



May 31, 2022

Angela Bellantoni, Ph.D.
Permits and Licenses Specialist
630 Plaza Drive, Suite 150
Highlands Ranch, CO 80129



Subject: Traffic Impact Study for DRMS – Peyton, Colorado

Dear Dr. Bellantoni,

Y2K Engineering, LLC. (Y2K) has been retained to prepare Traffic Impact Study for the proposed project on the southwest corner of Garrett Road and Curtis Road in Peyton, Colorado. The proposed development is planned to add an adjoining undeveloped parcel located to the west of the existing Pioneer Sand Company sand quarry. The proposed development is anticipated to generate less than 100 trips during the peak hour. Based on the expected trips generated, a traffic impact statement has been prepared for the site. **Figure 1** provides the vicinity map and **Figure 2** includes an aerial of the existing site.



Figure 1: Vicinity Map

STUDY AREA

The study area includes the following intersections:

- 1) **Garrett Road and Curtis Road** – The proposed site is located on the southwest corner of this intersection.
- 2) **Site Driveway and Curtis Road** – This full access driveway will serve as the primary access for the site and is located approximately 640 feet south of Garrett Road.



Figure 2: Project Site Aerial

EXISTING CONDITIONS

SURROUNDING AREA

The proposed development is located approximately 4.5 miles north of Colorado State Highway 94 (SH-94) and three miles to the east of U.S. Route 24 (US 24). The proposed parcel is currently undeveloped and borders an existing sand quarry with residential developments to the west and north. The existing lane configurations and intersections can be seen in **Figure 3**.

DESCRIPTION OF EXISTING TRANSPORTATION SYSTEM

GARRETT ROAD

Garrett road is classified as a minor arterial per the El Paso County 2016 Major Transportation Corridors Plan Update and has an east-west orientation. The roadway features one lane in each direction. Garrett Road has a posted speed limit of 45 mph. Roadway facilities such as curbs, gutter, streetlights, sidewalks, and bike lanes are not present along Garrett Road. Overhead utilites run along the north side of the

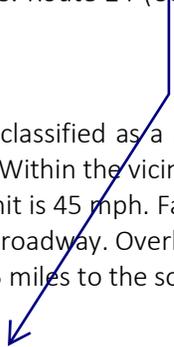
Are the existing turn lanes at this intersection adequate for the total traffic (including the sites traffic). Do they meet ECM criteria? are any improvements recommended/required? Please address.



roadway. Garrett Road connects to U.S. Route 24 (US 24) approximately three miles west of the project site.

CURTIS ROAD

Curtis Road is a north-south roadway classified as a principal arterial by the El Paso County 2016 Major Transportation Corridors Plan Update. Within the vicinity of the project site, Curtis Road provides one lane in each direction. The posted speed limit is 45 mph. Facilities such as curbs, gutter, streetlights, sidewalks, and bike lanes are not provided on the roadway. Overhead utilities are available on both the east and west sides of Curtis Road. Approximately 4.5 miles to the south, Curtis Road connects directly to Colorado State Highway 94 (SH-94).



INTERSECTION OF GARRETT ROAD AND CURTIS ROAD

The intersection of Garrett Road and Curtis Road is an unsignalized four-legged intersection that operates under two-way stop-control. The eastbound approach is served by a left-turn lane and a right-turn lane, both of which have a storage length of approximately 410 feet. The westbound approach is served by a shared left/right-turn lane. These two approaches are offset from each other by approximately 45 feet, measured from the centerline of each approach and both feature a STOP sign. A left-turn lane with a storage length of approximately 350 feet and a shared through/right-turn lane serve the northbound approach of the intersection. The southbound approach is served by a through lane and a right-turn lane with a storage length of approximately 280 feet. Pedestrian facilities such as crosswalks and ramps are not available on any leg of the intersection.

