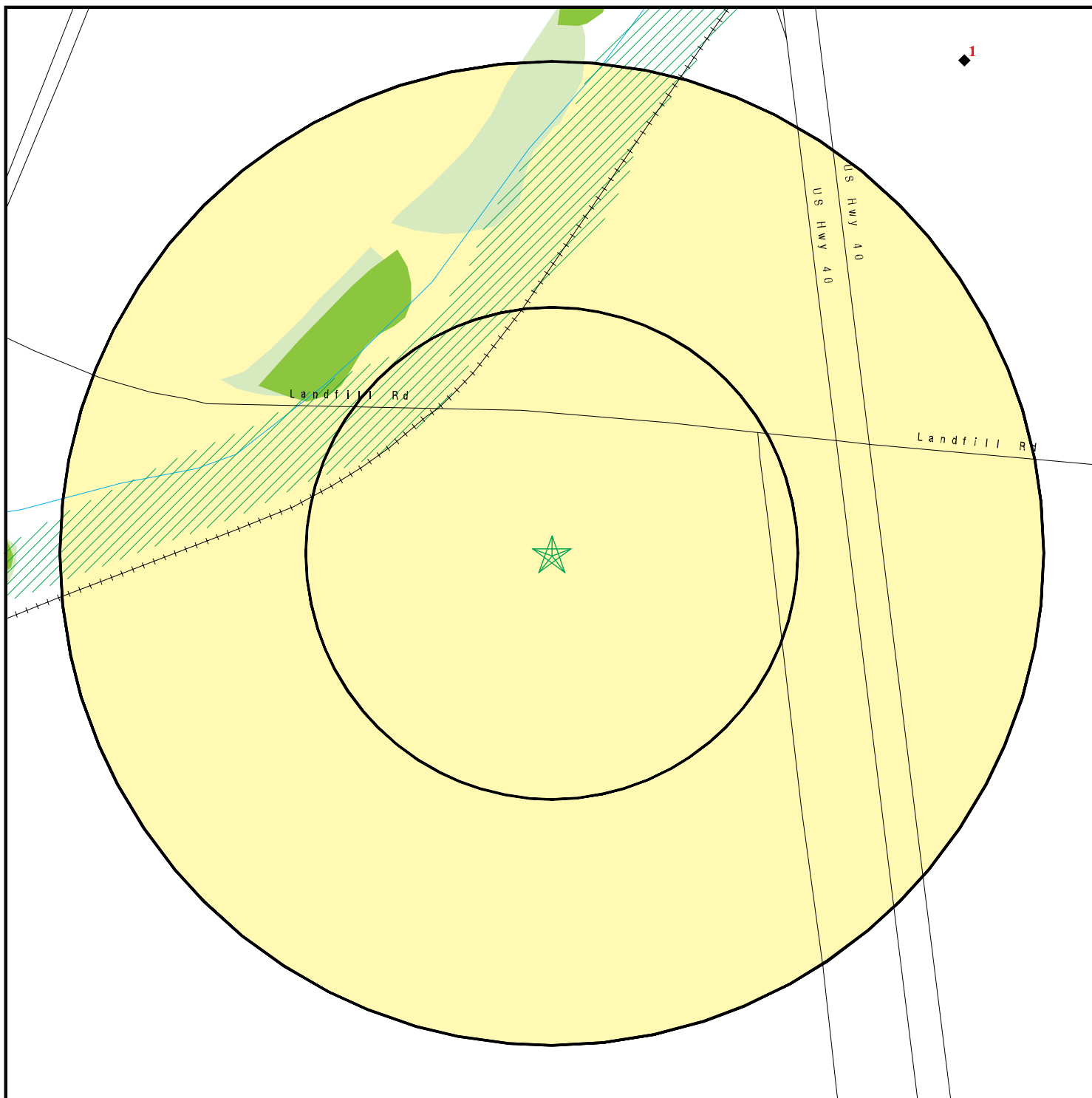


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

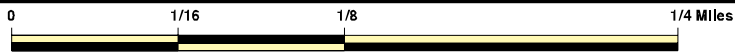
SITE NAME: Ivory Homes, Summit County Utah
 ADDRESS: Undeveloped Property
 Park City UT 84060
 LAT/LONG: 40.6728 / 111.4633

CLIENT: RMC
 CONTACT: Todd Leeds
 INQUIRY #: 3274297.1s
 DATE: March 08, 2012 2:47 pm

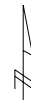
DETAIL MAP - 3274297.1s



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- ▲ Manufactured Gas Plants
- ⚡ Sensitive Receptors
- ☒ National Priority List Sites
- ☒ Dept. Defense Sites



- ☒ Indian Reservations BIA
- ⚡ Oil & Gas pipelines from USGS
- ▨ 100-year flood zone
- ▨ 500-year flood zone
- National Wetland Inventory
- State Wetlands



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Ivory Homes, Summit County Utah
 ADDRESS: Undeveloped Property
 Park City UT 84060
 LAT/LONG: 40.6728 / 111.4633

CLIENT: RMC
 CONTACT: Todd Leeds
 INQUIRY #: 3274297.1s
 DATE: March 08, 2012 2:48 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.500		0	0	1	0	0	1
Proposed NPL	1.500		0	0	1	0	0	1
NPL LIENS	0.500		0	0	0	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.500		0	0	0	0	0	0
<i>Federal CERCLIS list</i>								
CERCLIS	1.000		0	0	1	0	NR	1
FEDERAL FACILITY	1.500		0	0	0	0	0	0
<i>Federal CERCLIS NFRAP site List</i>								
CERC-NFRAP	1.000		0	0	0	0	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.500		0	0	0	0	0	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	1.000		0	0	0	0	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.750		0	0	0	0	NR	0
RCRA-SQG	0.750		0	0	0	0	NR	0
RCRA-CESQG	0.750		0	0	0	0	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
US ENG CONTROLS	1.000		0	0	1	0	NR	1
US INST CONTROL	1.000		0	0	1	0	NR	1
<i>Federal ERNS list</i>								
ERNS	0.500		0	0	0	NR	NR	0
<i>State- and tribal - equivalent CERCLIS</i>								
SHWS	N/A		N/A	N/A	N/A	N/A	N/A	N/A
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	1.000		0	0	0	0	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	1.000		0	0	1	0	NR	1
LAST	1.000		0	0	0	0	NR	0
INDIAN LUST	1.000		0	0	0	0	NR	0
<i>State and tribal registered storage tank lists</i>								
UST	0.750		0	0	1	0	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
AST	0.750		0	0	0	0	NR	0
INDIAN UST	0.750		0	0	0	0	NR	0
FEMA UST	0.750		0	0	0	0	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	1.000		0	0	0	0	NR	0
State and tribal voluntary cleanup sites								
VCP	1.000		0	0	0	0	NR	0
INDIAN VCP	1.000		0	0	0	0	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	1.000		0	0	0	0	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	1.000		0	0	0	0	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	1.000		0	0	0	0	NR	0
DEBRIS REGION 9	1.000		0	0	0	0	NR	0
INDIAN ODI	1.000		0	0	0	0	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	0.500		0	0	0	NR	NR	0
CDL	0.500		0	0	0	NR	NR	0
US HIST CDL	0.500		0	0	0	NR	NR	0
Local Land Records								
LIENS 2	0.500		0	0	0	NR	NR	0
LUCIS	1.000		0	0	0	0	NR	0
Records of Emergency Release Reports								
HMIRS	0.500		0	0	0	NR	NR	0
SPILLS	0.500		0	0	0	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen	0.750		0	0	0	0	NR	0
DOT OPS	0.500		0	0	0	NR	NR	0
DOD	1.500		0	0	0	0	0	0
FUDS	1.500		0	0	0	0	0	0
CONSENT	1.500		0	0	0	0	0	0
ROD	1.500		0	0	1	0	0	1
UMTRA	1.000		0	0	0	0	NR	0
MINES	0.750		0	0	0	0	NR	0
TRIS	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TSCA	0.500		0	0	0	NR	NR	0
FTTS	0.500		0	0	0	NR	NR	0
HIST FTTS	0.500		0	0	0	NR	NR	0
SSTS	0.500		0	0	0	NR	NR	0
ICIS	0.500		0	0	0	NR	NR	0
PADS	0.500		0	0	0	NR	NR	0
MLTS	0.500		0	0	0	NR	NR	0
RADINFO	0.500		0	0	0	NR	NR	0
FINDS	0.500		0	0	1	NR	NR	1
RAATS	0.500		0	0	0	NR	NR	0
DRYCLEANERS	0.750		0	0	0	0	NR	0
NPDES	0.500		0	0	0	NR	NR	0
INDIAN RESERV	1.500		0	0	0	0	0	0
SCRD DRYCLEANERS	1.000		0	0	0	0	NR	0
FINANCIAL ASSURANCE	0.500		0	0	0	NR	NR	0
COAL ASH EPA	1.000		0	0	0	0	NR	0
PCB TRANSFORMER	0.500		0	0	0	NR	NR	0
COAL ASH DOE	0.500		0	0	0	NR	NR	0

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants	1.500		0	0	0	0	0	0
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NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

NPL
Region
NE
1/4-1/2
2449 ft.

RICHARDSON FLAT TAILINGS
NW 1/4 SEC 1 T2S R 4E
PARK CITY, UT 84060

NPL 1000239793
Proposed NPL UTD980952840
CERCLIS
US ENG CONTROLS
US INST CONTROL
ROD
FINDS

Proposed NPL:

EPA ID: UTD980952840
Site ID: 0800705
EPA Region: 08
Federal: No
Proposed Date: 1992-02-07

Site Details:

Site Name: RICHARDSON FLAT TAILINGS
Site Status: Proposed
Site Zip: 84060
Site City: PARK CITY
Site State: UT
Federal Site: No
Site County: SUMMIT
EPA Region: 08
Date Proposed: 02/07/92
Date Deleted: Not reported
Date Finalized: / /

Substance Details:

NPL Status: Proposed for NPL
Substance ID: Not reported
Substance: Not reported
CAS #: Not reported
Pathway: Not reported
Scoring: Not reported

NPL Status: Proposed for NPL
Substance ID: C178
Substance: COPPER AND COMPOUNDS
CAS #: Not reported
Pathway: SURFACE WATER PATHWAY
Scoring: 2

NPL Status: Proposed for NPL
Substance ID: C247
Substance: ZINC AND COMPOUNDS
CAS #: Not reported
Pathway: AIR PATHWAY
Scoring: 2

NPL Status: Proposed for NPL
Substance ID: C247
Substance: ZINC AND COMPOUNDS
CAS #: Not reported
Pathway: SURFACE WATER PATHWAY
Scoring: 2

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

1000239793

NPL Status: Proposed for NPL
Substance ID: C460
Substance: MERCURY
CAS #: 7439-97-6
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D004
Substance: ARSENIC
CAS #: 7440-38-2
Pathway: AIR PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D004
Substance: ARSENIC
CAS #: 7440-38-2
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D006
Substance: CADMIUM (CD)
CAS #: 7440-43-9
Pathway: AIR PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D006
Substance: CADMIUM (CD)
CAS #: 7440-43-9
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D007
Substance: CHROMIUM
CAS #: 7440-47-3
Pathway: NO PATHWAY INDICATED
Scoring: 1

NPL Status: Proposed for NPL
Substance ID: D008
Substance: LEAD (PB)
CAS #: 7439-92-1
Pathway: AIR PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D008
Substance: LEAD (PB)
CAS #: 7439-92-1
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Proposed for NPL

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

1000239793

Substance ID: D011
Substance: SILVER
CAS #: 7440-22-4
Pathway: NO PATHWAY INDICATED
Scoring: 1

Summary Details:

Conditions at proposal June 1988): The Richardson Flat Tailings cover approximately 160 acres in a valley 1.5 miles from most recent development in the town of Park City, Summit County, Utah. At least 2 million tons of tailings are on-site. They came from the Keetley Ontario Mine and other metal mining operations currently owned by United Park City Mines UPCM). The most recent use of the area for tailings disposal was during 1975-81, when UPCM leased its mining properties to either Park City Ventures or Noranda Mining, Inc. The two companies constructed and operated milling facilities on UPCM properties. Both the Utah Department of Environmental Health and EPA have investigated the site in the past 3 years. The results show that the heavy metals and arsenic present in the tailings have migrated into the soil below the tailings, ground water, surface water, and air. Continued migration is likely because the piles are unlined and uncovered. Elevated concentrations of arsenic, copper, and lead were detected in Silver Creek downgradient of the tailings. Water diverted from Silver Creek is used to irrigate pastureland and hay fields within 3 stream miles of the site. High-volume air sampling at Richardson Flat Tailings documented that arsenic, cadmium, lead, and inc were released to the air. An estimated 4,500 people live year-round within 4 miles of the tailings. Motorcyclists commonly ride on the site. In addition, airborne tailings material blows across Highway 40 on a daily basis during the summer months. This mining site is potentially eligible for cleanup funds from the State of Utah's approved program under the Surface Mining Control and Reclamation Act of 1979 (SMCRA). EPA is developing a policy for listing such sites. This site is being proposed for the NPL at this time to avoid delay in starting CERCLA activities. In response to public comments, EPA re-evaluated the site documentation and revised the site's score on the Hazard Ranking System used to assess sites for the NPL. Because the score is now below the cutoff point EPA has established to include a site on the NPL, this site is being dropped from consideration for the NPL at this time.

