Mark A. Heifner

37 East Colorado Avenue • Denver, Colorado 80210-3105 • (303) 777-3371 or (303) 906-8096

October 24, 2022

Tim Cazier
Division of Reclamation, Mining and Safety
Room 215
1313 Sherman Street
Denver, CO 80203

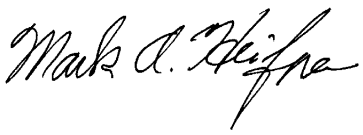
RE: The complete TR3 for the Fountain Pit Permit M-1982-155

Dear Tim:

In behalf of Schmidt Construction Company I am submitting the complete Technical Revision #3 for this operation. This includes all the exhibits and documents that pertain to this large revision that essentially brings this permit into the 21st century and modernizes this very old permit to fit with the newest regulations and interpretations of the law and regulations for Mining and Reclamation Permits. The Fountain Pit is one of the oldest permits issued. It has undergone operator changes and various revisions in the past and after such a long period of time the permit became entangled in a variety of interpretations. Hopefully this establishes a kind of "new beginning" for the permit and plan that builds on the past but establishes a new baseline for the future.

Thank you for your patience, consideration and help through this lengthy and complex process. After your review if you have any additional questions please contact me and I can provide answers and corrections.

Sincerely,



Mark A. Heifner

cc: Scott Davis, Dan Chavez, Nick Domingue - Schmidt Construction

COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY
1313 Sherman Street, Room 215, Denver, Colorado 80203 ph(303) 866-3567

REQUEST FOR TECHNICAL REVISION (TR) COVER SHEET

File No.: M- 1982-155 Site Name: Fountain Pit

County El Paso TR# *(DRMS Use only)*

Permittee: Schmidt Construction Company

Operator (If Other than Permittee):

Permittee Representative: Mark Heifner

Please provide a brief description of the proposed revision:

Update and modernize the 36 year old permit to include new aspects not previously known or addressed at the time of permitting.

As defined by the Minerals Rules, a Technical Revision (TR) is: "a change in the permit or application which does not have more than a minor effect upon the approved or proposed Reclamation or Environmental Protection Plan." The Division is charged with determining if the revision as submitted meets this definition. If the Division determines that the proposed revision is beyond the scope of a TR, the Division may require the submittal of a permit amendment to make the required or desired changes to the permit.

The request for a TR is not considered "filed for review" until the appropriate fee is received by the Division (as listed below by permit type). Please submit the appropriate fee with your request to expedite the review process. After the TR is submitted with the appropriate fee, the Division will determine if it is approvable within 30 days. If the Division requires additional information to approve a TR, you will be notified of specific deficiencies that will need to be addressed. If at the end of the 30 day review period there are still outstanding deficiencies, the Division must deny the TR unless the permittee requests additional time, in writing, to provide the required information.

There is no pre-defined format for the submittal of a TR; however, it is up to the permittee to provide sufficient information to the Division to approve the TR request, including updated mining and reclamation plan maps that accurately depict the changes proposed in the requested TR.

Required Fees for Technical Revision by Permit Type - Please mark the correct fee and submit it with your request for a Technical Revision.

Permit Type	**Required TR Fee**	**Submitted** (mark only one)
110c, 111, 112 construction materials, and 112 quarries	$216	☑
112 hard rock (not DMO)	$175	☐
110d, 112d(1, 2 or 3)	$1006	☐

Purpose and Intent of Technical Revision #3

The following Revised Mining and Reclamation Plans are a revision and modernization of the currently effective plans contained in Amendment 2 approved in 1986 when this operation was being conducted under the ownership of Cooley Gravel Company. Some provisions in that plan have been changed because the current operation owner and permit holder, Schmidt Construction Company, does not wish to operate the rest of the pit in the way envisioned by Cooley Gravel. There are actually few substantive changes that have an impact on how the operation will be reclaimed after mining, but these changes alter how the material is mined. Whether the site is mined as Cooley envisioned or as Schmidt, the current permit holder, wishes has only minor influences on the reclamation of the site.

Also, there are aspects of the deposit itself that were not known to Cooley Gravel but now have been discovered that influence the approach to efficiently mining the gravel. There are also legal right-of-way and SWSP issues that have been further developed from what they were in 1986 and these need to be included in the permit.

In particular, the direction of mining is completely reversed in this plan from the way Cooley wished to mine it. It also eliminates the concept of phases and considers the mining of the main operation as being a continuous process without time constraints or specific locations of operation at more or less specific time periods. It has been found that such devices simply do not work because the market is far too variable over time to predict specific time periods as to where mining will occur and when. In other words, market demand determines the schedule and the amount of material to be mined over any particular time period.

It will appear that there are new sections in these exhibits that were not there before. That is not the case, except in a few instances where new information needs to be introduced into the plan. Many of these apparent new sections in the Mining Plan were lifted directly out of the Cooley Reclamation Plan because, in Schmidt's opinion, those processes and procedures are actually a part of mining and not necessarily a part of reclamation. For example, seeding topsoil stockpiles is now contained in the mining plan because topsoil stockpiles are created as a part of mining and not a part of reclamation. Cooley's position was that topsoil salvage is a reclamation process while Schmidt considers that to be a mining process. These changes also allows on the ground activity to proceed more sequentially. Of course transferring paragraphs from the Reclamation Plan to the Mining Plan can make the Reclamation Plan look different when really not much is changed in that plan as a result of this Technical Revision. The Reclamation Plan now much more specifically includes only things that are reclamation actions. Any linkage back to the Mining Plan is a result of needing to repeat a few mining aspects to make the reclamation action more understandable without needing to direct the reader back to the other plan.

One very significant plan change includes mining from the north to south to increase mining efficiency, reduce the cost of mining, and maintain better control of drainage during mining. In a word, Schmidt considers Cooley's south to north approach to be a very expensive and highly inefficient way to mine the southern portions of the operation and is environmentally questionable.

Some new discoveries regarding the deposit must be accounted for in the mining now. One rather large and one much smaller "silt pockets" have been discovered that Cooley did not know were there. These could have significant impacts on the quality of the aggregate produced. Also, Cooley apparently did not know that there are localized perched aquifers under the gravel that need to be taken into account during the mining. Where Cooley looked was apparently dry and so they erroneously assumed the entire area was dry.

WHAT ARE THE SPECIFIC SUBJECTS ADDRESSED IN THIS REVISION?

In the process of reviewing Cooley Gravel Company's 1986 plan and comparing it to what Schmidt desires to do with the mining and reclamation, only a limited number of subjects actually need to be revised. Some of those are mentioned above but a more concise list of key subjects is contained in the inspection report prepared by Timothy Cazier subsequent to his inspection of the Fountain Pit on March 15, 2022. Following are those 7 items in that list with a comment on where a discussion of that can be found. Of course, there are a few other items like revegetation seed mixtures that will also be modernized as well as things not in this list.

1) Maximum lengths of near vertical highwall and overburden cut allowed at one time. - See Mining Plan

2. Typical near vertical highwall height and depth of overburden cut. - See Mining Plan

3. Maximum disturbed area allowed at one time (for phased bonding operations such as Cooley's Plan was). - See Mining Plan

4. Disposition of 2H:1V vs 3H:1V reclamation slopes, based on a test plot approach presented as part of the AM-2 review process. - See Reclamation Plan. (Simply put, 3:1 or less steep will be used.)

5. Disposition of sediment basin backfill areas (these appeared nearly releasable from a revegetation perspective, but is uncertain from a drainage perspective). - See Reclamation Plan.

6. Post reclamation drainage as the AM-2 mine plan indicated mining from south to north, whereas current mining progression is from north to south. - See Mining and Reclamation Plans

7. Delineation of north end topsoil stockpile areas that will need to be redisturbed for reclamation (the 2021 annual report map details this well, but is not currently part of the approved permit.) - See Reclamation Plan.

Some other concerns.

i. The Cooley Gravel Plan in AM-2 used phasing (major, moderate, and minor disturbance categories and acreages). Will that continue? See Mining Plan. Short answer is No.

ii. What effect does AM-3 have on the main operation? See Mining Plan. Short answer is None.

iii. Will topsoil stockpile and reclamation seed mixtures remain the same? See both plans. Short answer is No. All seed mixtures will be changed to some extent, mainly to remove any reference to sweet clover. Sweet clovers are now considered to be at least a nuisance plant if not a noxious weed.

Finally, the current plans seem to be poorly written and difficult to follow as to how all the various processes go together to produce a more or less sequential, coordinated process. We are sure that was not the intent. The entire Mining and Reclamation Plans will be restated in a more "story" like structure that connects processes better so implementation can be conceptualized in a more systematic fashion. It also contains a lot of background information regarding various mining and reclamation processes. This can help improve compliance with the plan as well as better include and integrate the various features that are present in the deposit being mined. And this also allows a wider audience than just the Division and the Operator to better understand these often complex methods and processes and why things are done in such specific ways.

EXHIBIT D: The Revised Mining Plan

(Technical Revision #3 - October 2022)

Important Note: The Permit for the Fountain Pit is
THE ENTIRE APPROVED PLAN,
and especially this Technical Revision.

CONDENSATION OF THE PLAN

The following presents the highpoints of each of the portions of the Revised Mining Plan. This is intended to be used as a quick reference to the main points under each category and heading of the rest of this plan. ***These condensations are not intended to present the whole plan. They are just brief summary descriptions of the contents of the plan.*** **Please refer** to the same titled section in the detailed plan to follow for a complete description of what is to occur and why.

VERY IMPORTANT: ***Summary of Boundary Definitions:***

1. How the Permit and the Affected Land Boundaries are defined.

   A. The Permit Boundary **on the map** is a fixed line unless changed through an amendment approved by the Mined Land Reclamation Board. IN NO CASE SHOULD YOU DISTURB LAND IN CONDUCTING THE OPERATION BEYOND THIS BOUNDARY. **See the next section regarding the *AFFECTED LAND BOUNDARY.*** The permit boundary is either marked by fence lines or where there are no fence lines by markers.

   B. The Affected Land Boundary **on the map** is, like the Permit Boundary, a fixed line and boundary. Where the Affected Land Boundary coincides with the Permit Boundary (is in the same location) do not disturb land beyond the Permit Boundary. Markers for the Permit Boundary are also markers for the Affected Land Boundary as they are at the same location. But in some places, the Affected Land Boundary is inside the Permit Boundary. In that case, the Affected Land Boundary has its own markers. DO NOT DISTURB LAND BEYOND THE ***AFFECTED LAND BOUNDARY*** WHEN IT IS SEPARATE FROM THE PERMIT BOUNDARY.

   C. ***READ THE DEFINITIONS OF THE BOUNDARIES IN THE DETAILED TEXT. TO AVOID A VIOLATION, THE RESTRICTIONS FOR EACH BOUNDARY MUST BE OBSERVED WITH CARE.***

General Overview of the Plan:

PHASING CONCEPT -

1. The land included in this revision includes all the land included in the 1986 Amendment prepared by Cooley Gravel Company. However it modifies the Cooley mining plan to conform to Schmidt Construction Company's plans, and most modern interpretations of the Rules and Regulations.

   A. The operational concept of major, moderate, and minor disturbance categories is not used in bonding this plan. Instead bonding is to be based on actual disturbances and anticipated near future disturbances.

   B. The various timed phases presented in the Cooley Plan are eliminated, i.e. the operation is continuous and disturbs fresh land as needed depending upon the market demand.

INFLUENCE OF AMENDMENT 3 ON THIS PLAN:

1. The Amendment 3 mining plan for a 41 acre parcel on the west side of Charter Oak Ranch Road has, as stated in that amendment, no influence upon this operation on the east side of the road. Nor does this plan influence that plan, with one exception. The new seed mixture proposed in the Reclamation Plan of this Technical Revision is intended to also replace the seed mixture in Amendment 3.

REVERSAL OF MINING DIRECTION:

1. The Cooley Plan called for mining from south to north. This plan changes that so the operation of the undisturbed land to the south occurs from the north to the south.

CONSIDERATION OF PERCHED AQUIFERS:

1. Contrary to the Cooley Plan which was based on an erroneous finding of a lack of groundwater under the gravel, this plan takes into account the patchy occurrence of small perched aquifers in the gravel deposit. This is accomplished by limiting the depth of mining so that mining stops well before exposing ground water. This is done by reducing the general depth of mining and being aware that moist gravel likely indicates a perched aquifer nearby - SO STOP.

2. **EXCEPTION:** The Substitute Water Supply Plan includes the right to expose a certain amount of the groundwater for use in the operation. At present, 0.2 acres of groundwater is allowed to be exposed in a single sump pit which is officially considered a water well. Thus the amount of water exposed to evaporative losses and that can be used in the operation is regulated by these plans. The best description of this process seems to be in the January 4, 2019 letter from the Division of Water Resources to Jared Dains of the Applegate Group. This document is in the permit files.

(A new document, in addition to those the Division already has, is provided as a part of this Technical Revision.)

Consideration of Variations in Mineral Textures:

1. Unknown to Cooley, the northern half of the land added by the 1986 amendment contains one large and one smaller pocket of "dirtier" gravel than is normal for this deposit. These pockets are shown on the new Mining Plan Map submitted with this revision.

    A. Instead of stripping the entire area only to find that the gravel is barely worth mining or, even worse, actually is not worth mining, stripping overburden will be done bit by bit with north-south oriented strips once such material is encountered.

    B. Thus stripping and mining will continue so long as the material to be mined is suitable.

    C. Therefore, in the vicinity of the presumed silty pockets the mining direction may need to skirt around the perimeter, but the approach to mining will remain the same.

    D. The only effect these pockets may have is to potentially reduce the amount of land mined in the future.

2. The southern end of the permit area is highly dissected by erosion and it is not known how much mineable gravel is present in this area. It is possible that the most southerly portions of this area will not be mined once it is known how the deposit here fits in with the deposit to the north. However, this plan still contains a mining plan for this area. SEE DETAILED PLAN.

Amount of New Land Opened for Mining at One Time:

1. Ideally, enough land is prepared at one time for mining an estimated 3 years. In the past the average acres per year mined has ranged from 3 to 10 acres with an average of about 5 acres. Therefore, ***on the average,*** about 15 acres is stripped at a time.

2. Obviously, in the vicinity of the indicated poor quality material, a smaller area would be opened on the questionable area and that would likely be accompanied by more acres on land where good quality material is likely to be. This opens the door to possible blending of materials which could extend the mining of the poor quality areas. This potentially maximizes resource recovery and utilization.

Topsoil and Overburden Removal and Stockpiling:

A. Topsoil removal occurs where a definite layer of topsoil can be identified and is of sufficient depth to allow for efficient stripping (Horizon A and upper B) without mixing overburden (Lower Horizon B, all of C, and below) with the topsoil. Where topsoil is missing, thin or indistinct the soil is salvaged along with the overburden.

B. Overburden does contain dark seams of paleosoils that contain organic matter. Overburden has been shown to have an acceptable growth capability as demonstrated by the growths on old stockpiles or reclamation areas.

C. Stockpiling will be done near the location where it will eventually be used rather than the material hauled all the way to the north end of the operation and stockpiled there. Stockpiling there is now too expensive to do and too expensive to haul back to where it would be used.

D. Thus stockpiles will be present for shorter periods and more quickly utilized in doing reclamation.

E. The salvage of the topsoil and overburden produces a platform of exposed gravel that extends outward from the remaining wall of overburden a few hundred feet. The outer edge of this platform forms the mining highwall where material is removed, thus slowly causing that highwall to migrate toward the overburden highwall.

F. At the base of the overburden highwall and on top of the gravel layer a transportation corridor is often established that provides easy access to the overburden highwall for future stripping and haulage.

Interim Seeding of Topsoil/Overburden Stockpiles:

A. Because topsoil/overburden stockpiling will be done near where the material will be used in backfilling slopes and distribution across the floor of the pit these materials will be in a stockpile for less time than was the case before.

B. If the material is expected to be in place for more than one summer season, it will be broadcast seeded with a simple quick growing seed mixture that should protect the stockpiled material from significant loss by water or wind erosion. SEE DETAIL.

Mining of the Gravel Deposit:

A. The gravel platform created by stripping the overburden off has a highwall on its outer edge where new mining occurs.

B. Mining is usually done with a front-end loader. The loader usually hauls the material directly to the processing plant located nearby or puts the mined material in a truck that hauls it to the plant for processing if the plant is further away.

C. Eventually, the distance from the highwall to the plant becomes too great for efficient haulage. When that happens every few years the plant is moved southward closer to the highwall and mining continues.

D. Even though the processing plant will move south the wash plant will not. It will remain at its original location. Conveyors will be used to transport material between the two types of plants.

Processing the Mined Material:

A. At present only screening is being done, but later in 2022 the wash plant is expected be opened and then washed aggregate will be provided as an additional product.

B. The water for the wash plant will come via a pipeline from the Nixon Power Plant just south of the operation. The wash plant uses a recycling system and therefore the water purchased from the power plant and the Colorado Springs Utility Department will only be for replacement of water lost by evaporation and absorption in product.

Product Stockpiles:

A. Product stockpiling is kept near the processing plant except for very large orders which are stockpiled a short ways away from the plant where storage space is more available.

B. Usually, customer trucks come to the stockpiles to be loaded and then go to the scale house for weighing and purchase of the material, if it is not already paid for.

Major Powerline Setbacks and Effects on Mining:

(Note: The following is entirely new to the plan. The easement was established in 2006. All documents are included in this revision.)

A. Easements, set by agreement between Schmidt and Colorado Springs Utilities (CSU), exist along the east side of the operation to contain the 230 KV powerlines that run from the Nixon Powerplant to Colorado Springs. These easements were established in about 2014, long after the Cooley plan (AM2) was created.

B. These are within the Permit Boundary but are outside a permanent portion of the Affected Land Boundary which here is at the western boundary of the easement corridor.

C. However, no mining occurs or mining related activities will occur beyond the Affected Land Boundary which is the edge of the powerline easement.

D. Because the powerpoles are generally 45 to 55 feet inside the easement (50' nominal) no mining occurs within about 75 feet of any power pole. In some places the new water line to the wash plant is just west of the Affected Land Boundary so that is the limit.

E. CSU does allow surface disturbances within the easement, but excavations only with prior approval and supervision by CSU personnel. However, the Affected Land Boundary prohibits any incursion into the easement without approval of a Permit Amendment to allow expansion of the Affected Land Boundary.

Maximum Amount of Highwall at Any One Time:

A. It has been calculated that about 2,300 to 2,700 feet of highwall will be contained in the highwall that extends from each side of the operation across its width.

B. Highwalls along each side of the operation will be up to about 1,500 feet each at the maximum.

C. Therefore the maximum highwall at any one time will be between 5,500 and 6,000 feet.

D. As this is important for bonding calculations, please refer to the Reclamation Plan for a description of how the highwalls will be reclaimed because for the most part they will be reclaimed using in-place materials using cut and fill rather than only backfilling.

Possible Historical Site in Southwestern Corner of Permit:

1. In the southwestern corner of the permit an area has been identified that may contain an unconfirmed Native American burial site. The State Archaeologist has been informed of this. This small parcel will not be mined or disturbed until it is professionally confirmed that the anecdotal evidence is false. A Permit Amendment would be required to mine in this area because this area is beyond the Affected Land Boundary established in this Technical Revision.

Details of the Mining Plan

The following detailed plans follows the same arrangment as that used in the Condensed List at the start of this exhibit.

THESE DETAILS CONSTITUTE THE OFFICIAL PLAN. The Condensed List list is just a *brief* summary of finer details included here.

Definition of MAPPED Boundary Definitions

Over the years, there seems to have developed some confusion as to what mapped boundaries actually mean with respect to this operation. From the time that this Technical Revision is approved until these definitions are changed, the following shall apply. This section is primarily for the benefit of the mine operators.

***Permit Boundary*:** ON THE MAP, this is defined by a bold dashed lavender line that follows the property boundary in most areas but in some places excludes portions of the property that are clearly not included in the Mining Operation. The location of the boundary is defined by either fence lines or by specifically placed large diameter plastic pipe poles placed at suitable intervals, especially at corners, along the boundary where fences do not exist to indicate the boundary. THIS BOUNDARY IS FIXED. It can only be changed by an amendment to the permit. **No disturbances related to the mining operation can be made outside this boundary.**

Technically, this type of boundary does not have a definition in the law or rules for this type of operation. However, this boundary is carefully placed and is fixed until permitted land is released for some reason or the boundary is expanded by means of a permit amendment.

***Affected Land Boundary*:** ON THE MAP, this is defined by a bold dashed bright red line that in some places follows the permit boundary but in other places defines the limit of meaningful disturbances (affected land) made by the mining operation until such time as those disturbances are fully reclaimed and released from bond. It may also include land that will be disturbed in the future in accordance with the Mining Plan. On the east side, this boundary follows the western side of the Colorado Springs Utilities Easement Boundary defined by legal description and is generally 50' ± 5' from the most westerly power poles, as shown on easement maps and documents included in this Technical Revision, as amended. THIS BOUNDARY IS **FIXED**. No mine related disturbances may occur beyond this boundary. On this operation this area is always smaller than the Permit Area. This

boundary, like the Permit Boundary, is also marked by posts or by fence lines. But where this line crosses open land inside the Permit Boundary, the Affected Land Boundary is marked separately from the Permit Boundary in those situations. .

The definition of Affected Land in the rules is as follows.

Affected Area means the surface of an area within the state where a mining operation is being or will be conducted, which surface is disturbed as a result of such operation. Affected lands include but shall not be limited to private ways, roads, except those roads excluded as stated below, and railroad lines appurtenant to any such area; land excavations; exploration sites; drill sites or workings; refuse banks or spoil piles; evaporation or settling ponds; work, parking, storage or waste discharge areas; and areas in which structures, facilities, equipment, machines, tools or other materials or property which result from or are used in such operations are situated. All lands **shall be excluded** that would be otherwise included as land affected but which have been reclaimed in accordance with an approved plan or otherwise, as may be approved by the (Mined Land Reclamation) Board. **Affected land shall not include** off-site roads which existed prior to the date on which notice was given or permit application was made to the office and which were constructed for purposes unrelated to the proposed mining operation and which will not be substantially upgraded to support the mining operation or off-site groundwater monitoring wells.

Disturbed or Disturbance Area: This is the third type of boundary shown on the map. It includes what HAS BEEN disturbed in conducting the operation. It also includes any land where reclamation is being performed or has been performed and has not yet been approved for release from the permit. Generally, a new acreage value is defined on each annual report submitted on or before December 31 of each year. The definition for this in the rules is:

Disturbed Area or Disturbance Area: means land that has been altered by mining or mining related activities as described in the Affected Land definition above. This includes reclaimed areas (see Reclaimed Area" definition below), unless the DRMS has received and approved an Acreage Reduction request. It does not include area that is to be disturbed in the future, but not yet impacted by mining, or mining related activity.

This is the only kind of boundary in the permit that changes over time. It is always smaller than the Affected Area.

Reclaimed Area: On this operation there is land that has been reclaimed and currently is being finished with some repairs of some small damaged land, mainly some erosion damages. After the repairs are completed and vegetation is established a request to release this land from the permit and bond as being reclaimed. ***Until that happens, no utilization of this land for any purpose other than grazing may occur.*** Any disturbances here for mining purposes will simply delay the release, potentially for several years. This land is included in the Affected and the Disturbed Land categories and is thus subject to all permit requirements.

In the future more land will be placed into this category. Once it has been seeded it is off-limits for any activity related to the mining operation. Disturbance even by vehicles that simply drive across this land for the first couple of years after seeding can do serious damage to the reclamation. If the damage needs repair it will delay the release of the land. **PLEASE STAY OFF OF LAND THAT IS BEING RECLAIMED WITHOUT GOOD REASON.**

General Overview of the Plan

PHASING CONCEPT: The Mining Plan proposed by Cooley Gravel and approved in 1986, added 320 acres to the original Christian Pit permit area. This addition added a large rectangular parcel that extends southward from the southern edge of the original Christian Pit(s). After Schmidt reacquired the permit in 1990 via a Succession of Operator, Schmidt operationally eliminated the use of the "major, moderate, and minor disturbance" concepts used in the original permitting. In other words, Schmidt bonded the operation primarily to be a single, continuous operation that is fully bonded with few limitations on how much disturbance or what kinds of disturbances are created within the approved and permitted area so long as they are compliant with the requirements in this plan. Naturally, there are variations in the status of various parcels within this area and some areas are essentially reclaimed even though technically still bonded. In time these will be released and those that are not quite finished will be completed. Reclamation work is also beginning on other areas that are currently disturbed to various degrees. The bond has been updated a few times since 1990 with no change in the plan descriptions. There were no objections to doing that so long as a sufficient bond was present. Furthermore, it was Schmidt's understanding the performance warranty insures that even if the bond is deficient if default were to occur the additional amounts would be provided. Of course, it is best to always be fully bonded, but the fact is all reclamation costs are educated estimates and never precisely accurate.

In short, this revision officially eliminates the phasing concept for the Fountain Pit. Phasing in an aggregate mine can turn out to be a marketing and contract fulfillment nightmare when very large projects need to be fulfilled in a short period of time and there is insufficient land bonded to produce the product needed. And this lack of phasing will more or less continue on to the end of the operation.

Schmidt simply wants to avoid the problems with phasing and thus be able to respond quickly to new contracts and bidding no matter how large or small the order is without having to adjust bonding prior to submitting a bid for a large contract. For many years now that kind of bonding has been used without difficulty, so long as the bond is periodically reviewed and upgraded as needed.

INFLUENCE OF AMENDMENT 3 ON THIS PLAN: In the recent past Amendment 3 was approved for a parcel of land on the other side of Charter Oak Ranch Road from the main operation. The site has a lot of similarities to the main pit area in that the mining would be in the same deposit and the site opens out into the valley south of the operation. The site is rather small (41 acres), but does contain a deposit of gravel that is large enough to be worth mining. However, *Amendment 3 has no impact on the **mining** of the main operation, other than sharing some processing facilities.* That is clearly stated in that amendment at the beginning of both the Mining and Reclamation Plans for that operation. However, the Reclamation Plan in this Technical Revision does change the seed mixture in Amendment 3 to be the same as the one proposed in this revision.