INTERSECTION OF SITE DRIVEWAY AND CURTIS ROAD

The project site features an existing paved driveway that intersects with Curtis Road. The Site Driveway acts as the eastbound approach to the intersection. The intersection of the Site Driveway and Curtis Road is an unsignalized three-legged intersection that operates under minor-street stop-control. The eastbound approach is served by a shared left/right-turn lane. Eastbound traffic yields to northbound and southbound traffic. The northbound approach is served by one shared left/through lane and the southbound approach is served by a right-turn lane and a through lane. There are no pedestrian facilities available at the intersection.

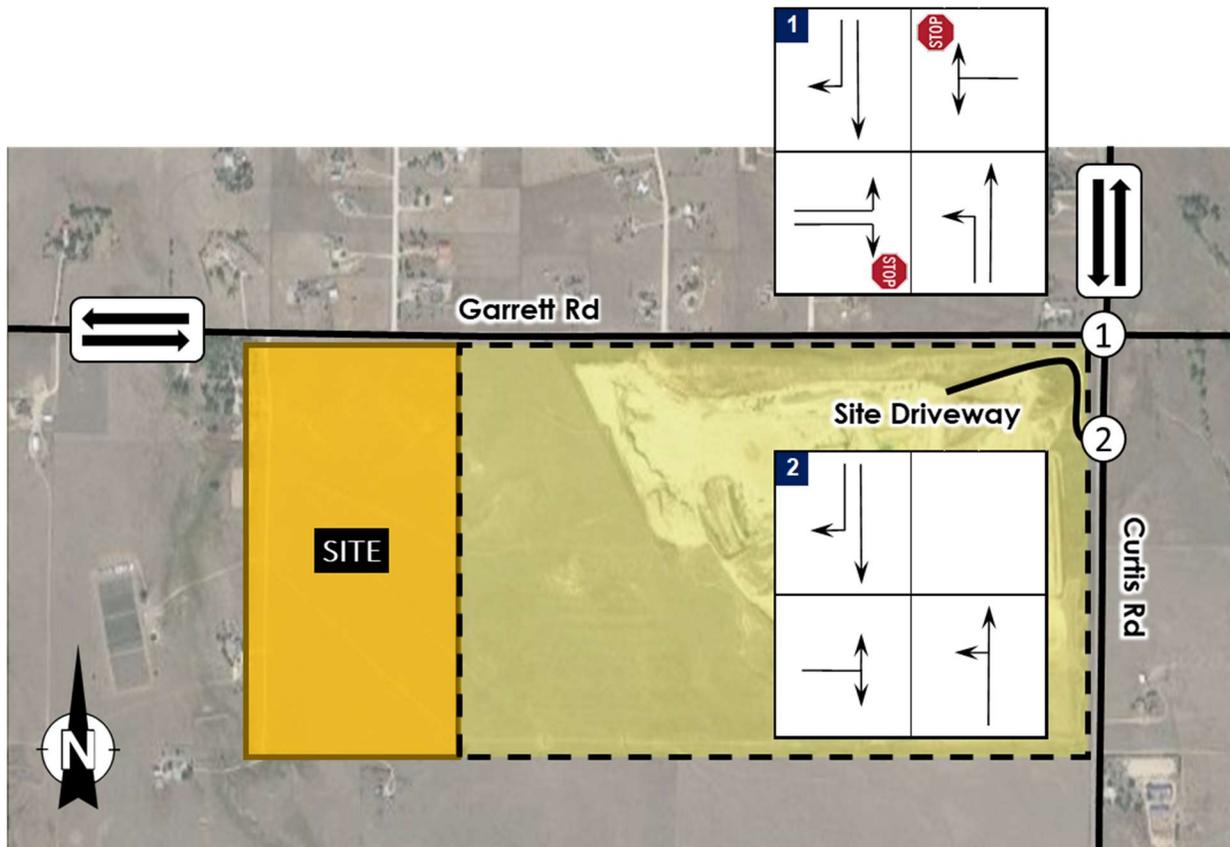


Figure 3: Existing Lane Configurations and Traffic Control

PROPOSED DEVELOPMENT

SITE LOCATION AND ACCESS

The project is located within an undeveloped parcel on the southwest corner of Garrett Road and Curtis Road in Peyton, Colorado. The proposed development is located west of the existing Pioneer Sand Company sand quarry and will act as an extension of the facility. The proposed expansion is 79 acres. The site is located approximately 4.5 miles north of Colorado State Highway 94 (SH-94) and three miles east of U.S. Route 24 (US 24). The site is planned to be accessed from an existing driveway, denoted as Site Driveway, on Curtis Road. The Site Driveway is planned to provide full access to the proposed site. The site plan is shown in **Figure 4** and is provided in **Appendix A**.

