



"Blaine, Marjorie E SPL "
<Marjorie.E.Blaine@usace.army.mil>

07/21/2010 04:29 PM

To "Hattenbach, Steve"
<STEVE.HATTENBACH@OGC.USDA.GOV>, "Melinda D
Roth" <mroth@fs.fed.us>
cc "Brian Lindenlaub" <blindenlaub@westlandresources.com>,
"Reta Laford" <rlaford@fs.fed.us>, "Tom Furgason"
<tfurgason@swca.com>

bcc

Subject RE: Rosemont

Mr. Hattenbach

Thank you very much....considering your caseload and possible court schedule, on which of those days would you be most likely to remain available?

Marjorie

Assist us in better serving you!

You are invited to complete our customer survey, located at the following link: <http://per2.nwp.usace.army.mil/survey.html>

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-----Original Message-----

From: Hattenbach, Steve [mailto:STEVE.HATTENBACH@OGC.USDA.GOV]
Sent: Wednesday, July 21, 2010 3:45 PM
To: Blaine, Marjorie E SPL; Melinda D Roth
Cc: Brian Lindenlaub; Reta Laford; Tom Furgason
Subject: RE: Rosemont

I am currently available on August 3rd 1 p.m. Mountain Time or later, and all day the 4th and 5th.

Steve Hattenbach
USDA, OGC
P.O. Box 586
Albuquerque, NM 87103-0586
phone (505) 248-6020
fax (505) 248-6013

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-----Original Message-----

From: Blaine, Marjorie E SPL [mailto:Marjorie.E.Blaine@usace.army.mil]
Sent: Wednesday, July 21, 2010 4:40 PM
To: Melinda D Roth
Cc: Brian Lindenlaub; Reta Laford; Tom Furgason; Hattenbach, Steve
Subject: RE: Rosemont

Mindee:

Thank you. We'd like to keep it simple. So I just need the date and time in those three days that is best for him and our attorneys will work that into their schedules since Mr. Hattenbach has more constraints. Once he gives us that, then we'll set up a conference call-in number for him. As far as prework, if you all want to brief him, that's fine but our attorneys are

aware of the issues. Participants would be three of us and hopefully just a few of you like Mr. Hattenbach, you, and Reta. I'll set up the topics/agenda once we have the date. So all I need from you/him is the date and time on one of those days that is the most convenient for him. I am expecting this will take no more than an hour at the most.

Thank you!

Marjorie

Assist us in better serving you!

You are invited to complete our customer survey, located at the following link: <http://per2.nwp.usace.army.mil/survey.html>

Note: If the link is not active, copy and paste it into your internet browser.

-----Original Message-----

From: Melinda D Roth [mailto:mroth@fs.fed.us]

Sent: Wednesday, July 21, 2010 3:36 PM

To: Blaine, Marjorie E SPL

Cc: Brian Lindenlaub; Reta Laford; Tom Furgason;

STEVE.HATTENBACH@OGC.USDA.GOV

Subject: Re: Rosemont

Right now, Steve Hattenbach, our OGC attorney in Albuquerque, is available August 3, 4, or 5, although he has a heavy caseload and is expecting court schedules to start filling in over the next 2 weeks. It might be best to put the attorneys in direct communications to work out the schedule, logistics, prework, participants, topics, agenda, etc.

Mindee Roth

Coronado National Forest

300 W. Congress, FB42

Tucson, AZ 85701

(520) 388-8319

(520) 396-0715 (cell)

(520) 388-8305 (FAX)

"Blaine, Marjorie E SPL" <Marjorie.E.Blaine@usace.army.mil>

07/21/2010 11:54 AM To

"Melinda D Roth" <mroth@fs.fed.us>, "Reta Laford" <rlaford@fs.fed.us> cc "Tom Furgason" <tfurgason@swca.com>, "Brian Lindenlaub"

<blindenlaub@westlandresources.com>

Subject

Rosemont

Mindee and Reta

I left messages for you both but will send you a quick email.

I met with our attorneys this morning. Our chief attorney is a NEPA and a

takings expert and our regulatory attorney is a NEPA and regulatory expert. They contend that NEPA requires the USFS to look at offsite alternatives...NEPA does not get into takings. So while your decision in the end "might" be limited by takings considerations, NEPA still requires you to look at the full array of alternatives including the alternative mineral resources proximal to the Rosemont ore body and other offsite alternatives. They would be most happy to have this discussion with your attorneys and wonder if we can schedule this for either August 3, 4, or 5th...a telecon is probably the best.

To that end, they have advised me that, until this is settled and agreed upon, we cannot participate in any meetings regarding mitigation, etc. so I will not be in the call today.

Finally, I did a quick look at the revision of Chp 1 and find it to be really problematic as did our attorney. I will be giving you comments but your purpose and need are still very unclear and our comments were not appropriately incorporated. Again, I'll provide you our detailed comments next week as promised.

I look forward to your call or email confirming one of those dates for our attorneys and us to meet.

Thank you very much.

Marjorie Blaine
Senior Project Manager/Biologist
U.S. Army Corps of Engineers
Tucson Project Office, Regulatory Division
5205 E. Comanche Street
Tucson, AZ 85707
(520)584-1684 (phone)
(520)584-1690 (fax)

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<<http://per2.nwp.usace.army.mil/survey.html>>

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Date: Wed, 10 Feb 2010 08:34:47 -0600

To: Marcie Bidwell <mbidwell@swca.com <mbidwell@swca.com> >

Cc: David Krizek <david.krizek@tetrattech.com <david.krizek@tetrattech.com> >, Katherine Arnold <karnold@rosemontcopper.com <karnold@rosemontcopper.com> >, Tom Furgason <tfurgason@swca.com <tfurgason@swca.com> >, Trent Reeder <treeder@swca.com <treeder@swca.com> >, Debby Kriegel <dkriegel@fs.fed.us <dkriegel@fs.fed.us> >

Subject: Re: For USFS direction: RCC Viewshed analysis

Simulations created for visual resource analysis and the EIS must be honest and accurate depictions of what the alternative would look like. They need to include stormwater management features, such as benches, if these features would be required. It is not appropriate to simulate 3:1 smooth top-to-bottom slopes if benches will be necessary (I'm assuming that this is what you're calling "angular grading" from Tetra Tech).

Golder's work will be complete on Monday, and the results may indicate that fewer benches are required. Horst Schor's work is expected to create more natural forms to deal with stormwater. Both of these would lessen effects to visual quality and should be incorporated as much as possible into alternatives and resulting simulations.

The exception would be the MPO, which doesn't have a stormwater grading plan. I recommend printing a disclaimer statement regarding this on the MPO simulations.

Thanks.

Debby Kriegel

"Marcie Bidwell" <mbidwell@swca.com <mbidwell@swca.com> > 02/09/2010 02:36 PM

To

"Krizek, David" <David.Krizek@tetrattech.com <David.Krizek@tetrattech.com> >, "Debby Kriegel" <dkriegel@fs.fed.us <dkriegel@fs.fed.us> >, "Tom Furgason" <tfurgason@swca.com <tfurgason@swca.com> >, "Kathy Arnold" <karnold@rosemontcopper.com <karnold@rosemontcopper.com> >, "Trent Reeder" <treeder@swca.com <treeder@swca.com> >

cc

Subject

For USFS direction: RCC Viewshed analysis

Hello Debby and Kathy,

I wanted to check in with you for direction to SWCA and Tetra Tech regarding what level of engineering resolution that we should all use in visual analysis and supporting efforts.

Please see David's message below and use the two attachments to place the questions in reference.

1. David has sent a pdf map of the Barrel only alternative that shows the angular grading of the "raw process."
2. I have attached a GIS view of the MPO with the benches etc, rather than smoothing, i.e. the "Raw process."

Due to the level of engineering development of the alternatives, David is proposing that both companies work from the raw version of the alternatives.

It is my understanding that working from the "raw" images would provide the "typical stormwater and benching" design that the Visual Coordination Meeting directed us to use (see KOP 12 attached).

Debby, Please confirm that we should all be working on the "raw" data that shows benching, to create a fair comparison.

David, I am still waiting for response to the questions that I submitted to Tt on Feb. 2 regarding the presentation of the MPO; I think my questions overlap with yours.

From Marcie to SWCA, Tt, and USFS on 2/2/2010: RE: Visualization Coordination Follow Up and Minutes.

MPO- Specific Questions-

1. Please confirm **which presentation of the MPO grading** we should use for **vizualizations at Y10** is as presented in **Figure 9** of the Reclamation and Closure Plan (RCP).
2. Please confirm **which presentation of the MPO grading** we should use for **visualizations at Y20-** should the MPO be shown as **Figure 11 or Figure 12** of the RCP.
3. Please indicate what the **geodatabase layer name** is that will have the "**composite of yearly reclamation areas**" in the data provided by Tt.
4. SWCA understands that the MPO should show benches as the following: waste rock, as 100 ft running slopes for each bench and approximately 100 ft wide road/bench surface; and tailings as 50 ft benches and running surface; the attached KOP 12 image shows the output from the MPO with benches as submitted. **Please confirm if this is what we should use for final grading.**

From: Krizek, David [<mailto:David.Krizek@tetrattech.com> <<mailto:David.Krizek@tetrattech.com>>]
Sent: Tuesday, February 09, 2010 11:59 AM
To: Marcie Bidwell
Cc: Keepers, Ashley; Carrasco, Joel
Subject: RCC Viewshed analysis

Marcie,

This e-mail is being sent just to clarify the shapes we are using for our viewshed analysis.

Depending on the alternative, the various alternatives have been developed to three different stages. These stages are:

1. Raw Stage
2. Smoothed Stage
3. Advanced Stage

For the ultimate footprint, the following stages have been done:

- | | | |
|--|-----------|----------------|
| 1. Barrel and McCleary Alternative | raw stage | |
| advanced design | | |
| 2. MPO | raw stage | smoothed shape |
| 3. Barrel Only Alternative | raw stage | |
| 4. Sycamore Tailings and Barrel Waste Alternative | raw stage | |
| 5. Scholefield Tailings and McCleary Waste Alternative | raw stage | |

For the Year 10 footprint, the following stages have been done:

- | | | |
|--|-----------|--|
| 1. Barrel and McCleary Alternative | raw stage | |
| 2. MPO | raw stage | |
| 3. Barrel Only Alternative | raw stage | |
| 4. Sycamore Tailings and Barrel Waste Alternative | raw stage | |
| 5. Scholefield Tailings and McCleary Waste Alternative | raw stage | |

For the viewshed analysis, we are just planning on using the raw stage for all (Barrel Only Alternative attached for example). The raw stage is the angular version used to determine volumes, etc. Otherwise it won't be an equal analysis.

Is this what you were anticipating?

Sincerely,

David Krizek | Principal

Main: 520-297-7723 | Mobile: 520-260-3490 | Fax: 520-297-7724

Tetra Tech

3031 West Ina Road | Tucson, AZ 85741 | www.tetrattech.com <<http://www.tetrattech.com/>> <<http://www.tetrattech.com/>>>

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recipient, please notify the sender by replying to this message and then delete it from your system.

[attachment "Barrel Only_raw shape.pdf" deleted by Debby Kriegel/R3/USDAFS] [attachment "11204_KOP12_PAb.jpg" deleted by Debby Kriegel/R3/USDAFS]



"Stephen Leslie"
<sleslie@swca.com>
07/10/2009 08:35 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc
bcc
Subject FW: Recreation and Wilderness Bounds of Analysis -
Rosemont

History:  This message has been replied to.

From: Lara Mitchell
Sent: Wednesday, July 08, 2009 2:11 PM
To: Stephen Leslie
Subject: RE: Recreation and Wilderness Bounds of Analysis - Rosemont

here is the bounds of analysis map we are using for now for the visual, let me know if you would like to use this for the rec.
-Lara

From: Stephen Leslie
Sent: Monday, June 15, 2009 8:26 AM
To: Lara Mitchell
Cc: Charles Coyle
Subject: RE: Recreation and Wilderness Bounds of Analysis - Rosemont

I will let you know once Debby and I have had a chance to discuss.

Thanks,
Steve

From: Lara Mitchell
Sent: Monday, June 15, 2009 8:25 AM
To: Stephen Leslie
Cc: Charles Coyle
Subject: RE: Recreation and Wilderness Bounds of Analysis - Rosemont

Let me know when you have the final geographic bounds of analysis defined and I'll create the map for you. If what you describe in the text attached to your email is final just let me know and I'll get started on it.

Thanks
Lara

From: Stephen Leslie
Sent: Monday, June 15, 2009 8:08 AM
To: Debby Kriegel
Cc: Charles Coyle; Marcie Bidwell; Lara Mitchell
Subject: Recreation and Wilderness Bounds of Analysis - Rosemont

Debby,

Welcome back. Here is an initial draft of the bounds of analysis for recreation and wilderness. I'll be available to discuss further and refine this as necessary when you get a chance.

Thanks,
Steve Leslie
Environmental Planner
SWCA Environmental Consultants
2820 West Charleston Boulevard, Suite 15
Las Vegas, Nevada 89102
702-248-3880[attachment "visual.pdf" deleted by Debby Kriegel/R3/USDAFS]



"Marcie Bidwell"
<mbidwell@swca.com>
01/27/2010 01:19 AM

To "Kathy Arnold" <karnold@rosemontcopper.com>, "Debby Kriegel" <dkriegel@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>

cc

bcc

Subject RE: Visual Analysis Coordination Meeting

History:  This message has been replied to.

Hello Debby,

I would like to propose that we schedule the Visual Analysis Coordination Meeting for Friday morning, 9 AM at the USFS conference room at 300 Congress.

Will that schedule work for you and the facilities?

Potential Attendees:

Debby
Kathy
Tom
Marcie
David K and associates

Thank you!
Marcie

From: Kathy Arnold [mailto:karnold@rosemontcopper.com]
Sent: Tuesday, January 26, 2010 2:01 PM
To: Marcie Bidwell; Debby Kriegel; Tom Furgason
Subject: Re: Tetra Tech Viewshed and KOPS - previous analysis - descriptions

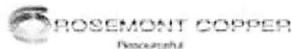
Marcie -

I have not heard from David (he is out this afternoon) but suspect that Friday earlier than later would be best. Do you have a time and location you were thinking of and we can firm up with David tomorrow?

Thanks -

Kathy

Katherine Ann Arnold, P.E. | Director of Environmental and Regulatory Affairs
Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724
karnold@rosemontcopper.com



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From: Marcie Bidwell <mbidwell@swca.com>

Date: Tue, 26 Jan 2010 11:28:51 -0600

To: Katherine Arnold <karnold@rosemontcopper.com>, Debby Kriegel <dkriegel@fs.fed.us>, Tom Furgason <tfurgason@swca.com>

Subject: RE: Tetra Tech Viewshed and KOPS - previous analysis - descriptions

Hello Kathy and Debby,

I am checking in to see if we have a date and time for the meeting this week, hopefully on Friday.

Thank you in advance for the update,
Marcie

From: Kathy Arnold [<mailto:karnold@rosemontcopper.com>]

Sent: Friday, January 22, 2010 2:48 PM

To: Marcie Bidwell

Subject: Re: Tetra Tech Viewshed and KOPS - previous analysis - descriptions

Thanks for coordinating Marcie – I just approved a meeting with Debby and will make sure David knows it is in his scope.

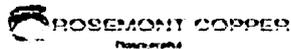
Cheers!

Kathy

Katherine Ann Arnold, P.E. | Director of Environmental and Regulatory Affairs

Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724

karnold@rosemontcopper.com



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From: Marcie Bidwell <mbidwell@swca.com>

Date: Fri, 22 Jan 2010 13:55:39 -0600

To: David Krizek <david.krizek@tetrattech.com>

Cc: "Keepers, Ashley" <Ashley.Keepers@tetrattech.com>, Trent Reeder <treeder@swca.com>, Katherine

Arnold <karnold@rosemontcopper.com>, Tom Furgason <tfurgason@swca.com>, Debby Kriegel <dkriegel@fs.fed.us>

Subject: RE: Tetra Tech Viewshed and KOPS - previous analysis - descriptions

David,

I spoke with Debby regarding KOPs and the other information pieces. I am working on typing up the notes, but wanted to give you the most important pieces quickly, which will save you some time.

Most importantly, Debby was very interested to hear of the larger scope for Tetra Tech for all alternatives, and wants to schedule a meeting to finalize the details. She is supportive of Tetra Tech and Sage providing further materials and data, but wants to make sure that all of the effort is necessary prior to finished products arriving for approval. There may be opportunities for cost savings, and some of them are listed below. She will be requesting a face-to-face meeting for next week (hopefully Friday will work for everyone).

FYI- IN TUCSON NEXT WEEK: I am tentatively planning a trip to Tucson for next Thursday-Friday and I will be available for meetings on those days.

1. KOP Consolidation- She was appreciative and understanding of the desire to have one list. She was very comfortable with consolidating KOPs as proposed in principle, and I am checking a few details (i.e. exact location of TT photography) to see if it will work for the USFS as new KOPs (USFS- Box Canyon and Mt. Wrightson) and I am doing some research for decision on the USFS decision on AZ Trail. All other KOPs seem fine. The three in question are also probably fine, but I am checking the details to be sure.

2. Legal Concern regarding Hilton Road KOP and sharing it: As the USFS is just supplying the gps for this point, Debby was comfortable with TT using it for viewshed analysis. You can proceed with this KOP.

3. How many Viewshed Analysis- all KOPs or less? With an appreciation for the amount of work that is involved (and associated costs), we discussed if viewsheds were necessary for all of the KOPs that are on the "short list" (the consolidated 8). Debby is comfortable with only doing viewshed analyses for less than all 8. For the purposes of the USFS and their methods, the KOPs within the USFS "middleground" or closer to the project area are the most important (basically within 5 miles), so the list could be shortened. I am working on that list, but you can count on KOP 1-3, 7 and 8 remaining on the list. Mt. Wrightson is definitely off of the list.

4. Presentation of KOPs Viewshed Analysis- We decided that the best way to present the viewshed analysis is to have the final product to be **one final map that adds all of the KOP results together**. That reduces the maps to (1) per alternative, a total of 6 maps + No Action= 7 maps total (which is better than 48). However, they will need to be in color to work in this format. I will send directions in a separate email.

I think that's the most important pieces for now. More to follow this afternoon,
Thank you again for the data and we hope to have our data on line for you by Monday (our office is closed due to winter storm)

Marcie

From: Krizek, David [<mailto:David.Krizek@tetrattech.com>]
Sent: Friday, January 22, 2010 9:38 AM
To: Marcie Bidwell
Cc: Keepers, Ashley; Trent Reeder
Subject: RE: Tetra Tech Viewshed and KOPS - previous analysis - descriptions

Marcie,

Would it also be possible to present the viewshed analyses in black and white to reduce copy charges?

It was a question from RCC.

Sincerely,

David Krizek | Principal
Main: 520-297-7723 | Mobile: 520-260-3490 | Fax: 520-297-7724

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From: Marcie Bidwell [<mailto:mbidwell@swca.com>]
Sent: Friday, January 22, 2010 9:33 AM
To: Krizek, David
Cc: Keepers, Ashley; Trent Reeder
Subject: RE: Tetra Tech Viewshed and KOPS - previous analysis - descriptions

Thanks!

It may be Monday before all of our stuff is uploaded. Our office is closed today due to snow and our GIS team need to be on the server to upload stuff. It may happen over the weekend.

I am talking to Debby today regarding the viewshed presentation questions. I should have answers for you later.

Marcie

From: Krizek, David [<mailto:David.Krizek@tetrattech.com>]

Sent: Friday, January 22, 2010 9:31 AM
To: Marcie Bidwell
Cc: Keepers, Ashley; Trent Reeder
Subject: Tetra Tech Viewshed and KOPS - previous analysis - descriptions
Marcie,

I have loaded to the ftp site the photos for the KOPs and other information related to KOP selection, etc. I also included the viewshed analysis that we did previously (pdf versions).

Sincerely,

David Krizek | Principal

Main: 520-297-7723 | Mobile: 520-260-3490 | Fax: 520-297-7724

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Debby Kriegel/R3/USDAFS
08/20/2009 07:29 AM

To mbidwell@swca.com
cc Debby Kriegel/R3/USDAFS@FSNOTES, Mary M
Farrell/R3/USDAFS@FSNOTES
bcc
Subject Rosemont Mine

Marcie: This afternoon I'll be attending a meeting with the ~20 project cooperators (tribes, other agencies, local governments, etc.). In preparation, I thought about what I'd say if any of the cooperators asked me to summarize my thoughts on the project impacts and alternatives related to scenery (and recreation setting), and I jotted this down. However, something like this might also be useful as an introduction for the environmental consequences section for scenery. See what you think. Thanks! Debby

Proposed Rosemont Mine - Visual Resources Summary August 20, 2009

It is difficult to imagine a land use that would be more potentially devastating to the valued National Forest scenery and quiet wildland recreation settings than the proposed mine. The project would clear or bury most of the native vegetation in the area (including mature trees along the numerous canyon bottoms), change landforms from natural undulating topography to monolithic flat-topped industrial shapes, and create a very large open pit high on a mountainside in a location where it will be visible from miles away. The project would also require many "temporary" facilities that would be in operation 24/7 for 20 years or more, including an ore processing complex, access and haul roads, and power and water lines.

Alternatives and mitigation that would help lessen these impacts include:

- 1. Shaping the waste rock and tailings piles to mimic natural landforms in the surrounding area.**
- 2. Placing waste rock and tailings in locations that are less visible to Forest visitors and nearby residents.**
- 3. Establishing native vegetation in natural patterns and sizes on all disturbed areas as quickly as possible.**
- 4. Treating the visible portions of the pit to remove artificial forms (such as horizontal ledges) and darken the rock to match adjacent exposed native rock.**
- 5. Removing facilities as soon as they are not needed, and naturalizing these areas by restoring contours and planting with native species.**



"Terry Chute"
<tjchute@msn.com>
11/16/2010 12:49 PM

To "Jonathan Rigg" <jrigg@swca.com>, "Beverley A Everson"
<beverson@fs.fed.us>, "Melissa Reichard"
<mreichard@swca.com>, "Melinda D Roth"
cc "Debby Kriegel" <dkriegel@fs.fed.us>

bcc

Subject Re: Rosemont DEIS - Recreation and Visual Quality

Debby,

As Jonathan said in his email to you this morning, we have been in a meeting for the last several hours. Here is the info in response to your email:

1. Bev has a CD with the latest word version of the Visual and Recreation sections. Contact her to get it – she is in the office this afternoon. You can make edits in either Word – Track Changes or on the response form that we used last time.
2. Completed sections are due to me by close of business on Friday, November 3rd. That is the "Pens Down" time and date. Earlier would be better so that we can rectify any differences before the last minute.
3. More formal direction to the entire ID Team for reviewing this version of the DEIS will be coming out soon – this afternoon I hope.
4. Give me a holler if you have comments or questions.

Terry Chute

From: Debby Kriegel

Sent: Tuesday, November 16, 2010 7:23 AM

To: Jonathan Rigg ; Beverley A Everson ; Melissa Reichard ; Melinda D Roth ; Tom Furgason ; Terry Chute

Cc: Debby Kriegel

Subject: Rosemont DEIS - Recreation and Visual Quality

I have been waiting for many weeks now for SWCA to provide the latest visual quality and recreation chapter 3 sections for me to review and provide my comments . As of this morning, I still don't have an editable version of either. I've left email and voicemail messages for Jonathan, and hopefully he'll get these to me today. The reports on WebEx are pdfs.

I have LOTS of comments on both reports and need to use a document type that I can track changes (Word).

Bev, Mindee, and Terry: You had previously told me to continue to work directly with my SWCA counterparts on these reports, and I have been waiting for weeks now for SWCA to provide the latest drafts so I can do this. Both reports (especially visual) are still works in progress. Do you really want to see all my edits at this point, or should I continue to work with SWCA (Steve and David)?

"Jonathan Rigg"
<jrigg@swca.com>

To "Debby Kriegel" <dkriegel@fs.fed.us>

Debby Kriegel/R3/USDAFS
07/08/2009 04:54 PM

To "Trent Reeder" <treeder@swca.com>, "Marcie Bidwell" <mbidwell@swca.com>
cc Debby Kriegel/R3/USDAFS@FSNOTES
bcc
Subject Rosemont - New information and a change in Monday's meeting...

Marcie and Trent,

I just got out of the Rosemont meeting. The team eliminated alternatives 4 and 5 (though I want to review them one more time with you two, just in case either has serious merit), and came up with a new alternative that places all waste and tailings in Barrel Canyon (and avoids McCleary Canyon entirely). This new options will add height and/or width to the proposed pile in this location and will probably push it closer to Hwy 83. Rosemont will create a drawing that shows the footprint and elevation for this new alternative, and it will be presented to the ID team Wednesday morning. I'd like to have ALL the alternatives in the model before we meet, so let's postpone Monday's session. Trent would need to add the new "blob" to the model. Are you two available on Wednesday? Trent: if you have the data late Wed morning, could you add it to the model in a couple of hours so me and Marcie could work with you in the afternoon?

Marcie: There are several issues that we need to discuss soon. I'm in a meeting all day tomorrow. Are you available Friday or Monday to talk about these?

1. Have you and Trent had already identified the new KOP locations we discussed recently (Tucson, I-19 dogleg, etc.)? Today the visibility of Sycamore Canyon from Tucson came up, so we will need KOP locations for that clearly demonstrate what would be seen.
2. Bev recommends that we add a KOP in Vail (a community on the southeast edge of metro Tucson).
3. When will you have the scope of work for me to approve? (the one that Charles Coyle mentioned a couple of weeks ago)
4. Do you have a tentative schedule for your work that ensures everything can be completed by November (when the draft EIS is due)?

~~~~~  
Debby Kriegel  
Coronado National Forest  
(520) 388-8427



"Marcie Bidwell"  
<mbidwell@swca.com>  
09/15/2009 01:23 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc  
bcc  
Subject BLM VRM

[www.blm.gov/nstc/VRM](http://www.blm.gov/nstc/VRM)  
<<Garkane DLH 11-11-08.doc>>

Marcie Demmy Bidwell  
Environmental Planner  
130 Rock Point Drive, Suite A  
Durango, Colorado 81301  
Office: 970.385.8566  
Fax: 970.385.1938



[www.swca.com](http://www.swca.com) Garkane DLH 11-11-08.doc

↑ Not printed.  
Example from non-mining  
project on lands in Utah



"Marcie Bidwell"  
<mbidwell@swca.com>  
05/11/2010 03:16 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc  
bcc

Subject RE: Visual Scope, reviewed and ready for approval.

Hello Debby,

We can talk on Weds if you want. I am available in the afternoon.

1. Funded tasks- I sent the pdf of the funding tasks last month. I am resending it here.

2. This SOW was specifically requested to address (1) simulations and (2) EIS and specialist report needs, and so it fits a more focused process. At the time that this was drafted last fall, the Horst discussion and other alternative development processes were taking care of many of the other pieces, and I was directed to focus on the elements represented. The research task has been on the unfunded list for a long time. I thought you had included specific research requests on your most recent letter to Rosemont (permion, veg, rock colors, etc). If/when you find a good example we can ask for funding at that time. There wasnt really a way to include the cost of traveling to an unknown place at an unknown time when this SOW was submitted.

3. We are still waiting for 3D model of the plant, then we will have to apply colors and textures to it to make it appear real.

4. Completed. We are referring to these as "seen area maps". And in discusison with you, we have decided that the "not visible diagrams" are virtually the same information as the seen area maps; therefore, we are not producing the not visible diagrams at this time.

5. Transmission lines and roads will be simulated as the data that we receive from RCC/Tt. If we do not receive that data, we will not be able to simulate it (we have not received it yet; however, Tt did call and leave a message yesterday that they heard from RCC that we need more data).

6. This is a new idea, and not one that we have talked about yet. We will be showing vegetation, and the scale of that vegetation could be called out in a legend. There really isnt a reason that people would be out in this landscape, after it has been reclaimed. I would consider this extra detail, but if the vegetation cannot suffice, we can talk about it.

We should talk about photos and which of the alternatives still need representation.

I arrive Sunday night as long as the weather cooperates. I have all day on Tuesday and currently all day Weds, although I may fly standby early if there isnt any reason to be in Tucson all day.

CHeers,  
Marcie

**From:** Debby Kriegel [mailto:dkriegel@fs.fed.us]  
**Sent:** Monday, May 10, 2010 1:53 PM  
**To:** Marcie Bidwell  
**Cc:** Debby Kriegel

**Subject:** Re: Visual Scope, reviewed and ready for approval.

Marcie,

Let's talk sometime soon. I have many comments on your scope of work (attached), and lots of additional questions:

1. Which tasks are funded (and which are not)?
2. What happened to the research task? I realize that my original thoughts on this have been scaled down, and there may not be any great large-scale mine landforming and/or revegetation projects, but can you at least get in touch with the ASLA Reclamation and Restoration professional group? Also, if Horst (or others) finds a good example, it is still feasible that you and I might need to travel to it. I recommend that you just mention in your scope of work that this might be necessary, but is currently unfunded.
3. Are you expecting to simulate the plant yourself?
4. Will you be creating a reverse viewshed study (like Jimmy Pepper provided) for each alternative?
5. Will the powerline (and associated road and water line) going over the ridge be included in any planned simulations? We now know that EPG is not simulating this, and it's a big visual effect, so I think we need to discuss.
6. Is there a way to include something for scale (like a person or a car) in at least some of the simulations? We haven't talked about this, but I think it's critical.

The snow on the Santa Ritas has now melted, so taking KOP photos from Tucson can happen any time. In the mean time, our Forest Supervisor has decided that the Sycamore/Barrel alternative is not moving forward, but I recommend that you or Johnathan go ahead and take the photos anyway. Our Forest Supervisor has announced that she is retiring next month, and who knows what the next forest supervisor might want. Also, it's possible that the public will demand this alternative return to analysis and/or want to see that we took views from Tucson seriously (potentially a photo could be included in your specialist report). Pick a clear day. It's been windy a lot lately and the air quality has been bad.

The reclamation meeting on Monday (May 17) starts at 9:00 am. When does your flight arrive? On Tuesday I have a dental appt. at 2:15, but could work with you all morning. Wednesday, I'm normally tied up in Rosemont IDT meetings.

Thanks.

Debby

"Marcie Bidwell"  
<mbidwell@swca.com>

05/10/2010 08:15 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>  
cc "Jonathan Rigg" <jrigg@swca.com>, "Melissa Reichard" <mreichard@swca.com>, "Dale  
Ortman PE" <daleortmanpe@live.com>  
Subject: Visual Scope, reviewed and ready for approval.  
t

Hello Debby,

Please find attached the Visual Scope with a few edits to it. Basically, we made sure that the number of KOPs and data set assumptions matched with the level of effort that was agreed upon with Jamie in January (i.e. middle cost estimate). I believe that this version is now ready for your approval.

Also, I have booked flights to Tucson for the Reclamation Technology Transfer meeting on May 17th; to be conservative, I booked my flights to be in Tucson for May 17-19, as I had not heard a final schedule. In communicating with Dale, it appears that the meeting is still considered to be one day; that would give you and I at least Tuesday to work together, and I can either work from the Tucson office on Weds or try to fly standby to return earlier.

I do not consider the Reclamation Transfer meeting to be in this visual budget, and will pursue arrangements with Tom/Dale for the time.

Finally, I am preparing a Project Update, several maps and image drafts for you to review, either prior to this meeting or as a part of that trip to Tucson. I should have these to you shortly.

More to follow,  
Marcie

<<Scope-Visual Resources\_2010-04-30.doc>>

Marcie Demmy Bidwell

Environmental Planner

130 Rock Point Drive, Suite A

Durango, Colorado 81301

Office: 970.385.8566

Fax: 970.385.1938

[www.swca.com](http://www.swca.com) [attachment "Scope-Visual Resources\_2010-04-30.doc" deleted by Debby Kriegel/R3/USDAFS]

Debby Kriegel/R3/USDAFS  
08/03/2010 03:28 PM

To cbarraza@rosemontcopper.com  
cc Debby Kriegel/R3/USDAFS@FSNOTES  
bcc  
Subject Rosemont Plant - Building Colors

History:  This message has been forwarded.

Clarissa,

Were you able to get a color sample for Patrician Bronze?

Also, on July 23, Kathy Arnold mentioned that the Forest Service could not identify a specific color for the buildings (like Patrician Bronze), but that we could identify a ballpark color or color range. Do you have any recommendations on how we could do this, so your specifications would allow a variety of suppliers to bid on the job? What type of color system(s) should we be considering/specifying?

Thanks.

~~~~~  
Debby Kriegel, RLA
Landscape Architect
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www.fs.fed.us/r3/coronado/
dkriegel@fs.fed.us

----- Forwarded by Debby Kriegel/R3/USDAFS on 08/03/2010 03:22 PM -----



Katherine Arnold
<karnold@rosemontcopper.com>
07/16/2010 12:24 PM

To Clarissa Barraza <cbarraza@rosemontcopper.com>, Debby Kriegel <dkriegel@fs.fed.us>
cc Marcie Bidwell <mbidwell@swca.com>, David Krizek <david.krizek@tetrattech.com>
Subject Hello

Clarissa – meet Debby and Marcie
Marcie and Debby – this is Clarissa

Clarissa -

Marcie and Debby are working on the building color schemes that would be best so the buildings blend into the background. I told them that you are the keeper of the keys to the details of our EPCM contracts and that you could chat with them regarding the color limitations and specifications. Please expect a call from either Debby or Marcie or both to chat about:

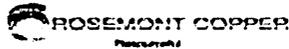
1. Color of the overall buildings – they got the color information you provided but wondered if they could have a choice
2. Possibly setting a color specification for the buildings so that regardless of manufacturer we are

- purchasing the colors that are most desirable.
3. Other items as necessary

Let me know if you have questions or concerns.