REVERSAL OF MINING DIRECTION: Next, the approved Cooley plan called for mining the operation from the southern end of the amended acreage to the northern end where it would join the mined out (original) Christian Pit 2 area.

In this revision the direction of mining is completely reversed and Schmidt will operate the amended acreage in the Cooley plan from north to south by simply extending the current mining southward. This is not only more efficient, but it continues to prevent runoff on to adjacent land and the almost inevitable deposition of sediment beyond the Affected Land and Permit Boundaries as a result of that runoff. Such discharge constitutes affecting land beyond the permit boundary which is not allowed. The only remaining provision is that water that accumulates after big storms be discharged, evaporated or allowed to percolate into the ground quickly (basically in 72 hours in most cases). On this very porous gravel deposit that is rarely ever a problem.

CONSIDERATION OF PERCHED AQUIFERS: Contrary to what the Cooley Exhibit D says, there is ground water present under some portions of the gravel deposit, but it is not everywhere and it is not a large volume. The dense and barely permeable Pierre Shale under the gravel is not level but was probably an erosion surface prior to the gravel being deposited as a result of erosion off of Pikes

Peak and the Rampart Range following the various ice ages over the last few hundred thousand years. Thus original stream channels in the Pierre Shale persist under the gravel where a limited amount of groundwater accumulates and flows. Unfortunately, knowing where those areas are is extremely difficult to determine. Even the gravel itself does not have continuous depth or texture as it apparently was deposited by wide meandering streams of fairly high volume during glacial melting. And the gravel can vary widely with regard to particle size.

It is very important to note that in some of the renewals of the Storm Water Supply Plan (SWSP), of which the approval letters from the Division of Water Resources are already in the possession of the Division, that it is stated that mining closer to the water than 2 feet will likely result in evaporative losses from the groundwater that, to be legal, need to be accounted for in the SWSP. Thus mining more closely than 2 feet from the base of the gravel deposit **(if water is present)** may result in a violation of the SWSP. Therefore, even though Cooley did not find water their rule of leaving 2 feet is still correct.

From a long term water resource standpoint it is also important to keep these perched aquifers unexposed as much as possible to prevent losses from evaporation. It has become increasingly clear that “Climate Change” is not something in the future - it is here. Protection of water resources is even more critical now than back in the 1970's and 80's. The current SWSP limits exposed ground water to an existing 0.2 acre area.

Consideration of Variations in Mineral Textures

Back in the mid 1980's it was thought that this entire mesa-like structure was capped by a reasonably uniform layer of granitic gravels mostly derived from Pikes Peak Granite parent material located to the west and northwest of the site. Such is not actually the case. As mentioned before, these gravels are alluvium deposited by meandering streams or rivers, mostly during the ice ages, and therefore the depth and texture of the material can vary considerably.

As can often be the case with such streams and rivers, pockets of fine material can be deposited in places and if the stream is aggradational these fine-textured spots can be buried by subsequent deposition of more coarse material, especially during floods. These pockets may have originally been islands or dissected portions of islands. These buried pockets of fine textured material may be a blend of some coarse gravel and a lot of fine sand, silt and clay that may have been deposited on the inside of a large and broad river bend or perhaps are a remnant part of a topographic feature that was otherwise eroded away.

Additional drilling by Schmidt in the amended land found one large and one smaller pocket of this kind of material in the northern half of the two parcels added by Cooley. In fact, it appears

possible that mining in the large area may not actually be worth the effort or expense. The full extent of these pockets is unknown but their approximate size and location is shown on the new Mining Plan Map. The larger pocket appears to join the exposed poor quality material in the southwest corner of the operation. That material is rather poor quality for the most part.

Mining around these pockets, if, in fact, they are unsuitable material, will need to be an adaptive process where some is uncovered, it is examined and mined if suitable. It is also possible that the better material from here can be blended with material mined elsewhere to meet specifications. The less suitable and separated material can then be used as fill in reclamation or sold as a lower grade product or both.

It does appear that the southern half of the amended area probably has good gravel present over most of its area. The amount of good gravel per unit area may be much less due to the development of deep erosion cuts that have been created north of the south permit boundary and on the edge of the elevated mesa (or mesita) where the gravel is being mined. This land slopes much more steeply into the valley and therefore some of the gravel depth seen to the north may have already been eroded away. Just east, in the former Broderick and Gibbons operation which was almost adjacent to this operation these gravels seem to have experienced limited mining. So, perhaps the gravel here is not so favorable and mining in this area will be limited. Once again, determining what will happen on the south end is a bit indefinite due to all the erosion damage in that area. It is always difficult to be sure exactly what is present in most upland areas of aggregate to be mined. Especially where glacial outwash plains compose the aggregate. The braided streams of such landscapes create highly variable sediment deposits.

The plan for mining this southern edge is very much the same as it is elsewhere. That is, mine along an east-west cut while removing whatever soil/overburden is present and being careful about intercepting any perched aquifers that might be flowing through this area and into the alluvium in the valley. However, depending upon what the material to the north of this sloped area is like and what kind of moisture indications are encountered there, it would be wise to explore this area with some backhoe pits to see what is actually present in the way of depth and moisture. Digging pits in the bottom of the erosion channels will be adhered to as those are easy to backfill without introducing much, if any, overburden that could interfere with water flow. That would then provide a means to determine how deep mining can go so a more precise plan for mining here can be developed. That said, first the mining has to successfully get through the land to the north where the pockets of lower quality material is present. If that is successful then exploring this area in more detail would make sense.

The extensive erosional dissection of this area also presents a problem for draining the pit to the north through this area and into the valley. This aspect has never been examined in any detail and

even the Cooley Gravel plan which would begin mining here did not address this issue in any detail. It might be better to stop mining before reaching the end and installing a final controlled drainage structure that handles the water more effectively than just opening it up. It is important to note, though, much of the pit north of this area should mostly be vegetated and so runoff will be much less than is the case today with what is open over the original Christian Pits area. Also, the steeper slopes here that erode easily are composed mostly of overburden that has thinned and sits atop a possibly thinning layer of gravel that may have a more level lower boundary that generally aligns with the bottom of the gravel beds to the north. Therefore, once a nominal part of the gravel is removed the general slope would be less steep than it appears it would be now. However, that is an assumption that has not been verified. It is also very difficult to verify without extensive and expensive drilling that may not even be worth the effort if there is actually little present to mine or if the poor material to the north ends up causing the conclusion of mining.

The plan presented on the Mining Plan Map shows the mining going all the way to the south end, but does not have the drainage issue addressed. The important point to be made by combining the map and this narrative plan is that the map alone is presenting the most optimistic view while the narrative shows that such optimism may be unwarranted and the mining could end anywhere north of the far south end. Whatever happens it will be necessary to provide for whatever surface and subsurface conditions are present at that time. Unless the land and climate essentially goes dry something will need to be provided to conclude the mine.

Amount of New Land Opened for Mining at One Time

The first step in preparing undisturbed, permitted land for mining is removal of the material on top of the material to be mined. Here this constitutes the soil and/or overburden. Because equipment for doing this is not always present at Fountain Pit but must be moved here from other locations, a fairly large area is opened at once. Historically, this operation has consumed an average of about 5 acres (range = 3 to 10 acres per year) of newly uncovered gravel per year. But it is more convenient to strip enough land for at least 3 years of mining which is about 15 to perhaps 20 acres at a time. This stripping goes all the way through the overburden to the top of the gravel. The soil and overburden layers remain as a highwall at the edge of the stripped land that is 6 to 10 feet high (average of around 8 to 9 feet), depending on the depth of the soil/overburden column at that location. These walls tend to be very secure as the clays forming the overburden layer have begun the lithification process (turning into rock) and are not very prone to collapse.

Between the overburden highwall and for a distance away from the wall a transportation corridor is often created that is bounded by the overburden highwall on one side and a 3 to 6 foot

safety berm between the overburden highwall and the exposed gravel deposit to be mined and the mining highwall which can be 100 or more feet from the overburden highwall. This berm keeps people from driving vehicles too close to the taller and more dangerous mining highwall.

This transportation corridor also provides a route for removal of overburden without having to construct haulroads on the original surface of land. Generally, the overburden is removed with a backhoe or front-end loader and, if necessary, loaded into trucks with a front end loader. Loaders are used more than dozers because the same equipment can be used to mine the gravel. It is more economical that way. If the area has a deep enough soil (A and upper B horizons) to effectively be salvaged, a dozer can strip that off first and that soil can be hauled away and stockpiled separately.

Topsoil and Overburden Removal and Stockpiling

A vertical cross-section of the land would show a thin and somewhat vague A-horizon in the soil that is usually only a few inches thick and has a slightly darker color than the material below it. In places the A-horizon can be up to about 18" deep. This is technically the topsoil, but its boundary with the soils below is often rather vague and more of a narrow transitional zone. Where this zone is fairly evident and deeper it is stripped and saved separately, but much more often that operation requires too much precision stripping to keep that material separate from the lower horizons down to the parent material which is usually right on the top of the gravels. In that case all of the soil/overburden is salvaged as a unit and blended together. Essentially, soil and overburden are pretty much the same in most places. This is quite typical of this whole area which is a bit closer to a high elevation desert than to a high elevation semi-arid grassland. Desert and semi-desert soils are usually poorly developed and poorly differentiated with only minor differences in chemistry and with the upper layer often having less than 1% organic matter.

The overburden tends to be rather dense in texture and composed of aeolian deposits of fine silts and clays mixed with alluvial deposits. Over time it becomes rather blocky due to the types of clays and to water ***illuviation***, but it breaks apart quite nicely upon salvage creating a silty-clay loam. (NOTE: ***Illuviation*** is a process where water soaking into the soil carries fine particles deeper into the soil leaving somewhat more coarse materials nearer the surface.) In places calcium carbonate dominated zones are found that produce local layers of white calcareous deposits that are not quite mineralized to the point of forming a caliche. These are usually at about one to two feet deep in the overburden but can vary. They too break up and mix into the general mass quite well.

In some places, horizontal darker colored seams are found of various thicknesses at different depths in the overburden. These are likely local paleosoils that developed during brief wet periods in the history of the soil development when illuviation was vigorous and biological activity high. They

are usually thin and are simply salvaged with the rest of the material. Some of these even have carbonized roots or twigs left indicating at these times the vegetation here was perhaps a shrub dominated with a rich grass understory. The shrubs were probably *Salix* (willow) and *Alnus* (alder) as today those genera are often abundant on glacial outwash plains. However, because the streams were undoubtedly braided, as shown by the extreme variability in the texture of the gravel, these vegetated areas probably did not last long before being ripped out by floods and channel shifting. Thus they are not common or large.

Thus the material that is salvaged (soil + overburden) is quite similar to the overall mineral components of the native topsoils but without much structural differentiation or layering into distinctive horizons. In the past this material has produced good growths of both introduced and native species. Over time the native species tend to gain higher dominance on the soils while the introduced species and many native pioneer weedy species tend to decline considerably. This material has sufficient minus-200 particle content to retain moisture quite well and has a moderate to locally high water holding capacity, but can be erodable on steeper slopes if near the surface. Grass vegetation tends to limit erosion fairly well, but shrubs are often ineffective and tend to encourage rilling. On level land where grass is moderately dense, duff accumulates quite well which acts as natural mulch that keeps available water fairly high within a depth that plant roots can reach easily. However, in general this is a dry steppe environment that favors grassland and deep rooted herbaceous plants that are drought tolerant.

With these characteristics it is entirely possible to simply transfer salvaged soils and overburden on to areas that are completed with mining while stockpiling some for use elsewhere as needed. It appears that replacement to produce a total plant growth medium depth of about 8" to 12" is sufficient to establish good growth using the fines on the top to hold sufficient moisture to support the vegetation prior to their roots reaching more deeply into the more coarse substrate to acquire moisture and nutrients deeper or the water of perched aquifers. In short, it produces a thinner version of the natural soil without the blocky texture which will develop with time as illuviation sorts the particle sizes, but still sufficient depth to protect moisture from evaporation through strong capillary rise.

So, in summary, the soil is stripped from a new mining area down to the gravel layer and either used immediately or stockpiled near areas that are being mined so the soil can be spread soon after the mining is finished in that area and the area is no longer needed.

In the past, soil and overburden was hauled to a specific area and stockpiled for future use by reloading it and hauling it back to where it could be used. However, the distance has become too great and thus that approach has became too expensive for general use. So it is far more economical to not use specific stockpiles and just place the growth medium somewhere out of the way until a nearby area is finished and then move it to there, leaving it in irregular drifts that are then spread when a large

enough mined out area nearby is available to fully reclaim. In essence, trying to operate this pit as if it was similar to a coal strip mine simply did not work out well because other uses for previously mined land are found which sometimes limited quick reclamation. Plus the high cost of fuel makes it very difficult to justify using the former large stockpile approach on a large site like this. Plus smaller stockpiles provides an operational justification for reclaiming more quickly than often happens when large stockpiles are used.

For example, sediment ponds used when washing the gravel need to be built and once filled these tend to take a long time to dry out before equipment can even work the surface. But these areas often create a reclamation product composed of mostly native species that is some of the best vegetation anywhere on or near this property. These ponds even encourage tree and shrub growth composed of native species and exhibit a high diversity habitat structure that ranges from dry upland spots to sedge and cattail marshes in places. Fine bird and small mammal habitats develop that would otherwise not be there - and not a seed needs to be planted that came from a seed store. Furthermore, the recovery is essentially established in 2 to 4 years depending on the local reclaimed habitat type.

In short, it has been found that stockpiling soil and overburden in large discrete piles is a bit more of a hindrance and can limit the utility of that habitat form for wildlife utilization in the interim.

Interim Seeding of Topsoil/Overburden Stockpiles

As described above, topsoil stockpiles will not generally be in place very long and for the most part already be on or near the place where the material will be used. Haulage to specific large stockpile locations on an operation this large, in physical area, has turned out to be very expensive because of long haul distances and now the high cost of fuel. But where placement does occur without final grading in a time period considered sufficient to grow a vegetation cover, a vigorous growing seed mix will be broadcast on the soil. As a rule, if the soil is expected to be spread within one full growing season of placement, there is little point in seeding it - there is insufficient time for the vegetation to have a chance to grow and do anything to protect it. Following is the seed mixture.

Species	Rate (lbs PLS/Acre)
Intermediate Wheatgrass	5
Green Needlegrass	4
Western Wheatgrass	4
For Broadcast Seeding ONLY	

Mining of the Gravel Deposit

Once a suitable area has been uncovered what remains is a nearly flat (about 1% slope to the south), elevated platform of gravel deposit with very little overburden still present to contaminate the product. Because mining is continuous it occurs along a working face of gravel that is about 35 to 40 feet high, depending on the nominal mining depth at that location. Depending on the height of the gravel wall the mining may occur in one or two lifts with the upper lift completed first and the second lift done next.

Essentially a front end loader approaches the wall with the bucket up high and digs a short ways into the gravel wall and then backs away while a thin section of the wall collapses to the floor of the pit. That is then scooped up and loaded into a truck or, more commonly, it is hauled, bucket by bucket, to the processing plant which is nearby. Thus the highwall migrates toward the overburden cut and highwall. This also provides a means to very roughly view the texture of the gravel being acquired because the loader operator can view most of the complete cross-section of the gravel at any location and thus select finer or coarser material as needed for the products currently being produced. It is important to keep in mind that the entire column of gravel is often extremely variable with regard to texture as it is primarily an alluvial deposit.

Processing the Mined Material

At present, processing only includes a screening operation to sort out the material into specific gradations which are then provided to the customer. The customer's haul trucks come to the plant to be loaded. The trucks then go to the scale near the entrance where the amount of product is weighed and the purchase is made.

However, in the near future a wash plant will be constructed where washed gravels will be produced. This is the third time a wash system has been established at Fountain Pit. The first wash system had to close because the 2002 drought dried up the water source which has not returned to similar productivity. In the second the purchase of the treated water became too costly.

Including a wash plant was covered in a prior Technical Revision and the only aspect that has changed over the years is the source of the water. The source of the water for this wash plant will be purchased water from the City of Colorado Springs that is associated with the Nixon Power Plant immediately to the south of the operation. A pipeline that was approved by the City of Colorado Springs has been installed from the power plant to the initial location of the wash plant and that waterline is located adjacent to the Colorado Springs power lines that run from the power plant northward along the eastern side of the Fountain Pit permit area. The pipeline is inside the Affected

Land Boundary. The water is pumped northward to where it makes a right angle turn westward and feeds the water supply pond and the wash plant. The water is recycled so the only loss from the system is evaporation and the water leaves in the product. So, once the system is charged the only water needed from the city is to replace what was lost to the product and to evaporation.

A copy of the water lease from Colorado Springs Utility is contained in the included letter of July 22, 2020 from Abdullah Javed, E.I. of the Applegate Group to Melissa van der Poet of the Colorado Division of Water Resources. This letter pertains to an amendment to the SWSP for this operation. The letter of December 3, 2020 already in the Division's permit files in the Hydrology category contains the approval of this amendment.

The water from the wash plant is fed back to a two stage settling pond system to remove sediment from the water before it is reused. Thus the sediment ponds must be periodically cleaned out of accumulated fine material washed off the gravel. This sediment can then be allowed to drain and dry. On occasion a customer may wish to purchase this very fine material, but usually it is considered waste and can be used to blend with overburden or other coarse material to create a fine growth medium that can be used on the pit floor for reclamation.

This material is **NOT** suitable for slope reclamation as it tends to retain a considerable amount of water and on a slope the extra mass when wet can cause slumping of a 3:1 slope. (It could be used on a much more gradual slope, however.) These fines are mostly clay and fine silt particles. No flocculents will be used to settle the sediment.

Product Stockpiles

As the product is produced stockpiles are usually created at the location where the product exits the conveyor belt from the plant where that product is produced. However, some more coarse product is produced by other equipment and that material is stockpiled elsewhere in the vicinity of the plant. Some seams within the deposit contain larger stones that need to be separated from the finer material which is what some customers want. Although large quantities of these larger rocks are rarely encountered, small amounts of this rock is also available for purchase.

Small stockpiles of left over specialized materials that were produced in the past are often present and are sometimes sold to customers that are looking for just that material.

On occasion very large volume orders are received and in those cases separate large stockpiles of that material are created especially if a large volume is needed all at one time. In those cases, the product is created well before it is needed and it is accumulated in separate large stockpiles that are quickly removed by the customer. Thus, it is entirely possible to have large product stockpiles, well away from the plant that produced it, waiting for the customer to come and haul it away. Some

contracts are established as much as a year or more before the material is needed but others are produced and hauled away as fast as it can be created.

As the operation expands southward it eventually gets too far away from the working face and the distance raw material needs to be transported to the plant becomes so good production efficiency declines. When this happens the plant, which is portable, is moved much closer to the working face of the mining operation. This almost always happens during seasons when product demand is low and a surplus in stockpiles has been accumulated to supply customers while the relocation is occurring.

However this relocation process will NOT occur with the wash plant. It will remain at the current location so long as the leased water is being provided from the Nixon Power Plant system. Of course, in the event that lease ends for some reason then another water source would need to be found or washed product simply deleted from the menu.

(**NOTE:** some of this discussion on the wash system is already in the permit as a technical revision, but it seems appropriate to combine that directly into the mining plan.)

Major Powerline Setbacks and Effects on Mining

Running along the east side of the operation are 230 kv powerlines that originate at the Nixon Power Plant just south of the operation. These are major feeder lines for Colorado Springs. These lines have a limiting impact on the operation because they fall in the category of "valuable man-made structures" which mining operations need to stay at least 200 feet from unless special arrangements have been made and the owner of the structure agrees to allowing land closer than 200 feet be affected. The powerlines are covered under easement corridors established by the Colorado Springs Utilities (CSU) through agreement with Schmidt and Schmidt's parent company. CSU has special guidelines for disturbing land within the easement, but allows disturbance beyond the edge of the easement with the exception of doing something that would make the power poles unstable.

Attached in Exhibit D - Supplement 1 are various documents detailing the agreements that have been made between Schmidt and CSU regarding these powerlines and their easements. *It does not appear that these documents are present in the permit record at the Division. Thus this technical revision will introduce them to the file because they are relevant to the permitted plan. These are current as of 2014. CSU was also heavily involved in the recent consideration and approval of the location of the water line installed beside the powerlines connecting the Nixon Power Plant to the operation for wash plant use. Documents regarding that are also available. Also in October 2022 a notarized letter was obtained stating that Schmidt could affect land up to the Easement. However, the water line prevents mining from happening up to the easement.*

The Permanent Easement is, in the areas closest to the eastern side of the permit, is a strip 200' wide at its widest but generally 170' wide to the west of the east section line which is very close to the fence and the Permit Boundary. Its west easement line is **approximately** located most easily by measuring 50' to the west from the most western power poles. The actual distance varies from 45' to 55' depending on the powerpole, but a nominal distance is 50 feet. The enclosed information shows the actual distance from each powerpole to the western easement boundary. The Affected Land Boundary will be staked with posts at the specific easement boundary. Do not go east of the stakes!

The Affected Land boundary in this area is located at the western edge of the easement in accordance with the Permanent Easement legal description and the new notarized letter from CSU. However, the edge of the Affected Land identifies the location where disturbance of **any kind** that is associated with the Fountain Pit must stop. The nearest actual current disturbance of land that involves significant excavation is about 90 feet from the affected land boundary and the edge of the mining in most places is about 110 to 150 feet from the edge of the easement. This separation will roughly continue on to the south, parallel to the easement. Thus, even though a roadway may be present near the easement boundary there will be no mining excavations closer to the edge of the easement or the affected land boundary than about 75 to 100 feet. This should generate a 150 to 175 foot separation between excavation for mining and the actual power poles. In accordance with the CSU guidelines, roads are permitted even within the easement but Schmidt will not have any of those. However, any mine road that Schmidt creates between the excavation and the edge of the easement will also be available for CSU to use for maintenance of the powerlines. The height of the lines themselves will be far higher than the height of any equipment Schmidt would place on the road and that equipment will be further west and outside the easement corridor relative to the actual power lines. Once again, remember there is a water line just west of the Easement and Affected Land Boundary.

It is important to note that in the reclamation the layback of the top of the slope to create the 3:1 final slope will extend into this area a distance approximately equal to 3 times the height of the highwall at that location. Thus if the total highwall is 45 feet then the approximate location of the most easterly part of the slope reduction cut will be approximately 135 feet east of the crest of the overburden highwall. Thus, in the final condition, much of that setback will be consumed in reducing the highwall to a slope. But in no case will these cuts encroach within the easement. If that is necessary then slope reduction will be done completely or in part by backfilling to complete the slope reduction if it comes up steeper than 3:1 when reduction can be completed with cut and fill. This also preserves sufficient growth medium for reclaiming the nearby pit bottom thereby integrating the reclamation of the toe of the 3:1 slope with the bottom into a gentle curve rather than an abrupt change in slope that encourages the initiation of headward erosion of the toe of the slope. For more

details on this refer to the Reclamation Plan. This is one of those subjects that straddles mining and reclamation processes.

There is an additional powerline that extends from the eastern boundary of the property directly westward across the operation. To continue mining southward into the amended land this powerline will need to be moved.

This powerline belongs to Schmidt and feeds part of the electrical needs of the processing plant. (Power to the office is fed by a separate line from the south-southwest.) A new line will be constructed from the east side of the property over to the wash plant and screening plant. Then the current line will be taken down prior to proceeding with stripping and mining to the south. Thus the new line will be located well north of any future mining. This is expected to happen in 2023, but exact plans are not in place yet. The new powerline will not interfere with any future mining or reclamation operations. As the plant moves south new power poles will be installed so the line can be extended as the plant moves southward. Once completed the new route of this powerline will probably be noted on the next annual report map.

Maximum Amount of Highwall at Any One Time

For mining purposes the amount of highwall exposed at any one time is not very important. However, because essentially all land affected by the operation is required to be reclaimed to a subsequent beneficial use, this number becomes important because the reclamation plan must be bonded with a financial warranty. The soil/overburden top layer averages about 8 - 9 feet deep and the depth of mining the gravel layer beneath that layer has a nominal depth of around 35 to 40 feet. Thus, a good estimate is that the entire wall height is about 44 to 50 feet high. It can be higher and it can be lower, but that is probably a good average.

There are three connected highwalls to be concerned about. The longest stretches across the operation along an east-west line. Attached to each end of this wall are the two sides of the pit with highwalls that run northward along a north-south line. The side highwalls are usually quite straight, but can be stepped if there is a road on top of the gravel but at the base of the overburden highwall which is usually vertical or nearly so. Stepping is also often the case with the east-west highwall, so the highwall is rarely vertical from the bottom of the pit to the top of the soil. These steps are transportation corridors as well as used to extend the overburden stripping further. It is far easier to use a backhoe or front end loader to knock down the overburden and load it into a haul truck than to try and scrape it successively off the surface. If scrapers were used that would be the way to do it, but

having some scrapers that are only useful for that purpose is a great deal of overhead for something that is only done every few years.

Thus the highwalls along the sides of the operation are as long as are needed to provide access for various purposes. Precise lengths cannot be provided because there are a lot of variables. And even though the gravel highwall extends from side to side, a large surface of gravel is initially exposed and this extends outward from the overburden cut for a few hundred feet, at the most, when a new area of mining is exposed. Naturally, as the mining proceeds this exposure of the gravel layer becomes narrower until the distance between the safety berm beside the road on the shelf and the gravel bench is maybe 20 feet wide. Then more stripping is done. The point is, this east-west wall can become curved to the south in the middle because mining of the inner part of the exposure proceeds a bit more rapidly than the edges. The edges tend to be the last part of the gravel seam to be trimmed off to return the gravel highwall to a more straight, east-west line.

Maximum length of the main working face (east-west) can range from about ±2,300' when straight to ± 2,700' when curved. The length of the side highwalls are more difficult to determine because they essentially serve as roadways and can potentially run the full length of the operation or at least to a point where it is necessary for the road to come up to the surface elevation or drop down to the bottom of the pit. A nominal length of each would be ip to 1,500' each or up to 3,000' for both. So, a safe number to use for calculations would likely be about 5,500 feet of TOTAL highwall length.

