EL PASO COUNTY
COLORADO

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El Paso County Planning & Community Development
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Board of County Commissioners
Holly Williams, District 1
Carrie Geitner, District 2
Stan VanderWerf, District 3
Longinos Gonzalez, Jr., District 4
Cami Bremer, District 5

TO: **El Paso County Planning Commission**
Brian Risley, Chair

FROM: **Ryan Howser, AICP Planner III**
Daniel Torres, PE Engineer III
Kevin Mastin, Interim Executive Director

RE: **Project File #: AL-20-014**
Project Name: Ellicott Sand and Gravel
Parcel No.: 24000-00-275; 24000-00-276

OWNER:	**REPRESENTATIVE:**
Schubert Ranches, LLC 1555 S Baggett Road Calhan, CO, 80808	Regulatory Permits Management, Inc. 25049 E Alder Drive Aurora, CO, 80816

Commissioner District: 4

Planning Commission Hearing Date:	7/21/2022
Board of County Commissioners Hearing Date	8/2/2022

EXECUTIVE SUMMARY

A request by Schubert Ranches, LLC for approval of a special use for a mineral and natural resource extraction operation. The 2,163-acre property is zoned A-35 (Agricultural) and is located on the east side of Baggett Road, approximately one (1) mile south of US Highway 94. The area subject to the special use application is approximately 733.7 acres in size and within Sections 20, 29, and 32, Township 14 South, Range 62 West of the 6th P.M.

A. REQUEST/WAIVERS/DEVIATIONS/AUTHORIZATION

Request: A request by Schubert Ranches, LLC for approval of a special use for a mineral and natural resource extraction operation on 733.7 acres.

Waiver(s)/Deviation(s): The following deviation from the standards of the El Paso County Engineering Criteria Manual (2020) have been administratively approved by the ECM Administrator.

1. Section 2.2.4.A.4 states, “No full movement access is permitted where the local roadways can be expected to provide access”. The applicant has submitted a deviation requesting a limited tenure access from Sanborn Road due to the topographical constraints of Black Squirrel Creek adjacent to the Baggett Road frontage. Additionally, the initial area of mineral extraction for the development will occur immediately north of Sanborn Road and west of Black Squirrel Creek. This request has been approved due to the topographic constraints.

Authorization to Sign: There are no documents associated with this application that require signing.

B. PLANNING COMMISSION SUMMARY

Request Heard:
Recommendation:
Waiver Recommendation:
Vote:
Vote Rationale:
Summary of Hearing:
Legal Notice:

C. APPROVAL CRITERIA

Pursuant to Section 5.3.2.C of the El Paso County Land Development Code (2019), the Planning Commission and Board of County Commissioners may consider the following criteria in approving a special use:

- The special use is generally consistent with the applicable Master Plan;
- The special use will generally be in harmony with the character of the neighborhood, and will generally be compatible with the existing and allowable land uses in the surrounding area;
- The impact of the special use does not overburden or exceed the capacity of public facilities and services, or, in the alternative, the special use application demonstrates that it will provide adequate public facilities in a timely and efficient manner;
- The special use will not create unmitigated traffic congestion or traffic hazards on the surrounding area, and has adequate, legal access;
- The special use will comply with all applicable local, state, and federal laws and regulations regarding air, water, light, or noise pollution;
- The special use will not otherwise be detrimental to the public health, safety and welfare of the present or future residents of El Paso County; and/or
- The special use conforms or will conform to all other applicable County rules, regulations or ordinances.

D. LOCATION

North:	A-35 (Agricultural)	Vacant/Residential
South:	A-35 (Agricultural)	Residential
East:	A-35 (Agricultural)	Vacant/Residential
West:	A-35 (Agricultural)	Vacant/Residential
	RR-5 (Residential Rural)	Residential

E. BACKGROUND

The subject property was initially zoned A-35 (Agricultural) on March 24, 1999, when zoning was first initiated for this portion of El Paso County (Resolution No. 99-101). The property consists of over 2,000 acres of land utilized for agricultural purposes. There are several existing agricultural and residential structures on the property, all of which were constructed prior to the initiation of zoning on the property and are all therefore considered legal structures. All existing structures and uses on the property are proposed to remain.

The applicant is requesting to initiate a special use on the property for a commercial mineral and natural resource extraction operation. Section 1.15 of the Land Development Code defines "Mineral and Natural Resource Extraction" as follows:

> "An operation involved in the act of removing naturally occurring minerals from the earth for an economic use. Mineral extraction includes material washing, sorting, crushing or more intensive modification and alteration through mechanical or chemical means to a mineral resource extracted within the same ownership provided such activities are approved as part of the special use."

The applicant submitted an application for special use for a mineral and natural resource extraction operation on June 11, 2020. The term "mining operation" may be used interchangeably with the term "mineral and natural resource extraction operation" for the purpose of this application. The applicant refers to the proposed use as a "mining operation" in their letter of intent.

The applicant estimates that the proposed mining operation's lifespan will range between 53 and 80 years and be conducted in six (6) phases, with the estimated lifespan of each phase ranging between 2 and 30 years. Of the 733.7 acres subject to the special use permit, approximately 513.5 acres are proposed for mining activities. The remainder of the property is proposed for buffering or is otherwise proposed to remain undisturbed to preserve existing natural features.

F. ANALYSIS

1. Land Development Code Analysis

A mineral and natural resource extraction operation requires special use approval in the A-35 zoning district pursuant to Chapter 5 of the Code. Additionally, all mineral and natural resource extraction operations shall comply with Section 5.2.34 of the Code which provides specific requirements for these types of operations. The applicant has provided an analysis of the requirements of Section 5.2.34 of the Code in their letter of intent.

The applicant has provided an analysis of the special use criteria of Section 5.3.2.C of the Code in their letter of intent. The proposed special use area is adjacent to properties zoned RR-5 (Residential Rural) which are currently being used for rural residential purposes. The proposed mining operation may not be compatible with nearby residential uses. In order to meet the criteria for approval

of a special use, the applicant is required to demonstrate that the proposed use will be in harmony with the character of the neighborhood and will be generally compatible with all existing land uses in all directions. The applicant is proposing to locate all proposed mining activities a minimum of 200 feet from all property boundaries.

If the special use is approved, the applicant will be required to also submit and receive approval of a site development plan prior to initiating any land disturbing activities on the property. The site development plan will need to be substantially consistent with the site plan provided with the special use application and provide a more detailed depiction of the proposed use. County review and administrative approval of a site development plan will help ensure that adequate buffers, setbacks, and screening are implemented to further mitigate any potential impacts to the surrounding area. The site development plan review will also include compliance with all applicable aspects of the Land Development Code and the Engineering Criteria Manual, including but not limited to grading and erosion control, landscaping, parking, and lighting standards.

2. **Zoning Compliance**

The subject parcel is zoned A-35 (Agricultural). The A-35 zoning district is intended to accommodate rural communities and lifestyles, including the conservation of farming, ranching and agricultural resources. The density and dimensional standards for the A-35 zoning district are as follows:

- Minimum lot size: 35 acres
- Minimum width at the front setback line: 500 feet
- Minimum setback requirement: front 25 feet, rear 25 feet, side 25 feet
- Maximum lot coverage: None
- Maximum height: 30 feet

The applicant is not proposing to construct additional structures at this time. If the special use permit is approved, the applicant will need to obtain site development plan approval prior to initiating any land disturbing activities on the property in order to ensure that construction of any structures or land disturbing activities meets the requirements of the A-35 zoning district.

3. **Policy Plan Analysis**

The El Paso County Policy Plan (1998) has a dual purpose; it serves as a guiding document concerning broader land use planning issues and provides a framework to tie together the more detailed sub-area elements of the County Master Plan. Relevant policies are as follows:

> ***Policy 2.1.11 –*** *Encourage approaches to natural system preservation and protection which also accommodate reasonable development opportunities.*
>
> ***Policy 2.3.1 –*** *Preserve significant natural landscapes and features.*
>
> ***Policy 2.3.5 –*** *Encourage the use of innovative siting and design techniques to identify, enhance, and, where appropriate, incorporate and protect significant natural features and waterways.*
>
> ***Policy 5.1.1 –*** *Encourage economic development that enhances a sense of community, provides vigor to the economy and considers the environment while contributing to the overall health of the County.*
>
> ***Policy 6.1.16 –*** *Allow for new and innovative concepts in land use design and planning if it can be demonstrated that off-site impacts will not be increased and the health, safety and welfare of property owners and residents will be protected.*
>
> ***Goal 7.4 –*** *Permit mineral extraction and processing activities in the County in a manner which allows for preservation of significant commercial deposits, minimization of adverse visual and other environmental impacts, economical resource use and consideration of other planning issues.*

The property is encumbered by the Black Squirrel Creek. The applicant has provided a site plan illustrating the location of the proposed mining operation on the property and has indicated that they intend to avoid potential impacts to the creek. According to the applicant's letter of intent, the applicant intends to use 513.5 acres of the 733.7-acre project area for the mining operation, with the remainder of land proposed to remain undisturbed for buffering purposes and to preserve natural features.

4. **Small Area Plan Analysis**

The property is located within the Ellicott Valley Comprehensive Plan (1989). Relevant goals and policies are as follows:

> ***Goal 6.A –*** *Allow for agricultural, extraction, and other comparable uses when these can be accommodated without adversely impacting surrounding development and overall environmental quality.*
>
> ***Policy 6.4 –*** *Mineral aggregate extraction operations in the planning area should not be located where they may adversely impact groundwater supplies. Potential operations should be reviewed for their visual and environmental compatibility with adjacent uses.*
>
> ***Policy 9.1 –*** *Evaluate all land use proposals in the planning area in terms of both their individual and potential collective impact on the alluvial aquifers which provide the area with its water supply.*
>
> ***Policy 9.2 –*** *Encourage the preservation of major stream corridors in a predominantly natural condition in order to minimize flood hazards, facilitate aquifer recharge, provide for wildlife corridors and allow for open space linkages*.

According to the applicant's letter of intent, impacts to the aquifers are proposed to be minimal and they intend to minimize potential negative environmental impacts. The applicant states the following in their letter of intent:

> "…we are committed to staying at least ten (10) feet above the prevailing ground water elevation. In addition, any petroleum spills in reportable quantities associated with use of the mining equipment will be cleaned up and disposed off-site at an approved facility. No toxic or acidic materials in regulated quantities will be exposed or brought onto the site."

Additionally, the applicant mentions in their letter of intent that the mining operation activities are proposed to primarily take place below grade in order to minimize potential visual impacts to adjacent properties.

5. **Water Master Plan Analysis**

The El Paso County Water Master Plan (2018) has three main purposes; better understand present conditions of water supply and demand; identify efficiencies that can be achieved; and encourage best practices for water demand management through the comprehensive planning and development review processes. Relevant policies are as follows:

> ***Goal 1.1 –*** *Ensure an adequate water supply in terms of quantity, dependability and quality for existing and future development.*
>
> ***Policy 1.1.1 –*** *Adequate water is a critical factor in facilitating future growth and it is incumbent upon the County to coordinate land use planning with water demand, efficiency and conservation.*
>
> ***Goal 1.2 –*** *Integrate water and land use planning.*

The property is located within Planning Region 4c of the Plan and is not located within an estimated area of development. Region 4c includes a portion of the Upper Black Squirrel Creek Basin. The Region is identified as potentially having issues regarding long term sustainable draw from the Denver Basin aquifer. The Plan identifies the current demands for Region 4c to be 2,970 AFY (Figure 5.1) with the projected need in 2040 at 3,967 AFY (Figure 5.2) and at build-out in 2060 at 4,826 AFY (Figure 5.3). Region 4c currently has 2,970 AFY in supplies, which means by 2060 there is anticipated to be a deficiency of 1,799 AFY (Table 5-2).

Water sufficiency is not required for a special use application. The applicant is proposing to initiate a mining operation and has indicated in their letter of intent that the proposed water usage associated with the mining operation is estimated to use approximately 12 AFY of water.

6. **Other Master Plan Elements**

The El Paso County Wildlife Habitat Descriptors (1996) identifies the parcels as having a moderately wildlife impact potential. Colorado Department of Public Health and Environment, Colorado Parks and Wildlife, El Paso County Conservation District, and El Paso County Community Services, Environmental Division were each sent a referral and have no outstanding comments.

The Master Plan for Mineral Extraction (1996) identifies upland deposits in the area of the subject parcels. A mineral rights certification was prepared by the applicant indicating that, upon researching the records of El Paso County, severed mineral rights exist. The mineral rights owner has been notified of the application and hearing date. Relevant policies are as follows:

Goal 2 – *Mining and mineral processing activities should be sited and operated such that adverse environmental impacts are reasonably minimized.*

Policy 2.4 – *Mineral extraction and/or processing operations should be internally designed so that off-site visual and other environmental impacts related to all aspects of the operation are reasonably minimized throughout the life of the activity.*

Policy 4.1 – *Mining activities should generally be allowed as Uses Permitted by Special Review in all County zone districts provided that the applicant can demonstrate that the proposed use is fully consistent with all applicable requirements and standards set forth in Sections 35.8 and 35.13 of the El Paso County Land Development Code.*

Policy 4.2 – *The applicant/operator should demonstrate that the proposed extraction activity is presently, and will reasonably be expected to be compatible with the stated primary purpose of the applicable zone district.*

Policy 4.7 – *Applications for mining or mineral processing should address and provide for reasonable mitigation of potential on and off-site impacts throughout the life of the operation. Potential impacts which should be addressed include, but are not limited to the following:*

- *traffic congestion safety and nuisance concerns*
- *potential damage to roads and bridges*
- *impacts to water supplies*
- *drainage and erosion control*
- *dust, noise and glare*
- *availability of emergency services*
- *site security and safety*
- *impacts to historic, archaeological, paleontological, and sensitive and/or unique natural features and ecosystems.*
- *noxious weeds*

The El Paso County Parks Master Plan (2013) does not identify any parks or trails in the vicinity of the subject property. Land dedication and fees in lieu of park land dedication are not required for a special use application.

Please see the Transportation Section below for information regarding conformance with the El Paso County 2016 Major Transportation Corridors Plan Update (MTCP).

G. PHYSICAL SITE CHARACTERISTICS

1. Hazards

The FEMA Flood Insurance Rate Map panel numbers 08041C0830G and 08041C0840G, which have an effective date of December 7, 2018 show the 100-year floodplain (Zone AE) of Black Squirrel Creek flowing through the property. The 100-year floodplain shall be shown on the subsequent site development plan and associated construction documents.

2. Floodplain

The FEMA Flood Insurance Rate Map panel numbers 08041C0830G and 08041C0840G show that a 100-year floodplain (Zone AE) flows through the site. A zero-rise certification letter has been submitted indicating that the proposed development will result in zero rise in the FEMA designated 100-year flood heights and no increase in the 100-year discharge at the published and unpublished cross-sections of the current FEMA floodplain. The developer will be responsible to obtain the necessary floodplain permits from Pikes Peak Regional Building Department prior to any construction within the floodplain.

3. Drainage and Erosion

The property is located within four drainage basins, Ellicott (CHBS1600), Ellicott Consolidated (CHBS1200), Crows Roost (CHBS1000) and Lower Big Springs Creek (CHBS1400). These drainage basins are unstudied basin with no associated drainage and bridge fees. Lower Big Springs Creek and Black Squirrel Creek traverse the site from north to south. A grading and erosion control plan as well as a drainage report providing hydrologic and hydraulic analysis to identify and mitigate drainage impacts of the development will be required at the site development stage.

4. Transportation

The property is located west of Baggett Road as well as north and south of Sanborn Road. Per the submitted traffic study, access for the first stage of development is proposed via Sanborn Road based on the approved deviation described in Section A above. It is anticipated that the applicant will request different access points with each stage of the development. Evaluation and approval by El Paso County will be required for each proposed access point.

The associated traffic study recommends off-site improvements consisting of corner radii improvements at the intersections of Baggett Road & Sanborn Road and Baggett Road & State Highway 94 to accommodate the haul vehicles that will travel along the proposed haul route. A Colorado Department of Transportation (CDOT) access permit will be required for the intersection of Baggett Road and State Highway 94.

The traffic study has also identified that the trip generation from the site will range from 44 average daily trips (ADT) at the onset of the development to a potential 110 ADT in the future as the site increases production. The increase in ADT along the proposed haul route may trigger the paving threshold identified in the El Paso County Engineering Criteria Manual (ECM) Section 2.2.7.B.2 which states “Existing roadways shall be paved where: Any development causes an existing gravel road to exceed a projected ADT of 200 (Note: the extent of paving will be determined by the ECM administrator based on the Transportation Impact Study [Section 2.2.3])”. The traffic study has provided an estimate in Table 5 of when certain sections of the haul route will exceed the paving threshold identified in the ECM. Details regarding the future paving along the haul route shall be provided within the haul route agreement between El Paso County and the developer.

The MTCP identifies 2040 roadway improvements to Sanborn Road along the property frontage. The MTCP indicates that Sanborn Road is to be improved from a Gravel Road to an Unimproved County Road. The MTCP identifies Unimproved County Roads as “collector or arterial roadways that have a paved surface but lack basic features such as turn lanes, shoulders, or adequate pavement surfaces or drainage”. Should Sanborn Road be paved by the developer due to the future increase in ADT then it may be eligible for reimbursement under the guidelines indicated in the El Paso County Colorado Road Impact Fee Implementation Document 2019.

The property is subject to the El Paso County Road Impact Fee program (Resolution 19-471), as amended.

H. SERVICES

1. Water

Water is provided by existing on-site well service.

2. Sanitation

Wastewater is provided by existing on-site wastewater treatment system (OWTS).

3. Emergency Services

The property is within the Ellicott Fire Protection District. The district was sent a referral and has no outstanding comments.

4. Utilities

Mountain View Electric Association (MVEA) provides electric service and Black Hills Energy (BHE) provides natural gas service to the property. MVEA has no outstanding comments and BHE did not provide a response.

5. Metropolitan Districts

The subject property is located within the boundaries of the Ellicott Metropolitan District. The district was sent a referral and did not provide a response.

5. Schools

Land dedication and fees in lieu of school land dedication are not required for a special use application.

I. APPLICABLE RESOLUTIONS

Approval Page 39
Disapproval Page 40

J. STATUS OF MAJOR ISSUES

One major issue is the impact the mineral and natural resource extraction operation is expected to have along the haul route. Section 5.10.3 of the Engineering Criteria Manual states a haul route agreement may be required for activities that are anticipated to cause extraordinary damage or accelerated deterioration to County roads. At this time the County does not have a standardized method for quantifying

the impacts that the heavier vehicles used by a mineral and natural resource extraction operation will have on gravel or paved roadways. The El Paso County Department of Public Works (DPW) has provided a proposal to the developer that outlines conditions and a haul route fee that would be included in the haul route agreement between the developer and El Paso County. The developer and staff have had multiple meetings regarding the haul route fee and have not come to an agreement. In the interim, Recommended Condition of Approval No. 3 has been included to enable the special use request to proceed to the Planning Commission and Board of County Commissioners hearings.

K. RECOMMENDED CONDITIONS AND NOTATIONS

Should the Planning Commission and Board of County Commissioners find that the request meets the criteria for approval outlined in Section 5.3.2 of the El Paso County Land Development Code (2019), staff recommends the following conditions and notations:

CONDITIONS

1. The special use shall be limited to the mineral and natural resource extraction operation as described in the applicants' letter of intent and as shown on the site plan. Any subsequent addition or modification to the mineral and natural resource extraction operation beyond that described in the applicants' letter of intent and as shown on the site plan shall be subject to administrative review, and if it is the opinion of the Planning and Community Development Department Director that it constitutes a substantial increase, then such addition or modification shall be subject to a new special use application.

2. Approval of a site development plan by the Planning and Community Development Department is required prior to the initiation of the use a mineral and natural resource extraction operation on the property.

3. Prior to the approval of the site development plan, the applicant shall enter into a haul route agreement with El Paso County for the special use. The haul route agreement shall identify the impacts on the County roads for this special use that will cause extraordinary damage or accelerated deterioration to County roads in accordance with the EPC ECM. The haul route agreement shall include requirements to address the following:

    a. Structural impacts to County Roads from the proposed use;

b. An annual payment amount (with possible initial impact payment) based on impacts to County roads from the proposed use and based upon actual annual site traffic counts;
c. Annual payment adjustments for applicable construction costs;
d. Provisions for the method and timing of payments;
e. An allowance for the required annual payment to be administratively adjusted by the County Engineer upon the adoption of a countywide haul route fee program by the El Paso County Board of County Commissioners.

NOTATIONS

1. Special use approval includes conditions of approval and the accompanying site plan and elevation drawings. No substantial expansion, enlargement, intensification or modification shall be allowed except upon reevaluation and public hearing as specified in the El Paso County Land Development Code.

2. The Board of County Commissioners may consider revocation and/or suspension if zoning regulations and/or special use conditions/standards are being violated, preceded by notice and public hearing.

3. If the special use is discontinued or abandoned for two (2) years or longer, the special use shall be deemed abandoned and of no further force and effect.

L. PUBLIC COMMENT AND NOTICE

The Planning and Community Development Department notified thirty-four (34) adjoining property owners on July 5, 2022, for the Planning Commission meeting. Responses will be provided at the hearing.

M. ATTACHMENTS

Vicinity Map
Letter of Intent
Site Plan
County/ESG Correspondence

El Paso County Parcel Information

PARCEL	NAME
2400000276	SCHUBERT RANCHES INC
2400000275	SCHUBERT GEORGE H

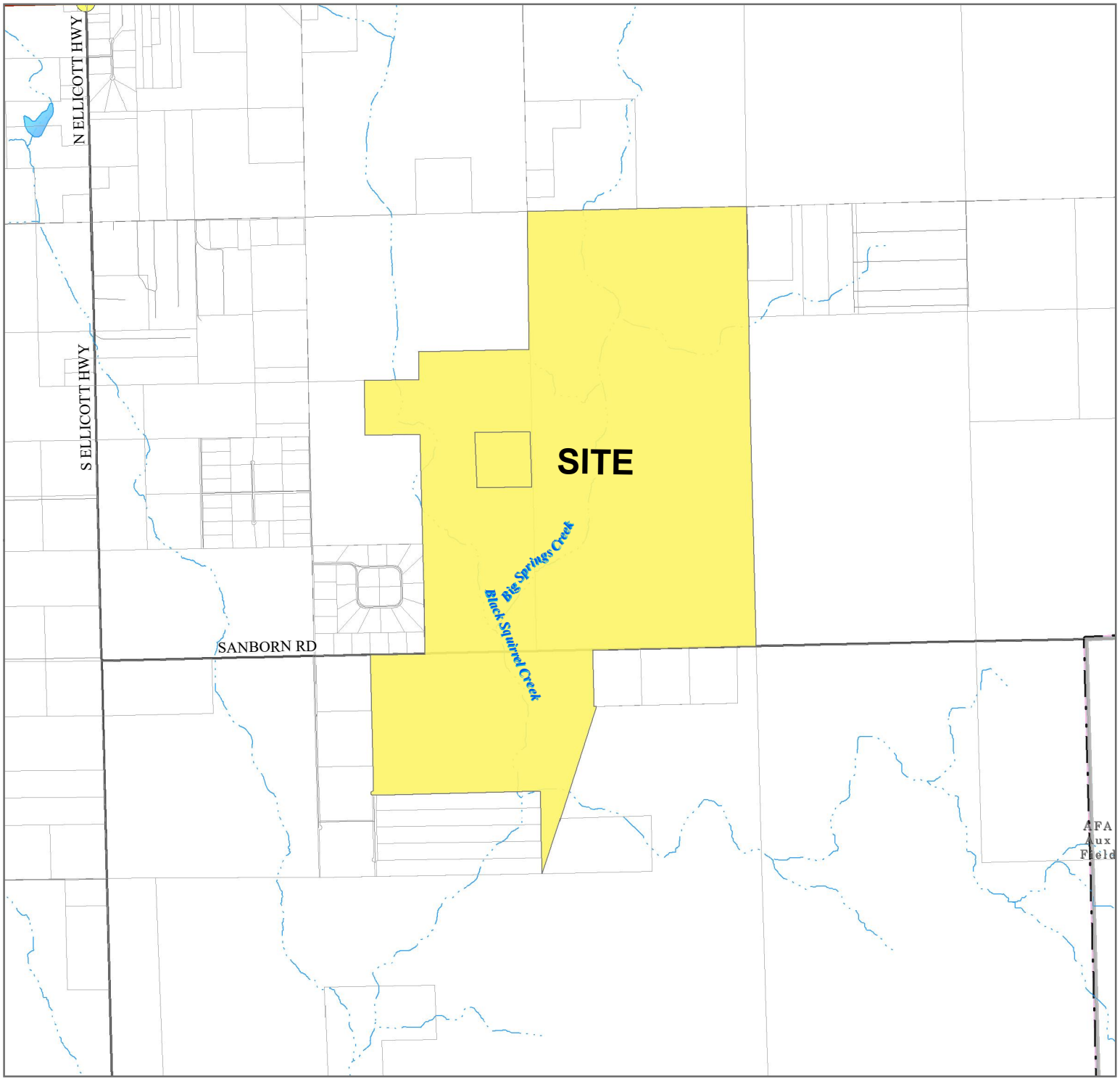
ADDRESS	CITY	STATE
1555 S BAGGETT RD	CALHAN	CO
1550 S BAGGETT RD	CALHAN	CO

ZIP	ZIPLUS
80808	7808
80808	7808

File Name: AL-20-014

Zone Map No.: --

Date: July 5, 2022



Please report any parcel discrepancies to:
El Paso County Assessor
1675 W. Garden of the Gods Rd.
Colorado Springs, CO 80907
(719) 520-6600

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RPM, Inc.

February 8, 2021

El Paso Planning and Community Development Department
Attn: Nina Ruiz, Project Manager
2880 International Circle, Suite 110
Colorado Springs, CO 80910

Re: Letter of Intent, EA Number, EA 1881, (Revised 2/8/2021)
Project Name: Ellicott Sand and Gravel Special Use, Schubert Ranch Sand Resources (Pit)
Applicant: Ellicott Sand and Gravel, LLC

Dear Ms. Ruiz,
Following is our Letter of Intent and the additional, required information for a Special Use Permit for the proposed Ellicott Sand and Gravel mining operation in eastern El Paso County known as the Schubert Ranch Sand Resource (Pit).

- Our Mineral Extraction Application is resubmitted as a separate document along with a resubmittal of all previous comments and responses and new comments and responses through 2/8/2021.
- Our response to the 11/25/2020 PCD, PM Letter of Intent Comments, is submitted in the response dated 2/8/2021 titled "Use and Dimensional Standards, Chapter 5: Date 2/8/2021". We chose to submit it as a separate document due to size.

"For all 'Letters of Intent', the following information is required:"

1. *"Owners/applicant and consultant, including address and telephone numbers."*
    - Parcel Owners:
        - Parcel No. 2400000276
            - ✓ Schubert Ranches Inc.
            - ✓ 1555 S. Baggett Rd., Calhan, CO 80808
            - ✓ Phone: (719) 683-2262
        - Parcel No. 2400000275
            - ✓ George H. Schubert
            - ✓ 1550 S. Baggett Rd., Calhan, CO 80808
            - ✓ Phone: (719) 683-2265
    - Consultants:
        - Environment, Inc.
            - ✓ Mr. Steve O'Brian - President
            - ✓ 7985 Vance Dr., #205A, Arvada, CO 80003

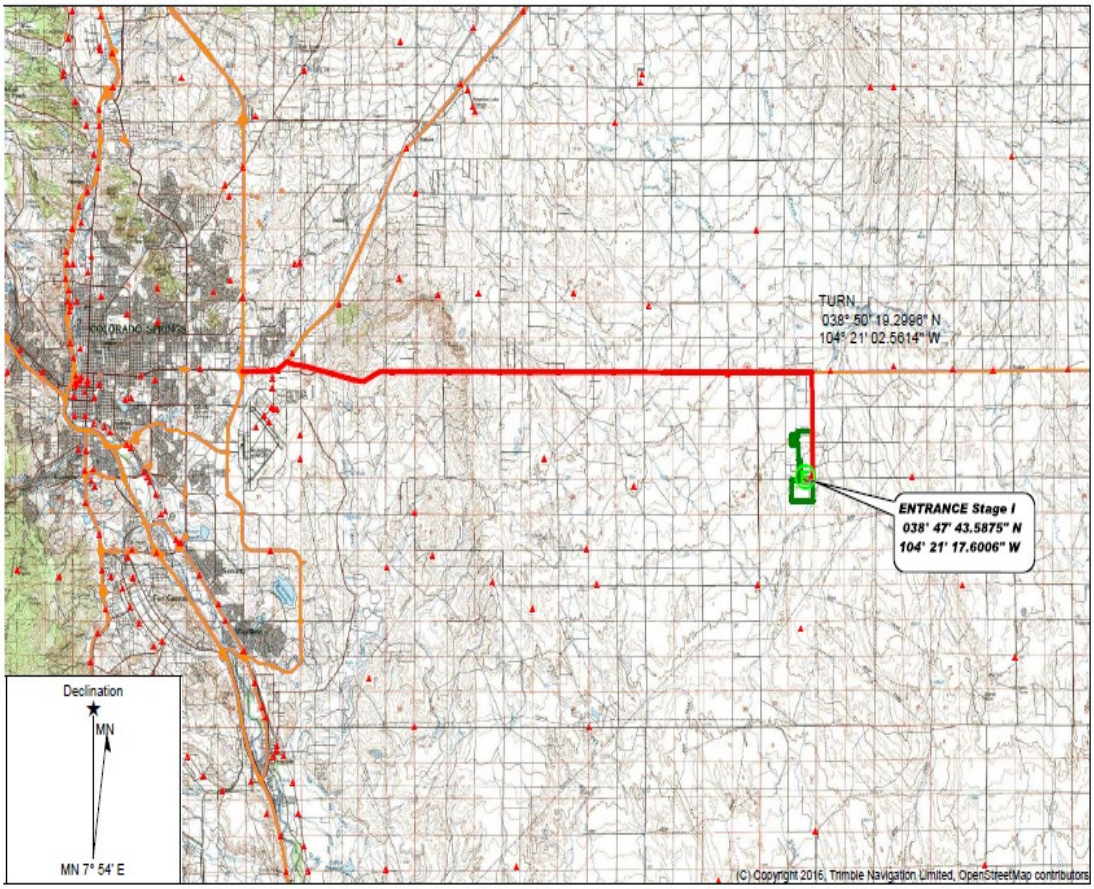
- ✓ (303) 423-7297

➢ Regulatory Permits Management, Inc
- ✓ Mr. H. Bruce Humphries – President
- ✓ 25049 E. Alder Dr., Aurora, CO 80016
- ✓ (303) 854-7499

➢ Applicant:
- ✓ Ellicott Sand and Gravel LLC
- ✓ Christine Wilson, Manager
- ✓ 235 Franceville Coal Mine Road, Colorado Springs, CO 80929
- ✓ (719) 568-3164
- ✓ ellicottsandgravel@gmail.com

2. *"Site location, size and zoning."*

- Site Location:
  The following two maps describe the location of the proposed mining operation.
  ➢ Area Map:



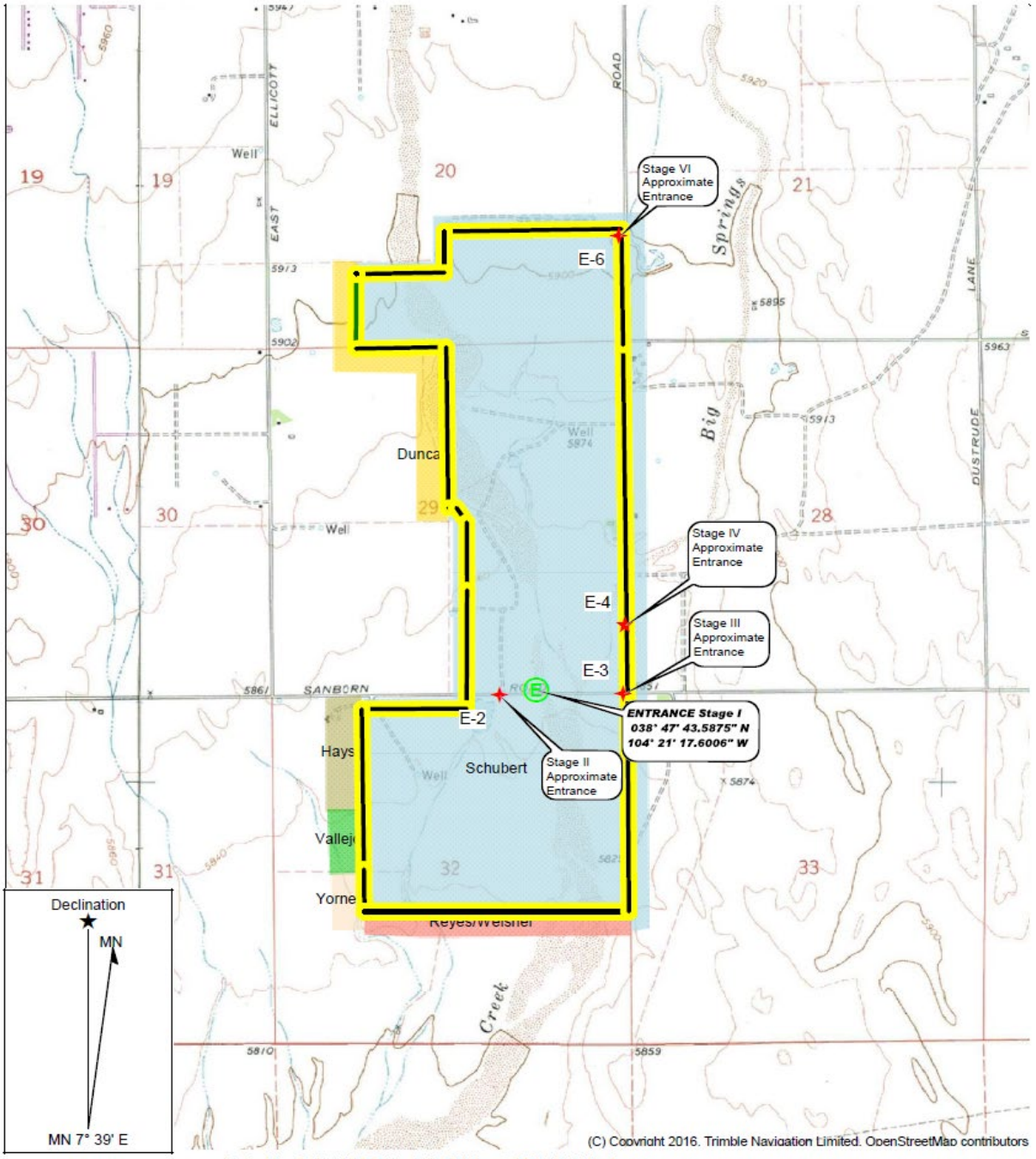
Quad. Name: PUEBLO (CO)
Date: 10/29/18
Scale: 1 inch = 20,000 ft.

Part of the S1/2N1/2SE1/4, S1/2SE1/4,and SE1/4SW1/4 of Section 20, and The E1/2E1/2 and NW1/4NE1/4 and parts of the SW1/4NE1/4, SW1/4SE1/4, and NW1/4SE1/4 of Section 29 and The E1/2NE1/4, SW1/NE1/4, & SE1/4NW1/4, and parts of the NW1/4NE1/4 & NE1/4NW1/4, Section 32, Township 14 South, Range 62 West, 6th P.M. El Paso County, Colorado
Containing 733.7 acres more or less.

ELLICOTT SAND AND GRAVEL LLC
SCHUBERT RANCH SAND RESOURCE
MAP EXHIBIT B1 - AREA MAP

RPM, Inc.

- Vicinity Map:



Quad. Name: BIG SPRINGS RANCH
Date: 03/03/20
Scale: 1 inch = 2,000 ft.

Part of the S1/2N1/2SE1/4, S1/2SE1/4,and SE1/4SW1/4 of Section 20, and The E1/2E1/2 and NW1/4NE1/4 and parts of the SW1/4NE1/4, SW1/4SE1/4, and NW1/4SE1/4 of Section 29 and The E1/2NE1/4, SW1/NE1/4, & SE1/4NW1/4, and parts of the NW1/4NE1/4 & NE1/4NW1/4, Section 32, Township 14 South, Range 62 West, 6th P.M. El Paso County, Colorado
Containing 733.7 acres more or less.

ELLICOTT SAND AND GRAVEL LLC
SCHUBERT RANCH SAND RESOURCE
MAP EXHIBIT B - VICINITY MAP

- Size and Zoning:
  - ✓ Parcel 2400000276 is approximatly 2,122.98 acres and is zoned A-35.
  - ✓ Parcel 2400000275 is approximately 40 acres and is Zoned A-35.
  - ✓ The actual acres to be used for mineral extraction is:
    - ❖ Parcel 2400000276 acres for mineral extraction are up to ± 479.8 acres.
    - ❖ Parcel 2400000275 acres for mineral Extraction are up to ± 33.7acres.
    - ❖

Phase	Est. Yrs.	Total Acres Available	Total Acres Mined
1	10-15	66.1	49.9
2	15-20	213.7	173.0
3	4-6	54.2	39.2
4	2-5	24.3	14.9
5	2-4	20.8	14.2
6	20-30	268.4	222.3
Other not mined	Life of Mine	220.2	
Total		733.7	513.5

3. *"Request and justification."*

- Request:
  - This is a request to El Paso County to approve a proposed open pit sand and gravel mining operation. The proposed mining operation is located approximately 3.1 miles southeast of Ellicott, Colorado. The site is currently used as irrigated agricultural land and rangeland. The Applicant/Operator is Ellicott Sand and Gravel LLC.
  - The subsurface consists of deep sand deposits up to 100-foot-deep and runs parallel to both sides of Black Squirrel Creek. The useable sand deposit is roughly 70 feet deep, however we have committed to stay 10 above the prevailing ground water elevation. Upon completion of mining, the pit floor will be sand. The remaining sand left in place will be up to 30 feet deep. The post mining interior pit slopes will be 3H:1V or less.
  - Of the ±733.7 acres in what will be the approved permit area, approximately ± 513.5 acres will be affected or mined by the proposed mining operation over the life of the project. As currently proposed, the operation will maintain a 150-foot setback from Black Squirrel Creek and a 25-foot setback from the approved permit boundary.

- The operation will extract sand and gravel with on-site processing as needed to size and wash the material in order to produce saleable products. The various grades of material will be placed into on-site stockpiles for loading into highway haul trucks for delivery to local markets.
- The post mining land use is proposed to be rangeland. The proposed reclamation has been designed to ensure the attainment of the post mining land use. In addition, the Operator will be required to post a financial warranty sufficient to ensure the implementation of the proposed site reclamation plan.

- Justification:
  - Presently, there is a shortage of high-quality sand and gravel products in the El Paso County area. The mining operation will help fill the need for the diminishing sources of sand and gravel.
    The proposed operation is intended to serve the El Paso County area needs for quality sand. The approximate distance from the proposed operation to the relative center of Colorado Springs, using existing major roadways is 27 miles. Based on the 1996 El Paso County Master Plan for Mineral Extraction (EPCMPME), sand transportation costs from the Ellicott Sand and Gravel, Sand pit would be approximately $2.70 per ton. (Does not consider inflationary increase from 1996 to present.)

    The "bulk to value" ratio for construction aggregate materials is high. This ratio typically increases with lower grade commodities, such as sand products. As the distance from the source to the ultimate point of use increases, the hauling costs also increase affecting the per-ton cost of the product. (Page 59, El Paso County Master Plan for Mineral Extraction, Feb8, 1996) Resource location, therefore, is essential in determining the commercial potential of a particular identified mineral deposit. (Page 4, El Paso County Master Plan for Mineral Extraction, Feb8, 1996)

    For example, based on the El Paso County Master Plan for Mineral Extraction (EPCMPME), the 1996 undelivered average cost per ton for pit sand and gravel…" "was", "… approximately $.35. The delivery cost per mile/ton, according to the EPCMPME is approximately $.10. per mile" The EPCMPME goes on to say the, "…transportation-related costs have the largest relative impact on the lowest (*value*) commodities…", (i.e. sand products). "A presumed future reduction in the number of aggregate sources in El Paso County will likely result in an increase in hauling costs." (Page 59, El Paso County Master Plan for Mineral Extraction, Feb8, 1996)

In addition, "Within approximately ten (10) years, (*from 1996*) in the absence of approved new operations or expansions, the County may be left with as few as one (1) permitted source of crushed stone quarry aggregates. (Page 4, El Paso County Master Plan for Mineral Extraction, Feb8, 1996)

According to the Colorado Division of Reclamation, Mining and Safety website, El Paso County has 16 permitted sand and gravel operations. Of that number, six are of less than 10 acres in size and may not be a significant source of sand. One operation is essentially a clay operation for providing other than sand and gravel. The Daniels Sand Pit #2 is responsible for 75% of the sand sold locally. (Page 49, El Paso County Master Plan for Mineral Extraction, Feb 8, 1996) However, it appears the Daniels Sand Pit #2 is nearing completion of mining given it has almost reached the limits of lands available for mining "land locked". (*The Ellicott Sand Pit has the potential to replace a significant portion of the existing sand resource as the existing resources in the El Paso County are depleted.*) Another site is also "land locked. Two sites are greater than 34 miles from Colorado Springs. One site is in final reclamation. The following operations appear to be able to provide sand product and are relatively close to the Colorado Springs market. It should be noted that even though these operations are currently providing sand product, given the lengths of time in operation, their useful life may be limited. These operations are:

Operation Name	DRMS Permit Number	Distance from Colo. Springs	Apparent Stats from DRMS Annual Report
Fountain Pit	M1982-155	10 miles	Appears to have additional area for mining
Midway Pit	M1988-018	18 miles	Began operations 8/2018, 25.35 permitted acres
Fountain Colony Pit	M1987-171	10 miles	May be close to final limits of the approved permit

Sundance S & G Resource	M2006-073	18 miles	It appears mining has not yet begun, based on the DRMS Annual Report

Note: *Green boxes indicate possible source of sand product. Note, operation M2006-073 has not yet begun mining operations according to the DRMS Annual Report. At the present time, it appears only two operations are available for production of sand product and closer than the proposed Ellicott Sand Pit. The third potential operation's DRMS Annual Report indicates production is not planned for next year.*

According to Table 1 of the El Paso County Master Plan for Mineral Extraction, Feb 8, 1996, page 26, the 2020 estimated tons of aggregated needed in El Paso County will be 5,390,000 tons/year.

The proposed mining operation is being reviewed by various State agencies and branches of local and County government. State agencies include the Colorado Department of Public Health and Environment, (Air and Water Quality Control Divisions), the office of the State Engineer, History Colorado, Colorado Division of Parks and Wildlife, The Colorado Department of Transportation, the Local Board of the Soil Conservation Service, your own El Paso County Agencies and the Colorado Division of Reclamation, Mining and Safety. We are committed to meeting the State and local government environmental health and safety requirements.

4. *"Existing and proposed facilities, structures, roads, etc."*
   - Existing Facilities, Structures and Roads:
     - Facilities and Structures:
       - ✓ Facilities – Ranch buildings, center pivot irrigation to include water wells and electrical support equipment, overhead power lines, buried phone lines
       - ✓ Structures – fences
     - Various interior ranch roads, Sanborn +-Road
5. *"Waiver Requests (if applicable) and justification."*
   - At this point we do not see a need for filing a Waiver Request.

6. *"The purpose and need for the change in zone classification."*
   - According to the Zoning Table at the Planning Department webpage, a parcel zoned A-35 may be used for "Mineral and Natural Resources Extraction Operations, Commercial" through the Special Use process. Therefore, there does not appear to be

a need to rezone the two parcels provided the non-agricultural use is approved through the Special Use process.

- Once mining is complete, the site will be returned to non-irrigated rangeland. (This statement was not in the original Letter of Intent submittal.)

7. *"The total number of acres in the requested area."*
   The total number of acres in the area requested for the mining operation is ± 733.7 acres. The total available acres in the two parcels where the proposed mining operation is to be located, is ± 2,162.9.

8. *"The total number of residential units and densities for each dwelling unit type."*
   This provision is not applicable since this is to be a mineral extraction operation. The post mining land use is rangeland/wildlife habitat.

9. *"The number of industrial or commercial sites proposed."*
   The mineral extraction operation is to be conducted in six separate stages of mining. The following table is an estimate of the stage time periods. Please note the table is an estimate only since the rate and duration of mining is dependent on market demand:

Phase	Est. Yrs.
1	10-15
2	15-20
3	4-6
4	2-5
5	2-4
6	20-30

10. *"Approximate floor area ration of industrial and/or commercial uses."*
    The total area available for extraction minus roads and areas which will not be mined is ± 513.5 acres.

11. *"The number of mobile home units and densities for each dwelling unit type."*
    This requirement is not applicable. The only mobile unit on-site may be a portable scale and mobile trailer for a site office.

12. *"Typical lot sizes: length and width."*
    This requirement is not applicable. There will be no lots. Rather there will be mining phases. The size of each phase is as follows:

Phase	Total Acres Available	Total Acres Mined
1	66.1	49.9
2	213.7	173.0
3	54.2	39.2
4	24.3	14.9
5	20.8	14.2
6	268.4	222.3
Total	733.7	513.5

13. *"Type of proposed recreational facilities."*
    This requirement is not applicable as this is a mineral extraction operation and is not open to public use during mining and site reclamation. The post mining land uses are rangeland and wildlife habitat. In addition, it is private land and not open to public use.

14. *"If phase construction is proposed, how will it be phased."*
    There will not be any phased construction since this is a mining operation. The mining phases will be as follows (Item 15 below), with phase reclamation shortly following each mining phase. There may be operational considerations which may delay all or portions of a phase for subsequent phase reclamation. However, upon completion of mineral extraction, all phases and areas of incomplete reclamation will be reclaimed.

15. *"Anticipated schedule of development."*
    Mineral extraction will be done in phases. Each phase of extraction will be essentially completed prior to the start of the next phase. Prior to the completion of a phase of extraction, topsoil and some level of overburden removal and stockpiling will be necessary in order to prepare the next phase for mineral extraction. In addition, interior mine roads may need to be constructed in each new phase prior to actual mineral extraction in a new phase. The anticipated schedule of mineral extraction (development) may be as follows:

Phase	Est. Yrs.
1	10-15
2	15-20
3	4-6
4	2-5
5	2-4
6	20-30
Total Est.	51 – 80 Yrs.

16. "How water and sewer will be provided."

- Water:
  - Process and dust control water:
    The estimated water use for material processing and fugitive dust control is 12.0-acre feet per year. No water will be used for site reclamation.
  - Potable water will either be purchased locally or obtained from on-site domestic ground water wells.
- Sewer:
  No sewer or septic system will be provided for human waste. Instead, portable toilets and solid waste disposal containers will be provided. These units will be serviced and disposed off-site by commercially available providers.

17. "Proposed uses, relationship between uses and densities."

This requirement is not applicable since this is a proposed mineral extraction operation. The post mining land uses will be rangeland and wildlife habitat.

18. "Areas of required landscaping."

At this point, we do not anticipate including what would be defined as "landscaping". The mining operation has proposed a reclamation plan to the Colorado Division of Reclamation, Mining and Safety. That plan will include the replacement of salvaged topsoil onto regraded and/or backfilled slopes, seedbed preparation and seeding an approved perennial grass and shrub seed mix. The proposed post mining land use will be rangeland and wildlife habitat.

19. "Proposed access locations."

Currently, the point of access for Phase 1 will be off Sanborn Road, between East Ellicott Road South and South Baggett Road. The mine access coordinates are:

38° 47' 43.5875" N
-104° 21' 17.6006" W

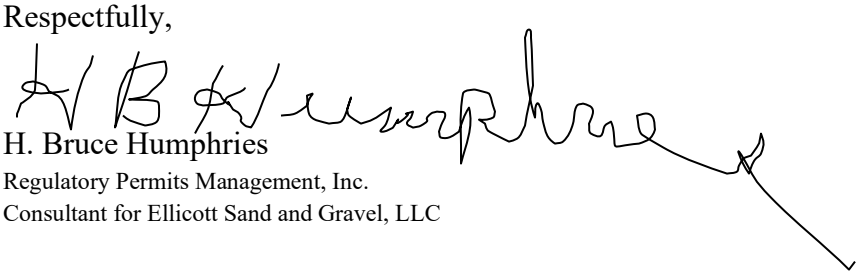
The location of the entrance is expected to change as new phases of the proposed mineral extraction are initiated. Prior to the modification and use of access road locations, the appropriate state and local authorities will be contacted and appropriate permits and authorizations obtained.

20. "Approximate acres and percent of land to be set aside as open space, not to include parking, drive, and access roads."

This requirement is not applicable since the entire area once mining is complete will be reclaimed to rangeland and wildlife habitat. Some mining related and previously exiting roads will be left for use for the landowner's ranching operations.

- Note: In a comment sent to us, we were asked to include the Use and Dimensional Standards in the Letter of Intent. Due to the size of the document, we are providing the response to this comment as a separate document. It is titled, "Use and Dimensional Standards, Chapter 5: Date 2/8/2021."

Respectfully,



H. Bruce Humphries
Regulatory Permits Management, Inc.
Consultant for Ellicott Sand and Gravel, LLC

The following is being added on 6/24/2022 based on an email from EPC PD. The document was sent to the EPC PD around 2/8/2021 as a separate document.

Use and Dimensional Standards, Chapter 5:
Response Date: 2/8/2021

"Chapter 5 – Use and Dimensional Standards"

- *"5.1.2 Types of Uses and Limit on the Number of Uses per Lot or Parcel*
  - *"…Only one principal use is allowed per lot or parcel, except in the A-35 zoning district …where more than one principal use may be established subject to the requirements and limitations of this Code, or where special use approval or variance of use approval has authorized additional use…"*
  - Response:
    - ✓ The use we are requesting, by way of this Special Use Application, is a Mineral and Natural Resource Extraction Operations, Commercial.
    - ✓ According to the above section of the EPC Code, 5.1.2, more than one use may be allowed in the two Parcels (2400000276 and 2400000275) which are zoned A-35, agriculture. The proposed mineral extraction

will permit area is approximately 733.7 acres of the Parcel's total acreage, 2,162.98 acres.

- *"5.3.2 Special Use*
  - *(B) Applicability – No special use application shall be considered unless the underlying land is located within a particular zoning district which allows the proposed special use."*
  - Response:
    - ✓ According the El Paso County records, the two parcels upon which the proposed mineral extraction operation is to be located are zoned A-35, agriculture.
    - ✓ According to Table 5-1, Principal Uses, Mineral and Natural Resource Extraction Operations, Commercial, are allowed in parcels zoned A-35.

- *"The special use is generally consistent with the applicable Master Plan;"*
  - Response:
    - ✓ We believe the following referenced document demonstrates the proposed mineral extraction operation is "generally consistent" with the Master Plan.
    - ✓ Please see the document titled "Master Plan V2 Redlines, 11/25/2020, PCD Project Manager: Response Date: 1-16-2021"

- "*The special use will be in harmony with the character of the neighborhood, and will generally be compatible with the existing and allowable land uses in the surrounding area;"*
  - Response:
    - ✓ The proposed use will be temporary and will return the proposed use, mineral extraction, to the previous use, agriculture. To be specific, non-irrigated agriculture.
    - ✓ With the exception of a small residential development to the west of the proposed mineral extraction operation, the surrounding uses are agriculture.

- *"The impact of the special use does not overburden or exceed the capacity of the public facilities and services, or,*
  - Response:

- ✓ As we stated in or Mineral Extraction Application, other than fire protection and availability of an ambulance and the local sheriff, there should be no need for any other "public facilities or services".
- ✓ The Ellicott Fire Protect District had no significant concerns with the proposed project. The minor concerns they did have, we understand have been addressed, to their satisfaction.

- *"in the alternative, the special use application demonstrates that it will provide adequate public facilities in a timely and efficient manner."*
  - ➢ Response:
    - ✓ We anticipate no additional "public facilities" or services will be required, as the result of the proposed mineral extraction operation.

- *"The special use will not create unmitigated traffic congestion or hazards in the surrounding area, and"*
  - ➢ Response:
    - ✓ We believe the "Traffic Impact Report" and follow up responses demonstrates the level of operational traffic generated will be under the 200-vehicle limit trigger. Therefore, there should be no need to provide traffic mitigation at this time. (Please see the Traffic Report for details, sent as a separate document.)

- *"has adequate, legal access.*
  - ➢ Response:
    - ✓ The proposed mineral extraction operation will consist of a number of Stages. As the mining is completed in a Stage, the mining operation will move to the next Stage. Therefore, some Stages may use the same access point or require a unique access point. We therefore intend to obtain the appropriate "driveway permits" from the County as necessary.
    - ✓ Each access point will be designed to accommodate highway haul trucks. As part of the "driveway permit(s)" submitted to the County, we will supply all required documents necessary for the County to review and approve the access point driveways as they are needed.

- *"The special use will comply with all applicable local,*
  - ➢ Response:
    - ✓ We believe with the submittal of the El Paso County Planning Department required document, and addressing all local agency comments, we are in

compliance with all applicable local rules and regulations and licenses and permits.

- *"state,"* (licenses, permits, rules and regulations)
  - Response:
    - ✓ We have committed to supply a copy of the DRMS/MLRB approved permit upon approval of the SUP/Development Plan applications and issuance of the DRMS/MLRB permit.
      - ❖ We have received DRMS/MLRB application approval and have supplied proof of the approved application.
      - ❖ For the permit to be issued by the DRMS/MLRB, we only need to submit the Financial and Performance Warranties.
    - ✓ We have committed to supply copies of the Air Quality Control Division's Air Quality Permit(s) upon approval of the SUP/Development Plan Applications. We laid out the steps necessary for the issuance of the Air Quality Permit in the document titled, "Impact Mitigation Analysis V2 Redlines, 11/25/2020, PCD Manager: Response Date: 1-15-2021".
    - ✓ We received comments from the Office of the State Engineer/Division of Water Resources. We believe we have adequately addressed their comments dated July 1, 2020, and December 8, 2020.
      - ❖ Our responses may be found in the document titled, "Colorado Division of Water Resources, 12/8/2020.
    - ✓ Water quality issues are addressed in our approved DRMS/MLRB permit application.
      - ❖ The DRMS/MLRB application we submitted covered both surface and ground water potential issues. The DRMS reviewed our responses to their surface and ground water regulations.
        - o Request for comments were sent to the Colorado Department of Public Health and Environment, Water Quality Control Division.
        - o They did not comment on the DRMS/MLRB application we submitted.
      - ❖ Based on our responses to Division's rules and regulations and comments, the DRMS approved the application package, which included protection to the quality and quantity of both surface and ground water.
    - ✓ Solid waste and asbestos, lead based paint and water quality issues were addressed in the following submittal to the EPC Planning Department:
      - ❖ "Colorado Department of Public Health and Environment Comments, Solid Waste, Water Quality, Asbestos and Lead Based Paint Date: 11/10/2020, Response to Comments, Date: 12/6/2020."

- ✓ Light pollution should not be an issue since no nighttime mineral extraction activities will occur. We will operate only during daylight hours.
- ✓ Noise pollution was addressed in our document titled "Impact Mitigation Analysis" submitted to the EPC Planning Department on 3/11/2020.

- *"The special use will not otherwise be detrimental to the public health, safety and welfare of the present or future residents of El Paso County;"*
  - Response:
    - ✓ We believe we meet the conditions of the above approval criteria for the following reasons:
      - The proposed mineral operation is of limited duration and will be reclaimed to a post mining land use of non-irrigated rangeland, an agricultural use.
      - Once the SUP application and the Development Plan are approved, the required reclamation plan financial and performance warranties will be posted with the State of Colorado.
      - Therefore, future residents should not suffer detrimental public health, safety or welfare issues.
    - ✓ We believe the proposed mineral extraction operation will not be detrimental to the public health, safety and welfare for the present residents.
      - We have shown, in the various submittals to El Paso County we meet this condition based on the following:
        - The DRMS/MLRB approval of the permit application documents demonstrate the proposed mineral extraction operation should not violate the MLRB rules and regulations which are intended to protect human health, property and the environment.
        - Mineral extraction operations may not begin until the appropriate Air Quality Control Division, Air Quality Permit and its requirements are in place. The Air Quality Permit(s) are intended to mitigate potential fugitive dust. impacts.
        - Are stated intent to comply with the Colorado Department of Human Health and Environment, Water Quality Control Division rules and regulations demonstrate our proposed mineral extraction operations should not negatively impact surface or ground water quality.
        - Our stated intent to comply with the Division of Water Resources rules and regulations demonstrate our proposed mineral extraction operation should not negatively impact adjacent water rights or other such issues.

- With approval of the SUP permit and Development Plan, the remaining protections, not covered by State agencies rules and regulations, are covered by the El Paso County rules, regulations and ordinances.

- *"The special use conforms or will conform to all other applicable County rules, regulations or ordinances"*
  - Response:
    - ✓ With approval of the Special Use Permit and Development Plan, we understand El Paso County will have found the proposed mineral extraction operation "conforms" to all applicable County rules, regulations and ordinances.

- *"(E) Performance Guarantees and Financial Assurance.*
  - *Sufficient performance guarantees and financial assurance may be required to ensure implementation of and compliance with the conditions imposed. The terms or any required guarantees and financial assurance shall be made part of a development agreement.*
  - Response:
    - ✓ Since this is a mineral extraction operation and not a commercial or residential development, we suggest this provision does not apply.
    - ✓ In addition, under the terms of the DRMS/MLRD application approval, the permittee must post a DRMS determined Financial Warranty, sufficient to complete mine site reclamation.
    - ✓ Further, the permittee must also execute a Performance Warranty which legally requires the permittee to complete site reclamation.

- ***"5.2.31. Mineral and Natural Resource Extraction:***
  (A) Commercial Mineral and Natural Resource Extraction Operations.
  (3) General Requirements.
  (a) Compliance with this Section. In addition to compliance with the special use permit standards, any other applicable requirements of this Code and any conditions imposed by the BoCC, a commercial mineral and natural resource extraction operation shall also comply with the standards, requirements and conditions required by this Section."
    - Response:
      - ✓ We <u>do not intend to NOT comply</u> with the applicable Federal, State or El Paso County rules, regulations, licenses or permits.

"(b) Valid Mining Permit Required. A commercial mineral and natural resource extraction operation shall have a valid mining permit from the Colorado Mined Land Reclamation Board prior to beginning or expanding operations and during the entire period of operation."

- Response:
  - ✓ As a condition of the SUP approval, we agree to provide the County a copy of our issued Mined Land Reclamation Board (MLRB) permit.
  - ✓ We would like to point out the above County Code does not require we provide the MLRB permit as a requirement prior to County approval of the SUP/Development Plan. Rather it says to us that we must provide a, "…valid mining permit…prior to beginning or expanding operations…".

"(c) Written Notice of Filing for Permit with MLRB. Written notice of the filing of an application for a reclamation permit or renewal of an existing mining permit to the Colorado Mined Land Reclamation Board shall be provided to the PCD by the applicant concurrent with the placement of a copy of the application or renewal for public inspection at the office of the Clerk and Recorder in accordance with C.R.S.§ 34-32-112(10)(a)."

- Response:
  - The DRMS "Completeness Letter" that the application is considered filed.

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman St. Room 215
Denver, CO 80203

December 14, 2018

Perry Hastings
Ellicott Sand & Gravel LLC
235 Franceville Coal Mine Road
Colorado Springs, CO 80929

Re: Schubert Ranch Sand Resource, File No. M-2018-063
Receipt of 112c Construction Materials Reclamation Permit Application

Dear Mr. Hastings:

On December 14, 2018, the Division of Reclamation, Mining and Safety received your 112c Construction Materials Reclamation Permit application for the Schubert Ranch Sand Resource, which is located in El Paso County. All comment and review periods began on December 14, 2018. The decision date for your application is scheduled for March 14, 2019.

Newspaper publication of a notice (published once a week for four consecutive weeks) regarding the filing of your application and transmittal of a copy of the notice to all owners of record of surface and mineral rights, holders of any recorded easements, and all owners of record of lands that are within 200 feet of the boundary of the affected land is required within 10 days of submittal. You must submit proof of the notice and mailings, such as Certified Mail Return Receipt Requested, to the Division prior to the decision date.

The Division is reviewing your application to determine whether it is adequate to meet the requirements of the Act. We will contact you if additional information is needed. Any changes or additions to the application on file in our office must also be reflected in the public review copy which has been placed with the El Paso County Clerk and Recorder.

Please be reminded that all operators must contact the Colorado Department of Health, Water Quality Control Division regarding storm water permits.

If you have any questions, please contact me.

Sincerely,

Timothy A. Cazier
Environmental Protection Specialist

M-AP-04

1313 Sherman St. Room 215 Denver, CO 80203 P (303) 866-3567 F
John W. Hickenlooper, Governor | Robert W. Randall, Executive Director | Virginia Brannon, Director

- Response: Proof of notice to the El Paso County Clerk and Recorder:

"(d) Proof of Publication Required. The applicant shall provide copies of the proof of publication of any notice required by C.R.S. § 34-32-112 (10)(b) to the PCD."

- Response:
  - Proof of Publication:

RPM, Inc.

ELLICOTT AND AND GRAVEL LLC.
PROOF OF PUBLICATION
FBRUARY 15, 2019

SCHUBERT RANCH SAND RESOUTCE
MLRB- M-2018-056

THE EL PASO COUNTY ADVERTISER AND NEWS,
FOUNTAIN, COLORADO 80817
STATE OF COLORADO

ss.

COUNTY OF EL PASO

I, Karen M. Johnson, do solemnly swear that I am General Manager of the El Paso County Advertiser and News, that the same is a weekly newspaper printed, in whole or in part, and published in the County of El Paso, state of Colorado, and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said county of El Paso for a period of more than 52 weeks next prior to the first publication of the annexed notice and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado.

That copies of each number of said paper in which said notice and list were published were delivered by carriers or transmitted by mail to each of the subscribers of said paper for a period of **4** consecutive insertions, once each week, and on the same day of each week; and that first publication of said notice was in the issue of said newspaper dated **Dec. 19**, A.D. **2018** and that the last publication of said notice was in the issue of said newspaper dated **Jan. 9**, A.D. **2019**.

Karen M. Johnson
General Manager

Subscribed and sworn to before me, a notary public in and for the County of El Paso, State of Colorado, this **9th** day of **Jan.** A.D. **2019**

Marianne McBride
Notary Public

MARIANNE MCBRIDE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20084034113
MY COMMISSION EXPIRES SEPTEMBER 30, 2020

PUBLIC NOTICE -
PUBLISHED NOTICE OF APPLICATION FILING FOR
A REGULAR (112) CONSTRUCTION MATERIALS RECLAMATION PERMIT

The Ellicott Sand and Gravel, LLC, 235 Franceville Coal Mine Road Colorado Springs, C
80929, has filed an application for a Construction Materials Regular 112 Reclamation Per
with the Colorado Mined Land Reclamation Board under provisions with the Colorado Min
Land Reclamation Act for extraction of Construction materials. The proposed mine is kno
as the Schubert Ranch Gravel R esource. (Permit # M-2018- 063 and is located in or near t
SW¼ of Section 20; E½ of Section 29 and parts of the S½ of Section 32, T-14-S, R-62-W
the 6th P.M., El Paso County, Colorado.

The date of commencement will be September 2018 the proposed date of completion
December 2048. The proposed future use of the land is rangeland.

Additional information and a tentative decision date may be obtained at the Division
Reclamation, Mining & Safety, 1313 Sherman Street, Rm 215, Denver, Colorado 80203, (30
866-3567, or at the office of the El Paso County Clerk and Recorder, 1675 West Garden
the Gods Rd., Suite 2201
Colorado Springs, CO 80907.

Written comments to the application must be received at the office of the Mined La
Reclamation Division no later than 4:00 p.m. on the 29th day of January, 2018.

*Please note that comments related to noise, truck traffic, hours of operation, visual impac
effects on property values and other social or economic concerns are issues not subject
this Office's Jurisdiction. These subjects and similar ones, are typically addressed by lo
local governments, rather that the Division of Reclamation, Mining & Safety or the Mined La
Reclamation Board.*

Ellicott Sand & Gravel LLC
Colorado Springs, Colorado

Publication Dates:
First: December 19, 2018
Second: December 26, 2018
Third: January 2, 2019
Fourth: January 9, 2019
Published in the El Paso County Advertiser and News

"(e) Comply with Construction Permit and Erosion and Sediment quality Control Permit. Mineral and natural resource extraction operations shall comply with ECM and any required permits."

- Response:
  - We <u>do not intend to NOT comply</u> with the applicable El Paso County rules, regulations, licenses or permits.

"(4) Local Approval and State of Colorado Discharge Permits. Approval of a special use permit does not relieve the applicant from compliance with discharge requirements of the State of Colorado.

- Response:

- As stated in our responses to the Colorado Department of Public Health and Environment, Water Quality Control Division (CDPHE, WQCD), we will comply with all applicable CDPHE, WQCD Rules and Regulations and necessary permits.

"(B) Additional Standards. A mineral and natural resource extraction operation shall, in addition to meeting the special use standards, demonstrate conformance with the following standards:"

"(1) Consistent with the Master Plan. The operation shall be consistent with the Master Plan for the Extraction of Commercial Mineral Deposits."

- Response:
  - We believe we have demonstrated in the submitted document titled, "Master Plan V2 Redlines, 11/25/2020, PCD Project Manager, Response Date: 2/8/2021" that we will meet the Master Plan's Goals, Policies, and Proposed Actions which are applicable to our proposed mineral extraction operation.

"(2) No Adverse Long-Term Visual Impacts. The operation shall have no adverse long-term visual impact either from adjacent properties or major transportation corridors."

- Response:
  - We do not foresee any, "…adverse long-term visual impact…from adjacent properties or (from) major transportation corridors."
  - Once mining and reclamation operations are complete, the site will be returned to non-irrigated rangeland which will reduce the traffic load to the area. Returning the site to non-irrigated rangeland will return the visual and traffic impacts to pre-mining conditions in terms of visual impacts and traffic impacts.

"(3) Reclaimed to a Compatible Use. The land on which the operation is located shall be reclaimed to a use and character compatible with the surrounding uses and zoning." "Please site what the future use of the site will be after mining is complete in further detail, will vegetation measures be taken if so what are those measures?" (From 11/25/2020 PCD PM Letter of Intent Comments.)

- Response:
  - ✓ The post mining land use will be non-irrigated rangeland. Since the existing use is agriculture, zoned 35-A, the post mining land use should be compatible with the existing use.
  - ✓ The site reclamation measures will include:

- Backfilling and grading to a 3H:1V slope or less.
- Replacement of up to 6 inches of plant growth material.
- Seed to the DRMS/MLRB, site specific, approved seed mix.
- Apply a weed free straw mulch based on the DRMS/MLRB approved permit specifications.
- Noxious weed control as needed and as specified in the DRMS/MLRB approved permit.

"(4) Operation to Result in Efficient Use of Resources. The operation shall result in an efficient use of the mineral deposit."

- Response:
  - ✓ The response is from the Mineral Extraction Application, 11/21/2019, previously submitted:
    - According to the Natural Resources Conservation Service soil survey for the proposed mining operation, the sand resource is considered "**Fair**". Excerpts from the soil survey, "Description – Sand Sources" describe the proposed minable sand as follows:
    - "Sand is a natural aggregate (0.05 millimeter to 2 millimeters in diameter) suitable for commercial uses with a minimum of processing. (Emphasis added) It is used in many kinds of construction."
    - "The properties used to evaluate the soil as a source of sand are gradation of grain size (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments."
    - The soils are rated "good," "fair," or "poor" as potential sources of sand. A rating of "good" or "fair" means that sand is likely to be in or below the soil."
    - The available drill logs further confirm the site has a sand and gravel resource of considerable depth. The following water well, well logs, illustrate the extent of the sand and gravel resource on the proposed mine site. Based on the three well logs taken across the property, the sand and gravel resource, excluding contaminants such as clay, shale, and sandstone) vary in extent from 56 feet to 88 feet of actual thickness. (The depth of the in-place resource varies in depth from 77 feet to 100 feet and includes interbedding of clay, shale, and sandstone.) The "contaminates" will be removed at the on-site processing facility and disposed on-site as part of the reclamation process.

RPM, Inc.

WR-66-72

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK.

COLORADO DIVISION OF WATER RESOURCES

101 Columbine Bldg., 1845 Sherman St.
Denver, Colorado 80203

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 6969-F

RECEIVED JUN 1973 WATER RESOURCES STATE ENGINEER COLO

WELL OWNER Schubert Ranches Inc. S-W ¼ of the S-E ¼ of Sec. 20

ADDRESS RT-2 Calhan, Colo. T. 14 S, R. 62 W, 6th P.M.

DATE COMPLETED May, 1973

WELL LOG

From	To	Type and Color of Material	Water Loc.
0	2	top Soil	
2	8	sand gravel	
8	12	Clay	
12	26	Sand gravel	
26	32	Clay	
32	82	Sand + gravel	
82	100	Sand + gravel (Cerro)	
100	102	Clay + Shale	

TOTAL DEPTH 102

Use additional pages necessary to complete log.

HOLE DIAMETER

36" in. from 0 to 102 ft.

_____ in. from _____ to _____ ft.

_____ in. from _____ to _____ ft.

CASING RECORD: Plain Casing

Size 16" & kind Steel from 0 to 59 ft

Size _____ & kind _____ from _____ to _____ ft

Size _____ & kind _____ from _____ to _____ ft

Perforated Casing

Size 16 & kind Steel from 59 to 102 ft

Size _____ & kind _____ from _____ to _____ ft

Size _____ & kind _____ from _____ to _____ ft

GROUTING RECORD

Material Clay

Intervals 0 - 25

Placement Method Poured

GRAVEL PACK: Size 9/16

Interval _____

TEST DATA

Date Tested May, 197

Static Water Level Prior to Test 34 ft

Type of Test Pump Turbine

Length of Test 24 hrs.

Sustained Yield (Metered) 840

Final Pumping Water Level Bottom

RPM, Inc.

WELL LOG 6971-FP

From	To	Type of Material	Water Loc.
0	2	top soil	
2	8	Clay	
8	25	sand & gravel Rock	
25	33	sand gravel J	
33	37	sand gravel & clay	
37	45	sand gravel	
45	53	Clay	
53	77	sand gravel	
77	78½	shale	

Use additional paper if necessary to complete log.

WELL DATA

Type Drilling Reverse Rotary

HOLE DIAMETER:

32 in. from 0 ft. to 78½
____ in. from ____ ft. to ____
____ in. from ____ ft. to ____

CASING RECORD

Plain Casing

Size 16, kind Steel from 0 ft. to 38½
Size ___, kind ____ from ____ ft. to ____
Size ___, kind ____ from ____ ft. to ____

Perforated Casing

Size 16 kind Steel from 38½ ft. to 78½
Size ___, kind ____ from ____ ft. to ____
Size ___, kind ____ from ____ ft. to ____

GROUTING RECORD

Material ____
Intervals ____
Placement Method ____

GRAVEL PACK RECORD

Size 9/16 to 3/4 Interval ____

TEST DATA

Date Tested May 69
Type of Pump Turbine
Length of Test 24 hrs
Constant Yield 600
Drawdown 40

WELL DRILLER'S STATEMENT

The undersigned, being duly sworn, deposes and says: he is the driller of the well hereon described; he has read the statement made here knows the content thereof, and the same is true of his own knowledge.

X J. R. Hamaker

License No. 71

State of Colorado, County of Elbert) ss

Subscribed and sworn to before me this 15 day of February, 1971

My Commission expires Dec 6, 1970. Bonnie Delores Hamaker
Notary Public

RPM, Inc.

WRJ-25-72

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK.

COLORADO DIVISION OF WATER RESOURCES
101 Columbine Bldg., 1845 Sherman St.
Denver, Colorado 80203

RECEIVED
JUL 11 72
WATER RESOURCES STATE ENGINEER COLO.