Per ECM appendix B Section B.3.3 when data is not available for the proposed land use, the applicant must conduct a local trip generation study of similar use following procedures prescribed in the ITE and provide justification for the proposed generation rate. The narrative has not given justification for the proposed trip generation.

Is the trip generation based on current counts for the existing mining operation? Is this in addition to the trips currently generated by the site or is this the total trip gen for the total 313 acre site? Please provide additional information on how this trip gen was determined.

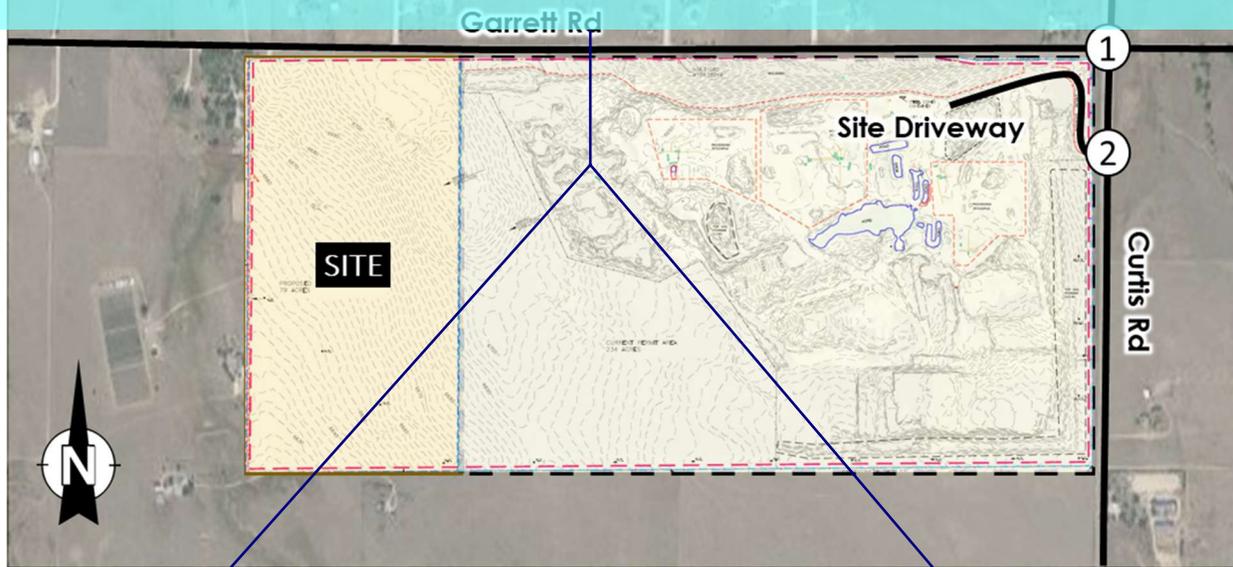


Figure 4: Site Plan

TRIP GENERATION

The proposed development, which consists entirely of undeveloped land, includes adding a 79-acre parcel to an existing sand quarry. A total of 13 employees are expected to use the proposed development. Information provided by Pioneer Sand Company based on the planned operation of the site indicates that 30 total trips are anticipated during both the AM and PM peak hours. An average daily total of 140 trips is anticipated for the project. The trips estimated to be generated by the proposed site are shown in **Table 1** below.