However, this comes with a need to point out that the way the reclamation of these highwalls is implemented also affects the Reclamation Cost of this feature in the bonding. For discussion of that, please refer to the "Grading and Backfilling" section in the Revised Reclamation Plan. It is likely that these highwalls will not be backfilled by end dumping overburden over the edge of the highwall. But rather the highwalls will be eliminated by cut and fill techniques where the cutting off of the top provides much of the fill for the bottom so the result is a 3:1 slope without the sloped internal layers of end dumped material that encourages slumping of the slope if it becomes very wet or even saturated with water. Some fill may still be needed to round out the total volume of the slope, but that should not occur to a large extent.

The overburden removed will also be used to cover the gravelly bottom of the pit with a more finely textured material for revegetation purposes. For a discussion of that, also refer to the Revised Reclamation Plan.

Possible Historical Site in Southwestern Corner of Permit

In the southwestern corner of the permit an area has been identified on the Mining (and Reclamation) Plan Maps that may contain an unconfirmed Native American burial site. The State

Archaeologist has been informed of this. This small parcel will not be mined or disturbed until it is verified that the anecdotal evidence is, in fact, false and there is no such site present. It may not be touched at all as it forms the edge of the upland and its removal would like require affecting land to the west of this parcel which is outside the permit boundary. Very little gravel is being given up to leave this area untouched. Affecting it could become far more expensive that it is worth if in fact it is a burial ground.

However, to add this land to the mining plan if there is nothing of historical significance in this area a Permit Amendment would be required as these lands, even though within the Permit Boundary, are outside the Affected Land Boundary.

Exhibit D
Supplement 1
Part A

Powerline Easements

Colorado Springs Utilities
It's how we're all connected

October 18, 2022

Schmidt Construction Company
2635 Delta Drive
Colorado Springs, CO 80910
Attn: Nicholas Domingue, Geological Services Manager

Re: Gravel pit extension near Utilities' transmission line (900 S. Charter Oaks Ranch Rd, 80817, Fountain Pit DRMS number M-1982-155)

Dear Mr. Domingue,

This letter responds to your August 24, 2022 request for documentation regarding Colorado Springs Utilities (Utilities) requirements for mining activities in close proximity to a portion of our electric transmission infrastructure near Schmidt's work at 900 South Charter Oaks Ranch Road.

If the mining operations are occurring outside of the existing Utilities easement boundaries, then there are no approvals, permissions, or notifications required to or from Utilities. This would include work which is outside the easement but within two hundred (200) feet of the support structures as those activities are not expected to have any negative effect on our current transmission infrastructure. I believe easement documentation has been previously shared but please reach out if any information is needed to help identify those boundaries.

If excavation or reclamation tasks are proposed within Utilities' easement, regardless of the distance from Utilities' infrastructure, then we require you share the plan for the work in advance for review and written approval by Utilities' Transmission Engineer. Utilities reserves the right to reject proposed work that could result in negative effects to our transmission infrastructure. Utilities' Electric Line Extension and Service Standards sets forth the guidelines for grading within easements. We will review your work plan for compatibility and can also evaluate on case-by-case basis whether a guideline waiver may be acceptable.

In addition, Utilities requires prior notification any time you plan to operate heavy equipment within Utilities' easement. Utilities representative must be on site to provide guidance and help mitigate potential safety concerns.

Please review the detailed information in Utilities' Electric Line Extension and Service Standards, which you can access here: Electric Line Extension and Service Standards - 2022 Edition (csu.org). In particular, see Chapter 2 (Electrical Safety and Code Clearances) and Chapter 4 (Right-of-way, Easements and Access).

P.O. Box 1103 Mail Code
1328 Colorado Springs, CO 80947
Phone 719.668.8510

Colorado Springs Utilities
It's how we're all connected

All required communication involving Utilities' transmission system is required to be submitted via electronic mail to our Transmission Engineer, Drew Latrell (DLatrell@csu.org).

Please contact our team if you need additional information or have other questions.

Sincerely,

Sarah LaBarre
Manager, Engineering Design
Colorado Springs Utilities

State of Colorado)
) ss.
County of El Paso)

The foregoing instrument was acknowledged before me this 18 day of October, 2022, by. KATHERINE O'HARA KENNEDY

Witness my hand and seal

My Commission Expires: 10/25/2022

KATHERINE O'HARA KENNEDY
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20104036259
My Commission Expires 10-25-2022

Notary Public

P.O. Box 1103 Mail Code
1328 Colorado Springs, CO 80947
Phone 719.668.8510

NIXON-KELKER 230kV O/H TRANSMISSION LINE
EASEMENT LOCATIONS
(SHEET 1 OF 2)

Colorado Springs Utilities
It's how we're all connected

NIXON-KELKER 230kV O/H TRANSMISSION LINE
EASEMENT LOCATIONS
(SHEET 2 OF 2)

Colorado Springs Utilities
It's how we're all connected

N

Cherokee Oak Ranch Rd

45.00' STRUCTURE TO EASEMENT LINE

BK 2711 PG 64

PROPERTY OWNER: SCHMIDT CONSTRUCTION

52.00' STRUCTURE TO EASEMENT LINE

55.00' STRUCTURE TO EASEMENT LINE

170.00' EASEMENT

60.00' STRUCTURE TO EASEMENT LINE

BK 2718 PG 553

REC #206032227

45.00' STRUCTURE TO EASEMENT LINE

PROPERTY OWNER: SCHMIDT CONSTRUCTION

170.00' EASEMENT

50.00' STRUCTURE TO EASEMENT LINE

55.00' STRUCTURE TO EASEMENT LINE

170.00' EASEMENT

50.00' STRUCTURE TO EASEMENT LINE

BK 2726 PG 7863

50.00' STRUCTURE TO EASEMENT LINE

PROPERTY OWNER: SCHMIDT CONSTRUCTION

45.00' STRUCTURE TO EASEMENT LINE

50.00' STRUCTURE TO EASEMENT LINE

170.00' EASEMENT

50.00' STRUCTURE TO EASEMENT LINE

PROPERTY OWNER: SCHMIDT CONSTRUCTION

BK 2723 PG 44 & BK 2718 PG 554

50.00' STRUCTURE TO EASEMENT LINE

55.00' STRUCTURE TO EASEMENT LINE

170.00' EASEMENT

Milbrose Rd

NIXON-KELKER 230kV O/H TRANSMISSION LINE
EASEMENT LOCATIONS
OVERALL

Colorado Springs Utilities
It's how we're all connected

ROBERT C. "BOB" BALINK El Paso County, CO
03/03/2006 02:18:04 PM
Doc $0.00 Page
Rec $36.00 1 of 7
206032227

PERMANENT EASEMENT AGREEMENT

Corporation

This Permanent Easement Agreement ("Agreement") is made and entered into this 18th day of February, 2006, by and between Edward C. Levy Co dba Schmidt Construction, Inc. ("Grantor"), whose address is 2635 Delta Drive, Colorado Springs, CO 80910, and the **City of Colorado Springs,** a Colorado home rule city and municipal corporation ("Grantee"), on behalf of its enterprise Colorado Springs Utilities, whose address is 30 S. Nevada Avenue, Colorado Springs, Colorado 80903 (both Grantor and Grantee hereinafter collectively referred to as the "Parties").

Recitals

WHEREAS, Grantee has determined that its facilities described in Paragraph 1 should, for engineering and maximum efficiency purposes, be constructed along a certain utilities corridor; and

WHEREAS, Grantor owns real property (the "Property"), described in **Exhibit "A"**, through which Grantee's facilities described in paragraph 1, as approved by Grantee, will pass; and

WHEREAS, the Parties hereby enter into this Agreement.

Covenants

NOW, THEREFORE, in consideration of the promises, mutual covenants and agreements contained herein, the Parties agree as follows:

1. **Conveyance of Permanent Easement.** For good and valuable consideration, Grantor hereby grants and conveys to the Grantee a perpetual non-exclusive easement, (the "Permanent Easement") to enter, occupy and use the property described in Exhibit B (which is the legal description of the Permanent Easement area and by this reference is made a part hereof) to construct, reconstruct, use, operate, maintain, repair, patrol, replace, enlarge or remove one or more pipelines, conduits, poles, vaults, meters, regulator stations, switches, transformers, valves, hydrants, manholes, or any other utility structures (including, but not limited to communication facilities), and all necessary underground or aboveground cables, wires and appurtenances thereto, including, but not limited to, electric or other control systems, cables, wires, connections and surface appurtenances (the "Improvements") in, through, over and across the Permanent Easement.

2. **Easement Map.** **Exhibit "C"**, attached hereto and by this reference made a part hereof, is a graphic representation of the aforementioned Permanent Easement. The legal description in Exhibit B describes, exclusively, the Permanent Easement. In the event the legal description set forth in Exhibit B is inconsistent with the graphic representation in **Exhibit "C"**, said legal description shall control.

3. **Ingress and Egress.** Grantee shall have and exercise the right of reasonable ingress and egress in, to, through, over, under and across the Property for access to and from any roads, highways, streets, alleys or any other point to the Permanent Easement in order to perform construction, reconstruction, operation, use, maintenance, repair, replacement or removal of the Improvements. Except in emergencies, Grantee shall attempt to give Grantor reasonable advance notice prior to exercising its rights of ingress and egress. To the maximum practicable extent, Grantee shall use existing gates, roads, trails and facilities to avoid disruption of Grantor's operations on the property.

4. **Additional Construction.** Grantee shall have the right to lay, construct, maintain, operate, alter, repair, patrol, remove, change the size of and replace, at any time or from time to time, one or more additional Improvements and appurtenances thereto within the Permanent Easement. Such right shall not be lost by mere passage of time, and Grantor shall not stop, hinder or impede construction of such additional improvements or limit same.

5. **Grantor's Rights Unaffected.** Except as provided in Paragraph 6 hereof, Grantor shall retain the right to make full use of the Property, except for such use as might endanger or interfere with the rights of Grantee in its construction, operation or maintenance of the Improvements. Grantor shall only perform or permit other persons or entities to perform construction or other work within the Permanent Easement in accordance with the terms of this Agreement.

6. Surface Installations in Permanent Easement. Grantor shall not construct or place any structure or building on any part of the Permanent Easement. Any such structure or building constructed or placed on the Permanent Easement after the date of this Agreement, may be removed by Grantee without liability for damages arising therefrom. If Grantor constructs or places any structure or building within the Permanent Easement, Grantor shall reimburse Grantee for all expenses associated with removing such structure or building. Such structures or buildings, which are prohibited on the Permanent Easement, include, but are not limited to the following: dwellings, garages, barns, sheds, storage structures of any kind, lean-tos, playhouses or other play structures, outbuildings, gazebos, hot tubs, swimming pools, concrete patios, decks, dog runs, basketball/sports courts, retaining walls, posts, or poles.

Grantor reserves use of the Permanent Easement, whether longitudinal or otherwise, for installing pavement, curbs, gutters, sidewalks, paved parking areas and associated curb cuts, paved driveways, fences (except fences which cannot be reasonably removed and erected again such as stone, brick, or other masonry type fences or walls), low-height landscaping, and sprinkler systems which are capable of being reasonably located by Grantee (the "Grantor's Improvements"); provided, however, that the exercise of such, rights, in the reasonable opinion of Grantee, does not injure or interfere with, now or in the future, any of the rights provided to Grantee under this Agreement, including, but not limited to, Grantee's rights of maintenance and reasonable access.

The foregoing notwithstanding, in no event shall Grantor:

(1) Construct or place, longitudinally along or otherwise within the Permanent Easement, any tree, underground pipeline, cable, wire, conduit or other utility without the prior written consent of Grantee, which shall not be unreasonably withheld or delayed; or

(2) Change, by excavation or filling, the present grade or ground level of the Permanent Easement by more than one foot without the prior written consent of Grantee.

Grantor shall control and, to the extent reasonably necessary, prevent the construction or alteration within the Permanent Easement or the Property of landfills, land excavations, water impoundments, and other land uses which might endanger or interfere with any Improvements, including Grantee's rights of maintenance and reasonable access.

If at any time the Grantor undertakes to construct or place improvements within the Permanent Easement that necessitates the relocation, reconstruction, removal, or abandonment of any of the Improvements that are located within the Permanent Easement, Grantor shall notify Grantee in writing of such necessity. If Grantee agrees that the Improvements must be relocated, reconstructed, removed or abandoned, Grantor shall be responsible for the costs of such relocation, reconstruction, removal or abandonment. If, as a result of Grantor's improvements, Grantee must terminate the use and occupancy of all or part of the Permanent Easement, Grantor shall perform the following: (1) provide at Grantor's sole expense a good and sufficient alternative easement for Grantee outside of the Permanent Easement; or (2) reimburse Grantee through an appropriate written agreement for all costs incurred by Grantee to acquire an alternative, adequate easement as determined by Grantee; and 3) reimburse Grantee for all costs of relocating, reconstructing, removing or abandoning its Improvements.

7. Surface Restoration to Land. Grantee shall repair or reimburse Grantor for the reasonable cost of repair for any physical damage done by or resulting from actions or operations of Grantee to Grantor's property outside the Permanent Easement. Grantee shall repair or replace damaged property or reimburse Grantor for the reasonable cost of repair or replacement of physical damage to growing crops, livestock, grazing land, and Grantor's Improvements whether within or without the Permanent Easement caused by laying, repairing, replacing, maintaining or removing of Improvements. Grantee, in constructing, maintaining or altering the Improvements, shall promptly restore, replace, or repair the surface to the original condition as near as may be reasonably possible. Notwithstanding the foregoing, Grantee shall not be liable for damage to structures; buildings, or any other articles whatsoever, constructed, installed, or otherwise existing on the Permanent Easement in violation of the terms of this Agreement, including, but not limited to, any tree(s) which interfere with the Improvements or the rights granted herein.

8. Maintenance of Permanent Easement. Grantee shall have the right from time to time to cut, trim, control, and remove trees, brush and other obstructions which injure or interfere with the Grantee's use, occupation or enjoyment of the Permanent Easement and the operation, maintenance, repair and patrolling of the Improvements without liability for damages arising therefrom.

9. Subjacent and Lateral Support. Grantor shall not impair the lateral or subjacent support for the Improvements.

10. Binding Effect. Each and every one of the benefits and burdens of this Agreement shall inure to and be binding upon the respective legal representatives, heirs, executors, administrators, successors and assigns of the Parties.

11. Nature of Easement and Additional Uses. This Permanent Easement shall be permanent and run with the land. It shall also be deemed to touch and concern the land. Exercise of any rights in the Permanent Easement other than those retained by Grantor shall be within the sound discretion of Grantee. Grantee agrees to permit and authorize such other uses of the subject Permanent Easement, not reserved in Grantor, as will not impair Grantee's rights upon such reasonable terms, limitations, and conditions as Grantee shall find reasonably necessary to protect the right of occupancy of the subject Permanent Easement for the purposes of Grantee without undue or unnecessary injury to or impairment of the estate retained by Grantor.

12. Warranty of Title. Grantor warrants that it has full right and lawful authority to make the grant contained herein, and promises and agrees to defend Grantee in the exercise of its rights hereunder against any defect in its title to the land involved or its right to make the grant contained herein.

13. Mechanic's and Materialmen's Liens. In no event shall Grantee allow any mechanic's or materialmen's liens to attach against the Property for materials supplied or work performed at the request of, or for the benefit of, Grantee, and Grantee, to the extent expressly permitted by law, shall indemnify and hold Grantor harmless from any cost or expense, incurred by Grantor to release any such mechanic's or materialmen's liens against the Property.

14. Indemnity/Liability. Grantor hereby releases Grantee and shall fully protect, defend, indemnify and hold harmless Grantee, the City of Colorado Springs, their officers, City Council, Utilities Board, directors, employees, agents and representatives from and against any and all claims, costs (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs), losses, damages, causes of action, or liability of any nature regarding this Agreement or the Improvements to the extent caused by Grantor.

15. Waiver. The failure of Grantee to insist, in any one or more instances, upon a strict performance of any of the obligations, covenants or agreements herein contained, or the failure of Grantee in any one or more instances to exercise any option, privilege or right herein contained, shall in no way be construed to constitute a waiver, relinquishment or release of such obligations, covenants or agreements, and no forbearance by the Grantee of any default hereunder shall in any manner be construed as constituting a waiver of such default.

16. Severability. The provisions of this Agreement are severable. Illegality or unenforceability of any provision herein shall not affect the validity or enforceability of the remaining provisions in this Agreement.

17. Entire Agreement. This Agreement represents the entire agreement between the Parties and no additional or different oral representation, promise or agreement shall be binding on any of the Parties hereto with respect to the subject matter of this instrument, unless stated in writing and signed by Grantee and Grantor.

18. Notice. All notices necessary or required under this Agreement shall be in writing and shall be personally delivered, sent by overnight delivery service, or mailed by certified mail, postage prepaid and return receipt requested, as follows:

If to Grantee:
Colorado Springs Utilities
Utilities Development Services
P.O. Box 1103, Mail Code 1015
Colorado Springs, Colorado 80903
Phone: (719) 668-8264

If to Grantor:

Grantor:	Edward C. Levy Co. dba Schmidt Construction, Inc.
Attn:	Mr. Scott Davis, Vice President
Address:	2635 Delta Drive
City, State, ZIP:	Colorado Springs, CO 80910
Phone:	(719) 392-4207

(or to the current owner of the Property)

Notice given by personal delivery, overnight delivery or mail shall be effective upon actual receipt. The Parties may change any address to which Notice is to be given by giving notice as provided above of such change of address.

PERMANENT EASEMENT AGREEMENT

Corporation

19. Governing Law and Jurisdiction. This Agreement shall be construed in accordance with the laws of the State of Colorado, the Colorado Springs City Charter, City Code, Ordinances, Rules and Regulations. In the event of litigation, this Agreement shall be enforceable by either Colorado Springs Utilities or the City of Colorado Springs as provided in Colorado Springs City Code 12-1-108. In the event of any dispute over the Agreement's terms and conditions, the exclusive venue and jurisdiction for any litigation arising thereunder shall be in the District Court of El Paso County, Colorado, and, if necessary for exclusive federal questions, the United States District Court for the District of Colorado.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the day and year first above written.

GRANTOR:

(SEAL)

Corp: Schmidt Construction Co. DBA Schmidt Construction Co.

By: Scott Davis
President

By: Leonard Miller
Secretary

STATE OF Colorado)
) SS
COUNTY OF El Paso)

The foregoing instrument was acknowledged before me this 9 day of February 2006, by Scott Davis as President and Leonard Miller as Secretary of Schmidt Construction Co, a Colorado corporation.

Witness my hand and official seal.

My Commission Expires: 3/21/06

(SEAL)

Notary Public

GRANTEE:

CITY OF COLORADO SPRINGS,
on behalf of its enterprise,
Colorado Springs Utilities

By: Darlene J. Kennedy
Name: Darlene J. Kennedy
Title: Acting Real Estate Manager

APPROVED AS TO FORM:

Not required
City of Colorado Springs
City Attorney Office-Utilities Division

Date: 2-18-06

EXHIBIT A

LEGAL DESCRIPTION:

NORTHEAST QUARTER OF SECTION 13, TOWNSHIP 16 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN RECORDED IN THE RECORDS OF EL PASO COUNTY COLORADO AT RECEPTION NO. 99093683

EXHIBIT B

LEGAL DESCRIPTION:

A PARCEL OF LAND BEING A PORTION OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 13, TOWNSHIP 16 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, EL PASO COUNTY, COLORADO, MORE SPECIFICALLY WITHIN THAT PARCEL DESCRIBED IN RECEPTION NO. 99093683 BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BASIS OF BEARINGS: THE EAST LINE OF THE NORTHEAST QUARTER OF SECTION 13, TOWNSHIP 16 SOUTH, RANGE 66 WEST MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION BY A 3 ½" ALUMINUM SURVEYORS CAP STAMPED "W.K. CLARK & ASSOC'S LS 4842" AND AT THE EAST QUARTER CORNER OF SAID SECTION BY A 1 ½" ALUMINUM CAP LS 2692 IS ASSUMED TO BEAR S 00°59'20" E, A DISTANCE OF 2640.13 FEET.

COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 13, **THENCE** S 00°59'20"E ALONG THE EAST LINE OF SAID SECTION 13, A DISTANCE OF 618.00 FEET.

THENCE S89°00'40"W A DISTANCE OF 200.00 FEET TO THE NORTHWEST CORNER OF A UTILITY EASEMENT RECORDED AT BOOK 2718 AT PAGE 553 IN THE RECORDS OF EL PASO COUNTY, SAID POINT BEING POINT OF BEGINNING.

THENCE N00°59'20"W A DISTANCE OF 286.26 FEET MORE OR LESS TO INTERSECT WITH THE WESTERLY LINE OF A UTILITY EASEMENT RECORDED AT BOOK 2711 AT PAGE 65 IN THE RECORDS OF EL PASO COUNTY.

THENCE S21°50'23"E ALONG THE WESTERLY LINE OF SAID UTILITY EASEMENT A DISTANCE OF 306.32 MORE OR LESS TO INTERSECT WITH THE NORTH LINE OF THAT UTILITY EASEMENT RECORDED AT BOOK 2718 AT PAGE 553.

THENCE S89°00'40"W ALONG SAID NORTH LINE, A DISTANCE OF109.04 FEET TO THE POINT OF BEGINNING.

CONTAINING 0.36 ACRES MORE OR LESS

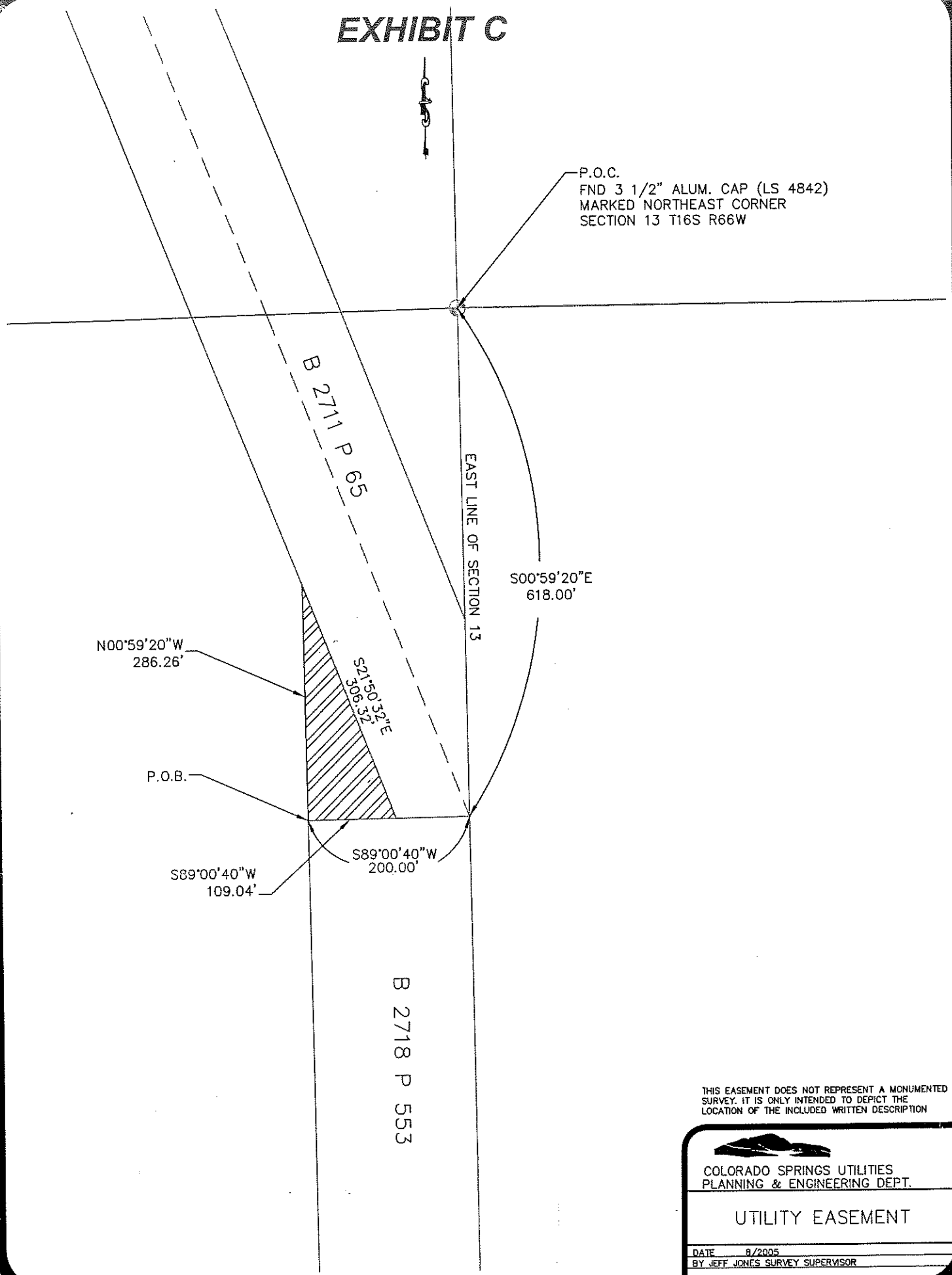
LEGAL DESCRIPTION STATEMENT:

I, JEFFERY D JONES, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY STATE THAT THE ABOVE LEGAL DESCRIPTION AND ATTACHED EXHIBIT WERE PREPARED UNDER MY RESPONSIBLE CHARGE AND ON THE BASIS OF MY KNOWLEDGE INFORMATION AND BELIEF ARE CORRECT.

Jeffery D. Jones DATE 8/10/05

JEFFERY D JONES
COLORADO P.L.S. 28653
FOR AND ON BEHALF OF COLORADO SPRINGS UTILITIES

EXHIBIT C



THIS EASEMENT DOES NOT REPRESENT A MONUMENTED SURVEY. IT IS ONLY INTENDED TO DEPICT THE LOCATION OF THE INCLUDED WRITTEN DESCRIPTION

COLORADO SPRINGS UTILITIES
PLANNING & ENGINEERING DEPT.

