MINUTES OF THE

SANTA FE COUNTY

PLANNING COMMISSION

Santa Fe, New Mexico

September 20, 2018

I. This meeting of the Santa Fe County Planning Commission was called to order by Chair Charlie Gonzales on the above-cited date at approximately 4:00 p.m. at the Santa Fe County Commission Chambers, Santa Fe, New Mexico.

II. Roll call preceded the Pledge of Allegiance and indicated the presence of a quorum as follows:

Members Present:
Charlie Gonzales, Chair
Frank Katz, Vice Chair
Filandro "Phil" Anaya
Renae Gray
Susan Martin
Stephen Shepherd

Member(s) Absent:
Leroy Lopez

Staff Present:
Vicki Lucero, Building & Development Services Manager
Paul Kavanaugh, Building & Development Services Supervisor
John Lovato, Development Review Specialist
Cristella Valdez, Assistant County Attorney
Eric Ames, Assistant County Attorney
Jaome Blay, Fire Marshal

IV. Approval of Agenda

MS. LUCERO: Mr. Chair, yes, we do have one change to the agenda under item number VII, Old Business, case number SVAR 18-5040, Nelson and Darla Vigil variance has been tabled.

CHAIR GONZALES: Thank you.

Member Katz moved to approve the agenda as amended. Member Martin seconded and the motion passed by unanimous voice vote.

V. **Approval of Minutes: August 16, 2018**

Member Anaya moved to approve the August minutes as submitted. Member Katz seconded and the motion passed by unanimous voice vote.

VI. **Consent Agenda Final Orders**:

A. **CASE # CUP 17-5370 CS Performance Horses Conditional Use Permit. Philip Leonard, Applicant, Requests Approval of a Conditional Use Permit to Allow a Horse Training Facility on a Residential Property. The Site is within the U.S. 285 South Highway Corridor District Overlay and is Zoned a Rural Residential (Rur-R). The Site is Located at 18 C Camino Amansador Via U.S. Highway 285 Within T15N, R10E, Section 16, SDAa-2, (Commission District 5) Approved 5-0**

Member Katz moved to approve the order as submitted. Member Martin seconded. The motion passed by 5-0 voice vote with Member Anaya abstaining.

B. **CASE # V18-5070 Angelo Ortega Variance. Angelo Ortega, Applicant, James W. Siebert & Assoc., Agent, Request a Variance to the Requirements Set Forth in the Sustainable Land Development Code (SLDC) of Chapter 10, Section 10.4.2.1 to Allow an Accessory Dwelling Within a Major Subdivision and a Variance of Section 10.4.2.4 (Utilities) to Allow a Separate Liquid Waste System for the Accessory Dwelling Unit. The Property is Located at 120 North Paseo de Angel, within the La Cienega and La Cieneguilla Community District Overlay (LCLCCD) (RES-E), within Section 22, Township 16 North, Range 8 East (Commission District 3) Denied Unanimously (6-0).**

Member Katz moved to approve the order as submitted. Member Martin seconded and the motion passed by unanimous [6-0] voice vote.

C. **CASE # V18-5060 Emilio E. Ortiz and Linda D. Ortiz-Chavez Variance. Emilio E. Ortiz And Linda D. Ortiz-Chavez, Applicants, Eileen Ortiz, Agent, Request A Variance to the Requirements Set Forth in the Sustainable Land Development Code (SLDC) of Chapter 9, Table 9.16.5 (Dimensional Standards) to Allow a 1.43 Acre Parcel to be Divided into Two Equal Lots; Each Lot Consisting of 0.715 Acres. The Property is Located at 39 Canada Ancha, Within the Chimayo Community District Overlay (Chcd) (TC), Within Section 1, Township 20 North, Range 9 East (Commission District 1). Denied Due to the lack of the Majority to Approve the Variance (2-3).**

Member Katz moved to approve the final order as submitted. Member Martin seconded and the motion passed [6-0].

VII. Old Business

A. SVAR 18- 5040 Nelson and Darla Vigil Nelson and Darla Vigil, Applicant. **This item was tabled**

VIII. New Business

A. APP 18-5130 Bruce and Debbie MacAllister Appeal Bruce and Debbie MacAllister, Appellant, Joseph Karnes, Agent, Request an Appeal to the Santa Fe County Planning Commission, Appealing the Santa Fe County Land Use Administrators Decision to Approve an Accessory Structure (Permit #18-110). The Property is 1.78 Acres and Located at 1467 Bishop's Lodge Road Within Section 31, Township 18 North, Range 10 East, SDA 2 (Commission District 1). John Lovato, Case Manager.

Chair Gonzales recused himself from this case and Vice Chair Katz assumed the responsibility of Chair.

MEMBER KATZ: May we have the staff report on this case, please.

JOHN LOVATO (Case Planner): Thank you, Mr. Chair and Commission members. Bruce and Debbie MacAllister, appellants, Joseph Karnes, agent, requests an appeal to the Santa Fe County Planning Commission, Appealing the Santa Fe County Land Use Administrators decision to approve an accessory structure, permit #18-110. The property is 1.78 acres and located at 1467 Bishop's Lodge Road within Section 31, Township 18 North, Range 10 East, SDA-2, Commission district 1.

On January 31, 2018, County staff received a complaint regarding the unpermitted structure at 1467 Bishop's Lodge Road. On February 9, 2018, County Code Enforcement issued a Notice of Violation to Mark Hopkins for unpermitted development. Mr. Hopkins moved a 600 square-foot horse stall/metal building to a different portion of his property without a permit.

On February 21, 2018, Mark Hopkins filed for a development permit. County staff later deemed the permit incomplete. Mr. Hopkins was required to submit a drainage study on the arroyo to provide proof that the arroyo was under 100 cubic feet per second and allow the structure to be closer than 25 feet pursuant to Chapter 7.17.5.2.6.

On May 17, 2018, Santa Fe County filed Mark Hopkins into Magistrate Court for unpermitted development as he had still not submitted the required drainage study for a permit. On May 30, 2018, a permit was issued to Mark Hopkins to move a 600 square foot accessory structure on his property. Mr. Hopkins chose to locate the structure five feet from the northern boundary of his property which complies with requirements of the SLD, Chapter 9.5 Tesuque Community Overlay District. There is also an arroyo on the property and the SLDC requires a minimum 25 foot setback from all arroyos with a flow rate of 100 cubic feet per second. Mr. Hopkins submitted drainage calculations from a Professional Engineer, Oralynn Guerrerortiz, which stated the flows were less than 100cfs. Therefore, a setback is not required.

On April 6, 2018, Bruce and Debbie MacAllister filed an Application for an Appeal which was submitted within the five days allowed by Chapter 4, Section 4.5.2 of the SLDC. Mr. Hopkins was made aware that an application was filed to appeal the permit for the proposed structure.

Appellants' Statement: On February 21, 2018, Mr. Hopkins submitted a development permit application which Growth Management staff determined was incomplete. On May 18, 2018, the County filed a criminal complaint against Hopkins in Santa Fe Magistrate Court. In addition, New Mexico Construction Industries issued a notice of violation based on failure to obtain required construction permits or obtain inspections. We understand that the CID violation has yet to be resolved.

Staff Response: On May 30, 2018, Santa Fe County issued a permit to Mark Hopkins resolving the Notice of Violation. Mr. Hopkins permit met all requirements of the code. County staff also spoke to Julian Gonzales with CID on September 4, 2018, about the permit for Mr. Hopkins accessory structure. Mr. Gonzales stated a permit is in for the structure, and he was unable to do his inspections because Mr. Hopkins did not have plans on the site.

Appellants' Statement: On December 29, 2017, the New Mexico Environment Department issued a written notice of an unpermitted on-site wastewater system consisting of two seepage pits on the Hopkins' property and required total replacement of the liquid waste system. The seepage pits are located approximately 30-feet from the arroyo running through the Hopkins' property. Following Hopkins' failure to replace the system, on May 22, 2018, the NMED issued a letter again requiring total replacement pursuant to NMED approval. Based on information and belief, Hopkins has not remedied the NMED violations.

Staff Response: On September 5, 2018, County staff spoke to Ronald Romero with NMED about Mr. Hopkins' violations. Mr. Romero stated that there were violations on the subject property. However, Mr. Romero stated the Hopkins residence is unoccupied and no discharge is associated with the failed system and no one lives in the home and therefore is not a health hazard to anyone. Mr. Romero stated that there is a permit in place for a replacement septic system.

Appellants' Statement: The Appellants' agent, Joseph Karnes, states, To document staffs conclusion the setback requirement has not been met. The McAllister's will provide a stamped survey showing the distance between the existing horse shed and the common property line, which is approximately four feet.

Staff Response: On August 17, 2018, County staff met with Mr. Hopkins and measured the structure from the property boundary. Mr. Hopkins was in agreement the structure did not meet the 5 foot setback based off the Appellants' survey. Mr. Hopkins moved the structure further away from the boundary and county staff re-inspected and measured from the surveyed plat submitted from the Appellant. The structure meets the setback which is now 5 foot 5 inches.

Appellants' Statement: The Appellants agent states, "Mr. Hopkins submitted engineer calculations prepared by Oralynn Guerrerortiz which concludes that peak discharge during a 100-year storm event is 39.94cfs. The document does not contain any statement addressing whether the structure has to comply with SLDC Section 7.17.5.1.1 due to placement of fill. As such, the administrative approval is invalid and must be

vacated. Furthermore. Ms. Guerrerortiz underestimates the peak discharge by over 100%. We will be submitting documentation that the peak discharge is approximately 90cfs."

Staff Response: Staff has reviewed the drainage report done by Oralynn Guerrerortiz licensed and certified engineer and has determined the drainage is less than 100 cfs. The study showed that the peak discharge of the drainage is 39.94 cfs. The permit was reviewed under Chapter 7.17.5.2.6, All Other Development, which states, Erosion setbacks shall be provided for structures adjacent to natural arroyos, channels, or streams such that: (a) a minimum setback of 25 feet shall be provided from all arroyos with flow rates of 100 cubic feet per second/100cfs; or (b) a minimum setback of 75 feet shall be provided from all FEMA designated 100 year Floodplains. Setbacks from FEMA designated Floodplains may be reduced if bank stabilization or stream bed and bank stability is designated or provided by a professional engineer. In no case shall the setback be reduced to less than 25 feet. The hydrology report was found to be in conformance with the requirements. Furthermore, fill was not placed in the drainage area and all requirements of the SLDC were met. Therefore, county staff issued a permit.

Mr. Hopkins stated to staff that he moved the structure as it was an eyesore to him. He chose to have the structure 5 feet from his property boundary in front of the MacAllisters' front door in direct plain sight of their home. However, the side property setback of five feet has been met.

On July 26, 2018, the Appellants' agent, Joseph Karnes submitted a drainage analysis from Paul E. McGinnis, a registered and licensed engineer. Mr. Karnes memo states the report from P.E. Paul McGinnis and Associates confirms that the horse shed was placed within 17 feet of the arroyo on fill and carries approximately 94 cfs during a 100-year storm event.

Staff Response: Mr. McGinnis used two 100/24 hour rainfall event numbers. One event was from the Point Precipitation Frequency Estimates and used 3.44 inches. The watershed was calculated using the Rational Method. The second runoff number used was found in a report that details runoff calculations in various regions in New Mexico using the Generalized Least Squares Regression Analysis methodology for what the report classified this area as Region 5 for this property. The precipitation used from the report was 4.0 inches. In both instances, using 3.44 inches, the Rational Method of Analysis resulted in 93.9 cfs. And both studies, Mr. McGinnis chose to use the higher number, and in both cases the numbers Mr. McGinnis calculated were under 100cfs. This confirms Mr. Hopkins met the requirements of the code, as setbacks are not required if the flow is less than 100cfs.

Appellants' Statement: The Appellants' agent states, that the drainage calculations submitted by Oralynn Guerrerortiz does not address the placement of the building is on fill within 25 feet of an arroyo carrying more than 25 cfs which violates the clear requirements of SLDC section 7.17.5.1.1.

Staff Response: Section 7.17.5.1.1, states, that "No fill shall be placed in natural drainage channels and a minimum setback of twenty five feet shall be maintained from the natural edge of all streams, rivers, and arroyos with flows exceeding 25 cubic feet per second during a one hundred-year frequency storm, 24 hour duration." The structure is not located on fill. The site was leveled so the Applicant could place the structure on a flat site. Therefore, Chapter 7.17.5.1 of the SLDC does not apply.

Appellants' Statement: The Appellants' agent states, that the location of the horse shed violates the clear requirements of the SLDC section 7.17.5.1.2 that areas of periodic flooding shall be identified as no build area and included within a drainage easement.

Staff Response: There is no documentation of a drainage easement existing on this parcel. A drainage analysis was done by the property owner and the Appellant and both drainage analyses determined flow rates of less than 100cfs. The drainage/arroyo is not within a 100-year FEMA designated flood hazard area. Therefore, Chapter 7.17.5.1.2, of the SLDC does not apply.

Appellants' Statement: The Appellants' agent states, that Mr. Hopkins placed motion activated lights aimed directly at the MacAllisters' home, and the placement of lights of intensity that exceeds that permitted by the code and placed on the horse shed and on a pole, which are directed at the Appellants' home, violates SLDC section 7.8.22.1.

Staff Response: On August 17, 2018, County staff met with Mr. Hopkins with concerns and inspected the lights that were placed on the structure. The lights are for security and spilled over onto the MacAllisters' property. County staff informed Mr. Hopkins that the lights needed to be down lit and under 900 lumens. On August 20, 2018, County staff re-inspected the lighting and has confirmed the lights are shielded, down lit, and under 900 lumens per Chapter 7.8.22.1.

Appellants' Statement: The Appellants' agent states that the County failed to follow proper review process that require review by the County Fire Marshall and that the structure violates the Urban Wildland Interface Code and poses an impermissible fire hazard as a result of its placement in violation of clear and unambiguous setbacks requirements applicable to the location.

Staff Response: The accessory structure is under 600 square feet. Accessory structures under 600 square feet are not reviewed by the County Fire Marshal. Land Use staff spoke with the Fire Marshall in regards to this Application. Due to the size of the structure and Construction Material used, the fire Marshal did not express any concerns. Ordinance No. 2001-11, Santa Fe County Urban Wildland Interface Code, Chapter 5, Section 2.8, Detached Accessory Structures, states, "Detached accessory structures located less than 50 feet from a building containing habitable space shall have exterior walls constructed with materials approved for a minimum one-hour-rated fire-resistive construction, heavy timber, log wall construction or constructed with approved noncombustible materials on the exterior side." The Fire Marshal has stated the metal material the accessory structure is constructed with meets the requirements as set forth in Ordinance No. 2001-11.

Recommendation: Chapter 4.5.2, states, "An aggrieved person with standing may appeal the decision of the Administrator to approve, deny or approve with conditions an application to the Planning Commission." Staff recommends upholding the Santa Fe County Land Use Administrator's decision. The permit as approved was based on the approved site plan, and a drainage report which established that setbacks were met and the drainage was under 100 cfs. Furthermore, lighting and building setbacks from the property line were addressed by Mr. Hopkins. The building was moved to meet a 5 foot setback and lighting is under 900 lumens, down shielded, and in conformance with the SLDC.

Staff stands for any questions.

MEMBER KATZ: Thank you. Any questions for staff? I have a couple. One is, has the building been moved since this first came to us at the last meeting?

MR. LOVATO: Mr. Chair, it has been moved.

MEMBER KATZ: It's been moved further back from the property line so it now meets the 5 feet?

MR. LOVATO: Mr. Chair, Commission members, that is correct.

MEMBER KATZ: And how far is the building now from the edge of the arroyo?

MR. LOVATO: Mr. Chair, it was previously noted at 17 I believe and now it's perhaps a little bit closer, maybe a foot closer at most.

MEMBER KATZ: A foot closer at most, so between 16 and 17 feet.

MR. LOVATO: Approximately.

MEMBER KATZ: Okay, thank you. Would the appellant please come forward and make a presentation.

JOSEPH KARNES: Thank you Chair Katz and members of the Planning Commission. My name is Joseph Karnes, Sommer Karnes and Associates. I am here tonight with Bruce and Debbie MacAllister, the immediate adjacent neighbors to the Hopkins and Vernold property. I am also here with Paul McGinnis, the engineer who prepared the drainage analysis and there are a couple of neighbors who intend to testify during the public hearing portion. I have a power point presentation and I understood that Rico would be available to help get the screen down so I can make the presentation – I spoke with him and – oh, there we go. He was hiding.

As he is doing that, at the last meeting there was a request made given the tabling for the next month, that we reach out to the property owner, Mr. Hopkins and Ms. Vernold who are here tonight. They weren't here at the last meeting. I did send via certified mail to the Mr. Hopkins and Ms. Vernold as well as John Lovato. I did not receive back an acknowledgment of the certified letter I sent but I did reach out to them offering to meet during the month period. So we did that in compliance with the direction of the Planning Commission.

MEMBER KATZ: Was the letter the only thing you sent?

MR. KARNES: That's correct.

MEMBER KATZ: And so you don't know whether they got it or not.

MR. KARNES: Yeah, I sent it certified mail to the same address as was on the complaint when the County filed the property owners into Magistrate Court and I did not receive any response.

MEMBER KATZ: Thank you.

MR. KARNES: So here we are today. So we have not met and have not communicated. I also did not hear from staff following up on that letter.

You know, at the last meeting this was described as I think a neighbor dispute and I'm going to walk you through what has happened here as Mr. Lovato went over – initially this is a view from the Hopkins' front porch by their dining room window. This is actually a flood event that took place in 2015. I'm going to show a video in a few minute showing that flood event. The structure, the horse barn, is actually – you can see the lattice work fence that is roughly along the property line. Oh, the MacAllister front porch, excuse me. So that lattice work fence, you can see that was taken in about 2015, during the flood event during the monsoon season. That is the structure that is there now.

Mr. Hopkins and Ms. Vernold closed on their property on January 16th of 2018, earlier this year. Within the next two weeks, as Mr. Lovato pointed out, they don't live on the property. They can't live there because of the CID and NMED issues, but just about the first thing that they did was just move this self-described eyesore, as Mr. Lovato pointed out, that's the phrase he used. The property owner, Mr. Hopkins, considered it an eyesore. And it was located along Bishop's Lodge Road. You can see Bishop's Lodge Road on the left hand side runs roughly north and south. I highlighted the stalls as they are described there. That's where they were when Mr. Hopkins and Ms. Vernold bought the property in January 16, 2018. Within the next two weeks in the middle of winter, they moved the shed to the north side of the property and the line along the north side of the property, that's the common boundary between the Hopkins property and the MacAllister property. So that's what they did. And they placed it there right on the other side of the lattice work fence. It was about 3 feet 8, if I recall correctly, at that time according to the survey that Dean Shrader prepared that was commissioned by the MacAllisters. You can see on the right hand side there's a no trespassing sign that says violators will be prosecuted. On the left hand side, it's kind of hard to see here, but there was some lights, motion activated lights that shine directly at the MacAllister residence at that time. And then there's some other lights that I'll show you in a moment that were up on a pole on the other side of the horse shed. So that's what we're talking about here tonight. This horse shed is still in place. It has been moved twice as far as we can tell since it was originally placed sometime during January.

And so when we're talking about a neighborhood dispute, typically you have an action by one neighbor and a reaction by the other – kind of Hatfields and McCoys going back and forth. This is a situation where Bruce and Debbie have lived in their house for 32 years. They were friends with Joe and Peggy Silva who owned the property that Mr. Hopkins and Ms. Vernold bought. I understand that Mr. Silva passed away and that the Hopkins and Ms. Vernold bought the property from the estate. So what did they do? They bought the property, first thing they did was took a self-described eyesore and put it directly in front of my clients' kitchen window. In addition to that, they found out when they walked outside, and here's the initial survey by Dean Shrader, this is not the case today, but he surveyed it as being 3.8 feet away from the property line. Later on, after the permit was issued, Mr. Hopkins moved, he took a pickup truck and a rope and moved the shed further away from the property line. And that happened before we got together last month and then after the hearing last month, he moved it again. Apparently, according to County staff, achieved greater than 5 feet distance from the property line, thereby moving it closer to the arroyo.

I'm going to talk first about the lighting violation. We have about five code violations that I'm going to walk through here. The code says all outdoor light sources shall be concealed within cutoff fixtures except as otherwise specified herein. Fixtures shall be mounted in such a manner that their cones of light are directed down or toward a service, but never, never towards an adjacent residence or road. I'm giving you a sense of what my clients have dealt with for the first six months or so since Mr. Hopkins and Ms. Vernold bought the property. That is a shot of the light that is within the horse shed. And this, that's not Ft. Marcy, that's a pole that has lights on top of it located behind or south of the horse shed again, shining directly at the MacAllisters' property. Obviously, that disturbed them greatly and we've been talking with staff about trying to get

something done about this and thankfully, for the last couple of months the electricity has not been turned on and these lights have been off and staff has advised that the lumen, the light requirement, is satisfied and now apparently the lights are directed downwards. We don't know if that's the case because they haven't been turned back on. I guess we'll find that out. But at the time we filed the appeal, that was certainly a code violation and apparently, according to staff, it has been rectified.

What we're really here to talk about tonight and the most serious issue has to do with flooding of the arroyo that passes through the Hopkins-Vernold property. This is the headline in July in the *Santa Fe New Mexican* after the big storm that happened. It caused a lot of damage all throughout the county. Fortunately, it spared this arroyo. The arroyo carried significant amounts of water but it did not flood this year.

Now, I'm going to – Rico, if you can help me. I just want to show the video of what happened in 2015. This is taken from inside the MacAllisters' residence. You can see the standing wave, the horse shed in now in approximately that location. This is – it flows down, it's been flooding – it was flooding through the MacAllisters' driveway on down across Bishop's Lodge Road. That's what happened in 2015. Caused a substantial amount of damage to the MacAllisters' property as well as properties downstream on the west side of Bishop's Lodge Road. The flow you can see there between the lattice work fence, you already saw where the horse shed is, it's between the arroyo and the lattice work fence and the common property boundary. That's where the horse shed is today within about 15 or 16 feet of the arroyo, the north bank of the arroyo. That storm – there's a culvert underneath Bishop's Lodge Road, it was backed up by flood debris and it caused, that flood caused substantial damage and you'll hear from some of the property owners on the west hand side, west side of Bishop's Lodge Road, who suffered substantial damages from that flooding event in 2015. And, again, all of these folks who are going to talk to you tonight were very fortunate that the storm in July did not flood their property but they were faced with and suffered substantial damages including my client. They'll talk about the sediment that was deposited in their front yard on their driveway and on their property.

So, when the general plan was adopted a couple years ago, it took these issues very seriously, properly so and I'm going to read this, "Flood hazard areas are subject to periodic inundation that results in loss of life and property, public health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief and impairment of the tax base. All of which adversely affect the public health, safety and general welfare. These flood losses are caused by development in areas prone to inundation that increase flood heights and velocities and when inadequately anchored damage uses in other areas" Inadequately anchored, you saw the pictures of this structure that is not attached to the concrete blocks that are the quote foundation. It's not anchored at all. When the next flood comes, that structure is going to be subject to tremendous forces of water. I'm not an engineer but whether it goes down stream or not I guess we'll find out. My hope is that you'll do the right thing tonight as the code requires and require that this horse shed be moved.

Now, impairment of the tax base, after that flood happened County crews went out and carried out maintenance and improvements of the arroyo channel and the culvert underneath Bishop's Lodge Road. There is information in your file from my client, Mr. MacAllister, thanking the County Public Works Department for taking action to help

ensure that that arroyo could carry as much water as possible and doesn't back up underneath Bishop's Lodge Road and the folks in the area were also very appreciative of the work that the County Public Works Department carried out. Now, there are lots of arroyos in the county and flooding takes place, we recognize that. But what you don't do is make it worse. That's what your general plan says and that's what your County code says. The SLDC regulates development in proximity to streams and arroyos. There are three classification and this is all talking about when I talk about cfs we're talking about as the code defines during the 100-year storm. So that's the common denominator here. Small arroyos that carry between zero and 25 cfs, they are not regulated. That's understandable. Large streams or arroyos carrying 100 or more cfs that Mr. Lovato focused on, are subject, properly, to substantial regulation. And a lot of those, you have FEMA flood plains, you have designated FEMA flood plains and flood flow areas and there are additional regulations that apply to those larger arroyos. What we have here, and we're not disputing Oralynn Guerrerortiz calculated the flow during the 100-year flow at about 34 cfs. Mr. McGinnis, who is here tonight, he calculated it at about 90 and Mike Gomez, another engineer here in town, if I recall correctly it was about 80 or 85, something like that. We're not contesting that it is not over 100. What we're contesting is that there are regulations in the SLDC that apply to what I call these minimum size arroyos. These minimum size arroyos that as you saw in the video can and do cause substantial damage. And what does the SLDC do? It has requirements for those arroyos that were ignored by staff. And speaking of ignoring things, I need to jump back just a moment. Mr. Lovato explained that the structure was moved and eventually got to be 5 and half feet away from the property line. In doing so, he acknowledged implicitly that when the permit was issued back in May, the structure was less than 5 feet from the property line, otherwise, why did they need to move it. I questioned and I'm concerned about why that permit was issued. It was acknowledged, we had communication, it was acknowledged by staff that the structure did not meet the five foot setback, yet the permit was issued anyway. I have a problem with that.

And I also have a problem with ignoring these code requirements and I'm going to walk through them. Any area of periodic flooding shall be identified and shall be included within a drainage easement. Mr. Lovato spoke to that and he said well, there is no drainage easement, end of story. As if that was the determining factor. Well, what does the code section say? It says "shall be included." When somebody walks in with an application either to build a structure or in this case a request an after-the-fact permit, what needs to be done? It needs to be determined whether the area in which this structure is proposed to be placed is subject to periodic flooding. I gave the video, one of the first things I did was gave this video that I showed you to County staff. Obviously, this area where the horse shed is is subject to periodic flooding. You're going to hear flooding and sworn affidavits that in your packet from the residents that have lived here for a long time. They weren't just subject to one flow. They've been subject to periodic floods over the years. And in Mr. McGinnis's report which is in your packet as well, he states that the video and his analysis prove that this area obviously is subject to periodic flooding. This is game over. What does the staff need to do when they're faced with an application to put a structure in an area in close proximity to an arroyo? They need to determine and it is the applicant's burden to make that case. And it's staff burden to apply the code and if the area is subject to periodic flooding, which it is in this case, it's

obvious, they need to require a drainage easement. Require a no-build area. That's what you do. You don't just sit there and say, well, one doesn't exist therefore we're going to allow for a structure to be placed within 15 or 16 feet of any arroyo that floods periodically. That is not what you do. And so it's your task today to correct these errors of staff and to apply the code properly. This alone requires that the decision of staff be overturned. This section alone, that's not the only section.

The next one, oh, I just want to point out what is flood or flooding? It is a general and temporary condition, a partial or complete inundation of normally dry land, areas from the overflow of inland waters or the unusual and rapid accumulation of runoff of surface waters from any source. You saw the video. You saw the horse shed is right on the other side of the lattice fence. It's right where the flood happened. There's the flood event. I can show you the video again if you'd like. Now, Mr. McGinnis, what did he say? My analysis in a video that you saw from others from a 2015 flooding event proves this area where the horse shed is, is subject to periodic flooding and the presence of the horse shed violates the no build area stipulation. That's Mr. McGinnis, licensed professional engineer, making that statement that you need to consider tonight; that we ask that you consider, seriously.

As we heard from Mr. Lovato, the horse shed is located less than 17 feet from the north bank of the arroyo. The SLDC and common sense require that the horse shed be relocated away from the arroyo. Putting this eyesore according to Mr. Hopkins close to the MacAllisters' property and more importantly close to the arroyo doesn't make common sense and is prohibited by your code.

Now, there's another section 7.17.5.1 which says, No fill shall be placed in natural drainage channels and a minimum setback of 25 feet shall be maintained from the natural edge of all streams, rivers or arroyos with flows exceeding 25 cfs. And it's both. You can't put fill and there must be a minimum setback of 25 feet. Again, the minimum 25 foot setback requirement was ignored by staff. Mr. Lovato, you heard him speak exclusively about the other code sections that apply to arroyos that flow with greater than 100 cfs. This section applies to arroyos that flow between 25 and 100 cfs and it requires a minimum setback of 25 feet which is met in this case. Again, game over. That section alone in addition to the periodic flooding section requires that this horse shed be relocated away from the arroyo.

Now we're not contesting and I said this before and I'll jump over this. We are not saying that it is over 100 cfs and we're not saying that the greater than 100 cfs provisions apply. It's the provisions that apply to arroyos that flow with between 125 – 25 and 100 cfs that apply here. And I want to point out, when it says setback what is it talking about. This is from the definitions of the SLDC, "a setback line is the line that establishes the required setback. The distance from which a building or structure is separated from a designated reference point such as a property line." In this case, the designated reference point is the north bank of the arroyo. And you've heard tonight from Mr. Lovato that the structure is 15 or 16 feet away from the north bank of the arroyo. It does not meet the mandatory 25 foot setback and as a result this decision of staff must be overturned.

In addition – I don't know why that's not coming through – in addition, placement of fill – I'll just show you a couple of picture. You can see the fill. You can see the natural surface on the left hand side – I apologize, these photos aren't the greatest

– but, Mr. Hopkins placed fill, and that was Mr. Hopkins on his bulldozer there, he placed fill on which he put the horse shed. You can see the fill there. It is obvious. It is on top of the leaf litter and it violates that section of the code as well. So we have three code violations relating to flooding. Here you can see the arroyo. Mr. Hopkins placed fill in the arroyo so he could drive across it more easily and get up the other bank. You can see the tire tracks in the arroyo. And I'd like to know, if someone can let me know, is there a County hydrologist these days? And did that person – I'm sorry, Chair Katz, and through the Chair, I'm just trying to find out. And who is that person, Ms. Lucero?

MS. LUCERO: Mr. Chair, it would be Gerald Schoeppner, Jerry Schoeppner is our County hydrologist.

MR. KARNES: Okay, and has he been on staff for some time now.

MS. LUCERO: I think a couple of years.

MR. KARNES: A couple of years, okay. I appreciate that. You know, I would think that a hydrologist, and we'll hear from Mr. McGinnis in a few minutes, but working in an arroyo and affecting the banks of the arroyo in an arroyo that periodically floods, that raises some serious issues and I think that those should be considered by the County hydrologist and County staff. You can see what Mr. Hopkins was doing out here and this is in an area just downstream from the horse shed is Bishop's Lodge Road is the culvert that is very sensitive. The County spent substantial sums of money fixing up that area and my clients watch Mr. Hopkins on his bulldozer doing lots of work in here and it's not directly germane to the code violations that I have already addressed but it is a concern. And my clients and the folks that are going to testify here in a few minutes are very concerned about what next time we have a monsoon event and this arroyo is subject to the potential of flooding.

MEMBER ANAYA: Mr. Chair.

MEMBER KATZ: Yes.

MEMBER ANAYA: May I ask Mr. Karnes one question please?

MEMBER KATZ: Certainly.

MEMBER ANAYA: Or staff. What size is the culvert that was replaced or cleaned?

MR. KARNES: Chair Katz, Commissioner Anaya, we believe it is a 48 inch culvert.

MEMBER ANAYA: What size?

MR. KARNES: 48 inch.

MEMBER ANAYA: 40?

MR. KARNES: 48.

MEMBER ANAYA: Four foot?

MR. KARNES: Yeah.

MEMBER ANAYA: And that's a brand new one?

MR. KARNES: No, this has been – [speaking to clients] was it replaced? No, it was not. We'll have some people to testify about it. It's a 36 – okay, so it's a three foot culvert. I don't know.

MEMBER ANAYA: And the County went out and cleaned it?

MR. KARNES: After the 2015 flood event.

MEMBER ANAYA: Okay. And is it clean today?

MR. KARNES: We'll have to – I'll have my client speak to that. I do not know.

MEMBER ANAYA: Thank you, Mr. Chair.

MR. KARNES: And so I'm pointing out shifting over to the section the staff was talking about, again, the large arroyos they only dealt with this section and its says, "Erosion setback shall be provided for structures adjacent to natural arroyos such that a minimum setback of 25 feet shall be provided from all arroyos with a flow rate of 100 cfs or more." We're not saying that section applies. We're saying this section that applies to minimum size arroyos flowing between 25 and 100 cfs applies. The periodic flowing requirements apply and require imposition of a no build easement and the 25 foot setback in that section applies as well.

I'm just going to read a snippet from the *Santa Fe New Mexican* on August 9, 2018. "The great July floods washed away fences and livestock. Flooding yards and basements and raised more than a few questions about the Santa Fe area's preparedness for future wet weather disasters particularly as global temperatures rise and exacerbate once rare extreme climate events." We're facing these things more and more often. And the code, the SLDC and the County general plan properly address all sizes of arroyos and you heard what Mr. Lovato said, staff ignored these mandatory provisions with respect to arroyos that flow between 25 and 100 cfs. They do that with good reason and we don't understand why there's not a concern about placement of structures given what just happened in this county in close proximity to arroyos that are shown and demonstrated to flood and affect downstream property owners.

Now my last issue here has to do with fire. Another major threat as we all know in this relatively rural area is fire. The County's Urban Wildland Interface Code expressly applies to this application. We struggle to get traction because the question was for a structure of this size, who reviews whether the structure complies with the Urban Wildland Interface Code. What does it say? The code says, "It does not apply to detached accessory structures provided the floor area does not exceed 600 square feet and the structure is located more than 50 feet from the nearest adjacent structure." You need both of those. You heard staff talk about the 600 square feet and that was the end of the story. However, the horse shed is located less than 50 feet from the MacAllisters' resident. Why is that important and why is this code written that way? It's written that way because, and here you can see Dean Shrader's survey showing the location of the barn before it was moved, and it is still less than 50 feet, at the time when the appeal was filed it was about 24.8 feet, less than 50 feet. So the Urban Wildland Interface Code applies and it requires that exterior walls, when it applies, it requires that the exterior walls of buildings or structures shall be constructed of materials approved for a minimum of 1 hour rated fire resistive construction on the exterior side. Demonstrating this is the responsibility of the applicant and one of the challenges when we're placed with an appeal of this nature is the burden of proof switches over to the MacAllisters. We're not in a position to examine the structure and determine the fire resistive nature of the construction. What we are able to do though is read the plans that were submitted by Mr. Hopkins and this is important. You can see at the top, the – section was 1.75 inches and right below that it show .75 inches of plywood. So if you do the simple math, there's 1 inch left over and he says there's steel on each side of the plywood that equals one-half inch of steel on either side of the plywood, I submit to you that that's not the case. You

can look at the panels that have been affixed to the outside of the plywood on the horse shed, they are thin. I don't know exactly, we're not going to trespass and get involved in trying to measure them but my client witnessed Mr. Hopkins moving those panels by himself. I don't know how much a 4x8 sheet of 1/2 inch steel weights but it's a lot. And nobody is going to be moving that by themselves and that's not correct, it's not accurate. Now whether that thin metal that is on the outside of the horse shed and whether those openings that you can see here, here's the door, whether that meets the Urban Wildland Fire Interface Code, I don't know. Why we included this in the appeal was so that it would get looked at. And I defer to Fire Marshal Blay. I understand that he has looked at it and he didn't have any concerns. I don't know if he's been out here but all we were trying to do and the reason why we raised this as an issue is that initially it wasn't looked at. It wasn't referred to the Fire Marshal's Office and all we're trying to do is get a determination as to whether this structure meets the code requirements and why is that? Because what happens with fire is it jumps from place to place and that's why the requirement is in there that if there's a structure within 50 feet of another structure, that structure needs to meet all the requirements. So I'll defer to Fire Marshal Blay and if he could address and provide us all edification as to whether that structure meets the Wildland Interface Code, I would appreciate that.

So, in wrapping up, the after-the-fact permit issued for this horse shed needs to be vacated and we request you vacate it because it's located in an area of periodic flooding as you saw in the video and you'll hear in the testimony tonight, the required 25-foot setback is not met, it's been acknowledged that it is about 16 or 17 feet from the north bank of the arroyo, placement of the horse shed on fill also violates that same SLDC section. The fire code requirements have not been demonstrated to be met, again, we'll defer to Mr. Fire Marshal Blay. And the lights, we can't tell at this point whether they're down shielded. We understand staff carried out its review. My clients faced those lights shining directly into their windows for many months and I guess we'll find out when the lights go back on. We hope that that has been taken care of but the biggest issues here have to do with flooding and we ask that you apply the code as it is written. And I'll just finish by reading an excerpt. Unfortunately, Judge Sarah – retired Judge Sarah Singleton and Lynn Pickard actually lived in the MacAllisters' house and sold it to them 32 years ago, they're on an extended vacation right now out of the country, on behalf of the Tesuque Valley Community Association Ms. Pickard stated, "flooding and fire are serious concerns in the Tesuque Valley. It is only by enforcing laws designed to alleviate floods and fires that residents of the valley will be safe. We urge you to revoke the after-the-fact permit and sustain the appeal." This is a matter of public safety. Your code is well written and it needs to be applied here and we ask that you do that. I'll stand for any questions, thank you.

MEMBER KATZ: Thank you. Does anyone have a question of the applicants' representative?

MEMBER ANAYA: Mr. Katz.

MEMBER KATZ: Yes, Mr. Anaya.

MEMBER ANAYA: Mr. Karnes, I understand that there are four requests from you or claims that don't meet SLDC, okay. One of them being 25 foot setback, the other one is fill placement/dirt, the other one is the fire code, lighting, and flooding, so I have a total of five.

MR. KARNES: Uh-huh, right and placement of the structure in an area that is subject to periodic flooding where the code requires –

MEMBER ANAYA: That falls under flooding.

MR. KARNES: Right, that the code requires the imposition and says, "shall be placed within a no build zone." Shall be, that's prospective. It is not retrospective. You don't just stand there and say, well, it's not today so we can't do anything about it. The staff sure can do something about it. They can impose a condition saying as required by the code this needs to be placed in a no build easement.

MEMBER ANAYA: Thank you, Mr. Karnes.

MR. KARNES: Thank you, sir.

MEMBER ANAYA: Thank you, Mr. Chair.

MEMBER SHEPHERD: Just a question of clarification, 1473 is the MacAllisters' residence?

MR. KARNES: Yes, that's correct.

MEMBER SHEPHERD: And 1467 is the Hopkins' residence?

MR. KARNES: I believe that's correct, yes, that's correct.

MEMBER SHEPHERD: Thank you.

MR. KARNES: Thank you.

MEMBER KATZ: Are your clients going to testify because they should come up and make their part of the presentation.

MR. KARNES: Yes, I appreciate that. Thank you.

[Duly sworn, Bruce MacAllister testified as follows]

BRUCE MACALLISTER: Bruce MacAllister, M-A-C-A-L-L-I-S-T-E-R, 1473 Bishop's Lodge Road.

MEMBER KATZ: Good afternoon.

MR. MACALLISTER: Thank you, Mr. Chairman, good afternoon. Mr. Chairman, members of the committee – commission, let me first start by thanking you all for your time and thanking you all for your commitment to helping Santa Fe County continue to develop its sustainable planning and to continue to develop a rational approach to development. I do appreciate your time. I also want to thank and recognize the neighbors that are here including the Hopkins who are also here and ready, willing and able to step in.

I don't want to double up on anything that our – that Mr. Karnes has said. I'd like to speak more to the personal impact of this at this point and just kind of clarify a few things. First and foremost, I'd like to make it very clear that this is not a neighbor to neighbor dispute. This is not Hatfield and McCoy. I have no personal animosity against Mr. Hopkins, Ms. Vernold whatsoever. What our concern is, is about the sustainability of the decision making processes that the County staff engaged in in this process.

First of all by granting an after-the-fact permit when there were known violations at the time they granted the permit. The County staff knew that the structure was located in an infringing position that encroached on the required setbacks even accepting their interpretation that that's the only provision that they needed to attend to.

What I want to emphasize to you all tonight is that this is really a neighborhood issue. This is a public health and safety issue. This is a planning sustainability issue. The County characterized materials in the package as letters of protest from neighbors. That I would submit is a mischaracterization. You have in your package six, the

depositions of six individuals providing you with sworn testimony including my sworn testimony tonight which doubles up on the affidavit that my wife and I submitted and that other neighbors who have lived in proximity to that arroyo submitted to you that swear this arroyo is subject to periodic flooding and will outline to you as they come forward with their own personal experience the personal damage that has occurred as a result of the flooding of this arroyo. In 2015 we went to great extents to work with the County with the permission of the then property owner to build that embankment up, to clear that arroyo, to clear the culvert which is 48 inches by the way, and to clear the drainage downstream from that arroyo from that culvert so that the culvert wouldn't keep silting in. So one of our concerns when Mr. Hopkins began development there was cutting that bank right back down to undo all the work that the County had done to help protect us and our neighbors. And I want to make it clear that when we're flooded, it is not just that gets flooded. By virtue of the topography of that area if our property is flooded where it runs is immediately across the street into Dr. and Mrs. Goolsby's property, immediately downstream into Joanna Moss's property and then down to Dr. and Mrs. Parker's property and blocks the ingress and egress for Dr. Gagen. So there are a number of people when this property floods by virtue of inappropriate development and cutting that bank, placing fill in that arroyo, it's not just us that are affected.

Now we have by virtue of the shifted burden of proof borne the brunt of expense and the energy to have to bring this to you. But I want to emphasize that we're not here because the barn is an eyesore. Yes, the barn is an eyesore and everybody agrees to that. But we're here because placing the barn in that particular area violates the clear language of the code and we take exception to the interpretation of the County staff that has read into provisions of the code language that just simply doesn't exist. They have interpreted the provision that says, they underline "no fill shall be placed" and then leap to the conclusion the barn wasn't placed on fill therefore this provision doesn't apply. But that is not what the provision says. If the provision of the code said you shall not place a building on fill within 25 feet of the arroyo, that would have been easy enough to say but that is not what it says. And Mr. Karnes has done a wonderful job outlining to you the three different categories. So I wanted to emphasize that.

I wanted to speak to the personal impact of the situation. This year my wife and I felt like we couldn't leave the property. Like we had to be there through the monsoon season to be able to deploy sandbags. To be able to move vehicles in the event that that barn was swept off its foundation because we have seen those floods. We have seen what they will do. That barn is not attached to anything. It is set on some little pavers up on two feet of fill on the downhill end of it just waiting for the water to sweep it off and over the fence. I also want to emphasize if there's going to be livestock in that facility, which it is a barn, and it's designed as you can see from the open doors which I can't possibly fathom would possibly be one-hour fire rated since there's nothing but air. But at any rate, if there's going to be horses there and we understand that our neighbors own three large draft horses, and there's a flooding event the only way that those poor creatures can escape that flood will be through our fence and into our property. That creates a risk for us, that creates a risk for the horses. That creates a risk for everybody that's readily avoidable.

This year we did play Russian roulette with the monsoon season. We dodged the bullet in that arroyo. In that 1,000-year flood that hit Santa Fe and that flooded the

Tesuque River Basin right down within a 1/4 mile of our house, the arroyo in question was spared. It lapped at its banks. It was running completely through the culvert up to the edge of the road but that was where it was and that was with about 1/3 of the precipitation that Santa Fe got. We had a net event because we measure the rainfall about 1.5 inches in that same timeframe where Santa Fe received three. But it could just have easily been us in that event. The very next arroyo up the road from us, less than 1/8 of a mile, flooded over the road, washed out the road. In another storm the arroyo just downstream from us flooded over the road, washed out the road. So it's Russian roulette. This year, we were lucky and we thank our lucky stars.

I wanted to just close with mentioning that the code itself is designed for sustainability as we understand it. The whole idea of putting this code together was to have rational planning and sustainability but if we enable our staff – and I understand it's going to be inconvenient to begin to have to be aware that if this arroyo flows over 25 cubic feet per second there is a 25 foot setback, I know that adds work to the County staff. But if we don't enforce that 25 foot, that provision, the clear language of the code around a 25 foot setback and flood events for these size arroyos, if we don't enforce the fire safety code that says – it doesn't say either or, it says you refer this for Fire Marshal review – if we're laxed about these things then how do we begin to enforce them with the next situation? And if it's not 25 feet, is 5 feet far enough back? Is straddling the arroyo okay? We lose control. We lose the benefit of having our code.

The citizens of Tesuque participated deeply and intimately in this code development process and you see the quote from the president of the Tesuque Valley Community Association Lynn Pickard but there's over 215 people that have weighed in from that association alone let alone our wonderful neighbors here who feel personally vested that if we go to the work of putting this code together that the County staff respect that and enforce that. And don't try to read into the code things that aren't there and don't ignore the connective tissue of the code with these important ands that are in the provisions that you saw.

So with that, I just close with one other observation that this is not a situation where there is a compelling reason to grant an exception to the setback. The property involved, while the immediate lot is 1.6 acres, the property is conjoined with an additional lot behind it meaning that making the combined lot size of that property of our neighbor's property of about 7 acres. So this is not by any means the only place that they could have placed this barn. It is just that it got this eyesore out of their view but at the expense of the multiple code provisions that are our attorney has explained to you.

So thank you very much for your time. If you have any questions of me, I would be happy to answer any.

MEMBER KATZ: Thank you, Mr. MacAllister. Does anyone have questions of Mr. MacAllister? I guess not, thank you.

[Duly sworn, Paul McGinnis testified as follows]

PAUL MCGINNIS: Paul McGinnis, 8805 Democracy Road NE, Albuquerque, 87109.

Mr. Chairman, a couple of introductory comments. I believe you all have a copy of the report that I submitted where I analyzed this area for flooding and everything and on page 3 of that last paragraph, talking about that culvert underneath Bishop's Lodge Road, just to point out that I did actually measure that culvert and it's 48 inch culvert and

then what I did, I didn't have the equipment to measure the slope across that culvert from the invert versus the outlet but I just assumed that most culverts are put in at a minimum of a 2 percent slope. That's a standard rule of thumb for culverts. It can be more than that. But generally you don't want less than that. So I analyzed that 48 inch culvert on a 2 percent slope and the capacity of that culvert is well in excess of 100 cfs. But when it has debris and everything blocking the inlet, then of course it's not going to get that much water to carry so I just wanted to point that out since that was a point of discussion earlier.

Also, in my report I document the two different ways I calculated the 100 year storm using two different rain values from reputable sources who have done that analysis and my low number is 80.8 cfs and the high number is 93.9 so around an average of 90 cfs. And people don't really get a sense – I mean, 80 and 90 doesn't sound like a tremendous amount but in terminology that most people are familiar with, 80 cfs is over 36,000 gallons a minute is what the 100-year storm as a minimum according to my calculations would produce in that arroyo. And the higher number would produce over 42,000 gallons a minute. So that may give people a little better handle on the volume coming down through there.