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 9642-FP

WELL OWNER Buddy B. Babcock NE ¼ of the NW ¼ of Sec. 32

ADDRESS R#2 Calhan, Colo. T. 14 S, R. 62 W, 6th P.M.

DATE COMPLETED 2-18, 1972

HOLE DIAMETER

30 in. from 0 to 96 ft.

_____ in. from _____ to _____ ft.

_____ in. from _____ to _____ ft.

CASING RECORD: Plain Casing

Size 16" & kind Tarred from 0 to 56 f

Size _____ & kind _____ from _____ to _____ f

Size _____ & kind _____ from _____ to _____ f

Perforated Casing

Size 16" & kind Steel from 56 to 96 f

Size _____ & kind _____ from _____ to _____ f

Size _____ & kind _____ from _____ to _____ f

GROUTING RECORD

Material 9

Intervals _____

Placement Method _____

GRAVEL PACK: Size 9/16

Interval _____

TEST DATA

Date Tested 2-19, 19 7

Static Water Level Prior to Test 29 f

Type of Test Pump Turbine 24

Length of Test 24

Sustained Yield (Metered) 480

Final Pumping Water Level Bottom

WELL LOG

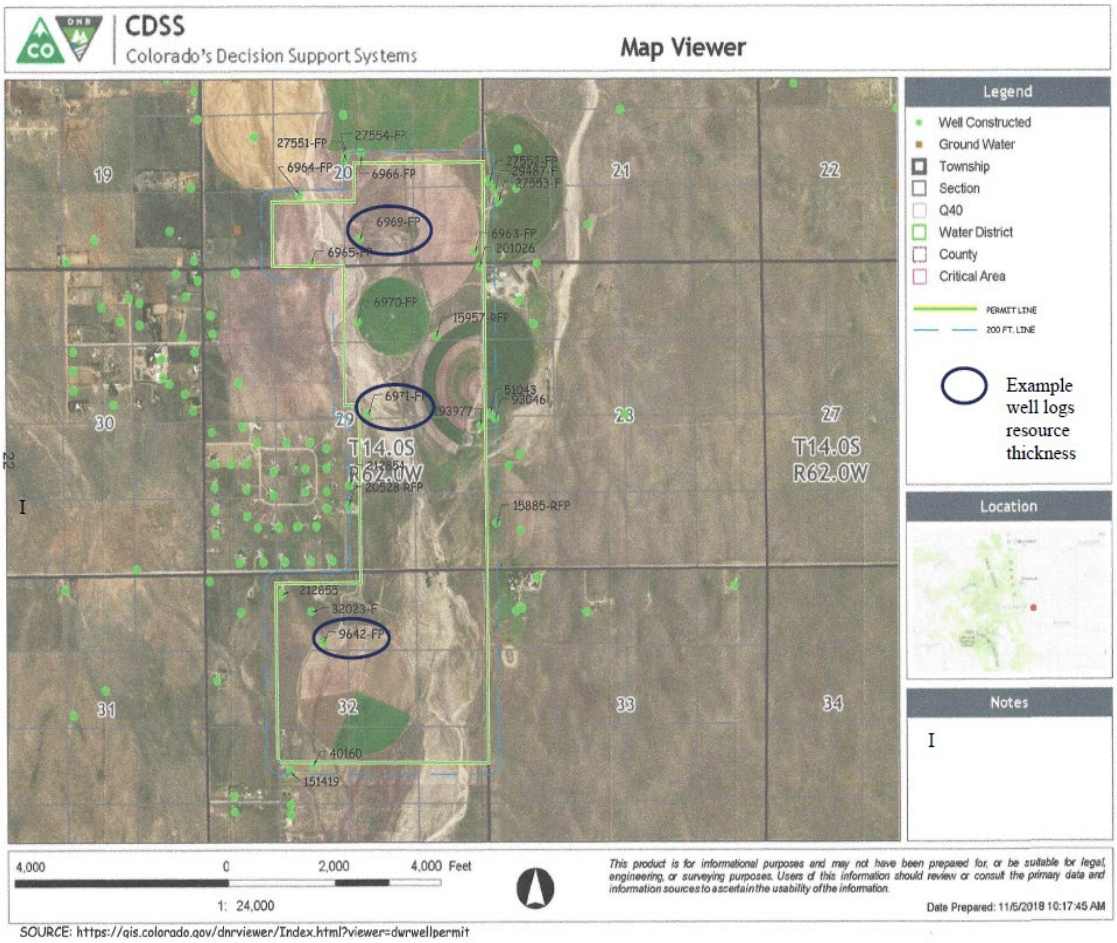
From	To	Type and Color of Material	Water Loc.
0	2	top Soil	
2	9	Sand & gravel	
9	11	Clay	
11	15	Sand & Gravel	
15	23	Sand Stone	
23	39	Sand med. fine	
39	45	Clay	
45	60	Sand & gravel & Rock	
60	71	Sand & Gravel	
71	74	Sand gravel Rock	
74	94	Sand gravel Corr's	
94	96	Shale	

TOTAL DEPTH 96

Use additional pages necessary to complete log.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Bijou loamy sand, 1 to 8 percent slopes	26.5	3.6%
6 Sand	Bijou sandy loam, 0 to 3 percent slopes	52.9	7.3%
28 Fair	Ellicott loamy coarse sand, 0 to 5 percent slopes	406.4	55.7%
78 Fair	Sampson loam, 0 to 3 percent slopes	96.2	13.2%
95	Truckton loamy sand, 1 to 9 percent slopes	31.7	4.3%
97	Truckton sandy loam, 3 to 9 percent slopes	12.4	1.7%
101 Fair	Ustic Torrifluvents, loamy	101.3	13.9%
106	Wigton loamy sand, 1 to 8 percent slopes	2.0	0.3%
Totals for Area of Interest		**729.4**	**100.0%**



Map of water well logs to illustrate depth of resource.

"(5) Disturbance of Sensitive Environment Limited. The operation shall not substantially disturb uniquely sensitive environmental features including but not limited to wetlands, riparian habitats, wildlife habitats, threatened or endangered species habitat, high priority land for conservation, and rare or unusual natural features."

- Response:
  - ✓ The response is from the Mineral Extraction Application, 11/21/2019, previously submitted:
    - ❖ The approved Reclamation Plan, Exhibit E and wildlife statement, states, "The mining and reclamation plans consider existing wildlife conditions and final reclamation will not change the area for wildlife use. The mining and reclamation plans allow for the safety and protection of wildlife remaining on the mine site, at the processing site

and along all access roads to the site. In general, we have found there is little long-term disturbance to native wildlife species around gravel mining operations. The big game species tend to use mining sites and newly vegetated areas after operations have stopped for the day. The smaller species tend to move to undisturbed areas."

- *Wetlands, Riparian Habitat, Wildlife Water Habitat:*
  "No dredging takes place at this facility, there are no temporary siltation structures involved in this operation and no mining will be done in a river or waters of the United States.
  - A U.S. Army Corps of Engineers Permit is not required for this operation because no wetlands will be disturbed based on a statement from the Army Corps of Engineers, Ellicott Sand &Gravel LLC – Schubert Ranch Resource M-2-18-063 – Adequacy Response 01, from Environment, Inc., to Mr. Timothy A. Cazier, P.E. DRMS:

U.S. Army Corps of Engineers (rec. 1/23/19)
The letter refers information requests to the Albuquerque District but noted that placing dredged or fill into waters of the US will require a 404 permit. No dredge or fill material will be placed in waters of the US nor will wetlands be impacted, as none exist on the site. All mining and reclamation activities will remain outside the normal flow channel and/or above the ordinary highwater line of both Black Squirrel Creek and Big Spring Creek. We have met with Tony Martinez from the Pueblo office to delineate the OHW and will avoid placing fill or mining in the OHW of Black Squirrel Creek or Big Spring Creek. If a 404 permit is required it will be obtained prior to any activity commencing.

- Retention ponds may be constructed on the site to collect stormwater before it leaves the site.
- No stormwater will be retained for more than 72 hours and then only after it meets water quality standards. These ponds will be removed when an area is reclaimed." (Ellicott Sand and Gravel, DRMS approved Permit Application.)
- *Evaluation of Impacts on the 100 Year Flood Plain:*
  Please See Attachment III in the previously submitted Mineral Extraction Application. Omitted here due to size.

- *Threatened or Endangered Species Habitat:*

- "Review of the Conservation Status Handbook for El Paso County indicates that the proposed permit area does not lie in any of the listed Critical Habitat areas of El Paso County, and we find no list of endangered or threatened species for the area around or on the permit area. No raptor nests were observed on the mine during site inspections and in discussion with the landowner they do not remember any being present in the past."
- "Prior to opening an area for mining, Ellicott Sand & Gravel will make observations of the new area to determine if there are raptors using the site as active hunting areas, overnight roost site or nesting sites. If any are observed, the Colorado Springs Office of the Colorado Parks and Wildlife (CPW) office will be contacted to confirm the observations and advise Ellicott Sand & Gravel on what actions should be taken to avoid disrupting the sites during nesting times. Ellicott Sand & Gravel will then take the appropriate actions to prevent disturbance to the nest or roost site. If raptor use occurs or is observed after mining activities have commenced on an area, then CPW will be contacted to advise actions that can be worked out to operate the mine without completely abandoning the site for long periods of time." (Ellicott Sand and Gravel, DRMS approved Permit Application.)

❖ *High Priority Land for Conservation and Rare or Unusual Natural Features:*

- To the best of our knowledge, there are no "High Priority Land for Conservation" or "Rare or Unusual Natural Features".
- From the approved DRMS Permit Application:

EXHIBIT H

WILDLIFE STATEMENT.

. The Colorado Springs office of the Colorado Department of Parks and Wildlife (CDPW) was contacted around July 26, 2018 about supplying a Wildlife Statement for this permit application and declined to comment at this time on the grounds that they do not provide the service as described in Rule 6.8.4(1).

- "The site is mostly grassland and developed agricultural areas with some ephemeral creek bed running down the central part of the site. The only trees of any significance are located on or around

the farmyards, on the parcel. There are a few shrubs and scattered small trees on the southern end of the area. Wildlife resources on the affected lands are limited by the existing ground cover consisting of seasonal grasses, shrubs, and weeds. Ground cover in this area averages 25% or less, with some areas having little or no cover, only exposed sand."

- "Not a lot of wildlife have been observed on the area. Usually, it consisted of larger mammals such as deer and antelope that use travel corridors over the area. Some small game species and birds have been observed. Wildlife expected to be found on the property may include deer, antelope, small rodents and mammals, and songbirds. There are no known threatened or endangered species on the property."

- "Existing wildlife in the area is not expected to be significantly impacted by mining at this site. Temporary and permanent losses of food and habitat is not expected to be significant as the area of disturbance will be limited to less than 10% of the permit area at any given time. Haul road speed limits will be limited to 15 MPH or less." (Ellicott Sand and Gravel, DRMS approved Permit Application.)

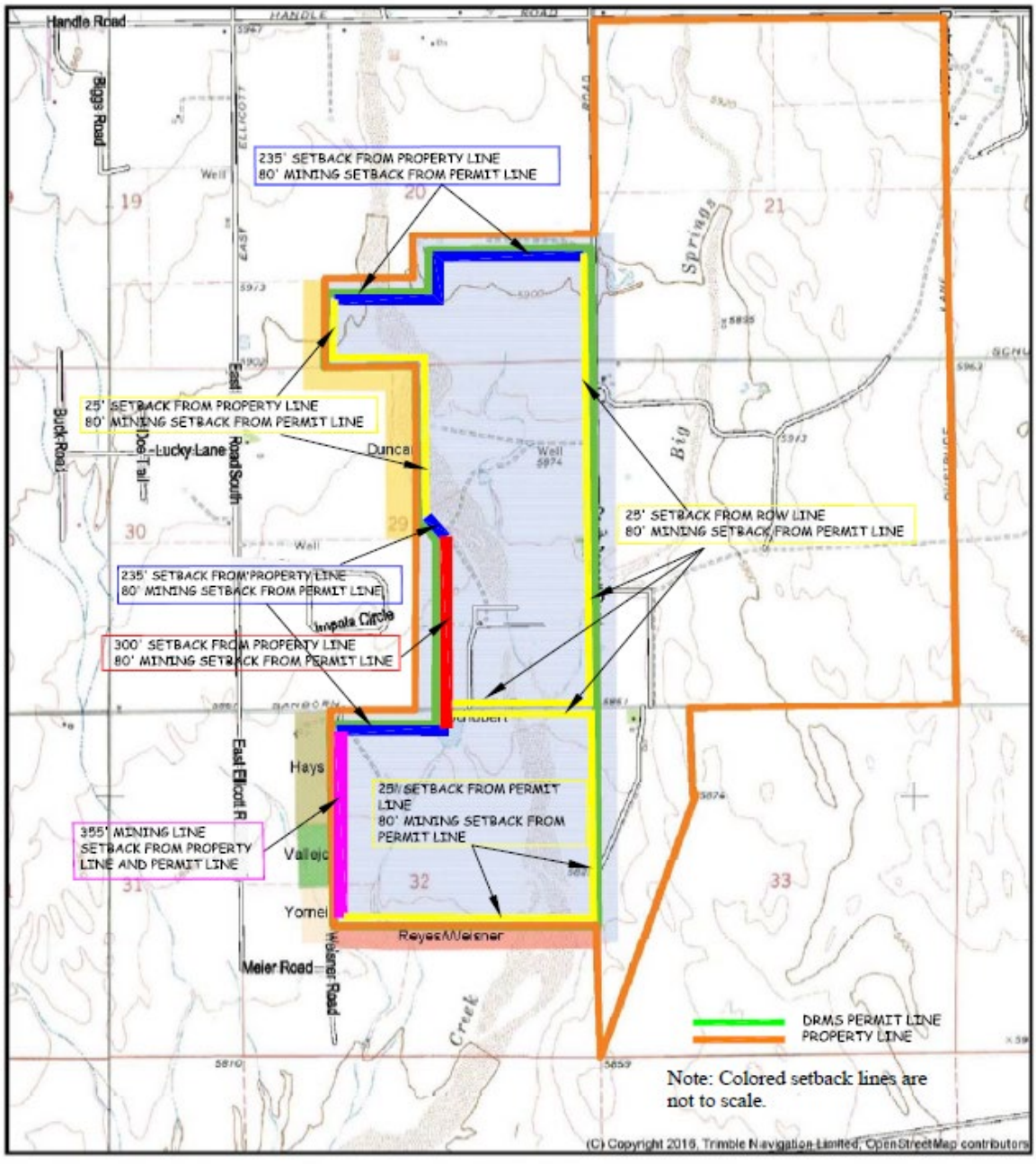
"(6) Disturbance of Historic Resources Limited. The use shall not substantially disturb identified historical, archaeological, or paleontological sites.

- Response:
  - ✓ The response is from the Mineral Extraction Application, 11/21/2019, previously submitted:
    - ❖ A review of the Division of Reclamation, Mining and Safety electronic files indicates that "History Colorado" has not yet provided comments on the proposed operation. (As of 10/14/2019) To the best of the Applicant's knowledge, no historic resources are within the limits of the proposed operation.
    - ❖ As required by C.R.S. 24-80 (Part 13), we will follow the requirements of this Statute, should human remains be "discovered" during our mining and reclamation operations. In addition, if human remains are discovered, the El Paso County Sheriff will be contacted.

- ❖ It is our understanding, given the proposed mining operation is on private lands, cultural resource inventories are not required under State Statute.

"(7) Buffering Required. The site and associated special use operations shall be adequately buffered from surrounding properties and uses."

- ➢ Response:
  - ✓ The response is from the Mineral Extraction Application, 11/21/2019, previously submitted:
  - ✓ The permit boundary is proposed to be setback from the Schubert Ranch property boundary by at least 200 feet. The following map illustrates the property line setback around the perimeter of the permit boundary and is from "ESG County Plot Plan, PCD Project Manager, 11/25/2020, Response date 2-8-2021" which also addresses this item in more detail.



Quad. Name: BIG SPRINGS RANCH
Date: 02/16/21
Scale: 1 inch = 2,000 ft.

Part of the S1/2N1/2SE1/4, S1/2SE1/4,and SE1/4SW1/4 of Section 20, and The E1/2E1/2 and NW1/4NE1/4 and parts of the SW1/4NE1/4, SW1/4SE1/4, and NW1/4SE1/4 of Section 29 and The E1/2NE1/4, SW1/NE1/4, & SE1/4NW1/4 and parts of the NW1/4NE1/4 & NE1/4NW1/4, Section 32, Township 14 South, Range 62 West, 6th P.M. El Paso County, Colorado
Containing 733.7 acres more or less.

ELLICOTT SAND AND GRAVEL LLC
SCHUBERT RANCH SAND RESOURCE
MAP EXHIBIT 1 - SETBACK MAP

Property Setback Map

"(8) Water Supply Adequate for Operations and Reclamation Uses. Adequate water supplies shall be available for drinking, dust control, landscaping, general operations and effective reclamation. Proof of approved water supply shall be provided to PCD."

"It is unclear if you are planning on drilling a well OR bringing water in from outside sources. If you are planning on drilling a well, we would need to be stated and proof of water rights need to be submitted. If you are bringing in outside water in, we would need you to identify the location and size of cisterns. PCD would also need to add a condition of approval to the project of cisterns and would need record of receipts. (This comment is from 11/25/2020 PCD PM Letter of Intent Comments.)

- Response:
  - ✓ The following response is modified from the Mineral Extraction Application, 11/21/2019, response previously submitted.
    - ❖ From the Ellicott, DRMS Permit Application, Page 20, Exhibit G. "We estimate water use at the mine, including, dust control will require 12.0 ac-ft per year." It will be purchased from a local commercial water provider which has water permitted for industrial uses. (Please see additional response to this comment, below.)
    - ❖ No on-site drilling of new wells will be done. No on-site wells are proposed to be used at this time. If, in the future, on-site wells will be needed, we will permit that use through the Department of Water Resources.
    - ❖ As stated in the "Colorado Division of Water Resources, DWR Comment Date: 7/1/2020,12/8/2020, Response Date: 2/8/2020", response to comments; "The source of water needed for processing and fugitive dust control will likely be Tim Kunan Drilling, 23945 Lucky Lane, Calhan, Colorado."
    - ❖ No water will be used for reclamation, nor will the revegetation areas be irrigated." (Ellicott Sand and Gravel, DRMS approved Permit Application.)
    - ❖ Potable water will either be purchased locally or obtained from on-site domestic ground water wells. A total of 6 employees will be on-site at any one time.

"(9) Mitigation of Impacts to Adjacent Properties. Adverse impact from vibration, noise, glare, blowing or flowing materials, or odors shall be mitigated to ensure minimal impacts to adjacent properties and travelers."

- Response:

- ✓ **Vibration Impacts:**
  - ❖ There are two potential sources of vibration impacts, blasting and operational equipment, such as dozers, backhoes, and crushers.
    - o No blasting will occur at the proposed operation.
    - o The ground vibration from tracked equipment is minimal since the substrate will be sand. The sandy nature of the site will absorb vibration from such equipment.
  - ❖ The processing will not include any large crushing equipment. The crushing which may occur on-site, will use a typical sand and gravel crusher and screening system. Little vibration is transmitted from the equipment to the ground. Since the substrate is sandy, it will absorb most vibration.
- ✓ **Noise Impacts:**
  - ❖ Mining operations create noise from several sources, to include haul trucks, excavation equipment, and processing equipment. Safety related sources of noise include backup alarms or horns, required by Federal mine safety regulations.
  - ❖ Noise Mitigation Practices, includes but are not limited to:
    - o Hours of operation: The proposed mining operation will only operate from 7 am to 7 pm, six days per week, as needed. (Only during daylight hours within that timeframe and as demand for product dictates.)
    - o Placement of topsoil stockpiles may be used to reduce noise and visual impacts.
    - o Once the initial pit cut is achieved, operations may be moved below the surface elevation into the active pit. Relocation into the operational pit will help reduce operational noise and visual impacts.
    - o The highway haul trucks point(s) of access will be away from residential areas and will help reduce the noise impact. (Please see the Mine Plan Map which shows the point of access, Stage 1, mid-way along Sanborn Road, well away from the housing development on the west side of the proposed mining operation.

- ✓ **Glare Impacts:**
  - ❖ This is proposed to be a daytime mining operation. Therefore, no operational lighting is needed.

- ❖ If night operations should be needed, we will return to the County to properly address operational lighting needs and impacts.

✓ **Blowing or Flowing Materials, or Odor Impacts:**

- ❖ We do not anticipate impacts from materials which might produce odors. This is a sand and gravel operation which will use water in its processing facility. In addition, we will secure portable toilets for use on-site. A commercial provider will service the portable toilets on a regular basis. In addition, the site will be gated to prevent illegal dumping.
- ❖ There should not be any "flowing materials". It is true the fine sands and reject fine soil may flow somewhat. Material movement will be contained within the active pit for each Stage.
- ❖ Fugitive dust is the primary air pollutant. We will have, in-place, a fugitive dust control plan as part of our air quality permit.
  - o Fugitive dust control plans may include periodic watering to control fugitive dust from the roads and spray controls (as may be needed) for the crushing and screening operations, etc.
  - o It should be noted, the pit roadways will be sand, or sand and gravel which should prevent significant generation of fugitive dust.
  - o In addition, the mined material will have some level of entrained moisture which will help control fugitive dust

"(10) Commercial Mineral Deposit Required. A commercial mineral deposit as defined by State Statute shall exist on the land on which the operation will be located."

➢ Response:

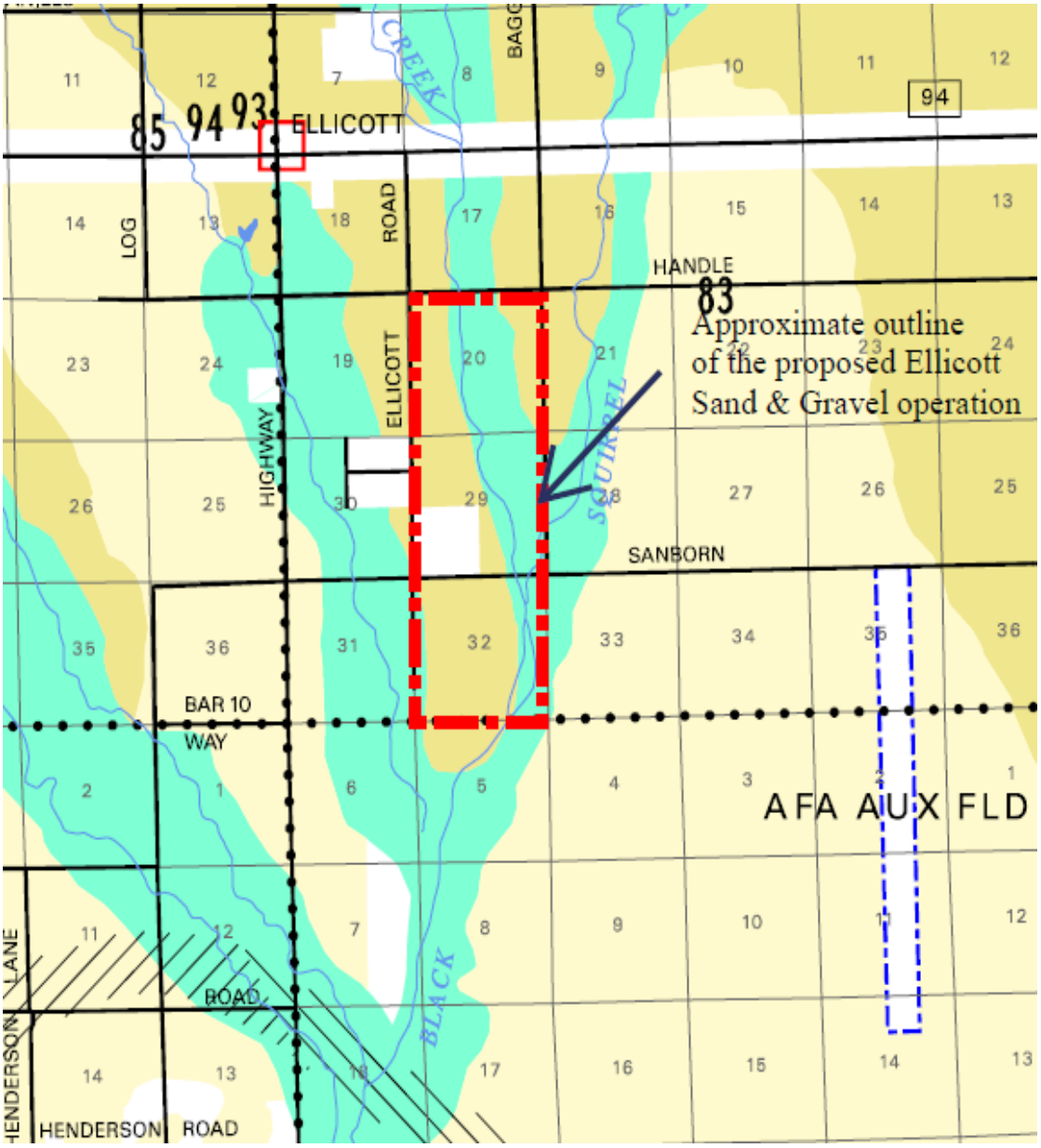
✓ The following was originally submitted as part of the Mineral Extraction Application.

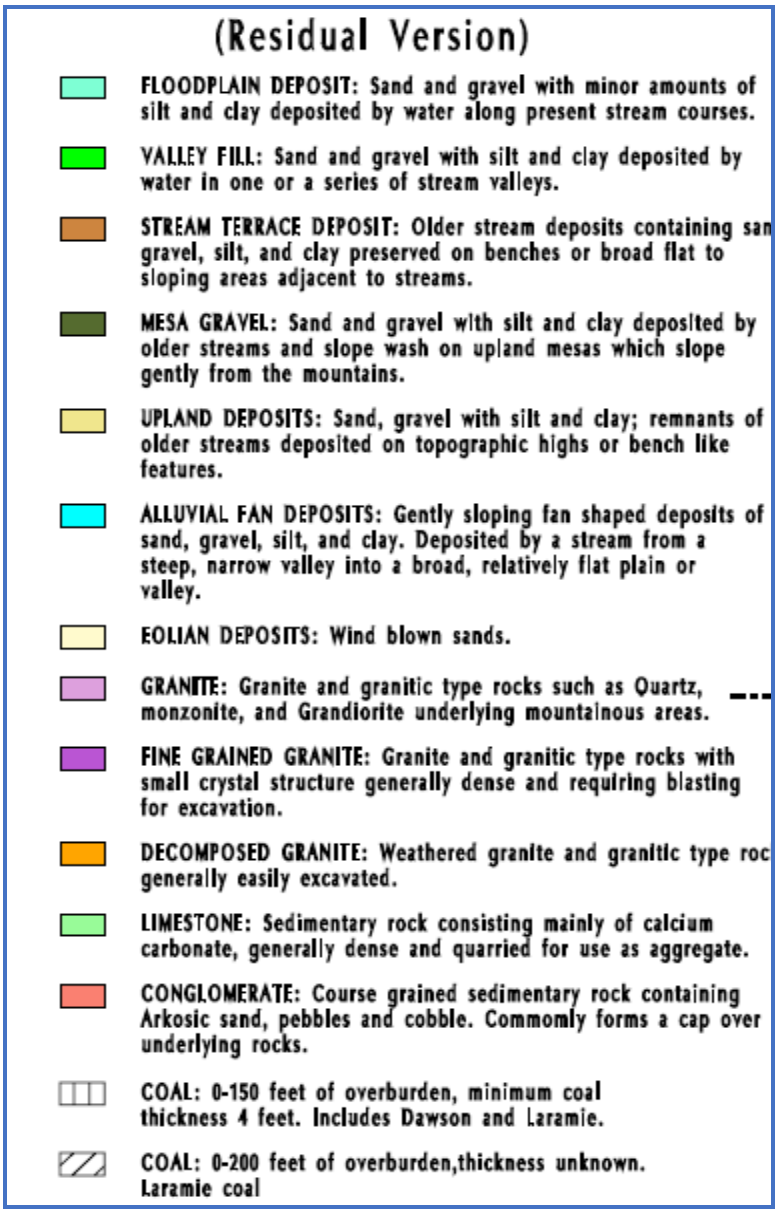
✓ C.R.S. 34-1-302(1) "'Commercial mineral deposit' means a natural deposit of … sand, gravel…for which extraction by an extractor is or will be commercially feasible and regarding which it can be demonstrated by geologic, mineralogic, or other scientific data that such deposit has significant economic or strategic value to the area, state ..."

✓ Based on the following from the Ellicott Valley Comprehensive Plan, the proposed sand and gravel operation should fit nicely within the Ellicott Valley Comprehensive Plan Position Statement, "The Valley is ultimately capable of providing many of the elements necessary to support

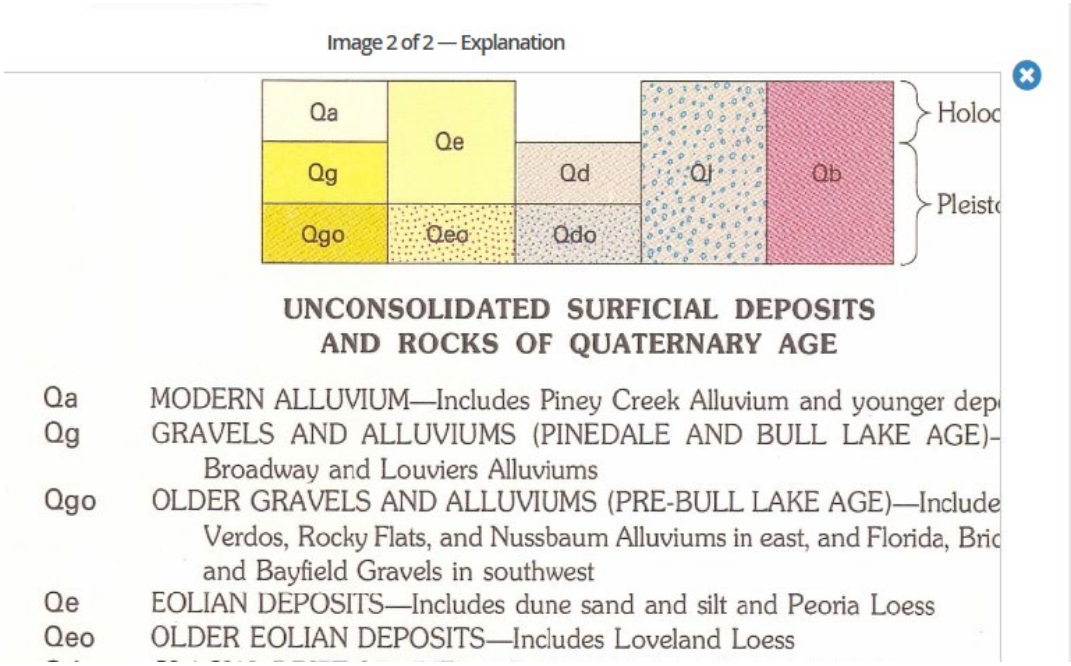
residential, commercial, and industrial development. It is the intention of the plan to promote the Valley as the location for one or more *self-sustaining* (emphasis added) satellite communities which will be complementary to the existing metropolitan area." A regional source of aggregate will be an important asset to the area development.

- ✓ The following information from the USGS Geologic Map of Colorado illustrates the potential of the deposit as a commercial sand and gravel deposit. Also shown is the El Paso County Resource Evaluation, Map 3:


ELLICOTT
HANDLE
SANBORN
BAR 10 WAY
HENDERSON ROAD
HIGHWAY
ELLICOTT ROAD
LOG
BLACK SQUIRREL CREEK
AFA AUX FLD
Approximate outline of the proposed Ellicott Sand & Gravel operation

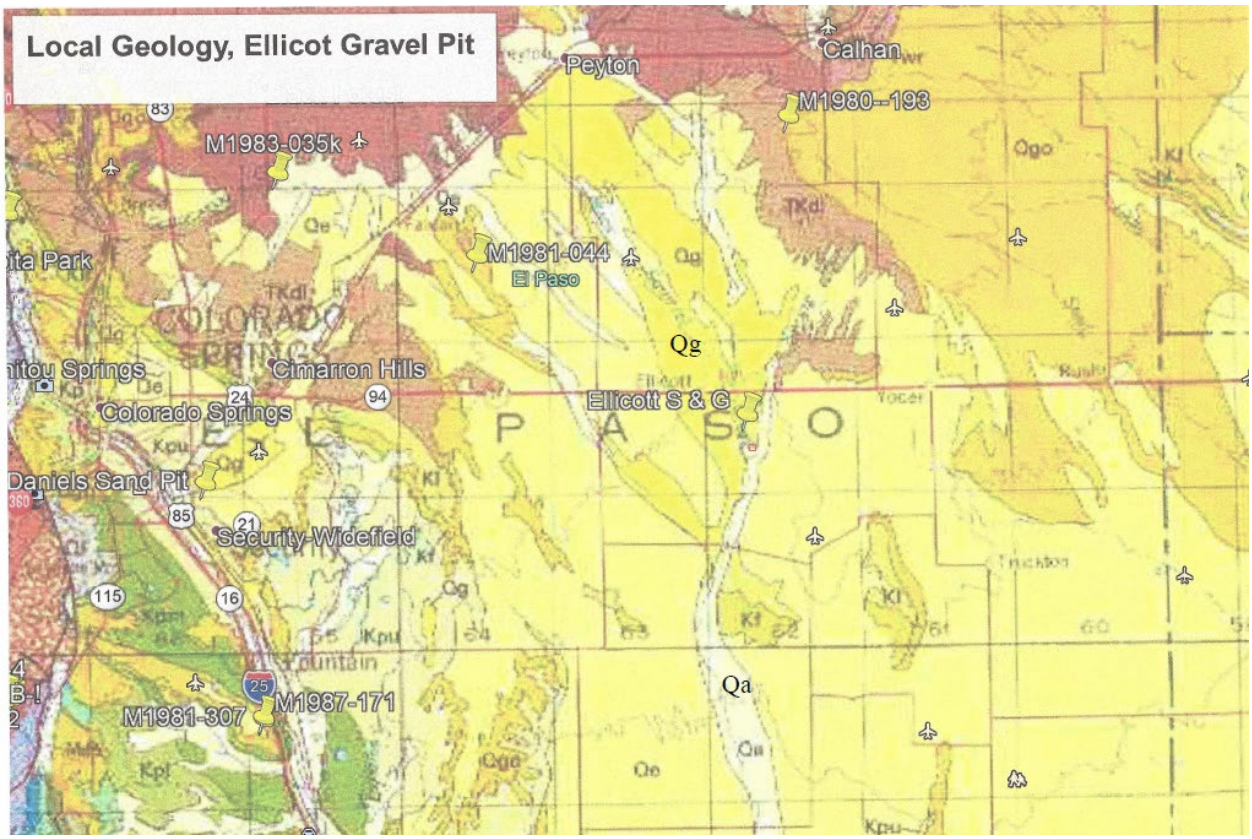

(Residual Version)
FLOODPLAIN DEPOSIT: Sand and gravel with minor amounts of silt and clay deposited by water along present stream courses.
VALLEY FILL: Sand and gravel with silt and clay deposited by water in one or a series of stream valleys.
STREAM TERRACE DEPOSIT: Older stream deposits containing san gravel, silt, and clay preserved on benches or broad flat to sloping areas adjacent to streams.
MESA GRAVEL: Sand and gravel with silt and clay deposited by older streams and slope wash on upland mesas which slope gently from the mountains.
UPLAND DEPOSITS: Sand, gravel with silt and clay; remnants of older streams deposited on topographic highs or bench like features.
ALLUVIAL FAN DEPOSITS: Gently sloping fan shaped deposits of sand, gravel, silt, and clay. Deposited by a stream from a steep, narrow valley into a broad, relatively flat plain or valley.
EOLIAN DEPOSITS: Wind blown sands.
GRANITE: Granite and granitic type rocks such as Quartz, monzonite, and Grandiorite underlying mountainous areas.
FINE GRAINED GRANITE: Granite and granitic type rocks with small crystal structure generally dense and requiring blasting for excavation.
DECOMPOSED GRANITE: Weathered granite and granitic type roc generally easily excavated.
LIMESTONE: Sedimentary rock consisting mainly of calcium carbonate, generally dense and quarried for use as aggregate.
CONGLOMERATE: Course grained sedimentary rock containing Arkosic sand, pebbles and cobble. Commonly forms a cap over underlying rocks.
COAL: 0-150 feet of overburden, minimum coal thickness 4 feet. Includes Dawson and Laramie.
COAL: 0-200 feet of overburden,thickness unknown. Laramie coal

Geological Survey Map



Geology of the Area Based on the USGS Survey Map:

- ✓ The following geogolic map illustates the extent of the Qg and Qa deposits:
  - ❖ Qg is Gravels and Alluviums
  - ❖ Qa is Modern Alluvium



- ✓ "Commercial mineral deposit' means a natural deposit of … sand, gravel…for which extraction by an extractor is or will be commercially feasible…"
  - ❖ Based on the above statutory definition and the depth of resource available, we believe the deposit is a commercial deposit.
  - ❖ The second part of the definition requires, "…and regarding which it can be demonstrated by geologic, mineralogic, or other scientific data that such deposit has <u>significant economic</u> or strategic <u>value to the area</u>, state ..."
  - ❖ We have underlined the portion of the statute to which the resource's significance applies. It is understand that a significant source of sand and gravel is becoming less available (see below) as the current doposits are nearing either the limits of the resource, limited by surrounding development, or polotical resistance to the permitting of new sources of construction aggregate.
- ✓ According to the Colorado Division of Reclamation, Mining and Safety website, El Paso County has 16 permitted sand and gravel operations.

- ❖ Of that number, six are of less than 10 acres in size and may not be a significant source of sand. One operation is essentially a clay operation for providing other than sand and gravel.
- ❖ The Daniels Sand Pit #2 is responsible for 75% of the sand sold locally. (Page 49, El Paso County Master Plan for Mineral Extraction, Feb 8, 1996)
  - o However, it appears the Daniels Sand Pit #2 is nearing completion of mining given it has almost reached the limits of lands available for mining "land locked".
  - o (*The Schubert Ranch sand resource has the potential to replace a significant portion of the sand resource, upon closure of the Daniels Sand Pit #2.*)
- ❖ Another site is also "land locked. Two sites are greater than 34 miles from Colorado Springs. One site is in final reclamation.

"(11) Site Security and Safety. Adequate site security and safety plans shall be provided at all times."
"state what measure will be taken for site security and safety. "(From 11/25/2020 PCD PM Letter of Intent Comments.)

- ➢ Response:
  - ✓ The following was originally submitted as part of the Mineral Extraction Application.
  - ✓ **Site Safety** – As a mining operation, we are subject to the Mine Safety and Health Administration (MSHA). Their regulations include, but not limited to, mine site speed limits, employee training, back-up alarms, fan and belt guards, site security, posting of signage, personal protective gear (PPG), roll over protection on equipment, and periodic inspections by MSHA personnel, etc.
  - ✓ **Site Security** – We will provide an entrance gate which will be locked during non-business hour. Given the operation will have a scale for weighing loaded highway haul trucks, all persons entering the mine site will be required to check with the Scale House personnel to sign-in, demonstrate they have recent MSHA minor training, and PPG. The perimeter of the mine site will be posted with no trespassing, mining operation signs.
  - ✓ **Fire Safety and Emergency Response:**
    - ❖ Fire safety – The mine operations are under Mine Safety and Health Administration (MSHA) regulations.

- MSHA requires mine safety training on a regular basis which includes how to suppress a fire until the local emergency fire responders arrive.
- MSHA requires fire suppression equipment on all mobile equipment and fire suppression equipment near any significant sources of ignition, such as areas of stored petroleum products and other stored combustibles.
- As part of the MSHA training mine employees are to receive first aid training. The mine operator is required to have appropriate first aid supplies on site.
- Emergency Response – MSHA also requires miner training to include emergency response training such as spill response.

❖ The fire protection district is the Ellicott Fire District.

"(12) Hours of Operation. Hours of operation shall be compatible with neighboring uses, traffic volumes, affected transportation corridors and school bus operations, and designated pedestrian crosswalk activity over the lifetime of the operation." "what are the hours of operation are for all types of operation?" (From 11/25/2020 PCD PM Letter of Intent Comments.)

➢ Response:

✓ The proposed mineral extraction operation will operate during daylight hours, six days per week, as demand for product dictates.

"(13) Reclamation of Visual and Environmental Impacts. Reclamation of adverse visual and other environmental impacts shall take place within a reasonable and specified time frame."

➢ Response:

✓ Reclamation will be concurrent with each Stage.

❖ This is to be a phased mining operation. As a new Stage is begun, the previous Stage will begin reclamation. An exception will be if portions of a Stage is needed to be left open for the material processing, scale and scale house use, product stockpiles use, and internal mine access road use.

❖ In addition, the MLRB Rules and Regulations require once we notify the DRMS that mining has been concluded in a Stage, we have 5 years to complete the reclamation in that Stage.

✓ Adverse Visual Impact Reclamation:

- ❖ In a general sense, mining is not a long-term activity and varies in length from a few months (highway borrow site) to longer term mining operations such as Climax Mine near Leadville, Colorado. In this case, the expected life of the mine is approximately between 53 and 80 years. During this time period, the site will be mined in a number of Stages. As a new Stage is begun, the previous Stage may begin reclamation as discussed above.
- ❖ What they all have in common is as a Stage is completed, reclamation will begin.
  - o A reclamation plan must specify a post mining land use which has the concurrence of the local county in which the mine is to be located.
  - o Once an operator notifies the DRMS that mining is complete at a mine site or Stage of mining, the operator initiates site reclamation in order to meet the regulatory requirement to complete reclamation.
- ❖ Therefore, any visual impacts will be addressed shortly after mining in a Stage is complete.
- ❖ In addition, once a pit (Stage) is initially opened, the operations will be below grade and will have only limited visibility.
- ❖ Also, where possible, topsoil stockpiles will be placed to limit visibility to the operation from certain locations around the perimeter of a Stage.

✓ Environmental Impact Mitigation:

There are a few environmental impacts possible from a typical sand and gravel mining operation. Below are what we believe are the potential environmental issues and how we intend to mitigate impacts.
Environment impacts are determined by Federal, State, and local (El Paso County) regulations. For example, typical county environmental impacts are noise, light, and visual impacts, etc.

- ❖ Air Pollution:
  - o Section 6.3.1 of the El Paso County Land Development Code requires an operator comply with County, State and Federal air quality standards. The County has agreed to make submittal of the air permit a condition of approval.
  - o This is not a construction activity, rather it is a mining operation.

- In a typical sand and gravel mining operation, such as the proposed operation, the expected air pollutant is fugitive dust.
- There will be some emissions from gas and diesel equipment (trucks and mining equipment). Engine emissions from equipment and fugitive dust are subject to regulation by the State Air Quality Control Division (AQCD). The AQCD will review the Operation's Air Pollution Emission Notice (APEN) and determine what operational controls will be required.
- Air quality impacts, therefore, will be mitigated by the requirements of the Air Quality Permit(s) issued by the AQCD. Prior to beginning any on-site mining operations, Ellicott Sand and Gravel will provide the documents as required by Section 6.3.1.(B)(2)(b) shortly after approval by the Colorado Air Quality Control Division.
  - We therefore suggest, since this is not a typical development, it may not be necessary for the County to apply the provision of Section 6.3.1.(B)(3) for the above reasons and waive this provision.

❖ Section 6.3.1(C)(5)(a) and (b) Haul Trucks and Haulage Equipment:
- Deposition of Dirt and Mud on Roads:
  - This is a sand and gravel operation. Therefore, dirt and mud should be minimal. The operational surface will be sand and or sand and gravel.
  - The access point(s) will be surfaced with pit run material (sand and/or gravel).
- (b) Particulates Emission in Transit:
  - All loads will be covered.

❖ (6) Open Burning:
- There will be no open burning.

❖ Impacts to Water Quality:
- Ground Water Quality:
  - The operation is designed to not intercept the ground water and will stay at least 10 feet about the regional ground water elevation.
  - No toxic or other hazardous material will be on site in reportable quantities.
    - All other solid and liquid waste will be disposed off-site at an approved facility.

- We will contract with a commercial provider to handle and provide portable toilets.
- If diesel fuel is stored onsite, the storage facility will either be double walled with barriers to prevent vehicle strike, or a berm to contain the capacity of the fuel tank plus the appropriate design storm event.
  - Other than the possibility of diesel fuel, the only other petroleum products which may impact ground water (and surface water) are antifreeze, hydraulic fluid and grease and oils. These items will not be stored on site.
  - We will clean up spills of petroleum products which meet the reportable quantities limits and dispose off-site, at an approved facility.

- Surface Water:
  - This will be a non-discharging facility. Therefore, a Water Quality Control Division (WQCD) Discharge Permit should not be required. We will, however, comply with requirements of the WQCD in the event the WQCD determined a discharge permit is required.
  - We may need to obtain a Stormwater Discharge Permit. Regardless, we intend to have a Stormwater Management Plan (SWMP). We will implement the SWMP as a part of our Best Management Practices (BMP). Please see the attached "Ellicott Sand and Gravel's Erosion and Sediment Quality Control Permit Application" **Attachment I,** which was previously submitted to El Paso County Planning Department.
- The ephemeral drainages will not be disturbed by mining.
- With implementation of our SWMP, coupled with our commitment to stay at least 10 feet above the regional ground water table, plus the other commitments noted above, and that no ephemeral drainages will be disturbed by mining, we believe, will sufficiently mitigate any potential impacts to surface and ground water.

❖ Wildlife Impacts:
- The reclamation plan approved by the DRMS lays out how the site will be reclaimed and takes into consideration the protection of wildlife resources.

- For example, the post mining land use is non-irrigated rangeland. The existing use is agriculture. The proposed reclamation seed mix includes a significant number of perennial grass species, several shrubs and one forb, (clover). The post mining land use of non-irrigated rangeland will encourage use by various classes of wildlife, more so than what is typical of other agricultural uses.
- The proposed operation will be mined in Stages. Once mining is complete in a Stage, reclamation will begin in that Stage. Those Stages not yet mined will be available for wild life use. The commitment to staged mining, followed by reclamation of that Stage, will limit the impact on wildlife.
- Of the available 733.7 available for mining, 220.2 acres will not be mined and available for wildlife use.
- The present use of the mine site includes extensive areas of irrigated cropland with limited wildlife use.

o Therefore, given the above factors, we do not expect significant impact to existing wildlife. Further, once the site is fully reclaimed, wildlife use should be enhanced.

❖ Impacts from Hazardous Waste:

o As discussed above, other than the possibility of diesel fuel, antifreeze, hydraulic fluid and grease and oils, no hazardous or toxic substances shall be on-site.

o The control of the above petroleum products is addressed above.

❖ Noxious Weed Mitigation:

o The approval of the DRMS Permit Application contains a typical Noxious Weed Control Plan which was provided in previous documents submitted the County.

❖ 6.3.2.(B) Drainage Report (Soil Erosion Control):

o There are two types of soil erosion, rainfall runoff and wind erosion.

o Wind Erosion:

- Wind erosion is likely given the sandy nature of the proposed mine site. Wind erosion and also fugitive dust, will be controlled by the following means:
  - Dust, primarily fugitive dust, will have the appearance of soil wind erosion.
    - Fugitive dust will be controlled under the provision of the approved Air Quality Permit, likely through road watering and some type of controls on the crushing and screening

operations and at the drop/transfer points of the conveyor system.

- In addition, the processing operation will occasionally be moved to where mining is occurring to reduce travel distance from the in-bank resource and the processing facility. Doing so will reduce the potential for mining and haul equipment fugitive dust generation.

- Loss of soil and subsoil from bare, disturbed areas should be minimal due to the natural moisture in the soil and the active removal of in-bank raw sand and gravel product.

- Rainfall Runoff Erosion:
  - This is a non-discharging facility and rainfall runoff does not report to any public or private sanitary or stormwater sewer system.
    - Since this is a non-discharging facility, most soil erosion will be internal to the operation and should not affect off-site drainage ways.
    - Significant topsoil, soil erosion should not occur on areas which have not been disturbed since such areas are covered by natural, perennial grasses and other vegetation. Once an area is ready for mining, the available topsoil will be salvaged and placed in topsoil stockpiles.
- Topsoil stockpiles will be seeded with the approved, seed mix, once the pile reaches its intended size and it will not be disturbed for at least one year. Seeding topsoil stockpiles will ensure the loss of soil, due to erosion is mitigated.

"(14) Mineral Processing. Mineral processing such as material washing, sorting, crushing or more intensive modification and alteration through mechanical or chemical means to a mineral resource extracted within the same ownership as the mineral extraction operation is prohibited unless specifically approved as part of the special use. If processing is to occur on the property where a special use is requested for mineral extraction, then the special use cannot be approved administratively, and the public hearing process to review the special use will be triggered."
"please elaborate on all processing that will occur on site." "please verify if there will be processing or not on site." (From 11/25/2020 PCD PM Letter of Intent Comments.)

- Response:

- ✓ Since material sorting is likely to occur on the proposed mineral extraction operation site, we understand a public hearing is triggered.
- ✓ In addition, based on the makeup of the raw material extracted and the types of products eventually sold, additional processing may be required, such as crushing, screening, and washing.
- ✓ All material processing equipment and scale will be portable and will following mining as each Stage is completed and a new Stage is opened.
- ✓ In some Stages it may be more efficient to leave portions of the processing equipment and/or scale in a previous Stage.
- ✓ Process Equipment (Revised from Mineral Extraction Application)
  - ❖ Portable crusher
  - ❖ Portable screens (may be combined with the crusher)
  - ❖ Portable conveyors/stacker
  - ❖ Portable scale and scale house

- Comments from the 11/25/2020 PCD PM, concerning the Letter of Intent:
  "Review 1 comment: As stated in the TIS there is an off-site parking lot that would be used for this site that is not addressed in the letter of intent, the mining operation plan or identified on a site plan.
  - ➢ Response:
    - ✓ That statement is in error. There will be no off-site parking. All parking will occur within the proposed mine site and on the areas where topsoil has been removed. Typically, this will be the active mining area and/or around the portable scale and scale house.

  "Review 2: The TIS indicates that haul vehicles will originate from off-site locations and that Ellicott would control half of the haul trips. Please be sure to address in the letter of intent any off-site parking areas used by Ellicott Sand and Gravel. An access permit will be required prior to the use of this off-site parking. Note that use approval may be required as well. Verify with the planning staff regarding any requirements for this off-site parking."
  - ➢ Response:
    - ✓ There will be no off-site parking. All employee vehicles, visitors, and haul trucks will park on the active mining area where topsoil has been removed.
    - ✓ This item was requested to be addressed in the letter of intent. We have addressed it here instead.
    - ✓ If any off-site parking is needed, we will contact El Paso County and obtain the necessary approvals and permits prior to use.

RPM, Inc.

Respectfully,

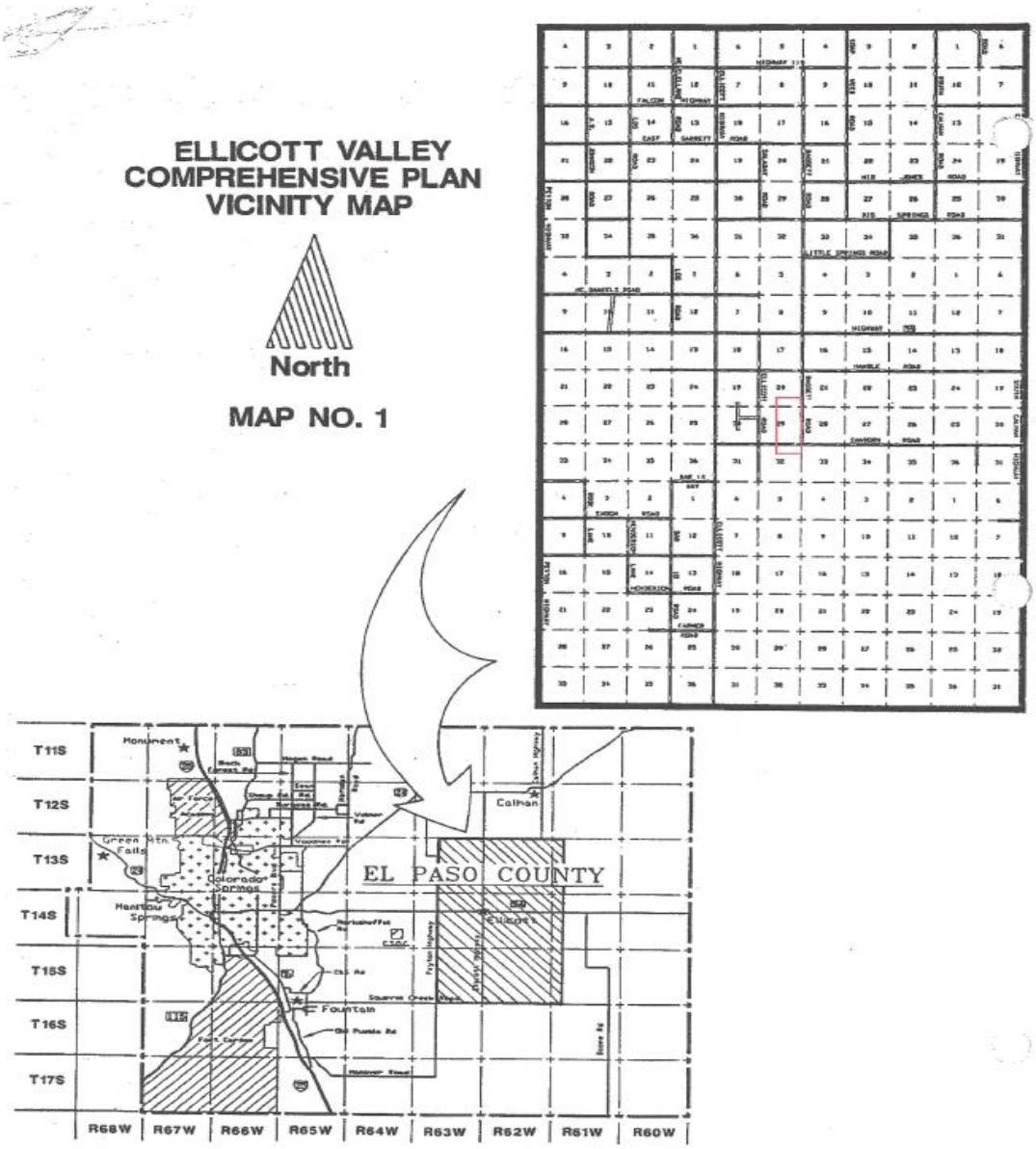
H. Bruce Humphries
Regulatory Permits Management, Inc.
Consultant for Ellicott Sand and Gravel

RPM, Inc.

Mineral and Natural Resource Extraction Application
Date: 3-3-2020
For: Schubert Ranch Sand Resource (Pit)
Ellicott Sand and Gravel, LLC

This Mineral and Natural Resource Extraction Application is being submitted by Ellicott Sand and Gravel LLC for its proposed Schubert Ranch Sand Resource Pit located in eastern El Paso County. Following are responses to your application questions.

Vicinity Location Map:



RPM, Inc.

5.2.31(A) (3) General Requirements:

(b) Valid Mining Permit:

"*A commercial mineral and natural resource extraction operation shall have a valid mining permit from the Colorado Mined Land Reclamation Board prior to beginning or expanding operations, and during the entire period of operation.*"

The Colorado Mined Land Reclamation Board (MLRB) permit was approved on November 6, 2019. The permit will be issued upon submittal and approval of the Performance and Financial Warranties. With approval of the El Paso County applications, we will submit the required warranties to the Division of Reclamation, Mining and Safety (DRMS). Upon issuance to the MLRD, DRMS Permit, we will provide El Paso County a copy of the approved permit.

(c) Written Notice of Filing for Permit with the MLRB:

"Written notice of the filling of an application for a reclamation permit or renewal of an existing mining permit to the Colorado Mined Land Reclamation Board shall be provided to the PCD by the applicant concurrent with the placement of a copy of the application or renewal for public inspection at the office of the Clerk and Recorder in accordance with C.R.S. § 34-32-112 (10)(a)."

- Attached below is a copy of the written notice provided the El Paso County Clerk and proof of filling the notice to the El Paso County Clerk:

Environment, Inc.

LARRY E. O'BRIAN
FOUNDER

STEVAN L. O'BRIAN
PRESIDENT

7985 VANCE DRIVE, SUITE 205A
ARVADA, COLORADO 80003
303-423-7297
FAX 303-423-7599

December 3, 2018

Mr. Chuck Broerman
El Paso County Clerk & Recorder
Citizens Service Center
1675 West Garden of the Gods Rd., Suite 2201
Colorado Springs, CO 80907

Re: Application for a Mined
Land Reclamation Permit
Ellicott Sand & Gravel LLC

Dear Mr. Broerman:

We are delivering to you here with a copy of an application for the Schubert Ranch Sand Resource, a Regular (112) Construction Materials permit, to be operated by the Ellicott Sand & Gravel LLC. Two copies of the application are on file with the Division of Reclamation, Mining & Safety (DRMS).

This copy of the application packet is delivered to you pursuant to 34-32.5-112(9)(a), Colorado Revised Statutes 1995, as amended, which states in part:

> *....the applicant shall file a copy of such application for public inspection at the office of the County Clerk and Recorder of the County in which the affected land is located.*

Please acknowledge receipt of this copy of the permit application by signing in the appropriate space provided below and returning one copy of this letter to the person delivering the book. Please hold the book for pick-up after the application has been heard by the MINED LAND RECLAMATION BOARD (approx. 180 days).

Yours truly,
Environment, Inc.

Stevan L. O'Brian

enclosure

RECEIVED THIS 3rd DAY OF December, 2018
MLRB application for the referenced mine.

By _____
El Paso County Clerk and Recorders Office

(d) *"Proof of Publication Required*

The applicant shall provide copies of the proof of publication of any notices required by C.R.S. § 34-32-112(10(b) to the PCD.

The proof of the newspaper public notice for the Ellicott Sand and Gravel 112C Regular Operations Permit application is attached below:

ELLICOTT AND AND GRAVEL LLC.
PROOF OF PUBLICATION
FBRUARY 15, 2019

SCHUBERT RANCH SAND RESOUTCE
MLRB- M-2018-056

THE EL PASO COUNTY ADVERTISER AND NEWS,
FOUNTAIN, COLORADO 80817
STATE OF COLORADO

ss.

COUNTY OF EL PASO

I, Karen M. Johnson, do solemnly swear that I am General Manager of the El Paso County Advertiser and News, that the same is a weekly newspaper printed, in whole or in part, and published in the County of El Paso, state of Colorado, and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said county of El Paso for a period of more than 52 weeks next prior to the first publication of the annexed notice and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado.

That copies of each number of said paper in which said notice and list were published were delivered by carriers or transmitted by mail to each of the subscribers of said paper for a period of **4** consecutive insertions, once each week, and on the same day of each week; and that first publication of said notice was in the issue of said newspaper dated **Dec. 19**, A.D. **2018** and that the last publication of said notice was in the issue of said newspaper dated **Jan. 9** A.D. **2019**.

Karen M. Johnson
General Manager

Subscribed and sworn to before me, a notary public in and for the County of El Paso, State of Colorado, this **9th** day of **Jan.** A.D. **2019**

Marianne McBride
Notary Public

MARIANNE MCBRIDE
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20084034113
MY COMMISSION EXPIRES SEPTEMBER 30, 2020

PUBLIC NOTICE
PUBLISHED NOTICE OF APPLICATION FILING FOR
A REGULAR (112) CONSTRUCTION MATERIALS RECLAMATION PERMIT

The Ellicott Sand and Gravel, LLC, 235 Francerville Coal Mine Road Colorado Springs, C
80929, has filed an application for a Construction Materials Regular 112 Reclamation Per
with the Colorado Mined Land Reclamation Board under provisions with the Colorado Min
Land Reclamation Act for extraction of Construction materials. The proposed mine is kno
as the Schubert Ranch Gravel Resource. (Permit # M-2018- 063 and is located in or near t
SW¼ of Section 20, E½ of Section 29 and parts of the S½ of Section 32, T-14-S, R-62-W
the 6th P.M., El Paso County, Colorado.

The date of commencement will be September 2018 the proposed date of completion
December 2048. The proposed future use of the land is rangeland.

Additional information and a tentative decision date may be obtained at the Division
Reclamation, Mining & Safety, 1313 Sherman Street, Rm 215, Denver, Colorado 80203, (30
866-3567, or at the office of the El Paso County Clerk and Recorder, 1675 West Garden
the Gods Rd., Suite 2201
Colorado Springs, CO 80907.

Written comments to the application must be received at the office of the Mined La
Reclamation Division no later than 4:00 p.m. on the 29th day of January, 2018.

*Please note that comments related to noise, truck traffic, hours of operation, visual impac
effects on property values and other social or economic concerns are issues not subject
this Office's jurisdiction. These subjects and similar ones, are typically addressed by yo
local governments, rather that the Division of Reclamation, Mining & Safety or the Mined La
Reclamation Board.*

Ellicott Sand & Gravel LLC
Colorado Springs, Colorado

Publication Dates:
First: December 19, 2018
Second: December 26, 2018
Third: January 2, 2019
Fourth: January 9, 2019
Published in the El Paso County Advertiser and News

(e) ***"Comply with Construction Permit and Erosion and Sediment Quality Control Permit***

Mineral and natural resource extraction operations shall comply with ECM and any required permits."

We will provide the Construction Permit and Erosion and Sediment Quality Control Permit with the submittal of the Development Plan.

(f) Legal Description:

Legal Description

Part of the S1/2N1/2SE1/4, S1/2SE1/4, and SE1/4SW1/4 of Section 20, and

The E1/2E1/2 and NW1/4NE1/4 and parts of the SW1/4NE1/4, SW1/4SE1/4, and NW1/4SE1/4 of Section 29 and

The E1/2NE1/4, SW1/4NE1/4, & SE1/4NW1/4, and parts of the NW1/4NE1/4 & NE1/4NW1/4, Section 32, Township 14 South, Range 62 West, 6th P.M. El Paso County, Colorado

Containing 733.7 acres more or less.

Entrance location Stage I: 38° 47' 43.5875"N, 104° 21' 17.6006"W

"5.2.31(B) Additional Standards:

(1) Consistent with Master Plan

The operation shall be consistent with the Master Plan for Extraction of Commercial Mineral Deposits."

- We believe we have addressed the required items in the Master Plan for Mineral Extraction. The following sections also provide the environmental items addressed and approved in the Division of Reclamation, Mining and Safety (DRMS) Permit application. (We have drawn from the DRMS application to address the similar issues of concern in the County application process.
- Such items as traffic, visual, noise, etc. are separately addressed by the County and are discussed in the following sections as well.

"(2) No Adverse Long-Term Visual Impacts

The operation shall have no adverse long-term visual impact either from adjacent properties or major transportation corridors."

- Adverse, long term visual impacts to adjacent property owners:
  - ✓ From the estimated life of mine and phase table, the estimated life of the operation is from 53 – 80 years. The mining and reclamation operations will be conducted in 6 phases. As shown in the following table, the length of a phase varies from 2 to 30 years dependent on the particular phase. As one mining phase is completed and the next mining phase begins, the previous phase will begin implementation of the approved reclamation plan. The Permit Application states reclamation will run concurrent with the mining operations.

Phase	Est. Yrs.	Total Acres Available	Total Acres Mined
1	10-15	66.1	49.9
2	15-20	213.7	173.0
3	4-6	54.2	39.2
4	2-5	24.3	14.9
5	2-4	20.8	14.2
6	20-30	268.4	222.3
Areas Not Mined	Life of Mine	220.2	
Total	53-80 yrs.	733.7	513.5

(Note of the 733.7 acres available within the approved permit boundary, 220.0 acres will not be mined.)

- ✓ Generally, the visual impact from the mining operation will be a relatively short period of time, per phase. In addition, the phases are to be up to 60+ feet deep. Given the 200+ foot setback from the adjacent property lines to the permit boundary and the 25-foot setback from the permit boundary to the affected land boundary and the depth of each phase (35 to 70 feet), little, if any of the operation should be visible from the adjoining properties.
- ✓ In addition, mine operations visibility will be further augmented through the placement of topsoil and/or overburden stockpiles as shown on the Mine Plan Map for Stage II. As required by MLRB regulations, such piles are to be seeded if not disturbed within one year.
- ✓ The reclamation plan calls for the phases to be reclaimed to rangeland, and will be seeded to a grasses, forb and shrub mix. The previously mined phase will begin reclamation as the next mining phase begins. This will ensure that a disturbed phase will be put back to the approved post mining land use (rangeland) as soon as possible.

- ✓ The approved MLRB application states, "…having no more than 40 acres ± disturbed at any-one-time."

➢ Adverse long-term visual impact on major transportation corridors:

- ✓ The only major transportation corridor is Colorado State Highway 94 to the north of the operation. The mining operation will not be visible from highway 94 since it will be more than one mile from the active mining operation and will generally be below grade.
- ✓ The point of access is on the south side of the proposed operation. The access point joins the Sanborn Road through the middle of the Schubert Ranch property and Baggett Road to the east. The access route will then join Colorado State Highway 94. We do not reach a significant transportation corridor until reaching Colorado Highway 94.

"(3) Reclaimed to a Compatible Use of Resources

The land on which the operation is located shall be reclaimed to a use and character compatible with surrounding uses and zoning."

The Mined Land Reclamation Act for Construction Materials requires the Mined Land Reclamation Board and the Board of County Commissioners to confer as to the proposed post mining land use. Ellicott Sand and Gravel provided a notice to the El Paso County Commissioners which specified the proposed post mining land use is to be rangeland and wildlife habitat. The two parcels will be returned to their current zoning, A-35, and wildlife habitat. The DRMS with the approval of the application includes rangeland and agriculture as the post mining land use.

"(4) Operation to Result in Efficient Use of Resource

The operation shall result in an efficient use of the mineral deposit."

According to the Natural Resources Conservation Service soil survey for the proposed mining operation, the sand resource is considered "**Fair**". Excerpts from the soil survey, "Description – Sand Sources" describe the proposed minable sand as follows:

> "Sand is a natural aggregate (0.05 millimeter to 2 millimeters in diameter) suitable for commercial uses with a minimum of processing. (emphasis added) It is used in many kinds of construction."
>
> "The properties used to evaluate the soil as a source of sand are gradation of grain size (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments."

The soils are rated “good,” “fair,” or “poor” as potential sources of sand. A rating of “good” or “fair” means that sand is likely to be in or below the soil.”

The available drill logs further confirm the site has a sand resource of considerable depth. The following water well, well logs illustrate the extent of the sand and gravel resource on the proposed mine site. Based on the three well logs taken across the property, the sand and gravel resource vary in extent from 56 feet to 88 feet of actual depth of sand and gravel. (The depth of the of the in-place resource varies in depth from 77 feet to 100 feet and includes interbedding of clay, shale and sandstone.) The “contaminates” (clay, shale and sandstone) will be removed at the on-site processing facility.

RPM, Inc.

WR/46-72

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK.

COLORADO DIVISION OF WATER RESOURCES

101 Columbine Bldg., 1845 Sherman St.
Denver, Colorado 80203

RECEIVED JUN 1973 WATER RESOURCES STATE ENGINEER COLO.

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 6967-F

WELL OWNER Schubert Ranches Inc. S-W ¼ of the S-E ¼ of Sec. 20

ADDRESS RT-2 Callaway, Colo. T. 14 S, R. 62 W, 6th P.M.

DATE COMPLETED May, 1973

WELL LOG

From	To	Type and Color of Material	Water Loc.
0	2	top Soil	
2	8	sand gravel	
8	12	Clay	
12	26	Sand gravel	
26	32	Clay	
32	82	Sand + gravel	
82	100	Sand + gravel (Cerro)	
100	102	Clay + Shale	

TOTAL DEPTH 102

Use additional pages necessary to complete log.

HOLE DIAMETER

36" in. from 0 to 102 ft.

_____ in. from _____ to _____ ft.

_____ in. from _____ to _____ ft.

CASING RECORD:

Plain Casing

Size 16" & kind Steel from 0 to 59 ft

Size _____ & kind _____ from _____ to _____ ft

Size _____ & kind _____ from _____ to _____ ft

Perforated Casing

Size 16 & kind Steel from 59 to 102 ft

Size _____ & kind _____ from _____ to _____ ft

Size _____ & kind _____ from _____ to _____ ft

GROUTING RECORD

Material Clay

Intervals 0 - 25

Placement Method Poured

GRAVEL PACK: Size 9/16

Interval _____

TEST DATA

Date Tested May, 197

Static Water Level Prior to Test 34 ft

Type of Test Pump Turbine

Length of Test 24 hrs.

Sustained Yield (Metered) 840

Final Pumping Water Level Bottom

RPM, Inc.

WELL LOG 6971-FP

From	To	Type of Material	Water Loc.
0	2	top soil	
2	8	Clay	
8	25	sand & gravel R+J	
25	33	sand gravel J	
33	37	sand gravel & clay	
37	45	sand gravel	
45	53	Clay	
53	77	sand gravel	
77	78½	shale	

Use additional paper if necessary to complete log.

WELL DATA

Type Drilling Reverse Rotary

HOLE DIAMETER:

32 in. from 0 ft. to 78½
____ in. from ____ ft. to ____
____ in. from ____ ft. to ____

CASING RECORD

Plain Casing

Size 16, kind Steel from 0 ft. to 38½
Size ___, kind ____ from ____ ft. to ____
Size ___, kind ____ from ____ ft. to ____

Perforated Casing

Size 16 kind Steel from 38½ ft. to 78½
Size ___, kind ____ from ____ ft. to ____
Size ___, kind ____ from ____ ft. to ____

GROUTING RECORD

Material ____
Intervals ____
Placement Method ____

GRAVEL PACK RECORD

Size 9/16 to 3/4 Interval ____

TEST DATA

Date Tested May 69
Type of Pump Turbine
Length of Test 24 hrs.
Constant Yield 600
Drawdown 40

WELL DRILLER'S STATEMENT

The undersigned, being duly sworn, deposes an says: he is the driller of the well hereon described; he has read the statement made here knows the content thereof, and the same is true of his own knowledge.

X J. R. Hamaker

License No. 71

State of Colorado, County of Elbert) ss

Subscribed and sworn to before me this 15 day of February, 1971

My Commission expires Dec 6, 1970. Bonnie DeLores Hamaker
Notary Public

RPM, Inc.

WRJ-28-72

THIS FORM MUST BE SUBMITTED WITHIN 60 DAYS OF COMPLETION OF THE WORK DESCRIBED HEREON. TYPE OR PRINT IN BLACK INK.

COLORADO DIVISION OF WATER RESOURCES
101 Columbine Bldg., 1845 Sherman St.
Denver, Colorado 80203

RECEIVED
JUL 17 72
WATER RESOURCES
STATE ENGINEER
COLO.

WELL COMPLETION AND PUMP INSTALLATION REPORT

PERMIT NUMBER 9642-FP

WELL OWNER Buddy B. Babcock NE ¼ of the NW ¼ of Sec. 32

ADDRESS R#2 Calhan, Colo. T. 14 S, R. 62 W, 6th P.M.

DATE COMPLETED 2-18, 1972

HOLE DIAMETER
30 in. from 0 to 96 ft.
____ in. from ____ to ____ ft.
____ in. from ____ to ____ ft.

WELL LOG

From	To	Type and Color of Material	Water Loc.
0	2	top Soil	
2	9	Sand & gravel	
9	11	Clay	
11	15	Sand & Gravel	
15	23	Sand Stone	
23	39	Sand Med. fine	
39	45	Clay	
45	60	Sand & gravel & Rock	
60	71	Sand & Gravel	
71	74	Sand gravel Rock	
74	94	Sand gravel Lorri's	
94	96	Shale	

TOTAL DEPTH 96

Use additional pages necessary to complete log.

