



Archuleta County Development Services Department
ARCHULETA COUNTY PLANNING COMMISSION AGENDA
SPECIAL MEETING

**Centerpoint Church, 2750 Cornerstone Dr,
Pagosa Springs**

Public is welcome and encouraged to attend.

SPECIAL PLANNING COMMISSION MEETING FOR JUNE 8, 2016, 6PM

Centerpoint Church, 2750 Cornerstone Dr, Pagosa Springs

ROLL CALL

OLD BUSINESS:

Two Rivers Gravel Pit Major Sand & Gravel Permit, Located In Section 11, T33N R2W NMPM At 12500 County Road 500. (2015-035SG)

C&J Gravel Products, Inc, of Durango, Colorado, represented by Nathan Barton, Wasteline, Inc., have applied for a Major Sand & Gravel Permit for the proposed Two Rivers Pit, to be located on property owned by the James A. Constant Jr Revocable Trust and Leila B. Constant Revocable Trust; NW $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 10 and N $\frac{1}{2}$ SW $\frac{1}{4}$ and S $\frac{1}{2}$ NW $\frac{1}{4}$ Section 11, T33N R2W NMPM at 12500 County Road 500 (Trujillo Rd), Pagosa Springs, CO. C&J Gravel proposes to construct and operate a sand and gravel mining and processing facility on approximately 62.6 acres of the 100 acres of the property east of the San Juan River, in accordance with Colorado Division of Reclamation Permit M-2015-004.

At a special meeting on February 10, 2016, the Archuleta County Planning Commission continued the noticed public hearing to their regular meeting on April 27, 2016. At that meeting, this hearing was opened and continued to June 8, 2016.

Documents: [2015-035SG_TWORIVERSPIT_PC-20160608_STAFFREPORT.PDF](#), [A1-2015-035SG_AREA_ZONINGMAPS.PDF](#), [A2-2015-035SG_AGENCYREVIEW.PDF](#), [A3A-LETTERS\(A-I\)_20160531.PDF](#), [A3B-LETTERS\(J-Z\)_20160531.PDF](#), [A3C-FHU-TWORIVERSGRAVELPIT_TIA_PEER_REVIEW-MEMO_052716.PDF](#), [A4-2015-035SG_APPLICANT_NARRATIVE_ADDENDUM-20160429.PDF](#), [A5A-2015-035SG_TRP-TIA_20150509-NARRATIVE.PDF](#), [A5B-2015-035SG_TRP-TIA_20150509-EXHIBITS.PDF](#), [A6-2015-035SG_TWORIVERSPIT-MITIGATION_PROPOSAL-20160513.PDF](#)

REPORTS, ANNOUNCEMENTS:

NEXT MEETING

Regular Meeting June 22, 2016, 6pm, Archuleta County Administration Building

ADJOURN

Please Note: Agenda items may change order during the meeting; it is strongly recommended to attend the meeting at the start time indicated.



Archuleta County
Development Services—Planning Department
1122 HWY 84
P. O. Box 1507
Pagosa Springs, Colorado 81147
970-264-1390
Fax 970-264-3338

MEMORANDUM

TO: Archuleta County Planning Commission

FROM: John C. Shepard, AICP; Planning Manager

DATE: June 8, 2016

RE: Two Rivers Gravel Pit Major Sand & Gravel Permit, located in Section 11, T33N R2W NMPM at 12500 County Road 500. (2015-035SG)

EXECUTIVE SUMMARY

C&J Gravel Products, Inc, of Durango, Colorado, represented by Nathan Barton, Wasteline, Inc., have applied for a Major Sand & Gravel Permit for the proposed Two Rivers Pit, to be located on property owned by the James A. Constant Jr Revocable Trust and Leila B. Constant Revocable Trust; NW $\frac{1}{4}$ NE $\frac{1}{4}$, S $\frac{1}{2}$ NE $\frac{1}{4}$ and NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 10 and N $\frac{1}{2}$ SW $\frac{1}{4}$ and S $\frac{1}{2}$ NW $\frac{1}{4}$ Section 11, T33N R2W NMPM at 12500 County Road 500 (Trujillo Rd), Pagosa Springs, CO. C&J Gravel proposes to construct and operate a sand and gravel mining and processing facility on approximately 62.6 acres of the 100 acres of the property east of the San Juan River, in accordance with Colorado Division of Reclamation Permit M-2015-004.

Proposed haul routes on County Primary Roads would distribute traffic approximately 72% northbound on CR 500 to Cascade/Buttress/South Pagosa Blvd, 18% on CR 500 through the Town of Pagosa Springs, and 10% southbound on CR 500.

At a special meeting on February 10, 2016, the Archuleta County Planning Commission continued the noticed public hearing to their regular meeting on April 27, 2016. At that meeting, this hearing was opened and continued to June 8, 2016.

REVIEW PROCEDURE

The *Archuleta County Land Use Regulations* Section 9.1 governs Sand, Soil and Gravel Mining. Sec. 9.1.5 provides that all sand, soil and gravel mining operations other than those qualifying for a Minor Sand and Gravel permit, are reviewed as a Conditional Use Permit (CUP, Section 3.2.3). Note that crushers and batch plants are only permitted under a CUP. Conditional Uses have potential for causing adverse impacts on other uses, requiring review and evaluation of their effects on surrounding properties and Archuleta County at large. Where conditions cannot be devised, or it is not possible to mitigate adverse impacts, an application shall not be approved.

Mitigation required by state and federal agencies will be reviewed to insure that plans adequately address potential impacts. As stated in Sec. 9.1.8, Archuleta County does not intend to duplicate or conflict with federal or state requirements. The Colorado Mined Land Reclamation Act, which governs State mining permits and declares the State's policy to encourage mining and subsequent reclamation, does not preempt local regulation (CRS §34-32-101 *et seq*). However, counties also cannot preemptively ban mining either (see, for example, *Colo. Mining Ass'n vs Summit County Comm'rs*, 199 P.3d718 (Colo 2009), cited in *Colorado Land Planning and Development Law*, Donald L. Elliott, Esq. editor).

The Planning Commission will review this application's conformance with the *Archuleta County Land Use Regulations*, and make a recommendation to the Archuleta County Board of County Commissioners, who will make a final decision on the proposal.

Revised public notice was published in the *Pagosa Springs Sun*, posted on site, and mailed to neighboring property owners within 500' of the underlying parcel. Notice was also posted as a courtesy on the Archuleta County website. Full application materials were posted with staff reports on the Planning Commission's agenda for February 10th, and public comment received by April 21st posted with the Planning Commission's agenda for April 27th incorporated herein by reference. All correspondence received since then are attached to this staff report.

DISCUSSION

Applicants propose to open the Two Rivers Pit to mine sand and gravel on a 320-acre parcel owned by Jac & Lee Constant off Trujillo Road (County Road 500), at the junction of the San Juan and Rio Blanco rivers approximately 12.5 miles south of the Town of Pagosa Springs, past the Archuleta County Landfill. Colorado Division of Reclamation, Mining & Safety (CDRMS) has approved a permit area limited to 102.6 acres east of CR 500, of which 62.6 acres may be disturbed, primarily east of the river. The mining area is proposed on the bench above the east bank of the river, in an area of mixed forest, scrub and grass. An access road will be built to the existing bridge (permitted as an Agricultural structure in 2013) and up a rough agricultural access to the top of the bench, built to the County's "primitive road" standard. Applicants propose to mine about 2 acres of land per year, in a systematic phasing plan, producing about 70,000 tons of construction materials (sand and gravel). Areas mined will then be reclaimed following the phasing plan, typically 2-3 years after mining. At no time will mining encroach closer than 200 feet to the Constants' property line, and no closer than 200 feet to the San Juan River. Employee sanitation, over the 30-year pit life, is proposed to be provided with portable toilets and hand-carried water. All equipment, including conveyors, screeners and crushers, would be temporary facilities that move with mine phasing. Applicants mention the possibility of concrete plants and/or hot-mix asphalt facilities on site, but do not provide details. Given the area to be permitted, operations are anticipated to extend 25-30 years; however, there is no reason Applicants cannot increase mining at any time.

The *Archuleta County Community Plan* of 2001 provides guidance for future development. Chapter 2 encourages new development to avoid disrupting environmentally sensitive areas. Policy 8 states "Locate new gravel pits to minimize visual and environmental impacts. Require site reclamation and site mitigation." The Future Land Use Map designates the junction of the

San Juan River and the Blanco River for Very Low Density Residential development. The area is also within the historical boundaries of the Southern Ute Indian Reservation. While the Community Plan is not regulatory, the first review criteria for a CUP is the relationships and impact of the use on development objectives of Archuleta County.

Private property in this area is zoned Agricultural/Ranching (AR). Archuleta County has functionally classified CR 500 from Town Limits to the County Land fill as a Minor Arterial Road; Cascade, Buttress, S. Pagosa Blvd, and Meadows Drive are classified as Major Collector Roads; and CR 500 south of the Landfill is classified as a Rural Access Road; all of which are on the Primary Road network intended to provide primary access to all county users. Cascade was originally accepted for County maintenance in 1991, with initial restrictions established by the Board of County Commissioners on truck traffic related to a nearby gravel pit to reduce public maintenance costs. In 2003, a CUP was approved for a smaller gravel operation on a different portion of the Constants' property, but expired after one year without startup. The most recent Sand & Gravel permit in Archuleta County was approved to reclaim an old pit near Arboles (Lee-Crossfire 2014-21).

Submittal requirements for a Conditional Use Permit are outlined in Section 3.2.3.2 of the Land Use Regulations, and for sand, soil and gravel mining operations in Section 9.1.7, including a copy of the application submitted to the Colorado Division of Minerals and Geology—now Colorado Division of Reclamation, Mining & Safety (CDRMS). On September 23, 2015, CDRMS approved Two Rivers Pit application M-2015-004. The Application includes:

- Original submittal accepted by staff in December 2015,
- Two separate supplements to the narrative in January and April 2016,
- Traffic Impact Assessment and offer of mitigation in May 2016.

Several small maps have been provided throughout to illustrate the Applicants' proposal. While certain plans and analysis are required for submittal, they do not easily align with the review criteria in the Land Use Regulations and some interpretation is required. In Item 14 of the original submittal narrative, Applicants provide an Itemized Listing of how their proposal meets the requirements of the *Archuleta County Land Use Regulations*.

Performance Standards for sand, soil or gravel mining are outlined in Section 9.1.6 of the Land Use Regulations.

9.1.6.1 Compatibility with Surrounding Uses:

- (1) Applicants believe the proposal complies with this requirement. The pit itself, while a 30-year project, will likely only have a few acres disturbed at any one time, and provide a buffer of at least 200 feet from the nearest property line and the San Juan River. However, no permanent screening has been proposed to mitigate impacts. Surrounding uses are primarily agricultural, forestry and tribal lands, with several residences nearby. AE Grether Land & Cattle is located to the north. Diamond T Ranch is located to the east and south, with a home located directly south of the proposed pit. The James Waterman residence is located to the south on the San Juan River. Pinion Hills Ranch, a 45-lot development, is about ½ mile south of the site. The underlying property is adjacent to tribal fee lands, and the site is within the boundaries of the Southern Ute

Indian Tribe lands. Although Applicants' CDRMS permit stated they were working with the SUI Environmental Office, SUI Tribal Planning has asked for more time to review the full proposal. Adjacent property owners have objected to the application as submitted.

- (2) Truck traffic is a major concern on County Road 500, including both the adequacy of the existing road network and the sufficiency of proposed mitigation. Haul routes would typically be limited to County Primary Roads, such as CR 500 and Pagosa Blvd. Applicants state that, over 25-30 years, a variety of trucks will haul materials from Two Rivers Pit, including single dump trucks, semi-dump trucks, and trucks with pups (tandems), with average haul of 25 tons per vehicle. Applicants initially estimated 120 hauling days per year (no guarantee of limited operations) with average truck traffic of 23.33 trucks per day. Existing traffic counts found 238 ADT on CR 500 at the Landfill, and 157 at the Constant ranch, in June 2014. While the application does not discuss the logistics of tracking truck movement, staff understands the operator intends to have a portable scale in place that can be used for all loaded trucks.

Traffic Impact Assessment

Archuleta County Road & Bridge Design Standards (2005) Sec. 27.0.6.1 states that "Where new development is proposed along existing County roads, the Applicant's proposal shall include an analysis of the projected traffic volumes, along with information on existing road widths, curves, intersections, and surface drainage." Supplemental information provided by the Applicants' engineer, discussed some of these issues on County Road 500 and in the Town of Pagosa Springs. On request of the County Engineer, a full *Traffic Impact Assessment (TIA)* was completed by Roadrunner Engineering, LLC, on May 9, 2016. Using a higher estimate of annual tonnage produced, the study projected 37 Average Daily Trips (ADTs) of truck traffic, 9 passenger car/light truck trips per day, and 1 other single unit truck trip on average. Traffic would be split 72% northbound on Cascade/Buttress/South Pagosa Blvd, 18% through the Town of Pagosa Springs, and the remaining 10% southbound on CR 500. Roadway impacts were evaluated using 18,000 equivalent single axle loading (ESAL) procedures to estimate proportionate share impacts to the roadways. The *TIA* estimates the Two Rivers Pit would account for 34% of traffic on CR 500, and 45% of traffic on S. Pagosa Blvd over 20 years. The Traffic Impact Assessment also analyzed accident records along the haul routes and sight distances on CR 500, proposing three locations for safety improvements.

Although the mining operation will not directly access dense residential or recreational areas, the only direct access to US Hwy 160 is through such areas. County maintained Primary Roads would typically be appropriate haul routes. Applicants are not proposing to use Meadows Drive as a haul route, even though it is a County Primary road, due to the difficulty of accessing US Highway 160 without a stop light. Bristlecone and Capriccio, while also Primary Roads, are not proposed as haul routes, since this route is privately maintained through the Timber Ridge subdivision.

The existing road network is limited. CR 500 is a narrow gravel road, especially south of the Landfill, and not built to accommodate heavy industrial truck traffic. Closer to Town, the current paving project on CR 500 was not designed for heavy truck traffic, nor

were Town of Pagosa Springs streets. Large trucks cannot safely navigate turning movements at intersections in town, such as at S. 8th north of the high school, S. 8th at Highway 160, nor at S. Pagosa Blvd and Highway 160. The Town may be required to update their access permits with CDOT if this proposal is approved. On the primary traffic route, restrictions on Cascade were lifted at some point, but adjacent property owners are very concerned about the existing truck traffic (especially garbage trucks and contractors going to the County Landfill), speeding, and the lack of trails for pedestrians, bikes, horses, etc. No analysis has been provided about the adequacy of the existing gravel on Cascade and Buttress, nor the pavement on S. Pagosa Blvd. In sum, the existing infrastructure may simply be inadequate to support any new development in the general area.

- (3) Applicants state that visibility of the mining site from adjacent property and the public road will be limited by the sequence of mining operations and terrain, and protected soil stockpiles. This criteria suggests a remote location such as proposed “away from growth centers”. A visualization from CR 500 is provided. This may not be sufficient to screen immediately adjacent property—screening pit operations by moving stockpiles is not necessarily an attractive mitigation effort. Adjacent property owner Diamond T Ranch has objected to the proposal.
- (4) Applicants state that visibility of equipment will be similarly limited. All processing will be done with portable equipment, including screeners and crushers. No washing or drying is planned. Any equipment left in place for more than one (1) year would be considered permanent, and require additional permit approvals.
- (5) Applicants state that noise and vibration will not exceed the performance measures in Section 5.4.2.1, which is about 45db. This provision would apply to impacts on the immediate neighbors from site operations. Noise from truck traffic on haul routes would be subject to the more general County Noise Ordinance (#2003-8A). Monitoring these standards is the responsibility of the developer.

9.1.6.2 Air Quality:

- (1) Applicants state they will control dust on access roads, stripped areas, and excavations. The original application includes a copy of a Colorado Department of Public Health and Environment (CDPHE), Air Pollution Control Division (APCD) Air Pollutant Emission Notice (APEN). Archuleta County and the Town of Pagosa Springs were under sanction by the US Environmental Protection Agency (EPA) for air quality (Particulate Matter “PM” or gravel dust) in the 1970s and 1980s, and have violated state standards several days in five of the past six years. The County Engineer’s review found that the increase in traffic from the Two Rivers Pit will exceed the current standard for application of Magnesium Chloride on County Road 500, which is one of the measures the County and Town have taken to avoid noncompliance with EPA standards. The Town of Pagosa Springs also asked for increased dust control on County Road 500 upwind from town.

Public comments have requested consideration of dust control along the entirety of the haul routes.

- (2) Applicants state they will be prepared to increase watering in response to high winds or dust complaints. Comments contend that Applicants have not secured water rights for operations, including controlling dust. Applicants provide information on water management in Exhibit G of their CDMRS application, and have noted that they are confident they can convert existing surface owner water rights, or file for new water rights since the San Juan River is under-appropriated at this location.
- (3) Applicants state they will vegetate stripped areas and stockpiles as required.

9.1.6.3 Visual Amenities and Scenic Quality:

- (1) Applicants state that no permanent equipment will be located on site. All equipment would be temporary, and move with the phasing plan.
- (2) Applicants state that a weed control program will be maintained.
- (3) No landscaping or buffer screening is proposed. Buffers or screening may be necessary to mitigate impacts on adjacent property (See Sec 9.1.6.1(3) above and Sec 5.4 below).
- (4) New mining operations “will not be visible along highways.” CR 500 is not classified as a highway. The lower ridgeline will block initial operations from view. Operations affecting the upper ridge will be visible from the county road.
- (5) The proposed mining operation is not located near any other current operations. As of May 24, 2016, CRMS lists 14 active mining permits in Archuleta County.

9.1.6.4 Crushing, Processing, Batching and Hot Mix Operations:

- (1) Colorado Dept. of Public Health and Environment (CDPHE) permits may be required for processing equipment. The application includes a copy of Applicants’ Air Pollutant Emission Notice (APEN) permit.
- (2) Applicants state that visual impacts from equipment to adjacent residences will be mitigated, as provided in 9.1.6.1(3) above.
- (3) No operations will take place in the floodplain.
- (4) Applicants state that any recirculation ponds associated with processing equipment will be lined or use enclosed tanks, but does not specify how this requirement will be met.
- (5) Applicants state that stationary sources will meet CDPHE standards.

- (6) While the Land Use Regulations require submission of CDPHE inspections of batch plants, Applicants state that no inspections are currently required.

The following two sections are listed under Sec. 9.1.6.4, but apply to all of the above review criteria:

- (7) Applicants anticipate operations will last greater than 20 years. The maximum County Sand & Gravel permit term is 20 years, with at least a 5-year review. A lesser term may be necessary based on compatibility and size of the project. Any major changes would require a new Sand & Gravel Permit review.
- (8) Applicants agree to provide a copy of their DRMS bond. The Land Use Regulations require a performance guarantee, in addition to this bond, to assure compliance with local conditions. A similar requirement for Oil & Gas permits provides that the form of the guarantee is to be approved by the County Attorney.

A Conditional Use must also meet the development standards in Section 5. Relevant sections include:

- 5.2 Environmental Standards:** Provisions shall be made to preserve natural features of the site (5.2.1.1) and archeological, cultural or historical resources (5.2.1.2). Mining will obliterate the upper ridge line. Applicants address Historic and Cultural Resources in Exhibit M of their CDMRS application. There are known to be historic wagon roads in the vicinity, but no evidence of an on-site assessment was provided. Applicants provide information on water management in Exhibit G of their CDMRS application. Disturbance of more than one acre requires a Colorado Discharge Permit System (CDPS) storm water discharge permit (5.2.1.3). The aquifer is approximately 500 feet below surface, so there should not be a need for pumping. No additional site disturbance is proposed in wetlands (5.2.1.5) or floodplain (5.2.2.3). Post-mining, the land will be reclaimed with maximum 3:1 slopes. The Wildlife Habitat Overlay provided in Sec. 5.2.1.6 is not defined; therefore, no specific standard for impacts on wildlife would apply to this application outside general Conditional Use Permit criteria (3.2.3.4(6)). The neighboring Diamond T Ranch did offer extensive comments from a consulting biologist on wildlife impacts. Applicants also address wildlife issues in Exhibit H of their CDMRS application. The Future Land Use Map in the *Community Plan* does not show the site within a major Wildlife Corridor.
- 5.3 Infrastructure Standards:** This tract of land is bifurcated by County Road 500. A County Road & Bridge Access Permit will be required (5.3.2). Road improvements (on site or off-site) must be comply with the *Road & Bridge Design Standards* and be approved by the County Engineer (5.3.3). Unless waived by the County Engineer, a Drainage Study is required (5.3.4); discussion of drainage is included in application material and April submittal; however, more detailed information will be required. Applicants' engineer evaluated the bridge, which was permitted as an agricultural structure, and found the bridge to be property designed and constructed for use by trucks and other equipment property loaded. Applicants' revised Engineering Report

states that the on-site access will meet Archuleta County's "Primitive Road" standards; however, detailed plans were not submitted.

5.4 Site Development Standards: Section 5.3.7 provides for Sewage Facilities. Portable toilets are typically limited to temporary operations, not used for a 30-year project. It may be necessary to provide permanent sanitary facilities with water and onsite sewage treatment. All mining operations shall comply with Industrial Performance standards in Section 5.4.2, including the volume of sound generated, vibration, smoke, particulate, heat and fumes. (See 9.1.6.1(5) above).

Storage of flammable materials must meet Fire Code requirements. All outdoor storage, including equipment not moved at least every 24 hours, must be screened from adjacent properties and roads. Any lighting must meet the "Dark Sky" provisions (5.4.4). Buffers or screening may be necessary to mitigate impacts on adjacent property, with standards suggested in the Land Use Regulations (5.4.6).

In addition to the specific standards of the Land Use Regulations, there are additional review criteria for a CUP in Section 3.2.3.4 to consider:

- (1) The relationship and impact of the use on the development objectives of Archuleta County.
- (2) The effect of the use on light and air, distribution of population, transportation facilities, utilities, schools, parks and recreation facilities, and other public facilities.
- (3) The effect of the use upon traffic, with particular reference to congestion, vehicular and pedestrian circulation, safety and convenience, traffic flow and control, access, maneuverability, and removal of snow from the roads, sidewalks and parking areas.
- (4) The effect of the use upon the character of the area in which the proposed use is to be located, including the scale and bulk of the proposed use in relation to surrounding uses.
- (5) The adequacy of the design features of the site to accommodate the proposed use, including but not limited to accessibility, service areas, parking, loading, landscaping and buffering, lighting, etc.
- (6) The effect of the use upon the natural resources and wildlife habitat areas.
- (7) Such other factors and criteria as the Planning Commission and the Board of County Commissioners deems applicable to the proposed use.

Before acting on the application, the Commission must make necessary findings under Section 3.2.3.5:

- (1) That the proposed location of the use, the proposed access to the site, and the conditions under which the use would be operated or maintained will not be detrimental to the public health, safety, or welfare, or materially injurious to properties or improvements in the vicinity.
- (2) That, if required by the proposed use, there are adequate and available utilities and public services to service the proposed use, without reduction in the adequacy of services to other existing uses. These utilities and public services may include, but are not necessarily limited to, sewage and waste disposal, water, electricity, law enforcement, and fire protection.

- (3) That the proposed use will be compatible with adjacent uses, including but not limited to site design and operating factors, such as the control of any adverse impacts including noise, dust, odor, vibration, exterior lighting, traffic generation, hours of operation, public safety, etc.

On the 13th of May, Applicants made a revised offer for mitigation of impacts, which they value at approximately \$1,030,000 over 20 years, including:

- Archuleta County to receive 5,000 ton credit, material of choice, as up-front payment for 5 years of impacts to roads.
- Three (3) year contract to provide road base at \$5.00 per ton loaded or \$4.00 per ton stockpiled.
- First three (3) years C&J Gravel to pay \$0.50 per ton mitigation fee. After the 3rd year, \$0.37 per ton.
- C&J to pay for and install safety lights described in the *TIA*, approximately \$25,000 cost.

The project was forwarded for agency reviews, as specified in Section 2.2.5. Comments were received prior to preparation of this staff report:

- County Engineering initially requested a formal Traffic Study, with concerns noted above in discussion of Sec. 9.1.6.1(2) performance standards. The *Traffic Impact Assessment (TIA)* confirmed the proposed gravel pit would impact the County road system, with mitigation offered. “The County Engineer feels the mitigation is fairly adequate for gravel roads. Mitigation for paved roads have not been adequately addressed.” County Engineering also noted that plans are necessary to approve the proposed access roads, as well as a full drainage report to County standards. Regarding Air Quality Control, due to the Applicants’ increase in traffic, the Engineering Department will require Applicant to participate in the annual Magnesium Chloride program for the 3.2 miles of County Road 500 between the Landfill and the proposed gravel pit. The current cost to the public is \$3,063 per mile.
- The County Building Official reviewed the Fire Safety Plan, since the site is not located in a Fire District. Access must comply with 2009 International Fire Code Sec. 503.2.6 Bridges and Elevated Surfaces.
- USDA NRCS provided comments on stockpiling topsoil, re-vegetation, and other considerations.
- The Army Corps of Engineers stated their jurisdiction would only apply if additional work is done on the river or wetlands.
- The Town of Pagosa Springs Planning Director provided several concerns with heavy truck traffic, both in January and May 2016 (also noted above in Sec. 9.1.6.1(2)), and met with both the Applicant and County Staff. S. 8th and Apache Street are primarily residential streets, not designed for heavy truck traffic. Proposed gravel traffic would also impact the newly paved portion of CR 500. Signal Warrant Analysis should also include Pagosa Blvd and Highway 160 (inside Town limits). Operations should avoid downtown during morning and afternoon school bus traffic. The Town is also concerned with air quality, and is requesting frequent (at least monthly) application of dust control on at least the closest 3 miles of the gravel portion of CR 500, to reduce

impacts of wind-borne particulate downtown. If the proposal is approved, the Town Council may consider an ordinance to require permits for trucks of certain size and weight.

- SUIT Tribal Planning has asked for more time to review the full proposal.

Many members of the public contacted the Development Services Department since January regarding this application. Concerns of immediately neighboring property owners include compatibility of pit operations, truck traffic, and impacts on wildlife. Representatives of adjacent property owner Diamond T Ranch submitted extensive comments in objection. The majority of concerns received regarded impacts of proposed haul routes on the Primary Roads through developed subdivisions, including current substandard conditions of these roads, dust/PM air quality and traffic safety. Residents on the gravel portion of the haul routes, in particular Cascade and Buttress, would bear the brunt of traffic and dust from increased traffic. Many residents apparently were unaware of the function of the County Road Network to provide access to all members of the public. Several members of the public provided detailed critiques of the application and supplemental materials. Support for the project was also received, citing the need for gravel and construction materials without driving from Durango, and in support of private property rights. All correspondence received since the April Planning Commission hearing is attached, with the rest distributed previously.

In summary, Applicants have submitted application materials as required by the *Archuleta County Land Use Regulations*, including a copy of the CDRMS application which has been approved by the State. Applicants have explained how they believe their operations and phasing meets requirements for mitigating impacts on adjacent property. Primary concerns center on the first two Performance Standards:

- Compatibility of the site with surrounding uses;
- Adequacy of existing access for sand and gravel traffic, and if “such traffic will be mitigated”.

If the Application meets criteria for approval, conditions of approval may be proposed to more adequately mitigate impacts of the project. If the Applicants have not adequately mitigated their impacts, the Planning Commission may recommend denial of the application with specific findings, or forward to the Board of County Commissioners with no recommendation.

RECOMMENDATION AND FINDINGS

If the Planning Commission concludes that, based on evidence provided the Applicants have met the goals and objectives of the Land Use Regulations, then **staff would recommend the Planning Commission find that:**

- a. The application does meet the performance standards for a Major Sand & Gravel Permit, in Section 9.1.6 of the *Archuleta County Land Use Regulations*, and
- b. The application does meet the review criteria for a Conditional Use Permit, in Section 3.2.3.4 of the *Archuleta County Land Use Regulations*, and

- c. The application does meet the required findings for a Conditional Use Permit in Section 3.2.3.5 of the *Archuleta County Land Use Regulations*, and

That the Planning Commission recommend approval of the Two Rivers Gravel Pit Major Sand & Gravel Permit, located at 12500 County Road 500, with the following conditions:

1. This Major Sand & Gravel Permit shall be valid for no longer than twenty (20) years without a full renewal.
2. This Permit will be reviewed at the end of the 2018 construction season—Applicant shall submit a Conditional Use Permit application by December 31, 2018, demonstrating how the Applicants have complied with all conditions of approval, the *Archuleta County Land Use Regulations*, and the *Archuleta County Road & Bridge Design Standards*. No operations would be further authorized until this CUP or a new Sand & Gravel Permit is approved.
3. Location of concrete plants and/or hot-mix asphalt facilities will require a separate Conditional Use Permit or amendment of this Major Sand & Gravel Permit.
4. Applicants shall submit a detailed Site Development Plan, meeting the requirements of Sec. 3.2.3.2(3) of the *Archuleta County Land Use Regulations*, for review and approval by Archuleta County Development Services, prior to any development on the property.
5. Applicants shall submit full Construction Drawings (24"x36"), signed and sealed by a Professional Engineer, for onsite access built to *Archuleta County Road & Bridge Design Standards*, for review and approval by the Archuleta County Engineer prior to any development on the property.
6. Applicants shall submit a Drainage Study meeting the requirements of Sec. 5.3.4 of the Land Use Regulations for historic and developed runoff, including calculations on retention basin volume, for review and approval by the County Engineer.
7. Applicants shall submit proof of an approved Colorado Discharge Permits System (CDPS) or National Pollutant Discharge Elimination System (NPDES) permit (or equivalent) prior to beginning operations.
8. Applicants shall provide permanent sanitary facilities with water and onsite sewage treatment, to be approved by Archuleta County Development Services and San Juan Basin Environmental Health.
9. An enhanced buffer and screening shall be provided along the Southern property line in the pit permit area, starting no closer than 25' to the property line, and to a permanent height sufficient to screen the view from the Bar T Ranch residence of any pit operations, as provided in Sec. 5.4.6.3 of the Land Use Regulations.
10. The bridge and traffic control shall be maintained as recommended by Applicants' engineer in the application material.
11. Operations shall be limited to Monday-Saturday, 7am – 7pm, or daylight hours.
12. Haul Routes shall be limited to County Primary Roads included in the Traffic Impact Assessment—CR 500 and Cascade/Buttress/S. Pagosa Blvd—and those streets approved by the Town of Pagosa Springs Planning Department, then by the most direct route to destination. Archuleta County Development Services may approve alternate haul routes with advance request in writing.
13. Applicant will create a delivery zone map, as recommended by the Town of Pagosa Springs.

14. All trucks shall be weighed on scales prior to leaving the site, stating weight loaded, which haul route they used to access the site, destination of their load and which haul route they will use to make delivery. Records of trips and Haul Routes used shall be maintained and provided to Archuleta County Development Services on request.
15. Applicants shall participate in the County Road & Bridge annual Magnesium Chloride application program, for the 3.2 mile portion of County Road 500 between the Landfill and the gravel pit property.
16. Applicants shall work with County Road & Bridge and the Town of Pagosa Springs to provide supplemental dust suppression as necessary, up to once a month, on the three (3) miles of County Road 500 south of the paved portion of the road.
17. Reclamation shall follow USDA NRCS comments as provided.
18. Applicants shall apply for a Development Agreement for review by the County Attorney and approval by the Board of County Commissioners, specifying the form of acceptance of the offer of mitigation.
19. The County shall hire a qualified Civil Engineer, at Applicants' expense, to determine more specific impacts on paved roads, and additional mitigation for inclusion in the Development Agreement.
20. The Board of County Commissioners will require a performance guarantee as part of the Development Agreement in addition to the bond required by the CDRMS, to insure that conditions of the permit will be complied with, as provided by Sec 9.1.6.4(8) of the *Archuleta County Land Use Regulations*.

If the Planning Commission concludes that, based on evidence provided the Applicants have **NOT** met the goals and objectives of the Land Use Regulations, then **staff would recommend the Planning Commission find that:**

- a. The application does NOT meet the performance standards for a Major Sand & Gravel Permit, in Section 9.1.6 of the *Archuleta County Land Use Regulations*, and
- b. The application does NOT meet the review criteria for a Conditional Use Permit, in Section 3.2.3.4 of the *Archuleta County Land Use Regulations*, OR
- c. The application does NOT meet the required findings for a Conditional Use Permit in Section 3.2.3.5 of the *Archuleta County Land Use Regulations*, and

That the Planning Commission recommend Disapproval of the Two Rivers Gravel Pit Major Sand & Gravel Permit, for reasons including the following considerations:

1. The Application is not compatible with surrounding non-agricultural uses, as required by Sec. 9.1.6.1(1).
2. Upon review by the County Engineer, mitigation for truck traffic through residential, recreational or commercial areas has not been adequately addressed, as required by Sec. 9.1.6.1(2).
3. Impacts of the site and processing equipment on adjacent surrounding residences is not mitigated to the extent reasonably possible, as required by Sec. 9.1.6.1(3), 9.1.6.3 and 9.1.6.4.
4. Air quality impacts of dust from the site or public and private access roads have not been adequately mitigated, as required by sec. 9.1.6.2 and 9.1.6.4.

5. The Application does not meet the Environmental Standards in Section 5.2.
6. The Application does not meet the Infrastructure Standards in Section 5.3.
7. The Application does not meet the Site Development Standards in Section 5.4.

If the Planning Commission concludes that they have no consensus on the evidence provided, then **staff would recommend the Planning Commission make no recommendation on the Two Rivers Gravel Pit Major Sand & Gravel Permit.**

PROPOSED MOTIONS

I move to recommend Approval to the Board of County Commissioners, of Two Rivers Gravel Pit Major Sand & Gravel Permit, with Findings A, B and C, and conditions 1-20 of the staff report.

Or: I move to recommend Disapproval to the Board of County Commissioners, of Two Rivers Gravel Pit Major Sand & Gravel Permit, with Disapproval Findings [A/B/C], and considerations 1, 2, 3, 4, 5 of the staff report.

Or: I move to make no recommendation to the Board of County Commissioners, of Two Rivers Gravel Pit Major Sand & Gravel Permit.

ATTACHMENTS.

See also Planning Commission agendas for 2/10/16 and 4/27/16 for full application materials.

Attachment 1: Area Maps

Attachment 2: Agency Review

Attachment 3: Public Comment since 4/22/16

Attachment 4: Applicant Narrative Addendum (4/29/16)

Attachment 5: Traffic Impact Assessment (5/09/16)

Attachment 6: Applicant Mitigation Proposal (5/13/16)

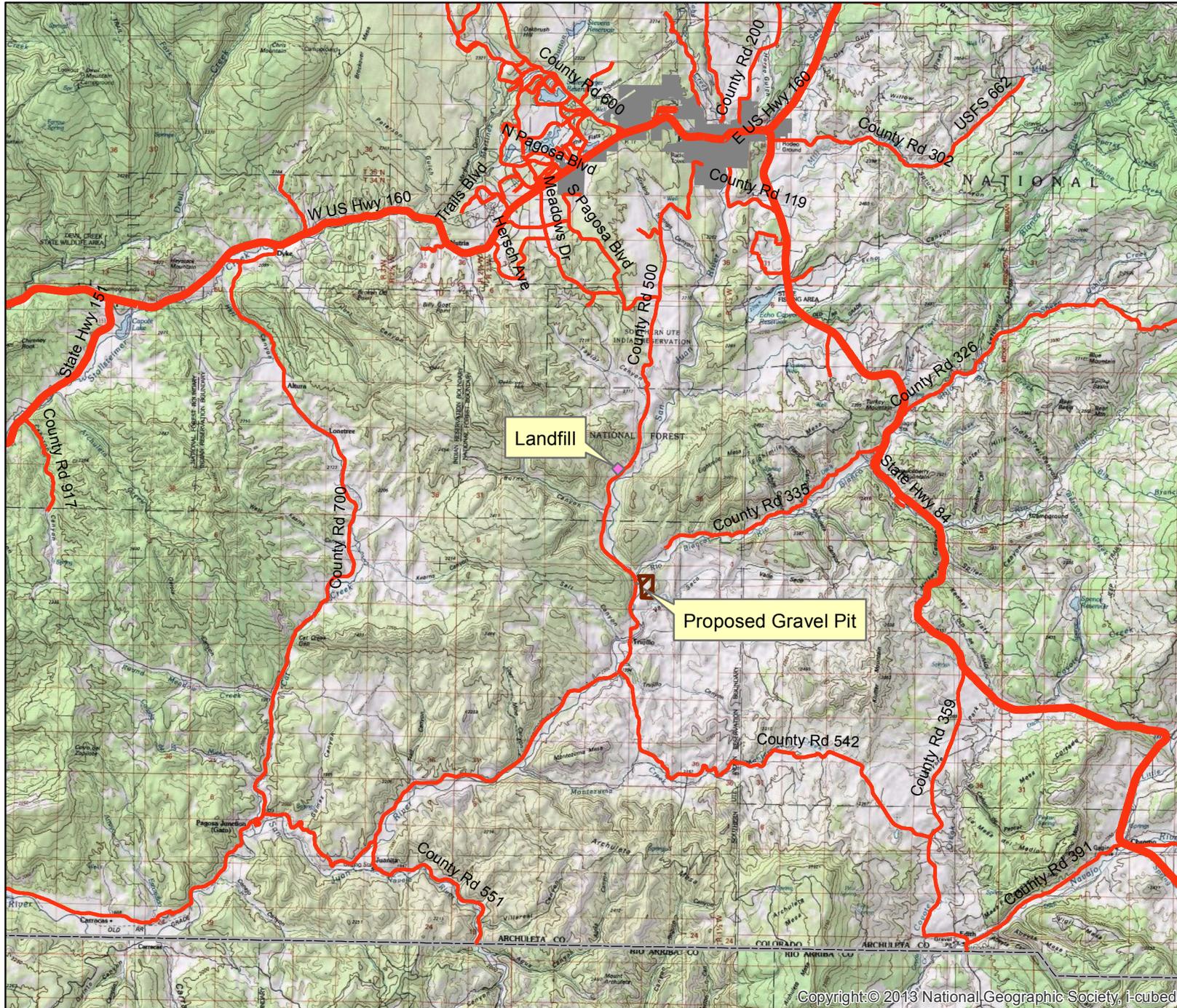


Location Map

Two Rivers Pit
Major Sand & Gravel
Permit
2015-035SG

Legend

- Highway
- Primary Road
- Landfill
- Gravel Pit Area



1 0.5 0 1 Miles



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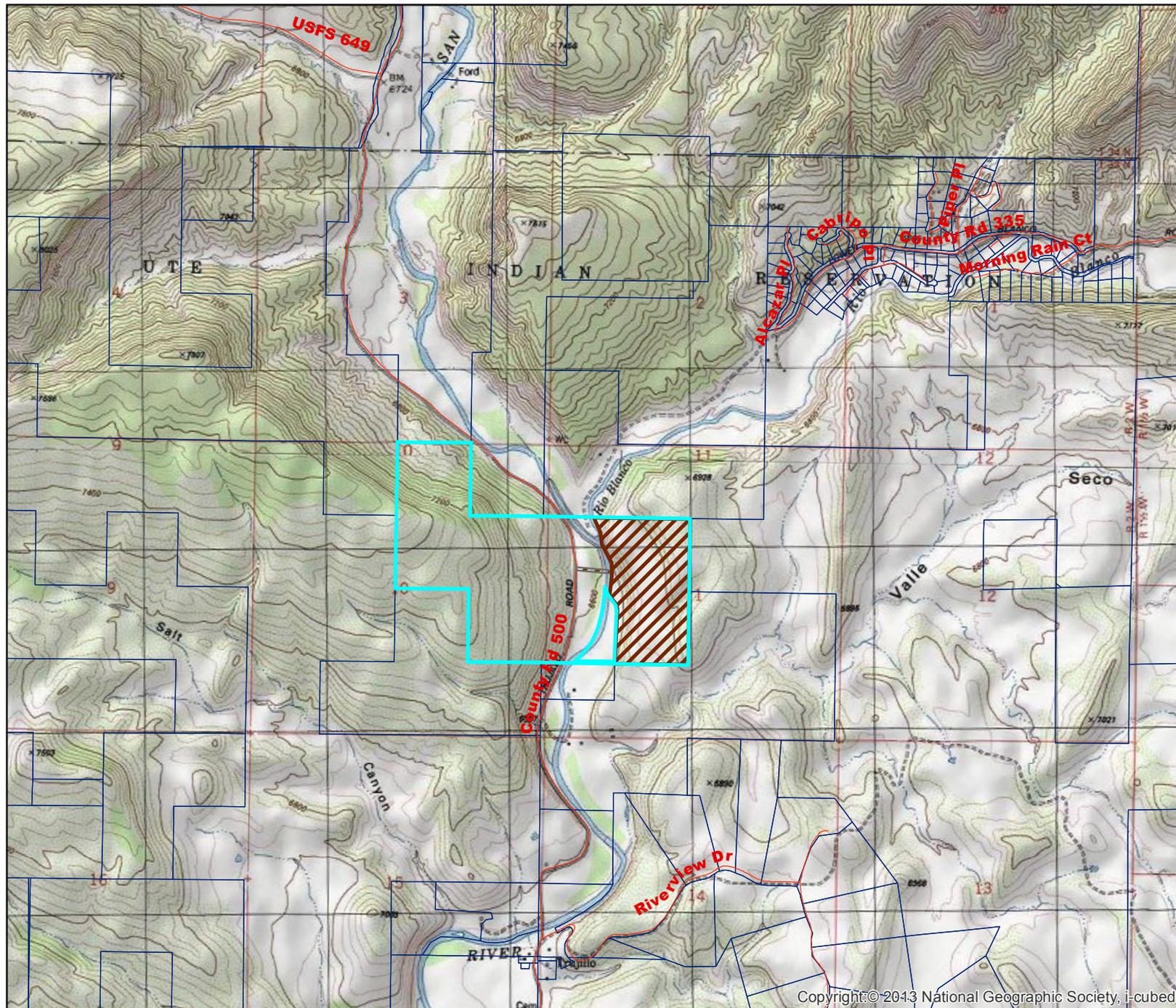


Site Map

Two Rivers Pit
Major Sand & Gravel
Permit
2015-035SG

Legend

- Roads
- Parcels
- Project Location
- Gravel Pit Area



1,000500 0 1,000 Feet



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Site Map

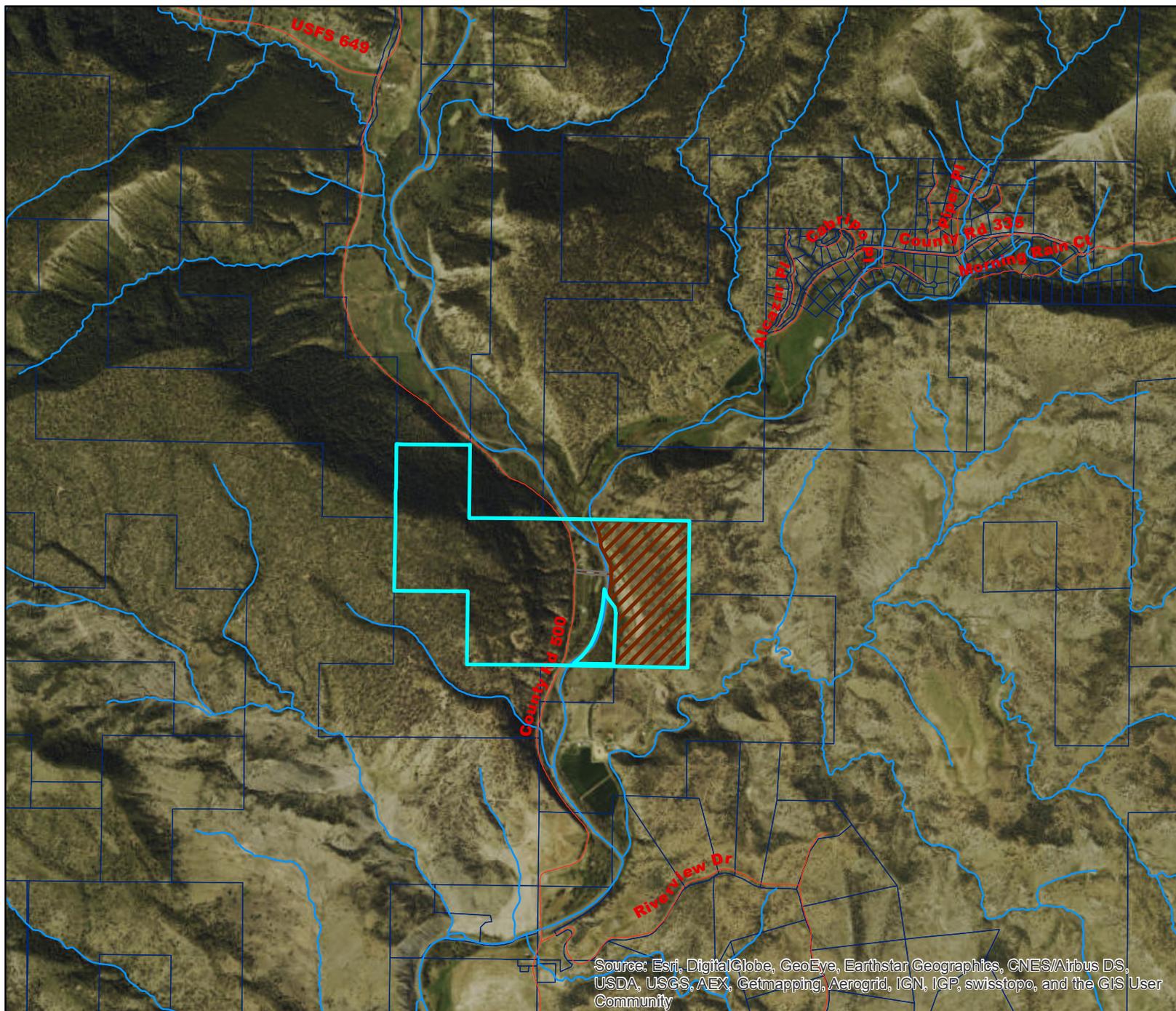
Two Rivers Pit
Major Sand & Gravel
Permit
2015-035SG

Legend

- Roads
- Rivers
- Parcels
- Project Location
- Gravel Pit Area



1,000 500 0 1,000 Feet



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Site Map

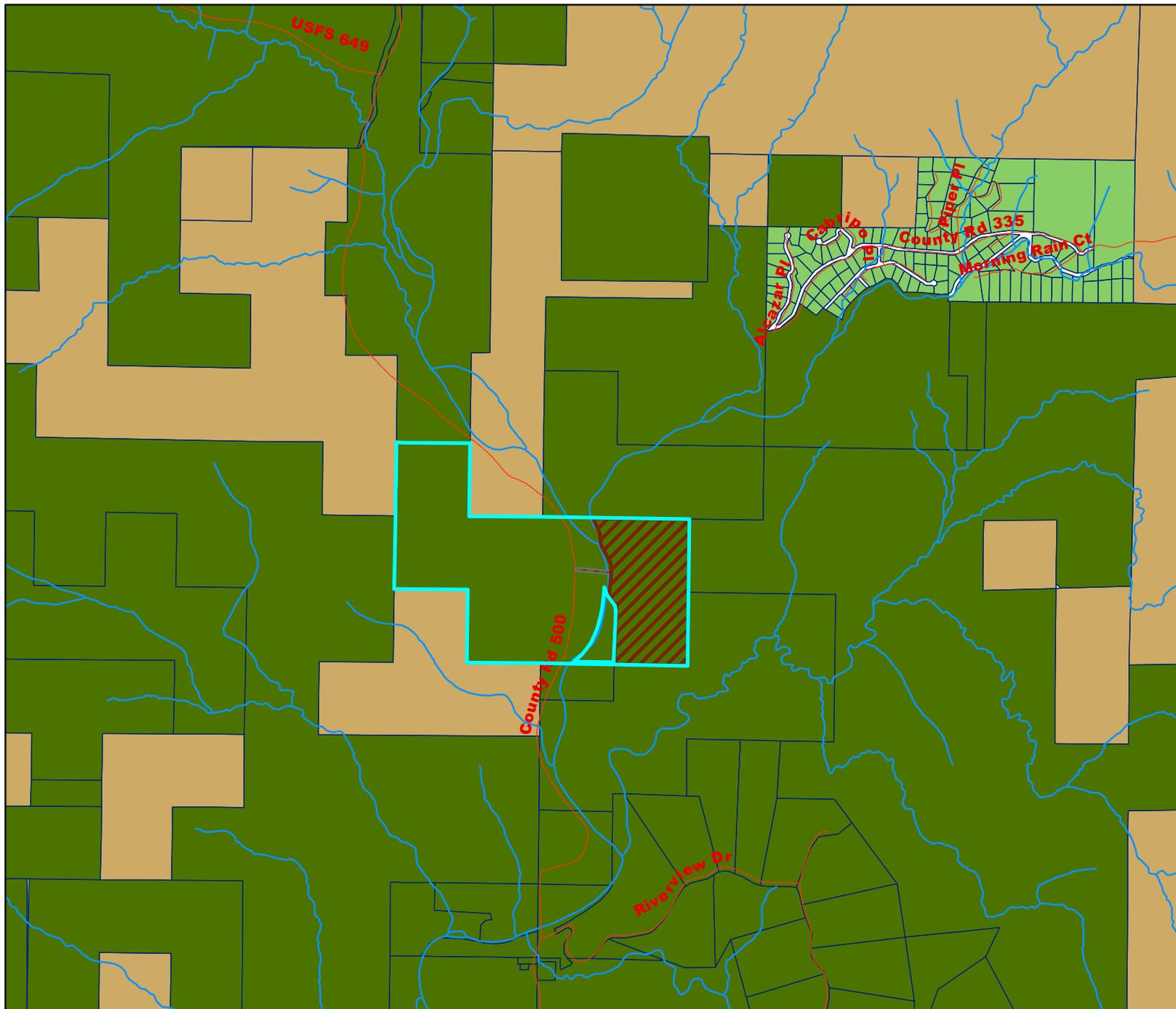
Two Rivers Pit
Major Sand & Gravel
Permit
2015-035SG

Legend

- Roads
- Rivers
- Parcels
- Zoning Map 2011**
- Zoning Districts**
- Agriculture Forestry (AF)
- Agriculture Ranching (AR)
- Agricultural Estate (AE)
- Rural Residential (RR)
- Residential (R)
- Mobile Home Park (MHP)
- Commercial (C)
- Industrial (I)
- PUD
- Project Location
- Gravel Pit Area



1,000 500 0 1,000 Feet



This map has been produced using various geospatial data sources. The information displayed is intended for general planning purposes and the original data will routinely be updated. No warranty is made by Archuleta County as to the accuracy, reliability or completeness of this information. Consult actual legal documentation and/or the original data source for accurate descriptions of locations displayed herein.



MEMO

Date: May 26, 2016

To: John Shepard

From: Yari Davis-Engineering Technician

CC: Bob Perry-County Engineer

RE: Two Rivers Gravel Pit

After reviewing the package submitted for this project we have the following comments and requests:

1. According to the Applicant they submitted the access road's width and design and that it would be constructed according to the road classification as "Primitive Road". This access road shall be constructed according to the Archuleta County Road and Bridge Design Standards and plans and profile sheets shall be submitted to the Engineering Department.
2. The applicant shall submit a drainage report for historic and developed runoff to the Engineering Department with the detailed grading and drainage. Also, they shall submit calculations on retention basin volume with the plans.
3. After reviewing the Traffic Impact Assessment from Roadrunner Engineering, LLC dated May 09, 2016, the proposed gravel pit would impact our road systems. Per the Archuleta County Road and Bridge Standards, Section 27.0.6.1, "*New development shall be required to mitigate its proportionate share of impacts of the proposed activity on the County's road system*". The application has offered mitigation as indicated in the attached estimate.
4. The County Engineer feels that the mitigation is fairly adequate for gravel roads. Mitigation for paved roads have not been adequately addressed.

⊕ 970-264-5660 ⊕ FAX: 970-264-6815 ⊕

⊕ PO Box 1507 ⊕ 1122 S. HIGHWAY 84 ⊕ PAGOSA SPRINGS, CO 81147

YARCENEUX@ARCHULETACOUNTY.ORG ⊕



5. For Air Quality Control, Archuleta County is applying dust control to County roads with ADT of 200 and up. County Road 500 from the end of pavement to the landfill already has ADT above 200, and the County is already applying Magnesium Chloride in that section. Right now between the landfill and the location of the proposed gravel pit the ADT is 176. When we add the ADT associated with the gravel pit, the ADT would be above 200 between the landfill and gravel pit. The Engineering Department requires that the Applicant pay for the Magnesium Chloride once per year in the area between the Landfill and the proposed gravel pit (3.2 miles).

⊕ 970-264-5660 ⊕ FAX: 970-264-6815 ⊕

⊕ PO Box 1507 ⊕ 1122 S. HIGHWAY 84 ⊕ PAGOSA SPRINGS, CO 81147

YARCENEAUX@ARCHULETACOUNTY.ORG ⊕



C&J Gravel Products, Inc.

C&J Gravel proposes:

Archuleta county to receive 5000 ton credit, material of choice. This is considered an up front payment for 5 years of impact to roads?

3 year contract to provide road base @\$5.00 per ton loaded or \$4.00 per ton stockpiled (The county to provide loader)

First three years C&J to pay 0.50 per ton mitigation fee. After the 3rd year it goes to 0.37 per ton.

C&J to pay for and install safety lights described in TIA \$25,000 Appx

Total value to Archuleta County

5000 ton credit	\$ 25,000
3 yr contract @ \$5 saves county \$67k yr (x3) low bid to provide material to A.C.)	\$201,000 (this number based on 2016
3 yr mitigation @.50 ton	\$150,000
Safety lights	\$ 25,000
27 years mitigation @\$0.37 per ton year)	\$629,000 (based on 100,000 tons per
Total	\$1,030,000

27661 HWY 160-E Durango, CO 81301
Tel: (970) 385-4112 Fax: (970) 385-5014

⊕ 970-264-5660 ⊕ FAX: 970-264-6815 ⊕
⊕ PO Box 1507 ⊕ 1122 S. HIGHWAY 84 ⊕ PAGOSA SPRINGS, CO 81147
YARCENEAUX@ARCHULETACOUNTY.ORG ⊕

John Shepard

From: John Ruyle
Sent: Wednesday, January 27, 2016 10:30 AM
To: John Shepard
Subject: two Rivers Pit Project

I have read through the Synopsis Of Two Rivers Pit Project . The project is not in the Pagosa Fire District , but appears to , by plan , equipped and prepared to fight and control fires on-site.