Kathy

Katherine Ann Arnold, P.E. | Director of Environmental and Regulatory Affairs
Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724
karnold@rosemontcopper.com



Rosemont Copper Company
P.O. Box 35130 | Tucson, AZ 85740-5130
3031 West Ina Road | Tucson, AZ 85741 | www.rosemontcopper.com

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n; charset=utf-8:Barraza;Clarissa;;;
adr; charset=utf-8; type=work; type=pref;;; PO Box 35130; Tucson; AZ; 85740-5130;
label; charset=utf-8; type=work; type=pref: PO Box 35130\nTucson\, AZ
85740-5130
tel; charset=utf-8; type=work: (520) 293-1488 ext 7370
tel; charset=utf-8; type=cell: (520) 310-1404
email; charset=utf-8; type=internet; type=pref; type=work: cbarraza@rosemontcopper.com
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url; charset=utf-8; type=work: www.swca.com
adr; charset=utf-8; type=work; type=pref;;; 515 East College
Drive; Durango; CO; 81301; United States
label; charset=utf-8; type=work; type=pref: 515 East College Drive\nDurango\,
CO 81301\nUnited States
tel; charset=utf-8; type=work: (970) 385-8566
tel; charset=utf-8; type=work; type=fax: (970) 385-1938
```

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org; charset=utf-8:US. Forest Service; Coronado National Forest
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Congress; Tucson; AZ; 85701; USA
label; charset=utf-8; type=work; type=pref:300 West Congress\nTucson\, AZ
85701\nUSA
email; charset=utf-8; type=internet; type=pref; type=work:dkriegel@fs.fed.us
end:vcard



Reta Laford/R3/USDAFS
08/06/2009 05:33 PM

To ccoyle@swca.com
cc Debby Kriegel/R3/USDAFS@FSNOTES, Beverley A
Everson/R3/USDAFS@FSNOTES, Reta
Laford/R3/USDAFS@FSNOTES
bcc
Subject Coronado Approval of SOW -Fw: Rosemont visual
simulations scope of work

Charles - See Debby's note below. She validates that the attached scope of work reflects the analysis she has requested on the proposed action. She also notes that although your email uses the word "definitive", there is always some level of uncertainty with any proposed analysis. Please proceed with the attached scope of work. Thank you.

Reta Laford, Deputy Forest Supervisor

USDA Forest Service, Coronado National Forest
300 W Congress Street, Tucson, AZ 85701

Phone: 520-388-8307 (office), 505-452-7557 (cell)
Fax: 520-388-8305
Email: rlaford@fs.fed.us

----- Forwarded by Reta Laford/R3/USDAFS on 08/06/2009 05:27 PM -----

Debby Kriegel/R3/USDAFS
08/06/2009 06:59 AM

To Reta Laford/R3/USDAFS@FSNOTES
cc Beverley A Everson/R3/USDAFS@FSNOTES, Debby
Kriegel/R3/USDAFS@FSNOTES
Subject Fw: Rosemont visual simulations scope of work

Reta:

This is the scope of work for simulations that I recommend for the proposed action, and I approve moving forward with this. Please review this and contact SWCA as soon as possible.

One note of caution...

Charles mentions the words "definitive scope". Although the proposed work includes much thought and discussion and is relatively "definitive", until SWCA delves into this process, we can't be completely certain that there won't be an unexpected bump in the road. I assume that Marcie's cost estimate for this work includes a modest amount of contingency for these uncertainties. Her assumptions here clearly mention some of the tasks that may need additional work/funds.

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----- Forwarded by Debby Kriegel/R3/USDAFS on 08/06/2009 06:46 AM -----



**Beverley A
Everson/R3/USDAFS**
08/05/2009 04:24 PM

To Reta Laford/R3/USDAFS@FSNOTES, Debby
Kriegel/R3/USDAFS@FSNOTES
cc

Subject Fw: Rosemont visual simulations scope of work

I defer to the two of you in approving this scope of work, as you discussed it in detail prior to submitting it to SWCA.

Beverley A. Everson
Forest Geologist
Coronado National Forest
300 W. Congress Street, 6th Floor
Tucson, AZ. 85701

Voice: 520-388-8428
Fax: 520-388-8305

----- Forwarded by Beverley A Everson/R3/USDAFS on 08/05/2009 04:23 PM -----



"Charles Coyle"
<ccoyle@swca.com>
08/05/2009 03:56 PM

To "Beverley A Everson" <beverson@fs.fed.us>, "Reta Laford" <rlaford@fs.fed.us>, "Debby Kriegel" <dkriegel@fs.fed.us>
cc "Marcie Bidwell" <mbidwell@swca.com>, "Tom Furgason" <tfurgason@swca.com>
Subject Rosemont visual simulations scope of work

Hi Bev, Reta, Debby:

Please review the attached, which is Marcie Bidwell's revised scope of work and assumptions to complete visual simulations for the Proposed Action. As I understand it, this newest version was coordinated with Debby yesterday and this morning.

As we discussed, it would be best if we can get approval from each of the three of you prior to submittal of the scope and associated costs to Rosemont Copper—change orders tend to be quite time-consuming, so I'd like to be able to assure RCC this is the definitive scope and we can then hopefully get the dollars in place sooner rather than later.

Thanks!

Charles Coyle
Senior Project Manager
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Fax: 602-274-3958
www.swca.com

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Visual Simulations Scope of Work 8-05-09.pdf

Visual Simulations Change Order (Aug. 5, 2009)

Visual Simulations: Highly Visible, Moderately Visible and Not Visible Diagrams

Task 1. Consultation with USFS and Rosemont to Select Simulations and Phases

Review all KOPs established by the USFS and select key observation points (KOPs) to propose to USFS for simulations and level of detail for simulations to show areas where the project is highly visible, distantly visible, and not visible (i.e., blocked or out of view).

Prepare "existing conditions" panoramas for potential KOP simulations and review for use as simulations. For KOPs where project would be visible, select a phase to represent for each KOP in addition to Reclamation (e.g., construction at 5 years).

Meet with USFS and RCC to review data, KOP selection and "photo-realistic" process.

Task 2. 3D Surface and Scene Construction

Collect necessary data and generate 3D digital surfaces for the MPO at each construction phase selected for simulations.

Create one set of 3D GIS Arc Globe working maps and diagrams. Construct 3D working diagrams for RCC and USFS to review potential scenes from each KOP to be selected.

Review with USFS and RCC for proposed simulations (i.e., does the KOP portray a scene which is representative of desired viewshed and phase of construction for visual analysis?)

Task 3. Visual Simulations Construction and Review with USFS/RCC

Create photo-realistic computer simulations of MPO for selected KOPs for highly visible and distantly visible locations. For highly visible and moderately visible KOPs, prepare simulations to show two phases of the MPO for each KOP (e.g., during construction and at final reclamation). Each simulation will show waste rock and tailing pile forms, roads, and infrastructure.

For KOPs where development per the MPO would not be visible, prepare a section diagram or labeled panorama showing key landscape features and visual screen.

Prepare photorealistic simulation images for KOPs.

Review draft simulations with resources specialists from RCC, USFS, and SWCA to direct specific aspects of renderings: reclamation, soils, vegetation, etc.

Complete a Draft review with USFS and RCC staff at a meeting in Tucson.

Task 4. Photo Simulation Finalization

Complete changes to simulations and submit to USFS and RCC for final approval.

Assumptions

- 1** *Costs are based upon up to 14 KOPs for up to 14 panoramas, 6 labeled diagrams showing landform screening for non-visible KOPs, and up to 16 simulations of highly visible and moderately visible KOPs for the Proposed Action. Additional KOPs, simulations, phases, or alternatives may be requested for an additional fee.*
- 2** *RCC to provide all data and elevations required for simulations, including a 3D model of any facilities, structures, or transmission infrastructure.*
- 3** *Simulations will be classified as "highly visible" or "moderately visible". Highly visible simulations will show detailed variations in land form, vegetation, color, and texture for tailings and waste rock placement. Moderately visible simulations will show general variations in land form, vegetation, color and texture due to the level of detail being reduced by the distance of the viewer from the project area.*
- 4** *Should KOPs require extensive visualization of mining facilities, conveyors, equipment, transmission lines, etc, the work for these layers will be performed on a time-and-materials basis, due to the unpredictable level of detail and effort required for these structures.*
- 5** *RCC and USFS are to agree upon the level of reclamation and vegetation success to be rendered prior to initiation of photoreal simulations. Changes in the direction given to SWCA to represent these aspects will require a change order, should they require additional time and effort to address.*
- 6** *RCC will provide example photographs of existing reclamation, mining structures, vegetation mixes, soil types and colors, and other data to SWCA prior to the initiation of the simulations. Necessary imagery will be discussed at simulation initiation meeting in Task 1.*
- 7** *Changes in data, proposed action, and resolution of imagery after project initiation will require adjustments based upon time and materials.*
- 8** *Cost estimate includes two in-person meetings as two trips to Tucson for Marcie Bidwell to work with USFS and RCC on simulations, per direction of USFS staff. Additional trips may be required by USFS or RCC, and these will be arranged through an additional change order.*
- 9** *This scope of work includes one round of draft review and one round of final review. Additional changes, reviews, or updates would require an approved change order.*

Minimum Simulations Needed for Rosemont EIS – Proposed Action
July 30, 2009

Confirm that proposed action is not visible - No simulations needed

- Madera Canyon
- San Xavier
- Tucson
- Vail
- Corona de Tucson
- Sahuarita
- Green Valley

Project effects small and/or distant - Simulate year with most effects (2 simulations)

- Sonoita (KOP 8)
- Las Cienegas Conservation Area (KOP 11)

Project effects moderate – Simulate year with most visible effects, and post-reclamation if view expected to be much different from existing view (3-6 simulations)

- Mt. Wrightson Wilderness (KOP 17)
- Hilton Rd. (KOP 16)
- Box Canyon (KOP 21)

Project effects large – Simulate as follows (7-8 simulations)

- Arizona Trail – 1 simulation of typical view along trail at the toe of the waste rock
- Hwy 83 pullout (KOP 12) - Simulate 2-3 phases (construction or early mine years, during active mine with most visible effects if it's different than the construction or early mine simulation, and post reclamation)
- OHV staging area at KOP 4 - Simulate 3 phases (construction or early mine years, during active mine with most visible effects, and post reclamation)

TOTAL 12-16 SIMULATIONS

Simulation Type	Simulation Description	Number of Panoramas	Number of Simulations
Not Visible <ul style="list-style-type: none"> • Madera Canyon • San Xavier • Tucson • Vail • Corona de Tucson • Sahuarita • Green Valley 	<ul style="list-style-type: none"> ○ Six existing panoramas of conditions ○ Six diagrams to document project is not visible 	6	0
Minimal- Distant Visibility <ul style="list-style-type: none"> • Sonoita (KOP 8) • Las Cienegas Conservation Area (KOP 11) 	<ul style="list-style-type: none"> ○ Three existing panoramas of current conditions ○ Three general simulations with generalized colors and textures 	2	2
Moderate Visibility <ul style="list-style-type: none"> • Mt. Wrightson Wilderness (KOP 17) • Hilton Rd. (KOP 16) • Box Canyon (KOP 21) 	<ul style="list-style-type: none"> ○ Three existing panoramas of current conditions ○ Three post-reclamation with detail in color and texture that fades with distance from viewer ○ Two to six simulations at phases during construction with detail in color and texture that fades. 	3	6
Highly Visible <ul style="list-style-type: none"> • Arizona Trail • Hwy 83 pullout (KOP 12) • OHV staging (KOP 4) 	<ul style="list-style-type: none"> ○ Three existing panorama of current conditions ○ Three post-reclamation simulations with high level of detail in vegetation, color, texture and land form that fades with distance from the viewer during different phases ○ Two to six simulations at phases during construction 	3	8
Totals		14 Panoramas	16 Simulations



"Marcie Bidwell"
<mbidwell@swca.com>
08/13/2009 02:21 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc
bcc
Subject Simulation Strategy table

<<Simulation_Strategy_Proposed_Action_09-08-10.doc>>

Marcie Demmy Bidwell
Environmental Planner
130 Rock Point Drive, Suite A
Durango, Colorado 81301
Office: 970.385.8566
Fax: 970.385.1938



www.swca.com Simulation_Strategy_Proposed_Action_09-08-10.doc

Minimum Simulations Needed for Rosemont EIS – Proposed Action
Requested List of Simulations by the Coronado National Forest

Confirm that proposed action is not visible - No simulations needed

- Madera Canyon
- San Xavier
- Tucson
- Vail
- Corona de Tucson
- Sahuarita
- Green Valley

Project effects small and/or distant - Simulate year with most effects (2 simulations)

- Sonoita (KOP 8)
- Las Cienegas Conservation Area (KOP 11)

Project effects moderate – Simulate year with most visible effects, and post-reclamation if view expected to be much different from existing view (3-6 simulations)

- Mt. Wrightson Wilderness (KOP 17)
- Hilton Rd. (KOP 16)
- Box Canyon (KOP 21)

Project effects large – Simulate as follows (7-8 simulations)

- Arizona Trail – 1 simulation of typical view along trail at the toe of the waste rock
- Hwy 83 pullout (KOP 12) - Simulate 2-3 phases (construction or early mine years, during active mine with most visible effects if it's different than the construction or early mine simulation, and post reclamation)
- OHV staging area at KOP 4 - Simulate 3 phases (construction or early mine years, during active mine with most visible effects, and post reclamation)

SWCA PROPOSED DELIVERABLES FOR VISUAL EXHIBITS AND SIMULATIONS STRATEGY

Simulation Type	Simulation Description	Number of Preview PDFs	New KOP Photography	Number of Panoramas	Number of Non-visible Diagrams	Number of Simulations
Not Visible <ul style="list-style-type: none"> Madera Canyon (KOP 2) San Xavier (KOP 16) Tucson Vail Corona de Tucson (KOP 3) Sahuarita Green Valley (KOP 2) 	<ul style="list-style-type: none"> Six existing panoramas of conditions Six diagrams to document project is not visible 	6	3	6	6	0
Minimal- Distant Visibility <ul style="list-style-type: none"> Sonoita (KOP 8) Las Cienegas Conservation Area (KOP 11) 	<ul style="list-style-type: none"> Three existing panoramas of current conditions Three general simulations with generalized colors and textures 	2	0	2	0	2
Moderate Visibility <ul style="list-style-type: none"> Mt. Wrightson Wilderness (KOP 17) Hilton Rd. (KOP 16) Box Canyon (KOP 21) 	<ul style="list-style-type: none"> Three existing panoramas of current conditions Three post-reclamation with detail in color and texture that fades with distance from viewer Two to six simulations at phases during construction with detail in color and texture that fades. 	6 - 12	3	3	0	6
Highly Visible <ul style="list-style-type: none"> Arizona Trail (KOP 5 - 7, or 13) Hwy 83 pullout (KOP 12) OHV staging (KOP 14) 	<ul style="list-style-type: none"> Three existing panorama of current conditions Three post-reclamation simulations with high level of detail in vegetation, color, texture and land form that fades with distance from the viewer during different phases during construction Two to six simulations at phases during construction 	6-12	0	3	0	8
Total Deliverables	Drafts	20 - 32 PDFs	6 New KOPs	14 Panoramas	6 Draft Diagrams	16 Draft Simulations
	Final				6 Final Diagrams	16 Final Simulations
	Meetings	(1) 4-hr Meeting	(2) Days Field Work	(1)- Review of 3D Surfaces Meeting (1)- Review Draft Figures and Simulations (1)- Review Final Figures and Simulations		



Melinda D Roth/R3/USDAFS
07/29/2010 08:42 AM

To Debby Kriegel/R3/USDAFS@FSNOTES
cc tjchute@msn.com, mbidwell@swca.com
bcc
Subject Re: Fw: Rereading of Chapter 2, what are your thoughts?

Terry is our point person on mitigation measures. He is reviewing the mitigation table this week. Many of our "mitigation measures" fit better as alternative design features and Terry is identifying which is which. I believe Terry is also consolidating like ideas to reduce redundancy, etc. Terry will then work with Tom at SWCA to incorporate all these ideas into Chapter 2.

Mindee Roth
Coronado National Forest
300 W. Congress, FB42
Tucson, AZ 85701
(520) 388-8319
(520) 396-0715 (cell)
(520) 388-8305 (FAX)

Debby Kriegel/R3/USDAFS

Debby Kriegel/R3/USDAFS
07/29/2010 08:27 AM

To Melinda D Roth/R3/USDAFS@FSNOTES, tjchute@msn.com
cc Debby Kriegel/R3/USDAFS@FSNOTES,
mbidwell@swca.com
Subject Fw: Rereading of Chapter 2, what are your thoughts?

Mindee and Terry:

I haven't had a chance to read chapter 2 lately, but Marcie just did, and she's pointing out that the mitigation table still states that Rosemont intends to landform, fully revegetate (including planting trees and shrubs), and treat the light-colored pit rock. These are the most important 3 mitigation measures for visual quality, and Rosemont agreed to them long ago, but they have not yet provided sufficient support/research to incorporate them in the DEIS (or show in the simulations). All could easily be resolved by the FEIS. Also, there has been some wordsmithing on these mitigation measures that I have problems with.

What do you suggest?

----- Forwarded by Debby Kriegel/R3/USDAFS on 07/29/2010 08:15 AM -----



"Marcie Bidwell"
<mbidwell@swca.com>
07/29/2010 06:49 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc
Subject Rereading of Chapter 2, what are your thoughts?

Hello Debby,

Under the mitigation section of Chapter 2 is this section I am pasting below that caught my eye.

Is this accurate and up to date? I am not buying it, basically. I suspect that you don't either.

Thoughts on what Chapter 2 should say?

Marcie

Visual Resources

Rosemont Copper would finalize a comprehensive plan to mitigate visual impacts. This plan would incorporate information gained during on-sight studies conducted independently to determine the effectiveness of a variety of growth media and plant pallets. The plan would be subject to approval by Coronado's Landscape Architect and would, at a minimum incorporate the "Diverse Habitat Mosaic Reclamation Approach". This would require an adaptive management approach and include a variety of surface treatments, varying slope lengths, and angles with less prescriptive water management techniques.

Some of the additional considerations include re-establishing drainage areas that integrate talus slopes, rocky outcrops, trees, and riparian characteristics. While grasslands with forbs and shrubs would be the predominant plant community, other existing plant communities would also be re-established at selected locations on-site. These communities will include agave, a variety of trees, ocotillo, and shrubs. Plantings and seeding would be implemented to mimic the existing mosaic of vegetation to provide diversity to the visual landscape. All plantings, seed mixes, and their suppliers would be approved by Coronado prior to planting. Variations of the drainage versus upland areas would also be worked into the design such that the prescriptive ridge and drainage considerations would be augmented by other treatments to provide a more variable landform.

Portions of the Pit Wall and road cuts visible from Key Observation Points would be painted, stained, or vegetated according to the plan. All paints or stains would be approved by Coronado prior to use. All buildings and other major project features would be painted with non-reflective, earth-tone paints, as approved by the Forest Service. Treatments to light fixtures have been covered under Night Skies.

At the end of mine operations, remove all unneeded ore processing, ancillary facilities (including foundations), and utility lines, and naturalize these sites by restoring natural contours, placing growth media on the areas, and revegetating with native grasses, trees, and shrubs.

Marcie Demmy Bidwell

Environmental Planner

130 Rock Point Drive, Suite A

Durango, Colorado 81301

Office: 970.385.8566

Fax: 970.385.1938

www.swca.com

Debby,

Sorry to bother you while your at training. Please see David's email below. I think you and I have discussed why we need one list of foreseeable actions for all resource areas to consider for cumulative effects analysis. Can you tell me if the projects David mentions below were on the list but were removed, are ongoing actions (as opposed to foreseeable) or are unique to Visual Resources, and if the later is true, why? I'm just trying to figure out why these are applicable to Visuals but not other resources, or if there si something going on that I don't wuite understand. Let me know your thoughts and we will get this figured out ASAP so David can get on with his analysis and not feel caught in the middle. Thanks...Terry

From: David Harris

Sent: Tuesday, October 26, 2010 3:45 PM

To: Terry Chute

Cc: Jonathan Rigg

Subject: additional cumulative actions for visuals

Terry,

I've reviewed the latest list of past, present, and reasonably foreseeable actions for analyzing cumulative impacts. In discussions with Debby K. about additional actions, she suggested other actions to consider for regional scenic quality impacts(and her comments in the text state that she discussed these with you, and that is was OK to include other than those in the list). They are the Morenci and Stafford mines, the highly visible Dragoon quarries on the Coronodo, the Mission, and Sierrita Mines. Her latest comments include more actions: Freeport McMoRan Copper and Gold Mine, Melendez Pass electronics site, Hopkins Observatory. Should I add these in? Use only what's only on the list? I need some guidance on this, as I am torn between trying to meet her needs to show potential impacts to the resource and satisfy yours for NEPA compliance. Help.

David Harris

SWCA Environmental Consultants

801-322-4307 (Office)

801-230-8359 (Cell)



"Marcie Bidwell"
<mbidwell@swca.com>
12/17/2009 05:31 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Trent Reeder"
<treeder@swca.com>, "Dale Ortman"
<daleortmanpe@live.com>
cc "Tom Furgason" <tfurgason@swca.com>
bcc
Subject Data Needed from Rosemont - Rocks and plants

Debby,

Here are some thoughts for information request to Rosemont~

1. We need GIS layers for the new alternatives (revised Phased Tailings, and Barrel Only) with Zvalues assigned to the contours and georeferences to their locations (it is my understanding that the latest alternatives as designed by Rosemont has not been delivered as contours to SWCA).
2. 3D model of the plant facilities and infrastructure locations (powerline, waterline easement, etc), with detail to the point that USFS and Rosemont can agree is sufficient for simulations. These need to be georeferenced as well.
3. Contours- best resolution of the existing landform topo that Tetra Tech has. We are still working off of 10m DEMs.

Dale,
Did you say that you received 2ft contours for the engineer?

If so, Trent and I need a copy of that data.

Thanks!
Marcie

From: Trent Reeder
Sent: Thursday, December 17, 2009 10:01 AM
To: Marcie Bidwell
Subject: RE: Data Needed from Rosemont - Rocks and plants

For the GIS layers, let's make sure we get data with elevations. Regarding 3D models, we need some sort XYZ georeferencing numbers and locations. We need to know where to place the model(s) and the base elevation(s).

That's about it at this point.

T
From: Marcie Bidwell
Sent: Thursday, December 17, 2009 9:52 AM
To: Trent Reeder
Subject: RE: Data Needed from Rosemont - Rocks and plants

Debby,

Here are some thoughts~

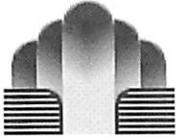
1. We need GIS layers for the new alternatives (revised Phased Tailings, xxx)
2. We need a 3D model of the plant facilities, at least to the point that USFS and Rosemont can agree is sufficient for simulations.

Trent, can you think of anything else that we should include in this request?

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Tuesday, December 15, 2009 3:22 PM
To: Marcie Bidwell; Walter Keyes; Salek Shafiqullah
Cc: Debby Kriegel
Subject: Data Needed from Rosemont - Rocks and plants

I'm getting ready to formally request the following information from Rosemont, and would appreciate your comments...

1. Information about the appearance of the outermost waste rock (sometimes referred to as "growth medium" or "topsoil") and visible back parts of the pit. This data will be necessary for both analysis of visual resources and for creating accurate simulations. Information needed:
 - The color range of the rock types that will comprise the outermost waste rock. This could be as simple as providing samples of the rock, identifying field sites where the material can be viewed (such as on the test plots), and photographs.
 - Permeon tests to determine application rates for the back of the pit, and outermost waste rock if it will be lighter than surrounding landscape colors. The Permeon representative is in the Tucson area approx. once each month. If Rosemont could provide locations to test the correct rock types (which should be newly excavated rock, not weathered locations), he is willing to travel to the site to test various application rates.
 - Post-mine options for breaking up the uppermost horizontal benches in the back of the pit. Depending on alternative, up to 20 benches would be visible from travelways, including Highway 83.
2. A study of establishing trees and shrubs on reclaimed slopes. The current research on seeding is an excellent start, but reclamation should also include trees and shrubs (and possibly cacti) in order to more quickly stabilize the slopes and meet visual quality goals. Coordination with U of A's Dr. Fehmi would be a good place to start, and perhaps he could recommend a consultant. The study would answer the following questions:
 - Which species and sizes of plants would be most successful on the outermost material? Native plants should be selected from those currently growing at the site, and would include salvage/transplants, seedlings, and/or container plants. Patterns of plants on the new slopes should mimic those of the surrounding landscape.
 - Where can the needed plants be obtained in sizes and quantities that would likely be necessary? Options include salvaging from the site, purchasing from local nurseries, contracting propagation, or some combination. Landforming work will affect the exact quantities, but a rough examination of existing numbers of plants and species per acre in the area would provide a good starting point,. And I know of one local plant expert with a nursery who might be available to provide information on the success of propagating species not typically sold in nurseries and/or to could help propagate plants.



Walter Keyes/R3/USDAFS

12/17/2009 01:09 PM

To Debby Kriegel/R3/USDAFS@FSNOTES

cc Debby Kriegel/R3/USDAFS@FSNOTES,
mbidwell@swca.com, Salek
Shafiqullah/R3/USDAFS@FSNOTES

bcc

Subject Re: Data Needed from Rosemont - Rocks and plants

Debby,

Good writeup, logic and needs description.

Suggestion for #2 below; an additional bullet (now or later) might be in order. Namely, if there are different suites of native plants best adapted to different "growth mediums", a plan should be developed to place that material/plant or seed those suites of veg to achieve targeted reveg and biology needs. Specifically I'm thinking of Agave/bat concerns, but this applies to lots of plant species/obligates. An example of how it can go wrong inadvertently would be that if a "growth medium" which is best for Agave survival is placed on slopes which are not conducive to Agave survival (north facing, south facing, whatever), we all have missed a huge opportunity. Resolving what "growth medium" goes where--for visual AND plant growth needs--solves problems for the proponent and the land manager.

Walt.

.....
Walt Keyes -- Roads Engineer
Coronado National Forest
300 W. Congress, Tucson, AZ 85701
520-388-8416 voice / 260-9567 cell / 388-8334 fax / wkeyes@fs.fed.us

This email contains information known to the State of
California to cause lack of reproductive success in the recipient.

.....
Debby Kriegel/R3/USDAFS

Debby Kriegel/R3/USDAFS

12/15/2009 03:22 PM

To mbidwell@swca.com, Walter
Keyes/R3/USDAFS@FSNOTES, Salek
Shafiqullah/R3/USDAFS@FSNOTES
cc Debby Kriegel/R3/USDAFS@FSNOTES

Subject Data Needed from Rosemont - Rocks and plants

I'm getting ready to formally request the following information from Rosemont, and would appreciate your comments...

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application rates.

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"Trent Reeder"
<treeder@swca.com>
07/24/2009 02:40 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Marcie Bidwell"
<mbidwell@swca.com>

cc

bcc

Subject Rosemont Terrain Profiles

History:

 This message has been replied to.

Hi Debby,

I have attached a PDF with Profile Line Graphs showing a crosscut section of both the existing terrain and the Proposed Action terrain. The graphs represent the results of a Line of Sight Analysis that entails drawing a line from an observer point (KOP 12), to a target location for which was an arbitrary spot on the other side of the ridge. I made sure the line would dissect the proposed pit and cut across the pit floor for greatest elevation change. The Green and Red line colors represent sections that would be visible (Green) and sections not visible (red) from KOP 12.

Please let me know if you have additional questions. Thanks!

Trent Reeder

GIS Specialist

SWCA Environmental Consultants

treeder@swca.com

130 Rock Point Dr. Suite A

Durango, Colorado 81303

Work (970) 385-8566

Fax (970) 385-1938

www.swca.com

[attachment "MPO Profile.pdf" deleted by Debby Kriegel/R3/USDAFS]



Melinda D Roth/R3/USDAFS
07/01/2010 10:10 AM

To Debby Kriegel/R3/USDAFS@FSNOTES,
mreichard@swca.com
cc
bcc

Subject Re: Fw: Landforming Reports - Please post Schor's report on
Rosemont eis website

Thanks Debby. This note got buried in my email. I apologize.

Mindee Roth
Coronado National Forest
300 W. Congress, FB42
Tucson, AZ 85701
(520) 388-8319
(520) 396-0715 (cell)
(520) 388-8305 (FAX)

Debby Kriegel/R3/USDAFS

Debby Kriegel/R3/USDAFS
07/01/2010 09:31 AM

To mreichard@swca.com, Melinda D
Roth/R3/USDAFS@FSNOTES
cc

Subject Fw: Landforming Reports - Please post Schor's report on
Rosemont eis website

Mindee and Melissa,

See my message below re where on WebEx to find Schor's report. Thanks.

~~~~~  
Debby Kriegel, RLA  
Landscape Architect  
Coronado National Forest  
300 W. Congress  
Tucson, AZ 85701  
(520) 388-8427  
Fax (520) 388-8305  
[www.fs.fed.us/r3/coronado/](http://www.fs.fed.us/r3/coronado/)  
[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)

— Forwarded by Debby Kriegel/R3/USDAFS on 07/01/2010 09:30 AM —



Melinda D Roth/R3/USDAFS  
05/27/2010 08:49 AM

To Debby Kriegel/R3/USDAFS@FSNOTES  
cc Beverley A Everson/R3/USDAFS@FSNOTES, Debby  
Kriegel/R3/USDAFS@FSNOTES, Teresa Ann  
Ciapusci/R3/USDAFS@FSNOTES  
Subject Re: Landforming Reports

You've got my OK.

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701  
(520) 388-8319  
(520) 396-0715 (cell)  
(520) 388-8305 (FAX)

Debby Kriegel/R3/USDAFS

**Debby Kriegel/R3/USDAFS**

05/26/2010 12:41 PM

To Beverley A Everson/R3/USDAFS@FSNOTES, Melinda D  
Roth/R3/USDAFS@FSNOTES  
cc Teresa Ann Ciapusci/R3/USDAFS@FSNOTES, Debby  
Kriegel/R3/USDAFS@FSNOTES  
Subject Landforming Reports

Bev and Mindee,

I would like Teresa Ann to post both Horst Shor and Golder Associates reports on the Cooperating Agency website. I especially would like Pima County, ADEQ, and the town of Sahuarita to have access to the reports, but all Cooperators would be welcome to comment.

She needs the approval from one of you two to proceed with this. Please let her know if it's ok.

The reports are located on WebEx as follows:

- Golder report: Team Working/Resources/Visual Resources, "20100217 Golder Landforming.pdf"
- Shor report: Group Documents/EIS/Specialist Reports, "Rosemont Report-05-19-10-final.pdf"

Thanks.

~~~~~  
Debby Kriegel, RLA
Landscape Architect
Coronado National Forest
300 W. Congress
Tucson, AZ 85701
(520) 388-8427
Fax (520) 388-8305
www.fs.fed.us/r3/coronado/
dkriegel@fs.fed.us



"Dale Ortman PE"
<daleortmanpe@live.com>
06/30/2010 08:28 AM

To ""Debby Kriegel"" <dkriegel@fs.fed.us>, ""Salek Shafiqullah""
<sshafiqullah@fs.fed.us>, ""Kathy Arnold""
<karnold@rosemontcopper.com>,
cc ""Tom Furgason"" <tfurgason@swca.com>, ""Jonathan Rigg""
<jrigg@swca.com>, ""Beverley A Everson""
<beverson@fs.fed.us>

bcc

Subject Barrel-Only Landform - Proposed Meeting/Conference Call

All,

The CNF has expressed that they would like to meet to review the updated landform. I propose we hold a meeting/conference call today, but both Debby and Salek have a commitment for this morning; therefore I would like to schedule the update for 1:30 PM (Arizona Time) this afternoon. The location will be the SWCA office, but those who are unable to physically attend may join via conference call.

Melissa/Jonathan, please issue invitations with the conference call number to all team members.

Kathy/Fermin, please email a PDF of the latest landform or let everyone know that the one attached to my emails is the working version.

I realize this is short notice, but this work is very likely leading to major change in the Barrel-Only Alternative and it is imperative that it be completed as soon as reasonably possible.

Please confirm your availability ASAP.

Regards,

Dale

Dale Ortman PE PLLC
Consulting Engineer

(520) 896-2404 - Arizona Office
(520) 449-7307 - Mobile
(435) 682-2777 - Utah Office

daleortmanpe@live.com

PO Box 1233
Oracle, AZ 85623



"Tom Furgason"
<tfurgason@swca.com>
06/02/2010 04:57 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Melinda D Roth"
<mroth@fs.fed.us>

cc

bcc

Subject RE: Fw: Letter accepting Schor's final product

Debby,

Trent opened the AutoCAD file and confirmed that it could be used for 3D modeling. Some of the values needed to be modified, but the file contained enough data for SWCA to complete the work.

My first step was to confirm with Dale that this was acceptable. He was fine with it, so I just needed your confirmation. Thank you.

Tom

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Wednesday, June 02, 2010 2:38 PM
To: Melinda D Roth; Tom Furgason
Subject: Re: Fw: Letter accepting Schor's final product

Tom and Mindee,

I was unaware of what software program Horst was using, and I don't have the full version of Acad (so I can't actually open these files), but if there are z coordinates, it sounds like a 3D model to me, so it should be sufficient.

I recommend checking with Dale just to be sure.

Thanks.

~~~~~  
Debby Kriegel, RLA  
Landscape Architect  
Coronado National Forest  
300 W. Congress  
Tucson, AZ 85701  
(520) 388-8427  
Fax (520) 388-8305  
[www.fs.fed.us/r3/coronado/](http://www.fs.fed.us/r3/coronado/)  
[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)

Melinda D Roth/R3/USDAFS

06/02/2010 02:10 PM

To Debby Kriegel/R3/USDAFS@FSNOTES

cc

Subject Fw: Letter accepting Schor's final product

Do the referenced AutoCAD files complete Schor's deliverables? If yes, would you send an email to Tom clarifying full payment processing OK? Thx.

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701  
(520) 388-8319  
(520) 396-0715 (cell)  
(520) 388-8305 (FAX)

----- Forwarded by Melinda D Roth/R3/USDAFS on 06/02/2010 02:09 PM -----

"Tom Furgason"  
<tfurgason@swca.com>

To "Melinda D Roth" <mroth@fs.fed.us>, <daleortmanpe@live.com>, "Melissa Reichard"  
<mreichard@swca.com>

06/02/2010 11:53 AM

CC: "Debby Kriegel" <dkriegel@fs.fed.us>, "Beverley A Everson" <beverson@fs.fed.us>  
Subject: RE: Letter accepting Schor's final product  
t

Mindee,

Attached are the model files. We opened the AutoCAD file (.dwg) and confirmed that it contains the requisite z-coordinates.

Tom

**From:** Melinda D Roth [mailto:mroth@fs.fed.us]  
**Sent:** Friday, May 28, 2010 12:16 PM  
**To:** daleortmanpe@live.com; Melissa Reichard  
**Cc:** Debby Kriegel; Beverley A Everson; Tom Furgason  
**Subject:** Letter accepting Schor's final product

Dale: Still need digital 3D model  
Melissa: for the record

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701

(520) 388-8319

(520) 396-0715 (cell)

(520) 388-8305 (FAX)[attachment "conceptc-exchange.dgn" deleted by Melinda D Roth/R3/USDAFS]  
[attachment "conceptc-exchange.dwg" deleted by Melinda D Roth/R3/USDAFS] [attachment  
"conceptc-exchange.dxf" deleted by Melinda D Roth/R3/USDAFS]

Debby Kriegel/R3/USDAFS  
09/01/2010 02:12 PM

To tjchute@msn.com, Melinda D  
Roth/R3/USDAFS@FSNOTES, Beverley A  
Everson/R3/USDAFS@FSNOTES, Larry  
cc Debby Kriegel/R3/USDAFS@FSNOTES  
bcc

Subject FSH 1909.15 - Cumulative Effects

I've highlighted in red some FSH text that seems pertinent to discussion topics this morning. The steps at the end indicate that we don't need BOA maps for cumulative effects, but can describe any relevant activities (as Mindee thought). The definition of reasonably foreseeable future action in 1909 limits actions to those with "existing decisions, funding, or identified proposals." However, it could easily be argued that, for things like population growth, land ownership that facilitates development (e.g., zoning or similar) is an existing decision.

### 1909.15 Zero Code

Cumulative Impact.

**. . . the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7)**

### **Section 15.1 - Cumulative Effects**

For the definition of "cumulative effects" and other terms (see zero code, sec. 05). Individual actions when considered alone may not have a significant impact on the quality of the human environment. Groups of actions may have collective or cumulative impacts that are significant. **Cumulative effects must be considered and analyzed without regard to land ownership boundaries or who proposes the actions. Consideration must be given to the incremental effects of the action when added to the past, present, and reasonably foreseeable related future actions of the Forest Service, as well as those of other agencies and individuals, that may have a measurable and meaningful impact on particular resources. The following regulation applies to analysis of cumulative effects of past actions:**

***Cumulative Effects Considerations of Past Actions (40 CFR 1508.7). In accordance with The Council on Environmental Quality Guidance Memorandum on Consideration of Past Actions in Cumulative Effects Analysis dated June 24, 2005:***

***The analysis of cumulative effects begins with consideration of the direct and indirect effects on the environment that are expected or likely to result from the alternative***

*proposals for agency action. Agencies then look for present effects of past actions that are, in the judgment of the agency, relevant and useful because they have a significant cause-and-effect relationship with the direct and indirect effects of the proposal for agency action and its alternatives. CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions. Once the agency has identified those present effects of past actions that warrant consideration, the agency assesses the extent that the effects of the proposal for agency action or its alternatives will add to, modify, or mitigate those effects. The final analysis documents an agency assessment of the cumulative effects of the actions considered (including past, present, and reasonable foreseeable future actions) on the affected environment.*

*With respect to past actions, during the scoping process and subsequent preparation of the analysis, the agency must determine what information regarding past actions is useful and relevant to the required analysis of cumulative effects. Cataloging past actions and specific information about the direct and indirect effects of their design and implementation could in some contexts be useful to predict the cumulative effects of the proposal. The CEQ regulations, however, do not require agencies to catalogue or exhaustively list and analyze all individual past actions. Simply because information about past actions may be available or obtained with reasonable effort does not mean that it is relevant and necessary to inform decisionmaking. (36 CFR 220.4 (f))*

## **15.2 - Bounding Effects**

Spatial and temporal boundaries are the two critical elements to consider when deciding which actions to include in a cumulative effects analysis. Spatial and temporal boundaries set the limits for selecting those actions that are most likely to contribute to a cumulative effect. The effects of those actions must overlap in space and time for there to be potential cumulative effects.

### **15.2a - Spatial Boundaries**

Spatial boundaries define the affected area for each resource indicator. **The affected area is the area in which a specific resource may be affected by management actions; whether they are past, present, or future. Affected areas can vary in size by resource and by the type of effect that may occur.**

For example, the affected area for soils in a timber thinning operation would typically be the harvest units where soils are directly disturbed. However, the affected area for elk habitat may be an elk management unit that takes in several watersheds.

Because affected areas are resource dependent, they generally have boundaries that are physical or biological rather than political. Water quality in a river may be affected by actions on National Forest System, Bureau of Land Management, State, and private lands within the same watershed.

### **15.2b - Temporal Boundaries**

In addition to identifying the affected area for each resource, it is important to also understand how the proposed action may interact with other past, present and future actions across time to produce cumulative effects. The time frames used depend on the duration of effects that the actions produce on the affected resource. For example, a fence can be constructed in a matter of days, but the effects from that fence on cattle or big game movement may last 20 years or more.

Past actions and events also need to be analyzed to determine how the present situation has been affected by history, and to identify trends or patterns that may exist. The objective of doing this is to establish a baseline for assessing future events. The no-action alternative can be an effective benchmark if it incorporates cumulative effects of past activities and accurately depicts the condition of the environment.

It is important to explain why discernible cumulative effects are not expected beyond the spatial and temporal boundaries of the affected area. Exhibit 01 shows how space and time boundaries of effects must overlap to be considered in the cumulative effects analysis.

## **15.3 - Cumulative Effects Framework**

When appropriate, the following framework should assist in the development of a meaningful

cumulative effects analysis for project proposals.

- 1. Define the affected spatial area for each resource where effects (direct and indirect) may be caused by the proposed activities.**
- 2. Define the temporal boundaries for each resource from the proposed activities (How long will the effects last?).**
- 3. Document the rationale and sources for the spatial and temporal boundaries of the affected area for each resource.**
- 4. Describe the effects that overlap in time and space for past, present, and reasonably foreseeable future actions (activities), regardless of ownership, that may combine with effects of the proposed activities and result in cumulative effects.**
- 5. Briefly describe any key assumptions made in the analysis and any information gaps that may exist. Cite pertinent references, monitoring results, and so on.**



"Dale Ortman PE"  
<daleortmanpe@live.com>  
05/27/2010 09:32 AM

To ""Debby Kriegel"" <dkriegel@fs.fed.us>  
cc  
bcc  
Subject RE: Horst's final report

Debby,

Thanks for reviewing Horst's report; Rosemont is insistent on this prior to paying for the work. Under the lump sum contract Horst is paid in total when the project is complete, so to date he has received nothing for his effort.

I've asked SWCA to look at the disc that came with the report and see if there are map files other than the PDF of the report and figures. I'm told there are and SWCA will see if they open and can tell us what they are. I'll get back to you when we learn something.

Dale

**From:** Debby Kriegel [mailto:dkriegel@fs.fed.us]  
**Sent:** Thursday, May 27, 2010 8:55 AM  
**To:** Dale Ortman PE  
**Subject:** Horst's final report

Dale,

I understand that I need to provide a written approval on FS letterhead stating that Horst's final report is acceptable. I have the final report and will review it within a day or two. I can provide a letter on Tuesday.

We need the 3D model as well. Can you please verify that we (FS or SWCA) receive this data?