Part of my analysis included – I measured that arroyo. I got an approximate depth and where the property owner created the crossing across that arroyo, measured the depth there. And then I did an analysis using a standard runoff coefficients and Manning's formula and what I came up with is that that section of the arroyo is only capable of handling 73.6 cfs. So, again, these are all calculations but they're using standard formulas and standard criteria for making these estimates. And so according to my calculation the arroyo especially there where he made the crossing, and I'm going to explain why I'm qualifying this but if it was a straight, long arroyo it would handle 73.6 cfs but in my report I've documented what is happening up stream of this particular area where the horse barns are and the crossing. The crossing was made by putting fill in the arroyo which violates the code and I believe that's already been pointed out but I saw it and I know it's there. At least it was there the day I did my inspection. So what's happening upstream, imagine that you've got as a minimum 36,000 gallons a minute coming down from the watershed and that water has to make a right turn and then a left turn and then a right turn – or maybe I reversed that. But it's got to make three almost 90 degree turns just upstream. The last turn is only about 20 feet or so upstream of where this – the horse barns are. Now it has tall banks in which to keep that water confined in the arroyo but once it makes that last turn and heads down past the horse barns it begins to flatten out. So what I know as an engineer that does hydrologic analysis for 30 some odd years, I know what is happening to that water is it's going down through there and it's sloshing and as long as you've got tall enough banks it is going to contain the water, no problem. But in the area where the crossing is and where the horse barns are it doesn't have tall banks, it has flat banks and it's very shallow there. As it goes west toward the culvert under Bishop's Lodge Road it gets deeper and actually it is over 4 feet deep before it enters the culvert. But at this location, it is very shallow. In fact, it was only about 18 inches high based on my measurement where that crossing is. So that's why it can't even if it was a straight channel it couldn't handle a 100-year storm. How much more when that water makes that last turn and it hasn't even stabilized into a uniform flow pattern.

So, as you saw in the video, this area is definitely prone to inundation but there's another phrase that is in one of the sections in the code that talks about structures that are inadequately anchored. And you saw pictures of that horse shed. And I know there was a graph there that showed it on a cement footing a few inches thick and I believe it was about a foot and a half wide. I did not see that foundation when I went out there. I did see that the downhill side was resting on bricks and they were small bricks at that. So I would consider, I am not a structural engineer, but setting on bricks on dirt is not adequately anchored when you're talking about flood waters that would come and hit that building and potentially wash it onto the adjacent property, the MacAllisters' property. Or given the structure in my opinion and again I'm not a structural engineer, but looking at it I've seen what water does to structures. We've seen floods in the Carolinas just this week and we saw houses washed off their foundations when flood waters came. This structure, in my opinion, is inadequately anchored to withstand the flood waters that we saw a video of tonight, and so that violates the code.

In section 7.17.1.5 there's language that says it must preserve the natural drainage patters and recharge groundwater, protect the public from natural hazards of flowing, erosion and landslides. And in my report and as I stated here tonight, that channel is not adequately, it cannot adequately handle even if it was a straight channel could not handle the 100-year flow therefore it's – the channel itself and it's own a person's property and what I don't have obviously any legal authority to require anything but I'm just saying that channel as is is not capable of handling the 100-year storm. And so that channel, and my recommendation would be to have it made deeper because the assumption in the code when it talks about the channel and 25 feet from the edge, there's an implied assumption in there that the channel that you're talking about wherever it is in the world is going to handle the 100-year storm and that's not the case in this arroyo. This arroyo will not handle the 100-year storm at the location that we're talking about. Upstream where it's tall banks, yes. Downstream where it is much deeper, 3 to 4 feet deep before it goes into the culvert, okay, if the arroyo is clean and the culvert is clean, yeah, it's going to take the flow but right there in this location it cannot handle the flow and it has a lot of violent action because of all the turns and as you saw in the video, this will happen again if it is left as is. But only now we have a horse barn there that is inadequately anchored and whatever happens to that horse barn where it gets washed onto the neighbors' property or goes and plugs up that culvert, it's not going to be a good sight, it's not going to be a good experience for the people that are impacted by that. And there is code that talks about when there's a drainage that impacts two properties, then I believe it calls for an easement if I remember the language right. But in this case, there is an arroyo, it's on one property, but the runoff and the flow over the banks affects two properties.

So, I believe I'll conclude with that and I am happy to answer any questions.

MEMBER KATZ: Thank you very much. Does anyone have any questions? Mr. Shepherd.

MEMBER SHEPHERD: Just so I understand where this culvert is, it goes underneath Bishop's Lodge Road?

MR. MCGINNIS: The culvert.

MEMBER SHEPHERD: The culvert and it's almost at the property line between 1476 and 1467?

MR. MCGINNIS: Yes, it receives the water coming down that arroyo which is on all of Mr. Hopkins' property.

MEMBER SHEPHERD: Thank you.

MR. MCGINNIS: But when it blocks it flows more than Mr. Hopkins property.

MEMBER SHEPHERD: And what was the diameter of that culvert?

MR. MCGINNIS: I'm sorry, Mr. Chairman, Mr. Shepherd, 48 inches.

MEMBER SHEPHERD: 48?

MR. MCGINNIS: 48.

MEMBER SHEPHERD: And your concern is that in the event of heavy water running that culvert will get partially blocked and the water is going to back up; is that summary of what you're concerned about?

MR. MCGINNIS: I believe in some earlier testimony and maybe in some subsequent testimony that's already been stated as fact that it does get blocked and it does overflow. Now in my analysis what I'm saying is because this structure is inadequately anchored and because it's not built like you would build a home secured to a deep foundation and the walls are not like 2 x 4 or 2 x 6 frame construction meeting building codes, that structure, I'm saying and I'm predicting that if they get the 100-year storm and everything is as it is today or as it is when I saw it in June, then there's a really serious possibility that that structure will break up and at least some of that debris will potentially plug that culvert and I don't know where the rest of that debris will go – over Bishop's Lodge and onto the neighbor's property and I don't know where all.

MEMBER SHEPHERD: Thank you, Mr. Chair.

MEMBER KATZ: Thank you. Any other questions?

MEMBER ANAYA: Mr. Chair.

MEMBER KATZ: Yes.

MEMBER ANAYA: Mr. McGinnis, is the ditch or the arroyo, is that manmade or is that natural the way it sits right now today?

MR. MCGINNIS: I actually don't know the history of it. It looks like it's a natural ditch.

MEMBER ANAYA: So that ditch has been there for a million years?

MR. MCGINNIS: I wouldn't know.

MEMBER ANAYA: I guess, my point is that it flooded in 2015 and we had a lot of rain recently which Mr. MacAllister, I believe it was, stated that they – the rains missed them. And we're talking about the 100-year flood, and if we had a 100-year flood in that arroyo gets hit we got more things to worry about than a horse shed; is that correct?

MR. MCGINNIS: Well, I'm not sure the MacAllisters would look at it that way but –

MEMBER ANAYA: Well, I understand they wouldn't but I'm asking you as a PE.

MR. MCGINNIS: Whatever is happening up Bishop's Lodge or down Bishop's Lodge Road that's not what I am here for. I am here about this particular location which if I could, Mr. Chairman, I'd like to kind of tag off of that with an additional statement I meant to make.

Again, going back to my earlier statement that there's an assumption and I didn't see it stated anywhere in the code, but it seems to me fairly obvious that the assumption is that the arroyo defines the boundaries of the 100-year flood, wherever it is, whatever the flood level is. We are all assuming that that arroyo will contain the 100-year flood and as I've testified and others, that's obvious that that's not the case in this location. But if we step back and define the drainage area as I believe the code assumes but we broaden the definition or look at a broader definition of it to say that in this arroyo the boundaries of the drainage that would contain a 100-year flood is different than the defined channel. Because in the 100-year flood according to my analysis, the flood at this location oversteps the boundaries of the arroyo so we must redefine the arroyo at this location to be wider than what's obvious, what meets the eye. It now must be wide enough to encompass whatever – and that could be calculated. I could get survey information and then go through the analysis and I could calculate how wide the quote arroyo should be at this location. And I can tell you that that we're not just talking about the shed being 16 feet from the arroyo, now we're talking about the shed being like 5 feet from the arroyo, maybe less than that.

I am just saying that through analysis and I'm using credible standard practice analysis, I'm just saying that we need to step back and look at what we're really talking about here, what the reality is here. And we have a video that shows us what that reality can be.

MEMBER ANAYA: So my question earlier was and you said that it was natural, that the arroyo that is there today is natural.

MR. MCGINNIS: Yes.

MEMBER ANAYA: It is not manmade and it hasn't been cut by anybody other than a little bit of dirt that the opposite side has removed to use as compact; is that correct? Which being a PE, let me ask you this question: how many cubic feet were taken out of it?

MR. MCGINNIS: I wasn't there. I didn't see it happen –

MEMBER ANAYA: So in your last statement you said it should be widened. So if the gentleman helped you guys out by widening it then isn't he in effect trying to fix the 100-year flood too? I'm just thinking outside the box just like you guys would.

MR. MCGINNIS: I don't know what his motivation is for getting in that ditch but I was told that the fill in the ditch was to provide access by vehicle to get over to the horse barns.

MEMBER ANAYA: And I saw the tracks and all of that.

MR. MCGINNIS: And whatever even that motive was it is obvious that number one it's fill which violates the code that says you can't put fill in a drainage ditch, number one. Number two, my analysis of the profile, the cross section at that location says that because of that fill and I don't know what the capacity would be if that fill wasn't there because the fill is there, but I could do that analysis if the fill wasn't there. But with the fill there that makes that location inadequate to handle the flood waters. So, that's all I've done and that's all I can speak to. How the arroyo is all of that I don't know. How much work was done in the arroyo, I don't know. But I did see the fill that allows access by vehicle across over to the barn. That's what I saw and I measured it.

MEMBER ANAYA: Thank you, Mr. Chair.

MEMBER KATZ: Any other questions? Thank you very much.
MR. MCGINNIS: Thank you, Mr. Chair.
MEMBER KATZ: Mr. Karnes, do you have anyone else?
MR. KARNES: Just the members of the public.
MEMBER KATZ: Yes, we will have a public hearing I was just wanting you to be able to make your full presentation. Okay, this is a public hearing and we welcome comments from the public. Would anyone wishing to talk please stand up and the clerk will swear you all in at the same time.

[Those wishing to speak were administer the oath and asked to state their name, address and confirm they are under oath.]

CRISTELLA VALDEZ (Assistant County Attorney): Mr. Chair, if I may. I think it would be appropriate to first have Mr. Hopkins or his representative.
MEMBER KATZ: Okay, we can do it that way. Thank you very much. Mr. Hopkins or Ms. Vernold, please come forward, get sworn in. You've already been sworn in.
[Previously sworn, Cynthia Vernold testified as follows]
CYNTHIA VERNOLD: Good afternoon, Mr. Chairman and fellow council members. My name Cynthia Vernold. I am Mark Hopkins' wife. Is that all you need from me?
Thank you for your time today.
MEMBER KATZ: Could you turn the mike a little down –
MS. VERNOLD: Is that better?
MEMBER KATZ: Better, thank you.
MS. VERNOLD: My husband, myself and our 14 year-old daughter are recent transplants to Santa Fe. We've only been here a couple of years. We currently live in the County about 30 minutes south of town near Cerrillos on Highway 14. We're very much looking forward to moving to Tesuque. It's been kind of a dream of ours since we discovered it on a trip to Santa Fe about 20 years ago. However, this whole experience with our neighbors, the MacAllisters, has been disturbing to say the least. Right from the start even before we finalized the purchase of this property back in January of this year we have worked very diligently and with the best of intentions to fully understand and be in compliance with any and all known regulations. On the MacAllisters' end they have engaged in harassing behavior, trespassing on our property and they have made numerous false accusations an attempt to smear our name and our good characters. It's even more disturbing that the MacAllisters have engaged in this with the help of some, thankfully not all, of our other soon to be neighbors.
It is our sincere hope that the results of this hearing will put a stop to all of this craziness so that we can all put this behind us and move on.
Some of the stuff that the County talked about in terms of a timeline and sequence of events is missing some information and I would just like to share that with the council. Back in December 28th of 2017, before we bought the property there was some concern about what kind of a septic system existed on the property and it was being represented by the seller's agent as one thing but we're not really sure and we're not septic experts. So we required that NMED do an inspection of the septic system before we were willing

to close on the property. NMED came out on January 4th. Deborah Carpenter, she inspected the septic system and her inspection reports were provided to us as well as the selling agent and the sellers indicating that the septic system was a cesspool and it needed full replacement.

January 16th we closed on the property. Deborah from NMED followed up with us on an email stating that we needed to submit a modification permit to replace the seepage pits, quote-unquote, submit a modification permit to replace the seepage pits on the property within 15 days. The work does not need to be required within that timeframe but prior to anyone occupying the premises. That was something that we had discussed with her. We were already well aware of that.

January 16th we actually called in to the County about moving the shed because we never called the shed an eyesore. We said the property itself, the way it was neglected over the years, was an eyesore. There were all sorts of fences that were falling down, wooden and metal, and we wanted to clean up the property. We actually like what the shed looks like and do not think it's an eyesore, so I'm not sure how it got basically represented like that. We called into the County on January 16th and we were referred to Jose Larrañaga. He told us at the time and this was all verbal over the phone that we did not need a permit to move the shed. We just needed to abide by a setback of 5 feet from the property line. He told us make sure you take pictures before you disassemble the shed to verify it was prior existing on the property and we did such. We also had the listing pictures when the property was listed.

January 18th through 20th approximately, my husband Mark disassembled the shed by himself. We also took video while he was disassembling it, just in case there was something that was going to be important later.

January 23rd he began moving the shed panels over to where it currently sits over to the new site. On that Debbie MacAllister came up to the property line and Mark discussed with here – she said, are you going to be moving the shed over here and he discussed with her, yes, this is where we plan to put it. She said, she didn't really – she did not have a problem with the proposed site of the shed, her only concern was that she did not want horses being located close to her property because they smelled bad and they attracted flies. Mark explained to her that while we were well within our rights to put horses there that was not our plan. That we planned to use the alone for shed. Mark furthermore told Debbie that we were very excited to be able to move to Tesuque and we wanted to be good neighbors.

January 24th within the required 15 days of closing on the property we had Richardson's Excavating submit an application for a liquid waste permit or registration to the NMED showing the proposed design and location of a new septic system. The application was accepted and signed the same day by the NMED, Deborah Carpenter, the same woman who had done the inspection. She provided a note that said provide floor plan when available because they were aware they we were going to be doing renovations on the property before we moved in.

The next day, my husband started reassembling the shed at the new site. Bruce MacAllister came to the property line at this point and discussed, oh you're moving the shed here and my husband said, yes. Bruce said he didn't have a problem with the site of the shed, his only concern was if horses were kept there it could contaminate his well. Mark explained once again we do not have any plans of having horses in the shed. We

are only going to use it for storage. We want to be good neighbors so please talk to us if you have any concerns. Bruce at the point described in detail the path of the 2015 flood from the arroyo and indicated that no flooding occurred near the shed's location. He specifically said, the flooding occurred near the low area in the extreme west part of the property, near the culvert specifically because the culvert was blocked and the water backed up and there was other debris in the arroyo. He stated how important it was to keep the arroyo clean of debris and the culvert unblocked. Bruce and other neighbors that have spoken to us that are not present today told us that after the 2015 incident, the County cleaned out the blocked culvert under Bishop's Lodge Road to prevent a reoccurrence of the backup. The arroyo was also modified at that point in time by the County. It was dug deeper and the sides were raised and this is obvious when you look at the arroyo that that has been done.

While my husband was reassembling the shed there was no fill placed in the arroyo to allow us to go back and forth across the arroyo. We did go back across the arroyo, yes. But no fill was placed there. The tire tracks that you saw in the picture presented by the appellants' counsel, those tracks were because there were several boulders in the arroyo as well as sections of trees, dead trees, and he removed those out of the arroyo thinking that was a good thing to do. But there was no fill placed in the arroyo and there was also no fill placed in at the site where he put the shed. My husband did more dirt around because the actual – otherwise the shed would have been cocked off at about – from one end to the other of the shed there was an elevation difference of about 6 to 10 inches so that's what you saw in those pictures. There was no fill brought in, there was no fill added. It was just dirt moved around.

On February 1st my husband finished reassembling the shed at the new site. Bruce MacAllister showed up once again at the property line. At this point in time he was very angry, yelling and pointing his finger at my husband demanding that we don't have horses in the shed. He said he did some research and according to regulations we can't have horses within 100 feet from their well. Bruce also threatened that he would do everything in his power to stop us from having horses anywhere near his property or his well. Mark tried to diffuse the situation and suggested that angrily threatening us was not the right approach to dealing with his concerns. He explained once again we didn't plan to keep horses in the shed. We only planned to use it for storage. He also reiterated again that we really wanted to be good neighbors and that we were making sure to follow all of the regulations as we were aware of so if Bruce had any additional concerns to what we were doing, please come talk to us and we'll see what we can do to address their concerns. Bruce said, okay and left.

One and a half weeks later on February 12th, Mark returned to check on the property. There was a Santa Fe County Notice of Violation from Gene Portillo dated February 6th on the shed. There was a New Mexico State Stop Work Notice from Julian Gonzales dated February 9th on our front door of the house. And as a side note we did no more work at that point in time on the shed. We touched nothing. Let's see here -- Mark went immediately, the same day, to the County office. He spoke to Nathan about the stop work order. Nathan informed Mark that Jose was not correct and we actually needed to get photos from the New Mexico Department of Transportation showing the shed existed in its previous location before 1981 and if it did exist before 1981 then we didn't need a

permit to move it. Mark requested an email to Chris Pappas at the New Mexico DOT overhead photos of the property that they might have on file prior to 1981.

February 13th, I think that was the next day, Alan Wainwright of the New Mexico Department of Transportation responded to Mark's request via email and indicated a specific NMDOT request form must be used to request these photos. Mark emailed him the required form the same day.

Two days later, Alan Wainwright from the DOT sent an email to Mark with those requested photos attached. Mark went into the County office -- and those photos were dated 1973 – Mark went into the County office the next day to provide the photos to Nathan. The aerial photos show the shed has been in existence and in that same location in the front of the property since at least 1973. They provided other photographs from 1965, I think, where the shed was not existing. So we know it was put in place sometime in that point in time. Nathan informed Mark again that the previous information that was given to him was not correct and that now he did need a permit to move the shed. That the DOT pictures were not sufficient. That we needed to move the shed because it was more than 100 square feet in area but the good thing was that the fees would be less because the DOT verified that the shed existed before 1981.

February 20th we placed a call to the Santa Fe Police about the MacAllisters trespassing on our property and shutting our lights off on numerous occasions. The Santa Fe Police Department met with the MacAllisters and explained that they couldn't trespass on our property and could not shut off our lights. The pictures taken by the MacAllisters and presented by them today in this appeal are documented proof of their trespassing on our property. At the recommendation of the Santa Fe Police Department we purchased a security camera and no trespassing signs to install on the shed and on the light pole at the property. The police department told us that those things would act as a deterrent to the MacAllisters and also provide more proof if they continue to trespass so they could be prosecuted.

February 21st, Mark submitted all of the documents to the County they told us were required to request an after-the-fact development permit. And I want to point this out just because it's been presented here as if we went out of our way to avoid doing what was and it's exactly the contrary. From every step of the way, we have tried to do everything that was right. We haven't tried to do anything wrong. We have not tried to harass anybody to get around any regulation, any kind of law. So and I understand that sometimes there is some confusion about what's required but at every step of the way we just went away and did what we were told that we needed to do.

On February 26th, Mark went into the County offices again and Nathan informed him that, whelp, now along with the permit application we need you to have an engineering water flow study done for the arroyo to be able to place the shed closer than 25 feet from the arroyo. My husband, Mark, clarified with Nathan that his upcoming three-month business trip would not cause problems with any permit coordination. Nathan indicated that because the permit was in process, Mark could finish any final details once he came back. February 29th Mark left town for a three-month trip for work.

On March 5th an engineering water study was completed by Oralynn Gutierrez [sic] the worse case flow rate of the arroyo was determined to be 39 cubic feet per second for a 100-year event. Because this was less than the 100 cubic feet per second requirement in the regulations there was no required setback for the shed from the arroyo.

From February 12th approximately once those stop work orders were placed on the property until May 28th no work was done on the shed. During this time we received no correspondence, no telephone calls, no emails, no text from any government agency regarding the property or the shed.

On May 24th we received a certified letter from NMED, Ron Romero, New Mexico Environmental Department, indicating that we were in violation of State Liquid Waste Disposal and Treatment regulations. The next day I spoke to Ron on the phone to find out why we were sent the violation letter because we had followed all of the regulations to our knowledge. He stated that our neighbors had called to complain about the unpermitted septic system on our property. And I said, okay, that's fine but we submitted everything that we were told to do. He said, he admitted that he just didn't look in the file to see that we had already submitted the permit application. He asked me to email him a response to his letter and include copies of all previous correspondence that I had had with NMED and a copy of the approved permit application, which I did and I have copies of those with me today if you would like to see them.

May 28th, Mark returned from his work trip. The same day we received a criminal summons in the mail from the Santa Fe Magistrate Court. The summons was dated May 23rd. It was mailed, postmarked on May 24th and it was a failure to comply with conditions set by Public Works. The next day Mark went into the County office to clarify what was going on and to ask why a criminal complaint was lodged given that we had done and are doing everything that was asked of us. Nathan explained that the issue was while the engineering study had been done, we needed an engineer stamp on the engineer's report to certify it before it could be accepted by the County. Mark asked why we had not been informed of this before a criminal summons had been issued. Nathan thought we had been contacted. Mark at that same point in time asked for copies of any and all correspondence sent to us from the County or any records of phone calls from the County to us prior to the criminal complaint being lodged. Nathan was unable to find any correspondence, notes or records of anything at that time.

That same day, I sent New Mexico Environment Department Ron Romero, two emails with all the requested information and to date we have received no communication back from them that we were okay, we weren't okay. The next day, May 30th we went to Oralynn's office and we obtained her engineer stamp on her engineer's report. Mark submitted it in person to the County to complete the request for a permit. He discussed the details of the permit on that day with Paul Kavanaugh and again with Nathan and Nathan's last name is Mascarenas. Mark again requested copies of any correspondence or record of any attempt the County had made to contact us prior to issuing a criminal summons on May 23rd. Mark was given a copy of a letter that was just sent out that morning on May 30th to us via certified mail. The letter was only mailed to the Tesuque property not to our residence. The letter was mailed on May 30th but it had a back date on it of May 24th. We confirmed that contrary to what was originally claimed there were no previous attempts to contact us about any issues before the County issued a criminal summons or before we actually appeared at the County offices on May 30th even though we had been told, no problem you can take care of this when you get back from your trip.

On May 30th the County permit was granted. May 31st the New Mexico State CID permit was granted. On June 1st the CID gave Mark a copy of the CID inspection results showing a status of pass. On June 2nd we left the country for a seven-week work

trip. In mid-June I'm not sure of the exact date, CID representative called us to say the pass inspection was in error and they needed to do the inspection again but they went by and our plans were not on site. I explained to him we had been told before we left that it passed inspection and we have the documentation with us and he said, yeah, I understand but we need to re-inspect or inspect because it wasn't really done. It was just an error. So okay, we're not back. Can we take care of this when we get back and they said no problem.

July 20th we return to Santa Fe. On July 23rd there was a 1,000-year rain event occurred in the Santa Fe-Tesuque area but there was no backup nor any flooding from the subject arroyo. The arroyo, contrary to what's being represented by our neighbors, filled up to approximately 25 percent of its capacity from the shed all the way down to where it goes underneath the road at the culvert. We have photographs documenting that. It did not reach – you can see the water areas. Extensive flooding occurred across the street and all along the river throughout Tesuque as well as within Tesuque Village. Again, this was a 1,000-year rain event not a 100-year rain event.

On August 3rd we received a letter informing us of a public hearing to address Bruce and Debbie MacAllisters' appeal. We didn't realize that there was even necessarily going to be an appeal until that date. On August 8th we left for a work trip to Mexico and had to spend $600 to rebook airline tickets to return early to be able to attend the hearing on August 16th. That day the hearing was postponed until today at the request of the MacAllisters. On August 17th we met with County personnel, Paul and John, at our property to look at setbacks and lights. Again, contrary to what was being represented the shed was correctly placed 5 feet from the property line according to the legal survey that is on file with the County that was done when we closed on the property. However, in an attempt to try and resolve this with our neighbors, we agreed to move the shed even further away so that it was at least 5 feet from the property line according to their survey. At that point in time on that same day, even though all of the outdoor lights were in compliance with the code, we also agreed to point them even further down towards the ground. According to the code, any lights that are 900 lumens or below do not even need shielding on them and all the lights that are on the property are 900 lumens or below.

On August 18th the day after we met with John and Paul at the property. We moved the shed over so it now sits approximately 5 feet 5 inches away from the MacAllisters' surveyed points. We also made sure to point the outdoor lights more directly down. At no more in time were they ever directly pointed at the MacAllisters' house.

So that's the timeline of events that actually kind of led up to today. I have a summary statement response to the items that were in the appeal by Bruce and Debbie MacAllisters.

Number one, meteorologists with the National Weather Service who are government experts stated that a 1,000-year record rainfall fell in our area on July 23rd. There was record flooding around the Tesuque Creek River and throughout Tesuque both north and south of the subject arroyo. Government monitored rain gauges in the area recorded 3+ inches of rain in some places due to this monsoon. This extreme 1,000-year monsoon event did not even come close to breaching the subject arroyo. The arroyo was at most approximately 25 percent filled to capacity. Again, we have photos documenting

that. We were there the next morning. The culvert at the end of the arroyo leading under Bishop's Lodge Road showed the water level was up higher because the culvert has some silt in it. So once again the culvert is proving to be a bottleneck. The shed in its location did not produce or contribute in any way to any silting in the arroyo or silting or damage on MacAllisters' property or on any properties that are downstream from this arroyo.

Again, while we reserve our right to do so according to the regulations, there is currently no plan to keep horses in the shed. So no horses could potentially be in danger if the shed were to flood. The shed is not located in a FEMA flood zone, neither the 1 percent nor the 0.2 percent chance that FEMA designates. This location is not designated as nor should it be a no build zone.

For arroyos that flow less than 100 cubic feet per second in a 100-year event no offset for an arroyo is required. As per regulations, the shed can be placed right next to the arroyo with no set back whatsoever but we located the shed approximately, at this point in time, 16 feet away from the arroyo thus providing extra protection from any potential issue.

I want to address the property line setback. The shed was originally placed so its western corner was 5 feet from the surveyed property line. This is the official survey that was filed and accepted by the County when the property was purchased by us in January of this year. The MacAllisters used a different surveyor who indicated a different property line location. After hearing the results of the survey, we agreed to move the shed even further away from our property line, like I have stated. On August 18th the shed was moved and now it sits approximately 5 feet 5 inches from the MacAllisters' property – survey of the property line.

Setback requirements for fill: No fill was brought into the property. No fill was used under the shed. No fill was placed in the arroyo for any reason and we certainly did not place fill in the arroyo to facilitate vehicular access. Because there was no fill, the 25 foot setback required for filled areas next to arroyos that have more than 25 cubic feet per second of water flow during a 100-year storm doesn't apply.

On to drainage easement required for periodic flooding: The shed is approximately 300 feet away from the nearest FEMA flood plain and that's including the 1 percent and the 0.2 percent chance of flood. So no drainage easement is required.

Lighting regulations: The security lighting fixtures on the shed and on the wooden utility pole that the MacAllisters mentioned at the property pre-date our purchase. The only modification that we made to those light fixtures were to replace the bulbs to make sure they were 900 lumens LED lights to make sure that we were in compliance with Section 7.8 of the SLDC. We replaced the bulbs with 900 lumens as specified under table 7-3. We additionally, we actually – our background is optical engineers, we used the handheld digital light meter to verify the spillover into the MacAllisters' property, didn't exceed the 0.5 foot candle requirements from Section 7.8.2.3 of the County code. While there was some spillover into their adjacent property is just natural, we made sure that it is well within that requirement.

Section 7.8.2.3 states, All outdoor light sources shall be concealed within cone fixtures except as otherwise specified herein. Fixtures shall be mounted in such a manner that their cones of light are directed down or towards the surface. Spillover of lighting to adjacent properties shall not exceed 0.5 foot candle measured at any point on the property line. No outdoor lighting shall be directed towards any adjacent residential use or public

road. We are in full compliance with those regulations. D, most of the existing light fixtures in the security system are motion activated as per 7.8.5.3 of the code. That section of the code states, all night lighting for security surveillance would minimize the use of action – motion activated lights and alarms will be encouraged as an alternative. Security lighting designed to illuminate a perimeter such as along the fence shall include motion sensors designed to stay off unless triggered by an intruder located within 5 feet of the perimeter. Pole mounted security lighting shall be installed more than 10 feet of the perimeter of the designated area and – to be illuminated and poles can be located outside the parcel boundaries. None of the light fixtures are mounted at heights greater than 16 feet as required by 7.8.2.4. The lowest fixture height that can serve the lighting purpose shall be used in all cases. Lighting specifically focused on paths and other items needing illumination shall be preferred to broadcast flood lighting over large area.

Maximum fixture height above adjacent grade for all fixtures shall be as follows: 1) any pole mounted lighting shall have a maximum height of 25 feet in or within 35 feet of any residential zoning district and all light fixtures shall not exceed 16 feet in height. Once again, we are in full compliance with that regulation.

Fire regulations: Urban Wildlife Interface Code is a fire mitigation document. Structures less than 600 square feet are required to be coordinated through County Fire Department. However, the shed is primarily made of steel components, support beams and outside walls and roof are painted or galvanized steel. The Fire Marshal has been contacted about the shed, as indicated it does meet the requirements.

On to the affidavit by Bruce and Debbie MacAllister. Paragraph 4, the MacAllister property is not downstream from an arroyo. No arroyo runs through their property. Paragraph 5, flooding is defined through FEMA flood management. No FEMA designation has been designated for the area where the shed is located. Paragraph 6 in their affidavit, flooding in 2015 was not caused by this shed because it was not there. If the shed was there, it would not have been in the path of the water. According to several residents of the area, the flooding from 2015 was caused from a partially blocked culvert that was located at the west end of the arroyo and goes under Bishop's Lodge Road. From what we understand, the County corrected the problem back in 2015 by cleaning out and unblocking this culvert and digging out the arroyo. The shed is approximately, right now, 16 feet away from the arroyo and doesn't present a risk in altering the arroyo's flow. The site was not graded to drain into the MacAllisters' property as they state in paragraph 9. Paragraph 10, the shed was placed on the same footers, the same exact footers, there were no bricks used. You saw a picture of the cement footers – that is all we used. We did not bring in any new equipment, new materials or nothing. The shed was placed on the same footers that it has been sitting on for approximately 50 years. The DOT aerial photographs show the shed, again, has been in existence since 1973. Paragraph 11 states that we gave false information to the County in our diagram of the shed. No false information was given to the County. The footer diagram was a cross-section and it properly represents the existing structure.

Paragraph 12, the shed does meet the setback from the property line. Paragraph 13, the Stop Work was definitely adhered and upon knowledge of the violation we immediately contacted the County and started the work to meet all zoning requirements; permits, engineer analysis, everything we were told to do. Paragraph 14, lighting was installed in accordance to Section 7.8 of the County code. The only installations that we

did were the bulbs. Security camera and no trespassing signs were installed at the recommendation of the Santa Fe Police due to the MacAllisters continuing to trespass on our property and shut our lights off. The Santa Fe Police Department, once again, indicated we should install those as deterrents. Paragraph 15, all items were addressed: lighting, setbacks, arroyo flow, engineering analysis, Fire Department coordination prior to permit application and approval.

Members of the Tesuque Valley Community Association are very concerned about the fact the County gave us an ATF permit, an after-the-fact permit. But once again I want to make sure that you understand that prior to moving the shed we did contact the Santa Fe County for guidance. We were told that moving a prior existing shed did not require a permit. After the shed was moved, we were told this was an error. We then submitted the required permit application but because we had already moved the shed it has to be an ATF permit. Also the members of the Tesuque Valley Community Association are concerned about the violation of property line setback. Once again, we set the shed at 5 feet from our survey line. Once we were aware the MacAllisters had a survey that showed that that line was different we moved the shed over so it is 5 and a half feet from the MacAllisters' survey. And I think that's all I have unless you have any questions for me.

MEMBER KATZ: Thank you for your very clear presentation. That was helpful. Does anyone have any questions? Mr. Shepherd.

MEMBER SHEPHERD: I'm looking at Exhibit 2 in our package, it's an aerial photograph of Santa Fe County from 2017. If I see this right, the horse shed at that point in time, was right along Bishop's Lodge Road; am I correct?

MS. VERNOLD: Yes, that's correct.

MEMBER SHEPHERD: And you decided to move it over to –

MS. VERNOLD: It's the north side of the property.

MEMBER SHEPHERD: Over to the north. There's also some fencing. It looks like horse fencing right – is that

MS. VERNOLD: We removed everything.

MEMBER SHEPHERD: It's removed?

MS. VERNOLD: Uh huh. We cleaned up – there was a lot of garbage as well and we removed all of that.

MEMBER SHEPHERD: And the reason why you moved the shed was because –

MS. VERNOLD: It was in the front of the yard and didn't make a lot of sense to have it there. And its location right now is not an attempt to bother any neighbors it's a good location for the shed and it is within all the regulations that we were aware of in terms of setbacks.

MEMBER SHEPHERD: Thank you.

MEMBER KATZ: Mr. Anaya.

MEMBER ANAYA: Mr. Chair, thank you. Cynthia, is that correct?

MS. VERNOLD: Yes, that's correct.

MEMBER ANAYA: And your last name was?

MS. VERNOLD: Vernold, V as in victor, E-R-N as in Nancy O-L-D as in David.

MEMBER ANAYA: Vernold. Mrs. Vernold, I want to thank you for the report that you gave. It was very thorough as the Chair had mentioned to you earlier. What do you do? What's your profession and your husband's?

MS. VERNOLD: What do I do now? We are both retired optical engineers.

MEMBER ANAYA: Optical?

MS. VERNOLD: Yes, lasers, telescopes.

MEMBER ANAYA: That's all I have thank you.

MEMBER KATZ: Any other questions? Okay, thank you very much for your testimony.

MS. VERNOLD: Thank you. Thank you for your time.

MEMBER KATZ: Now, this is the public hearing portion, if anyone from the public wishes to talk. I think several of you have been sworn in already, please come forward and talk to us.

[Previously sworn, Judith Goolsby testified as follows]

JUDITH GOOLSBY: Judith Goolsby, G-O-O-L-S-B-Y. We live at 1474 Bishop's Lodge Road. Wow, fiction. I am a writer but I am going to give you some facts. We live – all the talk about the arroyo, the arroyo runs through my property and we are downhill from 1467 and the MacAllisters. We are right across the street from the MacAllisters. Our property is about 1 acre total. The arroyo runs through and divides our property in thirds. Two-thirds is on one side and a third pretty much on the other and runs all the way down and the property runs slightly across the Big Tesuque River when we have water and so the arroyo is a natural arroyo. And when we bought our property 15 years ago we started with a very tiny adobe there and we've kept the adobe part of the house and we have improved the house and our property and we have a compound now of buildings, the main house, a studio/study, garage and the garage building backs right up to this arroyo that comes across. The culvert goes under Bishop's Lodge and the arroyo runs right behind that building and down into the river.

And I think besides the personal things that are going on my concern is more about codes and following the rules. And I think a lot of times we've lost sight of what that means these days. Rules are in place for a reason. The codes are in place, as I understand it, and where we live to protect lives and property. And so what I can say is that in that flood the fact that we weren't flooded this time, I have no idea if anything I had to say had to do with it but I was plastered up against my building by the arroyo praying that it wasn't going to come right then. And the lightning is coming. I'm back there and every time I'm thinking, please don't let this be the one because all of this had been postponed until today to make those decisions.

So the issue is more following the rules and when, I know the homeowners said it was only the culvert that was the problem that was not the case. The arroyo, when that water came down in 2015 and it was a storm that set right there. When I called my insurance representative from Farmers and said, David, we've got this flood of mud out here. And he said, What, it hasn't even rained here. So it just was right there and it set there for hours and rained like the one that happened in July just down the river from us. And in 2015 it set there and the water came down that arroyo brought everything it could down, which happens, silt and sand and other things and eventually did plug that up. But as I look over there and see and I think my gosh there's not enough depth to bring that

down and keep it under the road. The County was great after the fact. I think that culvert and arroyo should have had mitigation prior to that event happening but it didn't. And afterwards, yes they were good. But I think that that arroyo has got to be completely – I'm thinking dirt or whatever you want to call it, it is fill and I see that fill over the road in a storm coming right down straight at my house with the water. The power of water is unbelievable as most of us know. I've dealt with it several times recently including my son losing everything in Hurricane Harvey. So I know the power of water and what it can do. And when you live in the west you have to understand that, I think. And I'm sure you people do. And that's why the codes and rules were put there to start with so I'm just gonna tell you this one short thing here. These were the damages to our property that we incurred from that just when the water came down, we have an iron fence that is latilla, it twisted the iron, solid iron fence, sideways so that all of this came through. What damage to the front gate from water, mud and debris, loss of all Santa Fe brown gravel on the drive, parking area and landscaping to the back. The front patio was 6 inches deep in silt and mud. The patio landscaping was washed away and ruined by silt. The loss of all landscaping plants all the way from the road to the Tesuque River. All of our steps, railroad tie steps and concrete were washed away at the back down to the river. The back bank and the slope was washed away. Large tree roots holding the banks eroded from mud and water. The trees had to be removed and the bank totally rebuilt. All the garden plants and landscape were covered in mud. To remove all the mud, silt, debris, damaged trees and to rebuild the steps and bank, replace the gravel and plants we incurred between $16,000 and $18,000 in cost. None was covered by our flood insurance because the water came from above the road and crossed and not rising from the river. Abiding by codes that are in place to keep arroyos and culverts draining properly is Santa Fe County and the homeowners responsibility at 1457 Bishop's Lodge Road.

I wasn't going to say this, but I think I have to. We hold both parties liable if not abiding by the codes, not maintaining and enforcing them and especially if the repairs needed at 1467 Bishop's Lodge Road to bring the property up to code and prevent another disaster to our home and property are not taken care of. I'm happy to answer questions.

MEMBER KATZ: Thank you very much. Any questions?

MEMBER ANAYA: Mr. Chair.

MEMBER KATZ: Yes, Mr. Anaya.

MEMBER ANAYA: Ma'am, can you tell me where your – you said you live right next to the arroyo –

MS. GOOLSBY: It cuts through our property, down to the river.

MEMBER ANAYA: Okay, down to the river and then you have a barn that sits right next to the river?

MS. GOOLSBY: No, no, no, no. We have a – this was the other thing I was going to say. We have in the time we've lived there, everything that we've done we have gotten proper permits and followed every single rule. We're back from the river exactly where the edge was suppose to be before we did any remodeling. This building that I'm talking about that is on the arroyo is a studio, my husband's study, our well is over on that side, bathroom. We built a bunk house over our garage. We had water engineers come out before we built that building to tell us how far back we had to be from the edge of the arroyo and it was 25 feet and we're further than that. We had height

restrictions, we stayed under that. We were building the bunkhouse over the garage for family and friends and we had put in the design we put a sink and a little bar area with a microwave and refrigerator. And they said you can't have a sink there because it might be considered a kitchen. And we're only 1 acre. Okay, so we didn't put a sink in. These tiny little rules, we followed every single rule and I think the thing that we would like the most is for you people that have the power to do something is to make sure that people are complying and staying within the rules.

MEMBER ANAYA: Thank you, ma'am.

MEMBER KATZ: Thank you. Next person.

[Previously sworn, Jean Boyles testified as follows]

JEAN BOYLES: I'm Jean Boyles, 1532 Bishop's Lodge Road and that's B-O-Y-L-E-S. I'm Jean Boyles, hello and thank you. And I'm a board member and treasurer of the Tesuque Valley Community Association, a community organization recognized by the Santa Fe County Commissioners under the Sustainable Land Development Code. Our chair, Lynn Pickard, wrote you a letter which should be part of your packet outlining the concerns of the TVCA.

MEMBER KATZ: It is in the packet.

MS. BOYLES: Briefly, it is that the TVCA wants to see all applicable law and code provisions enforced which appears not to have happened in this case. Rather the County granted an after-the-fact permit without considering the various violations that should have been obvious. Lynn's letter details several of them and I will not take your time repeating them here. I just ask that you not approve what staff did without thoroughly and independently considering the merits of each alleged violation without deference to staff. I ask this because our community organization recently met with staff as part of the ongoing process contemplated by the code and the Tesuque Community Plan. The Board of County Commissioners adopted this as one of their first community plans. At that meeting, Lynn pointed out some of the provisions of the code that were being violated and staff admitted that they were unaware of those provisions, although these provisions include privacy fences. The fact that the staff was unaware of them makes it more important that you do your own investigation and reach your own conclusion in the matter before you today. Thank you.

MEMBER KATZ: Thank you very much. Next person; anyone else want to address the Commission? Okay, the public hearing is closed and it comes back to the Commission. I have a question of our Fire Marshal on the shed and whether it meets the Wildland standards.

FIRE MARSHAL BLAY: Mr. Chair, members of the Commission, I'm just going to read from the Wildland Interface Code. Detached accessory structures: detached accessory structures located less than 50 feet from a building containing habitable space shall have exterior walls constructed with materials approved for a minimum of one-hour fire-rated construction, heavy timber, [inaudible] or constructed – and this is a key sentence – or constructed with approved non-combustible materials on the exterior side. In this case, it does meet the Wildland Interface Code.

MEMBER KATZ: Thank you very much. Does anyone have any questions of the Fire Marshal? Thank you. Okay, does anyone have further questions on the presentation so far?

MEMBER GRAY: I have one of the MacAllisters. Was your kitchen that is so close to the horse shed now or the barn or the metal building, did you build that? Was it there when you purchased the property and why is it so close to the property line?

MR. MACALLISTER: Mr. Chairman, members of the Commission, we did build that addition in 2004. The reason it is so close to the property line is if you look at the lot plat we have very little space on either side of our residence. It does comply with all of the setbacks. It is more than – it's about 15, 16 feet from – it's 25 feet, I guess, my wife had the details of it, but from the property line. So it meets all the setbacks. It didn't infringe on any current situation.

I'd like to also while I have the floor, if I can come back to one point which we never objected. Our concern around the idea of the horses was that we were told that they were planning to put horses in that facility if they were sick. These are as we understand it large draft horses. Our research shows that a large draft horse with the three that they have will produce 2,100 pounds of fecal material a week all within 11 feet of our well and you'll see the plat and our well is also right next to that property and the reason why we are so close to that property edge is that our property comes in a trapezoid down to being very narrow down at the Bishop's Lodge side of the property, probably 50 feet or so long by the time it reaches Bishop's Lodge. So, we are building from an existing structure that was located there and that's where the pre-moratorium well is that's within 11 feet of that property line. The gas line – and so --

MEMBER KATZ: Thank you.

MR. MACALLISTER: Thank you.

MEMBER KATZ: I should give the appellant the opportunity to respond to the comments that had been made, if the appellant wishes.

MR. KARNES: Thank you, Chair Katz, members of the Commission. This case boils down to a question of code interpretation and I'm going to focus on – I'll just read to you from 7.17.5.1, which is the general section having to do with structures and development and proximity to arroyos, it says, "no fill shall be placed in natural drainage channels and a minimum setback of 25 feet shall be maintained from the natural edge of all streams, rivers, or arroyos with flows exceeding 25 cfs." We've heard testimony from the property owner and from County staff that this structure is approximately 16 feet from the north bank of the arroyo. It violates the requirement of a minimum setback of 25 feet. That's what this case is about.

In addition to that, 7.17.5.1.2 state, "any area of periodic flooding shall be identified as a no build area and shall be included within a drainage easement." That is a prospective requirement. It says shall be identified. It is not retrospective. It doesn't depend on an existing FEMA flood plain. It doesn't depend on what may have been platted in the past. When an applicant comes in for a permit, this section that's part of Section 7 applies and the burden is on the applicant to demonstrate that the area where they are proposing to build their structure or in this case has built their structure, is not subject to periodic flooding. In this case, Ms. Guerrerortiz did not address that at all in her report. She only determined the cfs under the false assumption that the only applicable provision was whether the cfs of this arroyo was over 100 cubic cfs – or 100 or not. In this case, it doesn't matter. It says in the general provision the applicant has the burden and staff has the burden of requiring the applicant to demonstrate that the area where the structure is placed is not subject to periodic flooding. We have all seen the

video tonight. In 2015 that area flooded. We heard testimony from the property owner who was not here in 2015 but watched the video along with us. You saw the lattice work fence that is roughly along the property line, that structure is in between the arroyo and the property line. There was water flowing on that side of the fence and there was water flowing down the MacAllisters' driveway and a standing wave just downstream from where that horse shed is was there in 2015. So, again, those two sections have been ignored by staff. They only applied 7.17.5.1.2 having to do with arroyos that flow in the 100-year flood of greater than 100 cfs.

The question before you is do these sections apply or not. I submit to you that they do and that they preclude development and placement and maintenance of a structure this horse shed, 15 feet from the arroyo. The code says no, it has to be a 25 foot setback. It is plain English right here in the code and I urge you to apply this section which carries out the intent of the general plan to protect the public health, safety and welfare on a serious issue such as flooding. Thank you very much.

MEMBER KATZ: Thank you. I have a question for the Assistant County Attorneys who are here because I too am puzzled by their interpretation – I guess what I am curious about is how they interpret 7.17.5.1.1? It does seem to say you don't put fill in the channel and I'm persuaded that that didn't happen. But that there is a minimum setback of 25 feet and that seems not to be the case. What's the story?