John Ruyle
Archuleta County
Chief Building Inspector
970-264-1390

United States Department of Agriculture



Natural Resources Conservation Service
Pagosa Springs Field Office
505A Co Rd 600
Pagosa Springs, CO 81147

970-731-3615-OFFICE
844-496-7211-FAX

www.co.nrcs.usda.gov
jerry.archuleta@co.usda.gov

Date: 1/29/2016

John C. Shepard, AICP
Planning Manager
Archuleta County Development Services
PO Box 1507
Pagosa Springs, CO 81147

The following comments are provided at your request and in regards to the reclamation of the proposed Two Rivers Pit, File No. M-2015-004 gravel pit located approximately 10 miles West of Pagosa Springs, Colorado.

A. Initial Excavation and Topsoiling:

Stockpiled topsoil shall be revegetated using species such as Smooth brome grass to reduce soil erosion by wind and water if stored for a prolonged period of time (greater than 2 months). Diversion ditches, silt fence, straw bales, and/or sediment basins should be used to control surface runoff and reduce soil erosion where needed. Upon completion, topsoil shall be replaced to a depth of about 6 to 12 inches to cover above ground disturbed areas and provide a proper medium for revegetation. Spreading shall not be done when the ground or topsoil is frozen, excessively wet or otherwise in a condition detrimental to the work. After placement of topsoil is complete, the surface shall be finished to a reasonably smooth final grade. Slopes should not be steeper than 3:1 and in areas that will be crossed by machinery, slopes should be between 6:1 and 8:1. All disturbed areas should be revegetated. Any sediment laden runoff should not be allowed to reach The San Juan River or surrounding irrigation ditches. This may necessitate the need for sediment basins, diversion ditches or berming.

B. Revegetation:

- 1.) Seedbed Preparation:** Seedbed shall be firm and free of weeds and other non-desirable vegetation. In areas where there is excessive compaction, tillage such as chiseling and disking, shall be done to break up the compaction. If seedbed is soft after tillage operations, allow 2 to 4 weeks following the last operation for the soil to settle and firm up.
- 2.) Planting period:** Dormant planting is possible anytime after October 15th, or when temperatures are cold enough to prevent seed germination. Planting may also be done in between July 1st and August 15th or in the spring if irrigation water is available.
- 3.) Planting Method:** Planting will be done with a grass drill or modified grain drill with depth bands and packer wheels. Depth of seed placement shall be between 1/2 to 3/4 inch and row spacing shall be 7 to 12 inches. In areas where the use of a drill is not feasible, broadcasting seed is acceptable at double the seeding rate. Raking will be required to cover the seed to a depth of

United States Department of Agriculture



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844-496-7211-FAX

www.co.nrcs.usda.gov
jerry.archuleta@co.usda.gov

1/2 to 3/4 inch.

- 4.) **Seeding Mixture:** See attached CO-ECS-5 Grass Seeding Planned for Seeding Mixtures.
- 5.) **Fertilizer:** A soil test should be completed to determine fertilizer needs. Consider the use of a starter fertilizer with higher levels of phosphorus and lower levels of nitrogen.
- 5.) **Mulching:** Clean, weed free mulch, such as grass or straw hay, averaging at least 8 inches in length shall be applied at a rate of 3000 lbs./ac. Anchor by crimping to a depth of 4 inches. The use of erosion control blankets or hydro-mulch are also acceptable methods of mulching, particularly for slopes 3:1 or steeper.
- 6.) **Post Emergent Weed Control:** Mowing or chemical applications are effective means to control weeds following grass seeding. Control of competitive weeds using herbicides can be done when grass seedlings have reached the 3 to 4 leaf stage. Follow all label recommendations for handling and application of herbicides. Mowing height should not be lower than 4 inches.

The proper sequence for reclamation is shaping and grading, topsoiling and final grading, seedbed preparation, fertilizing if needed, seeding, and mulching.

C. Other Considerations:

- 1.) All equipment and fuel storage tanks shall be kept away from any drainages and precautions taken, such as berming, to prevent any contaminants, including sediment, from entering the drainages.
- 2.) All noxious weeds should be controlled during mining and reclamation activities, requiring strict adherence to the pits noxious weed control plan.
- 3.) The Army Corp. of Engineers should be contacted regarding the disturbance of any wetlands.
- 4.) The Division of Water Resources should be contacted if ground water will be exposed or water retention structures such as sediment basins or erosion control dams are constructed.

If you require further assistance or have any questions, please call or stop by our office.

Respectfully,

A handwritten signature in black ink, appearing to read "Jerry R. Archuleta".

Jerry R. Archuleta
District Conservationist

John Shepard

From: Hellige, Kara A SPK <Kara.A.Hellige@usace.army.mil>
Sent: Tuesday, January 12, 2016 10:18 AM
To: John Shepard
Subject: RE: County Review: Two Rivers Pit (C&J Gravel), 12500 CR 500 (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Hi John

If they have to discharge fill material into the river or wetlands or modify the bridge to allow for the gravel operation then a permit from us will be required, otherwise I believe its outside of my jurisdiction.

Thanks for the heads-up.

Kara



551 Hot Springs Boulevard
Post Office Box 1859
Pagosa Springs, CO 81147
P: 970.264.4151
F: 970.264.4634

Town of Pagosa Springs
Planning Department

Date: May 25, 2016
To: John Shepard, Archuleta County Planning Manager
Re: C&J Gravel Products, Inc. Gravel Pit application

Hello John,

This correspondence is in response to the C&J Two Rivers Gravel Pit recently provided "Preliminary Traffic Impact Study" and a follow-up to the previous comments provided by the Town Planning Department on January 28, 2016.

- 1) In the Traffic Report, it was noted under "Signal Warrant Analysis" that signals exist at 8th / San Juan and Hot Springs Blvd / Pagosa Street. It should also be noted that a signal also exists at Pagosa Blvd and Hwy 160.
- 2) The Town Planning Department recommends that a delivery zone map be created that indicates specific delivery routes for zones within such map, for example;
 - A. Deliveries west of and including Piedra Road, will use the South Pagosa Blvd delivery route.
 - B. Deliveries east of Piedra Road (not including deliveries along Piedra Road) to and including 5th Street (CR 400) will use the South 8th Street delivery route.
 - C. Deliveries east of North 5th Street (CR 400) (not including deliveries along N. 5th Street) shall use the Hot Springs Blvd delivery route.
 - D. Deliveries along Hwy 84 shall use the Light Plant Road (CR 119) delivery route.
- 3) If the County Approves the gravel pit operation, Town Council may consider an ordinance to amend the adopted Model traffic code to require a permitting process for trucks of certain size and weight, however, much more analysis is necessary to determine the best solution.
- 4) The Archuleta School District Joint 50 can provide detailed information on school bus traffic. It is suggested consideration be given to avoid or limit deliveries on Downtown routes in the morning and afternoon during school traffic times.
- 5) Though CR 500 is not with in the Town Boundaries, the dust created on the gravel portion of CR 500 is upwind of the Pagosa Springs Downtown district. We highly recommend the frequent application (once a month) of a dust control product on the gravel portion of CR 500, at least the northern 3 miles before the pavement section.
- 6) Please also refer to our previous comments dated January 28, 2016.

Please contact me with any questions.

Thank You, Respectfully,


James Dickhoff

Town of Pagosa Springs
Planning Department Director
Po Box 1859
551 Hot Springs Blvd.
Pagosa Springs, Co. 81147
970-264-4151 x225

jdickhoff@pagosasprings.co.gov



551 Hot Springs Boulevard
Post Office Box 1859
Pagosa Springs, CO 81147
P: 970.264.4151
F: 970.264.4634

Town of Pagosa Springs
Planning Department

Date: January 29, 2016
To: John Shepard, Archuleta County Planning Manager
Re: C&J Gravel Products, Inc. Gravel Pit application

Hello John,

In response to your request for comments we received on January 11, 2016 regarding the proposed C&J Gravel Products, Inc. Gravel Pit operation application submitted to the Archuleta County Planning Department, we currently have the following comments:

- 1) We have concerns related to the potential heavy truck traffic through Town and along the S. Eighth Street and Apache Street residential districts. This type of traffic could result in a negative impact to these neighborhoods and pedestrian safety.
- 2) We have concerns regarding potential damage to our aging, new and to be constructed road infrastructure that could result from the heavy truck traffic along the town's portion of Trujillo Road, S. Eighth Street, Apache Street and other potential routes. The proposed traffic count is based on 120 hauling days, however, there are no limits for only operating 120 days. Increased days of operation could drastically increase traffic counts, potential for road damage and traffic on Town roadways.
- 3) The application does not identify specific proposed truck routes, however, the use of Trujillo Road, S. Eighth Street and Apache Street are very likely truck routes for the suggested deliveries. In our opinion, all delivery's for the west Pagosa area should utilize South Pagosa Blvd to access U.S. Highway 160, and only delivery's for Downtown should utilize Apache and Eighth Streets. The use of Hot Springs Blvd has it own concerns, as this roadway sees many out of town tourists and the U.S. Highway intersection crosswalks are a very busy pedestrian thoroughfare. We believe a work session with all stake holders could be the best start to work through the best routes to reduce the potential for negative impacts.
- 4) Trujillo Road is in the process of being paved. Speaking with our engineers, the cross sectional design is for a 20 year plan of increased traffic. The proposed gravel pit operation could exceed the 20 year design immediately, especially if the traffic loads exceed the assumption of 120 operating days. A second layer of asphalt on the Town's portion is scheduled for placement this spring, however, the proposed traffic may require an additional 1 inch of asphalt above the current design, an extra expense the Town has not budgeted for.
- 5) Town Council may consider an ordinance to amend the adopted Model traffic code to require a permitting process for trucks of certain size and weight, however, much more analysis is necessary to determine if this is the best solution for assisting with the additional roadway infrastructure expenses associated with providing a thicker roadway section design.

- 6) The Town may elect to designate certain truck routes through town, that could include the consideration of out-going and in-coming truck routes. This also will require additional analysis for Town Councils consideration.
- 7) There is benefit to having construction materials available locally for the numerous construction projects undertaken in Archuleta County, thus, we support the idea of an additional Gravel Pit in our area.

Since the impacts could be significant, the Town will need additional time to thoroughly analysis the potential impacts to neighborhoods and roadways and how to potentially mitigate those impacts as well as financially improving and repairing such roadways. We respectfully request the mater be deferred for consideration until the Town has ample time to conduct a thorough review. The Town would highly recommend a worksession with the applicant and all stake holders to discuss the best possible solutions to mitigate all of our and the communities concerns.

Please contact me with any questions.

Thank You, Respectfully,

James Dickhoff
Town of Pagosa Springs
Planning Department Director
Po Box 1859
551 Hot Springs Blvd.
Pagosa Springs, Co. 81147
970-264-4151 x225

jdickhoff@pagosasprings.co.gov

John Shepard

From: Garlick, Jacob <jgarlick@southernute-nsn.gov>
Sent: Thursday, May 26, 2016 3:01 PM
To: John Shepard
Cc: Taylor, Sarah; Taylor Cruz, Michelle
Subject: RE: Two Rivers Pit Major Sand & Gravel Permit

John,

Thank you for providing the documentation to show that the Tribe received this initial information. In the future, please send any mail pertaining to a request for comment to the following address.

Southern Ute Indian Tribe
P.O. Box 737
Ignacio, CO 81137
Attn: Tribal Planning

You can also call me at (970) 563-4749 if you have any additional questions or comments. Looking at the letter and the proposed work, I am almost certain we will have various Tribal Departments who will want to comment on the project, and having all the comments submitted to you by the 31st does not seem very likely. With this in mind, can you still send us the relevant information on this project to the address listed above, and if the Tribe does have substantial comments our office can get them passed on to you. I will plan on attending the meeting on the 8th. Please let me know if you have any questions, comments or concerns. Again, thank you for your timely response.

Jacob Garlick
Tribal Planning Intern
Ext. 2241

From: John Shepard [mailto:jShepard@archuletacounty.org]
Sent: Thursday, May 26, 2016 1:19 PM
To: Garlick, Jacob <jgarlick@southernute-nsn.gov>
Cc: Taylor, Sarah <staylor@southernute-nsn.gov>; Taylor Cruz, Michelle <mtcruz@southernute-nsn.gov>
Subject: RE: Two Rivers Pit Major Sand & Gravel Permit
Importance: High

Jacob- Thank you for your inquiry. C&J Gravel provided a USPS Certificate of Mailing, postmarked Jan 13, 2016, including the address "USA T/F Southern Ute Tribe / PO Box 737 / Ignacio, CO 81137-0000" (p4 attached) for the initial hearings, which were continued to allow additional time for the Applicants to mitigate impacts. A follow-up courtesy notice was mailed by Archuleta County on 4/15/16 to "UNITED STATES OF AMERICA T/F SUIT" at the same address, which is the address of record with the Archuleta County Assessor's records. My apologies if these did not reach the proper office.

Given the high level of interest in this proposal, we posted specific information on the County website (as noted in the letter) at: <http://www.archuletacounty.org/index.aspx?NID=467>.
C&J Gravel's initial application and State permit were posted with the Agenda for the initial Planning Commission hearing on Feb 10, 2016: [1](http://co-</p></div><div data-bbox=)

Project 2015-035SG Two Rivers Pit Major Sand & Gravel Permit

A-I Letters received by Archuleta County Development Services through May 31, 2016.

COLORADO DREAMSCAPES INC.

PO BOX 3624

PAGOSA SPRINGS CO 81147

(970)731-1303

WORKING TO MAKE YOUR LANDSCAPE DREAMS COME TRUE

To whom this may concern,

This letter is in support for the newly proposed Two Rivers Gravel pit #M2015004. As a long term resident and contractor in Archuleta county there is a great need for a new pit. I currently use C and J Gravels pit in Durango for all of my companies landscape needs for there is no one else in the county that supplies any of these much needed materials. I'd much rather keep the tax revenue within in out county. This will not only add revenue to our county, but will also allow contractor such as myself to be able to pass these saving along to our local residences. Please consider this additional gravel pit to be much needed. The lack of local materials makes it challenging for myself and several other businesses to provide our residences with cost effective solutions to all of their gravel needs. Thank you for your consideration for this much needed resource. I can be contacted at the number above if you have any additional questions.

Best Regards,



Joshua G Abrell- CEO
Dreamscapes Inc.
970-946-5827

received
4/26/16

April 20, 2016

Mr. John Shepard, AICP
Archuleta County Planning Manager
Archuleta County Development Services
P. O. Box 1507
Pagosa Springs, CO 81147

Re: Two Rivers Gravel Pit

Dear Mr. Shepard,

It has come to our attention that C & J Gravel Products, Inc. will have its application considered by the Archuleta County Planning Commission for a gravel pit on Trujillo Road, Pagosa Springs.

According to the "Traffic Impact Study" that has been provided to the county, the list of "Possible Restrictions" (page 4) is expected to be **flexible** as a list of terms for **coordinating and requesting approval to use any of the normally off-limit roads** immediately follows (page 5). This gives no sense of security to residents. Quite the contrary, we would be ever fighting these exceptions.

The eventuality of having the noise of truck travel on currently tranquil country roads, the added signage marring the landscape, the dust and/or the water trucks to keep the dust down are all unthinkable in terms of impact to the quality of life in this beautiful area.

Also important to note regarding the geological suitability of the site, there are discrepancies in the information provided in the application. The site appears to be situated on a strath fluvial terrace, which means the mining could excavate into bedrock. This presents conflicts between the information provided in the mining plan and "Geological, Radiation, and Related Hazards" portion of the application. The USDA rating for soil suitability for gravel mining of the Valto very stony fine sandy loam is "Poor." Insufficient site-specific data are provided in the application materials to independently determine the geological suitability of this site for gravel mining, however, the information provided in the application suggests it is unsuitable.

We also have concerns regarding the potential for surface water and shallow groundwater contamination from fuel spills occurring at the site. The application has not considered that a spill that infiltrates at the site could result in a long-term source of contaminant seepage to the river.

For these reasons, we oppose the Two Rivers Gravel Pit and kindly ask for your support.

Sincerely,


James E. Baxter, P.G.
Leah Ann Baxter
30 Hood Court
Pagosa Springs, CO 81147

John Shepard

From: Dorie and Brooks <xcskiers@earthlink.net>
Sent: Monday, May 30, 2016 12:27 PM
To: commissioners; John Shepard
Cc: Missy; Margaret Kleiner; Sowerby John; tmhagan@aol.com; haines2430@centurytel.net
Subject: Meadows II Resident Concern about Commercial Thru-Taffic

Archuleta County Commissioners,

Our homes and streets in our Meadows II neighborhood should be zoned 'residential, not for heavy commercial or industrial through-traffic' of any kind. In fact, any kind of regular through-traffic should be highly discouraged in our neighborhood. As retirees when buying our home, we sought a semi-rural peaceful setting and cannot imagine how invasive and damaging heavy commercial traffic would be to our roads, health, safety, peace and quiet. It is beyond comprehension that Archuleta County would allow this type of thing to happen.

Sincerely,
The Chadwick Family

John Shepard

From: ranza boggress <yardt@usa.net>
Sent: Monday, May 09, 2016 11:20 AM
To: John Shepard
Subject: Gravel pit

As a home owner and year round resident at 2840 Meadows Drive I am very opposed to the idea of having Meadows and South Pagosa used as the gravel hauling route. These roads have a lot of use by walkers, bikers, and horse riders and it would make these activities very dangerous with gravel trucks using the road also. These roads are not going to hold up to heavy truck traffic without sustaining a lot of damage. The increased traffic will have a adverse effect on all the home values. I urge you to consider the people that will be adversely effected by allowing these roads to become the route for the gravel trucks and not vote for the proposed gravel pit. We have garbage trucks that now use our roads and they seem to think that the speed limit is 50 mph and I would expect the same from gravel trucks. I frequently drive on Trujillo Road and can not see how it would not sustain even greater damage than paved roads. Thank you Ranza Boggess



C&J Gravel Products, Inc.

Two Rivers Gravel Application

Dear Friends and Customers,

I am sending this letter to ask for your support of the Two Rivers Gravel Pit application to mine gravel on the Property of James and Lee Constant on Trujillo road (CR 500). C&J Gravel has been a family business for over 38 years and we are a committed business partner with this community.

As many of you know it is difficult to obtain good quality gravel in Archuleta County and as a result many of the roads are in disrepair and the cost of construction is higher than it should be. As part of our application we have had a traffic count and a traffic analysis study done by a Professional Engineer to show the impacts of the hauling from our operation. I have proposed mitigation that will not only satisfy the impact of additional traffic but will provide significant cost savings to the county for maintenance. There is great opposition to this application by land and home owners that live on the affected routes of hauling. This operation will have a small impact on the designated haul routes compared to the significant benefit that it will have for all the residents of Archuleta County.

Please support this project by writing a letter to the Board of County Commissioners or by signing this letter and returning it to us. I don't believe that we will get an approval without a tremendous showing of support in favor of this application. You can view all the application documents on the Citizen access web portal on the County web site. <http://www.archuletacounty.org/index.aspx?NID=467>

We would appreciate all supporters to come to the Planning meeting and let your voices be heard.

The **Archuleta County Planning Commission** is a special meeting on **Wed. June 8, 2016, 6:00 p.m. at Centerpoint Church, 2750 Cornerstone Dr**

The County has reserved a large room for a special meeting of the **Board of County Commissioners, Tuesday 28 June, 1:30 pm, CSU Extension Office Building, 344 US Hwy 84,**

Please send your letters to:

John C. Shepard, AICP Planning Manager
JShepard@archuletacounty.org
1122 Hwy. 84
P.O. Box 1507
Pagosa Springs, CO 81147

C&J Gravel Products
27661 Hwy 160
Durango CO 81301

Please send your letters as soon as possible so they will be considered at the Planning Commission Hearing. Thank you for your support and please feel free to call me with any questions.

Sincerely,

John Gilleland
President
C&J Gravel Products, Inc.
970-759-4112

27661 HWY 160-E Durango, CO 81301
Tel: (970) 385-4112 Fax: (970) 385-5014

Two Rivers Gravel Pit

This letter is being put forward in regards to the matter of C&J Gravel Products of Durango Colorado who is applying for a permit to operate a Sand and Gravel operation on the property of Jac and Lee Constant residing in Archuleta county.

We understand that C&J Gravel is a family business and has been in operation for over 38 years in the Sand and Gravel business. They are professional in what they do and have the utmost concern for the environment and the local community. C&J Gravel has provided material from the Durango pit for numerous projects in Archuleta County over the years because specified material could not be supplied from existing local pits. This of course adds significant cost to any project because of the cost of delivery. We feel that it is in the best interest of the residents and businesses of Archuleta county to have a local quality gravel resource such as the proposed Two Rivers Pit in Pagosa.

We urge the planning department, the Planning Commission, and the Archuleta BOCC to recognize the economic benefits of having a local quality gravel resource.

Quality spec gravel will improve road conditions and need less maintenance.

Savings in trucking costs can be used for other types of improvements or simply to increase the amount of material in the budget.

Per ton cost of material will be less therefore allowing more discretion with the taxpayer dollars and the county budget.

The mitigation fee that C&J Gravel will pay will speed up and significantly contribute to the improvement of roads in Archuleta County.

We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

Name Victor A. Boren, PE
Canyon Construction Co

Address PO Box 3090
Durango, CO 81302

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Sincerely,

Name Dennis Burch

Address 565 Stevens Cir.

PAGOSA Springs, Co

81147

John Shepard

From: KarenBynum1@aol.com
Sent: Tuesday, May 31, 2016 2:18 PM
To: John Shepard
Subject: Concerned Meadows Residents

Hi John, this is the first time I have communicated with you due to being in and out of Pagosa since the gravel Pit situation came to a head. I live at 949 Buttress Avenue and my husband and I are extremely concerned that this situation could and would turn into a most horrific proposition if not investigated completely and properly. I want to thank you for responding to our neighbor's phone calls and emails. I do believe you are trying to follow the proper procedure. I have enclosed my Letter to the Editor which I hope Terri House will provide in this weeks paper. If she does not run it, at least you will be privy to it's content. I will also send it to each Commissioner if it does not appear in the paper. Thank you again for your cooperation. Sincerely, Karen and Harris Bynum

From: KarenBynum1@aol.com
To: editor@pagosasun.com
Sent: 5/31/2016 11:57:38 A.M. Mountain Daylight Time
Subj: This I Know.

Terri, please see if this can be published on Thurs, June 2nd in the Letters to the Editor. Karen Bynum

This I Know

In 2005, when my husband and I moved here to Meadows, we were thrilled to be in Pagosa away from the big city. When our first mud season arrived we were astounded by the drainage that rolled onto our property carrying the road gravel. We could not believe that a culvert had been put in perpendicular to our lot. All the drainage from Buttress north of us emptied onto our lot. Road and Bridge (R&B) told us the 'historical' flow of water could not be changed. Our neighbors soon introduced us to the facts regarding Cascade. Several neighbors shared that they repeatedly called R&B to address the rub-board effect from traffic and the dust that was produced. My husband then charged me with dealing with R&B, hopefully with better success.

We soon realized the Stop sign on Cascade was not being observed because of its location. It was placed on a small hill by the fire hydrant and bushes on that corner. Cars and trucks plowed through the sign and across Buttress onto our property. R&B came out to discuss this dangerous situation. So began my involvement with various employees with R&B over the next ten years. Each time R&B came, the sign was always measured to be legal.

I called R&B a couple of times a year and saw employees come and go. Each time I had a meeting at the end of my driveway it was always friendly, I liked each one of them but I finally realized these men were the messengers NOT the "Powers That Be." We never had a come to Jesus meeting. But nothing changed the potential danger of vehicles running across Buttress and slamming into vehicles coming the opposite direction.

Throughout all these years NO speed signs were placed on Cascade. Finally, in 2015 a neighbor saw a car that had rolled onto our property and she estimated the car was totaled. Amazingly, the two passengers were standing beside the car. By the grace of God, this catastrophe was no worse than it was.

I then met with one of the "Powers That Be" and he came up with a solution to address the safety and drainage issues. Months later, a few loads of dirt moved the corner ten feet and the sign was moved. Cars can now see the sign easily and can anticipate the turn. Two mileage signs have also been placed on Cascade as well as a new culvert. We are very grateful.

Very slowly over time, Cascade has mysteriously lost two "No Through Trucks" signs and been labeled a collection road. Traffic, dust, safety for pedestrians, animals and noise pollution have all been magnified tremendously.

Why have I shared my story with you???? It is to demonstrate a serious potential problem. If monies and employees cannot erect speed signs within a ten year period, how can Pagosans feel confident our roads will be safely maintained if the 'Powers That Be' force the new gravel pit upon us??????

Karen Bynum
949 Buttress Ave
970-903-3877

John Shepard

From: ron christensen <ron2011@live.com>
Sent: Saturday, May 14, 2016 10:57 AM
To: John Shepard
Subject: Gravel pit

Hello John,

I am writing to voice my concern over a proposed gravel pit on County Road 500. I live on Meadows Drive and do not feel it should be used as a commercial route to a gravel pit. As it is we have a lot of truck traffic on this road with trucks on their way to the dump. These commercial trucks and contractors with trailers use the road like a highway, not a residential road.

If the gravel pit is constructed on County Road 500 I am worried that the road will not hold up to a large increase of traffic on a daily bases. Point in case: the pot holes and deteriorating pavement at 160 & Meadows has already needed to be repaired with normal use. There will be a lot of additional funds needed to maintain these roads that these heavy gravel trucks will be using daily.

The posted speed limit is 35 MPH, however I see vehicles traveling at a much higher speed daily. I am very concerned about the safety on Meadows Drive as well as South Pagosa Blvd., Buttress and Cascade. If this gravel pit were to be allowed the increase of traffic would be significant to all of these roads. I know my neighbors have made numerous requests to have a Deputy come and patrol the area and we have yet to see any law enforcement presence. Will this change if the gravel pit is approved? Will law enforcement be patrolling this area daily to ensure speed limits are enforced?

It was very tough last summer with all of the county trucks hauling gravel daily. The view from my home is right at the road - do I really want to watch belly dump trucks going by all day long? If I were to sell my home would the new owners find this traffic attractive? I am concerned about the value of my home and my neighbor's homes. We will all suffer the loss of our home values due to this gravel pit. Meadows Drive is currently not too noisy, which was what drew us all to purchase homes in this area, but add in the traffic to the new gravel pit and that will certainly change. We will no longer have a nice quiet neighborhood; it will be the highway to the pit.

I would like to stress that at one time trucks were not allowed to use this route as Cascade was not a through road for traffic. What happened to change that? I am not sure. I feel really bad for those homeowners who are on the gravel part of the road. I have seen what a trash truck going well over 35 mph can create in dust, so imagine what a big belly dump truck will create. Not to mention that the wear and tear on all of the roads will be significant for both paved roads and the gravel roads. These are residential roads in a subdivision. They are not designed to be commercial routes.

In closing, if the gravel pit does get approved the County really needs to figure out how to regulate the trucks, enforce speed limits, maintain the roads, etc...as a service to the property owners in the area. One idea is perhaps one speed limit for non-commercial vehicles and one for commercial vehicles?

We have talked to Weber Sand and Gravel and they will sell the county the gravel that they will need. Do we really need another gravel pit causing undue hardship through residential area's? When someone gets hurt ,

will the county be open to a lawsuit?

I appreciate your consideration on this matter. Thank you for your time.

Sincerely,

Ron Christensen
970-946-5010

John Shepard

From: Cindy And Ted Cobden <patchiecob@yahoo.com>
Sent: Thursday, May 26, 2016 8:00 PM
To: John Shepard
Subject: Gravel pit proposal and traffic impact

We are very concerned about the proposed gravel pit and its impact on traffic on our street, Capricho Circle. We have a child and we are concerned about truck traffic. There are numerous people that ride bikes, walk dogs, jog, walk, etc in our neighborhood. There are no sidewalks, so when cars come by pedestrians, it is sometimes tricky to find places to step to the side. Large trucks would make it only harder.

In addition, there are many hospital employees that walk in our neighborhood. Increased truck traffic would certainly make it more difficult for those of us who live and work along S. Pagosa Blvd., Capricho Circle and further.

Please consider alternatives.

Thank you,
Edward Cobden
114 Capricho Circle
Pagosa Springs, CO 81147

John Shepard

From: Shirley Cope <mtnscope@yahoo.com>
Sent: Tuesday, April 26, 2016 11:14 AM
To: John Shepard
Subject: opposition to gravel pit

We are residents of Meadows IV. We oppose allowing heavy gravel trucks on residential roads here. Even though we live off Meadows Drive on Harvard Avenue, we use Meadows Drive, Buttress, Cascade, Trujillo Road, and South Pagosa Blvd as our access roads to go to downtown, uptown, or either direction on Highway 160. Heavy traffic, especially large trucks, will impact Meadows IV residents with decreased safety and with road deterioration, whether it is on the paved sections or on the gravel sections. The roads budget isn't keeping up with maintaining the roads at present. How would it handle increased deterioration?

We sympathize with the residents along the gravel portions of Road 500, Cascade, and Buttress. Harvard Ave is a gravel road. Cars and trucks on Harvard definitely create dust. The more wheels on the ground, the worse the dust is. The heavier the vehicle, the more dust there is. The frequent gravel pit traffic could create a health problem for those residents on those gravel roads. Even on paved roads a large vehicle can send dust into the air.

One of our main concerns is the safety hazards created by heavy trucks. All the roads in question are narrow and without shoulders, leaving little space for people walking or biking to get out of the driving lane. These roads are dangerous even if the trucks stay under or at the speed limit. Our impression of vehicle speeds in our area is that a large percentage of vehicles are driven above the speed limit.

We ride our bikes on a 15-mile loop from our home (usually Harvard, Elbert, Meadows, Buttress, South Pagosa Blvd, Heath, Yarrow, Mariposa, San Juan Circle) We ride for fitness. We have helmets and rear-view mirrors and we normally ride single file. We try to be as safe as possible. We don't want day-long gravel truck traffic to threaten our safety while we try to stay fit. We fear not only for ourselves, though. We see people walking (singles, couples, pet-walkers), people walking to get their mail, people running (some with pets), other people on bikes, people taking a work break from the hospital. Some people walking San Juan Circle have driven their cars there, and their route includes South Pagosa Blvd.

Pagosa people want to be outdoors in our beautiful surroundings to stay fit AND enjoy the outdoors. They don't want to fear for their safety and health. They want to encounter occasional wildlife such as turkeys, songbirds, and mule deer, or just to hear the birds sing or gobble. Trucks are noisy as well as dangerous. Increased truck traffic certainly endangers our wildlife friends as well as ourselves.

Residents came here to enjoy the area. Enjoyment, health, and safety would be impacted in a negative way if the gravel pit traffic is allowed on our residential roads. Please don't permit the gravel pit trucks' use of our residential streets!

Sincerely,
Glen & Shirley Cope

Two Rivers Gravel Pit

received
5/16/16 10AM

This letter is being put forward in regards to the matter of C&J Gravel Products of Durango Colorado who is applying for a permit to operate a Sand and Gravel operation on the property of Jac and Lee Constant residing in Archuleta county.

We understand that C&J Gravel is a family business and has been in operation for over 38 years in the Sand and Gravel business. They are professional in what they do and have the utmost concern for the environment and the local community. C&J Gravel has provided material from the Durango pit for numerous projects in Archuleta County over the years because specified material could not be supplied from existing local pits. This of course adds significant cost to any project because of the cost of delivery. We feel that it is in the best interest of the residents and businesses of Archuleta county to have a local quality gravel resource such as the proposed Two Rivers Pit in Pagosa.

We urge the planning department, the Planning Commission, and the Archuleta BOCC to recognize the economic benefits of having a local quality gravel resource.

Quality spec gravel will improve road conditions and need less maintenance.

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Per ton cost of material will be less therefore allowing more discretion with the taxpayer dollars and the county budget.

The mitigation fee that C&J Gravel will pay will speed up and significantly contribute to the improvement of roads in Archuleta County.

We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

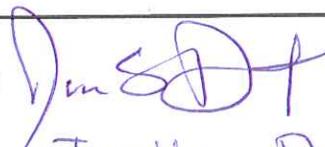
Name Jonathan Dauter
Alpine Excavation

Address PO Box 5841
Pagosa Springs, CO
81147

Additional Comments:

We would be very happy to have another
Gravel pit in Rodepsi. We drive to
Durang, many times a week to get material
there. Please consider letting C&J Gravel
opening a gravel pit here in the Pagasa area.

Signature:


Jonathan Daulton

John Shepard

From: Ann Dolce <lazyjtd@austin.rr.com>
Sent: Thursday, April 28, 2016 8:31 AM
To: John Shepard
Subject: Gravel pit road

I want to express my opposition to the use of existing roads through the Meadows subdivisions for the hauling of gravel by commercial trucks. The gravel pit company should find an alternate route or construct one that does not impact these residential neighborhoods.

Thank you,

Ann Johnston Dolce
26 Blanca Place
Pagosa Springs, CO

John Shepard

From: George Dougherty <gbeefman@gmail.com>
Sent: Saturday, April 30, 2016 11:12 AM
To: John Shepard; terri@pagosasun.com; editor@pagosasun.com
Subject: GRAVEL PIT IMPACT

GRAVEL PIT IMPACT
An accident waiting to happen

The county and the gravel pit would have us believe that the up to 6 trucks per hour is no big deal . Well...The Meadows neighborhood thinks differently. These trucks represent an end to our quality of life and a danger to our community.

Let's not pretend for one second that these gravel trucks will be the only trucks hauling gravel through our neighborhood. Every contractor that has been purchasing gravel in Durango will now be coming and going thru Meadows on their way to this pit also.

The shoulders on these roads are less than desirable.....what happens when one of these trucks is going in one directiona car is coming from the other directionand a bike rider or some one walkingall converge at the same time .

The answerThe gravel truck will always win.....and one of the other two may well be injured, or killed .

Try to envision what it is like walking, bike riding, or on horseback and you hear the sound of 50,000 pounds of truck and gravel coming up behind you at 35-50 MPH and will pass within a few feet of you .

Think about that for a minuteand visualize itplease

These trucks coming through our neighborhood are an accident waiting to happen . Make no mistake about it.....some one is going to be injured.

It's not a matter of if some one will be injuredjust a matter of when it will happen.

Another good reason not to allow these trucks through Meadows

George Dougherty

Sent from my iPad

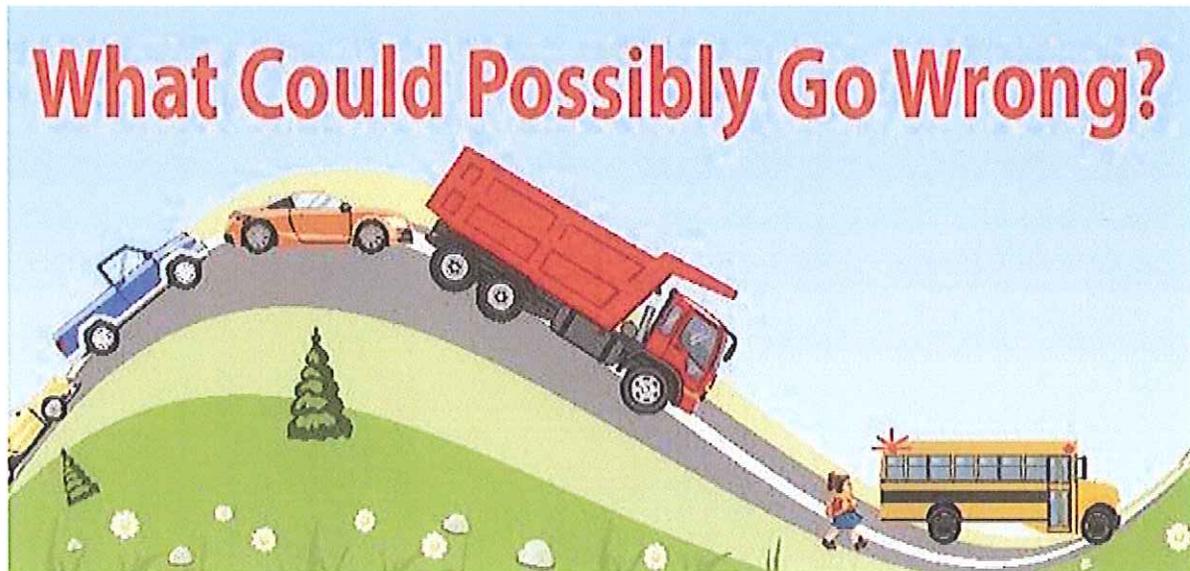
John Shepard

From: George Dougherty <gbeefman@gmail.com>
Sent: Saturday, May 14, 2016 1:54 PM
To: John Shepard
Subject: Fwd: Gravel pitImpact

Sent from my iPad

Begin forwarded message:

From: George Dougherty <gbeefman@gmail.com>
Date: May 14, 2016 at 1:52:02 PM MDT
To: terri@pagosasan.com, editor@pagosasan.com
Subject: Gravel pitImpact



The picture says it all. If the county thinks the proposed gravel pit routes will not affect the whole community of Meadows . They are dead wrong.

I can certainly see the benefit for the county. They now have more product at a better price. Closer to home.....a big savings

I can certainly see the benefit to the gravel pit. They now have a new business, with a large customer.....that creates a profit almost immediately

The only thing I see for the Meadows residential subdivision is the following :

1) the loss of quality of life as we know it

- 2) loss of ability to walk, bike ride, horseback ride, or just enjoying being out side in our yard.
- 3) huge increase in traffic
- 4) damaged roads, cars, windshields and tires
- 5) unhealthy environment due to noise and dust pollution
- 6) safety issues for everyone , especially children
- 7) and above alla massive loss in our home vales.

Someone please show us (the homeowners / tax payers) the value to Meadows with these gravel trucks coming through the neighborhood

George Dougherty

Sent from my iPad

John Shepard

From: George Dougherty <gbeefman@gmail.com>
Sent: Wednesday, May 18, 2016 11:50 AM
To: John Shepard
Subject: Mitigation letter from C&J

Johnjust read the mitigation letter from C&J gravel and in my opinion they are not doing the county any favors.

It appears they are putting a cap on the amount of risk/ mitigation they are willing to accept for damage created by trucks coming and going from the gravel pit.

To start with..... The original statement made was the life of the pit was estimated to be at 25-30 years. This proposal is based on 20 years. If it goes any longer than 20 years ...then they are receiving a free pass on mitigation for 5-10 years , or if you average the proposal over these last 5-10 yearsyou are receiving a lot less per year.

The proposal offers Appx. \$1,000,000 over 20 years . That's a little over \$50,000 a years to maintain CR500, Cascade,Buttress and South Pagosa.

It also states that they estimate South Pagosa will need chip sealing every 10 years. It presently needs chip sealing more than every 10 years now with our current traffic..... I can only imagine how often it will need chip sealing once the gravel trucks start hitting it.

If you average the \$1,000,000 over the life of the gravel pit. The amount decreases dramatically to around \$40,000.

Does they county really think it can maintain these roads for what C&J is offering?

What if South Pagosa needs to be paved again....that's on the county

The amount of work that will be needed on these roads due to the gravel trucks can not be covered with what they are offering. You are on the hook for the remainder of all road damages.....so, where's the benefit to anyone.

If you factor in what these routes are going to do to our community of Meadows and now what the benefits (or lack of) are to the county. The decision to reject this proposal should be much easier

Thanks
George Dougherty

Sent from my iPad

John Shepard

From: Brian Duffin <rfhmsa@gmail.com>
Sent: Friday, May 13, 2016 8:09 AM
To: John Shepard
Subject: Reject the use of Meadows Drive to transport Two Rivers Pit gravel trucks

May 15, 2016

Dear Mr. Shepard:

RE: Proposed Gravel Pit on Trujillo Road

The Two Rivers Pit Project proposes to use Meadows Drive as a path for their heavy commercial trucks. We want you to strongly oppose this proposal.

We reside on Meadows Drive. This is a residential neighborhood and heavy commercial truck traffic should not pass through a residential neighborhood. The trucks will create noise which is highly undesirable and Meadows Drive was not engineered to sustain/support this heavy commercial truck traffic. In the last few years we have experienced road damage to Meadows Drive, which was caused by the increased heavy load truck traffic from the Trujillo Road Project. It is understandable that some heavy load truck exists when one in building a residence, however, the truck traffic being proposed is not of any benefit to the residences on this road or in this subdivision. We chose to live in this subdivision because of the quiet and natural beauty that surrounds us. Therefore, we find it hard to believe that you or any Commissioner would even consider such a proposal.

If YOU lived here, would you want heavy commercial truck traffic passing in front of your house constantly? We dare say not. This is why we implore you to reject this proposal.

Respectfully,

Brian and Wanda Duffin

3049 Meadows Drive

Pagosa Springs, CO 81147

John Shepard

From: Greg Dykstra <gjdjato@gmail.com>
Sent: Saturday, April 30, 2016 3:16 PM
To: John Shepard
Subject: Gravel Pit

Mr. Shepard, I sent you an email two weeks ago voicing my concerns of having gravel trucks driving the residential roads in the Pagosa Meadows areas. These roads are all residential roads and some of them are gravel. In my email, I talked about "Valley Fever", in the Phoenix area. I recently accessed the CDC website and found that this spore is very widespread in the United States. The scientific name of the spore is "Coccidioides". If you Google that name, it will take you to the CDC website. Note the geographic map associated with this spore/virus. It encompasses most of Four Corners and closely borders Pagosa Springs. (I will bet it has already surfaced in Pagosa, but it just has not been identified yet, officially.) My neighbors are asking me to alert you of this finding, as they are now concerned about the possibility of the spore being kicked up by these gravel trucks in our neighborhoods. I am a retired Phoenix Police Sergeant and valley fever is very prevalent in Phoenix. So much so, that heavy fines are imposed for just parking vehicles on non-dust proof lots. The surrounding municipalities are also required to maintain compliance or face fines and other penalties. Please look at this information and consider the dangers the spores can cause, up to and including death to animals and HUMANS. I only ask that we do the RIGHT THING, when making a decision of this nature. Common sense also dictates that pedestrian traffic, wildlife, excessive road damage, noise, dust pollution, and other dangers will happen if these trucks are allowed to use residential routes as proposed. Again, I thank you for any consideration. Greg Dykstra, Pagosa Meadows IV resident.

John Shepard

From: Muriel Eason <murielinpagosa@gmail.com>
Sent: Saturday, April 30, 2016 3:24 PM
To: John Shepard
Subject: Gravel trucks in Pagosa Lakes HOA

John, as a homeowner near Buttress and South Pagosa Blvd. I would like to express my objection to routing big gravel trucks through our peaceful neighborhood. While these two roads are paved, they are already deteriorating and the County cannot or will not keep up with the maintenance. There are already many large cracks completely through the asphalt, all the way across the road. Fleets of trash trucks already fly through on their way to the dump, so the gravel trucks would be just too much.

We also have good friends along Cascade, which is a gravel, steep, windy, washboard gravel road and they already see clouds of fine dust every time a large vehicle passes. The fine dust particles are a health hazard, but even so, the County will not mitigate this with mag chloride, nor keep the road in good condition. It will be far worse with huge, heavy gravel trucks roaring by.

Please make sure this gets considered in the hearing before the County Commission.

Muriel Eason 970-946-1133

"The snow is melting into music." ~ John Muir

John Shepard

From: Cathy Eck <cathy.joe.eck@gmail.com>
Sent: Wednesday, April 27, 2016 8:04 PM
To: Clifford Lucero; Steve Wadley; Michael Whiting; John Shepard
Subject: Opposition to Gravel Pit

This email is to let you know that we vehemently oppose the recent application for a new gravel pit. We currently live on Meadows Drive in a home we built there 8 years ago. We oppose the gravel pit for the following reasons:

1. Safety - Pedestrians, bicyclists (including children), and even people on horses use Meadows Drive almost everyday. Our road has very narrow shoulders. Elk and deer frequent our neighborhood and often cross Meadows Drive.
2. Noise - The extra traffic of large trucks create a great deal of extra noise.
3. Road deterioration - We have witnessed the deterioration of our road in past years from heavy trucks using Meadows Drive. With the added truck traffic from the gravel pit, our road would be ruined.
4. Property values - With the added dust, noise, and road deterioration, property values would be greatly diminished.

Would you purchase a house on a road with gravel trucks traveling minimum of 48 times up and down the road? That is one about every fifteen minutes! And who is to say that this traffic won't double or triple.

We worked very hard to build our dream home in the peace and beauty of Pagosa country. Please assure us that you will vote "NO" on the proposed gravel pit.

Sincerely,
Joe and Cathy Eck
657 Meadows Drive
Pagosa Springs, CO
970-731-1257

John Shepard

From: Mark Espoy <mark@markespoy.com>
Sent: Wednesday, May 25, 2016 12:47 PM
To: John Shepard; John Shepard
Cc: Mark Espoy
Subject: Proposed C J Gravel Operations

Mr. John Shepard and Archuleta Planning Department;

The proposed C J Gravel Plant operation on Trujillo Road with the gravel trucks passing through residential areas is absurd and dangerous. We have lived in Pagosa Meadows 4 on S. Pagosa Blvd for almost 20 years and know how dangerous it is to access one's driveway due to speeding cars and truck passing over and through hills and blind curves. Archuleta County has very little paved roads and we have a very high concentration of visitors and neighbors walking, jogging and bike traffic without the use of bright colored clothing. This is a residential area and they feel safe with automobiles and only a few trucks passing. These roads and bike lanes are not wide enough to make it safe for folks walking their dogs or biking with gravel trucks passing by both directions. If you allow the gravel operation to take place, someone will be hurt on these roads or possibly killed! Not even to mention the Elk and Deer herds that will be hit by these trucks with their weight they can not slow down quick enough.

The paved roads in Pagosa Meadows were not designed for heavy duty truck traffic or as a designated truck route and are already getting in poor condition again after only a few years ago having oil and gravel applied. We all know it's very expensive to maintain these paved roads, but can you imagine the damage these trucks will do with daily activity hauling full trucks of gravel? Plus they must return to the plant for more gravel daily. This area has been known as a quiet residential area with only a few trucks passing to construction job sites then ending when their job is completed. This plant operation and transportation will go on for years and years not to mention the noise pollution of these trucks passing daily which all of us moved to this area for the quietness of these neighborhoods.

Also as real estate brokers for over 20 years, by allowing this gravel operations, you are hereby automatically reducing property values! With lower values will result in less revenue for the County operations of maintaining their operating budget. I was the past Archuleta County Tax Arbitrator I can guarantee when the re-evaluation period comes around every two years on property taxes, a huge volume of property owners will protest their values due to this gravel plants operation of transportation of gravel through a residential area and win their protest which will result in less tax revenue for our County.

The only correct answer to to deny this gravel plant's transportation application !

Sincerely:

Mark

& Denise

Espoy Broker ABR, CRS, CNE, GRI, SRES

Jim Smith Realty

Pagosa Springs, Colorado

Cell 970-946-6658

Email Mark@MarkEspoy.com

John Shepard

From: Mark Espoy <mark@markespoy.com>
Sent: Wednesday, May 25, 2016 12:55 PM
To: John Shepard; John Shepard
Cc: Mark Espoy
Subject: C&J Trucking Proposal

Archuleta County Planning Department;
Please read my son's comments on the C&J Trucking proposal below.
Sincerely;
Mark Espoy Broker ABR, CRS, CNE, GRI, SRES

Jim Smith Realty
Pagosa Springs, Colorado
Cell 970-946-6658
Email Mark@MarkEspoy.com

----- Forwarded message -----
From: Ryan Espoy <respoy@herzog.com>
Date: Wed, May 25, 2016 at 9:26 AM
Subject: C&J Trucking Proposal
To: Mark Espoy <mark@markespoy.com>

I reviewed the email you sent me in regard to C&J Trucking's use of South Pagosa Blvd and Cascade Ave. Please see my comments below:

- 1) C&J Trucking is offering \$16447 a year for trucking rights on South Pagosa. Looking at contractor mobilization, Blue Book equipment rates and Davis Bacon Wage rates (conservative), any damage done to South Pagosa Blvd would not be able to be repaired for that amount on a yearly basis. This would not be adequate to replace a 100' strip of road on a yearly basis. \$319,000 over the 20 year period would not be sufficient to repair/replace South Pagosa Blvd in its current configuration. Also, I see no mention of rate increases due to commodity prices. Oil is super cheap right now and that directly effects paving... so when the prices increase... so will repair costs. Also, will these funds be put in a trust of some sort and committed for use ONLY on S. Pagosa & Cascade or will they be placed in the county's general fund? If counties general fund, you can almost guarantee they'll be misappropriated and "borrowed against" for other projects.
- 2) Prior to authorizing any permanent trucking routes on South Pagosa Blvd, an analysis of the existing paving section needs to be performed. I would assume the county has as-builts for this road showing pavement thicknesses and base thicknesses. In addition, a registered CO Professional Engineer needs to perform a traffic analysis on South Pagosa Blvd to determine its current Traffic Index (TI). Then C&J would have to provide info on the number of trucks it will be running and the Engineer will determine the revised TI based on this. The revised TI will be used to determine the required pavement/base section that can hold up to that level

of traffic and based off the as-builts for South Pagosa, you'll know if the street can even hold up to the loading irrelevant of standard maintenance.

3) I would suspect that during the design of the paving section for South Pagosa, an R-Value test was performed to develop the paving section. If not, this would need to be completed to ensure that S. Pagosa was designed correctly.

4) The mitigation plan of chip sealing South Pagosa and gravel on Cascade every 5 years is grossly inadequate. Chip Sealing is a very minor fix for a road... really just to pretty it up and make the ride smoother in between full mill & overlay projects. Heavy Truck hauling on a road that may not be adequately designed for the loading with compromise the structural section of the road and lead to full depth repaving (extremely expensive in comparison to a standard mill & overlay every 10 years). A gravel road would most likely need to be regraded and have gravel added on a nearly monthly basis due to washboarding and potholes (heavy trucks GREATLY exacerbate this gravel road issue). Also, what are they offering for dust control measures on Cascade? I see nothing in regards to that and dust with a truck haul is a very real issue.

5) What about street sweeping? If they're running gravel trucks, they do spill and will cause build up on the sides of the pavement which is where people walk and ride bikes. This will cause pedestrians to walk/ride in the traffic lanes and will cause a safety issue over time. If C&J did a monthly street sweeping to remove all spilled gravel from the roadway, this could be mitigated.

6) What are they offering in terms of noise mitigation? These trucks are very loud, particularly when they use they use engine braking (jake brake) and most of them will not have mufflers or any form of emissions controls. Rather they'll just have straight pipe to the stacks... easiest way to make a diesel more powerful and fuel efficient. No one in Archuleta County is running Tier 3 & 4 trucks... guaranteed. This doesn't include the beds that are usually poorly maintained. Listening to metal gates slam every time the trucks hit a bump (or the pothole the truck created) will become very old over time and definitely take away from the quality of life people wish to maintain by living out in the country.

7) Are they offering the county a discount on gravel purchases in order to get this passed? Aside from that being unethical and violate .gov business practices, but they probably would only see 20% of the "Real" savings.... The rest would be pocketed by C&J.

Unfortunately, I get to deal with truck haul routes on a daily basis with my projects. Heavy trucks are extremely damaging to local streets and we always have huge issues with Cities/Counties fighting us to repair their roads after the fact. I'm very aware of what C&J is trying to do because I would be doing the exact same thing if I were them. They're trying to increase their revenue via decreased trucking costs and there's nothing wrong with that; but unfortunately they're doing it in a way that the county will experience an additional road repair burden. The county currently isn't capable of maintaining all the roads in its jurisdiction and this will

only increase the issue at the detriment of the residents of South Pagosa Blvd. If I owned property on either of these roads, I would absolutely **FIGHT AGAINST THIS!**

Let me know if you have any other questions.

Ryan L. Espoy, P.E.

Hensel Phelps/Herzog J.V.

720.878.3544

respoy@herzog.com

John Shepard

From: Kathryn Gervasi <kathryn.gervasi@gmail.com>
Sent: Wednesday, April 27, 2016 3:43 PM
To: John Shepard
Subject: Two Rivers Gravel Pit

April 27, 2016

To: John Shepard and the Archuleta County Planning Commission

Re: Two Rivers Gravel Pit

I am writing to express deep concerns and personal dismay with the Two rivers Gravel Pit proposal. My husband and I live at 2187 S. Rock Cliff Circle in Pinion Hills Ranch which is not far from the proposed gravel pit site. We have lived here for 9 years and over that time have already noticed an increase in traffic on County Road 500 – our only route to town. This road is used by home owners, businesses, dump trucks, wilderness guides, river rafters and others who all contribute to the chips in my windshield. Trujillo Rd is a winding, narrow road with areas of no shoulders which is often potholed and wash-boarded and hardly seems appropriate for large gravel hauling trucks. I have read that there could be anywhere from 50-70 trucks each day hauling gravel which would translate into 100-140 additional vehicle trips (going out and coming back) on this road. These trucks would increase the wear and tear of the road, reduce visibility from added dust, create deeper ruts in the rain/snow seasons and significantly contribute to the accident rate on this road.

I cannot understand how having a regular route of trucks through our residential and downtown commercial areas would be beneficial to Pagosa Springs. These trucks are large, noisy, block visibility and deter from a town that needs to promote its businesses, waterfront and community neighborhoods. We are finally seeing some positive development along our waterfront and promoting community values. Trucks that bring materials to developing areas on as needed basis is one thing but to allow an ongoing business to use these routes for several decades does not make good economic sense. Who will want to live near these routes? What kind of image/impressions will they leave on our community and especially visitors/tourists?

I have recently learned that the elk migration pattern runs along the Bass Ranch and as far south as the Valle Seco region. We often have herds of elk in Pinion Hills Ranch. Has consideration been given to the impact of the gravel trucks on this population that migrates along the river and near Trujillo Road? It is very common for us to see bear, elk, deer and fox, (the mountain lions are too shy) on trips to and from town. How will these and other animal populations be impacted by this proposal? What about the companies and tourists who regularly drive out this road to catch a glimpse of the amazing wildlife that inhabit this region?

