

Land Suitability and Analysis Report

Bella Mesa South

Prepared for:

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May 21, 2025
Project No. 17026.007

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Introduction

This Land Suitability Analysis Report (or LSAR) has been prepared for the project known as Bella Mesa South. The overall project site is roughly 9.3 acres. The Site is located in the southeast quarter section 8, township 8 south, range 66 west of the sixth principal meridian, in the Town of Castle Rock, County of Douglas, State of Colorado. The ultimate proposed land use for the site is single-family attached residential with 93 homes and an overall site density of 9.97 DU/AC. This document explores the property's suitability for the intended use by identifying opportunities and constraints related to the drainages, slope of topography, existing vegetation, and other influential features currently found on the site.

Vicinity Map



Site Location

Bella Mesa is located in the Town of Castle Rock, more specifically within in portions of the southeast quarter section 8, township 8 south, range 66 west of the sixth principal meridian, in the Town of Castle Rock, County of Douglas, State of Colorado. The project is bound by public right-of way and residential to the south, Mitchell Gulch and Town Open Space to the west, and Public Land Dedication to the north. Please see the vicinity map above for further reference.

Methodology

This LSAR has been compiled through the use of several existing reports, maps, and supplemented by on-site review of existing conditions. Site investigation was applied in the process of compiling this LASR to aid in the determination of on-site opportunities and constraints to development. Sources of information used and researched in the development of this LSAR can be found in the References section located on page 9 of this report.

Site Data

Site History

The surrounding area land use has historically been residential, agricultural, and undeveloped. The site itself has been previously and consistently undeveloped according to historic satellite / aerial photography documented from 1984 to today. This finding is also supported by the Phase 1 Environmental Site Assessment which has no significant data gaps of note.

Site Conditions

The overall existing Bella Mesa site encompasses approximately 9.33 acres. The adjoining parcels to the site have all been developed at this point in time: the parcel to the east has been developed for residential land use (Founders Village Filing 24), the parcels to the north and west have been designated as a Public Land Dedication and Private Open Space respectively, and public right-of-way (Mickelson Blvd.) to the south. There is a trail running from north to south along Mitchell Gulch to the west of the site.

There is an existing regional detention pond to the north of the Site that was designed and constructed as a part of the Public Improvement Construction Plans for Founders Village Filing 24 – Phase 1A by Core Consultants dated December 28, 2018. This pond currently provides detention and water quality for Phase I of Founders Village Filing 24.

A small pond previously used as a stock pond was observed adjacent to the property to the west. A small tributary to Cherry Creek, Mitchell Gulch, is adjacent to the west side of the project area. Surface geology in the area is characterized by cobbly gravels of the Castle Rock Conglomerate Formation and the elevation of the property is approximately 6,582 feet above sea level.

Slopes

The range of slopes on-site vary between 1% and 33%, with drainage to the west towards Mitchell Gulch. A slope analysis is included in Appendix D of this report, and was prepared with categories of 0-5%, 5.1-10%, 10.1-15%, 15.1- 20% and 25.1%+.

Both flat and hilly conditions exist, however the predominant condition is of slopes in the less than 10% category. Steeper slopes generally occur in the western third of the site leading to Mitchell Gulch, and there is a steeper embankment condition along the southern edge of the site where it borders Mickelson Boulevard. The eastern portion of the site is less steep with slopes falling into the 0-10% category. An existing regional detention pond can be observed in the north.

Both flat and hilly conditions exist, however the predominant condition is of slopes in the less than 10% category. Steeper slopes generally occur in the western, northern, and eastern perimeter of the site leading to Mitchell Gulch and surrounding open space. The southern portion of the site is less steep with slopes falling into the 0-10% category.

Geology

The presence of very hard, well cemented sandstone and conglomerate bedrock as well as the presence of expansive clays and shallow claystone bedrock has been noted in the Geotechnical Site Development Study by A.G. Wassenaar, Inc. (AGW), and provisions for these should be included in the site development considerations. A summary of their recommendations is as follows:

- Spread or pad-type footings bearing below frost depth on the moisture treated fill or on the sandstone or conglomerate bedrock could likely be used for most structure if portions of the site are over-excavated and the excavated soils are placed as moisture treated fill using the recommendations presented in the report.
- Foundation subsurface drainage systems will likely be necessary for all below grade areas.
- Site and foundation concrete should be designed for moderate sulfate exposure (due to the results of water-soluble sulfate testing).

Other Geotechnical recommendations—such as preliminary pavement—are included in the aforementioned report. Please refer to the Geotechnical Study by AGW (Appendix C) for the complete analysis.

Soils

The Geotechnical Site Development Study by A.G. Wassenaar, Inc. (AGW) identified the following soil geological conditions:

- Topsoil, clay, sand, and gravel overlaying sedimentary bedrock comprises the subsurface materials.

- Claystone, sandstone, or conglomerate bedrock was found at depths ranging from ½ to 13 feet below the ground surface.
- Ground water was encountered at depths ranging from 12 to 32 feet.

For a more complete description of the subsurface conditions, please reference Figures 2 through 4 of the AGW report.

Vegetation

The project area consists primarily of disturbed and undisturbed uplands, with some small rock outcroppings along the western half of the project area. Uplands within the project area are dominated by native and nonnative grasses, including blue grama (*Bouteloua gracilis*), sideoats grama (*Bouteloua curtipendula*), western wheatgrass (*Pascopyrum smithii*), intermediate wheatgrass (*Thinopyrum intermedium*), and smooth brome (*Bromus inermis*). Small populations of sage (*Artemisia* sp.), hairy false goldenaster (*Heterotheca villosa*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), yucca (*Yucca* sp.), common mullein (*Verbascum thapsus*), gumweed (*Grindelia* sp.), and pricklypear (*Opuntia* sp.) occur throughout the project area.

Gambel oak (*Quercus gambelii*) trees occur in the western portion of the project area and dominate the tree stratum. Mountain mahogany (*Cercocarpus* sp.), Gambel oak, and rubber rabbitbrush (*Ericameria nauseosa*) occur in the shrub stratum throughout the western portion of the project area.

A constructed drainage ditch dominated by smooth brome, big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), Canada thistle, and nodding plumeless thistle (*Carduus nutans*) occurs in the northeast corner of the project area. A small , dominated by cattails (*Typha* sp.), was observed along the southern edge of the project area, abutting an unnamed pond with a surface connection to Mitchell Gulch.

Wildlife Habitat / Migration

As part of the Biological and Cultural Assessment prepared by ERO Resources Corporation on October 10, 2018, ERO assessed the project area for potential habitat for threatened, endangered, and candidate species listed under the Endangered Species Act (ESA). The report determines whether or not there is the presence on-site of several threatened and endangered species with potential habitat in Douglas County. The assessment for this site includes one mammal, four birds, two fish, one insect, and three plants.

The project area does not contain habitat for the Mexican spotted owl, greenback cutthroat trout, or Pawnee montane skipper. The interior least tern, piping plover, whooping crane, pallid sturgeon, and western prairie fringed orchid are species that are affected by continued or ongoing depletions to the Platte River system. Based on ERO's current

knowledge of the project, no depletions to the Platte River system would occur and no action is necessary.

Potential habitat for Preble's meadow jumping mouse (Preble's), Colorado butterfly plant (CBP), and Ute ladies'- tresses orchid (ULTO) is generally more prevalent in areas across the Front Range. However, ERO concluded that it is unlikely that the project area supports a population of Preble's and that there is no habitat for CBP or ULTO in the project area. ERO concluded that no potential habitat for federally listed threatened or endangered species occurs or is likely to occur in the project area. ERO recommends submitting a habitat assessment to the Service requesting concurrence that the project area is not habitat for Preble's and that the proposed project would not adversely affect the continued existence of Preble's.

Since several migratory birds could utilize portions of the property for nesting and foraging vegetation removal should occur outside of the breeding season (typically September through February). Because of variability in the breeding seasons of various bird species, ERO recommends a nest survey be conducted within one week before construction to determine if any active nests are present in the project area so they can be avoided. If the construction schedule does not allow vegetation removal outside of the breeding season, a nest survey should be conducted within one week before vegetation removal to determine if the nest is active and by which species. If active nests are found, any work that would destroy the nests cannot be conducted until the birds have vacated the nests.

Please refer to the Biological and Cultural Assessment by ERO Resources Corporation (Appendix B) for the complete analysis.

Wildfire Mitigation Zones

Wildfire mitigation is the implementation of various measures designed to minimize the destructive effects of a wildfire. Per the Community Wildfire Hazard Potential (Map) of the Douglas County Community Wildfire Protection Plan (2011), the property falls within a community hazard rating of "Mixed". Looking at the parcel level, however, the Douglas County Wildfire Hazard Overlay District (Map) recognizes the property as an excluded area and is not subject to the Wildfire Mitigation Standards of Douglas County.

In addition, according to a Wildfire Risk summary report pulled from the Colorado Wildfire Risk Assessment Portal (www.coloradowildfirerisk.com) using 2017 wildfire risk data from the Colorado State Forest Service, this site is considered as part of the "Lowest Risk" category. Please see attached map (Appendix E) for more detail.

Cultural Resources

ERO Resources Corporation, conducted a cultural resources file review of the project area with the Colorado office of Archaeology and Historic Preservation (OAHP) online Compass database. ERO archaeologist Marcus Espinosa conducted the review to identify previously conducted surveys and previously documented cultural resources in a project area and the file search results indicate no previous surveys have taken place in the project area and no previously documented cultural resources are located in the project area.

Conclusion

The most significant environmentally sensitive areas of the site have been largely avoided by the proposed development. These areas primarily consist of steep slopes, rock outcroppings and major drainageways, and have been largely preserved as undisturbed areas for open space. The future development of this property, as designed, will not significantly impact wildlife, vegetation and natural features. Furthermore, given the surrounding land use and adjacency to an existing trail system, Tract B is a suitable location for an additional school site. Constraints to development identified by this report and the November 2019 LSAR are minor and can be mitigated through appropriate techniques.

This Land Suitability Analysis Report determines that this site is suitable for development as proposed.

References

REFERENCES

1. ERO Resources Corporation; *Phase I Environmental Site Assessment Bella Mesa Property*, May 17, 2018
2. ERO Resources Corporation; *Natural Resources Assessment and Wetland Delineation Bella Mesa Property*, May 19, 2018
3. CTL Thompson Inc.; *Geologic and Preliminary Geotechnical Investigation Bella Mesa*, June 15, 2018
4. Douglas County *Local Hazard Mitigation Plan*; June 2015
5. Douglas County *Geologic Hazards Map, Douglas County Master Plan*, May 2001;
6. Colorado Division of Wildlife, WildlifeGIS, *Colorado's High Priority Habitats within Private Land Focus Areas (Map)*,
<https://cpw.state.co.us/learn/Maps/Fig1ColoradoHighPriorityHabitatsPrivateLandFocus.pdf>
7. Douglas County *2030 Parks, Trails, and Open Space Master Plan, Land Cover Analysis Map – 8.6 (2012)* <https://www.douglas.co.us/documents/land-cover-analysis.pdf>
8. Douglas County *Community Wildfire Protection Plan, Community Wildfire Hazard Potential (Map)* <https://www.douglas.co.us/wp-content/uploads/2014/11/community-wildfire-hazard-potential-map.jpg>
9. Colorado State Forest Service, *Colorado Wildfire Risk Assessment Portal, Wildfire Risk (Map)* created October 9, 2019, <https://www.coloradowildfirerisk.com/map/Pro>

Appendix A - Phase I Environmental Report



Consultants in Natural Resources and the Environment

Phase I Environmental Site Assessment Founders Village Filing No. 24 Tracts M, N, O, R and a Portion of P Castle Rock, Colorado

Prepared for—

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Prepared by—

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(303) 830-1188
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June 27, 2019

Per ASTM E1527-13 §4.6, this Phase I ESA is considered valid through:
December 5, 2019

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Summary

Richmond American Homes retained ERO Resources Corporation (ERO) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for portions of the Founders Village Filing No. 24 property located northwest of the intersection of Mickelson Boulevard and North Mitchell Street in Castle Rock, Colorado (hereafter called the property). ERO performed this Phase I ESA according to the “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process” (ASTM International E1527-13 2013) (ASTM 2013). This Phase I ESA consists of a review of historical information and federal, state, and local records; interviews with persons knowledgeable of the property; a site reconnaissance; and preparation of this report.

The property consists of a 11.494-acre parcel of vacant land. Historically, the property has been undeveloped, and the surrounding area has been residential, agricultural, and undeveloped. Federal, state, and local records did not identify any sites or incidents on or near the property typically associated with recognized environmental conditions (RECs).

During the site reconnaissance, ERO inspected the property by walking the perimeter and traversing the interior. The property consists of undeveloped land vegetated with grasses and weeds. Larger bushes and trees are growing along the western edge of the property near a stream channel that flows north, adjacent to the property. The topography generally slopes to the northwest. Remnants of a vehicle path trending generally east-west that cuts across the center of the property were observed, as well as a small path that cuts from the northeast to the southwest across the northern portion of the property. Two presumed geotechnical borings were observed near the northern side of the property, and one small PVC pipe was observed near the center of the property. Portions of a narrow shallow ditch cross the northeast corner of the property and continue north-northwest on the adjacent property to the north. No structures were on the property at the time of the site reconnaissance.

The adjoining parcels to the north and east are currently being developed for residential land use. The south adjoining parcel is developed with residences, and the west adjoining parcel is undeveloped and vegetated. A small pond previously used as a stock pond was observed adjacent to the property to the west. No site conditions or features typically associated with RECs were identified during the site reconnaissance or during interviews with persons familiar with the property.

ERO performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527. Any exceptions to or deletions from this practice are described in the *Introduction* section of this report. This assessment has revealed no evidence of RECs in connection with the property. In accordance with the ASTM standard, this Phase I ESA is valid if completed less than 180 days prior to property acquisition or intended transaction.

Phase I Environmental Site Assessment

Founders Village Filing No. 24 Tracts M, N, O, R, and a Portion of P Castle Rock, Colorado

June 27, 2019

1.0 Introduction

Richmond American Homes/MDC Holdings, Inc. retained ERO Resources Corporation (ERO) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for a portion of the Founders Village Filing No. 24 property northwest of the intersection of Mickelson Boulevard and North Mitchell Street (the property). The area surrounding the property is shown on Figure 1. This report presents the findings, opinions, and conclusions of this Phase I ESA.

This Phase I ESA was performed to satisfy the Work Scope and contract between Richmond American Homes and ERO dated June 6, 2019 (Appendix D). The conclusions in this report are based on limited observations and investigations described herein at the time this Phase I ESA was conducted; future events may alter these findings.

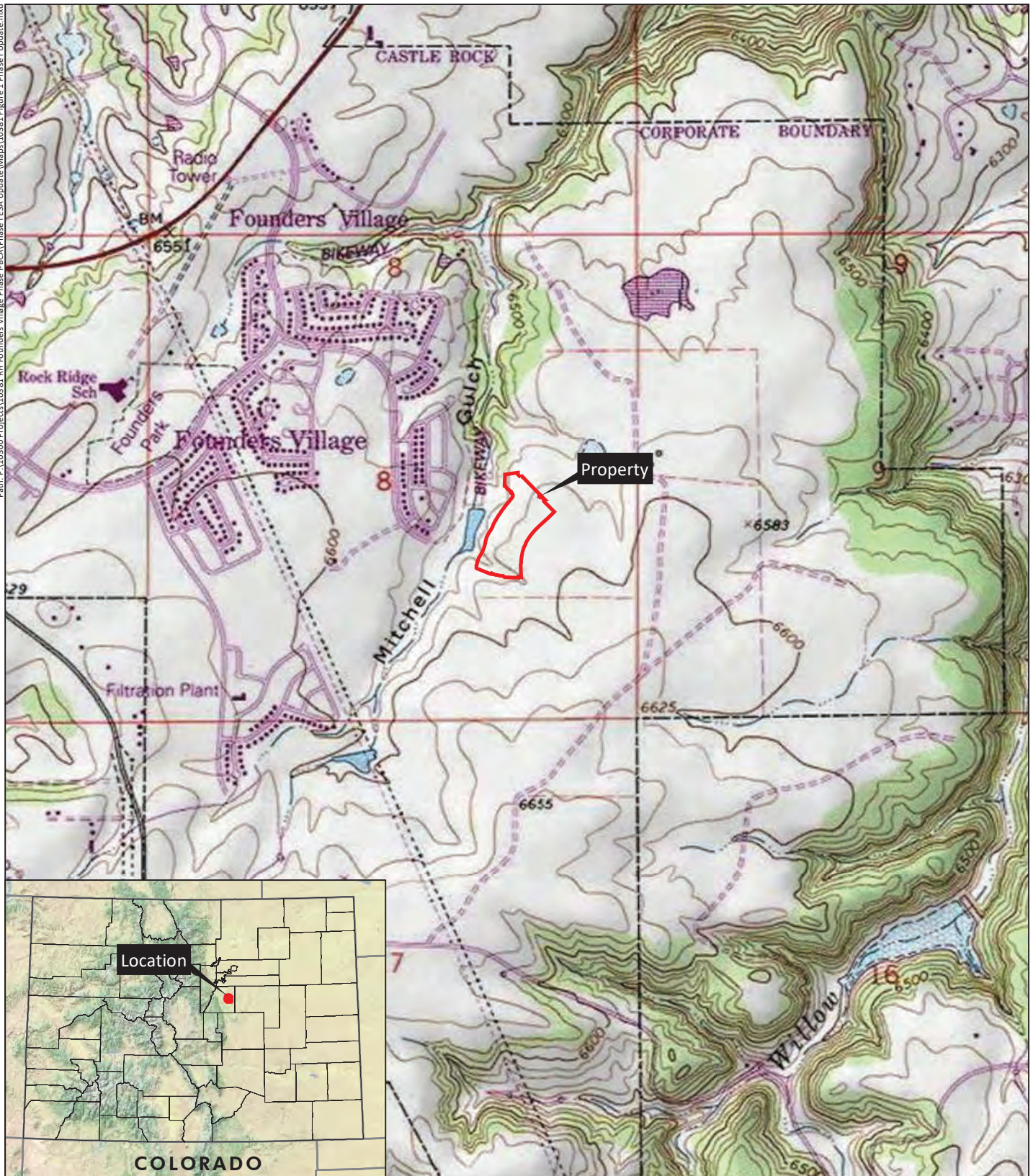
1.1 Location and Legal Description

The property is in the NE ½ of the SE ¼ of Section 8, and the NE ¼ of Section 8, Township 8 South, Range 66 West of the 6th Principal Meridian in Douglas County, Colorado. The property's legal description is included on the ALTA survey included in Appendix B. The general area encompassed by this report is shown on Figure 1 and Figure 2.

According to the Douglas County Assessor's Office, the property is listed as Parcels # 2507-084-19-003 (Tract M), 2507-084-20-001 (Tract N), 2507-084-21-001 (Tract O), 2507-084-19-002 (Tract R) and a portion of 2507-084-98-001 (Tract P) and is zoned residential (Douglas County Assessor's Office 2019).

1.2 Site and Vicinity General Characteristics

The property is a 11.494-acre parcel of land owned by Fourth Investment USA LLC. The property is bounded by a stream channel and residential developed land on the west, North Mitchell Street and undeveloped land on the east, Mickelson Boulevard and residential development on the south, and undeveloped land on the north. The surrounding area consists of residential development (Figure 2).



Founders Village Filing 24, Douglas County, Colorado

Section 8, T8S, R66W; 6th PM

UTM NAD 83: Zone 13N; 517353mE, 4357621mN

Longitude 104.798552°W, Latitude 39.367878°N

USGS Castle Rock South, CO Quadrangle

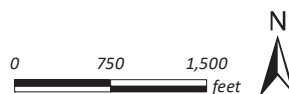
Douglas County, Colorado

Copyright:© 2013 National Geographic Society, i-cubed

Figure 1
Vicinity Map

Prepared for: Richmond American Homes of Colorado, Inc.
File: 10381 Figure 1 Phase I Update.mxd [dlH]
June 12, 2019

ERO
ERO Resources Corp.





Founders Village Filing 24, Douglas County, Colorado

 Approximate Property Boundary



Figure 2
Site Plan

Prepared for: Richmond American Homes of Colorado, Inc.
File: 10381 Figure 2 Phase I Update.mxd [dlH]
June 12, 2019

ERO
ERO Resources Corp.

1.3 Purpose

ERO conducted this Phase I ESA to identify recognized environmental conditions (RECs) associated with the property. The term REC means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property due to a release to the environment, under conditions indicative of a release to the environment, or under conditions that pose a material threat of a future release to the environment.¹ The term includes hazardous substances or petroleum products even under conditions in compliance with laws.

Three additional conditions indicative of releases of hazardous substances or petroleum products on a property may be identified. These consist of the following:

Controlled recognized environmental condition (CREC) – when a past release of hazardous substances or petroleum products has occurred and has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). This designation does not imply that ERO has evaluated or confirmed the adequacy, implementation, or effectiveness of the controls.

Historical recognized environmental condition (HREC) – when a past release of any hazardous substances or petroleum products has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meets unrestricted use criteria established by a regulatory authority without any required controls.

***De minimis* conditions** – those conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not RECs.

While no Phase I ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property, the environmental conditions of the property have been investigated in accordance with ASTM Standard E1527-13, developed to define commercial and customary practices for Phase I ESAs. The Phase I ESA process is not an exhaustive assessment of a property; it is intended to reduce but not eliminate uncertainty regarding the potential for RECs in connection with the property, recognizing the limits of time and cost. In addition, this Phase I ESA was performed to permit the user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability: that is, the practice that constitutes “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” as defined in 42 U.S.C. Section 9601(35)(B).

¹ ASTM 2013. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Section 1.1.1 – Definition of recognized environmental condition.

1.4 Scope of Work

This Phase I ESA was conducted in accordance with ASTM E1527-13, “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.” Deviations from this practice, if any, are listed in Section 1.6. ERO’s Work Scope is included in Appendix D. This Phase I ESA generally consists of four components:

- A review of reasonably ascertainable historical and regulatory database records to help identify RECs in connection with the property.
- A site reconnaissance to visually and physically observe the property, the adjoining properties, and the surrounding area.
- Interviews with the user of the Phase I ESA, the property owner representative, and local government officials to help identify RECs associated with the property.
- A report and evaluation of the information collected as part of this Phase I ESA that presents ERO’s findings, opinions, and conclusions.

1.5 Limitations, Exceptions, and Assumptions

This Phase I ESA was performed in a professional manner using the degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental professionals. A lack of evidence of the presence of hazardous substances or petroleum products during this Phase I ESA does not guarantee the absence of such materials; it merely indicates that none were identified within the contracted scope of this Phase I ESA. Unforeseen conditions may significantly affect the ability to make conclusions based solely on the level of effort mutually agreed upon to conduct this Phase I ESA, which may ultimately affect the level of risk. ERO shall not be held responsible for any conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed. The opinions and conclusions in this report are based on commonly known, reasonably ascertainable, publicly available information and site reconnaissance observations described herein at the time this Phase I ESA was conducted. Future events or changes in publicly available information may alter the findings, opinions, and conclusions of this report. No other warranty, expressed or implied, is made as to the professional opinions included in this report.

The following issues are specifically excluded from this Phase I ESA: wetlands, migratory birds, asbestos-containing materials, radon, lead-based paint, lead in drinking water, mold, and ownership of subsurface mineral rights or leases. Aside from those stated in the Work Scope in Appendix D and those listed above, no significant assumptions apply to this Phase I ESA.

1.6 Deviations

This Phase I ESA was conducted with no known deviations from the ASTM Standard Practice for Environmental Site Assessments (ASTM 2013).

1.7 Special Terms and Conditions

No special terms or conditions apply to this Phase I ESA.

1.8 User Reliance

This report is for the use and benefit of Richmond American Homes/MDC Holdings, Inc. and MDC Holdings, Inc. and is not to be used by others without the prior written consent of ERO. No other party shall rely on the information contained herein without the prior written consent of Richmond American Homes/MDC Holdings, Inc. or ERO.

2.0 User Provided Information

Mr. Graham Silver with Richmond American Homes/MDC Holdings, Inc., the user of this Phase I ESA, completed a User Questionnaire regarding his knowledge of the property. Mr. Silver has been associated with the property for 2 years. The following sections present the information provided by Mr. Silver (Silver 2019).

2.1 Owner, Property Manager, and Occupant Information

The property is owned by Fourth Investment USA LLC. There are no current occupants on the property.

2.2 Land Title Records/Environmental Liens or Activity and Use Limitations

The ASTM E1527-13 practice indicates that it is the responsibility of the user of this Phase I ESA, Richmond American Homes/MDC Holdings, Inc., to identify any environmental liens and activity use limitations (AULs) recorded or filed against the property.

Mr. Silver was unaware of any environmental liens or AULs associated with the property (Silver 2019).

2.3 Actual or Specialized Knowledge

According to Mr. Silver, he does not have any actual or specialized knowledge of any uses or incidents on the property that would indicate RECs in connection with the property (Silver 2019).

2.4 Valuation Reduction for Environmental Issues

According to Mr. Silver, the proposed purchase/acquisition price of the property does not reflect a reduction in value below fair market value for reasons of known contamination on the property (Silver 2019).

2.5 Commonly Known or Reasonably Ascertainable Information

According to Mr. Silver, he is not aware of any commonly known or reasonably ascertainable information within the local community that would indicate RECs in connection with the property (Silver 2019).

2.6 Degree of Obviousness

According to Mr. Silver, to his knowledge, there is no obvious indication of releases or threatened releases on the property (Silver 2019).

2.7 Reason for Performing Phase I

According to Mr. Silver, this Phase I ESA is being conducted for property acquisition and landowner liability protection under CERCLA as described in Section 1.3 (Silver 2019).

3.0 Records Review

3.1 Physical Setting

The elevation of the property is approximately 6,582 feet above sea level. Surface geology in the area is characterized by cobbly gravels of the Castle Rock Conglomerate Formation (Trimble and Machette 1979). According to the U.S. Geological Survey (USGS), depth to the uppermost groundwater beneath the property and vicinity is generally greater than 20 feet and commonly greater than 100 feet below ground surface (bgs) (Hillier et al. 1983). According to topographic information from the USGS 7.5-minute quadrangle map, surface water on the property flows to the northwest toward Mitchell Gulch (USGS 2016). Based on the topography and field observations, the expected flow direction of the uppermost groundwater is to the northwest.

3.2 Current and Future Use of the Property

The property is currently undeveloped, unimproved land. According to Richmond American Homes/MDC Holdings, Inc., the property is proposed for residential development (Silver 2019).

3.3 Structures, Roads, or Other Improvements on the Property

No structures, roads or other improvements are located on the property. Potable water and sanitary sewer services will be provided to the property by the Town of Castle Rock, electricity will be provided by Intermountain Rural Electric Association, and natural gas will be provided by Black Hills Energy. Subsurface utilities are located on adjacent tracts to the south and east of the property (Silver 2019).

3.4 Historical Use Information for the Property and Adjoining Properties

ERO used the following standard historical sources to evaluate current and past uses of the property and adjoining properties:

- Aerial photographs from 1937 to 2017
- Historical topographic maps from 1894 to 2016

Other standard historical sources for the site, such as fire insurance maps, street directories, property tax files, recorded land title records, building department records, or zoning/land use records, were not reasonably ascertainable, were not available, or, based on ERO's professional experience, are unlikely to be sufficiently useful, accurate, or complete and are unlikely to provide significant additional historical information with regard to the property.

3.4.1 Historical Aerial Photographs

Historical aerial photographs from 1937 to 2017 showing the property and surrounding area were reviewed and are discussed below (Environmental Data Resources, Inc. [EDR] 2018a; Google Earth 2019).

1937 Aerial Photograph; Google Earth

The 1937 aerial photograph shows the property and surrounding area to be undeveloped and used for cultivated agricultural fields and grazing land. A dirt track, trending north-south, is visible on the east side of the property. A stream channel is visible to the west of the property, flowing north. Adjoining parcels are shown to be undeveloped and used for agricultural purposes.

1953 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 1953 aerial photograph compared with the previous photograph.

1955 Aerial Photograph; Google Earth

No significant changes on or adjacent to the property are visible in the 1955 aerial photograph compared with the previous photograph.

1964 Aerial Photograph; Scale: 1 inch = 750 feet

No significant changes on or adjacent to the property are visible in the 1964 aerial photograph compared with the previous photograph.

1971 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on the property are visible in the 1971 aerial photograph compared with the previous photograph. Significant changes to the surrounding area consist of the following:

- An in-line irrigation pond is visible in the stream channel to the west of the property.

1978 Aerial Photograph; Scale: 1 inch = 750 feet

No significant changes on or adjacent to the property are visible in the 1978 aerial photograph compared with the previous photograph.

1984 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 1984 aerial photograph compared with the previous photograph.

1993 Aerial Photograph; Google Earth

Significant changes to the property and surrounding area in the 1993 aerial photograph compared with the previous photograph consist of the following:

- Soil piles are visible in the northeast corner of the property. The soil piles appear to be associated with the residential development visible to the west of the property.
- A dirt road is visible cutting across the property from the west to the east. The road appears to be a haul road for moving soil excavated from the residential development west of the property to a storage area at the northeast corner of the property.
- A portion of a narrow ditch is visible at the northeast corner of the property, continuing off property to the north.

Significant changes to the surrounding area consist of the following:

- Development of a new residential subdivision is visible to the west of the property, on the west side of Mitchell Gulch.
- A narrow ditch is visible adjacent to the northeast corner of the property.

1994 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 1994 aerial photograph compared with the previous photograph.

1999 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 1999 aerial photograph compared with the previous photograph.

2002 Aerial Photograph; Google Earth

No significant changes on or adjacent to the property are visible in the 2002 aerial photograph compared with the previous photograph.

2004 Aerial Photograph; Google Earth

No significant changes on or adjacent to the property are visible in the 2004 aerial photograph compared with the previous photograph.

2005 Aerial Photograph; Google Earth

No significant changes on the property are visible in the 2005 aerial photograph compared with the previous photograph. Significant changes to the surrounding area consist of the following:

- A paved road (Mickelson Boulevard) is visible adjacent to the property to the south.
- A dirt road (North Mitchell Street) is visible adjacent to the property to the east.

2006 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 2006 aerial photograph compared with the previous photograph.

2007 Aerial Photograph; Google Earth

Significant changes to the property and surrounding area in the 2007 aerial photograph compared with the previous photograph consist of the following:

- Soil piles first visible in the 1993 aerial photograph are no longer visible in the 2007 aerial photograph.
- Site grading is visible along the east edge of the property for the construction of a road.

2008 Aerial Photograph; Google Earth

No significant changes on the property are visible in the 2008 aerial photograph compared with the previous photograph. Significant changes to the surrounding area consist of the following:

- Construction of the road (North Mitchell Street) adjacent to the east of the property has been completed.

2009 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 2009 aerial photograph compared with the previous photograph.

2011 Aerial Photograph; Google Earth

No significant changes on or adjacent to the property are visible in the 2011 aerial photograph compared with the previous photograph.

2013 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 2013 aerial photograph compared with the previous photograph.

2015 Aerial Photograph; Google Earth

No significant changes on or adjacent to the property are visible in the 2015 aerial photograph compared with the previous photograph.

2017 Aerial Photograph; Scale: 1 inch = 500 feet

No significant changes on or adjacent to the property are visible in the 2017 aerial photograph compared with the previous photograph.

3.4.2 Historical Topographic Maps

Historical USGS topographic maps from 1894 to 2016 showing the property and surrounding area were reviewed for consistency with aerial photographic review and are discussed below (EDR 2018b).

1894 USGS 30-Minute Series, Castle Rock, CO; Scale: 1:125,000

The USGS topographic map from 1894 shows the property to be undeveloped. The area surrounding the property is also shown to be undeveloped. An intermittent stream is shown to the west of the property.

1913 USGS 30-Minute Series, Castle Rock, CO; Scale: 1:125,000

No significant changes to the property are shown in the USGS topographic map from 1913. Significant changes to the area surrounding the property consist of the following:

- A structure is shown to the northeast of the property.
- An unimproved road accessing the structure is shown to the north of the property.

1940 and 1945 USGS 15-Minute Series, Castle Rock, CO; Scale: 1:62,500

No significant changes to the property are shown in the USGS topographic maps from 1940 and 1945. Significant changes to the area surrounding the property consist of the following:

- A small pond is shown east of the existing structure to the northeast of the property.
- Two additional structures are shown to the east of the existing structure, northeast of the property.
- The unimproved road to the north of the property is shown to extend east to the second structure. It is then shown to turn south to the east the property.

1965, 1971, 1978, and 1980 USGS 7.5-Minute Series, Castle Rock South, CO; Scale: 1:24,000

No significant changes to the property are shown in the USGS topographic maps from 1965 to 1980. Significant changes to the area surrounding the property consist of the following:

- The structure to the northeast of the property shown in previous maps is no longer shown.
- The unimproved road to the north of the property shown in previous maps is no longer shown.

- A pond is shown adjacent to the property to the west.

1994 USGS 7.5-Minute Series, Castle Rock South, CO; Scale: 1:24,000

No significant changes to the property are shown in the USGS topographic map from 1994. Significant changes to the area surrounding the property consist of the following:

- Residential development is shown to the west and southwest of the property.
- A bikeway is shown to the west of the property.

2010 USGS 7.5-Minute Series, Castle Rock South, CO; Scale: 1:24,000

No significant changes to the property are shown in the USGS topographic map from 2010. Significant changes to the area surrounding the property consist of the following:

- Residential development is shown to the west and southwest of the property.
- Development is shown to the north, south, and east of the property. The current middle school is shown to the north of the property, Mickelson Boulevard is shown adjacent to the property to the south, and North Mitchell Street is shown adjacent to the property to the east.

2013 and 2016 USGS 7.5-Minute Series, Castle Rock South, CO; Scale: 1:24,000

No significant changes to the property are shown in the USGS topographic maps from 2013 and 2016. Significant changes to the area surrounding the property consist of the following:

- The two structures to the east of the property originally shown on the 1940 map are no longer shown.
- The unimproved road to the east of the property originally shown on the 1940 map is no longer shown.

3.5 Previous Environmental Reports

ERO prepared a Draft Phase I ESA for the property dated October 12, 2018 (ERO 2018). The 2018 Draft Phase I ESA did not identify any RECs associated with the property and, based on a review of the property conditions, no materials changes to the property have occurred since the 2018 assessment.

3.6 Standard Environmental Record Sources

ERO contracted with a commercial database search company, EDR, to conduct a search of publicly available database records (EDR 2019). All ASTM search distance sites are measured from the property boundary.

ERO reviewed initial search results for inaccuracies using both field and mapping data sources. In addition, ERO attempted to locate orphan sites, those that lack adequate location information to map, using zip code, city name, site name, or other information. No orphan sites were found to be within the approximate ASTM search distances. A summary is included in Table 1, and copies of records reviewed are in Appendix B.

Table 1. Summary of publicly available environmental records.

Record Sources	Search Distance (miles) ¹	Property	No. of Sites
Federal NPL site list	1.0	No	0
Federal Delisted NPL site list	0.5	No	0
Federal SEMS list	0.5	No	0
Federal SEMS-Archive site list	0.5	No	0
Federal RCRA CORRACTS site list	1.0	No	0
Federal RCRA TSD facilities list	0.5	No	0
Federal RCRA generators list	property and adjoining	No	0
Federal institutional control/engineering control registries	property only	No	0
Federal ERNS list	property only	No	0
State NPL-equivalent sites ²	1.0	No	0
State CERCLIS-equivalent sites ²	0.5	No	0
State landfill and/or solid waste disposal site list	0.5	No	0
State leaking storage tank list	0.5	No	0
State registered storage tank list	property and adjoining	No	0
State institutional control/engineering control registries	property only	No	0
State Voluntary Cleanup Program sites	0.5	No	0
State Brownfields sites	0.5	No	0

¹ASTM E1527-13 standard search distances.

²In Colorado, the lead agency for NPL/CERCLA may be either the Environmental Protection Agency (EPA) or Colorado Department of Public Health and Environment (CDPHE).

3.6.1 Federal National Priorities List

The National Priorities List (NPL) consists of properties with the highest priority for cleanup under the Superfund program pursuant to the EPA's Hazard Ranking System.

- No NPL sites are located within 1 mile of the property.

3.6.2 Federal Delisted NPL Site List

The EPA tracks sites that have been removed from the NPL because no further response is appropriate.

- No Delisted NPL sites are located within 0.5 mile of the property.

3.6.3 Federal Comprehensive Environmental Response, Compensation, and Liability Act Superfund Enterprise Management System

The federal Superfund program has deployed the Superfund Enterprise Management System (SEMS), which integrates multiple legacy systems into a comprehensive tracking and reporting tool. This inventory contains active sites evaluated by the Superfund program that are either proposed to be or are on the NPL as well as sites that are in the screening and assessment phase for possible inclusion on the NPL.

- No SEMS-listed sites are located within 0.5 mile of the property.

3.6.4 Federal SEMS-Archive List

The federal SEMS-Archive list contains a listing of sites for which, once archived, the EPA has determined that assessment has been completed and no further remedial action is planned under the Superfund program at this time.

- According to this list, no SEMS-Archive sites are located within 0.5 mile of the property.

3.6.5 Federal Resource Conservation and Recovery Act Corrective Action Site List

The federal Resource Conservation and Recovery Act (RCRA) Corrective Action Site (CORRACTS) List provides a list of sites that have had or are undergoing corrective action or cleanup pursuant to the RCRA.

- No corrective action sites are located within 1 mile of the property.

3.6.6 Federal Resource Conservation and Recovery Information System

The Resource Conservation and Recovery Information System (RCRIS) includes two lists: (1) facilities on which treatment, storage, and/or disposal (TSD) of hazardous wastes occur; and (2) persons or entities that generate hazardous waste as defined and regulated by the RCRA.

- According to these lists, no TSD facilities are located within 0.5 mile of the property, and no hazardous waste generators are located on or adjoining the property.

3.6.7 Federal Institutional Control/Engineering Control Registries

The EPA lists sites with institutional or engineering controls in place that prevent exposure to contamination remaining on a site. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post-remediation care requirements. Engineering controls include various forms of caps, building foundations, liners, and treatment methods.

- According to the registry, the property is not listed as having institutional or engineering controls placed on it.

3.6.8 Federal Emergency Response and Notification System

The federal Emergency Response and Notification System (ERNS) List reports hazardous substance releases and spills in quantities greater than the reportable quantity as defined and regulated by CERCLA.

- No releases on the property have been reported to the ERNS.

3.6.9 State NPL-Equivalent Sites

The CDPHE can be the lead agency (in addition to the EPA) for NPL sites in Colorado. All sites listed under this database are also listed in Section 3.6.1. No such sites were identified in the search of publicly available records.

3.6.10 State CERCLIS-Equivalent Sites

The CDPHE can be the lead agency for CERCLIS sites in Colorado. All sites listed under this database are also listed in Section 3.6.3. No such sites were identified in the search of publicly available records.

3.6.11 State Landfill and Solid Waste Disposal Sites

The CDPHE lists no permitted landfills or other solid waste disposal sites within 0.5 mile of the property.

3.6.12 State Leaking Storage Tank Sites

The Colorado Department of Labor and Employment, Division of Oil and Public Safety (CDLE/OPS) lists no state leaking underground storage tank (LUST) or leaking aboveground storage tank (LAST) sites on the property.

- No LUST or LAST sites are located within 0.5 mile of the property.

3.6.13 State Registered Storage Tank Sites

CDLE/OPS lists no registered storage tank sites on or adjoining the property.

3.6.14 State Institutional Control/Engineering Control Registries

The CDPHE maintains a list of all sites that have been issued environmental covenants that dictate institutional or engineering controls on real property to mitigate potential exposure to contaminants.

- No state-recorded environmental covenants or institutional controls are listed for the property.

