



By Certified Mail

December 21, 2018

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Re: Notice of Intent to Sue for Violations of Endangered Species Act in Connection with Clean Water Act Section 404 Permit No. 2003-00826-KAT for Villages at Vigneto

Dear Lt. Gen. Todd T. Semonite, Colonel Aaron Barta, David Castanon, David Bernhardt, Margaret Everson, and Amy Lueders,

On behalf of the Lower San Pedro Watershed Alliance, the Center for Biological Diversity, Sierra Club, Maricopa Audubon Society, Tucson Audubon Society, and Cascabel Conservation Association (collectively the Conservation Organizations), we ask that you take immediate action to remedy ongoing violations of the Endangered Species Act (ESA) by the United States Army Corps of Engineers (Corps) regarding its decision to issue a Clean Water Act Section 404 (33 U.S.C. § 1344) permit number 2003-00826-KAT (404 Permit) for Phase 1 of the Villages at Vigneto.

El Dorado Benson LLC (El Dorado) plans to develop a dynamic, world-class master-planned community that facilitates a socially interactive lifestyle that can only be imagined in other places. This comprehensive master-planned community, marketed as the Villages at Vigneto, would span 12,167-acres and integrate 28,000 residences, 3 million square feet of commercial real estate, and luxurious amenities, including golf courses, open spaces, and a Town Center. This master-planned community will rely solely on groundwater pumped from the

regional aquifer at a rate of 8,427 acre-feet per year to support 70,000 new residents, businesses, and landscaping.

El Dorado depends on a 404 Permit from the Corps to realize its vision of developing the Villages at Vigneto master-planned community. The proposed development would straddle a dense network of jurisdictional washes (encompassing 475-acres and 75 linear-miles) that crisscross the property. El Dorado needs to fill these washes at over 350 locations across the entire site to develop the backbone infrastructure for a cohesive master-planned community that integrates residential units with public spaces and luxurious amenities.

Granting the 404 Permit would likely adversely affect listed species and critical habitat for the jaguar, western yellow-billed cuckoo, southwestern willow flycatcher, northern Mexican gartersnake, and Huachuca water umbel. The 404 Permit would allow El Dorado to proceed with its planned development, which would eliminate or degrade thousands of acres of upland habitat, exponentially increase surface runoff and erosion into the San Pedro River, and drawdown the regional aquifer that supports base flows and critical habitat along the San Pedro River.

The Corps violated Section 7 of the ESA by refusing to consult with Fish and Wildlife Service (FWS) regarding the predicted effects of the Vigneto development on listed species and critical habitat. The Corps prepared a Biological Evaluation for the 404 Permit, but adopted an impermissibly narrow definition of the action area that excluded from consideration the vast majority of the proposed Vigneto development. By imposing artificial blinders on its analysis, the Corps did not consult with the FWS regarding the anticipated effects of the planned development on listed species and critical habitat, including the jaguar, western yellow-billed cuckoo, southwestern willow flycatcher, northern Mexican gartersnake, and Huachuca water umbel. This oversight was arbitrary, capricious, and contrary to the ESA.

Even assuming the Corps' narrow action area complied with the ESA, which it did not, the Corps still failed to consult with the FWS regarding the effects to listed species and critical habitat caused by activities within that narrow action area. The Corps further violated the ESA by ignoring the best available science demonstrating that activities within the action area, including groundwater pumping, would have a measurable effect on listed species and critical habitat, thereby requiring formal consultation with the FWS.

The Corps cannot rely on the FWS's Letter of Concurrence to satisfy its obligations under the ESA because the FWS acquiesced in the Corps' impermissibly narrow definition of the action area. By foregoing formal consultation based on this flawed Letter of Concurrence, the Corps violated its duties under Section 7 of the ESA to consult with the FWS and ensure its actions do not jeopardize the continued existence of any threatened species or result in the destruction or adverse modification of critical habitat of such species.