On a personal note, I have already heard very loud sharp noises from the gravel pit area. I did not move here to be a part of this community to witness and listen to land being destroyed. This Gravel Pit activity has the potential to impact future housing development for not only Pinion Hills Ranch but through out the downtown area of Pagosa Springs.

Please consider this proposal's impact on the future of Pagosa Springs and the kind of thriving community we would all like to see it grow into.

Sincerely,

Kathryn Gervasi

John Shepard

From: Gary Grazda <ggrazda@gmail.com>
Sent: Saturday, May 28, 2016 10:45 AM
To: John Shepard
Subject: Gravel pit

I am opposed to the application for the new gravel pit. I urge you to deny the application.

Gary Grazda
221 Big Sky Place
Pagosa Springs, CO 81147

Sent from [Mail](#) for Windows 10

received
5/20

Two Rivers Gravel Pit

This letter is being put forward in regards to the matter of C&J Gravel Products of Durango Colorado who is applying for a permit to operate a Sand and Gravel operation on the property of Jac and Lee Constant residing in Archuleta county.

We understand that C&J Gravel is a family business and has been in operation for over 38 years in the Sand and Gravel business. They are professional in what they do and have the utmost concern for the environment and the local community. C&J Gravel has provided material from the Durango pit for numerous projects in Archuleta County over the years because specified material could not be supplied from existing local pits. This of course adds significant cost to any project because of the cost of delivery. We feel that it is in the best interest of the residents and businesses of Archuleta county to have a local quality gravel resource such as the proposed Two Rivers Pit in Pagosa.

We urge the planning department, the Planning Commission, and the Archuleta BOCC to recognize the economic benefits of having a local quality gravel resource.

Quality spec gravel will improve road conditions and need less maintenance.

Savings in trucking costs can be used for other types of improvements or simply to increase the amount of material in the budget.

Per ton cost of material will be less therefore allowing more discretion with the taxpayer dollars and the county budget.

The mitigation fee that C&J Gravel will pay will speed up and significantly contribute to the improvement of roads in Archuleta County.

We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

Name Bruce Hamer

Address P.O. Box 246

81302

Durango, CO

Two Rivers Gravel Pit

COPY

RECEIVED
MAY 16 2016
BY: SM

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We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

Name Brian Heller
President
the Heller Corp.
05-18-16

Address P.O. Box 1507
Durango, CO 81302

cc: John Shepard
AICA Planning Mgr

Additional Comments:

This is an excellent company of hard working honest people. I worked with the original owner Jack Gilkand, John's father, there is no better company to do business with in SW Colorado.

Archuleta will do well with the addition of ^{this} company in your neighborhood.

Jobs = \$\$ = TAX. Income = Prosperity!

Signature:

Ben Heller, Owner
the Heller Corp.

John Shepard

From: Richard Humm <rhumm260@gmail.com>
Sent: Friday, April 29, 2016 11:09 AM
To: John Shepard
Cc: george dougherty; Toby Tollefsen
Subject: Two Rivers Pit

John:

This is to express our objection to the proposed Two Rivers Pit.

The Planning Staff and the Planning Commission, as the statutory land use and planning body for the County, should take a longer view for the County in general and Pagosa specifically, rather than take an approach lacking in foresight that might provide short-term economic gain for the County and certain private parties.

There are obvious and well-documented issues regarding the health and safety of residents and visitors along the proposed truck routes. The gravel truck traffic would dramatically worsen the already severe, careless, dangerous and dusty truck traffic going to the landfill through Meadows IV. The existing poor road conditions would deteriorate quickly and greatly.

Aside from the significant drawbacks noted here, the proposed gravel truck traffic would essentially remove from the new and resale real estate market a considerable portion of Meadows IV at anything close to today's prices and values, with a resulting decline in real estate tax revenue. There would also likely be a decline in County sales tax revenue as people depart and/or avoid the area. Can we assume that a significant tax revenue decline has been considered in the analysis of the application for the pit?

As an alternative course for truck traffic from the pit to Hwy. 160, consider a route north on CR 500, east on Apache St. and north on Hot Springs Blvd. to 160. It's unlikely that there would be much local opposition to sending the trucks past the high school, Town Hall, the Community Center, the post office, The Springs, the Visitor Center and through downtown multiple times a day.

In any event, the proposed pit is inconsistent with the Pagosa Springs Comprehensive Plan that the Planning Commission and Town Council have sold to residents and tourists. We believe that the Planning Department, Planning Commission and BoCC realize this. All should exercise their authorities accordingly.

Thank you.
Richard and Linda Humm
59 Cascade

John Shepard

From: colton hutcherson <porchech@hotmail.com>
Sent: Monday, May 16, 2016 1:57 PM
To: John Shepard
Subject: For the Trujillo Gravel Pit

I just recently finished reading the article in the paper in regards to the proposed gravel pit down Trujillo. I see the complaint from the people that live on Trujillo and understand the frustration of added traffic. I myself have a construction company that provides services that require gravel products almost every day. The demand for gravel products have increased to the point in this town that far exceed the ability of our existing pits. Also because of the lack of options our customers are regularly subject to over priced products simply because of the lack of competition! This is and has been a major concern of mine and many in this community. People in this town seem to enjoy progress and what it has to offer our community, but everytime an opportunity for us to grow arises it is shut down because a few get their "feelings hurt". I urge you to seriously consider the development in this town and consider progress. Allow the infrastructure to grow with the population! Change is not a bad word, as many in this town seem to think. For this town to continue to prosper we must except progress! There is an answer to these few people that have complaints that is simple! If the road gets used more it gets maintained more and patrolled more! this only benefits them more. Thank you for hearing my say in this matter and I look forward to the hearing on June 8th and what it brings.

Respectfully,
Colton Hutcherson
Hutch & Sons Construction
hutchandsons@hotmail.com
hutchandsonsconstruction.com

Project 2015-035SG Two Rivers Pit Major Sand & Gravel Permit

J-Z Letters received by Archuleta County Development Services through May 31, 2016.

Two Rivers Gravel Pit

This letter is being put forward in regards to the matter of C&J Gravel Products of Durango Colorado who is applying for a permit to operate a Sand and Gravel operation on the property of Jac and Lee Constant residing in Archuleta county.

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The mitigation fee that C&J Gravel will pay will speed up and significantly contribute to the improvement of roads in Archuleta County.

We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

Name Carl R Bob Kleckner

Carl R Bob Kleckner

Address PO Box 655

874 Kleckner Ln

Pagosa Sp Co 81147

received
9/20

Two Rivers Gravel Pit

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We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

Name Marie Layton

Address 231 Crestview Ar.
Pagosa Springs, CO

Additional Comments:

Webber Sand & Gravel is only open late spring through fall. Other times, we cannot get sand or gravel.

Last year, Webber did not crush gravel all summer. We needed gravel for a new driveway but were unable to get any.

If a person needs sand, gravel, road base, etc. not being able to get any creates a tremendous hardship. Trucking material from Durango, Bayfield or Arboley's is expensive.

We need a business that stays open all year with available material.
Competition is a good thing.

Signature: *Mauri Layton*

Erin Lehmer Consulting, LLC
22 Kennebec Drive
Durango, CO 81301
970-769-7031

May 23, 2016

To: Jacqueline Hill, Attorney

From: Erin M. Lehmer, M.S., Ph.D., Wildlife Biologist 

Subject: Expected Impacts to Wildlife Related to the Proposed Two Rivers Gravel Pit

This report was prepared by Erin M. Lehmer, M.S., Ph.D., Wildlife Biologist, for the Diamond T. Ranch, L.L.C. and addresses expected impacts to wildlife resources following implementation of the proposed "Two Rivers" gravel pit in the area surrounding the Diamond T. Ranch. Information used to generate this report was compiled from an extensive literature review of peer-reviewed scientific articles published in reputable journals within the field of wildlife biology, as well as from consultation with wildlife biologists familiar with the proposed Two Rivers Gravel Pit and with wildlife use in the project area. Although a number of sources were consulted, for the sake of brevity only the most relevant studies are cited in this report; additional information can be provided upon request.

Summary of Proposed Activity

The proposed Two Rivers gravel pit will occur within a 102.6 acre parcel of land and will include the development of a 65.58 acre gravel pit, as well as associated access roads, drainages, staging and stockpile areas, and other facilities associated with mining activity. Mining activity will occur over a 25-30 year period, with the initial phase of the project including development of the access roads, staging and stockpile areas, grading and leveling, and removal of surface vegetation and topsoil, which is expected to encompass an area of approximately 4.8 acres. As mining operations progress, it is estimated that an additional 2.1 acres will be mined per year for the duration of the 25-30 year period. Mining activities will occur adjacent (40 feet above the high water mark) to the San Juan River and Rio Blanco and in close proximity to the Harris Ditch (60 – 90 feet behind the high water mark and 200 feet from the eastern bank). The proposed gravel mine operations will require removal of all surface vegetation and topsoil on a yearly basis, with soil stockpiled on site. Storm water surface drainage from stripped areas will flow through sediment basins prior to discharge into adjacent waterways (i.e. San Juan River, Rio Blanco, Harris Ditch). Following conclusion of mining activities, the project area will be reclaimed as grazing land and according to the permit application, the mine operators will take no specific actions to create or improve wildlife habitat.

Wildlife Resources in Project Area

The proposed project area contains habitat for a number of wildlife species, including an assortment of mammals, songbirds, raptors and riparian birds, reptiles and amphibians. However, because of the commercial hunting and fishing operations conducted by the Diamond

T. Ranch, this report will focus specifically on game species whose populations may have an impact on the revenue and operation of the Diamond T. Ranch.

The proposed project area is adjacent to the San Juan River, which provides habitat for fish species including rainbow trout, cutthroat trout, brook trout, cutbow trout, round-tail chub, mottled sculpin, fathead minnow, speckled dace, bluehead sucker, flannel mouth sucker, largemouth bass and catfish. A number of these species are of high value to fisherman and anglers. The proposed project area also occurs in within the Colorado Game Management Unit 78. This Game Management Unit, including land surrounding the proposed Two Rivers gravel pit and Diamond T. Ranch, have been designated by Colorado Parks and Wildlife as deer and elk migration corridors, winter range and winter concentration areas (Colorado Parks and Wildlife 2016). According to Adrian Archuleta (Colorado Parks and Wildlife District Wildlife Manager for the project area), in typical years, deer migrate south from higher elevations in the San Juan Mountains and arrive in the project area in early November. Deer remain in this winter range until April or May, depending on spring temperatures, snowpack and the timing of green-up (i.e. emergence of spring vegetation). In severe winters characterized by low temperatures and / or high snowpack, deer may be pushed southward from the project area into lower elevations in northwest New Mexico (A. Archuleta, Personal Communication). Elk typically migrate from higher elevations later into fall compared to deer, arriving in the project area in mid-November or early December, and remain in the project area until spring, even during severe winters (A. Archuleta, Personal Communication).

Potential Impacts of Proposed Mining Activity on Fish Populations

The primary concerns for fish populations associated with aggregate mining are increased turbidity and sedimentation in adjacent rivers. As a routine practice, gravel mining exposes unweathered material to the environment, which can become a new source of pollution via runoff, which contains metals, materials with low pH, and sediment. In addition to mining activities, processing of aggregate involves screening, crushing and washing of sand and gravel, which in turn creates additional dust and waste. These materials are released into or infiltrate adjacent waterways, which increases turbidity (i.e. cloudiness) of the water, making it difficult for sight feeding fish species (e.g. trout) to hunt (Brown et al. 1998). Following release, these materials are eventually deposited on the river bottom in the form of sediment. The majority of the diet of predatory fish (e.g. trout, bass, dace, minnow, etc.) is comprised of small insects (i.e. macroinvertebrates) that live on the river bottom. Increased sedimentation resulting from gravel mining has been shown to reduce the diversity and abundance of macroinvertebrates, in effect reducing the availability of food for predatory fish who reside in affected portions of the river (Norman et al. 1998). Increased sedimentation associated with gravel mining can also negatively impact fish reproduction. Because fish lay eggs on the river bottom, sediment can prevent water movement over the eggs, causing eggs to suffer from a lack of oxygen, ultimately halting development (Norman et al. 1998). The concomitant effects of reductions in food availability and egg development have significant negative effects on fish populations. In 2014, Daniel et al. examined coal and mineral mines located throughout the US and found that all mining activities (i.e. regardless of the type of mineral extracted) had similar effects on fish populations, with every metric of fish population health negatively affected (e.g. diversity,

species richness, reproduction, etc.) and all species of fish negatively affected, including species monitored in Colorado and New Mexico. Based on the results of these two studies, as well as on the preponderance of scientific literature focused on impacts of surface mining on fish populations, it is expected that the Two Rivers gravel pit operations will have negative impacts to fish populations in the immediate areas within the San Juan River and Rio Blanco. Although the Surface Water Management Plan outlines the stated goal of “zero discharge” from disturbed and un-reclaimed areas of the Two Rivers gravel mine operation, the Surface Water Management Plan does not outline any novel practices that would improve the ability of this operation to reduce discharge. Considering the level of discharge resulting from other gravel mining operations that have followed similar surface water management practices, this goal of zero discharge is not realistic and as such, potential impacts to fish resources have not been adequately addressed in the permit application.

Potential Impacts of Proposed Mining Activity on Game Resources

As stated above, the land surrounding the proposed Two Rivers gravel pit and Diamond T. Ranch have been designated by Colorado Parks and Wildlife as deer and elk migration corridors, winter range and winter concentration areas. Winter range and winter concentration areas are of vital importance for deer and elk, as the time that they spend in these areas prepare them for critical spring events, including migration, as well as rearing fawns and calves. These spring events place huge energetic demands on deer and elk, and as such, winter ranges must minimize energy loss during the critical winter period (Sawyer et al. 2002). Because of limited land area, population densities of deer and elk are typically higher in winter ranges compared to summer ranges, which increases competition among individuals for access to food and other resources that are critical for survival. For these reasons, winter ranges are considered to be more “delicate”, in that even subtle disruptions in habitat quality can have major impacts on the survival and reproductive success of deer and elk. For this reason, winter ranges and concentration areas are often given more stringent management protections (e.g. seasonal closures, noise mitigation). Despite these protections, significant disruptions in habitat quality often result in deer and elk avoiding or abandoning portions of their winter ranges and concentration areas, regardless of whether or not these disruptions occur during the winter period. Furthermore, when predicting the impacts of habitat disturbance on wildlife resources, it is essential to consider how a proposed action will impact wildlife utilization in the immediate area, as well as in surrounding areas. The terms “direct” and “indirect” loss are often used when describing anthropogenic impacts of wildlife habitat disruption. Direct habitat loss is the area (acreage disturbed or removed) that is lost by project disruption, whereas indirect habitat loss is the total area that experiences changes in wildlife distribution due to stressors imposed by the project. Thus, indirect habitat loss often extends across an area that is much greater than the project area itself and should be considered when predicting impacts of a proposed action on wildlife resources.

Natural gas development and gravel mining have many of the same impacts to wildlife and wildlife habitat, including increased human presence, increased noise levels, road construction, traffic, and removal of vegetation. However, impacts of gravel mining are typically of greater impact and duration compared to those of natural gas development. For example, the initial

construction of a natural gas well pad represents the highest period of disturbance in the lifetime of the well and this construction phase typically occurs over a period ranging from 6 months to 2 years (Sawyer et al. 2009), after which time human activity and other disturbance are substantially reduced. In comparison, the Two Rivers gravel pit application specifies that the gravel mine will be continually developed over a 26 year period, meaning that surface disturbance and increased human activity will remain high over the long-term. Likewise, natural gas well pads with gathering systems (i.e. pipelines) in place experience an average of 2-5 truck passes per day following construction, whereas well pads without gathering systems experience an average of 4-9 truck passes per day (Sawyer et al. 2009). In contrast, the Two Rivers permit application indicates that there will be an approximate 23.3 truck passes per day throughout the project area for the duration of the mining period. Thus, the impact of gravel mining on deer and elk behavior are expected to be similar in nature to but substantially greater than those observed in study systems focused on disturbances caused by natural gas development.

A number of early studies conducted from the mid 1980's to the mid 1990's provided a general understanding that deer and elk avoid areas with increased road development and human activity. For example, Kuk et al. (1985) evaluated the effects of human presence and simulated mine noise on elk calving behavior and determined that following repeated disturbances (i.e. more than 1 incident of disturbance), elk would permanently abandon areas with increased human activity, moving to areas with lower levels of human disturbances regardless of whether these areas were of lower quality habitat. Furthermore, Kuk et al. (1985) found that elk calves who had been displaced from areas of high human activity and mine noise imprinted on their new habitat areas, meaning that they would avoid the disturbed areas for life, likely resulting in permanent avoidance of disturbed areas by resident elk populations. More recently, extensive natural gas development in the Pinedale Anticline of Wyoming and the Piceance Basin of northern Colorado has prompted a number of studies focused on the impacts of mining activity on deer and elk behavior. In these studies, researchers were able to collect baseline data on wildlife utilization prior to development and throughout the development and utilization process, allowing them to assess changes in wildlife use and behavior that resulted directly from mining activity in the area. Likewise, both the Pinedale Anticline and the Piceance Basin occur within large and high density deer winter ranges. For these reasons, the recent studies conducted in the Pinedale Anticline and Piceance Basin are perhaps the most relevant to the proposed Two Rivers gravel pit operation and are described below.

In 2006, Sawyer et al. evaluated changes in habitat use by deer prior to well pad construction in the Pinedale Anticline and followed these changes for 3 years post development. Changes in deer utilization were immediate; in the first year post construction, portions of the project area that had previously experienced high use by deer decreased by 49%. In the second year post construction, areas of high deer use were reduced by an additional 48% and in the third year by an additional 37%. In addition, changes in deer habitat utilization extended far beyond the project area itself and these impacts appeared to increase over time, with deer avoiding an area 2.7 times greater than the project area in the first year post development, 3.1 times greater in the second year, and 3.7 times greater than the project area by the third year post

development. Continued study indicated that deer did not acclimate over time, but rather continued to avoid disturbed areas over the long-term (Sawyer et al. 2006). The researchers emphasize that seasonal closures did not improve use by deer, indicating that such mitigation measures may not be effective in improving utilization of disturbed habitat by deer. Collectively, this study provides direct evidence that increased human activity and surface disturbance have immediate, significant and long-term negative impacts on deer utilization of winter habitat. In the context of the proposed Two Rivers gravel pit, these results suggest that disturbance associated with mining activities will reduce deer and elk utilization of habitat in the vicinity, including the Diamond T. Ranch, with deer and elk seeking out winter range and concentration areas that have less human activity, traffic, and noise disturbances. Furthermore, halting mining activities during the winter months is not likely to improve habitat utilization. Thus, population densities of deer and elk in the vicinity of the Diamond T. Ranch are expected to decline following development of the Two Rivers gravel pit and are likely to remain at this reduced level for the duration of mining operations.

In a later study, Sawyer et al. (2009) compared behavior of deer in habitats containing well pads with gathering systems to behavior of deer in habitats containing well pads without gathering systems within the Pinedale Anticline. Well pads without gathering systems rely on trucks to haul away natural gas, and as such, these well pads have substantially higher amounts of human presence and traffic compared to well pads with gathering systems in place. The results of Sawyer et al. (2009) demonstrated that in areas both with and without gathering systems, utilization of the area by deer changed immediately once well pad construction began, with deer avoiding areas of increased disturbance and human activity. In addition, deer avoided areas much greater than the well pad itself, and this area of avoidance varied depending on the intensity of disturbance and human activity. Specifically, deer avoided an area with a radius of approximately 2.6 km surrounding the well pad itself when gathering systems were present and an area with a radius of approximately 4.3 km surrounding the well pad when gathering systems were not present. Thus, the indirect habitat loss was about 3.0 times greater than the area of direct habitat loss for well pads with gathering systems and about 8.4 times greater than the area of direct habitat loss for well pads without gathering systems. Interestingly, deer avoided these areas of disturbance and increased human activity despite being driven to areas of lower quality habitat, suggesting that increased human activity and noise, rather than habitat quality, are the largest drivers of deer population density. Research conducted in the Piceance Basin have reached similar conclusions and have demonstrated that deer alter foraging behaviors to avoid human interaction in areas disturbed by mining and migrate faster through areas with increased human presence and mining activity compared to areas with lower levels of anthropogenic disturbance (Lendrum et al. 2012; Lendrum et al. 2013; Dzialak et al. 2011). In short, these studies indicate that deer are much less likely to concentrate in areas with high levels of human and mining activity, and preferentially seek out habitat with lower levels of anthropogenic activity and disturbance. Based on the conclusions reached in these studies, it is likely that mining activities associated with the Two Rivers gravel pit will result in an area of indirect habitat loss that is much greater than the area that is directly disturbed by the mine itself and that this area of indirect habitat loss will encompass part or all of the Diamond T.

Ranch. This indirect habitat loss is likely to reduce utilization of the Diamond T. Ranch by deer and elk, reducing population densities of these species in the affected areas over the long-term.

Opinions

The following are my opinions regarding the impacts of development of the Two Rivers gravel pit to wildlife resources in and around the Diamond T. Ranch.

- Mining activities are likely to increase sedimentation and turbidity to at least some extent in portions of the San Juan River that are adjacent to the project area. Because increased turbidity and sedimentation can negatively impact egg development, insect production and the ability of fish to hunt by sight, fish populations may decline in the vicinity of the project area, including portions of the San Juan River utilized by the Diamond T. Ranch for commercial fishing.
- Mining activities will significantly increase human presence, traffic and noise in the project area. These disturbances are expected to result in deer and elk avoiding the project area, as well as habitat surrounding the project area for the duration of mining activities. Cessation of mining activity during the winter months is not expected to fully mitigate these effects. This avoidance will result in long-term or permanent reductions of deer and elk population densities in and around the Diamond T. Ranch.
- The proposed Two Rivers gravel pit occurs in an area that provides high quality habitat for a number of species including, but not limited to deer, elk and fish. Because of the unique value of this habitat for wildlife, it is recommended that mining activities be relocated to areas in the region with existing industrial development. Concentrating industrial development in this manner will help maintain viable fish populations, as well as migration corridors and winter range that have been historically utilized by deer and elk in the region.

Literature Cited

- Brown, AV, Lyttle, MM, Brown KB. 1998. Impacts of gravel mining on gravel bed streams. *Transactions of the American Fisheries Society*. 127: 979-994.
- Colorado Parks and Wildlife. 2016. Colorado Game Management Units. <http://cpw.state.co.us/learn/Pages/Maps.aspx>
- Daniel, WM, Infante, DM, Hughes, RM, Tsang, YP, Esselman, PC, Wieferich, D, Herreman, K, Cooper, AR, Wang, L, Taylor, WW. 2014. Characterizing coal and mineral mines as regional sources of stress to stream fish assemblages. *Ecological Indicators*. 50: 50-61.
- Dzialak, MR, Harju, SM, Osborn, RG, Wondzell, JJ, Hayden-Wing, LR, Winstead, JB, Webb, SL. 2011. Prioritizing conservation of ungulate calving resources in multiple-use landscapes. *PLOS One*. 6: e14597.
- Kuk, L, Hompland, GL, Merrill, EH. 1985. Elk calf response to simulated mine disturbance in southeast Idaho. *Journal of Wildlife Management*. 49: 751-757.
- Lendrum, PE, Anderson, CR, Long, RA, Kie, JG, Bowyer, RT. 2012. Habitat selection by mule deer during migration: effects of landscape structure and natural gas development. *Ecosphere*. 3: 1-19.
- Lendrum, PE, Anderson, CR, Monteith, KL, Jenks, JA, Bowyer, RT. 2013. Migrating mule deer: effects of anthropogenically altered landscapes. *PLOS One*. 8: e64548.
- Norman, DK, Cederholm, CJ, Lingley, WS. 1998. Flood plains, salmon habitat and sand and gravel mining. *Washington Geology*. 26: 3-28.
- Sawyer, H, Lindzey, F, McWhirter, D, Andrews, K. 2002. Potential effects of oil and gas development on mule deer and pronghorn populations in western Wyoming. *Transactions of the Sixty Seventh North American Wildlife and Natural Resources Conference*. Ed. Jennifer Rahm (Washington, DC, 2002).
- Sawyer, H, Nelson, RM, Lindzey, F, McDonald, LL. 2006. Winter habitat selection of mule deer before and during development of a natural gas field. *The Journal of Wildlife Management*. 70: 396-403.
- Sawyer, H, Kauffman, MJ, Nielson, RM. 2009. Influence of well pad activity on winter habitat selection patterns of mule deer. *Journal of Wildlife Management*. 73: 1052-1061.

Two Rivers Gravel Pit

This letter is being put forward in regards to the matter of C&J Gravel Products of Durango Colorado who is applying for a permit to operate a Sand and Gravel operation on the property of Jac and Lee Constant residing in Archuleta county.

We understand that C&J Gravel is a family business and has been in operation for over 38 years in the Sand and Gravel business. They are professional in what they do and have the utmost concern for the environment and the local community. C&J Gravel has provided material from the Durango pit for numerous projects in Archuleta County over the years because specified material could not be supplied from existing local pits. This of course adds significant cost to any project because of the cost of delivery. We feel that it is in the best interest of the residents and businesses of Archuleta county to have a local quality gravel resource such as the proposed Two Rivers Pit in Pagosa.

We urge the planning department, the Planning Commission, and the Archuleta BOCC to recognize the economic benefits of having a local quality gravel resource.

Quality spec gravel will improve road conditions and need less maintenance.

Savings in trucking costs can be used for other types of improvements or simply to increase the amount of material in the budget.

Per ton cost of material will be less therefore allowing more discretion with the taxpayer dollars and the county budget.

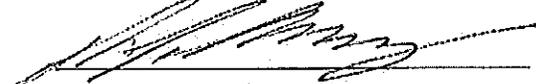
The mitigation fee that C&J Gravel will pay will speed up and significantly contribute to the improvement of roads in Archuleta County.

We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

Name Tri Star Construction, Inc.

Address _____



Bob Manafey

PO Box 857

Lgracio, CO 81137

John Shepard

From: meekins@centurytel.net
Sent: Monday, May 02, 2016 10:07 AM
To: John Shepard
Subject: gravel pit in Meadows

Please add us to the list of concerned people who are opposed to the gravel pit being routed through Meadows Subdivision.

Thank you,
Bryan and Sue Meekins
19 Peak Ct.
731-9173

April 15, 2016



Mr. John Shepard, AICP
Archuleta County Planning Manager
Archuleta County Development Services
P.O. Box 1507
Pagosa Springs, CO 81147

RE: Two Rivers Gravel Pit
Major Sand & Gravel Pit Application
By C&J Gravel Products, Inc.

Dear Mr. Shepard,

On behalf of the Board of Directors of the Pagosa Lakes Property Owners Association (PLPOA), I would like to express our strong objection to the planned course of travel of the trucks being serviced by the proposed Two Rivers Gravel Pit.

The synopsis provide by your department states:

"Assuming an average haul of 70,000 tons per year, 25 tons/vehicle, and hauling 120 days per year, average truck traffic will be 23.33 trucks per day: 21 north and 2 south, with peak traffic counts of less than 4 per hour. Of 21 north, an estimated 6 will go to SH-160 in Pagosa West, 8 to Pagosa Springs itself, with various routes through the town, 5 east through Pagosa Springs to SH-84 for delivery to County or State shops, and 2 delivery locations in the vicinity not requiring travel on state highways. County zoning and conditional use permits are expected to dictate exact routes and traffic limits." [Emphasis added.]

The Traffic Impact Study (Preliminary) states:

"After coordination and approval with County Planning, County Road & Bridge, and Town Planning/Subdivision Homeowners Associations as appropriate, when the route between a construction project and Two Rivers Pit may be justified on safety, environmental, and cost conditions, or in case of emergency requirements.

- 1. West of CR-500 to US-160, using either Bristlecone Drive or Cascade Avenue (through the Meadows Subdivision). (For any truck traffic THROUGH the subdivision, only the Cascade Avenue entrance is proposed.)"*

We are not sure when "After coordination and approval with...Subdivision Homeowners Associations as appropriate" would take place since the Pagosa Lakes Property Owners Association has to-date not been

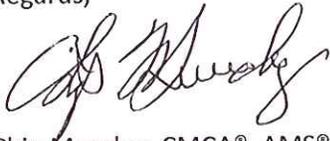
informed by your department of this proposed project or its potential impacts on our community. It was our members that brought this to our attention.

We fully appreciate and understand that the roads being considered are within the Archuleta County road system, and are maintained as such by the Archuleta County Public Works Department, specifically the Road & Bridge Division. The roads being considered have had significant degradation since the county began allowing truck traffic along Cascade Avenue, a steep and winding gravel road as well as Buttress Avenue, Meadows Blvd., and South Pagosa Blvd. which is now being used as a route to the county dump by waste collection trucks and others. Our recollection is that there was a "No Thru Trucks" signs on Cascade Avenue and Buttress Avenue until a few years ago. This decision has already had an impact on the lives of those living adjacent to these routes.

This situation will have a disastrous effect on the property values and quality of life for hundreds of properties along these routes. This proposed routes would take these trucks through 3 subdivisions of the PLPOA (Meadows 2, Meadows 3 and Meadows 4). Further, along South Pagosa Boulevard, communities and centers of community activity not affiliated with the PLPOA, including the Meadows Subdivision (aka Meadows 1), Timber Ridge, Pagosa Lakes Ranch, St. Patrick's Episcopal Church, John Paul II Catholic Church and the Pagosa Springs Medical Center will be immediately impacted. Along Meadows Drive, the Kingdom Hall and Our Savior Lutheran Church are located, including a Child Day-care Center. Looking into the future, when development occurs along Hwy 160 in the Pagosa Lakes Plaza (across from City Market), traffic and noise issues will surely become exacerbated.

In closing, the Pagosa Lakes Property Owners is extremely concerned over the potentially disastrous effect on the property values and health of all of those in our community and stand ready to take any action available to act in the interest of our membership-at-large.

Regards,



Chip Munday, CMCA®, AMS®, PCAM®, CCAM
General Manager



C&J Gravel Products, Inc.

Two Rivers Gravel Application

Dear Friends and Customers,

I am sending this letter to ask for your support of the Two Rivers Gravel Pit application to mine gravel on the Property of James and Lee Constant on Trujillo road (CR 500). C&J Gravel has been a family business for over 38 years and we are a committed business partner with this community.

As many of you know it is difficult to obtain good quality gravel in Archuleta County and as a result many of the roads are in disrepair and the cost of construction is higher than it should be. As part of our application we have had a traffic count and a traffic analysis study done by a Professional Engineer to show the impacts of the hauling from our operation. I have proposed mitigation that will not only satisfy the impact of additional traffic but will provide significant cost savings to the county for maintenance. There is great opposition to this application by land and home owners that live on the affected routes of hauling. This operation will have a small impact on the designated haul routes compared to the significant benefit that it will have for all the residents of Archuleta County.

Please support this project by writing a letter to the Board of County Commissioners or by signing this letter and returning it to us. I don't believe that we will get an approval without a tremendous showing of support in favor of this application. You can view all the application documents on the Citizen access web portal on the County web site. <http://www.archuletacounty.org/index.aspx?NID=467>

We would appreciate all supporters to come to the Planning meeting and let your voices be heard.

The **Archuleta County Planning Commission** is a special meeting on **Wed. June 8, 2016, 6:00 p.m. at Centerpoint Church, 2750 Cornerstone Dr**

The County has reserved a large room for a special meeting of the **Board of County Commissioners, Tuesday 28 June, 1:30 pm, CSU Extension Office Building, 344 US Hwy 84,**

Please send your letters to:

John C. Shepard, AICP Planning Manager
JShepard@archuletacounty.org
1122 Hwy. 84
P.O. Box 1507
Pagosa Springs, CO 81147

C&J Gravel Products
27661 Hwy 160
Durango CO 81301

Please send your letters as soon as possible so they will be considered at the Planning Commission Hearing. Thank you for your support and please feel free to call me with any questions.

Sincerely,

John Gilleland
President
C&J Gravel Products, Inc.
970-759-4112

27661 HWY 160-E Durango, CO 81301
Tel: (970) 385-4112 Fax: (970) 385-5014

Additional Comments:

I, Bruce Neil, have dealt with C & L Gravel in Durango for more than 35 years. The gravel quality is spot on and the people are courteous and very helpful.

Two Rivers Gravel Pit would be an asset to the people & County of Archuleta County.

Signature:

John Shepard

From: John Nelson <ftvalley@aol.com>
Sent: Monday, May 09, 2016 9:01 AM
To: John Shepard
Cc: lwnhorses@gmail.com; FtValleyPS@aol.com; chipm@plpoa.com
Subject: Two Rivers Gravel Pit Proposal

Dear Mr. Shepard:

Please consider these comments in Archuleta County's process for dealing with the matter of the proposed Two Rivers gravel pit, and specifically the proposed haul routes.

I am not writing this solely because the haul road routes for this proposed pit go through our neighborhood, and the resultant impacts on our experience, roads, and property values would likely be adverse and unacceptable. In addition to those concerns, I am writing because I do not believe the routes as currently proposed are either constructed or usable for this kind of hauling (grade and thickness of paving), and they would not stand up to heavy truck use for any appreciable period of time - and I'm mostly speaking of the asphalt paved routes. In fact, given their poor current condition with checking and crumbling I believe that these routes would deteriorate significantly soon after heavy hauling was started. As I'm sure you know, several of the subject roads in the Meadows area are already in rather poor condition, with patchwork repairs and failing asphalt. This then begs the question of what would be done, who is responsible, and what plans would or could be put in place to mitigate these concerns should the roads be selected as heavy haul routes. How does Archuleta County intend to cover this eventuality?

As a growing community we need good gravel sources - I understand that and would support the effort to find them. But my experience with these matters, through about forty years of work with state departments of transportation and with the U.S. Forest Service, has taught me what I believe to be are critical factors to think about when searching for a materials source. First and foremost is that the sources should not be located in and around communities for a multitude of reasons, including hauling nuisance, road impacts, dust, noise, etc. Instead, rather than spend a lot of time and effort (and money) on material sources/pit searches in and around communities, I would strongly recommend interested parties either find private material sources adjacent to or near state highways, and perhaps as important, that they work with state and federal entities to secure common sources that can be operated in a mutually beneficial way. I have over and over again seen material source searches take a path such as this one, where community concerns over adverse impacts end up trumping other positives for the project, and, ultimately, the search for the pit ends up somewhere else more suitable.

I hope my comments here are helpful. Please feel free to contact me if you have questions or comments. Thanks in advance for your understanding and cooperation in this matter.

John Nelson
281 Pompa Drive
Pagosa Springs, CO 81147
928-853-0348

We need gravel
experience with material pit selection
Meadows and other area roads not constructed or suited for heavy haul traffic
Selected materials source must come from a pit located off a main highway or county road further study otherwise is wasted funding
Plan with CDOT and FS

John Shepard

From: Brittiany Newsome <brittianynewsome@gmail.com>
Sent: Wednesday, April 27, 2016 10:51 AM
To: terri@pagosasun.com; larryl@plpoa.com; jenp@plpoa.com; John Shepard

Dear

It has come to our attention that Two Rivers Gravel Pit is currently seeking permission from the county to establish a gravel pit that will directly increase traffic through the neighborhood of Meadows here in Pagosa Springs. Specifically the traffic will include dump trucks totaling approximately six an hour through Meadows, South Pagosa Blvd, Buttress and Cascade. As residents living at the corner of Meadows and Buttress this potential change could have a major impact on our home environment. My husband and I relocated to Pagosa in the summer of 2015 from Georgia seeking the quiet nature filled life of Colorado for not only ourselves but our two young girls. We found the perfect home here in the PLPOA protected residential neighborhood of Meadows. We are now settling into the amazing experience of living in Pagosa with our children, horses, and dog. Unfortunately we feel that if this gravel pit is approved and the trucks are permitted to pass through our neighborhood our quiet safe corner will be drastically changed to a busy, loud, dusty, and unsafe place for our family. My daughters and I frequently ride horses down Buttress and Cascade as well as walking and riding bikes with our dog. As a mother I definitely do not feel like these practices would be safe if the traffic were to change. I know from speaking to our neighbors that we are not the only ones afraid to see this change occur. I am writing this letter to raise awareness of these county plans and to join voices with my neighbors in requesting that other plans please be considered before taking away the life style many of us were seeking in settling here in the Meadows area.

Thank y'all for your time and considerations,
The Newsome Family

received
4/26/16

April 22, 2016

Sheryl Oliver / 504 Hills Circle/ PS / 81147

John Shepard, Planning Manager

PO Box 1507

Pagosa Springs, CO 81147

Dear Mr. Shepard,

Your name and address was in the letters to the editor as the person to contact concerning The Gravel Pit.

The Gravel Pit is not the problem. It is getting the gravel from the pit to the users.

It is clear that "The health and well-being of your citizens out-weigh the needs and wants of the few".

I don't know where gravel "lives". There has to be a solution for the miners to find a location that does not necessitate its trucks to run through places of residence.

Can you look deeper into this and find a solution that is equitable for both sides?

I live on a dirt road and dust plumes from cars and trucks is a health hazard and a big nuisance. I moved from the city 4 years ago, and was naïve about this big problem.

Please keep the needs of your citizens in mind about this matter. The Pagosa way of life is precious. I really believe you can serve both masters with this conflict so that all interests are served.

Sincerely,

Sheryl Oliver

John Shepard

From: bjc614@comcast.net
Sent: Tuesday, May 31, 2016 3:37 PM
To: John Shepard
Subject: Gravel Trucks going through Meadows 1-4

Dear Mr. Shepard:

We own property in Meadows 2 on Feather Ct. We do NOT want gravel trucks going on Meadows Blvd. to/from the pit. They will be dirty, noisy, deter wildlife and ruin the roads. Another route to the pit must be found/made. This is a residential neighborhood and not appropriate for heavy commercial traffic on a daily basis!

Thank you.

Sincerely,
Barbara (Clabaugh) Pugh

John Shepard

From: Fred Rosenbaum <rosenbaumf@gmail.com>
Sent: Friday, May 27, 2016 2:22 PM
To: commissioners; John Shepard
Subject: Meadows Drive

Dear Sirs,

I am writing to strongly object to the continuous use of heavy commercial vehicles on Meadows Drive. I am a homeowner who accesses our property via Meadows and have witnessed the use of our residential street over the past few summers for the hauling of heavy loads on a daily basis. I urge you to find a better route for your truck to utilize.

Fred Rosenbaum
137 Antler Court

Two Rivers Gravel Pit

This letter is being put forward in regards to the matter of C&J Gravel Products of Durango Colorado who is applying for a permit to operate a Sand and Gravel operation on the property of Jac and Lee Constant residing in Archuleta county.

We understand that C&J Gravel is a family business and has been in operation for over 38 years in the Sand and Gravel business. They are professional in what they do and have the utmost concern for the environment and the local community. C&J Gravel has provided material from the Durango pit for numerous projects in Archuleta County over the years because specified material could not be supplied from existing local pits. This of course adds significant cost to any project because of the cost of delivery. We feel that it is in the best interest of the residents and businesses of Archuleta county to have a local quality gravel resource such as the proposed Two Rivers Pit in Pagosa.

We urge the planning department, the Planning Commission, and the Archuleta BOCC to recognize the economic benefits of having a local quality gravel resource.

Quality spec gravel will improve road conditions and need less maintenance.

Savings in trucking costs can be used for other types of improvements or simply to increase the amount of material in the budget.

Per ton cost of material will be less therefore allowing more discretion with the taxpayer dollars and the county budget.

The mitigation fee that C&J Gravel will pay will speed up and significantly contribute to the improvement of roads in Archuleta County.

We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

Name Ryan Saunders
[Signature]

Address 22991 RD N
Cortez, CO 81321

John Shepard

From: Randy Senzig <rsenzig1960@gmail.com>
Sent: Monday, May 09, 2016 9:58 AM
To: John Shepard
Subject: Gravel pit

Hi, my wife Joann and I are against the proposed gravel pit on triujillo Rd
We are constructing a new home on antler ct and do not feel this a good place to locate a pit. We walk and ride our horses on meadows Dr and feel the truck traffic will create unsafe conditions Randy Senzig at 19 antler ct

Two Rivers Gravel Pit

received
5/31/16

This letter is being put forward in regards to the matter of C&J Gravel Products of Durango Colorado who is applying for a permit to operate a Sand and Gravel operation on the property of Jac and Lee Constant residing in Archuleta county.

We understand that C&J Gravel is a family business and has been in operation for over 38 years in the Sand and Gravel business. They are professional in what they do and have the utmost concern for the environment and the local community. C&J Gravel has provided material from the Durango pit for numerous projects in Archuleta County over the years because specified material could not be supplied from existing local pits. This of course adds significant cost to any project because of the cost of delivery. We feel that it is in the best interest of the residents and businesses of Archuleta county to have a local quality gravel resource such as the proposed Two Rivers Pit in Pagosa.

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We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,

Name 
KEN SMITH

Address P.O. Box 1452
PAGOSA SPRINGS 81147

Road Rage

Yes, road rage, but a different type. But first a little causative history as I understand it. When Cascade Ave was extended in the 1990s connecting Buttress Ave and Trujillo Rd, the easement granted by the Alpine Cascade Ranch apparently carried with it a stipulation that there be no through truck traffic. Indeed, there were signs stating this at the intersection at each end of Cascade Ave. In spite of posted sign restrictions, over the ensuing years landfill destined truck traffic increased to a level that initiated numerous complaints by area residents. The response from the BoCC serving at that time was that the ban on through truck traffic was “unenforceable”. In the early 2000s, apparently as a consequence of continued complaints, the BoCC's solution was to remove the signs, resulting in marked escalation of commercial trash truck traffic over the last decade through the Meadows subdivision on South Pagosa Blvd, Meadows Dr, Buttress Ave and Cascade Ave en route to the landfill. When a current county official was asked how these changes were allowed, the response was that a previous county engineer declared the signs “illegal”. Why?

These were irresponsible and negligent actions on the part of past county officials. Pagosa Meadows I - IV are residential subdivisions. Residents chose this area because of quality of life and expected it to be quiet, peaceful, safe, have low levels of air and noise pollution, and low traffic volumes in order to raise families and enjoy the outdoor surrounds. Instead, roads and streets have become truck thoroughfares, and residents are inundated daily with noise barrages and dust plumes from commercial trash trucks to and from the landfill. Posted speed limits (35mph) are higher than those suggested in the Road and Bridge Standards for residential areas (30mph, Sec 27.1.3.2B) and are mostly ignored and exceeded. Surface conditions on unpaved roads are deplorable the majority of time, and any improvement by grading and magnesium chloride application is rapidly lost due to the truck's weights and speeds.

Let me illustrate this point . A three-axle trash truck weighs between 20 and 32 tons, and while this is approximately 20 times the weight of an average car, engineering studies have shown that one trip by a three-axle trash truck is equivalent to 1,429 car trips with regard to wear and deterioration of road surfaces! The county's Road and Bridge Standards state that traffic volume in excess of 700 ADT (avg daily trips) require paving (Sec 27.1.3.2C). So the question is: 700 ADT of what type of vehicle? By the county's own regulations, one trip by a trash truck should warrant paving of Buttress and Cascade Aves.

Now you have before you a proposal to establish a gravel pit on South Trujillo Rd. The preponderance of commercial truck traffic to and from the pit is destined to course on Trujillo Rd, Cascade and Buttress Aves, Meadows Dr, and South Pagosa Blvd, or via Apache, 8th, and 6th Streets, Hot Springs Blvd and Light Plant Rd, all residential and town areas. Average weight of haul trucks will be 25 tons, thus creating the equivalent environmental chaos per vehicle as a trash truck. According to the proposal, truck volume will average 4 to 6 trucks per hour, during business hours, for 120 days per year. This excessive Increase in commercial truck traffic will make a bad situation intolerable.

It is your responsibility to the citizens and residents of the county to protect the public health, safety and welfare as proclaimed on the Archuleta County website. I ask that you respect this charge and honor all aspects of quality of life in our county, and urge you to deny the gravel pit application. Furthermore, it is incumbent upon you as county officials to begin a serious

investigation into the amount of commercial truck traffic that has been allowed on Cascade Ave, Buttress Ave, Meadows Dr and South Pagosa Blvd as the result of previous irresponsible and negligent decisions, or lack of decisions, and then to initiate positive steps to remediate and mitigate this situation.

Thank you.

Howard Strahlendorf

received
4/25/16

Dear John,

I am concerned about the use of residential roads to service the proposed gravel pit on south Trujillo Rd, and the impact of 25-ton gravel-hauling trucks on health and quality of life in our county. Archuleta County's Land Use Regulations under "Emission of Particulate Matter" state: "Every use shall be operated in compliance with CDPHE standards for particulate matter". A majority of atmospheric particulate matter (PM) comes from dust generated from unpaved roads, construction activities, and mining/quarrying activities. PM is microscopic mass suspended in the air and can contain metal, soil particles and allergens (pollen and mold spores). Air quality PM standards are established by the EPA and state governments to protect the health of all members of society. PM irritates the eyes, nose and throat and can cause serious inflammation in airways resulting in asthma, COPD, pneumonia, emphysema, pulmonary fibrosis and lung cancer. A resident whose home is on the unpaved portion of Buttress Ave. has developed a "dust-induced asthmatic condition" that according to his pulmonologist was "directly due to unhealthy air quality".

2.2.5.1 Pagosa has equaled or exceeded the upper limits for PM levels set by CDPHE and the EPA in 5 of 6 recorded years (2008-2013). Three days in 2013, Pagosa exceeded the PM limit: regulations stipulate the limit should not be exceeded more than once/year. PM measurements were taken on Lewis Street, and presumably were lower than would be expected from rural areas where unpaved roads predominate and inevitably yield vehicle-generated PM-laden dust plumes. The ubiquity of dust plumes on unpaved roads suggests that air PM levels along rural roads exceed allowable limits for PM, particularly during the summer months when roads are dry and large traffic volumes occur.

2.2.5.1.1 PM levels are related in part to: vehicle weight, number of wheels, speed, and road surface moisture. Because the quantity of PM generated on unpaved roads is directly related to weight, size and speed of vehicles, one could surmise that unpaved roads (i.e., Trujillo, Cascade and Buttress) that currently experience heavy truck traffic from commercial trash companies are currently out of compliance with PM emissions endangering the health of nearby residents. Allowing additional large 25 ton gravel-hauling commercial trucks to traverse these unpaved roads would gravely exacerbate the problem.

2.2.5.1.2 Furthermore, the Land Use Regulations also require that sound generated by all mining operations, industrial uses and commercial businesses not exceed 45 db (about the level of noise in an office). Many commercial trucks currently emit thunder-like sounds that reverberate and echo through the neighborhood (approximate intensities of 80-120 dB) as they traverse wash-boarded road conditions on Cascade and Buttress Aves.

2.2.5.2 In the spirit of the Archuleta County Community 2020 Plan, I would encourage our elected officials to continue to "preserve the outstanding scenic and natural qualities of our county" and deny the sand and gravel pit proposal on Trujillo.

Jean Strahlendorf

19 May 2016

Dear John,

First let us start with a couple of comments by Thomas Leffew, Durango area manager for Elam Construction, a firm hired by Archuleta County to repave Park Ave in 2009, and to chip seal North Pagosa Blvd and Meadows Drive in 2011. These are excerpted from the September 28, 2011 Pagosa Daily Post.

“Those roads were only seven or eight years old, out there. And the condition they were in was horrible. I mean, whoever built those roads originally ... the paving thickness varied between 1 1/2 inches to 5 inches, when we did the patching. And there were places where there was no road base under the existing roads, where the road is falling apart. So I don’t know who or when or how it got built; it was some horrible workmanship.”

“It’s ridiculous. There’s only 1 1/2 inches of paving in some spots, and that’s why those roads are falling apart. And underneath them, the subgrade wasn’t built properly. There were places, when we dug out to do the patching, you could smell the rotting roots and debris ... you know, right underneath the roadway.”

“My understanding is that Meadows was paved seven years ago. That kind of road should last 25 years, if it were built properly.”

A statement by Bill Hudson later in the article stated: “According to a 2009 press release from Archuleta County, the reconstruction of Park Avenue and a portion of Cloud Cap cost the County about \$1.8 million. **That comes to about \$1 million per mile of reconstructed roadway. Single-layer chip seal runs about \$100,000 a mile** — about one-tenth the cost of reconstruction.” (emphasis added)

Then in the follow-up article published on September 30, 2011 Ken Feyen, Archuleta County Public Works Director, followed with these comments regarding the situation of paved roads in the Pagosa Lakes region, originally developed by Fairfield Pagosa. Meadows subdivisions also were part of the Fairfield Pagosa developments.

“Some of those paved roads are anywhere from seven to ten years old, and they’ve had zero preventative maintenance.”

“Ideally, on a newly paved road, you would do a seal coat after three, four, five years, depending on weather and traffic. Then about your seventh or eighth year, you would do a chip seal. And you would alternate about every three to five years. If you do that, your asphalt will last pretty much in perpetuity.”

Bill Hudson further wrote: “**Laying seal coats and “chip seal” coats on badly constructed, poorly maintained pavement is, at best, a temporary band-aid, Mr. Feyen explains. Yet even that very minimal maintenance costs us three to five times what it costs to maintain a typical gravel road.What basically needs to be done in Pagosa Lakes, it appears at first glance, is to rebuild all the paved roads.**” (emphasis added)

One of our neighbors, knowledgeable in road construction, measured the asphalt depth on

Meadows Drive through one of thousands of convenient cracks and found it to be 1½ inches thick, far below the 4 inch thickness specified by the current County Road and Bridge Standards for a major collector road. This verifies the impressions by Mr. Leffew and Mr. Feyen made 5 years ago.

So going through the mitigation plan submitted by C & J Gravel this is what we see to be the situation.

- By C & J's engineering calculations, the impact to S. Pagosa Blvd by their trucks will be **45%** of wear and tear by all traffic, the impact to Cascade Ave by their trucks will be **63%** of wear and tear by all traffic, the impact to County Road 500 by their trucks will be **62%**.
- Our analysis of the county budget and Mr. Feyen's comments reveal the yearly cost to the county to maintain a gravel road is about \$5,900 per mile and the yearly cost for a paved road is about 3-5X that, or up to \$30,000 per mile.
- Therefore to mitigate **yearly** damage to S. Pagosa Blvd caused by C & J trucks would amount to 45% of \$72,000 (2.4 miles x \$30,000/mile) or **\$32,400/yr**. To mitigate the damage caused to Cascade Ave (and other gravel roads) would be 63% of \$5,487 (\$5,900/mile x 0.93mile) or **\$3,457/yr**.
- C & J is offering \$16,447 yearly for S. Pagosa Blvd, and over a 20 year period the county will be **shorted \$319,060 for S. Pagosa** (\$32,400-\$16,447=\$15,953 x 20yr= **\$319,060**).
- C & J is offering \$524 yearly for Cascade Ave, and over a 20 year period the county is **shorted \$58,660** (\$3,457-\$524= \$2,933 x20 = **\$58,660**) far below the needed amount.
- County maintenance of **County Rd 500** (Trujillo Rd) for 20 yr is **\$1,180,000** (10 miles x \$5,900/mile x 20 yr =\$1,180,000). C& J has calculated an impact factor of 62% for County Rd 500 (62% x \$1,180,000 =**\$731,600**).
- **No mitigation** from C & J for County Rd 500 has been included in their report. In fact, there is no mitigation offered by C & J for the **alternate route** down County Road 500 to Light Plant Road, a route that is primarily paved.
- Combining the above-mentioned shortages for Cascade, S.Pagosa, and a portion of County Rd 500, the county will experience a **\$1,109,440** shortfall, just for these three roads alone, **assuming no repaving is necessary**. Please be mindful that if the county needs to pave only one mile along any of the proposed haul routes, **a cost of at least \$1,000,000 per mile will be incurred**. Therefore, any purported savings claimed by C & J Gravel are erased by the calculated shortfall in maintenance costs of county roads for the proposed haul route alone.
- C & J's mitigation plans call for adding gravel to Cascade Ave every 5 years and chip sealing S. Pagosa every 10 years, **a strikingly deficient frequency and amount**. As acknowledged by road engineering standards and stated by Mr. Feyen the requisite frequency is every 3 to 5 years to be beneficial in prolonging the life of the road.
- S. Pagosa Blvd is already deteriorating because of sub-standard construction. Chip sealing even at the preferred time intervals will be insufficient to maintain it. With increased heavy truck traffic it will need to be completely reconstructed in a few years, **costing the county conservatively \$1million per mile and several million dollars totally**.
- C & J Gravel's proposal falls significantly short of the costs to mitigate projected deterioration to the roads they intend to use as haul routes. These figures are based on a 20 year average with no accounting for price increases or inflation.

So the question is: Is Archuleta County ready to commit to this agreement with C & J Gravel and take on the **added** expense of road maintenance that amounts to a 20-yr shortfall of **\$1,109,440** (not including the cost of the paved roads for the alternate route to Light Plant Road), as well as the cost of probable repaving?

We urge county officials to closely scrutinize the numbers in the C & J proposal. As the saying goes: "The devil is in the details". They are grossly inadequate and will leave the county in a fiscally worse situation with regard to roads than they are currently. And please also consider, this situation is for 20+ years, with no provision for escalating costs. This is a win-lose situation, with the county being the loser.

Sincerely,
Jean and Howard Strahlendorf

John Shepard

From: Jean & Howard Strahlendorf <pairadocs@centurylink.net>
Sent: Tuesday, May 24, 2016 7:12 PM
To: John Shepard
Subject: trujillo road condition

Hi John,

Just wanted to request that you consider traversing Trujillo Road near the intersection with Bristlecone. It provides an example of road damage that has occurred within a few weeks after grading and MgCl₂ application by the gravel trucks supplying the upper part of the Trujillo repaving project. This truck traffic would represent a fraction of the proposed gravel truck trips by C&J. I find the amount of damage that has occurred on Trujillo road in such a short time unacceptable for any county road.

Sincerely,

Jean Strahlendorf

John Shepard

From: Garlick, Jacob <jgarlick@southernute-nsn.gov>
Sent: Thursday, May 26, 2016 11:41 AM
To: John Shepard
Cc: Taylor, Sarah; Taylor Cruz, Michelle
Subject: Two Rivers Pit Major Sand & Gravel Permit

To whom it may concern,

The Southern Ute Indian's Department of Tribal Planning received a letter dated May 18th, 2016 concerning "a previously noticed, C&J Gravel Products, Inc, of Durango, Colorado, represented by Nathan Barton, Wasteline, Inc., have applied for a Major Sand & Gravel Permit for the proposed Two Rivers Pit, to be located on property owned by the James A. Constant Jr Revocable Trust and Leila B. Constant Revocable Trust; NW1/4NE1/4, S1/2NE1/4 and NE1/4SE1/4 of Section 10 and N1/2SW1/4 and S1/2NW1/4 Section 11, T33N R2W NMPM at 12500 County Road 500, Pagosa Springs, CO."