Site Status Details:

NPL Status: Proposed
Proposed Date: 02/07/1992
Final Date: Not reported
Deleted Date: Not reported

Narratives Details:

NPL Name: RICHARDSON FLAT TAILINGS
City: PARK CITY
State: UT

EPA ID: UTD980952840
Site ID: 0800705
EPA Region: 08
Federal: No
Proposed Date: 1988-06-24

Site Details:

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

1000239793

Site Name: RICHARDSON FLAT TAILINGS
Site Status: Proposed
Site Zip: 84060
Site City: PARK CITY
Site State: UT
Federal Site: No
Site County: SUMMIT
EPA Region: 08
Date Proposed: 02/07/92
Date Deleted: Not reported
Date Finalized: / /

Substance Details:

NPL Status: Proposed for NPL
Substance ID: Not reported
Substance: Not reported
CAS #: Not reported
Pathway: Not reported
Scoring: Not reported

NPL Status: Proposed for NPL
Substance ID: C178
Substance: COPPER AND COMPOUNDS
CAS #: Not reported
Pathway: SURFACE WATER PATHWAY
Scoring: 2

NPL Status: Proposed for NPL
Substance ID: C247
Substance: ZINC AND COMPOUNDS
CAS #: Not reported
Pathway: AIR PATHWAY
Scoring: 2

NPL Status: Proposed for NPL
Substance ID: C247
Substance: ZINC AND COMPOUNDS
CAS #: Not reported
Pathway: SURFACE WATER PATHWAY
Scoring: 2

NPL Status: Proposed for NPL
Substance ID: C460
Substance: MERCURY
CAS #: 7439-97-6
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D004
Substance: ARSENIC
CAS #: 7440-38-2
Pathway: AIR PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D004

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

1000239793

Substance: ARSENIC
CAS #: 7440-38-2
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D006
Substance: CADMIUM (CD)
CAS #: 7440-43-9
Pathway: AIR PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D006
Substance: CADMIUM (CD)
CAS #: 7440-43-9
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D007
Substance: CHROMIUM
CAS #: 7440-47-3
Pathway: NO PATHWAY INDICATED
Scoring: 1

NPL Status: Proposed for NPL
Substance ID: D008
Substance: LEAD (PB)
CAS #: 7439-92-1
Pathway: AIR PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D008
Substance: LEAD (PB)
CAS #: 7439-92-1
Pathway: SURFACE WATER PATHWAY
Scoring: 4

NPL Status: Proposed for NPL
Substance ID: D011
Substance: SILVER
CAS #: 7440-22-4
Pathway: NO PATHWAY INDICATED
Scoring: 1

Summary Details:

Conditions at proposal June 1988): The Richardson Flat Tailings cover approximately 160 acres in a valley 1.5 miles from most recent development in the town of Park City, Summit County, Utah. At least 2 million tons of tailings are on-site. They came from the Keetley Ontario Mine and other metal mining operations currently owned by United Park City Mines UPCM). The most recent use of the area for tailings disposal was during 1975-81, when UPCM leased its mining properties to either Park City Ventures or Noranda Mining, Inc. The two companies constructed and operated milling facilities on UPCM properties. Both the Utah Department of Environmental Health and EPA

Map ID
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RICHARDSON FLAT TAILINGS (Continued)

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have investigated the site in the past 3 years. The results show that the heavy metals and arsenic present in the tailings have migrated into the soil below the tailings, ground water, surface water, and air. Continued migration is likely because the piles are unlined and uncovered. Elevated concentrations of arsenic, copper, and lead were detected in Silver Creek downgradient of the tailings. Water diverted from Silver Creek is used to irrigate pastureland and hay fields within 3 stream miles of the site. High-volume air sampling at Richardson Flat Tailings documented that arsenic, cadmium, lead, and inc were released to the air. An estimated 4,500 people live year-round within 4 miles of the tailings. Motorcyclists commonly ride on the site. In addition, airborne tailings material blows across Highway 40 on a daily basis during the summer months. This mining site is potentially eligible for cleanup funds from the State of Utah's approved program under the Surface Mining Control and Reclamation Act of 1979 (SMCRA). EPA is developing a policy for listing such sites. This site is being proposed for the NPL at this time to avoid delay in starting CERCLA activities. In response to public comments, EPA re-evaluated the site documentation and revised the site's score on the Hazard Ranking System used to assess sites for the NPL. Because the score is now below the cutoff point EPA has established to include a site on the NPL, this site is being dropped from consideration for the NPL at this time.

Site Status Details:

NPL Status: Proposed
Proposed Date: 02/07/1992
Final Date: Not reported
Deleted Date: Not reported

Narratives Details:

NPL Name: RICHARDSON FLAT TAILINGS
City: PARK CITY
State: UT

CERCLIS:

Site ID: 0800705
EPA ID: UTD980952840
Facility County: SUMMIT
Short Name: RICHARDSON FLAT TAILINGS
Congressional District: 03
IFMS ID: 0894
SMSA Number: Not reported
USGC Hydro Unit: 16020101
Federal Facility: Not a Federal Facility
DMNSN Number: Not reported
Site Orphan Flag: N
RCRA ID: Not reported
USGS Quadrangle: Not reported
Site Init By Prog: Not reported
NFRAP Flag: Not reported
Parent ID: Not reported
RST Code: Not reported
EPA Region: 08
Classification: Mines/Tailings
Site Settings Code: RU
NPL Status: Proposed for NPL
DMNSN Unit Code: Not reported

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RICHARDSON FLAT TAILINGS (Continued)

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RBRAC Code: Not reported
RResp Fed Agency Code: Not reported
Non NPL Status: Not reported
Non NPL Status Date: Not reported
Site Fips Code: 49043
CC Concurrence Date: Not reported
CC Concurrence FY: Not reported
Alias EPA ID: Not reported
Site FUDS Flag: Not reported

CERCLIS Site Contact Name(s):

Contact ID: 8272237.00000
Contact Name: Kathryn Hernandez
Contact Tel: (303) 312-6101
Contact Title: Remedial Project Manager (RPM)
Contact Email: Not reported

Contact ID: 13000438.00000
Contact Name: John Dalton
Contact Tel: (303) 312-6633
Contact Title: Community Involvement Coordinator
Contact Email: Not reported

CERCLIS Site Alias Name(s):

Alias ID: 101
Alias Name: RICHARDSON FLATS
Alias Address: Not reported
Not reported
Alias ID: 102
Alias Name: RICHARDSON FLATS TAILINGS
Alias Address: Not reported
Not reported
Alias ID: 103
Alias Name: RICHARDSON FLAT TAILINGS
Alias Address: 3.5 MI NE OF PARK CITY
PARK CITY, UT 84060
Alias ID: 104
Alias Name: RICHARDSON FLAT TAILINGS
Alias Address: NW 1/4 SEC 1 T2S R 4E
SUMMIT COUNTY, UT 84060

Alias Comments: Not reported
Site Description: The Richardson Flat Tailings (RFT) site (Site) is located 1.5 miles northeast of Park City, Utah, and is part of a 650 acre property owned by United Park City Mines (UPCM) Company. The Site is a tailings impoundment that covers 160 acres in the northwest corner of the PCM property, a small portion of the much larger Upper Silver Creek Watershed. Silver Creek is the primary surface water source found in the area and is comprised of runoff from three significant drainages in the watershed, including Ontario Canyon, Empire Canyon and Deer Valley. Silver Creek is currently listed on Utah's 303(d) list for zinc and cadmium and is targeted for total maximum daily load (TMDL) development. Historic mining activities in the canyons left behind six active Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) sites, including Empire Canyon, Silver Creek Tailings, and Silver Maple Claims, each one impacting Silver Creek in some way. While zinc and cadmium are the primary heavy metals found in Silver Creek, lead and arsenic are the main contaminants in the sediments and soils of the watershed. Because of the volume

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RICHARDSON FLAT TAILINGS (Continued)

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of mining activity throughout the district and the dynamics of the watershed hydrogeology, it is difficult to target any one site as the main source of contamination affecting Silver Creek and the environmental media within the watershed. The overall remedial goal for the watershed is to clean up the surrounding sites, including the Site, thereby eliminating current and future hazards to human health and welfare and the surrounding environment. The RFT site is a geometrically closed basin, bound by highway 248 to the north, a main embankment to the west, and diversion ditches to the south and the northeast. Silver Creek can be found on the northwest border of the Site, separated from the Site by a small stretch of wetlands and riparian vegetation. The impoundment was used as a mine tailings reservoir prior to 1950. The Site now houses approximately seven million tons of sand-sized carbonaceous particles and minerals containing zinc, silver, lead, and other metals. Use of the Site by UPCM ended in 1982. To date, the Site is not listed on the National Priorities List (NPL). The Site was considered for listing in both 1988 and 1992. UPCM, the primary potentially responsible party (PRP), has taken responsibility for funding the majority of the remedial action at the Site. The Site, and much of the surrounding area, is privately owned by UPCM. UPCM has consistently indicated a desire to retain title and limit future use to recreational activities at the Site. While no final decision has been made, uses that range from open space wildlife habitat to athletic fields are currently being discussed. Any type of recreational use is consistent with surrounding land uses, and both Park City and Summit County have indicated general agreement with recreational proposals. Park City is proactive in obtaining and preserving open space. There is no indication that higher uses of the land, such as residential, are reasonably foreseeable. The surface water features at the Site, including the south diversion ditch, the wetlands area below the embankment, the Site pond and Silver Creek are used as habitat by a limited number of vegetative species, fish, and wildlife. All of the surface water and shallow ground water on the Site eventually discharges to Silver Creek. Silver Creek is classified by the State of Utah as a potential drinking water source, a recreational use feature, a cold water fishery, and a potential irrigation source. At present, Silver Creek is used for irrigation and recreational fishing only, and no changes are expected. The State of Utah is considering issuing an advisory against fishing due to elevated metal levels in Silver Creek. Silver Creek is listed on the State's Clean Water Act Section 303(d) list of impaired water bodies because zinc and cadmium levels exceed chronic standards for protection of aquatic wildlife. Silver Creek has been impacted by the legacy of mining activities, though the remedial investigation confirmed that the Site is not, at present, a significant contributor of metals to the creek. The goal is to remediate the entire watershed, improving the ecological quality of the area, thereby allowing for continued beneficial use of the watershed and the Site by a variety of living organisms. Ground water in the immediate area is used only for private wells, and no wells are known to be located within a half mile of the Site. Most area drinking water wells are finished in the deeper consolidated sedimentary rocks that can sustain aquifers and produce sufficient yields for culinary wells. In the Site area, these formations are very deep and are covered by the Keetley volcanics. The volcanic rocks are generally not suitable to sustain aquifers and serve as more of a confining unit. The shallow ground water at the Site is generally associated with the alluvial system of Silver Creek. This water is very high in solids and is also often contaminated due to water quality in Silver Creek and tailings that are present along the Creek in many areas. There are no known uses for this water at this time. In 1953, UPCM was formed through the consolidation of Silver King Coalition Mines Company and Park Utah Consolidated Mines Company. At that time, the Site was already being used as an impoundment for mine tailings consisting primarily of sand-sized carbonaceous particles and

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RICHARDSON FLAT TAILINGS (Continued)

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minerals containing lead, zinc, silver and other metals. Additionally, tailings were transported to and placed in several distinct low elevation areas in the southeast portion of the Site just outside of the main impoundment. In 1970, with renewed mining activity in the area, Park City Ventures (PCV), a joint venture partnership between Anaconda Copper Company and American Smelting Company (ASARCO), entered into a lease agreement with UPCM. This agreement allowed PCV to deposit additional mine tailings at the Site; however, the Site had to be partially reconstructed. Design, construction and operation specifications were approved by the State of Utah. These specifications included installation of a large embankment along the western edge of the impoundment, and construction of containment dike structures along the southern and eastern borders of the Site for additional tailings storage. PCV also created a diversion ditch system along the higher slopes north of the impoundment and outside of the containment dikes along the east and south perimeters of the impoundment to collect surface run off. As part of the approval process for the renewed use of the Site, the State of Utah required installation of groundwater monitoring wells near the base of the main embankment. Over the course of PVC's use of the Site, about 450,000 tons of tailings were deposited at the Site through a slurry pipeline that originated at their mill facility. It was recommended that the tailings be deposited around the perimeter of the Site, moving towards the center of the Site over time. However, PVC chose to deposit the tailings from the slurry pipeline in one constant area in the center of the impoundment, creating a steep, cone-like structure in the middle of the impoundment. After PVC discontinued their use of the Site in 1982, high winds caused tailings from the cone-shaped feature to become airborne, creating a potentially significant exposure pathway. These operations shaped the topography of the impoundment which still exists today. From 1980 to 1982, Noranda Mining, Inc. leased the mining and milling operations and placed an additional 70,000 tons of tailings at the Site. Since then no further use of the Site has occurred, but UPCM began taking actions aimed at improving environmental conditions of the Site almost immediately after operations stopped. This work continued intermittently through the mid-1990s. EPA became aware of the Site in the mid-1980s. After initial site assessment work, EPA proposed the Site for listing on the NPL in 1988. After considering public comment, EPA did not pursue the Site for listing on the NPL. By 1992, the Hazard Ranking System (HRS) had been revised and EPA again proposed the Site for listing on the NPL. Ultimately, EPA decided not to pursue final listing on the NPL, and the Site remains proposed for the NPL at this time. Subsequent to the second NPL proposal, the EPA Region 8 Superfund Emergency Response Branch conducted an investigation under the "Make Sites Safe" Initiative in 1993. This investigation concluded that conditions of the Site did not warrant emergency removal actions, but may present unacceptable risks to human health and the environment and should be addressed through long-term remedial action. Throughout the 1990s, EPA and the Utah Department of Environmental Quality (UDEQ) were hoping UPCM would address the Site through the Utah Voluntary Cleanup Program. UPCM decided against this, but at the same time continued to voluntarily take steps to improve environmental conditions at the Site. Additionally, UPCM began collecting hydrogeologic data, which was used to better understand the groundwater flow and depth of tailings at the Site. In 1999, EPA, UDEQ, UPCM, Park City Municipal Corporation, and other stakeholders formed the Upper Silver Creek Watershed Stakeholder's Group (USCWSG). This community-based organization was formed to help EPA address Superfund-related environmental issues in the Park City area in a cooperative fashion, including issues related to the Site. The USCWSG has been very successful and several investigations and cleanups have occurred in Park City as a result. Early in USCWSG's history, UPCM and EPA agreed to address the Site as an "NPL equivalent" site, using the same process for investigation and

RICHARDSON FLAT TAILINGS (Continued)

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cleanup that is required for a NPL Site. EPA and UPCM signed an Administrative Order on Consent (AOC) on September 28, 2000 which called for UPCM to conduct a Remedial Investigation/ Focused Feasibility Study (RI/FFS) for the Site. EPA and UPCM have continuously worked well together since the inception of the USCWSG, and because of this, EPA was able to employ increasingly reduced oversight for the RI/FFS as it progressed. EPA conducted two Potentially Responsible Party (PRP) Searches for the Site that identified several parties that may have some liability for cleanup of the Site. The Site owner, UPCM, has conducted the RI/FFS pursuant to an Administrative Order on Consent (AOC). EPA has been facilitating the allocation of costs of investigation and cleanup between the PRP's and UPCM has indicated its willingness to enter into a Consent Decree (CD) with EPA for conduct of remedial design and remedial action. The Site is located in a rural area within a broad valley of mostly undeveloped rangeland within the Silver Creek Watershed, approximately two miles outside the Park City limits. The Deer Valley and Park City ski resorts sit at the top of the watershed and serve as recreational use areas for skiers in the winter and bikers/hikers in the warmer months. As Silver Creek passes through Park City and into the surrounding suburban areas, the land use is primarily residential and commercial, changing to recreational and agricultural in the areas surrounding Richardson Flat. Most of the land around the Site is undeveloped open space. Mining activities at the Site ceased in 1982. Since that time, the Site has not been used and has remained open space. A small recreational trail skirts the Site along Silver Creek. There are a few small industrial operations in the vicinity of the Site, including a concrete plant on a nearby parcel. Park City and other resort-like residential developments are expanding in the general area, but none are closer than one mile away. A Record of Decision (ROD) addressing Operable Unit (OU) 1 was completed on July 6, 2005.