3.6.15 State Voluntary Cleanup Program Sites

The CDPHE lists no Voluntary Cleanup Program sites within 0.5 mile of the property.

3.6.16 State Brownfields Sites

The CDPHE lists no Brownfields sites within 0.5 mile of the property.

3.7 Additional Environmental Record Sources

3.7.1 Colorado Oil and Gas Conservation Commission Records

ERO reviewed records maintained by the Colorado Oil and Gas Conservation Commission (COGCC), the agency that regulates oil and natural gas exploration and production in Colorado. According to the COGCC, no oil and gas wells are located on or near the property (COGCC 2019).

3.7.2 Colorado Department of Public Health and Environment

ERO reviewed the CDPHE Hazardous Materials and Waste Management Division online mapping application for any known sites that may indicate RECs on or near the property. No records for the property addresses were identified in a search of the online records (CDPHE 2019).

3.7.3 Colorado Division of Water Resources

ERO reviewed records maintained by the Colorado Division of Water Resources (CDWR) for the property. The CDWR has no records of wells on the property (CDWR 2019).

3.8 Vapor Encroachment Evaluation

ERO evaluated the results of the environmental record searches detailed in Sections 3.6 and 3.7 with respect to potential vapor encroachment in accordance with ASTM E2600-15, the “Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions” (ASTM 2015).

No sites were identified during ERO’s vapor encroachment analysis within the applicable search distance criteria denoting the Area of Concern for vapor encroachment. Therefore, it is ERO’s professional opinion that a vapor encroachment condition does not exist on the property.

4.0 Site Reconnaissance

4.1 Methodology and Limiting Conditions

Nancy Otterstrom, an environmental professional with ERO, conducted the site reconnaissance on June 5, 2019. She investigated the entire property by walking the perimeter and traversing the interior. Representative photographs taken during the site reconnaissance are presented in Appendix A.

4.2 General Site Setting

The property is undeveloped vacant land. The property and surrounding area are vegetated with grasses and weeds. Larger bushes and trees are growing along the western edge of the property near Mitchell Gulch that flows north, adjacent to the property. The topography near the property generally slopes to the northwest. Exposed rock outcroppings were observed in the northwest portion of the property and on the south edge of the property. Remnants of a vehicle path trending generally east-west that cuts across the center of the property were observed, as well as a small path that cuts from the northeast to the southwest across the northern portion of the property. Two geotechnical test holes were observed near the northern side of the property, and one small PVC pipe was observed near the center of the property. Portions of a narrow, shallow ditch cross the northeast corner of the property and continue north-northwest on the adjacent parcel to the north. No structures were on the property at the time of the site reconnaissance.

The adjoining parcels to the north and east are currently under development. The south adjoining parcel is developed with residences, and the west adjoining parcel is undeveloped and vegetated. A small pond previously used as a stock pond was observed adjacent to the west of the property .

4.2.1 Storage Tanks

No vent pipes, fill ports, tank pits, or other indications of underground storage tanks were observed on the property. No aboveground petroleum storage tanks were observed on the property.

4.2.2 Odors

No strong, pungent, or noxious odors were noted during the site reconnaissance.

4.2.3 Pools of Liquid

No pools of liquid were observed on the property.

4.2.4 Drums/Containers

No drums or containers were observed on the property.

4.2.5 Hazardous Substance and Petroleum Products Materials/Waste Use or Storage

No hazardous substances or petroleum products were observed to be used or stored on the property.

4.2.6 Transformers/PCBs

One pad-mounted transformer was observed near the southeast corner of the property. No evidence of staining, leaking, or corrosion was observed on or around the transformer during the site reconnaissance.

4.3 Exterior Observations

4.3.1 Pits, Ponds, and Lagoons

ERO did not identify or observe any pits, ponds, or lagoons on the property. A small pond was observed adjacent to the west of the property. No indication that the pond was used for waste disposal or treatment was observed or identified.

4.3.2 Stained Soil or Pavement

No areas of stained soils or pavement were observed on the property.

4.3.3 Stressed Vegetation

No areas of stressed vegetation were observed on the property.

4.3.4 Solid Waste Disposal

No indication of solid waste disposal or filled or graded areas was observed on the property. Trash, construction debris, demolition debris, or other solid waste was not observed in mounds or depressions on the property.

4.3.5 Wastewater Discharge

ERO did not observe a wastewater discharge system into which wastewater and liquids on or adjacent to the property discharge.

4.3.6 Wells

ERO did not observe any monitoring, domestic, irrigation, injection, abandoned, or other wells on the property. Two drilled borings marked "test hole" were observed on the property and one 1-inch PVC piezometer was observed in the central portion of the property, all presumed to be associated with geotechnical studies on the property.

4.3.7 Process Equipment

No manufacturing, remediation, or other chemical process equipment was observed on the property.

4.3.8 On-Site Septic Systems

ERO did not observe any indications of on-site septic systems or cesspools on the property.

5.0 Interviews

5.1 Interview with Owner

John V. Hill, the current property owner's representative, completed an Owners Questionnaire on October 9, 2018 and interviewed on June 27, 2019. Fourth Investment USA LLC has owned the property for approximately 2 years. Mr. Hill was not aware of any environmental problems with the property or in the surrounding area (Hill 2019, 2019).

5.2 Interviews with Local Government Officials

5.2.1 Interview with Local Health Department

In 2018, ERO contacted the Tri-County Health Department (TCHD) for information that may identify RECs on the property. In October 2018, TCHD indicated that they had no records for the property (Wiersma 2018). ERO contacted TCHD to update this records search, but as of the date of this report, no response has been received.

ERO reviewed the TCHD online landfill mapping database, and no landfills were identified on or within 0.5 mile of the property (TCHD 2019).

5.2.2 Interview with Local Fire Department

ERO contacted the Town of Castle Rock Fire and Rescue Department (CRFRD) for information that may indicate RECs on or near the property. The Town of Castle Rock Assistant Clerk, Robbie Schonher, provided a summary letter on June 18, 2019, stating that the CRFRD has not responded to violations at the property. In addition, no underground storage tanks were identified at the property.

6.0 Evaluation

6.1 Findings

The property consists of a 11.494-acre parcel of undeveloped land. Historically, the property has been undeveloped, and the surrounding area has been residential, commercial, agricultural, industrial, and undeveloped. Federal, state, and local records do not identify any records of sites or incidents typically associated with RECs on or near the property. No on-site features or incidents typically associated with RECs were identified as the result of the site reconnaissance or interviews. Two geotechnical test holes were observed near the northern side of the property, and one small PVC pipe was observed near the

center of the property. Portions of a narrow, shallow ditch cross the northeast corner of the property and continue north-northwest on the adjacent property to the north.

6.2 Opinion

A summary of identified findings and ERO's determination if the findings constitute RECs associated with the property is presented in Table 2. It is ERO's professional opinion that no RECs are associated with the property.

Table 2. Findings and opinion summary.

Finding	REC, CREC, or HREC?	Rationale
Two geotechnical test holes and PVC pipe on the property	No	No indication the holes are used to monitor or dispose of hazardous substances or petroleum products.
Narrow ditch on property	No	No indication of hazardous substances or petroleum products disposed in or flowing through the ditch.

Based on ERO's vapor encroachment analysis, it is ERO's professional opinion that a vapor encroachment condition does not exist on the property.

6.3 Data Gap Summary

Summary of Historical Data. Historical data sources are listed below in Table 3 with gaps of greater than 5 years between sources identified as data gaps. ERO was able to document land use on the property back to 1894. Because the property has consistently been undeveloped, and surrounding land has been undeveloped, agricultural, and residential, it is ERO's professional opinion that the data gaps identified in Table 3 do not constitute significant data gaps with respect to this Phase I ESA. It is ERO's professional opinion that no significant historical data gaps are associated with this Phase I ESA.

Table 3. Historical data gap analysis.

Source	Year	Gap	Data Gap
Topographic Map	1894	-	-
Topographic Map	1913	19	Yes
Aerial Photograph	1937	24	Yes
Topographic Map	1940	3	No
Topographic Map	1945	5	No
Aerial Photograph	1953	8	Yes
Aerial Photograph	1955	2	No
Aerial Photograph	1964	9	Yes
Topographic Map	1965	1	No
Aerial Photograph and Topographic Map	1971	6	Yes
Aerial Photograph and Topographic Map	1978	7	Yes
Topographic Map	1980	2	No
Aerial Photograph	1984	4	No
Aerial Photograph	1993	9	Yes
Aerial Photograph and Topographic Map	1994	1	No
Aerial Photograph	1999	5	No
Aerial Photograph	2002	3	No
Aerial Photograph	2004	2	No
Aerial Photograph	2005	1	No
Aerial Photograph	2006	1	No

Source	Year	Gap	Data Gap
Aerial Photograph	2007	1	No
Aerial Photograph	2008	1	No
Aerial Photograph	2009	1	No
Topographic Map	2010	1	No
Aerial Photograph	2011	1	No
Aerial Photograph and Topographic Map	2013	2	No
Aerial Photograph	2015	2	No
Topographic Map	2016	1	No
Aerial Photograph	2017	1	No

Significant Data Gaps. ERO was able to access the entire property and received a User Questionnaire. ERO received responses to inquiries from CRFRD in 2019 and from TCHD s part of 2018 inquiries. It is ERO’s professional opinion that the lack of updated response from TCHD is not considered a significant data gap with respect to this Phase I ESA because of the absence of material change to the property. ERO reviewed online databases for the CDPHE, TCHD, COGCC, and CDWR. Based on information reviewed as part of this Phase I ESA, it is ERO’s professional opinion that no significant data gaps are associated with this Phase I ESA with respect to ERO’s ability to identify RECs associated with the property.

6.4 Conclusions

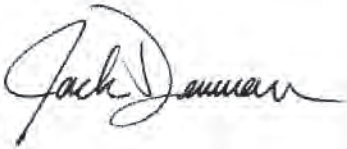
ERO performed this Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527 for portions of the Founders Village Filing No. 24 property northwest of the intersection of Mickelson Boulevard and North Mitchell Street in Castle Rock, Colorado. Any exceptions to or deletions from this practice are described in the *Introduction* section of this report. This assessment has revealed no evidence of RECs in connection with the property. In accordance with the ASTM standard, this Phase I ESA is presumed to be valid if completed less than 180 days prior to property acquisition or intended transaction.

6.5 Environmental Professionals Statement

"We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in 40 CFR 312.10. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."



Nancy Otterstrom
Environmental Professional



Jack Denman
Environmental Professional

The qualifications of the personnel noted above are listed in Appendix C.

7.0 References

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U.S. Geological Survey (USGS). Castle Rock South Quadrangle, 1894, 1913, 1940, 1945, 1965, photorevised 1971, 1978, 1994, Orthophotographic Quadrangle, 2010, 2013, 2016. Castle Rock South, CO.

Appendix A Site Photographs

FOUNDERS VILLAGE FILING 24
PHOTO LOG
JUNE 5, 2019



Photo 1 - View of the property facing west from the southeast corner.



Photo 2 - View of the property facing north from the southwest corner.

FOUNDERS VILLAGE FILING 24
PHOTO LOG
JUNE 5, 2019



Photo 3 - View of a pad mounted transformer near the southeast corner of the property.



Photo 4 - View of the property, facing east from the west-central border.



Photo 5 - View of a typical rock outcropping at the property.



Photo 6 - View of a "test hole" observed at the property.

FOUNDERS VILLAGE FILING 24
PHOTO LOG
JUNE 5, 2019



Photo 7 - View of the shallow ditch at the northeast corner of the property.



Photo 8 - View of a PVC pipe near the center of the property.



Photo 9 - View of the property, facing southwest from the northeast corner.



Photo 10 - View of the north adjoining property, vacant land under construction.

FOUNDERS VILLAGE FILING 24
PHOTO LOG
JUNE 5, 2019



Photo 11 - View of the south adjoining property, Mikelson Boulevard followed by residences.



Photo 12 - View of the east adjoining property, North Mitchell Street followed by vacant land under construction.



Photo 13 - View of the west adjoining property, vegetated, undeveloped land.

Appendix B Environmental Records

Founders Village Phase I Update

Filing 24

Castle Rock, CO 80104

Inquiry Number: 05681466.2r

June 12, 2019

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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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 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

FILING 24
CASTLE ROCK, CO 80104

COORDINATES

Latitude (North):	39.3676000 - 39° 22' 3.36"
Longitude (West):	104.7988310 - 104° 47' 55.79"
Universal Transverse Mercator:	Zone 13
UTM X (Meters):	517329.5
UTM Y (Meters):	4357381.5
Elevation:	6582 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5960342 CASTLE ROCK SOUTH, CO
Version Date:	2013
North Map:	5960340 CASTLE ROCK NORTH, CO
Version Date:	2013

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150910
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
FILING 24
CASTLE ROCK, CO 80104

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
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NO MAPPED SITES FOUND

EXECUTIVE SUMMARY

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..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

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 institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System
US ENG CONTROLS..... Engineering Controls Sites List

EXECUTIVE SUMMARY

US INST CONTROL..... Sites with Institutional Controls

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..... Solid Waste Sites & Facilities

State and tribal leaking storage tank lists

LAST..... Leaking Aboveground Storage Tank Listing
LTANKS..... Petroleum Release Events Listing
LUST..... Leaking Underground Storage Tank List
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
LUST TRUST..... RAP Site Listing

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Underground Storage Tank Database
AST..... Aboveground Tank List
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal institutional control / engineering control registries

AUL..... Environmental Covenants and Environmental Use Restrictions List

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup & Redevelopment Act Application Tracking Report
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY..... Registered Recyclers Listing
HIST LF..... Historical Landfill List
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

EXECUTIVE SUMMARY

ODI..... Open Dump Inventory
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS..... Open Dumps on Indian Land
DENVER CO HISTORIC FILL..... Denver City & County Historic Fill Areas

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register
CDL..... Meth Lab Locations
US CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
CO ERNS..... Spills Database
SPILLS 90..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated
FUDS..... Formerly Used Defense Sites
DOD..... Department of Defense Sites
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR..... Financial Assurance Information
EPA WATCH LIST..... EPA WATCH LIST
2020 COR ACTION..... 2020 Corrective Action Program List
TSCA..... Toxic Substances Control Act
TRIS..... Toxic Chemical Release Inventory System
SSTS..... Section 7 Tracking Systems
ROD..... Records Of Decision
RMP..... Risk Management Plans
RAATS..... RCRA Administrative Action Tracking System
PRP..... Potentially Responsible Parties
PADS..... PCB Activity Database System
ICIS..... Integrated Compliance Information System
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS..... Material Licensing Tracking System
COAL ASH DOE..... Steam-Electric Plant Operation Data
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER..... PCB Transformer Registration Database
RADINFO..... Radiation Information Database
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS..... Incident and Accident Data
CONSENT..... Superfund (CERCLA) Consent Decrees
INDIAN RESERV..... Indian Reservations
FUSRAP..... Formerly Utilized Sites Remedial Action Program
UMTRA..... Uranium Mill Tailings Sites
LEAD SMELTERS..... Lead Smelter Sites
US AIRS..... Aerometric Information Retrieval System Facility Subsystem
US MINES..... Mines Master Index File

EXECUTIVE SUMMARY

ABANDONED MINES.....	Abandoned Mines
FINDS.....	Facility Index System/Facility Registry System
UXO.....	Unexploded Ordnance Sites
ECHO.....	Enforcement & Compliance History Information
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
AIRS.....	Permitted Facility & Emissions Listing
ASBESTOS.....	Asbestos Abatement & Demolition Projects
METHANE SITE.....	Methane Site Investigations - Jefferson County 1980
Methane Investigation.....	Methane Gas & Swamp Findings
DRYCLEANERS.....	Drycleaner Facilities
Financial Assurance.....	Financial Assurance Information Listing
LEAD.....	LEAD
MINES.....	Permitted Mines Listing
NPDES.....	Permitted Facility Listing
UIC.....	Underground Injection Control
UMTRA.....	Uranium Mill Tailings Sites

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto.....	EDR Exclusive Historical Auto Stations
EDR Hist Cleaner.....	EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF.....	Recovered Government Archive Solid Waste Facilities List
RGA LUST.....	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 05681466.2R



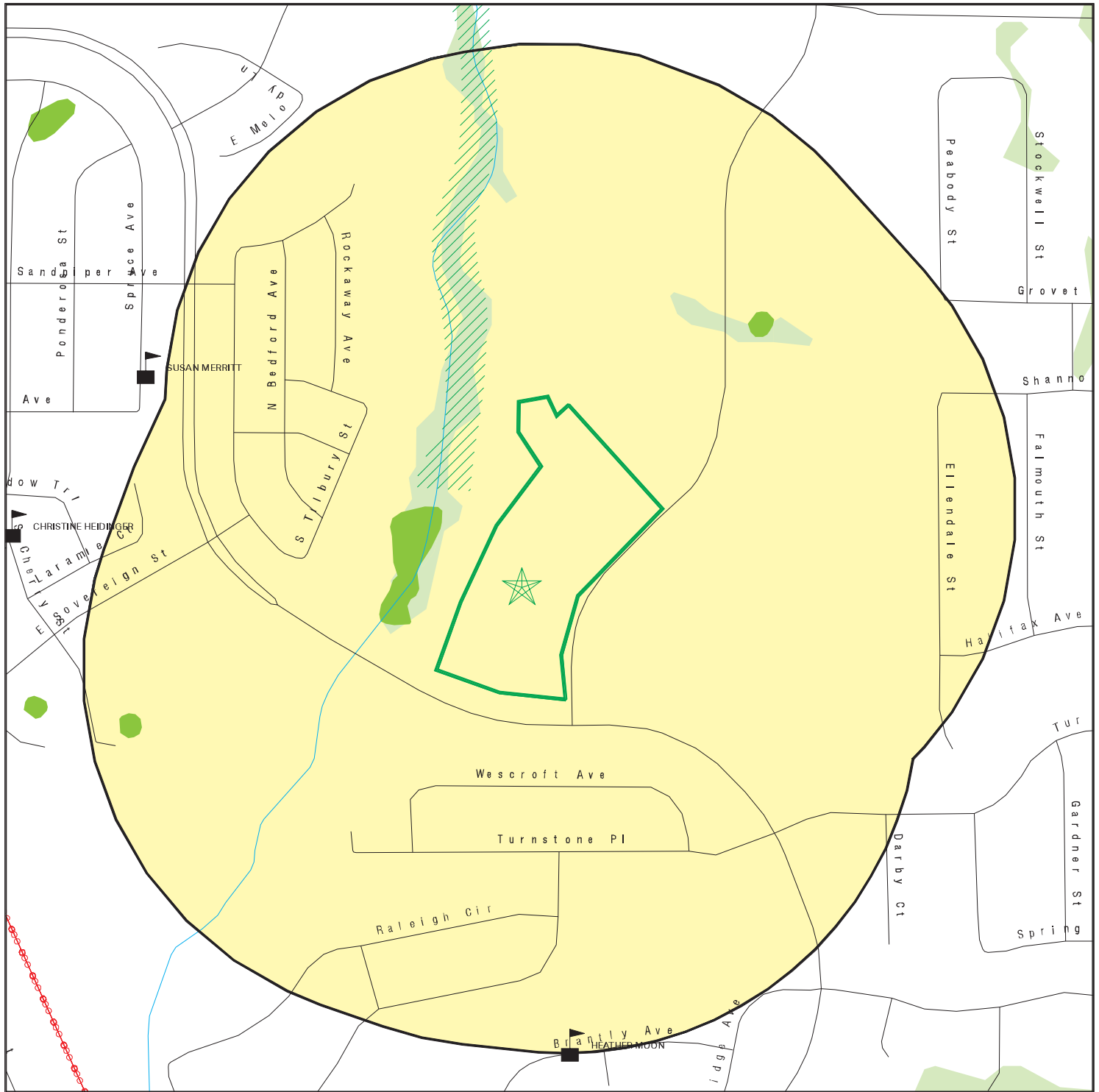
- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year 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: Founders Village Phase I Update
 ADDRESS: Filing 24
 Castle Rock CO 80104
 LAT/LONG: 39.3676 / 104.798831

CLIENT: ERO Resources
 CONTACT: Nancy Otterstrom
 INQUIRY #: 05681466.2r
 DATE: June 12, 2019 12:39 pm

DETAIL MAP - 05681466.2R



- 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
- Power transmission lines
- 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: Founders Village Phase I Update
 ADDRESS: Filing 24
 Castle Rock CO 80104
 LAT/LONG: 39.3676 / 104.798831

CLIENT: ERO Resources
 CONTACT: Nancy Otterstrom
 INQUIRY #: 05681466.2r
 DATE: June 12, 2019 12:40 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	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	0.001		0	NR	NR	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	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LAST	0.500		0	0	0	NR	NR	0
LTANKS	0.500		0	0	0	NR	NR	0
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	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
LUST TRUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
AUL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
SWRCY	0.500		0	0	0	NR	NR	0
HIST LF	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
DENVER CO HISTORIC FILL	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CO ERNS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	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
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	0.001		0	NR	NR	NR	NR	0
ASBESTOS	0.001		0	NR	NR	NR	NR	0
METHANE SITE	0.001		0	NR	NR	NR	NR	0
Methane Investigation	0.001		0	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
LEAD	0.001		0	NR	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UMTRA	0.500		0	0	0	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
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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
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
<u>EDR RECOVERED GOVERNMENT ARCHIVES</u>								
<i>Exclusive Recovered Govt. Archives</i>								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	0	0	0	0	0	0

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

NO SITES FOUND

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NO SITES FOUND					

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: 04/11/2019	Source: EPA
Date Data Arrived at EDR: 04/18/2019	Telephone: N/A
Date Made Active in Reports: 05/14/2019	Last EDR Contact: 06/06/2019
Number of Days to Update: 26	Next Scheduled EDR Contact: 07/15/2019
	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: 04/11/2019	Source: EPA
Date Data Arrived at EDR: 04/18/2019	Telephone: N/A
Date Made Active in Reports: 05/14/2019	Last EDR Contact: 06/06/2019
Number of Days to Update: 26	Next Scheduled EDR Contact: 07/15/2019
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

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: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 26

Source: EPA
Telephone: N/A
Last EDR Contact: 06/06/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

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: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list 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). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 35

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/06/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS 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 the 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. The 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 potential NPL site.

Date of Government Version: 04/11/2019	Source: EPA
Date Data Arrived at EDR: 04/18/2019	Telephone: 800-424-9346
Date Made Active in Reports: 05/23/2019	Last EDR Contact: 06/06/2019
Number of Days to Update: 35	Next Scheduled EDR Contact: 07/29/2019
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/25/2019	Source: EPA
Date Data Arrived at EDR: 03/27/2019	Telephone: 800-424-9346
Date Made Active in Reports: 04/17/2019	Last EDR Contact: 03/27/2019
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/08/2019
	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: 03/25/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/27/2019	Telephone: 303-312-6149
Date Made Active in Reports: 04/17/2019	Last EDR Contact: 03/27/2019
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/08/2019
	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: 03/25/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/27/2019	Telephone: 303-312-6149
Date Made Active in Reports: 04/17/2019	Last EDR Contact: 03/27/2019
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/08/2019
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 03/25/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/27/2019	Telephone: 303-312-6149
Date Made Active in Reports: 04/17/2019	Last EDR Contact: 03/27/2019
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/08/2019
	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: 03/25/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/27/2019	Telephone: 303-312-6149
Date Made Active in Reports: 04/17/2019	Last EDR Contact: 03/27/2019
Number of Days to Update: 21	Next Scheduled EDR Contact: 07/08/2019
	Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 02/22/2019	Source: Department of the Navy
Date Data Arrived at EDR: 03/07/2019	Telephone: 843-820-7326
Date Made Active in Reports: 04/17/2019	Last EDR Contact: 05/10/2019
Number of Days to Update: 41	Next Scheduled EDR Contact: 08/26/2019
	Data Release Frequency: Varies

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: 01/31/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/04/2019	Telephone: 703-603-0695
Date Made Active in Reports: 03/08/2019	Last EDR Contact: 05/29/2019
Number of Days to Update: 32	Next Scheduled EDR Contact: 09/09/2019
	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: 01/31/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/04/2019	Telephone: 703-603-0695
Date Made Active in Reports: 03/08/2019	Last EDR Contact: 05/29/2019
Number of Days to Update: 32	Next Scheduled EDR Contact: 09/09/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 03/25/2019

Date Data Arrived at EDR: 03/26/2019

Date Made Active in Reports: 05/01/2019

Number of Days to Update: 36

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 03/26/2019

Next Scheduled EDR Contact: 07/08/2019

Data Release Frequency: Quarterly

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

Date Data Arrived at EDR: N/A

Date Made Active in Reports: N/A

Number of Days to Update: N/A

Source: Department of Public Health & Environment

Telephone: 303-692-3300

Last EDR Contact: 05/09/2019

Next Scheduled EDR Contact: 08/26/2019

Data Release Frequency: N/A

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Sites & Facilities

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.

Date of Government Version: 12/04/2014

Date Data Arrived at EDR: 02/13/2015

Date Made Active in Reports: 03/04/2015

Number of Days to Update: 19

Source: Department of Public Health & Environment

Telephone: 303-692-3300

Last EDR Contact: 05/10/2019

Next Scheduled EDR Contact: 08/19/2019

Data Release Frequency: Annually

State and tribal leaking storage tank lists

LAST: Leaking Aboveground Storage Tank Listing

A listing of leaking aboveground storage tank sites. This list is no longer maintained. For current Leaking AST information, please see LTANKS.

Date of Government Version: 03/01/2018

Date Data Arrived at EDR: 03/07/2018

Date Made Active in Reports: 04/03/2018

Number of Days to Update: 27

Source: Department of Labor & Employment

Telephone: 303-318-8525

Last EDR Contact: 05/31/2018

Next Scheduled EDR Contact: 09/10/2018

Data Release Frequency: No Update Planned

LTANKS: Petroleum Release Events Listing

Active and Closed OPS Petroleum Release Events in Colorado. Includes the OPS Open Event locations, but also shows locations of closed events (releases that have been issued a No Further Action determination).

Date of Government Version: 02/26/2019

Date Data Arrived at EDR: 03/05/2019

Date Made Active in Reports: 04/09/2019

Number of Days to Update: 35

Source: Department of Labor & Employment

Telephone: 303-318-8525

Last EDR Contact: 06/04/2019

Next Scheduled EDR Contact: 09/16/2019

Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST: Leaking Underground Storage Tank List

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: 03/01/2018
Date Data Arrived at EDR: 03/07/2018
Date Made Active in Reports: 04/03/2018
Number of Days to Update: 27

Source: Department of Labor and Employment, Oil Inspection Section
Telephone: 303-318-8521
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/19/2019
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
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: 10/10/2018
Date Data Arrived at EDR: 03/08/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/24/2018
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 50

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/17/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
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: 10/16/2018
Date Data Arrived at EDR: 03/07/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 55

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/26/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/12/2018	Source: EPA, Region 5
Date Data Arrived at EDR: 03/07/2019	Telephone: 312-886-7439
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

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: 10/13/2018	Source: EPA Region 1
Date Data Arrived at EDR: 03/07/2019	Telephone: 617-918-1313
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

TRUST: Lust Trust Sites

Reimbursement application package. The 1989 Colorado General Assembly established Colorado's Petroleum Storage Tank Fund. The Fund reimburses eligible applicants for allowable costs incurred in cleaning up petroleum contamination from underground and aboveground petroleum storage tanks, as well as for third-party liability expenses. Remediation of contamination caused by railroad or aircraft fuel is not eligible for reimbursement. The Fund satisfies federal Environmental Protection Agency financial assurance requirements. Monies in the Fund come from various sources, predominantly the state environmental surcharge imposed on all petroleum products except railroad or aircraft fuel.

Date of Government Version: 02/28/2019	Source: Department of Labor and Employment, Oil Inspection Section
Date Data Arrived at EDR: 03/01/2019	Telephone: 303-318-8521
Date Made Active in Reports: 04/09/2019	Last EDR Contact: 03/01/2019
Number of Days to Update: 39	Next Scheduled EDR Contact: 07/08/2019
	Data Release Frequency: Varies

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017	Source: FEMA
Date Data Arrived at EDR: 05/30/2017	Telephone: 202-646-5797
Date Made Active in Reports: 10/13/2017	Last EDR Contact: 04/25/2019
Number of Days to Update: 136	Next Scheduled EDR Contact: 07/22/2019
	Data Release Frequency: Varies

UST: Underground Storage Tank Database

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: 12/12/2018	Source: Department of Labor and Employment, Oil Inspection Section
Date Data Arrived at EDR: 12/13/2018	Telephone: 303-318-8521
Date Made Active in Reports: 01/08/2019	Last EDR Contact: 06/03/2019
Number of Days to Update: 26	Next Scheduled EDR Contact: 09/16/2019
	Data Release Frequency: Quarterly

AST: Aboveground Tank List

Aboveground storage tank locations.

Date of Government Version: 12/12/2018	Source: Department of Labor and Employment, Oil Inspection Section
Date Data Arrived at EDR: 12/13/2018	Telephone: 303-318-8521
Date Made Active in Reports: 01/08/2019	Last EDR Contact: 06/03/2019
Number of Days to Update: 26	Next Scheduled EDR Contact: 09/16/2019
	Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 10/16/2018	Source: EPA Region 8
Date Data Arrived at EDR: 03/07/2019	Telephone: 303-312-6137
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/05/2019
	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: 10/10/2018	Source: EPA Region 9
Date Data Arrived at EDR: 03/08/2019	Telephone: 415-972-3368
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 54	Next Scheduled EDR Contact: 08/05/2019
	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: 10/17/2018	Source: EPA Region 10
Date Data Arrived at EDR: 03/07/2019	Telephone: 206-553-2857
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

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: 11/07/2018	Source: EPA Region 7
Date Data Arrived at EDR: 03/07/2019	Telephone: 913-551-7003
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

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: 11/01/2018	Source: EPA Region 6
Date Data Arrived at EDR: 03/07/2019	Telephone: 214-665-7591
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

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: 10/12/2018	Source: EPA Region 5
Date Data Arrived at EDR: 03/07/2019	Telephone: 312-886-6136
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 09/24/2018	Source: EPA Region 4
Date Data Arrived at EDR: 03/12/2019	Telephone: 404-562-9424
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 50	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

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: 10/03/2018	Source: EPA, Region 1
Date Data Arrived at EDR: 03/07/2019	Telephone: 617-918-1313
Date Made Active in Reports: 05/01/2019	Last EDR Contact: 04/26/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

AUL: Environmental Real Covenants List

Senate Bill 01-145 gave authority to the Colorado Department of Public Health and Environment to approve requests to restrict the future use of a property using an enforceable agreement called an environmental covenant. When a contaminated site is not cleaned up completely, land use restrictions may be used to ensure that the selected cleanup remedy is adequately protective of human health and the environment.

Date of Government Version: 03/14/2019	Source: Department of Public Health & Environment
Date Data Arrived at EDR: 04/30/2019	Telephone: 303-692-3331
Date Made Active in Reports: 05/21/2019	Last EDR Contact: 04/25/2019
Number of Days to Update: 21	Next Scheduled EDR Contact: 08/12/2019
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

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: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 03/25/2019
Number of Days to Update: 142	Next Scheduled EDR Contact: 07/08/2019
	Data Release Frequency: Varies

VCP: Voluntary Cleanup & Redevelopment Act Application Tracking Report

The Voluntary Cleanup and Redevelopment Act is intended to permit and encourage voluntary cleanups by providing a method to determine clean-up responsibilities in planning the reuse of property. The VCRA was intended for sites which were not covered by existing regulatory programs.

Date of Government Version: 12/06/2018	Source: Department of Public Health and Environmental
Date Data Arrived at EDR: 01/08/2019	Telephone: 303-692-3331
Date Made Active in Reports: 03/11/2019	Last EDR Contact: 04/12/2019
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/22/2019
	Data Release Frequency: Semi-Annually

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing
Brownfields Sites Listing

Date of Government Version: 04/23/2019
Date Data Arrived at EDR: 04/24/2019
Date Made Active in Reports: 05/21/2019
Number of Days to Update: 27

Source: Department of Public Health & Environment
Telephone: 303-692-3331
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
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: 12/17/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/04/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Registered Recyclers Listing

A listing of registered recycler locations in the state of Colorado.

Date of Government Version: 03/07/2019
Date Data Arrived at EDR: 03/12/2019
Date Made Active in Reports: 04/09/2019
Number of Days to Update: 28

Source: Department of Public Health & Environment
Telephone: 303-692-3337
Last EDR Contact: 06/10/2019
Next Scheduled EDR Contact: 09/23/2019
Data Release Frequency: Semi-Annually

HISTORICAL LANDFILL: Historical Landfill List
Abandoned/Inactive Landfills.

Date of Government Version: 01/31/1993
Date Data Arrived at EDR: 04/24/1994
Date Made Active in Reports: 05/30/1994
Number of Days to Update: 36

Source: Department of Public Health & Environment
Telephone: 303-692-3300
Last EDR Contact: 09/05/1996
Next Scheduled EDR Contact: N/A
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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: 04/26/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

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: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Services, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 04/23/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

DENVER CO HISTORIC FILL: Denver City & County Historic Fill Areas

This dataset denotes the approximate locations of historical fill areas within the City and County of Denver (CCoD) and with within approximately three-quarters of a mile of the CCoD boundaries. The data is of a general nature and obtained from historic and current documents that may not be accurate or precise.

Date of Government Version: 02/13/2014
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 49

Source: City & County of Denver
Telephone: 720-913-5237
Last EDR Contact: 04/10/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: No Update Planned

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 02/24/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 50

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/24/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: No Update Planned

CDL: Meth Lab Locations

Meth lab locations that were reported to the Department of Public Health & Environment.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 04/02/2019
Date Made Active in Reports: 05/21/2019
Number of Days to Update: 49

Source: Department of Public Health and Environment
Telephone: 303-692-3023
Last EDR Contact: 03/29/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

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: 02/24/2019
Date Data Arrived at EDR: 02/26/2019
Date Made Active in Reports: 04/17/2019
Number of Days to Update: 50

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/24/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Quarterly

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: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 35

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 06/06/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Semi-Annually

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: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 49

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

SPILLS 2: Spills

A listing of spills reported to the Oil & Gas Conservation Commission

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 04/09/2019
Number of Days to Update: 14

Source: Oil & Gas Conservation Commission
Telephone: 303-894-2100
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

CO ERNS: Spills Database

State reported spills.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 04/02/2019
Date Made Active in Reports: 05/21/2019
Number of Days to Update: 49

Source: Department of Public Health and Environmental
Telephone: 303-692-2000
Last EDR Contact: 03/29/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 10/15/2012

Source: FirstSearch

Date Data Arrived at EDR: 01/03/2013

Telephone: N/A

Date Made Active in Reports: 02/06/2013

Last EDR Contact: 01/03/2013

Number of Days to Update: 34

Next Scheduled EDR Contact: N/A

Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

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: 03/25/2019

Source: Environmental Protection Agency

Date Data Arrived at EDR: 03/27/2019

Telephone: 303-312-6149

Date Made Active in Reports: 04/17/2019

Last EDR Contact: 03/27/2019

Number of Days to Update: 21

Next Scheduled EDR Contact: 07/08/2019

Data Release Frequency: Quarterly

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: 03/07/2019

Source: U.S. Army Corps of Engineers

Date Data Arrived at EDR: 04/03/2019

Telephone: 202-528-4285

Date Made Active in Reports: 05/23/2019

Last EDR Contact: 05/21/2019

Number of Days to Update: 50

Next Scheduled EDR Contact: 09/02/2019

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

Source: USGS

Date Data Arrived at EDR: 11/10/2006

Telephone: 888-275-8747

Date Made Active in Reports: 01/11/2007

Last EDR Contact: 04/12/2019

Number of Days to Update: 62

Next Scheduled EDR Contact: 07/22/2019

Data Release Frequency: Semi-Annually

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.

Date of Government Version: 12/31/2005

Source: U.S. Geological Survey

Date Data Arrived at EDR: 02/06/2006

Telephone: 888-275-8747

Date Made Active in Reports: 01/11/2007

Last EDR Contact: 04/12/2019

Number of Days to Update: 339

Next Scheduled EDR Contact: 07/22/2019

Data Release Frequency: N/A

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: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/13/2019
Next Scheduled EDR Contact: 08/26/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/25/2019
Date Data Arrived at EDR: 03/26/2019
Date Made Active in Reports: 05/07/2019
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 03/26/2019
Next Scheduled EDR Contact: 07/08/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/06/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/10/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

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: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/22/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: Every 4 Years

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/24/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Annually

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
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/24/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Annually

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: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 35

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/06/2019
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/25/2019
Date Data Arrived at EDR: 05/02/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/22/2019
Next Scheduled EDR Contact: 08/05/2019
Data Release Frequency: Varies

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

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/11/2019	Source: EPA
Date Data Arrived at EDR: 04/18/2019	Telephone: 202-564-6023
Date Made Active in Reports: 05/23/2019	Last EDR Contact: 06/06/2019
Number of Days to Update: 35	Next Scheduled EDR Contact: 08/19/2019
	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: 03/20/2019	Source: EPA
Date Data Arrived at EDR: 04/10/2019	Telephone: 202-566-0500
Date Made Active in Reports: 05/14/2019	Last EDR Contact: 04/10/2019
Number of Days to Update: 34	Next Scheduled EDR Contact: 07/22/2019
	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: 11/18/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 04/08/2019
Number of Days to Update: 79	Next Scheduled EDR Contact: 07/22/2019
	Data Release Frequency: Quarterly

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: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	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: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

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: 08/30/2016	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 09/08/2016	Telephone: 301-415-7169
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 04/22/2019
Number of Days to Update: 43	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 06/07/2019
Number of Days to Update: 76	Next Scheduled EDR Contact: 09/16/2019
	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: 07/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 06/07/2019
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/16/2019
	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: 05/24/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/30/2017	Telephone: 202-566-0517
Date Made Active in Reports: 12/15/2017	Last EDR Contact: 04/26/2019
Number of Days to Update: 15	Next Scheduled EDR Contact: 08/05/2019
	Data Release Frequency: Varies

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: 04/02/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/02/2019	Telephone: 202-343-9775
Date Made Active in Reports: 05/14/2019	Last EDR Contact: 04/02/2019
Number of Days to Update: 42	Next Scheduled EDR Contact: 07/15/2019
	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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 01/29/2019
Date Made Active in Reports: 03/21/2019
Number of Days to Update: 51

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 04/30/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

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: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 05/23/2019
Number of Days to Update: 30

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/05/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Varies

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: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/24/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Biennially

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: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/11/2019
Next Scheduled EDR Contact: 07/22/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

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.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/24/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 04/11/2019
Date Data Arrived at EDR: 04/18/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 06/06/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust.

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US 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: 11/27/2018
Date Data Arrived at EDR: 02/27/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 33

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 05/29/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/31/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 05/31/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/27/2019
Date Data Arrived at EDR: 03/28/2019
Date Made Active in Reports: 05/01/2019
Number of Days to Update: 34

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 06/10/2019
Next Scheduled EDR Contact: 09/23/2019
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).

Date of Government Version: 02/15/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 03/15/2019
Number of Days to Update: 10

Source: EPA
Telephone: (303) 312-6312
Last EDR Contact: 06/05/2019
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 05/24/2019
Next Scheduled EDR Contact: 09/09/2019
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/17/2019
Date Made Active in Reports: 04/01/2019
Number of Days to Update: 74

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 04/07/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/09/2019	Telephone: 202-564-2280
Date Made Active in Reports: 05/23/2019	Last EDR Contact: 04/09/2019
Number of Days to Update: 44	Next Scheduled EDR Contact: 07/22/2019
	Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/19/2019	Source: EPA
Date Data Arrived at EDR: 02/21/2019	Telephone: 800-385-6164
Date Made Active in Reports: 04/01/2019	Last EDR Contact: 05/21/2019
Number of Days to Update: 39	Next Scheduled EDR Contact: 09/02/2019
	Data Release Frequency: Quarterly

AIRS: Permitted Facility & Emissions Listing

A listing of Air Pollution Control Division permits and emissions data.