Our office can find no indication that a notice was previously sent concerning this project, and given its proposed location within the exterior boundaries of the Southern Ute Indian Reservation, we would like to request more information on the project, to be sent over as soon as possible, so that our Departments have a chance to review potential impacts to the Tribe and subsequently provide comments to your office. If a notice was previously provided to Tribal Planning or another Department within the Southern Ute Permanent Fund, please provide documentation of such action. Please let me know if you have any questions, comments or concerns.

Thank you,

Jacob Garlick
Tribal Planning Intern
Southern Ute Indian Tribe
(970) 563-0100 x 2241 | (970) 749-0868
jgarlick@southernute-nsn.gov

Two Rivers Gravel Pit

This letter is being put forward in regards to the matter of C&J Gravel Products of Durango Colorado who is applying for a permit to operate a Sand and Gravel operation on the property of Jac and Lee Constant residing in Archuleta county.

We understand that C&J Gravel is a family business and has been in operation for over 38 years in the Sand and Gravel business. They are professional in what they do and have the utmost concern for the environment and the local community. C&J Gravel has provided material from the Durango pit for numerous projects in Archuleta County over the years because specified material could not be supplied from existing local pits. This of course adds significant cost to any project because of the cost of delivery. We feel that it is in the best interest of the residents and businesses of Archuleta county to have a local quality gravel resource such as the proposed Two Rivers Pit in Pagosa.

We urge the planning department, the Planning Commission, and the Archuleta BOCC to recognize the economic benefits of having a local quality gravel resource.

Quality spec gravel will improve road conditions and need less maintenance.

Savings in trucking costs can be used for other types of improvements or simply to increase the amount of material in the budget.

Per ton cost of material will be less therefore allowing more discretion with the taxpayer dollars and the county budget.

The mitigation fee that C&J Gravel will pay will speed up and significantly contribute to the improvement of roads in Archuleta County.

We strongly support this project and request that the Planning commission and the Archuleta BOCC approve this permit for the benefit and future improvement of Archuleta county.

Sincerely,



Name

Kenneth Tooker

Address

2770 Ranchland Dr,
Pagosa Springs, CO
81147

received
5/20

Two Rivers Gravel Pit

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Sincerely,

Name Jim Tyrrell
Carol Tyrrell

Address 209 Anna Road
Ignacio, CO
81137

John Shepard

From: Kristin Vorhies <vorhies@centurytel.net>
Sent: Tuesday, May 24, 2016 1:31 PM
To: John Shepard
Subject: Please say NO to commercial trucks in the Pagosa Meadows residential neighborhoods

Dear Planning Members: Mr. Frederick, Ms. Hooton, Mr. Adams, Mr. Parker, and Ms. Shahan, and others,

We are writing to ask you to please consider an alternative route (perhaps Cat Creek Road) for commercial trucks accessing the proposed Two Rivers Gravel Pit instead of through our residential neighborhoods in the Pagosa Meadows area. May I say in no uncertain terms...the thought of this is SHOCKING. To think you would allow the destruction of our serene, quiet, peaceful surroundings filled with beautiful and abundant wildlife is completely heart breaking.

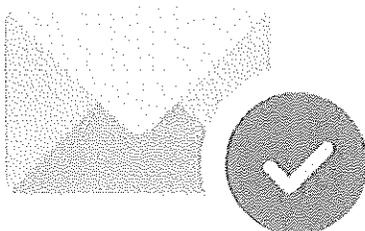
Please do NOT approve this invasive, relentless ruination of our neighborhood. Can you imagine if this were to be forced upon you, your home, and family? Who wants large commercial gravel trucks running up and down their streets destroying the peace, solitude, quiet, and property value; along with the safety to children, pets, humans and wildlife, not to mention the pollution, and health issues associated with the dust and noise?

The roads in this neighborhood are already compromised. They are riddled with cracks, potholes, and chipped pavement. We have, over the years, pleaded for repairs that rarely happen and when they do, they are woefully inadequate. These roads barely handle the residential traffic, let alone the major damage and destruction large, oversized and overweight trucks would impose. Surely, you are aware the proposed mitigation costs will never keep up with the damages these trucks will do. At over a million dollars per mile to re-pave (which needs to happen soon)...just how much savings will this really bring to the County? I believe over the course of time, it will cost much more than we save.

We all moved here for the peace and quiet; the beauty, the wildlife, and wonders of nature. Again, please DO NOT approve this travesty which would ruin property values, homes and families, as well as, jeopardize the safety of our children & pets; the horseback riders, walkers, runners, bikers, nature lovers, and the wonderful wildlife we so enjoy.

Thank you in advance for your thoughtful consideration in this matter.

Respectfully,
Kristin & Lee Vorhies
Property Owners
2153 So. Pagosa Blvd.
Pagosa Springs, CO. 81147



Virus-free. www.avast.com

John Shepard

From: gbw@centurytel.net
Sent: Thursday, May 05, 2016 2:53 PM
To: John Shepard; Toby Tollefsen; Brittiany Newsome; George Dougherty; pairadocs@centurylink.net; Lark & Denny Beaugureau
Subject: Gravel Pit

John:

Recently, my wife and I drove out to Cat Creek Road and Highway 160 and recorded the mileage from there to the Diamond T Ranch exactly 30 miles. We then recorded the mileage from the Diamond T Ranch down Trujillo road, up Cascade, across Buttress, and finally up Meadows to Highway 160 13.2 miles. Keep in mind that C & J Gravel selected a site for a sand and gravel operation knowing they had NO access to a highway within a reasonable distance. So, they have decided to decimate our residential developments by routing their trucks thru the developments. It is very unusual to have a S&G operation that does not have a quick easy access to a highway, however that was the decision THEY made. Therefore, as I see it, they have two options to bring their product to Highway 160. The first option is to come thru our developments and destroy our environment and way of life, which is totally UNACCEPTABLE. This, of course, is their preferred option for financial reasons. Again keep in mind they chose the location for their S&G operation, so in my opinion they have only one optionthey can utilize CR 500 to Cat Creek Road, to Highway 160, a very isolated, sparsely populated stretch of road. This route would keep their trucks out of residential developments, and bring them to a highway designed to carry heavy truck loads. Of course, THEY must decide if the additional costs to drive the extra 16.8 miles is financially feasible..... if not, I suggest they find another location for their gravel pit. Keep in mind, if this gravel pit and truck routes are approved, gravel pit trucks will not be the only trucks traveling thru our developments. Contractors and others will then traverse thru our developments to and from the gravel pit, making an already ill-advised, destructive, disastrous and devastating situation even worse.

Those of us who live in the developments along these proposed truck routes, respectfully request your support by denying the gravel pit permit.

*Gary Waples
298 Meadows Drive
Pagosa Springs*



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John Shepard

From: gbw@centurytel.net
Sent: Sunday, May 29, 2016 9:51 AM
To: John Shepard
Cc: John Shepard
Subject: Proposed gravel pit routes
Attachments: P1180139.jpg; P1180140.jpg; P1180141.jpg; P1180142.jpg; P1180143 (7).jpg; P1180144 (7).jpg; P1180145 (7).jpg; P1180146 (7).jpg; P1180147 (7).jpg; P1180148 (7).jpg; P1180149 (7).jpg; P1180161.jpg; P1180162.jpg; P1180163.jpg; P1180164.jpg; P1180165.jpg; P1180166.jpg; P1180167.jpg

John Shepard:

Friends of the Meadows have retained Mr. James Hawkins to evaluate the paved portion of the proposed Gravel Pit Haul Routes, with regards to their original construction, current condition/damage, and the projected damage and repair costs should the haul routes be approved.

Mr. Hawkins worked for the New Mexico State Highway and Transportation Department for 26 1/2 years. He was a certified engineer tech, a unit supervisor in the pavement evaluation and design unit, and was occasionally utilized as a road inspector. His primary responsibility was to evaluate the design of all state highways and make recommendations for change.

His inspection and evaluation of the proposed haul routes has revealed wheel rutting, centerline separation, and sub base failure which causes pavement distress leading to alligator cracking, and pot holes. In his opinion, when the roads were originally paved, approximately seven years ago, the base course, and sub base, were likely inadequate and the asphalt recently measured at 1 1/2 inches, definitely did not meet Archuleta County Road and Bridge Design Standards and Construction Specifications. The results of the inadequate road construction has resulted in the road damage we're now experiencing with the use primarily being residential, garbage trucks, and a relatively low number of dump trucks, etc., as compared to the proposed number of gravel trucks which will travel these roads on a daily basis.

In Mr. Hawkins' opinion, if these haul routes are approved, and the estimated number of trucks traveling the routes is actually experienced, in very short order these roads will be so severely damaged that they will need to be stripped down to base and rebuilt at a cost to the county at a conservative estimate of \$1,000,000 per mile.

In our opinion, this adds to the body of evidence that these haul routes are not only detrimental to the residents along the routes, but an unnecessary financial burden to the Archuleta County tax payers.

Gary Waples, for
Friends of the Meadows

John Shepard

From: Barbara Wilcop <barbarawilcop1204@icloud.com>
Sent: Friday, May 06, 2016 8:45 PM
To: John Shepard
Subject: Gravel pit trucks

We are homeowners in Meadows 4. We have owned our home for 11 years. We value our quiet area and definitely DO NOT want gravel pit trucks going through our community!! We do not want our home devalued!! Please stop this proposal!

Donald & Barbara Wilcop
Buttress Ave.

Sent from my iPad

May 28, 2016

Attn: Mr. John Shepard/ Archuleta County Commission
Archuleta County Planning Manager
Archuleta County Development Services
P.O. Box 1507
Pagosa Springs, CO 81147

**RE: Two Rivers Gravel Pit
Major Sand & Gravel Pit Application Operated by C&J Gravel Products, Inc. Through Meadows
Subdivisions 1 Through 4**

Mr. John Shepard et al,

I am writing to protest the proposed traffic route of gravel trucking operated by C&J Gravel through the Meadows subdivisions 1-4. As a recent purchaser of a unit in Meadows 4, I am vehemently opposed to this. The removal of signs restricting heavy traffic on the main connection route of Cascade Avenue off of Buttress without a public hearing, much less that of the PLPOA is outright dishonest and devious.

After an exhausting search throughout Archuleta County for a build plot, I chose Meadows 4 for its serene a quite location. Per the previous comments, I will not spend my retirement years battling dust, noise and reduced road service life generated by heavy equipment routinely traversing my neighborhood.

As this is my planned retirement place of residence, I am tendering my vote against this proposed route through my neighborhood. C&J Gravel must be required to use the most direct route which is Highway 160 to Trujillo Road. If C&J Gravel cannot accept this, they can move their operation elsewhere.

A handwritten signature in black ink, appearing to read "Scott Wolff". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Scott Wolff

65 East Monroe Street
4707
Chicago, IL 60603
(312) 332-3230
(195 Cameron Place | Pagosa Springs, CO 81147)

Cc: Sue Passant/Pagosa Lakes Property Owners Association ("PLPOA")



May 27, 2016

MEMORANDUM

TO: Mr. Rob Podoll
Podoll & Podoll, P.C.

FROM: Devin C. Joslin, PE, PTOE

SUBJECT: Two Rivers Gravel Pit
Peer Review of Roadrunner Engineering, LLC. Traffic Impact Assessment
FHU Reference No.116129-01

Felsburg Holt & Ullevig (FHU) has investigated traffic engineering aspects of the proposed Two Rivers Gravel Pit that is planned to be located at 12500 County Road (CR) 500 approximately 11.5 miles to the south of the Town of Pagosa Springs in Archuleta County, Colorado. This review focuses on the *Two Rivers Pit Traffic Impact Assessment (TIA)* that was prepared by Roadrunner Engineering, LLC on May 9, 2016. This edition of the report is based on 100,000 tons of aggregate per year. Of note, information contained in the Major Sand & Gravel Permit Application and preliminary traffic impact study prepared by Wasteline, Inc. on January 29, 2016 indicates an estimated 70,000 tons of aggregate per year.

The TIA contains some ambiguities relative to the site-generated traffic volume levels and how those vehicle-trips will be distributed onto the surrounding roadway network. The recommended traffic impact mitigations neglect to account for any initial upgrades along the proposed respective haul routes, such as increasing the pavement thickness, that may be required prior to the gravel pit opening. It is critical that the proposed haul routes be investigated to understand whether the existing structural elements of each are adequate for the projected volume and types of heavy trucks that are planned to be used. If not designed and constructed properly from opening day, the road surface could deteriorate much more quickly than expected, at the risk of triggering potentially major repairs beyond those accounted for in the proportionate share mitigation cost calculations. Some key additional intersection-specific issues corresponding to intersection sight distance, peak hour intersection level of service and vehicle queuing analyses and truck turning paths through intersections along the proposed haul routes also are not addressed. These items are discussed in more detail at the conclusion of this memorandum.

This peer review is formatted corresponding to specific sections that are contained within the TIA report. The items from each section of the TIA report that are worth pointing out for further clarification, revision or consideration are noted below each of the section headings within this memorandum.

Existing Conditions (Traffic Counts)

The report improperly bases the classification of area roadways on the traffic volumes that were recorded for the study. Roads that had less than 400 vehicles per day (vpd) were classified as Low Volume Roads. However, according to Section 27.1.2 of the *Archuleta County Road and Bridge Design Standards and Construction Specifications*, road functional classifications are determined at the County's discretion according to their purpose and function. Road functional classifications for each key roadway segment should be verified with County staff to ascertain appropriate right-of-way, cross-sectional, lane width and other requirements.

Existing Conditions (Accident Records)

The crash data summary appropriately includes a review of the most recent five-year period (2011-2015). However, no analysis beyond a basic summary of the number, type and location of crashes is provided. Generally, crashes occurring at intersections are reviewed separately from those occurring along a roadway segment. It is noted that 10 crashes occurred on a two-mile segment of Light Plant Road, but no effort was made to ascertain whether the frequency or severity of crashes along this road segment, or any other within the study area, could be considered higher than expected in terms of a crash rate. In addition, there is nothing included in the narrative relative to whether any particular crash patterns were evident.

Speed Limit and Stopping Sight Distance

The report refers to CR 500 as having a posted speed limit of 35 miles per hour (mph); however, CR 500 does not have a posted speed limit. Motorists traveling along the roadway are to follow Colorado basic prima facie speed limits which are 40 miles per hour (mph) for open mountain highways and 20 mph for narrow, winding mountain roads. A sign indicating these basic limits is posted along CR 500 in the southbound direction to the south of South 10th Street.

Speed limits on other roadways that are proposed to be used as haul routes, such as Cascade Avenue and South Pagosa Boulevard, are not stated.

The report also points out that advisory speed signs are posted in advance of sharp roadway curves. During a field visit that was conducted on May 18-19, 2016, it was noted that the only turn warning sign along the segment of CR 500 between the Town and the proposed gravel pit site access is posted in the southbound direction in advance of the sharp turn that is located to the south of the Transfer Center. An advisory speed for the turn is not posted, however.

The report acknowledges that there are areas along CR 500 with deficient stopping sight distance and analyzes three of those particular areas. The sight distance evaluation references AASHTO standards, however Archuleta County standards (27.1.3.3.A.1.a) for calculating stopping sight distance govern.

With respect to the limited stopping sight distance condition, the report should also verify that the three curves in question can accommodate vehicles traveling in both directions, without encroachment, for the specific types of trucks that are proposed to be used, particularly for the turn at MP 6.4 that is noted as having an approximate radius of 185 feet. The turn that is located to the south of the Transfer Center should also be examined.

Proposed Site Uses and Trip Volumes

The report identifies two primary proposed haul routes, being:

- CR 500 to Cascade Avenue to South Pagosa Boulevard
- CR 500 to Apache Street

The directional distribution of 90 percent to the north and 10 percent to the south from the proposed site access on CR 500 appears reasonable and is consistent with previous studies and information presented.

South Pagosa Boulevard is noted as the primary haul route for trips oriented to/from the north and is estimated to handle 72 percent of the total site-generated traffic volumes. For this reason, more detailed information needs to be provided in the report with respect to the directional distribution of traffic traveling through the US Highway (US) 160/South Pagosa Boulevard intersection. As currently presented, it is not clear how trips will be distributed once vehicles reach US 160.

It is also not clear in the report how the 18 percent of total site-generated trips oriented to/from the north proposing to use Apache Street within the Town of Pagosa Springs will be distributed. The report does not provide enough information to assess the potential traffic impacts at intersections within the Town. Key intersections include:

- US 160 intersections with South Pagosa Boulevard, 8th Street, 6th Street and Hot Springs Boulevard
- Apache Street intersections with 8th Street, 6th Street and Light Plant Road (CR 119)

The report should provide a directional distribution figure, or additional narrative, that more clearly conveys the anticipated directional distribution of site-generated traffic along the proposed haul routes, particularly for areas that are oriented to/from the north of the site within the Town and at intersections along US 160 and Apache Street.

The trip generation calculations contained within the report estimate the number of vehicle-trips expected to be added to the surrounding roadway network on a daily basis spread out, or averaged, over the course of an entire year. However, these annual average daily traffic (AADT) volumes underestimate the average daily traffic volumes that will be added along roadway segments when the gravel pit is operational (only 250 days per year). In addition, the report does not provide trip generation estimates for the AM and PM peak hours when the gravel pit is operational. This information is critical, particularly when analyzing potential impacts at the US 160/South Pagosa Springs Boulevard intersection.

The report should provide a more detailed narrative and summary trip generation table that calculates the number of vehicle-trips that are expected to be generated based on the number of days per year that the gravel pit is planned to be operational. These calculations should also account for the increased trips resulting from crushing operations, which are stated to occur approximately 30 percent of the time (70-75 days per year). It would be appropriate to determine an overall weighted average of vehicle-trip generation for when the gravel pit is operational to be used in analyses. This appears to have been completed for proportionate share cost calculations. The report should also clearly address the anticipated duration and trip generation for the proposed temporary asphalt batch plant and ready-mixed concrete plant operations.

ESAL Loading

Equivalent single-axle loads (ESALs) are used as the basis for determining the proposed gravel pit's proportionate share of costs for mitigating traffic impacts along the haul routes. This is an appropriate methodology for determining the cost sharing for the recommended roadway improvements, especially considering the amount of heavy truck traffic that the gravel pit will add to the area road system.

A review of the ESALs, however, indicates the following limitations with the methodology that was used to calculate the ESAL values contained in the report:

1. In addition to being used to determine the proportionate share of traffic impact mitigation costs, ESALs should also be used to determine whether the existing gravel and asphalt road structural elements along the potential haul routes are sufficient, in terms of asphalt/base course and subbase thicknesses, to handle the anticipated increases in heavy truck traffic that will occur on opening day of the gravel pit.

Additional gravel or an initial overlay of the asphalt roads may be required to strengthen the roadway structure prior to the start of gravel pit operations. If the existing road structure is inadequate for the projected ESAL values, the road surface could deteriorate much more quickly than expected, at the risk of triggering potentially major repairs, such as reconstruction or resealing, beyond the magnitude accounted for in the proportionate share mitigation cost calculations.

2. In order to more thoroughly assess the adequacy of the existing asphalt/gravel road structures and understand the appropriate structural section that would be required for the anticipated volume and types of heavy truck traffic, the ESALs should be recalculated to account for some key parameters that are missing from the report:
 - The ESALs need to factor in the use of the roads as haul routes; that is, the calculations need to consider that trucks will be loaded when traveling in the northbound direction to deliver material to project sites and unloaded when returning to the gravel pit. The impacts of a loaded truck are greater and may not have been completely captured through the use of a generalized ESAL factor for each vehicle type. The factor that is determined for the loaded truck should be applied across both travel lanes.
 - In addition, the ESALs for the background traffic are based on existing traffic volumes and do not account for projected future background traffic growth during the 20-year design period. The ESALs used for design of the roadway and selection of the appropriate gravel or pavement structural section should consider future background traffic growth. Typically, the ESALs are calculated using estimated traffic volumes at the midpoint of the design period. The applicant and County should formulate the assumptions to be used for estimating background traffic growth.
 - Lastly, the ESALs for the background traffic need to be based on an agreed upon AADT for the roadways that are proposed to be used as haul routes. As currently calculated, the background traffic ESALs are based on one, 24-hour daily traffic count that was conducted in March, which is known to have lower traffic volumes than other times of the year in and around Pagosa Springs. Automatic Traffic Recorders (ATRs) that are located in La Plata County on US 160 to the west of Bayfield (near MP 101) and in Rio Grande County to the east of Monte Vista (near MP 220) indicate that average daily through traffic volumes along US 160 in March are between 25 and 33 percent lower than average daily traffic volumes in July (the highest month). Volumes along US 160 in March are between 5 and 10 percent lower than the AADT volume, indicating that the traffic volumes recorded on South Pagosa Boulevard and other haul routes may need to be adjusted. The current calculations also assume that weekend traffic volumes are 60 percent of weekday traffic volumes. Additional data is needed to substantiate this assumption, or a seasonal adjustment factor needs to be developed and agreed upon to factor the March one-day count to an AADT that accounts for fluctuations in both seasonal and weekday and weekend traffic volumes.

3. The gravel loss calculations contained in Appendix 5 of the report appear to be based on the same assumptions and ESAL values calculated for the proportionate share mitigation. Given the limitations outlined above, the gravel loss calculations should be redone once the ESALs are recalculated to verify the adequacy of the proposed roadway maintenance schedule.

A geotechnical investigation, including borings, of the existing roadway structural elements for each haul route should be conducted and compared against the updated ESALs to determine whether the proposed haul routes are adequate for the level of heavy truck traffic that is anticipated to be added. If an initial upgrade of any of the proposed haul routes is found to be necessary, it should be fully funded by the applicant and completed prior to the start of gravel pit operations. Another aspect for the County to consider relative to initial roadway improvements along the South Pagosa Springs Boulevard haul route is whether paving the shoulders to keep the edge of the pavement from raveling is justified due to the truck volumes.

Mitigating Impacts – Budget Costs

The budget costs used for calculating the total cost of proposed mitigation appear reasonable; however, the County should thoroughly review the costs to ensure their accuracy. The County should also verify the proposed maintenance schedule and the years identified for completing each aspect of the maintenance program that are identified in the Opinion of Probable Cost.

Projected Proportionate Costs

For purposes of proportionate share cost calculations, the pit is assumed to be operational for a period of 20 years; however, information stated elsewhere in the applicant's permit application indicates the gravel pit could be operational for up to 30 years. For this reason, the County's acceptance of the proposed proportionate share cost calculations and recommended roadway maintenance program, as presented in the report, should be conditional on the gravel pit operating for a maximum of 20 years. Additional impacts beyond the 20-year horizon would need to be reassessed if gravel pit operations are planned to extend beyond this timeframe.

Conclusions and Summary of Findings

This section of the report provides a concise summary of the conclusions and recommendations. The evaluation of a few key roadway segments or intersections is missing, as highlighted below:

Guardrail Evaluation

Considering the increased width of heavy trucks, there are two areas along CR 500 where guardrail should be evaluated. If found to be warranted, the cost for the guardrail installation should be included in the proportionate share traffic impact mitigation cost calculations. Archuleta County design standards (27.1.6.1.A.3.) provide for guardrail to be considered along tangent roadway segments "if unusually high embankments or steep terrain give motorists a feeling of insecurity." High embankments were noted during the field review near MP 7.0 and near MP 9.0. Near MP 9.0, CR 500 is approximately 26-foot wide, which is less than the 30-foot total cross-sectional width that is required for a local access road, as indicated in Table 27-3 of the Archuleta County design standards.



CR 500 near MP 9.0 looking to the south

CR 500/Cascade Avenue Intersection

Intersection sight distance at this intersection should be measured. A field review indicated that intersection sight distance from eastbound Cascade Avenue looking to the south along CR 500 (for the eastbound left turn from STOP condition) may not be adequate.

In addition, the curb radius for the eastbound to southbound right turn movement may need to be enlarged to accommodate the types of trucks that are proposed to be used and to ensure that the eastbound right turn movement can be made without encroachment into the opposing (northbound through) direction of travel along CR 500, given the potentially limited sight distance approaching the intersection from the south.



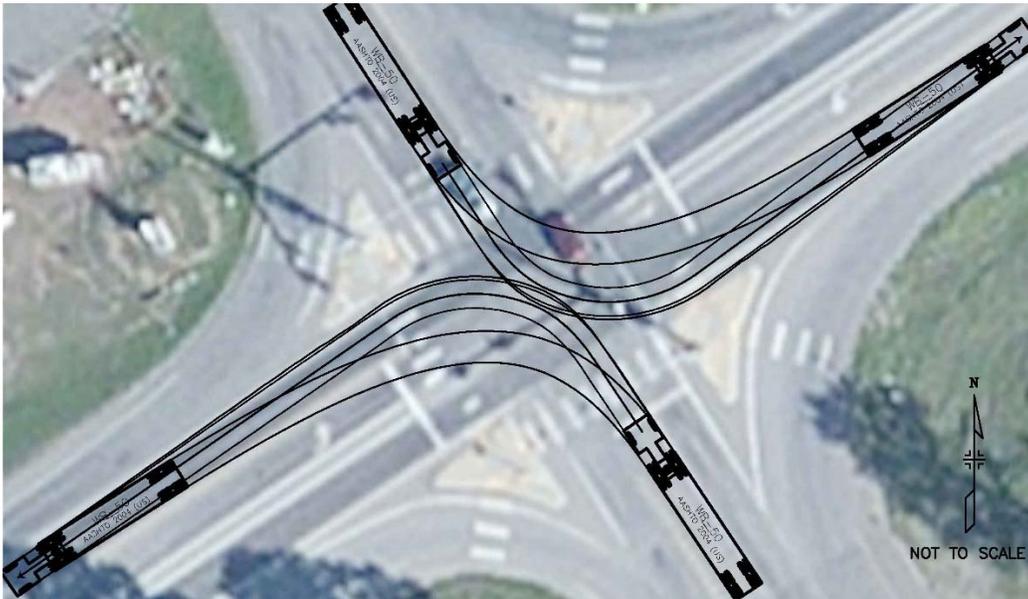
Eastbound Cascade Avenue looking to the south along CR 500

US 160/South Pagosa Boulevard Intersection

Section 2.5(5)(a) of the *State of Colorado State Highway Access Code (SHAC)* outlines the requirements for when a traffic impact study is required. Given the unique nature of the proposed land use and the volume and types of heavy trucks it is anticipated to add to the US 160/South Pagosa Boulevard intersection, it is recommended that Archuleta County refer the applicant's TIA report to Region 5 of the Colorado Department of Transportation (CDOT) for review and comment. The following points demonstrate the need for CDOT coordination and involvement, particularly as it relates to this intersection that is identified as the primary haul route for areas that are located to the north of the gravel pit:

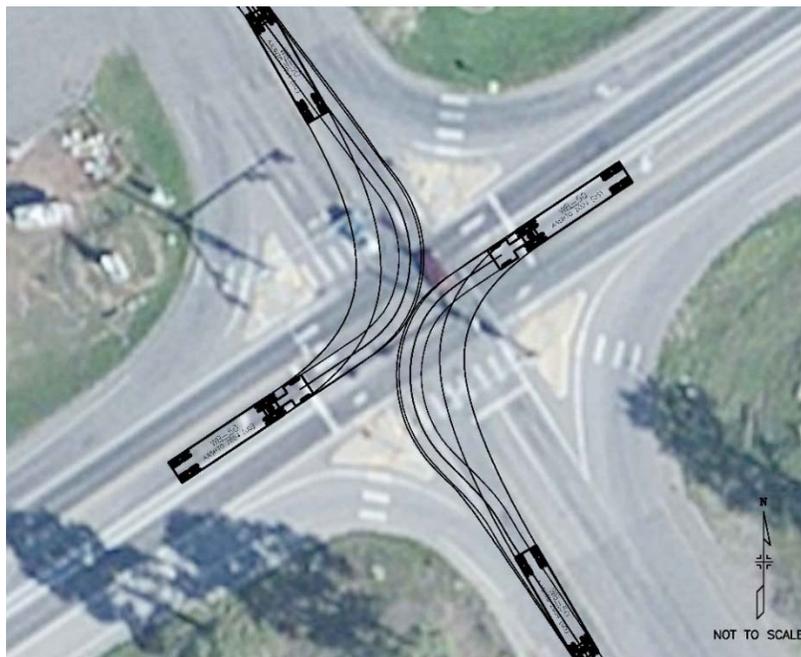
1. As indicated in the report, a total of 72 percent of the total site-generated traffic volumes are anticipated to travel through the US 160/South Pagosa Boulevard intersection. A total of approximately 6 passenger cars, 1 single-unit truck and 38 trucks per day are projected to be added to this intersection (based on 250 days per year operations). This equates to 122 passenger car equivalents when the passenger car equivalent factors are applied as instructed in Section 2.3(4)(e) of the *SHAC*. This increase to existing traffic volumes could affect intersection operations.
2. As currently configured, the northbound to westbound and southbound to eastbound left turn movements through the intersection for a WB-50 design vehicle (representative of belly or side dump trucks that are planned to be used to haul material) encroach on vehicles that are stopped at the existing stop bar locations in the eastbound or westbound left turn lanes on US 160, respectively, as shown on **Figure 1**. Two WB-50 trucks would also have difficulty turning at the same time, which is a condition that the current traffic signal phasing at the intersection allows (protected-permissive left turn phasing). Two gas stations, a grocery store and other commercial development serving the Pagosa Lakes area along the north side of US 160 increase the likelihood of this condition.

Figure 1 WB-50 Truck Turning Paths for Left Turns from South Pagosa Blvd onto US 160



3. In addition, eastbound and westbound left turn movements appear difficult to complete concurrently if two WB-50 vehicles in opposing directions are attempting to turn, as shown on **Figure 2**. This is also a condition that the current traffic signal phasing at the intersection allows. The turning paths of these vehicles encroach on vehicles that are stopped at the existing stop bar locations for the southbound and northbound left turn lanes, respectively. Section 4.6 of the *SHAC* provides guidance with respect to access radii; however, it is evident that there could be potential truck turning path issues at the intersection that will need to be addressed with CDOT, both in terms of intersection restriping and possible modifications to the traffic signal phasing, depending on the level of truck turning movements.

Figure 2 WB-50 Truck Turning Paths for Left Turns from US 160 onto South Pagosa Blvd



4. The CDOT access category for US 160 at the intersection with South Pagosa Boulevard is NR-A (Non-Rural Principal Highway). For this access category, left turn lanes are required to include deceleration length plus vehicle storage length. Intersection peak hour level of service and vehicle queuing analyses should be completed to determine whether the left turn lanes in the northbound direction and westbound direction (if site traffic is planned to be added to this movement) will have adequate vehicle storage length with the addition of the gravel pit traffic.

US 160/South 8th Street Intersection



The northbound to eastbound right turn and westbound to southbound left turn movements appear challenging for heavy trucks to complete at this intersection without encroaching into opposing traffic or stopped vehicles. It is unclear from the report whether trucks would be using this intersection; however, if used, site traffic is likely add to these two particular movements that are oriented to/from the east since trucks oriented to/from the west will favor use of the South Pagosa Boulevard intersection to access US 160.

Tight Curb Radius at Southeast Corner of US 160/S 8th St Intersection

Apache Street/Light Plant Road (CR 119) Intersection

As previously recommended, the report needs to clearly depict where trucks will be going once they reach Apache Street in the Town of Pagosa Springs. The Wasteline, Inc. preliminary traffic study indicated that trucks would use Light Plant Road (CR 119) for travel to/from US 84. The eastbound to southbound right turn movement at the Apache Street/Light Plant Road (CR 119) intersection appears problematic, as illustrated in the photo of the tight radius that is present.



Westbound Apache Street looking to the south along Light Plant Road

The report should use AutoTURN® or similar software to check the truck turning paths through intersections that are located along the proposed haul routes. Key stakeholders (CDOT, Archuleta County and Town of Pagosa Springs) can then make an informed decision relative to whether additional improvements would be required to eliminate encroachment or turning path overlap at intersections.

This review focuses on the *Two Rivers Pit Traffic Impact Assessment (TIA)* that was prepared by Roadrunner Engineering, LLC on May 9, 2016 and was based on 100,000 tons of aggregate per year. The review highlights some key issues, such as pavement design and truck turning paths, that are recommended to be thoroughly evaluated and analyzed to understand whether additional traffic impact mitigation measures beyond those identified in the applicant's TIA report are justified. Subsequent analyses of these issues may trigger the need for additional conditions of approval or items for the applicant to address along the proposed haul routes and at specific intersections prior to the start of gravel pit operations.

ADDENDUM TO THE PROJECT NARRATIVE

This report addresses specific issues which the County Planning Office requested clarification regarding mining and affected (disturbed) land on-site.

Hours of operation are proposed to be Monday – Friday 8AM-4PM, for October – March, and Monday – Friday 7:30AM – 5PM and Saturday 8AM-12Noon, for April – September. The crushing and screening train will be on site up to 90 calendar days per year, with a crew of 3 men. Otherwise, there will be a crew of two to run the scale and loader.

A series of five sequential maps shows the initial phases of mining. This varies from that originally approved by the state, to meet concerns of neighbors, and the mining and reclamation plans in the application to DRMS will be revised in accordance with DRMS rules, if this is approved by the county.

In each of these drawings, existing roads are shown in red, and roads built just for the mining are shown in gray. The initial location of the crushing and screening train and product stockpiles is shown with a magenta circle about 100 yards in diameter. The areas actually mined (each about 200 by 400 feet) are shown in red, with a number indicating the phase or year. Green areas north and south of the plant site show where soil removed from the plant site and first area mined are stored: the berm to the south reduces noise, dust, and visual impact of the plant and traffic for neighbors.

For phases (years) 2-5, red are areas mined, and the green areas are where reclamation is being done after mining: first by grading and replacing soil then seeding with grass. It usually takes several seasons to meet the standards. By the time area 5 is being mined, areas 1 and 2 are completely reclaimed, area 3 is well under way, and area 4 is being reclaimed.

After this 5th phase, the plant would be moved to area 5, so that haul distances from the mining face are kept relatively short. Note the plant will only be present about 30-60 days/year.

In any given year, the plant/stockpile area is about 4 acres, and the area actually mined will be about 2 acres, for a total of 6 acres, about 10% of the total area to be disturbed for the life of the project. About 4-8 acres will be in the process of reclamation at that same time.

The next map shows the total area (green-striped with a magenta boundary; about 53 acres) on top of the mesa, to be mined and reclaimed over the life of the project. This is 200 feet back from the north, east, and south property lines. This is also 200 feet back from the Harris Ditch, shown by the thick blue line, which flows UNDER the existing bridge providing access to the east bank of the San Juan and the mesa top. The Diamond T. Ranch has a *non-exclusive* easement across the Constant property to access and maintain the Harris Ditch.

As the Colorado Supreme Court has explained, a non-exclusive easement is one where the property owner, the Constants, are free to use the entirety of property, including the easement, at any time and for any reason that does not interfere with the purpose of the easement. *Lazy Dog Ranch v. Telluray Ranch Corp.*, 965 P.2d 1229, 1238 (Colo. 1988). Since the purpose of the easement is merely to allow access to maintain and operate the ditch, the Constants use of the property on which the easement sits, the ditch itself, and the airspace, for any activities is unrestricted as a matter of law provided that the use does not unreasonably interfere with the Diamond T's ability to access and maintain the ditch.

The easement does not prohibit, in any way, the crossing of the ditch. Indeed, a small culvert has existed further down the ditch for decades, which is used for access across the ditch without needing to ford the ditch. The bridge, built in 2013, meets the requirements of the agreement between the ditch owner and the land owner as recognized in the recent court hearing.

The Diamond T Ranch recently attempted to block the use of the bridge to facilitate operating the gravel operation by seeking a temporary injunction in the District Court in and for Archuleta County, case number 2015CV030251. After an all-day hearing where witnesses were called on behalf of the Diamond T Ranch by their Denver lawyers and rebuttal witnesses were called by the lawyer representing the Constants and C&J, the Court took the matter under advisement. On April 26, 2016, Judge Gregory Lyman issued his ruling and denied the injunction finding specifically that (a) there was no proof of any irreparable harm from alleged infiltration of the water in the ditch or nearby wells; (b) that the purpose of the easement was shown to be unencumbered by the unrebutted evidence at the hearing, and that (c) the Diamond T had not established a reasonable probability of success on the merits of its claims.

The 200 foot also provides a setback of about 50 feet from the top of the cliff above the river, thus preserving the facade of the valley AND ensuring that water (or rock) from the mining areas does not flow over the cliff and into the river or ditch.

Information was provided in the MLRB hearing, as well, to demonstrate that the existing ramp, up the hill from the bridge to the top of the ridge, also built in 2013, does not contribute runoff to the ditch. As noted, the District Court reached a similar conclusion. However, there is no prohibition in any easement, agreement, or state law from runoff entering the ditch from any part of the landowner's property.

Swales dug and berms of the soil placed between the area being mined and the buffer zone, will divert and retain storm water and water used in operations, as well as any chemicals used and stored on-site.

The next map shows that drainage. Berms in the interior of the affected area are not shown. The ditches on both sides of the road up the hill, and the berm on the downhill side (an MSHA requirement) are shown on the next, detail drawing.

The preparation of the area to be used for plant, stockpile, and loading areas, will include stripping of soil and stockpiling that soil so that berms are created to prevent any discharge of storm water from the areas; that will control at least a 24-hour, 100-year storm event (rain or snowmelt) and therefore, there is no physical way that surface runoff from the plant site (or from areas being mined) can flow over the side of the ridge, down the sides of the ramp, and into either the ditch or the river. Vehicles will actually go uphill a short distance when going from the plant area to the top of the ramp, and then down the ramp. As has been the case since 2013, runoff from the surface of the ramp will flow into the ditches along the side of the ramp and then down those ditches to the bottom of the ramp, near the bridge. Most of that water will infiltrate or evaporate; the rest possibly may ultimately enter the ditch or the river, but in relatively small quantities and at low velocity, due to the configuration of the slope and

the toe of the slope east of the ditch and river.

The last map comes from the DRMS application, and shows significant permanent structures. The DRMS 200-foot requirement is the standard distance that affected land is to be from those manmade structures without requiring special analysis and agreements.

Analysis, as reviewed by DRMS, finds no potential for significant impact on permanent manmade structures shown on this map, either inside or outside the 200-foot buffer.

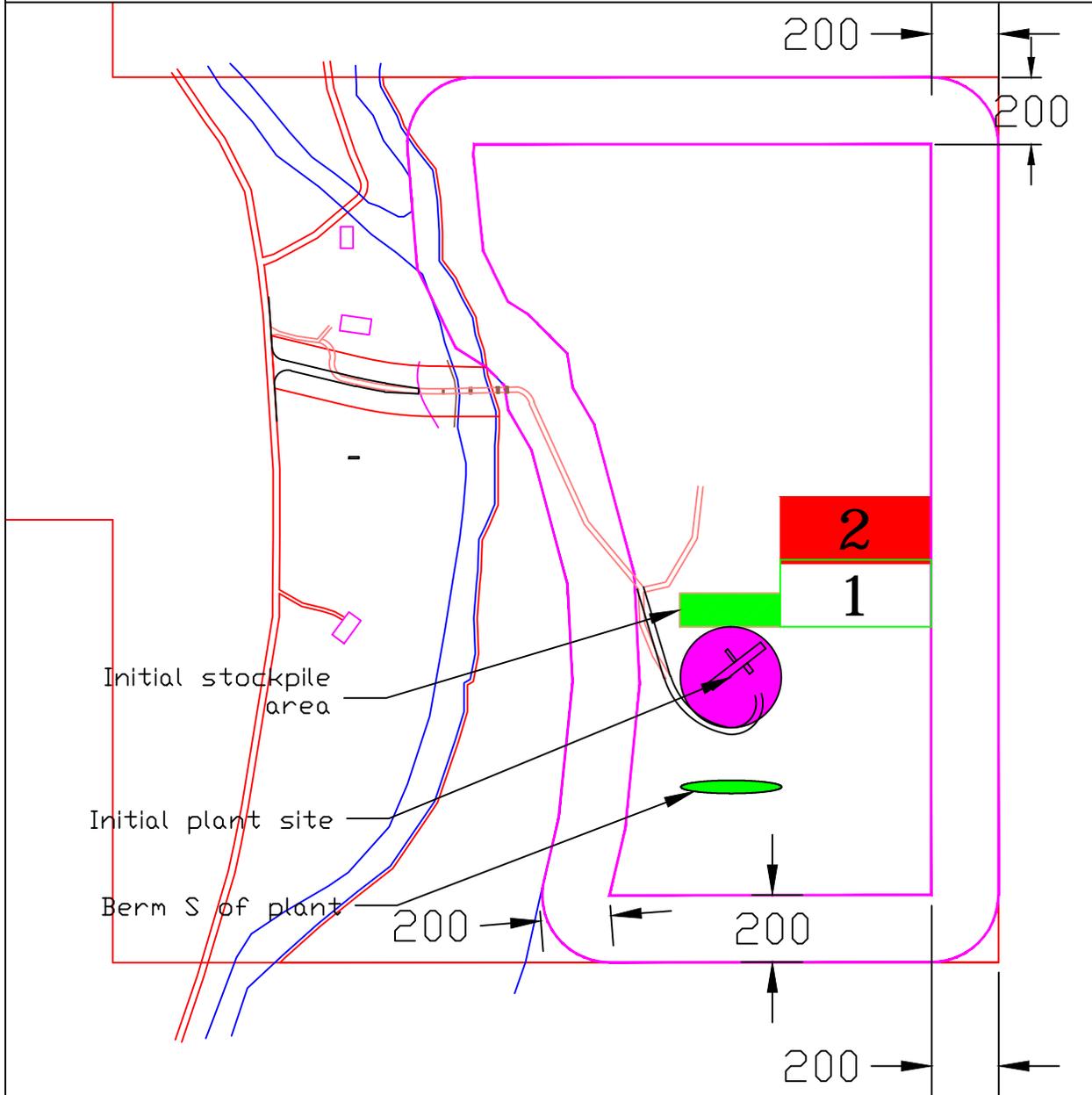
The final page is a general cross-section showing the relation of the pit and the depth of nearby wells, and information regarding water use needed for the site and its source. Adequate water is available for all needs, without taking water from other users.

Water rights and requirements are discussed in the original state DRMS application. Several of the points of objection raised by the Diamond-T Ranch to the MLRB concerned these issues. These issues were reviewed by both the DRMS staff and the MLRB, and deemed to be adequate. Once again, the Diamond T Ranch attempted this same argument in District Court, but the Judge, like the MLRB, did not find any evidence of any actual harm.

As stated in the application, "health facilities" are portable toilets and water containers, and require very little water. Calculations on dust suppression assume NO precipitation at all during operations and hauls, so any precipitation will reduce water needs. The DRMS and MLRB found no reasonable potential for significant negative impacts on either water quality (pollution) or quantity of either the Harris Ditch or the San Juan River.

Prepared 29 APR 2016

C&J Gravel Products, Inc. Two Rivers Pit

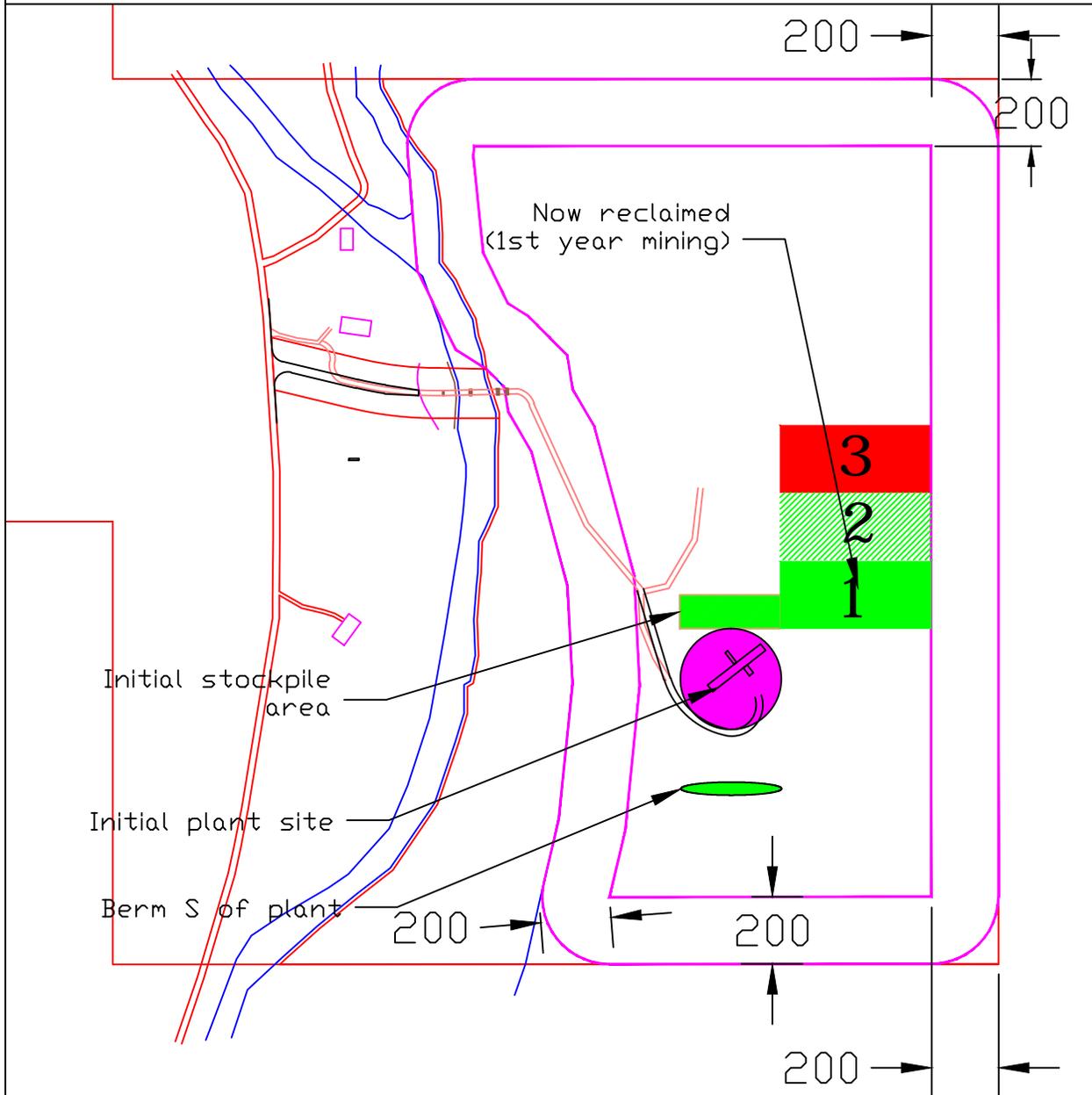


BERMS AND STOCKPILES (revegetated after building.)

Plant site to be used for first 5-6 years

Initial Mining (Second Year)

C&J Gravel Products, Inc. Two Rivers Pit

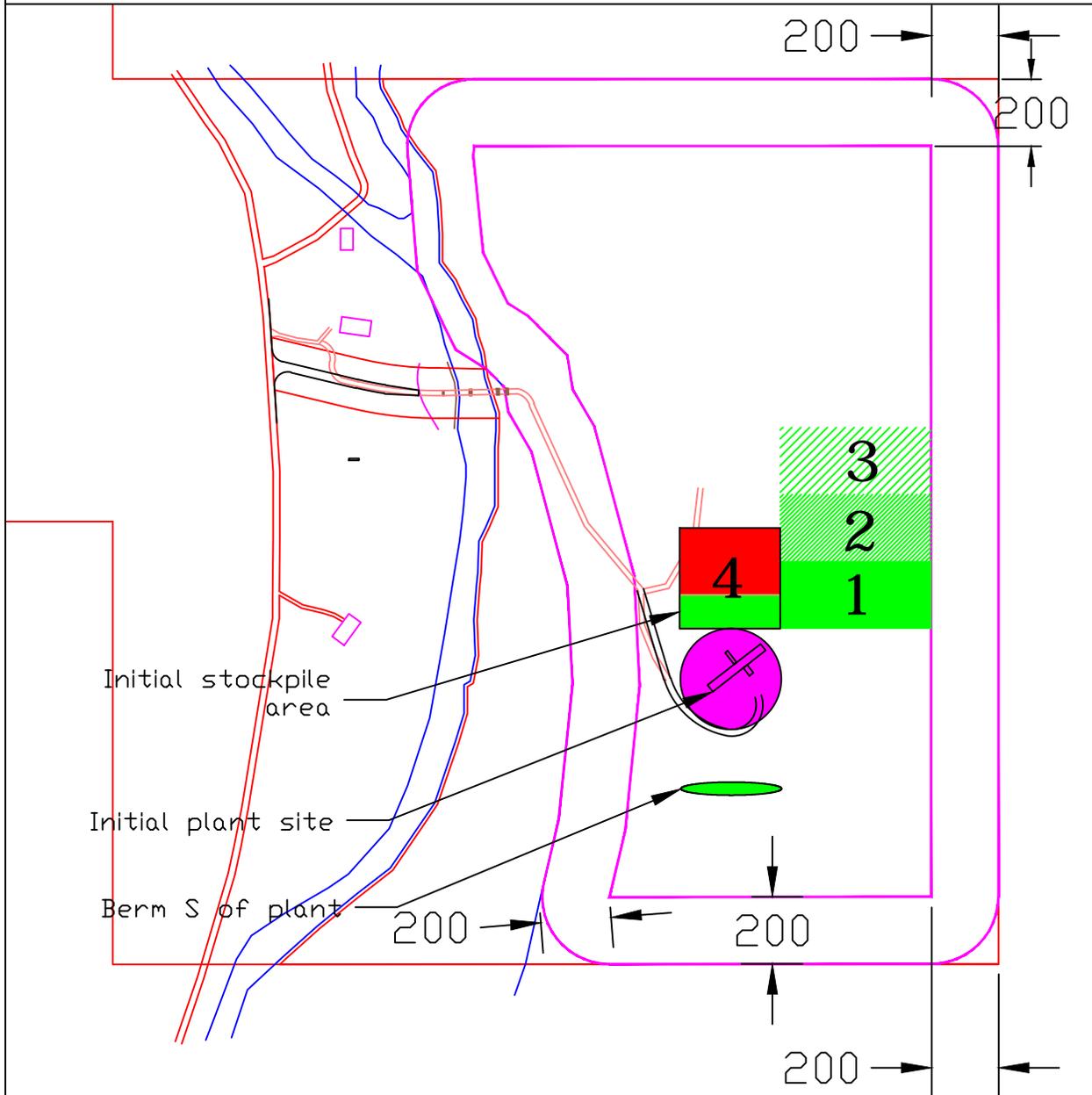


BERMS AND STOCKPILES (revegetated after building).

Plant site to be used for first 5-6 years

Initial Mining (Third Year)

C&J Gravel Products, Inc. Two Rivers Pit

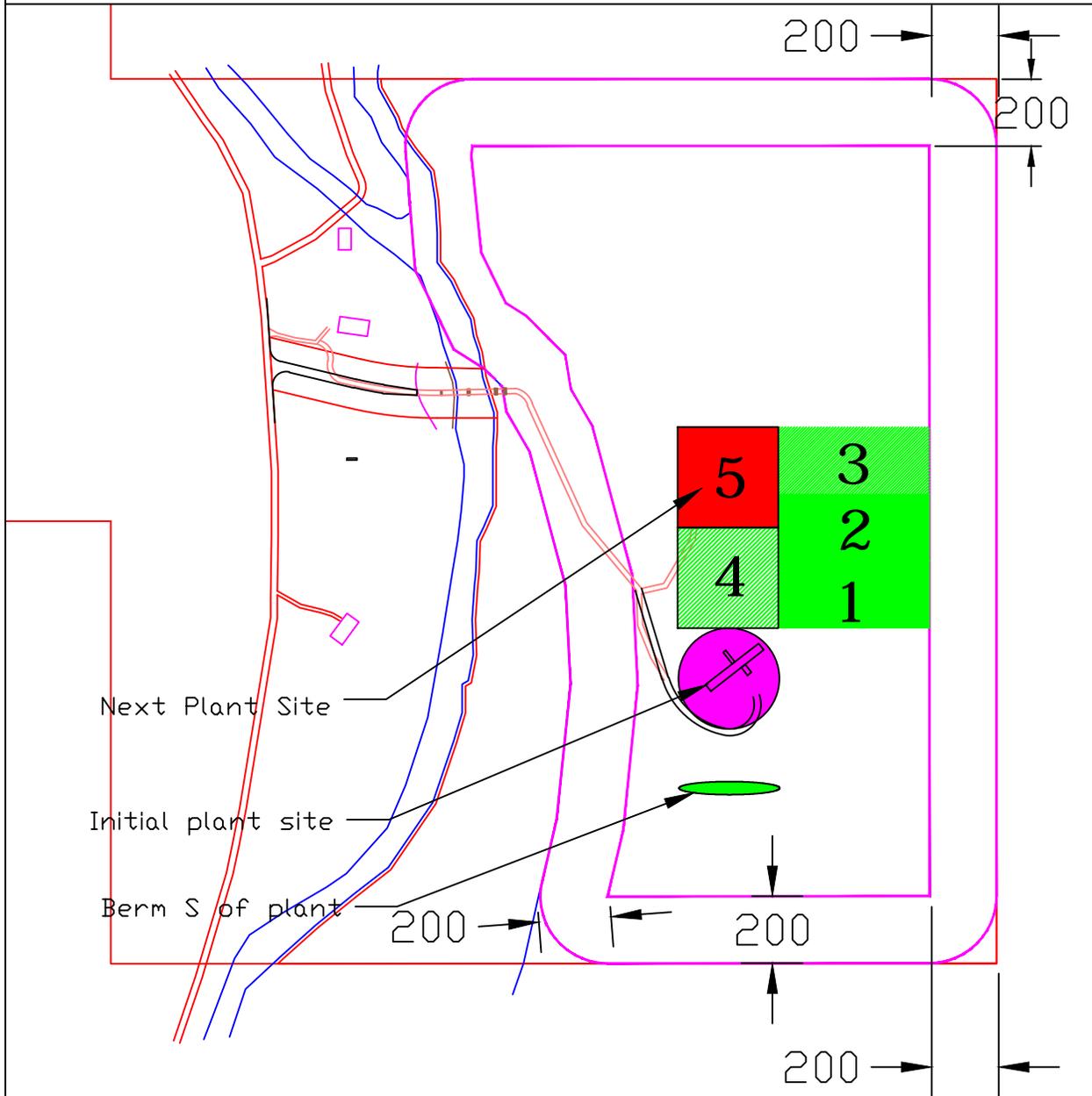


BERMS AND STOCKPILES (revegetated after building.)