CERCLIS Assessment History:

Action Code: 001
Action: DISCOVERY
Date Started: Not reported
Date Completed: 10/01/1984
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: PRELIMINARY ASSESSMENT
Date Started: Not reported
Date Completed: 12/01/1984
Priority Level: Higher priority for further assessment
Operable Unit: SITEWIDE
Primary Responsibility: State, Fund Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001

Map ID
Direction
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Elevation

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RICHARDSON FLAT TAILINGS (Continued)

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Action: PROPOSAL TO NATIONAL PRIORITIES LIST
Date Started: Not reported
Date Completed: 06/24/1988
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: NATIONAL PRIORITIES LIST RESPONSIBLE PARTY SEARCH
Date Started: 08/13/1987
Date Completed: 07/14/1988
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: Special Notice Issued
Date Started: Not reported
Date Completed: 02/10/1989
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: REMOVAL ASSESSMENT
Date Started: 08/30/1990
Date Completed: 08/30/1990
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: REMOVED FROM THE PROPOSED NATIONAL PRIORITIES LIST
Date Started: Not reported
Date Completed: 02/11/1991
Priority Level: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

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Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: AERIAL SURVEY
Date Started: 06/30/1991
Date Completed: 06/30/1991
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: EPA Fund-Financed
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: HAZARD RANKING SYSTEM PACKAGE
Date Started: Not reported
Date Completed: 07/15/1991
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 002
Action: PROPOSAL TO NATIONAL PRIORITIES LIST
Date Started: Not reported
Date Completed: 02/07/1992
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: POTENTIALLY RESPONSIBLE PARTY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 09/29/1989
Date Completed: 07/01/1992
Priority Level: Low priority for further assessment
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Responsible Party

Map ID
Direction
Distance
Elevation

MAP FINDINGS

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RICHARDSON FLAT TAILINGS (Continued)

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Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Other Start and Completion Anomaly

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: SITE INSPECTION
Date Started: Not reported
Date Completed: 09/03/1992
Priority Level: Higher priority for further assessment
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 002
Action: NATIONAL PRIORITIES LIST RESPONSIBLE PARTY SEARCH
Date Started: 08/23/1991
Date Completed: 12/07/1992
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: REMEDIAL INVESTIGATION/FEASIBILITY STUDY NEGOTIATIONS
Date Started: 06/07/2000
Date Completed: 09/28/2000
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: ADMINISTRATIVE ORDER ON CONSENT
Date Started: Not reported
Date Completed: 09/28/2000
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

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RICHARDSON FLAT TAILINGS (Continued)

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For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: STATE SUPPORT AGENCY COOPERATIVE AGREEMENT
Date Started: 04/26/1996
Date Completed: 08/15/2001
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: EPA Fund-Financed
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: RISK/HEALTH ASSESSMENT
Date Started: 10/09/2001
Date Completed: 03/15/2003
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: ECOLOGICAL RISK ASSESSMENT
Date Started: 05/01/2001
Date Completed: 01/30/2004
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: COMMUNITY INVOLVEMENT
Date Started: 07/21/2003
Date Completed: 09/28/2004
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 002
Action: POTENTIALLY RESPONSIBLE PARTY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 09/28/2000

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Elevation

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RICHARDSON FLAT TAILINGS (Continued)

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Date Completed: 07/06/2005
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Responsible Party
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 07/06/2005
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: EPA Fund-Financed
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 002
Action: Lodged By DOJ
Date Started: Not reported
Date Completed: 09/05/2006
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: Lodged By DOJ
Date Started: Not reported
Date Completed: 09/05/2006
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: SECTION 107 LITIGATION
Date Started: 12/09/2005
Date Completed: 11/28/2006
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

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Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 002
Action: CONSENT DECREE
Date Started: 08/10/2006
Date Completed: 11/28/2006
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: CONSENT DECREE
Date Started: 08/10/2006
Date Completed: 11/28/2006
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: ALTERNATIVE DISPUTE RESOLUTION
Date Started: 03/06/2006
Date Completed: 12/08/2006
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: TECHNICAL ASSISTANCE
Date Started: 01/04/2007
Date Completed: Not reported
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

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EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

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For detailed financial records, contact EDR for a Site Report.:

Action Code: 002
Action: COMMUNITY INVOLVEMENT
Date Started: 01/08/2007
Date Completed: 07/01/2007
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 003
Action: Lodged By DOJ
Date Started: Not reported
Date Completed: 08/28/2007
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: REMEDIAL DESIGN/REMEDIAL ACTION NEGOTIATIONS
Date Started: 03/21/2006
Date Completed: 10/04/2007
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 003
Action: CONSENT DECREE
Date Started: 08/07/2007
Date Completed: 10/04/2007
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

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RICHARDSON FLAT TAILINGS (Continued)

1000239793

Action: POTENTIALLY RESPONSIBLE PARTY REMEDIAL ACTION
Date Started: 02/07/2008
Date Completed: Not reported
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Responsible Party
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: POTENTIALLY RESPONSIBLE PARTY REMEDIAL DESIGN
Date Started: 08/07/2007
Date Completed: 02/07/2008
Priority Level: Not reported
Operable Unit: RICHARDSON FLAT
Primary Responsibility: Responsible Party
Planning Status: Primary
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 002
Action: TECHNICAL ASSISTANCE
Date Started: 07/24/2008
Date Completed: 01/20/2009
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 004
Action: Lodged By DOJ
Date Started: Not reported
Date Completed: 03/13/2009
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 004
Action: CONSENT DECREE
Date Started: 03/13/2009
Date Completed: 06/05/2009
Priority Level: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

1000239793

Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001
Action: CLAIM IN BANKRUPTCY PROCEEDING
Date Started: 06/27/2006
Date Completed: 06/05/2009
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 003
Action: POTENTIALLY RESPONSIBLE PARTY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 09/29/2009
Date Completed: Not reported
Priority Level: Not reported
Operable Unit: LOWER SILVER CREEK
Primary Responsibility: Responsible Party
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 002
Action: ADMINISTRATIVE ORDER ON CONSENT
Date Started: Not reported
Date Completed: 09/29/2009
Priority Level: Not reported
Operable Unit: LOWER SILVER CREEK
Primary Responsibility: Federal Enforcement
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 003
Action: NATIONAL PRIORITIES LIST RESPONSIBLE PARTY SEARCH
Date Started: 10/07/2008
Date Completed: 09/30/2009
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: Federal Enforcement
Planning Status: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

1000239793

Urgency Indicator: Not reported
Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Federal Register Details:

Fed Register Date: 06/24/1988
Fed Register Volume: 53
Page Number: 23988

Fed Register Date: 02/07/1992
Fed Register Volume: 57
Page Number: 4824

Fed Register Date: 02/11/1991
Fed Register Volume: 56
Page Number: 5598

[Click this hyperlink](#) while viewing on your computer to access
1191 additional US CERCLIS Financial: record(s) in the EDR Site Report.

US ENG CONTROLS:

EPA ID: UTD980952840
Site ID: 0800705
Name: RICHARDSON FLAT TAILINGS
Address: NW 1/4 SEC 1 T2S R 4E
1 MILE EAST OF PARK CITY, UT NEAR US 40
PARK CITY, UT 84060
EPA Region: 08
County: SUMMIT
Event Code: Not reported
Actual Date: Not reported

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 20050706
Operable Unit: 01
Contaminated Media : Sediment
Engineering Control: Cap

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 20050706
Operable Unit: 01
Contaminated Media : Sediment
Engineering Control: Disposal

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 20050706
Operable Unit: 01
Contaminated Media : Sediment
Engineering Control: Excavation

Action ID: 001
Action Name: RECORD OF DECISION

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

1000239793

Action Completion date: 20050706
Operable Unit: 01
Contaminated Media : Solid Waste
Engineering Control: Cap

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 20050706
Operable Unit: 01
Contaminated Media : Solid Waste
Engineering Control: Disposal

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 20050706
Operable Unit: 01
Contaminated Media : Solid Waste
Engineering Control: Excavation

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 20050706
Operable Unit: 01
Contaminated Media : Surface Water
Engineering Control: Monitoring

US INST CONTROL:

EPA ID: UTD980952840
Site ID: 0800705
Name: RICHARDSON FLAT TAILINGS
Action Name: RECORD OF DECISION
Address: NW 1/4 SEC 1 T2S R 4E
PARK CITY, UT 84060
EPA Region: 08
County: SUMMIT
Event Code: Not reported
Inst. Control: Covenant
Actual Date: Not reported
Comple. Date: 07/06/2005
Operable Unit: 01
Contaminated Media : Groundwater

EPA ID: UTD980952840
Site ID: 0800705
Name: RICHARDSON FLAT TAILINGS
Action Name: RECORD OF DECISION
Address: NW 1/4 SEC 1 T2S R 4E
PARK CITY, UT 84060
EPA Region: 08
County: SUMMIT
Event Code: Not reported
Inst. Control: Covenant
Actual Date: Not reported
Comple. Date: 07/06/2005
Operable Unit: 01
Contaminated Media : Solid Waste

Map ID
 Direction
 Distance
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
 EPA ID Number

RICHARDSON FLAT TAILINGS (Continued)

1000239793

ROD:

Full-text of USEPA Record of Decision(s) is available from EDR.

FINDS:

Registry ID: 110009347812

Environmental Interest/Information System

CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System) is the Superfund database that is used to support management in all phases of the Superfund program. The system contains information on all aspects of hazardous waste sites, including an inventory of sites, planned and actual site activities, and financial information.

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

1
NE
1/4-1/2
0.327 mi.
1724 ft.

PHOSTON SIDING SITE
5 MI E OF PARK CITY
PARK CITY, UT 84098

LUST U002264321
UST N/A

Relative:
Lower

LUST:

Facility ID: 1100067
 Release Id: JBJ
Closed Date: 04/16/1996
 Notification Date: 09/02/1993
 Owner Name: CHEVRON REAL ESTATE MANAGEMENT CO
 Owner Address: 225 BUSH STREET
 Owner City: SAN FRANCISCO
 Owner State: CA
 Owner Zip: 94104
 Owner City,St,Zip: SAN FRANCISCO, CA 94104
 Project Manager: Mark Crim

Actual:
6638 ft.

UST:

Facility ID: 1100067
 Owner Name: CHEVRON REAL ESTATE MANAGEMENT CO
 Owner Address: 225 BUSH STREET
 Owner City,St,Zip: SAN FRANCISCO, CA 94104
 Owner Phone: (415) 894-1419

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

PHOSTON SIDING SITE (Continued)

U002264321

Total Tanks: 1
Closed Tanks: 1

Count: 22 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HEBER CITY	1000434267	CHEVRON RESOURCES COMPANY	12 MI N OF CITY ON HWY 40	84032	RCRA-SQG,FINDS
PARK CITY	1000657479	GENEVA ROCK	40 HWY & QUEENS JUNCTION	84060	RCRA-CESQG
PARK CITY	1003862196	SILVER MAPLE CLAIMS	HIGHWAY 248, 30 MI E OF SALT L	84060	CERCLIS
PARK CITY	1004788590	CHEVRON PIPE LINE KIMBALL JUNCTION	JCT I-80 & STATE HWY 224	84060	FINDS,RCRA-CESQG
PARK CITY	1010335421	NORANDA MINING INC ONTARI	1 MI S OF PARK CITY ON HWY 224	84060	RCRA-NLR
PARK CITY	1011506321	UNITED PARK CITY MINES CO	1.5 MILES SOUTH OF PARK CITY H	84060	ICIS
PARK CITY	A100318344	STAKER PARSON PARK CITY BATCH PLAN	ATKINSON RD JCT (HWY 248) & HW		AST
PARK CITY	S108115001	PARK CITY READY MIX FACILITY	248 EAST HWY 40	84017	NPDES
HEBER CITY	S108430176	JORDANELLE PARKWAY AT MAYFLOWER	HWY 248 AND HWY 40	84032	NPDES
HEBER CITY	S109539867	VALLEY STATION	HWY 40 & HWY 189	84032	NPDES
PARK CITY	S111071358	IROQUOIS PHASES 4, 5, AND 6	HIGHWAY 248	84098	NPDES
HEBER CITY	S111278966	UVSC WASATCH CAMPUS	3000 N U.S. HIGHWAY 40	84032	NPDES
PARK CITY	S111279081	SILVER SUMMIT	I-80 AND HWY. 40	84060	NPDES
PARAGONAH	S111279320	VILLAGE @ KIMBALL JUNCTION SHELL	6400 NORTH HIGHWAY 224	84098	NPDES
HEBER CITY	S111279357	PROVO CANYON SCENIC BYWAY NON-MOTO	HWY 189	84032	NPDES
HEBER CITY	S111281198	WAL-MART SUPERCENTER #4696-00	HWY 189 & HWY 140	84032	NPDES
PARK CITY	S111281812	LANDMARK DRIVE EXTENSION	SPORTS PARK RD AND OLYMPIC HWY	84060	NPDES
HEBER CITY	U000814916	COTTAGE MKT & GOODIES INC.	3650 S HWY 40	84032	UST
UPTON	U003033229	BEAR RIVER SERVICE	HWY 150	84017	LUST,UST
COALVILLE	U003033240	COALVILLE STORAGE	ROUTE 1 BOX 67	84017	LUST,UST
HEBER CITY	U003151729	CURRANT CREEK GAS N' GRUB	CURRANT CREEK JUNCTION HWY 40	84032	LUST,FINANCIAL ASSURANCE 2,US
WANSHIP	U004154124	UDOT STA. # 2436 WANSHIP	2500 S HWY 32	84017	LUST,UST,FINANCIAL ASSURANCE :