CASING RECORD:

Plain Casing
Size 16" & kind Tuned from 0 to 56 f
Size ____ & kind ____ from ____ to ____ f
Size ____ & kind ____ from ____ to ____ f

Perforated Casing
Size 16" & kind Steel from 56 to 96 f
Size ____ & kind ____ from ____ to ____ f
Size ____ & kind ____ from ____ to ____ f

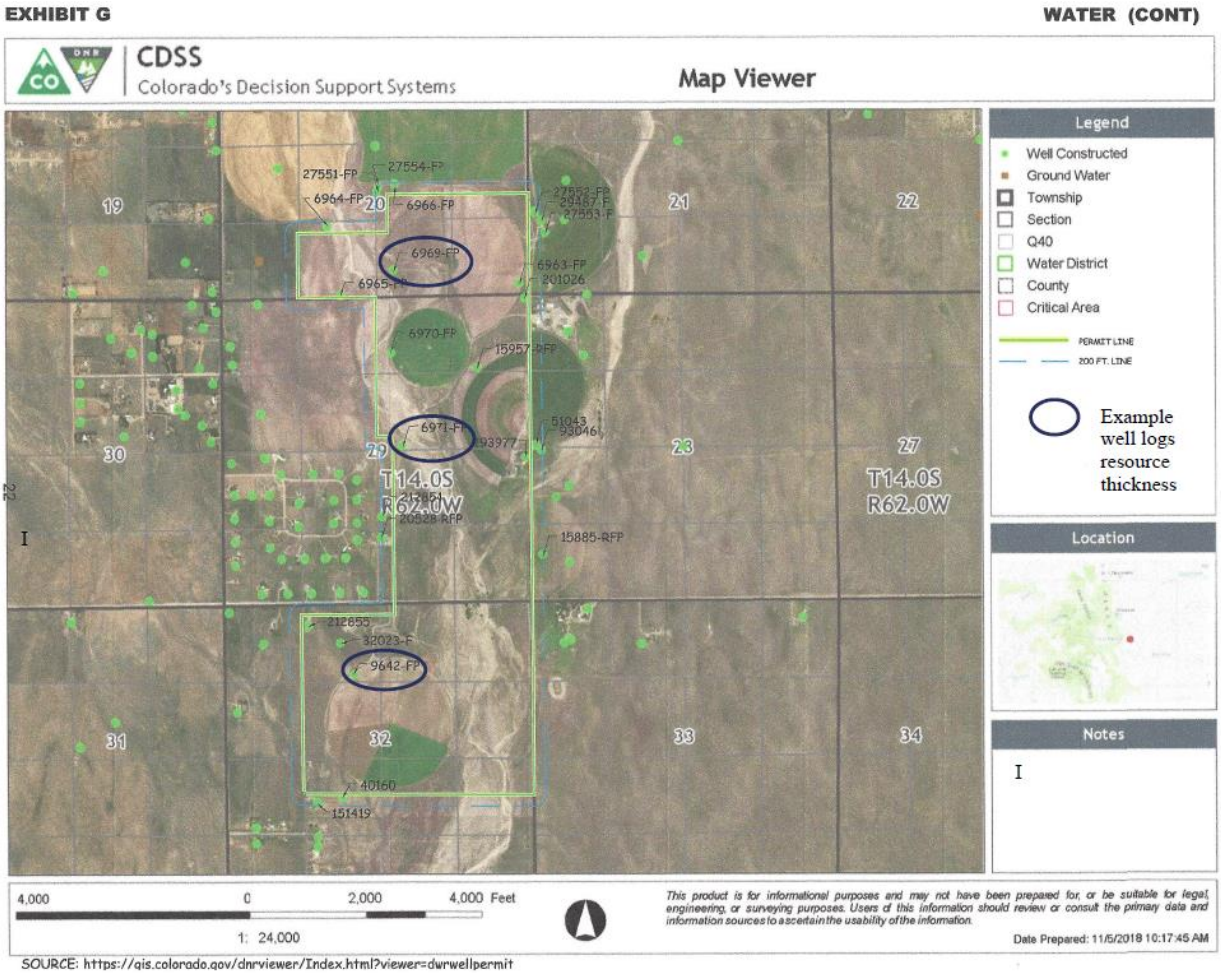
GROUTING RECORD
Material 9
Intervals ____
Placement Method ____

GRAVEL PACK: Size 9/16
Interval ____

TEST DATA
Date Tested 2-19, 19 7
Static Water Level Prior to Test 29 f
Type of Test Pump Turbine 24
Length of Test 24
Sustained Yield (Metered) 480
Final Pumping Water Level Bottom

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Bijou loamy sand, 1 to 8 percent slopes	26.5	3.6%
6 Sand	Bijou sandy loam, 0 to 3 percent slopes	52.9	7.3%
28 Fair	Ellicott loamy coarse sand, 0 to 5 percent slopes	406.4	55.7%
78 Fair	Sampson loam, 0 to 3 percent slopes	96.2	13.2%
95	Truckton loamy sand, 1 to 9 percent slopes	31.7	4.3%
97	Truckton sandy loam, 3 to 9 percent slopes	12.4	1.7%
101 Fair	Ustic Torrifluvents, loamy	101.3	13.9%
106	Wigton loamy sand, 1 to 8 percent slopes	2.0	0.3%
Totals for Area of Interest		**729.4**	**100.0%**



Map of water well logs to illustrate depth of resource.

"(5) Disturbance of Sensitive Environment Limited

The operation shall not substantially disturb uniquely sensitive environmental features including but not limited to wetlands, riparian habitat, wildlife water habitat, threatened or endangered species habitat, high priority land for conservation, and rare or unusual natural features."

- The approved Reclamation Plan, Exhibit E and wildlife statement, states, "The mining and reclamation plans consider existing wildlife conditions and final reclamation will not change the area for wildlife use. The mining and reclamation plans allow for the safety and protection of wildlife remaining on the mine site, at the processing site and along all access rods to the site. In general, we have found there is little long-term disturbance to native wildlife species around gravel mining operations.

The big game species tend to use mining sites and newly vegetated areas after operations have stopped for the day. The smaller species tend to move to undisturbed areas."

- *Wetlands, Riparian Habitat, Wildlife Water Habitat:*
  "No dredging takes place at this facility, there are no temporary siltation structures involved in this operation and no mining will be done in a river or waters of the United States.
  - A U.S. Army Corps of Engineers Permit is not required for this operation because no wetlands will be disturbed based on a statement from the Army Corps of Engineers, Ellicott Sand &Gravel LLC – Schubert Ranch Resource M-2-18-063 – Adequacy Response 01, from Environment, Inc., to Mr. Timothy A. Cazier, P.E. DRMS:

U.S. Army Corps of Engineers (rec. 1/23/19)
The letter refers information requests to the Albuquerque District but noted that placing dredged or fill into waters of the US will require a 404 permit. No dredge or fill material will be placed in waters of the US nor will wetlands be impacted, as none exist on the site. All mining and reclamation activities will remain outside the normal flow channel and/or above the ordinary highwater line of both Black Squirrel Creek and Big Spring Creek. We have met with Tony Martinez from the Pueblo office to delineate the OHW and will avoid placing fill or mining in the OHW of Black Squirrel Creek or Big Spring Creek. If a 404 permit is required it will be obtained prior to any activity commencing.

  - Retention ponds may be constructed on the site to collect stormwater before it leaves the site.
  - No stormwater will be retained for more than 72 hours and then only after it meets water quality standards. These ponds will be removed when an area is reclaimed." (Ellicott Sand and Gravel, DRMS approved Permit Application.)
- *Evaluation of Impacts on the 100 Year Flood Plain:*
  Please See Attachment III.
- *Threatened or Endangered Species Habitat:*
  - "Review of the Conservation Status Handbook for El Paso County indicate that the proposed permit area does not lie in any of the listed Critical Habitat areas of El Paso County and we find no list of endangered or threatened species for the area around or on the permit area. No raptor nests were observed on the mine during site

inspections and in discussion with the landowner they do not remember any being present in the past."

- "Prior to opening an area for mining, Ellicott Sand & Grave will make observations of the new area to determine if there are raptors using the site as active hunting areas, overnight roost site or nesting sites. If any are observed, the Colorado Springs Office of the Colorado Parks and Wildlife (CPW) office will be contacted to confirm the observations and advise Ellicott Sand & Gravel on what actions should be taken to avoid disrupting the sites during nesting times. Ellicott Sand & Gravel, will then take the appropriate actions to prevent disturbance to the nest or roost site. If raptor use occurs or is observed after mining activities have commenced on an area then CPW will be contacted to advise actions that can be worked out to operate the mine without completely abandoning the site for long periods of time." (Ellicott Sand and Gravel, DRMS approved Permit Application.)

- *High Priority Land for Conservation and Rare or Unusual Natural Features:*
  - To the best of our knowledge, there are no "High Priority Land for Conservation" or "Rare or Unusual Natural Features".
  - From the approved DRMS Permit Application:

EXHIBIT H

WILDLIFE STATEMENT.

. The Colorado Springs office of the Colorado Department of Parks and Wildlife (CDPW) was contacted around July 26, 2018 about supplying a Wildlife Statement for this permit application and declined to comment at this time on the grounds that they do not provide the service as described in Rule 6.8.4(1).

- "The site is mostly grassland and developed agricultural areas with some ephemeral creek bed running down the central part of the site. The only trees of any significance are located on or around the farm yards, on the parcel. There are a few shrubs and scattered small trees on the southern end of the area. Wildlife resources on the affected lands are limited by the existing ground cover consisting of seasonal grasses, shrubs and weeds. Ground cover in this area averages 25% or less, with some areas having little or no cover, only exposed sand."

- "Not a lot of wildlife have been observed on the area. Usually it consisted of larger mammals such as deer and antelope that use travel corridors over the area. Some small game species and birds have been observed. Wildlife expected to be found on the property may include deer, antelope, small rodents and mammals, and song birds. There are no known threatened or endangered species on the property."

- "Existing wildlife in the area is not expected to be significantly impacted by mining at this site. Temporary and permanent losses of food and habitat is not expected to be significant as the area of disturbance will be limited to less than 10% of the permit area at any given time. Haul road speed limits will be limited to 15 MPH or less." (Ellicott Sand and Gravel, DRMS approved Permit Application.)

"(6) Disturbance of Historic Resources Limited

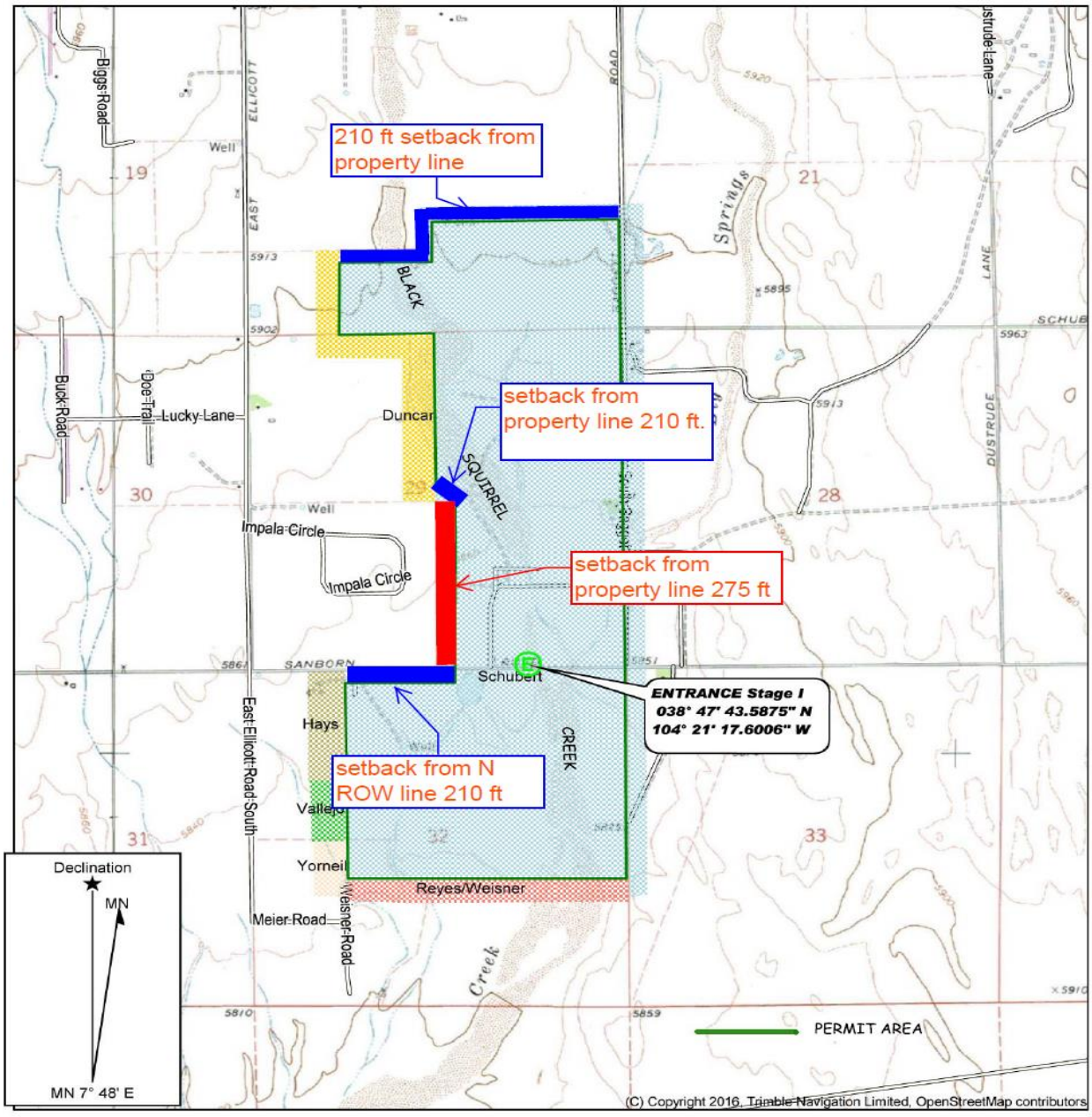
The use shall not substantially disturb identified historical, archaeological or paleontological sites."

- A review of the Division of Reclamation, Mining and Safety electronic files indicates that "History Colorado" has not yet provided comments on the proposed operation. (As of 10/14/2019) To the best of the Applicant's knowledge, no historic resources are within the limits of the proposed operation.
- As required by C.R.S. 24-80 (Part 13), we will follow the requirements of this Statute, should human remains be "discovered" during our mining and reclamation operations. In addition, as stated in the approved application, if human remains are discovered, the El Paso County Sheriff will also be contacted.
- It is our understanding, given the proposed mining operation is on private lands, cultural resource inventories are not required under State Statute.

"(7) Buffering Required

The site and associated special use operations shall be adequately buffered from surrounding properties and uses."

- The permit boundary is proposed to be setback from the Schubert Ranch property boundary by at least 200 feet. The following map illustrates the property line setback around the perimeter of the permit boundary:



Quad. Name: BIG SPRINGS RANCH
Date: 10/29/18
Scale: 1 inch = 2,000 ft.

Part of the S1/2N1/2SE1/4, S1/2SE1/4,and SE1/4SW1/4 of Section 20, and The E1/2E1/2 and NW1/4NE1/4 and parts of the SW1/4NE1/4, SW1/4SE1/4, and NW1/4SE1/4 of Section 29 and The E1/2NE1/4, SW1/NE1/4, & SE1/4NW1/4, and parts of the NW1/4NE1/4 & NE1/4NW1/4, Section 32, Township 14 South, Range 62 West, 6th P.M. El Paso County, Colorado Containing 733.7 acres more or less.

ELLICOTT SAND AND GRAVEL LLC
SCHUBERT RANCH SAND RESOURCE
MAP EXHIBIT B - VICINITY MAP

- In addition, the affected land (pit) boundary will be set back. As stated in the Mining Plan, Exhibit D of the mining application submitted to the DRMS, "There will be a 25 foot or wider dig line setback maintained from the permit boundary so there is adequate space on the level above the slope for property line access, setback maintenance, grading and shaping. In Stage VI the setback from the northern house will be between 210 and 215 feet and on the southern ranch complex it will vary from 50 to 130 feet." (Ellicott Sand and Gravel, DRMS approved Permit Application.)
- "The plant site/stockpile area will start on the surface, but once the initial level is reached it will be moved below grade so it is screened below the surrounding areas." (Ellicott Sand and Gravel, DRMS approved Permit Application.)
- In addition, topsoil stockpiles will be placed and then seeded with the approved seed mix at locations around the perimeter of the various stages to create visual barriers, where possible. (Not all perimeter areas will have topsoil pile visual barriers.)

"(8) Water Supply Adequate for Operations and Reclamation Uses

Adequate water supplies shall be available for drinking, dust control, landscaping, general operations and effective reclamation. Proof of approved water supply shall be provided to PCD."

- From the Ellicott, DRMS Permit Application, Page 20, Exhibit G. "We estimate water use at the mine, including, dust control will require 12.0 ac-ft per year. It will be purchased from the Schubert Ranch; they have water that is permitted for industrial uses. No water will be used for reclamation, nor will the revegetation areas be irrigated." (Ellicott Sand and Gravel, DRMS approved Permit Application.)
- Potable water will be purchased locally.
- Potential wells available for operational water use and proof of water rights.
  - There are two sets of wells available as a source of operational water. The first of the two following water rights is the preferred choice which is one well (#9642-FP. The second set of wells is available if needed.
  - According to the Division of Water Resources files, wells are in the Sanborn Ranch name.

- Preferred ground water well location (Well 9642-FP).

RPM, Inc.

- Water right:

RICHARD D. LAMM
Governor

Best Copy Available

JERIS A. DANIELSON
State Engineer

OFFICE OF THE STATE ENGINEER
DIVISION OF WATER RESOURCES

1313 Sherman Street-Room 818
Denver, Colorado 80203
(303) 866-3581

March 19, 1986

Mr. Buddy Babcock
Route 2
Calhan, Colorado 80808

RE: Change of use for well permit
Nos. 9642-FP, 20528-FP, 27582-FP

Dear Mr. Babcock:

Enclosed is the Findings, Conclusion and Order of the Colorado Ground Water Commission concerning your application to change the use of the above listed wells. Also enclosed are copies of amended final permits. Your attention is drawn to the conditions of approval contained therein. These conditions of approval set a specific limit on the amount of water which you may take in any year and set operational criteria which you are expected to meet. If you are aggrieved by any part of the Order and would like to request a hearing you must do so in writing within thirty (30) days.

If you have any questions, please feel free to call me.

Sincerely,

Keith C. Kepler, P.E.
Chief, Designated Basins
Ground Water Section

KCK/pdt
Enclosure

cc: Upper Black Squirrel GWMD

7568I/Form #4932I

RPM, Inc.

FINDINGS, CONCLUSIONS AND ORDER OF THE COLORADO GROUND WATER COMMISSION

IN THE MATTER OF A REQUEST BY BUDDY BABCOCK TO CHANGE THE TYPE OF USE ALLOWED BY PERMIT NOS. 9642-FP, 20528-FP, and 27582-FP

FINDINGS

1. Well numbers 20528-FP and 27582-FP were both registered April 26, 1960 and both have priority dates of April 1, 1956 (priority 106 and 107). Final permit 9642-FP is for a well supplement to final permit numbers 20528-FP and 27582-FP. The supplemental well has no appropriation assigned to it but may divert water assigned to the two above referenced appropriations.

2. Pursuant to Section 37-90-111(1)(g) C.R.S., Buddy Babcock submitted a request to change the use of the three wells from irrigation to municipal use. Under the proposed municipal use the water would be used within the Upper Black Squirrel Creek Designated Ground Water Basin. The period of use would change from seasonal to year-round.

3. Buddy Babcock is the owner of the wells.

4. Information provided by the applicant on historic crop and irrigation practices was used to determine the annual consumptive use of water by the crops. The calculations indicate that an average of 135 acre-feet per year was consumed by crops during the period from 1976 through 1980. A greater crop acreage was irrigated prior to 1976 and a lesser crop acreage since 1980. The period 1976 through 1980 was considered a good representation for purposes of determining the historic use of this well.

5. U.S.G.S. water level data for the area show that historic water level declines have caused reduced well yields at this location. Many wells in the Upper Black Squirrel Creek Basin are unable to produce the amount of water to which they have a right.

6. The change in year-round use increases the applicant's opportunity to pump water. On an annual basis the amount of water would not be affected by water level declines to the same extent as seasonal irrigation use.

7. The application specifies no place of use other than within the Upper Black Squirrel Designated Ground Water Basin. Since no place of use is specified, no credit can be considered for return flows. Future diversions must be limited to historic depletions.

8. The application to change the use of the three wells was published in the Colorado Springs Gazette Telegraph on January 2 and 9, 1986.

9. No objections were received to the proposed change in use.

10. No comments were received from the Upper Black Squirrel Creek Ground Water Management District in response to a letter requesting recommendations dated December 11, 1985.

11. The Colorado Ground Water Commission finds that material injury to existing water rights will not occur from issuance of these changes of use if the conditions listed in the following Order are complied with:

ORDER

It is therefore ordered that the type of use allowed under permit nos. 9642-FP, 20528-FP, 27582-FP be changed from irrigation to municipal pursuant to the following conditions:

1. The combined maximum annual appropriation from wells 9642-FP, 20528-FP, and 27582-FP shall not exceed 135 acre-feet per year. After the first 5 years, reductions in withdrawals may be required to compensate for the greater opportunity afforded by the change to year-round pumping. The basis for assigning such a reduction is discussed in Condition 6 below.

2. 67.5 acre-feet per year is assigned to priority 106 and 67.5 acre-feet per year is assigned to priority 107.

3. The amount of water taken in any one year from any individual well subject of this approval shall not exceed one half of the total allowable appropriation for that year.

4. The water from these three wells shall be used only for municipal use within the Upper Black Squirrel Creek Designated Ground Water Basin. Water shall not be used for any other purpose without first obtaining the authorization of the Colorado Ground Water Commission.

5. A totalizing flow meter shall be installed and maintained on each well by the applicant. Diversion records shall be collected monthly by the applicant and submitted to the Division of Water Resources and the Upper Black Squirrel Creek Ground Water Management District annually and at other times upon request.

6. The static water levels will be measured by the applicant each January and the results submitted to the Division of Water Resources and the Upper Black Squirrel Creek Ground Water Management District by March 1. All three wells will be shut down for 12 hours prior to the water level measurement and during measurement.

7. The basis for the reduction in annual appropriation required by the change to year-round use shall be as follows: during the first 5 years after the change to year-round use no reduction shall be made but water levels shall be observed. In year 6 and in subsequent years, the appropriations shall be reduced by 4.5 acre-feet for each 1 foot drop in the water table from the referenced 5-year measurement or some other reference point to be approved by the Commission.

RPM, Inc.

8. The change in use and amendment of the final permits shall be effective on the first day water is put to municipal use. Until that time, these wells may continue to be used for irrigation in accordance with the original final permits. Once water is first put to municipal use the water from these wells may no longer be used for irrigation use and the amendment to the final permits becomes effective.

Ordered this 18th day of MARCH, 1986.

Jeris A. Danielson
State Engineer

75331

RPM, Inc.

RECEIVED
MAR - 5 1986
WATER RESOURCES
STATE ENGINEER
COLO.

RICHARD D. LAMM
Governor

JERIS A. DANIELSON
Executive Director

GROUND WATER COMMISSION
STATE OF COLORADO

1313 Sherman Street-Room 818
Denver, Colorado 80203
(303) 866-3581

Buddy Babcock
Route 2
Calhan Co 80808

Date JAN 23, 1986
Invoice No. 76

INVOICE

Pursuant to Section 37-90-116 C.R.S. (as amended 1985) applicants are required to pay for the actual expense of publication for permits and applications.

Your Application to Change Use of 3 wells was published in the Gazette Telegraph on Jan 2 and 9, 1986.

The following cost was incurred:

1. Actual cost of publication (for publications which include several items the cost is divided among the applicants in proportion to the space required for their application.) $ 62.64

2. Additionally, the following fee is required for _____. $ _____

PLEASE PAY THIS AMOUNT $ 62.64

DIVISION OF WATER RESOURCES
STATE ENGINEER'S OFFICE
DENVER, COLORADO

Date 3-5, 19 86

RECEIPT 62.64

Received of Buddy Babcock

Address _____

Amount Received _____ Dollars $ 62.

Other Cash for 10 Bonds

PLEASE REFER TO RECEIPT NO. WHEN MAKING INQUIRY

	Replace. & Reloc.		License		Sale of Book or Map		Livestock Application
	Construction		Rig		Copy of Records		Erosion Application
	Late Registration		Change of Record		Micro-Film Copy		Plans & Specifications
	Final		Objection		Computer Services		Dam Inspector Fee

State Engineer

By _____ Check No. 5864 Cash _____ M.O. _____

RECEIPT COPY

- Optional set of ground water wells available for operational use.

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

John W. Hickenlooper
Governor

Mike King
Executive Director

Dick Wolfe, P.E.
Director

June 14, 2011

Certified letter no: 7004 0550 0001 1025 7498

Schubert Ranches
Attn: George
1555 S. Baggett Rd
Calhan, CO 80808-7808

RE: Well Permit Nos.: 25554-F, 29487-F, and 29488-F final permits
Location: Sections 20, 21, and 28, Township 14 South, Range 62 West

THIS LETTER CONCERNS YOUR WATER RIGHT! FAILURE TO RESPOND COULD AFFECT YOUR WATER RIGHT AND THE USE OF YOUR WELL.

Dear George:

As we discussed on the phone today, this office is currently reviewing permit files in preparation for the issuance of final permits in the Upper Black Squirrel Creek Designated Ground Water Basin in Colorado. You may view images of the original permit documents from your file on a website at: http://www.dwr.state.co.us/WellViewWeb/default.aspx.

All of the required documents are in the files for the subject permits. We are sending this letter to inform you of the results of our evaluation and give you an opportunity to provide any correction needed.

Final permits for the following wells are already completed: 19887-RFP, 19888-RFP, 19889-RFP, 27551-FP, 20585-RFP, 27552-RFP, 6961-FP, 6971-FP, 6966-FP, 6970-FP, 27552-FP, 6969-FP, 6964-FP, 6965-FP, 6963-FP, 6959-FP, 27553-FP, 15885-RFP, 15957-RFP. These final permits allow for commingling on 280 acres with a total combined appropriation not to exceed 1,120 acre-feet.

Permit no. 25554-F (LF #1) was issued for the irrigation of an additional 53 acres and 133 acre-feet. The diagram on the permit shows a larger area in the SE1/4 and the SE1/4 of the SW1/4 of Section 20. The statement of beneficial use (SBU) claims 53 acres and describes NW1/4, SE1/4 of Section 20. From aerial photos, it appears that the actual area specific to this well is 53 acres of a partial circle within the SE1/4 of Section 20.

The permits for 29487-F (LF #3) and 29488-F (LF #2) were issued for 40 acres together, and the diagram on the permit for 29488-F shows an area in the W1/2 of the SW1/4 of Section 28. Each permit was given an appropriation of 160 acre-feet. The permitted beneficial uses were: domestic, livestock, commercial, industrial, irrigation, and municipal. The SBUs for these wells claim 320 acres, parts of Sections 20, 21, 28, and 29, with a diagram on the back showing the various partial circles irrigated by all of the wells together. The irrigation of about 320 acres as shown on the SBUs is confirmed by the 1999 photo. There is no permanent pump installation information for either permit. Please provide pump installation reports for both wells if they are available. There is no evidence that the wells had any use other than irrigation within three years of when the permits were issued. If there were other uses, please provide specific information about what those uses were. If the uses included

Office of the State Engineer
1313 Sherman Street, Suite 818 • Denver, CO 80203 • Phone: 303-866-3581 • Fax: 303-866-3589
www.water.state.co.us

commercial, industrial, or municipal, please include meter records and other information to support the appropriation attributable to those types of uses.

Therefore, this office believes that the three permits should be issued final permits according to their actual use within 3 years of permit issuance, as summarized in the table below.

Permit	Irrigated Acres	Description of Acres	Appropriation (AF)	Use
25554-F	53	Partial circle within the SE1/4 of Section 20	133	Irrigation
29487-F	40	Part of the W1/2 of the SW1/4 of Section 28	160	Irrigation
29488-F	40	Part of the W1/2 of the SW1/4 of Section 28	160	Irrigation

The commingled area of these 3 wells together with the final permits listed above appears to be 320 acres, parts of Sections 20, 21, 28, and 29, corresponding to the diagram on the SBU for permit 29487-F. This is 40 acres greater than the commingling approved in the earlier final permits. This additional 40 acres can be assigned the standard appropriation for Upper Black Squirrel Creek of 2.5 feet per acre, for an additional appropriation of 100 acre-feet (40 acres x 2.5 ft per acre). Therefore, the combined annual appropriation of all of the wells would be 1220 acre-feet (1120 + 100). The final permits for the older wells will be amended to allow for this change in commingling.

We briefly discussed your LF #4 permit (32023-F). This permit is commingled with a different group of wells south of Sanborn Road, which you discussed with Ivan Franco of this office on May 31. Ivan noted in the permit file that this group of wells is still being used for irrigation only.

If there are any questions or corrections required, please notify me by July 14, 2011. Thank you.

Sincerely,

Tracy Kosloff
Water Resources Engineer
303-866-3581 ext 8211
Tracy.kosloff@state.co.us

"(9) Mitigation of Impacts to Adjacent Properties

Adverse impacts from vibration, noise, glare, blowing or flowing materials, or odors shall be mitigated to ensure minimal impacts to adjacent properties and travelers."

- **Vibration Impacts:**
  - There are two potential sources of vibration impacts, blasting and operational equipment, such as dozers, backhoes, and crushers.
    - ✓ No blasting will occur at the proposed operation.
    - ✓ The ground vibration from tracked equipment is minimal since the substrate will be sand. The sandy nature of the site will absorb vibration from such equipment.
    - ✓ The processing will not include any large crushing equipment. The crushing which may occur on-site, if needed, will use a typical sand and gravel crusher and screening system. Little vibration is transmitted from the equipment to the ground. Since the substrate is sandy it will absorb any such vibration.
- **Noise Impacts:**
  - Mining operations create noise from a number of sources, to include haul trucks, excavation equipment, and processing equipment. Safety related sources of noise include backup alarms or horns, required by Federal safety regulations.
  - Noise Mitigation Practices, includes but is not limited to:
    - ✓ Hours of operation: The proposed mining operation will only operate from 7 am to 7 pm, six days per week, as needed. (Only during daylight hours within that timeframe.)
    - ✓ Placement of topsoil stockpiles may be used to reduce noise and visual impacts.
    - ✓ Once the initial pit cut is achieved, operations may be moved below the surface elevation into the active pit. Relocation into the operational pit will help reduce operational noise.
    - ✓ The highway haul trucks point(s) of access will be away from residential areas and will help reduce the noise impact. (Please see the Mine Plan Map which shows the point of access mid-way along Sanborn Road, well away from the housing development on the west side of the proposed mining operation.

- **Glare Impacts:**

  This is proposed to be a daytime mining operation. Therefore, there will be no operational lighting needed. If night operations should be needed, we will return to the County to properly address operational lighting needs and impacts.

- **Blowing or Flowing Materials, or Odor Impacts:**
  - ✓ We do not anticipate impacts from materials of items which might produce odors. This is a sand and gravel operation which will use water in its processing facility. In addition, we will secure portable toilets for use on-site. A commercial provider will service the portable toilets on a regular basis. In addition, the site will be gated to prevent illegal dumping.
  - ✓ There should not be any "flowing materials". It is true the fine sands and reject fine soil may flow somewhat. All such minor material movement will be contained within the active pit.
  - ✓ Fugitive dust is the primary air pollutant. We will have in-place a fugitive dust control plan as part of our air quality permit. Fugitive dust control plans may include periodic watering to control fugitive dust from the roads and spray controls (as may be needed) for the crushing and screening operations, etc. It should be noted the pit roadways will be sand, or sand and gravel which should prevent significant generation of fugitive dust.

- **Impacts to Trails and Open Space:**

  Please the see section below (**Supplemental Information)** which discussed trails and open space.

"(10) Commercial Mineral Deposit Required

A commercial mineral deposit as defined by State Statute shall exist on the land on which the operation will be located."

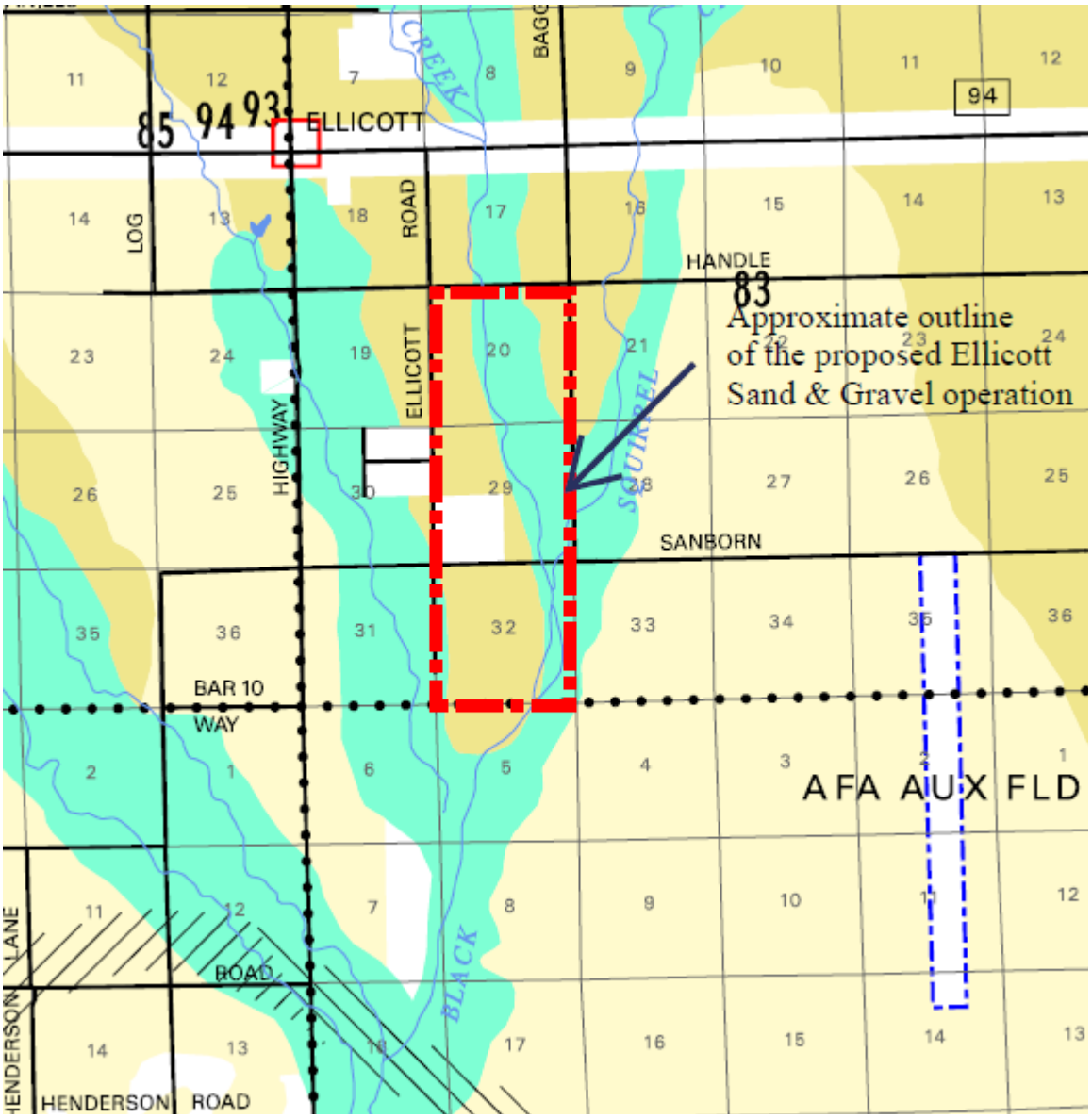
- C.R.S. 34-1-302(1) "'Commercial mineral deposit' means a natural deposit of … sand, gravel…for which extraction by an extractor is or will be commercially feasible and regarding which it can be demonstrated by geologic, mineralogic, or other scientific data that such deposit has significant economic or strategic value to the area, state ..."
- Based on the following from the Ellicott Valley Comprehensive Plan, The proposed sand and gravel operation should fit nicely within the Ellicott Valley Comprehensive Plan Position Statement, "The Valley is ultimately capable of providing many of the elements necessary to support residential, commercial

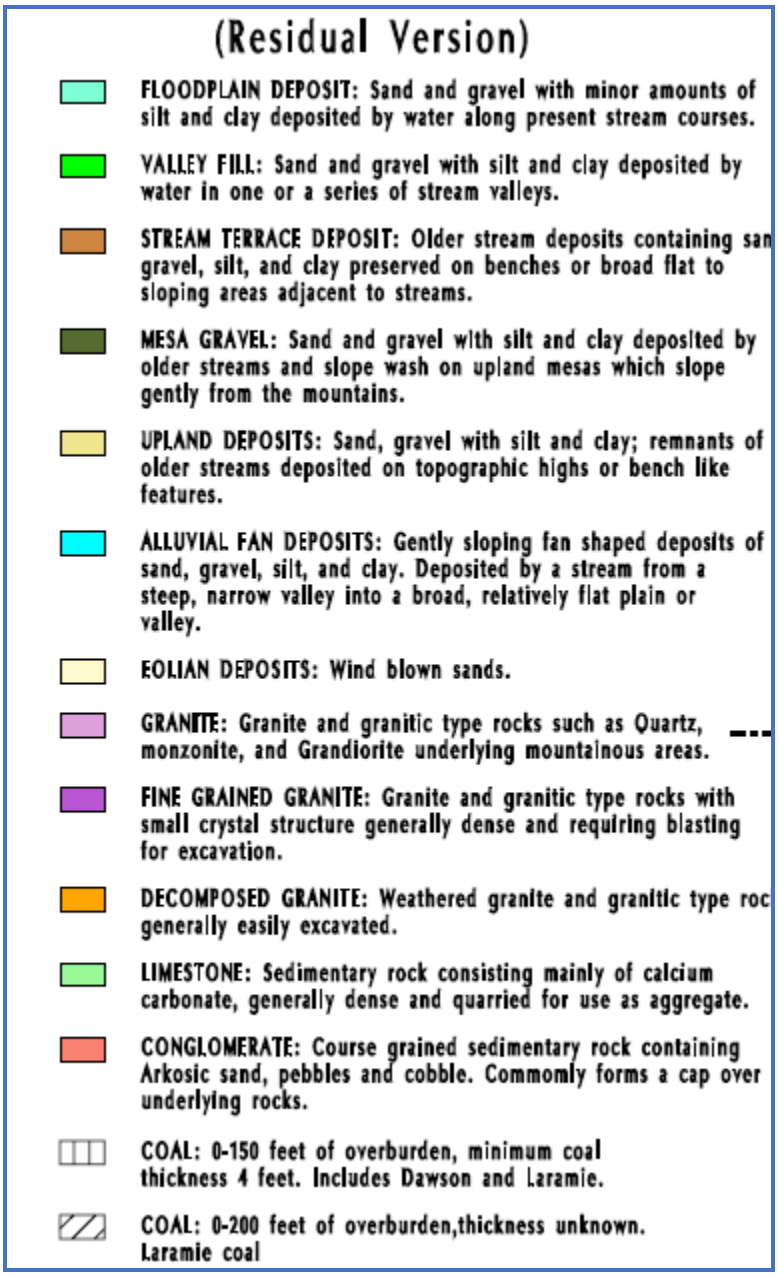
and industrial development. It is the intention of the plan to promote the Valley as the location for one or more *self-sustaining* (emphasis added) satellite communities which will be complementary to the existing metropolitan area."

- The following information from the USGS Geologic Map of Colorado illustrates the potential of the deposit as a commercial sand and gravel deposit. Also shown is the El Paso County Resource Evaluation, Map 3:

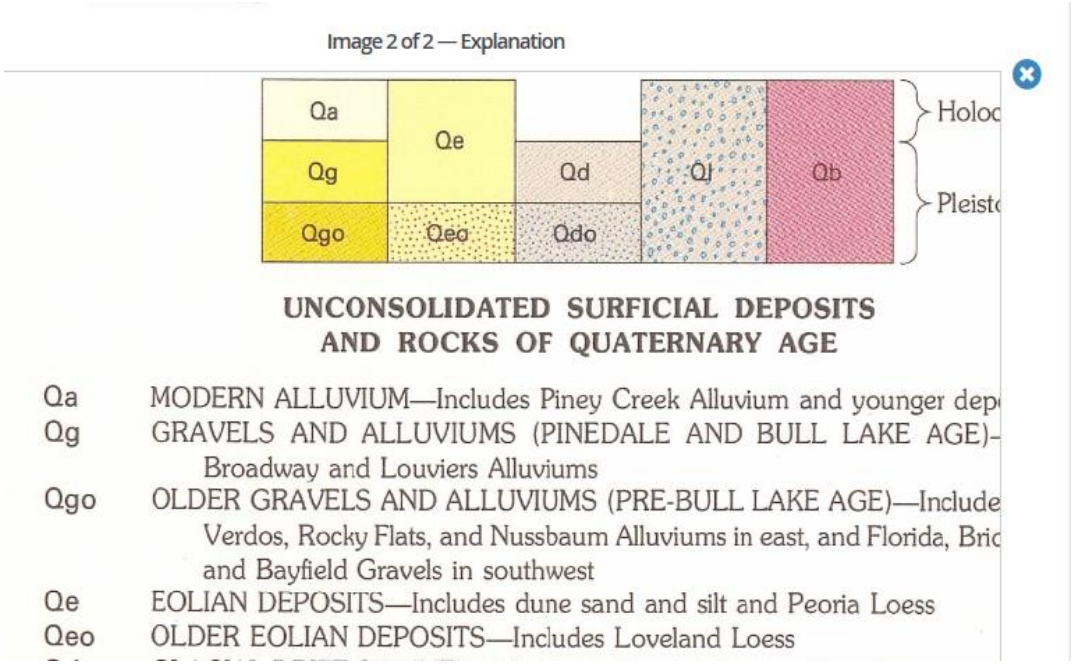
El Paso County Aggregate Resource Evaluation

Map 3




(Residual Version)
FLOODPLAIN DEPOSIT: Sand and gravel with minor amounts of silt and clay deposited by water along present stream courses.
VALLEY FILL: Sand and gravel with silt and clay deposited by water in one or a series of stream valleys.
STREAM TERRACE DEPOSIT: Older stream deposits containing san gravel, silt, and clay preserved on benches or broad flat to sloping areas adjacent to streams.
MESA GRAVEL: Sand and gravel with silt and clay deposited by older streams and slope wash on upland mesas which slope gently from the mountains.
UPLAND DEPOSITS: Sand, gravel with silt and clay; remnants of older streams deposited on topographic highs or bench like features.
ALLUVIAL FAN DEPOSITS: Gently sloping fan shaped deposits of sand, gravel, silt, and clay. Deposited by a stream from a steep, narrow valley into a broad, relatively flat plain or valley.
EOLIAN DEPOSITS: Wind blown sands.
GRANITE: Granite and granitic type rocks such as Quartz, monzonite, and Grandiorite underlying mountainous areas.
FINE GRAINED GRANITE: Granite and granitic type rocks with small crystal structure generally dense and requiring blasting for excavation.
DECOMPOSED GRANITE: Weathered granite and granitic type roc generally easily excavated.
LIMESTONE: Sedimentary rock consisting mainly of calcium carbonate, generally dense and quarried for use as aggregate.
CONGLOMERATE: Course grained sedimentary rock containing Arkosic sand, pebbles and cobble. Commonly forms a cap over underlying rocks.
COAL: 0-150 feet of overburden, minimum coal thickness 4 feet. Includes Dawson and Laramie.
COAL: 0-200 feet of overburden,thickness unknown. Laramie coal

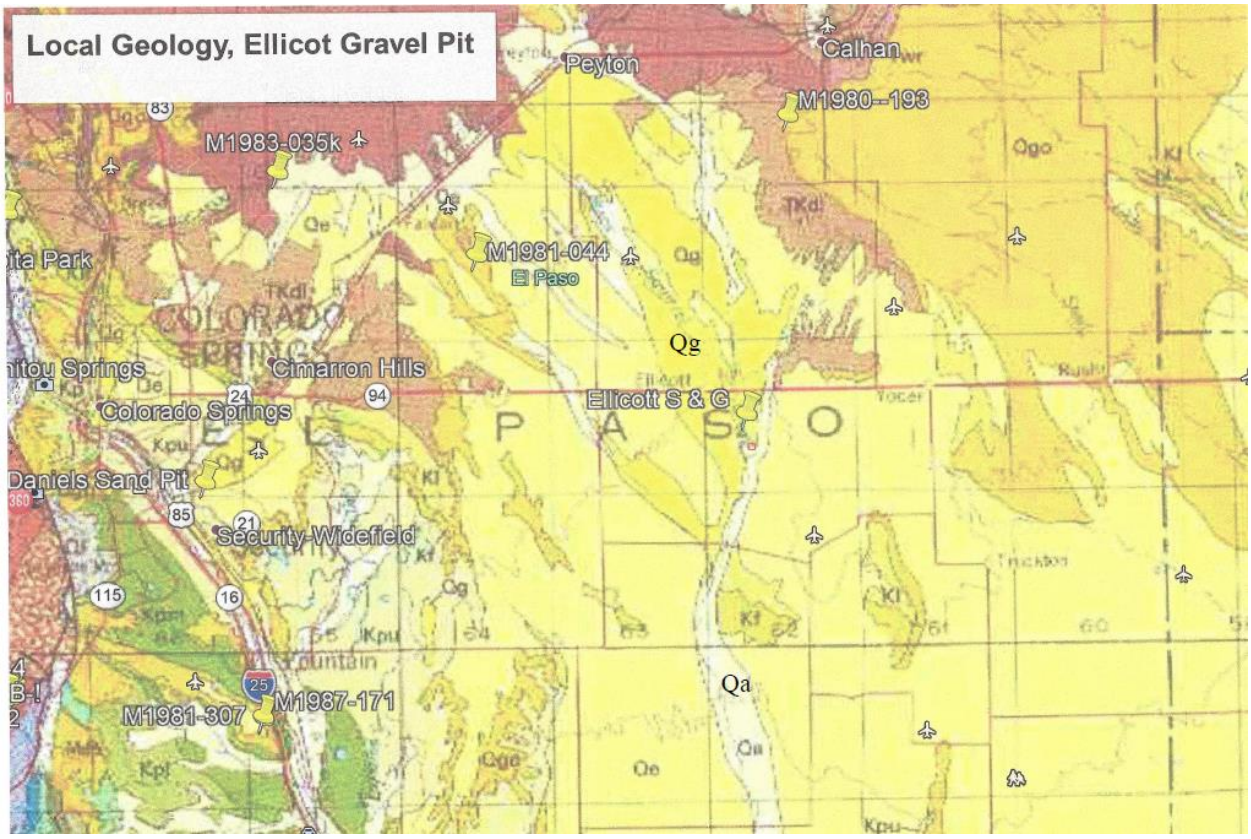
Geological Survey Map



Geology of the Area Based on the USGS Survey Map:

The following geogolic map illustates the extent of the Qg and Qa deposits:

- Qg is Gravels and Alluviums
- Qa is Modern Alluvium



- "Commercial mineral deposit' means a natural deposit of … sand, gravel…for which extraction by an extractor is or will be commercially feasible…" Based on the above statutory definition and the depth of resource available, we believe the deposit is a commercial deposit.
- The second part of the definition requires, "…and regarding which it can be demonstrated by geologic, mineralogic, or other scientific data that such deposit has <u>significant economic</u> or strategic <u>value to the area</u>, state ..."
  - ➢ We have underlined the portion of the statute to which the resource's significance applies. It is understand that a significant source of sand and gravel is becoming less available (see below) as the current doposits are nearing either the limits of the resource, limited by surrounding development, or polotical resistance to the permitting of new sources of construction aggregate.
  - ➢ According to the Colorado Division of Reclamation, Mining and Safety website, El Paso County has 16 permitted sand and gravel operations. Of

that number, six are of less than 10 acres in size and may not be a significant source of sand. One operation is essentially a clay operation for providing other than sand and gravel. The Daniels Sand Pit #2 is responsible for 75% of the sand sold locally. (Page 49, El Paso County Master Plan for Mineral Extraction, Feb 8, 1996) However, it appears the Daniels Sand Pit #2 is nearing completion of mining given it has almost reached the limits of lands available for mining "land locked". (*The Schubert Ranch sand resource has the potential to replace a significant portion of the sand resource, upon closure of the Daniels Sand Pit #2.*) Another site is also "land locked. Two sites are greater than 34 miles from Colorado Springs. One site is in final reclamation.

"(11) Site Security and Safety

Adequate site security and safety shall be provided at all times."

Site security and safety will be ensured by the following means:

- **Site Safety** – As a mining operation, we are subject to the Mine Safety and Health Administration (MSHA). Their regulations include but not limited to mine site speed limits, employee training, back-up alarms, fan and belt guards, site security, posting of signage, personal protective gear (PPG), roll over protection on equipment, and periodic inspections by MSHA personnel, etc.
- **Site Security** – We will provide an entrance gate which will be locked during non-business hour. Given the operation will have a scale for weighing loaded highway haul trucks, all persons entering the mine site will be required to check with the Weight House personnel to sign-in, demonstrate they have recent MSHA minor training, and PPG. The perimeter of the mine site will be posted with no trespassing, mining operation signs.
- **Fire Safety and Emergency Response:**
  - Fire safety – The mine operations are under Mine Safety and Health Administration (MSHA) regulations. MSHA requires mine safety training on a regular basis which includes how to suppress a fire until the local emergency fire responders arrive. MSHA requires fire suppression equipment on all mobile equipment and fire suppression equipment near any significant sources of ignition, such as areas of stored petroleum products and other stored combustibles.
  - As part of the MSHA training mine employees are to receive first aid training. The mine operator is required to have appropriate first aid supplies on site.
  - Emergency Response – MSHA also requires miner training to include emergency response training such as spill response.

- The fire protection district is the Ellicott Fire District.

"(12) Hours of Operation

Hours of the operation shall be compatible with neighboring uses, traffic volumes, affected transportation corridors and school bus operations, and designated pedestrian crosswalk activity over the lifetime operation."

The proposed mining operation will only operate during daylight hours, six days per week, as needed.

"(13) Reclamation of Visual and Environmental Impacts

Reclamation of adverse visual and other environmental impacts shall take place within a reasonable and specified time frame."

- Adverse Visual Impact Reclamation:
  This topic was discussed above, #2. In a general sense, mining is not a long-term activity and varies in length from a few months (highway borrow site to longer term mining operations such as Climax Mine near Leadville, Colorado. In this case, the expected life of the mine is approximately between 53 and 80 years. During this time period, the site will be mined is a number of Phases. What they all have in common is as a mine or phase is completed, reclamation will begin. An operator has 5 years to complete reclamation for the phase or for the entire operation, if not mined in phases. A reclamation plan must specify a post mining land use which has the concurrence of the local county in which the mine is to be located. Once an operator notifies the DRMS that mining is complete at a mine site or phase of mining, the operator initiates site reclamation in order to meet the regulatory requirement to complete reclamation. Therefore, any visual impacts will be addressed shortly after mining in a phase is complete.
  In addition, once a pit (phase) is initially opened, the operations will be below grade and will have only limited visibility. Also, where possible, topsoil stockpiles will be places to limit visibility to the operation from certain locations around the perimeter of a phase.
- Environmental Impact Mitigation:
  There are a number of environmental impacts possible from a typical sand and gravel mining operation. Below are what we believe are the potential environmental issues and how we intend to mitigate impacts. Environment impacts are determined by Federal, State, and local (El Paso County) regulations. For example, typical county environmental impacts are noise, light, and visual impacts.

- Air Pollution:
  - ✓ Section 6.3.1 of the El Paso County Land Development Code requires an operator comply with County, State and Federal air quality standards. We therefore request that the County review process and application approval occur pending approval of our air quality permit(s).
    - ❖ By definition, this is not a construction activity, rather it is a mining operation.
    - ❖ In a typical sand and gravel mining operation, such as the proposed operation, the expected air pollutant is fugitive dust.
    - ❖ There will be some emissions from gas and diesel equipment (trucks and mining equipment). Engine emissions from equipment and fugitive dust are subject to regulation by the State Air Quality Control Division (AQCD). The AQCD will review the Operation's Air Pollution Emission Notice (APEN) and determine what operational controls will be required.
    - ❖ Air quality impacts, therefore, will be mitigated by the requirements of the Air Quality Permit(s) issued by the AQCD. Prior to beginning any on-site mining operations, Ellicott Sand and Gravel will provide the documents as required by Section 6.3.1.(B)(2)(b) shortly after approval by the Colorado Air Quality Control Division.
  - ✓ We therefore suggest, since this is not a typical development, it may not be necessary for the County to apply the provision of Section 6.3.1.(B)(3) for the above reasons and waive this provision.
- Section 6.3.1(C)(5)(a) and (b) Haul Trucks and Haulage Equipment:
  - ✓ (a) Deposition of Dirt and Mud on Roads:
    - ❖ This is a sand and gravel operation. Therefore, dirt and mud should be minimal. The operational surface will be sand and or sand and gravel.
    - ❖ The access point(s) will be surfaced with pit run material (sand and/or gravel).
  - ✓ (b) Particulates Emission in Transit:
    All loads will be covered.
- (6) Open Burning:
  There will be no open burning.
- Impacts to Water Quality:

- ✓ Ground Water Quality:
  - ❖ The operation is designed to not intercept the ground water and will stay at least 10 feet about the regional ground water elevation. "…drill logs for the 24 listed wells indicate the ground water table on the permit (area) is in excess of 80 feet below the surface except in State VI where a single well the depth is listed as 61feet." (Ellicott Sand and Gravel, DRMS approved Permit Application.)
  - ❖ No toxic or other hazardous material will be on site in reportable quantities.
    - o All other solid and liquid waste will be disposed off-site at an approved facility.
    - o We will contract with a commercial provider to handle and provide Port-a-potty's.
  - ❖ If diesel fuel is stored onsite, the storage facility will either be double walled with barriers to prevent vehicle strike, or a berm to contain the capacity of the fuel tank plus the appropriate design storm event. Other than the possibility of diesel fuel, the only other petroleum products which may impact ground water (and surface water) are antifreeze, hydraulic fluid and grease and oils. We will clean up spills of petroleum products which meet the reportable quantities limits and dispose off-site at an approved facility.
- ✓ Surface Water:
  - ❖ This will be a non-discharging facility. Therefore, a Water Quality Control Division (WQCD) Discharge Permit should not be required. We will, however, comply with requirements of the WQCD in the event the WQCD determined a discharge permit is required.
  - ❖ We may need to obtain a Stormwater Discharge Permit. Regardless, we intend to have a Stormwater Management Plan (SWMP). We will implement the SWMP as a part of our Best Management Practices (BMP). Please see the attached "Ellicott Sand and Gravel's Erosion and Sediment Quality Control Permit Application" **Attachment I**.
  - ❖ The ephemeral drainages will not be disturbed by mining.
- ✓ With implementation of our SWMP, coupled with our commitment to stay at least 10 feet above the regional ground water table plus the other commitments noted above, and that no ephemeral drainages will

be disturbed by mining, we believe, will sufficiently mitigate any potential impacts to surface and ground water.

- Wildlife Impacts:
  - ✓ The reclamation plan approved by the DRMS lays out how the site will be reclaimed and takes into consideration the protection of wildlife resources.
    - ❖ For example, the post mining land use is rangeland. The existing use is agriculture. The proposed reclamation seed mix includes a significant number of perennial grass species, several shrubs and one forb, (clover). The post mining land use of rangeland will encourage use by various classes of wildlife more so than what is typical of an agricultural use.
    - ❖ The proposed operation will be mined is phases. Once mining is complete in a phase, reclamation will begin in that phase. Those phases not yet mined will be available for wild life use. The commitment to phased mining followed by reclamation of that phase will limit the impact of wildlife.
    - ❖ Of the available 733.7 available for mining, 220.2 acres will not be mined and available for wildlife use.
    - ❖ The present use of the mine site includes extensive areas of irrigated cropland with limited wildlife use.
  - ✓ Therefore, given the above factors, we do not expect significant impact to existing wildlife use. Further, once the site is fully reclaimed, wildlife use should be enhanced.
- Impacts from Hazardous Waste:
  As discussed above, other than the possibility of diesel fuel, antifreeze, hydraulic fluid and grease and oils, no hazardous or toxic substances shall be on-site. The control of the above petroleum products will be as addressed above.
- Noxious Weed Mitigation:
  The approval of the DRMS Permit Application contains a typical Noxious Weed Control Plan as provided in **Attachment I**.
- 6.3.2.(B) Drainage Report (Soil Erosion Control):
  There are two types of soil erosion, rainfall runoff and wind erosion.
  - ✓ Wind Erosion: Wind erosion is likely given the sandy nature of the proposed mine site. Wind erosion and also fugitive dust, will be controlled by the following means:

- ❖ Dust, primarily fugitive dust, will have the appearance of soil wind erosion. Fugitive dust will be controlled under the provision of the approved Air Quality Permit, likely through road watering and some type of controls on the crushing and screening operations and the drop/transfer points of the conveyor system. In addition, the processing operation will occasionally be moved to where mining is occurring to reduce travel distance from the in-bank resource and the processing facility. Doing so will reduce the potential for mining and haul equipment fugitive dust generation.
- ❖ Loss of soil and subsoil from bare, disturbed areas should be minimal due to the natural moisture in the soil and the active removal of in-bank raw sand and gravel product.

✓ Rainfall Runoff Erosion: This is a non-discharging facility and rainfall runoff does not report to any public or private sanitary or stormwater sewer system.

- ❖ Since this is a non-discharging facility, most soil erosion will be internal to the operation and should not affect off-site drainage ways.
- ❖ Significant topsoil, soil erosion should not occur on areas which have not been disturbed since such areas are covered by natural, perennial grasses and other vegetation. Once an area is ready for mining, the available topsoil will be salvaged and placed in topsoil stockpiles.
- ❖ Topsoil stockpiles will be seeded with the approved, seed mix, once the pile reaches its intended size. Seeding the topsoil stockpiles will ensure loss of soil due to erosion is mitigated.

"(14) Mineral Processing

Mineral processing such as material washing, sorting, crushing or more intensive modification and alteration through mechanical or chemical means to a mineral resource extracted within the same ownership as the mineral extraction operation is prohibited unless specifically approved as part of the special use. If processing is to occur on the property where a special use cannot be approved administratively, and the public hearing process to review the special use will be triggered."

- It is our understanding the Special Use Process under which this material extraction operation is being submitted will include a public hearing process.

- The proposed operation will include, but not be limited to the following sand and gravel processing equipment. No chemical or other processing will occur which will result in tailing or other similar waste material:

Processing Equipment:

Crusher
Screens
Conveyors
A scale and house

(15) Signs On-Premise:

- Section 6.2.10(A)(3)(i) Exemptions, lists "Official Signs" as an exempt sign. One of the official exempt signs is the required mine site identification sign per the Mined Land Reclamation Board Rules and Regulations. The posted mine site identification sign will conform to the "…site distance requirements of the ECM". Such a sign is required to be posted at the point(s) of access to the mining operation.
- In addition to the mine site identification sign, certain other signs as required by the Mine Safety Health Administration (MSHA) will be posted within the mine site. These signs will conform to the requirements of MSHA and the ECM requirements.
- For public safety considerations, No Trespass signs and Danger signs may need to be posted on the existing property fences surrounding the mining operation. These signs will conform to the ECM requirements.
- Mining operations business sign will comply with the requirements of Section 6.2.10(E)(2)(b)-(d), and the ECM requirements.
- All signs will comply with the ECM site distance requirements.

(16) Vehicle Storage:

At this time, we do not plan to use the site for vehicle storage. If, in the future, it becomes necessary to store various pieces of mining equipment on the mine site during mining and reclamation operations, we will comply with the provisions of Section 6.2.11 of the El Paso County Land Development Code.

(17) Standards Applicable in Commercial or industrial Zoning Districts, Inoperable Vehicles and Vehicle Parts:

At this time, we do not plan to use the site for inoperable vehicles and vehicle parts. If, in the future, it becomes necessary to store various pieces of mining

equipment consisting of inoperable vehicles and vehicle parts on the mine site during mining and reclamation operations, we will comply with the provisions of Section 6.2.11(D) of the El Paso County Land Development Code.

(18) ***Fire Protection and Wildfire Mitigation:***

Section 6.3.3 Appears to apply to developments and subdivisions where structures are present and fire suppression/mitigation may be necessary. This is a mineral extraction operation and will not, at the present time, have any structures on-site. We are required by MSHA requirement to have fire suppression equipment on-site and to provide employee training in the proper use of fire suppression equipment. Therefore, we suggest a wildfire mitigation plan is not needed at this time.

(19) ***Notice to Mineral Estate Owners:***

C.R.S, 24-65.5-101 requires applicants for land use cases to notify the owner(s) of *severed* (emphases added) mineral rights. In this case, we believe special notice is not required for the following reasons:

- The surface owner owns 100% of the mineral rights per the El Paso County Assessor's Office.
- Sand and Gravel is not a mineral. (Please see, "NOW IS IT A MINERAL? THE SUPREME COURT TAKES ANOTHER LOOK AT SAND AND GRAVEL", 2004 Christopher Hayes, Bjork Lindley little, PC.)
- The land owners, Schubert Ranches, LLC and George Schubert have given Ellicott Sand and Gravel LLC permission to enter the property and extract the resource. They therefore have full knowledge of the proposed extractive operation.
- Proof the surface owner, owns the mineral rights:

RPM, Inc.

SOURCE OF LEGAL RIGHT TO ENTER

STATE OF COLORADO)
) ss. AFFIDAVIT
COUNTY OF EL PASO)

George Schubert, being first duly sworn upon oath, deposes and says:

1. That Schubert Ranches, LLC, is the surface and mineral rights owner of the property known as the Schubert Ranch Sand Resource. A copy of the deed is available for inspection at their offices in Calhan, Colorado.

2. That Ellicott Sand & Gravel LLC. is legally empowered to enter upon the subject lands and to conduct mining operations for sand and gravel and other construction materials and auxiliary uses associated with mining.

3. That Ellicott Sand & Gravel LLC is empowered to acquire any permits for mining on this property with or before the Colorado Mined Land Reclamation Board under the provisions of the Colorado Mined Land Reclamation Act.

4. If mining occurs within 200 feet of any structure owned by Ellicott Sand & Gravel LLC has agreed to repair, replace or compensate Schubert Ranches, LLC for any damage to the structure caused by mining.

George H. Schubert, Agent

SUBSCRIBED and sworn to before me this 8, day of October, 2018, by George Schubert as the Agent for Schubert Ranches, LLC.

CHRISTINE WILSON
Notary Public
State of Colorado
Notary ID # 20094028750
My Commission Expires 11-10-2021

Christine Wilson
Notary Public

(notarial seal)

My commission expires:
11-10-2021

Supplemental Information:

- **Water Information***: (The following water information is taken from the original Division of Reclamation and Mining, (DRMS) 112 Regular Permit Application and various documents on file with El Paso County. Some of the information from the DRMS Permit Application is paraphrased, other sections are direct quotes and so noted. The information taken from El Paso County available documents are so noted.)*
  - The DRMS consulted with the DWR due to potential impacts to Black Squirrel and Big Spring Creeks. The Division of Water Resources response stated the proposed mining operation is within the Upper Black Squirrel Creek Designated Basin. The Colorado Ground Water Commission (GWC) will require storm water runoff captured by the various phased pits be released with 72 hours of a storm water event. They are also concerned the excavation would intercept ground water from the alluvial aquifer.
    - ✓ In response to the above concerns, Ellicott Sand and Gravel (ESG) will stay at least 10 feet above the regional alluvial ground water table. This will ensure no ground water is exposed.
    - ✓ In addition, in order to address the collection of tributary storm water, ESC has proposed the following. If the proposed mitigation does not result in ESC's ability to meet the 72-hour tributary storm water retention limit, ESC will secure a Gravel Pit Well Permit to account for instances where the 72 tributary storm water retention criteria is exceeded.
      - "As suggested by the Board of the Upper Black Squirrel Creek Designated Basin and the Colorado Ground water Commission, pumping would not be practical due to the high absorption (*infiltration rate*) of Black Squirrel Creek. "…it would be better to let the water be absorbed (*infiltrate*) into the ground and any (*tributary storm water*) left after the initial 72 hours would best be offset by <u>not</u> pumping one of the basin wells owned by the Schubert Ranch.)"
      - Note, the floor the mined-out pits will be consist of at least 10 feet of sandy material.

        Note: *This came from one of the upper Squirrel Creek Wager Basin Board members. The rational is that if you pump the basin well to make up for the evaporative losses you are just circulating the water. It is best if you just don't pump that well and leave the water in the ground, you then can claim replacement credit for the lack of use. Since the well in question is not an augmentation well, but rather a municipal well, it can be pumped and used for makeup water as needed.*

- ✓ From the Ellicott Valley Comprehensive Plan, Map #2, Approximate Aquifer Limits: The proposed mining operation lies within the Denver Ground Water Basin, and as stated above, so do the Black Squirrel Creek and Big Spring Creek regional alluvial aquifers. (Big Spring Creek joins Black Squirrel Creek just above Sanborn Road within the proposed mining operation.)
- ✓ "It is estimated that about 9,000-acre feet of water are annually recharged to alluvial aquifer which underlies the planning area… Presently, essentially all of this alluvial water is appropriated for agricultural uses or external sale."
- ✓ "On average, there is also about 60-acre feet per acre of water in storage in the various bed rock aquifers under the planning area…Unlike alluvial supplies, this water is legally considered to be non-renewable." (Page 72, Ellicott Valley Comprehensive Plan)

➢ Water Use:

- ✓ "We estimate the …water uses at the mine …will require 12.0 ac-ft per year." The source of water for use during mine operations will be from the Schubert Ranch. (Page 20, Exhibit G,112 C Regular Operation Permit Application). Most of the water used for dust control will be used on haul roads." (Page 8, Exhibit D, 112 C Regular Operation Permit Application).
- ✓ The Schubert Ranch has water rights permitted for industrial uses, please see the Mineral and Natural Resource Extraction Application. No water is anticipated for mine site reclamation.

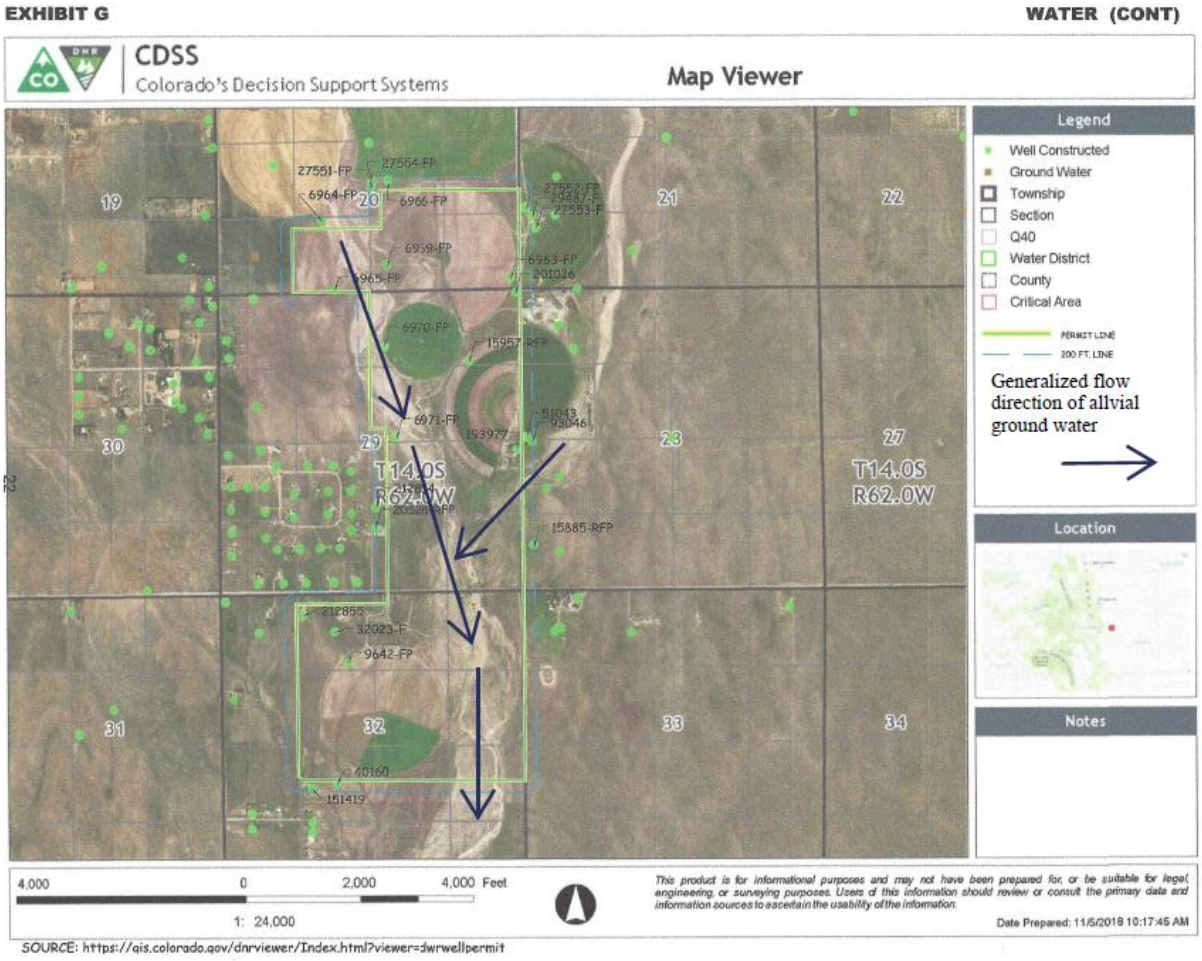
➢ From the ESG Adequacy Response to the DRMS Adequacy Comments 01:
"**Division of Water Resources (rec. 2/21/19)**
Ellicott Sand & Gravel understands the DWR's comments and agree with the three points they have raised. The application packet contains commitments to comply with each.

1 – The floor of the mine and mining will stay at least 10 feet above the groundwater table.
2 – Water used for industrial purposes will come for (*from*) a source approved for that use.
3 – Stormwater runoff intercepted by this operation will be released to the stream system within the time required by DWR or a Temporary Substitute Supply Plan will be obtained to cover the evaporation."

- Stormwater:
  - ✓ The Operation is proposed to be a dry mining operation. As stated above, the proposed floor of the various mine pits will be at least 10 feet above the average ground water elevation.
  - ✓ Any storm water which falls on the site will be allowed to infiltrate in to the sandy floor of the pit. As stated above, this is in conformance with the recommendation of the Board of the Upper Black Squirrel Creek Designated Basin and the Colorado Ground water Commission.
  - ✓ In addition, "…all off site storm water runoff will be diverted around the permit area." (Page 20, Exhibit G,112 C Regular Operation Permit Application)
  - ✓ The Mineral and Natural Resource Extraction Application, Attachment I, contains a Stormwater Management Plan.

- **Impacts to Surrounding Ground Water Wells:**
  Given the commitments Ellicott Sand and Gravel has proposed, we believe there should be no significant impacts to surrounding ground water wells or to the users ground water quality. We offer the following to help demonstrate that no significant impacts to the surrounding ground water wells should occur:
  - Ellicott Sand and Gravel will not mine closer than 10 feet to the average ground water elevation. The mining operation will be a dry mining operation.
  - Ellicott Sand and Gravel will practice good housekeeping in dealing with any reportable spills of petroleum products such as fuels, oils and hydraulic fluids. A reportable spill is any spill of sufficient amount which requires a response based on a regulatory agency regulation.
  - No other toxic or hazardous chemicals will be stored on-site.
  - Any reportable spills, <u>if they were left in-place and escaped the limits of the mining operation</u>, would likely follow the alluvial ground water flow which is in a down gradient direction, generally away from the adjacent ground water wells. Please see following figure. (<u>We intend to clean-up and report any regulated spill, in conformance with State and Federal regulatory requirements</u>.)