Plant site to be used for first 5-6 years

Initial Mining (Fourth Year)

C&J Gravel Products, Inc. Two Rivers Pit

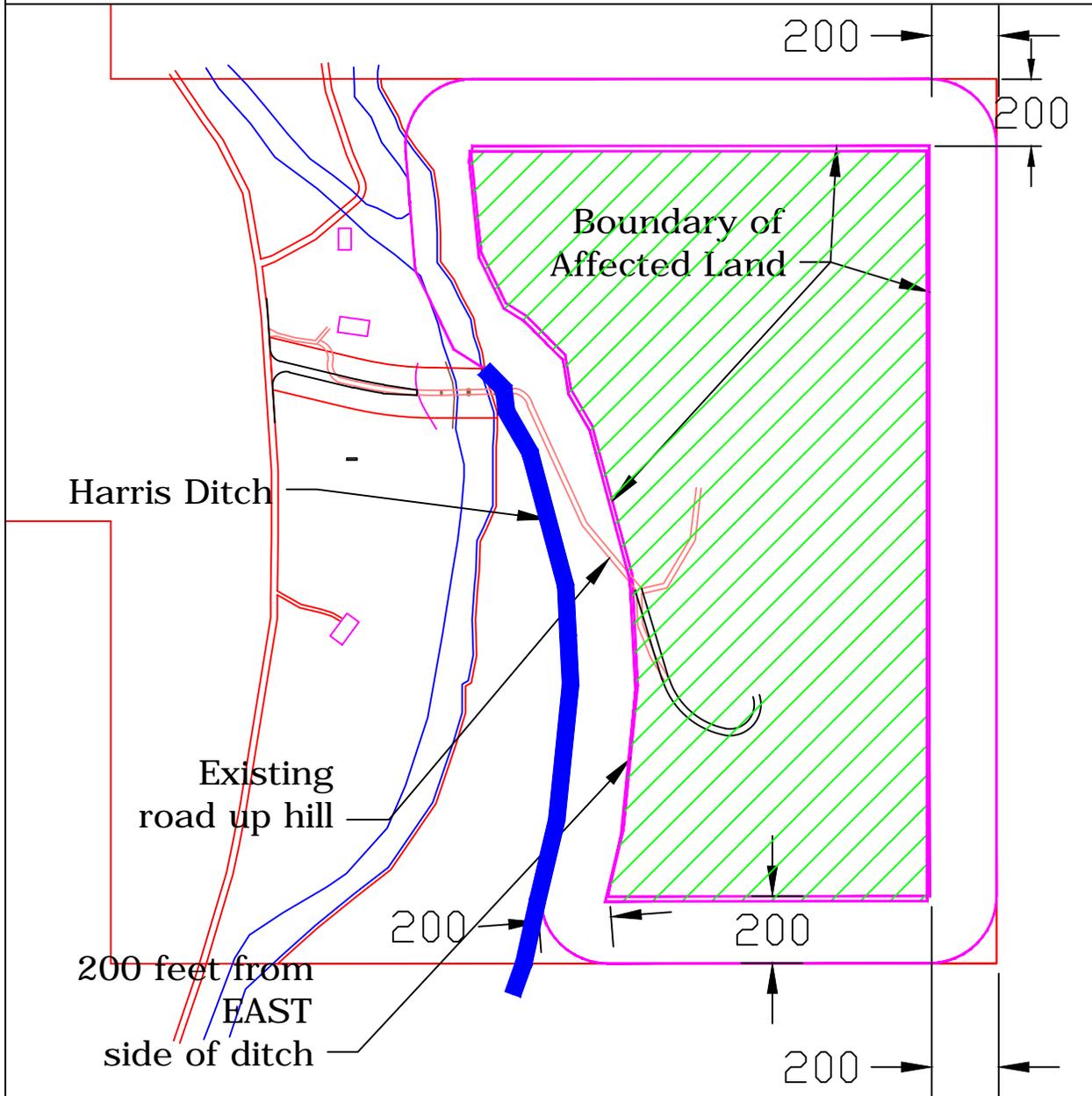


BERMS AND STOCKPILES (revegetated after building.)

Plant site to be used for first 5-6 years, then relocate to the north (to area mined in Year 5).

Initial Mining (Fifth Year)

C&J Gravel Products, Inc. Two Rivers Pit

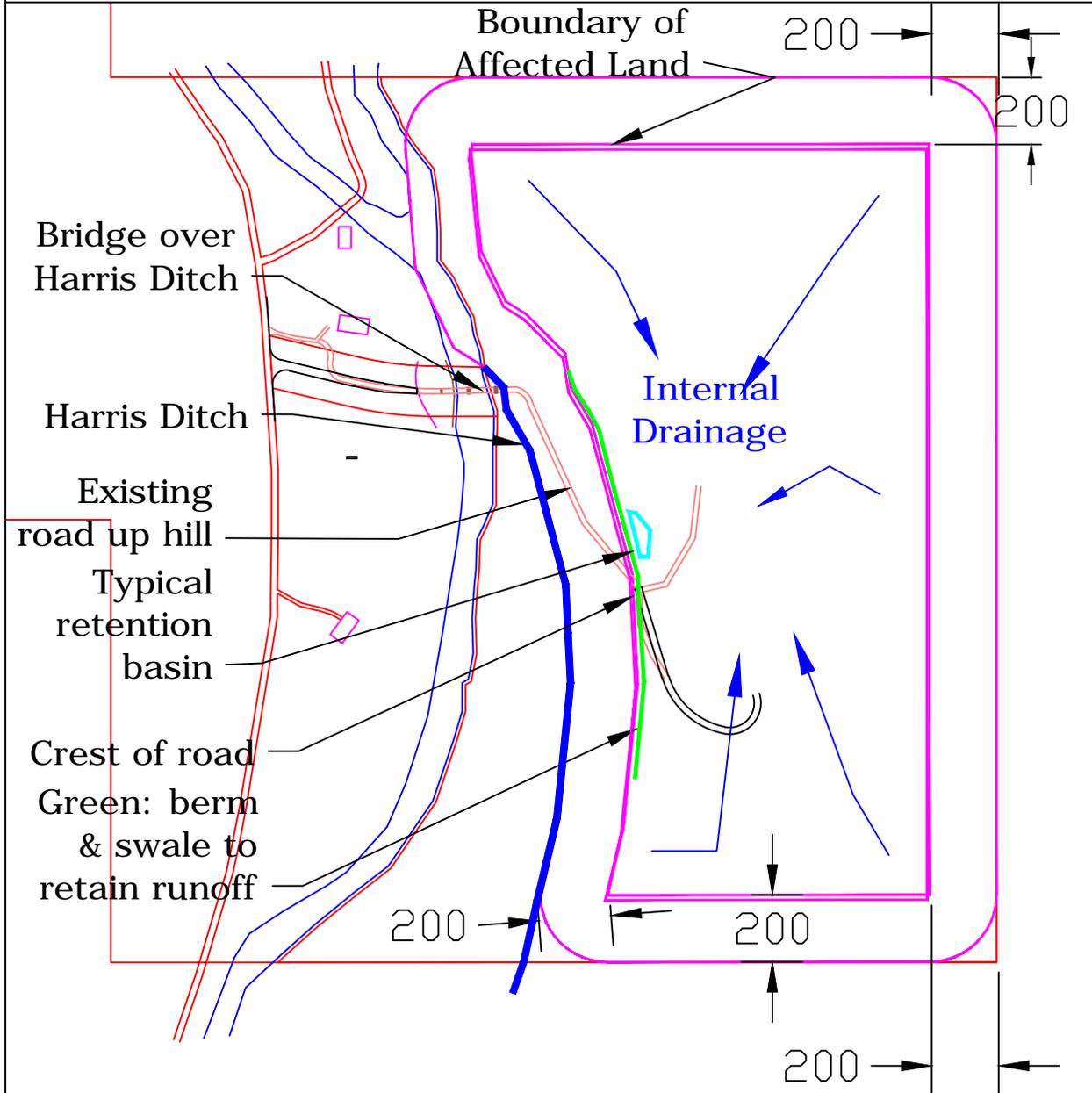


Harris Ditch is NOT an exclusive easement.

Red roads already exist (pre-2015); black roads to be built.
Bridge already exists.

Harris Ditch Easement

C&J Gravel Products, Inc. Two Rivers Pit

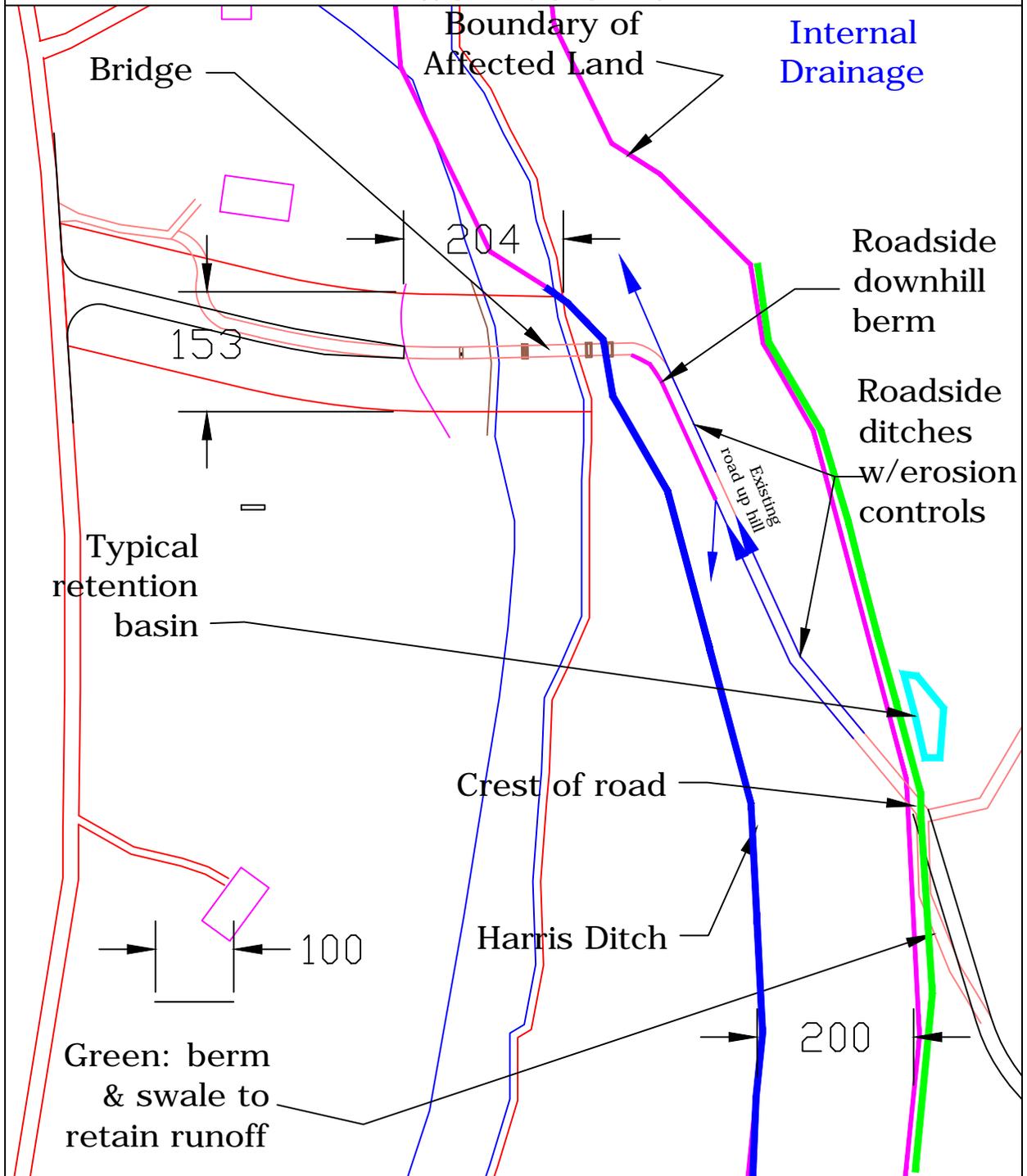


Harris Ditch is NOT an exclusive easement.

Red roads already exist (pre-2015); black roads to be built.
Bridge already exists.

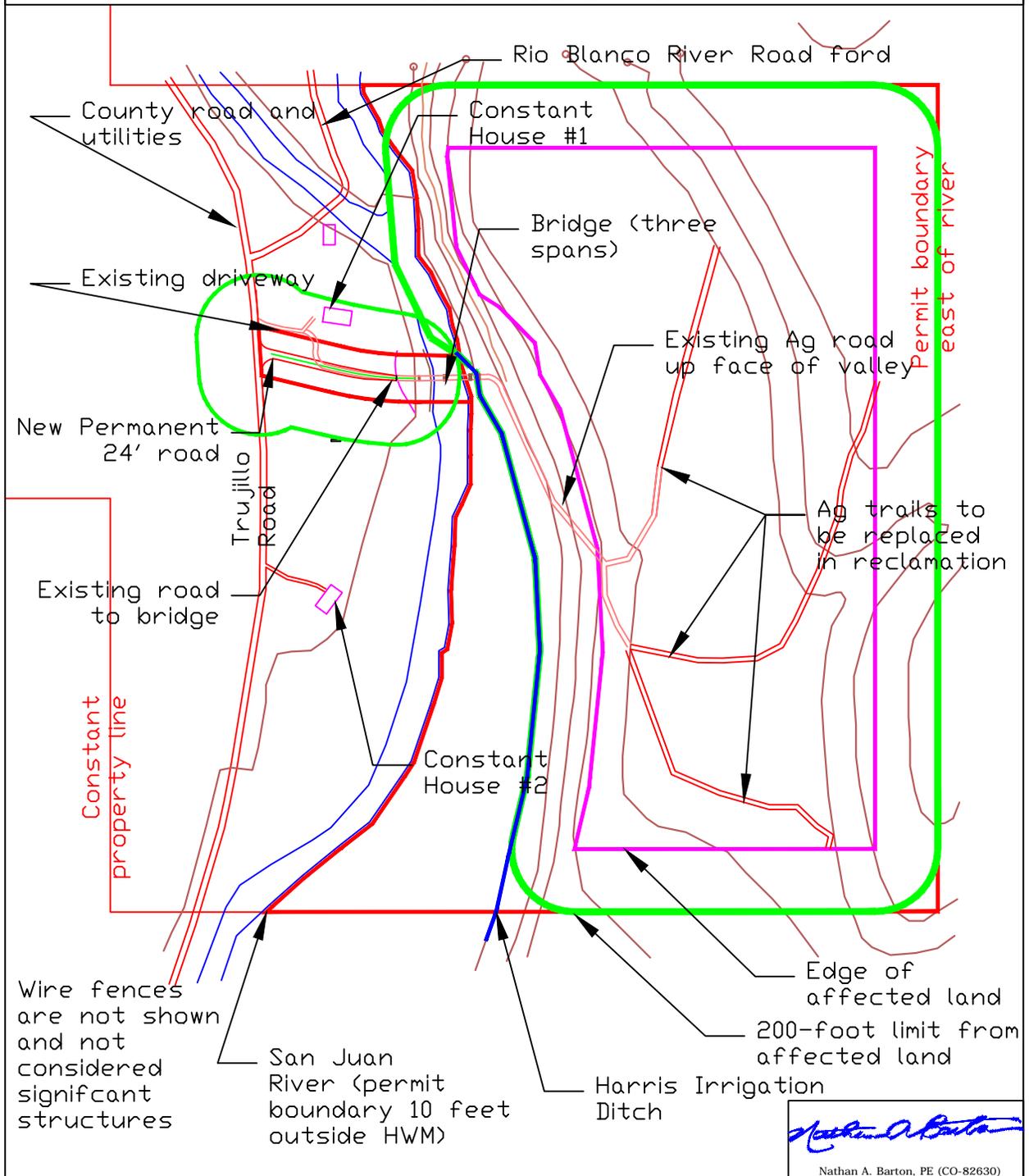
Drainage Patterns/Controls

C&J Gravel Products, Inc.
Two Rivers Pit



Drainage Detail on Road

C&J Gravel Products, Inc. Two Rivers Pit



Prepared for C&J Gravel by and (c) WASTELINE, INC.
 Date: 21 DEC 2014 By: N. Barton Rv: P. Neil
 Scale: 1"=500' 40-ft contours Source: USGS Map/Photo.
 Portions SW 1/4 Sec 11, T33N, R2W, 10th PM, Archuleta
 Co., CO, Pertaining to Application: Two Rivers Pit
 M-2015_____ Legend: standard USGS

**SIGNIFICANT PERMANENT
STRUCTURES**
 showing 200-foot zone

Drawing/
Sheet No.
S1

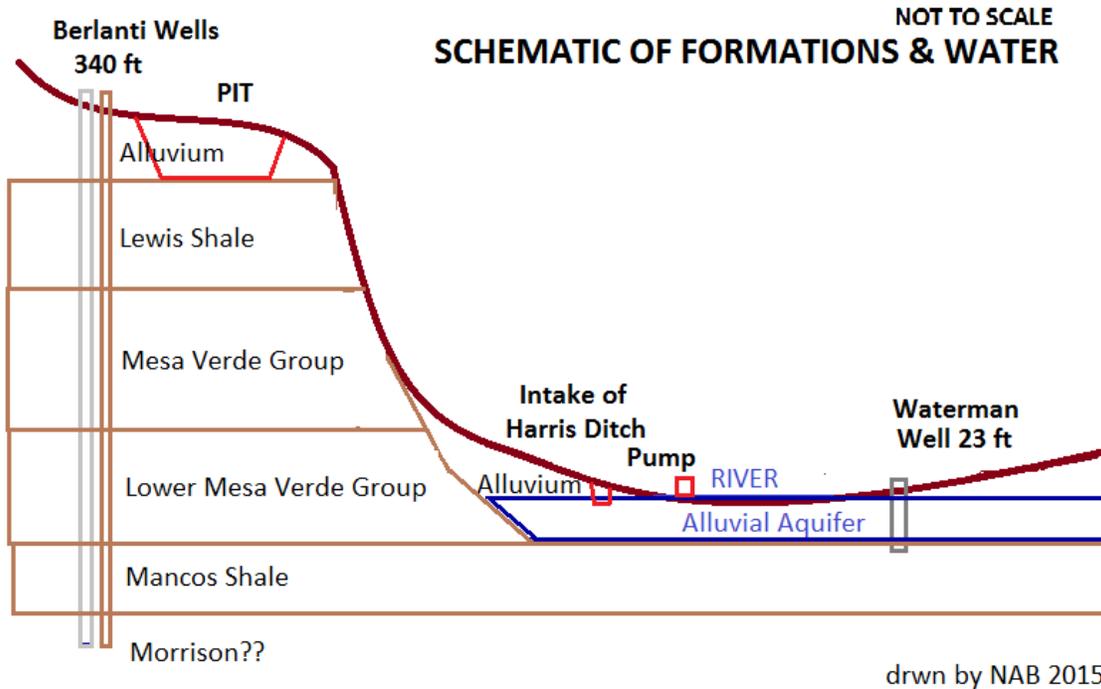


Table G-4. Maximum Project Water Requirements

<u>Activity</u>	<u>Acre-Feet per year</u>	<u>Period</u>	<u>Flow (gal/day)</u>	<u>Remarks</u>
Dust control of roads	2.0	0.1 in/day, 120 days	5,430	2.0 acres max
Dust control of plant sites	1.0	0.1 in/day, 30 days	11,132	4.1 acres max
Dust control of pit area	1.0	0.1 in/day, 60 days	5,702	2.1 acres max
Water removed with materials mined	0.03	Variable	11,191	4% of weight of product
Washing of materials	1.2	30 days	6,667	Evaporative loss
Total water required	5.23	acre-feet	40,122	Worst-case
Water available	9.00	As needed		Not including direct precipitation

Note: Water for personal use (including hygiene) is a very tiny amount: assuming a very HIGH consumption of 50 gal/person/day for a crew of 5 and 120 days, this is 30,000 gallons per year, or 8021 CF (0.18 acre-feet) per year. Chemical toilets use no on-site water, and this reduces total water use to not more than 2 gal/person/day or 1200 gallons (161 CF, 0.00368 acre-feet) per year.

Note the above requirements are MAXIMUM for a year, based on no natural precipitation during the period that extraction, processing, and hauling is being done: normal precipitation patterns greatly reduce the need for water for dust control; if washing is not done on site in a given year, water needs are still further reduced.

Dust control for roads include all roads in use on the project site, the road (ramp) up the hill, and the road between the bridge and CR-500, and assumes NO use of dust-control chemicals to meet US EPA, CDPHE, and Tribal requirements.

Water available comes from water already adjudicated for the Constant Pit for irrigation, to be provided either through a Substitute Water Supply Plan or temporary-use agreement (as determined by DWR/State Engineer). However, the San Juan River in this location is not over-appropriated, and C&J and/or Constants can file for a new water right for surface water directly from the San Juan River. Although this would have lower priority than older, already existing water rights on the River,

C&J GRAVEL PRODUCTS, INC

TWO RIVERS PIT

County Road 500

Archuleta County, Colorado

TRAFFIC IMPACT ASSESSMENT



May 09, 2016



1315 Main Avenue, Suite 221
Durango, CO 81301

C&J GRAVEL PRODUCTS, INC.
TWO RIVERS PIT OPERATIONS
County Road 500
ARCHULETA COUNTY, COLORADO

Traffic Impact Analysis

May 9, 2016

Client:
C&J Gravel Products, Inc.
27661 US Hwy 160
Durango, CO 81301

Prepared by:
Roadrunner Engineering, LLC
1315 Main Avenue
Suite 221
Durango, CO 81301

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1. EXECUTIVE SUMMARY

The proposed Two Rivers Pit is approximately 12-miles south of Pagosa Springs, CO, located at Section 11, Township 33 North, Range 2 West, NM (10th) P.M., Archuleta County. Address for the site is 12500 County Road 500, Pagosa Springs, Co 81147.

The proposed pit is situated atop ridge serviced by a private bridge spanning the San Juan River. The area is rural in character and sparsely populated.

Aggregate deposits at the Two Rivers site have hardness characteristics that are generally absent from this region. Comparable operational pits are located a distance of over 50-miles from Pagosa Springs.

Gravel demand will be market driven with primary market area centered on existing developed regions; i.e. Pagosa Lakes and Pagosa Springs. Gravel truck distribution has been analyzed at 90% northbound from the pit and 10% southbound. Of the northbound trips, it is projected that majority of traffic will be towards the Pagosa Lakes region, utilizing Cascade Avenue to South Pagosa Boulevard. For this assessment, the trip distribution is as follows:

Northbound	90%	80% - South Pagosa Boulevard
		20% - Apache Street
Southbound	10%	

Roadway analysis is based on 100,000 tons of aggregate material to market per year. Assuming aggregate hauling at 15-tons per trip, the number of truck trips equals: 37 Average Daily Trips (ADT). ADT values are calculated based on 365-days. It is expected that haul days will be 5 or 6 days a week, based on demand, weather, and pit closure days.

Although aggregate will be available through-out the year, crushing operations are expected to be performed over a shorter period of time, approximately 70 to 75-days. A mobile crushing plant will be used to perform crushing operations, producing aggregate materials to match market demands. There will be increase in number of daily personnel from two individuals to 6 or 7 during crushing periods.

Primary gravel haul routes have been identified northbound; a) CR 500 to Cascade Avenue to South Pagosa Boulevard, and b) CR 500 to Apache Street. Upon reaching South Pagosa Blvd. / Apache St., gravel trucks are expected to disperse along the network roadway system.

Five sets of traffic counters were placed to conduct mid-week counts over a 48-hour period. Background traffic values were gathered using an 'Automatic Traffic Data Recorder – produced by Jamar Technologies Inc'. Traffic data was gathered from March 29 through March 30, 2016. The five data locations are:

- 1) South Pagosa Boulevard – MP 0.1 (south of US 160)
- 2) CR 500 – MP 0.1 (south of Town of Pagosa limits)
- 3) CR 500 – MP 4.2 (just north of intersection with Cascade Avenue)
- 4) Cascade Avenue – MP 0.9 (just west of intersect with CR 500)
- 5) CR 500 – MP 11.6 (just north of Project site)

Existing traffic count data for each location is as follows (count date 3/30/16):

- 1) 1,307 trips
- 2) 452 trips
- 3) 168 trips
- 4) 189 trips
- 5) 161 trips

Referencing Archuleta County Road and Bridge Design Standards 27.1.2.6: Low Volume Roads; low volume roads *'have a design average daily traffic volume that does not exceed 400.'* Locations 3, 4, & 5 have less than 400 trips and thereby would meet a classification of Low Volume Road.

Accident Records

Accident records for Archuleta County were obtained from Colorado State Patrol. The accident data spanned the years 2011 – 2015. Data was aggregated for the northern haul routes; CR 500 to Pagosa Springs, and CR 500 to Cascade Avenue to South Pagosa Boulevard. Over the five-year duration, thirty-six accidents were recorded (Appendix 2). Assessing locations of multiple accidents or groupings, CR 119, also known as Light Plant Road, was noted as having 10-accidents in approximately 2-miles of roadway.

Sight Distance

An assessment was conducted focusing on roadway curves and possible locations of limited sight distance. Sight distance parameters are based on a vehicle having sufficient distance to recognize a hazard and perform action to stop the vehicle to avoid the hazard. Utilizing 'horizontal sight line offset – HSO', the assessment identified three locations where available sight distance is less than the recommended value.

<u>Location</u>	<u>Recommended HSO</u>	<u>Actual HSO</u>
a) CR 500 - MP 5.8	28-ft	20-ft
b) CR 500 – MP 6.0	24-ft	18-ft
c) CR 500 – MP 6.4	49-ft	20-ft

ESAL

The analysis period is twenty-years. Roadway impacts are evaluated utilizing 18K equivalent single axle loading (ESAL) procedures. Two Rivers gravel pit are estimated in order to identify proportionate share impacts to the roadway.

Facility trip volumes by vehicle loading type (average 20-yr peak operations – 100,000 tons/yr)

<u>Vehicle Type</u>	<u># of trips / day (ADT)</u>
Car / Truck	9 trips
Single Unit Truck	1 trips
Dump Truck / Transport	37 trips

Two Rivers ESAL over a 20-year period.

<u>Vehicle Type</u>	<u>ESAL Factor</u>	<u>20-yr Trips</u>	<u>ESAL</u>
Car / Truck	0.003	70,000 trips	210
Single Unit Truck	0.249	10,000 trips	2,495
Dump Truck / Transport	<u>1.087</u>	<u>266,667 trips</u>	<u>289,867</u>
	ESAL Subtotal		292,567
	Lane Factor		0.6
Two Rivers Pit ESAL Design Total (ESAL x Lane Factor)			175,540 ESAL

Traffic data was used to develop non-pit background traffic volumes and their associated roadway impacts. Weekday non-pit daily traffic S. Pagosa Blvd. value was 1,307 trips. Weekend traffic value was assumed to be 60% of weekday values. Daily trips adjusted to Average Daily Trips (ADT) = 1,142 trips. Example, restating counts at South Pagosa Boulevard, the background ESAL loading is as follows:

<u>Vehicle Type (March 30, 2016)</u>	<u>ESAL Factor</u>	<u>20-yr Trips</u>	<u>ESAL</u>
Pass Car / Truck	0.003	8,105,178 trips	24,316
Single Unit	0.249	25,016 trips	6,229
Combination Unit	<u>1.087</u>	<u>208,467 trips</u>	<u>226,603</u>
	ESAL Subtotal		257,148
X Lane Factor – 0.6 = ESAL Design Total			154,289

The Design ESAL value is used to develop surface structure to support impact loading. By applying the Background ESAL loading to the projected Two Rivers Pip ESAL loading, a proportionate share value of roadway impacts can be established to evaluate assignable mitigation costs.

Total Roadway ESAL (20-yr), Two Rivers Pit + Background @ CR 500	92,177
Total Roadway ESAL (20-yr), Two Rivers Pit + Background @ S. Pagosa Blvd	280,677
Background Baseline ESAL (year 2016) @ CR 500 (at Pagosa Springs)	60,580
Background Baseline ESAL (year 2016) @ S. Pagosa Blvd	154,289
Percent Two Rivers gravel pit traffic impact @ CR 500	34%
Percent Two Rivers gravel pit traffic impact @ S. Pagosa Blvd	45%

Aggregate

Procedures for low volume road design¹ were used in assessing necessary roadway structure to support projected ESAL loading. Approximate structure depth = 12inches with application of ½ in of aggregate every 5-yrs to address gravel loss due to roadway use and maintenance.

Projected Cost of Impact Mitigation

An Opinion of Probable Cost (OPC) scenario was developed to mitigate for roadway impacts for assumed haul routes associated with Two Rivers Pit. Option costs are based on a 20-year operational duration. The costs were developed utilizing Colorado Department of Transportation Cost Data. Mitigation costs are identified by roadway section, i.e. asphalt or gravel, or minor improvements.

Exhibit B reflects identified mitigation measures over a 20-year duration, based on year conducted. General scope is as follows:

- Flashing warning signs at limited sight distance corners – year 2016
- Aggregate application – ½ in application every 5-years (6-yr status on N. CR 500)
- Chip seal of existing Asphalt – every 10-years

Based on a production of 100,000 tons of aggregate per year, the total cost per ton of transported aggregate would be:

20-Yr Roadway Impact Mitigation Cost	\$738,557
20-Yr Truck Totals	133,333 trucks
Aggregate Tons per Truck	<u>15 Tons/truck</u>
Total	\$0.37/ton

¹ AASHTO Guide for Design of Pavement Structures, Chapter 4, Low-Volume Road Design

2. INTRODUCTION

The proposed Two Rivers Pit is located on County Road 500, approximately 11.5 miles south of Pagosa Springs. Aggregate material is planned to be mined and transported via 10-wheel or combination-unit trucks to Pagosa Springs and Pagosa Lakes regions of Archuleta County.

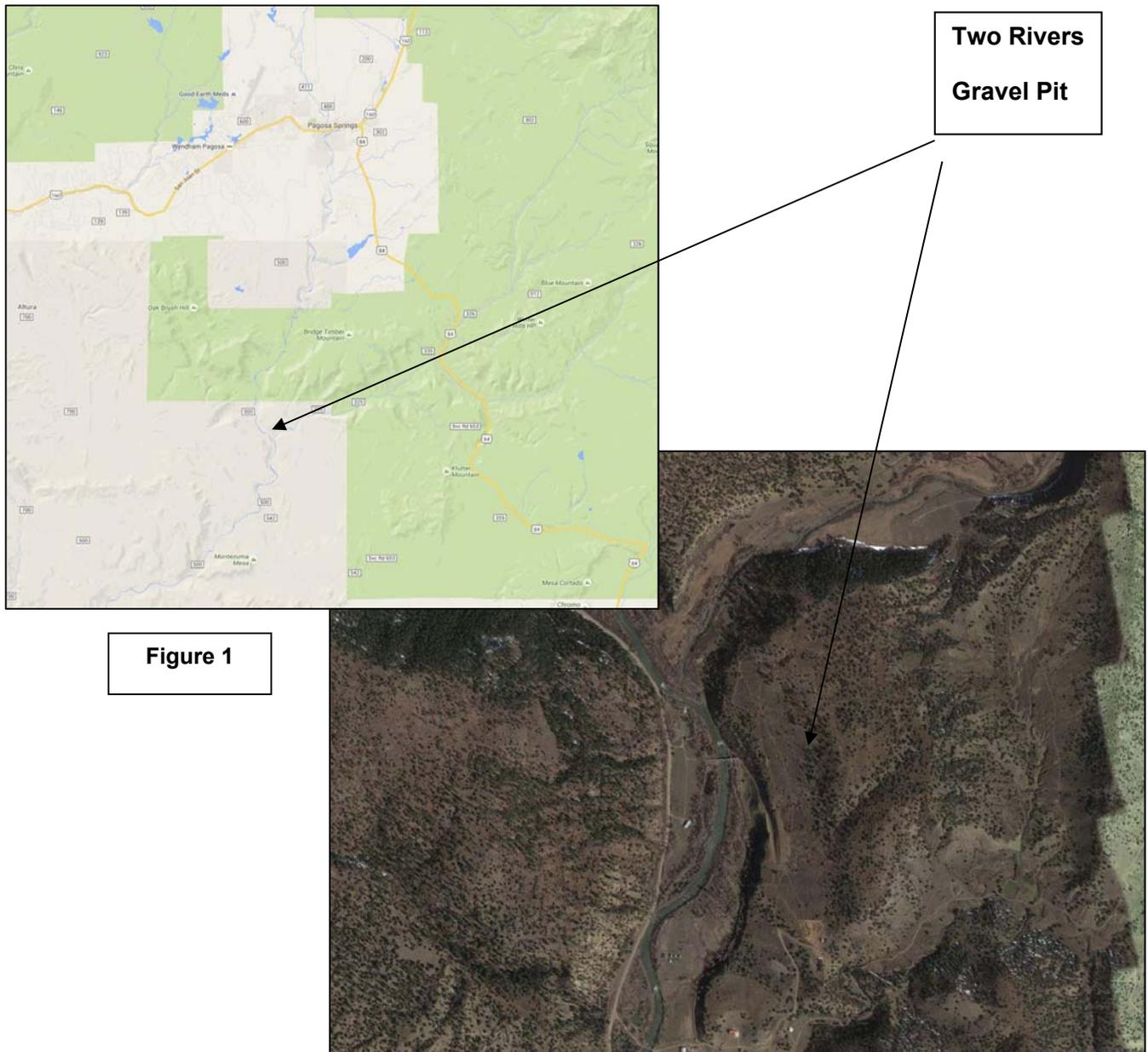


Figure 1 is a general map showing site location.

The intent of this study is to analyze existing traffic volumes on proposed haul routes, along with Two Rivers site generated trips in order to define site nexus roadway impacts. Options for mitigating these impacts are provided as a basis point for discussion between representatives of Archuleta County and C & J Gravel Products, which plans to operate the Two Rivers Pit.

3. EXISTING CONDITIONS

The proposed Two Rivers Pit is approximately 12-miles south of Pagosa Springs, CO, located at Section 11, Township 33 North, Range 2 West, NM (10th) P.M., Archuleta County. Address for the site is 12500 County Road 500, Pagosa Springs, Co 81147. Primary land-use in the region is ranching and National Forest.

Main highway arteries in Archuleta County are US Highway 160 that runs east / west and State Highway 84 which is align from the Town of Pagosa Springs southeast to the state line. Access from the highways to the Pit site is via principle roads South Pagosa Boulevard and Light Plant Road (CR 119) south to County Road 500. CR 500 is aligned north/south.

Town of Pagosa Springs / Pagosa Lakes are the economic centers for the region.

County Road 500 is primarily an aggregate roadway with the first mile leaving Town of Pagosa Springs being asphalt.

Photo 1 is a view of CR 500, adjacent to the intersection with Cascade Avenue:



Photo 1 – CR 500 looking south

Figure 2 provides a limited summary of roadways serving the Two Rivers Pit.

C&J Gravel - Archuleta County Facility								3/21/2106
Road	Description	Location	Range BP	Range EP	Surface	Width (ft)	Shoulders - ea (ft)	Comment(s)
S. Pagosa								
	Data Pt 1	MP 0.1			Asphalt	32	3	Paved shoulders
			MP 0.0	MP 3.4	Asphalt	24	2	Gravel shoulders
			MP 3.4	MP 4.9	Gravel	28		
Cascade								
	Data Pt 4	MP 0.9			Gravel	26		
			MP 0.0	MP 0.9	Gravel	21 - 26		Rework Buttress & Cascade int, Rework Cascade & Truillo int
Truillo / CR 500								
	Data Pt 2	MP 0.1			Asphalt	23	1	Gravel shoulders
	Data Pt 3	MP 4.2			Gravel	26		
	Data Pt 5	MP 11.6			Gravel	21		Project
Truillo / CR 500								Bridge is 1.5 mile south of project
	FS 629				Gravel	26		
	Landfill	MP 8.6						
			MP 6.3	MP 6.4				Limited Sight Distance - House on knoll adjacent to road at MP 6.3
		MP 5.8						Limited Sight Distance
		MP 1.5						Limited Sight Distance - Transfer Station. Installing Water Line

Figure 2

Traffic Counts

Traffic counts were utilized for developing baseline characteristics of roadways serving the Pit site. Traffic data was gathered using an 'Automatic Traffic Data Recorder – produced by Jamar Technologies Inc'

Five sets of traffic counters were placed to conduct mid-week counts over a 48-hour period. Traffic data was gathered from March 29 through March 30, 2016. The five data locations are:

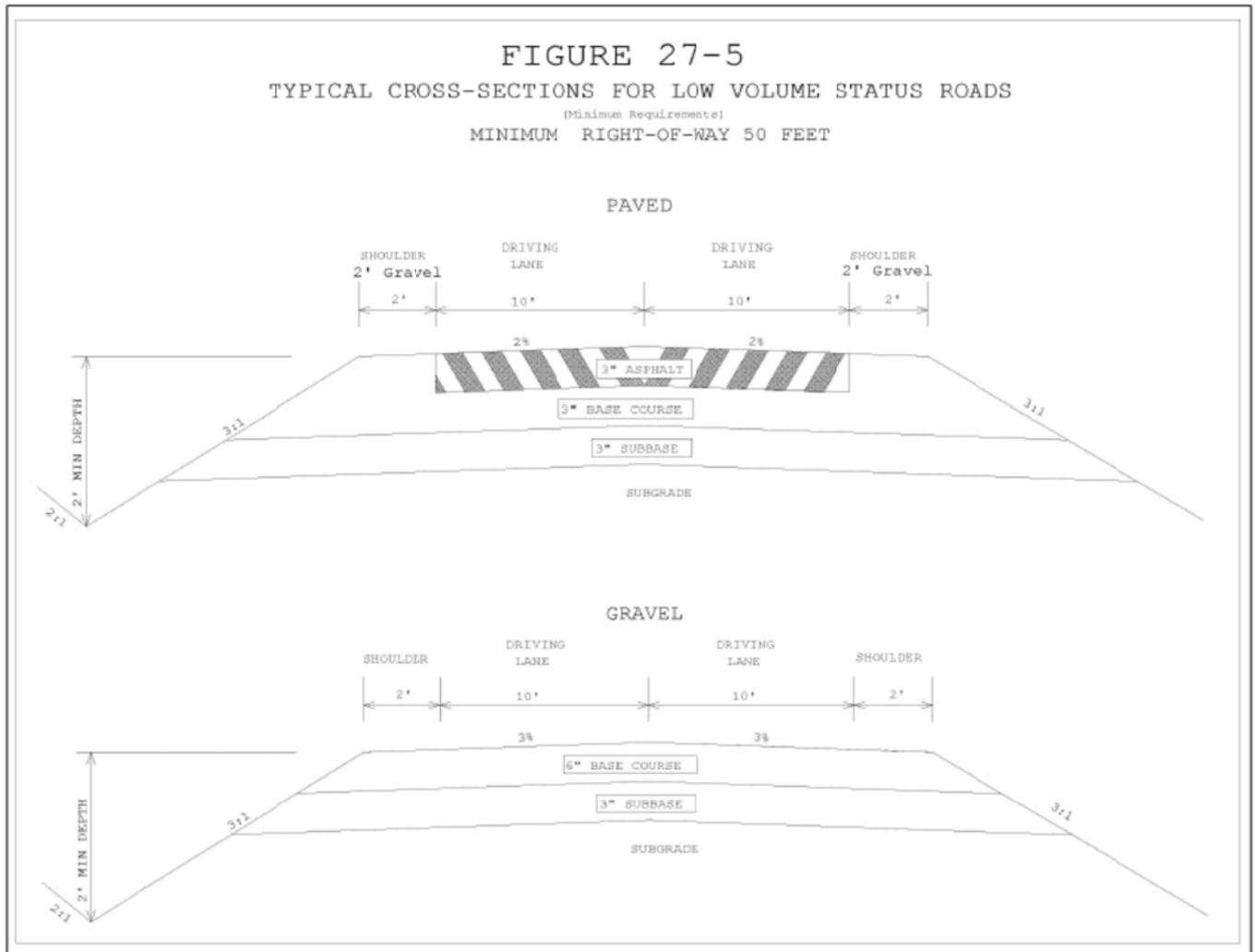
- 1) Data Pt 1: South Pagosa Boulevard – MP 0.1 (south of US 160)
- 2) Data Pt 2: CR 500 – MP 0.1 (south of Town of Pagosa limits)
- 3) Data Pt 3: CR 500 – MP 4.2 (just north of intersection with Cascade Avenue)
- 4) Data Pt 4: Cascade Avenue – MP 0.9 (just west of intersect with CR 500)
- 5) Data Pt 5: CR 500 – MP 11.6 (just north of Project site)

Existing traffic count data for each location is as follows (count date 3/30/16):

- 1) 1,307 trips
- 2) 452 trips
- 3) 168 trips
- 4) 189 trips
- 5) 161 trips

Referencing Archuleta County Road and Bride Design Standards 27.1.2.6: Low Volume Roads; low volume roads 'have a design average daily traffic volume that does not exceed 400.' Locations 3, 4, & 5 have less than 400 trips and thereby would meet a classification of Low Volume Road.

Figure 27-5² reflects a typical cross-section for a Low Volume status road. Typical section calls for a 10ft driving lane and 2ft shoulder = 24ft wide travel surface. Most sections of roadway surveyed are approximately 26ft wide, exceeding the minimums for a Local Road. CR 500 at approximate MP 11.5, near the Project site, has a reduced width of approximately 21ft. This condition also exists on Cascade Avenue, near the intersection with Buttress Avenue; roadway width is approximately 21ft.



Accident Records

Accident records for Archuleta County obtained from Colorado State Patrol. The accident data spanned the years 2011 – 2015. Data was aggregated for the northern haul routes; CR 500 to Pagosa Springs, and CR 500 to Cascade Avenue to South Pagosa Boulevard. Over the five-year duration, thirty-six accidents were recorded (Appendix 2).

Summary of accident records:

- 25 accidents were Property Damage Only (69%)
- 11 accidents sustained Injuries (31%)
- No fatalities

² Archuleta County Road and Bridge Design Standards and Construction Specifications

Assessing locations of multiple accidents or groupings, CR 119, also known as Light Plant Road, was noted as having 10-accidents in approximately 2-miles of roadway.

4. SPEED LIMIT AND STOPPING SIGHT DISTANCE

County Road 500 provides roadway connectivity to agricultural, residential, and National Forest land-uses. The northern one mile of CR 500 is paved, with the 10.5-miles of road between the Pit site and pavement start being a gravel driving surface. The gravel driving surface is typically posted at 35mph, with caution speed reductions signs posted to serve sharp roadway curves.

The majority of roadway users appear to be very familiar with CR 500. This statement is based on noting zero accidents in areas in which sight distance is obstructed or curves radiuses are too tight to easily navigate bi-directional traffic.

Sight distance parameters are based on a vehicle having sufficient distance to recognize a hazard and perform action to stop the vehicle to avoid the hazard. At three locations along the CR500, sight distance is obstructed by rock outcropping and/or steep slopes directly adjacent to the travel-way. It is assumed that drivers are familiar with these areas of limited sight distance and travelled at slower speeds than those posted to account for reduced maneuvering and or stopping distances.

Referencing AASHTO's *A Policy on Geometric Design of Highways and Streets*, stopping sight distance requirement for a 35mph design speed is 250ft (note exhibit 3-1). With two vehicles traveling in opposite directions, the total sight distance requirement at 35mph is 500ft. At CR 500 mile-points 5.8, 6.3, & 6.4, it appears that the available sight distance is less than 35mph minimums.

Design speed (km/h)	Metric				US Customary				
	Brake reaction distance (m)	Braking distance on level (m)	Stopping sight distance		Design speed (mph)	Brake reaction distance (ft)	Braking distance on level (ft)	Stopping sight distance	
			Calculated (m)	Design (m)				Calculated (ft)	Design (ft)
20	13.9	4.6	18.5	20	15	55.1	21.6	76.7	80
30	20.9	10.3	31.2	35	20	73.5	38.4	111.9	115
40	27.8	18.4	46.2	50	25	91.9	60.0	151.9	155
50	34.8	28.7	63.5	65	30	110.3	86.4	196.7	200
60	41.7	41.3	83.0	85	35	128.6	117.6	246.2	250
70	48.7	56.2	104.9	105	40	147.0	153.6	300.6	305
80	55.6	73.4	129.0	130	45	165.4	194.4	359.8	360
90	62.6	92.9	155.5	160	50	183.8	240.0	423.8	425
100	69.5	114.7	184.2	185	55	202.1	290.3	492.4	495
110	76.5	138.8	215.3	220	60	220.5	345.5	566.0	570
120	83.4	165.2	248.6	250	65	238.9	405.5	644.4	645
130	90.4	193.8	284.2	285	70	257.3	470.3	727.6	730
					75	275.6	539.9	815.5	820
					80	294.0	614.3	908.3	910

Note: Brake reaction distance predicated on a time of 2.5 s; deceleration rate of 3.4 m/s² [11.2 ft/s²] used to determine calculated sight distance.

Exhibit 3-1. Stopping Sight Distance

This condition was also evaluated based on AASHTO's *A Policy on Geometric Design of Highways and Streets* - 'horizontal sight line offset – HSO'. Figure 3 provides a graphic pertaining how HSO corresponds to sight distance.

relationships between R , HSO , and V in this chart can be quickly checked. For example, with an 80-km/h [50-mph] design speed and a curve with a 350-m [1,150-ft] radius, a clear sight area with a horizontal sight line offset of approximately 6.0 m [20 ft] is needed for stopping sight distance. As another example, for a sight obstruction at a distance HSO equal to 6.0 m [20 ft] from the centerline of the inside lane on a curve with a 175-m [575-ft] radius, the sight distance needed is approximately at the upper end of the range for a speed of approximately 60 km/h [40 mph].

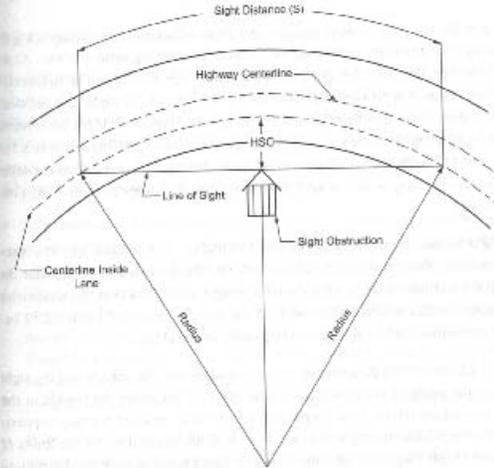


Figure 3-23. Diagram Illustrating Components for Determining Horizontal Sight Distance

Metric	U.S. Customary
$HSO = R \left[1 - \cos \left(\frac{28.65S}{R} \right) \right]$	$HSO = R \left[1 - \cos \left(\frac{28.65S}{R} \right) \right] \quad (3-36)$
where:	where:
HSO = Horizontal sight line offset, m	HSO = Horizontal sight line offset, ft
S = Stopping sight distance, m	S = Stopping sight distance, ft
R = Radius of curve, m	R = Radius of curve, ft

Horizontal sight restrictions may occur where there is a cut slope on the inside of the curve. For the 1.08-m [3.50-ft] eye height and the 0.60-m [2.00-ft] object height used for stopping sight distance, a height of 0.84 m [2.75 ft] may be used as the midpoint of the sight line where the cut slope usually obstructs sight. This assumes that there is little or no vertical curvature. For a highway with a 6.6-m [22-ft] traveled way, 1.2-m [4-ft] shoulders, an allowance of 1.2 m [4 ft] for a ditch section, and 1V:2H (1 m or 1 ft vertically

Figure 3

Utilizing HSO, the available sight-distance at three locations is less than the recommended value.

<u>Location</u>	<u>Recommended HSO</u>	<u>Actual HSO</u>
a) CR 500 - MP 5.8	28-ft	20-ft
b) CR 500 - MP 6.0	24-ft	18-ft
c) CR 500 - MP 6.4	49-ft	20-ft

Appendix 3 includes two exhibits noting the limited sight locations and corresponding HSO.

5. PROPOSED SITE USES AND TRIP VOLUMES

The Two Rivers Pit is situated atop ridge serviced by a private bridge spanning the San Juan River. The area is rural in character and sparsely populated.

Aggregate deposits at the Two Rivers site have hardness characteristics that are generally absent from this region. Comparable operational pits are located a distance of over 50-miles from Pagosa Springs.

Primary gravel haul routes have been identified northbound; a) CR 500 to Cascade Avenue to South Pagosa Boulevard, and b) CR 500 to Apache Street. Upon reaching South Pagosa Blvd. / Apache St., gravel trucks are expected to disperse along the network roadway system.

Gravel demand will be market driven with primary market area centered on existing developed regions; i.e. Pagosa Lakes and Pagosa Springs. Gravel truck distribution has been analyzed at 90% northbound from the pit and 10% southbound. Of the northbound trips, it is projected that majority of traffic will be towards the Pagosa Lakes region, utilizing Cascade Avenue to South Pagosa Boulevard. For this assessment, the trip distribution is as follows:

Northbound	90%	80% - South Pagosa Boulevard
		20% - Apache Street
Southbound	10%	

Roadway analysis is based on 100,000 tons of aggregate material to market per year. Assuming aggregate hauling at 15-tons per trip, the number of truck trips equals: 37 Average Daily Trips (ADT). ADT values are calculated based on 365-days. It is expected that haul days will be 5 or 6 days a week, based on demand, weather, and pit closure days.

Although aggregate will be available through-out the year, crushing operations are expected to be performed over a shorter period of time, approximately 70 to 75-days. A mobile crushing plant will be used to perform crushing operations, producing aggregate materials to match market demands. There will be increase in number of daily personnel from two individuals to 6 or 7 during crushing periods.

Projected total of Pit generated trips = haul trucks + service trucks + personnel = 37+1+9 = 47 ADT

6. ESAL LOADING

Load Equivalency Factors

Load equivalency factors, such as equivalent single-axle loads (ESAL), measure the relative effects of different types of loadings on pavement. By convention, an 18,000-pound single axle equals 1.0 ESAL. The ESAL values for other axles express their effect on pavement wear relative to the 18,000-pound single axle. Calculating the number of ESALs for each axle and adding the ESALs to obtain the total ESAL for the vehicle can estimate the effect of a given vehicle on pavements. For example, if the equivalent single axle load on a given vehicle is 3.0 ESALs, then one pass by the vehicle has the same effect on that pavement as three passes by an 18,000-pound single axle. The rough approximate ESAL relationship between passenger cars and semi-trucks:

1 semi-truck = 360 passenger cars

Axle Loadings

Generally, highway pavements are stressed by axle and axle group loads directly in contact with the pavement rather than by the gross vehicle weight (GVW). The axle loads are determined utilizing the GVW, number and types of axles, and the spacing between the axles. Pavement wear increases sharply with increased axle loadings. The relationship is not linear. Data indicates that 100 trips across a paved surface by a 20,000-pound axle would have the same effect on pavement life as 150 passes by an 18,000-pound axle.

The following are flexible pavement factors utilized in this study to evaluate the loading impacts due to the product hauling and operation of the Two Rivers Pit:

Roadway impacts associated with the Two Rivers Pit operations have been calculated based on number of haul loads, and the number of days the Pit is in operation. The number of days per year the Pit transports aggregate product is based on market factors and assumed to be equal to 250 (50 weeks x 5 days per week). Haul loads totals are based on information provided by C&J Gravel Products, Inc. Equivalent Single Axle Loading (ESAL) values are based a twenty-year operating period. Site generated trips volumes are as follows:

<u>Vehicle Type</u>	<u># of trips per day</u>
Car / Truck	9 ADT
Water / Single Unit Truck	1 ADT
Aggregate Transports	37 ADT

<u>Vehicle Type</u>	<u>ESAL Factor</u>
Passenger Car / Pickup Truck	0.0003
Single Unit Truck	0.249
Combination Unit Truck	1.087

In order to define proportional share of Two Rivers Pit operations as it relates to trip volumes on CR 500, roadway loading of background traffic was first identified. The baseline trips are the background traffic independent of the Pit generated trips. Total roadway loading is the sum of background loading plus year Pit operations. The proportional share has been calculated by taking the Two Rivers 20-Year ESAL and dividing this value by the sum of 20-Year background and Pit loading. Note that Pit traffic reflects directional distribution.

Example:

Table 1 reflects year 20-Yr Pit loading by lane (S. Pagosa Blvd)	–	126,389 18-Kip ESAL
Table 2 reflects year Baseline loading by lane (S. Pagosa Blvd)	–	<u>154,289</u> 18-Kip ESAL
Percent of roadway impacts allocated to Two Rivers Pit (S. Pagosa Blvd)		45%

Low-Volume Road Pavement Design Analysis to support Two Rivers Operations

Roadway loading by Two Rivers Pit operations was evaluated based on aggregate-surface design parameters. Appendix 4 provides back-up to the analysis findings of an approximate 12-inch aggregate depth would support the Pit ESAL loading. Gravel loss projected value is ½-inch every 5-years.

For section of roadway that has pavement, it is assumed that a chip-seal application would be applied every 10-years.

7. MITIGATING IMPACTS – BUDGET COSTS

Budget costs for mitigating the roadway impacts associated with the Two Rivers Pit operations are as follows:

Aggregate replacement (on aggregate road segments)	\$15 / ton, every 5-years
Chip seal (on paved road segments)	\$100,000 / mile, every 10-years

Addressing the CR 500 limited sight distance between mile-points 5.8-6.4, safety could be improved with the installation of flashing 'Limited Sight Distance' signs. This option would be to install the signs just prior to the roadway location of limited sight, such that the signs would flash if opposing traffic was beyond the approaching sight line.