UTILITY EASEMENT

DATE 8/2005
BY JEFF JONES SURVEY SUPERVISOR

Exhibit D
Supplement 1
Part B

Groundwater and SWSP Issues

Applegate Group, Inc.
Water Resource Advisors for the West

July 22, 2020

Ms. Melissa van der Poel
State Engineer's Office
1313 Sherman Street, Room 818
Denver, CO 80203

Re: Substitute Water Supply Plan Amendment Request for the Fountain Pit (M-1982-155)

Dear Melissa:

The Fountain Pit (M-1982-155), operated by Schmidt Construction Company (Schmidt), is covered by a Substitute Water Supply Plan (SWSP) approved by your office pursuant to C.R.S. §37-90-137(11). The current SWSP expires November 30, 2020. On behalf of Schmidt, Applegate Group (Applegate) is submitting this request to amend the current SWSP to account for additional water use at the site and add an additional replacement supply. Applegate intends to pay the $257 SWSP amendment fee electronically.

AMENDMENT DESCRIPTION

The Fountain Pit is located in Section 13, Township 16 South, Range 66 West in El Paso County. The site is located approximately two miles south of the City of Fountain and two miles west of I-25. An overview map is included as Figure 1.

The current SWSP covers up to 4.07 acre-feet per year of groundwater depletions to Rock Creek resulting from pumping water from an existing sump (Well Permit No. 59834-F); such water is fully consumed by evaporation and dust control use around the site. The primary replacement source for these depletions are 20 shares in the Fountain Mutual Irrigation Company (FMIC) that are delivered to FMIC's augmentation station on Spring Creek.

In addition to the uses already covered by the approved SWSP, Schmidt has additional needs for water for dust control, aggregate production, and construction activities on and in the vicinity of the Fountain Pit. In order to provide for that need, Schmidt has executed a lease with Colorado Springs Utilities (Utilities) for water to be delivered via pipeline to the Fountain Pit. The source of this water will be the Hanna Wells located on nearby Clear Springs Ranch, shown in Figure 1.

DEPLETIONS

Pursuant to the attached surplus water lease agreement, Utilities will supply Schmidt with up to 250 acre-feet per year in non-potable water pumped from the Hanna Wells on Clear Springs Ranch. The Hanna Wells, designated Hanna Ranch Well Nos. 1 through 14, were decreed in Case No. W-1528 and were most recently used for municipal, industrial, and domestic purposes in conjunction with operation of Utilities' R.D. Nixon Power Generating Plan located on Clear Spring Ranch. Under this SWSP, the water pumped from the Hanna Wells will instead be delivered to Schmidt's Fountain Pit, where it will

be used for dust control, aggregate production, and construction activities on and in the vicinity of the site. For the purposes of this SWSP, such water use will be considered 100% consumptive.

Groundwater withdrawn from the Hanna Wells result in depletions to Fountain Creek, and such depletions are rarely in-priority. Replacement obligations for depletions resulting from operation of the Hanna Wells are set forth in the decrees for Case No. W-4376 and Consolidated Case Nos. 84CW202, 84CW203, 86CW118(b), and 89CW36. These cases indicate that depletions from pumping of the Hanna Wells are assumed to instantaneously impact Fountain Creek. Therefore, the additional depletions to potentially be covered by this SWSP amendment would equal the 250 acre-feet per year that Utilities may provide to Schmidt under the surplus water lease agreement.

REPLACEMENT SOURCES

In accordance with decrees for Case No. W-4376, Case No. 16CW3056, and Consolidated Case Nos. 84CW202, 84CW203, 86CW118(b), and 89CW36, Utilities augments depletions from pumping of the Hanna Wells using reusable sewered return flows released from the Las Vegas Water Reclamation Facility and/or nonsewered return flows. Utilities will continue to use such water as the replacement source for pumping from the Hanna Wells made pursuant to this SWSP.

OPERATION OF PLAN

Schmidt will continue to augment depletions that result from pumping of Well Permit No. 59834-F using replacement water provided by 20 FMIC shares in accordance with the currently approved SWSP. The accounting for this operation will remain unchanged.

For this SWSP amendment, additional water will be delivered to the Fountain Pit by Utilities from the Hanna Wells. Such water deliveries will be metered, and will be used by Schmidt for dust control, aggregate production, and construction activities on and in the vicinity of the site. Utilities will have responsibility for reporting the pumping from the Hanna Wells, and augmenting the resulting depletions to Fountain Creek. Such augmentation will be performed with reusable sewered and nonsewered return flows in accordance with Case No. W-4376, Case No. 16CW3056, and Consolidated Case Nos. 84CW202, 84CW203, 86CW118(b), and 89CW36.

AMENDMENT CONCLUSION

This SWSP amendment request is intended to allow water pumped from the Hanna Wells to be used on and in the vicinity of the Schmidt's Fountain Pit for dust control, aggregate production, and construction activities in accordance with a surplus water lease executed between Schmidt and Utilities. The depletions and replacements in the current approved SWSP will also continue as described in that plan. Schmidt intends that this amendment apply to the current SWSP approval period, which expires November 30, 2020.

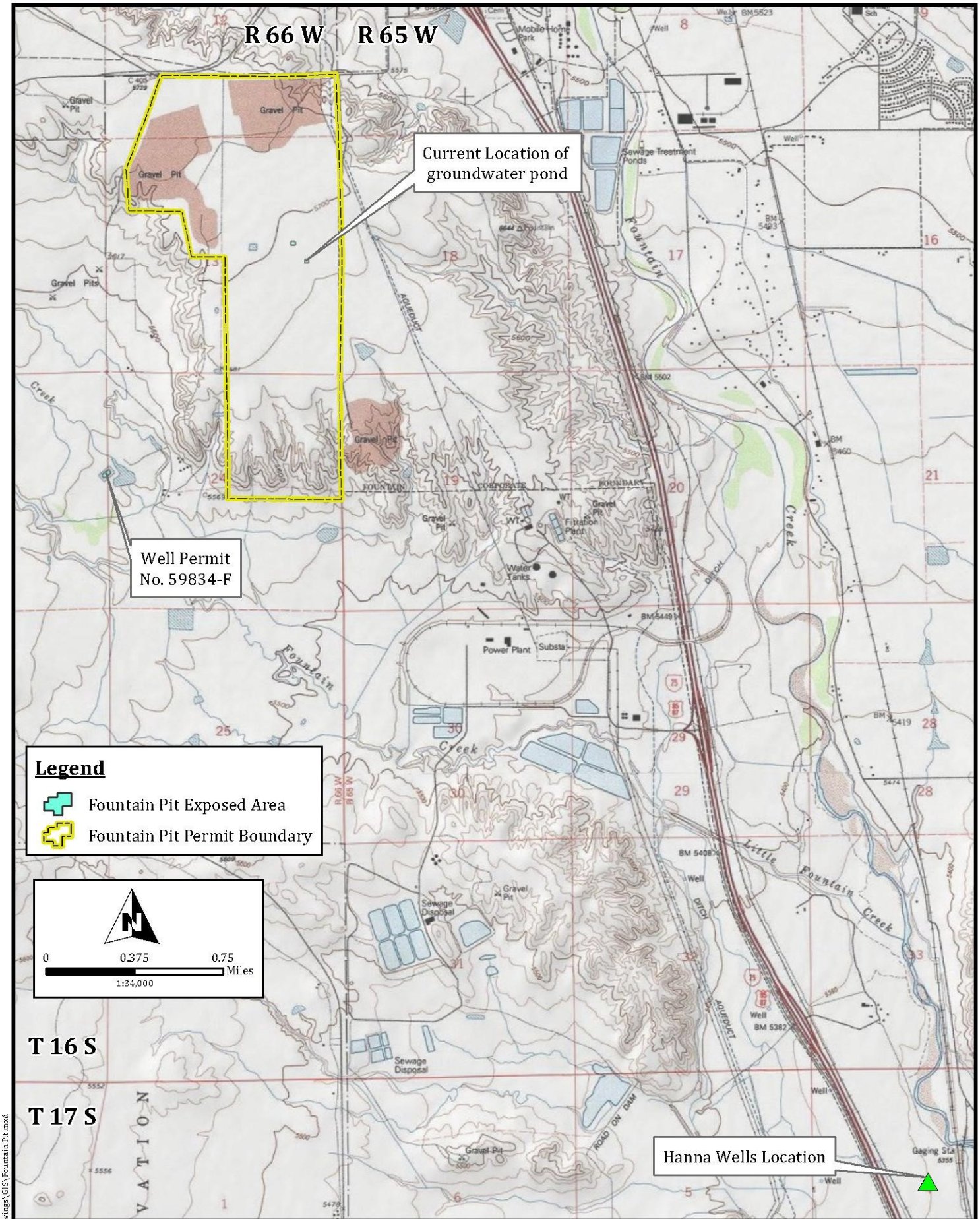
This completes the amendment request for the Fountain Pit SWSP. If you have any questions or need additional information, please do not hesitate to call.

Cordially,
Applegate Group, Inc.

Abdullah Javed, E.I.
Water Resource Engineer

ABJ/jd

cc Scott Davis, Schmidt Construction Company
Kalsoum Abbasi, Colorado Springs Utilities
File #10-123



Applegate Group, Inc.
Water Resource Advisors for the West
1499 West 120th Ave., Ste 200
Denver, CO 80234-2728
www.ApplegateGroup.com
Phone: (303) 452-6611
Fax: (303) 452-2759
e-mail: info@applegategroup.com

FOUNTAIN PIT (M-82-155)

Overview Map

Date: 9 June 2020

Job #: 10-123

Drawn By: ABJ

Figure: 1

Of: 1

Printed: September 2, 2010 by JMD
N:\10123 Fountain Pit SWSP\Drawings\GIS\Fountain Pit.mxd

SURPLUS WATER LEASE AGREEMENT

THIS AGREEMENT ("Agreement") is made and entered on the dates set forth below by and between Colorado Springs Utilities, an enterprise of the City of Colorado Springs, a Colorado home-rule city and municipal corporation, hereinafter called "UTILITIES," and Schmidt Construction, 2635 Delta Drive, Colorado Springs, CO 80910, hereinafter called "SCHMIDT."

RECITALS

A. UTILITIES is the owner and operator of Clear Spring Ranch;

B. UTILITIES owns certain water wells located on Clear Spring Ranch (Hanna Wells) that are decreed for industrial use whose pumping is augmented by reusable sewered return flows released from the Las Vegas Water Reclamation Facility and/or nonsewered return flows as permitted in Division 2, Water Court, Case Nos. W-4376 and 1989CW36. These augmentation releases are made in sufficient quantity to ensure that any water pumped from the Hanna Wells can be fully consumed;

C. UTILITIES, through the operation of the Hanna Wells, and based on current conditions and operation system constraints, has determined that a limited amount of surplus untreated groundwater ("Surplus Water") is normally available for nonpotable use at a gravel mine operated by SCHMIDT, located adjacent to UTILITIES' Clear Springs Ranch property as depicted on Exhibit A;

D. SCHMIDT has the desire to lease up to 250 acre-feet per year of Surplus Water from UTILITIES each year to be used for various nonpotable uses such as dust suppression, washing of gravel, and other nonpotable uses associated with gravel mining (SCHMIDT Uses); and

E. The water rights for the Hanna Wells are currently decreed for municipal, industrial and domestic purposes in conjunction with the operation of UTILITIES R.D. Nixon Power Generating Plant located on Clear Spring Ranch.

F. In order for SCHMIDT to use the Surplus Water as described herein, it must request and obtain approval of a substitute water supply plan (SWSP) from the Colorado State Engineer's Office pursuant to C.R.S 37-92-308(5) or C.R.S. 37-90-137(11) that allows the Surplus Water to be used for SCHMIDT's Uses; and

G. UTILITIES desires to lease Surplus Water to SCHMIDT for use in its gravel mining operation on an annual basis if and when such a supply is available, according to the guidelines set forth in the UTILITIES' Water Management Plan.

NOW, THEREFORE, FOR GOOD AND VALUABLE CONSIDERATION, INCLUDING THE FOREGOING REPRESENTATIONS, IT IS AGREED AS FOLLOWS:

1. **Term**: This Agreement shall become effective upon execution by both parties and shall remain in effect until June 30, 2021 ("Original Term"). The Agreement can be renewed on an annual basis after expiration of the Original Term for up to 4 additional one year periods at UTILITIES' sole discretion based on its determination that Surplus Water is available for lease each year. In no case can the term of this Agreement be extended beyond June 30, 2025. UTILITIES reserves the right not to lease Surplus Water to SCHMIDT under this Agreement if in its sole judgment such water is required to supply the needs of UTILITIES' customers or that Surplus Water is not available. UTILITIES is not obligated to extend or renew the term of this Agreement or deliver Surplus Water to SCHMIDT after the expiration of the Original Term or any subsequent one year renewal of the term.
2. **Substitute Water Supply Plan:** SCHMIDT shall be solely responsible for filing a SWSP with the Colorado State Engineer's Office pursuant to C.R.S. 37-92-308(5) or C.R.S. 37-90-137(11) requesting approval of a change of the water rights for the Hanna Wells that would allow the Surplus Water to be legally used for SCHMIDT's Uses. SCHMIDT shall provide UTILITIES with the reasonable opportunity to review and provide input on the SWSP request before it is filed with the State Engineer's Office, to review and provide input on any responses to questions or comments from the State Engineer's Office related to the SWSP request or approval, and to review and provide input on any terms and conditions proposed by the State Engineer's Office. SCHMIDT shall not submit the SWSP request or responses to the State Engineer's Office, or accept the terms and conditions of the SWSP without receiving UTILITIES' approval of same. The submission of documents or other information related to the review and approval set forth in this paragraph shall be provided to UTILITIES as follows: Kalsoum Abbasi, Planning Supervisor, kabbasi@csu.org.
3. **Surplus Water Deliveries**: Upon approval of the SWSP described in paragraph 2, UTILITIES agrees to lease up to 250 acre feet of Surplus Water to SCHMIDT solely for uses associated with its gravel mining operations each year this Agreement is in effect. UTILITIES agrees to supply Surplus Water at a maximum sustained delivery rate of **200 gallons per minute** from the Hanna Wells to SCHMIDT's gravel mining operation. The maximum annual delivery of Surplus Water to SCHMIDT shall not exceed 250 acre-feet in any calendar year. Deliveries of Surplus Water will be made at the meter on the existing pipeline that runs from the Zero Discharge softening plant to the gravel pit property ("Meter Point").

4. **Operation and Maintenance Costs**: UTILITIES will be responsible for the cost of pumping the Hanna Wells and any other power costs associated with this Agreement, including well-field pumping, as part of the Ray Nixon Power Plant's overall station use. UTILITIES and SCHMIDT agree to split equally any and all maintenance costs of the pipeline, pump, motor, and any other appurtenances associated with the pipeline/pump station necessary for Surplus Water deliveries from the Hanna Wells. UTILITIES will maintain and provide Surplus Water through the existing infrastructure; any modifications or additional infrastructure that the parties deem necessary for Surplus Water delivery to SCHMIDT'S gravel mining operation will be the sole responsibility of SCHMIDT.
5. **Use of Water**: Surplus Water delivered hereunder will only be used to supply SCHMIDT with nonpotable water for its gravel mining operation, including dust control and construction activities on or in the vicinity of the quarry and no other purpose in accordance with the terms and conditions of the SWSP approved by the State Engineer's Office. SCHMIDT agrees and understands that the Surplus Water it is leasing hereunder is nonpotable and must not be used for human consumption or sanitary purposes. SCHMIDT further agrees that it will be solely responsible to comply with all applicable regulatory requirements associated with storing and using nonpotable Surplus Water in its operations. In no event shall Surplus Water be used to support development or any other potable use.
6. **Requests for and Delivery of Surplus Water**: SCHMIDT shall be responsible to request and arrange for the delivery of the Surplus Water, including pumping schedules and initial flow rates for delivery of Surplus Water with UTILITIES' Zero Discharge Plant control room personnel. UTILITIES agrees to use its best efforts to perform on the request provided, however, UTILITIES shall not be liable for non-performance for any reason. Once deliveries of Surplus Water have commenced, UTILITIES agrees to make flow rate adjustments once per day during normal operating hours. Normal operating hours are Monday through Friday from 6:00 am until 2:30 pm. SCHMIDT will be responsible for notifying UTILITIES' Zero Discharge Plant control room personnel at least one hour before any such flow adjustment is required. The contact information for the control room is as follows: **(719) 668-8990.**
7. **Water Rights Unaffected**: No water rights are being transferred to or from UTILITIES or SCHMIDT under this Agreement. UTILITIES retains dominion and control and all rights to return flows generated from Leased Water delivered to SCHMIDT.
8. **Service Rate, Billing, and Payment**: SCHMIDT agrees to pay UTILITIES for nonpotable water provided pursuant to this Agreement at a rate of 1.5 times the augmentation rate as defined in UTILITIES' tariffs in place at the time of Surplus Water deliveries. UTILITIES will read the

water meter on a monthly basis to determine the amount of water provided during the previous month and invoice SCHMIDT monthly in arears with payment due within thirty (30) days of the date of billing. Invoices shall be sent by first class mail to SCHMIDT at the following address:

Scott Davis, President, Schmidt Construction

2635 Delta Drive

Colorado Springs, CO 80910

9. **Metering**: All Surplus Water delivered under this Agreement shall be measured at the meter point. If at any time, either UTILITIES or SCHMIDT questions the accuracy of the meter, either party may cause such meter to be tested for accuracy and recalibrated if necessary, at such party's expense. In the event a meter shall be tested, the party testing the meter shall provide the other party with three (3) days' notice of such testing. If the parties cannot agree that the meter is measuring accurately, they shall choose an independent third party qualified to test the accuracy of such meters, whose decision regarding accuracy shall be binding on both parties. The expenses associated with use of the third party tester shall be split evenly between both parties. In the event that the meter is found to be in error, no adjustments will be made to previous bills issued by UTILITIES.
10. **Water Quality**: Surplus Water from the Hanna Wells is currently of the quality that is acceptable for use in SCHMIDT's operations. In the future, if SCHMIDT demonstrates that the water supplied under this Agreement has declined in quality to the point that it can no longer be used by SCHMIDT in its gravel production operations, then SCHMIDT has the right to terminate this Agreement upon thirty (30) days' notice to UTILITIES.
11. **No Assignment Without Consent; No Third-Party Beneficiary**: There shall be no assignment of the rights or obligations contained in this Agreement by either party without the prior written consent by the other party, and any such assignment shall be null and void. Notwithstanding anything herein to the contrary, upon written notice to SCHMIDT, UTILITIES may assign this Agreement without consent to the City of Colorado Springs, Colorado. Nothing herein shall be construed to give any rights or benefits hereunder to anyone other than UTILITIES and SCHMIDT.
12. **Legal Notice**: Notices under this Agreement, other than SCHMIDT's requests for water and UTILITIES' responses to such requests, shall be given in writing, signed by an authorized representative of the party giving notice. Telephonic or email notice is not acceptable. Notices

shall be delivered by facsimile, by courier service delivery (such as Federal Express), or by first-class mail to the people specified below at the following addresses and telephone numbers:

a. **For UTILITIES:**

i. Chief Water Services Officer: Earl Wilkinson

Courier Service Address:

Colorado Springs Utilities
ATTN: Chief Water Services Officer
121 S. Tejon St., 5th Floor, Mail Code 950
Colorado Springs, CO 80903

United States Postal Service Address:

Colorado Springs Utilities
ATTN: Chief Water Services Officer
P.O. Box 1103, Mail Code 950
Colorado Springs, CO 80947-0950

ii. City Attorney's Office – Utilities Division

City Attorney's Office
ATTN: City Attorney's Office – Utilities Division
30 South Nevada Ave., Suite 501
P.O. Box 1575, Mail Code 510
Colorado Springs, CO 80901-1575

b. **For SCHMIDT**

i. Scott Davis, President, Schmidt Construction
2635 Delta Drive
Colorado Springs, CO 80910

13. **Approvals.** SCHMIDT is responsible for obtaining all approvals of the State Engineer or Division 2 Engineer, as well as all other approvals required for the delivery and use of Surplus Water.

14. **Termination.** SCHMIDT acknowledges and consents to UTILITIES' right to terminate deliveries of Surplus Water under this Agreement due to a significant interruption of water supplies, a substantial disruption (including, but not limited to, legal challenges impacting UTILITIES' water system, and maintenance and repair to the infrastructure) to UTILITIES' water system, SCHMIDT's breach of a material term or conditions of this Agreement, at UTILITIES' convenience, upon thirty (30) days written notice, upon UTILITIES' determination, in its sole discretion, that the water provided by the Hanna Wells is no longer surplus water, or as otherwise

authorized by the City Code of Colorado Springs. UTILITIES will make reasonable efforts to notify SCHMIDT of circumstances that could result in such termination. SCHMIDT further acknowledges and consents to UTILITIES' right to terminate deliveries of Surplus Water under this Agreement if SCHMIDT violates the terms and conditions of the approved SWSP or the SWSP is revoked by the State Engineer's Office for any reason. This agreement shall also automatically terminate if SCHMIDT does not obtain approval of the SWSP from the State Engineer's Office.

15. **Governing Law, Jurisdictional and Venue**: This Agreement shall be construed in accordance with the laws of the State of Colorado (except for its conflict of law provisions), as well as the Colorado Springs City Charter and the City Code. The place of performance and transaction of business shall be deemed to be in the County of El Paso, State of Colorado. In the event of litigation, the exclusive venue and place of jurisdiction shall be the State of Colorado and, more specifically, El Paso County, Colorado and, if necessary for exclusive federal questions, the United States District Court for the District of Colorado.
16. **Force Majeure**: Neither party shall be liable for delays in performing its obligations to the extent the delay is caused by unforeseeable conditions beyond its reasonable control without fault or negligence including strikes, riots, wars, floods, fires, explosions, acts of nature, acts of government, or labor disturbance.
17. **Appropriation of Funds**: In accord with the Colorado Springs City Charter, performance of UTILITIES' obligations under this Agreement is expressly subject to appropriation of funds by the City Council. In the event funds are not appropriated in whole or in part sufficient for performance of UTILITIES' obligations under this Agreement, or appropriated funds may not be expended due to the City Charter spending limitations, then this Agreement will thereafter become null and void by operation of law, and UTILITIES will thereafter have no liability for compensation or damages to SCHMIDT in excess of UTILITIES' authorized appropriation for this Agreement or the applicable spending limit, whichever is less. UTILITIES will notify SCHMIDT as soon as reasonably practicable in the event of non-appropriation or in the event a spending limit becomes applicable.
18. **Entire Agreement; Modifications to be in Writing**: This Agreement, including any and all appendices and exhibits attached hereto, contains the entire understanding between the parties. No modification, amendment, notation, or other alteration to this Agreement shall be valid or of any force in effect unless mutually agreed to by the parties in writing as an addendum to this Agreement. At the time of the execution of this Agreement, there are no other terms, conditions, requirements, or obligations affecting this Agreement which are not specifically set forth therein. Email and all other electronic (including voice) communications from UTILITIES, except as

otherwise specifically provided herein, in connection with this Agreement, are for informational purposes only. No such communication is intended by UTILITIES to constitute either an electronic record or an electronic signature or to constitute any agreement by UTILITIES to conduct a transaction by electronic means. Any such intention or agreement is hereby expressly disclaimed.

19. **No Precedent; Severability**: The parties agree that neither of them intends that this Agreement shall in any way constitute a precedent or standard for any future agreement between the parties, nor vest any rights in either party or any third party for novation, renewal, modification, or addition of any other rights or services on account of this Agreement's existence, as it is based solely on unique conditions currently existing at the time of execution and at the time of UTILITIES' annual determination that the Agreement can continue after expiration of the current term. Any provision or part of this Agreement held to be void or unenforceable under any laws or regulations shall be deemed stricken, and all remaining provisions shall continue to be binding upon the parties who agree that this Agreement shall be reformed to replace such stricken provision with a new provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the dates set forth below.

COLORADO SPRINGS UTILITIES

By: _____

Earl Wilkinson, III
Chief Water Services Officer

SCHMIDT

By: _____

Scott Davis
President

APPROVED AS TO FORM:

_____

Michael J. Gustafson
City Attorney's Office – Utilities Division

STATE OF COLORADO

DWRPermitsOnline, DNR <dnr_dwrpermitsonline@state.co.us>

SWSP Amendment Request for the Fountain Pit (M-1982-155)

Abdullah Javed <AJaved@applegategroup.com> Wed, Jul 22, 2020 at 4:53 PM
To: "Melissa.Vanderpoel@state.co.us" <Melissa.Vanderpoel@state.co.us>, "dwrpermitsonline@state.co.us" <dwrpermitsonline@state.co.us>
Cc: Jared Dains <JaredDains@applegategroup.com>, Kalsoum Abbasi <kabbasi@csu.org>, "Davis, Scott" <SDAVIS@schmidtconstr.com>

Good afternoon,

Please see the attached amendment request for the Fountain Pit SWSP. If you have any questions about it, feel free to contact me at your convenience.

Best Regards,

Abdullah Javed

Applegate Group, Inc.
1490 West 121st Avenue, Suite 100
Denver, CO 80234
Phone: (303) 452-6611
Fax: (303) 452-2759

Fountain Pit SWSP Amendment Request.pdf
4320K

EXHIBIT E: The Revised Reclamation Plan

(Technical Revision #3 - October 2022)

IMPORTANT MESSAGE REGARDING BOUNDARIES:

Definitions of the boundaries and how they apply are at the the beginning of the Mining Plan - Exhibit D. Please be familiar with the meanings of the boundaries.

MOST IMPORTANT, DO NOT DISTURB LAND BEYOND THE *AFFECTED LAND BOUNDARY,* EVEN DURING RECLAMATION. THAT CAN RESULT IN A VIOLATION OF THE PERMITTED PLANS, PLUS FINES.

CONDENSATION OF THE PLAN

The following presents the highpoints of each of the portions of the Revised Reclamation Plan. This is intended to be used as a quick reference to the main points under each category and heading of the rest of this plan. ***These condensations are not intended to present the whole plan. They are just brief summary descriptions of the contents of the plan.*** **Please refer** to the same titled section in the detailed plan for a complete description of what is to occur.