This letter constitutes notice required by Section 11(g) of the ESA, 16 U.S.C. § 1540(g), prior to commencement of legal action.

I. Factual Background

A. The San Pedro River

The San Pedro River is “one of the most significant perennial undammed desert rivers in the United States.”¹ It is a critical migration corridor for hundreds of bird species and serves as important habitat for many other regionally-declining species of plants, fish, and wildlife. Hundreds of species of migratory birds (more than half of the U.S. total), 40 species of reptiles and amphibians, and 80 species of mammals call the river home.²



The San Pedro River also provides a unique refuge for many threatened or endangered species protected by the ESA, including the jaguar, western yellow-billed cuckoo, southwestern willow flycatcher, northern Mexican gartersnake, and Huachuca water umbel.

The San Pedro River and its lush corridor of riparian habitat, including unique cottonwood galleries, depend on groundwater contributions from the regional aquifer. Pressure in the

¹ Letter from Alexis Strauss, Dir., Water Div., Eenvtl. Prot. Agency, to Colonel Alex Dornstrauder, U.S. Army Corps of Eng’rs 1 (May 25, 2006) [hereinafter “EPA Letter (May 25, 2006)”] (attached as Ex. 1).

² The Lower San Pedro River has been designated as a globally important bird area. *Lower San Pedro River IBA*, ARIZ. IMPORTANT BIRD AREA PROGRAM, http://aziba.org/?page_id=461 (last visited Dec. 19, 2018).

regional aquifer causes groundwater to move from the deep, regional aquifer upwards into the shallow aquifer and then into the river as baseflow.³ Groundwater studies have demonstrated that the water discharged at the St. David Cienega is isotopically similar and thermally similar to the confined aquifer in the area of St. David.⁴ These results “clearly show” that there is a hydrologic connection between the confined aquifer and the surface flow system of the San Pedro River at St. David Cienega.⁵

Groundwater pumping poses a significant threat to the San Pedro River. Groundwater pumping lowers the groundwater table, creating an expanding cone of depression.⁶ The expanding cone of depression eventually “captures” water from the aquifer that would have reached the surface near the river (either through evapotranspiration or as baseflow).⁷ A 2015 study of the middle San Pedro River documented declines in surface flows at St. David due to groundwater pumping, which already exceeds the rate of groundwater recharge within the basin.⁸

Changes in hydrologic conditions caused both by groundwater pumping and surface-water diversions have caused changes in arid-region riparian system stand structure and species composition.⁹ Numerous studies have also illustrated the relationship between in-stream flow

³ PAUL M. BARLOW & STANLEY A. LEAKE, U.S. GEOLOGICAL SURVEY, STREAMFLOW DEPLETION BY WELLS — UNDERSTANDING AND MANAGING THE EFFECTS OF GROUNDWATER PUMPING ON STREAMFLOW 3, 6 (2012) [hereinafter “BARLOW & LEAKE (2012)”] (attached as Ex. 2).

⁴ CHRIS EASTOE, A STABLE ISOTOPE STUDY OF GROUNDWATER AND SURFACE WATER NEAR THE ST. DAVID CIENEGA, SAN PEDRO VALLEY, ARIZONA 1–3, 7 (2017)[hereinafter “EASTOE (2017)”] (attached as Ex. 3); *see also* CHRIS EASTOE, STABLE ISOTOPE STUDY OF ST. DAVID CIENEGA AND SURROUNDINGS – 2018 SAMPLING 1, 9 & fig.6 (2018)[hereinafter “EASTOE (2018)”] (attached as Ex. 4).

⁵ THOMAS MEIXNER, POTENTIAL IMPACTS OF THE GROUNDWATER PUMPING RELATED TO THE VILLAGES AT VIGNETO ON SURFACE WATER RESOURCES ALONG THE SAN PEDRO RIVER 4 (2017) [hereinafter “MEIXNER (2017)”] (attached as Ex. 5).