Date of Government Version: 03/04/2019	Source: Department of Public Health & Environment
Date Data Arrived at EDR: 03/05/2019	Telephone: 303-692-3213
Date Made Active in Reports: 04/09/2019	Last EDR Contact: 06/03/2019
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/16/2019
	Data Release Frequency: Varies

ASBESTOS: Asbestos Abatement & Demolition Projects

Asbestos abatement and demolition projects by the contractor.

Date of Government Version: 02/26/2019	Source: Department of Public Health & Environment
Date Data Arrived at EDR: 02/28/2019	Telephone: 303-692-3100
Date Made Active in Reports: 04/09/2019	Last EDR Contact: 05/02/2019
Number of Days to Update: 40	Next Scheduled EDR Contact: 08/19/2019
	Data Release Frequency: Semi-Annually

METHANE SITE: Methane Site Investigations - Jefferson County 1980

The objectives of the study are to define as closely as possible the boundaries of methane producing solid waste landfills.

Date of Government Version: 12/31/1980	Source: Jefferson County Health Department
Date Data Arrived at EDR: 02/13/1995	Telephone: 303-239-7175
Date Made Active in Reports: 04/04/1995	Last EDR Contact: 01/27/1995
Number of Days to Update: 50	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

METHANE INVESTIGATION: Methane Gas & Swamp Findings

The primary objective of this study was to assess methane gas related hazards at selected landfill sites in Colorado. These sites were selected by the Colorado Department of Health following evaluation of responses received from County and Municipal agencies about completed and existing landfills within their jurisdiction.

Date of Government Version: 03/15/1979	Source: Department of Health
Date Data Arrived at EDR: 02/13/1995	Telephone: 303-640-3335
Date Made Active in Reports: 04/04/1995	Last EDR Contact: 01/27/1995
Number of Days to Update: 50	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

DRYCLEANERS: Drycleaner Facilities

A listing of drycleaning facilities.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/04/2019
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 04/09/2019
Number of Days to Update: 35

Source: Department of Public Health & Environment
Telephone: 303-692-3213
Last EDR Contact: 06/03/2019
Next Scheduled EDR Contact: 09/16/2019
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

A listing of financial assurance information for hazardous waste 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: 04/02/2019
Date Data Arrived at EDR: 04/04/2019
Date Made Active in Reports: 05/21/2019
Number of Days to Update: 47

Source: Department of Public Health & Environment
Telephone: 303-692-3350
Last EDR Contact: 03/29/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste 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: 04/02/2019
Date Data Arrived at EDR: 04/04/2019
Date Made Active in Reports: 05/21/2019
Number of Days to Update: 47

Source: Department of Public Health & Environment
Telephone: 303-392-3350
Last EDR Contact: 03/29/2019
Next Scheduled EDR Contact: 07/15/2019
Data Release Frequency: Quarterly

LEAD: Lead Abatement Permit Listing

Lead inspection

Date of Government Version: 02/26/2019
Date Data Arrived at EDR: 02/28/2019
Date Made Active in Reports: 04/09/2019
Number of Days to Update: 40

Source: Department of Public Health & Environment
Telephone: 303-692-2000
Last EDR Contact: 05/02/2019
Next Scheduled EDR Contact: 08/19/2019
Data Release Frequency: Varies

MINES: Permitted Mines Listing

This dataset represents permitted mines in the State of Colorado

Date of Government Version: 02/13/2019
Date Data Arrived at EDR: 04/16/2019
Date Made Active in Reports: 05/21/2019
Number of Days to Update: 35

Source: Division of Reclamation Mining and safety
Telephone: 303-866-3567
Last EDR Contact: 04/16/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Semi-Annually

NPDES: Permitted Facility Listing

A listing of permitted facilities from the Water Quality Control Division.

Date of Government Version: 04/29/2019
Date Data Arrived at EDR: 05/01/2019
Date Made Active in Reports: 05/21/2019
Number of Days to Update: 20

Source: Department of Public Health & Environment
Telephone: 303-692-3611
Last EDR Contact: 04/25/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Varies

UIC: Underground Injection Control

A list of underground injection wells and their locations.

Date of Government Version: 05/09/2019
Date Data Arrived at EDR: 05/10/2019
Date Made Active in Reports: 05/21/2019
Number of Days to Update: 11

Source: Oil & Gas Conservation Commission
Telephone: 303-894-2100
Last EDR Contact: 05/09/2019
Next Scheduled EDR Contact: 08/26/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UMTRA: Uranium Mill Tailings Sites

There were nine uranium mill tailings sites in Colorado designated for cleanup under the federal Uranium Mill Tailings Radiation Control Act. These nine sites, known commonly as UMTRA sites, were remediated jointly by the State of Colorado and the U.S. Department of Energy during the late 1980's and early 1990's. Mill tailings were removed from 8 of the mill sites and relocated in engineered disposal cells. A disposal cell is designed to encapsulate the material, reduce radon emanation, and prevent the movement of water through the material. At one site, Maybell, CO, the tailings were stabilized in-place at the mill site. After remediation of the tailings was completed, the State and DOE began to investigate the residual impacts to groundwater at the mill sites. The groundwater phase of the UMTRA program is on-going.

Date of Government Version: 11/23/2004
Date Data Arrived at EDR: 03/21/2007
Date Made Active in Reports: 05/02/2007
Number of Days to Update: 42

Source: Department of Public Health & Environment
Telephone: 970-248-7164
Last EDR Contact: 05/21/2019
Next Scheduled EDR Contact: 09/02/2019
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: 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

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

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: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

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: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Public Health & Environment in Colorado.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/15/2014
Number of Days to Update: 198

Source: Department of Public Health & Environment
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Labor and Employment, Oil Inspection Section in Colorado.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 185

Source: Department of Labor and Employment, Oil Inspection Section
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ADAMS COUNTY:

LF ADAMS: Summary Report on Methane Gas Hazards and Surveys Conducted on Domestic and Demolition Landfills in Adams County
As of May 8, 1978, all known landfills or dumping sites in the Adams County area have been surveyed.

Date of Government Version: 05/08/1978
Date Data Arrived at EDR: 02/16/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 47

Source: Tri-County Health Department
Telephone: 303-761-1340
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

ARAPAHOE COUNTY:

LF ARAPAHOE: A Survey of Landfills in Arapahoe County

A survey of Arapahoe County was conducted from August through November, 1977, of all open and closed landfills and dumpsites in the county. Each of the sites found was classified as domestic or demolition.

Date of Government Version: 12/31/1978
Date Data Arrived at EDR: 02/16/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 47

Source: Tri-County Health Department
Telephone: 303-761-1340
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

BOULDER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LF BOULDER: Old Landfill Sites

Landfill sites in Boulder county.

Date of Government Version: 05/01/1986
Date Data Arrived at EDR: 11/14/1995
Date Made Active in Reports: 12/07/1995
Number of Days to Update: 23

Source: Boulder County Health Department
Telephone: 303-441-1182
Last EDR Contact: 01/30/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DENVER COUNTY:

LF DENVER: Landfills in Denver County

Landfill sites in the city and county of Denver.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 06/23/2017
Date Made Active in Reports: 09/06/2017
Number of Days to Update: 75

Source: City and County of Denver
Telephone: 720-913-4839
Last EDR Contact: 04/03/2019
Next Scheduled EDR Contact: 07/01/2019
Data Release Frequency: No Update Planned

LF DENVER CO METHANE: Investigation of Methane Gas Hazards

The purpose of this study was to assess the actual and potential generation, migration, explosive and related problem associated with specified old landfills, and to identify existing and potential problems, suggested strategies to prevent, abate, and control such problems and recommend investigative and monitoring functions as may be deemed necessary. Eight sites determined to be priorities due to population density and potential hazards to population and property were selected by the Colorado Department of Health.

Date of Government Version: 01/01/1981
Date Data Arrived at EDR: 01/29/2013
Date Made Active in Reports: 03/08/2013
Number of Days to Update: 38

Source: City and County of Denver Department of Environmental Health
Telephone: 720-865-5522
Last EDR Contact: 01/15/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DOUGLAS COUNTY:

LF DOUGLAS: Douglas County Landfill Key

Landfill sites in Douglas county.

Date of Government Version: 06/12/1991
Date Data Arrived at EDR: 02/16/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 47

Source: Tri-County Health Department
Telephone: 303-761-1340
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PUEBLO COUNTY:

LF PUEBLO: Designated Disposal & Landfill Sites

Only inert materials. Asphalt, cement, dirt & rock unless otherwise specified. These sites are no longer active.

Date of Government Version: 04/30/1990
Date Data Arrived at EDR: 11/16/1995
Date Made Active in Reports: 12/07/1995
Number of Days to Update: 21

Source: Pueblo City-County Health Department
Telephone: 719-583-4300
Last EDR Contact: 11/13/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRI COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LF TRI: Tri-County Area Solid Waste Facilities List (Adams, Arapahoe and Douglas Counties)

Closed Domestic Landfills in Adams County, Closed Domestic Landfills in Arapahoe County, Closed Demolition Landfills in Arapahoe County, Closed Domestic Landfills in Douglas County.

Date of Government Version: 10/15/1983
Date Data Arrived at EDR: 02/16/1995
Date Made Active in Reports: 04/04/1995
Number of Days to Update: 47

Source: Tri-County Health Department
Telephone: 303-761-1340
Last EDR Contact: 01/27/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

WELD COUNTY:

LF WELD: Solid Waste Facilities in Weld County Solid Waste Facilities in Weld County.

Date of Government Version: 01/16/2018
Date Data Arrived at EDR: 02/09/2018
Date Made Active in Reports: 02/23/2018
Number of Days to Update: 14

Source: Weld County Department of Public Health
Telephone: 970-304-6415
Last EDR Contact: 05/10/2019
Next Scheduled EDR Contact: 08/19/2019
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.

CT MANIFEST: Hazardous Waste Manifest Data

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: 02/11/2019
Date Data Arrived at EDR: 02/12/2019
Date Made Active in Reports: 03/04/2019
Number of Days to Update: 20

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/14/2019
Next Scheduled EDR Contact: 08/26/2019
Data Release Frequency: No Update Planned

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: 01/01/2019
Date Data Arrived at EDR: 01/30/2019
Date Made Active in Reports: 02/14/2019
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/01/2019
Next Scheduled EDR Contact: 08/12/2019
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/27/2018
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/15/2019
Next Scheduled EDR Contact: 07/29/2019
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017

Date Data Arrived at EDR: 06/15/2018

Date Made Active in Reports: 07/09/2018

Number of Days to Update: 24

Source: Department of Natural Resources

Telephone: N/A

Last EDR Contact: 06/10/2019

Next Scheduled EDR Contact: 09/23/2019

Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

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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: Daycare Listing

Source: Department of Human Services

Telephone: 303-866-5958

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Riparian Vegetation Data

Source: Division of Wildlife

Telephone: 970-416-3360

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

FOUNDERS VILLAGE PHASE I UPDATE
FILING 24
CASTLE ROCK, CO 80104

TARGET PROPERTY COORDINATES

Latitude (North):	39.3676 - 39° 22' 3.36"
Longitude (West):	104.798831 - 104° 47' 55.79"
Universal Transverse Mercator:	Zone 13
UTM X (Meters):	517329.5
UTM Y (Meters):	4357381.5
Elevation:	6582 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5960342 CASTLE ROCK SOUTH, CO
Version Date:	2013
North Map:	5960340 CASTLE ROCK NORTH, CO
Version Date:	2013

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

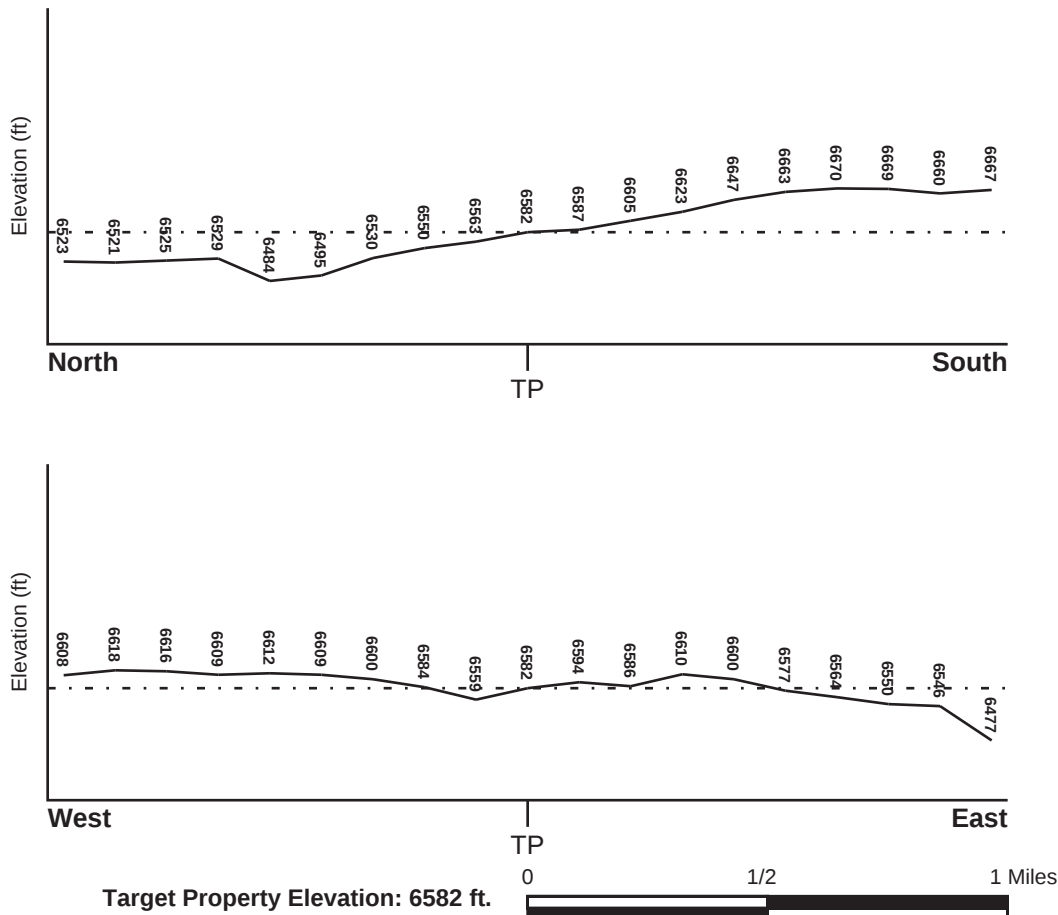
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General North

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' 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.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
08035C0306F	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
08035C0189F	FEMA FIRM Flood data
08035C0193F	FEMA FIRM Flood data
08035C0302F	FEMA FIRM Flood data
08035C0310F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
CASTLE ROCK SOUTH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

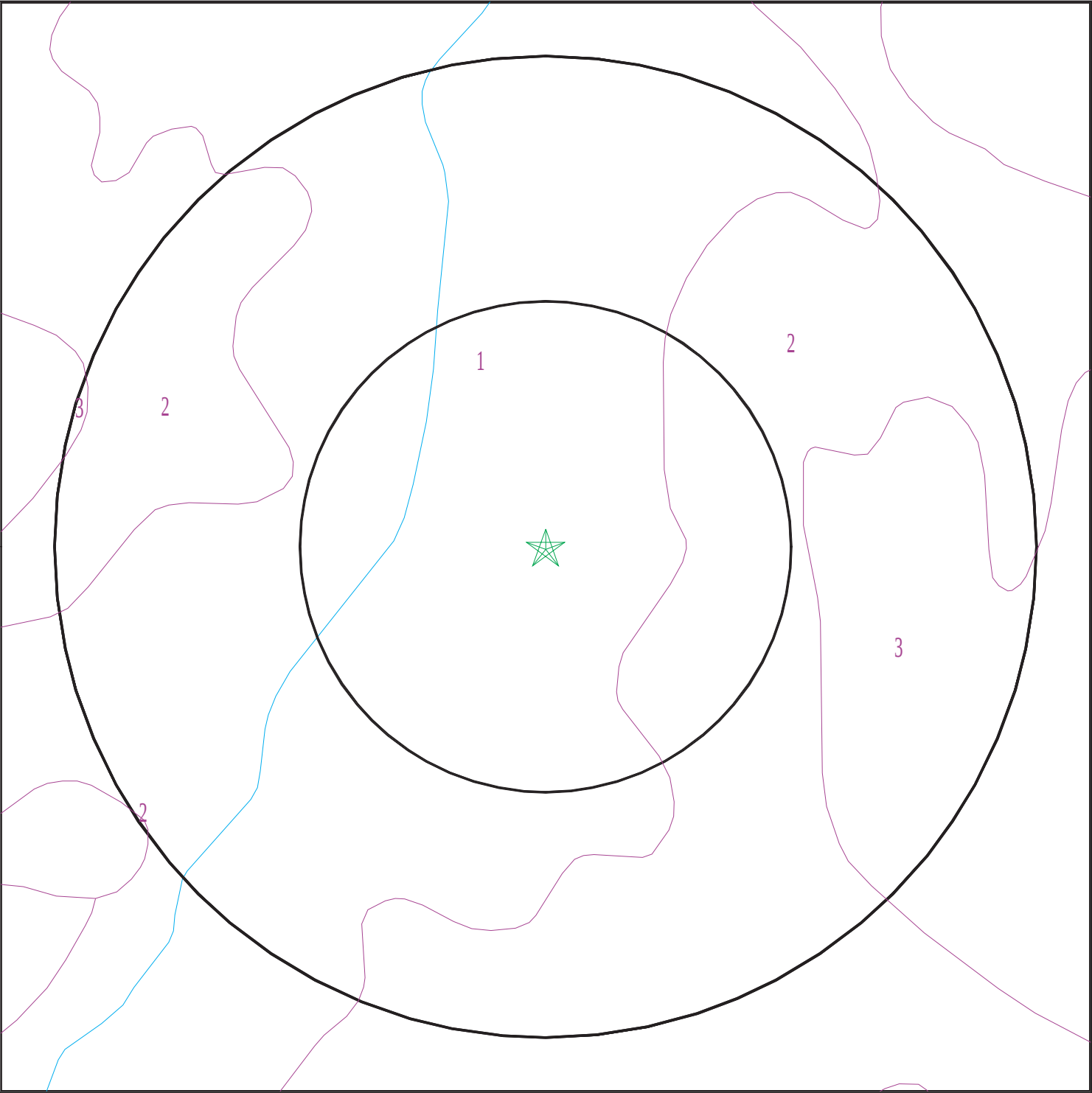
Era:	Cenozoic
System:	Tertiary
Series:	Oligocene
Code:	Toc (<i>decoded above as Era, System & Series</i>)

GEOLOGIC AGE IDENTIFICATION

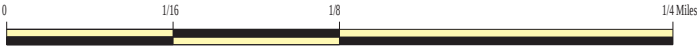
Category: Continental Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 05681466.2r



- ★ Target Property
- SSURGO Soil
- Water



SITE NAME: Founders Village Phase I Update
ADDRESS: Filing 24
Castle Rock CO 80104
LAT/LONG: 39.3676 / 104.798831

CLIENT: ERO Resources
CONTACT: Nancy Otterstrom
INQUIRY #: 05681466.2r
DATE: June 12, 2019 12:41 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Coni

Soil Surface Texture: loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 43 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 1.41 Min: 0.42	Max: Min:
2	7 inches	16 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 1.41 Min: 0.42	Max: Min:
3	16 inches	20 inches	unweathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: 1.41 Min: 0.42	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: Fondis

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 1.41	Max: 8.4 Min: 7.4
2	7 inches	24 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 1.41	Max: 8.4 Min: 7.4
3	24 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 1.41	Max: 8.4 Min: 7.4

Soil Map ID: 3

Soil Component Name: Fondis

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	7 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 1.41	Max: 8.4 Min: 7.4
2	7 inches	24 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 1.41	Max: 8.4 Min: 7.4
3	24 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 14.11 Min: 1.41	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	0.125
Federal FRDS PWS	Nearest PWS within 0.125 miles
State Database	0.125

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

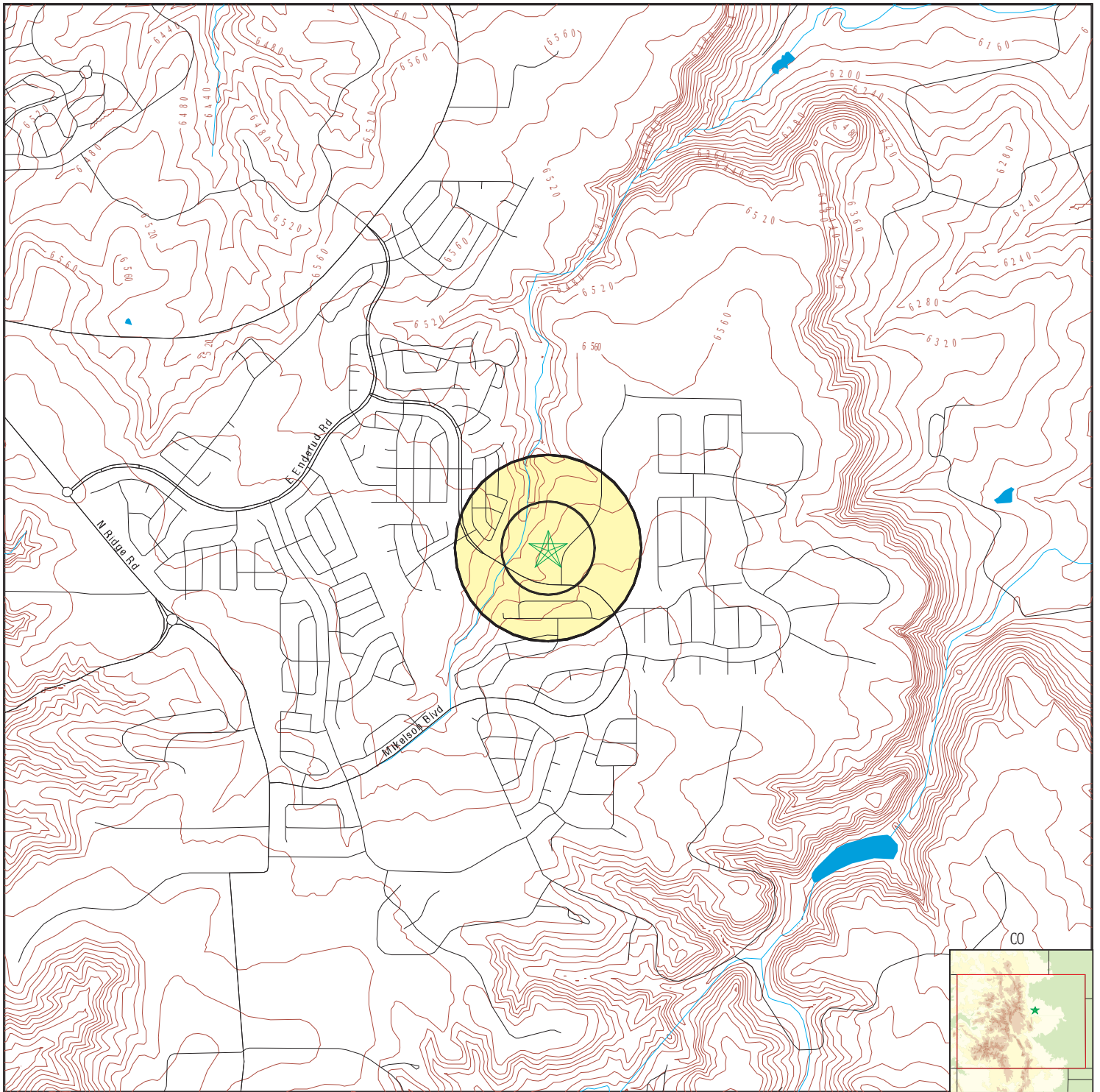
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 05681466.2r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Oil, gas or related wells

SITE NAME: Founders Village Phase I Update
 ADDRESS: Filing 24
 Castle Rock CO 80104
 LAT/LONG: 39.3676 / 104.798831

CLIENT: ERO Resources
 CONTACT: Nancy Otterstrom
 INQUIRY #: 05681466.2r
 DATE: June 12, 2019 12:41 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

RADON

AREA RADON INFORMATION

State Database: CO Radon

Radon Test Results

Zip	Total Sites	Avg	% sites<=4 pCi/L	% sites>4<10 pCi/L	% sites>=10<20 pCi/L	% sites>20 pCi/L
80104	23	5.57	60.87	30.43	4.35	4.35

Federal EPA Radon Zone for DOUGLAS County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 80104

Number of sites tested: 15

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	4.187 pCi/L	67%	33%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Riparian Vegetation Data

Source: Division of Wildlife

Telephone: 970-416-3360

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Colorado GIS Well Database

Source: Office of State Engineer, Division of Water Resources

Telephone: 303-866-3581

The GIS Well database includes all wells that the Division of Water Resources permits.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Locations

Source: Department of Natural Resources

Telephone: 303-894-2100

RADON

State Database: CO Radon

Source: Department of Public Health & Environment

Telephone: 303-692-3090

Radon Study in Colorado

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Castle Rock Fire and Rescue Department

300 Perry Street - Castle Rock, CO 80104

(303) 660-1066

PLAN REVIEW

PROJECT LOCATION CORA Request - Northwest of Mickelson Blvd and Mitchell Rd - OPEN RECORDS	PROJECT # 3583
PROJECT DESCRIPTION CORA Request - Northwest of Mickelson Blvd and Mitchell Rd - OPEN RECORDS - Fire	OCCUPANCY ID
AREA INVOLVED IN ENTIRE PROJECT CORA Request - Northwest of Mickelson Blvd and Mitchell Rd - OPEN RECORDS - Fire	ALTERNATE ID

PERMIT # 7877	PERMIT DESCRIPTION OPEN RECORDS REQUEST		
AREA AFFECTED BY THIS PERMIT CORA Request - Northwest of Mickelson Blvd and Mitchell Rd - OPEN RECORDS		SQUARE FEET	VALUE OF WORK
CONTACT NAME	NOTIFY BY ryoung	NOTIFY AT	
REASON FOR SUBMITTAL Review Only	PLAN REVIEWER ryoung	SUBMITTED 06/14/2019	COMPLETED 06/14/2019

CONTRACTOR N/A (ID 3373)	BUSINESS PHONE	FAX NUMBER
STREET ADDRESS	CITY, STATE, ZIP	
E-MAIL ADDRESS	STATE LICENSE NUMBER	

CASTLE ROCK FIRE AND RESCUE DEPARTMENT

**** PLAN REVIEW LETTER ****

<< PLEASE READ THE FOLLOWING CAREFULLY >>

On **06-14-2019** a review was completed on the submitted **OPEN RECORDS REVIEW** request for the property identified below.

Nancy Otterstrom
ERO Resources
notterstrom@erresources.com
303-830-1188

At your request, we conducted a search of our data base in an attempt to locate information pertaining to: **Northwest corner of Mickelson Blvd and Mitchel Road - VACANT LAND.**

It should be noted that there may have been incidents involving motor vehicle accidents where small amounts of fuels, battery acid or antifreeze leaked onto the street in the general area of your request. The spilled chemicals are typically cleaned up by the firefighters who responded to the incident. If there were leakage resulting in amounts greater than 25 gallons of Gasoline or 50 gallons of Diesel Fuel the Fire Department is required to conduct site cleanup in accordance with the requirements addressed by the Colorado Department of Public Health and Safety.

REVIEW OF PAST RESPONSES:

The fire department has responded to **0 responses**. The specific details of the medical responses cannot be released due to medical protection laws.



RECORD OF VIOLATIONS

A review of the Fire Department inspection database for the location revealed the following :

-NONE AS THIS IS VACANT LAND

Typical Questions:

1. Does the Subject have any significant outstanding fire code violations within its file? Yes No
If so, please provide copies of same. **NONE NOTED**
2. Is there any existing or pending significant fire/life safety code requirements that the Subject would not be grandfathered and therefore compliance would then be mandatory? Yes No
If "Yes", please explain. **NONE**
3. Do you have any general or specific knowledge of any physical conditions (site or building) that negatively impact the Subject such as lack of sprinklers that are required by code, inadequate alarm systems, back-up problems, etc.? Yes No
If so, please provide copies of same. **NO**
4. Do you have any general comments or suggested life/safety improvements? **NONE**

Summary of Communications: **NO LIFE SAFETY VIOLATIONS EXIST AT THIS LOCATION**

OTHER RELATED INCIDENTS / REPORTING:

There were NO Underground Storage Tanks Removed that had any detected leakage in the area that were reported to the fire department in this immediate area.

There may be businesses in the general area that are required to report chemicals stored at the business under the provisions of SARA Title III as adopted by the Douglas County Emergency Planning Committee . It should be noted that there were NO significant releases reported from these facilities involving their chemicals. For further information about these businesses you may contact the Douglas County Sheriff's Office - HAZMAT Response Unit.

Thank You,

Rick L. Young - Fire Prevention Officer - RYoung@crgov.com

DATE RECEIVED	BY:		
DATE FEE PAID	PLAN REVIEW FEE	CHECK #	RECEIPT #
06/14/2019	0.00		

PICKED UP BY	COMPANY	DATE





10/10/18

Kevin Dillon
ERO Resources Corp.
1842 Clarkson St.
Denver, CO 80218

RE: Environmental Record Review for Northwest corner of intersection of Mickelson Blvd. and N Mitchell St., Founders Village, Castle Rock, CO

Dear Kevin:

In response to your request, I have conducted an environmental record review of Tri-County Health Department (TCHD) records for information on the property located at Northwest corner of intersection of Mickelson Blvd. and N Mitchell St., Founders Village, Castle Rock, CO. These records include databases of historic solid waste disposal sites, Onsite Wastewater Treatment Systems, clandestine methamphetamine labs and complaints regarding possible hazardous material spills or hazardous waste releases.

No records were found.

You may also wish to check with other environmental protection/public health agencies that have different or additional databases than those maintained by TCHD. Following is contact information for the Colorado Department of Public Health and Environment (CDPHE):

Colorado Department of Public Health & Environment
HMWMD Records Center
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530
(303) 692-3331
Toll free: (888) 569-1831
FAX: (303) 759-5355
E-mail requests: comments.hmwmd@state.co.us

Sincerely,

A handwritten signature in black ink that reads "Jessica Wiersma".

Jessica Wiersma, REHS
Environmental Health Specialist
Tri-County Health Department
410 S Wilcox St.
Castle Rock, CO 80104



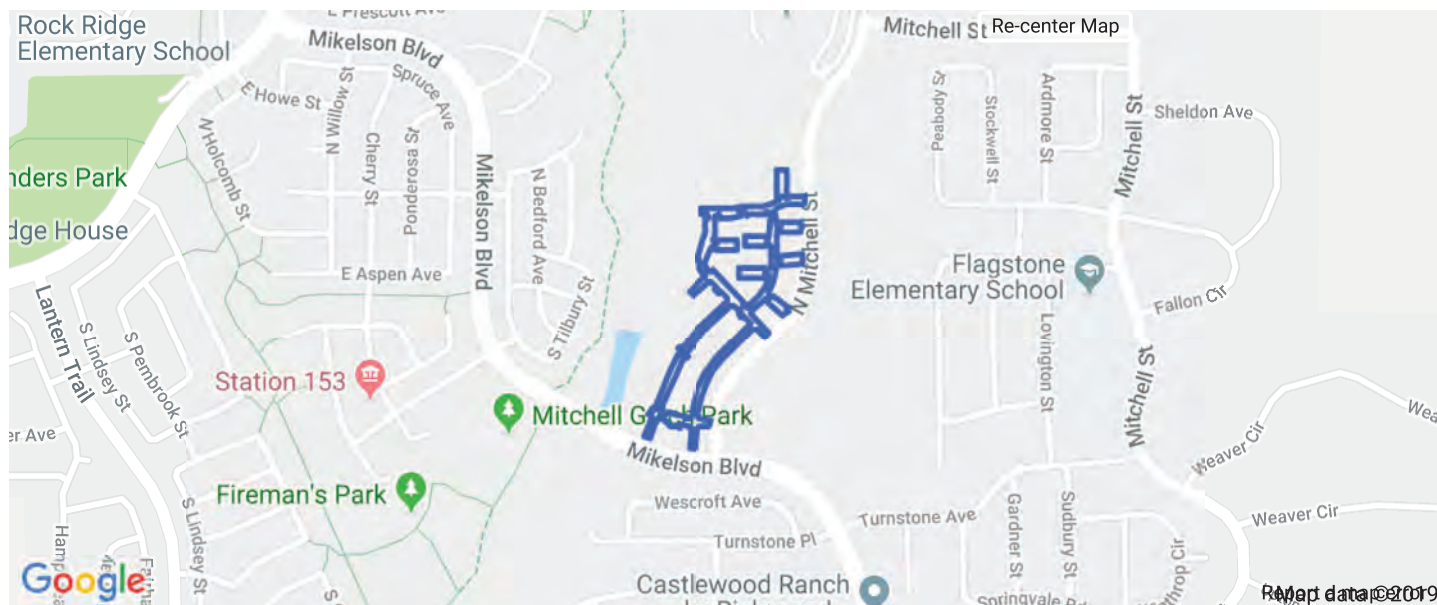
Office (303) 846-2024
jwiersma@tchd.org

Displaying data for the year 2019

No Address

Ownership Information

FOURTH INVESTMENT USA LLC
C/O INTERNATIONAL CAPITAL INC 17130 DALLAS
PKWY STE 240
DALLAS, TX 75248



Account #: R0471425
State Parcel #: 2507-084-98-001
Account Type: Vacant Land
Tax District: 3139
Neighborhood-Ext:

Owner Info

FOURTH INVESTMENT USA LLC
C/O INTERNATIONAL CAPITAL INC 17130 DALLAS
PKWY STE 240
DALLAS, TX 75248

Public Land Survey System (PLSS) Location

Quarter: SE; Section: 8; Township: 8; Range: 66

Building Count: 0
Building Permit Authority:
Town of Castle Rock
Phone: 720-733-3527

Subdivision

Name: FOUNDERS VILLAGE
Reception No: 2006064806

Location Description

TRACT P (PRIVATE ROW) FOUNDERS VILLAGE 24
5.73 AM/L

Disclaimer

The location description may not be a complete legal description of the property.

Sales History

Reception No.	Sale Date	Sale Price	Deed Type	Grantor	Grantee
2017053591	06/15/2017	\$0	Deed in Lieu of Foreclosure	BELLA MESA LAND LLC	FOURTH INVESTMENT USA LLC
2014010035	02/27/2014	\$12,500,000	Special Warranty Deed	BANKERS CAPITAL GROUP LLC	BELLA MESA LAND LLC
2014010037	02/27/2014	\$0	Quit Claim	BANKERS CAPITAL GROUP LLC	BELLA MESA LAND LLC
2012024448	04/03/2012	\$0	Public Trustee's Deed	CASTLE ROCK 25 PARTNERS LLC	BANKERS CAPITAL GROUP LLC

Disclaimer

The transaction history may not be a complete history of transfer and ownership records.

Building Details

There are no buildings on this property.

Land Details

Land Type: Residential
Class Code: 0100S
Class Code Descr.: STREET, RES., PLATTED, NON-DEDICATED
Acreage: 5.730 acres
LEA Code: 4EE

Land Valuation

Actual Value:
\$6,876

Land Attributes: Street Parcel Developer

Displaying data for the year 2019

No Address

Ownership Information

FOURTH INVESTMENT USA LLC
C/O INTERNATIONAL CAPITAL INC 17130 DALLAS
PKWY STE 240
DALLAS, TX 75248



Account #: R0471340
State Parcel #: 2507-084-21-001
Account Type: Vacant Land
Tax District: 3139
Neighborhood-Ext:

Owner Info

FOURTH INVESTMENT USA LLC
C/O INTERNATIONAL CAPITAL INC 17130 DALLAS
PKWY STE 240
DALLAS, TX 75248

Public Land Survey System (PLSS) Location

Quarter: SE; Section: 8; Township: 8; Range: 66

Building Count: 0
Building Permit Authority:
Town of Castle Rock
Phone: 720-733-3527

Subdivision

Name: FOUNDERS VILLAGE
Reception No: 2006064806

Location Description

TRACT O FOUNDERS VILLAGE 24 1.234 AM/L

Disclaimer

The location description may not be a complete legal description of the property.

Sales History

Reception No.	Sale Date	Sale Price	Deed Type	Grantor	Grantee
2017053591	06/15/2017	\$0	Deed in Lieu of Foreclosure	BELLA MESA LAND LLC	FOURTH INVESTMENT USA LLC
2014010035	02/27/2014	\$12,500,000	Special Warranty Deed	BANKERS CAPITAL GROUP LLC	BELLA MESA LAND LLC
2014010037	02/27/2014	\$0	Quit Claim	BANKERS CAPITAL GROUP LLC	BELLA MESA LAND LLC
2012024448	04/03/2012	\$0	Public Trustee's Deed	CASTLE ROCK 25 PARTNERS LLC	BANKERS CAPITAL GROUP LLC

Disclaimer

The transaction history may not be a complete history of transfer and ownership records.

Building Details

There are no buildings on this property.

Land Details

Land Type: Residential
Class Code: 0113T
Class Code Descr.: TRACT, TOWNHOME, PLATTED POTENTIAL DEV.
Acreage: 1.234 acres
LEA Code: 4EE

Land Valuation

Actual Value:
\$123,400

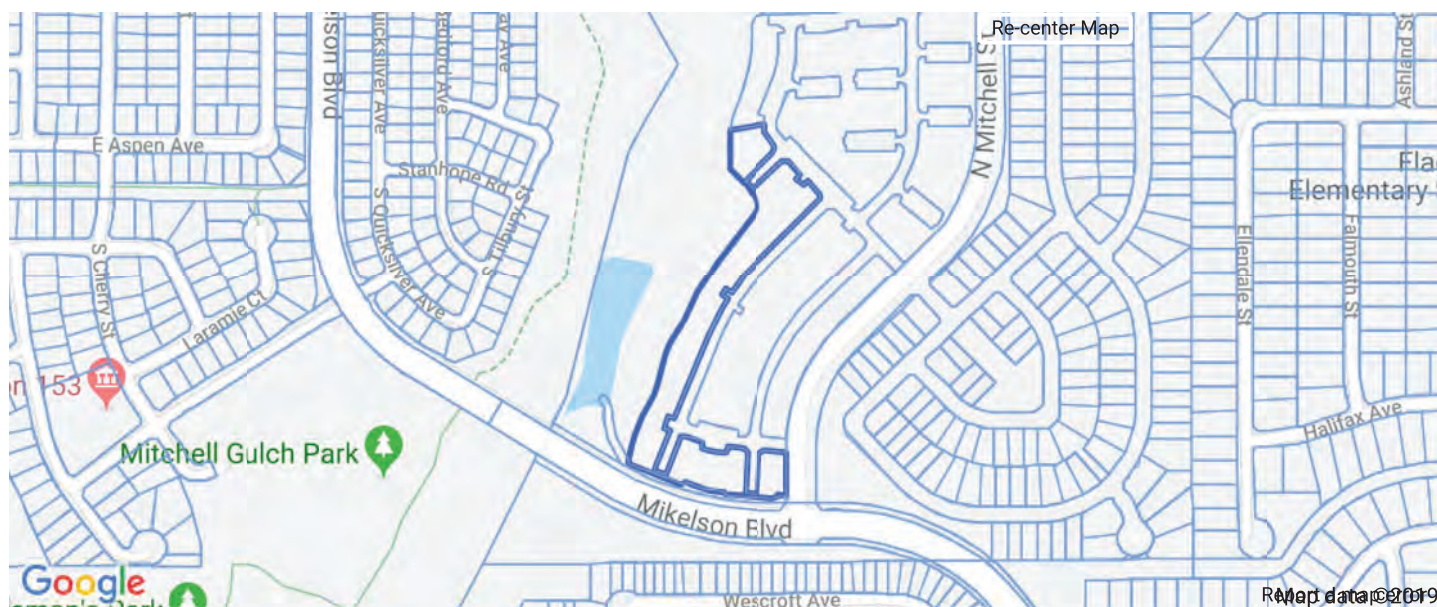
Land Attributes: Collector Road Proximity

Displaying data for the year 2019

No Address

Ownership Information

FOURTH INVESTMENT USA LLC
C/O INTERNATIONAL CAPITAL INC 17130 DALLAS
PKWY STE 240
DALLAS, TX 75248



Account #: R0471337
State Parcel #: 2507-084-19-003
Account Type: Vacant Land
Tax District: 3139
Neighborhood-Ext:

Owner Info

FOURTH INVESTMENT USA LLC
C/O INTERNATIONAL CAPITAL INC 17130 DALLAS
PKWY STE 240
DALLAS, TX 75248

Public Land Survey System (PLSS) Location

Quarter: SE; Section: 8; Township: 8; Range: 66

Building Count: 0
Building Permit Authority:
Town of Castle Rock
Phone: 720-733-3527

Subdivision

Name: FOUNDERS VILLAGE
Reception No: 2006064806

Location Description

TRACT M FOUNDERS VILLAGE 24 3.791 AM/L

Disclaimer

The location description may not be a complete legal description of the property.