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 09/07/2011	Source: EPA
Date Data Arrived at EDR: 10/12/2011	Telephone: N/A
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 02/29/2012
Number of Days to Update: 141	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/07/2011	Source: EPA
Date Data Arrived at EDR: 10/12/2011	Telephone: N/A
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 02/29/2012
Number of Days to Update: 141	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 09/07/2011	Source: EPA
Date Data Arrived at EDR: 10/12/2011	Telephone: N/A
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 02/29/2012
Number of Days to Update: 141	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/25/2011	Source: EPA
Date Data Arrived at EDR: 03/01/2011	Telephone: 703-412-9810
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 02/27/2012
Number of Days to Update: 62	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/11/2011	Telephone: 703-603-8704
Date Made Active in Reports: 02/16/2011	Last EDR Contact: 01/13/2012
Number of Days to Update: 36	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/25/2011	Source: EPA
Date Data Arrived at EDR: 03/01/2011	Telephone: 703-412-9810
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 02/27/2012
Number of Days to Update: 62	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/19/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 132

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/13/2012
Next Scheduled EDR Contact: 05/28/2012
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/30/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/30/2011	Telephone: 703-603-0695
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 12/09/2011
Number of Days to Update: 11	Next Scheduled EDR Contact: 03/26/2012
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/30/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/30/2011	Telephone: 703-603-0695
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 12/09/2011
Number of Days to Update: 11	Next Scheduled EDR Contact: 03/26/2012
	Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 10/03/2011	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 10/04/2011	Telephone: 202-267-2180
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/18/2012
Number of Days to Update: 38	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A	Source: Department of Environmental Quality
Date Data Arrived at EDR: N/A	Telephone: 801-536-4100
Date Made Active in Reports: N/A	Last EDR Contact: 02/06/2012
Number of Days to Update: N/A	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: N/A

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: List of Landfills

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/01/2011
Date Data Arrived at EDR: 08/31/2011
Date Made Active in Reports: 09/14/2011
Number of Days to Update: 14

Source: Department of Environmental Quality
Telephone: 801-538-6170
Last EDR Contact: 01/16/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LUST: Sites with Leaking Underground Storage Tanks

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 01/24/2012
Date Data Arrived at EDR: 01/26/2012
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 35

Source: Department of Environmental Quality
Telephone: 801-536-4115
Last EDR Contact: 01/26/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Quarterly

LAST: Leaking Aboveground Storage Tank Sites

A listing of leaking aboveground storage tank locations.

Date of Government Version: 01/11/2012
Date Data Arrived at EDR: 01/12/2012
Date Made Active in Reports: 02/06/2012
Number of Days to Update: 25

Source: Department of Environmental Quality
Telephone: 801-536-4141
Last EDR Contact: 01/09/2012
Next Scheduled EDR Contact: 03/26/2012
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/07/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 12/14/2011
Date Data Arrived at EDR: 12/15/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 26

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/30/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011	Source: EPA Region 6
Date Data Arrived at EDR: 09/13/2011	Telephone: 214-665-6597
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 59	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/01/2011	Source: EPA Region 7
Date Data Arrived at EDR: 11/21/2011	Telephone: 913-551-7003
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 50	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/18/2011	Source: EPA Region 8
Date Data Arrived at EDR: 08/19/2011	Telephone: 303-312-6271
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: List of Sites with Underground Storage Tanks

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 01/24/2012	Source: Department of Environmental Quality
Date Data Arrived at EDR: 01/26/2012	Telephone: 801-536-4115
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 01/26/2012
Number of Days to Update: 35	Next Scheduled EDR Contact: 05/07/2012
	Data Release Frequency: Quarterly

AST: Listing of Aboveground Storage Tanks
Aboveground storage tank site locations.

Date of Government Version: 01/11/2012	Source: Department of Environmental Quality
Date Data Arrived at EDR: 01/12/2012	Telephone: 801-536-4100
Date Made Active in Reports: 02/09/2012	Last EDR Contact: 01/09/2012
Number of Days to Update: 28	Next Scheduled EDR Contact: 03/26/2012
	Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/18/2011	Source: EPA Region 8
Date Data Arrived at EDR: 08/19/2011	Telephone: 303-312-6137
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2011	Source: EPA Region 7
Date Data Arrived at EDR: 11/21/2011	Telephone: 913-551-7003
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 50	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/02/2011	Source: EPA Region 10
Date Data Arrived at EDR: 11/04/2011	Telephone: 206-553-2857
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 7	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2011	Source: EPA, Region 1
Date Data Arrived at EDR: 11/01/2011	Telephone: 617-918-1313
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 02/03/2012
Number of Days to Update: 10	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/28/2011	Source: EPA Region 9
Date Data Arrived at EDR: 11/29/2011	Telephone: 415-972-3368
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 42	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 07/01/2011	Source: EPA Region 5
Date Data Arrived at EDR: 08/26/2011	Telephone: 312-886-6136
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 18	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 12/14/2011	Source: EPA Region 4
Date Data Arrived at EDR: 12/15/2011	Telephone: 404-562-9424
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 01/30/2012
Number of Days to Update: 26	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011	Source: EPA Region 6
Date Data Arrived at EDR: 05/11/2011	Telephone: 214-665-7591
Date Made Active in Reports: 06/14/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 34	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Semi-Annually

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 01/16/2012
Number of Days to Update: 55	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Sites with Institutional Controls

Sites included on the Brownfields Sites listing that have institutional controls in place.

Date of Government Version: 02/07/2012	Source: Department of Environmental Quality
Date Data Arrived at EDR: 02/09/2012	Telephone: 801-536-4100
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 02/09/2012
Number of Days to Update: 21	Next Scheduled EDR Contact: 05/21/2012
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

VCP: Voluntary Cleanup Sites List

The purpose of the program is to encourage the voluntary cleanup of sites where there has been a contaminant release threatening public health and the environment, thereby removing the stigma attached to these sites which blocks economic redevelopment. Voluntary cleanup of these sites will hopefully result in clearing the pathway for returning these properties to beneficial use.

Date of Government Version: 12/07/2011	Source: Department of Environmental Quality
Date Data Arrived at EDR: 12/08/2011	Telephone: 801-536-4100
Date Made Active in Reports: 01/04/2012	Last EDR Contact: 03/05/2012
Number of Days to Update: 27	Next Scheduled EDR Contact: 06/04/2012
	Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 08/04/2011	Source: EPA, Region 1
Date Data Arrived at EDR: 10/04/2011	Telephone: 617-918-1102
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 01/06/2012
Number of Days to Update: 38	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Assessment Sites

A Brownfields site means real property, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant, controlled substance or petroleum product.

Date of Government Version: 12/07/2011
Date Data Arrived at EDR: 12/08/2011
Date Made Active in Reports: 01/04/2012
Number of Days to Update: 27

Source: Department of Environmental Quality
Telephone: 801-536-4100
Last EDR Contact: 03/05/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/27/2011
Date Data Arrived at EDR: 06/27/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/27/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 12/21/2011
Next Scheduled EDR Contact: 04/09/2012
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/06/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 10/07/2011	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 12/09/2011	Telephone: 202-307-1000
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 03/06/2012
Number of Days to Update: 32	Next Scheduled EDR Contact: 06/18/2012
	Data Release Frequency: Quarterly

CDL: Methamphetamine Contaminated Properties Listing

Utah Administrative Rule 19-6-901 Illegal Drug Operations Site Reporting and Decontamination Act requires local health departments to maintain a list of properties believed to be contaminated by the illegal manufacture of drugs. The following properties were reported to the Salt Lake Valley Health Department by a complaint or report from a law enforcement agency and the Department has determined that reasonable evidence exists that the property is contaminated.

Date of Government Version: 11/18/2011	Source: Salt Lake Valley Health Department
Date Data Arrived at EDR: 11/30/2011	Telephone: 801-468-2750
Date Made Active in Reports: 01/04/2012	Last EDR Contact: 02/28/2012
Number of Days to Update: 35	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 11/19/2008	Telephone: 202-307-1000
Date Made Active in Reports: 03/30/2009	Last EDR Contact: 03/23/2009
Number of Days to Update: 131	Next Scheduled EDR Contact: 06/22/2009
	Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 09/09/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/16/2011	Telephone: 202-564-6023
Date Made Active in Reports: 09/29/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 13	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/20/2012
Next Scheduled EDR Contact: 06/04/2012
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/03/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Annually

SPILLS: Spills Data

Incidents reported to the Division of Environmental Response and Remediation

Date of Government Version: 01/17/2012
Date Data Arrived at EDR: 01/19/2012
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 42

Source: Department of Environmental Quality
Telephone: 801-536-4100
Last EDR Contact: 01/16/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Semi-Annually

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 303-312-6149
Last EDR Contact: 01/05/2012
Next Scheduled EDR Contact: 04/16/2012
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/29/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 94

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/07/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 08/12/2010	Telephone: 202-528-4285
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 12/09/2011
Number of Days to Update: 112	Next Scheduled EDR Contact: 03/26/2012
	Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/01/2011	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 01/25/2012	Telephone: Varies
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 12/27/2011
Number of Days to Update: 36	Next Scheduled EDR Contact: 04/16/2012
	Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/28/2011	Source: EPA
Date Data Arrived at EDR: 12/14/2011	Telephone: 703-416-0223
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 12/14/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 03/26/2012
	Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010	Source: Department of Energy
Date Data Arrived at EDR: 10/07/2011	Telephone: 505-845-0011
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 02/28/2012
Number of Days to Update: 146	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 09/08/2011	Telephone: 303-231-5959
Date Made Active in Reports: 09/29/2011	Last EDR Contact: 03/07/2012
Number of Days to Update: 21	Next Scheduled EDR Contact: 06/18/2012
	Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009	Source: EPA
Date Data Arrived at EDR: 09/01/2011	Telephone: 202-566-0250
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 02/28/2012
Number of Days to Update: 131	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006	Source: EPA
Date Data Arrived at EDR: 09/29/2010	Telephone: 202-260-5521
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 12/27/2011
Number of Days to Update: 64	Next Scheduled EDR Contact: 04/09/2012
	Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 02/27/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 02/27/2012
Number of Days to Update: 25	Next Scheduled EDR Contact: 06/11/2012
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2008
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009	Source: EPA
Date Data Arrived at EDR: 12/10/2010	Telephone: 202-564-4203
Date Made Active in Reports: 02/25/2011	Last EDR Contact: 01/30/2012
Number of Days to Update: 77	Next Scheduled EDR Contact: 05/14/2012
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/10/2011	Telephone: 202-564-5088
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 12/21/2011
Number of Days to Update: 61	Next Scheduled EDR Contact: 04/09/2012
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010	Source: EPA
Date Data Arrived at EDR: 11/10/2010	Telephone: 202-566-0500
Date Made Active in Reports: 02/16/2011	Last EDR Contact: 01/20/2012
Number of Days to Update: 98	Next Scheduled EDR Contact: 04/30/2012
	Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 07/15/2011	Telephone: 301-415-7169
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 12/12/2011
Number of Days to Update: 60	Next Scheduled EDR Contact: 03/26/2012
	Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/10/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/12/2012	Telephone: 202-343-9775
Date Made Active in Reports: 03/01/2012	Last EDR Contact: 01/12/2012
Number of Days to Update: 49	Next Scheduled EDR Contact: 04/23/2012
	Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/23/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 79

Source: EPA
Telephone: (303) 312-6312
Last EDR Contact: 12/13/2011
Next Scheduled EDR Contact: 03/26/2012
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/27/2012
Next Scheduled EDR Contact: 06/11/2012
Data Release Frequency: Biennially

DRYCLEANERS: Registered Drycleaners

A listing of registered drycleaners.

Date of Government Version: 04/25/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 06/06/2011
Number of Days to Update: 40

Source: Department of Environmental Quality
Telephone: 801-536-4437
Last EDR Contact: 02/06/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Varies

NPDES: Permitted Facilities Listing

A listing of Division of Water Quality permits.

Date of Government Version: 12/20/2011
Date Data Arrived at EDR: 12/20/2011
Date Made Active in Reports: 02/28/2012
Number of Days to Update: 70

Source: Department of Environmental Quality
Telephone: 801-538-6146
Last EDR Contact: 12/20/2011
Next Scheduled EDR Contact: 04/02/2012
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/06/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing

Financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay

Date of Government Version: 01/11/2012
Date Data Arrived at EDR: 01/12/2012
Date Made Active in Reports: 02/06/2012
Number of Days to Update: 25

Source: Department of Environmental Quality
Telephone: 801-536-4141
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing

Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 10/20/2011
Date Data Arrived at EDR: 10/21/2011
Date Made Active in Reports: 11/15/2011
Number of Days to Update: 25

Source: Department of Environmental Quality
Telephone: 801-538-6794
Last EDR Contact: 02/15/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/18/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/08/2011
Next Scheduled EDR Contact: 03/26/2012
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 02/03/2012
Next Scheduled EDR Contact: 05/14/2012
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/20/2012
Next Scheduled EDR Contact: 04/30/2012
Data Release Frequency: N/A

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 11/01/2011
Date Data Arrived at EDR: 11/08/2011
Date Made Active in Reports: 12/22/2011
Number of Days to Update: 44

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/09/2012
Next Scheduled EDR Contact: 05/21/2012
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 01/26/2012
Date Made Active in Reports: 03/06/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/23/2012
Next Scheduled EDR Contact: 05/07/2012
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/15/2011
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/19/2011
Next Scheduled EDR Contact: 04/02/2012
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: Rextag Strategies Corp.
Telephone: (281) 769-2247

U.S. Electric Transmission and Power Plants Systems Digital GIS Data

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Care Provider List

Source: Department of Health

Telephone: 801-538-9299

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands in Utah

Source: Automated Geographic Reference Center

Telephone: 801-537-9201

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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Clark Ranch

Master Infrastructure Assessment

Prepared for:

Stereotomic Architecture + Design

Park City, Utah

Prepared by:

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September 14, 2023

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1.0 INTRODUCTION

Stereotomic Architecture + Design tasked *Talisman Civil Consultants* (TCC) to perform a conceptual-level assessment of infrastructure necessary to support the proposed Clark Ranch Development located along the US-40 West Frontage Road in Park City, Utah and associated costs.

