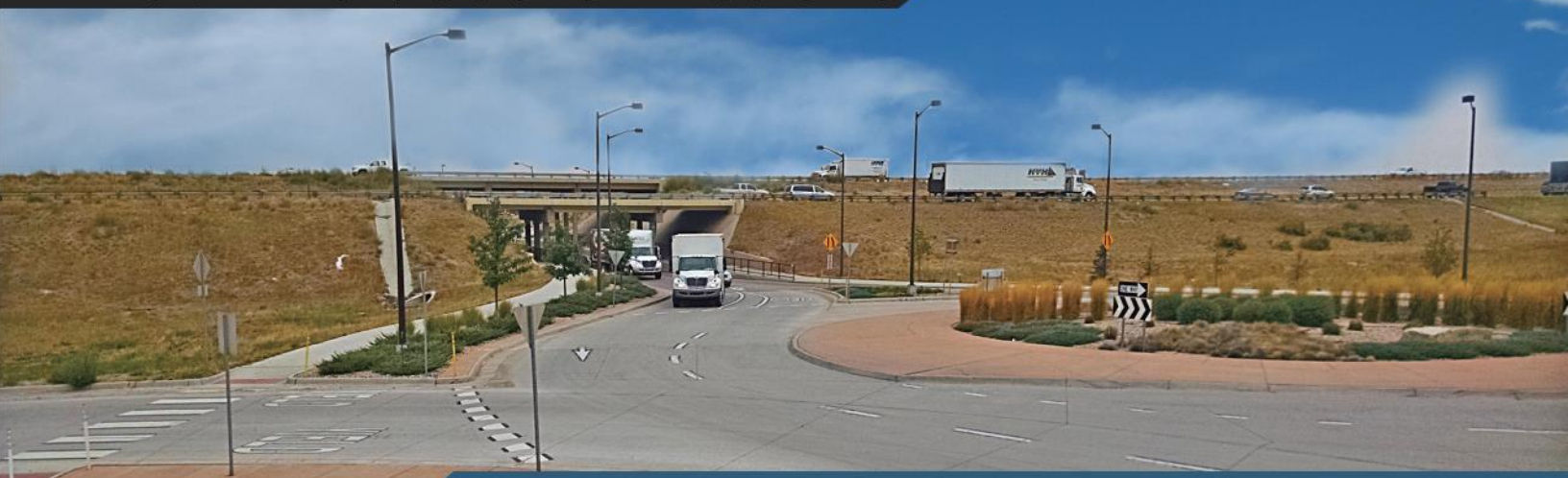
NORTH I-25 RECORD OF DECISION 3



NORTH INTERSTATE 25

CROSSROADS Boulevard

June 2016

STATUTE OF LIMITATIONS

A notice will be published in the Federal Register, pursuant to 23 United States Code §139(l), indicating that the Federal Highway Administration (FHWA) has taken the final action to approve the North I-25 Record of Decision3 for Crossroads Boulevard. Claims seeking judicial review of this federal action must be filed within 150 days after the date of the notice.

INFORMATION AVAILABILITY

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NORTH I-25 RECORD OF DECISION3

The *North-25 Record of Decision3* (CDOT, 2016a) is available electronically at https://www.codot.gov/projects/north-i-25-eis or in hard copy format. Please contact either of the individuals listed above to obtain a copy.

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Appendix B. *Final Geotechnical Investigation Report I-25/Crossroads Boulevard Bridge Replacement* (Yeh & Associates, 2015)
Appendix C. *I-25 over Crossroads Boulevard Loveland, Colorado, Traffic Noise Technical Report* (HDR, 2016)
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ACRONYMS AND ABBREVIATIONS

APEN	Air Pollutant Emission Notice
BMPs	Best management practices
BRT	bus rapid transit
BTPD	black-tailed prairie dog
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
CFR	Code of Federal Regulations
CPW	Colorado Parks and Wildlife
DIA	Denver International Airport
DOT	Department of Transportation
DTR	Division of Transit and Rail
EIS	Environmental Impact Statement
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
I-25	Interstate 25
ITS	Intelligent Transportation System
MMP	Materials Management Plan
MOVES	Motor Vehicle Emissions Model
MVRTP	Metro Vision Regional Transportation Plan
NEPA	National Environmental Policy Act
NFRMPO	North Front Range Metropolitan Planning Organization
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OPS	Oil and Public Safety
OSHA	Occupational Health and Safety
PBO	Programmatic Biological Opinion
PEL	Planning and Environmental Linkages
RAMP	Responsible Acceleration of Maintenance and Partnerships
ROD1	Record of Decision1
ROD2	Record of Decision2
ROD3	Record of Decision3
ROW	Right-of-Way
RTD	Regional Transportation District
RTP	Regional Transportation Plan
SH	State Highway
SIP	State Implementation Plan
U.S.	United States
USFWS	U.S. Fish and Wildlife Service

BACKGROUND

This Record of Decision3 (ROD3) documents the final agency decision for improvements to the I-25 and Crossroads Boulevard interchange and the realignment of the northwest (NW) frontage road extending Byrd Drive to Earhart Road (Figure 1). It is the final step in the National Environmental Policy Act (NEPA) process for this section of Interstate 25 (I-25), which started with a Notice of Intent to prepare an Environmental Impact Statement (EIS) in 2003.

The Selected Alternative discussed in this ROD3 consists of reconstructing approximately 1.5 miles of the existing I-25 mainline and replacing two existing bridges that carry I-25 over Crossroads Boulevard. An additional lane and 5-foot bicycle lanes will be added in each direction on Crossroads Boulevard under I-25 for a distance of 200 feet. The project will also extend Byrd Drive 3,600 feet south from its intersection with Earhart Drive to realign the northwest (NW) I-25 frontage road between Earhart Drive on the north and Byrd Drive on the south. A 3,600-foot section of Byrd Drive would be constructed with two 12-foot travel lanes to replace the frontage road that will be realigned. The Byrd Drive improvements include an upgraded cross-section that would provide 7-foot bike lanes, 6-foot tree lawns, 6-foot sidewalks, and new pavement. The City of Loveland will maintain Byrd Drive, eliminating the need for the Colorado Department of Transportation (CDOT) to invest in ongoing maintenance of the frontage road.

The Selected Alternative will be built in the location shown in the *North I-25 Final Environmental Impact Statement* (FEIS) (CDOT, 2011a) (Figure 1). These improvements are selected at this time because they support the full build-out of the FEIS Preferred Alternative. The horizontal and vertical corrections on I-25 mainline and the reconstructed bridges over Crossroads Boulevard will allow for the future express lanes included in the FEIS Preferred Alternative to be added later.

This ROD3 also reviews information contained in the FEIS and in the *North I-25 Revised Section 4(f) Evaluation* (CDOT, 2011b) and considers the effects of changes in existing or proposed conditions, legislation, regulations, and/or guidance.

Figure 1. ROD3 Selected Elements and Project Location

1.0 INTRODUCTION

The *North I-25 Record of Decision* (ROD1) (CDOT, 2011c) was the final step in the NEPA process for only a portion of the Preferred Alternative identified in the FEIS, referred to as Phase 1. The ROD1 stated a commitment on behalf of the Federal Highway Administration (FHWA) and the Colorado Department of Transportation (CDOT) (lead agencies) that the lead agencies intend to work toward implementing the FEIS Preferred Alternative in its entirety. As additional funding is identified and included in the fiscally constrained Regional Transportation Plan (RTP), subsequent phases or portions of phases can be implemented.

CDOT prepared this ROD3 to update the findings in the FEIS and to select another portion of the FEIS Preferred Alternative for implementation. The conclusion of the ROD3 is that changes to the existing and future conditions do not cause new significant environmental impacts. This ROD3 has been prepared in compliance with FHWA Regulation 23 Code of Federal Regulations (CFR) 771 and 774, Council on Environmental Quality Regulations 40 CFR 1500-1508, and the requirements of NEPA as amended.

Figure 2 illustrates the context of this ROD3 with other construction projects in ROD1 and ROD2. The ROD3 improvements were included in the FEIS with the exception of the widening of Crossroads Boulevard underneath I-25.

PROJECT COST AND FUNDING

The ROD3 Selected Alternative has a total estimated cost of approximately $ 33.6 million (YOE). Table 1 shows how CDOT plans to fund the ROD3 Selected Alternative. The project is identified in the North Front Range Metropolitan Planning Organization (NFRMPO) 2040 Long Range Transportation Plan (2015) and the project costs have been included on the Statewide Transportation Improvement Program for FY 16 as 100 percent state Responsible Acceleration of Maintenance and Partnership (RAMP) funds.

The scope of the project is such that it does not need to be placed on the Metro Vision Regional Transportation Plan (MVRTP) or the Fiscally Constrained Element of the Regional Transportation Plan (RTP). It is not a regionally significant project so it does not need to go through a regional conformity analysis.

Figure 2. ROD3 Location In Context of Other RODs

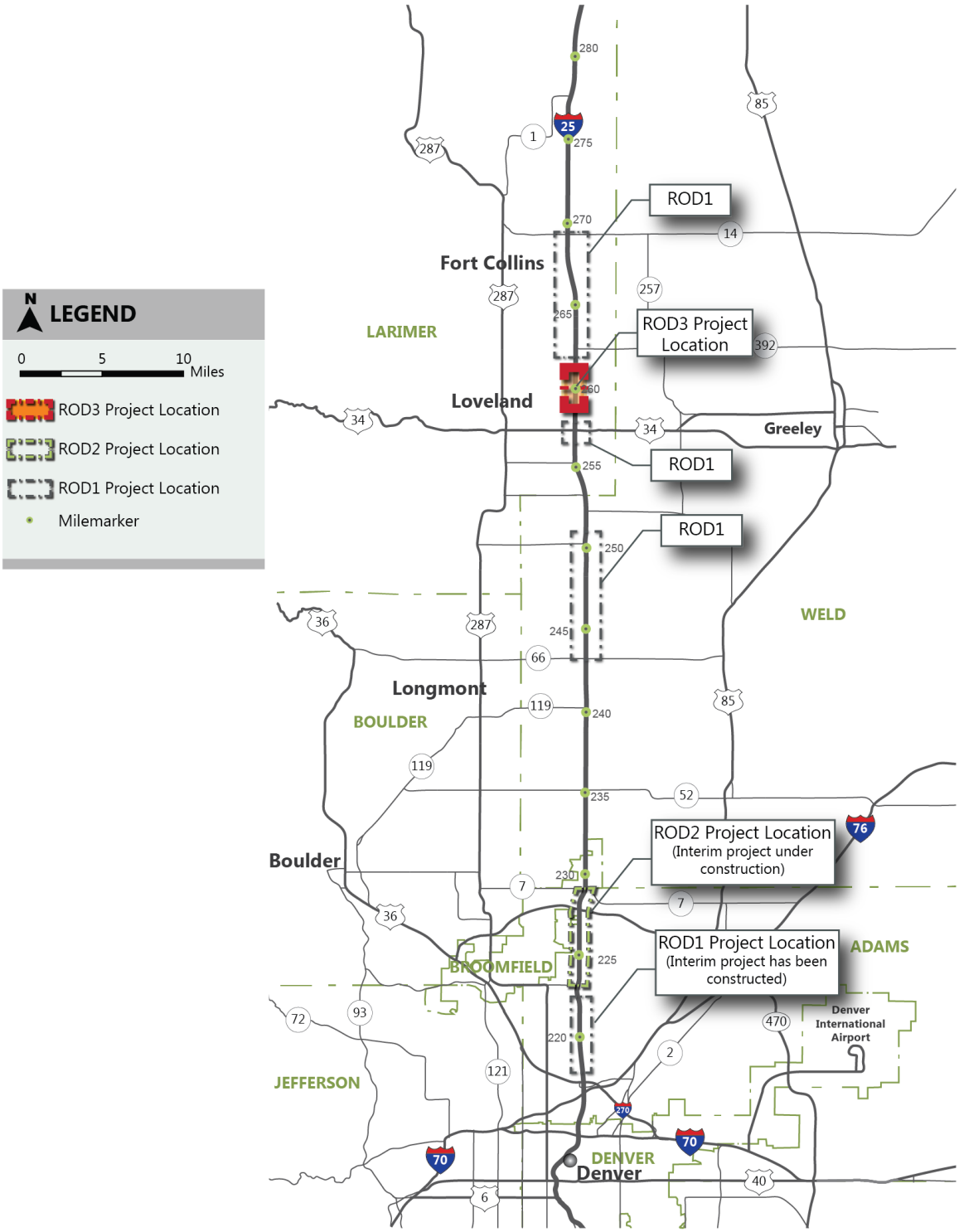


Table 1. Funding Sources for ROD3

Funding Source		Total $	Expended	Committed	
			FY 2015	FY 2016	FY 2017
Federal	National Highway Performance program	$4,264,584	$912,100	$3,352,484	$0
Federal	Surface Transportation Program	$2,000,000	$0	$0	$2,000,000
State		$25,235,416	$87,900	$25,147,516	$0
Local		$500,000			$500,000
	Total	**$32,000,000**	**$1,000,000**	**$28,500,000**	**$2,500,000**
Element		**Total $**	**FY 2015**	**FY 2016**	**FY 2017**
Design		$2,035,000	$255,980	$1,779,020	$0
ROW		$65,000	$0	$65,000	$0
Utilities		$250,000	$0	$250,000	$0
Construction		$29,650,000	$0	$0	$29,650,000
	Total	**$32,000,000**	**$255,980**	**$2,084,020**	**$29,650,000**

INDEPENDENT UTILITY AND LOGICAL TERMINI

Independent utility means that a proposed project is a reasonable expenditure and would be usable even if no additional improvements are made in the area. A NEPA proposed action must have rational physical end points and allow for review of environmental impacts on a broad scale. Chapter 8 of the FEIS identified phases for the entire Preferred Alternative. All phases have independent utility and logical termini.

The FEIS includes reconstruction of the two-lane I-25 mainline to allow for one future express lane and one general purpose lane in each direction, reconstruction of the northbound and southbound bridges over Crossroads Boulevard, and realignment of the NW frontage road extending Byrd Drive to Earhart Road. CDOT and FHWA intend to work towards implementation of the FEIS Preferred Alternative in its entirety through a phased approach as funds become available.

The ROD3 Selected Alternative reconstructs 1.5 miles of the existing I-25 mainline, including the replacement of the northbound and southbound bridges that carry I-25 over Crossroads Boulevard. An additional lane will be constructed in each direction on Crossroads Boulevard under I-25. The project also connects two end points for Byrd Drive; at Goldco Drive just south of Earhart Drive and just north of the intersection of existing Byrd Drive with Crossroads Boulevard (Figure 1).

The northern and southern termini of the I-25 reconstruction are logical since the reconstruction only corrects the vertical and horizontal alignment and does not add additional lanes. The project replaces the I25 bridges over Crossroads Boulevard to a configuration that incrementally supports the FEIS Preferred Alternative. To replace the I25 bridges, vertical and horizontal adjustments are needed on the I25 mainline. To accommodate this new template, the frontage road will be realigned. The realignedfrontage road will become Byrd Drive between the terminus of the existing Byrd Drive and Earhart Drive. In addition, the reconstructed bridges will accommodate an additional lane in each direction on Crossroads Boulevard uner I25.

The northern terminus of Byrd Drive is logical because it connects to a section of Byrd Drive that terminates a half block south of Earhart Drive. The southern terminus of Byrd Drive is logical because it connects to the existing Byrd Drive north of Crossroads Boulevard. The new section of Byrd Drive will provide a safer cross-section and is more consistent with local development plans than the existing NW frontage road.

OTHER TRANSPORTATION PROJECTS

There have been changes in I-25 transportation projects since December 2011 when the ROD1 was signed. These changes include:

- **Lack of funding for FasTracks commuter rail corridors**, which has resulted in a substantial delay for the planned Northwest Corridor, which is to run from Westminster to Boulder to Longmont. This lack of funding has also resulted in a shortened North Metro commuter rail corridor. Instead of ending at 162nd Avenue, the North Metro corridor is now funded to 124th Avenue. Additional funding is not anticipated until after 2040.
- **Completion of the Northwest Area Mobility Study**, which examined options for completion of the FasTracks service in the northwestern Denver metropolitan area. The recommendations from this study included completion of a bus rapid transit (BRT) system on US 36; addition of arterial BRT service on SH 119 from Longmont to Boulder and on US 287 from Longmont to Denver Union Station, and perhaps other corridors, such as SH 7; addressing the existing I-25/US 36 reversible high-occupancy vehicle/high-occupancy toll lanes; and continuing to look for funding opportunities to complete the Northwest Rail Corridor. CDOT has funded a study of bus-on-shoulder applications in the short term on US 36 and I-25 in the vicinity of the US 36/I-25 interchange and on one or more of the arterial BRT corridors.
- **Completion of the North I-25 (US 36 to State Highway 7) Planning and Environmental Linkages (PEL) study**, which recommends a continuous acceleration/deceleration lane on both sides of I-25 from US 36 to north of State Highway (SH) 7. The PEL study recommended new park-n-rides at 128th Avenue, 136th Avenue, 144th Avenue, and SH 7. The PEL study also recommended converting the tunnel at the Wagon Road park-n-ride on the southwest corner of 120th Avenue and I-25 to a bi-directional tunnel for buses, and adding ramp meters at 120th Avenue (northbound and southbound), 136th Avenue (northbound and southbound), 144th Avenue (northbound and southbound) and SH 7 (southbound). This PEL study was completed in December 2014. CDOT has since funded design for portions of the recommendation.

- **Completion of the SH 7 PEL study** (CDOT, 2014), which identified a diverging diamond interchange configuration at SH 7/I-25 as a viable option to the partial cloverleaf configuration that was included in the North I-25 FEIS and the ROD1. This study also recommended widening of SH 7 in the vicinity of I-25 to carry three 12-foot travel lanes in each direction, with a 30-foot raised median, 12-foot shoulders/bike lanes, and a 10-foot shared use path on each side of SH 7.
- **Design and construction of the North I-25 Express Lanes from US 36 to just south of 120th Avenue**, including tolling and intelligent transportation systems (ITS) infrastructure, active traffic management in the southbound direction, resurfacing, reconstructing and restriping I-25, adding four new noise walls, and rehabilitating existing noise walls. This project opened to the public in March 2016. It is an interim version of this section of the Selected Alternative from the ROD1.
- Design and construction of the North I-25 Express Lanes from just south of 120th Avenue to E-470 (ROD2 Reevaluation). The ROD2 had a northern terminus that was just south of SH 7.
- **SH 7/I-25 Interchange ROD 1 Revision** which evaluates impacts using a diverging diamond interchange configuration rather than a partial cloverleaf, which was included in the ROD1. An analysis is anticipated for completion in the Summer of 2016.
- **Completion of the Interregional Connectivity Study**, which examined high-speed rail between Fort Collins and Denver. This was studied during the FEIS/ROD1 but not recommended because it would not respond to the North I25 FEIS purpose and need because of the lack of stations at most of the communities. It recommended that high-speed rail be located along the east side of I-25 between Fort Collins and a North Suburban Station at E-470/Northwest Parkway.
- **Interregional bus service (called Bustang) on I-25**. CDOT's Division of Transit and Rail (DTR) added express bus service to I-25 with stops at the Harmony Road park-n-ride and US 34/I-25 and service ending in downtown Denver (Denver Union Station and the bus terminal). This service consists of five round trips per weekday (four during the peak period and one during the off-peak period). This service will use the Express Lanes on I-25 when they are completed. Service began in July 2015.
- **North Front Range Commuter Rail Update** is a study undertaken by CDOT's DTR initiated in summer 2014. Goals of the study included updates to the costs, alignment, and operating plans for the commuter rail component of the North I-25 Preferred Alternative. This study, completed in April 2015, recommends a new commuter rail alignment in the I-25 ROW along the east side from Weld County Road 8 to SH 119. It also recommends two alternate station locations and a revised operating plan (CDOT, 2015b). At this time, no changes to the FEIS Preferred Alternative are anticipated as a result of this study.

2.0 DESCRIPTION OF THE ROD3 SELECTED ALTERNATIVE

The ROD3 Selected Alternative is identical to portions of the FEIS Preferred Alternative (PA) located at or near Crossroads Boulevard. This project replaces the I25 bridges over Crossroads Boulevard to a configuration that incrementally supports the FEIS (PA). Adjustments to the horizontal and vertical alignment on the I25 mainline will be necessary to construct the bridges to the FEIS PA alignment.

The project is located within the city limits of Loveland, Colorado, in Larimer County. The project limits extend from MP 258.67 to MP 260.16 on I-25. Improvements to Crossroads Boulevard will occur between the I25 ramp roundabouts as depicted on Figure 1.

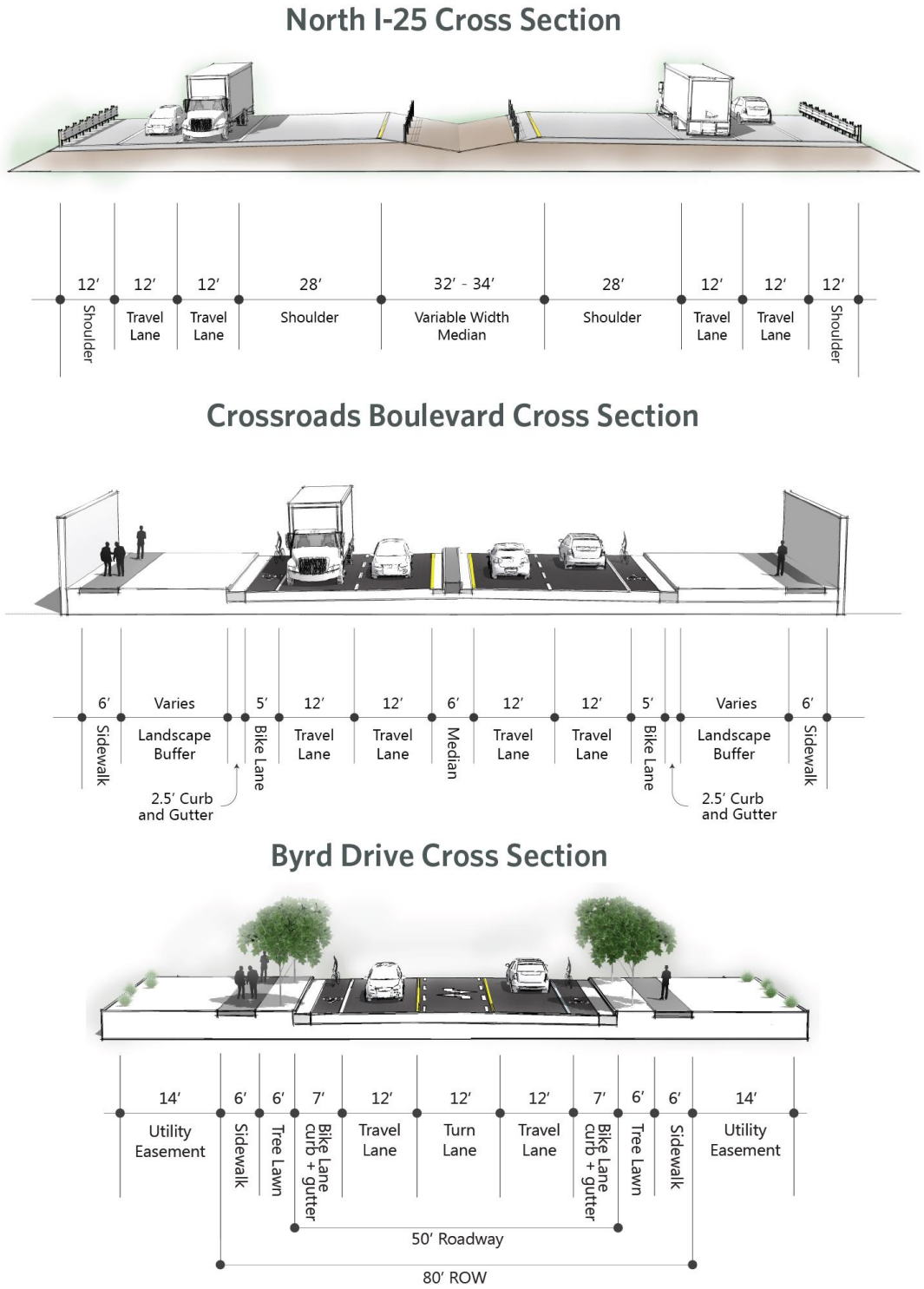
To be able to accommodate this new template, the frontage road will be realigned. The existing NW frontage road will be removed. Byrd Drive will take the place of the NW frontage road and will serve local traffic In addition, the lengthening of the I25 bridges over Crossroads Boulevard will accommodate one additional lane in each direction under I-25.

The proposed ROD3 project design elements include vertical and horizontal profile adjustments north and south of the reconstructed I-25 bridges over Crossroads Boulevard. The reconstructed bridges will accommodate an express lane as identified in the FEIS Preferred Alternative.

Additionally, the design includes the realignment of the existing NW frontage road which would extends Byrd Drive south of Earhart Road. Byrd Drive will be built in its ultimate location to serve local traffic as shown in the Preferred Alternative. These infrastructure improvements, including the improvements to Byrd Drive, will support future system wide capacity improvements that can safely and efficiently accommodate the higher traffic volumes projected within the study area. These improvements are detailed further below.

- **I-25 Mainline Reconstruction**: Approximately 1.5 miles of the existing roadway will be reconstructed to the roadway cross section as shown in Figure 3, which includes 12 foot outside shoulders, two 12 foot lanes, two 28 foot inside shoulders, and a variable width median between 32 and 34 feet. The 28 foot shoulders will allow for a future express lane as planned in the FEIS Preferred Alternative.
- **I-25 Bridge Replacement**: The northbound and southbound bridges that carry I-25 over Crossroads Boulevard will be replaced. The new bridges will be widened from 41 feet to 67 feet to accommodate a future express lane.
- **Byrd Drive Mainline Extension.**: A 0.67-mile extension of Byrd Drive will be constructed to connect to Goldco Drive. The roadway cross section as shown in Figure 3 includes two 12-foot lanes, two 7-foot bike lanes, two 6-foot tree lawns, two 6-foot sidewalks, and two 14 foot utility easements.
- **Water Quality Treatment**: The project will incorporate MS4 features as required by CDOT. Four water quality ponds will be constructed in the gores of I-25 and Crossroads. For Byrd Drive, the terms and conditions of the City of Loveland's MS4 are applicable. A Stormwater Management Plan (SWMP) will be developed during design, implemented during construction and updated as needed.
- **Crossroads Boulevard:** The new bridges over I-25 will accommodate a wider cross section on Crossroads Boulevard. Crossroads Boulevard roundabouts carry two lanes of traffic in both direction but merge into a single lane east and west as vehicles travel between the roundabouts and pass under I-25 (Figure 5). Once the I-25 bridges over Crossroads Boulevard are reconstructeditwill allow for Crossroads Boulevard to be widened to two lanes in each direction under I-25, improving roadway geometry and channelization to improve safety and driver expectations. Widening on Crossroads Boulevard was not included in the FEIS.

Figure 3. ROD3 Selected Alternative Cross Sections



- **I-25 Frontage Road**: The existing NW frontage road will remain open to traffic while Byrd Drive is being constructed. The frontage road pavement within CDOT right-of-way will be removed once Byrd Drive is constructed. Any remaining pavement that is not within CDOT right-of-way will be abandoned and either removed as a part of the ROD3 project or removed during subsequent development of that parcel.
- **Construction Phasing:** Roadway construction would be broken into three main phases so as to accommodate traffic and minimize disruptions. The phases are described in detail under Section 6.25, Construction.

Figure 3 depicts the cross-sections of the ROD3 Selected Alternative. Figure 1 illustrates these elements of the ROD3 Selected Alternative and shows the limits of the study area used to assess impacts of the ROD3 Selected Alternative.

3.0 PROJECT PURPOSE AND NEED

The purpose of the North I-25 Project is discussed in Chapter 1 of the FEIS and summarized here. It is to meet long-term travel needs between the Denver Metro Area and the rapidly growing population centers along the I-25 corridor north to the Fort Collins-Wellington area. To meet long-term travel needs, the project must improve safety, mobility, and accessibility, and provide modal alternatives and interrelationships. The ROD3 Selected Alternative incrementally addresses the purpose and need in the following ways:

3.1 Increasing Traffic Congestion Leading to Mobility and Accessibility Problems

The ROD3 Selected Alternative supports overall improvements of the Preferred Alternative identified in the FEIS.

The ROD3 Selected Alternative reconstructs 1.5 miles of the existing I-25 mainline to the north and south of Crossroads Boulevard. The reconstructed bridges will accommodate an express lane in the future.

The I-25 and Crossroads Boulevard diamond interchange includes two roundabouts located at the I25 ramps. The roundabouts carry two lanes of traffic in both direction but merge into a single lane east and west as vehicles travel between the roundabouts and pass under I-25 (Figure 4 and Figure 5). Once the I-25 bridges over Crossroads Boulevard are reconstructed, it will allow for Crossroads Boulevard to be widened to two lanes in each direction under I-25, improving roadway geometry and channelization to improve safety and driver expectations. These lanes will tie into the existing two-lane roundabouts located on either side of I-25. This is for safety and consistency purposes and will improve weave and merge operations incrementally.

The existing NW frontage road will be realigned with a new 3,600-foot section of Byrd Drive between Earhart Road and the existing intersection of Byrd Drive with Crossroads Boulevard. Additionally, the design includes the realignment of the NW frontage road extending Byrd Drive south of Earhart Road. Byrd Drive will be built in its ultimate location to serve local traffic as shown in the Preferred Alternative.

Figure 4. Crossroads Boulevard Interchange—Existing Conditions

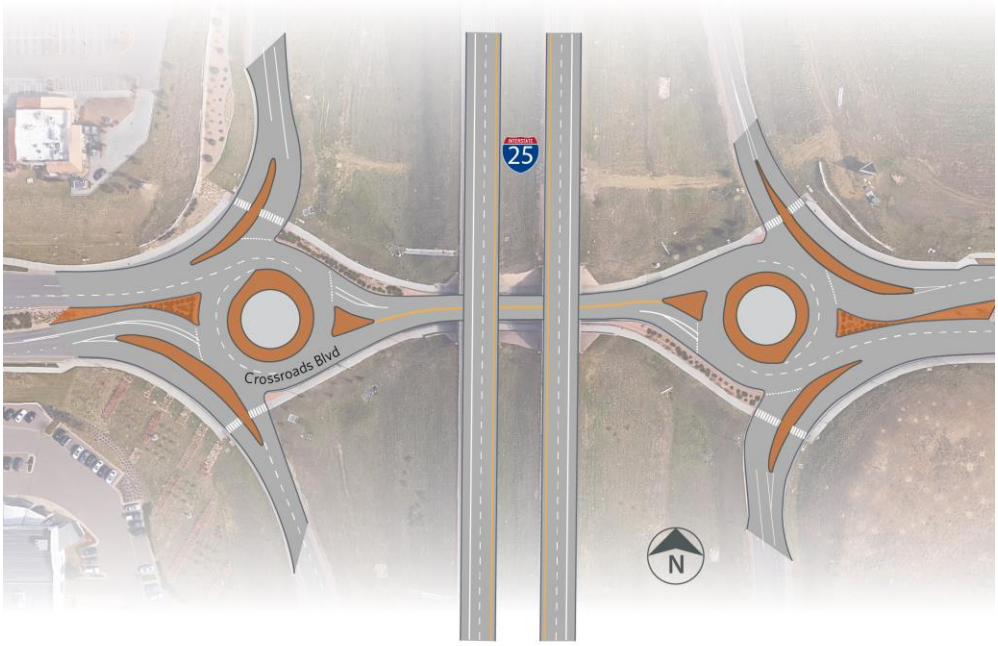
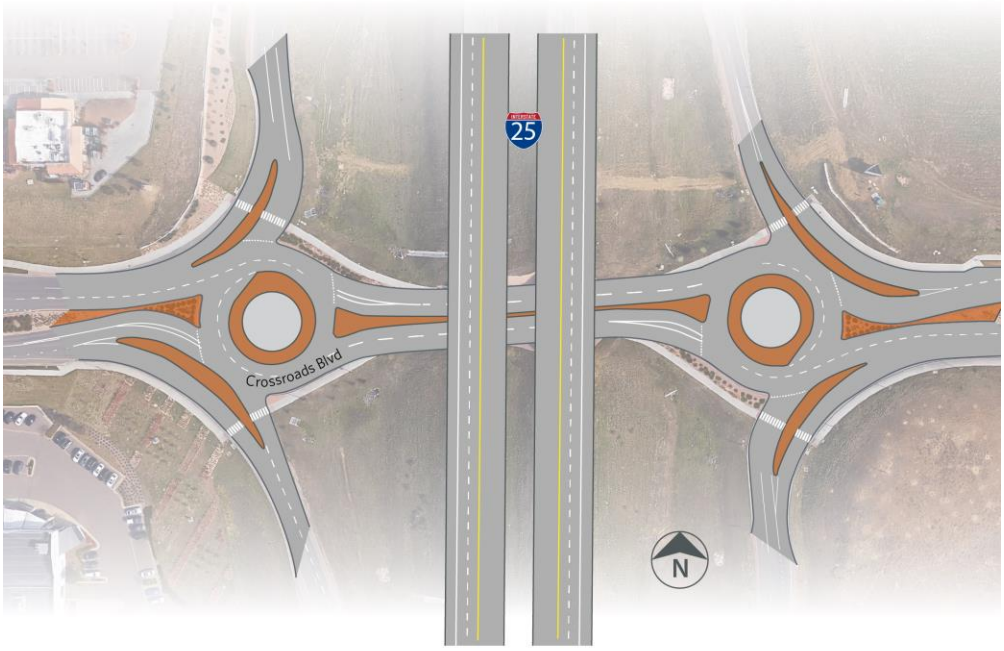


Figure 5. Crossroads Boulevard Interchange—Future Conditions



Although reconstruction of Crossroads Boulevard was not identified in the FEIS, improving mobility between the two 2-lane roundabouts that merge down to one lane in each direction will help to address the purpose and need by addressing the congestion related to heavy truck movements and traffic volumes.

These infrastructure improvements, including the improvements to Byrd Drive, will support future system wide capacity improvements that can safely and efficiently accommodate the higher traffic volumes projected within the study area.

3.2 Aging and Functionally Obsolete Infrastructure

The improvements selected in this ROD3 include replacement of two functionally obsolete I-25 bridges. The bridges were constructed in 1963; as such, they have reached their 50 year service life and are expected to experience accelerated deterioration moving forward. The northbound (NB) I-25 Bridge (C-17-ES) has a rating of 93.1 and the southbound (SB) I-25 Bridge (C-17-ET) has a rating of 82.1 on the CDOT Structure Inspection and Inventory Report (CDOT, 2015). While these sufficiency ratings are quite high, both structures are rated to be functionally obsolete, due to the narrow road width under the bridges. The functionally obsolete designation indicates that the roadway opening for Crossroads Boulevard does not meet current width standards for the current and projected traffic volumes.

3.3 Safety

The Selected Alternative for ROD3 does not specifically address deficiencies identified in the FEIS.

Byrd Drive will be built in its ultimate location as described in the FEIS, which will better accommodate local traffic. The new roadway will include 7-foot bike lanes, 6-foot tree lawns, and 6-foot sidewalks instead of the 2-foot shoulders which exist on the current frontage road. These additions will improve safety over the existing conditions. The realignment supports the City of Loveland's land use plans.

3.4 Lack of Modal Alternatives

There is little or no intra-regional or inter-regional public transit service along I-25. The FEIS referenced survey data indicating a need for other transportation mode options to connect communities. The FEIS indicated that there was a strong desire by residents to see regional transit options improved. It also indicated there was additional transit demand as an aging population becomes more transit dependent. The FEIS also identified a lack of modal options to meet unmet demand from existing vanpool and carpool options.

The ROD3 Selected Alternative is wide enough to accommodate anexpress lane in the future. This infrastructure investment will make it easier to accomodate and reduce additional infrastructure improvements at I-25 and Crossroads Boulevard to facilitate express buses, carpools and vanpools and provide a greater choice in modal alternatives.

4.0 ALTERNATIVES CONSIDERED

There were a number of alternatives developed and evaluated during the North I-25 EIS process. These were documented in the *North I-25 Draft Environmental Impact Statement* that was released for public comment in 2008 and in the FEIS that was released for public comment in August 2011. These alternatives included:

No Action Alternative, which included only projects with committed funding. This included the two FasTracks rail corridors (Northwest Rail and North Metro), the bridge over I-25 at 84th Avenue, the I-25/SH 392 interchange reconstruction, interchange improvements at I-25 and Prospect Road, and the replacement of the I-25 frontage road over the Little Thompson River.

Package A, which focused on general purpose lane widening of I-25 (one additional lane in each direction) plus construction of a double-tracked commuter rail line between Fort Collins and Thornton (at the terminus of the FasTracks North Metro commuter rail line). Package A also included commuter bus service along US 85 from Greeley to downtown Denver and along E-470 from US 85 to Denver International Airport (DIA).

Package B, which included one additional tolled Express Lane (now referred to as Express Lane) along I-25 in each direction except north of SH 60, where two tolled Express Lanes (now referred to as Express Lanes) in each direction were assumed. Package B also included bus rapid transit service along I-25 and feeder bus service along several arterial streets.

Preferred Alternative, which combined some elements of Package A with Package B. I-25 would be widened with general purpose lanes and Tolled Express Lanes (now called Express Lanes). Substandard interchanges would be reconstructed or upgraded.

The Preferred Alternative also includes commuter rail transit service from Fort Collins to the anticipated FasTracks North Metro end-of-line. Service to Denver would travel through Longmont and along the FasTracks North Metro Corridor. A connection to Boulder would also be made with a transfer to Northwest Rail at the Sugar Mill Station in Longmont. Nine commuter rail stations and a commuter transit maintenance facility are included in the Preferred Alternative. The commuter rail would consist of a single track with occasional passing tracks at four locations. The BNSF Railway is requiring that commuter rail utilizing BNSF track upgrade BNSF facilities to include a maintenance road where maintenance access is not available. The Preferred Alternative design includes a maintenance road parallel to the BNSF line between Longmont and Fort Collins. Commuter rail track that is not within the BNSF right-of-way does not include a maintenance road.

Express bus service would operate in the Express Lanes to connect northern Colorado communities to downtown Denver and DIA and serve 13 stations along Harmony Road, US 34, and I-25. Commuter bus service along US 85 would connect Greeley with downtown Denver with five stops at the communities along the route. A bus maintenance facility would be constructed to accommodate both express buses and commuter buses.

As documented in the ROD1, the Preferred Alternative:

- Best responds to the project purpose and need (reducing the frequency and severity of crashes, addressing the increasing traffic congestion along I-25, replacing aging and functionally obsolete infrastructure, and providing modal alternatives).
- Best responds to the land use goals of the cities and counties.
- Provides the best regional connectivity.
- Provides the best regional safety.

- Provides the best overall travel reliability into the future.
- Best supports livability goals (energy consumption, land use, environmental factors).

4.1 Environmentally Preferable Alternative

The Council on Environmental Quality regulations (40 CFR 1505.2[b]) require the ROD to identify the environmentally preferable alternative. The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. The Council on Environmental Quality has clarified that the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment, and that best protects, preserves, and enhances historic, cultural, and natural resources. The National Environmental Policy Act (NEPA) does not require an agency to select the environmentally preferable alternative.

Package A requires relocation of the most number of residences and businesses, results in slightly higher total air emissions than the other packages, results in the most acres of vegetation impacts and soil disturbance, the most acreage of impact to potential Preble's meadow jumping mouse habitat, the highest numbers of adverse effects to properties on the National Register of Historic Places (NRHP) and the most number of parcels with potential or recognized hazardous material conditions. Package A also exacerbates an existing freight rail barrier between neighborhoods in some areas and creates a new barrier in other areas. Package A improves transit related mobility on two corridors in the regional study area. The addition of general purpose lanes to I-25 does not provide an opportunity to manage congestion over time, as volumes grow.

Package B results in the largest number of residences and commercial buildings that would be impacted by highway noise, the most acreage of new impervious surface area, the most wetland impact, the most acreage of floodplain impact, the greatest acreage of impact to sensitive wildlife habitat and aquatic habitat, and the most acres of impact to black-tailed prairie dog habitat. Package B concentrates both highway and transit improvements on a single corridor, I-25. It therefore does not have the negative community impacts the other two alternatives have on noise, visual and community cohesion. It requires the least number of residential and business relocations. It could also tend to provide a growth stimulus to areas along I-25, farther away from the downtown areas located along the US 287 corridor.

Air pollutant emissions associated with all three build packages would be slightly greater than those anticipated under the No-Action Alternative because vehicle miles of travel would be expected to increase. These emissions in 2035 would, however, be lower than existing levels for all pollutants and in all alternatives.

In general, the magnitude and severity of the impacts of the three build alternatives to the natural environment are relatively similar taking into account the size of the project. The Preferred Alternative has fewer impacts to the habitat for the Preble's meadow jumping mouse, a federally threatened species. The Preferred Alternative also has the least impacts to aquatic resources. On the other hand, the Preferred Alternative has more impacts than either of the other build alternatives to bald eagle foraging habitat and raptor nests and it has more impervious surface than Package A.

The Preferred Alternative has been determined to cause the least overall harm to Section 4(f) properties. The Preferred Alternative is most responsive to land use goals of stimulating growth around transit stations, because it includes commuter rail along US 287, express bus along I-25 and commuter bus along US 85. Over time, there is a greater potential with the Preferred Alternative to conserve energy and reduce air emissions because of the easier expansion capabilities of transit service provided on more corridors and because of the potential for transit oriented development around commuter rail, express bus and commuter bus stations. The Preferred Alternative also has the least impact to aquatic resources, including wetlands, other jurisdictional waters, aquatic habitat, and impacts to Preble's meadow jumping mouse habitat. For these reasons, the Preferred Alternative is considered to be the Environmentally Preferable Alternative.

4.2 Least Environmentally Damaging Practicable Alternative

The FEIS Preferred Alternative (which includes the ROD3 Selected Alternative) has received a Section 404 permit. There is no difference in wetland or Waters of the US impacts between the FEIS Preferred Alternative in this section and the ROD3 Selected Alternative. CDOT is currently constructing the wetland mitigation which will be completed in advance of wetland impacts. However, there are no wetlands or Waters of the U.S. in the study area. The permit number is NOW-2004-80110-DEN. This permit was issued on May 17, 2013. In issuing this permit, the US Army Corps of Engineers has confirmed that the FEIS Preferred Alternative, which includes the ROD3 Selected Alternative, is the Least Environmentally Damaging Practicable Alternative.

4.3 ROD1 and Phased Implementation

A phased approach to the decision-making process was taken during development of the ROD1 because the solution to the identified transportation problems cost more to implement than is available in the fiscally constrained RTPs. The identification of an initial phase for implementation is consistent with FHWA requirements to have funding identified for projects before final decisions are made.

The ROD1 identified a set of guiding principles that were to be used to develop a phasing plan for the Preferred Alternative. These were related to project purpose and need and include:

1. Replace aging infrastructure.
1. Address safety concerns.
2. Improve mobility.
3. Coordinate with community plans.
4. Consider long-term with near-term implementation.
5. Implement a cost-effective solution.

The improvements identified in this ROD3 meet these guiding principles by:

- Replacing aging infrastructure.
- Addressing safety concerns.
- Considering long-term with near-term implementation.

5.0 COORDINATING WITH COMMUNITY PLANS, TRAFFIC AND TRANSPORTATION

There are no changes in laws, regulation or guidance that affect traffic and transportation analyses. Existing conditions on Crossroads have changed from the stop-controlled ramp intersections described in the FEIS to roundabout intersections. The future traffic and transportation conditions are similar to those as described in the FEIS. The study area is continuing to grow at a rapid rate as the economy improves as expected in the FEIS.

5.1 Impacts of the ROD3 Selected Alternative

The safety improvements provided by the ROD3 Selected Alternative are in accordance with the safety goals of the Loveland 2035 Transportation Plan and the North Front Range Metropolitan Planning Organization (NFRMPO) 2040 Transportation Plan. The Byrd Drive realignment is included in the 2035 Loveland Transportation Plan and the I-25/Crossroads Boulevard reconstruction is included in the NFRMPO 2040 Transportation Plan.

Immediately north of Crossroads Boulevard, Byrd Drive currently carries approximately 14,000 vehicles per day, with the majority of travelers destined to/from the nearby retail and commercial development . Based on 2011 vehicle counts and 2015 field observations an estimated 6,200 vehicles per day travel between Crossroads Boulevard and Earhart Road on the existing frontage road. On Crossroads Boulevard, daily traffic counts are approximately 11,200 vehicles per day and 11,500 vehicles per day to the west and east of the I-25 interchange, respectively.

2040 projected daily volumes on the new alignment of Byrd Drive are 22,000 immediately north of Crossroads Boulevard, while 9,700 vehicles will travel between Earhart Road and Crossroads Boulevard. On Crossroads Boulevard, 2040 daily traffic counts are projected to be approximately 33,500 vehicles per day and 30,500 vehicles per day to the west and east of the I-25 interchange, respectively. (HDR, 2016; NFRMPO, 2015).

The additional lane in each direction that would be added below the I25 bridges would more efficiently serve east and westbound traffic using Crossroads Boulevard. Traffic flow would be smoother since the roundabouts carry two lanes of traffic which would now continue underneath the I-25 bridges.

The updated future volumes are similar to that described in the FEIS, noting that a direct comparison is difficult due to changes in the surrounding local network.

For the Crossroads ramp intersections, updated traffic analysis indicates the ramp terminal level-of-service (LOS) will be similar to those forecast in the FEIS. The FEIS 2035 No-Action indicates that the ramp terminals will operate at LOS E/F during the peak periods. The updated traffic analysis also shows the peak period LOS at these roundabout ramp intersections will operate approach LOS E/F by the year 2040.

Intersections with a LOS E or F rating are considered to be operating at capacity or exceeding capacity levels, respectively. The amount of traffic approaching the intersection is greater than the amount that can be served, leading to congestion and increased risk of accidents.The FEIS 2035 analysis of the final design of a signalized diamond interchange demonstrated that the peak period LOS improves to C/D. Traffic flow is stable and acceptable at an intersection with

LOS C, and may have delays at an intersection with LOS D. LOS C/D are target goals for peak period traffic flow at intersections in urban areas (Highway Capacity Manual, 2010).

The FEIS analysis for the year 2035 indicated that average annual traffic growth rates on the Crossroads Boulevard ramps would range between 3.6percent and 6.0 percent. The updated 2040 data indicates average annual traffic growth rates on the Crossroads Boulevard ramps in the range of 1.3 percent to 2.3 percent. However, substantial traffic growth has occurred between 2005 and 2015, and so the rate of growth between the base year and the future years is now lower.

The ROD3 Selected Alternative improvements would effectively serve the forecasted traffic, similar as described in the FEIS alternatives but will not improve mobility on the mainline of I-25. The increased shoulder width on Byrd Drive and Crossroads Boulevard would improve safety and serve bicyclists.

During construction, although access would be maintained, there could be short-term alterations or minor disruptions in access and some traffic delays. On the mainline of I-25, the existing southbound bridge will be widened to the west with a temporary bridge to help divert northbound traffic. No detours will be required on the mainline; however the ramps will be detoured off-site at times during the night. During the bridge demolition, Crossroads Boulevard will be closed in both directions for nine nights. For Byrd Drive, disruptions would be minimized because most of the construction on Byrd Drive would be completed while traffic continues to use the frontage road. After construction on Byrd Drive is complete, barricades and signage would be used to switch traffic from the frontage road to Byrd Drive. More information can be found in Section 6.24, Construction.

5.2 Mitigation

Standard construction related mitigation would be required as described in Table 2.

Table 2. Traffic and Transportation Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Construction safety and mobility impact	▪ A Traffic Management Plan will be developed that identifies a construction related traffic control plan, work zone management strategies, and contingency plans.
Construction access disruptions	▪ Access to local businesses and residences will be maintained.

6.0 ENVIRONMENTAL RESOURCES

The ROD3 process included a review of existing conditions, future conditions, changes in legislation, regulations, policies, or guidance, and changes in mitigation for each of the environmental resources examined in the North I-25 FEIS. A summary of major findings of this review is presented in this document. Additional technical information is contained in the following documents:

- *E RecSearch Report for North I-25 ROD3: Crossroads Bridge Replacements* (GeoSearch, 2016; Appendix A)

- *Final Geotechnical Investigation Report I 25/Crossroads Boulevard Bridge Replacement* (Yeh & Associates, 2015; Appendix B)
- I-*25 over Crossroads Boulevard Loveland, Colorado Traffic Noise Technical Report* (HDR, 2016; Appendix D)
- CDOT Mitigation Tracking Form (Appendix D)

Changes in existing conditions, future conditions, legislation, regulations, policies, guidance, or mitigation that would affect the Selected Alternative are summarized in the following resource discussions. Because the design of the ROD3 Selected Alternative is identical to the design used for the FEIS Preferred Alternative, the primary changes in impacts or mitigation are associated with changes in existing or future conditions or legislation, regulations, polices, or guidance. None of the changes are anticipated to result in a new significant impact that was not identified in the FEIS.

6.1 Land Use

Existing land uses have not changed for the study area since they were described in the FEIS. Land surrounding the Crossroads Boulevard interchange and the vacant land that Byrd Drive will traverse is zoned light industrial and commercial. Several auto dealerships are located in the southwest quadrant of the Crossroads Boulevard Interchange, and two hotels, and a strip mall are located in the southeast quadrant. The northeast quadrant is primarily vacant land and the Thunder Mountain Amphitheater is located in the northwest quadrant.

A Harley Davidson store, a Western Area Power Authority office building and the Thunder Mountain amphitheater are located on the southern end of the Byrd Drive corridor and a Commercial Driving License training center on the northern end. These existing land uses in the general area are those associated with the Fort Collins–Loveland Airport, which is located immediately northwest of the study area.

6.1.1 Impacts of the ROD3 Selected Alternative

As described in the FEIS, there would not be any impacts from the ROD3 Selected Alternative as it is compatible with existing and planned land uses. Future land use is consistent with the City of Loveland zoning and planned land use. Byrd Drive will traverse land zoned as “developing industrial.” Zoning surrounding the Crossroads Boulevard interchange is “developing industrial” to the east and northwest and “Planned Unit Development,” to the southwest (City of Loveland Zoning Map, October 2015). The future land use surrounding the Crossroads Boulevard interchange is designated “Regional Activity Center”.

There will not be any impacts to land use from any element of the ROD3 Selected Alternative.

6.1.2 Mitigation

No mitigation is required.

6.2 Social Conditions

There have been new regulations and guidance issued for environmental justice since the FEIS. This analysis considered the following changes in guidance and regulations for environmental justice. *FHWA Guidance on Environmental Justice and NEPA*, signed on December 16, 2011,

supplements FHWA Technical Advisory 6640.8A, and provides guidance on the process for addressing Environmental Justice, Title VI, and Limited English Proficiency. This guidance includes the documentation requirements for NEPA studies and directs the analysis to consider only those adverse effects that remain after mitigation is considered when evaluating disproportionately high and adverse effects. Department of Transportation (DOT) Order 5610.2(a) was issued on May 2, 2012. FHWA Order 6640.23A was issued on June 14, 2012. The most current CDOT NEPA Manual was released in October 2014. Each of these issuances contains updated information on environmental justice analysis.

The FEIS did not identify any populations in the study area for the ROD3 Selected Alternative that are protected by the Environmental Justice Executive Order and DOT order. The new analysis completed for the ROD3 using 2010 Census data did not change this finding.

6.2.1 Impacts of the ROD3 Selected Alternative

The impacts of the ROD3 Selected Alternative are the same as documented in the FEIS. The FEIS indicated that impacts and benefits would be distributed across all communities, including minority and low-income populations, as well as non-minority/non-low-income populations. All segments of the population would benefit from safety and access improvements to businesses, residences, and community facilities, from stronger regional community connections resulting from the ROD3 Selected Alternative; and from mitigation commitments which will, in some cases, improve conditions over existing conditions and over the No-Action Alternative.

Right-of-way (ROW) for Byrd Drive was dedicated to the City of Loveland in 2003 by Rocky Mountain Airport Investments, LLC. The new road provides a more direct connection from commercial uses just north of Crossroads Boulevard to commercial and industrial uses just south of Earhart Drive. Crossroads Boulevard improvements would not extend outside of existing CDOT ROW. No permanent impacts would occur from the ROD3 Selected Alternative.The additional lanes on Crossroads Boulevardprovide a beneficial safety improvement..

During construction, detours, traffic delays, and temporary noise and visual impacts may occur. Construction phasing is planned to minimize temporary impacts to the extent possible. Employment and other positive indirect economic effects would occur during construction.

6.2.2 Mitigation

Mitigation measures for the impacts of the ROD3 Selected Alternative to social conditions are presented in Table 3.

Table 3. Social Conditions Impacts and Mitigation of Selected Alternative

Impact	Mitigation
During construction, detours, traffic delays, and temporary noise and visual impacts may occur.	A Traffic Management Plan will be developed that identifies a construction related traffic control plan, work zone management strategies, and contingency plans.

6.3 Economic Conditions

There are no changes in economic conditions and there are no changes in laws, regulation or guidance that affects economic analyses. The study area is continuing to grow at a rapid rate as the economy improves.

6.3.1 Impacts of the ROD3 Selected Alternative

The ROD3 Selected Alternative will improve travel conditions in the study area and will not require the purchase of land that could be otherwise used for commercial activities. The improvements will occur within existing ROW and will not impact existing businesses or potential economic activities. When compared to the existing situation with the frontage road immediately adjacent to I-25, realigning the NW frontage road with Byrd Drive is more consistent with local development plans for an airpark. There will be short-term improvements in the local economy associated with construction related employment. These impacts are not changed from the FEIS.

The I-25 and Crossroads Boulevard interchange is surrounded by commercial and retail development. During construction, access to local businesses may be temporarily disrupted or a minor delay may occur which could negatively impact the performance of some of the businesses. Conditions will return to normal once construction is complete.

6.3.2 Mitigation

Mitigation required is typical for construction impacts (Table 4).

Table 4. Economic Conditions Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Disruption or minor delay to business access during construction	To minimize disruption to traffic and local businesses, construction activities will be staged and work hours varied. Throughout the construction stage, access will be preserved for each affected business.

6.4 Right-of-Way

All right-of-way for the project falls either within CDOT or the City of Loveland ROW. The ROW for Byrd Drive was dedicated to the City of Loveland, by Mountain Air Industrial Center Limited, LLC, on May 27th, 2003.

6.4.1 Impacts of the ROD3 Selected Alternative

No new right-of-way is needed; therefore, there are no permanent impacts to right-of-way. Nine temporary easements will be required for construction totaling 1.28 acres.

6.4.2 Mitigation

Temporary easements required for the project will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (the Uniform Act) and other applicable relocation assistance programs (Table 5).

Table 5. Right-of-Way Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Nine temporary easements will be required for construction.	Temporary easements of those property interests required for the project will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (the Uniform Act) and other applicable relocation assistance programs.

6.5 Air Quality

Changes in air quality laws, policies, and guidance since 2011 include:

- The Motor Vehicle Emissions Model (MOVES) 2014a was released in November 2015 and was a major revision to MOVES2010 and its minor revisions (MOVES2010a and MOVES2010b).MOVES2014 includes three new emission control programs associated with regulations promulgated since the release of MOVES2010b:
  - Tier 3 emission standards that phase in beginning in 2017 for cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty trucks, and Tier 3 fuel standards that require lower sulfur gasoline beginning in 2017
  - Heavy-duty engine and vehicle greenhouse gas (GHG) regulations that phase in during model years 2014-2018.
  - The second phase of light-duty vehicle GHG regulations that phase in for model years 2017-2025 cars and light trucks.

  A minor revision, MOVES2014a, was released in November 2015 and incorporates significant improvements in calculating onroad and nonroad equipment emissions.
- FHWA's *Interim Guidance Update on Mobile Source Air Toxics Analysis in NEPA* was updated on December 6, 2012, from the original guidance published in September 2009. The revised guidance reflects changes in methodology for conducting emissions analysis and updates various research topics in mobile source air toxics analyses.
- Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas (EPA, November 2013); Ozone National Ambient Air Quality Standard lowered from 75 ppb to 70 ppb in October 2015 (EPA's nonattainment designations will be made in late 2017)
- Transportation Conformity Guidance for 2012 PM2.5 Nonattainment Areas (EPA, November 2015); Policy Guidance on the Use of MOVES2014 and Subsequent Minor Revisions for State Implementation Plan Development
- Transportation Conformity, and Other Purposes (PDF) (EPA, July 2014); Carbon Monoxide Categorical Hot-Spot Finding (February 2014)

6.5.1 Impacts of the ROD3 Selected Alternative

The ROD3 Selected Alternative does not add vehicular capacity. Although the bridge reconstruction will allow for a future express lane, it will not be added at this time.

The realignment of the NW frontage road north of Crossroads Boulevard will provide bike lanes and sidewalks but will remain a two-lane road in either direction. This will improve safety for non-motorist travelers but will not add any capacity for vehicles. It is not a regionally significant project. For these reasons, the project is exempt per 40 CFR 93.126 and 127. As such, conformity and MSAT analyses are not required. In addition, because this project is not in a CO or PM10 maintenance area, project level analysis (ie. hotspot analysis) is not required regardless of exemptions pursuant to Section 93.126, Table 2. Because the project is not regionally significant, regional analysis is not necessary and the project does not need to be in a conforming plan.

The bridge reconstruction will also allow for an additional lane underneath I-25 in each direction on Crossroads Boulevard. These lanes will tie into the existing two-lane roundabouts located on either side of I-25. This is for safety and consistency purposes and will improve weave and merge operations. This additional lane fits within the definition of an intersection channelization project as described in 40 CFR 93.127. As such, no conformity analysis is required.

During the construction process, dust and other emissions would cause temporary and localized pollution generated by construction vehicles and earth disturbances. A fugitive dust permit would be required (see Section 10.2.1).

6.5.2 Mitigation

The only mitigation that is required is that related to air pollution during construction (Table 6).

Table 6. Air Quality Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Localized dust and other emissions during construction	An operational water truck will be on site at all times. Water will be applied to control dust as needed to prevent dust impacts off site. ▪ Use wetting/chemical inhibitors for dust control. ▪ Stabilize and cover stockpile areas. ▪ Remove soil and other materials from paved streets. ▪ Incorporate recommendations as appropriate from the Regional Air Quality Council (RAQC) report, Reducing Diesel Emissions in the Denver Area (RAQC, 2002). ▪ Operate equipment mainly during off-peak hours. ▪ Limit equipment idling time.

6.6 Noise

Noise levels and associated traffic counts, vehicle type data, and average speeds were measured on December 17, 2015. This data was used as a basis for the development of noise prediction models for the Existing, 2040 No Action, and 2040 Proposed Action traffic scenarios. These models were then used to predict noise levels for all receptor locations. The primary change in noise analysis procedures is due to updated CDOT *Noise Analysis and Abatement Guidelines* in effect dated January 15, 2015. These new guidelines were followed for this ROD3 analysis. See Appendix C for the full analysis done for this ROD3.

A noise sensitive receptor is any location where highway traffic noise may be detrimental to the enjoyment and functional use of the property as defined by the Noise Abatement Criteria (NAC). The NAC are threshold noise levels which are used to determine if receptors are impacted by comparing NACs to future noise levels or the changes in noise levels between existing and future levels. Field reconnaissance and a complete review of all development plans of the area revealed two Category C noise receptors, Thunder Mountain amphitheaters and Larimer County Fairgrounds , and four Category E noise receptors, Embassy Suites outdoor restaurant and Spa, Thunder Mountain Harley outdoor seating, Hooters outdoor seating and Castlewood Suites outdoor grill area with noise sensitive outdoor uses. NAC Activity Category C is a broad category that includes lands such as active sport areas, amphitheaters, hospitals, libraries, places of worship, recreational areas, Section 4(f) sites, schools, and trail crossings. NAC Activity Category E includes lands that are commercial in nature and exhibit characteristics less sensitive to traffic noise such as hotels, vacation rental properties, offices, and restaurants/bars.

6.6.1 Impacts of the ROD3 Selected Alternative

The noise analysis indicated that none of the identified receptors would experience a substantial increase in noise in comparison with existing conditions. Nor would any of the receptors experience a noise level that meets or exceeds CDOT NAC. Therefore, no mitigation analysis was needed.

Noise from construction activities would be perceptible during construction. This includes noise from diesel-powered earth moving equipment, back- up alarms on certain equipment and compressors

Noise at the receptors would not exceed NACs and noise levels would not increase by 10 dBA or more, as a result of the project. Therefore, no receptors on the I-25 corridor equal or exceed CDOT impact criteria.

6.6.2 Mitigation

None of the receptors in the study area equal or exceed CDOT impact criteria. Noise mitigation is not needed at this time (Table 7).

Table 7. Noise Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Temporary increases in noise would occur during construction.	▪ Construction noise would be subject to relevant local regulations and ordinances, and any construction activities would be expected to comply with them. To address the temporary elevated noise levels that may be experienced during construction, standard mitigation measures would be incorporated into construction contracts, where it is feasible to do so. ▪ Stationary equipment would be located as far from sensitive receivers as possible. ▪ Most construction activities in noise-sensitive areas would be conducted during hours that are least disturbing to adjacent and nearby residents.

Table 7. Noise Impacts and Mitigation of Selected Alternative

Impact	Mitigation
	▪ Implement construction best management practices ▪ Limit construction activities to daytime hours as practicable and feasible. ▪ Combine noisy operations to occur in the same time period. ▪ All engines will use commercially available effective mufflers and enclosures, as practicable.

6.7 Water Quality

There are no named or unnamed perennial, intermittent, or ephemeral streams located in the study area; as such, there are no changes in existing water quality conditions.

The primary change in regulations since the 2011 FEIS is that CDOT has negotiated a new MS4 permit with the Colorado Department of Public Health and Environment. If a planned project creates more than one acre of ground disturbance, will increase impervious area by 20percent or more, and is tied to an FEIS, CDOT's New Development Redevelopment Program requires implementing permanent water quality treatment. Per the terms and conditions of the permit, CDOT is required to treat 90 percent of runoff from new impervious surface, such as pavement or concrete. However, the area treated may include existing impervious area within the project limits.

For areas outsides of CDOT right-of-way, which includes the area along Byrd Drive, the terms and conditions of the City of Loveland's MS4 would be applicable.

6.7.1 Impacts of the ROD3 Selected Alternative

The ROD3 Selected Alternative would result in an increase of approximately 11.6 acres of impervious surface. The improvements to Crossroads Boulevard would result in an increase of approximately 0.2 acres of additional impervious surface.

There is potential for temporary water quality impacts during construction.

6.7.2 Mitigation

Temporary and permanent water quality impacts and mitigation are summarized in (Table 8).

Table 8. Water Quality Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Increased impervious surface area Potential for temporary water quality impacts during construction Potential to encounter groundwater	A combination of mitigation measures consisting of permanent nonstructural and temporary best management practices (BMPs) will be implemented in the study area, in compliance with the Clean Water Act and the City of Loveland's MS4 permit requirements. ▪ Extended detention/retention ponds have been identified as the primary structural BMP for this project. ▪ A Stormwater Management Plan (SWMP) will be developed during

Table 8. Water Quality Impacts and Mitigation of Selected Alternative

Impact	Mitigation
	design, implemented during construction and updated as needed. ▪ A Spill Prevention Plan will be prepared. ▪ CDOT's specifications for managing stormwater at a construction site (currently specifications 107.25, 212, 213, 208, and 216) will be followed. ▪ Construction BMPs will be implemented and maintained in compliance with the CDPHE general construction permit. Construction plans must adhere to a stormwater management plan (Section 402, Clean Water Act CDPHE Regulation 61). ▪ Vegetation or other erosion control techniques will be established to prevent sediment loading in compliance with the general stormwater construction permit. ▪ Construction activities will be phased to minimize effects associated with large areas of exposed ground and with soil compaction from heavy machinery use. ▪ If groundwater is encountered during activities associated with excavations for caisson/retaining walls, the discharge of groundwater is authorized when the following conditions are met: > Source is groundwater and/or groundwater combined with stormwater that does not contain pollutants in concentrations exceeding the State groundwater standards in Regulations 5 CCR 1002-41 and 42. > Discharge is in accordance with CDPHE Water Quality Control Division, Water Quality, Policy-27, Low-Risk Discharges, September 2009. > The source is identified in the SWMP. > Dewatering BMPs are included in the SWMP. If these conditions are not met, then a separate Clean Water Act Section 402 Construction Dewatering Permit or Individual Construction Dewatering Permit will be required to be obtained by the City of Loveland contractor from the CDPHE's Water Quality Control Division.

6.8 Wetlands

The new Clean Water Rule: Definition of "Waters of the United States," was published June 29, 2015 and became effective August 28, 2015 (40 CFR 230.3). However, a nationwide stay was issued by the U.S. Court of Appeals for the 6th Circuit on October 9, 2015, which blocked the implementation of the new Rule. Differences between the most recent 2008 guidance (the Rapanos Guidance) pertaining to the 1986 definition of waters of the U.S. (33 CFR 328.3) and the new Rule are difficult to predict without guidance being issued for the new Rule. The United States Army Corps of Engineers has the regulatory authority to issue Preliminary and/or Approved Jurisdictional Determinations based on the regulations in place at the time of their assessment. Therefore, the potential jurisdictional status of features identified in this delineation

and proposed jurisdictional determination reflect that of the Rapanos Guidance, as well as the new Rule.

There are no wetlands or waters of the U.S. in the study area.

6.8.1 Impacts of the ROD3 Selected Alternative

No impacts to wetlands would occur.

6.8.2 Mitigation

No mitigation is needed.

6.9 Floodplains

There are no floodplains in the study area. Nor are there changes in laws, regulations and guidance that affect floodplains.

6.9.1 Impacts of the ROD3 Selected Alternative

No impacts would occur.

6.9.2 Mitigation

No mitigation is needed.

6.10 Vegetation

There are no major changes in existing vegetation and there are no changes in laws, regulation or guidance that affects vegetation analyses. Existing vegetation consists of dryland grasses near Byrd Drive, landscape plants at Crossroads Boulevard, and native vegetation along the interstate.

6.10.1 Impacts of the ROD3 Selected Alternative

Thirty-four acres of vegetation will be permanently impacted by the project.

6.10.2 Mitigation

Mitigation to be provided is the standard mitigation for revegetation (Table 9).

Table 9. Vegetation Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Vegetation removal	▪ CDOT standard specifications for the amount of time that disturbed areas are allowed to be non-vegetated will be followed. ▪ Weed-free topsoil will be salvaged for use in seeding. ▪ Erosion control blankets will be used on steep, newly seeded slopes. Slopes will be roughened at all times. All disturbed areas will be revegetated with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.

6.11 Noxious Weeds

There are no changes in noxious weed conditions and there are no changes in laws, regulation or guidance that affects noxious weed analyses.

6.11.1 Impacts of the ROD3 Selected Alternative

As discussed in the FEIS, construction would disturb areas where noxious weeds exist and disturb areas that are currently weed-free. There is a potential for the spread of noxious weeds.

6.11.2 Mitigation

Mitigation to be provided is the standard mitigation for noxious weeds (Table 10). A copy of the *Interstate 25 and Crossroads Boulevard Road Improvements Integrated Weed Management Plan* (AECOM, 2016) is included in this document as Appendix F.

Table 10. Noxious Weeds Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Construction activities would increase the potential for the spread and establishment of noxious weeds.	An integrated weed management plan will be incorporated into the project design and implemented during construction. Specific BMPs will be required during construction to reduce the potential for the introduction and spread of noxious weed species. These include: ▪ Noxious weed mapping will be included in the construction documents along with appropriate weed control methods. ▪ Weed management measures will include removal of heavily infested topsoil, herbicide treatment of lightly infested topsoil, as well as other herbicide and/or mechanical treatments, limiting disturbance areas, phased seeding in accordance with CDOT seeding seasons, and monitoring during and after construction ▪ Use of herbicides will include selection of appropriate herbicides and timing of herbicide spraying and use of a backpack sprayer in and adjacent to sensitive areas, such as wetlands and riparian areas. ▪ Certified weed-free hay and/or mulch will be used in all revegetated areas. ▪ Fertilizer shall meet CDOT Standard Specification 212.

6.12 Wildlife

A black-tailed prairie dog (BTPD) colony is present in the south-eastern quadrant of the I-25 and Crossroads Boulevard interchange. BTPD habitat can support burrowing owls. Vegetation exists that can support migratory birds.

6.12.1 Impacts of the ROD3 Selected Alternative

Two BTPD burrows will be impacted by the project.. Ground nesting birds may be impacted by the construction of Byrd Drive and other nesting birds may be impacted by the landscape tree removals at Crossroads Boulevard.

6.12.2 Mitigation

Mitigation is detailed in Table 11.

Table 11. Wildlife Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Two BTPD burrows will be directly impacted by construction. Nests may be impacted with the removal of vegetation.	▪ CDOT biologists will passively relocate any BTPD present in the burrows within the construction site. ▪ Silt fence will be placed to prohibit any additional btpd from entering the construction site. ▪ A burrowing owl survey will be conducted prior to construction following "Recommended Survey Protocol and Action to Protect Burrowing Owls" by Colorado Parks and Wildlife. ▪ The contractor will be required to follow Section 240 of the Protection of Migratory Birds During Structure Work.

6.13 Threatened and Endangered and State Sensitive Species

There are no threatened, endangered or sensitive species in the study area.

6.13.1 Impacts of the ROD3 Selected Alternative

There are no impacts that would occur.

6.13.2 Mitigation

No mitigation is needed.

6.14 Visual Quality

There are no changes in visual quality conditions and there are no changes in laws, regulation or guidance that affect visual analyses. The study area remains a primarily agricultural area with expansive views in all directions.

6.14.1 Impacts of the ROD3 Selected Alternative

After reconstruction of the interchange, the I-25 northbound bridge profile will raise 1 foot and the I-25 southbound bridge profile will raise 10 feet to be at the same elevation. The reconstruction of the bridges would have a moderate visual effect. There would not be a noticeable difference in views from the east or west of the highway once the bridges are rebuilt.

Minor impacts would occur during construction, as travelers may observe construction equipment and materials; however, impacts will be temporary.

Crossroads Boulevard will be widened from one lane in each direction to two lanes in each direction underneath I-25 between the roundabouts. Motorists traveling eastbound and westbound on Crossroads Boulevard would see a wider roadway underneath I-25. There would be no impacts.

6.14.2 Mitigation

The moderate visual effect of the ROD3 Selected Alternative to pedestrians and bicyclists should be off-set by improved infrastructure; as such, no mitigation will be required. No

mitigation is required for visual impacts from construction equipment as these would be temporary. Existing vegetation will be replaced in kind by CDOT during construction, but Centerra Metro District will continue the landscape maintenance at the interchange.

6.15 Historic Properties

As required by the North I-25 EIS Programmatic Agreement for Section 106, a new field survey and file search was completed on December 8, 2015. There were no historic properties found within the study area. The I-25 bridges (structures C-17-ET (5LR12354) and C-17-ES (5LR12346)) at Crossroads Boulevard were documented in CDOT's 2014 Historic Bridge Inventory and were determined Not Eligible and Exempt from Section 106 due to the Interstate Highway Exemption. Clearance to proceed was recommended without further actions. This information was submitted to the State Historic Preservation Officer on April 5, 2016. Concurrence from the State Historic Preservation Officer was received on April 15, 2016 (Appendix E).

6.15.1 Impacts of the ROD3 Selected Alternative

There were no historic properties in the study area for the ROD3 Selected Alternative as documented in the FEIS. This has not changed so no impact would occur.

6.15.2 Mitigation

No mitigation is needed.

6.16 Paleontological Resources

There are no paleontological resources in the study area for the ROD3 Selected Alternative and there are no changes in laws, regulation or guidance that affect paleontological analyses. The paleontological assessment received on February 11, 2016, recommended a paleontological clearance with no attached mitigation stipulations.

6.16.1 Impacts of the ROD3 Selected Alternative

There are no paleontological resources in the study area for the ROD3 Selected Alternative as documented in the FEIS. This has not changed so no impact would occur.

6.16.2 Mitigation

Only standard paleontological mitigation is required to address the situation if resources are encountered during construction (Table 12).

Table 12. Paleontological Resource Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Potential for resources to be uncovered during construction	If any subsurface bones or other potential fossils are found by construction personnel during construction, work in the immediate area will cease immediately, and a paleontologist will be contacted to evaluate the significance of the find.

6.17 Hazardous Materials

In support of this North I-25 Environmental Impact Statement (EIS), a corridor-wide Modified Phase I Environmental Site Assessment (MESA) (FHU, 2008) and MESA Addendum (FHU, 2011) were performed to identify sites in the study area with the presence of potential or recognized soil and groundwater contamination from hazardous materials. There were no sites identified in the study area in the FEIS and there have been no changes to laws, regulations or guidance relative to hazardous materials in the study area.

CDOT requested a GeoSearch Linear Report, which was received on January 11, 2016, to determine if any new hazardous materials sites were identified in the ROD3 Selected Alternative study area. The GeoSearch Radius Report (a.k.a. ASTM database report, environmental database report, regulatory database report) helps to identify sites that have real or potential environmental issues. The Radius Report exceeds ASTM E 1527-13 and the EPA's All Appropriate Inquiry rule.

The GeoSearch Linear Report includes information on the property type, waste materials such as tires or motor oil, hazardous materials including chemicals, spills or identified leaking storage tanks and remedial action and the date the actions were closed.

Within the study area the GeoSearch listed several car dealerships that are considered Solid Waste Facilities (SWF). Besides these facilities there were no additional sites that warranted further documentation.

6.17.1 Impacts of the ROD3 Selected Alternative

During construction hazardous materials may be unearthed that have not been previously identified.

6.17.2 Mitigation

Standard mitigation is required (Table 13).

Table 13. Hazardous Materials Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Potential for hazardous materials to be unearthed during construction	▪ If hazardous materials are unearthed during construction all work will stop and emergency services will be contacted. ▪ Follow CDOT specification 250.03 03. ▪ If dewatering is necessary, groundwater brought to the surface will be managed according to Section 107.25 and 250.03 of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2005c) and permitted by the CDPHE Water Quality Control Division. ▪ If petroleum-contaminated soil is identified with a concentration less than 1,000 ppm but higher than 500 ppm, CDOT will be responsible for clean-up. A MMP and a Health and Safety plan, as required by Section 250.03 of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2005c), also is recommended for use when oil and gas facilities are encountered. ▪ Prior to demolition of any structures, an asbestos, lead-based paint,

Table 13. Hazardous Materials Impacts and Mitigation of Selected Alternative

Impact	Mitigation
	and miscellaneous hazardous materials survey will be conducted at each parcel, where applicable. Regulated materials abatement will be conducted in accordance with Section 250, Environmental, Health, and Safety Management, of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2005c) and relevant Occupational Health and Safety (OSHA) regulatory details. ▪ Prior to demolition, regulated materials must be removed from any structures and appropriately recycled or disposed. ▪ Coordination with the Colorado Department of Labor and Employment Division of Oil and Public Safety (OPS) will be required prior to parcel acquisition of any sites that are identified as having active leaking tanks. If site characterization and/or remediation have not been completed, the OPS may require CDOT to complete these activities after acquisition. During the right-of-way acquisition process, additional properties may require other actions depending on the results of the Initial Site Assessments (ISAs). ▪ By law, all friable asbestos-containing materials (ACM) must be removed from structures (including bridges) prior to demolition, and soils if encountered in excavated landfill or building debris, buried utilities, or other ACM is encountered. The contractor performing the asbestos abatement is required to be licensed to perform such work and obtain permits from the CDPHE. ▪ Lead-based paint may need to be removed prior to demolition if the lead is leachable at concentrations greater than regulatory levels. Where lead-based painted surfaces will be removed via torching, additional health and safety monitoring requirements are applicable. ▪ Prior to construction activities, a Health and Safety Plan, as required by Section 250.03 of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2005c), will be developed. Construction specifications shall be written to include review of the Health and Safety Plan by the CDOT Regional Environmental Manager. ▪ Monitoring requirements for hazardous materials concerns during construction activities will be established in the MMP, Health and Safety Plan, and CDOT standard and project-specific specifications.

6.18 Parks and Recreational Resouces

CDOT has issued Procedural Directive 1602.1 (CDOT, 2010) that lays out policies relative to pedestrian and bicycle facilities since the publication of the FEIS.

6.18.1 Impacts of the ROD3 Selected Alternative

Larimer County Fairgrounds is considered a recreational resource and is located approximately half a mile north of the Crossroads Boulevard interchange, but would not be impacted by the

project. There are no other parks or recreational resources in the study area. The new Byrd Drive cross-section includes 7-foot bike lanes and 6-foot sidewalks in either direction.
A new 5-foot bike lane will be added in each direction on Crossroads Boulevard under I-25. These changes improve mobility for pedestrians and cyclists in the study area.

6.18.2 Mitigation

No mitigation is needed

6.19 Section 6(f)

6.19.1 Impacts of the ROD3 Selected Alternative

There are no Section 6(f) properties in the study area. No impacts would occur.

6.19.2 Mitigation

No mitigation is needed.

6.20 Farmlands

There is no Natural Resources Conservation Service (NRCS) protected farmland in the study area. There have been no changes to laws, regulations or guidance relative to farmlands in the study area.

6.20.1 Impacts of the ROD3 Selected Alternative

No impacts would occur.

6.20.2 Mitigation

No mitigation is needed.

6.21 Energy

There are no changes from the FEIS related to energy. There have been no changes to laws, regulations or guidance related to energy consumption in the study area. The direct impacts of of the daily energy consumption by FEIS alternatives were included in the FEIS and ROD1 on a regional scale. The contributions and differences from the ROD3 Selected Alternative is not at a scale that can be accounted for individually. The mitigation proposed on a regional scale in the FEIS was a focus on a reduction in daily vehicle miles traveled (VMT) by promoting transit and transit oriented development. This ROD3 Selection does not contribute to increased VMT because no additional capacity is being added.

6.21.1 Impacts of the ROD3 Selected Alternative

Construction activities would consume energy.

6.21.2 Mitigation

Construction equipment idling time will be limited (Table 14).

Table 14. Energy Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Consumption of energy during construction	▪ Limit equipment idling time.

6.22 Public Safety and Security

There are no changes to public safety and security impacts from those described in the FEIS.

6.22.1 Impacts of the ROD3 Selected Alternative

The new Byrd Drive cross-section will also enhance safety for the traveling public because of the new bike lanes and sidewalks.

Crossroads Boulevard is currently two lanes in each direction merging into one lane under the I-25 bridges (Figure 4 and Figure 5). When the I-25 bridges are reconstructed it will allow for two lanes in each direction under I-25. Driver expectations and safety will improve as the new laneage under I-25 will be consistent with the laneage in the roundabouts.

6.22.2 Mitigation

No mitigation is needed as there will be only positive improvements to safety.

6.23 Construction

6.23.1 Impacts of the ROD3 Selected Alternative

Construction impacts that would occur are identical to those described in the FEIS. Minor traffic delays and detours would occur. Short-term increases in noise, air pollution, water pollution and visual impacts would be anticipated for the period of construction.

Roadway construction would be broken into three phases so as to accommodate traffic. The phases would consist of the following:

- **Phase 1:** Temporary pavement, crossovers, and a temporary bridge would be constructed over Crossroads Boulevard. All traffic would be maintained on the existing roadway during construction. All on and off ramp accesses would be maintained.
- **Phase 2:** I-25 northbound and southbound traffic would be shifted onto the existing I-25 southbound lanes and temporary pavement via the crossover. The I-25 northbound mainline and ramp pavement would be constructed, with the exception of areas being used as temporary northbound on and off ramps. Only overnight closures would be allowed for Crossroads Boulevard.
    - **Phase 2B:** The northbound ramp traffic would be shifted to new temporary ramps. The remainder of the northbound mainline and ramp pavement would be constructed.
- **Phase 3:** I-25 southbound crossovers would be constructed. The mainline traffic would shift onto the newly constructed I-25 northbound pavement via a crossover. The I-25 southbound

mainline and ramp pavement would be constructed, with the exception of areas being used as temporary southbound on and off ramps.

- **Phase 3B:** The secondary southbound ramp crossovers would be constructed and southbound ramp traffic would be shifted to new temporary ramps. The remainder of the southbound mainline and ramp pavement would be constructed.

Crossroads Boulevard would be closed for nine nights during the I-25 bridge demolition. This could impact pedestrians and bicyclists who use the existing sidewalk facility for travel.

6.23.2 Mitigation

The following construction related mitigation is required (Table 15).

Table 15. Construction Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Short term effects to noise, access, air pollution and water pollution	**Noise** ▪ Implement construction best management practices ▪ Limit construction activities to daytime hours as practicable and feasible. ▪ Combine noisy operations to occur in the same time period. ▪ All engines will use commercially available effective mufflers and enclosures, as practicable. **Access** ▪ Use enhanced signing. Use advertising/public relations to improve communications about any traffic or access disruptions. **Environmental Impacts** ▪ Use wetting/chemical inhibitors for dust control. ▪ Provide early investigation of subsurface conditions. ▪ Prepare a well-defined materials management plan. ▪ Require prompt and safe disposal of waste products. ▪ Implement water quality BMPs. ▪ Prepare well-defined stormwater management plan per Water Quality Section. ▪ Stabilize and cover stockpile areas. ▪ Minimize offsite tracking of mud, debris, hazardous material, and noxious weeds by washing construction equipment in contained areas. ▪ Store equipment and materials in designated areas only. ▪ Follow CDOT Standard Specifications for Road and Bridge Construction (2005c), including sections regarding water quality control, erosion control, and environmental health and safety. ▪ Control and prevent concrete washout and construction wastewater from leaving the project site. As projects are designed, ensure that

Table 15. Construction Impacts and Mitigation of Selected Alternative

Impact	Mitigation
	proper specifications are adhered to and reviewed to ensure adequacy in the prevention of water pollution.. ▪ Prepare or revegetate exposed areas as soon as possible after construction. ▪ Remove soil and other materials from paved streets. ▪ Incorporate recommendations as appropriate from the Regional Air Quality Council (RAQC) report, Reducing Diesel Emissions in the Denver Area (RAQC, 2002). ▪ Operate equipment mainly during off-peak hours. ▪ Limit equipment idling time. ▪ Use recycled materials for project activities to the extent allowed by good practice and CDOT construction specifications. ▪ Store equipment and materials in designated areas only. ▪ Prepare or revegetate exposed areas as soon as possible after disturbance.

6.24 Short-Term Uses and Long-Term Productivity

The approach this project is using by identifying a Preferred Alternative for the whole North I-25 Corridor provides a systematic approach to minimize Short-Term Uses and gain the most for Long-Term Productivity. By knowing what kinds of improvements are planned, the investment and impacts to resources can be minimized by implementing coordinated solutions for Long Term benefits.

There are no changes to short-term uses of resources and long-term productivity analyses compared to the FEIS. The ROD3 Selected Alternative will have loss of soil, disruption of traffic, disruption to businesses, visual, noise, vibration, and land during construction. In addition natural resources will be incorporated permanently into the project such as aggregate, concrete, asphalt. The Long-Term Productivity includes improved safety, mobility, travel times, access to businesses and improved emergency access. In addition, the improvements selected in ROD3 will operate with our without future improvements on the corridor.

6.25 Irreversible and Irretrievable Commitments of Resources

Irretrievable and irreversible commitments of funds, labor, funding, energy, and materials would occur during the construction of the ROD3 Selected Alternative. The ROD3 Selected Alternative will be constructed in a manner that will not need to be reconstructed when future projects associated with the FEIS Preferred Alternative are implemented. Since the bridges would be replaced before the end of their service life, the demolition of the remaining service life is an irreversible and irretrievable commitment of resources. There are no changes to irreversible and irretrievable commitments of resources compared to the FEIS.

6.26 Cumulative Impacts

The ROD3 Selected Alternative was included in the Cumulative Impact Analysis that was completed for the FEIS Preferred Alternative. Nothing in ROD3 changes the cumulative impact findings in the FEIS.

6.27 Archaeological Properties

An archaeological survey was conducted on December 8, 2015. Consequently, clearance to proceed is recommended without further actions.

6.27.1 Impacts of the ROD3 Selected Alternative

There were no archaeological properties in the study area for the ROD3 Selected Alternative as documented in the FEIS. This has not changed so no impact would occur. If buried cultural material is encountered during any phase of the project the Senior Staff Archaeologist must be contacted immediately so that the materials can be evaluated in accordance with National Register criteria.

6.27.2 Mitigation

No mitigation is needed.

6.28 Geological Resources

6.28.1 Impacts of the ROD3 Selected Alternative

There are no new geological resources in the study area, and there have been no changes to laws, regulations, or guidance related to geological resources. Additionally, construction of a transportation project does not require any permits related to the geology or soils, nor is any consultation with other state or federal agencies necessary.

Impacts of the ROD3 Selected Alternative Construction activities associated with the ROD3 Selected Alternative will result in disturbances to the subsurface geology of the area; however, no significant impacts to geological resources are anticipated.

6.28.2 Mitigation

If important geological resources are discovered during construction standard geological mitigation is required to address the situation (Table 16). If fill, rock, soil, or groundwater conditions appear to be different from those described in the Final Geotechnical Investigation Report, I-25/Crossroads Boulevard Bridge Replacement (Yeh and Associates, Inc., 2015; Appendix B), the site should be reevaluated.

Table 16. Geological Resource Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Potential for resources to be uncovered during construction	If fill, rock, soil, or groundwater conditions appear to be different from those described in the Geotechnical Investigation Report (Yeh, 2015), the site should be reevaluated.

6.29 Utility Resources

Several utilities, ranging from fiber optic to water/wastewater and electricity, are located near I-25 along the proposed alignment of Byrd Drive between Crossroads Boulevard and Earhart Drive. Construction activities associated with this project have the potential to impact these utilities. Since 2011, no new utilities have been installed in the study area, and there have been no changes to laws, regulations, or guidance related to utility resources.

The following are descriptions of existing utilities and the anticipated impact to each.

The Platte River Power Authority owns an underground fiber optic/communication line that parallels the frontage road to the east. Construction of the roadway would not cause a conflict, and the line would be protected in place.

The City of Loveland traffic division and the Colorado Department of Transportation (CDOT) share a fiber conduit line that crosses under the frontage road. Construction would result in a conflict between the roadway and the utility; therefore, the conduit line would be replaced as needed.

CDOT owns two fiber optic lines that cross under the frontage road. One line is a connection to a camera and would be relocated. The second line is a recently installed Intelligent Transportation Services (ITS) sleeve, which would be protected in place.

The South Fort Collins Sanitation District maintains four sanitary sewer lines that run underground and parallel to the frontage road. Two of the three sewer lines would be protected in place, and the location of the last would be adjusted based on construction activities.

Fort Collins and Loveland Water District maintain two water lines that parallel the frontage road underground. One line would be protected in place while the other would be adjusted based on construction activities.

The City of Loveland power division maintains two buried electrical lines that parallel the frontage road. Of these, one would be protected in place and the other would be relocated as needed. Another electrical line crosses beneath the roadway and would be relocated as needed.

6.29.1 Impacts of the ROD 3 Selected Alternative

Most utilities will be protected in place or relocated as needed. The type of utility, number of utilities, and type of impact are shown in Table 17.

Table 17. Utilities Impacted

Utility Type	Number of Utilities	Impact
Fiber Optic/Communication	3	Utility crosses roadway
Sanitary Sewer	4	Widening roadway may interfere with utility
Water	2	Widening roadway may interfere with utility

Table 17. Utilities Impacted

Utility Type	Number of Utilities	Impact
Electric	1	Utility crosses roadway
Electric	2	Widening roadway may interfere with utility

6.29.2 Mitigation

Impacts to utilities would be mitigated through various methods including protection in place, replacement of the utility line, or adjustments to the location of the line (Table 18). Utilities not impacted by the project would be left in place. Utilities that need to be relocated would be moved before construction by other agencies or by CDOT during construction.

Table 18. Utility Impacts and Mitigation of Selected Alternative

Impact	Mitigation
Construction activities have the potential to impact utilities that cross the roadway or are located within expanded right-of-way.	Mitigation would include protection in place, replacement of the utility line, or adjustments to the location of the line as needed.

7.0 SECTION 4(F)

The ROD3 Selected Alternative does not have any Section 4(f) uses.

8.0 STATUS OF FEDERAL AND STATE APPROVALS

The following presents the status of federal and state approvals for the ROD3 Selected Alternative:

Air Quality Conformity
Since the ROD3 Selected Alternative is exempt from air quality conformity, no additional actions or approvals are required

Section 106 Consultation
The lead agencies signed a Section 106 Programmatic Agreement in December 2011. It is included in Appendix G of the ROD1. The Programmatic Agreement defines a process whereby CDOT will reevaluate effects to existing and new cultural resources as construction projects are funded and designs are refined. The ROD3 Selected Alternative has complied with these measures.

A part of the Programmatic Agreement is also to conduct creative mitigation. CDOT has started the process of proceeding with the creative mitigation identified in the Programmatic Agreement.

Section 404 Permit
Although the ROD3 Selected Alternative does not have any wetland impacts, these improvements were included in the Section 404 permit.

Impacts to wetlands and waters of the U.S. have been submitted to the U.S. Army Corps of Engineers and approval has been granted by receipt of a Section 404 permit. This permit requires certain information to be submitted to the U.S. Army Corps of Engineers prior to construction of an individual project. This will be done during the final design process. All requirements of the Clean Water Act have been met.

Endangered Species Act Consultation
The lead agencies signed a *Programmatic Biological Opinion* (PBO) (USFWS and FHWA, 2011) which is contained in Appendix E of the ROD1. This stipulates that as individual projects are proposed, the lead agencies will provide information to the U.S. Fish and Wildlife Service (USFWS) that describes the proposed action, the species that may be affected, results of habitat assessments, an updated baseline of the study area, a description of how the action may affect the species, a determination of effects, a cumulative total of incidental take that has occurred to date, a description of any additional actions or effects not considered in the programmatic consultation and a description of conservation measures or mitigation activities already implemented and their effectiveness. The lead agencies will also develop revegetation success criteria for revegetated sites.

The information required as part of the PBO for the ROD3 Selected Alternative was submitted to USFWS on February 29, 2016 (CDOT, 2016).

Interchange Modification Approvals
Although the Crossroads Boulevard will be improved, there will be no change to the gore points or access to and from the Interstate. The changes on the Crossroads Boulevard will not adversely impact the operations of I-25 so no Interchange Modification Approvals are necessary for the ROD3 Selected Alternative.

9.0 CLARIFICATIONS AND CORRECTIONS FOR THE FEIS

There are no clarifications or corrections for the FEIS pertaining to the Selected Alternative in ROD3.

10.0 MONITORING AND ENFORCEMENT PROGRAM

Federally funded transportation projects must comply with a wide range of federal and state environmental laws and regulations, permits, reviews, notifications, consultations, and other approvals. This section summarizes the permits that are applicable to the ROD3 Selected Alternative activities. It is not an all-inclusive list nor does it include reviews, consultations, and other types of approval that do not involve granting or denial of a permit. The following permits and coordination activities are required to support the construction of the ROD3 Selected Alternative.

In addition, CDOT and FHWA will ensure the mitigation commitments outlined in this document will be implemented as part of the project design, construction, and post-construction monitoring. These commitments will be incorporated, as appropriate, into the construction plans and specifications for this project. CDOT and FHWA will ensure that these commitments are

implemented through review of the project construction plans and specifications, as well as periodic inspections during construction. Inspections during construction will involve both a review of project construction documentation and observation of construction activities.

CDOT and FHWA will monitor mitigation effectiveness and success through a combination of field reviews, pre-construction and post-construction inspections and post-construction monitoring, as appropriate. CDOT will be preparing annual reports, by agreement with some resource agencies. Reporting of effectiveness will be done by CDOT and FHWA, in accordance with agency requirements. If mitigation is not successful or mitigation commitments are not met, CDOT will rectify as needed.

The mitigation requirements set forth in this ROD3 will be incorporated into the IGA being developed by CDOT and the City of Loveland where Loveland will take on some of the oversight responsivities related to Byrd Drive and Crossroads Boulevard during construction.

10.1 Water Quality/Water Resources

10.1.1 Colorado Discharge Permit System (CDPS)

A CDPS permit is required by State and Federal regulations for stormwater discharged from any construction activity that disturbs at least one acre of land. This discharge permit is required to ensure the quality of stormwater runoff from the construction site. Under CDPS permit stipulations, a site-specific stormwater management plan would be prepared that outlines in detail specific best management practices (BMPs) for inclusion in project plans and implementation in the field. Included in the stormwater management plan are such aspects as BMP locations, turbidity and monitoring requirements, seed mix, concrete wash-out provisions, and other relevant information. Permits would be obtained from Colorado Department of Public Health and Environment's (CDPHE) Water Quality Control Division.

10.1.2 Section 404 Permit

Because there are no wetland or waters of the US impacts with the ROD3 Selected Alternative, the coordination during final design with the U.S. Army Corps of Engineers is not necessary.

A Section 401 permit is not applicable because Waters of the U.S. will not be impacted.

A Section 402 permit will be required for pollutant discharge during construction.

10.2 Air Quality

10.2.1 Air Quality Permits

A portable source construction permit would likely need to be obtained from CDPHE for the operation of portable sources (e.g., asphalt plants, generators, rock crushers).

A stationary source permit and APEN requirements stipulate that a construction permit must be obtained from CDPHE for any and all emissions associated with construction activities, including operations of portable sources. CDOT will submit an APEN to the CDPHE Air Pollution Control Division if more than 25 acres of land would be impacted and/or project construction would last longer than 6 months. CDPHE will respond whether or not a permit would be required prior to commencing construction.

A fugitive dust permit and bridge demolition permit will be required for construction projects. Additionally, an asbestos abatement permit from the CDPHE would also be required for demolition of structures that potentially have friable asbestos containing material (see Section 3.17, Hazardous Materials, of the FEIS).

10.3 Other Local Permits.

Other local permits would likely be required by cities and counties as needed, such as construction, grading, erosion control, utility, or survey permits either prior to the beginning or during construction phases.

10.4 Biological Resources

The ROD3 Selected Alternative does not have any Biological Resource impacts that would require a permit.

10.5 Access

No access permits will be required. All ROW necessary for the project falls within CDOT ROW or has been dedicated to the City of Loveland.

11.0 PUBLIC AND AGENCY INVOLVEMENT

11.1 Comments from the FEIS

The *North I-25 Final Environmental Impact Statement/Final Section 4(f) Evaluation* (CDOT, 2011a) was released on August 19, 2011. The notice of availability of the FEIS was published in the Federal Register on August 19, 2011, indicating a 30-day review period ending on September 19, 2011. Subsequently, an extension to this comment period was announced in the Federal Register (September 9, 2011) extending the end of the comment period to October 3, 2011 (i.e., 45 days total). Public comment was solicited and received through a variety of sources, including the North I-25 Environmental Impact Statement website, mail, fax, and verbal and written comments submitted at the three public hearings.

In total, comments were submitted by 301 individuals, two public interest organizations, six agencies (federal, state, tribal or regional) and six local governments. Comments were received via the project website, fax, mail, or as verbal and written comments at the three public hearings. Many of the comment submittals addressed multiple topics. The lead agencies have responded to each comment and topic individually and each comment received is presented next to the corresponding response in Appendix B of the ROD1.

During the FEIS comment period, a total of 301 comments were received from the general public in the following manner:

- 287 comments were submitted through the project Web site or through e-mail.
- 9 written comments were submitted during a public hearing, mailed or faxed to CDOT.
- 5 verbal comments were made at one of the three public hearings.

The public comments received on the FEIS reflected the following community sentiments:

- 21 specifically supported the Preferred Alternative.

- 1 specifically supported Package A.
- 2 specifically supported Package B or an element included only in Package B.
- 213 supported commuter rail or rail transit without mentioning an alternative.
- 171 supported an expedited schedule for completion of improvements.
- 57 expressed support for some other project phasing/prioritization scheme.
- 7 did not support rail transit.
- 22 did not support highway improvements.
- 20 supported only highway improvements.
- 17 supported improving bus transit.
- 2 did not support improving bus transit.
- 3 expressed concern about potential construction impacts.
- 1 expressed concern about entering/exiting tolled express lanes (now called Express Lanes) at Mead.
- 1 expressed displeasure about the public hearing locations and lack of public transportation availability.
- 1 expressed concern about the energy consumption and greenhouse gas emissions associated with all build alternatives.

11.2 Agency, Public and Business Coordination

CDOT coordinated with the NFRMPO, the City of Loveland, Centerra Development, the UFR and DRCOG during design of the project:

- North Front Range Metropolitan Planning Organization Meetings (open to the public)
  - January 7, 2016
  - February 4, 2016
  - March 3, 2016
  - April 7, 2016

- Upper Front Range Regional Planning Commission
  - March 3, 2016

Additionally, updates were provided by CDOT to DRCOG communities.

The public has also been afforded a number of opportunities to comment on the ROD3 Selected Alternative as a part of the overall North I-25 EIS process. Involvement has included public meetings, newsletters and the project website. CDOT and FHWA worked with the public and agencies to avoid and minimize impacts. The distribution of the Draft and Final EIS documents provided the primary opportunity to inform the public on the proposed project and the environmental analysis associated with each identified alternative. Following the distribution of each document, a public comment period was provided.

12.0 DECISION

Based on the information provided in the August 2011 *North I-25 Final EIS/Section 4(f) Evaluation* (CDOT, 2011a) and the October 2011 *Revised Section 4(f) Evaluation* (CDOT, 2011b), which have been incorporated by reference into this ROD3, and information contained in this ROD3, the FHWA concludes that selecting the ROD3 Selected Alternative described in this document, for the North I-25 Project, is in the best overall public interest, uses all practicable means to restore and enhance the quality of the human environment, and avoids or minimizes any possible adverse effects.

FOR John M. Cater, P.E.
Division Administrator
Colorado Division
Federal Highway Administration

JUNE 8, 2016
Date

13.0 REFERENCES

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—. 2016a. *Record of Decision3.* 2016.

—. 2015b. *North Front Range Commuter Rail Update.* April 2015.

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Appendix A.
E RecSearch Report for North I-25 ROD3: Crossroads Bridge Replacements
(GeoSearch, 01-12-2016)

GeoSearch

On time. On target. In touch.™

E RecSearch Report

Satellite view

Target Property:

Crossroads Bridge Replacements
Loveland, Larimer County, Colorado 80538

Prepared For:

Colorado Department of Transportation

Order #: 61646
Job #: 133374
Date: 01/12/2016

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Unlocatable Report . . . . . See Attachment

Zip Report . . . . . See Attachment

Disclaimer

This report was designed by GeoSearch to meet or exceed the records search requirements of the All Appropriate Inquiries Rule (40 CFR §312.26) and the current version of the ASTM International E1527, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process or, if applicable, the custom requirements requested by the entity that ordered this report. The records and databases of records used to compile this report were collected from various federal,state and local governmental entities. It is the goal of GeoSearch to meet or exceed the 40 CFR §312.26 and E1527 requirements for updating records by using the best available technology. GeoSearch contacts the appropriate governmental entities on a recurring basis. Depending on the frequency with which a record source or database of records is updated by the governmental entity, the data used to prepare this report may be updated monthly, quarterly, semi-annually, or annually.

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Target Property Summary

Target Property Information

Crossroads Bridge Replacements
Loveland, Colorado 80538

Coordinates
Area

USGS Quadrangle
Windsor, CO

Geographic Coverage Information

County/Parish: Larimer (CO)
ZipCode(s):
Fort Collins CO: 80528
Loveland CO: 80538
Windsor CO: 80550

Radon
* Target property is located in Radon Zone 1.
Zone 1 areas have a predicted average indoor radon screening level greater than 4 pCi/L (picocuries per liter).