Thanks.

~~~~~  
Debby Kriegel, RLA
Landscape Architect
Coronado National Forest
300 W. Congress
Tucson, AZ 85701
(520) 388-8427
Fax (520) 388-8305
www.fs.fed.us/r3/coronado/
dkriegel@fs.fed.us

Debby Kriegel/R3/USDAFS
02/17/2010 03:22 PM

To "Marcie Bidwell" <mbidwell@swca.com>
cc Debby Kriegel/R3/USDAFS@FSNOTES
bcc
Subject RE: RSM 138kV Transmission Line Project - Simulation view
3 photos 

Marcie,

Chelsa would like to set up a phone call with you and me (and possibly Kent) on Friday to discuss this. Sounds like Friday morning would work for you.

You don't sound very excited about B, and I'm not either. It bothers me that they couldn't find a photo point with less vegetation screening. Do we need to discuss this on Friday before we talk to Chelsa?

The answer to the question is #2. A 1000 ft. wide corridor gives a lot of wiggle room to put the line down in a canyon or up on a ridgetop (or most likely, some combination). If EPG won't be identifying a more precise route, I guess any of your simulations that include a power line will have to show the visually worst-case scenario (ridgetops).

Debby

"Marcie Bidwell" <mbidwell@swca.com>



"Marcie Bidwell"
<mbidwell@swca.com>
02/17/2010 02:59 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Kent C Ellett"
<kellett@fs.fed.us>
cc
Subject RE: RSM 138kV Transmission Line Project - Simulation view
3 photos

Debby,

Sorry to be slow on responding to this. Option B, for the reasons that you describe, could work well.

For Option A, not all of the poles should be hidden by veg. But I think the proximity of the line in B works for me.

As to your questions below regarding the 1000ft corridor, are you saying because (1) there is only one alternative and that is to place the line in this corridor, or (2) because there isn't a refinement of the corridor into sub-options for the routing? (200 feet right or left of this placement, for instance).

I am available Friday morning if you would like to discuss further.

Marcie

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]

Sent: Friday, February 12, 2010 7:14 AM
To: Marcie Bidwell; Kent C Ellett
Cc: Debby Kriegel
Subject: Fw: RSM 138kV Transmission Line Project - Simulation view 3 photos

Marcie and Kent:

Before we respond to Chelsa, I'd like the 3 of us to be on the same page.

Here's what it looks like to me...

View A: both poles would be screened by vegetation, so the only thing that would be visible in this view would be the wires (silhouetted on sky).

View B: one pole would be clearly visible, and the wires would be silhouetted on sky.

View C: one pole would be visible, and the lines would be silhouetted on topography, but the visible portions are all far to the right of the road.

View D: one pole would be visible, and the lines would be silhouetted on topography, all in a more distant view (granted, it may only be 1/4 mile).

I vote for view B because:

1. It's located at a KOP (and even includes an OHV sign for reference)
2. It shows both a pole and wires
3. Wires are silhouetted on sky, so they'll show up in the simulation

Your thoughts?

I'm a little bothered that Marc (EPG's landscape architect) won't be doing any site-specific siting. This is something I requested long ago and EPG indicated would be done. Marcie: how will you estimate effects and simulate power lines if there is only a 1000' wide study corridor proposed?

----- Forwarded by Debby Kriegel/R3/USDAFS on 02/12/2010 07:13 AM -----

"Chelsa Johnson"
<Cjohnson@epgaz.com> To "Debby Kriegel" <dkriegel@fs.fed.us>, <kellet@fs.fed.us>, "Marcie Bidwell" <mbidwell@swca.com>
cc "Lauren Weinstein" <Lweinst@epgaz.com>, "Marc Schwartz" <mschwartz@epgaz.com>, "Emily
Belts" <EBelts@epgaz.com>, "Kathy Arnold" <karnold@rosemontcopper.com>, <EBeck@Tep.com>
02/11/2010 04:09 PM Subj RSM 138kV Transmission Line Project - Simulation view 3 photos
ect

Debby,

EPG has reviewed the simulation photos taken at Simulation view 3, at the junction of Link 160 and Box Canyon Road, and we would like to move forward with rendering the simulation. Per your request, we have provided a selection of viewpoints for your review and would appreciate your input regarding the final view point selection for the approved simulation (1 simulation on Box Canyon Road).

Please review the attached simulation map with the selected photos and wireframe representations. Please note that the photos are of the existing conditions and the wireframes are quick sketch of the proposed conditions (we are still finalizing engineering details for the insulators and conductors). Per TEP engineers, the structures are anticipated to be 88' in height for suspension structures and 100' for turning/deadend structures with a span of 700', which is typical for a 138kV transmission line. These wireframe representations, or "mini-simulations", were modeled using AutoCAD for each selected simulation view point. As with simulations, wireframes provide the visual resource specialist an additional tool to analyze the contrast of the project, specifically in terms of structure form and landscape form and line. The full simulation will put the transmission line structure in the photograph and simulate any removal of vegetation and/or grading associated with the project.

Based on our field investigations and the wireframe models, we would recommend using Option D, approximately ¼ mile from the crossing of Link 160, viewing northwest towards Box Canyon. It represents a typical foreground viewing condition for recreation users heading towards Box Canyon or other Concern Level 1 roads. I believe Option B is located at one of your KOP locations so it may be worth discussing.

Also, Marc and I have discussed your comments pertaining to site specific mitigation and location of the structures within the forest to minimize visual impacts. Our simulations would represent the typical structure height and span anticipated because engineering has not been finalized. I think it would be a good idea to keep these recommendations on file for detailed discussion with TEP's engineers at a later date.

If you have any questions or would like to discuss these options, please let me know and we can arrange a conference call or a session using gotomymeeting to view the document.

Thanks!

Chelsa Johnson
Project Coordinator/Visual Resource Specialist

epg

Environmental Planning Group

Phoenix, Arizona

602-956-4370 phone

602-956-4374 fax

<http://www.epgaz.com>

This e-mail, including any attachments, is intended only for the use of the individual or entity to which it is addressed. It may contain information that is attorney work product, privileged, confidential, exempt or otherwise protected from disclosure or use under applicable law. If you have received this e-mail in error, please notify the sender immediately by return e-mail, and delete this e-mail from all affected databases. Thank you.

[attachment "Simulation Map_Box Canyon.pdf" deleted by Debby Kriegel/R3/USDAFS]



"Marcie Bidwell"
<mbidwell@swca.com>
10/01/2009 03:45 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc
bcc
Subject RE: Specialist Report format~

Debby,

This looks really good; I will review and see how to combine the two.

Thanks for sending this. And the book arrived today!! Lots of ear marks, which is great.

Have a good day in the field tomorrow!
Marcie

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Thursday, October 01, 2009 1:52 PM
To: Marcie Bidwell
Subject: Re: Specialist Report format~

Thanks for the clarification on specialist reports. Normally that's all I focus on, and I don't tend to even think about the NEPA document until my specialist report is complete (or nearly complete) because it's troublesome to juggle both at the same time. Looks like we might be forced to do this for the Rosemont project. Arrrgh.

I had never seen this white paper before, but I just read it and it looks like good advice to follow. The Hermosa Land Exchange example doesn't follow the same sequence described in the white paper, but looks like it has most or all of the pieces. For a project as big and complex as Rosemont, there might be value in having specialist reports organized consistently. You might ask Tom if he thinks this is worth discussing with other resources.

Attached is a project level scenery analysis outline that might be helpful to organizing the visual resource specialist report. Each topic could easily be slipped into the white paper outline in the appropriate section. I've used this checklist on other projects to help me avoid missing a topic.

Have a great trip!

"Marcie Bidwell"
<mbidwell@swca.com>

09/30/2009 05:15 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>, "Charles Coyle" <ccoyle@swca.com>
cc
Subject Specialist Report format~
t

Hello

Please find attached an example of a specialist report that I wrote recently for the USFS here in Durango. It was my impression that this is an official USFS template for Specialist Reports, and then I have also attached some guidance that I find useful for writing them.

Unless I receive other direction, this is what I was heading for in the Specialist Report as a format or structure.

Tom and I discussed that specialist reports are expected to be stand-alone documents, with their own brief synopsis of the project, alternatives, etc in them so that the public can take it from the EIS and it still makes sense. Also, all of us Specialist Reports could share the same basic summary of the alternatives, and save writing time.....

Looking for thoughts and feedback. (Caviat~ this is not a final product, so ignore the bad stuff)
<<r3-specialist-report-guidance-6-2008.doc>>

Marcie

<<Appendix Recreation_draft 2009-03-27_mdb.doc>>

Marcie Demmy Bidwell
Environmental Planner
130 Rock Point Drive, Suite A
Durango, Colorado 81301
Office: 970.385.8566
Fax: 970.385.1938

www.swca.com [attachment "r3-specialist-report-guidance-6-2008.doc" deleted by Debby Kriegel/R3/USDAFS] [attachment "Appendix Recreation_draft 2009-03-27_mdb.doc" deleted by Debby Kriegel/R3/USDAFS]



"Marcie Bidwell"
<mbidwell@swca.com>
04/19/2010 01:16 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc
bcc
Subject Seen Area maps~ and discussion for I-19

Hello Debby,

In thinking this through further, here are the Seen Area maps that we created for showing total seen area. These maps show what sections of I-19 and I-10 have views of the different alternatives. These Seen Areas were created from the tops of the alternatives and the top of the pit, showing views in 360 degree rotation.

As we know, what can be seen from one KOP versus a linear experience is different than the seen area calculation, but they are similar. If we run linear viewshed analyses, we will be breaking I-19 into some interval of viewsheds (1 mile to 1/4 mile) and then calculating a viewshed analysis for each point, adding them all back together, and then producing one map. It requires a lot of time to process and several steps.

So the socratic question, is what additional information is gained from the process?

Thinking outloud.....

Marcie

<<Seen Area Figures.zip>> [attachment "Seen Area Figures.zip" deleted by Debby Kriegel/R3/USDAFS]



Beverley A
Everson/R3/USDAFS
11/23/2009 03:59 PM

To Debby Kriegel/R3/USDAFS@FSNOTES,
karnold@rosemontcopper.com

cc

bcc

Subject Re: Fw: Rosemont - Action Items from May 7 meeting 

Hi Kathy,

Please see Debby Kriegel's note below. Can you check on getting the photographs?

Thank you.

Bev

Beverley A. Everson
Forest Geologist
Coronado National Forest
300 W. Congress Street, 6th Floor
Tucson, AZ. 85701

Voice: 520-388-8428

Fax: 520-388-8305

Debby Kriegel/R3/USDAFS

Debby Kriegel/R3/USDAFS

11/23/2009 03:03 PM

To Beverley A Everson/R3/USDAFS@FSNOTES

cc

Subject Fw: Rosemont - Action Items from May 7 meeting

We never received the oblique aerial photo mentioned in item 3. Is it possible to obtain this?

----- Forwarded by Debby Kriegel/R3/USDAFS on 11/23/2009 03:01 PM -----

Debby Kriegel/R3/USDAFS

05/07/2009 02:27 PM

To jlyndes@sagelandscapes.com, kavid.krizek@tetrattech.com,
Beverley A Everson/R3/USDAFS@FSNOTES,
tfurgason@swca.com, mbidwell@swca.com, Salek
Shafiqullah/R3/USDAFS@FSNOTES

cc Debby Kriegel/R3/USDAFS@FSNOTES

Subject Rosemont - Action Items from May 7 meeting

Action items from the flipchart at today's meeting:

1. Meeting in 3 weeks (tentative date = morning of June 4th)
 - Progress meeting
 - Sage & Tetra Tech to provide modified proposed action: stormwater, reclamation plan, and visual

work

- USFS will provide Feedback
- Sage will provide examples of other simulation projects

2. SWCA will provide Tetra Tech and Sage with (1) KOP GPS points ASAP, and (2) Evaluation Criteria and Affected Environment in 3 weeks

3. Tetra Tech will provide the USFS (Salek) and SWCA with new survey topo (2' contours) and oblique aerial photos by May 15

4. USFS will provide Tetra Tech and Sage with Concern Level 1 & 2 travelways by May 15

5. USFS will provide desired condition for project area by May 15

Thanks everyone!

Tom: Please forward this to Dale...I don't have his email address.

Debby Kriegel, RLA
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(520) 388-8427
Fax (520) 388-8305
www.fs.fed.us/r3/coronado/
dkriegel@fs.fed.us



"Marcie Bidwell"
<mbidwell@swca.com>
11/23/2009 10:46 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc
bcc

Subject Scenery Mgmt Analysis example

History:

✉ This message has been replied to.

Debby,

Here is an excerpt from a land exchange EIS in our area. I worked on the rec section, not this visual section, but I found the authors approach interesting. Dick Ostergaard, who wrote it, is a recently retired USFS landscape architect.

I was curious if you had seen his method of marking photos and areas with the bubbles (fg, mg, etc) and then the analysis metrics as well (scenic integrity, etc)

<http://www.fs.fed.us/r2/sanjuan/projects/projects.shtml>

<<Scenery Hermosa DEIS_august 2009.pdf>>

Marcie Demmy Bidwell

Environmental Planner

130 Rock Point Drive, Suite A

Durango, Colorado 81301

Office: 970.385.8566

Fax: 970.385.1938

www.swca.com [attachment "Scenery Hermosa DEIS_august 2009.pdf" deleted by Debby Kriegel/R3/USDAFS]



"Tom Furgason"
<tfurgason@swca.com>
11/13/2009 08:44 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Stephen Leslie"
<sleslie@swca.com>
cc "Beverley A Everson" <beverson@fs.fed.us>, "Charles
Coyle" <ccoyle@swca.com>
bcc

Subject RE: FW: Recreation and Wilderness Bounds of Analysis -
Rosemont

Debby,

I've spoken with Steve and he has a prior commitment for next week and can not attend the meeting. One week notice is not enough time for several of our specialists to come to Tucson. The information that you provided is sufficient for us to prepare a detailed Scope of Work and cost and submit it to Rosemont.

The SOW will include travel time for Steve to spend a couple of days in the area and to meet with you. It will also include provisions for a follow-up trip to Tucson to meet with you.

Thanks you for taking the time to detail the work that you expect to be completed to support analysis of impacts to Recreational resources.

Tom

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Friday, November 13, 2009 7:48 AM
To: Stephen Leslie
Cc: Beverley A Everson; Tom Furgason
Subject: Re: FW: Recreation and Wilderness Bounds of Analysis - Rosemont

Steve,

Here's a list of work needed to complete recreation analysis for the EIS. I expect SWCA to take the lead on nearly all of these; I would provide advice and reviews. Since I typed this, I've received some additional direction on Inventoried Roadless Areas and met with the Arizona Trail Association, and I can share what I've learned with you.

In any case, please look this over and let's talk soon.

Thanks.

~~~~~  
Debby Kriegel, RLA  
Landscape Architect  
Coronado National Forest  
300 W. Congress  
Tucson, AZ 85701  
(520) 388-8427  
Fax (520) 388-8305  
[www.fs.fed.us/r3/coronado/](http://www.fs.fed.us/r3/coronado/)

dkriegel@fs.fed.us



"Marcie Bidwell"  
<[mbidwell@swca.com](mailto:mbidwell@swca.com)>  
07/08/2010 10:54 AM

To "Debby Kriegel" <[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)>  
cc  
bcc  
Subject RE: Checking in

Sounds great.

Will you be attending the RCC meeting today before you head out?

Trent and I notified Tom and Jonathan that we are still waiting on contour data for YR 20 for two alternatives (Scholefield and Barrel Only (barrel for obvious reasons) and for YR 10 for three alternatives (all except MPO). We have concerns regarding the fact that SWCA has until August 1 to turn things over to our editor to meet the August 15<sup>th</sup> deadline. We have received several layers and we are thankful for the ones that have arrived; however we are still waiting on stormwater clarification (we moved ahead without TT or RCC confirmation on stormwater for the MPO) and facilities data, as well as a few other smaller pieces.

I am going to write an email to you with the update for you to forward to Bev, Kathy, and Tt. Jonathan thought it would be best for it to come from you (USFS).

I will ask Trent but we will probably not have it completed before you leave in 1 hour.

Just an FYI that it will be in your in box when you return.  
Marcie

**From:** Debby Kriegel [<mailto:dkriegel@fs.fed.us>]  
**Sent:** Thursday, July 08, 2010 11:49 AM  
**To:** Marcie Bidwell  
**Subject:** Re: Checking in

Thanks for the update, Marcie. I'm leaving the office around noon today and won't be in tomorrow or Monday. I will attend the landforming meeting at SWCA's office tomorrow. I don't think it's a problem that you can't attend this, since it's mostly just Rosemont explaining what they changed. Let's touch base on Tuesday morning if that works for you. Debby

[mbidwell@swca.com](mailto:mbidwell@swca.com)

07/07/2010 10:18 AM

To "Debby Kriegel" <[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)>  
cc  
Subject Checking in

|                                                                                    |
|------------------------------------------------------------------------------------|
| Please respond to<br><a href="mailto:mbidwell@swca.com">mbidwell@swca.com</a><br>m |
|------------------------------------------------------------------------------------|

Hello Debby-

Just a quick note that the AE section is almost ready. I thought Mike had resolved some of the detail issues, but there are one or two remaining.

Additionally, Trent just received Phased Tailing contours for reclaimed surface. He also received the access road contours and fence alignment.

We are still waiting on the majority of the Scholefield and Upper Barrel information. I have asked Trent to prepare an update on data status for you and Tom.

I also have a response drafted regarding your simulation comments. I will send that to you later today.

We will also compile the images that we have for you and send them shortly.

I raised a red flag to Tom that this is July 7 and we still are waiting on data for the alternatives. With an August 15 deadline, this is a potential issue. I know he is aware and working on it.

Thanks!  
Marcie

Sent from my BlackBerry Smartphone provided by Alltel



Beverley A  
Everson/R3/USDAFS  
06/15/2010 03:59 PM

To Debby Kriegel/R3/USDAFS@FSNOTES  
cc  
bcc  
Subject Re: Rosemont Simulations - Drainage Drawings

History: This message has been forwarded.

Did this get resolved?

Beverley A. Everson  
Forest Geologist  
Coronado National Forest  
300 W. Congress Street, 6th Floor  
Tucson, AZ. 85701

Voice: 520-388-8428  
Fax: 520-388-8305

Debby Kriegel/R3/USDAFS

Debby Kriegel/R3/USDAFS  
06/01/2010 07:31 AM

To "Marcie Bidwell" <mbidwell@swca.com>, Melinda D  
Roth/R3/USDAFS@FSNOTES, Beverley A  
Everson/R3/USDAFS@FSNOTES, Reta  
Laford/R3/USDAFS@FSNOTES  
cc Debby Kriegel/R3/USDAFS@FSNOTES  
Subject Rosemont Simulations - Drainage Drawings

Bev, Mindee, Reta: Note Marcie's statement below (I turned her text red). If she doesn't have the data from Rosemont by June 15, she won't be able to produce simulations for the DEIS. I believe that this is a major problem.

Marcie: Please verify with Rosemont and Tetra Tech the correct number of benches to show in the simulation. I'm confused by items 1 (no benches on tailings) and 2 (6 benches). Which is correct for the MPO?

"Marcie Bidwell" <mbidwell@swca.com>



"Marcie Bidwell"  
<mbidwell@swca.com>  
05/28/2010 09:16 AM

To "David Krizek" <david.krizek@tetrattech.com>, "Kathy  
Arnold" <karnold@rosemontcopper.com>  
cc "Debby Kriegel" <dkriegel@fs.fed.us>, "Keepers, Ashley"  
<Ashley.Keepers@tetrattech.com>, "Carrasco, Joel"  
<Joel.Carrasco@tetrattech.com>, "Trent Reeder"  
<treeder@swca.com>, "Melissa Reichard"  
<mreichard@swca.com>, "Jonathan Rigg"  
<jrigg@swca.com>, "Lara Mitchell" <lmitchell@swca.com>  
Subject RE: Drainage drawing

David,

Good to see you on Monday. You looked refreshed.

Per Kathy's email regarding stormwater, here is an example of what we are looking for as an indication of stormwater elements- we just need to just know a general indication of where to show drop structures, detention ponds, etc. This could be hand drawn, or as Trent prepared similar to this diagram. This is to illustrate what we are requesting.

In the meeting May 19, the MPO was discussed, and it was decided that while several concepts for reclamation were included in the MPO that have different physical forms (such as ridge and valley, etc) that the EIS simulations will use the basic topography that Rosemont has provided the FS and SWCA. Additionally, SWCA will apply vegetation and colors to the surface, but we will not be adjusting the contours. The idea is that the "MPO is the MPO" to the level designed, not to show possible modifications to it.

**REQUEST:**

1. ***Please indicate by June 3 if Trent's drawing for placement of drop structures and stormwater ponds will suffice.*** At that date, we will complete the drafts of the MPO as Trent has shown. Or you may supply a similar drawing by June 3rd to replace it.
2. Please supply a similar level of drawing for the Scholefield and Barrel Only alternatives with the contours, when they are ready.
3. Any data that has been requested and **not received by June 15th** will not be shown in the DEIS simulations by SWCA, unless special arrangements have been made prior to this date.

A few important points regarding the MPO, drainage, and contours~

**1. MPO Contours data set and reclamation-** SWCA has been directed to use the set of contours for our alternatives that are shown in the JPG that is attached (August 2009 and Feb 2010 data downloads). However we do also have the 2007 contours Shown in Figure 23 Reclamation Plan as well. There are differences between these data sets, although their footprints are mostly the same. Notice also that Figure 23 does not show benches or access roads. JPG shows three benches on the waste rock pile and no specific benches on the tailing pile; the tails are generally evenly stepped throughout.

*Important note: we are proceeding with the data set shown in JPG, as recently directed, unless we hear otherwise by June 3.*

**2. MPO vs. Reclamation data set.** Thus far, SWCA has been using the MPO footprint as shown in the maps used at Monday's meeting.

I know that you are very familiar with the MPO and its Reclamation Plan and you will notice that the contours that we have received for the MPO do not look quite like MPO Rec Figure 23 (compared with the contours shown in MPO SW mdb.jpg). The MPO JPG shows 3-4 benches in some places, but according to your Preliminary Stormwater Concept, there should be 1 bench per 100 feet of elevation on the waste rock, or 4-6 benches depending on where one starts counting.

*Important note: we are proceeding with the MPO shown benches on the waste rock and assigning a bench to every 100ft of drop on the tails, which results in 6 benches (approximately), as directed May*

19th unless we hear otherwise by June 3.

Thank you for your time and cooperation in advance,  
Marcie

**From:** Marcie Bidwell  
**Sent:** Wednesday, May 19, 2010 4:08 PM  
**To:** 'Kathy Arnold'; David Krizek  
**Cc:** Debby Kriegel; Keepers, Ashley; 'Carrasco, Joel'; Trent Reeder  
**Subject:** RE: Drainage drawing

Hello David,

This request forwarded by Kathy is the conceptual drawing that you and I have been discussing for a few months now.

The request is to supplement the *Preliminary Stormwater Control and Reclamation Summary* with a conceptual sketch of where the elements described in the text would be placed on each alternative map. This is consistent with the data requests filed by the Forest Service this year.

Specifically, it would be for the following alternatives (i.e. Phased Tailings is considered complete):

- MPO-
- Upper Barrel- (once the final design is confirmed)
- Scholefield- (once final design is confirmed)

Additionally, SWCA would like to request that the Phased Tailings Contour data and associated layers be uploaded to the FTP site, as well.

I would be glad to discuss this on the phone with you, Ashley or Joel. And I want to extend a thank you for the recent call inquiry.

Thank you!  
Marcie

**From:** Kathy Arnold [mailto:karnold@rosemontcopper.com]  
**Sent:** Wednesday, May 19, 2010 2:46 PM  
**To:** David Krizek  
**Cc:** Marcie Bidwell; Debby Kriegel  
**Subject:** Drainage drawing

David -

I need you to put pen to paper on a drawing (2-d is fine) to show Marcie what your write-up will (could?) look like in the real world. Hand drawn arrows will be fine.

Cheers!

Kathy

Katherine Ann Arnold, P.E. | Director of Environmental and Regulatory Affairs  
Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724

[karnold@rosemontcopper.com](mailto:karnold@rosemontcopper.com)



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[attachment "MPO\_SW mdb.jpg" deleted by Debby Kriegel/R3/USDAFS] [attachment "MPO Rec Figure 23.pdf" deleted by Debby Kriegel/R3/USDAFS]

Debby Kriegel/R3/USDAFS  
07/23/2010 11:50 AM

To tfurgason@swca.com  
cc Beverley A Everson/R3/USDAFS@FSNOTES,  
tjchute@msn.com, Debby Kriegel/R3/USDAFS@FSNOTES  
bcc  
Subject Rosemont - SWCA Scope of Work for Recreation

Tom,

In November 2009, I provided a scope of work to Steve Leslie (attached).



Recreation\_Work\_Tasks\_111009.docx

The February 12, 2010 Contract Modification and Scope of Work identifies just 3 relatively minor tasks from my list (which are identified in the mod as "New Tasks").

In the June 25, 2010 FS review of the scope of work, I commented that much of my November direction was not included. However, maybe I didn't clarify my concern fully. I do not know which items were in the original contract, which are done, which are still not funded, and which are coming (and when).

In speaking with you this morning, I now understand your comment in the sidebar. Steve still hasn't submitted the full affected environment with graphics, and told me that he would provide both this and the environmental consequences next week. I agree with you that the specialist report and DEIS chapter 3 may, in fact, be the same (though until we see his complete submittal, this can't really be confirmed).

**I would like to request that Steve go through my November list, and for each task note the status (complete, unfunded, to be provided by xx date, etc.).**

Thanks.

~~~~~  
Debby Kriegel, RLA
Landscape Architect
Coronado National Forest
300 W. Congress
Tucson, AZ 85701
(520) 388-8427
Fax (520) 388-8305
www.fs.fed.us/r3/coronado/
dkriegel@fs.fed.us

Debby Kriegel/R3/USDAFS
07/23/2010 07:40 AM

To tjchute@msn.com
cc Reta Laford/R3/USDAFS@FSNOTES, Melinda D
Roth/R3/USDAFS@FSNOTES, Beverley A
Everson/R3/USDAFS@FSNOTES, Debby
bcc

Subject Rosemont Mitigation Table

Terry,

Here are my comments on the mitigation table and a comment on the memo.



FINAL_Mitigation_Table_Kriegel.docx Mitigation_Memo_Kriegel.docx

Debby Kriegel, RLA
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Rosemont EIS – Recreation Work Required

Debby Kriegel, November 10 (revised Dec 18), 2009

1. Spend time in the field. Get familiar with the project site, proposed project, and existing recreation sites and activities in the northern Santa Rita Mountains. I recommend:

- Take Rosemont's mine tour (Wed & Fri? Check their website).
- Spend 1-2 days visiting the major recreation sites in the area. Drive Hwy 83 to Sonoita and through Empire Cienega RCA. Hike a short section of the Arizona Trail in the Rosemont area. Drive at least one OHV loop road in the Rosemont area (including Barrel Canyon), across Box Canyon Road, and into Madera Canyon.
- Consider visiting nearby Wilderness areas as appropriate/needed.

2. Review the following items for recreation direction, citations, etc.:

- Public comments (Recreation report on WebEx)
- FSM/FSH 2300
- Coronado National Forest Plan
- AZ Trails 2010
- BLM's Las Cienegas RCA Plan (including the approved Arizona Trail alignment through the area)
- National Visitor Use Monitoring (NVUM) and Statewide Comprehensive Outdoor Recreation Plan (SCORP)
- Preserving the Santa Rita Rosemont Ranch (Pima County document available on WebEx).
- Corridor Management Plan for the Patagonia-Sonoita Scenic Road
- The Sonoran Desert Conservation Plan (including the major documents on the website <http://www.pima.gov/CMO/SDCP/>), as well as the reports "Recreation Impacts in Eastern Pima County" and "Overview of Natural Resource Based Outdoor Recreation in Eastern Pima County".

3. Research the following (most will require field time and meeting with local people):

- Possible ways to offset the loss of recreation opportunities in the area for 20+ years (especially OHV touring and wildlife recreation). In addition to the obvious direct effects, indirect effects would include displacing OHV users from the Rosemont area into areas south of Box Canyon Rd, which is popular with equestrians, causing more user conflicts. Review Art Elek's proposal for adding roads and OHV facilities on FS lands east of Hwy 83, then meet with Art and spend time in the field determining what might be possible. Participate in the process for identifying lands off-forest that could be provided by Rosemont to use by birders, hunters, etc. Debby is hosting a meeting on Nov 19 with Arizona Game & Fish to begin discussions. Visit each possible site to determine recreation values.
- OHV improvements funded by Arizona State Parks. Contact Bob Baldwin at Arizona State Parks to get information on grants (amounts, dates, improvements) were provided for OHV facilities in the Rosemont area, and what obligations the Forest Service has to maintain these improvements and keep them available to the public.
- Hiking opportunities and use in the Rosemont area, including the Arizona Trail, the 16 Green Valley Hiking Club (GVHC) hikes in the Rosemont area, the Greaterville Trail, and options for post-mine trails in the area. Meet with GVHC. Debby is meeting with Arizona Trail Association on Nov 12 to begin discussion of the mine's impacts to the Arizona Trail. Depending on the outcome of this meeting, visit

alternative re-routes and provide post-mine recommendations. Meet with the Arizona Trails Association and spend time in the field as needed. Assess current use on the trail and describe how designation as a National Scenic Trail (NST) is likely to increase use, whether a mine would affect the scenic designation, and if there are national guidelines that could be helpful; Contact Tom Dwyer (Forest Service Wilderness, Trails, Wild & Scenic Rivers, Dispersed Rec Program Manager, SW Regional Office, 505-842-3233) and Johnathon Stevens (Forest Service Congressional Designated Areas and Trails Program Manager, Washington Office). Consider safety along the trail if the location follows the toe of 700 ft tall waste rock piles. Research whether NST status would be jeopardized by the mine and/or what mitigation/relocation would be necessary. Determine whether access points to the trail would be lost.

- Research Inventoried Roadless Areas and footprints and requirements for analysis (e.g., Effects on Roadless Character Report, if any roads proposed in IRA, Secretary of Agriculture approval needed, etc.)
- Restoration of popular road loops and road connections (for dispersed recreation and OHV touring) through or around the project area during mining and post-mine. Get familiar with the FS system roads and topography (existing and proposed). Get a copy of the proposed action for Travel Management for the Santa Rita Mountains (which should be available in mid-December). Consider also access across the ridge (currently at Gunsight Pass). Evaluate where existing visitors will likely go and whether OHV routes east of Hwy 83 would be helpful (see first bullet). Consider whether roads across the mine's waste rock and tailings would help restore recreation access and routes. Spend time in the field as needed. Provide recommendations for the proposed action and each alternative. Consider that the road into Sycamore Canyon has a locked gate at the bottom of the canyon and currently does not provide a loop or through-route.
- Recreation special use permittees in the Rosemont area that may be affected by the mine. Two known permittees include an equestrian outfitter guide, and a hang gliding operation in Box Canyon. Provide complete information on others (Archers and Bow hunters club, Muzzleloaders club, etc.). Contact Duane Bennett to discuss further.

4. See my comments on the "Rosemont Project EIS Draft Chapter 3 Outline, October 12, 2009" and additional comments from Tami Emmett.

5. Follow up on the status of revision of Tetra Tech report "State Route (SR) 83 Scenic Road Evaluation for Rosemont". On September 14, 2009, Debby provided comments to Rosemont. Rosemont or SWCA will need to contact Arizona Department of Transportation (ADOT) Scenic Roads Program staff to discuss the mine and determine whether the scenic road status would change.

6. Provide a specialist report for recreation that includes the following. Summarize as needed for the EIS. Include appropriate graphics, maps, photos, charts/figures, etc.:

- Affected environment. Include relevant information from above items.
- Environmental consequences analysis for the proposed action and each alternative. Include analysis of all mine impacts: pit, plant, waste rock and tailings piles, roads (including lost access, traffic, litter, etc.), power and water lines, displaced recreation, etc. Use information from site visits, research, and reviews above. Consider impacts during the active mine life and post-mine. Reference appropriate visual simulations. Utilize both qualitative (descriptive) and quantitative (acres of ROS, miles of road, miles of trail, number of rec sites lost, etc.) analysis.

- Cumulative effects analysis (a list of past, present, and reasonably foreseeable future actions should be available soon).
- Recommended mitigation.



Kathy Arnold
<karnold@rosemontcopper.com>
08/24/2009 09:00 AM

To "rich@soil-tech.com" <rich@soil-tech.com>
cc Debby Kriegel <dkriegel@fs.fed.us>, Holly Lawson
<hlawson@rosemontcopper.com>, Dennis Fischer
<dfischer@rosemontcopper.com>, Jeff Cornoyer
bcc

Subject Information

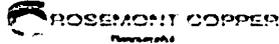
History: This message has been forwarded.

Rich –

The Forest Service is interested in applying Permeon to some areas around our facility to test coloration and effectiveness. I am concerned because the information provided was not sufficient to meet the environmental standards I have set for product use at our company and therefore your product will not be allowed on our site without additional information. Please provide an updated MSDS and any laboratory data you might have on Permeon as it relates to stormwater runoff, fish mortality, disposal of the product, etc. so that I can make a decision regarding your product.

Regards,
Kathy

Katherine Arnold, PE | Director of Environmental and Regulatory Affairs
Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724
karnold@rosemontcopper.com



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"Trent Reeder"
<treeder@swca.com>
05/21/2009 12:21 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc "Marcie Bidwell" <mbidwell@swca.com>
bcc

Subject RE: Proposed photo simulation questions

History:  This message has been replied to.

Hi Debby,

Thanks for taking the time to explain the projects current standing. I totally understand in **not** getting too far ahead of ourselves when things are still being ironed out.

To address question 2, because a new topographic surface was generated from the final configuration CAD contour data to be used for our viewshed analysis, this surface will also work for our 3-D renderings. A very general order of operations are outlined below of our photo simulation process:

1. Create proposed topographic surface from project contour data.
2. Created individual 3-D 'scenes' that depict each KOPs vantage point of the project and export these scenes for quick visualizations. In this step, I move around the 3-D landscape to each KOP and setup scenes to export out as scenes for Step 3, but are also clear enough to send out as rough simulations.
3. Import 3-D scenes into a photo manipulation program to generate a photo "realistic" simulation of the proposed project as a final product.

From the above outline, Step 2 is ready to go and I will go ahead and generate a 3-D simulation of KOP 12 for everyone to view.

Marcie will have to answer Question 1 as she would have better information than I.

Thanks again, and please feel free to ask more questions!

Trent Reeder
GIS Specialist
SWCA Environmental Consultants
treeder@swca.com
130 Rock Point Dr. Suite A
Durango, Colorado 81303
Work (970) 385-8566
Fax (970) 385-1938
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From: Debby Kriegel [<mailto:dkriegel@fs.fed.us>]
Sent: Thursday, May 21, 2009 12:26 PM
To: Trent Reeder
Cc: Marcie Bidwell; Debby Kriegel
Subject: Re: Proposed photo simulation questions

Hi Trent (and Marcie),

I really appreciate all your effort on this project. It's great to see work moving along at a steady clip, and nice that you're looking ahead!!



"Marcie Bidwell"
<mbidwell@swca.com>
02/19/2009 11:31 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc
bcc

Subject RE: Visual Proposal

Debbie,

To make sure that I respond explicitly to these comments, I am re-responding after our conversation today, for the sake of clarity in how we address the scope of work. See comments added below.

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Friday, December 12, 2008 9:04 AM
To: Marcie Bidwell
Cc: Tom Furgason; Debby Kriegel; Beverley A Everson
Subject: Re: Visual Proposal

Marcie,

Good start. Some specific items in my 11/5 email to you aren't included, but that's probably ok...we can use both documents as guidance. And you've used some terms that I'm not familiar with such as "restoration indicators" and "setting indicators", but we can discuss that later.

I have a few immediate recommendations (and some questions):

1. Add a schedule for each task that ties to the Rosemont project schedule. Include as many dates for your work as possible: trips to Tucson, proposed meeting dates, deliverables, reviews, etc. I will create an integrated schedule as soon as I can catch Ken/Charles (hopefully today).
2. Does task 2 include researching other mining operations and reclamation? Roger Congdon (FS hydrogeologist on the team) mentioned that he knows of some great examples of waste rock reshaping and award-winning reclamation at BLM mines near Elko Nevada. I suggest that we plan a trip there (probably in January). Current scope from RC includes a minimal amount of research, and I will try to include the trip to Elko (or other project-offsite location). However, there is limited funds for trips to the site or elsewhere in the change order currently.
3. I don't see many of the written items that will need to be provided for the EIS listed in your tasks: issue statements, affected environment, environmental consequences, and cumulative effects. Please mention each of these in the appropriate task. As there are already accounted for in the original budget, I did not include them in my estimate. However, per our discussion today, I will indicate how these tasks are part of the overall process.
4. Do the hours on task 6 include more than your time and expenses? Won't you need a GIS/computer simulation expert to help with 3D modeling and create simulations for the final EIS? Are you certain that a topo model won't be helpful or necessary? Yes, they include GIS time for the 3D model and simulations. although the level of effort has yet to be agreed upon.
5. Where do I fit in? Are there some portions of any of the tasks that you need me to work on, or will I mostly be reviewing your work? I would need for you to indicate your involvement- perhaps there needs to be a USFS column in the schedule as well. Will work on format.

6. Go ahead and draft a similar proposal and schedule for the recreation analysis. Think about whether some of the recreation tasks can be coordinated with your visual resource work (like site visits). I'm attaching a 1/2 page document with some quick thoughts and some draft issue statements from our meeting this week. Recreation analysis we will need to discuss in more detail. Unless there are mining reclamation specific rec tasks, these may be adequately addressed in the normal EIS process. I will review the attachment again.

Give me a call if you'd like to discuss any of this.

Thanks!

Debby

"Marcie Bidwell" <mbidwell@swca.com>

12/10/2008 08:34 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>
cc
Subject Visual Proposal

Debbie,

Here is what I am thinking as a start for you to review and throw your ideas in on.

There are probably errors in here (spelling, etc) but it starts to put the pieces together.

Lets discuss!

Marcie <<Visual Proposal 2008-12-09.pdf>>

Marcie Demmy Bidwell
Environmental Planner
515 East College Avenue
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Office: 970.385.8566
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Debby Kriegel/R3/USDAFS
07/20/2010 07:40 AM

To "Melissa Reichard" <mreichard@swca.com>, mbidwell@swca.com
cc "Beverley A Everson" <beverson@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>, "Terry Chute" <tjchute@msn.com>, Debby
bcc
Subject Re: Friday's meeting notes with deadlines - Debby's comments 

Questions/Comments on the meeting notes:

1. Decisions made, bullet #1: Re-word to read "10 year simulations will not be included in DEIS"
2. Decisions made, bullet #2: Remove the word "Test"
2. Deadlines:
 - Re-word the first item (July 20 at 1 pm) to read "Vegetation Team meeting"
 - On the list under "Due July 23", re-word the last item to be 2 separate items: Revised Affected Environment and Outline for Environmental Consequences.
 - I will be making the presentation to Rosemont on Friday at 12:00 or 12:30. **Marcie: When will you provide the materials for this presentation? Also, did you say that you could attend via telephone? Please provide answers so Melissa can add to this schedule.**

Thanks.

"Melissa Reichard" <mreichard@swca.com>



"Melissa Reichard"
<mreichard@swca.com>
07/19/2010 10:19 AM

To "Terry Chute" <tjchute@msn.com>, "Beverley A Everson" <beverson@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>, "Debby Kriegel" <dkriegel@fs.fed.us>, "Marcie Bidwell" <mbidwell@swca.com>

cc

Subject Friday's meeting notes with deadlines

All-

Here are the meeting notes from Friday that include all the new deadlines for visual resources.

Thanks!

Melissa Reichard

Project Administrator
SWCA Environmental Consultants
(520)325-9194 ofc. (520)250-6204 cell

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20100716_PM Mtg.pdf

Proposed Rosemont Copper Project

DRAFT- NOT FINAL UNTIL INITIALED BY BEV EVERSON OR MINDEE ROTH

Approved by:

___ Bev Everson

___ Mindee Roth

File in:

___ Administrative Record

Project Team Meeting

July 16, 2010

Attendees:

Forest Service

Bev Everson

Terry Chute

Debby Kriegel

SWCA

Tom Furgason

Melissa Reichard

Marcie Bidwell

Trent Reeder

Topics Discussed:

- Visit to TetraTech to acquire data layers necessary for visual simulations and other DEIS figures
- Most of work already done will need to be re-done due to new changes

Decisions Made:

- 10 year contours not required for the DEIS
- Vegetation Test team: Salek, Bev, Terry, Debby and Bob

Deadlines for Visual Resources:

July 20 at 1 pm- Marcie will do a simulation presentation to be sure they meet all needs

July 21- Close of data receipt- ANY data received after this date will not be included in DEIS

AND CNF decision on what type of vegetation to simulate required

July 23- The following due from Marcie to Debby:

3D sim GIS of all KOPs for all alternatives

Draft Photo Real for MPO and Phased Tails

Affected Environment and Env. Consequences outline

July 27- Sim feedback from Debby to Marcie due

July 30- Affected Environment feedback from Debby to Marcie due

Aug 9- The following due from Marcie to Debby:

Draft Photo Real for Barrel Only and Scholefield

Environmental Consequences

Aug 13- Env. Consequences and other sims feedback from Debby to Marcie due

Aug 23- Final package of Ch.3 section to SWCA QAQC team from Marcie due

Aug 30- Sims completed

Action Items/Assignments:

- Debby- follow-up with Bob Lefevre on vegetation

Debby Kriegel/R3/USDAFS
05/25/2010 11:56 AM

To Beverley A Everson/R3/USDAFS@FSNOTES, Melinda D
Roth/R3/USDAFS@FSNOTES, mbidwell@swca.com,
tfurgason@swca.com
cc Debby Kriegel/R3/USDAFS@FSNOTES
bcc
Subject Fw: Rosemont - Visual Resources SOW - Clarification

Please let me clarify how much of the work is currently unfunded, per Marcie's comment below:

"Rosemont has agreed to the scope of work, but has currently only allocated 50% of the funding"

----- Forwarded by Debby Kriegel/R3/USDAFS on 05/25/2010 11:53 AM -----



"Marcie Bidwell"
<mbidwell@swca.com>
05/25/2010 11:27 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>
cc
Subject FW: Rosemont - Visual Resources SOW

Debby,

Thanks for sending the approval through. Do you think the statement that "much of the work is not currently funded" needs any clarification? As its more tricky than just a blanket statement like that, and I am afraid that the statement portrays an untrue condition. Its more accurate to say that "Rosemont has agreed to the scope of work, but has currently only allocated 50% of the funding," or something like that.

I just dont want anyone who knows that there has been an agreement, even if partial, to think that we are exaggerating.

But perhaps that is implicit to Minde and Bev as they are aware of the situation.

Though the meeting went well yesterday, did you?
Marcie

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Tuesday, May 25, 2010 10:45 AM
To: Beverley A Everson; Melinda D Roth; Tom Furgason; Marcie Bidwell
Cc: Debby Kriegel
Subject: Rosemont - Visual Resources SOW

I have reviewed SWCA's scope of work for visual resources, discussed many items with Marcie, and made some relatively minor edits to the original document.

I approve the attached Scope of Work with the following disclaimers:

1. Much of the work described here is not currently funded. This concerns me and needs to be resolved.
2. I would like Marcie to focus efforts on the specialist report. Writing the EIS should follow.
3. Although this scope describes the majority of the tasks needed for visual resources, there may some unforeseen items that would need to be added, such as:
 - Attendance at special meetings when Marcie's participation is desired and/or additional trip(s) to Tucson if needed to complete all work.
 - Site visits to other mines or reclamation projects, if appropriate and needed to collect information appropriate for the Rosemont project.
 - Additional simulations, if necessary for effects analysis.