The Clark Ranch Development concepts provided by Stereotomic comprises a range of units from 90 to 230. Types of dwellings range from studios, to 1-3 bedroom, and multi-family units (4 bedroom). This infrastructure assessment focuses on the densest concept in terms of both number of proposed living units and impervious area to gain an understanding of maximum utility demand.

The project area comprises roughly 10 acres and includes approximately 3,830 linear feet of new roadway, culinary water, sanitary sewer, and storm drain systems. The site also features a detention pond and a significant amount of retaining walls.

This document is intended to be used as a conceptual-level assessment. Because of this, TCC expects the quantities and associated costs to be refined as the master plan develops, additional information is gathered, and as material and labor costs fluctuate.

2.0 UTILITY INFRASTRUCTURE ANALYSIS

The following sections describe proposed utility infrastructures for the Clark Ranch Development including culinary water, sanitary sewer, stormwater, electrical, and communications. Natural gas is not included in this infrastructure assessment as the project stakeholders do not intend to use gas as part of this project.

2.1 Culinary Water Infrastructure

The Equivalent Residential Connection (ERC) is a unit of measurement that represents water demand per household. *Utah Administrative Code: R309-510-7* defines peak day demand to be 800 gallons per day per ERC. For this analysis, it is conservatively estimated that 1 unit is equal to 1 ERC.

Utah Administrative Code: R309-510-7 also provides guidance for outdoor irrigation demand. The proposed Clark Ranch Development is located in Map Zone 2 for “Low” Normal Annual Effective Precipitation. The corresponding irrigation demand per Table 510-3 is 2.8 gpm per irrigated acre.

The densest Clark Ranch Development concept comprises 230 units (or ERCs) and an estimated 5 acres of irrigable outdoor space. At 800 gpd per ERC, the indoor demand for the proposed units is 184,000 gpd, or 127.78 gpm. The outdoor water demand for 5 irrigable acres is estimated to be 24,408 gpd, or 16.95 gpm.

The total peak water demand for the Clark Ranch Development is conservatively estimated to be **208,408 gpd, or 144.73 gpm**.

Additionally, *Utah Administrative Code R309-510-8* requires 400 gallons of storage per ERC (indoor demand), and 1,873 gallons of storage per irrigated acre (outdoor demand) per Table 510-5 of Map Zone 2. For 230 ERC’s, the indoor storage requirement is 92,000 gallons. The outdoor storage requirement for 5 acres is 9,365 gallons.

The total indoor and outdoor storage requirement is **101,365 gallons**. See Table 2.1a on the next page.

Table 2.1a – Clark Ranch Culinary Water Demand and Storage Estimates

Indoor Demand					
ERC's	Peak Day Demand per ERC	Peak Day Demand (GPD)	Peak Day Demand (GPM)	Storage per ERC (Gal)	Required Storage (Gal)
230	800	184,000	127.78	400	92,000
Outdoor Demand					
Acres	Demand Per Acre (GPM)	Peak Day Demand (GPD)	Peak Day Demand (GPM)	Storage Per Acre (Gal)	Required Storage (Gal)
5.00	3.39	24,408	16.95	1,873	9,365
	GPD	GPM			
Indoor Demand	184,000	127.78		Indoor Storage	92,000
Outdoor Demand	24,408.00	16.95		Outdoor Storage	9,365
Total Demand	208,408	144.73		Total Required Storage (Gal)	101,365

The culinary water system is owned, operated, and maintained by Park City’s Water Division. Currently, an existing 2,000,000-gallon storage tank services Park City Heights. Park City Water Division determined that the existing storage tank has adequate source and storage capacity to provide additional service to the Clark Ranch Development’s 230 units and 5 acres of irrigable outdoor space. It is assumed that the existing tank has enough fire flow storage to allow for 2 hours of flow at 2,000 gpm.

The existing elevation of the storage tank is at elevation 7,017 feet. To maintain a minimum service pressure of 40 psi without booster pumps, the development of Clark Ranch may not exceed an elevation of 6917’.

The proposed culinary water system for Clark Ranch will connect to an assumed 8” stub off the cul-de-sac of Calamity Lane in Phase 5 of Park City Heights (see Figure 1 on the next page).

Figure 1 – Park City Heights Current and Future Water Layout



From the connection in Calamity Lane, the proposed culinary water for Clark Ranch runs 2,331 linear feet of 10" C-900 PVC pipe the entire length of the new roadway. The development also requires a pressure reducing valve station to mitigate high water pressure due to elevation drop. See Exhibit 1, and Exhibit X101 found in the Appendix for a plan view of the utility design.

2.2 Sanitary Sewer Infrastructure

The sanitary sewer infrastructure in this area is and will be owned, operated, and maintained by Snyderville Basin Water Reclamation District (SBWRD). Per *Utah Administrative Code R317-3*, Residential Equivalent (RE) is a unit of measurement that represents the volume of wastewater per residential connection. SBWRD considers an RE to be 100 gpd per person, with an average of 3.2 people per household such that 1 RE is equal to 320 gpd demand of wastewater.

Wastewater demand is based off the estimated occupancy rates for each unit. Local occupancy ratios were provided by Park City and Mountainlands. For this analysis, we have utilized an occupancy ratio of 1.2 occupants per bedroom, which while being more conservative, is also consistent with observed occupancy levels in affordable housing projects across Utah. See Table 2.2a below.

Table 2.2a – Local Occupancy Ratios

Unit Type	# of Occupants per Unit (Local)	# of Occupants per Unit (Clark Ranch Analysis)
Studio	1.2	1.2
1 Bedroom	1.1	1.2
2 Bedroom	1.9	2.4
3 Bedroom	N/A	3.6
Multi Family (4BR)	3.7	4.8

The densest Clark Ranch Development concept comprises 230 units total. Of these, there are 10 studios, 80 one-bedroom units, 80 two-bedroom units, and 60 three-bedroom units. There are an estimated 516 occupants. At 100gpd/person, the wastewater demand is conservatively estimated at **516,000 gpd or 161.25 REs or**. See Table 2.2b below for a breakdown.

Table 2.2b – Clark Ranch Sanitary Sewer Demand (Densest Concept)

Unit Type	Unit Count	Occupants per Unit	# of Occupants	Demand (GPD) (100gpd/occupant)	Demand (GPM)	Demand (RE)
Studio	10	1.2	12	1,200	0.83	3.75
1 Bedroom	80	1.2	96	9,600	6.67	30
2 Bedroom	80	2.4	192	19,200	13.33	60
3 Bedroom	60	3.6	216	21,600	15.00	67.5
Multi Family (4BF)	0	4.8	0	0	0.00	0
Total			516	51,600	36	161.25

It is intended to connect the Clark Ranch wastewater system into the existing system in Park City Heights. according to discussions with SBWRD, after the full build out of Park City Heights, the limiting factor in the existing wastewater system lies between manholes #58 and #59 with an available capacity at 229 REs or 50.89 gpm. See Figure 2 on the next page.

The wastewater demand for 230 units from the densest Clark Ranch concept is conservatively estimated at 36 gpm, far less than the 50.89 gpm of available capacity. Therefore, it is estimated that the existing sewer system has enough capacity to accommodate the Clark Ranch Development without requiring upgrades to the existing infrastructure.

Figure 2 – Park City Heights Sewer Layout



If the Clark Ranch wastewater demand were to exceed 51gpm or 229 REs, the existing sewer line between manholes #59 & Manhole #8 must be upsized from an 8" pipe to a 12" pipe. Improvements to the sewer line between manholes #40 and #8 require special attention. The existing sewer line is shallow in slope and makes an aerial crossing over a natural waterway which will complicate design solutions.

It is also worth discussing reducing wastewater demand requirements from 100gpd per person to 75gpd per person, or 320 gpd per RE to 240 gpd per RE. This number is based off analogous developments in Park City which have received such a reduction. If SBWRD accepts a reduction in demand, the existing sewer system capacity of 50.89 gpm could support 305 RE's, which is nearly double the densest Clark Ranch development concept.

TCC estimates that the Clark Ranch Development will require approximately 2,300 linear feet of 8" SDR-35 PVC pipe. See Exhibit X101 in the Appendix. The proposed sanitary sewer infrastructure will connect to existing manhole #23 and run the length of Piper Way in Park City Heights. The conveyance system would ultimately direct wastewater flow to the Silver Creek Water Reclamation Facility where it is treated and returned to Silver Creek before eventually flowing to Echo Reservoir.

2.3 Stormwater Infrastructure

The Park City Stormwater Management Program and the Park City Stormwater Drainage Design Manual dictates the parameters used to evaluate requirements for the Clark Ranch storm drain system.

Important design parameters from these documents include but are not limited to:

- Pipe shall be designed to convey the 10-year storm recurrence interval.
- Detention ponds shall be designed for the 100-year storm recurrence interval.
- The allowable post-development discharge rate must be less than or equal to the pre-development discharge rate.
- The minimum storm drain pipe diameter shall be 15”.
- The source for precipitation data is NOAA Atlas 14.

As of July 1st 2020, the Utah Division of Water Quality has implemented a requirement to retain and infiltrate the 80th percentile storm event for new development projects that disturb greater than or equal to 1 acre. The 80th percentile storm depth for Park City is approximately 0.47”.

Using the above criteria along with a hydraulic model based on SCS curve number methodology, TCC calculates that the densest Clark Ranch Development concept disturbs approximately 400,000 square feet and must be able to retain **15,666 cubic feet** and detain approximately **45,000 cubic feet** of storm drain runoff. The open space in the northern corner of the Clark Ranch Development is relatively flat and sufficient in area for a basin with the capacity to detain and retain runoff for the entire site. See Figure 3 below and exhibit X200 found in the Appendix:

Figure 3 – Clark Ranch Detention Basin



The detention pond will maintain water quality and control discharge to the greater stormwater system in Highway 40. It may also serve as a secondary recreational purpose for the surrounding community when not detaining stormwater.

TCC also anticipates incorporating bio swales throughout the project which will capture a portion of runoff and reduce the required capacity of the detention basin.

There are limited areas where the proposed road profile slopes toward Frontage Road, stormwater will be unable to drain to the detention basin. UDOT may grant permission for runoff to flow downhill to the UDOT storm drain system in US-40, in which case discharge will be limited to 0.2 cfs/acre. See exhibit X101 found in the Appendix for a plan view of the utility design.

3.0 ROADWAY INFRASTRUCTURE

The following sections describe roadway infrastructure for the Clark Ranch Development.

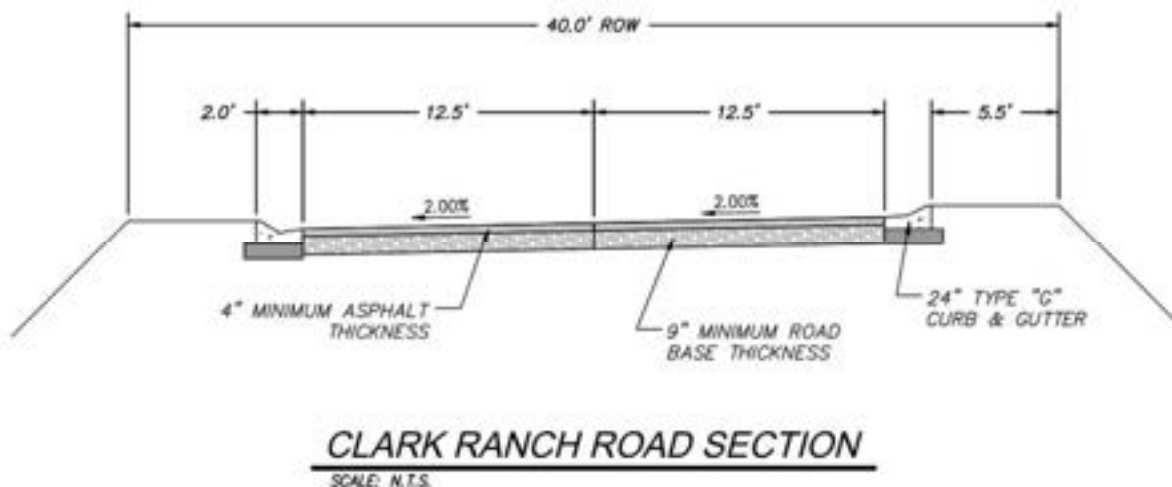
3.1 Roadway Design Parameters

TCC proposes the design of two new roads in the Clark Ranch Development – Phase 1, which consists of “Road 1” the lower road that connects to Park City Heights and the frontage road, and Phase 2 which consists of “Road 2” which sits above Road 1. The design for both roadways adhere to Park City Engineering standards and AASHTO guidelines for a 25 mph design speed. Park City’s Engineering Department has also specified the cross-section widths as follows:

- 40’ Right-of-Way Width
- 25’ of Asphalt Surface
- 24” Type “G” Curb and Gutter on Either Side
- 5.5’ of Landscaped Shoulder
- No Sidewalk
- Able to Support an 80,000 lb Fire Truck

The road will feature a minimum of 4” thick asphalt on a minimum of 9” thick commercial road base. See Figure 4 below:

Figure 4 – Clark Ranch Road Section



Regarding life safety, Road 2 which provides the second connection to Frontage Road could be designed as a dead-end, however Park City Municipal Code 15-7.3-4 stipulates that,