Database Summary

FEDERAL LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
EMERGENCY RESPONSE NOTIFICATION SYSTEM	ERNSCO	0	1	TP/AP
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	EC	0	0	TP/AP
LAND USE CONTROL INFORMATION SYSTEM	LUCIS	0	0	TP/AP
RCRA SITES WITH CONTROLS	RCRASC	0	0	TP/AP
NO LONGER REGULATED RCRA GENERATOR FACILITIES	NLRRCRAG	2	0	0.1250
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR FACILITIES	RCRAGR08	5	0	0.1250
RESOURCE CONSERVATION & RECOVERY ACT - NON-GENERATOR FACILITIES	RCRANGR08	2	0	0.1250
BROWNFIELDS MANAGEMENT SYSTEM	BF	0	0	0.5000
COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION & LIABILITY INFORMATION SYSTEM	CERCLIS	1	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	DNPL	0	0	0.5000
NO FURTHER REMEDIAL ACTION PLANNED SITES	NFRAP	1	0	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	NLRRCRAT	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - NON-CORRACTS TREATMENT, STORAGE & DISPOSAL FACILITIES	RCRAT	1	0	0.5000
NATIONAL PRIORITIES LIST	NPL	0	0	1.0000
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	NLRRCRAC	0	0	1.0000
PROPOSED NATIONAL PRIORITIES LIST	PNPL	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	RCRAC	2	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - SUBJECT TO CORRECTIVE ACTION FACILITIES	RCRASUBC	1	0	1.0000

SUB-TOTAL		15	1	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIR FACILITY SUBSYSTEM	AIRSAFS	1	0	TP/AP
BIENNIAL REPORTING SYSTEM	BRS	1	0	TP/AP
CERCLIS LIENS	SFLIENS	0	0	TP/AP
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	TP/AP
EPA DOCKET DATA	DOCKETS	0	0	TP/AP
FACILITY REGISTRY SYSTEM	FRSCO	6	0	TP/AP

Database Summary

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	HMIRSR08	0	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM (FORMERLY DOCKETS)	ICIS	0	0	TP/AP
INTEGRATED COMPLIANCE INFORMATION SYSTEM NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	ICISNPDES	1	0	TP/AP
MATERIAL LICENSING TRACKING SYSTEM	MLTS	0	0	TP/AP
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	NPDESR08	0	0	TP/AP
PCB ACTIVITY DATABASE SYSTEM	PADS	0	0	TP/AP
PERMIT COMPLIANCE SYSTEM	PCSR08	0	0	TP/AP
SECTION SEVEN TRACKING SYSTEM	SSTS	0	0	TP/AP
TOXIC SUBSTANCE CONTROL ACT INVENTORY	TSCA	0	0	TP/AP
TOXICS RELEASE INVENTORY	TRI	0	0	TP/AP
HISTORICAL GAS STATIONS	HISTPST	0	0	0.2500
OPEN DUMP INVENTORY	ODI	0	0	0.5000
DEPARTMENT OF DEFENSE SITES	DOD	0	0	1.0000
FORMERLY USED DEFENSE SITES	FUDS	0	0	1.0000
RECORD OF DECISION SYSTEM	RODS	0	0	1.0000

SUB-TOTAL		9	0	

Database Summary

STATE (CO) LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
ENVIRONMENTAL REAL COVENANTS LIST	COVENANTS	0	0	TP/AP
HAZARDOUS WASTE SITES- GENERATOR	HWSG	2	0	0.1250
ABOVEGROUND STORAGE TANK FACILITIES	AST	2	0	0.2500
UNDERGROUND STORAGE TANK FACILITIES	UST	4	0	0.2500
HISTORICAL SOLID WASTE LANDFILLS	HISTSWLF	0	0	0.5000
LEAKING STORAGE TANK FACILITIES	LST	4	0	0.5000
LEAKING UNDERGROUND STORAGE TANKS TRUST FUND SITES	LUSTTRUST	0	0	0.5000
SOLID WASTE FACILITIES	SWF	11	0	0.5000
VOLUNTARY CLEANUP AND REDEVELOPMENT PROGRAM SITES	VCRA	0	0	0.5000
HAZARDOUS WASTE SITES- CORRECTIVE ACTION	HWSCA	1	0	1.0000
SUPERFUND SITES	SF	0	0	1.0000

SUB-TOTAL		24	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
AIR POLLUTION CONTROL DIVISION PERMITTED FACILITIES	APCDP	2	0	TP/AP
ASBESTOS ABATEMENT AND DEMOLITION PROJECTS	ASBESTOS	0	0	TP/AP
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	TP/AP
COLORADO DISCHARGE PERMIT SYSTEM FACILITIES	CDPS	5	0	TP/AP
SPILLS LISTING	SPILLS	0	0	TP/AP
DRY CLEANING FACILITIES	CLEANERS	1	0	0.2500
HAZARDOUS WASTE SITES- TREATMENT, STORAGE & DISPOSAL	HWSTSD	1	0	0.5000
METHANE GAS STUDY SITES	METHANESITES	0	0	0.5000
URANIUM MILL TAILINGS SITES	UMTS	0	0	0.5000

SUB-TOTAL		9	0	

Database Summary

TRIBAL LISTING

Standard Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	USTR08	0	0	0.2500
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	LUSTR08	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	ODINDIAN	0	0	0.5000
SUB-TOTAL		0	0	

Additional Environmental Records

Database	Acronym	Locatable	Unlocatable	Search Radius (miles)
INDIAN RESERVATIONS	INDIANRES	0	0	1.0000
SUB-TOTAL		0	0	

TOTAL		57	1	

Database Radius Summary

FEDERAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
AIRSAFS	0.0200	1	NS	NS	NS	NS	NS	1
BRS	0.0200	1	NS	NS	NS	NS	NS	1
CDL	0.0200	0	NS	NS	NS	NS	NS	0
DOCKETS	0.0200	0	NS	NS	NS	NS	NS	0
EC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
ERNSCO	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
FRSCO	0.0200	6	NS	NS	NS	NS	NS	6
HMIRSR08	0.0200	0	NS	NS	NS	NS	NS	0
ICIS	0.0200	0	NS	NS	NS	NS	NS	0
ICISNPDES	0.0200	1	NS	NS	NS	NS	NS	1
LUCIS	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
MLTS	0.0200	0	NS	NS	NS	NS	NS	0
NPDESR08	0.0200	0	NS	NS	NS	NS	NS	0
PADS	0.0200	0	NS	NS	NS	NS	NS	0
PCSR08	0.0200	0	NS	NS	NS	NS	NS	0
RCRASC	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
SFLIENS	0.0200	0	NS	NS	NS	NS	NS	0
SSTS	0.0200	0	NS	NS	NS	NS	NS	0
TRI	0.0200	0	NS	NS	NS	NS	NS	0
TSCA	0.0200	0	NS	NS	NS	NS	NS	0
NLRRCRAG	**0.1250**	**1**	**1**	**NS**	**NS**	**NS**	**NS**	**2**
RCRAGR08	**0.1250**	**2**	**3**	**NS**	**NS**	**NS**	**NS**	**5**
RCRANGR08	**0.1250**	**1**	**1**	**NS**	**NS**	**NS**	**NS**	**2**
HISTPST	0.2500	0	0	0	NS	NS	NS	0
BF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
CERCLIS	**0.5000**	**0**	**0**	**0**	**1**	**NS**	**NS**	**1**
DNPL	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
NFRAP	**0.5000**	**0**	**0**	**0**	**1**	**NS**	**NS**	**1**
NLRRCRAT	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
ODI	0.5000	0	0	0	0	NS	NS	0
RCRAT	**0.5000**	**0**	**0**	**1**	**0**	**NS**	**NS**	**1**
DOD	1.0000	0	0	0	0	0	NS	0
FUDS	1.0000	0	0	0	0	0	NS	0
NLRRCRAC	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
NPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**

Database Radius Summary

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
PNPL	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**
RCRAC	**1.0000**	**0**	**1**	**0**	**0**	**1**	**NS**	**2**
RCRASUBC	**1.0000**	**0**	**0**	**1**	**0**	**0**	**NS**	**1**
RODS	1.0000	0	0	0	0	0	NS	0
SUB-TOTAL		13	6	2	2	1	0	24

Database Radius Summary

STATE (CO) LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
APCDP	0.0200	2	NS	NS	NS	NS	NS	2
ASBESTOS	0.0200	0	NS	NS	NS	NS	NS	0
CDL	0.0200	0	NS	NS	NS	NS	NS	0
CDPS	0.0200	5	NS	NS	NS	NS	NS	5
COVENANTS	**0.0200**	**0**	**NS**	**NS**	**NS**	**NS**	**NS**	**0**
SPILLS	0.0200	0	NS	NS	NS	NS	NS	0
HWSG	**0.1250**	**1**	**1**	**NS**	**NS**	**NS**	**NS**	**2**
AST	**0.2500**	**0**	**1**	**1**	**NS**	**NS**	**NS**	**2**
CLEANERS	0.2500	0	1	0	NS	NS	NS	1
UST	**0.2500**	**0**	**3**	**1**	**NS**	**NS**	**NS**	**4**
HISTSWLF	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
HWSTSD	0.5000	0	0	0	1	NS	NS	1
LST	**0.5000**	**0**	**1**	**0**	**3**	**NS**	**NS**	**4**
LUSTTRUST	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
METHANESITES	0.5000	0	0	0	0	NS	NS	0
SWF	**0.5000**	**10**	**1**	**0**	**0**	**NS**	**NS**	**11**
UMTS	0.5000	0	0	0	0	NS	NS	0
VCRA	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
HWSCA	**1.0000**	**0**	**0**	**0**	**1**	**0**	**NS**	**1**
SF	**1.0000**	**0**	**0**	**0**	**0**	**0**	**NS**	**0**

SUB-TOTAL		18	8	2	5	0	0	33

Database Radius Summary

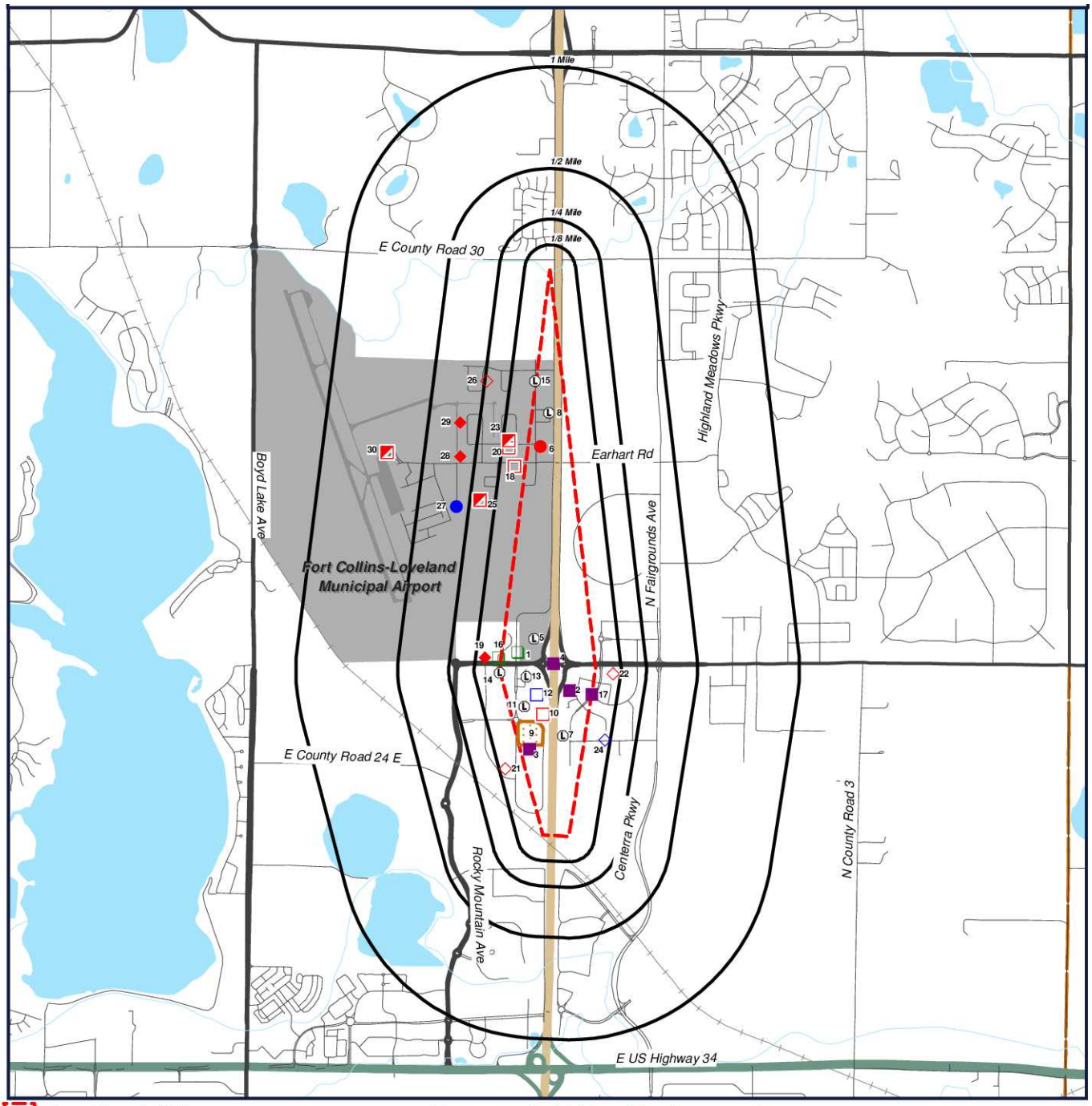
TRIBAL LISTING

*Standard environmental records are displayed in **bold**.*

Acronym	Search Radius (miles)	TP/AP (0 - 0.02)	1/8 Mile (> TP/AP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
USTR08	**0.2500**	**0**	**0**	**0**	**NS**	**NS**	**NS**	**0**
LUSTR08	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
ODINDIAN	**0.5000**	**0**	**0**	**0**	**0**	**NS**	**NS**	**0**
INDIANRES	1.0000	0	0	0	0	0	NS	0
SUB-TOTAL		0	0	0	0	0	0	0
TOTAL		31	14	4	7	1	0	57

NOTES:
NS = NOT SEARCHED
TP/AP = TARGET PROPERTY/ADJACENT PROPERTY

Radius Map 1



Target Property (TP)
FRSCO
CDPS
SWF
BRS
SWF
RCRAGR08
NLRRCRAG
LST
HWSG
UST
RCRAC
AST
RCRASUBC
CERCLIS

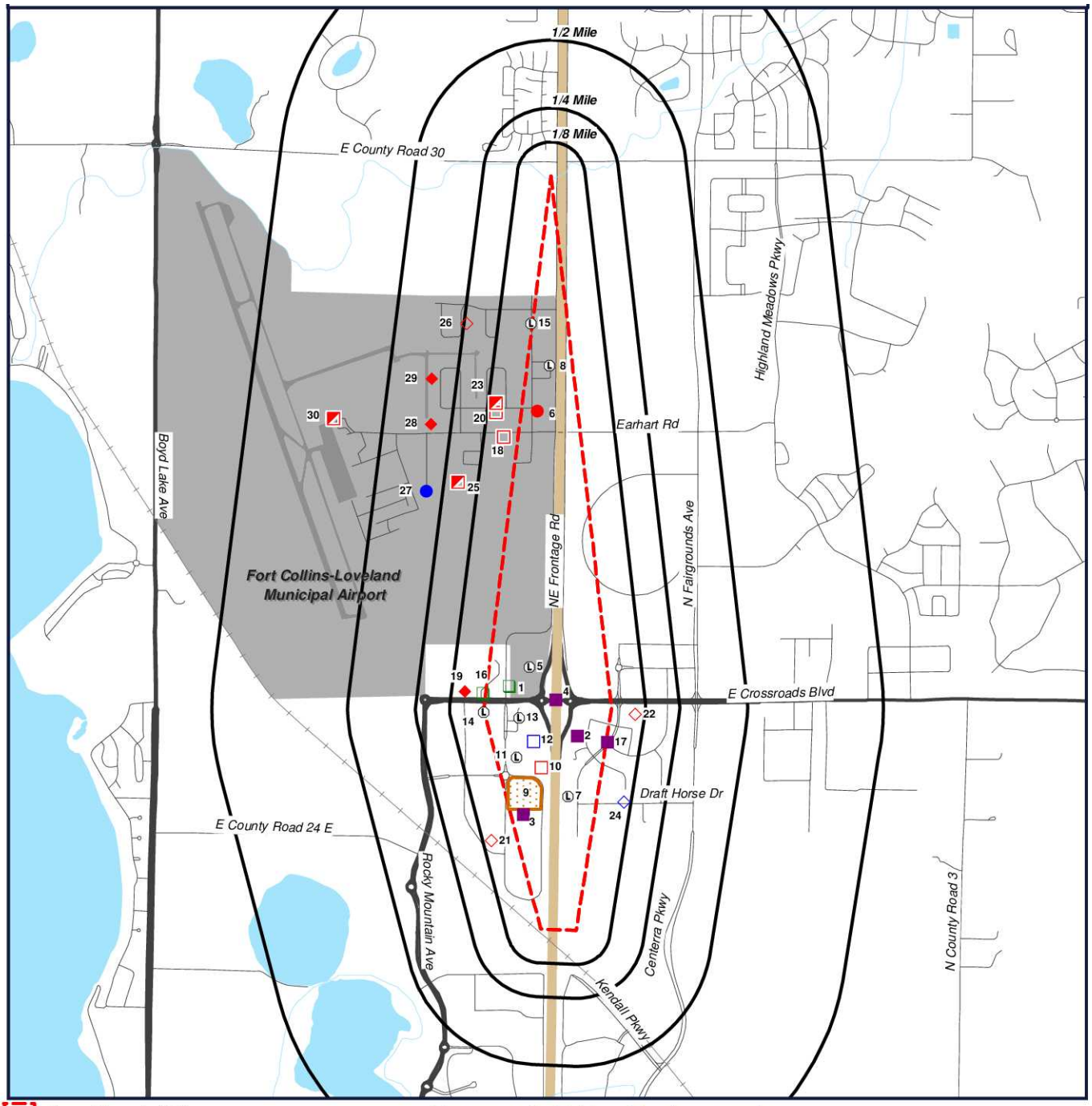
Crossroads Bridge Replacements
Loveland, Colorado
80538

N W E S

0' 2000' 4000' 6000'
SCALE: 1" = 4000'

Click here to access Satellite view

Radius Map 2



Target Property (TP)
FRSCO
CDPS
SWF
BRS
SWF
RCRAGR08
NLRRCRAG
LST
HWSG
UST
RCRAC
AST
RCRASUBC
CERCLIS

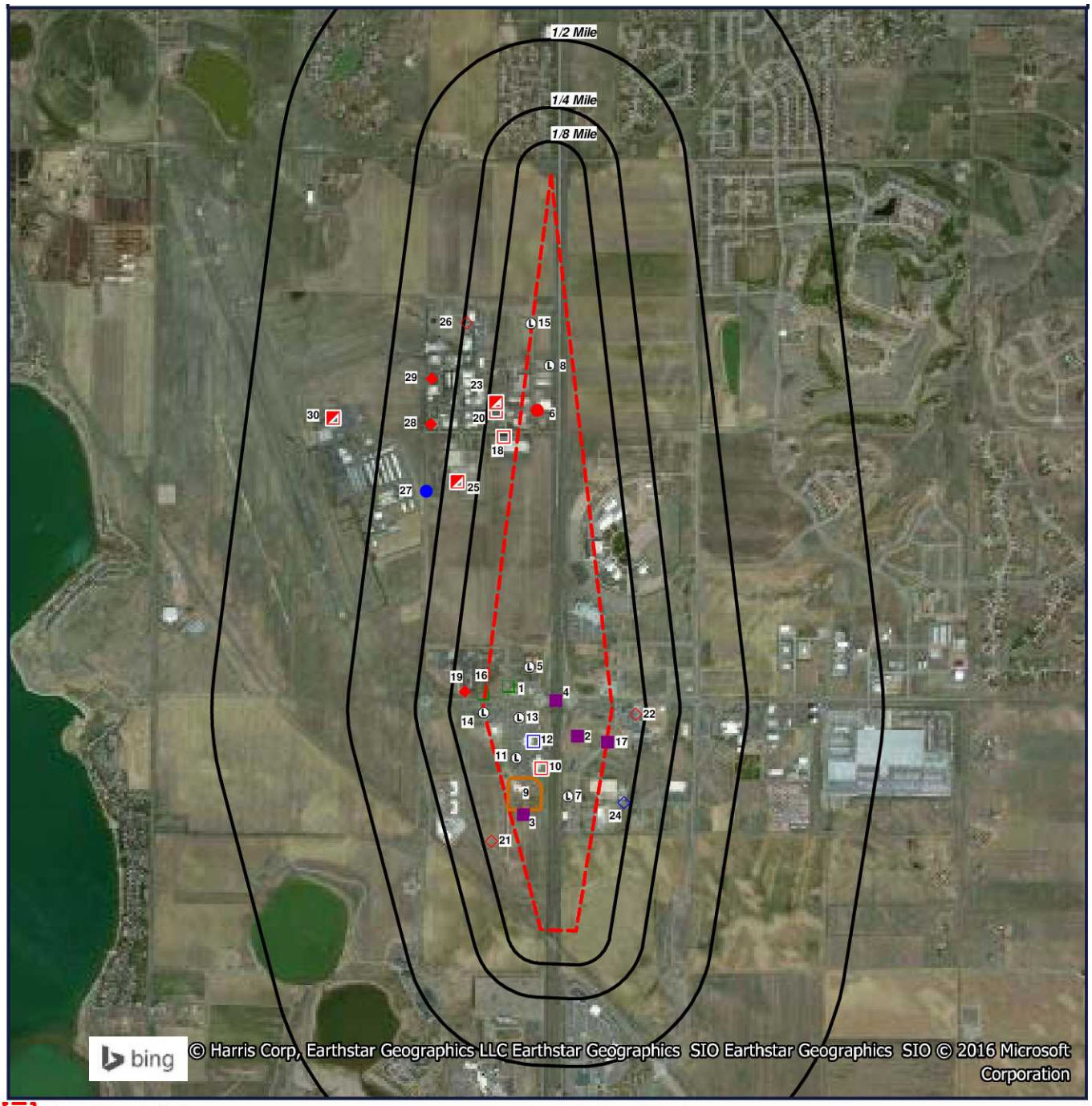
Crossroads Bridge Replacements
Loveland, Colorado
80538

N
W E
S

0' 1500' 3000' 4500'
SCALE: 1" = 3000'

Click here to access Satellite view

Ortho Map



Target Property (TP)
FRSCO
CDPS
SWF
BRS
SWF
RCRAGR08
NLRRCRAG
LST
HWSG
UST
RCRAC
AST
RCRASUBC
CERCLIS

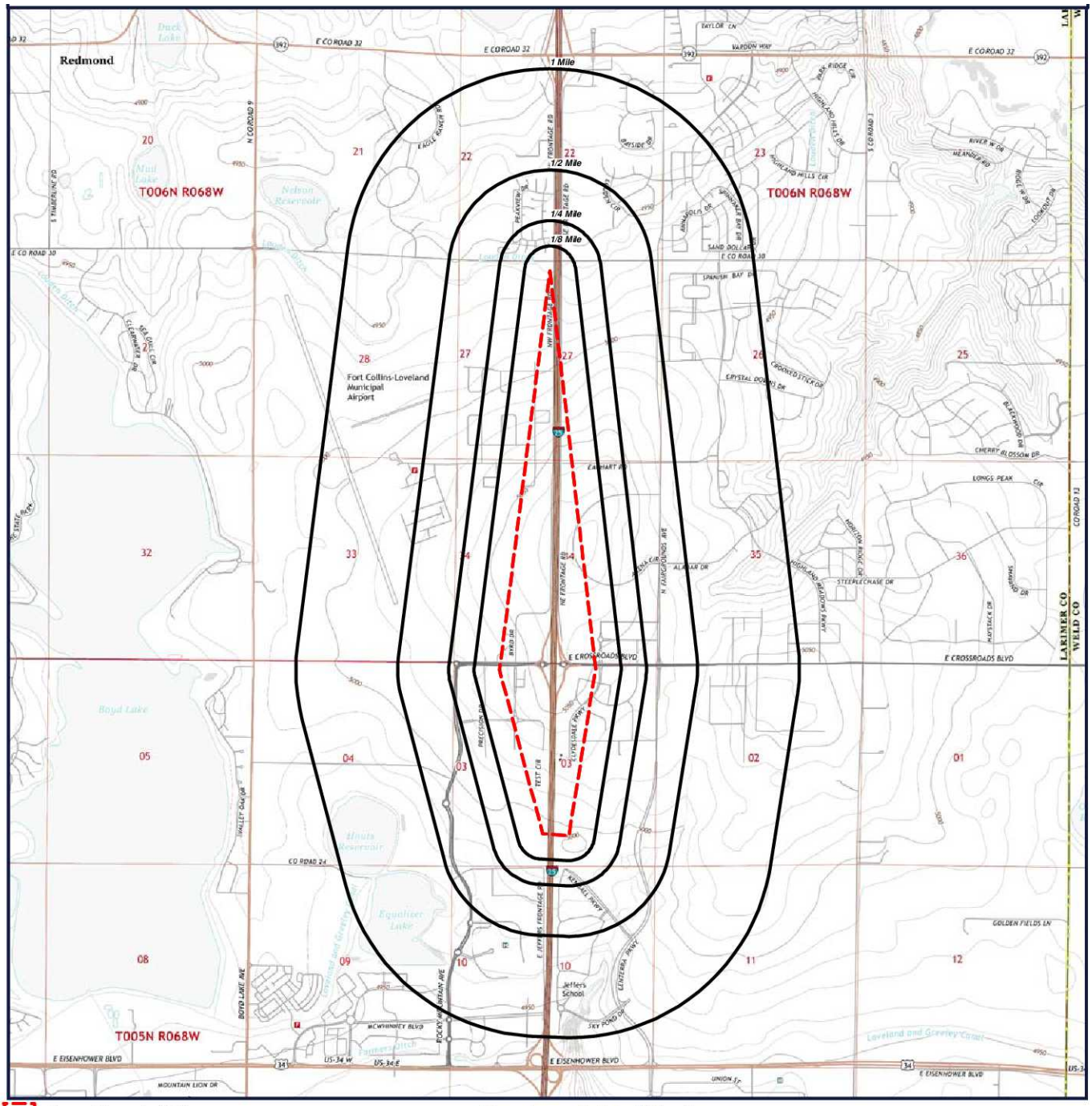
Quadrangle(s): Windsor
Crossroads Bridge Replacements
Loveland, Colorado
80538

N
W E
S

0' 1500' 3000' 4500'
SCALE: 1" = 3000'

Click here to access Satellite view

Topographic Map



Target Property (TP)

Quadrangle(s): Windsor
Source: USGS, 07/23/2013
Crossroads Bridge Replacements
Loveland, Colorado
80538

N
W E
S

0' 2000' 4000' 6000'
SCALE: 1" = 4000'

[Click here to access Satellite view]

Located Sites Summary

*NOTE: Standard environmental records are displayed in **bold**.*

Map ID#	Database Name	Site ID#	Distance From Site	Site Name	Address	PAGE #
1	FRSCO	110064525928	0.001 mi. S (5 ft.)	VERIZON WIRELESS - FOSSIL CREEK	5058 BYRD DRIVE, LOVELAND, CO 80538	17
1	APCDP	069-0502	0.001 mi. S (5 ft.)	VERIZON WIRELESS - FOSSIL CREEK	5058 BYRD DRIVE, LOVELAND, CO 80538	18
2	CDPS	COR03O090	0.001 mi. S (5 ft.)	LOVELAND MY PLACE HOTEL	3975 PERALTA DR, LOVELAND, CO 80538	24
3	CDPS	COR03M415	0.001 mi. S (5 ft.)	CARMAX LOVELAND	3760 BYRD DR, LOVELAND, CO 80538	25
4	CDPS	COR03F408	0.001 mi. S (5 ft.)	I-25 & CROSSROADS BLVD IMPROVEMENTS	I-25 & CROSSROADS BLVD, LOVELAND, CO	26
5	***SWF***	***1299WTR***	***0.001 mi. S (5 ft.)***	***THUNDER MOUNTAIN, INC***	***4250 BYRD DRIVE, LOVELAND, CO 80538***	***27***
5	CDPS	COR03M597	0.001 mi. S (5 ft.)	THUNDER MOUNTAIN HARLEY DAVIDSON	4250 BYRD DR, LOVELAND, CO 80538	28
6	***HWSG***	***COD981549447***	***0.001 mi. S (5 ft.)***	***COLLINS COLLISON PRODUCTS, INC.***	***5726 BYRD DR, LOVELAND, CO 80538***	***29***
6	AIRSAFS	802866	0.001 mi. S (5 ft.)	COLLINS COLLISION PRODUCTS INC	5726 BYRD DR, LOVELAND, CO 80538	30
6	BRS	COD981549447	0.001 mi. S (5 ft.)	COLLINS COLLISION PRODUCTS INC	5726 BYRD DR, LOVELAND, CO 80538	40
6	FRSCO	110000786445	0.001 mi. S (5 ft.)	COLLINS COLLISION PRODUCTS	5726 BYRD DRIVE, LOVELAND, CO 80538	43
6	ICISNPDES	COP900547INPDES	0.001 mi. S (5 ft.)	COLLINS COLLISION PRODUCTS	5726 BYRD DRIVE, FORT COLLINS, CO 80538	45
6	***RCRAGR08***	***COD981549447***	***0.001 mi. S (5 ft.)***	***COLLINS COLLISION PRODUCTS INC***	***5726 BYRD DR, LOVELAND, CO 80538***	***47***
6	APCDP	069-0048	0.001 mi. S (5 ft.)	COLLINS COLLISION PRODUCTS INC	5726 BYRD DR, LOVELAND, CO 80538	51
7	***SWF***	***1283WTR***	***0.001 mi. S (5 ft.)***	***TRI CITY CYCLE INC***	***3675 CLYDESDALE PK, LOVELAND, CO 80538***	***57***
8	***SWF***	***168WTR***	***0.001 mi. S (5 ft.)***	***COLORADO EURO MOTORSPORTS LLC***	***6002 BYRD DRIVE, LOVELAND, CO 80538***	***58***
9	***SWF***	***1875WTR***	***0.001 mi. NE (5 ft.)***	***HERTICH DEALERSHIPS INC.***	***3870 BYRD DRIVE, LOVELAND, CO 80538***	***59***
10	FRSCO	110033018348	0.001 mi. S (5 ft.)	NICK DAVIDSON INC (GEBHART CHEVROLET DLR	3880 TEST CIR, LOVELAND, CO 80538	60
10	FRSCO	110043718849	0.001 mi. S (5 ft.)	DAVIDSON - GEBHARDT	3880 TEST DRIVE, LOVELAND, CO 80538	61
10	***RCRAGR08***	***COR000218321***	***0.001 mi. S (5 ft.)***	***NICK DAVIDSON INC (GEBHART CHEVROLET DLR***	***3880 TEST CIR, LOVELAND, CO 80538***	***62***
10	***SWF***	***1268WTR***	***0.001 mi. S (5 ft.)***	***NICK DAVIDSON INC***	***3880 TEST CIRCLE, LOVELAND, CO 80538***	***64***
11	***SWF***	***1266WTR***	***0.001 mi. S (5 ft.)***	***NICK DAVIDSON INC***	***3930 BYRD DRIVE, LOVELAND, CO 80538***	***65***
12	FRSCO	110031337827	0.001 mi. S (5 ft.)	FERRERO I-25 CHRYSLER JEEP DODGE	4040 BYRD DR, LOVELAND, CO 80538	66

Located Sites Summary

12	NLRRCRAG	COR000216234	0.001 mi. S (5 ft.)	FERRERO I-25 CHRYSLER JEEP DODGE	4040 BYRD DR, LOVELAND, CO 80538	67
12	RCRANGR08	COR000216234	0.001 mi. S (5 ft.)	FERRERO I-25 CHRYSLER JEEP DODGE	4040 BYRD DR, LOVELAND, CO 80538	69
12	SWF	1874WTR	0.001 mi. S (5 ft.)	TT OF FORT COLLINS, INC.	4040 BYRD DRIVE, LOVELAND, CO 80538	71
13	SWF	1279WTR	0.001 mi. S (5 ft.)	CO'S AUTO GROUP, INC.	4150 BYRD DR., LOVELAND, CO 80538	72
14	SWF	945WTR	0.01 mi. S (53 ft.)	KING BUICK GMC	4175 BYRD DR, LOVELAND, CO 80538	73
15	SWF	1270WTR	0.01 mi. S (53 ft.)	MOTOADVENTURE	6385 BYRD DR, LOVELAND, CO 80538	74
16	FRSCO	110064308967	0.01 mi. S (53 ft.)	WESTERN AREA POWER ADMIN-LOVELAND FLD YD	5555 E CNTY RD 26, LOVELAND, CO 80509	75
17	CDPS	COR03C524	0.01 mi. S (53 ft.)	CROSSROADS BUSINESS PARK 7 SUBD LOT 4	ST CLOUD DR & CLYDESDALE PKWY, LOVELAND, CO	76
18	RCRAGR08	COD982582116	0.06 mi. S (317 ft.)	BW CONTAINER SYSTEMS	5605 GOLDCO DR, LOVELAND, CO 80538	77
19	UST	3467	0.08 mi. S (422 ft.)	POWER MARKETING OPERATIONS	5555 E CROSSROADS BLVD, LOVELAND, CO 80539	79
19	RCRAGR08	CO7890090023	0.08 mi. S (422 ft.)	WESTERN AREA POWER ADMIN-LOVELAND FLD YD	5555 E CNTY RD 26, LOVELAND, CO 80509	80
19	LST	3467LST	0.08 mi. S (422 ft.)	POWER MARKETING OPERATIONS	5555 E CROSSROADS BLVD, LOVELAND, CO 80539	82
20	RCRAGR08	COR000013334	0.1 mi. S (528 ft.)	VISION GRAPHICS	5610 BOEING DR, LOVELAND, CO 80538	83
20	HWSG	COR000013334	0.1 mi. S (528 ft.)	VISION GRAPHICS	5610 BOEING DR, LOVELAND, CO 80538	86
21	UST	19662	0.1 mi. S (528 ft.)	CARMAX #7258	3655 BYRD DR, LOVELAND, CO 80538	87
21	SWF	2208WTR	0.1 mi. S (528 ft.)	CARMAX #7258 LOVELAND	3655 BYRD DRIVE, LOVELAND, CO 80538	88
22	UST	18097	0.1 mi. S (528 ft.)	SCHRADERS COUNTRY STORE #380	6140 CROSSROADS BLVD, LOVELAND, CO 80538	89
23	NLRRCRAG	COR000003590	0.1 mi. S (528 ft.)	BURKE CLEANERS	5635 BOEING DR, LOVELAND, CO 80538	90
23	RCRAC	COR000003590	0.1 mi. S (528 ft.)	BURKE CLEANERS	5635 BOEING DR, LOVELAND, CO 80538	93
23	RCRANGR08	COR000003590	0.1 mi. S (528 ft.)	BURKE CLEANERS	5635 BOEING DR, LOVELAND, CO 80538	96
23	CLEANERS	069-0311CL	0.1 mi. S (528 ft.)	BURKE CLEANERS	5635 BOEING DR, LOVELAND, CO 80538	99
24	AST	17691AST	0.11 mi. S (581 ft.)	SCHWANS HOME SERVICE	5980 DRAFTHORSE DR, LOVELAND, CO 80538	101
25	RCRAT	COD005286679	0.2 mi. S (1056 ft.)	HACH COMPANY	5300 LINDBERGH DR, LOVELAND, CO 80537	102
25	RCRASUBC	COD005286679	0.2 mi. S (1056 ft.)	HACH COMPANY	5300 LINDBERGH DR, LOVELAND, CO 80537	106

26	UST	18726	0.24 mi. SW (1267 ft.)	RYDER TRANSPORTATION SERVICE #2193	6392 AVIATION CR, LOVELAND, CO 80538	110
26	AST	18726AST	0.24 mi. SW (1267 ft.)	RYDER TRANSPORTATION SERVICE #2193	6392 AVIATION CR, LOVELAND, CO 80538	111
27	HWSTSD	COD005286679	0.32 mi. S (1690 ft.)	HACH COMPANY	5300 E 57TH ST, LOVELAND, CO 80537	112
27	LST	12528LST	0.32 mi. S (1690 ft.)	HACH CO	5300 E 57TH ST, LOVELAND, CO 80537	113
27	CERCLIS	COD005286679	0.32 mi. S (1690 ft.)	HACH CO	5300 E 57TH ST, LOVELAND, CO 80537	114
27	NFRAP	COD005286679	0.32 mi. S (1690 ft.)	HACH CO	5300 E 57TH ST, LOVELAND, CO 80537	115
27	HWSCA	COD005286679	0.32 mi. S (1690 ft.)	HACH COMPANY	5300 E 57TH ST, LOVELAND, CO 80537	116
28	LST	9400LST	0.33 mi. SW (1742 ft.)	BOHEMIAN AIR	5207 EARHART RD, LOVELAND, CO 80537	117
29	LST	18275LST	0.35 mi. SW (1848 ft.)	OTTER AVIATION LLC	5833 LANGLEY AVE, LOVELAND, CO 80538	118
30	RCRAC	COD983799941	0.69 mi. SW (3643 ft.)	CITY OF LOVELAND AIRPORT	4824 EARHART RD, LOVELAND, CO 80538	119

Facility Registry System (FRSCO)

MAP ID# 1 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

REGISTRY ID: **110064525928**

NAME: **VERIZON WIRELESS - FOSSIL CREEK**

LOCATION ADDRESS: **5058 BYRD DRIVE**
LOVELAND, CO 80538

COUNTY: **LARIMER COUNTY**

EPA REGION: **08**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:
NO ALTERNATIVE NAME(S) LISTED FOR THIS FACILITY

PROGRAM/S LISTED FOR THIS FACILITY
AIR - *DEFINITION NOT PROVIDED BY REPORTING AGENCY

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)
NO SIC DATA REPORTED

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)
NO NAICS DATA REPORTED

Back to Report Summary

MAP ID# 1 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

SITE ID: **069-0502**

FACILITY NAME: **VERIZON WIRELESS - FOSSIL CREEK**

ADDRESS: **5058 BYRD DRIVE**
LOVELAND, CO 80538

PERMIT NAME: **VERIZON WIRELESS - FOSSIL CREEK**

FACILITY CLASSIFICATION: **0**

AIR PROGRAM

AIR PROGRAM CLASSIFICATION: 'A'=Major, 'B'=Minor, 'SM'=Synthetic Minor, 'ND'=No Major Source Threshold Defined, 'C'=Unknown, 'BLANK'= BLANK FIELD

AIR PROGRAM CLASS: **MINOR**

ACID PRECIPITATION: **BLANK** APEN EXEMPT: **BLANK** CFC TRACKING: **BLANK**

CONDENSATE STORAGE TANK: **BLANK** FESOP (NON-TITLE V): **BLANK** MACT (SEC. 63 NESHAPS): **BLANK**

NESHAP: **BLANK** NON FEDERALLY REPORTABLE SOURCE: **BLANK** FEDERAL NSPS: **BLANK**

STATE NSPS: **BLANK** NSR: **BLANK** PSD: **BLANK** SIP SOURCE UNDER FEDERAL JURISDICTION: **BLANK**

SIP SOURCE: **B** TITLE V PERMITS: **BLANK** NATIVE AMERICAN: **BLANK**

PLANT AIR PROGRAM:

PROPERTY AREA: **NOT REPORTED**

COMPLIANCE MONITORING SYSTEM: **NOT REPORTED**

DATE COMPLIANCE MONITORING SYSTEM: **NOT REPORTED**

STANDARD INDUSTRIAL DESCRIPTION:

COMMUNICATIONS - RADIOTELEPHONE COMMUNICATIONS

SITE CONTACT INFORMATION

CONTACT NAME: **ANDREA MURPHY**

CONTACT PHONE: **(908)559-7368**

SITE DESCRIPTION:**TELECOM EMERGENCY GENERATOR**

COMMENTS:

NOT REPORTED

OWNER INFORMATION

OWNER CUSTOMER #: **9920107124**

OWNER NAME: **VERIZON WIRELESS**

ADDRESS: **3131 S VAUGHN WAY**
AURORA, 08 80014

OWNER MAIL NAME: **THOMAS MORGENTHIEN**

OWNER MAIL PHONE: **(303)873-2658**

SITE OWNER DESCRIPTION: **TELECOMMUNICATIONS COMPANY**

SITE POLLUTANT INFORMATION

EFFECTIVE YEAR OF INVENTORY: **2014**

POLLUTANT NAME: **CO - CARBON MONOXIDE**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.03206	**0.03206**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PM10-PRI - PARTICULATE MATTER < 10 UM**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.00177	**0.00177**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PM25-PRI - PARTICULATE MATTER < 2.5 UM**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.00177	**0.00177**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **NOT REPORTED - TOTAL PARTICULATE MATTER**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.00177	**0.00177**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:

(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **SO2 - SULFUR DIOXIDE**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00120	**0.00120**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00111	**0.00111**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **NOX - NITROGEN OXIDES**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03242	**0.03242**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

STACK

EFFECTIVE YEAR OF INVENTORY: **2014**

EMISSION DATA SUBMITTED YEAR: **2012**

EMISSION RELEASE POINT (STACK): **JOHN DEERE DIESEL RICE**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
208.00000	**3.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
5.00000	**0.25000**	**0.00000**

STACK TYPE DESCRIPTION:

A VERTICAL STACK WITH A WEATHER CAP OR SIMILAR OBSTRUC. IN EXHAUST STREAM

STACK POLLUTANT

EFFECTIVE YEAR OF INVENTORY: **2014**

POLLUTANT NAME: **CO - CARBON MONOXIDE**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03206	**0.03206**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*

0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**

POLLUTANT NAME: **NOX - NITROGEN OXIDES**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.03242	**0.03242**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*

0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**

POLLUTANT NAME: **PM10 - PARTICULATE MATTER < 10 UM**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.00177	**0.00177**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: (TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PM2.5 - PARTICULATE MATTER < 2.5 UM**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.00177	**0.00177**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: (TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PT - TOTAL PARTICULATE MATTER**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.00177	**0.00177**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: (TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **SO2 - SULFUR DIOXIDE**
EMISSION DATA SUBMITTED YEAR: **2012**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.00120	**0.00120**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: (TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**

POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**

EMISSION DATA SUBMITTED YEAR: **2012**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **YES**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.00111	**0.00111**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*

0.00000

UNIT COMMENT

-NO COMMENTS REPORTED

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Colorado Discharge Permit System Facilities (CDPS)

MAP ID# 2 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

PERMIT NUMBER: **COR03O090**
SITE NAME: **LOVELAND MY PLACE HOTEL**
ADDRESS: **3975 PERALTA DR**
LOVELAND, CO 80538
PERMIT TYPE: **STORMWATER CONSTRUCTION**
PERMITTEE: **LEGACY BUILDERS INC**
PERMIT EFFECTIVE: **7/22/2015**

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Colorado Discharge Permit System Facilities (CDPS)

MAP ID# 3 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

PERMIT NUMBER: **COR03M415**
SITE NAME: **CARMAX LOVELAND**
ADDRESS: **3760 BYRD DR**
LOVELAND, CO 80538
PERMIT TYPE: **STORMWATER CONSTRUCTION**
PERMITTEE: **ENV ENERGY PARTNERS**
PERMIT EFFECTIVE: **7/1/2014**

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Colorado Discharge Permit System Facilities (CDPS)

MAP ID# 4 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

PERMIT NUMBER: **COR03F408**
SITE NAME: **I-25 & CROSSROADS BLVD IMPROVEMENTS**
ADDRESS: **I-25 & CROSSROADS BLVD**
LOVELAND, CO
PERMIT TYPE: **STORMWATER CONSTRUCTION**
PERMITTEE: **COLORADO DEPT OF TRANSPORTATION**
PERMIT EFFECTIVE: **8/12/2009**

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Solid Waste Facilities (SWF)

MAP ID# 5 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **1299WTR**
NAME: **THUNDER MOUNTAIN, INC**
ADDRESS: **4250 BYRD DRIVE**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **1299**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Colorado Discharge Permit System Facilities (CDPS)

MAP ID# 5 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

PERMIT NUMBER: **COR03M597**
SITE NAME: **THUNDER MOUNTAIN HARLEY DAVIDSON**
ADDRESS: **4250 BYRD DR**
LOVELAND, CO 80538
PERMIT TYPE: **STORMWATER CONSTRUCTION**
PERMITTEE: **L4 CONSTRUCTION LLC**
PERMIT EFFECTIVE: **8/5/2014**

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Hazardous Waste Sites- Generator (HWSG)

MAP ID# 6 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

EPA ID: **COD981549447**

SITE NAME: **COLLINS COLLISON PRODUCTS, INC.**

SITE ADDRESS: **5726 BYRD DR**
LOVELAND, CO 805388991

SITE COUNTY: **LARIMER**

FACILITY TYPE: **LQG**

STATUS: **ACTIVE**

LINKS: **http://oaspub.epa.gov/enviro/brs_web.report?pgm_sys_id=COD981549447**

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MAP ID# 6 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

UNIQUE ID: **802866**
PLANT ID: **802866**
NAME: **COLLINS COLLISION PRODUCTS INC**
ADDRESS: **5726 BYRD DR**
LOVELAND, CO 80538
CLASSIFICATION: **POTENTIAL UNCONTROLLED EMISSIONS <100 TONS/YEAR**
OPERATION STATUS: **OPERATING**
STATE COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
FACILITY TYPE: **PRIVATELY OWNED/OPERATED**
CURRENT HIGH PRIORITY VIOLATOR: **NOT REPORTED**
SIC DESCRIPTION: **ESTABLISHMENTS PRIMARILY ENGAGED IN ASSEMBLING, BREAKING UP, SORTING, AND WHOLESALE DISTRIBUTION OF SCRAP AND WASTE MATERIALS.**

ENFORCEMENT ACTIONS

DATE ACHIEVED: **02/18/2009**
DATE RECORDED: **03/04/2009**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **01/11/2008**
DATE RECORDED: **01/17/2008**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **03/20/2007**
DATE RECORDED: **05/04/2007**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **09/26/2006**
DATE RECORDED: **11/14/2006**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **09/01/2005**
DATE RECORDED: **11/17/2005**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **08/24/2004**
DATE RECORDED: **12/23/2004**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **07/29/2003**
DATE RECORDED: **03/17/2004**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **06/21/2002**
DATE RECORDED: **04/29/2003**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**

ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **06/28/2001**
DATE RECORDED: **10/21/2002**
NATIONAL ACTION TYPE: **STATE CONDUCTED FCE/ON-SITE**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN VIOLATION**
POLLUTANT: **CHROMIUM COMPOUNDS**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **08/30/2000**
DATE RECORDED: **10/27/2000**
NATIONAL ACTION TYPE: **STATE INSPECTION - LEVEL 2 OR GREATER**
ALL AIR PROGRAM: **SIP SOURCE,MACT (SECTION 63 NESHAPS)**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **CHROMIUM COMPOUNDS**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **09/02/1999**
DATE RECORDED: **09/23/1999**
NATIONAL ACTION TYPE: **STATE INSPECTION - LEVEL 2 OR GREATER**
ALL AIR PROGRAM: **SIP SOURCE**
RESULTS OF STACK TEST AND TITLE V: **IN VIOLATION**
POLLUTANT: **CHROMIUM COMPOUNDS**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **09/08/1998**
DATE RECORDED: **10/21/1998**
NATIONAL ACTION TYPE: **STATE INSPECTION - LEVEL 2 OR GREATER**
ALL AIR PROGRAM: **SIP SOURCE**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **CHROMIUM COMPOUNDS**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **12/11/1997**
DATE RECORDED: **02/17/1998**

NATIONAL ACTION TYPE: **STATE INSPECTION - LEVEL 2 OR GREATER**
ALL AIR PROGRAM: **SIP SOURCE**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **CHROMIUM COMPOUNDS**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **10/25/1995**
DATE RECORDED: **05/01/1996**
NATIONAL ACTION TYPE: **STATE INSPECTION - LEVEL 2 OR GREATER**
ALL AIR PROGRAM: **SIP SOURCE**
RESULTS OF STACK TEST AND TITLE V: **IN COMPLIANCE**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

DATE ACHIEVED: **06/17/1993**
DATE RECORDED: **04/19/1994**
NATIONAL ACTION TYPE: **STATE INSPECTION - LEVEL 2 OR GREATER**
ALL AIR PROGRAM: **SIP SOURCE**
RESULTS OF STACK TEST AND TITLE V: **NOT REPORTED**
POLLUTANT: **NOT REPORTED**
ALL POLLUTION IN VIOLATION: **NOT REPORTED**
TYPE OF VIOLATION(S): **NOT REPORTED**
PENALTY AMOUNT: **0**

AIR PROGRAM

AIR PROGRAM STATUS: **OPERATING**
EPA COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT: **CHROMIUM COMPOUNDS**

AIR PROGRAM STATUS: **OPERATING**
EPA COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT: **PARTICULATE MATTER < 10 UM**

AIR PROGRAM STATUS: **OPERATING**
EPA COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT: **TOTAL PARTICULATE MATTER**

AIR PROGRAM STATUS: **OPERATING**
EPA COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

POLLUTANT COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT: **VOLATILE ORGANIC COMPOUNDS**

AIR PROGRAM STATUS: **OPERATING**
EPA COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**
POLLUTANT: **CHROMIUM COMPOUNDS**

HISTORICAL COMPLIANCE AIR PROGRAM LEVEL

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1402**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1301**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1102**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0701**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1201**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1204**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0803**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0904**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0704**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1004**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1003**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0903**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0904**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0702**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0704**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0803**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0801**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1202**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0604**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1302**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1402**

HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1302**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1101**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1003**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0802**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0802**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1104**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1002**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0902**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0902**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1304**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0703**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0703**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0901**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1301**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1002**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1004**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0903**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0804**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1401**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1202**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1103**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1203**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**

COMPLIANCE DATE (YYYQ): **0801**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1303**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1101**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1403**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1403**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1103**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1102**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1104**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0901**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1203**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0701**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1401**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1304**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1201**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1001**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1204**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **0702**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0804**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **1303**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **SIP SOURCE**
COMPLIANCE DATE (YYYQ): **1001**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

AIR PROGRAM: **MACT (SECTION 63 NESHAPS)**
COMPLIANCE DATE (YYYQ): **0604**
HISTORICAL COMPLIANCE STATUS: **IN COMPLIANCE WITH PROCEDURAL REQUIREMENTS**

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MAP ID# 6 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

HANDLER IDENTIFICATION: **COD981549447**
SITENAME: **COLLINS COLLISION PRODUCTS INC**
ADDRESS: **5726 BYRD DR**
LOVELAND, CO 80538
REPORTED YEARS: **2005, 2003, 2001**

WASTE INFORMATION LAST REPORTED YEAR: **2005**

MANAGEMENT LOCATION: **OFFSITE**
SOURCE CODE DESCRIPTION:
STRIPPING AND ACID OR CAUSTIC CLEANING (USING CAUSTICS TO REMOVE COATINGS OR LAYERS FROM PARTS OR ASSEMBLIES)
FORM CODE DESCRIPTION:
W103 - SPENT CONCENTRATED ACID (5% OR MORE)
MANAGEMENT DESCRIPTION:
H111 - STABILIZATION OR CHEMICAL FIXATION PRIOR TO DISPOSAL AT ANOTHER SITE (AS THE MAJOR COMPONENT OF TREATMENT; NOT H071-H075, H077, OR H082)
GENERATOR ID INCLUDED IN NBR: **YES**
GENERATOR WASTE STREAM INCLUDED IN NBR: **YES**
QUANITITY GENERATED IN TONS: **.7**
MANAGER ID INCLUDED IN NBR: **NO**
MANAGER WASTE STREAM INCLUDED IN NBR: **NO**
QUANITITY MANAGED IN TONS: **0**
SHIPPER ID INCLUDED IN NBR: **YES**
SHIPPER WASTE STREAM INCLUDED IN NBR: **YES**
SHIPPER ID: **COD981549447**
SHIPPER STATE: **COLORADO**
QUANITITY SHIPPED IN TONS: **.7**
RECEIVER ID INCLUDED IN NBR: **NO**
RECEIVER WASTE STREAM INCLUDED IN NBR: **NO**
RECEIVER ID: **NED981723513**
RECEIVER STATE: **NEBRASKA**
QUANITITY RECEIVED IN TONS: **0**
FEDERAL WASTE: **YES**
WASTEWATER CHARACTERISTIC INDICATOR: **NO**
WASTE DESCRIPTION SIC: **332813 -**
WASTE MINIMIZATION CODE DESCRIPTION:
NOT REPORTED - NOT REPORTED
WASTE CODE DESCRIPTION: **TCMT -**

MANAGEMENT LOCATION: **OFFSITE**
SOURCE CODE DESCRIPTION:
STRIPPING AND ACID OR CAUSTIC CLEANING (USING CAUSTICS TO REMOVE COATINGS OR LAYERS FROM PARTS OR ASSEMBLIES)

FORM CODE DESCRIPTION:
W103 - SPENT CONCENTRATED ACID (5% OR MORE)
MANAGEMENT DESCRIPTION:
H010 - METALS RECOVERY INCLUDING RETORTING, SMELTING, CHEMICAL, ETC.
GENERATOR ID INCLUDED IN NBR: **YES**
GENERATOR WASTE STREAM INCLUDED IN NBR: **YES**
QUANITITY GENERATED IN TONS: **1.375**
MANAGER ID INCLUDED IN NBR: **NO**
MANAGER WASTE STREAM INCLUDED IN NBR: **NO**
QUANITITY MANAGED IN TONS: **0**
SHIPPER ID INCLUDED IN NBR: **YES**
SHIPPER WASTE STREAM INCLUDED IN NBR: **YES**
SHIPPER ID: **COD981549447**
SHIPPER STATE: **COLORADO**
QUANITITY SHIPPED IN TONS: **1.375**
RECEIVER ID INCLUDED IN NBR: **NO**
RECEIVER WASTE STREAM INCLUDED IN NBR: **NO**
RECEIVER ID: **NVD980895338**
RECEIVER STATE: **NEVADA**
QUANITITY RECEIVED IN TONS: **0**
FEDERAL WASTE: **YES**
WASTEWATER CHARACTERISTIC INDICATOR: **NO**
WASTE DESCRIPTION SIC: **332813 -**
WASTE MINIMIZATION CODE DESCRIPTION:
NOT REPORTED - NOT REPORTED
WASTE CODE DESCRIPTION: **TCMT -**

MANAGEMENT LOCATION: **OFFSITE**
SOURCE CODE DESCRIPTION:
PLATING AND PHOSPHATING (ELECTRO- OR NON-ELECTROPLATING OR PHOSPHATING)
FORM CODE DESCRIPTION:
W113 - OTHER AQUEOUS WASTE OR WASTEWATERS (FLUID BUT NOT SLUDGE)
MANAGEMENT DESCRIPTION:
H111 - STABILIZATION OR CHEMICAL FIXATION PRIOR TO DISPOSAL AT ANOTHER SITE (AS THE MAJOR COMPONENT OF TREATMENT; NOT H071-H075, H077, OR H082)
GENERATOR ID INCLUDED IN NBR: **YES**
GENERATOR WASTE STREAM INCLUDED IN NBR: **YES**
QUANITITY GENERATED IN TONS: **17.321**
MANAGER ID INCLUDED IN NBR: **NO**
MANAGER WASTE STREAM INCLUDED IN NBR: **NO**
QUANITITY MANAGED IN TONS: **0**
SHIPPER ID INCLUDED IN NBR: **YES**
SHIPPER WASTE STREAM INCLUDED IN NBR: **YES**
SHIPPER ID: **COD981549447**
SHIPPER STATE: **COLORADO**
QUANITITY SHIPPED IN TONS: **17.321**
RECEIVER ID INCLUDED IN NBR: **NO**

RECEIVER WASTE STREAM INCLUDED IN NBR: **NO**
RECEIVER ID: **NED981723513**
RECEIVER STATE: **NEBRASKA**
QUANITITY RECEIVED IN TONS: **0**
FEDERAL WASTE: **YES**
WASTEWATER CHARACTERISTIC INDICATOR: **YES**
WASTE DESCRIPTION SIC: **332813 -**
WASTE MINIMIZATION CODE DESCRIPTION:
NOT REPORTED - NOT REPORTED
WASTE CODE DESCRIPTION: **F006 - WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC, AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.**

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Facility Registry System (FRSCO)

MAP ID# 6 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

REGISTRY ID: **110000786445**

NAME: **COLLINS COLLISION PRODUCTS**

LOCATION ADDRESS: **5726 BYRD DRIVE**
LOVELAND, CO 80538-8991

COUNTY: **LARIMER**

EPA REGION: **08**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

COLLINS COLLISION PRODUCTS INC
COLLINS COLLISION PRODUCTS INC
COLLINS COLLISION PRODUCTS INC
COLLINS COLLISON PRODUCTS, INC.
COLLINS COLLISION PRODUCTS INC
COLLINS PLATING CO.
COLLINS COLLISION PRODUCTS
COLLINS COLLISION PRODUCTS, INC.
COLLINS COLLISION PRODUCTS, INC.
COLLINS COLLISON PRODUCTS, INC.

PROGRAM/S LISTED FOR THIS FACILITY

AIR - *DEFINITION NOT PROVIDED BY REPORTING AGENCY
NPDES - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
ECOMAP - COLORADO
NCDB - NATIONAL COMPLIANCE DATABASE SYSTEM
EIS - *DEFINITION NOT PROVIDED BY REPORTING AGENCY
AIRS/AFS - AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIRS FACILITY SYSTEM
BR - *DEFINITION NOT PROVIDED BY REPORTING AGENCY
RCRAINFO - RESOURCE CONSERVATION AND RECOVERY ACT INFORMATION SYSTEM
EIS - *DEFINITION NOT PROVIDED BY REPORTING AGENCY
OSHA-OIS - *DEFINITION NOT PROVIDED BY REPORTING AGENCY
OSHA-IMIS - *DEFINITION NOT PROVIDED BY REPORTING AGENCY

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

5093 - SCRAP AND WASTE MATERIALS
3471 - ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING
3471 - ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING
5093 - SCRAP AND WASTE MATERIALS
5093 - SCRAP AND WASTE MATERIALS

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

332813 - ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING.
423930 - RECYCLABLE MATERIAL MERCHANT WHOLESALERS.
332813 - ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING.
423930 - RECYCLABLE MATERIAL MERCHANT WHOLESALERS.
423930 - RECYCLABLE MATERIAL MERCHANT WHOLESALERS.

423930 - RECYCLABLE MATERIAL MERCHANT WHOLESALERS.

332813 - ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING.

332813 - ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING.

423930 - RECYCLABLE MATERIAL MERCHANT WHOLESALERS.

332813 - ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING.

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Integrated Compliance Information System National Pollutant Discharge Elimination System (ICISNPDES)

MAP ID# 6 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

NPDES ID: **COP900547INPDES** FACILITY #: **110000786445**
NAME: **COLLINS COLLISION PRODUCTS**
PHYSICAL ADDRESS: **5726 BYRD DRIVE**
FORT COLLINS CO 80538
COUNTY: **LARIMER**
FACILITY TYPE: **NOT REPORTED**
IMPAIRED WATERS: **NOT REPORTED**

STANDARD INDUSTRIAL CLASSIFICATION

- NOT REPORTED -

PERMITS

FACILITY TYPE INDICATOR: **NON-POTABLE WATER**
PERMIT TYPE: **INDIVIDUAL IU PERMIT (NON-NPDES)**
MAJOR MINOR FACILITY: **UNPERMITTED FACILITY**
PERMIT STATUS: **PENDING**
WATER BODY: **NOT REPORTED**
PERMIT NAME: **COLLINS COLLISIONS PRODUCTS**
AGENCY TYPE: **U.S. EPA**
ORIGINAL ISSUE DATE: **NOT REPORTED**
ISSUE DATE: **NOT REPORTED**
ISSUING AGENCY: **NOT REPORTED**
EFFECTIVE DATE: **NOT REPORTED**
EXPIRATION DATE: **NOT REPORTED**
RETIREMENT DATE: **NOT REPORTED**
TERMINATION DATE: **NOT REPORTED**
PERMIT COMPLIANCE STATUS: **NOT REPORTED**
PERMIT SUBJECT TO DMR RUN: **NOT REPORTED**
REPORTABLE NONCOMPLIANCE TRACKING IS ON: **NOT REPORTED**

INSPECTIONS

MONITOR TYPE: **AUDIT (IU)**
LEAD AGENCY: **EPA**
ACTUAL BEGIN DATE: **04/08/2010**
ACTUAL END DATE: **04/08/2010**

HISTORIC COMPLIANCE

- NO HISTORIC COMPLIANCE REPORTED -

SINGLE EVENT VIOLATIONS

- NO SINGLE EVENT VIOLATIONS REPORTED -

FORMAL ENFORCEMENT ACTIONS

- NO FORMAL ENFORCEMENT ACTIONS REPORTED -

EFFLUENT VIOLATIONS

- NOT REPORTED -

EFFLUENT VIOLATIONS contd..

- NOT REPORTED -

EFFLUENT VIOLATIONS contd..

- NOT REPORTED -

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MAP ID# 6 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

EPA ID#: **COD981549447**
NAME: **COLLINS COLLISION PRODUCTS INC**
ADDRESS: **5726 BYRD DR**
LOVELAND, CO 80538
CONTACT NAME: **JAMES H STULTS**
CONTACT ADDRESS: **5726 BYRD DR**
LOVELAND CO 80538
CONTACT PHONE: **970-663-1540**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **03/03/2014**

OWNER TYPE: **PRIVATE**
OWNER NAME: **BOB PETTY**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **COLLINS COLLISION PRODUCTS**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
BOB PETTY	**OPERATIONS MGR**	**02/24/2014**
BOB PETTY	**OPERATIONS MGR**	**02/24/2014**
BOB PETTY	**OPERATIONS MGR**	**08/02/2010**
BOB PETTY	**OPERATIONS MGR**	**02/27/2006**
BOB PETTY	**OPERATIONS MGR**	**02/27/2006**
JIM STULTS	**VP MARKETING**	**01/03/2006**
JIM STULTS	**VP MARKETING**	**07/25/2005**
BOB PETTY	**PRES**	**03/31/2004**
BOB PETTY	**PRESIDENT**	**03/31/2004**
BOB PETTY	**PRESIDENT**	**03/31/2004**
ROBERT M PETTY	**PRESIDENT**	**05/20/2003**
BOB PETTY	**OPERATIONSMGR**	**02/14/2002**
ROBERT M PETTY	**OPERATIONS MGR.**	**01/26/2000**
ROBERT M PETTY	**OPERATIONS MGR.**	**01/21/1998**

INDUSTRY CLASSIFICATION (NAICS)

332813 - ELECTROPLATING, PLATING, POLISHING, ANODIZING, AND COLORING

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **03/03/2014**
NAME: **COLLINS COLLISION PRODUCTS INC**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **08/16/2010**
NAME: **COLLINS COLLISION PRODUCTS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **02/28/2006**
NAME: **COLLINS COLLISION PRODUCTS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **02/27/2006**
NAME: **COLLINS COLLISION PRODUCTS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **01/10/2006**

NAME: **COLLINS COLLISION PRODUCTS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**
DATE RECEIVED BY AGENCY: **08/03/2005**
NAME: **COLLINS COLLISON PRODUCTS INC**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**
DATE RECEIVED BY AGENCY: **04/02/2004**
NAME: **COLLINS COLLISON PRODUCTS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**
DATE RECEIVED BY AGENCY: **03/31/2004**
NAME: **COLLINS COLLISION PRODUCTS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**
DATE RECEIVED BY AGENCY: **05/22/2003**
NAME: **COLLINS COLLISON PRODUCTS INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**
DATE RECEIVED BY AGENCY: **02/14/2002**
NAME: **COLLINS COLLISON PRODUCTS, INC.**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**
DATE RECEIVED BY AGENCY: **01/26/2000**
NAME: **COLLINS COLLISON PRODUCTS, INC.**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**
DATE RECEIVED BY AGENCY: **01/21/1998**
NAME: **COLLINS COLLISON PRODUCTS**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**
DATE RECEIVED BY AGENCY: **02/01/1995**
NAME: **COLLINS COLLISON PRODUCTS, INC.**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **03/11/2014**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**
UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

07/12/2013 **FSD** **FACILITY SELF DISCLOSURE**

06/25/2012	FSD	FACILITY SELF DISCLOSURE
06/28/2011	FSD	FACILITY SELF DISCLOSURE
06/24/2010	FSD	FACILITY SELF DISCLOSURE
07/20/2009	FSD	FACILITY SELF DISCLOSURE
08/07/2008	FSD	FACILITY SELF DISCLOSURE
04/22/2008	FCI	FOCUSED COMPLIANCE INSPECTION
11/08/2005	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
09/14/2004	NRR	NON-FINANCIAL RECORD REVIEW
09/17/2002	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
02/05/2001	NRR	NON-FINANCIAL RECORD REVIEW
01/18/2001	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
06/14/1993	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE

VIOLATIONS

11/08/2005	262.A	GENERATORS - GENERAL
11/08/2005	262.C	GENERATORS - PRE-TRANSPORT
01/18/2001	262.C	GENERATORS - PRE-TRANSPORT
02/02/1999	262.A	GENERATORS - GENERAL
10/24/1994	262.A	GENERATORS - GENERAL

ENFORCEMENTS

11/08/2005	127	V3 CONVERSION COMPLIANCE ADVISORY
01/18/2001	127	V3 CONVERSION COMPLIANCE ADVISORY
02/02/1999	310	FINAL 3008(A) COMPLIANCE ORDER
11/01/1994	210	INITIAL 3008(A) COMPLIANCE

HAZARDOUS WASTE

D001	IGNITABLE WASTE
D002	CORROSIVE WASTE
D003	REACTIVE WASTE
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D018	BENZENE
D035	METHYL ETHYL KETONE
D039	TETRACHLOROETHYLENE
D040	TRICHLORETHYLENE
F003	THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F005 THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F006 WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC, AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
BATTERIES	**NO**	**NO**	**ANNUAL/BIENNIAL REPORT**
BATTERIES	**UNKNOWN**	**UNKNOWN**	**ANNUAL/BIENNIAL REPORT**
LAMPS	**NO**	**NO**	**ANNUAL/BIENNIAL REPORT**
LAMPS	**UNKNOWN**	**UNKNOWN**	**ANNUAL/BIENNIAL REPORT**
PESTICIDES	**NO**	**NO**	**ANNUAL/BIENNIAL REPORT**
PESTICIDES	**UNKNOWN**	**UNKNOWN**	**ANNUAL/BIENNIAL REPORT**
MERCURY CONTAINING EQUIPMENT	**NO**	**NO**	**ANNUAL/BIENNIAL REPORT**
MERCURY CONTAINING EQUIPMENT	**UNKNOWN**	**UNKNOWN**	**ANNUAL/BIENNIAL REPORT**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORRECTIVE ACTION EVENT REPORTED -**

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MAP ID# 6 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

SITE ID: **069-0048**

FACILITY NAME: **COLLINS COLLISION PRODUCTS INC**

ADDRESS: **5726 BYRD DR**
LOVELAND, CO 80538

PERMIT NAME: **COLLINS COLLISION PRODUCTS INC**

FACILITY CLASSIFICATION: **0**

AIR PROGRAM

AIR PROGRAM CLASSIFICATION: 'A'=Major, 'B'=Minor, 'SM'=Synthetic Minor, 'ND'=No Major Source Threshold Defined, 'C'=Unknown, 'BLANK'= BLANK FIELD

AIR PROGRAM CLASS: **MINOR**

ACID PRECIPITATION: **BLANK** APEN EXEMPT: **BLANK** CFC TRACKING: **BLANK**

CONDENSATE STORAGE TANK: **BLANK** FESOP (NON-TITLE V): **BLANK** MACT (SEC. 63 NESHAPS): **B**

NESHAP: **BLANK** NON FEDERALLY REPORTABLE SOURCE: **BLANK** FEDERAL NSPS: **BLANK**

STATE NSPS: **BLANK** NSR: **BLANK** PSD: **BLANK** SIP SOURCE UNDER FEDERAL JURISDICTION: **BLANK**

SIP SOURCE: **B** TITLE V PERMITS: **BLANK** NATIVE AMERICAN: **BLANK**

PLANT AIR PROGRAM:

PROPERTY AREA: **3.00000**

COMPLIANCE MONITORING SYSTEM: **NOT REPORTED**

DATE COMPLIANCE MONITORING SYSTEM: **01/26/06**

STANDARD INDUSTRIAL DESCRIPTION:

WHOLESALE TRADE-DURABLE GOODS - SCRAP AND WASTE MATERIALS

SITE CONTACT INFORMATION

CONTACT NAME: **BOB PETTY**

CONTACT PHONE: **(970)663-1540**

SITE DESCRIPTION:**AUTO BUMPERS RECYCLING**

COMMENTS:

AUTOMOTIVE BUMPER RECYCLING

OWNER INFORMATION

OWNER CUSTOMER #: **8409555080**

OWNER NAME: **COLLINS COLLISION PRODUCTS INC**

ADDRESS: **5726 BYRD DR**
LOVELAND, 08 80538

OWNER MAIL NAME: **BOB PETTY**

OWNER MAIL PHONE: **(970)663-1540**

SITE OWNER DESCRIPTION: **AUTO BUMPERS RECYCLING**

SITE POLLUTANT INFORMATION

EFFECTIVE YEAR OF INVENTORY: **2015**

POLLUTANT NAME: **NOT REPORTED - ETHYLENE GLYCOL MONOBUTYL ETHER**

EMISSION DATA SUBMITTED YEAR: **2014**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **NO**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
1.11300	**1.11300**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
1.73000	**1.73000**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PM10-PRI - PARTICULATE MATTER < 10 UM**
EMISSION DATA SUBMITTED YEAR: **2005**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.36690	**3.66900**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PM25-PRI - PARTICULATE MATTER < 2.5 UM**
EMISSION DATA SUBMITTED YEAR: **2005**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
0.10791	**1.07912**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:

(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **NOT REPORTED - TOTAL PARTICULATE MATTER**
EMISSION DATA SUBMITTED YEAR: **2005**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.36690	**3.66900**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2005**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
2.32110	**2.32110**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

STACK

EFFECTIVE YEAR OF INVENTORY: **2015**
EMISSION DATA SUBMITTED YEAR: **2014**
EMISSION RELEASE POINT (STACK): **CANCELLED**

STACK GAS FLOW RATE: *(CUBIC FEET PER MINUTE):*	STACK GAS FLOW RATE (NEI COMPATIBLE): *(CUBIC FEET PER MINUTE):*
1520.00000	**25.00000**

STACK HEIGHT:	STACK DIAMETER:	PLUME HEIGHT:
25.00000	**1.00000**	**0.00000**

STACK TYPE DESCRIPTION:
A BUILDING ROOF VENT

EFFECTIVE YEAR OF INVENTORY: **2014**
EMISSION DATA SUBMITTED YEAR: **2005**
EMISSION RELEASE POINT (STACK): **ELECTROPLATING OPERATION: CHROME-9 ACID TANKS**

STACK GAS FLOW RATE: (CUBIC FEET PER MINUTE): **1520.00000**
STACK GAS FLOW RATE (NEI COMPATIBLE): (CUBIC FEET PER MINUTE): **25.00000**
STACK HEIGHT: **25.00000**
STACK DIAMETER: **1.00000**
PLUME HEIGHT: **0.00000**
STACK TYPE DESCRIPTION:
A BUILDING ROOF VENT

EFFECTIVE YEAR OF INVENTORY: **2011**
EMISSION DATA SUBMITTED YEAR: **2005**
EMISSION RELEASE POINT (STACK): **ONE DEVILBISS PAINT SPRAY BOOTH**
STACK GAS FLOW RATE: (CUBIC FEET PER MINUTE): **0.00000**
STACK GAS FLOW RATE (NEI COMPATIBLE): (CUBIC FEET PER MINUTE): **0.00000**
STACK HEIGHT: **25.00000**
STACK DIAMETER: **2.00000**
PLUME HEIGHT: **0.00000**
STACK TYPE DESCRIPTION:
A PROCESS VENT, NOT OTHERWISE CLASSIFIED

EFFECTIVE YEAR OF INVENTORY: **2011**
EMISSION DATA SUBMITTED YEAR: **2005**
EMISSION RELEASE POINT (STACK): **NOT REPORTED**
STACK GAS FLOW RATE: (CUBIC FEET PER MINUTE): **210.00000**
STACK GAS FLOW RATE (NEI COMPATIBLE): (CUBIC FEET PER MINUTE): **3.00000**
STACK HEIGHT: **25.00000**
STACK DIAMETER: **0.50000**
PLUME HEIGHT: **0.00000**
STACK TYPE DESCRIPTION:
A STACK WITH AN UNOBSTRUCTED OPENING DISCHARGING IN A VERTICAL DIRECTION

STACK POLLUTANT

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PM10 - PARTICULATE MATTER < 10 UM**
EMISSION DATA SUBMITTED YEAR: **2005**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: (TONS PER YEAR): **0.36690**
UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR): **3.66900**
EMISSIONS LIMIT: (TONS PER YEAR): **0.00000**
ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: (TONS PER YEAR) **0.00000**

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PM2.5 - PARTICULATE MATTER < 2.5 UM**
EMISSION DATA SUBMITTED YEAR: **2005**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.10791	**1.07912**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **PT - TOTAL PARTICULATE MATTER**
EMISSION DATA SUBMITTED YEAR: **2005**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
0.36690	**3.66900**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2014**
POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**
EMISSION DATA SUBMITTED YEAR: **2005**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **YES**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: *(TONS PER YEAR):*	UNCONTROLLED ESTIMATED EMISSIONS: *(TONS PER YEAR):*	EMISSIONS LIMIT: *(TONS PER YEAR):*
2.32110	**2.32110**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS: *(TONS PER YEAR)*
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**
POLLUTANT NAME: **111762 - ETHYLENE GLYCOL MONOBUTYL ETHER**
EMISSION DATA SUBMITTED YEAR: **2014**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**
POLLUTANT IS A CRITERIA POLLUTANT: **NO**
POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**
POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**
POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**
ESTIMATED EMISSIONS: UNCONTROLLED ESTIMATED EMISSIONS: EMISSIONS LIMIT:

(TONS PER YEAR):	(TONS PER YEAR):	(TONS PER YEAR):
1.11300	**1.11300**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

EFFECTIVE YEAR OF INVENTORY: **2015**

POLLUTANT NAME: **VOC - VOLATILE ORGANIC COMPOUNDS**

EMISSION DATA SUBMITTED YEAR: **2014**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT UNDER COLORADO SECTION 25-7-109.3 C.R.S: **NO**

POLLUTANT IS A CRITERIA POLLUTANT: **NO**

POLLUTANT IS REPORTABLE AS EPCRA (SARA TITLE III) COMPOUND ONLY: **NO**

POLLUTANT IS A HAZARDOUS AIR POLLUTANT LISTED UNDER THE FEDERAL CAAA SECTION 112: **NO**

POLLUTANT IS A OZONE DEPLETING COMPOUND LISTED UNDER COLORADO AQCC REGULATION 15 SECTION II.11.: **NO**

ESTIMATED EMISSIONS: (TONS PER YEAR):	UNCONTROLLED ESTIMATED EMISSIONS: (TONS PER YEAR):	EMISSIONS LIMIT: (TONS PER YEAR):
1.73000	**1.73000**	**0.00000**

ESTIMATED EMISSIONS WITH RULE EFFECTIVENESS:
(TONS PER YEAR)
0.00000

UNIT COMMENT

FENTON SLUDGE DRYER-CHROMIUM MET

AN ELECTROPLATING OPERATION CONSISTING OF NINE SEPARATE TANKS FOR ACIDS AND PAINT STRIPPING, CLEANING, AND TRIVALENT DECORATING CHROME AND COPPER PLATING.

ONE DEVILBISS PAINT SPRAY BOOTH, SN: LA1427, EQUIPPED WITH A FILTER FOR CONTROL OF PARTICULATE EMISSIONS.

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Solid Waste Facilities (SWF)

MAP ID# 7 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **1283WTR**
NAME: **TRI CITY CYCLE INC**
ADDRESS: **3675 CLYDESDALE PK**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **1283**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Solid Waste Facilities (SWF)

MAP ID# 8 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **168WTR**
NAME: **COLORADO EURO MOTORSPORTS LLC**
ADDRESS: **6002 BYRD DRIVE**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **168**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Solid Waste Facilities (SWF)

MAP ID# 9 **Distance from Property: 0.001 mi. (5 ft.) NE**

SITE INFORMATION

GEOSEARCH ID: **1875WTR**
NAME: **HERTICH DEALERSHIPS INC.**
ADDRESS: **3870 BYRD DRIVE**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **1875**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Facility Registry System (FRSCO)

MAP ID# 10 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

REGISTRY ID: **110033018348**

NAME: **NICK DAVIDSON INC (GEBHART CHEVROLET DLR)**

LOCATION ADDRESS: **3880 TEST CIR**
LOVELAND, CO 80538

COUNTY: **WELD**

EPA REGION: **08**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

NICK DAVIDSON INC (GEBHART CHEVROLET DLR)

PROGRAM/S LISTED FOR THIS FACILITY

RCRAINFO - RESOURCE CONSERVATION AND RECOVERY ACT INFORMATION SYSTEM

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

NO SIC DATA REPORTED

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

811121 - AUTOMOTIVE BODY, PAINT, AND INTERIOR REPAIR AND MAINTENANCE.

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Facility Registry System (FRSCO)

MAP ID# 10 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

REGISTRY ID: **110043718849**

NAME: **DAVIDSON -GEBHARDT**

LOCATION ADDRESS: **3880 TEST DRIVE**
LOVELAND, CO 80538

COUNTY: **LARIMER**

EPA REGION: **08**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

DAVIDSON -GEBHARDT

PROGRAM/S LISTED FOR THIS FACILITY

ICIS - INTEGRATED COMPLIANCE INFORMATION SYSTEM

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

NO SIC DATA REPORTED

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

NO NAICS DATA REPORTED

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Resource Conservation & Recovery Act - Generator Facilities (RCRAGR08)

MAP ID# 10 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

EPA ID#: **COR000218321**
NAME: **NICK DAVIDSON INC (GEBHART CHEVROLET DLR)**
ADDRESS: **3880 TEST CIR**
LOVELAND, CO 80538
CONTACT NAME: **MARTY CHRISTENSEN**
CONTACT ADDRESS: **3880 TEST CIR**
LOVELAND CO 80538
CONTACT PHONE: **970-667-3970**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **10/17/2012**

OWNER TYPE: **PRIVATE**
OWNER NAME: **NICK DAVIDSON INC-GEBHART**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **NICK DAVIDSON INC-GEBHART**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
ART L LEWIS	**FIXED OPERATIONS MGR**	**10/10/2012**
DONNA VIEGUT	**MGR**	**11/15/2007**

INDUSTRY CLASSIFICATION (NAICS)

811121 - AUTOMOTIVE BODY, PAINT, AND INTERIOR REPAIR AND MAINTENANCE

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **10/17/2012**
NAME: **NICK DAVIDSON INC (GEBHART CHEVROLET DLR)**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **12/13/2007**
NAME: **NICK DAVIDSON INC (GEBHART CHEVROLET DLR)**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **10/17/2012**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS **- NO EVALUATIONS REPORTED -**
VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

D001 **IGNITABLE WASTE**

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORRECTIVE ACTION EVENT REPORTED -**

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Solid Waste Facilities (SWF)

MAP ID# 10 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **1268WTR**
NAME: **NICK DAVIDSON INC**
ADDRESS: **3880 TEST CIRCLE**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **1268**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Solid Waste Facilities (SWF)

MAP ID# 11 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **1266WTR**
NAME: **NICK DAVIDSON INC**
ADDRESS: **3930 BYRD DRIVE**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **1266**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Facility Registry System (FRSCO)

MAP ID# 12 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

REGISTRY ID: **110031337827**

NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**

LOCATION ADDRESS: **4040 BYRD DR**
LOVELAND, CO 80538

COUNTY: **LARIMER**

EPA REGION: **08**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

FERRERO I-25 CHRYSLER JEEP DODGE

PROGRAM/S LISTED FOR THIS FACILITY

RCRAINFO - RESOURCE CONSERVATION AND RECOVERY ACT INFORMATION SYSTEM

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

NO SIC DATA REPORTED

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

44111 - NEW CAR DEALERS

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MAP ID# 12 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

EPA ID#: **COR000216234**
NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**
ADDRESS: **4040 BYRD DR**
LOVELAND, CO 80538

OWNER TYPE: **PRIVATE**
OWNER NAME: **ROBERT FERRERO**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**

CONTACT NAME: **RYAN FERRERO**
CONTACT ADDRESS: **4040 BYRD DR**
LOVELAND CO 80538
CONTACT PHONE: **970-667-4433**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **11/24/2009**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
JAMES M ROWELL	**MGR**	**11/24/2009**
RYAN FERRERO	**GEN MGR**	**07/02/2008**
JAMES M ROWELL	**MGR**	**07/02/2008**
RYAN FERRERO	**GEN MGR**	**03/21/2007**

INDUSTRY CLASSIFICATION (NAICS)

44111 - NEW CAR DEALERS

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **11/24/2009**
NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

DATE RECEIVED BY AGENCY: **07/21/2008**
NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **03/26/2007**
NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NOT A GENERATOR** LAST UPDATED DATE: **11/24/2009**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**

USED OIL REFINER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSFER FACILITY: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS **- NO EVALUATIONS REPORTED -**

VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

F005 **THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
NOT REPORTED	**NO**	**NO**	**NOTIFICATION**
BATTERIES	**NO**	**NOT REPORTED**	**NOTIFICATION**
OTHER	**NO**	**NO**	**NOTIFICATION**
LAMPS	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**NO**	**NO**	**NOTIFICATION**
PESTICIDES	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY CONTAINING EQUIPMENT	**NO**	**NOT REPORTED**	**NOTIFICATION**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORRECTIVE ACTION EVENT REPORTED -**

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Resource Conservation & Recovery Act - Non-Generator Facilities (RCRANGR08)

MAP ID# 12 **Distance from Property: 0.001 mi. (5 ft.) S**

FACILITY INFORMATION

EPA ID#: **COR000216234**
NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**
ADDRESS: **4040 BYRD DR**
LOVELAND, CO 80538

OWNER TYPE: **PRIVATE**
OWNER NAME: **ROBERT FERRERO**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**

CONTACT NAME: **JAMES M ROWELL**
CONTACT ADDRESS: **4040 BYRD DR**
LOVELAND CO 80538
CONTACT PHONE: **970-667-4433**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **11/24/2009**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
JAMES M ROWELL	**MGR**	**11/24/2009**
RYAN FERRERO	**GEN MGR**	**07/02/2008**
JAMES M ROWELL	**MGR**	**07/02/2008**
RYAN FERRERO	**GEN MGR**	**03/21/2007**

INDUSTRY CLASSIFICATION (NAICS)

44111 - NEW CAR DEALERS

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **11/24/2009**
NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

DATE RECEIVED BY AGENCY: **07/21/2008**
NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **03/26/2007**
NAME: **FERRERO I-25 CHRYSLER JEEP DODGE**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NOT A GENERATOR** LAST UPDATED DATE: **11/24/2009**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**

USED OIL REFINER: **NO**

SPECIFICATION USED OIL MARKETER: **NO**

USED OIL TRANSFER FACILITY: **NO**

USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS **- NO EVALUATIONS REPORTED -**

VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

F005 **THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
NOT REPORTED	**NO**	**NO**	**NOTIFICATION**
BATTERIES	**NO**	**NOT REPORTED**	**NOTIFICATION**
OTHER	**NO**	**NO**	**NOTIFICATION**
LAMPS	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**NO**	**NO**	**NOTIFICATION**
PESTICIDES	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY CONTAINING EQUIPMENT	**NO**	**NOT REPORTED**	**NOTIFICATION**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORRECTIVE ACTION EVENT REPORTED -**

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Solid Waste Facilities (SWF)

MAP ID# 12 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **1874WTR**
NAME: **TT OF FORT COLLINS, INC.**
ADDRESS: **4040 BYRD DRIVE**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **1874**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Solid Waste Facilities (SWF)

MAP ID# 13 **Distance from Property: 0.001 mi. (5 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **1279WTR**
NAME: **CO'S AUTO GROUP, INC.**
ADDRESS: **4150 BYRD DR.**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **1279**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Solid Waste Facilities (SWF)

MAP ID# 14 **Distance from Property: 0.01 mi. (53 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **945WTR**
NAME: **KING BUICK GMC**
ADDRESS: **4175 BYRD DR**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **945**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Solid Waste Facilities (SWF)

MAP ID# 15 **Distance from Property: 0.01 mi. (53 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **1270WTR**
NAME: **MOTOADVENTURE**
ADDRESS: **6385 BYRD DR**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **1270**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Facility Registry System (FRSCO)

MAP ID# 16 **Distance from Property: 0.01 mi. (53 ft.) S**

FACILITY INFORMATION

REGISTRY ID: **110064308967**

NAME: **WESTERN AREA POWER ADMIN-LOVELAND FLD YD**

LOCATION ADDRESS: **5555 E CNTY RD 26**
LOVELAND, CO 80509

COUNTY: **LARIMER**

EPA REGION: **08**

FEDERAL FACILITY: **NOT REPORTED**

TRIBAL LAND: **NOT REPORTED**

ALTERNATIVE NAME/S:

WESTERN AREA POWER ADMIN-LOVELAND FLD YD

PROGRAM/S LISTED FOR THIS FACILITY

RCRAINFO - RESOURCE CONSERVATION AND RECOVERY ACT INFORMATION SYSTEM

STANDARD INDUSTRIAL CLASSIFICATION/S (SIC)

NO SIC DATA REPORTED

NORTH AMERICAN INDUSTRY CLASSIFICATION/S (NAICS)

NO NAICS DATA REPORTED

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Colorado Discharge Permit System Facilities (CDPS)

MAP ID# 17 **Distance from Property: 0.01 mi. (53 ft.) S**

SITE INFORMATION

PERMIT NUMBER: **COR03C524**
SITE NAME: **CROSSROADS BUSINESS PARK 7 SUBD LOT 4**
ADDRESS: **ST CLOUD DR & CLYDESDALE PKWY**
LOVELAND, CO
PERMIT TYPE: **STORMWATER CONSTRUCTION**
PERMITTEE: **V P COLORADO I LLC**
PERMIT EFFECTIVE: **8/14/2007**

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Resource Conservation & Recovery Act - Generator Facilities (RCRAGR08)

MAP ID# 18 **Distance from Property: 0.06 mi. (317 ft.) S**

FACILITY INFORMATION

EPA ID#: **COD982582116**
NAME: **BW CONTAINER SYSTEMS**
ADDRESS: **5605 GOLDCO DR**
LOVELAND, CO 80538
CONTACT NAME: **SHARON DUCLOS-HOGAN**
CONTACT ADDRESS: **5605 GOLDCO DR**
LOVELAND CO 80538
CONTACT PHONE: **970-663-4770**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **03/09/2015**

OWNER TYPE: **PRIVATE**
OWNER NAME: **R H VANDERMEER**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **BW CONTAINER SYSTEMS**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
SHARON DUCLOS-HOGAN	**MGR**	**02/27/2015**
BILL MILBER	**CORP DIR**	**07/24/2008**

INDUSTRY CLASSIFICATION (NAICS)

333922 - CONVEYOR AND CONVEYING EQUIPMENT MANUFACTURING

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **03/09/2015**
NAME: **BW CONTAINER SYSTEMS**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **08/26/2008**
NAME: **FLEETWOOD GOLDCO WYARD INC**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/22/2001**
NAME: **GOLDCO INDUSTRIES INC**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **04/06/1988**
NAME: **GOLDCO INDUSTRIES INC**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **03/11/2015**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**

FURNACE EXEMPTION: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
USED OIL REFINER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSFER FACILITY: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

10/25/2000 CEI COMPLIANCE EVALUATION INSPECTION ON-SITE

VIOLATIONS

10/25/2000 262.C GENERATORS - PRE-TRANSPORT

10/25/2000 279.C USED OIL - GENERATORS

ENFORCEMENTS

10/25/2000 127 V3 CONVERSION COMPLIANCE ADVISORY

HAZARDOUS WASTE

F003 **THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

F005 **THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORRECTIVE ACTION EVENT REPORTED -**

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Underground Storage Tank Facilities (UST)

MAP ID# 19 **Distance from Property: 0.08 mi. (422 ft.) S**

FACILITY INFORMATION

FACILITY ID: **3467**

NAME: **POWER MARKETING OPERATIONS**

ADDRESS: **5555 E CROSSROADS BLVD**
LOVELAND, CO 80539

COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=3467

OWNER INFORMATION

OWNER ID: **5792**

NAME: **WESTERN AREA POWER ADMIN**

ADDRESS: **PO BOX 3700**
LOVELAND, CO 80539

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
9702	**UNDERGROUND STORAGE TANK**	**4 - DIESEL**	**10000**	**CLOSED**	**NOT REPORTED**
9703	**UNDERGROUND STORAGE TANK**	**GASOLINE**	**10000**	**CLOSED**	**NOT REPORTED**
9704	**UNDERGROUND STORAGE TANK**	**GASOLINE**	**6000**	**CLOSED**	**NOT REPORTED**
9705	**UNDERGROUND STORAGE TANK**	**GASOLINE**	**6000**	**CLOSED**	**NOT REPORTED**
9706	**UNDERGROUND STORAGE TANK**	**4 - DIESEL**	**700**	**CLOSED**	**NOT REPORTED**
9707	**UNDERGROUND STORAGE TANK**	**4 - DIESEL**	**2500**	**OPEN**	**NOT REPORTED**
9708	**UNDERGROUND STORAGE TANK**	**4 - DIESEL**	**10000**	**CLOSED**	**NOT REPORTED**

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Resource Conservation & Recovery Act - Generator Facilities (RCRAGR08)

MAP ID# 19 **Distance from Property: 0.08 mi. (422 ft.) S**

FACILITY INFORMATION

EPA ID#: **CO7890090023**

NAME: **WESTERN AREA POWER ADMIN-LOVELAND FLD YD**

ADDRESS: **5555 E CNTY RD 26**
LOVELAND, CO 80509

OWNER TYPE: **FEDERAL**

OWNER NAME: **WESTERN AREA POWER ADMINISTRATION**

OPERATOR TYPE: **FEDERAL**

OPERATOR NAME: **NAME UNKNOWN**

CONTACT NAME: **MIKE SIBAL**

CONTACT ADDRESS: **5555 E CROSSROADS BLVD**
LOVELAND CO 80538

CONTACT PHONE: **970-490-7214**

NON-NOTIFIER: **NOT A NON-NOTIFIER**

DATE RECEIVED BY AGENCY: **09/07/1983**

CERTIFICATION **- NO CERTIFICATION REPORTED -**

INDUSTRY CLASSIFICATION (NAICS) **- NO NAICS INFORMATION REPORTED -**

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **09/07/1983**

NAME: **WESTERN AREA POWER ADMIN-LOVELAND FLD YD**

GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **09/30/2003**

SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**

TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**

TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**

NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**

CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

08/24/1990 **CEI COMPLIANCE EVALUATION INSPECTION ON-SITE**

VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

D001 **IGNITABLE WASTE**

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORRECTIVE ACTION EVENT REPORTED -**

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Leaking Storage Tank Facilities (LST)

MAP ID# 19 **Distance from Property: 0.08 mi. (422 ft.) S**

FACILITY INFORMATION

UNIQUE ID: **3467LST**

FACILITY ID: **3467**

NAME: **POWER MARKETING OPERATIONS**

ADDRESS: **5555 E CROSSROADS BLVD**
LOVELAND, CO 80539

SITE NAME: **POWER MARKETING OPERATIONS**

LOCATION: **5555 E CROSSROADS BLVD, LOVELAND 80539**

LEAKING INFORMATION

EVENT ID:	STATUS:	RELEASE DATE:	ALTERNATE NAME:
5416	**CLOSED**	**7/15/1993**	**POWER MARKETING OPERATIONS**

COSTIS LINK: http://costis.cdle.state.co.us/event.asp?h_id=5416

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MAP ID# 20 **Distance from Property: 0.1 mi. (528 ft.) S**

FACILITY INFORMATION

EPA ID#: **COR000013334**
NAME: **VISION GRAPHICS**
ADDRESS: **5610 BOEING DR**
LOVELAND, CO 80538
CONTACT NAME: **ALBERT J GRAHAM**
CONTACT ADDRESS: **5610 BOEING DR**
LOVELAND CO 80538
CONTACT PHONE: **970-613-0608**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **05/13/2004**

OWNER TYPE: **PRIVATE**
OWNER NAME: **MARK STEPUTIS**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **VISION GRAPHICS INCORPORATED**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
ALBERT J GRAHAM	**PRODUCTION MGR**	**05/13/2004**
ALBERT J GRAHAM	**PRODUCTION MNGR**	**04/27/2004**
ALBERT J GRAHAM	**PRODUCTION MNGR**	**04/27/2004**
ALBERT J GRAHAM	**PRODUCTION MGR**	**04/27/2004**
MARK STEPUTIS	**ENV MGR**	**12/22/2003**

INDUSTRY CLASSIFICATION (NAICS)

32311 - PRINTING

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **05/13/2004**
NAME: **VISION GRAPHICS**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **05/03/2004**
NAME: **VISION GRAPHICS**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **04/27/2004**
NAME: **VISION GRAPHICS INCORPORATED**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **12/22/2003**
NAME: **VISION GRAPHICS**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **09/16/2002**
NAME: **VISION GRAPHICS**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **05/11/1999**
NAME: **VISION GRAPHICS**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **05/13/2004**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**

TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**

TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**

NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**

CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**

MIXED WASTE GENERATOR: **NO**

RECYCLER: **NO**

TRANSPORTER: **NO**

ONSITE BURNER EXEMPTION: **NO**

FURNACE EXEMPTION: **NO**

USED OIL REFINER: **NO**

USED OIL TRANSFER FACILITY: **YES**

UNDERGROUND INJECTION: **NO**

UNIVERSAL WASTE DESTINATION FACILITY: **NO**

TRANSFER FACILITY: **NO**

USED OIL FUEL BURNER: **NO**

USED OIL PROCESSOR: **NO**

USED OIL FUEL MARKETER TO BURNER: **NO**

SPECIFICATION USED OIL MARKETER: **NO**

USED OIL TRANSPORTER: **YES**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

09/14/2004	**NRR**	**NON-FINANCIAL RECORD REVIEW**
01/07/2004	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
09/08/2003	**NRR**	**NON-FINANCIAL RECORD REVIEW**
08/06/2002	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**

VIOLATIONS

01/07/2004	**262.C**	**GENERATORS - PRE-TRANSPORT**
01/07/2004	**262.D**	**GENERATORS - RECORDS/REPORTING**
01/07/2004	**268.A**	**LDR - GENERAL**
08/06/2002	**262.C**	**GENERATORS - PRE-TRANSPORT**
08/06/2002	**262.D**	**GENERATORS - RECORDS/REPORTING**

ENFORCEMENTS

01/07/2004	**127**	**V3 CONVERSION COMPLIANCE ADVISORY**
08/06/2002	**127**	**V3 CONVERSION COMPLIANCE ADVISORY**

HAZARDOUS WASTE

D001 **IGNITABLE WASTE**

F003 **THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
BATTERIES	**NO**	**NO**	**ANNUAL/BIENNIAL REPORT**
LAMPS	**NO**	**NO**	**ANNUAL/BIENNIAL REPORT**
PESTICIDES	**NO**	**NO**	**ANNUAL/BIENNIAL REPORT**
MERCURY CONTAINING EQUIPMENT	**NO**	**NO**	**ANNUAL/BIENNIAL REPORT**

CORRECTIVE ACTION AREA **- NO CORRECTIVE ACTION AREA INFORMATION REPORTED -**

CORRECTIVE ACTION EVENT **- NO CORRECTIVE ACTION EVENT REPORTED -**

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Hazardous Waste Sites- Generator (HWSG)

MAP ID# 20 **Distance from Property: 0.1 mi. (528 ft.) S**

SITE INFORMATION

EPA ID: **COR000013334**

SITE NAME: **VISION GRAPHICS**

SITE ADDRESS: **5610 BOEING DR**
LOVELAND, CO 80538

SITE COUNTY: **LARIMER**

FACILITY TYPE: **LQG**

STATUS: **ACTIVE**

LINKS: **http://oaspub.epa.gov/enviro/brs_web.report?pgm_sys_id=COR000013334**

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Underground Storage Tank Facilities (UST)

MAP ID# 21 **Distance from Property: 0.1 mi. (528 ft.) S**

FACILITY INFORMATION

FACILITY ID: **19662**

NAME: **CARMAX #7258**

ADDRESS: **3655 BYRD DR**
LOVELAND, CO 80538

COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=19662

OWNER INFORMATION

OWNER ID: **21094**

NAME: **CARMAX AUTO SUPERSTORES WEST COAST**

ADDRESS: **12800 TUCKAHOE CREEK PKWY**
RICHMOND, VA 23238

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
45539	**UNDERGROUND STORAGE TANK**	**1 - UNLEADED REGULAR (RUL)**	**12000**	**NOT REPORTED**	**NOT REPORTED**

Back to Report Summary

Solid Waste Facilities (SWF)

MAP ID# 21 **Distance from Property: 0.1 mi. (528 ft.) S**

SITE INFORMATION

GEOSEARCH ID: **2208WTR**
NAME: **CARMAX #7258 LOVELAND**
ADDRESS: **3655 BYRD DRIVE**
LOVELAND, CO 80538
COUNTY: **NOT REPORTED**
CERTIFICATION ID: **2208**
FACILITY TYPE: **REGISTERED TIRE HAULER**
TIRE RETAILER/WHOLESALER: **YES**
HAULER: **NO**
END USER: **NO**
COLLECTION: **NO**
PROCESSOR: **NO**
MONOFILL: **NO**

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Underground Storage Tank Facilities (UST)

MAP ID# 22 **Distance from Property: 0.1 mi. (528 ft.) S**

FACILITY INFORMATION

FACILITY ID: **18097**

NAME: **SCHRADERS COUNTRY STORE #380**

ADDRESS: **6140 CROSSROADS BLVD**
LOVELAND, CO 80538

COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=18097

OWNER INFORMATION

OWNER ID: **4743**

NAME: **SCHRADER OIL CO**

ADDRESS: **320 N COLLEGE AVE**
FORT COLLINS, CO 80524

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
39866	**UNDERGROUND STORAGE TANK**	**1 - UNLEADED REGULAR (RUL)**	**12000**	**OPEN**	**NOT REPORTED**
39867	**UNDERGROUND STORAGE TANK**	**3 - UNLEADED PREMIUM (PUL)**	**12000**	**OPEN**	**NOT REPORTED**
39868	**UNDERGROUND STORAGE TANK**	**4 - DIESEL**	**12000**	**OPEN**	**NOT REPORTED**
39869	**UNDERGROUND STORAGE TANK**	**4 - DIESEL**	**8000**	**OPEN**	**NOT REPORTED**

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No Longer Regulated RCRA Generator Facilities (NLRRCRAG)

MAP ID# 23 **Distance from Property: 0.1 mi. (528 ft.) S**

FACILITY INFORMATION

EPA ID#: **COR000003590**
NAME: **BURKE CLEANERS**
ADDRESS: **5635 BOEING DR**
LOVELAND, CO 80538-8811
CONTACT NAME: **TIM D BURKE**
CONTACT ADDRESS: **5635 BOEING DR**
LOVELAND CO 805388811
CONTACT PHONE: **970-203-9600**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **02/11/2013**

OWNER TYPE: **PRIVATE**
OWNER NAME: **TIM BURKE**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **BURKE CLEANERS**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
TIM D BURKE	**OWNER**	**02/06/2013**
TIM D BURKE	**OWNER**	**08/02/2010**
TIM D BURKE	**OWNER**	**07/14/2008**

INDUSTRY CLASSIFICATION (NAICS)

81232 - DRYCLEANING AND LAUNDRY SERVICES (EXCEPT COIN-OPERATED)

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **02/11/2013**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

DATE RECEIVED BY AGENCY: **08/24/2010**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **12/17/2008**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **01/22/1996**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NOT A GENERATOR** LAST UPDATED DATE: **02/13/2013**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**

ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

05/13/2014	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
02/16/2012	**FSD**	**FACILITY SELF DISCLOSURE**
07/26/2011	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
02/04/2011	**FSD**	**FACILITY SELF DISCLOSURE**
07/22/2010	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
06/22/2010	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
02/02/2010	**FSD**	**FACILITY SELF DISCLOSURE**
04/02/2009	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
03/12/2008	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
01/23/2008	**FSD**	**FACILITY SELF DISCLOSURE**

VIOLATIONS

06/22/2010	**262.A**	**GENERATORS - GENERAL**
06/22/2010	**262.C**	**GENERATORS - PRE-TRANSPORT**

ENFORCEMENTS

06/22/2010	**175**	**COMPLIANCE ADVISORY**

HAZARDOUS WASTE

D007	**CHROMIUM**
D039	**TETRACHLOROETHYLENE**
D040	**TRICHLORETHYLENE**
F002	**THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE,TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE,CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
NOT REPORTED	**NO**	**NO**	**NOTIFICATION**
BATTERIES	**NO**	**NOT REPORTED**	**NOTIFICATION**
OTHER	**NO**	**NO**	**NOTIFICATION**
LAMPS	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**NO**	**NO**	**NOTIFICATION**
PESTICIDES	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY CONTAINING EQUIPMENT	**NO**	**NOT REPORTED**	**NOTIFICATION**

CORRECTIVE ACTION AREA (RELEASE)

AREA NAME:	AIR:	GROUNDWATER:	SOIL:	SURFACE WASTE:
ENTIRE SITE	**-----**	**Y**	**Y**	**-----**

CORRECTIVE ACTION EVENT

CA EVENT:	DATE:	EVENT DESCRIPTION:
CA300	**03/12/2015**	**CMS WORKPLAN APPROVED**
CA260	**02/20/2015**	**CMS WORKPLAN RECEIVED**
CA300	**01/29/2015**	**CMS WORKPLAN APPROVED**
CA260	**01/14/2015**	**CMS WORKPLAN RECEIVED**
CA834OM	**12/03/2014**	**OTHER REPORT APPROVED**
CA831OM	**11/05/2014**	**OTHER REPORT RECEIVED**
CA320	**05/13/2014**	**CMS SUPPLEMENT INFO DEEMED SATISFACTORY**
CA834	**05/13/2014**	**OTHER REPORT APPROVED**
CA310	**04/24/2014**	**CMS SUPPLEMENTAL INFORMATION RECEIVED**
CA831	**04/24/2014**	**OTHER REPORT RECEIVED**
CA834	**03/28/2014**	**OTHER REPORT APPROVED**
CA831	**03/11/2014**	**OTHER REPORT RECEIVED**
CA834	**10/08/2013**	**OTHER REPORT APPROVED**
CA831	**09/19/2013**	**OTHER REPORT RECEIVED**
CA831	**08/19/2013**	**OTHER REPORT RECEIVED**
CA834	**08/19/2013**	**OTHER REPORT APPROVED**
CA200	**05/15/2013**	**INVESTIGATION COMPLETE**
CA400	**05/15/2013**	**REMEDY DECISION**
CA190	**04/22/2013**	**INVESTIGATION REPORT RECEIVED**
CA340	**04/22/2013**	**CMS REPORT RECEIVED**
CA811	**02/08/2013**	**OTHER WORKPLAN RECEIVED**
CA814	**02/08/2013**	**OTHER WORKPLAN APPROVED**
CA150	**09/27/2012**	**INVESTIGATION WORKPLAN APPROVED**
CA070YE	**09/26/2012**	**DETERMINATION OF NEED FOR AN INVESTIGATION-INVESTIGATION IS NECESSARY**
CA075ME	**09/26/2012**	**CA PRIORITIZATION-MEDIUM CA PRIORITY**
CA110	**09/26/2012**	**INVESTIGATION WORKPLAN RECEIVED**
CA060	**09/10/2012**	**NOTICE OF CONTAMINATION**
CA070YE	**08/08/2012**	**DETERMINATION OF NEED FOR AN INVESTIGATION-INVESTIGATION IS NECESSARY**
CA100	**08/08/2012**	**INVESTIGATION IMPOSITION**
CA060	**08/07/2012**	**NOTICE OF CONTAMINATION**

Back to Report Summary

MAP ID# 23 **Distance from Property: 0.1 mi. (528 ft.) S**

FACILITY INFORMATION

EPA ID#: **COR000003590**
NAME: **BURKE CLEANERS**
ADDRESS: **5635 BOEING DR**
LOVELAND, CO 80538-8811

OWNER TYPE: **PRIVATE**
OWNER NAME: **TIM BURKE**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **BURKE CLEANERS**

CONTACT NAME: **TIM D BURKE**
CONTACT ADDRESS: **5635 BOEING DR**
LOVELAND CO 80538-8811
CONTACT PHONE: **970-203-9600**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **02/11/2013**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
TIM D BURKE	**OWNER**	**02/06/2013**
TIM D BURKE	**OWNER**	**08/02/2010**
TIM D BURKE	**OWNER**	**07/14/2008**

INDUSTRY CLASSIFICATION (NAICS)

81232 - DRYCLEANING AND LAUNDRY SERVICES (EXCEPT COIN-OPERATED)

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **02/11/2013**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

DATE RECEIVED BY AGENCY: **08/24/2010**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **12/17/2008**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **01/22/1996**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NOT A GENERATOR** LAST UPDATED DATE: **02/13/2013**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **YES**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **YES**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**

ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

05/13/2014	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
02/16/2012	**FSD**	**FACILITY SELF DISCLOSURE**
07/26/2011	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
02/04/2011	**FSD**	**FACILITY SELF DISCLOSURE**
07/22/2010	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
06/22/2010	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
02/02/2010	**FSD**	**FACILITY SELF DISCLOSURE**
04/02/2009	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
03/12/2008	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
01/23/2008	**FSD**	**FACILITY SELF DISCLOSURE**

VIOLATIONS

06/22/2010	**262.A**	**GENERATORS - GENERAL**
06/22/2010	**262.C**	**GENERATORS - PRE-TRANSPORT**

ENFORCEMENTS

06/22/2010	**175**	**COMPLIANCE ADVISORY**

HAZARDOUS WASTE

D007	**CHROMIUM**
D039	**TETRACHLOROETHYLENE**
D040	**TRICHLORETHYLENE**
F002	**THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE,TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE,CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
NOT REPORTED	**NO**	**NO**	**NOTIFICATION**
BATTERIES	**NO**	**NOT REPORTED**	**NOTIFICATION**
OTHER	**NO**	**NO**	**NOTIFICATION**
LAMPS	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**NO**	**NO**	**NOTIFICATION**
PESTICIDES	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY CONTAINING EQUIPMENT	**NO**	**NOT REPORTED**	**NOTIFICATION**

CORRECTIVE ACTION AREA (RELEASE)

Resource Conservation & Recovery Act - Corrective Action Facilities (RCRAC)

AREA NAME:	AIR:	GROUNDWATER:	SOIL:	SURFACE WASTE:
ENTIRE SITE	**-----**	**Y**	**Y**	**-----**

CORRECTIVE ACTION EVENT

CA EVENT:	DATE:	EVENT DESCRIPTION:
CA300	**03/12/2015**	**CMS WORKPLAN APPROVED**
CA260	**02/20/2015**	**CMS WORKPLAN RECEIVED**
CA300	**01/29/2015**	**CMS WORKPLAN APPROVED**
CA260	**01/14/2015**	**CMS WORKPLAN RECEIVED**
CA834OM	**12/03/2014**	**OTHER REPORT APPROVED**
CA831OM	**11/05/2014**	**OTHER REPORT RECEIVED**
CA320	**05/13/2014**	**CMS SUPPLEMENT INFO DEEMED SATISFACTORY**
CA834	**05/13/2014**	**OTHER REPORT APPROVED**
CA310	**04/24/2014**	**CMS SUPPLEMENTAL INFORMATION RECEIVED**
CA831	**04/24/2014**	**OTHER REPORT RECEIVED**
CA834	**03/28/2014**	**OTHER REPORT APPROVED**
CA831	**03/11/2014**	**OTHER REPORT RECEIVED**
CA834	**10/08/2013**	**OTHER REPORT APPROVED**
CA831	**09/19/2013**	**OTHER REPORT RECEIVED**
CA831	**08/19/2013**	**OTHER REPORT RECEIVED**
CA834	**08/19/2013**	**OTHER REPORT APPROVED**
CA200	**05/15/2013**	**INVESTIGATION COMPLETE**
CA400	**05/15/2013**	**REMEDY DECISION**
CA190	**04/22/2013**	**INVESTIGATION REPORT RECEIVED**
CA340	**04/22/2013**	**CMS REPORT RECEIVED**
CA811	**02/08/2013**	**OTHER WORKPLAN RECEIVED**
CA814	**02/08/2013**	**OTHER WORKPLAN APPROVED**
CA150	**09/27/2012**	**INVESTIGATION WORKPLAN APPROVED**
CA070YE	**09/26/2012**	**DETERMINATION OF NEED FOR AN INVESTIGATION-INVESTIGATION IS NECESSARY**
CA075ME	**09/26/2012**	**CA PRIORITIZATION-MEDIUM CA PRIORITY**
CA110	**09/26/2012**	**INVESTIGATION WORKPLAN RECEIVED**
CA060	**09/10/2012**	**NOTICE OF CONTAMINATION**
CA070YE	**08/08/2012**	**DETERMINATION OF NEED FOR AN INVESTIGATION-INVESTIGATION IS NECESSARY**
CA100	**08/08/2012**	**INVESTIGATION IMPOSITION**
CA060	**08/07/2012**	**NOTICE OF CONTAMINATION**

Back to Report Summary

Resource Conservation & Recovery Act - Non-Generator Facilities (RCRANGR08)

MAP ID# 23 **Distance from Property: 0.1 mi. (528 ft.) S**

FACILITY INFORMATION

EPA ID#: **COR000003590**
NAME: **BURKE CLEANERS**
ADDRESS: **5635 BOEING DR**
LOVELAND, CO 80538-8811

OWNER TYPE: **PRIVATE**
OWNER NAME: **TIM BURKE**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **BURKE CLEANERS**

CONTACT NAME: **TIM D BURKE**
CONTACT ADDRESS: **5635 BOEING DR**
LOVELAND CO 80538-8811
CONTACT PHONE: **970-203-9600**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **02/11/2013**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
TIM D BURKE	**OWNER**	**02/06/2013**
TIM D BURKE	**OWNER**	**08/02/2010**
TIM D BURKE	**OWNER**	**07/14/2008**

INDUSTRY CLASSIFICATION (NAICS)

81232 - DRYCLEANING AND LAUNDRY SERVICES (EXCEPT COIN-OPERATED)

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **02/11/2013**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

DATE RECEIVED BY AGENCY: **08/24/2010**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **12/17/2008**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **01/22/1996**
NAME: **BURKE CLEANERS**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **NOT A GENERATOR** LAST UPDATED DATE: **02/13/2013**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **YES**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **YES**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**

ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

05/13/2014	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
02/16/2012	**FSD**	**FACILITY SELF DISCLOSURE**
07/26/2011	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
02/04/2011	**FSD**	**FACILITY SELF DISCLOSURE**
07/22/2010	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
06/22/2010	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
02/02/2010	**FSD**	**FACILITY SELF DISCLOSURE**
04/02/2009	**CEI**	**COMPLIANCE EVALUATION INSPECTION ON-SITE**
03/12/2008	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
01/23/2008	**FSD**	**FACILITY SELF DISCLOSURE**

VIOLATIONS

06/22/2010	**262.A**	**GENERATORS - GENERAL**
06/22/2010	**262.C**	**GENERATORS - PRE-TRANSPORT**

ENFORCEMENTS

06/22/2010	**175**	**COMPLIANCE ADVISORY**

HAZARDOUS WASTE

D007	**CHROMIUM**
D039	**TETRACHLOROETHYLENE**
D040	**TRICHLORETHYLENE**
F002	**THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE,TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE,CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
NOT REPORTED	**NO**	**NO**	**NOTIFICATION**
BATTERIES	**NO**	**NOT REPORTED**	**NOTIFICATION**
OTHER	**NO**	**NO**	**NOTIFICATION**
LAMPS	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**NO**	**NO**	**NOTIFICATION**
PESTICIDES	**NO**	**NOT REPORTED**	**NOTIFICATION**
MERCURY CONTAINING EQUIPMENT	**NO**	**NOT REPORTED**	**NOTIFICATION**

CORRECTIVE ACTION AREA (RELEASE)

Resource Conservation & Recovery Act - Non-Generator Facilities (RCRANGR08)