~~~~~  
Debby Kriegel, RLA  
Landscape Architect  
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[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)

Beverley A Everson/R3/USDAFS

04/07/2010 02:17 PM

To Debby Kriegel/R3/USDAFS@FSNOTES  
cc  
Subject Fw: Visual Resources SOW

Beverley A. Everson  
Forest Geologist  
Coronado National Forest  
300 W. Congress Street, 6th Floor  
Tucson, AZ. 85701

Voice: 520-388-8428

Fax: 520-388-8305

----- Forwarded by Beverley A Everson/R3/USDAFS on 04/07/2010 02:17 PM -----

"Tom Furgason" <[tfurgason@swca.com](mailto:tfurgason@swca.com)>

03/03/2010 03:50 PM

To "Beverley A Everson" <[beverson@fs.fed.us](mailto:beverson@fs.fed.us)>  
cc  
Subject Visual Resources SOW

Bev,

I'm sorry to make you ask again. Here is the visual SOW that we are authorized to work on. Please keep in mind that any violations in assumptions will likely require more money from Rosemont.



Tom[attachment "Doc1.docx" deleted by Debby Kriegel/R3/USDAFS] Scope\_Visual\_Resources\_2010\_05\_25.doc

## Task 5.2.Issue 2—Visual Resources

### Subtask A. Affected Environment Update for 6 Alternatives and Connected Actions

- Update affected environment to incorporate alternatives, for specialist report and EIS.
- Collect KOP in Tucson area with GPS and photography.
- Update basic existing conditions maps to show key observation points (KOPs), sensitive viewer areas, bounds of analysis, concern levels, and scenic objective classes.

### Subtask B. Prepare Alternatives Data: Convert CAD and Construct 3D GIS Surface

- Process CAD data and model data for GIS digital elevation modeling. Generate 3-D digital surfaces for the MPO and proposed alternatives at each construction phase selected for simulations.
- Create one set of 3-D working maps and diagrams for USFS and RCC to review potential scene from each KOP to be selected.
- Budget Assumptions: 12 data sets to process each alternative at 20-yr Phase and one additional time phase mid-construction.

### Subtask C. Prepare KOPs, Existing Conditions, Panoramas, and Visibility Maps

- Review all alternatives and KOPs established by the USFS and KOPs to propose to USFS for analysis, simulations, and level of detail for connected actions to define areas where impacts from the project is expected to be highly visible, distantly visible, and not visible (i.e. blocked or out of view)
- Prepare "existing conditions" panoramas for potential KOP simulations and review for use as simulations. For KOPs where project would be visible, select a phase to represent for each KOP in addition to Reclamation (i.e. construction at 5 years, etc.).
- Meet with USFS and RCC to review data, KOP selection and "photo realistic" process (1-2 meetings) includes meeting preparations, meetings, and meeting summaries. Review draft simulations with specialists from USFS, SWCA, and RCC to direct specific aspects of renderings (soils, reveg, etc.)
- Budget Assumptions: 8 KOPs 20-yr Phase and additional Phase for 6 KOPs

### Subtask D. Draft Specialist Report Analysis Methodology and Evaluation Criteria

- Draft analysis methods and evaluation criteria that will be used to define and evaluate project effects for the project resources included in the study for all alternatives and KOPs.

#### **Subtask E. Draft Visibility Diagrams and Simulations; Review with USFS/RCC**

- Create computer simulations of proposed alternatives (6 total action alternatives) for selected KOPs for highly visible, moderately visible, and distantly visible locations. Highly visible and moderately visible KOPs simulations will show 2 phases of the proposed alternatives for each KOP (e.g. TBD construction phase and 20-yr final reclamation). Each simulation will show waste rock and tailing pile forms, pit, roads, stormwater, vegetation, and infrastructure.
- For KOPs where the MPO and proposed alternatives would not be visible, prepare a section diagram or labeled panorama showing key landscape features and visual screen.
- Prepare photorealistic simulation images for KOPs.
- Review draft simulations with resources specialist from RCC, USFS, and SWCA to direct specific aspects of renderings; reclamation, soils, vegetation, etc.
- Complete a Draft review with USFS and RCC staff at meeting in Tucson.

#### **Subtask F. Prepare Environmental Consequences Analysis**

- Prepare an environmental consequences analysis for Specialist Report. Report will include analysis of direct, indirect, and cumulative effects, and compare alternatives. Utilize direction from FSM/FSH and USFS Project Level Scenery Analysis. Deliverables: Completed Visual Resources Specialist Report for all alternatives including draft simulations, visibility diagrams, and maps.

#### **Subtask G. Finalize Diagrams and Simulations; Review with USFS/RCC**

- Complete changes to simulations.
- Submit final formatted figures (e.g. panoramas, diagrams, simulations) to USFS and RCC for final approval.
- Budget Assumptions: Diagrams and Simulations will focus on land forms and will include 1 final review with USFS and RCC.

#### **Subtask H. Final Specialist Report.**

- Finalize Specialist Report and review with USFS.
- As needed, provide text for EIS.

#### **Assumptions:**

- Costs are based upon deliverables for each proposal according to the number of KOPs brought forward for simulations and figure diagrams. All alternatives will describe up to 24 KOPs for the analysis process. Revised USFS and USFS original budgets include up to 8 panoramas, non-visible KOPs diagrams for up to 6 KOPs, and simulations of highly visible and moderately visible KOPs for 8 KOPs for each of 6 proposed alternatives (up to 48 simulations) at 20-yr final reclamation and up to 6 KOPs for a construction phase per alternative (36 simulations). However, not

all KOPs will require simulations for all alternatives (i.e. Sycamore canyon will not be visible from many of the KOPs along SR 83). KOPs and level of detail for simulations will be formalized at the initial simulation meeting; however costs are assumed based upon the list of KOPs provided by the USFS Simulation Strategy.

- RCC to provide all data and elevations required for simulations, including a 3D model of any facilities, structures, or transmission infrastructure. USFS, RCC and SWCA will collectively contribute example imagery for depicting coloration, texture, formations, structures, and other details for portrayal in the simulations prior to simulations initiating. Surface data or changes to surface data that is provided/requested after 3D modeling is initiated will be incorporated on a time and materials basis. Direction regarding these details that is received after simulations have been initiated that varies dramatically may result in a change order. Simulations that require detailed development of the mine plant will be completed on a time and materials basis. Field work for 10 of the 14 KOPs has already been collected under the Visual Technical Report scope. SWCA assumes that Mt. Wrightson has been photographed by Rosemont's subcontractors and SWCA will be able to use this panorama for simulations. It is assumed that field documentation will be required for Box Canyon and Tucson KOPs at a minimum. Changes to the KOPs or to the construction phase selected for simulation after this meeting may require additional field work and may result in a change order. Additional KOPs, simulations, phases, or alternatives may be requested for an additional fee.
- Simulations will be classified as "highly visible" or "moderately visible". Highly visible simulations will show detailed variations in land form, vegetation, color, and texture for tailings and waste rock placement. Moderately visible simulations will show general variations in land form, vegetation, color and texture due to the level of detail being reduced by the distance of the viewer from the project area.
- Should KOPs simulations require extensive details of mining facilities, conveyors, equipment, transmission lines, etc, the work for these layers will be performed on a time and material basis, due to the unpredictable level of detail and effort required for these structures.
- Research for revegetation species and growth rates shall be provided by a separate contract funded by Rosemont. Based on findings, RCC and USFS are to agree upon the level of reclamation and vegetation success to be rendered prior to initiation of photoreal simulations. Changes in the direction given to SWCA to represent these aspects will require a change order, should they require additional time and effort to address.
- RCC will provide example photographs of existing reclamation, mining structures, vegetation mixes, soil types and colors, and other data to SWCA prior to the initiation of the simulations. Necessary imagery will be discussed at simulation meeting.
- This estimate assumes that SWCA will create 3D surfaces for MPO and proposed alternatives from RCC CAD drawings for up to 2 phases of construction. Should RCC provide GIS surfaces, these costs may be reduced accordingly.

- Changes in data, proposed action, and level of detail requested for simulations, phases of construction, and resolution of imagery after project initiation will require adjustments based upon time and materials. SWCA will submit surfaces to RCC and USFS for review prior to creation of simulations.
- Cost estimate includes two in-person meetings as two trips to Tucson for Marcie Bidwell to work with USFS and RCC on simulations, per direction of USFS staff. Additional trips may be required by USFS or RCC, and these will be arranged through an additional change order. Each task includes meeting hours for senior staff, visual specialist, editors as necessary and senior GIS under each task; additional meetings may be arranged on a time and materials basis.
- This scope of work includes one round of draft review and one round of final review for specialist report and simulations, unless review comments are extensive, in which case an additional draft review may be needed. Additional changes, reviews, or updates will require an additional change order. Ideally, review of final images will require minimal edits agreeable to both USFS and RCC for accurate portrayal of the MPO. Explorations of mitigation options (such as painting facilities alternative colors or reducing pit contrast through other than agreed-upon mitigation treatments ) would be covered under an additional scope. USFS and RCC should attempt to synchronize their comments prior to submittal to SWCA; should differences of opinion occur, SWCA will default to USFS guidance as the official SWCA client.



Kathy Arnold  
<karnold@rosemontcopper.com>  
02/17/2010 11:00 AM

To Debby Kriegel <dkriegel@fs.fed.us>  
cc  
bcc

Subject FW: Mitigation Table - Debby's questions for Rosemont

History:

✉ This message has been replied to and forwarded.

Debby –

Sorry so slow on the response, I wanted to be sure to answer fully. My answers in blue below.

Cheers!

Kathy

Katherine Ann Arnold, P.E. | Director of Environmental and Regulatory Affairs  
Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724

[karnold@rosemontcopper.com](mailto:karnold@rosemontcopper.com)



Rosemont Copper Company  
P.O. Box 35130 | Tucson, AZ 85740-5130  
3031 West Ina Road | Tucson, AZ 85741 | [www.rosemontcopper.com](http://www.rosemontcopper.com)

PLEASE NOTE: : This e-mail message, including any attachments, is for the sole use of the intended recipients and may contain confidential and/or privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please delete all copies and notify us immediately.

**From:** Debby Kriegel <[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)>  
**Date:** Fri, 12 Feb 2010 09:31:18 -0600  
**To:** Katherine Arnold <[karnold@rosemontcopper.com](mailto:karnold@rosemontcopper.com)>  
**Cc:** Debby Kriegel <[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)>  
**Subject:** Mitigation Table - Debby's questions for Rosemont

Kathy,

Hopefully Bev or Mindee let you know that FS folks will be individually contacting you to resolve mitigation table questions. We have a deadline of next Friday (Feb 19) to get a "final" mitigation table completed, so your input in the next few days is really important.

Here are my questions for you...

#### Reclamation

- 11.2.8/181: The disposition is 3 & 4. What part of this needs clarification or more information? I think the change was the clarification...

#### Recreation

- General: Some recreation mitigation measures simply state what work is needed, while others mention an RRIMP. I recommend all recreation mitigation measures be edited to avoid the mention the RRIMP. Would this be ok with

- Rosemont? Confirmed OK with Rosemont.
- 12.1.1/194: The disposition is 2. Where in the MPO have alternative lands for recreation been addressed? I am aware that RCC has purchased private lands in the area and that conservation easements are planned, but am not aware specifically of public recreation uses planned for these lands. Can you provide information? Or should this be changed to a disposition 3? In the MPO – Section 3.5 discusses the changes
- 12.2.2/197: The first bullet doesn't state any actual mitigation work. Is it ok to delete this one? (the next two bullets and other mitigation measures cover the actual work items) I think that would be fine – although I think the Los Colinas section is the appropriate section so maybe the first and third bullets should be combined

### Visual Quality

- 15.2.1/234 and 15/3.2/237: You mentioned that the pit lake chemistry information you received recently looks good, and that desert varnish might be ok now. Can we change these dispositions to 3? Pit lake and 15.2.1 and 15.3.2 are not the same – these areas are areas where there would be runoff to stormwater and because of the non-degradation standard for stormwater the effects on quality need to be sorted out. I am concerned that painting white rock reddish is a contradiction of nature. I prefer that we not specify what stain would be used, but rather that a synthesised weathering effect can be addressed. It may be that a dirt wash, a hydraulic spray of pit water, or something else could be best. We will have plenty of time to address this at the end of the life of the facility and I would prefer not to have to try to do it early.
- 15.3.1/236: This is really a biology issue. I recommend moving this mitigation measure to Plants and Animals. Sound ok? I agree
- 15.3.3/238: I propose re-wording this to read "Treat upper portions of the pit wall that are visible from Highway 83, the Arizona Trail, and other Concern Level 1 travelways and residential areas within 5 miles of the pit, by applying desert varnish to darken rock to match weathered rock on the ridge at the conclusion of operations." The visually sensitive viewpoints where visitors would see lower portions of the pit are primarily up on Mt. Wrightson, so this should focus this mitigation on the upper, western wall of the pit. Sound ok? That change sounds okay I agree with the five mile radius.
- 15.4.1/240: The disposition states that this is duplicative of 235, but neither 235A or 235B states anything similar. Is it ok to change to a disposition 3? That is really a 2 – it is in our MPO reclamation plan as that.
- New mitigation measure: "Locate the perimeter fence as close to mine facilities as possible to maximize the protection of adjacent National Forest lands." Any problems with this? Yes – we want to put the perimeter fence out a bit from the ridgelines to keep people from walking into an area that would not be safe or stable – this is particularly a concern near the pit (hikers from the Sierra club will typically hike into an area above a pit to take pictures) so if there is a blast or other activity going on underneath them it is a public safety issue. I have also historically had people ducking under a fence and walking down haulage roads or hunters entering the property and using the area to hunt. We would like to put the perimeter fence outside of any of our inspection roads by the distance shown on the maps and put the fence to the west on the downside of the ridgeline to

keep people from walking into our area. It's also best if we can restrict access to the downside of the ridges on the perimeter that way no one can walk up to the fence look in and decide they want to use an area for recreation, sabotage or to steal solar panels, pumps, etc.

Please give me a call if you want to discuss any of these further.

Thank you!

~~~~~

Debby Kriegel, RLA
Landscape Architect
Coronado National Forest
300 W. Congress
Tucson, AZ 85701
(520) 388-8427
Fax (520) 388-8305
www.fs.fed.us/r3/coronado/
dkriegel@fs.fed.us

----- End of Forwarded Message

Sent: Friday, October 22, 2010 4:30 PM
To: David Harris
Cc: Debby Kriegel
Subject: Rosemont Visual Quality

David,

I've been working on this, and I think I've addressed all of my tasks. Please let me know if I missed something. Also, at one point when I was working on the document today, I was typing text into a comment balloon, and for some reason the text went into a separate pane on the left side of the document, then this pane disappeared. Do you know how to get this pane back to verify that there isn't something in there?

Terry will be providing information on the powerline(s). Stay tuned on that.

I would like to take another look at cumulative effects, and may have time Monday morning. By the way, I'm headed out of town mid-day on Monday and won't be back in the office until around noon on Thursday. I'll be in training, but will be checking my phone messages.

Thanks David! Have a good weekend.

~~~~~  
Debby Kriegel, RLA  
Landscape Architect  
Coronado National Forest  
300 W. Congress  
Tucson, AZ 85701  
(520) 388-8427  
Fax (520) 388-8305  
[www.fs.fed.us/r3/coronado/](http://www.fs.fed.us/r3/coronado/)  
[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)

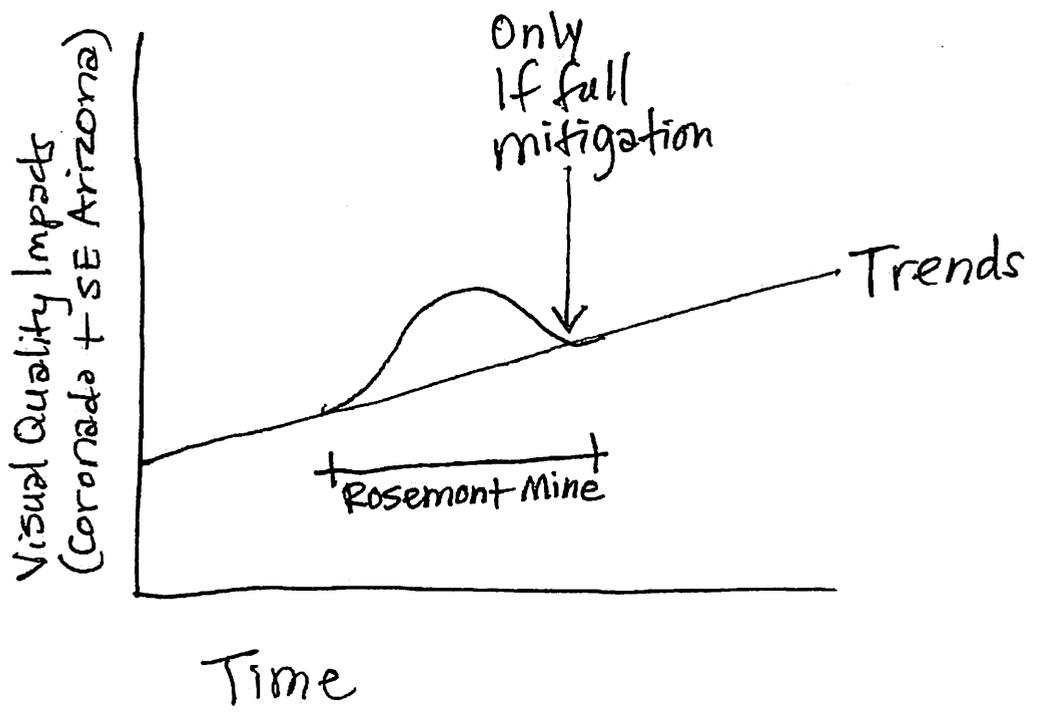
system (unofficial, “wildcat”) roads. Vehicle use off-road damages fragile desert vegetation and soils, and desert soils tend to be much lighter in color than the vegetation, creating visual contrast. With little topsoil and arid conditions, scars do not heal quickly.

- References for above:
  - Arizona State Parks. 2008. Arizona statewide comprehensive outdoor recreation plan. <http://azstateparks.com/publications/#SCORP>
  - Department of Homeland Security, Office of Immigration Statistics. 2008 annual report. Immigration enforcement actions 2006. <http://www.dhs.gov/files/statistics/publications/yearbook.shtm>
  - U.S. Department of Agriculture, Forest Service. 2008. National visitor use monitoring results. Coronado National Forest, Tucson, Arizona, USA. <http://www.fs.fed.us/recreation/programs/nvum/>

3. In the trends section, also mention the fact that long-term drought and climate change may impact vegetation and visual quality.

#### 4. Cumulative Effects

- CEQ’s *Considering Cumulative Effects* book, states “The most effective cumulative effects analyses focus on what is needed to ensure long-term sustainability of resources.” This provides yet another opportunity to state that better mitigation is necessary (including landforming, tree planting, darkening the pit and diversion channel, etc.). Add a sentence like this to the cumulative effects section: “To ensure long-term sustainability of scenic resources, full mitigation of the Rosemont Mine would be needed, including measures described in section x.x Additional Measures to Reduce Impacts. These measures would minimize short term, long term, and permanent impacts from the project, and ultimately reduce cumulative effects in southeastern Arizona by avoiding yet another major loss of natural landscapes and scenic quality.”
- Please add a small graph like the one below.
- Is there a place to work in a statement like this?
  - Scenic resources in southeastern Arizona are at a tipping point. The supply of natural landscapes for outdoor recreation still exceeds demand in most places, but recreational use in some parts of the Coronado is already exceeding capacity and regional trends threaten the sustainability of scenic quality. Public support and interest in natural resources (including scenery) is higher than ever, as evidenced in recent years by scenic road and trail designations, increased public input on proposed projects, environmental group activity (including the creation of Save the Scenic Santa Ritas), planning efforts (such as corridor management plans for scenic highways and the Sonoran Desert Conservation Plan), and Pima County open space bonds.





Fermin Samorano  
<fsamorano@rosemontcopper.com>  
06/30/2010 08:29 AM

To Dale Ortman PE <daleortmanpe@live.com>, 'Salek Shafiqullah' <sshafiqullah@fs.fed.us>  
cc 'Beverley A Everson' <beverson@fs.fed.us>, "'Krizek, David'" <David.Krizek@tetrattech.com>, 'Debby Kriegel' <dkriegel@fs.fed.us>, 'Jonathan Rigg' <jrigg@swca.com>, bcc  
Subject RE: FW: Barrel-Only Landform

DALE,

I AM NOT AVAILABLE.

THANK YOU,

Fermin A. Samorano  
Rosemont Copper  
Mine Manager  
Office: 520-445-7461  
Cell: 520-343-8765

**From:** Dale Ortman PE [mailto:daleortmanpe@live.com]  
**Sent:** Wednesday, June 30, 2010 8:13 AM  
**To:** 'Salek Shafiqullah'  
**Cc:** 'Beverley A Everson'; 'Krizek, David'; 'Debby Kriegel'; Fermin Samorano; 'Jonathan Rigg'; Kathy Arnold; 'Marcie Bidwell'; 'Melissa Reichard'; 'Tom Furgason'  
**Subject:** RE: FW: Barrel-Only Landform  
**Importance:** High

Salek,

Thanks for expressing your concern. I take it that you would like to hold an update meeting today to allow further evaluation of the design concept prior to Rosemont proceeding further in its development. Debby has let me know that both of you have a prior commitment in the morning but will be available after lunch. I'll work to see if we can arrange a meeting in the early afternoon. I'll get back to you on this one.

Dale

**From:** Salek Shafiqullah [mailto:sshafiqullah@fs.fed.us]  
**Sent:** Tuesday, June 29, 2010 3:19 PM  
**To:** Dale Ortman PE  
**Cc:** 'Beverley A Everson'; 'Krizek, David'; 'Debby Kriegel'; fsamorano@rosemontcopper.com; 'Jonathan Rigg'; 'Kathy Arnold'; 'Marcie Bidwell'; 'Melissa Reichard'; 'Tom Furgason'  
**Subject:** Re: FW: Barrel-Only Landform

Hello Dale,

It appears that the Rosemont design team has modified the concept to create a new version as mutually agreed upon at the last meeting. I was under the assumption that the collaborative approach we had

been using to discuss pros and cons of the concepts would continue with the proposed meeting scheduled for this week. I am wondering why this approach is being abandoned, as we have made positive strides in formulating a concept design which could please all the parties involved? From a quick review of just the drawing it is difficult to understand ALL the changes the design team has made as well as ALL the pros and cons of this concept.

Salek Shafiqullah, Hydrologist  
Coronado National Forest  
520-388-8377

"Dale Ortman PE"  
<daleortmanpe@live.com>

06/29/2010 10:12

AM

To: "Debby Kriegel" <dkriegel@fs.fed.us>, "Salek Shafiqullah" <sshafiqullah@fs.fed.us>  
cc: "Beverley A Everson" <beverson@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>, "Melissa Reichard" <mreichard@swca.com>, "Jonathan Rigg" <jrigg@swca.com>, "Kathy Arnold" <karnold@rosemontcopper.com>, <fsamorano@rosemontcopper.com>, "Krizek, David" <David.Krizek@tetrattech.com>, "Marcie Bidwell" <mbidwell@swca.com>  
SubjectFW: Barrel-Only Landform

Debby & Salek,

I have not received a response to the recommendations in the email below. Please provide your input regarding the recommendations so that we may reach an expeditious conclusion to the team's efforts and proceed to a potential alternative for Reta's consideration.

Regards,

Dale

---

Dale Ortman PE PLLC  
Consulting Engineer

(520) 896-2404 - Arizona Office

(520) 449-7307 - Mobile

(435) 682-2777 - Utah Office

[daleortmanpe@live.com](mailto:daleortmanpe@live.com)

PO Box 1233

Oracle, AZ 85623

**From:** Dale Ortman PE [mailto:daleortmanpe@live.com]

**Sent:** Sunday, June 27, 2010 6:29 PM

**To:** 'Debby Kriegel'; 'Salek Shafiqullah'; 'mbidwell@swca.com'; 'Kathy Arnold';

'fsamorano@rosemontcopper.com'; 'Krizek, David'

**Cc:** 'Beverley A Everson'; 'tfurgason@swca.com'; 'Jonathan Rigg'; 'Melissa Reichard'

**Subject:** Barrel-Only Landform

**Importance:** High

All,

Attached is the latest landform topography developed by Rosemont for the Barrel-Only landform alternative. This landform has been developed through the joint efforts of the CNF, SWCA, Rosemont, and TetraTech and incorporates the following elements:

- Extension of the Upper Barrel drainage within the landform
- Multiple ridge landforms with differing elevations
- Potential for variable slopes on eastern flanks of the landform
- Potential for reduction in number of drainage control benches on eastern flank of landform
- Improved stormwater discharge control utilizing the extension of the Upper Barrel drainage
- Maintain overall 3:1 slopes with drainage benches on west side of landform to provide required storage capacity and maintain tailings placement operations
- Maintain waste rock perimeter buttress surrounding tailings
- Maintain encapsulation of the heap leach facility

The team has done an excellent job in the collaborative effort to develop this landform concept. I believe we have reached a point in the process where the landform concept should be turned over to Rosemont for final engineering development as the Barrel-Only Alternative for consideration in the DEIS. I recommend that, in addition to the general design objectives listed above, Rosemont develop the following during the final engineering:

- Confirm constructability of the landform
- Summarize the concurrent & final reclamation plan
- General layout of rock sub-drains & flow-through drains
- General stormwater control plan, including commitment to the design criteria currently in the Site Water Management Plan Update

In addition, I propose that we not meet on June 30<sup>th</sup> as currently scheduled but the team review the attached landform and provide any additional design objectives for Rosemont to include in the final engineering. Please get back to me ASAP with comments and any design objectives you believe should be included in the final design.

If you have any questions please email me or try the Utah phone listed below.

Regards,

Dale

---

Dale Ortman PE PLLC  
Consulting Engineer

(520) 896-2404 - Arizona Office

(520) 449-7307 - Mobile

(435) 682-2777 - Utah Office

[daleortmanpe@live.com](mailto:daleortmanpe@live.com)

PO Box 1233

Oracle, AZ 85623



tfurgason@swca.com

12/16/2009 12:28 PM

Please respond to  
tfurgason@swca.com

To "Debby Kriegel" <dkriegel@fs.fed.us>

cc mreichard@swca.com

bcc

Subject Re: Rosemont MPO - 3D files

History: This message has been replied to.

Debby, The only 3-D data that we have is what SWCA created during the Alternatives development process. Tom

Sent from my Verizon Wireless BlackBerry

**From:** "Debby Kriegel" <dkriegel@fs.fed.us>

**Date:** Wed, 16 Dec 2009 09:52:12 -0700

**To:** Tom Furgason <tfurgason@swca.com>

**Subject:** Fw: Rosemont MPO - 3D files

Tom: Have you or Melissa obtained any 3D data for the MPO (or alternatives)?

----- Forwarded by Debby Kriegel/R3/USDAFS on 12/16/2009 09:44 AM -----

**Beverley A**

**Everson/R3/USDAFS**

To Melinda D Roth/R3/USDAFS@FSNOTES, Debby Kriegel/R3/USDAFS@FSNOTES, George McKay/R3/USDAFS@FSNOTES

12/15/2009 04:32 PM

cc  
Subject Re: Rosemont MPO - 3D files [Link](#)

I'm not aware of any 3D files. George, I'm assuming that you didn't receive anything like this with the map and figure revisions you requested with the MPO review. Please correct me if I'm wrong.

Beverley A. Everson  
Forest Geologist  
Coronado National Forest  
300 W. Congress Street, 6th Floor  
Tucson, AZ. 85701

Voice: 520-388-8428

Fax: 520-388-8305

Melinda D Roth/R3/USDAFS

12/15/2009 04:02 PM

To Debby Kriegel/R3/USDAFS@FSNOTES

cc Beverley A Everson/R3/USDAFS@FSNOTES

Subject

Re: Rosemont MPO - 3D files [Link](#)

Sorry, I don't know.

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701  
(520) 388-8319  
(520) 396-0715 (cell)  
(520) 388-8305 (FAX)

Debby Kriegel/R3/USDAFS

12/15/2009 10:53 AM

To Beverley A Everson/R3/USDAFS@FSNOTES, Melinda D Roth/R3/USDAFS@FSNOTES  
cc  
Subject Rosemont MPO - 3D files

Do we have the 3D files (GIS or similar) for the MPO?



"Marcie Bidwell"  
<[mbidwell@swca.com](mailto:mbidwell@swca.com)>  
02/26/2010 10:00 AM

To "Debby Kriegel" <[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)>, "Michael Andres"  
<[mandres@swca.com](mailto:mandres@swca.com)>  
cc  
bcc

Subject For Format Review and Approval~ Simulation Template

History:  This message has been replied to.

Hello Debby,

Please find the format for the general layout attached. We are planning on using something similar to this for our figure development for the Visual resources report. It mirrors the formatting for the DEIS.

The goal is to show 2 figures on 11x17 paper as an appendix in the back, and then for a few highlighted figures to include them in the main text, but on 8.5 x 11 format. We recommend a larger format be included as an appendix just to allow better flow of the document.

Please let me know if you approve of this formatting.  
Marcie

p.s- I have drafts of the vegetation and soils in simulation coming to you later this afternoon to see if you like the basic approach. More to follow.

---

**From:** Michael Andres  
**Sent:** Thursday, February 25, 2010 5:19 PM  
**To:** Marcie Bidwell  
**Subject:** Simulation Template

**Mike Andres**  
GIS Specialist  
SWCA Environmental Consultants  
130 Rock Point Drive, Suite A  
Durango, Colorado 81301  
970.385.8566 (Office)  
970.385.1938 (Fax)  
[mandres@swca.com](mailto:mandres@swca.com)

[attachment "Simulations.pdf" deleted by Debby Kriegel/R3/USDAFS]



Melinda D Roth/R3/USDAFS  
04/22/2010 08:10 AM

To dkriegel@fs.fed.us, dsebesta@fs.fed.us, sldavis@fs.fed.us,  
sshafiqullah@fs.fed.us, wkeyes@fs.fed.us,  
temmett@fs.fed.us, rlefevre@fs.fed.us, ecuriel@fs.fed.us,  
cc Beverley A Everson/R3/USDAFS@FSNOTES

bcc

Subject Fw: ID Team questions for you

The ID Team posed several questions about alternatives to Dale Ortman at SWCA. Below are the questions and his answers, FYI.

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701  
(520) 388-8319  
(520) 396-0715 (cell)  
(520) 388-8305 (FAX)

----- Forwarded by Melinda D Roth/R3/USDAFS on 04/22/2010 08:05 AM -----

"Dale Ortman PE" <daleortmanpe@live.com>

To "Melinda D Roth" <mroth@fs.fed.us>

04/22/2010 06:17 AM

cc <tfurgason@swca.com>, "Beverley A Everson" <beverson@fs.fed.us>

Subject RE: ID Team questions for you

Mindee,

Yes, that captures my responses to the IDT questions.

Dale

**From:** Melinda D Roth [mailto:mroth@fs.fed.us]  
**Sent:** Wednesday, April 21, 2010 4:32 PM  
**To:** daleortmanpe@live.com  
**Cc:** tfurgason@swca.com; Beverley A Everson; Melinda D Roth  
**Subject:** ID Team questions for you

To reiterate, here are the questions the ID Team had of you regarding alternatives (followed by your answers):

1. Is it feasible to hold the toe of the north slope of the Barrel alternative at the ridge between Barrel and McCleary Canyons, whereby reducing impacts to McCleary Canyon? (Yes, this represents small amounts of material that could be accommodated in other areas without creating other significant impacts.)
2. Is it feasible to adjust the footprint of the Scholefield alternative to avoid placing material in the area of

Scholefield Spring and the giant sedge there? (note -I pointed out the wrong location, but I think the answer would be the same: To create a hole in the middle of the waste/tailing piles is possible but unreasonable and would likely not mitigate effects to the spring and local vegetation there. Also, we are already pushing the limits of waste capacity with this alternative and it would be difficult to dispose of this sizable volume of material without compromising other goals or issue drivers associated with this alternative.)

3. For the Scholefield alternative, how much of a set back from the bottom of McCleary Canyon would be needed to limit effects of rollout material, etc. moving into the canyon bottom? (With the proper design, 100 feet should be adequate. Dale recommends that we give this design requirement to Rosemont ASAP so they can engineer it.)

4. Which option to move tailings to Sycamore Canyon would be less impactful: pipelines or conveyor? (It depends. A conveyor would be more visible, but only during the life of the mine. A pipeline would be less visible, but would necessitate more ground disturbance due to the required leakage containment. Both options would require construction and maintenance access over the ridgeline and would be very visible long term.)

Did I capture your input correctly? Thanks Dale.

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701  
(520) 388-8319  
(520) 396-0715 (cell)  
(520) 388-8305 (FAX)



"Marcie Bidwell"  
<mbidwell@swca.com>  
03/12/2009 03:49 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc "Charles Coyle" <ccoyle@swca.com>, "Tom Furgason"  
<tfurgason@swca.com>  
bcc

Subject Hour estimate for the Visual Technical Report

History:  This message has been forwarded.

Debby,

Here is the detail for the Technical Report effort that was included in the scope of work for this year. The attachment includes the basic essence of Tasks 1-4-ish of my original proposal, but as only THREE tasks (Task 1-3 in this spreadsheet and the Change Order).

This scope does not include the trip to NV in April or any visual simulation work; I encourage that you speak to RCC about your interest in these items again. Task I thought I had sent this email last week.

As to my contacting RCC to request these items, Tom and Charles have requested that these tasks need to be brought to RCC by the USFS, as SWCA has brought them forward to RCC and they were not funded. RCC should respond to USFS differently than they would to us.

I want to stress that it is not that I do not support this extension; its quite the opposite. Its that the federal agency has the influence in this situation with the client.

Tom or Charles would be glad to talk to you regarding strategy; they recommend that the ID Team lead or project lead carry your wishes to RCC.

Meanwhile, I am digging into the documents that you suggested, and will have the diagram with the EIS, Visual Tech Report and your list together for you soon.