Table 1: Trip Generation

DESCRIPTION OF LAND USE				VEHICLE GENERATED TRIPS							
ID	Land Use	Size		Daily	AM Peak Hour		PM Peak Hour				
				Total	Enter	Exit	Total	Enter	Exit	Total	
1	Sand Quarry Extension	79	Acres	140	15	15	30	15	15	30	
Total				140	15	15	30	15	15	30	

TRIP DISTRIBUTION AND ASSIGNMENT

Trips generated by the site were distributed and assigned to the surrounding street system based on existing traffic patterns for trucks using the site and planned operations of the expansion. The distribution percentages are depicted in **Figure 5**. A distribution of 50% to/from the north and 50% to/from the west is assumed. The anticipated peak hour volumes from the proposed expansion are shown in **Figure 6**.

Please indicate in the narrative the proposed Haul route for the haul vehicles.
Also, Please provide a breakdown of the haul vehicle trips and passenger vehicle trips. Will the passenger vehicles be required to follow the same haul route as the haul vehicles?

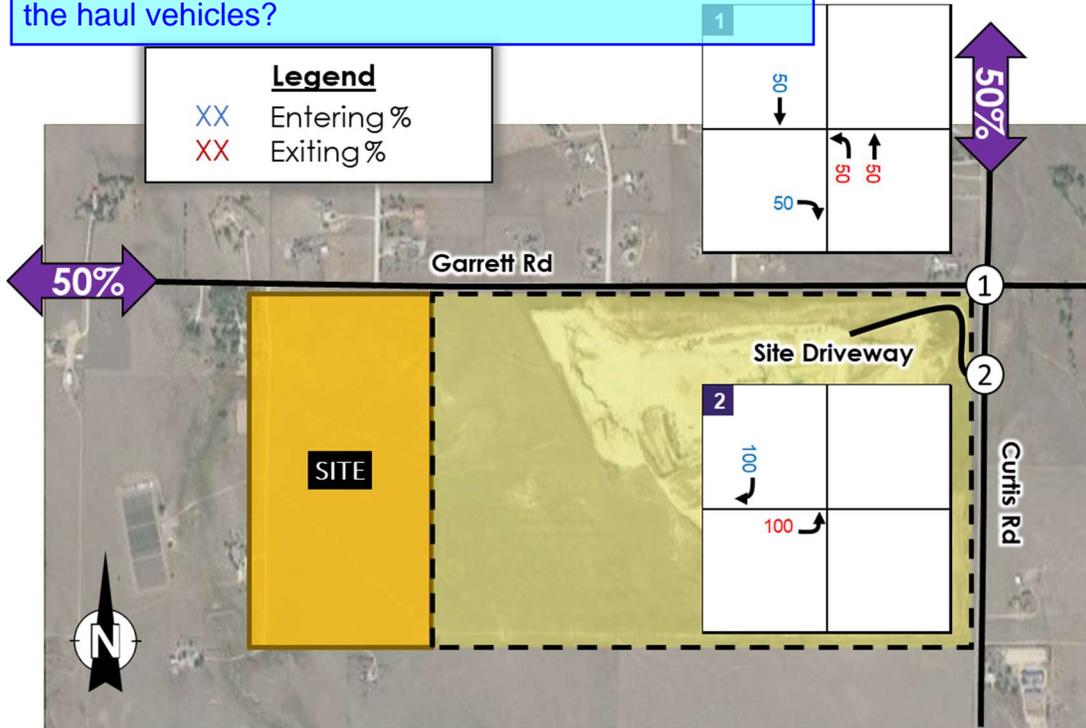


Figure 5: Trip Distribution and Assignment

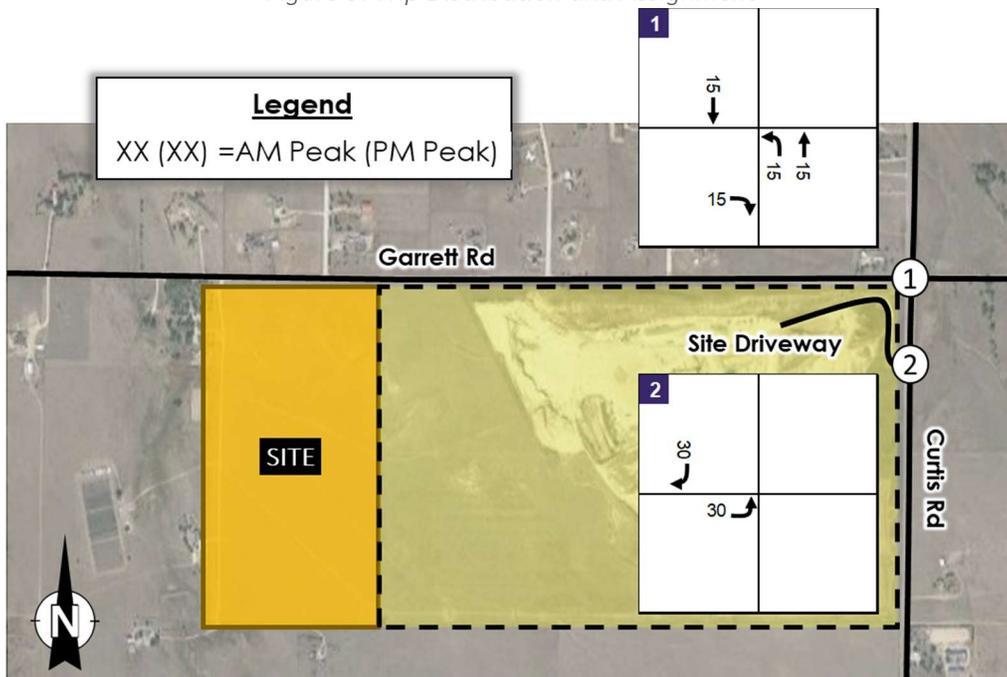


Figure 6: Peak Hour Site Traffic

TURN LANE ANALYSIS

Turn lanes allow for separation of conflicting traffic movements and remove the slower turning traffic from the through traffic. This allows for improved roadway capacity and a reduced number of rear-end crashes.

Please identify the ECM criteria for the required right turn lane (length, taper, and storage) and identify whether this meets the ECM criteria. Refer to ECM 2.3.7. A deviation may be required for the shortened turn lane. Colorado (https://library.municode.com/co/el_paso_county/codes/engineering_criteria_manual_?nodeId=ENCRMA_CH2TRFA_2.3RODE)