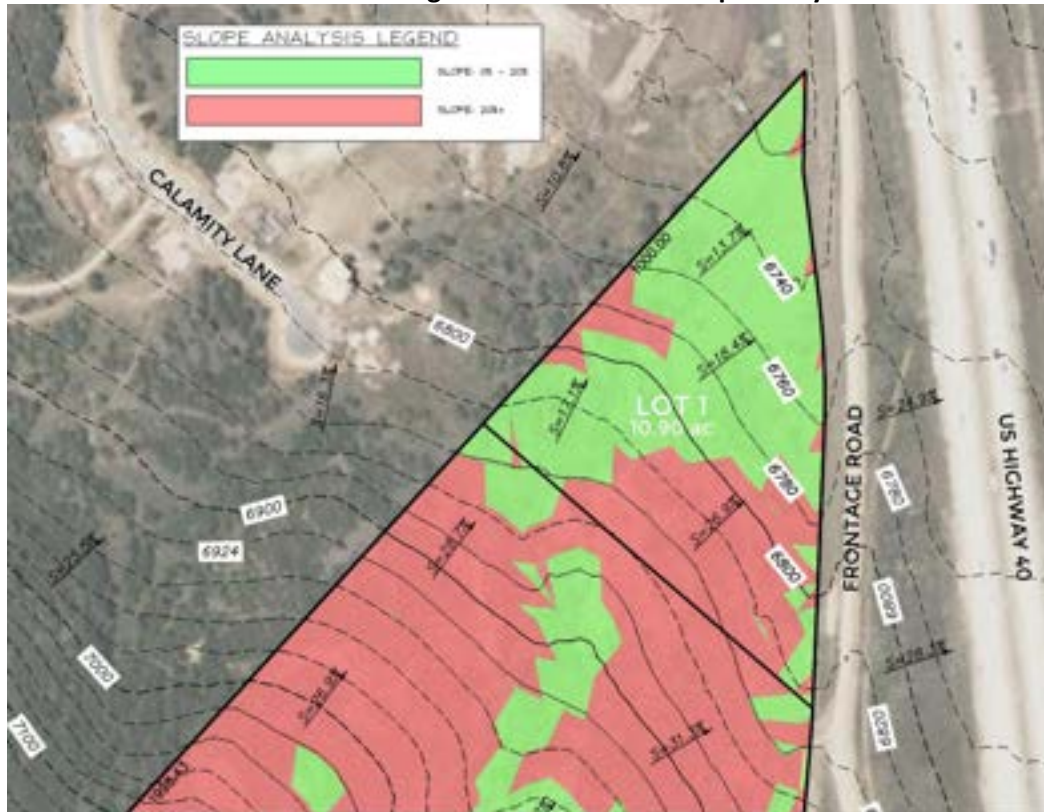
For greater convenience to traffic and more effective police and fire protection, permanent dead-end Streets shall, in general, be limited in length to six hundred and fifty feet (650').

Appendix D of the International Fire Code would also require a 70’ hammer head or other acceptable turnaround for fire apparatus access for any dead end greater than 150’ in length. Furthermore, the Park City Fire District will have the final say and may require at least two roadway entrances/exits to both Phase 1 and Phase 2 of the Clark Ranch development.

The primary road alignment and associated right-of-way is the main conduit for the primary utilities listed in Section 2.0 that service the Clark Ranch Development.

A slope analysis exhibit shows that the existing topography is steep in areas with slopes that exceed 25%. See Figure 5 below:

Figure 5 – Clark Ranch Slope Analysis



Exhibits X100, and X102—X105 found in the Appendix show a proposed roadway plan and profile for Clark Ranch.

The horizontal road design intends to mitigate steep slopes by utilizing oblique approaches to the topography where possible, small radius curves, and a 2.0% cross-slope over the roadway width. The maximum centerline profile grade of the roads does not exceed the 10% prescribed by Park City Engineers. Due to the steep nature of the topography and the profile design limits, TCC anticipates areas where significant retaining walls greater than 10' will be necessary. For this analysis, TCC assumes using concrete retaining walls, however a variety of slope treatments may be considered at varying costs.

3.2 Pedestrian Circulation

The Park City Engineering Department has specified that, due to the steep slopes of the vertical road alignments, sidewalks would not be practical and therefore are not to be included in the road cross-section. Instead, as the design for the entire project continues to develop, TCC anticipates incorporating pedestrian walkways throughout the Clark Ranch Development between proposed units, to access existing trailheads, and community recreation spaces.

4.0 INFRASTRUCTURE QUANTITY AND COST ESTIMATES

Based on the roadway alignment and assumption that utilities generally run parallel to the roadway centerline, TCC calculated the following quantities and associated cost estimates for the proposed Clark Ranch Development. The Phase 1 costs consisting of Road 1 and associated utilities is found below.

Table 4.0a – Clark Ranch, Phase 1 Estimate

Clark Ranch, Phase 1 Estimate					
Item	Unit	Unit Price	Quantity	Cost	
Site Preparation and Demolition					
1	Clear and Grub	S.F.	\$2	110,645	\$221,290
				Subtotal	\$221,290
Site Improvements					
2	Cut	C.Y.	\$20	3,737	\$74,740
3	Fill	C.Y.	\$10	8,653	\$86,530
4	4" Asphalt Paving	S.Y.	\$27	6,264	\$169,128
5	9" Road Base Material	C.Y.	\$52	1,566	\$81,432
6	Type "G" Curb and Gutter - Catch	L.F.	\$28	2,286	\$64,008
7	Type "G" Curb and Gutter - Spill	L.F.	\$28	2,155	\$60,340
8	Retaining Walls (Concrete)	S.F.	\$50	21,194	\$1,059,700
9	Shoulder Landscape	S.F.	\$2	24,298	\$48,596
				Subtotal	\$1,644,474
Utility Improvements					
10	Connect to Existing Water Stub	Each	\$2,000	1	\$2,000
11	10" C-900 PVC Pipe	L.F.	\$125	2,221	\$277,625
12	PRV Station	Each	\$100,000	1	\$100,000
13	Connect to Existing Sewer Stub	Each	\$2,000	1	\$2,000
14	8" SDR-35 PVC Pipe	L.F.	\$100	2,218	\$221,800
15	Sewer Manhole	Each	\$5,000	5	\$25,000
16	15" Class III RCP Pipe	L.F.	\$150	2,215	\$332,250
17	Detention/Retention Volume	C.Y.	\$20	2,250	\$45,000
18	Storm Drain Inlet	Each	\$5,000	9	\$45,000
19	4" PVC Electrical Conduit	L.F.	\$10	2,214	\$22,140
20	4" PVC Communications Conduit	L.F.	\$10	2,215	\$22,150
21	Additional Electrical Appurtenances	L.S.	\$250,000	1	\$250,000
				Subtotal	\$1,344,965
Summary					
Sub Total		\$3,210,729			
20% Contingency		\$642,146			
Total		\$3,852,875			

The second phase comprises the development of remaining Road 2 and associated utilities.

Table 4.0b – Clark Ranch, Phase 2 Estimate

Clark Ranch, Phase 2 Estimate					
Item	Unit	Unit Price	Quantity	Cost	
Site Preparation and Demolition					
1	Clear and Grub	S.F.	\$2	99,980	\$199,960
				Subtotal	\$199,960
Site Improvements					
2	Cut	C.Y.	\$20	32,275	\$645,500
3	Fill	C.Y.	\$10	1,228	\$12,280
4	4" Asphalt Paving	S.Y.	\$27	4,375	\$118,125
5	9" Road Base Material	C.Y.	\$52	1,094	\$56,888
6	Type "G" Curb and Gutter - Catch	L.F.	\$28	1,533	\$42,924
7	Type "G" Curb and Gutter - Spill	L.F.	\$28	1,619	\$45,332
8	Retaining Walls (Concrete)	S.F.	\$50	37,226	\$1,861,300
9	Shoulder Landscape	S.F.	\$2	17,239	\$34,478
				Subtotal	\$2,816,827
Utility Improvements					
10	Connect to Existing Water Stub	Each	\$2,000	1	\$2,000
11	10" C-900 PVC Pipe	L.F.	\$125	1,615	\$201,875
12	Connect to Existing Sewer Stub	Each	\$2,000	1	\$2,000
13	8" SDR-35 PVC Pipe	L.F.	\$100	1,598	\$159,800
14	Sewer Manhole	Each	\$5,000	4	\$20,000
15	15" Class III RCP Pipe	L.F.	\$150	1,583	\$237,450
16	Storm Drain Inlet	Each	\$5,000	9	\$45,000
17	4" PVC Electrical Conduit	L.F.	\$10	1,574	\$15,740
18	4" PVC Communications Conduit	L.F.	\$10	1,578	\$15,780
19	Additional Electrical Appurtenances	L.S.	\$250,000	1	\$250,000
				Subtotal	\$949,645
Summary					
Sub Total		\$3,966,432			
20% Contingency		\$793,286			
Total		\$4,759,718			

The following table shows the combined total of Phase 1 and Phase 2.

Table 4.0c – Clark Ranch Total Estimate

Clark Ranch Total Estimate					
	Item	Unit	Unit Price	Quantity	Cost
Site Preparation and Demolition					
1	Clear and Grub	S.F.	\$2	210,625	\$421,250
				Subtotal	\$421,250
Site Improvements					
2	Cut	C.Y.	\$20	36,012	\$720,240
3	Fill	C.Y.	\$10	9,881	\$98,810
4	4" Asphalt Paving	S.Y.	\$27	10,639	\$287,253
5	9" Road Base Material	C.Y.	\$52	2,660	\$138,320
6	Type "G" Curb and Gutter - Catch	L.F.	\$28	3,819	\$106,932
7	Type "G" Curb and Gutter - Spill	L.F.	\$28	3,774	\$105,672
8	Retaining Walls (Concrete)	S.F.	\$50	58,420	\$2,921,000
9	Shoulder Landscape	S.F.	\$2	41,537	\$83,074
				Subtotal	\$4,461,301
Utility Improvements					
10	Connect to Existing Water Stub	Each	\$2,000	2	\$4,000
11	10" C-900 PVC Pipe	L.F.	\$125	3,836	\$479,500
12	PRV Station	Each	\$100,000	1	\$100,000
13	Connect to Existing Sewer Stub	Each	\$2,000	2	\$4,000
14	8" SDR-35 PVC Pipe	L.F.	\$100	3,816	\$381,600
15	Sewer Manhole	Each	\$5,000	9	\$45,000
16	15" Class III RCP Pipe	L.F.	\$150	3,798	\$569,700
17	Detention/Retention Volume	C.Y.	\$20	2,250	\$45,000
18	Storm Drain Inlet	Each	\$5,000	18	\$90,000
19	4" PVC Electrical Conduit	L.F.	\$10	3,788	\$37,880
20	4" PVC Communications Conduit	L.F.	\$10	3,793	\$37,930
21	Additional Electrical Appurtenances	L.S.	\$500,000	1	\$500,000
				Subtotal	\$2,294,610
Summary					
Sub Total			\$7,177,161		
20% Contingency			\$1,435,432		
Total			\$8,612,593		

The electrical costs in Section 4.0 include proposed electrical conduit for a total of \$37,880. This excludes costs for conductors, transformers, or other electrical equipment. For the purpose of this report, TCC estimates remaining electrical infrastructure improvements to be roughly \$250,000 for each phase, or \$500,000 total. This assumes existing Rocky Mountain infrastructure in the area such as substations, etc., will not require a significant upgrade to service the Clark Ranch Development. TCC recommends further coordination with Rocky Mountain Power and performing an Electric Service Study (ESSA), and System Impact Study, to determine any necessary upgrades.

The frontage road providing access to Clark Ranch will also need to be developed. Assuming a 36' paved section (2x12' lanes with 6' shoulders & curb and gutter) it is estimated improvements to the frontage road will cost around **\$1.33M** see table 4.0d below.

Table 4.0d – Frontage Road Improvements Cost Estimate

Frontage Road					
Item	Unit	Unit Price	Quantity	Cost	
Site Preparation and Demolition					
1	Clear and Grub	S.F.	\$1	211,640	\$211,640
				Subtotal	\$211,640
Site Improvements					
2	4" Asphalt Paving	S.Y.	\$27	16,600	\$448,200
3	9" Road Base Material	C.Y.	\$52	4,150	\$215,800
4	Type "G" Curb and Gutter	L.F.	\$28	7,645	\$232,400
				Subtotal	\$896,400
Sub Total		\$1,108,040			
20% Contingency		\$221,608			
Total		\$1,329,648			

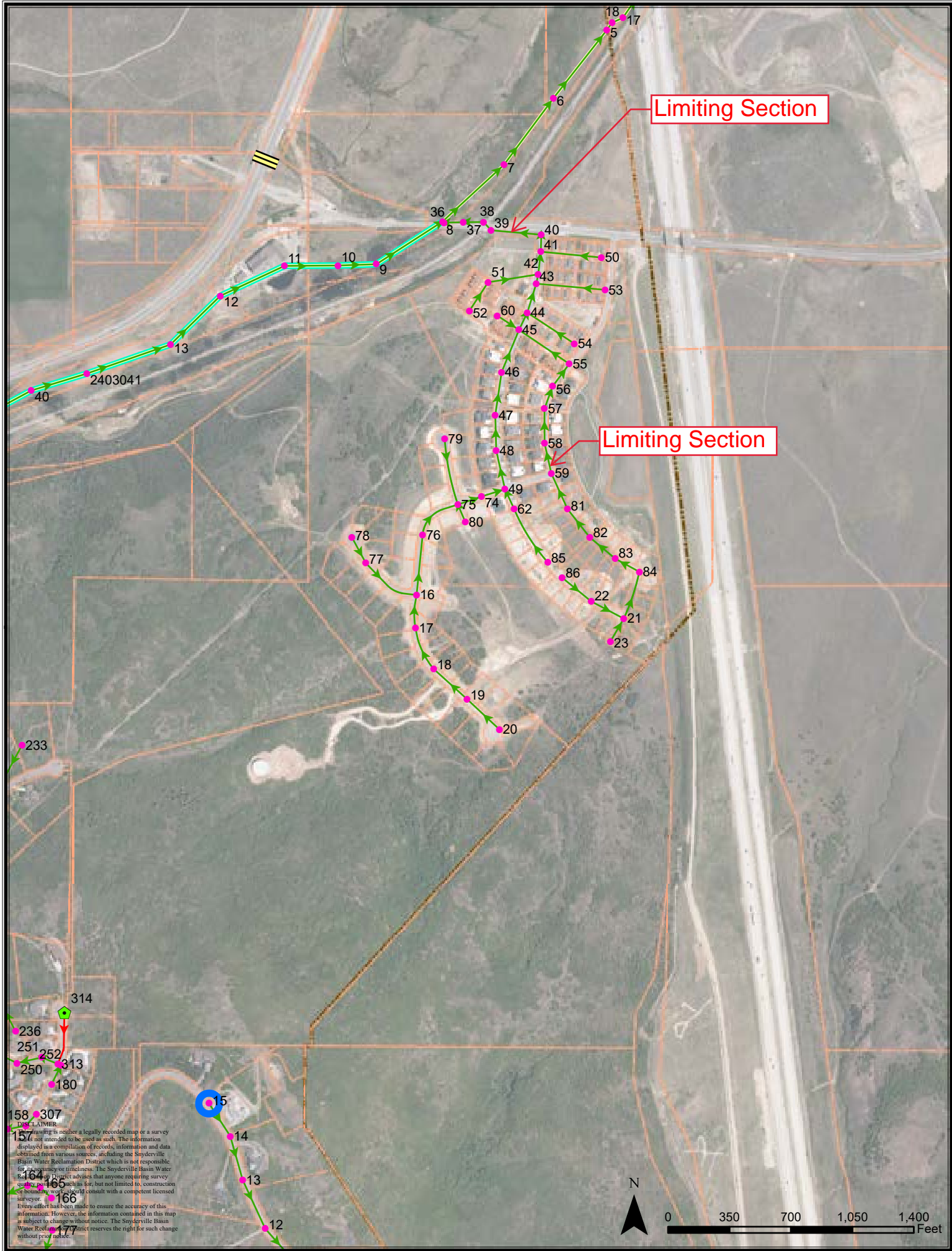
5.0 SUMMARY & CONCLUSION

In summary, the total estimated costs of utility and road infrastructure for the Clark Ranch Development is conservatively estimated at **\$8,600,000**. Improvements to the frontage road will cost an additional **\$1,330,000**. It is important to note that the retaining walls contribute a large portion of the overall cost. Due to the steepness of the overall project topography, maintaining a maximum road grade of 10% will have a significant impact on the height and quantity of retaining walls.