Thanks as always, and glad to be moving on the next phase,  
Marcie

<<Visual Cost\_estimate- 2009-02-13-USFS.pdf>>

Marcie Demmy Bidwell  
Environmental Planner  
515 East College Avenue  
Durango, Colorado 81301  
Office: 970.385.8566  
Fax: 970.385.1938



[www.swca.com](http://www.swca.com) Visual Cost\_estimate- 2009-02-13-USFS.pdf

# Rosemont EIS- Visual Resources Technical Report

## Task 1. Visual/Remediation Design Meeting, Remediation Field Trips

*Tasks: Participate in one design/remediation briefing meeting with USFS staff, one 8-hour field visit with USFS and other USFS designees, and two 4-hour debrief meetings to review opportunities with project staff.*

*Deliverables:*

*Site Analysis- Brief Meeting Notes/Technical Memo and Map that identifies critical viewsheds, opportunities and challenges for visual resource protection (and other resources that are identified to participate in the design process such as wildlife, water quality, etc.).*

*Labor- approximately 70 hours for meetings, USFS field visit, and staff meetings.*

*Expenses*

## Task 2. Collect, Analyze, and Summarize Visual Resource Information

*Tasks: Collect, analyze and summarize constituent information through key interviews with Rosemont design team, USFS staff, FS records, and other relevant sources. Establish up to 5 key observation points (KOPs) and document these locations with photography and geographic positioning system (GPS). Identify evaluation criteria that will be used to define and evaluate project effects for the visual resources included in the study area. Evaluation criteria may include visual objectives from USFS Scenery Integrity Objectives (SIOs), restoration indicators, design guidelines, and setting indicators. Identify visual design opportunities and mitigation for dry stacking, tailing pile orientation, placement, and remediation.*

*Labor- approximately 164 hours for data collection, plan review and critique, and research*

*Expenses*

## Task 3. Prepare Visual Technical Report

*Tasks: Following development of the alternatives, prepare a report which summarizes the existing alternative and recommends (1) areas for improvement for the existing alternative, and/or (2) defines objectives, design guidelines/standards, and mitigation measures for proposed alternatives. Report should describe the important corridors and viewsheds for protection, key elements of remediation techniques for visual enhancement, and opportunities for visual protection through tailing pile design specifics or location. Additionally, the report will include several maps to show recommended strategies.*

*Deliverables: Design and Evaluation Criteria for project evaluation.*

*Labor- approximately 128 hours for development, draft and final report*

*Expenses*

---

## Project Total

### Assumptions

**Task A:** Visual Design meeting will be based in the Rosemont Copper project vicinity as (1) 4-hour pre-tour meeting with remediation design team, (1) 8-hour field visit to mine sites, (1) 4 hour field visit with project staff, field prep and pre-post notes, and travel time. USFS staff will organize the remediation tour and meeting with other resource specialists.

• *Task A Deliverable from Visual Design meeting will be brief meeting notes and site analysis map that identifies critical viewsheds, opportunities and challenges for visual resource protection.*

**Task B:** Specific information sources and interviews will be determined with USFS staff and will not exceed 160 hours of effort.

- *Task B Deliverables will include initial draft sections (2 of 5 total sections) of Visual Technical Report for key issues and opportunities that will be identified under Task A. They may include: dry stacking, tailing pile orientation, tailing placement and remediation. Additionally, geographic position system coordinates (GPS), photographs, and visual observations will be recorded per USFS standards.*

**Task C:** Will include written documentation of visual objectives, evaluation criteria, and mitigation measures for Proposed Action and alternatives.

- *Task C deliverables will include draft of Sections 4-5 of visual technical report, review by USFS staff, and final report with responses to public comment. Maps (up to 5 maps) and GIS information developed for the process will also be included.*

- Visual simulations are not included as RCC has indicated they will complete them. Additional simulations may be requested by the USFS for an additional fee.

- Additional tours to reclamation sites beyond the Project Area, as requested by the USFS, would require an additional scope and fee to cover time, deliverables, and travel expenses.

**Visual/Remediation Design Meeting, Remediation Field Trips**

| <b>TASK 1 - Visual Resources</b> |             |                |             |
|----------------------------------|-------------|----------------|-------------|
| <b>LABOR</b>                     | <b>Rate</b> | <b>Hours</b>   | <b>Cost</b> |
| Planning Specialist VII          |             | 8.00           | \$ -        |
| Planning Specialist V            |             | 30.00          | \$ -        |
| Environmental Specialist VI      |             |                | \$ -        |
| Planning Specialist III          |             | 8.00           | \$ -        |
| GIS Specialist II                |             | 24.00          | \$ -        |
| Environmental Specialist III     |             | -              | \$ -        |
| Technical Writer/Editor II       |             | -              | \$ -        |
| Administrative Assisstant III    |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
| <b>Labor Total</b>               |             | 70.00          | \$ -        |
| <b>EXPENSES</b>                  | <b>Rate</b> | <b># Units</b> | <b>Cost</b> |
| Car Rental                       |             | 2              | \$ -        |
| Car Rental (4 x 4)               |             | -              | \$ -        |
| Air Travel                       |             | 1              | \$ -        |
| Lodging                          |             |                | \$ -        |
| Communication (of Labor Total)   |             | -              | \$ -        |
| Copies (B&W)                     |             | -              | \$ -        |
| Copies (Color)                   |             |                | \$ -        |
| Graphic Plots                    |             | -              | \$ -        |
| Mileage                          |             |                | \$ -        |
| Per Diem/Lodging                 |             | 3              | \$ -        |
| Permits                          |             | -              | \$ -        |
| Binding                          |             | -              | \$ -        |
| Postage/Fedex                    |             | -              | \$ -        |
| Supplies- GPS (2 days)           |             |                | \$ -        |
| Misc.- Camera (2 days)           |             | 2              | \$ -        |
|                                  |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
| <b>Expenses Subtotal</b>         |             |                | \$ -        |
| <i>Administrative Fee</i>        |             |                | \$ -        |
| <b>Expenses Total</b>            |             |                | \$ -        |

**Task 1 Total Cost** \$

*Note, all totals are rounded to the nearest whole dollar.*

**Collect, Analyze, and Summarize Visual Resource Information**

| <b>TASK 2 - Visual Resources</b> |             |                |             |
|----------------------------------|-------------|----------------|-------------|
| <b>LABOR</b>                     | <b>Rate</b> | <b>Hours</b>   | <b>Cost</b> |
| Planning Specialist VII          |             | 24.00          | \$ -        |
| Planning Specialist V            |             | 60.00          | \$ -        |
| Environmental Specialist VI      |             |                | \$ -        |
| Planning Specialist III          |             | 32.00          | \$ -        |
| GIS Specialist II                |             | 40.00          | \$ -        |
| Environmental Specialist III     |             | -              | \$ -        |
| Technical Writer/Editor II       |             | -              | \$ -        |
| Administrative Assisstant III    |             | 8.00           | \$ -        |
|                                  |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
| <b>Labor Total</b>               |             | 164.00         | \$ -        |
| <b>EXPENSES</b>                  | <b>Rate</b> | <b># Units</b> | <b>Cost</b> |
| Car Rental                       |             | -              | \$ -        |
| Car Rental (4 x 4)               |             | -              | \$ -        |
| Air Travel                       |             | 1.00           | \$ -        |
| Lodging                          |             | 2.00           | \$ -        |
| Communication (of Labor Total)   |             | -              | \$ -        |
| Copies (B&W)                     |             | -              | \$ -        |
| Copies (Color)                   |             | -              | \$ -        |
| Graphic Plots                    |             | -              | \$ -        |
| Mileage                          |             | 100            | \$ -        |
| Per Diem                         |             | 3.00           | \$ -        |
| Permits                          |             | -              | \$ -        |
| Binding                          |             | -              | \$ -        |
| Postage/Fedex                    |             | -              | \$ -        |
| Supplies                         |             | -              | \$ -        |
| Misc.                            |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
| <b>Expenses Subtotal</b>         |             |                | \$ -        |
| <i>Administrative Fee</i>        |             |                | \$ -        |
| <b>Expenses Total</b>            |             |                | \$ -        |

**Task 2 Total Cost** \$

*Note, all totals are rounded to the nearest whole dollar.*

**Prepare Visual Technical Report**

| <b>TASK 3 - Visual Resources</b> |             |                |             |
|----------------------------------|-------------|----------------|-------------|
| <b>LABOR</b>                     | <b>Rate</b> | <b>Hours</b>   | <b>Cost</b> |
| Planning Specialist VII          |             | 30.00          | \$ -        |
| Planning Specialist V            |             | 70.00          | \$ -        |
| Environmental Specialist VI      |             | -              | \$ -        |
| Planning Specialist III          |             | 8.00           | \$ -        |
| GIS Specialist II                |             | 20.00          | \$ -        |
| Environmental Specialist III     |             | -              | \$ -        |
| Technical Writer/Editor II       |             | -              | \$ -        |
| Administrative Assisstant III    |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
| <b>Labor Total</b>               |             | <b>128.00</b>  | <b>\$ -</b> |
| <b>EXPENSES</b>                  | <b>Rate</b> | <b># Units</b> | <b>Cost</b> |
| Car Rental                       |             | -              | \$ -        |
| Car Rental (4 x 4)               |             | -              | \$ -        |
| Air Travel                       |             | 1.00           | \$ -        |
| Lodging                          |             | -              | \$ -        |
| Communication (of Labor Total)   |             | -              | \$ -        |
| Copies (B&W)                     |             | -              | \$ -        |
| Copies (Color)                   |             | -              | \$ -        |
| Graphic Plots                    |             | -              | \$ -        |
| Mileage                          |             | -              | \$ -        |
| Per Diem/Lodging                 |             | 2.00           | \$ -        |
| Permits                          |             | -              | \$ -        |
| Binding                          |             | -              | \$ -        |
| Postage/Fedex                    |             | -              | \$ -        |
| Supplies                         |             | -              | \$ -        |
| Misc.                            |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
| <b>Expenses Subtotal</b>         |             |                | <b>\$ -</b> |
| <i>Administrative Fee</i>        |             |                | <i>\$ -</i> |
| <b>Expenses Total</b>            |             |                | <b>\$ -</b> |

**Task 3 Total Cost** \$

*Note, all totals are rounded to the nearest whole dollar.*

**Mine Reclamation Tour, as requested by USFS**

| <b>TASK 4 - Visual Resources</b> |             |                |             |
|----------------------------------|-------------|----------------|-------------|
| <b>LABOR</b>                     | <b>Rate</b> | <b>Hours</b>   | <b>Cost</b> |
| Planning Specialist VII          |             |                | \$ -        |
| Planning Specialist V            |             | 35.00          | \$ -        |
| Environmental Specialist VI      |             | -              | \$ -        |
| Planning Specialist III          |             |                | \$ -        |
| GIS Specialist II                |             |                | \$ -        |
| Environmental Specialist III     |             | -              | \$ -        |
| Technical Writer/Editor II       |             | -              | \$ -        |
| Administrative Assisstant III    |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
| <b>Labor Total</b>               |             | 35.00          | \$ -        |
| <b>EXPENSES</b>                  | <b>Rate</b> | <b># Units</b> | <b>Cost</b> |
| Car Rental                       |             | -              | \$ -        |
| Car Rental (4 x 4)               |             | -              | \$ -        |
| Air Travel                       |             | 1.00           | \$ -        |
| Lodging                          |             | 3.00           | \$ -        |
| Communication (of Labor Total)   |             | -              | \$ -        |
| Copies (B&W)                     |             | -              | \$ -        |
| Copies (Color)                   |             | -              | \$ -        |
| Graphic Plots                    |             | -              | \$ -        |
| Mileage                          |             | -              | \$ -        |
| Per Diem/Lodging                 |             | 4.00           | \$ -        |
| Permits                          |             | -              | \$ -        |
| Binding                          |             | -              | \$ -        |
| Postage/Fedex                    |             | -              | \$ -        |
| Supplies                         |             | -              | \$ -        |
| Misc.                            |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
|                                  |             | -              | \$ -        |
| <b>Expenses Subtotal</b>         |             |                | \$ -        |
| <i>Administrative Fee</i>        |             |                | \$ -        |
| <b>Expenses Total</b>            |             |                | \$ -        |

**Task 3 Total Cost** \$

*Note, all totals are rounded to the nearest whole dollar.*



Melinda D Roth/R3/USDAFS  
05/27/2010 02:00 PM

To karnold@rosemontcopper.com, mreichard@swca.com  
cc Beverley A Everson/R3/USDAFS@FSNOTES, Debby  
Kriegel/R3/USDAFS@FSNOTES, Melinda D  
Roth/R3/USDAFS@FSNOTES  
bcc

Subject Re: Rosemont - Tree/Shrub Research Needed 

Kathy: SOW for reveg research  
Melissa: for the record

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701  
(520) 388-8319  
(520) 396-0715 (cell)  
(520) 388-8305 (FAX)

Debby Kriegel/R3/USDAFS

Debby Kriegel/R3/USDAFS  
05/27/2010 12:47 PM

To Beverley A Everson/R3/USDAFS@FSNOTES, Melinda D  
Roth/R3/USDAFS@FSNOTES  
cc Debby Kriegel/R3/USDAFS@FSNOTES  
Subject Rosemont - Tree/Shrub Research Needed

Bev and Mindee,

Last week, I agreed to draft a scope of work for research needed for establishing trees and shrubs on reclaimed lands on the proposed Rosemont Mine. Per a discussion with Kathy Arnold, I agreed to provide the scope of work by Friday, May 28. Kathy stated that she could then determine how to proceed.

I incorporated input from Larry Jones, Craig Wilcox, and Dr. John Harrington (a professor at New Mexico State University, who's research is focused on forest biology, reforestation, native plant propagation, and disturbed land restoration).

The 2-page scope of work is attached below. Please forward to Rosemont.

Thank you.