MS. VALDEZ: Mr. Chair, I think the threshold question for the Commission is whether there is a conflict or ambiguity between 7.17.5.1.1 which is the provision that Mr. Karnes is referring to and 7.17.5.2.6 which reads that "erosion setbacks shall be provided for structures adjacent to natural arroyos, channels, or streams such that a) a minimum setback of 25 feet shall be provided from all arroyos with flow rates of 100 cubic feet per second." And so the question, Mr. Chair, is whether there is a conflict between those two provisions or an ambiguity. And so the question is whether the Commission would find that fill shall have a minimum setback of 25 feet and if the Commission finds that then the Commission must figure out a way to read those two provisions harmoniously. To decide why we would have a provision that says anything that is 25 foot – with a 25 cubic foot per second flow shall have a 25 foot setback and why any structure with 100 cubic foot per second flow should have a 100 foot setback. So staff has tried to reconcile that by saying 7.17.5.1. pertains to fill and that's because of the change in topography that would result from fill and the potential for changing the natural course of flow or sediment flow or additional drainage into an arroyo. And provision about erosion setbacks pertains to structures because that's what is specified in that section. And I haven't heard from Mr. Karnes how he would reconcile those two provisions to have the code read in a harmonious manner because when you're doing statutory construction you typically don't want to render another section meaningless. And I think there's potential to have Section 7.17.5.2.6 become meaningless if you interpret the section that says no fill shall be placed in natural drainage channels and a minimum setback of 25 feet shall be maintained from the natural edge of all streams, rivers or arroyos with flows exceeding 25 cubic feet per second. That essentially would render the other provision meaningless if any development within 25 feet – that is adjacent to an arroyo, natural stream, river with a flow rate of over 25 cubic square feet, you would never have a situation where you would need to refer to the other section.

I think the first thing would be for Mr. Karnes to explain how he in his construction harmoniously reads the code.

MEMBER KATZ: I guess my concern is that the discussion of fill only says, Don't put fill in the channel. It doesn't say anything about fill on the sides and the minimum setback is just a completely separate clause. And I agree with you that the setback seems to be mentioned in two sections but I don't think – one is just a little bit more strict than the other and I think you could read them both and give them both force if it's 25 to 100 it's still 25 feet that you've got to be from it. The other provision, subsection 6, has both that minimum setback and the FEMA designated flood areas so it talks about more than just the one.

I appreciate the fact that there does seem to be some overlap but I don't think that they're in conflict. It doesn't seem to be that they're in conflict. It just seems that you have two provisions covering setback and one is a little more strict than the other.

But, Mr. Karnes, do you wish to respond to the Assistant County Attorney's comments?

MR. KARNES: Thank you, Chair Katz, members of the Commission. I agree that these two sections both reference the same setback. As I described in my presentation, the SLDC divides water – streams and arroyos into three categories: those under 25 cfs, those 25 to 100 and those over 100. Section 7.17.5.1 deals with those between 25 and 100 and it says, and I agree that that part about fill, that stands on its own and then it states, "and a minimum setback of 25 feet shall be maintained." That cannot be ignored as the Assistant County counsel said, you don't – every provision has to be recognized and given force and effect. And there's no conflict between saying these minimum size arroyos you need a 25 foot setback and for those that glow greater than 100 feet they also need a 25 foot setback and there are additional provisions in subsection 6 that were just addressed saying how you deal with FEMA designated areas and so forth.

So there's no inconsistency. It's saying in this case that 25 to 100, you need a 25 foot setback and for those greater than 100 you need a 25 foot setback and maybe more if you if have a FEMA flood plain involved.

And I'll just finish by saying that there is a provision in the code, and I don't have it at my fingertips, that where there is a conflict, and I don't believe there's a conflict here, they both speak to the setback and they both say the same setback. There's nothing wrong with that. The County decided when it drafted the code and the BCC adopted it, here you have a 25 foot setback for 25 to 100 and if it's over a 100 you need a 25 foot setback or more. However, if there was a conflict there's a provision in the code that says where there is a conflict the more restrictive provision applies. And here the more restrictive provision is the general provision saying and it's more restrictive in the sense that it's a smaller arroyo or stream, that is a more restrictive – so it puts more of an onus or of a burden on the property owner and given that it is more restrictive that applies if there was a conflict and I don't believe there is.

MEMBER KATZ: Thank you.

MR. KARNES: Thank you, Mr. Katz.

MEMBER KATZ: Phil.

MEMBER ANAYA: Mr. Chair, may I ask a question to Mrs. Vernold.

MEMBER KATZ: Sure.

MEMBER ANAYA: Thank you, ma'am. My question to you is what are the possibilities of moving the building to 25 foot setback?

MS. VERNOLD: There's room on that area to do that.

MEMBER ANAYA: You could do that?

MS. VERNOLD: Uh huh.

MEMBER ANAYA: Easily?

MS. VERNOLD: Yes.

MEMBER ANAYA: Thank you, ma'am.

MEMBER KATZ: Okay, any other questions. Steve.

MEMBER SHEPHERD: Mr. Chair, I've been listening throughout at the tremendous amount of information and work by both parties that has been put into this and I want to commend the Hopkins. I feel that they have operated in good faith throughout the whole process. That they have solicited the County advice and they follow the advice as given to them but it seems like it has been a moving target through the whole process and that unfortunately has placed a big burden on them as opposed to being clear in the beginning what to do so they could just do it. And it's people who didn't live on the property who had other obligations that would take them away from being there on a daily basis. That was very hard. So I want to commend them for operating in good faith.

I also am very happy to hear the last comment that it appears that everything has been resolved except for that setback. That there were other issues and the Hopkins, in good faith, corrected each issue has it came up and are trying to proceed forward. So, in fact, the setback can be resolved which we just heard, it seems that with that condition there isn't an issue and there shouldn't be an issue with the MacAllisters in terms of compliance with the law. Now they still may as I would have issues with this structure right in front of my door but if that's a legal structure and a legal location once the setback is satisfied, then I don't know what we can do about that.

MEMBER ANAYA: Mr. Chair.

MEMBER KATZ: Yes, Mr. Anaya.

MEMBER ANAYA: I would like to make a motion please.

COMMISSIONER GRAY: May I make a comment first.

MEMBER KATZ: Sure, and please speak closer to your microphone.

COMMISSIONER GRAY: Okay. I'm not a big fan of ATF permits. I never have been. I have always felt that the SLDC has these ordinances in place and people often will do things under the rug, if you will, and try and get away with things. Having said that, I'm glad to hear that the County staff is making every effort to enforce these ordinances and that there is a process in determining these things. I understand the MacAllisters' frustration in having this structure built so close to the kitchen but as Member Shepherd said, they followed all of the rules. So the AFT permit in this instance should be permitted. As far as us determining whether the rules are being followed or not I believe they are. Things happen along the way and that's why they're flexible and that's what the County's job is to make sure that these ordinances and rules are followed and because you don't want, anyone and myself included, would not want these flies in our home, this is where you put your kitchen, this is where you bought your property, this is what you've decided not them. If the Hopkins have agreed to in addition move to the

25 foot setback then I'm confused of what rules are being broken. Having said that though, I would move –

MEMBER KATZ: I think Mr. Anaya was prepared to make a motion.

COMMISSIONER GRAY: Oh, I apologize. That's really all I want to say about this.

MEMBER KATZ: Do we have any other discussion before we have a motion? I guess I seek counsel from staff, my sense and my view is that the permit should not have been granted for where it is. It sounds very hopeful that it can be moved to a place that would comply with the 25 foot setback. Can we – should we grant the appeal that the permit should not have been granted and then just let it be moved to where it would meet the 25 foot setback or can we deny the appeal on the condition that it be moved to that place? I'm not sure that works here and so I seek guidance on that from staff on what would be the proper procedural way of dealing with it?

MS. VALDEZ: Mr. Chair, the way I understand your question is whether to grant the appeal denying the applicant's development permit or to deny with a condition that it be moved. I think it is most appropriate to grant the appeal denying the permit just because I'm not sure that the code allows conditions on a denial.

MEMBER KATZ: That was my concern. I think we're all happy to hear that they can become compliant. But at least from my view and I don't know whether the other folks agree, that it isn't where it is so the permit shouldn't have been granted, but thank you.

Mr. Anaya.

MEMBER ANAYA: Mr. Chair, I'd like to make a motion on case number APP 18-5130, MacAllister appeal, to approve staff's recommendations to uphold the Santa Fe County Land Administration's decision as submitted.

Now, as just a neighborly suggestion, I would ask that you did move to 25 feet to make everything kosher. That is my motion, Mr. Chair, and it's up to you.

COMMISSIONER GRAY: I second.

MEMBER KATZ: Okay, any discussion on that? All in favor say aye.

The motion passed 4-0 with Mr. Katz not voting.

MEMBER KATZ: Okay, thank you. Our Chair is back.

CHAIR GONZALES: Let's take a 5 minute break.

[The Commission recessed from 6:30 to 6:40]

B. **<u>Case # CUP 18-5050 PNM BB2 345kV Transmission Line Project Conditional Use Permit</u>. PNM, applicant, Laurie Moye, Agent, are requesting a Conditional Use Permit to construct approximately 31 miles of new single-circuit 345kV transmission line in southern Santa Fe County. The proposed transmission line will connect PNM's existing Clines Corners 345kV Switching Station (within Santa Fe County) to a new switching station within Sandoval County. The new single-circuit transmission line will be located immediately adjacent to the existing BB 345kV transmission line on a separate 150' easement. The steel "H" frame structures (140 pole sites) will be constructed 120' to 150' in height.**
The proposed 31-mile transmission line will meander through State Land (2.5 miles) and through parcels that are zoned Agricultural/Ranching and Rural (31 miles). Ordinance No. 2016-9, the Sustainable Land development Code, Appendix B, Use Matrix, identifies high-voltage electric power transmission lines as a Conditional Use within these Zoning Districts. The proposed transmission line will run east to west within southern Santa Fe County, north of Stanley and north of Golden, meandering through approximately 25 separate parcels of land, within T 10, R 7, 8, 9, 10, 11 E, T 11, R 7, 8, 9, 10, 11 E and T 12 N, R 7, 8, 9, 10, 11 E, SDA-3, (Commission District 3) [*Exhibit 1: PNM provided BBE, 345kV Transmission Line Project slide deck; Exhibit 2: PNM provided CD; Staff report on file with Land Use Department*]

CHAIR GONZALES: Let's get started. The next case is case #CP-18-5050, PNM 345 kV Transmission Line Project. Jose, please proceed.

MR. LARRAÑAGA: Thank you, Mr. Chair. [Reads caption] Just for clarification throughout the report, the applicant's submittal and staff report make reference to the "BB Line". The "BB Line" is an existing 345kV transmission line on an existing 150' easement, which was constructed in 1984. The CUP request is for the proposed BB2 345kV transmission line on a separate 150' easement. The applicant labeled documents as exhibits and/or attachments which are in staff's exhibits and which do not coincide with exhibits listed on page 13 of this report.

The BB2 Project consists of construction of a single-circuit line within southern Santa Fe County, commencing from the existing PNM Clines Corners 345kV switching station, which is on state land within Santa Fe County, to just west of NM-14 to the Santa Fe County line then to a point in Sandoval County. The BB2 Project is approximately 31 miles on private property for the new single-circuit 345kV transmission line. The line is also located on approximately 2.5 miles of state land on the existing Clines Corner Switching Station.

The new single-circuit line will be located immediately adjacent to the existing BB 345kV transmission line built in 1984, within an existing 150-foot easement and will

expand the existing utility corridor. The new construction will require an additional easement 150 feet in width. PNM is currently working with private landowners to obtain this easement. Access for the BB2 Project will be from existing roads adjacent to the site and the existing PNM patrol 2-tracks which is on the existing BB 150 foot easement.

The applicant states, "The BB2 project is proposed in response to a wind farm developer who has entered into an agreement with PNM to transmit into the transmission grid the electricity generated by a new wind development in Torrance County, New Mexico. PNM is required by the Federal Energy Regulatory Commission to develop the requested capacity on its transmission system to serve this wind farm developer. In order to serve the wind farm developer, PNM will need to build a new transmission line in southern Santa Fe County to deliver this new wind energy. The new single-circuit line will be located immediately adjacent to the existing BB 345kV transmission line and this will expand the existing utility corridor."

Structure type for the BB2 project is a single-circuit H-Frame and will be a dulled galvanized color to match the color of the existing BB structures. The typical height of the structures for the BB2 project is approximately 120 to 150 feet which meets the National Electric Safety Code standards for safety. The BB2 transmission structures will be located generally parallel to the existing BB transmission structures. Final locations of the transmission structures will be subject to site specific conditions. The BB2 Project consists of approximately 140 pole sites for the transmission structures in Santa Fe County. Each transmission pole site or structure area is approximately 20 x 40 feet. The average span length between transmission structures will be between approximately 1,000 to 1,500 feet. In rugged terrain, structures may be spaced up to 1,900 to 2,000 feet apart.

Ordinance 2016-9, the Sustainable Land Development Code, Section 7.12.1.3, states, "Above-ground electric utility lines that transmit electricity at a voltage greater than or equal to 46 kilovolts shall be designed and constructed at the minimum height necessary for the proposed structure to function properly and for public health, safety and welfare, as demonstrated by the applicant."

The applicant has submitted justification for the need of the required structure height which is contained in the report. Staff has reviewed the information submitted by the applicant demonstrating the need for the height of the structure and agrees with the applicant that in order for the structure to function properly and for public health, safety and welfare the structures require a height of 120 to 150 feet. The applicant has addressed the conditional use criteria and staff has responded as contained in the report. The applicant submitted the required studies, reports and assessments which include an environmental impact report and a fiscal impact assessment which are contained in the report.

The applicable SLDC design standards were addressed by the applicant which include the following: fire protection, historic and archaeological resources, terrain management and flood prevention and flood control.

Building and Development Services staff has reviewed this project for compliance with pertinent SLDC requirements and has found that the facts presented support the request for a conditional use permit to construct approximately 31 miles of new single-circuit 345kV transmission line in southern Santa Fe County: the use is compatible with the current development within the Agricultural/Ranching and Rural Zoning Districts; the

use will not impact adjacent land uses; and the application satisfies the submittal requirements set forth in the SLDC inclusive of the Conditional Use Criteria set forth in Chapter 4, Section 4.9.6.5.

The applicant has demonstrated that the minimum height necessary, for the proposed structures to function properly and for public health, safety and welfare, would be 120 to 150 feet in height. The review comments from the State Historic Preservation Office and County staff have established findings that this application to construct 31 miles of new single-circuit 345kV transmission line immediately adjacent to the existing BB 345kV transmission line is in compliance with State requirements and design standards set forth in the SLDC.

Hearing Officer Recommendation: On July 12, 2018, this request was presented to the Sustainable Land Development Hearing Officer. The Hearing Officer memorialized findings of fact and conclusions of law in a written order on this request. The Hearing Officer, based on the evidence presented recommended approval of the request for a Conditional Use Permit with the conditions recommended by staff.

Recommendation: The recommendation of the Hearing Officer and staff's recommendation is for approval of a Conditional Use Permit to allow a new single-circuit 345kV transmission line, 31 miles in length, running east to west within southern Santa Fe County, meandering through 25 separate parcels of land, with the following conditions. Mr. Chair, may I enter those conditions into the record?

CHAIR GONZALES: Yes, you may.

[The conditions are as follows:]

1. The CUP showing the site layout and any other conditions that may be imposed through the approval process shall be recorded at the expense of the applicant in the office of the County Clerk in accordance with Chapter 4, Section 4.9.6.8.
2. Prior to recording the CUP the applicant shall submit, to staff for the record, the recorded documentation of the acquisition of the entire 31 mile, 150 foot wide easement utilized by the BB2 345 kV transmission line.
3. Prior to recording the CUP the applicant shall submit a Geotechnical Reconnaissance Report on the entire 31 mile, 150 foot wide easement utilized by the BB2 345kV transmission line. If the final design places a structure ("H" Frame) within a no build area, PNM is required to address the requirements specified in Chapter 7, Section 7.17.4. of the SLDC and submit the findings to staff for the record.
4. If the final design places a structure ("H" Frame) within a Zone A flood hazard area, PNM is required to work in consultation with the appropriate flood zone authorities to address the requirements specified in Chapter 7, Section 7.18.9.1.of the SLDC and submit the findings to staff for the record.
5. The patrol 2-track dirt road shall be capable of supporting emergency apparatus and shall be kept in good condition.
6. All mitigation implemented as recommended in the Environmental Impact Report shall be documented and the findings submitted to staff for the record.
7. Ground disturbance at archaeological sites LA 171600, LA 171612, LA190494 and LA 191147 shall be avoided. A mitigation plan shall be prepared and implemented for LA 55687 and LA 77436. The mitigation plan shall be provided

to the Historic Preservation Division for review and approval prior to implementation.

8. The maximum height of the "H" Frame structures to be utilized for the BB2 345 kV transmission line shall not exceed 150 feet.

MR. LARRAÑAGA: Thank you, Mr. Chair, and also this report and the exhibits listed below are hereby submitted as part of the hearing record. Mr. Chair, I stand for any questions.

CHAIR GONZALES: Thank you, Jose. Does the Commission have any questions of staff? Okay. Let me see if I do. Okay, thank you, Jose. Laurie.

[Duly sworn, Laurie Moye testified as follows:]

LAURIE MOYE: My name is Laurie Moye. I'm representing PNM. The office is at 2401 Aztec NE in Albuquerque, New Mexico, 87107.

Mr. Chair, Commissioners, Laurie Moye, coordinator, regulatory projects and public participation for the projects and program management department at PNM. I'm here to talk about the BB2 345kV transmission line project in Santa Fe County. I'm just going to walk through the slide deck. This is old school tonight. Slide deck in paper and some boards. Okay?

CHAIR GONZALES: Okay.

MS. MOYE: Slide #2 is about renewables. It's growing nationally. Renewable systems are more efficient and affordable and due to renewable requirements in many states, due to increase in public interest and demand for renewable energy, renewable energy is getting built. Wind is the blue, and you can see in 2003 New Mexico interconnected the first wind farm into the PNM system grid. In 2016, 13 years later, you can see nationally a substantial increase in wind development, almost 20-fold.

Slide #3, you can see that wind generation potential is huge and primarily in eastern New Mexico. The state can produce many times its own electrical consumption because of this potential and it is in a position to export wind energy.

What makes good wind energy? Consistent wind speeds for a significant portion of the year. Very few still times and very few extreme wind times. And I know that living in New Mexico for as long as I have it feels like the wind blows all the time a lot, but apparently that's not necessarily true for wind developers.

On the next slide, let me just say that wind developers when they are developing the site, they do site specific considerations and they do test the sites before they put in a permit to have a site there. On slide 4 I just want to say that this map is from the National Renewable Energy Lab, NREL, which is a national research lab of the US Department of Energy and the Office of Energy Efficiency and Renewable Energy NREL has identified the annual average wind resource potential in the United States using a system of wind power classes that range from one to seven, seven being the windiest. Classes 6 and 7 are found in off-shore locations. You notice in New Mexico it's classes 3, 4, and 5, and this is a map of eastern New Mexico to Albuquerque. Santa Fe has wind potential in the southern portion of the state, basically mostly 3 and a few spots of 4.

On slide 5, AVANGRID Renewables, LLC, has requested and entered into an agreement with PNM to transmit electricity from new wind development in Torrance County. PNM is required by the Federal Energy Regulatory Commission – FERC – to

develop the requested capacity. The BB2 project meets the need for this service request. The added transmission capacity needs to be in place in fall 2020.

On slide 6 you can see, Jose referenced the existing BB line and then we're here to permit the BB2 line. The existing BB like is from BA to Blackwater station. It's been in place since 1985. It's 216 miles long. This line had a total maximum of 1,000 megawatts available so the solid red line is the existing BB line and you can see to the left, on the left there's the BB and the BB2 there. So when you add together all of the existing wind farms you'll notice that there are two on the left-hand side that are proposed. You add all of those megawatts up and you'll see that that comes to a thousand of total transmission service commitments. So the BB line is completely subscribed and cannot accept any more wind energy. So the addition of the BB2 line, between Clines Corners and the BA station would serve future wind development in Torrance County.

If we move to slide 7 I'm going to talk now specifically about the BB2 project. It supports the requested capacity. PNM will acquire all applicable permits at the local level with Santa Fe County and the state level with the NMPRC. No federal permits are required. As we have said 100 times this is a new single circuit 345kV transmission line. It's the expansion of an existing station within the existing fence area. The current zoning, and I have the zone map right there, the current zoning is Agriculture/Ranch, Rural and state land zoning districts. The current uses are ranching and dispersed residential, and these uses can continue.

This project, this line, requires an additional 150-foot wide easement adjacent to the existing BB2. I'm going to ask you to edit this page. I'm going to ask you to delete the word "new" up there. It's supposed to be – we have an existing 150-foot easement on the BB line. We're going to add an additional 150 feet. So we talk about the 150 – the only thing that's new is the first 150 feet. And access, as Jose noted, will be patrol-2 tracks as much as possible along the existing easement, along existing roads in southern Santa Fe County.

So I want to talk about stakeholder engagement. The board down on the bottom, the dark peach and the light peach, those are the landowners that we contacted. We engaged in a variety of public outreach. We had what we call the leadership team. We had three meetings of this leadership team. They nominated people to participate in the utilities search conference, which was a day and a half event. Maybe Commissioner Gonzales is the only one that was around when we built Project Power. This is the same process that we used for the Project Power line.

Then after that we went to a pre-application neighborhood public meeting. It was held on April 4th in Moriarty. We contacted the 190 property owners and we had ten people attend. There were no concerns, issues, or problems identified at this particular meeting. Also we've held individual meetings with property owners and their representatives. We hosted a property owner meeting on March 22nd and from the utilities search conference, which was the day and a half, people volunteered to participate in a continuing set of meetings with a group that we call a community working group. We have had three meetings with them and these meetings will continue until the project is complete.

If you move to slide 9 you'll see in really fine print that this begins at the existing Clines Corners station on the right-hand side and it goes all the up to the BA and the new proposed station in Sandoval County. The BB line, it's a guide delta line, and next to it is

the proposed new structures. It's a gray, galvanized H steel frame. This was selected by landowners whose property the line would cross. As Jose indicated, this would 120 to 150 feet in height. The span lengths are 1,000 to 1,500 feet and there's some illustrations down on those boards. That's in flat terrain. If we need to go to rugged terrain the structures may be spaced up to 1,900 to 2,000 feet. The pole sites will be direct bury, two holes, as indicated on that board. As Jose also said, we're going to try to match it structure for structure placement. If there is a terrain issue or an archeological site or some other feature where we need to move we'll be moving slightly in either direction. this again is a visual simulation of what the line would look like. The photo was taken from a road crossing New Mexico 41 looking north.

I'm sorry. I should have turned the page because on page 10 it really talks about the two structures. You can see the existing steel galvanized guide structure and then the new H frame structure right next door to it.

If we move to slide 11, this is a photo of the Clines Corners switching station viewed from north-bound Highway 285. This is six miles north of the Clines Corners interchange on I-40. It's on the west side of the road. So the net effect on PNM rate payers is beneficial or neutral. Santa Fe County will directly benefit $386,876 from PNM property tax payments. Forty to 50 temporary construction jobs will be created in the area and we strive to utilize local workers as much as possible. Any workers that come in of course will stay in this area. They typically bring in their RVs or their trailers and they stay in the area and so they eat and recreate in the area. AVANGRID has indicated that there are permanent renewable energy jobs that will be created. The economic development for the State of New Mexico, this is a bonus because it's helping to address the public's interest in renewable energy development. Again, developments like this attract other developers. The bottom line is nationally, the public wants renewable, and they want renewable wind, and New Mexico has that to deliver.

This concludes my presentation. Thank you for your time. I will stand for any questions.

CHAIR GONZALES: Thank you, Laurie. Does the Commission have any questions of PNM?

MEMBER SHEPHERD: Mr. Chair.

CHAIR GONZALES: Mr. Shepherd.

MEMBER SHEPHERD: You said that the landowners preferred the H structure as opposed to – was that because the existing structures require a lot of guide wires, and they were concerned about that? Where the H is just two holes in the ground?

MS. MOYE: Chairman Gonzales, Commissioner Shepherd, quite frankly I was stunned. I had thought that they would want an identical structure side by side. But you can tell that the H frame is smaller, shorter, and there is less disturbance with the H's. It's two holes in the ground. They really didn't get into the details. I was very surprised. I would have expected to guide deltas.

MEMBER SHEPHERD: Thank you. Next question. I have a couple questions. How long is the construction period going to be?

MS. MOYE: Chairman Gonzales, Commissioner Shepherd, about eight months.

MEMBER SHEPHERD: When will the construction start?

MS. MOYE: When we have approval. We need to get approval from the NMPRC. Q4 2019, or Q1 2020. We need to be complete by fall of 2020.

MEMBER SHEPHERD: Right. That's the goal you're shooting for.

MS. MOYE: Yes.

MEMBER SHEPHERD: Safety. Is there any issues that you know of in other installations where side by side towers, if there's a problem with one tower, like a line breaks on one tower and it whips over and it hits the other tower, has there been any issues of safety relating to one line affecting the other line through some type of wear or act of go?

MS. MOYE: I would like to bring up my engineer expert, Emilie Dohleman.

[Duly sworn, Emilie Dohleman testified as follows:]

EMILIE DOHLEMAN: Emilie Dohleman. Chair Gonzales and Commissioner Shepherd, transmission lines are designed to withhold certain ambient conditions, particularly ice and wind, and we have not experienced an issue where parallel lines, where one has failed and taken the other line out with it. And we do regularly maintain the lines and look for issues like loose bolts or something that might cause a problem. We do that on a regular basis anyway.

MEMBER SHEPHERD: While you're up there, my last question really would be for you too. There have been incidents – I've been in the Fire Department for 20 years so my ears perk when it comes to fire. There have been wildland fires started by lines coming down in the middle of trees. When you look at the actual route you're going to be taking, are there any areas in there where there is a potential interface with fuel, culled trees and stuff like that?

MS. DOHLEMAN: Well, we would be clearing portions of the right-of-way, and that is actually a NERC requirement, to maintain clearances on your right-of-way to vegetation, just for that very issue. And the other is our operations center keeps – they are always watching where fires are in New Mexico compared to where the transmission lines are on the grid, and if necessary during a fire a line will be turned off.

MEMBER SHEPHERD: Thank you. Thank you, Mr. Chair.

CHAIR GONZALES: Anybody else? Mr. Anaya?

MEMBER ANAYA: Mr. Chair, have you read all of the terms that the staff or the Hearing Officer has given you? One through eight? Meaning that your conditions must meet certain requirements?

MS. MOYE: Mr. Chair, Commissioner Anaya, yes.

MEMBER ANAYA: And you're in favor of every one of them?

MS. MOYE: Yes. We can comply with all of them.

MEMBER ANAYA: Okay, let me ask about item #2. Prior to recording the conditional use permit the applicant shall submit to the staff the records of recorded documents in acquisition of all 31 miles. The entire 31 miles, and additional 150-foot wide easements. Has that been accomplished already, or is that still in talks right now?

MS. MOYE: Mr. Chair, Commissioner Anaya, that is still in talks. Out of the 21 landowners we have all but four today. We will continue to negotiate with these landowners, and then as we receive approval from the NMPRC we will go ahead and file easements on all of those properties.

MEMBER ANAYA: Out of the 21 landowners, how much land are we talking still unnegotiated?

MS. MOYE: Let me check.

MEMBER ANAYA: I figured you have an answer.

MS. MOYE: Mr. Chair, Commissioner Anaya, we have 27 percent in hand.

MEMBER ANAYA: So you've got a long ways to go.

MS. MOYE: We have some large landowners that we're still negotiating with and once they're in place we'll be there.

MEMBER ANAYA: And where will this land be located? Most of the large landowners? I would assume it's ranching land.

MS. MOYE: Mr. Chair, Commissioner Anaya, the majority of the land on here is used for ranching by all of the landholders and I'll try to point out some of the large landowners. We have some present right here. We have a very large landowner right here.

MEMBER ANAYA: Where's that located?

MS. MOYE: Where is this located?

MEMBER ANAYA: Yes. Between 41 and 14. Oh, reversed.

MS. MOYE: So this is east, west, 41, I don't know where 14 is. Right in here. It's up in there. It leads into – so this is Golden, Algodones is up here, if that helps.

MEMBER ANAYA: So out of the 21 landowners, they own 80 percent, 79 percent of what you still need to negotiate?

MS. MOYE: I believe four landowners, and three of them large own approximately three-quarters of the property.

MEMBER ANAYA: Are you close to negotiating?

MS. MOYE: I believe we are.

MEMBER ANAYA: You're asking us to grant you a permit and I'd kind of like to know where you are, at what stage in order for me to say, hell, yeah, go for it.

MS. MOYE: Great. Thank you.

MEMBER ANAYA: I'm all for the project. There's no question about that. I think we need renewable energy. But I also think that we need to treat everybody fair and equitable in this process.

MS. MOYE: Absolutely. Chairman Gonzales, Commissioner Anaya, we will negotiate with these landowners until the very end. Once we receive NMPRC approval for this line we will then move, if we have not reached an agreement with these landowners we will move to condemnation. We do not want to do that, and we want to continue to negotiate with them up until the very end.

MEMBER ANAYA: Wow. That's a bad word for me.

MS. MOYE: I would understand that. I'm not a fan of that word either. But we've found that most landowners, once we keep moving through the process, ultimately agree, prior to condemnation. But this is in the public interest and I can appreciate your reaction to this. However, this is what can happen when you want to build a road, when you want to build a water line to benefit the public, when you want to build a gas pipeline. Sometimes you have owners that want things that the developer can't do. That developer could be the County of Santa Fe.

MEMBER ANAYA: Well, one of the reasons I ask, because if you're taking an additional 150 feet, that's 300 feet of easement already given up by part of them. And some parcels there, that's almost all of their land for that easement alone. Three hundred feet is a lot. And that's why I'm asking you these questions because I want to make sure that everybody – everybody's for this project. Nobody's going to tell you, no, we don't want to do it. But they want to be treated fair. And if they're losing 90 percent of their property because they can't develop it, and you know that they can't develop it if there's a high line and stuff like that.

MS. MOYE: May I answer?

MEMBER ANAYA: Sure.

MS. MOYE: Okay. Chairman Gonzales, Commissioner Anaya, all of those landowners that have a small parcel have all already signed the easements. And to repeat was Ms. Dohleman said, the four holdouts are the very, very large landowners that are not as impacted by this as you are talking about, those small parcels.

MEMBER ANAYA: Then why are they holding out?

MS. MOYE: Chairman Gonzales, Commissioner Anaya, if I knew I would answer this question. I do not know.

MEMBER ANAYA: Have you asked them?

MS. MOYE: Constantly, as we continue to negotiate with them. Like I said, we will continue to negotiate with them as long as we can.

MEMBER ANAYA: Okay. Thank you. I would hope that you all do it in good faith because condemnation is not a good word for me.

MS. MOYE: Chairman Gonzales, Commissioner Anaya, it's not a good word for us either. We really do not like to do that. We will negotiate in good faith with the landowners.

MEMBER ANAYA: Thank you, ma'am.

MS. MOYE: Thank you.

CHAIR GONZALES: Thank you, Mr. Anaya. Any other questions from the Commission? I have a few myself. So we're talking – okay, first of all, I'd like to thank you for all the interesting and great computer-generated submittals. It makes our job a lot easier. So back to what Commissioner Anaya said, so the total width of the easement will be 300 feet with 150 feet from the center of the existing tower to the center of the proposed tower. Correct?

MS. MOYE: The 150 feet, if you look on –

CHAIR GONZALES: So it's a total of 300 feet, but that means the towers will be 150 feet apart. Correct?

MS. MOYE: No. If you go to slide 10, slide 10 shows the existing 150 feet, which is the existing structure, and then you'll see the additional easement to the left, and that structure will be in the middle of that 150-foot easement.

CHAIR GONZALES: Yes, but if the section is showing 150 feet from the center of the tower to the center of the other tower.

MS. MOYE: That's a typical separation, and that's required by the National Electric Safety Codes.

CHAIR GONZALES: Okay. That's what I was talking about. Okay, how close can a property owner build to the easement? Is there a setback requirement from PNM for this? Or can they build all the way up to the easement?

MS. MOYE: Chairman Gonzales, they can build all the way up to the easement. All we control is the easement itself, to either ask them for an encroachment agreement, or prohibit them from building within the easement.

CHAIR GONZALES: Okay. Will any of these lines be tall enough to have to be marked for aircraft?

MS. MOYE: No. For aircraft, the structure must be 250 feet or taller.

CHAIR GONZALES: Thank you. I've always wanted to know that. Are any of the existing towers going to be replaced?

MS. MOYE: We're not planning to replace any of the existing towers.

CHAIR GONZALES: And what type of mitigation is going to be used for the arc sites?

MS. MOYE: I'm going to bring up our archaeologist to answer that question.

[Duly sworn, Doug Campbell testified as follows:]

DOUG CAMPBELL: Doug Campbell, at PNM, the same address. So with respect to the conditions, under these conditions we're moving toward preparing a mitigation plan for two of the sites that were identified and frankly, I'm not sure exactly what we'll end up doing there, but what I'm thinking – so both of these sites are just east of New Mexico 14 and they're mostly chipped stone scatters and a couple of ash stains, so we'll probably develop an incremental plan where we'll start focusing on and excavating and testing around the ash stains to see if the site extends out under the surficial soils and them move out from there. Most likely those two sites will be completely excavated within our 150-foot easement. But as the condition specifies, we'll develop a written plan, submit it to the Historic Preservation Division and work with them on that and then notify staff that that's been completed.

CHAIR GONZALES: Thank you. Emilie, I think it's your turn.

MS. DOHLEMAN: Good.

CHAIR GONZALES: The topography indicates that some of the arroyo crossings need some grading and culverts. Have any culverts or ditches been installed or going to be installed or been installed?

MS. DOHLEMAN: At this point we have not installed any culverts or ditches because we have not started any roadwork on the project.

CHAIR GONZALES: I mean for the maintenance. I was looking at some of the little arroyos there by the two-track roads. You guys haven't had to put any culverts in there or anything?

MS. DOHLEMAN: I don't believe we have put in any culverts. I believe we usually work with Doug and the environmental staff about ways to cross those.

CHAIR GONZALES: Okay. How many public roads are going to be crossed?

MS. DOHLEMAN: Well, there are three major highways – US 285, State Road 41 and State Road 14. I do not know how many exact County roads will be crossed, but there are several.

CHAIR GONZALES: Are there required setbacks from the rights-of-ways for these towers or roads? Or are there setbacks required from edge of road or right-of-way?

MS. DOHLEMAN: There are. The National Electric Safety Code does have setbacks from the edge of the pavement or edge of the driving lanes.

CHAIR GONZALES: And you guys are in compliance with that?

MS. DOHLEMAN: Yes.

CHAIR GONZALES: Will County staff be notified of the disturbance of floodplains and no-build areas before permitting, or at permitting stage?

MS. DOHLEMAN: I believe if we need to get into a floodplain then we will be notifying you when we apply for the HIFAR permit. Our goal is to avoid that.

MS. MOYE: Mr. Chair, that's a condition of here and just to reiterate, we will not start any construction until we're able to meet these requirements because we understand that at that point we will be granted the conditional use permit.

CHAIR GONZALES: Okay. I don't have any other questions. Does anybody have any other questions?

MEMBER SHEPHERD: Mr. Chair, one more.

CHAIR GONZALES: Mr. Shepherd.

MEMBER SHEPHERD: I know that you're tracking right along side an existing line, but I'm still going to ask the question because perhaps you ran into this when you put the first line in. Are you going to infringe on any Native religious or sacred sites on that 30-mile path?

MS. MOYE: I'm going to bring up our archaeologist.

MR. CAMPBELL: Mr. Chair, Commissioner Shepherd, so PNM's undertaken a cultural resource survey as required by County code and in addition to that, we've engaged with the San Felipe Pueblo seeking out any additional concerns such as traditional cultural properties, those types of resources. And so we're still speaking with them and seeking information from them. So that's probably going to continue to be an ongoing dialogue for some time to come as we work on our conversation on that. But as yet, we've understood that there may be some pathways between ancestral homes that might be of concern but as I understand it currently, all of those are in Sandoval County.

MEMBER SHEPHERD: Thank you, Mr. Chair.

CHAIR GONZALES: Okay. Does anybody have any other questions? Okay, this is a public hearing. Is there anybody out there that wants to speak in favor or against this project? Please come up.

[Duly sworn, Bill King testified as follows:]

BILL KING: My name is Bill King. I live at 254 King Road, Moriarty, New Mexico. Mr. Chair, committee members, thank you for letting me address you. My name's Bill King. I'm one of those landowners that's holding out that has a block of land that they're going through and as you've stated tonight and I've stated many times, I've been in meetings with Laurie. I'm in favor of this project. I want the Estancia Valley to be able to grown and wind energy seems to be a good thing. I have only asked that they pay the same kind of damages to us that they paid the Torrance County ranchers before PNM took over. Because in Torrance County AVANGRID Wind Energy does not have the power of condemnation and so they contracted with PNM to build the rest of this line and they are looking to get permission from the PRC to do condemnation.

So I had one request tonight of your conditions here that you would put in #2, that they also negotiate in the same faith with us that they have with Torrance County ranchers and that AVANGRID did and that they not be allowed to condemn us, because

under state law I believe they're only allowed to condemn a 100-foot right-of-way anyway. That's why they have to get permission from the PRC to condemn a larger right-of-way. Because most of your big power lines, like Sun Zia and all of those that you've heard so much about are not being acquired by condemnation because they're owned by windmill companies. So I would ask that you make them deal with us in the same faith that they have in the other counties and the other windmill things.

The second thing that I would like to talk about tonight is this 150-foot right-of-way that they're purchasing does not seem completely fair to me. They have the 150 feet between their two lines, but they only have 75-foot on the other side and if a line would happen to fall over the other way it would be 75 feet into my property. I certainly couldn't sell that to anybody for a home or anything else because you people listen to people argue over six inches here tonight for two hours. So it seems to me that the right-of-way they need to purchase really is 225 feet because I would like it if the line fell over it would at least be on their right-of-way. And I never really realized until now that they were going to build all of those towers at 150 feet or 120 to 150 because originally they talked about building them at 85 or 75 feet. So I know that the reason they're separating them by 150 feet is they don't want one to fall into the other if one blows over so I would just ask that the County require that they get a 225-foot right-of-way also. So I'd be glad to answer any other questions that you might have.

CHAIR GONZALES: Thank you, Mr. King. Does anybody have any questions? No?

MEMBER ANAYA: I do.

CHAIR GONZALES: Okay.

MEMBER ANAYA: Bill, put your hat back on because I didn't know who you were.

MR. KING: I take my hat off on the courtroom. It's a gentlemanly thing to do.

MEMBER ANAYA: You bring up a good point about – and I never thought about this either as I was going through all of the documents, and by the way, PNM, I've got to admit you guys had a very good set of documents come to us that showed a lot of things that I didn't know, so you educated me very well, which could be a good thing or it could be a bad thing. But Mr. King, the 75 feet, if it fell over on one side, would you even hear it fall?

MR. KING: I'm not certain. But we do these things by those standards for safety and I assume that I would just want the safety out on my side too in case – we're all familiar with the big fires that were caused by a tree blowing into a power line, I would think that I would like to at least – and I know that they purchased the first one only 150 feet. I didn't own the property at that time or I probably would have had the same question because they want to purchase it by an acre price, but they want to take a smaller portion than they're really taking. All the studies that I've read, it's really 300 or 400 feet that you can build a house within one of these big 345kV lines. So it seems that they ought to at least take that. And I gave Jose some federal standards and things to look at one time and I don't know if they researched that, but ice storms, altitude, a lot of things have an effect over that, but I do believe they need to be at least 225 so they don't fall on the property that I still own.

MEMBER ANAYA: Do you sit on the board for CNM?

MR. KING: Yes, I do.

MEMBER ANAYA: So you know about electricity and high lines.

MR. KING: Mr. Anaya, I'm learning a lot about electricity through the – there's a lot of difference between the 345kV line and the little 110 lines that we run most of CNM electricity through. But we need these lines. I'm not saying that we don't, and I think the wind energy is a good thing. This energy is going to go to Facebook. That's good for economic development but we just ask that we get the same consideration in the negotiations for our property as the ranchers did before PNM took over building the line. Because PNM's getting paid by AVANGRID to build this line and so we just want them to operate by the same rules they have all the way through. So thank you for your consideration.

MEMBER ANAYA: Thank you, sir.

MR. KING: Any other questions?

CHAIR GONZALES: No? Thank you. Laurie, would you like to respond before we go into our discussion?

MS. MOYE: Yes, we would, and Mr. King was one of our most faithful members of our leadership team for this project when we began this project. Mr. King has been learning right alongside of us about this project and the height of structures and the widths and this sort of thing. I know he's a large rancher in the area but it has been a pleasure to have him on the leadership team and to be negotiating with him in good faith on this project. I'd like to have our engineers come up and I'm not quite sure what you would like to hear specific questions about. I'd like to be clear that this is a PNM project. This is not an AVANGRID project; this is a PNM project, and PNM did not buy anything from anybody in Torrance County. This is our project.

CHAIR GONZALES: Okay. Thank you.

MS. MOYE: So I'm assuming you have specific engineering questions about poles falling in, falling over, Commissioner Anaya?

MEMBER ANAYA: Yes.

MS. DOHLEMAN: Would you like me to start, Commissioner Gonzales and Commissioner Anaya? I would like to explain a little bit about how our easement widths are determined.

CHAIR GONZALES: Okay.

MS. DOHLEMAN: All right. So the 75 feet, if you look at a structure and I'm looking at this one. I'll just use this as an example. The conductor on the wire is attached at the pole but in the middle of the span, as you can see down here, it extends approximately 60 feet. When the wind blows that wire will move out, and so we need to have enough easement to accommodate what they call the blowout of the wire, plus an electrical clearance to the edge of the easement. And that is how we get to the 75 feet from center of structure to edge of an easement. It's very similar thinking when we go to all the new line together, only in that case we are looking at making sure that the wire that blows out towards the existing circuit does not get caught up with anything on that circuit. Because the wires could actually move in two different directions you really have your 75 foot twice there.

MEMBER ANAYA: That would only be caused by the wind, right? That's why you're doing this, right?

MS. DOHLEMAN: Yes. Exactly. So there will be wind.

MEMBER ANAYA: So 75-foot is the maximum span that the wires could follow, 75 or less?

MS. DOHLEMAN: It's 75. We did put in our application, I believe that in the event we had to go to some of those longer spans, we might need to look at a little wider right-of-way.

MEMBER ANAYA: The spans are 2,000 feet. Is that correct?

MS. DOHLEMAN: The spans are roughly 1,000 to 1,500, particularly over the flat land. On the western edge of Santa Fe County it's a little bit of that rougher terrain where you might go to a little longer span.

MEMBER ANAYA: So it could be up to 2,000?

MS. DOHLEMAN: It could be.

MEMBER ANAYA: Okay. Well, you answered that question. Thank you.

MS. DOHLEMAN: Thank you.

CHAIR GONZALES: Okay. Any more questions? Okay.

ERIC AMES (Assistant County Attorney): Mr. Chair.

CHAIR GONZALES: Yes.

ERIC AMES (Assistant County Attorney): I'm Eric Ames with the County Attorney's Office. I believe there might be another member of the public who wanted to speak.

CHAIR GONZALES: Come forward.

[Duly sworn, Robert Heineman testified as follows:]

ROBERT HEINEMAN: Robert Heineman, 4 Caminito Corto, Santa Fe. I'm up in Jacona. Mr. Chair, members of the Commission, my name's Rob Heineman. I'm a retired electrical contractor. I served on the State Electrical Code Technical Advisory Committee for 16 years under two different governors. I don't purport to know a heck of a lot about high voltage transmission but I can pretty much get my way around electricity. I want to speak from a 10,000-foot viewpoint down on New Mexico, Santa Fe County, specifically and the grid and power lines and renewables and all that kind of stuff.

So I wanted to bring to light a relatively new phenomenon in the electrical transmission industry that is making the rounds state by state. It's called a merchant line and basically it's an electrical transmission line for hire that's not owned by PNM or any serving or public utility. It's a private line. They're privately owned and they're not subject to the same level of scrutiny in New Mexico that a PNM line such as BB2 would be. While PNM has to make its case for this line at several governmental levels, including this Commission and ultimately the New Mexico PRC, merchant lines by their private nature are relieved of many of these points of review.

While PNM has to provide a constellation of data and supporting financial information for this line to the PRC, a currently proposed merchant line, the so-called Verde Line, which if approved by the BLM will cross through Santa Fe County northward from Norton station to Ojo station and will not have to meet the same level of public scrutiny.

In fact to date, Hunt Power, proponent of the line, has publicly stated that they have no customers for the line at present and PNM engineers that I spoke with at the public meeting in Moriarty, and some of them are in this room, stated they don't see a value of the Verde line to transmit green energy northward as proposed by Hunt. While

BB2 and Verde do not seem to be joined at the hip from either development or use standpoint, the bottom line is New Mexico regulatory agencies at every level, in their quest to foster and promote renewable energy, are not paying enough attention to the possible blight all of these transmission lines will pose to our beautiful state.

Both public and private transmission lines interconnect with the larger electric grid to both move energy and increase system reliability. However, there does not seem to be clear policy or plan coming from the hierarchy within the industry that either advocates individual transmission line installations based on need, or police proposed installations with respect to their impact on the grid as a whole. In the meantime, speculators can ride roughshod over our beautiful state, stringing cables everywhere, not unlike the oil industry did in its heyday prior to the encompassing public regulation. No one is looking at all of this private line construction and saying, hey, this makes sense, or while this looks like a good idea, the technology will render this line obsolete in five or ten years.

While the BB2 line looks good on paper currently, can someone from PNM explain whether this line will serve future needs in, say, 15 or 20 years, based on the development of any number of merchant lines of yet unknown origin, ownership or capability. I think not. Long story short. This body currently reviews these transmission lines under the conditional use code, which I am not familiar with to a great extent, which may not afford the County an adequate review regime with respect to the need for these lines and their impacts created to land, vistas, homeowners, private property values, and property tax revenue. These lines are not tough sheds sitting in somebody's backyard. I should have said horse sheds.

With respect to private merchant lines, the Commission should not assume that the PRC will have a role in reviewing these proposed merchant line installations regarding the need and customer rate impact. This body may indeed by the only backstop in the process of merchant line approval. My suggestion would be for the County to effect a moratorium on transmission lines until the true impact of this energy gold rush can be evaluated and a reality check on the need for these lines as well as their value to the County can be ascertained. Thank you for your time, and I know you guys put in just a ton of time are out here until the middle of the night and I really respect your public service. I'll stand for any questions.

CHAIR GONZALES: Thank you. Any questions? Okay. So I'm going to close the public hearing now.

MS. MOYE: Mr. Chair, I'd like to make a comment that this line is not going to be obsolete in five years. The existing BB line was built in – energized in 1985. It's been active and in use since then. We have a number - this BB2 line will be in use that long or longer. We have a number of lines that 60 and 70 years old that are still in active use

CHAIR GONZALES: Thank you. I'm going to close the public hearing now. Does the Commission have any questions, discussion or motions?