At a conceptual level, even for the densest Clark Ranch Development Option, there is adequate source and storage capacity for water infrastructure, and adequate capacity within the existing sewer infrastructure in Park City Heights. Storm drain infrastructure will be addressed by an 45,000 cubic feet detention and 15,666 cubic feet retention ponds built on-site, and ultimately discharging to the UDOT drainage system in US-40.

5.0 APPENDIX

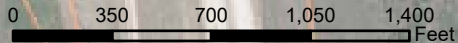




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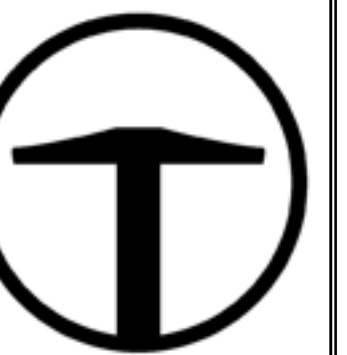
Limiting Section

DISCLAIMER
 This drawing is neither a legally recorded map or a survey
 and is not intended to be used as such. The information
 displayed is a compilation of records, information and data
 obtained from various sources, including the Snyderville
 Basin Water Reclamation District which is not responsible
 for its accuracy or timeliness. The Snyderville Basin Water
 Reclamation District advises that anyone requiring survey
 quality points for, but not limited to, construction
 or boundary work, should consult with a competent licensed
 surveyor.
 Every effort has been made to ensure the accuracy of this
 information. However, the information contained in this map
 is subject to change without notice. The Snyderville Basin
 Water Reclamation District reserves the right for such change
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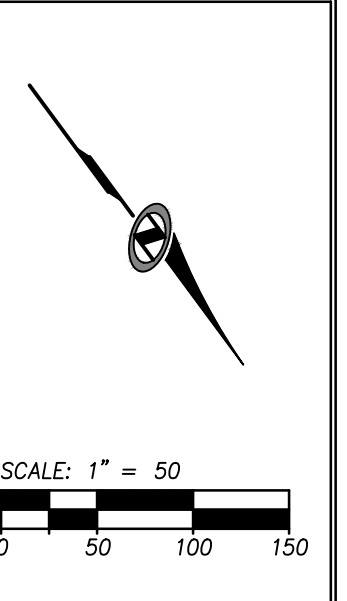
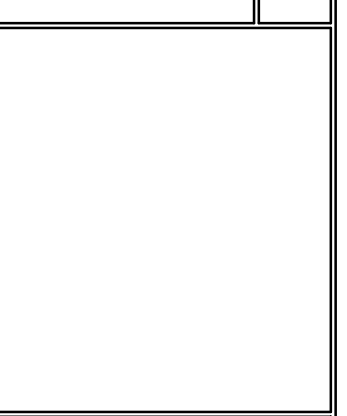


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ROAD EXHIBIT

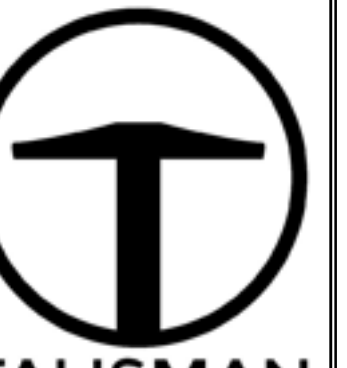
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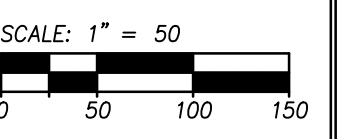
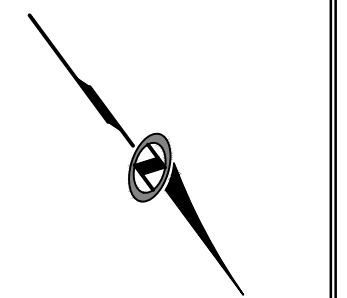
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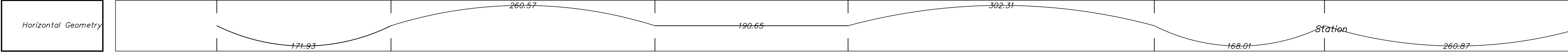
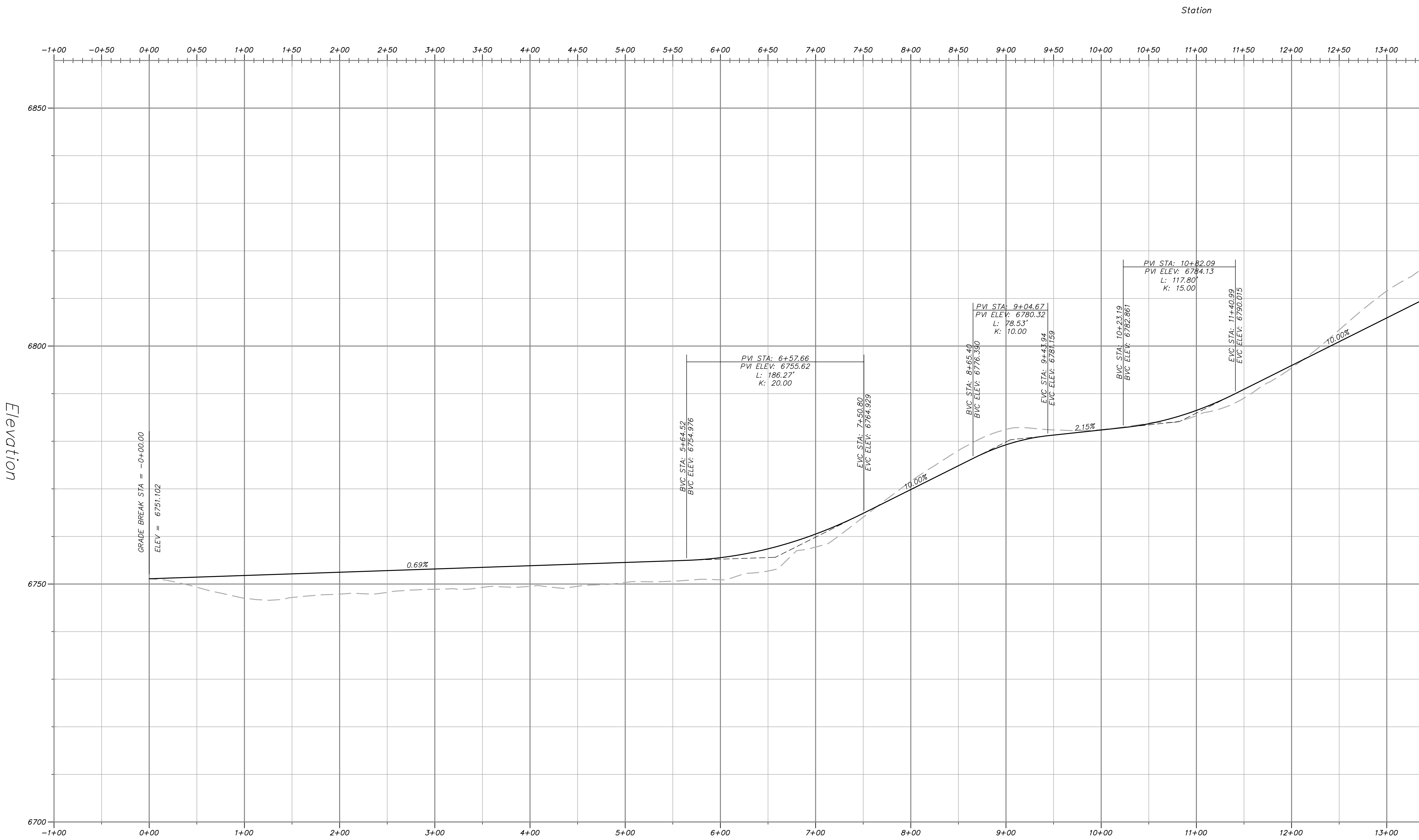
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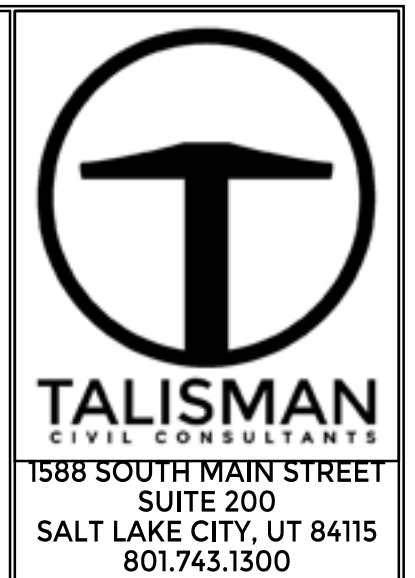
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ROAD 1 PROFILE
 HORIZONTAL: 1" = 50'
 VERTICAL: 1" = 10'