AREA NAME:	AIR:	GROUNDWATER:	SOIL:	SURFACE WASTE:
ENTIRE SITE	**-----**	**Y**	**Y**	**-----**

CORRECTIVE ACTION EVENT

CA EVENT:	DATE:	EVENT DESCRIPTION:
CA300	**03/12/2015**	**CMS WORKPLAN APPROVED**
CA260	**02/20/2015**	**CMS WORKPLAN RECEIVED**
CA300	**01/29/2015**	**CMS WORKPLAN APPROVED**
CA260	**01/14/2015**	**CMS WORKPLAN RECEIVED**
CA834OM	**12/03/2014**	**OTHER REPORT APPROVED**
CA831OM	**11/05/2014**	**OTHER REPORT RECEIVED**
CA320	**05/13/2014**	**CMS SUPPLEMENT INFO DEEMED SATISFACTORY**
CA834	**05/13/2014**	**OTHER REPORT APPROVED**
CA310	**04/24/2014**	**CMS SUPPLEMENTAL INFORMATION RECEIVED**
CA831	**04/24/2014**	**OTHER REPORT RECEIVED**
CA834	**03/28/2014**	**OTHER REPORT APPROVED**
CA831	**03/11/2014**	**OTHER REPORT RECEIVED**
CA834	**10/08/2013**	**OTHER REPORT APPROVED**
CA831	**09/19/2013**	**OTHER REPORT RECEIVED**
CA831	**08/19/2013**	**OTHER REPORT RECEIVED**
CA834	**08/19/2013**	**OTHER REPORT APPROVED**
CA200	**05/15/2013**	**INVESTIGATION COMPLETE**
CA400	**05/15/2013**	**REMEDY DECISION**
CA190	**04/22/2013**	**INVESTIGATION REPORT RECEIVED**
CA340	**04/22/2013**	**CMS REPORT RECEIVED**
CA811	**02/08/2013**	**OTHER WORKPLAN RECEIVED**
CA814	**02/08/2013**	**OTHER WORKPLAN APPROVED**
CA150	**09/27/2012**	**INVESTIGATION WORKPLAN APPROVED**
CA070YE	**09/26/2012**	**DETERMINATION OF NEED FOR AN INVESTIGATION-INVESTIGATION IS NECESSARY**
CA075ME	**09/26/2012**	**CA PRIORITIZATION-MEDIUM CA PRIORITY**
CA110	**09/26/2012**	**INVESTIGATION WORKPLAN RECEIVED**
CA060	**09/10/2012**	**NOTICE OF CONTAMINATION**
CA070YE	**08/08/2012**	**DETERMINATION OF NEED FOR AN INVESTIGATION-INVESTIGATION IS NECESSARY**
CA100	**08/08/2012**	**INVESTIGATION IMPOSITION**
CA060	**08/07/2012**	**NOTICE OF CONTAMINATION**

Back to Report Summary

Dry Cleaning Facilities (CLEANERS)

MAP ID# 23 **Distance from Property: 0.1 mi. (528 ft.) S**

SITE INFORMATION

UNIQUEID: **069-0311CL**

FACILITY ID: **069-0311**

NAME: **BURKE CLEANERS**

ADDRESS: **5635 BOEING DR**
LOVELAND, CO 80538-8811

CONTACT: **TIM BURKE**

SITE DETAILS

MAKE/MODEL/SERIAL: **ADINA/5-55/17864**

CONSTRUCTION PERMIT #: **96LR781.CN**

EMISSION UNIT ID: **001**

EMISSION UNIT DESCRIPTION: **FOUR A'DINA D/D UNITS.CN**

EMISSION PROCESS DESCRIPTION: **PERC USAGE**

ANNUAL THROUGHPUT: **0 GALLONS SOLVENT CONSUMED**

MAKE/MODEL/SERIAL: **ADINA/5-55/18029**

CONSTRUCTION PERMIT #: **96LR781.CN**

EMISSION UNIT ID: **001**

EMISSION UNIT DESCRIPTION: **FOUR A'DINA D/D UNITS.CN**

EMISSION PROCESS DESCRIPTION: **PERC USAGE**

ANNUAL THROUGHPUT: **0 GALLONS SOLVENT CONSUMED**

MAKE/MODEL/SERIAL: **ADINA/5-55/18610**

CONSTRUCTION PERMIT #: **96LR781.CN**

EMISSION UNIT ID: **001**

EMISSION UNIT DESCRIPTION: **FOUR A'DINA D/D UNITS.CN**

EMISSION PROCESS DESCRIPTION: **PERC USAGE**

ANNUAL THROUGHPUT: **0 GALLONS SOLVENT CONSUMED**

MAKE/MODEL/SERIAL: **ADINA/5-75/19363**

CONSTRUCTION PERMIT #: **96LR781.CN**

EMISSION UNIT ID: **001**

EMISSION UNIT DESCRIPTION: **FOUR A'DINA D/D UNITS.CN**

EMISSION PROCESS DESCRIPTION: **PERC USAGE**

ANNUAL THROUGHPUT: **0 GALLONS SOLVENT CONSUMED**

MAKE/MODEL/SERIAL: **ADINA/5-55/17864**

CONSTRUCTION PERMIT #: **96LR781**

EMISSION UNIT ID: **001**

EMISSION UNIT DESCRIPTION: **NOT REPORTED**

EMISSION PROCESS DESCRIPTION: **PERC USAGE**

ANNUAL THROUGHPUT: **900 GALLONS SOLVENT CONSUMED**

OWNER INFORMATION

ADDRESS: **5635 BOEING DRIVE**
LOVELAND, CO 80538

MAKE/MODEL/SERIAL: **ADINA/5-55/18029**
CONSTRUCTION PERMIT #: **96LR781**
EMISSION UNIT ID: **001**
EMISSION UNIT DESCRIPTION: **NOT REPORTED**
EMISSION PROCESS DESCRIPTION: **PERC USAGE**
ANNUAL THROUGHPUT: **900 GALLONS SOLVENT CONSUMED**

MAKE/MODEL/SERIAL: **ADINA/5-55/18610**
CONSTRUCTION PERMIT #: **96LR781**
EMISSION UNIT ID: **001**
EMISSION UNIT DESCRIPTION: **NOT REPORTED**
EMISSION PROCESS DESCRIPTION: **PERC USAGE**
ANNUAL THROUGHPUT: **900 GALLONS SOLVENT CONSUMED**

MAKE/MODEL/SERIAL: **ADINA/5-75/19363**
CONSTRUCTION PERMIT #: **96LR781**
EMISSION UNIT ID: **001**
EMISSION UNIT DESCRIPTION: **NOT REPORTED**
EMISSION PROCESS DESCRIPTION: **PERC USAGE**
ANNUAL THROUGHPUT: **900 GALLONS SOLVENT CONSUMED**

Back to Report Summary

Aboveground Storage Tank Facilities (AST)

MAP ID# 24 **Distance from Property: 0.11 mi. (581 ft.) S**

FACILITY INFORMATION

FACILITY ID: **17691**
NAME: **SCHWANS HOME SERVICE**
ADDRESS: **5980 DRAFTHORSE DR**
LOVELAND, CO 80538
COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=17691

OWNER INFORMATION

OWNER ID: **20018**
NAME: **SCHWANS HOME SERVICE**
ADDRESS: **115 W COLLEGE DR**
MARSHALL, MN 56258

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
38593	**LIQUEFIED PETROLEUM GAS**	**LPG**	**18000**	**OPEN**	**NOT REPORTED**

Back to Report Summary

Resource Conservation & Recovery Act - Non-CORRACTS Treatment, Storage & Disposal Facilities (RCRAT)

MAP ID# 25 **Distance from Property: 0.2 mi. (1,056 ft.) S**

FACILITY INFORMATION

EPA ID#: **COD005286679**
NAME: **HACH COMPANY**
ADDRESS: **5300 LINDBERGH DR**
LOVELAND, CO 80537
CONTACT NAME: **TONY GREATON**
CONTACT ADDRESS: **5600 LINDBERGH DR**
LOVELAND CO 80538
CONTACT PHONE: **970-962-6745**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **08/21/2013**

OWNER TYPE: **PRIVATE**
OWNER NAME: **HACH COMPANY**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **HACH COMPANY**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
TONY GREATON	**ENV MGR**	**08/08/2013**
JASON WRIGHT	**ENV MGR**	**09/15/2008**
LINDA NELEN	**MGR**	**09/15/2008**
JASON WRIGHT	**ENV MGR**	**09/27/2007**
TONYA READ	**ENV MGR**	**02/28/2006**
TONYA READ	**ENV MGR**	**10/12/2005**
JOHN WASINGER	**ENV MGR**	**09/12/2003**
LOEL J SIROVY	**SR VP OPERATION**	**03/11/1996**
LOEL J SIROVY	**SR VP OPERATION**	**03/03/1994**
LOEL J SIROVY	**SRVP/NSTRMNT OP**	**02/21/1992**
LOEL J SIROVY	**SR V.P.INST OPE**	**02/23/1990**

INDUSTRY CLASSIFICATION (NAICS)

32541 - PHARMACEUTICAL AND MEDICINE MANUFACTURING
334513 - INSTRUMENTS AND RELATED PRODUCTS MANUFACTURING FOR MEASURING, DISPLAYING, AND CONTROLLING INDUSTRIAL PROCESS VARIABLES
334516 - ANALYTICAL LABORATORY INSTRUMENT MANUFACTURING
334519 - OTHER MEASURING AND CONTROLLING DEVICE MANUFACTURING

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **08/21/2013**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **09/25/2008**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/02/2007**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **03/07/2006**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/13/2005**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **09/12/2003**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/12/2001**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **07/12/2000**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **03/11/1996**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **03/03/1994**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **02/21/1992**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **02/23/1990**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **11/19/1980**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **09/04/2013**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **YES**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **YES**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**
UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

02/10/2015	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
02/10/2015	FCI	FOCUSED COMPLIANCE INSPECTION
06/17/2013	FSD	FACILITY SELF DISCLOSURE
07/26/2012	FSD	FACILITY SELF DISCLOSURE
07/19/2011	FSD	FACILITY SELF DISCLOSURE
07/06/2010	FSD	FACILITY SELF DISCLOSURE
08/04/2009	FSD	FACILITY SELF DISCLOSURE
07/17/2008	FSD	FACILITY SELF DISCLOSURE
08/08/2002	FCI	FOCUSED COMPLIANCE INSPECTION
10/25/2000	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
05/22/1991	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
10/31/1990	FRR	FINANCIAL RECORD REVIEW
08/07/1990	FRR	FINANCIAL RECORD REVIEW
01/15/1990	CSE	COMPLIANCE SCHEDULE EVALUATION
11/10/1989	CSE	COMPLIANCE SCHEDULE EVALUATION
09/20/1989	FRR	FINANCIAL RECORD REVIEW
08/03/1989	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
03/16/1989	CSE	COMPLIANCE SCHEDULE EVALUATION
11/23/1988	FRR	FINANCIAL RECORD REVIEW
09/25/1987	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
09/09/1986	FRR	FINANCIAL RECORD REVIEW
05/23/1985	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
02/22/1985	FRR	FINANCIAL RECORD REVIEW

VIOLATIONS

08/07/1990	264.H	TSD - FINANCIAL REQUIREMENTS
09/20/1989	264.H	TSD - FINANCIAL REQUIREMENTS
11/23/1988	264.H	TSD - FINANCIAL REQUIREMENTS
09/25/1987	264.A	TSD - GENERAL
09/09/1986	264.H	TSD - FINANCIAL REQUIREMENTS

ENFORCEMENTS

09/26/1990	125	NOTICE OF VIOLATION
10/02/1989	120	WRITTEN INFORMAL
12/05/1988	120	WRITTEN INFORMAL
12/10/1987	120	WRITTEN INFORMAL
09/10/1986	120	WRITTEN INFORMAL

HAZARDOUS WASTE

D000

D001 IGNITABLE WASTE

F001 THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE,TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE ANDCHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F005 THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F017

F018

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
NOT REPORTED	**NOT REPORTED**	**YES**	**NOTIFICATION**
NOT REPORTED	**YES**	**YES**	**NOTIFICATION**
BATTERIES	**YES**	**NOT REPORTED**	**NOTIFICATION**
OTHER	**NOT REPORTED**	**YES**	**NOTIFICATION**
OTHER	**YES**	**YES**	**NOTIFICATION**
LAMPS	**YES**	**NOT REPORTED**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**NOT REPORTED**	**YES**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**YES**	**YES**	**NOTIFICATION**

CORRECTIVE ACTION AREA (RELEASE)

AREA NAME:	AIR:	GROUNDWATER:	SOIL:	SURFACE WASTE:
ENTIRE FACILITY	**-----**	**Y**	**Y**	**-----**

CORRECTIVE ACTION EVENT

CA EVENT:	DATE:	EVENT DESCRIPTION:
CA999	**08/09/2002**	**CA PROCESS IS TERMINATED**
CA750YE	**09/23/1991**	**RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE**
CA055	**05/23/1991**	**RFA COMPLETED BY INSTITUTIONAL KNOWLEDGE**
CA070NO	**05/23/1991**	**DETERMINATION OF NEED FOR AN INVESTIGATION-INVESTIGATION IS NOT NECESSARY**
CA075LO	**05/23/1991**	**CA PRIORITIZATION-LOW CA PRIORITY**
CA225NR	**05/23/1991**	**STABILIZATION MEASURES EVALUATION-FACILITY NOT AMENABLE TO STABILIZATION**
CA725YE	**05/23/1991**	**HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE**
CA100	**05/01/1991**	**INVESTIGATION IMPOSITION**

Back to Report Summary

MAP ID# 25 **Distance from Property: 0.2 mi. (1,056 ft.) S**

FACILITY INFORMATION

EPA ID#: **COD005286679**
NAME: **HACH COMPANY**
ADDRESS: **5300 LINDBERGH DR**
LOVELAND, CO 80537
CONTACT NAME: **TONY GREATON**
CONTACT ADDRESS: **5600 LINDBERGH DR**
LOVELAND CO 80538
CONTACT PHONE: **970-962-6745**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **08/21/2013**

OWNER TYPE: **PRIVATE**
OWNER NAME: **HACH COMPANY**
OPERATOR TYPE: **PRIVATE**
OPERATOR NAME: **HACH COMPANY**

CERTIFICATION

CERTIFICATION NAME:	CERTIFICATION TITLE:	CERTIFICATION SIGNED DATE:
TONY GREATON	**ENV MGR**	**08/08/2013**
JASON WRIGHT	**ENV MGR**	**09/15/2008**
LINDA NELEN	**MGR**	**09/15/2008**
JASON WRIGHT	**ENV MGR**	**09/27/2007**
TONYA READ	**ENV MGR**	**02/28/2006**
TONYA READ	**ENV MGR**	**10/12/2005**
JOHN WASINGER	**ENV MGR**	**09/12/2003**
LOEL J SIROVY	**SR VP OPERATION**	**03/11/1996**
LOEL J SIROVY	**SR VP OPERATION**	**03/03/1994**
LOEL J SIROVY	**SRVP/NSTRMNT OP**	**02/21/1992**
LOEL J SIROVY	**SR V.P.INST OPE**	**02/23/1990**

INDUSTRY CLASSIFICATION (NAICS)

32541 - PHARMACEUTICAL AND MEDICINE MANUFACTURING
334513 - INSTRUMENTS AND RELATED PRODUCTS MANUFACTURING FOR MEASURING, DISPLAYING, AND CONTROLLING INDUSTRIAL PROCESS VARIABLES
334516 - ANALYTICAL LABORATORY INSTRUMENT MANUFACTURING
334519 - OTHER MEASURING AND CONTROLLING DEVICE MANUFACTURING

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **08/21/2013**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **09/25/2008**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/02/2007**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **03/07/2006**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/13/2005**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **09/12/2003**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **10/12/2001**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **07/12/2000**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **03/11/1996**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **03/03/1994**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **02/21/1992**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **02/23/1990**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR**

DATE RECEIVED BY AGENCY: **11/19/1980**
NAME: **HACH COMPANY**
GENERATOR CLASSIFICATION: **NOT A GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **09/04/2013**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **YES**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **YES**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **NO**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **NO**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**
UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

02/10/2015	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
02/10/2015	FCI	FOCUSED COMPLIANCE INSPECTION
06/17/2013	FSD	FACILITY SELF DISCLOSURE
07/26/2012	FSD	FACILITY SELF DISCLOSURE
07/19/2011	FSD	FACILITY SELF DISCLOSURE
07/06/2010	FSD	FACILITY SELF DISCLOSURE
08/04/2009	FSD	FACILITY SELF DISCLOSURE
07/17/2008	FSD	FACILITY SELF DISCLOSURE
08/08/2002	FCI	FOCUSED COMPLIANCE INSPECTION
10/25/2000	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
05/22/1991	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
10/31/1990	FRR	FINANCIAL RECORD REVIEW
08/07/1990	FRR	FINANCIAL RECORD REVIEW
01/15/1990	CSE	COMPLIANCE SCHEDULE EVALUATION
11/10/1989	CSE	COMPLIANCE SCHEDULE EVALUATION
09/20/1989	FRR	FINANCIAL RECORD REVIEW
08/03/1989	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
03/16/1989	CSE	COMPLIANCE SCHEDULE EVALUATION
11/23/1988	FRR	FINANCIAL RECORD REVIEW
09/25/1987	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
09/09/1986	FRR	FINANCIAL RECORD REVIEW
05/23/1985	CEI	COMPLIANCE EVALUATION INSPECTION ON-SITE
02/22/1985	FRR	FINANCIAL RECORD REVIEW

VIOLATIONS

08/07/1990	264.H	TSD - FINANCIAL REQUIREMENTS
09/20/1989	264.H	TSD - FINANCIAL REQUIREMENTS
11/23/1988	264.H	TSD - FINANCIAL REQUIREMENTS
09/25/1987	264.A	TSD - GENERAL
09/09/1986	264.H	TSD - FINANCIAL REQUIREMENTS

ENFORCEMENTS

09/26/1990	125	NOTICE OF VIOLATION
10/02/1989	120	WRITTEN INFORMAL
12/05/1988	120	WRITTEN INFORMAL
12/10/1987	120	WRITTEN INFORMAL
09/10/1986	120	WRITTEN INFORMAL

HAZARDOUS WASTE

D000

D001 IGNITABLE WASTE

F001 THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE,TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE ANDCHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

F005	**THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE,CARBON DISULFIDE, ISOBUTANOL, PYRIDINE,BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001,F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.**
F017	
F018	

UNIVERSAL WASTE

WASTE TYPE:	ACCUMULATED WASTE ON-SITE:	GENERATED WASTE ON-SITE:	SOURCE TYPE:
NOT REPORTED	**NOT REPORTED**	**YES**	**NOTIFICATION**
NOT REPORTED	**YES**	**YES**	**NOTIFICATION**
BATTERIES	**YES**	**NOT REPORTED**	**NOTIFICATION**
OTHER	**NOT REPORTED**	**YES**	**NOTIFICATION**
OTHER	**YES**	**YES**	**NOTIFICATION**
LAMPS	**YES**	**NOT REPORTED**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**NOT REPORTED**	**YES**	**NOTIFICATION**
MERCURY-CONTAINING DEVICES	**YES**	**YES**	**NOTIFICATION**

CORRECTIVE ACTION AREA (RELEASE)

AREA NAME:	AIR:	GROUNDWATER:	SOIL:	SURFACE WASTE:
ENTIRE FACILITY	**-----**	**Y**	**Y**	**-----**

CORRECTIVE ACTION EVENT

CA EVENT:	DATE:	EVENT DESCRIPTION:
CA999	**08/09/2002**	**CA PROCESS IS TERMINATED**
CA750YE	**09/23/1991**	**RELEASE TO GW CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE**
CA055	**05/23/1991**	**RFA COMPLETED BY INSTITUTIONAL KNOWLEDGE**
CA070NO	**05/23/1991**	**DETERMINATION OF NEED FOR AN INVESTIGATION-INVESTIGATION IS NOT NECESSARY**
CA075LO	**05/23/1991**	**CA PRIORITIZATION-LOW CA PRIORITY**
CA225NR	**05/23/1991**	**STABILIZATION MEASURES EVALUATION-FACILITY NOT AMENABLE TO STABILIZATION**
CA725YE	**05/23/1991**	**HUMAN EXPOSURES CONTROLLED DETERMINATION-YES, APPLICABLE AS OF THIS DATE**
CA100	**05/01/1991**	**INVESTIGATION IMPOSITION**

Back to Report Summary

Underground Storage Tank Facilities (UST)

MAP ID# 26 **Distance from Property: 0.24 mi. (1,267 ft.) SW**

FACILITY INFORMATION

FACILITY ID: **18726**

NAME: **RYDER TRANSPORTATION SERVICE #2193**

ADDRESS: **6392 AVIATION CR**
LOVELAND, CO 80538

COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=18726

OWNER INFORMATION

OWNER ID: **21531**

NAME: **RYDER TRUCK RENTAL C/O RYDER F S**

ADDRESS: **16155 PARK ROW STE 140**
HOUSTON, TX 77084

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
41779	**UNDERGROUND STORAGE TANK**	**4 - DIESEL**	**20000**	**OPEN**	**NOT REPORTED**

Back to Report Summary

Aboveground Storage Tank Facilities (AST)

MAP ID# 26 **Distance from Property: 0.24 mi. (1,267 ft.) SW**

FACILITY INFORMATION

FACILITY ID: **18726**

NAME: **RYDER TRANSPORTATION SERVICE #2193**

ADDRESS: **6392 AVIATION CR**
LOVELAND, CO 80538

COSTIS LINK: http://costis.cdle.state.co.us/facility.asp?h_id=18726

OWNER INFORMATION

OWNER ID: **21531**

NAME: **RYDER TRUCK RENTAL C/O RYDER F S**

ADDRESS: **16155 PARK ROW STE 140**
HOUSTON, TX 77084

TANK INFORMATION

TANK ID:	TANK TYPE:	TANK PRODUCT:	TANK CAPACITY:	TANK STATUS:	INSTALLATION DATE:
42740	**ABOVEGROUND STORAGE TANK**	**7 - LUBE OIL**	**1000**	**OPEN**	**NOT REPORTED**
42741	**ABOVEGROUND STORAGE TANK**	**7 - LUBE OIL**	**1000**	**OPEN**	**NOT REPORTED**

Back to Report Summary

Hazardous Waste Sites- Treatment, Storage & Disposal (HWSTSD)

MAP ID# 27 **Distance from Property: 0.32 mi. (1,690 ft.) S**

SITE INFORMATION

EPA ID: **COD005286679**

SITE NAME: **HACH COMPANY**

SITE ADDRESS: **5300 E 57TH ST**
LOVELAND, CO 80537

SITE COUNTY: **LARIMER**

FACILITY TYPE: **TSD**

STATUS: **HISTORIC**

LINKS: **http://oaspub.epa.gov/enviro/brs_web.report?pgm_sys_id=COD005286679**

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Leaking Storage Tank Facilities (LST)

MAP ID# 27 **Distance from Property: 0.32 mi. (1,690 ft.) S**

FACILITY INFORMATION

UNIQUE ID: **12528LST**
FACILITY ID: **12528**
NAME: **HACH CO**
ADDRESS: **5300 E 57TH ST**
LOVELAND, CO 80537
SITE NAME: **HACH CO**
LOCATION: **5300 E 57TH ST, LOVELAND 80537**

LEAKING INFORMATION

EVENT ID:	STATUS:	RELEASE DATE:	ALTERNATE NAME:
5367	**CLOSED**	**12/6/1993**	**HACH CO**

COSTIS LINK: http://costis.cdle.state.co.us/event.asp?h_id=5367

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MAP ID# 27 **Distance from Property: 0.32 mi. (1,690 ft.) S**

FACILITY INFORMATION

EPA ID#: **COD005286679**
SITE ID#: **0800062**
NAME: **HACH CO**
ADDRESS: **5300 E 57TH ST**
LOVELAND, CO 0537
COUNTY: **LARIMER**
NATIONAL PRIORITY LISTING: **N - NOT ON THE NPL**
FEDERAL FACILITY CLASSIFICATION: **N - NOT A FEDERAL FACILITY**
NON-NPL STATUS: **NF - NFRAP**
NON-NPL STATUS DATE: **NOT REPORTED**
PHYSICAL CLASSIFICATION OF SITE / INCIDENT: **NO INFORMATION AVAILABLE**

SITE DESCRIPTION **- NO SITE DESCRIPTION INFORMATION AVAILABLE -**

SITE HISTORY **- NO SITE HISTORY INFORMATION AVAILABLE -**

ACTIONS

TYPE: **DS - DISCOVERY**
START DATE: **NR**
COMPLETION DATE: **10/01/1980**
ACTION TYPE DEFINITION:
THE PROCESS BY WHICH A POTENTIAL HAZARDOUS WASTE SITE IS BROUGHT TO THE ATTENTION OF THE EPA. THE PROCESS CAN OCCUR THROUGH THE USE OF SEVERAL MECHANISMS SUCH AS A PHONE CALL OR REFERRAL BY ANOTHER GOVERNMENT AGENCY.

TYPE: **PA - PRELIMINARY ASSESSMENT**
START DATE: **NR**
COMPLETION DATE: **02/01/1984**
ACTION TYPE DEFINITION:
COLLECTION OF DIVERSE EXISTING INFORMATION ABOUT THE SOURCE AND NATURE OF THE SITE HAZARD. IT IS EPA POLICY TO COMPLETE THE PRELIMINARY ASSESSMENT WITHIN ONE YEAR OF SITE DISCOVERY.

TYPE: **VS - ARCHIVE SITE**
START DATE: **NR**
COMPLETION DATE: **02/01/1984**
ACTION TYPE DEFINITION:
THE DECISION IS MADE THAT NO FURTHER ACTIVITY IS PLANNED AT THE SITE.

CONTAMINANTS **- NO CONTAMINATION INFORMATION AVAILABLE -**

LISTING OF PUBLISHED INSTITUTIONAL CONTROL SITE REPORT **- NOT AN INSTITUTIONAL CONTROL SITE -**

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No Further Remedial Action Planned Sites (NFRAP)

MAP ID# 27 **Distance from Property: 0.32 mi. (1,690 ft.) S**

FACILITY INFORMATION

EPA ID#: **COD005286679**

SITE ID#: **0800062**

NAME: **HACH CO**

ADDRESS: **5300 E 57TH ST**
LOVELAND, CO 80537

COUNTY: **LARIMER**

ACTION	START DATE	COMPLETION DATE	RESPONSIBILITY
DS - DISCOVERY	**NOT REPORTED**	**10/1/1980**	**EPA FUND**
PA - PRELIMINARY ASSESSMENT	**NOT REPORTED**	**2/1/1984**	**STATE (FUND)**
VS - ARCHIVE SITE	**NOT REPORTED**	**2/1/1984**	**EPA IN-HOUSE**

ACTION DESCRIPTIONS

DS - (DISCOVERY) - THE PROCESS BY WHICH A POTENTIAL HAZARDOUS WASTE SITE IS BROUGHT TO THE ATTENTION OF THE EPA. THE PROCESS CAN OCCUR THROUGH THE USE OF SEVERAL MECHANISMS SUCH AS A PHONE CALL OR REFERRAL BY ANOTHER GOVERNMENT AGENCY.

PA - (PRELIMINARY ASSESSMENT) - COLLECTION OF DIVERSE EXISTING INFORMATION ABOUT THE SOURCE AND NATURE OF THE SITE HAZARD. IT IS EPA POLICY TO COMPLETE THE PRELIMINARY ASSESSMENT WITHIN ONE YEAR OF SITE DISCOVERY.

VS - (ARCHIVE SITE) - THE DECISION IS MADE THAT NO FURTHER ACTIVITY IS PLANNED AT THE SITE.

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Hazardous Waste Sites- Corrective Action (HWSCA)

MAP ID# 27 **Distance from Property: 0.32 mi. (1,690 ft.) S**

SITE INFORMATION

EPA ID: **COD005286679**

SITE NAME: **HACH COMPANY**

SITE ADDRESS: **5300 E 57TH ST**
LOVELAND, CO 80537

SITE COUNTY: **LARIMER**

FACILITY TYPE: **CA**

STATUS: **HISTORIC**

LINKS: **http://www.epa.gov/cgi-bin/get1cReport.cgi?tool=echo&IDNumber=COD005286679**

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Leaking Storage Tank Facilities (LST)

MAP ID# 28 **Distance from Property: 0.33 mi. (1,742 ft.) SW**

FACILITY INFORMATION

UNIQUE ID: **9400LST**
FACILITY ID: **9400**
NAME: **BOHEMIAN AIR**
ADDRESS: **5207 EARHART RD**
LOVELAND, CO 80537
SITE NAME: **HACH CO HANGER**
LOCATION: **5207 EARHART RD, LOVELAND 80537**

LEAKING INFORMATION

EVENT ID:	STATUS:	RELEASE DATE:	ALTERNATE NAME:
10077	**CLOSED**	**5/12/2006 13:53**	**HACH CO HANGER**

COSTIS LINK: http://costis.cdle.state.co.us/event.asp?h_id=10077

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Leaking Storage Tank Facilities (LST)

MAP ID# 29 **Distance from Property: 0.35 mi. (1,848 ft.) SW**

FACILITY INFORMATION

UNIQUE ID: **18275LST**
FACILITY ID: **18275**
NAME: **OTTER AVIATION LLC**
ADDRESS: **5833 LANGLEY AVE**
LOVELAND, CO 80538
SITE NAME: **OTTER AVIATION LLC**
LOCATION: **5833 LANGLEY AVE, LOVELAND 80538**

LEAKING INFORMATION

EVENT ID:	STATUS:	RELEASE DATE:	ALTERNATE NAME:
11827	**CLOSED**	**4/2/2013 7:44**	**OTTER AVIATION LLC**

COSTIS LINK: http://costis.cdle.state.co.us/event.asp?h_id=11827

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Resource Conservation & Recovery Act - Corrective Action Facilities (RCRAC)

MAP ID# 30 **Distance from Property: 0.69 mi. (3,643 ft.) SW**

FACILITY INFORMATION

EPA ID#: **COD983799941**
NAME: **CITY OF LOVELAND AIRPORT**
ADDRESS: **4824 EARHART RD**
LOVELAND, CO 80538
CONTACT NAME: **RUTH HECKER**
CONTACT ADDRESS: **200 N WILSON**
LOVELAND CO 80537
CONTACT PHONE: **303-962-3702**
NON-NOTIFIER: **NOT A NON-NOTIFIER**
DATE RECEIVED BY AGENCY: **03/05/1993**

OWNER TYPE: **MUNICIPAL**
OWNER NAME: **CITY OF LOVELAND**
OPERATOR TYPE: **NOT REPORTED**
OPERATOR NAME: **NOT REPORTED**

CERTIFICATION **- NO CERTIFICATION REPORTED -**

INDUSTRY CLASSIFICATION (NAICS) **- NO NAICS INFORMATION REPORTED -**

SITE HISTORY (INCLUDES GENERATORS AND NON-GENERATORS)

DATE RECEIVED BY AGENCY: **03/05/1993**
NAME: **CITY OF LOVELAND AIRPORT**
GENERATOR CLASSIFICATION: **LARGE QUANTITY GENERATOR**

CURRENT ACTIVITY INFORMATION

GENERATOR STATUS: **CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR** LAST UPDATED DATE: **10/24/2014**
SUBJECT TO CORRECTIVE ACTION UNIVERSE: **NO**
TDSFs POTENTIALLY SUBJECT TO CORRECTIVE ACTION UNDER 3004 (u)/(v) UNIVERSE: **NO**
TDSFs ONLY SUBJECT TO CORRECTIVE ACTION UNDER DISCRETIONARY AUTHORITIES UNIVERSE: **NO**
NON TSDFs WHERE RCRA CORRECTIVE ACTION HAS BEEN IMPOSED UNIVERSE: **YES**
CORRECTIVE ACTION WORKLOAD UNIVERSE: **YES**

IMPORTER: **NO**
MIXED WASTE GENERATOR: **NO**
RECYCLER: **NO**
TRANSPORTER: **NO**
ONSITE BURNER EXEMPTION: **NO**
FURNACE EXEMPTION: **NO**
USED OIL REFINER: **NO**
USED OIL TRANSFER FACILITY: **NO**

UNDERGROUND INJECTION: **NO**
UNIVERSAL WASTE DESTINATION FACILITY: **NO**
TRANSFER FACILITY: **NO**
USED OIL FUEL BURNER: **NO**
USED OIL PROCESSOR: **NO**
USED OIL FUEL MARKETER TO BURNER: **NO**
SPECIFICATION USED OIL MARKETER: **NO**
USED OIL TRANSPORTER: **NO**

COMPLIANCE, MONITORING AND ENFORCEMENT INFORMATION

EVALUATIONS

05/16/2014	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
04/28/2011	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
05/05/2010	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
03/29/2010	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
03/18/2010	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
09/01/2009	**FCI**	**FOCUSED COMPLIANCE INSPECTION**
07/31/2009	**FCI**	**FOCUSED COMPLIANCE INSPECTION**

VIOLATIONS **- NO VIOLATIONS REPORTED -**

ENFORCEMENTS **- NO ENFORCEMENTS REPORTED -**

HAZARDOUS WASTE

D001 **IGNITABLE WASTE**

UNIVERSAL WASTE **- NO UNIVERSAL WASTE REPORTED -**

CORRECTIVE ACTION AREA (RELEASE)

AREA NAME:	AIR:	GROUNDWATER:	SOIL:	SURFACE WASTE:
SOIL	**-----**	**-----**	**Y**	**-----**
GROUNDWATER	**-----**	**Y**	**-----**	**-----**

CORRECTIVE ACTION EVENT

CA EVENT:	DATE:	EVENT DESCRIPTION:
CA834OM	**05/15/2015**	**OTHER REPORT APPROVED**
CA831OM	**04/30/2015**	**OTHER REPORT RECEIVED**
CA834OM	**05/16/2014**	**OTHER REPORT APPROVED**
CA831OM	**04/30/2014**	**OTHER REPORT RECEIVED**
CA834OM	**11/07/2013**	**OTHER REPORT APPROVED**
CA831OM	**10/31/2013**	**OTHER REPORT RECEIVED**
CA834	**05/22/2013**	**OTHER REPORT APPROVED**
CA831	**05/01/2013**	**OTHER REPORT RECEIVED**
CA834OM	**12/03/2012**	**OTHER REPORT APPROVED**
CA831OM	**10/31/2012**	**OTHER REPORT RECEIVED**
CA834OM	**06/06/2012**	**OTHER REPORT APPROVED**
CA831OM	**05/17/2012**	**OTHER REPORT RECEIVED**
CA834OM	**10/17/2011**	**OTHER REPORT APPROVED**
CA831OM	**09/28/2011**	**OTHER REPORT RECEIVED**
CA834	**05/10/2011**	**OTHER REPORT APPROVED**
CA831	**04/28/2011**	**OTHER REPORT RECEIVED**
CA812OM	**08/26/2010**	**OTHER WORKPLAN MODIFICATION REQUESTED**
CA812TS	**08/26/2010**	**OTHER WORKPLAN MODIFICATION REQUESTED**
CA814OM	**08/26/2010**	**OTHER WORKPLAN APPROVED**
CA814TS	**08/26/2010**	**OTHER WORKPLAN APPROVED**
CA834OM	**08/20/2010**	**OTHER REPORT APPROVED**
CA811OM	**07/14/2010**	**OTHER WORKPLAN RECEIVED - OPERATION AND MAINTENANCE**
CA811TS	**07/14/2010**	**OTHER WORKPLAN RECEIVED**
CA831OM	**07/02/2010**	**OTHER REPORT RECEIVED**
CA250	**05/05/2010**	**CMS IMPOSITION**
CA400	**05/05/2010**	**REMEDY DECISION**
CA831OM	**04/27/2010**	**OTHER REPORT RECEIVED**
CA814AS	**03/29/2010**	**OTHER WORKPLAN APPROVED**
CA811AS	**03/26/2010**	**OTHER WORKPLAN RECEIVED - ADDITIONAL STUDY**
CA834OM	**03/18/2010**	**OTHER REPORT APPROVED**
CA831OM	**01/22/2010**	**OTHER REPORT RECEIVED**
CA200	**09/01/2009**	**INVESTIGATION COMPLETE**
CA350	**09/01/2009**	**CMS COMPLETE**
CA818DI	**09/01/2009**	**OTHER SUPPLEMENTAL INFORMATION ADEQUATE**

CA818DI	07/31/2009	OTHER SUPPLEMENTAL INFORMATION ADEQUATE
CA190	07/30/2009	INVESTIGATION REPORT RECEIVED
CA340	07/30/2009	CMS REPORT RECEIVED
CA817DI	07/30/2009	OTHER SUPPLEMENTAL INFORMATION RECEIVED - DESIGN INVESTIGATION
CA100	07/27/2009	INVESTIGATION IMPOSITION
CA817DI	07/27/2009	OTHER SUPPLEMENTAL INFORMATION RECEIVED - DESIGN INVESTIGATION

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Unlocated Sites Summary

This list contains sites that could not be mapped due to limited or incomplete address information.

Database Name	Site ID#	Site Name	Address	City/State/Zip/County
ERNSCO	788559	SITE SPECIFIC	FORT COLLINS / LOVELAND AIRPORT 4900 EARHART ROAD	LOVELAND 80538 Larimer

AIRSAFS Aerometric Information Retrieval System / Air Facility Subsystem

VERSION DATE: 10/20/14

The United States Environmental Protection Agency (EPA) modified the Aerometric Information Retrieval System (AIRS) to a database that exclusively tracks the compliance of stationary sources of air pollution with EPA regulations: the Air Facility Subsystem (AFS). Since this change in 2001, the management of the AIRS/AFS database was assigned to EPA's Office of Enforcement and Compliance Assurance.

BRS Biennial Reporting System

VERSION DATE: 12/31/11

The United States Environmental Protection Agency (EPA), in cooperation with the States, biennially collects information regarding the generation, management, and final disposition of hazardous wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. The Biennial Report captures detailed data on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage and disposal facilities. Currently, the EPA states that data collected between 1991 and 1997 was originally a part of the defunct Biennial Reporting System and is now incorporated into the RCRAInfo data system.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 09/17/15

The U.S. Department of Justice ("the Department") provides this information 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. The Department does not establish, implement, enforce, or certify compliance with clean-up or remediation standards for contaminated sites; the public should contact a state or local health department or environmental protection agency for that information.

DOCKETS EPA Docket Data

VERSION DATE: 12/22/05

The United States Environmental Protection Agency Docket data lists Civil Case Defendants, filing dates as far back as 1971, laws broken including section, violations that occurred, pollutants involved, penalties assessed and superfund awards by facility and location. Please refer to ICIS database as source of current data.

EC Federal Engineering Institutional Control Sites

VERSION DATE: 08/03/15

This database includes site locations where Engineering and/or Institutional Controls have been identified as part

of a selected remedy for the site as defined by United States Environmental Protection Agency official remedy decision documents. A site listing does not indicate that the institutional and engineering controls are currently in place nor will be in place once the remedy is complete; it only indicates that the decision to include either of them in the remedy is documented as of the completed date of the document. Institutional controls are actions, such as legal controls, that help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use. Engineering controls include caps, barriers, or other device engineering to prevent access, exposure, or continued migration of contamination.

ERNSCO Emergency Response Notification System

VERSION DATE: 05/10/15

This National Response Center database contains data on reported releases of oil, chemical, radiological, biological, and/or etiological discharges into the environment anywhere in the United States and its territories. The data comes from spill reports made to the U.S. Environmental Protection Agency, U.S. Coast Guard, the National Response Center and/or the U.S. Department of Transportation.

FRSCO Facility Registry System

VERSION DATE: 07/20/15

The United States Environmental Protection Agency's Office of Environmental Information (OEI) developed the Facility Registry System (FRS) as the centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. The Facility Registry System replaced the Facility Index System or FINDS database.

HMIRSR08 Hazardous Materials Incident Reporting System

VERSION DATE: 11/08/15

The HMIRS database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

ICIS Integrated Compliance Information System (formerly DOCKETS)

VERSION DATE: 12/06/15

ICIS is a case activity tracking and management system for civil, judicial, and administrative federal Environmental Protection Agency enforcement cases. ICIS contains information on federal administrative and federal judicial cases under the following environmental statutes: the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Emergency Planning and Community Right-to-Know Act - Section 313, the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Safe Drinking Water Act, and the Marine Protection, Research, and Sanctuaries Act.

ICISNPDES Integrated Compliance Information System National Pollutant Discharge Elimination System

VERSION DATE: 10/20/14

In 2006, the Integrated Compliance Information System (ICIS) - National Pollutant Discharge Elimination System (NPDES) became the NPDES national system of record for select states, tribes and territories. ICIS-NPDES is an information management system maintained by the United States Environmental Protection Agency's Office of Compliance to track permit compliance and enforcement status of facilities regulated by the NPDES under the Clean Water Act. ICIS-NPDES is designed to support the NPDES program at the state, regional, and national levels.

LUCIS Land Use Control Information System

VERSION DATE: 09/01/06

The LUCIS database is maintained by the U.S. Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

MLTS Material Licensing Tracking System

VERSION DATE: 03/11/15

MLTS is a list of approximately 8,100 sites which have or use radioactive materials subject to the United States Nuclear Regulatory Commission (NRC) licensing requirements.

NPDESR08 National Pollutant Discharge Elimination System

VERSION DATE: 04/01/07

Information in this database is extracted from the Water Permit Compliance System (PCS) database which is used by United States Environmental Protection Agency to track surface water permits issued under the Clean Water Act. This database includes permitted facilities located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. The NPDES database was collected from December 2002 until April 2007. Refer to the PCS and/or ICIS-NPDES database as source of current data.

PADS PCB Activity Database System

VERSION DATE: 07/01/14

The PCB Activity Database System (PADS) is used by the United States Environmental Protection Agency to monitor the activities of polychlorinated biphenyls (PCB) handlers.

PCSR08 Permit Compliance System

VERSION DATE: 08/01/12

The Permit Compliance System is used in tracking enforcement status and permit compliance of facilities controlled by the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act and is maintained by the United States Environmental Protection Agency's Office of Compliance. PCS is designed to support the NPDES program at the state, regional, and national levels. This database includes permitted facilities located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. PCS has been modernized, and no longer exists. National Pollutant Discharge Elimination System (ICIS-NPDES) data can now be found in Integrated Compliance Information System (ICIS).

RCRASC RCRA Sites with Controls

VERSION DATE: 10/26/15

This list of Resource Conservation and Recovery Act sites with institutional controls in place is provided by the U.S. Environmental Protection Agency.

SFLIENS CERCLIS Liens

VERSION DATE: 06/08/12

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which United States Environmental Protection Agency 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. This database contains those CERCLIS sites where the Lien on Property action is complete.

SSTS Section Seven Tracking System

VERSION DATE: 12/08/14

The United States Environmental Protection Agency tracks information on pesticide establishments through the Section Seven Tracking System (SSTS). SSTS records the registration of new establishments and records pesticide production at each establishment. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires that production of pesticides or devices be conducted in a registered pesticide-producing or device-producing establishment. ("Production" includes formulation, packaging, repackaging, and relabeling.)

TRI Toxics Release Inventory

VERSION DATE: 12/31/13

The Toxics Release Inventory, provided by the United States Environmental Protection Agency, includes data on toxic chemical releases and waste management activities from certain industries as well as federal and tribal facilities. This inventory contains information about the types and amounts of toxic chemicals that are released each year to the air, water, and land as well as information on the quantities of toxic chemicals sent to other facilities for further waste management.

TSCA Toxic Substance Control Act Inventory

VERSION DATE: 12/31/06

The Toxic Substances Control Act (TSCA) was enacted in 1976 to ensure that chemicals manufactured, imported, processed, or distributed in commerce, or used or disposed of in the United States do not pose any unreasonable risks to human health or the environment. TSCA section 8(b) provides the United States Environmental Protection Agency authority to "compile, keep current, and publish a list of each chemical substance that is manufactured or processed in the United States." This TSCA Chemical Substance Inventory contains non-confidential information on the production amount of toxic chemicals from each manufacturer and importer site.

NLRRCRAG No Longer Regulated RCRA Generator Facilities

VERSION DATE: 10/13/15

This database includes RCRA Generator facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly generated hazardous waste.
Large Quantity Generators: Generate 1,000 kg or more of hazardous waste during any calendar month; or Generate more than 1 kg of acutely hazardous waste during any calendar month; or Generate more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month; or Generate 1 kg or less of acutely hazardous waste during any calendar month, and accumulate more than 1kg of acutely hazardous waste at any time; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulated more than 100 kg of that material at any time.
Small Quantity Generators: Generate more than 100 and less than 1000 kilograms of hazardous waste during any calendar month and accumulate less than 6000 kg of hazardous waste at any time; or Generate 100 kg or less of hazardous waste during any calendar month, and accumulate more than 1000 kg of hazardous waste at any time.
Conditionally Exempt Small Quantity Generators: Generate 100 kilograms or less of hazardous waste per calendar month, and accumulate 1000 kg or less of hazardous waste at any time; or Generate one kilogram or less of acutely hazardous waste per calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste.

RCRAGR08 Resource Conservation & Recovery Act - Generator Facilities

VERSION DATE: 10/13/15

This database includes sites listed as generators of hazardous waste (large, small, and exempt) in the RCRAInfo

system. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). This database includes sites located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.
Large Quantity Generators: Generate 1,000 kg or more of hazardous waste during any calendar month; or Generate more than 1 kg of acutely hazardous waste during any calendar month; or Generate more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month; or Generate 1 kg or less of acutely hazardous waste during any calendar month, and accumulate more than 1kg of acutely hazardous waste at any time; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulated more than 100 kg of that material at any time.
Small Quantity Generators: Generate more than 100 and less than 1000 kilograms of hazardous waste during any calendar month and accumulate less than 6000 kg of hazardous waste at any time; or Generate 100 kg or less of hazardous waste during any calendar month, and accumulate more than 1000 kg of hazardous waste at any time.
Conditionally Exempt Small Quantity Generators: Generate 100 kilograms or less of hazardous waste per calendar month, and accumulate 1000 kg or less of hazardous waste at any time; or Generate one kilogram or less of acutely hazardous waste per calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste.

RCRANGR08 Resource Conservation & Recovery Act - Non-Generator Facilities

VERSION DATE: 10/13/15

This database identifies RCRAInfo system sites that only handle hazardous waste, such as transporters, without generating any amount hazardous waste. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). This database includes sites located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

HISTPST Historical Gas Stations

VERSION DATE: NR

This historic directory of service stations is provided by the Cities Service Company. The directory includes

Cities Service filling stations that were located throughout the United States in 1930.

BF Brownfields Management System

VERSION DATE: 10/08/15

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. The United States Environmental Protection Agency maintains this database to track activities in the various brown field grant programs including grantee assessment, site cleanup and site redevelopment. This database included tribal brownfield sites.

CERCLIS Comprehensive Environmental Response, Compensation & Liability Information System

VERSION DATE: 10/25/13

CERCLIS is the repository for site and non-site specific Superfund information in support of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This United States Environmental Protection Agency database contains an extract of sites that have been investigated or are in the process of being investigated for potential environmental risk. In 2014, the Superfund Program implemented a new information system, the Superfund Enterprise Management System (SEMS). Efforts to migrate data to SEMS and to enhance data quality control are now in the final stages. The Program will continue to rely on the final CERCLIS data set (dated November 12, 2013, which reflects official end of Fiscal Year 2013 Program progress) for public reporting until a complete and accurate SEMS data set is available.

DNPL Delisted National Priorities List

VERSION DATE: 07/22/15

This database includes sites from the United States Environmental Protection Agency's Final National Priorities List (NPL) where remedies have proven to be satisfactory or sites where the original analyses were inaccurate, and the site is no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.

NFRAP No Further Remedial Action Planned Sites

VERSION DATE: 10/25/13

NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the National Priorities List, or the contamination was not serious enough to require Federal Superfund action.

NLRRCRAT No Longer Regulated RCRA Non-CORRACTS TSD Facilities

VERSION DATE: 10/13/15

This database includes RCRA Non-Corrective Action TSD facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly treated, stored or disposed of hazardous waste.

ODI Open Dump Inventory

VERSION DATE: 06/01/85

The open dump inventory was published by the United States Environmental Protection Agency. An “open dump” is defined as a facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944) and which is not a facility for disposal of hazardous waste. This inventory has not been updated since June 1985.

RCRAT Resource Conservation & Recovery Act - Non-CORRACTS Treatment, Storage & Disposal Facilities

VERSION DATE: 10/13/15

This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste in the RCRAInfo system. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS).

DOD Department of Defense Sites

VERSION DATE: 06/21/10

This information originates from the National Atlas of the United States Federal Lands data, which includes lands owned or administered by the Federal government. Army DOD, Army Corps of Engineers DOD, Air Force DOD, Navy DOD and Marine DOD areas of 640 acres or more are included.

FUDS Formerly Used Defense Sites

VERSION DATE: 06/01/15

The Formerly Used Defense Sites (FUDS) inventory includes properties previously owned by or leased to the United States and under Secretary of Defense Jurisdiction, as well as Munitions Response Areas (MRAs). The remediation of these properties is the responsibility of the Department of Defense. This data is provided by the U.S. Army Corps of Engineers (USACE), the boundaries/polygon data are based on preliminary findings and not all properties currently have polygon data available. DISCLAIMER: This data represents the results of data collection/processing for a specific USACE activity and is in no way to be considered comprehensive or to be used in any legal or official capacity as presented on this site. While the USACE has made a reasonable effort to insure the accuracy of the maps and associated data, it should be explicitly noted that USACE makes no warranty, representation or guaranty, either expressed or implied, as to the content, sequence, accuracy, timeliness or completeness of any of the data provided herein. For additional information on Formerly Used Defense Sites please contact the USACE Public Affairs Office at (202) 528-4285.

NLRRCRAC No Longer Regulated RCRA Corrective Action Facilities

VERSION DATE: 10/13/15

This database includes RCRA Corrective Action facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements.

NPL National Priorities List

VERSION DATE: 12/15/15

This database includes United States Environmental Protection Agency (EPA) National Priorities List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

PNPL Proposed National Priorities List

VERSION DATE: 07/22/15

This database contains sites proposed to be included on the National Priorities List (NPL) in the Federal Register. The United States Environmental Protection Agency investigates these sites to determine if they may present long-term threats to public health or the environment.

RCRAC Resource Conservation & Recovery Act - Corrective Action Facilities

VERSION DATE: 10/13/15

This database includes all hazardous waste sites with ongoing corrective action activity and where corrective action is statutorily required to be address but have not had corrective action imposed in the RCRAInfo system. The Corrective Action Program requires owners or operators of RCRA facilities (or treatment, storage, and disposal facilities) to investigate and cleanup contamination in order to protect human health and the environment. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS).

RCRASUBC Resource Conservation & Recovery Act - Subject to Corrective Action Facilities

VERSION DATE: 10/13/15

This database includes hazardous waste sites which are potentially subject to corrective action regardless of whether they have correction action underway, plus any sites showing a corrective action event of RFI or beyond in the RCRAInfo system. Sites conducting corrective action under analogous state authorities are also included. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and

reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS).

RODS	Record of Decision System
VERSION DATE: 07/01/13	

These decision documents maintained by the United States Environmental Protection Agency describe the chosen remedy for NPL (Superfund) site remediation. They also include site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, and scope and role of response action.

APCDP Air Pollution Control Division Permitted Facilities

VERSION DATE: 10/09/15

The Stationary Sources Program, located within the Air Pollution Control Division of the Colorado Department of Public Health and Environment, evaluates and develops air permits for stationary sources in Colorado. The program inspects sources to determine compliance with air regulations and permit conditions, and maintains a computerized inventory of air pollution emissions throughout the state.

ASBESTOS Asbestos Abatement and Demolition Projects

VERSION DATE: 06/25/15

The Colorado Department of Public Health and Environment's Air Pollution Control Division assists schools and businesses to comply with air pollution laws regulating asbestos and asbestos containing materials. The regulation that governs asbestos in Colorado is the Colorado Air Quality Control Commission s Regulation No. 8, Part B, "Emission Standards for Asbestos." Notification is required for all demolitions of all facilities and all asbestos abatement projects that exceed the trigger levels, whatever is the lesser quantity. The notification requirements apply to both friable and non-friable asbestos materials. This database contains those related projects since January 2008.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 10/01/15

This list of Methamphetamine lab seizures is provided by multiple sources: the North Metro Task Force, FACTS (Forensic Applications Consulting Technologies, Inc) and the Colorado Springs Police Department. The North Metro Task Force list of Methamphetamine labs were seized between 2001 and 2010. The North Metro area includes the following Cities and Counties of Colorado: Adams County, Broomfield, Brighton, Commerce City, Federal Heights, Northglenn, Thornton, and Westminster. According to Section 2 of Colorado Revised Statutes: "25-18.5-103. Discovery of an illegal drug laboratory - property owner - clean-up - liability. (1) (a) Upon notification from a peace officer that chemicals, equipment, or supplies indicative of an illegal drug laboratory are located on a property, or when an illegal drug laboratory used to manufacture methamphetamine is otherwise discovered and the property owner has received notice, the owner of any contaminated property shall meet the cleanup standards for property established by the board in section 25-18.5-102". The FACTS and Colorado Springs Police Department Methamphetamine labs were seized between 2001 and 2014.

CDPS Colorado Discharge Permit System Facilities

VERSION DATE: 10/13/15

The Colorado Department of Public Health & Environment's Water Quality Control Division regulates the Colorado Discharge Permit System. This system controls stormwater discharges from construction activities by requiring a Stormwater Construction Permit to reduce pollutants from entering streams, river, lakes and wetlands as a result of runoff from residential, commercial and industrial areas. This database also includes facilities with Industrial Stormwater Permits.

Environmental Records Definitions - STATE (CO)

COVENANTS Environmental Real Covenants List

VERSION DATE: 05/08/15

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. These covenants, which are recorded with the deed and run with the land, provide a mechanism to ensure that institutional controls that are part of environmental remediation projects are properly implemented and that engineered structures are protected and maintained, so that implemented remedies continue to be protective of human health and the environment for as long as any residual contamination remains a risk.

SPILLS Spills Listing

VERSION DATE: 09/22/15

The Colorado Department of Public Health and Environment's Division of Emergency Preparedness and Response maintains this listing of chemical spills and/or releases.

HWSG Hazardous Waste Sites- Generator

VERSION DATE: 06/30/03

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the promulgation of implementing regulations in 1980. In 1984, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. This facility listing includes RCRA sites listed as generators of hazardous waste (Small Quantity Generators and Large Quantity Generators) and was provided by the Colorado Department of Public Health and Environment.

Small Quantity Generators (SQG) generate, in any calendar month, more than 100 kg (220 lbs.) but less than 1,000 kg (2,200 lbs.) of RCRA hazardous waste; and generate, in any calendar month, or accumulate at any time, no more than 1 kg (2.2 lbs.) of acute hazardous waste and no more than 100 kg (220 lbs.) of material from the cleanup of a spill of acute hazardous waste; and accumulate on-site no more than 6000 kg (13,200 lbs) of hazardous waste at any one time; or, the site is a Small Quantity Generator if the site met all other criteria for a Conditionally Exempt Small Quantity Generator, but accumulated, at any time, more than 1,000 kg (2,200 lbs.) of RCRA hazardous waste.

Large Quantity Generators (LQG) generate, in any calendar month, 1,000 kg (2,200 lbs.) or more of RCRA hazardous waste; or generate, in any calendar month, or accumulated at any time, more than 1 kg (2.2 lbs.) of RCRA acute hazardous waste; or generate, in any calendar month, or accumulated at any time, more than 100 kg (220 lbs.) of spill cleanup material contaminated with RCRA acute hazardous waste.

AST Aboveground Storage Tank Facilities

VERSION DATE: 10/15/15

The Oil and Public Safety Division of the Colorado Department of Labor and Employment maintains this list of aboveground storage tank (AST) facilities. This AST database also includes other types of storage tank facilities such as liquefied petroleum gas (LPG), vehicle tank meters (VTM), and compressed natural gas facilities.

Environmental Records Definitions - STATE (CO)

CLEANERS Dry Cleaning Facilities

VERSION DATE: 12/23/15

This database contains dry cleaners which have obtained an air permit through the Air Pollution Control Division at the Colorado Department of Public Health and Environment.

UST Underground Storage Tank Facilities

VERSION DATE: 10/15/15

The Oil and Public Safety Division of the Colorado Department of Labor and Employment maintains this list of underground storage tank facilities.

HISTSWLF Historical Solid Waste Landfills

VERSION DATE: NR

This historical solid waste landfills database contains data from the Hazardous Materials Waste Management Division (HMWMD) of the Colorado Department of Public Health and other various state and local agencies. In the early 1980s, the HMWMD conducted a survey of staff members and local agencies to compile this listing of sites that were known or thought to have waste issues. This Solid Waste Historical Data is not considered complete or verifiable and has not been maintained since the late 1980s. The HMWMD is not responsible and shall not be liable to the used for damages of any kind arising out of the use of this data or information.

HWSTSD Hazardous Waste Sites- Treatment, Storage & Disposal

VERSION DATE: 06/30/03

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the promulgation of implementing regulations in 1980. In 1984, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. TSD facilities treat, store, dispose, or recycle hazardous waste on site in units and therefore are subject to RCRA permitting requirements. Historic TSDs are facilities that have completed closure and/or post-closure of the RCRA Subtitle C Regulated Unit(s) or the Treatment/Storage/Disposal Unit is no longer regulated. This database was provided by the Colorado Department of Public Health and Environment.

LST Leaking Storage Tank Facilities

VERSION DATE: 10/15/15

The Oil and Public Safety Division of the Colorado Department of Labor and Employment maintains this list of leaking aboveground and underground storage tank facilities.

LUSTTRUST Leaking Underground Storage Tanks Trust Fund Sites

VERSION DATE: 01/01/00

Suspected tank leaks have been discovered at the sites included in this database, but the facility responsible for the leak has not been identified. The state's investigtion and search for responsible parties is paid for out of the state's Leaking Underground Storage Tank (LUST) Trust Fund. This database was provided by the Colorado Department of Labor & Employment, Division of Oil and Public Safety, State Fund Section and is no longer updated.

METHANESITES Methane Gas Study Sites

VERSION DATE: 01/01/81

This Investigation of Methane Gas Hazards report was prepared by the Denver Office of Emergency Preparedness in 1981. The purpose of this study was to assess the actual and potential generation, migration, explosive and related problems associated with specified 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. The Colorado Department of Health selected eight landfills as priorities due to population density and potential hazards to population and property.

SWF Solid Waste Facilities

VERSION DATE: 09/11/15

The Colorado Department of Public Health and Environment maintains this database of solid waste disposal facilities, transfer stations, recyclers, waste tire registrants, and waste grease registrants.

UMTS Uranium Mill Tailings Sites

VERSION DATE: 08/09/02

There were nine uranium mill tailings sites in Colorado designated for cleanup under the federal Uranium Mill Tailings Radiation Control Act. These nine sites, know 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. This database was provided by the Colorado Department of Public Health and Environment.

VCRA Voluntary Cleanup and Redevelopment Program Sites

VERSION DATE: 12/23/15

This site listing is provided by the Colorado Department of Public Health and Environment (CDPHE) and includes both voluntary cleanup and brownfield properties. The Voluntary Cleanup and Redevelopment program was created in 1994. The objective of the program is to facilitate the redevelopment and transfer of contaminated properties. Properties that sit untouched because of their real or perceived contamination can be rehabilitated

using the CDPHE's Brownfields Program in conjunction with the Voluntary Cleanup Program. Cleanup decisions are based on existing standards and the proposed use of the property. The actual cleanup and verification is the owner's responsibility.

HWSCA Hazardous Waste Sites- Corrective Action

VERSION DATE: 06/30/03

The Resource Conservation and Recovery Act (RCRA) was enacted by congress in 1976, followed by the promulgation of implementing regulations in 1980. In 1984, the Hazardous and Solid Waste Amendments (HSWA) were added to RCRA providing for corrective action at facilities subject to RCRA. That same year, the State was authorized by EPA to implement the RCRA program in Colorado on their behalf. Corrective action may be implemented as part of a RCRA Hazardous Waste Permit, an Order, or a Corrective Action Plan pursuant to the Colorado Hazardous Waste Regulations. Corrective action is the process by which regulated facilities investigate and remediate, as necessary, all contamination (soil, ground water, surface water, air) associated with their releases into the environment. Historic Corrective Action Sites are facilities that have completed the RCRA Subtitle C corrective Action process. This database was provided by the Colorado Department of Public Health and Environment.

SF Superfund Sites

VERSION DATE: 06/01/03

This listing contains active, deleted and proposed "Superfund" hazardous waste sites, as well as those sites identified through the Natural Resource Damages section of Superfund legislation and one Private Non-Superfund Cleanup site. A site qualifies for the National Priorities List (NPL or Superfund list) when the U.S. Environmental Protection Agency (EPA) determines there is a release or threatened release of hazardous substances that may endanger public health, welfare or the environment. In Colorado, the lead agency for Superfund remediation may be either the EPA or the Colorado Department of Public Health and Environment.

USTR08 Underground Storage Tanks On Tribal Lands

VERSION DATE: 04/01/15

This database, provided by the United States Environmental Protection Agency (EPA), contains underground storage tanks on Tribal lands located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

LUSTR08 Leaking Underground Storage Tanks On Tribal Lands

VERSION DATE: 04/01/15

This database, provided by the United States Environmental Protection Agency (EPA), contains leaking underground storage tanks on Tribal lands located in EPA Region 8. This region includes the following states: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

ODINDIAN Open Dump Inventory on Tribal Lands

VERSION DATE: 11/08/06

This Indian Health Service database contains information about facilities and sites on tribal lands where solid waste is disposed of, which are not sanitary landfills or hazardous waste disposal facilities, and which meet the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944).

INDIANRES Indian Reservations

VERSION DATE: 01/01/00

The Department of Interior and Bureau of Indian Affairs maintains this database that includes American Indian Reservations, off-reservation trust lands, public domain allotments, Alaska Native Regional Corporations and Recognized State Reservations.

Appendix B.
Final Geotechnical Investigation Report
I-25/Crossroads Boulevard Bridge Replacement
(Yeh & Associates, 2015)

Yeh and Associates, Inc.
Consulting Engineers & Scientists

December 11, 2015

Mr. Terry Tyrrell, P.E.
AECOM Technical Services, Inc.
717 17th Street, Suite 2600
Denver, CO 80202

Re: Final Geotechnical Investigation Report, I-25/Crossroads Boulevard Bridge Replacement, Loveland Colorado
CDOT Project No. IM 0253-242 (20575)

Dear Mr. Tyrrell,

Attached is the subject Final Report. Please distribute this draft report accordingly for interdisciplinary review and constructability review. Please contact the undersigned if you have any questions.

For this submittal, we have followed our internal quality procedures, as outlined in our QC/QA Process letter to AECOM dated April 28, 2015.

Respectfully Submitted,
Yeh and Associates, Inc.

Calvin Yeh, P.E.
Project Geotechnical Engineer

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Final

Geotechnical Investigation Report

I-25/Crossroads Boulevard Bridge Replacement

Loveland, Colorado

CDOT Region 4

CDOT Project No. IM 0253-242 (20575)

Yeh Project No.: 215-043

December 11, 2015

Prepared for:

AECOM Technical Services, Inc.
717 17th Street, Suite 2600
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Yeh and Associates, Inc.
Consulting Engineers & Scientists

Final

Geotechnical Investigation Report

I-25/Crossroads Boulevard Bridge Replacement

Loveland, Colorado

CDOT Region 4

CDOT Project No. IM 0253-242 (20575)

Yeh Project No.: 215-043

December 11, 2015

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- Sheets A-1 to A-6: Boring Location Plans
- Sheets A-7 & A-8: Bridge Engineering Geology Sheets
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Appendix B Legend and Boring Logs

Appendix C Laboratory Test Results

1. PURPOSE AND SCOPE OF STUDY

This report presents the results of Yeh and Associates, Inc. (Yeh) geotechnical investigation and provides geotechnical engineering recommendations based on these results for the proposed I-25 and Crossroads Boulevard bridge replacement project. The purpose of this report is to provide geotechnical engineering recommendations for use by AECOM and CDOT in the design of the project. For pavement design recommendations, please refer to the "Final Pavement Design Report, I-25 and Crossroads Boulevard Bridge Replacement," submitted December 11, 2015. The project area is shown in Figure 1.

The scope of this investigation included the following tasks:

- Conduct a subsurface investigation consisting of the following:
    - 4 borings for the proposed I-25/Crossroads Boulevard bridge replacement.
    - 10 borings for retaining walls and slope stability.
    - 37 borings for pavement thickness design.
- Perform laboratory tests on samples obtained during the subsurface investigation to help determine engineering characteristics of on-site soils.
- Prepare a geotechnical investigation report that summarizes the results of the field investigation and laboratory test results and provides geotechnical recommendations for bridge foundations, and retaining wall design.
- Prepare a pavement design report.

2. PROPOSED CONSTRUCTION

The proposed I-25 and Crossroads Boulevard reconstruction will include the construction of new bridges and retaining walls between I-25 milepost 258.4 and milepost 259.8. The project alignment is shown on the Boring Location Plan, Sheet A-1 through A-6 of Appendix A.

The Structure Selection Report submitted by Felsburg Holt & Ullevig (FHU) in June 2015 identifies a reconstructed standard diamond interchange with signalized ramp terminals as the preferred configuration for the proposed interchange. This involves replacing the existing I-25 northbound and southbound bridges over Crossroads Boulevard with two new single span girder bridges. A profile of the proposed bridge is shown on the Engineering Geology sheets (Sheets A-7 and A-8 of Appendix A). Each proposed bridge will have an interim width of about 67 feet from edge of deck to edge of deck, including a 28-foot shoulder to accommodate a 12-

foot managed lane in the future. In addition, Crossroads Boulevard will be widened to four, 12-foot lanes with 5-foot bike lanes in each direction, a 6-foot median, and a 6-foot sidewalk in each direction.

The in-progress FOR Plan Set, dated November 10, 2015, identifies two retaining structures. Layouts and elevations for these walls are included in the Engineering Geology Sheets as Sheets A-9 through A-13 of Appendix A. Based on these plans, the walls will be a combination of soil nail and mechanically stabilized earth walls.

- Wall 1: Located at the south abutment of the proposed I-25 and Crossroads Boulevard bridges with heights ranging from 6 to 20 feet. This wall consists of an approximately 191.5-foot-long soil nail cut wall at the south bridge abutment and transitions to an MSE fill wall at the east and west ends. Based on the in-progress FOR plan set, the MSE wall sections are about 55.5 linear-feet-long at its eastern end and about 64 linear-feet-long at its western end for a total of approximately 311 linear feet of combined fill and cut wall.
- Wall 2: Located at the north abutment of the proposed I-25 and Crossroads Boulevard bridges with heights ranging from 6.5 to 20.5 feet. This wall consists of an approximately 193-foot-long soil nail cut wall at the north bridge abutment and transitions to an MSE fill wall at the east and west ends. The in-progress FOR plans show the MSE wall sections as about 50 linear-feet-long at its eastern end and about 60 linear-feet-long at its western end for a total of approximately 303 linear feet of combined fill and cut wall.

3. GEOLOGICAL SETTING AND SITE CONDITIONS

The project area is located in the Denver Basin along the Front Range Urban corridor. A geologic map depicting the project area is shown in Figure 2 (USGS, Colton, 1978). The Denver Basin is underlain by the Paleocene/upper Cretaceous age Denver and Arapahoe Formations. The Denver and Arapahoe Formations primarily include claystone and siltstone interbedded with sandstone, representative of shallow inland seaways, near shore, and terrestrial streambed conditions. These bedrock units are typically described as hard and indurated with a slight regional dip to the northeast.

The USGS has mapped the surficial soils along the I-25 Corridor alignment as primarily Eolium (Qe) from the Quaternary age. The Eolium is described by the USGS as a windblown deposit

generally consisting of interbedded clayey, silty, and sandy deposits that contain variable amounts of these constituents.

The bedrock units are mapped as Upper Shale Member (Kpu) and Upper Transition Member (Kptz) Pierre Shales from the Cretaceous age. The Kpu unit is described as a silty shale, and the Kptz unit is described as a clayey sandstone with thin-bedded sandy shale layers and large calcareous sandstone concretions. Based on the USGS Geologic map shown as Figure 2, outcrops of these bedrock units have been mapped north of the I-25 and UPRR Bridge and extend north of the I-25 and Crossroad's Boulevard intersection.

The mapped soils and bedrock are generally consistent with the subsurface conditions encountered in the borings drilled for the project.

4. SUBSURFACE INVESTIGATION

The subsurface investigation program included a total of 51 borings, including four bridge borings, 10 retaining wall/slope stability borings, and 37 pavement borings. Borings YA-BC-4 and YA-PNB-9 were combined as one boring because they were planned at the same location.

The borings were drilled in May and June of 2015. All borings were drilled by Terracon Consultants, Inc. as a subcontractor to Yeh using a truck mounted CME 75 drill rig and 4-inch outside diameter solid-stem augers. A representative from Yeh obtained CDOT access permits, staked the boring locations, completed utility locates at each boring location, and was on-site to observe drilling operations and log the subsurface conditions. Traffic control, as required by the CDOT access permit, was provided by Colorado Barricade and Warning Lites, Inc. of Colorado as subcontractors to Yeh. After being drilled, the borings locations were surveyed by 105 West, Inc. as a subcontractor to AECOM. Boring YA-PNB-10 was not surveyed, as the surveyors were not able to locate the borehole location. The location and elevation of boring YA-PNB-10 was estimated using existing site features and available topographic dgn files.

The locations of the borings are shown on the Boring Location Plans in Appendix A, Sheets A-1 through A-6. The boring logs are included in Appendix B, Legend and Boring Logs. The boring identifications include letter designations to indicate the type of structure in addition to number designations. For example, borings drilled as part of the southbound I-25 pavement investigation are identified as "YA-PSB." In general, the boring numbers start on the southern end of the project alignment with the numbers increasing in the northbound direction. The boring designations are described below.

- YA-BC: Borings drilled for the proposed I-25 over Crossroads Boulevard Bridge (YA-BC-1 to YA-BC-3 and YA-BC-4/YA-PNB-9).
- YA-RW: Borings drilled for the slope stability investigation (YA-RW-1 to YA-RW-4) and proposed retaining walls (YA-RW-5 to YA-RW-10).
- YA-P: Borings drilled for the pavement investigation.
    - YA-PSB, borings drilled for the southbound I-25 pavement reconstruction (YA-PSB-1 to YA-PSB-16).
    - YA-PNB, borings drilled for the northbound I-25 pavement reconstruction (YA-PNB-1 to YA-PNB-8, YA-BC-4/YA-PNB-9, and YA-PNB-10 to YA-PNB-16).
    - YA-PC, borings drilled for the Crossroads Boulevard pavement reconstruction (YA-PC-1 and YA-PC-2).
    - YA-PR, borings drilled for the I-25 ramps pavement reconstruction (YA-PR-1 to YA-PR-4).

Modified California (MC) tube samples were obtained from the borings. When sampling with the MC sampler, the penetration resistance was recorded. The Modified California penetration resistance value (N_{MC}) was recorded as the total number of blows required to advance the MC sampler the final two 6-inches of penetration using a 140-pound hammer falling from a height of 30 inches, generally following ASTM D1586, “Standard Test Method for Standard Penetration Test (SPT) and Split Spoon Barrel Sampling of Soils.” The Modified California penetration resistance (N_{MC}) is identified as “Penetration Resistance (N)” on the boring logs.

Groundwater conditions were observed during drilling for all boings and are shown on the boring logs. Year-round groundwater conditions were not established as part of the field investigation. Depending on foundation elevations, groundwater may be encountered during construction. Groundwater conditions in the study area may vary considerably throughout the year. Variations can occur during different seasons, following precipitation events, due to irrigation, after construction and site grading, and due to changes in surface and subsurface drainage characteristics of the surrounding area.

5. LABORATORY TESTING

The samples collected during the subsurface investigation were transported to Yeh’s laboratory in Denver, Colorado, where they were examined, and laboratory tests were assigned to samples representative of the subsurface materials encountered in the borings. The geotechnical laboratory tests included sieve analysis, Atterberg limits, natural moisture content

and dry density, swell/consolidation, and R-value. In addition, select representative samples were subjected to chemical analyses by Colorado Analytical Laboratories, Inc. to determine the water soluble sulfate content, water soluble chloride content, pH, and resistivity. The laboratory test results are included in Appendix C and are shown on the boring logs in Appendix B.

Results from Atterberg limits determination and sieve analyses were used to classify the soils according to AASHTO and the Unified Soil Classification System (USCS) standards. Atterberg limits were performed in general accordance with AASHTO T89 and T90, and sieve analyses were performed in general accordance with ASTM D421. Dry density tests and moisture content tests were performed in general accordance with ASTM D2937 and ASTM D2216, respectively.

Chemical tests were performed by Colorado Analytical Laboratories, Inc. on 12 representative samples obtained from the borings. These samples were tested to determine the concentrations of water soluble sulfates, water soluble chlorides, pH, and resistivity. The test results are presented in the Summary of Laboratory Test Results in Appendix C and on applicable boring logs included in Appendix B. See Section 13, “Other Design Considerations,” of this report for more information regarding these chemical test results.

Yeh performed 21 swell/consolidation tests on representative samples obtained in the project area to determine the swell potential of the subsurface materials. The tests were performed in general accordance with ASTM D4546 Procedure B. The swell was measured by applying a surcharge of 200 pounds per square foot (psf) to the sample and adding water, except for Boring YA-RW-6, which was tested at a surcharge of 500 psf. Test results are shown on the applicable boring logs in Appendix B, and graphical results of the swell consolidation tests are presented in Appendix C.

Table 5-1 below summarizes the swell/consolidation test results. The test results indicated that the tested subgrade materials in the project area possessed swell/consolidation potentials ranging from -0.5 percent (consolidation) to 1.8 percent (swell). This range is typically considered to represent a low to medium risk for damage due to swelling soil problems based on Table 4.9 of the 2016 CDOT Pavement Design Manual.

Table 5-1 Summary of Observed Swell Potentials

Boring	Sample Depth (ft.)	Tested Material	Surcharge Pressure (psf)	Swell (%)
YA-PNB-2	2	Clayey Sand	200	0.2
YA-PNB-4	2	Clayey Sand	200	0.8
YA-PNB-5	5	Sandy Clay	200	0.8
YA-PNB-8	2	Clayey Sand	200	0.7
YA- PNB-11	5	Sandy Clay	200	0.0
YA- PNB-15	6	Sandy Clay	200	0.3
YA-PSB-1	3	Sandy Clay	200	1.4
YA- PSB-2	3	Sandy Clay	200	1.5
YA- PSB-6	2	Clayey Sand	200	1.8
YA- PSB-9	2	Sandy Clay	200	1.5
YA- PSB-10	2	Sandy Clay	200	0.9
YA- PSB-13	5	Sandy Clay	200	0.0
YA- PSB-14	2	Sandy Clay	200	0.1
YA- PSB-16	2	Clayey Sand	200	0.9
YA-PC-1	2	Clayey Sand	200	0.4
YA-PC-2	2	Sandy Claystone	200	1.3
YA-RW-1	2	Sandy Clay	200	1.7
YA-RW-2	2	Clayey Sand	200	0.4
YA-RW-4	5	Sandy Clay	200	0.3
YA-RW-5	5	Sandy Clay	200	0.2
YA-RW-6	4	Silty Sand	500	-0.5

6. SUBSURFACE CONDITIONS

A total of 51 borings were drilled along the proposed project alignment; four bridge borings, 10 retaining wall/slope stability borings, and 37 pavement borings. The general boring locations are shown on Sheets A-1 through A-6 in Appendix A, Boring Location Plan.

Data obtained from CDOT indicates that existing concrete pavements in the project area have been rubbilized and capped with 5 inches HMA asphalt. For more information about the existing pavements along the alignment, please refer to the "Final Pavement Design Report, I-25 and Crossroads Boulevard Bridge Replacement," submitted December 11, 2015.

The subsurface conditions along the I-25 mainline alignment generally consisted of about 3.5 to 11 feet of medium stiff to very stiff sandy clay and clayey sand fill underlain by either native stiff to very stiff sandy clay and loose to medium dense clayey sand or very hard bedrock. The depths of fill, when encountered, were generally greater at the southern portion of the alignment near the UPRR, with fill depths up to 11 feet below existing grade observed. At the northern portion of the alignment, observed fill depths were generally shallower, with fill depths of up to 3.5 feet below existing grade. The fill and native soils were underlain by sandstone and claystone bedrock at depths ranging from 2 feet to 29 feet below existing grade.

Bedrock along the I-25 mainline alignment was encountered at depths ranging from approximately 29 feet below existing grade at the southern end of the alignment (Boring YA-RW-2) to 2 feet below existing grade near the I-25 and Crossroads interchange (Boring YA-RW-8). The observed bedrock elevations ranged from a low elevation of approximately 4,994 feet at Boring YA-RW-2 and generally increased in elevation towards the north. The highest observed bedrock elevation of approximately 5,068 feet was observed in Boring YA-PNB-12 near the north end of the alignment. The bedrock generally consisted of hard to very hard sandy claystone and clayey sandstone. The surveyed existing ground surface elevation, the approximate depth to bedrock, and the approximate elevation of the top of bedrock at each boring location are presented in Table 6-1. In addition, groundwater observations, if encountered at the time the borings were drilled, are also included in Table 6-1.

Four bridge borings (YA-BC-1 through YA-BC-3 and YA-BC-4/YA-PNB-9) were drilled near the I-25 over Crossroads Boulevard Bridge. The subsurface conditions observed in borings drilled in this area generally consisted of about 5 to 13 feet of stiff to very stiff sandy clay fill underlain by native medium stiff to very stiff sandy clay and loose clayey sand. The existing grade at the

location of the borings for the I-25 Southbound lanes (Borings YA-BC-1 and YA-BC-3) are at elevation 5,058.4 feet and 5,059.3 feet, respectively. The existing grades at the locations of the borings for the I-25 Northbound lanes (Borings YA-BC-2 and YA-BC-4/YA-PNB-9) are approximately 8 feet higher at 5,066.3 feet and 5,067.3 feet, respectively. The native soils were underlain by sandstone and claystone bedrock at depths ranging from 6.5 to 14.5 feet below existing grade (between approximately elevations 5,052 feet and 5,054 feet).

Groundwater conditions were observed during drilling for all borings and are summarized in Table 6-1. At the time of drilling, groundwater was observed in Borings YA-BC-1 through YA-BC-4 between about 6.5 feet and 14.5 feet below existing grade, or between approximately elevations 5,026 feet and 5,033 feet.

Table 6-1 Summary of Observed Bedrock and Groundwater Conditions

Boring No.	Surveyed Ground Surface Elevation (ft.)	Approx. Depth to Top of Bedrock[1] (ft.)	Approx. Top of Bedrock Elevation[1] (ft.)	Approx. Depth to Observed GW[1] (ft.)	Approx. Elevation to Observed GW[1] (ft.)
Bridge Borings					
YA-BC-1	5,058.4	6.5	5,052	30.5	5,028
YA-BC-2	5,066.3	14.5	5,052	34	5,032.5
YA-BC-3	5,059.3	7	5,052.5	33	5,026.5
YA-BC-4/ YA-PNB-9	5,067.3	13	5,054.5	34	5,033.5
Retaining Wall/Slope Stability Borings					
YA-RW-1	5,026.1	29	4,997	Not Encountered	
YA-RW-2	5,022.7	29	4,994	Not Encountered	
YA-RW-3	5,019.8	25	4,995	Not Encountered	
YA-RW-4	5,018	20	4,998	Not Encountered	
YA-RW-5	5,051.7	8	5,044	Not Encountered	
YA-RW-6	5,054	7	5,047	Not Encountered	
YA-RW-7	5,043.8	2.5	5,041.5	Not Encountered	
YA-RW-8	5,048	2	5,046	Not Encountered	
YA-RW-9	5,038.9	5	5,034	Not Encountered	
YA-RW-10	5,050.5	3	5,047.5	Not Encountered	
Pavement Borings					
YA-PC-1	5,040.8	3	5,038	Not Encountered	
YA-PC-2	5,045	2	5,043	Not Encountered	
YA-PNB-12	5,077.9	10	5,068	Not Encountered	
[2]YA-PSB-4	5,022.2	5	5,017	Not Encountered	
[2]YA-PSB-5	5,031.8	10	5,022	Not Encountered	
YA-PSB-13	5,070.9	9	5,062	Not Encountered	
YA-PSB-15	5,073.7	9	5,065	Not Encountered	
[2]YA-PR-1	5,048.3	3.5	5,045	Not Encountered	
[2]YA-PR-2	5,051.7	2	5,050	Not Encountered	
[2]YA-PR-3	5,051.4	2.5	5,049	Not Encountered	

Notes: 1) Bedrock and groundwater depths and elevations are based on observations made during drilling and are presented to the nearest 0.5 foot.
2) Borings YA-PSB-4 and YA-PSB-5 encountered weathered bedrock to the bottom of the boring. Borings YA-PR-1, YA-PR-2, and YA-PR-3 encountered 1.5 feet, 3 feet, and 2 feet of weathered bedrock, respectively.

7. SEISMIC CONSIDERATIONS

No current active faults are known to exist in the immediate vicinity of the I-25 and Crossroads Boulevard project vicinity. It is believed that there is a low likelihood of a highly damaging earthquake occurring in the near future.

Based on the results of the subsurface investigation, the project site is classified as Site Class C, in accordance with the Method B procedure specified in AASHTO Table C3.10.3.1-1. The peak ground acceleration (PGA) and the short- and long- period spectral acceleration coefficients (S_s and S_1, respectively) for soft rock (site class B) were determined using the USGS Seismic Design Parameters Version 2.10 for an event with a 7 percent probability of exceedance in 75 years. An event with this probability of exceedance has a return period of about 1,034 years. The seismic design parameters for soft rock (site class B) are presented in Table 7-1. USGS seismic design parameters for Site Class C were obtained by adjusting the seismic design parameters for Site Class B in accordance with AASHTO Section 3.10.3.2 and are presented in Table 7-2.

Table 7-1 Seismic Design Parameters for Site Class B

PGA (0.0 sec)	S_S (0.2 sec)	S_1 (1.0 sec)
0.058 g	0.124 g	0.033 g

Table 7-2 Design Parameters Adjusted for Site Class C

A_S (0.0 sec)	S_{DS} (0.2 sec)	S_{D1} (1.0 sec)	Seismic Zone
0.069 g	0.149 g	0.057 g	1

8. BRIDGE FOUNDATION RECOMMENDATIONS

Based on the in-progress FOR plans dated November 10, 2015, the single span I-25 over Crossroads Boulevard Bridge abutments will be supported on drilled caissons founded in bedrock. A profile of the proposed bridge is shown on the Engineering Geology sheet, included as Sheets A-7 and A-8 of Appendix A. If driven piles are considered as a bridge foundation option, we should be notified to provide additional driven pile recommendations. Specific design recommendations for drilled caisson foundations subjected to axial and lateral loads are presented in the following subsections of this report. Generally, the soil and bedrock properties are estimated from uncorrected blow count data and material descriptions contained in the Yeh borings.

The recommendations contained herein generally comply with the AASHTO Load-Resistance Factor Design (LRFD) Bridge Design Specifications, 7th Edition, 2014 with 2015 Interim Revisions (AASHTO, 2015) and a CDOT research report by Abu-Hejleh, et. Al (2003).

8.1 Drilled Caissons

Drilled caisson construction should be in accordance with Section 503 of the CDOT Standard Specifications.

1. The design approach for soil-like claystone in Abu-Hejleh, et. al. (2003) recommends the use of an updated Colorado SPT-based (UCSB) design method where the nominal resistance (side and tip resistances) of a drilled caisson is proportional to penetration resistance. Table 8-1 presents the recommended nominal values for side and tip resistances in bedrock. Estimated elevations for the top of bedrock observed in the borings are listed in Table 6-1 and are shown on the boring logs. The "factored" bearing capacity is the product of the nominal bearing capacity and a resistance factor. Per AASHTO, the recommended resistance factors for side and tip resistances are 0.60 and 0.55, respectively, for intermediate geomaterials (claystone/sandstone bedrock). Adjustments to the load and/or resistance factors may be required per AASHTO Section 10.5.5.2.4 if the drilled caissons are considered non-redundant.

Table 8-1 Recommended Nominal Side and Tip Resistances for Drilled Caissons

Hard to Very Hard Bedrock	Nominal Resistance (ksf)
Side Resistance	7.5
Tip Resistance	92

2. The drilled caisson recommendations for tip and side resistances are applicable for bedrock only. The side resistance developed in the overburden soils should be neglected.
3. Soil nail walls are proposed at the bridge abutments near the proposed caissons. We recommend that drilled caissons extend below the base of the soil nail walls and that all vertical and lateral resistance be neglected for any portion of the caisson which is above the base of the soil nail walls.
4. The upper 2 feet of bedrock shall not be used for capacity estimates due to the likelihood of disturbance and possible future weathering.

5. To account for axial group effects, the minimum spacing requirements between drilled caissons should be three diameters from center-to-center. If the caissons are spaced closer than three diameters from center-to-center, the reduction factor should be evaluated.
6. The Contractor should construct the drilled caissons using means and methods that maintain a stable hole in granular soils that may be below the groundwater elevation such as using temporary steel casing or other methods with the Engineer's approval.
7. Drilled caisson construction should not disturb previously installed caissons. For caissons spaced less than four diameters center-to-center, the construction sequence may need to be adjusted or temporary steel casing may be required to preserve caisson excavation stability and to prevent communication between caissons during excavation and concrete placement. Any drilled caisson which is located within four diameters of a previously installed caisson should allow a minimum of three days for the concrete in the previously installed caisson to cure prior to installation of the new caisson.
8. Each drilled caisson excavation should be carefully observed by a qualified representative of a Registered Professional Engineer. The bottom of all drilled caissons should be founded in hard to very hard bedrock (blow counts greater than 50).

8.2 Deep Foundation Lateral Support

The input parameters provided in Table 8-2 are recommended for use with the computer program LPILE to develop the soil models used to determine the H-piles' and drilled caissons' response to lateral loading. The table describes the values associated with the soil types encountered in the borings. Individual soil layers and their extents can be averaged or distinguished by referring to the boring logs. The soils and/or bedrock materials prone to future disturbance, such as from scour, utility excavations, or frost heave, should be neglected in the lateral pile analyses.

For consideration of group effects, AASHTO Section 10.7.2.4 recommends the use of p-multipliers based on orientation of load and spacing between deep foundation elements (applies to both drilled caissons and driven piles) or by considering the extent of overlapping shear zones using strain wedge theory.

Table 8-2 LPILE Parameters

Soil Type	LPILE Soil Criteria	Effective Unit Weight, (pcf)	Friction Angle, (deg.)	Undrained Cohesion, c (psf)	Strain Factor, ε50	p-y Modulus, k (pci)
Class 1 Structure Backfill	Sand (Reese)	135	34	----	----	225
Fill/Native Clayey Sand (above GWT[1])	Sand (Reese)	125	30	----	----	90
Fill/Native Sandy Clay (above GWT[1])	Stiff Clay w/o Free Water (Welch & Reese)	120	----	2,000	0.007	----
Hard to Very Hard Bedrock	Stiff Clay w/o Free Water (Welch & Reese)	125	----	8,000	0.004	----

[1]GWT – Groundwater Table

9. RETAINING WALL RECOMMENDATIONS

We understand that soil nail walls and MSE walls will be used at the bridge abutments as shown in the Engineering Geology sheets included as Sheets A-9 to A-13 of Appendix A. The following section provides foundation recommendations for these structures. The recommendations contained herein generally comply with the AASHTO LRFD Bridge Design Specifications (AASHTO, 2015).

Any subgrade soils and fill placed beneath foundations or behind walls should be in accordance with the recommendations in Section 11.2, “Subgrade Preparation and Fill Materials.”

9.1 Lateral Earth Pressures

External loads considered in the analyses of retaining walls should consist of earth pressure loads and traffic loads. Drainage details, such as strip drains and perforated pipes, should be provided behind walls.

We recommend that CDOT Class 1 Structure Backfill be used as backfill when placed adjacent to or beneath the walls. All fill placed beneath or adjacent to a retaining wall should be compacted to at least 95 percent of the maximum dry density determined by the Modified Proctor Test (AASHTO T-180), in accordance with Section 206 of the CDOT Standard Specifications. An experienced geotechnical engineer should review the soil types proposed for use as backfill to determine if the design assumptions are valid.

Typically, a structure requires a lateral movement or rotation of 0.1 percent to 0.4 percent of the structure's height to mobilize the shear strength of the retained soils and develop the active pressure condition. Structures that meet this criteria can be designed for the active earth pressure condition. Structures that are unable to move this amount should be designed for at-rest conditions.

To determine the active, at-rest, or passive lateral earth pressures used for the design of the abutment walls, we recommend using an assumed effective angle of internal friction of 34 degrees for CDOT Class 1 Structure Backfill. We recommend using a unit weight of 135 pounds per cubic foot (pcf) for Class 1 Structure Backfill. For existing natural soil and bedrock, we recommend using an angle of internal friction of 30 degrees and a unit weight of 130 pcf.

The active lateral earth pressure coefficient may be determined using AASHTO Article 3.11.5.3 for specific wall backslopes and interface friction values. In all cases, the calculated active earth pressure used for design should not be less than an equivalent fluid density of 38 pcf. The retaining wall design should also consider lateral earth pressures induced by additional surcharge loads above the top of the retaining wall, such as from earthen embankments, pavements, or loads due to traffic.

These earth pressure recommendations assume the following conditions:

- For uneven or varying backslopes, the surcharge effects of the backslope should be considered based on the specific site conditions.
- Hydrostatic (seepage) pressures should not be allowed to develop in the active soil wedge. We recommend that the wall designer include appropriate drainage elements that are typically installed near the back and bottom of retaining walls, such as geocomposite strip drains, perforated pipes, filter materials and/or weep holes to control surface and groundwater flows.

9.2 MSE Wall Recommendations

Based on preliminary FOR plans dated November 10, 2015, MSE walls will be used to retain fill portions of the bridge abutments. We recommend that the length of MSE reinforcing elements be a minimum of 8 feet long, 70 percent of the wall design height, or the length required to satisfy internal stability requirements, whichever is greater.

Resistance to sliding at the bottom of the MSE wall can be calculated based on a coefficient of friction or adhesion at the interface between the MSE reinforced soil and the foundation materials. To determine the sliding resistance, we recommend using a nominal coefficient of friction of 0.53 between Class 1 structure backfill and silty clay/clayey sand. Per Table 11.5.6-1 of AASHTO (AASHTO, 2015), a resistance factor of 1.0 should be used. We recommend that passive resistance due to wall embedment should be ignored. In addition, the retaining wall should be designed to limit the resultant, eccentric, unfactored force applied to the foundation soil such that it occurs within the central portion of the reinforcement length.

We recommend that the nominal bearing resistance be determined using the recommendations below. Per Table 11.5.7-1 of AASHTO (AASHTO, 2015), a resistance factor of 0.65 should be used for the bearing resistance of MSE retaining walls.

- For MSE walls bearing in sandy clay: $q_n = 0.26*B + 3.6$ (in ksf)
  Where B is the MSE reinforcement length in feet
- For MSE walls bearing in bedrock: $q_n = 30$ ksf

Per AASHTO Section 11.10.2.2, the MSE wall should be embedded a minimum of 2 feet below the nearest adjacent grade, and a minimum horizontal bench width of 4 feet should be provided in front of walls founded on slopes. Since the final grading in front of the walls will slope away from the retaining wall, the stabilizing effect of embedment should be ignored.

9.3 Soil Nail Wall Recommendations

Based on preliminary FOR plans dated November 10, 2015, soil nail walls will be used for cut portions of the bridge abutments. The design and construction of soil nail walls should be in accordance with FHWA Publication No. FHWA-NHI-14-007 – Geotechnical Engineering Circular No. 7 (GEC 7), Soil Nail Walls.

We recommend using an estimated maximum ultimate bond stress between 25 pounds per square inch (psi) and 30 psi for nail design for nails embedded in bedrock. For nails embedded in the sandy clay, we recommend using an estimated maximum ultimate bond stress between 8 psi and 10 psi. The bond stress values assume typical gravity/low pressure grouting methods. The wall designer shall determine the frequency, spacing, and orientation of the nails, but vertical and horizontal nail spacing typically ranges from 4 to 6 feet installed at an inclination angle of 15 degrees as measured from horizontal. We recommend that the inclination angle be no flatter than 12 degrees as measured from horizontal. Verification and proof tests should be performed in the field in accordance with GEC 7.

We anticipate that soil nail lengths will be between about 70 and 95 percent of the wall height. Because bedrock may be within two feet of the ground surface, excavation and soil nail installation methods capable of managing claystone and/or sandstone bedrock should be considered for construction purposes.

9.4 Global Stability

We evaluated global stability of the proposed MSE and soil nail walls using the limit equilibrium method of slices and the computer program Slide version 6.0 by Rocscience, Inc. The cross sections provided by AECOM on December 1, 2015 were used in the analyses.

For our analyses, the AASHTO Specifications (AASHTO, 2015) indicate that the overall (global) stability of earth slopes should be investigated using a resistance factor of 0.65 where the slope contains or supports a structural element. For overall global stability, resistance factors were inverted to get a factor of safety (FOS) corresponding to that calculated by limiting equilibrium. A resistance factor of 0.65 corresponded to a FOS of 1.54.

To evaluate global stability, we assumed that internal failure would not occur through the reinforced zone of MSE walls or through the soil nails of soil nail walls. The shear strength of the materials was evaluated using correlations with blow counts and the identified material properties.

We recommend that MSE reinforcement lengths and soil nail lengths be at least 0.7H, where H is the height of the wall. The results of our global stability analyses indicate that a minimum factor of safety of 1.54 is maintained for walls with MSE reinforcement lengths and soil nail lengths that are at least 70 percent of the wall height (0.7H) at the wall locations indicated in the plans.

10. DRAINAGE CONSIDERATIONS

Collecting and diverting water away from all walls, foundations, and paved areas is extremely important to their performance. Proper drainage should be installed such that no ponding water will occur on or immediately adjacent to walls, foundations, and pavement areas. Landscape sprinklers should be frequently checked for leaks and maintained in good working order. Surface water should be captured and directed away from the walls, foundations, and pavements. Surface features that could retain water in areas adjacent to the walls, foundations, and paved areas should be sealed or eliminated.

11. SITE GRADING

11.1 Temporary Excavation and Cut/Fill Slopes

All site excavation and embankment grading should be in accordance with Section 203 of the CDOT Standard Specifications.

We recommend that permanent, unretained cut and fill slopes in the project area should not be steeper than 2 horizontal to 1 vertical (2H:1V). Based on the available cross sections in the FIR plans, cut and fill slopes along the proposed I-25 alignment were generally less than 2H:1V. We identified a critical cross section at Station 3520+00 to have an approximate slope of 1.8H:1V. We evaluated the global stability for a permanent 2H:1V slope and for the proposed 1.8H:1V critical cross section at Station 3520+00 using the computer program Slide Version 6.0. The results of the global stability analyses indicate that permanent 2H:1V unretained slopes and the proposed slope at cross section 3520+00 are feasible if constructed in accordance with our recommendations. Materials placed as embankment fill should be in accordance with the "Subgrade Preparation and Fill Materials" section of this report and should have a maximum of 65 percent passing #200 sieve with a maximum PI of 20. Embankment fill placed on existing slopes that are steeper than 4H:1V should be properly benched in accordance with section 203.06 of the CDOT Standard Specifications.

Cut slopes should be protected from surface water runoff to prevent erosion and slope failure. Good surface drainage should be provided around all permanent cuts and fills to direct surface runoff away from the slope faces. Proper design of drainage should include prevention of ponding of water on or immediately adjacent to structures. In areas where sidewalks or paving do not immediately adjoin the structures, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 5 feet from the walls. All landscape sprinkler heads adjacent to structure areas should be frequently checked for leaks and maintained in good working order. Fill slopes, cut slopes, and other stripped areas should be protected against erosion by re-vegetation or other methods.

We anticipate that unshored, temporary excavation slopes will be used when the excavation does not undermine existing structures, interfere with other construction, or extend beyond construction limits. The Contractor is responsible for temporary excavation slopes and should observe the nature and conditions of the materials encountered during excavation, including groundwater. If temporary excavations are made, they should be protected from surface water runoff to prevent erosion and slope failure. All construction traffic should be set back from the

edge of temporary slopes a minimum of 5 feet, and excavated material, stockpiles of construction materials, and construction equipment should not be placed closer to the edge of any excavation than the depth of excavation. We recommend that the contractor perform periodic, daily monitoring of excavations and cut slopes to check for developing displacement, deformations, bulges, and/or cracks in the soil.

11.2 Subgrade Preparation and Fill Materials

Preparation of subgrade soils for pavements require additional attention. Please refer to the "Final Pavement Design Report, I-25 and Crossroads Boulevard Bridge Replacement," submitted December 11, 2015 for more information.

Existing soils beneath foundations and walls should be free of all organics, topsoil, debris, and loose, soft, or wet material, and any ponding water should be drained from the area. If rubble, concrete, or asphalt debris larger than 3 inches in equivalent diameter is encountered, it should be removed. Subgrade soils should then be scarified a minimum of 6 inches, moisture conditioned, and recompacted, as specified in Section 206.03 of the CDOT Standard Specifications prior to placing fill. Areas which pump or deform during the subgrade preparation process should be reworked if possible, or removed, replaced, and recompacted. The subgrade preparation process should be observed by an experienced geotechnical engineer or engineer's representative.

Imported fill placed beneath walls and foundations should meet the requirements of Section 703.08 (Class I Structure Backfill) of the CDOT Standard Specifications. Imported fill should be compacted to at least 95 percent of the maximum modified proctor dry density (AASHTO T180) and should be moisture conditioned to within 2 percent of the optimum moisture content.

Reconditioned on-site soils and/or imported fill meeting the requirements specified in Section 203.03 of the CDOT Standard Specifications can be used as embankment fill. In addition, we recommend that all materials proposed for use as embankment fill shall have a maximum of 65 percent passing #200 sieve, have a PI less than 20, and shall not contain organic matter, debris, or materials larger than 3 inches in diameter. Claystone materials, if encountered, should not be used as fill of any kind for this project. All materials proposed for use as embankment fill should be tested to demonstrate that they meet the classification requirements described herein prior to being used.

Materials used as embankment fill should be moisture conditioned to within 2 percent of the optimum moisture content and recompacted to at least 95 percent of the maximum standard proctor dry density (AASHTO T99) for cohesive materials and recompacted to at least 95 percent of the maximum modified proctor dry density (AASHTO T180) for granular materials, in accordance with Section 203.07 of the CDOT Standard Specifications. Embankment fill placed on existing slopes that are steeper than 4H:1V should be properly benched in accordance with section 203.06 of the CDOT Standard Specifications.

All compaction should be performed in lifts that are 8 inches or less in loose thickness. Backfill materials should have a Class 0 severity of sulfate exposure based on Table 601-4 of the CDOT Standard Specifications. Fill materials should be tested for severity of sulfate exposure prior to placement. We recommend that soil excavation and the placement and compaction of materials behind retaining walls and beneath structures be observed and evaluated by an experience geotechnical engineer or engineer's representative.

12. OTHER DESIGN CONSIDERATIONS

Representative samples of the subsurface materials collected at various depths below existing grade were tested to determine the water soluble sulfate and water soluble chloride concentrations, resistivity, and pH. The test results are summarized in Table 12-1 below. Chemical test results are also presented on applicable boring logs in Appendix B and in the laboratory test results in Appendix C.

The results shown in Table 12-1 should be taken into consideration during the concrete design and selection process and while determining appropriate types of metal or concrete materials to be used in contact with these soils. Based on these test results, the soils along the alignment present a low potential for sulfate attack on concrete, and special sulfate resistance concrete mix designs are not required. The designer should refer to Sections 601, 603, and 624 of the CDOT Standard Specifications for design requirements regarding concrete, metal, and buried pipes to be used in contact with these soils.

Table 12-1 Summary of Chemical Test Results

Boring	Test Depth (ft.)	Water Soluble Sulfate (%)	Water Soluble Chlorides (%)	pH	Resistivity (ohm-cm)
YA-BC-1	3	0.032	0.0162	8.0	685
YA-BC-4	9	0.014	0.0111	8.0	825
YA-RW-6	2	0.009	0.0573	8.4	646
YA-PNB-5	10	0.008	0.0021	7.0	754
YA-PNB-6	2.2 – 5	0.044	0.0081	10.1	1721
YA-PNB-12	2.1 – 5	0.038	0.0208	9.3	1107
YA-PSB-1	3 – 5	0.024	0.0119	8.7	941
YA-PSB-5	2.5 – 5	0.024	0.0202	8.2	726
YA-PSB-10	2.3 – 5	0.039	0.0168	10.4	1567
YA-PC-2	0.5 – 5	0.069	0.0152	8.0	533
YA-PR-1	0.5 – 5	0.007	0.0325	7.9	954
YA-PR-4	0.5 – 5	0.007	0.0153	8.1	1504

13. LIMITATIONS

This geotechnical investigation report was prepared for the exclusive use of the AECOM and the I-25/Crossroads Boulevard Bridge Replacement design team. Within the limitations of the scope, schedule, and budget, the work presented in this report was performed in accordance with generally accepted principles and practices in this area at the time this report was prepared. We make no other warranty, either express or implied.

The classifications, conclusions, and recommendations submitted in this report are based on the data obtained from published and unpublished maps, reports, and geotechnical analyses, and our exploratory boring program. Our conclusions and recommendations assume that these borings are representative of the subsurface conditions throughout the project site. Our conclusions and recommendations are based on our understanding of the project as described in this report and the site conditions as interpreted from the field explorations. This data may

not necessarily reflect variations in the subsurface conditions and water levels occurring at other locations.

The nature and extent of subsurface variations may not become evident until excavation is performed. Variations in the data may also occur with the passage of time. If during construction, fill, soil, rock, or groundwater conditions appear to be different from those described in this report, this office should be advised immediately so we can review these conditions and reconsider our recommendations. If there is a substantial lapse of time between the submission of this report and the start of work at the site, or if site conditions have changed because of natural forces or construction operations at or adjacent to the site, we recommend that this report be reviewed to determine the applicability of the conclusions and recommendations concerning the changed conditions or time lapse. We recommend on-site observation of foundation excavations and foundation subgrade conditions by an experienced geotechnical engineer or engineer's representative.

The scope of work of this preliminary investigation did not include hazardous materials sampling or environmental sampling, investigation, or analyses. In addition, we did not evaluate the site for potential impacts to natural resources, including wetlands, endangered species, or environmentally critical areas.