Rosemont\_Research\_Trees\_and\_Shrubs\_Scope\_of\_Work.docx

~~~~~  
Debby Kriegel, RLA
Landscape Architect
Coronado National Forest
300 W. Congress
Tucson, AZ 85701
(520) 388-8427

Fax (520) 388-8305
www.fs.fed.us/r3/coronado/
dkriegel@fs.fed.us

Scope of Work - Research on establishing trees and shrubs on the Rosemont Mine site

May 27, 2010

The purpose of this research is to develop a strategy for the success of trees and shrubs on reclaimed lands in the proposed Rosemont Mine area (primarily the waste rock and tailings piles). The current research on seeding is an excellent start, but reclamation also needs to include trees and shrubs (including cacti) in order to more quickly stabilize the slopes and meet visual quality and other resource goals.

Recommended Tasks

- Review previous revegetation research for establishing trees and shrubs on similar projects (i.e., mines or other large projects, similar vegetation types, similar elevation and climate, etc.). One contact should be Dr. John Harrington (joharrin@nmsu.edu).
- Review the research paper "Flora and Vegetation of the Rosemont Area", McLaughlin and Asdall, 1977 (Debby Kriegel or Larry Jones can provide this document) and contact Brian Lindenlaub (WestLand). Consider both pre-settlement densities (e.g., using old photo points as references) as well as the desire to make mine blend in with vegetation surrounding the site. Patterns of plants on the reclaimed slopes should generally mimic those in the surrounding landscape, but fewer trees may be appropriate.
- Determine how re-establishment of some Madrean Encinal habitat would benefit N-S and E-W wildlife corridors and gene flow for wildlife species. Coordinate this work with Larry Jones.
- Identify and locate (with maps, GPS, stakes, or a combination) control plots of nearby vegetation that will not be disturbed by mining activities (this is typically referred to as a comparison approach to developing a reclamation standard). Control plots should be selected to identify sites that represent early disturbance through late seral plant community stages, the various aspects and slopes that would be typical of the mine site to be reclaimed, and a reasonable set of trajectories. In most cases, prior to mining a late seral vegetation community exists. Provide evaluations for both short-term and long-term reclamation/revegetation expectations.
- Develop evaluation criteria for success of trees and shrubs, including species diversity, plant density, and canopy cover. Review studies on developing these criteria and a range of case studies. Care needs to be taken when looking at canopy cover, as comparison sites are typically older and more mature. Consider what is achievable during bond release periods.
- Determine which species and sizes of trees and shrubs would be successful on the outermost materials (rock and growth medium) planned for the mine site. Plants could include salvaging/transplanting, seedlings, and/or container plants. Review studies of stock size and transplant success. Determine the best planting methods (season, site prep, supplemental moisture, etc.). Consider salvaging mature shrubs to develop off-site seed production blocks.
- Determine whether any of the tree or shrub species have genetics so unique to the Santa Rita Mountains that the only approved source would be stock grown from seeds collected locally or transplants. The use of local stock (seeds from the Santa Ritas and transplants from operations or surrounding area) is recommended, unless it can be documented that genetics are not significantly divergent between source and destination. For species that are not unique to the Santa Ritas, determine the appropriate range of seed sources to protect genetics (for example, plants from other SE Arizona sky islands might be acceptable for some species). Coordinate this work with Debbie Sebesta (CNF) and Charlie McDonald (USFS Regional Office).
- Determine whether the success or failure of the seed mix plants would have influence on any of the tree and shrub species. For example, if the seed mix plant growth is very robust, would

clearing be required prior to planting trees/shrubs? Set standards for invasives or other seed contaminants. Determine whether the direct seeding (hydro or drilling) be done simultaneously with the transplanting.

- Determine whether there are specific species or groups of trees and shrubs best adapted to the different "growth mediums" planned for reclaimed areas. An example if the growth medium best for Agave survival is placed on slopes which are not conducive to Agave survival, an opportunity would be lost. At a later date, this information would be used to resolve what "growth medium" goes where -- for both visual and plant growth needs.
- Evaluate proposed treatment of topsoil. Provide recommendations for handling, stockpiling, and placing topsoil that will protect the microflora population and other qualities.
- Provide recommendations for backfill mix, fertilizer, mulch, irrigation, and weeding necessary for the successful growth of trees and shrubs. The use of fertilizer should be minimized to reduce impacts to the environment (including water quality).
- Provide typical planting plan layouts for various reclamation areas, and planting details.
- Estimate the approximate growth rates of plants on various slopes (this is needed for simulations and effects analysis, and can also be used to develop a performance based reclamation standard). Consider the difference of transplant growth rate vs. naturally-occurring growth rate
- Evaluate whether native transplant plugs and topsoil islands would be beneficial to establishing revegetation (including trees and shrubs) on reclaimed areas. Debby Kriegel can provide research papers on this topic.
- Determine where the needed plants can be obtained in the species, sizes, quantities, and appropriate time frame that would be necessary for various phases of reclamation. Options could include salvaging from the site (or nearby), purchasing from local nurseries, contracting propagation, or some combination. Contract propagation would require working with nurseries early, especially be specific about seed sources and minimum stock parameters; determine propagation protocols necessary to generate the stock types necessary for the reclamation. Determine what is needed to collect, process, and storing native seed (for seeding and propagation) in order to provide plants needed for revegetation throughout mine reclamation.
- Provide draft and final written reports that address all of the above.
- Coordinate all work with the Coronado National Forest (Debby Kriegel, Craig Wilcox, and Larry Jones).



"Marcie Bidwell"
<mbidwell@swca.com>
04/20/2009 04:20 PM

To "Tom Furgason" <tfurgason@swca.com>
cc "Debby Kriegel" <dkriegel@fs.fed.us>
bcc
Subject RE: Tailings Siting Study

History:  This message has been replied to.

Tom,

In checking this email again, I noticed that the Tetra tech person mentioned that there were figures in the email to you~ did you add them into the doc, or should we get them via email?
Also, Debby and I were curious if you were available May 7-8 for a site tour?

Thanks!
Marcie

From: Tom Furgason
Sent: Friday, April 17, 2009 3:36 PM
To: 'dkriegel@fs.fed.us'; Marcie Bidwell
Cc: Charles Coyle; Melissa Reichard; Beverley A Everson
Subject: FW: Tailings Siting Study

Debbie,

Per my message, attached is the tailings study that I mentioned. This may provide some useful information for brainstorming alternatives. The appendix has the digital terrain models that may be useful to consider when determining the KOPs that you would like us to use in the analysis. Have a good weekend.

Tom

From: Joggerst, Jamie [mailto:Jamie.Joggerst@tetrattech.com]
Sent: Thursday, April 09, 2009 10:58 AM
To: Tom Furgason
Cc: Kathy Arnold
Subject: Tailings Siting Study

Tom,

Kathy asked me to provided you with the Tailings Siting Study completed in 2006. The document can be found on Rosemont's website (see below). However, we just realized that Tables 3-3 and 3-4 were accidentally left out from the document on the website. So the tables are attached.

<http://www.rosemontcopper.com/MPO/4RosemontTailingsSitingStudy.pdf>

Kathy also mentioned that you were looking for a DTM of Sycamore and Schofield Canyon. Does that mean you want topographic contours?

Thanks

Jamie Joggerst | Geotechnical Engineer
Phone: 520-297-7723 | Fax: 520-297-7724 | Cell: 520-820-7775

jamie.joggerst@tetrattech.com

Tetra Tech
3031 West Ina Road | Tucson, AZ 85741 | www.tetrattech.com

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"Marcie Bidwell"
<mbidwell@swca.com>
03/17/2010 09:47 AM

To "Krizek, David" <David.Krizek@tetrattech.com>, "Kathy Arnold" <karnold@rosemontcopper.com>, "Debby Kriegel" <dkriegel@fs.fed.us>
cc "Keepers, Ashley" <Ashley.Keepers@tetrattech.com>, "Trent Reeder" <treeder@swca.com>
bcc
Subject RE: Stormwater controls and reclamation sequencing summaries - preliminary

Hello David,

Thanks for the stormwater narrative for each alternative. This is very helpful as a narrative and will be useful to understanding the important differences in facilities, intervals, and phasing and as a document in the project record.

In addition to this narrative, Trent and I were expecting that the Stormwater document would be accompanied by "typical details" or at a minimum typical dimensions of the stormwater elements, such as rock courses, drop structures, and containment areas. We realize that the complete design is dependent upon sizing to anticipated stormwater events (e.g. 100 year storm events for specific drainages off of the piles), however, some measurements of what the range might be is a minimum for our simulation needs, preferably the same range of measurements would be applicable for all alternatives.

In the following questions, we are focusing on the MPO Stormwater Control and Reclamation Sequencing from p. 5 of Transmittal Letter March 9, 2010- Document # 070/10-320871-3.1.

QUESTIONS/REQUESTS: the following information would be extremely useful and necessary for the correct interpretation of the stormwater information that you provided:

1.0 Basic conceptual drawing on each of the alternatives maps, even using simple line/pen "redline" hand drawn notes at a minimum, that shows general conceptual locations of the stormwater elements.

2.0 Typical details of the following elements described in the stormwater notes: (1) stormwater control basins, (2) drainage swales, (3) perimeter containment areas, (4) infiltration drain outlet on east side, and (5) drop structures.

3.0 At our meeting in January, Tetra Tech had indicated that the Dry Stack and Waste Rock stormwater plans would differ due to the specific management needs of each material. For MPO, stormwater drainage channels are called out for every 100-ft vertical rise on benches on the Dry Stack Tailings Facility (p. 5 Stormwater control, first bullet).

3.1 May we assume that the other contours in Tetra Tech alternative drawings between each of the other contours (e.g. 125, 150, 175) would then be graded smooth, as shown in Reclamation and Closure Plan *Figure 18- Drystack Tailings Buttress Lift Construction and Reclamation Sections* ?

3.2 May we assume that stormwater controls (e.g. drainage channels on benches, drop structures, etc) will remain in place during concurrent reclamation (YR 10) and through the Ultimate Year (YR 20+)?

3.3. If this is the case, then would Figure 18 be revised to show stormwater controls remaining at 100 ft. intervals along the run of the slope. Please confirm if this is a correct interpretation. (See *attached scan with revised surface*).

3.4. Page 5, Bullet #1 calls out that Dry Stack Facilities would receive the 100 ft vertical rise, 50-ft wide drainage benches. Under Bullet #5, "stormwater control basins would be constructed on wide benches in the Waste Rock Storage Area". Please indicate *where those benches are located* , *how frequent these benches would be vertically (i.e. 100ft spacing)* and *how wide the benches would be* . These benches will be visible from the Arizona Trail KOP (KOP #3) and SR 83 KOPs (KOP # 1 & 2).

A simple diagram annotating the alternative maps or hand-drawn line drawing would be enough (with drainage arrows, etc), just so that we have something to go by. And, we are **specifically** concerned with stormwater controls that are on aspects where the KOPs might have a view of them. Elements on the west side of the pile, for instance, are out of view of most KOPs and are of lesser concern for visualizations.

Thanks~ I will call to discuss these questions with you, David.
Marcie

From: Krizek, David [mailto:David.Krizek@tetrattech.com]
Sent: Tuesday, March 09, 2010 3:59 PM
To: Marcie Bidwell
Cc: Keepers, Ashley; Kathy Arnold
Subject: Stormwater controls and reclamation sequencing summaries - preliminary

Marcie,

Please find attached the assumed general stormwater controls and reclamation sequencing summaries for each of the alternatives and for the MPO.

We have also posted the GIS files for the viewshed analysis on the Tetra Tech ftp site.

Sincerely,

David Krizek | Principal
Main: 520-297-7723 | Mobile: 520-260-3490 | Fax: 520-297-7724

Tetra Tech
3031 West Ina Road | Tucson, AZ 85741 | www.tetrattech.com

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[attachment "Tt Figure 18- SW Drawing.jpg" deleted by Debby Kriegel/R3/USDAFS]



"Marcie Bidwell"
<mbidwell@swca.com>
05/11/2009 09:29 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Stephen Leslie"
<sleslie@swca.com>
cc
bcc
Subject FW: Rosemont - Desired Condition for Recreation & Visual
Quality

Steve,

I asked Debby to write a desired condition statement for visuals and recreation. I thought you might want to help with the discussion as well.

The reason is that RCC has hired a landscape architect to help with the "modified proposed action" and wanted to know what she should be designing it for (or what the goals are).

Additionally, they were hoping that we (visual and rec) could supply them with our current thoughts on "evaluation criteria" so that again they can know what the standards are that they are designing to.

Let me know if you think this is useful and if you have anything to add.

Thanks
Marcie

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Friday, May 08, 2009 2:28 PM
To: jlyndes@sagelandscape.com; david.krizek@tetrattech.com; Beverley A Everson; Tom Furgason; Marcie Bidwell; Salek Shafiqullah
Subject: Rosemont - Desired Condition for Recreation & Visual Quality

Here's my attempt at a desired condition for recreation and visual quality. Much of the language here was pulled from desired conditions for our Forest Plan revision, tweaked for the Rosemont area. It would be great to have desired condition statements for other resources too.

Debby Kriegel, RLA
Landscape Architect
Coronado National Forest
300 W. Congress
Tucson, AZ 85701
(520) 388-8427
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DesiredCondition.doc

Desired Condition – Northern Santa Rita Mountains – Scenic Quality and Recreation
Debby Kriegel, May 8, 2009

The diverse landscapes of the northern Santa Rita Mountains offer a variety of settings for a broad range of recreational opportunities and a place for visitors to escape from busy urban life into quiet, natural, wild places. Visitors enjoy vast open space, canyon bottoms with mature trees, golden rolling grasslands dotted with oak and juniper, and rugged, rocky mountain ridgetops. Visitors rarely see utilitarian structures (such as power lines and buildings), and mines that are no longer operational have been completely naturalized by restoring topography and vegetation to blend with the surrounding landscape.

Lands along the Patagonia-Sonoita Scenic Road (AZ Hwy 83) and along Forest Service roads appear natural. Visitors find occasional developed recreation facilities (such as picnic tables, an OHV staging area, and trailhead signs), but these facilities are in character with the National Forest setting.

Dispersed recreation activities in the area include scenic driving, hiking, horseback riding, birdwatching, camping, hunting, and more. Visitors use off-highway vehicles responsibly and stay on designated roads. Dispersed campsites are small and clean, and resource damage is not a problem.

Landscapes away from roads, and lands along the Arizona Trail, provide opportunities for solitude and spending time in pristine wildlands with minimal evidence of human activity. The Arizona Trail is well-marked and well maintained. Access roads to trailheads are open and maintained, and trailheads provide adequate parking and turnaround space. Damage to resources at trailheads is minimal, and wildcat trails are rare.



"Marcie Bidwell"
<mbidwell@swca.com>
03/09/2010 04:01 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Trent Reeder"
<treeder@swca.com>

cc

bcc

Subject FW: Stormwater controls and reclamation sequencing
summaries - preliminary

Just in from Tetra Tech~

From: Krizek, David [mailto:David.Krizek@tetrattech.com]
Sent: Tuesday, March 09, 2010 3:59 PM
To: Marcie Bidwell
Cc: Keepers, Ashley; Kathy Arnold
Subject: Stormwater controls and reclamation sequencing summaries - preliminary

Marcie,

Please find attached the assumed general stormwater controls and reclamation sequencing summaries for each of the alternatives and for the MPO.

We have also posted the GIS files for the viewshed analysis on the Tetra Tech ftp site.

Sincerely,

David Krizek | Principal
Main: 520-297-7723 | Mobile: 520-260-3490 | Fax: 520-297-7724

Tetra Tech
3031 West Ina Road | Tucson, AZ 85741 | www.tetrattech.com

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RCC_Alts - Prelim SW Control and Rec Summary.pdf RCC_Alts - Prelim SW Control and Rec Summary.doc



TETRA TECH

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Transmittal Letter

To: Kathy Arnold	From: David Krizek
Company: Rosemont Copper Company	Date: March 9, 2010
Re: Alternatives Analysis – Preliminary Stormwater Control and Reclamation Sequencing Summary	Project #: 114-320871-3.1
CC: Marcie Bidwell (SWCA)	Doc. #: 070/10-320871-3.1

Please Find Enclosed:

- 1 copy of Alternatives Analysis – Preliminary Stormwater Control and Reclamation Sequencing Summary in Microsoft Word Format
- 1 copy of Alternatives Analysis – Preliminary Stormwater Control and Reclamation Sequencing Summary in Adobe Acrobat Format

Comments:

This information is preliminary and provided for use in alternative visual analysis associated with the Rosemont Copper Project.

Ship Via:

- FedEx: Priority Standard 2-day Economy Ground
- UPS: Standard 2nd Day Overnight
- USPS Mail: Regular Priority Certified
- Other: Email Delivery by Tetra Tech

Barrel and McCleary Alternative Stormwater Control and Reclamation Sequencing

Stormwater Control

For the Barrel and McCleary Alternative, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage channels would be placed at every 100 feet of vertical rise (on approximate 50 foot wide drainage benches) on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to stilling pools/drop-structures, located on the outer slopes of the tailings area, to natural ground, or to stormwater control basins located on wide benches in the Waste Rock Storage Area. Drop-structures located on the west side of the Dry Stack Tailings Facility would drain to the USGS Gauging Station located near SR 83.
- Drop-structures would be located on the north and west sides of the landform that comprises the Barrel and McCleary Alternative. These drop-structures would convey runoff to flow-through drains. The flow-through drains are large rock drains intended to provide a hydraulic connection between the up-gradient side of the landform and the down-gradient side.
- Stormwater control basins would be constructed on wide benches in the Waste Rock Storage Area to contain up to the 500-year, 24-hour storm event. Stormwater generated from flows in excess of the 500-year, 24-hour storm event would be routed to containment areas located between the toe of the Waste Rock Storage Area and adjacent natural ridge areas. These areas would generally be sized to contain the Probable Maximum Precipitation (PMP) event. Stormwater routing to these perimeter containment areas would be via rocked slopes connecting the benches to the perimeter areas.
- Decant structures would be installed on top of the North Dry Stack Tailings Facility to pass stormwater to stilling pools/drop-structures for flows in excess of the 500-year, 24-hour storm event. Storm flows less than this event would be retained on top of the facility in large, depressed areas.
- Storm flows in excess of the 500-year, 24-hour storm event generated on top of the South Dry Stack Tailings would be routed to a flow-through drain located on the west side of the landform comprising the Barrel and McCleary Alternative.
- The majority of the AMEC Earth & Environmental, Inc. (AMEC) Diversion Channel, located to the north and west of the Open Pit, discharges stormwater to flow-through drains located on the west and north sides of the landform.
- The Pit Diversion, located to the south of the Open Pit, is expected to discharge to an area located between the toe of the Waste Rock Storage Area and an adjacent natural ridge and will not drain to the USGS Gauging Station.

Drainage benches (about 50 feet wide) would also be placed on a small portion of the Waste Rock Storage Area adjacent to the closed and encapsulated Heap Leach Facility. These drainage benches would be similar to those planned for the outer surface of the Dry Stack Tailings Facility. Runoff from these benches would be to the up-gradient side (west side) of the landform.

Stormwater control basins located in the Waste Rock Storage Area would not be located above the closed and encapsulated Heap Leach Facility.

Reclamation Sequencing – Year 10

Concurrent reclamation of the east slope of the South Dry Stack Tailings Facility is anticipated to occur. Reclamation of the north face of the South Dry Stack Tailing Facility is not anticipated to occur since this is an interim face and will eventually be covered by the North Dry Stack Tailings Facility. Haul road(s) will likely be on this face until covered by the north dry stack. A haul road will also be located on the west side of the South Dry Stack Tailings Facility, allowing for only partial concurrent reclamation of this side, as practical.

Concurrent reclamation of the eastern most face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the east slope of the South Dry Stack Tailings Facility slope along with the east slope of the North Dry Stack Tailings Facility is anticipated to occur. A haul road is anticipated on the north face of the North Dry Stack Tailings Facility, allowing for only partial concurrent reclamation to occur, as practical. This haul road will also be on the east side of the South and North Dry Stack Tailings Facilities, again allowing for only partial concurrent reclamation to occur, as practical.

Concurrent reclamation of the eastern most face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Areas not reclaimed during operations will be reclaimed at closure. A haul road(s) will likely be left on the west face of the North and South Dry Stack Tailings Facilities and on the north face of the North Dry Stack Tailings Facility.

Barrel Only Alternative Stormwater Control and Reclamation Sequencing

Stormwater Control

For the Barrel Only Alternative, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage channels would be placed at every 100 feet of vertical rise (on approximate 50 foot wide drainage benches) on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to stilling pools/drop-structures, located on the outer slopes of the tailings area, to natural ground, or to rock slopes adjacent to the Waste Rock Storage Area. Drop-structures located on the west side of the Dry Stack Tailings Facility would drain to the USGS Gauging Station near SR 83. Drop-structures would also be located on the west side of the landform that comprises the Barrel Only Alternative. These drop-structures would convey flows to flow-through drains. The flow-through drains are large rock drains intended to provide a hydraulic connection between the up-gradient side of the landform and the down-gradient side.
- Stormwater control basins would be constructed on wide benches in the Waste Rock Storage Area to contain up to the 500-year, 24-hour storm event. Stormwater generated from flows in excess of the 500-year, 24-hour storm event would generally be routed to containment areas located between the toe of the Waste Rock Storage Area and adjacent natural ridge areas. These areas would generally be sized to contain the Probable Maximum Precipitation (PMP) event. Stormwater routing to these perimeter containment areas would be via rocked slopes connecting the benches to the perimeter areas.
- Decant structures would be installed on top of the Dry Stack Tailings Facility to pass stormwater to stilling pools/drop-structures for flows in excess of the 500-year, 24-hour storm event. Storm flows less than this event would be retained on top of the facility in large, depressed areas.
- Construction of a portion of the AMEC Earth & Environment, Inc. (AMEC) diversion channel is assumed. This diversion channel routes stormwater runoff around the Plant Site area to McCleary Canyon Wash drainage, which eventually drains to the USGS Gauging Station location.
- The Pit Diversion, located to the south of the Open Pit, is expected to discharge to an area located between the toe of the Waste Rock Storage Area and an adjacent natural ridge and will not drain to the USGS Gauging Station.

Drainage benches (about 50 feet wide) would also be required on a small portion of the Waste Rock Storage Area adjacent to the closed and encapsulated Heap Leach Facility. These drainage benches would be similar to those planned for the outer surface of the Dry Stack Tailings Facility. Runoff from these benches would be to the up-gradient side (west side) of the landform.

Stormwater control basins located in the Waste Rock Storage Area would not be located above the closed and encapsulated Heap Leach Facility.

Reclamation Sequencing – Year 10

Concurrent reclamation of the east slope of the Dry Stack Tailings Facility is anticipated to occur. A haul road is anticipated on the north face of the Dry Stack Tailings facility, allowing for only partial concurrent reclamation to occur, as practical. This haul road will also be on the east side of the Dry Stack Tailings Facility, again allowing for only partial concurrent reclamation to occur, as practical.

Concurrent reclamation of the eastern most face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the east slope of the Dry Stack Tailings Facility is anticipated to occur. A haul road is anticipated on the north face of the Dry Stack Tailings facility, allowing for only partial concurrent reclamation to occur, as practical. This haul road will also be on the east side of the Dry Stack Tailings Facility, again allowing for only partial concurrent reclamation to occur, as practical.

Concurrent reclamation of the eastern most face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Areas not reclaimed during operations will be reclaimed at closure. A haul road will likely be left on the west and north faces of the Dry Stack Tailings Facility.

Mine Plan of Operations (MPO) Stormwater Control and Reclamation Sequencing

Stormwater Control

Design work associated with the Rosemont Project has been ongoing since submittal of the Reclamation and Closure Plan (Tetra Tech, 2007). Based this updated design work, the stormwater controls described below were applied to the 2007 MPO Landform for this alternatives assessment:

- Stormwater drainage channels (on approximate 50 foot wide drainage benches) would be placed at every 100-foot vertical rise on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to stilling pools/drop-structures located on the outer slopes of the tailings area, to natural ground, or to stormwater-control basins located on wide benches in the Waste Rock Storage Area;
- Drop-structures located on the west side of the Dry Stack Tailings Facility would drain to the USGS Gauging Station location located near SR 83. Drop-structures would also be located on the north and west sides of the 2007 MPO Landform. Flows emanating from these drop-structures would drain to a Central Drain or to stormwater ponding areas located between the toe of the North Dry Stack Tailings Facility and adjacent, natural ridge areas;
- The Central Drain, or flow-through drain, is a large rock drain intended to provide a hydraulic connection between the up-gradient side of the 2007 MPO Landform and the down-gradient side;
- An Infiltration Drain was incorporated into the 2007 MPO Landform that is hydraulically connected to the Central Drain. For the purposes of this stormwater alternatives assessment, the Infiltration Drain is assumed to pass storm events larger than the 500-year, 24-hour storm event off the top surface while smaller events are retained on the top surface in large, depressed areas;
- Stormwater control basins would be constructed on wide benches in the Waste Rock Storage Area to contain up to the 500-year, 24-hour storm event. Stormwater generated from flows in excess of the 500-year, 24-hour storm event would be routed to containment areas located between the toe of the Waste Rock Storage Area and adjacent, natural ridge areas. These areas would generally be sized to contain the Probable Maximum Precipitation (PMP) event. Stormwater routing to these perimeter containment areas would be via rocked slopes connecting the benches to the perimeter areas.

Reclamation Sequencing – Year 10

Concurrent reclamation of the east and north slopes of the North Dry Stack Tailings Facility is anticipated to occur along with the east buttress associated with the South Dry Stack Tailings Facility. A haul road is anticipated on the west side of the North Dry Stack Tailings, allowing for only partial concurrent reclamation, as practical.

Concurrent reclamation of the east face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the east, north, and west slopes of the North Dry Stack Tailings Facility is assumed completed by the end of Year 10.

Concurrent reclamation of the east face of the South Dry Stack Tailings Facility is anticipated between Year 10 and the Ultimate Year. A haul road is anticipated on the west side of the South Dry Stack Tailings, allowing for only partial concurrent reclamation, as practical.

Concurrent reclamation of the east face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Areas not reclaimed during operations will be reclaimed at closure. A haul road(s) will likely be left on the west face of the North and South Dry Stack Tailings Facilities.

Scholefield Tailings and McCleary Waste Alternative Stormwater Control and Reclamation Sequencing

Stormwater Control

For the Scholefield Tailings and McCleary Waste Alternative, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage benches (on approximate 50 foot wide drainage benches) would be placed at every 100 feet of vertical rise on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to stilling pools/drop-structures, located on the outer slopes of the tailings area, to natural ground, or to drainage benches located on the face of the Waste Rock Storage Area. Stormwater flow from these drainage benches would drain to the USGS Gauging Station located near SR 83.
- Stormwater drainage benches would be placed at every 100 feet of vertical rise on the outer slopes of the Waste Rock Storage Area, also on 50 foot wide benches. Stormwater would flow off these benches to stilling pools/drop-structures on the outer slopes of the Waste Rock Storage Area, or to natural ground. Stormwater flow from these drainage benches would drain to the USGS Gauging Station. Due to the configuration of the Waste Rock Storage Area, contouring and the creation of wide benches to pond stormwater runoff may not be achievable under this alternative
- Decant structures would be installed on top of the Dry Stack Tailings Facility to pass stormwater to stilling pools/drop-structures, or to natural ground, for flows in excess of the 500-year, 24-hour storm event. Storm flows less than this event would be retained on top of the Dry Stack Tailings Facility in large, depressed areas.
- Decant structures would be installed on top of the Waste Rock Storage Area to pass stormwater to stilling pools/drop-structures, or to natural ground, for flows in excess of the 500-year, 24-hour storm event. Storm flows less than this event would be retained on top of the Waste Rock Storage Area in large, depressed areas.
- Stormwater flows off the west face of the Waste Rock Storage Area would likely be conveyed to a flow-through drain. The flow-through drain is a large rock drain intended to provide a hydraulic connection between the up-gradient side of the Waste Rock Storage Area and the down-gradient side.
- Construction of a portion of the AMEC Earth & Environment, Inc. (AMEC) diversion channel is assumed. This diversion channel would be revised to route stormwater runoff around the Plant Site and draining into Barrel Canyon and to the USGS Gauging Station.
- The Pit Diversion, located to the south of the Open Pit, is expected to discharge to the upper reach of the Barrel Canyon Basin, eventually draining to the USGS Gauging Station.

Additional waste rock will likely be placed over the Heap Leach Facility to achieve closure. The Scholefield Tailings and McCleary Waste Alternative currently does not show a waste rock cap over the heap. Waste rock would be placed to achieve a minimum cover thickness over the heap surface and to achieve 3H:1V reclamation side slopes. Capping the heap with waste rock is not expected to reduce storm flows to the USGS Gauging Station.

As indicated above, creating wide areas and contouring of the benches of the Waste Rock Storage Area is likely not possible. Additionally, haul road access to the Dry Stack Tailings Facility, and to the Waste Rock Storage Facility, would likely be on the south face of the Waste Rock Storage Area. Concurrent reclamation of these access road areas may not be achievable until area-wide closure and reclamation.

Reclamation Sequencing – Year 10

Concurrent reclamation of the east slope of the Dry Stack Tailings is anticipated to occur. Access to the tailings face will come from the south (from the Waste Rock Storage Area) and will move up the face as buttress construction advances.

Haul road access may be required on a portion of the south face of the Waste Rock Storage Facility, allowing for only partial concurrent reclamation, as practical. Concurrent reclamation of the west face of the Waste Rock Storage Area is anticipated.

The Heap Leach Pad is free standing and is expected to be closed after Y10.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the east slope of the Dry Stack Tailings is anticipated to occur. Access to the tailings face will come from the south (from the Waste Rock Storage Area) and will move up the face as buttress construction advances. Concurrent reclamation of the northwest face of the Dry Stack Tailings Facility is also anticipated to occur as the buttress advances upward.

Haul road access may be required on a portion of the south face of the Waste Rock Storage Facility, allowing for only partial concurrent reclamation, as practical. Concurrent reclamation of the west face of the Waste Rock Storage Area is anticipated.

Areas not reclaimed during operations will be reclaimed at closure. A haul road will likely be left on the south face of the Waste Rock Storage Area.

Capping of the closed heap is not shown but is likely to occur.

Sycamore Tailings and Barrel Waste Alternative - East Side – Waste Rock Storage Area – Stormwater Control and Reclamation Sequencing

Stormwater Control

Figure 2 shows the estimated eastern boundary of the post-mining contributing watershed area associated with the Sycamore Tailings and Barrel Waste Alternative. For this alternative, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage channels would be placed at every 100 feet of vertical rise on the outer slopes of the Waste Rock Storage Area. Stormwater would flow off these benches to stilling pools/drop-structures located on the outer slopes. Drop-structures located on the northern half and a portion of the western half of the Waste Rock Storage Area would convey flows to the USGS Gauging Station location. Drop-structures would also be placed on the southern half of the Waste Rock Storage Area.
- Stormwater runoff generated from the southern face would be routed to containment areas located between the toe of the Waste Rock Storage Area and adjacent natural ridge areas. These areas would generally be sized to contain the Probable Maximum Flood (PMF) event. Due to the configuration of the Waste Rock Storage Area, contouring and the creation of wide benches to pond stormwater runoff may not be achievable under this alternative.
- Stormwater runoff generated from the top surface of the Waste Rock Storage Area would be routed to stormwater control basins located on the southern edge of the facility. Decant structures would then pass overflow to stilling pools/drop-structures located on the south face. Stormwater control basins would not be located above the closed and encapsulated Heap Leach Facility.
- Construction of a portion of the AMEC Earth & Environment, Inc. (AMEC) diversion channel is assumed. This diversion routes stormwater runoff around the Plant Site area to McCleary Canyon Wash drainage, which eventually drains to the USGS Gauging Station.
- The Pit Diversion, located to the south of the Open Pit, is expected to discharge to an area located between the toe of the Waste Rock Storage Area and an adjacent natural ridge and will not drain to the USGS Gauging Station.

There are no flow-through drains associated with the Waste Rock Storage Area under the final closure configuration.

Reclamation Sequencing – Year 10

Concurrent reclamation of the south and southeast faces of the Waste Rock Storage Area is anticipated. Concurrent reclamation of the north side of the Waste Rock Storage Area is not anticipated due to operation of the Heap Leach Facility. A haul road may be required on the southwest face of the Waste rock Storage Area, allowing for only partial concurrent reclamation, as practical.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the south and southeast faces of the Waste Rock Storage Area is anticipated. Concurrent reclamation of the north side of the Waste Rock Storage Area will begin once the Heap Leach Facility is closed in Year 10. A haul road may be required on the southwest face of the Waste Rock Storage Area, allowing for only partial concurrent reclamation, as practical.

Sycamore Tailings and Barrel Waste Alternative – West Side – Sycamore Tailings – Stormwater Control and Reclamation Sequencing

Stormwater Control

For Sycamore Tailings, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage channels would be placed at every 100 feet of vertical rise on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to natural ground and drain to the Stormwater Convergence Point.
- Storms up the 500 year, 24-hour storm event would be retained on top of the Dry Stack Tailings Facility in large, depressed areas. Storm runoff in excess of this event would be routed to side channels cut into natural ground.

There are no flow-through drains associated with Sycamore Tailings under the final closure configuration.

Reclamation Sequencing – Year 10

Concurrent reclamation of the west slope of the Dry Stack Tailings is anticipated to occur since access to the face will move up the face as buttress construction advances.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the west slope of the Dry Stack Tailings is anticipated to occur since access to the face will move up the face as buttress construction advances.

Areas not reclaimed during operations will be reclaimed at closure.

Barrel and McCleary Alternative Stormwater Control and Reclamation Sequencing

Stormwater Control

For the Barrel and McCleary Alternative, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage channels would be placed at every 100 feet of vertical rise (on approximate 50 foot wide drainage benches) on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to stilling pools/drop-structures, located on the outer slopes of the tailings area, to natural ground, or to stormwater control basins located on wide benches in the Waste Rock Storage Area. Drop-structures located on the west side of the Dry Stack Tailings Facility would drain to the USGS Gauging Station located near SR 83.
- Drop-structures would be located on the north and west sides of the landform that comprises the Barrel and McCleary Alternative. These drop-structures would convey runoff to flow-through drains. The flow-through drains are large rock drains intended to provide a hydraulic connection between the up-gradient side of the landform and the down-gradient side.
- Stormwater control basins would be constructed on wide benches in the Waste Rock Storage Area to contain up to the 500-year, 24-hour storm event. Stormwater generated from flows in excess of the 500-year, 24-hour storm event would be routed to containment areas located between the toe of the Waste Rock Storage Area and adjacent natural ridge areas. These areas would generally be sized to contain the Probable Maximum Precipitation (PMP) event. Stormwater routing to these perimeter containment areas would be via rocked slopes connecting the benches to the perimeter areas.
- Decant structures would be installed on top of the North Dry Stack Tailings Facility to pass stormwater to stilling pools/drop-structures for flows in excess of the 500-year, 24-hour storm event. Storm flows less than this event would be retained on top of the facility in large, depressed areas.
- Storm flows in excess of the 500-year, 24-hour storm event generated on top of the South Dry Stack Tailings would be routed to a flow-through drain located on the west side of the landform comprising the Barrel and McCleary Alternative.
- The majority of the AMEC Earth & Environmental, Inc. (AMEC) Diversion Channel, located to the north and west of the Open Pit, discharges stormwater to flow-through drains located on the west and north sides of the landform.
- The Pit Diversion, located to the south of the Open Pit, is expected to discharge to an area located between the toe of the Waste Rock Storage Area and an adjacent natural ridge and will not drain to the USGS Gauging Station.

Drainage benches (about 50 feet wide) would also be placed on a small portion of the Waste Rock Storage Area adjacent to the closed and encapsulated Heap Leach Facility. These drainage benches would be similar to those planned for the outer surface of the Dry Stack Tailings Facility. Runoff from these benches would be to the up-gradient side (west side) of the landform.

Stormwater control basins located in the Waste Rock Storage Area would not be located above the closed and encapsulated Heap Leach Facility.

Reclamation Sequencing – Year 10

Concurrent reclamation of the east slope of the South Dry Stack Tailings Facility is anticipated to occur. Reclamation of the north face of the South Dry Stack Tailing Facility is not anticipated to occur since this is an interim face and will eventually be covered by the North Dry Stack Tailings Facility. Haul road(s) will likely be on this face until covered by the north dry stack. A haul road will also be located on the west side of the South Dry Stack Tailings Facility, allowing for only partial concurrent reclamation of this side, as practical.

Concurrent reclamation of the eastern most face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the east slope of the South Dry Stack Tailings Facility slope along with the east slope of the North Dry Stack Tailings Facility is anticipated to occur. A haul road is anticipated on the north face of the North Dry Stack Tailings Facility, allowing for only partial concurrent reclamation to occur, as practical. This haul road will also be on the east side of the South and North Dry Stack Tailings Facilities, again allowing for only partial concurrent reclamation to occur, as practical.

Concurrent reclamation of the eastern most face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Areas not reclaimed during operations will be reclaimed at closure. A haul road(s) will likely be left on the west face of the North and South Dry Stack Tailings Facilities and on the north face of the North Dry Stack Tailings Facility.

Barrel Only Alternative Stormwater Control and Reclamation Sequencing

Stormwater Control

For the Barrel Only Alternative, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage channels would be placed at every 100 feet of vertical rise (on approximate 50 foot wide drainage benches) on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to stilling pools/drop-structures, located on the outer slopes of the tailings area, to natural ground, or to rock slopes adjacent to the Waste Rock Storage Area. Drop-structures located on the west side of the Dry Stack Tailings Facility would drain to the USGS Gauging Station near SR 83. Drop-structures would also be located on the west side of the landform that comprises the Barrel Only Alternative. These drop-structures would convey flows to flow-through drains. The flow-through drains are large rock drains intended to provide a hydraulic connection between the up-gradient side of the landform and the down-gradient side.
- Stormwater control basins would be constructed on wide benches in the Waste Rock Storage Area to contain up to the 500-year, 24-hour storm event. Stormwater generated from flows in excess of the 500-year, 24-hour storm event would generally be routed to containment areas located between the toe of the Waste Rock Storage Area and adjacent natural ridge areas. These areas would generally be sized to contain the Probable Maximum Precipitation (PMP) event. Stormwater routing to these perimeter containment areas would be via rocked slopes connecting the benches to the perimeter areas.
- Decant structures would be installed on top of the Dry Stack Tailings Facility to pass stormwater to stilling pools/drop-structures for flows in excess of the 500-year, 24-hour storm event. Storm flows less than this event would be retained on top of the facility in large, depressed areas.
- Construction of a portion of the AMEC Earth & Environment, Inc. (AMEC) diversion channel is assumed. This diversion channel routes stormwater runoff around the Plant Site area to McCleary Canyon Wash drainage, which eventually drains to the USGS Gauging Station location.
- The Pit Diversion, located to the south of the Open Pit, is expected to discharge to an area located between the toe of the Waste Rock Storage Area and an adjacent natural ridge and will not drain to the USGS Gauging Station.

Drainage benches (about 50 feet wide) would also be required on a small portion of the Waste Rock Storage Area adjacent to the closed and encapsulated Heap Leach Facility. These drainage benches would be similar to those planned for the outer surface of the Dry Stack Tailings Facility. Runoff from these benches would be to the up-gradient side (west side) of the landform.

Stormwater control basins located in the Waste Rock Storage Area would not be located above the closed and encapsulated Heap Leach Facility.

Reclamation Sequencing – Year 10

Concurrent reclamation of the east slope of the Dry Stack Tailings Facility is anticipated to occur. A haul road is anticipated on the north face of the Dry Stack Tailings facility, allowing for only partial concurrent reclamation to occur, as practical. This haul road will also be on the east side of the Dry Stack Tailings Facility, again allowing for only partial concurrent reclamation to occur, as practical.

Concurrent reclamation of the eastern most face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the east slope of the Dry Stack Tailings Facility is anticipated to occur. A haul road is anticipated on the north face of the Dry Stack Tailings facility, allowing for only partial concurrent reclamation to occur, as practical. This haul road will also be on the east side of the Dry Stack Tailings Facility, again allowing for only partial concurrent reclamation to occur, as practical.

Concurrent reclamation of the eastern most face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Areas not reclaimed during operations will be reclaimed at closure. A haul road will likely be left on the west and north faces of the Dry Stack Tailings Facility.

Mine Plan of Operations (MPO) Stormwater Control and Reclamation Sequencing

Stormwater Control

Design work associated with the Rosemont Project has been ongoing since submittal of the Reclamation and Closure Plan (Tetra Tech, 2007). Based on this updated design work, the stormwater controls described below were applied to the 2007 MPO Landform for this alternatives assessment:

- Stormwater drainage channels (on approximate 50 foot wide drainage benches) would be placed at every 100-foot vertical rise on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to stilling pools/drop-structures located on the outer slopes of the tailings area, to natural ground, or to stormwater-control basins located on wide benches in the Waste Rock Storage Area;
- Drop-structures located on the west side of the Dry Stack Tailings Facility would drain to the USGS Gauging Station location located near SR 83. Drop-structures would also be located on the north and west sides of the 2007 MPO Landform. Flows emanating from these drop-structures would drain to a Central Drain or to stormwater ponding areas located between the toe of the North Dry Stack Tailings Facility and adjacent, natural ridge areas;
- The Central Drain, or flow-through drain, is a large rock drain intended to provide a hydraulic connection between the up-gradient side of the 2007 MPO Landform and the down-gradient side;
- An Infiltration Drain was incorporated into the 2007 MPO Landform that is hydraulically connected to the Central Drain. For the purposes of this stormwater alternatives assessment, the Infiltration Drain is assumed to pass storm events larger than the 500-year, 24-hour storm event off the top surface while smaller events are retained on the top surface in large, depressed areas;
- Stormwater control basins would be constructed on wide benches in the Waste Rock Storage Area to contain up to the 500-year, 24-hour storm event. Stormwater generated from flows in excess of the 500-year, 24-hour storm event would be routed to containment areas located between the toe of the Waste Rock Storage Area and adjacent, natural ridge areas. These areas would generally be sized to contain the Probable Maximum Precipitation (PMP) event. Stormwater routing to these perimeter containment areas would be via rocked slopes connecting the benches to the perimeter areas.

Reclamation Sequencing – Year 10

Concurrent reclamation of the east and north slopes of the North Dry Stack Tailings Facility is anticipated to occur along with the east buttress associated with the South Dry Stack Tailings Facility. A haul road is anticipated on the west side of the North Dry Stack Tailings, allowing for only partial concurrent reclamation, as practical.

Concurrent reclamation of the east face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the east, north, and west slopes of the North Dry Stack Tailings Facility is assumed completed by the end of Year 10.

Concurrent reclamation of the east face of the South Dry Stack Tailings Facility is anticipated between Year 10 and the Ultimate Year. A haul road is anticipated on the west side of the South Dry Stack Tailings, allowing for only partial concurrent reclamation, as practical.

Concurrent reclamation of the east face of the Waste Rock Storage Area is anticipated along with south/southeast/southwest facing slopes.

Areas not reclaimed during operations will be reclaimed at closure. A haul road(s) will likely be left on the west face of the North and South Dry Stack Tailings Facilities.

Scholefield Tailings and McCleary Waste Alternative Stormwater Control and Reclamation Sequencing

Stormwater Control

For the Scholefield Tailings and McCleary Waste Alternative, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage benches (on approximate 50 foot wide drainage benches) would be placed at every 100 feet of vertical rise on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to stilling pools/drop-structures, located on the outer slopes of the tailings area, to natural ground, or to drainage benches located on the face of the Waste Rock Storage Area. Stormwater flow from these drainage benches would drain to the USGS Gauging Station located near SR 83.
- Stormwater drainage benches would be placed at every 100 feet of vertical rise on the outer slopes of the Waste Rock Storage Area, also on 50 foot wide benches. Stormwater would flow off these benches to stilling pools/drop-structures on the outer slopes of the Waste Rock Storage Area, or to natural ground. Stormwater flow from these drainage benches would drain to the USGS Gauging Station. Due to the configuration of the Waste Rock Storage Area, contouring and the creation of wide benches to pond stormwater runoff may not be achievable under this alternative
- Decant structures would be installed on top of the Dry Stack Tailings Facility to pass stormwater to stilling pools/drop-structures, or to natural ground, for flows in excess of the 500-year, 24-hour storm event. Storm flows less than this event would be retained on top of the Dry Stack Tailings Facility in large, depressed areas.
- Decant structures would be installed on top of the Waste Rock Storage Area to pass stormwater to stilling pools/drop-structures, or to natural ground, for flows in excess of the 500-year, 24-hour storm event. Storm flows less than this event would be retained on top of the Waste Rock Storage Area in large, depressed areas.
- Stormwater flows off the west face of the Waste Rock Storage Area would likely be conveyed to a flow-through drain. The flow-through drain is a large rock drain intended to provide a hydraulic connection between the up-gradient side of the Waste Rock Storage Area and the down-gradient side.
- Construction of a portion of the AMEC Earth & Environment, Inc. (AMEC) diversion channel is assumed. This diversion channel would be revised to route stormwater runoff around the Plant Site and draining into Barrel Canyon and to the USGS Gauging Station.
- The Pit Diversion, located to the south of the Open Pit, is expected to discharge to the upper reach of the Barrel Canyon Basin, eventually draining to the USGS Gauging Station.

Additional waste rock will likely be placed over the Heap Leach Facility to achieve closure. The Scholefield Tailings and McCleary Waste Alternative currently does not show a waste rock cap over the heap. Waste rock would be placed to achieve a minimum cover thickness over the heap surface and to achieve 3H:1V reclamation side slopes. Capping the heap with waste rock is not expected to reduce storm flows to the USGS Gauging Station.

As indicated above, creating wide areas and contouring of the benches of the Waste Rock Storage Area is likely not possible. Additionally, haul road access to the Dry Stack Tailings Facility, and to the Waste Rock Storage Facility, would likely be on the south face of the Waste Rock Storage Area. Concurrent reclamation of these access road areas may not be achievable until area-wide closure and reclamation.

Reclamation Sequencing – Year 10

Concurrent reclamation of the east slope of the Dry Stack Tailings is anticipated to occur. Access to the tailings face will come from the south (from the Waste Rock Storage Area) and will move up the face as buttress construction advances.

Haul road access may be required on a portion of the south face of the Waste Rock Storage Facility, allowing for only partial concurrent reclamation, as practical. Concurrent reclamation of the west face of the Waste Rock Storage Area is anticipated.

The Heap Leach Pad is free standing and is expected to be closed after Y10.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the east slope of the Dry Stack Tailings is anticipated to occur. Access to the tailings face will come from the south (from the Waste Rock Storage Area) and will move up the face as buttress construction advances. Concurrent reclamation of the northwest face of the Dry Stack Tailings Facility is also anticipated to occur as the buttress advances upward.

Haul road access may be required on a portion of the south face of the Waste Rock Storage Facility, allowing for only partial concurrent reclamation, as practical. Concurrent reclamation of the west face of the Waste Rock Storage Area is anticipated.

Areas not reclaimed during operations will be reclaimed at closure. A haul road will likely be left on the south face of the Waste Rock Storage Area.

Capping of the closed heap is not shown but is likely to occur.

Sycamore Tailings and Barrel Waste Alternative - East Side – Waste Rock Storage Area – Stormwater Control and Reclamation Sequencing

Stormwater Control

Figure 2 shows the estimated eastern boundary of the post-mining contributing watershed area associated with the Sycamore Tailings and Barrel Waste Alternative. For this alternative, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage channels would be placed at every 100 feet of vertical rise on the outer slopes of the Waste Rock Storage Area. Stormwater would flow off these benches to stilling pools/drop-structures located on the outer slopes. Drop-structures located on the northern half and a portion of the western half of the Waste Rock Storage Area would convey flows to the USGS Gauging Station location. Drop-structures would also be placed on the southern half of the Waste Rock Storage Area.
- Stormwater runoff generated from the southern face would be routed to containment areas located between the toe of the Waste Rock Storage Area and adjacent natural ridge areas. These areas would generally be sized to contain the Probable Maximum Flood (PMF) event. Due to the configuration of the Waste Rock Storage Area, contouring and the creation of wide benches to pond stormwater runoff may not be achievable under this alternative.
- Stormwater runoff generated from the top surface of the Waste Rock Storage Area would be routed to stormwater control basins located on the southern edge of the facility. Decant structures would then pass overflow to stilling pools/drop-structures located on the south face. Stormwater control basins would not be located above the closed and encapsulated Heap Leach Facility.
- Construction of a portion of the AMEC Earth & Environment, Inc. (AMEC) diversion channel is assumed. This diversion routes stormwater runoff around the Plant Site area to McCleary Canyon Wash drainage, which eventually drains to the USGS Gauging Station.
- The Pit Diversion, located to the south of the Open Pit, is expected to discharge to an area located between the toe of the Waste Rock Storage Area and an adjacent natural ridge and will not drain to the USGS Gauging Station.

There are no flow-through drains associated with the Waste Rock Storage Area under the final closure configuration.

Reclamation Sequencing – Year 10

Concurrent reclamation of the south and southeast faces of the Waste Rock Storage Area is anticipated. Concurrent reclamation of the north side of the Waste Rock Storage Area is not anticipated due to operation of the Heap Leach Facility. A haul road may be required on the southwest face of the Waste rock Storage Area, allowing for only partial concurrent reclamation, as practical.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the south and southeast faces of the Waste Rock Storage Area is anticipated. Concurrent reclamation of the north side of the Waste Rock Storage Area will begin once the Heap Leach Facility is closed in Year 10. A haul road may be required on the southwest face of the Waste Rock Storage Area, allowing for only partial concurrent reclamation, as practical.

Sycamore Tailings and Barrel Waste Alternative – West Side – Sycamore Tailings – Stormwater Control and Reclamation Sequencing

Stormwater Control

For Sycamore Tailings, it was assumed that the following stormwater controls would be applied:

- Stormwater drainage channels would be placed at every 100 feet of vertical rise on the outer slopes of the Dry Stack Tailings Facility. Stormwater would flow off these benches to natural ground and drain to the Stormwater Convergence Point.
- Storms up the 500 year, 24-hour storm event would be retained on top of the Dry Stack Tailings Facility in large, depressed areas. Storm runoff in excess of this event would be routed to side channels cut into natural ground.

There are no flow-through drains associated with Sycamore Tailings under the final closure configuration.

Reclamation Sequencing – Year 10

Concurrent reclamation of the west slope of the Dry Stack Tailings is anticipated to occur since access to the face will move up the face as buttress construction advances.

Reclamation Sequencing – Ultimate Year

Concurrent reclamation of the west slope of the Dry Stack Tailings is anticipated to occur since access to the face will move up the face as buttress construction advances.

Areas not reclaimed during operations will be reclaimed at closure.



"Marcie Bidwell"
<mbidwell@swca.com>
02/03/2010 04:35 PM

To "Kathy Arnold" <karnold@rosemontcopper.com>, "Debby Kriegel" <dkriegel@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>, "Carrasco, Joel"
cc
bcc
Subject Visualization Coordination Meeting, Notes and Follow Up Questions

Hello~

I want to thank you all for attending on Jan 29th. I found the meeting to be very helpful and insightful, and hope that others agree. Please find notes from the Visual Coordination Meeting attached.

Additionally, I would like to submit some follow up questions for immediate attention from Tetra Tech or Rosemont for clarification. These are important to our data processing and initial steps to the simulations for the EIS. Our first priority is to receive the contour data from Tetra Tech and then the following is important for how we process it.

Finally, I have also attached a GIS output of the MPO without "smoothing" which shows the benches for your review and consideration. This is "as designed" by the contours submitted in 2008 (alignment has not been perfected, so this is close to final concept in this diagram- we have improved the data since this diagram was created).

I thank you in advance for actions required to follow up from the meeting!

Marcie

<<11204_KOP12_PAb.jpg>> <<RCC USFS Viz Coord Mtg_Notes 2010-01-29.pdf>>

MPO- Specific Questions-

1. Please confirm **which presentation of the MPO grading** we should use for **vizualizations at Y10** is as presented in **Figure 9** of the Reclamation and Closure Plan (RCP).
2. Please confirm **which presentation of the MPO grading** we should use for **visualizations at Y20** should be shown as **Figure 11** or **Figure 12** of the RCP.
3. Please indicate what the **geodatabase layer name** is that will have the **"composite of yearly reclamation areas"** in the data provided.
4. SWCA understands that the MPO should show benches as the following: waste rock, as 100 ft running slopes for each bench and approximately 100ft wide road/bench surface; and tailings as 50 ft benches and running surface; the attached image shows the output from the MPO with benches as submitted. **Please confirm if this is what we should use for final grading.**

Marcie Demmy Bidwell
Environmental Planner
130 Rock Point Drive, Suite A

Durango, Colorado 81301

Office: 970.385.8566

Fax: 970.385.1938

www.swca.com [attachment "11204_KOP12_PAb.jpg" deleted by Debby Kriegel/R3/USDAFS]

[attachment "RCC USFS Viz Coord Mtg_Notes 2010-01-29.pdf" deleted by Debby Kriegel/R3/USDAFS]



"Marcie Bidwell"
<mbidwell@swca.com>
12/12/2008 04:52 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, <tlaustin@fs.fed.us>
cc
bcc
Subject FW: Rosemont - Meeting with Daniel Roth

Terri,

Thank you for the messages! I have a construction project that is going right now, and so my office time has been limited. Its hard to believe that one would be doing dirt work in Silverton, Colorado at 9,500 ft in the last half of December! But here I am~ not to worry, it warms up to 10 degrees as soon as the sun hits the site at 9:00AM (thought that might be different than Tucson right now.....)

I am interested in receiving the data layers listed below that Debbie suggested.

I believe that we already have basic data layers, but will let you know if I come across a different request.

As far as data delivery, please send them via Winzip and email, or we can arrange uploading them via an FTP site (such as the Rosemont website or SWCA's internal site).

THanks~ I look forward to talking soon!
Marcie

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Tuesday, December 02, 2008 9:21 AM
To: Marcie Bidwell
Subject: RE: Rosemont - Meeting with Daniel Roth

I asked Terry to get the following GIS layers to you:

VQOs

Wilderness

Roads & Trails

ROS

Recreation points, lines, and polygons

SMS: CLs (including both on and off-forest roads), SA, SIO, and ESI

Let us know if there are others you'd like!

Be aware that I'll be refining the SMS stuff sometime this winter, so there will be an updated version of this stuff. The Coronado has a new mid-scale vegetation map and improved roads data, and I'm planning to use a computer viewshed mapping program.

Thanks.

Debby

"Marcie Bidwell" <mbidwell@swca.com>

12/02/2008 08:54 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>

CC "Tom Furgason" <tfurgason@swca.com>

Subject RE: Rosemont - Meeting with Daniel Roth

Debbie,

She makes good points~ I am available for a call anytime the week following the 5th. Or on the 4th if we want to strategize.

I received a call from the FS GIS person about data layers while I was away for a funeral. I will return that call today. However, if you have suggestions about what layers I should receive, please pass them forward.

Thanks,
Marcie

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Monday, December 01, 2008 2:21 PM
To: Marcie Bidwell
Cc: Tom Furgason
Subject: RE: Rosemont - Meeting with Daniel Roth

I'm no longer available on Dec 5. Have either of you had a chance to call Daniel? If the next couple of days won't work, how about next week?

Also, I was recently talking with Rita Laford (Deputy Forest Supervisor) about our meeting with Dale. She's fully supportive of our work, but mentioned that we should avoid the use of the word "Alternatives" for now. As we explore possible different ways to shape the waste rock and so forth, we should refer to these as design features (or something similar)...alternatives will come later. I tend to mentally jump ahead, and guess I need a NEPA-minded person like her to remind me about this stuff.

Thanks.

"Marcie Bidwell" <mbidwell@swca.com>

11/20/2008 10:49 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>
cc
Subject RE: Rosemont - Meeting with Daniel Roth

Debbie,

I can be available on the 3rd, and so far I have nothing that I cannot move. So make a suggestion about when you are available.

I will coordinate with Tom for Daniel's contact.

Thanks,
Marcie

From: Debby Kriegel [mailto:dkriegel@fs.fed.us]
Sent: Tuesday, November 18, 2008 8:46 AM
To: Marcie Bidwell; Tom Furgason
Subject: Rosemont - Meeting with Daniel Roth

Hi Tom and Marcie:

I spoke with Bev, and she says that it's ok for me or Marcie to contact Daniel Roth at M3. Bev would simply like us to let her know when we meet with him.

We're meeting with Dale next week, and I'm out of the office the following week. I propose that we set something up with Daniel for the week of Dec 1. I'm available Dec 2, 3, and 5. The 3rd would be ideal...Bev told me that there won't be a Rosemont meeting that day. Would any of these dates work for you two?

Tom, would you please get Daniel's phone number to either me or Marcie so we can call him?

Thanks!

Debby



Kathy Arnold
<karnold@rosemontcopper.com>
10/06/2009 08:02 AM

To: Debby Kriegel <dkriegel@fs.fed.us>
cc: Beverley A Everson <beverson@fs.fed.us>, Jamie Sturgess <jsturgess@augustaresource.com>
bcc:

Subject: RE: Test Plot Summary

History: This message has been forwarded.

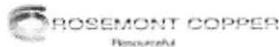
Debby –

I was sorting out my email and realized that I had not responded to your email. We have not received any information from Permeon at all, any information available would be nice, but again we are not going to be spraying this stuff on the test plots as the research for the test plots is more valuable than staining the soil. A letter from a professor might be interesting but I need to see the raw data from the lab as the water quality requirements vary from state to state so what may be acceptable in Nevada probably is not acceptable here. I am also surprised they are having trouble updating their MSDS information as the sheets are supposed to be updated annually with information necessary to protect workers' health. The MSDS that I got said do not put on the ground so you can see my concern.

I think that based on the lack of information that we have gotten from Permeon we are going to pass on any testing on Rosemont property – if they have to work this hard to develop it there must be a problem. If the Forest Service chooses to test it on your own property, I would ask that you keep me informed if it is tested anywhere that may be considered upgradient of the Rosemont proposed plan of operations areas as we are gathering background data.

Cheers!
Kathy

Kathy Arnold | Director of Environmental and Regulatory Affairs
Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724
karnold@rosemontcopper.com



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From: Debby Kriegel [<mailto:dkriegel@fs.fed.us>]
Sent: Wednesday, September 23, 2009 10:49 AM
To: Kathy Arnold
Cc: Beverley A Everson
Subject: RE: Test Plot Summary

Kathy,

Rich Beemis (Permeon rep with Soil Tech) is having trouble getting MSDS info revised quickly. I realize that this is specifically what Rosemont has asked for, and I encouraged him to get done.

In the mean time, did you receive a CD from Rich with some further information about Permeon? He sent me a CD with much data about the chemical properties, effects on plants, etc., and I think he said he was going to send you the same info. I realize it's not MSDS, but am wondering if you received it and/or whether it offers some of the same information that would be in an MSDS.

Also, Rich said that he can get a letter from a chemistry professor with UNLV regarding Permeon and the environmental impacts. Would this be useful to you?

Thanks.

~~~~~  
Debby Kriegel  
Coronado National Forest  
(520) 388-8427



"Marcie Bidwell"  
<mbidwell@swca.com>  
07/27/2010 03:17 PM

To "David Harris" <dharris@swca.com>, "Debby Kriegel"  
<dkriegel@fs.fed.us>

cc

bcc

Subject Trend analysis info

<<coronado-socio-economic-report-2005-ch1-ch4.pdf>>  
<<coronado-socio-economic-report-abstract-2005.pdf>>  
<<CNFMonitoring-Evaluation-Trend-Analysis.1986-2008.pdf>>

Marcie Demmy Bidwell

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www.swca.com[attachment "coronado-socio-economic-report-2005-ch1-ch4.pdf" deleted by Debby Kriegel/R3/USDAFS] [attachment "coronado-socio-economic-report-abstract-2005.pdf" deleted by Debby Kriegel/R3/USDAFS] [attachment "CNFMonitoring-Evaluation-Trend-Analysis.1986-2008.pdf" deleted by Debby Kriegel/R3/USDAFS]

Debby Kriegel/R3/USDAFS  
02/19/2010 12:26 PM

To Melinda D Roth/R3/USDAFS@FSNOTES,  
sleslie@swca.com  
cc Debby Kriegel/R3/USDAFS@FSNOTES  
bcc  
Subject Re: Fw: Updated Rosemont Mitigation Table 

In Johnathan's email below, he mentions that the "Other Resource Benefits" column needs work, and if we plan to use this column in any further work, hopefully he has worked on that (can you check on this, Mindee?). I know that I gave lots of input on this column. I think that Art is suggesting language for this column (and this mitigation measure), but what his text probably isn't appropriate for this column. It's more like effects analysis.

I'm sending this to Steve Leslie to incorporate Art's input into the recreation analysis as appropriate.

Thanks.

Melinda D Roth/R3/USDAFS



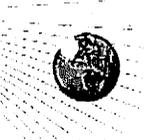
Melinda D Roth/R3/USDAFS  
02/19/2010 12:12 PM

To Debby Kriegel/R3/USDAFS@FSNOTES  
cc  
Subject Fw: Updated Rosemont Mitigation Table

Huh?

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701  
(520) 388-8319  
(520) 396-0715 (cell)  
(520) 388-8305 (FAX)

----- Forwarded by Melinda D Roth/R3/USDAFS on 02/19/2010 12:11 PM -----



Arthur S Elek/R3/USDAFS  
02/16/2010 02:59 PM

To Melinda D Roth/R3/USDAFS@FSNOTES, Beverley A  
Everson/R3/USDAFS@FSNOTES  
cc  
Subject Re: Fw: Updated Rosemont Mitigation Table 

Comments on Recreation: 12.1.1. 194, 12.2.5, relocation of OHV area, under heading: OTHER RESOURCE BENEFITS-Implementation of this proposal will greatly reduce the impact of displaced OHV recreationists on other more sensitive resource areas, primarily Gardner Canyon, and the Greaterville area which includes Louisiana, Ophir, Kentucky, Boston, Sucker, and Los Posos Gulches. Among other benefits, designating a well planned area for this activity, will improve management and enforcement efforts.

ART ELEK  
Fire Prevention Officer  
Nogales Ranger District  
303 Old Tucson Road  
Nogales AZ. 85621  
Office: (520) 761-6010  
Cell: (520) 975-7814  
Fax: (520) 281-2396  
e-mail aelek@fs.fed.us  
Melinda D Roth/R3/USDAFS



Melinda D Roth/R3/USDAFS

02/10/2010 04:27 PM

To dkriegel@fs.fed.us, dsebesta@fs.fed.us, sldavis@fs.fed.us,  
sshafiqullah@fs.fed.us, wkeyes@fs.fed.us,  
temmett@fs.fed.us, gmckay@fs.fed.us, rlefevre@fs.fed.us,  
aelek@fs.fed.us, abelauskas@fs.fed.us, ecuriel@fs.fed.us,  
mfarrell@fs.fed.us, wgillespie@fs.fed.us,  
ccleblanc@fs.fed.us, seanlockwood@fs.fed.us,  
ljones02@fs.fed.us, cablair@fs.fed.us, kbrown03@fs.fed.us  
cc jrigg@swca.com

Subject Fw: Updated Rosemont Mitigation Table

Here is the mitigation table for your review and input. Follow Jonathan's direction below about coordinating significant changes with Rosemont so we can finalize this document and apply it to the alternatives. Bev has set a due date of next Friday, Feb. 19th. Direct your notes to Bev and me and we will compile them and forward to Jonathan at SWCA. Thanks all.