Purpose and Land Use Goal of the Reclamation

1. By law, reclamation plans revolve around the selection of a proposed final land use for the land. The purpose of this reclamation plan is to control erosion and return the land to a stable condition with a grazing final land use without any water bodies.

2. The grazing final land use may never actually occur, but that is the most flexible land use for a large parcel of land that is next to land that is rapidly shifting to industrial uses.

3. In the unlikely event no other use is ever found then at least the land will be revegetated and potentially available for cattle production.

General Description of the Final Reclaimed Land

1. When completed the area mined will be a large tract of land that will be lowered about 45 to 50 feet below the surrounding land, but will open into the valley to the south on its south end. The entire area will be about 1.75 miles long and about 0.5 mile wide.

2. The sides of this depressed land (open basin) will be sloped to 3:1 or less steep.

3. A small amount of localized sub-irrigation in the gravel that will remain on the floor of the basin will help to maintain a good vegetation growth that should, in time, exhibit a lot of diversity in composition.

Shaping the Land - backfilling and grading

SIDE SLOPES:

1. The mining will leave benched highwalls with the bench located about 2/3 to 3/4 the total height of the highwall. The bench will be wide enough for use as a one lane transportation corridor along the base of the overburden highwall.

2. The final slope will have a maximum steepness of 3:1 and will be produced mainly by cut and fill.

3. Where there is insufficient material available to complete the entire slope using cut and fill, material from nearby stockpiled overburden intended to help create slopes and cover the floor of the pit will be used to finish the slope.

4. Initially, the surface of the slope will be left rough to aid in absorption of precipitation and reduce the amount of erosion that could produce rills and gullies.

PIT BOTTOM:

1. The bottom or floor of the pit will be left fairly smooth with a very gradual southward slope (about 1%). The surface composition will be a blend of gravel and sandy fines.

2. On top of this will be placed 8" to 12" of soil/overburden mix obtained from stripping the land in front of the mining area.

3. Seeding of the covered portions of the floor of the pit will occur as soon as planting conditions and seeding can be done.

OLD AREAS AT THE NORTH END:

1. The older areas on the far northern end of the operation go back to the early days of the operation in the late 1970's. Thus, there is a menagerie of land types.

2. The western part along Charter Oak Ranch Road is covered with a strong grass growth that was planted decades ago but never released from bond. Presumably this could be used as topsoil, except there are better materials available elsewhere without disturbing such excellent revegetation that may never be created again due to climatic changes over the last 25 to 45 years.

3. The north central and eastern part of this area contains materials that were intended to be used in reclamation of the pit but are now generally too far from the part of the pit locations where they would be used and therefore too costly to move further than the northern portions of the pit floor.

4. The quality topsoils on the far north end are well worth moving far to the south for use where better soils can be used with discretion on poorer areas that are more critical to have good soil.

5. The rest of the material should be used to shape the land in the area and, if necessary, finish the reclamation of the old large sediment basin that is in this area after it is determined what is needed there (see next section).

SEDIMENT BASIN:

1. Although the large, roughly 20 year old sediment basin just north of the office and scale, is very well vegetated, its actual physical condition has not been determined.

2. These old ponds are now dried out and there is no evidence of prolonged collection of water to produce ponds on the surface that last long enough to form a wetland environment.

3. *Tamarix* weed control is needed before these areas can be released.

NORTH CENTRAL STOCKPILE AREAS:

1. This area is located north of the Sediment Basin and forms a long gradual slope rising to the general land elevation to the north. Much is composed of overburden. But at the furthest extent are windrows of topsoil.

2. As stated before, most of the topsoil should be moved down into the pit leaving enough to topdress the gradual slope to the south in selected areas where it is needed for revegetation of this slope.

3. The overburden here should not be disturbed as it is well vegetated.

Final Configuration of the South End

1. The south end of the operation, like the north end, presents problems not present on land in between the two.

2. Here dissection of the land by erosion has left fingers of overburden that appears to cover mineable gravels.

3. The general slope here is considerably steeper than land to the north as it is the edge of the stream valley to the south. Plus there is a possible Native American burial ground on the edge of the valley up on a high point that would otherwise become part of the western pit slope edge.

4. If in fact that burial ground is confirmed then this area may need to be completely avoided.

5. In short, it is not known exactly what will happen in this dissected landscape. The plan calls for mining and reclaiming the central portion of the eroded land while leaving the southeast and south west corners. This part will be reclaimed to a very gentle slope that will have either a controlled outlet or a collection area for water infiltration. If needed, that will be decided, with Board approval, via a Technical Revision when that time comes.

6. However it is also possible no mining will occur on much of the dissected land such as what was done on the mined and reclaimed land immediately east of this operation.

Effects of Large Silt Pockets in Deposit on Reclamation

1. The primary effect of the silt pockets to the south of the current mining may be to reduce the amount of land disturbed and/or mined if the material turns out to be of little value.

2. It is possible that part of the material can be mined and then blended with material elsewhere to produce suitable specification product, but without extensively disturbing these areas in many locations there is no way to determine that. However, that is a mining problem and not a reclamation problem.

3. Irrespective of what happens with respect to mining, the resulting land will be reclaimed to the same specifications as the rest of the operation. It is just that the final topography will come out a bit different if significant portions of these pockets are left. The final land use (grazing) will still be applicable.

Drainage Control

1. Because the operation is a closed pit, there really isn't much of anything to be done in the way of drainage control, except possibly at the very end of the operation.

2. All wash ponds and any basins where any ground water is exposed will be filled as a part of the reclamation.

3. Currently water that collects near the highwall infiltrates into the gravels remaining on the floor of the pit.

3. At the conclusion of the operation two options exist.

   A. If a graded slope is created at the end of the operation then there will need to be a determination as to whether drainage into the underlying gravels is sufficient to empty collected water in accordance with the time allowed by water law and rules and regulations at that time. Currently the time is 72 hours.

   B. If that cannot be achieved at that time, then a drainage outlet or other provision will need to be established that would appropriately remove the water in the required time period.

Final Grading and Planting

FINAL GRADING:

1. Prior to revegetation, the 3:1 slopes may need to be smoothed a bit. This is probably best done by discing depending on how rough the surface is, how sealed (hard) the surface is, and how much erosion has occurred since the slope was created. If it is rilled and gullied extensively, then partial regrading of the slope may be necessary to get a fairly even and loose surface.

2. If the slope has been recently created then discing once may be all that is necessary or perhaps if loose enough simply proceeding with planting.

3. Although broadcast seeding these slopes is possible if the surface is fresh it is best to drill the seed in this climatic zone. Also broadcasting requires twice as much seed as drilling and seed is expensive these days.

SEEDING THE GRADED LAND:

1. As stated above, drill seeding is best for this area and should best be done within a few days of Final Grading.

2. No fertilizer or mulch will be used for these soils as prior experience shows they are moderately fertile as they are.

3. No irrigation will be used either. The seed mixture should be successful with average annual precipitation and reasonably normal precipitation intervals.

4. Although drill seeding can be done whenever the soil is workable it is best done between early November and early April. But July and August can also work if the North American Monsoon is expected to be active in the year when planting will be done. If there will be a weak monsoonal flow then it is likely best to not plant at that time.

Management of the Reclamation

1. The management technique to be used on this reclamation will be adaptive management.

2. Adaptive management is where the reclamation is closely monitored on a regular basis to see what is happening in the development of the reclaimed land.

3. Changes are watched and action is taken depending on the nature of the change, its size, whether the reclamation process itself can control the damage or change, or if the change is likely to grow and create more problems.

4. Action is taken only when indicated by the condition of that which is changing and how that relates to and affects other portions of the total reclamation process.

5. Adaptive management recognizes that changes will occur, even minor damages, but action is taken based on the dynamics of the change and whether the change is altering the intended direction of the reclamation development.

EROSION CONTROL:

A. In this reclamation plan the primary concern for erosion control will be with regard to the 3:1 slopes. However, erosion of the reclaimed floor of the pit could also occur with very strong storms even with 1% slopes.

B. Like many such things it is better to fix it before it gets serious. Small rills can become large gullies, but if a small rill a couple of inches deep forms early in the reclamation the revegetation can usually stabilize it. The only way to be sure of that is through watching it to see what happens and if the rill grows then act to control it. (That is adaptive management.)

WEED CONTROL:

A. Anymore, invasion of weeds is almost inevitable (even in wilderness).

B. The first step is to identify the invading weed(s). If the weeds are on the Noxious Weed List for Colorado (published by the Colorado Department of Agriculture) then plan on controlling it as required by the Colorado Noxious Weed Act.

C. Do not control native species that sometimes behave like weeds unless that native presents a hazard to the success of the revegetation. Native invaders are often pioneer species essential ingredients in the production of mature vegetation.

D. With noxious weeds, control by a professional weed control company is best if the population is large and well established.

E. Small invasions of certain species can often be controlled by company personnel using over the counter herbicides. If in doubt, contact the local Agricultural Extension Office and take samples of the plants, including roots, to them for advice.

F. The invasion of weeds is often serious or if not then in time it will likely become serious. Do not ignore them. The following text, however, discusses the exception that can occur with tumbleweeds.

APPARENT SEEDING FAILURE:

A. Just because nothing comes up after planting does not mean the seeding has failed. If there has been no or insufficient precipitation the seeds are likely still alive and in the soil where they were planted.

B. Read this section in the detailed plan to learn how to tell if the seeding has actually failed.

C. In this dry landscape seed germination can sometimes be greatly delayed.

GRAZING CONTROL:

A. No domestic grazing should occur until the revegetation is well established. (If a new clump of grass easily comes out by its roots when pulled then it is not well established. If it requires a good strong tug then it is probably established. If the grass is producing a good seed crop then it is established.)

B. Generally, with most grasses in an average habitat it will take at least two years for grass to become established. **At this site, plan on a minimum of 3 years to establishment.** It could be more. This is very desert-like.

C. When grazing is introduced it should be light grazing the first year.

Timing of Reclamation

1. The law requires reclamation be performed “contemporaneously.” That means when a piece of mined or affected land is no longer of any use in conducting the operation, reclaim it.

A. It is most efficient to reclaim fairly large areas at one time.

B. Small areas tend to get redisturbed easily by mistake and doing small areas tends to create a kind of patchwork quilt of reclamation areas.

2. Reclamation can be costly and it rarely gets less expensive to wait.

A. Waiting until the end of the operation is rarely an economical way to reclaim.

B. Waiting also opens the door for large noxious weed invasions that are expensive to eliminate.

3. In this plan, the soil/overburden strippings are to be stockpiled near where reclamation will be needed rather than stockpiling in far away locations that require extensive and expensive haulage back to where the material will be used for reclaiming the land.

4. Contemporaneous reclamation allows for faster releases of mined land and that reduces the amount of bond needed to warranty the reclamation that is still needed.

Details of the Reclamation Plan

Introduction: This reclamation plan was prepared by taking the Cooley Gravel reclamation plan in AM2 done in 1986 and modifying that document to include changes that better fit the way Schmidt Construction desires to implement the reclamation. This is based on new information regarding the nature of the deposit and how that ***could*** affect the results of the mining that creates the final topography the reclamation plan will work with. Cooley knew nothing about those conditions when they prepared their plan so long ago. Plus some newer approaches are used to treating certain features that were generally not known back in the 1980's. In that sense, this is a modernization of a 36 year old plan that was pretty sound for its time, but today is a bit archaic in some respects.

Purpose and Land Use Goal of the Reclamation

The general purpose and land use goal of the reclamation is to control erosion and return the property to a stable condition suitable for limited grazing as a final land use. No water bodies will be created by this mining operation. This operation is near Fountain, Colorado and land uses on the east side of Fountain Creek are rapidly changing. On the west side of Fountain Creek and Interstate 25, where this operation is located, land uses are becoming more industrial. Plus the nearby gate to Ft. Carson which has historically been little used is being upgraded to become one of the more significant entry locations. Clearly, land uses are changing in this area and there have been various thoughts and ideas for this property, but nothing that seems to have much substance as of this time. Therefore, reclaiming for a grazing use, which would certainly be possible on this land if nothing ever develops, is the best and most versatile final land use as required by the law.

General Description of the Finally Reclaimed Land

In general the eventual shape of the land will be a linear depression that runs north to south with the south end a bit lower than the north end. The north end will be a long, gradual southward facing slope that includes about the northern 1/4 of the entire site. That will gradually transition into a much more gradual slope (about 1% to the south) continuing on to the south end of the area that was mined.

The depression will be roughly 2,400 feet wide from the south end northward about 5,300 feet where it widens out to about 2,700 feet wide for a distance northwestward for roughly 2,400 feet where it joins the gradual south facing slope descending from the north end which is about 1,700 feet along a north-south line. In total, the area will have a fairly constant width of about ½ mile and a length of close to 1.75 miles.

The side slopes will be no steeper than 3:1 and the whole area will be covered with a grass dominated vegetation. There will not likely be much relief within the depression. No lakes or ponds are expected to be present. When reclaimed the whole area will tend to have a high elevation grass desert character similar to the surrounding land.

Grass growth may vary in strength as the subsoil will be composed of remaining gravels sitting on top of a Pierre Shale bedrock that has very limited permeability. Therefore, some degree of sub-irrigation will be present due to slow water flow in some of the gravels under a replaced silty clay loam soil layer about a foot deep. If this condition actually exists at the end, grass growth could be very strong in some places and weaker in other places where the sub-irrigation is poorly developed. Capping the underlying remaining gravels with a silty clay loam will reduce evaporative losses but be not so deep that grass roots cannot reach the water deeper in the more coarse and fine, gravelly material. If in fact the climate is drying, as appears to have been the case over the last 20 or so years, then this reclamation configuration will be well adapted to maintaining reasonably good vegetation growth for grazing with limited rainfall and no need for irrigation.

Shaping the Land - backfilling and grading

SIDE SLOPES: Ideally, the side slopes, as described in the Mining Plan will usually have a benched form during and at the conclusion of mining an area. These benched slopes will be changed to have a maximum 3:1 slope for the full height of the wall mostly using a cut and fill approach.

This approach begins a planned distance back of the of the top of the wall. That distance is dependent on the total height of the highwall and the desired slope. The overburden wall is cut at a slope and the overburden is pushed over the step while cutting into the outer lip of the wall below the step which is exposed gravel deposit. This continues until a maximum steepness 3:1 slope is created from top to bottom. The bottom of the slope is then shaped to have a gradual curve that transitions smoothly into the floor of the pit and the top of the slope is rounded so it does not have an abrupt

break from essentially level ground (original land surface) and the slope. If the slope is unsuitable for direct planting (e.g. very gravelly as could happen near the bottom of the slope) then a fresh layer of soil/overburden will be placed on top of that area. If a complete 3:1 slope cannot be created, then the rest will be created using overburden as backfill. In most places, cut and fill should be able to create the entire slope, but on the east side next to the powerlines some backfill may be needed.

It is important in creating the 3:1 slope that the surface of the soil **NOT** be smoothed. The surface should be left fairly rough so vertical rills and gullies will be less prone to be created by erosion on the slope. Furthermore, final creation of the slope should not be done until just before planting is expected to occur. If it will be some time between when the slope is created and when planting can occur it is best to delay the creation of the final slope so it can be followed, ideally, by planting within about 30 days after completion (the earlier the better). Furthermore, when the finished slope is created it should be left in a rough condition and not smoothed. Smoothing the slope is a common mistake and is a major factor in creating problematic eroded slopes.

If the slope is created too soon and the surface is smoothed there is a high probability that heavy precipitation will erode the slope which will require working the surface again to remove any deep rills or gullies that form prior to seeding. That simply adds to the cost of preparing the ground for planting. As described later, final grading and seeding should ideally be done as a single operation.

But how rough is rough enough? First, there should be no equipment tracks, especially rubber tired vehicles but also bulldozers, that run up and down the slope as that simply provides a path for water to flow and erosion to start. Instead, equipment tracks should follow the contour so ridges are created that act as little dams. Most equipment can easily traverse a 3:1 slope along the contour if the soil is dry.

How high should the ridges be? That is difficult to say because there is no way to know how much precipitation, if any, will occur before planting occurs. It is risky no matter what, but a couple of inches is best if planting can occur in 30 days - the longer this period the higher the ridges up to about 3 inches. It also depends on the amount of rain expected or actually happens. A seed drill will usually have discs and compacting wheels that can prepare and finish the fine texture of the slope immediately after the planting is completed, all in one operation.

PIT BOTTOM: As areas of the floor or bottom of the pit no longer need to be used for conducting the mining, Soil/Overburden acquired from stripping prior to mining will be spread to a depth of 8" to 12" (original plan called for 6" to 12") and seeded as soon as planting conditions are favorable. However, roads that need to cross an area that otherwise is no longer used in the mining shall remain on the gravel floor until the road is no longer useful. It is then treated with soil and seeded for revegetation.

OLD AREAS AT THE NORTH END: (This is a new section that was not included in the original plan because it was not needed.) Under the Cooley Gravel Plan this old area where the original mining operation began was considered by Cooley as a topsoil and overburden stockpile area. And it has generally been used as that, plus a large sediment basin that was active during the first wash plant operation between about 1999 and 2003 or 2004. Significant portions of this land right on the east side of Charter Oak Ranch Road currently has excellent vegetation growth that is 2 to 3 decades old and predates the 2002 drought. The sediment basin was never seeded but has been invaded by the same species of grasses in the surrounding areas, plus many natives as well as various species of trees and more wetland shrubs. The gentle south facing slope on the north end is a mixed grass community with moderate density and the east slopes bounding the excavated area are somewhat terraced and for the most part only need to be graded to 3:1 but there is not a lot of vegetation growing on those east slopes (west facing). However, there is a scattered grass invasion on these younger slopes. Drainage is well controlled and little to moderate erosion has occurred. The lack of severe erosion is mainly because the surface is rough.

The problem with these areas now is that they are very far from the areas where the materials here could be used for reclamation purposes. And they are too far to continue hauling more materials for stockpiling here. It is not that none of this material could be used, but the very high cost of transportation such a long distance (up to a mile each way) means that this material can economically only be used on a selective basis. There are some quality soils stockpiled in some places right near the north end that are accessible and would be useful for covering areas where quality soil is needed. But hauling overburden probably would not be worth the cost unless there was a shortage at some point. However, because the overburden is about 9 feet deep in future areas to be mined then for every acre of undisturbed overburden stripped at least 9 acres of pit bottom can be covered, probably a bit more.

The well vegetated material on the east side of Charter Oak Ranch Road has been examined quite carefully from a vegetation point of view. The growth here is so dense that disturbing this to acquire the material underneath may not be a wise action as this general area is no longer in a favorable revegetation environment. One might never produce such excellent growth again. It might be wise to leave some of these areas undisturbed at this point.

The slopes on the east side will be graded to 3:1 or less steep, probably the latter for the most part, and then all or part of the soil on the far north end will be spread on these slopes as they are very hot as they face southwest. Any soil left will be stockpiled for use elsewhere. A map included in Exhibit L shows the reclamation to be done over the next 5 years and that mostly includes this area.

(NOTE: It is important to repeat here that these actions all apply to the portion of the operation east of Charter Oak Ranch Road. The portion of the permit west of the road has its own plan.)

SEDIMENT BASIN: This basin has excellent growth on top of the sediment layer, but is not ready for release as there is a small amount of earthwork needed and some large *Tamarix* need to be killed as part of weed management. No standing water or pools were found. The fine texture of the material is these sediment basins can hold a great deal of water in the clay particles.As a result the vegetation cover is a bit less than it is on the slopes. That is likely due to somewhat less oxygen being available in the dense soil. However, cover is still about 60% to 70% in most areas. Much of the willow growth that was dense in the past has been replaced with grasses and forbs, but some of the willows are still alive. As these willows are *Salix exigua*, an obligate wetland species, they are on the way out due to the lack of remaining wetland conditions over the sediment ponds. But moist pockets still likely exist deeper in the soil that the still living but now small willows are surviving on water drawn from there. In time that will likely dry up and willow will disappear from the community and be replaced by grasses and forbs. Similarly, cottonwoods that were strong in the past are now struggling with a great of die back from the top of the tree.

NORTH CENTRAL STOCKPILE AREAS: Most of this material is overburden, but where soils were strippable in the mining area the soils were hauled here and placed in small piles in windrows at the highest area on the north end. Although the overburden areas, a long gentle slope that extends from the fine topsoil on the “original” surface on the north down to the sediment basins,

is not as old as the stockpiles west of sediment basins, it is not covered with a good growth of vegetation. This is a less mature form of the vegetation on the old stockpiles, but cover is still good.

The fine soils will mostly be used to topdress the East Slopes of the north end of the pit after they are graded and shaped. Any soil remaining will be used elsewhere on difficult areas.

In conclusion to this new section, much of this area has been reclaimed and is covered with a well established vegetation composed primarily of native species that have invaded over the years. However, it is not quite ready for release as there needs to be some *Tamarix* control in the sediment basins and a few erosion damaged spots need to be repaired. Most of the erosion damage is stabilizing, but that will take a long time to complete naturally and there is a risk drought would end the natural restabilization of these eroded spots. With a little backfilling and seeding these areas can be helped a great deal. This is a fine example of adaptive management in action - the process of letting Nature do as Nature wishes with the regrading and revegetation that is done while only stepping in for areas that are following a different pathway than desired.

Final Configuration of the South End

The southern end of the mining area, as described previously, is highly dissected by erosion that has been produced by runoff from the gently south sloping platform of the gravel deposit to the north. In the bottom of some of the erosion channels gravel is evident and so it is assumed that gravel composes at least the deeper portions of the uneroded fingers. But most of the fingers are probably composed of the clayey - silty loam of the overburden. In places shrubs grow down in the valleys between the fingers and are probably getting water from the gravel layer that carries groundwater southward in perched aquifers from the pit. Ultimately, surface runoff drains down the eroded valleys and washes to the south into the stream valley and it appears to carry a moderate amount of sediment to the south. That is a natural condition. But if mining is done in this area then at least some of the subsequent erosion is likely due to mining and therefore it all becomes subject to reclamation requirements.

The mining in this area will be done with careful consideration as to how much gravel actually remains here after considering all the erosion that has occurred to produce these areas. It appears the now reclaimed Broderick and Gibbons operation immediately east of this area did not do much mining in this zone that also existed on that property. The plan on this site is to try to stay above the

5600' elevation which is about 20 to 25 feet higher than the south permit boundary elevation. It is not known if that is achievable. If not then the mining will stop north of that elevation.

It is also important to take into consideration that up on the higher portions of the gravelly cap and next to the west boundary there is a suspected Native American burial site. An area around the suspected site has been identified on mapping as a possible archaeological site that should not be disturbed until it is properly investigated. If it is a burial ground then it is likely no disturbance will be allowed in that area. If in fact that is the case, then the operation may be required to avoid this area by a distance that protects it from disturbance and significant erosion as a result of the mining.

The reclamation here will be similar irrespective of where the mining ends. The southeast and southwest corners of the south end of the permit will be only minimally affected or not affected at all. But the central portion will become a very gentle downward slope declining about 20 feet over several hundred feet. This leaves a lot of opportunity to put in place erosion control features that keeps the runoff from going from top to bottom with no pauses or energy removal from the flowing water. The final outflow at the bottom will include either a controlled outlet or, if flows are minor by that time, a method of collection and allowing the water to sink into the gravels as it does now.

Effects of Large Silt Pockets in Deposit on Reclamation

As described in the Mining Plan, significant portions of the land added by Cooley Gravel Company to the original Schmidt-Tiago permit may not contain gravel that is of high enough quality to mine. The presence of these areas was apparently not known to Cooley Gravel Company. If these areas turn out to be too poor of a quality then significant portions of the land ahead of the current operation may not be mined and possibly not even stripped. These zones are identified on the maps, however those indications are far less certain as to what is there than the definition on the map would lead one to believe. The problem is how to economically ***and accurately*** determine what the quality of the gravels are in these areas without creating huge exploratory potholes in the ground that are difficult to reclaim.

The plan calls for mining east to west toward the larger zone and stripping only a little land at a time until such time as the quality gravel dwindles. Then stop stripping and mining. But here the subject is reclamation and not mining. Nevertheless, because the mining future is ambiguous the

reclamation cannot be greatly defined with regard to extent (i.e. the amount of land that will need to be reclaimed). REFER TO THE **MINING PLAN** FOR MORE DETAILS ON THIS.

That said, the methods of reclamation described above for future stepped highwalls which would undoubtedly be used here should still apply quite nicely. However, the lines of stepped walls may be very different here and may be curved as the margin of the silt pocket is slowly uncovered strip by strip. It is still true that if this area is mined and it turns out that all of it is good, then all of it will still end up with a north-south oriented, stepped wall along the western edge. And that will become a 3:1 slope with reclamation. If not then the reclamation slope will need to curve around the outside of whatever portion of the assumed silt pocket there actually is that is not worth mining.

Drainage Control

No ponds or lakes will remain after reclamation. Any exposed groundwater will be eliminated. As the general slope will be about 1% to the south, drainage of surface water that accumulates during rain storms will be gentle and to the south.

But what if the amount of precipitation is so great that the gravel floor of the pit cannot absorb it quickly? That does happen once in awhile with very large thunderstorms. However, because the gravel floor is so porous it is uncommon that any ponding occurs that lasts for more than two or three days.

Because the surface flow path to the south down the gentle slope of the floor is always blocked by a highwall during mining, runoff cannot go anywhere except into the underlying gravel layer that sits on top of the Pierre Shale. Plus, because the operation is in a pit bounded on all sides by walls no water can leave the interior of the mining operation. Sediment in the water simply drops out as the water percolates into the ground. There are no water outlets from the pit to any place outside of the pit such as drainages.

However, at the end of the operation no blocking highwall may remain and instead designed drainage facilities will be installed. As described in the portion dealing with the “Final Configuration of the South End” of the mined area, decisions as to what will be best at that time will need to be determined at the time the mining reaches this area and it can be determined what, if any, mining will be done. It may be necessary to modify the permit at that time. Several options are possible. It is also

possible the most southerly part of the permit may not be mined at all and mining will stop at the top of the steeper slope that descends into the valley to the south.