MEMBER ANAYA: Mr. Chair.

CHAIR GONZALES: Mr. Anaya.

MEMBER ANAYA: I need to ask the attorneys a question. I know that this body in making a motion cannot require that they negotiate in good faith because that's not our purview. Just like earlier when I made the motion about the 25 foot, I

wanted that to be a good neighborly suggestion. And I wish there was a way that I could do this but I can't. But I believe in the project. I believe that it's going to serve New Mexico now and in the future with wind and solar. A lot of the wind comes from my neck of the woods. Born and raised in Torrance County, and by the way, our electrical license is 9065, so I've been around.

I really do like to see the ventures between the private and the – of course PNM stockholding and I've been watching your stock fluctuate, just like pretty much everybody else's is right now. And I think that maybe we'll be able to generate probably more income for the County which is something that's really needed, and along with the State of New Mexico. So this is why I really believe that this project is a good project. And Mr. Chair, I'd like to make a motion if I may.

CHAIR GONZALES: You may.

MEMBER ANAYA: I'd like to make a motion of approval of CUP 18-5050, PNM BB2 345kV transmission line project, CUP, conditional use permit, and I would like to make a notation on there as a friendly notation that you do negotiate in good faith with Avatar, whoever that is. I just know that as a movie. I didn't know it was anything else. That you do this because it's something that's going to help everybody. Okay? So Mr. Chair, that is my motion.

CHAIR GONZALES: That's with the conditions?

MEMBER ANAYA: No, I can't make the conditions. We can't do that.

CHAIR GONZALES: Vicki.

MS. LUCERO: Mr. Chair, that was going to be my question, if Commission member Anaya's motion included staff conditions.

CHAIR GONZALES: Right.

MEMBER ANAYA: Oh, yes. Yes.

CHAIR GONZALES: Okay. That's what I was asking. Okay, do we have a second?

MEMBER ANAYA: I apologize. Yes. I thought that was already –

MEMBER KATZ: Second.

LISA LAUER: [Away from mike] Lisa Lauer for Mr. King. I just wanted to correct on our position on asking for negotiation in good faith, the landowners. We believe that [inaudible] establish our relationship. So we would [inaudible]

MEMBER ANAYA: I can't do that. I'm sorry. I'm just making a friendly request. Sorry. I'm sorry ma'am. I cannot. I understand where you're coming from though.

MEMBER SHEPHERD: Mr. Chair.

CHAIR GONZALES: Mr. Shepherd.

MEMBER SHEPHERD: I had a question for Commissioner Anaya on the proposal. Basically, we're having the eight staff recommendations, and then he's added a ninth. Could you explain that? And also explain how do you measure the success of that?

MEMBER ANAYA: I didn't add a 9 to it. It's just with the conditions 1 through 8, as requested by the County staff. The friendly amendment was just as communications to the landowners and PNM that they negotiate in good faith with the landowners and whoever else that's involved currently, because we do need this project. So that's not a condition, because I can't make that as a condition. If I could, I would.

MEMBER SHEPHERD: Thank you.

CHAIR GONZALES: Okay. So we have a motion with a second.
MR. AMES: Mr. Chair.
CHAIR GONZALES: Yes.
MR. AMES: Just a clarification. I believe that Commissioner Anaya referred to 245 kilovolt line. It is really 345.
MEMBER ANAYA: 345.
MR. AMES: Just to clarify.
MEMBER ANAYA: If I said that, I'm sorry. It's 345.
CHAIR GONZALES: Thank you for the clarification. Again, we have a motion on the table and a second.

The motion passed by unanimous [6-0] voice vote.

CHAIR GONZALES: Thank you, all. Thank you for coming.

C. Petitions from the Floor

None were offered.

D. Communications from the Commission Members

None were offered.

E. Communications from the Attorney

None were presented.

F. Matters from Land Use Staff

MS. LUCERO: Mr. Chair, just some information on the case that was tabled under "Old Business." It was heard by the Planning Commission last month and ended in a tie vote so therefore it is tabled until there is a greater number of members present which is all seven Planning Commission members have to be present. That is the reason that it was tabled because we did not have all seven members present. So if possible if we can have all seven members present at the next meeting or let us know ahead of time if there's an issue with attendance. Thank you.
CHAIR GONZALES: Okay, thank you. Susan.
MEMBER MARTIN: In the past we have asked for and gotten a report on the status of cases that we have ruled on and how they were treated by the County Commission so at the next meeting or the one after that can we have the same kind of report?
MS. LUCERO: Mr. Chair and Commission Member Martin, we can do that. Under the new code a lot of the cases don't move forward to the Board. The Planning Commission has final authority so there haven't been too many. But we will give you an update next month.

G. Next Planning Commission Meeting: October 18, 2018

H. Adjournment

Chair Gonzales declared this meeting adjourned at approximately 7:50 p.m.

Approved by:

Charlie Gonzales, Chair
Planning Commission

ATTEST TO:

GERALDINE SALAZAR
SANTA FE COUNTY CLERK

Submitted by:
Karen Farrell, Wordswork

COUNTY OF SANTA FE)
STATE OF NEW MEXICO) ss

PLANNING COMMISSION MI
PAGES: 210

I Hereby Certify That This Instrument Was Filed for Record On The 29TH Day Of October, 2018 at 01:29:22 PM And Was Duly Recorded as Instrument # 1871264 Of The Records Of Santa Fe County

Witness My Hand And Seal Of Office
Geraldine Salazar
Deputy Estrella Martinez County Clerk, Santa Fe, NM

SFC CLERK RECORDED 10/29/2018

THE BB2
345kV TRANSMISSION LINE PROJECT

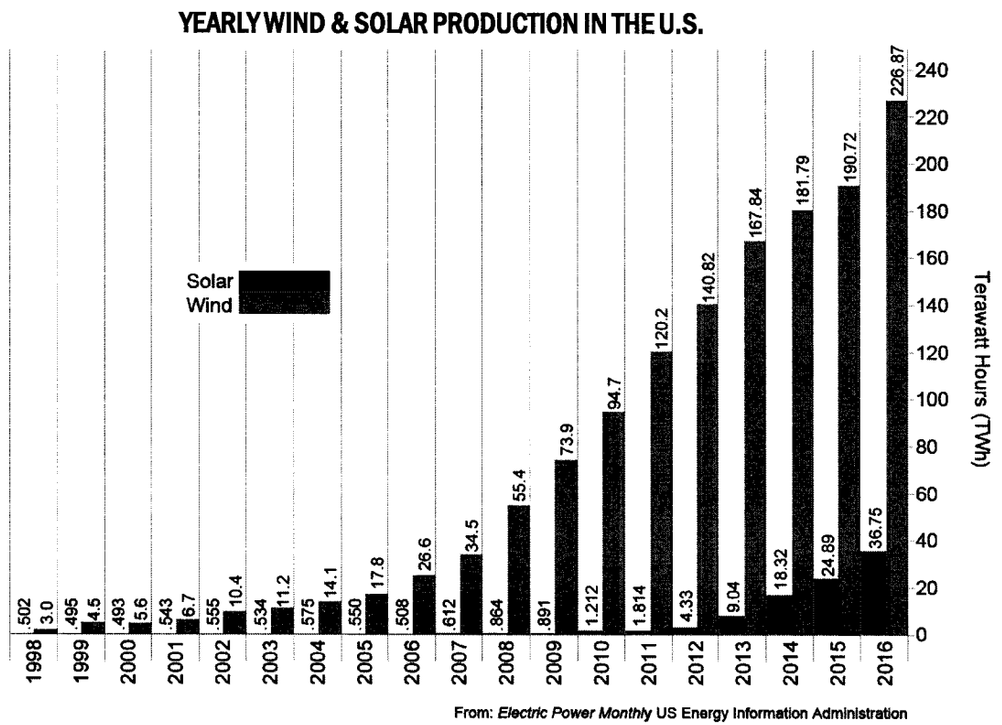
BB2 PROJECT OVERVIEW

SANTA FE COUNTY PLANNING COMMISSION
September 20, 2018

RENEWABLES

INCREASE IN WIND PRODUCTION IN US

- Growing nationally
- Systems are more efficient and affordable
- Due to renewable requirements in many states due to increase in public interest and demand for renewable energy

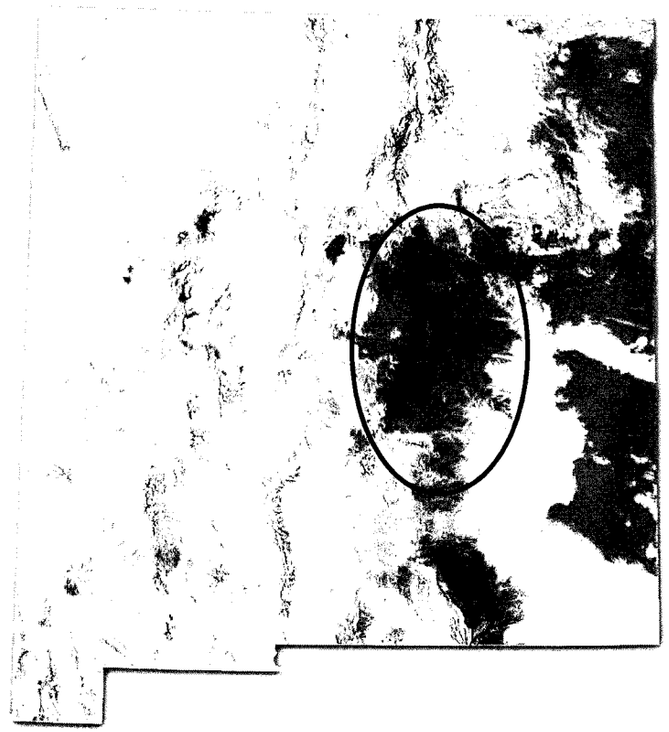


From: *Electric Power Monthly* US Energy Information Administration

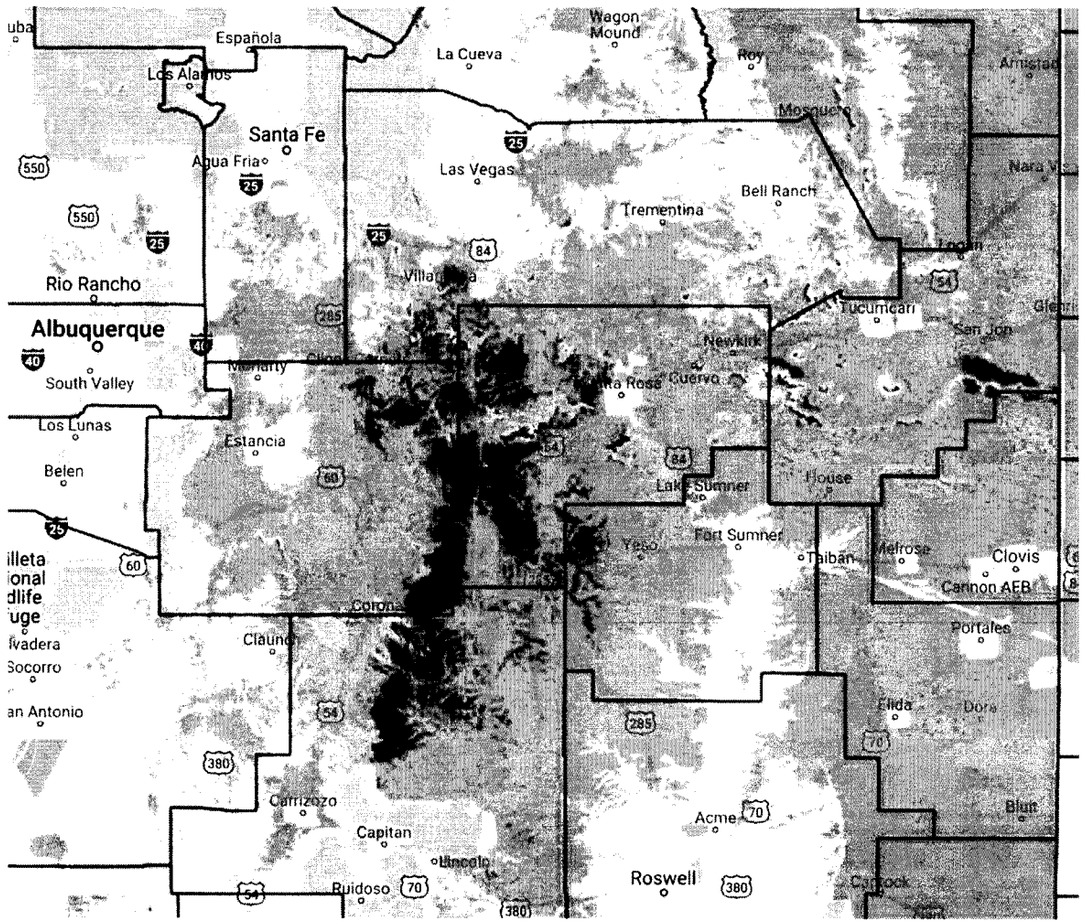
VAST NEW MEXICO RENEWABLE ENERGY POTENTIAL

WIND RESOURCE POTENTIAL

- Wind generation potential is huge primarily in Eastern NM
- State can produce many times its own electrical consumption because of this potential
- In a position to export wind electric power



WIND POTENTIAL IN SANTA FE COUNTY



In New Mexico, Classes 3, 4 and 5 are identified on the NREL map with the highest wind potential in the southeast quadrant of the state.

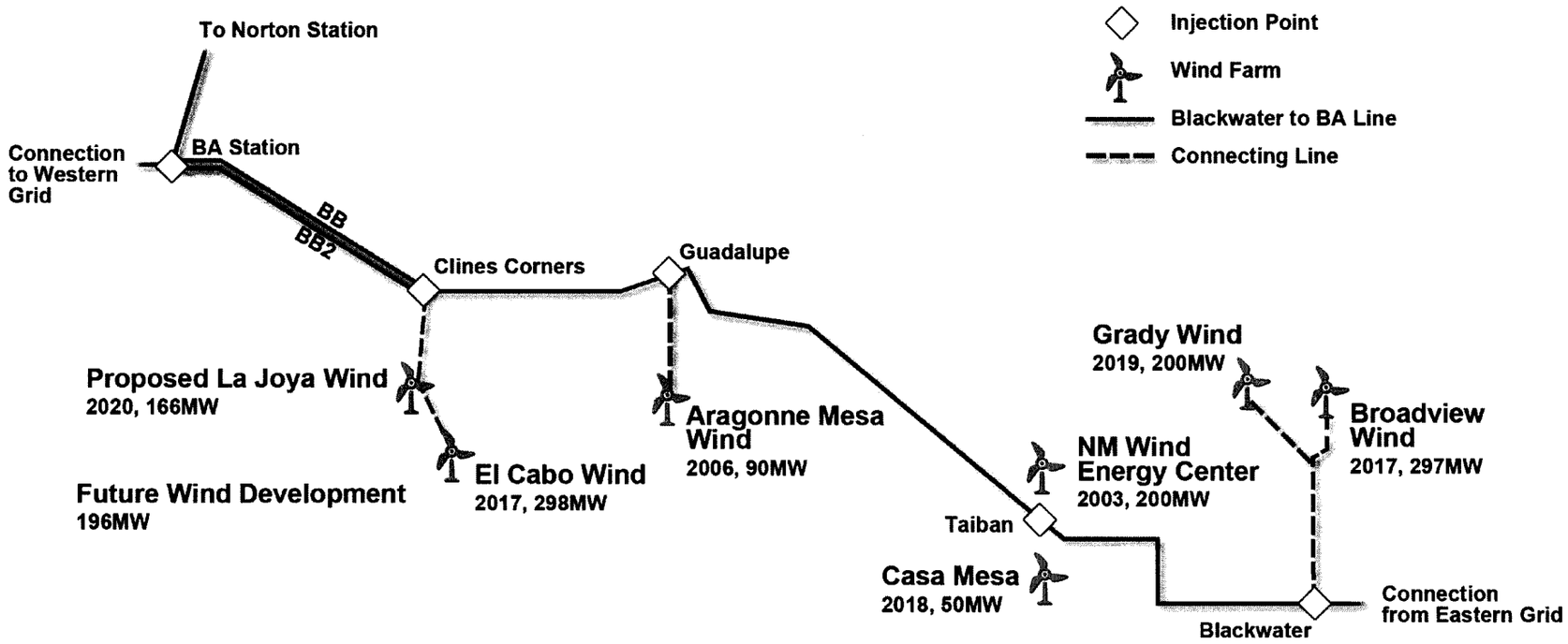
Santa Fe County has wind potential in the southern portion of the county.

REQUEST

WIND FARM DEVELOPER'S REQUEST TO PNM FOR CAPACITY

- Avangrid Renewables requesting capacity for new wind development in Torrance County
- PNM required by Federal Energy Regulatory Commission (FERC) to develop capacity

BB LINE WITH FUTURE WIND DEVELOPMENT AND BB2 LINE



THE BB2 PROJECT

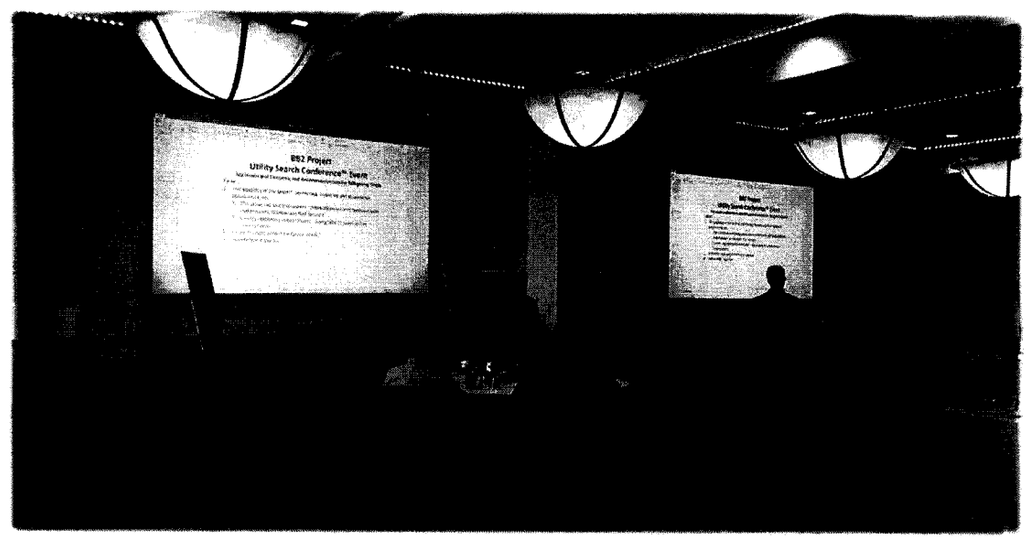
- Supports requested capacity.
- PNM will acquire all applicable permits at the local and state level. No federal permits are required.
- New single-circuit 345kV transmission line and expansion of an existing station.
- Current zoning for the area is Agricultural/Ranch, Rural and State Land Zoning Districts. Current uses are ranching and dispersed residential – these uses can continue.
- Requires additional 150-ft wide easement adjacent to the existing BB Line with a new 150 ft easement.
- Access will be patrol 2-tracks as much as possible

PUBLIC PARTICIPATION

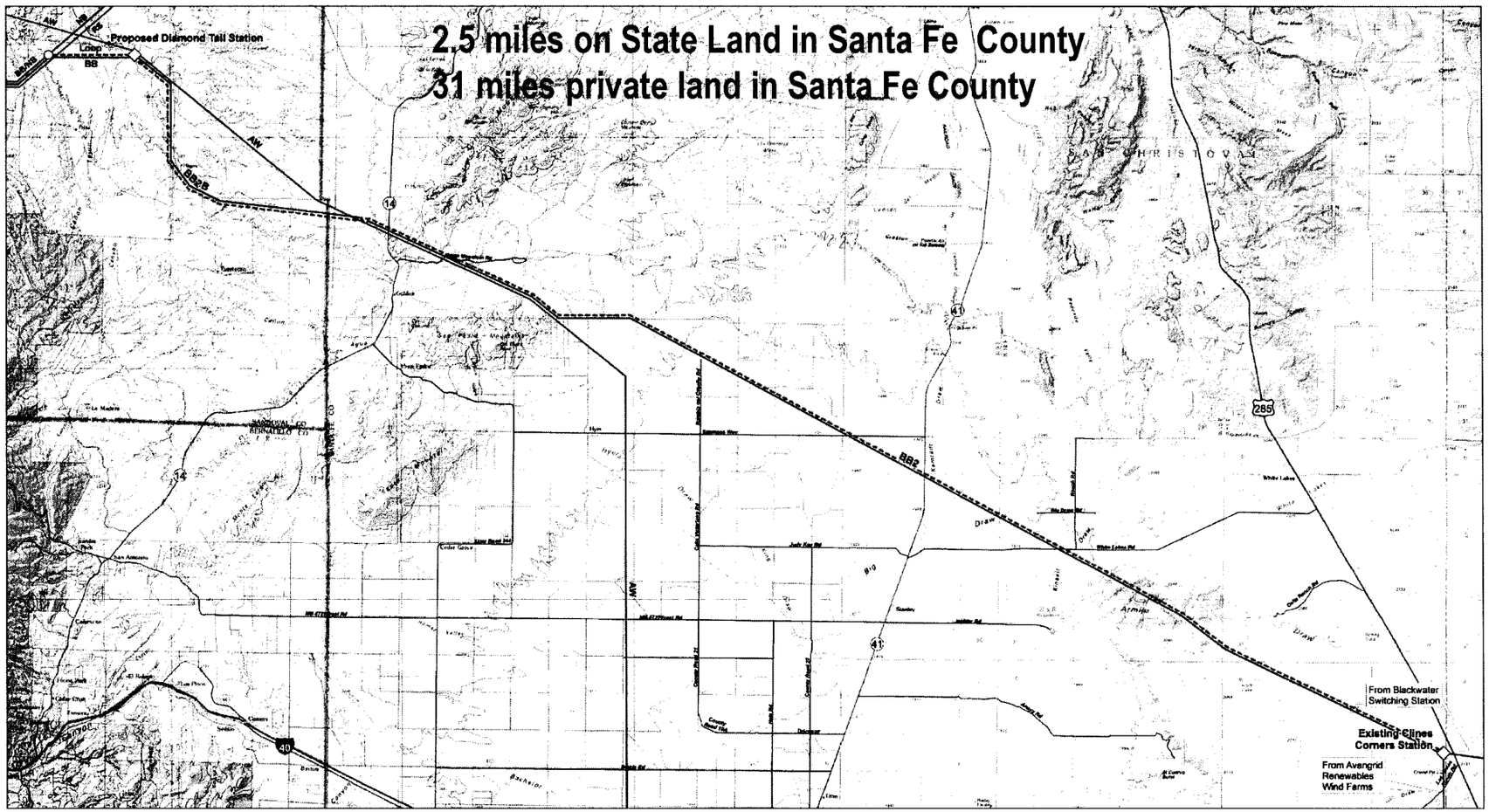
STAKEHOLDER ENGAGEMENT

PNM has engaged in a variety of public outreach:

- Leadership Team, 3 meetings
- Utility Search Conference, 1½ day event
- Pre-Application Neighborhood Meeting required by Santa Fe County
- Meeting with property owners and their representatives in Moriarty
- Community Working Group, 3 meetings held so far and meetings are continuing

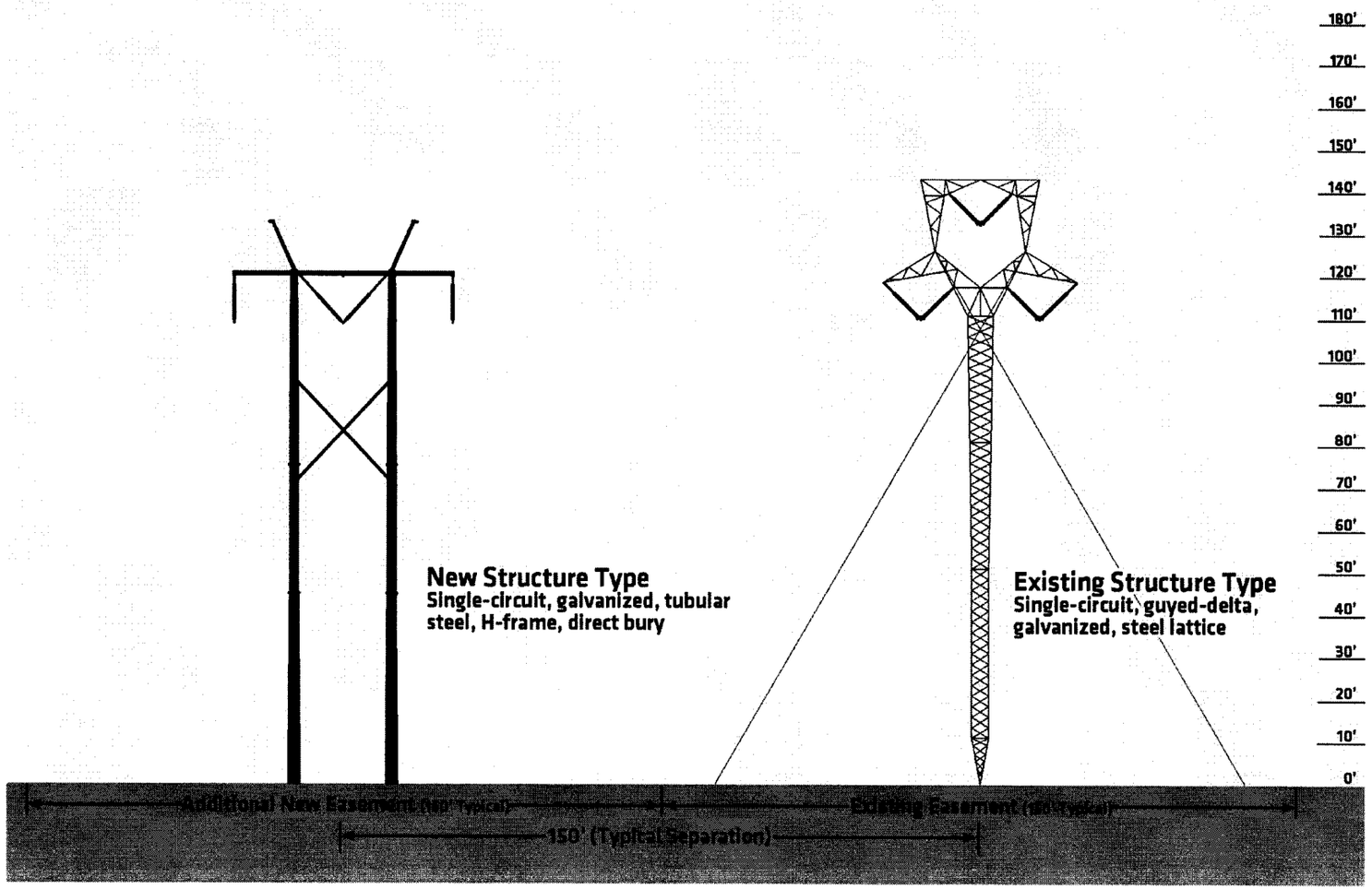


BB2 PROJECT



BB2 345kV Transmission Line
Project Map

RIGHT-OF-WAY CORRIDOR



NEW MEXICO ECONOMY

LOCAL BENEFITS

- Net effect on PNM ratepayers is beneficial or neutral
- Santa Fe County will directly benefit $386,876 from PNM property tax payments
- 40-50 temporary construction jobs created in the area & will utilize local workers as much as possible.
- Permanent renewable energy jobs in the area
- Economic development for the State of New Mexico by helping to address the public's interest in renewable energy development.

Thank you

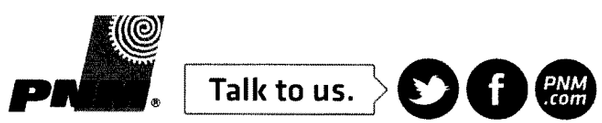


EXHIBIT
2

[redacted]

ENVIRONMENTAL IMPACT REPORT

PROPOSED PNM BB2 TRANSMISSION LINE

PREPARED FOR SANTA FE COUNTY APRIL 12, 2018

[redacted]

PNM

2401 Aztec Road NE

Albuquerque, NM 87107

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Contents

FIGURES

APPENDICES

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1. SUMMARY

Summary of Proposed Action

The Public Service Company of New Mexico (PNM) is requesting a Conditional Use Permit to build a new three-phase, single-circuit 345kV transmission line in Santa Fe County. The new line would be constructed adjacent to the existing BB 345kV transmission line from the existing Clines Corners 345 kilovolt (kV) Switching Station (within Santa Fe County) on the east to the Santa Fe County line on the west. The proposed project is identified as the BB2 Transmission Line Project (BB2 Project).

In Santa Fe County, the BB2 Project includes approximately 31 miles of transmission line on private land; modification and expansion of equipment at the Clines Corners Switching Station; the use of the state and local road network; 5 to 7 miles of new patrol two tracks; overland travel; and the use of approximately 15 to 25 miles of existing access patrol two tracks.

The 150-foot-wide BB2 Project transmission line easement would abut the existing BB transmission line's separate 150-foot-wide easement.

Summary of Potential Adverse Effects/Impacts

The following adverse effects/impacts may occur as a result of the proposed project:

- There is potential for adverse impacts to the state threatened bird, gray vireo (*Vireo vicinior*), as approximately 170 acres of potentially suitable habitat would be removed by the necessity of clearing the new right-of-way (ROW) of trees. However, it is not currently known if this species is present within the BB2 Project area. PNM would coordinate with the state and conduct surveys to determine presence/absence as well as develop mitigation and avoidance strategies as necessary, as well as identify any other concerns pertaining to wildlife or vegetation.

- To date, 16 new and previously recorded sites have been recorded or updated on private land in Santa Fe County. Further treatment of seven sites recorded during cultural resources surveys is recommended. Treatment recommendations consist of further site investigation, avoidance, and monitoring, if necessary. Further investigation is needed to determine whether adverse impacts to sites are unavoidable, and if excavation will be required.

Areas of Potential Controversy

The BB2 Project was presented to the Santa Fe County Technical Advisory Committee (TAC) on February 1, 2018. Per the TAC summary of the meeting, no areas of potential controversy or public concern were identified.

In addition to the TAC meeting, PNM has hosted the following public involvement activities:

- PNM organized a utility conference (March 9 and 10, 2018) with key stakeholders to discuss energy and environmental concerns.
- PNM sponsored a dinner for affected landowners on March 22, 2018.
- PNM held a neighborhood meeting on April 4, 2018 in Santa Fe County.

Issues to be resolved

Construction and Design

There are two alternatives for this Project: Proposed Action and No Action. The overall Proposed Action alignment and base construction assumptions are not expected to be revised due to limitations of existing infrastructure, land ownership, and industry construction standards.

Easement and ROW

PNM would continue to negotiate with land owners to secure access and easement agreements.

2. PROJECT DESCRIPTION (PROPOSED ACTION)

Location

The proposed BB2 Project begins at Santa Fe County's western border approximately 2 miles west of the NM State Road 14 (NM 14) and ends at Clines Corners Switchyard on Santa Fe County's eastern border. The Santa Fe County portion of the proposed line is included in this analysis (see Figures 1 and 2). Figure 3 is the Santa Fe County Zoning map and shows the BB2 Project alignment and the different land uses present. Figure 4 is a Facilities Overview showing the alignment, land use, mines – undifferentiated, wells and County facilities.

Purpose and Need

A wind farm developer (Avangrid Renewables, LLC) has entered into an agreement with PNM to transmit electricity generated by new wind development in Torrance County, New Mexico into the transmission grid. A substantial portion of the wind energy would be delivered to new PNM commercial customers requesting renewable energy. PNM is required by the Federal Energy Regulatory Commission (FERC) to develop the requested capacity on its transmission system to serve this wind farm developer. Other system improvements that PNM has made have helped but would not allow delivery of this new power.

To deliver this new wind energy, PNM would need to build a new transmission line. The project is referred to as the BB2 345kV Transmission Line Project (BB2 Project). It would enable up to 362 megawatts (MW) of additional wind energy to serve demand for renewable energy in the interconnected western electric grid. The BB2 Project would also enable economic growth within New Mexico's renewable energy industry.

PNM uses transmission systems to deliver electricity to its customers as well as facilitate the delivery of reliable electricity to customers of other utilities. The proposed project has been designed to meet these principal needs and to achieve the following project---specific objectives:

- Create a link that completes a high-voltage 345 kV path providing reliability benefits by adding needed redundancy to the system
- Provide a solution that fits with broader regional utility planning and meets needs for the efficient, cost-effective transmission.
- Meet North American Electric Reliability Corporation, Western Electricity Coordinating Council, and National Electric Safety Code standards and guidelines
- Provide an electric transmission path supportive of renewable resource development efforts

Wind farm developers typically consider the following siting factors for transmission interconnection when looking at opportunities to move power:

- Location near the developer's wind source
- Feasibility of integrating with facilities in the existing grid
- Length of transmission line
- Ability to meet desired schedule

PNM believes that the BB2 Project is the most effective means by which to meet the FERC-imposed obligation to develop this requested additional capacity.

Technical Characteristics

Existing Power Transmission Facilities

The existing BB 345kV transmission line is a single-circuit 345kV transmission line with guyed-delta galvanized steel lattice structure and was constructed in the 1980s, crossing the length of the proposed project area within Santa Fe County. The transmission line has a total of 1,000 MW of long-term transmission service and is now at capacity (fully subscribed).

Project Components

- PNM would acquire an additional 150-foot-wide ROW, which would be required for the BB2 Project.
- Structures would be spaced out approximately 1,200-1,500 feet from each other. In rugged terrain, structures may be spaced up to 1,900 or 2,000 feet.
- To the extent practicable, new BB2 Project structures would align with existing BB Line structures.
- The transmission structures would be constructed from 120 feet to 150 feet in height or, with longer spans, taller structures may be required, in compliance with the SLDC (7.12.1.3), which states:
  '... above-ground electric utility lines that transmit electricity at a voltage greater than or equal to 46 kilovolts shall be designed and constructed at the minimum height necessary for the proposed structure to function properly and for public health, safety and welfare, as demonstrated by the applicant.'
- PNM plans to begin construction in 2019 and the BB2 line would be operating by fall of 2020.
- An expansion of the existing Clines Corners 345kV Switching Station would be required to accommodate the start of the new single-circuit 345kV line. The expansion would occur within the footprint of the existing switching station on state land located along US 285 approximately 6 miles north of I-40.
- Proposed structures in Santa Fe County would be the single-circuit H-frame dulled (grey) galvanized style (See graphic, Appendix A).

Right-of-Way and Temporary Construction Permit and Access Needs

The BB2 Project would generally parallel the existing BB Line with approximately 150 feet of separation between the two lines. Placing a new transmission line within an existing corridor adjacent to an existing transmission line requires adequate clearances and separation for reliability, access, maintenance and to meet the requirements of the National Electric Safety Code (NESC).

In Santa Fe County, it is expected that approximately 564 acres of currently unoccupied, primarily private land, located immediately adjacent to the existing BB line, would be required to provide the necessary 150-foot-wide easement for the new BB2 Project access, operations and maintenance. PNM is negotiating with property owners regarding access and ROW easements.

Construction, Staging and Access

Construction would generally include surveying the centerline, access development, clearing portions of the ROW and structure sites, installation of foundations, assembly and erection of structures, installation of conductors and overhead shield wires, installation of grounding system, and cleanup and site reclamation.

The workforce and types of equipment would vary during construction. Construction would be progressive, and proceed generally in a linear fashion, though multiple crews may be working simultaneously.

Most of the equipment used by PNM or its contractor would be highway legal. Transportation permits would be obtained for overweight, height-limited, and oversized vehicles.

Funding

As currently proposed, the transmission rates paid by the developer would pay for the improvements over time. The cost of this project would be neutral or beneficial to PNM customers.

3. ENVIRONMENTAL SETTING AND ANALYSIS OF IMPACTS

Overview

For the purposes of this report, the areas potentially impacted are analyzed at the BB2 Project area (detailed), project vicinity (moderate detail), and County (not detailed) level, as applicable to topic. The BB2 Project begins at the Santa Fe County Line in the Hagen Basin heading east in between the Ortiz and San Pedro Mountains. This area is a mix of Pinyon-Juniper and Juniper Savanna. The alignment then enters the Estancia Basin to the eastern border of Santa Fe County Line and Clines Corners Switching Station where grasslands and small to large alkali flats and lakes are present.

Topography

The elevation of the BB2 Project area ranges from about 7,000 feet mean sea level (MSL) in mountainous areas to about 6,200 feet MSL in the foothills and plains. Rugged terrain occurs in association with the pass between the San Pedro and Ortiz mountains, and then becomes flatter in the plains. In some areas, larger incised draws and arroyos with slope grades of 10 to 20 percent slope down from the typical surface.

Climate

The climate in Santa Fe County is semi-arid. Annual precipitation ranges from approximately 12.0 inches in Stanley to approximately 17.6 inches in Clines Corners. The average annual maximum temperature is 65.8 degrees Fahrenheit (°F) at Stanley and 63.7°F at Clines Corners. The average annual minimum temperature is 33.6°F at Stanley and 35.3°F at Clines Corners (Western Regional Climate Center 2005 data).

Natural Resources

In Santa Fe County, the project occurs within the Southwestern Tablelands and Arizona and New Mexico Mountains ecoregions; the Pinyon/Juniper Woodlands and Savannas, Central New Mexico Plains; and Conifer Woodlands and Savannas sub-ecoregions (Griffith et.al 2006).

Waterways/Wetlands/Floodplains

Existing Conditions

The BB2 Project area passes through two 8-digit hydrologic unit code (HUC) surface watersheds in Santa Fe County: Rio Grande-Santa Fe and Western Estancia. The watershed boundaries are provided in Figure 1.

No perennial or intermittent waterways cross the project area in Santa Fe County. Four named ephemeral arroyos/draws cross the project area according to topographic mapping and the US Geological Survey (USGS) waterway layer (Arroyo Tuerto, Big Draw, Kinsell Draw, Armijo Draw).

Several unnamed washes and draws are also present, primarily on slopes. Other named and unnamed arroyos/draws occur in the vicinity, but do not cross the project area (Figures 2a, b & c).

Important waterways in Santa Fe County include the Rio Grande, Santa Fe, and Pojoaque Rivers, and Galisteo Creek. None of these occur in the project area or vicinity.

The Federal Emergency Management Agency (FEMA) has identified Zone A flood hazard areas with no base flood elevations in association with project area arroyos and draws (FEMA 2018; New Mexico Flood Hazard Areas, Figure 2a, 2b, 2c and Attachment 2). The Project corridor passes through these areas. Tower construction in these areas would be avoided to the extent practicable.

Depth to groundwater in the BB2 Project area can vary from about 30 feet below ground surface (bgs) on the west to 400 feet bgs in the east (USGS 2009).

Analysis of Impacts

No dredging or filling of waterways is proposed, and structure placement would typically avoid arroyos. Ephemeral arroyos and draws in the project area and vicinity would be crossed via existing roads or 2-tracks for construction access. Approximately 5 to 7 miles of new 2-track may be constructed for access, but no improvement of existing roads (installation of surfacing) is proposed. No downstream impacts to arroyos or draws are expected during construction.

No loss of floodplain function would occur. No change in flood hazard zones, or alteration of base flood elevations is expected.

The project is not expected to result in significant impacts to arroyos or floodplains.

Soils, Minerals and Geology

Existing Conditions

The following soil mapping units are common within the project area and immediately adjacent (~1500 feet north and south) vicinity: Arojomil-Tapia complex, 1-5 percent slopes; Cerrillos-Sedillo complex, 1-5 percent slopes; Patura-Naja complex, 3-15% slopes; Arojomil silt loam, 1-3 percent slopes; and Hyer-Witt complex 1-3 percent slopes (USDA NRCS Web Soil Survey 2018). No prime farmland or farmland of statewide importance was identified within the Santa Fe County portion of the proposed line easement.

On Average, representative slopes range from 0 to 45 percent in the project area and vicinity. Soils and soil characteristic information are presented in Appendix B.

No currently operating mineral extraction facilities are known to occur in the project area. The BB2 Project would not result in a loss of mineral resources or preclude current or future mining to occur.

The western and middle portions of the project area and vicinity consist of older Quaternary alluvial deposits. Near the San Pedro Mountains, the BB2 Project may cross some Triassic continental red beds, which are primarily medium-grained mixed clastic rocks. On the eastern end, the project crosses the Chinle Group, which is an Upper Triassic geologic complex of medium- and fine-grained mixed clastic sedimentary rocks, and includes minor rock types - limestone, chert and evaporite.

Analysis of Impacts

As currently proposed, the project would consist of approximately 30 miles of utility corridor with a 150-foot-wide easement. In total, approximately 564 acres would be part of the easement in Santa Fe County. Within the easement, soil disturbance would be limited to the installation of structures or access 2-tracks that require grading.

Structures would be installed approximately every 1,200 to 1,500 feet, and up to 1,900 to 2,000 feet in rugged terrain, with structure for structure placement (BB2 to BB). No impacts to mineral or geologic resources are expected.

Protected Species and General Habitat

Natural resources surveys were conducted in March and April 2018 along the BB2 Project alignment.

Existing Conditions

The USFWS lists four threatened or endangered species in Santa Fe County (Appendix B). None were observed in the project area or vicinity during surveys. Though designated or proposed critical habitat for two species occurs in the County, no designated or proposed critical habitat occurs in the project area or vicinity. No potentially suitable habitat for federally listed species has been identified within the project area or vicinity.

The State of New Mexico lists 17 plant and animal species as threatened or endangered on Santa Fe County. None were observed during surveys. Potential suitable habitat for one of these species, the gray vireo, occurs in pinyon/juniper woodlands within the project area.

The project area supports several vegetation communities (see Figure 5). They are Plains-Mesa Grassland, Pinyon/juniper Woodland, Arroyo Vegetation, and Juniper Savanna (Dick-Peddie 1983). Wildlife presence within the project area and vicinity was limited during the time surveys were conducted due to ongoing drought. However, common species such as ravens, kangaroo rats, pocket gophers, and pronghorn antelope were observed regularly. Other species would be expected to occur there, as well, but recent drought has reduced resource availability.

Several raptors were observed, the most common were: American kestrel and red-tailed hawk. One ferruginous hawk nest was observed, and it was not occupied at the time (late March 2018). The National Audubon Society considers the Estancia Valley an important bird area for ferruginous hawks. Many of the stick nests present on the existing BB line could be used by raptors such as red-tailed hawks and one was recently occupied (April 2018).

Over 120 unoccupied bird nests (mostly small twig nests and stick nests) from previous nesting seasons were present on poles along the existing BB line or in vegetation near the proposed BB2 line in Santa Fe County. A few nests were currently occupied with spring warming. Unoccupied nests may be periodically removed. Occupied nests of species protected under the Migratory Bird Treaty Act (MBTA) may not be removed during the nesting season and the birds, their parts, nests, and eggs are protected from take.

Bald and golden eagles are provided federal protection under the Bald and Golden Eagle Protection Act. There was no suitable nesting or wintering habitat for either species of eagle present in the project area.

While no field observations indicated the presence of wildlife corridors in the project area, New Mexico Department of Game and Fish (NMDGF) has identified the western extent of the project area in mountainous habitats, as well as the extreme eastern extent near the county line as wildlife corridors for cougars (Appendix B).

Analysis of Impacts

No protected species were observed during natural resources surveys of the project area. Potential suitable habitat for one state protected species was present. Portions of the project can be constructed outside of the migratory or listed bird nesting season. Direct impacts to any occupied nests that may be present would be avoided unless authorized by a US Fish and Wildlife Service (USFWS) permit. Potential indirect impacts due to noise and activity at or near protected species habitat can be avoided by implementing timing limitations, as feasible. If such habitat exists in areas where spring and summer month construction is needed, a preconstruction survey would be completed to determine presence or absence of the target species.

The construction of the proposed BB2 Project would create potential nesting and roost sites for raptors and other birds. PNM would ensure the line is constructed in accordance with avian protection standards to prevent raptor electrocutions. To the extent feasible, PNM would include measures to reduce or preclude nesting by nuisance species near dwellings and populated areas.

Approximately 170 acres of pinyon/juniper vegetation (woody vegetation for 100 feet in width along the approximately 14 miles of this habitat in the County) is expected to be cleared along the proposed easement for safety. The clearance of certain vegetation is required to comply with transmission vegetation management standards required by the North American Electric Reliability Corporation (NERC, FAC-003-4). The clearing of this vegetation is believed to reduce potential for line arcing and also provides a fire break. Cleared areas may fill in with grasses.

Clearing portions of the BB2 easement would be necessary in order to meet the requirements set forth in the North American Electric Reliability Corporation (NERC) FAC-003-4 Transmission Vegetation Management reliability standards and PNM vegetation management policy as outlined in the PNM Transmission Vegetation Management Plan, Version 16. Major outages and operational problems in the national grid have resulted from interference between overgrown vegetation and transmission lines and have caused widespread cascading in the past. Cascading is an effect seen in high-voltage transmission systems where a point of failure on a loaded or overloaded system results in a sudden spike across all nodes of the system. The shifts in load are surges that can induce the already overloaded nodes into failure, setting

off more overloads and thereby affecting the entire system in a very short time. FAC-003-4 focuses on vegetation management for transmission lines to prevent those vegetation-related outages that could lead to cascading.

The clearing of this vegetation is believed to reduce potential for line arcing and also provides a fire break. Cleared areas may fill in with grasses. These cleared areas provide habitat for pollinators and in some instances as wildlife corridors.

This vegetation community may provide suitable nesting habitat for the state protected gray vireo. It is not currently known if this species occupies the habitat present within the project area. PNM would coordinate with the NMDGF, and if necessary, provide territorial call surveys for this species in accordance with state standards to determine whether this species is present within the project area. If it is, PNM would participate in developing an approach to reduce and mitigate impacts.

No significant effect to federally protected species, rare plants, or other sensitive habitats is expected.

Cultural Resources

Archaeological and Historic Sites

Existing Conditions

The portion of the BB2 Project area within Santa Fe County ranges from the pinyon/juniper woodland of the foothills of the San Pedro Mountains to the Estancia Basin. This area is fairly rich in cultural resources that range from the Paleoindian to Historic homesteading. Cultural periods in the area include Paleoindian, Archaic, Ancestral Pueblo, Plains 'nomads', and Historic Euroamerican/Anglo. Within the later period, cultural resources can be related to railroad, mining, homesteading, and ranching.