14. REFERENCES

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Figure 1 Site Vicinity Map (Google Earth)

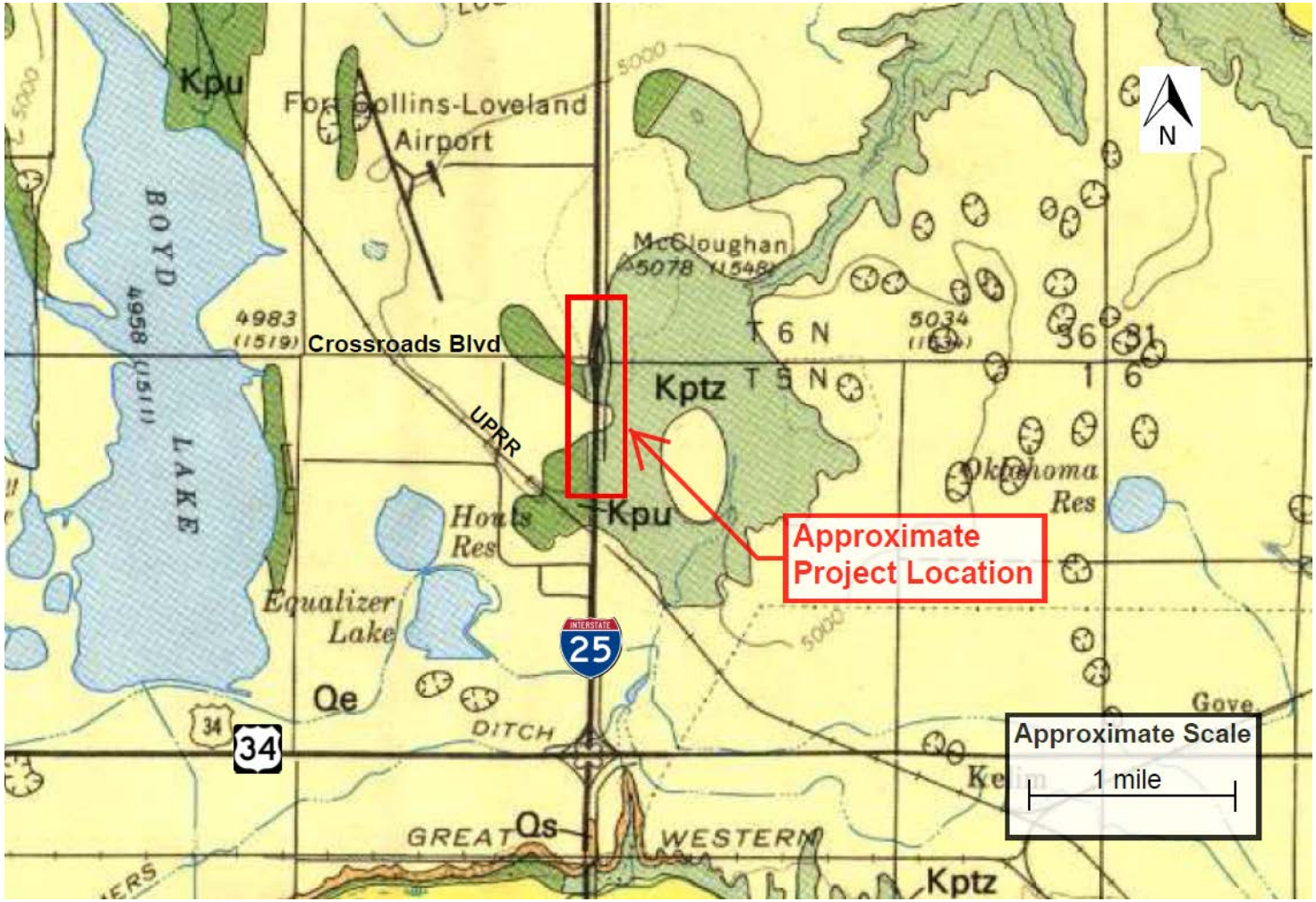
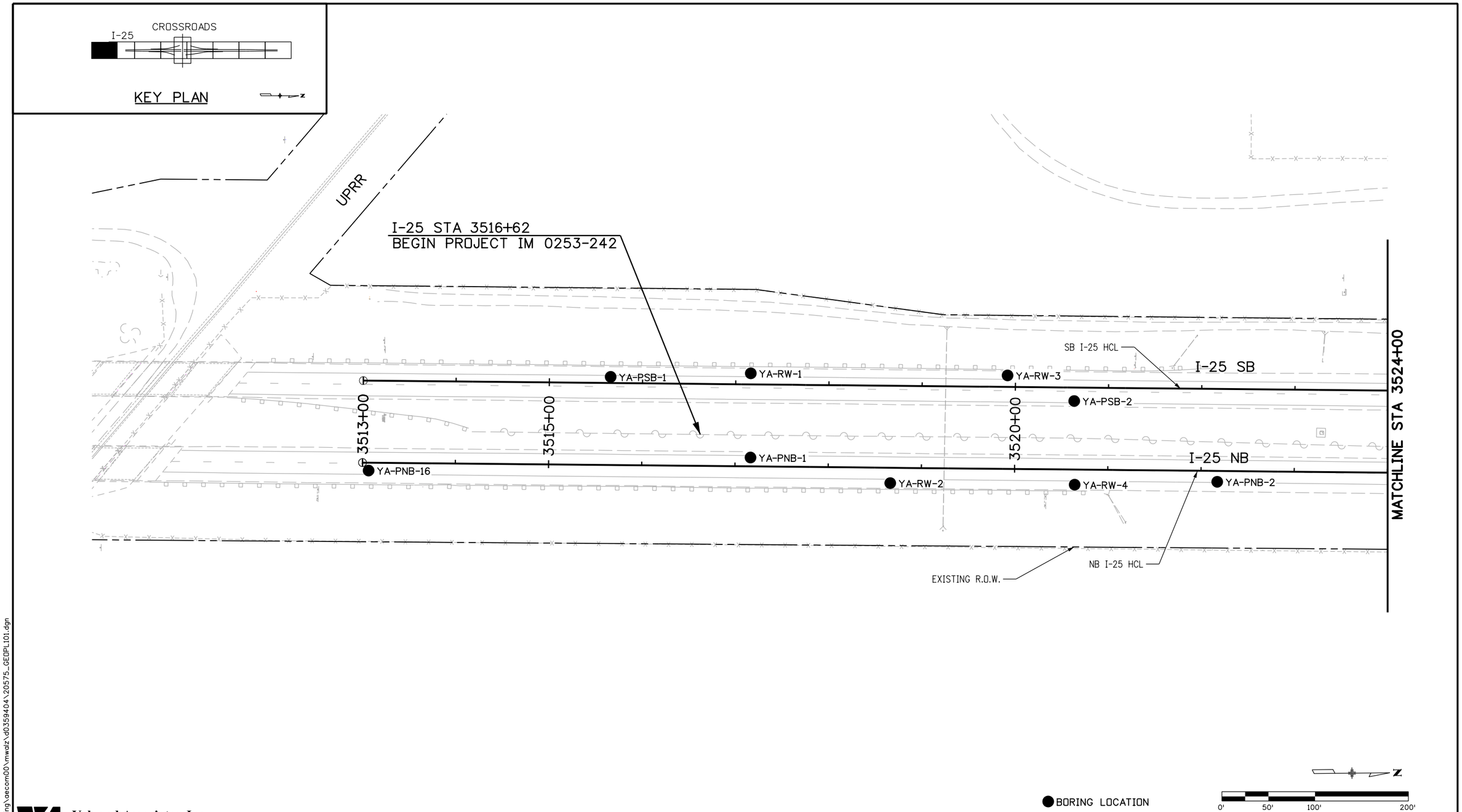


Figure 2 Geologic Map of Area (USGS, Colton, 1978)

BORING LOCATION PLANS AND ENGINEERING GEOLOGY SHEETS

- Sheets A-1 to A-6: Boring Location Plans
- Sheets A-7 & A-8: Bridge Engineering Geology Sheets
- Sheets A-9 to A-13: Wall Engineering Geology Sheets



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CROSSROADS BRIDGE REPLACEMENT
BORING LOCATION PLAN
I-25 MAINLINE

Designer:	MLK	Structure Numbers	
Detailer:	MJW		
Sheet Subset:	Roadway	Subset Sheets:	PL01 of 09

Project No./Code
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20575
Sheet Number A-1

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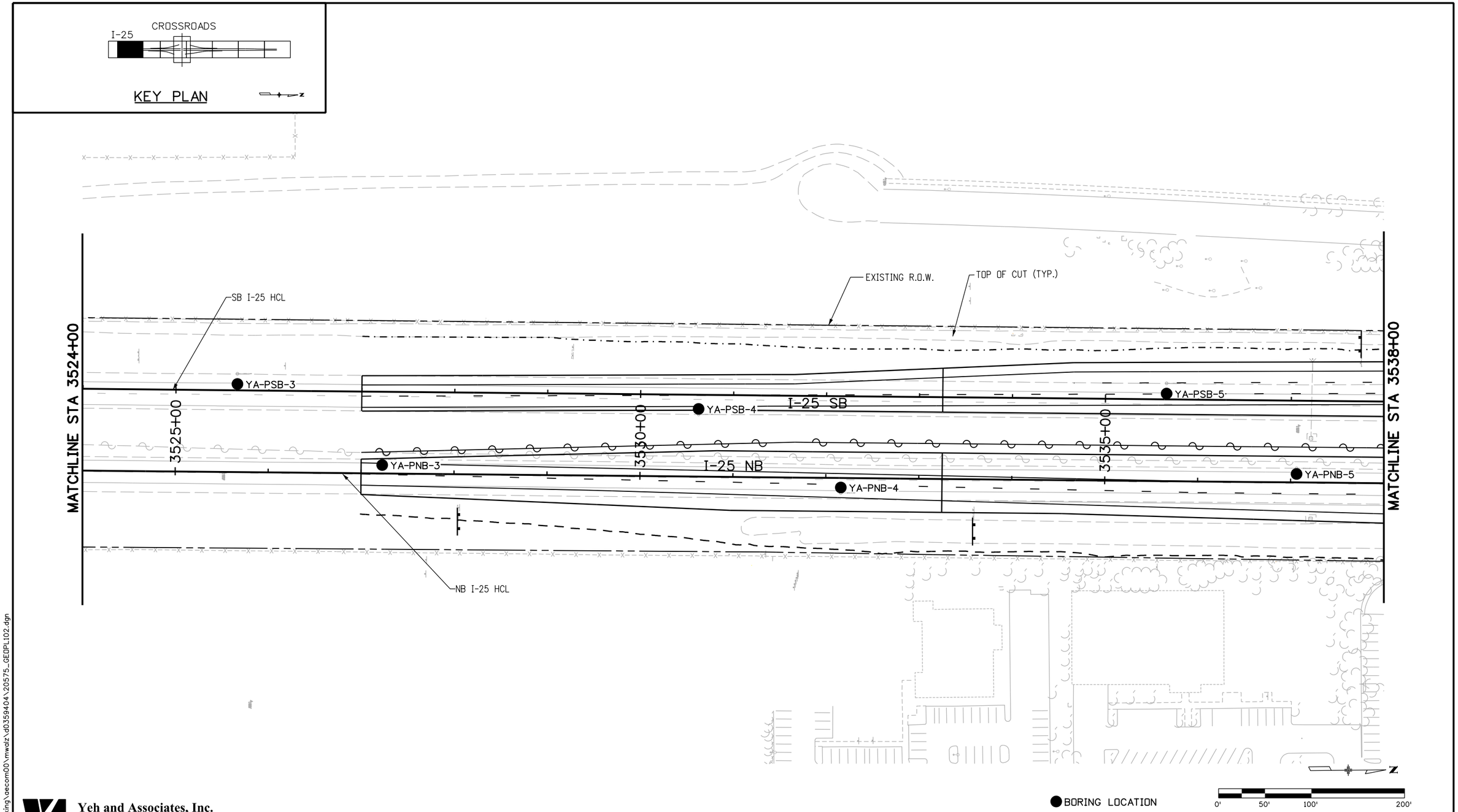

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CROSSROADS BRIDGE REPLACEMENT
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I-25 MAINLINE

Designer:	MLK	Structure Numbers	
Detailer:	MJW		
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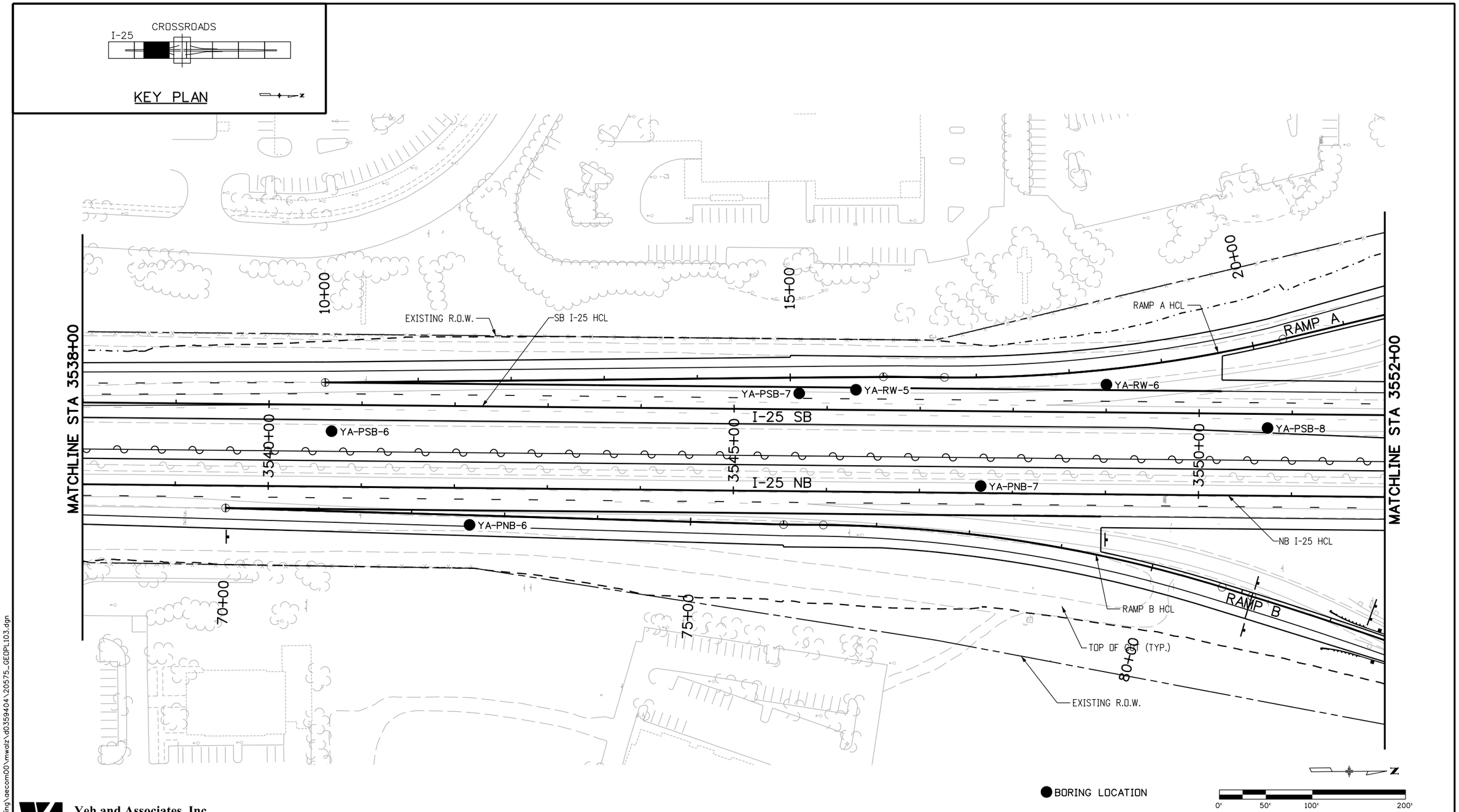

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I-25 MAINLINE

Designer:	MLK	Structure Numbers	
Detailer:	MJW		
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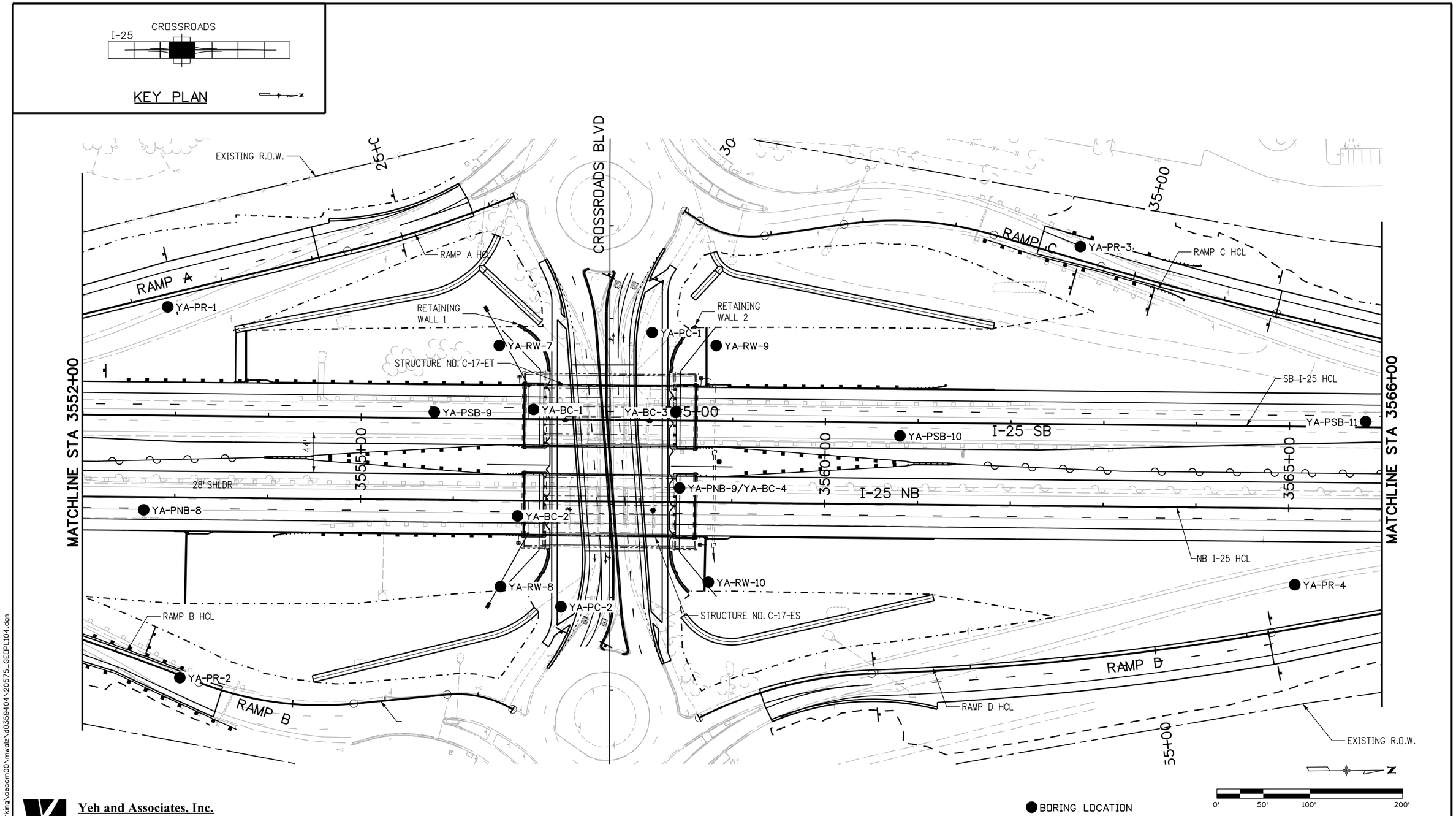

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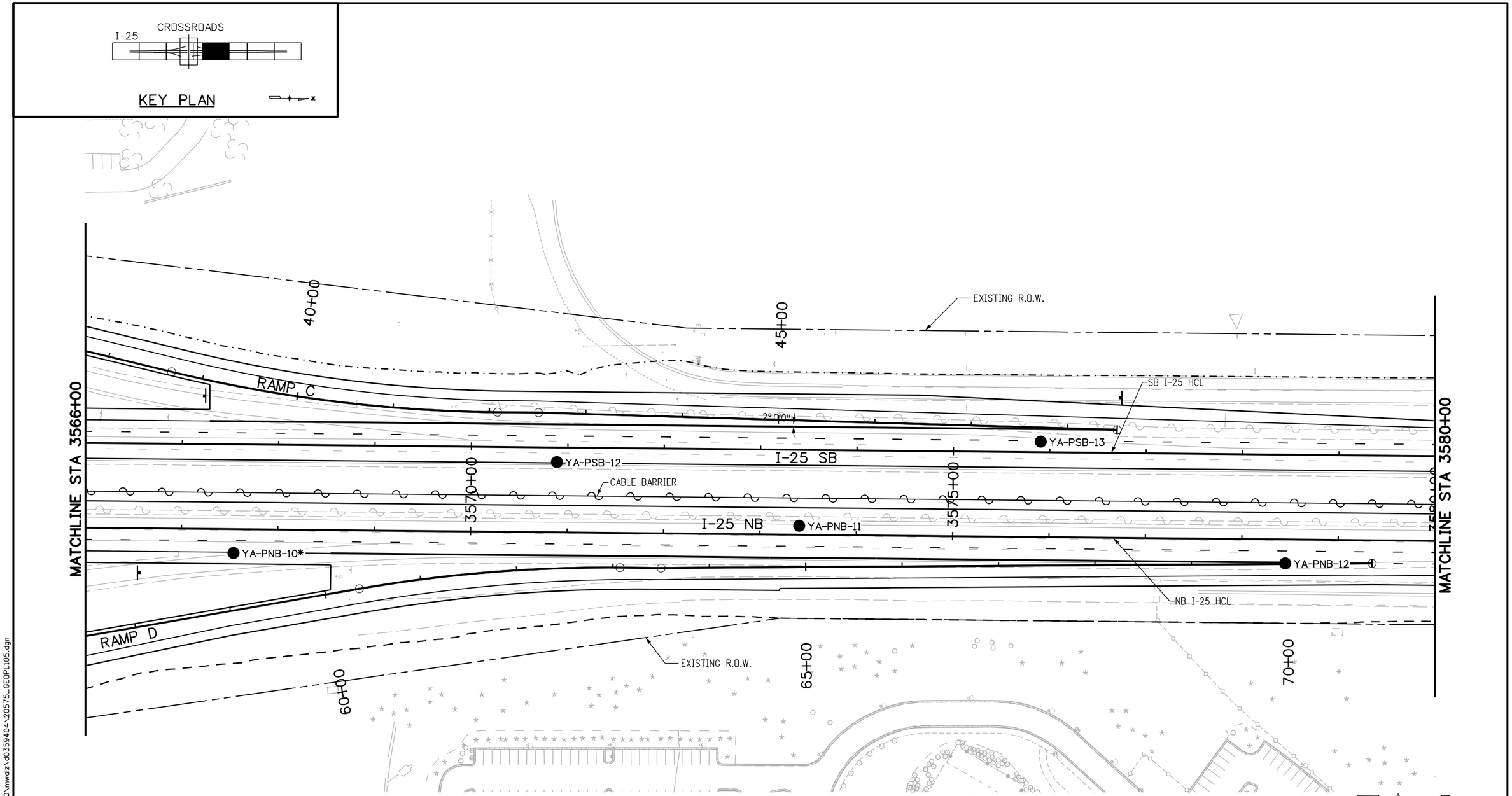

* Boring YA-PNB-10 was not surveyed. Its location and elevation were approximated using existing site features and available topographic maps.

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CROSSROADS BRIDGE REPLACEMENT
BORING LOCATION PLAN
I-25 MAINLINE

Designer:	MLK	Structure Numbers	
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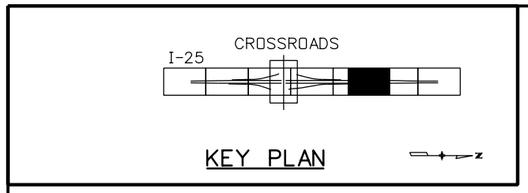

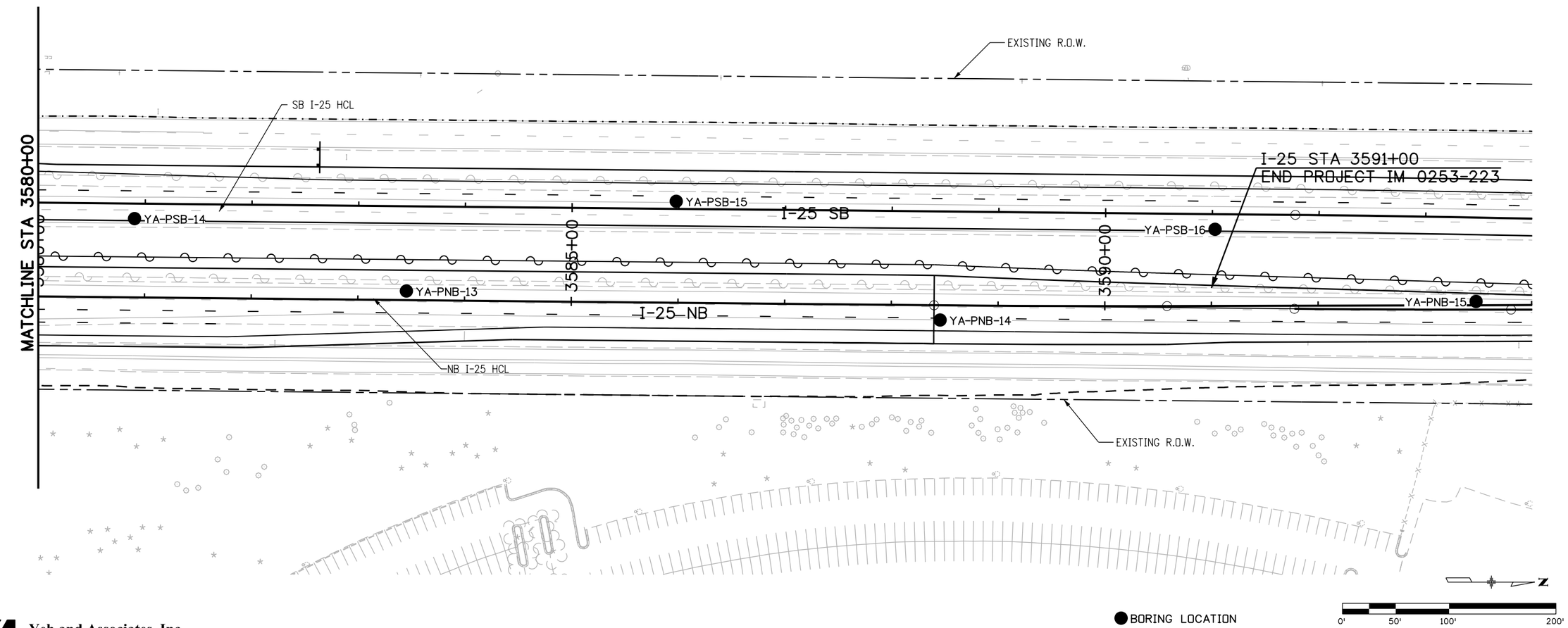

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BORING LOCATION PLAN
I-25 MAINLINE

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Detailer:	MJW		
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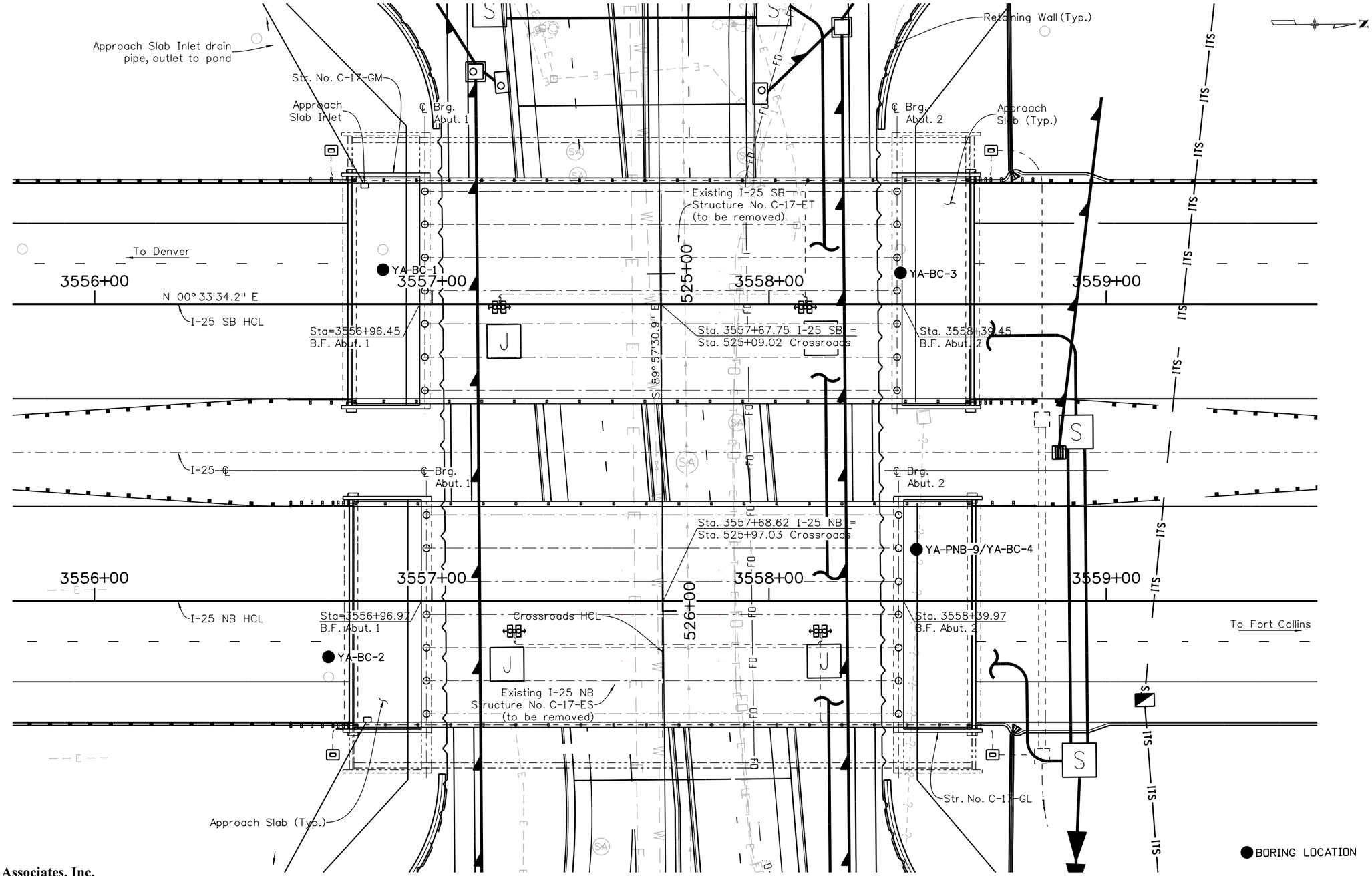

PLAN

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Checked By	RAD	11/15	

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	INITIAL	DATE	
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Checked By	JVL	11/15	

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Staff Bridge Branch - Unit 0224 Unit Leader: AJP

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CROSSROADS BRIDGE REPLACEMENT
I-25 OVER CROSSROADS
ENGINEERING GEOLOGY (1 OF 2)

Designer:	M. Kiefer	Structure Numbers	C-17-GL
Detailer:	M. Walz		C-17-GM
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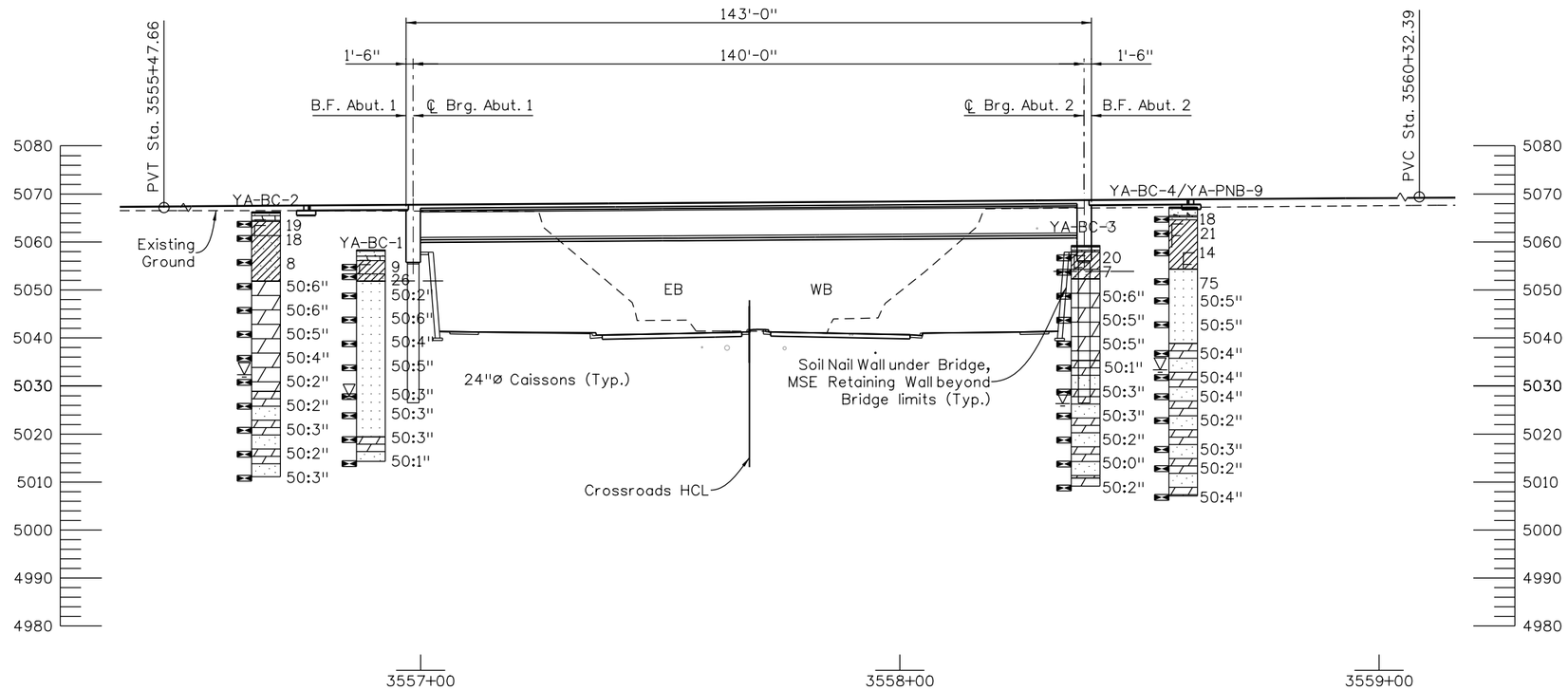
Project No./Code
IM 0253-242
20575
Sheet Number A-7



SECTION

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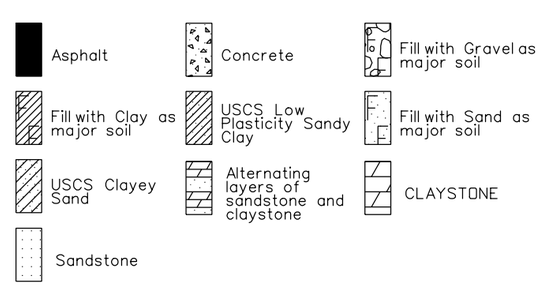

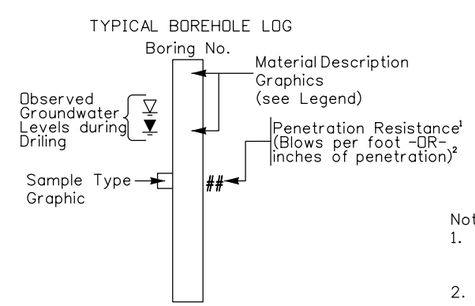

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2. e.g. A value of 50/3 or 50:3 indicates that 50 blows were applied to the sampler, with a penetration of 3 inches.

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Quantities By	JVL	11/15
Checked By	RAD	11/15

Detail			
	INITIAL	DATE
Detailed By	RAD	10/15
Checked By	JVL	11/15

Design			
	INITIAL	DATE
Designed By	JVL	10/15
Checked By	CAO	11/15

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Staff Bridge Branch - Unit 0224	Unit Leader: AJP

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CROSSROADS BRIDGE REPLACEMENT
I-25 OVER CROSSROADS
ENGINEERING GEOLOGY (2 OF 2)

Designer:	M. Kiefer	Structure Numbers	C-17-GL
Detailer:	M. Walz		C-17-GM
Sheet Subset:	BRIDGE	Subset Sheets:	B04 of 4

Project No./Code
IM 0253-242
20575
Sheet Number A-8

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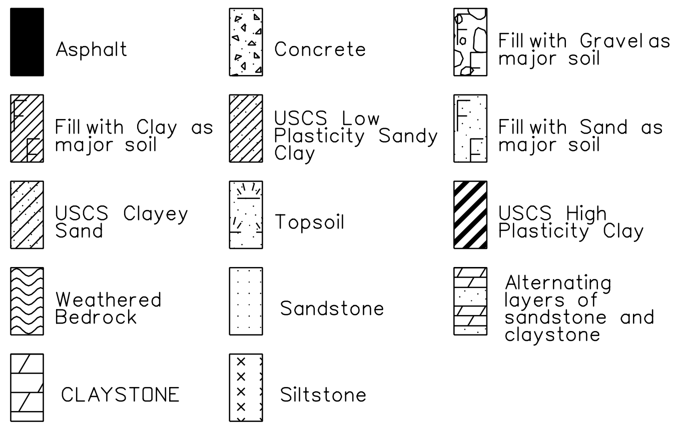

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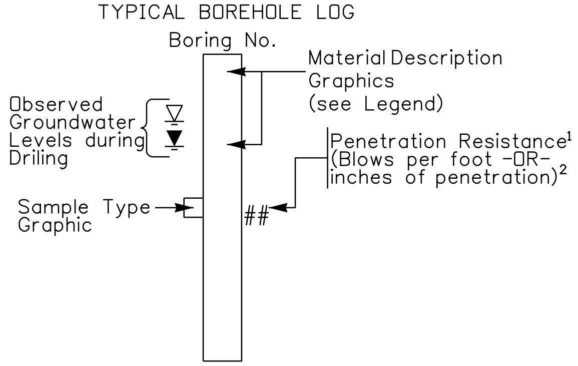

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1. Penetration resistance was measured during sampling with a Modified California Sampler. The Modified California penetration resistance value (Nmc) is identified as "N" on the logs.
2. e.g. A value of 50/3 or 50:3 indicates that 50 blows were applied to the sampler, with a penetration of 3 inches.

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Horiz. Scale: 1:100 Vert. Scale: As Noted
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Region 4 JFF

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Void:

CROSSROADS BRIDGE REPLACEMENT
WALL ENGINEERING GEOLOGY
LEGEND

Designer: MLK
Detailer: MJW
Structure Numbers
Sheet Subset:
Subset Sheets:

Project No./Code
IM 0253-242
20575
Sheet Number A-9

Design / Designed By / Checked By / INITIAL XXX XXX / DATE MM/YY MM/YY
Detail / Detailed By / Checked By / INITIAL XXX XXX / DATE MM/YY MM/YY
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Revision Dates (Preliminary Stage Only) MM/YY

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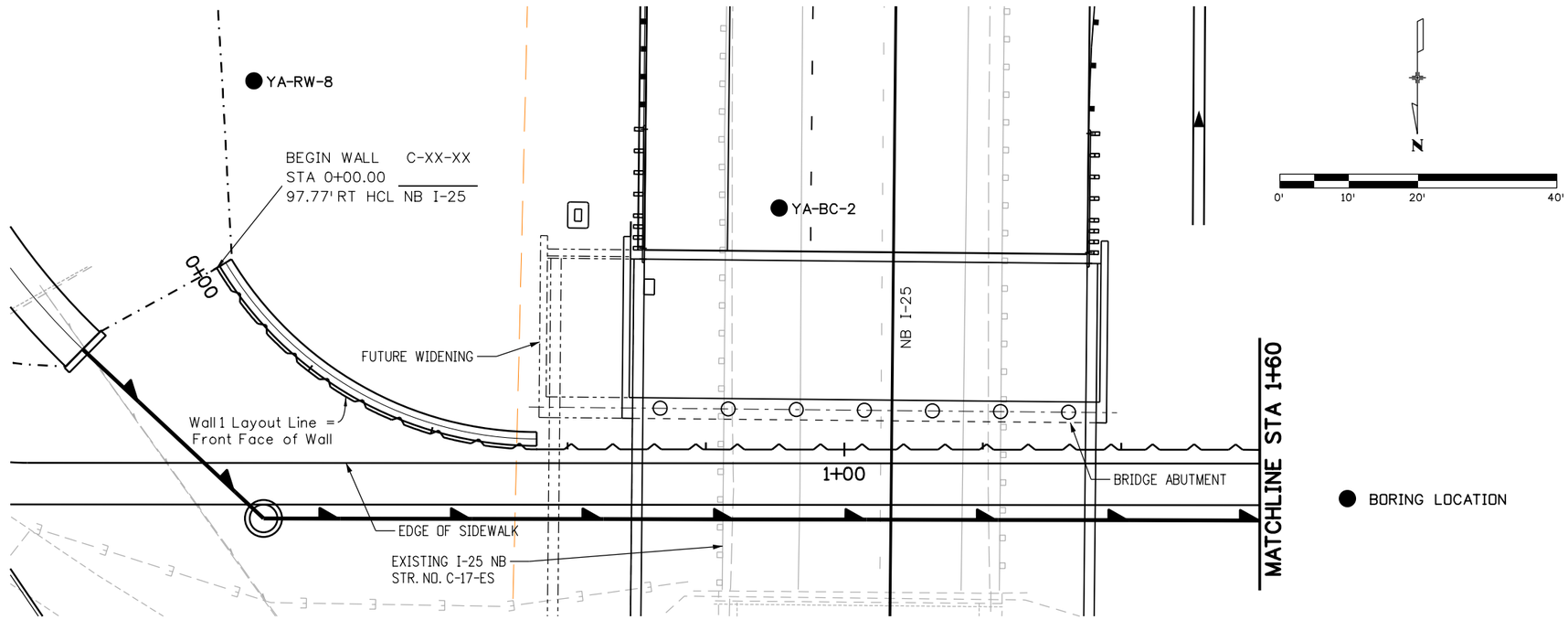

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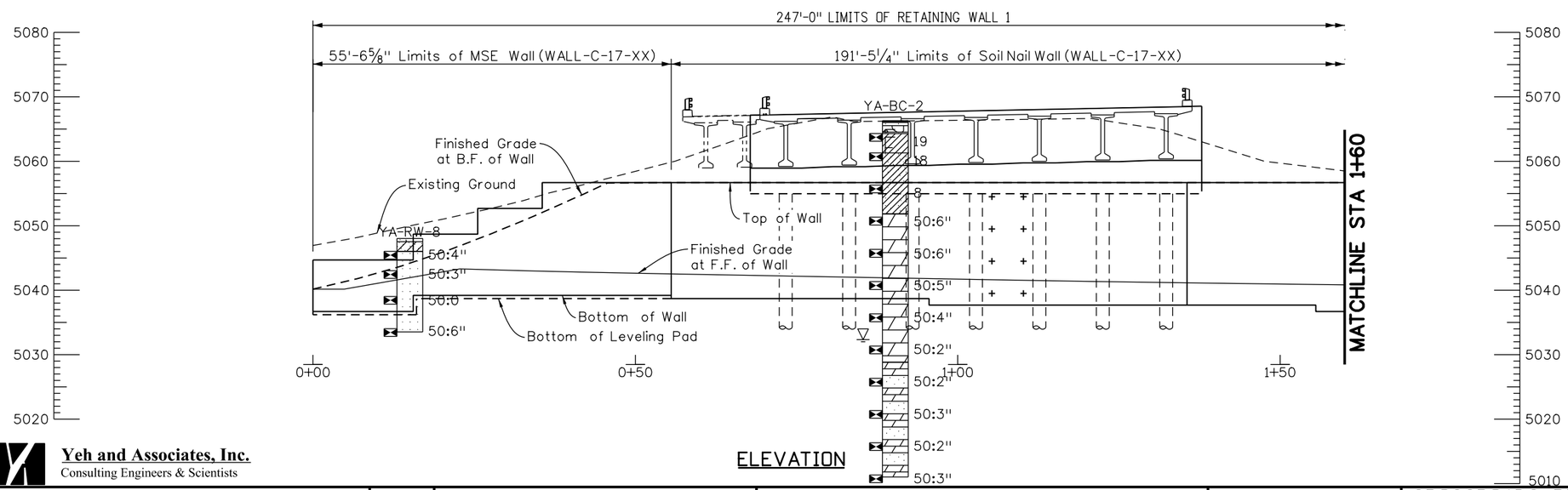

ELEVATION

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Checked By	XXX	MM/YY	Checked By	XXX	MM/YY	Checked By	XXX	MM/YY
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Revision Dates (Preliminary Stage Only)
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CROSSROADS BRIDGE REPLACEMENT
WALL 1
ENGINEERING GEOLOGY

Designer:	M. Kiefer	Structure Numbers	WALL-C-17-XX
Detailer:	M. Walz		
Sheet Subset:	WALL	Subset Sheets:	W3 of 8

Project No./Code
IM 0253-242
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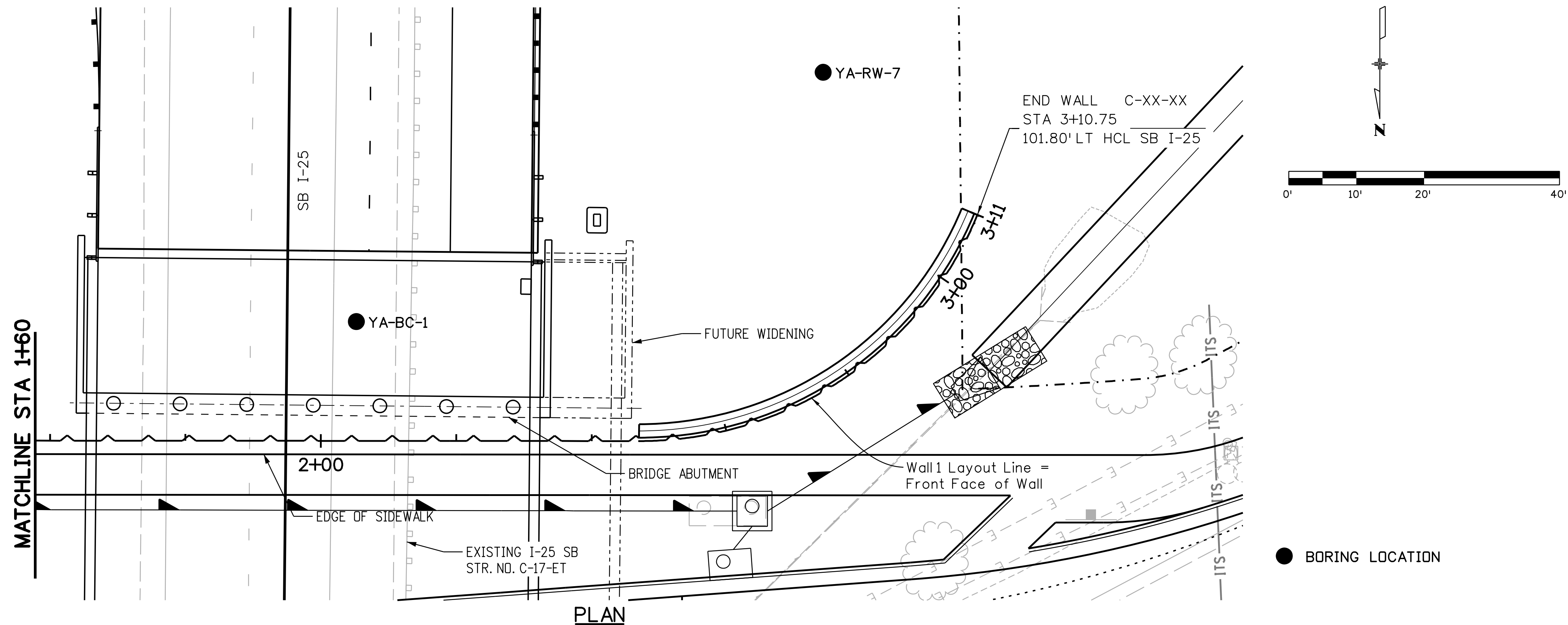

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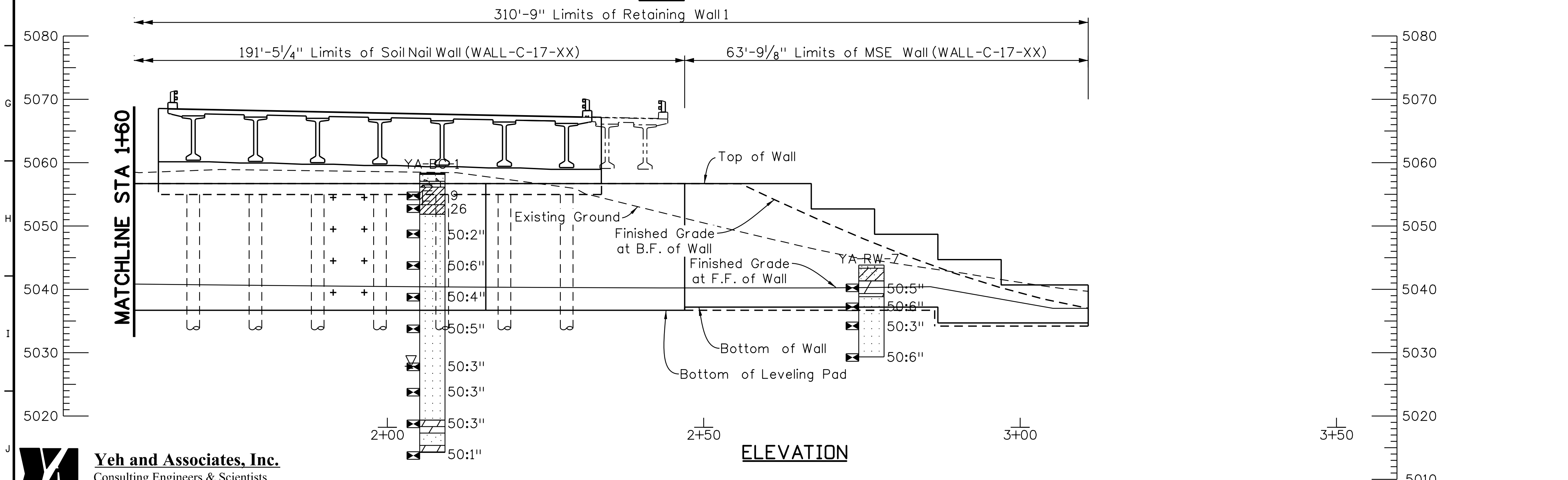

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Revised:
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CROSSROADS BRIDGE REPLACEMENT
WALL 1
ENGINEERING GEOLOGY

Designer: M. Kiefer	Structure Numbers	WALL-C-17-XX	
Detailer: M. Walz			
Sheet Subset: WALL	Subset Sheets: W4 of 8		

Project No./Code
IM 0253-242
20575
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Revision Dates	(Preliminary Stage Only)
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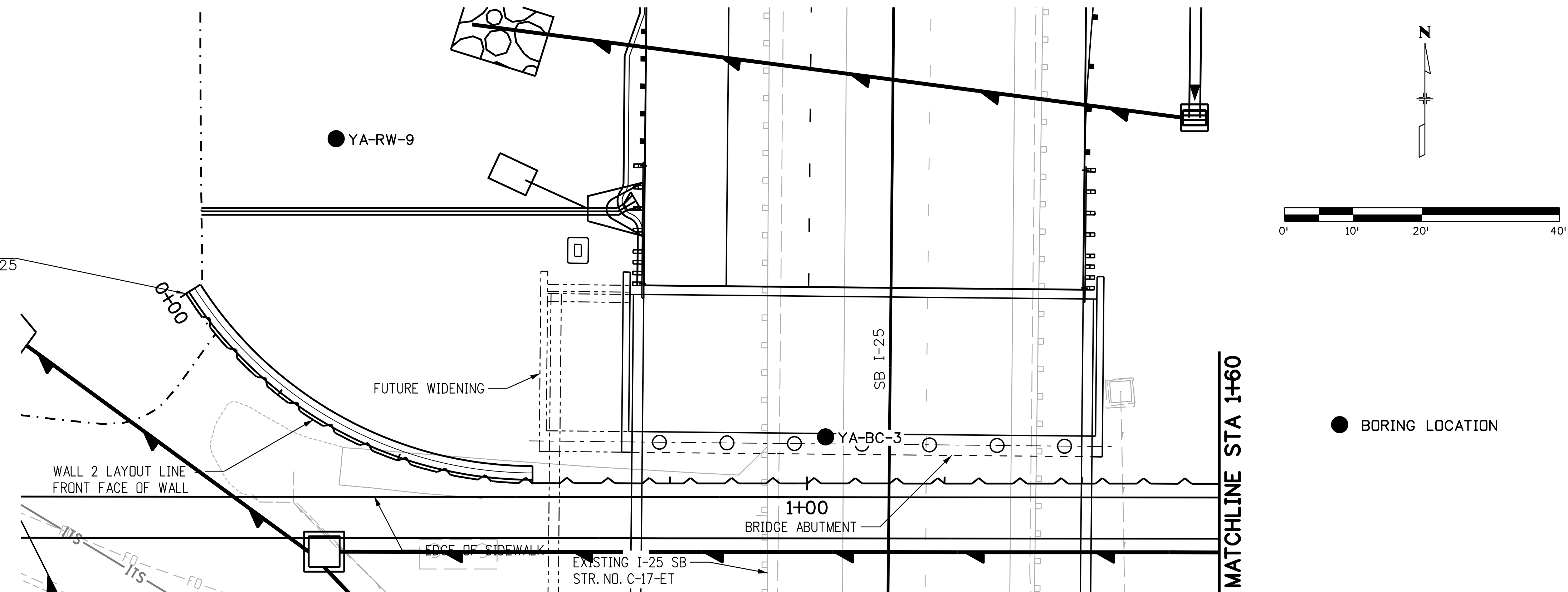

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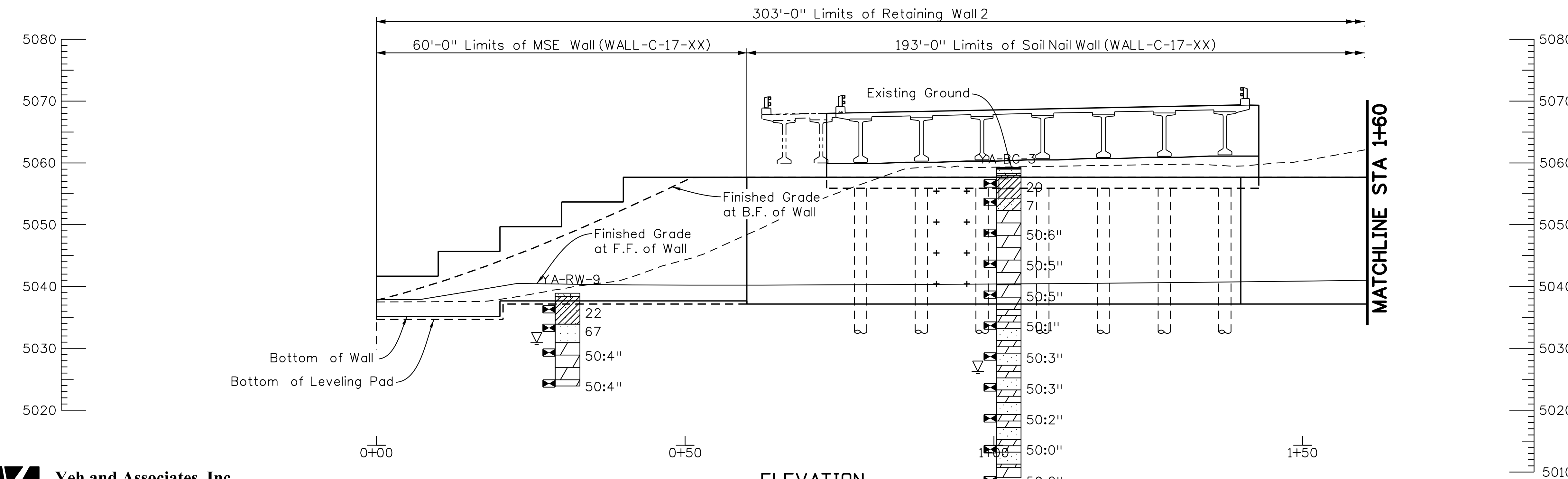

ELEVATION

Revision Dates (Preliminary Stage Only)
MM/YY

	INITIAL	DATE
Quantities By	XXX	MM/YY
Checked By	XXX	MM/YY
Detailed By	XXX	MM/YY
Checked By	XXX	MM/YY
Designed By	XXX	MM/YY
Checked By	XXX	MM/YY

(Quantities / Detail / Design)

Mike Walz 8:31:44 AM c:\pwworking\aecom00\mwalz\d0359404\20575_GEO_WL201.dgn

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Print Date: 12/8/2015
File Name: 20575_GEO_WL201.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information: 4310 Unit Leader Initials: JFF

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Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
CDOT
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Loveland, CO 80537
Phone: 970-622-1268 FAX: 970-669-0289
Region 4 JFF

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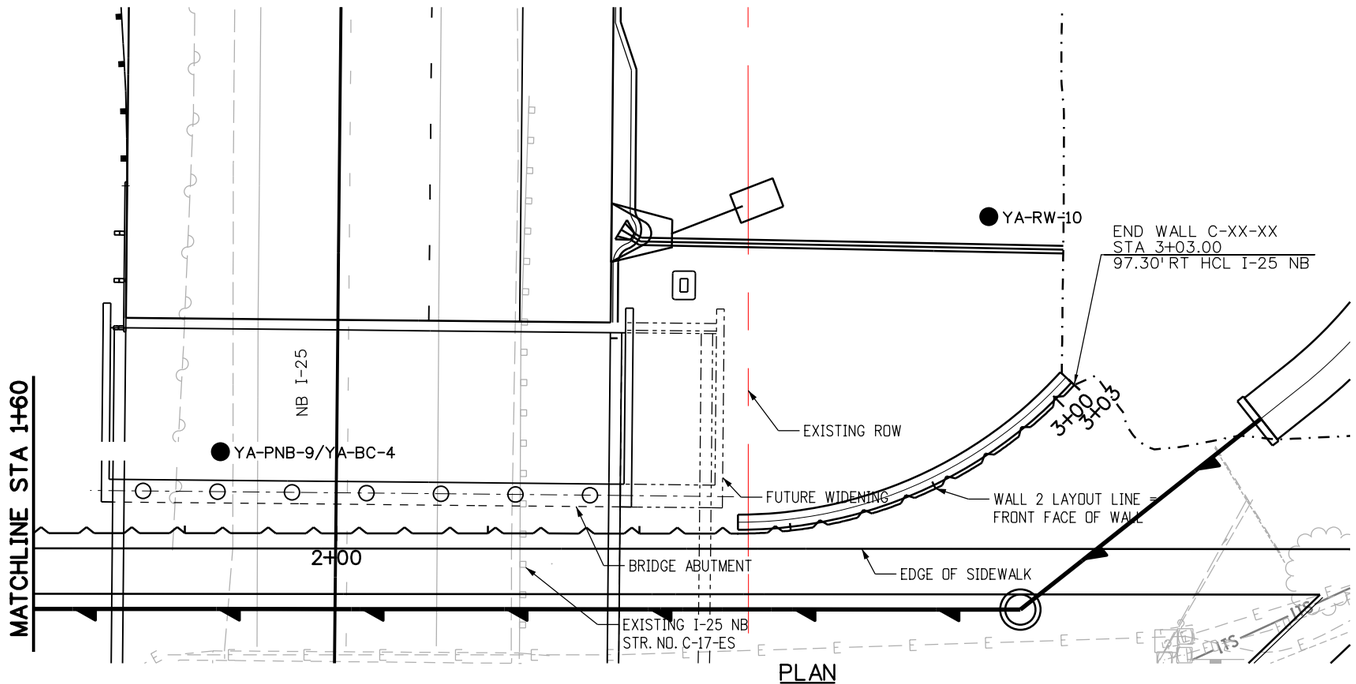
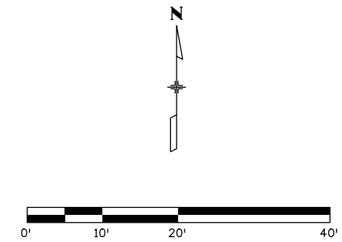
No Revisions:
Revised:
Void:

CROSSROADS BRIDGE REPLACEMENT
WALL 2
ENGINEERING GEOLOGY

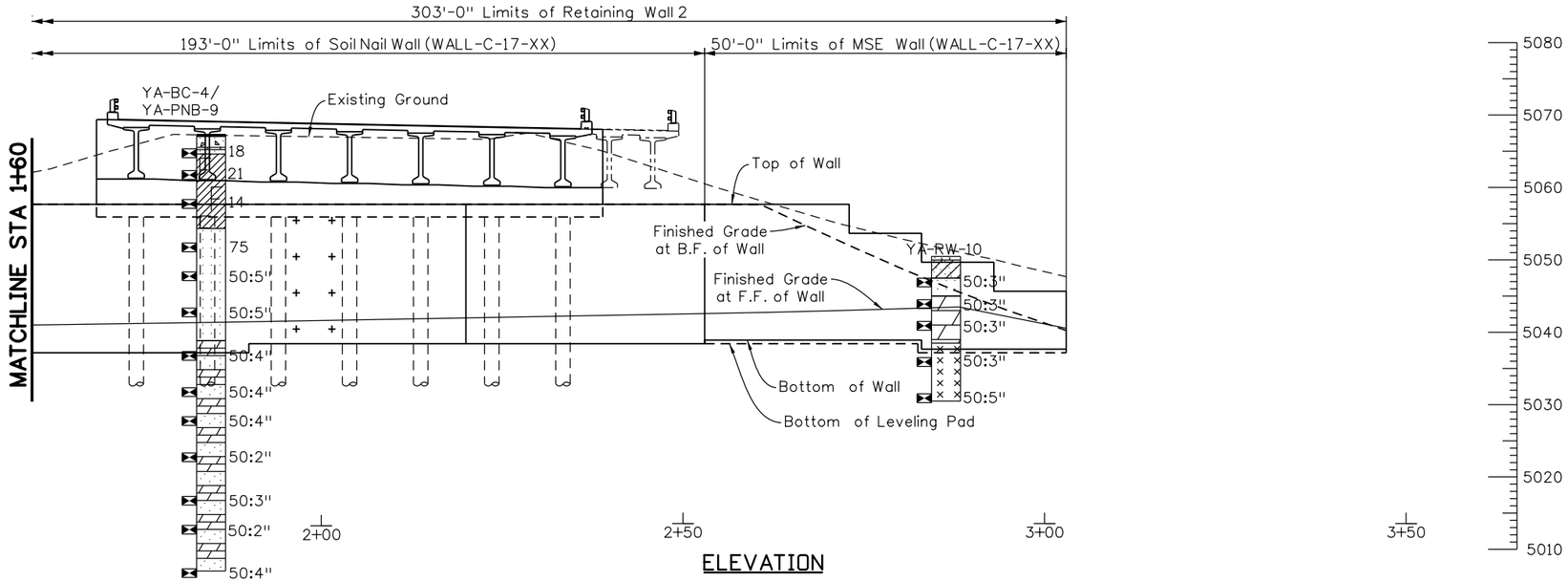
Designer: M. Kiefer	Structure Numbers	WALL-C-17-XX	
Detailer: M. Walz			
Sheet Subset: WALL	Subset Sheets: W5 of 8		

Project No./Code
IM 0253-242
20575
Sheet Number A-12





● BORING LOCATION



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Revision Dates (Preliminary Stage Only)	
MM/YY	

Design			Detail			Quantities		
	INITIAL	DATE		INITIAL	DATE		INITIAL	DATE
Designed By	XXX	MM/YY	Detailed By	XXX	MM/YY	Quantities By	XXX	MM/YY
Checked By	XXX	MM/YY	Checked By	XXX	MM/YY	Checked By	XXX	MM/YY

Print Date: 12/8/2015
File Name: 20575_GEO_WL202.dgn
Horiz. Scale: 1:20 Vert. Scale: As Noted
Unit Information: 4310 Unit Leader Initials: JFF

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Date:	Comments	Init.

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Region 4 JFF

As Constructed
No Revisions:
Revised:
Void:

CROSSROADS BRIDGE REPLACEMENT
WALL 2
ENGINEERING GEOLOGY

Designer:	M. Kiefer	Structure Numbers	WALL-C-17-XX
Detailer:	M. Walz		
Sheet Subset:	WALL	Subset Sheets:	W6 of 8

Project No./Code
IM 0253-242
20575
Sheet Number A-13

Mike Walz 8:58:43 AM c:\pwworking\aecom00\mwalz\d0359404\20575_GEO_WL202.dgn

Appendix B

LEGEND AND BORING LOGS

Legend for Symbols Used on Borehole Logs

Sample Types

- Auger Cuttings
- Bulk Sample of auger/odex cuttings
- Modified California Sampler (2.5 inch OD, 2.0 inch ID)

Lithology Symbols (see Boring Logs for complete descriptions)

- Asphalt
- USCS High Plasticity Clay
- USCS Low Plasticity Sandy Clay
- Concrete
- Fill with Clay as major soil
- Fill with Gravel as major soil
- Fill with Sand as major soil
- USCS Clayey Sand
- USCS Silty Sand
- Topsoil
- Weathered Bedrock
- CLAYSTONE
- Sandstone
- Alternating layers of sandstone and claystone
- Siltstone

Lab Test Standards

Moisture Content	ASTM D2216
Dry Density	ASTM D7263
Sand/Fines Content	ASTM D421, ASTM C136, ASTM D1140
Atterberg Limits	ASTM D4318
AASHTO Class.	AASHTO M145, ASTM D3282
USCS Class.	ASTM D2487

(Fines = % Passing #200 Sieve
Sand = % Passing #4 Sieve, but not passing #200 Sieve)

Other Lab Test Abbreviations

pH	Soil pH (AASHTO T289-91)
S	Water-Soluble Sulfate Content (AASHTO T290-91, ASTM D4327)
Chl	Water-Soluble Chloride Content (AASHTO T291-91, ASTM D4327)
S/C	Swell/Consolidation (ASTM D4546)
UCCS	Unconfined Compressive Strength (ASTM D2166)
R-Value	Resistance R-Value (ASTM D2844)
DS (C)	Direct Shear cohesion (ASTM D3080)
DS (phi)	Direct Shear friction angle (ASTM D3080)
Re	Electrical Resistivity (AASHTO T288-91)
PtL	Point Load Strength Index (ASTM D5731)

Notes

1. Samples obtained using a Modified California sampler, drive depth was 12 inches, and "Penetration Resistance" refers to the sum of all blows. Where blow counts were more than 50 for the last increment, the blows and length for the last increment are reported under "Penetration Resistance."

2. The Modified California sampler used to obtain samples is a 2.5-inch OD, 2.0-inch ID (1.95-inch ID with liners), split-barrel sampler with internal liners, as per ASTM D3550. Sampler is driven with a 140-pound hammer, dropped 30 inches per blow.

Yeh and Associates, Inc.
Consulting Engineers & Scientists

Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-BC-1**

Boring Began: 6/1/2015
Boring Completed: 6/1/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 44.1 ft
Ground Elevation: 5058.4 ft
Coordinates: N: 253703.3 E: 188498.7
Location: SB I-25, Approx. Station 3556+90
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 70 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels:			
Symbol	▽		
Depth	30.5 ft	-	-
Date	6/1/15	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.2 ft. 2" ASPHALT.									
						0.2 - 1.3 ft. 13" CONCRETE.									
						1.3 - 2.1 ft. 10" BASE COURSE.									
						2.1 - 5.0 ft. sandy CLAY FILL, brown mottled with gray, stiff.									
5055			7-2	9											
	5		11-15	26		**5.0 - 6.5 ft. sandy CLAY**, tan, very stiff, rust stained.	17.4	109.0	0	47	53	41	21	A-7-6 (8) CL	
						6.5 - 39.0 ft. SILTY SANDSTONE, tan, very hard, rust stained.									
5050			37-50:2"	50:2"											
	10														
5045			50:6"	50:6"											
	15														
5040			50:4"	50:4"			14.4	111.1	0	60	40	NV	NP	A-4 (0) SM	
	20														
5035			50:5"	50:5"											
	25														
5030															
	▽30		50:3"	50:3"			17.2	104.1							
5025			50:3"	50:3"											

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Yeh and Associates, Inc.
Consulting Engineers & Scientists

Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-BC-1**

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5020															
	40		50:3"	50:3"		**39.0 - 44.1 ft. SANDSTONE INTERBEDDED WITH CLAYSTONE**, tan and brown, very hard, rust stained.	17.9	107.0							
5015			50:1"	50:1"		Bottom of Hole at 44.1 ft.									
5010															
5005															
5000															
4995															
4990															
4985															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-BC-2**

Boring Began: 5/31/2015
Boring Completed: 5/31/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 55.3 ft
Ground Elevation: 5066.3 ft
Coordinates: N: 253686.0 E: 188625.3
Location: NB I-25, Approx. Station 3556+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 60's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels:			
Symbol	▽		
Depth	34.0 ft	-	-
Date	5/31/15	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5065						**0.0 - 0.3 ft. 3" ASPHALT**.									
						0.3 - 0.8 ft. 7" CONCRETE.									
						0.8 - 1.8 ft. 12" BASE COURSE.									
			9-10	19		**1.8 - 2.0 ft. silty SAND FILL**, brown, medium dense.									
						2.0 - 5.0 ft. sandy CLAY FILL, brown mottled with gray, very stiff, organic material.									
	5		8-10	18		**5.0 - 14.5 ft. sandy CLAY**, tan, medium stiff to very stiff.	18.4	109.6	0	25	75	43	23	A-7-6 (16) CL	
5060															
	10		4-4	8											
5055															
	15		50:6"	50:6"		**14.5 - 37.5 ft. SANDY CLAYSTONE**, tan, very hard, rust stained with iron nodules.	16.1	115.6							
5050															
	20		50:6"	50:6"											
5045															
	25		50:5"	50:5"			15.8	109.7	0	31	69	37	17	A-6 (10) CL	
5040															
	30		50:4"	50:4"											
5035															
	▽														

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-BC-2**

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
			50:2"	50:2"											
5030															
						37.5 - 55.3 ft. CLAYSTONE INTERBEDDED WITH SANDSTONE, tan, very hard, thin laminations.									
	40		50:2"	50:2"			16.1	108.0	0	19	81	39	20	A-6 (15) CL	
5025															
	45		50:3"	50:3"											
5020															
	50		50:2"	50:2"			16.5	111.3							
5015															
	55		50:3"	50:3"											
						Bottom of Hole at 55.3 ft.									
5010															
5005															
5000															
4995															
4990															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-BC-3**

Boring Began: 6/1/2015
Boring Completed: 6/1/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 50.2 ft
Ground Elevation: 5059.3 ft
Coordinates: N: 253856.7 E: 188500.1
Location: SB I-25, Approx. Station 3558+40
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 72 degrees, humid
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels:			
Symbol	▽		
Depth	33.0 ft	-	-
Date	6/1/15	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.3 ft. 3" ASPHALT.									
						0.3 - 1.0 ft. 9" CONCRETE.									
						1.0 - 1.3 ft. 3" BASE COURSE.									
			8-12	20		**1.3 - 5.0 ft. sandy CLAY FILL**, brown mottled with tan, very stiff.									
5055															
	5		3-4	7		**5.0 - 7.0 ft. clayey SAND**, tan, loose, rust stained.	23.4	92.7	0	52	48	43	21	A-7-6 (6) SC	
						7.0 - 24.0 ft. SANDY CLAYSTONE, tan, very hard, rust stained.									
5050															
	10		50:6"	50:6"											
5045															
	15		50:5"	50:5"			15.3	111.5	0	49	51	38	16	A-6 (5) CL	
5040															
	20		50:5"	50:5"											
5035						**24.0 - 48.5 ft. SANDSTONE INTERBEDDED WITH CLAYSTONE**, tan to brown, very hard, fine grained, rust stained with iron nodules.									
	25		50:1"	50:1"											
5030															
	30		50:3"	50:3"			16.9	107.0	0	26	74	37	15	A-6 (10) CL	
	▽														
5025															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-BC-3**

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
			50:3"	50:3"											
5020	40		50:2"	50:2"			20.0	104.0							
5015	45		50:0"	50:0"											
5010	50		50:2"	50:2"		**48.5 - 50.2 ft. SANDY CLAYSTONE**, gray and white, very hard.									

Bottom of Hole at 50.2 ft.

5005
5000
4995
4990
4985

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043

Boring No.: **YA-BC-4/YA-PNB-9**

Boring Began: 5/27/2015
Boring Completed: 5/28/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 60.3 ft
Ground Elevation: 5067.3 ft
Coordinates: N: 253860.6 E: 188589.1
Location: NB I-25, Approx. Station 3558+40, Coincides with YA-PNB-9
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 70's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels:			
Symbol	▽		
Depth	34.0 ft	-	-
Date	5/28/15	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.3 ft. 4" ASPHALT.									***CA sample at 2 ft likely contains base course**
						0.3 - 1.8 ft. 18" CONCRETE.									
5065						**1.8 - 2.1 ft. 3" BASE COURSE.**									
			10-8	18		**2.1 - 2.7 ft. silty SAND FILL** with gravel, brown, medium dense.	4.8		38	53	9	NV	NP	A-1-a (0) SP-SM	
						2.7 - 6.0 ft. sandy CLAY FILL, brown mottled with gray, stiff to very stiff, calcareous.			14	46	40	37	20	A-6 (3) SC	**Bulk sample from 2.1 ft to 5 ft**
	5		8-13	21											
						6.0 - 13.0 ft. sandy CLAY, brown, medium dense.									
5060															
	10		6-8	14											
5055															
						13.0 - 28.5 ft. SILTY SANDSTONE, tan, hard to very hard, rust stained.									
	15		25-50	75			17.6	104.8	0	52	48	NV	NP	A-4 (0) SM	
5050															
			50:5"	50:5"											
	20														
5045															
			50:5"	50:5"			17.1	111.2	0	58	42	NV	NP	A-4 (0) SM	
	25														
5040															
						28.5 - 60.3 ft. SANDSTONE INTERBEDDED WITH CLAYSTONE, tan mottled with gray, very hard, thin interbeds (<0.5"), rust stained, calcareous w/ trace lignite at bottom of boring.									
	30		50:4"	50:4"											
5035															
	▽														

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Yeh and Associates, Inc.
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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043

Boring No.: **YA-BC-4/YA-PNB-9**

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
			50:4"	50:4"			16.7	110.2							
5030															
			50:4"	50:4"											
	40														
5025															
			50:2"	50:2"											
	45														
5020															
	50		50:3"	50:3"			15.8	112.2	0	25	75	39	17	A-6 (12) CL	
5015															
			50:2"	50:2"			19.8	106.2							
	55														
5010															
	60		50:4"	50:4"											
						Bottom of Hole at 60.3 ft.									
5005															
5000															
4995															

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Yeh and Associates, Inc.
Consulting Engineers & Scientists

Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-1**

Boring Began: 6/2/2015
Boring Completed: 6/2/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 40.4 ft
Ground Elevation: 5026.1 ft
Coordinates: N: 249734.1 E: 188464.3
Location: SB I-25, Approx. Station 3517+20
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 70 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5025						**0.0 - 0.3 ft. 3" ASPHALT**.									
						0.3 - 1.5 ft. 15" CONCRETE.									
						1.5 - 2.0 ft. 6" BASE COURSE.									
			11-9	20		**2.0 - 24.0 ft. sandy CLAY FILL**, tan to dark brown, very stiff, calcareous.	16.7	114.2	1	28	71	41	25	A-7-6 (16) CL	S/C=1.7%
	5		10-11	21											
5020						Rust stains observed in sample at about 9 ft.									
	10		12-17	29		Increased sand content observed between 10 and 12.5 ft.	18.9	108.6	0	49	51	35	17	A-6 (5) CL	
5015															
	15		14-18	32		Organics (straw) observed in sample at about 15 ft.									
5010															
	20		9-8	17			16.6	111.4	0	34	66	42	23	A-7-6 (13) CL	
5005															
						24.0 - 29.0 ft. sandy CLAY, brown, hard.									
	25		17-23	40											
5000															
						29.0 - 40.4 ft. SANDY CLAYSTONE, tan, hard to very hard, calcareous.									
	30		23-38	61			14.1	117.5	0	43	57	32	12	A-6 (4) CL	
4995															

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Consulting Engineers & Scientists

Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-1**

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
4990			50:6"	50:6"											
	40		50:5"	50:5"		Bottom of Hole at 40.4 ft.	12.5	107.6							
4985															
4980															
4975															
4970															
4965															
4960															
4955															
4950															

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Yeh and Associates, Inc.
Consulting Engineers & Scientists

Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-2**

Boring Began: 5/31/2015
Boring Completed: 5/31/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 40.5 ft
Ground Elevation: 5022.7 ft
Coordinates: N: 249883.7 E: 188582.0
Location: NB I-25, Approx. Station 3518+60
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 60 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									
						0.5 - 1.3 ft. 10" CONCRETE.									
						1.3 - 2.0 ft. 8" BASE COURSE.									
5020			7-10	17		**2.0 - 3.0 ft. clayey SAND FILL** with gravel, brown mottled with tan, medium dense.	15.4	114.1	10	43	47	40	22	A-6 (6) SC	**CA sample at 2 ft contains base course** S/C=0.4%
	5		9-12	21		**3.0 - 19.5 ft. sandy CLAY FILL**, brown mottled with tan, very stiff.									
5015															
	10		14-12	26		Rust stain stains observed in sample at about 10 ft.									
5010															
	15		14-15	29			19.4	107.0	0	29	71	38	20	A-6 (12) CL	
5005															
	20		19-12	31		**19.5 - 29.0 ft. sandy CLAY**, brown to dark brown, very stiff, calcareous.									
5000															
	25		11-11	22			16.5	111.6	0	26	74	42	26	A-7-6 (18) CL	
4995															
	30		34-50:2"	50:2"		**29.0 - 40.5 ft. SANDY CLAYSTONE**, tan, hard to very hard, rust stained, calcareous.									
4990															

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Yeh and Associates, Inc.
Consulting Engineers & Scientists

Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-2**

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
			50:5"	50:5"			6.4	125.6	0	19	81	35	17	A-6 (12) CL	
4985	40		50:6"	50:6"											

Bottom of Hole at 40.5 ft.

4980
4975
4970
4965
4960
4955
4950

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-3**

Boring Began: 5/28/2015
Boring Completed: 5/28/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 35.3 ft
Ground Elevation: 5019.8 ft
Coordinates: N: 250009.6 E: 188466.5
Location: SB I-25, Approx. Station 3519+90
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									
						0.7 - 2.2 ft. 18" CONCRETE.									
			7-6	13		**2.2 - 3.0 ft. silty SAND FILL** with gravel, brown, medium dense.									
5015	5		7-10	17		**3.0 - 18.0 ft. sandy CLAY FILL**, brown to dark brown, very stiff, calcareous, increasing sand with depth.									
5010	10		14-20	34		Rust stains with iron nodules observed in sample at about 10 ft.	17.5	110.2	0	49	51	40	20	A-7-6 (7) CL	
5005	15		15-17	32											
5000	20		13-12	25		**18.0 - 25.0 ft. sandy CLAY**, dark brown, high plasticity, very stiff, decreased sand content after about 18 ft. Rust stains observed in sample at about 20 ft.	21.1	104.2	0	18	82	55	32	A-7-6 (28) CH	
4995	25		25-35	60		**25.0 - 30.0 ft. SANDY SILTSTONE**, tan, hard, calcareous, rust stains observed in sample at about 25 ft.	14.9	117.8	0	40	60	NV	NP	A-4 (0) ML	
4990	30		50:4"	50:4"		**30.0 - 35.3 ft. SANDY CLAYSTONE**, tan, very soft.	10.8	124.7							
4985	35		50:4"	50:4"		Bottom of Hole at 35.3 ft.									

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-4**

Boring Began: 5/31/2015
Boring Completed: 5/31/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 30.4 ft
Ground Elevation: 5018.0 ft
Coordinates: N: 250081.5 E: 188583.7
Location: NB I-25, Approx. Station 3520+60
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 60 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.4 ft. 5" ASPHALT.									
						0.4 - 1.4 ft. 12" CONCRETE.									
						1.4 - 2.1 ft. 8" BASE COURSE.									
5015			16-19	35		**2.1 - 3.0 ft. silty SAND FILL** with gravel, brown, medium dense.									
						3.0 - 13.5 ft. sandy CLAY FILL, brown to tan, very stiff, organics (rootlets) observed in sample at about 5 ft.									
	5		13-14	27			18.2	109.5	0	43	57	39	22	A-6 (6) CL	S/C=0.3%
5010															
	10		16-12	28											
5005						**13.5 - 20.0 ft. silty SAND**, brown, dense.									
	15		24-20	44			10.5	118.0	0	50	50	NV	NP	A-4 (0) SM	
5000															
	20		50:6"	50:6"		**20.0 - 30.4 ft. SANDY CLAYSTONE**, brown, very hard, calcareous, rust stains observed in sample at about 20 ft.	12.3	118.0							
4995															
	25		50:6"	50:6"											
4990															
	30		50:5"	50:5"			12.9	120.9	0	39	61	33	15	A-6 (7) CL	
4985						Bottom of Hole at 30.4 ft.									

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-5**

Boring Began: 5/28/2015
Boring Completed: 5/28/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 19.3 ft
Ground Elevation: 5051.7 ft
Coordinates: N: 252648.8 E: 188482.8
Location: SB I-25, Approx. Station 3546+30
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels:			
Symbol	▽		
Depth	18.0 ft	-	-
Date	5/28/15	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.4 ft. 5" ASPHALT.									
						0.4 - 1.9 ft. 18" CONCRETE.									
5050						**1.9 - 2.2 ft. 3" BASE COURSE**.									
			3-4	7		**2.2 - 2.5 ft. silty SAND FILL** trace gravel, brown.									
						2.5 - 4.0 ft. sandy CLAY FILL, brown, medium stiff, calcareous.									
	5		3-4	7		**4.0 - 8.0 ft. sandy CLAY** trace gravel, brown, medium stiff.	18.3	92.3	2	25	73	38	24	A-6 (15) CL	S/C=0.2%
5045															
						8.0 - 19.3 ft. SILTY SANDSTONE, tan, hard to very hard, claystone interbeds and rust stains observed in sample at about 9 ft.									
			31-50:4"	50:4"			15.3		0	54	46	NV	NP	A-4 (0) SM	
	10														
5040															
			50:5"	50:5"											
	15														
5035															
			50:4"	50:4"			16.8	108.3							
						Bottom of Hole at 19.3 ft.									
5030															
5025															
5020															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-6**

Boring Began: 5/28/2015
Boring Completed: 5/28/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 20.5 ft
Ground Elevation: 5054.0 ft
Coordinates: N: 252918.1 E: 188477.3
Location: SB I-25, Approx. Station 3549+00
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 55 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.4 ft. 5" ASPHALT.									
						0.4 - 1.4 ft. 12" CONCRETE.									
						1.4 - 2.0 ft. 7" BASE COURSE.									
			4-5	9		**2.0 - 4.5 ft. silty SAND FILL** with gravel, brown, loose to medium dense.	5.3								pH=8.4 S=0.009% Chl=0.0573% Re=646ohm·cm
5050			8-18	26		**4.5 - 7.0 ft. clayey SAND**, tan, medium dense.	13.6	115.0	0	63	37	NV	NP	A-4 (0) SM	S/C=-0.5%
	5					**7.0 - 20.5 ft. SANDY CLAYSTONE**, tan, very hard, with sandstone interbeds, rust stained with iron nodules, calcareous.									
5045															
	10		50:6"	50:6"			16.4	106.2							
5040															
	15		50:5"	50:5"			16.1	114.2	0	49	51	36	18	A-6 (6) CL	
5035															
	20		50:6"	50:6"											
5030															
5025															
5020															

Bottom of Hole at 20.5 ft.

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-7**

Boring Began: 6/8/2015
Boring Completed: 6/8/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 550 Rubber Tire
Hammer Type: Automatic (hydraulic)

Total Depth: 14.5 ft
Ground Elevation: 5043.8 ft
Coordinates: N: 253666.5 E: 188435.7
Location: SW of Proposed South Abutment for SB I-25/Crossroads Bridge
Logged By: B. Janini
Final By: R.Desterhouse

Weather Notes: Clear, 70's
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" TOPSOIL.									
						0.5 - 2.0 ft. clayey SAND FILL, brown.									
						2.0 - 2.5 ft. clayey SAND, brown.									
5040			25-50:5"	50:5"		**2.5 - 5.0 ft. SANDY CLAYSTONE**, brown, hard to very hard.	15.9	110.7	0	21	79	42	22	A-7-6 (17) CL	
	5					**5.0 - 14.5 ft. SILTY SANDSTONE**, brown, very hard.									
			50:6"	50:6"											
5035			30-50:3"	50:3"			17.5	96.1	0	51	49	NV	NP	A-4 (0) SM	
	10														
5030			50:6"	50:6"											
5025															
5020															
5015															
5010															

Bottom of Hole at 14.5 ft.

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-8**

Boring Began: 6/8/2015
Boring Completed: 6/8/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 550 Rubber Tire
Hammer Type: Automatic (hydraulic)

Total Depth: 14.5 ft
Ground Elevation: 5048.0 ft
Coordinates: N: 253667.6 E: 188695.2
Location: SE of Proposed South Abutment for NB I-25/Crossroads Bridge
Logged By: B. Janini
Final By: R.Desterhouse

Weather Notes: Clear, 70's
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" TOPSOIL.									
						0.5 - 2.0 ft. clayey SAND FILL, brown.									
			28-50:4"	50:4"		**2.0 - 14.5 ft. CLAYEY SANDSTONE**, brown, very hard.	14.5	118.4	0	55	45	39	20	A-6 (5) SC	
5045															
	5		28-50:3"	50:3"			13.3	113.3	0	59	41	36	19	A-6 (5) SC	
5040															
			50:0	50:0											
	10														
5035															
			50:6"	50:6"											
						Bottom of Hole at 14.5 ft.									
5030															
5025															
5020															
5015															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-9**

Boring Began: 6/8/2015
Boring Completed: 6/8/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 550 Rubber Tire
Hammer Type: Automatic (hydraulic)

Total Depth: 14.8 ft
Ground Elevation: 5038.9 ft
Coordinates: N: 253900.2 E: 188435.8
Location: NW of Proposed North Abutment for SB I-25/Crossroads Bridge
Logged By: B. Janini
Final By: R.Desterhouse

Weather Notes: Clear, 70's
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels:			
Symbol	▽		
Depth	8.0 ft	-	-
Date	6/8/15	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" TOPSOIL.									
						0.5 - 1.5 ft. sandy CLAY FILL, brown.									
			9-13	22		**1.5 - 5.0 ft. sandy CLAY**, brown, very stiff.	16.7	113.5	0	49	51	40	21	A-6 (7) CL	
5035															
	5		17-50	67		**5.0 - 8.0 ft. SANDY SILTSTONE**, brown, hard.	16.6	110.9	0	14	86	NV	NP	A-4 (0) ML	
	▽														
5030			18-50:4"	50:4"		**8.0 - 15.0 ft. SANDY CLAYSTONE**, brown, very hard.									
	10														
5025			20-50:4"	50:4"			17.1	111.0	2	42	56	40	20	A-6 (7) CL	
						Bottom of Hole at 14.8 ft.									
5020															
5015															
5010															
5005															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-RW-10**

Boring Began: 6/8/2015
Boring Completed: 6/8/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 550 Rubber Tire
Hammer Type: Automatic (hydraulic)

Total Depth: 19.4 ft
Ground Elevation: 5050.5 ft
Coordinates: N: 253891.7 E: 188690.6
Location: NE of Proposed North Abutment for NB I-25/Crossroads Bridge
Logged By: B. Janini
Final By: R.Desterhouse

Weather Notes: Clear, 70's
Inclination from Horiz.: Vertical
Night Work: ☐

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5050						**0.0 - 0.5 ft. 6" TOPSOIL**.									
						0.5 - 3.0 ft. clayey SAND FILL, gray, very dense, trace organics.									
			50:3"	50:3"		**3.0 - 5.5 ft. CLAYEY SANDSTONE**, gray, very hard.	5.5		5	49	46	39	21	A-6 (6) SC	
5045	5					**5.5 - 15.0 ft. SANDY CLAYSTONE**, brown, very hard.									
			25-50:3"	50:3"			16.0	100.3	0	40	60	39	19	A-6 (9) CL	
			30-50:3"	50:3"											
5040	10														
			50:3"	50:3"											
5035	15					**15.0 - 19.4 ft. SANDY SILTSTONE**, brown, very hard.									
			50:5"	50:5"			17.5	101.8	0	17	83	NV	NP	A-4 (0) ML	
						Bottom of Hole at 19.4 ft.									
5030															
5025															
5020															

BORING LOG 2015 CROSSROADS GINT - NEW TEMPLATE.GPJ 2015 YEH ASSOCIATES TEMPLATE.GDT 2015 LIBRARY.GLB 8/18/15

Yeh and Associates, Inc.
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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PC-1**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5040.8 ft
Coordinates: N: 253831.2 E: 188421.8
Location: Approx. Station 3558+10
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5040						**0.0 - 0.6 ft. 8" TOPSOIL**.									***CA Sample at 2 ft contains base course**
						0.6 - 3.0 ft. clayey SAND FILL w/ gravel, tan, loose, organics (rootlets).									
			7-5	12			13.9	115.9	22	35	43	35	15	A-6 (3) SC	S/C=0.4%
						3.0 - 6.0 ft. SANDY CLAYSTONE, tan, very hard.			1	41	58	37	22	A-6 (9) CL	**Bulk Sample from 1 ft to 5 ft**
	5		50-45	95											
5035															

Bottom of Hole at 6.0 ft.

5030
5025
5020
5015
5010

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Yeh and Associates, Inc.
Consulting Engineers & Scientists

Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PC-2**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 10.3 ft
Ground Elevation: 5045.0 ft
Coordinates: N: 253732.8 E: 188717.0
Location: Approx. Station 3557+10
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" TOPSOIL.									
						0.5 - 2.0 ft. clayey SAND, tan to dark brown.									
			40-50:3"	50:3"		**2.0 - 5.0 ft. SANDY CLAYSTONE**, brown, very hard.	13.7	117.8	0	64	36	39	21	A-6 (3) SC	S/C=1.3%
									1	47	52	38	24	A-6 (3) CL	**Bulk Sample from 0.5 ft to 5 ft**
5040	5		50:5"	50:5"		**5.0 - 10.3 ft. SILTY SANDSTONE**, tan to brown, very hard, rust stained.	16.6	112.9	0	65	35	NV	NP	A-2-4 (0) SM	pH=8 S=0.069% Chl=0.0152% R-Value=23 Re=533ohm·cm
5035	10		50:4"	50:4"											

Bottom of Hole at 10.3 ft.

5030
5025
5020
5015

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Yeh and Associates, Inc.
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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-1**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5026.4 ft
Coordinates: N: 249733.8 E: 188548.6
Location: Approx. Station 3517+10
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5025						**0.0 - 0.7 ft. 8" ASPHALT**.									***CA sample at 2 ft contains base course**
						0.7 - 2.2 ft. 18" CONCRETE.									
			5-9	14		**2.2 - 2.7 ft. 5" BASE COURSE**.	16.6	111.5	11	43	46	35	15	A-6 (3) CL	
						2.7 - 6.0 ft. clayey SAND FILL with gravel, tan, stiff, rust stained.			9	60	31	38	19	A-2-6 (1) SC	**Bulk sample from 2.7 ft to 5 ft**
	5		6-10	16											
5020						Bottom of Hole at 6.0 ft.									
5015															
5010															
5005															
5000															
4995															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-2**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5015.1 ft
Coordinates: N: 250234.5 E: 188581.6
Location: Approx. Station 3522+20
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 55
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									***CA sample at 2 ft contains base course**
						0.7 - 2.0 ft. 16" CONCRETE.									
			12-15	27		**2.0 - 2.2 ft. 2" BASE COURSE.**	16.2	115.4	0	48	52	37	15	A-6 (5) CL	S/C=0.2%
						2.2 - 6.0 ft. clayey SAND FILL with gravel, brown mottled with tan, very stiff, rust stained.			12	42	46	37	21	A-6 (5) SC	**Bulk sample from 2.2 ft to 5 ft**
5010	5		7-12	19											

Bottom of Hole at 6.0 ft.

5005
5000
4995
4990
4985

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-3**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5016.5 ft
Coordinates: N: 250739.8 E: 188558.8
Location: Approx. Station 3525+60
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5015						**0.0 - 0.7 ft. 8" ASPHALT**.									***CA sample at 2 ft contains base course**
						0.7 - 2.2 ft. 18" CONCRETE.									
			17-26	43		**2.2 - 2.5 ft. 3" BASE COURSE**.	3.9	135.2	32	51	17	NV	NP	A-1-b (0) SM	
						2.5 - 4.7 ft. clayey SAND FILL with gravel, brown, dense.			11	54	35	38	24	A-2-6 (3) SC	**Bulk sample from 2.5 ft to 5 ft**
	5		4-9	13		**4.7 - 6.0 ft. sandy CLAY FILL**, tan to brown, stiff.									
5010						Bottom of Hole at 6.0 ft.									
5005															
5000															
4995															
4990															
4985															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-4**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5027.2 ft
Coordinates: N: 251233.1 E: 188595.0
Location: Approx. Station 3532+20
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									***CA sample at 2 ft contains base course**
						0.7 - 2.0 ft. 16" CONCRETE.									
5025			14-14	28		**2.0 - 2.5 ft. 6" BASE COURSE**.	6.7	129.3	27	50	23	36	20	A-2-6 (0) SC	S/C=0.8%
						2.5 - 6.0 ft. clayey SAND FILL with gravel, brown mottled with tan, medium dense, rust stained.			10	49	41	43	25	A-7-6 (5) SC	**Bulk sample from 2.5 ft to 5 ft**
	5		7-8	15											

Bottom of Hole at 6.0 ft.

5020
5015
5010
5005
5000
4995

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-5**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 11.0 ft
Ground Elevation: 5039.5 ft
Coordinates: N: 251723.4 E: 188568.5
Location: Approx. Station 3537+10
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									
						0.7 - 2.2 ft. 18" CONCRETE.									
			14-8	22		**2.2 - 2.7 ft. 6" BASE COURSE**.									
5035	5					**2.7 - 11.0 ft. sandy CLAY FILL**, trace gravel, olive gray mottled with tan, stiff to very stiff, rust stained.			3	33	64	37	21	A-6 (11) CL	**Bulk sample from 2.7 ft to 5 ft**
			6-9	15			18.7	105.2	0	52	48	37	19	A-6 (5) SC	S/C=0.8%
5030	10		9-11	20			17.8	106.4							pH=7 S=0.008% Chl=0.0021% Re=754ohm·cm

Bottom of Hole at 11.0 ft.

5025
5020
5015
5010
5005

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-6**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5051.0 ft
Coordinates: N: 252233.3 E: 188620.1
Location: Approx. Station 3542+20
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5050						**0.0 - 0.8 ft. 10" ASPHALT**.									***CA sample at 2 ft contains base course**
						0.8 - 1.8 ft. 12" CONCRETE.									
			19-15	34		**1.8 - 2.2 ft. 4" BASE COURSE**.	8.6	125.1	15	58	27	41	25	A-2-7 (0) SC	
						2.2 - 6.0 ft. clayey SAND FILL with gravel, brown, medium dense, organics (rootlets).			9	50	41	36	19	A-6 (3) SC	**Bulk sample from 2.2 ft to 5 ft**
5045	5		5-8	13											pH=10.1 S=0.044% Chl=0.0081% R-Value=30 Re=1721ohm·cm

Bottom of Hole at 6.0 ft.

5040
5035
5030
5025
5020

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-7**

Boring Began: 5/27/2015
Boring Completed: 5/27/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5062.8 ft
Coordinates: N: 252782.9 E: 188579.3
Location: Approx. Station 3547+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 72 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									***CA sample at 2 ft contains base course**
						0.7 - 2.2 ft. 18" CONCRETE.									
5060			18-17	35		**2.2 - 2.7 ft. 6" BASE COURSE**.	6.2	134.4	26	53	21	27	11	A-2-6 (0) SC	
						2.7 - 5.5 ft. clayey SAND FILL with gravel, dark brown to tan, medium dense.			8	57	35	39	22	A-6 (2) SC	**Bulk sample from 2.7 ft to 5 ft**
	5		5-11	16		**5.5 - 6.0 ft. sandy CLAY**, brown mottled with tan, stiff.									
						Bottom of Hole at 6.0 ft.									
5055															
5050															
5045															
5040															
5035															
5030															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-8**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5065.8 ft
Coordinates: N: 253283.4 E: 188621.7
Location: Approx. Station 3552+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5065						**0.0 - 0.5 ft. 6" ASPHALT.** **0.5 - 2.0 ft. 18" CONCRETE.**									***CA sample at 2 ft contains base course**
			14-11	25		**2.0 - 2.3 ft. 3" BASE COURSE.**	15.8	113.0	5	30	65	39	22	A-6 (12) CL	S/C=0.7%
	5					**2.3 - 6.0 ft. clayey SAND FILL** with gravel, dark brown to gray, medium dense.			10	48	42	36	22	A-6 (5) SC	**Bulk sample from 2.3 ft to 5 ft**
5060			9-12	21											

Bottom of Hole at 6.0 ft.

5055
5050
5045
5040
5035

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-10**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: Approx. 5071 ft (not surveyed)
Coordinates: N: 254770.8 E: 188638.0
Location: Approx. Station 3567+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									
						0.7 - 2.2 ft. 18" CONCRETE.									
			17-11	28		**2.2 - 2.5 ft. 4" BASE COURSE**.	6.1	132.1	28	49	23	27	11	A-2-6 (0) SC	***CA sample at 2 ft contains base course**
						2.5 - 6.0 ft. sandy CLAY FILL with gravel, dark brown to tan, medium stiff.									
	5		4-5	9											

Bottom of Hole at 6.0 ft.

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-11**

Boring Began: 5/27/2015
Boring Completed: 5/27/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5074.1 ft
Coordinates: N: 255357.7 E: 188604.8
Location: Approx. Station 3573+40
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 70 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									
						0.5 - 3.0 ft. 18" CONCRETE.									
			17-5	22		**3.0 - 3.3 ft. 4" BASE COURSE**.									
5070						**3.3 - 5.0 ft. clayey SAND FILL** with gravel, brown, medium dense.			9	51	40	38	22	A-6 (4) SC	**Bulk sample from 3.3 ft to 5 ft**
	5		6-8	14		**5.0 - 6.0 ft. sandy CLAY FILL**, brown, stiff.	19.6	105.2	0	30	70	36	21	A-6 (12) CL	S/C=0%

Bottom of Hole at 6.0 ft.

5065
5060
5055
5050
5045
5040

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-12**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 11.0 ft
Ground Elevation: 5077.9 ft
Coordinates: N: 255861.8 E: 188654.7
Location: Approx. Station 3578+40
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									***CA sample at 2 ft contains base course**
						0.7 - 1.7 ft. 12" CONCRETE.									
						1.7 - 2.1 ft. 5" BASE COURSE.									
5075			17-11	28		**2.1 - 5.5 ft. clayey SAND FILL** with gravel, reddish brown to brown, medium dense.	4.7	116.1	36	52	12	NV	NP	A-1-a (0) SP-SM	
	5		5-9	14					10	42	48	44	26	A-7-6 (8) SC	**Bulk sample from 2.1 ft to 5 ft**
5070						**5.5 - 10.0 ft. sandy CLAY**, tan, stiff to hard.									pH=9.3 S=0.038% Chl=0.0208% R-Value=16 Re=1107ohm·cm
	10		20-30	50		**10.0 - 11.0 ft. SANDY CLAYSTONE**, brown, hard.									

Bottom of Hole at 11.0 ft.

5065
5060
5055
5050
5045

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-13**

Boring Began: 5/27/2015
Boring Completed: 5/27/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5081.8 ft
Coordinates: N: 256362.2 E: 188614.4
Location: Approx. Station 3583+50
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 70 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									***CA sample at 2 ft contains base course**
						0.7 - 2.0 ft. 16" CONCRETE.									
5080			13-13	26		**2.0 - 2.3 ft. 4" BASE COURSE**.	22.2	124.2	31	67	2	NV	NP	A-1-b (0) SM	
						2.3 - 2.8 ft. silty SAND FILL, dark brown, medium dense.			16	52	32	42	24	A-2-7 (2) SC	**Bulk sample from 2.3 ft to 5 ft**
	5		9-11	20		**2.8 - 6.0 ft. clayey SAND FILL** with gravel, tan, medium dense.									

Bottom of Hole at 6.0 ft.

5075
5070
5065
5060
5055
5050

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-14**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5082.0 ft
Coordinates: N: 256862.3 E: 188657.6
Location: Approx. Station 3588+50
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 52 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									***CA sample at 2 ft contains base course**
						0.5 - 2.0 ft. 18" CONCRETE.									
5080			14-13	27		**2.0 - 2.2 ft. 2" BASE COURSE.**	8.7	123.7	21	44	35	41	24	A-2-7 (3) SC	
						2.2 - 6.0 ft. clayey SAND FILL with gravel, dark brown mottled with gray, very stiff.			10	51	39	36	23	A-6 (4) SC	**Bulk sample from 2.2 ft to 5 ft**
	5		10-11	21											

Bottom of Hole at 6.0 ft.

5075
5070
5065
5060
5055
5050

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-15**

Boring Began: 5/27/2015
Boring Completed: 5/27/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 11.0 ft
Ground Elevation: 5081.6 ft
Coordinates: N: 257364.6 E: 188624.1
Location: Approx. Station 3593+50
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 70 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									***CA Sample at 2 ft contains base course**
						0.7 - 1.7 ft. 12" CONCRETE.									
5080						**1.7 - 2.1 ft. 5" BASE COURSE**.									
			19-17	36		**2.1 - 3.0 ft. silty SAND FILL**, brown to dark brown, dense, recycled asphalt layer 2.5-2.8'.	4.2	134.9	39	46	15	NV	NP	A-1-a (0) SM	
						3.0 - 4.5 ft. clayey SAND FILL with some gravel, brown.			6	49	45	36	20	A-6 (5) SC	**Bulk sample from 2.1 ft to 5 ft**
	5					**4.5 - 7.5 ft. sandy CLAY FILL**, brown, stiff.									
5075			5-8	13			18.9	104.8	1	28	71	34	18	A-6 (11) CL	S/C=0.3%
						7.5 - 11.0 ft. sandy CLAY, tan mottled with brown, stiff.									
	10		5-6	11											
5070						Bottom of Hole at 11.0 ft.									
5065															
5060															
5055															
5050															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PNB-16**

Boring Began: 5/26/2015
Boring Completed: 5/26/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5029.7 ft
Coordinates: N: 249324.0 E: 188574.5
Location: Approx. Station 3513+10
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: Cool, 50's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									***CA sample at 2 ft contains base course**
						0.5 - 1.8 ft. 16" CONCRETE.									
						1.8 - 2.2 ft. 4" BASE COURSE.									
			14-9	23		**2.2 - 3.0 ft. silty SAND FILL**, brown, medium dense.	4.4		37	52	11	NV	NP	A-1-a (0) SW-SM	
5025	5					**3.0 - 6.0 ft. clayey SAND FILL** with some gravel, brown to tan, medium dense.			6	48	46	38	20	A-6 (5) SC	**Bulk sample from 2.2 ft to 5 ft**
			14-13	27											

Bottom of Hole at 6.0 ft.

5020
5015
5010
5005
5000
4995

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-1**

Boring Began: 5/20/2015
Boring Completed: 5/20/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 45
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5028.4 ft
Coordinates: N: 249583.8 E: 188464.1
Location: Approx. Station 3515+60
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 30 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 1.5 ft. 18" ASPHALT.									
						1.5 - 2.3 ft. 10" CONCRETE.									
						2.3 - 3.0 ft. 8" BASE COURSE.									
5025			10-15	25		**3.0 - 6.0 ft. sandy CLAY FILL**, brown, very stiff.	18.4	115.5	0	26	74	41	23	A-7-6 (16) CL	S/C=1.4%
	5								0	25	75	40	25	A-6 (17) CL	**Bulk sample from 3 ft to 5 ft** pH=8.7 S=0.024% Chl=0.0119% R-Value=15 Re=941ohm·cm
			7-11	18											

Bottom of Hole at 6.0 ft.

5020
5015
5010
5005
5000
4995

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-2**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5018.5 ft
Coordinates: N: 250081.1 E: 188499.9
Location: Approx. Station 3520+60
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									
						0.5 - 2.0 ft. 18" CONCRETE.									
						2.0 - 2.7 ft. 8" BASE COURSE.									
5015			5-12	17		**2.7 - 6.0 ft. sandy CLAY FILL**, dark brown, very stiff, trace organics.	18.2	112.2	0	15	85	44	28	A-7-6 (23) CL	S/C=1.5%
	5		7-11	18					4	38	58	38	21	A-6 (9) CL	**Bulk sample from 2.7 ft to 5 ft**

Bottom of Hole at 6.0 ft.

5010
5005
5000
4995
4990
4985

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-3**

Boring Began: 5/20/2015
Boring Completed: 5/20/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 45
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5013.4 ft
Coordinates: N: 250584.0 E: 188466.6
Location: Approx. Station 3525+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 30 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 1.5 ft. 18" ASPHALT.									
						1.5 - 2.3 ft. 10" CONCRETE.									
						2.3 - 3.0 ft. 8" BASE COURSE.									
5010			11-13	24		**3.0 - 6.0 ft. sandy CLAY FILL**, brown to dark brown, very stiff, organics (rootlets) and construction debris (styrofoam) observed at about 3 ft, calcareous.	17.2	110.9	1	24	75	39	22	A-6 (15) CL	
	5								1	28	71	38	21	A-6 (13) CL	**Bulk sample from 3 ft to 5 ft**
			10-16	26											

Bottom of Hole at 6.0 ft.

5005
5000
4995
4990
4985
4980

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-4**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5022.2 ft
Coordinates: N: 251080.1 E: 188510.4
Location: Approx. Station 3530+60
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50 degrees, cloudy
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									
						0.7 - 2.3 ft. 20" CONCRETE.									
5020			9-12	21		**2.3 - 2.5 ft. 2" BASE COURSE**.	17.5	103.9	0	43	57	48	28	A-7-6 (13) CL	
						2.5 - 5.0 ft. clayey SAND FILL with some gravel, tan, medium dense.			5	47	48	37	20	A-6 (6) SC	**Bulk sample from 2.5 ft to 5 ft**
	5		11-15	26		**5.0 - 6.0 ft. Weathered Silty SANDSTONE**, tan, firm, rust stained, calcareous.	11.8	123.0	0	46	54	NV	NP	A-4 (0) SM	
5015						Bottom of Hole at 6.0 ft.									
5010															
5005															
5000															
4995															
4990															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-5**

Boring Began: 5/20/2015
Boring Completed: 5/20/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 45
Hammer Type: Automatic (hydraulic)

Total Depth: 11.0 ft
Ground Elevation: 5031.8 ft
Coordinates: N: 251583.6 E: 188476.9
Location: Approx. Station 3535+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 30 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5030						**0.0 - 0.5 ft. 6" ASPHALT**.									
						0.5 - 2.0 ft. 18" CONCRETE.									
						2.0 - 2.5 ft. 6" BASE COURSE.									
			5-10	15		**2.5 - 6.0 ft. sandy CLAY FILL**, brown, high plasticity, stiff, organics (rootlets), calcareous.	25.3	101.8	0	17	83	59	38	A-7-6 (33) CH	
	5								1	22	77	48	27	A-7-6 (21) CL	**Bulk sample from 2.5 ft to 5 ft** pH=8.2 S=0.024% Chl=0.0202% R-Value=12 Re=726ohm·cm
5025			9-15	24		**6.0 - 10.0 ft. sandy CLAY**, very stiff.									
	10		10-21	31		**10.0 - 11.0 ft. Weathered clayey SANDSTONE**, tan, medium hard, rust stained, calcareous.									
5020						Bottom of Hole at 11.0 ft.									
5015															
5010															
5005															
5000															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-6**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5042.3 ft
Coordinates: N: 252085.0 E: 188520.4
Location: Approx. Station 3540+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50's, cloudy
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									***CA sample at 2 ft contains base course**
						0.5 - 2.0 ft. 18" CONCRETE.									
5040			7-8	15		**2.0 - 2.3 ft. 4" BASE COURSE.**	16.8	110.8	6	17	77	44	28	A-7-6 (20) CL	S/C=1.8%
						2.3 - 6.0 ft. clayey SAND FILL with some gravel, tan, medium dense.			6	60	34	44	27	A-2-7 (3) SC	**Bulk sample from 2.3 ft to 5 ft**
	5		6-8	14											

Bottom of Hole at 6.0 ft.

5035
5030
5025
5020
5015
5010

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-7**

Boring Began: 5/20/2015
Boring Completed: 5/20/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 45
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5050.6 ft
Coordinates: N: 252587.7 E: 188479.7
Location: Approx. Station 3545+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 35 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5050						**0.0 - 0.8 ft. 10" ASPHALT**.									
						0.8 - 2.3 ft. 18" CONCRETE.									
						2.3 - 2.8 ft. 6" BASE COURSE.									
			4-6	10		**2.8 - 6.0 ft. sandy CLAY FILL**, brown to dark brown, medium stiff to stiff, organics (rootlets).	22.6	100.7	0	13	87	43	24	A-7-6 (21) CL	
	5								4	23	73	29	11	A-6 (6) CL	**Bulk sample from 2.8 ft to 5 ft**
5045			4-4	8											

Bottom of Hole at 6.0 ft.

5040
5035
5030
5025
5020

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-8**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5056.1 ft
Coordinates: N: 253091.3 E: 188531.0
Location: Approx. Station 3550+70
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50's, cloudy
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5055						**0.0 - 0.7 ft. 8" ASPHALT**.									
						0.7 - 2.1 ft. 18" CONCRETE.									
			7-13	20		**2.1 - 2.4 ft. 4" BASE COURSE**.	17.6	113.8	0	12	88	44	27	A-7-6 (24) CL	
						2.4 - 3.0 ft. sandy CLAY FILL, tan, stiff to very stiff.			7	52	41	40	21	A-6 (4) SC	**Bulk sample from 2.4 ft to 5 ft**
	5		5-9	14		**3.0 - 6.0 ft. clayey SAND FILL**with gravel, brown, medium dense.									
5050						Bottom of Hole at 6.0 ft.									
5045															
5040															
5035															
5030															
5025															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-9**

Boring Began: 5/20/2015
Boring Completed: 5/20/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 45
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5058.0 ft
Coordinates: N: 253596.4 E: 188497.5
Location: Approx. Station 3555+80
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 30's
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.2 ft. 2" ASPHALT.									
						0.2 - 1.4 ft. 15" CONCRETE.									
						1.4 - 2.0 ft. 7" BASE COURSE.									
5055			7-10	17		**2.0 - 5.0 ft. sandy CLAY FILL**, brown to tan, very stiff, organics (rootlets).	18.2	110.5	0	14	86	48	30	A-7-6 (26) CL	S/C=1.5%
									2	20	78	44	26	A-7-6 (19) CL	**Bulk sample from 1.8 ft to 5 ft**
	5		6-12	18		**5.0 - 6.0 ft. silty SAND**, brown, medium dense.	20.8	105.9	0	54	46	NV	NP	A-4 (0) SM	

Bottom of Hole at 6.0 ft.