Final Grading and Planting

FINAL GRADING: Prior to revegetation it will be necessary to finish grading some areas where the 3:1 slope has been made. If the slope was left in a roughened condition as described previously, that is with ridges a few inches high along the contour, and there is no significant erosion with rills deeper than about 1 to 2 inches then drill seeding should be done without further treatment of the surface of the slope. But if rills have occurred then it may be necessary to use a rock rake, harrow or similar implement to drag the slope along the contour too remove the rills. This will tend to create grooves in the surface that can be a good preparation for seeding with a seed drill or by broadcasting the seed. If gullies have formed then more extensive repair may be necessary.

Never try to ***broadcast seed*** on to a soil surface that has become firm and somewhat sealed. Your seeding WILL fail unless you get a big hail storm right after seeding. A hard and sealed surface must be broken up first before ***broadcast seeding***. But such a slope can be drill seeded.

If broadcasting (not recommended for this site) the surface should be very rough so there are lots of little holes and voids the seed can catch in and the surface should have a lot of loose fine material that can blow around and fill in the holes where the seed has caught, thus burying the seed with fine soil. Remember, the amount of seed needed for broadcasting is usually TWO TIMES the amount needed for drilling. Seed is expensive! Plus on a site like this broadcasting is rarely as successful as drilling unless the soil is very loose and receptive to the seed. Broadcasting also requires a lot of good luck.

SEEDING THE GRADED LAND: Revegetation is the total process of establishing vegetation on disturbed land. The first step in that process, assuming the surface is properly prepared, is seeding the land to be revegetated. And the first step in seeding is choosing a mixture of seed that will likely be successful in growing on the site being revegetated. Seed mixtures should be created by careful consideration of the local and general climatic and weather conditions. In designing a mix, it is best to consider whatever fertilizer treatments are needed.

No fertilization is considered necessary for this land. Here the seed mixture will contain species that are commonly found on this and similar grassland areas. These species are highly drought tolerant, mostly warm season grasses. This land does seem to produce a moderate amount of annual weed growth of both introduced and native pioneer species, thus the soil is sufficiently fertile that it can produce good growths of adapted species with adequate moisture. In such situations, research has shown that fertilizer often tends to aid the less desirable and aggressive annual and perennial weed species, including noxious weeds, rather than the desirable species. Fertilizer increases nitrogen content in the soil such that the opportunistic species take advantage of that nutritious soil and out-compete the desirable species. This effectively slows down the period of time it takes to achieve sufficient cover of the longer lived, more desirable species. This does not apply where soil nutrients are especially low; in those cases fertilizer is needed to get much of anything to grow. So when the goal is to produce a more natural vegetation and the soil is moderately to highly nutritious it is best to avoid fertilizers so as to reduce the competition from weedy species.

Similarly, in moderately fertile soil such as this, mulch should also be avoided as mulch tends to provide a rich bacterial habitat that consumes a lot of soil nitrogen which is removed from the soil leaving the soil nitrogen deficient. Adding fertilizer can be done in small quantities, but that could encourage more weed growth that competes for limited water resources and often hinders the desirable growth.

In conclusion it is often best to carefully select species to be planted that includes a small amount of the more quickly growing species that are often introduced species mixed with a higher abundance of more native and native-like species that will exhibit long term survival. Including some deeply rooted legumes is also useful if there is sufficient average rainfall to support their growth. In time the introduced species will die out by adverse conditions relative to them and the better adapted species survive. But that selection process often takes longer to occur than 5 years.

Seeding should occur, as stated before, as soon as possible after the growth medium has been prepared and finished with grading. The medium is then most porous so it can easily absorb precipitation but spreading such materials or even working the top few inches tends to kill a lot of bacteria. That, in turn, can provide a mild and quick shot of nitrogen to help seedlings grow quickly beyond the seedling stage to where true leaves are producing the photosynthetic nutrients to support mature growth (i.e. free, natural fertilizer). However, drill seeding also accomplishes some of that.

Broadcast seeding does none of that. Therefore, drill seeding here will be done within 30 days of surface preparation and broadcast seeding will be reserved for small areas where drilling cannot be done.

SEED MIXTURE

Species	Rate (lbs PLS/Acre)
Intermediate Wheatgrass	1.5
Green Needlegrass	1.5
Blue Grama	0.5
Sideoats Grama	0.5
Little Bluestem	0.25
Western Wheatgrass	1.5
Cicer Milkvetch	0.5
Rates are for DRILL SEEDING (Broadcast seeding is not recommended, but if done then double the seeding rate for all Species	

(Very Important Note: This seed mix ALSO replaces the final reclamation seed mixes in the Amendment 3 area to the west of Charter Oak Ranch Road. That area will have the same kind of reclamation environment as this portion of the permit.)

Management of the Reclamation

Management of the reclaimed land is very important, especially for the first year or two. Adaptive Management techniques will be used here rather than Active Management which is more applicable for land that will have more domesticated uses rather than land like grazing and/or wildlife habitat which is more natural in character. Adaptive management involves vigilant watching to see what happens and then applying corrective treatment if the development of the reclaimed land veers

off in some undesirable direction. Then the manager only does what is necessary to bring it back "on course."

EROSION CONTROL: This primarily applies to the 3:1 slopes. The floor of the pit would not be very prone to erosion, but even there a very large and wet thunderstorm can happen that causes some erosion.

If the erosion has occurred prior to planting or soon after planting, then the erosion will be properly repaired and reseeded as necessary. What repair is needed depends on the kind of damage the erosion did. If small rills developed, check to see if water from behind the slope on more level ground flowed over the edge or if the rill developed on the slope without any flow over the top. If the rill is more than a couple of inches deep then repair of the spot with equipment **when the slope has dried out** may be necessary using some small equipment like a Bobcat. If the rill was created by overflowing the slope then the rill will be fixed and the cause of the overflow will be fixed.

If the erosion has occurred soon after the revegetation has begun to develop then rill repair will be done much more gently with small equipment used in such a way that it does not create flow paths for water in the future. Also, if there has been some disturbance surrounding the repair created by the repair itself then replanting with broadcast seeding right after completing the repair would be best. Once again the condition dictates what is needed.

Large rills or gullies need to be treated with larger equipment that may create a large disturbance from the repair. In that case reseeding is a must and broadcasting is best immediately after local regrading while the soil is very loose and can take the seed well. If the area of repair is very large (e.g. a large slump of the slope) then re-drilling the seed may be necessary.

The important point with erosion damages is that **erosion damage rarely fixes itself**. It usually just gets worse. So catching it early saves a great deal of work, expense, and heartache later.

With regard to preventing slope slumping in this habitat, it is important to watch for burrows of prairie dogs and ground squirrels behind the created slope. It is not unusual for such a burrow to act as a "storm sewer" that gathers water and saturates the deeper soil near the slope. If serious enough the slope that is saturated can slump and create a large erosion damaged area.

WEED CONTROL: Invasion by weedy species is almost inevitable; now, even in wilderness areas introduced noxious weeds can be found. But weedy species do not necessarily mean

only weeds that damage the revegetation effort. Many species of plants that are natural and native to the site can behave like weeds because they have a preference for invading disturbances. **Do not treat native invaders that behave a bit like the nastier noxious weeds.** These natives are an important part of the revegetation effort and contribute to the success of the total vegetation when grazing and wildlife habitat is the goal of the final land use.

But weeds listed in Colorado's Noxious Weed Act must, by law, be treated as soon as found. Like erosion, such weeds rarely go away all on their own, with a few exceptions. Tumbleweeds, with a scattered density, can be useful in the revegetation because they shade the desirable planted species and the good invaders until they can get established.

The two primary species of tumbleweed will naturally decline over two or three growing seasons ***unless the ground is redisturbed.*** If there is redisturbance for erosion control repair their invasion cycle will likely begin again at the beginning. ***However,*** if tumbleweed growth is dense mowing prior to the weeds going to seed will usually fix the problem as these are annuals. Do not allow them to go to seed or it may take years to control them before you can get the density down to where the desirable plants can become established which may require reseeding which creates disturbance which then causes the tumbleweed infestation to start anew. Each plant can produce thousands of seeds and when they "tumble in the wind" they spread seeds far and wide. Never fertilize tumbleweed infested land in an attempt to boost the growth of the desirable species. It does not work! The tumbleweeds just become worse.

For noxious weeds, approach them in the same way as erosion damages. Fix it early as a noxious weed invasion rarely will get better all by itself. That is why they are called "noxious weeds." Ninety-nine percent of the time they get worse and do so quickly. Spraying with appropriate herbicides is almost always necessary, but very small patches of certain noxious weeds can be repeatedly pulled up by hand and disposed of off site, but finding those requires considerable vigilance and it is labor intensive. Once a noxious weed has become established they will spread like a wildfire and chemical treatment by trained weed control personnel is almost always best. A large infestation can be quite expensive to control as it will likely require retreating the area over a few years. Most noxious weeds do not have native enemies and that is part of why they spread so fast. The reclamation manager must become their enemy.

APPARENT SEEDING FAILURE: This site is semi-desert and therefore a lack of sufficient moisture can continue for an entire season and very few of the desired plants will germinate and grow. That does not mean the seeding has failed.

1.) If there is little germination, there was probably insufficient precipitation to trigger germination of the seeds. Most seeds remain viable in the soil for many years, even decades. And seeds have hormone systems that prevent germination if conditions in the soil are insufficient to potentially succeed after germination. Most of the seed is still there and will germinate when the precipitation is sufficient. **Do not irrigate.** That could induce germination in an environment that is insufficiently moist to support the growth after the irrigation ends. Wait, and meanwhile manage erosion and weeds. (Many weeds can grow because they need very little moisture to germinate or survive and much less than the desirable species to survive and grow. Some weed growth, provided it is not noxious, can provide temporary protection against severe erosion. Not all "weeds" are bad.)

2.) Seed can remain sufficiently capable of germination in the soil for years. The worst that can happen is there is lots of moisture early in the year and the desirable plants germinate, but then it turns very dry for a long period and the seedlings die. In that case, reseeding is the only option. If a flurry of seedling development has not occurred, be patient. If nothing significant comes up by October, plan on reseeding the next year.

3.) **In this habitat**, with adapted species, one plant growing at the end of the season per 2 square feet of area is usually considered a successful planting. So, up to about 10 seedlings per square foot is excellent. More than that may become a problem with excessive competition beween desirable plants. In the second season a density of 1 to 4 plants per square foot is likely the maximum allowable. One or two plants of the desirable species is best.

GRAZING CONTROL: No grazing will be allowed at all until the grasses have become established which will take at best one wet season or two normal seasons. Three reasonably good

growing seasons is usually best, if consecutive. If good seasons are not consecutive then more mediocre seasons may be needed. When the grasses produce seed stalks in abundance the plants can withstand light grazing. Heavier grazing should wait for an additional year of growth and be carefully managed the first year or two after that (and preferably forever).

Timing of Reclamation

The law requires that reclamation be performed "contemporaneously." Simply put, that means when a mining operation is finished using a piece of land affected by mining or other uses that are associated with mining then it should promptly be reclaimed. Allowing disturbed land to simply sit for no justifiable reason encourages erosion, both wind and water, potential air and water pollution, and places where undesirable weed species can become established.

Significant portions of the land mined in this operation may be used throughout the life of the mine, especially for transportation corridors. But other portions need not remain disturbed and can be reclaimed soon after utilization ends. It is usually best to reclaim fairly large areas at a time as small areas tend to get damaged or destroyed or be ignored and redisturbed which is not useful, efficient or economical. Side slopes of the pit are especially important to reclaim as soon as possible. But the bottom of the pit is not so critical. Yet, when large areas of the bottom are available it is best to reclaim them sooner rather than later. Besides, that allows a means to make adjustments to the reclamation process to improve success. No reclamation plan is perfect and every one can be improved.

But the main reason to reclaim earlier, besides the legal and obvious environmental benefits, is that reclaiming in smaller parcels is far less expensive than leaving very large areas unreclaimed and then reclaiming the whole thing at the end. That can require far more effort and expense than anticipated. Plus, reclamation almost never gets less expensive. Simply the cost of fuel and manpower goes up over time. Once reclaimed the land can be released and that makes it potentially available for other uses after it has been released, but of course not for the mining operation that created it. That also reduces the financial obligation in the form of financial warranty.

In this operation, the future emphasis will be on prompt side slope reclamation as that is the most difficult and expensive part of the reclamation plan. Pit bottom reclamation will be applied when large tracts (about 5 acres +) are available and free of known future use obligations.

Report on the Ecological Condition of 44 Acres of Revegetated Land at the Fountain Pit, permit M-1982-155

by Mark A. Heifner, ecologist

Introduction: This large sand and gravel pit located on a low mesa about 2 miles southwest of Fountain, Colorado in El Paso County has been in operation since the 1970's, a remarkably long time. The company who owns the gravel pit, Schmidt Construction Company of Colorado Springs, has mined the gravels at this site for many decades with a short period in the last half of the 1980's when Cooley Gravel Company located in the Denver area mined the gravels. During that time Cooley modified the permit and added a great many acres to the permit.

The area of interest for this report is in the northwestern corner of the permit. Even before Cooley operated the pit a very large stockpile of soil and overburden blended together was established just east of Charter Oak Ranch Road which runs south along the western boundary of the gravel pit. However, nothing was ever done with this stockpile of material intended for reclamation purposes. Thus this stockpile has been sitting for 40 years or more. It is not even known whether any seed was applied to this material to protect it from erosion. That probably did occur at some point but that seems to be missing from the record. Therefore, based on a lack of evidence, it must be assumed that whatever is growing on the stockpile arrived by invasion from surrounding areas.

In 1999 and 2000 settling ponds were established on mined land beside and east of the stockpile. The ponds were built to provide a place for a gravel washing operation that was installed by Schmidt. This system remained in operation for only a few years until a drought mostly dried up the water source. Another attempt at washing was subsequently established using water from another source. But that became too expensive and the washing was deemed unprofitable mainly due to the cost of water. Thus the settling ponds were used off and on for several years. Once the washing ended the water in the ponds was allowed to evaporate or drain into the groundwater, a process that is very slow due to the fact that the silt and clay that accumulates can retain a great deal of water for many years, even if the sediment is only a few feet deep as it is here.

Also, overburden stripped off land ahead of the mining was stockpiled north of these sediment ponds in a long gradual south facing slope. This mostly occurred during and after the washing was done and its purpose was primarily to backfill old mining areas as a reclamation action. Also, it was thought some of the material could be used to topdress the gravel pit for reclamation. Unfortunately, none of that happened, but it did result in an excellent slope that partially connects with the soil/overburden stockpile to the west and southwest of this slope. The total amount of land examined was about 44 acres, but only about 23 acres was examined in critical detail.

Purpose of this Study: As this land appears to be fully reclaimed in accordance with the law an examination of the land is needed to gather evidence to support a bond release on this land. It

is also necessary to see if there are any particular problems present that need corrective action prior to consideration for release.

The condition of the vegetation needs to be assessed to see what is growing there and if any serious noxious weeds are present that need to be controlled or eradicated. The condition of the land needs to be determined to see if there are significant erosion area hiding in the grasslands. The sediment basins need to be examined to see if any small ponds are present and determine whether any quicksand, a common hazard in settling ponds, is present.

The investigation was done completely on foot so no damage would be done to the vegetation by driving on it and so the soil condition could be examined almost step by step and also so the primary or dominant plant species could be identified. Also cover estimates could be made along the way to characterize the vegetation to see if it is sufficiently dense to adequately protect the land. This field work was performed on August 19, 2022 and it took about twp hours to cover 0.9 miles.

Results: The results are divided into two sections defined by the two habitats present. First are the two connected sediment ponds or, rather, their remains. Second are the slopes which are 99% in compliance with the maximum 3:1 slope as stated in the Technical Revision 3 currently under consideration. These are two very different environments and potentially the growth environments could result in very different vegetation communities. If that is the case then both need to meet the standards to have a release make sense.

Most of the land included in this area is a slope of some kind. The only really level land is within the sediment ponds; everything else is either up or down (or across following a contour on a slope). The primary settling pond, the largest, includes about 6.8 acres. The secondary settling pond is about 2.3 acres. So about 9.1 acres of the 44 is in settling ponds and about 35 acres is in slopes.

Sediment Basins: Both the primary and secondary sediments basins are almost mirror images of each other. Vegetation cover is robust almost everywhere and even where it is thinner due to a slight susceptibility of holding ponded water in the recent past, the vegetation is composed of a high diversity of grass and forb species. Estimates of cover is generally about 80% in the most robust areas to about 50% where the cover is bit more sparse. But plant vigor is the same nearly everywhere and flowering and seed production is high in 2022 which has been a bit above average in precipitation during the summer. Dominant grass species include two species of native needlegrass along with the Short-grass Prairie dominant blue grama. All three are excellent forage for cattle although cattle tend to avoid needlegrass when its seed is maturing due to the needle-sharp points of the seed callus. Other grasses include rye grasses, bluegrasses, dropseed.

Among the wildflowers common sunflower, a native, as well as hairy golden-aster, also a native are abundant and in August flower profusely. Trees are mainly a few cottonwoods as well as some stray Chinese elms whose seeds probably blew in from somewhere within a few miles of the site. Shrubs are mainly, and sadly, *Tamarisk* that undoubtedly were planted by birds after they ate seeds along nearby streams and even Fountain Creek were that species is common. The only sub-shrub noted was Rabbitbrush and there is a good deal of that on the berms surrounding the ponds where the soil is dry and rocky.

There formerly was an abundance of the ubiquitous willow, *Salix exigua*, an obligate wetland species. Most have died now as a result of the ponds drying out and only a few are struggling to come back or just hold their own.

As for the *Tamarix* these, like the willows, are in the process of dying. However, this species is a master at finding water where there is little and persisting for a long time. Checking the ground around the healthier plants showed not a single young plant even though it appears the healthier ones are flowering and seeding. This lack of reproduction will be explained when it comes to discussing the soils in the sediment ponds.

In general the woody plants are faring poorly as most require a good deal of water to survive and even though at one time there was a lot of that available, there is little now. The soil is a very dense silty clay with a light rusty color. However it does not appear to create dry areas with the common curled jig-saw puzzle patterns. Instead it stays smooth and fairly soft. That is likely due to a lack of bentonite in the crushed fines derived from the crushed Pikes Peak Granite that is produced at this operation. That undoubtedly is a major factor in why the vegetation is rich and diverse but still lacks the very high density and cover of vegetation growing in these kinds of conditions. The sediment discharged into here was undoubtedly completely devoid of organic matter and therefore was very poor nutritionally. Now, after about 15 or so years of growth the organic matter is increasing and the vegetation is responding favorably to that introduction. Seed germination is still probably not up to what it should be, but that will also increase as the microbial part of the soil becomes more robust.

The lack of reproduction of *Tamarix* is most certainly due to the generally dry surface soils. It appears that all the *Tamarix* are old plants and most have dead tops and some with live branches only around the base. This is clear evidence that even the deep water in the dense soils is now scarce. *Tamarix* has a very high water requirement and without frequent replenishment of soil moisture they decline rapidly.

It was apparent that depressions containing water were not present anywhere in the sediment basins. If that was the case, they would be surrounded by very lush vegetation and possibly cattails, bull rushes, sedges and willows would be present. None of those conditions were noted anywhere. However, there are a few places where runoff from the slopes enter the basins. At those locations there is some rather lush grass growth and some cottonwoods, most of which had drought killed tops. At one time these were obviously wet, but the water was not deep as there are no depressions associated with them and now the ground is as firm as it is everywhere else. These spots may collect some water after a series of big storms and that water might spread out across the top of the soil in surrounding areas, but it is apparent that the buildup of water does not reach much depth. This inspection was done on a Friday and the previous Tuesday afternoon Fountain Pit had received about 2" of rain over a short period of time. Ground evidence showed that the water had flowed into one of these entry locations. The ground was more damp in this area and some water had accumulated on the surface, but at the time the spot was visited there was no open water present and no mud.

In other places around the northern perimeter of the primary sediment basin it is apparent that at one time a good deal of water accumulated, mainly because of flow off of nearby long slopes during wet periods. But no remaining evidence of the rich vegetation was seen, however minor accumulation of water can occur, but it does not stay there long enough to alter the vegetation or

soil to create a minor wetland habitat. That process usually takes about two weeks of submergence.

Slopes: From the primary sediment pond our journey took us up a major drainage that accumulates water from the slopes to the west and to the north. The water then flows down the drainage to where it enters the northwest corner of the primary sediment pond. Near the toe of this drainage is some erosion damage where the soil has been eroded away leaving a gully 2 to 3 feet deep. Examining the upper end of this gully that is only about 50 feet long there is a pouroff into the gully. It is apparent that some water had flowed down the drainage and deposited a little bit of fresh sediment in a more gradual spot just before it reaches the pouroff into the gully. The pouroff had recently been active, likely on the previous Tuesday. A small amount of headward erosion had occurred, but it is clear that erosion is very slow here. The bottom of the gully is well vegetated all the way to within inches of the pouroff.

There are a few other similar gullies at the bottom of the long north slope that leads down to the primary sediment basin. Most of the erosion is quite old but deep enough that it will take a considerable amount of time for natural stabilization to occur. These were undoubtedly quite active before the rich vegetation developed on the slopes. As these slopes are primarily composed of overburden which is a gray colored, blocky and firm silty-sandy clay loam, it is apparent that on unprotected slopes this material is quite erodible. That shows that in the use of this material to create final slopes around the gravel pit, protection from severe erosion should be used or the 3:1 slopes are likely to present a considerable maintenance issue until the vegetation is established. It is also clear that any final slopes that are steeper than 3:1 would not have likely succeeded in revegetation without a lot of very good luck. Cooley Gravel's original proposed slopes of 2:1 around the pit would have rarely worked when using this overburden.

Moving up the slope toward the top of the hill of overburden it was immediately noticed that the density and cover of the vegetation on these slopes far exceeds the density and cover of the vegetation in the sediment basins. This is quite surprising as this area is a drier slope. Both areas have soils that contain a good deal of minus 200 particle size. However, the overburden on the slopes have a bit less of that particle size as well as a higher abundance of fine to very fine sand and even a small percentage of small pieces of gravel. Thus the soil on the slopes is more porous than the soil in the sediment basin which has very little of particle sizes greater than about 1/100 of an inch while the overburden on the slopes contains a multitude of particle sizes. This allows precipitation to be captured by plant roots more easily than the very tight waste from the washing of the gravels.

The grass vegetation here is quite diverse and composed of almost entirely native species that are adapted to soils that have a bit more clay than the undisturbed vegetation where mining has not occurred.

Species diversity is quite high for a site that is only about 40 years old. Most of the species are obviously derived from the native vegetation and it does not appear there are many species that relate back to the low diversity protective seed mixture listed in the mining and reclamation permit for the operation. That should not be taken to mean it was not planted, but the species in that mixture have a hard time surviving in the face of the strong competitors that invaded from the natural vegetation in this area. They probably all died out many years ago.

The dominant species is shared by a common needlegrass (*Hesperostipa comata*, formerly known as *Stipa comata)* and Blue Grama (*Bouteloua gracilis).* Subdominants include Scribner's needlegrass, and two species of Bluegrass. Thus, the primary species are much the same as was seen in the sediment ponds but there the needlegrasses are strongly dominant. Also the forbs are similar here as in the sediment ponds, but they are much less vigorous here. In addition there is a scattering of yucca and a very few cholla cactus. These last two are very common in the surrounding natural vegetation.

Woody vegetation on the hills, other than some rabbitbrush, is almost totally absent. However, at the base of the east side of the pile are two very large and very successful Russian Olive trees. These are growing in an in slight dip in the topography where runoff from the steeper east slope accumulates. Strangely though Russian Olive was not found in the sediment basins probably because the soil there is far too dense. Russian Olive enjoys a somewhat more open textured soil that has a good water supply. These are magnificent trees that are not creating the usual infestation associated with this species in river and stream floodplains. It is recommended that they remain for wildlife purposes.

Sadly, at the very crest of the hill of soil and overburden someone dumped some very rich (fertile) topsoil on the ground and spread it out into a layer of soil from a few inches to perhaps a foot deep. These two areas that total perhaps 0.2 acres on the very top of the hill is populated by an almost pure and very dense growth of annual weeds. These piles were established sometime before the current topographic map. The photography for that map was taken on December 2, 2016.

It is a strange and telling situation that these weeds are so dense and dominant that almost nothing else can invade the land they inhabit. This situation invariably occurs because the soil is extremely fertile and high in nitrogen, organic matter, and high amounts of other vital nutrients. The nitrogen is cycled around and around and the weeds take advantage of that nitrogen by growing thickly. In effect, the weeds have captured this ground and simply repeat the cycle each year. Strangely, or seemingly so, very few of these weeds can be found beyond the edge of this particular soil. The competition in the naturally developed vegetation is too high for them to get more than a few plants that can compete for a year and then they are gone.

The solution to this is to kill off the weeds very thoroughly with an herbicide and promptly plant the soil with a vigorous grass species that can consume a lot of the nitrogen without cycling it. This can be done in combination with the main seed mixture shown in the Technical Revision. Then keep the return of the weeds under control with careful herbicide treatment while avoiding using types or amounts of herbicide that would hinder the growth of the desired vegetation. Fortunately these areas are small enough that heavy equipment is not needed, as getting to this location with heavy equipment would damage, perhaps seriously, some excellent revegetation.

Conclusions:

1) At least 95% of the slopes in this 44 acres is 4:1 or less steep. And 3:1 slopes are very uncommon and span very short areas.

2) The topography of the uplands is compatible with a grazing land use, but is also variable enough that habitat diversity is fairly high providing moderately interesting visual variations.

3) The vegetation density and cover is excellent and composed of species that can withstand the rigors of an even drier environment than what is present at this time.

4) Species diversity and growth habit is also diverse which indicates the vegetation is reasonably closed ecologically.

5) Nearly all of the plant species are natives and derived from surrounding natural vegetation. This is important because it means the genetic forms of the plants are native to this location rather than being from widely separated locations that results in a diverse genetics that may not be well suited to this location. The plants here, being native to this location, are fully adapted to living together "peacefully." This translates to long term survivability. In fact this land could potentially be used as a seed source for planting highly adapted species in future reclamation at this mining operation.