Cost for flashing signs is estimated at: \$25,000

8. PROJECTED PROPORTIONATE COSTS

Appendix 5 of the reports outlines a 20-year assumed roadway improvement plan to mitigate impacts associated with the Two Rivers Pit. Mitigation costs reflect a proportionate share based on percent loading; i.e., background vs. Pit. The summary of roadways and proportionate share is as follows:

1) Pit @ S. Pagosa Blvd	45%
2) Pit @ CR 500 near Pagosa Springs	34%
3) Pit @ Cascade Avenue	63%
4) Pit @ CR 500 south of Cascade Avenue	62%

In evaluating impacts and assigning mitigation costs, it is helpful to evaluate based on per unit costs. For this assessment the mitigation cost per ton of material is provide as follows:

Average marketed tons per year	100,000 tons
Assessment duration of Study	20-years
OPC – reflects proportionate share cost	\$738,557
Cost per ton = \$738,557 / (100,000 tons x 20-yrs)	= \$0.37 / ton

9. CONCLUSIONS AND SUMMARY OF FINDINGS

Specific findings of the report are as follows:

- ◆ Install flashing 'Limited Sight Distance' signs to advise of roadway curves with limit sight distance.
- ◆ Study is based on the Two Rivers Pit operations of 100,000 tons/year. Operations 5-days per week, 50-weeks per year over 20-year period.
- ◆ The Two Rivers Pit operation is projected to generate 47 ADT (breakout – 9 passenger/truck, 1 single axle loading, & 37 transport dump-trucks).
- ◆ The single lane 20-year ESALs total associated with operating the Two Rivers Pit operations = 175,540 18Kip loads.
- ◆ Mitigation of roadway impacts:
 - ½ inch of aggregate every 5-years (aggregate road segments)
 - Chip seal roadway every 10-years (paved road segments)
- ◆ Opinion of Probable Cost (OPC) for mitigating impacts associated with Two Rivers Pit operations are:
 - Mitigation cost per ton of transported aggregate = \$0.37 / ton of aggregate

TECHNICAL MANUALS AND PUBLIC DATA UTILIZED IN TRAFFIC STUDY

- AASHTO's A Policy on Geometric Design of Highways and Streets (6th – Edition, 2011)
- AASHTO's Guide for Design of Pavement Structures (1993)
- Archuleta County – Road and Bridge Design Standards (November 2005)
- Colorado Highway Patrol Accident Traffic Data – Archuleta County (2011 - 2015)

C & J GRAVEL PRODUCTS, INC TWO RIVERS PIT

TRAFFIC AND ROADWAY ANALYSIS

Archuleta County, Colorado

Traffic Counts plus Exhibit A

APPENDIX 1

Site Code: 1
 Station ID: 1
 S. PAGOSA BLVD S/O US 160
 S. PAGOSA BLVD S/O US 160

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/16	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00	1	2	0	0	0	0	0	0	0	0	0	0	0	3
06:00	1	11	0	0	0	0	0	0	0	0	0	0	0	12
07:00	0	35	2	0	0	0	0	0	0	0	0	0	0	37
08:00	0	52	8	0	0	0	0	0	0	0	0	0	0	60
09:00	1	38	9	0	0	0	0	0	0	0	0	0	0	48
10:00	0	43	6	0	0	0	0	0	0	0	0	0	0	49
11:00	0	52	8	0	0	1	0	0	1	0	0	0	0	62
12 PM	0	55	12	0	0	0	0	0	0	0	0	0	0	67
13:00	0	49	5	0	2	0	0	0	0	0	0	0	0	56
14:00	0	38	6	0	1	0	0	0	0	0	0	0	0	45
15:00	1	43	13	0	0	0	0	0	1	0	0	0	0	58
16:00	0	39	13	0	1	0	0	0	1	0	0	0	0	54
17:00	0	24	3	0	2	0	0	0	0	0	0	0	0	29
18:00	0	19	6	0	0	0	0	0	0	0	0	0	0	25
19:00	0	14	2	0	0	0	0	0	0	0	0	0	0	16
20:00	1	7	0	0	0	0	0	0	1	0	0	0	0	9
21:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
22:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
23:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Total	5	532	93	0	6	1	0	0	4	0	0	0	0	641
Percent	0.8%	83.0%	14.5%	0.0%	0.9%	0.2%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	
AM Peak	05:00	08:00	09:00			11:00			11:00					11:00
Vol.	1	52	9			1			1					62
PM Peak	15:00	12:00	15:00		13:00				15:00					12:00
Vol.	1	55	13		2				1					67
Grand Total	12	1021	170	0	14	10	0	0	5	0	0	0	0	1232
Percent	1.0%	82.9%	13.8%	0.0%	1.1%	0.8%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	

Site Code: 1
 Station ID: 1
 S. PAGOSA BLVD S/O US 160
 S. PAGOSA BLVD S/O US 160

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/29/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	2	0	0	0	1	0	0	0	0	0	0	0	3
07:00	0	25	5	0	0	0	0	0	0	0	0	0	0	30
08:00	0	34	16	0	0	1	0	1	0	0	0	0	0	52
09:00	0	45	14	0	0	1	0	1	0	0	0	0	0	61
10:00	0	30	13	0	0	2	0	0	0	0	0	0	0	45
11:00	0	41	9	0	1	1	0	0	0	0	0	0	0	52
12 PM	1	48	14	0	1	1	0	0	0	0	0	0	0	65
13:00	0	46	11	0	0	1	0	0	0	0	0	0	0	58
14:00	0	23	12	0	0	2	0	0	0	0	0	0	0	37
15:00	1	29	14	0	1	0	0	0	0	0	0	0	0	45
16:00	0	37	6	0	0	0	0	0	0	0	0	0	0	43
17:00	0	48	10	0	0	0	0	0	0	0	0	0	0	58
18:00	0	31	6	0	0	0	0	0	1	0	0	0	0	38
19:00	0	13	5	0	0	0	0	0	0	0	0	0	0	18
20:00	0	6	3	0	0	0	0	0	0	0	0	0	0	9
21:00	0	10	2	0	0	0	0	0	0	0	0	0	0	12
22:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	474	141	0	3	10	0	2	1	0	0	0	0	633
Percent	0.3%	74.9%	22.3%	0.0%	0.5%	1.6%	0.0%	0.3%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak		09:00	08:00		11:00	10:00		08:00						09:00
Vol.		45	16		1	2		1						61
PM Peak	12:00	12:00	12:00		12:00	14:00			18:00					12:00
Vol.	1	48	14		1	2			1					65

Site Code: 1
 Station ID: 1
 S. PAGOSA BLVD S/O US 160
 S. PAGOSA BLVD S/O US 160

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/16	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
07:00	0	21	7	0	2	1	0	0	0	0	0	0	0	31
08:00	0	32	17	0	1	0	0	0	0	0	0	0	0	50
09:00	0	27	18	0	2	0	0	0	1	0	0	0	0	48
10:00	0	35	13	0	0	1	0	0	0	0	0	0	0	49
11:00	0	51	18	0	1	0	0	0	0	0	0	0	0	70
12 PM	0	54	14	0	1	0	0	0	0	0	0	0	0	69
13:00	0	47	17	0	2	0	0	0	0	0	0	0	0	66
14:00	0	34	8	0	0	0	0	0	1	0	0	0	0	43
15:00	1	37	15	0	3	0	0	0	0	0	0	0	0	56
16:00	0	44	12	0	0	0	0	0	0	0	0	0	0	56
17:00	1	35	13	0	0	0	0	0	1	0	0	0	0	50
18:00	0	25	2	0	0	0	0	0	0	0	0	0	0	27
19:00	0	18	3	0	0	0	0	0	0	0	0	0	0	21
20:00	0	10	3	0	0	0	0	0	0	0	0	0	0	13
21:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
22:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
23:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Total	2	493	162	0	12	2	0	0	3	0	0	0	0	674
Percent	0.3%	73.1%	24.0%	0.0%	1.8%	0.3%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak		11:00	09:00		07:00	07:00			09:00					11:00
Vol.		51	18		2	1			1					70
PM Peak	15:00	12:00	13:00		15:00				14:00					12:00
Vol.	1	54	17		3				1					69
Grand Total	4	967	303	0	15	12	0	2	4	0	0	0	0	1307
Percent	0.3%	74.0%	23.2%	0.0%	1.1%	0.9%	0.0%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%	

Site Code: 2
 Station ID: 2
 CR 500 S/O S. 10TH ST.
 CR 500 S/O S. 10TH ST.

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/16	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
07:00	0	18	5	0	1	0	0	0	0	0	0	0	0	24
08:00	0	16	2	0	0	1	0	0	0	0	0	0	0	19
09:00	0	13	3	0	0	0	0	0	0	0	0	0	0	16
10:00	0	20	2	0	0	0	0	0	0	0	0	0	0	22
11:00	0	12	5	0	1	0	0	0	0	0	0	0	0	18
12 PM	0	16	2	0	1	0	0	0	0	0	0	0	0	19
13:00	0	15	3	0	0	0	0	0	0	0	0	0	0	18
14:00	0	10	3	0	0	0	0	0	0	0	0	0	0	13
15:00	0	17	5	0	0	0	0	0	0	0	0	0	0	22
16:00	0	17	3	0	0	0	0	0	0	0	0	0	0	20
17:00	0	12	7	0	2	0	0	0	1	0	0	0	0	22
18:00	1	7	1	0	0	0	0	0	0	0	0	0	0	9
19:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
20:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
21:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
22:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	190	43	0	6	1	0	0	1	0	0	0	0	242
Percent	0.4%	78.5%	17.8%	0.0%	2.5%	0.4%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak		10:00	07:00		04:00	08:00								07:00
Vol.		20	5		1	1								24
PM Peak	18:00	15:00	17:00		17:00				17:00					15:00
Vol.	1	17	7		2				1					22
Grand Total	3	400	88	0	9	7	0	0	1	0	0	0	0	508
Percent	0.6%	78.7%	17.3%	0.0%	1.8%	1.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	

Site Code: 2
 Station ID: 2
 CR 500 S/O S. 10TH ST.
 CR 500 S/O S. 10TH ST.

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	2	1	0	1	0	0	0	0	0	0	0	0	4
07:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
08:00	0	8	0	0	1	0	0	0	0	0	0	0	0	9
09:00	0	8	2	0	0	0	0	0	0	0	0	0	0	10
10:00	0	17	3	0	1	0	0	0	0	0	0	0	0	21
11:00	0	11	2	0	0	0	0	0	0	0	0	0	0	13
12 PM	0	10	4	0	3	0	0	0	0	0	0	0	0	17
13:00	0	14	3	0	0	0	0	0	0	0	0	0	0	17
14:00	0	9	6	0	1	0	0	0	0	0	0	0	0	16
15:00	0	14	6	0	0	0	0	0	0	0	0	0	0	20
16:00	0	12	6	0	1	0	0	0	0	0	0	0	0	19
17:00	1	17	5	0	0	1	0	0	0	0	0	0	0	24
18:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
19:00	0	5	2	0	0	0	0	0	1	0	0	0	0	8
20:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
21:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
22:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	1	154	48	0	8	1	0	0	1	0	0	0	0	213
Percent	0.5%	72.3%	22.5%	0.0%	3.8%	0.5%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak		10:00	10:00		06:00									10:00
Vol.		17	3		1									21
PM Peak	17:00	17:00	14:00		12:00	17:00			19:00					17:00
Vol.	1	17	6		3	1			1					24
Grand Total	1	317	107	1	18	7	0	0	1	0	0	0	0	452
Percent	0.2%	70.1%	23.7%	0.2%	4.0%	1.5%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	

Site Code: 3
 Station ID: 3
 CR 500 N/O CASCADE AVE.
 CR 500 N/O CASCADE AVE.

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/16	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
07:00	0	7	4	0	1	0	0	0	0	0	0	0	0	12
08:00	0	8	2	0	0	1	0	1	0	0	0	0	0	12
09:00	0	11	2	0	0	0	0	0	0	0	0	0	0	13
10:00	0	4	5	0	0	0	0	0	0	0	0	0	0	9
11:00	0	3	4	0	3	0	0	0	1	0	0	0	0	11
12 PM	0	6	2	0	1	0	0	0	0	0	0	0	0	9
13:00	0	8	2	0	0	0	0	0	0	0	0	0	0	10
14:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
15:00	0	3	4	0	0	0	0	0	0	0	0	0	0	7
16:00	0	4	5	0	0	0	0	0	0	0	0	0	0	9
17:00	0	4	3	0	2	0	0	0	0	0	0	0	0	9
18:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
19:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
20:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	68	36	0	7	1	0	1	1	0	0	0	0	114
Percent	0.0%	59.6%	31.6%	0.0%	6.1%	0.9%	0.0%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	
AM Peak		09:00	10:00		11:00	08:00		08:00	11:00					09:00
Vol.		11	5		3	1		1	1					13
PM Peak		13:00	16:00		17:00									13:00
Vol.		8	5		2									10
Grand Total	0	150	63	0	11	6	0	1	1	0	0	0	0	232
Percent	0.0%	64.7%	27.2%	0.0%	4.7%	2.6%	0.0%	0.4%	0.4%	0.0%	0.0%	0.0%	0.0%	

Site Code: 3
 Station ID: 3
 CR 500 N/O CASCADE AVE.
 CR 500 N/O CASCADE AVE.

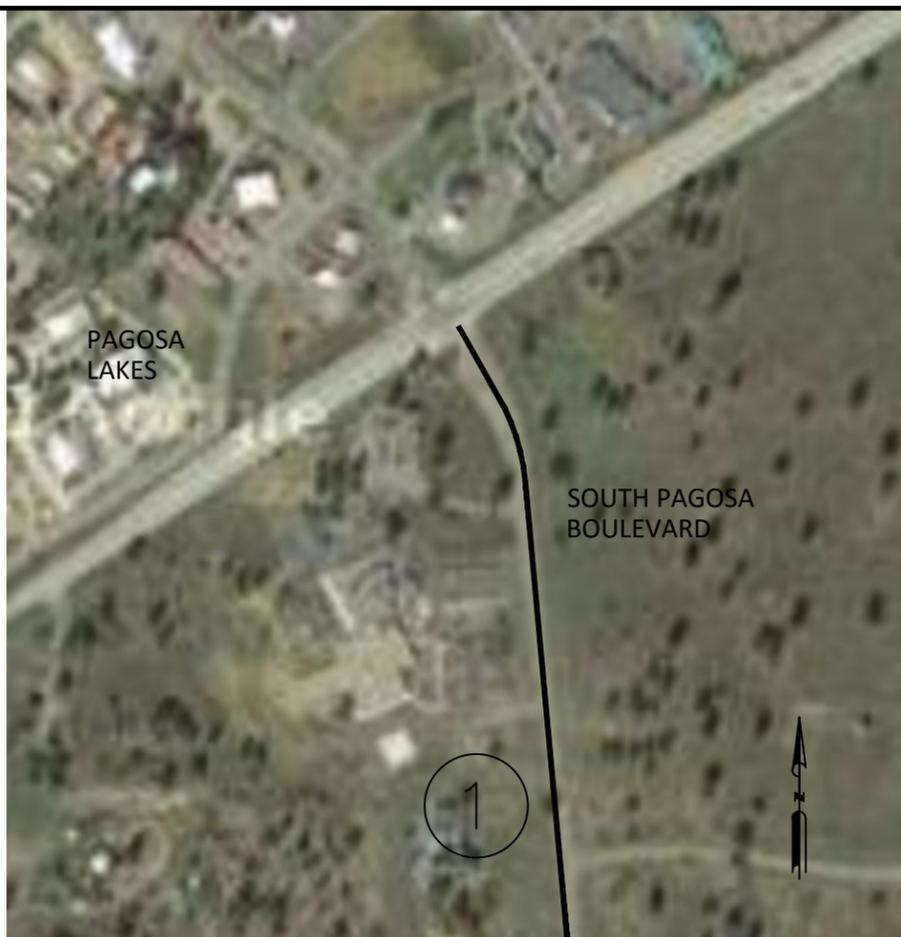
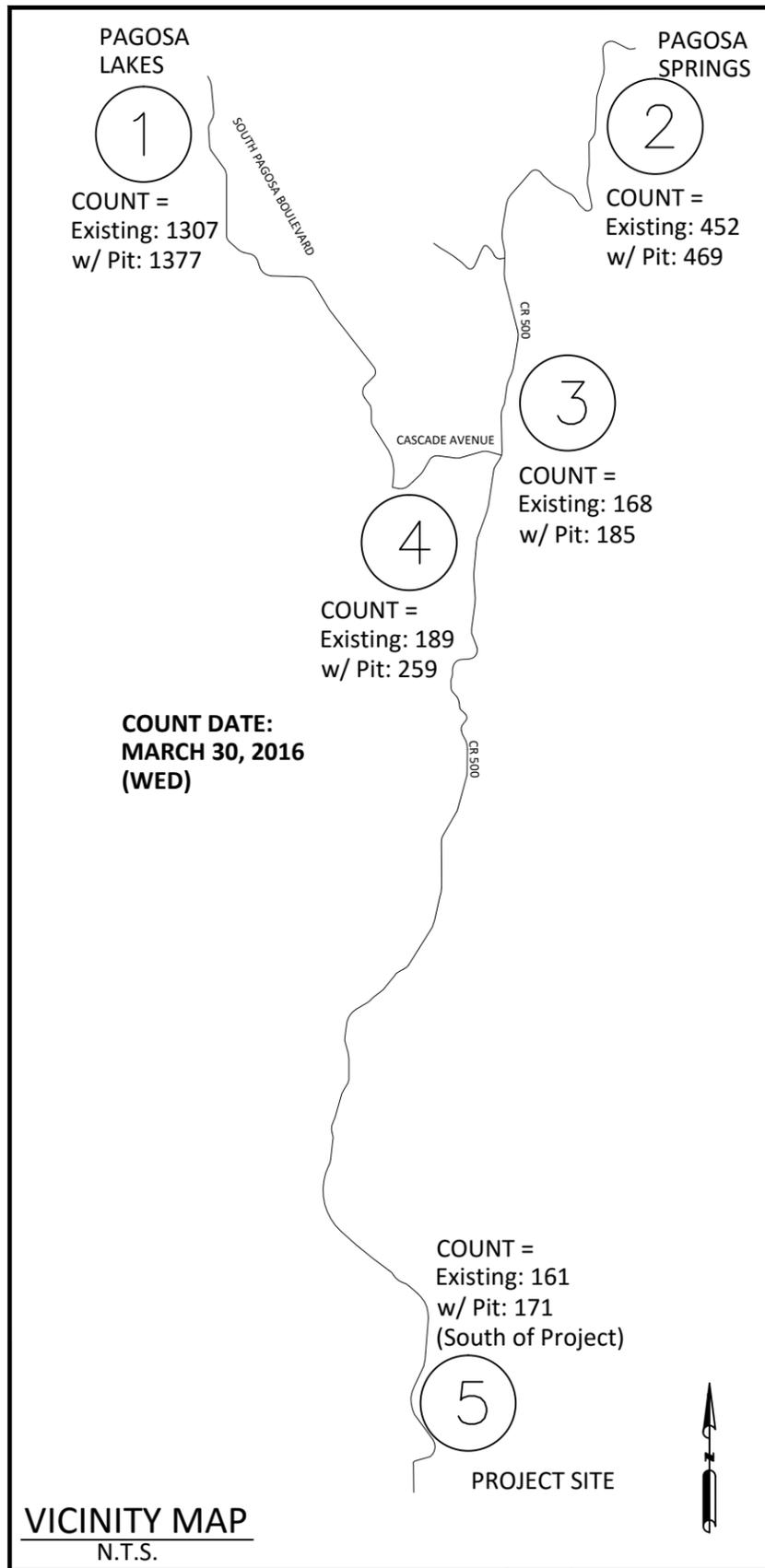
SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
07:00	0	2	1	0	1	0	0	0	0	0	0	0	0	4
08:00	0	2	3	0	0	0	0	0	0	0	0	0	0	5
09:00	0	5	0	0	0	0	0	0	1	0	0	0	0	6
10:00	0	4	3	0	1	0	0	0	0	0	0	0	0	8
11:00	0	2	1	0	0	1	0	0	0	0	0	0	0	4
12 PM	0	4	3	0	2	0	0	0	0	0	0	0	0	9
13:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
14:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
15:00	0	4	3	0	2	1	0	0	0	0	0	0	0	10
16:00	0	5	0	0	1	0	0	0	0	0	0	0	0	6
17:00	0	2	8	0	0	0	0	0	0	0	0	0	0	10
18:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
19:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
20:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	39	26	0	8	2	0	0	1	0	0	0	0	76
Percent	0.0%	51.3%	34.2%	0.0%	10.5%	2.6%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak		09:00	08:00		07:00	11:00			09:00					10:00
Vol.		5	3		1	1			1					8
PM Peak		16:00	17:00		12:00	15:00								15:00
Vol.		5	8		2	1								10
Grand Total	0	93	54	0	15	3	0	2	1	0	0	0	0	168
Percent	0.0%	55.4%	32.1%	0.0%	8.9%	1.8%	0.0%	1.2%	0.6%	0.0%	0.0%	0.0%	0.0%	

Site Code: 5
 Station ID: 5
 CR 500 S/O CASCADE AVE
 CR 500 S/O CASCADE AVE

NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
03/30/16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
07:00	0	6	2	0	1	0	0	0	0	0	0	0	0	9
08:00	0	4	5	0	0	0	0	0	0	0	0	0	0	9
09:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
10:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
11:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
12 PM	0	10	0	0	0	0	0	0	0	0	0	0	0	10
13:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
14:00	0	5	1	0	0	1	0	0	0	0	0	0	0	7
15:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
16:00	0	5	3	0	0	1	0	0	0	0	0	0	0	9
17:00	0	4	0	0	1	0	0	0	1	0	0	0	0	6
18:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
19:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
20:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	65	16	0	2	2	0	0	1	0	0	0	0	86
Percent	0.0%	75.6%	18.6%	0.0%	2.3%	2.3%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	08:00		07:00									07:00
Vol.		6	5		1									9
PM Peak		12:00	16:00		17:00	14:00			17:00					13:00
Vol.		10	3		1	1			1					11
Grand Total	0	125	33	0	4	5	0	0	1	0	0	0	0	168
Percent	0.0%	74.4%	19.6%	0.0%	2.4%	3.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	



Computer File Information		
Creation Date:	04/26/2016	Initials: RDP
Last Modification Date:	4/26/2016	Initials: RDP
Full Path:	c:\dropbox\roadrunner eng team folder\16001 - c&j gravel, pagosa	
Drawing File Name:	c & j gravel site	
Acad Ver.:	C3D 2013	Scale: As Shown Units: Imperial

Sheet Revisions		
(R-)		

ROADRUNNER 

1315 Main Ave. Suite 221
 Durango, Colorado 81301 Phone:
 970-247-1717

Exhibit
No Revisions:
Revised:
Void:

EXHIBIT A TRAFFIC COUNT LOCATIONS		
Designer:	MO	Structure
Detailer:	RDP	Numbers
Sheet Subset:	Subset Sheets: 1 of 2	

Project No./Code	16001
Sheet Number	02

**C & J GRAVEL PRODUCTS, INC
TWO RIVERS PIT**

**TRAFFIC AND ROADWAY
ANALYSIS**

Archuleta County, Colorado

**Accident Records
(Years 2011-2015)**

APPENDIX 2

Colorado State Patrol Accident Causal Factors

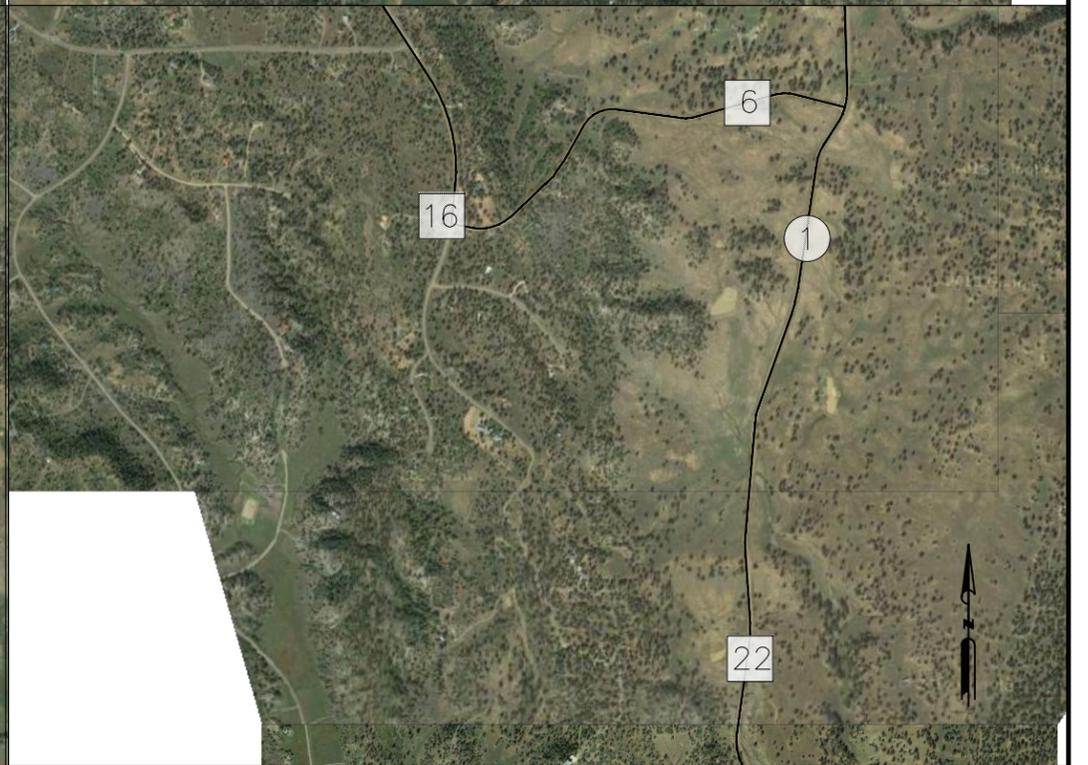
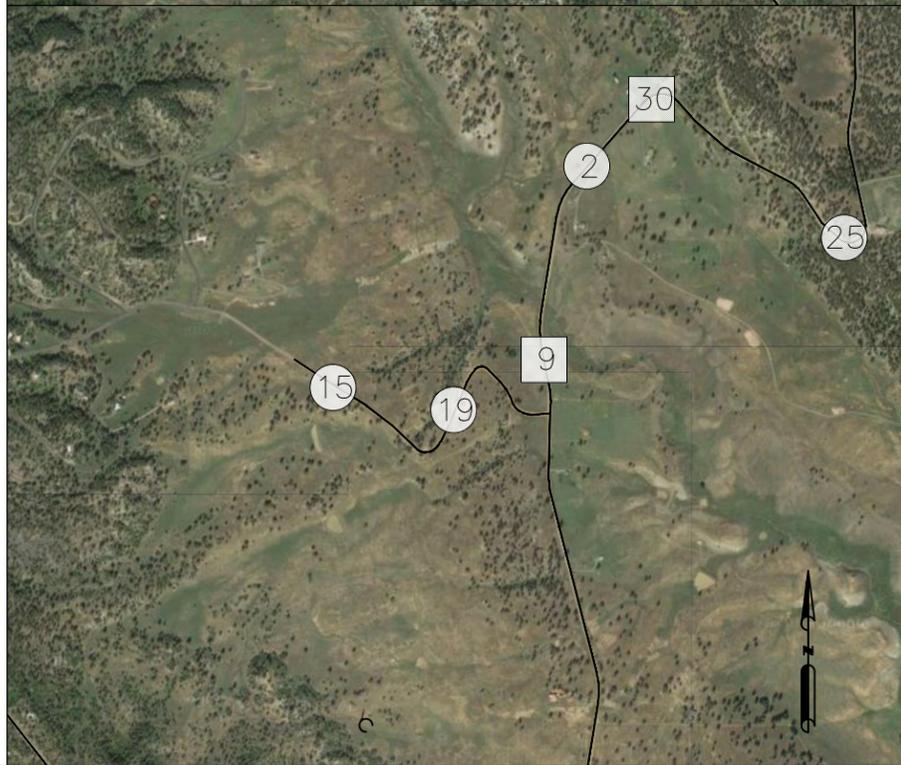
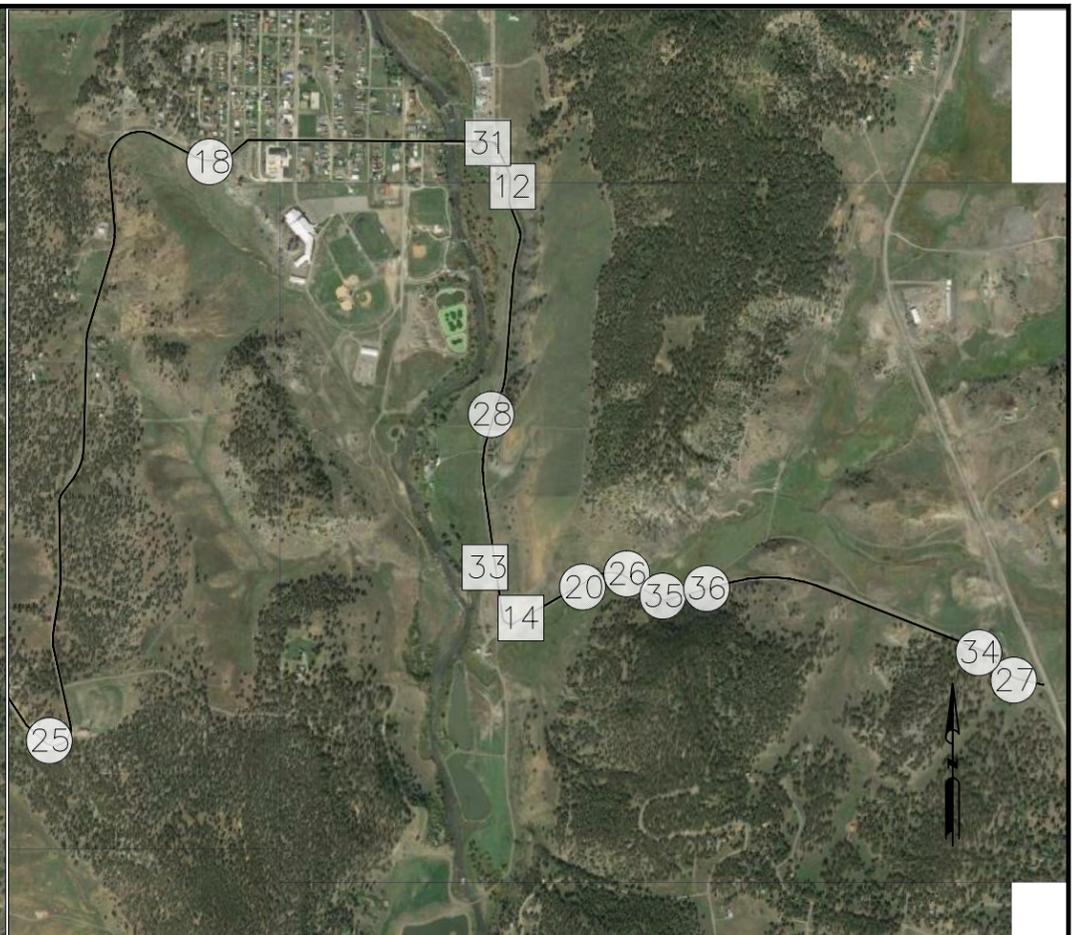
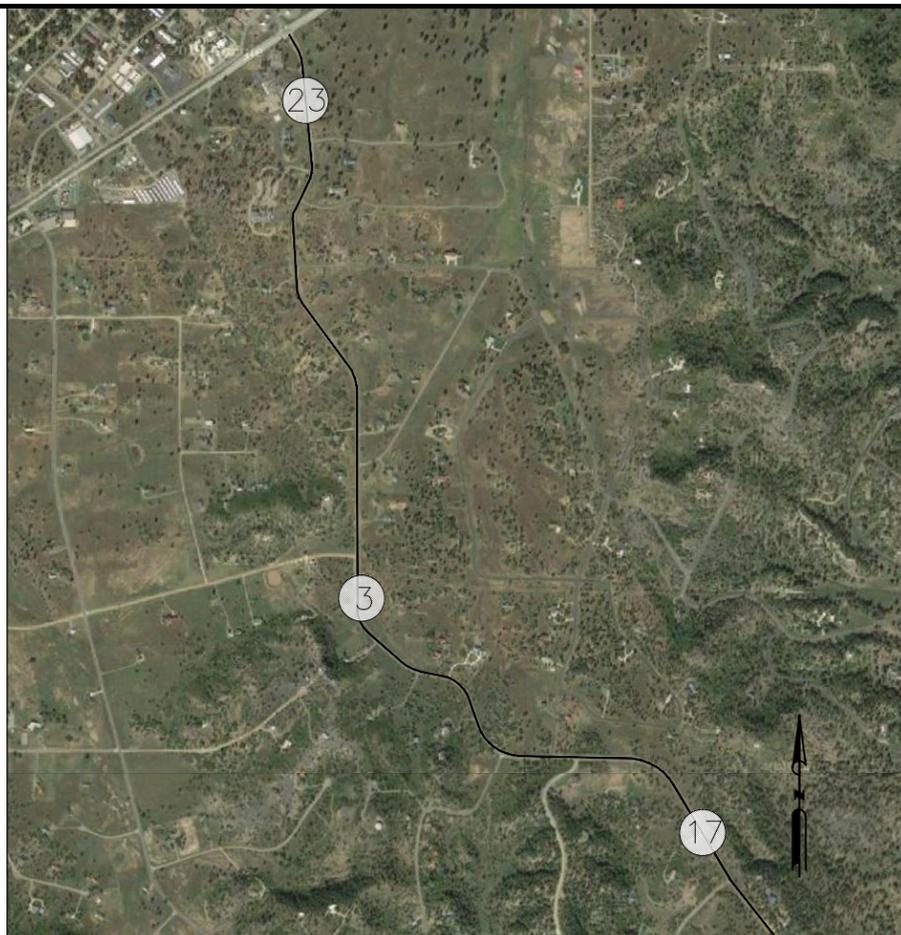
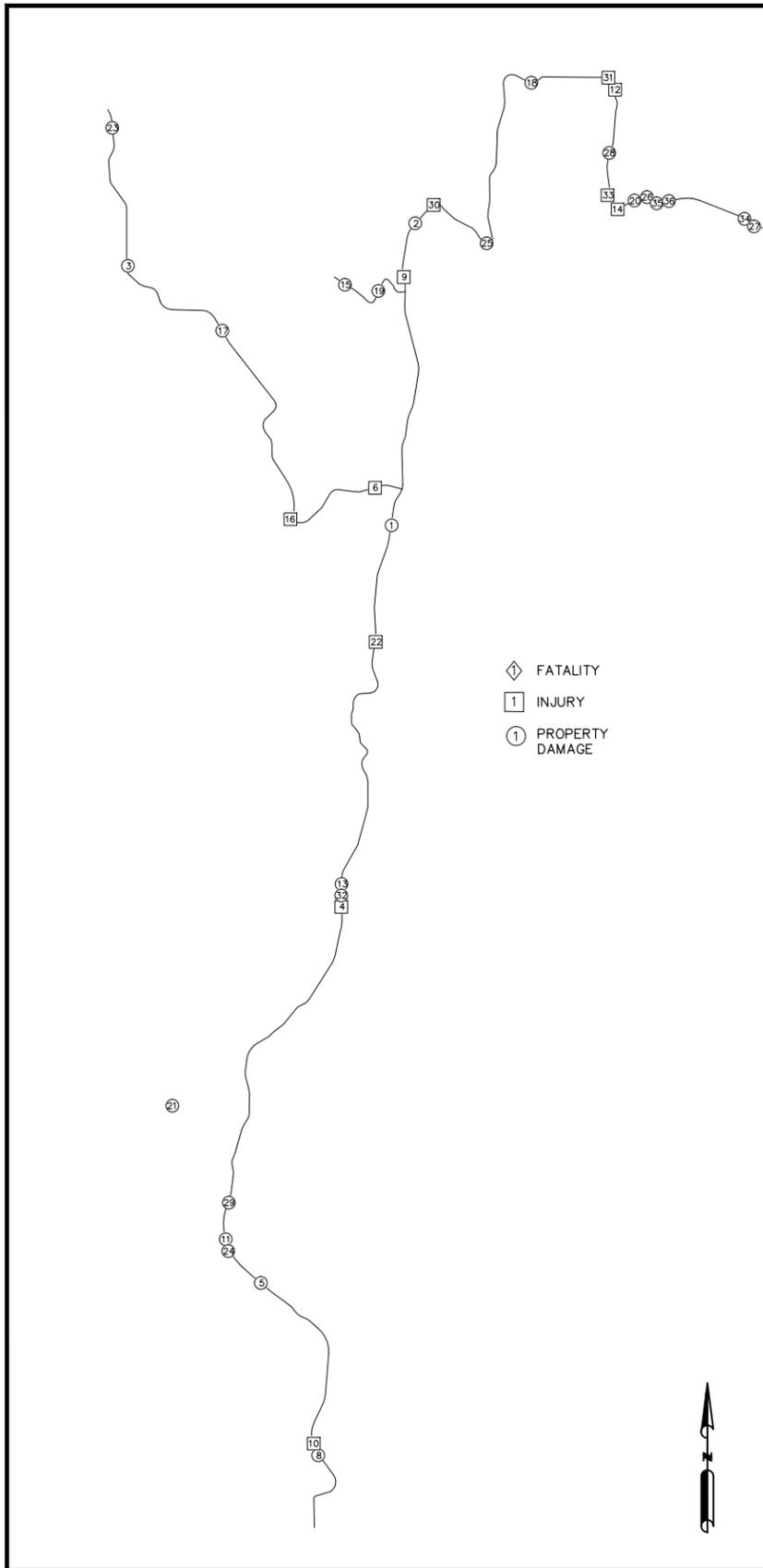
Accident Causal Factor	Description
A01	Animal Caused
D00	Alcohol Caused
D01	Drug Caused
M02	Exceeding Safe Speed
M03	Exceeding Legal Speed
M04	Failed to Yield Right of Way
M05	Improper Left Turn
M06	Other Improper Turn
M07	Lane Violation
M08	Improper Passing
M09	Wrong Side of Road
M10	Following too Closely
M11	Drove While Asleep
M12	Inattentive to Driving
M13	Signalling Violation
M14	Disregarding Stop Sign
M15	Disregarding Other Traffic Control Device
M16	Parking Violation
M17	Improper Vehicle Lighting
M18	Defective Vehicle
M19	Improper Load
M20	Spilling of Load
M21	Improper Backing
M22	Pedestrian Violation
M23	All Others (i.e. illness / medical condition)

<p>A. LOCATION</p> <p>01. On Roadway 02. Ran Off Left Side 03. Ran Off Right Side 04. Ran Off 'T' Intersection 05. Vehicle Crossed Center Median Into Opposing Lanes 06. On Private Property</p>	<p>K. VEHICLE TYPE FMC (Overlay C)</p> <p>01. Truck / Vehicle Combination over 10,000 lbs. 02. School Bus (all school buses) 03. Non-school Bus (9 or more including driver) 04. Transit Bus GVWR 10,000 or Less 05. Passenger Car / Passenger Van 06. Passenger Car / Passenger Van W/ Trailer 07. Pickup Truck / Utility Van</p> <p>08. Pickup Truck / Utility Van W/Trailer under 10,000 lbs. 09. SUV 10. SUV W/Trailer 11. Motor Home 12. Motorcycle 13. Bicycle 14. Motorized Bicycle 15. Farm Equipment 16. Hit & Run Unknown 17. Light Rail 18. Other (Describe in Narrative)</p>
<p>B. HARMFUL EVENT SEQUENCE</p> <p>NON-COLLISION ACCIDENT 01. Overturning 02. Other Non-Collision</p> <p>COLLISION WITH PEDESTRIAN 03. School Age To / From School 04. All Other Peds</p> <p>COLLISION WITH MOTOR VEHICLE IN TRANSPORT 05. Front to Front 06. Front to Rear 07. Front to Side 08. Rear to Side 09. Rear to Rear 10. Side to Side-Same Direction 11. Side to Side-Opposite Direction</p> <p>COLLISION WITH OTHER VEHICLE 12. Parked Motor Vehicle 13. Railway Vehicle/Streetcar 14. Bicycle 15. Motorized Toy Vehicle 16. Road Maintenance Equipment</p> <p>COLLISION WITH ANIMAL 17. Domestic Animal 18. Wild Animal</p> <p>COLLISION WITH OBJECT 19. Light Pole / Utility Pole 20. Traffic Signal Pole 21. Sign 22. Guard Rail 23. Cable Rail 24. Concrete Highway Barrier 25. Bridge Structure 26. Vehicle Debris or Cargo 27. Culvert or Headwall 28. Embankment 29. Curb 30. Delineator Post 31. Fence 32. Tree 33. Rocks or Large Boulder 34. Railroad Crossing Equipment 35. Barricade 36. Wall or Building 37. Crash Cushion / Traffic Barrel 38. Mailbox 39. Other Fixed Object (Specify in Narrative) 40. Other Object (Specify in Narrative)</p>	<p>L. DIRECTION OF TRAVEL – PRIOR TO IMPACT</p> <p>01. North 02. Northeast 03. East 04. Southeast</p> <p>05. South 06. Southwest 07. West 08. Northwest</p>
<p>C. APPROACH/OVERTAKING TURN</p> <p>01. Approach Turn 02. Overtaking Turn 03. All Others that are not Approach or Overtaking Turn</p>	<p>M. VEHICLE MOVEMENT – PRIOR TO IMPACT</p> <p>01. Going Straight 02. Slowing 03. Stopped in Traffic 04. Making Right Turn 05. Making Left Turn 06. Making U-Turn 07. Passing 08. Backing 09. Entering / Leaving Parked Position</p> <p>10. Parked 11. Changing Lanes 12. Avoiding Object in Roadway 13. Weaving 14. Spun Out of Control 15. Drove Wrong Way 16. Other (Describe in Narrative)</p>
<p>D. ROAD DESCRIPTION</p> <p>01. At Intersection 02. Driveway Access Related 03. Intersection Related 04. Non-Intersection</p> <p>05. Alley Related 06. Roundabout 07. Highway Interchange 08. Parking Lot</p>	<p>N. ROADWAY SPEED LIMIT</p> <p>Vehicle #1 or _____</p> <p>Vehicle #2 or _____</p>
<p>E. ROAD CONTOUR</p> <p>01. Straight On-Level 02. Straight On-Grade 03. Curve On-Level 04. Curve On-Grade 05. Hillcrest</p>	<p>P. ESTIMATED VEHICLE SPEED</p> <p>Vehicle #1 or _____</p> <p>Vehicle #2 or _____</p>
<p>F. ROAD SURFACE</p> <p>01. Concrete 02. Blacktop (Bituminous) 03. Brick or Block 04. Gravel, Slag or Stone</p> <p>05. Dirt 06. Other 07. Unknown</p>	<p>Q. DRIVER - MOST APPARENT HUMAN CONTRIBUTING FACTOR (Officer Opinion Only)</p> <p>00. No Apparent Contributing Factor 01. Asleep at the Wheel 02. Driver Fatigue 03. Illness / Medical 04. Driver Inexperience 05. Aggressive Driving 06. Driver Unfamiliar With Area 07. Driver Emotionally Upset 08. Evading Law Enforcement Officer</p> <p>09. Physical Disability 10. DUI, DWAI, DUID 11. Distracted / Passenger 12. Distracted / Cell Phone 13. Distracted / Radio 14. Distracted / Other i.e. Food, Objects, Pet, etc. 15. Other Factor (Describe in Narrative)</p>
<p>G. ROAD CONDITION</p> <p>01. Dry 02. Wet 03. Muddy 04. Snowy 05. Icy 06. Slushy 07. Foreign Material</p> <p>08. Dry W/Visible Icy Road Treatment 09. Wet W/Visible Icy Road Treatment 10. Snowy W/Visible Icy Road Treatment 11. Icy W/Visible Icy Road Treatment 12. Slushy W/Visible Icy Road Treatment</p>	<p>R. DRIVER ACTIONS (Office Opinion Only)</p> <p>00. No Action 01. Exceeded Safe Posted Speed 02. Impeded Traffic 03. Failed to Yield ROW 04. Disregard Stop Sign 05. Failed to Stop at Signal 06. Disregarded Other Device 07. Improper Turn 08. Turned from Wrong Lane or Position 09. Other Improper Turns</p> <p>10. Lane Violation 11. Improper Passing on Left 12. Improper Passing on Right 13. Followed Too Closely 14. Improper Backing 15. Signaling Violation 16. Reckless Driving 17. Careless Driving (if used, block Q can not be coded "00")</p>
<p>H. LIGHTING CONDITION</p> <p>01. Daylight 02. Dawn or Dusk 03. Dark - Lighted 04. Dark - Unlighted</p>	<p>S. BY PEDESTRIAN ACTION (Officer Opinion Only)</p> <p>01. Cross Against Signal 02. Cross / Enter at Intersection 03. Cross / Enter NOT at Intersection 04. Standing in Roadway 05. Playing in Roadway 06. Soliciting Rides 07. Walking in Roadway in Direction of Traffic 08. Walking in Roadway Against Direction of Traffic 09. Entering / Exiting Vehicle 10. Pushing / Working on Vehicle 11. Lying in Roadway 12. Other (Describe in Narrative)</p>
<p>J. ADVERSE WEATHER CONDITION</p> <p>00. None 01. Rain 02. Snow / Sleet / Hail</p> <p>03. Fog 04. Dust 05. Wind</p>	<p>T. VEHICLE DEFECT / CONDITION (Officer Opinion Only)</p> <p>00. No Vehicle Defects 01. Defective Head Light(s) 02. Defective Brake/Tail Light(s) 03. Defective Signaling Device 04. Brakes Defective/Out of Adjustment 05. Defective Tires 06. Sudden Tire Failure 07. Improper Tires for Conditions 08. Mechanical Failure 09. Obstructed Window(s)</p> <p>10. Improper Load 11. Spilled Load – Commercial Aggregate 12. Spilled Load – Commercial Non- Aggregate 13. Spilled Load – Other 14. Parking Violation 15. Other Defect(s) (Describe in Narrative)</p>

DateAccident	TimeAccident	NumVehicles	NumKilled	NumInjured	County	Cause	Milepoint	Location	LocMiles	LocFeet	LocOther	d_RoadDesc	f_RoadSurface	g_RoadCondit	h_LightingCon	N_Limit	P_Speed	Q_DriverActio
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1	8/16/2011	5:00:00	1	0	0	Archuleta	M03	4.5	CR 500	0	2640	Milepost 4		4	4	2	4	50	40	1	Vehicle 1 was northbound on County Road 500. Vehicle 1 lost control for 200' and ran off left side of road. Vehicle 1 traveled 56' off road and struck an embankment. Vehicle 1 remained at POI facing southeast. Occupant(s) then fled the scene.
2	9/7/2011	20:15:00	2	0	0	Archuleta	M06	2.4	CR 500	0	2112	Mile point 2		2	2	1	4	35	35	7	Vehicle #2 was southbound on Archuleta County Road 500 in front of vehicle #1. Vehicle #2 made a left turn into a private driveway at 2820 County Road 500. Vehicle #1 also made a left turn into a private driveway at 2820 County Road 500. Vehicle #2 went into the driveway 8.5 feet. Vehicle #1 went into the driveway 12.4 feet. Vehicle #1 struck vehicle #2 in the left fender with the front right bumper of vehicle #1. After impact vehicle #1 continued across the roadway for 7 feet and struck a fence with the front right bumper where it came to final rest on wheels. Vehicle #2 was moved from final rest prior to my arrival. The area of impact was .4 miles south of mile point 2 on County Road 500 and 8.5 feet from the roadway edge.
3	3/22/2012	2:00:00	1	0	0	Archuleta	M07	1.2	South Pagosa Blvd.	0	1056	Milepost 1		4	2	1	4	40	30	10	Vehicle #1 was heading south on South Pagosa Blvd. Vehicle #1 lost control and drove off the right side of the roadway. Vehicle #1 continued for 167 feet and then began to roll and rotate counter clockwise 1/4 times. Vehicle #1 continued for 30 more feet after rolling 1 1/4 times. Vehicle #1 came to a final rest on its right side 33 feet from the roadway facing east bound.
4	4/2/2012	14:15:00	1	0	1	Archuleta	M12	7.4	CR 500	0	2112	Mile Point 7		4	4	3	1	25	40	10	Vehicle #1 was traveling southbound on County Road 500. Vehicle #1 ran off the right side of the road for 110.5', and then rolled 3 full times for 120' down a steep embankment. Vehicle #1 came to rest on all four wheels facing south of the road edge. There point of overturning was .4 miles south of milepost 7.
5	7/18/2012	8:30:00	1	0	0	Archuleta	A01	10.1	CR 500	0	400	MILEPOST 10		4	4	1	1	40	20	1	Vehicle 1 was northbound on CR 500. Vehicle 1 braked and swerved to avoid a deer in the road. Vehicle 1 lost control and skid for 146' and rotated clockwise. Vehicle 1 travel 55' and rolled 1/4 time. Vehicle 1 traveled another 20.9' and came to final rest in the roadway on the driver side facing southeast.
6	8/15/2012	6:45:00	1	0	1	Archuleta	M03		Cascade Avenue	0	1584	County Road 500		4	4	1	1	30	20	1	Vehicle 1 was eastbound on Cascade Avenue. Vehicle 1 lost control due to washboards on the road and ran off right side of road for 58.3'. Vehicle 1 came back onto road for 56.6' and ran off left side of road for 34.5' and rolled 1/2 time. Vehicle 1 slid on its top for 16.7' and came to rest in the westbound lane facing southeast.
7	9/19/2012	9:30:00	1	0	0	Archuleta	M12	12.1	CR 500	0	528	Milepost 12		4	5	1	1	30	20	1	Vehicle #1 was towing a trailer loaded with a forklift traveling southbound on County Road 500. The wheels of the trailer ran off the right side of the road as Vehicle #1 negotiated a right curve, causing the trailer to overturn 1/4 time and roll onto its side. Vehicle #1 continued 75' still towing the trailer and came to rest on the left side of the road on all four wheels facing south.
8	10/24/2012	12:45:00	1	0	0	Archuleta	M02		CR 500	0	2640	Bristlecone Road		4	2	1	1	55	55	1	Vehicle 1 was traveling northbound on County Road 500. The driver of vehicle 1 lost control on a section of roadway with severe washboard conditions. Vehicle 1 traveled off the right side of the roadway for 47.2' feet then traveled back onto the roadway yawing for 158.3' feet. Vehicle 1 then traveled back off the right side of the roadway for 29.6' feet colliding with a tree stump. Following impact, vehicle 1 traveled 15.3' feet colliding with a fence rotating clockwise 1/4 time. Following impact with the fence, vehicle 1 then traveled an additional 47.2' feet rolling 1/4 time coming to rest on its left side facing east.
9	11/5/2012	18:00:00	1	0	2	Archuleta	D00	3.1	CR 500	0	528	Milepost 3		4	5	1	4	45	20	17	Vehicle #1 was traveling northbound on County Road 500. Vehicle #1 ran off the right side of the road. Vehicle #1 rotated clockwise one-quarter time, traveled 95', and then collided with a rock. Vehicle #1 then rotated clockwise one-quarter time and rolled at least one and one-half times over 49.8' feet before coming to rest on its top facing south.
10	1/3/2013	18:30:00	1	0	1	Archuleta	M03		CR 500	0	3696	Milepost 12		4	4	5	4	45	20	1	Vehicle 1 was southbound on County Road 500. Vehicle 1 was attempting to negotiate right curve on icy road and skid for 168' while crossing the opposite side of road. Vehicle 1 ran off left side of road for 12' and struck a tree. Vehicle 1 came to rest at POI on wheels facing south approximately 6 feet from the roadway edge.
11	1/12/2013	9:30:00	1	0	0	Archuleta	A01		CR 500	0	2640	MILEPOINT 9.5		4	4	4	1	25	30	0	VEHICLE 1 WAS TRAVELING NORTHBOUND ON COUNTY ROAD #500 WHEN IT SPUN OUT OF CONTROL COUNTER CLOCKWISE FOR 94 FEET WHILE AVOIDING A DEER THAT ENTERED THE ROADWAY FROM THE EAST SIDE. VEHICLE 1 RAN OFF THE RIGHT SIDE OF THE ROADWAY FACING SOUTHBOUND THEN COLLIDED ITS FRONT END WITH A STEEP EMBANKMENT. VEHICLE 1 THEN TRAVELED 26 FEET AND COLLIDED ITS LEFT FRONT INTO A GROUP OF SMALL TREES. VEHICLE 1 THEN CONTINUED APPROXIMATELY 70 FEET DOWN THE STEEP EMBANKMENT THEN COLLIDED ITS RIGHT REAR WITH A FENCE. VEHICLE 1 CAME TO REST ON WHEELS FACING NORTH APPROXIMATELY 96 FEET FROM THE ROADWAY EDGE.
12	8/7/2013	23:50:00	1	0	1	Archuleta	D00		CR 119		230	of Apache Street		4	2	2	3	50	25	17	VEHICLE #1 WAS TRAVELING SOUTH ON COUNTY ROAD 119. THE DRIVER SWERVED TO THE LEFT FOR AN UNKNOWN REASON CAUSING THE VEHICLE TO ROTATE COUNTER CLOCKWISE. THE VEHICLE BEGAN TRAVELING SIDEWAYS UP THE ROADWAY AND STRUCK AN EMBANKMENT ON THE EAST SHOULDER OF COUNTY ROAD 119 CONTINUING TO ROTATE COUNTER CLOCKWISE STRIKING A STREET SIGN WITH ITS REAR AND TRAVELING 89.3' COMING TO REST FACING NORTH ON THE EAST SHOULDER. THE AREA OF IMPACT WAS APPROXIMATELY 15.6' EAST OF THE SHOULDER AND 130.7' SOUTH OF THE INTERSECTION WITH 3RD STREET.
13	8/23/2013	12:40:00	1	0	0	Archuleta	M02		CR 500			Milepost 7		4	4	1	1	32	20	1	Vehicle #1 was traveling southbound on County Road 500. Vehicle #1 lost control after exiting a left-hand curve and ran off the right side of the road, colliding with an embankment. Vehicle #1 then rotated 1/2 times clockwise and rolled 1/2 times onto its driver side. Vehicle #1 came to rest on its driver's side facing north on the west edge of the roadway, 3' south of the point of impact with the embankment.
14	9/20/2013	23:15:00	1	0	2	Archuleta	M02		CR 119	1	792	Co. Hwy. 84		4	2	1	4	45	35	1	VEHICLE 1 WAS SOUTHBOUND ON COUNTY ROAD 119. VEHICLE 1 ENTERED A SHARP CORNER AND RAN OFF RIGHT SIDE OF ROAD FOR 168.6'. DRIVER OVERCORRECTED AND VEHICLE 1 CAME BACK ONTO ROAD FOR 69.1'. VEHICLE 1 ROTATED CLOCKWISE AND RAN OFF RIGHT SIDE OF ROAD DOWN A VERY STEEP EMBANKMENT FOR 67'. VEHICLE 1 ROLLED 1-1/4 TIME. VEHICLE 1 CAME TO FINAL REST ON THE DRIVER'S SIDE FACING WEST IN A CREEK.
15	10/2/2013	5:20:00	1	0	0	Archuleta	M23	0	Bristlecone Dr.	0	2640	OF CR 500		4	5	1	1	25	35	0	VEHICLE #1 WAS TRAVELING EAST ON BRISTLECONE DR PULLING AN AIR COMPRESSOR GOING AROUND A LEFT HAND CURVE. THE AIR COMPRESSOR HIT SEVERAL POT HOLES IN THE ROAD CAUSING IT TO SWAY SIDE TO SIDE AND COME UN HITCHED FROM VEHICLE 1. THE AIR COMPRESSOR THEN BROKE THE SAFETY CHAINS AND STRUCK THE EMBANKMENT ON THE NORTH SHOULDER CAUSING IT TO ROLL ONCE COMING TO REST ON ITS WHEELS FACING SOUTH IN THE DITCH ON THE NORTH SIDE OF THE ROADWAY. THE AREA OF IMPACT WAS APPROXIMATELY .5 MILES WEST OF CR 500 AND 2' OFF THE ROADWAY.THIS IS A COLD CRASH
16	10/16/2013	12:30:00	1	0	1	Archuleta	M14		BUTTRESS AVE.		40	CASCADE AVE.		3	4	1	1	45	35	4	VEHICLE #1 WAS WESTBOUND ON CASCADE AVENUE WHEN THE DRIVER FAILED TO STOP FOR A STOP SIGN AT A T-INTERSECTION WITH BUTTRESS AVENUE. THE DRIVER ATTEMPTED TO NEGOTIATE A RIGHT TURN ONTO BUTTRESS AVENUE AND SLID CLOCKWISE OFF THE END OF THE INTERSECTION, ROLLED 3/4 OVER A SMALL 12-INCH HIGH ROCK WALL, AND CAME TO REST ON ITS RIGHT SIDE.
17	10/17/2013	18:15:00	1	0	0	Archuleta	A01		South Pagosa Blvd.			Big Sky Pl.		1	2	1	2	30	30	0	Vehicle #1 was traveling southbound on South Pagosa Blvd. Vehicle #1 collided with a deer that was standing in the roadway. Vehicle #1 continued to residence at 280 Bross Pl, where this report was taken. No on-scene investigation was conducted.
18	3/10/2014	13:45:00	1	0	0	Archuleta	M12		CR 500	0	1056	10th Street		4	2	1	1	35	35	17	Vehicle 1 was traveling southbound on County Road #500 when it drifted off the right side of the roadway in a left curve. Vehicle 1 continued off right side of road for 140 feet then overturned to its right side for 18.5 feet coming to rest on its right side facing south approximately 21 feet from the roadway edge.
19	3/28/2014	17:00:00	1	0	0	Archuleta	M02		Bristlecone Drive	0	1056	County Road #500		4	4	1	1	40	30	1	Vehicle 1 was traveling southbound on Bristlecone Drive. Vehicle 1 entered a downhill right curve with too much speed causing Vehicle 1 to yaw skid in a clockwise rotation. Driver 1 overcorrected causing Vehicle 1 to rotate counter clockwise and roll onto its left side of the roadway. Vehicle 1 went down an embankment then overturned one time while colliding with a fence. Vehicle 1 then came to rest on its wheels facing north approximately 56 feet from the roadway edge.
20	5/14/2014	9:30:00	1	0	0	Archuleta	M03		CR 119	1		OF STATE HIGHWAY 84		4	2	1	1	50	30	1	VEHICLE #1 WAS TRAVELING WEST ON COUNTY ROAD 119 AROUND A LEFT HAND CURVE. THE VEHICLE DROVE OFF THE RIGHT SHOULDER THEN BACK ONTO THE ROADWAY. THE VEHICLE OVERCORRECTED TO THE RIGHT AND BEGAN TO ROTATE CLOCKWISE APPROXIMATELY 180 DEGREES AND DROVE BACK OFF THE RIGHT SHOULDER STRIKING A STORM CULVERT WITH ITS REAR AXLE AND BUMPER. THE VEHICLE THEN WENT AIRBORNE FOR APPROXIMATELY 26.9 FEET AND CAME TO REST ON ITS WHEELS AGAINST A BARB WIRE FENCE FACING EAST. THE AREA OF IMPACT WAS APPROXIMATELY 6.4' NORTH OF THE SHOULDER AND 1 MILE WEST OF STATE HIGHWAY 84.
21	6/18/2014	15:00:00	1	0	0	Archuleta	M12		Forest Service Road 649	1		County Road 500		4	4	1	1	30	20	1	Vehicle #1 was traveling eastbound on US Forest Service Road 649. Vehicle #1 ran off the right side of the road for 80' and collided with a tree. Vehicle #1 continued travelled another 80' before coming to rest on all four wheels facing east.
22	7/22/2014	0:58:00	1	0	3	Archuleta	M03		CR 500	0	2640	Mp 5		4	5	1	1	60	40	17	Vehicle #1 was southbound on CR 500. Vehicle #1 lost control and went off the right side of the road while spinning clockwise. Vehicle then rolled 1 time while ejecting the driver. Vehicle #1 came to rest on its wheels facing north where it came to rest behind vehicle #1 12 feet from the roadway edge.