Illustration of General Direction of Alluvial Ground Water Flow Direction



B. Additional Standards.

(1). Consistent with the Master Plan: The operation shall be consistent with the Master Plan for Extraction of Commercial Mineral Deposits;

The proposed activity falls within approved zoning for the affected land parcels. In addition, with approval of the Application for the Extraction of Commercial Mineral Deposit, Letter of Intent, plus the other stipulated requirements, the proposed activity, we believe, will be "Consistent with the Master Plan".

(C). Criteria:

- *The special use is generally consistent with the applicable Master Plan:*
  - The regional Mater Plan is the "Ellicott Valley Comprehensive Plan", it requires:

- ✓ *Preserve or protect the sensitive and unique environmental features in the planning area, but seek also to capitalize on the general lack of natural constraints to create a new and liveable environment:*
  - ❖ *Proposed Actions:*
    - o *Select a manageable number of the most appropriate stream corridor segments for eventual integration into a linear park system. Orient development (with proper setbacks) toward these and allow for adequate public access…:*
      - The proposed mining operation will be on private land.
      - The El Paso County Master Plan Map for trails and open space shows the proposed operation would be close to these future recreational facilities.
      - The DRMS approved mining and reclamation plans include setbacks from the adjacent ephemeral streams and setbacks from the adjacent property boundaries. The postmining land use is rangeland and wildlife habitat.
      - If, in the future, the landowner decides to make the reclaimed lands available to the regional authorities for access, the setbacks and the chosen reclamation will provide for excellent, open space and trails.
      - Even if the land owner does not offer to make portions of his property which have been mined available for trails and/or open space, the location of the proposed mining operation should not have a significant impact. The mining and reclamation plans include setbacks from the property lines, and water courses. Also, the mining operation will be reclaimed to rangeland and wildlife habitat as stated above.

Location of Proposed Open Space and Trails in Relation to the Proposed Mining Operation.

Trails

Approximate location of the proposed Ellicott Sand & Gravel operation

Open Space

- *Cooperate with the State Division of Wildlife* (Now the Colorado Division of Parks and Wildlife, CDPW) *in tailoring land use plans to the needs of wildlife populations:*
  - We will cooperate with the CDPW to the extent operational concerns allow.
  - As part of the DRMS Mining Permit Application, we are to address wildlife concerns. At this point the CDPW did not provide comments on the Mining Application.
  - Given significant parcels of the present land use is farm related, only minimal wildlife use is known to occur on the DRMS approved mining area.
- *Determine the degree to which any proposed land use may produce on- or off-site fugitive dust problems and design appropriate solutions for mitigation of any problem:*
  As part of the permits necessary to open a commercial sand and gravel mining operation, the operator must obtain and comply with a Colorado Department of Public Health and Environment, Air Quality Control Division's Air Quality Permit. The permit is designed to address fugitive dust impacts and to mitigate those impacts.

✓ *Evaluate all land use proposals in the planning area in terms of both their individual and potential collective impacts on the alluvial aquifers which provide the area with its water supply:*

- *To the degree possible under its land use authority the County should discourage any use of land or water which would adversely affect either the quantity or quality of groundwater in the planning area:*
  - As stated in the Extraction of Commercial Mineral Deposits application, and in the approved Division of Reclamation, Mining and Safety approved permit application, we are committed to staying at least ten (10) feet above the prevailing ground water elevation. In addition, any petroleum spills in reportable quantities associated with use of the mining equipment will be cleaned up and disposed off-site at an approved facility. No toxic or acidic materials in regulated quantities will be exposed or brought onto the site.
  - This will be a non-discharging facility and will include an erosion control plan and a Stormwater Management Plan, as required.
- *Encourage all developers to coordinate with the Upper Black Squirrel Water District, the State Engineer, the United States Geological Survey,*

applicable special districts and the County Hydrologist to ensure that water supplies are available and protected:
These concerns are addressed in the "Letter of Intent", Water Information section.

- *Encourage the eventual use of local water resources by uses within the planning area:*
  With the exception of the water retained in the product sold off-site, all ground water used for processing operations and fugitive dust control will be used on-site. Potable water will be brought onto the site for domestic use.
- *Support development which integrates water conservation practices which include on-site handling of runoff.*
  We estimate only 12-acre feet of ground water will be needed annually for mine operations and fugitive dust control. Most stormwater runoff will be internal to the operation and will infiltrate into the sandy floor of the active pit. Once a mine phase is finished, reclamation of that phase will begin. Once a phase is full reclaimed, we expect little runoff from that phase.
- *Encourage individual developers to coordinate with adjacent property owners in the development and implementation of master drainage basin studies:*
  Ellicott Sand and Gravel is not the property owner. We will discuss with the proposed mine site property owner if he/she wishes to partner with other property owners for such studies.
- *Visual and historical features:*
  - This issue is addressed in the Mineral and Natural Resource Extraction Application. In summary, there are no known historical features.
  - There should be minimal visual impact issues. Once the operation is underway, most of the activity will be below grade. Once mining is complete in a Phase, the Phase will be reclaimed. The entire mining operation is of limited duration.
- *Protect views to the Front Range, major ridge lines and the Upper Black Squirrel Valley:*
  Since the operation is proposed to be below grade once operations are underway and that topsoil stockpiles will be placed to help mitigate any visual impact, we believe this concern is adequately addressed.
- *Preserve the open rural character of the Valley by clustering development, maintaining some open space and providing corridors:*

- Out of the total 733.7 acres proposed as part of the total permit boundary, roughly, only 513.5 acres will be affected. The remaining 220.2 acres will be a buffer which could be considered open space and corridors.
- It should be remembered the property is privately owned and its future use as open space and/or corridors is at the discretion of property owner.

- *Create new and diversified local visual environments by encouraging compatibility of design and landscaping:*
  - Since this is a State approved mining operation with an approved reclamation plan, and a reclamation bond sufficient to complete site reclamation, we believe this concern is addressed.
  - In addition, the approved reclamation plan is compatible with the approved post mining land use which will be rangeland and wildlife habitat.
- *Buffer unsightly uses such as junk yards and mineral extraction operations through careful location, berming and screening:*
  - The DRMS permit approval includes specifically located topsoil stockpiles to act as visual berms.
  - Also, since essentially all of the proposed mineral extraction and processing operations will be below grade (once operations begin), the operations will be significantly out of sight.
  - Therefore, visual impacts will be mitigated.
- *Locate public facilities such as water tanks and substations as unobtrusively as possible and further minimize their impact through the use of screening, berming and natural colors:*
  - No public facilities are planned.
  - At this point in time, there will be processing equipment, mining equipment and scale.
  - As stated above, once operations begin in a Phase, all activity will essentially be below grade and blocked from view. Each Phase is expected to be up to 60 feet deep.

- *The special use will be in harmony with the character of the neighborhood, and will generally be compatible with the existing and allowable land uses in the surrounding area:*
  - The proposed mining operation will take place in an area zoned as A-35 which includes mineral extraction.

- The proposed operational permit boundary will be offset from adjacent property boundaries by at least 200 feet. There will be an additional offset from the proposed permit boundary to the affected land boundary.
- Further, once the operation is underway, the mining and processing activities will be below grade in the active pit area.
- The adjoining properties are zoned A-35 and RR-5. The RR-5 zoning is a small development to the west, south and north of the proposed mining operation. Please see the Mineral and Natural Resource Extraction Application Map, item 7.

- *The impact of the special use does not overburden or exceed the capacity of public facilities and services, or, in the alternative, the special use application demonstrates that it will provide adequate public facilities in a timely and efficient manner:*
  - The mining operation will not utilize any public facilities other than the road system. Proposed road use is addressed in the Traffic Study.
  - The only public services which could be impacted are emergency responders. Given we are subject to Mine Safety and Health Administration (MSHA regulations, every effort will be made to ensure that the operation is safe and will not require fire, ambulance or law enforcement first responders. As stated above, the fire protection district is the Ellicott Fire District.

- *The special use will not create unmitigated traffic congestion or traffic hazards in the surrounding area, and has adequate, legal access:*

Please see the Traffic Study which is part of the Application for the Extraction of Commercial Mineral Deposit, **Attachment IV**.

- *The special use will comply with all applicable local, state, and federal laws and regulations regarding air, water, light, or noise pollution:*
  Ellicott Sand and Gravel will comply with all applicable local, state, and federal laws and regulations regarding air, water, light and noise pollution.

- *The special use will not otherwise be detrimental to the public health, safety and welfare of the present or future residents of El Paso County:*
- With the approval and issuance of the requested Special Use permit and our commitment to comply with all applicable local, state and federal laws and regulations, we believe this requirement will be met.

- *The special use conforms or will conform to all other applicable County rules, regulation or ordinances:*

With the approval and issuance of the requested Special Use permit and our commitment to comply with all applicable local, state and federal laws and regulations, we believe we requirement will be met.

- **Site soils and Geology:**
  - Site Geology:
    The site geology is described on the enclosed Geologic Map provided above.
  - Site Soils:
    The site soils are provided below and are from the approved DRMS Permit Application, Exhibit I:

EXHIBIT I

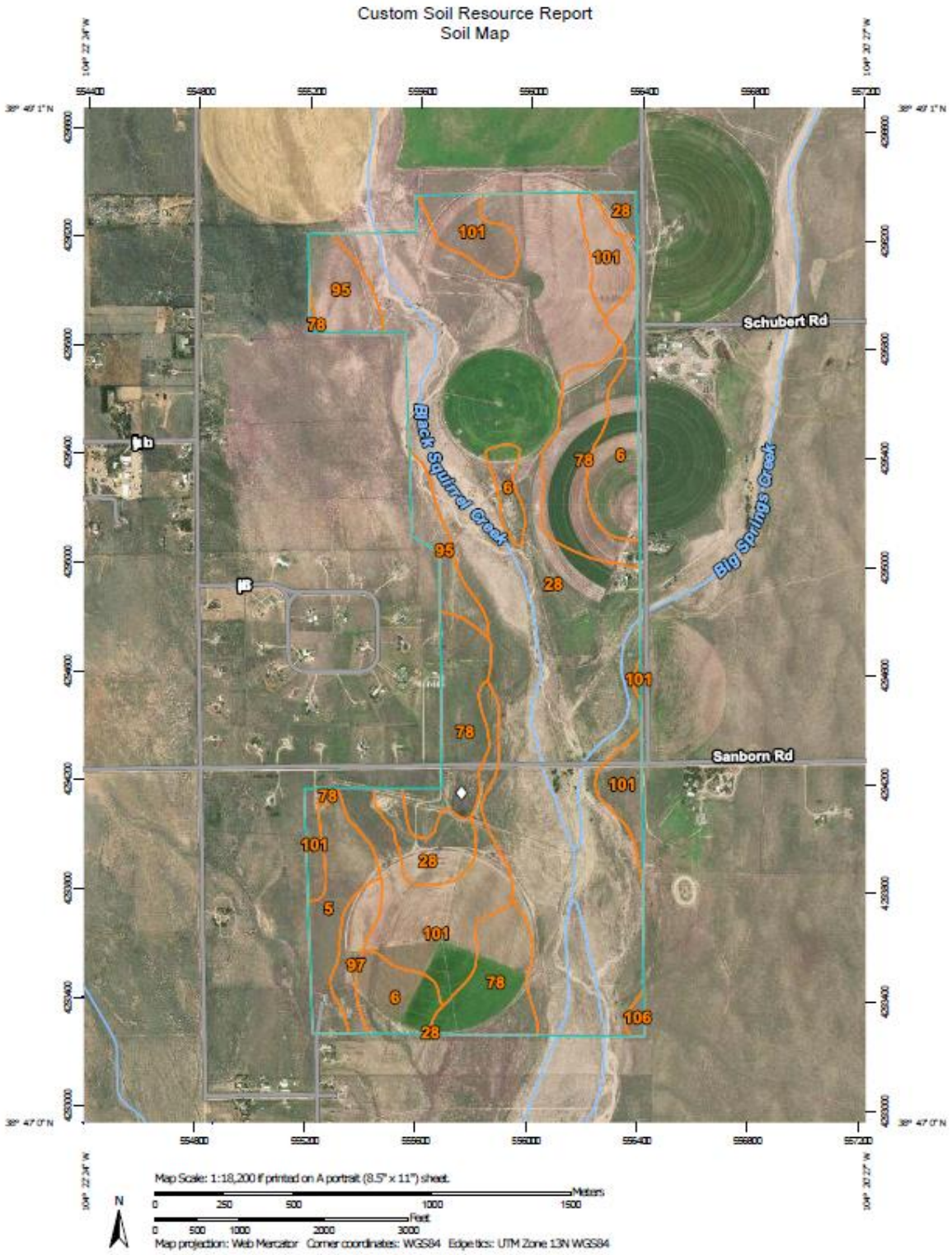
SOILS

SOILS INFORMATION

INTRODUCTION

The following information was provided by Mr. Greg Langer District Conservationist from the El Paso County District or the NRCS. Soil units are shown on the USDA map, reproduced on the following pages. The photo map shows the surrounding vegetation features and soil types. This site lies along a north/south trending deposit of sand on both sides of the ephemeral drainage known as Black Squirrel Creek. There are 8 soils types found on the mine site. Underling the soils is a sand deposit with a little gravel intermixed that is 70 plus feet thick. The static ground water table in the wells on the mine site averages 70 feet deep and no mining will take place deeper then 70 ft or minimum or 2 feet above the water table.

Soils information and technical information is provided in the NRCS report attached following this section. The report indicates that the salvageable soil depths vary from 4 to 15 but many of the soils types have 8 inches or less so the average works out to be 5.5 inches. Across the site however the northern area covered by irrigation sprinklers is used for sod farming so little or no actual soil remains on those areas due to the way the grass is grown on a sand base that has organic additives added to make soil for the sod. Any soil encountered in a stage will be salvaged and placed around the outer mine limits as far from the creek as practical for use in reclamation.


Custom Soil Resource Report
Soil Map
Schubert Rd
Sanborn Rd
Black Squirrel Creek
Big Springs Creek
101
28
95
78
6
5
97
106
Map Scale: 1:18,200 if printed on A portrait (8.5" x 11") sheet.
Meters
0 250 500 1000 1500
Feet
0 500 1000 2000 3000
N
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 16, Sep 10, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 12, 2017—Nov 17, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Bijou loamy sand, 1 to 8 percent slopes	26.5	3.6%
6	Bijou sandy loam, 0 to 3 percent slopes	52.9	7.3%
28	Ellicott loamy coarse sand, 0 to 5 percent slopes	406.4	55.7%
78	Sampson loam, 0 to 3 percent slopes	96.2	13.2%
95	Truckton loamy sand, 1 to 9 percent slopes	31.7	4.3%
97	Truckton sandy loam, 3 to 9 percent slopes	12.4	1.7%
101	Ustic Torrifluvents, loamy	101.3	13.9%
106	Wigton loamy sand, 1 to 8 percent slopes	2.0	0.3%
Totals for Area of Interest		**729.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a

El Paso County Area, Colorado

5—Bijou loamy sand, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tqxq
Elevation: 4,000 to 5,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Bijou and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bijou

Setting

Landform: Sand sheets
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian sands

Typical profile

A - 0 to 4 inches: loamy sand
AB - 4 to 9 inches: loamy sand
Bt - 9 to 36 inches: sandy loam
BC - 36 to 50 inches: loamy sand
C - 50 to 79 inches: loamy sand

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.1 to 0.2 mmhos/cm)
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

Minor Components

Valent

Percent of map unit: 10 percent
Landform: Sand sheets
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Deep Sand (R067BY015CO)
Hydric soil rating: No

Olnest

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

6—Bijou sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tqxr
Elevation: 5,700 to 6,200 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 50 to 54 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Map Unit Composition

Bijou and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bijou

Setting

Landform: Swales, sand sheets
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave, linear
Parent material: Eolian sands

Typical profile

A - 0 to 4 inches: sandy loam

Bt1 - 4 to 8 inches: sandy loam
Bt2 - 8 to 21 inches: sandy loam
Bw - 21 to 28 inches: sandy loam
C - 28 to 79 inches: loamy coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.1 to 0.2 mmhos/cm)
Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

Minor Components

Valent

Percent of map unit: 10 percent
Landform: Sand sheets
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Deep Sand (R067BY015CO)
Hydric soil rating: No

Olnest

Percent of map unit: 5 percent
Landform: Swales
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: Sandy Plains (R067BY024CO)
Hydric soil rating: No

28—Ellicott loamy coarse sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 3680
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 47 to 50 degrees F

Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Ellicott and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ellicott

Setting

Landform: Flood plains, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy alluvium

Typical profile

A - 0 to 4 inches: loamy coarse sand
C - 4 to 60 inches: stratified coarse sand to sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A
Ecological site: Sandy Bottomland LRU's A & B (R069XY031CO)
Other vegetative classification: SANDY BOTTOMLAND (069AY031CO)
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquoll

Percent of map unit:
Landform: Swales
Hydric soil rating: Yes

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

78—Sampson loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 369s
Elevation: 5,500 to 6,500 feet
Mean annual precipitation: 13 to 15 inches
Mean annual air temperature: 47 to 50 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Sampson and similar soils: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sampson

Setting

Landform: Depressions, alluvial fans, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 15 inches: loam
Bt - 15 to 34 inches: clay loam
Bk - 34 to 60 inches: sandy clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: Loamy Foothill (R049BY202CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

95—Truckton loamy sand, 1 to 9 percent slopes

Map Unit Setting

National map unit symbol: 36bd
Elevation: 6,000 to 7,000 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Hills, flats
Landform position (three-dimensional): Side slope, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock and/or arkosic residuum weathered from sedimentary rock

Typical profile

A - 0 to 8 inches: loamy sand
Bt - 8 to 24 inches: sandy loam
C - 24 to 60 inches: coarse sandy loam

Properties and qualities

Slope: 1 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: Sandy Foothill (R049BY210CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

97—Truckton sandy loam, 3 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2x0j2
Elevation: 5,300 to 6,850 feet
Mean annual precipitation: 14 to 19 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 85 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Truckton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Truckton

Setting

Landform: Interfluves, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Re-worked alluvium derived from arkose

Typical profile

A - 0 to 4 inches: sandy loam
Bt1 - 4 to 12 inches: sandy loam
Bt2 - 12 to 19 inches: sandy loam
C - 19 to 80 inches: sandy loam

Properties and qualities

Slope: 3 to 9 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline (0.1 to 1.9 mmhos/cm)
Available water storage in profile: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: Sandy Foothill (R049BY210CO)
Hydric soil rating: No

Minor Components

Blakeland

Percent of map unit: 8 percent
Landform: Interfluves, hillslopes
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Ecological site: Sandy Foothill (R049BY210CO)
Hydric soil rating: No

Bresser

Percent of map unit: 7 percent
Landform: Interfluves, low hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: Sandy Foothill (R049BY210CO)
Hydric soil rating: No

101—Ustic Torrifluvents, loamy

Map Unit Setting

National map unit symbol: 3673
Elevation: 5,500 to 7,000 feet
Mean annual precipitation: 13 to 16 inches
Mean annual air temperature: 47 to 52 degrees F

Frost-free period: 125 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Ustic torrifluvents and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ustic Torrifluvents

Setting

Landform: Stream terraces, flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy, clayey, stratified loamy

Typical profile

A - 0 to 6 inches: variable
C - 6 to 60 inches: stratified loamy sand to clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: Saline Overflow LRU's A & B (R069XY037CO)
Other vegetative classification: OVERFLOW (069BY036CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

106—Wigton loamy sand, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 3678
Elevation: 5,300 to 6,000 feet
Mean annual precipitation: 12 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 135 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Wigton and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wigton

Setting

Landform: Dunes
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Noncalcareous, dune-like sandy eolian deposits

Typical profile

A - 0 to 8 inches: loamy sand
AC - 8 to 19 inches: loamy sand
C - 19 to 60 inches: sand

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: Deep Sand (R067BY015CO)
Other vegetative classification: DEEP SANDS (069BY019CO)
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit:
Hydric soil rating: No

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

Attachment I
Noxious Weed Control Plan

Weed Control Plan

1. INTRODUCTION

Ellicott Sand & Gravel LLC (hereinafter referred to as the Operator) of the Schubert Ranch Sand Resource, encompassing a parcel of land shown on the vicinity map and located in Parts or the S½N½SE¼, S½SE¼, and SE¼SW¼of Section 20, and The E½E½ and NW¼NE¼ and parts of the SW¼NE¼, SW¼SE¼, and NW¼SE¼ of Section 29 and The E½NE¼, SW¼NE¼, & SE¼NW¼, and parts of the NW¼NE¼ & NE¼NW¼, Section 32, Township 14 South, Range 62 West, 6th P.M. El Paso County, Colorado, Containing 733.7 acres more or less. Construction materials mining operations will occur across all, or part, of the rangeland area on this 733.7 acre mine. The site currently has areas that have been used as a ranch yard complex, an creek bottom and undisturbed areas used as rangeland or irrigated sod grass and hay production.

Recognizing the presence of state-listed and county-listed noxious weeds in the general vicinity of this project area; and understanding the destructive nature of these noxious weeds, the Colorado Division of Reclamation, Mining & Safety has required the operator to develop and implement a weed management plan that encompasses the total project area.

The CSU Cooperative Extension office operates under cooperative agreement with the El Paso County government, and provides technical assistance regarding noxious weed management on public and private lands within the county. Ellicott Sand & Gravel LLC will do biennial checks on the active mine for any noxious weeds on site. On the area outside the active mine area the landowners will be responsible for weed control. Implementation of this plan will begin in the spring after mining starts and will continue until the state determines that reclamation is complete.

It is not possible to totally eradicate the noxious weeds from the mine since much of the surrounding property is not owned by Ellicott Sand & Gravel LLC, nor managed for noxious weed control. These uncontrolled areas are the seed sources for the infestation occurring on the mine. For this reason the Operator will be continually working to control noxious weeds throughout the life of the mine and until reclamation is done.

2. OVERVIEW OF APPROACH TO WEED MANAGEMENT

Weed control is part of the over all property management activities done by Schubert Ranch as part of their good farming/ranching practices. This plan is based on controlling the undesirable plant species and communities, rather than on simply eliminating weeds. Preventive programs are implemented to

keep the management area free of species that are not yet established there, but which are known to be pests elsewhere in the area. Priorities are set to reduce or eradicate weeds that have already established on the property, according to their actual and potential impacts on the land management goals for the property, and according to the ability to control them now versus later. Actions will be taken only when careful consideration indicates leaving the weed unchecked, would result in more damage than controlling it with best available methods.

The plan follows the adaptive management approach:

- First, weed species are identified through inventory of the property and by gathering information from other sources.
- Second, land management goals and weed management objectives are established for the property.
- Third, priorities are assigned to the weed species and weed patches based on the severity of their impacts, while considering the ability to control them.
- Fourth, methods are considered for controlling them or otherwise diminishing their impacts and, if necessary, re-order priorities based on likely impacts on target and non-target species.
- Fifth, An Integrated Weed Management (IWM) plan is developed based on this information.
- Sixth, the IWM plan is implemented in the spring or fall as recommended by the CSU Cooperative Extension local office.
- Seventh, the results of management actions are monitored and evaluated in light of weed management objectives for the management area.
- Finally, this information is used to modify and improve weed management objectives, control priorities, and IWM plans, thereby starting the cycle again.

The premise behind a weed management plan is that a structured, logical approach to weed management, based on the best available information, is cheaper and more effective than an ad-hoc approach where one deals with weed problems as they arise.

3. NOXIOUS WEEDS TO BE WATCHED FOR AT THE Perrino PIT.

1. Leafy spurge (Euphorbia eslua)
2. Canada thistle (Cirsium arvense)
3. Russian knapweed (Acroptilon repens)
4. Yellow toadflas (Linaria vulgaris)
5. Saltcedar (Tamarix sp.)
6. Hoary cress (Cardaria draba)
7. Perennial pepperweed (Lepedium tatifolium)

a. Spotted knapweed (Acroptilon repens)
b. Musk thistle (Carduus nutans)
c. Purple loosestrife (Lythrum salicaria)
d. Showy milkweed (Aisclepias speciosa)
e. Russian Olive (Elaeagunus angustifolia)
f. Bursage, skeltonleaf (Ambrosia tomentosa)
g. Bursage, wollyleaf (Ambrosia greyi)
h. Field bindweed (Convolvulus arvensis)
I. Jointed goatgrass (Aegilopa cylindrica)
j. Diffuse knapweed (Centaurea diffusa)

The first 7 species are listed as Priority 1 or 2 for control in El Paso County and the remaining 10 are on the State noxious weed list and should be looked for on the mine and controlled if needed.

4. NUISANCE WEEDS THAT SHOULD BE ADDRESSED

a. Russian thistle, common name tumbleweed
b. Kosha

5. CONTROLLING ABOVE LISTED WEEDS

All of the above weeds can be controlled or eradicated by using mechanical, biological, or chemical control depending on species. The Operator will have a qualified weed control agent observe the mine for possible noxious weeds and advise the Operator on how noxious species should be treated. Initially it may require semi-annual spraying or mowing to control the problem weeds and digging the woody species, but eventually we expect to revert to an annual control program to maintain the site. Records of weed control activities, including dates work was done; methods used; area sprayed and types/quantities of chemical used if any, will be kept at the Corporate office in Colorado Springs, Colorado for review.

Attachment II
100 Year Flood Plain Evaluation

RPM, Inc.

PIKES PEAK REGIONAL FLOODPLAIN MANAGMENT OFFICE

Floodplain Development Permit Application

Date

This application is required for authorization of any construction or modification within a designated floodplain. If you need further information regarding this application and regulations, call 719-327-2898 Submit application and attachments to the Regional Floodplain Administration at Pikes Peak Regional Building Department.

OFFICE USE ONLY
F.P. Permit #
Building Permit #

Property Owner George Schubert, Schubert Ranches, Inc.

Address 1555 S. Baggett Road

City Calhan State CO Zip Code 80808-7808

email Unknown Phone 719-237-2870

Contact George Schubert Phone 719-237-2870 email Unknown

Project Address/Location Schubert Ranches, Inc.

Community # see report Zip Code 80808 Creek Black Squirrel

Parcel # see report FIRM # 08041C0830G, 08041C0840G **Base Flood Elevation** see report

Contractor Ellicott Sand & Gravel, Christine Wilson Phone Number 719-568-3164

email EllicottSandGravel@gmail.com Fax Number None

Project Type: *(Check all that apply to your project.)*

- ☐ New Construction
- ☐ Addition/Remodel Repair
- ☐ Single Family
- ☐ Multi-Family
- ☐ Manufactured Unit
- ☐ Non-Residential Use
- ☐ Water course modification
- ☐ Fill/Excavation
- ☐ Bridge
- ☐ Culvert
- ☒ Other Sand mine

Project Description: The mine permit area is 733.7 acres, with a maximum of 561.7 acres disturbed by the mining operation over the life of the mine.

Requirements of construction plans include:

- Label mean sea level elevations of proposed lowest floor. Flood proofing level must be noted on plans for new structures.
- All structural elements must be designed to withstand the effects of flooding by an engineer licensed by the state of Colorado.
- A state of Colorado licensed engineer must certify that construction in a *floodway* will not increase of flood elevations.
- Plans must be drawn to scale and include applicable items (listed in box).

- ☒ Drawn to Scale
- ☒ Dimensions
- ☒ Elevations
- ☒ Located correctly on site
- na All structures on plan
- na Fill areas indicated
- ☐ Drainage Plan

- na Preliminary Elevation Certificate
- na Finished Elevation Certificate

Created by Environment, Inc. EME Solutions, Inc.

Office Use Only: FEMA Submttals

☐ CLOMR	☐ Approved	Date	
☐ CLOMR-F	☐ Approved	Date	
☐ LOMR	☐ Approved	Date	
☐ LOMR-F	☐ Approved	Date	

2880 International Circle . Colorado Springs . Colorado 80910 . Telephone 719-327-2898 Web Site www.pprbd.org

061011

RPM, Inc.

Pikes Peak Regional Building Department

Permit # 20017 **FLOOD PLAIN DEVELOPMENT PERMIT** **Date 25-Feb-2020**

Owner Information

Name: SCHUBERT RANCHES, INC. **Phone:**

Address: 1555 S. BAGGETT ROAD
CALHAN, CO 80808
Attention: GEORGE SCHUBERT

Project Location

Address: ELLICOTT SAND & GRAVEL

Location/Directions: Ellicott Sand & Gravel

Contractor/Engineer: Ellicott Sand & Gravel, Christine Wilson Phone: (719) 568-3164

Project Description

Single Family Residential:	[ ]	Addition/Remodel (<50%):	[ ]
Multi-Family Residential:	[ ]	Rehabilitation	[ ]
Manuf. (Mobile Home:	[ ]	Subst. (>50 Appraisal) Imprv:	[ ]
Non-Residential	[X]	Fill	[ ]
New Construction	[ ]	Bridge/Culvert	[ ]
Watercourse Modification:	[ ]	Levee:	[ ]

Project Cost: $0.00 Structure Market Value: $0.00
Creek: black squirrel
Description of work: sand mine The mine permit area is 733.7 acres, with a maximum of 561.9 acres disturbed by the mining operation over the life of the mine.
No-Rise attached

Flood Hazard Data

Location: Flood Fringe
Base (1%) Flood Elevation: varies
Lowest Floor Elevation:
Floodproofing Level:
Source Document: 08041C0830G, 08041C0840G

Permit Action

Permit Granted (Y/N): Yes Variance Granted (Y/N): No
Action Comments: contractor is permit owner : Ellicott Sand & Gravel,
No-Rise attached

Compliance Section

Elevation Certificate: N Date:

LOMA: N Date: CLOMR: N Date: LOMR: N Date:

Site Inspection:
Preliminary Required: N Date:
Final Required: N Date:

Compliance Comments: No-Rise attached

APPROVED
FEB 27 2020
RBD KIC Floodplain

Regional Floodplain Division: Date 25-Feb-2020

NOTE: This permit expires twelve (12) months from the date it is issued.

RPM, Inc.

Schubert Ranch Sand Resource
Floodplain Modeling
Technical Memorandum
For
Black Squirrel Creek

El Paso County, Colorado

Prepared For:
Christine Wilson
Ellicott Sand and Gravel

Prepared By:
EME Solutions, Inc.
15248 W. Ellsworth Drive
Golden, CO 80401
John L. Jankousky, P.E.
Phone: 303-279-1707

February 25, 2020

ZERO RISE CERTIFICATION FOR SCHUBERT RANCH SAND RESOURCE PROJECT

I certify that I am a duly qualified registered Professional Engineer licensed in the state of Colorado.

I certify that the proposed project Schubert Ranch Sand Resource Project as detailed on the construction drawings in Appendix E of this report will result in zero rise in the FEMA designated 100-year flood heights, and no increase in the 100-year discharge at published and unpublished cross sections of the current FEMA floodplain of Black Squirrel Creek as shown on FEMA maps 08041C0830G and 08041C0840G.

This certification is intended as proof of meeting the requirements set forth in the Pikes Peak Regional Building Code RBC313.20.1.

Please note that no "encroachment" into the floodplain or floodway is planned. The project involves only excavation of pits for the commercial extraction of sand within the floodplain and/or floodway. The 100-year floodplain extent will be changed in some locations. The floodplain will extend to the pit wall. This change will occur only on property leased by the permittee. This change will not impact any neighboring property owners.

I offer the following documentation in accordance with standard Engineering practice to support my findings:

Schubert Ranch Sand Resource Floodplain Modeling Technical Memorandum for Black Squirrel Creek. El Paso County, Colorado. EME Solutions, Inc. February 25, 2020.

John L. Jankousky, P.E.
Registered Professional Engineer
State of Colorado No. 30941

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1 OBJECTIVES

To support a floodplain permit application for Ellicott Sand and Gravel (the Client) at the Schubert Ranch Sand Resource (the Site), EME Solutions, Inc. (EME) performed floodplain modeling of Black Squirrel Creek in El Paso County, Colorado. The purpose of the floodplain modeling is to support a zero-rise certification for the floodway and floodplains. A US Army Corps of Engineers (USACE) Hydrologic Engineering Center River Analysis System (HEC-RAS) modeling analysis for the 100-year flood was performed for Black Squirrel Creek. This modeling analysis was based on the current model approved by Federal Emergency Management Agency (FEMA). The modeling effort required altering certain river cross sections to include the proposed sand quarry pits.

2 HEC-RAS MODEL SETUP

This section describes the HEC-RAS model setup, including the source of the model, the cross sections relating to the Site, the topographic mapping used, and roughness coefficients.

2.1 Source of HEC-RAS Model

EME used the HEC-RAS model, which included hydrology, provided by the FEMA Engineering Library (FEMA 2020). The provided model was created as part of the FEMA RiskMap project for El Paso County, Colorado. Anderson Consulting Engineers, Inc. (ACE), under contract with the Colorado Water Conservation Board (CWCB), performed detailed (Zone AE) hydraulic analyses and floodplain mapping for portions of the following streams in El Paso County: Black Squirrel Creek, Book Ranch, Ellicott Consolidated, Ellicott Consolidated, and Telephone Exchange (Anderson Consulting Engineers, 2013). The results of this modeling were incorporated into the Flood Insurance Rate Maps (FIRMs) for the area including the Site (FIRM Map Numbers 08041C0830G, Revised December 7, 2018 and 08041C0840G, Revised December 7, 2018) (FEMA 2018a, FEMA 2018b). The results are also presented in the Flood Insurance Study for El Paso County (FEMA 2018c).

This modeling effort focused on the area that includes the Schubert Ranch Sand Resource Site: Black Squirrel Creek, Reach US to LBS, River Station 34955 to River Station 27503 (this includes three cross sections above the Site) and Black Squirrel Creek, Reach LBS to ROB Split, River Station 26962 to River Station 20250 (this includes three cross sections below the Site). The river station numbering indicates the river length from the extent of the detailed study, just downstream from the confluence of Black Squirrel Creek and Telephone Exchange. These cross section numbers are presented in Table A-1 in Appendix A.

2.2 Topographic Modeling

Anderson Engineering used the digital topographic mapping from Kucera International, Inc. that was previously used by the US Army Corps of Engineers (USACE) to model the streams in the study. Effective flood hazard information throughout El Paso County and its incorporated communities is based on the North American Vertical Datum (NAVD) of 1988. The detailed mapping at the Site matches this datum and the detailed mapping matched well with the model topographic contours.

2.3 Roughness Coefficients

The Manning's n values for all stream reaches were set at 0.03 for the main channels and 0.04 for the flood overbank areas.

3 DISCHARGE PROFILES

Hydrologic modeling of the Black Squirrel Creek Watershed was previously completed by the USACE using the USACE Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS). The results of this HEC-HMS modeling were used by Anderson Consulting Engineers in the HEC-RAS model for Black Squirrel Creek.

100-year discharge profiles (1% annual chance event) used in the hydraulic analyses are provided in Table 3.1.

Table 3.1 Summary of 100-Year Peak Discharges.

Location	Peak Discharge (cfs)
	1% Annual Chance Event
Black Squirrel Creek	
Book Ranch Confluence	46,640
Telephone Exchange Confluence	40,000
Ellicott Consolidated Confluence	37,400
Upstream of Ellicott Consolidated Confluence	29,850
Lower Big Springs Confluence	29,100
Upstream of Lower Big Springs Confluence	25,150

4 HYDRAULIC MODELING

Hydraulic modeling for the entire extent of the Anderson Engineering study was conducted using HEC-RAS Version 5.0.7 (USACE Hydrologic Engineering Center 2019). Hydraulic modeling included analysis of the 1% annual chance flood event. Discharges for each reach of Black Squirrel Creek were defined using the flow values provided in Table 3.1 above.

4.1 Boundary Conditions

Hydraulic analyses were conducted assuming subcritical, steady state flow conditions. Consequently, boundary conditions were required only at the downstream end of the mainstem reach of Black Squirrel Creek, the Ellicott Consolidated Highway Split Flow Path, and the Ellicott Consolidated East Tributary. For the Black Squirrel Creek main reach, normal depth was computed at the downstream end of the study reach utilizing a bed slope of 0.0048 ft/ft (Anderson Consulting Engineers, 2013).

4.2 Modeling of Project Topography

This modeling analysis required altering certain river cross sections to include the proposed sand quarry pits. The HEC-RAS model was run using both the existing topography used in the Anderson Consulting study and the proposed topography based on the final reclamation contours for the Schubert Ranch Sand Resource Site. Because of the depth of the pits, the pits were modeled as ineffective flow areas except for the top two feet. This is thought to be representative of the actual flow conditions in the pits. The pits are about 50 feet deep. The horizontal flow in these pits will be concentrated in the upper few feet.

4.3 HEC-RAS Model Results

The HEC-RAS model was run for the 100-year flows for both the existing topography and the proposed topography. The 100-year water surface elevations for the existing and developed conditions were evaluated in the modeled cross sections.

The model results show that no rise in water surface elevation is expected as a result of the construction of the Schubert Ranch Sand Resource project.

The results are presented in detail in the appendices. See Table A-1 in Appendix A for a comparison of water surface elevations for the existing and developed conditions. Appendix B presents water surface profile information. Appendix C presents detailed cross section information. Appendix D presents Standard Table 1 and Standard Table 2 from the HEC-RAS outputs. Within the HEC-RAS outputs, the existing topography without the pits is designated as

Plan 03 or "Plan-without-pits" (depending on the output file) and the developed conditions with the pits is designated as Plan 02. All of the data presented show the water surface elevations with the pits as equal or slightly lower than the existing condition water surface elevations without the pits.

The horizontal extents of the floodplains will change in some of the cross sections. In these cases, the floodplain will extend to the pit wall. This change will occur only on property leased by the permittee. This change will not impact any neighboring property owners. See Figure 1 for the existing conditions and Figure 2 for the post-project, developed conditions. Revised floodplain lines are shown in green on Figure 2.

4.4 Construction Plans and Bank and Pit Armoring

The construction of the mine will proceed in accordance with the Mine Plan submitted to and approved by the Division of Mining Reclamation and Safety (DRMS). In accordance with the Mine Plan and with discussions between EME and Keith Curtis, Floodplain Administrator, Pikes Peak Regional Building Department, the following requirements will be met: (1) no material stockpiles or fill of any kind that exceed the pre-mining elevations will be placed in the floodway. (2) Material stockpiles will be placed away from Black Squirrel Creek to the extent practicable. See Map Exhibit C-1, Mining Plan Map in Appendix E for some of the proposed stockpile locations. (3) Any temporary stockpiles within the floodplain will be placed with the longitudinal axis parallel to the creek, to encourage flow around the temporary stockpiles. (4) Bank and pit armoring will occur as mining progresses (see the discussion in the paragraph below).

The banks of Black Squirrel Creek and the adjacent pit edge of each sand pit are armored to a depth below the stream thalweg. This armoring is not required for the small pit in the northwest corner of the Site (Stage V), because this entire pit is outside of the limits of the 100-year floodplain. See the attached drawings in Appendix E for the locations and details of the bank and pit armoring. These armoring plans are in accordance with Urban Drainage and Flood Control District guidelines (Urban Drainage and Flood Control District 2013) and discussions with US Army Corps of Engineers personnel.

5 REFERENCES

Anderson Consulting Engineers, 2013. *Detailed Hydraulic Evaluation and Floodplain Mapping for Black Squirrel Creek and Tributaries, as part of the El Paso County FEMA RiskMap Study El Paso County, Colorado.* (ACE Project No. COCWCB12). Anderson Consulting Engineers, Inc., August 2013.

FEMA 2018a. Federal Emergency Management Agency. FIRM Map Number 08041C0830G, Revised December 7, 2018.

FEMA 2018b. Federal Emergency Management Agency. FIRM Map Number 08041C0840G, Revised December 7, 2018.

FEMA 2018c. *Flood Insurance Study, El Paso County, Colorado, and Incorporated Areas*. Flood Insurance Study Number 08041CV001A. Federal Emergency Management Agency. Revised December 7, 2018.

FEMA 2020. FEMA Engineering Library Data Request Case No. B2008025, provided January 30, 2020 by Michael Baker International.

Urban Drainage and Flood Control District 2013. *Technical Review Guidelines For Gravel Mining & Water Storage Activities Within or Adjacent to 100-Year Floodplains*. Prepared for Urban Drainage and Flood Control District by Wright Water Engineers, Inc. January 2013.

USACE Hydrologic Engineering Center 2019. HEC-RAS Version 5.0.7 Software. US Army Corps of Engineers, Hydrologic Engineering Center. March 2019.

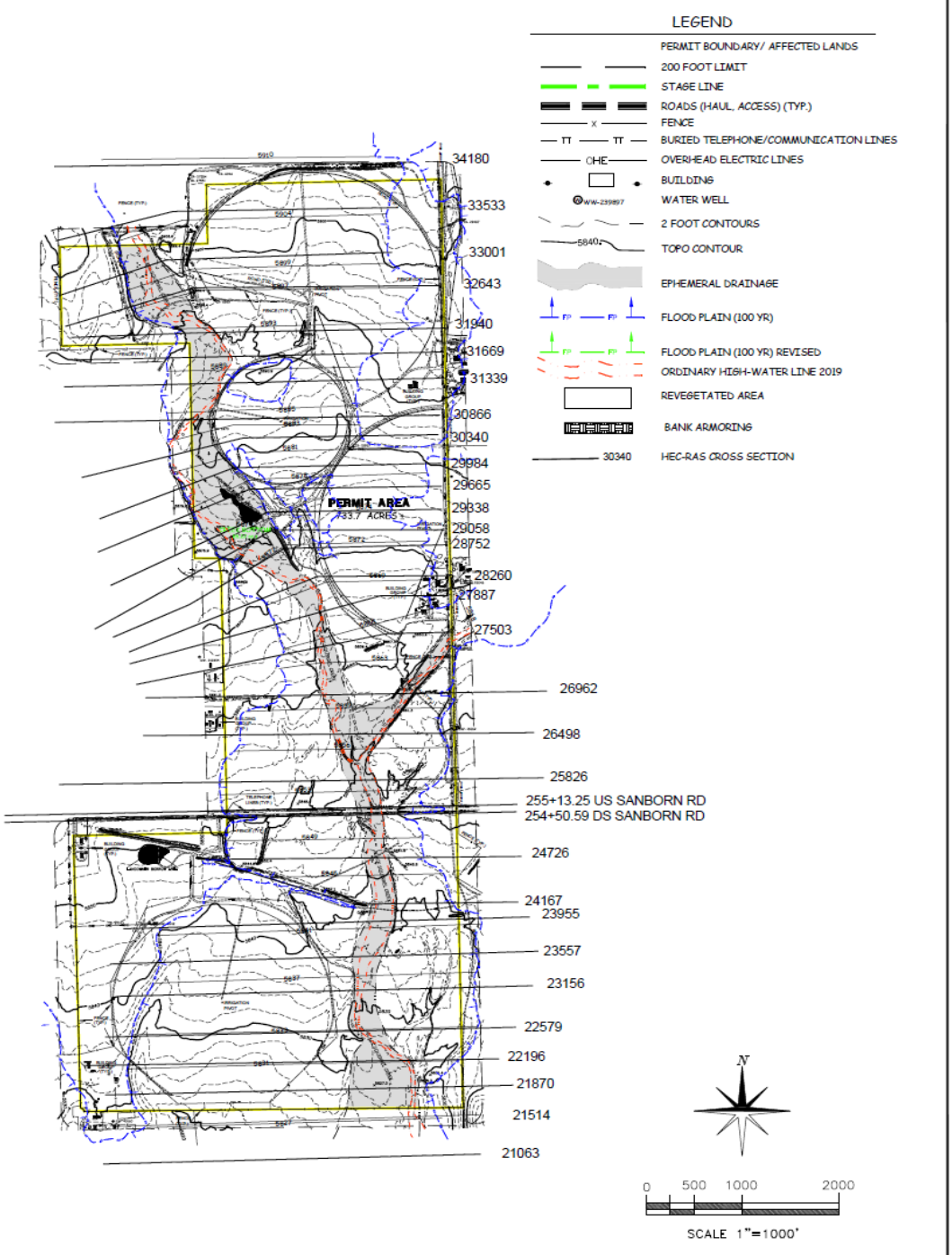


FIGURE 1 - Existing Conditions Map with HEC-RAS Cross Sections

REVISIONS:	DATE:	PREPARED FOR: ELLICOTT SAND AND GRAVEL LLC PROJECT: SCHUBERT RANCH SAND RESOURCE	PREPARED BY: ENVIRONMENT, INC. STEVE O'BRIAN ENVIRONMENT-INC@OUTDRS.NET AND EME SOLUTIONS, INC. JOHN JANKOUSKY JOHN.JANKOUSKY@EME-SOLUTIONS.COM
SCALE 1" = 1000' ORIG. DATE 2/18/2020			

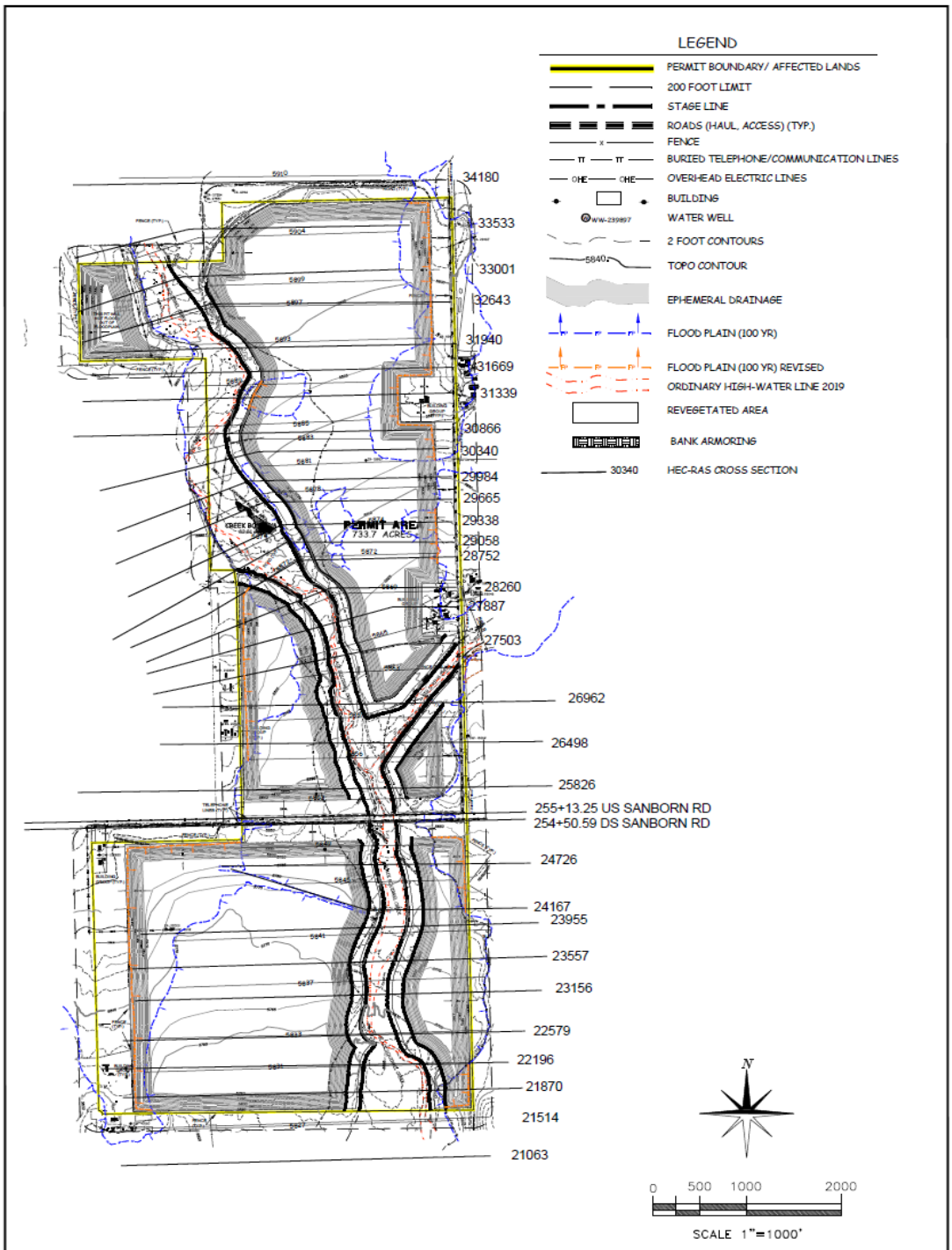


FIGURE 2 - Reclamation Plan Map with HEC-RAS Cross Sections

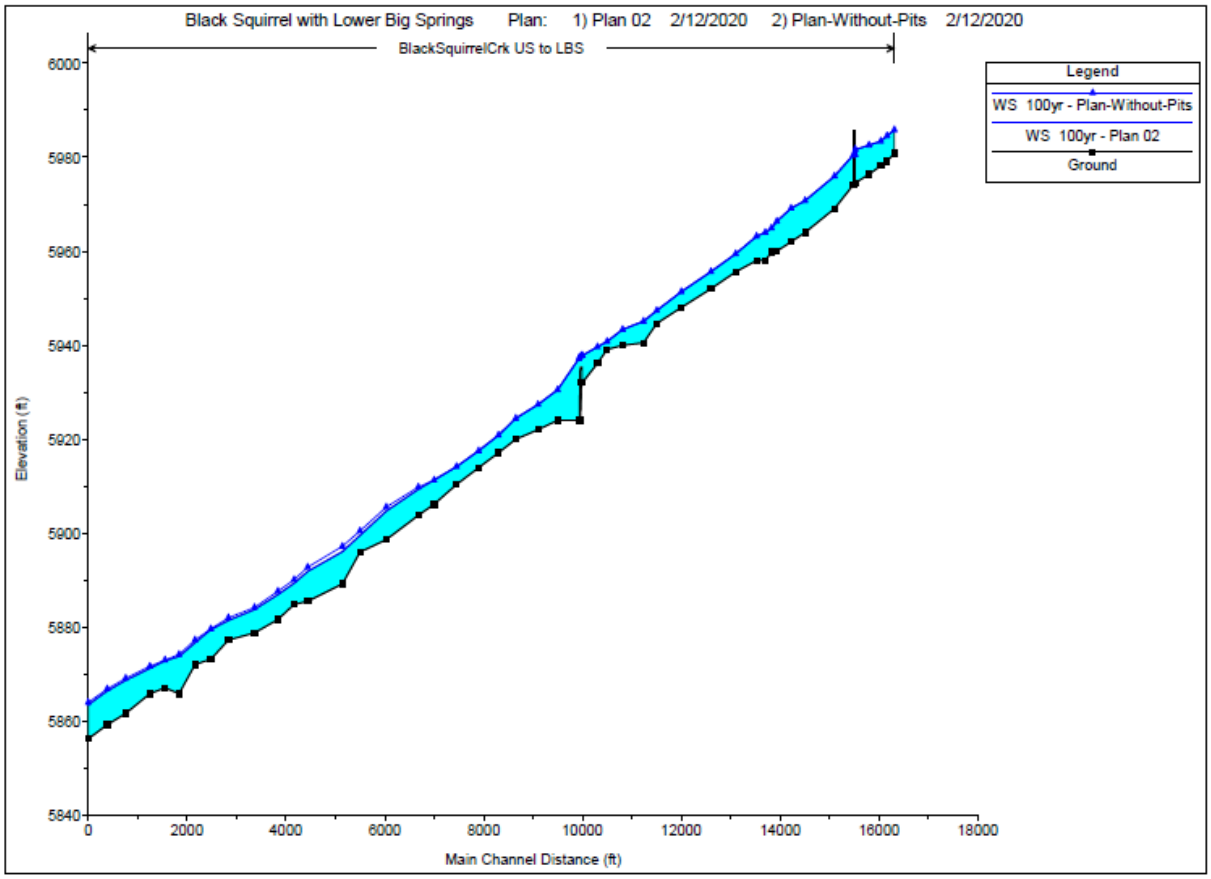
REVISIONS:	DATE:	PREPARED FOR: ELLICOTT SAND AND GRAVEL LLC PROJECT: SCHUBERT RANCH SAND RESOURCE	PREPARED BY: ENVIRONMENT, INC. STEVE O'BRIAN ENVIRONMENT-INC@OUTDRS.NET AND EME SOLUTIONS, INC. JOHN JANKOUSKY JOHN.JANKOUSKY@EME-SOLUTIONS.COM
SCALE 1" = 1000' ORIG. DATE 2/18/2020			

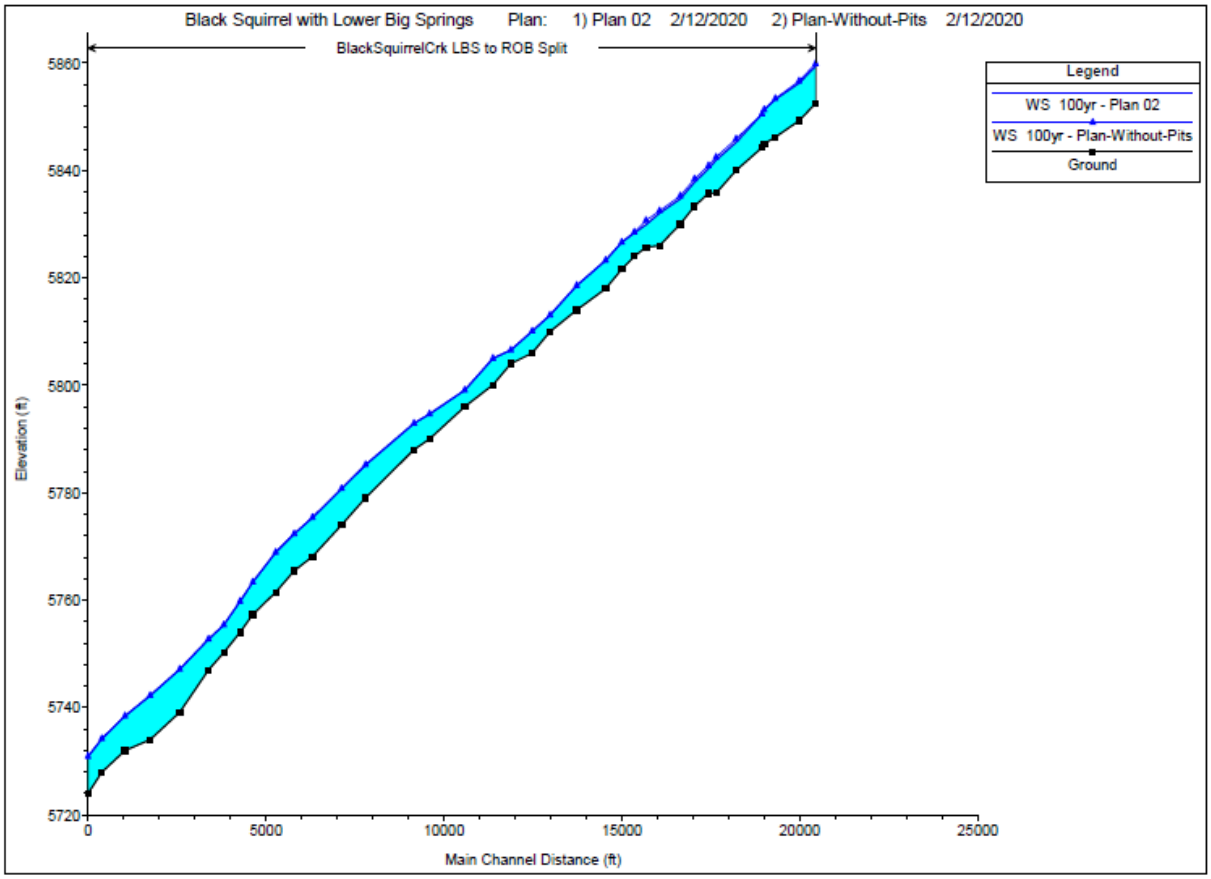
Appendix A. Table A-1. Comparison of Water Surface Elevations Without Pits and With Pits

Table A-1. Comparison of Water Surface Elevations Without Pits and With Pits

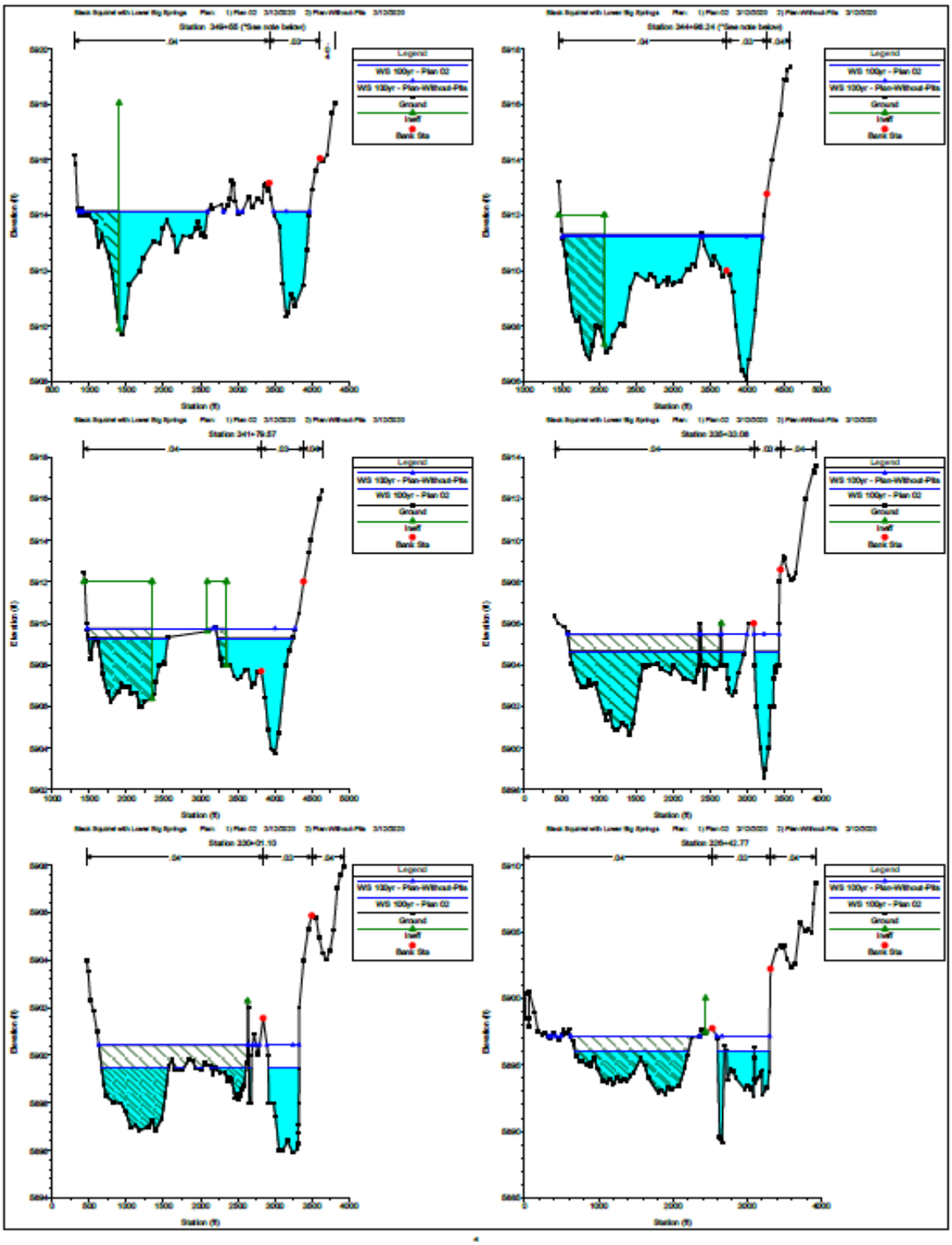
Reach	Cross Section	Regulatory Water Surface Elevation (100-year WSEL) (Feet NAVD)	Water Surface Elevation with Pits (100-year WSEL) (Feet NAVD)	Comment
US to LBS	34955	5914.13	5914.13	Upstream from pits
	34498	5911.23	5911.23	Upstream from pits
	34180	5909.75	5909.75	Upstream from pits
	33533	5905.48	5905.48	First cross section with pits
	33001	5900.43	5899.55	
	32643	5897.15	5896.00	
	31940	5892.70	5891.96	
	31669	5890.07	5889.29	
	31339	5887.59	5886.85	
	30866	5884.12	5883.69	
	30340	5881.94	5881.35	
	29984	5879.58	5879.45	
	29665	5877.18	5876.64	
	29338	5874.14	5873.52	
	29058	5872.96	5872.79	
	28752	5871.62	5871.19	
	28260	5869.06	5868.61	
	27887	5866.77	5866.36	
	27503	5863.88	5863.40	
LBS to ROB Split	26962	5859.86	5859.43	
	26498	5856.65	5856.28	
	26826	5853.37	5853.25	
	25513	5851.31	5851.31	Upstream side of Sanborn Road
	25451	5850.49	5850.47	Downstream side of Sanborn Road
	24726	5845.84	5845.23	
	24167	5842.46	5841.92	
	23955	5840.90	5840.35	
	23557	5838.39	5837.79	
	23156	5835.26	5834.70	
	22579	5832.48	5832.06	
	22196	5830.70	5829.91	
	21870	5828.53	5828.36	Last cross section wth pits
	21514	5826.60	5826.60	Downstream of pits
	21063	5823.24	5823.24	Downstream of pits
	20250	5818.56	5818.56	Downstream of pits

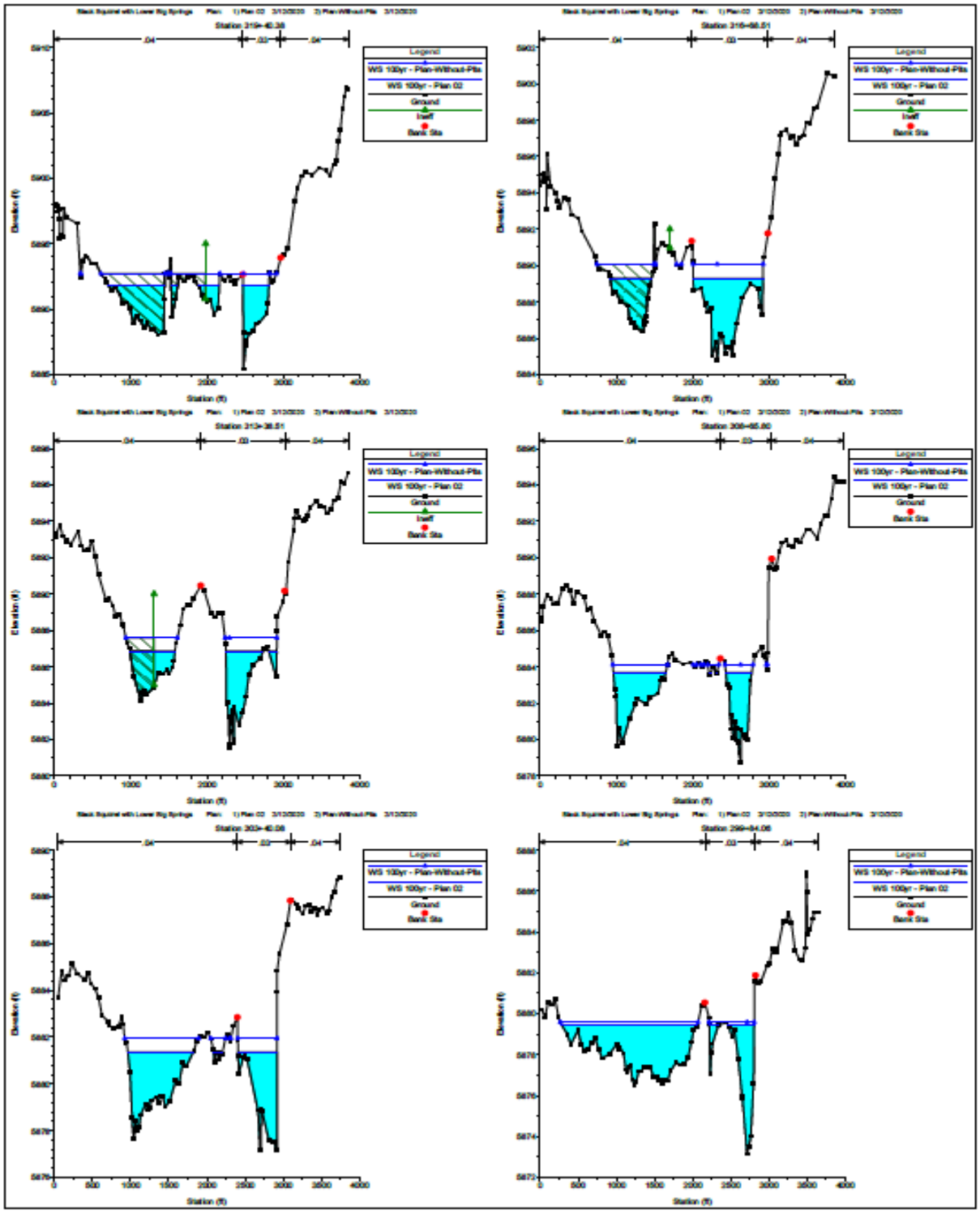
Appendix B. Water Surface Profiles


Black Squirrel with Lower Big Springs Plan: 1) Plan 02 2/12/2020 2) Plan-Without-Pits 2/12/2020
BlackSquirrelCrk US to LBS
Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Elevation (ft)
6000
5980
5960
5940
5920
5900
5880
5860
5840
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
Main Channel Distance (ft)

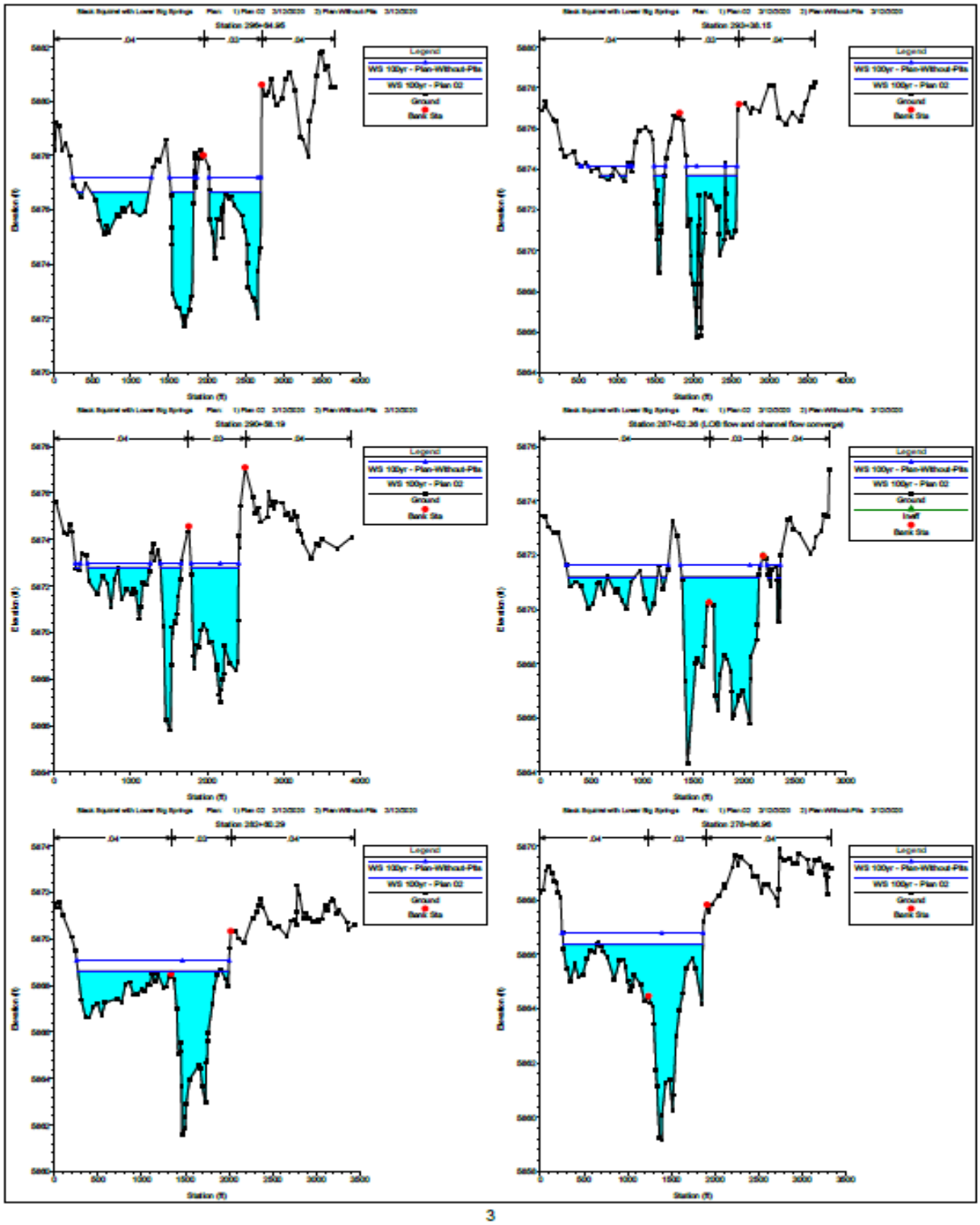

Black Squirrel with Lower Big Springs Plan: 1) Plan 02 2/12/2020 2) Plan-Without-Pits 2/12/2020
BlackSquirrelCrk LBS to ROB Split
Legend
WS 100yr - Plan 02
WS 100yr - Plan-Without-Pits
Ground
Elevation (ft)
5860
5840
5820
5800
5780
5760
5740
5720
0
5000
10000
15000
20000
25000
Main Channel Distance (ft)

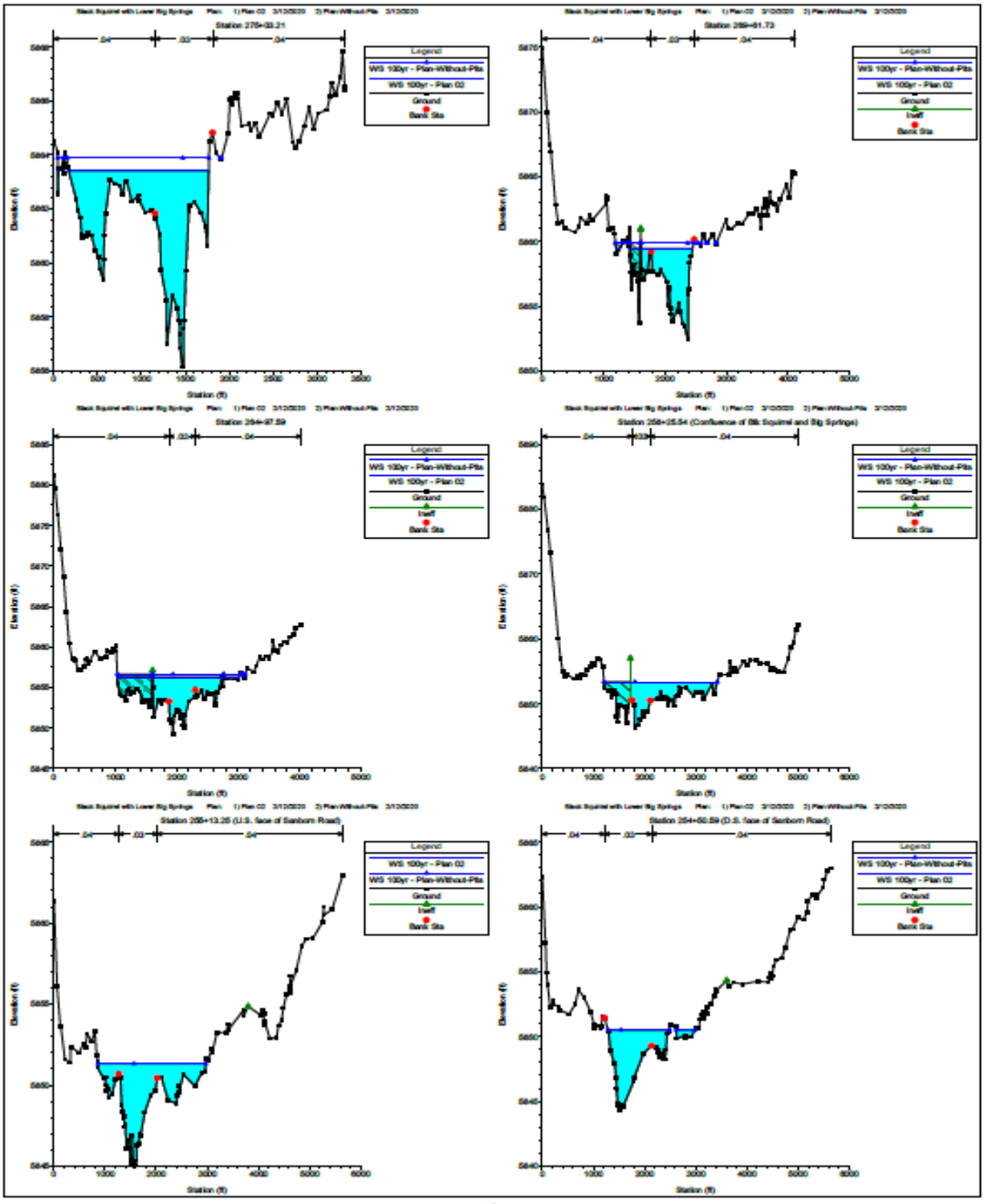
Appendix C. Detailed Cross Section Information