6) The *Tamarix* infestation of the settling ponds unfortunately must be eradicated.

7) There are a number of small erosion damages at the toe of some slopes where water collects into stronger and erosive streams. These need to be repaired gently so to not damage the excellent vegetation surrounding these places. Use rubber wheeled equipment operated only when the soil is dry and weigh the appropriateness of using small equipment and taking more trips with using larger equipment and taking fewer trips. Never use tracked equipment or it will do more damage than the erosion has done.

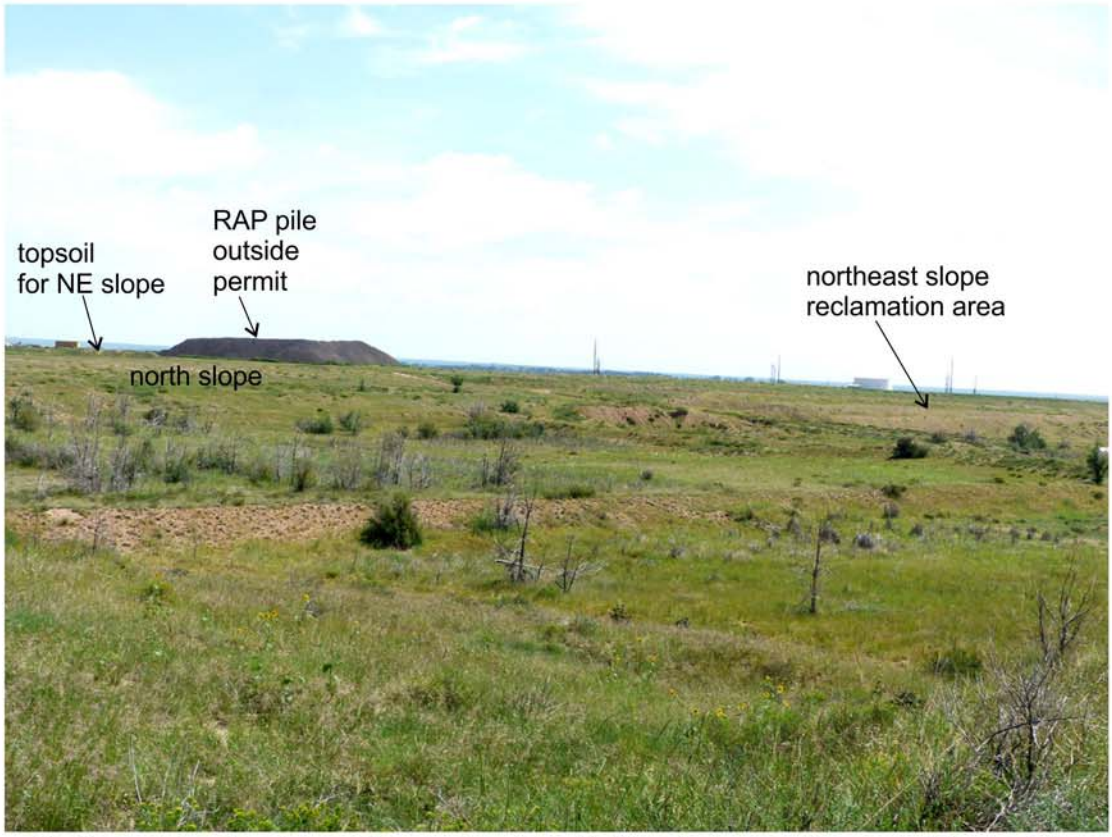
8) Remove entrenched weed infestation on the two deposits of rich soil on the high spots. Be very careful about accessing this area with vehicles.

Outer edge of the sediment basins. Essentially a very sturdy dam. Actual sediment basins are on the left. Bare slope in background is on adjacent land and is not part of this area of examination.

Interior of the east (primary) sediment basin that is now dry. Note the dead trees and shrubs caused by the drying out of the sediment in the basin. A wide variety of grasses and wildflowers have invaded. The slightly blurry trees are *Tamarix* that need to be eradicated.

Minor gully erosion on lower part of slope leading up hill from sediment basins. Nearly stabilized. Needs some repair.

View of vegetation on the north side of the top of the mound of soil/overburden. Most of the grasses are needle grasses and blue grama. Cholla and yucca have also invaded. All vegetation is natural established by invasion.



Sediment basins from above showing divider between the two. Most of the trees are *Tamarix,* but no signs of reproduction were seen. All the vegetation is a result of invasion and not planting or seeding. Most species are native.

From the scale looking northwest at the south facing slope of the now vegetated soil/overburden stockpile established in the 1980's. Virtually all the vegetation is composed of native plants that invaded this are from surrounding natural land.

Exhibit L
Reclamation Costs

The current Exhibit L in the permit was developed in 1986 and is obviously of little value, other than historical, in 2022. Even the concepts of Major, Moderate, and Minor disturbance categories are irrelevant now because the current bonding was done using a completely different approach. In effect, the original conceptual approach was effectively eliminated many years ago when bond amounts were increased using sophisticated estimation software based on actual disturbances. Thus, a pile of new data needs to be provided that is derived from more considered methods than "educated guesses" that are more guesses than "educated."

The guiding tools used in developing these hopefully better numbers include the Future Layout Map included in this exhibit and the geometric modeling of the four different classes of highwall structure and configuration that are possible in the future operations. It is not that these geometric models show a new approach to mining - they don't. These four conditions have been present in one form or other since the operation began. But what was not present previously was a consideration of the proportions of the four conditions that could occur either in worst case or on the average. The difficulty is determining what will most likely exist because some combinations of all four conditions are next to impossible to occur. Reliance on past history of highwall configurations, as evidenced in the annual reports, is clearly the best approach because that has historical evidence to support it.

Going over past annual reports for the last 15 years the general pattern is clear. Initially a large area (10 to 20 acres) is stripped of soil/overburden all the way down to the top of the gravel deposit. This creates a platform with gravel depths of somewhere between 35 and a bit more than 40 feet or thereabouts - it is variable. The gravel is then mined in one lift if on the thinner side or two lifts if on the thicker side. Recently, 2 lifts have been used, but as will be seen, that doesn't make much difference in the volume of material needed to reduce highwalls to 3:1.

The mining is done back and forth in an arc that naturally develops because the processing plant is more or less at the middle of east-west line. The arc develops for the same reason an arc develops when a caterpillar or leaf-cutter bee eats the edge of a leaf - it forms an arc that constantly is expanded outward to the left and right of center. If the soil/overburden cut is straight east-west eventually the arc straightens out into a line that follows that higher elevation cut of soil/overburden. Thus the lineal feet of this highwall increases as the arc increases its depth into the stripped land that began as basically a rectangle about 2,400 feet wide by 200 to 300 feet deep (sq ft = 2400 x 250 on averge) covering about 13 acres on average or about 66,667 sq yards. The diagram in Figure 1 diagrammatically shows how this arc expansion consumes the stripped area.

Therefore an average condition would be more or less in the middle of this process of removing the uncovered gravel. However, the time when the maximum length of highwall occurs is at the end of removing the gravel when there is a single straight wall at the south edge of what used to be the exposed gravel plus two north south sections of wall 250 feet long on the east and west side of the area mined. That is when the wall length is the longest, but this is a rare event whereas the maximum

wall length in the middle of creating the arc is the most probable longest wall length. Those values are shown on Figure 1 and can be used as directed by policy when calculating the bond amount.

The next decision is which of the 4 Conditions of the wall configuration should be used in developing the costs. As stated in the plan, the gravel bench beside the soil/overburden wall is used as a transportation corridor around the edge of the pit to reach other areas without needing steep roads up a steep hill to a particular spot. Those can get slick and erode in the summer and can get icy in the winter. It is just not a safe approach when a safer alternative is available. Thus, at the middle of the area mining process something similar to Condition 4 would be most probable, but Condition 3 would most likely be present for walls along the edge of the pit because of nearby property boundaries or easements that create "Barriers" that limit the Setback width to being less than is ideal in Condition 1. However, if at the time of bond and permit loss was at the very end of a mining period and a new bench was not yet created then Condition 1 would be likely for essentially the entire 2,400 foot long east-west wall.

Thus, the most probable highwall reduction condition would be a Condition 4 situation for a length of about 2,700 feet. There would also most likely, on the average, about 1,600 lineal feet of Condition 4 or 2 wall at the edges of the pit, most likely Condition 4.

The amount of the flat top part of the stripped gravel can simply be added to the pit floor area as its vertical projection onto the floor is the same as it would be if it was not even there. That is 8" to 12" of soil/overburden topdressing (average of 10").

Shown next are our calculations of the volumes of material that needs to be moved to reclaim the surface of mining areas and the minimum working area (172 acres) needed to operate the pit ***at this point in time***. Reclamation costs to finish the north end or for future operations are in addition to the 172 acres.

Amount of soil/overburden needed for 172 acres with 10" average depth:

43,560 sq ft x (5/6) = 36,300 cu ft / 27 = 1,344 cu yds x 172 = 231,168 cu yds

HIGHWALL REDUCTION:

Amount of highwall and likely applicable Conditions -

East-West working face:

Likely Applicable Condition: Condition 4 with no barrier to the south
(Condition 2 is also possible.)

Length on average: 2,600 lineal feet (2400 min and 2800 max)

Overburden material moved: 1.48 cuyd/ft x 2600 = 3,848 cu yds

Working face material moved: 22.22 cuyd/ft x 2600 = 57,777 cu yds

Total = 61,625 cu yards of material moved to create 3:1 slopes

Additional fill required = 0 (so long as S=Fs : creates balanced amts)

Topdressing for gravel slope: included in amount for pit floor

Sidewall on West Side: See Figure 2 for profile

Likely Applicable Condition: Condition 3 with fence boundary.

Wall Length characteristics: 1,500' maximum, 1,000' average

Overburden material moved: 1 cuyds/ft x 1000' = 1,000 cu yds

Fill material required: 80.3 cuyds/ft x 1000' = 80,000 cu yds
(Only 1000 cu yds from overburden cut)

Additional Fill Needed: 79,300 cu yds from stockpiles

Topdressing for gravel slope: included in amount for pit floor

Sidewall on East Side: See Figures 3 and 4

Likely Applicable Condition: Condition 2 with Easement boundary.

Wall length characteristics: 1,500' maximum, 1,000' average
80% with S=60'; 20% with S=72' & no barrier

Overburden Material moved:
For 80% = 16.3 cu yds/ft x 800' = 13,040 cu yds
For 20% = 26.1 cu yds/ft x 200' = 20,800 cu yds
Total = 33,920 cu yds

Fill Material required:
For 80% = 43.5 cu yds/ft x 800' = 34,800 cu yds
For 20% = 32.0 cu yds/ft x 200' = 6,400 cu yds
Total = 41,200 cu yds

Additional Fill required: 7,200 cu yds from stockpiles

Topdressing for gravel slope: included in amount for pit floor

SUMMARY OF HIGHWALL REDUCTION TO 3:1 SLOPES:

All Values in Cubic Yards

	Cut & Fill Volume moved	excess created	additional needed
East/West working face	61,625	0	0
Sidewall on West Side	1,000	0	79,300
Sidewall on East Side	33,900	0	7,200
Totals	96,525	0	86,500

Best equipment: dozer for cut and fill; loader and trucks for additional material, grader for finishing 3:1 slopes

PROCESSING PLANTS:

Conveyors:	All conveyors are portable although not all on wheels
Screening Plant:	Portable and easily removed
Wash Plant:	Disassemble and remove approx. approx 800 sq ft of concrete slab

GRADING SEDIMENT BASINS FOR WASH PLANT:

Very difficult to determine right now as construction is not complete, but is in an area of about 6 acres placed on the east side slope. Thus it is similar to a highwall reduction. No additional material should be needed and material moved can be incorporated into floor and side slope creation. Volume to be moved is unknown at present.

REVEGETATION:

Seeding: 6.25 lbs PLS/acre x 172acres = 1,075 lbs PLS
(Cost depends on where seed is purchased and current prices)

Planting: drill seeding using tractor and seed drill
Estimated cost @ $250 per acre x 172 acres = $43,000
(Actual cost depends on contractor's rate - may vary considerably)

TO CALCULATE FUTURE RECLAMATION COSTS FOR NEW MINING

It is recommended totaling all earth moving volumes and/or costs (topdressing floor and highwall reduction) plus revegetation costs and dividing by 172 to produce an average cost per acre. Then multiply that by the number of additional acres present in a bonding update. This is the amount for regrading, backfilling, and topdressing for the new mining. Removal of processing equipment and facilities is a constant but subject to inflation (or deflation) factors and that should be adjusted accordingly. Finally add it all back together while including the new mining reclamation costs in the new total.

2022-2023 RECLAMATION - NORTHEAST SIDE SLOPES

This can be added to the total of all reclamation costs above, but once completed this amount should be subtracted from the current bond as these costs will not be carried forward into new mining reclamation costs unless this work on these sideslopes has not been done. Thus, this is a one-time addition to the reclamation costs for the primary mining operation reclamation. Therefore, it should not be included in the average cost/acre used to calculate a new bond for new mining areas.

Although the area shown on the map is 52.2 acres, the actual area of disturbance will be about 38 acres. This includes about 6 acres of windrow soil stockpile on the far north end of the operation and about 32 acres of slope grading.

The slopes here are already, on average, less than a 3:1 with a highly variable topography that makes calculating the volume of material to be moved nearly impossible. It is possible that the slope will end up being about a 5:1 with some areas toward the south end between 3:1 and 4:1. This will likely be shaped with a dozer, but other equipment like a grader may also be used. Because of the length of the slope (top to bottom) some portions will likely have some small scale ridges that act as terraces to slow down water flow down the slope to limit long rills and gullies from forming.

Trucks will likely be used to disperse the soil topdressing. As this slope faces west by southwest it will be a rather hot and dry environment, therefore using the higher quality soils currently in windrows at the top of the slope as well as hauled in from the far north end of the operation will be important to achieve the kind of growth needed to successfully revegetate this long slope sufficiently to protect it. The same seed mixture that is in the modernized plan included in this Technical Revision 3 will be applicable here as well as anyplace else on the site. However development of the vegetation may be a bit slower here than elsewhere due to the nature of the growth environment here and the general size of the slope from top to bottom over significant parts of its horizontal length along the side of the pit.

FOR EXHIBIT L

Figure 1 - Mining Arc on New Stripped Area

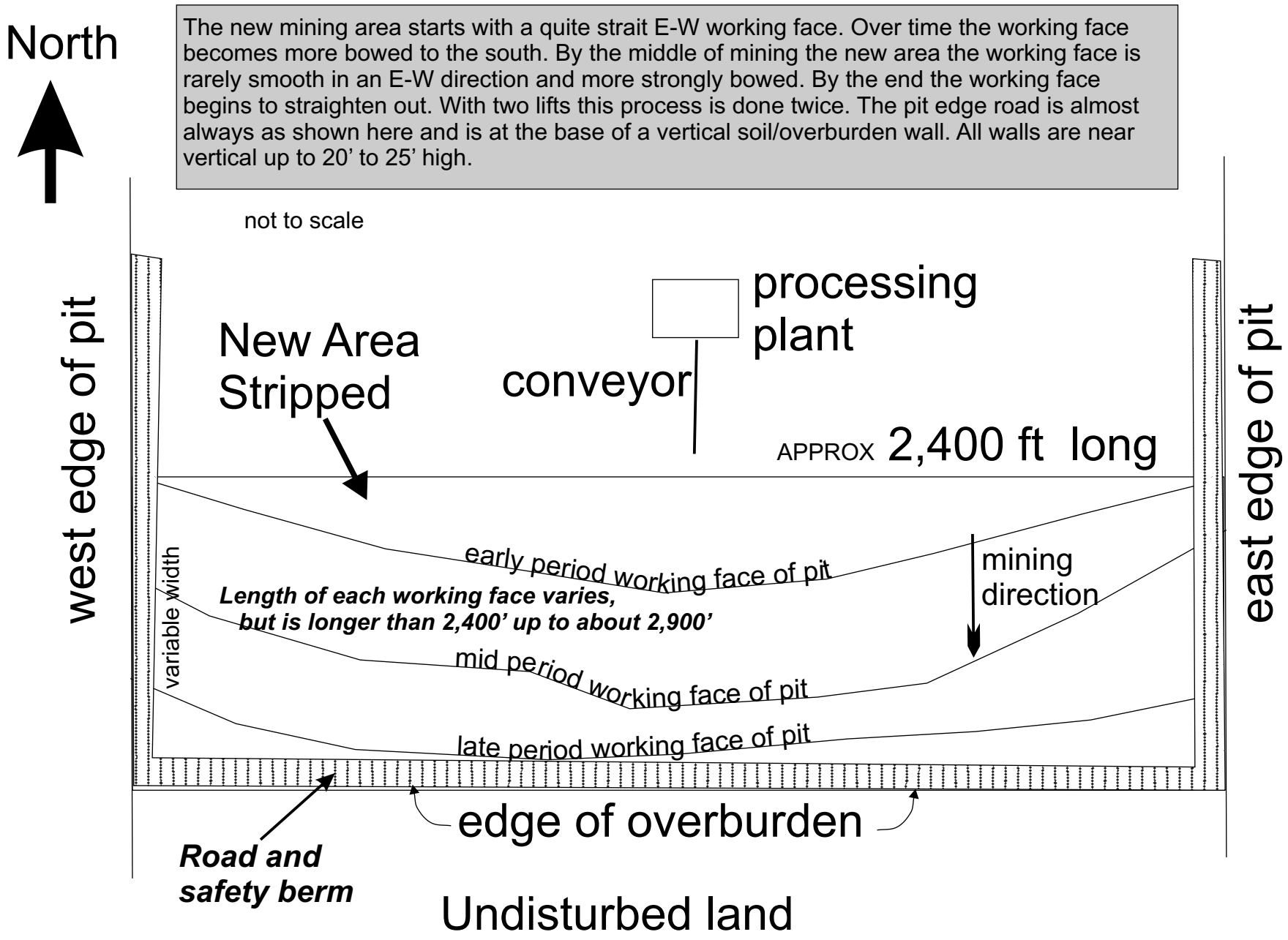
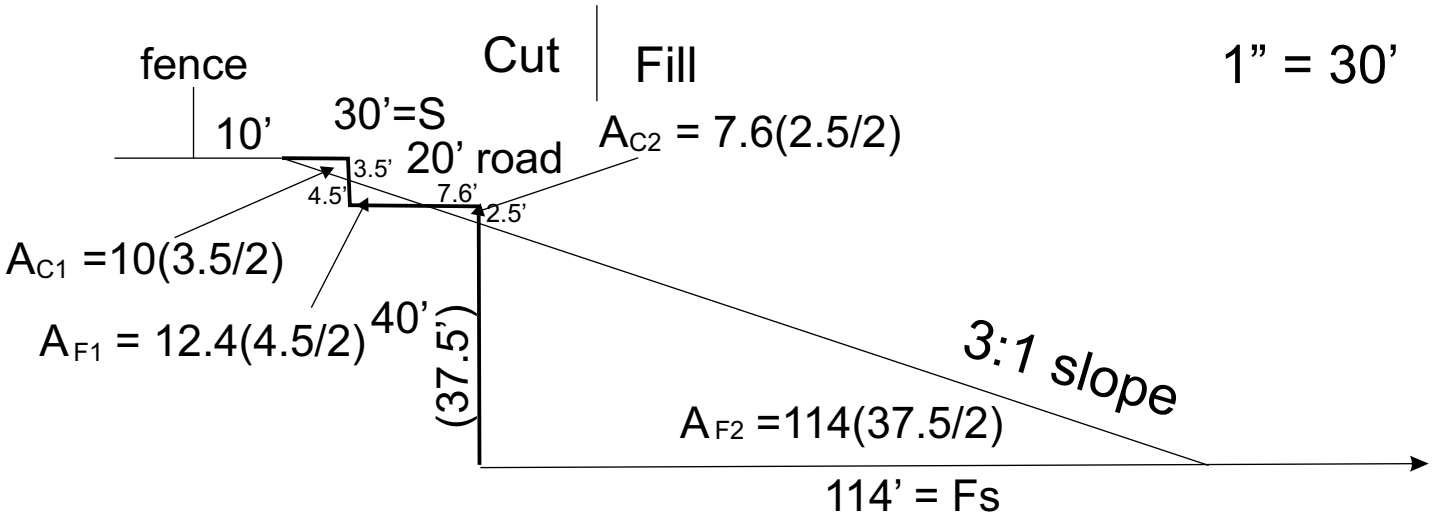


Figure 2: West Sidewall - Condition 2 with S=30' and 20' road corridor; barrier=fence



A_{C1} = 0.65 cuyds/foot

A_{C2} = 0.35 cuyds/foot

CUT = 1.0 cuyds/foot

A_{F1} = 1.1 cuyds/foot

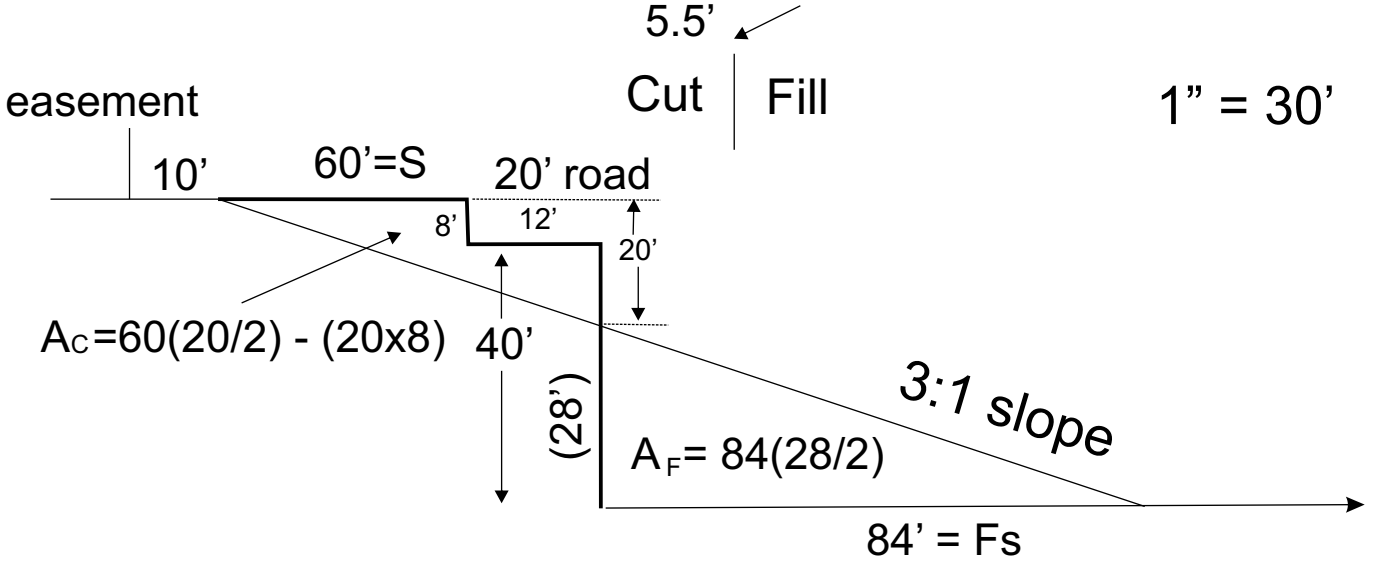
A_{F2} = 79.2 cuyds/foot

FILL = 80.3 cuyds/foot

NET = 80.3-1.0 = 79.3 cuyds/foot

Conclusion: 79.3 cu yds of Fill must come from elsewhere (stockpiles) for each foot of Wall reduced to 3:1

Figure 3: East Sidewall - part 1(80%) - Condition 2 with S=60'; barrier = easement



A_C= 16.3 cuyds/foot

A_F= 43.5 cuyds/foot

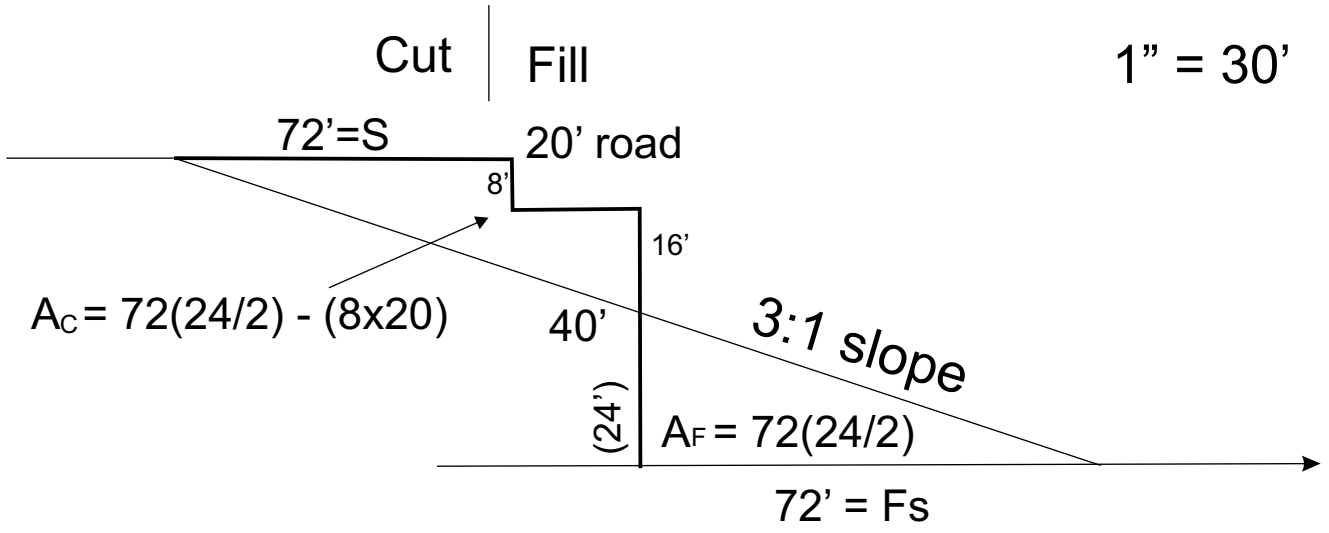
CUT = 16.3 cuyds/foot

FILL = 43.5 cuyds/foot

NET = 43.5-16.3 = 27.2 cuyds/foot

Conclusion: 27.2 cu yds of Fill must come from elsewhere (stockpiles) for each foot of Wall reduced to 3:1