⁶ *Id.* at 1.

⁷ *Id.* at 1-2.

⁸ JEFFREY T. CORDOVA ET AL., U.S. GEOLOGICAL SURVEY, HYDROLOGY OF THE MIDDLE SAN PEDRO WATERSHED, SOUTHEAST ARIZONA 9–13 (2015) [hereinafter “CORDOVA ET AL. (2015)”] (attached as Ex. 6).

⁹ *See* Julie C. Stromberg & Duncan T. Patten, *Riparian Vegetation Instream Flow Requirements—A Case Study from a Diverted Stream in the Eastern Sierra Nevada, California, USA*, 14 ENVTL. MGMT. 185, 185–86 (1990) [hereinafter “Stromberg & Patten (1990)”] (attached as Ex. 7); J.C. Stromberg, R. Tiller, & B. Richter, *Effects of Groundwater Decline on Riparian Vegetation of Semiarid regions: The San Pedro River, Arizona*, 6 ECOLOGICAL APPLICATIONS 113, 113–131 (1996) [hereinafter “Stromberg, Tiller, & Richter (1996)”] (attached as Ex. 8).

characteristics and ecosystem condition.¹⁰ Many wetland and riparian systems in arid regions have been lost or altered owing to groundwater pumping and streamflow depletion.¹¹

B. The Villages at Vigneto Development

El Dorado plans to construct a 12,167-acre master-planned community adjacent to the San Pedro River that will depend solely on groundwater pumping to serve 70,000 new residents and support almost 3 million square feet of commercial space.¹² The development, marketed as “The Villages at Vigneto,” would transform this upland, desert site into a lavish, replica of Tuscan, Italy, as depicted below.



The proposed development would pump groundwater—at a rate of up to 8,427 acre feet per year—to support residences, commercial spaces, golf courses, lakes, ponds, fountains, and landscaping.¹³

¹⁰ See, e.g., Brian D. Richter et al., *How Much Water Does a River Need?*, 37 FRESHWATER BIOLOGY 231, 231–249 (1997) [hereinafter “Richter et al. (1997)”] (attached as Ex. 9).

¹¹ J.C. Stromberg et al., *Human Alterations of Riparian Ecosystems, in Riparian Areas of the Southwestern United States: Hydrology, Ecology, and Management* 101–12 (Lewis Publishers 2004).

¹² See generally EL DORADO BENSON, LLC, *THE VILLAGES AT VIGNETO: FINAL COMMUNITY MASTER PLAN AND DEVELOPMENT PLAN* (2016) [hereinafter “MASTER PLAN”] (attached as Ex. 10).

¹³ The Master Plan projects potable demand at 8,427 acre feet per year, and assumes recharge of 2,780 acre-feet (which has never been verified). *Id.* at 53, 63; see also U.S. ARMY CORPS OF

El Dorado submitted a detailed Community Master Plan and Development Plan (“Master Plan”) to the City of Benson on September 8, 2015. The Master Plan was “carefully considered and dynamically planned with the intent to allow for master planning of activities including land development, residential, recreational facilities, and commercial enterprise to co-exist in a harmonious manner.”¹⁴ El Dorado has aggressively marketed this “unique, world-class” community on the grounds that it integrates work, home, and limitless amenities.¹⁵



Developing a harmonious community on this site depends on an interconnected network of trails, roads, and transportation corridors that would create a sense of place by unifying the development.¹⁶ The Master Plan lays out an efficient transportation network that includes loop roads intersecting with State Highway 90.¹⁷ This infrastructure would seamlessly integrate

ENG’RS, DEP’T OF THE ARMY, DEPARTMENT OF THE ARMY ENVIRONMENTAL ASSESSMENT AND STATEMENT OF FINDINGS FOR THE ABOVE-REFERENCED STANDARD INDIVIDUAL PERMIT APPLICATION, FILE NO. SPL 2003-00826 68 (2018) [hereinafter “2018 EA”] (attached as Ex. 11).