Legend
WS 100yr - Plan 02
WS 100yr - Plan-Without-Pits
Ground
Ineff
Bank Sta
Station (ft)
Elevation (ft)

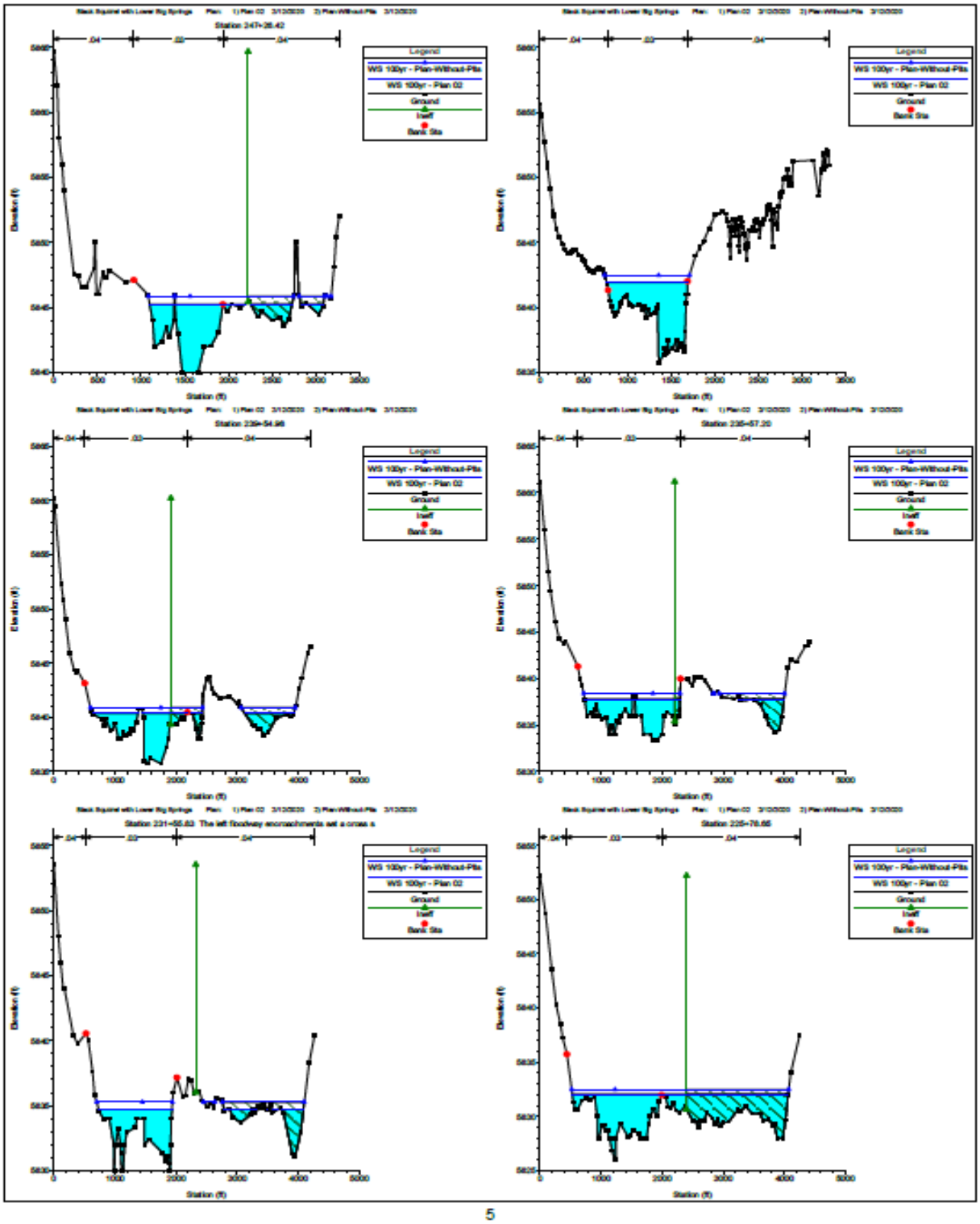

Legend
WS 10yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Ineff
Bank Sta
Station (ft)
Elevation (ft)

2

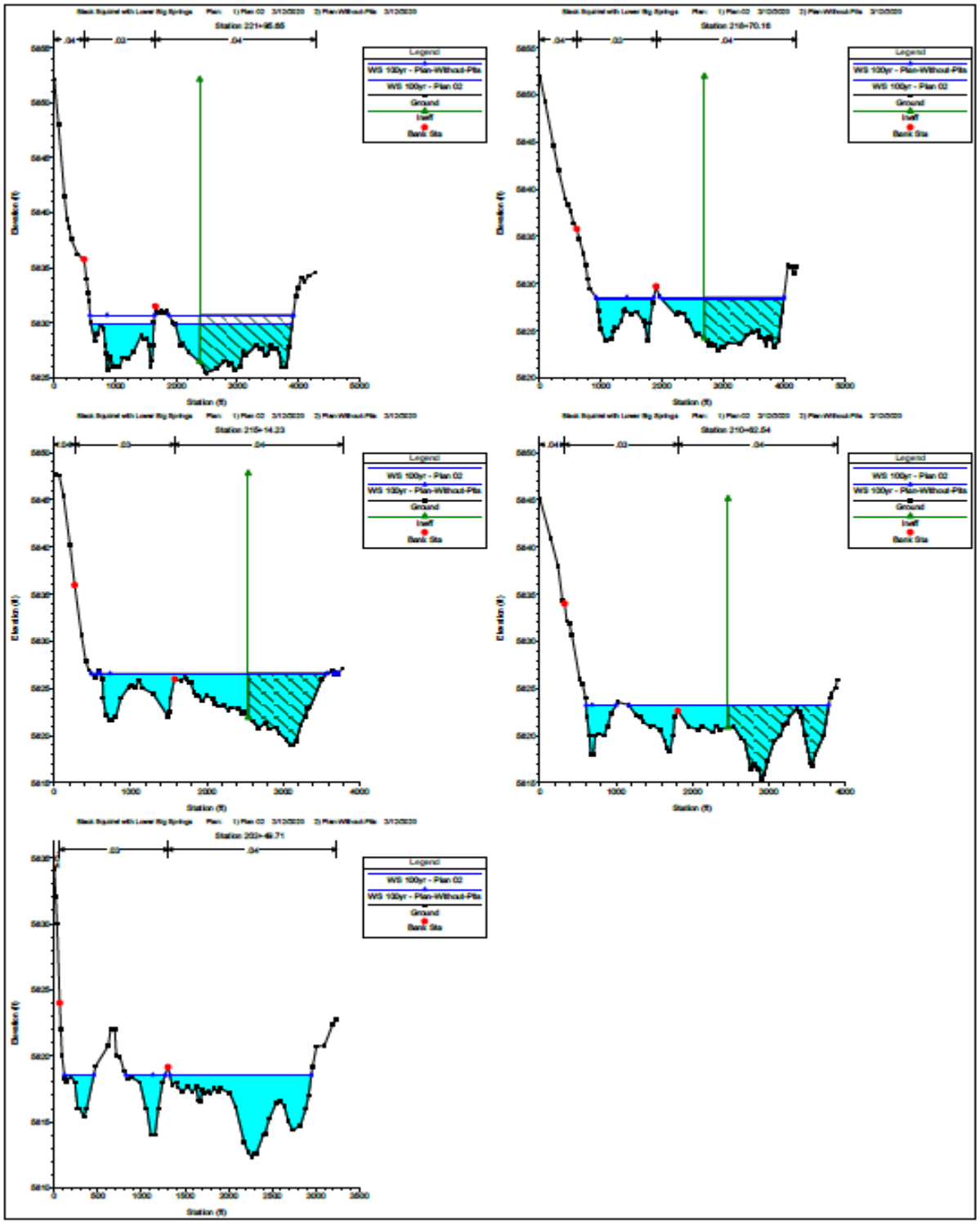

Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Bank Sta
Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Bank Sta
Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Bank Sta
Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Ineff
Bank Sta
Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Bank Sta
Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Bank Sta


Station 275+03.21
Station 259+61.73
Station 264+97.59
Station 258+25.54 (Confluence of Blk Squirrel and Big Springs)
Station 259+13.25 (U.S. face of Sanborn Road)
Station 254+60.59 (D.S. face of Sanborn Road)
Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

4


Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Ineff
Bank Sta
Station (ft)
Elevation (ft)

5


Station 221+95.85
Station 216+70.16
Station 215+14.23
Station 210+62.54
Station 203+49.71
Legend
WS 100yr - Plan-Without-Pits
WS 100yr - Plan 02
Ground
Ineff
Bank Sta
Station (ft)

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Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 34498 Profile: 100yr

E.G. Elev (ft)	5911.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5911.23	Reach Len. (ft)	299.30	318.67	327.60
Crit W.S. (ft)	5910.65	Flow Area (sq ft)	2789.33	1463.06	
E.G. Slope (ft/ft)	0.003041	Area (sq ft)	4502.06	1463.06	
Q Total (cfs)	16863.00	Flow (cfs)	8475.68	8387.32	
Top Width (ft)	2670.29	Top Width (ft)	2189.18	481.11	
Vel Total (ft/s)	3.97	Avg. Vel. (ft/s)	3.04	5.73	
Max Chl Dpth (ft)	5.13	Hydr. Depth (ft)	1.72	3.04	
Conv. Total (cfs)	305771.1	Conv. (cfs)	153686.6	152084.5	
Length Wtd. (ft)	310.62	Wetted Per. (ft)	1623.76	481.22	
Min Ch El (ft)	5906.10	Shear (lb/sq ft)	0.33	0.58	
Alpha	1.33	Stream Power (lb/ft s)	0.99	3.31	
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)	419.92	311.08	0.54
C & E Loss (ft)	0.03	Cum SA (acres)	215.74	89.33	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 34180 Profile: 100yr

E.G. Elev (ft)	5910.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5909.75	Reach Len. (ft)	581.80	646.49	770.50
Crit W.S. (ft)	5909.28	Flow Area (sq ft)	1611.97	1521.97	
E.G. Slope (ft/ft)	0.004447	Area (sq ft)	4082.38	1521.97	
Q Total (cfs)	16863.00	Flow (cfs)	5546.55	11316.45	
Top Width (ft)	2763.61	Top Width (ft)	2313.14	450.47	
Vel Total (ft/s)	5.38	Avg. Vel. (ft/s)	3.44	7.44	
Max Chl Dpth (ft)	6.02	Hydr. Depth (ft)	1.32	3.38	
Conv. Total (cfs)	252876.5	Conv. (cfs)	83175.8	169700.7	
Length Wtd. (ft)	630.41	Wetted Per. (ft)	1218.07	450.61	
Min Ch El (ft)	5903.73	Shear (lb/sq ft)	0.37	0.94	
Alpha	1.42	Stream Power (lb/ft s)	1.26	6.97	
Frctn Loss (ft)	3.40	Cum Volume (acre-ft)	390.43	300.16	0.54
C & E Loss (ft)	0.08	Cum SA (acres)	200.27	85.92	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 33533 Profile: 100yr

E.G. Elev (ft)	5906.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.43	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5905.48	Reach Len. (ft)	518.83	531.98	578.90
Crit W.S. (ft)	5905.48	Flow Area (sq ft)	627.07	1360.51	
E.G. Slope (ft/ft)	0.006698	Area (sq ft)	5605.89	1360.51	
Q Total (cfs)	16863.00	Flow (cfs)	2834.31	14028.69	
Top Width (ft)	2727.09	Top Width (ft)	2392.58	334.51	
Vel Total (ft/s)	8.48	Avg. Vel. (ft/s)	4.52	10.31	
Max Chl Dpth (ft)	6.91	Hydr. Depth (ft)	1.81	4.07	
Conv. Total (cfs)	206038.7	Conv. (cfs)	34630.7	171408.1	
Length Wtd. (ft)	530.72	Wetted Per. (ft)	345.94	335.37	
Min Ch El (ft)	5898.57	Shear (lb/sq ft)	0.76	1.70	
Alpha	1.28	Stream Power (lb/ft s)	3.43	17.49	
Frctn Loss (ft)	3.94	Cum Volume (acre-ft)	325.73	278.77	0.54
C & E Loss (ft)	0.03	Cum SA (acres)	168.85	80.10	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 33001 Profile: 100yr

E.G. Elev (ft)	5902.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.70	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5900.43	Reach Len. (ft)	377.13	358.33	352.96
Crit W.S. (ft)	5900.43	Flow Area (sq ft)	93.57	1561.83	
E.G. Slope (ft/ft)	0.008258	Area (sq ft)	3883.59	1561.83	
Q Total (cfs)	16863.00	Flow (cfs)	386.45	16476.55	
Top Width (ft)	2539.15	Top Width (ft)	2104.95	434.20	
Vel Total (ft/s)	10.19	Avg. Vel. (ft/s)	4.13	10.55	
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	0.94	3.60	
Conv. Total (cfs)	185564.7	Conv. (cfs)	4252.6	181312.1	
Length Wtd. (ft)	358.55	Wetted Per. (ft)	100.18	435.27	
Min Ch El (ft)	5895.91	Shear (lb/sq ft)	0.48	1.85	
Alpha	1.05	Stream Power (lb/ft s)	1.99	19.52	
Frctn Loss (ft)	1.88	Cum Volume (acre-ft)	269.22	260.92	0.54
C & E Loss (ft)	0.29	Cum SA (acres)	142.06	75.40	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 32643 Profile: 100yr

E.G. Elev (ft)	5897.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.		0.030	
W.S. Elev (ft)	5897.15	Reach Len. (ft)	577.75	702.39	421.88
Crit W.S. (ft)	5896.21	Flow Area (sq ft)		2477.00	
E.G. Slope (ft/ft)	0.003623	Area (sq ft)	4589.04	2477.00	
Q Total (cfs)	16863.00	Flow (cfs)		16863.00	
Top Width (ft)	2571.16	Top Width (ft)	1857.08	714.08	
Vel Total (ft/s)	6.81	Avg. Vel. (ft/s)		6.81	
Max Chl Dpth (ft)	8.01	Hydr. Depth (ft)		3.47	
Conv. Total (cfs)	280144.5	Conv. (cfs)		280144.5	
Length Wtd. (ft)	692.11	Wetted Per. (ft)		717.88	
Min Ch El (ft)	5889.14	Shear (lb/sq ft)		0.78	
Alpha	1.00	Stream Power (lb/ft s)		5.31	
Frctn Loss (ft)	3.72	Cum Volume (acre-ft)	232.54	244.31	0.54
C & E Loss (ft)	0.07	Cum SA (acres)	124.91	70.68	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 31940 Profile: 100yr

E.G. Elev (ft)	5894.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.38	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5892.70	Reach Len. (ft)	259.81	271.87	261.48
Crit W.S. (ft)	5892.70	Flow Area (sq ft)	536.58	1401.40	
E.G. Slope (ft/ft)	0.008795	Area (sq ft)	3271.83	1401.40	
Q Total (cfs)	16863.00	Flow (cfs)	2782.60	14080.40	
Top Width (ft)	2239.38	Top Width (ft)	1802.04	437.34	
Vel Total (ft/s)	8.70	Avg. Vel. (ft/s)	5.19	10.05	
Max Chl Dpth (ft)	7.27	Hydr. Depth (ft)	1.10	3.20	
Conv. Total (cfs)	179812.8	Conv. (cfs)	29671.2	150141.6	
Length Wtd. (ft)	270.87	Wetted Per. (ft)	486.38	440.52	
Min Ch El (ft)	5885.43	Shear (lb/sq ft)	0.61	1.75	
Alpha	1.17	Stream Power (lb/ft s)	3.14	17.55	
Frctn Loss (ft)	1.75	Cum Volume (acre-ft)	180.41	213.04	0.54
C & E Loss (ft)	0.20	Cum SA (acres)	100.64	61.40	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 31669 Profile: 100yr

E.G. Elev (ft)	5890.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5890.07	Reach Len. (ft)	324.99	330.00	328.42
Crit W.S. (ft)	5889.51	Flow Area (sq ft)	7.24	2495.68	
E.G. Slope (ft/ft)	0.004923	Area (sq ft)	1415.70	2495.68	
Q Total (cfs)	16863.00	Flow (cfs)	4.41	16858.59	
Top Width (ft)	1736.87	Top Width (ft)	816.95	919.92	
Vel Total (ft/s)	6.74	Avg. Vel. (ft/s)	0.61	6.76	
Max Chl Dpth (ft)	5.29	Hydr. Depth (ft)	0.11	2.71	
Conv. Total (cfs)	240325.8	Conv. (cfs)	62.9	240263.0	
Length Wtd. (ft)	329.61	Wetted Per. (ft)	64.09	920.99	
Min Ch El (ft)	5884.78	Shear (lb/sq ft)	0.03	0.83	
Alpha	1.01	Stream Power (lb/ft s)	0.02	5.63	
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	166.43	200.88	0.54
C & E Loss (ft)	0.03	Cum SA (acres)	92.83	57.16	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 31339 Profile: 100yr

E.G. Elev (ft)	5888.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5887.59	Reach Len. (ft)	431.77	472.71	429.95
Crit W.S. (ft)	5887.54	Flow Area (sq ft)	525.28	1667.28	
E.G. Slope (ft/ft)	0.008961	Area (sq ft)	1388.99	1667.28	
Q Total (cfs)	16863.00	Flow (cfs)	2654.06	14208.94	
Top Width (ft)	1353.77	Top Width (ft)	675.12	678.65	
Vel Total (ft/s)	7.69	Avg. Vel. (ft/s)	5.05	8.52	
Max Chl Dpth (ft)	6.01	Hydr. Depth (ft)	1.72	2.46	
Conv. Total (cfs)	178142.6	Conv. (cfs)	28037.8	150104.9	
Length Wtd. (ft)	459.68	Wetted Per. (ft)	304.98	680.36	
Min Ch El (ft)	5881.58	Shear (lb/sq ft)	0.96	1.37	
Alpha	1.10	Stream Power (lb/ft s)	4.87	11.68	
Frctn Loss (ft)	3.67	Cum Volume (acre-ft)	155.97	185.11	0.54
C & E Loss (ft)	0.08	Cum SA (acres)	87.27	51.11	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 30866 Profile: 100yr

E.G. Elev (ft)	5884.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5884.12	Reach Len. (ft)	381.72	525.73	605.99
Crit W.S. (ft)	5883.96	Flow Area (sq ft)	1584.61	1067.59	
E.G. Slope (ft/ft)	0.007145	Area (sq ft)	1584.61	1067.59	
Q Total (cfs)	16863.00	Flow (cfs)	8076.26	8786.74	
Top Width (ft)	1329.44	Top Width (ft)	943.07	386.37	
Vel Total (ft/s)	6.36	Avg. Vel. (ft/s)	5.10	8.23	
Max Chl Dpth (ft)	5.38	Hydr. Depth (ft)	1.68	2.76	
Conv. Total (cfs)	199490.1	Conv. (cfs)	95542.6	103947.5	
Length Wtd. (ft)	456.17	Wetted Per. (ft)	943.53	387.35	
Min Ch El (ft)	5878.74	Shear (lb/sq ft)	0.75	1.23	
Alpha	1.18	Stream Power (lb/ft s)	3.82	10.12	
Frctn Loss (ft)	2.41	Cum Volume (acre-ft)	141.23	170.27	0.54
C & E Loss (ft)	0.10	Cum SA (acres)	79.25	45.33	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 30340 Profile: 100yr

E.G. Elev (ft)	5882.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5881.94	Reach Len. (ft)	335.79	356.02	418.52
Crit W.S. (ft)	5881.23	Flow Area (sq ft)	2165.00	1408.96	
E.G. Slope (ft/ft)	0.004060	Area (sq ft)	2165.00	1408.96	
Q Total (cfs)	16863.00	Flow (cfs)	8214.50	8648.50	
Top Width (ft)	1699.30	Top Width (ft)	1183.21	516.08	
Vel Total (ft/s)	4.72	Avg. Vel. (ft/s)	3.79	6.14	
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)	1.83	2.73	
Conv. Total (cfs)	264659.2	Conv. (cfs)	128923.8	135735.4	
Length Wtd. (ft)	344.26	Wetted Per. (ft)	1183.41	519.42	
Min Ch El (ft)	5877.18	Shear (lb/sq ft)	0.46	0.69	
Alpha	1.18	Stream Power (lb/ft s)	1.76	4.22	
Frctn Loss (ft)	2.19	Cum Volume (acre-ft)	124.81	155.33	0.54
C & E Loss (ft)	0.02	Cum SA (acres)	69.93	39.88	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 29984 Profile: 100yr

E.G. Elev (ft)	5880.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.56	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5879.58	Reach Len. (ft)	281.57	319.11	328.22
Crit W.S. (ft)	5879.56	Flow Area (sq ft)	3020.91	1127.15	
E.G. Slope (ft/ft)	0.009459	Area (sq ft)	3020.91	1127.15	
Q Total (cfs)	23714.00	Flow (cfs)	15372.89	8341.11	
Top Width (ft)	2398.16	Top Width (ft)	1807.11	591.04	
Vel Total (ft/s)	5.72	Avg. Vel. (ft/s)	5.09	7.40	
Max Chl Dpth (ft)	6.43	Hydr. Depth (ft)	1.67	1.91	
Conv. Total (cfs)	243824.6	Conv. (cfs)	158062.3	85762.3	
Length Wtd. (ft)	295.68	Wetted Per. (ft)	1807.19	592.00	
Min Ch El (ft)	5873.15	Shear (lb/sq ft)	0.99	1.12	
Alpha	1.10	Stream Power (lb/ft s)	5.02	8.32	
Frctn Loss (ft)	2.37	Cum Volume (acre-ft)	104.82	144.96	0.54
C & E Loss (ft)	0.00	Cum SA (acres)	58.41	35.36	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 29665 Profile: 100yr

E.G. Elev (ft)	5877.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5877.18	Reach Len. (ft)	284.00	326.80	348.43
Crit W.S. (ft)	5876.86	Flow Area (sq ft)	2462.89	1419.78	
E.G. Slope (ft/ft)	0.006858	Area (sq ft)	2462.89	1419.78	
Q Total (cfs)	23714.00	Flow (cfs)	14229.93	9484.07	
Top Width (ft)	2054.52	Top Width (ft)	1372.91	681.61	
Vel Total (ft/s)	6.11	Avg. Vel. (ft/s)	5.78	6.68	
Max Chl Dpth (ft)	5.49	Hydr. Depth (ft)	1.79	2.08	
Conv. Total (cfs)	286356.0	Conv. (cfs)	171832.1	114523.9	
Length Wtd. (ft)	311.63	Wetted Per. (ft)	1374.55	683.15	
Min Ch El (ft)	5872.00	Shear (lb/sq ft)	0.77	0.89	
Alpha	1.02	Stream Power (lb/ft s)	4.43	5.94	
Frctn Loss (ft)	2.25	Cum Volume (acre-ft)	87.09	135.64	0.54
C & E Loss (ft)	0.07	Cum SA (acres)	48.13	30.70	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 29338 Profile: 100yr

E.G. Elev (ft)	5875.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.31	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5874.14	Reach Len. (ft)	252.33	279.96	309.87
Crit W.S. (ft)	5874.14	Flow Area (sq ft)	568.25	2205.35	
E.G. Slope (ft/ft)	0.007607	Area (sq ft)	568.25	2205.35	
Q Total (cfs)	23714.00	Flow (cfs)	2582.44	21131.57	
Top Width (ft)	1372.35	Top Width (ft)	712.05	660.31	
Vel Total (ft/s)	8.55	Avg. Vel. (ft/s)	4.54	9.58	
Max Chl Dpth (ft)	8.38	Hydr. Depth (ft)	0.80	3.34	
Conv. Total (cfs)	271899.7	Conv. (cfs)	29609.7	242290.0	
Length Wtd. (ft)	274.54	Wetted Per. (ft)	713.90	667.57	
Min Ch El (ft)	5865.76	Shear (lb/sq ft)	0.38	1.57	
Alpha	1.15	Stream Power (lb/ft s)	1.72	15.03	
Frctn Loss (ft)	1.39	Cum Volume (acre-ft)	77.21	122.04	0.54
C & E Loss (ft)	0.20	Cum SA (acres)	41.33	25.66	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 29058 Profile: 100yr

E.G. Elev (ft)	5873.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5872.96	Reach Len. (ft)	287.77	305.83	246.30
Crit W.S. (ft)	5872.16	Flow Area (sq ft)	1810.18	2356.28	
E.G. Slope (ft/ft)	0.003619	Area (sq ft)	1810.18	2356.28	
Q Total (cfs)	23714.00	Flow (cfs)	6722.50	16991.50	
Top Width (ft)	1788.76	Top Width (ft)	1164.23	624.53	
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)	3.71	7.21	
Max Chl Dpth (ft)	7.16	Hydr. Depth (ft)	1.55	3.77	
Conv. Total (cfs)	394194.1	Conv. (cfs)	111747.1	282447.0	
Length Wtd. (ft)	300.16	Wetted Per. (ft)	1165.28	625.85	
Min Ch El (ft)	5867.03	Shear (lb/sq ft)	0.35	0.85	
Alpha	1.27	Stream Power (lb/ft s)	1.30	6.13	
Frctn Loss (ft)	1.20	Cum Volume (acre-ft)	70.32	107.38	0.54
C & E Loss (ft)	0.01	Cum SA (acres)	35.90	21.54	1.00

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 28752 Profile: 100yr

E.G. Elev (ft)	5872.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5871.62	Reach Len. (ft)	417.55	492.07	349.60
Crit W.S. (ft)	5871.09	Flow Area (sq ft)	1921.91	1926.69	
E.G. Slope (ft/ft)	0.004470	Area (sq ft)	1921.91	1926.69	72.16
Q Total (cfs)	23714.00	Flow (cfs)	8157.19	15556.81	
Top Width (ft)	1920.88	Top Width (ft)	1282.51	504.92	133.46
Vel Total (ft/s)	6.16	Avg. Vel. (ft/s)	4.24	8.07	
Max Chl Dpth (ft)	7.28	Hydr. Depth (ft)	1.50	3.82	
Conv. Total (cfs)	354703.1	Conv. (cfs)	122011.5	232691.6	
Length Wtd. (ft)	470.46	Wetted Per. (ft)	1283.20	506.02	
Min Ch El (ft)	5865.79	Shear (lb/sq ft)	0.42	1.06	
Alpha	1.29	Stream Power (lb/ft s)	1.77	8.58	
Frctn Loss (ft)	2.43	Cum Volume (acre-ft)	58.00	92.34	0.34
C & E Loss (ft)	0.01	Cum SA (acres)	27.82	17.57	0.62

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 28260 Profile: 100yr

E.G. Elev (ft)	5869.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.89	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5869.06	Reach Len. (ft)	295.34	373.33	252.51
Crit W.S. (ft)	5868.99	Flow Area (sq ft)	1536.94	2156.63	
E.G. Slope (ft/ft)	0.006016	Area (sq ft)	1536.94	2156.63	
Q Total (cfs)	23714.00	Flow (cfs)	5595.58	18118.42	
Top Width (ft)	1747.90	Top Width (ft)	1082.06	665.84	
Vel Total (ft/s)	6.42	Avg. Vel. (ft/s)	3.64	8.40	
Max Chl Dpth (ft)	7.47	Hydr. Depth (ft)	1.42	3.24	
Conv. Total (cfs)	305729.2	Conv. (cfs)	72140.1	233589.0	
Length Wtd. (ft)	356.95	Wetted Per. (ft)	1082.12	666.92	
Min Ch El (ft)	5861.58	Shear (lb/sq ft)	0.53	1.21	
Alpha	1.38	Stream Power (lb/ft s)	1.94	10.20	
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	41.42	69.28	0.05
C & E Loss (ft)	0.01	Cum SA (acres)	16.48	10.96	0.09

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 27887 Profile: 100yr

E.G. Elev (ft)	5867.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5866.77	Reach Len. (ft)	397.19	383.75	354.51
Crit W.S. (ft)	5866.77	Flow Area (sq ft)	1281.25	2191.28	
E.G. Slope (ft/ft)	0.005947	Area (sq ft)	1281.25	2191.28	
Q Total (cfs)	23714.00	Flow (cfs)	4366.74	19347.26	
Top Width (ft)	1610.30	Top Width (ft)	987.43	622.87	
Vel Total (ft/s)	6.83	Avg. Vel. (ft/s)	3.41	8.83	
Max Chl Dpth (ft)	7.62	Hydr. Depth (ft)	1.30	3.52	
Conv. Total (cfs)	307499.2	Conv. (cfs)	56623.4	250875.8	
Length Wtd. (ft)	386.86	Wetted Per. (ft)	987.50	623.54	
Min Ch El (ft)	5859.15	Shear (lb/sq ft)	0.48	1.30	
Alpha	1.41	Stream Power (lb/ft s)	1.64	11.52	
Frctn Loss (ft)	1.77	Cum Volume (acre-ft)	31.86	50.65	0.05
C & E Loss (ft)	0.11	Cum SA (acres)	9.47	5.44	0.09

Plan: Plan-Without-Pits BlackSquirrelCrk US to LBS RS: 27503 Profile: 100yr

E.G. Elev (ft)	5864.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5863.88	Reach Len. (ft)	541.48	541.48	541.48
Crit W.S. (ft)	5863.37	Flow Area (sq ft)	1947.60	2344.84	0.73
E.G. Slope (ft/ft)	0.003617	Area (sq ft)	1947.60	2344.84	0.73
Q Total (cfs)	23714.00	Flow (cfs)	6613.01	17100.82	0.17
Top Width (ft)	1721.05	Top Width (ft)	1089.10	611.01	20.95
Vel Total (ft/s)	5.52	Avg. Vel. (ft/s)	3.40	7.29	0.24
Max Chl Dpth (ft)	7.74	Hydr. Depth (ft)	1.79	3.84	0.03
Conv. Total (cfs)	394317.2	Conv. (cfs)	109961.4	284352.9	2.9
Length Wtd. (ft)	541.48	Wetted Per. (ft)	1089.98	612.08	20.95
Min Ch El (ft)	5856.14	Shear (lb/sq ft)	0.40	0.87	0.01
Alpha	1.36	Stream Power (lb/ft s)	1.37	6.31	0.00
Frctn Loss (ft)	2.89	Cum Volume (acre-ft)	17.14	30.67	0.04
C & E Loss (ft)	0.10	Cum SA (acres)			

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 26962 Profile: 100yr

E.G. Elev (ft)	5861.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.67	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5859.86	Reach Len. (ft)	465.72	464.14	428.10
Crit W.S. (ft)	5859.86	Flow Area (sq ft)	324.63	2589.24	
E.G. Slope (ft/ft)	0.007872	Area (sq ft)	810.69	2589.24	6.16
Q Total (cfs)	29100.00	Flow (cfs)	1649.87	27450.13	
Top Width (ft)	1233.44	Top Width (ft)	472.79	689.48	71.17
Vel Total (ft/s)	9.99	Avg. Vel. (ft/s)	5.08	10.60	
Max Chl Dpth (ft)	7.35	Hydr. Depth (ft)	1.92	3.76	
Conv. Total (cfs)	327984.1	Conv. (cfs)	18595.5	309388.5	
Length Wtd. (ft)	461.36	Wetted Per. (ft)	169.54	691.01	
Min Ch El (ft)	5852.51	Shear (lb/sq ft)	0.94	1.84	
Alpha	1.08	Stream Power (lb/ft s)	4.78	19.52	
Frctn Loss (ft)	2.76	Cum Volume (acre-ft)	402.02	1164.81	895.23
C & E Loss (ft)	0.19	Cum SA (acres)	158.34	371.93	377.51

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 26498 Profile: 100yr

E.G. Elev (ft)	5857.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5856.65	Reach Len. (ft)	589.32	672.05	619.01
Crit W.S. (ft)	5856.25	Flow Area (sq ft)	951.01	1983.20	1195.20
E.G. Slope (ft/ft)	0.004695	Area (sq ft)	2435.47	1983.20	1195.20
Q Total (cfs)	29100.00	Flow (cfs)	5642.85	18642.84	4814.31
Top Width (ft)	2049.78	Top Width (ft)	840.81	429.40	779.58
Vel Total (ft/s)	7.05	Avg. Vel. (ft/s)	5.93	9.40	4.03
Max Chl Dpth (ft)	7.39	Hydr. Depth (ft)	3.57	4.62	1.53
Conv. Total (cfs)	424673.5	Conv. (cfs)	82349.5	272066.0	70258.1
Length Wtd. (ft)	649.53	Wetted Per. (ft)	267.22	430.25	779.95
Min Ch El (ft)	5849.26	Shear (lb/sq ft)	1.04	1.35	0.45
Alpha	1.33	Stream Power (lb/ft s)	6.19	12.70	1.81
Frctn Loss (ft)	3.16	Cum Volume (acre-ft)	384.67	1140.45	889.32
C & E Loss (ft)	0.01	Cum SA (acres)	151.32	365.97	373.33

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 25826 Profile: 100yr

E.G. Elev (ft)	5854.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5853.37	Reach Len. (ft)	304.11	312.29	311.37
Crit W.S. (ft)	5853.37	Flow Area (sq ft)	97.96	1770.16	2523.48
E.G. Slope (ft/ft)	0.005034	Area (sq ft)	1606.43	1770.16	2523.48
Q Total (cfs)	29100.00	Flow (cfs)	516.60	18297.65	10285.75
Top Width (ft)	2215.69	Top Width (ft)	553.73	350.07	1311.89
Vel Total (ft/s)	6.63	Avg. Vel. (ft/s)	5.27	10.34	4.08
Max Chl Dpth (ft)	7.16	Hydr. Depth (ft)	2.83	5.06	1.92
Conv. Total (cfs)	410139.9	Conv. (cfs)	7281.1	257890.0	144968.9
Length Wtd. (ft)	311.78	Wetted Per. (ft)	34.61	350.91	1312.18
Min Ch El (ft)	5846.21	Shear (lb/sq ft)	0.89	1.59	0.60
Alpha	1.68	Stream Power (lb/ft s)	4.69	16.39	2.46
Frctn Loss (ft)	1.69	Cum Volume (acre-ft)	357.33	1111.50	862.90
C & E Loss (ft)	0.04	Cum SA (acres)	141.89	359.95	358.47

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 25513 Profile: 100yr

E.G. Elev (ft)	5852.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5851.31	Reach Len. (ft)	62.66	62.66	62.66
Crit W.S. (ft)	5851.31	Flow Area (sq ft)	468.51	2663.68	1230.80
E.G. Slope (ft/ft)	0.005878	Area (sq ft)	468.51	2663.68	1230.80
Q Total (cfs)	29100.00	Flow (cfs)	1458.72	23465.79	4175.50
Top Width (ft)	2109.77	Top Width (ft)	409.84	753.22	946.71
Vel Total (ft/s)	6.67	Avg. Vel. (ft/s)	3.11	8.81	3.39
Max Chl Dpth (ft)	6.31	Hydr. Depth (ft)	1.14	3.54	1.30
Conv. Total (cfs)	379543.2	Conv. (cfs)	19025.7	306057.7	54459.9
Length Wtd. (ft)	62.66	Wetted Per. (ft)	409.92	753.89	946.81
Min Ch El (ft)	5845.00	Shear (lb/sq ft)	0.42	1.30	0.48
Alpha	1.45	Stream Power (lb/ft s)	1.31	11.42	1.62
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	350.09	1095.61	849.48
C & E Loss (ft)	0.03	Cum SA (acres)	138.52	356.00	350.40

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 25451 Profile: 100yr

E.G. Elev (ft)	5851.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.26	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5850.49	Reach Len. (ft)	614.30	724.17	589.89
Crit W.S. (ft)	5850.47	Flow Area (sq ft)		2861.02	677.78
E.G. Slope (ft/ft)	0.007112	Area (sq ft)		2861.02	677.78
Q Total (cfs)	29100.00	Flow (cfs)		26721.46	2378.54
Top Width (ft)	1556.96	Top Width (ft)		855.48	701.48
Vel Total (ft/s)	8.22	Avg. Vel. (ft/s)		9.34	3.51
Max Chl Dpth (ft)	6.23	Hydr. Depth (ft)		3.34	0.97
Conv. Total (cfs)	345069.6	Conv. (cfs)		316864.8	28204.8
Length Wtd. (ft)	717.51	Wetted Per. (ft)		855.67	701.58
Min Ch El (ft)	5844.26	Shear (lb/sq ft)		1.48	0.43
Alpha	1.20	Stream Power (lb/ft s)		13.87	1.51
Frctn Loss (ft)	4.64	Cum Volume (acre-ft)	349.75	1091.63	848.11
C & E Loss (ft)	0.00	Cum SA (acres)	138.23	354.84	349.22

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 24726 Profile: 100yr

E.G. Elev (ft)	5847.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.27	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5845.84	Reach Len. (ft)	568.78	559.66	318.68
Crit W.S. (ft)	5845.57	Flow Area (sq ft)		3141.25	215.37
E.G. Slope (ft/ft)	0.005913	Area (sq ft)		3141.25	1196.47
Q Total (cfs)	29100.00	Flow (cfs)		28593.00	507.00
Top Width (ft)	1987.31	Top Width (ft)		849.41	1137.89
Vel Total (ft/s)	8.67	Avg. Vel. (ft/s)		9.10	2.35
Max Chl Dpth (ft)	5.84	Hydr. Depth (ft)		3.70	0.75
Conv. Total (cfs)	378426.4	Conv. (cfs)		371833.2	6593.2
Length Wtd. (ft)	557.55	Wetted Per. (ft)		850.25	287.89
Min Ch El (ft)	5840.00	Shear (lb/sq ft)		1.36	0.28
Alpha	1.08	Stream Power (lb/ft s)		12.41	0.65
Frctn Loss (ft)	3.38	Cum Volume (acre-ft)	349.75	1041.74	835.42
C & E Loss (ft)	0.00	Cum SA (acres)	138.23	340.67	336.76

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 24167 Profile: 100yr

E.G. Elev (ft)	5843.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.27	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5842.46	Reach Len. (ft)	195.53	211.79	527.93
Crit W.S. (ft)	5842.13	Flow Area (sq ft)	22.82	3212.28	4.90
E.G. Slope (ft/ft)	0.006205	Area (sq ft)	22.82	3212.28	4.90
Q Total (cfs)	29100.00	Flow (cfs)	43.67	29050.94	5.39
Top Width (ft)	972.78	Top Width (ft)	43.12	908.46	21.19
Vel Total (ft/s)	8.98	Avg. Vel. (ft/s)	1.91	9.04	1.10
Max Chl Dpth (ft)	6.69	Hydr. Depth (ft)	0.53	3.54	0.23
Conv. Total (cfs)	369424.0	Conv. (cfs)	554.5	368801.1	68.4
Length Wtd. (ft)	211.81	Wetted Per. (ft)	43.14	910.24	21.20
Min Ch El (ft)	5835.77	Shear (lb/sq ft)	0.20	1.37	0.09
Alpha	1.01	Stream Power (lb/ft s)	0.39	12.36	0.10
Frctn Loss (ft)	1.60	Cum Volume (acre-ft)	349.60	1000.92	831.02
C & E Loss (ft)	0.02	Cum SA (acres)	137.95	329.38	332.52

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 23955 Profile: 100yr

E.G. Elev (ft)	5842.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.22	Wt. n-Val.		0.030	
W.S. Elev (ft)	5840.90	Reach Len. (ft)	391.60	397.78	392.04
Crit W.S. (ft)	5840.90	Flow Area (sq ft)		3289.76	
E.G. Slope (ft/ft)	0.009435	Area (sq ft)		3608.77	1460.93
Q Total (cfs)	29100.00	Flow (cfs)		29100.00	
Top Width (ft)	2724.26	Top Width (ft)		1588.87	1135.39
Vel Total (ft/s)	8.85	Avg. Vel. (ft/s)		8.85	
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)		2.49	
Conv. Total (cfs)	299582.7	Conv. (cfs)		299582.7	
Length Wtd. (ft)	397.78	Wetted Per. (ft)		1319.62	
Min Ch El (ft)	5835.74	Shear (lb/sq ft)		1.47	
Alpha	1.00	Stream Power (lb/ft s)		12.99	
Frctn Loss (ft)	2.51	Cum Volume (acre-ft)	349.55	984.34	822.14
C & E Loss (ft)	0.15	Cum SA (acres)	137.85	323.31	325.51

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 23557 Profile: 100yr

E.G. Elev (ft)	5839.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.		0.030	
W.S. Elev (ft)	5838.39	Reach Len. (ft)	393.92	401.37	367.59
Crit W.S. (ft)	5837.74	Flow Area (sq ft)		4311.04	
E.G. Slope (ft/ft)	0.004508	Area (sq ft)		4542.51	1560.86
Q Total (cfs)	29100.00	Flow (cfs)		29100.00	
Top Width (ft)	2666.95	Top Width (ft)		1580.23	1086.72
Vel Total (ft/s)	6.75	Avg. Vel. (ft/s)		6.75	
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)		2.89	
Conv. Total (cfs)	433417.3	Conv. (cfs)		433417.3	
Length Wtd. (ft)	401.37	Wetted Per. (ft)		1490.76	
Min Ch El (ft)	5833.34	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		5.49	
Frctn Loss (ft)	2.52	Cum Volume (acre-ft)	349.55	947.12	808.54
C & E Loss (ft)	0.06	Cum SA (acres)	137.85	308.84	315.51

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 23156 Profile: 100yr

E.G. Elev (ft)	5836.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.27	Wt. n-Val.		0.030	
W.S. Elev (ft)	5835.26	Reach Len. (ft)	530.91	577.18	509.09
Crit W.S. (ft)	5835.26	Flow Area (sq ft)		3222.45	
E.G. Slope (ft/ft)	0.009321	Area (sq ft)		3222.45	1695.45
Q Total (cfs)	29100.00	Flow (cfs)		29100.00	
Top Width (ft)	2765.14	Top Width (ft)		1240.18	1524.96
Vel Total (ft/s)	9.03	Avg. Vel. (ft/s)		9.03	
Max Chl Dpth (ft)	5.26	Hydr. Depth (ft)		2.60	
Conv. Total (cfs)	301412.0	Conv. (cfs)		301412.0	
Length Wtd. (ft)	575.02	Wetted Per. (ft)		1241.75	
Min Ch El (ft)	5830.00	Shear (lb/sq ft)		1.51	
Alpha	1.00	Stream Power (lb/ft s)		13.64	
Frctn Loss (ft)	3.22	Cum Volume (acre-ft)	349.55	911.35	794.80
C & E Loss (ft)	0.21	Cum SA (acres)	137.85	295.84	304.49

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 22579 Profile: 100yr

E.G. Elev (ft)	5833.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5832.48	Reach Len. (ft)	358.55	383.00	362.63
Crit W.S. (ft)	5831.76	Flow Area (sq ft)		4367.06	618.87
E.G. Slope (ft/ft)	0.003729	Area (sq ft)		4367.06	5135.75
Q Total (cfs)	29100.00	Flow (cfs)		27255.64	1844.36
Top Width (ft)	3554.89	Top Width (ft)		1472.37	2082.52
Vel Total (ft/s)	5.84	Avg. Vel. (ft/s)		6.24	2.98
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)		2.97	1.51
Conv. Total (cfs)	476550.2	Conv. (cfs)		446346.4	30203.8
Length Wtd. (ft)	380.20	Wetted Per. (ft)		1473.25	410.97
Min Ch El (ft)	5826.00	Shear (lb/sq ft)		0.69	0.35
Alpha	1.09	Stream Power (lb/ft s)		4.31	1.04
Frctn Loss (ft)	1.62	Cum Volume (acre-ft)	349.55	861.07	754.89
C & E Loss (ft)	0.01	Cum SA (acres)	137.85	277.87	283.41

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 22196 Profile: 100yr

E.G. Elev (ft)	5831.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5830.70	Reach Len. (ft)	314.79	325.49	318.98
Crit W.S. (ft)	5829.93	Flow Area (sq ft)		3172.91	1273.43
E.G. Slope (ft/ft)	0.004939	Area (sq ft)		3172.91	7258.15
Q Total (cfs)	29100.00	Flow (cfs)		22953.03	6146.97
Top Width (ft)	3099.76	Top Width (ft)		1058.39	2041.37
Vel Total (ft/s)	6.54	Avg. Vel. (ft/s)		7.23	4.83
Max Chl Dpth (ft)	5.21	Hydr. Depth (ft)		3.00	2.51
Conv. Total (cfs)	414077.9	Conv. (cfs)		326609.7	87468.2
Length Wtd. (ft)	323.83	Wetted Per. (ft)		1059.04	506.48
Min Ch El (ft)	5825.71	Shear (lb/sq ft)		0.92	0.78
Alpha	1.08	Stream Power (lb/ft s)		6.68	3.74
Frctn Loss (ft)	1.98	Cum Volume (acre-ft)	349.55	827.92	703.30
C & E Loss (ft)	0.02	Cum SA (acres)	137.85	266.75	266.25

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 21870 Profile: 100yr

E.G. Elev (ft)	5829.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.89	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5828.53	Reach Len. (ft)	350.43	355.93	352.22
Crit W.S. (ft)	5828.26	Flow Area (sq ft)		2466.51	1578.68
E.G. Slope (ft/ft)	0.007800	Area (sq ft)		2466.51	7399.65
Q Total (cfs)	29100.00	Flow (cfs)		20412.44	8687.56
Top Width (ft)	2979.38	Top Width (ft)		947.56	2031.82
Vel Total (ft/s)	7.19	Avg. Vel. (ft/s)		8.28	5.50
Max Chl Dpth (ft)	5.55	Hydr. Depth (ft)		2.60	2.17
Conv. Total (cfs)	329494.1	Conv. (cfs)		231126.4	98367.7
Length Wtd. (ft)	354.56	Wetted Per. (ft)		947.86	726.71
Min Ch El (ft)	5824.00	Shear (lb/sq ft)		1.27	1.06
Alpha	1.10	Stream Power (lb/ft s)		10.49	5.82
Frctn Loss (ft)	2.19	Cum Volume (acre-ft)	349.55	806.85	649.63
C & E Loss (ft)	0.11	Cum SA (acres)	137.85	259.25	251.33

Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 21514 Profile: 100yr

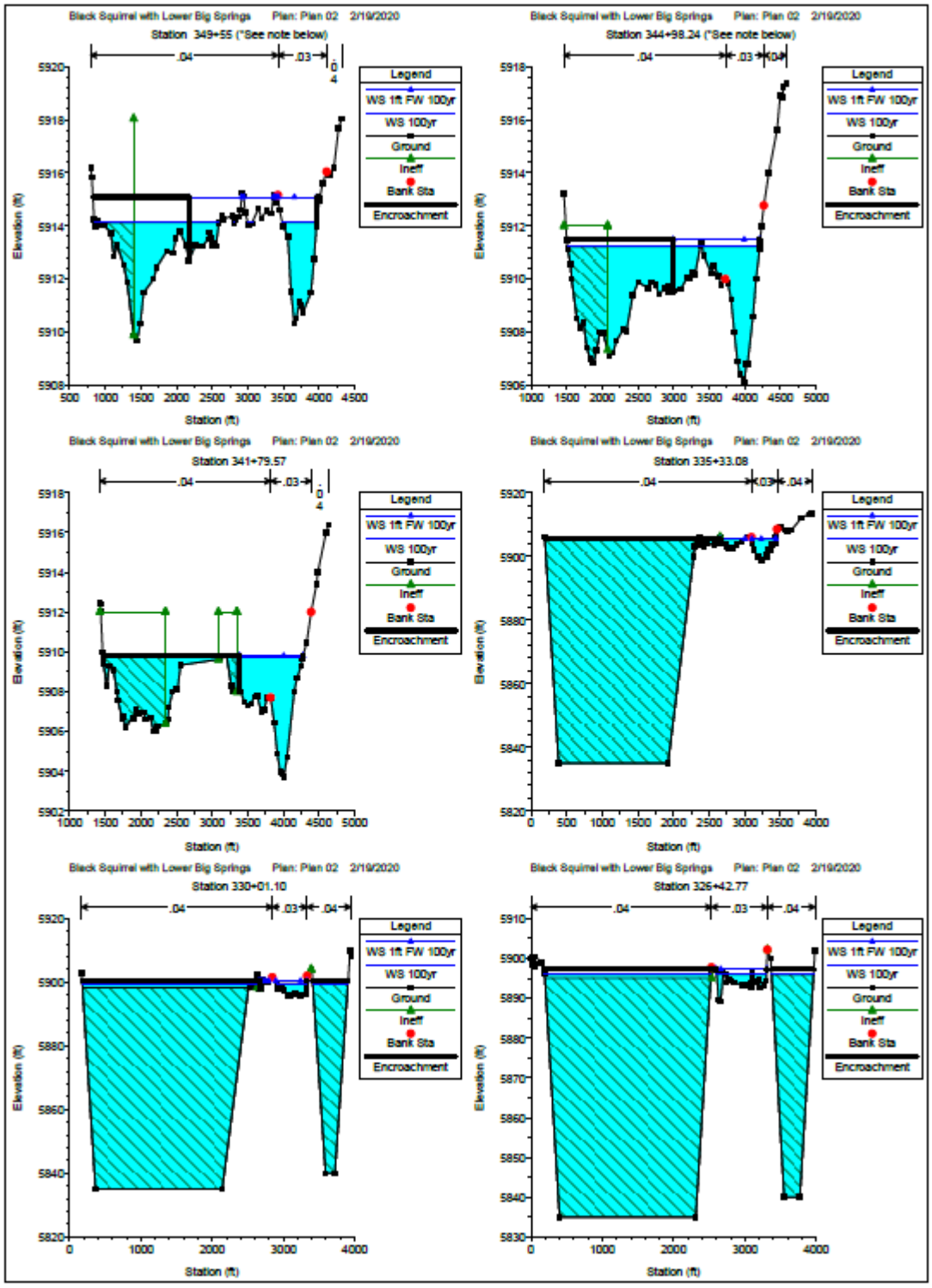
E.G. Elev (ft)	5827.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5826.60	Reach Len. (ft)	433.05	451.69	437.90
Crit W.S. (ft)	5825.81	Flow Area (sq ft)		2565.72	2544.67
E.G. Slope (ft/ft)	0.005023	Area (sq ft)		2565.72	7623.99
Q Total (cfs)	29100.00	Flow (cfs)		16327.36	12772.63
Top Width (ft)	3070.38	Top Width (ft)		1050.69	2019.69
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)		6.36	5.02
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)		2.44	2.63
Conv. Total (cfs)	410594.1	Conv. (cfs)		230375.3	180218.9
Length Wtd. (ft)	446.54	Wetted Per. (ft)		1051.19	966.68
Min Ch El (ft)	5821.60	Shear (lb/sq ft)		0.77	0.83
Alpha	1.04	Stream Power (lb/ft s)		4.87	4.14
Frctn Loss (ft)	2.94	Cum Volume (acre-ft)	349.55	786.29	588.89
C & E Loss (ft)	0.04	Cum SA (acres)	137.85	251.09	234.95

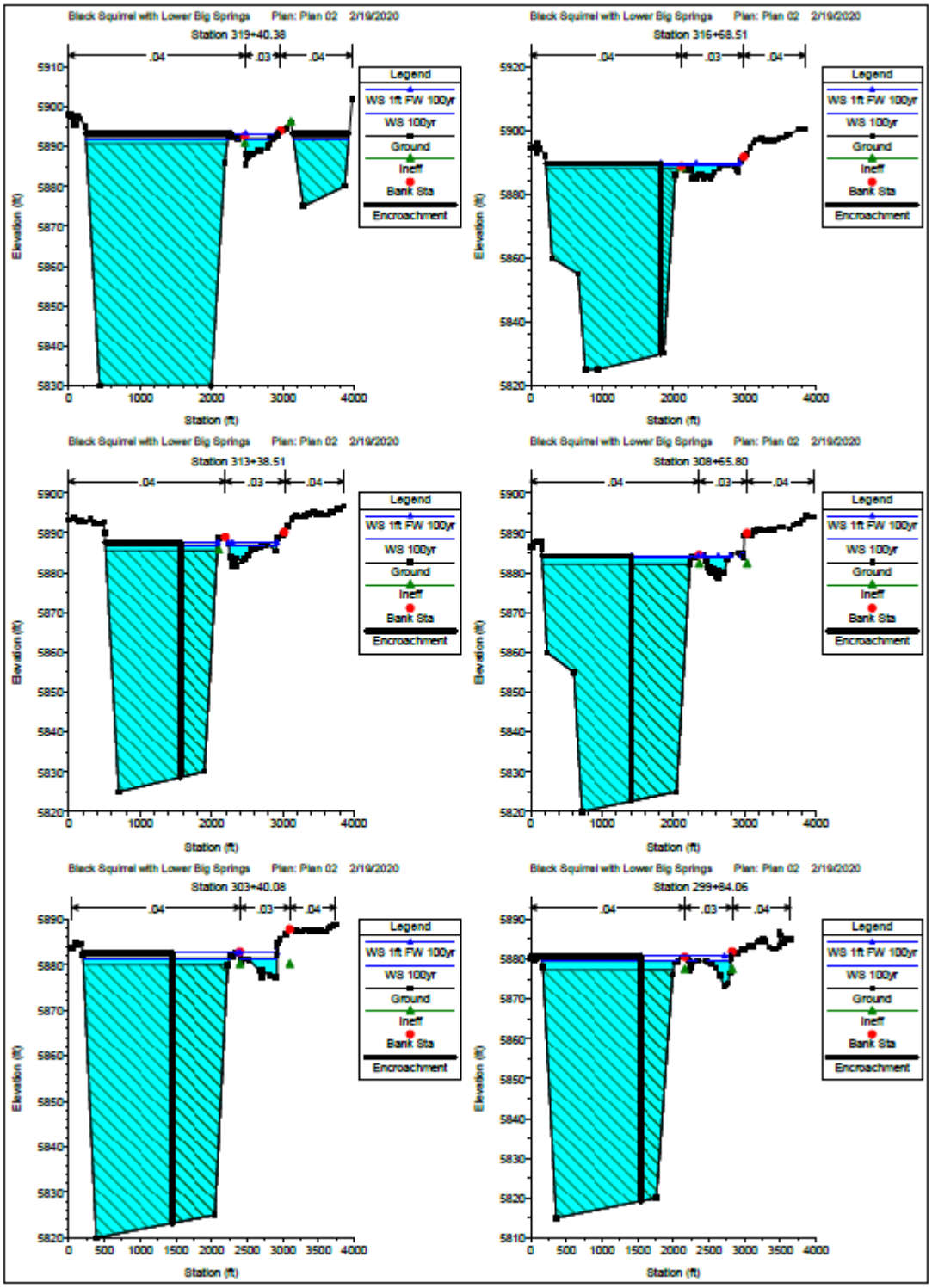
Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 21063 Profile: 100yr

E.G. Elev (ft)	5824.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5823.24	Reach Len. (ft)	934.05	812.83	579.12
Crit W.S. (ft)	5823.12	Flow Area (sq ft)		2430.26	1484.24
E.G. Slope (ft/ft)	0.008973	Area (sq ft)		2430.26	6497.01
Q Total (cfs)	29100.00	Flow (cfs)		20135.41	8964.59
Top Width (ft)	3014.72	Top Width (ft)		1035.06	1979.66
Vel Total (ft/s)	7.43	Avg. Vel. (ft/s)		8.29	6.04
Max Chl Dpth (ft)	7.77	Hydr. Depth (ft)		2.35	2.25
Conv. Total (cfs)	307208.6	Conv. (cfs)		212569.4	94639.2
Length Wtd. (ft)	686.34	Wetted Per. (ft)		1035.60	660.02
Min Ch El (ft)	5818.00	Shear (lb/sq ft)		1.31	1.26
Alpha	1.06	Stream Power (lb/ft s)		10.89	7.61
Frctn Loss (ft)	5.01	Cum Volume (acre-ft)	349.55	760.39	517.91
C & E Loss (ft)	0.14	Cum SA (acres)	137.85	240.27	214.85

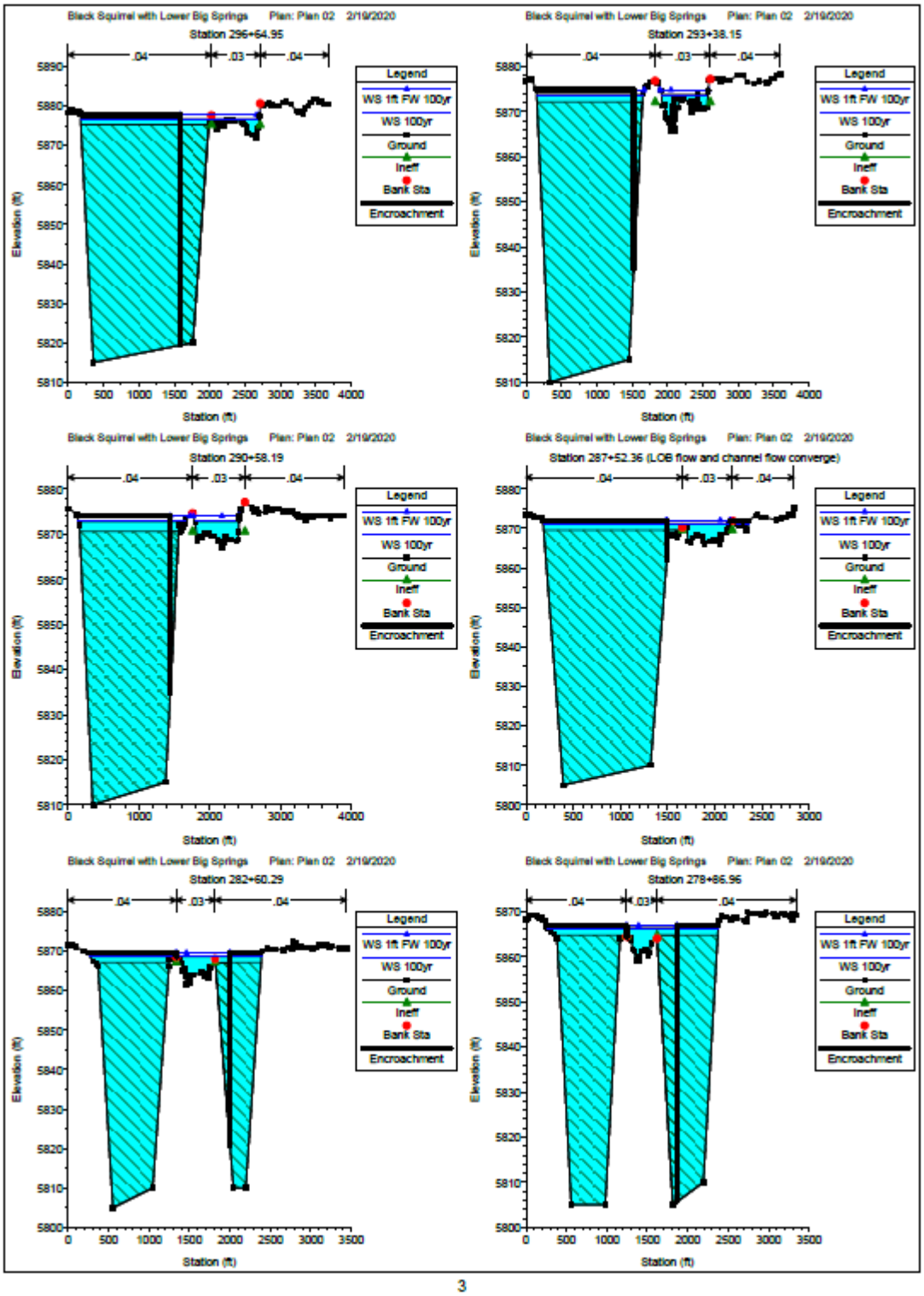
Plan: Plan-Without-Pits BlackSquirrelCrk LBS to ROB Split RS: 20250 Profile: 100yr

E.G. Elev (ft)	5819.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5818.56	Reach Len. (ft)	651.38	749.71	617.28
Crit W.S. (ft)	5817.68	Flow Area (sq ft)		1251.53	4161.67
E.G. Slope (ft/ft)	0.006059	Area (sq ft)		1251.53	4161.67
Q Total (cfs)	29100.00	Flow (cfs)		6565.18	22534.82
Top Width (ft)	2412.04	Top Width (ft)		788.27	1623.76
Vel Total (ft/s)	5.38	Avg. Vel. (ft/s)		5.25	5.41
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)		1.59	2.56
Conv. Total (cfs)	373848.2	Conv. (cfs)		84343.0	289505.2
Length Wtd. (ft)	643.85	Wetted Per. (ft)		788.57	1624.00
Min Ch El (ft)	5814.00	Shear (lb/sq ft)		0.60	0.97
Alpha	1.00	Stream Power (lb/ft s)		3.15	5.25
Frctn Loss (ft)	5.15	Cum Volume (acre-ft)	349.55	726.04	447.06
C & E Loss (ft)	0.03	Cum SA (acres)	137.85	223.26	190.90

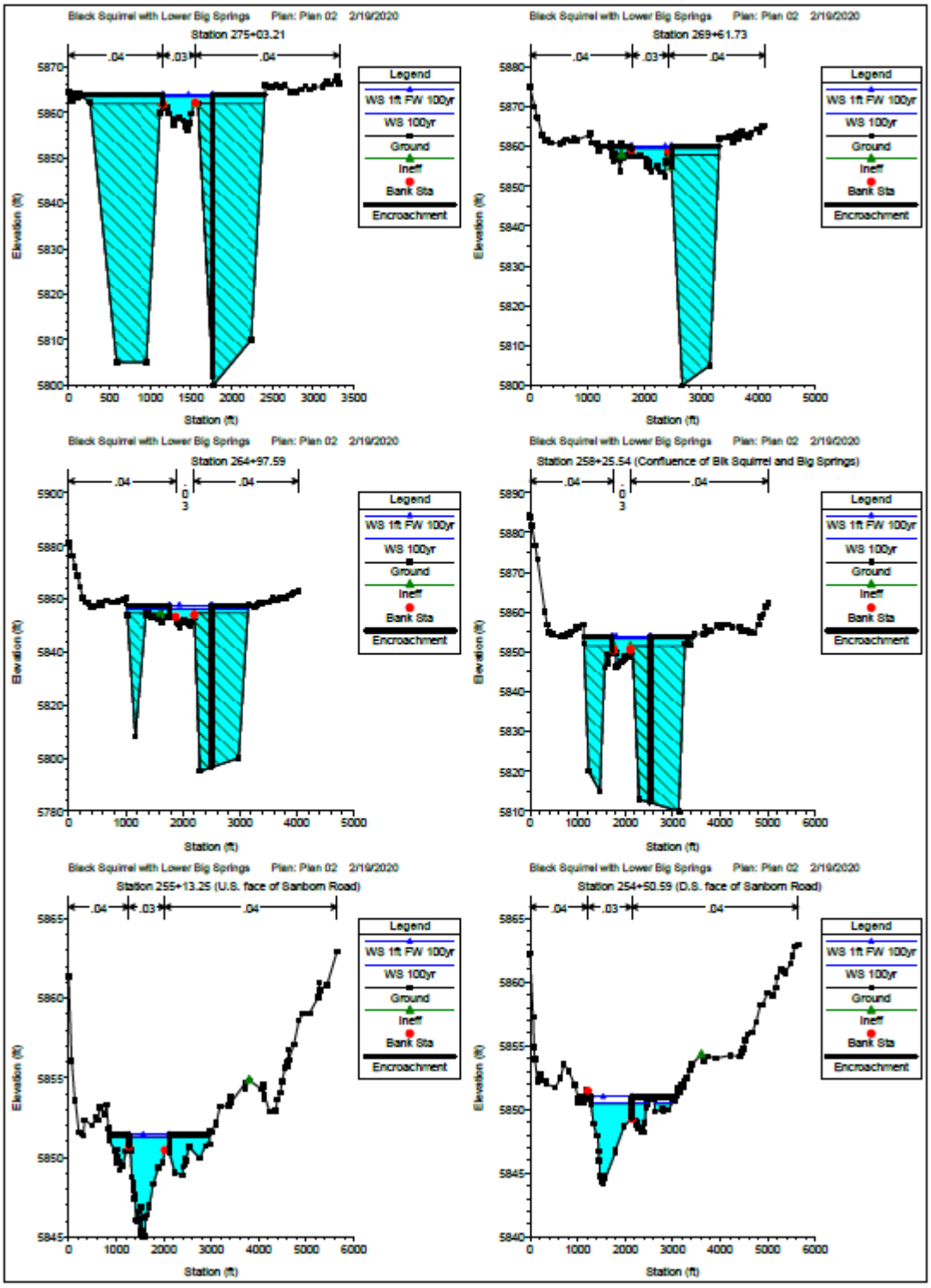

Black Squirrel with Lower Big Springs Plan: Plan 02 2/19/2020
Station 349+55 (*See note below)
Station 344+98.24 (*See note below)
Station 341+79.57
Station 335+33.08
Station 330+01.10
Station 326+42.77
Legend
WS 1ft FW 100yr
WS 100yr
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

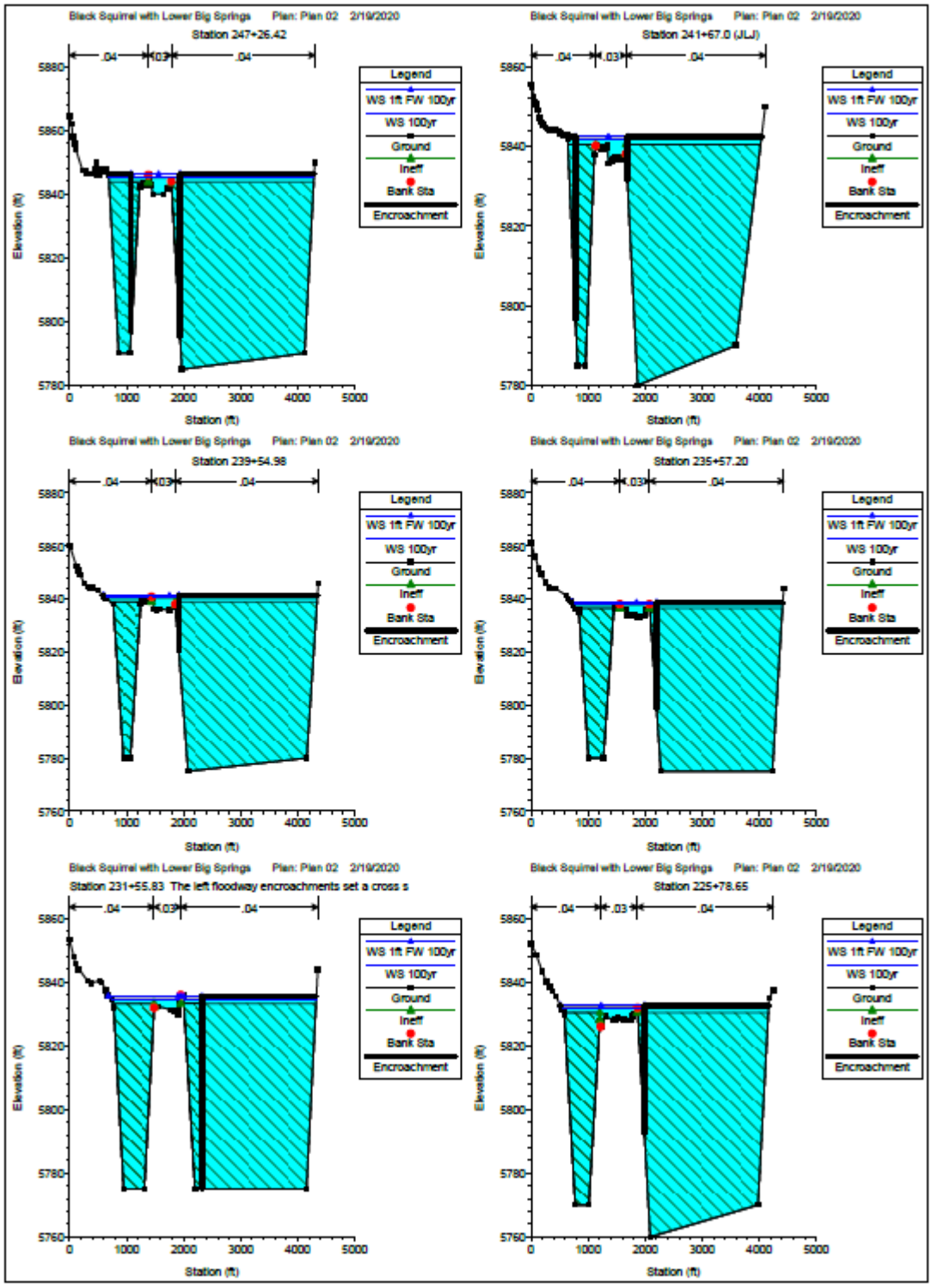

Black Squirrel with Lower Big Springs Plan: Plan 02 2/19/2020
Station 319+40.38
Station 316+68.51
Station 313+38.51
Station 308+65.80
Station 303+40.08
Station 299+84.06
.04
.03
.04
Legend
WS 1ft FW 100yr
WS 100yr
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