Sales History

Reception No.	Sale Date	Sale Price	Deed Type	Grantor	Grantee
2017053591	06/15/2017	\$0	Deed in Lieu of Foreclosure	BELLA MESA LAND LLC	FOURTH INVESTMENT USA LLC
2014010035	02/27/2014	\$12,500,000	Special Warranty Deed	BANKERS CAPITAL GROUP LLC	BELLA MESA LAND LLC
2014010037	02/27/2014	\$0	Quit Claim	BANKERS CAPITAL GROUP LLC	BELLA MESA LAND LLC
2012024448	04/03/2012	\$0	Public Trustee's Deed	CASTLE ROCK 25 PARTNERS LLC	BANKERS CAPITAL GROUP LLC

Disclaimer

The transaction history may not be a complete history of transfer and ownership records.

Building Details

There are no buildings on this property.

Land Details

Land Type: Residential
Class Code: 0113T
Class Code Descr.: TRACT, TOWNHOME, PLATTED POTENTIAL DEV.
Acreage: 3.791 acres
LEA Code: 4EE

Land Valuation

Actual Value:
\$379,100

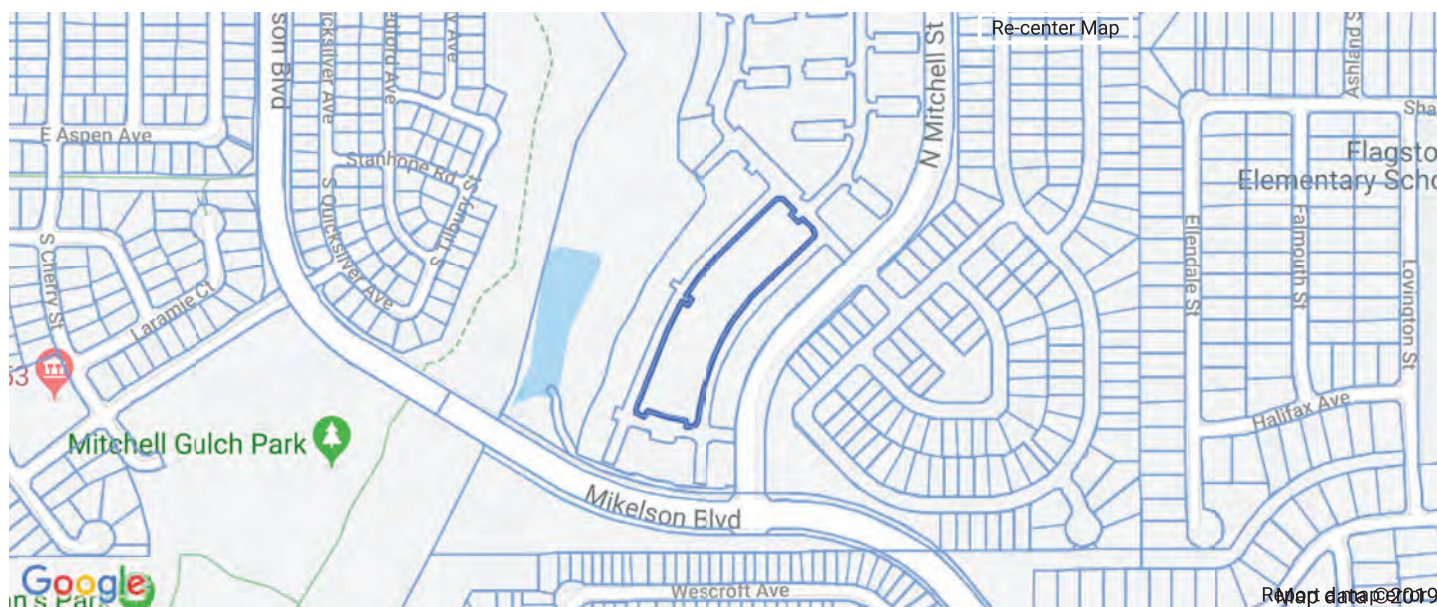
Land Attributes: Collector Road Proximity

Displaying data for the year 2019

No Address

Ownership Information

FOURTH INVESTMENT USA LLC
C/O INTERNATIONAL CAPITAL INC 17130 DALLAS
PKWY STE 240
DALLAS, TX 75248



Account #: R0471339
State Parcel #: 2507-084-20-001
Account Type: Vacant Land
Tax District: 3139
Neighborhood-Ext:

Owner Info

FOURTH INVESTMENT USA LLC
C/O INTERNATIONAL CAPITAL INC 17130 DALLAS
PKWY STE 240
DALLAS, TX 75248

Public Land Survey System (PLSS) Location

Quarter: SE; Section: 8; Township: 8; Range: 66

Building Count: 0
Building Permit Authority:
Town of Castle Rock
Phone: 720-733-3527

Subdivision

Name: FOUNDERS VILLAGE
Reception No: 2006064806

Location Description

TRACT N FOUNDERS VILLAGE 24 2.879 AM/L

Disclaimer

The location description may not be a complete legal description of the property.

Sales History

Reception No.	Sale Date	Sale Price	Deed Type	Grantor	Grantee
2017053591	06/15/2017	\$0	Deed in Lieu of Foreclosure	BELLA MESA LAND LLC	FOURTH INVESTMENT USA LLC
2014010037	02/27/2014	\$0	Quit Claim	BANKERS CAPITAL GROUP LLC	BELLA MESA LAND LLC
2014010035	02/27/2014	\$12,500,000	Special Warranty Deed	BANKERS CAPITAL GROUP LLC	BELLA MESA LAND LLC
2012024448	04/03/2012	\$0	Public Trustee's Deed	CASTLE ROCK 25 PARTNERS LLC	BANKERS CAPITAL GROUP LLC

Disclaimer

The transaction history may not be a complete history of transfer and ownership records.

Building Details

There are no buildings on this property.

Land Details

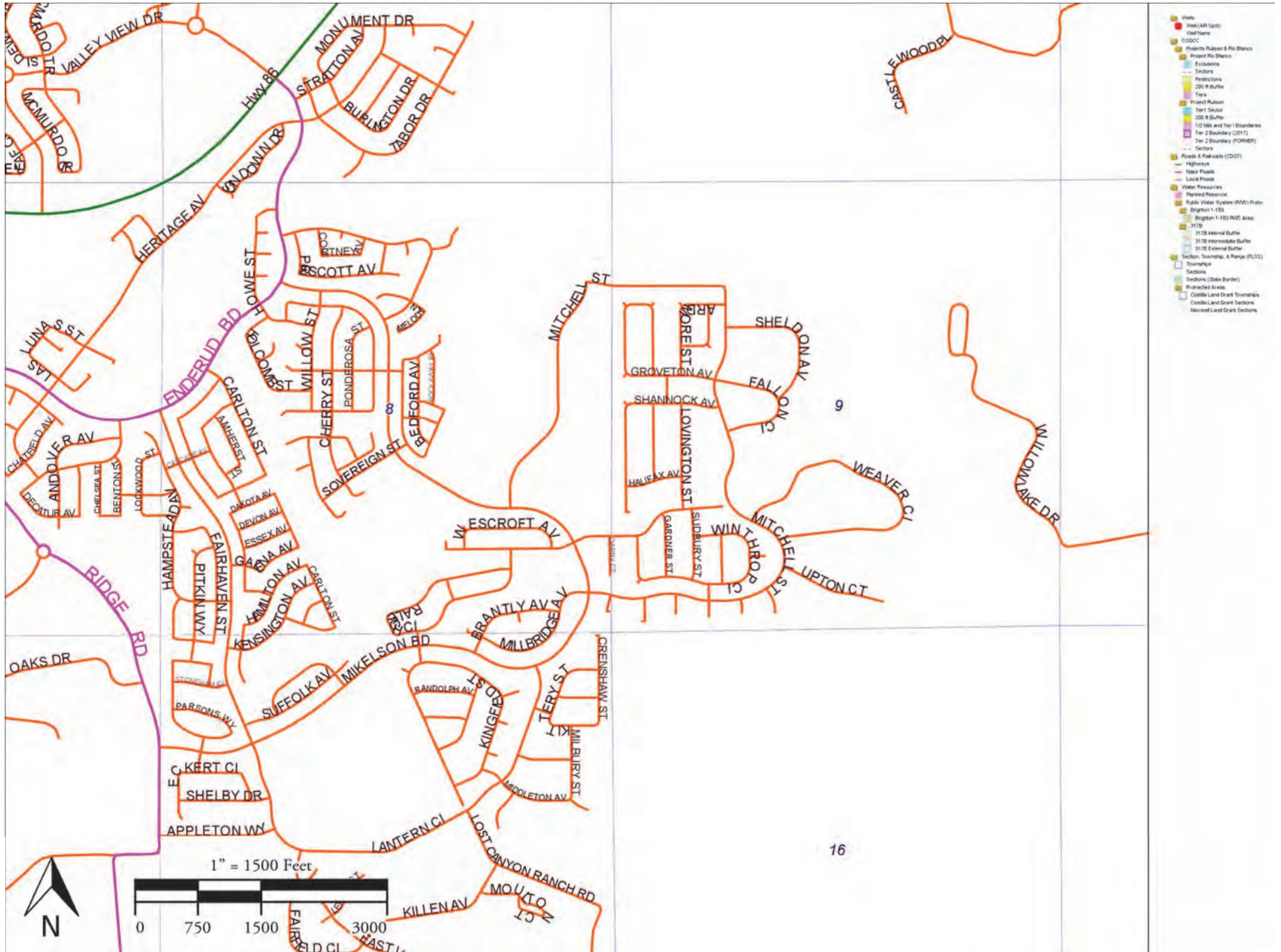
Land Type: Residential
Class Code: 0113T
Class Code Descr.: TRACT, TOWNHOME, PLATTED POTENTIAL DEV.
Acreage: 2.879 acres
LEA Code: 4EE

Land Valuation

Actual Value:
\$287,900

Land Attributes: None listed

COGCC Mapping

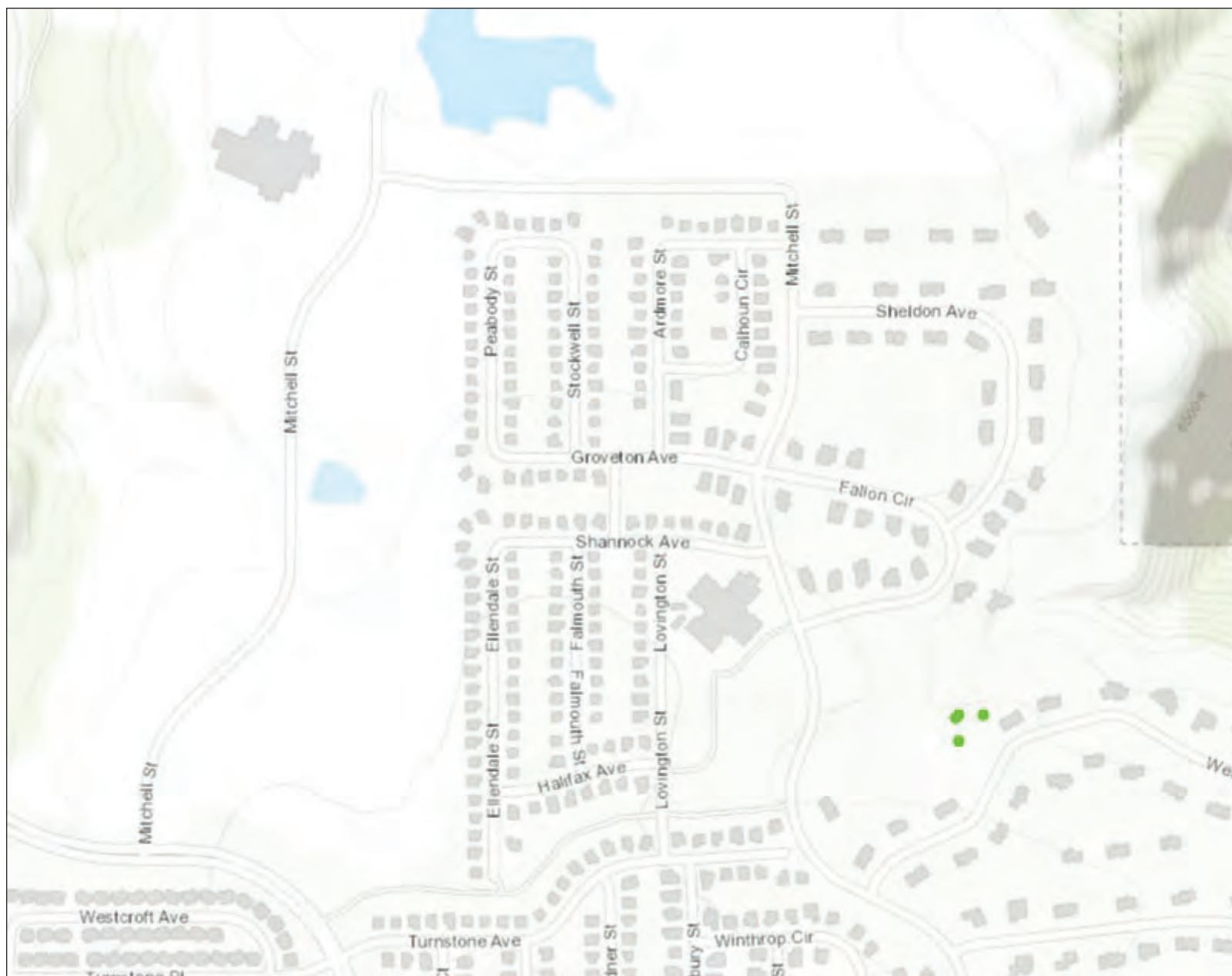




CDSS

Colorado's Decision Support Systems

CDWR



Legend

- Well Constructed
- Final Permit
- County

Location



Notes

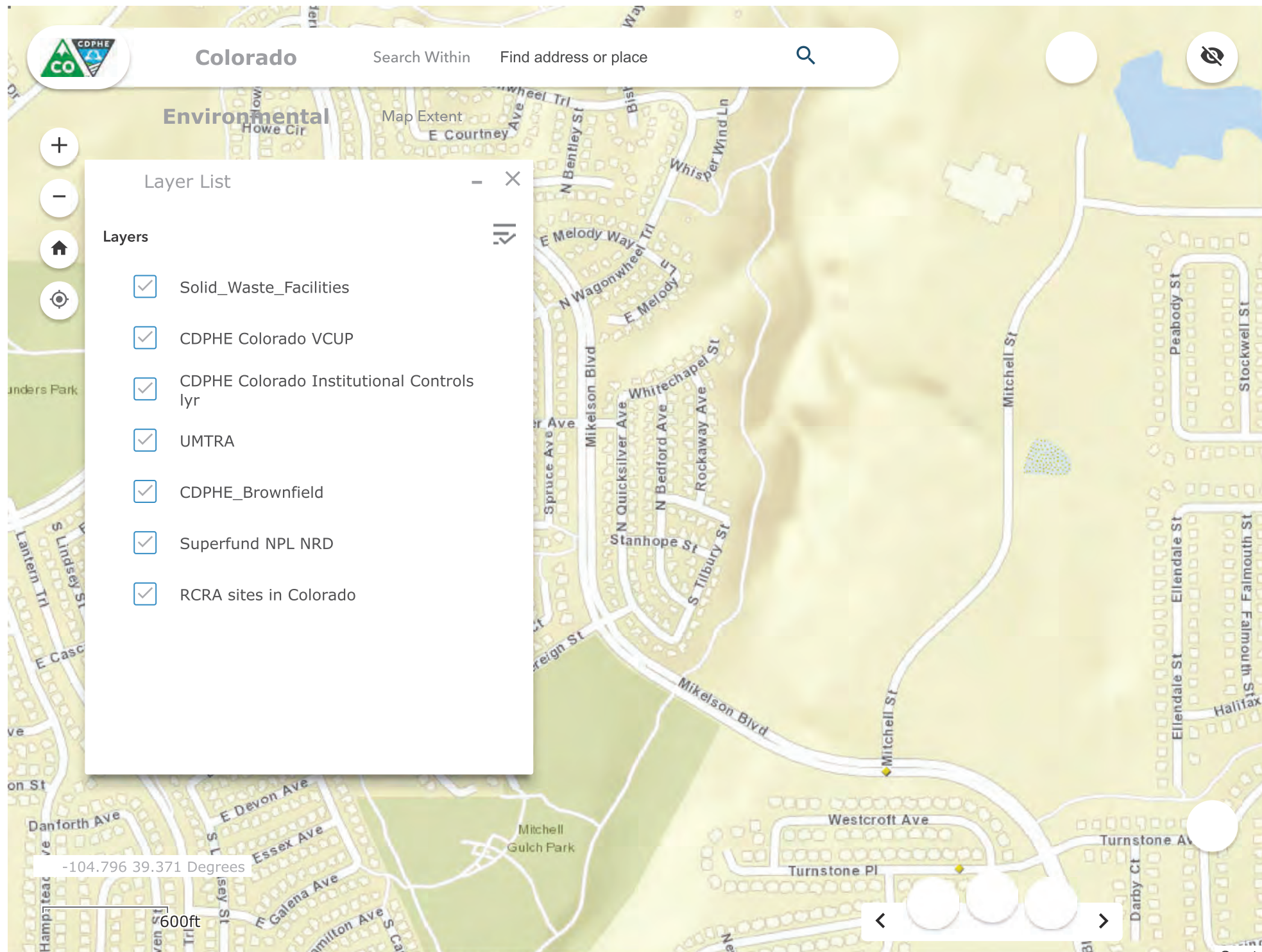
1,169 0 585 1,169 Feet

1: 7,016



This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Date Prepared: 6/27/2019 5:55:17 PM



Appendix C Qualifications of Environmental Professionals

Appendix D Phase I ESA Work Scope

**WORK SCOPE
DUE DILIGENCE ASSESSMENTS**

**PORTIONS OF FOUNDERS VILLAGE - TRACTS M, N, O AND A PORTION OF P,
FOUNDERS VILLAGE FILING NO. 24,
DOUGLAS COUNTY, COLORADO**

Summary

ERO Resources Corporation (ERO) will conduct a Phase I Environmental Site Assessment¹ (ESA) Update, Wetland Delineation, and Preble's Mouse Habitat Letter of the subject property. The following scope outlines the tasks associated with each report.

Task 1. Phase I Environmental Site Assessment Update Tasks

Site reconnaissance. ERO will conduct a visual site reconnaissance of the subject property. The purpose of the inspection is to document recognized environmental conditions. Photographs will be taken as appropriate. ERO will not take any samples during the site reconnaissance. The following issues are specifically excluded from this ESA—wetlands, migratory birds, asbestos-containing materials, radon, lead-based paint, lead in drinking water, mold, and subsurface mineral rights, leases, or ownership.

ERO will document the general site setting, such as current use(s) of the subject property and adjoining properties, and general hydrogeologic and topographic features. A general description of structures and other improvements on the subject property will be provided. ERO will identify the following site conditions, if they are visually or physically observed, during the site reconnaissance—

- The quantity, type, and storage system for hazardous substances and petroleum products in connection with identified uses
- Tanks, containers, drums, barrels, and other systems used for storing hazardous substance and petroleum products not connected to identified uses
- Aboveground and underground storage tanks
- Pits, ponds, lagoons and other features potentially used for storage and/or disposal of hazardous substances and petroleum product
- Odors, pools of liquids, stained soils and pavement, and stressed vegetation
- Presence of electrical equipment potentially containing PCBs.

Interviews. ERO will conduct interviews with the ESA user, property owner, site manager and/or other persons with knowledge of the subject property.

¹ According to ASTM 1527-13: "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."

File search and regulatory agency review. ERO will conduct a search of records and files from a variety of sources, and compile existing information pertaining to current and past environmental conditions. This search may include the following information, as ERO deems appropriate—

- Topographic, land use, and environmental resource maps
- Aerial photographs
- County and city records
- State and federal databases

Vapor Encroachment Screening. ERO will evaluate the sites identified during the Records Review to evaluate potential vapor encroachment in accordance with ASTM E 2600-15, the “Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions” (ASTM 2015). ERO will conduct a Tier 1 Screening using information presented in the Phase I ESA records review to whether a Vapor Encroachment Condition VEC exists, likely exists, or cannot be ruled out for the property. The results of this screening will be included in the Phase I ESA report. No sampling or testing is included with the screening.

Reports and recommendations. Based on the information gathered during the above tasks, ERO will compile the information and findings in a written report for the subject property. The report will contain a detailed presentation of findings, including the site description, records review, site reconnaissance, and conclusions.

Products:

- Draft and final Phase I ESA Update report.

Task 2a. Wetland Delineation

ERO will delineate the potential wetland in the southwest corner of the property, previously identified in ERO’s 2018 Biological-Cultural Assessment report. Wetlands will be delineated following the methods in the revised online version of Corps’ Wetland Delineation Manual (1987) and appropriate regional supplement. Open water and channels will be determined based on the presence of an ordinary high water mark as defined in 33 CFR Part 328. The boundaries of wetlands, open water, and channels will be mapped to sub-meter accuracy by ERO using a Global Positioning System (GPS), or, when appropriate, boundaries will be mapped onto an appropriately-scaled aerial photograph. ERO will incorporate the wetland boundaries into project base mapping provided by the Client and will send the Client a revised base mapping file that includes a layer with the boundaries of wetlands, open water, and channels.

Products

- • Electronic file with boundaries of wetlands and open water delivered to the Client via email

Task 2b. Prepare Wetland Delineation Technical Report

A wetlands delineation report and preliminary map of potential waters of the U.S., including adjacent wetlands, will be submitted to the Client for review and comment. If requested by the Client, ERO will submit a copy of the wetland delineation to the Corps for its review and approval of the mapped wetland boundaries. This report will include a description of the potential jurisdictional

wetlands and other waters of the U.S. in the eight project areas, the methods and rationale for determining their boundaries, and photographs of representative wetlands.

Products

- Draft Wetland Delineation Technical Report delivered to the Client via email.
- Final Wetland Delineation Technical Report includes a PDF document emailed to the Client, and one hard mailed to the Corps if requested by the Client.

Task 3. Prepare Habitat Assessment Letter

Based on current knowledge of the area, potential Preble's meadow jumping mouse (Preble's) habitat may occur within the project area; however, ERO assumes that the project would not likely adversely affect any threatened or endangered species because it is unlikely Preble's are present in the project area. A qualified ERO ecologist will prepare a habitat assessment for species listed as threatened or endangered under the Endangered Species Act – primarily Preble's Meadow Jumping Mouse. If the project will not impact any suitable for threatened or endangered species, ERO will submit a habitat assessment letter to the U.S Fish and Wildlife Service (Service) for its review and approval.

Products:

- Draft and final habitat assessment letter

Appendix B - Biological and Cultural Assessment



Consultants in Natural Resources and the Environment

Biological and Cultural Assessment Portions of Founders Village Filing No. 24 Douglas County, Colorado

Prepared for—

Richmond American Homes/MDC Holdings, Inc.
4350 South Monaco Street
Denver, Colorado 80237

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188
ERO Project #10381

August 21, 2019

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- Figure 1 - Site Location
- Figure 2 - Property Conditions

Appendices

- Appendix A Photo Log
- Appendix B Wetland Forms

Executive Summary

Richmond American Homes/MDC Holdings, Inc. (Richmond) retained ERO Resources Corporation (ERO) to provide a biological and cultural assessment for portions of the Founders Village Filing No. 24 property located in Douglas County, Colorado (project area – shown on Figures 1 and 2). ERO assessed the project area for potential wetlands and waters of the U.S., potential federally listed threatened and endangered species habitat, migratory birds and active nests, and other wildlife, and conducted a cultural resource file search for records of past inventories. Below is a summary of the resources found at the project area and recommendations or future actions necessary based on the current site conditions and regulations.

The natural resources and associated regulations described in this report are valid as of the date of this report and may be relied on for the specific use for which it was prepared by ERO under contract to Richmond. Because of their dynamic natures, site conditions and regulations should be reconfirmed by a qualified consultant before relying on this report for a use other than that for which it was specifically prepared.

Wetlands and Other Waters of the U.S. – ERO conducted a wetland delineation for the potential wetlands along the southern edge of the project area, extending outside of the project area to Mitchell Gulch. Because of the surface connection to other known jurisdictional waters of the U.S., the U.S. Army Corps of Engineers (Corps) will likely take jurisdiction over the wetlands within the project area. ***If work is planned within the wetlands, a Clean Water Act Section 404 permit would likely be required from the Corps for the placement of fill or dredge material within the wetlands.*** If no work is planned within the wetlands, no further action is necessary.

Threatened and Endangered Species – The project area contains potential habitat for Preble’s meadow jumping mouse (Preble’s), a federally threatened species; however, it is unlikely the project area supports Preble’s due to the distance from any known population and lack of adequate shrub cover. ***ERO recommends submitting a habitat assessment to the U.S. Fish and Wildlife Service (Service)*** requesting confirmation that the project area is not habitat and a presence/absence survey would not be required.

Migratory Birds – No nests were observed in the project area during the 2019 site visit. The Denver Field Office of the U.S. Fish and Wildlife Service (2009) and Colorado Department of Transportation (2011) have identified the primary nesting season for migratory birds in eastern Colorado as occurring between April 1 and mid to late August. However, some birds, such as the red-tailed hawk and great horned owl, can nest as early as February or March. Because of variability in the breeding seasons of various bird species, ***ERO recommends a nest survey be conducted within one week before construction to determine if any active nests are present in the project area so they can be avoided.*** If active nests are found, any work that would destroy the nests cannot be conducted until the birds have vacated the nests.

Other Wildlife – No sensitive wildlife species, including black-tailed prairie dogs, were observed in the project area. Overall, surrounding and continuing development contributes to a decline in the number and diversity of wildlife species nearby and to a change in species composition.

Cultural Resources – A cultural resource file search of the project area was completed, and the COMPASS database indicated no previous surveys have taken place in the project area and no previously

documented cultural resources are located in the project area. If no federal or state involvement would occur with the proposed project, no further action is necessary.

Biological and Cultural Assessment Portions of Founders Village Filing No. 24 Douglas County, Colorado

August 21, 2019

Introduction

Richmond American Homes/MDC Holdings, Inc. (Richmond) retained ERO Resources Corporation (ERO) to provide a biological and cultural assessment for portion of the Founders Village Filing No. 24 property located in Douglas County, Colorado (project area). As part of the biological assessment, ERO visited the project area to review potential natural resources in 2018 and again in 2019. As part of the 2019 site visit, ERO also conducted a wetland delineation (2019 site visit). During this assessment, activities included a review of potential wetlands, identification of potential federally listed threatened and endangered species habitat, and identification of other natural resources that might affect development of the project area. This report provides information on existing site conditions and resources, as well as current regulatory requirements related to those resources. The cultural resources file search results are presented at the end of this document. ERO assumes the landowner or project proponent is responsible for obtaining all federal, state, and local permits for construction of the project.

Project Area Description

The project area is in Section 8, Township 8 South, Range 66 West of the 6th Principal Meridian in Douglas County, Colorado (Figure 1). The UTM coordinates of the approximate center of the project area are NAD 83 517353mE, 4357621mN, Zone 13 North. The longitude/latitude of the project area is 104.798552°W/39.367878°N. The elevation of the project area is approximately 6,565 feet above sea level. Photo log is in Appendix A. The project area consists primarily of disturbed and undisturbed uplands, with some small rock outcroppings along the western half of the project area (Photo 1). Uplands within the project area are dominated by native and nonnative grasses, including blue grama (*Bouteloua gracilis*), sideoats grama (*Bouteloua curtipendula*), western wheatgrass (*Pascopyrum smithii*), intermediate wheatgrass (*Thinopyrum intermedium*), and smooth brome (*Bromus inermis*). Small populations of sage (*Artemisia* sp.), hairy false goldenaster (*Heterotheca villosa*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), yucca (*Yucca* sp.), common mullein (*Verbascum thapsus*), gumweed (*Grindelia* sp.), and pricklypear (*Opuntia* sp.) occur throughout the project area (Photo 2). Gambel oak (*Quercus gambelii*) trees occur in the western portion of the project area and dominate the tree stratum. Mountain mahogany (*Cercocarpus* sp.), Gambel oak, and rubber rabbitbrush (*Ericameria nauseosa*) occur in the shrub stratum throughout the western portion of the project area (Photo 3). A constructed drainage ditch dominated by smooth brome, big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), Canada thistle, and nodding plumeless thistle (*Carduus nutans*) occurs in the northeast corner of the project area (Photo 2). Wetlands dominated by cattails (*Typha* sp.) were observed along the southern edge of the project area abutting an unnamed pond with

a surface connection to Mitchell Gulch (Photo 3). The project area is bounded by residential properties to the west, a school to the north, North Mitchell Street to the east, and Mikelson Boulevard to the south.

Wetlands and Waters of the U.S.

Background

The Clean Water Act (CWA) protects the physical, biological, and chemical quality of waters of the U.S. The U.S. Army Corps of Engineers' (Corps) Regulatory Program administers and enforces Section 404 of the CWA. Under Section 404, a Corps permit is required for the discharge of dredged or fill material into wetlands and other waters of the U.S. The Corps defines waters of the U.S. as "all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters."

On May 31, 2016, the U.S. Supreme Court concluded that approved jurisdictional determinations are judicially reviewable under the Administrative Procedure Act and, therefore, can be appealed in court. The Corps has recommended that requests for both approved and preliminary jurisdictional determinations be done using new guidance outlined in Regulatory Guidance Letter (RGL) 16-01 and that the form in Appendix 1 of the RGL be completed (Corps 2016). The Corps has indicated that jurisdictional determinations associated with a Section 404 CWA Permit request will preside over standalone jurisdictional determination requests. While ERO may provide its opinion on the likely jurisdictional status of wetlands and waters, the Corps makes the final determination.

Project Area Conditions

ERO assessed the project area for potential isolated wetlands, jurisdictional wetlands, and other waters of the U.S. No drainages are shown on the U.S. Geological Survey (USGS) Castle Rock South topographic quadrangle as occurring within the project area. However, a small wetland was observed along the southern edge of the project area during the 2019 site visit. The wetland is along a swale within the project area and connects to a Mitchell Gulch just west of the project area. Mitchell Gulch has a downstream connection to Cherry Creek, a known jurisdictional water of the U.S.

For this reason, ERO conducted the wetland delineation following the methods for routine on-site wetland determinations in areas of less than 5 acres as described in the 1987 Corps of Engineers Wetlands Delineation Manual (1987 Manual) (Environmental Laboratory 1987), and used methods in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0) (U.S. Army Corps of Engineers (Corps) 2010), to record data on vegetation, soils, and hydrology on routine determination forms (Appendix B). The Corps defines wetlands as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 Code of Federal Regulations (CFR) 328.2(c)). Wetland boundaries were determined by a visible change

in vegetation community, soils, topographic changes, and other visible distinctions between wetlands and uplands. Mapped wetlands within the property are shown on Figure 2.

A constructed drainage ditch occurs in the northeastern corner of the project area. The ditch did not exhibit any characteristics of a water of the U.S. such as a bed and bank, ordinary high water mark, open water, or wetland vegetation during the 2019 site visit.

Recommendations

Because of its connection to Mitchell Gulch, a tributary of Cherry Creek, the wetland located along the southern edge of the project area would likely be considered a jurisdictional water of the U.S. If the wetland is considered jurisdictional and work is planned within this area, a Section 404 permit would be required for the placement of fill or dredge material in the wetland. If no work is planned within the wetland, no further action is necessary. Because the drainage ditch in the northeast corner of the project area did not appear to exhibit any characteristics of a water of the U.S., no further action is necessary regarding the ditch.

Threatened, Endangered, and Candidate Species

During the 2019 site visit, ERO assessed the project area for potential habitat for threatened, endangered, and candidate species listed under the Endangered Species Act (ESA). Federally listed threatened and endangered species are protected under the ESA. Adverse effects on a federally listed species or its habitat require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 or 10 of the ESA. The Service lists several threatened and endangered species with potential habitat in Douglas County, or that would be potentially affected by projects in Douglas County (Table 1).

Table 1. Federally threatened, endangered, and candidate species potentially found in Douglas County or potentially affected by projects in Douglas County.

Common Name	Scientific Name	Status*	Habitat	Habitat Present or Potential to Be Affected by Project?
Mammals				
Preble's meadow jumping mouse (Preble's)	<i>Zapus hudsonius preblei</i>	T	Shrub riparian and wet meadows	No located outside the Riparian Conservation Zone (RCZ)
Birds				
Interior least tern**	<i>Sterna antillarum athalassos</i>	E	Sandy/pebble beaches on lakes, reservoirs, and rivers	No habitat, no depletions anticipated
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	Old-growth or mature forests, uneven-aged stands with high canopy closure, high tree density	No habitat
Piping plover**	<i>Charadrius melodus</i>	T	Sandy lakeshore beaches and river sandbars	No habitat, no depletions anticipated
Whooping crane**	<i>Grus americana</i>	E	Mudflats around reservoirs and in agricultural areas	No habitat, no depletions anticipated
Fish				
Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>	T	Gravelly headwater streams or mountain lakes	No habitat
Pallid sturgeon**	<i>Scaphirhynchus albus</i>	E	Large, turbid, free-flowing rivers with a strong current and gravel or sandy substrate	No habitat, no depletions anticipated
Insects				
Pawnee montane skipper	<i>Hesperia leonardus montana</i>	T	Dry, open ponderosa woodlands above 6,000 feet in elevation	No habitat
Plants				
Colorado butterfly plant (CBP)	<i>Gaura neomexicana</i> subsp. <i>coloradensis</i>	T	Subirrigated alluvial soils on level floodplains and drainage bottoms between 5,000 and 6,400 feet in elevation	No habitat, project area is at upper elevation range
Ute ladies'-tresses orchid (ULTO)	<i>Spiranthes diluvialis</i>	T	Moist to wet alluvial meadows, floodplains of perennial streams, and around springs and lakes below 7,800 feet in elevation	No habitat
Western prairie fringed orchid**	<i>Platanthera praeclara</i>	T	Mesic and wet prairies, sedge meadows	No habitat, no depletions anticipated

*T = Federally Threatened Species; E = Federally Endangered Species.

**Water depletions in the South Platte River may affect the species and/or critical habitat in downstream reaches in other counties or states.

Source: Service 2018.

Potential Habitat and Possible Effects

The project area does not contain habitat for the Mexican spotted owl, greenback cutthroat trout, or Pawnee montane skipper. The interior least tern, piping plover, whooping crane, pallid sturgeon, and western prairie fringed orchid are species that are affected by continued or ongoing depletions to the

Platte River system. Based on ERO's current knowledge of the project, no depletions to the Platte River system would occur and no action is necessary.

Potential habitat for Preble's meadow jumping mouse (Preble's), Colorado butterfly plant (CBP), and Ute ladies'-tresses orchid (ULTO) is generally more prevalent in areas across the Front Range. Because these species are more likely to be addressed by counties and regulatory agencies such as the Corps, a more detailed discussion is provided below.

Preble's Meadow Jumping Mouse

Species Background and Regulatory Guidance

Preble's was listed as a threatened species on May 13, 1998. Under existing regulations, either a habitat assessment or a full presence/absence survey for Preble's is required for any habitat-disturbing activity within areas determined to be potential Preble's habitat (generally riparian habitat along streams and ditches along the Colorado Front Range). Typically, Preble's occurs below 7,600 feet in elevation, generally in lowlands with medium to high moisture along permanent or intermittent streams and canals (Meaney et al. 1997). Preble's occurs in low undergrowth consisting of grasses and forbs, in open wet meadows, in riparian corridors near forests, or where multilevel shrubs and low trees provide adequate cover (Service 1999; Meaney et al. 1997).

Potential Habitat and Recommendations

The herbaceous potential wetland within the project area that has a connection to Mitchell Gulch provides some of the habitat components required by Preble's. However, the project area is not inside the boundaries of the Douglas County Habitat Conservation Plan's (DCHCP) Riparian Conservation Zone (RCZ), which is typically used as the boundary guidelines for Preble's habitat in Douglas County. In addition, the closest known Preble's population is more than 4.5 miles southeast of the project area along Cherry Creek (Colorado Natural Heritage 1998). Finally, most of the project area is upland grasslands, and the potential wetland is dominated by cattails, with a small patch of western snowberry (*Symphoricarpos occidentalis*) along its eastern edge. This vegetation composition is not typically associated with Preble's. Based on these reasons, it is unlikely the project area supports a population of Preble's.

Because of the project area's location outside of the DCHCP RCZ, its distance from the closest Preble's capture site, and the lack of adequate shrub cover, ERO determined that Preble's is unlikely to be present in the project area. ERO recommends submitting a habitat assessment to the Service requesting concurrence that the project area is not habitat for Preble's and that the proposed project would not adversely affect the continued existence of Preble's.

Colorado Butterfly Plant

Species Background and Regulatory Guidance

CBP is a short-lived perennial adapted to stream channels that are periodically disturbed. It occurs on moist subirrigated alluvial soils on level or slightly sloping floodplains and drainage bottoms at

elevations from 5,000 to 6,400 feet. Colonies are often found in low depressions or along bends in wide, active, meandering stream channels that are periodically disturbed. Typically, CBP occurs in moist areas between wetlands and upland shortgrass prairies, which are open without dense or overgrown vegetation (Service 2018). CBP flowers from June to September and produces fruit from July to October (Spackman et al. 1997). This species is federally listed as threatened under the ESA and is found within a small area in southeastern Wyoming, western Nebraska, and north-central Colorado (NatureServe 2012). Critical habitat for CBP has been designated in southeastern Wyoming (Service 2005). The Service has not established formal survey guidelines for CBP but has indicated that areas similar to and slightly drier than ULTO habitat should be assessed.

Potential Habitat and Recommendations

Habitat for CBP is not present in the project area because a perennial stream with an active floodplain does not occur within the project area. No action is necessary regarding CBP.

Ute Ladies'-Tresses Orchid

Species Background and Regulatory Guidance

ULTO is federally listed as threatened. ULTO occurs at elevations below 7,800 feet in moist to wet alluvial meadows, in floodplains of perennial streams, and around springs and lakes where the soil is seasonally saturated within 18 inches of the surface (Service 1992a). This species has also been found along irrigation canals, irrigated meadows, gravel pits, and other human-modified wetlands (Service 2018). Generally, the species occurs where the vegetative cover is relatively open and not overly dense or overgrazed. Once thought to be fairly common in low-elevation riparian areas in the interior western United States, ULTO is now rare (Service 1992a). The species' known range is from Nevada to British Columbia. The largest known populations occur in Utah, followed by Colorado (NatureServe 2012).