¹⁴ Master Plan at 18.

¹⁵ There is a short promotional video for the proposed Villages at Vigneto available online at <https://vignetoaz.com/> (last visited Dec. 20, 2018).

¹⁶ *Id.* at 111 Ex. 15.

¹⁷ *Id.*

residences (28,000 dwellings), commercial development (271 acres), golf courses (four courses totaling 546 acres), schools, a resort (220 acres), and open spaces (1,624 acres).¹⁸ According to El Dorado, all roads are designed to lead to the Village Center, the “heart of the community.”¹⁹

The Master Plan sets forth design parameters to ensure that the proposed development complies with the City of Benson’s zoning regulations and General Development Plan.²⁰ While the City of Benson approved the Master Plan, it prohibited El Dorado from making any major amendments to the Master Plan without approval of the City of Benson.²¹ Major amendments include, but are not limited to: changing arterial street intersections at locations other than presented in the plan, or materially changing the objectives or goals of the Master Plan.²²

El Dorado formed ten special taxation districts to secure financing for the construction, and acquisition of public infrastructure for the Vigneto development.²³ El Dorado will rely on these taxation districts to raise almost \$1 billion in public financing needed to develop the infrastructure and utilities essential to the Master Plan.²⁴ With this money, El Dorado plans to develop the districts in sequential order on an accelerated timeline.²⁵ To obtain this public financing, El Dorado must develop the entire property consistent with the Master Plan.²⁶

¹⁸ *Id.* at 112 Ex. 16.

¹⁹ <https://vignetoaz.com/>

²⁰ *Id.* at 18

²¹ *Id.* at 151; BENSON, ARIZ., ZONING REGULATIONS 35, https://www.cityofbenon.com/vertical/sites/%7BF59197D1-30ED-49AE-8751-2EBA89C105BA%7D/uploads/Zoning_Regulations_remove_Sec_16.pdf (providing that amendments to community master plans require the City of Benson’s prior approval).

²² MASTER PLAN at Appx. A 157 (defining major amendments to Master Plan requiring approval from the City of Benson).

²³ *See generally* EL DERADO BENSON, LLC, APPLICATION FOR THE FORMATION OF THE VILLAGES AT VIGNETO SPECIAL TAXATION DISTRICTS: REVITALIZATION DISTRICTS NO. 1, NO. 2, NO. 3, NO. 4, NO. 5, NO. 6, AND NO. 7 (2017) [hereinafter “RD APPLICATION”] (attached as Ex. 12). The City of Benson finalized the Taxation Agreements on December 27, 2017. *See* DEVELOPMENT AND INTERGOVERNMENTAL AGREEMENT FOR THE VILLAGES AT VIGNETO COMMUNITY FACILITIES DISTRICTS NOS. 1, 2, & 3, AND REVITALIZATION DISTRICTS NOS. 1, 2, 3, 5, 6, & 7 (2017) [hereinafter “Taxation Agreements”] (attached as Ex. 12a).