A 100 percent ground survey of the proposed project area is being completed and a report is being prepared for evaluation by the lead agency and State Historic Preservation Division (SHPO). Portions of the Project area were not accessible in April of 2018. Sixteen previously recorded sites were identified during a database search of the project area and vicinity within Santa Fe County. Of these, no sites are listed on the National Register of Historic Places (NRHP) or the State of New Mexico Register of Cultural Properties (SRCP).

To date, sixteen new and previously recorded sites have been recorded or updated on private land in Santa Fe County.

Seven sites are recommended eligible (or eligibility undetermined) for inclusions to NRHP and or the SRCP were recorded.

Findings of the Santa Fe County cultural resources survey are provided in Table 1.

Table 1. Cultural Resource Summary on Private Land

Resource No.	Type	Affiliation	Land Status	NRHP Eligibility Recommendation	Treatment Recommendation
LA 190494	Artifact scatter with features – gas station, house, railroad grade	Anglo/Euroamerican (early 1900s to 1960s)	Private	Eligible, A, D	No further treatment in project area
LA 190495	Artifact scatter	Anglo/Euroamerican (1900s)	Private	Not eligible	No further treatment
LA 190496	Artifact scatter	Anglo/Euroamerican (1920s-1930s)	Private	Not eligible	No further treatment
LA 55683	Artifact scatter with features – hearth	Archaic: Late (800 BC-AD 400)	Private	Not found – previously treated	No further treatment
LA 55684	Artifact scatter with features – hearth	Unknown	Private	Not found	No further treatment
LA 55685	Artifact scatter	Archaic: Late (1800 BC-AD 400)	Private	Not found – previously treated	No further treatment
LA 55686	Artifact scatter	Archaic: Mid to Late (3000 BC-AD 200)	Private	Only 6 artifacts – previously treated	No further treatment
LA 55687	Artifact scatter	Paleoindian: Folsom (9000 BC – 8000 BC) Arcahic: Late (800 BC – AD 400)	Private	Not eligible – previously treated	No further treatment
LA 55733	Artifact scatter with features – hearth, lambing pen, tent base, tipi ring	Unknown Plains Village – Unspecific	Private	Only 2 artifacts found in project area	No further treatment
LA 77436	Artifact scatter with features – ashy stains	Archaic: Late (Unspecific)	Private	Eligible, D	Evaluate once better bound. May need to develop a treatment plan for site
LA 77442	Artifact scatter	Unknown	Private	Undetermined	Evaluate once better bound. May need to develop a treatment plan for site
LA 77443	Artifact scatter with feature – hearth	Unknown	Private	Undetermined	Midspan: flag, monitor, and avoid
LA 77448	Lithic quarry	Unknown	Private	Undetermined	Midspan: flag, monitor, and avoid
LA 77450	Artifact scatter	Ancestral Pueblo: Unspecific	Private	Undetermined	Midspan: flag, monitor, and avoid
LA 171612	Old Albuquerque to Galisteo Road	Hispanic: Mexican to Territorial (1821 – 1912)	Private	Eligible, D	Midspan: flag, monitor, and prohibit grading in area. Permit vehicle traffic
HCPI 43655	New Mexico Central Railroad	Anglo/Euroamerican (1903-1942)	Private	Not eligible	No further treatment in project area

Traditional Cultural Properties

At this time, no traditional cultural properties have been identified within the Santa Fe County project area. As part of ongoing coordination and documentation required for project approval, PNM would coordinate with the governments of tribes that claim affiliation with the project area to ensure no such properties are adversely impacted.

Analysis of Impacts

Further treatment of seven sites recorded during cultural resources surveys is recommended. Treatment recommendations consist of further site investigation, avoidance, and monitoring, if necessary. Further investigation is needed to determine whether adverse impacts to sites are unavoidable, and if excavation would be required. A cultural resources report is being prepared.

The cultural resources investigation for the project is ongoing, and potential for the project to impact these resources is being investigated. To the extent feasible, PNM would site the placement of structures associated with the project such that cultural resources are avoided. Most lands along the line would remain unaltered due to the distance between structures.

If impacts to an eligible or undetermined site are unavoidable, PNM would work with the State Historic Preservation Officer (SHPO) and the County to develop appropriate measures.

Scenic (Visual) Resources

Existing Conditions

The BB2 Project area occurs in a largely rural part of Santa Fe County. The visual context of the proposed new line consists of the flat, open range lands of the Estancia Valley in the eastern half and the rolling hills and varied terrain with the dense pinyon/juniper vegetation cover associated with the Ortiz and San Pedro Mountains in the western half. The Existing BB line is already present within this context.

Key observation points (those locations where the new line would be most visible to viewers, and where most views would occur) consist primarily of those locations where the proposed line would cross three existing highways:

- NM 14, which is designated the Turquoise Trail Scenic Byway from Santa Fe to approximately Tijeras, New Mexico. The powerline crossing is located approximately 1.5 miles north of Golden, New Mexico near the western extent of the Santa Fe County portion of the project area. Views are directed north and south at this location on the highway both northbound and southbound. This highway connects Interstate 40 (I-40) with Santa Fe. The annual average daily traffic (AADT) along NM-14 south of Golden near NM-344 is approximately 880 (NMDOT 2015).
- New Mexico Highway 41 (NM 41) crossing located approximately 4.3 miles north of Stanley, New Mexico. This highway connects I-40 with Santa Fe. The AADT along NM-41 north of the project area crossing at the junction of County Rd. 26 West is approximately 965 (NMDOT 2015).
- US Highway 285 (US 285) is located at the eastern terminus of the project area. The existing Clines Corners Switching Station is located approximately ¼ mile west of the. The AADT along US-285 near the switching station is approximately 1,236 (NMDOT 2015).

Visual Contrast and Dominance

Visual contrast refers to the actual differences in size, shape, and color between an introduced component and existing landscape components. Distance, angle of view, duration of view, lighting and nature of the backdrop are variables that can influence visual contrast. The visual dominance of a project is the degree to which it may contrast with or dominate its setting or other components of the setting.

Visual Absorption

Visual absorption is the ability of topography and vegetation pattern to screen and/or integrate visual elements. Topography and vegetation can screen introduced elements into the landscape.

According to the Santa Fe County Sustainable Land Development Code (SLDC 7.17.10), a visual analysis of structural visibility from arterial roadways is required for development at or above 7,400 feet in elevation. The proposed line would not be constructed at or above 7,400 feet in elevation.

Analysis of Impacts

NM-14 Turquoise Trail: The proposed BB2 Line location is immediately adjacent to an existing utility corridor in an already modified landscape. The landscape has a strong capacity to screen and absorb new elements. The BB2 Line would have a minimal effect on the view from NM-14 and would not affect the visual setting of the NM-14 Turquoise Trail Scenic Byway because the new line would parallel the existing transmission line with structure-for-structure placement. Visibility of the BB2 structures from NM-14 northbound and southbound would be generally limited to brief foreground views for a short distance and the line would not interrupt views of distant mountains because of the short duration when the line is in sight. Non-specular conductor would be used to minimize line visibility (see Appendix D for photo simulations).

Locating the line in contrasting dark to light pinyon/juniper vegetation and ground patterns provides considerable topographic screening, which reduces scale and line contrasts. The BB2 Line would use the existing BB Line access, which would reduce contrast on slopes and exposed soils.

NM-41: Grasslands with open character at the NM-41 crossing provide limited visual absorption capacity with few, sparse interrupting features; however, greater viewing distance from the corridor crossing reduce its apparent scale and small rises in topography coupled with longer distant views help with screening. Views include the presence of existing transmission structures and minor surface disturbances. Reductions in contrast could come from structure color and structure-for-structure placement. Non-specular conductor would be used to minimize line visibility.

US-285: The view of the BB2 Line from US-285 would be seen in a lower position in the landscape with minimal skylining. Greater viewing distance from the corridor crossing reduces its apparent scale and small rises in topography coupled with the with longer distant views help with screening. Views include the presence of existing transmission structures and minor surface disturbances. Reductions in contrast could come from lighter structure color and structure-for-structure placement. Reflectivity of conductor in certain lighting conditions may contribute to visual dominance.

The BB2 Line location is routed along existing landscape modifications in an existing utility corridor. The proposed design elements of structure-for-structure placement and reduction of color contrast by the use of dulled galvanized color (less reflective) on structures would result in acceptable levels of visual alteration.

Measures that could be implemented to further reduce alteration of existing visual character of the vicinity are avoidance of side slopes and ridges, where possible; use of non-specular conductors to reduce line contrasts from reflectivity; reduce visible ground disturbance; and reduce color and line contrasts.

Geotechnical Sampling

As part of the original BB transmission line construction in this corridor, a geotechnical study was commissioned. That work can be considered representative of the soil and rock characteristics likely to be encountered during the BB2 Project. The study was performed by Sergent, Hauskins, and Beckwith. Bore locations 5 through 25 are generally adjacent to the planned structures of the BB2 Project. Appropriate drill logs and an excerpt of this report titled "FINAL GEOTECHNICAL INVESTIGATION REPORT, Eastern Interconnection Project, BA Station to Santa Rosa, New Mexico", dated August 12, 1983, are included as Appendix C.

In general, alluvial valley fill deposits occur in the larger valleys and consist of silty sand and silty clay. The alluvial fan deposits occur adjacent to the mountains and consist of silty sand, gravel and cobbles. The residual deposits result from the in-place weathering of surficially exposed rock and vary in composition from sand to clay, depending upon the parent material. The older rocks of Permian through Cretaceous age generally consist of sandstone with some interbedded siltstones, limestones, shales and possibly minor evaporates.

Health and Safety

Safety is a primary concern in the design and operation of transmission line and related facilities. The line would be protected with power circuit breakers and related line relay protection equipment. Lightning protection would be provided by overhead ground wires along the line. Existing fences, metal gates, pipelines, etc. that cross or are within the transmission line ROW would be grounded as necessary to prevent electrical shock.

Standard Safety Measures

The ROW would be periodically patrolled to inspect its condition and identify problem areas so that maintenance crews may be scheduled to correct any problems. Ground and aerial inspections would be performed on an as needed to detect facilities needing repair or replacement.

Petroleum products such as gasoline, diesel fuel, lubricants, and cleaning solvents present temporarily within the work areas during construction would be contained and handled in compliance with federal and state regulations and industry standards by contractors.

Hazardous materials would be properly stored to prevent spills. In the event of a hazardous materials spill, notification and clean-up would be undertaken by the construction contractor in compliance with all applicable federal, state, and local regulations. All hazardous construction waste, used petroleum products, and other potentially hazardous materials would be removed to an authorized treatment/disposal facility.

For public protection during wire installation, guard structures may be erected adjacent to roads, existing power-lines, and other obstacles. Guard structures typically consist of H-framed wood poles placed on either side of an obstacle. These structures would prevent ground wire, conductor, or equipment from falling on an obstacle, and would be removed following the completion of conductor installation. Guard structures may not be required for small roads or other areas where suitable safety measures such as barriers, flagmen, or other traffic controls could be used.

Contractors would provide health and safety plans, traffic control and construction management plans, as necessary, to meet PNM standards and fulfill local, state, and federal requirements applicable to the industry.

Electromagnetic Fields

Electromagnetic fields (EMF) are electric and magnetic fields of energy that surround any electrical device that is turned on. Electromagnetic radiation consists of waves of electric and magnetic energy moving together through space. Electric fields are produced by electric charges and magnetic fields are produced by the flow of current through wires or electrical devices. Hundreds of scientific studies have been completed regarding exposure to 60 cycle electric and magnetic fields (EMF) and human health issues over the last 30 years. These fields are present wherever 60 cycle AC (alternating current) power is used, i.e., PNM lines, house wiring and use of electric appliances. While research still continues, to date it has not been established that exposure to low level 60 cycle magnetic fields is the cause of any adverse human health effects.

Sites Reporting the USEPA

According to the USEPA (Enviromapper 2018), permitted facilities in the vicinity of the project area consist of minor water discharges and air emissions. No known Superfund or Brownfield sites are present.

Applicable Regulatory Compliance

PNM is required to comply with general and industry specific standards and safety regulations identified by the following entities:

- Federal Energy Regulation Commission (limited jurisdiction)
- National Electric Safety Code
- New Mexico Public Regulation Commission
- North American Electric Reliability Corporation
- Western Electricity Coordinating Council
- Occupational Safety and Health Administration
- New Mexico Occupation Health and Safety Bureau

The project is not expected to result in a significant impact to public health or safety.

Land Use

Existing Conditions

The BB2 Project area and vicinity in Santa Fe County are currently used primarily for ranching. Few dispersed residences are present, and PNM estimates 77 residential dwellings and non-residential structures occur within one mile of the BB2 Project. The structure count identified features with a roof which could be barn, storage building, or dwelling, etc. No dwellings are located within the BB2 150-foot-wide easement area. No urban areas are present. The community of Golden, New Mexico is located approximately 1.5 miles south of the proposed line and Stanley, New Mexico is located approximately 4.3 miles south of it.

The existing BB 345kV transmission line is located adjacent to the proposed BB2 line route. In addition, the existing AW 115kV transmission line is located within the same utility corridor paralleling the BB Line and proposed BB2 line for approximately 6.5 miles.

No public or non-profit facilities have been identified within the project area, and none are evident on aerial imagery or topographic mapping within the vicinity.

The BB2 Project area and vicinity are largely unrated for recreation (USDA NRCS, 2018). Most of the project area and vicinity consist of private lands used as range and ranch land. Since little public land is present and access is limited, there is little likelihood that recreation is important in the project area or vicinity. Within the County, public lands such as National Forests provide recreation and ecotourism opportunities. These lands do not occur near to the project area. No known private ecotourism or recreation operations occur in the vicinity.

Agricultural use of the project area and vicinity is limited and appears to consist of occasion plots of feed crops.

NM-14 is designated as the Turquoise Trail National Scenic Byway. A National Scenic Byway is a road recognized by the US Department of Transportation to preserve and protect the nation's scenic but often less-traveled roads and promote tourism and economic development. The National Scenic Byways Program is administered by the Federal Highway Administration (FHWA). The Turquoise Trail Corridor Management Plan (Version 1.0) identifies the lack of growth in the area and states that even considering the growth that has occurred along the byway, many of the byway's scenic qualities would remain, especially those of national significance.

There is no apparent industrial use of the project area or vicinity.

Analysis of Impacts
The BB2 Project is not expected to alter land use or prevent current land uses, since it would occur directly adjacent to an existing powerline easement and would not contribute to significant fast growth to the area.

4. SIGNIFICANT ENVIRONMENTAL EFFECTS

Treatment of 'Significance' as it Pertains to This Analysis
In order to analyze the potential for significant effects/impacts within the context of this EIR, the determination of significance with regard to effects is based on the following factors:

- State/federal regulatory status of resource
- Magnitude/duration of impact relative to abundance of the resource within the analysis area, if known or measurable
- Level of resilience of impacted resource (low to high ability to recover/timeframe needed), if known or measurable
- Demonstrable importance of resource to the immediately affected community (vicinity level)

The following impact conditions would be considered 'significant' effects with respect to this analysis:

- Likely to have the potential to adversely affect a cultural property that is listed, or eligible for listing, on the national register of historic properties; the state register of cultural properties, a cultural property with undetermined eligibility
- Likely to impact a traditional cultural property
- Determination of *May affect, likely to adversely affect* for a federal listed species or its critical habitat

- Likely to result in adverse impacts to state listed species (County population level) or large habitat/migration corridors
- Likely to result in a loss of waters of the United States and associated wetlands sufficient to result in a need for an individual permit and alternatives analysis
- Likely to result in a take of occupied migratory bird nests and the need for a USFWS permit
- Likely to result in a violation of the Bald and Golden Eagle Protection Act
- Likely to result in a negative impact to public health
- Likely to introduce a human element to the landscape that would obscure scenic vistas or alter the visual perception of the unique character of the vicinity

The BB2 Project is not expected to result in significant effects to the following:

- Waterways
- Groundwater
- Wetlands
- Floodplains
- Soils
- Minerals
- Geologic deposits
- Federal listed species
- Scenic (visual) resources
- Public health and Safety
- Land use

Natural Resources

Protected Species/General Habitat

The project would result in the removal of 170 acres of pinyon /juniper vegetation that provides potential nesting habitat for the state protected gray vireo. If much of this habitat is occupied, the effect could be significant. PNM would coordinate with the NMDGF to determine whether this species occurs in the project area and if additional field studies are needed.

Cultural Resources

Archaeological/Historic Sites

Further treatment of seven sites recorded during cultural resources surveys is recommended. Treatment recommendations consist of further site investigation, avoidance, and monitoring, if necessary. Further investigation is needed to determine whether adverse impacts to sites are unavoidable, and if excavation would be required. A cultural resources report is being prepared.

5. UNAVOIDABLE ENVIRONMENTAL EFFECTS/ IRREVERSIBLE CHANGES

Implementation of the BB2 Project would involve the commitment of natural, physical, human, and fiscal resources. Undeveloped lands within the proposed BB2 Project corridor would be committed to use as utility easement for the foreseeable future. This would preclude incompatible uses, such as construction of buildings or tall structures within the easement, but would not prevent uses that are compatible, such as rangeland, which is currently the most common of area land uses.

Fossil fuels, labor, and construction materials committed to the construction would be largely irretrievable, although some materials could be recycled. The labor and natural resources necessary to fabricate construction materials would be irretrievable.

Vegetation clearing needed to comply with management standards would regrow if the line were removed, but would be maintained so long as the line remains. Soils within the easement would be disturbed only as needed for structure placement and patrol two tracks, and would remain largely unaffected.

6. PROPOSED MITIGATION/AVOIDANCE MEASURES

Natural Resources

Arroyos

- To the extent practicable, no structures would be located in arroyos. If the need arises, PNM would consult with the appropriate authority.
- A Stormwater Pollution Prevention Plan (SWPPP) would be developed for the project to meet NPDES guidelines, which would outline measures that must be implemented to protect stormwater.

Soils

- Because more than 1 acre of soil would be disturbed, the contractor would obtain a permit under the National Pollutant Discharge Elimination System (NPDES) under the Construction General Permit (SWPPP).

Protected Species/ General Habitat

- PNM would provide a survey to determine whether gray vireo occupy the project area in accordance with NMDGF recommendations and guidelines and coordinate with NMDGF regarding avoidance and mitigation measures for this species.
- PNM would provide pre-construction surveys for occupied bird nests and listed birds prior to removing vegetation during the general nesting season (March 15-August 30). If it is necessary to remove occupied nests, a USFWS permit would be obtained prior to doing so.
- PNM would revegetate open disturbed soils with native weed-free seed appropriate for the area to replace disturbed vegetation and reduce erosion where needed, in coordination with land owners.
- Avian protection measures would be implemented into the tower design to reduce impacts to raptors that use powerlines as perches and nest sites. Avian safe design would include sufficient vertical and horizontal clearance between phases or phase and ground, so there is no wing contact and procedures for handling nests, along with other avian protection.

Cultural Resources

Archaeological/Historic Sites

PNM would provide further investigation of potentially impacted sites that are eligible or with undetermined eligibility for inclusion to the NRHP or SRCP. Further treatment of seven sites recorded during cultural resources surveys is recommended. Treatment recommendations consist of further site investigation, avoidance, and monitoring, if necessary. If avoidance is not possible, PNM would provide excavation or other information recovery efforts as identified by the SHPO and the County.

Discovery

In the event that archeological deposits, including lithic, ceramics, or human remains, are uncovered, PNM contractors would be instructed to stop all work immediately in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. All archeological findings would be secured and access to the sensitive area restricted. If unmarked graves or human remains are present on private or state land, compliance with the Native American Graves Protection and Repatriation Act, as applicable, and the New Mexico Cultural Properties Act would be required. PNM would immediately notify the Office of the Medical Investigator (OMI) and the SHPO and as specified in Section 7.16.10 of the SLDC, notifications would be made to the local law enforcement and the Administrator. Work would not resume in the area until appropriate notice is received from the Medical Investigator or the State Historic Preservation Office, depending on the nature of the human remains.

Scenic (Visual) Resources

Several measures would be taken to minimize visual impacts from the Proposed Project. The new line would be constructed with similar colors and forms as the existing BB line and the use of non-specular conductor and structure materials may be used to reduce reflection and glare. Also, ground surfaces and staging areas disturbed during construction would be restored to approximate original grade and revegetated as necessary. Whenever possible, existing vegetation and rock formations would be retained in their original condition.

7. ALTERNATIVES TO THE PROPOSED ACTION

No Action

One alternative to the Proposed Actions, the No Actions, is evaluated for the purposes of this report. Alternatives to the Proposed Actions such as differing alignments or capacity are not feasible for construction and are therefore not considered. No reasonable alternative to the proposed alignment exists. The No Actions alternative would result in "no change" to current conditions and would not enable the transfer of additional power.

8. EVALUATION OF ALTERNATIVES (ACTION/NO ACTION)

	Proposed Action	**No Action**
Feasibility (Meets Purpose)	Yes	**No**
Economic use value viability	Yes	No
Availability of infrastructure	Yes	No
Jurisdictional boundaries	ROW needed	No
Natural Resources	**Minor Impact**	**No impact**
Arroyos/Floodplains	Avoid or mitigate	No impact
Geology/Minerals/Soils	Temporary minor soil disturbance	No impact
Protected Species	Potential impact to state threatened bird	No impact
General Habitat	Temporary vegetation/soil disturbance, noise/activity	No impact
Cultural Resources	**Avoidance or Mitigation**	**No impact**
Archaeological/Historic Sites	Avoidance or Mitigation	No impact
Scenic (Visual) Resources	**Minor impact**	**No impact**
Health/Safety	**No impact**	**No impact**
Land Use	**No impact - 150-foot dedicated easement would not alter land use**	**No impact**

9. CUMULATIVE IMPACTS

Project Area/Vicinity

Cumulative impacts are the combined effect of past, current, and reasonably foreseeable future actions within the vicinity to which development of the proposed BB2 Project may add incremental impacts. The combination of all the typical land use practices across the project area landscape has the potential to impact natural and cultural resources and slightly alter visual character. However, the likelihood of these impacts occurring is minimized through compliance with state and federal regulations and implementation of standard avoidance/mitigation measures. Resources are expected to sustain some level of cumulative impacts over time, no matter the use.

Projects that have occurred or are occurring in the vicinity include: State/federal highway and county roadway construction/maintenance and improvement; stock tank or other water source development; mining; ranching activities such as well drilling, fence construction, grazing, home/structure construction; and the installation of the existing PNM BB line.

Projects likely to occur within the project area and vicinity in the foreseeable future include: State/federal highway and county roadway maintenance and improvement; stock tank or other water source development; utility access maintenance; construction or improvement of homes or small commercial structures; and fence line maintenance. Impacts expected of these types of projects generally consist of relatively minor losses of vegetation and temporary soil disturbance.

10. APPROVED LAND USE DOCUMENTS

The proposed project area is located in the following zoned districts in Santa Fe County (Figure 3): Agricultural/Ranch, Rural, and Public (State Land Office). The requested permit would comply with the SLDC inclusive of criteria set forth in Chapter 7 (Sustainable Design Standards) and Section 4.8 (Development Permits). Appendix B, Use Matrix, identifies high-voltage electric power transmission lines as a Conditional Use within Agricultural/Ranching, Rural and State Land zoned districts.

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APPENDIX A

TAC Letter

Graphic Depicting Proposed Structure

SANTA FE COUNTY
TECHNICAL ADVISORY COMMITTEE

February 22, 2018

BY ELECTRONIC MAIL

Re: PNM BB2 345kV Transmission Project

Laurie Moye:

Thank you for presenting the above mentioned project at the pre-application Technical Advisory Committee (TAC) meeting on February 1, 2018. Below is a summary of relevant issues that were discussed at the TAC meeting:

- PNM is requesting a Conditional Use Permit to construct approximately 31 miles of new single-circuit 345kV transmission line in southern Santa Fe County. A wind farm developer has entered into an agreement with PNM to transmit into the transmission grid the electricity generated by a new wind farm development in Torrance County. PNM is required by the Federal Energy Regulatory Commission (FERC) to develop the requested capacity on its transmission system to serve this wind farm. In order to serve the wind farm customer, PNM proposes to build a new transmission line in Santa Fe County to deliver this new wind energy. The proposed transmission line will connect to PNM's existing Clines Corners 345kV Switching Station (within Santa Fe County) to a new switching station within Sandoval County. The new single-circuit transmission line will be located immediately adjacent to the existing BB 345kV transmission line on a separate 150' easement.
- Two structure types are being considered for the BB2 Project:
  a. Single-circuit H-frame self-weathering (brown color) or galvanized tubular steel structure (gray color); or
  b. Single-circuit guyed delta galvanized steel lattice structure.
- The steel pole structure/galvanized steel lattice structure will be constructed 120' to 145' in height. Section 7.12.1.3, states, "above-ground electric utility lines that transmit electricity at a voltage greater than or equal to 46 kilovolts shall be designed and constructed at the minimum height necessary for the proposed structure to function properly and for public health, safety and welfare, as demonstrated by the applicant."
- An expansion of the existing Clines Corners 345kV Switching Station will be required to accommodate the start of the new single-circuit 345kV line. The expansion will occur within the footprint of the existing switching station on State Land.

- The proposed 31 mile transmission line will meander through parcels that are zoned Agricultural/Ranching, Rural and State Land, Appendix B, Use Matrix, identifies high-voltage electric power transmission lines as a Conditional Use within these Zoning Districts. The proposed transmission line will run east to west within southern Santa Fe County, north of Stanley and north of Golden, meandering through approximately 32 separate parcels of land, (Commission District 3), SDA-3.
- Items discussed included the following: PNM will acquire the required 150 ft. easement which will be required for the BB2 project; the wind farm developer will pay for the BB2 project and the cost of this project will not be passed on to PNM costumers; structures will be spaced out approximately 1,000-1,500 ft. from each other; approximately 25 property owners are within the corridor of the proposed BB2 project; PNM hopes to start construction in June 2019 and the BB2 to be operational fall of 2020.
- Submittal requirements include: application; plats and deeds of the properties in which the easement will be going through; consent from those property owners; SRA's including an Environmental Impact Report (EIR) an Archaeological Resources Report; a Fiscal Impact Assessment (FIA); plans; structural design; report; justification of height of structures (per SLDC Section 7.12.1.3); survey; and fees.
- Submittal shall comply with Ordinance No. 2016-9, the Sustainable Land Development Code (SLDC) inclusive of criteria set forth in Chapter 7 (Sustainable Design Standards) and Section 4.8 (Development Permits).
- A pre Application Neighborhood Meeting is required. General requirements for Pre-Application Neighborhood meeting are outlined in Chapter 4, Section 4.4.4, of the SLDC including required notice. Notice shall include the following Community and Registered Organizations (CO's & RO's):

San Pedro CO

CO and RO contacts 2016								
CO or RO	Organization Name	Member Name	Member telephone number	Address	City	State	Zip Code	Email
CO	San Pedro Neighborhood Association	Sally Douglas	505-281-9843	51 Camino del Corazon	Sandia Park	NM	87047	doxiehiker@gmail.com

Stop Hunt Power Line RO

CO and RO contacts 2016								
CO or RO	Organization Name	Member Name	Member telephone number	Address	City	State	Zip Code	Email
RO	Stop Hunt	Karen	310-990-	369	Santa	NM	87501	karenakoch@mac.com

CO and RO contacts 2016								
CO or RO	Organization Name	Member Name	Member telephone number	Address	City	State	Zip Code	Email
	Power Line, Inc.	Koch	5308	Montezuma Ave. #132	Fe			

Turquoise Trail Regional Alliance RO

CO and RO contacts 2016								
CO or RO	Organization Name	Member Name	Member telephone number	Address	City	State	Zip Code	Email
RO	Turquoise Trail Regional Alliance	Karen Yank	505-281-0243	PO Box 23775	Santa Fe	NM	87502	hamonyank@cybermesa.com

Concerned Citizens of Cerrillos RO

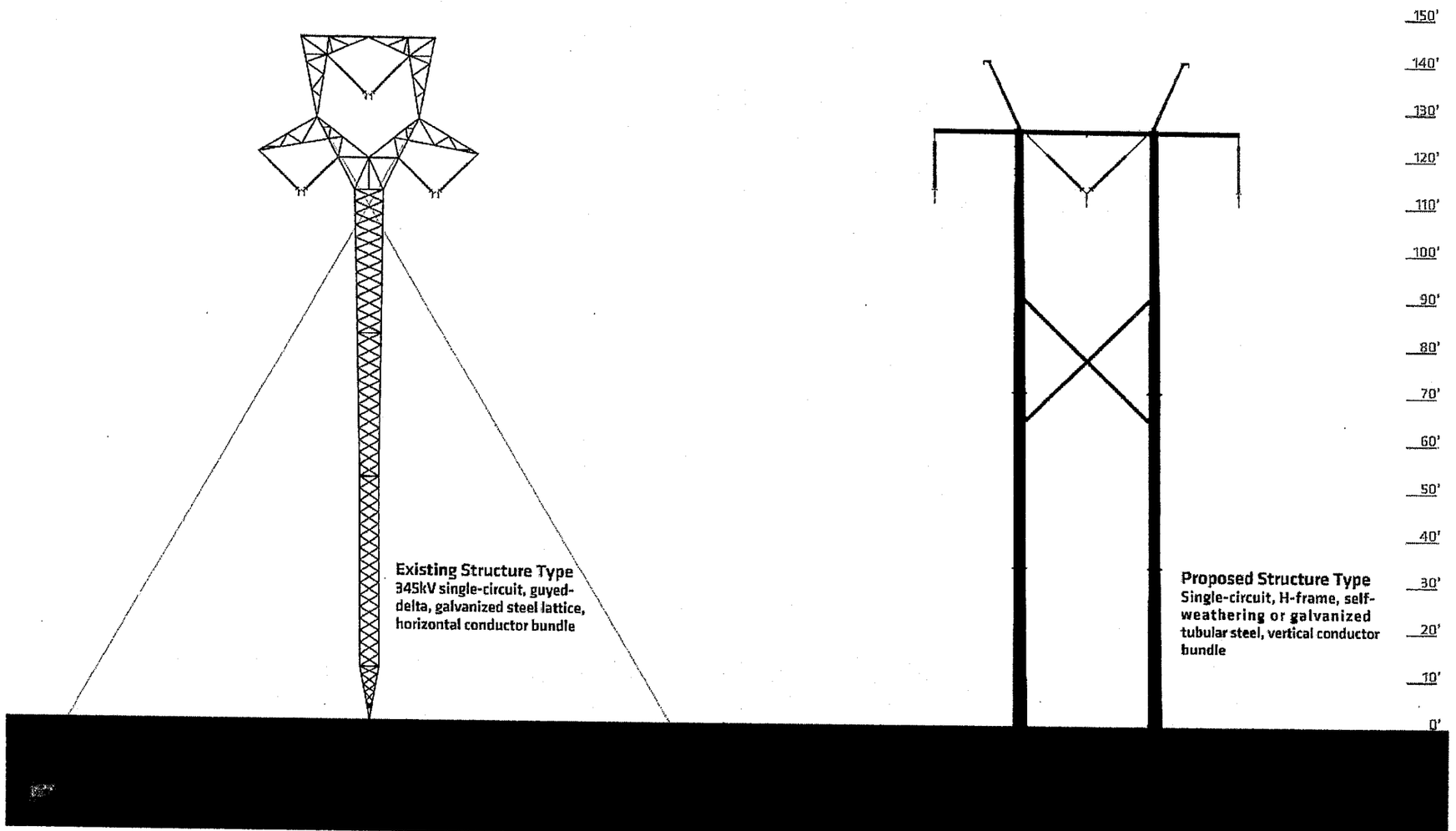
CO and RO contacts 2016								
CO or RO	Organization Name	Member Name	Member telephone number	Address	City	State	Zip Code	Email
RO	Concerned Citizens of Cerrillos	Ross Lockridge	505-471-9182	PO Box 22	Cerrillos	NM	87010	murlock@raintreecounty.com

- Notice Requirements for the Public Hearing are outlined in Chapter 4, Section 4.6 of the SLDC.
- Requirements and Criteria for a Conditional Use Permit (CUP) are outlined in Chapter 4, Section 4.9.6 of the SLDC.

If you have any questions, please do not hesitate to contact this office at 986-6296.

Sincerely,

Jose E. Larrañaga
Development Review Team Leader



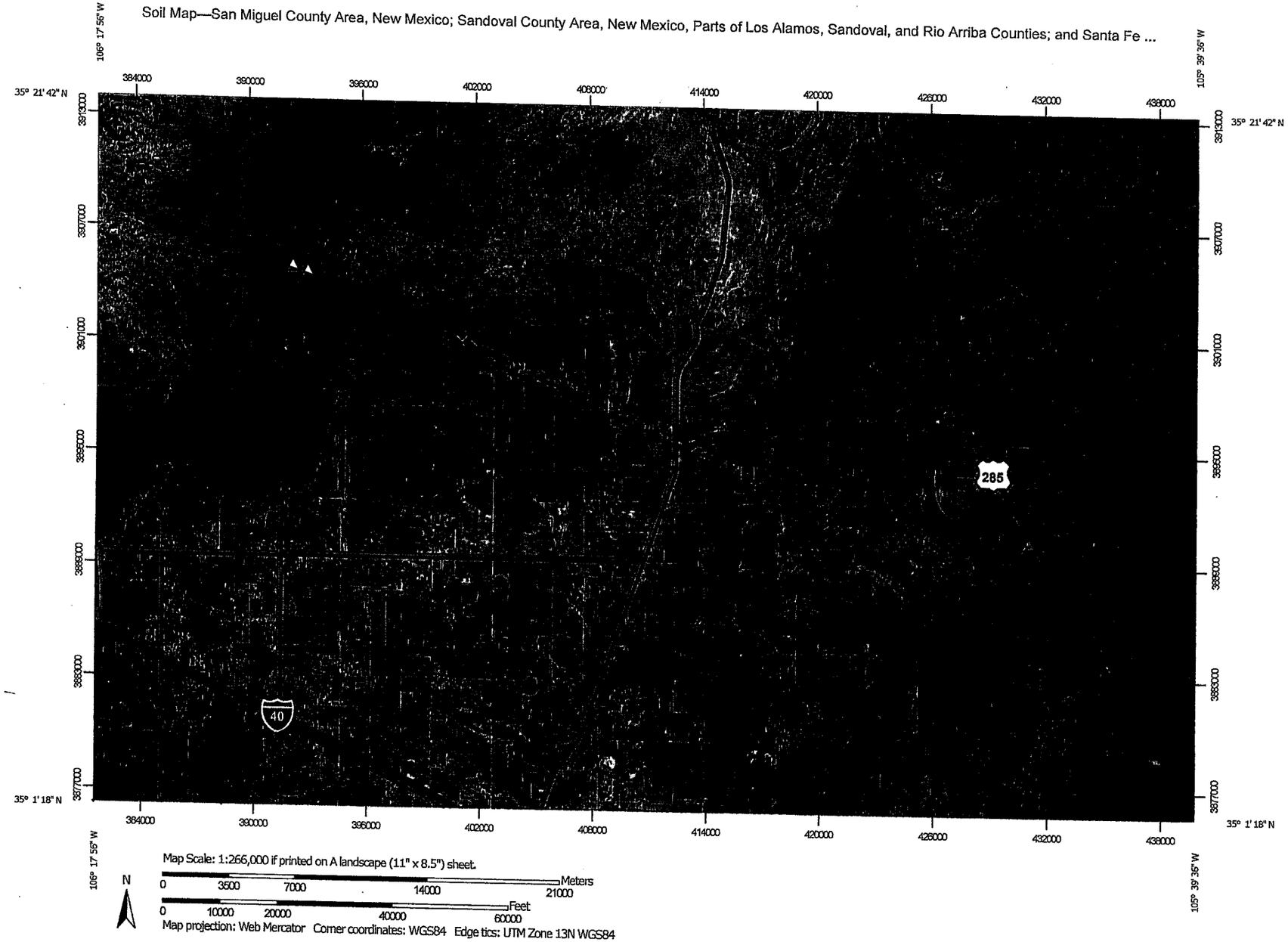
Option 1
Typical Structure & Easment Profiles

APPENDIX B

Soils

Arroyos and Floodplains

Santa Fe County Species Lists



USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:48,000.

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

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

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

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

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Survey Area Data: Version 11, Sep 15, 2017

Soil Survey Area: Sandoval County Area, New Mexico, Parts of Los Alamos, Sandoval, and Rio Arriba Counties
Survey Area Data: Version 11, Sep 6, 2017

Soil Survey Area: Santa Fe County Area, New Mexico
Survey Area Data: Version 9, Sep 6, 2017

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

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

Map Unit Legend

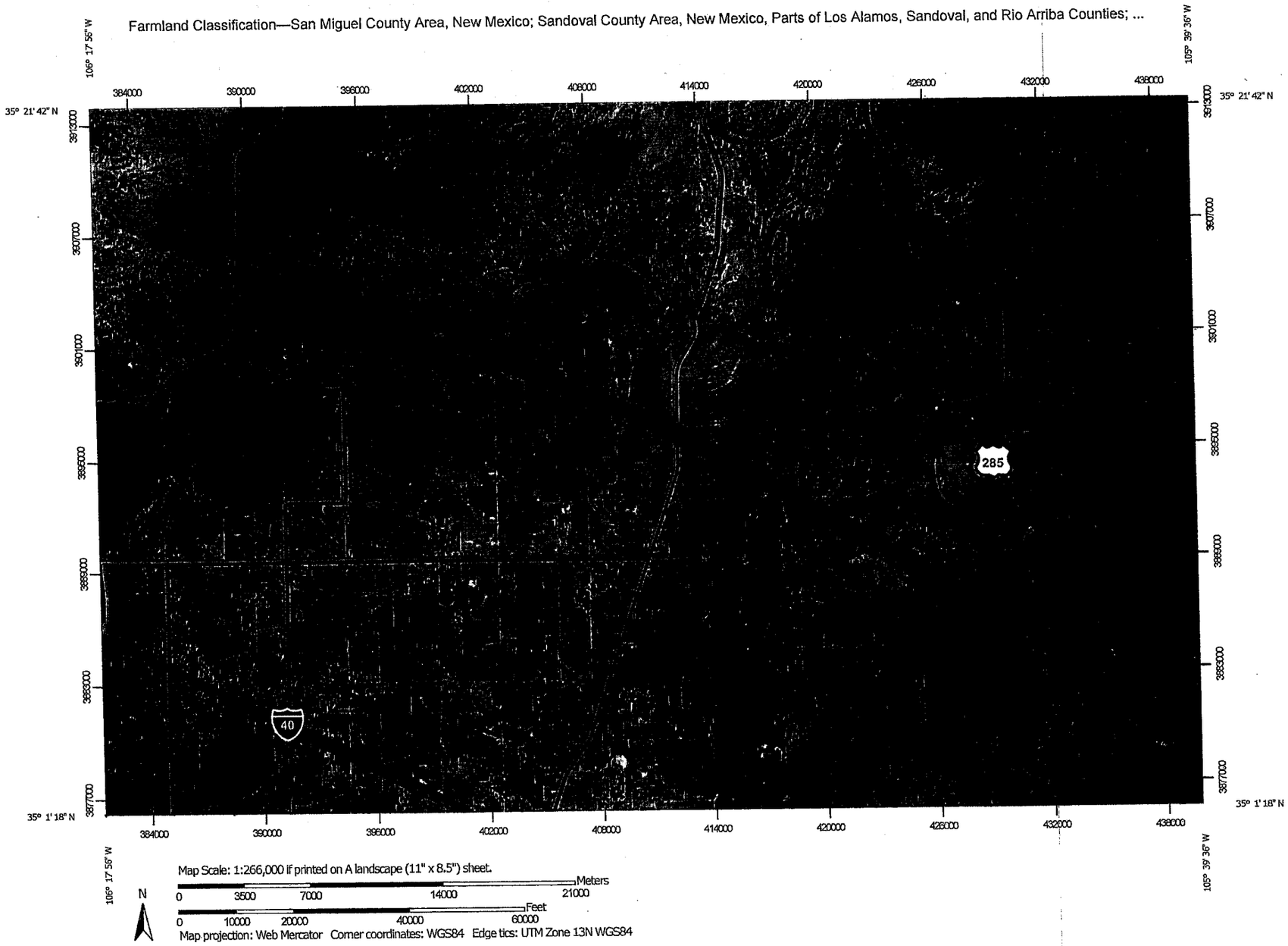
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
TD	Tapia-Dean association, undulating	3.4	0.0%
VB	Vibo-Ribera association, undulating	2.4	0.0%
Subtotals for Soil Survey Area		**5.9**	**0.1%**
Totals for Area of Interest		**11,360.1**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
53	Witt-Harvey association, 1 to 7 percent slopes	0.4	0.0%
59	Harvey-Ildefonso-La Fonda association, 3 to 15 percent slopes	0.4	0.0%
Subtotals for Soil Survey Area		**0.8**	**0.0%**
Totals for Area of Interest		**11,360.1**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
106	Pits	7.1	0.1%
116	Arents-Urban land-Orthents complex, 1 to 60 percent slopes	18.6	0.2%
500	Sedillo very gravelly loam, 2 to 6 percent slopes	388.5	3.4%
501	Truehill extremely gravelly loam, 25 to 55 percent slopes	392.5	3.5%
510	Cerrillos-Sedillo complex, 1 to 5 percent slopes	1,296.3	11.4%
511	Wandurn-Alchonzo-Rubble land complex, 35 to 90 percent slopes	7.0	0.1%
513	Pedregal very cobbly loam, 8 to 15 percent slopes	509.7	4.5%
521	Devargas-Riovista-Riverwash complex, 0 to 5 percent slopes, flooded	40.4	0.4%
522	Penistaja family fine sandy loam, 1 to 3 percent slopes	22.9	0.2%
534	Oelop-Charalito complex, 1 to 3 percent slopes	373.6	3.3%
600	Hyer-Witt complex, 1 to 3 percent slopes	761.0	6.7%

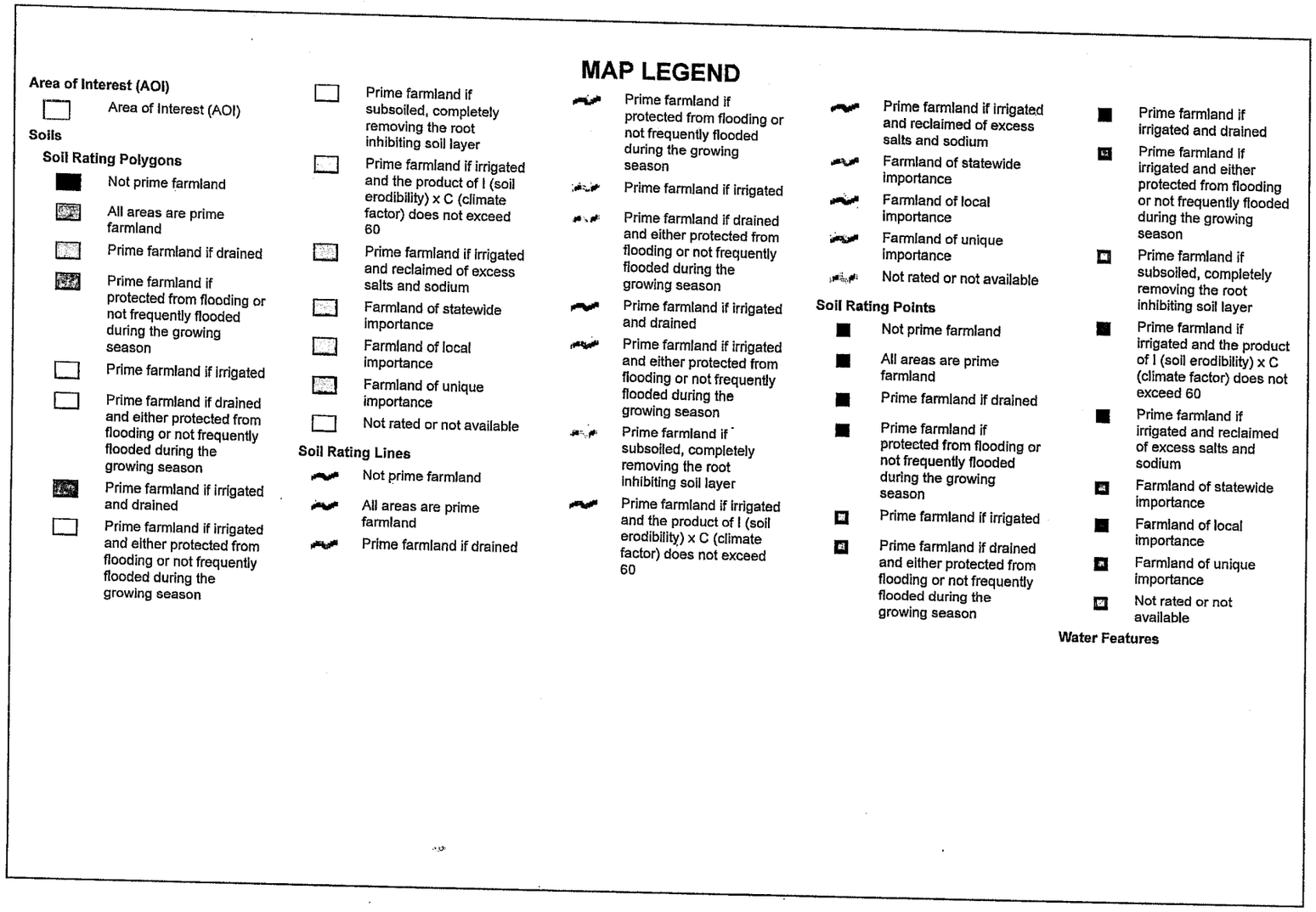
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
601	Harvey loam, 3 to 12 percent slopes	62.4	0.5%
602	Palma fine sandy loam, 3 to 8 percent slopes	223.3	2.0%
603	Lazarus silt loam, 0 to 2 percent slopes, flooded	305.0	2.7%
606	Pastura-Nala complex, 3 to 15 percent slopes	1,084.6	9.5%
607	Davishat-Palma complex, 1 to 8 percent slopes	123.7	1.1%
610	Arojomil-Tapia complex, 1 to 5 percent slopes	2,319.6	20.4%
613	Kinsell silt loam, 0 to 2 percent slopes, flooded	240.0	2.1%
615	Kwahe-Stanley complex, 0 to 1 percent slopes, ponded	1.0	0.0%
616	Triane silty clay loam, 1 to 3 percent slopes	4.0	0.0%
617	Ranchos fine sandy loam, 3 to 8 percent slopes	211.9	1.9%
618	Davishat-Chupadera complex, 3 to 8 percent slopes	308.7	2.7%
619	Villario-Puertecito complex, 25 to 45 percent slopes	1.9	0.0%
621	Kech-Horchata complex, 1 to 8 percent slopes	219.7	1.9%
622	Arojomil silt loam, 1 to 3 percent slopes	778.1	6.8%
623	Clovis loam, 3 to 8 percent slopes	627.4	5.5%
624	Clovis very fine sandy loam, 1 to 3 percent slopes	48.0	0.4%
625	Raydawn very cobbly sandy loam, 15 to 35 percent slopes	97.0	0.9%
626	Horchata loam, 3 to 8 percent slopes	36.2	0.3%
627	Palabria-Frajillo complex, 1 to 8 percent slopes	105.0	0.9%
628	Nala gravelly fine sandy loam, 3 to 8 percent slopes	48.9	0.4%
629	Frajillo-Chilerojo complex, 5 to 15 percent slopes	253.4	2.2%
630	Tamarindo loam, 3 to 8 percent slopes	265.2	2.3%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
632	Travessilla-Raydawn-Sandoval-Rock outcrop complex; 5 to 45 percent slopes	170.6	1.5%
Subtotals for Soil Survey Area		**11,353.4**	**99.9%**
Totals for Area of Interest		**11,360.1**	**100.0%**



USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey



MAP INFORMATION

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:48,000.