Mindee Roth  
Coronado National Forest  
300 W. Congress, FB42  
Tucson, AZ 85701  
(520) 388-8319  
(520) 396-0715 (cell)  
(520) 388-8305 (FAX)

----- Forwarded by Melinda D Roth/R3/USDAFS on 02/10/2010 04:18 PM -----

"Jonathan Rigg"  
<jrigg@swca.com>

To <beverson@fs.fed.us>, "Melinda D Roth" <mroth@fs.fed.us>, <rlaford@fs.fed.us>,  
<jsturgess@rosemontcopper.com>, <karnold@rosemontcopper.com>

01/22/2010 01:48 PM

cc "Tom Furgason" <tfurgason@swca.com>  
Subj Updated Rosemont Mitigation Table  
ect

Good afternoon all,

My apologies on getting this out a bit later than noon- The Rosemont mitigation table has been updated per our meetings over the last few weeks. Please review the table and let me know if there is anything that I missed or deviates significantly from what the group agreed upon. Per our discussions, any mitigation land items have been pulled from their respective resource section (although still identified in the resource's Category 5 subsection) and accumulated into a separate "Off-Site Mitigation Land" section toward the end of the list. These items have not yet been codified due to potential conflicts of which resources the off-site mitigation lands may mitigate (i.e. hunting vs. wildlife preservation), although the ACOE requirements can be codified as a 1. I also copied any monitoring related mitigation measures into a compilation list at the bottom of the list as well. The monitoring compilation list is not intended to be a complete list, just what came up in this table.

I highlighted the measures that need further clarification or editing in the Comment column and the person in charge of the clarification/edit . If these edits, or any others, change the disposition category of the measure or results in a significant change, please correspond with the counterpart at RCC (Kathy and/or Jamie) or Coronado (Bev, Reta, and/or Mindee) to obtain agreement on the updated measure prior to resubmitting. Obtaining the agreement before submitting will help document control and avoid having to create more versions of the table than is necessary.

Other items that have yet to be completely fleshed out are:

- Citing specific laws, regulations, and policies
- Documenting the NEPA reasoning behind a measure not being carried forward
- "Other Resource Benefit" column

If you have any questions, or have a recommendation on how to proceed with the editing, please let me and/or Tom know.

Have a great weekend!

Jonathan Rigg  
Environmental Planner  
SWCA Environmental Consultants  
343 West Franklin Street  
Tucson, Arizona  
Phone: (520) 325-9194  
Fax: (520) 325-2033  
Email: jrigg@swca.com [attachment "1-22-09 Total Compilation.docx" deleted by Melinda D Roth/R3/USDAFS]



"Marcie Bidwell"  
<mbidwell@swca.com>  
09/10/2009 07:59 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc "Trent Reeder" <treeder@swca.com>  
bcc

Subject RE: Rosemont Project

History:  This message has been replied to.

It would be great if you could get that person's contact info and we can connect them.

In talking with Trent, we can give them shapefiles, but 3D stuff is hard to transfer- the kmz file for google earth will be 2D shapefiles, I think.

I will let Trent explain~

Go Trent!  
Marcie

**From:** Debby Kriegel [mailto:dkriegel@fs.fed.us]  
**Sent:** Thursday, September 10, 2009 8:42 AM  
**To:** Marcie Bidwell  
**Subject:** RE: Rosemont Project

Marcie: Our director of recreation asked me for these again. What's the status? If there are issues to discuss or resolve, can I have the director's GIS person call Trent directly? Thanks. Debby

"Marcie Bidwell" <mbidwell@swca.com>

09/02/2009 02:46 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc <tfergason@swca.com>  
Subject RE: Rosemont Project

Debby,

I will check with Trent and see how that would go. We have had a discussion about the pluses and minuses of using Google earth, because of the massing of the alternatives and of the pit, in particular. ITs easy to drape shapefiles over the earth in Googleearth, but you cannot take away from the base DEM. Therefore the alternative piles may be possible, but the pit will show as a shape draped on existing ground. Does that make sense?

I know we can easily pass along shape files of the footprints, but the 3D images are quite large. I will check with Trent tomorrow morning, when he returns. We will need to post them for download somewhere accessible, perhaps on WebEx, perhaps somewhere else. I will check with Tom regarding the logistics and request.

More to follow,  
Marcie

**From:** Debby Kriegel [mailto:dkriegel@fs.fed.us]  
**Sent:** Wednesday, September 02, 2009 3:42 PM  
**To:** Marcie Bidwell  
**Cc:** tfergason@swca.com; Debby Kriegel  
**Subject:** Fw: Rosemont Project

Marcie:

As our new R3 Director of Recreation becomes familiar with the Rosemont project, he would like to view shapefiles on Google Earth. Would it be possible for Trent to send him some GIS files (footprints and 3D)? I recommend sending proposed action and the rough alternatives so far (including 6c, but not 6b).

Please send the files directly to El Aran.

Thanks.

Debby

----- Forwarded by Debby Kriegel/R3/USDAFS on 09/02/2009 02:36 PM -----  
El Aran/R3/USDAFS

09/02/2009 01:19 PM

To Debby Kriegel/R3/USDAFS@FSNOTES  
cc  
Subject Rosemont Project

Hi Debby!

Francisco Valenzuela (our new Rec Director) asked I produce a Google Earth file of the Rosemont project. Can you provide me with the GIS files associated with Rosemont?

Or ... if you'd like, I can quickly show you how to output in GIS files to Google Earth. It's just a quick download and then simply output to "kml." I think you'd really love it!

Okay, talk with you soon.

El Aran  
GIS Analyst / Asst Data Manager

Recreation, Heritage & Wilderness Resources  
USDA Forest Service Regional Office  
333 Broadway Blvd SE  
Albuquerque, NM 87102  
(505) 842-3385  
(505) 463-9777 (cell)  
[earan@fs.fed.us](mailto:earan@fs.fed.us)



"Marcie Bidwell"  
<mbidwell@swca.com>  
03/05/2009 03:10 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc  
bcc  
Subject Diagram~

History:  This message has been forwarded.

Debbie,

I talked with Tom Furguson and have some better insight into next steps; he agrees that the schedule/excel would be a good visual; and he had good intel as to why the EIS terms have changed. Just as I explained, Rosemont is managing the project very differently and every single line item is being scrutinized. As I mentioned yesterday, the USFS will need to make the case to RCC why certain steps are required and what is adequate to address those (i.e. specific visual studies, etc).

Also, I have a better understanding of the timing and that certain pieces of the process have to come before alternative development, or the USFS could be accused of being pre-decisional that x,y,z is driving the alternative development prior to the definition of the scoping issues being formalized.

So more on that soon. I got pulled into some last minute proposal work, and did not get the graphic done yesterday. Will send it tomorrow morning!

Happy afternoon!  
Marcie

Marcie Demmy Bidwell  
Environmental Planner  
515 East College Avenue  
Durango, Colorado 81301  
Office: 970.385.8566  
Fax: 970.385.1938  
[www.swca.com](http://www.swca.com)



"Marcie Bidwell"  
<mbidwell@swca.com>  
01/27/2010 04:16 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc "Tom Furgason" <tfurgason@swca.com>, "Trent Reeder" <treeder@swca.com>, "Michael Andres" <mandres@swca.com>  
bcc

Subject RE: Visual Update: waiting on data from Tetra Tech

Debby,

Glad to hear that the realization is setting in that rushing could be tragic.

I talked with David yesterday at length and we worked out a balance. I know understand better what they have and are waiting on, and what we can progress forward on.

We have the MPO data, for years 10 and 20, but we are waiting on them to resubmit the contours for the other alternatives in a format that we can process more easily (to separate out phases into different data sets). However, we do not have grading for the facilities or for the roads.

For the alternatives, we are also waiting on reclaimed grading for the plant site, once the facilities have been removed. So we cannot work on alternatives or KOPs where the plant site would be in view.

#### What are Tt waiting on?

- Alternatives grading plans YR 20 and YR 10
- Plant facilities 3D for YRs 1-19
- Facilities reclamation grading YR 20+
- Transmission pole styles, spacing, alignment where visible
- ADOT/RCC chosen location for the SR83 Access road (near MM 46)
- Road engineering
- Colors and agreed upon vegetation patterns for simulations (what veg, what success rates, to be discussed this meeting)

#### What can we work on?

- **Diagrams showing colors, textures, etc to be used in simulations**
- **MPO, at YR 20** at KOPs that show land forms (MM 44, MM46 (unless it has to show entrance road), Hilton Road, Sonoita, Las Cienegas, Arizona Trail, and Box Canyon.
- **MPO, at YR 10** where facilities and roads are not visible
- **Non-visible diagrams for MPO.**

That should keep us busy for a few days- one week, until Tt can send us more data.

Thank you!  
Marcie

---

**From:** Debby Kriegel [mailto:dkriegel@fs.fed.us]  
**Sent:** Wednesday, January 27, 2010 1:53 PM  
**To:** Marcie Bidwell  
**Cc:** Tom Furgason  
**Subject:** Re: Visual Update: waiting on data from Tetra Tech

At today's core IDT meeting, we learned that the schedule is likely to change. Both Forest Service

decisionmakers and Rosemont are finally realizing that setting artificial deadlines is going to result in a poor quality DEIS. However, everyone (including you and I) is still expected to continue working at full speed, so keep moving forward with tasks that aren't dependant on Rosemont providing data.

Do I need to follow up on this? If Kathy is at Friday's meeting, perhaps we can discuss it with her...

"Marcie Bidwell" <mblidwell@swca.com>

To "Tom Furgason" <tfurgason@swca.com>, "Debby Kriegel" <dkriegel@fs.fed.us>

01/26/2010 10:16 AM

cc

Subject Visual Update: waiting on data from Tetra Tech

Hello Tom and Debby,

Just wanted to give you a heads up that we are waiting on data from Tetra Tech for the alternatives, in case you are meeting with USFS or RCC today.

As you know, SWCA only had a 4 week window to complete the first draft of the entire visual analysis, and we are now down 1.5 weeks waiting for data. At this point, what we can accomplish by the Feb 15/Feb 28 deadline is shrinking in proportion to the amount of lead time that we will have with the data.

Tetra Tech posted a database of all of the layers that they had to share on Friday (Jan 22), but they did not (1) separate out the layers in a meaningful way between the alternatives or (2) indicate how to make sense of YR 10 vs. YR 20. As an example, we therefore cannot tell which of many features on the one "roads" layer go with Alts 1-6 or with YR 10 vs. YR 20. And the elevation data is not complete for some layers as well

Additionally, in follow up communications, we now understand that they are still working on the grading plan for "reclamation" (which we are told is different than YR 20 contours) and for the facilities area (which we need for YR 10 and YR 20 for 3 KOPs). They said that they are waiting on M3 and then will do their piece to it (next week projected timeframe).

We are working to figure out the differences in their data, and to figure out what, if anything, we can proceed with at this time. As we need for all of these pieces to process the scenes, we are a bit stuck at the moment.

Call if you have questions,  
Marcie

Marcie Demmy Bidwell  
Environmental Planner  
130 Rock Point Drive, Suite A

Durango, Colorado 81301

Office: 970.385.8566

Fax: 970.385.1938

[www.swca.com](http://www.swca.com)

Sounds good. Thanks!

I am tweaking the bounds of analysis figures to be shown as black and white and I have attached an example of the direction I am going. What do you think?

Trent

**From:** David Harris  
**Sent:** Friday, September 03, 2010 3:09 PM  
**To:** Trent Reeder; 'Debby Kriegel'  
**Subject:** RE: Report Figure Updates

Trent,  
I suggest that you delete the foreground-background designation too. That information is used in the contrast analysis, but it isn't useful in the figure.

David Harris  
SWCA Environmental Consultants  
801-322-4307 (Office)  
801-230-8359 (Cell)

**From:** Trent Reeder  
**Sent:** Friday, September 03, 2010 12:44 PM  
**To:** David Harris; 'Debby Kriegel'  
**Subject:** RE: Report Figure Updates

I agree with the simplification process. I removed the Distinctive parts, but what about the Foreground-Background designations. If needed, I can just group records solely based on Concern levels 1, 2, and 3. for which additional data would be revealed because some records do not have Foreground-Background designations.

Yes, we should chat after I send out the updated figures.

I'll see what I can find from Mike. Mike is pretty much on an "on-call" bases at this point since I am back.

Trent

**From:** David Harris  
**Sent:** Friday, September 03, 2010 11:49 AM  
**To:** Trent Reeder; 'Debby Kriegel'  
**Subject:** RE: Report Figure Updates

Trent,  
I was referring to that map, however I think that it should be greater simplified (I think I mentioned that in a previous email). Too much information , and the number of different concern levels will be a problem in black/white. The Concern Levels are important (this sensitive view information is discussed and used in the

analysis), but the Scenic Attractiveness information (Distinct, Indistinct) is not really necessary, as Debby mentioned previously. I recommend that you get rid of the Distinctive-Indistinctive parts. Also, the title is incorrect. It isn't viewer sensitivity, but rather designated sensitive viewsheds or zones. The sensitivity of viewers is not what these areas represent. We will need to revise the figure to show that. I think that some point you and I will need to get on the telephone (once you have the maps in black/white) and work on the small corrections.

While you were away, Mark Andres did some calculations of As Seen areas overlaid by impacted areas within Rosemont project area, in the Coronado Viewshed, and and impacts to scenic travelways. Those are also maps that should be included in the appendix along with the viewshed analysis maps. They are important to the analysis, but the information is captured in a table in the visuals section. Can you talk with Mark about these maps?

David Harris  
SWCA Environmental Consultants  
801-322-4307 (Office)  
801-230-8359 (Cell)

**From:** Trent Reeder  
**Sent:** Friday, September 03, 2010 9:16 AM  
**To:** David Harris; 'Debby Kriegel'  
**Subject:** RE: Report Figure Updates

Hi David,

Yes, I have modified these maps with the updated FS boundary.

Regarding the Concern Level map, are you referring to the attached Viewer Sensitivity map? Right before I left for vacation, I remember the emails circulating about this map and Debby questioning the maps purpose. I wasn't sure if this map was a go or not. Just want to make sure before I start updating the figure.

Trent

**From:** David Harris  
**Sent:** Thursday, September 02, 2010 4:41 PM  
**To:** Trent Reeder; Debby Kriegel  
**Subject:** RE: Report Figure Updates

Thanks Trent. I've called out these figures in the Visual section:

- 1) Bounds of Analysis
- 2) Scenic Integrity Objectives
- 3) Concern Levels (you have integrity and concern levels combined in the color figure, can they be combined in black/white?) How about some variation on dashed/dotted lines to show route and trail concern levels?)
- 4) Analysis viewpoints
- 5) Scenic attractiveness

**Debby**, I think the viewshed analysis figures for each alternative and the overlays of viewshed analysis and impacted scenic integrity, concerns levels, and scenic travelways might best be put into an appendix. Do you agree, or do you want them in the Visual section?

**Trent**,

You probably know this already, but something Marcie noticed a while back was that the forest coverages overlap the forest boundaries in several places, and most obviously on the east side of the forest. Is this something that can/needs to be fixed at this time?

David Harris  
SWCA Environmental Consultants  
801-322-4307 (Office)  
801-230-8359 (Cell)

**From:** Trent Reeder  
**Sent:** Thursday, September 02, 2010 3:39 PM  
**To:** David Harris; 'Debby Kriegel'  
**Cc:** Jonathan Rigg; Marcie Bidwell  
**Subject:** RE: Report Figure Updates

Thanks David for the feedback. No, the land ownership does not need to be displayed on all the figures. I will show whatever you think is necessary and then make the figures shine.

I will start tweaking the figures and send out the updated figures all at once.

Thanks!

Trent

**From:** David Harris  
**Sent:** Thursday, September 02, 2010 3:18 PM  
**To:** Trent Reeder; Debby Kriegel  
**Cc:** Jonathan Rigg; Marcie Bidwell  
**Subject:** RE: Report Figure Updates

Trent,

I should have a list of figures to be included in the Visual section later today. As for land ownership, do you need to put that information into every figure? I was thinking that for the viewpoint locations figure, you could just have the points, the viewpoint numbering, the mine boundary, and roadways. The land ownership info could be included in the Bounds of Analysis figure, once. Any reference to ownership would be there, if it needed to be referred to. Why duplicate information unnecessarily? That would also make it easier for you to revise the As Seen (viewshed analysis maps) because there would be less information clutter. For viewshed analysis maps, why not use hatching or whatever, with the bounds of analysis outline, roads, towns and cities, viewpoints, and project area boundary (what you have there already) and that's it. Similar to what you just did for the Scenic Integrity figure. It would be a way to simplify the figures without losing the essential information being conveyed.

David Harris

SWCA Environmental Consultants  
801-322-4307 (Office)  
801-230-8359 (Cell)

**From:** Trent Reeder  
**Sent:** Thursday, September 02, 2010 2:46 PM  
**To:** 'Debby Kriegel'  
**Cc:** Jonathan Rigg; David Harris; Marcie Bidwell  
**Subject:** Report Figure Updates

Hi Debby,

I have been informed that our figures for the report should primarily be in black and white with very few exceptions. I can convert most of our figures to these specifications using varying shades of gray and adding other symbology textures (hash marks). There are a few figures for which we show the landownership and viewshed analysis results using varying color swatches to help distinguish areas of interest. I emailed the colored figure versions yesterday to the deciding party see what figures may qualify to show colors.

I have attached a black and white example of our Existing Scenic Integrity figure for some feedback. Of course the biggest issue when creating maps in black and white deal with the limited amount of symbologies that I can pull from. It does not take too long before varying hatch type symbologies become too busy in appearance or the solid gray color layers look too similar because of the different grades of grays being too similar. These figures I can convert to black and white without too much troubles:

Existing Scenic Integrity  
Scenic Attractiveness  
Visual Quality Objectives  
Scene Area General Location map

The Seen Area alternative figures and KOP location figure will be more difficult to convert to color because of the landownership layer and overlaying viewshed analysis layer. Please let me know if you have any questions.

Thanks.

Trent Reeder  
GIS Specialist  
SWCA Environmental Consultants  
[treeder@swca.com](mailto:treeder@swca.com)  
130 Rock Point Dr. Suite A  
Durango, Colorado 81303  
Work (970) 385-8566  
Fax (970) 385-1938  
[www.swca.com](http://www.swca.com)

[attachment "11204\_Seen\_Area\_ALT\_2 MPO\_bw.jpg" deleted by Debby Kriegel/R3/USDAFS]

Debby Kriegel/R3/USDAFS  
11/05/2008 02:07 PM

To mbidwell@swca.com, tfurgason@swca.com  
cc Beverley A Everson/R3/USDAFS@FSNOTES, Debby  
Kriegel/R3/USDAFS@FSNOTES  
bcc  
Subject Rosemont Copper Project EIS and Analysis of Scenic  
Resources

Marcie and Tom:

In preparation for our site visit on Nov. 13th, I want to share some of my thoughts. The following is a list of rough list of recommended steps needed to complete analysis of scenic resources. **I expect SWCA to take the lead on the majority of these items.** Some of these steps should be completed immediately (steps 1-4). Some will take a great deal of time and may require additional funding (especially step 5). Others could be largely postponed until somewhat later in the EIS process (steps 6-8).

Please read this list prior to the 13th so we can have some good discussion. Marcie: if you have time, I highly recommend that you review the items in step 1 prior to your visit.

Thanks!

Debby Kriegel, Forest Landscape Architect  
Coronado National Forest  
(520) 388-8427

1. Become familiar with the proposed project site and project documents, including the Project Initiation Letter (PIL), Mine Plan of Operations (MPO), Reclamation and Closure Plan, public comments, etc.
2. Review Forest Service directives, area plans, and other guidance, including:
  - The Coronado National Forest Plan and associated Visual Quality Objectives (VQOs)
  - USDA FS Handbook 701, *Landscape Aesthetics; A Handbook for Scenery Management*
  - The 2006 USFS Project Level Scenery Analysis paper
  - Forest Service Manual 2380: Landscape Management
  - *The Corridor Management Plan for the Patagonia-Sonoita Scenic Road*
3. Draft the Affected Environment section. This would include:
  - Mapping viewsheds affected by the project, both for the no action alternative and the proposed action (including all features: pit, waste rock pile, buildings, utility lines, new roads, etc.). Mapping the no action alternative could potentially help identify alternative locations to place the waste rock and tailings. Viewshed mapping should consider existing and proposed topography and the heights of proposed buildings and utility poles. Provide a map of both National Forest and beyond (including lands and private properties east of Highway 83, in the Sonoita/Elgin area, and in Green Valley) that shows precisely where all project elements would be visible from.

- Describing the Affected Environment. Include identification of the valued landscape character at the site to provide guidance for alternatives.

4. Research reclamation efforts that protected scenery on other projects. Contact reclamation experts who have successfully completed reclamation of other large-scale mining projects on public lands and where scenic resources were protected or restored. This research would include landform issues, revegetation issues, etc. The field trips to other mines this summer helped me understand some reclamation steps that are beneficial to scenery (such as removing terraces and seeding), I am hopeful that there are more substantial techniques in use at other sites that might retain the valued scenic character better (such as reshaping landforms to be natural-appearing, planting trees and shrubs, etc.).

5. Create one or more alternatives that better protects scenic resources. The MPO, especially the proposed placement of waste rock and tailings, is entirely incompatible with the protection of scenic resources on the Coronado National Forest. I remain optimistic that there is a way to create a solution that would be cost effective for Rosemont Copper Company, more acceptable to the public, and once reclaimed would provide a National Forest landscape that is scenic, provides valued recreation settings, and might even benefit wildlife. The goals would be to achieve long-term scenic quality (by creating a natural landscape when mining activities are complete) and not unduly constrain the proposed mine project. A mining specialist should be involved, since reshaping these materials would have limitations (e.g., waste rock management plans and knowledge of environmental issues related to buried tailings), as well as a wildlife biologist because natural landforms could potentially provide wildlife habitat. This task would include experimenting with radically different shaping of the waste rock and tailings to avoid the monolithic form and flat tops, and if possible create undulating topography that mimics natural canyons and foothills in the area. Options to complete this task would include a working topographic model (with the ability to re-shape contours throughout the project area) and/or computer simulations. For the topographic model, some research would need to be completed to determine the appropriate scale and vertical exaggeration, identify features to include (roads, trails, boundaries, etc.), and find ways for the model to be manipulated to examine various alternatives. Ideally the model would be relatively large, include the entire viewshed, have removable pieces for the pit, plant, and waste rock and tailings piles (perhaps at 5-year increments), and provide a way (such as clay) to re-shape the piles to appear natural. The topographic model could also be used to help the public understand the 3-dimensional nature of the project and could help determine where computer simulations would be most useful. It may be necessary to provide a proposal for a topographic model to Rosemont Copper Company to show the benefits and obtain funds. Computer simulations could potentially model various options for shaping the waste rock and tailings piles and would ideally provide video-like motion to mimic driving through the site, rather than simply static views from fixed viewpoints. I recommend this process also analyze potential options for mitigating impacts of the pit, such as removing the most visible western edge (by pushing material into the pit and/or removing a portion of the ridge).

6. Determine Environmental Consequences for all alternatives. Analyze the 3 big impacts:

the pit, the waste rock & tailings pile, and the “temporary” facilities (buildings, roads, utilities, etc. that would only be on-site during mining). Also analyze scenic impacts for private landowners. Since this EIS may not be completed until after the Forest Plan is revised, utilize both the Visual Management System and Visual Quality Objectives (VQOs) from the current Forest Plan and the Scenery Management System, which will be incorporated into the revised Forest Plan. Determine recommended mitigation (such as creating irregular ledges on waste rock slopes, avoiding evenly spaced drainageways, revegetation of disturbed areas with shrubs and trees, applying Permeon rock varnish to light-colored rock, and even off-site mitigation if it can be connected to the project). If necessary, propose language for an amendment to the Forest Plan. Should an alternative that would ultimately meet scenic objectives be created, the amendment would allow for the 20 year project to occur. If the project would never meet scenic objectives, the amendment would lower the Scenic Integrity Objectives (and/or VQOs) for the site.

7. Complete a thorough Cumulative Effects analysis. Analyze land uses, projects, and trends in southeastern Arizona and across the Coronado National Forest through time (past, present, and future), as well as the incremental impact of the proposed action when added to these. Consider urban growth and the gradual loss of protected and public landscapes in this area, as well as impacts within the Coronado National Forest’s boundary such as legal and illegal border use impacts (which extend many miles into the Forest), other mining activities, ATV damage, and development (astrophysical and electronic sites, utility lines and poles, inholdings, etc.). Consider the many public comments related to this issue.



"Marcie Bidwell"  
<[mbidwell@swca.com](mailto:mbidwell@swca.com)>  
02/10/2009 12:15 PM

To "Debby Kriegel" <[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)>  
cc  
bcc  
Subject Calling you back~

Debbie,

I called yesterday several times and was getting funny messages "lines do not exist"- by the time I figured out that I had a main number to call the Forest, everyone was gone for the day.

I will talk again with Tom regarding getting moving. He is waiting to hear from Rosemont regarding the scope changes.

I would like to schedule a trip down to Tucson in the next two weeks. Perhaps we can talk about how to get the next steps rolling.

The items from your original email will largely be covered under the standard work order for the EIS. I will work on integrating the schedules and get back to you.

I will try to call again this afternoon (in time to reach you)~ have to run for a lunch meeting.

Cheers,  
Marcie

Marcie Demmy Bidwell  
Environmental Planner  
515 East College Avenue  
Durango, Colorado 81301  
Office: 970.385.8566  
Fax: 970.385.1938  
[www.swca.com](http://www.swca.com)



"Marcie Bidwell"  
<mbidwell@swca.com>  
05/11/2009 09:02 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc "Trent Reeder" <treeder@swca.com>, "Terry L Austin"  
<tlaustin@fs.fed.us>  
bcc  
Subject SMS and Rosemont maps...

Debby,

Great to work together last week and get the KOPs moving forward.

I will be sending you a series of maps today from Trent Reeder, our GIS guru. I am including Trent (our GIS guru) and Terri (Coronado GIS guru) here so that they can communicate, if necessary regarding data layers to use.

**QUESTION~** Terr and Debby- what would the "Concern Level" layers be called?

We have found the SIO, ROS and Scenic Attractiveness Layers, but I thought there should be a route map that would have Concern levels marked on it (The map that Debby brought into the field).

**NEXT STEPS~**

Trent is pulling together the map with the KOPs on it that we took last week, as well as several viewshed maps.

The first viewshed maps will be Linear KOP of SR 83 from Hilton Road private property line south to Box Canyon road for existing topography and proposed MPO.

I am drafting the table of the KOPs and their descriptions. I will also create a hand-drawn map of the areas that I traveled as part of the field analysis. We can decide if we are going to map this into a digital map, once we know what we are trying to say with it.

I expressed to Trent that we need these maps by tomorrow so that you can prepare for your Weds meeting.

More to follow!

Talk to you soon!  
Marcie

**From:** Trent Reeder  
**Sent:** Wednesday, May 06, 2009 9:55 AM  
**To:** Marcie Bidwell  
**Subject:** RE: Rosemont maps...

Here you go in a couple of emails...

**From:** Marcie Bidwell  
**Sent:** Tuesday, May 05, 2009 4:26 PM  
**To:** Trent Reeder  
**Subject:** RE: Rosemont maps...

t,

these are great~ could you do this map exactly the same layers, colors, etc but show the whole USFS boundary (dashed boundary that surrounds this project area only- the whole forest is in a couple of big chunks ) in a map (1in = 3-4 miles) something like that for:

SIOs  
ROS  
Scenic Attract

PERFECTO~  
Marcie

**From:** Trent Reeder  
**Sent:** Tuesday, May 05, 2009 12:34 PM  
**To:** Marcie Bidwell  
**Subject:** Rosemont maps...

Two more maps...should be it for awhile.

**From:** Trent Reeder  
**Sent:** Tuesday, May 05, 2009 11:52 AM  
**To:** Marcie Bidwell  
**Subject:** Rosemont maps...

Here are two maps. I'll send more out shortly...

Trent Reeder  
GIS Specialist  
SWCA Environmental Consultants  
[treeder@swca.com](mailto:treeder@swca.com)  
208 Parker Avenue. Suite A-B  
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[attachment "11204\_ROS\_USFS.pdf" deleted by Debby Kriegel/R3/USDAFS] [attachment "11204\_ScenicAttract\_USFS.pdf" deleted by Debby Kriegel/R3/USDAFS]



"Marcie Bidwell"  
<mbidwell@swca.com>  
03/12/2010 01:48 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Chelsa Johnson"  
<Cjohnson@epgaz.com>

cc

bcc

Subject RE: Rosemont CNF VQO/SMS classifications

Basically, I am using the VQOs for analysis, but the SMS/SIOs for a description of existing conditions on the ground as they are more up to date. Makes it a real challenge~

Its pretty complicated, let me know if you want to discuss it.  
Marcie

---

**From:** Debby Kriegel [mailto:dkriegel@fs.fed.us]  
**Sent:** Friday, March 12, 2010 11:03 AM  
**To:** Chelsa Johnson  
**Cc:** Lauren Weinstein; Marcie Bidwell; Marc Schwartz  
**Subject:** Re: Rosemont CNF VQO/SMS classifications

Chelsa,

Nothing has changed. The Forest Plan is still our direction, so VQOs must be used until we have a new plan (which is still a long while off). However, the FS has been directed to use SMS at project level since 1995.

The mine EIS analysis is doing the same thing. Start the analysis with a discussion of VQOs, then move on to what's changed and SMS stuff.

Frustrating, I know....

~~~~~  
Debby Kriegel, RLA
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"Chelsa Johnson"
<Cjohnson@epgaz.com>

03/11/2010 02:03 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Marcie Bidwell" <mbidwell@swca.com>
cc "Marc Schwartz" <mschwartz@epgaz.com>, "Lauren Weinstein"
<Lweinst@epgaz.com>

Subject Rosemont CNF VQO/SMS classifications

t

Debby,

Do you still want us to evaluate compliance for both visual systems for the CEC process? Is this the same direction for the EIS? We discussed this issues last year, old VQO vs. new SMS, as it relates to the update of the Forest Plan. I thought I would bring it up again since quite a bit of time has passed since we last discussed this issue.

Do you have any updates regarding the status of the Coronado Land Use Plan revision?

Thanks!

Chelsa Johnson
Project Coordinator/Visual Resource Specialist

epg

Environmental Planning Group

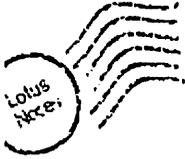
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Beverley A
 Everson/R3/USDAFS
 08/05/2010 03:04 PM

To "Terry Chute" <tjchute@msn.com>
 cc "Salek Shafiqullah" <sshafiqullah@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>
 bcc Debby Kriegel/R3/USDAFS
 Subject Re: Bounds of Analysis Question Regarding Utility CorridorsRosemont IDT please read, and respond

The MPO proposes a utility corridor over Lopez Pass on the N, NW side of the project area, following the west access road. As proposed, the corridor goes through BLM lands just west of the ridgeline. Debby K. is aware of the alignment (we recently clarified it with the company), and her resource has the greatest impact from the alignment. But, there may also be heritage resources that are impacted (historical), so, I'm sharing this response with Bill and Mary as well. And, I might as well share it with the rest of the team to be on the safe side...anyone have any concerns?

We are viewing the corridor as a connected action, since utilities are necessary for the operation.

Beverley A. Everson
 Forest Geologist
 Coronado National Forest
 300 W. Congress Street, 6th Floor
 Tucson, AZ. 85701

Voice: 520-388-8428
 Fax: 520-388-8305

"Terry Chute" <tjchute@msn.com>

08/05/2010 11:30 AM

To "Beverley A Everson" <beverson@fs.fed.us>, "Tom Furgason" <tfurgason@swca.com>
 cc "Salek Shafiqullah" <sshafiqullah@fs.fed.us>
 Subject Bounds of Analysis Question Regarding Utility Corridors
 t

Salek brought up a good point this morning - I'm sure it is not the first time this has been raised, and it may be a loose end that we need to resolve.

Have we identified the location of the utility corridor(s) and provided them to the ID Team members, so they can address environmental effects from the ground disturbing effects of the construction activities? How are we planning on dealing with this in the Effects Analysis? It is my understanding that some or all of these corridors cross BLM lands, and the FS and the lead agency needs to address the environmental effects on BLM lands as well. Also - I am not clear on whether the utility construction (electric line, water line) is being considered a connected action or a part of the proposal.

Your thoughts and updates would be helpful.. Thanks....Terry



"Tom Furgason"
<tfurgason@swca.com>
10/29/2009 11:07 AM

To "Beverley A Everson" <beverson@fs.fed.us>
cc "Debby Kriegel" <dkriegel@fs.fed.us>, "Mindee Roth" <mroth@fs.fed.us>
bcc
Subject FW: Rosemont EIS - Chapter 3 work requested

Bev,

Attached is the Section 3.11. It was an unintended omission, my apologies.

Tom

From: Stephen Leslie
Sent: Monday, October 12, 2009 4:01 PM
To: Tom Furgason
Cc: Charles Coyle
Subject: RE: Rosemont EIS - Chapter 3 work requested

Tom,

1. Finalize Bounds of Analysis (Lara has the GIS data layers for all of the Alternatives)
Already completed and approved for recreation and wilderness
2. Finalize Draft Affected Environment section based on the Bounds of Analysis
Already completed and submitted. My submitted version is included as part of the attached draft Chapter 3
3. Prepare a very brief Plan of Analysis to determine environmental consequences of each Alternative. This may be simply a sentence such as "Use GIS to calculate acreages of impact." In the case of Night Skies and Visual I will simply insert the Scopes of Work from DSP and Marcie (Respectively).
Included in attachment
4. Draft Consequences section of Chapter 3 for those sections where data and documentation exists (e.g., grazing, plants, etc.).
Included a rough consequences section for the proposed action in the attached draft Chapter 3
5. Identify data needs to complete Consequences section and submit a budget for your time to complete the section.
Data needs and proposed budget are included in the attached plan of analysis

This is pretty rough, which I understand you are expecting. I did not complete consequences for each of the alternatives, just a sketch of the approach.

Just so you know I'm going to be wrapped up with other projects for the rest of this week. Do you have an idea of when we would get this back for completion?

Thanks,
Steve

From: Tom Furgason
Sent: Wednesday, September 30, 2009 6:55 AM
To: Molly Thrash; Chris Garrett; Kevin Serrato; Jerome Hesse; Megan Robertson; Geoff Soroka; Ken Kertell; Suzanne Griset; Jeff Connell; Marcie Bidwell; Ralph Ellis; Stephen Leslie
Cc: Ken Houser; Melissa Reichard; Charles Coyle
Subject: FW: Rosemont EIS - Chapter 3 work requested

Below is the revised assignment list per Charles.

Tom

From: Tom Furgason
Sent: Tue 9/29/2009 6:01 PM
To: Chris Garrett; Kevin Serrato; Dale Ortman PE; Jerome Hesse; Megan Robertson; Geoff Soroka; Ken Kertell; Suzanne Griset; Jeff Connell; Marcie Bidwell; Ralph Ellis; Stephen Leslie
Cc: Ken Houser; Matt Petersen; 'jdmacivor@frontiernet.net'; Melissa Reichard; Camille Ensle; Charles Coyle; Heidi Orcutt-Gachiri; Kelley Cox
Subject: Rosemont EIS - Chapter 3 work requested
All-

There have been a lot of positive developments in the Rosemont project in the week and we are now at a point where we can, and need to, make substantial progress in preparing the DEIS. The Forest Service has informally let SWCA know that the alternatives developed to date are on "solid ground". These files are located on the Tucson R drive (R:\Working\Process Steps\Alternative Development\Alts Considered in Detail). I have created a file for each Alternative that contains a basic map and brief description. I have also attached a Comparison Matrix that should be very useful for most of the resource areas being addressed. I'm working on clearing up the discrepancies between the text descriptions and the matrix. In the meantime, please rely on the spreadsheet matrix for correct numbers.

Passing the Alternative milestone should allow us to complete the majority of the Affected Environment and much of the Environmental Consequences (recall that the CNF is combining these both into Chapter 3).

The CNF and Rosemont have given us a very short timeline to produce a **very** rough draft of the DEIS for review on October 16. Everybody acknowledges that this draft will have significant portions missing. The point of the exercise is threefold:

1. to clearly identify those portions of the EIS need the most work to complete;
2. create a brief Plan of Analysis for those portions of the Consequences section that we lack the information to complete (e.g., east side groundwater, visual resources, etc.); and
3. develop a path to completion of the DEIS that can also be used to prepare a change order.

For your section (indicated below), I would like everybody to complete as much of the following by **October 12** :

6. Finalize Bounds of Analysis (Lara has the GIS data layers for all of the Alternatives)
7. Finalize Draft Affected Environment section based on the Bounds of Analysis
8. Prepare a very brief Plan of Analysis to determine environmental consequences of each Alternative. This may be simply a sentence such as "Use GIS to calculate acreages of impact." In the case of Night Skies and Visual I will simply insert the Scopes of Work from DSP and Marcie (Respectively).

9. Draft Consequences section of Chapter 3 for those sections where data and documentation exists (e.g., grazing, plants, etc.).
10. Identify data needs to complete Consequences section and submit a budget for your time to complete the section.

I am sorry for the short notice on this request. Rosemont has exerted considerable pressure on the Forest Service in the past week and, as of late yesterday, seems to have broken up the log jam on at least the Alternatives portion of the process.

The expectations are that this will be very rough. There is no expectation that there will be much, if any, technical editing completed on the much of Chapter 3. However, if you feel that your section is final, then by all means send it to editing. We will have Camille format the document prior to the review.

Please let me know immediately if your schedule precludes you from completing any of the five steps above. I should be available to answer any questions that you may have regarding this request. Feel free to give me a call.

Hydrology	Chris Garrett and Kevin Serrato (with assistance from Dale Ortman)
Geology and Minerals	Jerome Hesse
Soils and Reclamation	Marcie Bidwell
Biological Resources	Geoff Soroka and Ken Kertell
Cultural Resources	Suzanne Grisot
Socioeconomics	Jeff Connell
Environmental Justice	Jeff Connell
Visual Resources	Marcie Bidwell
Transportation/Access	Ralph Ellis
Recreation	Steve Leslie
Land Use and Wilderness	Marcie Bidwell
Noise	Subconsultant
Air Quality	Subconsultant
Lighting	Dark Skies Partners (Ben Gaddis)
Hazardous Materials	Kevin Serrato or Mike Stanwood
Public Health and Safety	Molly Thrash

I appreciate everybody's best effort on this given the short period of time that was given to SWCA to produce.

Tom Furgason

Program Director
 SWCA Environmental Consultants
 343 West Franklin Street
 Tucson, AZ 85701
 (520) 325-9194 ext. 110
 (520) 820-5178 mobile
 (520) 325-2033 fax



Rec and Wilderness Plan of Analysis.doc DRAFT CH 3 Recreation and Wilderness 100909.doc

Plan of Analysis – Recreation and Wilderness

Recreation

- Use GIS to calculate acres removed from each Recreation Opportunity Spectrum under alternatives
- Use GIS to quantify roads and trails that are lost or cut-off by project area disturbance
- Use GIS to calculate total miles of road and trail lost
- Use GIS to calculate trailheads, ATV loading and unloading areas, and other recreation sites lost
- Reference the Visual Resource analysis to describe from where on the Arizona trail the alternatives would be visible
- Use GIS to quantify how much, if any, of the Arizona Trail would be intersected
- Use GIS to compare alternative haulage routes with recreation access in the area of analysis
- Use GIS to compare alternative project footprints with the two annual recreation event permits off Gardner Canyon Road

Wilderness

- Reference the Visual Resource analysis to describe from where within the Mt. Wrightson Wilderness the alternatives would be visible. Include trails and access points in the evaluation

Data needs to complete consequences section

- A detailed written description for each alternative including traffic plans, timing of the different phases and overall life of the mine
- Shapefiles for the different alternative components including haul routes
- Shapefiles for all roads and trails within the Santa Rita Backcountry Tour Area (I believe we have this)
- Reference Visual Resources Section
- Conditions of the two annual recreation permits in the area
- Past, Present and Reasonably Foreseeable Future Actions for completion of the Cumulative Impacts Section

Time and budget to complete recreation and wilderness consequences section:

Task		Hours to Complete	Cost Estimate
1	Coordination with GIS	4 (105/hour)	420.00
2	GIS time	24 (75/hour)	1,800.00
2	Alternatives Consequences Analysis	32 (105/hour)	3,360.00
3	Cumulative Impacts	4 (105/hour)	420.00
4	Monitoring and Mitigation Section	4 (105/hour)	420.00
5	Respond to FS comments	16 (105/hour)	1,680.00
Total		Up to 84 hours	8,100.00

Debby Kriegel/R3/USDAFS
07/14/2010 09:02 AM

To "Stephen Leslie" <sleslie@swca.com>
cc Debby Kriegel/R3/USDAFS@FSNOTES
bcc
Subject Re: maps for Recreation section 

Steve: My comments on the maps...

General

The FS shield seems too big. Are other maps in the DEIS using a big shield? It would if all maps had some consistency.

ROS Map

- Is it ok to use color? These maps don't have to be black and white, right?
- Change the order in the legend to go from most primitive to most developed. See table 3.11-1.
- Change the colors to emphasize the spectrum. I tend to use P=dark green, SPNM=med green, SPM=light green, RM=dark blue, RN=light blue, R=orange, and U=red.
- Move the SONOITA label so it's not overlapping the road.
- Sahuarita is north of Green Valley.

Bounds of Analysis Map

- Somewhere (on map or in text) explain why the west boundary is so complicated (indian reservation).
- The bounds of analysis label pointer doesn't quite point to the line.

Recreation Sites Map

- The "Santa Rita Backcountry Touring Area" label is right on top of an inventoried roadless area. I recommend moving this to the legend.
- Sahuarita is north of Green Valley.
- Madera Canyon is primarily farther south up the road in the peninsula of land surrounded by wilderness. Move the pointer for this label to point to the road a mile or so south of where it currently points.
- Change the legend: Forest Designated Road should be Forest Roads (though only roads on the Coronado are Forest Roads; all the other roads off-forest should not be shown in green as Forest Roads). Forest Designated Trails should be Trails.
- Madera Canyon and Box Canyon Roads are yellow, which highlights them nicely but conflicts with the legend as they are also Forest Roads (and should be green). Is there another way to highlight them?
- Indicate that yellow is BLM land. Maybe in the legend?
- Move the 83 symbol closer to the highway.
- Label other places mentioned in text: Kentucky Camp, Elephant Head Mountain Bike Trail, Mt. Hopkins complex, Hunt unit 34A, etc.