2

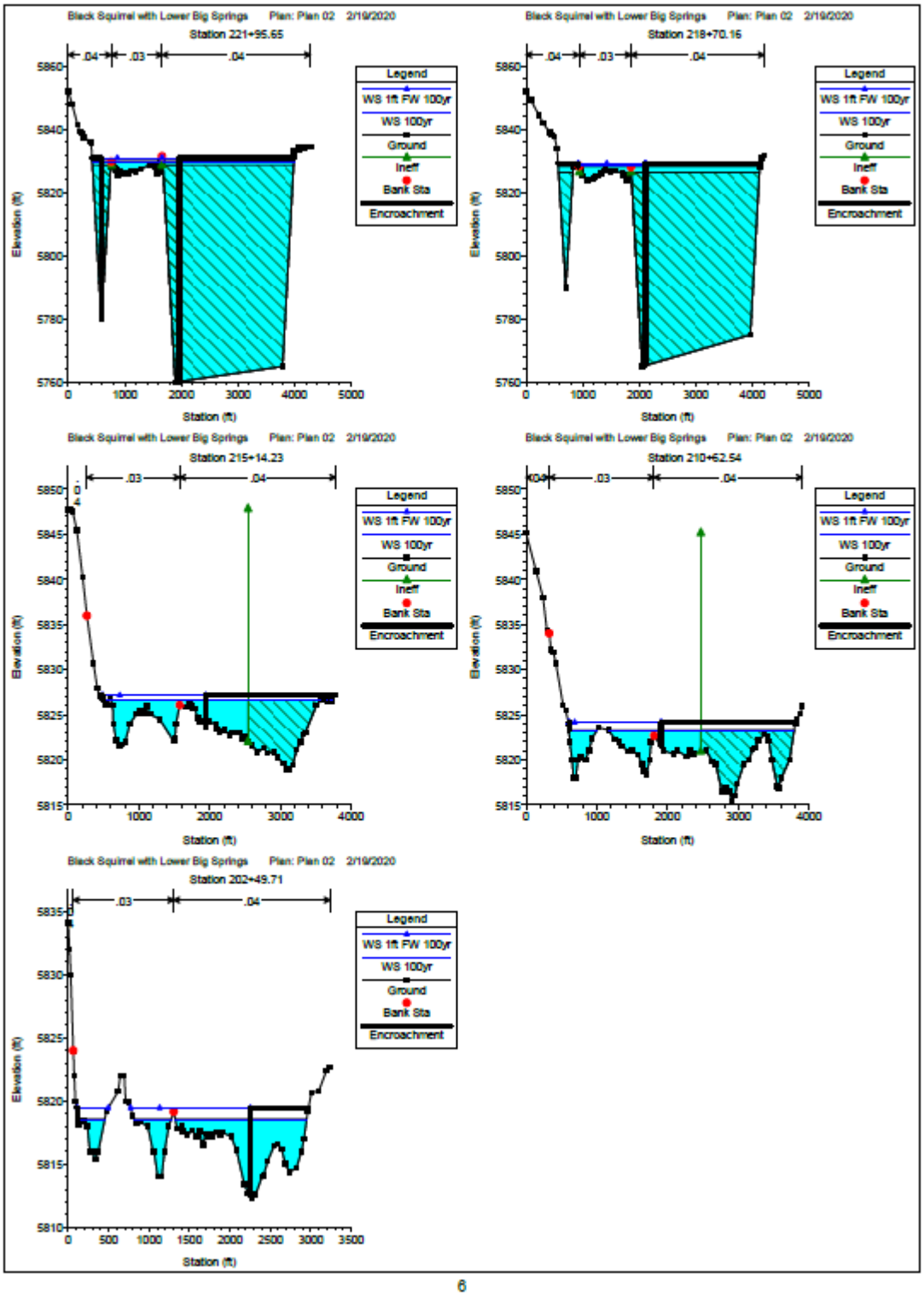

Black Squirrel with Lower Big Springs Plan: Plan 02 2/19/2020
Station 296+64.95
Station 293+38.15
Station 290+58.19
Station 287+52.36 (LOB flow and channel flow converge)
Station 282+60.29
Station 278+86.96
.04
.03
.04
Legend
WS 1ft FW 100yr
WS 100yr
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

3


Black Squirrel with Lower Big Springs Plan: Plan 02 2/19/2020
Station 275+03.21
Station 269+61.73
Station 264+97.59
Station 258+25.54 (Confluence of Blk Squirrel and Big Springs)
Station 255+13.25 (U.S. face of Sanborn Road)
Station 254+50.59 (D.S. face of Sanborn Road)
Legend
WS 1ft FW 100yr
WS 100yr
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


Black Squirrel with Lower Big Springs Plan: Plan 02 2/19/2020
Station 247+26.42
Station 241+67.0 (JLJ)
Station 239+54.98
Station 235+57.20
Station 231+55.83 The left floodway encroachments set a cross s
Station 225+78.65
.04
.03
.04
Legend
WS 1ft FW 100yr
WS 100yr
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

5


Black Squirrel with Lower Big Springs Plan: Plan 02 2/19/2020
Station 221+95.65
Station 218+70.16
Station 215+14.23
Station 210+62.54
Station 202+49.71
Legend
WS 1ft FW 100yr
WS 100yr
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

6

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 34955 Profile: 100yr

E.G. Elev (ft)	5914.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5914.13	Reach Len. (ft)	455.61	456.76	458.45
Crit W.S. (ft)	5914.13	Flow Area (sq ft)	1750.86	1089.17	
E.G. Slope (ft/ft)	0.009128	Area (sq ft)	2370.87	1089.17	
Q Total (cfs)	16863.00	Flow (cfs)	7994.98	8868.02	
Top Width (ft)	2263.50	Top Width (ft)	1781.02	482.49	
Vel Total (ft/s)	5.94	Avg. Vel. (ft/s)	4.57	8.14	
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)	1.39	2.26	
Conv. Total (cfs)	176501.4	Conv. (cfs)	83681.7	92819.7	
Length Wtd. (ft)	456.20	Wetted Per. (ft)	1261.39	482.60	
Min Ch El (ft)	5910.34	Shear (lb/sq ft)	0.79	1.29	
Alpha	1.27	Stream Power (lb/ft s)	3.61	10.47	
Frctn Loss (ft)	2.23	Cum Volume (acre-ft)	12647.19	268.80	1482.44
C & E Loss (ft)	0.11	Cum SA (acres)	296.57	84.07	29.64

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 34498 Profile: 100yr

E.G. Elev (ft)	5911.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5911.23	Reach Len. (ft)	299.30	318.67	327.60
Crit W.S. (ft)	5910.65	Flow Area (sq ft)	2788.54	1462.83	
E.G. Slope (ft/ft)	0.003043	Area (sq ft)	4500.99	1462.83	
Q Total (cfs)	16863.00	Flow (cfs)	8474.89	8388.11	
Top Width (ft)	2670.19	Top Width (ft)	2189.09	481.09	
Vel Total (ft/s)	3.97	Avg. Vel. (ft/s)	3.04	5.73	
Max Chl Dpth (ft)	5.13	Hydr. Depth (ft)	1.72	3.04	
Conv. Total (cfs)	305667.1	Conv. (cfs)	153620.0	152047.1	
Length Wtd. (ft)	310.62	Wetted Per. (ft)	1623.69	481.20	
Min Ch El (ft)	5906.10	Shear (lb/sq ft)	0.33	0.58	
Alpha	1.33	Stream Power (lb/ft s)	0.99	3.31	
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)	12611.25	255.42	1482.44
C & E Loss (ft)	0.03	Cum SA (acres)	275.80	79.02	29.64

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 34180 Profile: 100yr

E.G. Elev (ft)	5910.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5909.75	Reach Len. (ft)	581.80	646.49	770.50
Crit W.S. (ft)	5909.28	Flow Area (sq ft)	1612.56	1522.19	
E.G. Slope (ft/ft)	0.004444	Area (sq ft)	4083.50	1522.19	
Q Total (cfs)	16863.00	Flow (cfs)	5547.79	11315.21	
Top Width (ft)	2763.96	Top Width (ft)	2313.45	450.51	
Vel Total (ft/s)	5.38	Avg. Vel. (ft/s)	3.44	7.43	
Max Chl Dpth (ft)	6.02	Hydr. Depth (ft)	1.32	3.38	
Conv. Total (cfs)	252951.0	Conv. (cfs)	83218.8	169732.2	
Length Wtd. (ft)	630.41	Wetted Per. (ft)	1218.07	450.64	
Min Ch El (ft)	5903.73	Shear (lb/sq ft)	0.37	0.94	
Alpha	1.42	Stream Power (lb/ft s)	1.26	6.97	
Frctn Loss (ft)	3.40	Cum Volume (acre-ft)	12581.76	244.50	1482.44
C & E Loss (ft)	0.08	Cum SA (acres)	260.33	75.61	29.64

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 33533 Profile: 100yr

E.G. Elev (ft)	5906.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.43	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5905.48	Reach Len. (ft)	518.83	531.98	578.90
Crit W.S. (ft)	5905.48	Flow Area (sq ft)	627.07	1360.51	
E.G. Slope (ft/ft)	0.006698	Area (sq ft)	129660.70	1360.51	
Q Total (cfs)	16863.00	Flow (cfs)	2834.31	14028.69	
Top Width (ft)	3112.39	Top Width (ft)	2777.88	334.51	
Vel Total (ft/s)	8.48	Avg. Vel. (ft/s)	4.52	10.31	
Max Chl Dpth (ft)	70.48	Hydr. Depth (ft)	1.81	4.07	
Conv. Total (cfs)	206038.7	Conv. (cfs)	34630.7	171408.1	
Length Wtd. (ft)	527.91	Wetted Per. (ft)	345.94	335.37	
Min Ch El (ft)	5898.57	Shear (lb/sq ft)	0.76	1.70	
Alpha	1.28	Stream Power (lb/ft s)	3.43	17.49	
Frctn Loss (ft)	3.33	Cum Volume (acre-ft)	11688.59	223.11	1482.44
C & E Loss (ft)	0.26	Cum SA (acres)	226.33	69.78	29.64

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 33001 Profile: 100yr

E.G. Elev (ft)	5900.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5899.55	Reach Len. (ft)	377.13	358.33	352.96
Crit W.S. (ft)	5899.55	Flow Area (sq ft)	2577.26	1194.08	
E.G. Slope (ft/ft)	0.005959	Area (sq ft)	132866.00	1194.08	18477.52
Q Total (cfs)	16863.00	Flow (cfs)	7599.48	9263.52	
Top Width (ft)	3367.68	Top Width (ft)	2464.74	412.34	490.60
Vel Total (ft/s)	4.47	Avg. Vel. (ft/s)	2.95	7.76	
Max Chl Dpth (ft)	64.55	Hydr. Depth (ft)	1.05	2.90	
Conv. Total (cfs)	218447.9	Conv. (cfs)	98445.7	120002.2	
Length Wtd. (ft)	365.54	Wetted Per. (ft)	2481.66	413.15	
Min Ch El (ft)	5895.91	Shear (lb/sq ft)	0.39	1.08	
Alpha	1.85	Stream Power (lb/ft s)	1.14	8.34	
Frctn Loss (ft)	2.10	Cum Volume (acre-ft)	10125.15	207.51	1359.66
C & E Loss (ft)	0.01	Cum SA (acres)	195.11	65.22	26.38

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 32643 Profile: 100yr

E.G. Elev (ft)	5896.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5896.00	Reach Len. (ft)	577.75	702.39	421.88
Crit W.S. (ft)	5896.00	Flow Area (sq ft)	2085.77	1679.02	
E.G. Slope (ft/ft)	0.005564	Area (sq ft)	129310.90	1679.02	22583.17
Q Total (cfs)	16863.00	Flow (cfs)	5340.61	11522.39	
Top Width (ft)	3579.56	Top Width (ft)	2330.97	659.99	588.60
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)	2.56	6.86	
Max Chl Dpth (ft)	61.00	Hydr. Depth (ft)	0.89	2.54	
Conv. Total (cfs)	226060.4	Conv. (cfs)	71594.7	154465.7	
Length Wtd. (ft)	653.32	Wetted Per. (ft)	2348.26	663.29	
Min Ch El (ft)	5889.14	Shear (lb/sq ft)	0.31	0.88	
Alpha	1.71	Stream Power (lb/ft s)	0.79	6.03	
Frctn Loss (ft)	3.60	Cum Volume (acre-ft)	8990.23	195.69	1193.31
C & E Loss (ft)	0.01	Cum SA (acres)	174.35	60.81	22.00

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 31940 Profile: 100yr

E.G. Elev (ft)	5892.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5891.96	Reach Len. (ft)	259.81	271.87	261.48
Crit W.S. (ft)	5891.96	Flow Area (sq ft)	2496.25	1112.35	
E.G. Slope (ft/ft)	0.005467	Area (sq ft)	109426.60	1112.35	9883.27
Q Total (cfs)	16863.00	Flow (cfs)	7937.67	8925.33	
Top Width (ft)	3103.97	Top Width (ft)	1987.58	340.07	776.33
Vel Total (ft/s)	4.67	Avg. Vel. (ft/s)	3.18	8.02	
Max Chl Dpth (ft)	61.96	Hydr. Depth (ft)	1.26	3.27	
Conv. Total (cfs)	228062.2	Conv. (cfs)	107352.3	120709.9	
Length Wtd. (ft)	266.64	Wetted Per. (ft)	2006.04	343.00	
Min Ch El (ft)	5885.43	Shear (lb/sq ft)	0.42	1.11	
Alpha	1.78	Stream Power (lb/ft s)	1.35	8.88	
Frctn Loss (ft)	1.42	Cum Volume (acre-ft)	7407.00	173.19	1036.09
C & E Loss (ft)	0.07	Cum SA (acres)	145.71	52.75	15.40

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 31669 Profile: 100yr

E.G. Elev (ft)	5889.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5889.29	Reach Len. (ft)	324.99	330.00	328.42
Crit W.S. (ft)	5889.08	Flow Area (sq ft)	2243.83	1718.79	
E.G. Slope (ft/ft)	0.005225	Area (sq ft)	91184.27	1718.79	
Q Total (cfs)	16863.00	Flow (cfs)	6694.27	10168.73	
Top Width (ft)	2705.52	Top Width (ft)	1897.16	808.36	
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)	2.98	5.92	
Max Chl Dpth (ft)	64.29	Hydr. Depth (ft)	1.18	2.13	
Conv. Total (cfs)	233284.5	Conv. (cfs)	92609.2	140675.3	
Length Wtd. (ft)	327.82	Wetted Per. (ft)	1916.00	809.18	
Min Ch El (ft)	5884.78	Shear (lb/sq ft)	0.38	0.69	
Alpha	1.36	Stream Power (lb/ft s)	1.14	4.10	
Frctn Loss (ft)	2.22	Cum Volume (acre-ft)	6808.74	164.35	1006.42
C & E Loss (ft)	0.02	Cum SA (acres)	134.13	49.17	13.07

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 31339 Profile: 100yr

E.G. Elev (ft)	5887.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5886.85	Reach Len. (ft)	431.77	472.71	429.95
Crit W.S. (ft)	5886.85	Flow Area (sq ft)	1960.81	1181.34	
E.G. Slope (ft/ft)	0.009106	Area (sq ft)	82177.98	1181.34	
Q Total (cfs)	16863.00	Flow (cfs)	7981.91	8881.09	
Top Width (ft)	2162.48	Top Width (ft)	1575.08	587.39	
Vel Total (ft/s)	5.37	Avg. Vel. (ft/s)	4.07	7.52	
Max Chl Dpth (ft)	61.85	Hydr. Depth (ft)	1.24	2.01	
Conv. Total (cfs)	176715.8	Conv. (cfs)	83646.4	93069.4	
Length Wtd. (ft)	449.63	Wetted Per. (ft)	1593.39	588.90	
Min Ch El (ft)	5881.58	Shear (lb/sq ft)	0.70	1.14	
Alpha	1.31	Stream Power (lb/ft s)	2.85	8.57	
Frctn Loss (ft)	2.79	Cum Volume (acre-ft)	6162.03	153.37	1006.42
C & E Loss (ft)	0.08	Cum SA (acres)	121.18	43.88	13.07

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 30866 Profile: 100yr

E.G. Elev (ft)	5884.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5883.69	Reach Len. (ft)	381.72	525.73	605.99
Crit W.S. (ft)	5883.37	Flow Area (sq ft)	3288.46	912.94	
E.G. Slope (ft/ft)	0.004485	Area (sq ft)	102456.30	912.94	
Q Total (cfs)	16863.00	Flow (cfs)	11029.06	5833.94	
Top Width (ft)	2427.20	Top Width (ft)	2086.68	340.52	
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)	3.35	6.39	
Max Chl Dpth (ft)	63.69	Hydr. Depth (ft)	1.58	2.68	
Conv. Total (cfs)	251788.0	Conv. (cfs)	164679.2	87108.8	
Length Wtd. (ft)	437.24	Wetted Per. (ft)	2104.56	341.44	
Min Ch El (ft)	5878.74	Shear (lb/sq ft)	0.44	0.75	
Alpha	1.33	Stream Power (lb/ft s)	1.47	4.78	
Frctn Loss (ft)	2.28	Cum Volume (acre-ft)	5246.98	142.00	1006.42
C & E Loss (ft)	0.01	Cum SA (acres)	103.03	38.84	13.07

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 30340 Profile: 100yr

E.G. Elev (ft)	5881.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5881.35	Reach Len. (ft)	335.79	356.02	418.52
Crit W.S. (ft)	5881.23	Flow Area (sq ft)	2757.68	1108.12	
E.G. Slope (ft/ft)	0.006115	Area (sq ft)	108733.10	1108.12	
Q Total (cfs)	16863.00	Flow (cfs)	9693.80	7169.20	
Top Width (ft)	2563.65	Top Width (ft)	2053.27	510.37	
Vel Total (ft/s)	4.36	Avg. Vel. (ft/s)	3.52	6.47	
Max Chl Dpth (ft)	61.35	Hydr. Depth (ft)	1.34	2.17	
Conv. Total (cfs)	215635.9	Conv. (cfs)	123959.7	91676.2	
Length Wtd. (ft)	342.61	Wetted Per. (ft)	2071.77	513.33	
Min Ch El (ft)	5877.18	Shear (lb/sq ft)	0.51	0.82	
Alpha	1.31	Stream Power (lb/ft s)	1.79	5.33	
Frctn Loss (ft)	1.91	Cum Volume (acre-ft)	4321.65	129.81	1006.42
C & E Loss (ft)	0.00	Cum SA (acres)	84.89	33.71	13.07

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 29984 Profile: 100yr

E.G. Elev (ft)	5879.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5879.45	Reach Len. (ft)	281.57	319.11	328.22
Crit W.S. (ft)	5879.05	Flow Area (sq ft)	3953.53	1054.58	
E.G. Slope (ft/ft)	0.005223	Area (sq ft)	100270.80	1054.58	
Q Total (cfs)	23714.00	Flow (cfs)	17195.58	6518.43	
Top Width (ft)	2363.76	Top Width (ft)	1899.91	463.84	
Vel Total (ft/s)	4.74	Avg. Vel. (ft/s)	4.35	6.18	
Max Chl Dpth (ft)	64.45	Hydr. Depth (ft)	2.08	2.27	
Conv. Total (cfs)	328130.6	Conv. (cfs)	237935.2	90195.5	
Length Wtd. (ft)	293.53	Wetted Per. (ft)	1917.25	464.77	
Min Ch El (ft)	5873.15	Shear (lb/sq ft)	0.67	0.74	
Alpha	1.08	Stream Power (lb/ft s)	2.92	4.57	
Frctn Loss (ft)	2.43	Cum Volume (acre-ft)	3516.07	120.97	1006.42
C & E Loss (ft)	0.03	Cum SA (acres)	69.65	29.73	13.07

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 29665 Profile: 100yr

E.G. Elev (ft)	5877.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5876.64	Reach Len. (ft)	284.00	326.80	348.43
Crit W.S. (ft)	5876.64	Flow Area (sq ft)	2618.72	1052.63	
E.G. Slope (ft/ft)	0.015151	Area (sq ft)	95122.95	1052.63	
Q Total (cfs)	23714.00	Flow (cfs)	15120.40	8593.60	
Top Width (ft)	2506.68	Top Width (ft)	1828.74	677.94	
Vel Total (ft/s)	6.46	Avg. Vel. (ft/s)	5.77	8.16	
Max Chl Dpth (ft)	61.64	Hydr. Depth (ft)	1.43	1.55	
Conv. Total (cfs)	192654.8	Conv. (cfs)	122839.6	69815.2	
Length Wtd. (ft)	304.98	Wetted Per. (ft)	1845.52	679.31	
Min Ch El (ft)	5872.00	Shear (lb/sq ft)	1.34	1.47	
Alpha	1.09	Stream Power (lb/ft s)	7.75	11.97	
Frctn Loss (ft)	2.71	Cum Volume (acre-ft)	2884.56	113.25	1006.42
C & E Loss (ft)	0.02	Cum SA (acres)	57.60	25.55	13.07

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 29338 Profile: 100yr

E.G. Elev (ft)	5874.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5873.69	Reach Len. (ft)	252.33	279.96	309.87
Crit W.S. (ft)	5873.52	Flow Area (sq ft)	2370.88	1908.33	
E.G. Slope (ft/ft)	0.005841	Area (sq ft)	79903.99	1908.33	
Q Total (cfs)	23714.00	Flow (cfs)	9060.61	14653.39	
Top Width (ft)	2152.54	Top Width (ft)	1499.04	653.50	
Vel Total (ft/s)	5.54	Avg. Vel. (ft/s)	3.82	7.68	
Max Chl Dpth (ft)	63.69	Hydr. Depth (ft)	1.58	2.92	
Conv. Total (cfs)	310297.4	Conv. (cfs)	118557.9	191739.5	
Length Wtd. (ft)	269.03	Wetted Per. (ft)	1518.03	660.51	
Min Ch El (ft)	5865.76	Shear (lb/sq ft)	0.57	1.05	
Alpha	1.37	Stream Power (lb/ft s)	2.18	8.09	
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	2314.00	102.14	1006.42
C & E Loss (ft)	0.07	Cum SA (acres)	46.75	20.55	13.07

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 29058 Profile: 100yr

E.G. Elev (ft)	5873.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.030	
W.S. Elev (ft)	5872.79	Reach Len. (ft)	287.77	305.83	246.30
Crit W.S. (ft)	5872.14	Flow Area (sq ft)	3072.46	2250.44	
E.G. Slope (ft/ft)	0.002850	Area (sq ft)	73826.62	2250.44	
Q Total (cfs)	23714.00	Flow (cfs)	9697.36	14016.64	
Top Width (ft)	2132.85	Top Width (ft)	1511.67	621.18	
Vel Total (ft/s)	4.46	Avg. Vel. (ft/s)	3.16	6.23	
Max Chl Dpth (ft)	62.79	Hydr. Depth (ft)	2.03	3.62	
Conv. Total (cfs)	444230.0	Conv. (cfs)	181658.9	262571.1	
Length Wtd. (ft)	298.65	Wetted Per. (ft)	1530.15	622.46	
Min Ch El (ft)	5867.03	Shear (lb/sq ft)	0.36	0.64	
Alpha	1.36	Stream Power (lb/ft s)	1.13	4.01	
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)	1868.74	88.78	1006.42
C & E Loss (ft)	0.04	Cum SA (acres)	38.03	16.46	13.07

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 28752 Profile: 100yr

E.G. Elev (ft)	5872.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5871.19	Reach Len. (ft)	417.55	492.07	349.60
Crit W.S. (ft)	5871.15	Flow Area (sq ft)	2325.80	1713.03	37.10
E.G. Slope (ft/ft)	0.005756	Area (sq ft)	72441.63	1713.03	37.85
Q Total (cfs)	23714.00	Flow (cfs)	8801.44	14808.21	104.35
Top Width (ft)	2018.32	Top Width (ft)	1476.06	489.86	52.40
Vel Total (ft/s)	5.82	Avg. Vel. (ft/s)	3.78	8.64	2.81
Max Chl Dpth (ft)	66.19	Hydr. Depth (ft)	1.58	3.50	0.71
Conv. Total (cfs)	312574.8	Conv. (cfs)	116012.0	195187.3	1375.5
Length Wtd. (ft)	461.15	Wetted Per. (ft)	1494.79	490.96	52.74
Min Ch El (ft)	5865.79	Shear (lb/sq ft)	0.56	1.25	0.25
Alpha	1.54	Stream Power (lb/ft s)	2.12	10.84	0.71
Frctn Loss (ft)	2.54	Cum Volume (acre-ft)	1385.60	74.86	1006.32
C & E Loss (ft)	0.00	Cum SA (acres)	28.16	12.56	12.92

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 28260 Profile: 100yr

E.G. Elev (ft)	5869.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5868.61	Reach Len. (ft)	295.34	373.33	252.51
Crit W.S. (ft)	5868.61	Flow Area (sq ft)	1486.06	1812.47	863.46
E.G. Slope (ft/ft)	0.005269	Area (sq ft)	42343.08	1812.47	21357.02
Q Total (cfs)	23714.00	Flow (cfs)	4940.00	15773.72	3000.28
Top Width (ft)	2122.34	Top Width (ft)	1067.76	480.20	574.38
Vel Total (ft/s)	5.70	Avg. Vel. (ft/s)	3.32	8.70	3.47
Max Chl Dpth (ft)	63.61	Hydr. Depth (ft)	1.39	3.77	1.50
Conv. Total (cfs)	326697.2	Conv. (cfs)	68056.1	217307.5	41333.6
Length Wtd. (ft)	339.82	Wetted Per. (ft)	1085.66	481.25	590.27
Min Ch El (ft)	5861.58	Shear (lb/sq ft)	0.45	1.24	0.48
Alpha	1.67	Stream Power (lb/ft s)	1.50	10.78	1.67
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	835.45	54.95	920.46
C & E Loss (ft)	0.00	Cum SA (acres)	15.97	7.08	10.40

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 27887 Profile: 100yr

E.G. Elev (ft)	5867.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5866.36	Reach Len. (ft)	397.19	383.75	354.51
Crit W.S. (ft)	5866.36	Flow Area (sq ft)	1468.07	1673.62	1178.24
E.G. Slope (ft/ft)	0.004533	Area (sq ft)	37398.05	1673.62	33607.47
Q Total (cfs)	23714.00	Flow (cfs)	4745.68	15068.21	3900.11
Top Width (ft)	2113.69	Top Width (ft)	980.20	376.85	756.64
Vel Total (ft/s)	5.49	Avg. Vel. (ft/s)	3.23	9.00	3.31
Max Chl Dpth (ft)	61.36	Hydr. Depth (ft)	1.50	4.44	1.56
Conv. Total (cfs)	352234.9	Conv. (cfs)	70489.7	223815.0	57930.1
Length Wtd. (ft)	381.42	Wetted Per. (ft)	999.03	377.24	773.81
Min Ch El (ft)	5859.15	Shear (lb/sq ft)	0.42	1.26	0.43
Alpha	1.84	Stream Power (lb/ft s)	1.34	11.30	1.43
Frctn Loss (ft)	1.71	Cum Volume (acre-ft)	565.13	40.01	761.15
C & E Loss (ft)	0.01	Cum SA (acres)	9.03	3.40	6.54

Plan: Plan 02 BlackSquirrelCrk US to LBS RS: 27503 Profile: 100yr

E.G. Elev (ft)	5864.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5863.40	Reach Len. (ft)	541.48	541.48	541.48
Crit W.S. (ft)	5863.40	Flow Area (sq ft)	1405.33	1733.70	1272.43
E.G. Slope (ft/ft)	0.004448	Area (sq ft)	36265.81	1733.70	37689.98
Q Total (cfs)	23714.00	Flow (cfs)	4342.88	15308.97	4062.14
Top Width (ft)	2247.47	Top Width (ft)	1000.05	395.86	851.56
Vel Total (ft/s)	5.38	Avg. Vel. (ft/s)	3.09	8.83	3.19
Max Chl Dpth (ft)	63.40	Hydr. Depth (ft)	1.41	4.38	1.49
Conv. Total (cfs)	355582.3	Conv. (cfs)	65119.9	229552.2	60910.3
Length Wtd. (ft)	541.48	Wetted Per. (ft)	1014.28	396.66	869.87
Min Ch El (ft)	5856.14	Shear (lb/sq ft)	0.38	1.21	0.41
Alpha	1.86	Stream Power (lb/ft s)	1.19	10.72	1.30
Frctn Loss (ft)	3.03	Cum Volume (acre-ft)	229.29	25.00	471.03
C & E Loss (ft)	0.03	Cum SA (acres)			

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 26962 Profile: 100yr

E.G. Elev (ft)	5860.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5859.43	Reach Len. (ft)	465.72	464.14	428.10
Crit W.S. (ft)	5859.43	Flow Area (sq ft)	502.37	2289.31	1350.95
E.G. Slope (ft/ft)	0.006873	Area (sq ft)	624.75	2289.31	38094.59
Q Total (cfs)	29100.00	Flow (cfs)	1941.73	21723.14	5435.13
Top Width (ft)	1934.02	Top Width (ft)	395.88	650.21	887.93
Vel Total (ft/s)	7.02	Avg. Vel. (ft/s)	3.87	9.49	4.02
Max Chl Dpth (ft)	59.43	Hydr. Depth (ft)	1.27	3.52	1.52
Conv. Total (cfs)	351001.4	Conv. (cfs)	23421.0	262022.4	65558.0
Length Wtd. (ft)	457.52	Wetted Per. (ft)	397.67	651.73	904.82
Min Ch El (ft)	5852.51	Shear (lb/sq ft)	0.54	1.51	0.64
Alpha	1.44	Stream Power (lb/ft s)	2.10	14.30	2.58
Frctn Loss (ft)	2.63	Cum Volume (acre-ft)	2129.68	1029.84	11793.79
C & E Loss (ft)	0.06	Cum SA (acres)	204.42	322.40	459.92

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 26498 Profile: 100yr

E.G. Elev (ft)	5857.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5856.28	Reach Len. (ft)	589.32	672.05	619.01
Crit W.S. (ft)	5856.22	Flow Area (sq ft)	1812.72	1546.48	1584.65
E.G. Slope (ft/ft)	0.004885	Area (sq ft)	9618.54	1546.48	47612.08
Q Total (cfs)	29100.00	Flow (cfs)	8246.97	15145.09	5707.94
Top Width (ft)	2115.05	Top Width (ft)	846.09	324.12	944.85
Vel Total (ft/s)	5.89	Avg. Vel. (ft/s)	4.55	9.79	3.60
Max Chl Dpth (ft)	61.28	Hydr. Depth (ft)	2.14	4.77	1.68
Conv. Total (cfs)	416331.8	Conv. (cfs)	117988.9	216679.8	81663.1
Length Wtd. (ft)	641.64	Wetted Per. (ft)	861.09	325.04	969.83
Min Ch El (ft)	5849.26	Shear (lb/sq ft)	0.64	1.45	0.50
Alpha	1.68	Stream Power (lb/ft s)	2.92	14.21	1.80
Frctn Loss (ft)	3.02	Cum Volume (acre-ft)	2074.93	1009.40	11372.64
C & E Loss (ft)	0.00	Cum SA (acres)	197.78	317.21	450.91

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 25826 Profile: 100yr

E.G. Elev (ft)	5854.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5853.25	Reach Len. (ft)	304.11	312.29	311.37
Crit W.S. (ft)	5853.25	Flow Area (sq ft)	1154.09	1729.65	2261.09
E.G. Slope (ft/ft)	0.004533	Area (sq ft)	13100.01	1729.65	40890.34
Q Total (cfs)	29100.00	Flow (cfs)	4295.54	16706.52	8097.94
Top Width (ft)	2283.11	Top Width (ft)	625.11	350.07	1307.94
Vel Total (ft/s)	5.66	Avg. Vel. (ft/s)	3.72	9.66	3.58
Max Chl Dpth (ft)	43.25	Hydr. Depth (ft)	1.85	4.94	1.73
Conv. Total (cfs)	432199.1	Conv. (cfs)	63798.2	248128.6	120272.3
Length Wtd. (ft)	311.29	Wetted Per. (ft)	635.76	350.91	1319.62
Min Ch El (ft)	5846.21	Shear (lb/sq ft)	0.51	1.40	0.48
Alpha	1.85	Stream Power (lb/ft s)	1.91	13.47	1.74
Frctn Loss (ft)	1.60	Cum Volume (acre-ft)	1921.25	984.13	10743.80
C & E Loss (ft)	0.01	Cum SA (acres)	187.83	312.01	434.91

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 25513 Profile: 100yr

E.G. Elev (ft)	5852.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5851.31	Reach Len. (ft)	62.66	62.66	62.66
Crit W.S. (ft)	5851.31	Flow Area (sq ft)	468.51	2663.68	1230.80
E.G. Slope (ft/ft)	0.005878	Area (sq ft)	468.51	2663.68	1230.80
Q Total (cfs)	29100.00	Flow (cfs)	1458.72	23465.79	4175.50
Top Width (ft)	2109.77	Top Width (ft)	409.84	753.22	946.71
Vel Total (ft/s)	6.67	Avg. Vel. (ft/s)	3.11	8.81	3.39
Max Chl Dpth (ft)	6.31	Hydr. Depth (ft)	1.14	3.54	1.30
Conv. Total (cfs)	379543.2	Conv. (cfs)	19025.7	306057.7	54459.9
Length Wtd. (ft)	62.66	Wetted Per. (ft)	409.92	753.89	946.81
Min Ch El (ft)	5845.00	Shear (lb/sq ft)	0.42	1.30	0.48
Alpha	1.45	Stream Power (lb/ft s)	1.31	11.42	1.62
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	1873.88	968.38	10593.26
C & E Loss (ft)	0.03	Cum SA (acres)	184.22	308.06	426.85

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 25451 Profile: 100yr

E.G. Elev (ft)	5851.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.28	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5850.47	Reach Len. (ft)	614.30	724.17	589.89
Crit W.S. (ft)	5850.47	Flow Area (sq ft)		2839.33	660.04
E.G. Slope (ft/ft)	0.007260	Area (sq ft)		2839.33	660.04
Q Total (cfs)	29100.00	Flow (cfs)		26696.42	2403.58
Top Width (ft)	1547.47	Top Width (ft)		853.66	693.81
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)		9.40	3.64
Max Chl Dpth (ft)	6.21	Hydr. Depth (ft)		3.33	0.95
Conv. Total (cfs)	341522.5	Conv. (cfs)		313313.7	28208.8
Length Wtd. (ft)	685.77	Wetted Per. (ft)		853.85	693.91
Min Ch El (ft)	5844.26	Shear (lb/sq ft)		1.51	0.43
Alpha	1.19	Stream Power (lb/ft s)		14.17	1.57
Frctn Loss (ft)	4.02	Cum Volume (acre-ft)	1873.55	964.42	10591.90
C & E Loss (ft)	0.18	Cum SA (acres)	183.92	306.90	425.67

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 24726 Profile: 100yr

E.G. Elev (ft)	5845.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5845.23	Reach Len. (ft)	568.78	559.66	318.68
Crit W.S. (ft)	5845.23	Flow Area (sq ft)	977.19	1621.09	3579.53
E.G. Slope (ft/ft)	0.004826	Area (sq ft)	20873.83	1621.09	134418.50
Q Total (cfs)	29100.00	Flow (cfs)	3135.37	14289.23	11675.40
Top Width (ft)	3584.02	Top Width (ft)	688.26	394.98	2500.78
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)	3.21	8.81	3.26
Max Chl Dpth (ft)	60.23	Hydr. Depth (ft)	1.42	4.10	1.43
Conv. Total (cfs)	418907.3	Conv. (cfs)	45135.0	205699.7	168072.5
Length Wtd. (ft)	469.48	Wetted Per. (ft)	704.83	395.35	2518.97
Min Ch El (ft)	5840.00	Shear (lb/sq ft)	0.42	1.24	0.43
Alpha	1.96	Stream Power (lb/ft s)	1.34	10.89	1.40
Frctn Loss (ft)	2.15	Cum Volume (acre-ft)	1726.36	927.35	9677.28
C & E Loss (ft)	0.01	Cum SA (acres)	179.07	296.52	404.04

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 24167 Profile: 100yr

E.G. Elev (ft)	5842.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5841.92	Reach Len. (ft)	195.53	211.79	527.93
Crit W.S. (ft)	5841.84	Flow Area (sq ft)	686.19	2073.18	3355.91
E.G. Slope (ft/ft)	0.004336	Area (sq ft)	17652.44	2073.18	116322.90
Q Total (cfs)	29100.00	Flow (cfs)	2060.28	16737.79	10301.93
Top Width (ft)	3393.76	Top Width (ft)	486.75	531.00	2376.01
Vel Total (ft/s)	4.76	Avg. Vel. (ft/s)	3.00	8.07	3.07
Max Chl Dpth (ft)	61.92	Hydr. Depth (ft)	1.41	3.90	1.41
Conv. Total (cfs)	441901.5	Conv. (cfs)	31286.7	254173.7	156441.2
Length Wtd. (ft)	331.81	Wetted Per. (ft)	504.63	532.36	2387.27
Min Ch El (ft)	5835.77	Shear (lb/sq ft)	0.37	1.05	0.38
Alpha	1.83	Stream Power (lb/ft s)	1.11	8.51	1.17
Frctn Loss (ft)	1.54	Cum Volume (acre-ft)	1474.83	903.62	8760.09
C & E Loss (ft)	0.00	Cum SA (acres)	171.40	290.57	386.20

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 23955 Profile: 100yr

E.G. Elev (ft)	5841.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5840.35	Reach Len. (ft)	391.60	397.78	392.04
Crit W.S. (ft)	5840.35	Flow Area (sq ft)	970.82	1597.56	3614.45
E.G. Slope (ft/ft)	0.004951	Area (sq ft)	18866.67	1597.56	143852.20
Q Total (cfs)	29100.00	Flow (cfs)	2978.81	14069.18	12052.01
Top Width (ft)	3631.93	Top Width (ft)	744.66	396.81	2490.46
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)	3.07	8.81	3.33
Max Chl Dpth (ft)	65.35	Hydr. Depth (ft)	1.30	4.03	1.45
Conv. Total (cfs)	413577.9	Conv. (cfs)	42335.7	199955.4	171286.8
Length Wtd. (ft)	394.78	Wetted Per. (ft)	763.28	397.70	2508.56
Min Ch El (ft)	5835.74	Shear (lb/sq ft)	0.39	1.24	0.45
Alpha	1.94	Stream Power (lb/ft s)	1.21	10.93	1.48
Frctn Loss (ft)	2.20	Cum Volume (acre-ft)	1392.87	894.69	7183.48
C & E Loss (ft)	0.00	Cum SA (acres)	168.63	288.32	356.71

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Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 23557 Profile: 100yr

E.G. Elev (ft)	5838.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5837.79	Reach Len. (ft)	393.92	401.37	367.59
Crit W.S. (ft)	5837.79	Flow Area (sq ft)	931.73	1661.20	3245.63
E.G. Slope (ft/ft)	0.006318	Area (sq ft)	25829.36	1661.20	134487.20
Q Total (cfs)	29100.00	Flow (cfs)	3040.89	14183.00	11876.12
Top Width (ft)	3635.45	Top Width (ft)	783.52	519.48	2332.44
Vel Total (ft/s)	4.98	Avg. Vel. (ft/s)	3.26	8.54	3.66
Max Chl Dpth (ft)	62.79	Hydr. Depth (ft)	1.19	3.20	1.39
Conv. Total (cfs)	366112.9	Conv. (cfs)	38258.0	178439.1	149415.8
Length Wtd. (ft)	385.99	Wetted Per. (ft)	801.91	520.16	2352.63
Min Ch El (ft)	5833.34	Shear (lb/sq ft)	0.46	1.26	0.54
Alpha	1.69	Stream Power (lb/ft s)	1.50	10.75	1.99
Frctn Loss (ft)	2.66	Cum Volume (acre-ft)	1191.97	879.81	5930.95
C & E Loss (ft)	0.00	Cum SA (acres)	161.77	284.13	335.00

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 23156 Profile: 100yr

E.G. Elev (ft)	5835.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5834.70	Reach Len. (ft)	530.91	577.18	509.09
Crit W.S. (ft)	5834.70	Flow Area (sq ft)	1032.28	1346.21	3255.02
E.G. Slope (ft/ft)	0.007520	Area (sq ft)	32314.00	1346.21	127671.30
Q Total (cfs)	29100.00	Flow (cfs)	4048.09	11995.84	13056.07
Top Width (ft)	3523.86	Top Width (ft)	750.12	449.86	2323.87
Vel Total (ft/s)	5.17	Avg. Vel. (ft/s)	3.92	8.91	4.01
Max Chl Dpth (ft)	59.70	Hydr. Depth (ft)	1.38	2.99	1.40
Conv. Total (cfs)	335578.1	Conv. (cfs)	46682.1	138334.8	150561.2
Length Wtd. (ft)	543.38	Wetted Per. (ft)	768.55	450.50	2342.71
Min Ch El (ft)	5830.00	Shear (lb/sq ft)	0.63	1.40	0.65
Alpha	1.58	Stream Power (lb/ft s)	2.47	12.50	2.62
Frctn Loss (ft)	2.79	Cum Volume (acre-ft)	929.07	865.96	4824.81
C & E Loss (ft)	0.06	Cum SA (acres)	154.83	279.67	315.36

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 22579 Profile: 100yr

E.G. Elev (ft)	5832.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5832.06	Reach Len. (ft)	358.55	383.00	362.63
Crit W.S. (ft)	5831.76	Flow Area (sq ft)	1093.26	2189.03	3578.84
E.G. Slope (ft/ft)	0.003734	Area (sq ft)	27340.91	2189.03	140521.00
Q Total (cfs)	29100.00	Flow (cfs)	3304.77	14953.81	10841.42
Top Width (ft)	3638.49	Top Width (ft)	693.46	644.94	2300.09
Vel Total (ft/s)	4.24	Avg. Vel. (ft/s)	3.02	6.83	3.03
Max Chl Dpth (ft)	72.06	Hydr. Depth (ft)	1.58	3.39	1.56
Conv. Total (cfs)	476229.3	Conv. (cfs)	54083.5	244723.1	177422.7
Length Wtd. (ft)	373.72	Wetted Per. (ft)	711.40	645.55	2321.37
Min Ch El (ft)	5826.00	Shear (lb/sq ft)	0.36	0.79	0.36
Alpha	1.58	Stream Power (lb/ft s)	1.08	5.40	1.09
Frctn Loss (ft)	1.90	Cum Volume (acre-ft)	565.53	842.54	3257.62
C & E Loss (ft)	0.02	Cum SA (acres)	146.03	272.41	288.34

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 22196 Profile: 100yr

E.G. Elev (ft)	5830.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5829.91	Reach Len. (ft)	314.79	325.49	318.98
Crit W.S. (ft)	5829.91	Flow Area (sq ft)	402.81	2225.13	2797.92
E.G. Slope (ft/ft)	0.007308	Area (sq ft)	8337.21	2225.13	141942.30
Q Total (cfs)	29100.00	Flow (cfs)	1400.38	17671.98	10027.64
Top Width (ft)	3515.24	Top Width (ft)	337.16	865.68	2312.40
Vel Total (ft/s)	5.36	Avg. Vel. (ft/s)	3.48	7.94	3.58
Max Chl Dpth (ft)	69.91	Hydr. Depth (ft)	1.19	2.57	1.21
Conv. Total (cfs)	340392.8	Conv. (cfs)	16380.8	206715.2	117296.7
Length Wtd. (ft)	322.22	Wetted Per. (ft)	351.68	866.24	2333.79
Min Ch El (ft)	5825.71	Shear (lb/sq ft)	0.52	1.17	0.55
Alpha	1.51	Stream Power (lb/ft s)	1.82	9.31	1.96
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	418.69	823.13	2081.88
C & E Loss (ft)	0.10	Cum SA (acres)	141.79	265.77	269.14

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 21870 Profile: 100yr

E.G. Elev (ft)	5828.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.040	0.030	0.040
W.S. Elev (ft)	5828.36	Reach Len. (ft)	350.43	355.93	352.22
Crit W.S. (ft)	5827.79	Flow Area (sq ft)	499.54	2306.79	4230.15
E.G. Slope (ft/ft)	0.003826	Area (sq ft)	5109.82	2306.79	122329.60
Q Total (cfs)	29100.00	Flow (cfs)	1409.03	13085.39	14605.58
Top Width (ft)	3549.98	Top Width (ft)	356.48	915.34	2278.16
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)	2.82	5.67	3.45
Max Chl Dpth (ft)	63.36	Hydr. Depth (ft)	1.40	2.52	1.86
Conv. Total (cfs)	470453.2	Conv. (cfs)	22779.5	211548.5	236125.2
Length Wtd. (ft)	354.05	Wetted Per. (ft)	367.29	915.63	2296.57
Min Ch El (ft)	5824.00	Shear (lb/sq ft)	0.32	0.60	0.44
Alpha	1.22	Stream Power (lb/ft s)	0.92	3.41	1.52
Frctn Loss (ft)	1.54	Cum Volume (acre-ft)	370.10	806.20	1114.28
C & E Loss (ft)	0.02	Cum SA (acres)	139.29	259.12	252.33

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 21514 Profile: 100yr

E.G. Elev (ft)	5827.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5826.60	Reach Len. (ft)	433.05	451.69	437.90
Crit W.S. (ft)	5825.81	Flow Area (sq ft)		2565.72	2544.67
E.G. Slope (ft/ft)	0.005023	Area (sq ft)		2565.72	7623.99
Q Total (cfs)	29100.00	Flow (cfs)		16327.36	12772.63
Top Width (ft)	3070.38	Top Width (ft)		1050.69	2019.69
Vel Total (ft/s)	5.69	Avg. Vel. (ft/s)		6.36	5.02
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)		2.44	2.63
Conv. Total (cfs)	410594.1	Conv. (cfs)		230375.3	180218.9
Length Wtd. (ft)	446.54	Wetted Per. (ft)		1051.19	966.68
Min Ch El (ft)	5821.60	Shear (lb/sq ft)		0.77	0.83
Alpha	1.04	Stream Power (lb/ft s)		4.87	4.14
Frctn Loss (ft)	2.94	Cum Volume (acre-ft)	349.55	786.29	588.89
C & E Loss (ft)	0.04	Cum SA (acres)	137.85	251.09	234.95

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 21063 Profile: 100yr

E.G. Elev (ft)	5824.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5823.24	Reach Len. (ft)	934.05	812.83	579.12
Crit W.S. (ft)	5823.12	Flow Area (sq ft)		2430.26	1484.24
E.G. Slope (ft/ft)	0.008973	Area (sq ft)		2430.26	6497.01
Q Total (cfs)	29100.00	Flow (cfs)		20135.41	8964.59
Top Width (ft)	3014.72	Top Width (ft)		1035.06	1979.66
Vel Total (ft/s)	7.43	Avg. Vel. (ft/s)		8.29	6.04
Max Chl Dpth (ft)	7.77	Hydr. Depth (ft)		2.35	2.25
Conv. Total (cfs)	307208.6	Conv. (cfs)		212569.4	94639.2
Length Wtd. (ft)	686.34	Wetted Per. (ft)		1035.60	660.02
Min Ch El (ft)	5818.00	Shear (lb/sq ft)		1.31	1.26
Alpha	1.06	Stream Power (lb/ft s)		10.89	7.61
Frctn Loss (ft)	5.01	Cum Volume (acre-ft)	349.55	760.39	517.91
C & E Loss (ft)	0.14	Cum SA (acres)	137.85	240.27	214.85

Plan: Plan 02 BlackSquirrelCrk LBS to ROB Split RS: 20250 Profile: 100yr

E.G. Elev (ft)	5819.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.		0.030	0.040
W.S. Elev (ft)	5818.56	Reach Len. (ft)	651.38	749.71	617.28
Crit W.S. (ft)	5817.68	Flow Area (sq ft)		1251.53	4161.67
E.G. Slope (ft/ft)	0.006059	Area (sq ft)		1251.53	4161.67
Q Total (cfs)	29100.00	Flow (cfs)		6565.18	22534.82
Top Width (ft)	2412.04	Top Width (ft)		788.27	1623.76
Vel Total (ft/s)	5.38	Avg. Vel. (ft/s)		5.25	5.41
Max Chl Dpth (ft)	6.24	Hydr. Depth (ft)		1.59	2.56
Conv. Total (cfs)	373848.2	Conv. (cfs)		84343.0	289505.2
Length Wtd. (ft)	643.85	Wetted Per. (ft)		788.57	1624.00
Min Ch El (ft)	5814.00	Shear (lb/sq ft)		0.60	0.97
Alpha	1.00	Stream Power (lb/ft s)		3.15	5.25
Frctn Loss (ft)	5.15	Cum Volume (acre-ft)	349.55	726.04	447.06
C & E Loss (ft)	0.03	Cum SA (acres)	137.85	223.26	190.90

Appendix D. Standard Table 1 and Standard Table 2 from the HEC-RAS Outputs

RPM, Inc.

HEC-RAS Profile: 100yr

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
US to LBS	43811	100yr	Plan 02	25150.00	5980.85	5985.83	5985.73	5986.34	0.007506	7.42	5194.98	3716.81	0.87
US to LBS	43811	100yr	Plan-Without-Pits	25150.00	5980.85	5985.83	5985.73	5986.34	0.007506	7.42	5194.98	3716.81	0.87
US to LBS	43800			Lat Struct									
US to LBS	43661	100yr	Plan 02	24250.00	5979.11	5984.56	5984.56	5985.16	0.006550	8.86	5218.49	3759.32	0.86
US to LBS	43661	100yr	Plan-Without-Pits	24250.00	5979.11	5984.56	5984.56	5985.16	0.006550	8.86	5218.49	3759.32	0.86
US to LBS	43535	100yr	Plan 02	23479.00	5978.18	5983.43	5983.43	5983.96	0.005231	8.51	5548.62	4002.15	0.78
US to LBS	43535	100yr	Plan-Without-Pits	23479.00	5978.18	5983.43	5983.43	5983.96	0.005231	8.51	5548.62	4002.15	0.78
US to LBS	43259	100yr	Plan 02	20580.00	5976.37	5982.57	5981.87	5982.91	0.001657	6.30	5927.46	3246.39	0.47
US to LBS	43259	100yr	Plan-Without-Pits	20580.00	5976.37	5982.57	5981.87	5982.91	0.001657	6.30	5927.46	3246.39	0.47
US to LBS	43022	100yr	Plan 02	18183.00	5974.53	5981.61	5981.61	5982.35	0.003571	9.84	3972.46	2664.64	0.70
US to LBS	43022	100yr	Plan-Without-Pits	18183.00	5974.53	5981.61	5981.61	5982.35	0.003571	9.84	3972.46	2664.64	0.70
US to LBS	43020			Bridge									
US to LBS	42986	100yr	Plan 02	18183.00	5974.22	5980.58	5980.58	5981.42	0.004905	10.73	3855.60	2594.58	0.80
US to LBS	42986	100yr	Plan-Without-Pits	18183.00	5974.22	5980.58	5980.58	5981.42	0.004905	10.73	3855.60	2594.58	0.80
US to LBS	42985			Lat Struct									
US to LBS	42500	100yr	Plan 02	18053.00	5969.06	5975.97	5975.97	5976.43	0.004188	7.76	4569.51	3163.76	0.70
US to LBS	42500	100yr	Plan-Without-Pits	18053.00	5969.06	5975.97	5975.97	5976.43	0.004188	7.76	4569.51	3163.76	0.70
US to LBS	42004	100yr	Plan 02	18053.00	5963.99	5970.75	5970.75	5971.71	0.005505	8.23	2746.00	1879.96	0.79
US to LBS	42004	100yr	Plan-Without-Pits	18053.00	5963.99	5970.75	5970.75	5971.71	0.005505	8.23	2746.00	1879.96	0.79
US to LBS	41722	100yr	Plan 02	18053.00	5962.00	5969.17	5969.17	5969.81	0.004785	7.29	3766.93	3105.26	0.73
US to LBS	41722	100yr	Plan-Without-Pits	18053.00	5962.00	5969.17	5969.17	5969.81	0.004785	7.29	3766.93	3105.26	0.73
US to LBS	41431	100yr	Plan 02	18053.00	5960.00	5966.35	5966.35	5966.95	0.005274	7.14	3954.50	3381.14	0.75
US to LBS	41431	100yr	Plan-Without-Pits	18053.00	5960.00	5966.35	5966.35	5966.95	0.005274	7.14	3954.50	3381.14	0.75
US to LBS	41325	100yr	Plan 02	18053.00	5959.81	5964.95	5964.95	5965.58	0.007537	8.50	2833.40	2436.38	0.90
US to LBS	41325	100yr	Plan-Without-Pits	18053.00	5959.81	5964.95	5964.95	5965.58	0.007537	8.50	2833.40	2436.38	0.90
US to LBS	41200	100yr	Plan 02	18053.00	5958.00	5964.00	5963.67	5964.45	0.003559	6.26	4240.01	2832.59	0.63
US to LBS	41200	100yr	Plan-Without-Pits	18053.00	5958.00	5964.00	5963.67	5964.45	0.003559	6.26	4240.01	2832.59	0.63
US to LBS	41023	100yr	Plan 02	18053.00	5958.00	5963.19	5963.19	5963.77	0.004457	7.45	4133.81	3218.29	0.71
US to LBS	41023	100yr	Plan-Without-Pits	18053.00	5958.00	5963.19	5963.19	5963.77	0.004457	7.45	4133.81	3218.29	0.71
US to LBS	40602	100yr	Plan 02	18053.00	5955.57	5959.44	5959.44	5960.02	0.006591	7.79	3990.55	2928.82	0.85
US to LBS	40602	100yr	Plan-Without-Pits	18053.00	5955.57	5959.44	5959.44	5960.02	0.006591	7.79	3990.55	2928.82	0.85
US to LBS	40100	100yr	Plan 02	18053.00	5952.00	5955.65	5955.46	5955.96	0.007742	6.11	4319.41	3814.49	0.84
US to LBS	40100	100yr	Plan-Without-Pits	18053.00	5952.00	5955.65	5955.46	5955.96	0.007742	6.11	4319.41	3814.49	0.84
US to LBS	39500	100yr	Plan 02	18053.00	5948.00	5951.37	5951.30	5951.88	0.006493	7.45	4182.46	3671.71	0.82
US to LBS	39500	100yr	Plan-Without-Pits	18053.00	5948.00	5951.37	5951.30	5951.88	0.006493	7.45	4182.46	3671.71	0.82
US to LBS	39000	100yr	Plan 02	18053.00	5944.58	5947.34	5947.34	5947.83	0.011459	7.14	3708.82	3556.58	1.01
US to LBS	39000	100yr	Plan-Without-Pits	18053.00	5944.58	5947.34	5947.34	5947.83	0.011459	7.14	3708.82	3556.58	1.01
US to LBS	38735	100yr	Plan 02	18053.00	5940.49	5945.06	5944.63	5945.23	0.004112	4.33	5594.43	4020.42	0.60
US to LBS	38735	100yr	Plan-Without-Pits	18053.00	5940.49	5945.06	5944.63	5945.23	0.004112	4.33	5594.43	4020.42	0.60
US to LBS	38312	100yr	Plan 02	18053.00	5939.97	5943.33	5943.17	5943.66	0.004965	5.94	4830.73	3812.26	0.70
US to LBS	38312	100yr	Plan-Without-Pits	18053.00	5939.97	5943.33	5943.17	5943.66	0.004965	5.94	4830.73	3812.26	0.70
US to LBS	38000	100yr	Plan 02	18053.00	5939.03	5940.76	5940.73	5941.17	0.014851	6.61	3715.40	3796.50	1.09
US to LBS	38000	100yr	Plan-Without-Pits	18053.00	5939.03	5940.76	5940.73	5941.17	0.014851	6.61	3715.40	3796.50	1.09
US to LBS	37805	100yr	Plan 02	18053.00	5936.12	5939.61	5938.75	5939.74	0.002596	3.87	6399.96	3873.35	0.50
US to LBS	37805	100yr	Plan-Without-Pits	18053.00	5936.12	5939.61	5938.75	5939.74	0.002596	3.87	6399.96	3873.35	0.50
US to LBS	37800			Lat Struct									
US to LBS	37500	100yr	Plan 02	16663.00	5932.00	5937.78	5937.07	5937.94	0.003593	3.76	5227.96	3537.02	0.56
US to LBS	37500	100yr	Plan-Without-Pits	16663.00	5932.00	5937.78	5937.07	5937.94	0.003593	3.76	5227.96	3537.02	0.56
US to LBS	37481			Culvert									
US to LBS	37431	100yr	Plan 02	16663.00	5924.00	5937.16	5937.16	5937.55	0.007553	6.59	3812.04	2846.51	0.85
US to LBS	37431	100yr	Plan-Without-Pits	16663.00	5924.00	5937.16	5937.16	5937.55	0.007553	6.59	3812.04	2846.51	0.85
US to LBS	37000	100yr	Plan 02	16663.00	5924.00	5930.49	5930.49	5931.39	0.005456	8.82	2890.44	1813.56	0.80
US to LBS	37000	100yr	Plan-Without-Pits	16663.00	5924.00	5930.49	5930.49	5931.39	0.005456	8.82	2890.44	1813.56	0.80
US to LBS	36600	100yr	Plan 02	16663.00	5922.00	5927.34	5927.02	5927.94	0.005802	7.99	3336.83	1937.43	0.80
US to LBS	36600	100yr	Plan-Without-Pits	16663.00	5922.00	5927.34	5927.02	5927.94	0.005802	7.99	3336.83	1937.43	0.80
US to LBS	36150	100yr	Plan 02	16663.00	5919.96	5924.41	5924.41	5925.30	0.006719	8.42	2690.30	1852.29	0.86
US to LBS	36150	100yr	Plan-Without-Pits	16663.00	5919.96	5924.41	5924.41	5925.30	0.006719	8.42	2690.30	1852.29	0.86

HEC-RAS Profile: 100yr (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
US to LBS	35800	100yr	Plan 02	16863.00	5917.04	5920.81	5920.81	5921.93	0.012800	9.70	2103.51	1371.06	1.13
US to LBS	35800	100yr	Plan-Without-Pits	16863.00	5917.04	5920.81	5920.81	5921.93	0.012800	9.70	2103.51	1371.06	1.13
US to LBS	35400	100yr	Plan 02	16863.00	5913.68	5917.49	5917.34	5917.85	0.005155	6.07	3693.82	2163.61	0.72
US to LBS	35400	100yr	Plan-Without-Pits	16863.00	5913.68	5917.49	5917.34	5917.85	0.005155	6.07	3693.82	2163.61	0.72
US to LBS	34955	100yr	Plan 02	16863.00	5910.34	5914.13	5914.13	5914.83	0.009128	8.14	2840.03	2263.50	0.96
US to LBS	34955	100yr	Plan-Without-Pits	16863.00	5910.34	5914.13	5914.13	5914.83	0.009128	8.14	2840.03	2263.50	0.96
US to LBS	34496	100yr	Plan 02	16863.00	5906.10	5911.23	5910.65	5911.55	0.003043	5.73	4251.36	2670.19	0.58
US to LBS	34496	100yr	Plan-Without-Pits	16863.00	5906.10	5911.23	5910.65	5911.55	0.003041	5.73	4252.39	2670.29	0.58
US to LBS	34180	100yr	Plan 02	16863.00	5903.73	5909.75	5909.26	5910.39	0.004444	7.43	3134.75	2763.96	0.71
US to LBS	34180	100yr	Plan-Without-Pits	16863.00	5903.73	5909.75	5909.26	5910.39	0.004447	7.44	3133.93	2763.61	0.71
US to LBS	33533	100yr	Plan 02	16863.00	5898.57	5905.46	5905.46	5906.90	0.006598	10.31	1987.58	3112.39	0.90
US to LBS	33533	100yr	Plan-Without-Pits	16863.00	5898.57	5905.46	5905.46	5906.90	0.006598	10.31	1987.58	2727.09	0.90
US to LBS	33001	100yr	Plan 02	16863.00	5895.91	5899.55	5899.55	5900.12	0.005959	7.76	3771.33	3367.68	0.80
US to LBS	33001	100yr	Plan-Without-Pits	16863.00	5895.91	5900.43	5900.43	5902.12	0.008258	10.55	1695.40	2539.15	0.98
US to LBS	32643	100yr	Plan 02	16863.00	5889.14	5896.00	5896.00	5896.53	0.005564	6.86	3764.78	3579.56	0.76
US to LBS	32643	100yr	Plan-Without-Pits	16863.00	5889.14	5897.15	5896.21	5897.87	0.003623	6.81	2477.00	2571.16	0.64
US to LBS	31940	100yr	Plan 02	16863.00	5885.43	5891.96	5891.96	5892.57	0.005467	8.02	3606.60	3103.97	0.78
US to LBS	31940	100yr	Plan-Without-Pits	16863.00	5885.43	5892.70	5892.70	5894.06	0.008795	10.05	1937.96	2239.36	0.99
US to LBS	31569	100yr	Plan 02	16863.00	5884.78	5889.29	5889.08	5889.67	0.005225	5.92	3962.62	2705.52	0.72
US to LBS	31569	100yr	Plan-Without-Pits	16863.00	5884.78	5890.07	5889.51	5890.78	0.004923	6.76	2502.92	1736.87	0.72
US to LBS	31339	100yr	Plan 02	16863.00	5881.58	5886.85	5886.85	5887.43	0.009106	7.52	3142.15	2162.48	0.93
US to LBS	31339	100yr	Plan-Without-Pits	16863.00	5881.58	5887.59	5887.54	5888.61	0.008961	8.52	2192.56	1353.77	0.96
US to LBS	30866	100yr	Plan 02	16863.00	5878.74	5883.69	5883.37	5884.02	0.004485	6.39	4201.40	2427.20	0.59
US to LBS	30866	100yr	Plan-Without-Pits	16863.00	5878.74	5884.12	5883.96	5884.86	0.007146	8.23	2692.20	1329.44	0.87
US to LBS	30340	100yr	Plan 02	16863.00	5877.18	5881.35	5881.23	5881.74	0.006115	6.47	3995.80	2563.65	0.77
US to LBS	30340	100yr	Plan-Without-Pits	16863.00	5877.18	5881.94	5881.23	5882.35	0.004060	5.14	3573.97	1599.30	0.65
US to LBS	29984	100yr	Plan 02	23714.00	5873.15	5879.45	5879.05	5879.82	0.005223	6.18	5008.11	2363.76	0.72
US to LBS	29984	100yr	Plan-Without-Pits	23714.00	5873.15	5879.58	5879.56	5880.14	0.009459	7.40	4148.06	2398.16	0.94
US to LBS	29665	100yr	Plan 02	23714.00	5872.00	5876.64	5876.64	5877.35	0.015151	8.16	3671.35	2506.68	1.16
US to LBS	29665	100yr	Plan-Without-Pits	23714.00	5872.00	5877.18	5876.86	5877.77	0.006856	6.66	3862.67	2054.52	0.82
US to LBS	29336	100yr	Plan 02	23714.00	5985.76	5873.69	5873.52	5874.34	0.005841	7.68	4279.21	2152.54	0.79
US to LBS	29336	100yr	Plan-Without-Pits	23714.00	5985.76	5874.14	5874.14	5875.45	0.007607	9.56	2773.59	1372.36	0.92
US to LBS	29056	100yr	Plan 02	23714.00	5867.03	5872.79	5872.14	5873.21	0.002850	5.23	5322.91	2132.85	0.58
US to LBS	29056	100yr	Plan-Without-Pits	23714.00	5867.03	5872.96	5872.16	5873.60	0.003619	7.21	4166.46	1758.76	0.65
US to LBS	28752	100yr	Plan 02	23714.00	5985.79	5871.19	5871.15	5872.00	0.005756	8.54	4075.93	2018.32	0.81
US to LBS	28752	100yr	Plan-Without-Pits	23714.00	5985.79	5871.62	5871.09	5872.36	0.004470	8.07	3846.60	1920.56	0.73
US to LBS	28260	100yr	Plan 02	23714.00	5861.58	5868.61	5868.61	5869.46	0.005259	8.70	4161.96	2122.34	0.79
US to LBS	28260	100yr	Plan-Without-Pits	23714.00	5861.58	5869.06	5868.99	5869.94	0.005016	8.40	3993.56	1747.90	0.82
US to LBS	27587	100yr	Plan 02	23714.00	5859.15	5866.36	5866.36	5867.22	0.004533	9.00	4319.93	2113.69	0.75
US to LBS	27587	100yr	Plan-Without-Pits	23714.00	5859.15	5866.77	5866.77	5867.79	0.005947	8.83	3472.52	1610.30	0.83
US to LBS	27503	100yr	Plan 02	23714.00	5856.14	5863.40	5863.40	5864.24	0.004448	8.83	4411.46	2247.47	0.74
US to LBS	27503	100yr	Plan-Without-Pits	23714.00	5856.14	5863.86	5863.37	5864.53	0.003617	7.29	4293.17	1721.05	0.66
LBS to ROB Split	26962	100yr	Plan 02	29100.00	5852.51	5859.43	5859.43	5860.54	0.006873	9.49	4142.64	1934.02	0.89
LBS to ROB Split	26962	100yr	Plan-Without-Pits	29100.00	5852.51	5859.86	5859.86	5861.53	0.007872	10.60	2913.67	1233.44	0.96
LBS to ROB Split	26498	100yr	Plan 02	29100.00	5849.26	5856.28	5856.22	5857.19	0.004885	9.79	4943.85	2115.05	0.79
LBS to ROB Split	26498	100yr	Plan-Without-Pits	29100.00	5849.26	5856.65	5856.25	5857.68	0.004695	9.40	4129.41	2049.78	0.77
LBS to ROB Split	25826	100yr	Plan 02	29100.00	5846.21	5853.25	5853.25	5854.17	0.004533	9.66	5144.83	2283.11	0.77
LBS to ROB Split	25826	100yr	Plan-Without-Pits	29100.00	5846.21	5853.37	5853.37	5854.51	0.005034	10.34	4391.60	2215.69	0.81
LBS to ROB Split	25513	100yr	Plan 02	29100.00	5845.00	5851.31	5851.31	5852.31	0.005878	8.81	4362.99	2109.77	0.83
LBS to ROB Split	25513	100yr	Plan-Without-Pits	29100.00	5845.00	5851.31	5851.31	5852.31	0.005878	8.81	4362.99	2109.77	0.83
LBS to ROB Split	25451	100yr	Plan 02	29100.00	5844.26	5850.47	5850.47	5851.74	0.007250	9.40	3499.37	1547.47	0.91
LBS to ROB Split	25451	100yr	Plan-Without-Pits	29100.00	5844.26	5850.49	5850.47	5851.75	0.007112	9.34	3538.80	1556.96	0.90
LBS to ROB Split	24726	100yr	Plan 02	29100.00	5840.00	5845.23	5845.23	5845.91	0.004826	8.81	6177.81	3584.02	0.77
LBS to ROB Split	24726	100yr	Plan-Without-Pits	29100.00	5840.00	5845.84	5845.57	5847.11	0.005913	9.10	3356.62	1987.31	0.83
LBS to ROB Split	24167	100yr	Plan 02	29100.00	5835.77	5841.92	5841.84	5842.56	0.004336	8.07	6115.27	3393.76	0.72
LBS to ROB Split	24167	100yr	Plan-Without-Pits	29100.00	5835.77	5842.46	5842.13	5843.73	0.006205	9.04	3239.99	972.78	0.86
LBS to ROB Split	23955	100yr	Plan 02	29100.00	5835.74	5840.35	5840.35	5841.02	0.004951	8.81	6182.83	3631.93	0.77
LBS to ROB Split	23955	100yr	Plan-Without-Pits	29100.00	5835.74	5840.90	5840.90	5842.11	0.009435	8.86	3269.76	2724.26	0.99

HEC-RAS Profile: 100yr (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
L&S to ROB Split	23557	100yr	Plan 02	29100.00	5833.34	5837.79	5837.79	5838.45	0.006318	8.54	5838.56	3535.45	0.84
L&S to ROB Split	23557	100yr	Plan-Without-Pits	29100.00	5833.34	5836.39	5837.74	5839.10	0.004508	6.75	4311.04	2956.95	0.70
L&S to ROB Split	23156	100yr	Plan 02	29100.00	5830.00	5834.70	5834.70	5835.36	0.007520	8.91	5633.51	3523.86	0.91
L&S to ROB Split	23156	100yr	Plan-Without-Pits	29100.00	5830.00	5835.26	5835.26	5836.53	0.009321	9.03	3222.45	2765.14	0.99
L&S to ROB Split	22579	100yr	Plan 02	29100.00	5826.00	5832.06	5831.76	5832.50	0.003734	6.83	6861.13	3638.49	0.65
L&S to ROB Split	22579	100yr	Plan-Without-Pits	29100.00	5826.00	5832.48	5831.76	5833.06	0.003729	6.24	4985.93	3554.89	0.64
L&S to ROB Split	22196	100yr	Plan 02	29100.00	5825.71	5829.91	5829.91	5830.59	0.007306	7.94	5425.85	3515.24	0.87
L&S to ROB Split	22196	100yr	Plan-Without-Pits	29100.00	5825.71	5830.70	5829.93	5831.42	0.004839	7.23	4446.54	3099.78	0.74
L&S to ROB Split	21870	100yr	Plan 02	29100.00	5824.00	5828.36	5827.79	5828.69	0.003826	5.87	7036.48	3549.98	0.63
L&S to ROB Split	21870	100yr	Plan-Without-Pits	29100.00	5824.00	5828.53	5828.26	5829.42	0.007800	8.28	4045.19	2979.38	0.90
L&S to ROB Split	21514	100yr	Plan 02	29100.00	5821.60	5826.60	5825.81	5827.12	0.005023	6.36	5110.39	3070.38	0.72
L&S to ROB Split	21514	100yr	Plan-Without-Pits	29100.00	5821.60	5826.60	5825.81	5827.12	0.005023	6.36	5110.39	3070.38	0.72
L&S to ROB Split	21063	100yr	Plan 02	29100.00	5818.00	5823.24	5823.12	5824.16	0.008973	8.29	3914.50	3014.72	0.95
L&S to ROB Split	21063	100yr	Plan-Without-Pits	29100.00	5818.00	5823.24	5823.12	5824.16	0.008973	8.29	3914.50	3014.72	0.95
L&S to ROB Split	20250	100yr	Plan 02	29100.00	5814.00	5818.56	5817.68	5819.01	0.006059	5.25	5413.20	2412.04	0.73
L&S to ROB Split	20250	100yr	Plan-Without-Pits	29100.00	5814.00	5818.56	5817.68	5819.01	0.006059	5.25	5413.20	2412.04	0.73
L&S to ROB Split	19500	100yr	Plan 02	29100.00	5810.00	5813.06	5812.84	5813.82	0.011029	6.18	4159.33	1958.30	0.96
L&S to ROB Split	19500	100yr	Plan-Without-Pits	29100.00	5810.00	5813.06	5812.84	5813.82	0.011029	6.18	4159.33	1958.30	0.96
L&S to ROB Split	19000	100yr	Plan 02	29100.00	5806.00	5810.09	5809.36	5810.57	0.005122	4.54	5313.64	2120.46	0.66
L&S to ROB Split	19000	100yr	Plan-Without-Pits	29100.00	5806.00	5810.09	5809.36	5810.57	0.005122	4.54	5313.64	2120.46	0.66
L&S to ROB Split	18400	100yr	Plan 02	29100.00	5804.00	5806.56	5806.27	5807.31	0.009108	5.33	4255.98	1914.56	0.86
L&S to ROB Split	18400	100yr	Plan-Without-Pits	29100.00	5804.00	5806.56	5806.27	5807.31	0.009108	5.33	4255.98	1914.56	0.86
L&S to ROB Split	17902	100yr	Plan 02	29100.00	5800.06	5805.02	5805.02	5805.27	0.002097	4.36	7261.28	2362.38	0.47
L&S to ROB Split	17902	100yr	Plan-Without-Pits	29100.00	5800.06	5805.02	5805.02	5805.27	0.002097	4.36	7261.28	2362.38	0.47
L&S to ROB Split	17102	100yr	Plan 02	29650.00	5796.00	5799.06	5798.47	5799.66	0.006553	5.83	5014.27	2072.72	0.77
L&S to ROB Split	17102	100yr	Plan-Without-Pits	29650.00	5796.00	5799.06	5798.47	5799.66	0.006553	5.83	5014.27	2072.72	0.77
L&S to ROB Split	16116	100yr	Plan 02	29650.00	5790.00	5794.63	5793.80	5795.07	0.004661	6.20	5874.81	2595.34	0.69
L&S to ROB Split	16116	100yr	Plan-Without-Pits	29650.00	5790.00	5794.63	5793.80	5795.07	0.004661	6.20	5874.81	2595.34	0.69
L&S to ROB Split	15678	100yr	Plan 02	29650.00	5788.00	5792.88	5791.98	5793.22	0.004113	5.37	6707.24	3106.22	0.64
L&S to ROB Split	15678	100yr	Plan-Without-Pits	29650.00	5788.00	5792.88	5791.98	5793.22	0.004113	5.37	6707.24	3106.22	0.64
L&S to ROB Split	14323	100yr	Plan 02	37400.00	5779.05	5785.20	5785.16	5786.20	0.007774	10.10	5413.66	2290.48	0.95
L&S to ROB Split	14323	100yr	Plan-Without-Pits	37400.00	5779.05	5785.20	5785.16	5786.20	0.007774	10.10	5413.66	2290.48	0.95
L&S to ROB Split	13646	100yr	Plan 02	37400.00	5774.00	5780.74	5780.74	5781.91	0.005511	10.32	5364.60	2000.40	0.84
L&S to ROB Split	13646	100yr	Plan-Without-Pits	37400.00	5774.00	5780.74	5780.74	5781.91	0.005511	10.32	5364.60	2000.40	0.84
L&S to ROB Split	12828	100yr	Plan 02	37400.00	5768.11	5775.38	5774.48	5776.26	0.003460	8.62	5505.41	1362.62	0.67
L&S to ROB Split	12828	100yr	Plan-Without-Pits	37400.00	5768.11	5775.38	5774.48	5776.26	0.003460	8.62	5505.41	1362.62	0.67
L&S to ROB Split	12316	100yr	Plan 02	37400.00	5765.44	5772.35	5771.83	5773.90	0.008459	10.92	3847.82	1182.25	1.00
L&S to ROB Split	12316	100yr	Plan-Without-Pits	37400.00	5765.44	5772.35	5771.83	5773.90	0.008459	10.92	3847.82	1182.25	1.00
L&S to ROB Split	11794	100yr	Plan 02	37400.00	5761.47	5768.89	5768.36	5769.99	0.006254	9.91	4626.67	1193.83	0.87
L&S to ROB Split	11794	100yr	Plan-Without-Pits	37400.00	5761.47	5768.89	5768.36	5769.99	0.006254	9.91	4626.67	1193.83	0.87
L&S to ROB Split	11152	100yr	Plan 02	37400.00	5757.31	5763.35	5763.32	5764.69	0.009728	10.78	4280.30	1593.46	1.06
L&S to ROB Split	11152	100yr	Plan-Without-Pits	37400.00	5757.31	5763.35	5763.32	5764.69	0.009728	10.78	4280.30	1593.46	1.06
L&S to ROB Split	10796	100yr	Plan 02	37400.00	5754.00	5759.77	5759.77	5761.15	0.010376	10.96	4413.52	1759.10	1.08
L&S to ROB Split	10796	100yr	Plan-Without-Pits	37400.00	5754.00	5759.77	5759.77	5761.15	0.010376	10.96	4413.52	1759.10	1.08
L&S to ROB Split	10341	100yr	Plan 02	37400.00	5750.24	5755.39	5755.04	5756.63	0.006342	9.47	4415.03	1342.86	0.87
L&S to ROB Split	10341	100yr	Plan-Without-Pits	37400.00	5750.24	5755.39	5755.04	5756.63	0.006342	9.47	4415.03	1342.86	0.87
L&S to ROB Split	9906	100yr	Plan 02	37400.00	5746.99	5752.71	5752.29	5753.95	0.005812	9.61	4456.29	1227.84	0.84
L&S to ROB Split	9906	100yr	Plan-Without-Pits	37400.00	5746.99	5752.71	5752.29	5753.95	0.005812	9.61	4456.29	1227.84	0.84
L&S to ROB Split	9098	100yr	Plan 02	37400.00	5739.13	5747.14	5747.14	5748.96	0.006594	11.45	3764.00	988.95	0.92
L&S to ROB Split	9098	100yr	Plan-Without-Pits	37400.00	5739.13	5747.14	5747.14	5748.96	0.006594	11.45	3764.00	988.95	0.92
L&S to ROB Split	8257	100yr	Plan 02	37400.00	5734.00	5742.22	5741.71	5743.50	0.005929	9.23	4270.01	1252.03	0.84
L&S to ROB Split	8257	100yr	Plan-Without-Pits	37400.00	5734.00	5742.22	5741.71	5743.50	0.005929	9.23	4270.01	1252.03	0.84
L&S to ROB Split	7560	100yr	Plan 02	37400.00	5732.00	5736.43	5737.69	5739.53	0.005221	8.44	4474.01	1371.11	0.78
L&S to ROB Split	7560	100yr	Plan-Without-Pits	37400.00	5732.00	5736.43	5737.69	5739.53	0.005221	8.44	4474.01	1371.11	0.78
L&S to ROB Split	6915	100yr	Plan 02	37400.00	5727.97	5734.19	5734.19	5735.53	0.007425	9.93	4543.64	2429.45	0.93
L&S to ROB Split	6915	100yr	Plan-Without-Pits	37400.00	5727.97	5734.19	5734.19	5735.53	0.007425	9.93	4543.64	2429.45	0.93
L&S to ROB Split	6525	100yr	Plan 02	37400.00	5724.00	5730.87	5730.87	5732.54	0.006149	10.63	4014.16	1965.57	0.88
L&S to ROB Split	6525	100yr	Plan-Without-Pits	37400.00	5724.00	5730.87	5730.87	5732.54	0.006149	10.63	4014.16	1965.57	0.88