Figure 4: East Sidewall - part 2(20%) - Condition 2 with no barrier and a 20’ road



A_C= 26.1 cuyds/foot

A_F= 32.0 cuyds/foot

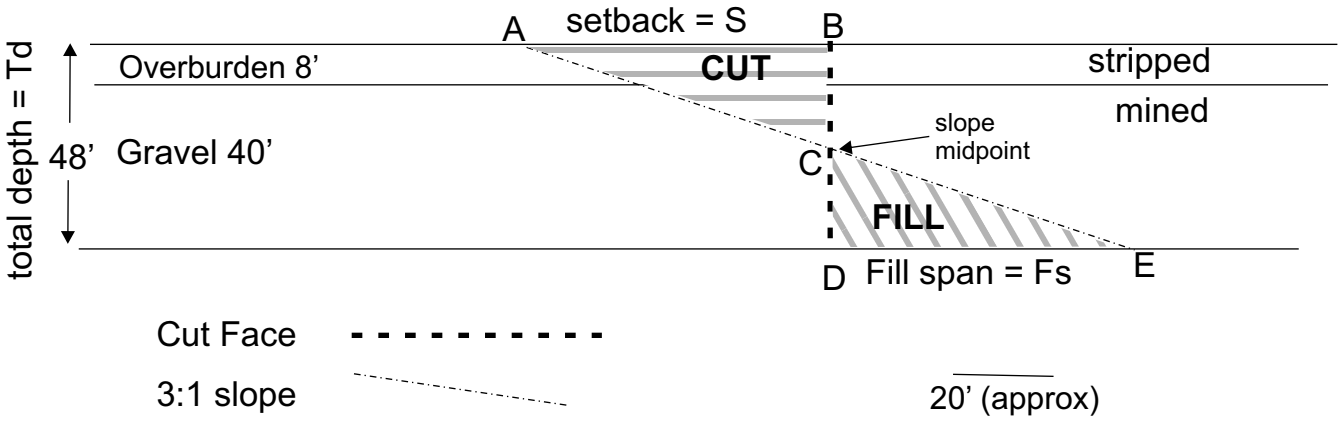
CUT = 26.1 cuyds/foot

FILL = 32.0 cuyds/foot

NET = 32-26.1 = 5.9 cuyds/foot

Conclusion: 5.9 cu yds of Fill must come from elsewhere (stockpiles) for each foot of Wall reduced to 3:1

Condition 1: Fountain Pit TR 3 Simplest Highwall Reduction Geometric Model

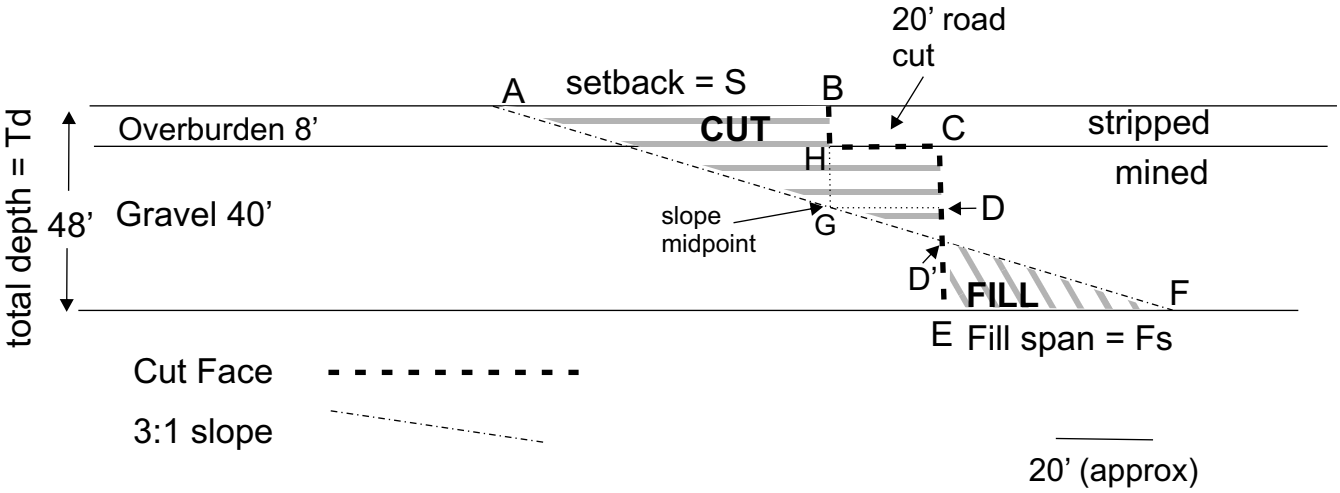


This is a most likely situation if wall reduction is occurring while the mining operation is proceeding. Because there is so much overburden going into the Fill, top dressing with soil and/or overburden may not be necessary.

In this model all of the Fill is derived from the Cut as the area of triangle ABC, by geometric theorem, is the same as the area of triangle CDE. The center of the slope is at the Cut Face location, which is also point C. The Cut Face is also vertical. The total depth, Td, is 48 feet. Therefore the horizontal length of the 3:1 slope is equal to 3 x Td or 144 feet in this example. Therefore the setback, S, is ½ the horizontal length of the slope and in this example is 72 horizontal feet. That is also the value of Fs, the Fill span. The point C is at Td/2 which is 24 vertical feet.

In this example, then, the area of triangle ABC is the (length of AB x the length of BC)/2. In this case it is (72x24)/2 = 864 square feet. That is also the area of triangle CDE. Thus the total cross-section of the Cut-Fill on this 3-dimensional wall is equal to the area of Triangle ABC x the length of the 3-d wall. Looked at another way, for every lineal foot of wall being converted to a 3:1 slope 864 cubic feet must be pushed over the Cut Face. And 864 cubic feet / 27 = 32 cubic yards. If the total 3-d wall is 6,000 feet long then the total volume is 192,000 cubic yards of material that needs to be moved a short distance to reduce the wall to a 3:1 slope. No additional fill need be hauled in.

Condition 2: Fountain Pit TR 3 Highwall Reduction Geometric Model for when a Road is Present at the Foot of the Overburden

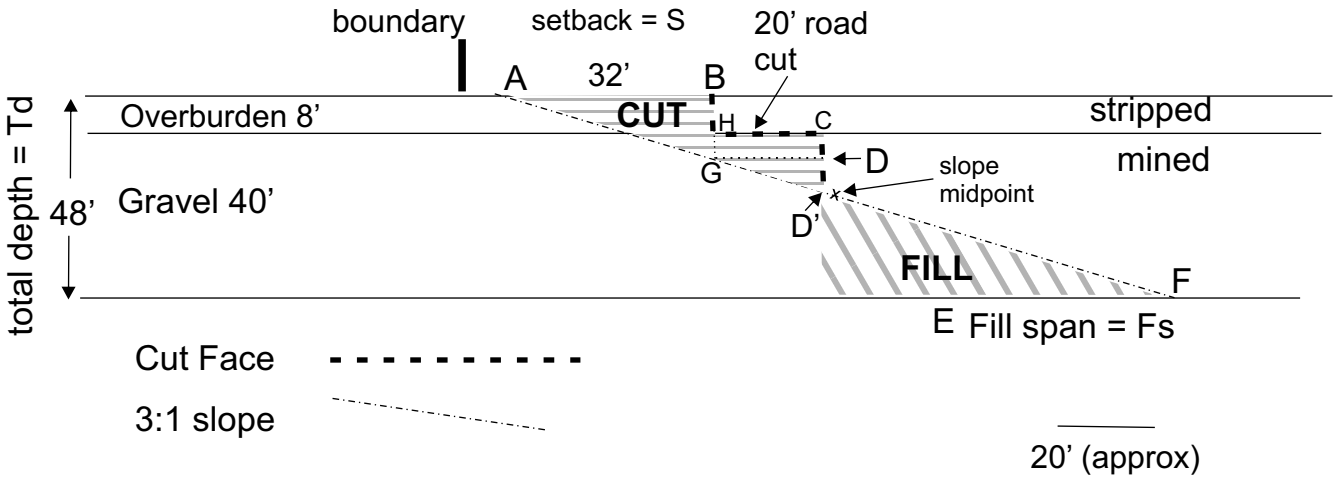


This is a most likely situation if wall reduction is occurring as a result of default and the mining operation is closed and being reclaimed. But Condition 1 may also be needed in some places.. Because there is excess Cut material relative to Fill material, top dressing may not be needed on the slope. But it might be needed on the Fill slope as that might be gravelly.

In this model all of the Fill is derived from the Cut as the area of triangle ABG plus the polygon HCDG is much greater than the triangle DEF. The center of the slope is still at point G which is the mid point of the slope. The Cut Faces BH and CD are also vertical. The total depth, Td, is 48 feet. Therefore the horizontal length of the 3:1 slope is still equal to 3 x Td or 144 feet in this example. So the setback, S, is ½ the horizontal length of the slope and in this example is 72 horizontal feet. But here that is not the value of Fs, the Fill span. The point G is at Td/2 which is 24 feet.

In this example, then, the area of triangle ABG is the same as in the Condition 1, 864 square feet. But there is an addition of fill derived from polygon HCDG. Thus the total cross-section of the Cut-Fill on this wall configuration is equal to the area of Triangle ABG + polygon HCDG) x the length of the 3-d wall. The area of the polygon is equal to ((GH-HB) x HC) + ((HC x ((HC/3)/2). In this example that is (24-8) x 20 = about 320 sq ft + ((20x(20/3)/2) which is 66.7 sq ft which equals 386.7 sq ft. Plus 864 sq feet = 1250.7 square feet. If the total 3-d wall is 6,000 feet long then the total volume is 7,504,200 cubic feet which is 277,933.3 cubic yards of fill material. But the Fill area is only 590.2 sq ft which is 3,541,200 cu ft or 131,155.6 cu yds. That leaves 146,777.7 cu yds more material for top dressing the floor of the pit or filling elsewhere. In other words, creating a 3:1 slope using cut and fill in this situation not only accomplishes the task but supplies considerable additional material for reclamation elsewhere.

Condition 3: Fountain Pit TR 3 Highwall Reduction Geometric Model for when a Road is Present at the Foot of the Overburden and a Barrier Limits Setback, S

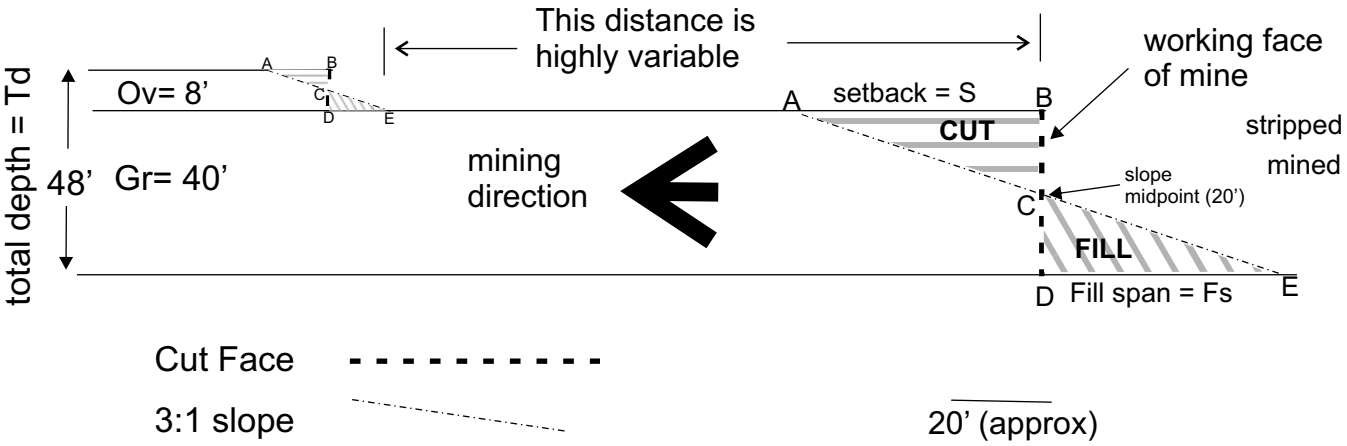


This condition is much like Condition 2 except there is a barrier that limits the Setback to 32 feet instead of 72 feet. This might be found on the west side of the pit either during continued mining or in the case of default and pit closure.

Because the total area of the Cut portion is close to being equal to the Fill portion, the area of the Cut portion is essentially 864 sq ft - the area of the cut for the road. In this case that cut is 8 x 20 feet which is 166 sq ft. So the net area of the Cut portion is 698 sq ft compared to very close to 864 sq ft for the Fill portion. Thus the Cut volume for 6000' of wall is 4,188,000 cu ft or 155,111 cu yds. But the Fill volume needed is 5,184,000 cu ft or 192,000 cu yds.

Therefore the amount of additional fill needed is 36,889 cu yds. That amount would have to come from stockpiles of soil/overburden or excesses from where Condition 2 would be present.

Condition 4: Fountain Pit TR 3 Geometric Model of Reclamation with an Active Working Face



This condition is like Condition 1 except there are two 3:1 slopes that need to be created. This would primarily be found on the south side of the pit during mining or in the case of default and pit closure on the south working face and possibly for short sections of the east and west side working faces. In that case one just adds whatever is on those sides to the south portion and that becomes the new length.

One 3:1 slope is needed on the overburden wall, which here is 8' high. So the area of triangle ABC is 20x2 or 40 square feet (1.48 cu yds). So, with a 2400' south working face the total volume of earth that needs to be moved is 96,000 cu ft or 3,555.5 cu yds. Once again it balances out.

Using the same method of calculation for the working face 3:1 slope, the second of the two slopes, would be 600 cubic feet in the cut for a total of 1,440,000 cu ft or 53,333.3 cu yds with a 2,400' long wall.

Combing both for a 2,400 foot long wall 56,888.8 cu yds needs to be moved. If the mining is completed and a 20' road bench is present then Condition 2 would apply and excess material would be produced.

However for this Condition 4 there is the addition of soil/overburden topdressing of the entire bench and the outer 3:1 slope. That amount all depends on the width of the bench which, as noted, changes almost daily while mining is occurring. It has a maximum but the minimum is zero. The amount constantly declines over the period of mining which is market driven. So prediction becomes dependent on the conditions present at the time the wall reduction needs to be done.

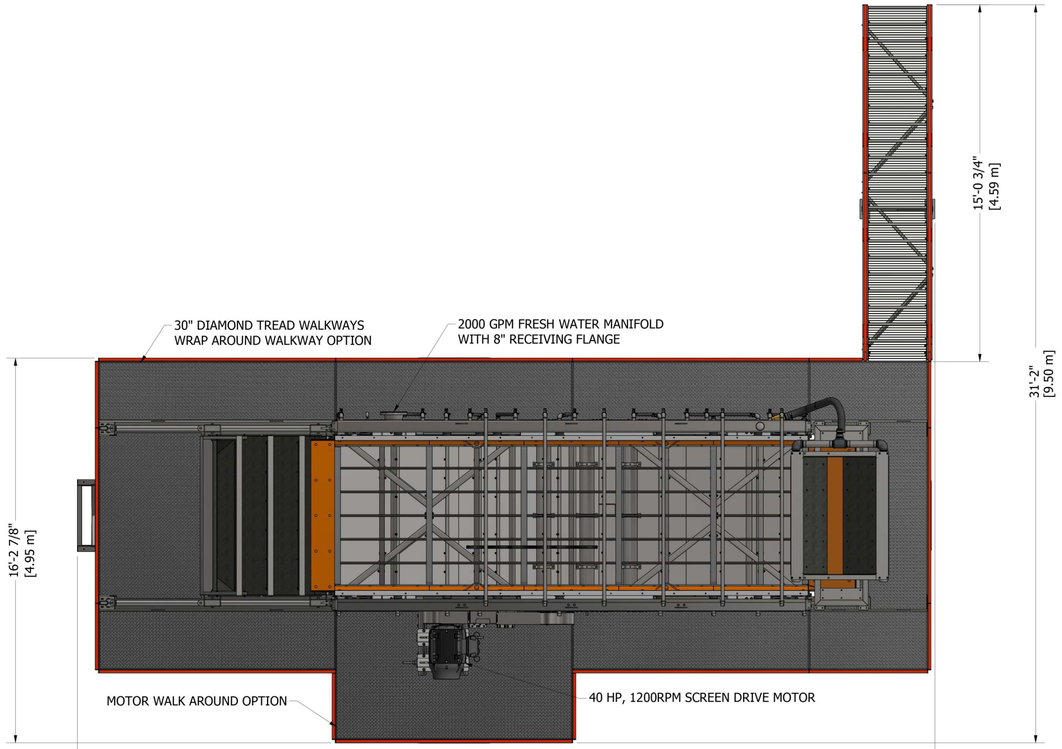
Conveyor associated with the screening plant. The conveyor rests on concrete blocks at regular intervals. No attachments to the ground. Everything is portable.

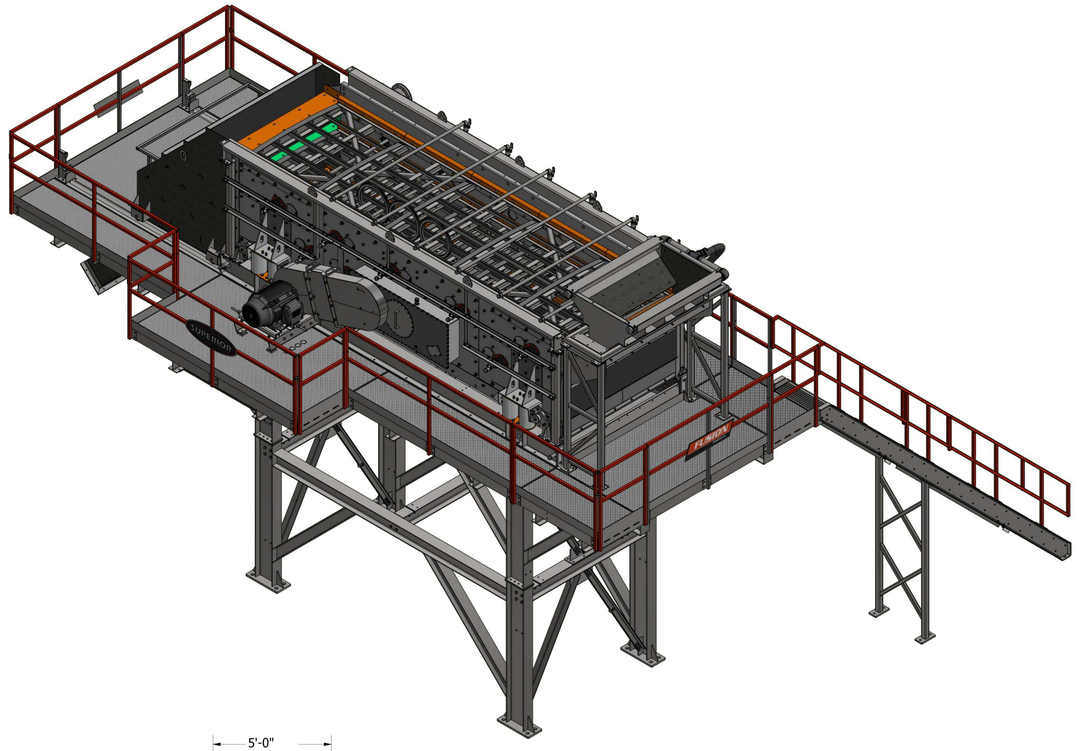
The two fixed portions of the new wash plant. Note concrete foundations

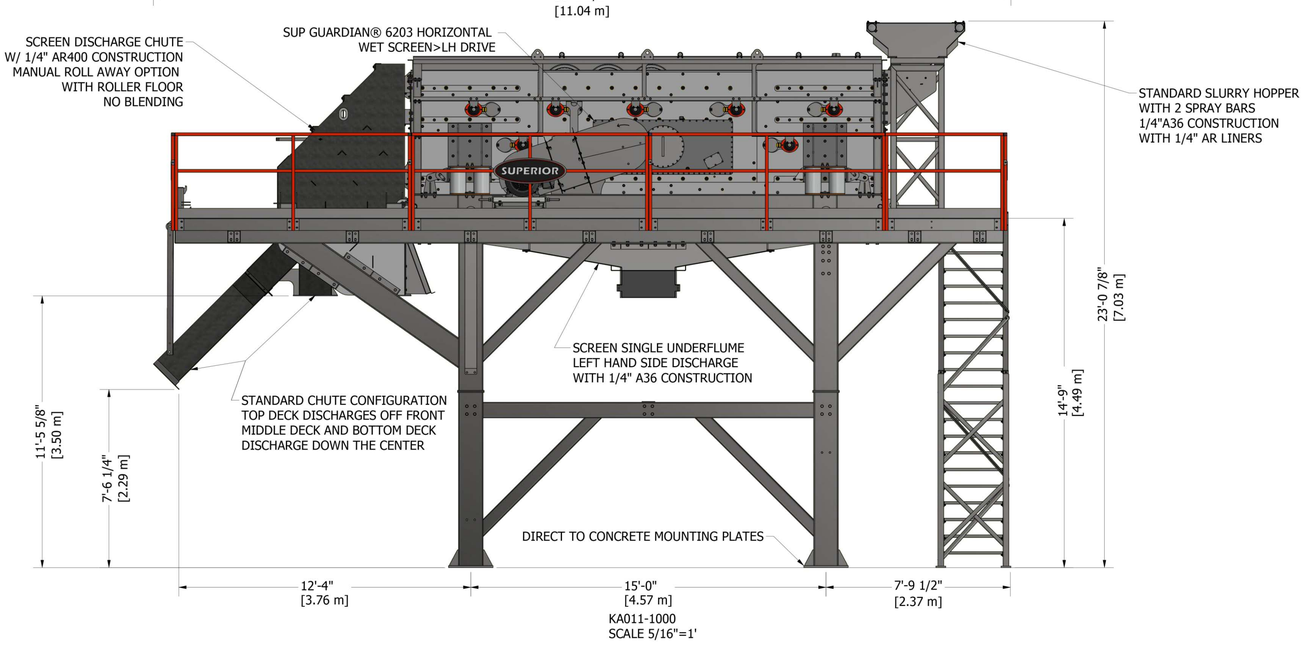
Two components of the Wash Plant and their dimensions

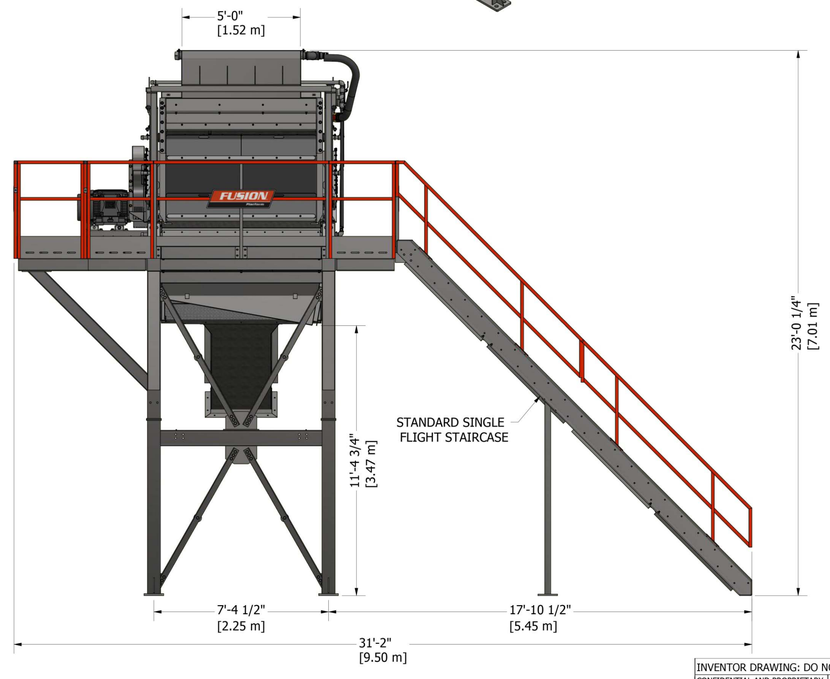
60" Superior Aggradry

Information on locations and dimensions of concrete pads supporting the Wash Plant. All support pads are 8” thick. All other equipment is portable.









THIS PRINT HAS BEEN SUBMITTED FOR YOUR APPROVAL. YOU ARE RESPONSIBLE FOR APPROVING THE GENERAL LAYOUT AND NOTING ANY CHANGES THAT MUST BE MADE. IN ORDER TO MAINTAIN DELIVERY, RETURN THE SIGNED APPROVAL DRAWING IN 3 BUSINESS DAYS.

DATE SUBMITTED: 8/23/2021 DATE APPROVED:

APPROVED BY: COMPANY NAME:

SUPERIOR EQUIPMENT RESERVES THE RIGHT TO MAKE ANY NECESSARY MODIFICATIONS. NOTICE WILL BE SENT IF CHANGES ARE NECESSARY.

INVENTOR DRAWING: DO NOT MODIFY WITH ANY OTHER PROGRAM.

ALL DIMENSIONS IN INCHES (UNO)

TOLERANCES (UNO)
FRACTIONAL: ± 1/16"
ANGULAR: ± 1'
DECIMAL: 0.0 ±.1
0.00 ±.01
0.000 ±.005
0.0000 ±.0020
HOLE Ø: ± 1/32

SUPERIOR
315 E Highway 28
P.O. Box 684
Morris, MN 56267 USA

6203 HORIZ. SCREEN WET FUSION® PLATFORM, NO-SKID, 1-FLUME, ROLL-CHUTE, 0RET-STAIR, OPERATION APPROVAL GA

DRAWN BY	DATE	ASSEMBLY NO.
J. SCHMIDGALL	8/23/2021	
SCALE (UNO) 5/16"=1'	CHECKED	SIZE D
FILE VAULT\KA011-0100		DRAWING NUMBER KA011-0100

THIRD ANGLE PROJECTION | E-1 PART NO: F6203HSWFP | WEIGHT | SHEET 1 OF 1