In Colorado, the Service requires surveys in suitable habitat as described above within the 100-year floodplain of the South Platte River, Fountain Creek, and the Yampa River and their perennial tributaries, or in any area with suitable habitat in Boulder and Jefferson Counties. Since the Service released the 1992 Interim Survey Requirements, ULTO has been found along the Roaring Fork River. Therefore, surveys should be conducted within suitable habitat in the floodplain of the Roaring Fork River and its tributaries. ULTO does not bloom until late July to early September (depending on the year), and timing of surveys must be synchronized with blooming (Service 1992b).

Potential Habitat and Recommendations

Because a perennial tributary to the South Platte River does not occur in the project area and the project area is in Douglas County, the project area does not fall within the Service's guidelines for ULTO surveys. No action is necessary regarding ULTO.

Recommendations

No potential habitat for federally listed threatened or endangered species occurs in the project area, and no further action is necessary.

Other Species of Concern

Migratory Birds

Background

Migratory birds, as well as their eggs and nests, are protected under the Migratory Bird Treaty Act (MBTA). While destruction of a nest by itself is not prohibited under the MBTA, nest destruction that results in the unpermitted take of migratory birds or their eggs is illegal (Service 2003). The regulatory definition of a take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (50 Code of Federal Regulations 10.12).

Under the MBTA, the Service may issue nest depredation permits, which allow a permittee to remove an active nest. The Service, however, issues few permits and only under specific circumstances, usually related to human health and safety. Obtaining a nest depredation permit is unlikely and involves a process that may take a significant amount of time. In addition, Colorado Parks and Wildlife has recommended buffers for nesting raptors, depending on the species (generally $\frac{1}{3}$ or $\frac{1}{4}$ mile) (Colorado Division of Wildlife 2008). The best way to comply with the MBTA is to remove vegetation outside of the active breeding season, which typically falls between March and August, depending on the species. Public awareness of the MBTA has grown in recent years, and most MBTA enforcement actions are the result of a concerned member of the community reporting noncompliance.

Potential Habitat and Possible Effects

No nests were observed in the project area during the 2019 site visit. The breeding season for most birds in Colorado is March through August, except for a few species that begin breeding in February, such as great horned owls. The large trees along Mitchell Gulch, west of the project area, could provide habitat for cavity-nesting birds as well as large raptors. The undisturbed grasses in the project area also could provide habitat for ground-nesting bird species.

Recommendations

Vegetation removal should occur outside of the breeding season (typically September through February). Both the Denver Field Office of the Service (2009) and the Colorado Department of Transportation (2011) have identified the primary nesting season for migratory birds in eastern Colorado as occurring between April 1 and mid to late August. However, a few species, such as great horned owls and red-tailed hawks, can nest as early as February or March. Because of variability in the breeding seasons of various bird species, ERO recommends a nest survey be conducted within one week before construction to determine if any active nests are present in the project area so they can be avoided. Nest removal may occur during the nonbreeding season to discourage future nesting and avoid violations of the MBTA. No permit or approval is necessary for removing nests during the nonbreeding season; however, nests must be destroyed and may not be collected under MBTA regulations. If the construction schedule does not allow vegetation removal outside of the breeding season, a nest survey should be conducted within one week before vegetation removal to determine if the nest is active and

by which species. If active nests are found, any work that would destroy the nests cannot be conducted until the birds have vacated the nests.

Other Wildlife

As with any human development, wildlife species sensitive to human disturbance are likely to decline in abundance or abandon the area, while other wildlife species adapted to development are likely to increase in abundance. Species likely to decline include some raptors and possibly coyotes. Species likely to increase include red fox, raccoon, and house mouse. Overall, surrounding and continuing development contributes to a decline in the number and diversity of wildlife species nearby and to a change in species composition to favor species that adapt better to human disturbance.

Cultural Resources

ERO archaeologist Marcus Espinosa conducted a cultural resource file review of the project area with the Colorado Office of Archaeology and Historic Preservation (OAHP) online Compass database. The purpose of a file review is to identify previously conducted surveys and previously documented cultural resources in a project area. The file search area covered the project area defined on Figure 1. The OAHP provided the file search results on September 21, 2018. The file search results indicate no previous surveys have taken place in the project area and no previously documented cultural resources are located in the project area.

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Figures



Founders Village Filing 24, Douglas County, Colorado

Section 8, T8S, R66W; 6th PM

UTM NAD 83: Zone 13N; 517353mE, 4357621mN

Longitude 104.798552°W, Latitude 39.367878°N

USGS Castle Rock South, CO Quadrangle

Douglas County, Colorado

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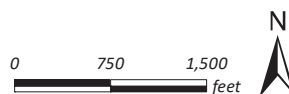
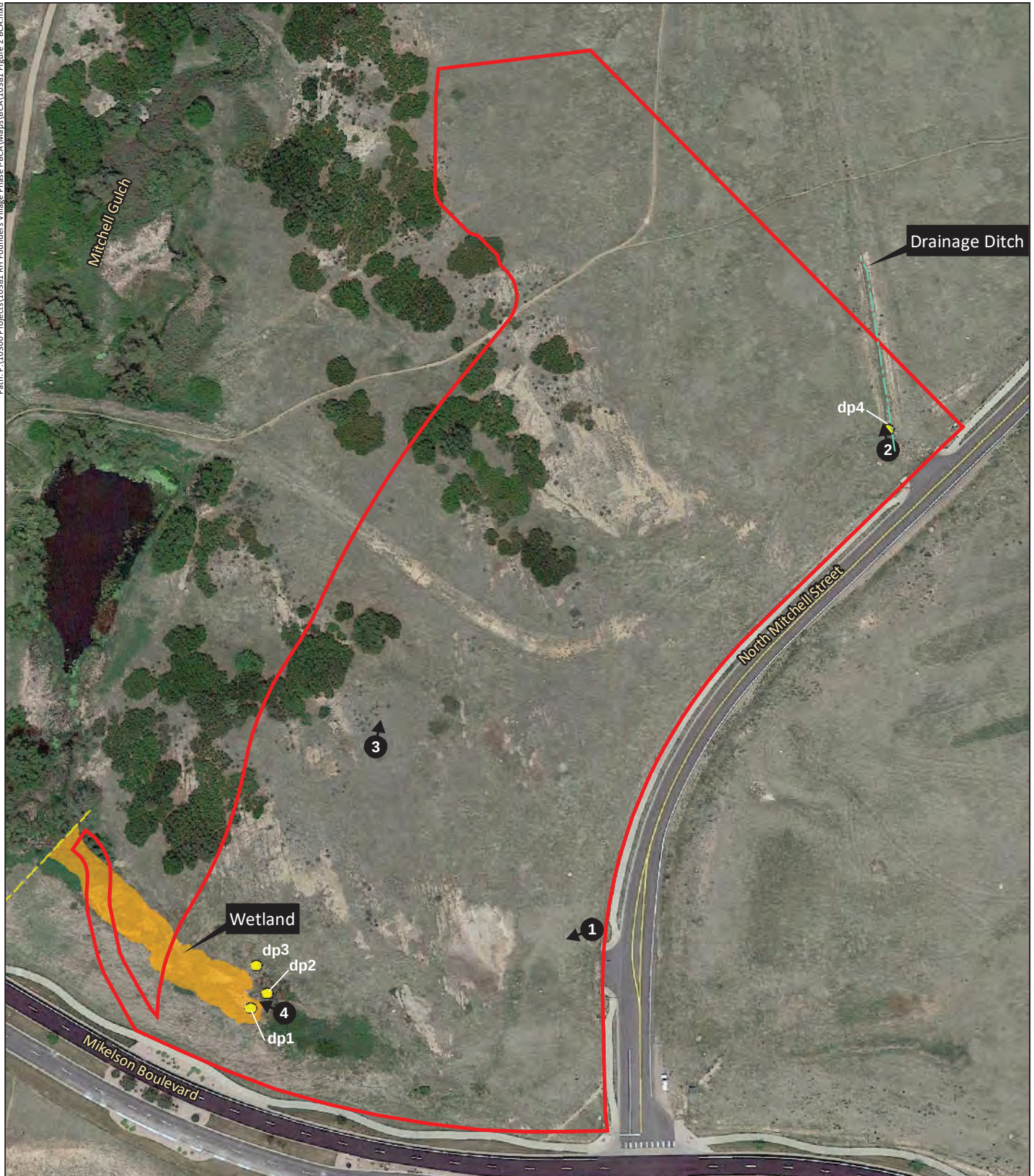


Figure 1 Vicinity Map

Prepared for: Richmond American Homes of Colorado, Inc.
File: 10381 Figure 1 BCA.mxd [dlH]
June 28, 2019

ERO
ERO Resources Corp.



Founders Village Filing 24, Douglas County, Colorado

- Property
- Data Point
- Limit of Delineation
- Wetland Boundary

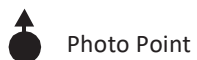


Photo Point



Figure 2
Existing Conditions

Prepared for: Richmond American Homes of Colorado, Inc.
File: 10381 Figure 2 BCA.mxd [dlH]
June 28, 2019

ERO
ERO Resources Corp.

Appendix A Photo Log

PHOTO LOG
BIOLOGICAL AND CULTURAL ASSESSMENT – FOUNDERS VILLAGE FILING NO. 24
DOUGLAS COUNTY, COLORADO
OCTOBER 1, 2018



Photo 1 - Overview of upland vegetation in the southern portion of the project area. View is to the northwest.



Photo 2 - Overview of upland vegetation in a constructed drainage ditch in the northeastern corner of the project area. View is to the northwest.

PHOTO LOG
BIOLOGICAL AND CULTURAL ASSESSMENT – FOUNDERS VILLAGE FILING No. 24
DOUGLAS COUNTY, COLORADO
OCTOBER 1, 2018



Photo 3 - Overview of wetland on the southern edge of the project area. View is to the west.



Photo 4 - Overview of upland vegetation in the central portion of the project area. View is to the southwest.

Appendix B Wetland Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Founders Village Filing 24 City/County: Douglas County Sampling Date: Jun 10 2019
 Applicant/Owner: Richmond American Homes State: Co Sampling Point: DP1
 Investigator(s): H. Snieder Section, Township, Range: Section 8, Township 8 South, Range 67W
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 3
 Subregion (LRR): G Lat: 39.366734° Long: -104.799614° Datum: NAD 83
 Soil Map Unit Name: Coni rocky loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒ No ☐	Is the Sampled Area within a Wetland?	Yes ☒ No ☐
Hydric Soil Present?	Yes ☒ No ☐		
Wetland Hydrology Present?	Yes ☒ No ☐		
Remarks: wetland swale			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.33</u> (A/B)
1. _____		_____	_____	
2. _____		_____	_____	
3. _____		_____	_____	
4. _____		_____	_____	
<u>_____</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>30</u> x 1 = <u>30</u> FACW species <u>_____</u> x 2 = <u>_____</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>5</u> x 5 = <u>25</u> Column Totals: <u>85</u> (A) <u>235</u> (B) Prevalence Index = B/A = <u>2.76</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. <u>Symphoricarpos occidentalis</u>	<u>5</u>	Y	UPL	
2. _____		_____	_____	
3. _____		_____	_____	
<u>_____</u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Typha latifolia</u>	<u>30</u>	Y	OBL	Hydrophytic Vegetation Indicators: ☐ 1 - Rapid Test for Hydrophytic Vegetation ☐ 2 - Dominance Test is >50% ☒ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Cirsium arvense</u>	<u>20</u>	Y	FACU	
3. <u>Thlaspi arvense</u>	<u>10</u>	N	FACU	
4. <u>Rumex Crispus</u>	<u>10</u>	N	FAC	
5. <u>Urtica dioica</u>	<u>10</u>	N	FAC	
6. _____		_____	_____	
7. _____		_____	_____	
8. _____		_____	_____	
9. _____		_____	_____	
10. _____		_____	_____	
<u>80</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____		_____	_____	Hydrophytic Vegetation Present? Yes ☒ No ☐
2. _____		_____	_____	
<u>_____</u> = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
Remarks:				

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					SaCl	
3-16	10YR 3/2	95	7.5YR 4/6	5	C	PL	SaCl	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- | | |
|--|---|
| ☐ Histosol (A1) | ☐ Sandy Gleyed Matrix (S4) |
| ☐ Histic Epipedon (A2) | ☐ Sandy Redox (S5) |
| ☐ Black Histic (A3) | ☐ Stripped Matrix (S6) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Mucky Mineral (F1) |
| ☐ Stratified Layers (A5) (LRR F) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ 1 cm Muck (A9) (LRR F, G, H) | ☐ Depleted Matrix (F3) |
| ☐ Depleted Below Dark Surface (A11) | ☒ Redox Dark Surface (F6) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) |
| ☐ 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) | ☐ High Plains Depressions (F16) |
| ☐ 5 cm Mucky Peat or Peat (S3) (LRR F) | (MLRA 72 & 73 of LRR H) |

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR I, J)
- ☐ Coast Prairie Redox (A16) (LRR F, G, H)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Salt Crust (B11) |
| ☒ High Water Table (A2) | ☐ Aquatic Invertebrates (B13) |
| ☒ Saturation (A3) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Water Marks (B1) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) | ☐ Oxidized Rhizospheres on Living Roots (C3) |
| ☐ Drift Deposits (B3) | (where not tilled) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) |
| ☐ Iron Deposits (B5) | ☐ Thin Muck Surface (C7) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) |
| ☐ Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- (where tilled)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 10

Saturation Present? Yes ☒ No ☐ Depth (inches): 2

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Founders Village Filing 24 City/County: Douglas County Sampling Date: Jun 10 2019
 Applicant/Owner: Richmond American Homes State: Co Sampling Point: DP2
 Investigator(s): H. Snieder Section, Township, Range: Section 8, Township 8 South, Range 67W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): _____
 Subregion (LRR): G Lat: 39.366815° Long: -104.799599° Datum: NAD 83
 Soil Map Unit Name: Coni rocky loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	Is the Sampled Area within a Wetland?	Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒		
Wetland Hydrology Present?	Yes ☐ No ☒		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
= Total Cover			

Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Rosa woodsii</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>
2. _____			
3. _____			
4. _____			
5. _____			
<u>5</u> = Total Cover			

Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Bromus inermis</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
2. <u>Juncus arcticus</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>
3. <u>Thlaspi arvense</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
4. <u>Carduus nutans</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
<u>85</u> = Total Cover			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
= Total Cover			

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 1 (A)
 Total Number of Dominant Species Across All Strata: 4 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.25 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = _____
FACW species	x 2 = <u>80</u>
FAC species	x 3 = _____
FACU species	x 4 = <u>120</u>
UPL species	x 5 = <u>100</u>
Column Totals:	<u>90</u> (A) <u>300</u> (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0¹
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic
Vegetation
Present?

Yes ☐ No ☒

Remarks:

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | | | |
|--------------------------|--|--------------------------|--------------------------------------|
| ☐ | Histosol (A1) | ☐ | Sandy Gleyed Matrix (S4) |
| ☐ | Histic Epipedon (A2) | ☐ | Sandy Redox (S5) |
| ☐ | Black Histic (A3) | ☐ | Stripped Matrix (S6) |
| ☐ | Hydrogen Sulfide (A4) | ☐ | Loamy Mucky Mineral (F1) |
| ☐ | Stratified Layers (A5) (LRR F) | ☐ | Loamy Gleyed Matrix (F2) |
| ☐ | 1 cm Muck (A9) (LRR F, G, H) | ☐ | Depleted Matrix (F3) |
| ☐ | Depleted Below Dark Surface (A11) | ☐ | Redox Dark Surface (F6) |
| ☐ | Thick Dark Surface (A12) | ☐ | Depleted Dark Surface (F7) |
| ☐ | Sandy Mucky Mineral (S1) | ☐ | Redox Depressions (F8) |
| ☐ | 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) | ☐ | High Plains Depressions (F16) |
| ☐ | 5 cm Mucky Peat or Peat (S3) (LRR F) | | (MLRA 72 & 73 of LRR H) |

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Salt Crust (B11) |
| ☐ High Water Table (A2) | ☐ Aquatic Invertebrates (B13) |
| ☐ Saturation (A3) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Water Marks (B1) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) | ☐ Oxidized Rhizospheres on Living Roots (C3) |
| ☐ Drift Deposits (B3) | (where not tilled) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) |
| ☐ Iron Deposits (B5) | ☐ Thin Muck Surface (C7) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) |
| ☐ Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☒ Oxidized Rhizospheres on Living Roots (C3)
(where tilled)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Founders Village Filing 24 City/County: Douglas County Sampling Date: Jun 10 2019
 Applicant/Owner: Richmond American Homes State: Co Sampling Point: DP3
 Investigator(s): H. Snieder Section, Township, Range: Section 8, Township 8 South, Range 67W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): concave Slope (%): _____
 Subregion (LRR): G Lat: 39.366874° Long: -104.799620° Datum: NAD 83
 Soil Map Unit Name: Coni rocky loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	Is the Sampled Area within a Wetland?	Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒		
Wetland Hydrology Present?	Yes ☐ No ☒		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____		_____	_____
2. _____		_____	_____
3. _____		_____	_____
4. _____		_____	_____
		= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Rosa woodsii</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>
2. _____		_____	_____
3. _____		_____	_____
4. _____		_____	_____
5. _____		_____	_____
		= Total Cover	

Herb Stratum (Plot size: <u>5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Bromus inermis</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>
2. <u>Verbascum thapsus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>
3. <u>Pascopyrum smithii</u>	<u>10</u>	<u>N</u>	<u>FACU</u>
4. _____		_____	_____
5. _____		_____	_____
6. _____		_____	_____
7. _____		_____	_____
8. _____		_____	_____
9. _____		_____	_____
10. _____		_____	_____
		= Total Cover	

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____		_____	_____
2. _____		_____	_____
		= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals:	(A) (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is $\leq 3.0^1$
☐ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic
Vegetation
Present?

Yes ☐ No ☒

Remarks:

SOIL

Sampling Point: **DP3**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 3/2	100					SaCLLo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|--|
| ☐ Histosol (A1) | ☐ Sandy Gleyed Matrix (S4) |
| ☐ Histic Epipedon (A2) | ☐ Sandy Redox (S5) |
| ☐ Black Histic (A3) | ☐ Stripped Matrix (S6) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Mucky Mineral (F1) |
| ☐ Stratified Layers (A5) (LRR F) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ 1 cm Muck (A9) (LRR F, G, H) | ☐ Depleted Matrix (F3) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) |
| ☐ 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) | ☐ High Plains Depressions (F16) |
| ☐ 5 cm Mucky Peat or Peat (S3) (LRR F) | |

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR I, J)
- ☐ Coast Prairie Redox (A16) (LRR F, G, H)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Salt Crust (B11) |
| ☐ High Water Table (A2) | ☐ Aquatic Invertebrates (B13) |
| ☐ Saturation (A3) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Water Marks (B1) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) | ☐ Oxidized Rhizospheres on Living Roots (C3) |
| ☐ Drift Deposits (B3) | (where not tilled) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) |
| ☐ Iron Deposits (B5) | ☐ Thin Muck Surface (C7) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) |
| ☐ Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- (where tilled)**
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Founders Village Filing 24 City/County: Douglas County Sampling Date: Jun 10 2019
 Applicant/Owner: Richmond American Homes State: Co Sampling Point: DP4
 Investigator(s): H. Snieder Section, Township, Range: Section 8, Township 8 South, Range 67W
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 3
 Subregion (LRR): G Lat: 39.368474° Long: -104.797147° Datum: NAD 83
 Soil Map Unit Name: Coni rocky loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? Yes ☐ No ☒
Hydric Soil Present? Yes ☐ No ☒	
Wetland Hydrology Present? Yes ☐ No ☒	
Remarks: Manmade drainage ditch	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u> </u> x 1 = _____ FACW species <u> </u> x 2 = _____ FAC species <u> </u> x 3 = _____ FACU species <u> </u> x 4 = _____ UPL species <u> </u> x 5 = _____ Column Totals: <u> </u> (A) _____ (B) Prevalence Index = B/A = _____ Hydrophytic Vegetation Indicators: ☐ 1 - Rapid Test for Hydrophytic Vegetation ☐ 2 - Dominance Test is >50% ☐ 3 - Prevalence Index is ≤3.0 ¹ ☐ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes ☐ No ☒
1. _____	<u> </u>	_____	_____	
2. _____	<u> </u>	_____	_____	
3. _____	<u> </u>	_____	_____	
4. _____	<u> </u>	_____	_____	
<u> </u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	<u> </u>	_____	_____	
2. _____	<u> </u>	_____	_____	
3. _____	<u> </u>	_____	_____	
4. _____	<u> </u>	_____	_____	
5. _____	<u> </u>	_____	_____	
<u> </u> = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Bromus inermis</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Medicago sativa</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
3. <u>Taraxacum officinale</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. <u>Poa pratensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5. _____	<u> </u>	_____	_____	
6. _____	<u> </u>	_____	_____	
7. _____	<u> </u>	_____	_____	
8. _____	<u> </u>	_____	_____	
9. _____	<u> </u>	_____	_____	
10. _____	<u> </u>	_____	_____	
<u>85</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	<u> </u>	_____	_____	
2. _____	<u> </u>	_____	_____	
<u> </u> = Total Cover				
% Bare Ground in Herb Stratum <u>15</u>				
Remarks:				

SOIL

Sampling Point: DP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|---|--|
| ☐ Histosol (A1) | ☐ Sandy Gleyed Matrix (S4) |
| ☐ Histic Epipedon (A2) | ☐ Sandy Redox (S5) |
| ☐ Black Histic (A3) | ☐ Stripped Matrix (S6) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Mucky Mineral (F1) |
| ☐ Stratified Layers (A5) (LRR F) | ☐ Loamy Gleyed Matrix (F2) |
| ☐ 1 cm Muck (A9) (LRR F, G, H) | ☐ Depleted Matrix (F3) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Redox Dark Surface (F6) |
| ☐ Thick Dark Surface (A12) | ☐ Depleted Dark Surface (F7) |
| ☐ Sandy Mucky Mineral (S1) | ☐ Redox Depressions (F8) |
| ☐ 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) | ☐ High Plains Depressions (F16) |
| ☐ 5 cm Mucky Peat or Peat (S3) (LRR F) | (MLRA 72 & 73 of LRR H) |

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16)
(**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| ☐ Surface Water (A1) | ☐ Salt Crust (B11) |
| ☐ High Water Table (A2) | ☐ Aquatic Invertebrates (B13) |
| ☐ Saturation (A3) | ☐ Hydrogen Sulfide Odor (C1) |
| ☐ Water Marks (B1) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) | ☐ Oxidized Rhizospheres on Living Roots (C3) |
| ☐ Drift Deposits (B3) | (where not tilled) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) |
| ☐ Iron Deposits (B5) | ☐ Thin Muck Surface (C7) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) |
| ☐ Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☒ Oxidized Rhizospheres on Living Roots (C3)
(where tilled)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C - Geotechnical Site Development Study

A.G. WASSENAAR

INC.

GEOTECHNICAL • ENVIRONMENTAL
CONSULTANTS

2180 South Ivanhoe Street, Suite 5
Denver, Colorado 80222-5710
303-759-8100
www.agwco.com

GEOTECHNICAL SITE DEVELOPMENT STUDY FOR

FOUNDERS VILLAGE, FILING 24 WEST (BELLA MESA DUPLEXES)
NORTHWEST OF NORTH MITCHELL STREET AND MIKELSON BOULEVARD
CASTLE ROCK, COLORADO

PREPARED FOR

RICHMOND AMERICAN HOMES OF COLORADO, INC.
4350 SOUTH MONACO STREET
DENVER, COLORADO 80237

OCTOBER 10, 2018
PROJECT NUMBER 185399



2180 South Ivanhoe Street, Suite 5
Denver, Colorado 80222-5710
303-759-8100
www.agwco.com

October 10, 2018

Richmond American Homes of Colorado, Inc.
4350 South Monaco Street
Denver, Colorado 80237

Attention: Mr. Eric Kubly

Subject: Geotechnical Site Development Study
Founders Village, Filing 24 West (Bella Mesa Duplexes)
Northwest of North Mitchell Street and Mikelson Boulevard
Castle Rock, Colorado
Project Number 185399

Dear Mr. Kubly:

A. G. Wassenaar, Inc. (AGW) completed the geotechnical site development study for the proposed residential development at the subject site. The data collected during our field exploration and laboratory work and our analysis, opinions, and conclusions are presented in the attached report. The purpose of our study is to provide design recommendations for planning and site development and preliminary design concepts for foundation systems, interior floor support, and streets.

The subsurface materials encountered in our test borings consist of topsoil, clay, sand, and gravel overlying sedimentary bedrock. Claystone, sandstone, or conglomerate bedrock was encountered at depths ranging from ½ to 13 feet below the ground surface. Ground water was measured at depths ranging from 12 to 32 feet during this study.

Site development considerations should include provisions for the presence of very hard, well cemented sandstone and conglomerate bedrock and for the presence of expansive clays and shallow claystone bedrock.

Based upon the results of this preliminary study, if portions of the site are overexcavated and the excavated soils are placed as moisture treated fill using the recommendations presented in

this report, it is likely that most of the structures could be founded on spread or pad-type footings bearing below frost depth on the moisture treated fill or on the sandstone or conglomerate bedrock. Preliminary foundation design concepts are presented in the report.

Floors and flatwork being considered for construction on-grade will require a specific risk analysis by the Client because of the potential for movement of the soils and bedrock encountered. Options for floor support are discussed in the report.

Foundation subsurface drainage systems will be necessary for all below grade areas. Water soluble sulfate test results indicate that site and foundation concrete should be designed for moderate sulfate exposure. Preliminary pavement and other geotechnical related recommendations are presented in the following report.

We encourage the Client to read this report in its entirety and not to solely rely on the cursory information contained in this summary. If you have any questions regarding the contents of this report or our analyses of the subsurface conditions, please call us. We have appreciated the opportunity to provide this service for you.

Sincerely,

A. G. WASSENAAR, INC.



Kathleen A. Noonan, M.S., P.E.
Senior Geotechnical Engineer

Digitally signed by: Kathleen A. Noonan, PE
Date: 2019.11.04 16:55:11 -07'00'

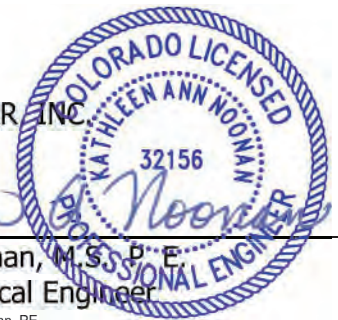


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GEOTECHNICAL SITE DEVELOPMENT STUDY
Founders Village, Filing 24 West (Bella Mesa Duplexes)
Northwest of North Mitchell Street and Mikelson Boulevard
Castle Rock, Colorado

PURPOSE

This report presents the results of a geotechnical site development study for the proposed residential development to be northwest of North Mitchell Street and Mikelson Boulevard in Castle Rock, Colorado. The study was conducted to assist in determining geotechnical design criteria for planning, site evaluation, and development considerations. Preliminary geotechnical design concepts are also presented for foundations, interior floor support, foundation drainage, and street construction. Factual data gathered during the field and laboratory work are summarized on Figures 1 through 4 and in Appendix A. Our opinions and recommendations presented in this report are based on the data generated during our field exploration and laboratory testing, our understanding of the proposed project, and our experience with similar projects and geotechnical conditions.

This study was performed in general conformance with our Proposal Number 185399, dated September 20, 2018. This report is not intended to provide design criteria for individual foundations or street construction. Additional geotechnical studies will be required to provide final design criteria and construction recommendations.

PROPOSED CONSTRUCTION

We understand the proposed development will include 53, fifty-foot wide lots and the associated utility and roadway infrastructure. The structures will be two story duplexes constructed over crawl spaces. We also understand that the Client prefers to develop the site to avoid, if possible,

the use of drilled piers and interior structural floors. Preliminary grading plans were not available at the time of this study. Once grading plans are completed, the recommendations in this report should be reviewed by AGW.

SITE CONDITIONS

The site is bounded by North Mitchell Street and a vacant parcel to the east, Mikelson Boulevard and a residential subdivision to the south, a vacant parcel and Mesa Middle School to the north, and a vacant parcel to the west. The site generally slopes from east to west. Vegetation consists of bushes, cacti, grasses, scrub oak, and yucca. A drainage with a pond is located along the western property line, and a drainage ditch is located in the northern portion of the site running from east to west. Bedrock outcrops were visible in several locations across the site. Overhead imagery (Google Earth) shows that fill may have been placed in the northeastern corner of the site prior to construction of Mitchell Street.

FIELD EXPLORATION

Subsurface conditions were explored by drilling 9 test borings at the approximate locations indicated on Figure 1. The test borings were advanced using a 4-inch diameter, tri-cone, air rotary bit to penetrate the conglomerate. At frequent intervals, samples of the subsurface materials were obtained using a Modified California sampler which was driven into the soil by dropping a 140-pound hammer through a free fall of 30 inches. The Modified California sampler is a 2.5-inch outside diameter by 2-inch inside diameter device. The number of blows required for the sampler to penetrate 12 inches and/or the number of inches that the sampler is driven by 50 blows gives an indication of the consistency or relative density of the soils and bedrock materials encountered. Results of the penetration tests and locations of sampling are presented

on the "Test Boring Logs", Figures 2 through 4. Ground water measurements were made at the time of drilling and subsequent to drilling.

LABORATORY TESTING

The samples obtained during drilling were returned to the laboratory where they were visually classified by a geotechnical engineer. Laboratory testing was then assigned to specific samples to evaluate their engineering properties. The laboratory tests included swell-consolidation tests to evaluate the effect of wetting and loading on the selected samples. Gradation analysis and Atterberg limits tests were conducted to evaluate grain size distribution and plasticity. A Standard Proctor test was performed on a blended bulk sample of the soils anticipated to be used as fill. In addition, representative samples were tested for water soluble sulfates, pH, resistivity, and chlorides. The test results are summarized on Figures 2 through 4 and in Appendix A.

SUBSURFACE CONDITIONS

The subsurface materials encountered in our test borings consist of topsoil, clay, sand, and gravel overlying sedimentary bedrock. Claystone, sandstone, or conglomerate bedrock was encountered at depths ranging from ½ to 13 feet below the ground surface. Ground water was measured at depths ranging from 12 to 32 feet during this study. A more complete description of the subsurface conditions is shown on Figures 2 through 4.

NATURAL SOIL

Topsoil was encountered in all the test borings. The topsoil encountered consisted of sandy clay and was up to ½-foot thick. It was organic, moist, and dark brown.

Clay was encountered in six of the nine test borings. The clay was stiff to very stiff, silty, sandy, with trace gravel, slightly moist, and brown. The clay is considered to possess low to moderate expansion potential.

Sand was encountered in one of the nine test borings. The sand was dense, silty, very clayey, moist, and brown. The sand is considered to possess low settlement potential and low expansion potential.

Sand and gravel was encountered in two of the nine test borings. This material was medium dense to very dense, slightly silty to silty, slightly clayey to clayey, slightly moist, and brown. The sand and gravel is considered to possess low settlement potential and low expansion potential.

BEDROCK

Claystone bedrock was encountered in five of the nine test borings at depths ranging from 6½ to 25 feet. The claystone was weathered to very hard, silty, sandy to very sandy, iron stained, with sandstone lenses, slightly moist to moist, and gray to rust to olive. The claystone is considered to possess high expansion potential.

Sandstone bedrock was encountered in eight of the nine test borings at depths ranging from 10 to 21 feet. The sandstone was poorly to well cemented, hard to very hard, silty, clayey to very clayey, moist, and rust to gray to olive to brown. Well cemented layers were encountered in four of the nine test borings at depths ranging from 13 to 27 feet with layer thicknesses ranging from 7 to 12 feet. The sandstone is considered to possess low expansion and consolidation potential.

Conglomerate bedrock was encountered in six of the nine test borings at depths ranging from ½ to 7 feet. The conglomerate was very hard, well cemented, moist, and grown to gray to pink. The conglomerate is considered to possess no expansion and consolidation potential.

GROUND WATER

Ground water was encountered in four of the nine test borings at the time of drilling at depths ranging from 12 to 32 feet. When we returned three days later, ground water was encountered in five of the nine test borings at depths ranging from 12 to 32 feet. Ground water levels fluctuate with changing seasons and irrigation patterns and are expected to rise after construction is complete and landscape irrigation commences.

GEOTECHNICAL CONCERNS

WELL CEMENTED BEDROCK

Well cemented sandstone bedrock and conglomerate bedrock were encountered in six of the nine test borings at depths ranging from ½ to 7 feet. Excavation of well cemented sandstone bedrock and conglomerate bedrock will require significant effort. Trench or foundation excavations that encounter very hard sandstone or conglomerate may require specialized excavation equipment, hydraulic hammering, or blasting. Materials loosened by hydraulic hammering or blasting should be removed from the site or broken down (crushed) to sizes that would allow for placement in fills on the site.

EXPANSIVE SOILS AND BEDROCK

Moderately expansive clays and shallow claystone bedrock were encountered in eight of the nine test borings. We believe that the structures will be constructed near expansive materials should

traditional methods of grading be employed. Since grading plans were not available at the time of this study, the extent of the overexcavation area could not be determined.

SITE DEVELOPMENT

OVERLOT GRADING

We understand the fill materials to be used at the site will be from on-site cut areas. In general, suitable inorganic on-site or off-site soils may be used for structural fill. Existing fill should be excavated prior to placement of new fill. Topsoil, soil containing significant vegetation, organic debris, or other deleterious material should be excavated and removed from structural areas. Off-site material considered for new fill should be evaluated by AGW prior to importing to the site.

Construction of the fill embankments throughout the site should consist of proper foundation preparation, constructing embankment benching where necessary, disposition of strippings, proper fill placement and compaction, and designing slopes in accordance with the recommendations provided in this report and the applicable governing regulations. The following are general site grading recommendations:

- 1. The site grading plans should be reviewed by AGW prior to commencement of work at the site.**
2. It is recommended that AGW be retained on an essentially full-time basis to observe and test the fill placement. We should also be retained to provide observations and/or testing of the other items discussed below. The purpose of these observations and testing is to provide the Client with a greater degree

of confidence that the work is being performed within the recommendations of this geotechnical study and the project specifications.

3. Existing fill may be found near the drainage ditch and to the east of Test Borings 2 and 5. The fill, if encountered, was placed under unknown conditions. Therefore, we recommend that any fill encountered be entirely excavated. The fill should be observed to determine whether the excavated material may be re-used in the structural areas as new fill. Excavation of isolated test pits (with or without density-compaction testing) will not provide sufficient information, in our opinion, to allow the fill to remain in place.
4. All topsoil and vegetation should be stripped and removed prior to fill placement. The vegetation, organic soils, or topsoil should be wasted from the site, placed in non-structural areas (e.g., parks, landscaping, tracts, etc.) and/or stockpiled for future use in revegetating the surface of exposed slopes.
In no case should these materials be used in the structural areas or where the stability of slopes will be affected. If placed in lots, topsoil must be placed outside of the structure setbacks and should not be placed where the fill depths exceed 5 feet. If placed in depth across the back of lots, movements of fences and dry utilities should be expected.
5. Where the existing slopes are steeper than a 5:1 (horizontal:vertical), benching will be required for structural integrity of any fills (see Figure 5).
6. The stripped foundation areas should be observed by AGW prior to fill placement. Any soft soils found in these areas must be removed or stabilized as necessary prior to fill placement.

7. After the fill areas have been cleared, the exposed soils should be scarified to a minimum depth of 6 inches, brought to the proper moisture content, and then compacted according to Appendix B.
8. Well cemented sandstone and conglomerate were encountered in the test borings. These materials will likely require some extra effort to remove and process. The use of a Caterpillar D8 or larger dozer using a single shank ripper tool may be necessary. Some areas of well cemented sandstone or conglomerate may require removal using hydraulic hammers or blasting.
9. Rock excavation will likely result in removal of large bedrock pieces. If it is desired to use this material as fill, it will be necessary to crush the rock to a usable size. In general, the rock should be crushed such that the material passes a 3-inch sieve, at least 30% of the material passes a U.S. Standard #4 sieve, and from 5% to 20% passes a U.S. Standard #200 sieve.
10. The compaction and moisture content of the soils will be dependent upon material types and the depth and location of placement. The specifications outlined in Appendix B are based upon providing a fill with sufficient shear strength to support structures and sufficient moisture to reduce the potential of swell of the expansive soil used in the fill.
11. The results of Standard Proctor tests performed on bulk samples of the upper level soils likely to be used for moisture treated fill are shown on Figure A-11 in Appendix A. These results can be used as a guideline for contractors to estimate how much additional moisture may be required to bring the on-site soils to the required moisture content.

12. Particular attention should be paid to compaction of the exterior faces of slopes.
13. Other specifications outlined in Appendix B should be followed.

OVEREXCAVATION AND PLACEMENT OF MOISTURE TREATED FILL

Based on the expansion potential of some of the clays and of claystone bedrock, we recommend that a portion of the site be overexcavated if the use of shallow foundations is desired. **The exact areas requiring overexcavation could not be determined since grading plans were not available.** Our experience indicates that overexcavation and placement of a moisture treated fill would be most effectively performed using mass grading techniques. The ideal time to do this would be during site development operations. As some overexcavation beneath the roadways will likely be required, it would be advantageous to perform this overexcavation during site grading. The following recommendations should be followed to enable the placement of a moisture treated fill that could be used for slab and foundation support. These recommendations may be modified during construction if soil conditions differing from those anticipated are encountered.

1. These recommendations are based upon our understanding that a crawl space depth product will be constructed. If a different product is considered, these recommendations must be reviewed by AGW. **The site grading plans should be provided to AGW prior to commencement of work at the site to evaluate which areas and to what depth overexcavation should be performed.**
2. The site should be excavated to a depth of at least 10 feet below the crawl space foundation elevation, or to the top of the sandstone or conglomerate

depending upon the location and depth of the claystone bedrock. The base of the excavation should extend, at a minimum, to a width of at least 5 feet beyond the foundation footprint (including any counterforts, covered porches, patios, decks, etc.). Excavations that do not extend to these minimums risk future foundation performance issues. It may be prudent to extend the base of the excavation to 5 feet outside of the front and rear setbacks to accommodate potential changes in structure dimension. Additionally, the street subgrade should be overexcavated to a depth of at least 3 feet which should extend to at least 1 foot beyond back of sidewalk (combination sidewalk) or back of curb (detached sidewalk). The excavation should be sloped following current OSHA regulations. We will not be responsible for testing near excavations that do not meet OSHA regulations. A licensed surveyor must verify the extents of the excavation prior to any fill placement.

3. Once the excavation depth and width have been verified, fill placement may begin. The bottom of the excavation should be scarified and moistened prior to fill placement. The fill, consisting of the excavated materials, should be placed in maximum 8-inch loose lifts. Moisture should be added and the lift processed. The use of a construction disc to mix and process each lift is suggested. Mixing should be performed until the moisture content is relatively uniform throughout the lift and most of the particles are less than 3 inches in dimension. The results of a Standard Proctor test performed on a bulk sample of the upper level soils likely to be used for moisture treated fill are shown on Figure A-11 in Appendix A. These results can be used as a guideline for contractors to estimate how much additional moisture may be required to bring

the on-site soils to the required moisture content. The fill should then be compacted as described in Appendix B.