HEC-RAS Profile: 100yr

Reach	River Sta	Profile	Plan	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
US to LBS	43811	100yr	Plan 02	5986.34	5985.83	0.51	1.17	0.01	12867.68	11572.00	710.32	3716.81
US to LBS	43811	100yr	Plan-Without-Pits	5986.34	5985.83	0.51	1.17	0.01	12867.68	11572.00	710.32	3716.81
US to LBS	43800			Lat Struct								
US to LBS	43661	100yr	Plan 02	5985.16	5984.56	0.60	0.90	0.02	12528.04	9697.40	2024.56	3769.32
US to LBS	43661	100yr	Plan-Without-Pits	5985.16	5984.56	0.60	0.90	0.02	12528.04	9697.40	2024.56	3769.32
US to LBS	43535	100yr	Plan 02	5983.96	5983.43	0.52	0.81	0.09	11577.86	8785.19	3115.96	4002.15
US to LBS	43535	100yr	Plan-Without-Pits	5983.96	5983.43	0.52	0.81	0.09	11577.86	8785.19	3115.96	4002.15
US to LBS	43259	100yr	Plan 02	5982.91	5982.57	0.34	0.52	0.04	11185.17	9393.55	1.28	3246.39
US to LBS	43259	100yr	Plan-Without-Pits	5982.91	5982.57	0.34	0.52	0.04	11185.17	9393.55	1.28	3246.39
US to LBS	43022	100yr	Plan 02	5982.35	5981.61	0.74	0.01	0.13	10346.06	7836.94		2664.64
US to LBS	43022	100yr	Plan-Without-Pits	5982.35	5981.61	0.74	0.01	0.13	10346.06	7836.94		2664.64
US to LBS	43020			Bridge								
US to LBS	42986	100yr	Plan 02	5981.42	5980.58	0.84	1.01	0.19	10758.45	7424.55		2594.58
US to LBS	42986	100yr	Plan-Without-Pits	5981.42	5980.58	0.84	1.01	0.19	10758.45	7424.55		2594.58
US to LBS	42985			Lat Struct								
US to LBS	42600	100yr	Plan 02	5976.43	5975.97	0.47	2.79	0.05	7427.39	7397.68	3227.93	3163.76
US to LBS	42600	100yr	Plan-Without-Pits	5976.43	5975.97	0.47	2.79	0.05	7427.39	7397.68	3227.93	3163.76
US to LBS	42004	100yr	Plan 02	5971.71	5970.75	0.96	1.42	0.09	1793.92	16259.08		1879.96
US to LBS	42004	100yr	Plan-Without-Pits	5971.71	5970.75	0.96	1.42	0.09	1793.92	16259.08		1879.96
US to LBS	41722	100yr	Plan 02	5969.81	5969.17	0.64	1.47	0.01	4034.78	13812.25	405.97	3105.26
US to LBS	41722	100yr	Plan-Without-Pits	5969.81	5969.17	0.64	1.47	0.01	4034.78	13812.25	405.97	3105.26
US to LBS	41431	100yr	Plan 02	5968.95	5968.35	0.60	0.71	0.03	4832.37	13057.29	163.34	3381.14
US to LBS	41431	100yr	Plan-Without-Pits	5968.95	5968.35	0.60	0.71	0.03	4832.37	13057.29	163.34	3381.14
US to LBS	41325	100yr	Plan 02	5968.88	5964.95	0.93	0.67	0.14	3632.59	14420.41		2436.38
US to LBS	41325	100yr	Plan-Without-Pits	5968.88	5964.95	0.93	0.67	0.14	3632.59	14420.41		2436.38
US to LBS	41200	100yr	Plan 02	5964.45	5964.00	0.45	0.68	0.01	5622.12	12430.89	0.00	2832.59
US to LBS	41200	100yr	Plan-Without-Pits	5964.45	5964.00	0.45	0.68	0.01	5622.12	12430.89	0.00	2832.59
US to LBS	41023	100yr	Plan 02	5963.77	5963.19	0.57	2.45	0.00	6905.83	11147.17		3218.29
US to LBS	41023	100yr	Plan-Without-Pits	5963.77	5963.19	0.57	2.45	0.00	6905.83	11147.17		3218.29
US to LBS	40602	100yr	Plan 02	5960.02	5959.44	0.59	3.76	0.08	8696.89	9466.11		2928.82
US to LBS	40602	100yr	Plan-Without-Pits	5960.02	5959.44	0.59	3.76	0.08	8696.89	9466.11		2928.82
US to LBS	40100	100yr	Plan 02	5956.98	5956.65	0.33	4.09	0.02	11615.82	6437.38		3814.49
US to LBS	40100	100yr	Plan-Without-Pits	5956.98	5956.65	0.33	4.09	0.02	11615.82	6437.38		3814.49
US to LBS	39600	100yr	Plan 02	5951.88	5951.37	0.51	4.04	0.01	8772.61	9280.39		3671.71
US to LBS	39600	100yr	Plan-Without-Pits	5951.88	5951.37	0.51	4.04	0.01	8772.61	9280.39		3671.71
US to LBS	39000	100yr	Plan 02	5947.83	5947.34	0.48	1.80	0.09	9868.44	8184.56		3956.58
US to LBS	39000	100yr	Plan-Without-Pits	5947.83	5947.34	0.48	1.80	0.09	9868.44	8184.56		3956.58
US to LBS	38735	100yr	Plan 02	5945.23	5945.05	0.18	1.55	0.02	12463.10	5589.90		4020.42
US to LBS	38735	100yr	Plan-Without-Pits	5945.23	5945.05	0.18	1.55	0.02	12463.10	5589.90		4020.42
US to LBS	38312	100yr	Plan 02	5943.66	5943.33	0.33	2.48	0.01	9079.30	8973.70		3812.26
US to LBS	38312	100yr	Plan-Without-Pits	5943.66	5943.33	0.33	2.48	0.01	9079.30	8973.70		3812.26
US to LBS	38000	100yr	Plan 02	5941.17	5940.76	0.41	1.29	0.14	12902.91	5150.09		3796.50
US to LBS	38000	100yr	Plan-Without-Pits	5941.17	5940.76	0.41	1.29	0.14	12902.91	5150.09		3796.50
US to LBS	37805	100yr	Plan 02	5939.74	5939.61	0.14	1.79	0.00	13766.27	4286.55	0.18	3873.35
US to LBS	37805	100yr	Plan-Without-Pits	5939.74	5939.61	0.14	1.79	0.00	13766.27	4286.55	0.18	3873.35
US to LBS	37500			Lat Struct								
US to LBS	37500	100yr	Plan 02	5937.94	5937.78	0.16			14696.82	1831.37	134.81	3937.02
US to LBS	37500	100yr	Plan-Without-Pits	5937.94	5937.78	0.16			14696.82	1831.37	134.81	3937.02
US to LBS	37481			Culvert								
US to LBS	37431	100yr	Plan 02	5937.55	5937.16	0.39	2.79	0.15	11284.43	5578.55	0.02	2846.51
US to LBS	37431	100yr	Plan-Without-Pits	5937.55	5937.16	0.39	2.79	0.15	11284.43	5578.55	0.02	2846.51
US to LBS	37000	100yr	Plan 02	5931.39	5930.49	0.90	2.26	0.09	5066.95	11796.05		1613.56
US to LBS	37000	100yr	Plan-Without-Pits	5931.39	5930.49	0.90	2.26	0.09	5066.95	11796.05		1613.56
US to LBS	36600	100yr	Plan 02	5927.94	5927.34	0.59	2.61	0.03	8762.01	8100.99		1937.43
US to LBS	36600	100yr	Plan-Without-Pits	5927.94	5927.34	0.59	2.61	0.03	8762.01	8100.99		1937.43

HEC-RAS Profile: 100yr (Continued)

Reach	River Sta	Profile	Plan	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
US to LBS	36150	100yr	Plan 02	5925.30	5924.41	0.89	3.18	0.02	3804.01	13058.99		1652.29
US to LBS	36150	100yr	Plan-Without-Pits	5925.30	5924.41	0.89	3.18	0.02	3804.01	13058.99		1652.29
US to LBS	35800	100yr	Plan 02	5921.93	5920.81	1.12	3.44	0.23	7139.65	9723.35		1371.08
US to LBS	35800	100yr	Plan-Without-Pits	5921.93	5920.81	1.12	3.44	0.23	7139.65	9723.35		1371.08
US to LBS	35400	100yr	Plan 02	5917.85	5917.49	0.36	2.99	0.03	11903.56	4959.44		2163.61
US to LBS	35400	100yr	Plan-Without-Pits	5917.85	5917.49	0.36	2.99	0.03	11903.56	4959.44		2163.61
US to LBS	34955	100yr	Plan 02	5914.83	5914.13	0.70	2.23	0.11	7994.98	8868.02		2263.50
US to LBS	34955	100yr	Plan-Without-Pits	5914.83	5914.13	0.70	2.23	0.11	7994.98	8868.02		2263.50
US to LBS	34498	100yr	Plan 02	5911.55	5911.23	0.33	1.13	0.03	8474.89	8388.11		2670.19
US to LBS	34498	100yr	Plan-Without-Pits	5911.55	5911.23	0.33	1.13	0.03	8475.68	8387.32		2670.29
US to LBS	34180	100yr	Plan 02	5910.39	5909.75	0.64	3.40	0.08	5847.79	11315.21		2763.96
US to LBS	34180	100yr	Plan-Without-Pits	5910.39	5909.75	0.64	3.40	0.08	5846.55	11316.45		2763.61
US to LBS	33833	100yr	Plan 02	5906.90	5905.48	1.43	3.33	0.25	2834.31	14028.69		3112.39
US to LBS	33833	100yr	Plan-Without-Pits	5906.90	5905.48	1.43	3.94	0.03	2834.31	14028.69		2727.09
US to LBS	33001	100yr	Plan 02	5900.12	5899.55	0.57	2.10	0.01	7599.48	9263.52		3367.68
US to LBS	33001	100yr	Plan-Without-Pits	5902.12	5900.43	1.70	1.88	0.29	386.45	16476.55		2539.15
US to LBS	32643	100yr	Plan 02	5896.53	5896.00	0.53	3.60	0.01	5340.61	11522.39		3579.56
US to LBS	32643	100yr	Plan-Without-Pits	5897.87	5897.15	0.72	3.72	0.07		16863.00		2571.16
US to LBS	31940	100yr	Plan 02	5892.57	5891.96	0.60	1.42	0.07	7937.67	8925.33		3103.97
US to LBS	31940	100yr	Plan-Without-Pits	5894.08	5892.70	1.38	1.75	0.20	2782.60	14080.40		2239.38
US to LBS	31669	100yr	Plan 02	5889.67	5889.29	0.38	2.22	0.02	8694.27	10168.73		2705.52
US to LBS	31669	100yr	Plan-Without-Pits	5890.78	5890.07	0.71	2.14	0.03	4.41	16868.59		1736.87
US to LBS	31339	100yr	Plan 02	5887.43	5886.85	0.58	2.79	0.08	7981.91	8881.09		2162.48
US to LBS	31339	100yr	Plan-Without-Pits	5888.61	5887.59	1.01	3.67	0.06	2654.06	14208.94		1363.77
US to LBS	30888	100yr	Plan 02	5884.02	5883.69	0.33	2.28	0.01	11029.06	5833.94		2427.20
US to LBS	30888	100yr	Plan-Without-Pits	5884.86	5884.12	0.74	2.41	0.10	8076.26	8786.74		1329.44
US to LBS	30340	100yr	Plan 02	5881.74	5881.35	0.39	1.91	0.00	9693.80	7169.20		2563.65
US to LBS	30340	100yr	Plan-Without-Pits	5882.35	5881.94	0.41	2.19	0.02	8214.50	8648.50		1699.30
US to LBS	29984	100yr	Plan 02	5879.82	5879.45	0.38	2.43	0.03	17196.58	6518.43		2363.76
US to LBS	29984	100yr	Plan-Without-Pits	5880.14	5879.58	0.56	2.37	0.00	15372.89	8341.11		2398.16
US to LBS	29685	100yr	Plan 02	5877.39	5876.64	0.71	2.71	0.02	15120.40	8893.60		2505.68
US to LBS	29685	100yr	Plan-Without-Pits	5877.77	5877.18	0.59	2.25	0.07	14229.93	9484.07		2054.52
US to LBS	29338	100yr	Plan 02	5874.34	5873.69	0.65	1.06	0.07	9060.61	14853.39		2152.54
US to LBS	29338	100yr	Plan-Without-Pits	5875.45	5874.14	1.31	1.39	0.20	2582.44	21131.57		1372.35
US to LBS	29058	100yr	Plan 02	5873.21	5872.79	0.42	1.17	0.04	9697.36	14015.64		2132.85
US to LBS	29058	100yr	Plan-Without-Pits	5873.60	5872.96	0.64	1.20	0.01	6722.50	16991.50		1788.76
US to LBS	28752	100yr	Plan 02	5872.00	5871.19	0.81	2.54	0.00	8801.44	14808.21	104.35	2018.32
US to LBS	28752	100yr	Plan-Without-Pits	5872.38	5871.62	0.76	2.43	0.01	8157.19	15666.81		1920.88
US to LBS	28260	100yr	Plan 02	5869.46	5868.61	0.84	1.66	0.00	4940.00	15773.72	3000.28	2122.34
US to LBS	28260	100yr	Plan-Without-Pits	5869.94	5869.06	0.89	2.14	0.01	5696.58	18118.42		1747.90
US to LBS	27887	100yr	Plan 02	5867.22	5866.36	0.86	1.71	0.01	4745.69	15068.21	3900.11	2113.69
US to LBS	27887	100yr	Plan-Without-Pits	5867.79	5866.77	1.02	1.77	0.11	4366.74	19347.26		1610.30
US to LBS	27503	100yr	Plan 02	5864.24	5863.40	0.84	3.03	0.03	4342.88	15308.97	4052.14	2247.47
US to LBS	27503	100yr	Plan-Without-Pits	5864.53	5863.88	0.65	2.89	0.10	8613.01	17100.82	0.17	1721.05
LBS to ROB Split	26962	100yr	Plan 02	5860.54	5859.43	1.11	2.63	0.06	1941.73	21723.14	5435.13	1934.02
LBS to ROB Split	26962	100yr	Plan-Without-Pits	5861.53	5859.86	1.67	2.76	0.19	1649.87	27450.13		1233.44
LBS to ROB Split	26498	100yr	Plan 02	5857.19	5856.28	0.91	3.02	0.00	6246.97	15145.09	5707.94	2115.05
LBS to ROB Split	26498	100yr	Plan-Without-Pits	5857.68	5856.65	1.03	3.16	0.01	5642.85	18642.84	4814.31	2049.78
LBS to ROB Split	25826	100yr	Plan 02	5854.17	5853.25	0.92	1.60	0.01	4296.54	16706.52	8097.94	2283.11
LBS to ROB Split	25826	100yr	Plan-Without-Pits	5854.51	5853.37	1.14	1.69	0.04	516.60	18297.65	10285.75	2215.69
LBS to ROB Split	25513	100yr	Plan 02	5852.31	5851.31	1.01	0.41	0.03	1458.72	23465.79	4175.50	2109.77
LBS to ROB Split	25513	100yr	Plan-Without-Pits	5852.31	5851.31	1.01	0.40	0.03	1458.72	23465.79	4175.50	2109.77
LBS to ROB Split	25451	100yr	Plan 02	5851.74	5850.47	1.28	4.02	0.18		26926.42	2403.58	1547.47
LBS to ROB Split	25451	100yr	Plan-Without-Pits	5851.75	5850.49	1.26	4.64	0.00		26721.46	2378.54	1556.96
LBS to ROB Split	24726	100yr	Plan 02	5846.91	5846.23	0.68	2.15	0.01	3136.37	14289.23	11675.40	3584.02
LBS to ROB Split	24726	100yr	Plan-Without-Pits	5847.11	5846.84	1.27	3.39	0.00		28593.00	507.00	1987.31

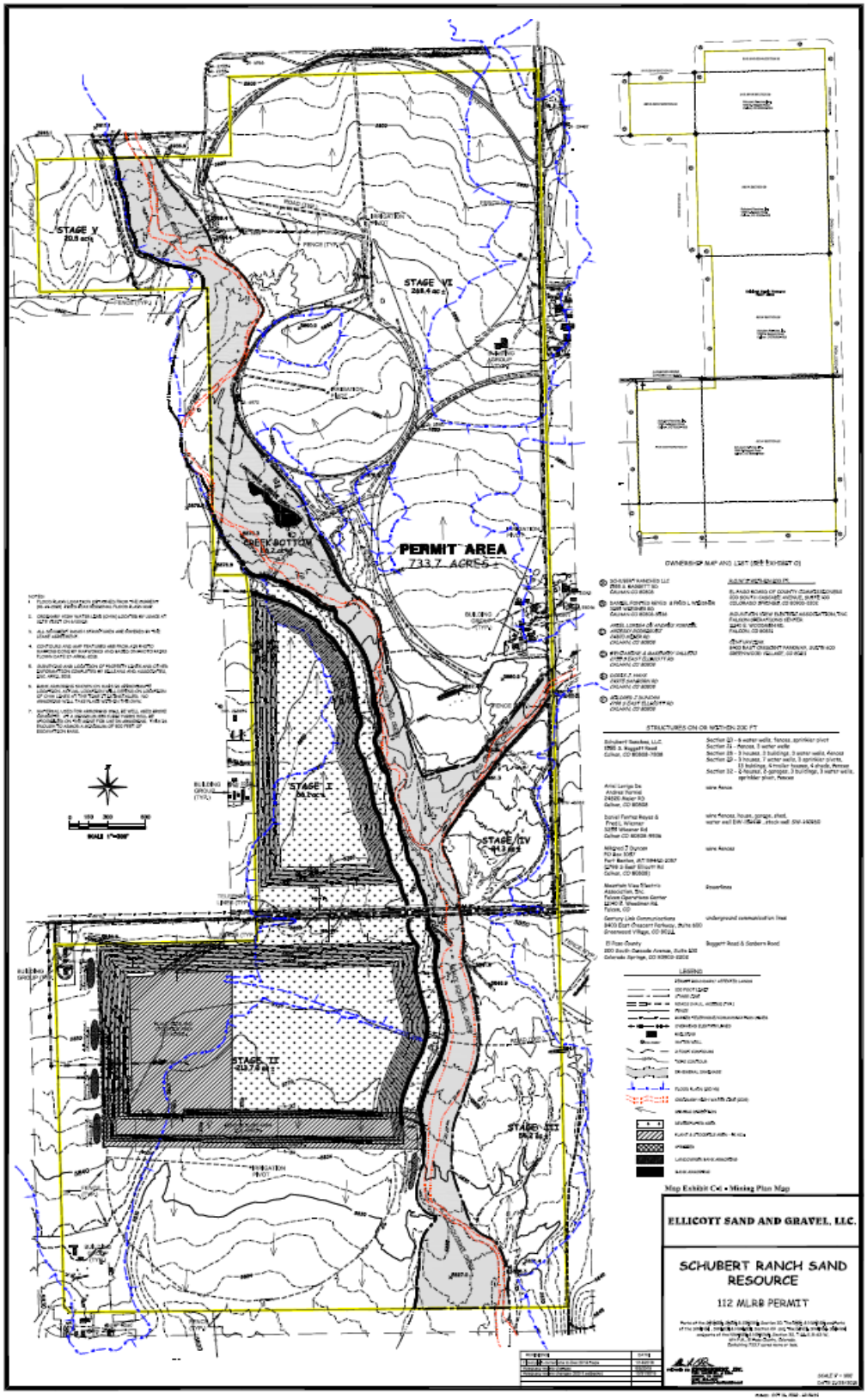
HEC-RAS Profile: 100yr (Continued)

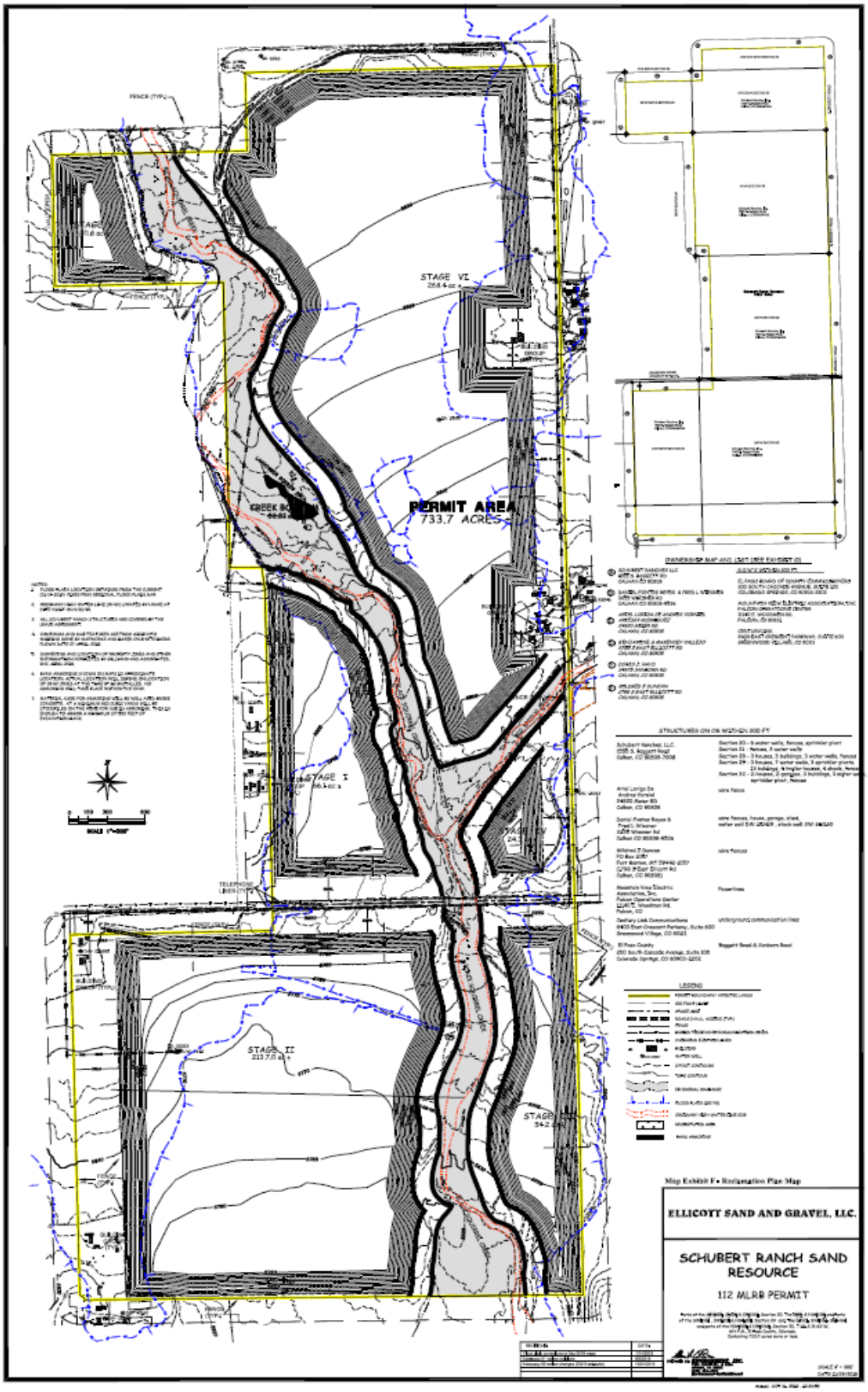
Reach	River Sta	Profile	Plan	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
LBS to ROB Split	24157	100yr	Plan 02	5842.56	5841.92	0.64	1.54	0.00	2060.28	16737.79	10301.93	3393.76
LBS to ROB Split	24157	100yr	Plan-Without-Pits	5843.73	5842.46	1.27	1.60	0.02	43.67	29050.94	5.39	972.78
LBS to ROB Split	23955	100yr	Plan 02	5841.02	5840.35	0.67	2.20	0.00	2978.81	14069.18	12052.01	3831.93
LBS to ROB Split	23955	100yr	Plan-Without-Pits	5842.11	5840.90	1.22	2.51	0.15		29100.00		2724.26
LBS to ROB Split	23857	100yr	Plan 02	5838.45	5837.79	0.65	2.66	0.00	3040.89	14183.00	11876.12	3835.46
LBS to ROB Split	23857	100yr	Plan-Without-Pits	5839.10	5838.39	0.71	2.82	0.06		29100.00		2666.96
LBS to ROB Split	23156	100yr	Plan 02	5835.36	5834.70	0.65	2.79	0.06	4048.09	11995.84	13056.07	3823.86
LBS to ROB Split	23156	100yr	Plan-Without-Pits	5836.53	5835.26	1.27	3.22	0.21		29100.00		2765.14
LBS to ROB Split	22579	100yr	Plan 02	5832.50	5832.06	0.44	1.90	0.02	3304.77	14953.81	10841.42	3838.49
LBS to ROB Split	22579	100yr	Plan-Without-Pits	5833.06	5832.46	0.58	1.62	0.01		27255.64	1844.36	3854.89
LBS to ROB Split	22196	100yr	Plan 02	5830.59	5829.91	0.67	1.66	0.10	1400.38	17571.96	10027.64	3515.24
LBS to ROB Split	22196	100yr	Plan-Without-Pits	5831.42	5830.70	0.72	1.98	0.02		22953.03	6146.97	3089.76
LBS to ROB Split	21870	100yr	Plan 02	5828.69	5828.36	0.32	1.54	0.02	1409.03	13085.39	14805.58	3549.58
LBS to ROB Split	21870	100yr	Plan-Without-Pits	5829.42	5828.53	0.89	2.19	0.11		20412.44	8687.56	2979.38
LBS to ROB Split	21514	100yr	Plan 02	5827.12	5826.60	0.52	2.94	0.04		16327.36	12772.63	3070.38
LBS to ROB Split	21514	100yr	Plan-Without-Pits	5827.12	5826.60	0.52	2.94	0.04		16327.36	12772.63	3070.38
LBS to ROB Split	21063	100yr	Plan 02	5824.18	5823.24	0.91	5.01	0.14		20135.41	8964.59	3014.72
LBS to ROB Split	21063	100yr	Plan-Without-Pits	5824.18	5823.24	0.91	5.01	0.14		20135.41	8964.59	3014.72
LBS to ROB Split	20250	100yr	Plan 02	5819.01	5818.56	0.45	5.15	0.03		6565.18	22534.82	2412.04
LBS to ROB Split	20250	100yr	Plan-Without-Pits	5819.01	5818.56	0.45	5.15	0.03		6565.18	22534.82	2412.04
LBS to ROB Split	19500	100yr	Plan 02	5813.82	5813.06	0.77	3.17	0.09		5113.71	23886.29	1968.30
LBS to ROB Split	19500	100yr	Plan-Without-Pits	5813.82	5813.06	0.77	3.17	0.09		5113.71	23886.29	1968.30
LBS to ROB Split	19000	100yr	Plan 02	5810.57	5810.09	0.48	3.23	0.03		5479.28	23520.72	2120.46
LBS to ROB Split	19000	100yr	Plan-Without-Pits	5810.57	5810.09	0.48	3.23	0.03		5479.28	23520.72	2120.46
LBS to ROB Split	18400	100yr	Plan 02	5807.31	5806.56	0.75	1.89	0.15		5002.25	24997.75	1914.56
LBS to ROB Split	18400	100yr	Plan-Without-Pits	5807.31	5806.56	0.75	1.89	0.15		5002.25	24997.75	1914.56
LBS to ROB Split	17902	100yr	Plan 02	5805.27	5805.02	0.25	2.67	0.03		11270.70	17829.30	2362.38
LBS to ROB Split	17902	100yr	Plan-Without-Pits	5805.27	5805.02	0.25	2.67	0.03		11270.70	17829.30	2362.38
LBS to ROB Split	17102	100yr	Plan 02	5799.66	5799.08	0.59	4.55	0.04	2139.37	3719.66	23990.97	2072.72
LBS to ROB Split	17102	100yr	Plan-Without-Pits	5799.66	5799.08	0.59	4.55	0.04	2139.37	3719.66	23990.97	2072.72
LBS to ROB Split	16116	100yr	Plan 02	5795.07	5794.63	0.44	1.82	0.03	13613.49	12961.80	3274.70	2595.34
LBS to ROB Split	16116	100yr	Plan-Without-Pits	5795.07	5794.63	0.44	1.82	0.03	13613.49	12961.80	3274.70	2595.34
LBS to ROB Split	15678	100yr	Plan 02	5793.22	5792.88	0.33	6.98	0.07	17870.56	9256.26	2723.18	3106.22
LBS to ROB Split	15678	100yr	Plan-Without-Pits	5793.22	5792.88	0.33	6.98	0.07	17870.56	9256.26	2723.18	3106.22
LBS to ROB Split	14323	100yr	Plan 02	5786.20	5785.20	1.01	4.28	0.02	11330.12	18468.68	7601.21	2290.48
LBS to ROB Split	14323	100yr	Plan-Without-Pits	5786.20	5785.20	1.01	4.28	0.02	11330.12	18468.68	7601.21	2290.48
LBS to ROB Split	13646	100yr	Plan 02	5781.91	5780.74	1.17	3.35	0.09	8630.77	23982.71	4886.52	2000.40
LBS to ROB Split	13646	100yr	Plan-Without-Pits	5781.91	5780.74	1.17	3.35	0.09	8630.77	23982.71	4886.52	2000.40
LBS to ROB Split	12828	100yr	Plan 02	5776.26	5775.38	0.88	2.30	0.07	12950.23	24449.77		1362.62
LBS to ROB Split	12828	100yr	Plan-Without-Pits	5776.26	5775.38	0.88	2.30	0.07	12950.23	24449.77		1362.62
LBS to ROB Split	12316	100yr	Plan 02	5773.90	5772.35	1.55	3.76	0.14	16158.32	21211.74	29.94	1182.25
LBS to ROB Split	12316	100yr	Plan-Without-Pits	5773.90	5772.35	1.55	3.76	0.14	16158.32	21211.74	29.94	1182.25
LBS to ROB Split	11794	100yr	Plan 02	5769.99	5768.89	1.10	5.27	0.02	21819.40	15580.60		1193.83
LBS to ROB Split	11794	100yr	Plan-Without-Pits	5769.99	5768.89	1.10	5.27	0.02	21819.40	15580.60		1193.83
LBS to ROB Split	11152	100yr	Plan 02	5764.69	5763.35	1.35	3.54	0.00	18148.08	18990.83	261.09	1593.46
LBS to ROB Split	11152	100yr	Plan-Without-Pits	5764.69	5763.35	1.35	3.54	0.00	18148.08	18990.83	261.09	1593.46
LBS to ROB Split	10798	100yr	Plan 02	5761.15	5759.77	1.38	3.79	0.04	6566.79	23121.55	7322.67	1759.10
LBS to ROB Split	10798	100yr	Plan-Without-Pits	5761.15	5759.77	1.38	3.79	0.04	6566.79	23121.55	7322.67	1759.10
LBS to ROB Split	10341	100yr	Plan 02	5756.63	5755.39	1.24	2.68	0.00		30840.55	6559.45	1342.86
LBS to ROB Split	10341	100yr	Plan-Without-Pits	5756.63	5755.39	1.24	2.68	0.00		30840.55	6559.45	1342.86
LBS to ROB Split	9906	100yr	Plan 02	5753.95	5752.71	1.23	4.92	0.06		29042.95	8057.05	1227.84
LBS to ROB Split	9906	100yr	Plan-Without-Pits	5753.95	5752.71	1.23	4.92	0.06		29042.95	8057.05	1227.84
LBS to ROB Split	9098	100yr	Plan 02	5748.96	5747.14	1.83	5.17	0.17	4877.69	32522.31		988.95
LBS to ROB Split	9098	100yr	Plan-Without-Pits	5748.96	5747.14	1.83	5.17	0.17	4877.69	32522.31		988.95
LBS to ROB Split	8257	100yr	Plan 02	5743.50	5742.22	1.28	3.91	0.05	1667.78	39732.22		1252.03
LBS to ROB Split	8257	100yr	Plan-Without-Pits	5743.50	5742.22	1.28	3.91	0.05	1667.78	39732.22		1252.03

HEC-RAS Profile: 100yr (Continued)

Reach	River Sta	Profile	Plan	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
LSS to ROB Split	7560	100yr	Plan 02	5739.53	5738.43	1.10	3.99	0.02	39.06	37333.40	27.54	1371.11
LSS to ROB Split	7560	100yr	Plan-Without-Pits	5739.53	5738.43	1.10	3.99	0.02	39.06	37333.40	27.54	1371.11
LSS to ROB Split	6915	100yr	Plan 02	5736.53	5734.19	1.34	2.64	0.03	191.01	31584.59	5624.40	2429.45
LSS to ROB Split	6915	100yr	Plan-Without-Pits	5736.53	5734.19	1.34	2.64	0.03	191.01	31584.59	5624.40	2429.45
LSS to ROB Split	6525	100yr	Plan 02	5732.54	5730.87	1.68	2.56	0.01		35603.59	1796.41	1968.57
LSS to ROB Split	6525	100yr	Plan-Without-Pits	5732.54	5730.87	1.68	2.56	0.01		35603.59	1796.41	1968.57

Appendix E. Construction Plans and Stream Bank and Pit Armoring Details


PERMIT AREA
733.7 ACRES
STAGE V
STAGE VI
STAGE I
STAGE IV
STAGE II
STAGE III
CREEK BOTTOM
OWNERSHIP MAP AND LIST
STRUCTURES ON OR WITHIN 200 FT
LEGEND
Map Exhibit C6 • Mining Plan Map
ELLICOTT SAND AND GRAVEL, LLC.
SCHUBERT RANCH SAND RESOURCE
112 MLRB PERMIT


PERMIT AREA
733.7 ACRES
STAGE VI
STAGE I
STAGE II
Map Exhibit F - Reclamation Plan Map
ELLICOTT SAND AND GRAVEL, LLC.
SCHUBERT RANCH SAND RESOURCE
112 MLRB PERMIT

RPM, Inc.

Ellicott Sand & Gravel LLC ***Schubert Ranch Sand Resource***
M-2018-063 ***August 26, 2019***
(Revised Oct 31, 2019)

BANK PROTECTION PLAN

This bank protection plan is presented to explain the bank armoring on both side of the Black Squirrel Creek and the tops of the excavated slope that run parallel to the channel. This armoring is being proposed to keep the Black Squirrel Creek within in the historic banks so the excavated area will not capture if a epic flood event were to occur after reclamation is complete. The minimum width of the top of the armored banks will be 150 feet.

We have followed the 2013 Urban Drainage and Flood Control District (UDFCD) Publication guideline document for planning and design of the armoring on the mining side bank and the bank armoring on the creek channel side. Ellicott Sand & Gravel LLC has no way or predict is or when a storm event could occur that would cause flooding outside the historic channel. The armor is intended to define the channel and protect the banks should a 100 year event occur after an area has been mined. All armoring done in or along the dry channel will be done outside the Ordinary Highwater Line (OHW) to avoid needing a U.S. Army Corps of Engineers permit. The existing OHW is shown on all map exhibits in the permit packet as an orange line. If this changes a mining advances around the permit area the armoring locations will change to meet the conditions at that time. The armoring will be covered with a 6 inch layer of growth medium and seeded with the approved seed mix

We have no information on the flow velocities or volume of flows for a 100 year event in this stretch of Black Squirrel Creek. Black Squirrel Creek is a true ephemeral drainage where the only water that travels down the drainage is during isolated storm events that create mini floods. In most cases the OHW is 10 feet or less across. The 100-year Floodplain information provided by El Paso County has been added to all of the Map Exhibits in the Reclamation Packet and is shown as a blue line.

There are general items that will be common to both armoring areas. In general, all armoring material will be recycled concrete fragments with surface rebar removed that meets the definition of Inert Materials, there will be no exposed rebar in the concrete and it will be sized 12 to 24 inches with a few larger pieces and fines mixed in to fill voids. The toe of the armoring will be a minimum of 3 feet below the existing creek channel thalweg as described below. ESG will keep enough material stored on the mine to complete armoring needed on an area as it is mined and ready for armoring. At a minimum, 850 cubic yards will be stockpiled on the mine for use in armoring. This is enough to armor a minimum of 500 feet of excavation bank. The stockpile of armoring material will be placed parallel to the water flow so it will not interfere with flows in the flood plain

if flooding occurs and within the 150 foot setback so it is close to the area where it will be placed.

The attached **Figure 1** shows the cross sections of the areas discussed below and details of the armoring to protect the banks along Black Squirrel Creek and Big Spring Creek. **Map Exhibit F - Reclamation Plan Map** has been revised to show the location of the areas to be armored in the mine.

Channel Bank Armoring.

Along the banks of Black Squirrel Creek and Big Springs Creek banks armoring will be placed wherever mining will take place within 400 feet of the bank. The armoring will be done as mining advances in each stage so that if mining ended along the channels before mining reached the 400 foot line no armoring would need to be done. As mining approaches the 400 foot limit the channel adjacent to mining area will be armored following the UDFCD Guidelines.

Bank armoring will be done, using the concrete recycle material described above. The armored face of the bank will extend to 5 feet below the thalweg of the dry channel to the top of the existing bank and will be a minimum of 2 feet thick. This will leave an armored face along the surface that is 29 feet wide. On average this will require 2.77 cu-yds per linear foot. The armoring will not take place in the OHW but rather along the historic bank of the creeks. The face of the armoring will be sloped 2.5h to 1v per the guidelines.

Excavation Bank Armoring.

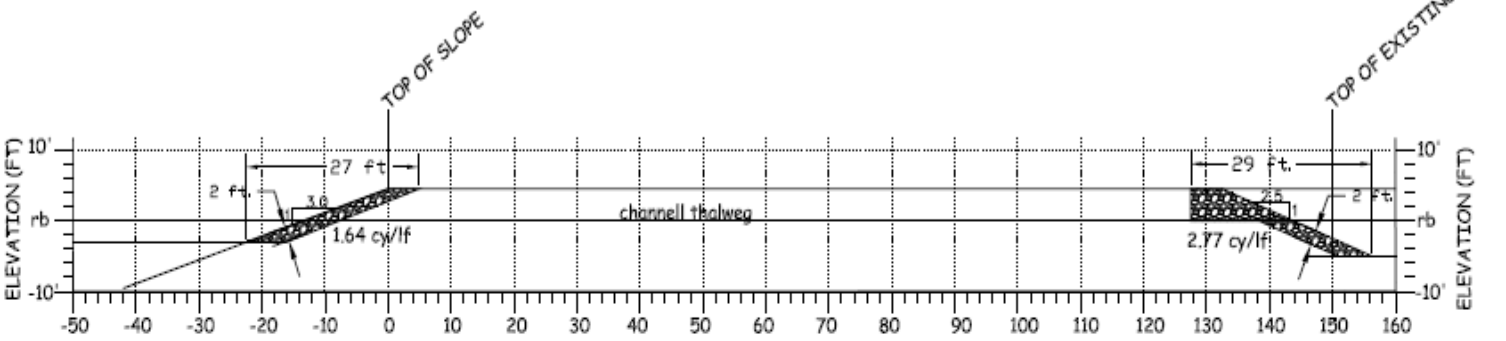
On the inside of the mined area adjacent to the creek channels the armoring will be placed from the existing elevation so the toe of the armoring will be a minimum of 3 feet below the creek thalweg and will be 2 feet or more thick. This is approximately 1.64 cyd/lft along the excavation bank slopes. The armoring will cover the bank slopes from the original ground surface to a depth of 3 feet below the channel thalweg and parallel to the channel. Once sloping begins the armoring will be installed on 500 foot sections until completed. This will leave an armored face along the surface that is 27 feet wide.

Supplied supporting documents

Figure 1 - Bank Protection Plan cross section (Revised 10-30-19)

BANK ARMORING PLAN

FIGURE 1



TYPICAL CREEK BERM ARMORING
NO SCALE

NOTES:

1. BANK ARMORING SHOWN ON MAPS IS APPROXIMATE LOCATION. ACTUAL LOCATION WILL DEPEND ON LOCATION OF OHW LINES AT THE TIME IT IS INSTALLED. NO ARMORING WILL TAKE PLACE WITHIN THE OHW.
2. MATERIAL USED FOR ARMORING WILL BE WELL AGED BROKE CONCRETE. THAT HAS ALL EXPOSED SURFACE REBAR REMOVED. AT A MINIMUM 850 CUBIC YARDS WILL BE STOCKPILED ON THE MINE FOR USE IN ARMORING. THIS IS ENOUGH TO ARMOR MATERIAL TO ARMOR A MINIMUM OF 500 FEET OF EXCAVATION BANK..
3. STOCKPILE OF ARMORING MATERIAL WILL BE PLACED PARALLEL TO THE WATER FLOW SO IT WILL NOT INTERFERE WITH FLOWS IN THE FLOOD PLAIN IF FLOODING OCCURS AND WITHIN THE 150 FOOT SETBACK SO IT IS CLOSE TO THE AREA WHERE IT WILL BE PLACED.
4. BANK ALONG THE EXCAVATED AREA WILL ARMORED FROM THE EXISTING SURFACE TO A POINT AT LEAST 3 FEET BELOW THE CREEK CHANNEL THALWEG. THE BANK ALONG THE CREEK SIDE WILL BE ARMORED FROM THE SURFACE TO AT LEASE 5 FEET BELOW THE THALWAG. OF THE CREEK CHANNEL.
5. CHANNEL SIDE ARMORING WILL BE DONE PRIOR TO MINING WITHIN 400 FEET OF THE AREA TO BE ARMORED IN ADVANCE OF MINING IN EACH STAGE.
6. THE SIZE OF THE MATERIAL WILL FALL IN THE RANGE OF 12 TO 24 INCHES OR GREATER AND WILL BE PLACED BELOW GRADE.
7. THE ARMORING WILL BE COVERED WITH A 6 INCH LAYER OF GROWTH MEDIUM AND SEEDED WITH THE APPROVED SEED MIX.

OCT 31, 2019 – 14:22:52

RPM, Inc.

Attachment III
Erosion and Stormwater Quality Control Permit Application And Control Plan

(Pending approval of the SUP)

Attachment IV
Traffic Report

LSC TRANSPORTATION CONSULTANTS, INC.
545 East Pikes Peak Avenue, Suite 210
Colorado Springs, CO 80903
(719) 633-2868
FAX (719) 633-5430
E-mail: lsc@lsctrans.com
Website: http://www.lsctrans.com

Ellicott Sand and Gravel
Traffic Impact Analysis
(LSC #194980)
February 11, 2020

Traffic Engineer's Statement

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.

COLORADO LICENSED
JEFFREY C. HODSDON
31684
2-12-20
PROFESSIONAL ENGINEER

Developer's Statement

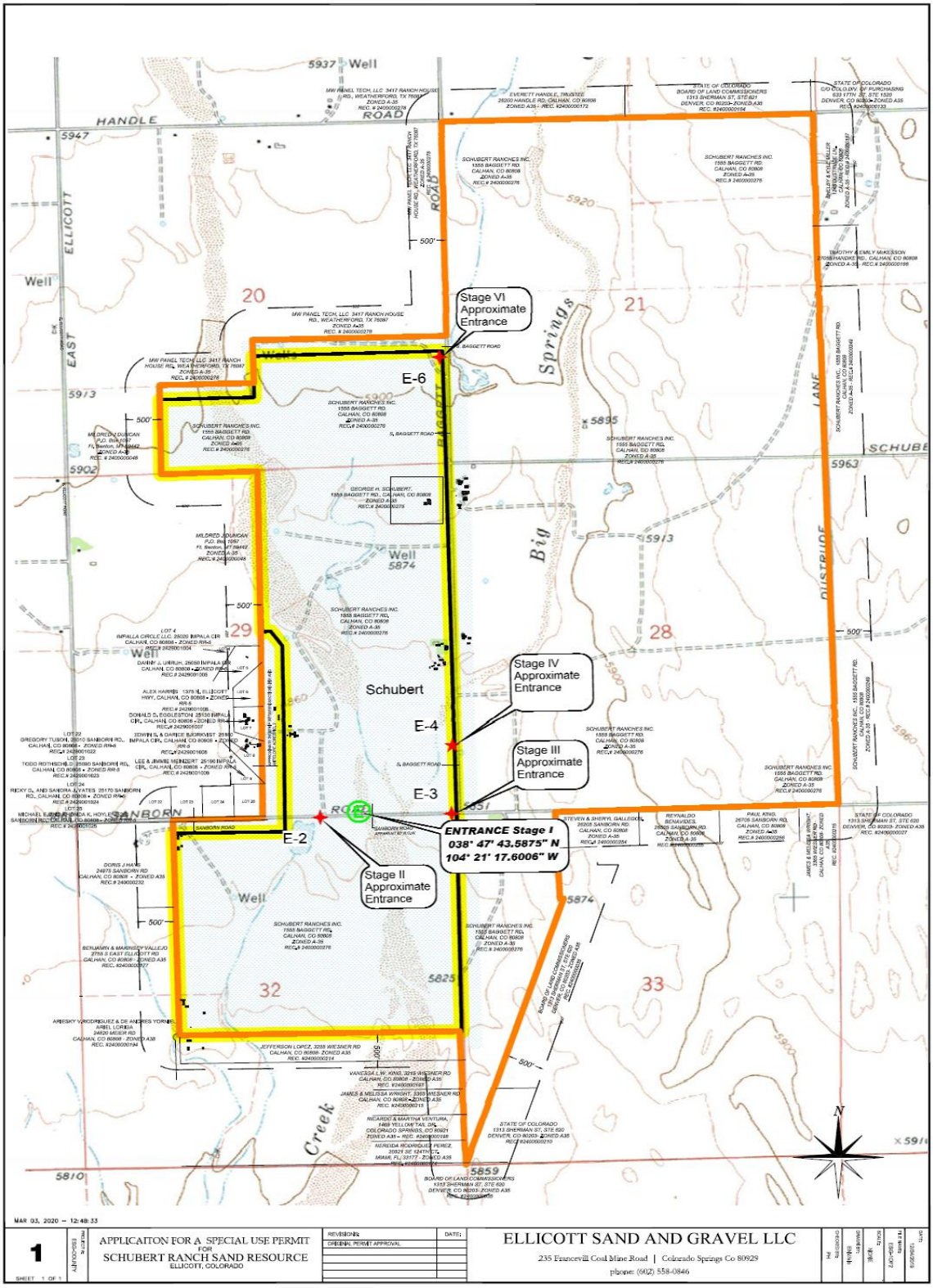
I, the Developer, have read and will comply with all commitments made on my behalf within this report.

2-12-2020
Date

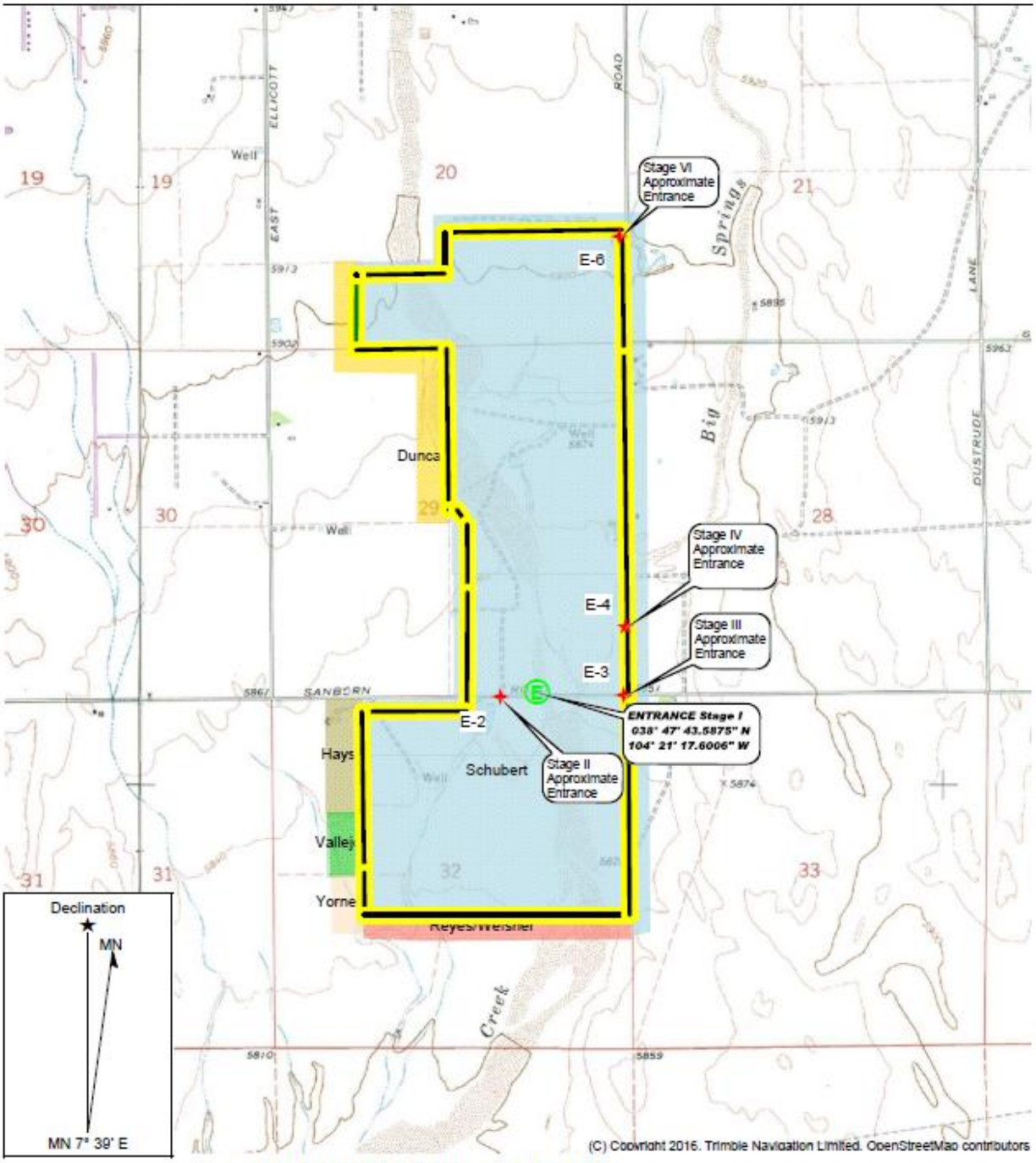
Attachment V
Site Maps

(*Please see the pdf digital file for full-size maps.***)**

RPM, Inc.



Adjacent Property Ownership Within 500 Feet of the Affected Parcels.



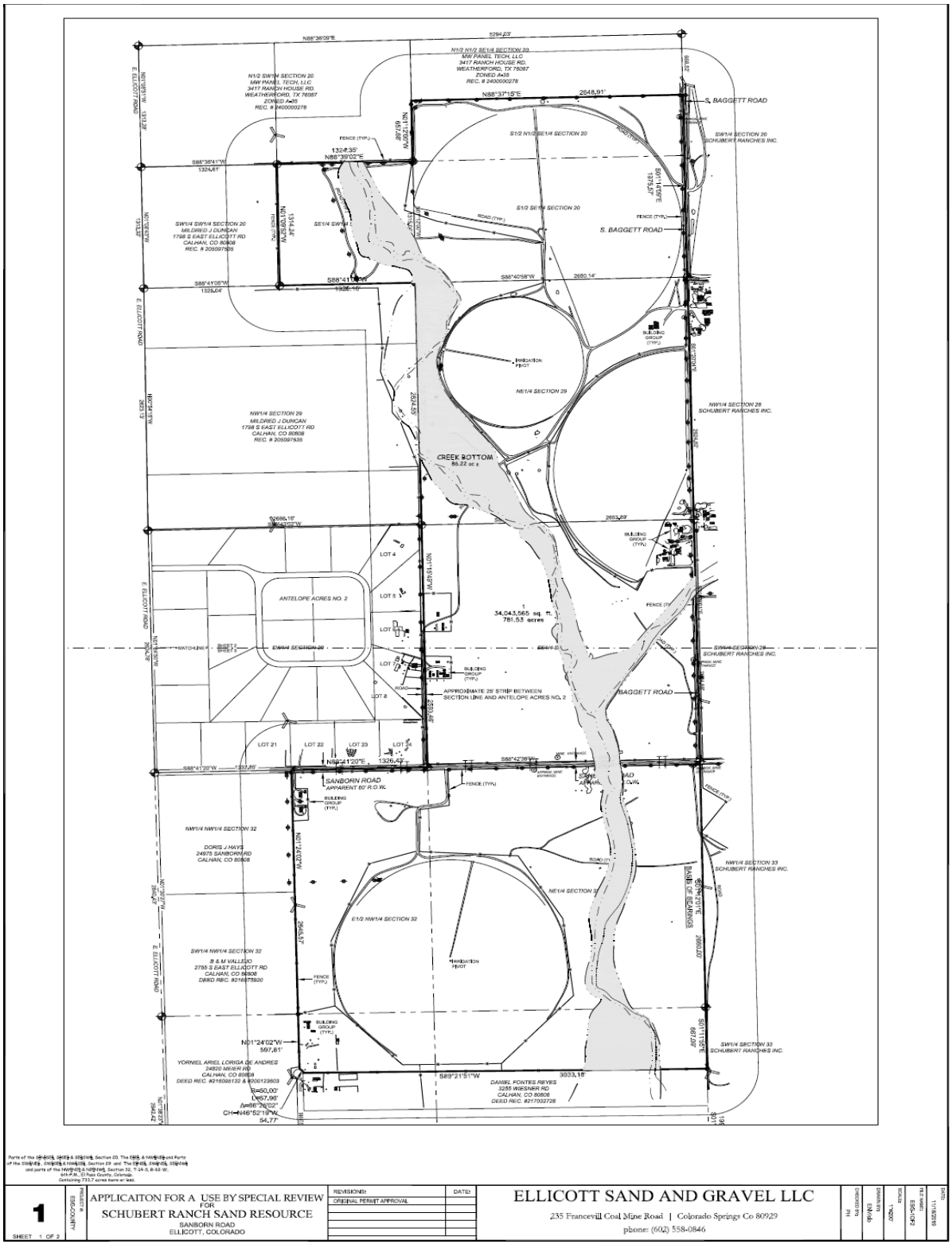
Quad. Name: BIG SPRINGS RANCH
Date: 03/03/20
Scale: 1 inch = 2,000 ft.

Part of the S1/2N1/2SE1/4, S1/2SE1/4,and SE1/4SW1/4 of Section 20, and The E1/2E1/2 and NW1/4NE1/4 and parts of the SW1/4NE1/4, SW1/4SE1/4, and NW1/4SE1/4 of Section 29 and The E1/2NE1/4, SW1/NE1/4, & SE1/4NW1/4, and parts of the NW1/4NE1/4 & NE1/4NW1/4, Section 32, Township 14 South, Range 62 West, 6th P.M. El Paso County, Colorado
Containing 733.7 acres more or less.

ELLICOTT SAND AND GRAVEL LLC
SCHUBERT RANCH SAND RESOURCE
MAP EXHIBIT B - VICINITY MAP

Access Points by Phase

RPM, Inc.

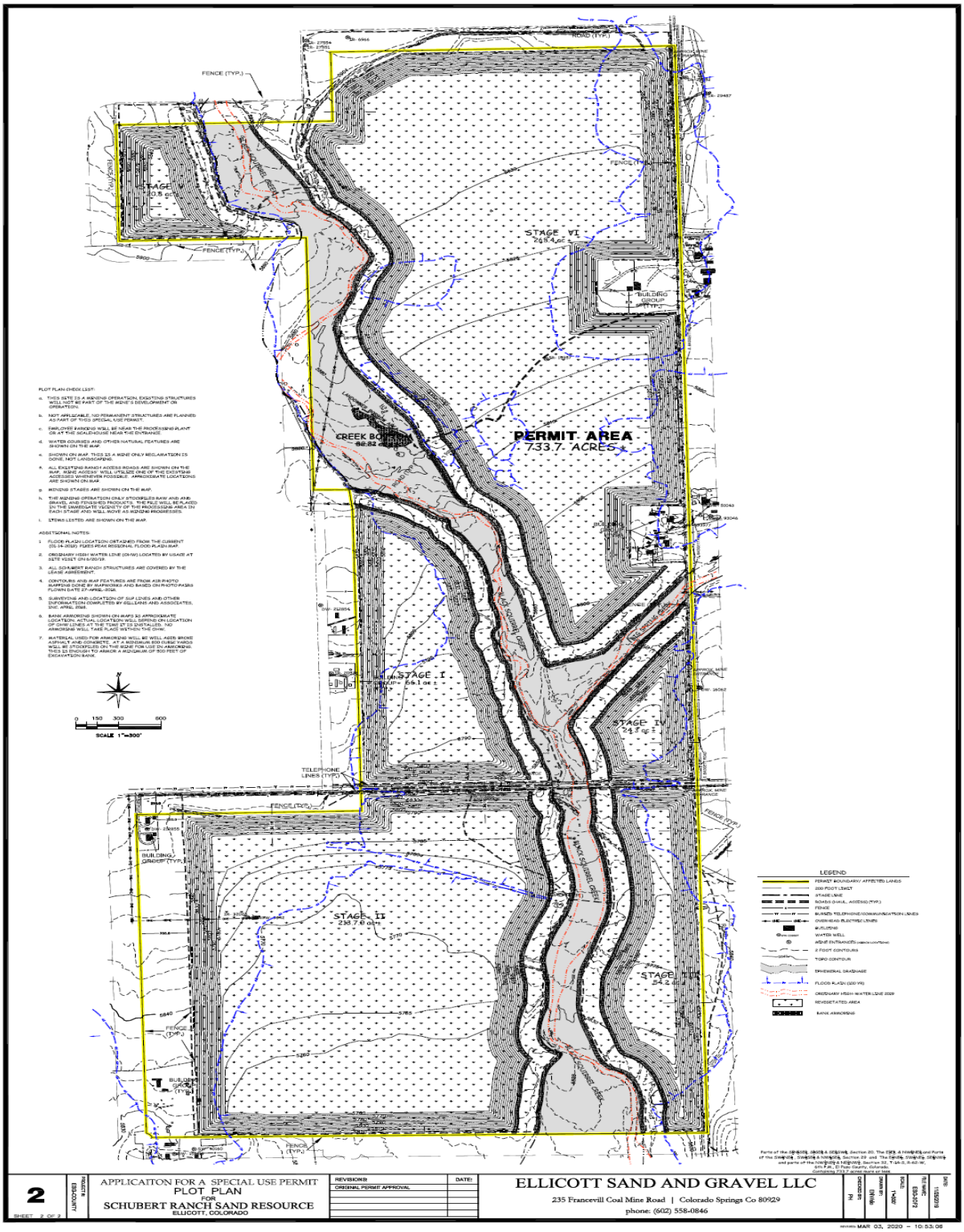


Parts of the NE¼NE¼, SE¼NE¼ & S½S½W½, Section 20, The E½E½ & NW¼SE¼ and Parts of the SW¼SW¼, S½NW¼ & NW¼SW¼, Section 29 and The E½NE¼, S½SE¼ and parts of the NW¼NW¼ & N½SW¼, Section 32, T-14-S, R-62-W, 6th P.M., El Paso County, Colorado.
Containing 733.7 acres more or less.

1 SHEET 1 OF 2	APPLICAITON FOR A USE BY SPECIAL REVIEW FOR SCHUBERT RANCH SAND RESOURCE SANBORN ROAD ELLICOTT, COLORADO	REVISIONS: ORIGINAL PERMIT APPROVAL	DATED	ELLICOTT SAND AND GRAVEL LLC 235 Francevill Coal Mine Road | Colorado Springs Co 80929 phone: (602) 558-0846	DRAWN BY: DH	SCALE: 1"=200'	DATE: 11/26/18

Plot Plan Map

RPM, Inc.



Plot Plan Map, Post Reclamation

Attachment VI
Proofs of Notice

RPM, Inc.

Example Notice to Adjacent Property Owners within 500 Feet

November 22, 2019

To Whom It May Concern,

Re: Notice to Adjacent Property Owners Concerning the Request for Approval of a Site Development Plan to Allow a Minerals Extraction Operation, Proposed by Ellicott Sand & Gravel LLC, for the Schubert Ranch Sand Resource

Dear Property Owner,

1. This letter is being sent to you because Ellicott Sand & Gravel is proposing a land use project (A sand and gravel pit) in El Paso County at the referenced location (Please see item #3). This information is being provided to you prior to a submittal with the County. Please direct any questions on the proposal to the referenced contact in item #2. Prior to any public hearing on this proposal a notification of the time and place of the public hearing will be sent to the adjacent property owners by El Paso County Planning Department. At that time, you will be given the El Paso County contact information, the file number and an opportunity to respond either for, against or expressing no opinion in writing or in person at the public hearing for this proposal.

2. For questions specific to this project, please contact:
   Bruce Humphries
   Regulatory Permits Management, Inc.
   25049 E. Alder Drive, Aurora CO 80016
   Hlhumphries2@comcast.net

3. Site Address, Size and Zoning:
   - 1555 S. Baggett Rd., Calhan, CO 80808, 2,122.98 acres, zoned A-35
   - 1550 S. Baggett Rd., Calhan, CO 80808, 40.0 acres, zoned A-35
   - The actual size of the proposed mining operation will be 733.7 permitted acres, with 513.5 of those acres actually mined.

4. Request and Justification. (Please see the enclosed “Letter of Intent”).

5. Existing and proposed facilities, structures, roads, etc.
   The only existing structures are water wells, center point pivot irrigation, ranch roads, fences, ranch building and other related structures.

RPM, Inc.

No new structures or roads are proposed. A driveway (mine access) will be constructed onto Schubert Road. From Schubert Road, mine traffic will use Baggett Road.

6. Waiver requests and justification.
   We are not requesting a waiver.

7. Vicinity Map showing the adjacent property owners.
   A Vicinity Map is enclosed with this Notice package.

Respectfully,

H. Bruce Humphries
Regulatory Permits Management, Inc.
Consultant for Ellicott Sand & Gravel LLC
(El Paso County application)

RPM, Inc.

Mailing List for Property Owners

12/10/2019, Notices Mailed 12-30-2019

Green cards and undeliverable as of 3-3-2020

Within 500 feet of the Shubert Ranch LLC Property

Parcel Numbers: 2400000276 & 2400000275

Parcel Number	Green Card Rec	Owner Name Mailing Address
2429001025	Y	Michael E., and Rhonda K. Hoyle 25250 Sanborn Rd., Calhan, CO 80808
2429001024		Ricky D., and Sandra J. Yates 25170 Sanborn Rd., Calhan, CO 80808
2429001023	Returned	Todd A. Rothschild 25090 Sanborn Rd., Calhan, CO 80808
2429001022	Y	Gregory A. Tayson 25010 Sanborn Rd., Calhan, CO 80808
2400000232	Y	Doris J. Hays 24975 Sanborn Rd., Calhan, CO 80808
2400000177	Y	Benjamin & Makinsey Vallejo 2755 E. Ellicott Rd., Calhan, CO 80808
2400000194	Returned	Ariesky V. Rodriguez & De Andres Yorniel Ariel Loriga 24820 Meier Rd., Calhan, CO 80808
2400000214	Y	Jefferson Lopez 3255 Wiesner Rd., Calhan, CO 80808
2400000197	Returned	Vanessa L.W. King 3315 Wiesner Rd., Calhan, CO 80808
2400000215	Y	James W. & Melissa L. Wright 3365 Wiesner Rd., Calhan, CO 80808
2400000198	Returned	Ricardo & Martha Ventura 1409 Yellow Tail Dr., Colorado Springs, CO 80921

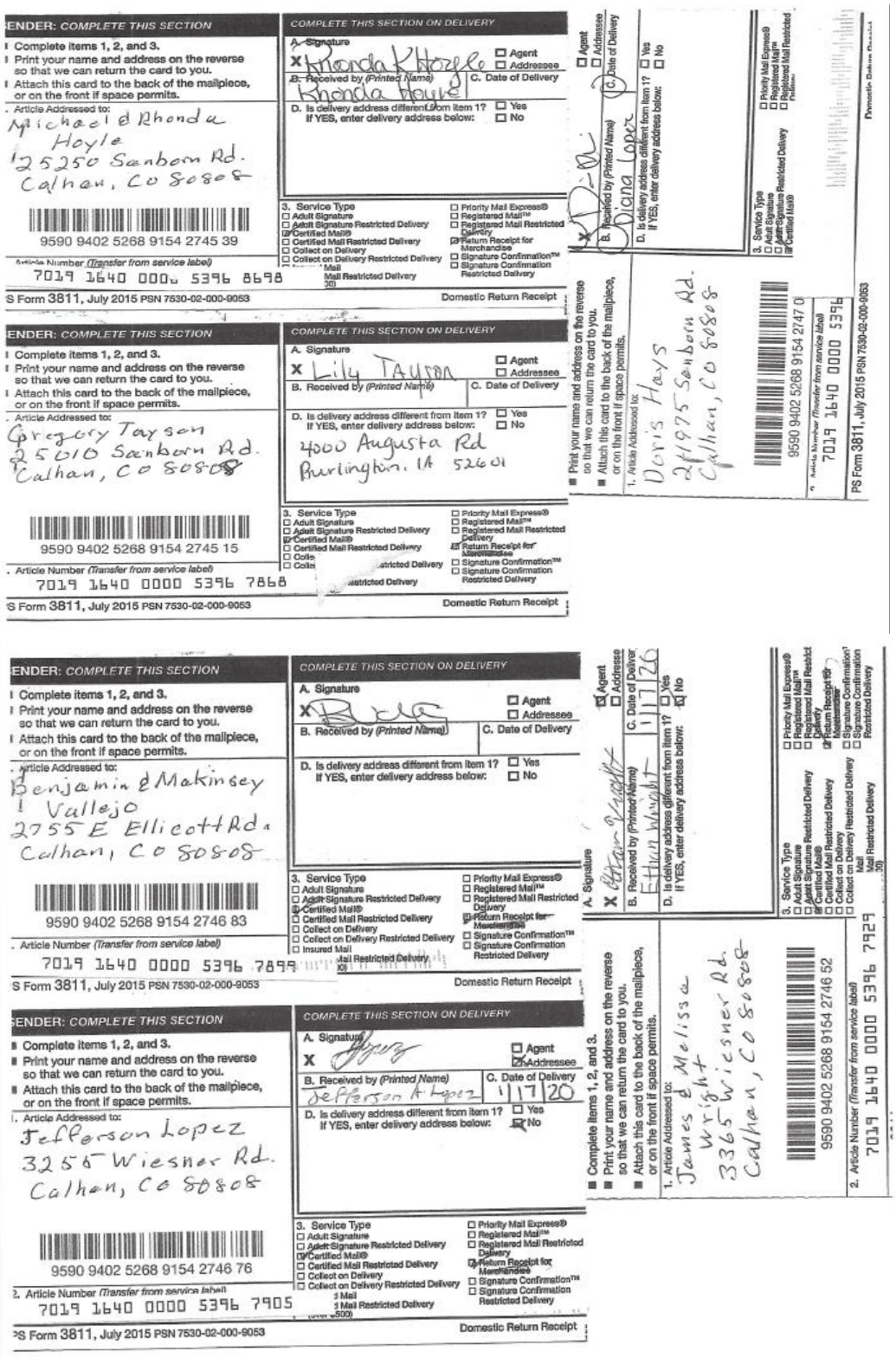
2400000035	Y	State of Colorado, Board of Land Commissioners 1313 Sherman St., Suite 620 Denver, CO 80203
2400000210	Y	State of Colorado, Board of Land Commissioners 1313 Sherman St., Suite 620 Denver, CO 80203
2400000254	Y	Steven C.E. & Sheryl F. Gallegos 26205 Sanborn Rd., Calhan, CO 80808
2400000255	Y	Reynaldo L. Benavides 26505 Sanborn Rd., Calhan, CO 80808
2400000256	Y	Paul K. King Jr. 26705 Sanborn Rd., Calhan CO 80808
2500000027	Y	State of Colorado, Board of Land Commissioners 1313 Sherman St., Suite 620 Denver, CO 80203
2400000249	Y	Schubert Ranches, Inc. 1555 S. Baggett Rd., Calhan, CO 80808
2400000188	Y	Timothy A. & Emily M. McKesson 27055 Handle Rd., Calhan, CO 80808
2400000275	Y	George H. Schubert 1550 Baggett Rd., Calhan, CO 80808
2400000276	Y	Schubert Ranches, Inc. 1550 S. Baggett Rd., Calhan, CO 80808
2400000278	Y	MW Panel Tech, LLC 3417 Ranch House Rd., Weatherford, TX 76087
2400000048	Y	Mildred J. Duncan P.O. Box 1057, Ft. Benton, MT 59442
2429001005	Returned	Danny J. Unruh 25050 Impala Cir., Calhan, CO 80808
2429001006	Y	Alex Harris 1375 N. Ellicott Hwy, Calhan, CO 80808
2429001007	Y	Donald D. Eggleston 25130 Impala Cir., Calhan, CO 80808
2429001008	Y	Edwin S. & Darice Bjorkvist 25160 Impala Cir., Calhan, CO 80808
2429001009	Y	Lee & Jimmie Meinzer 25190 Impala Cir., Calhan, CO 80808
2400000187	Y	Shelby & Kyle Miller 1245 Dustrude Ln., Calhan, CO 80808
2400000133	Y	State of Colorado 633 17th St., Suite 1520, Denver, CO 80202

2400000164	Y	State of Colorado, Board of Land Commissioners 1313 Sherman St., Suite 621 Denver, CO 80203
2400000172	Y	Everett Handle, Trustee 26200, Handle Rd., Calhan, CO 80808
2400000174	Returned	Nereida R. Perez 20521 SW 124 Ct., Miami, FL 33177
2429001004	Returned	Impala Circle, LLC, 25020 Impala Cir., Calhan, CO 80808
719-683-4180	Y	Ellicott Metropolitan Dist., Attn: Marnie Pagan, President 322 S Ellicott Highway Calhan, CO 80808
		Black Squirrel creek Ground Water District Attn: Dave Doran, President, PO Box 428 Calhan, CO 80808 1500 8th St.