The analysis focuses on the auxiliary lane needs at the Site Driveway. There is no left-turning traffic turning into the site at its access point, therefore no left turn lane is recommended.

A southbound right-turn lane exists at the Site Driveway and has a storage length of approximately 320 feet. 30 trips to and from the project site are anticipated during the peak hour. The primary vehicles that will be used to travel to/from the site are trucks, so a vehicle length of 35 feet is assumed. The existing right-turn lane can accommodate approximately nine trucks entering the project site at the same time.

AASHTO guidance was referenced for queue calculations. AASHTO guidance recommends that turn lanes at unsignalized intersections accommodate the number of vehicles likely to arrive in a 2-minute period. Based on the 30 vehicle trips in the peak hour, approximately one vehicle is anticipated to arrive in a 2-minute period meaning that a storage length of 35 feet is recommended. Therefore, the existing southbound right-turn lane at the Site Driveway is expected to support site traffic.

PRINCIPAL FINDINGS

TRIP GENERATION

- The development is anticipated to generate a total of 30 trips (entering and exiting) during the AM peak hour and 30 trips during the PM peak hour.

SITE ACCESS

- The proposed development will be accessed by an existing full access driveway on Curtis Road.

CONCLUSIONS

- The existing southbound right-turn storage length at the Site Driveway is anticipated to adequately support site traffic.
- The existing roadway configuration and traffic control are expected to adequately support site traffic.

We appreciate the opportunity to prepare this study. Should you have any questions, please feel free to contact me by email at rstephani@y2keng.com or by phone at (720-735-5855).

Sincerely,

Y2K Engineering, LLC.

A handwritten signature in blue ink that reads 'Rae Stephani'.