23	7/26/2014	0:00:00	1	0	0	Archuleta	A01	1	South Pagosa Blvd	353 South Pagosa Boulevard	2	2	1	1	30	30	0	Vehicle 1 was traveling southbound on South Pagosa Boulevard. Driver 1 swerved to miss a deer that entered the roadway from the east side. Vehicle 1 ran off the right side of the roadway for 41 feet at the entrance to 353 South Pagosa Boulevard and struck a concrete curb with the undercarriage. Vehicle 1 traveled approximately 33 feet across the paved entrance then ran off the south side of the entrance for 3 feet then struck a large delineator post (Secured in concrete) with the front end. Vehicle 1 continued 11 feet striking a tree stump with the front end. Vehicle 1 continued 41 feet then came to rest on wheels facing south approximately 26 feet from the roadway edge. Vehicle 1 then
24	8/2/2014	20:20:00	1	0	0	Archuleta	M03	9.8	CR 500	4224 MILEPOST 9	4	4	1	1	45	20	1	Vehicle 1 was southbound on CR 500. Vehicle 1 lost control due to speed and started sliding for 130.8' off main portion of road. Vehicle 1 overcorrected and came back onto main portion of road for 22.5'. Vehicle 1 rotated clockwise and traveled 34'. Vehicle ran off right side of road for 8' and struck an embankment with the drivers side rear quarter panel and rear bumper. Vehicle 1 rolled 1 time and came to rest on the southbound shoulder facing east.
25	12/4/2014	16:00:00	1	0	0	Archuleta	M12	1.4	CR 500	2112 OF MILE MARKER 1	4	2	2	1	45	40	17	VEHICLE 1 WAS TRAVELING NORTH ON COUNTY ROAD 500 APPROXIMATELY MILE MARKER 1.4 WHEN IT DROVE OFF THE RIGHT SHOULDER WHILE TRAVELING AROUND A LEFT HAND CURVE. THE VEHICLE BEGAN TO ROTATE COUNTER CLOCKWISE AND ROLLED 1.5 TIMES STRIKING A BARB WIRE FENCE AND COMING TO REST ON ITS ROOF FACING WEST. THE AREA OF IMPACT WAS APPROXIMATELY 18.5' EAST OF THE ROADWAY AND .4 MILES SOUTH OF MILE MARKER
26	12/15/2014	0:50:00	1	0	0	Archuleta	M02	0.9	CR 119	4752 COLORADO 84	4	2	5	4	40	25	1	VEHICLE #1 WAS WESTBOUND ON ARCHULETA COUNTY ROAD 119. VEHICLE #1 LOST CONTROL ON ICE AND SPUN 1/4 TIME FOR 53 FEET ACROSS THE EASTBOUND TRAFFIC LANE. VEHICLE #1 WENT OFF THE LEFT SIDE OF THE ROAD FOR 52 FEET AND STRUCK A PHONE BOX WITH THE DRIVERS SIDE FENDER OF VEHICLE #1. AFTER IMPACT VEHICLE #1 TRAVELED 38 FEET AND STUCK A FENCE WITH THE FRONT BUMPER AND GRILL OF VEHICLE #1. VEHICLE #1 IMPACTED 82 FEET OF FENCE BEFORE COMING TO REST FACING WEST. THE AREA OF IMPACT WAS 27 FEET SOUTH OF THE EASTBOUND ROAD EDGE AND 0. MILES WEST COLORADO HIGHWAY 84.
27	12/18/2014	13:00:00	1	0	0	Archuleta	M02	6	CR 119	34 Highway 84	3	2	5	4	20	25	1	Vehicle #1 was heading Eastbound on County Road 119. Vehicle #1 was attempting to slow down for the stop sign at the intersection. Vehicle #1 lost control and slid off the right side of the roadway. Vehicle #1 continued for 49 feet and struck a fence with its front and right side. Vehicle #1 came to a final rest on its wheels facing Eastbound 24 feet from County Road 119 and 34 feet from Highway 84. The driver left the scene to call for help and then came back.
28	2/5/2015	13:00:00	1	0	0	Archuleta	A01	0.85	CR 119	4488 APACHE RD.	4	2	1	4	30	35	0	Vehicle 1 was northbound on County Road 119. Vehicle 1 struck an Elk that was crossing the road from east to west. The Elk slid 6' after POI and was dead in the northbound travel lane. Vehicle 1 stopped and moved just behind the Elk northbound shoulder facing north.
29	4/10/2015	14:30:00	1	0	0	Archuleta	M12	9.4	CR 500	2112 OF MILE MARKER 9	4	4	1	4	40	40	17	Vehicle 1 was traveling north on County Road 500. The vehicle drove off the east shoulder and rolled twice coming to rest on its wheels facing north. The area of impact was approximately .4 miles south of mile marker 9 and 21.5' east of roadway.
30	4/18/2015	7:00:00	1	0	1	Archuleta	D00	2.3	CR 500	1584 MILE POINT 2	4	4	1	4	45	35	17	VEHICLE #1 WAS NORTHBOUND ON ARCHULETA COUNTY ROAD 500. VEHICLE #1 WENT OFF THE LEFT SIDE OF THE ROAD FOR 107 FEET. VEHICLE #1 STRUCK A FENCE WITH THE FRONT BUMPER. AFTER IMPACT VEHICLE #1 STUCK 33 FEET OF FENCE AND A DITCH EMBANKMENT. AFTER IMPACT WITH THE DITCH EMBANKMENT VEHICLE #1 TRAVELED 48 FEET AND CAME TO REST ON ITS WHEELS FACING NORTHWEST. THE AREA OF IMPACT WAS .3 MILES SOUTH OF MILE POINT 2 AND 28 FEET WEST OF THE SOUTHBOUND ROAD EDGE. THE DRIVER ADMITTED TO FALLING ALSEEP AT THE WHEEL.
31	7/31/2015	5:45:00	1	0	1	Archuleta	M07		CR 119	1 APACHE ST.	4	2	1	4	45	25	1	VEHICLE #1 WAS WESTBOUND ON ARCHULETA COUNTY ROAD 199. VEHICLE #1 WENT OFF THE LEFT SIDE OF THE ROAD FOR 87.0 FEET. VEHICLE #1 STRUCK A GUARDRAIL WITH THE FRONT LEFT CORNER OF VEHICLE #1. VEHICLE #1 CONTINUED TO CAUSE DAMAGE TO THE GUARDRAIL FOR 21.2 FEET UNTIL VEHICLE #1 CAME TO REST STILL IN CONTACT WITH THE GUARDRAIL. THE AREA OF IMPACT WAS 24.9 FEET SOUTHWEST OF THE EASTBOUND ROAD EDGE AND 1 MILE SOUTH OF APACHE ST.
32	9/15/2015	21:40:00	1	0	0	Archuleta	M12	7.1	CR 500	290 MILE POINT 7	4	4	1	1	40	35	17	VEHICLE #1 WAS SOUTHBOUND ON ARCHULETA COUNTY ROAD 500. VEHICLE #1 LOST CONTROL FOR 153 FEET AND WENT OFF THE RIGHT SIDE OF THE ROAD. VEHICLE #1 STRUCK AN EMBANKMENT WITH THE RIGHT FENDER WITH THE FRONT GRILL AND ROLLED 1 TIME FOR 42.6 FEET. AFTER IMPACT VEHICLE #1 ROLLED ACROSS THE ROADWAY FOR 63.8. VEHICLE #1 ROLLED DOWN AN EMBANKMENT FOR 71.8 FEET AND STUCK A FENCE WITH THE FRONT FENDERS, GRILL AND HOOD. AFTER IMPACT VEHICLE #1 ROLLED TO A STOP FOR 8.3 FEET.
33	10/25/2015	15:55:00	1	0	1	Archuleta	M02		CR 119	1 Pagosa Springs	4	2	1	4	40	35	1	Vehicle #1 was southbound on CR 119 when it went off right side of road and down a steep embankment where it rolled 2 times. Vehicle #1 came to rest on its wheels in a stream facing east
34	11/1/2015	6:00:00	1	0	0	Archuleta	M02		CR 119	1 528 OF HIGHWAY 84	4	2	1	4	45	35	1	Vehicle 1 was traveling east on county road 119 around a left hand curve. The vehicle drove off the south shoulder of the roadway and down an embankment striking the river bottom with its front end and coming to rest. The area of impact was approximately 1.1 miles west of county road 119 and 130' south of the roadway.
35	11/11/2015	19:10:00	1	0	0	Archuleta	M02		CR 119	0 4752 OF HIGHWAY 84	4	2	6	1	35	30	17	Vehicle 1 was traveling west on County Road 119 around a right hand curve when it slid across the eastbound lanes of traffic and off the south shoulder. The vehicle then swerved right back onto the roadway and traveled across all lanes of traffic and drove off the north shoulder striking a speed limit sign and coming to rest on a barb wire fence. The area of impact was approximately .9 miles west of highway 84 and 5.7' north of the shoulder.
36	11/12/2015	20:25:00	2	0	0	Archuleta	M02		CR 119	0 4752 OF HIGHWAY 84	4	2	5	1	35	30	1	Vehicle 1 was traveling westbound on county road 119 around a right hand curve. Vehicle 2 was traveling east bound on County road 119 around the same curve. Vehicle 1 slid across the eastbound lane and struck vehicle 2 with its driver front to vehicle 2 driver side rear fender. Vehicle 2 rotated counter clockwise 1/4 time and came to rest on the south shoulder facing north. Vehicle 1 continued west in the eastbound lane coming to rest facing west. The area of impact was approximately .9 miles west of highway 84 and 6' north of the edge of road.



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Last Modification Date:	4/26/2016 Initials: RDP
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Acad Ver. C3D 2013 Scale: As Shown Units: Imperial	

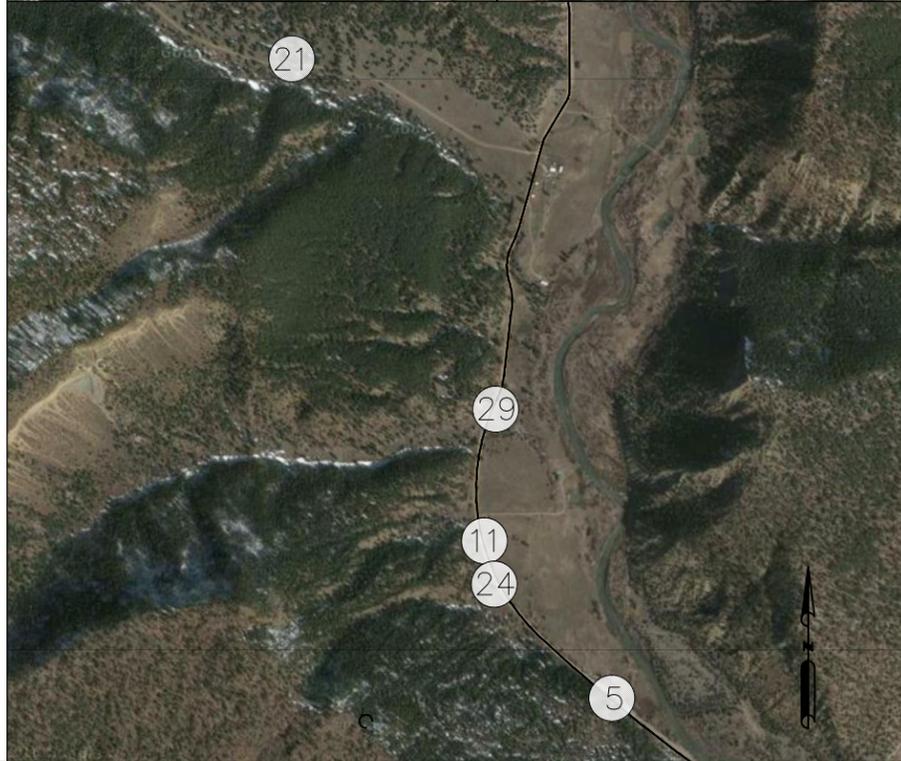
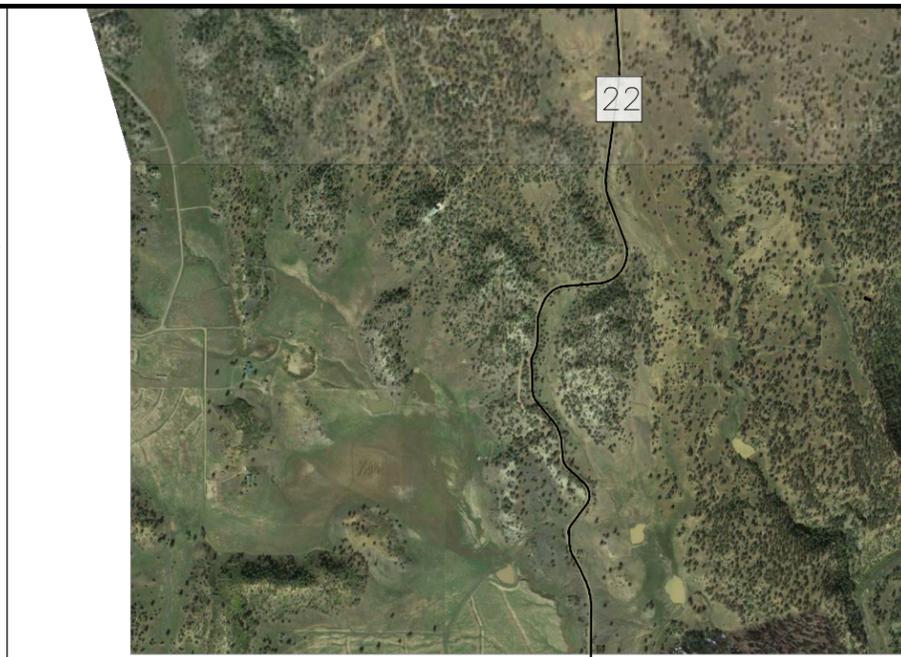
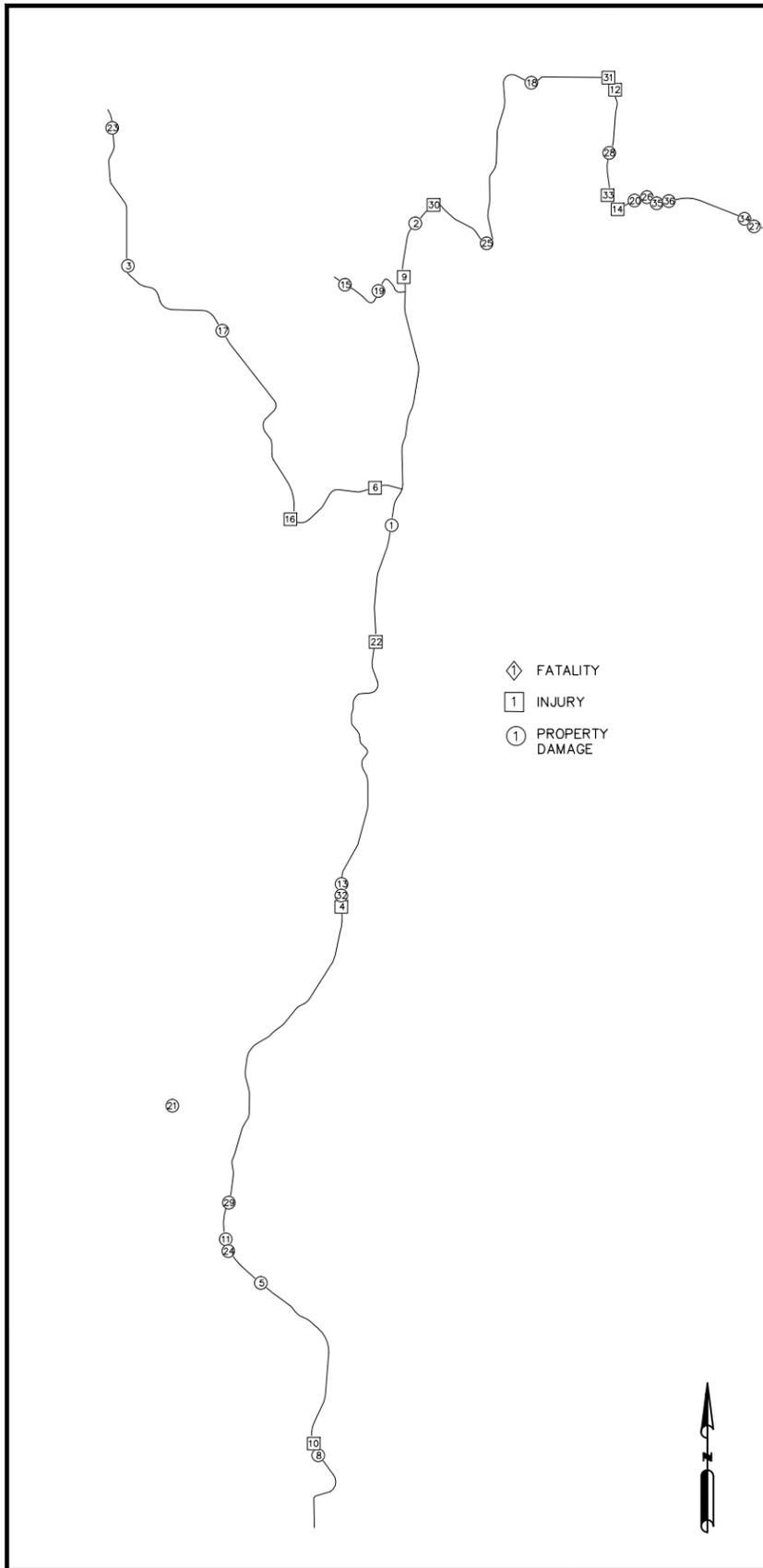
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 1315 Main Ave. Suite 221
 Durango, Colorado 81301 Phone:
 970-247-1717

Exhibit
No Revisions:
Revised:
Void:

EXHIBIT B (1 OF 2) ACCIDENT LOCATION		
Designer:	MO	Structure
Detailer:	RDP	Numbers
Sheet Subset:	Subset Sheets: 1 of 2	

Project No./Code	16001
Sheet Number	02



Computer File Information	
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Acad Ver. C3D 2013 Scale:	As Shown Units: Imperial

Sheet Revisions	
(R-)	
(R-)	
(R-)	
(R-)	

ROADRUNNER DS

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Exhibit
No Revisions:
Revised:
Void:

EXHIBIT B (2 OF 2) ACCIDENT LOCATION		
Designer:	MO	Structure
Detailer:	RDP	Numbers
Sheet Subset:	Subset Sheets: 1 of 2	

Project No./Code	16001
Sheet Number	02

C & J GRAVEL PRODUCTS, INC TWO RIVERS PIT

TRAFFIC AND ROADWAY ANALYSIS

Archuleta County, Colorado

Horizontal Sight Line Offset Analysis

APPENDIX 3

HSO - Horizontal Sight Line Offset

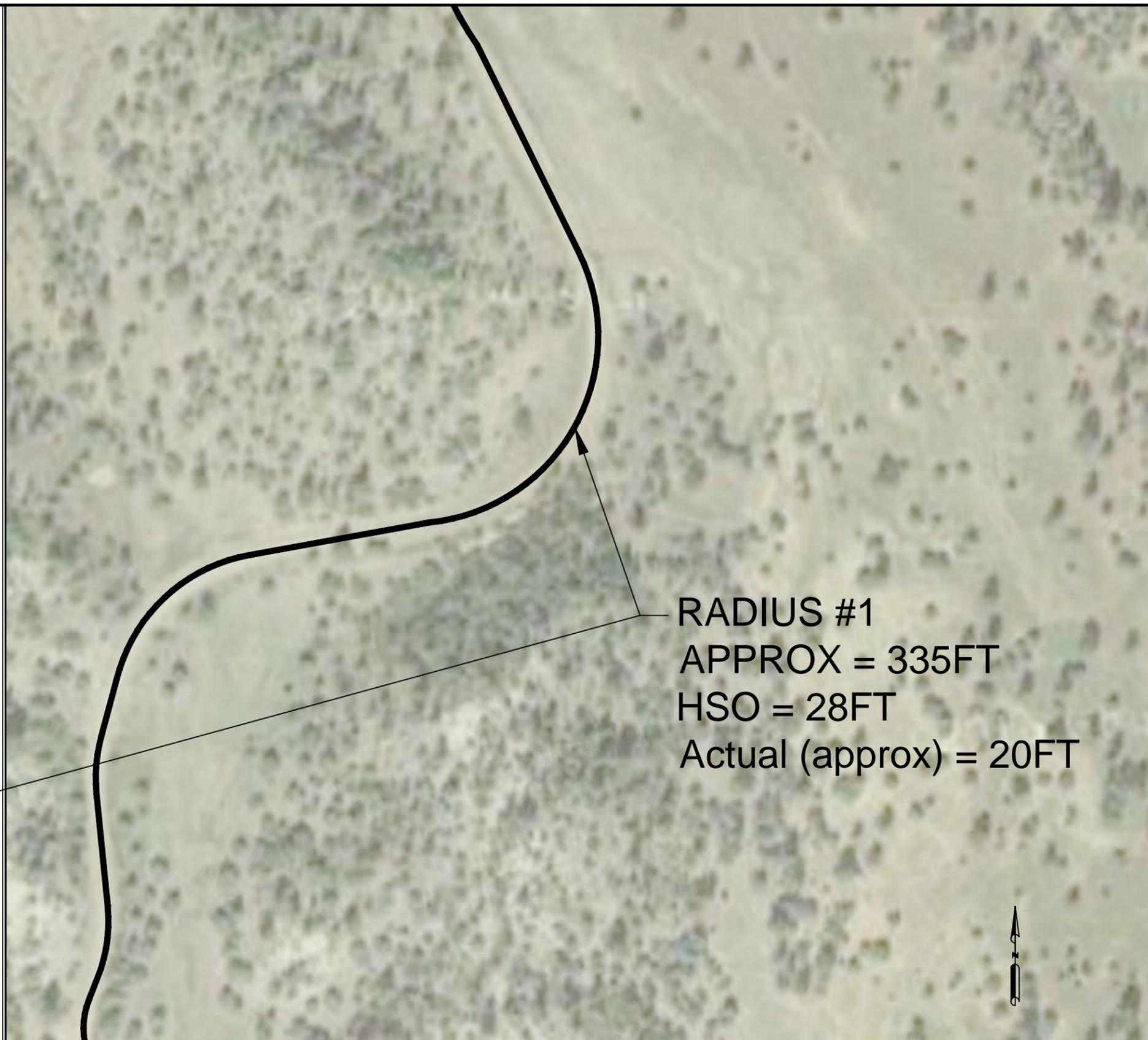
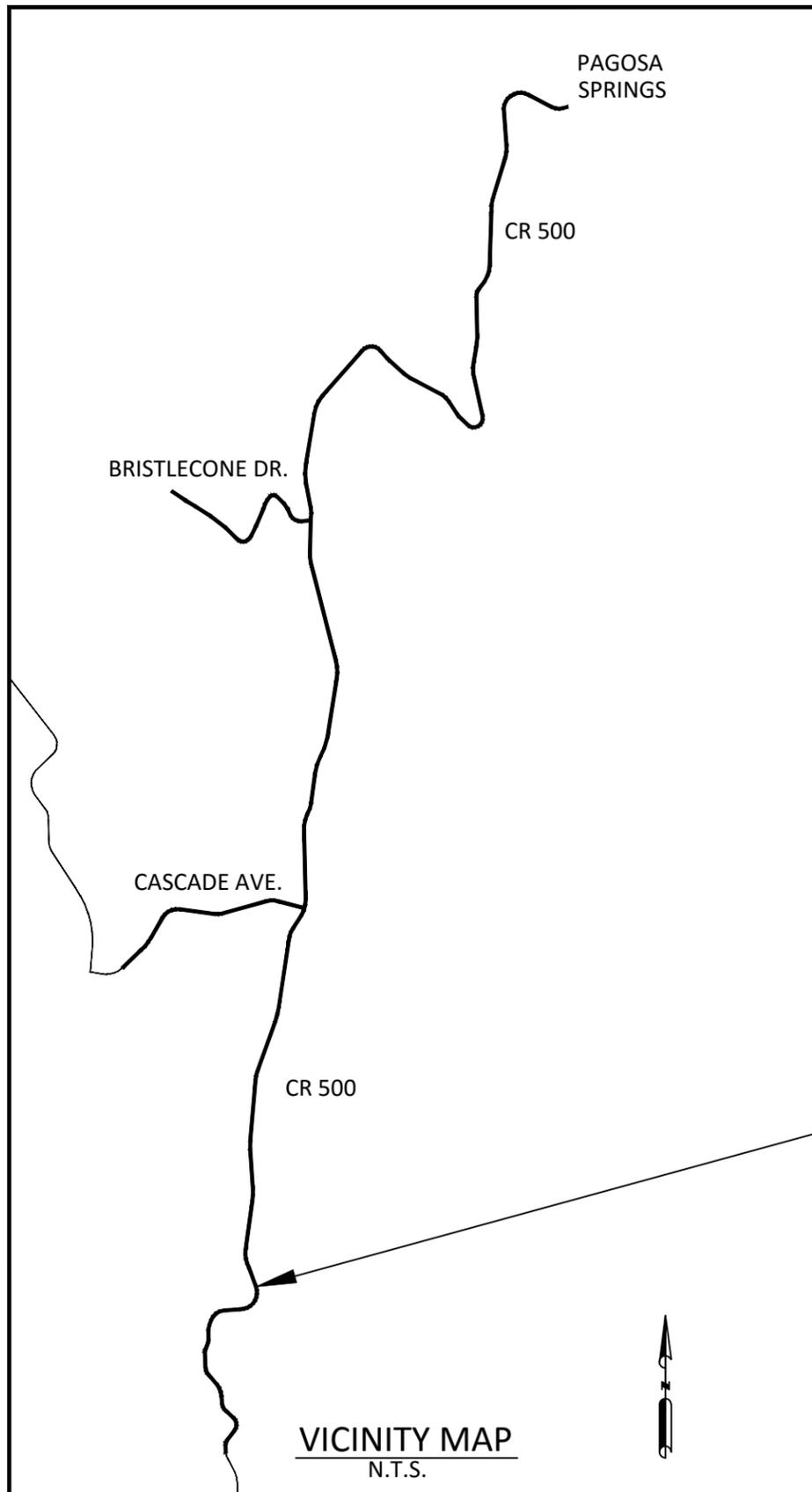
Stopping sight distance = d_B

	$a =$	11.2	ft/sec ²		
	$V =$	51.3	ft/sec	35	mile/hr
	$G =$	-3%	ft/ft		
$^1d_B =$	$V^2/30((a/32.2)-G)$	276	ft		

Horizontal Sight Distance = HSO	Curve #1	Curve #2	Curve #3
$d_B = S =$	276 ft	276 ft	276 ft
$R =$	335 ft	400 ft	185 ft
$^2HSO = R(1-\cos(28.65S/R))$			
Recommended	28 ft	24 ft	49 ft
Actual (approx)	20 ft	18 ft	20 ft

Note

1. pg 3-5, AASHTO
2. pg 3-109, AASHTO



Computer File Information		
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Sheet Revisions		
(R-)		

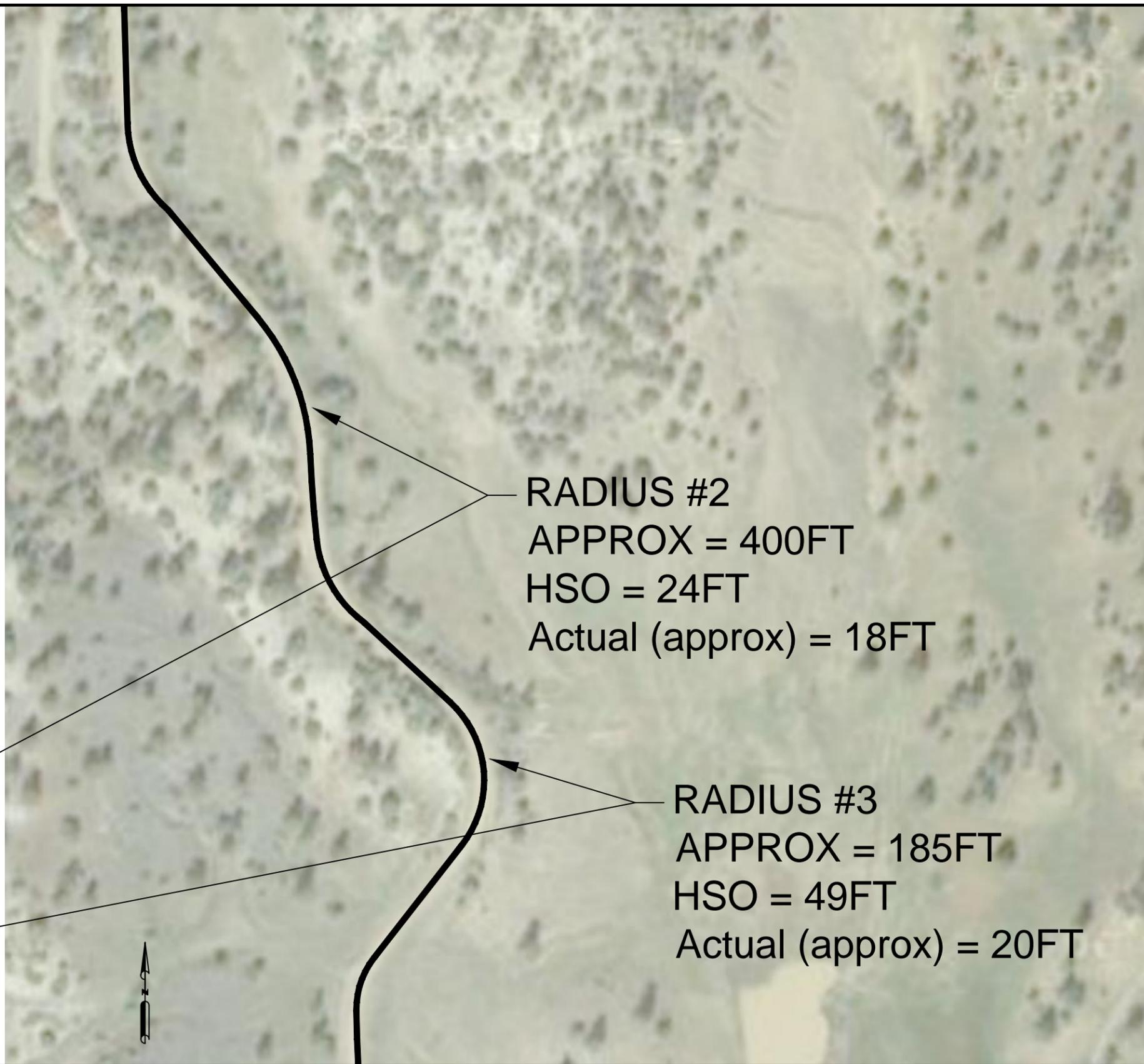
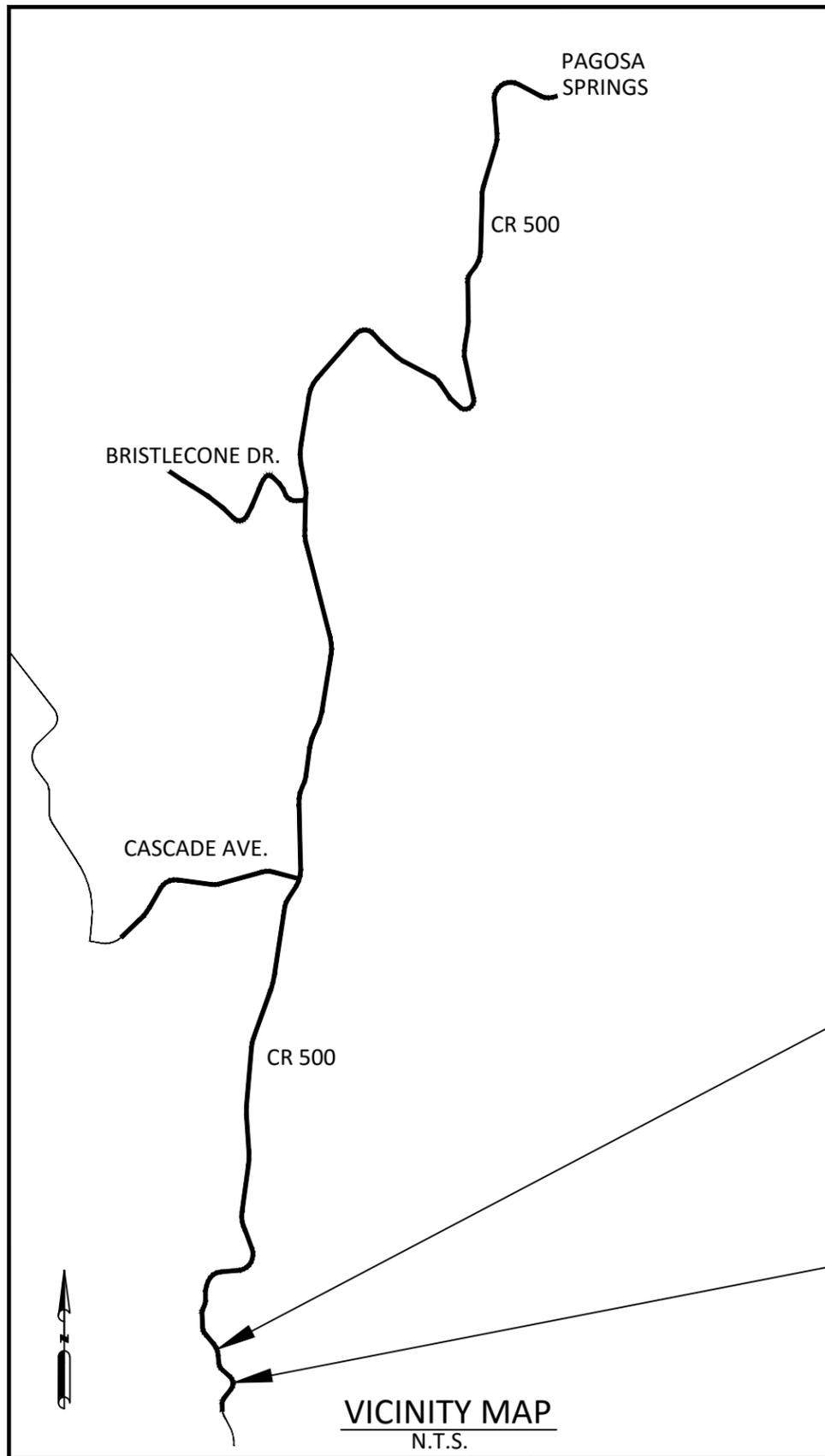
ROADRUNNER 

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Durango, Colorado 81301 Phone:
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Exhibit
No Revisions:
Revised:
Void:

C & J GRAVEL CR 500, MP 5.8		
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Detailer:	RDP	Numbers
Sheet Subset:	Subset Sheets: 1 of 2	

Project No./Code	16001
Sheet Number	01



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Acad Ver.:	C3D 2013 Scale: As Shown Units: Imperial

Sheet Revisions	
(R-)	
(R-)	
(R-)	
(R-)	

ROADRUNNER DS 

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Exhibit
No Revisions:
Revised:
Void:

C & J GRAVEL CR 500, MP 6.3 & 6.4		
Designer:	MO	Structure
Detailer:	RDP	Numbers
Sheet Subset:	Subset Sheets: 1 of 2	

Project No./Code	16001
Sheet Number	02

C & J GRAVEL PRODUCTS, INC TWO RIVERS PIT

TRAFFIC AND ROADWAY ANALYSIS

Archuleta County, Colorado

ESAL Calculations Design Worksheets

APPENDIX 4

ESAL CALCULATIONS

C & J SAND AND GRAVEL - TWO RIVERS PIT, ARCHULETA COUNTY County Road 500

Base Values

Plant Operation Study Duration	20 Years	
Yearly Number of Operational Days	250 Days	(50 weeks a year / 5 days a week)
Yearly Crushing Operational Days	75 Days	
Yearly Tons of Aggregate	100,000 tons	
AverageTons per Truck	15 cyds	

<u>Total Trips</u>	Vehicle Type (surface loading)	Product Load per day (average)	Trips per Year (2 trips per load)	Trips per Year (250 days of operation per year)	Trips per Study duration (20-years)	ADT
	Support Trucking (c)	0	0	-	-	
	Gravel Transports (d)	27	53	13,333	266,667	37
	Fuel Truck, Water Truck (b)	1	2	500	10,000	1
		# of workers	# of trips per worker (avg 4 trips per day)			
	Pass Car / Truck (Typ Ops) (a)	2	8	2000	40,000	5
	Pass Car / Truck (Crushing) (a')	5	20	1500	30,000	4

(Pass Car / Truck volumes account for the following employee summary)

Salesman/Operator	1	Typ Ops
General Labor	1	Typ Ops
Forman	1	Crushing
Operator	2	Crushing
General Labor	2	Crushing

Total ADT **47 trips**

(Flexible Pavement)	Vehicle Type (surface loading)	Factor		# of trips over evaluation duration	=	ESAL
<u>18 Kip equivalency Factors</u>						
Pass Car / Truck	(a)	0.003	x	70,000	=	210
Single Unit (6 Wheel)	(b)	0.249	x	10,000	=	2,490
Combination Unit / Dump Truck	(d)	1.087	x	266,667	=	289,867

Lane Factor

2 lane (CDOT Pavement Design Manual - Table C-2) 0.6

18 Kip ESAL Design Loading 175,540

S Pagosa - Percent of Loading	72%	18K ESAL Load	126,389
CR 500 N - Percent of Loading	18%	18K ESAL Load	31,597
CR 500 N of Project - Percent of Loading	90%	18K ESAL Load	157,986
CR 500 S of Project - Percent of Loading	10%	18K ESAL Load	17,554

% of Total Impact (a/(a+b)) @ S. Pagosa Blvd	45%
% of Total Impact (a/(a+b)) @ CR 500 near Pagosa Springs	34%
% of Total Impact (a/(a+b)) @ Cascade Avenue	63%
% of Total Impact (a/(a+b)) @ CR 500 S of Cascade Avenue	62%

Total Impacts (Pit + Background) @ S. Pagosa Blvd	280,677	20-yr ESAL
Total Impacts (Pit + Background) @ CR 500	92,177	20-yr ESAL

Table 4

ESAL CALCULATIONS

BACKGROUND TRAFFIC South Pagosa Boulevard

Base Values		# of days per year	# of trips per year
Study Duration	20 Years		
Weekday Count (data from counters)	1307 trips	250	326750
Weekend and Holiday Count (assume 60% of Weekday)	784 trips	115	90183

<u>Identify Background Trips</u>	Vehicle Type (by vehicle length)	% of trips	Gross Trips per Year	Net Background Trips per year	Net Background Trips per Study Duration (20-yrs)	ADT
Pass Car / Truck	(i)	97.2%	405259	405259	8105177.52	1,110
Single Unit (includes mixers)	(ii)	0.3%	1251	1251	25015.98	3
Combination Unit	(iii)	2.5%	10423	10423	208466.5	29

(Flexible Pavement)	Vehicle Type (surface loading)	Factor	# of trips over evaluation duration		Background ESAL		Total ADT	1,142 trips
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<u>18 Kip equivalency Factors</u>	Vehicle Type (surface loading)	Factor	x	# of trips over evaluation duration	=	Background ESAL
Pass Car / Truck	(a)	0.003	x	8,105,178	=	24,316
Single Unit	(b)	0.249	x	25,016	=	6,229
Combination Unit	(d)	1.087	x	208,467	=	226,603

Lane Factor	
2 lane (CDOT Pavement Design Manual - Table C-2)	0.6

18 Kip ESAL Design Loading **154,289**

ESAL CALCULATIONS
BACKGROUND TRAFFIC
County Road 500 @ Pagosa Springs

Base Values		# of days per year	# of trips per year
Study Duration	20 Years		
Weekday Count (data from counters)	452 trips	250	113000
Weekend and Holiday Count (assume 60% of Weekday)	271.2 trips	115	31188

<u>Identify Background Trips</u>	Vehicle Type (by vehicle length)	% of trips	Gross Trips per Year	Net Background Trips per year	Net Background Trips per Study Duration (20-yrs)	ADT
Pass Car / Truck	(i)	93.8%	135248	135248	2704966.88	371
Single Unit (includes mixers)	(ii)	4.2%	6056	6056	121117.92	17
Combination Unit	(iii)	2.0%	2884	2884	57675.2	8

(Flexible Pavement)	Vehicle Type (surface loading)	Factor	# of trips over evaluation duration	Background ESAL	Total ADT	395 trips
<u>18 Kip equivalency Factors</u>						
Pass Car / Truck	(a)	0.003	x	2,704,967	=	8,115
Single Unit	(b)	0.249	x	121,118	=	30,158
Combination Unit	(d)	1.087	x	57,675	=	62,693

Lane Factor					
2 lane (CDOT Pavement Design Manual - Table C-2)					0.6
18 Kip ESAL Design Loading					60,580

Table 5

ESAL CALCULATIONS

BACKGROUND TRAFFIC

Cascade Avenue

Base Values		# of days per year	# of trips per year
Study Duration	20 Years		
Weekday Count (data from counters)	195 trips	250	48750
Weekend and Holiday Count (assume 60% of Weekday)	117 trips	115	13455

<u>Identify Background Trips</u>	Vehicle Type (by vehicle length)	% of trips	Gross Trips per Year	Net Background Trips per year	Net Background Trips per Study Duration (20-yrs)	ADT
Pass Car / Truck	(i)	87.9%	54678	54678	1093563.9	150
Single Unit (includes mixers)	(ii)	4.2%	2613	2613	52252.2	7
Combination Unit	(iii)	7.9%	4914	4914	98283.9	13

(Flexible Pavement)	Vehicle Type (surface loading)	Factor	# of trips over evaluation duration	Background ESAL	Total ADT	170 trips
<u>18 Kip equivalency Factors</u>						
Pass Car / Truck	(a)	0.003	x	1,093,564	=	3,281
Single Unit	(b)	0.249	x	52,252	=	13,011
Combination Unit	(d)	1.087	x	98,284	=	106,835

Lane Factor

2 lane (CDOT Pavement Design Manual - Table C-2) 0.6

18 Kip ESAL Design Loading **73,876**

ESAL CALCULATIONS
BACKGROUND TRAFFIC
County Road 500 - S of Cascade

Base Values		# of days per year	# of trips per year
Study Duration	20 Years		
Weekday Count (data from counters)	300 trips	250	75000
Weekend and Holiday Count (assume 60% of Weekday)	180 trips	115	20700

<u>Identify Background Trips</u>		Vehicle Type (by vehicle length)	% of trips	Gross Trips per Year	Net Background Trips per year	Net Background Trips per Study Duration (20-yrs)	ADT
	Pass Car / Truck	(i)	92.0%	88044	88044	1760880	241
	Single Unit (includes mixers)	(ii)	2.7%	2584	2584	51678	7
	Combination Unit	(iii)	5.3%	5072	5072	101442	14

(Flexible Pavement)	Vehicle Type (surface loading)	Factor	# of trips over evaluation duration	Background ESAL	Total ADT	262 trips
<u>18 Kip equivalency Factors</u>						
Pass Car / Truck	(a)	0.003	x 1,760,880	= 5,283		
Single Unit	(b)	0.249	x 51,678	= 12,868		
Combination Unit	(d)	1.087	x 101,442	= 110,267		

Lane Factor					0.6
2 lane (CDOT Pavement Design Manual - Table C-2)					
			18 Kip ESAL Design Loading		77,051

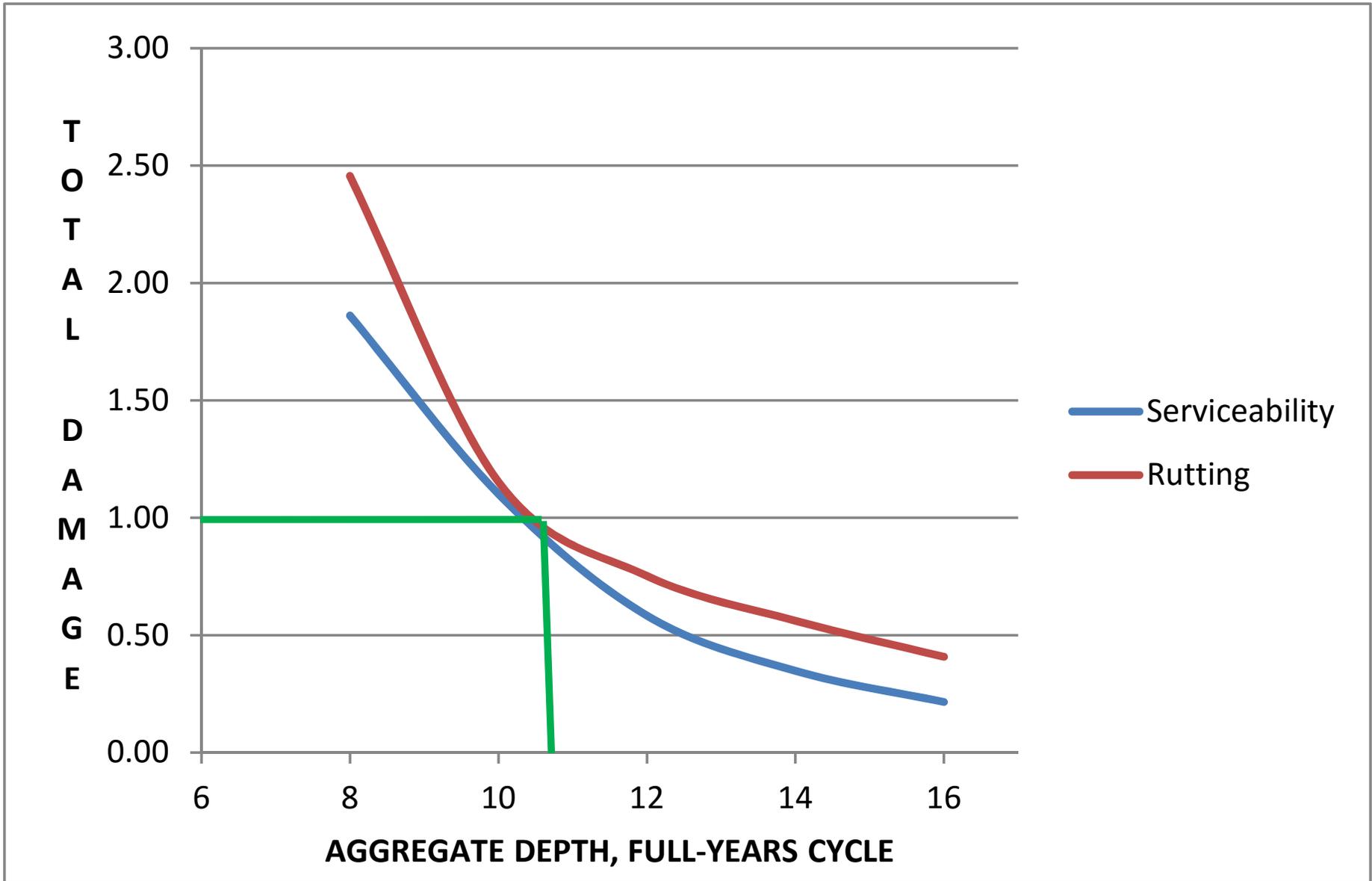
C & J GRAVEL PRODUCTS, INC TWO RIVERS PIT

TRAFFIC AND ROADWAY ANALYSIS

Archuleta County, Colorado

Aggregate Surface Design Worksheets

APPENDIX 5



Project C&J TWO RIVERS PIT
 Location CR 500 - ARCHULETA COUNTY

Analysis Date May 9, 2016

TRIAL BASE THICKNESS					Serviceability Criteria, Rutting Criteria,				
Dbs (inches) <u>8"</u>					Change PSI = <u>3.0</u> RD (inches) = <u>2.0</u>				
ESAL (5-YR)	43,885				P _o - P _t = 3.5 - 0.5 = 3.0				
		Allowable 1.0 - 2.2 (Section 2.2.2, Pavement Design Manual)							
(1) Season (Roadbed Moisture Condition)	Number of Months	(2) Roadbed Resilient Modulus, M _R (psi) <small>Assumed Quality of Roadbed Soil = Good</small>	(3) Base Elastic Modulus, E _{bs} (psi)	(4) Projected 18-kip ESAL Traffic, W ₁₈	(5) Allowable 18-kip ESAL Traffic, (W ₁₈) _{psi}	(6) Seasonal Damage, W ₁₈ / (W ₁₈) _{psi}	(7) Allowable 18-kip ESAL Traffic, (W ₁₈) _{RUT}	(8) Seasonal Damage, W ₁₈ / (W ₁₈) _{RUT}	
Winter (Frozen)	3	20,000	30,000	10,971	400,000	0.03	78,000	0.14	
Spring / Thaw (Saturated)	1.5	2,000	30,000	5,486	5,500	1.00	6,200	0.88	
Spring / Fall (Wet)	3	6,000	30,000	10,971	19,500	0.56	11,000	1.00	
Summer (Dry)	4.5	10,000	30,000	16,457	60,000	0.27	38,000	0.43	
Total Traffic =				43885	Total Damage =		1.86	Total Damage =	2.46