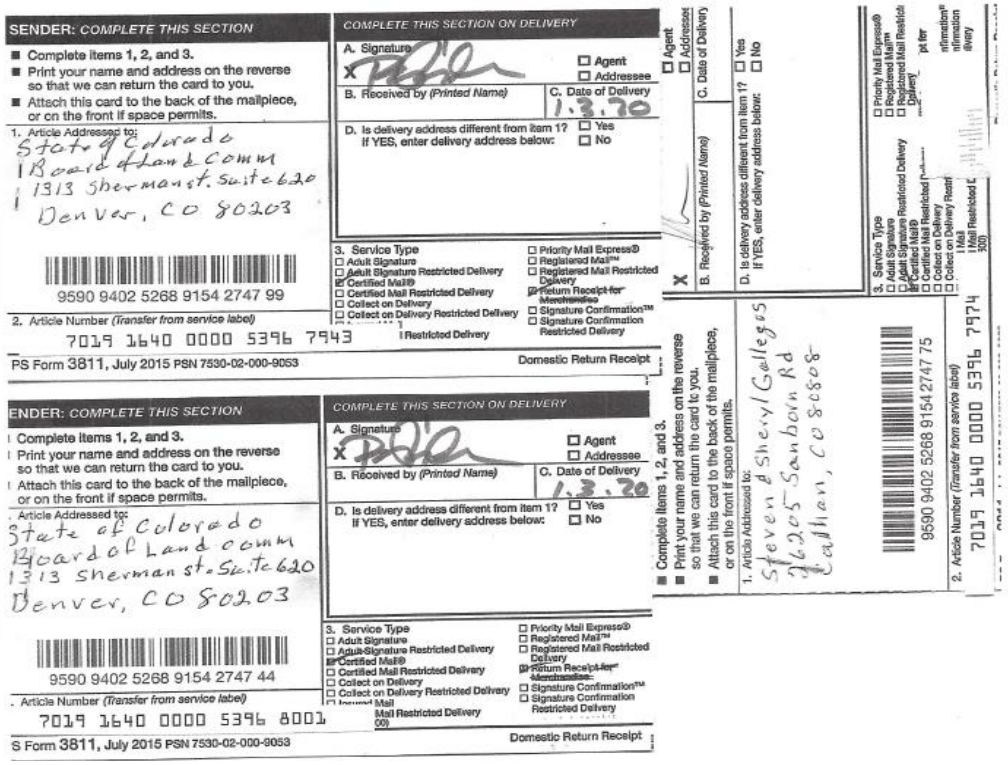
Orange – no returned envelope or green card.

RPM, Inc.

Green Cards



RPM, Inc.



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
State of Colorado
Board of Land & Comm
1313 Sherman St. Suite 620
Denver, CO 80203

9590 9402 5268 9154 2747 99

2. Article Number (Transfer from service label)
7019 1640 0000 5396 7943

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name)
C. Date of Delivery
1.3.20

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☑ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
State of Colorado
Board of Land comm
1313 Sherman st. Suite 620
Denver, CO 80203

9590 9402 5268 9154 2747 44

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8001

S Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

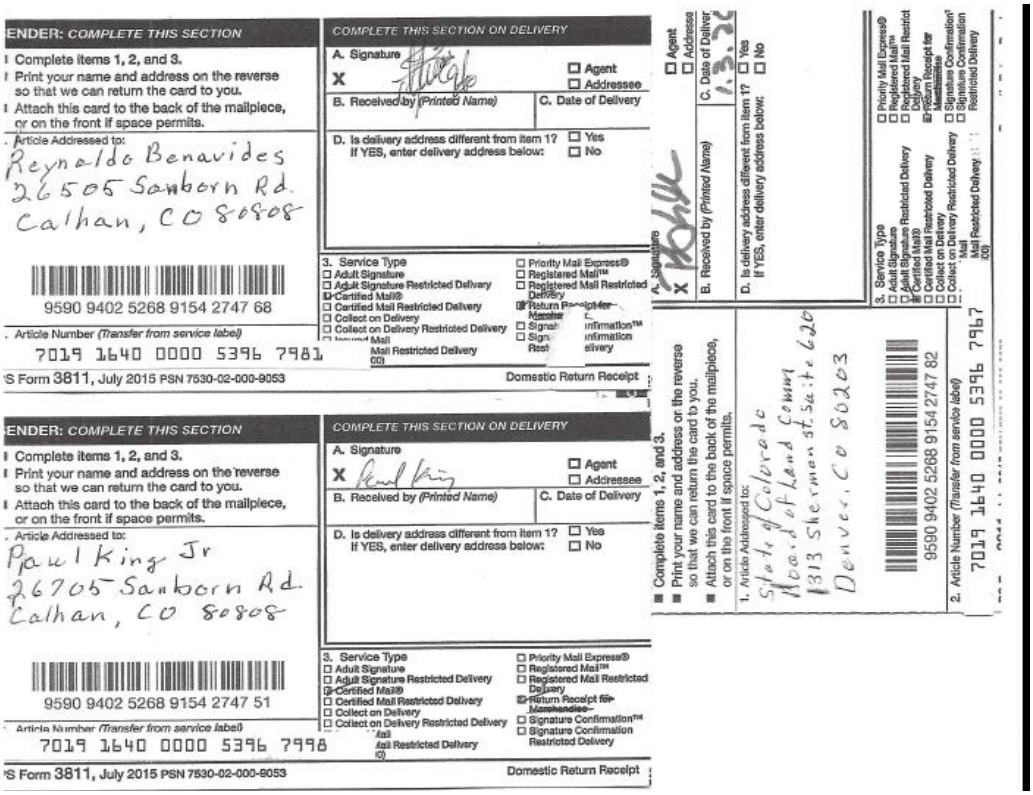
COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name)
C. Date of Delivery
1.3.20

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☑ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Reynaldo Benavides
26505 Sanborn Rd.
Calhan, CO 80808

9590 9402 5268 9154 2747 68

2. Article Number (Transfer from service label)
7019 1640 0000 5396 7981

S Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name)
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☑ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Paul King Jr
26705 Sanborn Rd.
Calhan, CO 80808

9590 9402 5268 9154 2747 51

2. Article Number (Transfer from service label)
7019 1640 0000 5396 7998

S Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

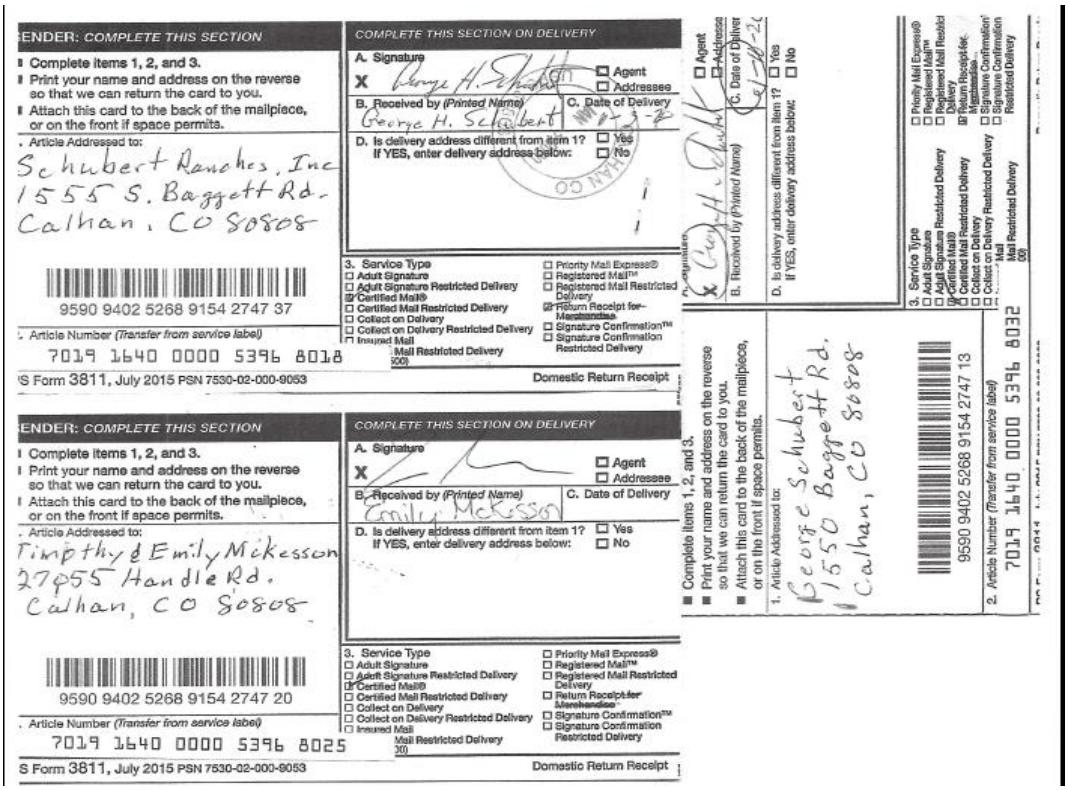
A. Signature
X
☐ Agent
☐ Addressee

B. Received by (Printed Name)
C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☑ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

RPM, Inc.



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Schubert Ranches, Inc
1555 S. Baggett Rd.
Calhan, CO 80808

9590 9402 5268 9154 2747 37

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8018

S Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X George H. Schubert — Agent / Addressee

B. Received by (Printed Name) George H. Schubert — C. Date of Delivery 1-2-19

D. Is delivery address different from item 1? Yes / No
If YES, enter delivery address below:

3. Service Type
Adult Signature / Adult Signature Restricted Delivery / Certified Mail® / Certified Mail Restricted Delivery / Collect on Delivery / Collect on Delivery Restricted Delivery / Insured Mail / Mail Restricted Delivery
Priority Mail Express® / Registered Mail™ / Registered Mail Restricted Delivery / Return Receipt for Merchandise / Signature Confirmation™ / Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Timothy & Emily Mickesson
27055 Handle Rd.
Calhan, CO 80808

9590 9402 5268 9154 2747 20

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8025

S Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X — Agent / Addressee

B. Received by (Printed Name) Emily Mickesson — C. Date of Delivery

D. Is delivery address different from item 1? Yes / No
If YES, enter delivery address below:

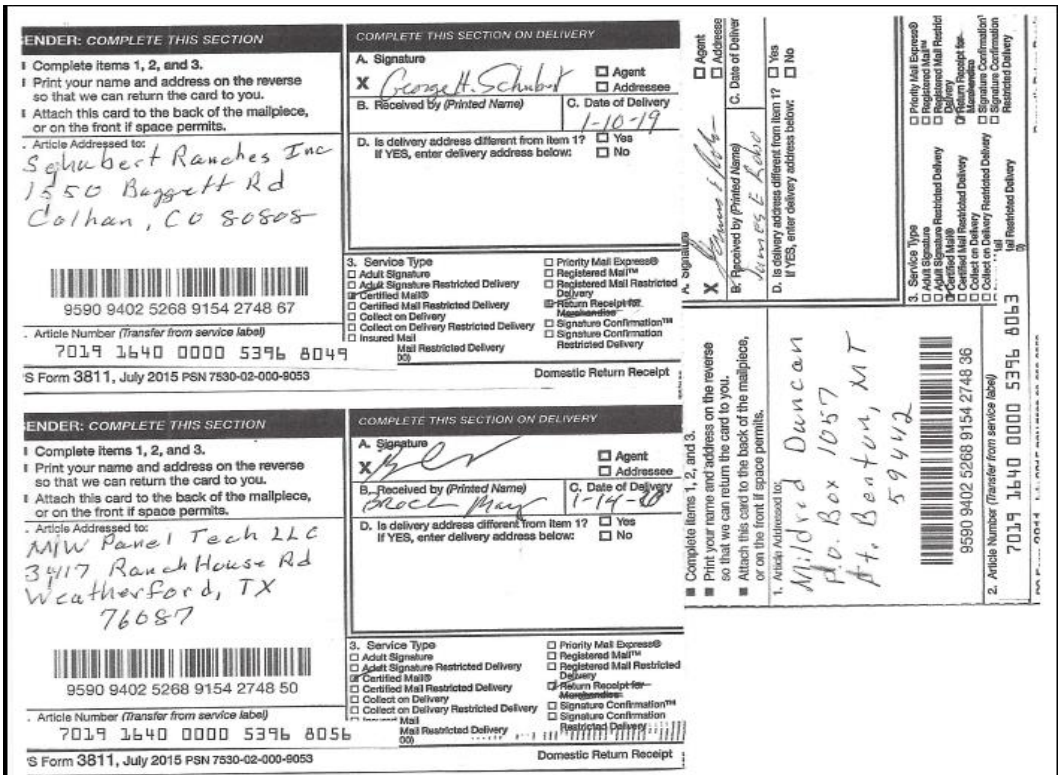
3. Service Type
Adult Signature / Adult Signature Restricted Delivery / Certified Mail® / Certified Mail Restricted Delivery / Collect on Delivery / Collect on Delivery Restricted Delivery / Insured Mail / Mail Restricted Delivery
Priority Mail Express® / Registered Mail™ / Registered Mail Restricted Delivery / Return Receipt for Merchandise / Signature Confirmation™ / Signature Confirmation Restricted Delivery

Complete items 1, 2, and 3.
Print your name and address on the reverse so that we can return the card to you.
Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
George Schubert
1550 Baggett Rd.
Calhan, CO 80808

9590 9402 5268 9154 2747 13

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8032



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Schubert Ranches Inc
1550 Baggett Rd
Calhan, CO 80808

9590 9402 5268 9154 2748 67

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8049

S Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X George H. Schubert — Agent / Addressee

B. Received by (Printed Name) — C. Date of Delivery 1-10-19

D. Is delivery address different from item 1? Yes / No
If YES, enter delivery address below:

3. Service Type
Adult Signature / Adult Signature Restricted Delivery / Certified Mail® / Certified Mail Restricted Delivery / Collect on Delivery / Collect on Delivery Restricted Delivery / Insured Mail / Mail Restricted Delivery
Priority Mail Express® / Registered Mail™ / Registered Mail Restricted Delivery / Return Receipt for Merchandise / Signature Confirmation™ / Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
MW Panel Tech LLC
3417 Ranch House Rd
Weatherford, TX
76087

9590 9402 5268 9154 2748 50

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8056

S Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X — Agent / Addressee

B. Received by (Printed Name) — C. Date of Delivery 1-14-19

D. Is delivery address different from item 1? Yes / No
If YES, enter delivery address below:

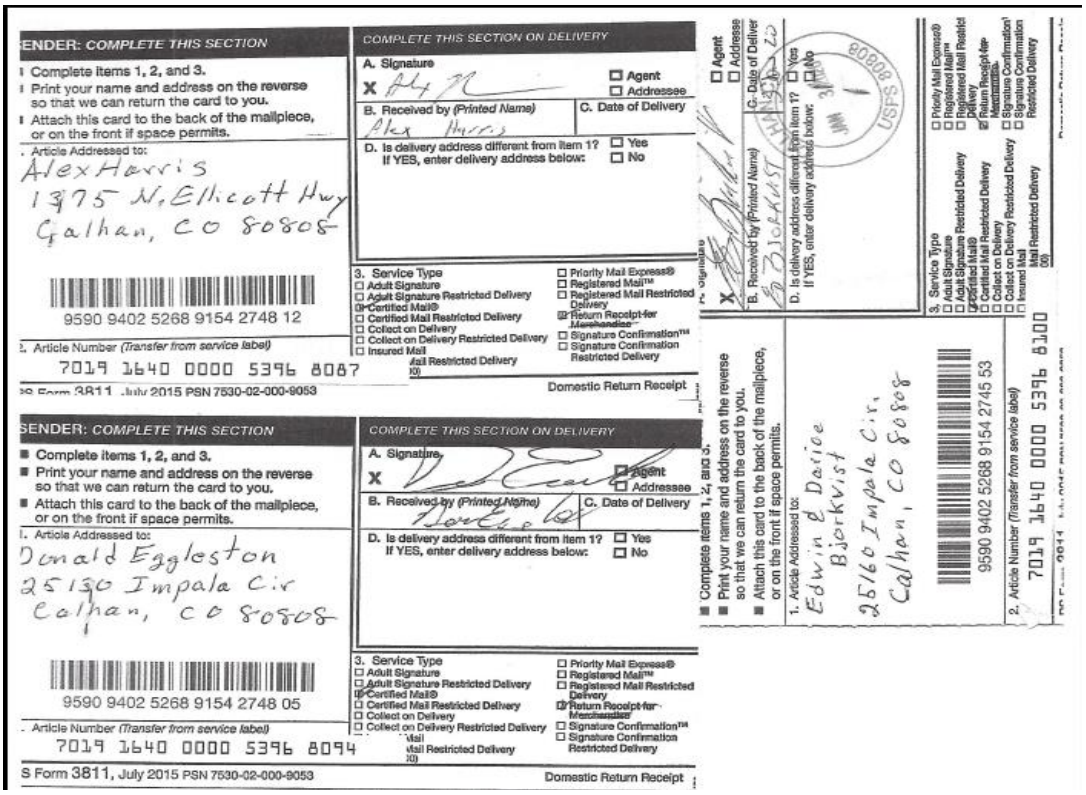
3. Service Type
Adult Signature / Adult Signature Restricted Delivery / Certified Mail® / Certified Mail Restricted Delivery / Collect on Delivery / Collect on Delivery Restricted Delivery / Insured Mail / Mail Restricted Delivery
Priority Mail Express® / Registered Mail™ / Registered Mail Restricted Delivery / Return Receipt for Merchandise / Signature Confirmation™ / Signature Confirmation Restricted Delivery

Complete items 1, 2, and 3.
Print your name and address on the reverse so that we can return the card to you.
Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Mildred Duncan
P.O. Box 1057
Ft. Benton, MT
59442

9590 9402 5268 9154 2748 36

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8063



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Alex Harris
1375 N. Ellicott Hwy
Calhan, CO 80808

9590 9402 5268 9154 2748 12

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8087

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature — Agent / Addressee

B. Received by (Printed Name) — C. Date of Delivery

D. Is delivery address different from item 1? Yes / No
If YES, enter delivery address below:

3. Service Type
Adult Signature / Adult Signature Restricted Delivery / Certified Mail® / Certified Mail Restricted Delivery / Collect on Delivery / Collect on Delivery Restricted Delivery / Insured Mail / Mail Restricted Delivery
Priority Mail Express® / Registered Mail™ / Registered Mail Restricted Delivery / Return Receipt for Merchandise / Signature Confirmation™ / Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Donald Eggleston
25130 Impala Cir
Calhan, CO 80808

9590 9402 5268 9154 2748 05

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8094

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature — Agent / Addressee

B. Received by (Printed Name) — C. Date of Delivery

D. Is delivery address different from item 1? Yes / No
If YES, enter delivery address below:

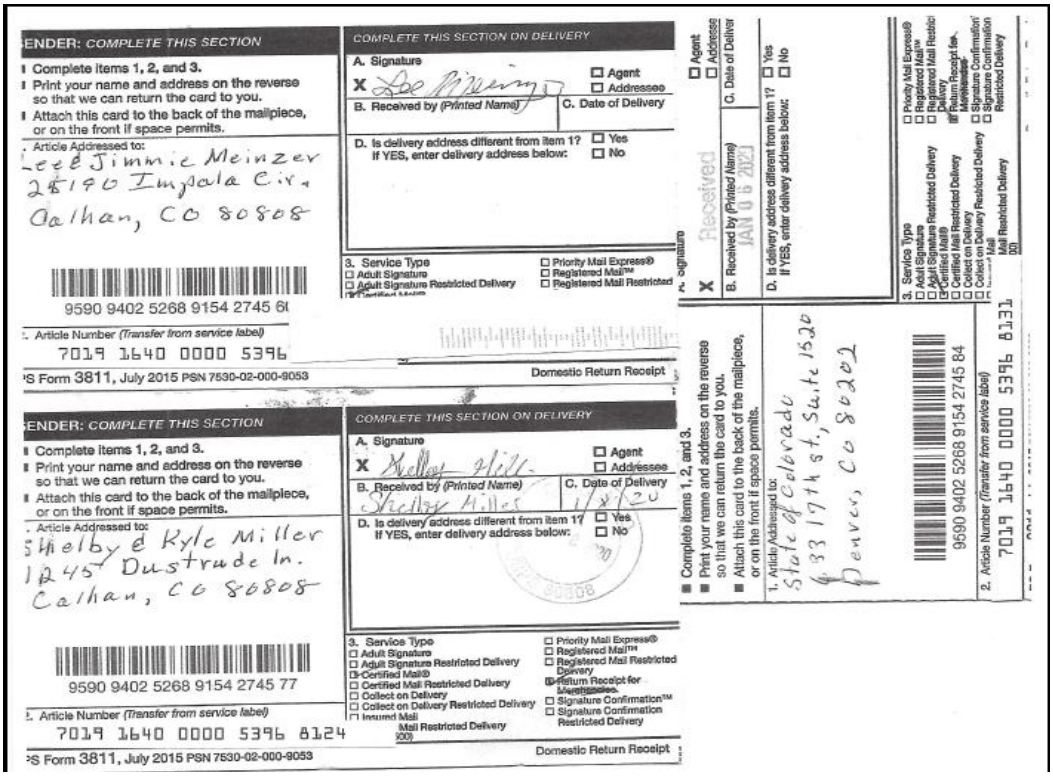
3. Service Type
Adult Signature / Adult Signature Restricted Delivery / Certified Mail® / Certified Mail Restricted Delivery / Collect on Delivery / Collect on Delivery Restricted Delivery
Priority Mail Express® / Registered Mail™ / Registered Mail Restricted Delivery / Return Receipt for Merchandise / Signature Confirmation™ / Signature Confirmation Restricted Delivery

Complete items 1, 2, and 3.
Print your name and address on the reverse so that we can return the card to you.
Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Edwin & Darice Bjorkvist
25160 Impala Cir.
Calhan, CO 80808

9590 9402 5268 9154 2745 53

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8100



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Lee & Jimmie Meinzer
25190 Impala Cir.
Calhan, CO 80808

9590 9402 5268 9154 2745 6(

2. Article Number (Transfer from service label)
7019 1640 0000 5396

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature — Agent / Addressee

B. Received by (Printed Name) — C. Date of Delivery

D. Is delivery address different from item 1? Yes / No
If YES, enter delivery address below:

3. Service Type
Adult Signature / Adult Signature Restricted Delivery / Certified Mail®
Priority Mail Express® / Registered Mail™ / Registered Mail Restricted

Received JAN 06 2023

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Shelby & Kyle Miller
1245 Dustrude Ln.
Calhan, CO 80808

9590 9402 5268 9154 2745 77

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8124

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature — Agent / Addressee

B. Received by (Printed Name) — C. Date of Delivery

D. Is delivery address different from item 1? Yes / No
If YES, enter delivery address below:

3. Service Type
Adult Signature / Adult Signature Restricted Delivery / Certified Mail® / Certified Mail Restricted Delivery / Collect on Delivery / Collect on Delivery Restricted Delivery / Insured Mail / Mail Restricted Delivery
Priority Mail Express® / Registered Mail™ / Registered Mail Restricted Delivery / Return Receipt for Merchandise / Signature Confirmation™ / Signature Confirmation Restricted Delivery

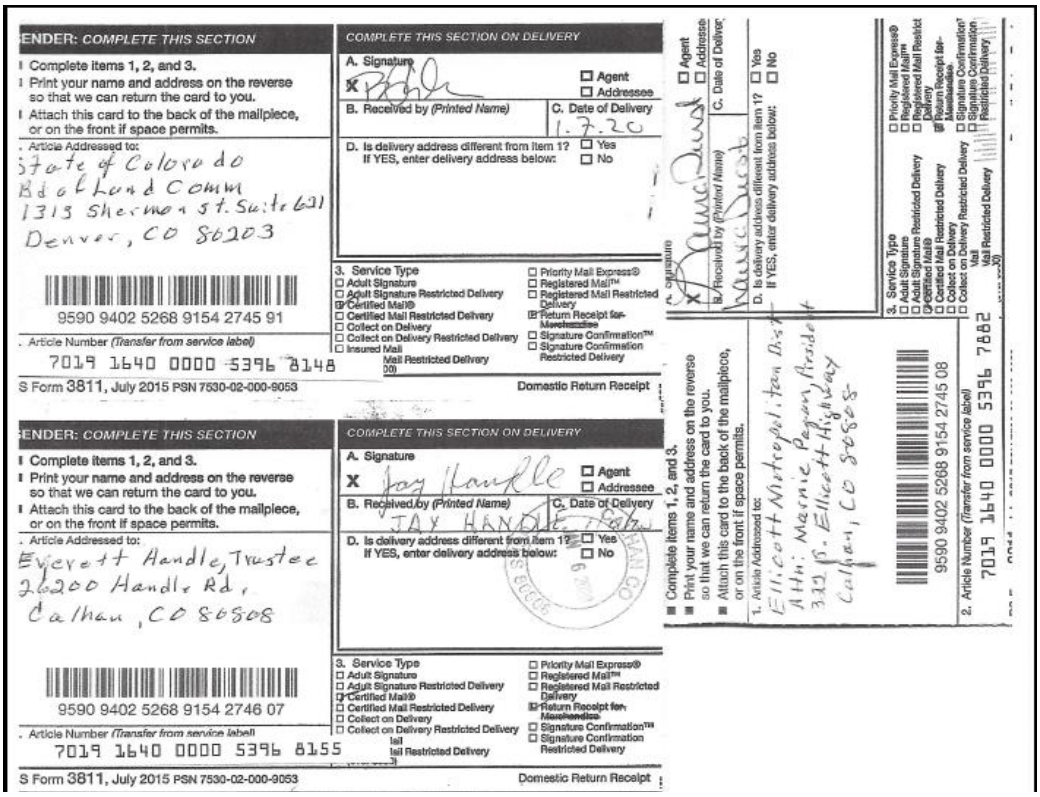
Complete items 1, 2, and 3.
Print your name and address on the reverse so that we can return the card to you.
Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
State of Colorado
633 17th St, Suite 1530
Denver, Co 80202

9590 9402 5268 9154 2745 84

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8131

RPM, Inc.



ENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
State of Colorado
Bd of Land Comm
1313 Sherman St. Suite 621
Denver, CO 80203

9590 9402 5268 9154 2745 91

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8148

S Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery
1.7.20

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☑ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

ENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Everett Handle, Trustee
26200 Handle Rd,
Calhan, CO 80808

9590 9402 5268 9154 2746 07

2. Article Number (Transfer from service label)
7019 1640 0000 5396 8155

S Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Jay Handle ☐ Agent ☐ Addressee

B. Received by (Printed Name) JAY HANDLE | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☑ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Ellicott Metropol. Fire Dist
Attn: Marnie Pagan, President
322 S. Ellicott Highway
Calhan, CO 80808

9590 9402 5268 9154 2745 08

2. Article Number (Transfer from service label)
7019 1640 0000 5396 7882

RPM, Inc.

7018 0680 0000 5810 6707

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

CALHAN, CO 80808

OFFICIAL USE

Certified Mail Fee $3.50

$ $2.80 0303 06

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ $0.00
- ☐ Return Receipt (electronic) $ $0.00
- ☐ Certified Mail Restricted Delivery $ $0.00
- ☐ Adult Signature Required $ $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $1.30

Postmark Here — DEC 30 2019 — 12/30/2019

Total Postage and Fees $7.60

Sent To: BK Squirrel Cr Grnd Water Dist

Street and Apt. No., or PO Box No.: Attn Doran P.O.B. 425 / 1500 5th st

City, State, ZIP+4®: Calahan CO 80808

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 1640 0000 5396 7936

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

COLORADO SPRINGS, CO 80921

OFFICIAL USE

Certified Mail Fee $3.50

$ $2.80 0303 06

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ $0.00
- ☐ Return Receipt (electronic) $ $0.00
- ☐ Certified Mail Restricted Delivery $ $0.00
- ☐ Adult Signature Required $ $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $1.30

Postmark Here — DEC 30 2019 — 12/30/2019

Total Postage and Fees $7.60

Sent To: R & M Ventura

Street and Apt. No., or PO Box No.: 1409 Yellow Tail Dr

City, State, ZIP+4®: Colo Spring 80921

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 1640 0000 5396 8179

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

CALHAN, CO 80808

OFFICIAL USE

Certified Mail Fee $3.50

$ $2.80 0303 06

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ $0.00
- ☐ Return Receipt (electronic) $ $0.00
- ☐ Certified Mail Restricted Delivery $ $0.00
- ☐ Adult Signature Required $ $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $1.30

Postmark Here — DEC 30 2019 — 12/30/2019

Total Postage and Fees $7.60

Sent To: A Rodriguez & D Loriga

Street and Apt. No., or PO Box No.: 24870 Meier Rd

City, State, ZIP+4®: Calhan CO 80808

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 1640 0000 5396 8070

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

CALHAN, CO 80808

OFFICIAL USE

Certified Mail Fee $3.50

$ $2.80 0303 06

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ $0.00
- ☐ Return Receipt (electronic) $ $0.00
- ☐ Certified Mail Restricted Delivery $ $0.00
- ☐ Adult Signature Required $ $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $1.30

Postmark Here — DEC 30 2019 — 12/30/2019

Total Postage and Fees $7.60

Sent To: D Unruh

Street and Apt. No., or PO Box No.: 23050 Impala Cir

City, State, ZIP+4®: Calhan 80808

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 1640 0000 5396 7851

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

CALHAN, CO 80808

OFFICIAL USE

Certified Mail Fee $3.50

$ $2.80 0303 06

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ $0.00
- ☐ Return Receipt (electronic) $ $0.00
- ☐ Certified Mail Restricted Delivery $ $0.00
- ☐ Adult Signature Required $ $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $1.30

Postmark Here — DEC 30 — 12/30/2019

Total Postage and Fees $7.60

Sent To: T Rothschild

Street and Apt. No., or PO Box No.: 23090 Sanborn Rd

City, State, ZIP+4®: Calhan 80808

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7019 1640 0000 5396 7844

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

CALHAN, CO 80808

OFFICIAL USE

Certified Mail Fee $3.50

$ $2.80 0303 06

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ $0.00
- ☐ Return Receipt (electronic) $ $0.00
- ☐ Certified Mail Restricted Delivery $ $0.00
- ☐ Adult Signature Required $ $0.00
- ☐ Adult Signature Restricted Delivery $

Postage $1.30

Postmark Here — DEC 30 2019 — 12/30/2019

Total Postage and Fees $7.60

Sent To: R & S Yates

Street and Apt. No., or PO Box No.: 26170 Sanborn Rd

City, State, ZIP+4®: ~~Colorado~~ Calhan 80808

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

RPM, Inc.

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

7019 1640 0000 5396 8193

CALHAN, CO 80808

OFFICIAL USE

Certified Mail Fee	$3.50
Extra Services & Fees (check box, add fee as appropriate)	$2.80
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.30
Total Postage and Fees	$7.60

0303
06

Postmark Here

DEC 30 2019

12/30/2019

Sent To: Impala Circle LLC
Street and Apt. No., or PO Box No.: 25020 Impala Circle
City, State, ZIP+4®:

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

7019 1640 0000 5396 8162

MIAMI, FL 33177

OFFICIAL USE

Certified Mail Fee	$3.50
Extra Services & Fees (check box, add fee as appropriate)	$2.80
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.30
Total Postage and Fees	$7.60

0303
06

Postmark Here

DEC 30 2019

12/30/2019

Sent To: N Perez
Street and Apt. No., or PO Box No.: 20521 SW 124 ct
City, State, ZIP+4®: Miami, FL 33177

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

7019 1640 0000 5396 7912

CALHAN, CO 80808

OFFICIAL USE

Certified Mail Fee	$3.50
Extra Services & Fees (check box, add fee as appropriate)	$2.80
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$1.30
Total Postage and Fees	$7.60

0303
06

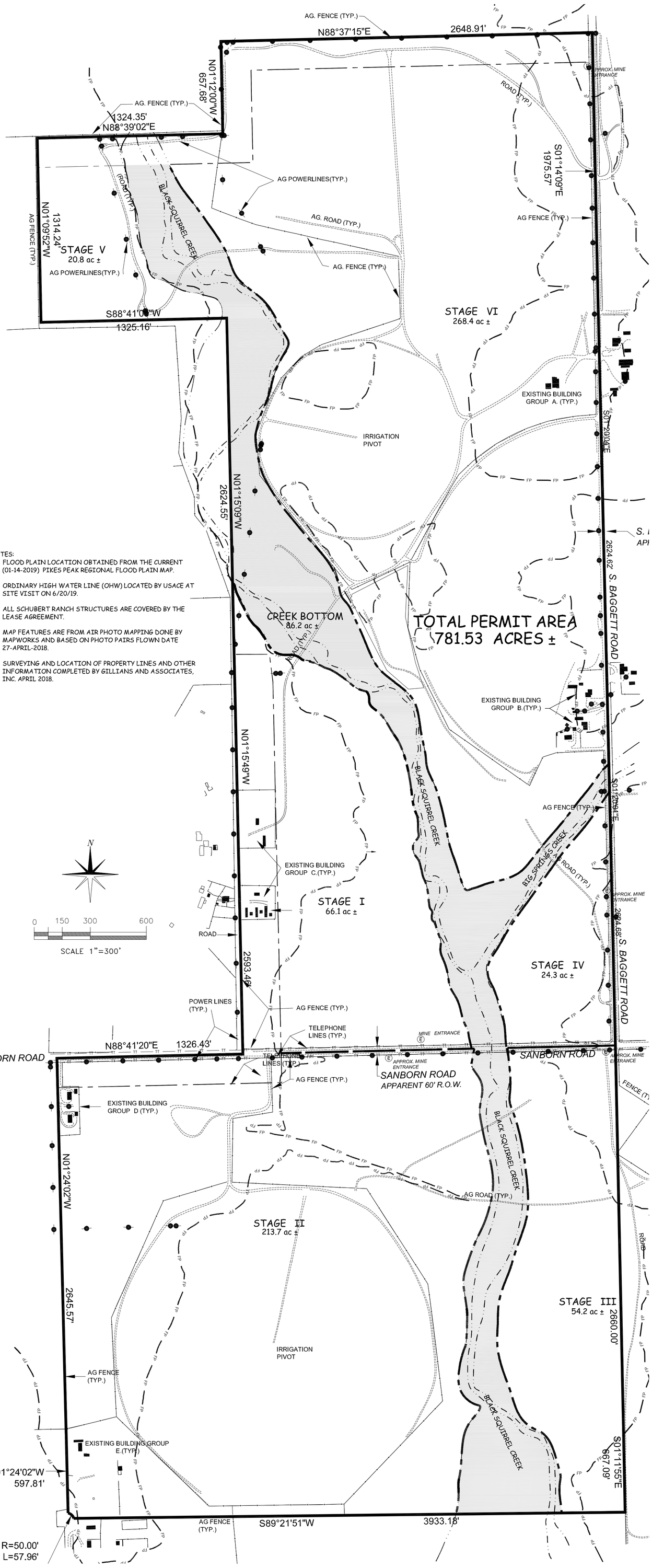
Postmark Here

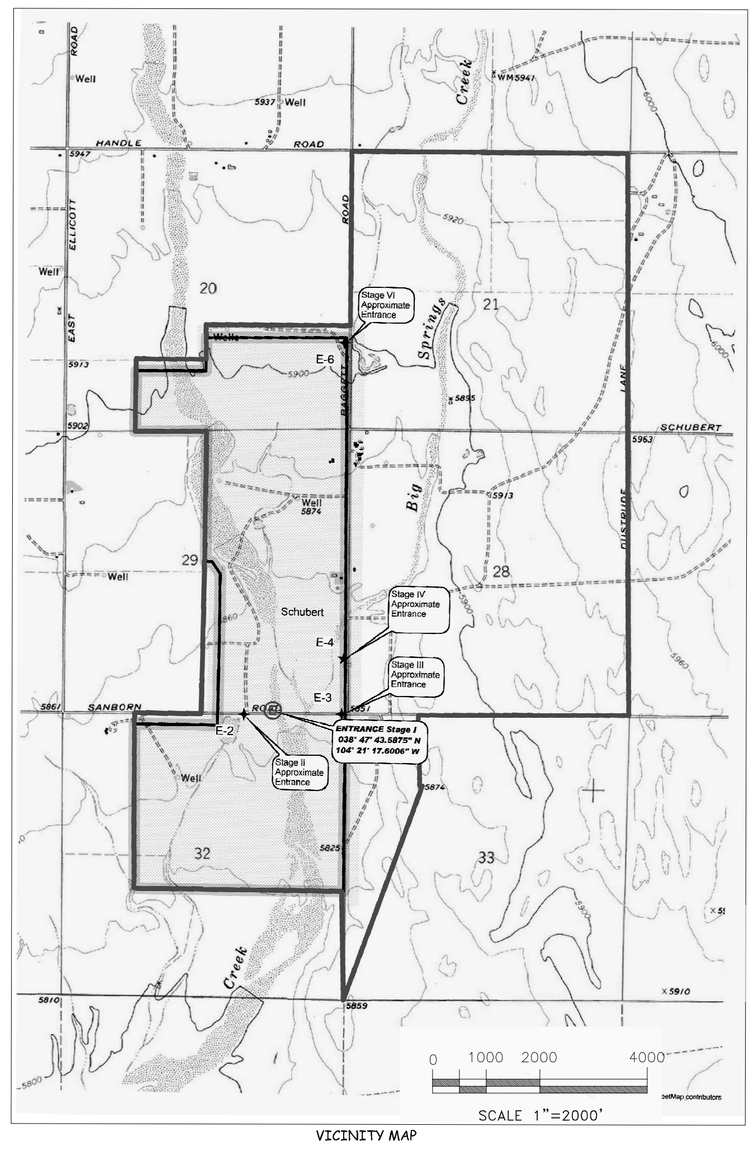
DEC 30 2019

12/30/2019

Sent To: V King
Street and Apt. No., or PO Box No.: 3315 Wiesner Rd
City, State, ZIP+4®: Calhan 80808

SITE DEVELOPMENT PLAN AND USE BY SPECIAL USE - EA#1881 - FILE # AL 2014
ELLICOTT SAND AND GRAVEL LLC





VICINITY MAP

NOTES:
1. FLOOD PLAIN LOCATION OBTAINED FROM THE CURRENT (01-14-2019) PIKES PEAK REGIONAL FLOOD PLAIN MAP.
2. ORDINARY HIGH WATER LINE (OHW) LOCATED BY USACE AT SITE VISIT ON 6/20/19.
3. ALL SCHUBERT RANCH STRUCTURES ARE COVERED BY THE LEASE AGREEMENT.
4. MAP FEATURES ARE FROM AIR PHOTO MAPPING DONE BY MAPWORKS AND BASED ON PHOTO PAIRS FLOWN DATE 27-APRIL-2018.
5. SURVEYING AND LOCATION OF PROPERTY LINES AND OTHER INFORMATION COMPLETED BY GILLIANS AND ASSOCIATES, INC. APRIL 2018.

Parts of the S½N½SE¼, S½SE¼ & SE¼SW¼, Section 20. The E½E½, & NW¼NE¼ and Parts of the SW¼NE¼ , SW¼SE¼ & NW¼SE¼, Section 29 and The E½NE¼, SW¼NE¼, SE¼NW¼ and parts of the NW¼NE¼ & NE¼NW¼, Section 32, T-14-S, R-62-W, 6th P.M., El Paso County, Colorado.
Containing 733.7 acres more or less.

NOTES:

ITEMS ON THE SITE DEVELOPMENT CHECK LIST ARE ADDRESSES BELOW. IF NO REFERENCE IS MADE TO AN ITEM IT IS SHOWN ON THE MAP.

A - GRADING CONCEPT
NATURAL SURFACE DRAINAGE OF THE AREA FLOWS TOWARDS THE SOUTH. THE SURFACE SOILS HAVE BEEN CONTOURED OVER THE YEARS OF AGRICULTURAL USE TO SLOPE TOWARDS THE UPPER BLACK SQUIRREL CREEK THAT BISECTS THE CENTER OF THE SITE. THEREFORE, THE SURFACE RUNOFF APPEARS TO RUN DOWNHILL FROM THE PROJECT LIMITS TO THE CENTER AND THE IN A SOUTHERLY DIRECTION ALONG BLACK SQUIRREL CREEK. AS MINING PROGRESSES ALL SURFACE FLOWS WILL BE DIRECTED INTO THE EXCAVATED AREA AND LATER DISCHARGED ACCORDING TO THE APPROVED COLORADO POLLUTION DISCHARGE SYSTEM PERMIT (CDPS) IF THE NEED ARISES. ONCE THE EXCAVATED AREAS ARE RECLAIMED, THE SAME SLOPING PLAN WILL BE RETAINED TO PROTECT OFF SITE AREAS FROM STORMWATER DISCHARGES.

LOT GRADING OF THE RECLAIMED AREAS WILL GENERALLY FOLLOW THE NATURAL CONTOURS OF THE SITE. AROUND THE DEPRESSION CREATED BY MINING ALL SLOPES WILL BE DIRECTED INTO THE EXCAVATED AREAS TO PREVENT ANY STORM WATER DISCHARGE FROM LEAVING THE SITE UNTIL TREATED AS DISCUSSED ABOVE. THE ISOLATION DITCHES OR LOW BERMS WILL BE CONSTRUCTED AROUND ALL MINING AREAS TO DIRECT EXISTING STORM WATER AROUND THE DISTURBED AREAS IN THE SITE. THESE FACILITIES WILL BE RETAINED AS A POST RECLAMATION FEATURE.

B - DEVELOPMENT SCHEDULE
IF APPROVED, THE MINERAL EXTRACTION OPERATOR INTENDS TO BEGIN GRAVEL EXTRACTION IN 2021 AND CONTINUE FOR 45 TO 50 YEARS. THE ESTIMATE IS BASED ON NORMAL YEARS BUT THE TIME MAY CHANGE DEPENDING ON MARKET AND MATERIAL DEMANDS OVER THE LIFE OF THE MINE

C - PRIVATE MAINTENANCE & ENFORCEMENT
THE OWNERS OF THE LAND WILL BE RESPONSIBLE OF ALL MAINTENANCE OF AREAS NOT ASSOCIATED WITH THE MINING OPERATIONS FACILITIES. THEY WILL ALSO CONTROL THE ACCESS AND USE OF THE AREA NOT BEING MINED.

5 - EXISTING BUILDINGS
THERE ARE 5 BUILDING AREAS USED BUY THE LANDOWNER THESE WILL REMAIN AND WILL NOT BE DISTURBED BY MINING. THE EXISTING AGRICULTURAL BUILDING SHOWN ON THE MAP AND ARE MAINLY OWNER OR EMPLOYEE SINGLE FAMILY DWELLINGS OR OUT BUILDINGS, SHOP AND BARNS ASSOCIATE WITH NORMAL AGRICULTURAL PRACTICES .

BUILDING AREA	NUMBER OF BUILDINGS	HOUSE	OUTBUILDINGS	TOTAL SQUARE FOOTAGE
AREA A	2	1	1	4,760
AREA B	9	3	6	9,255
AREA C	9	4	5	6,570
AREA D	4	2	2	4,505
AREA E	3	1	2	3,110

5a - BUILDING HEIGHT
NO NEW BUILDINGS WILL BE BUILT AS PART OF THIS GRAVEL EXTRACTION OPERATION.

6 - SIDEWALKS
NOT APPLICABLE

8 - SIGNS
NOT APPLICABLE

9 - TRAFFIC CIRCULATION SYSTEMS
THE PRIMARY ACCESS POINT FOR EACH MINING STAGE IS SHOW IN THE MAP. EACH POINT WILL BE A SHARED INGRESS/EGRESS POINT FOR THAT STAGE. THE FIRST WILL BE FROM SANBORN ROAD NORTH INTO STAGE 1. THIS ACCESS WILL BE USED UNTIL MINING OPERATIONS END IN THAT STAGE. LIMITED ACCESS POINTS ARE LOCATED AROUND THE PERMIT AREA THAT PROVIDE ACCESS FOR AGRICULTURAL ACTIVITIES ASSOCIATED WITH THE SITE. IN THE FUTURE, THEY WILL BE USED THROUGHOUT THE LIFE THE THE MINING OPERATION FOR THE LANDOWNERS AGRICULTURAL USES.

WITHIN EACH STAGE A PLANTS SITE WILL BE DEVELOPED WHERE RAW MATERIALS ARE STOCKPILE. TRAFFIC PATTERS IN THIS AREA IS NOT REGULATED AS THE LAYOUT OF THE AREA CHANGES ON A REGULAR BASIS.

11 - PARKING
NOT APPLICABLE

12 - LIGHTING
NOT APPLICABLE

13 - WATER AND WASTEWATER INFRASTRUCTURE
NOT APPLICABLE

15 - DUMPSTERS & LOADING DOCKS
NOT APPLICABLE

16 - STANDARD PARKING DRIVEWAYS AND SIGNS
NOT APPLICABLE

17 - UTILITIES

ELECTRIC: MOUNTAIN VIEW ELECTRIC ASSOCIATION, INC.
TELEPHONE: CENTURY LINK
THE UTILITIES ARE ALREADY IN PLACE FOR THE MINING OPERATION. SHOWN ON MAP

18 - LAND USE AND ZONING.
THIS SITE IS PART OF A LARGER PARCEL ZONED A-35 AGRICULTURE AND IS CURRENTLY USED AS RURAL RESIDENTIAL, PASTURE, CROP LAND AND PORTIONS ARE A SOD FARMING OPERATION. THIS LAND USE WILL REMAIN UNCHANGED AS MINING MOVES FROM STAGE TO STAGE. WHERE MINING IS ACTIVELY BEING PURSUED THE LANDS WILL BE IN VARIOUS STAGES OF PRE-MINING, MINING OR RECLAIMED STATES LIMITED BY THE MINED LAND RECLAMATION PERMIT (M-2018-063) THAT DICTATES RECLAMATION REQUIREMENTS.

20 - LAND USE TABLE

LAND USE CATEGORY	ACRES	PERCENT	ZONING
MINING STAGES	647.5	82.9	A-35
EXISTING RESIDENTIAL	15.3	2.0	A-35
UNDISTURBED AREA	118.7	15.1	A-35
SITE DEVELOPMENT TOTALS	781.5	100%	

21 - DENSITY AND NUMBER OF DWELLING UNITS
NOT APPLICABLE

22 - COMPUTATION REQUIRED PARKING
NOT APPLICABLE

LEGEND

- PERMIT BOUNDARY/ AFFECTED LANDS
- 200 FOOT LIMIT
- ROADS (HAUL, ACCESS) (TYP.)
- FENCE
- BURIED TELEPHONE/COMMUNICATION LINES
- OVERHEAD ELECTRIC LINES
- BUILDING
- WATER WELL
- 2 FOOT CONTOURS
- TOPO CONTOUR
- EPHEMERAL DRAINAGE
- ORDINARY HIGH-WATER LINE (2019)
- FLOOD PLAIN (100 YR)
- LANDOWNER BANK ARMORING

1	PROJECT #: ESG-COUNTY	APPLICAITON FOR A USE BY SPECIAL REVIEW FOR SCHUBERT RANCH SAND RESOURCE, SANBORN ROAD, ELLICOTT, COLORADO	REVISIONS: / DATE:	ELLICOTT SAND AND GRAVEL LLC, 235 Francevill Coal Mine Road | Colorado Springs Co 80929, phone: (602) 558-0846	CHECKED BY: PH	DRAWN BY: ENV/slo	SCALE: 1"=400'	FILE NAME: ESG-1OF2	DATE: 5/13/2021

EL PASO COUNTY
COLORADO

Department of Public Works

Engineering Division
719-520-6460
Chuck Brown Transportation Complex
3275 Akers Drive
Colorado Springs, CO 80922
www.ElPasoCo.com

Board of County Commissioners
Holly Williams, District 1
Carrie Geitner, District 2
Stan VanderWerf, District 3
Longinos Gonzalez, Jr., District 4
Cami Bremer, District 5

RE: Ellicott Sand and Gravel (AL2014)

Additional Conditions of Approval:

1. EPC DPW will review annually and increase/decrease costs as necessary.
2. Traffic counters are required to be installed at points of access
3. Changes in Average Daily Traffic (ADT) will require an immediate review of the costs by EPC DPW.
4. Increase/decrease in road maintenance will require an immediate review of costs by EPC DPW.
5. All maintenance operations will be performed by EPC DPW crews.
6. Speed limit 30 MPH.
7. CDOT access permit at Baggett Rd and Highway 94.
8. Haul Route Agreement will determine how and when costs will be paid to EPC.

The following estimates and calculations are based on information provided in the Traffic Impact Study (TIS) V4 provided by LSC Transportation Consultants dated October 12, 2021. Information provided and used includes (but is not limited to):

- Projected mining schedule, Short and Long-term
- Proposed haul route and distance
- Estimated truck/trip counts

Estimated Annual Tonnage

	Year
0-3	4+
52 weeks/year	52 weeks/year
5 days/week	5 days/week
15 trucks/day	47 trucks/day
22 tons/truck	22 tons/truck
85,800 tons/year	**268,840 tons/year**

Annual Maintenance Cost (time/materials)

Effective distance – 3.25 miles
Reclamation with Gravel – $125,741.02 per mile = **$408,658.32 per year**
Reclamation – $16,229.41 per mile = **$52,744.25 per year**
Graveling with Prep – $109,406.80 per mile = **$355,572.10 per year**

Annual Maintenance Schedule

Year 1 – Reclamation with Gravel (performed prior to start of hauling)
Year 2 – Reclamation
Year 3 – Reclamation
Year 4 – Reclamation and Graveling with Prep
Year 5 – Reclamation
Year 6 – Reclamation
Year 7 – Reclamation and Graveling with Prep
Year 8+ – Follows same 3-year cycle as Years 2-4

Identified Year 1 'Reclamation with Gravel' is in addition to any regularly scheduled maintenance work that may have been planned for this location. The current condition of the roads along the proposed haul route are adequate for existing traffic, however this work is necessary address impacts of proposed anticipated traffic increases and will prevent accelerated degradation. Optimizing the structural integrity of the roadway will allow for the minimal maintenance schedule prescribed in Years 2+ and must be performed in advance of projected hauling.

Expected Annual Haul Route Fee

Year 1 – **$408,658.32**
Year 2 – **$52,744.25**
Year 3 – **$52,744.25**
Year 4 – **$355,572.10**
Year 5 – **$52,744.25**
Year 6 – **$52,744.25**
Year 7 – **$355,572.10**

Optional Improvements – Paving

Estimated cost to pave (Gravel to HMA) = $5M per centerline mile
Paving effective distance of 3.25 miles **= $16.25M**

This price is an estimate only and is based on the following assumptions:

- Typical EPC rural cross-section
- Recent historic (actual) costs for gravel to HMA adjusted for inflation (5% increase)

Actual costs may vary and a location-specific cost estimate can be completed by EPC DPW if this optional improvement is selected.

Environment, Inc.

LARRY E. O'BRIAN
FOUNDER

STEVAN L. O'BRIAN
PRESIDENT

7985 VANCE DRIVE, SUITE 205A
ARVADA, COLORADO 80003
303-423-7297
FAX 303-423-7599

March 2, 2022

Mr. Joshua J. Palmer, P.E.
Assistant County Engineer
El Paso County Department of Public Works
3275 Akers Drive
Colorado Springs, CO 80922

Re: Ellicott Sand & Gravel – AL2014
Haul Route Cost Estimate

Dear Mr. Palmer:

After reviewing the costs to maintain the County road around the Schubert Ranch Sand Resource we have concluded that the primary haul route from the entrance on Sanborn Road east to Baggett Road, north to SW 94 (3.25 miles) is likely to have the most impact on County roads around the mine. Given those impacts and the associated costs, it would be prudent to change to a shorter route from the entrance on Sanborn Road west to Ellicott Highway (1.7 miles).

The new route will be less costly to repair and maintain because the length will be one-half the distance of the Sanborn/Baggett route. Another advantage is that this new route has been recently graveled by the Department of Public Works ("DPW"), which would decrease the initial reclamation cost by $125,741 per mile.

Proposal

Ellicott Sand & Gravel LLC ("ESG") proposes that Sanborn Road be maintained the first and second years at the current level. Observations of the road condition during these first two years will enable us to determine what impact the trucks may have on the road and what, if any, additional materials and work will be needed to maintain it to current standards. ESG will provide the per ton fee referenced in Haul Route Fee section below for use by EPC to maintain the 1.7 miles at current levels during the first two years. These first two years become the baseline for future work needed to keep the road in its current condition.

At end of the first year both parties would do a joint inspection of the Sanborn haul route to determine addition maintenance needs. If needed, ESG will provide road base material for exclusive use on Sanborn Road to bring it back to County required standards. This material will be provided to offset any additional cost of repairs above normal maintenance on Sanborn Road.

After the first two years of ESG use, a joint EPC/ESG evaluation of Sanborn Road will be done. The evaluation will determine what types of additional material will be needed, if any.

The following proposed fees, when combined with the current amount the County budgets to maintain Sanborn Road on an annual basis should be enough to maintain the newly proposed haul route in its current condition for the first two years.

Haul Route Fee

ESG will pay an annual haul route fee of 10¢ per ton for the first 100,000 tons over scale and then 6¢ per ton for every ton after that.

Revenue generated by the haul route fee will increase with the growth of the mine so that as the number of tons hauled increases, the yearly haul route fee increases. At 100,000 tons the fee would be $10,000 or $5882 per mile and at 200,000 tons the fee would be $16,000 or $9,412 per mile. We ask that EPC stipulate all funds collected from the annual haul route fee will be used exclusively to maintain Sanborn Road from the mine entrance to the Ellicott Highway.

Using the tonnage that corresponds with the first year hauling proposal, this would add approximately 69% or $4,853 per mile to the existing per mile funds the County now spends. If the County accepts this proposal, funds available to EPS would go from $7,028 per mile now to $11,880 per mile at the end of the first year. This recognizes that EPC is currently maintaining the roads based on the current traffic volume. We also recognize the addition of haul trucks may increase EPC's per-mile cost. This proposed haul route fee will more than offset ESG's impacts on Sanborn Road.

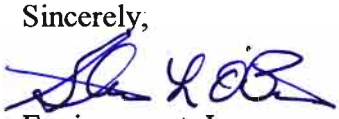
Paving

ESG proposes that EPC agree to build the roadway base to prepare for paving once the daily traffic paving threshold is reached. Any coarse aggregate material needed for the base would be CDOT spec. Class 6 road base. ESG would cost share this material for their portion (percentage) of the traffic using Sanborn Road, and ESG would sell EPC's share to EPC at ESG's cost. Once surface prep is complete ESG will contract with a paving company, with County approval, to place the pavement to County specifications.

We believe this proposal is an equitable solution that will provide sufficient funds to maintain the haul route at County standards, while also providing a fair system for evaluating the actual impacts of the trucks beyond regular traffic.

Do not hesitate to contact me with any questions. We look forward to your response and thank you for your consideration.

Sincerely,



Environment, Inc.
Stevan L. O'Brian
President

Environment, Inc.

LARRY E. O'BRIAN
FOUNDER

STEVAN L. O'BRIAN
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7985 VANCE DRIVE, SUITE 205A
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April 18, 2022

Mr. Joshua J. Palmer, P.E.
Assistant County Engineer
El Paso County Department of Public Works
3275 Akers Drive
Colorado Springs, CO 80922

Re: Ellicott Sand & Gravel – AL2014
Haul Route Cost Estimate

Dear Mr. Palmer:

We have reviewed DPW's responses to Ellicott Sand & Gravel's (ESG's) counterproposal of March 2, 2022, and considered the comments made during our meeting on April 11, 2022. With the letter ESG makes the following comments and proposals.

ESG's Comments:

At the meeting DPW confirmed that Sanborn Road is not currently up to County standards and has had no maintenance on it for 2.5 years. At the very least the County should bring the road up to basic standards prior to ESG upgrading the road to accommodate its trucks or at least subtract an amount equivalent to the cost of bringing the road up to County standards from the initial cost assigned to the road improvements needed prior to hauling.

Mr. Mastin explained that EPC is hesitant to enter into an agreement to prorate the initial cost to upgrade the road because doing so might leave EPC holding the bag if the project fails before the initial road improvement fees are paid in full. This is highly unlikely, and to support that assertion ESG submits the following information:

- ESG started the permitting process in July 2018 with preparation of the State of Colorado Reclamation Permit application, which was filed on December 14, 2018.
- ESC filed the County Application in early November 2019.
- A flood analysis and drainage plan was filed on 2/25/2020 and approved by the Pikes Peak Regional Building Dept on 2/27/2020.
- ESG posted a bond to the State for $138,200 and the reclamation permit was issued on November 9, 2021.

- The SWMP was prepared and filed the Stormwater Discharge permit with CDPHE on 11/8/21. Permit# COG 502203 was approved 1/05/22.

- ESG prepared the Air Pollution Emissions Notice and filed it with CDPHE on 11/8/21. Permit # 22EP0054F was approved 3/31/22.

- ESG has customers lined up to obtain material from the mine and this mine will become a significant source of sand for EPC.

- ESG's significant investment of money and time to get to this point makes it unlikely mining will quit before the investment is recovered.

ESG proposes the following road maintenance conditions for the final agreement:

1. EPC will do the work on Sanborn Road to bring it to current county standards and absorb the cost of that work prior to performing the reclamation and grading needed for hauling to start.

2. The road will be inspected every 6 months by EPC and ESG to determine work needed to maintain road.

3. The initial fees to reclaim and grade the road will be broken into 4 payments payable over a period of two years, with the first payment due from ESG on completion of the work, and the final 3 payments due after the 6 month inspections.

4. ESG will pay an annual fee to EPC based on the number of tons removed yearly across the scale at the rate of 10¢ per ton for the first 100,000 tons over scale and then 6¢ per ton for every ton after that. Scale records will be available for inspection upon request and provided within 30 days of request.

5. EPC will provide ESG an annual accounting of funds used to maintain the road and any excess funds paid by ESG will be applied to future maintenance needs or credited to ESG in the event the inspections reveal that the funds paid significantly exceed the cost of future maintenance.

6. If an inspection determines more work is needed the associated costs for the additional work will be assigned to each party proportionally based on public uses verses ESG use.

7. ESG will provide raw materials for road maintenance to be credited to its annual fees as long as the material meets DPW standards.

8. ESG at its cost, will grade the road as needed to maintain the surface between reclamation activities. EPC will be notified prior to such grading taking place.

The proposal outlined above benefits EPC in several ways:

1) EPC will be paid for ongoing maintenance as that maintenance is needed.

2) The fees ESG pays will increase commensurate with the impacts to the road that

result from ESG's increased production.

3) As ESG's annual production increases, the resulting increased fees will provide revenue in advance for expected future reclamation and grading work to maintain the road as a haul route.

Thank you for considering this proposal. We look forward to talking with you again on today.

Sincerely,

Environment, Inc.
Stevan L. O'Brian
President

Estimate for Gravel Prep and Graveling 1 Mile

	ASSET	Description	Rate/hr.	Employees	Hours	Days	Cost	Totals
PERSONNEL	Sup	Foreman	$32.77	1	2	4	$262.16	
	Sup	Team Lead / Operator	$30.45	1	2	4	$243.60	
	MW 3	Equipment Operators	$26.45	2	10	8	$4,232.00	
	MW 2	Drivers / Operators	$20.13	4	10	8	$6,441.60	
	MW 1	Flaggers/ Laborers	$17.06	2	10	8	$2,729.60	
							Total Daily Labor Costs	**$13,908.96**
EQUIPMENT	Equip	Soil Stabilizer (Est cost)	$358.00				$0.00	
	Equip	Motor-graders	$80.43	2	10	8	$12,868.80	
	Equip	Sheepsfoot Roller	$24.09	1	10	8	$1,927.20	
	Equip	Pneumatic Roller	$26.90	1	10	8	$2,152.00	
	Truck	Tandem Dump	$77.80				$0.00	
	Truck	Tandem Dump w inserts	$77.80				$0.00	
	Truck	Semi tractor	$52.98				$0.00	
	Trailer	Lowboy	$30.52	1	2	1	$61.04	
	Trailer	6000 gal tanker	$19.49	1	10	8	$1,559.20	
	Truck	4000 gal water truck	$56.57	1	10	8	$4,525.60	
	Trailer	20 ton pintle trailer	$16.71				$0.00	
	Truck	Pickup	$27.55	1	10	8	$2,204.00	
	Truck	Crew truck	$27.55				$0.00	
	Trailer	Mobile Storage tank	$16.55				$0.00	
							Total Daily Equipment Costs	**$25,297.84**
MATERIALS								

2019 FEMA RATE	Crew labor & Equipment Cost	$39,206.80
	Gravel and Water Cost	$70,200.00
	Total Cost	**$109,406.80**

Estimate for Dust Abatement/Reclamation 1 Mile

	ASSET	Description	Rate/hr.	Employees	Hours	Days	Cost	Totals
PERSONNEL	Sup	Foreman	$32.77	1	2	1	$65.54	
	Sup	Team Lead / Operator	$30.45	1	10	1	$304.50	
	MW 3	Equipment Operators	$26.45	4	10	1	$1,058.00	
	MW 2	Drivers / Operators	$20.13	2	10	1	$402.60	
	MW 1	Flaggers/ Laborers	$17.06	4	10	1	$682.40	
							Total Daily Labor Costs	**$2,513.04**
EQUIPMENT	Equip	Soil Stabilizer (Est cost)	$358.00	1	10	1	$3,580.00	
	Equip	Motor-graders	$80.43	2	10	1	$1,608.60	
	Equip	Sheepsfoot Roller	$24.09	1	10	1	$240.90	
	Equip	Pneumatic Roller	$26.90	1	10	1	$269.00	
	Truck	Tandem Dump	$77.80				$0.00	
	Truck	Tandem Dump w inserts	$77.80				$0.00	
	Truck	Semi tractor	$52.98	1	4	1	$211.92	
	Trailer	Lowboy	$30.52	1	4	1	$122.08	
	Trailer	6000 gal tanker	$19.49	1	5	1	$97.45	
	Truck	4000 gal water truck	$56.57	2	10	1	$1,131.40	
	Trailer	20 ton pintle trailer	$16.71	1	5	1	$83.55	
	Truck	Pickup	$27.55	1	10	1	$275.50	
	Truck	Crew truck	$27.55	1	10	1	$275.50	
	Trailer	Mobile Storage tank	$16.55	2	2	1	$66.20	
							Total Daily Equipment Costs	**$7,962.10**
MATERIALS								

2019 FEMA RATE	Crew labor & Equipment Cost	$10,475.14
	Water and 70/30 Mix Cost	$5,754.00
	Total Cost	**$16,229.14**

Estimate for Reclamation With Gravel Added 1 Mile

	ASSET	Description	Rate/hr.	Employees	Hours	Days	Cost	Totals
PERSONNEL	Sup	Foreman	$32.77	1	4	9	$1,179.72	
	Sup	Team Lead / Operator	$30.45	1	10	9	$2,740.50	
	MW 3	Equipment Operators	$26.45	4	10	9	$9,522.00	
	MW 2	Drivers / Operators	$20.13	2	10	9	$3,623.40	
	MW 1	Flaggers/ Laborers	$17.06	2	10	9	$3,070.80	
						Total Daily Labor Costs		**$20,136.42**
EQUIPMENT	Equip	Soil Stabilizer (Est cost)	$358.00	1	10	1	$3,580.00	
	Equip	Motor-graders	$80.43	2	10	2	$3,217.20	
	Equip	Sheepsfoot Roller	$24.09	1	10	9	$2,168.10	
	Equip	Pneumatic Roller	$26.90	1	10	9	$2,421.00	
	Truck	Tandem Dump	$77.80				$0.00	
	Truck	Tandem Dump w inserts	$77.80	1	9	4	$2,800.80	
	Truck	Semi tractor	$52.98	1	5	2	$529.80	
	Trailer	Lowboy	$30.52	1	5	2	$305.20	
	Trailer	6000 gal tanker	$19.49	1	10	9	$1,754.10	
	Truck	4000 gal water truck	$56.57	2	10	9	$10,182.60	
	Trailer	20 ton pintle trailer	$16.71	1	5	2	$167.10	
	Truck	Pickup	$27.55	2	10	9	$4,959.00	
	Truck	Crew truck	$27.55	1	10	9	$2,479.50	
	Trailer	Mobile Storage tank	$16.55	2	2	1	$66.20	
						Total Daily Equipment Costs		**$34,630.60**
MATERIALS								

2019 FEMA RATE	Crew labor & Equipment Cost	$54,767.02
	Water, Gravel, 70/30 Mix Cost	$70,974.00
	Total Cost	**$125,741.02**

May 10, 2022

Re: Ellicott Sand & Gravel – AL2014 Haul Rout Cost Estimate

In response to Ellicott Sand & Gravel's (ESG) *Counterproposal* dated March 2, 2022, and *Comments* dated April 18, 2022, the following are comments from El Paso County Department of Public Works (EPC – DPW):

1. ESG COMMENT: Under "ESG's Comments" Paragraph 1, Sentence 1, ESG states - "At the meeting DPW confirmed that Sanborn Road is not currently up to County standards and has had no maintenance on it for 2.5 years."

   DPW RESPONSE: Sanborn is and has been included as part of the annual DPW maintenance schedule for grading which recurs on average every 6-8 weeks, dust abatement at 80 miles per year and graveling at 15 miles per year. It has been 2.5 years since Sanborn has been 'graveled'. Sanborn is currently up to county standards relative to the Average Daily Traffic (ADT) on the segment of road.

2. COMMENT: Paragraph 2, Sentence 2 – "This is highly unlikely, and to support that assertation ESG submits the following information:"

   RESPONSE: Supplied information does indicate an unlikely scenario of project failure and/or realized County liability, however there is no guarantee.

3. COMMENT: Under ESG proposed road maintenance conditions, Proposal #1 – "EPC will do the work on Sanborn Road to bring it to current county standards and absorb the coast of that work prior to performing the reclamation and grading needed for hauling to start."

   RESPONSE: As stated previously, Sanborn Road is up to County Standards relative to the amount of current traffic. The EPC recommended improvements to Sanborn Road prior to hauling are designed to condition Sanborn Road to handle the ESG proposed additional traffic type and volume and reduce long term maintenance requirements. The estimated cost (estimated January 2022) is approximately $213k.

4. COMMENT: Proposal #2 – "The road will be inspected every 6 months by EPC and ESG to determine work needed to maintain road.

   RESPONSE: This agreeable and EPC believes this is the best way to ensure that appropriate levels of maintenance are applied.

5. COMMENT: Proposal #4 – "ESG will pay an annual fee to EPC based on the number of tons removed yearly across the scale at the rate of 10¢ per ton for the first 100,000 tons over scale and the 6¢ per ton for every ton after that. Scale records will be available for inspection upon request and provided within 30 days of request."

   RESPONSE: A per-ton-fee may be acceptable to EPC; however, the amount should be based on the actual cost determined and required for maintenance of Sanborn Road, evenly divided by

the number of actual tons hauled. Based on expected maintenance costs outlined in the initial EPC proposal ($52k per year for years 2 and 3) and ESG proposed tonnage (85k tons a year for years 0-3), a more realistic per ton cost would be closer to 60¢ per ton at a minimum. NOTE: this is general figure for sake of discussion and is not a commitment by EPC to a defined per ton cost.

6. COMMENT: Proposal #5 – "EPC will provide ESG an annual accounting of funds…"

   RESPONSE: This is aggregable to EPC.

7. COMMENT: Proposal #6 – "If an inspection determines more work is needed the associated costs for the additional work will be assigned to each party proportionally based on public uses versus ESG use."

   RESPONSE: This is agreeable to EPC, however ESG projections of 60% increase in traffic are not linearly applicable to the anticipated degradation of the roadway. Extremely conservative impacts of heavy truck traffic are +3000% increase in degradation per truck. (1 truck equals degradable impact equivalent of 30 passenger vehicles, or more). NOTE: This information is general and not necessarily specific to actual long term impacts, and it only presents a baseline for context in understanding the exponential affects on road life.

8. COMMENT: Proposal #7 – "ESG will provide raw materials for road maintenance to be credited to its annual fees as long as the material meets DPW standards."

   RESPONSE: This is agreeable to EPC if material meets minimum requirements in the Engineering Criteria Manual (ECM).

9. COMMENT: Proposal # 8 – "ESG at its cost, will grade the road as needed to maintain the surface between reclamation activities. EPC will be notified prior to such grading taking place."

   RESPONSE: This will require further discussion and would be subject to EPC County Engineer review of proposed work plan which would include materials, equipment, traffic control, associated permits/fees, license and bonding, expectation of response time/scheduling, etc.

10. COMMENT: Under "Benefits to EPC" Benefit #3 – As ESG's annual production increases, the resulting increased fees will provide revenue in advance for expected future reclamation and grading work to maintain the road as a haul route."

    RESPONSE: This proposal also requires EPC to pay for upfront costs to perform work on Sanborn Road that it would not normally perform, without guarantees that those costs would be compensated. This is a liability to EPC.