5050
5045
5040
5035
5030
5025

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-10**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5062.0 ft
Coordinates: N: 254098.1 E: 188539.9
Location: Approx. Station 3560+80
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 51 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									
						0.5 - 1.8 ft. 16" CONCRETE.									
5060						**1.8 - 2.3 ft. 6" BASE COURSE**.									
			6-6	12		**2.3 - 6.0 ft. sandy CLAY FILL**, brown to tan, stiff.	14.3	114.2	14	20	66	49	32	A-7-6 (19) CL	S/C=0.9%
									7	38	55	45	27	A-7-6 (11) CL	**Bulk sample from 2.3 ft to 5 ft** pH=10.4 S=0.039% Chl=0.0168% R-Value=14 Re=1567ohm·cm
	5		6-4	10											
5055						Bottom of Hole at 6.0 ft.									
5050															
5045															
5040															
5035															
5030															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-11**

Boring Began: 5/20/2015
Boring Completed: 5/20/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 45
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5064.6 ft
Coordinates: N: 254599.8 E: 188507.7
Location: Approx. Station 3565+80
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 40 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									
						0.7 - 2.3 ft. 20" CONCRETE.									
						2.3 - 2.8 ft. 6" BASE COURSE.									
			5-13	18		**2.8 - 6.0 ft. sandy CLAY FILL**, brown, very stiff, calcareous.	17.7	112.3	0	34	66	39	23	A-6 (13) CL	
5060	5								2	29	69	56	39	A-7-6 (25) CH	**Bulk sample from 2.8 ft to 5 ft**
			7-14	21											

Bottom of Hole at 6.0 ft.

5055
5050
5045
5040
5035
5030

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-12**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5068.3 ft
Coordinates: N: 255106.3 E: 188550.7
Location: Approx. Station 3570+90
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 51 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									
						0.7 - 1.3 ft. 8" CONCRETE.									
						1.3 - 2.0 ft. 8" BASE COURSE.									
			6-9	15		**2.0 - 4.0 ft. clayey SAND FILL** with gravel, brown and gray, medium dense.	22.0	107.2	0	21	79	36	21	A-6 (13) CL	
5065									11	48	41	47	27	A-7-6 (6) SC	**Bulk sample from 2 ft to 5 ft**
	5					**4.0 - 6.0 ft. sandy CLAY** with gravel, brown to dark brown, very stiff.									
			8-12	20			14.5	106.2	7	31	62	41	26	A-7-6 (13) CL	

Bottom of Hole at 6.0 ft.

5060
5055
5050
5045
5040
5035

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-13**

Boring Began: 5/20/2015
Boring Completed: 5/20/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 45
Hammer Type: Automatic (hydraulic)

Total Depth: 10.5 ft
Ground Elevation: 5070.9 ft
Coordinates: N: 255608.2 E: 188513.5
Location: Approx. Station 3575+90
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 40 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
5070						**0.0 - 0.5 ft. 6" ASPHALT**.									
						0.5 - 1.8 ft. 16" CONCRETE.									
						1.8 - 2.3 ft. 6" BASE COURSE.									
			7-14	21		**2.3 - 4.0 ft. sandy CLAY FILL**, brown, very stiff.	19.6	108.9	0	18	82	43	25	A-7-6 (20) CL	
	5					**4.0 - 9.0 ft. sandy CLAY**, brown, stiff.			1	27	72	38	21	A-6 (13) CL	**Bulk sample from 2.3 ft to 5 ft**
5065			6-8	14			22.1	102.7	0	35	65	36	17	A-6 (9) CL	S/C=0%
	10		50:6"	50:6"		**9.0 - 10.5 ft. CLAYEY SANDSTONE**, tan, very hard, rust stained.									
5060						Bottom of Hole at 10.5 ft.									
5055															
5050															
5045															
5040															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-14**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5074.0 ft
Coordinates: N: 256107.4 E: 188560.4
Location: Approx. Station 3580+90
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50's, cloudy
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									
						0.7 - 2.2 ft. 18" CONCRETE.									
			6-14	20		**2.2 - 2.7 ft. 6" BASE COURSE**.	23.6	99.1	0	16	84	40	19	A-6 (16) CL	S/C=0.1%
5070						**2.7 - 6.0 ft. sandy CLAY FILL**, tan to dark brown, very stiff.			7	37	56	43	25	A-6 (11) CL	**Bulk sample from 2.7 ft to 5 ft**
	5		7-12	19											

Bottom of Hole at 6.0 ft.

5065
5060
5055
5050
5045
5040

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-15**

Boring Began: 5/20/2015
Boring Completed: 5/20/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 45
Hammer Type: Automatic (hydraulic)

Total Depth: 9.8 ft
Ground Elevation: 5073.7 ft
Coordinates: N: 256615.1 E: 188527.3
Location: Approx. Station 3586+00
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 45 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 5" ASPHALT.									
						0.5 - 1.8 ft. 16" CONCRETE.									
						1.8 - 2.4 ft. 8" BASE COURSE.									
			10-10	20		**2.4 - 4.0 ft. clayey SAND FILL** with gravel, brown, medium dense, calcareous.	20.8	104.4	0	30	70	43	26	A-7-6 (16) CL	
5070									4	56	40	34	16	A-6 (2) SC	**Bulk sample from 2.4 ft to 5 ft**
	5					**4.0 - 9.0 ft. sandy CLAY**, brown, medium stiff.									
			2-3	5											
5065			31-50:4"	50:4"		**9.0 - 9.8 ft. CLAYEY SANDSTONE**, brown to tan, very hard.									
5060															
5055															
5050															
5045															
5040															

Bottom of Hole at 9.8 ft.

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PSB-16**

Boring Began: 5/18/2015
Boring Completed: 5/17/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5073.7 ft
Coordinates: N: 257120.0 E: 188569.5
Location: Approx. Station 3591+00
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 53 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.3 ft. 4" ASPHALT.									
						0.3 - 1.8 ft. 18" CONCRETE.									
						1.8 - 2.1 ft. 4" BASE COURSE.									
			4-10	14		**2.1 - 4.0 ft. clayey SAND FILL**, trace gravel, tan to light brown, medium dense, trace organics.	17.1	115.2	0	16	84	43	29	A-7-6 (16) CL	S/C=0.9%
5070									5	60	35	42	24	A-7-6 (3) SC	**Bulk sample from 2.1 ft to 5 ft**
	5		3-4	7		**4.0 - 6.0 ft. clayey SAND**, light brown, loose.									

Bottom of Hole at 6.0 ft.

5065
5060
5055
5050
5045
5040

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PR-1**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 5.8 ft
Ground Elevation: 5048.3 ft
Coordinates: N: 253309.2 E: 188394.1
Location: Approx. Station 3552+90, Existing SB I-25 On-Ramp
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50 degrees
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									
						0.5 - 3.5 ft. silty SAND FILL with gravel, brown to dark brown, medium dense.									
			14-9	23			13.6		16	69	15	NV	NP	A-1-b (0) SM	
							4.4	114.2	34	49	17	NV	NP		
5045						**3.5 - 5.0 ft. Weathered clayey SANDSTONE**, brown to tan, medium hard.			6	52	42	38	20	A-6 (4) SC	**Bulk sample from 0.5 ft to 5 ft** pH=7.9 S=0.007% Chl=0.0325% R-Value=29 Re=954ohm·cm
	5		45-50:3"	50:3"		**5.0 - 5.8 ft. CLAYEY SANDSTONE**, brown to tan, very hard.									
						Bottom of Hole at 5.8 ft.									
5040															
5035															
5030															
5025															
5020															
5015															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PR-2**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 5.8 ft
Ground Elevation: 5051.7 ft
Coordinates: N: 253322.3 E: 188793.4
Location: Approx. Station 3553+10, Existing NB I-25 Off-Ramp
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50 degrees, cloudy
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.7 ft. 8" ASPHALT.									
5050						**0.7 - 2.0 ft. sandy CLAY FILL** with gravel, brown.									
			21-19	40		**2.0 - 5.0 ft. Weathered silty SANDSTONE**, tan, medium hard.	5.3	120.4	23	67	10	NV	NP	A-1-b (0) SP-SM	
									4	30	66	31	16	A-6 (8) CL	**Bulk sample from 0.7 ft fo 5 ft**
	5		30-50:3"	50:3"		**5.0 - 5.8 ft. SILTY SANDSTONE**, tan, very hard, rust stained.	14.4	114.2	0	65	35	NV	NP	A-2-4 (0) SM	
5045						Bottom of Hole at 5.8 ft.									
5040															
5035															
5030															
5025															
5020															

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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PR-3**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 5.8 ft
Ground Elevation: 5051.4 ft
Coordinates: N: 254292.5 E: 188329.2
Location: Approx. Station 3562+80, Existing SB I-25 Off-Ramp
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50 degrees, cloudy
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									
5050						**0.5 - 2.5 ft. sandy GRAVEL FILL**, brown to dark brown, dense.	6.2	128.2	63	35	2	NV	NP	A-1-a (0) SW-SM	
			25-21	46		**2.5 - 4.5 ft. weathered clayey SANDSTONE**, dark brown, medium hard.	4.1		39	54	7	NV	NP		
									16	68	16	34	18	A-2-6 (0) SC	**Bulk sample from 0.5 ft to 5 ft**
	5		40-50:4"	50:4"		**4.5 - 5.8 ft. CLAYEY SANDSTONE**, tan, very hard.	16.2	112.3	0	65	35	33	11	A-2-6 (0) SC	
5045						Bottom of Hole at 5.8 ft.									
5040															
5035															
5030															
5025															
5020															

BORING LOG 2015 CROSSROADS GINT - NEW TEMPLATE.GPJ 2015 YEH ASSOCIATES TEMPLATE.GDT 2015 LIBRARY.GLB 8/18/15

Yeh and Associates, Inc.
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Project Name: I-25/Crossroads Bridge Replacement

Project Number: 215-043 *Boring No.:* **YA-PR-4**

Boring Began: 5/18/2015
Boring Completed: 5/18/2015
Drilling Method(s): Solid-Stem Auger (4" OD)
Driller: Terracon
Drill Rig: CME 75
Hammer Type: Automatic (hydraulic)

Total Depth: 6.0 ft
Ground Elevation: 5064.6 ft
Coordinates: N: 254523.4 E: 188693.3
Location: Approx. Station 3565+10, Existing NB I-25 On-Ramp
Logged By: R. Borst
Final By: M. Boyd

Weather Notes: 50 degrees, cloudy
Inclination from Horiz.: Vertical
Night Work: ☑

Groundwater Levels: Not Observed			
Symbol			
Depth	-	-	-
Date	-	-	-

Elevation (feet)	Depth (feet)	Sample Type/ Advancement Method	Soil Samples: Blows per 6 in	Soil Samples: Penetration Resistance	Lithology	Material Description	Moisture Content (%)	Dry Density (pcf)	Gravel Content (%)	Sand Content (%)	Fines Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	AASHTO & USCS Classifi-cations	Field Notes and Other Lab Tests
						0.0 - 0.5 ft. 6" ASPHALT.									
						0.5 - 3.0 ft. gravelly SAND FILL with silt, brown, medium dense.									
			13-12	25			5.8		33	57	10	NV	NP	A-1-b (0) SW-SM	
						3.0 - 5.5 ft. gravelly SAND FILL with clay, brown.			24	61	15	34	18	A-2-6 (0) SC	**Bulk sample from 0.5 ft to 5 ft** pH=8.1 S=0.007% Chl=0.0153% R-Value=46 Re=1504ohm·cm
5060	5		5-6	11		**5.5 - 6.0 ft. sandy CLAY**, dark brown, stiff.	17.1	110.7	0	22	78	45	28	A-7-6 (21) CL	

Bottom of Hole at 6.0 ft.

5055
5050
5045
5040
5035
5030

BORING LOG 2015 CROSSROADS GINT - NEW TEMPLATE.GPJ 2015 YEH ASSOCIATES TEMPLATE.GDT 2015 LIBRARY.GLB 8/18/15

Appendix C

LABORATORY TEST RESULTS

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-BC-1	3	–	–	–	–	–	–	–	–	–	8.0	0.032	685	0.0162	–	–	–	–
YA-BC-1	5	CA	17.4	109.0	0	47	53	41	20	21	–	–	–	–	–	–	A-7-6 (8)	CL
YA-BC-1	19	CA	14.4	111.1	0	60	40	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	SM (Bedrock)
YA-BC-1	30	CA	17.2	104.1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-BC-1	39	CA	17.9	107.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-BC-2	5	CA	18.4	109.6	0	25	75	43	20	23	–	–	–	–	–	–	A-7-6 (16)	CL
YA-BC-2	15	CA	16.1	115.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-BC-2	25	CA	15.8	109.7	0	31	69	37	20	17	–	–	–	–	–	–	A-6 (10)	CL (Bedrock)
YA-BC-2	40	CA	16.1	108.0	0	19	81	39	19	20	–	–	–	–	–	–	A-6 (15)	CL (Bedrock)
YA-BC-2	50	CA	16.5	111.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-BC-3	5	CA	23.4	92.7	0	52	48	43	22	21	–	–	–	–	–	–	A-7-6 (6)	SC
YA-BC-3	15	CA	15.3	111.5	0	49	51	38	22	16	–	–	–	–	–	–	A-6 (5)	CL (Bedrock)
YA-BC-3	30	CA	16.9	107.0	0	26	74	37	22	15	–	–	–	–	–	–	A-6 (10)	CL (Bedrock)
YA-BC-3	40	CA	20.0	104.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-BC-4	2	CA	4.8	–	38	53	9	NV	NP	NP	–	–	–	–	–	–	A-1-a (0)	SP-SM
YA-BC-4	9	–	–	–	–	–	–	–	–	–	8.0	0.014	825	0.0111	–	–	–	–

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-BC-4	15	CA	17.6	104.8	0	52	48	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	SM (Bedrock)
YA-BC-4	24	CA	17.1	111.2	0	58	42	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	SM (Bedrock)
YA-BC-4	35	CA	16.7	110.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-BC-4	50	CA	15.8	112.2	0	25	75	39	22	17	–	–	–	–	–	–	A-6 (12)	CL (Bedrock)
YA-BC-4	54	CA	19.8	106.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-RW-1	2	CA	16.7	114.2	1	28	71	41	16	25	–	–	–	–	1.7	–	A-7-6 (16)	CL
YA-RW-1	10	CA	18.9	108.6	0	49	51	35	18	17	–	–	–	–	–	–	A-6 (5)	CL
YA-RW-1	20	CA	16.6	111.4	0	34	66	42	19	23	–	–	–	–	–	–	A-7-6 (13)	CL
YA-RW-1	30	CA	14.1	117.5	0	43	57	32	20	12	–	–	–	–	–	–	A-6 (4)	CL (Bedrock)
YA-RW-1	40	CA	12.5	107.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-RW-2	2	CA	15.4	114.1	10	43	47	40	18	22	–	–	–	–	0.4	–	A-6 (6)	SC
YA-RW-2	15	CA	19.4	107.0	0	29	71	38	18	20	–	–	–	–	–	–	A-6 (12)	CL
YA-RW-2	25	CA	16.5	111.6	0	26	74	42	16	26	–	–	–	–	–	–	A-7-6 (18)	CL
YA-RW-2	35	CA	6.4	125.6	0	19	81	35	18	17	–	–	–	–	–	–	A-6 (12)	CL (Bedrock)
YA-RW-3	10	CA	17.5	110.2	0	49	51	40	20	20	–	–	–	–	–	–	A-7-6 (7)	CL
YA-RW-3	20	CA	21.1	104.2	0	18	82	55	23	32	–	–	–		–	–	A-7-6 (28)	CH
YA-RW-3	25	CA	14.9	117.8	0	40	60	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	ML (Bedrock)
YA-RW-3	30	CA	10.8	124.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-RW-4	5	CA	18.2	109.5	0	43	57	39	17	22	–	–	–	–	0.3	–	A-6 (6)	CL
YA-RW-4	15	CA	10.5	118.0	0	50	50	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	SM (Bedrock)
YA-RW-4	20	CA	12.3	118.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-RW-4	30	CA	12.9	120.9	0	39	61	33	18	15	–	–	–	–	–	–	A-6 (7)	CL (Bedrock)

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-RW-5	5	CA	18.3	92.3	2	25	73	38	14	24	–	–	–	–	0.2	–	A-6 (15)	CL
YA-RW-5	9	CA	15.3	–	0	54	46	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	SM (Bedrock)
YA-RW-5	19	CA	16.8	108.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-RW-6	2	CA	5.3	–	–	–	–	–	–	–	8.4	0.009	646	0.0573	–	–	–	–
YA-RW-6	4	CA	13.6	115.0	0	63	37	NV	NV	NP	–	–	–	–	-0.5	–	A-4 (0)	SM
YA-RW-6	10	CA	16.4	106.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
YA-RW-6	15	CA	16.1	114.2	0	49	51	36	18	18	–	–	–	–	–	–	A-6 (6)	CL (Bedrock)
YA-RW-7	3	CA	15.9	110.7	0	21	79	42	20	22	–	–	–	–	–	–	A-7-6 (17)	CL (Bedrock)
YA-RW-7	9	CA	17.5	96.1	0	51	49	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	SM (Bedrock)
YA-RW-8	2	CA	14.5	118.4	0	55	45	39	19	20	–	–	–	–	–	–	A-6 (5)	SC (Bedrock)
YA-RW-8	5	CA	13.3	113.3	0	59	41	36	17	19	–	–	–	–	–	–	A-6 (5)	SC (Bedrock)
YA-RW-9	2	CA	16.7	113.5	0	49	51	40	19	21	–	–	–	–	–	–	A-6 (7)	CL
YA-RW-9	5	CA	16.6	110.9	0	14	86	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	ML (Bedrock)
YA-RW-9	14	CA	17.1	111.0	2	42	56	40	20	20	–	–	–	–	–	–	A-6 (7)	CL (Bedrock)
YA-RW-10	3	CA	5.5	–	5	49	46	39	18	21	–	–	–	–	–	–	A-6 (6)	SC
YA-RW-10	6	CA	16.0	100.3	0	40	60	39	20	19	–	–	–	–	–	–	A-6 (9)	CL (Bedrock)
YA-RW-10	19	CA	17.5	101.8	0	17	83	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	ML (Bedrock)

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-PNB-1	2.7-5	Bulk	–	–	9	60	31	38	19	19	–	–	–	–	–	–	A-2-6 (1)	SC
YA-PNB-1	2.2	CA	16.6	111.5	11	43	46	35	20	15	–	–	–	–	–	–	A-6 (3)	CL
YA-PNB-2	2.2-5	Bulk	–	–	12	42	46	37	16	21	–	–	–	–	–	–	A-6 (5)	SC
YA-PNB-2	2	CA	16.2	115.4	0	48	52	37	22	15	–	–	–	–	0.2	–	A-6 (5)	CL
YA-PNB-3	2.5-5	Bulk	–	–	11	54	35	38	14	24	–	–	–	–	–	–	A-2-6 (3)	SC
YA-PNB-3	2.2	CA	3.9	135.2	32	51	17	NV	NP	NP	–	–	–	–	–	–	A-1-b (0)	SM
YA-PNB-4	2.5-5	Bulk	–	–	10	49	41	43	18	25	–	–	–	–	–	–	A-7-6 (5)	SC
YA-PNB-4	2	CA	6.7	129.3	27	50	23	36	16	20	–	–	–	–	0.8	–	A-2-6 (0)	SC
YA-PNB-5	2.7-5	Bulk	–	–	3	33	64	37	16	21	–	–	–	–	–	–	A-6 (11)	CL
YA-PNB-5	5	CA	18.7	105.2	0	52	48	37	18	19	–	–	–	–	0.8	–	A-6 (5)	SC
YA-PNB-5	10	CA	17.8	106.4	–	–	–	–	–	–	7.0	0.008	754	0.0021	–	–	–	–
YA-PNB-6	2.2-5	Bulk	–	–	9	50	41	36	17	19	10.1	0.044	1721	0.0081	–	30	A-6 (3)	SC
YA-PNB-6	2	CA	8.6	125.1	15	58	27	41	16	25	–	–	–	–	–	–	A-2-7 (0)	SC
YA-PNB-7	2.7-5	Bulk	–	–	8	57	35	39	17	22	–	–	–	–	–	–	A-6 (2)	SC
YA-PNB-7	2.2	CA	6.2	134.4	26	53	21	27	16	11	–	–	–	–	–	–	A-2-6 (0)	SC
YA-PNB-8	2.3-5	Bulk	–	–	10	48	42	36	14	22	–	–	–	–	–	–	A-6 (5)	SC

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-PNB-8	2	CA	15.8	113.0	5	30	65	39	17	22	–	–	–	–	0.7	–	A-6 (12)	CL
YA-PNB-9/ YA-BC-4	2.1-5	Bulk	–	–	14	46	40	37	17	20	–	–	–	–	–	–	A-6 (3)	SC
YA-PNB-10	2.2	CA	6.1	132.1	28	49	23	27	16	11	–	–	–	–	–	–	A-2-6 (0)	SC
YA-PNB-11	3.3-5	Bulk	–	–	9	51	40	38	16	22	–	–	–	–	–	–	A-6 (4)	SC
YA-PNB-11	5	CA	19.6	105.2	0	30	70	36	15	21	–	–	–	–	0.0	–	A-6 (12)	CL
YA-PNB-12	2.1-5	Bulk	–	–	10	42	48	44	18	26	9.3	0.038	1107	0.0208	–	16	A-7-6 (8)	SC
YA-PNB-12	2	CA	4.7	116.1	36	52	12	NV	NP	NP	–	–	–	–	–	–	A-1-a (0)	SP-SM
YA-PNB-13	2.3-5	Bulk	–	–	16	52	32	42	18	24	–	–	–	–	–	–	A-2-7 (2)	SC
YA-PNB-13	2	CA	22.2	124.2	31	67	2	NV	NP	NP				–	–	–	A-1-b (0)	SM
YA-PNB-14	2.2-5	Bulk	–	–	10	51	39	36	13	23	–	–	–	–	–	–	A-6 (4)	SC
YA-PNB-14	2	CA	8.7	123.7	21	44	35	41	17	24	–	–	–	–	–	–	A-2-7 (3)	SC
YA-PNB-15	2.1-5	Bulk	–	–	6	49	45	36	16	20	–	–	–	–	–	–	A-6 (5)	SC
YA-PNB-15	2	CA	4.2	134.9	39	46	15	NV	NP	NP	–	–	–	–	–	–	A-1-a (0)	SM
YA-PNB-15	6	CA	18.9	104.8	1	28	71	34	16	18	–	–	–	–	0.3	–	A-6 (11)	CL
YA-PNB-16	2.2-5	Bulk	–	–	6	48	46	38	18	20	–	–	–	–	–	–	A-6 (5)	SC
YA-PNB-16	2	CA	4.4	–	37	52	11	NV	NP	NP	–	–	–	–	–	–	A-1-a (0)	SW-SM

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-PSB-1	3-5	Bulk	–	–	0	25	75	40	15	25	8.7	0.024	941	0.0119	–	15	A-6 (17)	CL
YA-PSB-1	3	CA	18.4	115.5	0	26	74	41	18	23	–	–	–	–	1.4	–	A-7-6 (16)	CL
YA-PSB-2	2.7-5	Bulk	–	–	4	38	58	38	17	21	–	–	–	–	–	–	A-6 (9)	CL
YA-PSB-2	2	CA	18.2	112.2	0	15	85	44	16	28	–	–	–	–	1.5	–	A-7-6 (23)	CL
YA-PSB-3	3-5	Bulk	–	–	1	28	71	38	17	21	–	–	–	–	–	–	A-6 (13)	CL
YA-PSB-3	3	CA	17.2	110.9	1	24	75	39	17	22	–	–	–	–	–	–	A-6 (15)	CL
YA-PSB-4	2.5-5	Bulk	–	–	5	47	48	37	17	20	–	–	–	–	–	–	A-6 (6)	SC
YA-PSB-4	2.3	CA	17.5	103.9	0	43	57	48	20	28	–	–	–	–	–	–	A-7-6 (13)	CL
YA-PSB-4	5	CA	11.8	123.0	0	46	54	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	SM
YA-PSB-5	2.5-5	Bulk	–	–	1	22	77	48	21	27	8.2	0.024	726	0.0202	–	12	A-7-6 (21)	CL
YA-PSB-5	3	CA	25.3	101.8	0	17	83	59	21	38	–	–	–	–	–	–	A-7-6 (33)	CH
YA-PSB-6	2.3-5	Bulk	–	–	6	60	34	44	17	27	–	–	–	–	–	–	A-2-7 (3)	SC
YA-PSB-6	2	CA	16.8	110.8	6	17	77	44	16	28	–	–	–	–	1.8	–	A-7-6 (20)	CL
YA-PSB-7	2.8-5	Bulk	–	–	4	23	73	29	18	11	–	–	–	–	–	–	A-6 (6)	CL
YA-PSB-7	3	CA	22.6	100.7	0	13	87	43	19	24	–	–	–	–	–	–	A-7-6 (21)	CL
YA-PSB-8	2.4-5	Bulk	–	–	7	52	41	40	19	21	–	–	–	–	–	–	A-6 (4)	SC

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-PSB-8	2.1	CA	17.6	113.8	0	12	88	44	17	27	–	–	–	–	–	–	A-7-6 (24)	CL
YA-PSB-9	2-5	Bulk	–	–	2	20	78	44	18	26	–	–	–	–	–	–	A-7-6 (19)	CL
YA-PSB-9	2	CA	18.2	110.5	0	14	86	48	18	30	–	–	–	–	1.5	–	A-7-6 (26)	CL
YA-PSB-9	5	CA	20.8	105.9	0	54	46	NV	NP	NP	–	–	–	–	–	–	A-4 (0)	SM
YA-PSB-10	2.3-5	Bulk	–	–	7	38	55	45	18	27	10.4	0.039	1567	0.0168	–	14	A-7-6 (11)	CL
YA-PSB-10	2	CA	14.3	114.2	14	20	66	49	17	32	–	–	–	–	0.9	–	A-7-6 (19)	CL
YA-PSB-11	2.8-5	Bulk	–	–	2	29	69	56	17	39	–	–	–	–	–		A-7-6 (25)	CH
YA-PSB-11	3	CA	17.7	112.3	0	34	66	39	16	23	–	–	–	–	–	–	A-6 (13)	CL
YA-PSB-12	2-5	Bulk	–	–	11	48	41	47	20	27	–	–	–	–	–	–	A-7-6 (6)	SC
YA-PSB-12	2	CA	22.0	107.2	0	21	79	36	15	21	–	–	–	–	–	–	A-6 (13)	CL
YA-PSB-12	5	CA	14.5	106.2	7	31	62	41	15	26	–	–	–	–	–	–	A-7-6 (13)	CL
YA-PSB-13	2.5-5	Bulk	–	–	1	27	72	38	17	21	–	–	–	–	–	–	A-6 (13)	CL
YA-PSB-13	2.5	CA	19.6	108.9	0	18	82	43	18	25	–	–	–	–	–	–	A-7-6 (20)	CL
YA-PSB-13	5	CA	22.1	102.7	0	35	65	36	19	17	–	–	–	–	0.0	–	A-6 (9)	CL
YA-PSB-14	2.7-5	Bulk	–	–	7	37	56	43	18	25	–	–	–	–	–	–	A-7-6 (11)	CL
YA-PSB-14	2.2	CA	23.6	99.1	0	16	84	40	21	19	–	–	–	–	0.1	–	A-6 (16)	CL

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Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

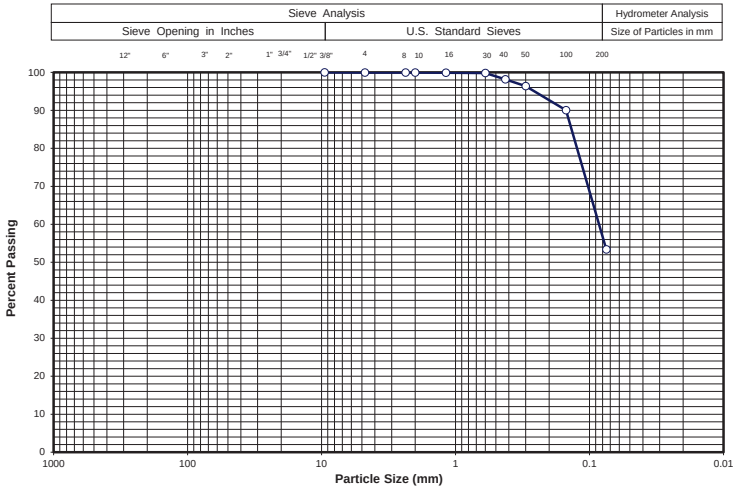
Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-PSB-15	2.4-5	Bulk	–	–	4	56	40	34	18	16	–	–	–	–	–	–	A-6 (2)	SC
YA-PSB-15	2.4	CA	20.8	104.4	0	30	70	43	17	26	–	–	–	–	–	–	A-7-6 (16)	CL
YA-PSB-16	2.1-5	Bulk	–	–	5	60	35	42	18	24	–	–	–	–	–	–	A-7-6 (3)	SC
YA-PSB-16	2.2	CA	17.1	115.2	0	16	84	43	14	29	–	–	–	–	0.9	–	A-7-6 (16)	CL
YA-PC-1	1-5	Bulk	–	–	1	41	58	37	15	22	–	–	–	–	–	–	A-6 (9)	CL
YA-PC-1	2	CA	13.9	115.9	22	35	43	35	20	15	–	–	–	–	0.4	–	A-6 (3)	SC
YA-PC-2	0.5-5	Bulk	–	–	1	47	52	38	14	24	8.0	0.069	533	0.0152	–	23	A-6 (3)	CL
YA-PC-2	2	CA	13.7	117.8	0	64	36	39	18	21	–	–	–	–	1.3	–	A-6 (3)	SC (Bedrock)
YA-PC-2	5	CA	16.6	112.9	0	65	35	NV	NP	NP	–	–	–	–	–	–	A-2-4 (0)	SM (Bedrock)
YA-PR-1	0.5-5	Bulk	–	–	6	52	42	38	18	20	7.9	0.007	954	0.0325	–	29	A-6 (4)	SC
YA-PR-1	2	CA	4.4	114.2	34	49	17	NV	NP	NP	–	–	–	–	–	–	A-1-b (0)	SM
YA-PR-1	2	CA	13.6	–	16	69	15	NV	NP	NP	–	–	–	–	–	–	A-1-b (0)	SM
YA-PR-2	0.7-5	Bulk	–	–	4	30	66	31	15	16	–	–	–	–	–	–	A-6 (8)	CL
YA-PR-2	2	CA	5.3	120.4	23	67	10	NV	NP	NP	–	–	–	–	–	–	A-1-b (0)	SP-SM (Bedrock)
YA-PR-2	5	CA	14.4	114.2	0	65	35	NV	NP	NP	–	–	–	–	–	–	A-2-4 (0)	SM
YA-PR-3	0.4-5	Bulk	–	–	16	68	16	34	16	18	–	–	–	–	–	–	A-2-6 (0)	SC

YEH & ASSOCIATES, INC

Summary of Laboratory Test Results

Project No: 215-043 Project Name: I-25 Crossroad Bridge Replacement Date: 5/25/2015

Sample Location			Natural Moisture Content (%)	Natural Dry Density (pcf)	Gradation			Atterberg			pH	Water Soluble Sulfate %	Resistivity ohm.cm	Water Soluble Chloride %	% Swell (+) / Consoli-dation (-)	R-Value	CLASSIFICATION	
Boring No.	Depth (ft)	Sample Type			Gravel > #4 (%)	Sand (%)	Fines < #200 (%)	LL	PL	PI							AASHTO	USCS
YA-PR-3	2	CA	4.1	–	39	54	7	NV	NP	NP	–	–	–	–	–	–	A-1-a (0)	SW-SM
YA-PR-3	2	CA	6.2	128.2	63	35	2	NV	NP	NP	–	–	–	–	–	–	A-1-a (0)	GW
YA-PR-3	5	CA	16.2	112.3	0	65	35	33	22	11	–	–	–	–	–	–	A-2-6 (0)	SC (Bedrock)
YA-PR-4	0.5-5	Bulk	–	–	24	61	15	34	16	18	8.1	0.007	1504	0.0153	–	46	A-2-6 (0)	SC
YA-PR-4	2	CA	5.8	–	33	57	10	NV	NP	NP	–	–	–	–	–	–	A-1-b (0)	SW-SM
YA-PR-4	5	CA	17.1	110.7	0	22	78	45	17	28	–	–	–	–	–	–	A-7-6 (21)	CL



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	100
#10	100
#40	98
#200	53

Gravel (%)	0	LL	41	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	47	PL	20	Sample ID:	YA-BC-1
Fines (%)	53	PI	21	Sample Depth (ft.):	5
Sample Description:	A-7-6 (7) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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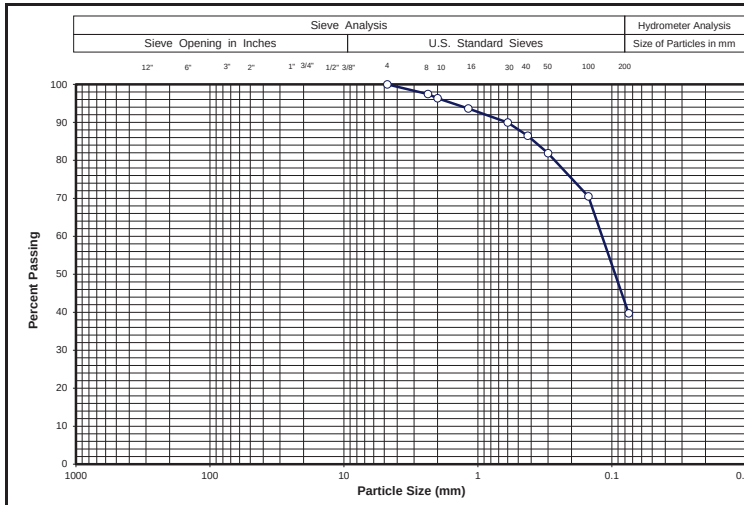

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	96
#40	86
#200	40

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	60	PL	NP	Sample ID:	YA-BC-1
Fines (%)	40	PI	NP	Sample Depth (ft.):	19
Sample Description:	A-4 (0) / SM				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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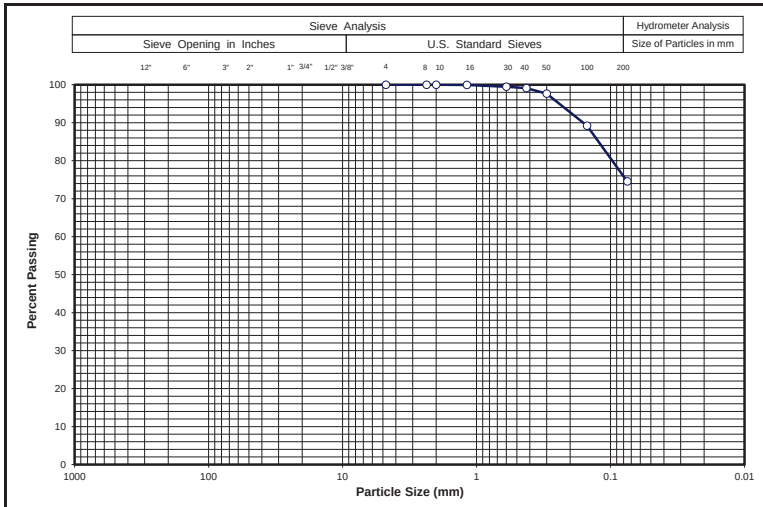

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	75

Gravel (%)	0	LL	43	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	25	PL	20	Sample ID:	YA-BC-2
Fines (%)	75	PI	23	Sample Depth (ft.):	5
Sample Description:	A-7-6 (16) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Masoud		
Date:	07/13/15	Figure No.:	-

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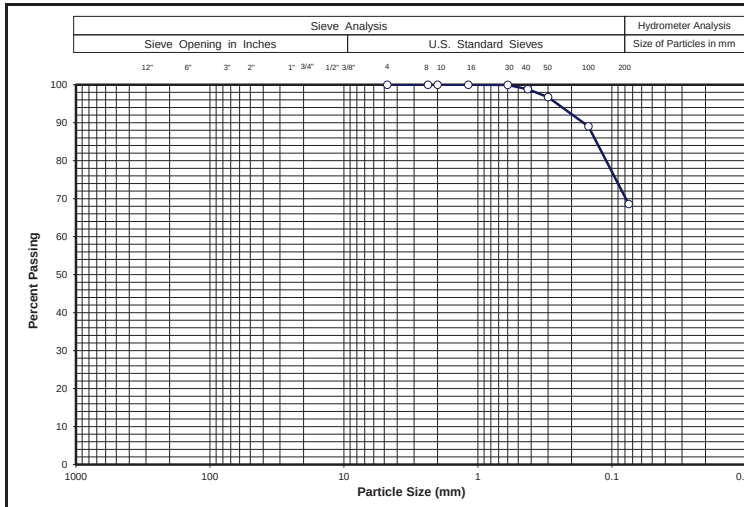

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	69

Gravel (%)	0	LL	37	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	31	PL	20	Sample ID:	YA-BC-2
Fines (%)	69	PI	17	Sample Depth (ft.):	25
Sample Description:	A-6 (10) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Masoud		
Date:	07/13/15	Figure No.:	-

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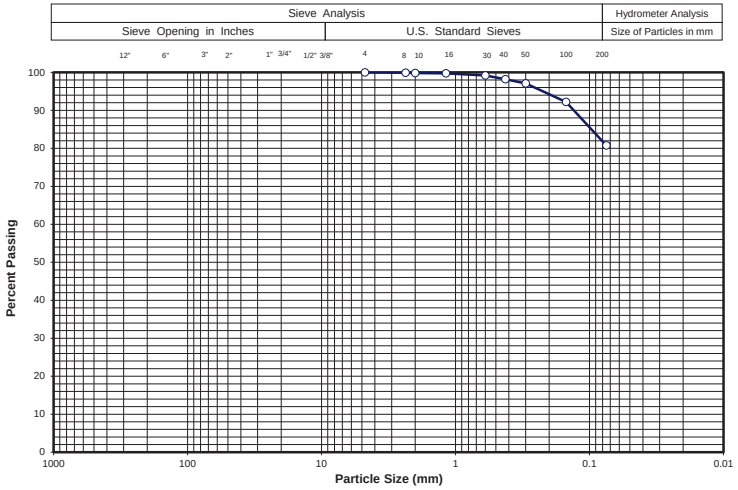

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	98
#200	81

Gravel (%)	0	LL	39	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	19	PL	20	Sample ID:	YA-BC-2
Fines (%)	81	PI	19	Sample Depth (ft.):	40
Sample Description:	A-6 (15) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	07/13/15	Figure No.:	-

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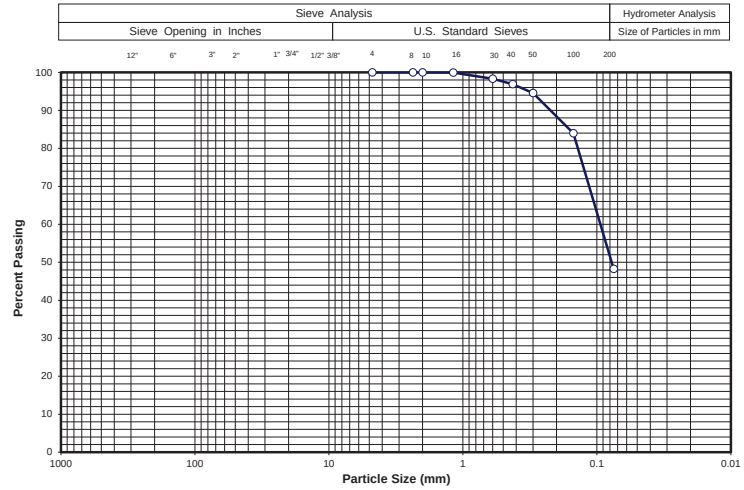

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	97
#200	48

Gravel (%)	0	LL	43	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	52	PL	22	Sample ID:	YA-BC-3
Fines (%)	48	PI	21	Sample Depth (ft.):	5
Sample Description:	A-7-6 (6) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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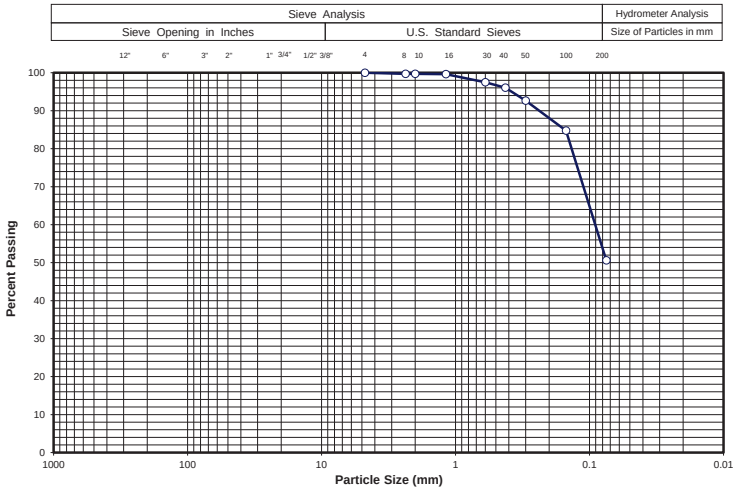

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	96
#200	51

Gravel (%)	0	LL	38	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	49	PL	22	Sample ID:	YA-BC-3
Fines (%)	51	PI	16	Sample Depth (ft.):	15
Sample Description:	A-6 (5) / CL				

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Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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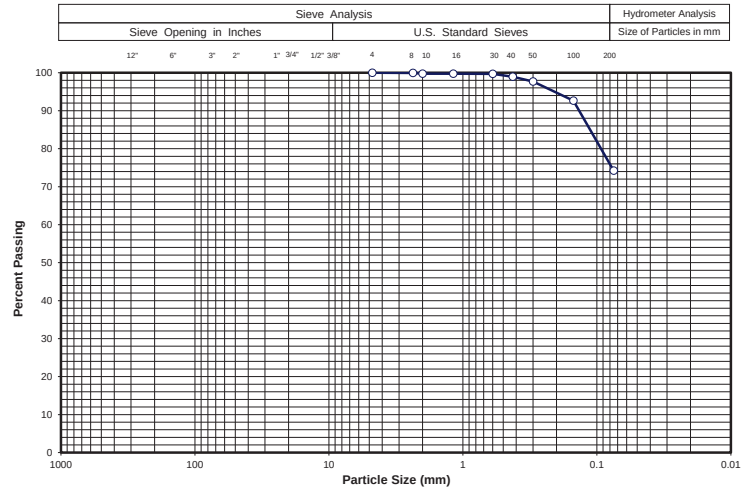

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	74

Gravel (%)	0	LL	37	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	26	PL	22	Sample ID:	YA-BC-3
Fines (%)	74	PI	15	Sample Depth (ft.):	30
Sample Description:	A-6 (10) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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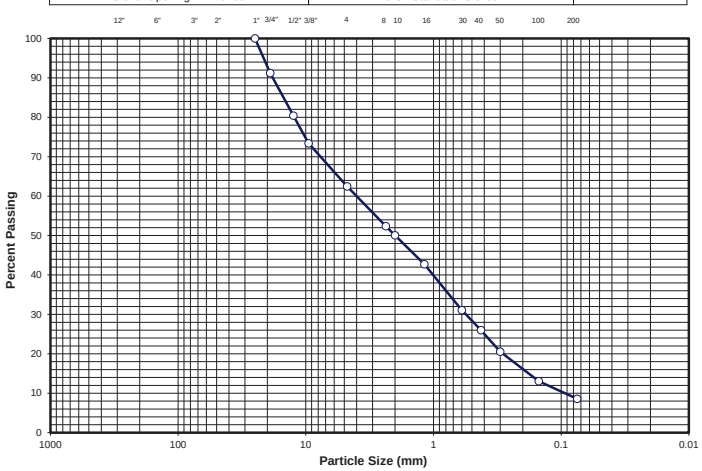

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	62
#10	50
#40	26
#200	9

Gravel (%)	38	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement	
Sand (%)	54	PL	NP	Sample Id: YA-BC-4	Depth (ft)	2
Fines (%)	9	PI	NP	Soil Class.	A-1-a (0) / SP-SM	
Sample Description:						

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	06/19/15	Figure No.:	-

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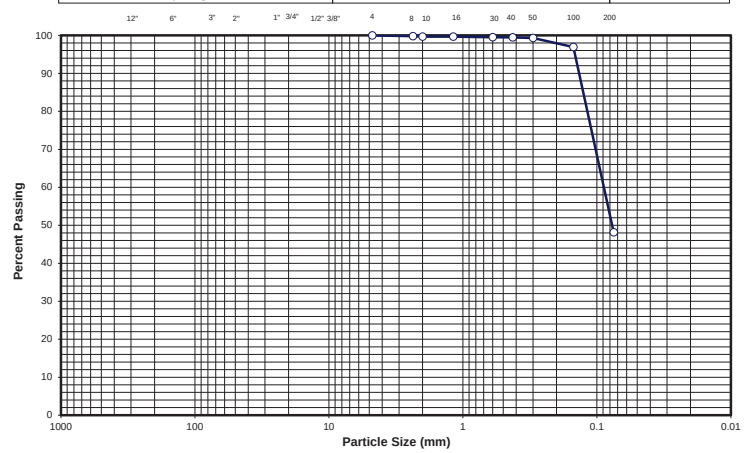

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	48

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement	
Sand (%)	52	PL	NP	Sample ID:	YA-BC-4	
Fines (%)	48	PI	NP	Sample Depth (ft.):	15	
Sample Description:	A-4 (0) / SM					

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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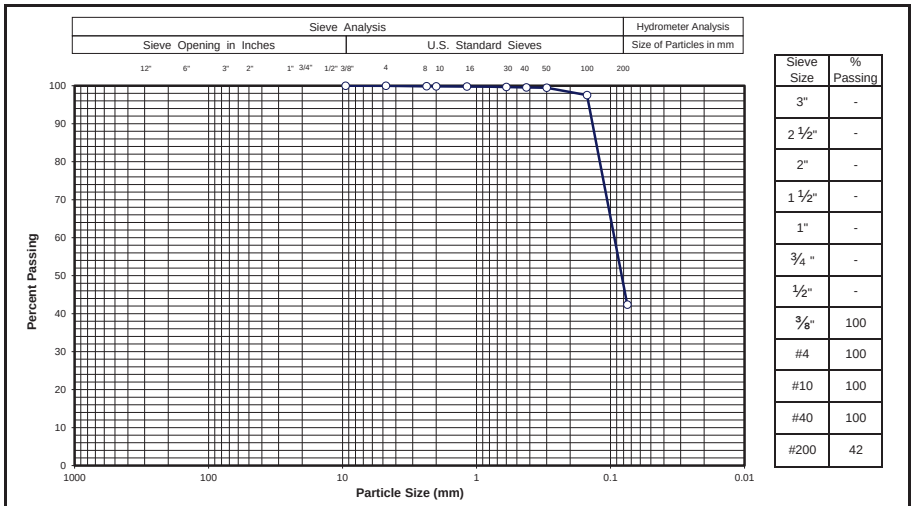

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	100
#10	100
#40	100
#200	42

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement	
Sand (%)	58	PL	NP	Sample ID:	YA-BC-4	
Fines (%)	42	PI	NP	Sample Depth (ft.):	24	
Sample Description:	A-4 (0) / SM					

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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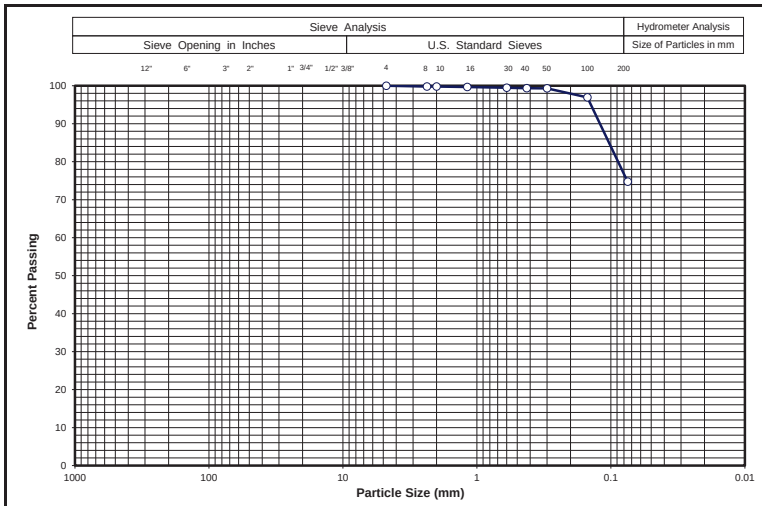

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	75

Gravel (%)	0	LL	39	Project Name:	I-25 Crossroad Bridge Replacement	
Sand (%)	25	PL	22	Sample ID:	YA-BC-4	
Fines (%)	75	PI	17	Sample Depth (ft.):	50	
Sample Description:	A-6 (12) / CL					

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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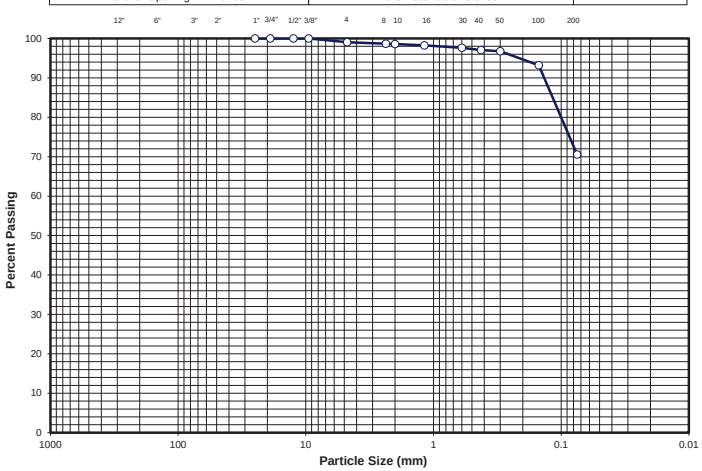

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	99
#10	99
#40	97
#200	71

Gravel (%)	1	LL	41	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	28	PL	16	Sample Id: YA-RW-1	Depth (ft) 2
Fines (%)	71	PI	25	Soil Class.	A-7-6 (6) / CL
Sample Description:					

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin	Figure No.:	-
Date:	06/19/15		

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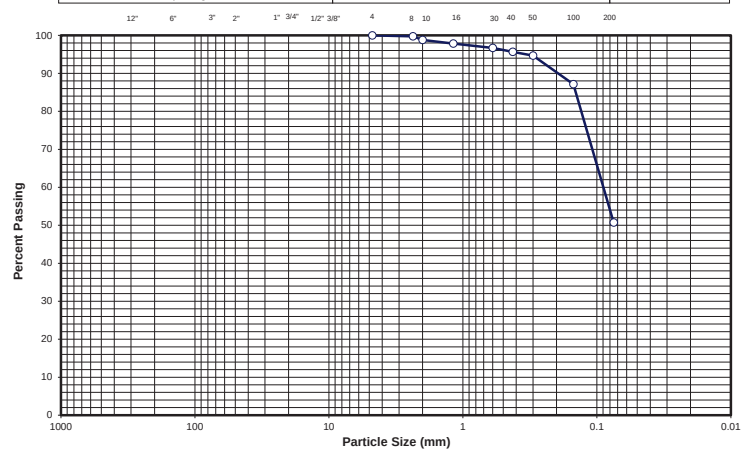

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	99
#40	96
#200	51

Gravel (%)	0	LL	35	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	49	PL	18	Sample ID:	YA-RW-1
Fines (%)	51	PI	17	Sample Depth (ft.):	10
Sample Description:	A-6 (5) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin	Figure No.:	-
Date:	06/19/15		

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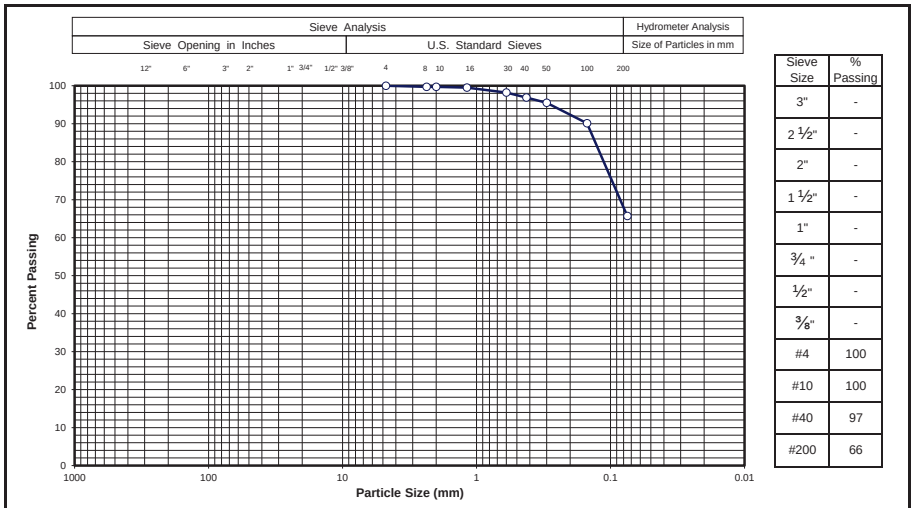

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	97
#200	66

Gravel (%)	0	LL	42	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	34	PL	19	Sample ID:	YA-RW-1
Fines (%)	66	PI	23	Sample Depth (ft.):	20
Sample Description:	A-7-6 (13) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin	Figure No.:	-
Date:	06/19/15		

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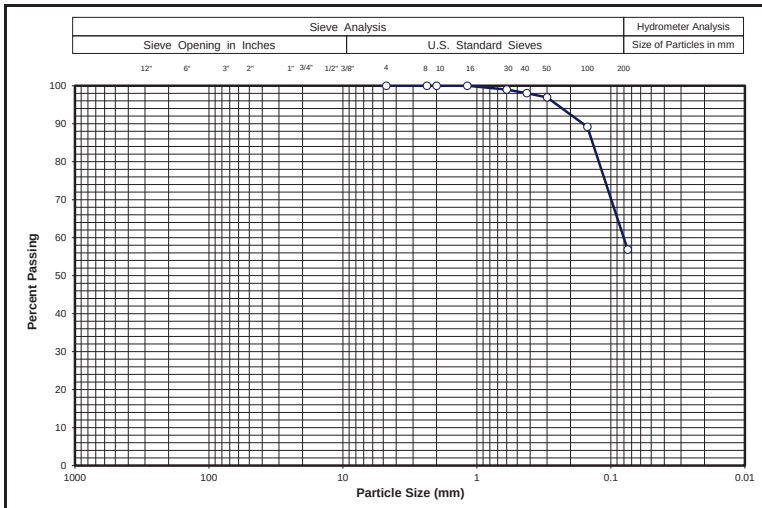

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	98
#200	57

Gravel (%)	0	LL	32	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	43	PL	20	Sample ID:	YA-RW-1
Fines (%)	57	PI	12	Sample Depth (ft.):	30
Sample Description:	A-6 (4) / CL				

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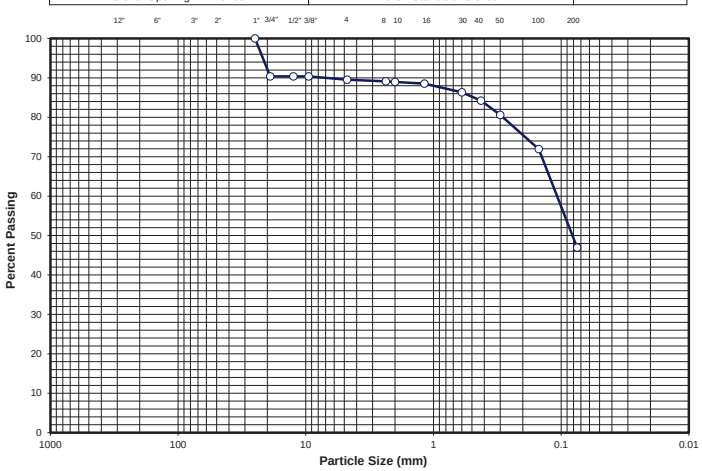
SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin	Figure No.:	-
Date:	06/19/15		

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	90
#10	89
#40	84
#200	47

Gravel (%)	10	LL	40	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	43	PL	18	Sample Id: YA-RW-2	Depth (ft) 2
Fines (%)	47	PI	22	Soil Class.	A-6 (6) / SC
Sample Description:					

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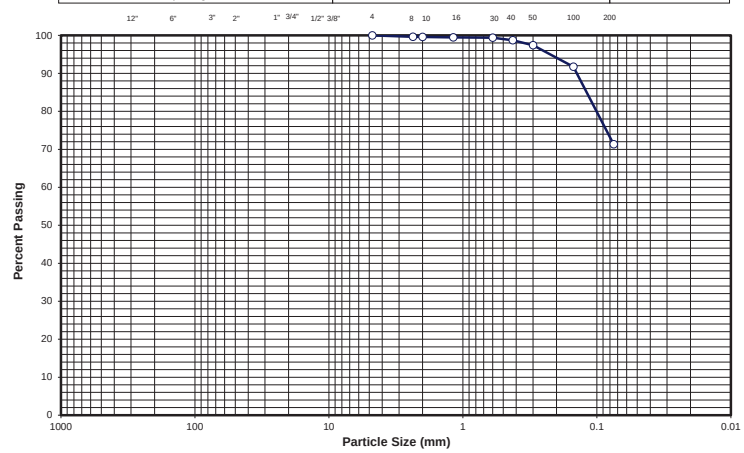
SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	06/19/15	Figure No.:	-

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	71

Gravel (%)	0	LL	38	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	29	PL	18	Sample ID:	YA-RW-2
Fines (%)	71	PI	20	Sample Depth (ft.):	15
Sample Description:	A-6 (12) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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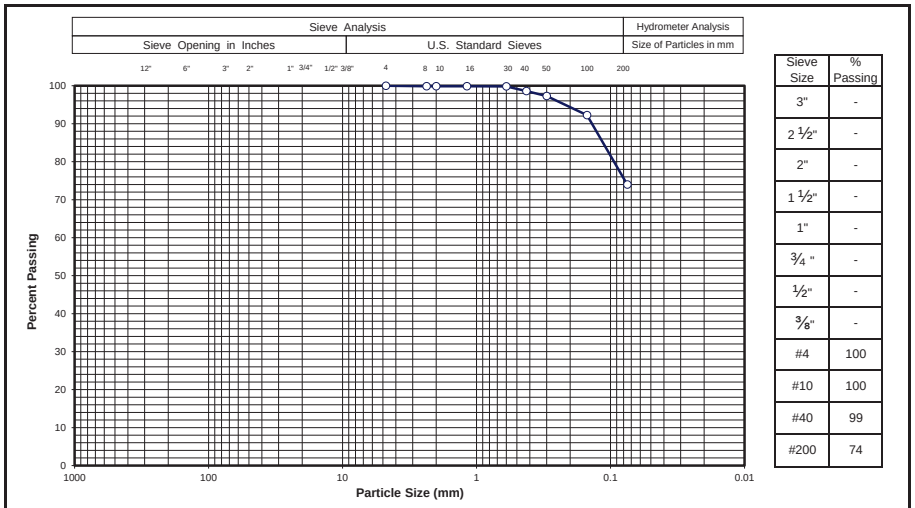

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	74

Gravel (%)	0	LL	42	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	26	PL	16	Sample ID:	YA-RW-2
Fines (%)	74	PI	26	Sample Depth (ft.):	25
Sample Description:	A-7-6 (18) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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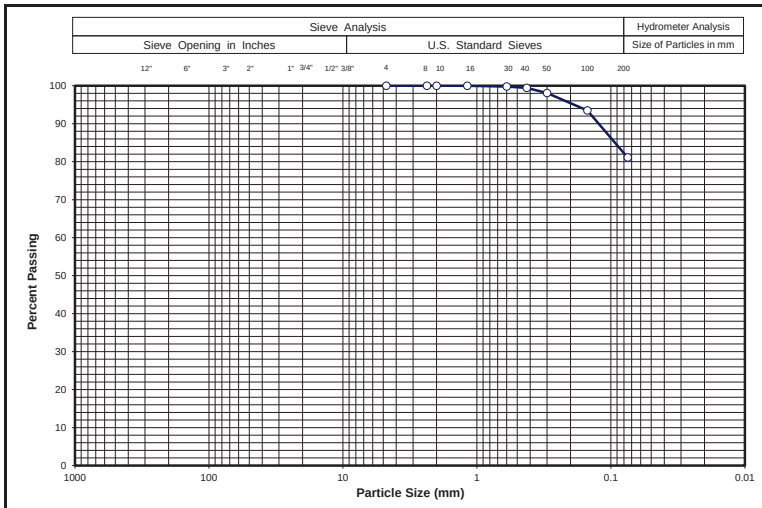

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	81

Gravel (%)	0	LL	38	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	19	PL	18	Sample ID:	YA-RW-2
Fines (%)	81	PI	20	Sample Depth (ft.):	35
Sample Description:	A-6 (15) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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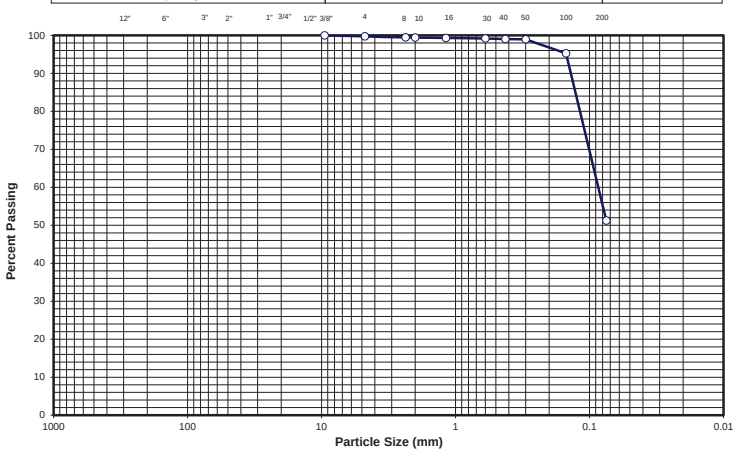

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	100
#10	99
#40	99
#200	51

Gravel (%)	0	LL	40	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	49	PL	20	Sample ID:	YA-RW-3
Fines (%)	51	PI	20	Sample Depth (ft.):	10
Sample Description:	A-6 (7) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/30/15	Figure No.:	-

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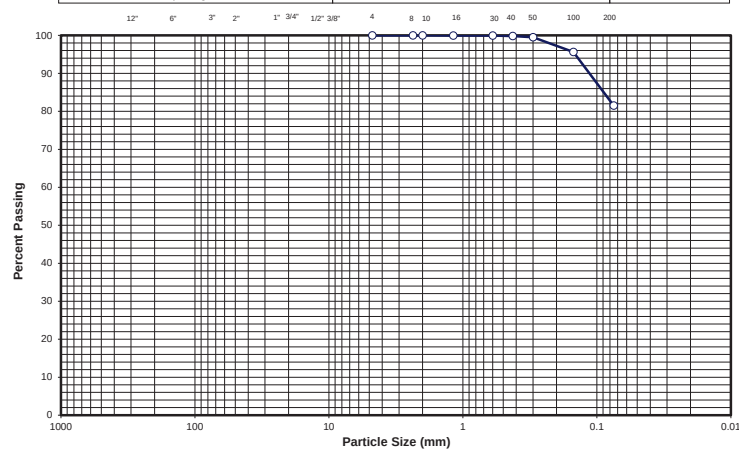

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	82

Gravel (%)	0	LL	55	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	18	PL	23	Sample ID:	YA-RW-3
Fines (%)	82	PI	32	Sample Depth (ft.):	20
Sample Description:	A-7-6 (28) / CH				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/30/15	Figure No.:	-

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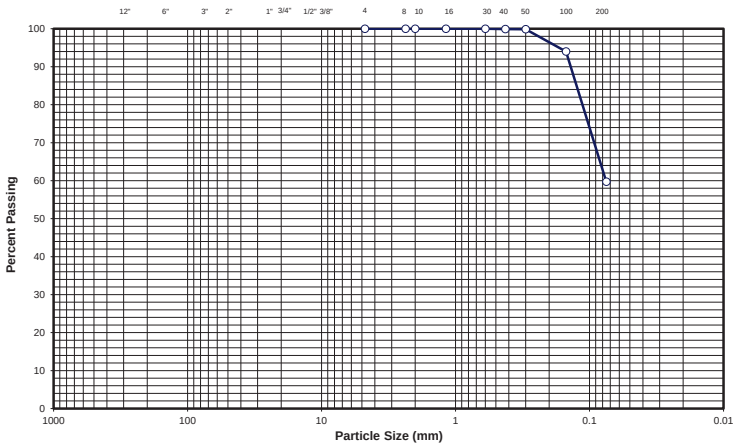

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	60

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	40	PL	NP	Sample ID:	YA-RW-3
Fines (%)	60	PI	NP	Sample Depth (ft.):	25
Sample Description:	A-4 (0) / ML				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/30/15	Figure No.:	-

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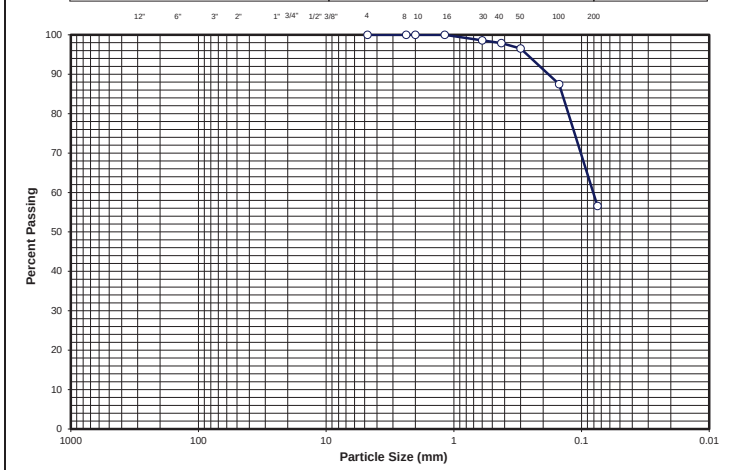

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	98
#200	57

Gravel (%)	0	LL	39	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	43	PL	17	Sample Id:	YA-RW-4	Depth (ft)	5
Fines (%)	57	PI	22	Soil Class.	A-6 (16) / CL		
Sample Description:							

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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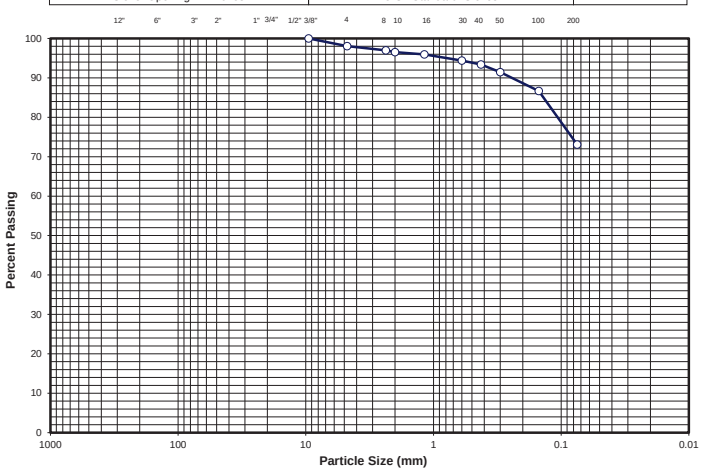

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	98
#10	97
#40	93
#200	73

Gravel (%)	2	LL	38	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	25	PL	14	Sample Id:	YA-RW-5	Depth (ft)	5
Fines (%)	73	PI	24	Soil Class.	A-6 (15) / CL		
Sample Description:							

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
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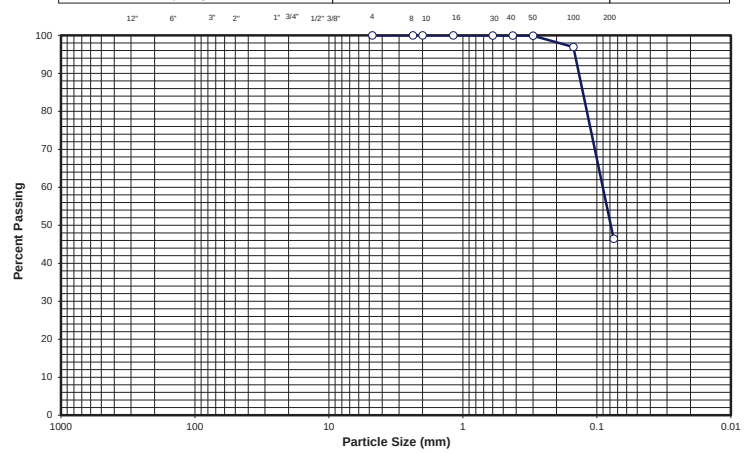

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	46

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	54	PL	NP	Sample ID:	YA-RW-5		
Fines (%)	46	PI	NP	Sample Depth (ft.):	9		
Sample Description:	A-4 (0) / SM						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/02/15	Figure No.:	-

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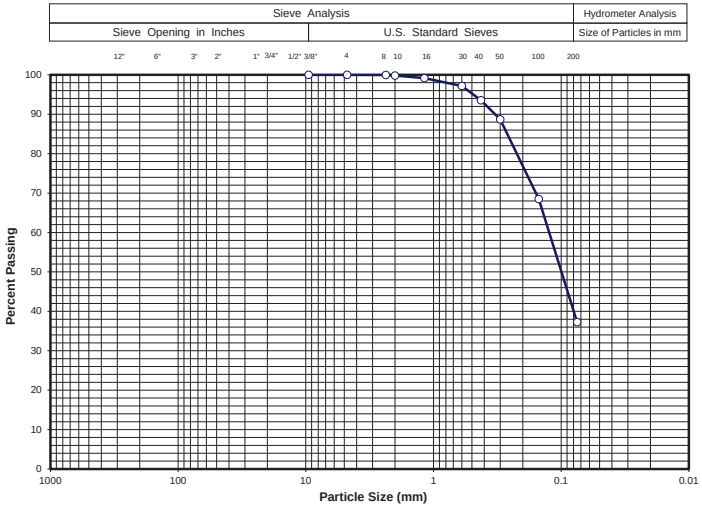

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	94
#200	37

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	63	PL	NP	Sample Id:	YA-RW-6	Depth (ft)	4
Fines (%)	37	PI	NP	Soil Class.	A-4 (15) / SM		
Sample Description:							

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
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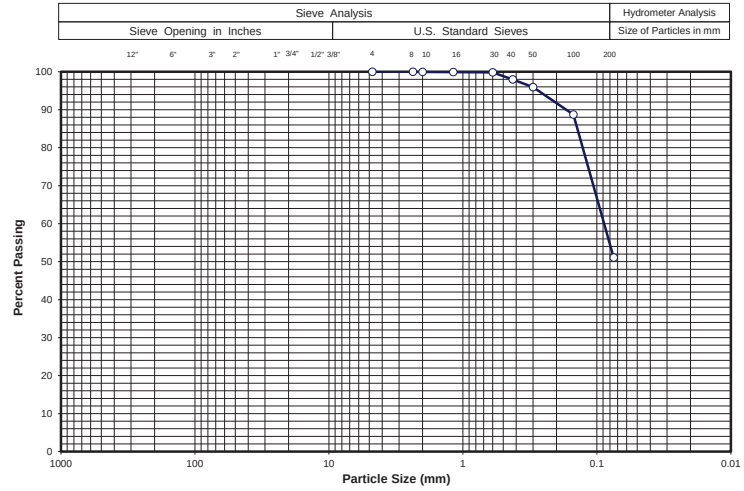

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	98
#200	51

Gravel (%)	0	LL	36	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	49	PL	18	Sample ID:	YA-RW-6		
Fines (%)	51	PI	18	Sample Depth (ft.):	15		
Sample Description:	A-6 (6) / CL						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	07/15/15	Figure No.:	-

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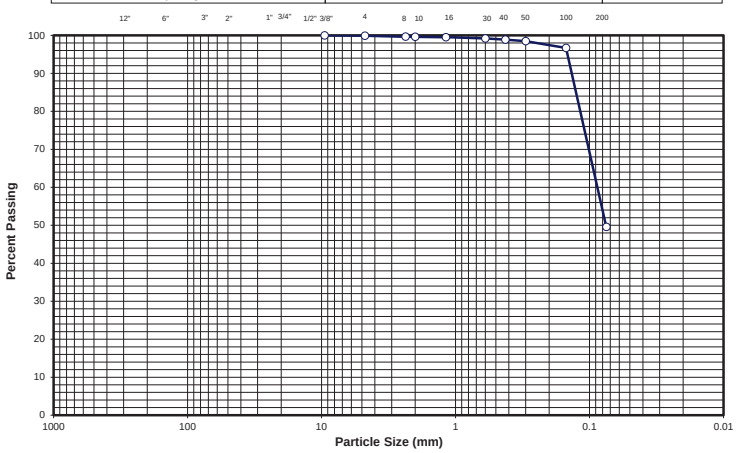

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	100
#10	100
#40	99
#200	50

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	50	PL	NP	Sample ID:	YA-RW-7
Fines (%)	50	PI	NP	Sample Depth (ft.):	9
Sample Description:	**A-4 (0) / SM**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	05/25/15	Figure No.:	-

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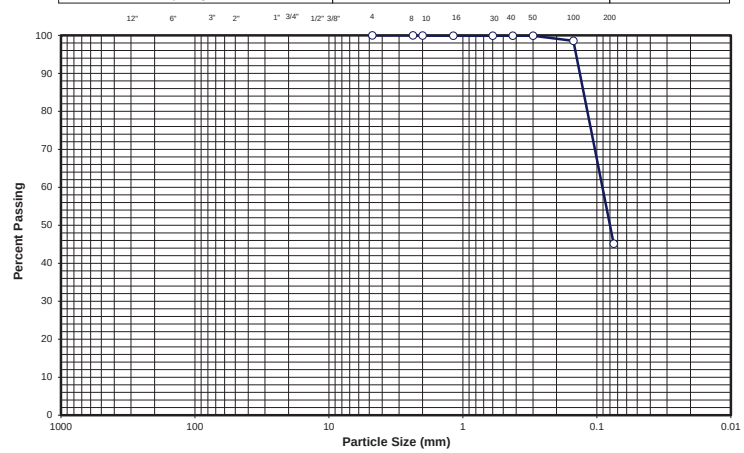

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	45

Gravel (%)	0	LL	39	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	55	PL	22	Sample ID:	YA-RW-8
Fines (%)	45	PI	17	Sample Depth (ft.):	2
Sample Description:	**A-4 (0) / SM**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	05/25/15	Figure No.:	-

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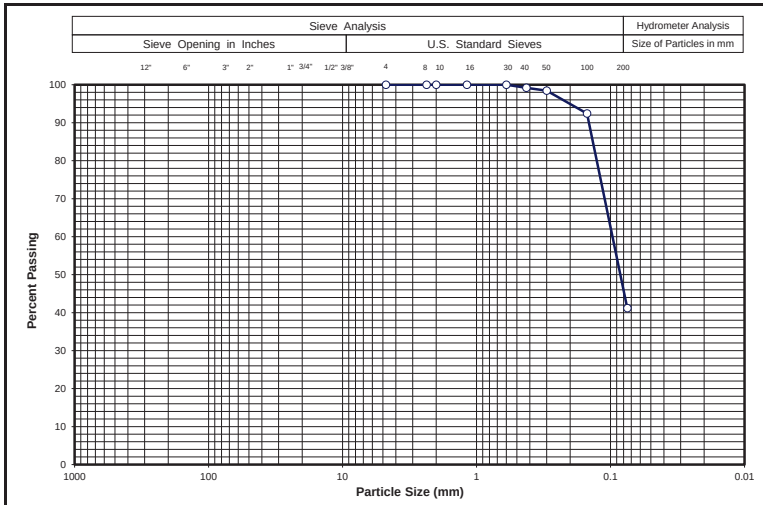

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	41

Gravel (%)	0	LL	36	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	59	PL	17	Sample ID:	YA-RW-8
Fines (%)	41	PI	19	Sample Depth (ft.):	5
Sample Description:	**A-6 (3) / SC**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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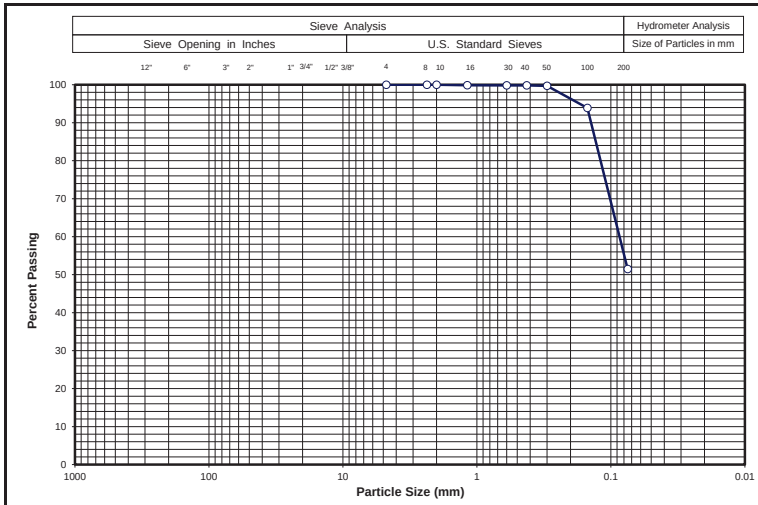

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	51

Gravel (%)	0	LL	40	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	49	PL	21	Sample ID:	YA-RW-9
Fines (%)	51	PI	19	Sample Depth (ft.):	2
Sample Description:	**A-4 (0) / SM**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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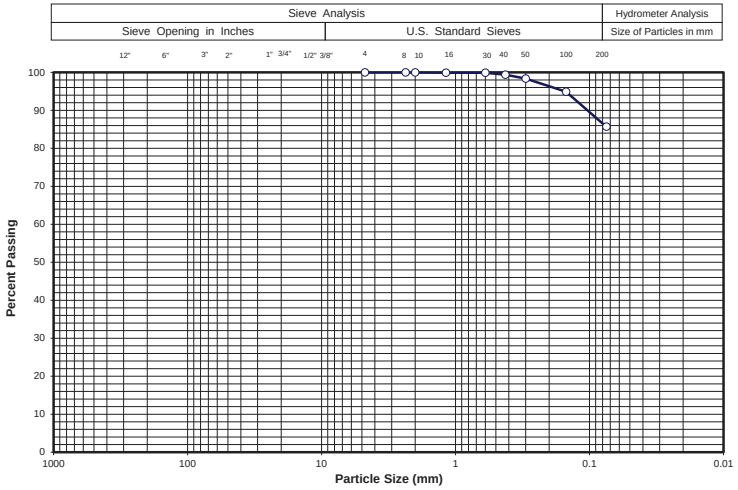

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	86

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	14	PL	NP	Sample ID:	YA-RW-9
Fines (%)	86	PI	NP	Sample Depth (ft.):	5
Sample Description:	**A-4 (0) / ML**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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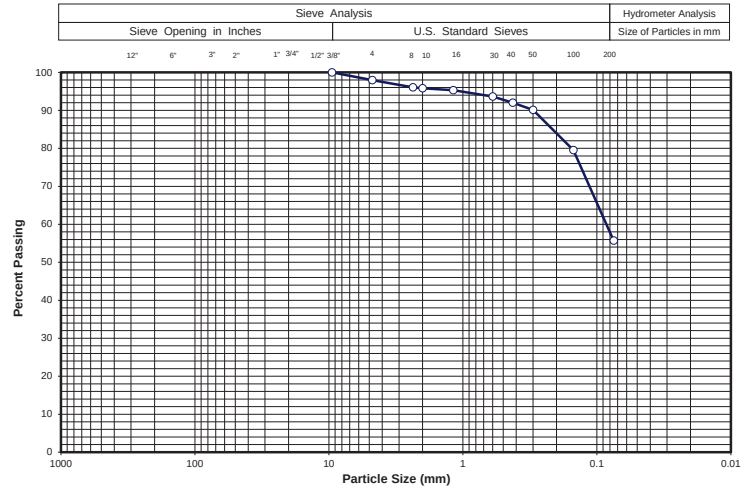

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	98
#10	96
#40	92
#200	56

Gravel (%)	2	LL	40	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	42	PL	20	Sample ID:	YA-RW-9
Fines (%)	56	PI	20	Sample Depth (ft.):	14
Sample Description:	**A-6 (8) / CL**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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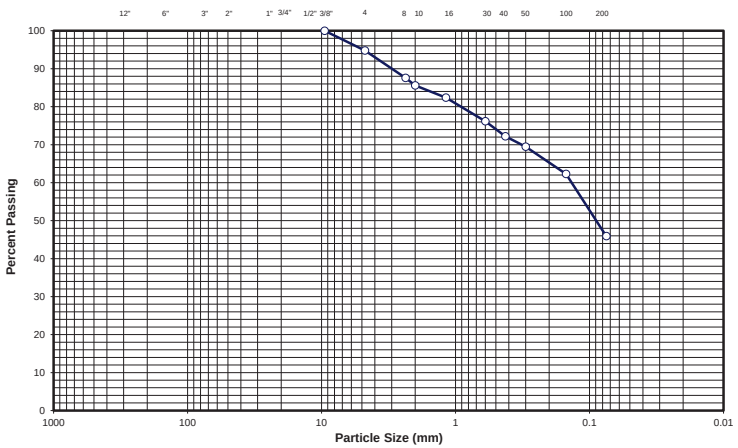

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	95
#10	86
#40	72
#200	46

Gravel (%)	5	LL	39	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	49	PL	18	Sample ID:	YA-RW-10
Fines (%)	46	PI	21	Sample Depth (ft.):	3
Sample Description:	**A-6 (6) / SC**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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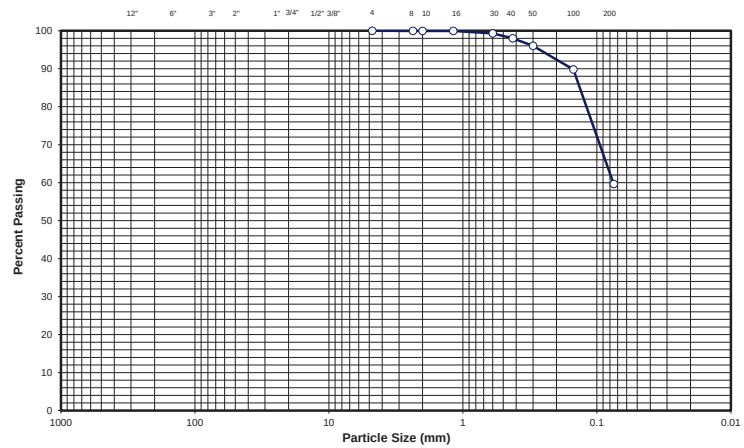

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	98
#200	60

Gravel (%)	0	LL	39	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	40	PL	20	Sample ID:	YA-RW-10
Fines (%)	60	PI	19	Sample Depth (ft.):	6
Sample Description:	**A-6 (9) / CL**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/16/15	Figure No.:	-

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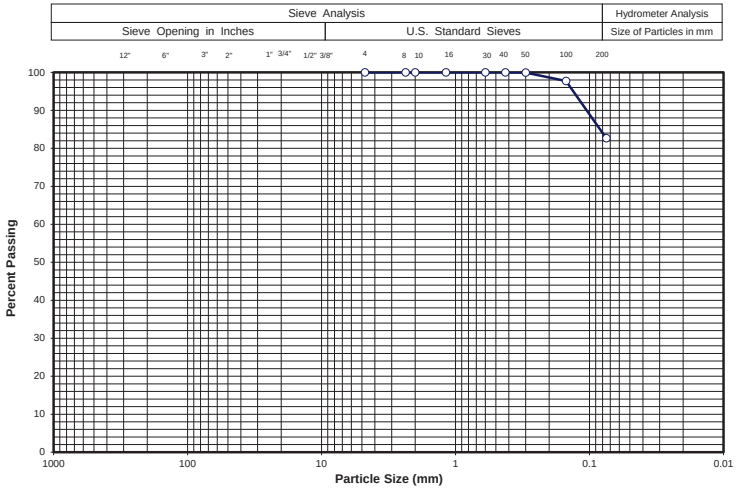

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	83

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	17	PL	NP	Sample ID:	YA-RW-10
Fines (%)	83	PI	NP	Sample Depth (ft.):	19
Sample Description:	**A-4 (0) / ML**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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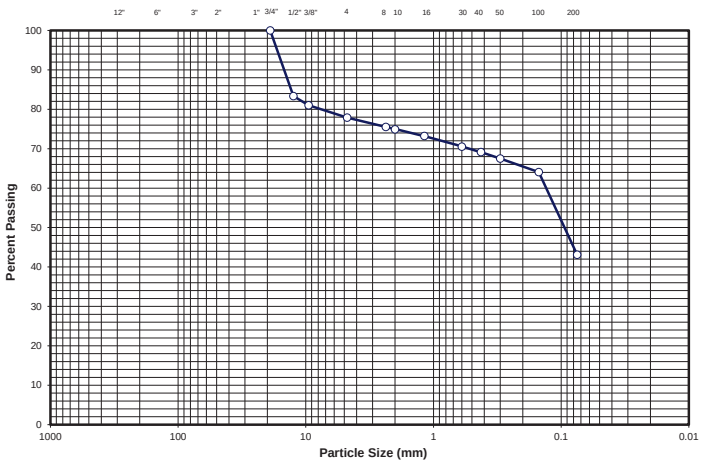

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	78
#10	75
#40	69
#200	43

Gravel (%)	22	LL	35	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	35	PL	20	Sample Id:	YA-PC-1	Depth (ft)	2
Fines (%)	43	PI	15	Soil Class.	A-6 (3) / SC		
Sample Description:							

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin	Figure No.:	-
Date:	05/30/15		

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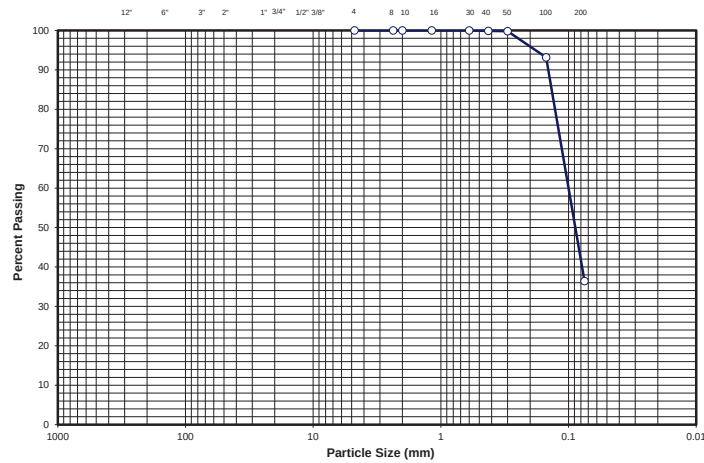

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	36

Gravel (%)	0	LL	39	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	64	PL	18	Sample Id:	YA-PC-2	Depth (ft)	2
Fines (%)	36	PI	21	Soil Class.	A-6 (16) / SC		
Sample Description:							

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
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Date:	05/25/15		

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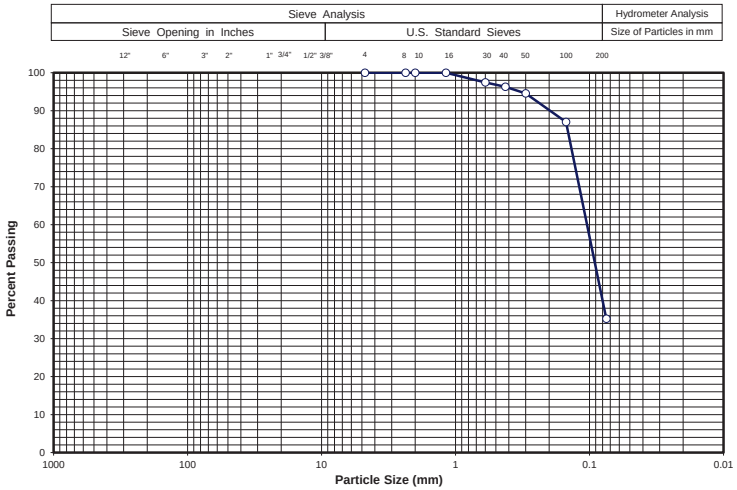

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	96
#200	35

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	65	PL	NP	Sample ID:	YA-PC-2
Fines (%)	35	PI	NP	Sample Depth (ft.):	5
Sample Description:	**A-2-4 (0) / SM**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin	Figure No.:	-
Date:	05/25/15		

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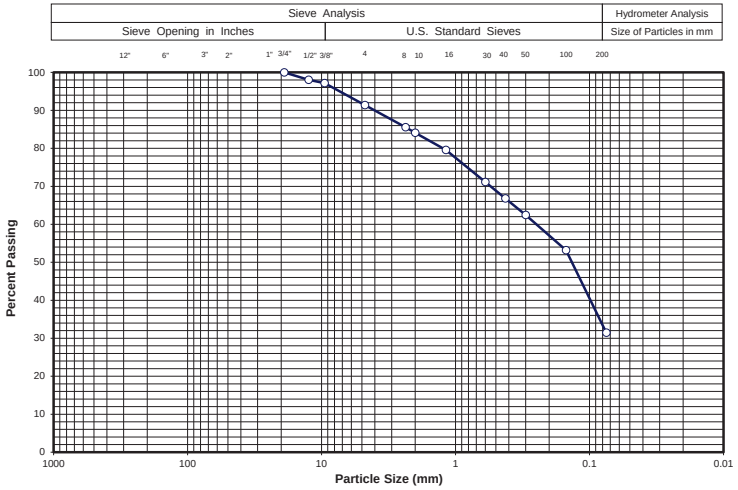

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	98
⅜"	97
#4	91
#10	84
#40	67
#200	31

Gravel (%)	9	LL	38	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	60	PL	19	Sample ID:	YA-PNB-1		
Fines (%)	31	PI	19	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-2-6 (1) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	06/07/15	Figure No.:	-

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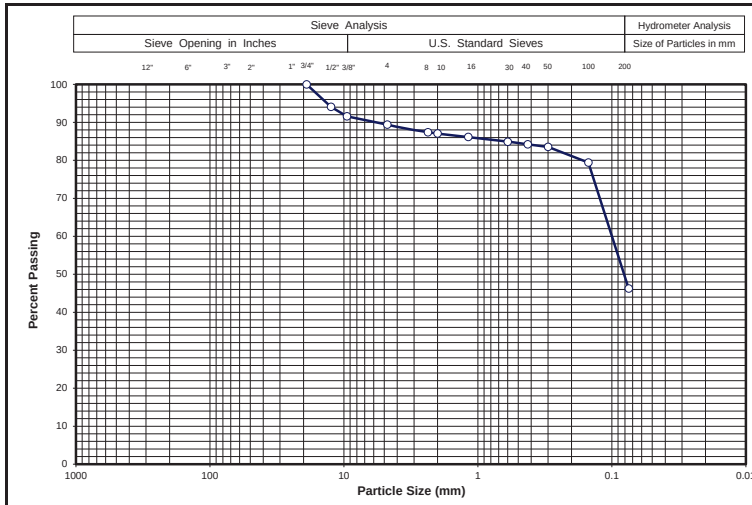

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	94
⅜"	92
#4	89
#10	87
#40	84
#200	46

Gravel (%)	11	LL	35	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	43	PL	20	Sample ID:	YA-PNB-1		
Fines (%)	46	PI	15	Sample Depth (ft.):	2		
Sample Description:	**A-6 (3) / SC**						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	05/30/15	Figure No.:	-

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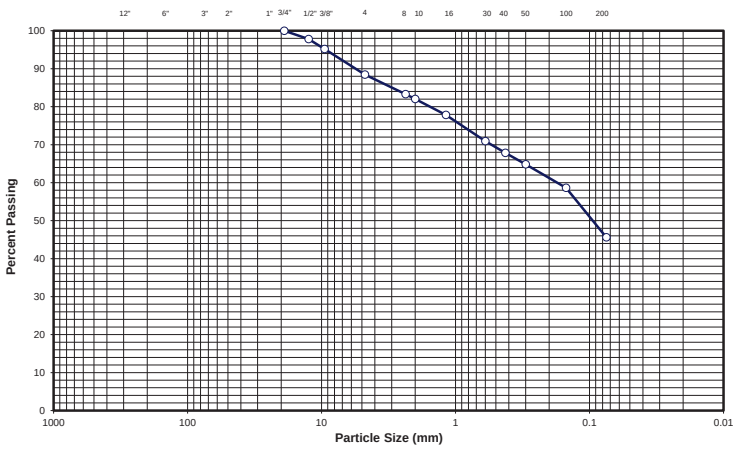

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	98
⅜"	95
#4	88
#10	82
#40	68
#200	46

Gravel (%)	12	LL	37	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	42	PL	16	Sample ID:	YA-PNB-2		
Fines (%)	46	PI	21	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (5) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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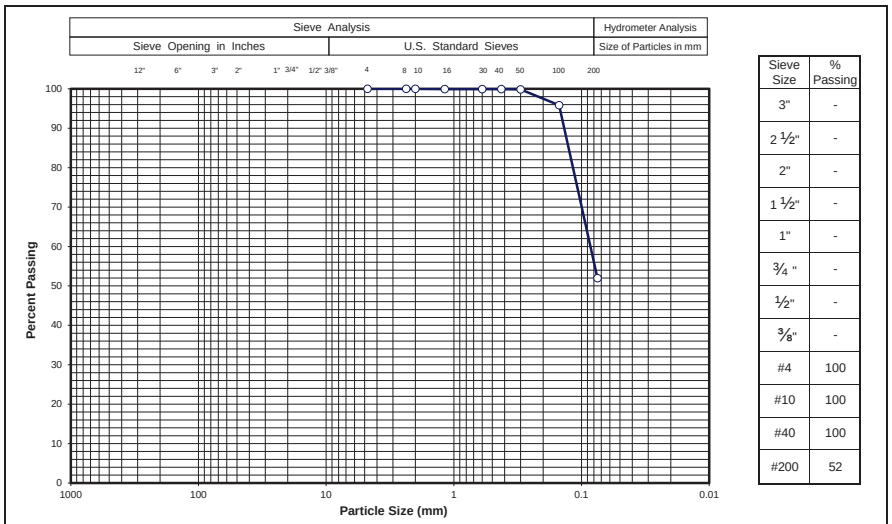

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	52

Gravel (%)	0	LL	37	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	48	PL	22	Sample Id:	YA-PNB-2	Depth (ft)	2
Fines (%)	52	PI	15	Soil Class.	A-6 (5) / CL		
Sample Description:							

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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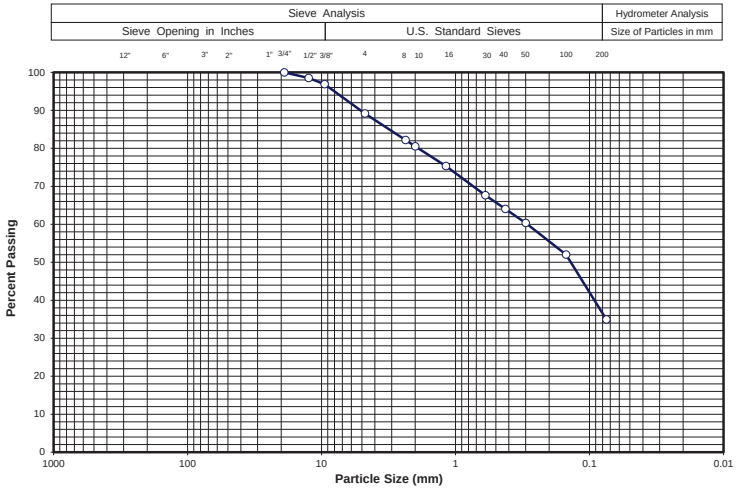

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	97
#4	89
#10	81
#40	64
#200	35

Gravel (%)	11	LL	38	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	54	PL	14	Sample ID:	YA-PNB-3		
Fines (%)	35	PI	24	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-2-6 (3) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	06/07/15	Figure No.:	-

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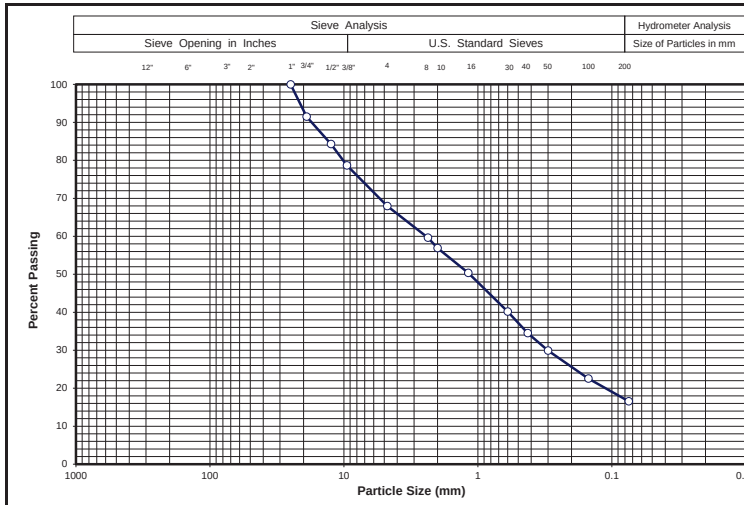

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	100
¾ "	92
½"	84
⅜"	79
#4	68
#10	57
#40	34
#200	17

Gravel (%)	32	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	51	PL	NP	Sample ID:	YA-PNB-3		
Fines (%)	17	PI	NP	Sample Depth (ft.):	2		
Sample Description:	**A-1-b (0) / SM**						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	05/30/15	Figure No.:	-

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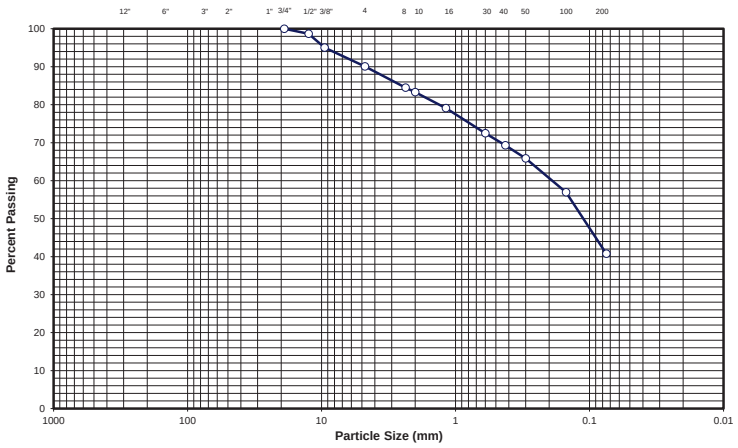

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	95
#4	90
#10	83
#40	69
#200	41

Gravel (%)	10	LL	43	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	49	PL	18	Sample ID:	YA-PNB-4		
Fines (%)	41	PI	25	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-7-6 (5) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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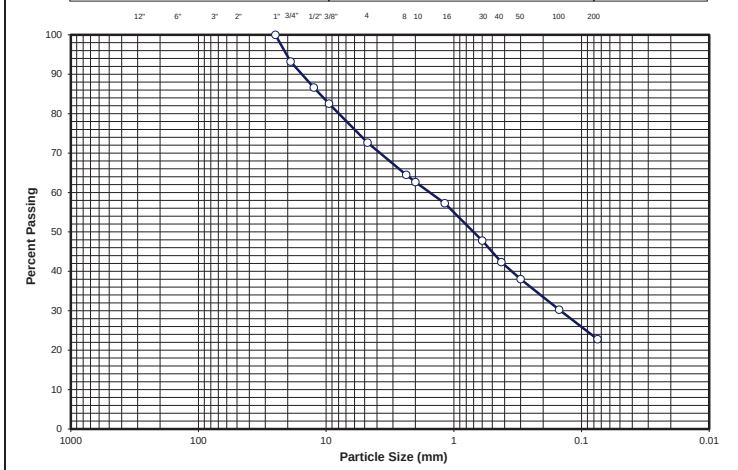

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	43
#4	73
#10	63
#40	42
#200	23

Gravel (%)	27	LL	36	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	50	PL	16	Sample Id:	YA-PNB-4	Depth (ft)	2
Fines (%)	23	PI	20	Soil Class.	A-2-6 (0) / SC		
Sample Description:							

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Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
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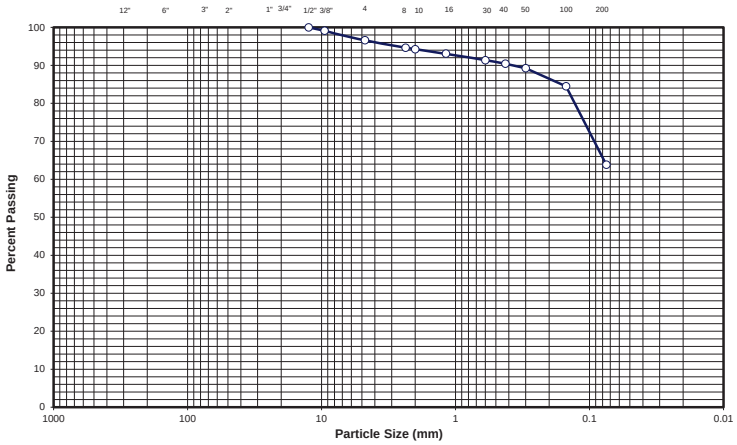

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	99
#4	97
#10	94
#40	90
#200	64

Gravel (%)	3	LL	37	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	33	PL	16	Sample ID:	YA-PNB-5		
Fines (%)	64	PI	21	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (11) / CL						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	06/07/15		

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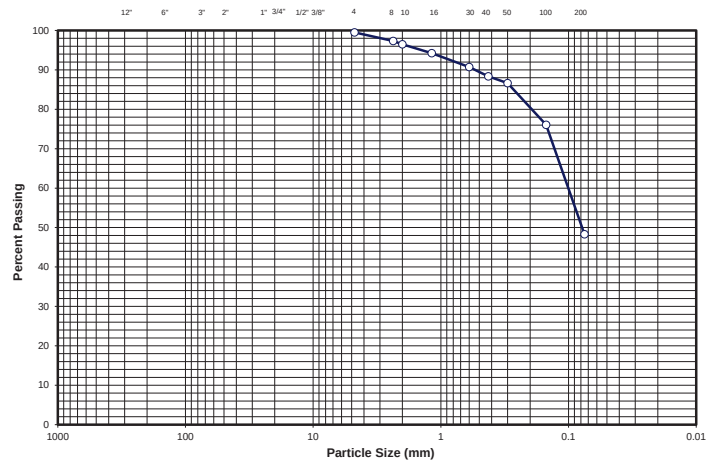

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	96
#40	88
#200	48

Gravel (%)	0	LL	37	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	51	PL	18	Sample Id:	YA-PNB-5	Depth (ft)	5
Fines (%)	48	PI	19	Soil Class.	A-6 (5) / SC		
Sample Description:							

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin	Figure No.:	-
Date:	05/30/15		

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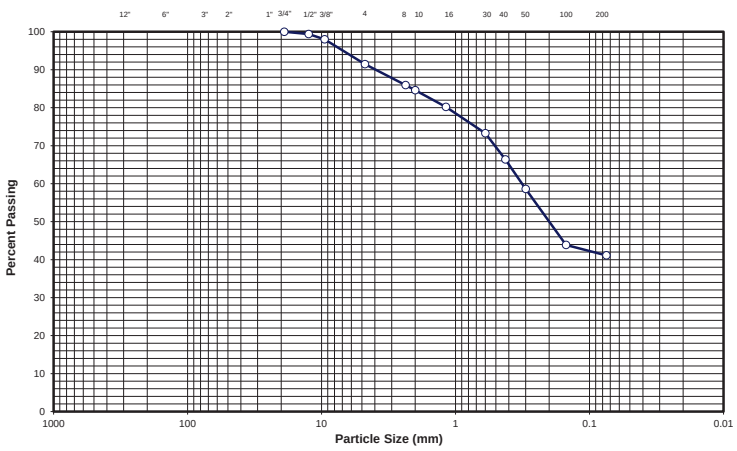

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	98
#4	91
#10	85
#40	66
#200	41

Gravel (%)	9	LL	36	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	50	PL	17	Sample ID:	YA-PNB-6		
Fines (%)	41	PI	19	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (3) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin	Figure No.:	-
Date:	06/07/15		

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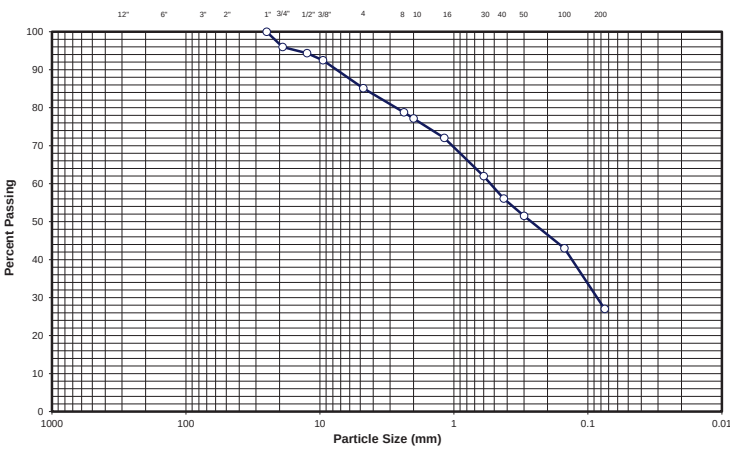

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	100
¾ "	96
½"	94
⅜"	92
#4	85
#10	77
#40	56
#200	27

Gravel (%)	15	LL	41	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	58	PL	16	Sample ID:	YA-PNB-6		
Fines (%)	27	PI	25	Sample Depth (ft.):	2		
Sample Description:	**A-2-7 (0) / SC**						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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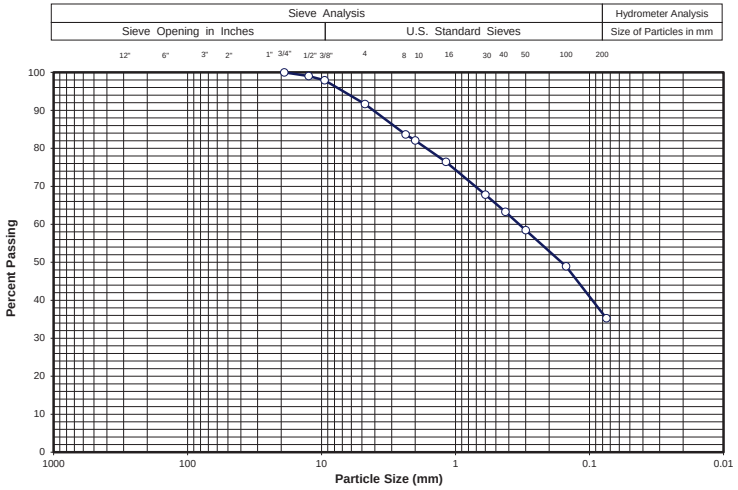

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	98
#4	92
#10	82
#40	63
#200	35