Rae Stephani, PE, PTOE
Traffic Engineer

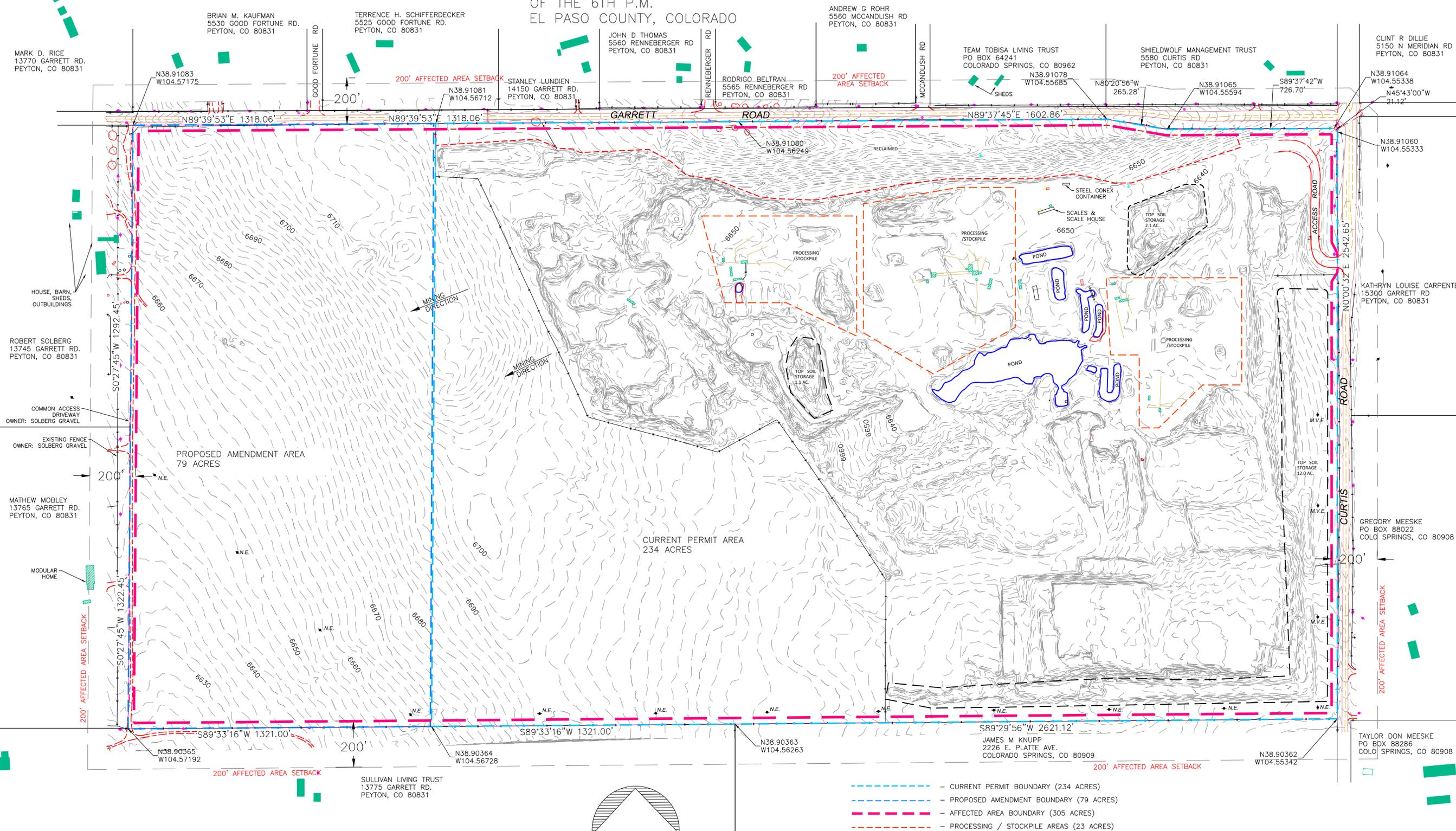
-Provide traffic counts at the appropriate access/intersections per ECM Appendix B. Please refer to ECM appendix B for traffic memo guidelines (Refer B.2.3.D, B.2.4.D, B.3, B.8) I have provided a link to ECM Appendix B for your use.

https://library.municode.com/co/el_paso_county/codes/engineering_criteria_manual_?nodeId=ENCRMA_APXBTRIMSTGU_B.2TIPA