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

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

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Soil Survey Area: Santa Fe County Area, New Mexico
Survey Area Data: Version 9, Sep 6, 2017

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

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

Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
TD	Tapia-Dean association, undulating	Farmland of statewide importance	3.4	0.0%
VB	Vibo-Ribera association, undulating	Farmland of statewide importance	2.4	0.0%
Subtotals for Soil Survey Area			**5.9**	**0.1%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
53	Witt-Harvey association, 1 to 7 percent slopes	Not prime farmland	0.4	0.0%
59	Harvey-Ildefonso-La Fonda association, 3 to 15 percent slopes	Not prime farmland	0.4	0.0%
Subtotals for Soil Survey Area			**0.8**	**0.0%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
106	Pits	Not prime farmland	7.1	0.1%
116	Arents-Urban land-Orthents complex, 1 to 60 percent slopes	Not prime farmland	18.6	0.2%
500	Sedillo very gravelly loam, 2 to 6 percent slopes	Not prime farmland	388.5	3.4%
501	Truehill extremely gravelly loam, 25 to 55 percent slopes	Not prime farmland	392.5	3.5%
510	Cerrillos-Sedillo complex, 1 to 5 percent slopes	Not prime farmland	1,296.3	11.4%
511	Wandurn-Alchonzo-Rubble land complex, 35 to 90 percent slopes	Not prime farmland	7.0	0.1%
513	Pedregal very cobbly loam, 8 to 15 percent slopes	Not prime farmland	509.7	4.5%
521	Devargas-Riovista-Riverwash complex, 0 to 5 percent slopes, flooded	Not prime farmland	40.4	0.4%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
522	Penistaja family fine sandy loam, 1 to 3 percent slopes	Not prime farmland	22.9	0.2%
534	Oelop-Charalito complex, 1 to 3 percent slopes	Not prime farmland	373.6	3.3%
600	Hyer-Witt complex, 1 to 3 percent slopes	Not prime farmland	761.0	6.7%
601	Harvey loam, 3 to 12 percent slopes	Not prime farmland	62.4	0.5%
602	Palma fine sandy loam, 3 to 8 percent slopes	Not prime farmland	223.3	2.0%
603	Lazarus silt loam, 0 to 2 percent slopes, flooded	Not prime farmland	305.0	2.7%
606	Pastura-Nala complex, 3 to 15 percent slopes	Not prime farmland	1,084.6	9.5%
607	Davishat-Palma complex, 1 to 8 percent slopes	Not prime farmland	123.7	1.1%
610	Arojomil-Tapia complex, 1 to 5 percent slopes	Not prime farmland	2,319.6	20.4%
613	Kinsell silt loam, 0 to 2 percent slopes, flooded	Not prime farmland	240.0	2.1%
615	Kwahe-Stanley complex, 0 to 1 percent slopes, ponded	Not prime farmland	1.0	0.0%
616	Triane silty clay loam, 1 to 3 percent slopes	Not prime farmland	4.0	0.0%
617	Ranchos fine sandy loam, 3 to 8 percent slopes	Not prime farmland	211.9	1.9%
618	Davishat-Chupadera complex, 3 to 8 percent slopes	Not prime farmland	308.7	2.7%
619	Villario-Puertecito complex, 25 to 45 percent slopes	Not prime farmland	1.9	0.0%
621	Kech-Horchata complex, 1 to 8 percent slopes	Not prime farmland	219.7	1.9%
622	Arojomil silt loam, 1 to 3 percent slopes	Not prime farmland	778.1	6.8%
623	Clovis loam, 3 to 8 percent slopes	Not prime farmland	627.4	5.5%
624	Clovis very fine sandy loam, 1 to 3 percent slopes	Not prime farmland	48.0	0.4%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
625	Raydawn very cobbly sandy loam, 15 to 35 percent slopes	Not prime farmland	97.0	0.9%
626	Horchata loam, 3 to 8 percent slopes	Not prime farmland	36.2	0.3%
627	Palabria-Frajillo complex, 1 to 8 percent slopes	Not prime farmland	105.0	0.9%
628	Nala gravelly fine sandy loam, 3 to 8 percent slopes	Not prime farmland	48.9	0.4%
629	Frajillo-Chilerojo complex, 5 to 15 percent slopes	Not prime farmland	253.4	2.2%
630	Tamarindo loam, 3 to 8 percent slopes	Not prime farmland	265.2	2.3%
632	Travessilla-Raydawn-Sandoval-Rock outcrop complex, 5 to 45 percent slopes	Not prime farmland	170.6	1.5%
Subtotals for Soil Survey Area			**11,353.4**	**99.9%**
Totals for Area of Interest			**11,360.1**	**100.0%**

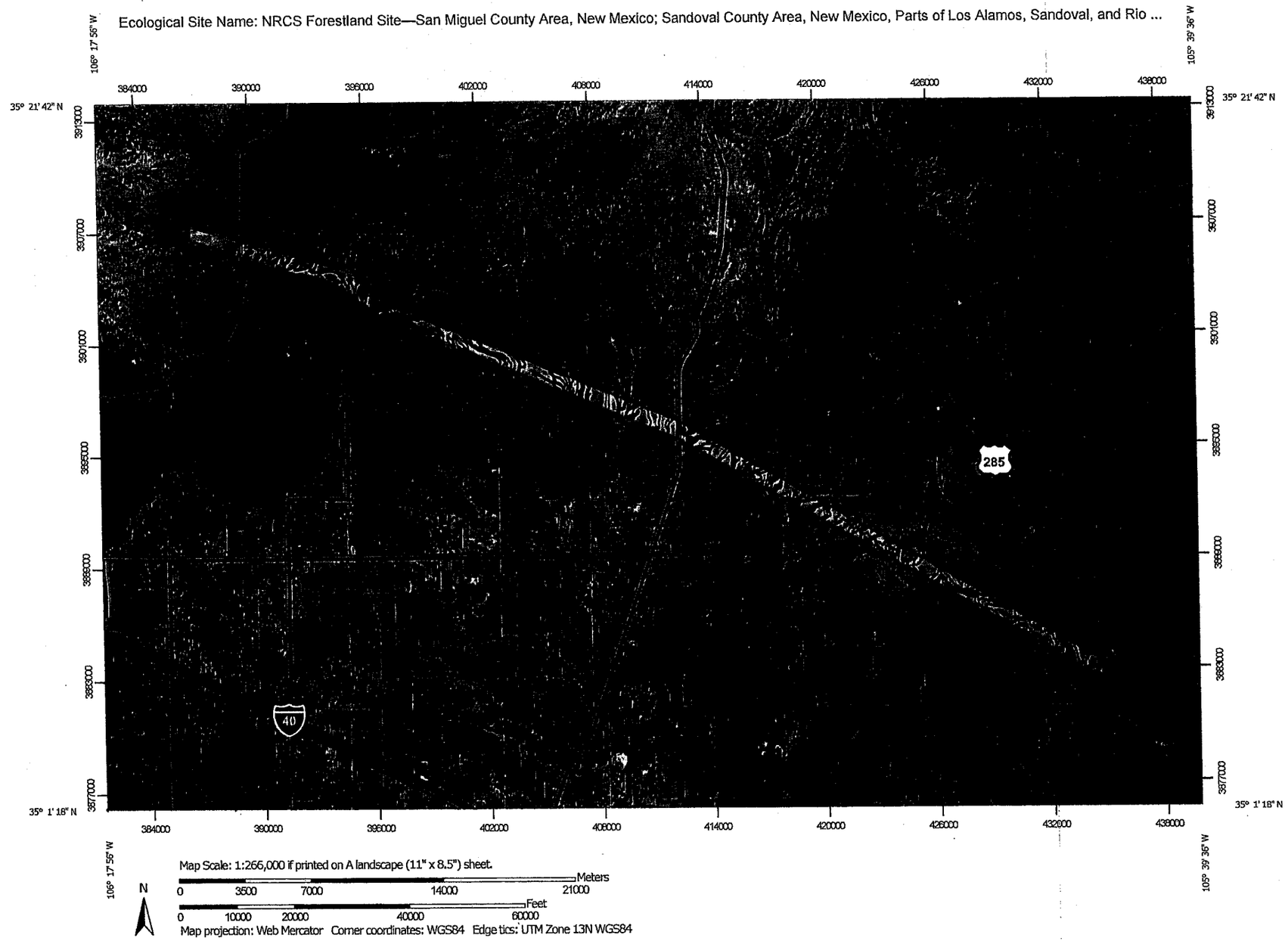
Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower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35° 1' 18" N
384000
390000
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414000
420000
426000
432000
438000
3913000
3907000
3901000
3895000
3889000
3883000
3877000
285
40
Map Scale: 1:266,000 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 3500 7000 14000 21000
Feet
0 10000 20000 40000 60000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Gravelly - Woodland
- Not rated or not available

Soil Rating Lines

- Gravelly - Woodland
- Not rated or not available

Soil Rating Points

- Gravelly - Woodland
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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Ecological Site Name: NRCS Forestland Site

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
TD	Tapia-Dean association, undulating		3.4	0.0%
VB	Vibo-Ribera association, undulating		2.4	0.0%
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Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
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Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
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618	Davishat-Chupadera complex, 3 to 8 percent slopes		308.7	2.7%
619	Villario-Puertecito complex, 25 to 45 percent slopes		1.9	0.0%
621	Kech-Horchata complex, 1 to 8 percent slopes		219.7	1.9%
622	Arojomil silt loam, 1 to 3 percent slopes		778.1	6.8%
623	Clovis loam, 3 to 8 percent slopes		627.4	5.5%
624	Clovis very fine sandy loam, 1 to 3 percent slopes		48.0	0.4%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
625	Raydawn very cobbly sandy loam, 15 to 35 percent slopes		97.0	0.9%
626	Horchata loam, 3 to 8 percent slopes		36.2	0.3%
627	Palabria-Frajillo complex, 1 to 8 percent slopes		105.0	0.9%
628	Nala gravelly fine sandy loam, 3 to 8 percent slopes		48.9	0.4%
629	Frajillo-Chilerojo complex, 5 to 15 percent slopes		253.4	2.2%
630	Tamarindo loam, 3 to 8 percent slopes		265.2	2.3%
632	Travessilla-Raydawn-Sandoval-Rock outcrop complex, 5 to 45 percent slopes		170.6	1.5%
Subtotals for Soil Survey Area			**11,353.4**	**99.9%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Description

An ecological site name provides a general description of a particular ecological site. For example, "Loamy Upland" is the name of a rangeland ecological site. An "ecological site" is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. For example, the hydrology of the site is influenced by development of the soil and plant community. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service. Descriptions of those displayed in this map and summary table may also be accessed through the Ecological Site Assessment tab in Web Soil Survey.

Ecological sites and their respective unique set of characteristics are uniquely identified by the Ecological Site ID. The same Ecological Site Name may be assigned to multiple Ecological Site IDs. If you wish to display a map of unique ecological sites, it is recommended that you select the Ecological Site ID attribute from the choice list.

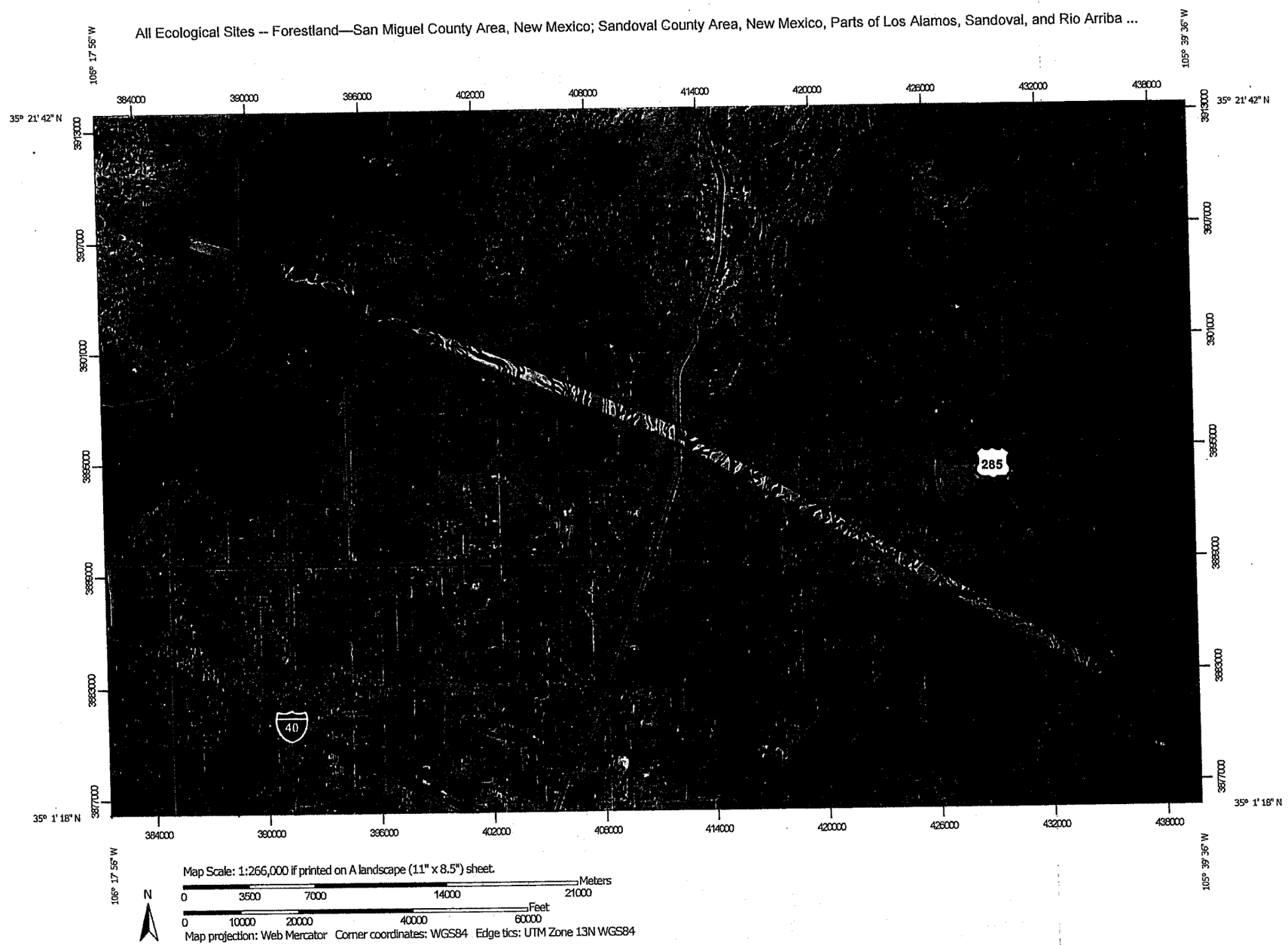
Rating Options

Class: NRCS Forestland Site

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower



USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

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

Soils

Soil Rating Polygons
- F035XG134NM
- F036XA136NM
- Not rated or not available

Soil Rating Lines
- F035XG134NM
- F036XA136NM
- Not rated or not available

Soil Rating Points
- F035XG134NM
- F036XA136NM
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:48,000.

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

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

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

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

Soil Survey Area: San Miguel County Area, New Mexico
Survey Area Data: Version 11, Sep 15, 2017

Soil Survey Area: Sandoval County Area, New Mexico, Parts of Los Alamos, Sandoval, and Rio Arriba Counties
Survey Area Data: Version 11, Sep 6, 2017

Soil Survey Area: Santa Fe County Area, New Mexico
Survey Area Data: Version 9, Sep 6, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

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

All Ecological Sites — Forestland

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
TD	Tapia-Dean association, undulating	Tapia (45%)		3.4	0.0%
		Dean (35%)			
		Minor components (1%)	F070AY022NM — Pinus ponderosa-Juniperus scopulorum/ Quercus gambleii		
		Laporte			
		Ribera			
		Rock outcrop			
		Tuloso			
		Vibo			
VB	Vibo-Ribera association, undulating	Vibo (50%)		2.4	0.0%
		Ribera (30%)			
		Minor components (1%)			
		Bernal			
		Manzano			
		Quintana			
		Sombordoro	F070AY021NM — Pinus edulus-Juniperus monosperma/ Quercus gambleii/ Bouteloua curtipendula		
		Teco			
Subtotals for Soil Survey Area				**5.9**	**0.1%**
Totals for Area of Interest				**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
53	Witt-Harvey association, 1 to 7 percent slopes	Witt (55%)		0.4	0.0%
		Harvey (30%)			
		Ildefonso (10%)			
		La Fonda (5%)			
59	Harvey-Ildefonso-La Fonda	Harvey (35%)		0.4	0.0%
		Ildefonso (35%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
	association, 3 to 15 percent slopes	La Fonda (15%)			
		Ildefonso (10%)			
		Witt (5%)			
Subtotals for Soil Survey Area				**0.8**	**0.0%**
Totals for Area of Interest				**11,360.1**	**100.0%**

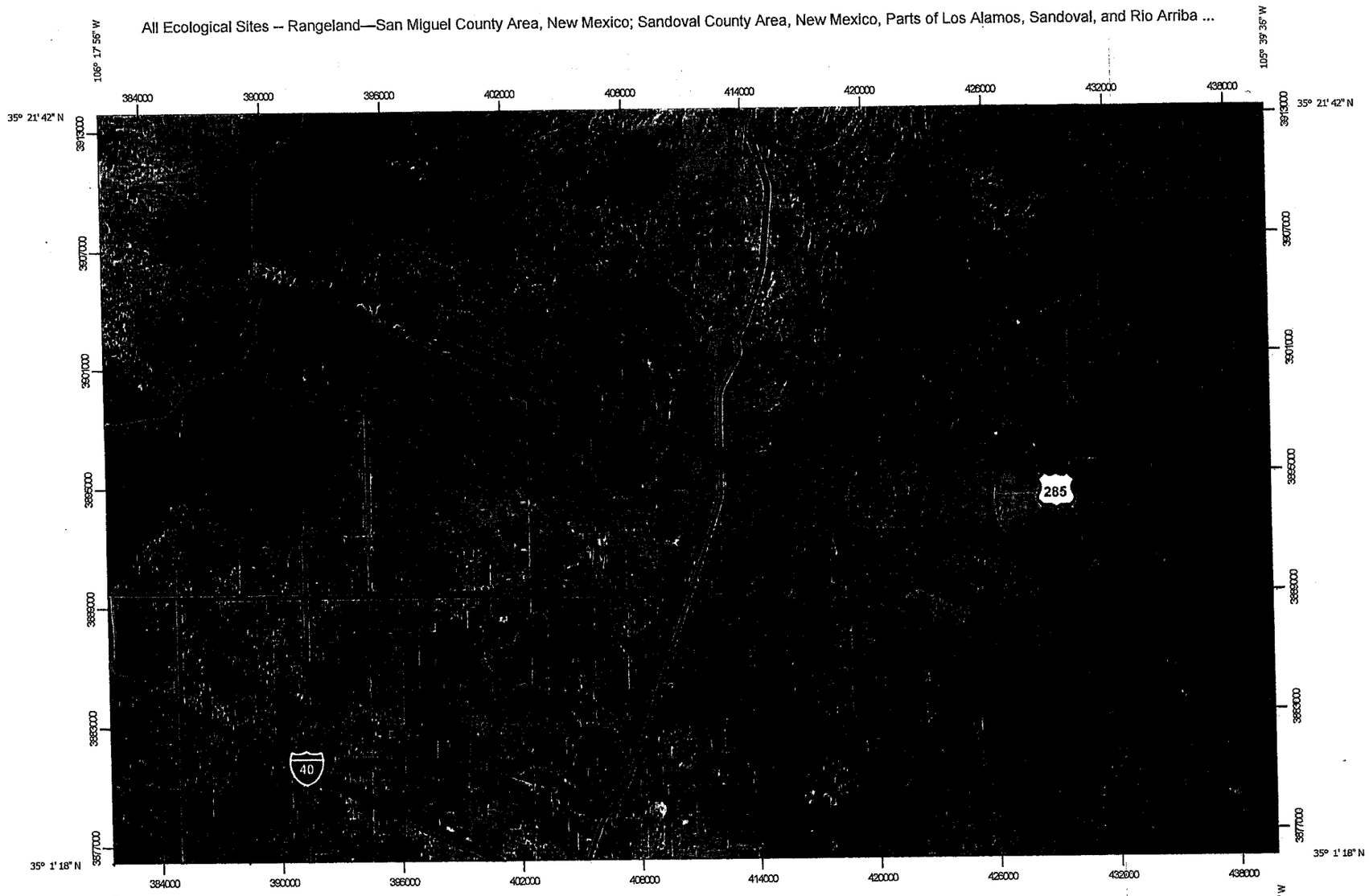
Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
106	Pits	Pits (80%)		7.1	0.1%
		Riovista (8%)			
		Devargas (4%)			
		Delvalle (3%)			
		Paraje (3%)			
		Agua Fria (2%)			
116	Arents-Urban land-Orthents complex, 1 to 60 percent slopes	Arents (50%)		18.6	0.2%
		Urban land (25%)			
		Orthents (20%)			
		Alire (1%)			
		Khapo (1%)			
		Panky (1%)			
		Predawn (1%)			
		Tanoan (1%)			
500	Sedillo very gravelly loam, 2 to 6 percent slopes	Sedillo (90%)	F036XA136NM —	388.5	3.4%
		Cerrillos (4%)			
		Ildefonso (3%)			
		Truehill (3%)			
501	Truehill extremely gravelly loam, 25 to 55 percent slopes	Truehill (90%)	F035XG134NM — Gravelly - Woodland	392.5	3.5%
		Ildefonso (5%)			
		Cerropelon (2%)			
		Sedillo (2%)			
		Rock outcrop (1%)			
510	Cerrillos-Sedillo complex, 1 to 5 percent slopes	Cerrillos (60%)		1,296.3	11.4%
		Sedillo (30%)			
		Penistaja family (5%)			
		Truehill (3%)			
		Ildefonso (2%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
511	Wandum-Alchonzo-Rubble land complex, 35 to 90 percent slopes	Wandurn (50%)	F035XG134NM — Gravelly - Woodland	7.0	0.1%
		Alchonzo (30%)	F048AY011NM —		
		Rubble land (10%)			
		Rock outcrop (6%)			
		Cochiti (3%)			
		Pastorius (1%)			
513	Pedregal very cobbly loam, 8 to 15 percent slopes	Pedregal (90%)	F036XA136NM —	509.7	4.5%
		Cochiti (6%)			
		Predawn (3%)			
		Pastorius (1%)			
521	Devargas-Riovista-Riverwash complex, 0 to 5 percent slopes, flooded	Devargas (50%)		40.4	0.4%
		Riovista (30%)			
		Riverwash (10%)			
		Penistaja family (6%)			
		Ildefonso (4%)			
522	Penistaja family fine sandy loam, 1 to 3 percent slopes	Penistaja family (90%)		22.9	0.2%
		Cerrillos (5%)			
		Ildefonso (4%)			
		Truehill (1%)			
534	Oelop-Charalito complex, 1 to 3 percent slopes	Oelop (70%)		373.6	3.3%
		Charalito (20%)			
		Sedillo (4%)			
		Hagerman (3%)			
		Riverwash (3%)			
600	Hyer-Witt complex, 1 to 3 percent slopes	Hyer (50%)		761.0	6.7%
		Witt (40%)			
		Harvey (4%)			
		Ildefonso (3%)			
		Palma (3%)			
601	Harvey loam, 3 to 12 percent slopes	Harvey (90%)		62.4	0.5%
		Palma (5%)			
		Lazarus (2%)			
		Witt (2%)			
		Hyer (1%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
602	Palma fine sandy loam, 3 to 8 percent slopes	Palma (90%)		223.3	2.0%
		Hyer (4%)			
		Harvey (3%)			
		Lazarus (2%)			
		Witt (1%)			
603	Lazarus silt loam, 0 to 2 percent slopes, flooded	Lazarus (90%)		305.0	2.7%
		Manzano (5%)			
		Harvey (3%)			
		Palma (2%)			
606	Pastura-Nala complex, 3 to 15 percent slopes	Nala (50%)		1,084.6	9.5%
		Pastura (40%)			
		Arojomil (5%)			
		Kinsell (3%)			
		Raydawn (2%)			
607	Davishat-Palma complex, 1 to 8 percent slopes	Davishat (45%)		123.7	1.1%
		Palma (45%)			
		Tamarindo (5%)			
		Raydawn (3%)			
		Davishat (2%)			
610	Arojomil-Tapia complex, 1 to 5 percent slopes	Arojomil (50%)		2,319.6	20.4%
		Tapia (40%)			
		Pastura (5%)			
		Nala (4%)			
		Raydawn (1%)			
613	Kinsell silt loam, 0 to 2 percent slopes, flooded	Kinsell (85%)		240.0	2.1%
		Kinsell, frequent flooding (9%)			
		Tamarindo (4%)			
		Gullied land (1%)			
		Riverwash (1%)			
615	Kwahe-Stanley complex, 0 to 1 percent slopes, ponded	Kwahe (55%)		1.0	0.0%
		Stanley (35%)			
		Triane (5%)			
		Clovis (3%)			
		Tamarindo (2%)			
616	Triane silty clay loam, 1 to 3 percent slopes	Triane (90%)		4.0	0.0%
		Kwahe (4%)			
		Stanley (3%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
		Clovis (2%)			
		Tamarindo (1%)			
617	Ranchos fine sandy loam, 3 to 8 percent slopes	Ranchos (90%)		211.9	1.9%
		Davishat (5%)			
		Chupadera (3%)			
		Clovis (2%)			
618	Davishat-Chupadera complex, 3 to 8 percent slopes	Davishat (55%)		308.7	2.7%
		Chupadera (35%)			
		Ranchos (5%)			
		Clovis (3%)			
		Tamarindo (2%)			
619	Villario-Puertecito complex, 25 to 45 percent slopes	Villario (60%)		1.9	0.0%
		Puertecito (30%)			
		Rock outcrop (5%)			
		Badland (3%)			
		Raydawn (2%)			
621	Kech-Horchata complex, 1 to 8 percent slopes	Kech (50%)		219.7	1.9%
		Horchata (40%)			
		Rock outcrop (5%)			
		Arojomil (3%)			
		Villario (2%)			
622	Arojomil silt loam, 1 to 3 percent slopes	Arojomil (90%)		778.1	6.8%
		Tapia (4%)			
		Clovis (2%)			
		Raydawn (2%)			
		Tamarindo (2%)			
623	Clovis loam, 3 to 8 percent slopes	Clovis (90%)		627.4	5.5%
		Chilerojo (3%)			
		Frajillo (3%)			
		Arojomil (2%)			
		Kinsell (2%)			
624	Clovis very fine sandy loam, 1 to 3 percent slopes	Clovis (90%)		48.0	0.4%
		Tamarindo (5%)			
		Arojomil (3%)			
		Tapia (2%)			
625	Raydawn very cobbly sandy loam, 15 to 35 percent slopes	Raydawn (90%)		97.0	0.9%
		Arojomil (4%)			
		Clovis (3%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
		Tapia (3%)			
626	Horchata loam, 3 to 8 percent slopes	Horchata (90%)		36.2	0.3%
		Kech (5%)			
		Clovis (3%)			
		Tamarindo (2%)			
627	Palabria-Frajillo complex, 1 to 8 percent slopes	Palabria (65%)		105.0	0.9%
		Frajillo (25%)			
		Chilerojo (4%)			
		Clovis (3%)			
		Tamarindo (3%)			
628	Nala gravelly fine sandy loam, 3 to 8 percent slopes	Nala (90%)		48.9	0.4%
		Pastura (5%)			
		Arojomil (3%)			
		Tapia (2%)			
629	Frajillo-Chilerojo complex, 5 to 15 percent slopes	Frajillo (55%)		253.4	2.2%
		Chilerojo (35%)			
		Tamarindo (4%)			
		Clovis (3%)			
		Palabria (3%)			
630	Tamarindo loam, 3 to 8 percent slopes	Tamarindo (90%)		265.2	2.3%
		Arojomil (5%)			
		Kinsell (3%)			
		Clovis (2%)			
632	Travessilla-Raydawn-Sandoval-Rock outcrop complex, 5 to 45 percent slopes	Travessilla (35%)		170.6	1.5%
		Raydawn (25%)			
		Sandoval (15%)			
		Rock outcrop (10%)			
		Villario (6%)			
		Kech (4%)			
Subtotals for Soil Survey Area				**11,353.4**	**99.9%**
Totals for Area of Interest				**11,360.1**	**100.0%**



USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

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

Soils

Soil Rating Polygons
- R035XA112NM
- R035XG129NM
- R036XB011NM
- R070CY101NM
- R070CY103NM
- R070CY104NM
- R070CY108NM
- R070CY109NM
- R070CY112NM
- R070CY113NM
- R070CY115NM
- R070CY119NM
- R070CY120NM
- Not rated or not available

Soil Rating Lines
- R035XA112NM
- R035XG129NM
- R036XB011NM
- R070CY101NM
- R070CY103NM
- R070CY104NM
- R070CY108NM
- R070CY109NM
- R070CY112NM
- R070CY113NM
- R070CY115NM
- R070CY119NM
- R070CY120NM
- Not rated or not available

Soil Rating Points
- R035XA112NM
- R035XG129NM
- R036XB011NM
- R070CY101NM
- R070CY103NM
- R070CY104NM
- R070CY108NM
- R070CY109NM
- R070CY112NM
- R070CY113NM
- R070CY115NM
- R070CY119NM
- R070CY120NM
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:48,000.

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

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

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

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

Soil Survey Area: San Miguel County Area, New Mexico
Survey Area Data: Version 11, Sep 15, 2017

Soil Survey Area: Sandoval County Area, New Mexico, Parts of Los Alamos, Sandoval, and Rio Arriba Counties
Survey Area Data: Version 11, Sep 6, 2017

Soil Survey Area: Santa Fe County Area, New Mexico
Survey Area Data: Version 9, Sep 6, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

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

All Ecological Sites — Rangeland

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
TD	Tapia-Dean association, undulating	Tapia (45%)	R070CY109NM — Loamy	3.4	0.0%
		Dean (35%)	R077BY016NM — Very Shallow		
		Minor components (1%)			
		Laporte	R070AY001NM — Loamy Upland		
		Ribera	R070CY109NM — Loamy		
		Rock outcrop			
		Tuloso	R070CY122NM — Shallow Sandy Savanna		
		Vibo	R036XB011NM — Sandy		
VB	Vibo-Ribera association, undulating	Vibo (50%)	R036XB011NM — Sandy	2.4	0.0%
		Ribera (30%)	R070CY112NM — Sandy		
		Minor components (1%)	R070AY018NM — Sandstone Savanna		
		Bernal	R070AY003NM — Shallow Upland		
		Manzano	R070AY001NM — Loamy Upland		
		Quintana	R070CY109NM — Loamy		
		Sombordoro			
		Teco	R070CY109NM — Loamy		
Subtotals for Soil Survey Area				**5.9**	**0.1%**
Totals for Area of Interest				**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
53	Witt-Harvey association, 1 to 7 percent slopes	Witt (55%)	R070CY109NM — Loamy	0.4	0.0%
		Harvey (30%)	R070CY108NM — Limy		

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
		Ildefonso (10%)	R070CY108NM — Limy		
		La Fonda (5%)	R070CY109NM — Loamy		
59	Harvey-Ildefonso-La Fonda association, 3 to 15 percent slopes	Harvey (35%)	R070CY108NM — Limy	0.4	0.0%
		Ildefonso (35%)	R070CY115NM — Breaks		
		La Fonda (15%)	R070CY109NM — Loamy		
		Ildefonso (10%)	R070CY115NM — Breaks		
		Witt (5%)	R070CY109NM — Loamy		
Subtotals for Soil Survey Area				**0.8**	**0.0%**
Totals for Area of Interest				**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
106	Pits	Pits (80%)		7.1	0.1%
		Riovista (8%)			
		Devargas (4%)			
		Delvalle (3%)			
		Paraje (3%)			
		Agua Fria (2%)			
116	Arents-Urban land-Orthents complex, 1 to 60 percent slopes	Arents (50%)		18.6	0.2%
		Urban land (25%)			
		Orthents (20%)			
		Alire (1%)			
		Khapo (1%)			
		Panky (1%)			
		Predawn (1%)			
		Tanoan (1%)			
500	Sedillo very gravelly loam, 2 to 6 percent slopes	Sedillo (90%)		388.5	3.4%
		Cerrillos (4%)			
		Ildefonso (3%)			
		Truehill (3%)			
501	Truehill extremely gravelly loam, 25 to 55 percent slopes	Truehill (90%)		392.5	3.5%
		Ildefonso (5%)			
		Cerropelon (2%)			
		Sedillo (2%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
		Rock outcrop (1%)			
510	Cerrillos-Sedillo complex, 1 to 5 percent slopes	Cerrillos (60%)	R035XA112NM — Loamy	1,296.3	11.4%
		Sedillo (30%)	R035XG114NM — Gravelly		
		Penistaja family (5%)			
		Truehill (3%)			
		Ildefonso (2%)			
511	Wandurn-Alchonzo-Rubble land complex, 35 to 90 percent slopes	Wandurn (50%)		7.0	0.1%
		Alchonzo (30%)			
		Rubble land (10%)			
		Rock outcrop (6%)			
		Cochiti (3%)			
		Pastorius (1%)			
513	Pedregal very cobbly loam, 8 to 15 percent slopes	Pedregal (90%)		509.7	4.5%
		Cochiti (6%)			
		Predawn (3%)			
		Pastorius (1%)			
521	Devargas-Riovista-Riverwash complex, 0 to 5 percent slopes, flooded	Devargas (50%)	R035XA112NM — Loamy	40.4	0.4%
		Riovista (30%)	R035XG114NM — Gravelly		
		Riverwash (10%)			
		Penistaja family (6%)			
		Ildefonso (4%)			
522	Penistaja family fine sandy loam, 1 to 3 percent slopes	Penistaja family (90%)	R035XA112NM — Loamy	22.9	0.2%
		Cerrillos (5%)			
		Ildefonso (4%)			
		Truehill (1%)			
534	Oelop-Charalito complex, 1 to 3 percent slopes	Oelop (70%)	R035XA112NM — Loamy	373.6	3.3%
		Charalito (20%)	R035XG114NM — Gravelly		
		Sedillo (4%)			
		Hagerman (3%)			
		Riverwash (3%)			
600	Hyer-Witt complex, 1 to 3 percent slopes	Hyer (50%)	R070CY109NM — Loamy	761.0	6.7%

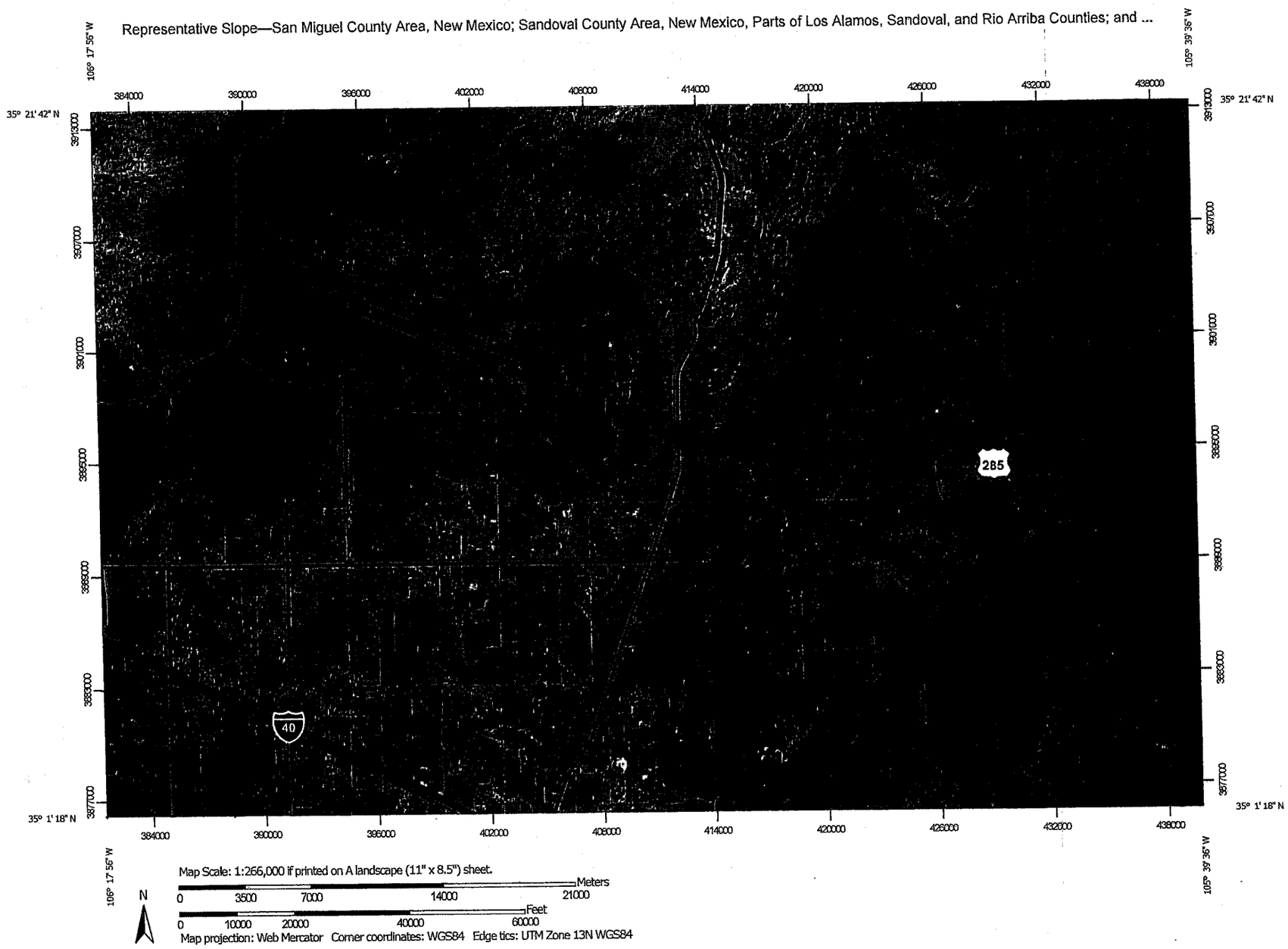
Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
			R070CY109NM — Loamy		
		Witt (40%)	R070CY109NM — Loamy		
			R070CY109NM — Loamy		
		Harvey (4%)			
		Ildefonso (3%)			
		Palma (3%)			
601	Harvey loam, 3 to 12 percent slopes	Harvey (90%)	R035XG129NM — Limy	62.4	0.5%
		Palma (5%)			
		Lazarus (2%)			
		Witt (2%)			
		Hyer (1%)			
602	Palma fine sandy loam, 3 to 8 percent slopes	Palma (90%)	R070CY112NM — Sandy	223.3	2.0%
		Hyer (4%)			
		Harvey (3%)			
		Lazarus (2%)			
		Witt (1%)			
603	Lazarus silt loam, 0 to 2 percent slopes, flooded	Lazarus (90%)	R070CY109NM — Loamy	305.0	2.7%
			R070CY109NM — Loamy		
		Manzano (5%)			
		Harvey (3%)			
		Palma (2%)			
606	Pastura-Nala complex, 3 to 15 percent slopes	Nala (50%)	R070CY108NM — Limy	1,084.6	9.5%
		Pastura (40%)	R070CY109NM — Loamy		
			R070CY109NM — Loamy		
		Arojomil (5%)			
		Kinsell (3%)			
		Raydawn (2%)			
607	Davishat-Palma complex, 1 to 8 percent slopes	Davishat (45%)	R070CY104NM — Deep Sand	123.7	1.1%
		Palma (45%)	R070CY112NM — Sandy		
		Tamarindo (5%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
		Raydawn (3%)			
		Davishat (2%)			
610	Arojomil-Tapia complex, 1 to 5 percent slopes	Arojomil (50%)	R070CY109NM — Loamy	2,319.6	20.4%
			R070CY109NM — Loamy		
		Tapia (40%)	R070CY109NM — Loamy		
			R070CY109NM — Loamy		
		Pastura (5%)			
		Nala (4%)			
		Raydawn (1%)			
613	Kinsell silt loam, 0 to 2 percent slopes, flooded	Kinsell (85%)	R070CY109NM — Loamy	240.0	2.1%
			R070CY109NM — Loamy		
		Kinsell, frequent flooding (9%)			
		Tamarindo (4%)			
		Gullied land (1%)			
		Riverwash (1%)			
615	Kwahe-Stanley complex, 0 to 1 percent slopes, ponded	Kwahe (55%)	R070CY101NM — Swale	1.0	0.0%
		Stanley (35%)	R070CY118NM — Salty Bottomland		
		Triane (5%)			
		Clovis (3%)			
		Tamarindo (2%)			
616	Triane silty clay loam, 1 to 3 percent slopes	Triane (90%)	R070CY103NM — Bottomland	4.0	0.0%
		Kwahe (4%)			
		Stanley (3%)			
		Clovis (2%)			
		Tamarindo (1%)			
617	Ranchos fine sandy loam, 3 to 8 percent slopes	Ranchos (90%)	R070CY109NM — Loamy	211.9	1.9%
			R070CY109NM — Loamy		
		Davishat (5%)			
		Chupadera (3%)			
		Clovis (2%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
618	Davishat-Chupadera complex, 3 to 8 percent slopes	Davishat (55%)	R070CY109NM — Loamy	308.7	2.7%
			R070CY109NM — Loamy		
		Chupadera (35%)	R070CY109NM — Loamy		
			R070CY109NM — Loamy		
		Ranchos (5%)			
		Clovis (3%)			
		Tamarindo (2%)			
619	Villario-Puertecito complex, 25 to 45 percent slopes	Villario (60%)	R070CY113NM — Shallow	1.9	0.0%
		Puertecito (30%)	R070CY106NM — Hills		
		Rock outcrop (5%)			
		Badland (3%)			
		Raydawn (2%)			
621	Kech-Horchata complex, 1 to 8 percent slopes	Kech (50%)	R070CY113NM — Shallow	219.7	1.9%
		Horchata (40%)	R070CY109NM — Loamy		
			R070CY109NM — Loamy		
		Rock outcrop (5%)			
		Arojomil (3%)			
		Villario (2%)			
622	Arojomil silt loam, 1 to 3 percent slopes	Arojomil (90%)	R070CY109NM — Loamy	778.1	6.8%
			R070CY109NM — Loamy		
		Tapia (4%)			
		Clovis (2%)			
		Raydawn (2%)			
		Tamarindo (2%)			
623	Clovis loam, 3 to 8 percent slopes	Clovis (90%)	R070CY109NM — Loamy	627.4	5.5%
			R070CY109NM — Loamy		
		Chilerojo (3%)			
		Frajillo (3%)			
		Arojomil (2%)			
		Kinsell (2%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
624	Clovis very fine sandy loam, 1 to 3 percent slopes	Clovis (90%)	R070CY109NM — Loamy	48.0	0.4%
			R070CY109NM — Loamy		
		Tamarindo (5%)			
		Arojomil (3%)			
		Tapia (2%)			
625	Raydawn very cobbly sandy loam, 15 to 35 percent slopes	Raydawn (90%)	R070CY119NM — Gravelly	97.0	0.9%
		Arojomil (4%)			
		Clovis (3%)			
		Tapia (3%)			
626	Horchata loam, 3 to 8 percent slopes	Horchata (90%)	R070CY109NM — Loamy	36.2	0.3%
			R070CY109NM — Loamy		
		Kech (5%)			
		Clovis (3%)			
		Tamarindo (2%)			
627	Palabria-Frajillo complex, 1 to 8 percent slopes	Palabria (65%)	R070CY109NM — Loamy	105.0	0.9%
			R070CY109NM — Loamy		
		Frajillo (25%)	R070CY120NM — Shallow Plains		
		Chilerojo (4%)			
		Clovis (3%)			
		Tamarindo (3%)			
628	Nala gravelly fine sandy loam, 3 to 8 percent slopes	Nala (90%)	R070CY108NM — Limy	48.9	0.4%
		Pastura (5%)			
		Arojomil (3%)			
		Tapia (2%)			
629	Frajillo-Chilerojo complex, 5 to 15 percent slopes	Frajillo (55%)	R070CY120NM — Shallow Plains	253.4	2.2%
		Chilerojo (35%)	R070CY109NM — Loamy		
			R070CY109NM — Loamy		
		Tamarindo (4%)			
		Clovis (3%)			
		Palabria (3%)			

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
630	Tamarindo loam, 3 to 8 percent slopes	Tamarindo (90%)	R070CY109NM — Loamy	265.2	2.3%
			R070CY109NM — Loamy		
		Arojomil (5%)			
		Kinsell (3%)			
		Clovis (2%)			
632	Travessilla-Raydawn-Sandoval-Rock outcrop complex, 5 to 45 percent slopes	Travessilla (35%)	R070CY120NM — Shallow Plains	170.6	1.5%
		Raydawn (25%)	R070CY104NM — Deep Sand		
		Sandoval (15%)	R035XA130NM — Shale Hills 10-14"p.z. (Provisional)		
		Rock outcrop (10%)			
		Villario (6%)			
		Kech (4%)			
Subtotals for Soil Survey Area				**11,353.4**	**99.9%**
Totals for Area of Interest				**11,360.1**	**100.0%**



USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

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

Soils

Soil Rating Polygons
- 60 - 100
- 45 - 60
- 15 - 45
- 5 - 15
- 0 - 5
- Not rated or not available

Soil Rating Lines
- 60 - 100
- 45 - 60
- 15 - 45
- 5 - 15
- 0 - 5
- Not rated or not available

Soil Rating Points
- 60 - 100
- 45 - 60
- 15 - 45
- 5 - 15
- 0 - 5
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:48,000.