Gravel (%)	8	LL	39	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	57	PL	17	Sample ID:	YA-PNB-7
Fines (%)	35	PI	22	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-6 (2) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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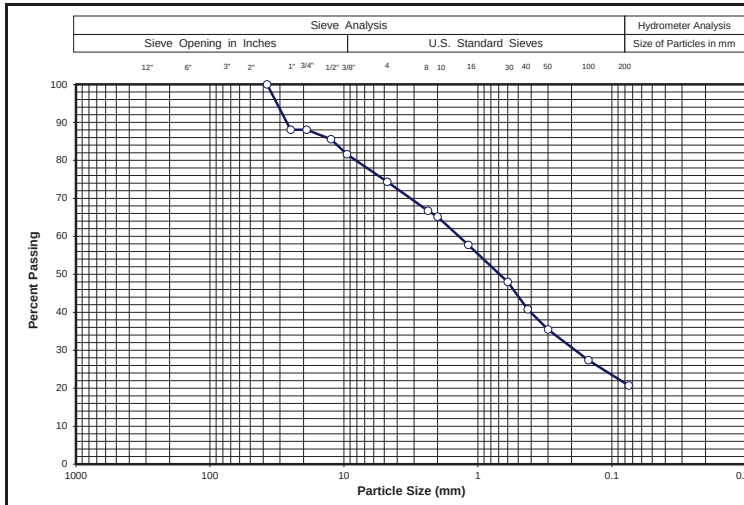

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	100
1"	88
¾ "	88
½"	86
⅜"	82
#4	74
#10	65
#40	41
#200	21

Gravel (%)	26	LL	27	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	53	PL	16	Sample ID:	YA-PNB-7
Fines (%)	21	PI	11	Sample Depth (ft.):	2
Sample Description:	**A-2-6 (0) / SC**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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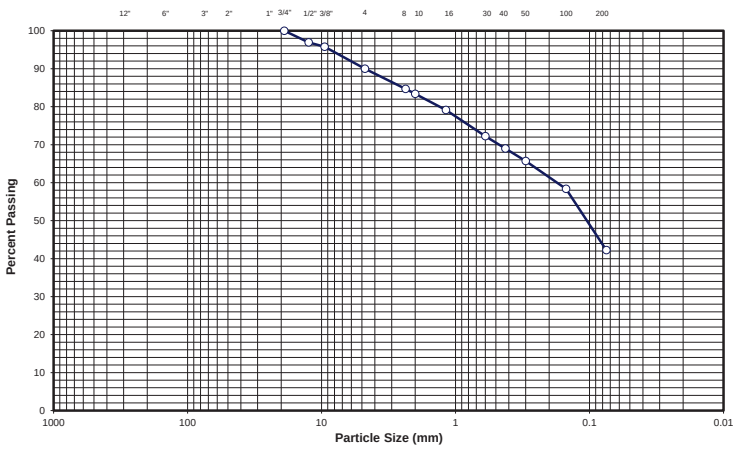

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	97
⅜"	96
#4	90
#10	83
#40	69
#200	42

Gravel (%)	10	LL	36	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	48	PL	14	Sample ID:	YA-PNB-8
Fines (%)	42	PI	22	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-6 (5) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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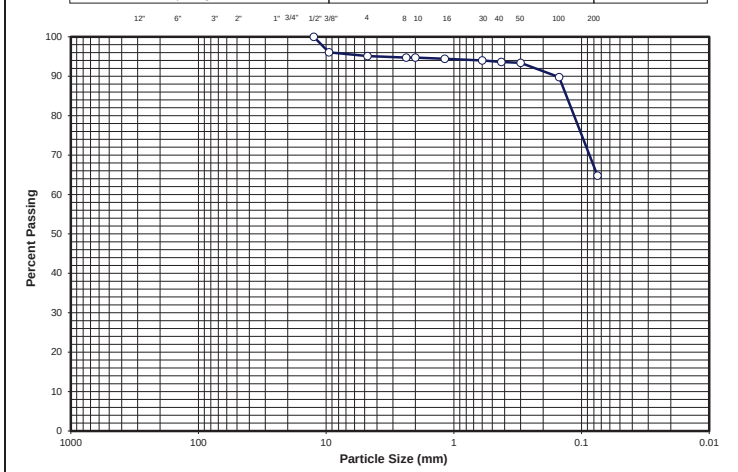

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	95
#10	95
#40	94
#200	65

Gravel (%)	5	LL	39	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	30	PL	17	Sample Id: YA-PNB-8	Depth (ft) 2
Fines (%)	65	PI	22	Soil Class.	A-6 (12) / CL
Sample Description:					

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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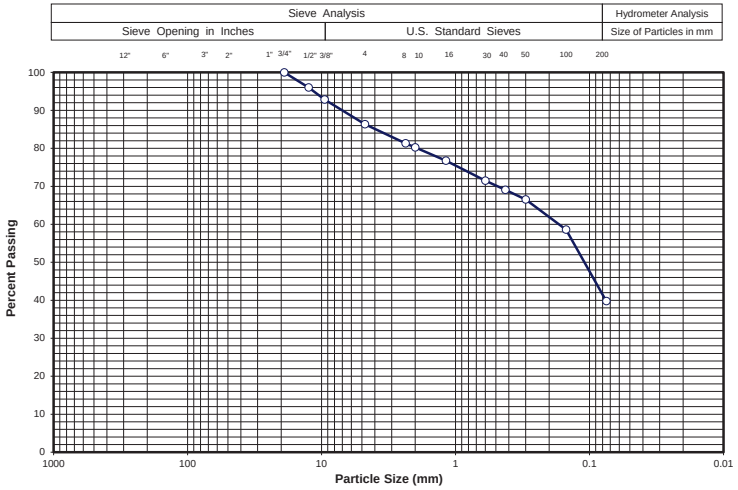

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	96
⅜"	93
#4	86
#10	80
#40	69
#200	40

Gravel (%)	14	LL	37	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	46	PL	17	Sample ID:	YA-PNB-9
Fines (%)	40	PI	20	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-6 (3) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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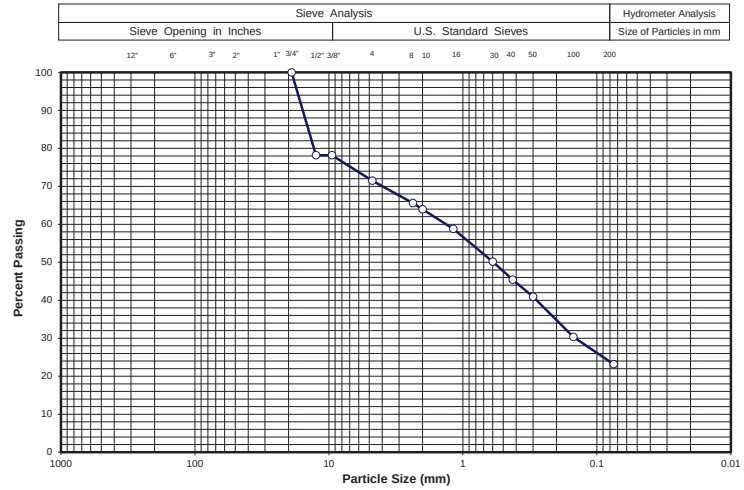

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	78
⅜"	78
#4	72
#10	64
#40	45
#200	23

Gravel (%)	28	LL	27	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	49	PL	16	Sample ID:	YA-PNB-10
Fines (%)	23	PI	11	Sample Depth (ft.):	2
Sample Description:	**A-2-6 (0) / SC**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/30/15	Figure No.:	-

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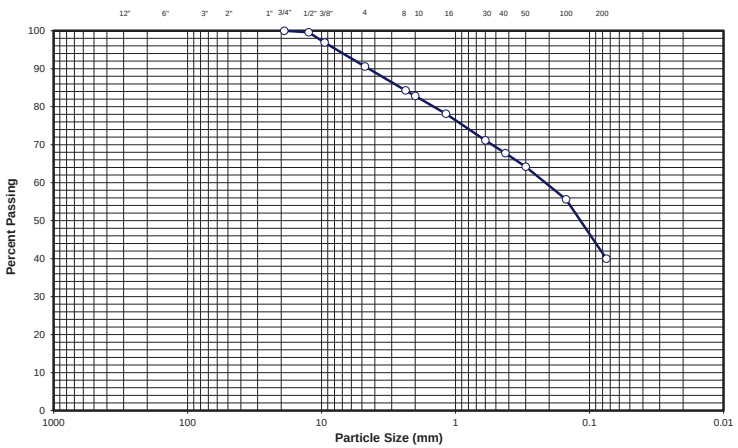

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	100
⅜"	97
#4	91
#10	83
#40	68
#200	40

Gravel (%)	9	LL	38	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	51	PL	16	Sample ID:	YA-PNB-11
Fines (%)	40	PI	22	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-6 (4) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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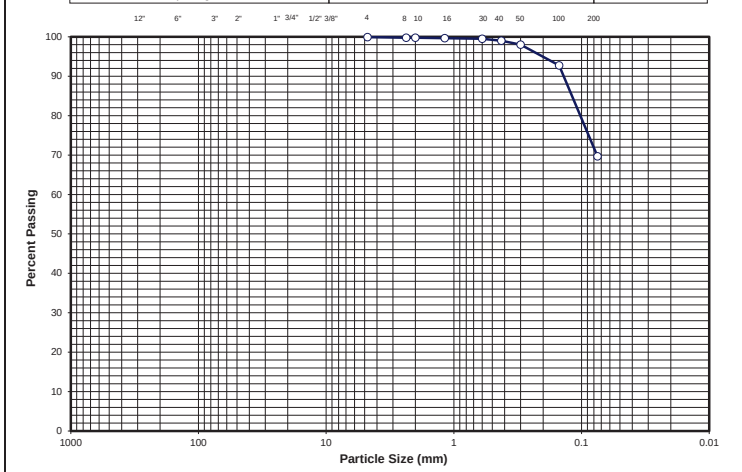

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	70

Gravel (%)	0	LL	36	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	30	PL	15	Sample Id: YA-PNB-11	Depth (ft) 5
Fines (%)	70	PI	21	Soil Class.	A-6 (16) / CL
Sample Description:					

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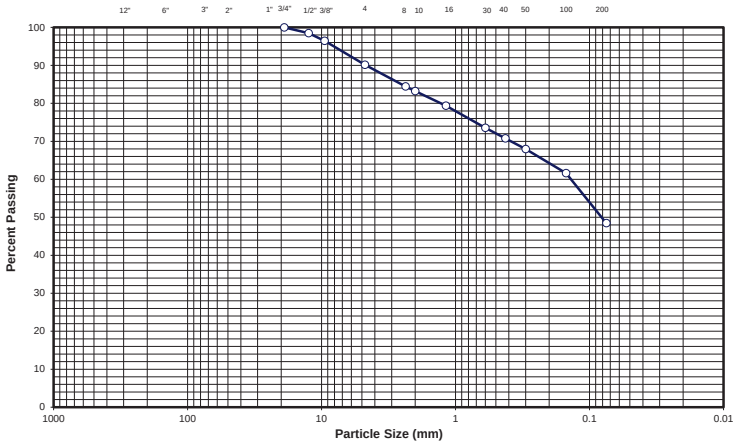
SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	06/19/15	Figure No.:	-

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	98
⅜"	96
#4	90
#10	83
#40	71
#200	48

Gravel (%)	10	LL	44	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	42	PL	18	Sample ID:	YA-PNB-12		
Fines (%)	48	PI	26	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-7-6 (8) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	06/07/15	Figure No.:	-

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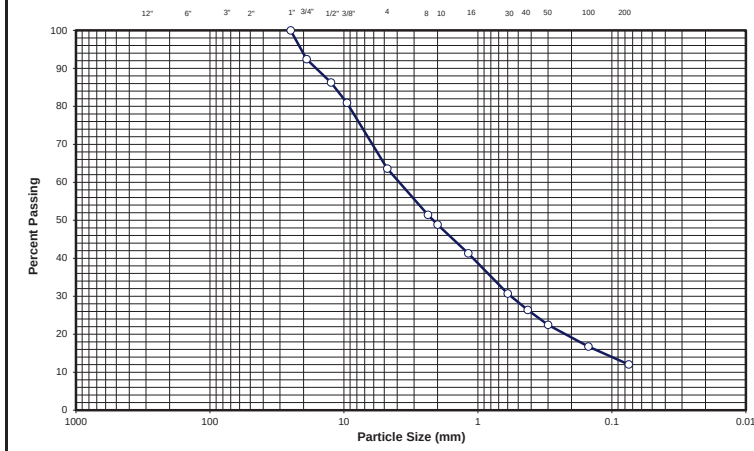

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	100
¾ "	92
½"	86
⅜"	81
#4	64
#10	49
#40	26
#200	12

Gravel (%)	36	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	52	PL	NP	Sample ID:	YA-PNB-12		
Fines (%)	12	PI	NP	Sample Depth (ft.):	2		
Sample Description:	**A-1-a (0) / SP-SM**						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/30/15	Figure No.:	-

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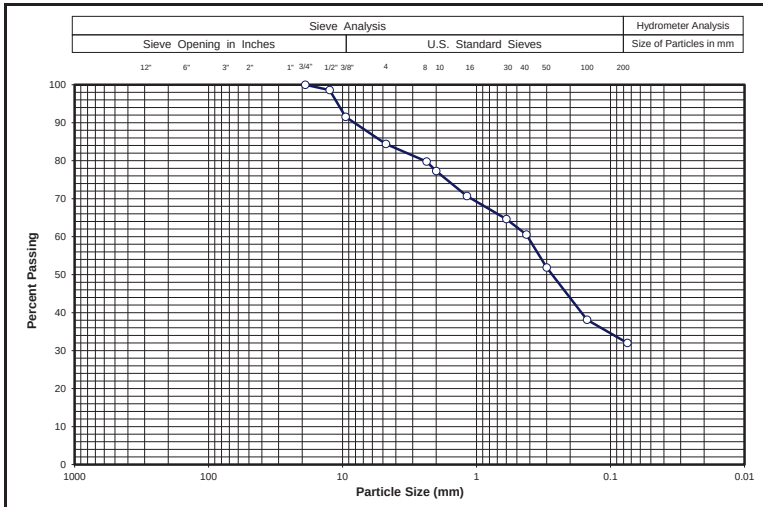

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	92
#4	84
#10	77
#40	61
#200	32

Gravel (%)	16	LL	42	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	52	PL	18	Sample ID:	YA-PNB-13		
Fines (%)	32	PI	24	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-2-7 (2) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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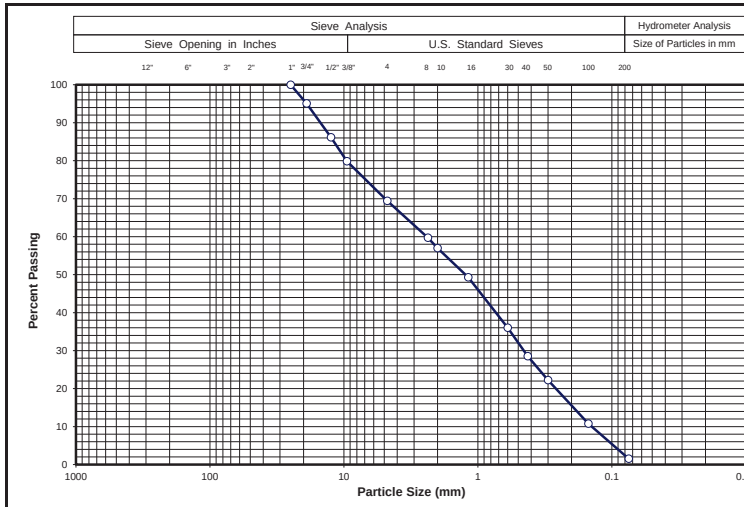

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	100
¾ "	95
½"	86
⅜"	80
#4	69
#10	57
#40	29
#200	2

Gravel (%)	31	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	67	PL	NP	Sample ID:	YA-PNB-13		
Fines (%)	2	PI	NP	Sample Depth (ft.):	2		
Sample Description:	**A-1-b (0) / SP**						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
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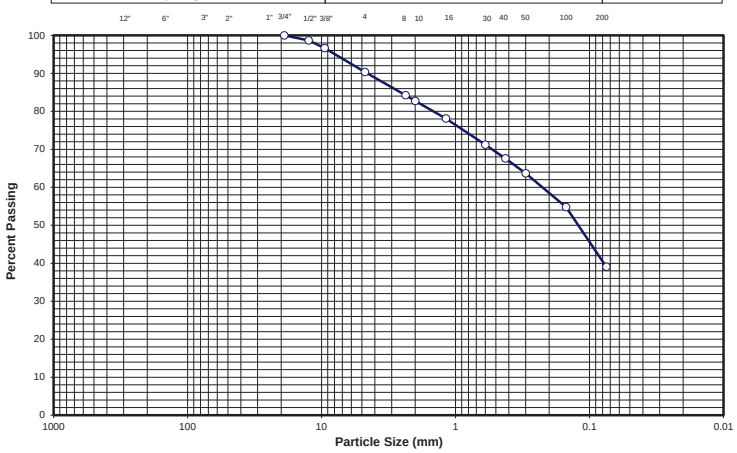

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	97
#4	90
#10	83
#40	68
#200	39

Gravel (%)	10	LL	36	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	51	PL	13	Sample ID:	YA-PNB-14		
Fines (%)	39	PI	23	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (4) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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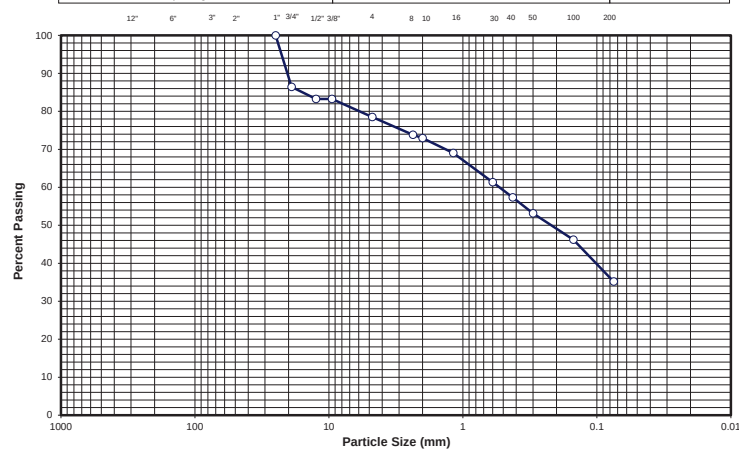

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	100
¾ "	86
½"	83
⅜"	83
#4	79
#10	73
#40	57
#200	35

Gravel (%)	21	LL	41	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	44	PL	17	Sample ID:	YA-PNB-14		
Fines (%)	35	PI	24	Sample Depth (ft.):	2		
Sample Description:	**A-2-7 (3) / SC**						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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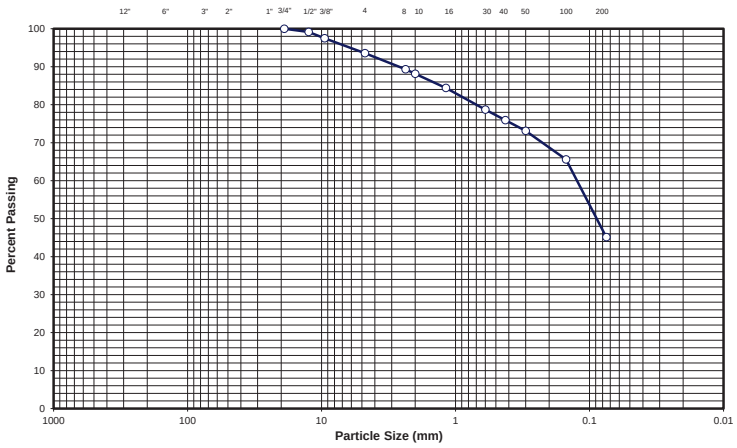

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	98
#4	94
#10	88
#40	76
#200	45

Gravel (%)	6	LL	36	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	49	PL	16	Sample ID:	YA-PNB-15		
Fines (%)	45	PI	20	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (5) / SC						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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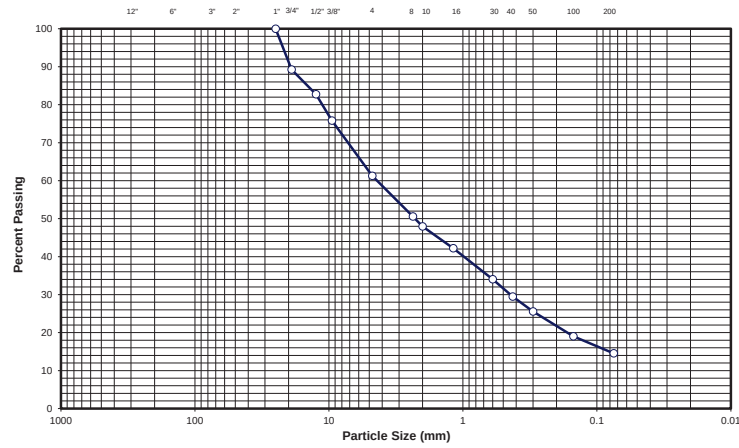

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	100
¾ "	89
½"	83
⅜"	76
#4	61
#10	48
#40	29
#200	15

Gravel (%)	39	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	46	PL	NP	Sample ID:	YA-PNB-15		
Fines (%)	15	PI	NP	Sample Depth (ft.):	2		
Sample Description:	**A-1-a (0) / SM**						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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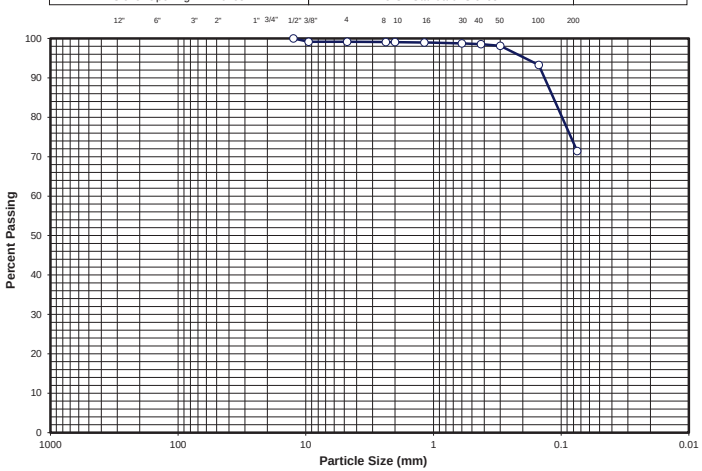

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	99
#10	99
#40	99
#200	71

Gravel (%)	1	LL	34	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	28	PL	16	Sample Id: YA-PNB-15	Depth (ft) 6
Fines (%)	71	PI	18	Soil Class.	A-6 (11) / CL
Sample Description:					

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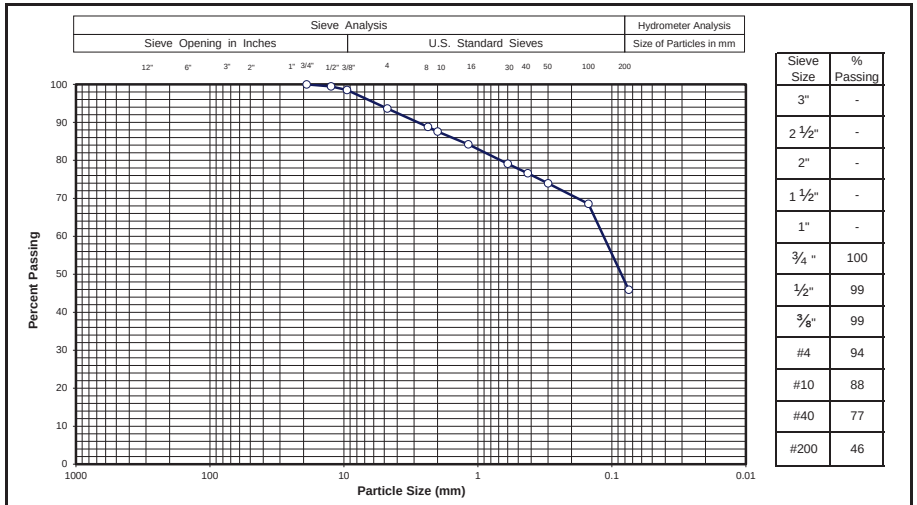

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	99
#4	94
#10	88
#40	77
#200	46

Gravel (%)	6	LL	38	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	48	PL	18	Sample ID:	YA-PNB-16
Fines (%)	46	PI	20	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-6 (5) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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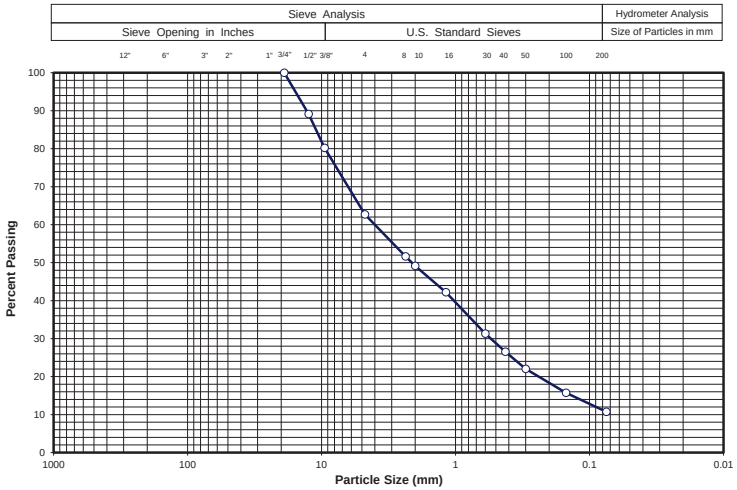

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	89
⅜"	80
#4	63
#10	49
#40	27
#200	11

Gravel (%)	37	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	52	PL	NP	Sample ID:	YA-PNB-16
Fines (%)	11	PI	NP	Sample Depth (ft.):	2
Sample Description:	**A-1-a (0) / SW-SM**				

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Drawn By:	MA	Project No.:	215-043
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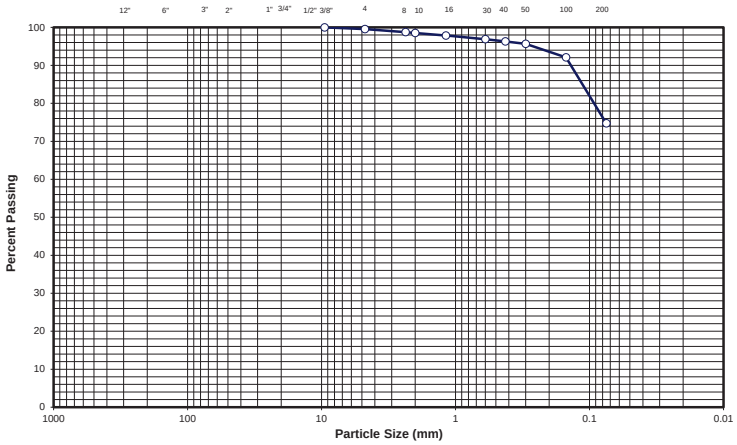

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	100
#10	99
#40	96
#200	75

Gravel (%)	0	LL	40	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	25	PL	15	Sample ID:	YA-PSB-1		
Fines (%)	75	PI	25	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (17) / CL						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	06/07/15	Figure No.:	-

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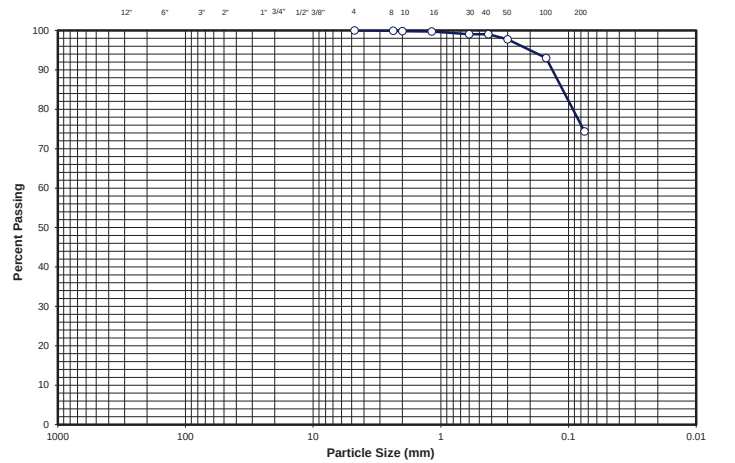

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	74

Gravel (%)	0	LL	41	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	26	PL	18	Sample Id:	YA-PSB-1	Depth (ft)	3
Fines (%)	74	PI	23	Soil Class.	A-7-6 (26) / CL		
Sample Description:							

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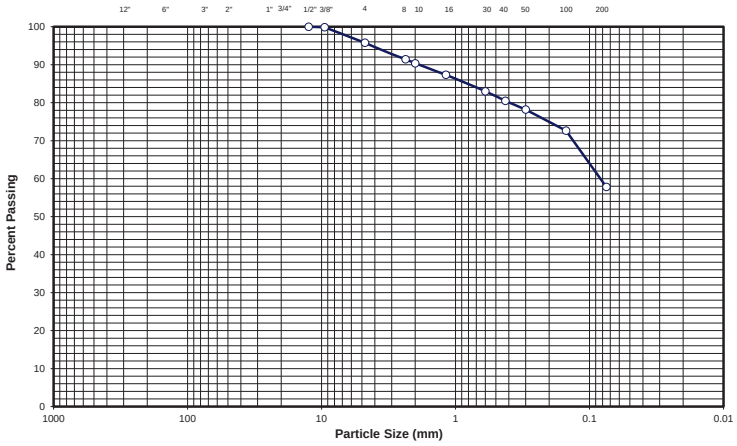

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	100
#4	96
#10	90
#40	80
#200	58

Gravel (%)	4	LL	38	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	38	PL	17	Sample ID:	YA-PSB-2		
Fines (%)	58	PI	21	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (9) / CL						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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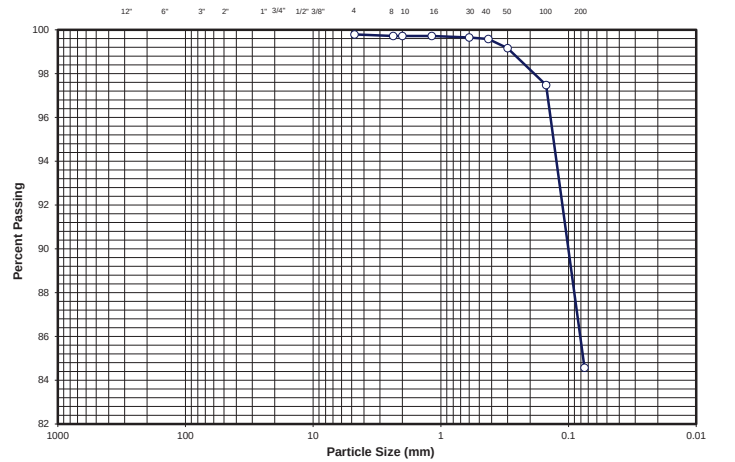

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	85

Gravel (%)	0	LL	44	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	15	PL	16	Sample Id:	YA-PSB-2	Depth (ft)	2
Fines (%)	85	PI	28	Soil Class.	A-7-6 (23) / CL		
Sample Description:							

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SIEVE ANALYSIS

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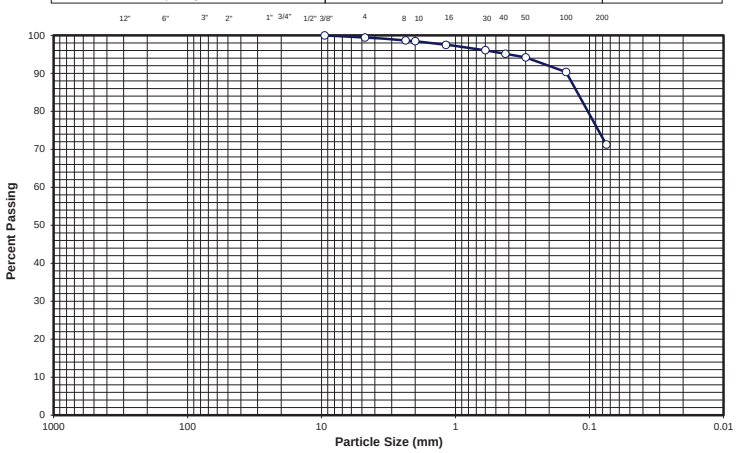

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	99
#10	98
#40	95
#200	71

Gravel (%)	1	LL	38	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	28	PL	17	Sample ID:	YA-PSB-3		
Fines (%)	71	PI	21	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (13) / CL						

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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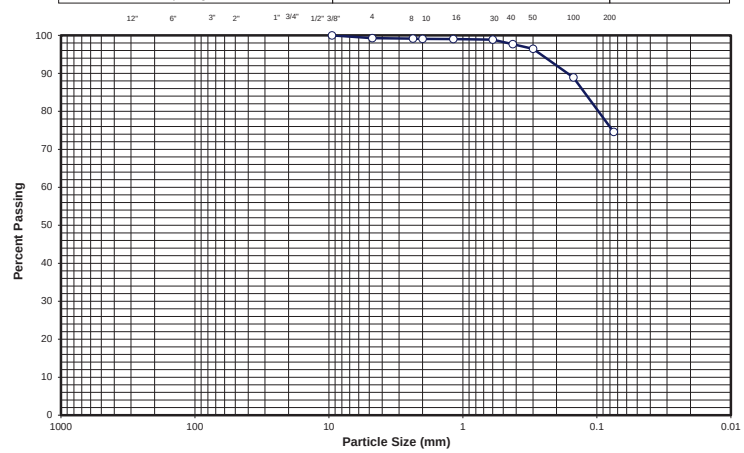

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	99
#10	99
#40	98
#200	75

Gravel (%)	1	LL	39	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	24	PL	17	Sample ID:	YA-PSB-3		
Fines (%)	75	PI	22	Sample Depth (ft.):	3		
Sample Description:	**A-6 (15) / CL**						

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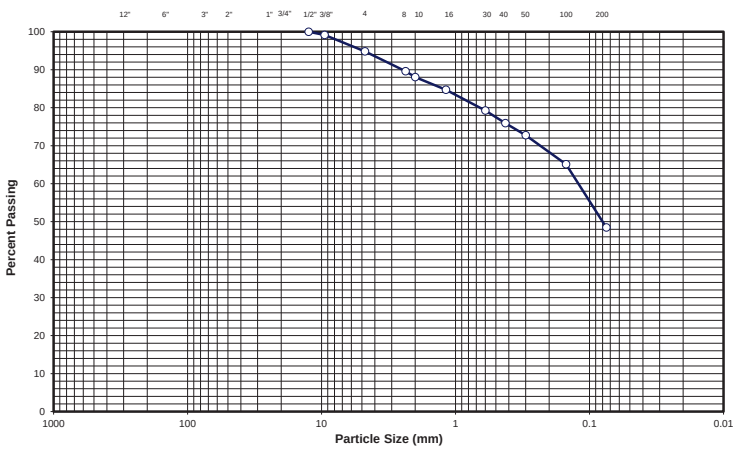

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	99
#4	95
#10	88
#40	76
#200	48

Gravel (%)	5	LL	37	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	47	PL	17	Sample ID:	YA-PSB-4		
Fines (%)	48	PI	20	Sample Depth (ft.):	2-5	Sample Type:	Bulk
Sample Description:	A-6 (6) / SC						

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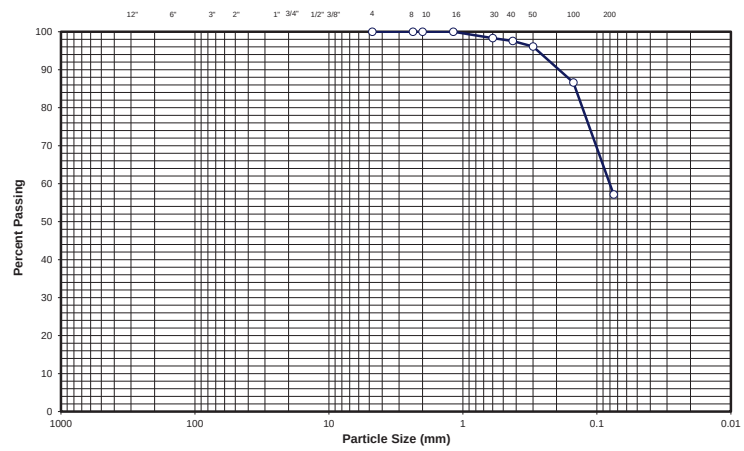

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	98
#200	57

Gravel (%)	0	LL	48	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	43	PL	20	Sample ID:	YA-PSB-4		
Fines (%)	57	PI	28	Sample Depth (ft.):	2		
Sample Description:	**A-7-6 (13) / CL**						

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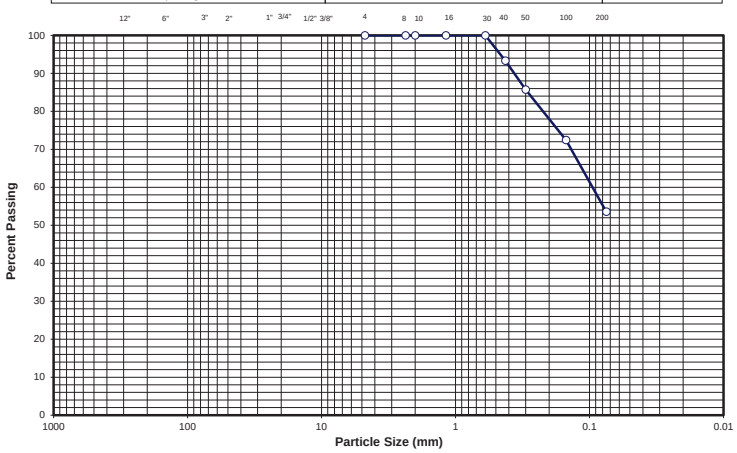

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	93
#200	54

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	46	PL	NP	Sample ID:	YA-PSB-4
Fines (%)	54	PI	NP	Sample Depth (ft.):	5
Sample Description:	**A-4 (0) / ML**				

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Drawn By:	MA	Project No.:	215-043
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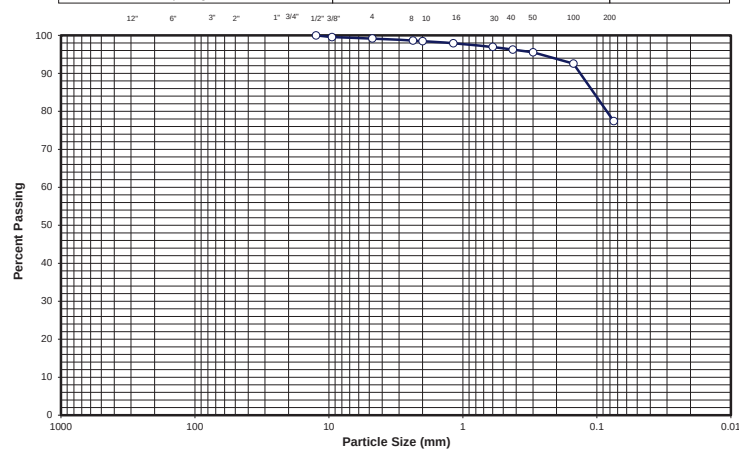

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	100
#4	99
#10	98
#40	96
#200	77

Gravel (%)	1	LL	48	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	22	PL	21	Sample ID:	YA-PSB-5
Fines (%)	77	PI	27	Sample Depth (ft.):	2-5
Sample Description:	A-7-6 (21) / CL			Sample Type:	Bulk

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SIEVE ANALYSIS

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Date:	06/07/15	Figure No.:	-

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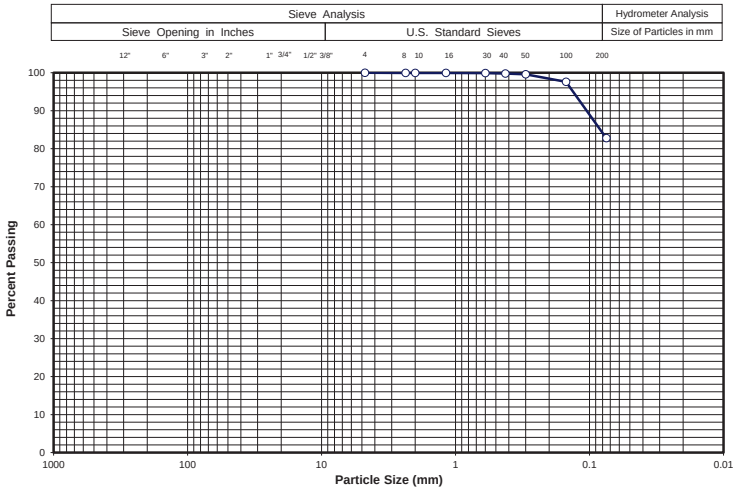

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	83

Gravel (%)	0	LL	59	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	17	PL	21	Sample ID:	YA-PSB-5
Fines (%)	83	PI	38	Sample Depth (ft.):	3
Sample Description:	**A-7-6 (33) / CH**				

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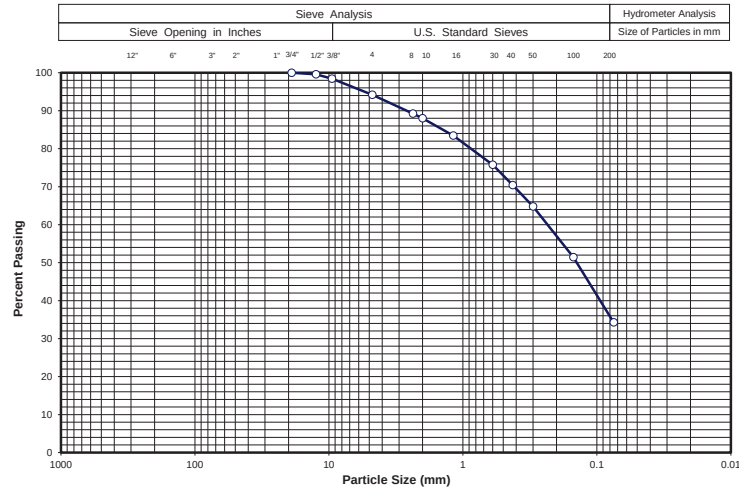
SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	100
⅜"	98
#4	94
#10	88
#40	70
#200	34

Gravel (%)	6	LL	44	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	60	PL	17	Sample ID:	YA-PSB-6
Fines (%)	34	PI	27	Sample Depth (ft.):	
Sample Description:	A-2-7 (3) / SC			Sample Type:	Bulk

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	06/09/15	Figure No.:	-

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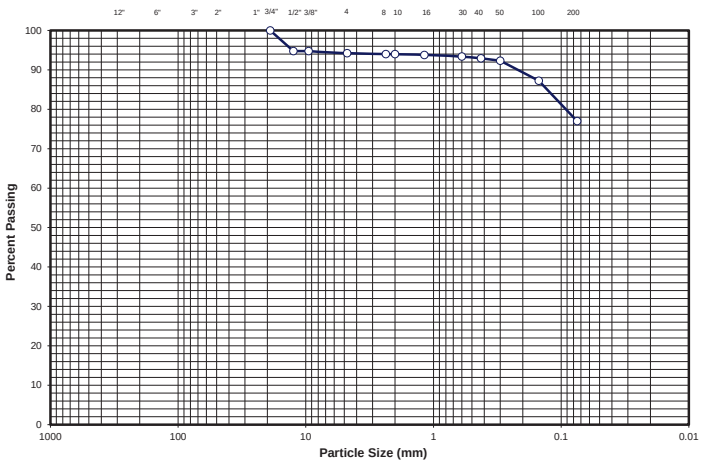

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	94
#10	94
#40	93
#200	77

Gravel (%)	6	LL	44	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	17	PL	16	Sample Id: YA-PSB-6	Depth (ft) 2
Fines (%)	77	PI	28	Soil Class.	A-7-6 (20) / CL
Sample Description:					

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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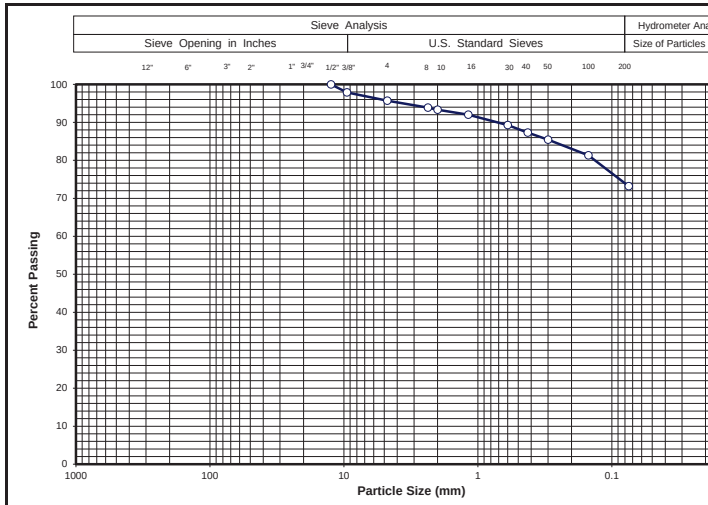

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	98
#4	96
#10	93
#40	87
#200	73

Gravel (%)	4	LL	29	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	23	PL	18	Sample ID:	YA-PSB-7
Fines (%)	73	PI	11	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-6 (6) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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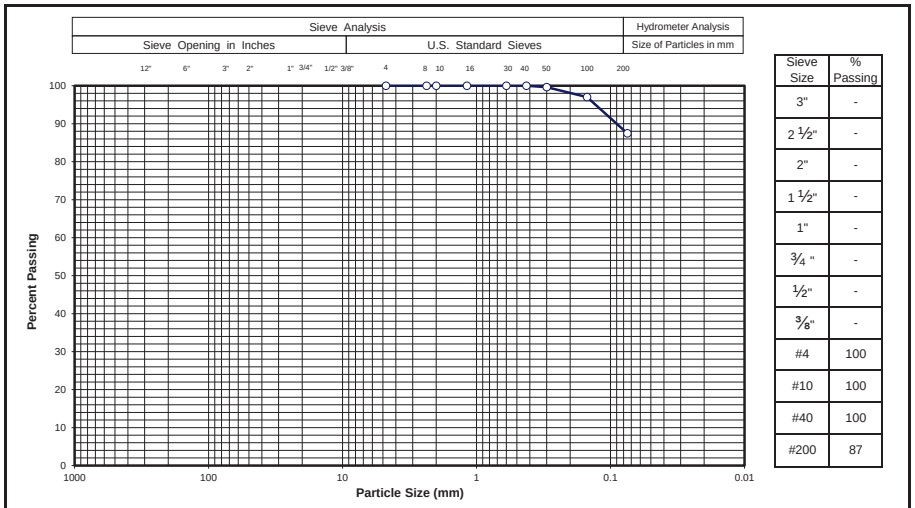

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	87

Gravel (%)	0	LL	43	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	13	PL	19	Sample ID:	YA-PSB-7
Fines (%)	87	PI	24	Sample Depth (ft.):	3
Sample Description:	**A-7-6 (21) / CL**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	05/25/15	Figure No.:	-

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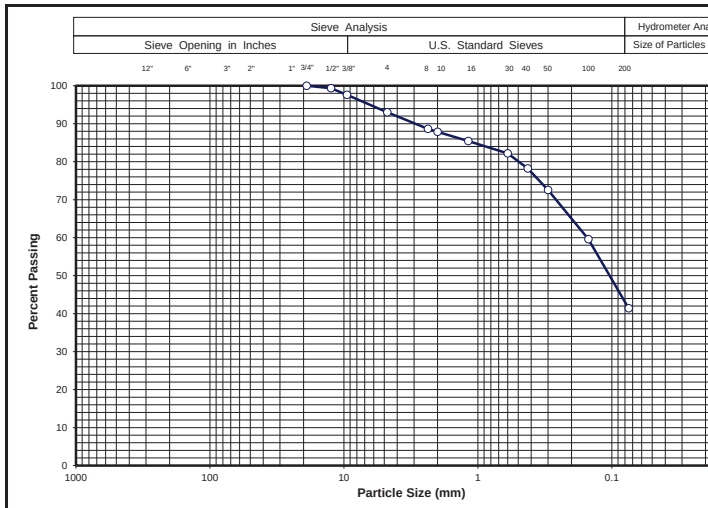

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	98
#4	93
#10	88
#40	78
#200	41

Gravel (%)	7	LL	40	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	52	PL	19	Sample ID:	YA-PSB-8
Fines (%)	41	PI	21	Sample Depth (ft.):	Sample Type: Bulk
Sample Description:	A-6 (4) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

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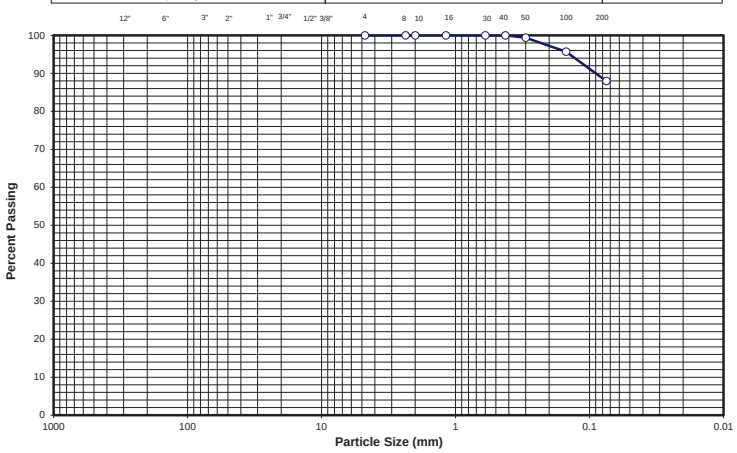

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	88

Gravel (%)	0	LL	44	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	12	PL	17	Sample ID:	YA-PSB-8
Fines (%)	88	PI	27	Sample Depth (ft.):	2
Sample Description:	**A-7-6 (24) / CL**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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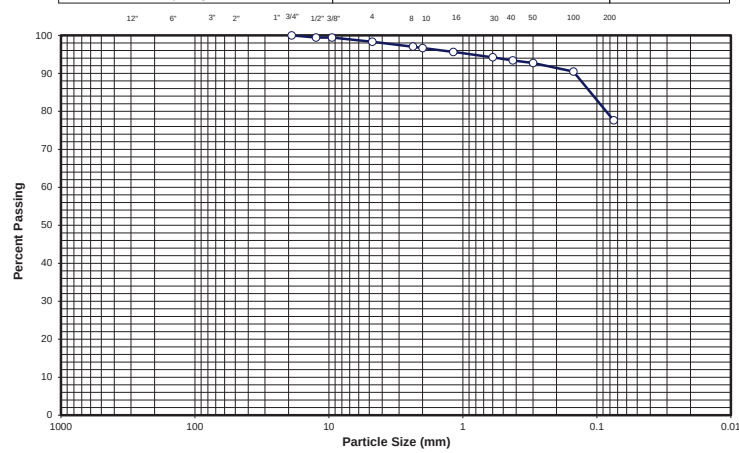

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	99
#4	98
#10	97
#40	93
#200	78

Gravel (%)	2	LL	44	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	20	PL	18	Sample ID:	YA-PSB-9
Fines (%)	78	PI	26	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-7-6 (19) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
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Date:	06/07/15	Figure No.:	-

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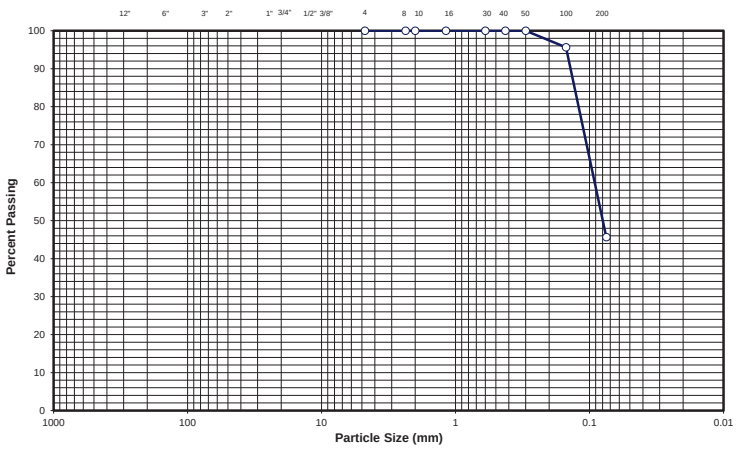

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	46

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	54	PL	NP	Sample ID:	YA-PSB-9
Fines (%)	46	PI	NP	Sample Depth (ft.):	5
Sample Description:	**A-4 (0) / SM**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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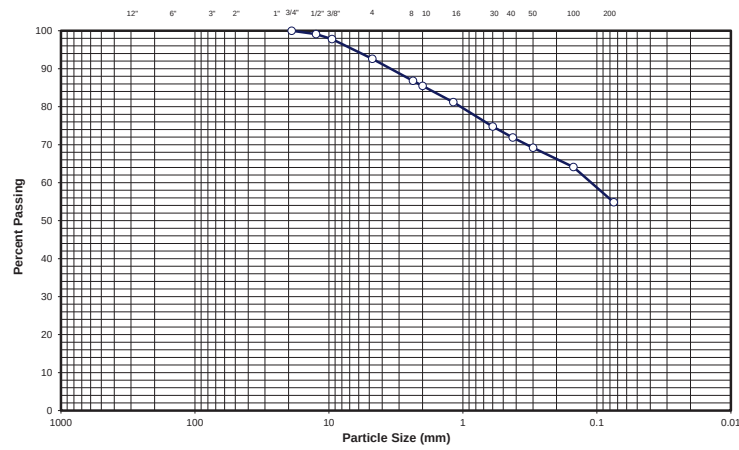

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	98
#4	93
#10	85
#40	72
#200	55

Gravel (%)	7	LL	45	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	38	PL	18	Sample ID:	YA-PSB-10
Fines (%)	55	PI	27	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-78-6 (11) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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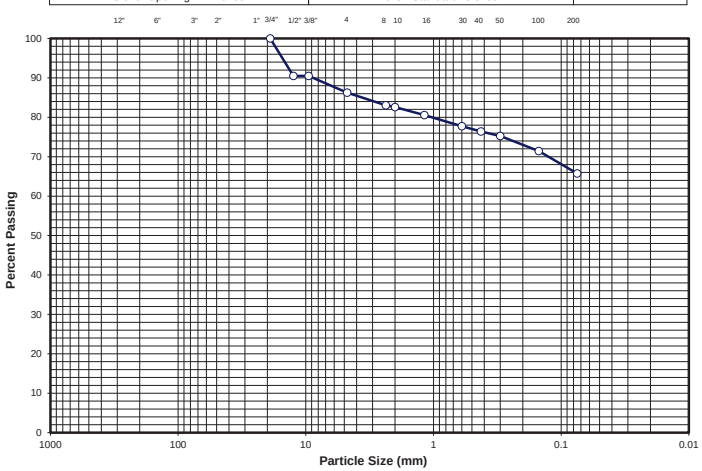

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	86
#10	83
#40	76
#200	66

Gravel (%)	14	LL	49	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	21	PL	17	Sample Id: YA-PSB-10	Depth (ft) 2
Fines (%)	66	PI	32	Soil Class.	A-7-6 (19) / CL
Sample Description:					

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
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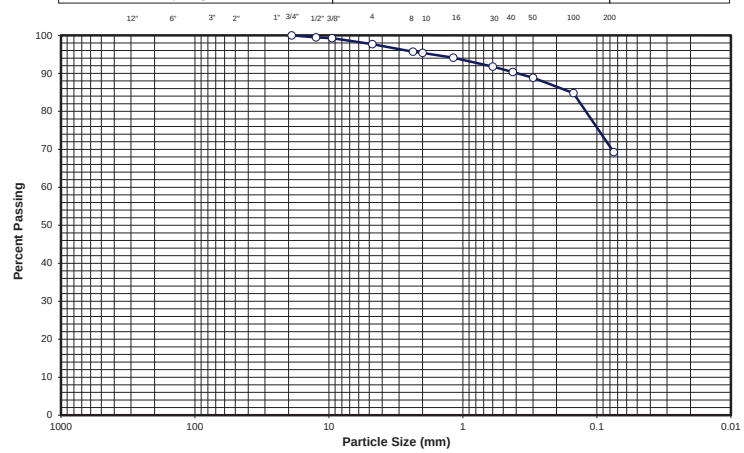

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	99
#4	98
#10	95
#40	90
#200	69

Gravel (%)	2	LL	56	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	29	PL	17	Sample ID:	YA-PSB-11
Fines (%)	69	PI	39	Sample Depth (ft.):	Sample Type: Bulk
Sample Description:	A-7-6 (25) / CH				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

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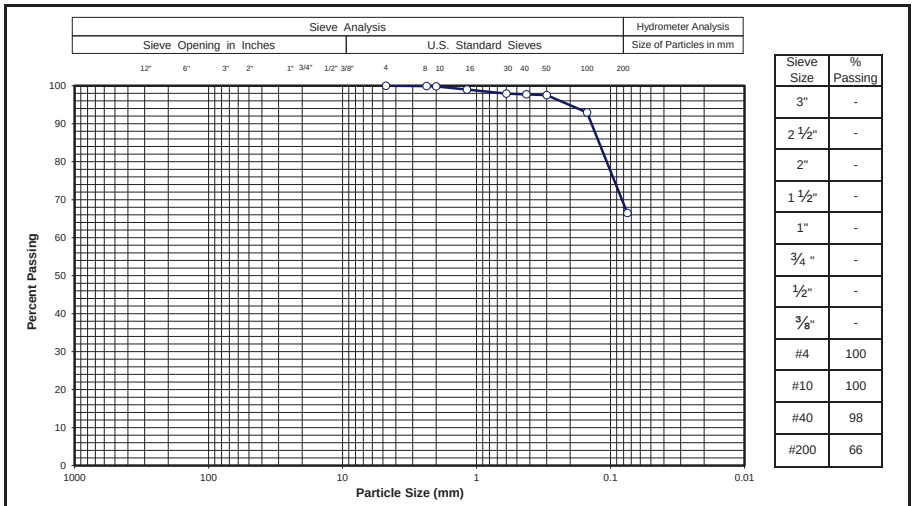

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	98
#200	66

Gravel (%)	0	LL	39	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	34	PL	16	Sample ID:	YA-PSB-11
Fines (%)	66	PI	23	Sample Depth (ft.):	3
Sample Description:	**A-6 (13) / CL**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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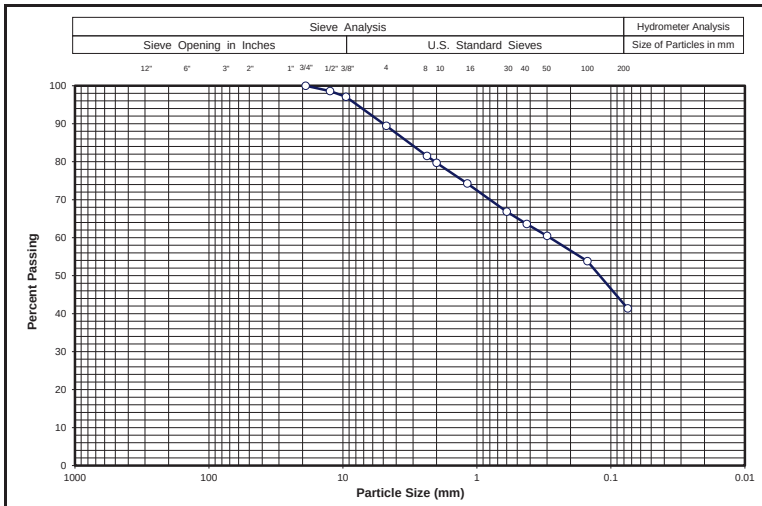

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	99
⅜"	97
#4	89
#10	80
#40	64
#200	41

Gravel (%)	11	LL	47	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	48	PL	20	Sample ID:	YA-PSB-12
Fines (%)	41	PI	27	Sample Depth (ft.):	Sample Type: Bulk
Sample Description:	A-7-6 (6) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

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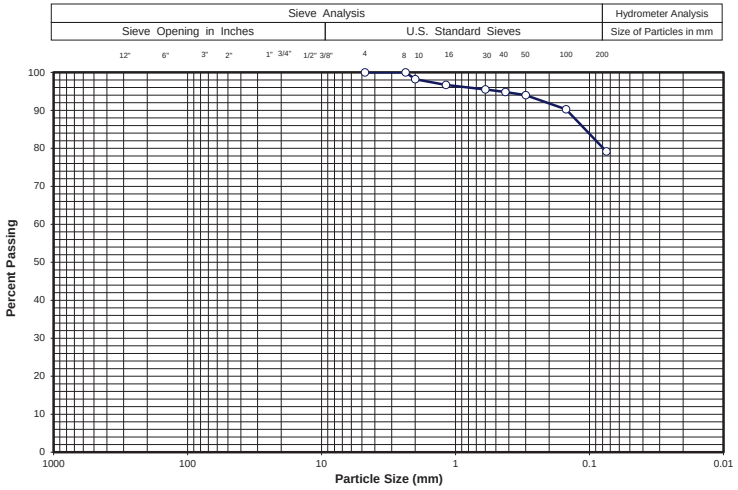

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	98
#40	95
#200	79

Gravel (%)	0	LL	36	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	21	PL	15	Sample ID:	YA-PSB-12
Fines (%)	79	PI	21	Sample Depth (ft.):	2
Sample Description:	**A-6 (15) / CL**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	I-Ping		
Date:	05/28/15	Figure No.:	-

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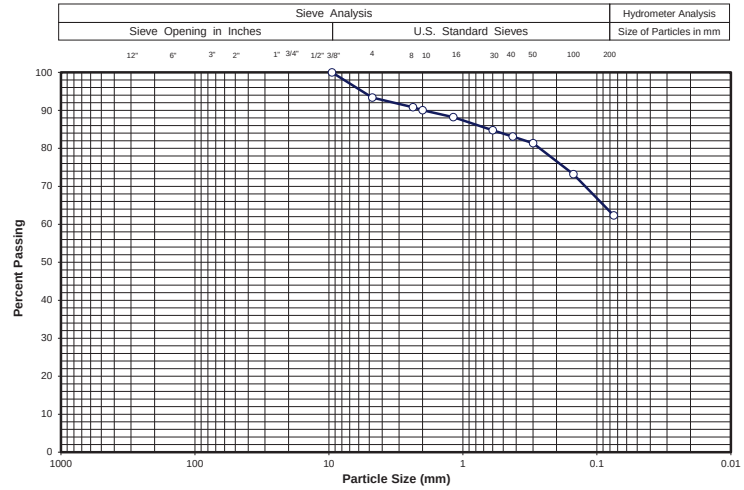

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	93
#10	90
#40	83
#200	62

Gravel (%)	7	LL	41	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	31	PL	15	Sample ID:	YA-PSB-12
Fines (%)	62	PI	26	Sample Depth (ft.):	5
Sample Description:	**A-7-6 (13) / C**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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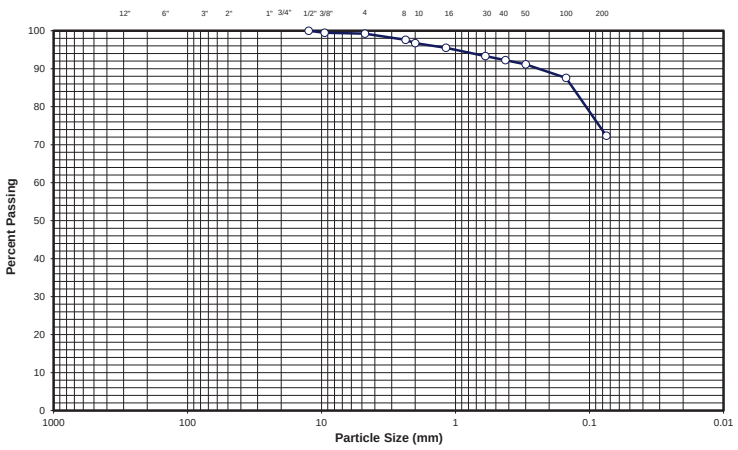

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	99
#4	99
#10	97
#40	92
#200	72

Gravel (%)	1	LL	38	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	27	PL	17	Sample ID:	YA-PSB-13
Fines (%)	72	PI	21	Sample Depth (ft.):	Sample Type: Bulk
Sample Description:	A-6 (13) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

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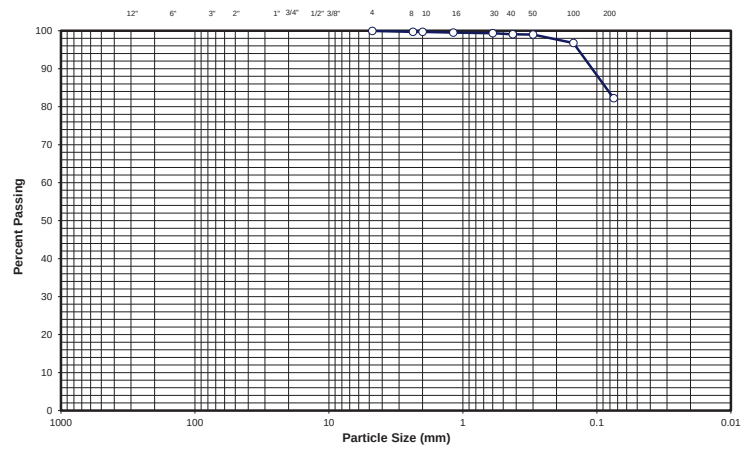

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	82

Gravel (%)	0	LL	43	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	18	PL	18	Sample ID:	YA-PSB-13
Fines (%)	82	PI	25	Sample Depth (ft.):	2
Sample Description:	**A-7-6 (20) / CL**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/28/15	Figure No.:	-

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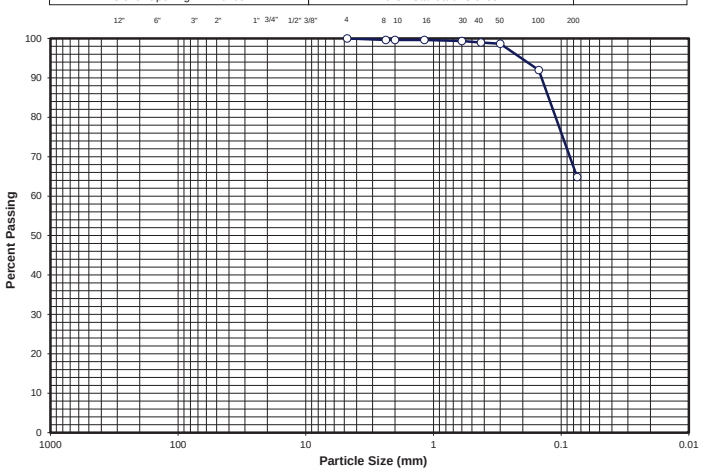

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	65

Gravel (%)	0	LL	36	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	35	PL	19	Sample Id: YA-PSB-13	Depth (ft) 5
Fines (%)	65	PI	17	Soil Class.	A-6 (9) / CL
Sample Description:					

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	12/18/14	Figure No.:	-

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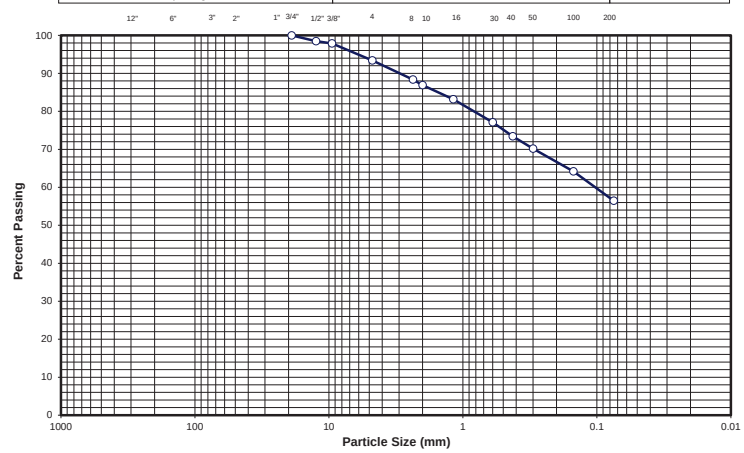

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	98
⅜"	98
#4	93
#10	87
#40	73
#200	56

Gravel (%)	7	LL	43	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	37	PL	18	Sample ID:	YA-PSB-14
Fines (%)	56	PI	25	Sample Depth (ft.): 2-5	Sample Type: Bulk
Sample Description:	A-7-6 (11) / CL				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

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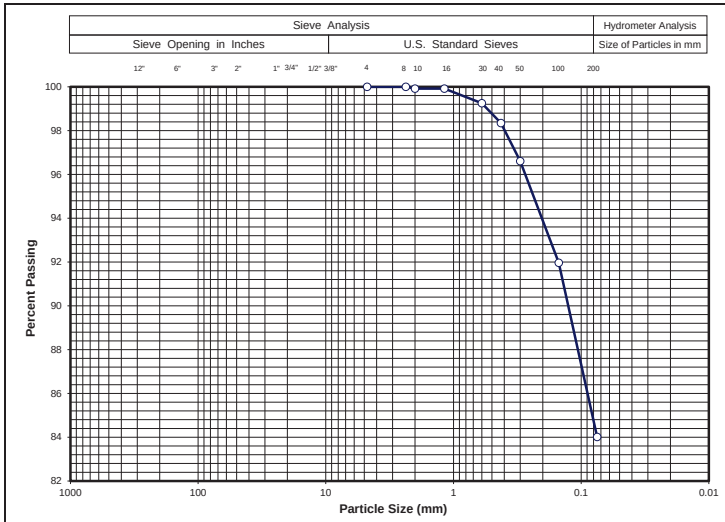

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	98
#200	84

Gravel (%)	0	LL	40	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	16	PL	21	Sample Id: YA-PSB-14	Depth (ft) 2
Fines (%)	84	PI	19	Soil Class.	A-6 (16) / CL
Sample Description:					

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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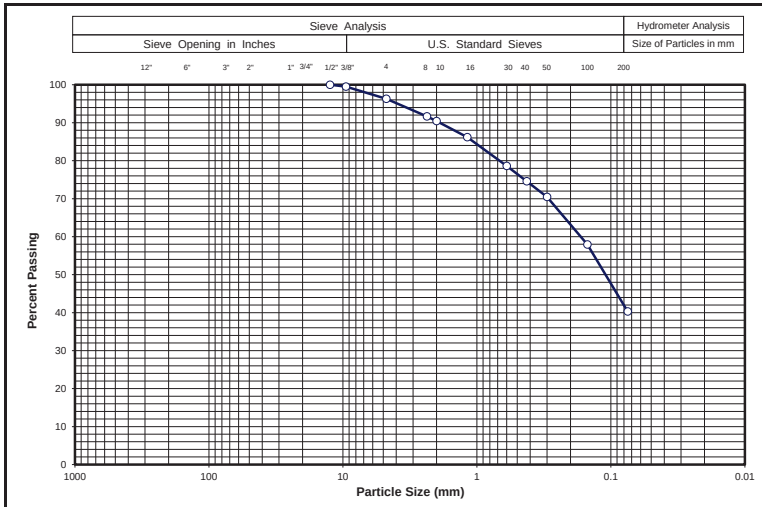

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	99
#4	96
#10	90
#40	75
#200	40

Gravel (%)	4	LL	34	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	56	PL	18	Sample ID:	YA-PSB-15
Fines (%)	40	PI	16	Sample Depth (ft.):	Sample Type: Bulk
Sample Description:	A-6 (2) / SC				

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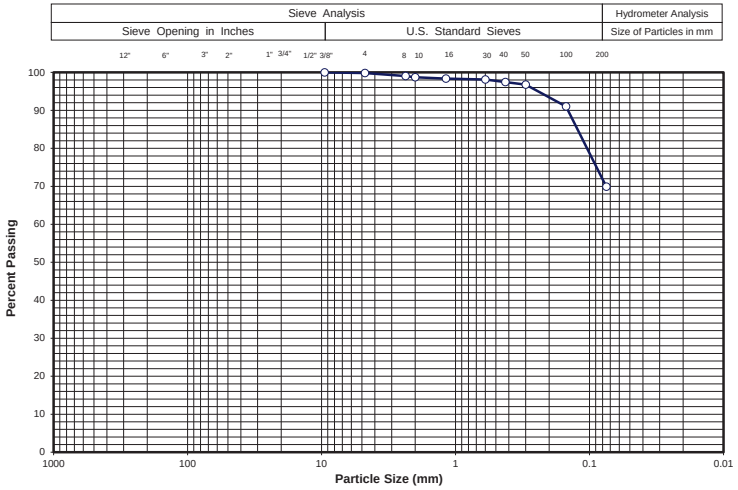
SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	100
#4	100
#10	99
#40	97
#200	70

Gravel (%)	0	LL	43	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	30	PL	17	Sample ID:	YA-PSB-15
Fines (%)	70	PI	26	Sample Depth (ft.):	2
Sample Description:	**A-7-6 (16) / CL**				

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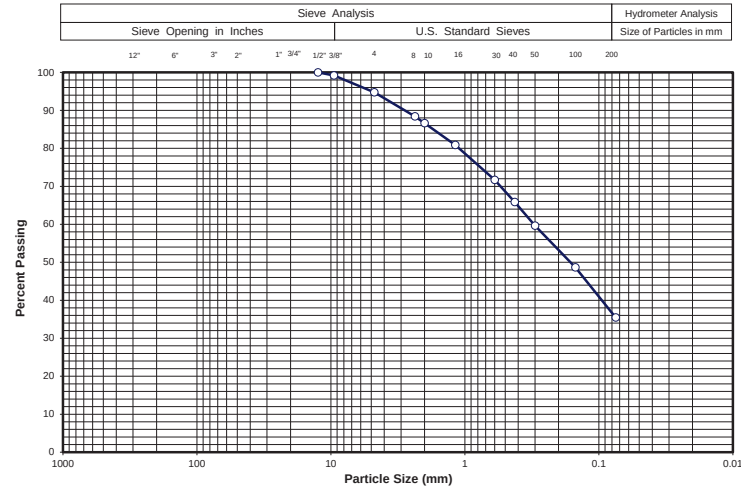
SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	99
#4	95
#10	87
#40	66
#200	35

Gravel (%)	5	LL	42	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	60	PL	18	Sample ID:	YA-PSB-16		
Fines (%)	35	PI	24	Sample Depth (ft.):		Sample Type:	Bulk
Sample Description:	A-7-6 (3) / SCL						

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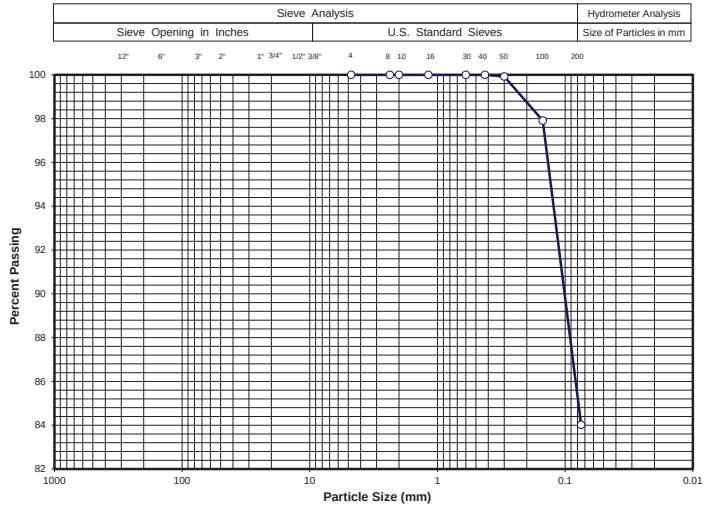
SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/07/15	Figure No.:	-

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	100
#200	84

Gravel (%)	0	LL	43	Project Name:	I-25 Crossroad Bridge Replacement		
Sand (%)	16	PL	14	Sample Id:	YA-PSB-16	Depth (ft)	2
Fines (%)	84	PI	29	Soil Class.	A-7-6 (24) / CL		
Sample Description:							

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SIEVE ANALYSIS

Drawn By:	M.A	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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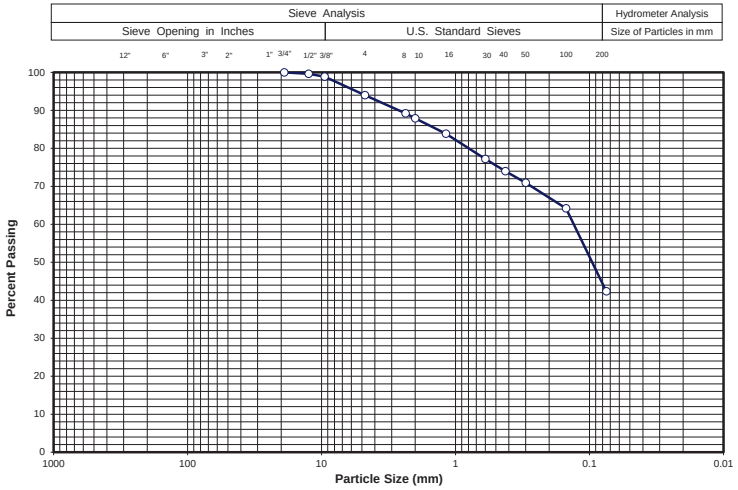

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	100
⅜"	99
#4	94
#10	88
#40	74
#200	42

Gravel (%)	6	LL	38	Project Name:	I-25 Crossroad Bridge Replacement	
Sand (%)	52	PL	18	Sample ID:	YA-PR-1	
Fines (%)	42	PI	20	Sample Depth (ft.):		Sample Type: Bulk
Sample Description:	A-6 (4) / SC					

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

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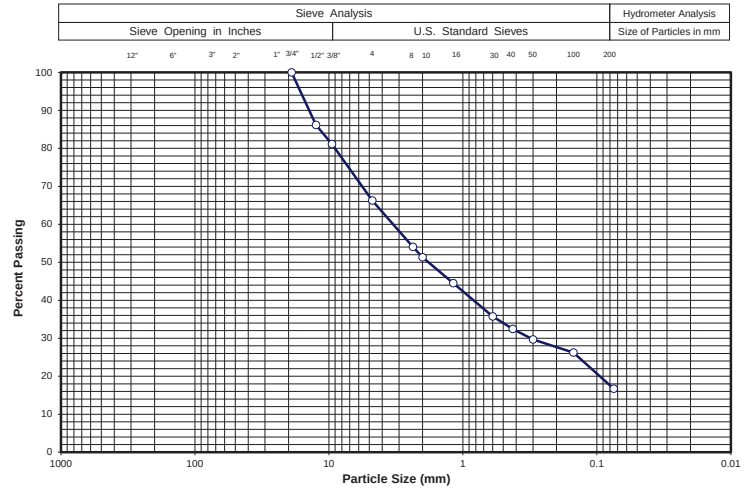

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	86
⅜"	81
#4	66
#10	51
#40	32
#200	17

Gravel (%)	34	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement	
Sand (%)	49	PL	NP	Sample ID:	YA-PR-1 (sample 1)	
Fines (%)	17	PI	NP	Sample Depth (ft.):	2	
Sample Description:	**A-1-b (0) / SM**					

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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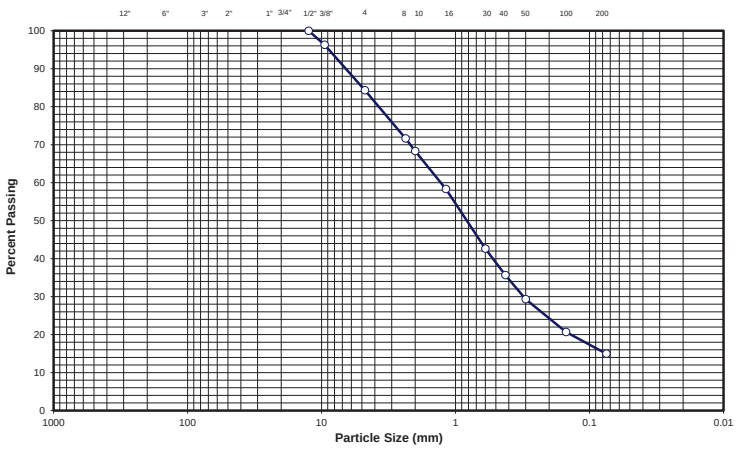

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	96
#4	84
#10	68
#40	36
#200	15

Gravel (%)	16	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement	
Sand (%)	69	PL	NP	Sample ID:	YA-PR-1 (sample 2)	
Fines (%)	15	PI	NP	Sample Depth (ft.):	2	
Sample Description:	**A-1-b (0) / SM**					

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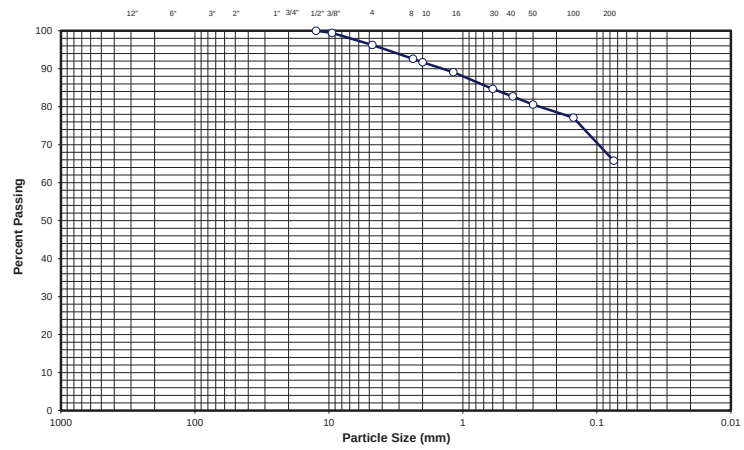
SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	99
#4	96
#10	92
#40	83
#200	66

Gravel (%)	4	LL	31	Project Name:	I-25 Crossroad Bridge Replacement	
Sand (%)	30	PL	15	Sample ID:	YA-PR-2	
Fines (%)	66	PI	16	Sample Depth (ft.):		Sample Type: Bulk
Sample Description:	A-6 (8) / CL					

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

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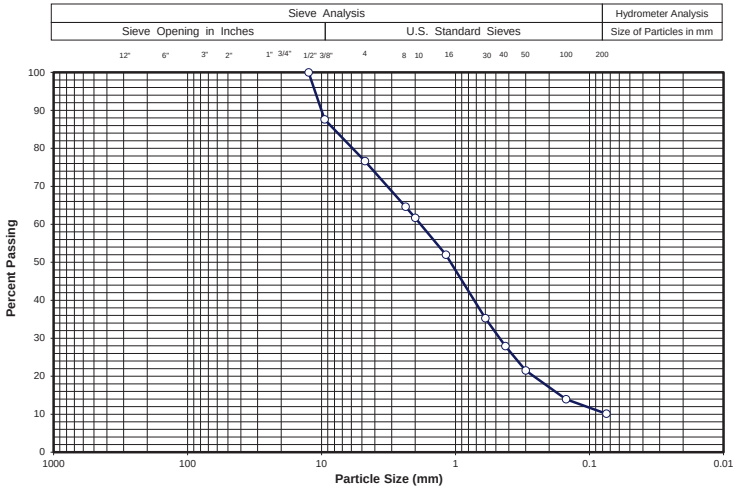

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	100
⅜"	88
#4	77
#10	62
#40	28
#200	10

Gravel (%)	23	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	67	PL	NP	Sample ID:	YA-PR-2
Fines (%)	10	PI	NP	Sample Depth (ft.):	2
Sample Description:	**A-1-b (0) / SP-SM**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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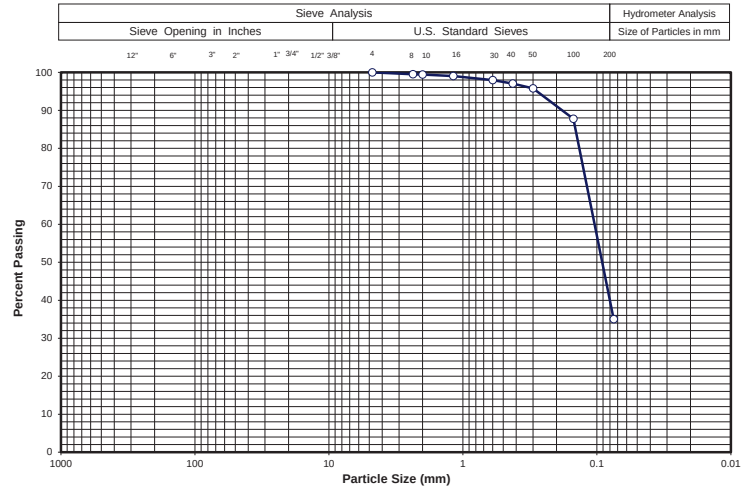

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	99
#40	97
#200	35

Gravel (%)	0	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	65	PL	NP	Sample ID:	YA-PR-2
Fines (%)	35	PI	NP	Sample Depth (ft.):	5
Sample Description:	**A-2-4 (0) / SM**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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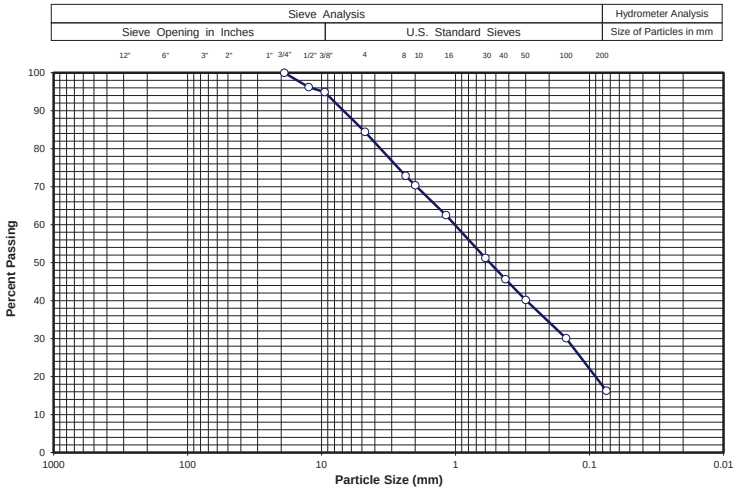

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	96
⅜"	95
#4	84
#10	70
#40	46
#200	16

Gravel (%)	16	LL	34	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	68	PL	16	Sample ID:	YA-PR-3
Fines (%)	16	PI	18	Sample Depth (ft.):	Sample Type: Bulk
Sample Description:	A-2-6 (0) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

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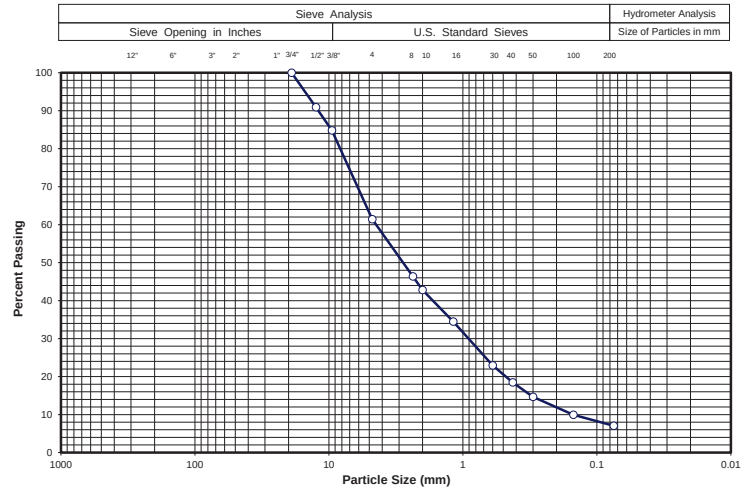

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	91
⅜"	85
#4	61
#10	43
#40	18
#200	7

Gravel (%)	39	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	54	PL	NP	Sample ID:	YA-PR-3 (sample 1)
Fines (%)	7	PI	NP	Sample Depth (ft.):	2
Sample Description:	**A-1-a (0) / SW-SM**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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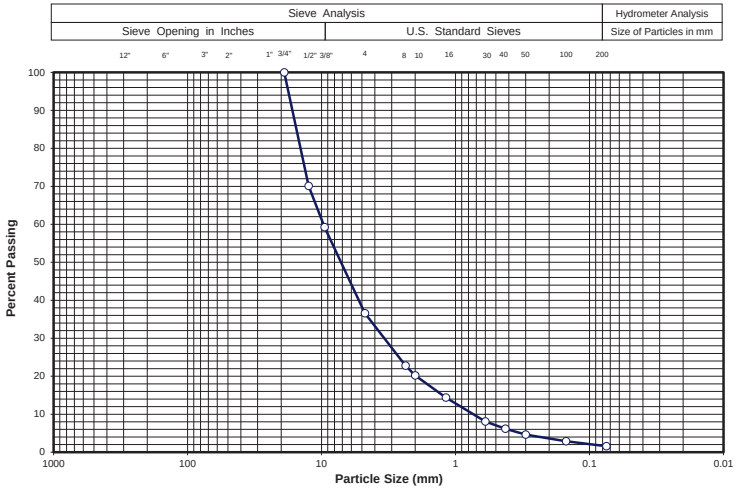

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	70
⅜"	59
#4	37
#10	20
#40	6
#200	2

Gravel (%)	63	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	35	PL	NP	Sample ID:	YA-PR-3 (sample 2)
Fines (%)	2	PI	NP	Sample Depth (ft.):	2
Sample Description:	**A-1-a (0) / GW**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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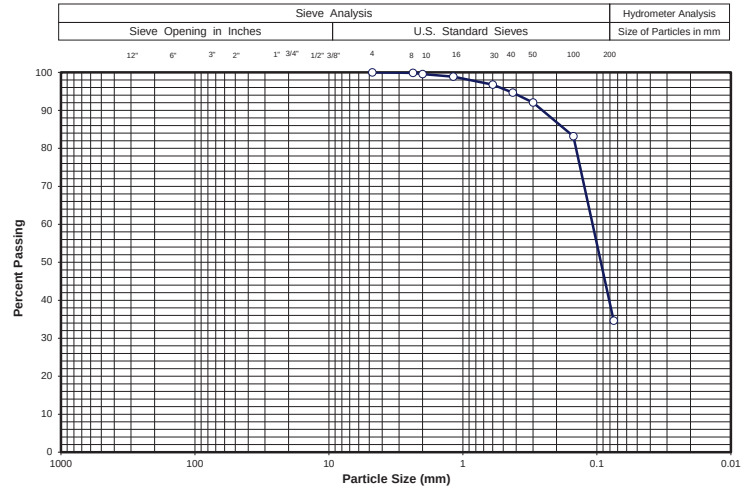

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	95
#200	35

Gravel (%)	0	LL	33	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	65	PL	22	Sample ID:	YA-PR-3
Fines (%)	35	PI	11	Sample Depth (ft.):	5
Sample Description:	**A-2-6 (0) / SC**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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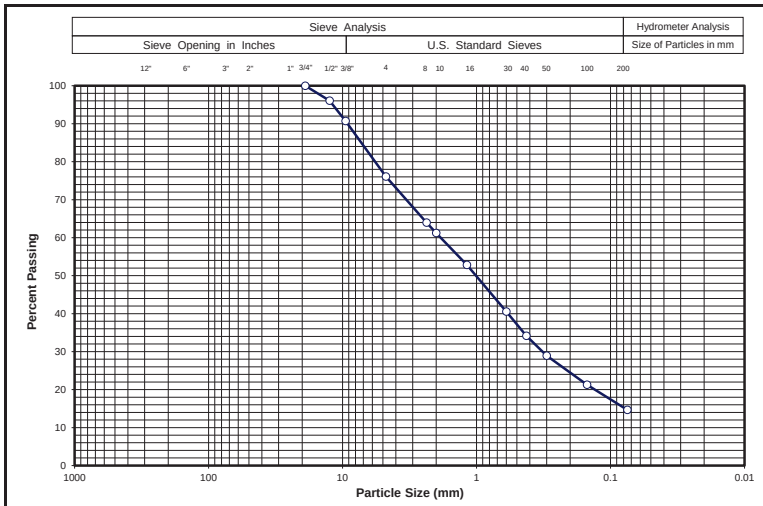

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	96
⅜"	91
#4	76
#10	61
#40	34
#200	15

Gravel (%)	24	LL	34	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	61	PL	16	Sample ID:	YA-PR-4
Fines (%)	15	PI	18	Sample Depth (ft.):	Sample Type: Bulk
Sample Description:	A-2-6 (0) / SC				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	06/09/15	Figure No.:	-

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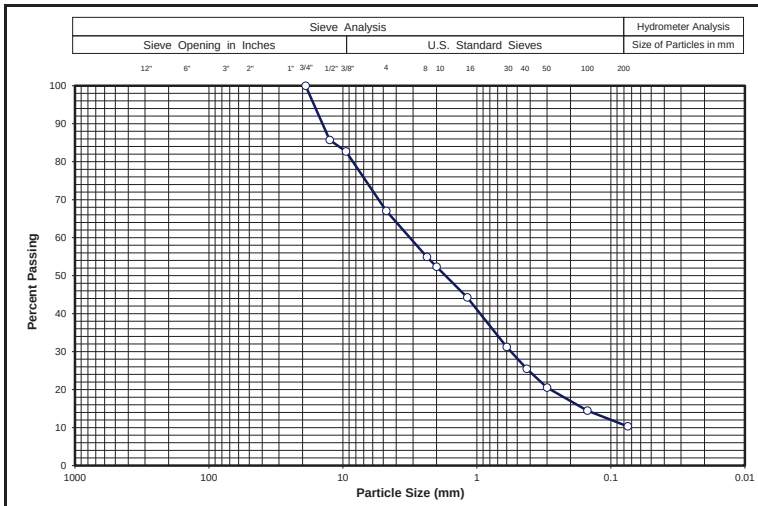

Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	100
½"	86
⅜"	83
#4	67
#10	52
#40	25
#200	10

Gravel (%)	33	LL	NV	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	57	PL	NP	Sample ID:	YA-PR-4
Fines (%)	10	PI	NP	Sample Depth (ft.):	2
Sample Description:	**A-1-b (0) / SW-SM**				

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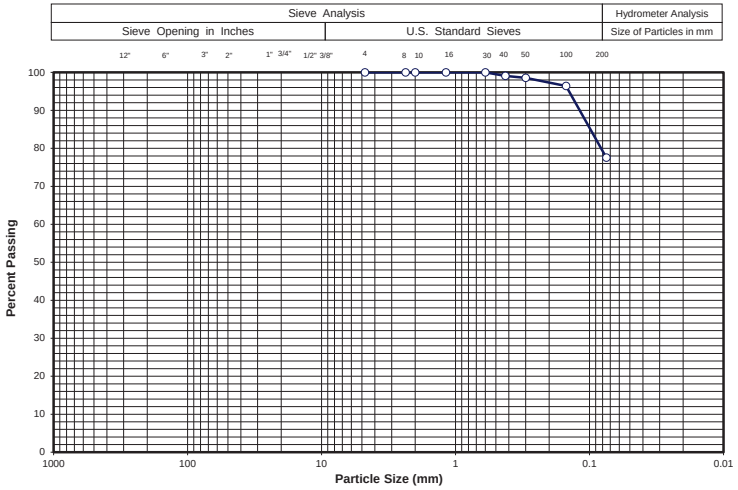
SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

Revised 04/27/2004



Sieve Size	% Passing
3"	-
2 ½"	-
2"	-
1 ½"	-
1"	-
¾ "	-
½"	-
⅜"	-
#4	100
#10	100
#40	99
#200	78

Gravel (%)	0	LL	45	Project Name:	I-25 Crossroad Bridge Replacement
Sand (%)	22	PL	17	Sample ID:	YA-PR-4
Fines (%)	78	PI	28	Sample Depth (ft.):	5
Sample Description:	**A-7-6 (21) / CL**				

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SIEVE ANALYSIS

Drawn By:	MA	Project No.:	215-043
Checked By:	Calvin		
Date:	05/25/15	Figure No.:	-

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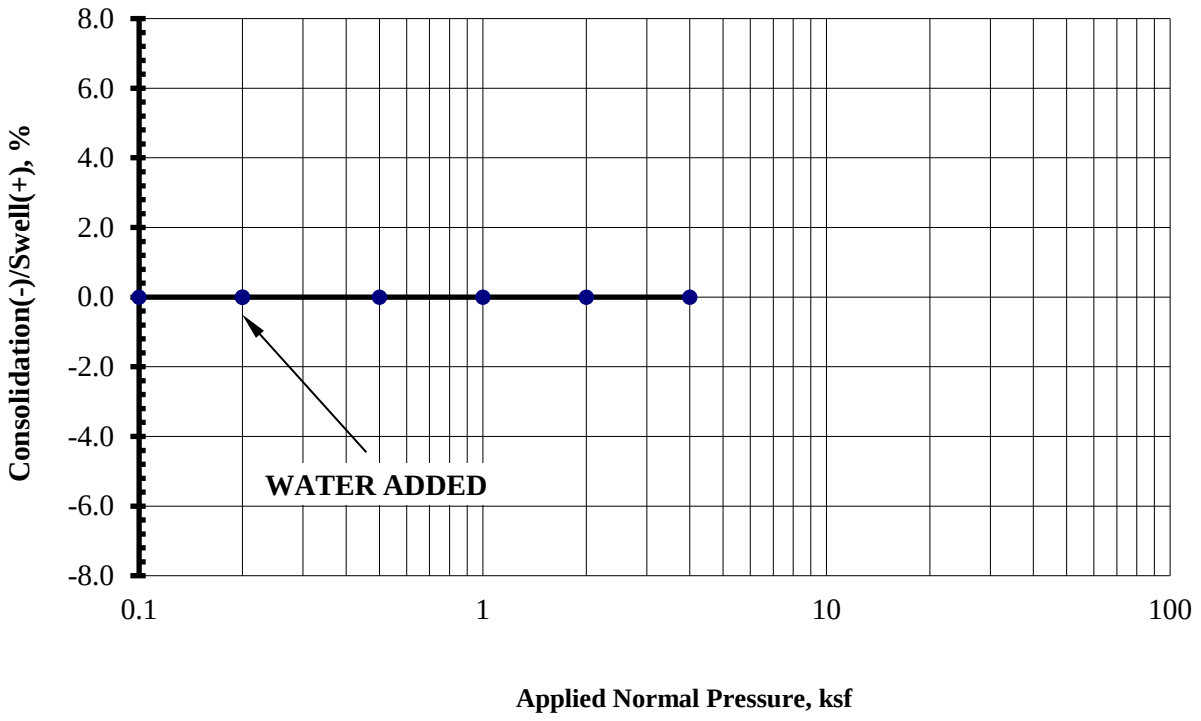

Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-BC-4	2		4.8%	0.0		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

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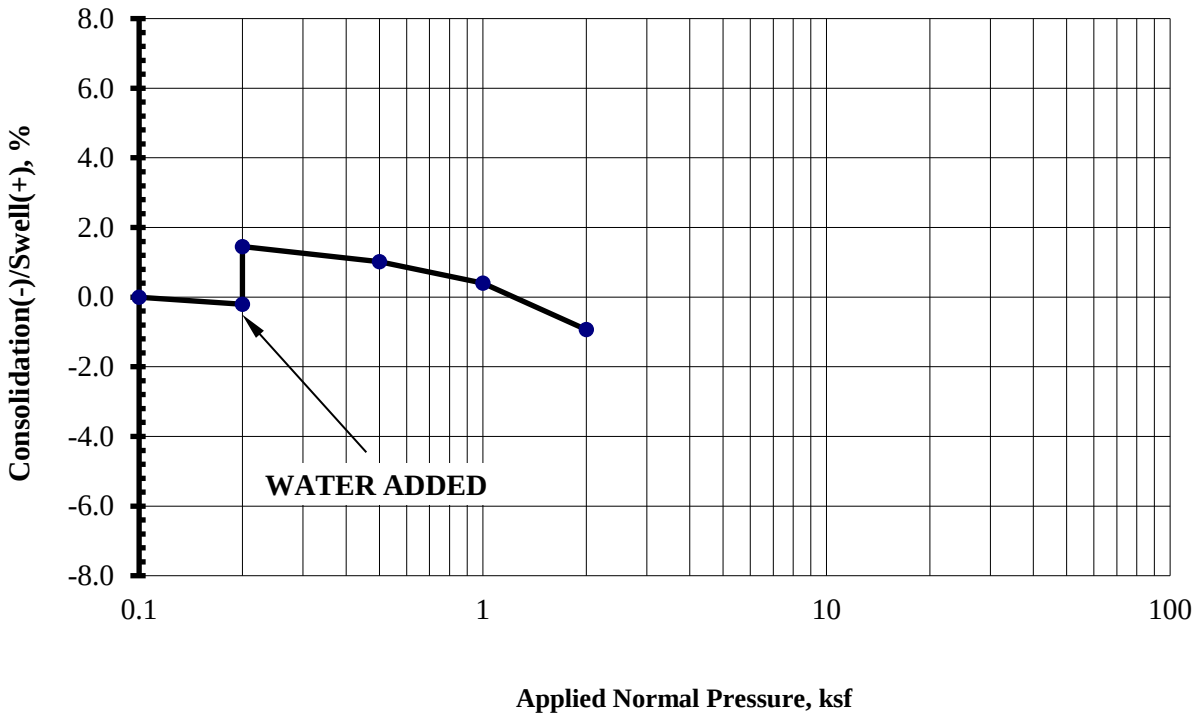

Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-RW-1	2	114.2	16.7%	1.7		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

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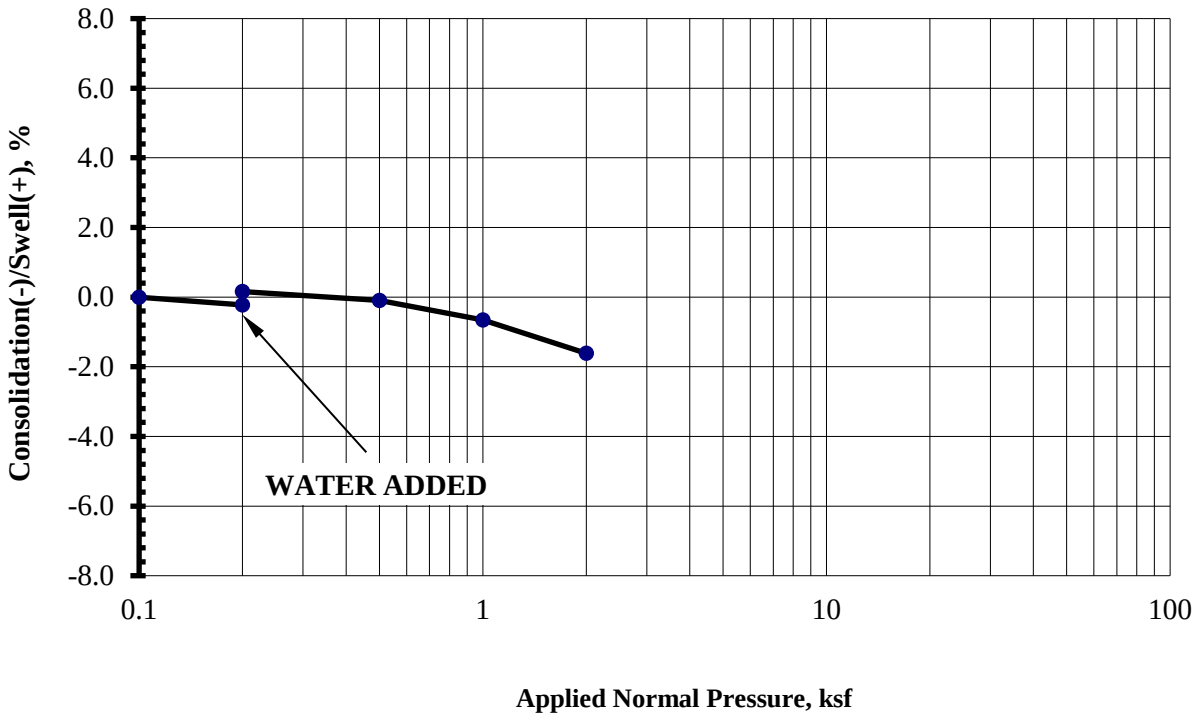

Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-RW-2	2	114.1	15.4%	0.4		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

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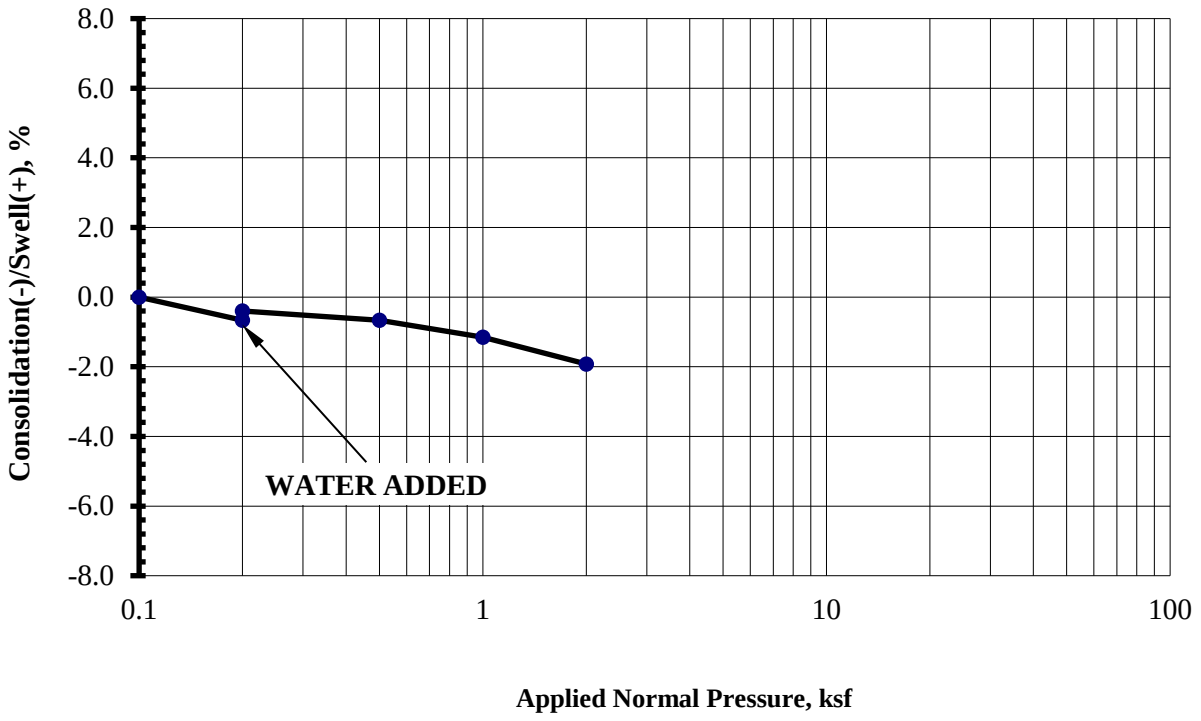

Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-RW-4	5	109.5	18.2%	0.3		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