Attachment

ATTACHMENT A:
SITE PLAN

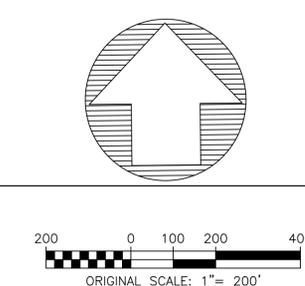
EXHIBIT C
MINE PLAN MAP - SOLBERG PIT
 SECTION 21, TOWNSHIP 13 SOUTH, RANGE 64 WEST
 OF THE 6TH P.M.
 EL PASO COUNTY, COLORADO



I, JOHN E. KRATZ, HEREBY CERTIFY THIS EXHIBIT WAS PREPARED UNDER MY DIRECT SUPERVISION AND CHECKING, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF ACCURATELY DEPICTS THE MINE PERMIT AND AFFECTED AREA BOUNDARIES DEFINED HEREIN. THIS EXHIBIT IS NOT A LAND SURVEY PLAT. LAND USE INFORMATION SHOWN HEREIN IS FROM FIELD OBSERVATION (JULY 6, 2021), AERIAL TOPOGRAPHY AND REPORT BY OTHERS AND MAY NOT BE ACCURATE AFTER THIS DATE.

John E. Kratz

20142
02/23/2022
PROFESSIONAL LAND SURVEYOR



- CURRENT PERMIT BOUNDARY (234 ACRES)
- PROPOSED AMENDMENT BOUNDARY (79 ACRES)
- AFFECTED AREA BOUNDARY (305 ACRES)
- PROCESSING / STOCKPILE AREAS (23 ACRES)
- TOP SOIL STOCKPILE (15 ACRES)
- RECLAIMED AREA (16 ACRES)
- PONDS (3 ACRES APPROX.)
- █ EXISTING FENCE
- █ EXISTING BUILDINGS
- ▲ TRANSMISSION POLE (NEXTERA ENERGY)
- ▲ DISTRIBUTION POLE (MOUNTAIN VALLEY ELECTRIC)

1. TOPOGRAPHY BY LANDMARK MAPPING, INC. FROM AERIAL PHOTOGRAPHY 4/20/21.
2. CONTOUR INTERVAL 2 FEET.
3. BOUNDARY SURVEY INFORMATION FROM LSP 207900045, PLS 28658

REVISIONS		
NO.	DATE	BY
3	11/01/21	JEK
4	11/09/21	JEK
5	11/09/21	JEK
6	02/16/22	JEK
7	02/23/22	JEK

NO.	DATE	BY
3	11/01/21	JEK
4	11/09/21	JEK
5	11/09/21	JEK
6	02/16/22	JEK
7	02/23/22	JEK

SCALE VERIFICATION
 BAR IS 1" = 100' ON ORIGINAL DRAWING
 IF NOT ONE INCH ON THIS SHEET,
 ADJUST SCALES ACCORDINGLY.
 REUSE OF DOCUMENT
 THIS EXHIBIT IS CERTIFIED ONLY TO THE PARTIES NAMED HEREON
 AND REMAINS THE PROPERTY OF RED ROCK LAND SURVEYS, INC.
 CORRECT THIS PLAT SHOULD NEW OR UNDISCOVERED FACTS
 EMERGE. USE OF THIS PLAT BY OTHER THAN CERTIFICATE HOLDER IS
 AT YOUR OWN RISK.

SYMBOL	DESCRIPTION
●	FIRE
*	LPOLE
+	MANHOLE
+	SIGN
+	UPOLE
+	FENCE
●	MISC
●	TOWER
●	PILE
-	CULVERT
○	ROCK
○	IRRIGATION
○	MAILBOX
○	TREE
-	TRAFFIC
-	RIP-RAP
-	POLE-ANCHOR

PREPARED FOR: PIONEER LANDSCAPE MATERIALS

2021 MAP
 SOLBERG GRAVEL, LLC
 13745 GARRETT ROAD
 PEYTON, CO 80831