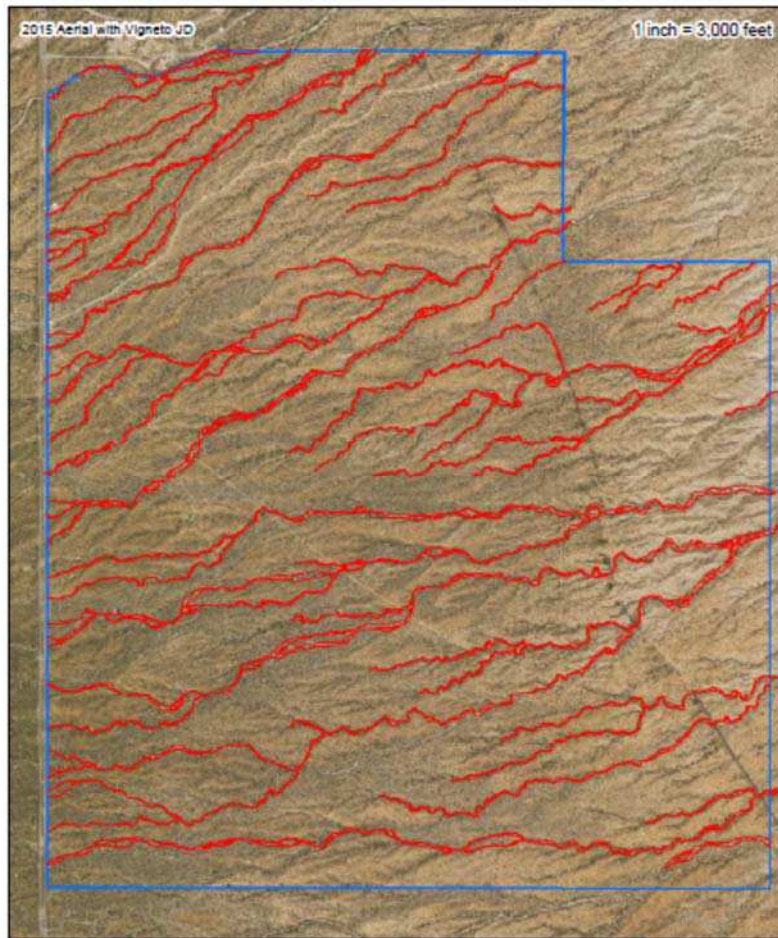
²⁴ RD Application at 7-8.

²⁵ *Id.* at 145 Ex. G

²⁶ Creation of these districts is conditioned on El Dorado’s compliance with a June 1, 2016 Development Agreement with the City of Benson. *See, e.g.* Taxation Agreement for Revitalization District No. 1, at ¶ 23 (Ex. 12a at 36). The Development Agreement, in turn, requires El Dorado to develop the 12,167-acre Property consistent with the Master Plan. *See* WILLIAM STEPHENS, CITY MANAGER, CITY OF BENSON, THE VILLAGES AT VIGNETO DEVELOPMENT AGREEMENT DRAFT 4 (2016) [hereinafter “DRAFT DEVELOPMENT AGREEMENT”] (attached as Ex. 13) (“The development of the Property shall be in accordance with this Agreement and the Final CMP, if and once approved . . .”). El Dorado also signed a new development agreement with the City of Benson allowing El Dorado to expand the Vigneto development by an additional 2,433 acres on adjacent or contiguous lands. *See* U.S. ARMY

C. El Dorado Needs a 404 Permit to Develop the Property as Planned

The site of the proposed Vigneto development is “characterized by a dense network of 475 acres of braided ephemeral streams directly tributary to the San Pedro River.”²⁷ There are at least 75 miles of jurisdictional washes (i.e. Waters of the United States) within the 8,212-acre Phase 1 of the Villages at Vigneto, alone.²⁸ These ephemeral washes weave across the project site, as depicted by the red lines in the map below.