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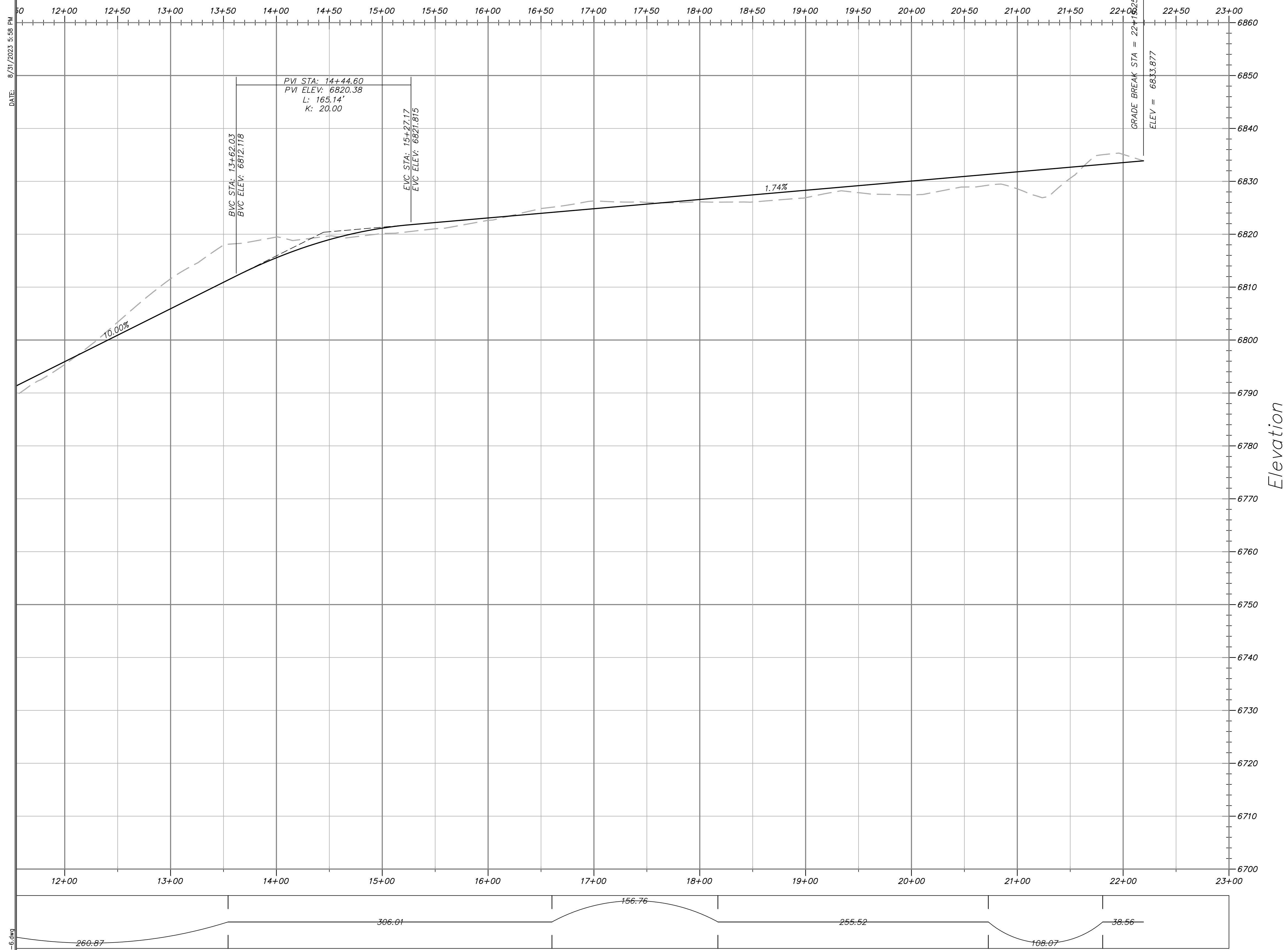
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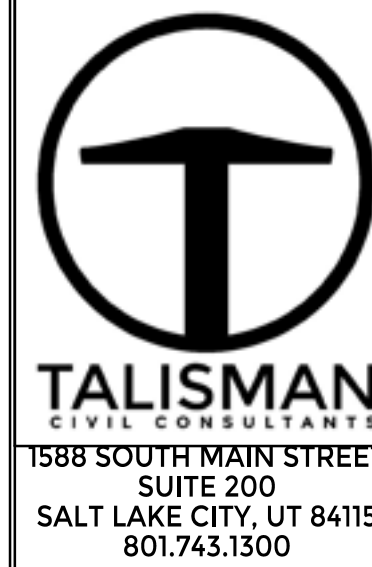
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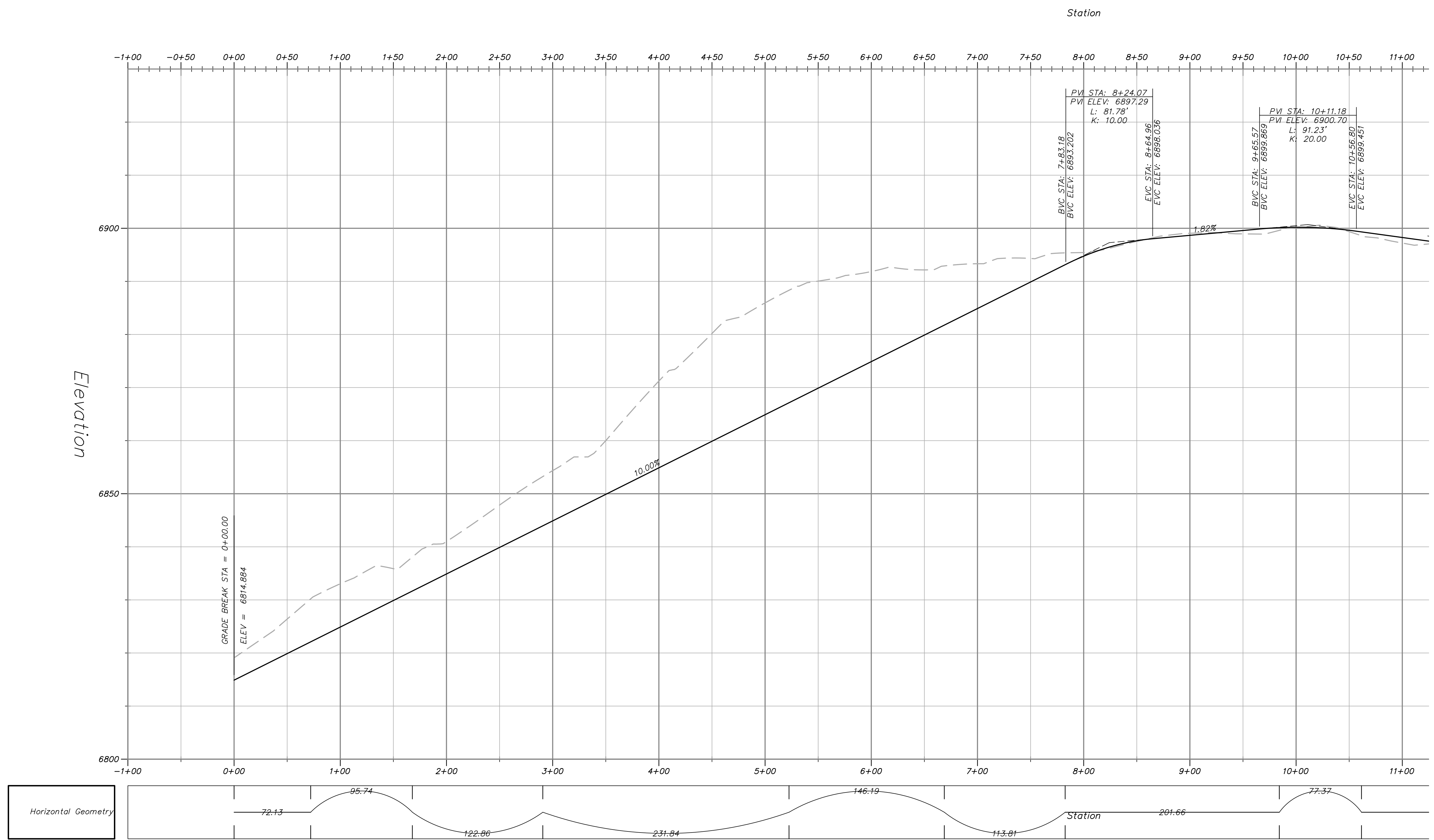
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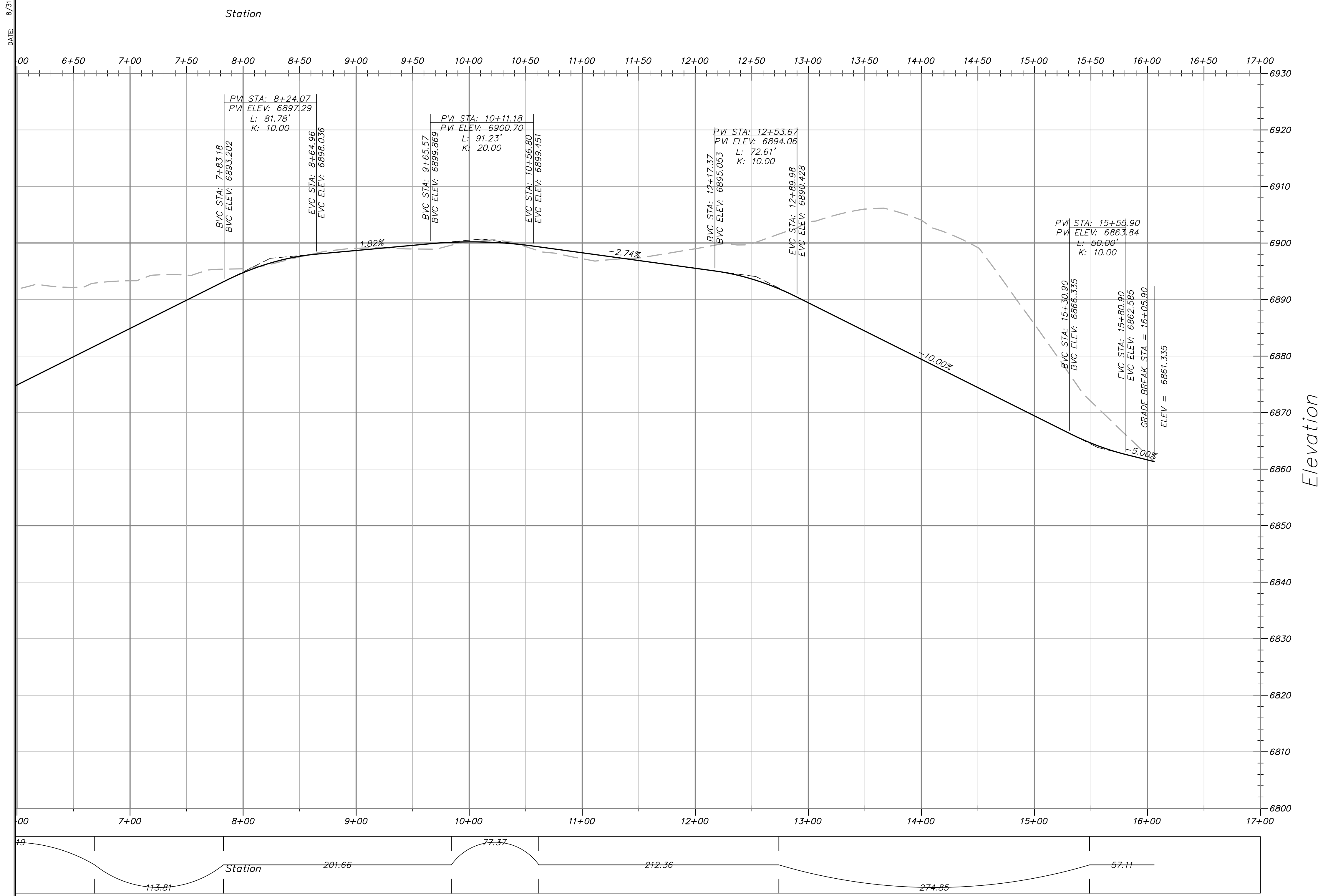
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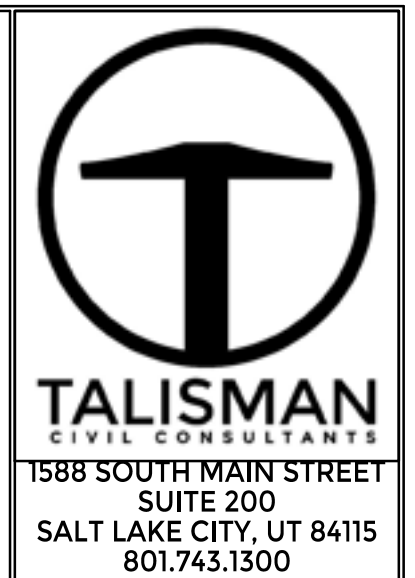
ROAD 2 PROFILE
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 VERTICAL: 1" = 10'

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ROAD 2 PROFILE
 HORIZONTAL: 1" = 50'
 VERTICAL: 1" = 10'



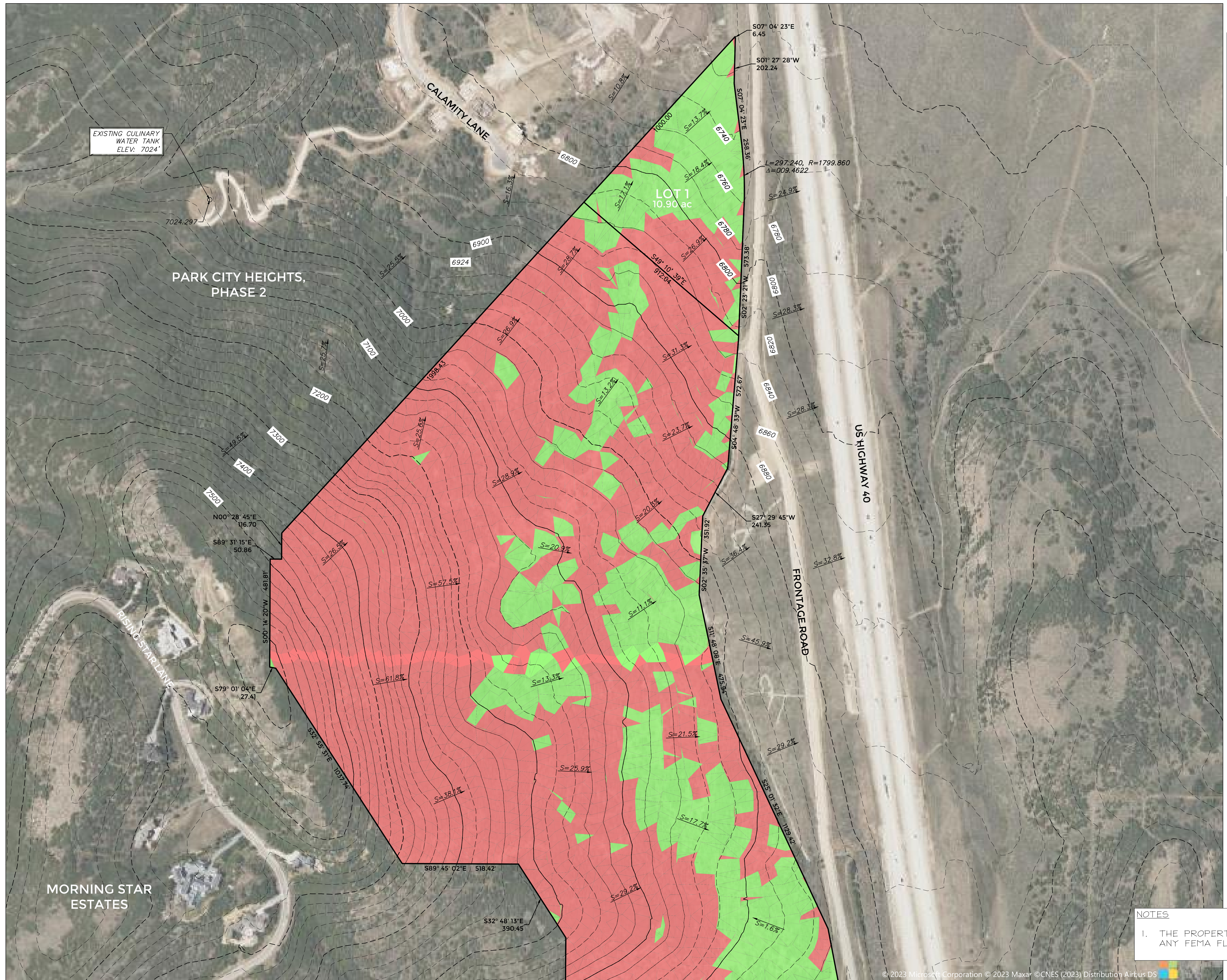
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PROPOSED MAPPING

●	PRMABN	BENCHMARK
---	PRMABN	BOUNDARY LINE
---	PRMABS	BUILDING SETBACK/WINDOW
---	PRMACL	CENTERLINE
---	PRMAEH	EASEMENT
---	PRMALO	IRON PIPE
---	PRMALO	LOT LINE
---	PRMALC	MAPPING MISCELLANEOUS
---	PRMALO	CITY/ COUNTY MONUMENT
●	PRMALO	NAIL
●	PRMALO	FIN
●	PRMABN	PROPERTY LINE
●	PRMALO	REBAR
●	PRMARH	RIGHT OF WAY
●	PRMARK	SECTION CORNER
●	PRMATA	CONTRD. POINT (DESC)

SLOPE ANALYSIS LEGEND

	SLOPE: 0% - 20%
	SLOPE: 20%+



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NOTES

- THE PROPERTY LIES ENTIRELY OUTSIDE OF ANY FEMA FLOOD PLANE ZONES

SCALE: 1" = 200'
 0 100 200 400 600

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 1 OF 1

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