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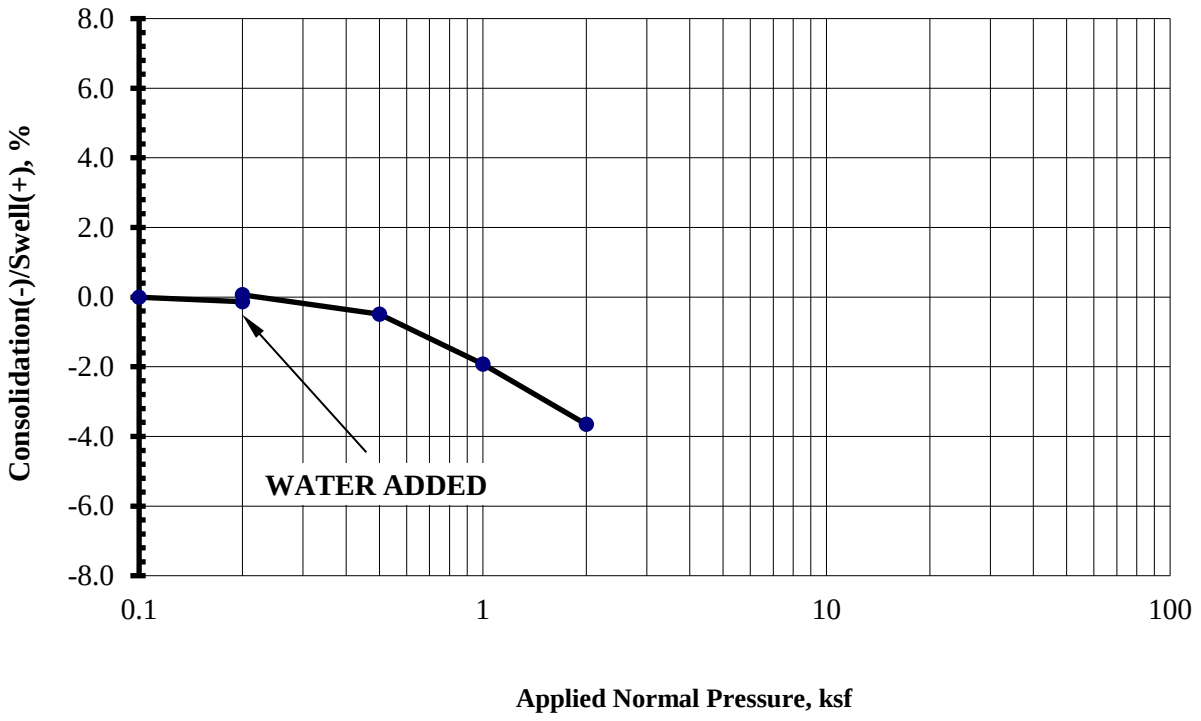

Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-RW-5	5	92.3	18.3%	0.2		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

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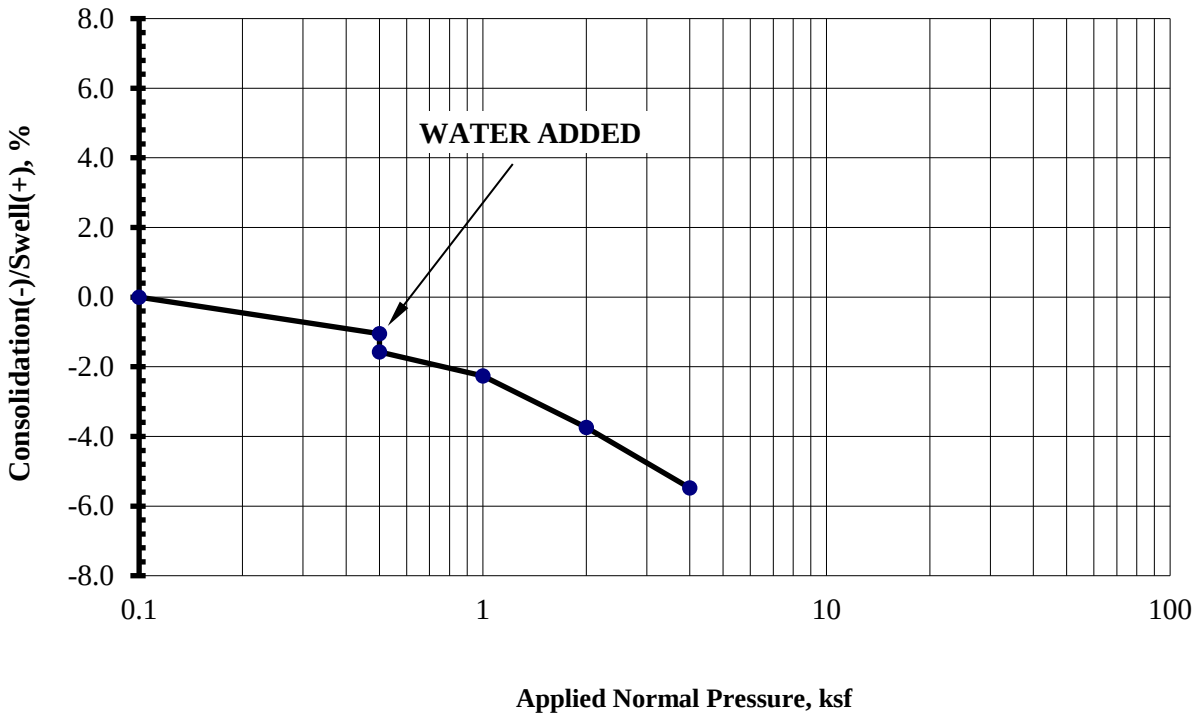

Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-RW-6	4	115.0	13.6%	-0.5		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

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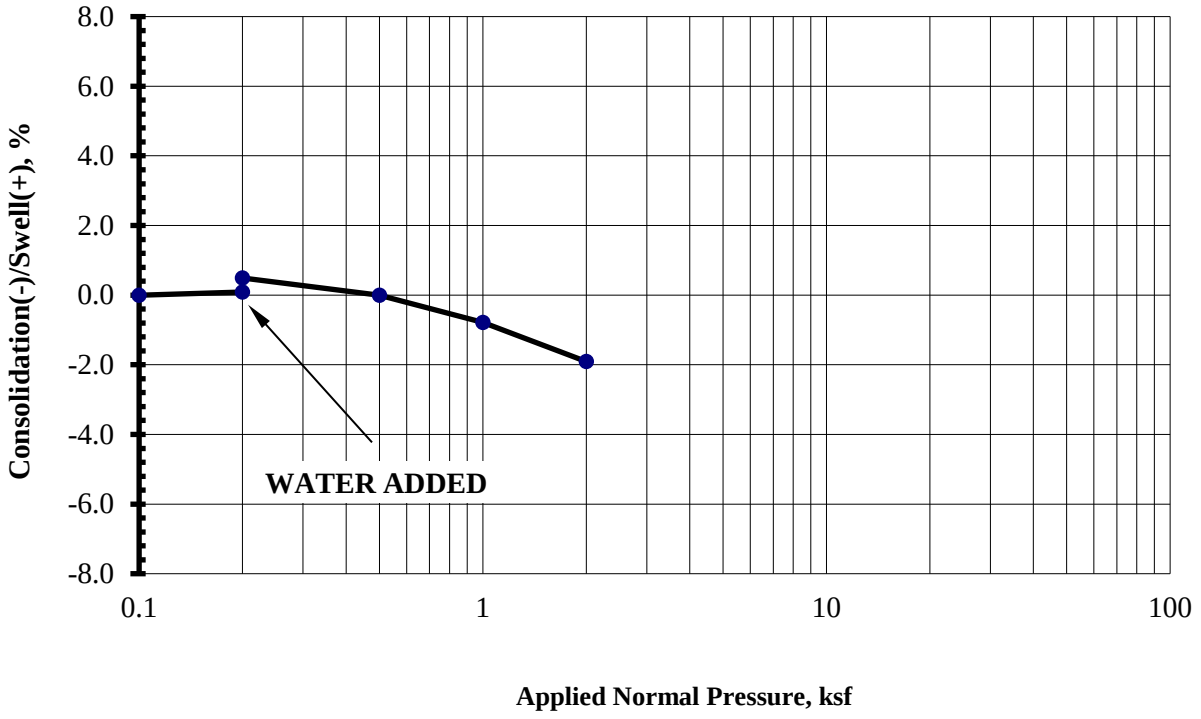

Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PC-1	2	115.9	13.9%	0.4		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

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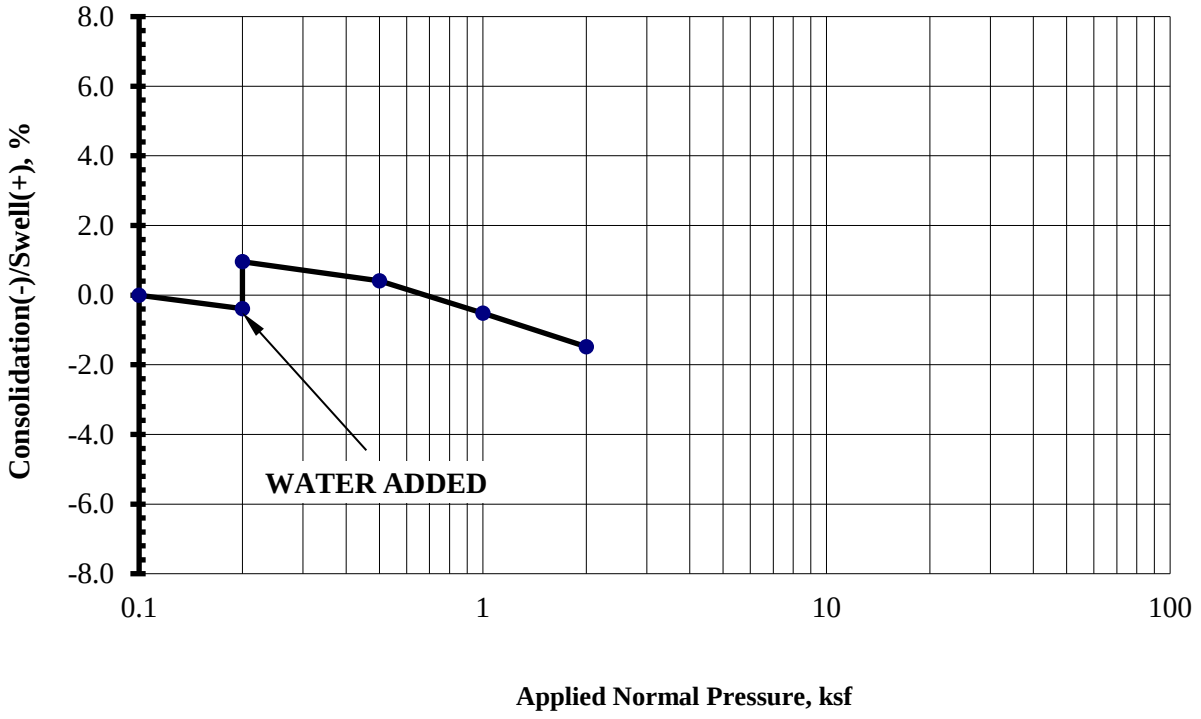
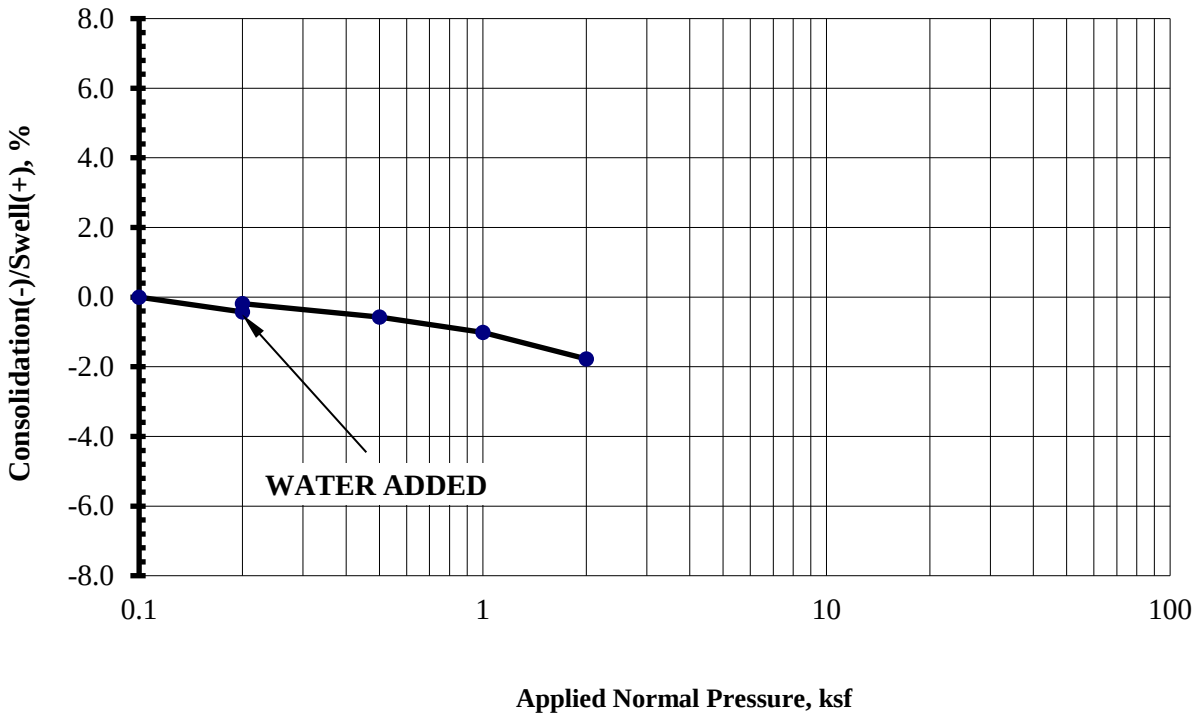


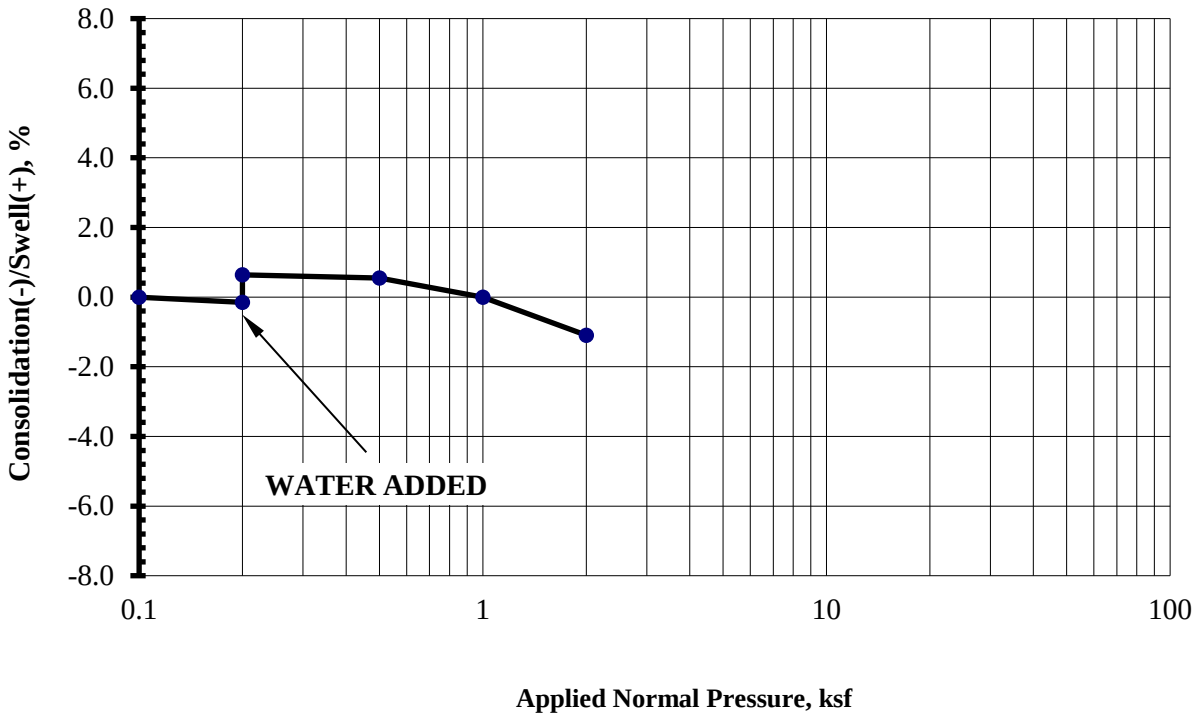
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PC-2	2	117.8	13.7%	1.3		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



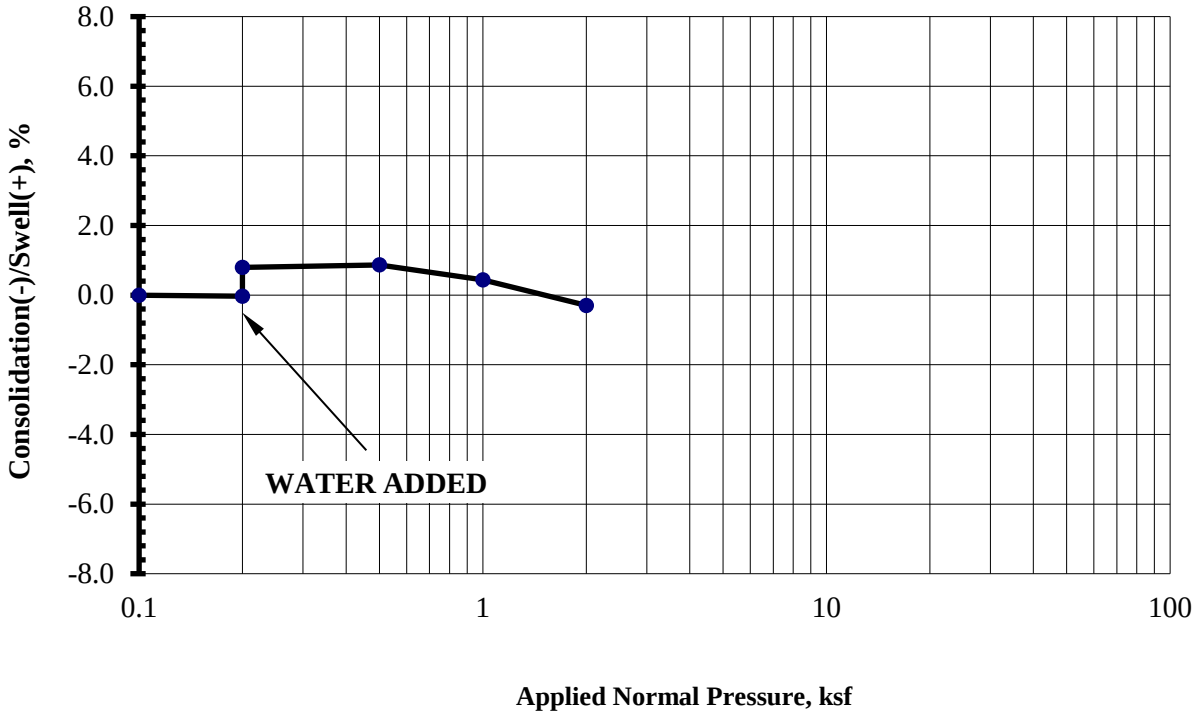
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PNB-2	2	115.4	16.2%	0.2		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



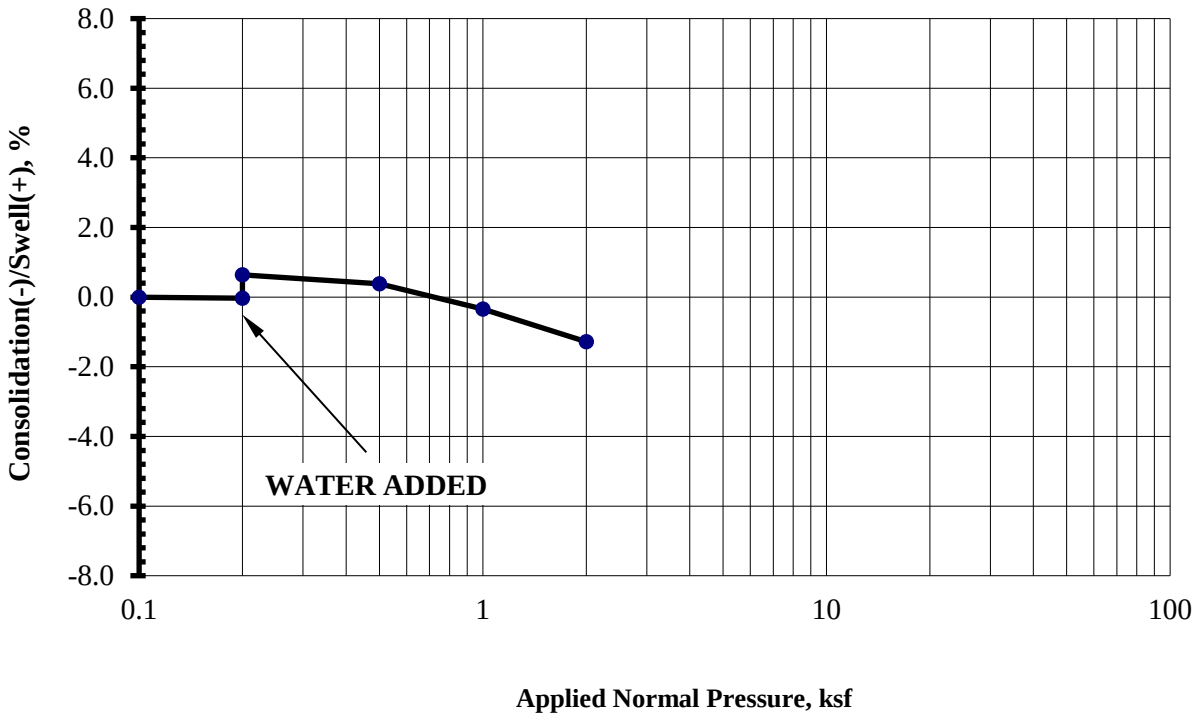
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PNB-4	2	129.3	6.7%	0.8		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



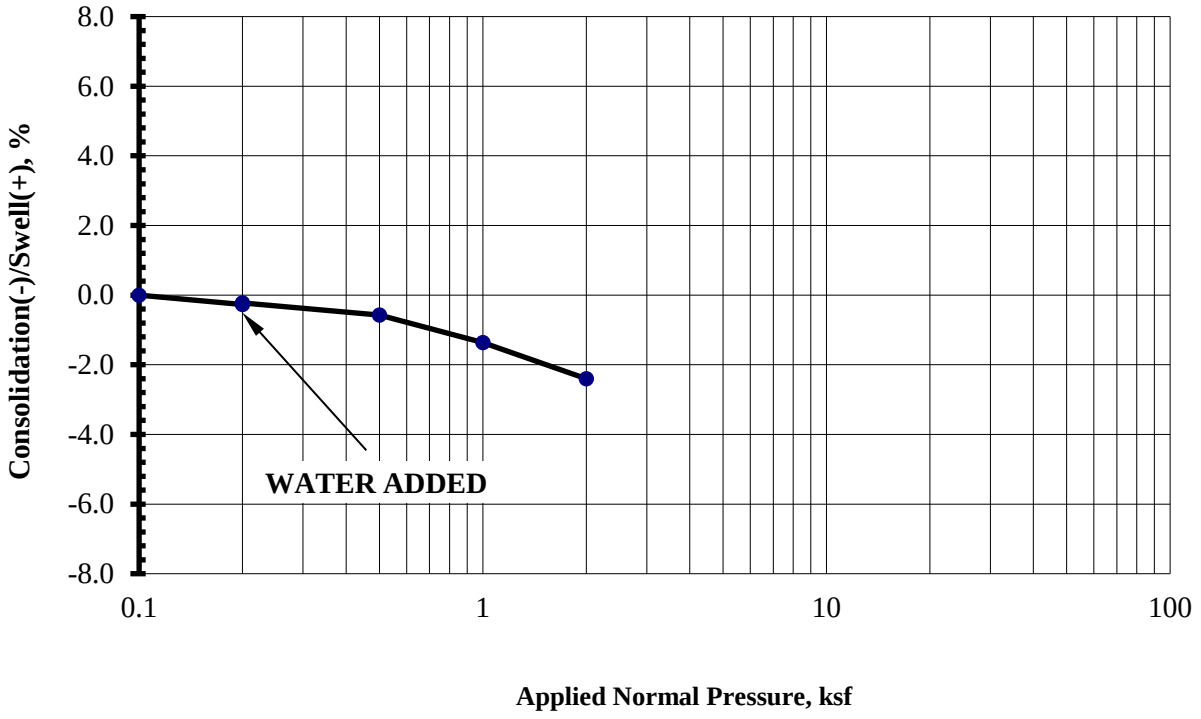
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PNB-5	5	105.2	18.7%	0.8		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



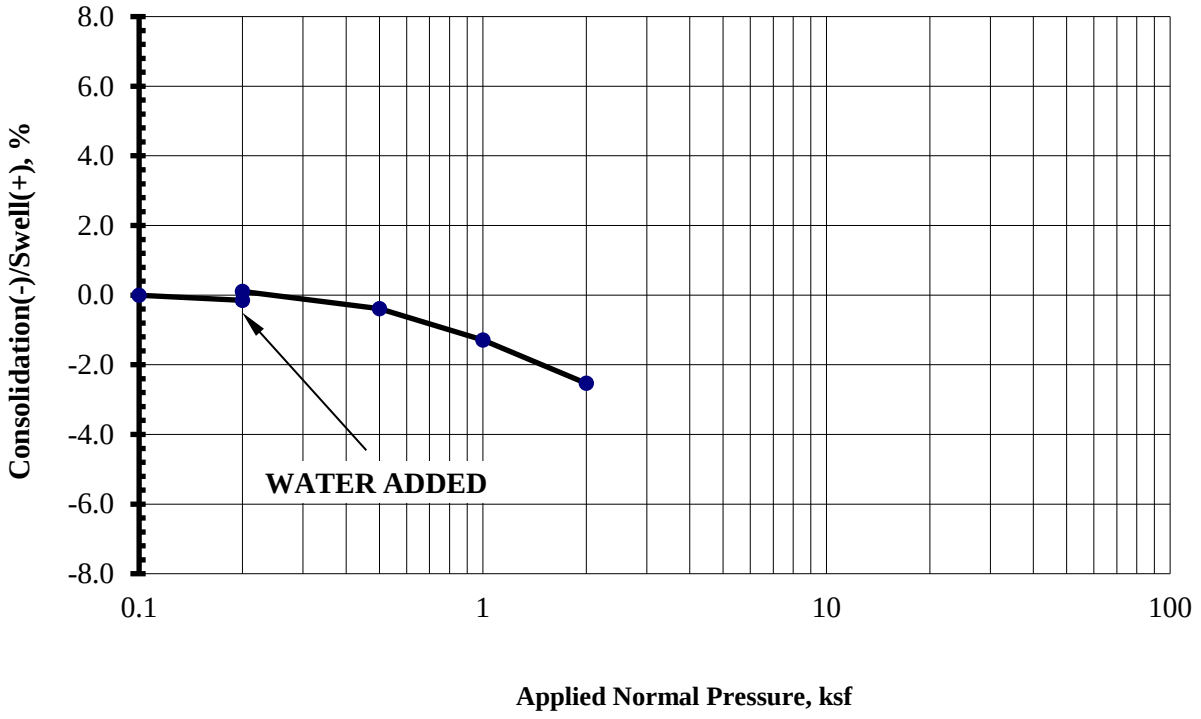
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PNB-8	2	113.0	15.8%	0.7		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



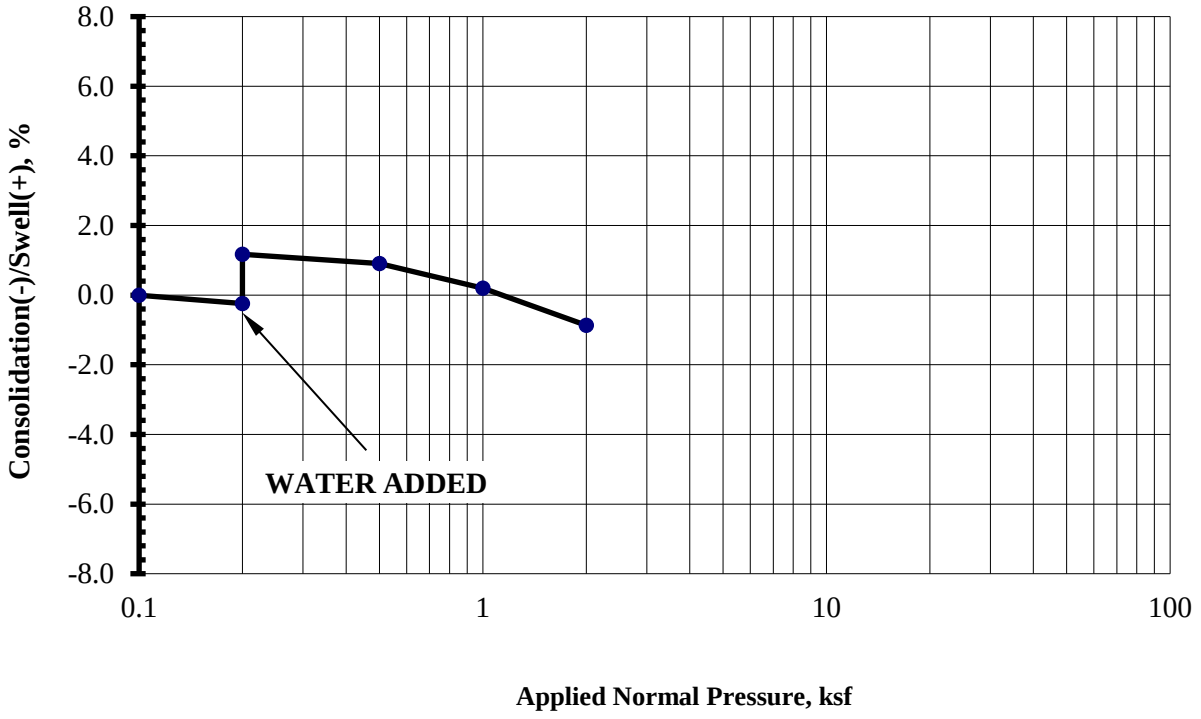
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PNB-11	5	105.2	19.6%	0.0		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



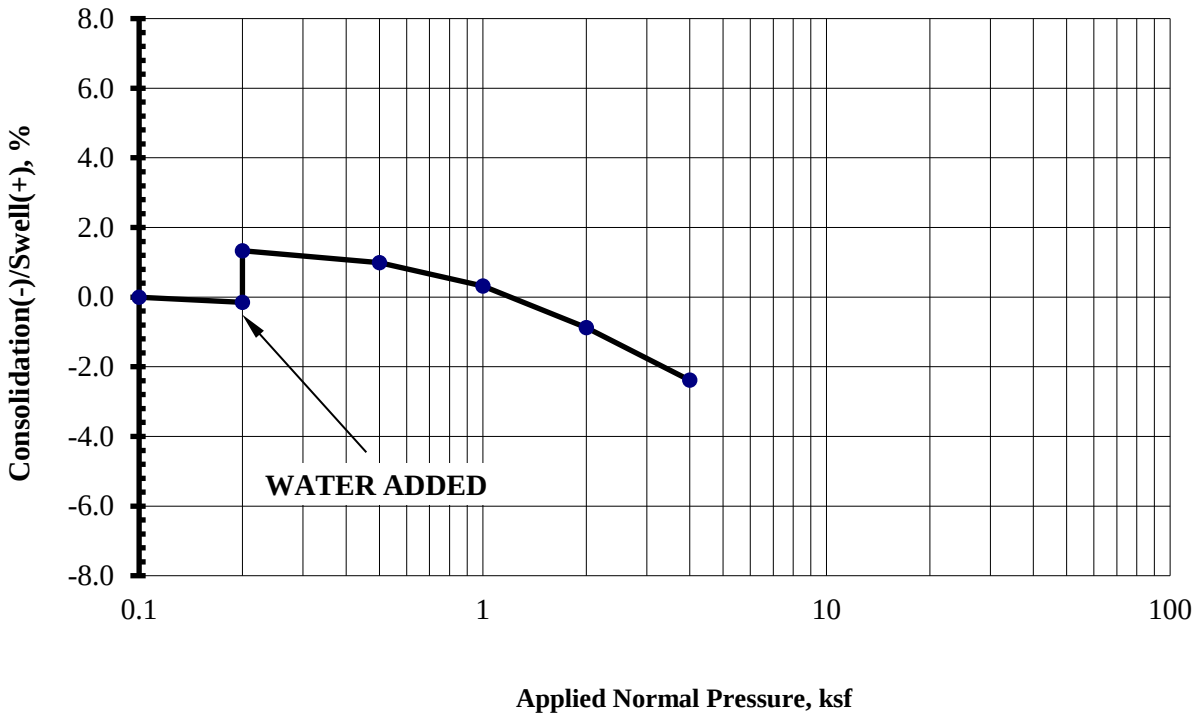
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PNB-15	6	104.8	18.9%	0.3		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



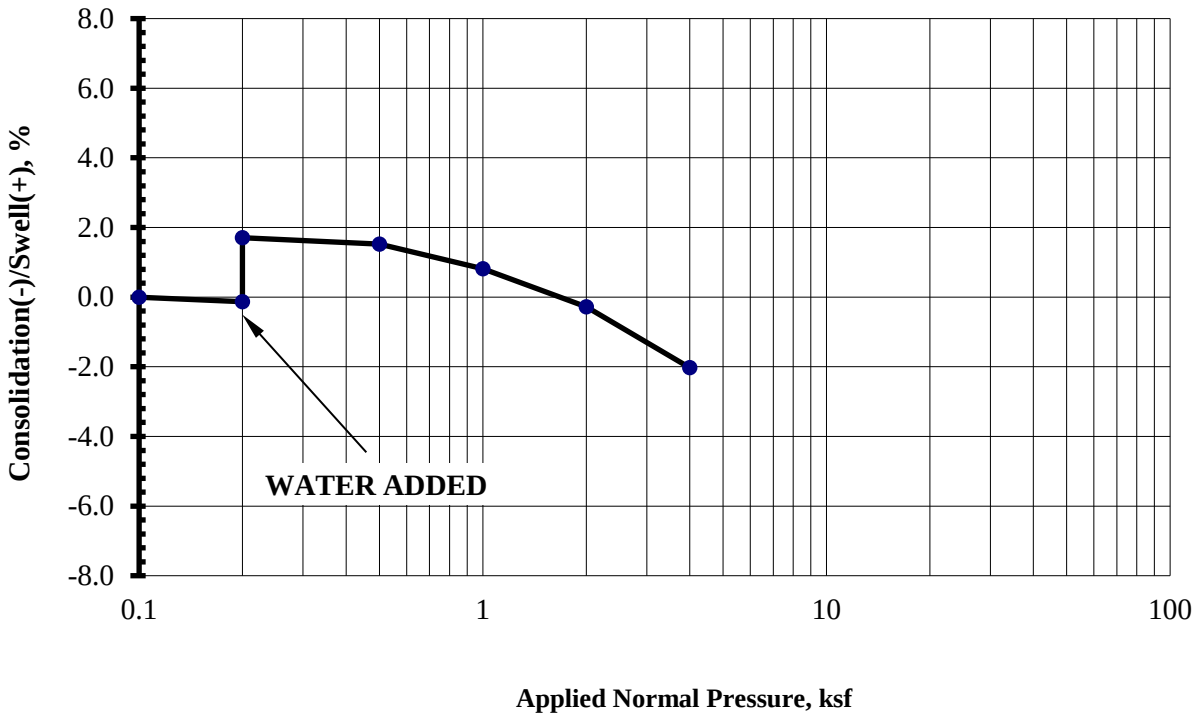
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PSB-1	3	115.5	18.4%	1.4		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



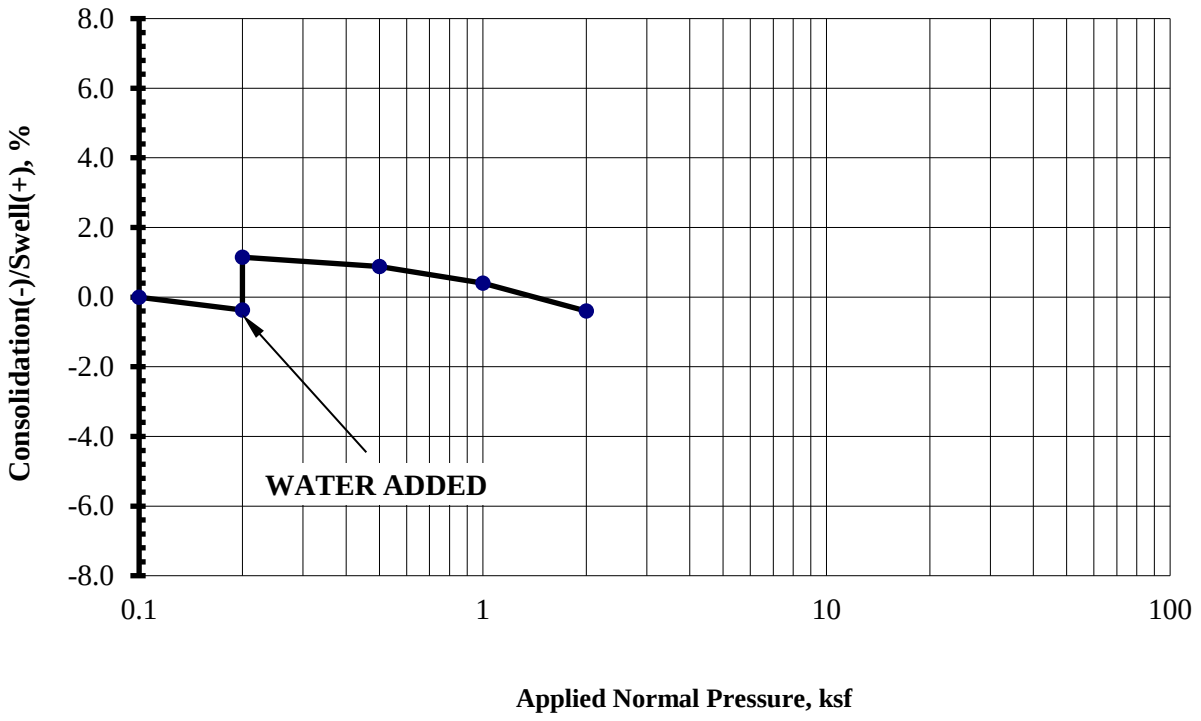
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PSB-2	2	112.2	18.2%	1.5		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



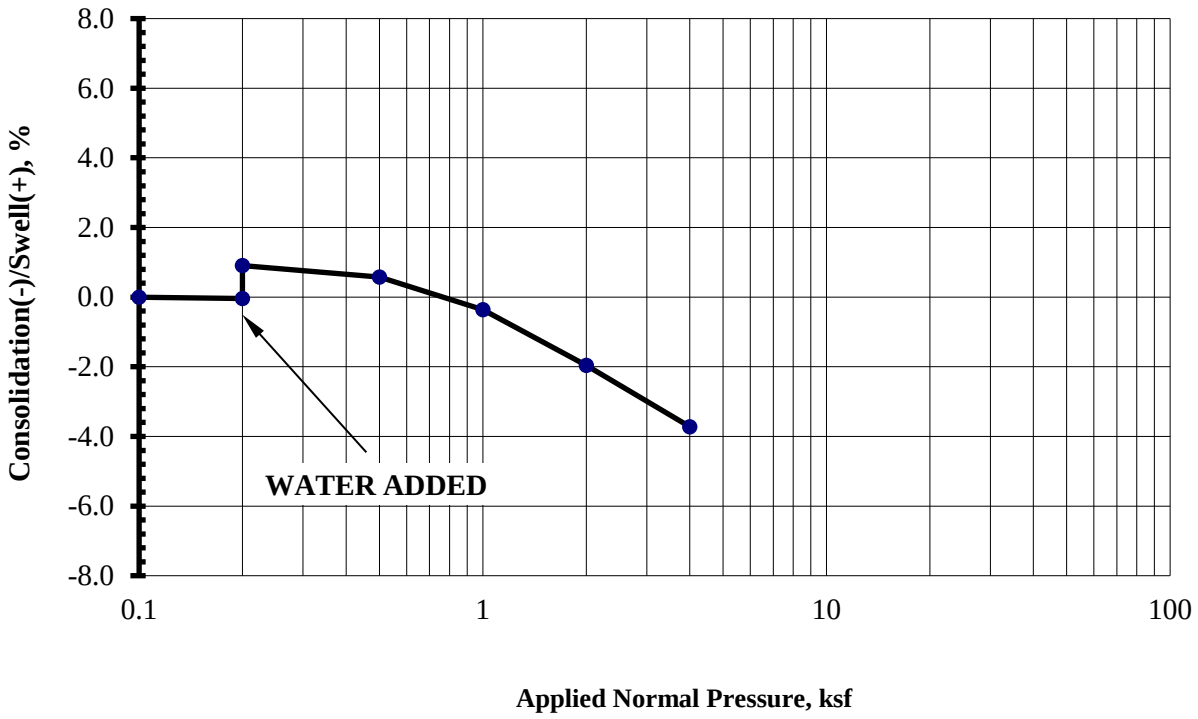
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PSB-6	2	110.8	16.8%	1.8		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



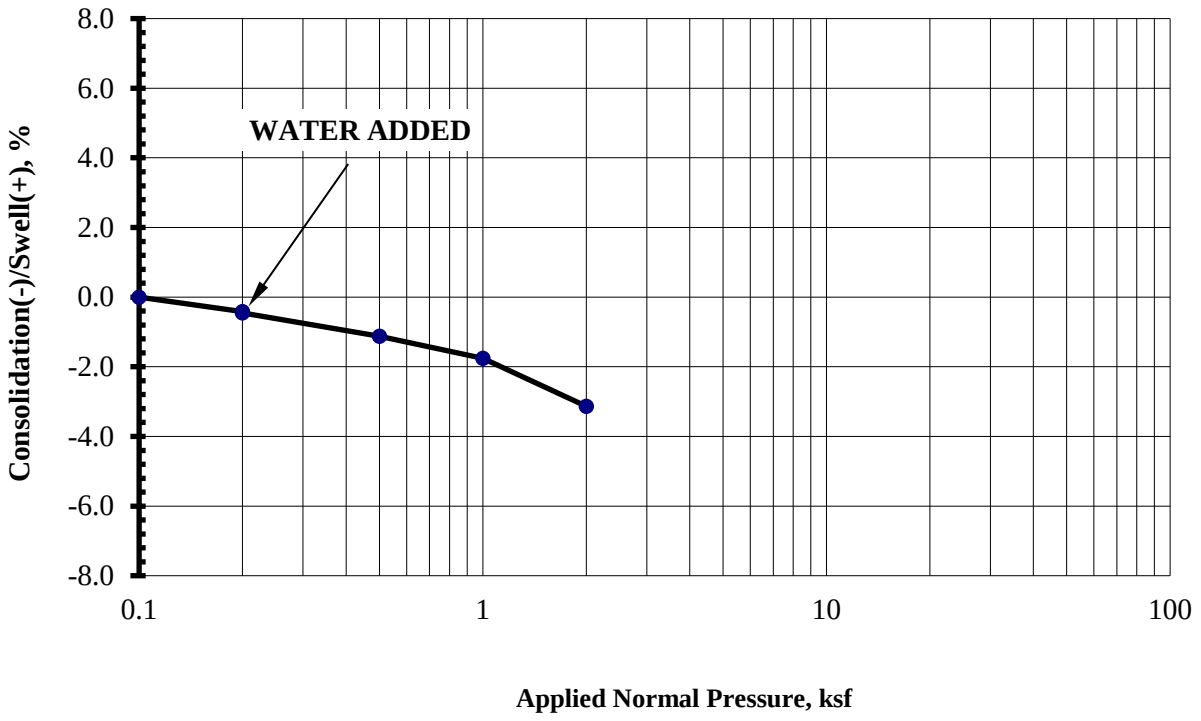
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PSB-9	2	110.5	18.2%	1.5		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



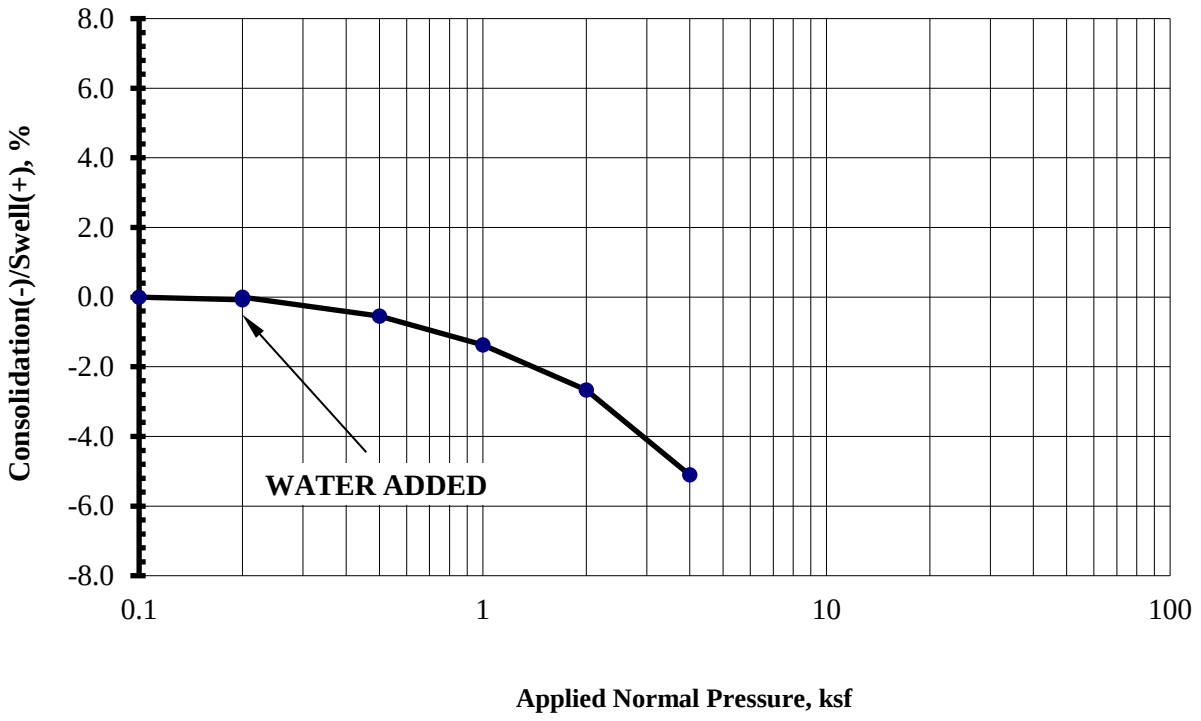
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PSB-10	2	114.2	14.3%	0.9		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



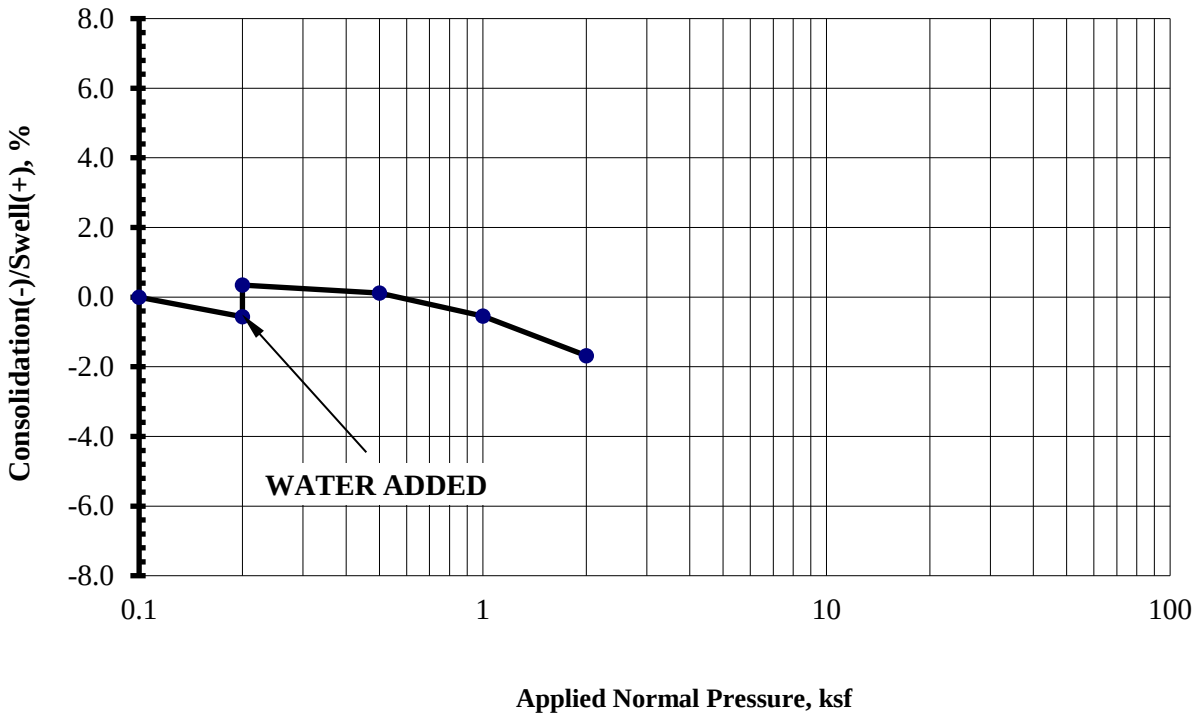
Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PSB-13	5	102.7	22.1%	0.0		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PSB-14	2	99.1	23.6%	0.1		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC



Boring Number	Depth, ft	Natural Dry Density, pcf	Moisture Content, %	Consolidation(-) /Swell(+), %	Soil Description	SWELL / CONSOLIDATION GRAPH
YA-PSB-16	2	115.2	17.1%	0.9		Drawn By: M.A
Job No: 215-043	Project Name:		I-25 Crossroad Bridge Replacement			Checked By: Calvin

YEH & ASSOCIATES, INC

Appendix C.
I-25 over Crossroads Boulevard Loveland, Colorado, Traffic Noise Technical Report (Wilson & Company, 2016)

I-25 over Crossroads Boulevard
Loveland, Colorado

IM 0253-242
Sub Acct #: 20575

Traffic Noise
Technical Report

March 2016

Submitted To:
Carol Parr
Colorado Department of Transportation
Region 4
10601 W 10th Street
Greeley, CO 80634

Submitted By:
Wilson & Company
1675 Broadway, Suite 200
Denver, CO 80202

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1.0 INTRODUCTION

The purpose of this project is to reconstruct the I-25 interchange over Crossroads Boulevard (exit 259) in Loveland, Colorado. The project would correct profile issues and widen the roadway in preparation for the ultimate I-25 expansion to six lanes between Longmont and Fort Collins.

The project scope includes the reconstruction of approximately 1.5 miles of the existing roadway and replacement of two existing bridges that carry I-25 over Crossroads Boulevard as shown in **Figure 1.** Additionally, the project includes construction of a new 0.67 mile segment of Byrd Drive to connect Byrd Drive between Crossroads Boulevard and Earhart Road as part of the removal of the NW Frontage Road. The project is located within the city limits of Loveland, in Larimer County. The project limits extend to mile post 258.67 to the south of the interchange and milepost 260.16 to the north of the interchange.

The project will include grading activities, roadway widening of I-25 and Crossroads Boulevard under I-25, removal of frontage roads, addition of the new segment of Byrd Drive, safety improvements to the pedestrian, roadway and bridges, installation of new storm drainage systems that will tie to the existing systems, demolition and construction of roadway structures including bridges, paving, signing, striping, seeding, and excavation as needed to accomplish the final geometry of the proposed interstate highway and bridge improvements.

The no action alternative would maintain the existing geometry with no improvements.

Figure 1. I-25 over Crossroads Boulevard Project Area

This Traffic Noise Technical Memorandum describes the results of a noise study conducted along this corridor.

2.0 APPLICABLE NOISE STANDARDS

The Crossroads Boulevard Proposed Action would use state and federal funds and thus is subject to regulations that govern highway traffic noise for Federal-aid and Federal action projects contained in Part 772 of Title 23 of the Code of Federal Regulations (23CFR772). These regulations describe the methods that must be followed in the evaluation and mitigation of highway traffic noise in Federal-aid and Federal action highway projects. The regulations require each state highway agency to prepare and adopt written guidelines specific to that state which must demonstrate compliance with 23CFR772.

CDOT's Noise Analysis and Abatement Guidelines dated January 15, 2015 (attached as Appendix A), describe CDOT policy and program to implement 23CFR772. These guidelines establish noise abatement criteria as well as design and cost requirements for noise mitigation. Traffic noise impacts occur when noise levels, for different categories of land uses and activities, meet or exceed the CDOT Noise Abatement Criteria (NAC) shown in **Table 1.** The noise impact threshold for noise sensitive land uses included amphitheaters (Category C) at 66 A-weighted decibels [dB(A)] and hotels/restaurants outdoor use areas (Category E) receptors at 71 dB(A). These are the primary noise-sensitive receptor types in the corridor. Much of the corridor includes land uses that fall into activity category F and are not sensitive to traffic noise. The guidelines also state that noise mitigation must be considered for any receptors where predicted noise levels for future conditions are at least 10 dB(A) over existing noise levels.

Table 1. CDOT Noise Abatement Criteria

Activity Category	Activity Leq(h)*	Evaluation Activity Location	Description
A	56	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to its intended purpose.
B[1]	66	Exterior	Residential
C[1]	66	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[1]	71	NA	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F.
F	NA	NA	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	NA	NA	Undeveloped lands that are not permitted for development.

[1] Includes undeveloped lands permitted for this activity category.
* Hourly A- weighted sound level in dB(A), reflecting a 1-dB(A) approach value below 23CFR772 values.

CDOT guidelines also outline a method for determining the "feasibility and reasonableness" of proposed mitigation measures. Feasibility issues include:

- Can a 5 dB(A) noise reduction be achieved by constructing a noise barrier or berm?
- Are there any fatal flaw drainage, terrain, safety, or maintenance issues involving the proposed noise barrier or berm?
- Can a noise barrier less than or equal to 20 feet tall be constructed?

Reasonableness issues include:

- Has the design goal of 7 dB(A) noise reduction for mitigation measure been met for at least one impacted receptor?
- Is the Cost Benefit Index below $6,800 per receptor per dB(A) reduced?
- Are more than 50% of benefitted resident/owners in favor of the recommended noise mitigation measure?

This noise analysis complies with regulatory requirements defined in 23CFR772 and CDOT Noise Analysis and Abatement Guidelines approved January 15, 2015 by FHWA.

3.0 NOISE PREDICTION METHODOLOGY

Noise levels were predicted using the TNM 2.5 highway noise level prediction software program developed by the Federal Highway Administration, which is approved for use on CDOT and Federal-aid projects. TNM calculates the hourly noise level at a receptor location based on the following factors:

- the noise emission level of automobiles, medium trucks, heavy trucks, buses, and motorcycles
- the volume and speed of each of these vehicle types on each key roadway
- the relative location of all roadways, receptors, and terrain features
- the type of land cover between each receptor and each roadway

Sub-section 3.1 describes the TNM input data used to predict existing and 2035 design-year conditions. Sub-section 3.2 describes the validation of the model.

The following paragraphs from the Colorado Noise Analysis and Abatement Guidelines explain the technical terminology for the units of measurement that the model uses:

> *Since sound travels in waves, there are also varying frequencies associated with each sound event. The human ear does not respond equally to all frequencies, however, and filtering of these frequencies must be done in order to obtain accurate measurements and descriptions of highway traffic noise, as this noise is comprised of many frequencies. The filtering (weighting of frequencies) of the "A" scale on sound-level meters most closely approximates the average frequency response of the human ear, and is the scale that is used for traffic noise analyses. Decibel units described in this manner are referred to as A-weighted decibels, or dB(A).*
>
> *As sound intensity tends to fluctuate with time, a method is required to describe a noise source, such as a highway, in a steady state condition. The descriptor most commonly used in environmental noise analysis is the equivalent steady state sound level, or Leq. This value is representative of the same amount of acoustic energy that is contained in a time-varying sound measurement over a specified period. For highway traffic noise analyses in Colorado that time period is one hour, and the value then reflects the hourly equivalent sound level, or Leq(h).*

3.1 TNM Model Input and Assumptions

Vehicle Emission Levels
Vehicle emission levels refer to the noise level of vehicles measured at a reference distance and a reference speed. TNM provides separate emission levels for automobiles, medium trucks (trucks with two axles, six tires, and a gross vehicle weight greater than 4,500 kg and less than 12,000 kg), and heavy trucks (trucks with three or more axles and a gross vehicle weight greater than 12,000 kg).

Traffic
The loudest hour for noise occurs when the highest volume of traffic is traveling at the highest free flow speed for the particular roadway. This is often not the peak hour, when heavy traffic volumes result in lower speeds. This is the case with I-25 when the high volumes during the peak hour slow the average travel speeds. To replicate the loudest possible noise condition for existing, No-Action, and the Proposed Action, all lanes of I-25, including cross streets, were modeled with a theoretical maximum traffic volume per lane at the posted speed. This is the worst-case noise scenario for modeling purposes. These traffic volumes, presented in the January 15, 2015 Noise Abatement Guidelines, were developed by CDOT using the Highway Capacity Manual (2000) and TNM. Truck percentages were developed for the I-25 North Environmental Impact Statement for existing and future 2035. The resulting modeled traffic volumes are shown in **Table 2.** The No-Action model used the 2035 truck percentages with the existing roadway geometry.

Table 2. Assumed Loudest Hour I-25 Traffic

Posted Speed	Volume/Lane/Hour			
	Total	Automobiles	Midsize Trucks	Heavy Trucks
Existing				
75	1,600	1,424	88	88
	100%	89%	5.5%	5.5%
2035 / No-Action				
75	1,600	1,472	64	64
	100%	92%	4%	4%

Terrain
The terrain surrounding I-25 is fairly level with limited natural and man-made features that directly affect the propagation of traffic noise to the surrounding area and receptors. The locations and elevations of the features along I-25 were determined using the CAD topographic files and included in the TNM model.

Ground Cover
Throughout the study area, ground cover adjacent to I-25 consists primarily of field grass with landscaped areas at the Crossroads interchange.

Buildings
Developed areas along I-25 are a mix of commercial properties. Large building structures that impede the transmission of sound from the roadway to the receptors were included in the TNM model. Three-sided barriers are used to replicate the effects of large structures. The locations and elevations of these features was determined using the CAD topographic files.

Receptors
Modeled receptors are located in the outdoor use areas of individual commercial properties with noise sensitive outdoor uses within 500 feet, or more as needed for the analysis, of the I-25 and Byrd Road project limits. Field reconnaissance and a complete review of all development plans of the area revealed two noise activity category C receptors, Thunder Mountain amphitheaters and Larimer County Fairgrounds, and five noise activity category E commercial receptors: (1) Embassy Suites outdoor restaurant and (2) Spa, (3) Thunder Mountain Harley outdoor seating, (4) Hooters outdoor seating and (5) Castlewood Suites outdoor grill area with noise-sensitive outdoor uses. All other land uses in the project area do not have noise-sensitive outdoor use and are noise activity category F and were not modeled. The locations and elevations of all features were determined using the CAD topographic files and included in the TNM model. Individual receptors locations are identified in **Figure 2.** To provide a better scale for clarity, **Figure 2** does not show the entire project area but focuses on the areas that include noise-sensitive receptors.

Roadways
The existing and proposed roadway alignments, including profiles and pavement width, for I-25, Byrd Drive striping area, and Crossroads Boulevard, were determined using the CAD roadway design files and topographical survey data and included in the TNM model.

3.2 Validation of Noise Model

The above-described modeling procedures were validated by measuring noise levels at three locations along the corridor and comparing the measured readings with the TNM model predictions for these locations with the traffic counted during the measurement times. These sites are shown in **Figures 2**. Noise levels were measured on December 17, 2015 which was a warm, dry, wind free (less than 10 mph) day, using a Quest 2900 integrating/logging level meter. The meter is calibrated annually by a certified laboratory to verify accuracy and field-calibrated before and re-checked after the measurements.

Figure 2 –Monitoring and Receptor Locations

At the same time that noise levels were measured, the associated traffic counts, vehicle type data, and average speeds were collected. Noise measurements were collected during off-peak hours to ensure free flow traffic. Two readings were conducted at each site. Modifications to the TNM model were made to ensure the model was sufficiently replicating the site conditions and the manner in which sound propagates through the environment.

The measured and predicted noise levels are compared in **Table 3.** When the noise model predicts noise levels with an accuracy of ± 3 dB(A) when compared to the measured levels, the model is considered validated and suggests the model is accurately predicting the noise environment.

Table 3 - Noise Model Validation

Site #	Location	Field (dB(A) Leq)	Direction of Travel	Traffic (Hourly Equivalent)					Model (dB(A) Leq)	Variance (dB(A) Leq)	Notes/ Issues in Field
				Auto	HT	MT	MO	Bus			
1 - 1	South and east of I-25 Crossroads Interchange	**72.0**	NB	2484	144	108			**72.4**	**0.4**	
			SB	2112	108	72					
1 – 2		**71.3**	NB	2310	132	102			**72.1**	**0.8**	
			SB	1848	114	90					
2 - 1	East of I-25 between Embassy Suites and Fairgrounds	**74.7**	NB	2934	96	72			**74.4**	**0.3**	
			SB	2424	106	84					
2 - 2		**75.0**	NB	2796	120	72			**74.4**	**0.6**	
			SB	2358	144	108					
3 - 1	West of I-25, South of Earhart Road	**67.6**	NB	2472	132	126			**66.5**	**1.1**	
			SB	2316	160	96					
3 - 2		**67.2**	NB	2352	144	90			**66.7**	**0.5**	
			SB	2406	138	126					

Note: “Auto” represents passenger vehicles, “MT” represents medium delivery trucks, “HT” presents heavy 18 wheel trucks, “MO” represents motorcycles, “Bus represents buses and motorhomes.

As can be seen in Table 3, the variance between monitored and model-predicted noise levels ranged from 0.3 to 1.1 dB(A) which is well within the 3 dB(A) criteria for model validation.

4.0 NOISE IMPACT ASSESSMENT AND MITIGATION ANALYSIS

The validated noise models were the basis for the development of the noise prediction models for the Existing, 2035 No Action, and 2035 Proposed Action traffic scenarios. These models were then used to predict noise levels for all receptor locations.

4.1 Noise Impact Assessment

Traffic noise impacts occur when noise levels, for different categories of land uses and activities, meet or exceed the CDOT Noise Abatement Criteria (NAC) shown in **Table 1.** The noise impact threshold for active outdoor use area (Category C) receptors is 66 dB(A) and noise sensitive commercial area (Category E) receptors is 71 dB(A). The guidelines also state that noise mitigation must be considered if the increase is at least 10 dB(A) over existing noise.

4.2 Mitigation Analysis

Any and all receptors determined to be impacted by noise must be evaluated for traffic noise mitigation. This requires that the overall social, economic, and environmental effects of the mitigation be evaluated against the benefits. When determining mitigation measures, primary consideration is to be given to exterior areas surrounding residential areas or areas of frequent human use for other uses such as parks and commercial districts where a reduced noise level

would be of benefit. All feasible and reasonable mitigation measures are required to be included in the highway project.

The following are common mitigation measures that may be incorporated in roadway projects to reduce traffic noise impacts.

- Traffic management measures, such as lane-use restrictions, designated truck routes, and speed limit reductions. While lesser speeds do decrease noise levels, it generally will take a reduction in speed of approximately 20 miles per hour to achieve a readily perceptible (5 dB(A)) reduction of noise at its source
- Alteration of horizontal and vertical alignments to reduce noise impacts.
- Acquisition of undeveloped land for buffer zone creation. This is not an option as the area is a highly developed corridor with residential uses adjacent to the roadway.
- Noise insulation, but for NAC Activity Category D structures only.
- Construction of noise barriers or earthen berms within highway right of way is the most common mitigation measure employed by CDOT and will be evaluated for this project.

The cost-benefit index is not intended to function as an accurate cost itemization for the design and construction of a noise barrier, but rather to provide a consistent level of consideration that will be used for CDOT noise mitigation decision-making. For purposes of the mitigation evaluation, the unit cost for a generic wall, as prescribed by CDOT, is $45 per exposed square foot, which approximates the typical costs in construction of a standard concrete/masonry barrier that does not require special site considerations. This cost is based on an average of 2005 to 2009 noise wall square footage costs collected from CDOT cost tabulations. This cost does not include engineering design, right-of-way acquisition, or utility mitigations.

The analysis includes:

- Predicted Existing, No Action, and 2035 Proposed Action noise levels,
- Change in noise levels between the Existing and the Proposed Action,
- Determination of whether predicted noise levels equal or exceed CDOT's abatement criteria, as presented in Section 2.0 Applicable Noise Standards,
- Noise mitigation analysis with feasible and reasonable evaluation (as presented in Section 2.0, Applicable Noise Standards), and
- Mitigation recommendation.

4.3 Impact Assessment

Using the prediction methodology described in Section 3.0, receptors were developed for the noise sensitive land use as shown in **Figure 2.** Noise levels were predicted at each sensitive receptor for both Existing, No-Action, and Proposed Action conditions. The increase between Existing and Proposed Action, and whether or not each receptor is considered impacted are shown in **Table 4.** No receptors equal or exceed CDOT impact criteria for sensitive commercial properties currently or in the future with the Proposed Action.

Noise mitigation at the modeled noise sensitive locations, shown in **Figure 2**, do not meet CDOT/FHWA criteria for implementation and thus mitigation is not recommended and no further abatement criteria need to be evaluated. However, during final design, alignment shifts or profile changes beyond project tolerances could trigger a re-evaluation and re-analysis of noise impacts and mitigation.

Because no receptors met CDOT impact criteria, no Noise Abatement Determination forms were completed for this project.

Table 4 –Noise Model Results without Mitigation

Receptors			Modeled Noise Levels (dB(A))				CDOT Noise Abatement Criteria	
ID No.	Description	NAC Activity Category	Existing	No-Action	Proposed 2035	Change in Levels (Prop – NB)	Approach or Exceed Activity Value	Increase Over Existing
1	Fairgrounds	E	57	56	58	0.6	No	No
2	Embassy Suites Restaurant	E	66	66	67	1.4	No	No
3	Embassy Suites Spa	E	66	66	68	1.4	No	No
4	Tndr Mtn Parking Lot Tables	E	62	62	64	1.8	No	No
5	Tndr Mtn Amphitheater	C	56	55	57	0.9	No	No
6	Hooters Outdoor Seating	E	60	60	60	0.1	No	No
7	Castlewood Outdoor Seating	E	66	65	66	0.6	No	No

Note: Model values are calculated to the nearest tenth decimal; however, for impact identification, CDOT requires noise level values to be arithmetically round to the nearest whole number e.g. 65.5 is round to 66. Based on this rounding changes in noise levels from the existing to the proposed will not appear to be arithmetically correct. This table contains no impacted receptors

4.4 Statement of Likelihood and Summary of Recommendations

No receptors on the I-25 corridor equal or exceed CDOT impact criteria. Noise mitigation is not recommended. However, during final design alignment shifts or profile changes beyond project tolerances could trigger a re-evaluation and re-analysis of noise impacts and mitigation.

4.5 Coordination with Local Agencies

The 2035 71 dB(A) and 66 dB(A) contour lines are approximately 225-275 feet and 350-400 feet from the edge of pavement on I-25 as shown on **Figure 3**. It is recommended that future noise sensitive land uses not be permitted by the local agencies within these noise contours. Byrd Drive is a local facility and will not be under CDOT jurisdiction.

Figure 3 - 2035 Noise Contours

5.0 CONSTRUCTION NOISE IMPACTS

Construction of the project will generate noise from diesel-powered earth moving equipment such as dump trucks and bulldozers, back-up alarms on certain equipment, and compressors. Construction noise at off-site receptor locations will usually be dependent on the loudest one or two pieces of equipment operating at the moment. Noise levels from diesel-powered equipment range from 80 to 95 dB(A) at a distance of 50 feet. Impact equipment such as rock drills and pile drivers can generate louder noise levels. Construction noise, while temporary, can be mitigated by limiting work to daylight hours, requiring the contractor to use well-maintained equipment (particularly with respect to mufflers), and through the use of mitigation measures such as temporary noise barriers where applicable.

REFERENCES

CDOT. 2015. Colorado Department of Transportation Noise Analysis and Abatement Guidelines.

Appendix D.
CDOT Mitigation Tracking Form

Colorado Department of Transportation Mitigation Commitment Monitoring and Reporting

Project Information

Project Name: North I-25 ROD 3 (Crossroads Blvd.)
Construction Project Manager: James Hoffman
Project Number: IM0253-242 (20575)
Document Type and Date of Approval: Record of Decision
Project Phase: Construction

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1	Traffic and Transportation	Operations during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction safety and mobility impact	A Traffic Management Plan will be developed that identifies a construction related traffic control plan, work zone management strategies, and contingency plans.	Contractor	Construction	North I-25 ROD 3 page 17							
2	Traffic and Transportation	Operation of detours during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction access disruptions	Access to local businesses and residences will be maintained.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 17							
3	Economic Conditions	Operations during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Hampered mobility to access	To minimize disruption to traffic and local businesses, construction activities will be staged and work hours varied.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 20							
4	Economic Conditions	Operation of detours during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Access during construction	Throughout the construction stage, access will be preserved for each affected business.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 20							
5	Right-of-Way	Acquisitions of temporary easements will be required for construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	No new right-of-way is required. Temporary easements will be required for construction.	Temporary easements of those property interests required for the project will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (the Uniform Act) and other applicable relocation assistance programs.	ROW	Design	North I-25 ROD 3 page 20							
6	Air Quality	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Localized air pollution during construction	An operational water truck will be on site at all times. Water will be applied to control dust as needed to prevent dust impacts off site.	Contractor	Construction	North I-25 ROD 3 page 22							
7	Noise	Operations during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	No long-term impacts would occur. Temporary increases in noise would occur during construction.	Construction noise would be subject to relevant local regulations and ordinances, and any construction activities would be expected to comply with them. To address the temporary elevated noise levels that may be experienced during construction, standard mitigation measures would be incorporated into construction contracts, where it is feasible to do so.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 23							
8	Noise	Operations during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	No long-term impacts would occur. Temporary increases in noise would occur during construction.	Stationary equipment would be located as far from sensitive receivers as possible.	Contractor	Construction	North I-25 ROD 3 page 23							
9	Noise	Construction operations near sensitive noise receptors and/or residential areas.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	No long-term impacts would occur. Temporary increases in noise would occur during construction.	Most construction activities in noise-sensitive areas would be conducted during hours that are least disturbing to adjacent and nearby residents.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 23							
10	Water Quality	Runoff for roadways.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Increased impervious surface area	A combination of mitigation measures consisting of permanent nonstructural and temporary best management practices (BMPs) will be implemented in the study area, in compliance with the Clean Water Act and the City of Loveland's MS4 permit requirements.	Contractor	Construction	North I-25 ROD 3 page 24							
11	Water Quality	Runoff from construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for temporary water quality impacts during construction	A Stormwater Management Plan (SWMP) will be developed during design, implemented during construction and updated as needed.	Design PM	Design	North I-25 ROD 3 page 24							
12	Water Quality	Runoff from construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for temporary water quality impacts during construction	A Spill Prevention Plan will be prepared.	Contractor	Construction	North I-25 ROD 3 page 24							
13	Water Quality	Runoff from construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for temporary water quality impacts during construction	CDOT's specifications for managing stormwater at a construction site (currently specifications 107.25, 212, 213, and 216) will be followed.	Contractor	Construction	North I-25 ROD 3 page 24							
14	Water Quality	Runoff from construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for temporary water quality impacts during construction	Construction BMPs will be implemented and maintained in compliance with the CDPHE general construction permit. Construction plans must adhere to a stormwater management plan (Section 402, Clean Water Act CDPHE Regulation 61).	Contractor	Construction	North I-25 ROD 3 page 24							
15	Water Quality	Runoff from construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for temporary water quality impacts during construction	Vegetation or other erosion control techniques will be established to prevent sediment loading in compliance with the general stormwater construction permit.	Contractor	Construction	North I-25 ROD 3 page 24							
16	Water Quality	Runoff from construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for temporary water quality impacts during construction	Construction activities will be phased to minimize effects associated with large areas of exposed ground and with soil compaction from heavy machinery use.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 25							
17	Water Quality	Encountering groundwater during construction operations.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential to encounter groundwater	If groundwater is encountered during activities associated with excavations for caisson/retaining walls, the discharge of groundwater is authorized when the following conditions are met:	Contractor	Construction	North I-25 ROD 3 page 25							
18	Water Quality	Encountering groundwater during construction operations.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential to encounter groundwater	Source is groundwater and/or groundwater combined with stormwater that does not contain pollutants in concentrations exceeding the State groundwater standards in Regulations 5 CCR 1002-41 and 42.	Contractor	Construction	North I-25 ROD 3 page 25							

Colorado Department of Transportation Mitigation Commitment Monitoring and Reporting

Project Information

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19	Water Quality	Encountering groundwater during construction operations.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential to encounter groundwater	Discharge is in accordance with CDPHE Water Quality Control Division, Water Quality, Policy-27, Low-Risk Discharges, September 2009.	Contractor	Construction	North I-25 ROD 3 page 25							
20	Water Quality	Encountering groundwater during construction operations.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential to encounter groundwater	The source is identified in the SWMP.	Contractor	Construction	North I-25 ROD 3 page 25							
21	Water Quality	Encountering groundwater during construction operations.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential to encounter groundwater	Dewatering BMPs are included in the SWMP.	Contractor	Construction	North I-25 ROD 3 page 25							
22	Water Quality	Encountering groundwater during construction operations.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential to encounter groundwater	If the above conditions are not met, then a separate Clean Water Act Section 402 Construction Dewatering Permit or Individual Construction Dewatering Permit will be required to be obtained by the City of Loveland contractor from the CDPHE's Water Quality Control Division.	Contractor	Construction	North I-25 ROD 3 page 25							
23	Vegetation	Grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Vegetation removal	CDOT standard specifications for the amount of time that disturbed areas are allowed to be non-vegetated will be followed.	Contractor	Construction	North I-25 ROD 3 page 26							
24	Vegetation	Grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Vegetation removal	Weed-free topsoil will be salvaged for use in seeding.	Contractor	Construction	North I-25 ROD 3 page 26							
25	Vegetation	Grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Vegetation removal	Erosion control blankets will be used on steep, newly seeded slopes. Slopes will be roughened at all times. All disturbed areas will be revegetated with native grass and forb species. Seed, mulch, and mulch tackifier will be applied in phases throughout construction.	Contractor	Design/Construction	North I-25 ROD 3 page 26							
26	Noxious Weeds	Temporary grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction activities would increase the potential for the spread and establishment of noxious weeds.	An integrated weed management plan will be incorporated into the project design and implemented during construction. Specific BMPs will be required during construction to reduce the potential for the introduction and spread of noxious weed species. These include:	Construction PM/Contractor	Design/Construction	North I-25 ROD 3 page 27							
27	Noxious Weeds	Temporary grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction activities would increase the potential for the spread and establishment of noxious weeds.	An integrated weed management plan will be incorporated into the project design and implemented during construction. Specific BMPs will be required during construction to reduce the potential for the introduction and spread of noxious weed species. These include:	Construction PM/Contractor	Design/Construction	North I-25 ROD 3 page 27							
28	Noxious Weeds	Temporary grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction activities would increase the potential for the spread and establishment of noxious weeds.	Weed management measures will include removal of heavily infested topsoil, herbicide treatment of lightly infested topsoil as well as other herbicide and/or mechanical treatments, limiting disturbance areas, phased seeding with native species throughout the project, and monitoring during and after construction	Contractor	Construction	North I-25 ROD 3 page 27							
29	Noxious Weeds	Temporary grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction activities would increase the potential for the spread and establishment of noxious weeds.	Use of herbicides will include selection of appropriate herbicides and timing of herbicide spraying and use of a backpack sprayer in and adjacent to sensitive areas, such as wetlands and riparian areas.	Contractor	Construction	North I-25 ROD 3 page 27							
30	Noxious Weeds	Temporary grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction activities would increase the potential for the spread and establishment of noxious weeds.	Certified weed-free hay and/or mulch will be used in all revegetated areas.	Contractor	Construction	North I-25 ROD 3 page 27							
31	Noxious Weeds	Temporary grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction activities would increase the potential for the spread and establishment of noxious weeds.	Fertilizer shall meet CDOT Standard Specification 212.	Contractor	Construction	North I-25 ROD 3 page 27							
32	Wildlife	Construction activity within BTPD habitat.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Two BTPD burrows will be directly impacted by construction. Nests may be impacted with the removal of vegetation.	CDOT biologists will passively relocate any BTPD present in the burrows within the construction site.	CDOT Region 4 Environmental	Pre-construction	North I-25 ROD 3 page 27							
33	Wildlife	Construction activity within BTPD habitat.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Two BTPD burrows will be directly impacted by construction. Nests may be impacted with the removal of vegetation.	Silt fence will be placed to prohibit any additional BTPD from entering the construction site.	Contractor	Pre-construction	North I-25 ROD 3 page 27							
34	Wildlife	Construction activity within BTPD habitat.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Two BTPD burrows will be directly impacted by construction. Nests may be impacted with the removal of vegetation.	A burrowing owl survey will be conducted prior to construction following "Recommended Survey Protocol and Action to Protect Burrowing Owls" by Colorado Parks and Wildlife.	CDOT Region 4 Environmental	Ponstruction	North I-25 ROD 3 page 27							
35	Wildlife	Construction activity within BTPD habitat.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Two BTPD burrows will be directly impacted by construction. Nests may be impacted with the removal of vegetation.	The contractor will be required to follow Section 240 of the Protection of Migratory Birds During Structure Work.	Contractor	Construction	North I-25 ROD 3 page 27							
36	Paleontological	Operations during construction, including grading for roadways, bridges and/or walls.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for resources to be uncovered during construction	If any subsurface bones or other potential fossils are found by construction personnel during construction, work in the immediate area will cease immediately, and a paleontologist will be contacted to evaluate the significance of the find.	CDOT paleontologist	Construction	North I-25 ROD 3 page 29							

Colorado Department of Transportation Mitigation Commitment Monitoring and Reporting

Project Information

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37	Hazardous Materials	Encountering hazardous materials during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for hazardous materials to be unearthed during construction	If hazardous materials are unearthed during construction all work will stop and emergency services will be contacted.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 30							
38	Hazardous Materials	Encountering hazardous materials during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for hazardous materials to be unearthed during construction	Follow CDOT specification 250.03 03.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 30							
39	Hazardous Materials	Encountering hazardous materials during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for hazardous materials to be unearthed during construction	If dewatering is necessary, groundwater brought to the surface will be managed according to Section 107.25 and 250.03 of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2005c) and permitted by the CDPHE Water Quality Control Division.	Contractor	Construction	North I-25 ROD 3 page 30							
40	Hazardous Materials	Encountering hazardous materials during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for hazardous materials to be unearthed during construction	If petroleum-contaminated soil is identified with a concentration less than 1,000 ppm but higher than 500 ppm, CDOT will be responsible for clean-up. A MMP and a Health and Safety plan, as required by Section 250.03 of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2005c), also is recommended for use when oil and gas facilities are encountered.	Contractor	Construction	North I-25 ROD 3 page 30							
41	Hazardous Materials	Encountering hazardous materials during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for hazardous materials to be unearthed during construction	Coordination with the Colorado Department of Labor and Employment Division of Oil and Public Safety (OPS) will be required prior to parcel acquisition of any sites that are identified as having active leaking tanks. If site characterization and/or remediation have not been completed, the OPS may require CDOT to complete these activities after acquisition. During the right-of-way acquisition process, additional properties may require other actions depending on the results of the Initial Site Assessments (ISAs).	Construction PM/Contractor	Construction	North I-25 ROD 3 page 30							
42	Hazardous Materials	Encountering hazardous materials during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for hazardous materials to be unearthed during construction	Prior to construction activities, a Health and Safety Plan, as required by Section 250.03 of the CDOT Standard Specifications for Road and Bridge Construction (CDOT, 2005c), will be developed. Construction specifications shall be written to include review of the Health and Safety Plan by the CDOT Regional Environmental Manager.	Contractor	Construction	North I-25 ROD 3 page 30							
43	Hazardous Materials	Encountering hazardous materials during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Potential for hazardous materials to be unearthed during construction	Monitoring requirements for hazardous materials concerns during construction activities will be established in the MMP, Health and Safety Plan, and CDOT standard and project-specific specifications.	Contractor	Construction	North I-25 ROD 3 page 30							
44	Construction	Operations during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term effects to noise	Implement construction best management practices.	Contractor	Construction	North I-25 ROD 3 page 33							
45	Construction	Construction operations near sensitive noise receptors and/or residential areas.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term effects to noise	Limit construction activities to daytime hours as practicable and feasible.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 33							
46	Construction	Construction operations near sensitive noise receptors and/or residential areas.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term effects to noise	Combine noisy operations to occur in the same time period.	Contractor	Construction	North I-25 ROD 3 page 34							
47	Construction	Construction operations near sensitive noise receptors and/or residential areas.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term effects to noise	All engines will use commercially available effective mufflers and enclosures, as practicable.	Contractor	Construction	North I-25 ROD 3 page 34							
48	Construction	Operation of detours during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term effects to access	Use enhanced signing.	Contractor	Construction	North I-25 ROD 3 page 34							
49	Construction	Operation of detours during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term effects to access	Use advertising/public relations to improve communications about any traffic or access disruptions.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 34							
50	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Use wetting/chemical inhibitors for dust control.	Contractor	Construction	North I-25 ROD 3 page 34							
51	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Provide early investigation of subsurface conditions.	Contractor	Construction	North I-25 ROD 3 page 34							
52	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Prepare a well-defined materials management plan.	Contractor	Construction	North I-25 ROD 3 page 34							
53	Construction	Temporary water quality impacts during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Require prompt and safe disposal of waste products.	Contractor	Construction	North I-25 ROD 3 page 34							

Colorado Department of Transportation Mitigation Commitment Monitoring and Reporting

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54	Construction	Runoff from construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Implement water quality BMPs.	Contractor	Construction	North I-25 ROD 3 page 34							
55	Construction	Runoff from construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Prepare well-defined stormwater management plan.	Design PM	Design	North I-25 ROD 3 page 34							
56	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Stabilize and cover stockpile areas.	Contractor	Construction	North I-25 ROD 3 page 34							
57	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Minimize offsite tracking of mud, debris, hazardous material, and noxious weeds by washing construction equipment in contained areas.	Contractor	Construction	North I-25 ROD 3 page 34							
58	Construction	Runoff for roadway and construction..	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Follow CDOT Standard Specifications for Road and Bridge Construction (2005c), including sections regarding water quality control, erosion control, and environmental health and safety.	Contractor	Construction	North I-25 ROD 3 page 34							
59	Construction	Runoff for roadway and construction..	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Control and prevent concrete washout and construction wastewater from leaving the project site. As projects are designed, ensure that proper specifications are adhered to and reviewed to ensure adequacy in the prevention of water pollution.	Contractor	Construction	North I-25 ROD 3 page 34							
60	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Prepare or revegetate exposed areas as soon as possible after construction.	Contractor	Construction	North I-25 ROD 3 page 34							
61	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Remove soil and other materials from paved streets.	Contractor	Construction	North I-25 ROD 3 page 34							
62	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Operate equipment mainly during off-peak hours.	Construction PM/Contractor	Construction	North I-25 ROD 3 page 34							
63	Construction	Construction activities involving earth moving and storage of fill and rock products.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Limit equipment idling time.	Contractor	Construction	North I-25 ROD 3 page 34							
64	Construction	Construction of roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Use recycled materials for project activities to the extent allowed by good practice and CDOT construction specifications.	Contractor	Construction	North I-25 ROD 3 page 34							
65	Construction	Construction of roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Store equipment and materials in designated areas only.	Contractor	Construction	North I-25 ROD 3 page 34							
66	Construction	Temporary grading for roadway, bridges or frontage road improvements.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Short term environmental Impacts (air pollution and water pollution)	Prepare or revegetate exposed areas as soon as possible after disturbance.	Contractor	Construction	North I-25 ROD 3 page 34							
67	Utilities	Operations during construction.	Within Crossroads Boulevard Reconstruction and Byrd Drive construction areas.	Construction activities have the potential to impact utilities that cross the roadway or are located within expanded ROW.	Mitigation would include protection in place, replacement of the utility line, or adjustments to the location of the line as needed.	Contractor	Construction	North I-25 ROD 3 page 37							

Appendix E.
Agency Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
COLORADO FIELD OFFICE/LAKEWOOD
P.O. BOX 25486, DENVER FEDERAL CENTER
DENVER, COLORADO 80225-0486

IN REPLY REFER TO:
ES/CO: CDOT
TAILS: 06E24000-2016-I-0456; 65412-2011-F-0658

MAR 10 2016

Carol Parr
Colorado Department of Transportation
1420 2nd Street
Greeley, Colorado 80631

Dear Ms. Parr:

On February 29, 2016, the U.S. Fish and Wildlife Service (Service) received your report describing the impacts of reconstructing portions of I-25 and Crossroads Boulevard on the Least Tern (*Sternula antillarum*), Piping Plover (*Charadrius melodus*), Western prairie fringed orchid (*Platanthera praeclara*), the Whooping Crane (*Grus americana*), and the pallid sturgeon (*Scaphirhynchus albus*) (collectively referred to as the Platte River species), as well as on the Preble's meadow jumping mouse (*Zapus hudsonius preblei*), the Ute ladies'-tresses orchid (*Spiranthes diluvialis*), the Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*), and the black-footed ferret (*Mustela nigripes*). The effects of the project were evaluated in the North I-25 Corridor Programmatic Biological Opinion (ES/LK-6-CO-2012-F-001) dated October 13, 2011, and we agreed with your determination that the project is likely to adversely affect the Preble's meadow jumping mouse and the Platte River species, is not likely to adversely affect the Ute ladies'-tresses orchid or the Colorado butterfly plant, and would have no effect on the black-footed ferret. The project will be funded by the Federal Highway Administration (FHWA) and constructed by the Colorado Department of Transportation. Our review was performed consistent with our authority under the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*).

Our 2011 biological opinion contained a Term and Condition requiring you to provide us with project-specific information once specific projects were identified and described so that incremental impacts could be tracked and assessed. At this time, you are proposing to reconstruct 1.5 miles of the existing I-25 mainline and replacing two existing bridges that carry I-25 over Crossroads Boulevard. An additional lane and 5-foot bicycle lanes will be added in each direction on Crossroads Boulevard under I-25 for a distance of approximately 200 feet. The project will also connect two sections of Byrd Drive and upgrade it to provide wider shoulders and new pavement. These improvements support the full I-25 build-out of the FEIS Preferred Alternative and will allow for the future general purpose lane included in the full build-out. Existing land uses in the general area include those associated with the Fort Collins-Loveland

Airport, which is located immediately northwest of the study area. Further, Byrd Drive would traverse vacant land that is bounded on both sides by light industrial and commercial land uses.

The area to be affected is in vacant land and none of the species or their habitat occurs within this portion of the corridor; therefore, no impacts are expected. Further, the area is within the block-clearance zone for the black-footed ferret. The Platte River species however, occur downstream and may be affected by the action, but those effects have been analyzed in our 2012 biological opinion with FHWA, ES/LK -6-CO-12-F- 020.

Given the information in our 2011 and 2012 biological opinions and the location of the proposed project, the Service finds your determination acceptable and agrees that the project will have no impact on the Preble's meadow jumping mouse, the black-footed ferret, the Ute ladies'-tresses orchid, or the Colorado butterfly plant. Effects to the Platte River species will be addressed through implementation of FHWA's 2012 programmatic biological opinion (ES/LK-6-CO-12-F-020). Critical habitat has not been designated in the project area; therefore, none will be affected.

We appreciate your submitting this report to our office for review and comment. If the Service can be of further assistance, please contact Alison Deans Michael of my staff at (303) 236-4758.

Sincerely,

Leslie Ellwood

Drue L. DeBerry
Colorado Field Supervisor

ec: CDOT, HQ (Jeff Peterson)
CDOT, Region 4 (Pat Hickey)
Michael

Ref: AlisonH:\My Documents\CDOT 2007+\Region 4\North_I-25_PBO_Crossroads_Blvd_reconstruction\North_I-25_Crossroads_Boulevard_reconstruction_concur.docx

COLORADO
Department of Transportation
Region 4

1420 2nd Street
Greeley, CO 80631
(970) 350.2153 (Fax) 350.2203

April 5, 2016

Mr. Steve Turner, AIA
State Historic Preservation Officer
Colorado Historical Society
1200 Broadway
Denver, CO 80202

RE: Determinations of Eligibility and Effects and Section 4(f) *De Minimis* Notification, CDOT Project No. IM 0253-242 (SA# 20575), North I-25 Record of Decision 3: Crossroads Bridge Replacement at I-25 Larimer County

Dear Mr. Turner,

Starting in 2006, historic resource surveys and impact assessments were conducted for proposed transportation improvements to the North I-25 Corridor. As design for the proposed transportation improvements has progressed, specific construction projects along the corridor have moved forward. This letter is in reference to an undertaking associated with the North I-25 Record of Decision (ROD) 3.

The proposed transportation improvements were studied in the North I-25 Final Environmental Impact Statement (FEIS) completed by CDOT in 2011 and were addressed in the North I-25 Section 106 Programmatic Agreement (PA), signed with your agency in December 2011. Pursuant to stipulations in that PA, a reevaluation will occur at the initiation of each construction project.

The information provided here constitutes the reevaluation of eligibility and effects for properties in the Area of Potential Effects (APE) for this ROD 3. CDOT is requesting concurrence on Determinations of National Register of Historic Places (NRHP)-Eligibility and Effects for the project referenced above. The Proposed Action includes the reconstruction of 1.5 miles of the existing I-25 mainline, including the replacement of the northbound and southbound bridges that carry I-25 over Crossroads Boulevard. An additional lane will be constructed in each direction on Crossroads Boulevard under I-25. The project also connects two end points for Byrd Drive; at Goldco Drive just south of Earhart Drive and just north of the intersection of Byrd Drive with Crossroads Boulevard.The attached Project Location Map shows the extent of the project. The project was included in the North I-25 Environmental Impact Statement (EIS).

The Proposed Action is identical to the design developed for the Preferred Alternative in the *North I-25 FEIS* (CDOT, 2011).

Area of Potential Effects

The Area of Potential Effects (APE) for this project includes the parcels of land adjacent to the right-of-way for I-25. This is the same APE used for the North I-25 EIS.

Methodology and Results

The project area was evaluated for historic resources that may be located within the APE. A file search was conducted through the Colorado Office of Archaeology and Historic Preservation (OAHP) COMPASS cultural resources database to determine if previously identified historic features exist within the APE.

In addition, a field assessment was undertaken in January 2016 by Gail Keeley of Hermsen Consultants to determine if any other (previously unidentified) historic features occur within the APE.

No previously unevaluated properties were identified within the 1.5 mile segment of I-25 involved in this project. A field assessment confirmed that there were no properties or structures at least 50 years old within the APE. The project area has been extensively developed with commercial properties within the last 20 years.

The nearest previously identified historic feature is the Union Pacific Railroad (5LR.1815.2) which crosses I-25 about ¼ mile south of the project area. No direct or indirect impacts to this resource will occur.

Based on this reevaluation, CDOT has determined that there are *no historic properties affected* for this project.

This information has been forwarded concurrently to the Larimer County Planning Department for review; we will inform you of any comments they may elect to submit. If you have questions or require additional information to complete your review, please contact CDOT Region 4 Historian Jason Marmor at 970-350-2153 or via Email at jason.marmor@state.co.us.

Sincerely,

James Eussen
Region 4 Planning and Environmental Manager

cc: Jason Marmor, Region 4 Historian
File/Central Files

Attachments: Proposed Project Location map

Proposed Project, North I-25 ROD 3, shown on current aerial imagery showing Crossroads Boulevard Interchange on I-25.

HISTORY Colorado

April 15, 2016

James Eussen
CDOT Region 4 Planning and Cultural Resource Manager
10601 W. 10th Street
Greeley, CO 80634

Re: Determinations of Eligibility and Effects and Section 4(f) *De Minimis* Notification, CDOT Project No. IM 0253-242 (SA# 20575), North I-25 Record of Decision 3: Crossroads Bridge Replacement at I-25 Larimer County (CHS #70056)

Dear Mr. Eussen:

Thank you for your correspondence dated April 5, 2016 and received on April 8, 2016 by our office regarding the consultation of the above-mentioned project under Section 106 of the National Historic Preservation Act (Section 106).

After review of the provided information, we do not object to the proposed Area of Potential Effects (APE) for the proposed project.

After review of the scope of work and assessment of adverse effect, we concur with the recommended finding of *no historic properties affected* [36 CFR 800.4(d)(1)] under Section 106 for the following resources.

Should unidentified archaeological resources be discovered in the course of the project, work must be interrupted until the resources have been evaluated in terms of the National Register eligibility criteria (36 CFR 60.4) in consultation with our office pursuant to 36 CFR 800.13. Also, should the consulted-upon scope of the work change please contact our office for continued consultation under 36 CFR 800.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings. Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Jennifer Bryant, our Section 106 Compliance Manager, at (303) 866-2673 or jennifer.bryant@state.co.us.

Sincerely,

Steve Turner, AIA
State Historic Preservation Officer

Appendix F.
Interstate 25 and Crossroads Boulevard Road Improvements
Integrated Weed Management Plan (AECOM 2016)

Interstate 25 and Crossroads Boulevard Road Improvements

(mp 258.67 to mp 260.16

Loveland, Larimer County, Colorado

Integrated Weed Management Plan

Prepared for: Colorado Department of Transportation

Prepared By: AECOM

AECOM
6200 South Quebec Street
Greenwood Village, Colorado 80111

Project No.: IM 0253-242 (20575)

June 21, 2016

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1.1 Noxious Weeds and Governing Rules and Laws

Noxious weeds are non-native plant species that are regulated by federal, state, and local laws designed to limit their establishment and spread. These are species that have been identified as economically and ecologically injurious to crops, ecosystems, natural habitats, native plants and animals, livestock, or humans.

President Clinton issued Executive order 13112 on invasive species in February 1999. This order created a federal invasive species council, established guidelines for federal agencies to address invasive species issues, and developed a National Invasive Species Management Plan.

The Colorado Noxious Weed Act [§ 35-5.5-101 through 119, C.R.S. (2003)] (Act) aims to control noxious weeds in the state by coordinating local, state, and federal managers; by funding local entities to implement weed management projects; by developing education and outreach activities at the state and local level; and by working with neighboring states to prevent the spread of noxious weeds across state lines.

The Act categorizes the recognized noxious weeds in the state as List A, List B, and List C. List A species are designated for eradication in the state due to their inherently injurious nature and limited occurrence. List B species are those species that are too widespread to eradicate and are instead identified for control among state and local governments and interested private landowners to stop further spread within the state. List C species are those non-native plants that are common and widespread and recommended for control by local jurisdictions through the development and implementation of local integrated weed management plans and through provision of further education, research, and biological control resources by the state to the entities that choose to require management of these species. In addition, a group of Watch List species have been developed, which are those species in need of further information to determine whether or not these necessitate designation as noxious weeds.

Larimer County's Noxious Weed Management Plan (Plan) supports the Act and provides specific information to eradicate List A species, contain and suppress List B species, and manage List C species and other troublesome weeds in the county. The Plan currently does not specify management needs of any List C species. The Larimer County Weed District maintains the plan and works with local entities to implement strategies to eradicate, limit, or manage weed infestations within the county.

1.2 Project Description

The project scope includes the reconstruction of approximately 1.5 miles of the existing roadway and replacement of two existing bridges that carry Interstate 25 (I-25) over Crossroads Boulevard. The linear roadway project will include grading activities, roadway widening of I-25 and Crossroads Boulevard while maintaining existing roundabout ramp terminals. Frontage roads will be removed, and improvements will be made to the pedestrian, roadway, and bridges. A new storm drainage system will be installed that ties into the existing systems. Demolition and construction of roadway structures; including bridges, paving, signing, striping, seeding, and excavation will be carried out as needed to accomplish the final geometry of the proposed interstate highway and bridge improvements.

The project will be constructed in phases to allow continuous operation of I-25 and Crossroads Boulevard. Grading and paving operations will occur as permitted by the Traffic Control Plan and Phasing Plan for the project. The sequencing of activities are anticipated to include pavement removal, grading, drainage system installation along I-25 and Crossroads Boulevard, maintenance of traffic improvements, construction of bridge structures, final paving, and final stabilization of the site. Installation of temporary Best Management Practices (BMP) will be installed at the appropriate time for the particular BMP.

The total area of the construction site is 79.2 acres. The Area of disturbance is 64.2 acres, and the area to be re-seeded covers 34.8 acres.

1.3 Project Location

The project is located along I-25 in Loveland, Larimer County, Colorado north and south of Crossroads Boulevard. The approximate center of the project is at 40.435958° North latitude and 104.992332° West longitude. It occurs in Section 3, Township 5 North, Range 68 West and Section 27 and Section 34, Township 6 North, Range 68 West of the 6th Principal Meridian.

1.4 Existing Vegetation

Seeded non-native cool season grasses planted to stabilize the site are the dominant plants in the Project Area. Smooth brome (*Bromus inermis*) was most commonly observed with lesser amounts of crested wheat grass (*Agropyron cristatum*) along the shoulders of I-25. The interchange area at Crossroads Boulevard appeared to have been reseeded with a native seed mix, but noxious weeds dominated most of this area. Limited native plants had re-established elsewhere in the Project Area. Noxious weeds and other non-native plants occurred at previously infested areas shown on CDOT's weed mapping application (CDOT 2016); sites that had recurring disturbance; or locations where the planted groundcover had established poorly.

Figure 1. Project Location

2.1 Purpose and Goals of this Plan

The purpose of survey was to identify the location and relative percent composition of noxious weeds along the existing right-of-way. The goal of this plan is to provide specific strategies to manage the identified noxious weeds and either eradicate, contain, or further manage their occurrence within the Project Area.

2.2 Survey and Data Management

AECOM biologists inventoried noxious weeds along the existing I-25 right-of-way in the Project Area on April 26, 2016. Occurrences of state-regulated noxious weeds were identified while walking the corridor. The incidences of these were mapped using a Trimble Geo7X GPS unit. Raw data were post-processed to achieve sub-meter accuracy. The relative cover of each occurrence was recorded in field notes.

Multiple noxious weeds occupied the same area in some places. Where this occurred, each species was described in the data, and the relative cover of each was noted. Small or individual incidences were mapped with points. Linear populations were mapped with lines, and identifiable areas were mapped with polygons.

CDOT noxious weed shapefiles from previous surveys of the area from 2011 through 2014 were plotted on field maps for reference during the survey. The highway median was not surveyed due to safety concerns. The median will be surveyed just prior to construction disturbance when traffic control is available. Mid to late season species potentially in the Project Area were not observable due to the larger project schedule limiting the period of survey to mid-Spring. A resurvey would be needed during the peak of the growing season to identify these.

3.1 Results

Four List B species were identified within the Project Area. These included Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans),* Scotch thistle (*Onopordum acanthium*), and Russian knapweed (*Centaurea maculosa*). There was evidence that previous occurrences of the thistles had been treated to control the established populations along I-25 south of Crossroads Boulevard. Spot herbicide treatment of some rosettes in the interchange area appeared to have occurred a few days prior to our survey.

Common mullein (*Verbascum thapsus*), downy brome (*Bromus tectorum*), and field bindweed (*Convolvulus arvensis*) were the list C species observed within the Project Area. Downy brome had the most extensive distribution across the Project Area. This species comprised between 60 to 80 percent of the plant cover in the inner and outer triangles of the Crossroads Boulevard interchange and typically dominated 60 to 80 percent of the plant cover bordering the abandoned frontage road along the eastern side of the Project Area. These borders were usually about a meter wide. Downy brome also was prevalent (60-80 percent coverage) along the boundary with the Harley Davidson dealership.

Appendix A includes the mapped incidence of noxious weeds encountered during the survey.

Table 1. Noxious Weeds Identified Along Project Corridor, April 2016 Field Survey

Common Name	Scientific Name	Larimer County Weed List	Map Code
List B Species			
Canada thistle	*Cirsium arvense*	Yes	CIAR
Musk thistle	*Carduus nutans*	Yes	CANUM2
Scotch thistle	*Onopordum acanthium*	Yes	ONAC
Russian knapweed	*Centaurea maculosa*	Yes	CEMA4
List C Species			
Common mullein	*Verbascum thapsus*	N/A	VETH
Downy brome (cheat grass)	*Bromus tectorum*	N/A	BRTE
Field bindweed	*Convolvulus arvensis*	N/A	COAR

[1] As part of this Plan, a preconstruction noxious weed inventory and subsequent mapping will be conducted prior to the commencement of project construction, to establish more accurate pre-construction conditions.

4.1 Objective and Approach

The objective of this plan is to decrease or eradicate noxious weed infestations in the Project Area in order to minimize spread within the project corridor or spread and establishment in surrounding natural, farmed, and landscaped areas. Ultimately, this would result in reducing additional economic burdens on CDOT and landowners surrounding the project corridor.

The general approach is to reduce the potential to spread of existing infestations and reduce the likelihood of introducing new noxious weeds into the Project Area. This involves:

- Excluding noxious weed seed and plant propagules from entering or spreading in the project area by making sure equipment and materials are weed-free
- Pretreating existing noxious weed occurrences in the Project Area to reduce the potential for spreading noxious weeds to new areas
- Avoiding infested sites in the Project Area to the extent possible to reduce the potential to spread noxious weeds
- Revegetating disturbed sites with a healthy plant cover or landscaping with materials that form a barrier to seeds and propagules

4.1.1 Integrated Approach to Weed Management

An integrated approach to weed management uses a variety of methods to obtain the objectives of limiting the establishment and spread of noxious weeds within a target area and surrounding lands. The integrated approach prescribes a combination the levels of control and the variety of strategies to achieve the desired outcome.

The Act explains three levels of control to set as a goal. These are eradication, containment, and suppression. Eradication aims to eliminate a particular infestation in an area over a short timeframe (1 to 3 years). Containment eliminates plants in the perimeter of the infestation and along dispersal routes to limit further spread of an infestation. Suppression reduces the density and severity of an infestation within a containment perimeter to mitigate further harm caused by common and widespread noxious weeds.

Several methods or strategies are available to eradicate, contain, or suppress noxious weeds. These include cultural controls (e.g. education, improved procedures, best management practices, and enhanced behaviors); mechanical controls (e.g. mowing, pulling, burning, flooding, mulching, and plowing); biological controls (i.e. introducing known predators of a species to reduce vigor or inhibit reproduction); and chemical controls (i.e. herbicides intended to kill a plant).

4.2 Project Specific Weed Management Actions

The Contractor shall control and prevent the spread of noxious weeds throughout the construction period to comply with Title CRS 35-5.5, Colorado Weed Management Act. This section outlines the weed management actions that will be taken for the I-25 Crossroads Boulevard Improvement Project. Components of this Plan include BMPs outlined in CDOT's Standard Specifications for Road and Bridge Construction (SSRBC 2011). The following

practices applied during construction would minimize the possibility of establishing new infestations and would discourage the spread of current noxious weed populations.

This section describes integrated methods to prevent, control, and monitor noxious weeds found in the noxious weed survey of the Project Area. The most practicable methods for noxious weed management in the Project Area include cultural, mechanical, and chemical methods to prevent the spread and control and treat existing populations of noxious weeds

4.2.1 Herbicide Treatment

SSRBC Section 217 describes the proper methods, timing, and proper use for furnishing and applying the proper herbicides for road projects by commercial licensed pesticide applicators.

- All herbicide labels shall be currently registered with the Colorado Department of Agriculture and the U.S. Environmental Protection Agency. All herbicides shall be supplied to the project in labeled containers. The labels shall show the product name, chemical composition, expiration date, and directions for use. In addition, only herbicides rated to be used in water will be used where wetlands, water of the US, and groundwater table are present.
- All herbicides shall be applied by commercial pesticide applicators licensed by the Colorado Department of Agriculture as qualified applicators. The Contractor shall furnish documentation of such licensure prior to herbicide application. Herbicide mixing and application shall be done in accordance with instructions on the registered product label. The Engineer shall be furnished such label information prior to mixing and application.
- The Contractor shall notify the Engineer at least 24 hours prior to each herbicide application and shall indicate the time and location application will begin. Application will not be allowed on Saturdays, Sundays, or holidays unless otherwise approved by the Engineer.
- Herbicides shall not be applied when weather conditions, including wind conditions, are unsuitable for such work. Herbicides shall not be applied when soil is extremely dry.
- Herbicide will be applied with wicks or sponges to avoid damage to non-targeted plants. All damage caused by improper herbicide application shall be repaired at the Contractor's expense.
- Broadcast herbicide spraying will only be approved with written approval of the Engineer and Larimer County Weed Supervisor.
- Herbicides shall not be used on areas that are to be topsoil sources unless otherwise approved by the Engineer.
- All herbicide treatments will be coordinated with the Larimer County Weed Supervisor.

4.2.2 Cultural Treatment – Construction Equipment

- All vehicles and equipment entering the project area will be cleaned thoroughly of dirt, plant, and other foreign material and are subject to inspection. Particular attention will be shown to the under-carriage and any surface where soil may accumulate and potentially harbor noxious weed seeds or other propagules. These efforts are critical to limit the

Project Area to the possible introduction and establishment of noxious weeds and non-native plant species. Arrangements will be made for inspections of each piece of equipment before entering the project area. Records of inspections will be maintained. Equipment found operating on the project area that has not been inspected will be shut down until cleaning in a designated area and inspection are completed.

- To minimize the possibility of importing noxious weeds, trucks and construction equipment will be dedicated to the project and not interchanged with other projects when possible.
- Drivers and operators will avoid driving through areas where noxious weeds may be present to reduce the possibility of spreading seeds or other propagules. Construction vehicles and equipment should park in designated areas or in unvegetated areas.

4.2.3 Cultural, Mechanical, and Chemical Treatment – Staging Areas

- Staging areas for equipment and supplies will be in weed free areas within the Project Area unless approved by the Engineer and pre-treated using integrated weed management practices. Weed infested staging areas shall be mowed and cleared of noxious weeds prior to utilizing these sites, and treated with the appropriate herbicide (Appendix B).
- Weeds will not be mowed or cut when fruits are mature and seeds are viable or capable of dispersing. Mowing, mechanical removal, or herbicide treatment should be done early in the growing season as possible.