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

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

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

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

Soil Survey Area: San Miguel County Area, New Mexico
Survey Area Data: Version 11, Sep 15, 2017

Soil Survey Area: Sandoval County Area, New Mexico, Parts of Los Alamos, Sandoval, and Rio Arriba Counties
Survey Area Data: Version 11, Sep 6, 2017

Soil Survey Area: Santa Fe County Area, New Mexico
Survey Area Data: Version 9, Sep 6, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

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

Representative Slope

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
TD	Tapia-Dean association, undulating	3.0	3.4	0.0%
VB	Vibo-Ribera association, undulating	3.0	2.4	0.0%
Subtotals for Soil Survey Area			**5.9**	**0.1%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
53	Witt-Harvey association, 1 to 7 percent slopes	4.0	0.4	0.0%
59	Harvey-Ildefonso-La Fonda association, 3 to 15 percent slopes	11.0	0.4	0.0%
Subtotals for Soil Survey Area			**0.8**	**0.0%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
106	Pits	5.0	7.1	0.1%
116	Arents-Urban land-Orthents complex, 1 to 60 percent slopes	39.0	18.6	0.2%
500	Sedillo very gravelly loam, 2 to 6 percent slopes	3.0	388.5	3.4%
501	Truehill extremely gravelly loam, 25 to 55 percent slopes	28.0	392.5	3.5%
510	Cerrillos-Sedillo complex, 1 to 5 percent slopes	2.0	1,296.3	11.4%
511	Wandurn-Alchonzo-Rubble land complex, 35 to 90 percent slopes	56.0	7.0	0.1%
513	Pedregal very cobbly loam, 8 to 15 percent slopes	11.0	509.7	4.5%
521	Devargas-Riovista-Riverwash complex, 0 to 5 percent slopes, flooded	3.0	40.4	0.4%

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
522	Penistaja family fine sandy loam, 1 to 3 percent slopes	2.0	22.9	0.2%
534	Oelop-Charalito complex, 1 to 3 percent slopes	2.0	373.6	3.3%
600	Hyer-Witt complex, 1 to 3 percent slopes	2.0	761.0	6.7%
601	Harvey loam, 3 to 12 percent slopes	8.0	62.4	0.5%
602	Palma fine sandy loam, 3 to 8 percent slopes	6.0	223.3	2.0%
603	Lazarus silt loam, 0 to 2 percent slopes, flooded	1.0	305.0	2.7%
606	Pastura-Nala complex, 3 to 15 percent slopes	12.0	1,084.6	9.5%
607	Davishat-Palma complex, 1 to 8 percent slopes	3.0	123.7	1.1%
610	Arojomil-Tapia complex, 1 to 5 percent slopes	3.0	2,319.6	20.4%
613	Kinsell silt loam, 0 to 2 percent slopes, flooded	1.0	240.0	2.1%
615	Kwahe-Stanley complex, 0 to 1 percent slopes, ponded	0.5	1.0	0.0%
616	Triane silty clay loam, 1 to 3 percent slopes	1.0	4.0	0.0%
617	Ranchos fine sandy loam, 3 to 8 percent slopes	6.0	211.9	1.9%
618	Davishat-Chupadera complex, 3 to 8 percent slopes	6.0	308.7	2.7%
619	Villario-Puertecito complex, 25 to 45 percent slopes	35.0	1.9	0.0%
621	Kech-Horchata complex, 1 to 8 percent slopes	6.0	219.7	1.9%
622	Arojomil silt loam, 1 to 3 percent slopes	3.0	778.1	6.8%
623	Clovis loam, 3 to 8 percent slopes	5.0	627.4	5.5%
624	Clovis very fine sandy loam, 1 to 3 percent slopes	1.0	48.0	0.4%

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
625	Raydawn very cobbly sandy loam, 15 to 35 percent slopes	25.0	97.0	0.9%
626	Horchata loam, 3 to 8 percent slopes	6.0	36.2	0.3%
627	Palabria-Frajillo complex, 1 to 8 percent slopes	2.0	105.0	0.9%
628	Nala gravelly fine sandy loam, 3 to 8 percent slopes	4.0	48.9	0.4%
629	Frajillo-Chilerojo complex, 5 to 15 percent slopes	8.0	253.4	2.2%
630	Tamarindo loam, 3 to 8 percent slopes	7.0	265.2	2.3%
632	Travessilla-Raydawn-Sandoval-Rock outcrop complex, 5 to 45 percent slopes	8.0	170.6	1.5%
Subtotals for Soil Survey Area			**11,353.4**	**99.9%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Description

Slope gradient is the difference in elevation between two points, expressed as a percentage of the distance between those points.

The slope gradient is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

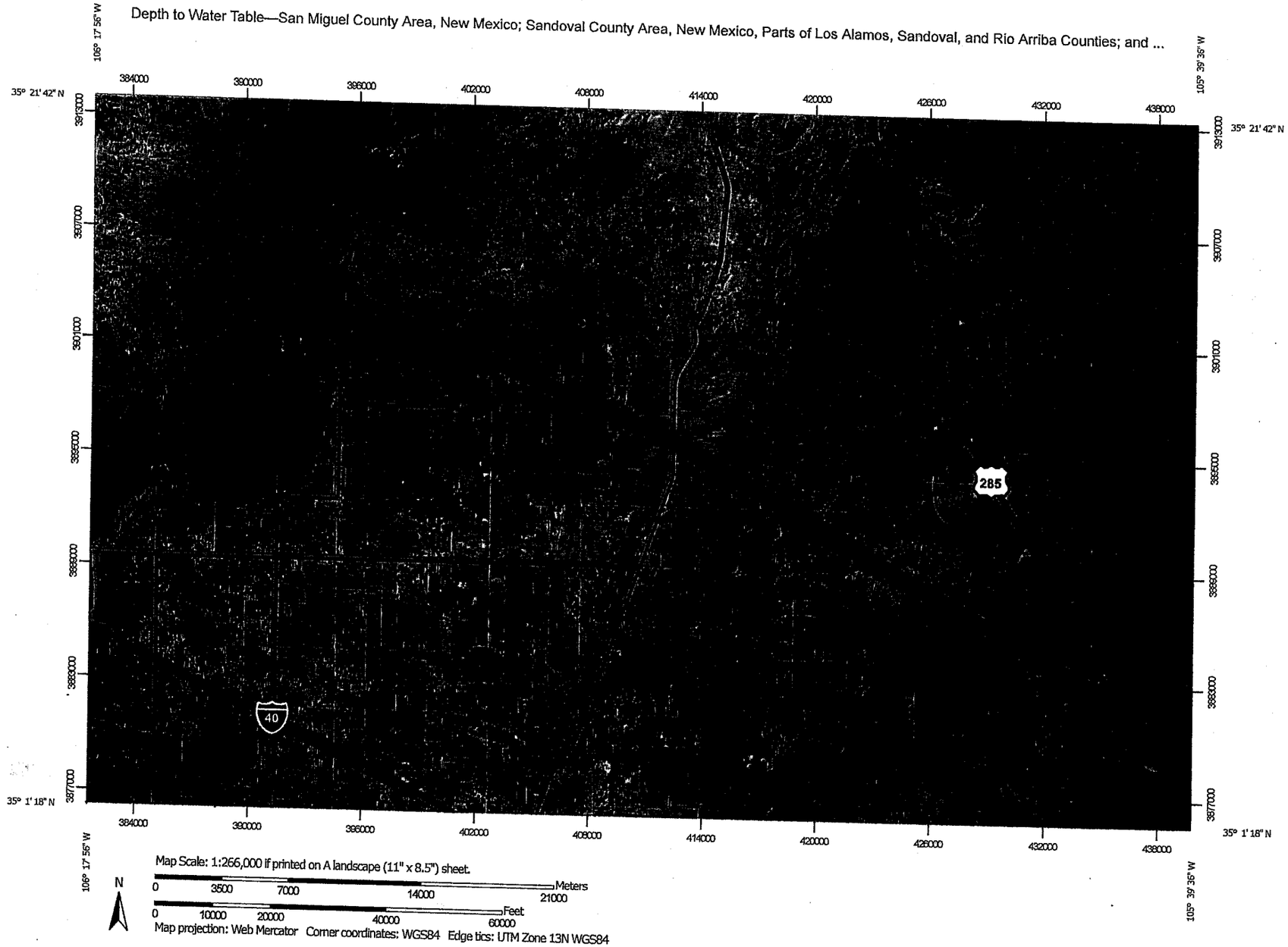
Units of Measure: percent

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Interpret Nulls as Zero: No



USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

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

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:48,000.

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

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

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

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

Soil Survey Area: San Miguel County Area, New Mexico
Survey Area Data: Version 11, Sep 15, 2017

Soil Survey Area: Sandoval County Area, New Mexico, Parts of Los Alamos, Sandoval, and Rio Arriba Counties
Survey Area Data: Version 11, Sep 6, 2017

Soil Survey Area: Santa Fe County Area, New Mexico
Survey Area Data: Version 9, Sep 6, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

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

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
TD	Tapia-Dean association, undulating	>200	3.4	0.0%
VB	Vibo-Ribera association, undulating	>200	2.4	0.0%
Subtotals for Soil Survey Area			**5.9**	**0.1%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
53	Witt-Harvey association, 1 to 7 percent slopes	>200	0.4	0.0%
59	Harvey-Ildefonso-La Fonda association, 3 to 15 percent slopes	>200	0.4	0.0%
Subtotals for Soil Survey Area			**0.8**	**0.0%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
106	Pits	>200	7.1	0.1%
116	Arents-Urban land-Orthents complex, 1 to 60 percent slopes	>200	18.6	0.2%
500	Sedillo very gravelly loam, 2 to 6 percent slopes	>200	388.5	3.4%
501	Truehill extremely gravelly loam, 25 to 55 percent slopes	>200	392.5	3.5%
510	Cerrillos-Sedillo complex, 1 to 5 percent slopes	>200	1,296.3	11.4%
511	Wandurn-Alchonzo-Rubble land complex, 35 to 90 percent slopes	>200	7.0	0.1%
513	Pedregal very cobbly loam, 8 to 15 percent slopes	>200	509.7	4.5%
521	Devargas-Riovista-Riverwash complex, 0 to 5 percent slopes, flooded	>200	40.4	0.4%

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
522	Penistaja family fine sandy loam, 1 to 3 percent slopes	>200	22.9	0.2%
534	Oelop-Charalito complex, 1 to 3 percent slopes	>200	373.6	3.3%
600	Hyer-Witt complex, 1 to 3 percent slopes	>200	761.0	6.7%
601	Harvey loam, 3 to 12 percent slopes	>200	62.4	0.5%
602	Palma fine sandy loam, 3 to 8 percent slopes	>200	223.3	2.0%
603	Lazarus silt loam, 0 to 2 percent slopes, flooded	>200	305.0	2.7%
606	Pastura-Nala complex, 3 to 15 percent slopes	>200	1,084.6	9.5%
607	Davishat-Palma complex, 1 to 8 percent slopes	>200	123.7	1.1%
610	Arojomil-Tapia complex, 1 to 5 percent slopes	>200	2,319.6	20.4%
613	Kinsell silt loam, 0 to 2 percent slopes, flooded	>200	240.0	2.1%
615	Kwahe-Stanley complex, 0 to 1 percent slopes, ponded	>200	1.0	0.0%
616	Triane silty clay loam, 1 to 3 percent slopes	>200	4.0	0.0%
617	Ranchos fine sandy loam, 3 to 8 percent slopes	>200	211.9	1.9%
618	Davishat-Chupadera complex, 3 to 8 percent slopes	>200	308.7	2.7%
619	Villario-Puertecito complex, 25 to 45 percent slopes	>200	1.9	0.0%
621	Kech-Horchata complex, 1 to 8 percent slopes	>200	219.7	1.9%
622	Arojomil silt loam, 1 to 3 percent slopes	>200	778.1	6.8%
623	Clovis loam, 3 to 8 percent slopes	>200	627.4	5.5%
624	Clovis very fine sandy loam, 1 to 3 percent slopes	>200	48.0	0.4%

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
625	Raydawn very cobbly sandy loam, 15 to 35 percent slopes	>200	97.0	0.9%
626	Horchata loam, 3 to 8 percent slopes	>200	36.2	0.3%
627	Palabria-Frajillo complex, 1 to 8 percent slopes	>200	105.0	0.9%
628	Nala gravelly fine sandy loam, 3 to 8 percent slopes	>200	48.9	0.4%
629	Frajillo-Chilerojo complex, 5 to 15 percent slopes	>200	253.4	2.2%
630	Tamarindo loam, 3 to 8 percent slopes	>200	265.2	2.3%
632	Travessilla-Raydawn-Sandoval-Rock outcrop complex, 5 to 45 percent slopes	>200	170.6	1.5%
Subtotals for Soil Survey Area			**11,353.4**	**99.9%**
Totals for Area of Interest			**11,360.1**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

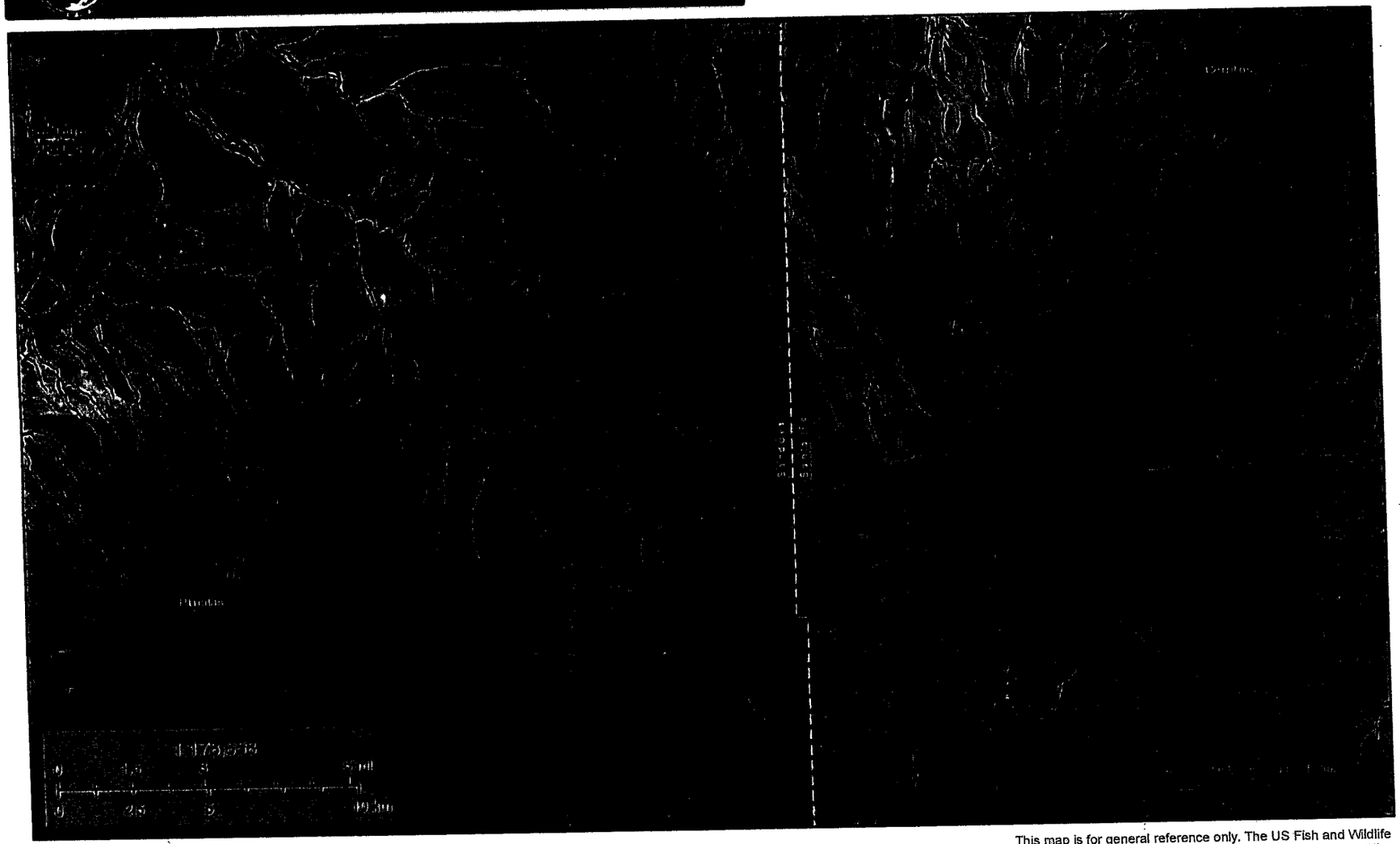
Beginning Month: January

Ending Month: December

U.S. Fish and Wildlife Service

National Wetlands Inventory

PNM ESandoval WSanta Fe



March 27, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

U.S. Fish and Wildlife Service

National Wetlands Inventory

Esanta fe

March 27, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

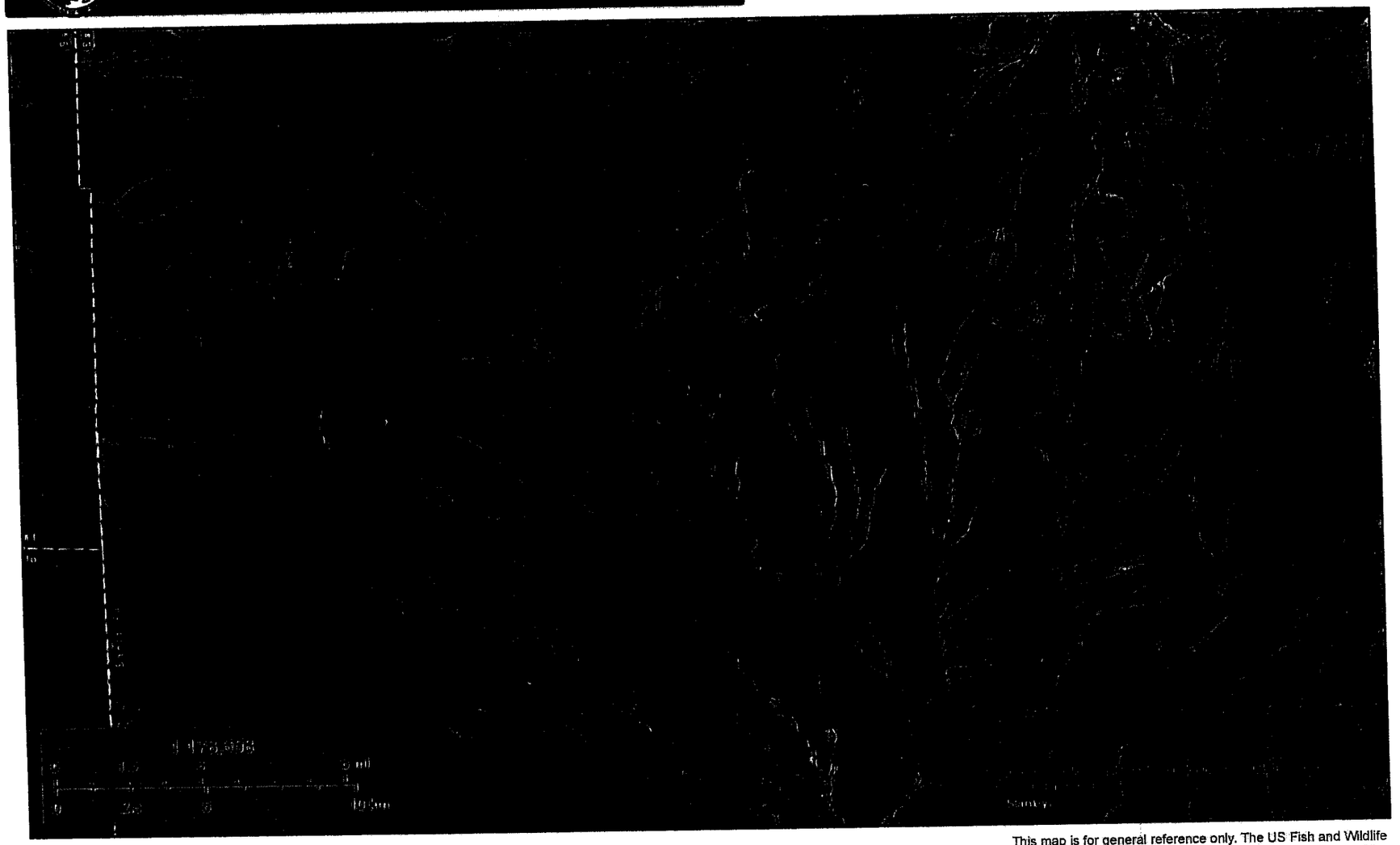
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service

National Wetlands Inventory

central santafe



March 27, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

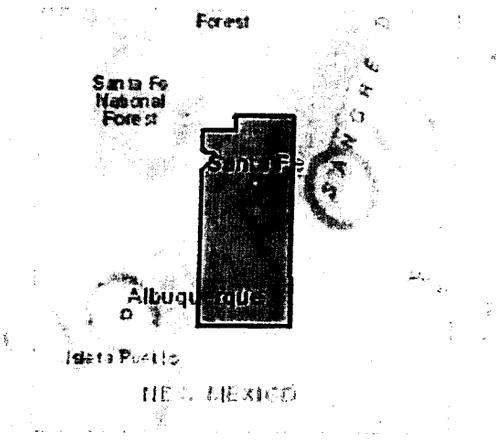
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Santa Fe County, New Mexico



Local office

New Mexico Ecological Services Field Office

(505) 346-2525
(505) 346-2542

2105 Osuna Road Ne
Albuquerque, NM 87113-1001

http://www.fws.gov/southwest/es/NewMexico/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

New Mexico Meadow Jumping Mouse Zapus hudsonius luteus This species only needs to be considered if the following condition applies: • If project affects dense herbaceous riparian vegetation along waterways (stream, seep, canal/ditch). There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7965	Endangered

Birds

NAME	STATUS
Mexican Spotted Owl Strix occidentalis lucida There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8196	Threatened
Southwestern Willow Flycatcher Empidonax traillii extimus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo Coccyzus americanus There is **proposed** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Mexican Spotted Owl Strix occidentalis lucida https://ecos.fws.gov/ecp/species/8196#crithab	Final
Yellow-billed Cuckoo Coccyzus americanus https://ecos.fws.gov/ecp/species/3911#crithab	Proposed

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see maps of where birders and the general public have sighted birds in and around your project area, visit E-bird tools such as the E-bird data mapping tool (search for the name of a bird on your list to see specific locations where that bird has been reported to occur within your project area over a certain timeframe) and the E-bird Explore Data Tool (perform a query to see a list of all birds sighted in your county or region and within a certain timeframe). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE.

"BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus — Breeds Dec 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Bendire's Thrasher Toxostoma bendirei — Breeds Mar 15 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9435

Black Swift Cypseloides niger — Breeds Jun 15 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

Black-chinned Sparrow Spizella atrogularis — Breeds Apr 15 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9447

Brewer's Sparrow Spizella breweri — Breeds May 15 to Aug 10
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9291

Brown-capped Rosy-finch Leucosticte australis — Breeds Jun 15 to Sep 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Burrowing Owl Athene cunicularia — Breeds Mar 15 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9737

Chestnut-collared Longspur Calcarius ornatus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/1680

Grace's Warbler Dendroica graciae — Breeds May 20 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Gray Vireo Vireo vicinior — Breeds May 10 to Aug 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8680

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Lewis's Woodpecker Melanerpes lewis — Breeds Apr 20 to Sep 30
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9408

Long-billed Curlew Numenius americanus — Breeds Apr 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Mountain Plover Charadrius montanus — Breeds Apr 15 to Aug 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3638

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Pinyon Jay Gymnorhinus cyanocephalus — Breeds Feb 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9420

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Virginia's Warbler Vermivora virginiae — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9441

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Willow Flycatcher Empidonax traillii — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/3482

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds.

Probability of Presence (▣)

Each green bar represents the bird's relative probability of presence in your project's counties during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

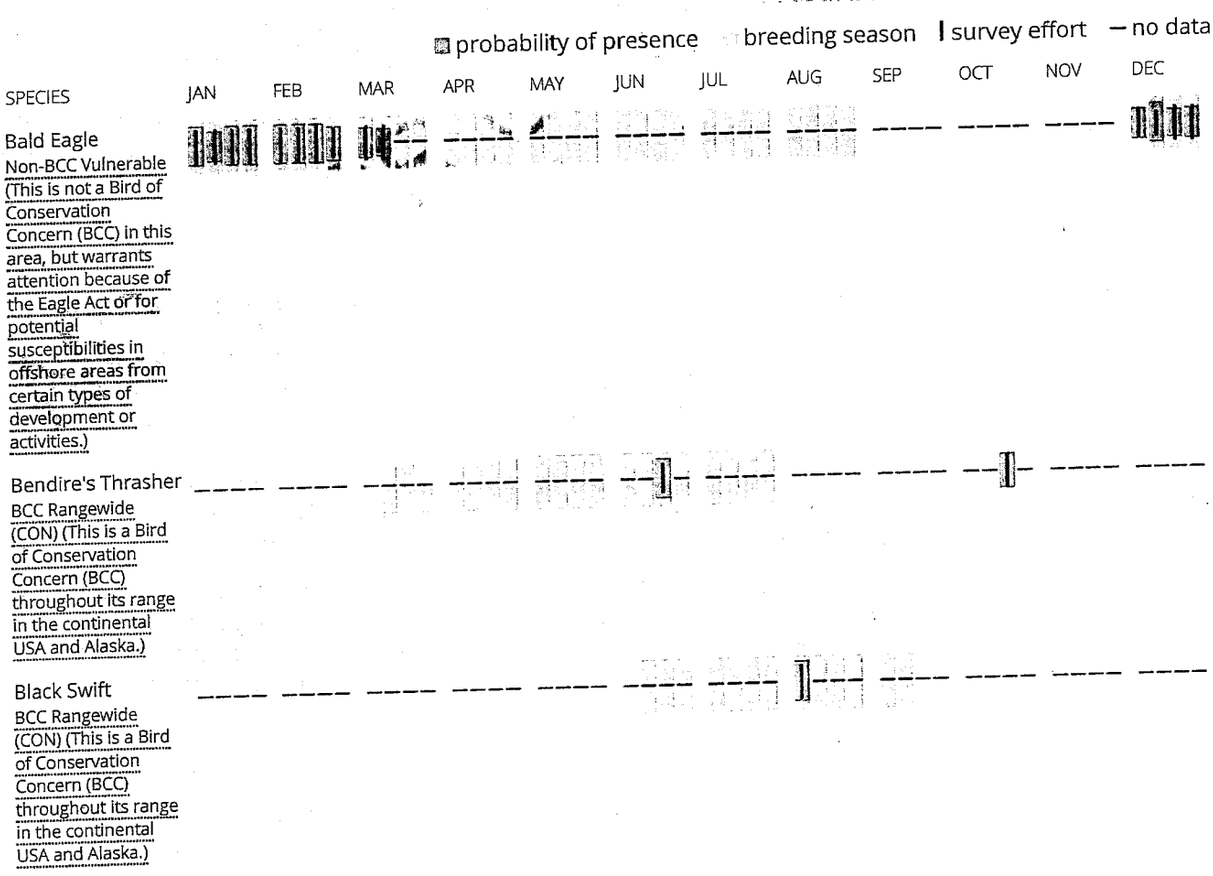
Breeding Season (i)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

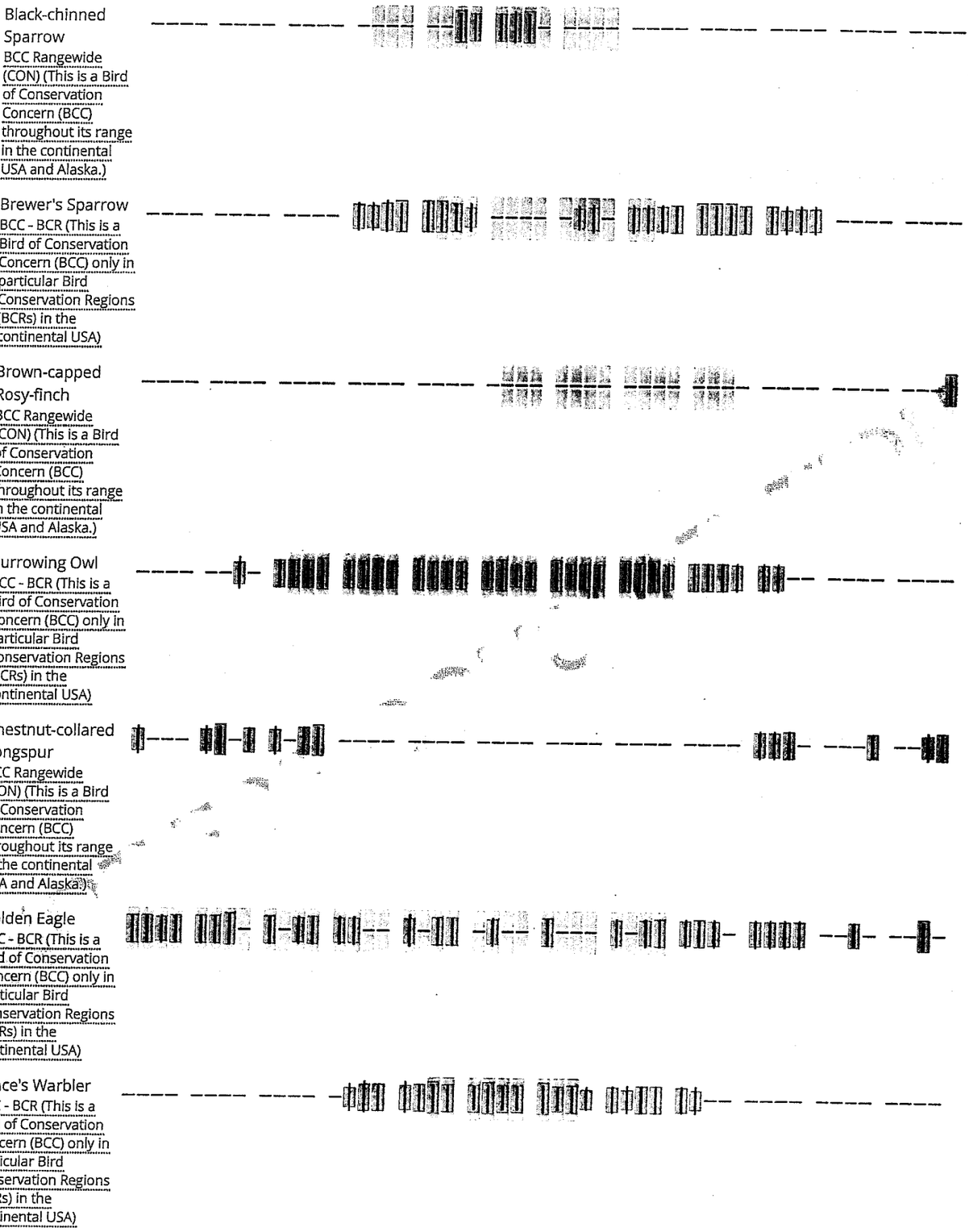
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the counties of your project area. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information.

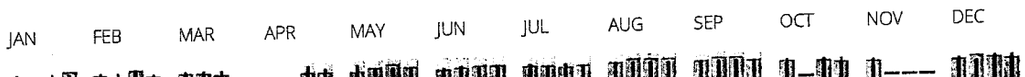




Gray Vireo
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

SPECIES



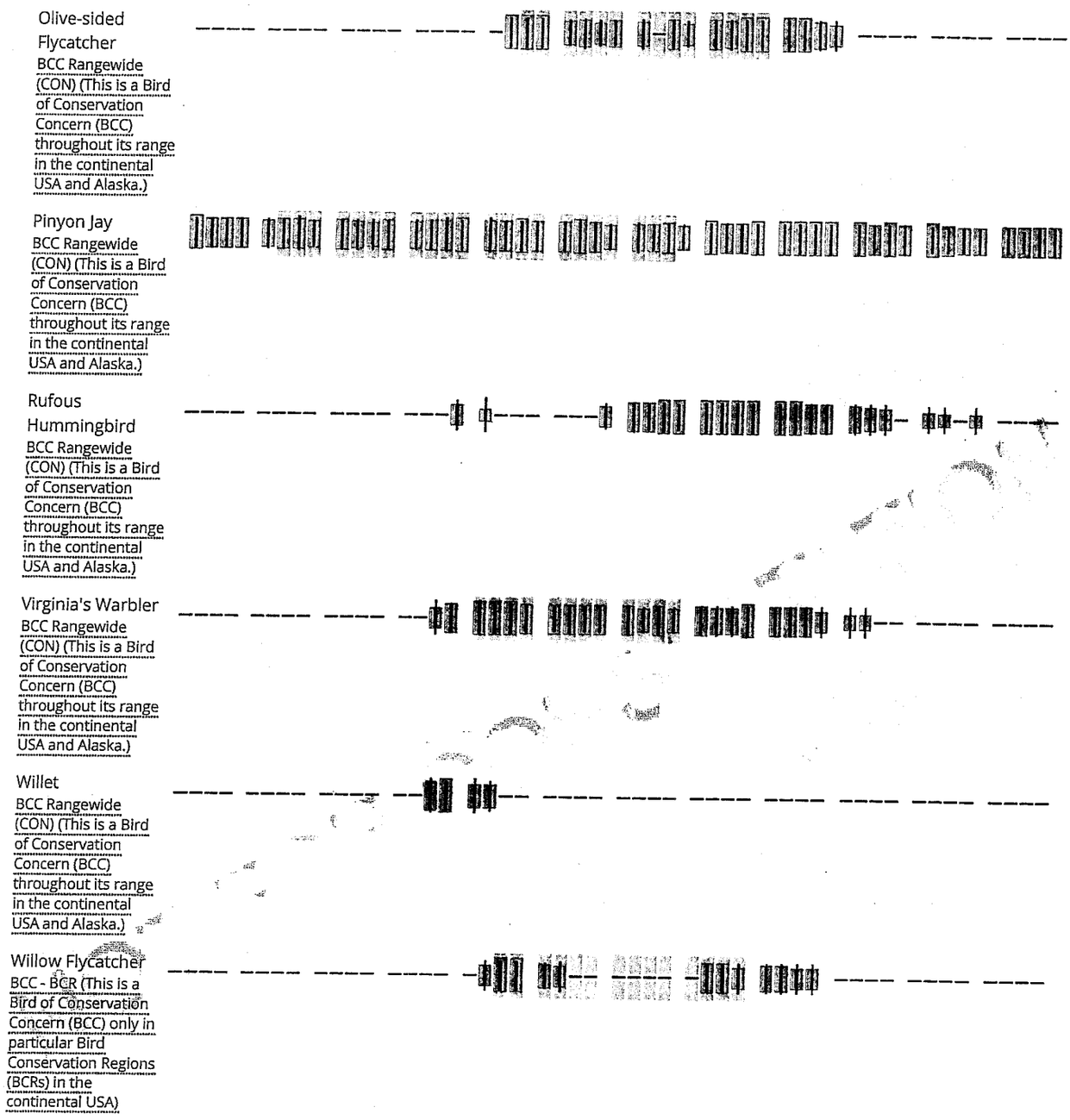
Lewis's Woodpecker
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Long-billed Curlew
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Long-eared Owl
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Marbled Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Mountain Plover
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Olive-sided Flycatcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Pinyon Jay
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Virginia's Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willow Flycatcher
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the counties which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird entry on your migratory bird species list indicates a breeding season, it is probable that the bird breeds in your project's counties at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review.

Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the BGEPA should such impacts occur.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

The area of this project is too large for IPaC to load all NWI wetlands in the area. The list below may be incomplete. Please contact the local U.S. Fish and Wildlife Service office or visit the NWI map for a full list.

FRESHWATER EMERGENT WETLAND

- PEM1B
- PEM1/SS1A
- PEM1A
- PEM1C
- PEM1E
- PEM
- PEM1/SS1B
- PEM1/SS1C
- PEM1J
- PEM1/SS1E
- PEM1Ah
- PEM1Cx
- PEM1Eh
- PEM1Fh
- PEM1Ax
- PEM1Fx
- PEM1/SS1J
- PEM1Jh

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1B
- PFO1A
- PFO1E
- PSS1/2A
- PFO1B
- PSS1A
- PSS
- PFO1/SS1B
- PFO1/SS2A
- PSS1/4B
- PSS1/2C
- PSS1E
- PFO1/SS2C
- PFO1/SS1E
- PFO1/SS1Ax
- PSS1C
- PSS2A
- PFO1C
- PFO1/4B
- PFO1J
- PFO1/SS1A

PSS1J
PFO1/EM1B
PSS1Ch
PSSC
PSS1Cx

FRESHWATER POND
PUB
PUSCh
PUBHx
PUSAh
PUBKFh
PUBH
PUBFx
PUS
PUBKx
PUBFh
PUBHh
PUBF
PUSCx
PUSC
PUSAx
PUBh
PUSJh
PUBHb

LAKE
L

RIVERINE
R4SBC
R4SB
R5UBH
R4SBA
R4USA
R3USA
R5UB
R4USC
R4USAx
R5UBFx

A full description for each wetland code can be found at the National Wetlands Inventory website: https://ecos.fws.gov/ipac/wetlands/decoder

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error

is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Biota Information System of New Mexico

Database Query

Your search terms were as follows:

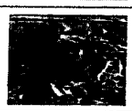
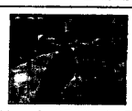
County Name
Santa Fe

Status
State NM: Endangered
State NM: Threatened

13 species returned.

Taxonomic Group	# Species	Taxonomic Group	# Species
Birds	10	Molluscs	1
Mammals	2		

Export to Excel

Species ID	Common Name	Scientific Name	Photo	USGS Distribution Map	County	Status
050095	**Spotted Bat**	Euderma maculatum			Santa Fe	State NM: Threatened
050335	**Pacific Marten**	Martes caurina		no map	Santa Fe	State NM: Threatened
041530	**White-tailed Ptarmigan**	Lagopus leucura		no map	Santa Fe	State NM: Endangered
040370	**Bald Eagle**	Haliaeetus leucocephalus			Santa Fe	State NM: Threatened
040384	**Peregrine Falcon**	Falco peregrinus		no map	Santa Fe	State NM: Threatened
040385	**Arctic Peregrine Falcon**	Falco peregrinus tundrius	no photo	no map	Santa Fe	State NM: Threatened
042070	**Least Tern**	Sternula antillarum			Santa Fe	State NM: Endangered
041315	**Boreal Owl**	Aegolius funereus	no photo		Santa Fe	State NM: Threatened
040950	**Violet-crowned Hummingbird**	Amazilia violiceps			Santa Fe	State NM: Threatened
040521	**Southwestern Willow Flycatcher**	Empidonax traillii extimus		no map	Santa Fe	State NM: Endangered

042200	**Gray Vireo**	Vireo vicinior			Santa Fe	State NM: Threatened
041785	**Baird's Sparrow**	Ammodramus bairdii			Santa Fe	State NM: Threatened
060100	**Lilljeborg's Peaclam**	Pisidium lilljeborgi	no photo	no map	Santa Fe	State NM: Threatened

Close Window

NEW MEXICO STATE ENDANGERED PLANT SPECIES (19.21.2.8 NMAC)

Detailed information and images of many of these and other rare plants can be found at the New Mexico Rare Plants website (**http://nmrareplants.unm.edu/index.html**) (plants marked with an * are not listed on the NMRPTC website)

Botanical Name	Common Name	New Mexico Counties
Aliciella formosa	Aztec gilia	San Juan
Allium gooddingii	Goodding's onion	San Juan, McKinley, Catron, Lincoln, Santa Fe
Amsonia tharpii	Tharp's bluestar	Eddy
Argemone pleiacantha subsp. pinnatisecta (A. pinnatisecta)	Sacramento prickly poppy	Otero
Astragalus humillimus	Mancos milkvetch	San Juan
Cirsium vinaceum	Sacramento Mountains thistle	Otero
Cirsium wrightii	Wright's marsh thistle	Chaves, Grant, Guadalupe, Otero, Sierra, Socorro
Cleome multicaulis (Peritoma multicaulis)	slender spiderflower	Grant, Hidalgo
Coryphantha scheeri var. scheeri	Scheer's pincushion cactus	Chavez, Eddy
Cylindropuntia viridiflora	Santa Fe cholla	Santa Fe
Cypripedium parviflorum var. pubescens *	golden lady's slipper	San Juan, Grant, San Miguel
Echinocereus fendleri var. kuenzleri	Kuenzler's hedgehog cactus	Chavez, Eddy, Lincoln, Otero
Erigeron hessii	Hess' fleabane	Catron
Erigeron rhizomatus	Zuni fleabane	Catron, McKinley, San Juan
Eriogonum gypsophilum	gypsum wild buckwheat	Eddy
Escobaria duncanii	Duncan's pincushion cactus	Sierra
Escobaria organensis	Organ Mountain pincushion cactus	Doña Ana
Escobaria sneedii var. leei	Lee's pincushion cactus	Eddy

Escobaria sneedii var. sneedii	Sneed's pincushion cactus	Doña Ana
Escobaria villardii	Villard's pincushion cactus	Doña Ana, Otero
Hedeoma todsenii	Todsen's pennyroyal	Otero, Sierra
Helianthus paradoxus	Pecos sunflower	Cibola, Valencia, Socorro, Guadalupe, Chavez
Hexalectris nitida	shining coralroot	Eddy, Otero
Hexalectris spicata *	crested coralroot	Sierra, Otero, Hidalgo
Ipomopsis sancti-spiritus	Holy Ghost ipomopsis	San Miguel
Lepidospartum burgessii	gypsum scalebroom	Otero
Lilium philadelphicum *	wood lily	Otero, Los Alamos, Sandoval, San Miguel, Santa Fe
Mammillaria wrightii var. wilcoxii *	Wilcox pincushion cactus	Hidalgo, Grant, Doña Ana, Luna
Opuntia arenaria	sand prickly pear	Doña Ana, Luna, Socorro
Pediocactus knowltonii	Knowlton's cactus	San Juan
Pediomelum pentaphyllum	Chihuahua scurfpea	Hidalgo
Peniocereus greggii	night-blooming cereus	Doña Ana, Grant, Hidalgo, Luna
Polygala rimulicola var. mescalerorum	San Andres milkwort	Doña Ana
Puccinellia parishii	Parish's alkali grass	Catron, Cibola, Grant, Hidalgo, McKinley, Sandoval, San Juan
Sclerocactus cloveriae subsp. brackii	Brack's cactus	San Juan, Rio Arriba, Sandoval
Sclerocactus mesae-verdae	Mesa Verde cactus	San Juan
Spiranthes magnicamporum *	lady tresses orchid	Bernalillo, Santa Fe, Guadalupe, Rio Arriba

APPENDIX C

Geotechnical Engineering Report Excerpts

12 copies - LE COPY

FINAL GEOTECHNICAL INVESTIGATION REPORT

Eastern Interconnection Project

BA Station to Santa Rosa, New Mexico

SHB Job No. E83-1050

SERGENT, HAUSKINS & BECKWITH

Consulting Geotechnical Engineers

PHOENIX • ALBUQUERQUE • SANTA FE • SALT LAKE CITY

SHB

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SHB Job No. H83-1050

Eastern Interconnection Project
BA Station to Santa Rosa, New Mexico
SHB Job No. E83-1050

1. INTRODUCTION

This report is submitted pursuant to a final geotechnical investigation performed by this firm of a portion of the proposed Eastern Interconnection Project. This portion of the line extends from Tower 29 of the BA to Norton 345 kV Transmission Line in Sandoval County to a point northeast of Santa Rosa in Guadalupe County, New Mexico. The object of this investigation was to make an evaluation of the geotechnical profile underlying the proposed alignment to provide detailed information relative to tower foundation design. A preliminary geotechnical investigation report for this alignment has been previously submitted.

2. PROJECT DESCRIPTION

Preliminary details of the proposed construction were provided by Mr. Blake Forbes of Public Service Company of New Mexico. It is understood that the majority of the proposed 345 kV transmission line will be supported on steel truss, guyed vee structures utilizing a center support and four tension anchors. Angle and line dead-end structures, as well as some long span tangent structures, will be 4-legged, self-supporting, steel truss-type towers. Foundation loads are not known at this time, however, based on experience with other projects of this type, it is anticipated that tangent towers will have uplift loads generally ranging between 60 and 100 kips, while downward loads will be slightly

greater. Somewhat heavier loads will be involved for angle and line dead-end structures, possibly ranging to as much as 200 kips in tension. All foundations will be drilled, cast-in-place concrete piers.

Should details during final design vary significantly from those outlined above, this firm should be notified for possible revision of recommended design parameters.

3. INVESTIGATION

A preliminary investigation consisting of a program of an aerial reconnaissance, limited exploratory borings, and laboratory testing was previously submitted as stated earlier.

This investigation consisted of a detailed drilling program over as much of the alignment as possible, laboratory testing, and in situ testing utilizing the Menard Pressuremeter as described in the following sections of this report. Surface exposure of soils and rock along the alignment was examined and noted during the course of the field investigation. Generally, borings were drilled on existing dirt roads which crossed the alignment. Estimates relative to the anticipated subsurface conditions involved in geologic areas which were not drilled were made in the field based upon surface exposure and information obtained from published geologic literature.

Locations of the borings were determined beforehand to allow notification of landowners by right-of-way personnel. Locations in the field were approximate as no staking had been performed. Ground surface elevations are not provided.

Locations for in situ testing were determined after review of the results of the drilling program with PNM project personnel.

3.1 Field Investigation

A total of 71 borings were drilled along this section of the alignment, including those from the preliminary investigation. Test drilling was performed using a truck-mounted CME-55 drill rig, generally utilizing 6½ inch O.D. hollow stem auger. Standard penetration testing was performed at frequent intervals and open-end drive samples were taken in the borings. In areas of alignment where subsurface conditions were similar, the soils were periodically probed utilizing a 4½ inch diameter conventional flight auger.

During test drilling, the soils and/or rock encountered were continuously examined, visually classified, and logged. The soils were logged in accordance with the Unified Soil Classification System, a description of which is presented in Appendix A. The rock encountered when augering was logged with an attempt to estimate hardness and drillability of the particular rock formation. Other characteristics of the rock, such as the

degree of weathering, fracturing, and other discontinuities, were not readily discernible in the auger borings, although estimates were made and logged.

Results of the field investigation are presented in Appendix A, which includes a brief description of test drilling equipment and procedures and logs of the test borings. Approximate centerline stationing is noted on the boring logs. Generally, the borings were drilled on or near the edge of existing dirt roads.