4. Essentially full-time observation and testing of fill placement must be performed by AGW. Testing should include in-place moisture content and dry density. Swell-consolidation or other testing may also be performed at the discretion of the engineer.
5. Placement and compaction of fill should continue to final overlot grade. We recommend that the lots not be left low or "dished-out" and that placement of fill not stop at foundation elevation. **If the residences will not be constructed within two years of completion of the fill, additional effort may be necessary to help maintain the moisture within the fill.** This may include the addition of more soil to blanket the compacted fill, the placement of mechanical or chemical barriers, or applying water periodically to the fill surface.

It must be understood that while this method is used to reduce the likelihood of future heave, it is not free of risk of foundation movement. While future heave is less likely, the possibility of settlement induced by excess moisture is increased. **Therefore, the control and removal of surface water at the site will continue to be very important.**

Our experience indicates that clay materials of the type encountered at this site will likely exhibit an average swell of less than 2% under a surcharge load of 1,000 pounds per square foot (psf) when thoroughly mixed with water and processed with typical earthmoving equipment. It is anticipated that if this level of swell reduction is achieved, the foundations may be constructed

by placing footings upon the fill. This level of swell should also provide for a low to moderate risk of basement slab movement. However, it must be understood that even with the procedures outlined above, there is a possibility that moderate to high measured swells may be found in the fill. This may require rework of portions of the fill or the use of pier foundations and structural support of interior floors. **Additional drilling after the soil modification has been completed will be required to provide final foundation recommendations and slab-on-grade movement assessments for each residence.**

SLOPES AND RETAINING WALLS

Slope stability and retaining wall analyses were not conducted as part of this study. In areas where existing slopes exceed 5:1 (horizontal:vertical), benching prior to fill placement will be required (see Figure 5). Construction of conventional fill slopes should be limited to 3 to 1 or flatter. Cut slopes steeper than 2 to 1 should be evaluated for stability. Specific analysis will also be necessary if retaining walls are to be constructed.

CONSTRUCTION EXCAVATION

In our opinion, the majority of the site grading, utility, and foundation excavations may be constructed using conventional earth-moving equipment for the Front Range area. It was previously mentioned the sandstone and conglomerate are very hard. Poorly to moderately cemented sandstone may be excavated using a single tooth hydraulic ripper tooth mounted on a D8 Dozer. Well cemented sandstone and conglomerate will require more effort. Very hard bedrock may be encountered in trenches which may require excavation with specialized equipment, hydraulic hammering or blasting for removal. Material loosened by hydraulic hammering or blasting must be removed.

Excavations deeper than 3 feet should be properly sloped or braced to prevent collapse of potentially caving soils. For planning purposes, the sand and any soil influenced by ground water can be considered as a "Type C", the clay can be considered as "Type B", and the underlying bedrock can be considered as a "Type A" according to OSHA regulations. A final determination of the soil type must be made by the Contractor's "Competent Person" (as defined by OSHA Regulation). Local, city, county, state, and federal (OSHA) regulations should be followed.

UTILITY CONSTRUCTION

In our opinion, utility excavations may encounter hard to very hard bedrock that may require extra effort to remove. The use of rock buckets, hydraulic hammers, specialty equipment, or light blasting may be required. All excavations should be sloped or shored in the interest of safety, following local and federal (OSHA) regulations. For planning purposes, OSHA soil type designations are discussed under "Construction Excavations". Final determination of the soil types must be made by the contractor's "Competent Person" (as defined by OSHA) at the time of construction.

Trench backfill within all structural areas, as a minimum, should be compacted using the same methods and to the same specifications as required for overlot grading. This is especially important where utility lines and laterals are constructed beneath foundation, alley, and driveway areas during land development. Trenches in streets should be compacted to the Town of Erie specifications. Observation and testing of fill placement must be performed during trench backfilling. The choice of compaction equipment can have a significant effect on the performance of trench fills. It is our experience that utility trench backfills compacted with a compaction wheel attached to an excavator experience more settlement (both in area and magnitude) than those

compacted with self-propelled equipment. While the contractor has control of the means and methods of construction, the Client should be aware of this issue.

SUBSURFACE DRAINAGE

Clay soils and bedrock were encountered in the test borings drilled for this study. These types of material have a relatively low permeability and can develop a perched water condition. Perched water conditions generally occur after development and construction have taken place, when landscape irrigation and surface drainage conditions are changed.

For these reasons, an overall area drain (underdrain) can be considered for the site. In addition, the overall area drain could also provide for a discharge and collection point for individual foundation drains. If an area drain discharge is not available, the individual foundation drains will discharge collected water to the ground surface near each residence. Surface discharge can result in water recycling to the foundation drain and ponding of water where surface grading is not sufficient for water flow. Foundation drain discharge can also result in algae growth where water continually crosses sidewalks which become ice hazards on walkways and gutters in the winter months.

Typically, overall area drains can be designed and constructed with installation of the sanitary sewer system. However, the Town of Castle Rock should be consulted to determine where an overall system is allowed. The civil engineering company contracted to design the infrastructure should be able to provide this design. We are available to assist in drain design. For the system to work, the area drain must be graded to a positive discharge point. **If a permanent outfall for an area drain cannot be determined, the area drain should not be constructed.**

If it is decided not to install an overall area drain, an alternative would be to establish points of positive gravity discharge for the gravel bedding beneath the sewer. Locations of these positive gravity discharge points should be determined by the Civil Engineer. AGW also recommends any basement or below grade area be provided with a perimeter subsurface drainage system sloped to drain to a positive gravity discharge such as a sump or connected directly to the overall area drain system.

SURFACE DRAINAGE

We recommend that provisions be made to divert surface runoff away from development areas. This may reduce potential problems associated with excess water in structure bearing soils. The site should be designed such that a 10% slope can be established near the structures after foundation construction. Slopes of at least 2% should be planned in landscaped areas once the water is away from the foundations.

SITE CONCRETE AND CORROSIVITY

Laboratory tests conducted on selected soil samples yielded water soluble sulfates of less than 100 parts per million (ppm) to 1,900 ppm. Based upon these results and our experience in the area, the soils and bedrock possess moderate (S2 or RS2) sulfate exposure per ACI 318 or ACI 332. We recommend the "ACI Manual of Concrete Practice", of the most recent edition be used for proper concrete mix design properties as they relate to these conditions.

The pH test results ranged from 7.5 to 8.6, the resistivity test results at in-situ moisture ranged from 1,709 to 5,992 ohm cm, and the chloride test results ranged from 0.0004% and 0.0025%. These results are summarized on Figures 2 through 4 and on Table A-1 in Appendix A. The results of this testing should be used as an aid in choosing the construction materials in contact

with these soils which will be resistant to the various corrosive forces. Manufacturer's representatives should be contacted regarding the specific corrosivity resistance for their products. In addition, local specifications should be consulted when selecting pipe materials.

PRELIMINARY FOUNDATION DESIGN CONCEPTS

The foundation recommendations for each structure are dependent upon the subsurface profile and engineering properties of the materials encountered at and near the depth of the proposed foundation. These are dependent upon the final configuration of and construction methods used during overlot grading at the site. The information in the following sections presents preliminary foundation concepts which must be finalized for each building site upon completion of the overlot grading operations. AGW should be retained to design level soil and foundation studies after completion of site grading.

FOOTINGS

Foundations supported by spread footings or footing pads may be possible where sands or sandstone or conglomerate bedrock are encountered at or near foundation elevation. If the portions of the site are overexcavated and the excavated materials are placed as moisture treated fill, it is likely most if not all the structures could be founded on spread or pad-type footings bearing on the moisture treated fill or on the native sandstone or conglomerate bedrock. The footings must be founded below frost depth. The footings will likely be designed for maximum soil bearing pressures ranging from 2,000 to 3,000 psf. Minimum dead load pressures of 700 to 1,000 psf may be required.

LATERAL EARTH PRESSURES

Foundation walls with fill on only one side will need to be designed for lateral earth pressures. For this site, lateral earth pressures calculated based upon equivalent fluid densities on the order of 50 to 70 pcf should be anticipated. The preliminary estimates are for properly placed and compacted fill at foundation walls. They should not be used for site retaining walls.

FIRST FLOOR CONSTRUCTION (CRAWL SPACE PRODUCTS)

The structures will be two story structures constructed over crawl spaces. Structural floors will be constructed in the living areas of the residences. For the garage areas, it is likely that there will be a low to moderate risk of garage slab movement.

DRAIN SYSTEMS

Drain systems will be required around the lowest excavation level for below grade spaces for each structure. Either interior or exterior drains may be used. The drains must lead to a positive gravity outfall or sump. If an overall subdivision area drain is constructed, individual drains should be connected into this system if allowed by the jurisdiction.

BACKFILL AND SURFACE DRAINAGE

Foundation backfill should be moistened and compacted to reduce future settlement. The site grading should consider a slope of 10% away from the foundation at the completion of construction. All other drainage swales in landscaped areas should slope at a minimum of 2%.

PRELIMINARY STREET PAVEMENT DESIGN

Pavement design is based on the engineering properties of the subgrade and pavement materials, the assumed design traffic conditions, and the Town of Castle Rock pavement

regulations. Effective pavement structures are composed of various pavement materials bearing upon properly prepared subgrade soils. The following preliminary pavement recommendations are based upon the subsurface conditions encountered and our experience in the area.

Based upon our laboratory testing and our experience in the area, it is anticipated that the subgrade materials encountered on portions of this site can be expected to exhibit enough swell to negatively impact the performance of the pavement and will likely be in excess of those allowed by Town of Castle Rock. Therefore, we recommend that the expansive subgrade materials be modified during site grading operations to reduce the potential future heave of the pavement. The expansive clays and claystone should be overexcavated to a depth of at least 3 feet below the subgrade elevation. The overexcavation should be performed during site grading prior to construction of utilities within the right-of-way. Overexcavation should cover the area from one foot beyond back of sidewalk (for attached sidewalk areas) or back of curb (for detached sidewalks). The excavated material may be placed as moisture treated fill (see Appendix B) within the right-of-way. All fill placed within 3 feet of the subgrade elevation should be placed as moisture treated fill.

It appears the proposed subgrade materials will likely be clay, sand, gravel, sandstone, or conglomerate, or fill constructed from these materials. According to AASHTO, these materials classify as A-1-b, A-2-4, A-2-6, A-6, and A-7-6 soils. Based upon the subgrade soil classifications, we have estimated the relative strengths of the subgrade soils presented above to determine the preliminary pavement thicknesses. Based on this information and utilizing the design methodology determined from the pavement design regulations for the Town of Castle Rock, the alternatives presented below were calculated. These preliminary thickness recommendations

are based on a design life of 20 years. It should be emphasized that the design alternatives provided above are preliminary for the materials anticipated. The final design thicknesses could be more or less than indicated depending upon the materials sampled during the final pavement design.

Pavement Thickness Alternatives for Interior Streets

Street Type	HBP / ABC (in.)	Concrete (in.)
Alleys	-	8.0
Local Street	5.0 to 6.0 / 8.0 to 10.0	6.0 – 8.0

HBP = Hot Bituminous Pavement, ABC = Aggregate Base Course

Proper surface and subsurface drainage is essential for adequate performance of pavements. It has been our experience that water from landscaped areas can infiltrate pavement subgrade soils and result in softening of the subgrade followed by pavement damage. Therefore, provisions should be made to maintain adequate drainage and/or contain runoff from such areas. In addition, water and irrigation lines should be thoroughly pressure tested for leaks prior to placement of pavement materials.

It must be reiterated that the information contained in this section is preliminary in nature. More detailed information will be required by the Town of Castle Rock prior to issuance of a paving permit. Therefore, when overlot grading is complete at the site, a final pavement evaluation must be performed.

FINAL DESIGN CONSULTATION AND CONSTRUCTION OBSERVATION

This report has been prepared for the exclusive use of Richmond American Homes of Colorado, Inc. for the purpose of providing geotechnical criteria for the proposed project. The data gathered and the conclusions and recommendations presented herein are based upon the

consideration of many factors including, but not limited to, the type of structures proposed, the configuration of the structures, the proposed usage of the site, the configuration of surrounding structures, the geologic setting, the materials encountered, and our understanding of the level of risk acceptable to the Client. Therefore, the conclusions and recommendations contained in this report should not be considered valid for use by others unless accompanied by written authorization from AGW.

AGW should be contacted if the Client desires an explanation of the contents of this report. AGW should be retained to provide future geotechnical services for the site including, but not limited to, design level geotechnical studies, consultation during design, observation and testing during construction, and other geotechnically related services. Failure to contract with AGW for these services or selection of a firm other than AGW to provide these services will eliminate liability for AGW. We are available to discuss this with you.

GEOTECHNICAL RISK

The concept of risk is an important aspect of any geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be tempered by engineering judgment and experience. Therefore, the solutions or recommendations presented in any geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structures will perform as desired or intended. What the engineering recommendations presented in the preceding sections do constitute is our judgement of those measures that increase the chances for the structures and improvements performing

satisfactorily. The Developer, Builder, and Owner must understand this concept of risk, as it is they who must ultimately decide what is an acceptable level of risk for the proposed development of the site.

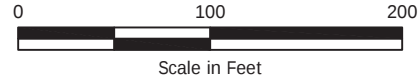
LIMITATIONS

We believe the professional judgments expressed in this report are consistent with that degree of skill and care ordinarily exercised by practicing design professionals performing similar design services in the same locality, at the same time, at the same site and under the same or similar circumstances and conditions. No other warranty, express or implied, is made. In the event that any changes in the nature, design or location of the facility are made, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and the conclusions of this report are modified or verified in writing. Because of the constantly changing state of the practice in geotechnical engineering, and the potential for site changes after our field exploration, this report must not be relied upon after a period of three years without our firm being given the opportunity to review and, if necessary, revise our findings.

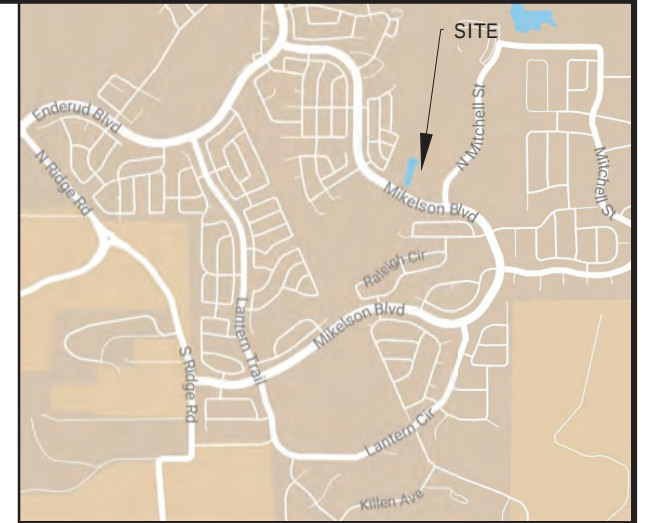
The test borings drilled for this study were spaced to obtain an understanding of subsurface conditions for design purposes. Variations frequently occur from these conditions which are not indicated by the test boring. These variations are sometimes sufficient to necessitate modifications in the designs. If unexpected subsurface conditions are observed by any party during site development, we must be notified to review our recommendations.

Our scope of services for this project did not include, either specifically or by implication, any research, identification, testing, or assessment relative to past or present contamination of the site by any source, including biological (i.e., mold, fungi, bacteria, etc.). If such contamination were present, it is likely that the exploration and testing conducted for this report would not reveal its existence. If the Client is concerned about the potential for such contamination or pollution, additional studies should be undertaken. We are available to discuss the scope of such studies with you.

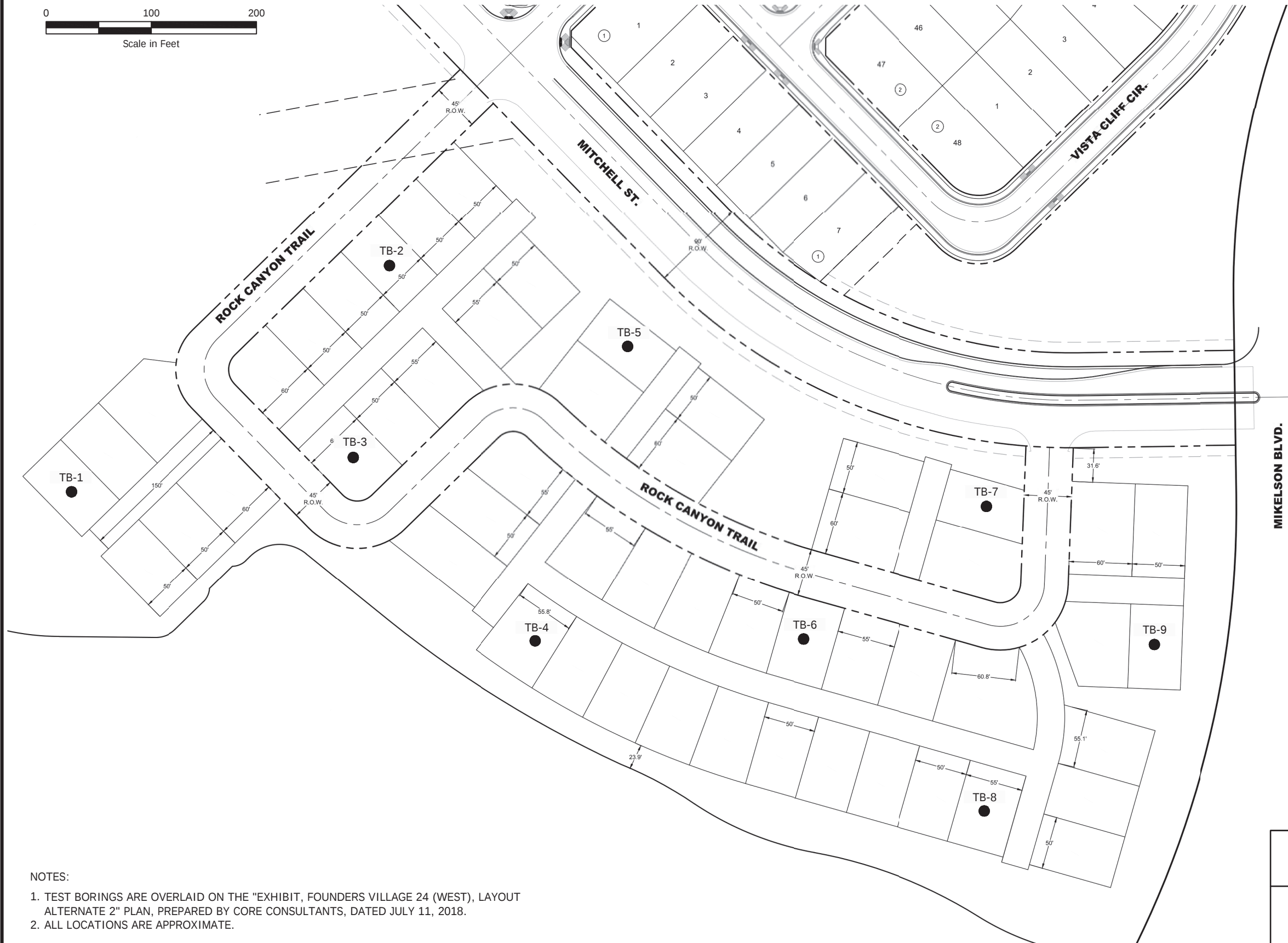
Our scope of services for this project did not include a local or global geological risk assessment. Therefore, issues such as mine subsidence, slope stability, faults, etc. were not researched or addressed as part of this study. If the Client is concerned about these issues, we are available to discuss the scope of such studies upon your request.



BELLA MESA DUPLEXES
CASTLE ROCK, COLORADO



VICINITY MAP
NOT TO SCALE



NOTES:

1. TEST BORINGS ARE OVERLAID ON THE "EXHIBIT, FOUNDERS VILLAGE 24 (WEST), LAYOUT ALTERNATE 2" PLAN, PREPARED BY CORE CONSULTANTS, DATED JULY 11, 2018.
2. ALL LOCATIONS ARE APPROXIMATE.

A.G. WASSENAAR INC.

SITE PLAN
AND
VICINITY MAP

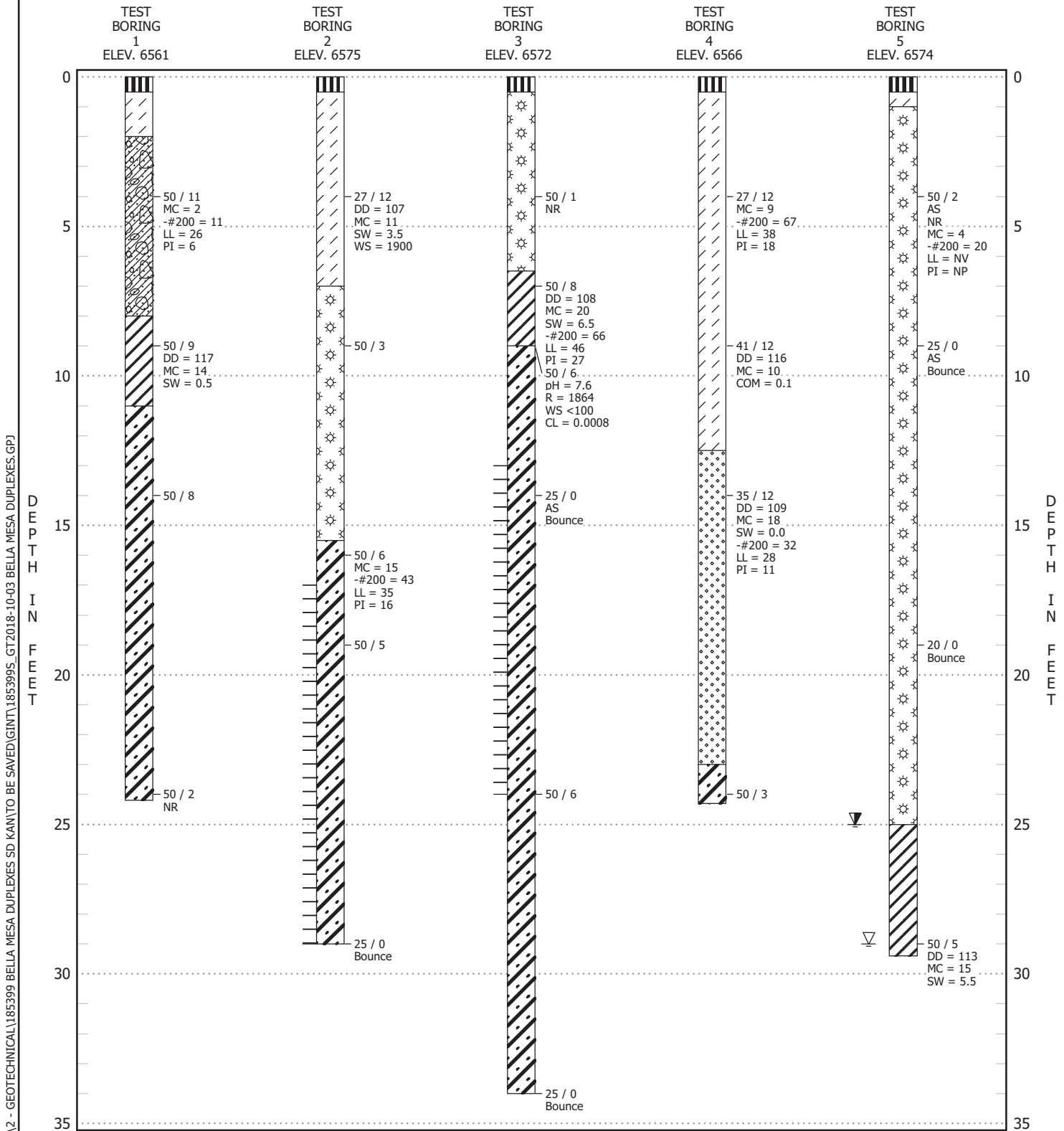
PROJECT NO. 185399
FIGURE 1

CLIENT Richmond American Homes of Colorado, Inc.

PROJECT NAME Founders Village, Filing 24 West (Bella Mesa Duplexes)

PROJECT NUMBER 185399

PROJECT LOCATION Castle Rock, Colorado



SEE FIGURE 4 FOR LEGEND AND NOTES TO TEST BORINGS

TEST BORING LOGS

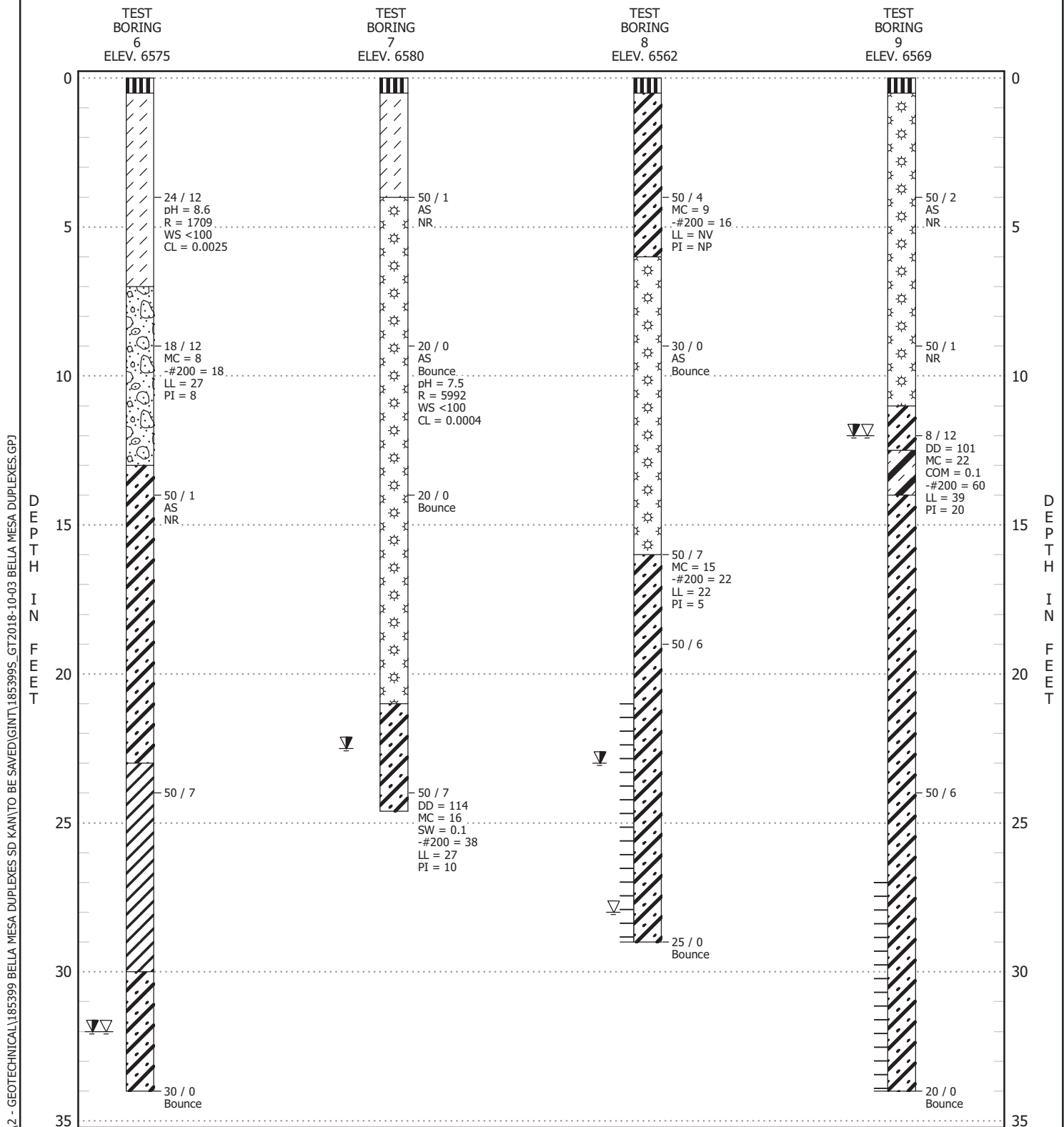
FIGURE 2

CLIENT Richmond American Homes of Colorado, Inc.

PROJECT NAME Founders Village, Filing 24 West (Bella Mesa Duplexes)

PROJECT NUMBER 185399

PROJECT LOCATION Castle Rock, Colorado



SEE FIGURE 4 FOR LEGEND AND NOTES TO TEST BORINGS

TEST BORING LOGS

FIGURE 3

CLIENT Richmond American Homes of Colorado, Inc.

PROJECT NAME Founders Village, Filing 24 West (Bella Mesa Duplexes)

PROJECT NUMBER 185399

PROJECT LOCATION Castle Rock, Colorado

SOIL DESCRIPTIONS



Topsoil, clay, sandy, organic



Clay, stiff to very stiff



Sand, dense to very dense, silty



Sand and gravel, medium dense to dense, silty



Sand and gravel, dense to very dense, clayey



Clay (weathered claystone), medium stiff to stiff



Claystone (Bedrock), hard to very hard



Sandstone (Bedrock), hard to very hard



Conglomerate (Bedrock), very hard, moderately to well cemented

ABBREVIATIONS

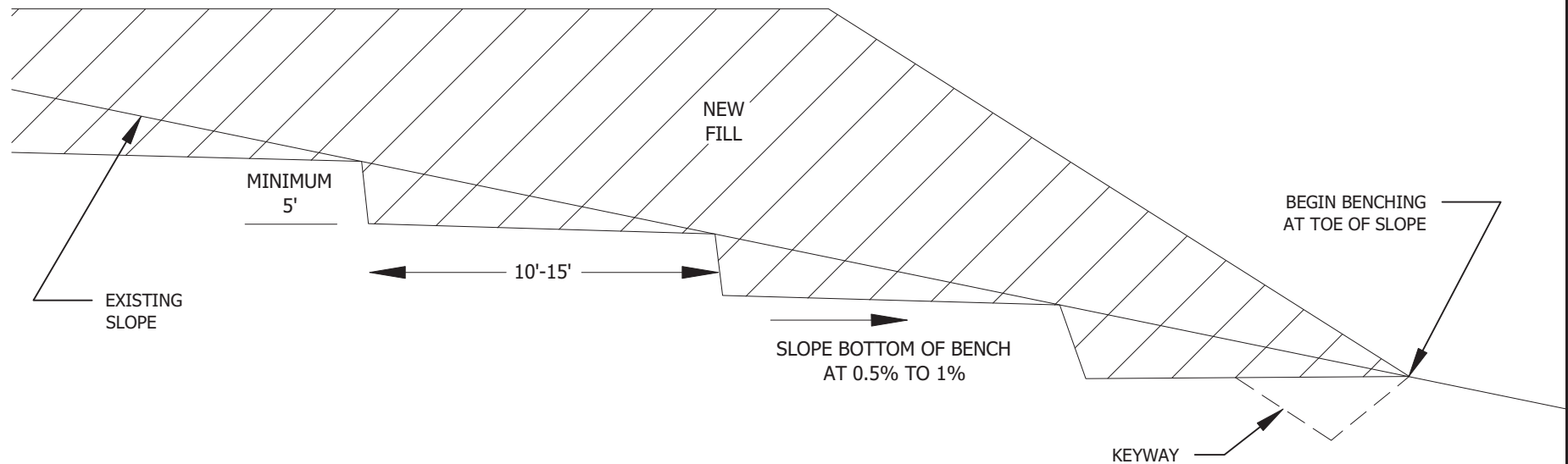
DD	Dry density of sample in pounds per cubic foot (pcf)
MC	Moisture content as a percentage of dry weight of soil (%)
SW	Percent swell under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
COM	Percent compression under a surcharge of 1000 pounds per square foot (psf) upon wetting (%)
UC	Unconfined compressive strength in pounds per square foot (psf)
-#200	Percent passing the Number 200 sieve (%)
LL	Liquid Limit
PI	Plasticity Index
NP	Non-Plastic
NV	No Value
pH	Acidity or alkalinity of sample in pH units
R	Resistivity in ohms.cm
WS	Water soluble sulfates in parts per million (ppm)
CL	Chlorides in percent (%)
x/y	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.5-inch outside diameter sampler Y inches
x/y SS	X blows of a 140-pound hammer falling 30 inches were required to drive a 2.0-inch outside diameter sampler Y inches
C-x	Depth of cut to grade (rounded to the nearest foot)
F-x	Depth of fill to grade (rounded to the nearest foot)
FG	Finished grade (rounded to the nearest foot)
NR	No sample recovered
Bounce	Sampler bounced during driving
B	Bulk sample
AS	Auger sample
	Well to very well cemented layer
	Depth at which practical drilling refusal was encountered
	Water level at time of drilling
	Caved depth at time of drilling
	Water level 3 day(s) after drilling
	Caved depth 3 day(s) after drilling

Notes:

1. Test borings were drilled September 26, 2018 .
2. Location of the test borings were staked by others at locations chosen by this firm.
3. The horizontal lines shown on the logs are to differentiate materials and represent the approximate boundaries between materials. The transitions between materials may be gradual.
4. Elevations were obtained from staking provided by others and have been rounded to the nearest foot.
5. Boring logs shown in this report are subject to the limitations, explanations, and conclusions of this report.

LEGEND AND NOTES

FIGURE 4



NOTES:

1. BENCHING REQUIRED WHEN EXISTING SLOPE IS 5:1 (HORIZONTAL:VERTICAL) OR STEEPER
2. CONTINUE BENCHING UNTIL NATURAL SLOPE FLATTENS OR SLOPE DAYLIGHTS
3. DRAINS MAY BE REQUIRED IF GROUND WATER IS ENCOUNTERED.
4. ADDITIONAL CUTTING BACK OF SOME SLOPES MAY BE REQUIRED BY GEOTECHNICAL ENGINEER IF SLOPE INSTABILITY IS NOTED.
5. A KEYWAY MAY BE REQUIRED BY GEOTECHNICAL ENGINEER DEPENDING UPON SLOPE CONFIGURATION.

NOT TO SCALE

A.G. WASSENAAR INC.	
GENERALIZED BENCHING DETAIL	PROJECT NO. 185399 FIGURE 5

APPENDIX A

LABORATORY TEST RESULTS

SUMMARY OF LABORATORY TEST RESULTS TABLE A-1

SWELL-CONSOLIDATION TEST RESULTS..... FIGURES A-1 THROUGH A-4

GRADATION/ATTERBERG TEST RESULTS FIGURES A-5 THROUGH A-10

STANDARD PROCTOR TEST RESULTS FIGURE A-11

TABLE A-1
SUMMARY OF LABORATORY TEST RESULTS

October 10, 2018

Project Number 185399
Founders Village, Filing 24 West
(Bella Mesa Duplexes)
Castle Rock, Colorado
1 of 2

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) ¹	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg		pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
								Liquid Limit LL	Plasticity Index PI				
1	4	Sand, gravelly, slightly silty, slightly clayey		2			11	26	6				
1	9	Claystone, very sandy	117	14	0.5	3,000							
2	4	Clay, sandy	107	11	3.5	9,100						1,900	
2	16	Sandstone, very clayey		15			43	35	16				
3	7	Clay (Weathered Claystone), very sandy	108	20	6.5	23,300	66	46	27				
3	9	Sandstone, clayey								7.6	1,864	<100	0.0008
4	4	Clay, sandy, trace gravel		9			67	38	18				
4	9	Clay, sandy	116	10	-0.1	NA							
4	14	Sand, very clayey	109	18	0.0	-	32	28	11				
5	4	Conglomerate		4			20	NV	NP				
5	29	Claystone, sandy	113	15	5.5	22,100							
6	4	Clay, sandy								8.6	1,709	<100	0.0025
6	9	Sand, clayey, gravelly		8			18	27	8				
7	9	Conglomerate								7.5	5,992	<100	0.0004

TABLE A-1 **SUMMARY OF LABORATORY TEST RESULTS**

October 10, 2018

Project Number 185399
Founders Village, Filing 24 West
(Bella Mesa Duplexes)
Castle Rock, Colorado
2 of 2

Test Boring Number	Depth (feet)	Soil Type	Natural Dry Density (pcf)	Natural Moisture (%)	Swell / Consolidation (-) (%) ¹	Swell Pressure (psf)	% Passing #200 Sieve	Atterberg		pH	Resistivity (ohm•cm)	Water Soluble Sulfates (ppm)	Chlorides (%)
								Liquid Limit LL	Plasticity Index PI				
7	24	Sandstone, very clayey	114	16	0.1	1,800	38	27	10				
8	4	Sandstone, silty		9			16	NV	NP				
8	16	Sandstone, silty, clayey		15			22	22	5				
9	12	Claystone, very sandy	101	22	-0.1	-	60	39	20				
Bulk 1 ²	NA	Bulk Sample (Clay, very sandy, trace gravel)	106.9 ³	17.1 ³			56	34	15				

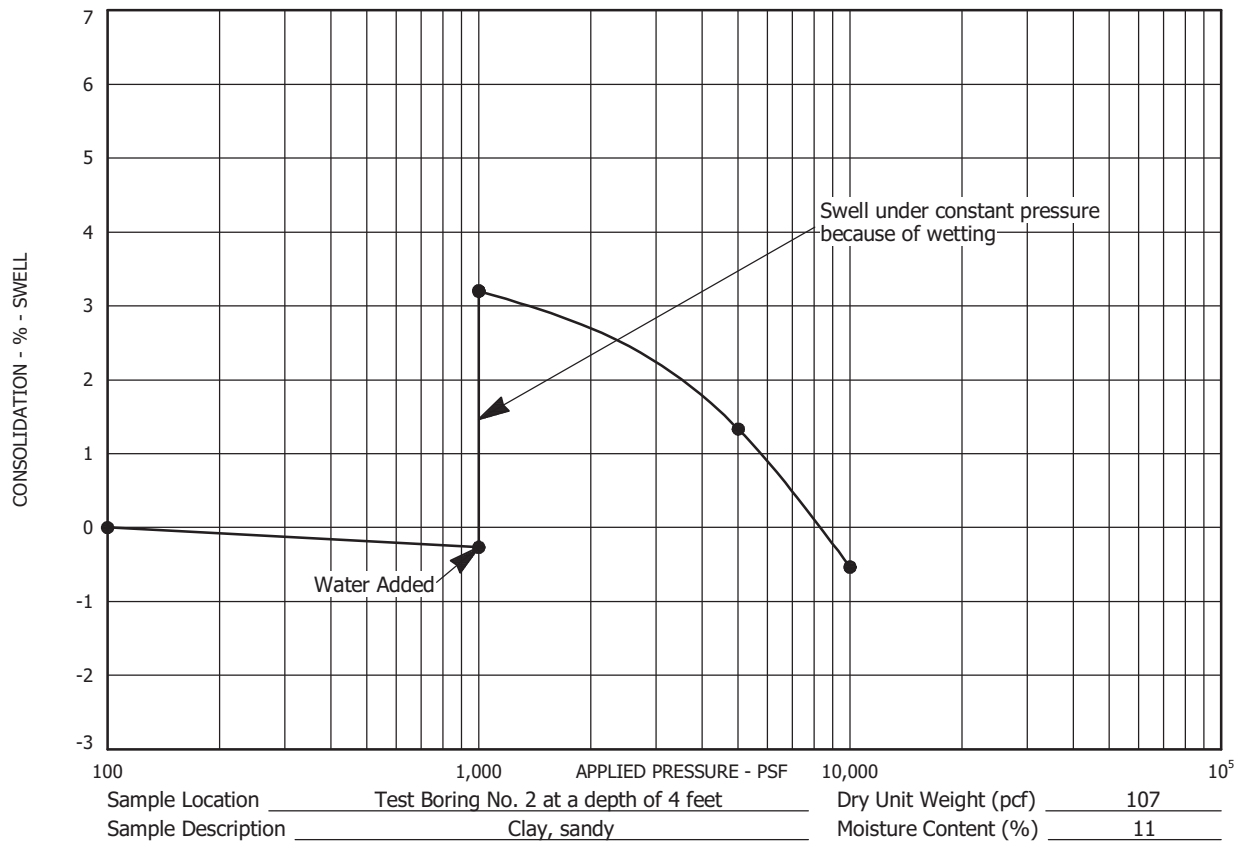
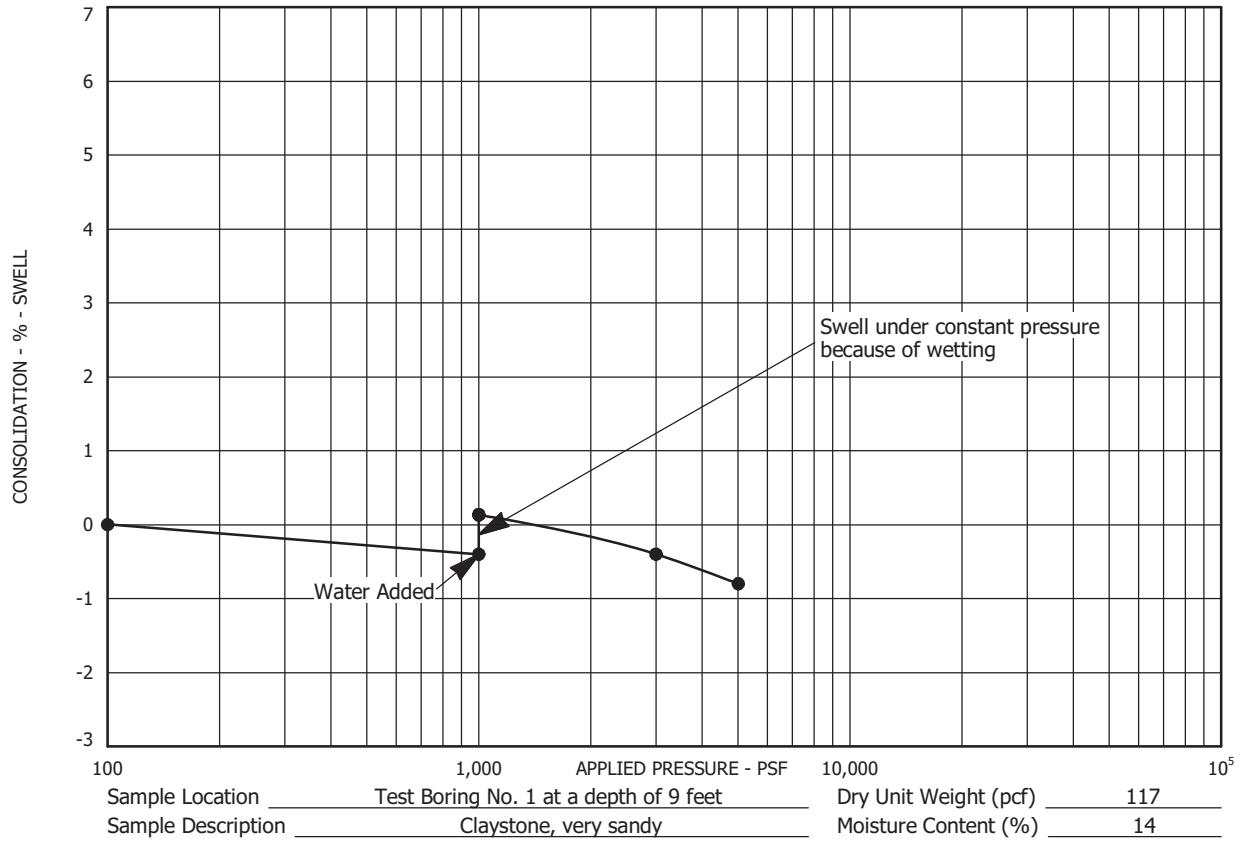
Notes:

¹ Indicates percent swell or consolidation when wetted under a 1,000 psf load

² Bulk is a blended bulk sample obtained from the auger cuttings of various test borings.