~~~~~  
Debby Kriegel, RLA  
Landscape Architect  
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[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)

"Stephen Leslie" <sleslie@swca.com>



"Stephen Leslie"  
<sleslie@swca.com>  
07/13/2010 03:12 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc  
Subject maps for Recreation section

Debby

Here are the initial maps for the affected environment recreation section. [attachment "recreation\_fig\_ROS.pdf" deleted by Debby Kriegel/R3/USDAFS] [attachment "recreation\_BOA\_Jan-2010.pdf" deleted by Debby Kriegel/R3/USDAFS] [attachment "recreation\_fig\_rec\_sites.pdf" deleted by Debby Kriegel/R3/USDAFS]



"Marcie Bidwell"  
<mbidwell@swca.com>  
07/15/2009 01:34 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc  
bcc  
Subject RE: Simulation task list~ is this what you are looking for?

Debby,

Thanks for your thoughts on the simulations, I will work this in with my table and see what we get.

I added your language into the Scope for Sims and sent it to Charles. You , Reta and Bev should receive it soon. Regarding the 28 sims, I am just afraid that RCC will freak out if we start with that large of a number. Do you think we can start with the 10 sims and then see if we need to do more (thinking we will); I just dont want to loose the work due to the price tag and the number of simulations.

Also, I put an assumption that all views with the mining equipment and facilities in it are time and materials beyond the standard sim hours.

I left it at 5 and you can discuss it with Bev (to raise it) or we can start with the highest important sims and then decide (at the intial stage) that you want it expanded. They are watching prices very closely right now.

I can add a task for more 3D model research (Basically creating the gis snapshots of the alternatives).

If we did 28 sims, its going to be really, really expensive, even if some of them are simple.

Anyway, here it comes through the pike and you can discuss it with Bev and Reta. Had to get something in there. We fully expect there to need to be change orders to follow on.

Marcie

**From:** Debby Kriegel [mailto:dkriegel@fs.fed.us]  
**Sent:** Wednesday, July 15, 2009 8:34 AM  
**To:** Marcie Bidwell  
**Cc:** Debby Kriegel  
**Subject:** Re: Simulation task list~ is this what you are looking for?

Marcie:

See my comments below in red and the attached document. Please call me if you want to discuss any of this.

Two other questions:

1. How is your research of other mines going?
2. Do you think you are budgeted sufficiently to complete currently funded tasks?

Thanks!

Debby

"Marcie Bidwell" <mbidwell@swca.com>

07/14/2009 10:23 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>

cc

Subject Simulation task list~ is this what you are looking for?

Debbie,

can you give this a quick review and let me know if this is what you are looking for~ in table below. Please edit if you want and send back. I will submit to Charles and Tom to resubmit to you, Bev, and Reta.

Also, I am attaching the list of actions that we reviewed this morning (whats funded, not funded, simulation request)

**Bold- Simulation request**

*Italics- underway as Alternative Development*

Plain- not funded, not included

<<Visual\_Resource\_Proposal\_2009-07-14 Review.pdf>>

**Task 1. Consultation with USFS and Rosemont to Select Simulations and Phases**  
(Note: consulting with Rosemont should help them understand why we selected the simulation points and phases, but the USFS needs to have the final say)

*Review all KOPs established by the USFS and select-5-(Estimated = 28. See the attached document.) key observation points (KOPs) to propose to USFS for simulations.*

*Prepare and review "existing conditions" panoramas for potential KOP simulations. Select-a-phases to represent for each KOP in addition to Reclamation (i.e. construction at 5 years, etc).*

*Meet with USFS and RCC (including Sage/Tetrattech reclamation team) to review data, KOP selection and "photo realistic" process.*

**Task 2. 3D Surface and Scene construction**

*Collect nessecary (typo) data and generate 3-D digital surfaces for the MPO at each construction phase selected for simulations. This step will include researching what the pit will look like and generating 3D plant facilities if needed.*

*Create one set of 3-D GIS Arc Globe working maps and diagrams Construct 3-D working diagrams for RCC and USFS to review potential scenes from each KOP to be selected.*

*Review with USFS and RCC for proposed simulations (i.e. does the KOP portray a scene which is representative of desired viewshed and phase of construction for visual analysis.*

**Task 3. Visual Simulations Construction and Review with USFS/RCC**

*Create photo-realistic computer simulations of MPO for-5-KOPs and-2-phases for each KOP.*

*Each simulation will show waste rock and tailing pile forms, pit, roads, and infrastructure.*

*Prepare photorealistic simulation images for 5 KOPs.*

*Review draft simulations with resources specialists from RCC, USFS, and SWCA to direct specific aspects of renderings: reclamation, soils, vegetation, etc.*

*Complete a Draft review with USFS and RCC staff at meeting in Tucson.*

#### **Task 4. Photo Simulation Finalization**

*Complete changes to simulations and submit to USFS and RCC for final approval.*

I recommend that your proposal also include other currently unfunded work, including the following:

- Conduct site visits to other mines to glean best management practices (1g)
- Determine landscape patterns and explore concepts for shaping waste rock and tailings piles that better protects and mimics natural landforms and valued landscape character. Conduct site analysis. Define criteria for shaping new topography to mimic surrounding landscape and provide natural drainage patterns to direct and slow water for plants, determine revegetation species, sizes, and patterns, and explore options for possible roads and/or trails on piles (modified 3d and 3f)
- Prepare "before" images (3g)
- Show results of simulations to IDT and get feedback (3i)
- One more site visit (including a meeting with Dr. Pepper)

Marcie Demmy Bidwell

Environmental Planner

130 Rock Point Drive, Suite A

Durango, Colorado 81301

Office: 970.385.8566

Fax: 970.385.1938

[www.swca.com](http://www.swca.com) [attachment "Visual\_Resource\_Proposal\_2009-07-14 Review.pdf" deleted by Debby Kriegel/R3/USDAFS]

Debby Kriegel/R3/USDAFS  
11/05/2009 12:29 PM

To "Stephen Leslie" <sleslie@swca.com>  
cc Debby Kriegel/R3/USDAFS@FSNOTES  
bcc  
Subject Rosemont - Comments on Chapter 3 Draft 

Steve,

Here are my initial comments on the first draft, and definitions for the ROS settings on the Coronado NF.

Please let me know if you have questions or want to discuss anything.

Thanks!



DRAFT CH\_3\_Recreation\_and\_Wilderness\_100909.doc Rationale.rtf

-----  
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[dkriegel@fs.fed.us](mailto:dkriegel@fs.fed.us)

In inbox

# **The Recreation Opportunity Spectrum on the Coronado National Forest**

February 4, 2000

## **Introduction**

The Recreation Opportunity Spectrum (ROS) provides a framework defining outdoor recreation settings, from highly developed "Urban" places to very remote "Primitive" places. Maintaining a broad spectrum of these classes is very important to provide visitors with choices. The system can be used to map existing conditions on the forest, as well as to plan for the future.

On the Coronado National Forest there are seven classes (listed from most developed to most natural): Urban, Rural, Roaded Natural, Roaded Modified, Semi-Primitive Motorized, Semi-Primitive Non-Motorized, and Primitive. Below is a brief description of each.

## **Urban (U)**

Urban settings are areas of concentrated use (such as visitor centers) and areas where facilities dominate the natural setting (such as electronic sites). Urban areas are generally very small in size and constitute a very small percentage (<1%) of the Forest. Characteristics include intensive use, costly facilities, large numbers of people, and specialized activities.

Examples of Urban ROS settings include:

- Astrophysical sites
- Electronic sites and radar bases
- Heavily visited visitor centers (i.e., Sabino Canyon, Palisades)
- Developed shooting ranges
- Major streets in cities, towns, and villages (i.e., main street Summerhaven)

## **Rural (R)**

Rural settings include most developed recreation areas as well as many other developed areas. The natural setting is the attraction but there are facilities such as buildings, roads, walkways, and picnic tables. Rural areas are generally very small in size and constitute a very small percentage (<1%) of the Forest.

Examples of Rural ROS settings include:

- Developed campgrounds and picnic areas
- Small visitor centers (i.e., Cave Creek, Columbine)
- Organization camps
- Most administrative sites
- Major concessions (i.e., Parker Canyon Lake store & boat ramp area)
- Major summerhome areas (i.e., Willow Canyon, Turkey Flat, etc.)
- Vista points and mass transit stops with facilities like paved parking, sidewalks, restrooms, etc.
- Ranch headquarters (i.e., Bellota Ranch)
- Edges of cities, towns, and villages (i.e., edges of Tucson, Oracle, and Portal)

## **Roaded Natural (RN)**

Roaded Natural settings are road corridors where people drive to enjoy the scenery and are often on their way to a developed site such as a campground, picnic area, or visitor center (including both Forest Service and other recreation sites). The natural setting is the focus, but nodes of ROS Urban and Rural are commonly found along these corridors. Roads are passable by low-clearance vehicles. Individual buildings and structures (such as very small administrative sites or individual summerhomes) are occasionally encountered within these corridors.

Roaded Natural corridors are usually 1 mile wide (1/2 mile on each side of the roadway). However, where a Wilderness or Wilderness Study Area boundary is adjacent to a Roaded Natural corridor, the width may be narrower. Additionally, because landforms screen the sights and sounds of people and cars, if a watershed boundary falls near the Roaded Natural boundary, the Roaded Natural corridor may be somewhat narrower or wider.

Examples of Roaded Natural ROS road corridors include:

- Chiricahua Mountains: Cave Creek road and East Turkey Creek road
- Santa Rita Mountains: Madera Canyon road, Whipple and Mt. Hopkins road, and Highway 83
- Huachuca Mountains & Canelo Hills: Highway 83 to Parker Canyon Lake, Carr Canyon road, Highway 82, FR 61 from Coronado Memorial to Parker Canyon Lake, and Ramsey Canyon road
- Pinaleno Mountains: Swift Trail (including side roads to Twilight and Bible Camp) and Stockton Pass road
- Santa Catalina Mountains: Mt. Lemmon Highway, Sabino Canyon roads, and Catalina State Park roads

## **Roaded Modified (RM)**

Roaded Modified settings are road corridors where people drive to enjoy the scenery and get away from other people and developed sites. The natural setting is the focus and visitors are often looking for a place to drive off-road, set up their own camp, explore the backcountry, or find solitude. Although uncommon, occasionally a node of Rural or Urban occurs within a Roaded Modified corridor.

This definition of Roaded Modified is different from that used on other forests. Elsewhere this classification is used for areas along primitive roads that have been modified by management activities (such as timber sales). On the Coronado National Forest the term Roaded Modified is used for areas along roads that are passable by low-clearance vehicles that have usually not been altered significantly by management activities, though there are may be trails, dispersed campsites, historic sites, and mining and ranching facilities along the route.

Roaded Natural corridors are usually 1 mile wide (1/2 mile on each side of the roadway). However, where a Wilderness or Wilderness Study Area boundary is adjacent to a Roaded Modified corridor, the width may be narrower. Additionally, because landforms screen the sights and sounds of people and cars, if a watershed boundary falls near a Roaded Modified boundary, the Roaded Modified corridor may be somewhat narrower or wider.

Examples of Roaded Modified ROS road corridors include:

- Chiricahua Mountains: Tex Canyon road and Forest Road 356 (first 3 miles)
- Santa Rita Mountains: Box Canyon road and side road to Greaterville, Big Casa Blanca

- Canyon road, Forest Roads 92 and 4104 (first 3.5-4 miles), Forest Road 624 to Florida Work Center, and roads to Kentucky Camp
- Huachuca Mountains, Canelo Hills, & San Rafael Valley: Forest Roads 49, 58, 61, 139, 194, 227, 228, 766, 799, and 827, and East side of Huachuca mountains to wilderness boundary (includes roads up canyons)
- Pinaleno Mountains: Road north of Ft. Grant prison to Forest boundary and Marijilda road
- Santa Catalina & Rincon Mountains: Redington road and Bellota Ranch road, Happy Valley road, Control Road up to where road gets bad, and Road into north end of Catalina State Park
- Roads that primarily access private inholdings.

### **Semi-Primitive Motorized (SPM)**

Semi-Primitive Motorized settings are areas with primitive roads (i.e., high clearance and/or 4-wheel drive). People use these areas for a wide variety of activities, both recreational and other, including enjoying the scenery, getting away from other people, hunting, OHV use, dispersed camping, hiking, horseback riding, mountain biking, mining, and cutting firewood. Generally the only facilities in these areas are primitive roads and trails.

Semi-Primitive Motorized boundaries include the area within 1/2 mile of roads. However, where a Wilderness or Wilderness Study Area boundary is adjacent to a SPM setting, the distance may be reduced. Additionally, because landforms screen the sights and sounds of people and cars, if a watershed boundary falls near a Semi-Primitive Motorized boundary, the Semi-Primitive Motorized boundary shifts to follow the ridgeline.

### **Semi-Primitive Non-Motorized (SPNM)**

Semi-Primitive Non-Motorized settings are roadless areas that people use for a wide variety of activities, but primarily for dispersed uses. These areas have no facilities other than trails and are similar to Primitive areas except that they can be small areas, are typically closer to roads, and sometimes have large numbers of visitors.

Semi-Primitive Non-Motorized areas are usually at least 1/2 mile away from all roads. However, within a Wilderness or Wilderness Study Area this distance may be reduced. Usually SPNM areas are outside of Wilderness, but in two locations (the heavily used areas in Pusch Ridge and Mt. Wrightson Wildernesses) the setting within the wilderness boundary is classified Semi-Primitive Non-Motorized. Additionally, because landforms screen the sights and sounds of people and cars, if a watershed boundary falls near a Semi-Primitive Non-Motorized boundary, the Semi-Primitive Non-Motorized boundary shifts to follow the ridgeline.

Semi-Primitive Non-Motorized are often the areas that remain after all other ROS classes are mapped, and hence, these areas are often unusual shapes and sizes.

### **Primitive (P)**

Primitive settings are large wilderness or wilderness-like areas where people seek a totally natural setting, challenge, and solitude. These areas have no facilities other than trails and rarely have large numbers of visitors.

Primitive areas must be at least 5,000 acres (about 8 sections) and are usually 1 mile away from all roads. However, within a designated Wilderness or Wilderness Study Area, the distance from roads may be reduced. This is different from the definition of Primitive used by other Forests and Regions which often require a longer distance from roads, but because the Coronado is so mountainous and rugged, a primitive feeling and solitude here on the Coronado are usually experienced a much shorter distance from roads. Watershed boundaries do not effect Primitive boundaries.

All 8 Wildernesses and the Pinaleno Wilderness Study Area in the Pinalenos on the Coronado National Forest are Primitive with the exception of the heavily used areas in Pusch Ridge and Mt. Wrightson Wildernesses; these areas are classified Semi-Primitive Non-Motorized. And there are several areas outside of Wilderness that are classified Primitive.



"Trent Reeder"  
<treeder@swca.com>  
05/25/2010 12:25 PM

To "Debby Kriegel" <dkriegel@fs.fed.us>, "Marcie Bidwell"  
<mbidwell@swca.com>  
cc  
bcc

Subject RE: Paint Color

History:  This message has been replied to.

Here are two images showing the two different colors. Not sure if the gray hillshade helps or hinders this exercise.

Trent

**From:** Debby Kriegel [mailto:dkriegel@fs.fed.us]  
**Sent:** Tuesday, May 25, 2010 12:52 PM  
**To:** Trent Reeder; Marcie Bidwell  
**Cc:** Debby Kriegel  
**Subject:** RE: Paint Color

Marcie and Trent: This is not a good color to mitigate visual resource impacts. It is much too light and will not blend into the landscape at all. This manufacturer offers many darker colors which would be much better (medium bronze is my recommendation). In order to show Rosemont the problem with light colors, may I recommend that you take your red rectangle (indicating the plant site), show it in Rosemont's light stone color and also medium bronze, and insert each each into a photo of the site? Or if you have another method to quickly display colors in the landscape, I'm all ears. Thanks. Debby

"Trent Reeder"  
<treeder@swca.com>

05/25/2010 11:38 AM

To "Marcie Bidwell" <mbidwell@swca.com>, "Michael Andres" <mandres@swca.com>, "Chris Loftus" <chris@loftuslandscapestudio.com>  
cc "Debby Kriegel" <dkriegel@fs.fed.us>  
SubjRE: Paint Color  
ect

Awesome! Thanks.

Trent

**From:** Marcie Bidwell  
**Sent:** Tuesday, May 25, 2010 12:32 PM  
**To:** Michael Andres; Trent Reeder; Chris Loftus  
**Cc:** Debby Kriegel  
**Subject:** FW: Paint Color

Hello All,

We will be using this as the base color for facilities at the RCC plant site.

Thanks!  
Marcie

**From:** Marcie Bidwell  
**Sent:** Tuesday, May 25, 2010 12:31 PM  
**To:** Debby Kriegel; 'Beverley A Everson'; Melissa Reichard  
**Subject:** FW: Paint Color  
Hello All,

This is the color information that I mentioned at the Alternatives Meeting from Kathy and I did a little e-research to find a color chip, please share with anyone else that may find this information useful.

Marcie

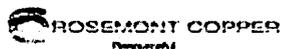
from <http://www.braemarbuildings.com/building-colors.php>



**Light Stone**  
**SR .50 SRI 58**

**From:** Kathy Arnold [mailto:karnold@rosemontcopper.com]  
**Sent:** Wednesday, February 24, 2010 12:10 PM  
**To:** Marcie Bidwell; Debby Kriegel  
**Cc:** David Krizek  
**Subject:** FW: Paint Color  
Finally got a full answer on the paint color...

Cheers!  
Katherine Ann Arnold, P.E. | Director of Environmental and Regulatory Affairs  
Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724  
[karnold@rosemontcopper.com](mailto:karnold@rosemontcopper.com)



Rosemont Copper Company  
P.O. Box 35130 | Tucson, AZ 85740-5130

3031 West Ina Road | Tucson, AZ 85741 | www.rosemontcopper.com

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----- Forwarded Message

**From:** Clarissa Barraza <[cbarraza@rosemontcopper.com](mailto:cbarraza@rosemontcopper.com)>

**Date:** Mon, 22 Feb 2010 10:16:42 -0600

**To:** Patrick Glynn <[pglynn@rosemontcopper.com](mailto:pglynn@rosemontcopper.com)>, Katherine Arnold <[karnold@rosemontcopper.com](mailto:karnold@rosemontcopper.com)>

**Subject:** RE: Paint Color

Kathy,

The color is Lightstone from Premier (SR.50 SRI 58)

Regards,

Clarissa Barraza  
Project Engineer

Rosemont Copper Company  
*a subsidiary of Augusta Resource Corporation*

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**From:** Patrick Glynn

**Sent:** Friday, February 19, 2010 3:53 PM

**To:** Clarissa Barraza

**Cc:** Kathy Arnold

**Subject:** FW: Paint Color

**Importance:** High

Please can you help Kathy with this asap Monday as I am out of the office next week.

Thanks

**From:** Kathy Arnold

**Sent:** Friday, February 19, 2010 8:47 AM

**To:** Patrick Glynn

**Cc:** Lance Newman

**Subject:** Paint Color

Patrick

The Forest Service needs actual paint colors for the buildings at the plant site. Can you send me either a website or the names of the paint with a specific brand so that I can tie them to a real color – this is a 911 for help ASAP!

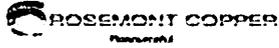
Thanks -

**Kathy**

**Katherine Ann Arnold, P.E.** | Director of Environmental and Regulatory Affairs

Cell: 520.784.1972 | Main: 520.297.7723 | Fax 520.297.7724

[karnold@rosemontcopper.com](mailto:karnold@rosemontcopper.com)



**Rosemont Copper Company**

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3031 West Ina Road | Tucson, AZ 85741 | [www.rosemontcopper.com](http://www.rosemontcopper.com)

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----- End of Forwarded Message [attachment "Facilities\_Light\_Stone\_3D.jpg" deleted by Debby Kriegel/R3/USDAFS] [attachment "Facilities\_Medium\_Bronze\_3D.jpg" deleted by Debby Kriegel/R3/USDAFS]



"Tom Furgason"  
<tfurgason@swca.com>  
04/14/2010 08:13 AM

To <beverson@fs.fed.us>, <dkriegel@fs.fed.us>, "Melinda D Roth" <mroth@fs.fed.us>, <rlaford@fs.fed.us>, <sshafiqullah@fs.fed.us>  
cc <daleortmanpe@live.com>, "Jonathan Rigg" <jrigg@swca.com>, "Melissa Reichard" <mreichard@swca.com>

bcc

Subject FW: Rosemont Landform Draft Report

History:  This message has been forwarded.

Bev,

Attached is Horst's draft report. We would appreciate it if the Coronado would expedite the review of this document. I expect that Rosemont will want to hear some feedback at tomorrow's meeting regarding the Coronado's initial reaction to Horst's conclusions.

I am very eager to respond to Horst so that we can get his final report and invoice so that we can request Rosemont pay him for his work. Thanks.

Tom

**From:** Dale Ortman PE [mailto:daleortmanpe@live.com]  
**Sent:** Wed 4/14/2010 6:08 AM  
**To:** Tom Furgason  
**Cc:** Melissa Reichard  
**Subject:** FW: Rosemont Landform Draft Report

Tom,

Attached is the draft Landform report from Horst Schor. Please forward to the CNF with a request to expedite their review. As noted in the email below the final report will include a CD with the earthwork calculations, maps, and a full electronic copy of the report.

Cheers,

Dale

---

Dale Ortman PE PLLC  
Consulting Engineer

(520) 896-2404 - Arizona Office  
(520) 449-7307 - Mobile  
(435) 682-2777 - Utah Office

[daleortmanpe@live.com](mailto:daleortmanpe@live.com)

PO Box 1233  
Oracle, AZ 85623

**From:** Horst [mailto:hjschor@jps.net]  
**Sent:** Tuesday, April 13, 2010 6:54 PM  
**To:** 'Dale Ortman PE'  
**Subject:** Rosemont Landform Draft Report

Ok Dale – here it is.

I incorporated all the issues you had highlighted for me: erosional stability, visual appearance, the expanded footprint beyond Barrel Canyon, the tailings and heap leach issue, the 500' setback, the southern watershed diversion, the Ball Court and the earthwork calculation.

The computer files (in CD format) with text, graphics, photos and calculation as well as the five hard copies will be sent to you once you approve the draft.

Horst[attachment "Rosemont Report -041310-final draft.pdf" deleted by Debby Kriegel/R3/USDAFS]



"Tom Furgason"  
<tfurgason@swca.com>  
12/18/2009 12:30 PM

To "Horst" <hjschor@jps.net>  
cc "Debby Kriegel" <dkriegel@fs.fed.us>  
bcc

Subject RE: Rosemont Copper

History:  This message has been forwarded.

Horst,

I understand the delay and have forwarded your request to Rosemont. I will let you know when I hear back from them.

Tom

---

**From:** Horst [mailto:hjschor@jps.net]  
**Sent:** Thursday, December 17, 2009 7:23 PM  
**To:** Tom Furgason  
**Cc:** 'Debby Kriegel'  
**Subject:** RE: Rosemont Copper

Tom – Help!

I will have to delay the completion of my proposal as I have been unable to obtain the necessary base map data.

I did try to make contact on Tuesday with Kathy Arnold as you suggested, twice by email but this was ” rejected as user unknown”

On Wednesday I called her office number (Tetrattech answered) and then her cell number and left messages.

As of today I have not heard back.

Here are the specifics as to what I need:

1. Base Topographic Data saved in one of the following formats:
  - DWG – Autocad
  - DGN – Microstation
2. 2 Coordinate retained
3. Base data to include:
  - Contours
  - Grid Ref.
  - Other important features, i.e. property lines, Hwy 83 alignment

The above can be sent on CD, electronically transmitted or on an FTP site (with user name) established to access.

Let me know what can be done. Can you get this to the right person at Tetrattech direct or is there protocol involved?

Thanks,

Horst

**From:** Tom Furgason [mailto:tfurgason@swca.com]  
**Sent:** Tuesday, December 15, 2009 2:20 PM  
**To:** Horst  
**Cc:** Kathy Arnold ROSEMONT  
**Subject:** RE: Rosemont Copper

Horst,

I agree that it may be more efficient for you to contact Tetra Tech directly. Our contact is:  
Katherine Ann Arnold, P.E.  
Director of Environmental and Regulatory Affairs  
Cell: 520.784.1972  
Main: 520.297.7723  
[karnold@rosemontcopper.com](mailto:karnold@rosemontcopper.com)

Tom

**From:** Horst [mailto:hjschor@jps.net]  
**Sent:** Tuesday, December 15, 2009 10:45 AM  
**To:** Tom Furgason  
**Subject:** Rosemont Copper

Tom,

This is a follow up to my phone call from yesterday.

The CD I got from your office last Friday is not working out as I am unable to open it up. I do not know what program was used to create it.

On the CD there appear to be 68 sub pieces to the topo and I am not quite sure how you create a unified single piece of topo map and at a scale which Tetrattech uses for their grading studies. We want to be able to compare "apples and apples" at the end.

It would really simplify things if I could talk to a person at Tetrattech direct who is familiar with this and explain to him my needs.

I do need the topo to continue to work on my proposal.

**Thanks Tom,**

**Horst**



"Marcie Bidwell"  
<mbidwell@swca.com>  
03/18/2009 08:08 AM

To "Debby Kriegel" <dkriegel@fs.fed.us>  
cc  
bcc  
Subject Updated chart

History:  This message has been replied to.

<<Visual\_Resource\_Proposal\_2009-03-18.xls>>

Marcie Demmy Bidwell  
Environmental Planner  
515 East College Avenue  
Durango, Colorado 81301  
Office: 970.385.8566  
Fax: 970.385.1938



[www.swca.com](http://www.swca.com) Visual\_Resource\_Proposal\_2009-03-18.xls

## Rosemont EIS - Proposal for Visual Resource Analysis (3/14/09)

Note: This document summarizes the basic steps and tasks, responsibilities, and schedule. Information provided in other emails and letters still applies

| Task      | Description of Work                                                                                                                                                                                                                                                                                                            | SWCA responsibilities                                                                                                                                                                                              | USFS responsibilities                                                                                     | Proposed Completion Date                                 | Associated EIS Timeline Step & Date | Status              |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------|---------------------|
| <b>1</b>  | <b>PROJECT PREPARATION</b>                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                    |                                                                                                           |                                                          |                                     |                     |
| <b>1a</b> | Review PIL, MPO, Reclamation Plan, public comments, Forest Plan, VQOs, SMS inventory, FS SMS Handbook, USFS Project Level Scenery Analysis, FSM 2380, Corridor Mgmt Plan for Patagonia-Sonoita Scenic Rd                                                                                                                       | Review all documents and utilize as appropriate throughout analysis                                                                                                                                                | Provide documents as needed                                                                               | 3/20/2009                                                | Spring 2009                         | Complete/ On-going  |
| <b>1b</b> | USFS/SWCA create this proposal and schedule; Present to USFS Project Manager and Process Manager, RCC and SWCA Project Manager                                                                                                                                                                                                 | Review and comment. Coordinate with Rosemont as needed.                                                                                                                                                            | Provide draft and final                                                                                   | Drafted 3/20/2009; Mgmt App by 3/27/2009                 |                                     | Underway            |
| <b>1c</b> | Provide outlines for EIS and technical report                                                                                                                                                                                                                                                                                  | Draft for chapter 3 and technical report provided 3/12/09                                                                                                                                                          | Requested Word documents 3/13/09. Review and comment.                                                     | 3/16/2009                                                | 3/16/2009                           | Completed 3/16/2009 |
| <b>1d</b> | Obtain simulations being completed by Rosemont                                                                                                                                                                                                                                                                                 | SWCA to request if studies and simulations are being supplied by RCC for USFS, and obtain documents as appropriate. SWCA to assist USFS to determine whether they are sufficient to complete visual analysis work. | USFS to review and comment re: suitable to meet USFS analysis needs.                                      | Request by 3/23/2009                                     | 3/30/2009 (?)                       |                     |
| <b>1e</b> | Complete issue statements                                                                                                                                                                                                                                                                                                      | Draft provided                                                                                                                                                                                                     | Review and comment                                                                                        | March?                                                   | Issue Statements (March 2009?)      | Underway            |
| <b>1f</b> | Research other reclamation efforts that protected scenery on other mines. Contact reclamation experts who have successfully completed land sculpting on other large-scale mines and good revegetation efforts. Identify what was successful and could be incorporated into the Rosemont project. Identify mine sites to visit. | Complete research and provide findings. Travel to other mine sites as needed.                                                                                                                                      | Review all research (Note: Dkriegel has made some SWCA contacts; SWCA needs to take the lead immediately) | Define- 3/20/2009; Initiate research schedule- 3/20/2009 | Unassigned                          |                     |
| <b>1g</b> | Summarize remediation case studies and research into a chapter of the Technical Report. Use research to inform evaluation criteria for analysis.                                                                                                                                                                               | Provide draft and final of remediation case studies for Technical Report                                                                                                                                           | Review and comment                                                                                        |                                                          | Unassigned                          |                     |

| 1h                                   | Identify evaluation criteria that will be used to describe affected environment, define environmental consequences, and evaluate project effects. Identify landscape patterns and ecological processes present on the site and in Santa Rita Mountains.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Provide draft and final                | Review and comment                                              | Y                           |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------|-----------------------------|
| <b>2</b> <b>AFFECTED ENVIRONMENT</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                        |                                                                 |                             |
| <b>2a</b>                            | Identify visually sensitive travelways and viewpoints, and special places in and around the project area. Document key observation points for the affected environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Provide draft and final                | Review and comment                                              | Spring 2009                 |
| <b>2b</b>                            | Map viewsheds that would be affected by the project, both for the no action alternative and the proposed action (including pit, waste rock piles, plant, utility lines, new roads, etc.).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Provide maps                           | Review maps                                                     | Spring 2009                 |
| <b>2c</b>                            | Identify and describe scales of analysis, which are likely to include the viewshed that includes the proposed mine, the Santa Rita Mountains EMA, and landscapes across the Coronado National Forest. Provide a brief analysis of large-scale natural landscapes across southeastern Arizona to demonstrate the value of the Coronado NF and the project area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Provide maps and written documentation | Review all items                                                | Summer 2009                 |
| <b>2d</b>                            | Write the Affected Environment section (technical report and/or chapter 3 text). Explain the existing directives for visual resources (FSH, Forest Plan direction, VQOs, etc.). Describe the existing landforms, vegetation, line/form/color/texture, land uses, and deviations from the landscape. Identify the valued landscape character to provide guidance for analysis of alternatives. Describe visitors and visually sensitive travelways and viewpoints and distance zones. Describe current impacts to visual resources at each analysis scale. Utilize the Visual Resource Management System (and VQOs) currently in the Forest Plan, but prepare a parallel report using the Scenery Management System. If the Forest Plan is revised prior to completion of the EIS, it is likely that SMS will be incorporated, and would therefore be the system used in the Rosemont EIS. | Provide draft and final                | Review and comment                                              | Chapter 3 (September 2009?) |
| <b>3</b> <b>DESIGN EXPLORATION</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                        |                                                                 |                             |
| <b>3a</b>                            | Identify alternate locations to potentially place waste rock and tailings (unseen or seldom seen locations with few wildlife and archaeology concerns). A McHarg-like mapping process might work well.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Provide maps. Site visits as needed.   | Provide wildlife and archaeology data as needed and review maps | Unassigned                  |
| <b>3b</b>                            | Create a 3-D computer simulation of existing landscape and proposed mine.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Provide simulation                     | Review simulation                                               | Unassigned                  |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                        |                                                                   |  |                             |  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------|--|-----------------------------|--|
|    | Facilitate a workshop with USFS landscape architect, other USFS staff, SWCA, remediation and mining experts (potentially RCC) to generate initial ideas to explore that achieve USFS design goals (visual, vegetation, wildlife, habitat, water quality). Potential areas to address: sahping waste piles, forming side slopes.                                                                                                                                                                                                                                                                                                                                          |                                                        |                                                                   |  |                             |  |
| 3c | Explore and refine concepts identified in workshop for alternative placement and shaping of waste rock and tailings piles that better protects and mimics natural landforms and landscape character. Explore radically different shaping to avoid the monolithic form, flat top, and even side slopes. Consider options that may benefit wildlife habitat and those that might mitigate impacts of the pit (such as removing the most visible western edge). If 3-D computer modeling is not sufficient to complete this step, utilize other methods such as a topographic model.                                                                                        | Provide ideas to IDT during discussion of alternatives | Review and advise. Participate in 3-D computer modeling sessions. |  | Alternative Development     |  |
| 3d | Select tentative key viewpoints for simulations. Document these locations with photogrpahy and GPS. Prepare "before" images.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Provide draft and final. Site visits as needed.        | Review and comment                                                |  | Unassigned                  |  |
| 4  | <b>ENVIRONMENTAL CONSEQUENCES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                        |                                                                   |  |                             |  |
| 4a | Complete a full analysis of the 3 big impacts: the waste rock and tailings piles, the pit, and the "temporary" facilities (plant, roads, utilities, etc. that would only be on site during mining) for all alternatives (no action, proposed action, preferred action, and others). Include written documentation, 3-D simulations, and static viewpoints (showing before and after views). Determine and describe recommended mitigation. If necessary, provide language for an amendment to the Forest Plan. Utilize the Visual Resource Management System (and VQOs) currently in the Forest Plan, but prepare a parallel report using the Scenery Management System. | Provide draft and final                                | Review and comment                                                |  | Chapter 4 (September 2009?) |  |
| 4b | Write Technical Report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Provide draft and final                                | Review and comment                                                |  | Draft EIS (September 2009?) |  |
| 4c | Complete a thorough Cumulative Effects analysis and summarize in the Technical Report. Analyze past, present, and future land uses and impacts across natural public landscapes in SE Arizona and how the proposed action, when added to them, effects visual resources at each analysis scale.                                                                                                                                                                                                                                                                                                                                                                          | Provide draft and final                                | Review and comment                                                |  | Draft EIS (September 2009?) |  |
| 4d | Summarize Technical Report for EIS Chap 4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Provide draft and final                                | Review and comment                                                |  | Draft EIS (September 2009?) |  |

| Within Current Contract | Notes                                                                                                                              |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Y                       | Regional LA may be consulted to approve of process                                                                                 |
| N                       | USFS and SWCA need to define what is the required process for reclamation research in the EIS process and at what timing/schedule. |
| N                       |                                                                                                                                    |

|   |   |   |   |   |  |  |   |   |
|---|---|---|---|---|--|--|---|---|
|   |   |   |   |   |  |  |   |   |
| Y | Y | Y | Y | Y |  |  | Z | Z |