3.2 Laboratory Analysis

Moisture content determinations were made on selected samples recovered, while dry densities were determined for all 2.42 inch "relatively undisturbed" samples recovered. Test results are shown on the boring logs.

Grain-size analysis and Atterberg limits tests were performed on selected samples to aid in classification. In addition, direct shear tests were performed on the "relatively undisturbed" samples recovered. The results of these tests are presented in Appendix B, along with a brief description of soil mechanics testing procedures.

3.3 Menard Pressuremeter Testing

Pressuremeter tests were performed at selected intervals in five selected borings along the alignment. The tests were located at depths such that a minimum of one test was executed per material type.

Borings for the pressuremeter tests were advanced in overburden soils using 3 inch O.D. open-end drive samplers. One test was performed in a boring advanced with a 2 inch O.D. split spoon sampler. When rock was encountered, either 2-7/8 inch diameter drag bits with carbide inserts or 2-15/16 inch diameter tricone gear bits were used in combination with rotary drilling using air as a drilling fluid.

The pressuremeter testing was performed by Mr. Clyde R. Anderson. Results of this testing are included in Appendix C of this report.

4. GEOLOGY

4.1 Regional Geology

The referenced power line is underlain by soil/rocks from Quaternary to Permian in age. These include, from youngest to oldest, alluvial valley fill deposits, alluvial fan deposits and residual alluvium of Quaternary age, undivided rocks of Cretaceous and Jurassic age, the Santa Rosa Formation of Triassic age and the Artesia Group, San Andreas Formation, Glorieta Sandstone and Yeso Formation of Permian age (1)*.

*Numbers in parentheses correspond to references listed at end of report.

The alluvial valley fill deposits occur in the larger valleys and consist of silty sand and silty clay. The alluvial fan deposits occur adjacent to the mountains and consist of silty sand, gravel and cobbles. The residual deposits result from the in-place weathering of surficially exposed rock, and vary in composition from sand to clay, depending upon the parent material. The older rocks of Permian through Cretaceous age generally consist of sandstone with some interbedded siltstones, limestones, shales and possibly minor evaporites.

4.2 Site Geology

For analysis, the alignment has been divided into areas of similar geologic conditions. These areas are referenced below by stationing, as established by PNM on Revision 1 of the proposed route. Some of the areas have been adjusted somewhat from the preliminary analysis and are reflected in the stationing.

A major reroute of the alignment was made during the investigation. The reroute was essentially drilled except the portion from station 3800+00 to 4400+00 for which there was no right-of-way permission granted. Our stationing of that reroute was derived by scaling the plan sheets.

The following descriptions deal only with shallow subsurface conditions. Conditions encountered during the final field investigation which varied significantly from estimated conditions reported in our preliminary analysis are noted in the individual sections.

Separate small ridges and valleys form as a result of their tilted orientation. The slightly harder sandstones form the ridges, and the less resistant shales form the intervening valleys. Minor dikes crosscut the above rocks. These dikes probably are of a basalt composition and are hard, dark gray and moderately fractured. Some faults may also occur in this segment.

The area near the wash is predominantly silty sand and gravel overlying the aforementioned rock. Free water was encountered at a depth of approximately 17½ feet. After removal of the auger, the hole was open to only 16½ feet, indicating caving of the hole below the water table.

Section 3, Stationing 380+00 (P.I. No. 3) to 1830+00

This section is characterized by relatively thick alluvial fan deposits. Previously, the first portion of it was estimated to be predominantly coarse grained material to station 1000+00, with fine grained material over the remainder.

The detailed investigation shows the gravel to be incontinuous over the first portion. Instead, the sand-gravel-cobble mixtures are the predominant material type over smaller areas from station 380+00 to 450+00, station 600+00 to 715+00, and station 830+00 to 930+00. The remainder of this section contains relatively fine grained soils consisting of interbedded sandy clay and clayey sand with occasional strata of sand-gravel

mixtures. These deposits are lime cemented below 3 to 4 feet, and hard. The thickness of these soils is estimated to be in excess of 30 feet.

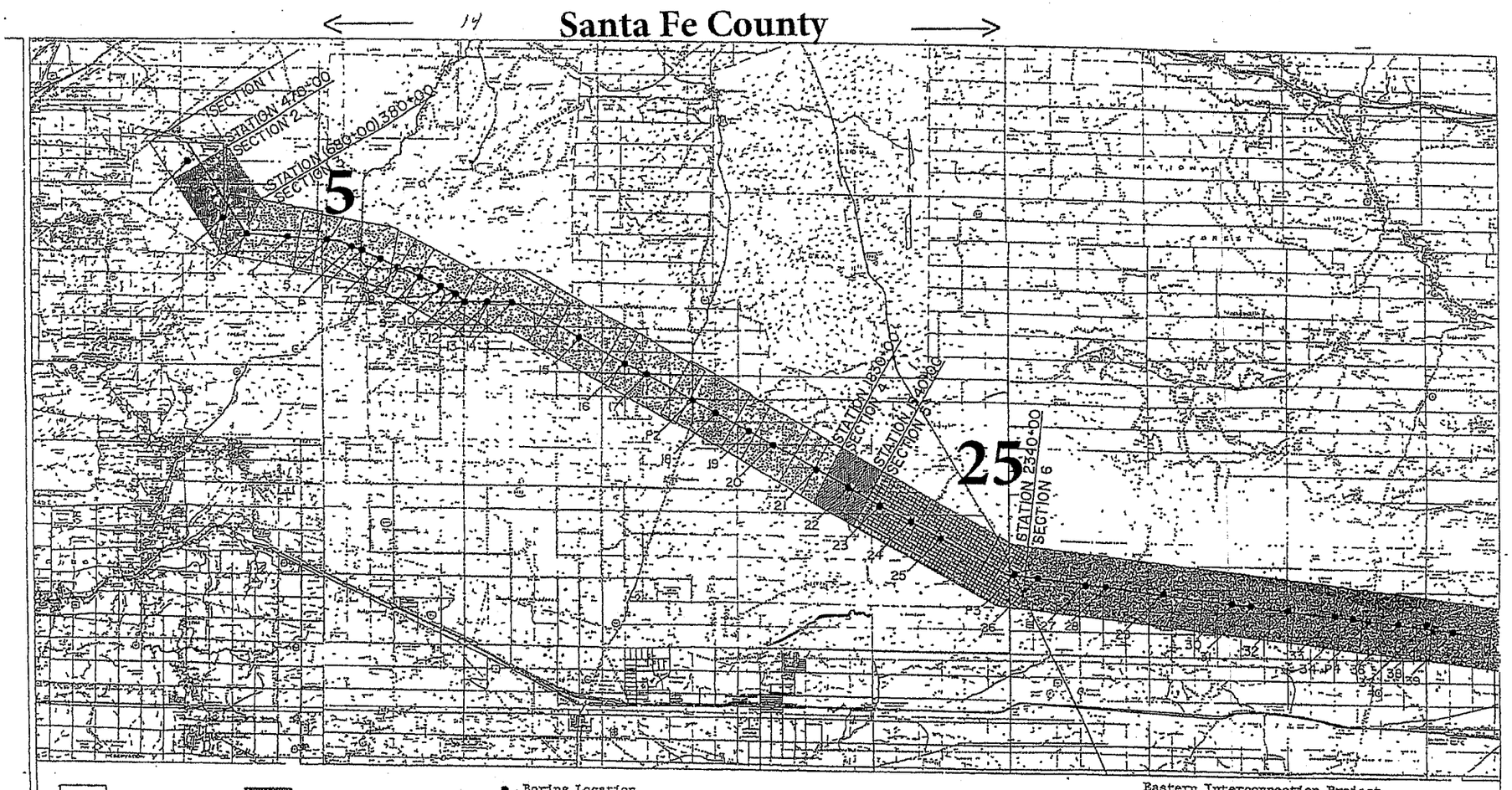
Section 4, Stationing 1830+00 to 1940+00

This area is characterized by outcrops of Triassic to Permian rocks which are locally overlain by thin deposits of residual alluvium. The alluvium consists of silty clay and silty sand, and reaches thicknesses of approximately 3 feet. The Triassic to Permian rocks consist predominantly of sandstones with interbedded siltstones, shales and limestones. These rocks are slightly to moderately weathered, moderately soft, and vary in color from light gray to red to yellowish-brown. The sandstone is the least weathered and most resistant unit.

The valleys can be expected to contain up to and over 15 feet of alluvium as noted during the investigation.

Section 5, Stationing 1940+00 to 2340+00

This section is characterized by relatively deep alluvium consisting of interbedded silty and clayey sands and sandy clays. These materials become cemented and hard with depth and are estimated to be in excess of 30 feet in thickness over the majority of this section. Shale was encountered at a depth of 15 feet at one boring location, however, this is thought to be an isolated case.


14
Santa Fe County
SECTION 1
STATION 470+00
SECTION 2
STATION (68@100) 3680+00
SECTION 3
5
STATION 1830+00
SECTION 4
STATION 2160+00
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5 - Boring Location
Eastern Interconnection Project
BA Station to Santa Rosa, New Mexico
SHB Job No. E83-1050
Prepared For:
PNM
PUBLIC SERVICE COMPANY OF NEW MEXICO
345 KV TRANSMISSION LINE
EASTERN INTERCONNECTION PROJECT A-5
Reference Drawing
Provided by PNM
SERGENT, HAUSKINS & BECKWITH
CONSULTING SOIL AND FOUNDATION ENGINEERS

PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-14-83

LOG OF TEST BORING NO. 5

Location: Station 555+00

RIG TYPE CME-55

BORING TYPE 6½" Hollow Stem Auger

SURFACE ELEV.

DATUM

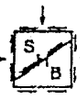
Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S	11		10		moderately firm to hard	SANDY CLAY, considerable silt, occasional gravel, low plasticity, brown
5				U	25	86	6	CL-ML		
10				S	98		6		hard	CLAYEY SAND & GRAVEL, low plasticity, brown
15				S	50/1½" (no recovery)			GC		
20				S	45		5	SM	very firm	SILTY SAND, trace of clay, predominantly fine, very low plasticity, tan
25				S	75		5	CL	hard	SANDY CLAY, moderately cemented, low plasticity, brown
30										Stopped auger at 24'6" Stopped sampler at 26'

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample
S – 2" O.D. 1.38" I.D. tube sample.
U – 3" O.D. 2.42" I.D. tube sample.



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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-14-83

LOG OF TEST BORING NO. 6

Location: Station 615+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth In Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								CL		SANDY CLAY, low plasticity, brown
5								GC		CLAYEY SAND & GRAVEL, low plasticity, brown
20								SM		SILTY SAND, some gravel, predominantly fine, nonplastic, brown
25										Stopped auger at 25'
30										

A-12

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

U – 3" O.D. 2.42" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-14-83

LOG OF TEST BORING NO. 7

Location: Station 675+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content, Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										CLAYEY SAND & GRAVEL, low plasticity, brown
5								GC		
10								CL		SANDY CLAY, low plasticity, brown
15										
20								CC		CLAYEY SAND & GRAVEL, low plasticity, brown
25								SC		CLAYEY SAND, predominantly fine, low plasticity, brown
30										Stopped auger at 25'

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

U – 3" O.D. 2.42" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-14-83

LOG OF TEST BORING NO. 8

Location: Station 722+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										SANDY CLAY, occasional gravel, low plasticity, brown
5								CL		
10										
										CLAYEY SAND, some gravel, predominantly fine, low plasticity, brown
15								SC		
										CLAYEY SAND & GRAVEL, low plasticity, brown
20								GC		
25										Stopped auger at 25'
30										

GROUND WATER

DEPTH	HOUR	DATE
	none	

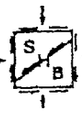
SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

U – 3" O.D. 2.42" I.D. tube sample.

T – 3" O.D. thin-walled Shelby tube.



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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-14-83

LOG OF TEST BORING NO. 9

Location: Station 765+00

RIG TYPE CME-55

BORING TYPE 6½" Hollow Stem Auger & 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0									firm to hard	SANDY SILT, some clay, low plasticity, brown
				S	15		10			
								ML		
5				U	51	95	6			
										CLAYEY GRAVEL & COBBLES, low plasticity, brown
					HSA refused at 9'					
10					Began CFA			GC		
										CLAYEY SAND, predominantly fine to medium, low plasticity, brown
15								SC		
										SANDY CLAY, low plasticity, brown
20								CL		
25										Stopped auger at 25'
30										

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-14-83

LOG OF TEST BORING NO. 10

Location: Station 818+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										SANDY CLAY, occasional gravel, low plasticity, brown
5								CL		
10										
15								SC		CLAYEY SAND, predominantly fine, low plasticity, brown
20								GC		CLAYEY GRAVEL, low plasticity, brown
								CL		SANDY CLAY, low plasticity, brown
25										Stopped auger at 25'
30										

A-16

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

U – 3" O.D. 2.42" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-14-83

LOG OF TEST BORING NO. 11

Location: Station 857+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								CL		SANDY CLAY, low plasticity, brown
5										CLAYEY SAND & GRAVEL, low plasticity, brown
10								GC		
15										
20										Auger refused at 20'6"
25										

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

U – 3" O.D. 2.42" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-15-83

LOG OF TEST BORING NO. 12

Location: Station 900+00

RIG TYPE CME-55

BORING TYPE 6½" Hollow Stem Auger & 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth In Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			☒	S	19		9	CL	firm	SANDY CLAY, occasional gravel, low plasticity, brown
5			☒	S	24-50/6"		3		hard	CLAYEY GRAVEL, COBBLES & BOULDERS, low plasticity, brown
			▨	S	50/5"	HSA refused at 10'	1			
10						Began CFA				
								GC		
15										
20										
25										Stopped auger at 25'
30										

A-18

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample
S – 2" O.D. 1.38" I.D. tube sample.
U – 3" O.D. 2.42" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-15-83

LOG OF TEST BORING NO. 13

Location: Station 948+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										SANDY CLAY, low plasticity, brown
5								CL		
10										
15								SC		CLAYEY SAND, occasional gravel, predominantly fine, low plasticity, tan
20								CL		SANDY CLAY, low plasticity, tan
25								GC		CLAYEY GRAVEL, low plasticity, tan
30										Stopped auger at 25'

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A — Auger cuttings. B — Block sample

S — 2" O.D. 1.38" I.D. tube sample.

U — 3" O.D. 2.42" I.D. tube sample.

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LOG OF TEST BORING NO. 14

PROJECT Eastern Interconnection Project
JOB NO. E83-1050 DATE 6-15-83

Location: Station 1012+00
RIG TYPE CME-55
BORING TYPE 6½" Hollow Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb., 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			☒	S	12		9	CL	moderately firm to very firm	SANDY CLAY, low to medium plasticity, brown
5			☒	S	34		10			
10			☒	S	23		10	ML CL	firm.	SANDY SILT, some clay, low plasticity, brown
15			☒	S	25-50/6"		9	CL	hard	SANDY CLAY, moderately cemented, low plasticity, brown
20			☒	S	61		7			
25			☒	S	41-50/3"		9			Stopped auger at 24'6" Sampler refused at 25'3"
30										

GROUND WATER

DEPTH	HOUR	DATE

SAMPLE TYPE
A – Auger cuttings. B – Block sample
S – 2" O.D. 1.38" I.D. tube sample.

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CONSULTING GEOTECHNICAL ENGINEERS

PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-15-83

LOG OF TEST BORING NO. 15

Location: Station 1713+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								CL		SANDY CLAY, low plasticity, brown
5								CL		CALICHE SANDY CLAY, strongly cemented, low plasticity, white
10								SC		CALICHE CLAYEY SAND, predominantly fine, strongly cemented, low plasticity, white
15										
20								GC		CLAYEY SAND & GRAVEL, strongly cemented, low plasticity, white
25										Stopped auger at 25'
30										

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

S B

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 7-13-83

LOG OF TEST BORING NO. 16

Location: Station 1293+00

RIG TYPE CME-75

BORING TYPE 4½" Flight Auger

SURFACE ELEV.

DATUM

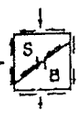
Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								CL		SANDY CLAY, low plasticity, brown
								SC		CLAYEY SAND, predominantly fine, low plasticity, white note: strongly cemented caliche
5										
10								CL		SANDY CLAY, weakly to moderately cemented, low plasticity, light brown note: thin stringer of gravel at 14'
15										
								GC		CLAYEY SAND & GRAVEL, low plasticity, light brown
20								CL		SANDY CLAY, low plasticity, light brown
								GC		CLAYEY SAND & GRAVEL, low plasticity, light brown
25										Auger refused at 23'6"

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample
S – 2" O.D. 1.38" I.D. tube sample.
U – 3" O.D. 2.42" I.D. tube sample.
T – 3" O.D. thin-walled Shelby tube.



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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 7-13-83

LOG OF TEST BORING NO. 17

Location: Station 1352+00

RIG TYPE CME-75

BORING TYPE 4½" Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								CL		SANDY CLAY, low plasticity, brown note: occasional gravel
5								GC		CLAYEY SAND & GRAVEL, low plasticity, brown
10								SC		CLAYEY SAND, predominantly fine, low plasticity, brown
15								GC		CLAYEY SAND & GRAVEL, low plasticity, brown
20								SC		CLAYEY SAND, predominantly fine, low plasticity, brown
25								GC		CLAYEY SAND & GRAVEL, low plasticity, brown Stopped auger at 25'

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-15-83

LOG OF TEST BORING NO. 18

Location: Station 1533+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										SANDY CLAY, low plasticity, brown note: becomes moderately cemented at 7'
5								CL		
10										
15								SC		CLAYEY SAND, occasional gravel, predominantly fine, low plasticity, reddish-tan
20								CL		SANDY CLAY, occasional gravel, low plasticity, reddish-tan
25										Stopped auger at 25'
30										

A-24

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample
S – 2" O.D. 1.38" I.D. tube sample.
U – 3" O.D. 2.42" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-15-83

LOG OF TEST BORING NO. 19

Location: Station 1623+00

RIG TYPE CME-55

BORING TYPE 6½" Hollow Stem Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0				S	5		5	SC	soft	CLAYEY SAND, predominantly fine, low plasticity, brown
5				S	8		5	CL	soft	SANDY CLAY, low plasticity, brown
10				U	58		5	SP	hard	SAND, trace of clay, predominantly medium, low plasticity to non-plastic, brown
15				S	82		11	SC	hard	CLAYEY SAND, predominantly medium, low plasticity, brown
20				S	55		5	SP	hard	SAND, trace of clay, predominantly medium, low plasticity to non-plastic, brown
25				S	60		15		hard	Intercalated SANDY SILT, CLAYEY SAND & SANDY CLAY, low plasticity, brown
30										Stopped auger at 24'6" Stopped sampler at 26'

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

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A-25

PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-15-83

LOG OF TEST BORING NO. 20

Location: Station 1689+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										SANDY CLAY, low plasticity, brown
5								CL		
10								SC		CLAYEY SAND, predominantly fine, low plasticity, reddish-tan
15										
20								SP SC		SAND, some clay & gravel, predominantly medium, low plasticity, reddish-brown
								CL		SANDY CLAY, medium plasticity, brown
25										Stopped auger at 25'
30										

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

U – 3" O.D. 2.42" I.D. tube sample.

S B

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 7-12-83

LOG OF TEST BORING NO. 21

Location: Station 1787+00

RIG TYPE CME-75

BORING TYPE 4½" Flight Auger

SURFACE ELEV.

DATUM

Depth In Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										SANDY CLAY, low plasticity, brown to white note: moderately cemented from 3' to 5'
5								CL		
10										
15										CLAYEY SAND, predominantly fine, moderately cemented, low plasticity, brown
20								SC		
25										Stopped auger at 25'

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample S – 2" O.D. 1.38" I.D. tube sample.

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LOG OF TEST BORING NO. 22

PROJECT Eastern Interconnection Project
JOB NO. E83-1050 DATE 7-12-83
Location: Station 1886+00
RIG TYPE CME-75
BORING TYPE 4½" Flight Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										CLAYEY SAND, predominantly fine, low plasticity, brown
								SC		
5										
10										CLAYEY SAND & GRAVEL, low plasticity, brown
								GC		
15										
										LIMESTONE, moderately to slightly weathered, thickly bedded, hard, dark brown
20										Auger refused at 19'6"

A-28

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE
A – Auger cuttings. B – Block sample
S – 2" O.D. 1.38" I.D. tube sample.
U – 3" O.D. 2.42" I.D. tube sample.

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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-16-83

LOG OF TEST BORING NO. 23

Location: Station 1964+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								CL		SANDY CLAY, low plasticity, brown
5								GC		CALICHE CLAYEY SAND & GRAVEL, strongly cemented, low plasticity, white
10										CALICHE CLAYEY SAND, some gravel, predominantly fine, strongly to moderately cemented, low plasticity, white
15										
20								SC		
25										Stopped auger at 25'
30										

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

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LOG OF TEST BORING NO. 24

PROJECT Eastern Interconnection Project
JOB NO. E83-1050 DATE 6-16-83

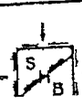
Location: Station 2052+00
RIG TYPE CME-55
BORING TYPE 6½" Hollow Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	S	15		8	CL	firm	SANDY CLAY, low plasticity, brown
5			X	U	70	102	13	CH	hard	SILTY CLAY, high plasticity, brown
10			X	S	50/5"		8	SC-SM	hard	CLAYEY SAND, considerable silt, predominantly fine, low plasticity, brown
15			X	S	50/5½"		7			
20			X	S	50/6"		10		hard	Intercalated SAND & SILTY CLAY, medium plasticity, light tan
25			X	S	77		18	CL	hard	SILTY CLAY, medium plasticity, reddish-brown
30										Stopped auger at 24'6" Stopped sampler at 26'

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE
A – Auger cuttings. B – Block sample
S – 2" O.D. 1.38" I.D. tube sample.



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PROJECT Eastern Interconnection Project

JOB NO. E83-1050 DATE 6-16-83

LOG OF TEST BORING NO. 25

Location: Station 2127+00

RIG TYPE CME-55

BORING TYPE 4½" Continuous Flight Auger

SURFACE ELEV.

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Dry Density Lbs. per cu. ft.	Moisture Content Per Cent of Dry Wt.	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0										SILTY CLAY, medium plasticity, reddish-brown
5								CL		
10										
15										SHALE, very weathered, very fractured, thickly bedded, soft, gray to dark reddish-brown
20										
25										Stopped auger at 25'
30										

GROUND WATER

DEPTH	HOUR	DATE
	none	

SAMPLE TYPE

A – Auger cuttings. B – Block sample

S – 2" O.D. 1.38" I.D. tube sample.

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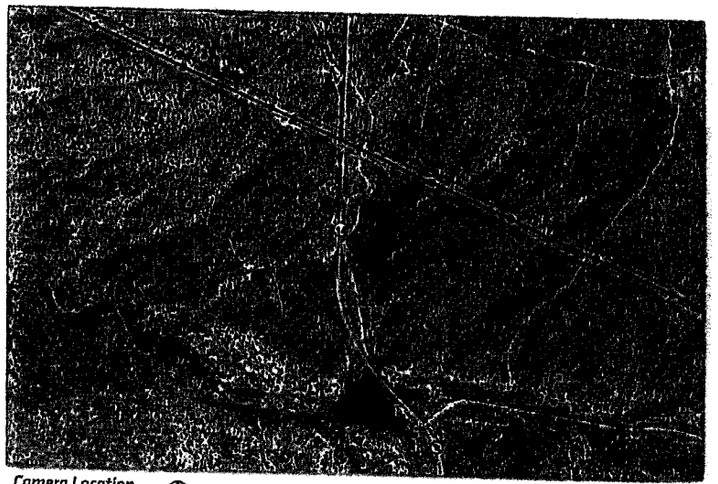
APPENDIX D

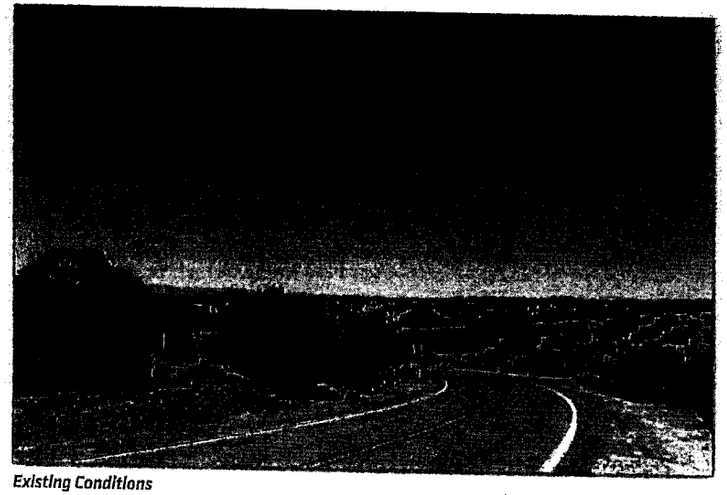
Photo Simulations



Camera Location

Camera Location and View Direction
Proposed BB2 Structure Location
Existing BB Structure Location

Project Lines
Existing
New



Existing Conditions

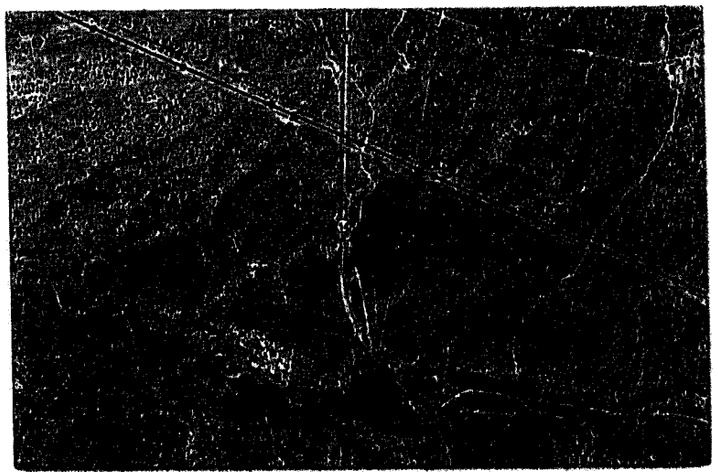
Photo Simulation

Reasonable efforts to provide an accurate visual simulation have been made and are based on preliminary designs for this electrical transmission project. This computer-generated rendering should be considered only an approximate representation of how the proposed facilities may appear.

BB2 345kV Transmission Line Photo Simulation

Attachment 5, Sheet 1/7

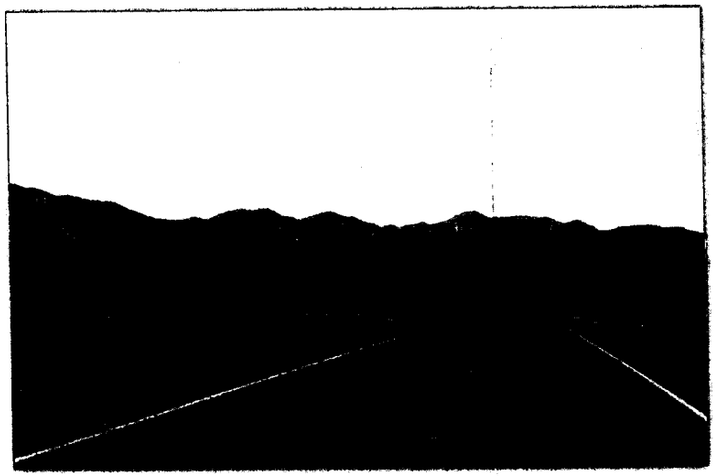
NM 14 view to the northwest approximately 1 mile south of the BB Line corridor



Camera Location

Camera Location and View Direction
Proposed BB2 Structure Location
Existing BB Structure Location

Project Lines
Existing
New



Existing Conditions

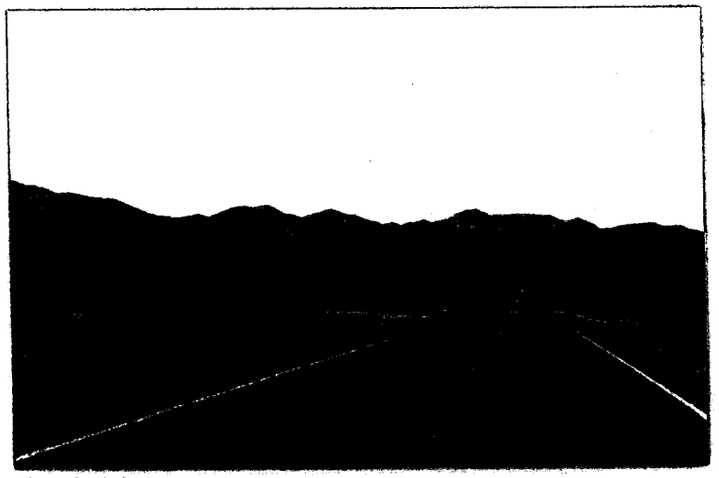


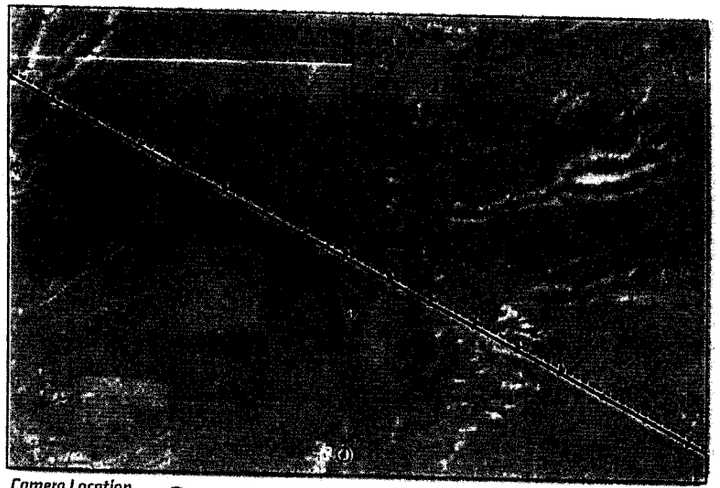
Photo Simulation

Reasonable efforts to provide an accurate visual simulation have been made and are based on preliminary designs for this electrical transmission project. This computer-generated rendering should be considered only an approximate representation of how the proposed facilities may appear.

BB2 345kV Transmission Line Photo Simulation

Attachment 5, Sheet 2/7

NM 14, view to the south approximately ¼ mile north of the BB Line corridor



Camera Location

Camera Location and View Direction
Proposed BB2 Structure Location
Existing BB Structure Location

Project Lines
Existing
New

Existing Conditions

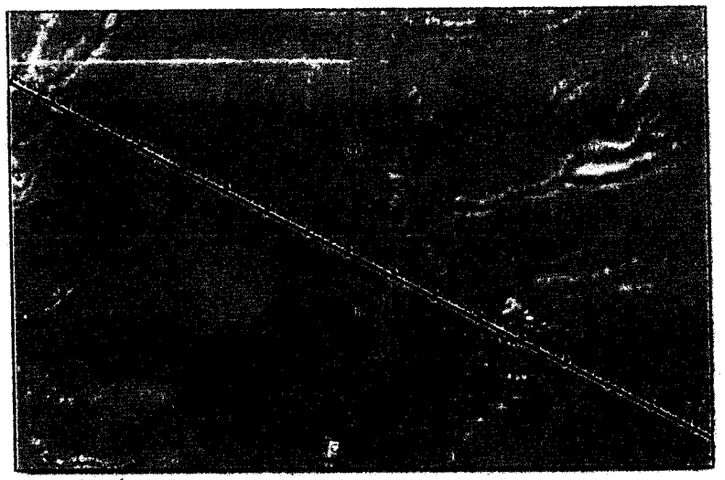
Photo Simulation

Reasonable efforts to provide an accurate visual simulation have been made and are based on preliminary designs for this electrical transmission project. This computer-generated rendering should be considered only an approximate representation of how the proposed facilities may appear.

BB2 345kV Transmission Line Photo Simulation

Attachment 5, Sheet 3/7

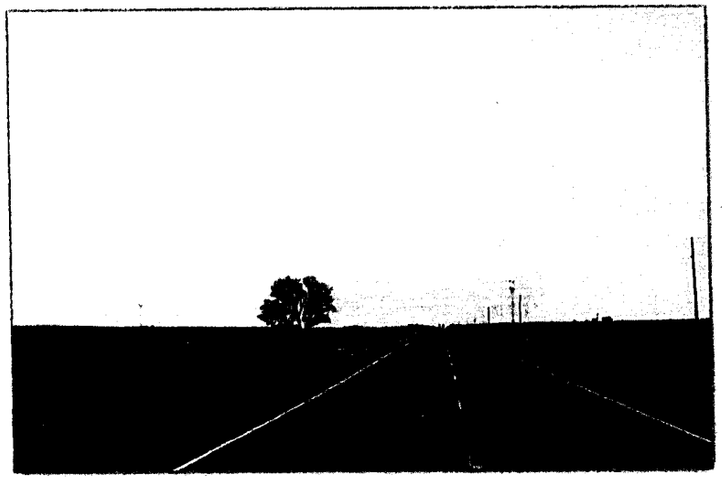
NM 41, view to the north approximately 1 mile south of the BB Line corridor



Camera Location

Camera Location and View Direction
Proposed BB2 Structure Location
Existing BB Structure Location

Project Lines
Existing
New



Existing Conditions

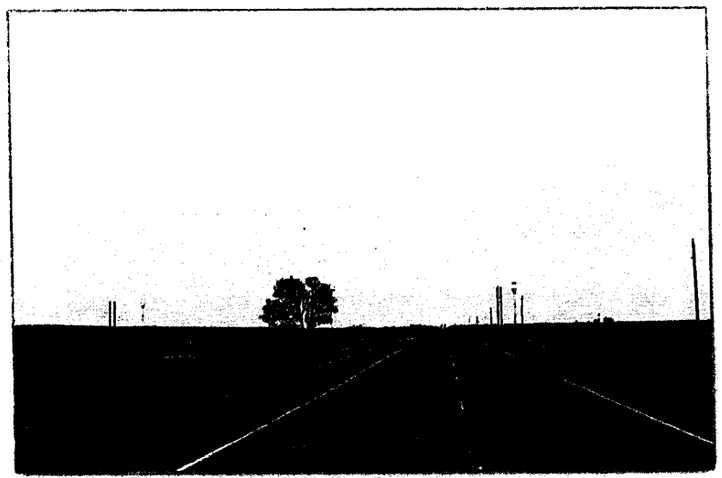


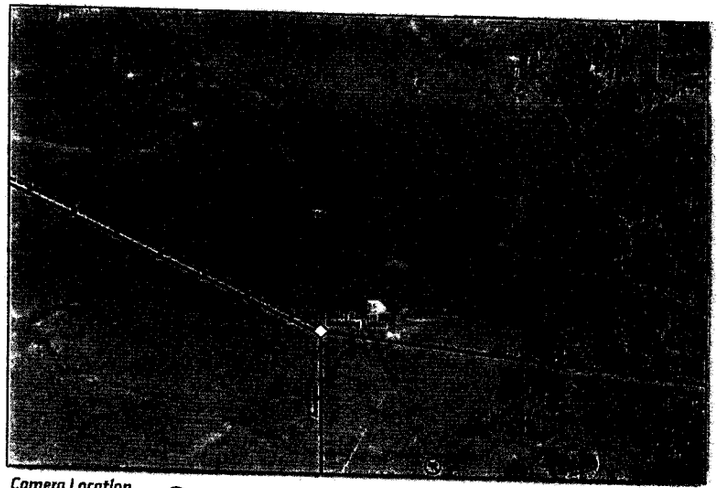
Photo Simulation

Reasonable efforts to provide an accurate visual simulation have been made and are based on preliminary designs for this electrical transmission project. This computer-generated rendering should be considered only an approximate representation of how the proposed facilities may appear.

BB2 345kV Transmission Line Photo Simulation

Attachment 5, Sheet 4/7

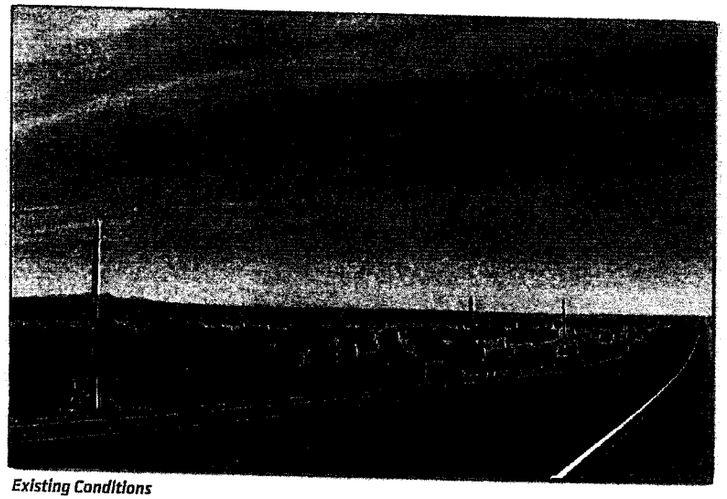
NM 41, view to the south approximately ½ mile north of the BB Line corridor



Camera Location

Camera Location and View Direction
Proposed BB2 Structure Location
Existing BB Structure Location

Project Lines
Existing
New



Existing Conditions

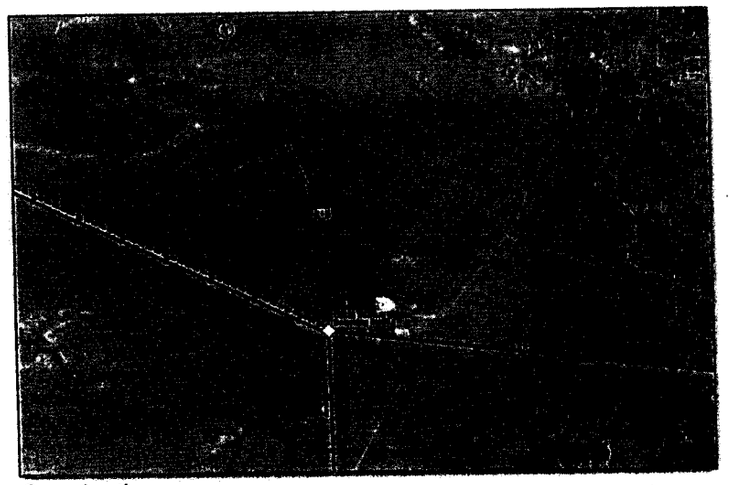
Photo Simulation

Reasonable efforts to provide an accurate visual simulation have been made and are based on preliminary designs for this electrical transmission project. This computer-generated rendering should be considered only an approximate representation of how the proposed facilities may appear.

BB2 345kV Transmission Line Photo Simulation

Attachment 5, Sheet 5/7

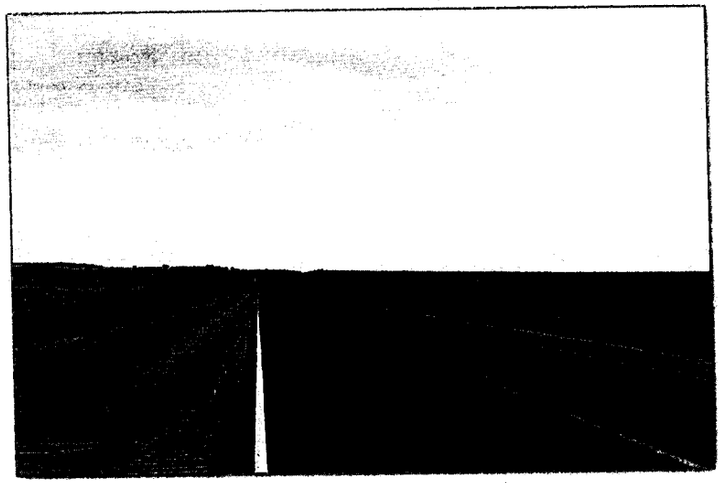
US 285, view to the northeast approximately 1 mile south of the BB Line corridor



Camera Location

Camera Location and View Direction
Proposed BB2 Structure Location
Existing BB Structure Location

Project Lines
Existing
New



Existing Conditions

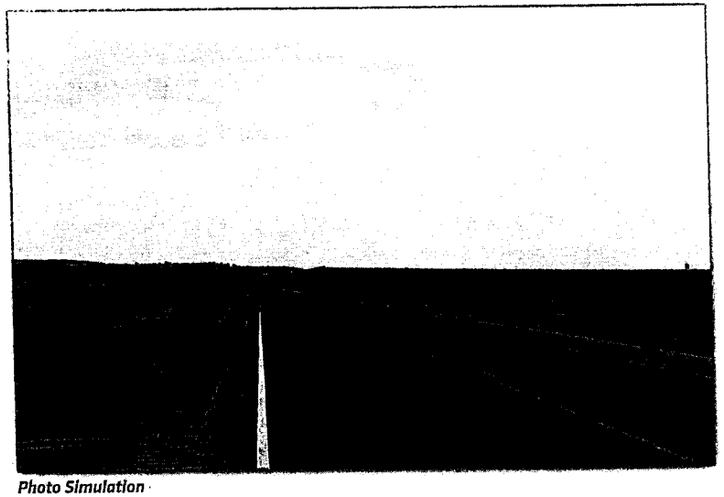


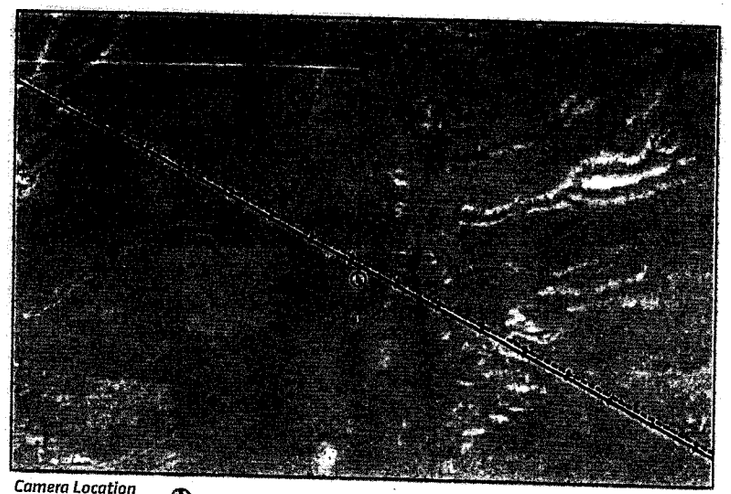
Photo Simulation

Reasonable efforts to provide an accurate visual simulation have been made and are based on preliminary designs for this electrical transmission project. This computer-generated rendering should be considered only an approximate representation of how the proposed facilities may appear.

BB2 345kV Transmission Line Photo Simulation

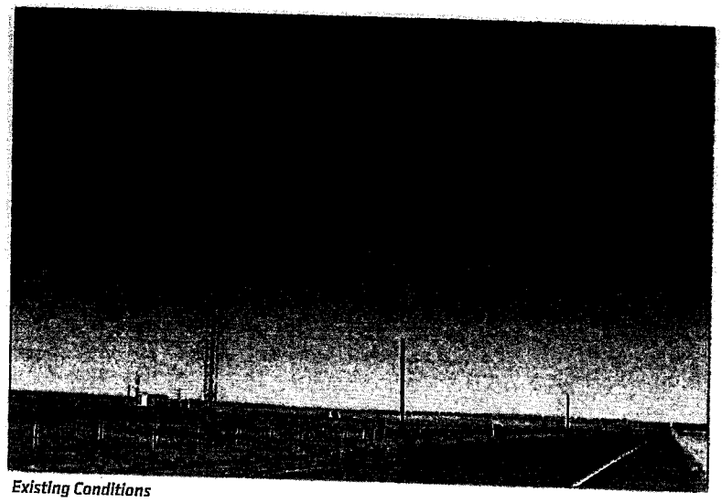
Attachment 5, Sheet 6/7

US 285, view to the south approximately 2 miles south of the BB Line corridor



Camera Location

Camera Location and View Direction
Proposed BB2 Structure Location
Existing BB Structure Location
Project Lines
Existing
New



Existing Conditions

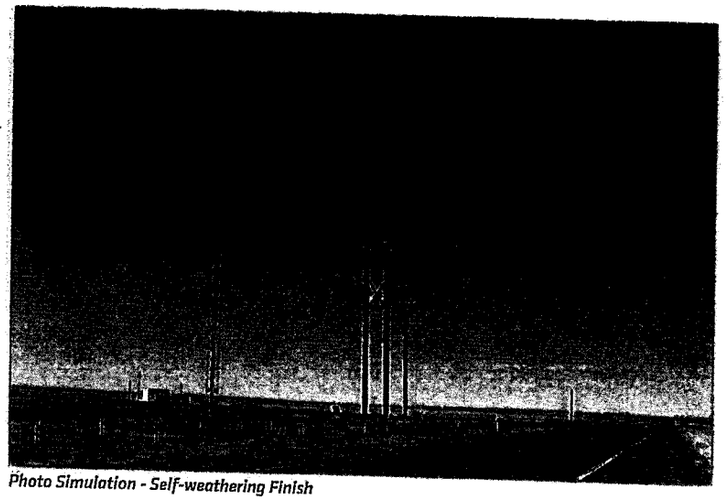


Photo Simulation - Self-weathering Finish

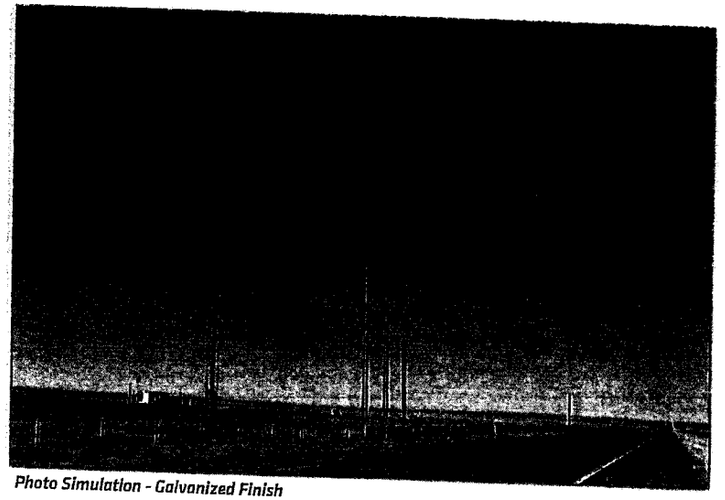


Photo Simulation - Galvanized Finish

BB2 345kV Transmission Line Photo Simulation

Attachment 5, Sheet 7/7

NM 41, view to the north showing proposed structure finish options

Reasonable efforts to provide an accurate visual simulation have been made and are based on preliminary designs for this electrical transmission project. This computer-generated rendering should be considered only an approximate representation of how the proposed facilities may appear.