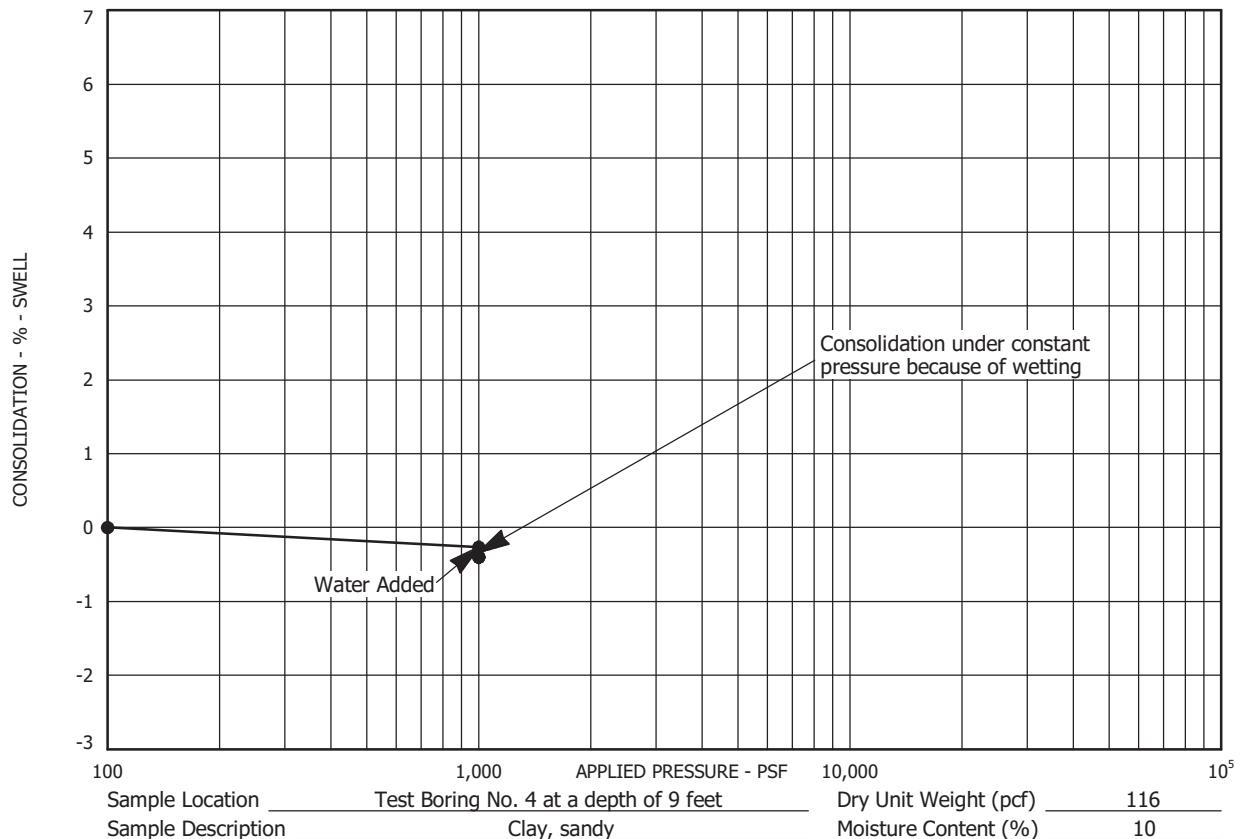
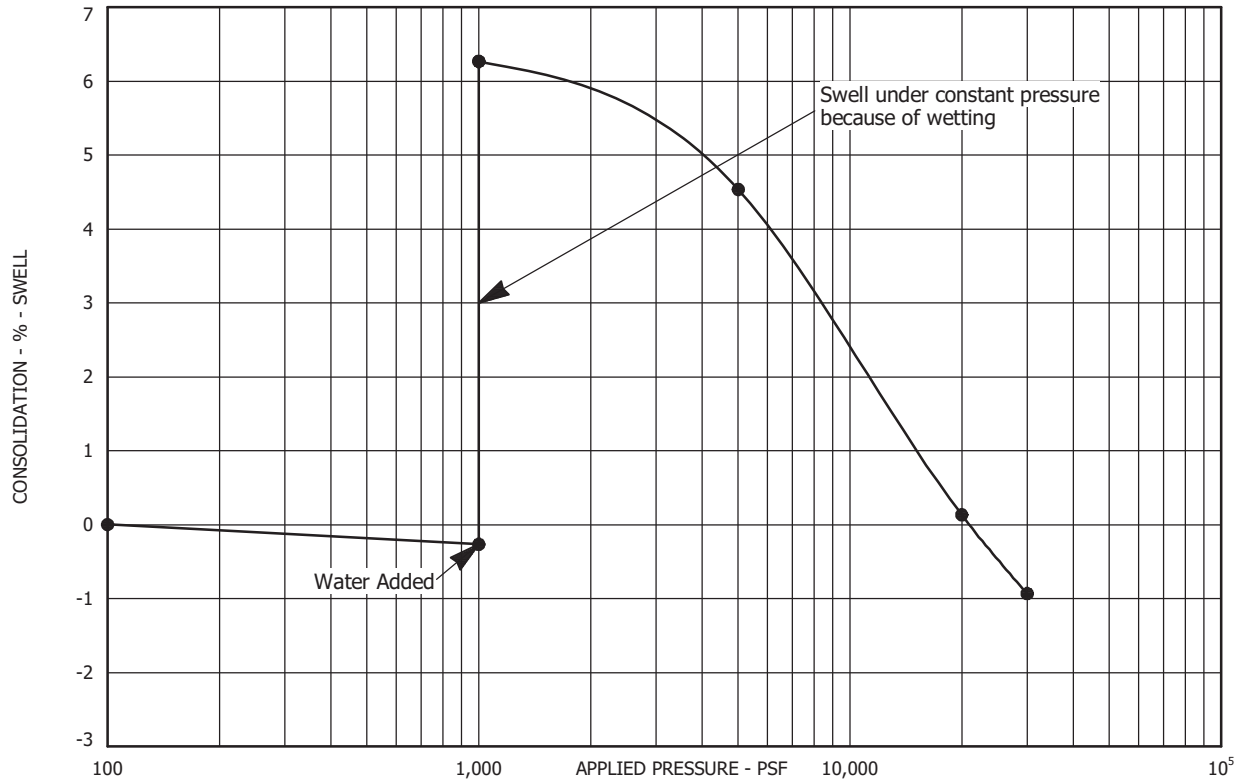
³ Maximum dry density (MDD) and optimum moisture content (OMC)

NA - Not Applicable, NV - No Value, NP - Nonplastic



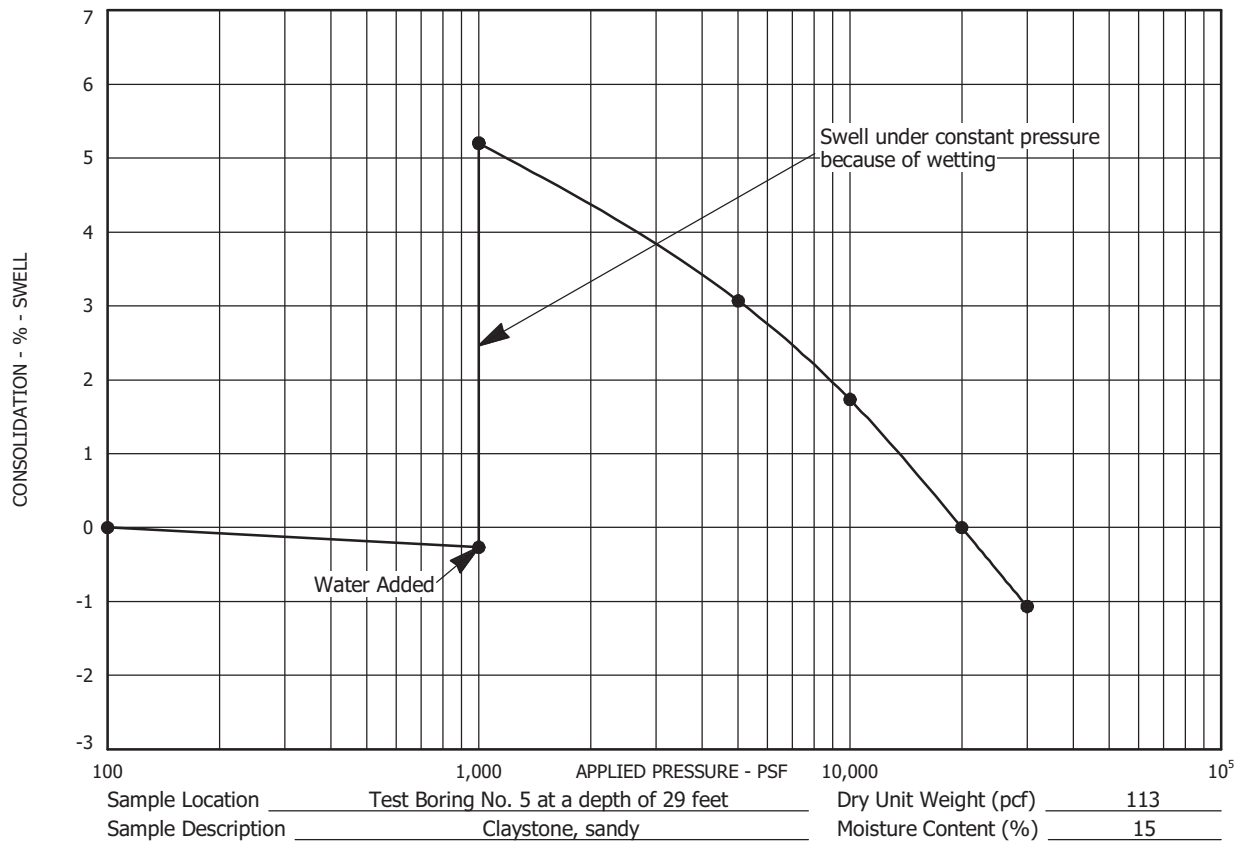
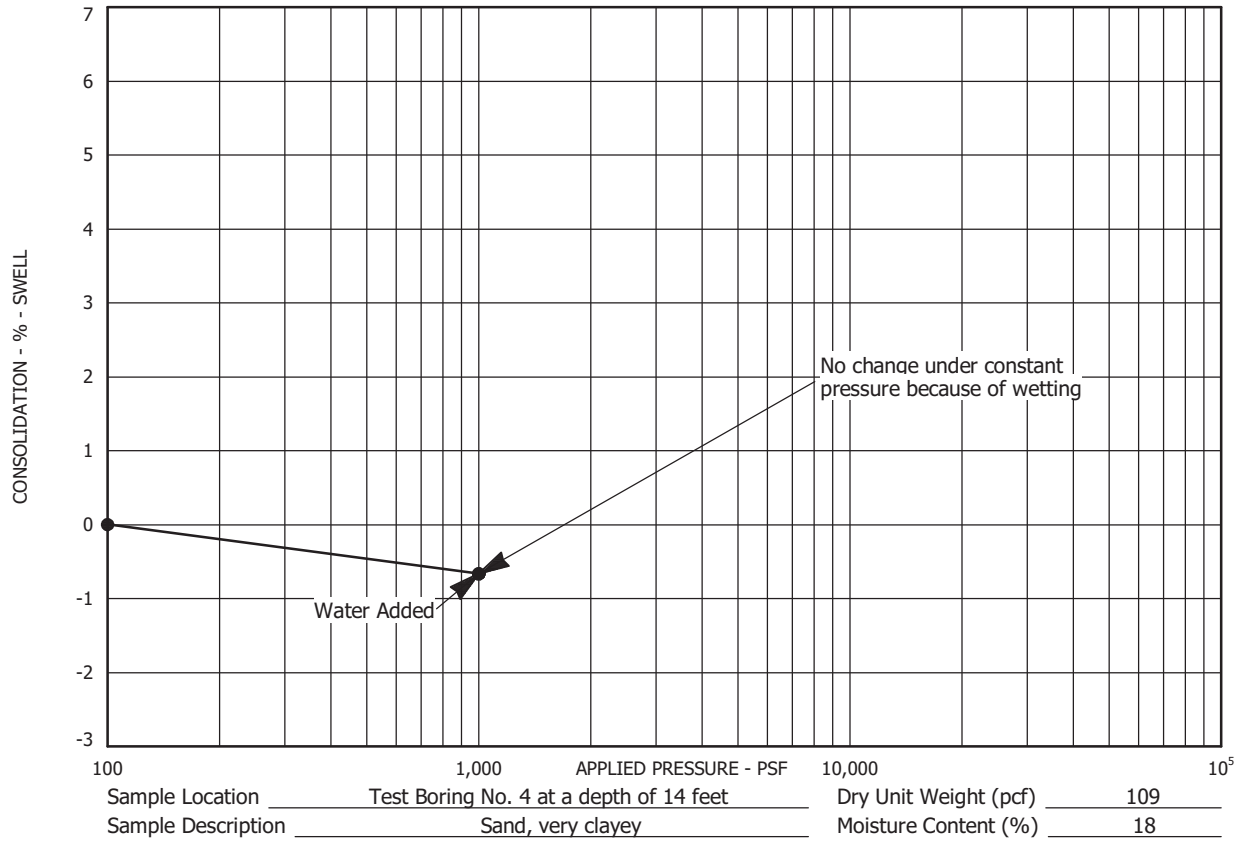
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-1



SWELL - CONSOLIDATION TEST RESULTS

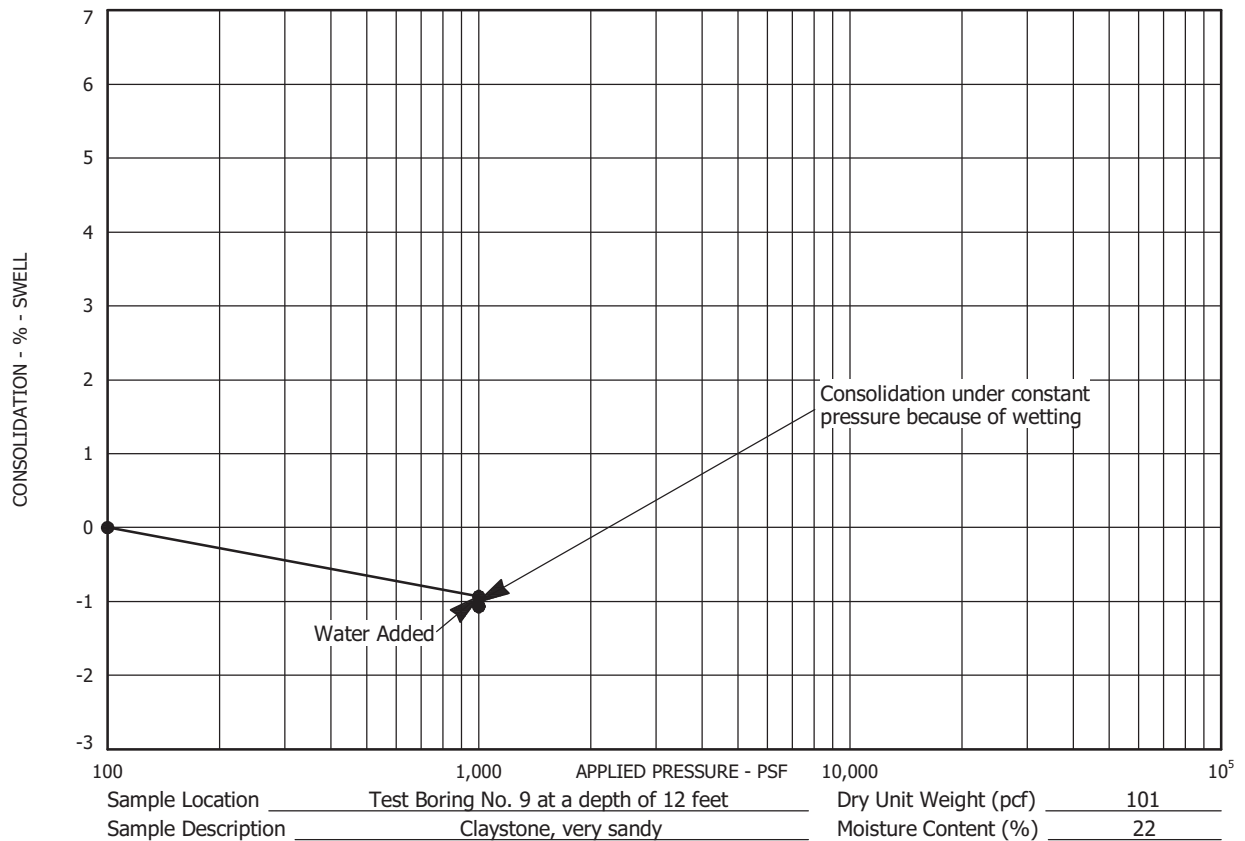
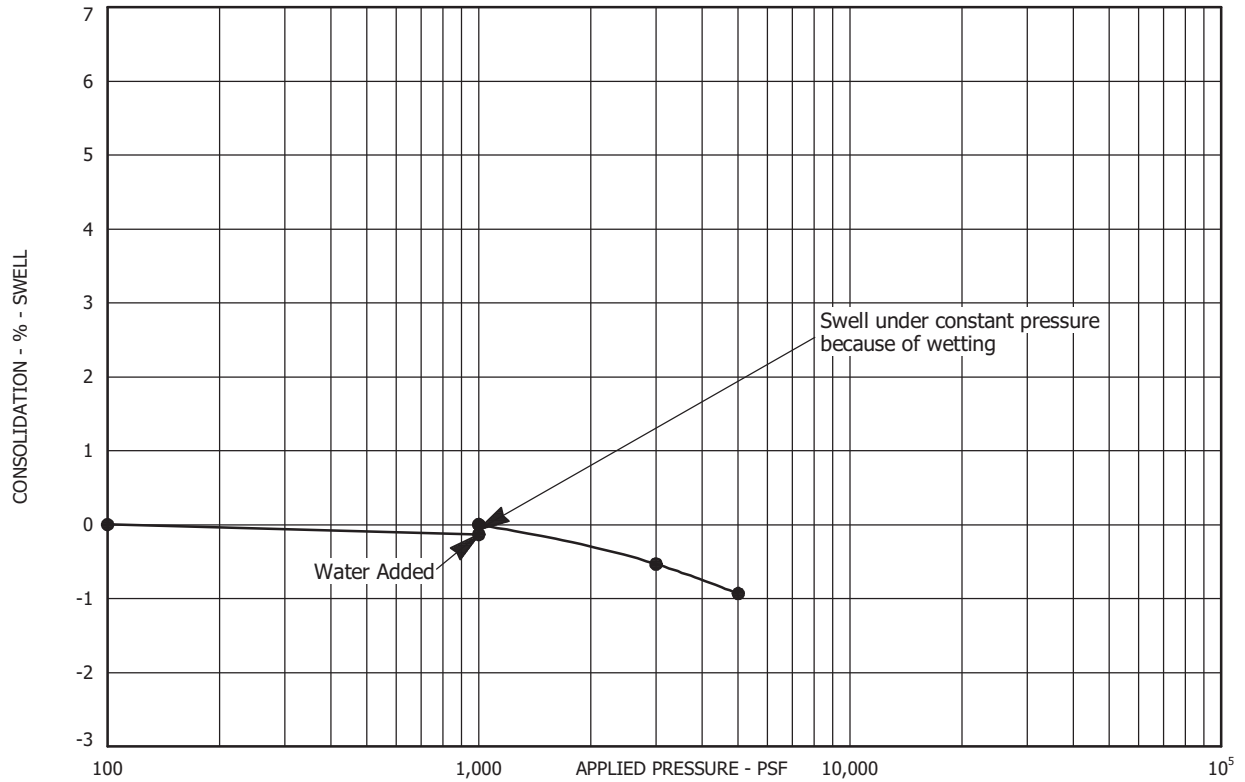
FIGURE A-2



SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-3

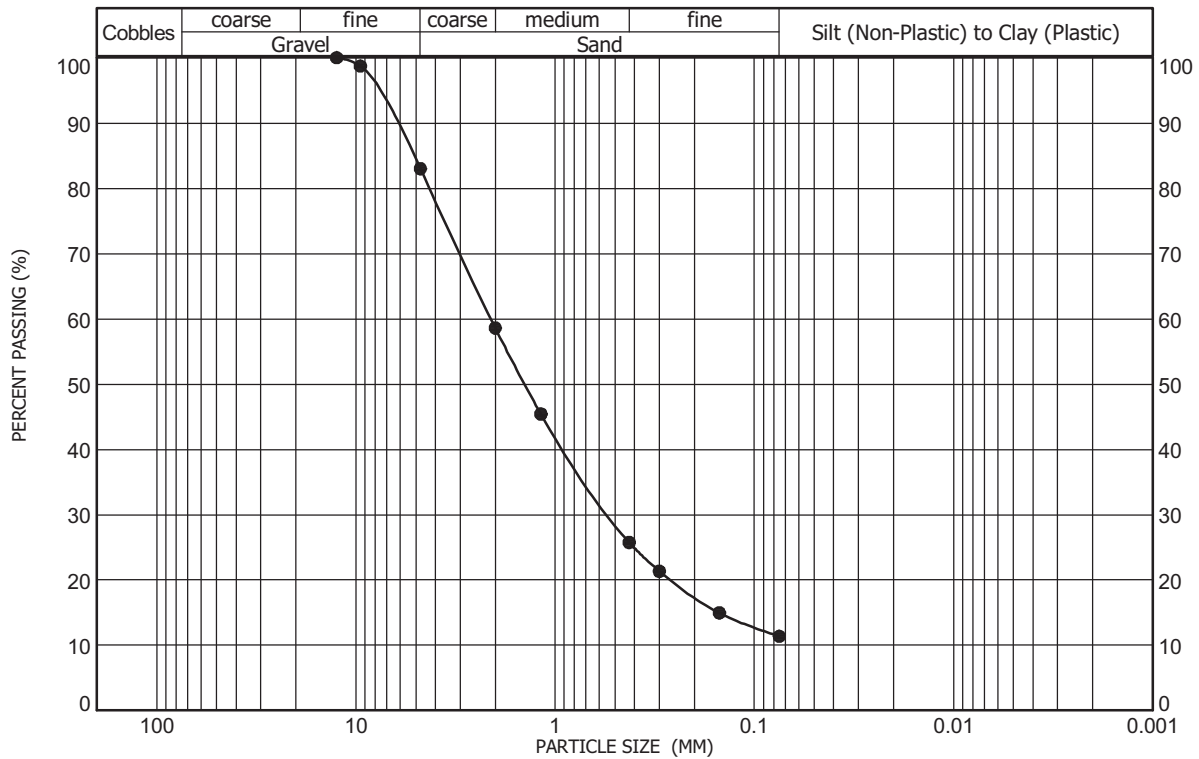
PROJECT NO. 185399



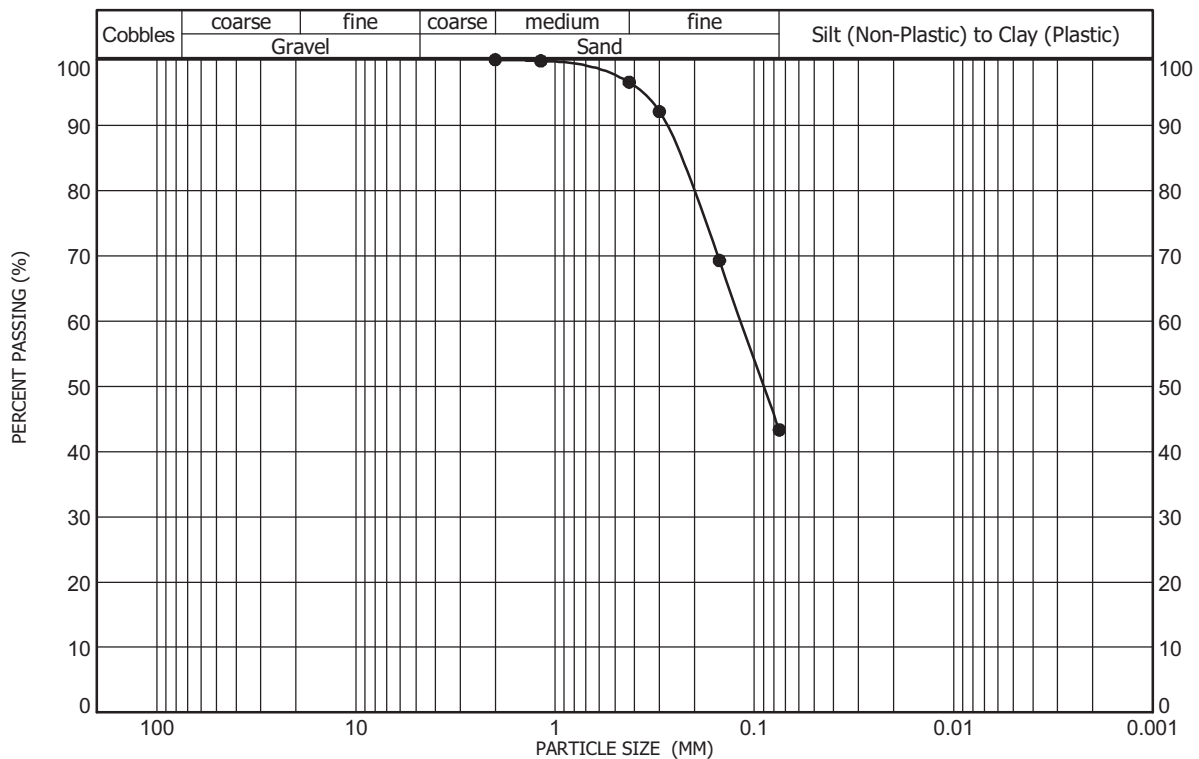
SWELL - CONSOLIDATION TEST RESULTS

FIGURE A-4

PROJECT NO. 185399



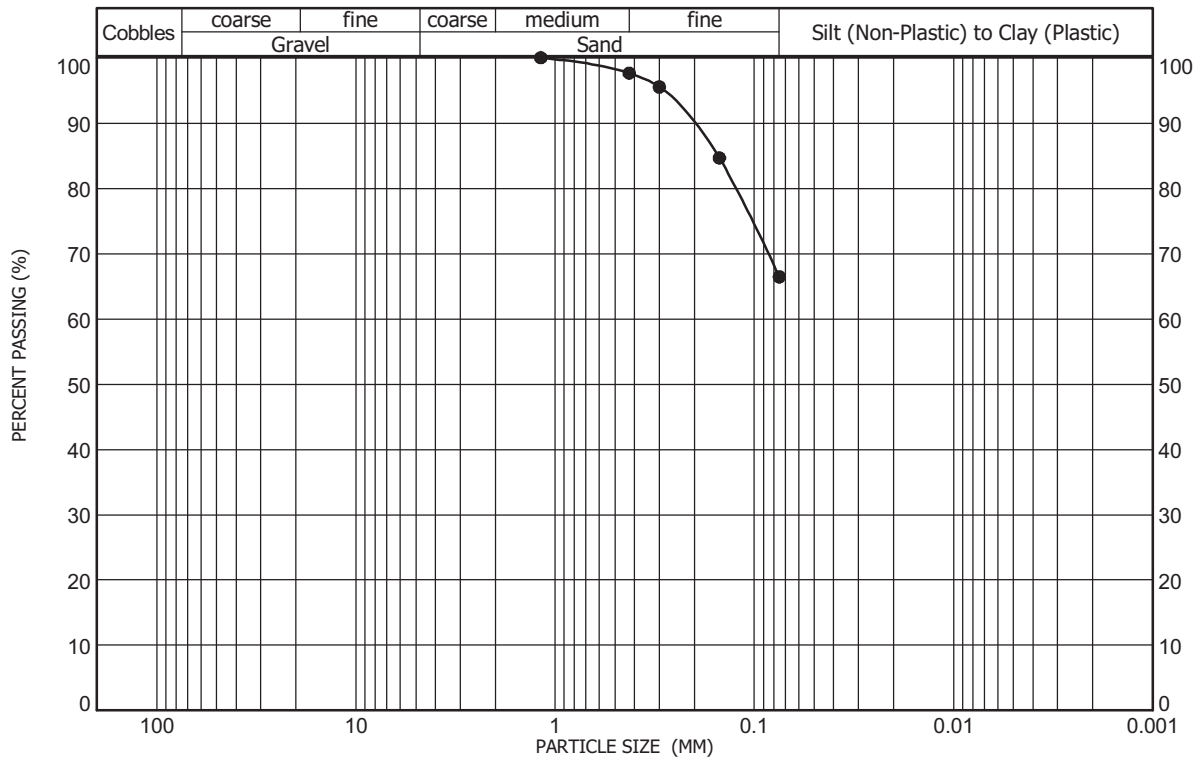
Sample Location _____ Test Boring No. 1 at a depth of 4 feet _____ Gravel (%) 17 Liquid Limit 26
 Sample Description Sand, gravelly, slightly silty, slightly clayey Sand (%) 72 Plasticity Index 6
 Classification A-1-b(0), WELL-GRADED SAND with SILTY CLAY and GRAVEL(SW-SC) Clay/Silt (%) 11



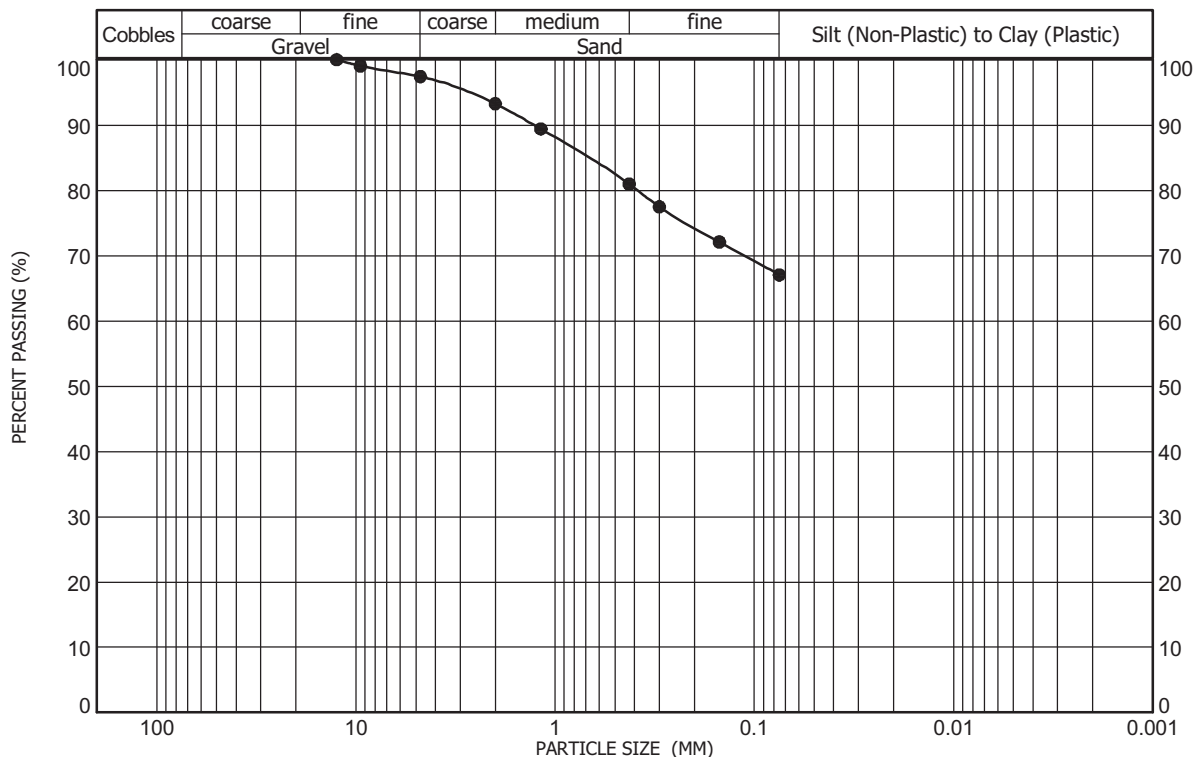
Sample Location _____ Test Boring No. 2 at a depth of 16 feet _____ Gravel (%) 0 Liquid Limit 35
 Sample Description Sandstone, very clayey Sand (%) 57 Plasticity Index 16
 Classification A-6(3), CLAYEY SAND(SC) Clay/Silt (%) 43

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-5



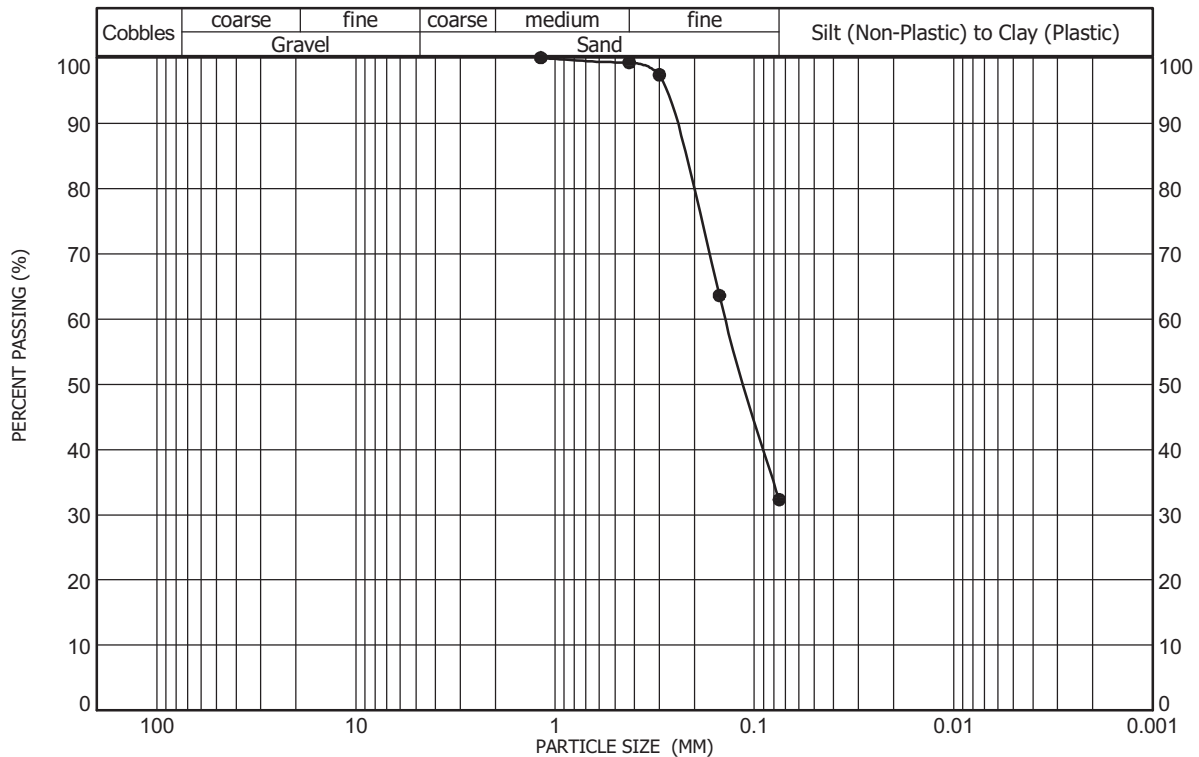
Sample Location _____ Test Boring No. 3 at a depth of 7 feet _____ Gravel (%) 0 Liquid Limit 46
 Sample Description _____ Clay (Weathered Claystone), very sandy _____ Sand (%) 34 Plasticity Index 27
 Classification _____ A-7-6(16), SANDY LEAN CLAY(CL) _____ Clay/Silt (%) 66