Project C&J TWO RIVERS PIT
 Location CR 500 - ARCHULETA COUNTY

Analysis Date May 9, 2016

TRIAL BASE THICKNESS				Serviceability Criteria,		Rutting Criteria,			
ESAL (5-YR)		Des (inches) 10"		Change PSI = 3.0		RD (inches) = 2.0			
43,885				P _o - P _t = 3.5 - 0.5 = 3.0		Allowable 1.0 - 2.2 (Section 2.2.2, Pavement Design Manual)			
(1) Season (Roadbed Moisture Condition)	Number of Months	(2) Roadbed Resilient Modulus, MR (psi) <small>Assumed Quality of Roadbed Soil = Good</small>	(3) Base Elastic Modulus, E _{BS} (psi)	(4) Projected 18-kip ESAL Traffic, W ₁₈	(5) Allowable 18-kip ESAL Traffic, (W ₁₈) _{psi}	(6) Seasonal Damage, W ₁₈ / (W ₁₈) _{psi}	(7) Allowable 18-kip ESAL Traffic, (W ₁₈) _{RUT}	(8) Seasonal Damage, W ₁₈ / (W ₁₈) _{RUT}	
Winter (Frozen)	3	20,000	30,000	10,971	400,000	0.03	120,000	0.09	
Spring / Thaw (Saturated)	1.5	2,000	30,000	5,486	10,000	0.55	11,000	0.50	
Spring / Fall (Wet)	3	6,000	30,000	10,971	32,000	0.34	38,000	0.29	
Summer (Dry)	4.5	10,000	30,000	16,457	90,000	0.18	60,000	0.27	
Total Traffic =				43885	Total Damage =		1.10	Total Damage = 1.15	

Project

C&J TWO RIVERS PIT

Location

CR 500 - ARCHULETA COUNTY

Analysis Date

May 9, 2016

TRIAL BASE THICKNESS				Serviceability Criteria, Rutting Criteria,					
ESAL (5-YR)		Das (inches) <u>12"</u>		Change PSI = <u>3.0</u>		RD (inches) = <u>2.0</u>			
43,885				P _o - P _t = 3.5 - 0.5 = 3.0		Allowable 1.0 - 2.2 (Section 2.2.2, Pavement Design Manual)			
(1) Season (Roadbed Moisture Condition)	Number of Months	(2) Roadbed Resilient Modulus, M _R (psi) <small>Assumed Quality of Roadbed Soil = Good</small>	(3) Base Elastic Modulus, E _{BS} (psi)	(4) Projected 18-kip ESAL Traffic, W ₁₈	(5) Allowable 18-kip ESAL Traffic, (W ₁₈) _{PSI}	(6) Seasonal Damage, W ₁₈ / (W ₁₈) _{PSI}	(7) Allowable 18-kip ESAL Traffic, (W ₁₈) _{RUT}	(8) Seasonal Damage, W ₁₈ / (W ₁₈) _{RUT}	
Winter (Frozen)	3	20,000	30,000	10,971	620,000	0.02	200,000	0.05	
Spring / Thaw (Saturated)	1.5	2,000	30,000	5,486	19,000	0.29	18,000	0.30	
Spring / Fall (Wet)	3	6,000	30,000	10,971	63,000	0.17	50,000	0.22	
Summer (Dry)	4.5	10,000	30,000	16,457	160,000	0.10	95,000	0.17	
Total Traffic =				43885	Total Damage =		0.58	Total Damage =	0.75

Project
Location

C&J TWO RIVERS PIT
CR 500 - ARCHULETA COUNTY

Analysis Date

May 9, 2016

TRIAL BASE THICKNESS D _{BS} (inches) <u>14"</u>					Serviceability Criteria, Change PSI = <u>3.0</u>		Rutting Criteria, RD (inches) = <u>2.0</u>		
ESAL (5-YR)					P _o - P _t = 3.5 - 0.5 = 3.0				
ESAL (5-YR)					Allowable 1.0 - 2.2 (Section 2.2.2, Pavement Design Manual)				
(1) Season (Roadbed Moisture Condition)	Number of Months	(2) Roadbed Resilient Modulus, M _R (psi) <small>Assumed Quality of Roadbed Soil = Good</small>	(3) Base Elastic Modulus, E _{BS} (psi)	(4) Projected 18-kip ESAL Traffic, W ₁₈	(5) Allowable 18-kip ESAL Traffic, (W ₁₈) _{PSI}	(6) Seasonal Damage, W ₁₈ / (W ₁₈) _{PSI}	(7) Allowable 18-kip ESAL Traffic, (W ₁₈) _{RUT}	(8) Seasonal Damage, W ₁₈ / (W ₁₈) _{RUT}	
Winter (Frozen)	3	20,000	30,000	10,971	700,000	0.02	280,000	0.04	
Spring / Thaw (Saturated)	1.5	2,000	30,000	5,486	38,000	0.14	22,000	0.25	
Spring / Fall (Wet)	3	6,000	30,000	10,971	100,000	0.11	75,000	0.15	
Summer (Dry)	4.5	10,000	30,000	16,457	210,000	0.08	130,000	0.13	
Total Traffic =				43885	Total Damage =		0.35	Total Damage =	0.56

Project C&J TWO RIVERS PIT
 Location CR 500 - ARCHULETA COUNTY

Analysis Date May 9, 2016

TRIAL BASE THICKNESS D _{BS} (inches) <u>16"</u>					Serviceability Criteria, Change PSI = <u>3.0</u>		Rutting Criteria, RD (inches) = <u>2.0</u>		
ESAL (5-YR)	43,885				P _o - P _t = 3.5 - 0.5 = 3.0		Allowable 1.0 - 2.2 (Section 2.2.2, Pavement Design Manual)		
(1) Season (Roadbed Moisture Condition)	Number of Months	(2) Roadbed Resilient Modulus, M _R (psi) <small>Assumed Quality of Roadbed Soil = Good</small>	(3) Base Elastic Modulus, E _{BS} (psi)	(4) Projected 18-kip ESAL Traffic, W ₁₈	(5) Allowable 18-kip ESAL Traffic, (W ₁₈) _{PSI}	(6) Seasonal Damage, W ₁₈ / (W ₁₈) _{PSI}	(7) Allowable 18-kip ESAL Traffic, (W ₁₈) _{RUT}	(8) Seasonal Damage, W ₁₈ / (W ₁₈) _{RUT}	
Winter (Frozen)	3	20,000	30,000	10,971	800,000	0.01	400,000	0.03	
Spring / Thaw (Saturated)	1.5	2,000	30,000	5,486	62,000	0.09	29,000	0.19	
Spring / Fall (Wet)	3	6,000	30,000	10,971	160,000	0.07	110,000	0.10	
Summer (Dry)	4.5	10,000	30,000	16,457	370,000	0.04	180,000	0.09	
Total Traffic =				43885	Total Damage =		0.22	Total Damage =	0.41

GRAVEL LOSS - calculations

AASHTO - Design of Pavement Structures
 Section 2.2.3

GL = (B / 25.4 / 0.0045LADT + 3380.6/R + 0.467G)
 GL = Gravel Loss inches
 B = Blading per Year 5 times / evaluation period
 LADT = Daily Traffic Per Lane 252 trips/day
 R = Average Radius of Curves 400 ft (assumed)
 G = Absolute value of grade 4% assumed

GL = 0.021512341 inches
 Assume placement of 1/2-inch of gravel every fifth year

D_{BS} (INCHES) 8"

WINTER 400,000

SPRING 5500

SUMMER 19,500

Example: 60,000

D_{BS} = 8 inches

E_{BS} = 30,000 psi

M_R = 4,900 psi

ΔPSI = 3.0

Solution: W₁₈PSI = 16,000 (18-kip ESAL)

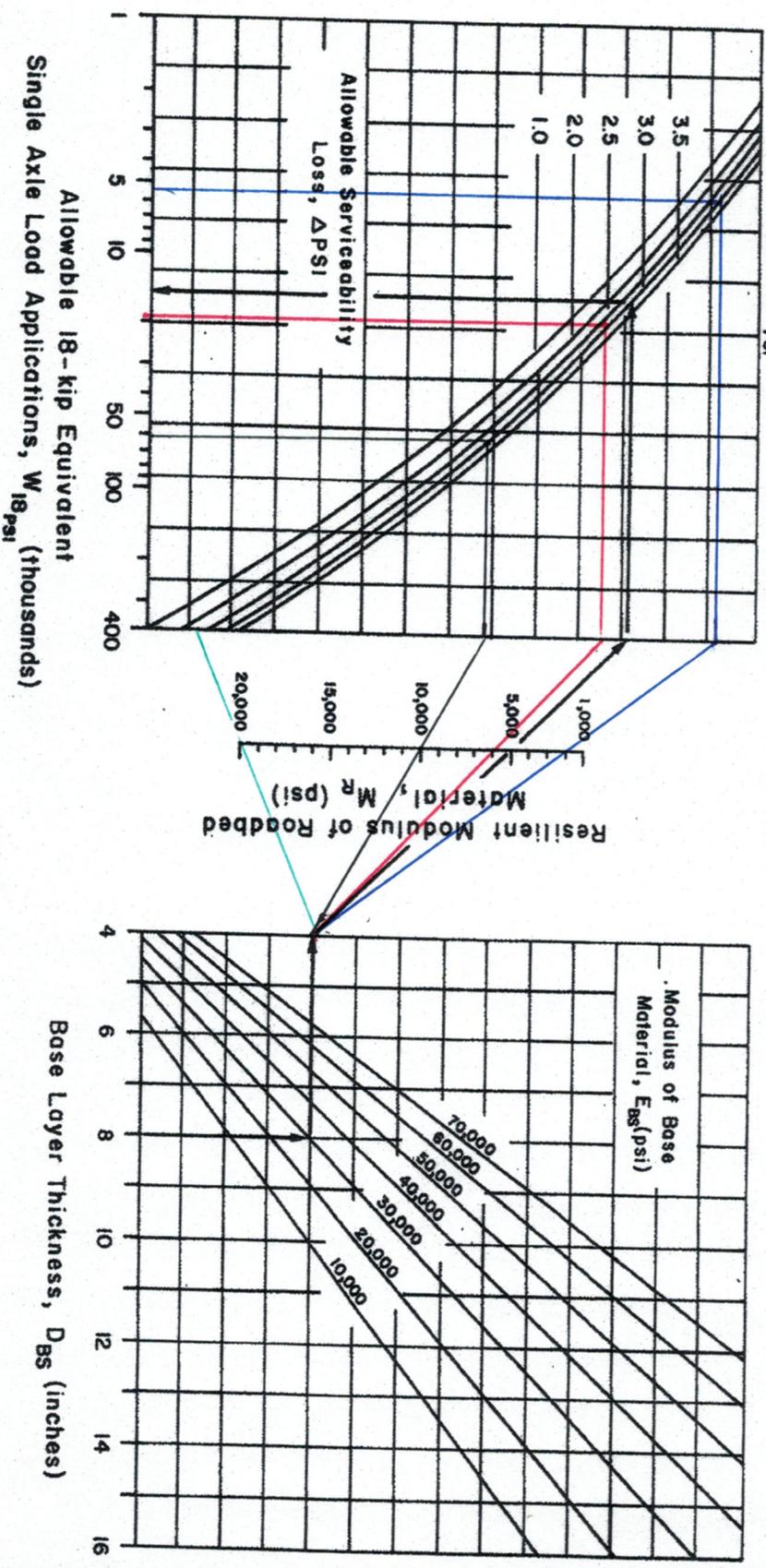


Figure 4.2. Design Chart for Aggregate-Surfaced Roads Considering Allowable Serviceability Loss

II-75
 SUMMER
 38,000
 14,000
 6,200
 78,000
 8"

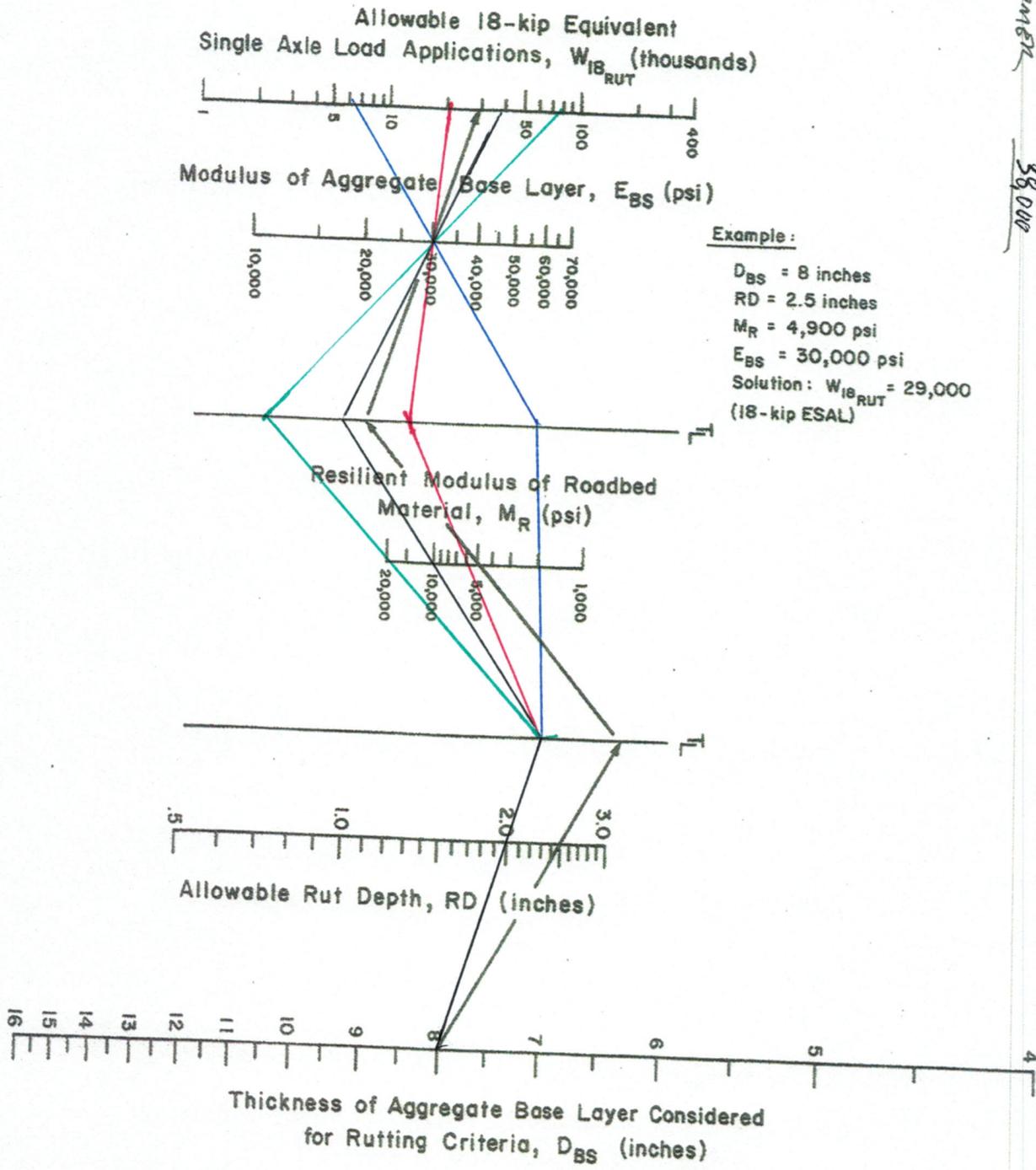


Figure 4.3. Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting

DRS (INCHES) 16"
 WINTER 400,000
 SPRING THAW 10,000
 SPRING WET 32,000
 SUMMER 90,000

Example:

$D_{gs} = 8$ inches
 $E_{gs} = 30,000$ psi
 $M_R = 4,900$ psi
 $\Delta PSI = 3.0$
 Solution: $W_{18psi} = 16,000$ (18-kip ESAL)

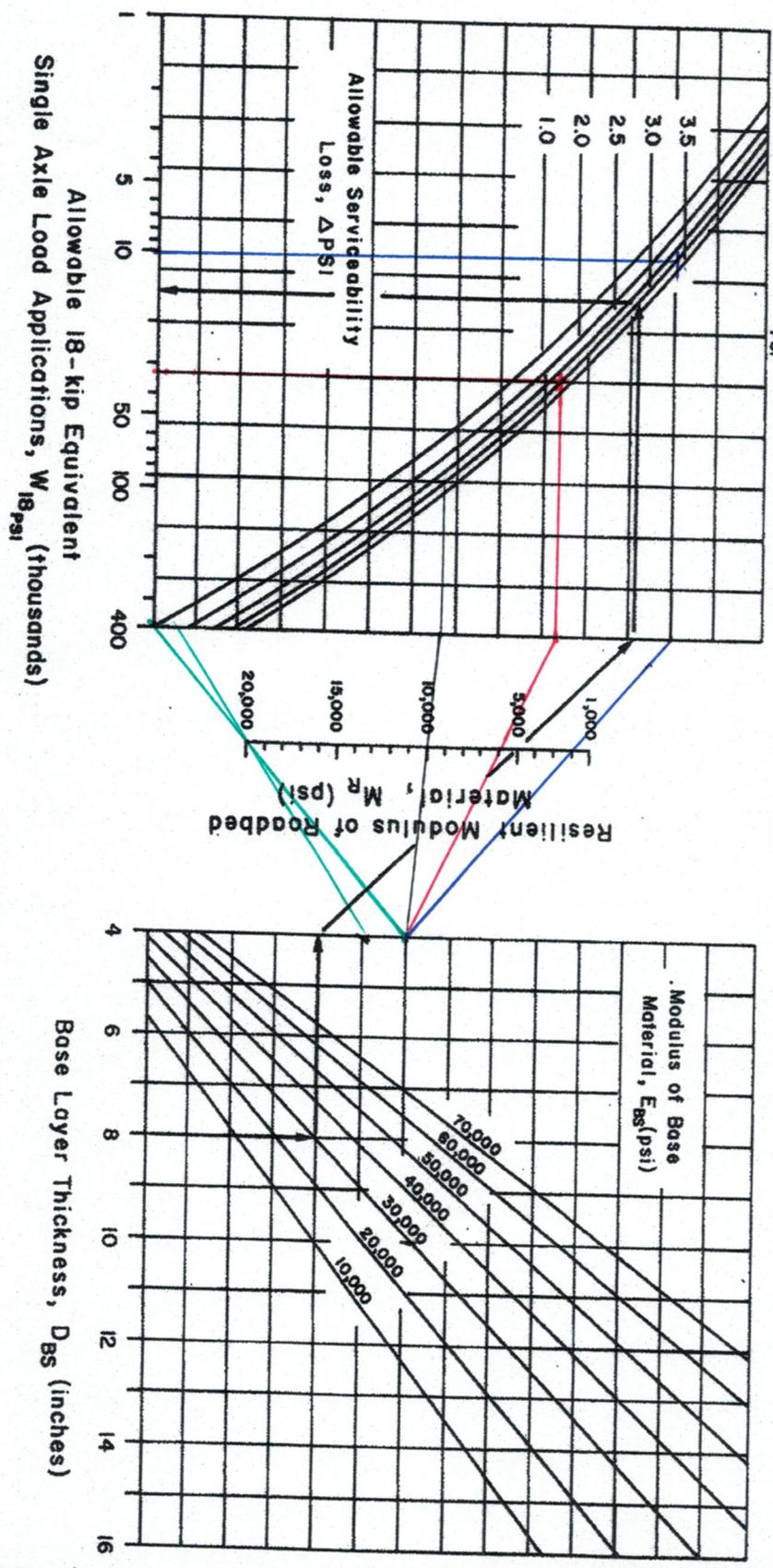


Figure 4.2. Design Chart for Aggregate-Surfaced Roads Considering Allowable Serviceability Loss

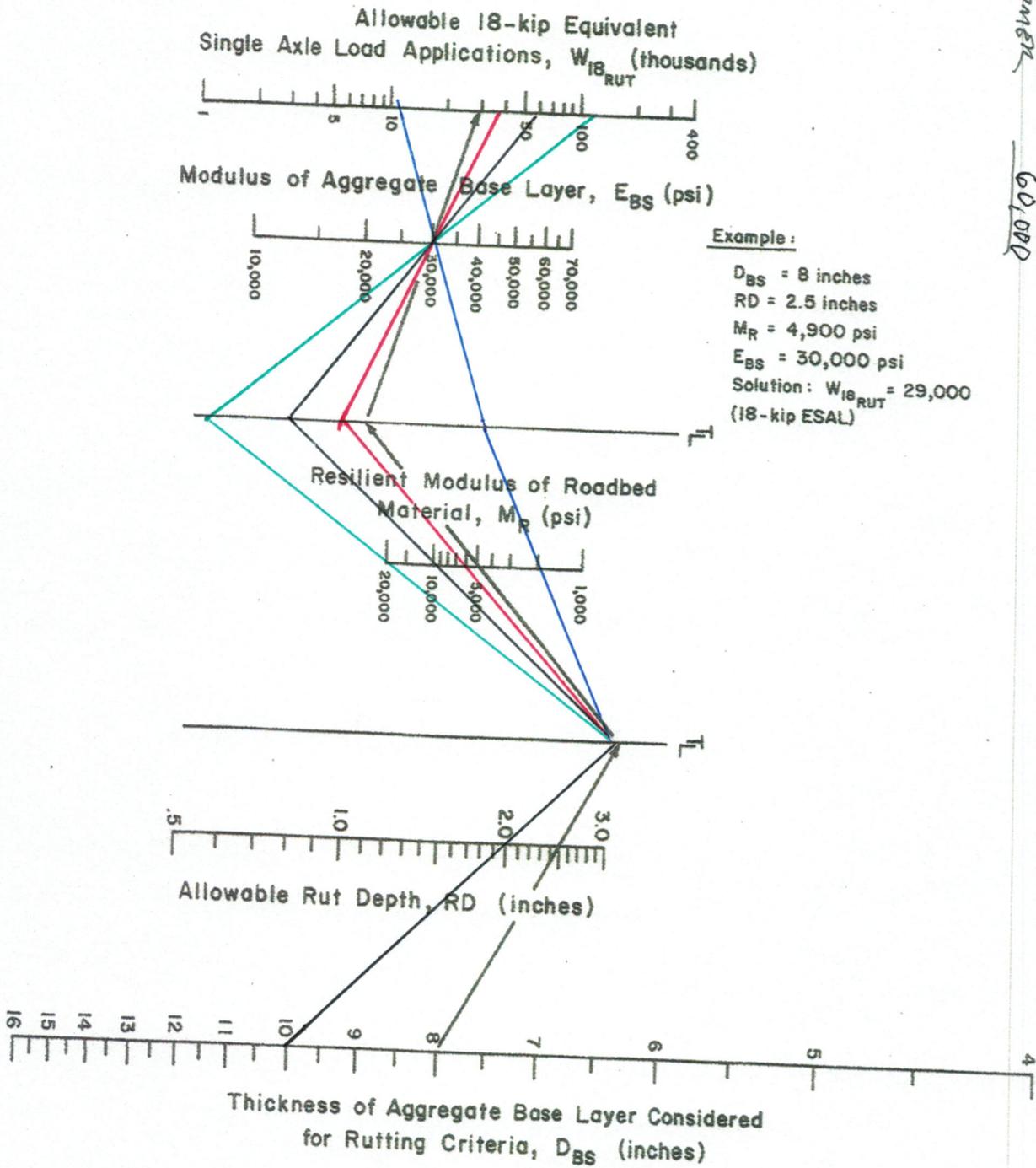


Figure 4.3. Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting

II-75
 Summer
 Spring wet
 Winter
 Spring thaw
 10"
 126,000
 14,000
 38,000
 60,000

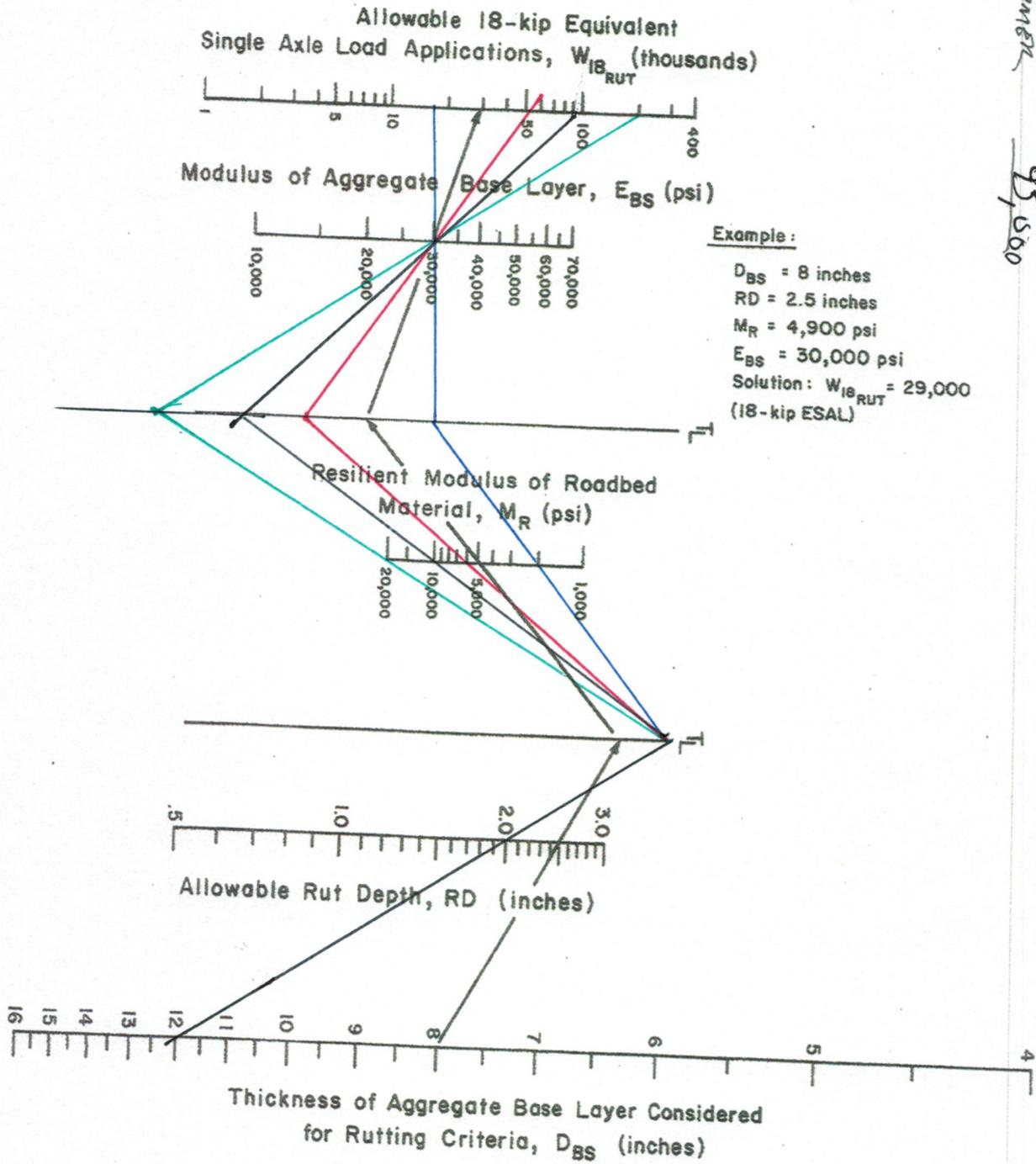


Figure 4.3. Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting

11-75
 Summer
 95,500
 12"
 200,000
 18,000
 50,000

LBS (INCHES) 12"
 WINTER 620,000
 SPRING TRAW 190,000
 SPRING WET 65,000
 SUMMER 160,000

Example:

$D_{BS} = 8$ inches
 $E_{BS} = 30,000$ psi
 $M_R = 4,900$ psi
 $\Delta PSI = 3.0$
 Solution: $W_{18psi} = 16,000$ (18-kip ESAL)

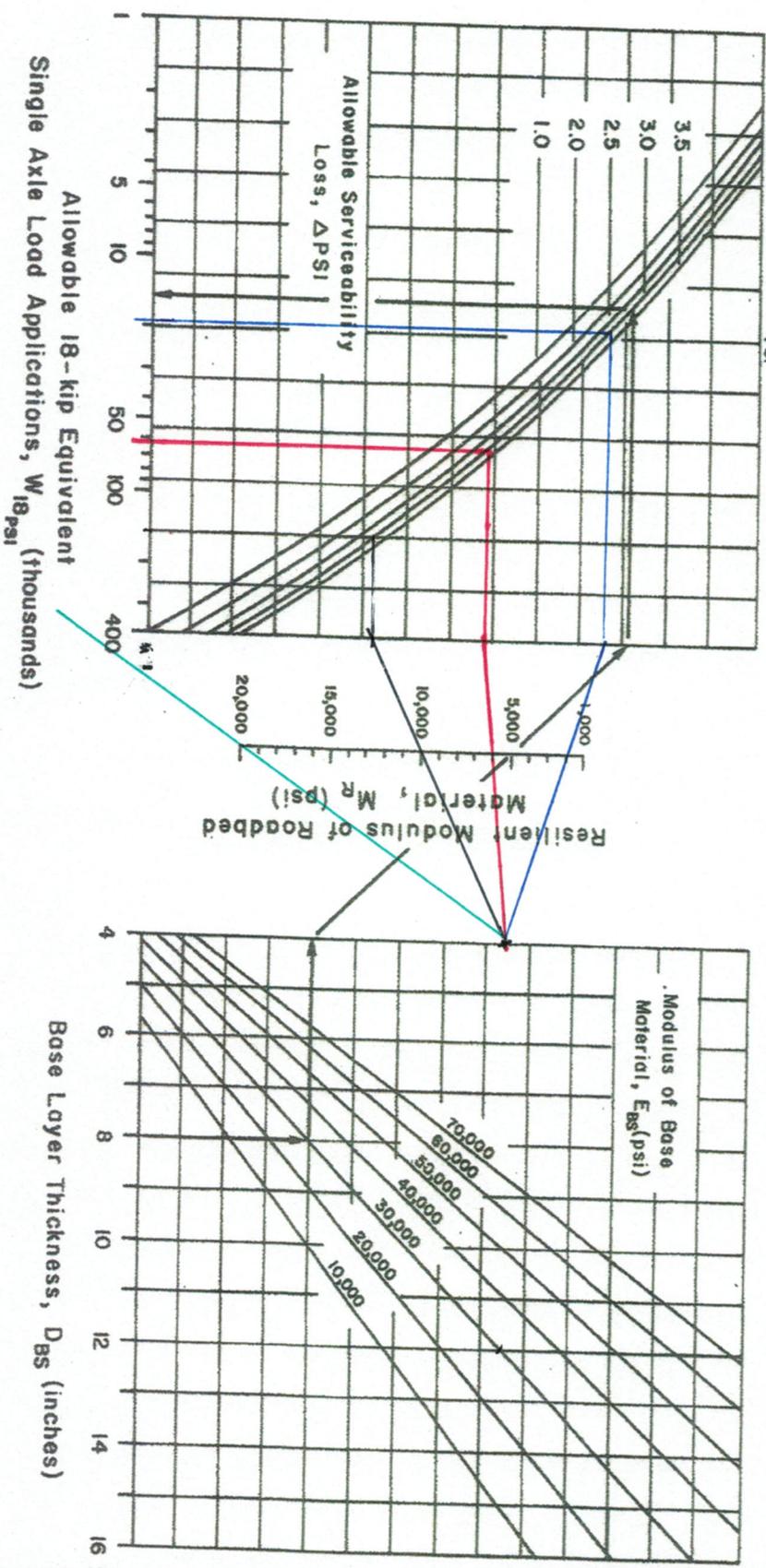


Figure 4.2. Design Chart for Aggregate-Surfaced Roads Considering Allowable Serviceability Loss

1.85 (inches) 1.41
 WINTER 700,000
 SPRING TRAFFIC 38,000
 SPRING WET 100,000
 SUMMER 210,000

Example:

$D_{BS} = 8$ inches
 $E_{BS} = 30,000$ psi
 $M_R = 4,900$ psi
 $\Delta PSI = 3.0$
 Solution: $W_{18PSI} = 16,000$ (18-kip ESAL)

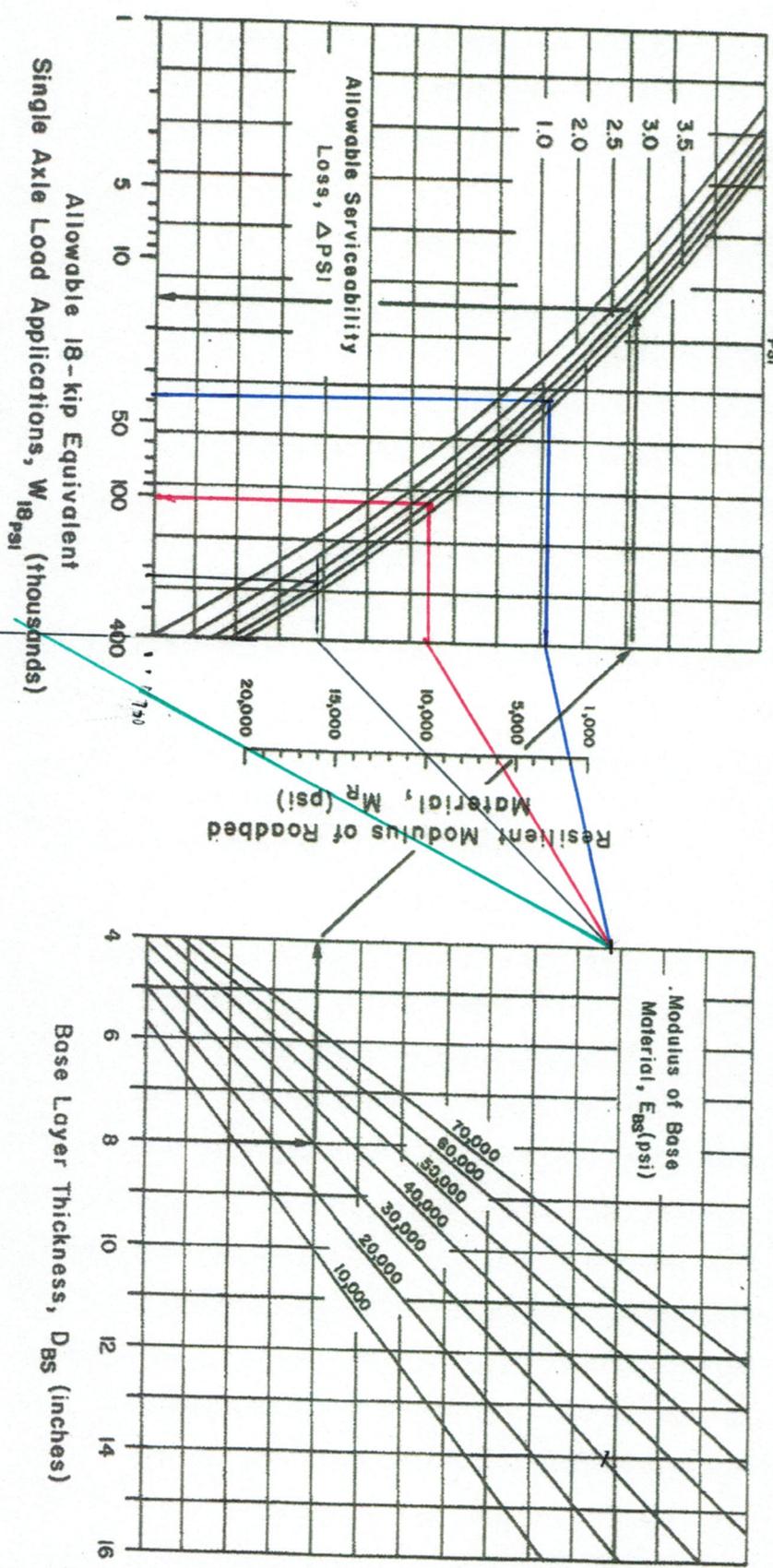


Figure 4.2. Design Chart for Aggregate-Surfaced Roads Considering Allowable Serviceability Loss

II-75
 Summer
 Spring wet
 Spring rain
 Winter
 194
 280,000
 22,000
 75,000
 130,000

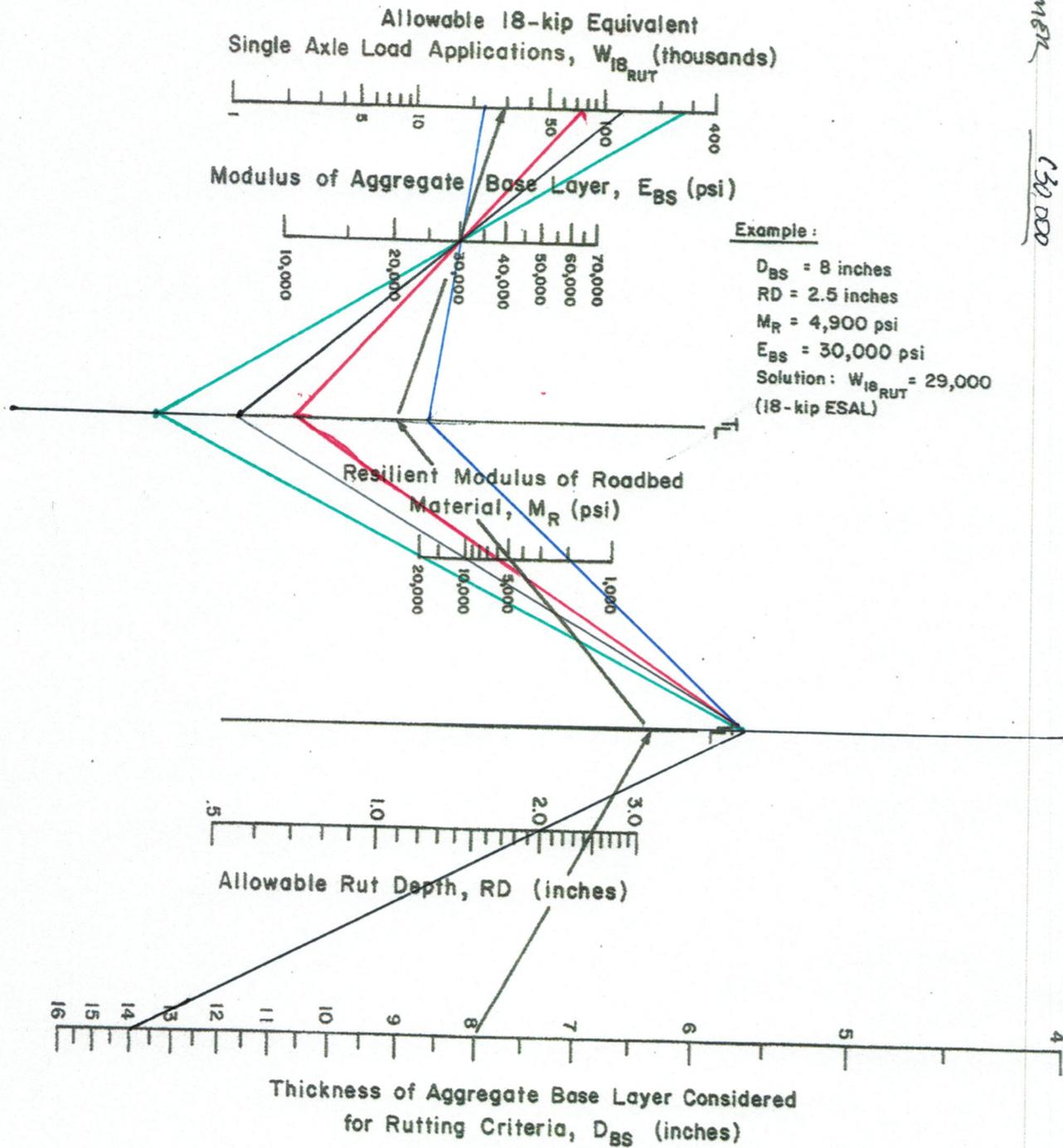


Figure 4.3. Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting

D_{BS} (INCHES) 16"

WINTER 800,000

SPRING THAW 62,000

SPAINING WET 16,000

SUMMER 370,000

Example:

D_{BS} = 8 inches
 E_{BS} = 30,000 psi
 M_R = 4,900 psi
 ΔPSI = 3.0

Solution: W_{18psi} = 16,000 (18-kip ESAL)

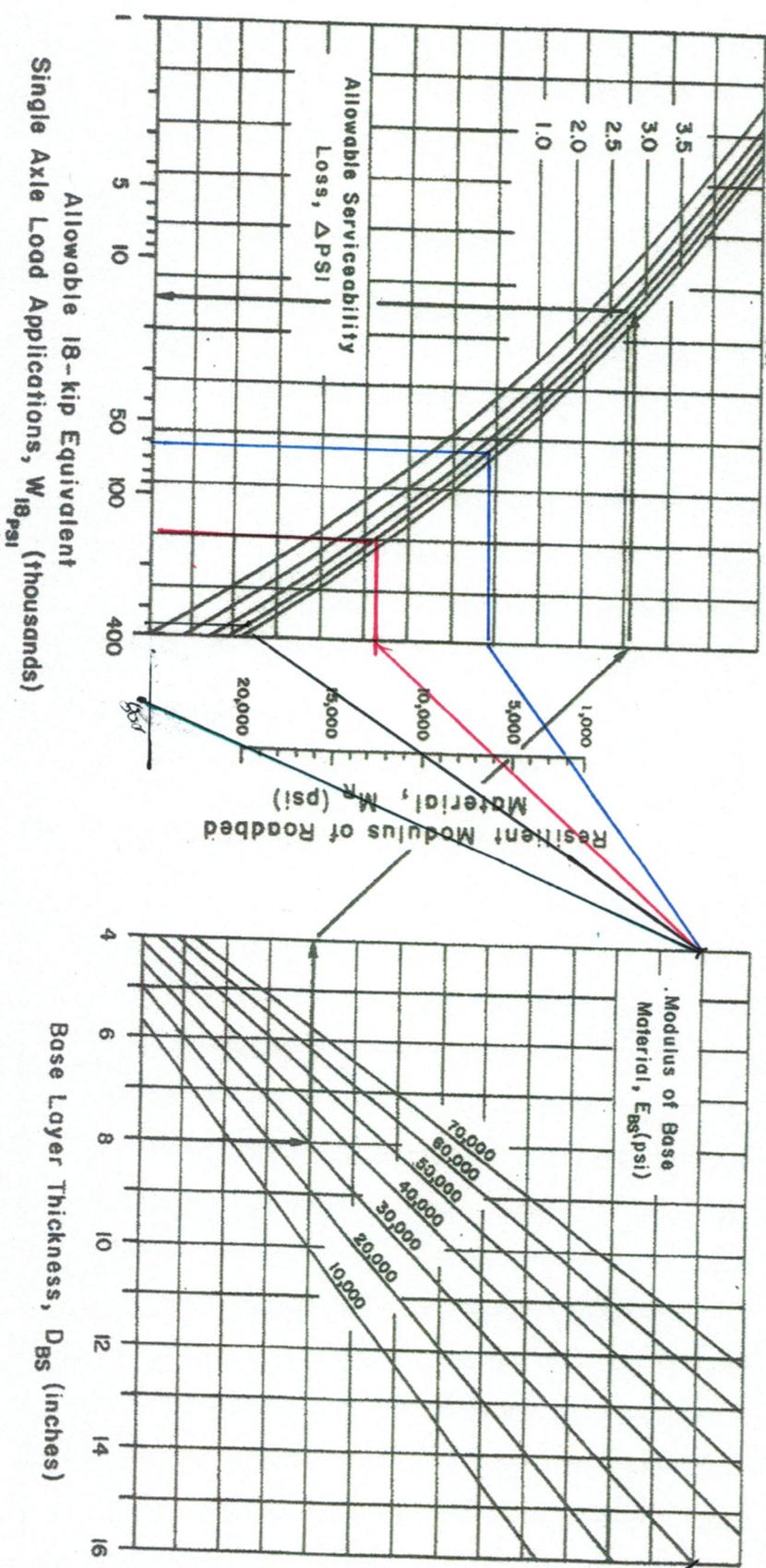
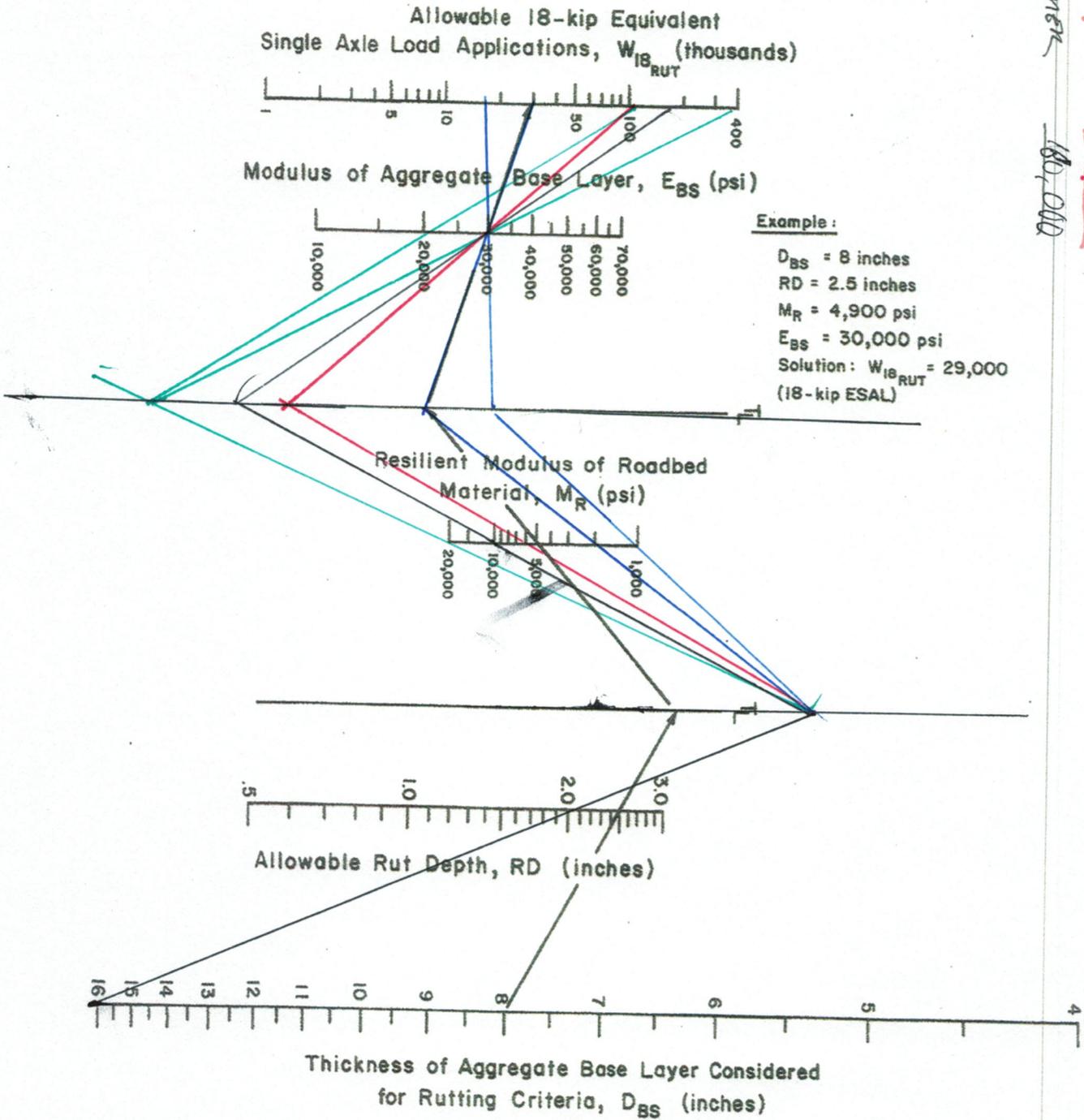


Figure 4.2. Design Chart for Aggregate-Surfaced Roads Considering Allowable Serviceability Loss



16" (inches)
 WINTER
 SPRING
 SPRING WET
 SUMMER
 16" 2" RD
 10,000
 20,000
 100,000
 180,000

Figure 4.3. Design Chart for Aggregate-Surfaced Roads Considering Allowable Rutting

C & J GRAVEL PRODUCTS, INC TWO RIVERS PIT

TRAFFIC AND ROADWAY ANALYSIS

Archuleta County, Colorado

Two Rivers Pit – Haul Road Assessment OPC

APPENDIX 6

C&J GRAVEL, TWO RIVERS PIT - HAUL ROAD ASSESSMENT BY YEAR

Project: CR 500, Cascade Avenue, S. Pagosa Blvd

CPI avg 2.5%

Item	Improvement	# of Units	Unit	Unit Cost	Current Year \$	% Impact by TR	Current Year \$
a	Install Limited Sight Distance Flashing Caution Signs: MP 5.8 - 6.4 (% impact by traffic volume)	1	LS	\$25,000	\$25,000	29%	\$7,250
b	Aggregate Placement; S. Pagosa / Buttress	1.5 mi	440 TONS	\$15	\$6,600	45%	\$2,970
c	Aggregate Placement; Cascade Ave	0.9 mi	264 TONS	\$15	\$3,960	63%	\$2,495
d	Aggregate Placement; CR 500 (S. of Cascade)	7.4 mi	2171 TONS	\$15	\$32,560	62%	\$20,187
e	Aggregate Placement; CR 500 (N. of Cascade)	2.0 mi	587 TONS	\$15	\$8,800	34%	\$2,992
h	Chip seal S. Pagosa Blvd (Yr 2018 & Yr 2028)	3.4 mi	3.4 MILES	\$100,000	\$340,000	45%	\$153,000
i	Chip seal CR 500 (Yr 2021 & Yr 2031)	2.2 mi	2.2 MILES	\$100,000	\$220,000	34%	\$74,800
				subtotal=	\$703,387		
				Contingency: 5% of	5%		\$35,169
				TOTAL OPC			\$738,557

C&J TRUCK TOTALS - 20-YEARS 133,333 TRUCKS

\$ PER TON (15 TONS/TR) \$0.37

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
	\$7,250																			
		\$3,119					\$3,490					\$3,861							\$4,232	
		\$2,620					\$2,931					\$3,243							\$3,555	
		\$21,197					\$23,720					\$26,243							\$28,767	
				\$3,291						\$3,740									\$4,189	
			\$164,475										\$202,725							
						\$86,020													\$104,720	
	\$7,250	\$26,935	\$164,475	\$3,291	\$0	\$86,020	\$30,141	\$0	\$0	\$3,740	\$0	\$33,348	\$202,725	\$0	\$0	\$108,909	\$36,554	\$0	\$0	\$0

Notes
 Estimate utilizes unit value costs from CDOT Cost Data Book (Avg Years 2011 - 2013)
 Roadway modifications to be completed within existing right-of-way/prescriptive easement. Unless as noted, no other right-of-way acquisition costs included in OPC
 Aggregate placement: 24ft wide, 1/2-in depth, every 5-years (every 6-yrns on N. CR 500)

C & J GRAVEL PRODUCTS, INC TWO RIVERS PIT

TRAFFIC AND ROADWAY ANALYSIS

Archuleta County, Colorado

Roadway Photos

APPENDIX 7



South Pagosa Boulevard
MP 0.1
View North



CR 500
MP 0.1
View Northeast



CR 500
MP 4.2
View South



Cascade Avenue
MP 0.9
View West

A wide, unpaved dirt road stretches from the foreground into the distance, curving slightly to the right. The road is flanked by dense woods. On the left, there are dark evergreen trees and some bare deciduous trees. On the right, there are more bare deciduous trees and a fence line with wooden posts. In the background, a hill with sparse vegetation rises under a pale sky. A thin, dark line, possibly a wire or a fallen branch, crosses the road in the middle ground.

CR 500
MP 11.5
View North



CR 500
MP 11.5 (adj. to Project)
View Southeast



CR 500
MP 0.1 (posted speed)
View Northwest



Intersection of
Buttress & Cascade
(photo 1)
View Northwest



Intersection of
Buttress & Cascade
(photo 2)
View Southwest



C&J Gravel Products, Inc.

C&J Gravel Products
Mitigation Proposal
Two Rivers Application

Dear Mr. Shepard,

Here is what I am proposing for mitigation. I am not sure how this would work legally as I've never done this before. The idea of my proposal is that Archuleta County will have more budget money to use at their discretion and that C&J Gravel is not held to certain improvements that might not be to the best benefit of the county. With this plan the county can decide where and when the gravel is needed and make repairs as necessary. C&J Gravel is a small company and cannot afford any significant up front cost to help mitigate potential impacts so I feel this is the best plan to partner with the county to bring a much needed gravel source to the county.

Let me know if you have any question or need any clarification about this.

5.13.16

A handwritten signature in black ink, appearing to read "John Gilleland", written over a horizontal line.

John Gilleland
President



C&J Gravel Products, Inc.

C&J Gravel proposes:

Archuleta county to receive 5000 ton credit, material of choice. This is considered an up front payment for 5 years of impact to roads?

3 year contract to provide road base @\$5.00 per ton loaded or \$4.00 per ton stockpiled (The county to provide loader)

First three years C&J to pay 0.50 per ton mitigation fee. After the 3rd year it goes to 0.37 per ton.

C&J to pay for and install safety lights described in TIA \$25,000 Appx

Total value to Archuleta County

5000 ton credit	\$ 25,000
3 yr contract @ \$5 saves county \$67k yr (x3) low bid to provide material to A.C.)	\$201,000 (this number based on 2016)
3 yr mitigation @.50 ton	\$150,000
Safety lights	\$ 25,000
17 years mitigation @\$0.37 per ton year)	\$629,000 (based on 100,000 tons per
Total	\$1,030,000