4.2.4 Cultural Treatment – Topsoil Management

- Per SSRBC 207.02 topsoil shall consist of loose friable soil from the zone of major root development free of subsoil, refuse, stumps, woody roots, rocks, brush, noxious weed seed and reproductive plant parts from current state and county weed lists, heavy clay, hard clods, toxic substances, or other material which would be detrimental to its use on the project.
- Topsoil imported into the Project Area will be from a certified weed-free source to limit a potential route for noxious weed infestation.
- Compost, erosion control materials, or mulch that will be imported to the project site shall consist of Certified Weed Free sources under the Colorado Department of Agriculture Weed Free Forage Certification Program and inspected as regulated by the Weed Free Forage Act, Title 35, Article 27.5, CRS.
- If borrow material is used for any part of the project, the borrow material shall be weed-free and shall be obtained from a site preapproved by the Engineer. If the borrow is stockpiled it shall be stabilized and remain weed free for the duration of the project.
- Potential areas of topsoil salvage will be assessed by the Contractor's Qualified Supervisor for the presence and abundance of noxious weeds before use.
- If topsoil is used for any part of the project, the topsoil shall be inspected to be certified noxious weed free by the Contractor's Noxious Weed Management Supervisor.

- If List A or List B noxious weeds are found in disturbed topsoil, the material shall be disposed of at a solid waste disposal facility and not be used on the project.

4.3 Noxious Weed Species Methods

The amount area infested by noxious weeds in the Project Area is manageable with integrated weed management techniques. Appendix B contains fact sheets for each of the noxious weed species that were identified during the April 2016 noxious weed inventory and are outlined in this Plan.

- Integrated management practices endorsed by the Colorado Department of Agriculture (Appendix B) shall be used to treat the noxious weed species within the Project Area.
- In addition to the cultural methods described in sections 4.2.1 through 4.2.4, mechanical and chemical treatment of these species shall occur several times a year to eradicate, control, or contain existing infestations and to reduce the potential for their spread. Many of the species are biennial species, therefore they shall be treated at the following times: early in the year prior to seed set, in the middle of the growing season to ensure no plants were missed, and at the end of the growing season to treat any sprouts that would overwinter to the next growing season.
- Canada thistle is perennial and may require several treatments to control sprouts/rosettes, owing to the large storage capacity of the roots and likelihood of resprouting.
- Noxious weed plants, seed heads, and other plant parts that have been mechanically treated , shall be placed in appropriate bags or other suitable containers that can be tightly closed or sealed and shall be disposed of at a solid waste disposal facility.

4.4 Revegetation Commitments

Disturbed sites for construction, staging, and material storage activities will occur in compliance with the Storm Water Management Plan (SWMP) and using the following CDOT BMPs for revegetation:

- Disturbed areas will be reclaimed after completion of construction and seeded with a native seed mix appropriate for the climate and regional setting, as outlined in the project SWMP. In areas that cannot be immediately seeded due to seasonal constraints, a combination of soil roughening and a hydraulically applied fiber matrix will be used for temporary erosion control until seeding can occur.
- All seed shall be furnished in bags or containers clearly labeled to show the name and address of the supplier, the seed name, the lot number, net weight, origin, the percent of weed seed content, the guaranteed percentage of purity and germination, pounds of pure live seed (PLS) of each seed species, and the total pounds of PLS in the container.
- All seed mixes for temporary or permanent revegetation, soil amendments, and nursery material used for reclamation will be certified as noxious weed free in accordance with current state and local lists.

- The Contractor shall furnish to the Engineer a signed statement certifying that seed is from a lot that has been tested by a recognized laboratory for seed testing within six months prior to the date of seeding. Seed which has become wet, moldy, or damaged in transit or in storage will not be accepted.
- The best reclamation success would be achieved by including a variety of native species. It is generally recommended to plant native grass and forb seeds in the fall due to some native species requiring a chill period prior to sprouting.
- Seeding will be phased throughout construction to minimize the exposure of bare ground that could become infested with noxious weeds.
- A bonded fiber matrix, spray-on mulch blanket (CDOT Section 213), a flax based or wood straw, or approved equal product for reclamation of disturbed shall be used to mulch seeded areas.
- Weed-free mulches certified by the Colorado Department of Agriculture Weed Free Forage Certification Program and in compliance with the Weed Free Forage Act (Title 35, Article 27.5, CRS), shall be used on newly planted areas at an appropriate depth to retain moisture and retard weed growth.
- Compost used as a soil amendment shall be weed-free, organic compost derived from a variety of feed stocks including agricultural, biosolids, forestry, food, leaf and yard trimmings, manure, tree wood with no substances toxic to plants. Material shall be aerobically composted in a facility permitted by the Colorado Department of Public Health and Environment (CDPHE) to produce or sell compost in accordance with House Bill (HB) 1181. The Contractor shall submit a copy of this permit to the Engineer for approval and the project records. The compost shall be tested in
- The compost manufacturer shall be a participating member of in the U.S. Composting Council's Seal of Testing Assurance Program (STA). The Contractor shall provide a participation certificate and test data on a Compost Technical Data Sheet.
- Permanent and temporary erosion control measures shall be provided to minimize erosion and sedimentation (which may transport noxious weed seeds) during and after construction in accordance with the SMWP.

4.5 Monitoring

- CDOT will monitor the Project Area during and after construction to determine the effectiveness of the integrated weed management efforts and to assess whether or not the objectives of the Plan are being met.
- Revegetated areas shall be monitored to make sure noxious weeds are not propagating and revegetation activities are successful according to the standards outlined in the SWMP.
- If establishment of desired vegetation is not progressing in compliance with the SWMP, additional over-seeding or planting may be needed to aid in containing or preventing establishment of noxious weeds.

This Plan's management actions are based on the results of the weed inventory in April 2016. This Plan can be amended if new noxious weed species are found in the Project Area. The prescriptions should be adapted to the dynamics of the physical and ecological environment and to the amount of success achieved in managing noxious weeds in the Project Area. This Plan will likely need updating as site specific information evolves and as weed inventories are updated to reflect the objectives.

Colorado Department of Transportation. 2016. Noxious weed mapping. Online Transportation Information System; Mapping Applications. Accessed on April 15, 2016. Available at: http://dtdapps.coloradodot.info/noxiousweeds/.

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Colorado Revised Statutes (CRS). Revised 2003. Colorado Noxious Weed Act. 35-5.5-03 (18.5). Colorado Revised Statutes. State of Colorado.

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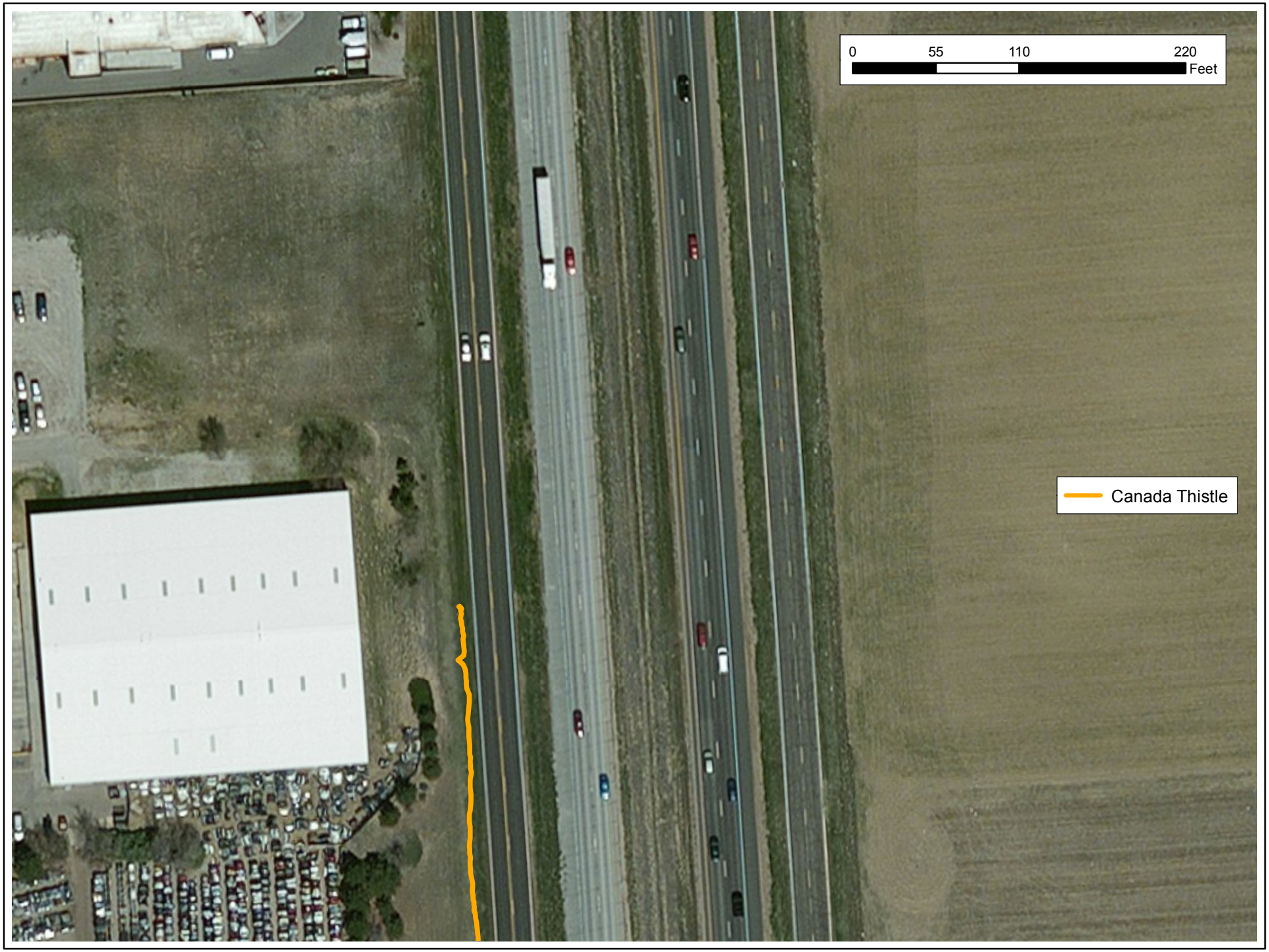
Appendix A

Noxious Weed Maps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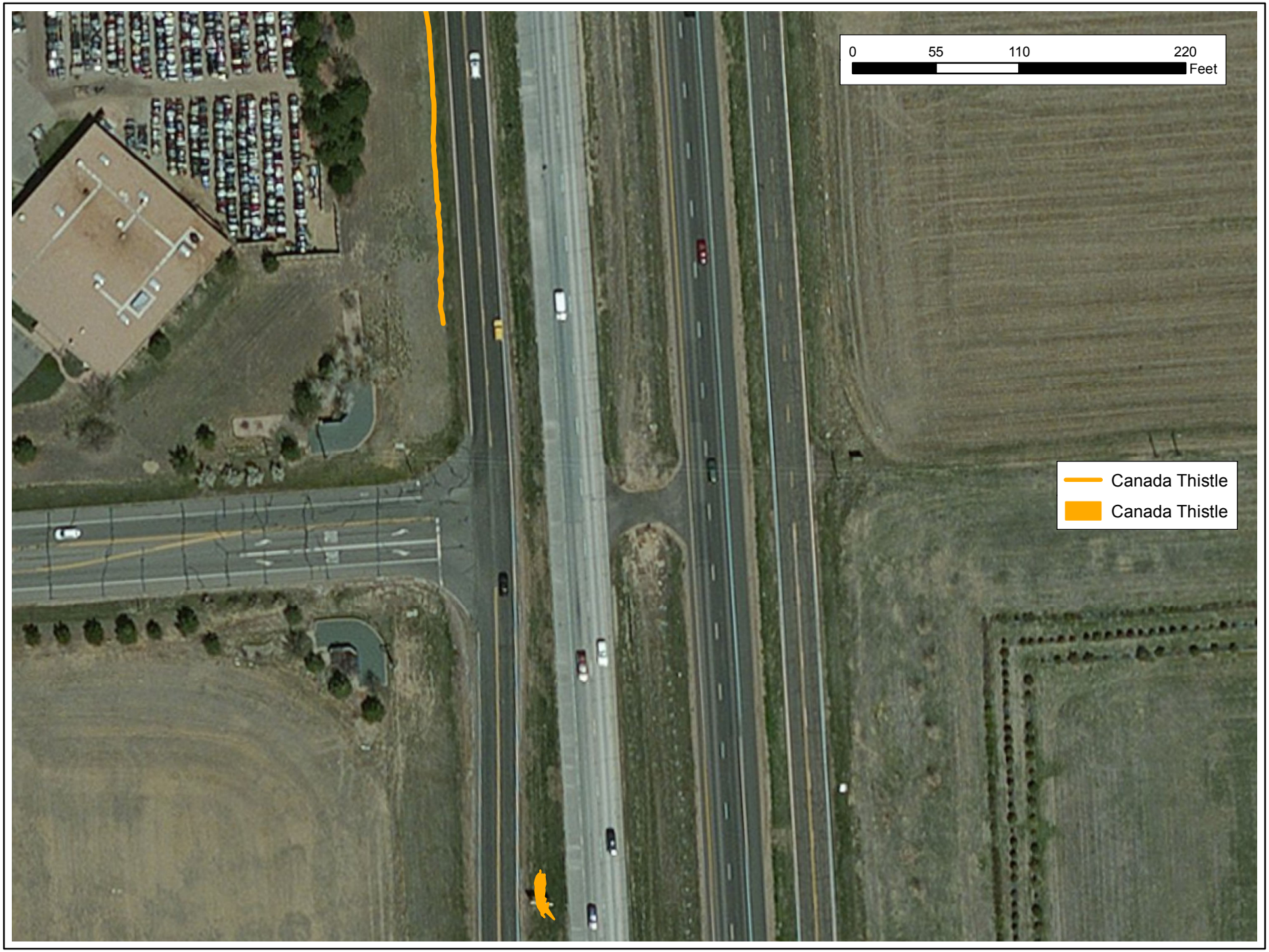
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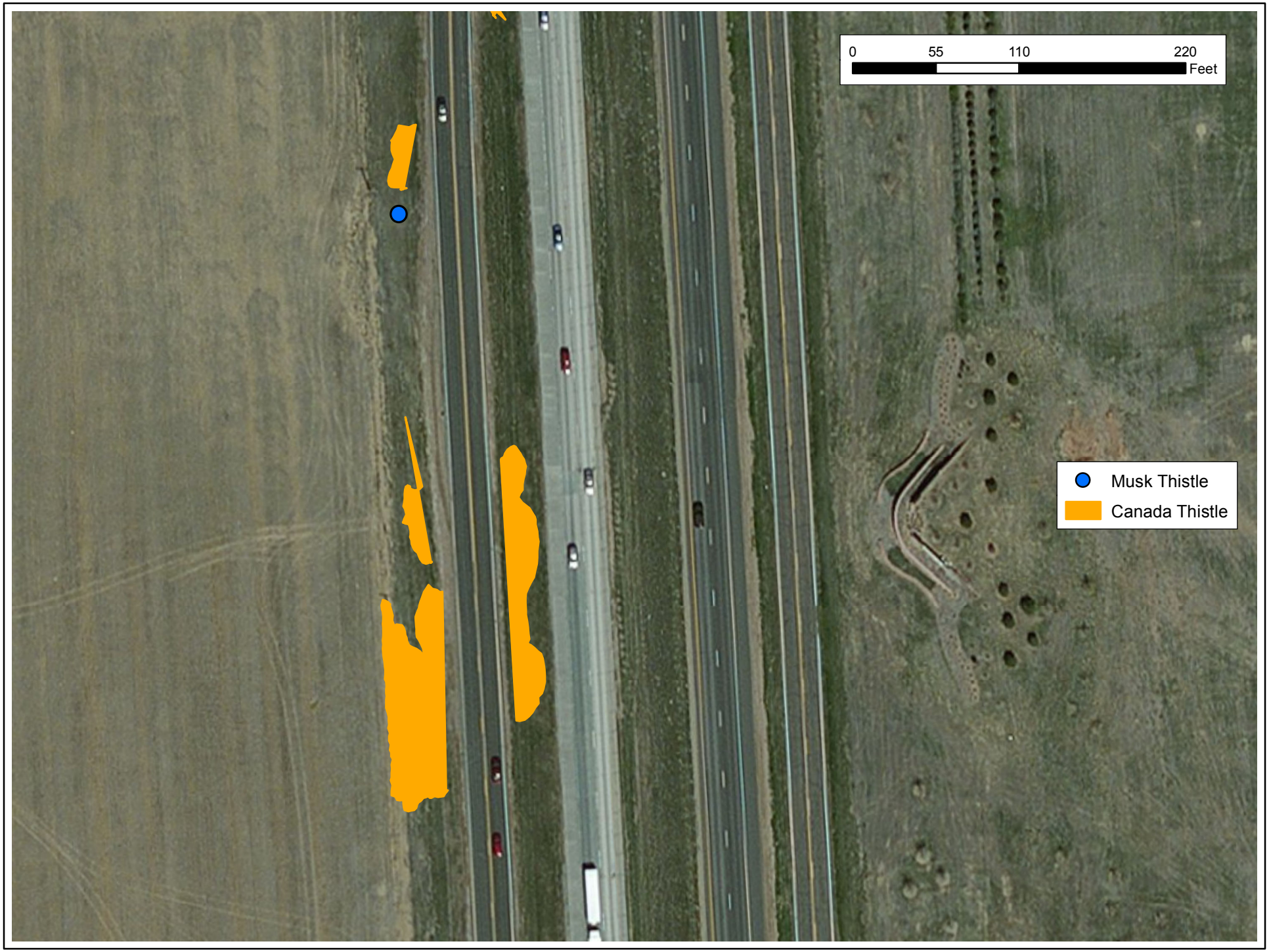
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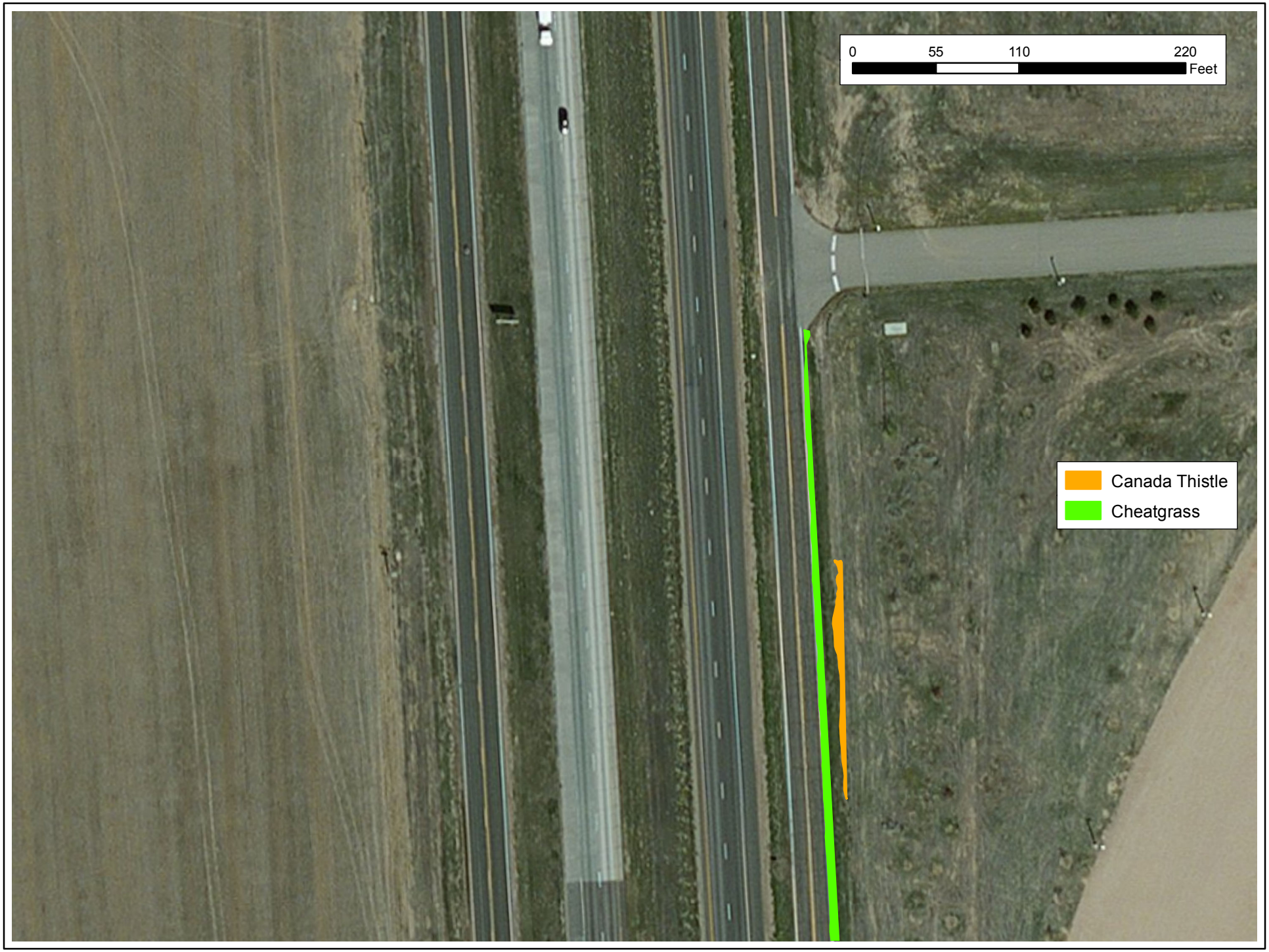
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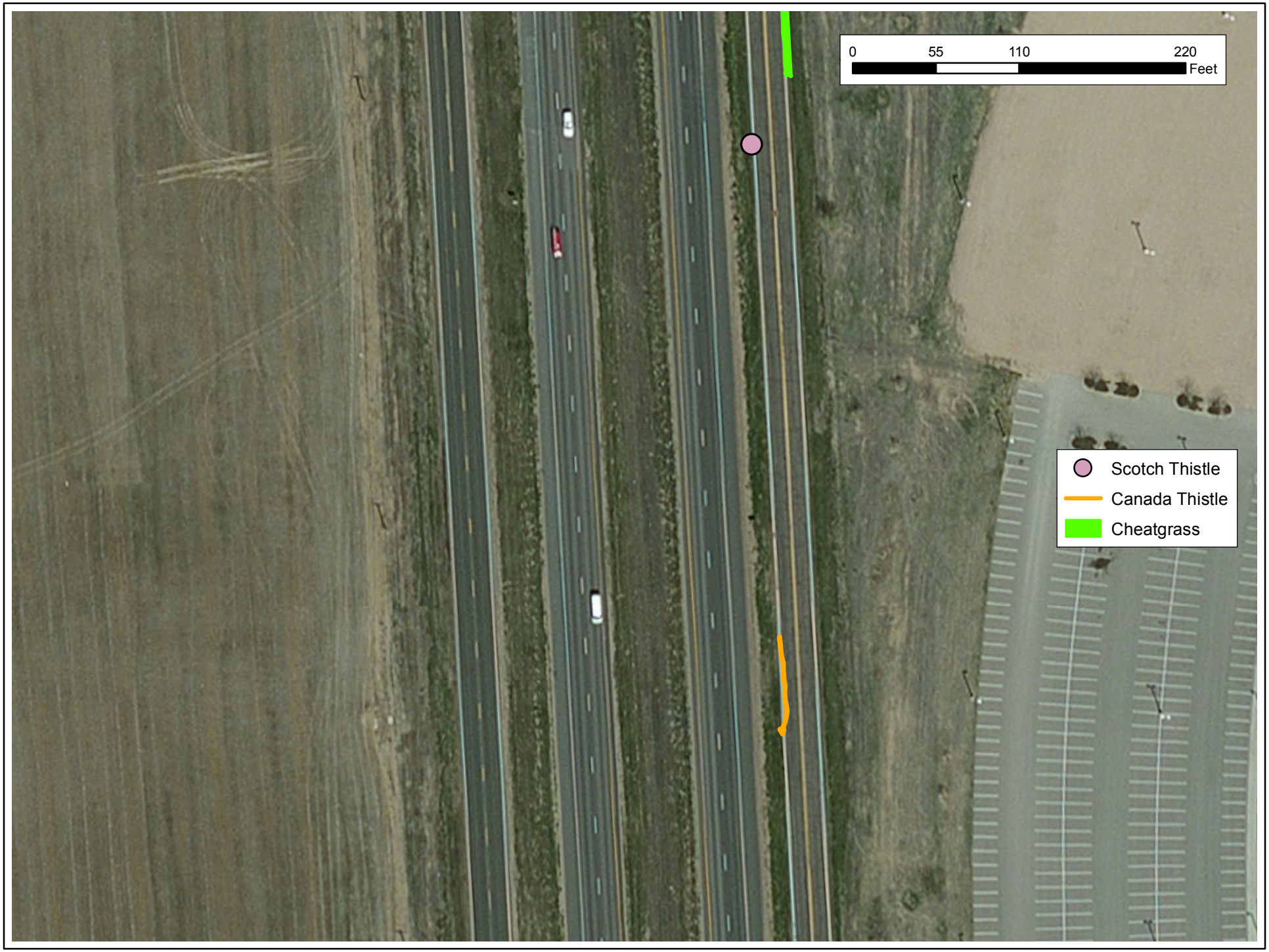
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Canada Thistle
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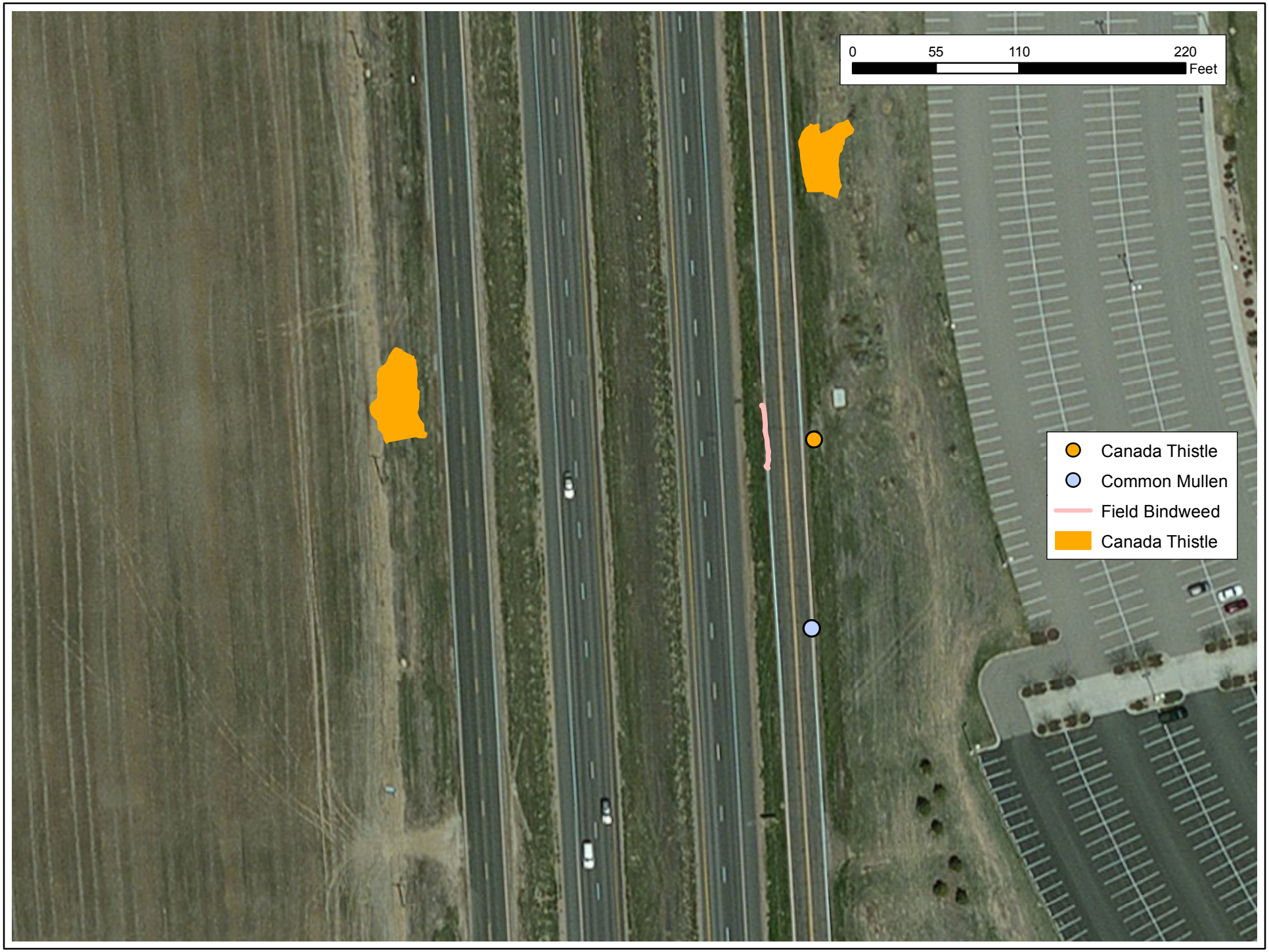
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Field Bindweed
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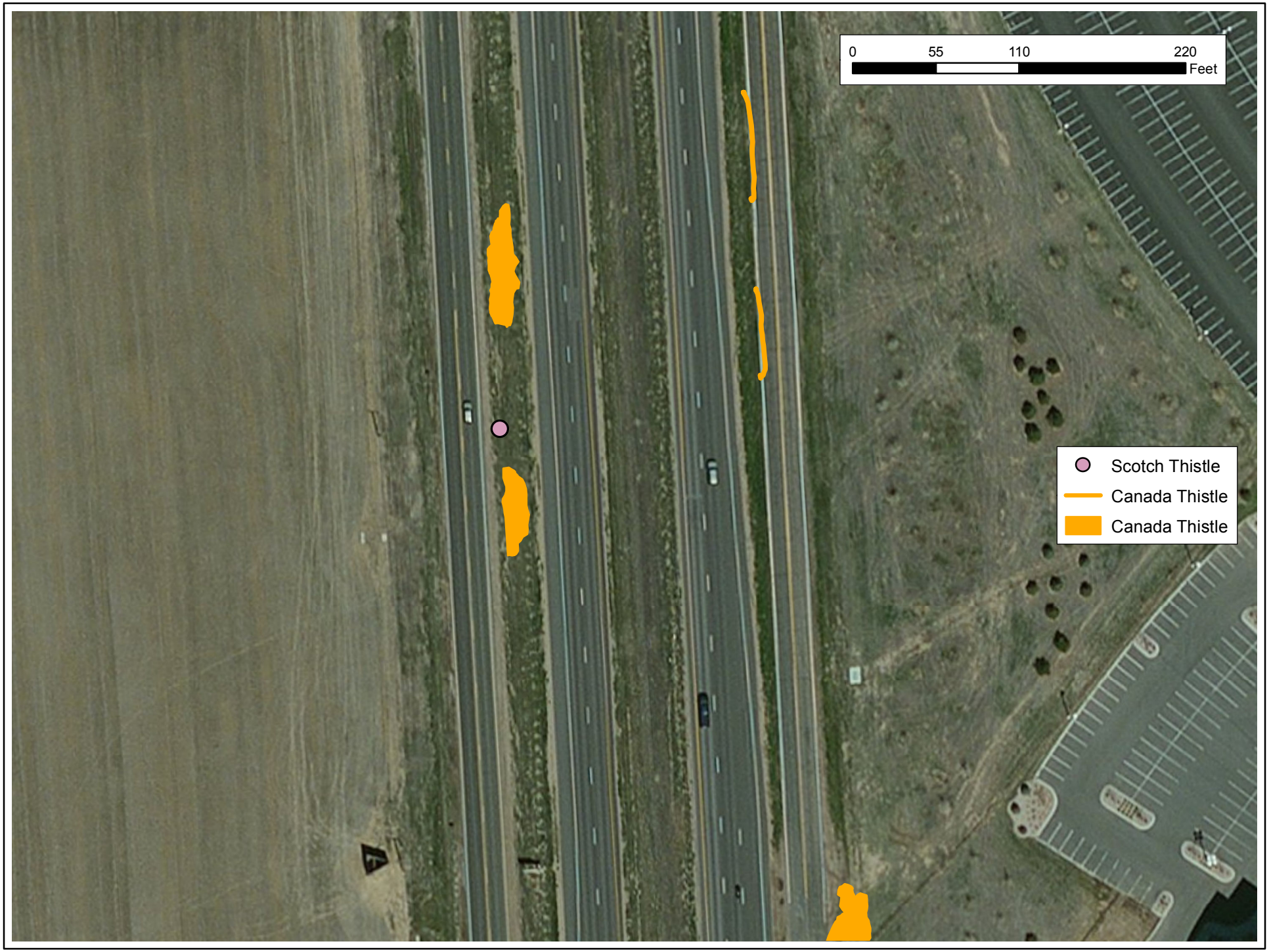
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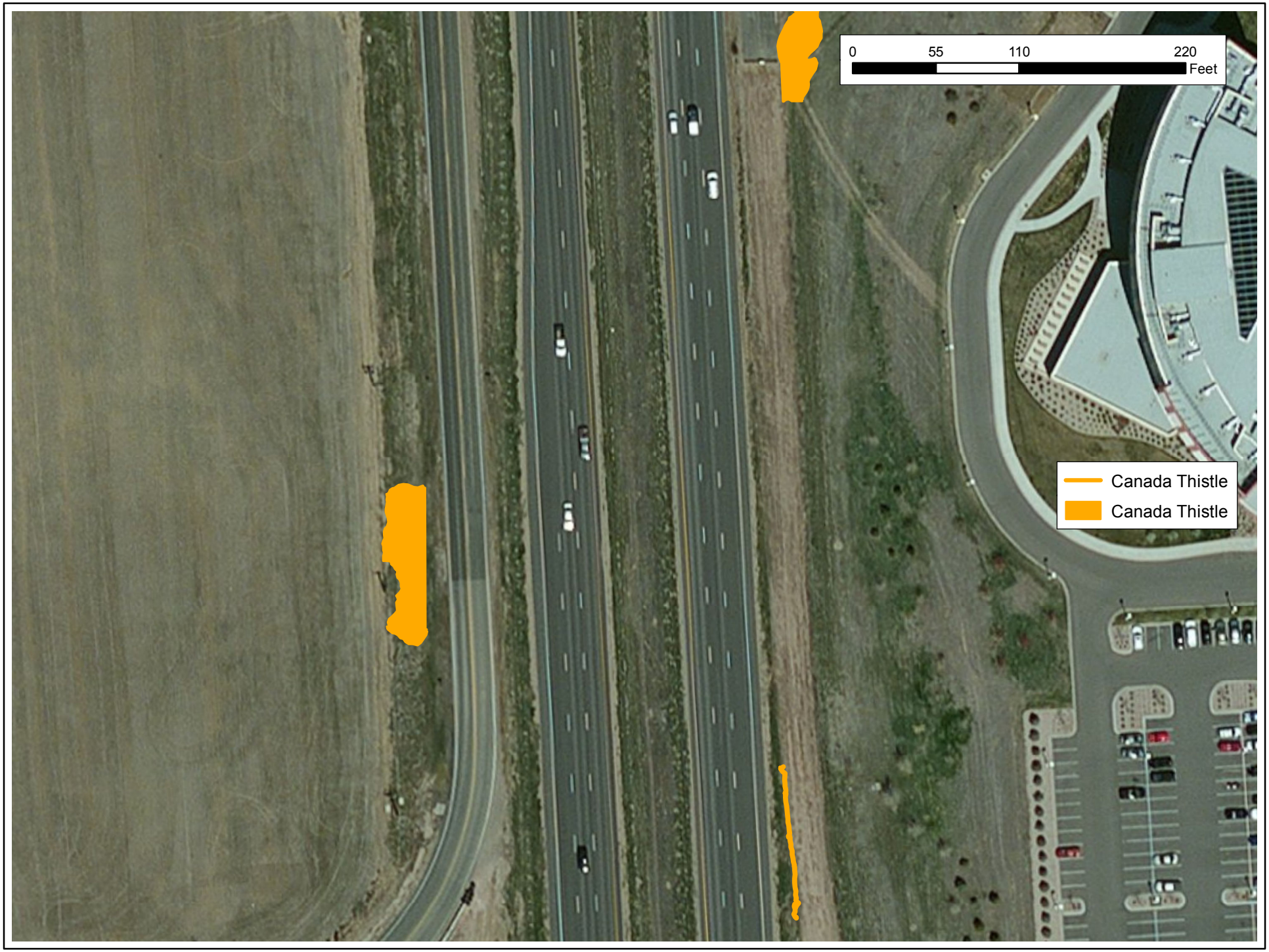
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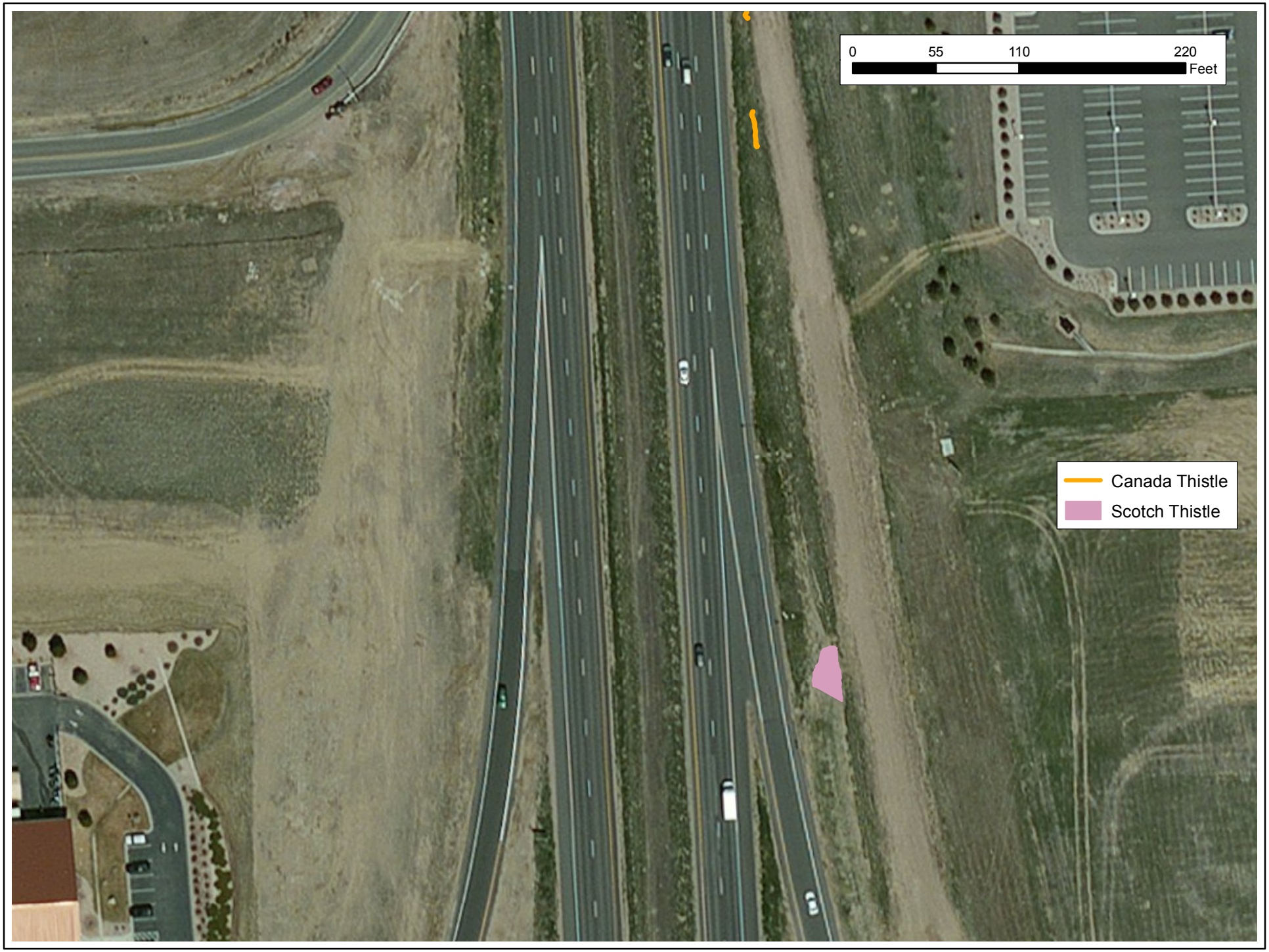
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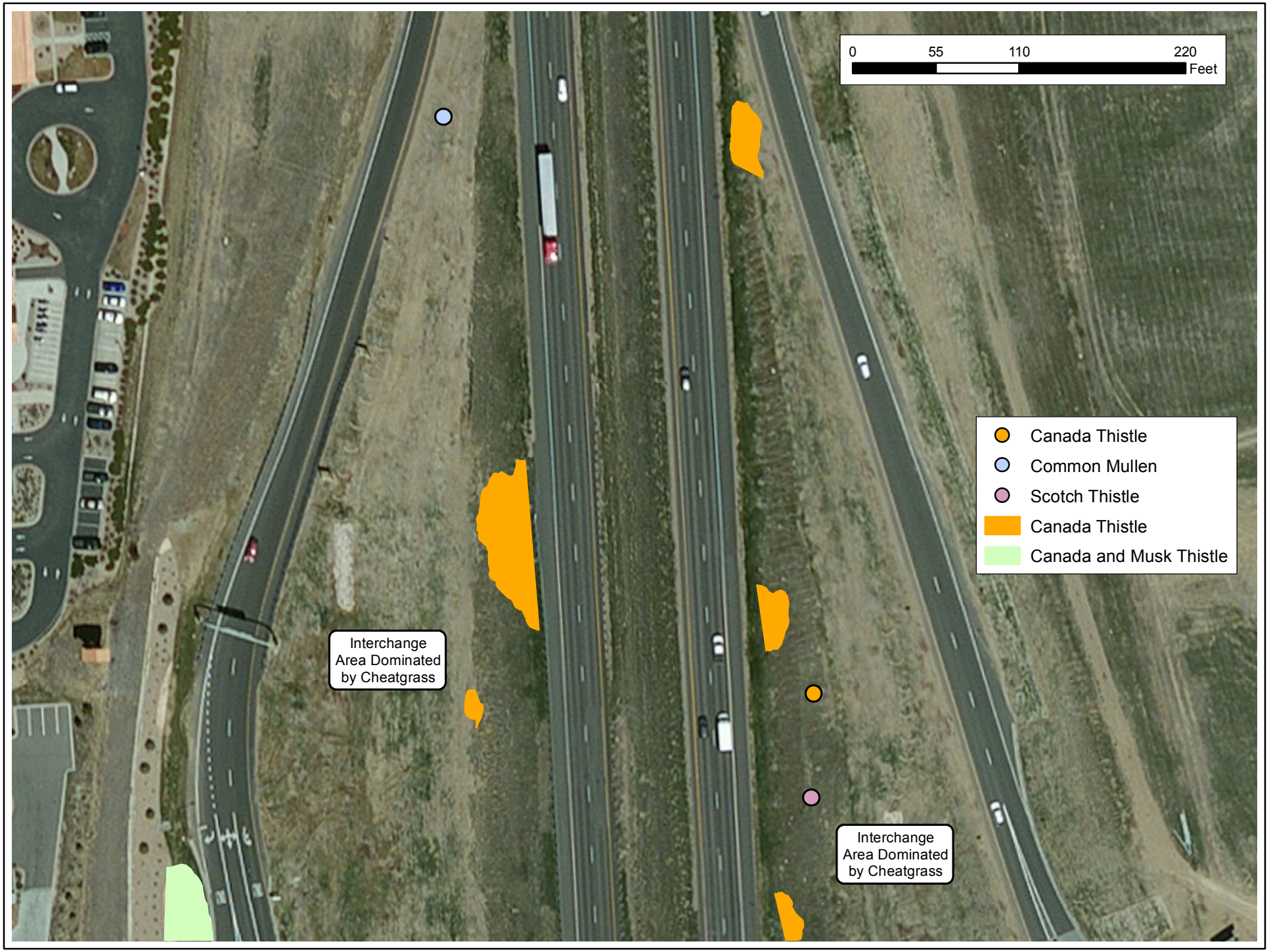
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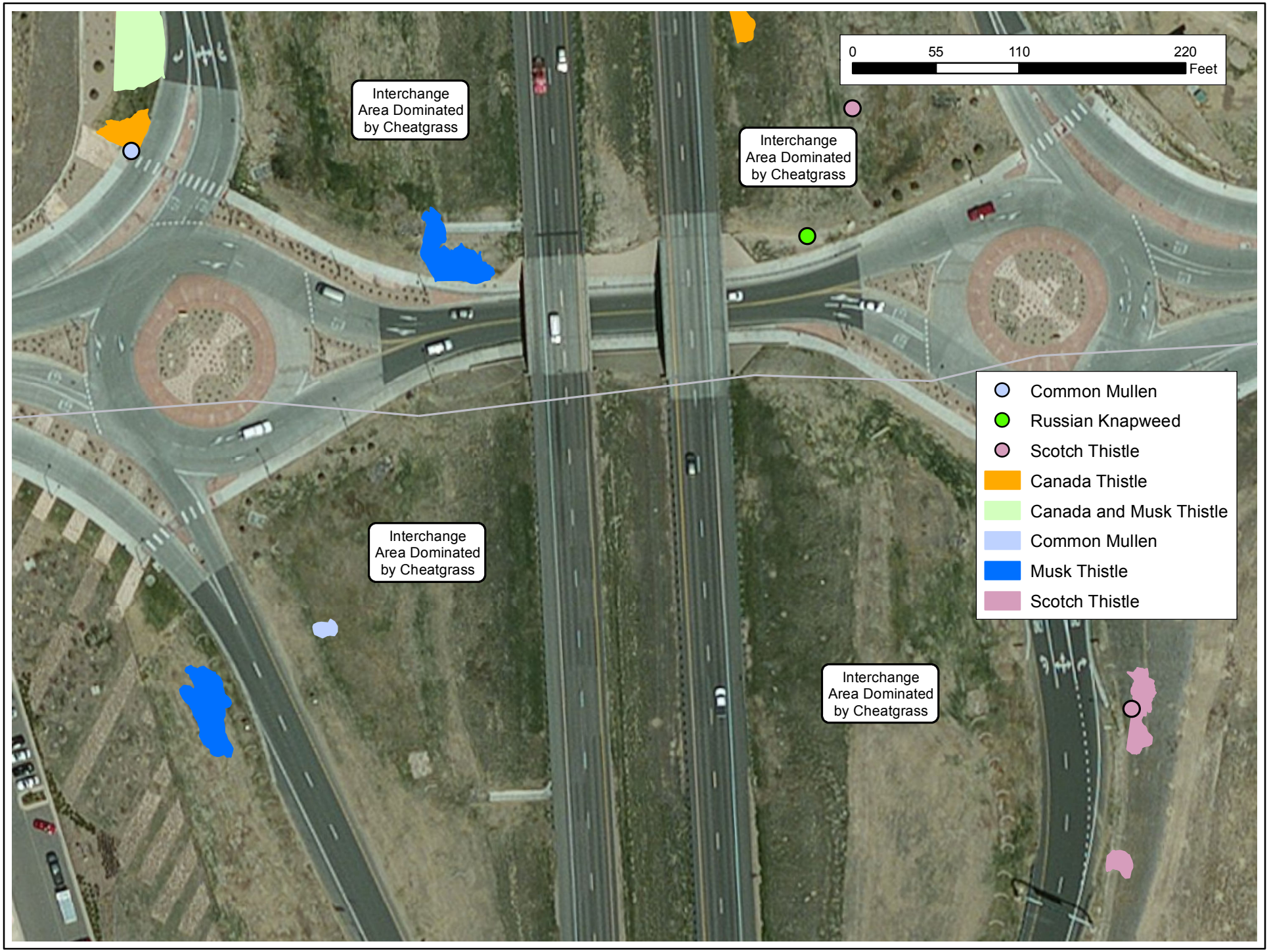
Canada and Musk Thistle
Interchange Area Dominated by Cheatgrass
Interchange Area Dominated by Cheatgrass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Interchange Area Dominated by Cheatgrass
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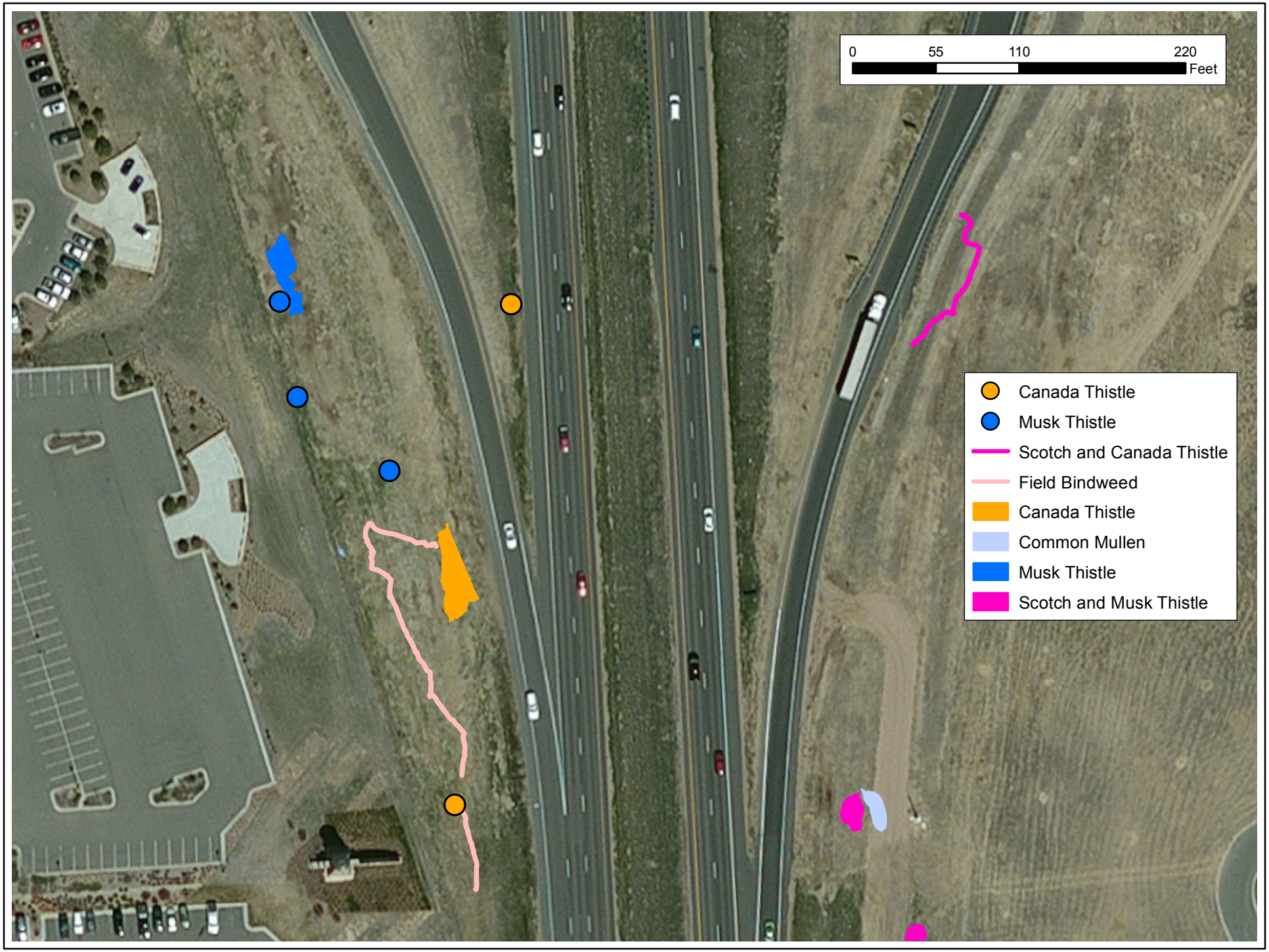
Musk Thistle
Scotch Thistle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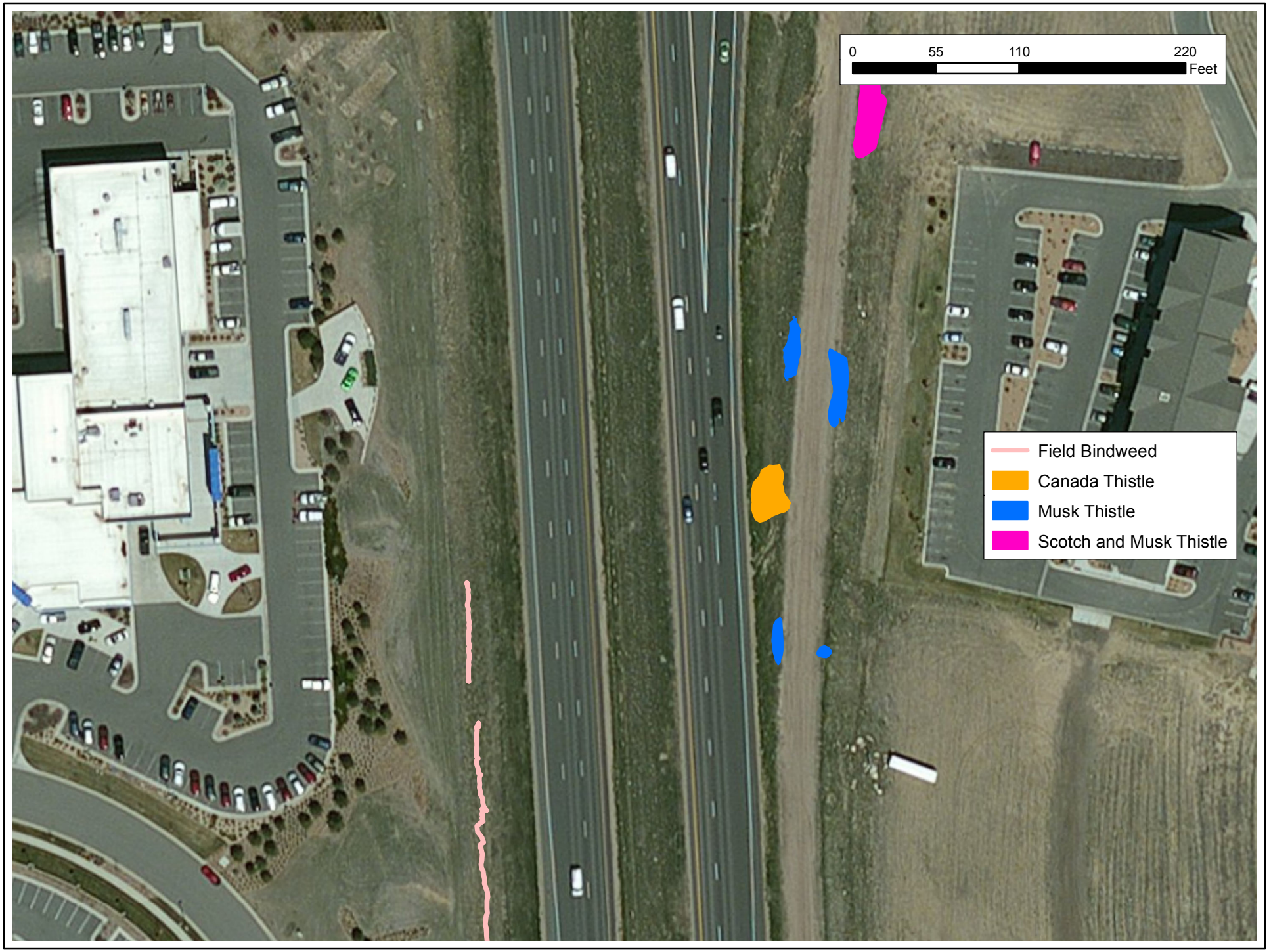
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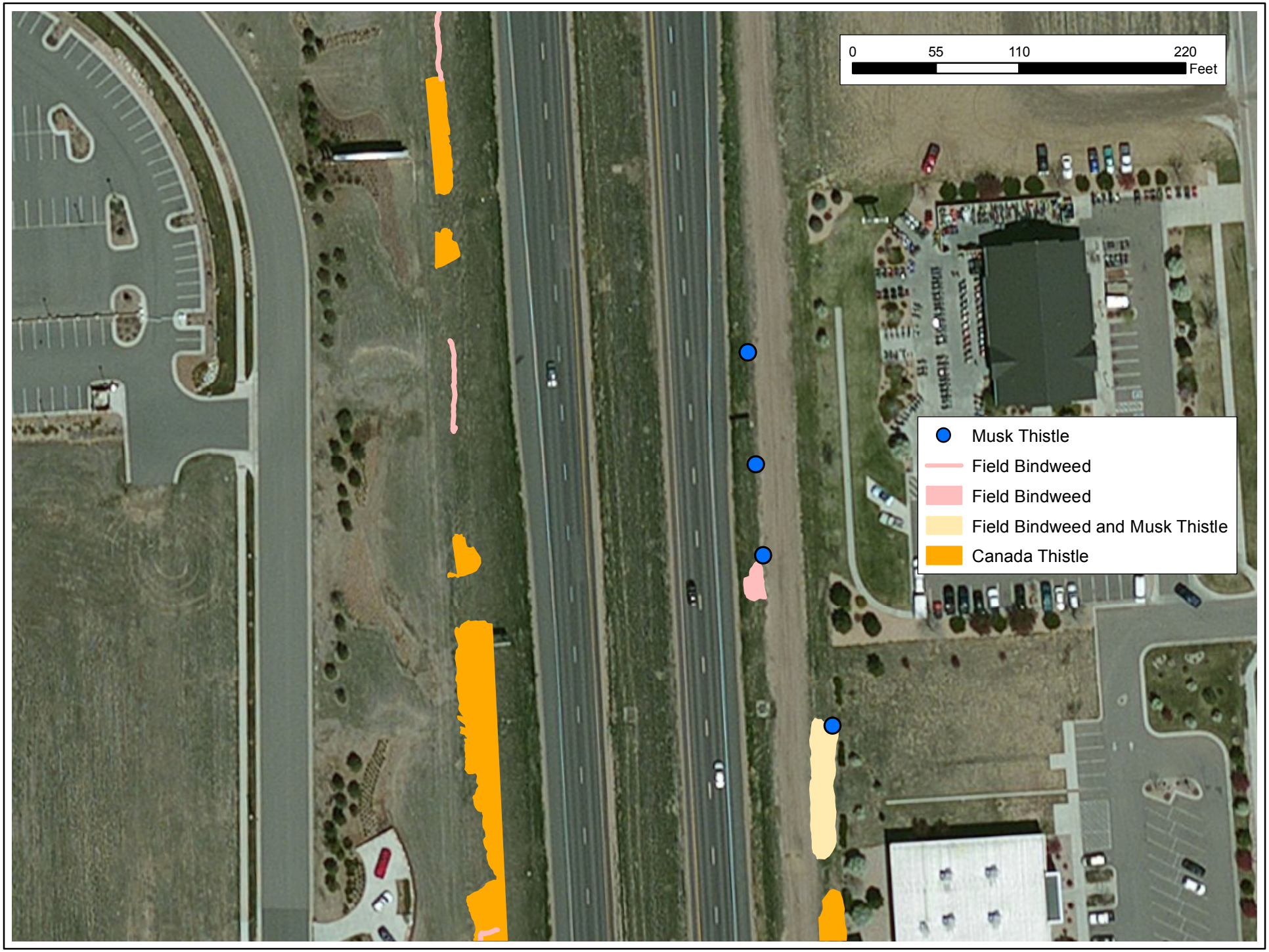
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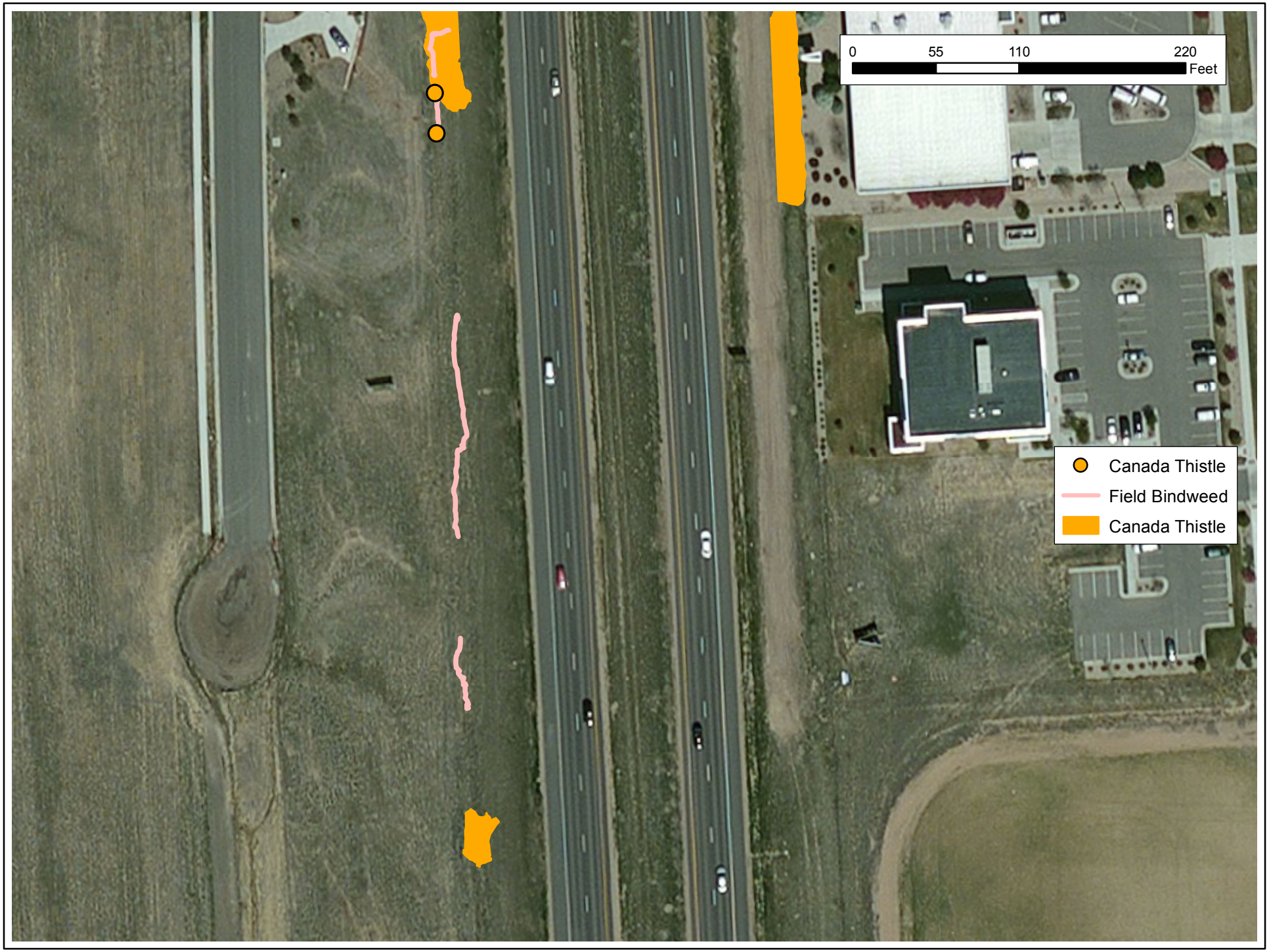
Field Bindweed
Field Bindweed and Musk Thistle
Canada Thistle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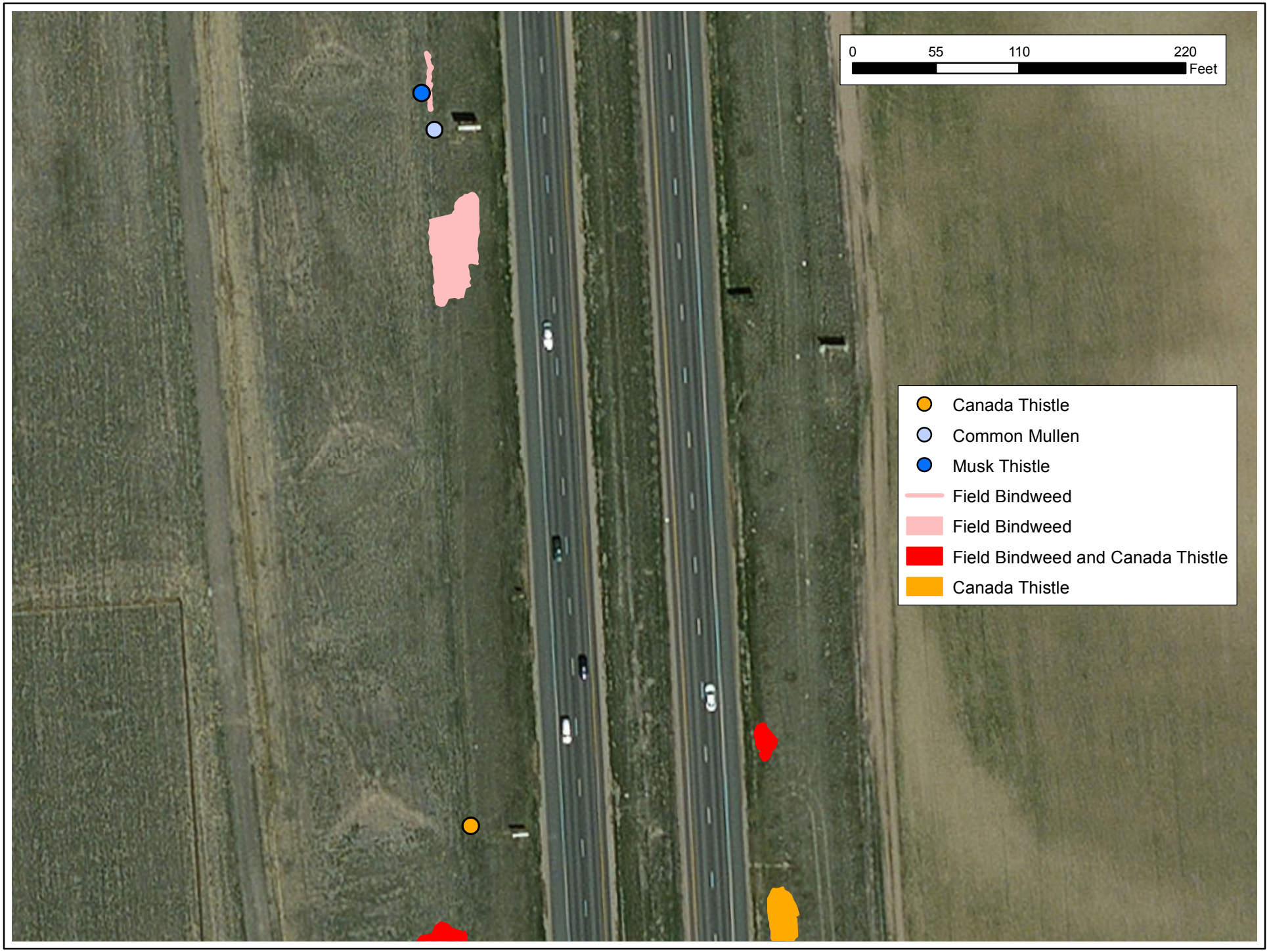
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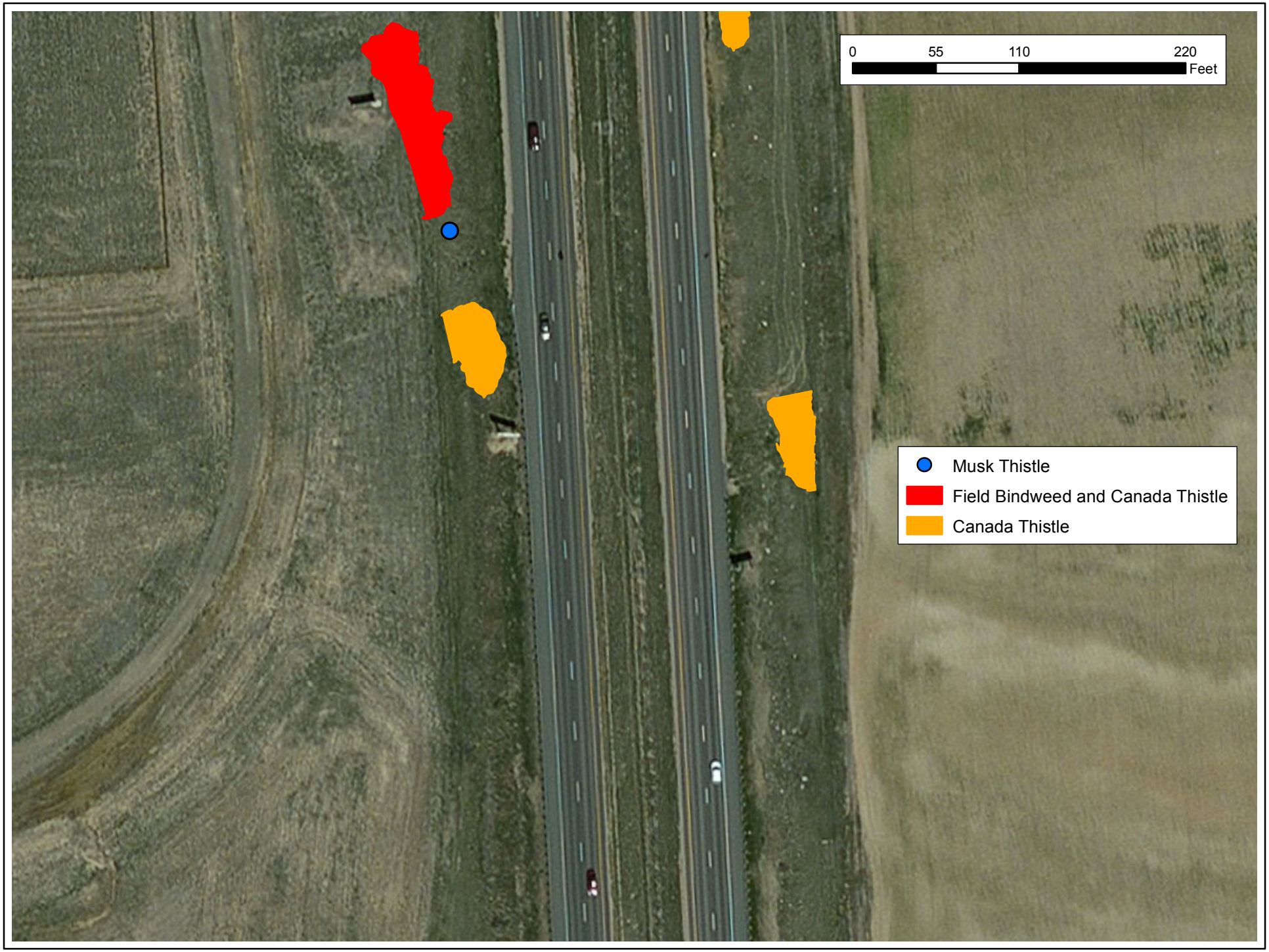
Field Bindweed
Field Bindweed and Canada Thistle
Canada Thistle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Field Bindweed and Canada Thistle
Canada Thistle

Appendix B

Noxious Weed Fact Sheets

Canada Thistle Identification and Management

List B

Canada thistle (*Cirsium arvense*) is a non-native, deep-rooted perennial that spreads by seeds and aggressive creeping, horizontal roots called rhizomes. Canada thistle can grow 2 to 4 feet in height. The leaves are oblong, spiny, bright green, and slightly hairy on the undersurface. Unlike other noxious biennial thistles which have a solitary flower at the end of each stem, Canada thistle flowers occur in small clusters of 1 to 5 flowers. They are about 1 cm in diameter, tubular shaped, and vary from white to purple in color.

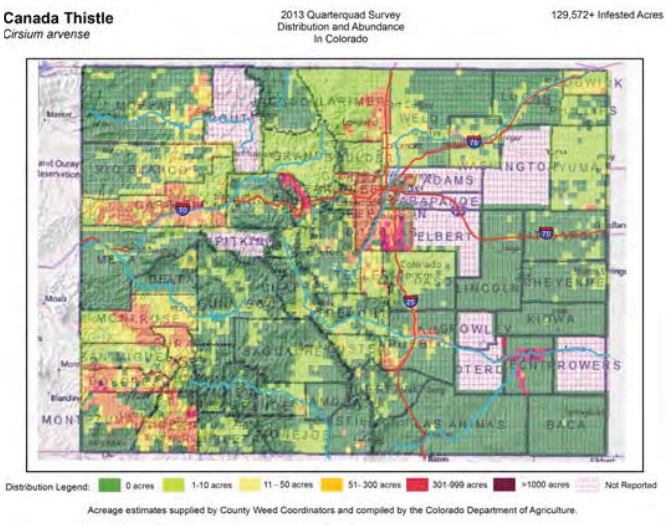
Canada thistle emerges from its root system from late April through May. It flowers in late spring and throughout the summer. It produces about 1,000 to 1,500 seeds per plant that can be wind dispersed. Seeds survive in the soil for up to 20 years. Additionally, Canada thistle reproduces vegetatively through its root system, and quickly form dense stands. Each fragmented piece of root, 0.25 inch or larger, is capable of forming new plants. The key to controlling Canada thistle is to eliminate seed production and to reduce the plant's nutrient reserves in its root system through persistent, long-term management.

Canada thistle is one of the most troublesome noxious weeds in the U.S. It can infest diverse land types, ranging from roadsides, ditch banks, riparian zones, meadows, pastures, irrigated cropland, to the most productive dryland cropland. Large infestations significantly reduce crop and cattle forage production and native plant species. It is a host plant to several agricultural pests and diseases. Canada thistle prefers moist soils, but it can be found in a variety of soil types. It has been found at elevations up to 12,000 feet.

Effective Canada thistle control requires a combination of methods. Prevention is the most important strategy. Maintain healthy pastures and rangelands, and continually monitor your property for new infestations. Established plants need to be continually stressed. Management options become limited once plants begin to produce seeds. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Canada thistle is designated as a "List B" species as described in the Colorado Noxious Weed Act. It is required to be either eliminated, contained, or suppressed depending on the local infestations. For more information visit www.colorado.gov/ag/weeds and click on the Noxious Weed Program link or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, (303) 869-9030.

2013 Quarter Quad Survey



Key ID Points

1. Cluster of 1-5 white to purple flowers on a stem.
2. Floral bracts are spineless.
3. Small flowers that are 1 cm in diameter.
4. Perennial, rhizomatous plant with spiny, oblong, green leaves.

Canada thistle

Cirsium arvense

List B

Canada thistle

Cirsium arvense

Integrated Weed Management Recommendations

Integrated weed management is imperative for effective Canada thistle control. This weed needs to be continually stressed, forcing it to exhaust root nutrient stores, and eventually die. Mowing or grazing can be followed up with herbicide application. Avoid hand-pulling and tilling which can stimulate the growth of new plants.

CULTURAL
Prevention is the best control strategy. Maintain healthy pastures , riparian areas, and rangelands. Prevent bare ground caused by overgrazing, and continually monitor your property for new infestations. Establishment of select grasses can be an effective control.

BIOLOGICAL
Cattle, goats, and sheep will graze on Canada thistle when plants are young and succulent in the spring. Follow up grazing with a fall herbicide application. Insects are available, and provide limited control. Currently, collection and distribution methods for Canada thistle rust (*Puccinia punctiformis*) are being refined. For more information on Canada thistle biocontrol, contact the Colorado Department of Agriculture - Palisade Insectary at (970) 464-7916.

MECHANICAL
Due to Canada thistle's extensive root system, hand-pulling and tilling create root fragments and stimulate the growth of new plants. Mowing can be effective if done every 10 to 21 days throughout the growing season. Combining mowing with herbicides will further enhance Canada thistle control.

CHEMICAL
The table below includes recommendations for herbicides that can be applied to rangeland and some pastures. Treatments may be necessary for an additional 1 to 3 years because of root nutrient stores. Always read, understand, and follow the label directions.

HERBICIDE	RATE	APPLICATION TIMING
Aminopyralid (Milestone)	5-7 oz/acre or 1 teaspoon/gal water	Apply in spring until flowering and/or to fall regrowth. Add 0.25% v/v non-ionic surfactant (equivalent to 0.32oz/gal water or 1 qt/100 gal water). Can also add chlorsulfuron (Telar) at 1 oz/acre to the mix.
Aminoclopyrachlor + chlorsulfuron (Perspective)	5.5 oz product/acre + 0.25% v/v non-ionic surfactant	Apply in spring from rosette to flower bud stage and/or fall regrowth. Important: Applications greater than 5.5 oz product/acre exceeds the threshold for selectivity. DO NOT treat in the root zone of desirable trees and shrubs. Not permitted for use in the San Luis Valley.
Clopyralid + triclopyr (Prescott; others)	3 pints product/acre or 1.25 oz/gal water	Apply in spring until flowering and/or fall regrowth. Add 0.25% v/v non-ionic surfactant.

Colorado Department of Agriculture - Conservation Services
305 Interlocken Parkway
Broomfield, CO 80021
(303) 869-9030
www.colorado.gov/ag/weeds

Rev. 10/14

Common mullein

Verbascum thapsus

Colorado Department of Agriculture

305 Interlocken Pkwy
Broomfield, CO 80021

(303) 869-9030
weeds@state.co.us

Key ID Points

Identification and Management

Identification and Impacts

Common mullein (*Verbascum thapsus*) is a biennial forb native to Europe and Asia. The first year of the plant it produces a basal rosette. Basal rosettes can grow to 30 inches in diameter. The leaves are light-green in color and are covered in fine soft hairs. The woolly leaves are alternate and overlapping each other and can grow over a foot long. In spring of the second year the plant bolts an erect stem, that grows 2 to 6 feet tall. The flowers of the plant are borne in terminal spikes. These terminal spikes may reach up to 20 inches in length. The flowers are sulfur-yellow in color and have five petals. The flowers range from 3/4 of an inch to 1 1/2 inches in diameter. Numerous two chambered fruits produce 100,000 to 250,000 seeds per plant. Flowering and seed production typical occur from June to August. The plant has a deep taproot along with a fiberous root system.

Habitats for Common mullein are roadsides, waste places, right-of-ways, pastures, hay fields, and abandoned lands. It prefers gravelly soil types, but can grow in other soil types. Livestock will avoid eating Common mullein, due to the hairy leaves of the plants. The plants were originally introduced as a medicinal plant. The Europeans used the flowers for tea, and the leaves for many remedies like burns and rashes. Both the Europeans and the Indians smoked the dried leaves to treat bronchitis.

The key to effective control of Common mullein is preventing the production of seeds. This plant is difficult to control due to the large amount of seed produced and seed bank left in the soil. Mechanical, cultural, biological and chemical treatments can be successful if utilized together in an integrated weed management plan. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Common mullein is designated as a "List C" species on the Colorado Noxious Weed Act. It is required to be either eradicated, contained, or suppressed depending on the local jurisdictions managing this species. For more information, visit www.colorado.gov/ag/weeds or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, 303-239-4100.

Photos © All Photos from Kelly Uhing, Department of Agriculture; Except Bottom left Mary Ellen (Mel) Harte, United States

Updated on:
08/09

Management Recommendations

Common mullein

CULTURAL
Cultural control can be effective in assistance with other treatment options. Once the parent plants have been removed, cultivating the area with desirable grasses and forbs may outcompete Common mullein seedlings. For specific seed recommendations contact your local Natural Resources Conservation Services for seed mixes.

BIOLOGICAL
Gymnetron tetrum, a seed eating weevil, biological control has been found in eastern Washington State and is currently working on populations there. The weevil has not yet been approved for use in Colorado. Contact the Palisade Insectary of the Colorado Department of Agriculture at 970-464-7916 for more information.

MECHANICAL
Hand pull or dig when soil is moist, prior to flowering and seed production can be effective. If flowers are present, bag specimens carefully so as not to scatter any potential seeds. The key to effective control is to prevent seed production and/or spread.

Integrated Weed Management:

Preventing the establishment and the seed production of Common mullein is key to controlling populations. If the population is established, using a combination of cultural, chemical, biological and mechanical treatments can aid in suppressing population size. Since plants produce thousands of seed treatments need to occur over an extended period of time.

HERBICIDES

NOTE: The following are recommendations for herbicides that can be applied to range and pasturelands. Rates are approximate and based on equipment with an output of 30 gal/acre. Please read label for exact rates. Always read, understand, and follow the label directions. The herbicide label is the LAW!

HERBICIDE	RATE	APPLICATION TIMING
Chlorsulfuron (Telar XP)	1-3 oz/acre	Apply to rosette stages in spring or fall prior to bolting. Add non-ionic surfactant @ 0.32 oz/gal water or 1 pt/100 gal water.
2,4-D Picloram (Grazon P+D *this is a Restricted Use Pesticide*)	4 pts/acre	Apply to rosette stages in spring or fall prior to bolting. Add non-ionic surfactant @ 0.32 oz/gal water or 1 pt/100 gal water. DO NOT apply near trees/shrubs/high water table.
Picloram (Tordon 22K *this is a Restricted Use Pesticide*)	1-2 qts/acre	Apply to rosette stages to early growth stages in spring or fall. Add non-ionic surfactant @ 0.32 oz/gal water or 1 pt/100 gal water. DO NOT Apply near trees/shrubs/high water table.
Metsulfuron (Cimmaron)	1.0 oz/acre	Apply to rosette stages in spring or fall. Add non-ionic surfactant @ 0.32 oz/gal water or 1 pt/100 gal water.

Photos © Top to Bottom; Kelly Uhing, Colorado Department of Agriculture; Whitney Cranshaw, Colorado State University, Bugwood.org; Kelly Uhing, Colorado Department of Agriculture

Downybrome-Cheatgrass

Bromus tectoram

Colorado Department of Agriculture

305 Interlocken Pkwy
Broomfield, CO 80021

(303) 869-9030
weeds@state.co.us

Key ID Points

Identification and Management

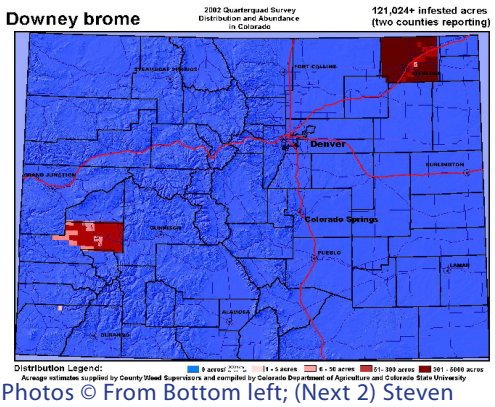
Identification and Impacts

Downy brome or Cheatgrass (Bromus tectorum) is an annual or winter annual, native to the Mediterranean region. Cheatgrass ranges in height from 2 to 36 inches. Each plant contains multiple stems that are erect in nature. The inflorescences are born and the end of the stems, and are multi-branched. They appear in a slender, dense, and usually drooping manner. At maturity, they appear greenish purple in color. The spikelets are slender, 3/8 to 3/4 of an inch long and are nodding. The awns on the end of the spikelets are usually 3/8 to 5/8 of an inch long. The sheaths of the leaves are flat blades and densely covered in with soft hairs. Cheatgrass reproduces solely by seed. The root system is fibrous and fleshy.

Habitats for Cheatgrass include; roadsides, waste areas, misused pastures, rangelands, cultivated fields, and eroded sites. When plants are green animals will graze as forage. When the plant dries, the sharp seed can injure grazing animals getting caught in the mouth, nose, and eyes of the animal. It is a competitive grass with native grasses and forbs, because it germinates in the fall and will over winter as a seedling. In the spring it will bolt and produce seed, using valuable moisture and shading desirable plants. Once Cheatgrass reaches maturity and dries, it becomes a major fire hazard. Large infestations can increase fire frequency in rangelands. Seed viability ranges 2 to 5 years for cheatgrass, increasing the chances of taking over a disturbed site.

The key to effective control of Cheatgrass preventing the establishment of the plant through proper grazing and management techniques. If the plant has become established, using an integrated management approach can prove to be an effective control method. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Cheatgrass is designated as a "List C" species on the Colorado Noxious Weed Act. It is required to be either eradicated, contained, or suppressed depending on the local jurisdictions managing this species. For more information, visit www.colorado.gov/ag/weeds or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, 303-239-4100.



Photos © From Bottom left; (Next 2) Steven Dewey, Utah State University; Richard Old XIV Services Inc.; Chris Evans, River to River CWMA; All Bugwood.org; Map Crystal Andrews, Colorado Department of Agriculture

Updated on: 08/09

Management Recommendations

CULTURAL
Preventing the establishment of Cheatgrass by planting desirable grasses and forbs can prove to be an effective control method. Properly maintaining grazing lands will also reduce the risk of infestations. For specific seed recommendations contact your local Natural Resources Conservation Services for seed mixes.

BIOLOGICAL
Research is currently being conducted on certain molds to be used as a biocontrol. But currently there is not any approved biological control agents approved for the use on Cheatgrass. For more information please contact the Palisade Insectary of the Colorado Department of Agriculture at 970-464-7916.

MECHANICAL
Fire, tillage, mowing and grazing have been proven to help reduce plant populations once established. The key to effective control is to prevent seed production and/or spread.

Integrated Weed Management:

Preventing the establishment of Cheatgrass through proper grazing management techniques proves to be the most effective control method. If infestations are already established using a combination of mechanical and chemical control methods proves to be effective control options, following these treatments with cultural control methods will reduce the size of infestations.

HERBICIDES

NOTE: The following are recommendations for herbicides that can be applied to range and pasturelands. Rates are approximate and based on equipment with an output of 30 gal/acre. Please read label for exact rates. Always read, understand, and follow the label directions. The herbicide label is the LAW!

HERBICIDE	RATE	APPLICATION TIMING
Imazapic	4-10 oz/Acre	Fall application prior to a hard freeze is optimum or during early spring growth. Add non-ionic surfactant 0.32oz/gal water or 1qt./100 gal water.
Glyphosate *Non-selectiveherbicide*	4-5 qts/Acre or 4-5 oz/gal water	Apply in fall or early spring. Add non-ionic surfactant 0.32oz/gal water or 1 qt./100 gal water.

Photos © Top to Bottom; Chris Evans, River to River CWMA, Bugwood.org; Whitney Cranshaw, Colorado State University, Bugwood.org; Kelly Uhing, Colorado Department of Agriculture

Downybrome-Cheatgrass

Field bindweed

Convulvulus arvensis

Colorado Department of Agriculture

305 Interlocken Pkwy
Broomfield, CO 80021

(303) 869-9030
weeds@state.co.us

Key ID Points

1. Leaves are shaped like arrowheads.
2. Flowers are funnel-shaped, white to pink, and have two small bracts one inch below the flower base.

Field bindweed Identification and Management

Identification and Impacts

Field bindweed (*Convolvulus arvensis*) is a non-native deep-rooted perennial that reproduces from seed and creeping, horizontal roots (rhizomes). Field bindweed stems are prostrate (grows low to the ground) and twining, and grow up to 6 feet long. Leaves are distinguishable by their arrowhead shape. The flowers are bell or trumpet-shaped, white to pink in color, and are about 1 inch long. Field bindweed seeds can remain viable in the soil for up to 40 years.

Field bindweed emerges from its root system in the spring. Flowering occurs from June to September and until the first fall frost. The number of seeds produced per plant ranges from 25 to 300 and seed production is variable depending on environmental conditions. Field bindweed is an extremely difficult noxious weed to control because, in part, of its taproot that may go 20 feet deep into the soil, and which repeatedly gives rise to numerous long rhizomes.

Field bindweed is a problem throughout Colorado. It is one of the most competitive perennial weeds. It is widespread in cultivated areas, pastures, lawns, gardens, roadsides, and waste areas from 4,000 to 8,000 feet in elevation.

To successfully manage field bindweed, containment and persistence in controlling existing stands are necessary in order to exhaust the root system and deplete the soil seed bank. This weed needs to be continually stressed, forcing it to exhaust root nutrient stores and eventually die. Of all control methods, prevention is most important. Maintain healthy pastures and rangeland and continually monitor your property for new infestations. A healthy cover of desirable perennial plants will assist in discouraging field bindweed establishment.

Field bindweed is designated as a "List C" species on the Colorado Noxious Weed Act. It is required to be either eradicated, contained, or suppressed depending on the local jursidictions managing this species.

On the back of this sheet are field bindweed management recommendations. For more information, visit www.ag.state.co.us/csd/csdhome.html. Or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, 303-239-4100.

White flower © Mary Ellen Harte, Invasive.org.
All other photos © Kelly Uhing.

Management Recomendations

Field bindweed

CULTURAL
Establishment of selected grasses can be an effective cultural control of field bindweed. Contact your local Natural Resources Conservation Service for seed mix recommendations. Maintain healthy pastures and prevent bare spots caused by overgrazing. Bareground is prime habitat for **weed invasions.**

Bindweed mite damage

BIOLOGICAL
The bindweed gall mite, *Aceria mahlerbae*, has proven to be effective in reducing field bindweed infestations. This is an option for large infestations. To obtain a mite release, contact the Colorado Department of Agriculture, 970-464-7916.

MECHANICAL
Cutting, mowing, or pulling has a negligible effect unless the plants are cut below the surface in the early seedling stage. Well-established populations have a large seed bank in the soil that can remain viable for over 40 years.

Integrated Weed Management:

Field bindweed requires active management once it is established because of its potential to regenerate rapidly. Even small infestations should be viewed as a serious threat and managed aggressively.

Contain and persistently control infestations in order to exhaust the root system and deplete the soil seed bank.

Maintain a healthy cover of perennial plants to discourage field bindweed establishment.

HERBICIDES: The following are recommendations for herbicides that can be applied to range and pasturelands. *Rates are approximate and based on equipment with an output of 30 gallons per acre. Please read label for exact rates.* Always read, understand, and follow the label directions. **The herbicide label is the LAW!**

HERBICIDE	RATE	APPLICATION TIMING
Clarity + 2,4-D Amine	1 qt./acre or 1 oz/gal water	Just after full-bloom and/or fall. DO NOT apply near or under trees/shrubs or where soils have rapid permeability. DO NOT apply when outside temperatures will exceed 85 degrees. Add non-ionic surfactant @ 0.32oz/gal water or 1 qt/100 gal water.
Tordon 22K *this is a Restricted Use Pesticide*	1 qt./acre or 1 oz/gal water	Just after full-bloom and/or fall. DO NOT apply near or under trees/shrubs or where soils have rapid permeability. Add non-ionic surfactant @ 0.32oz/gal water or 1qt/100 gal water.
Roundup Ultra *non-selective herbicide, will kill all vegetation*	4 - 5 qts./acre or 4 - 5 oz/gal water	Apply at full-bloom and/or fall. Add non-ionic surfactant @ 0.32oz/gal water or 1qt/100 gal water. Use caution when applying near grasses or other desirable vegetation.

Musk thistle

Carduus nutans

Colorado Department of Agriculture

305 Interlocken Pkwy
Broomfield, CO 80021

(303) 869-9030
weeds@state.co.us

Musk thistle
Identification and Management

Key ID Points

1. Broad, spine-tipped bracts located under the flower
2. Flowering heads are terminal, solitary, and usually nodding
3. Grows up to 6 feet tall

Identification and Impacts

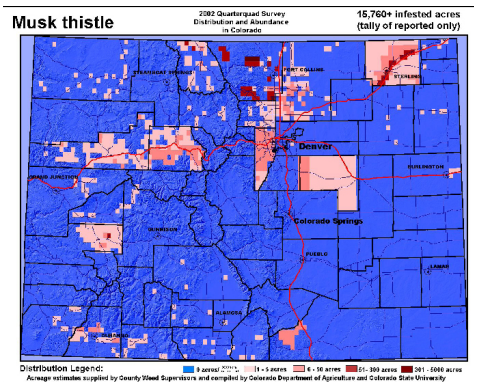
Musk thistle *(Carduus nutans)* is a non-native biennial forb that reproduces solely by seed. A biennial is a plant that completes its lifecycle within two years. During the first year of growth, musk thistle appears as a rosette in spring or fall. During the second year in mid to late spring, the stem bolts, flowers, sets seed, and the plant dies. Musk thistle produces many flower heads. The terminal, or tallest, shoots flower first, then lateral shoots develop in leaf axils. A robust plant may produce 100 or more flowering heads. A prolific seed producer, musk thistle can produce up to 20,000 seeds per plant, only one-third being viable. Because musk thistle reproduces solely from seed, the key for successful management is to prevent seed production.

Musk thistle can grow up to 6 feet tall. The leaves are spiny, waxy, and dark green in color with a light green midrib. The flowers are purple, large in size (1.5 to 3 inches in diameter), nodding, and terminal. The flowers are surrounded by numerous, lance-shaped, spine-tipped bracts. You can expect to see flowers from late May and June. Seed set usually occurs in June or July and effective management options will then become limited.

Habitats for Musk thistle include disturbed, overgrazed areas. Once a pasture is infested, the livestock carrying capacity for that area is significantly decreased. The plant may also occur on rangeland, roadsides, ditches, riparian areas, and trails.

The key to effective control of Musk thistle is to prevent the plant's seed production, Planting desirable grasses and forbs to out compete Musk thistle can also be effective. Dense Musk thistle stands can be treated by spot treatments of herbicides and by a persistent mechanical program. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Musk thistle is designated as a "List B" species in the Colorado Noxious Weed Act. It is required to be either eradicated, contained, or suppressed depending on the local infestations. For more information visit www.colorado.gov/ag/csd and click on the Noxious Weed Management Program. Or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, 303-239-4100.



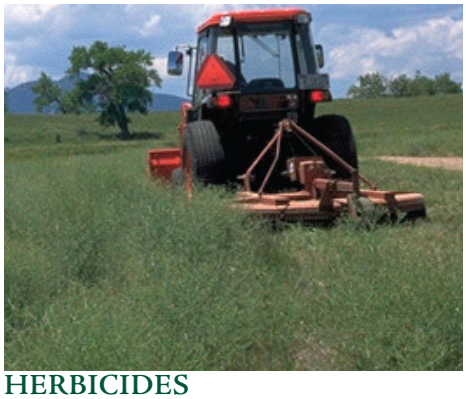
Photos © Kelly Uhing, Colorado Department of Agriculture; map above by Crystal Andrews, Colorado Department of Agriculture.

Updated on: 08/08

Management Recommendations

CULTURAL
Establishment of selected grasses can be an effective cultural control of Musk thistle. Contact your local Natural Resources Conservation Service for seed mix recommendations. Maintain healthy pastures and prevent bare spots caused by overgrazing. Bareground is prime habitat for weed invasions.

BIOLOGICAL
Livestock tend to avoid grazing on musk thistle, although horses and cattle have been known to eat the flowerheads. Biological control insects, such as the seed head weevil and the crown weevil are effective on large infestations. When used together, these insects provide fair to good control. Contact the Insectary, Colorado Department of Agriculture to get complete information at 970-464-7916. Or visit www.colorado.gov/ag/csd.



MECHANICAL
Any mechanical or physical method that severs the root below the soil surface will kill Musk thistle. Mowing or chopping is most effective when Musk thistle plants are at full-bloom. Be sure to properly dispose of the flowering cut plants since seeds can mature and become viable after the plant has been cut down.

Integrated Weed Management:

The key to managing Musk thistle is to prevent seed production. Dense Musk thistle stands can be treated by spot use of herbicides and by a persistent mechanical program. Due to the long seed viability of musk thistle, up to 10 years, control methods may have to be repeated for many years to completely eliminate an infestation.

Musk thistle

HERBICIDES

NOTE: The following are recommendations for herbicides that can be applied to range and pasturelands. Rates are approximate and based on equipment with an output of 30 gal/acre. Please read label for exact rates. **Always read, understand, and follow the label directions. The herbicide label is the LAW!**

HERBICIDE	RATE	APPLICATION TIMING
Picloram (Tordon 22K - *Restricted use chemical*)	1 pint/acre + 0.25% v/v non-ionic surfactant	Apply in spring to rosettes.
Aminopyralid (Milestone)	5 fl. oz./acre + 0.25% v/v non-ionic surfactant	Apply in spring rosette to early bolting growth stages or in fall to rosettes.
Metsulfuron (Escort XP)	1 oz. product/acre + 0.25% v/v non-ionic surfactant	Apply in spring from rosette through very early flower growth stages. (Can prevent viable seed formation if applied no later than the first viable flowers begin to open.)
Chlorsulfuron (Telar)	1 oz. product/acre + 0.25% v/v non-ionic surfactant	Apply in spring from rosette through very early flower growth stages. (Can prevent viable seed formation if applied no later than the first viable flowers begin to open.)

Top to bottom photos, © Norman E. Rees, USDA Agricultural Research Service; Whitney Cranshaw, Colorado State University, Bugwood.org; and Kelly Uhing, Colorado Department of Agriculture.

Russian Knapweed Identification and Management

List B

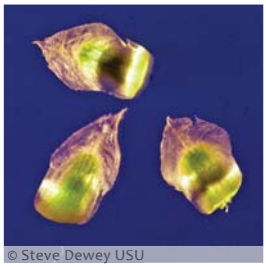
Russian knapweed (*Acroptilon repens*) is a non-native, deep-rooted perennial that spreads by aggressive, creeping, horizontal roots (rhizomes) and seeds. The roots are brown to black with a scaly appearance. Russian knapweed can grow up to 3 feet in height. The stems and leaves are covered with short gray hairs. The flowers are urn-shaped, pink to purple in color, and are solitary at the tips of the upper branches. Russian knapweed can be distinguished from other knapweeds by the smooth, papery, rounded bracts that surround the flowers. Russian knapweed emerges in early spring after soil temperatures remain above freezing. It produces flowers from June to August and sets seed in late summer to early fall. The seeds are viable for two to three years. Russian knapweed reproduces primarily from its root system. Buds on the horizontal roots can form adventitious shoots, August through the winter, that can grow to become independent plants. Once rosettes emerge in the spring, remaining root buds slough-off until they develop again in late summer. Additionally, root fragments can develop into new plants.

Russian knapweed is allelopathic, which means it contains a toxic substance that inhibits the growth of competing plants. This weed may also be toxic to horses resulting in serious injury or possibly death of the animal. Russian knapweed displaces native vegetation and reduces forage values on range and pasturelands.

Habitat for Russian knapweed includes roadsides, ditch banks, riparian zones, pastures, rangeland, saline soils, clear cuts, and cropland. It typically invades degraded areas and sites with full sun.

The most effective method of control for Russian knapweed is to prevent its establishment through proper land management. Maintain healthy pastures and rangeland and continually monitor your property for new infestations. If Russian knapweed is already established, using an integrated weed management approach proves to be effective. Russian knapweed can be managed with herbicides or biocontrol insects, but long-term control must include planting competitive plant species to occupy bare ground once infested by the weed. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Russian knapweed is designated as a "List B" species in the Colorado Noxious Weed Act. It is required to be either eliminated, contained, or suppressed depending on the local infestations. For more information, visit www.colorado.gov/ag/weeds and click on the Noxious Weed Program link or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, 303-869-9030.



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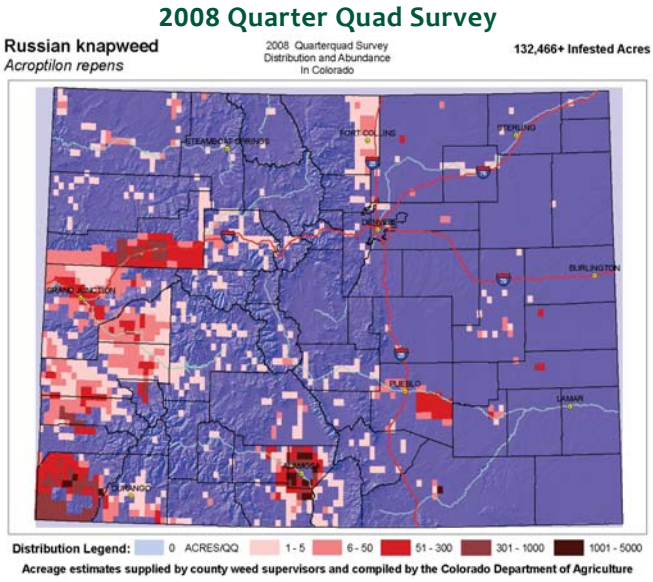
Black, scaly root

Key ID Points

1. Distinguished from other knapweeds by the flower's smooth, papery bracts.
2. Roots are brown to black with scaly appearance.
3. Rosettes and lower leaves deeply lobed.
4. Upper leaves are smaller, smooth margined, and not lobed.

2008 Quarter Quad Survey



Russian knapweed

Acroptilon repens

List B

Integrated Weed Management Recommendations

Russian knapweed

Acroptilon repens

The most effective control for Russian knapweed is to prevent its establishment through proper land management. An integrated weed management approach can be effective when dealing with Russian knapweed. It can be managed with herbicides or insects, but long-term control must include planting competitive plant species to occupy bare ground once infested by the weed.

CULTURAL

Maintain healthy pastures and prevent bare spots caused by overgrazing. Bare ground is prime habitat for weed invasions. Establishing sod-forming grasses or vegetation with dense shade can be an effective cultural control of Russian knapweed. Contact your local Natural Resources Conservation Service for seed mix recommendations.

BIOLOGICAL

The gall midge, *Jaapiella ivannikovi*, is a fly that lays eggs in the shoot tips of Russian knapweed. It forms galls that reduce flowering, seed production, and stunts the plants' growth. This biocontrol will stress the stand of Russian knapweed but will not likely eliminate it. The Colorado Department of Agriculture - Palisade Insectary, 970-464-7916, is currently establishing this biocontrol . It is not yet available to the public.

MECHANICAL

Mowing several times before the plants bolt stresses Russian knapweed and forces it to use nutrient reserves stored in the root system. However, mowing alone will not eliminate the infestation and it can stimulate shoot sprouting the following year. Mowing combined with a fall herbicide application will enhance control. Tilling and disking can create root fragments that can sprout. However, repeated deep tillage (1 feet) over 3 years can kill much of the root system.

CHEMICAL

The following are recommendations for herbicides that can be applied to range and pasturelands. Always read, understand, and follow the label directions. Please read label for exact rates. The herbicide label is the LAW!

HERBICIDE	RATE	APPLICATION TIMING
Aminopyralid (Milestone)	5-7 oz/acre	Apply in the fall when above-ground stems die back and root buds are highly susceptible; can also apply in the bud to senescence stages. Add non-ionic surfactant @ 0.32 oz/gal water or 1 qt/100 gal water.
Aminocyclopyrachlor + chlorsulfuron (Perspective)	4.75 to 8 oz product/A + adjuvant	Apply in the fall when above-ground stems die back and root buds are highly susceptible; can also apply in the bud to senescence stages. Important: Applications greater than 5.5 oz product/A exceeds the threshold for selectivity. DO NOT treat in the root zone of desirable trees and shrubs.
Picloram (Tordon 22K *this is a Restricted Use Pesticide*)	1 qt/acre or 1 oz/gal water	Apply in the fall when above-ground stems die back and root buds are highly susceptible; can also apply in spring to bud/early flower stage and/or fall rosette. Add non-ionic surfactant @ 0.32 oz/gal water or 1 qt/100 gal water.

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Rev. 9/14

Scotch thistle

Colorado Department of Agriculture

305 Interlocken Pkwy
Broomfield, CO 80021

(303) 869-9030
weeds@state.co.us

Scotch thistle
Identification and Management

Key ID Points

1. Flower heads cluster 2-5 and are purple to dark red in color.
2. Leaves are alternate, stalk-less and hairy underneath.

Identification and Impacts

Scotch thistle *(Onopordum acanthium or O. tauricum)* is a non-native biennial forb that reproduces solely by seed. A biennial is a plant that completes its lifecycle within two years. During the first year of growth, Scotch thistle appears as a rosette in spring or fall. Rosettes can be 1 to 2 feet in diameter. During the second year in mid to late spring the stem bolts, flowers, sets seed, and the plant dies. A prolific seed producer, Scotch thistle can produce up to 14,000 seeds per plant.

Scotch thistle can grow up to 12 feet tall. Stems are numerous, branched, and have broad, spiny wings. The leaves of species *acanthium* are large, grayish-green, spiny, and covered with fine dense hair giving the leaf a woolly appearance. The leaves of the species *tauricum* are similar in size, but are not hairy, smooth and bright green. On both species, the leaves have a distinct mid-rib. The flowers are violet to reddish in color, numerous (70-100/plant), and are surrounded by spine-tipped bracts. The plants flower from mid-June to September.

Due to the robust, spiny nature of Scotch thistle, this plant can act as a living barbed wire fence, making areas impassible for wildlife, livestock, and people. Scotch thistle invades rangeland, overgrazed pastures, roadsides, and irrigation ditches. It also prefers high-moist soil areas adjacent to creeks and rivers.

The key to effective control of Scotch thistle is maintaining healthy pastures and rangeland, guarding against disturbance or overuse, and as with most biennials limit seed production. To reduce seed production, plants with buds or flowers should be collected and immediately disposed of or destroyed. Chemical control is most effective when plants are in rosette stage, spring or early fall. Mechanical controls can be used to eliminate small patches or plants in a later growth stage. Details on the back of this sheet can help to create a management plan compatible with your site ecology.

Scotch thistle is designated as a "List B" species in the Colorado Noxious Weed Act. It is required to be either eradicated, contained, or suppressed depending on the local infestations. For more information visit www.colorado.gov/ag/csd and click on the Noxious Weed Management Program. Or call the State Weed Coordinator at the Colorado Department of Agriculture, Conservation Services Division, 303-239-4100.

Photos © Map above: Crystal Andrews, Colorado Department of Agriculture; All other photos: Kelly Uhing, Colorado Department of Agriculture.

Onopordum acanthium or O. tauricum

Updated on: 08/08

Management Recommendations

Scotch thistle

CULTURAL
Establishment of selected grasses can be an effective cultural control of Scotch thistle. Contact your local Natural Resources Conservation Service for seed mix recommendations. Maintain healthy pastures and prevent bare spots caused by overgrazing. Bareground is prime habitat for weed invasions.

BIOLOGICAL
Urophora stylata, a fly predator, is used to help control this thistle. The female fly lays eggs in the seed head of the thistle. The maggot then consumes the seed in the flower. This species has overwintered in Colorado but the limited numbers will not allow for general redistribution. For more information, contact the Palisade Insectary of the Colorado Department of Agriculture at 970-464-7916.

MECHANICAL
Any mechanical or physical method that severs the root below the soil surface will kill Scotch thistle. Mowing or chopping is most effective when Scotch thistle plants are at full-bloom. Be sure to properly dispose of the flowering cut plants since seeds can mature and become viable after the plant has been cut down.

Integrated Weed Management:

Scotch thistle is best controlled in the rosette stage. For small infestations, Scotch thistle can be controlled by severing its taproot 1-2 inches below the ground. Control can be enhanced by a follow-up application of herbicides to the surviving rosettes. It is imperative to prevent seed production. Do not allow Scotch thistle flowers to appear.

HERBICIDES

NOTE: The following are recommendations for herbicides that can be applied to range and pasturelands. Rates are approximate and based on equipment with an output of 30 gal/acre. Please read label for exact rates. Always read, understand, and follow the label directions. The herbicide label is the LAW!

HERBICIDE	RATE	APPLICATION TIMING
Picloram (Tordon 22K - *Restricted Use*)	1 pint/acre + 0.25-0.5% v/v non-ionic surfactant	Apply spring or fall in the rosette stage.
Aminopyralid (Milestone)	7 fl. oz./acre + 0.25-0.5% v/v non-ionic surfactant	Apply spring or fall in the rosette stage.
Metsulfuron (Cimarron X-tra)	2 oz. product/acre 0.25-0.5% v/v non-ionic surfactant	Apply rosette to early bolt stages of growth. (Spring)