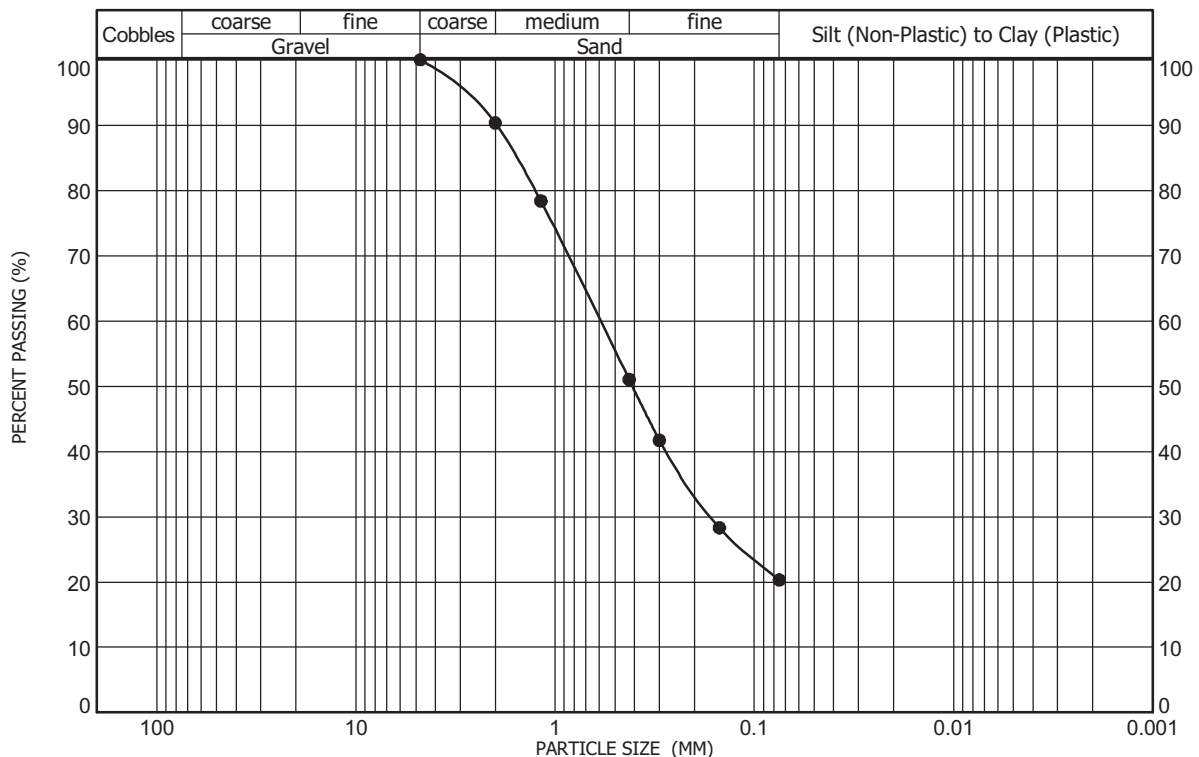
Sample Location _____ Test Boring No. 4 at a depth of 4 feet _____ Gravel (%) 3 Liquid Limit 38
 Sample Description _____ Clay, sandy, trace gravel _____ Sand (%) 30 Plasticity Index 18
 Classification _____ A-6(10), SANDY LEAN CLAY(CL) _____ Clay/Silt (%) 67

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-6



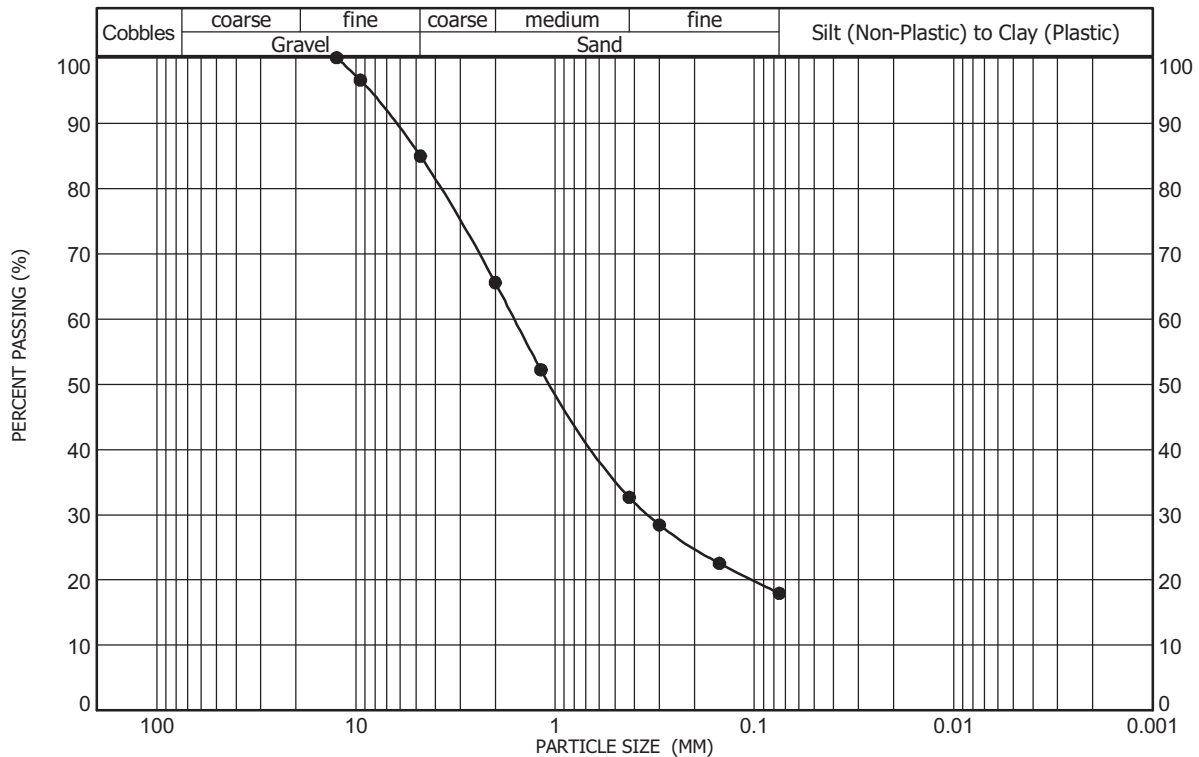
Sample Location Test Boring No. 4 at a depth of 14 feet Gravel (%) 0 Liquid Limit 28
 Sample Description Sand, very clayey Sand (%) 68 Plasticity Index 11
 Classification A-2-6(0), CLAYEY SAND(SC) Clay/Silt (%) 32



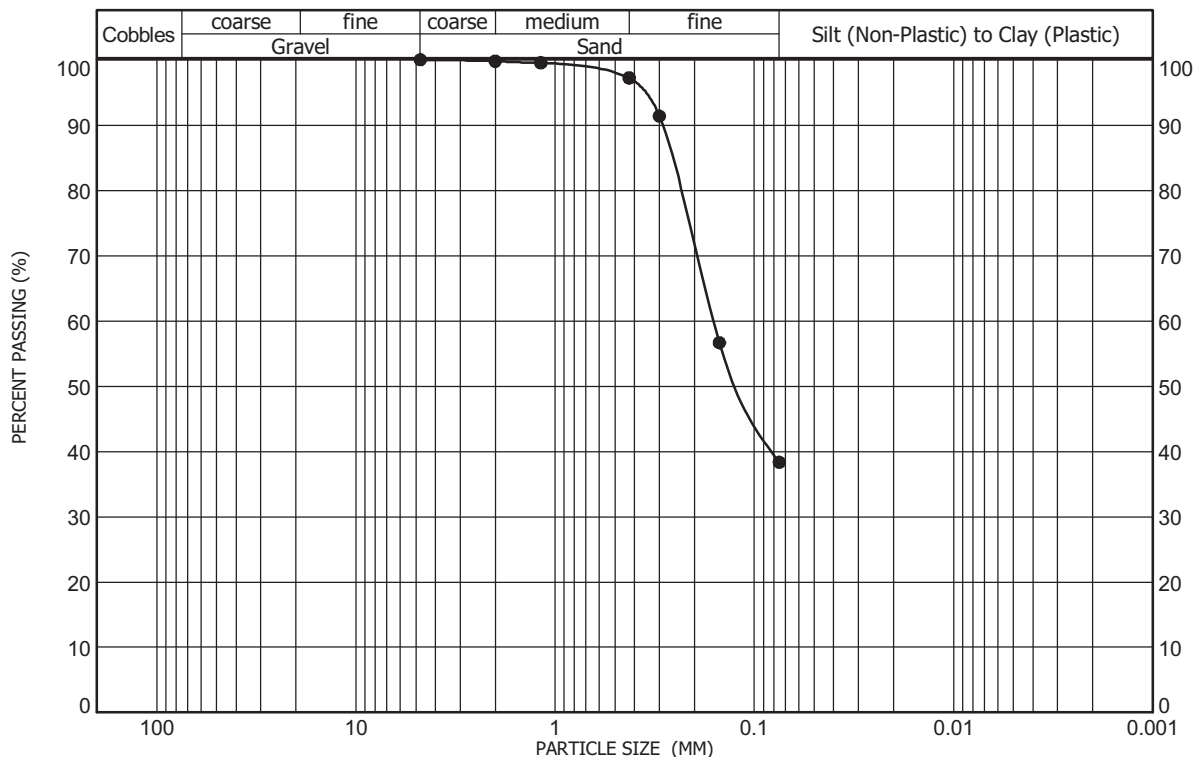
Sample Location Test Boring No. 5 at a depth of 4 feet Gravel (%) 0 Liquid Limit NV
 Sample Description Conglomerate Sand (%) 80 Plasticity Index NP
 Classification A-2-4(0), SILTY SAND(SM) Clay/Silt (%) 20

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-7



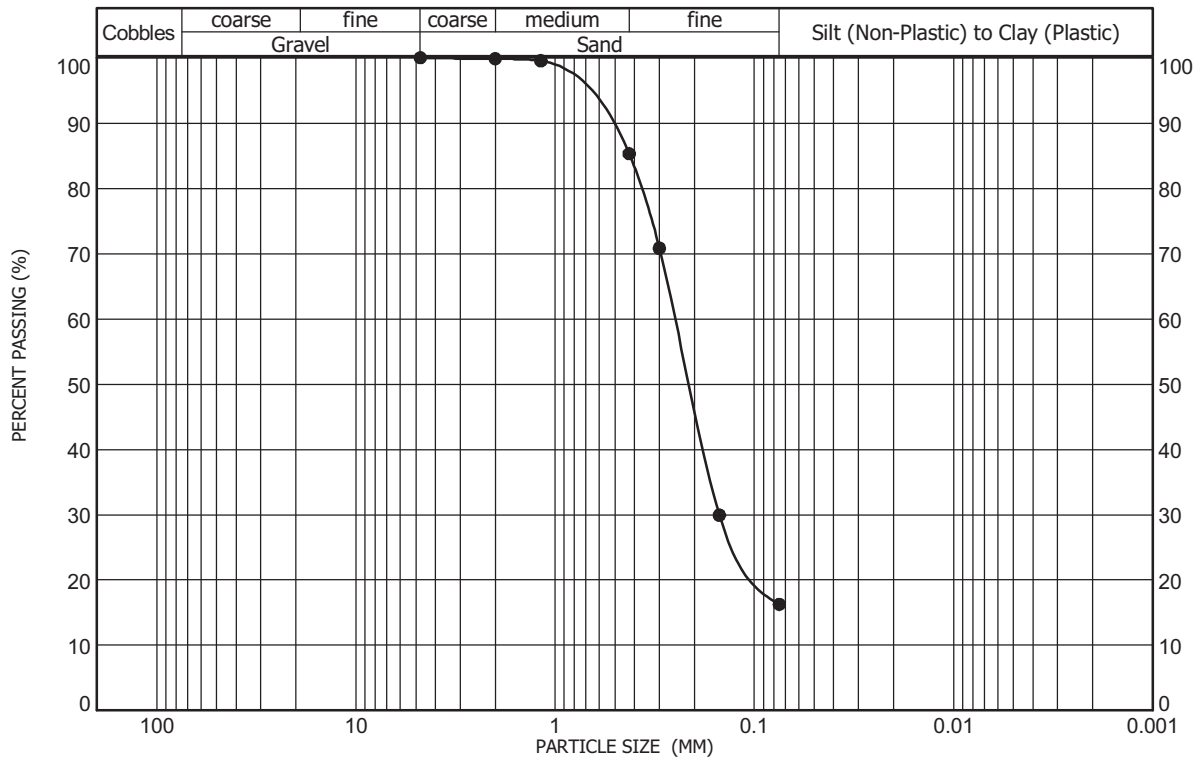
Sample Location Test Boring No. 6 at a depth of 9 feet Gravel (%) 15 Liquid Limit 27
 Sample Description Sand, clayey, gravelly Sand (%) 67 Plasticity Index 8
 Classification A-2-4(0), CLAYEY SAND with GRAVEL(SC) Clay/Silt (%) 18



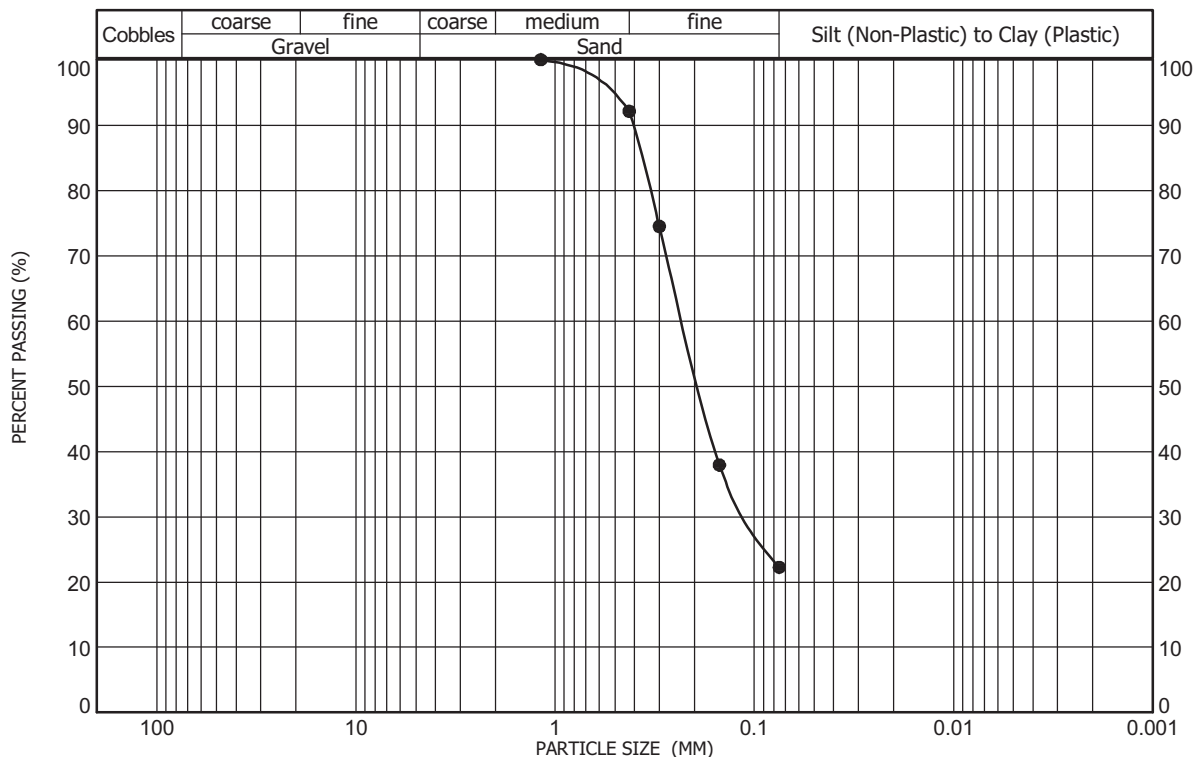
Sample Location Test Boring No. 7 at a depth of 24 feet Gravel (%) 0 Liquid Limit 27
 Sample Description Sandstone, very clayey Sand (%) 62 Plasticity Index 10
 Classification A-4(0), CLAYEY SAND(SC) Clay/Silt (%) 38

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-8



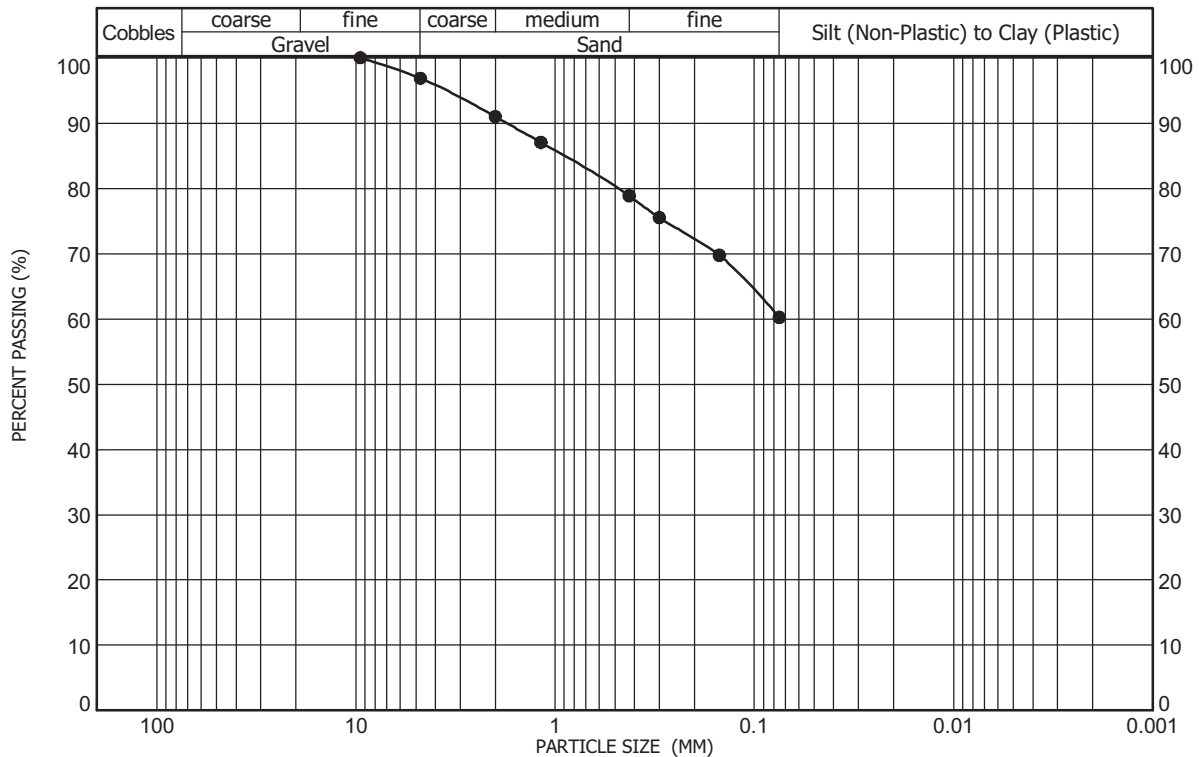
Sample Location Test Boring No. 8 at a depth of 4 feet Gravel (%) 0 Liquid Limit NV
 Sample Description Sandstone, silty Sand (%) 84 Plasticity Index NP
 Classification A-2-4(0), SILTY SAND(SM) Clay/Silt (%) 16



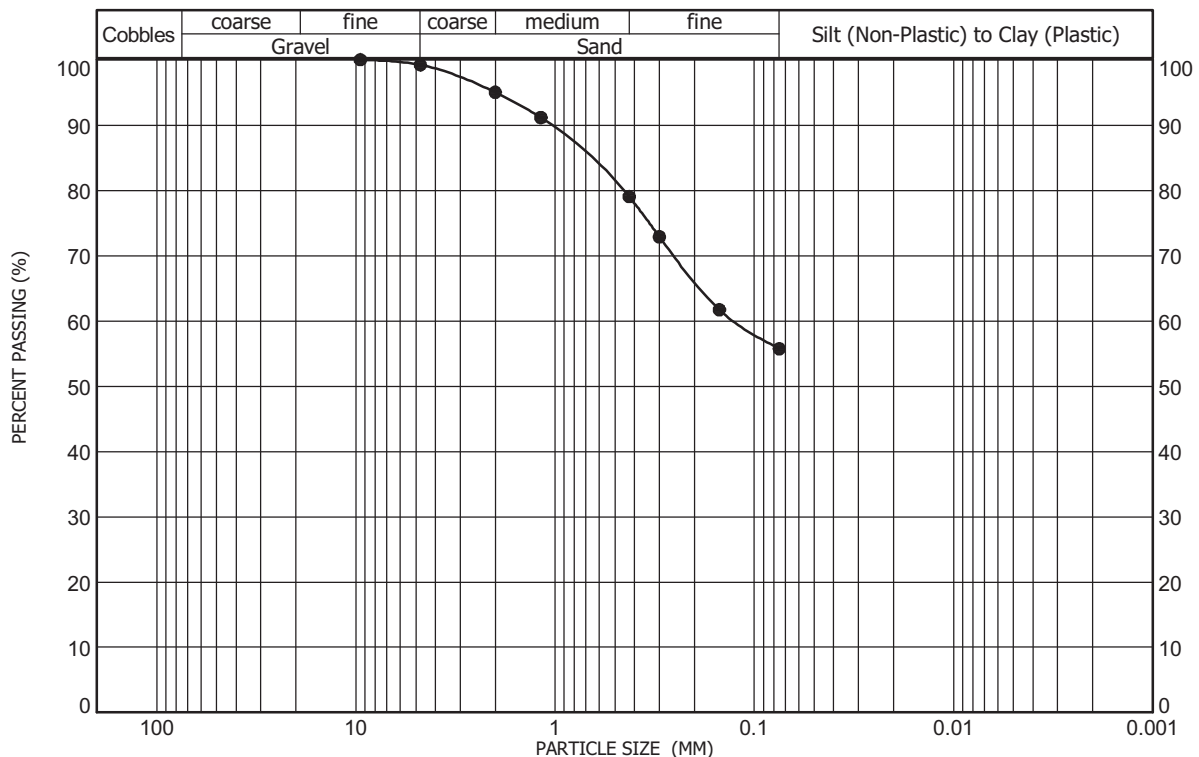
Sample Location Test Boring No. 8 at a depth of 16 feet Gravel (%) 0 Liquid Limit 22
 Sample Description Sandstone, silty, clayey Sand (%) 78 Plasticity Index 5
 Classification A-2-4(0), SILTY, CLAYEY SAND(SC-SM) Clay/Silt (%) 22

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-9



Sample Location Test Boring No. 9 at a depth of 12 feet Gravel (%) 3 Liquid Limit 39
 Sample Description Claystone, very sandy Sand (%) 37 Plasticity Index 20
 Classification A-6(9), SANDY LEAN CLAY(CL) Clay/Silt (%) 60



Sample Location Blended Bulk Sample from Test Borings Gravel (%) 1 Liquid Limit 34
 Sample Description Clay, very sandy, trace gravel Sand (%) 43 Plasticity Index 15
 Classification A-6(6), SANDY LEAN CLAY(CL) Clay/Silt (%) 56

GRADATION AND ATTERBERG TEST RESULTS

FIGURE A-10

PROJECT NO. 185399

CLIENT Richmond American Homes of Colorado, Inc.

PROJECT NAME Founders Village, Filing 24 West (Bella Mesa Duplexes)

PROJECT NUMBER 185399

PROJECT LOCATION Castle Rock, Colorado

TEST RESULTS

Maximum Dry Density **106.9 PCF**
Optimum Water Content **17.1 %**

Sample Location Blended Bulk Sample from Test Borings

Sample Source _____

AGW Description Clay, very sandy, trace gravel

USCS Classification SANDY LEAN CLAY(CL)

AASHTO Classification A-6(6)

Test Method D698A

Gravel (%) 1

Sand (%) 44

Silt/Clay (%) 56

Liquid Limit 34

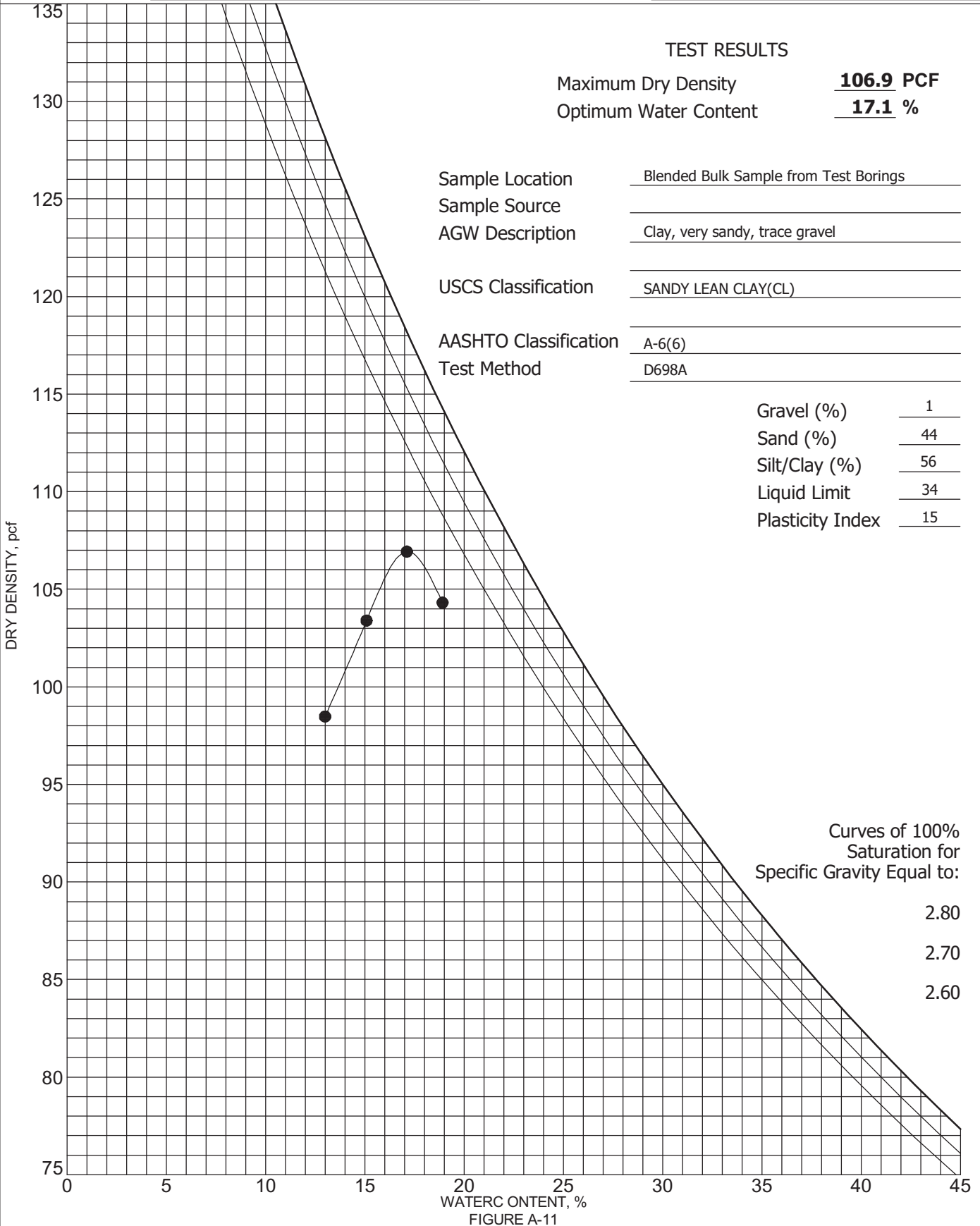
Plasticity Index 15

Curves of 100%
Saturation for
Specific Gravity Equal to:

2.80

2.70

2.60





2180 South Ivanhoe Street, Suite 5
Denver, Colorado 80222-5710
303-759-8100
www.agwco.com

APPENDIX B

SPECIFICATION FOR PLACEMENT OF FILL

APPENDIX B

SPECIFICATION FOR PLACEMENT OF FILL

GENERAL

A. G. Wassenaar, Inc, (AGW), as the Client's representative, should observe fill placement and conduct tests to determine if the materials placed, methods of placement, and compaction are in reasonable conformance with these specifications. Specifications presented in this Appendix are general in nature. They should be used for construction except where specifically superseded by those presented in the attendant geotechnical study.

For the purpose of this specification, structural areas include those areas that will support constructed appurtenances (e.g., foundations, slabs, flatwork, pavements, etc.) and fill embankments or slopes that support significant fills or constructed appurtenances. Structural areas will be as defined by the AGW.

FILL MATERIAL

Fill material should consist of on or off-site soils which are relatively free of vegetable matter and rubble. Off-site materials should be evaluated by AGW prior to importation. No organic, frozen, perishable, rock greater than 6 inches, or other unsuitable material should be placed in the fill. For the purpose of this specification, cohesive soil is defined as a mixture of clay, sand, and silt with more than 35% passing a U. S. Standard #200 sieve and a Plasticity Index of at least 11. These materials will classify as an A-6 or A-7 by the AASHTO Classification system. Granular soils are all materials which do not classify as cohesive.

PREPARATION OF FILL SUBGRADE

Vegetation, organic topsoil, any existing fill, and any other deleterious materials should be removed from the fill area. The area to be filled should then be scarified, moistened or dried as necessary, and compacted to the moisture content and compaction level specified below prior to placement of subsequent layers of fill.

PLACEMENT OF FILL MATERIAL

The materials should be delivered to the fill in a manner which will permit a well and uniformly compacted fill. Before compacting, the fill material should be properly broken down, mixed, and spread in approximately horizontal layers not greater than 8 inches in loose thickness.

MOISTURE CONTROL

The material must contain uniformly distributed moisture for proper compaction. The Contractor will be required to add moisture to the materials if, in the opinion of AGW, sufficient and uniform moisture is not present in the fill. If the fill materials are too wet for proper compaction, aerating and/or mixing with drier materials will be required.

APPENDIX B

SPECIFICATIONS FOR PLACEMENT OF FILL

Page 2

Moisture content should be controlled as a percentage deviation from optimum. Optimum moisture content is defined as the moisture content corresponding to the maximum density of a laboratory compacted sample performed according to ASTM D698 for cohesive soils or ASTM D1557 for granular soils. The moisture content specifications for the various areas are as follows:

	<u>Cohesive Soils</u>	<u>Granular Soils</u>
1. Beneath Structural Areas:	0 to +4%	-2 to +2%
2. Beneath Non-Structural Areas:	-3 to +3%	-3 to +3%
3. Moisture Treated Fill:	0 to +4%	-2 to +2%

COMPACTION

When the moisture content and conditions of each layer spread are satisfactory, the fill should be compacted. Laboratory moisture-density tests should be performed on typical fill materials to determine the maximum density. Field density tests must then be made to determine fill compaction. The compaction standard to be utilized in determining the maximum density is ASTM D698 for cohesive soils or ASTM D1557 for granular soils. The following compaction specifications should be followed for each area:

1. Beneath Structural Areas:	95% of Maximum Dry Density
2. Beneath Non-Structural Areas:	90% of Maximum Dry Density
3. Moisture Treated Fill:	95% of Maximum Dry Density

If the fill contains less than 10% passing the No. 200 sieve, it may be necessary to control compaction based on relative density (ASTM D2049). If this is the case, then compaction around the structures and beneath walkway or other slabs should be to at least 70% relative density, and compaction beneath foundations and vehicle supporting should be to at least 80% relative density.

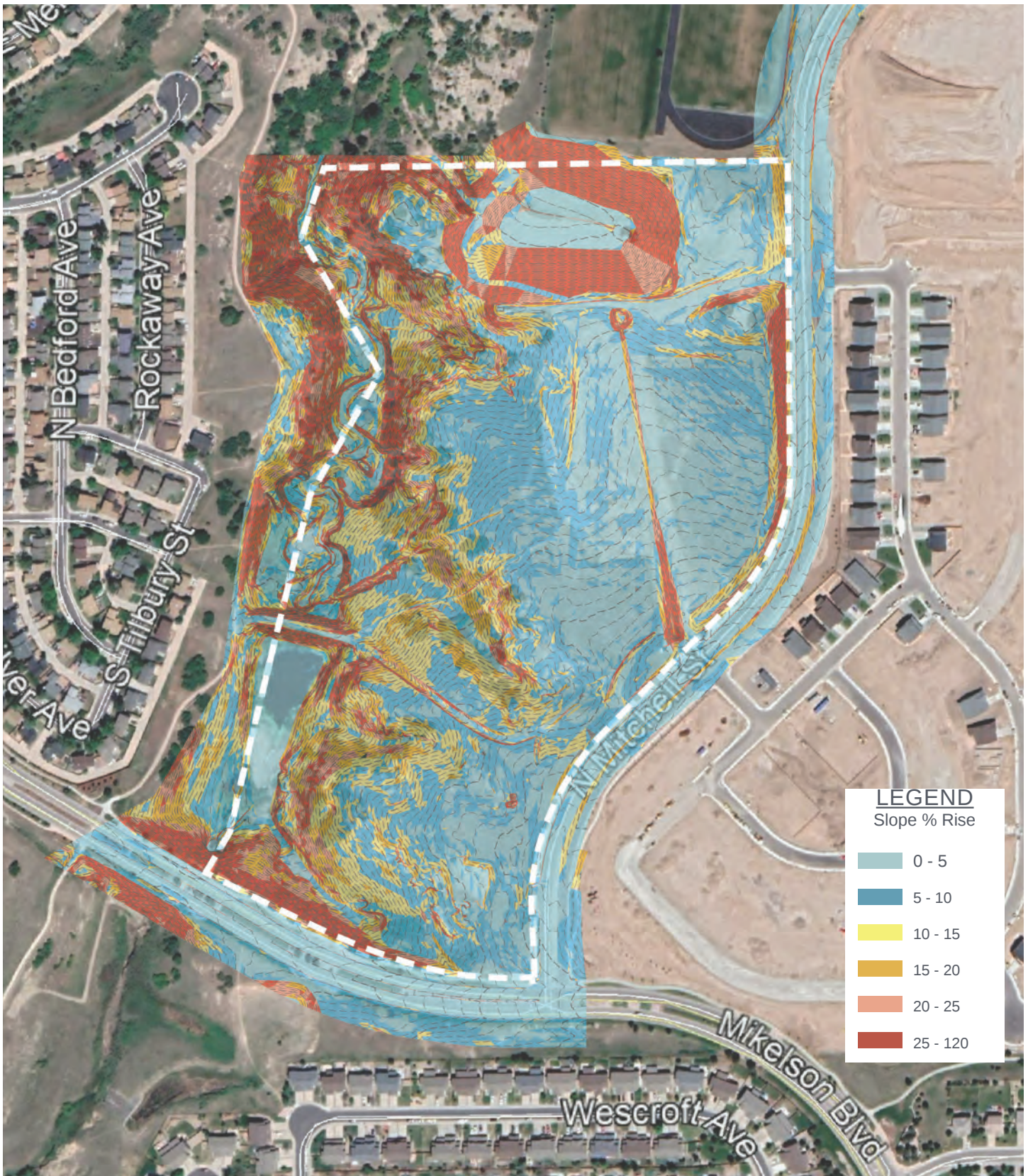
DEEP FILLS

In areas where fill depths exceed 20 feet beneath structural areas, additional compaction considerations will be required to reduce fill settlement. Fill placed within 20 feet of final overlot grade should be compacted as required above. Deeper fills should be compacted to 100% of maximum dry density at a moisture content of $\pm 2\%$ of optimum moisture content. Relative density of at least 85% will be required when necessary.

RESPONSIBILITY

Any mention of essentially full-time testing and observation does not mean AGW will accept responsibility for future fill performance. AGW shall not be responsible for constant or exhaustive inspection of the work, the means and methods of construction or the safety procedures employed by Client's contractor. Performance of construction observation services does not constitute a warranty or guarantee of any type, since even with diligent observation, some construction defects, deficiencies or omissions in the Contractor's work may occur undetected. Client shall hold its contractor solely responsible for the quality and completion of the project, including construction in accordance with the construction documents. Any duty hereunder is for the sole benefit of the Client and not for any third party, including the contractor or any subcontractor.

Appendix D - Slope Analysis Exhibit



SLOPES ANALYSIS

FOUNDERS VILLAGE FILING 24 WEST
CASTLE ROCK, CO.



Redland

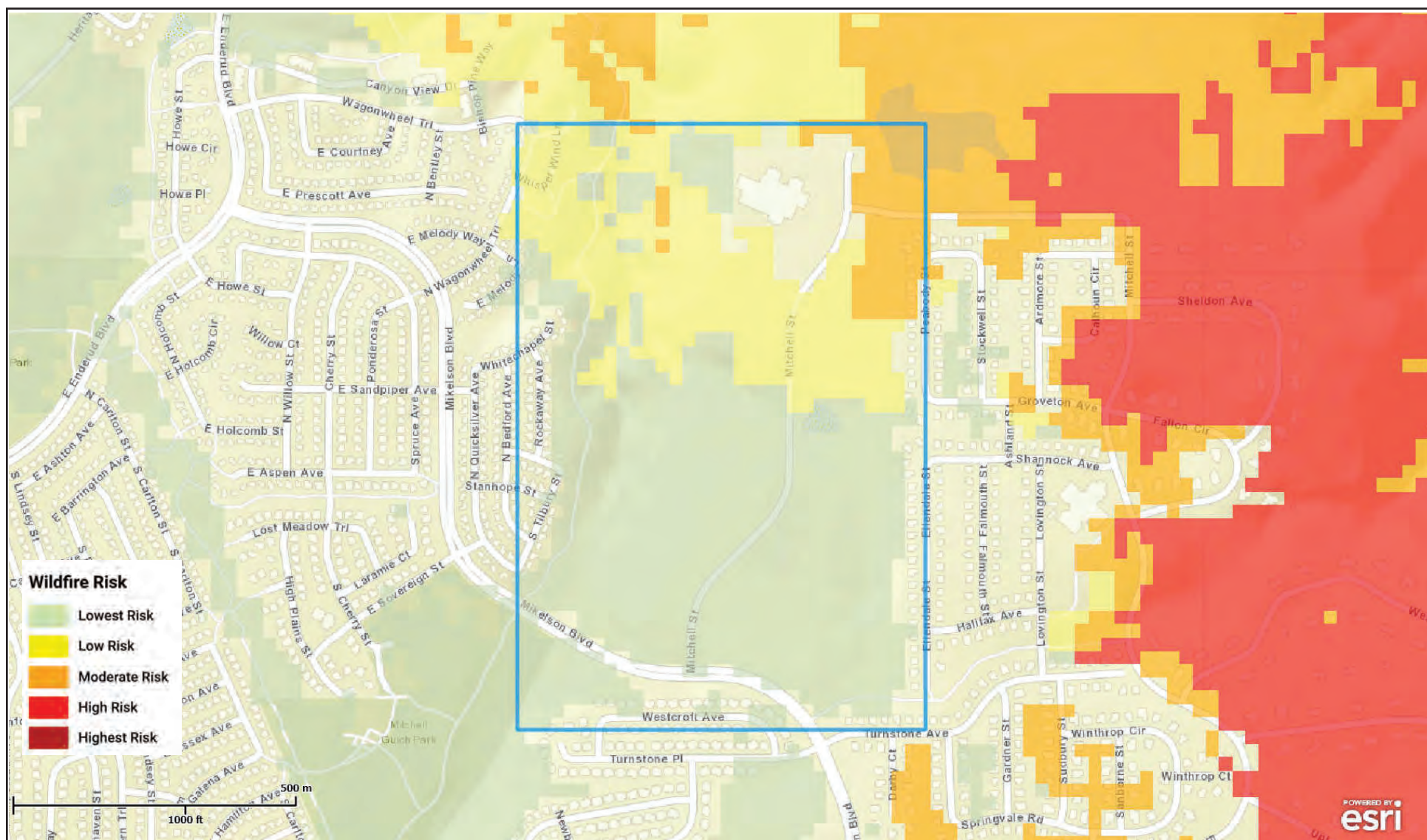
WHERE GREAT PLACES BEGIN

720.283.6783 Office
1500 West Canal Court
Littleton, Colorado 80120
REDLAND.COM

Appendix E - Colorado Wildfire Risk Map

Wildfire Risk

The overall composite risk occurring from a wildfire derived by combining Burn Probability and Values at Risk Rating



Report Created:
10/09/2019 5:08 PM

Colorado Wildfire Risk Assessment 2017

www.coloradowildfirerisk.com

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