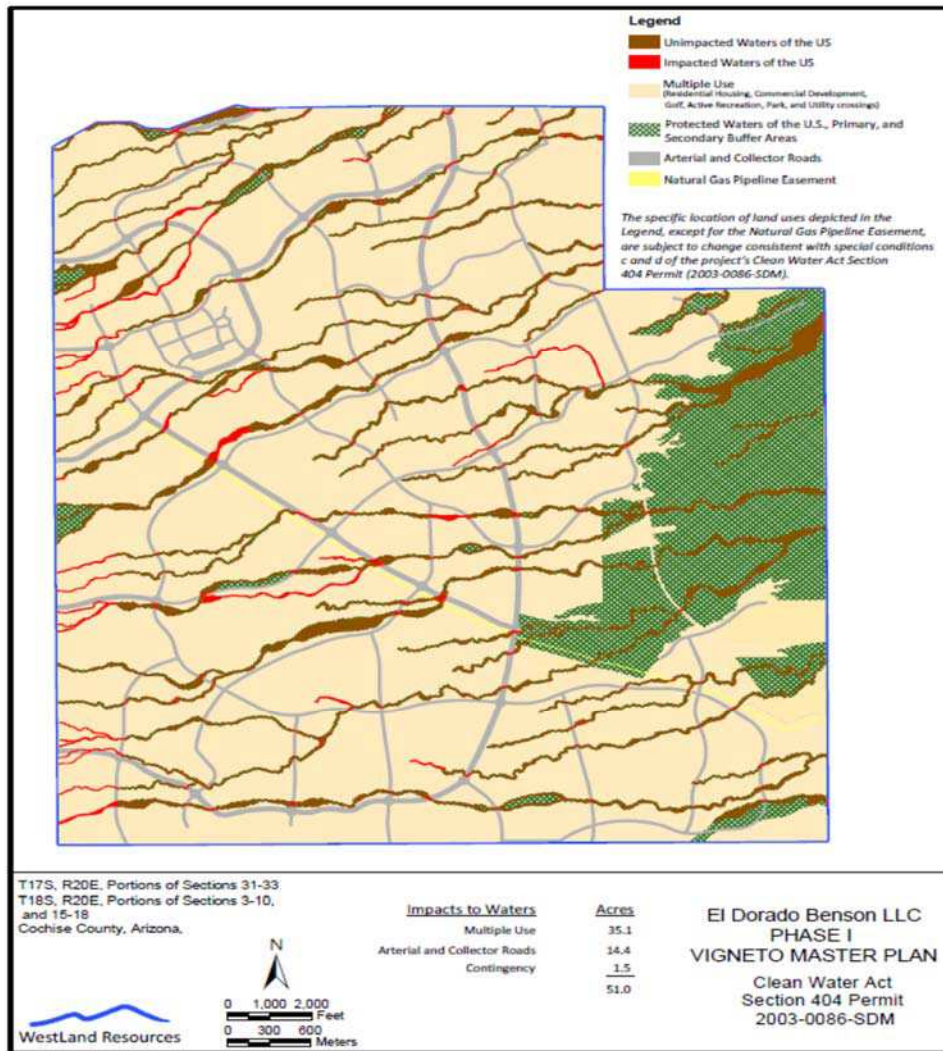
El Dorado would need to fill these jurisdictional washes at over 350 locations broadly dispersed across the site in order to develop the transportation network, wastewater treatment

CORPS OF ENG'RS, PUBLIC NOTICE: RE-EVALUATION OF PERMIT PHASE 1 VILLAGES AT VIGNETO: SPL-2003-00826-KAT 4 (2017) [hereinafter “RE-EVALUATION NOTICE”] (attached as Ex. 14).

²⁷ EPA Letter (May 25, 2006), EPA Detailed Comments on the Environmental Assessment for the Whetstone Ranch Master Planned Community, at 1.

²⁸ RICK ENGINEERING CO., 404 INDIVIDUAL PERMIT FOR WHETSTONE RANCH, FILE NO. 2003-00826-SDM (2003) [hereinafter “PERMIT APPLICATION”] (attached as Ex. 15).

facilities, reclamation reservoirs, transmission lines, and recreational facilities essential to the Master Plan,²⁹ as depicted below³⁰:



El Dorado would also have to fill jurisdictional washes to achieve the “harmonious” balance of uses set forth in the Master Plan, including residential, mixed use, and golf courses.³¹ For example, the vast majority of the proposed mixed use for Phase I along State Highway 90 would be located in jurisdictional waters.³² Likewise, the proposed golf courses around the Village Center would impact jurisdictional washes.

²⁹ See EPA Letter (May 25, 2006), EPA Detailed Comments on the Environmental Assessment for the Whetstone Ranch Master Planned Community, at 1.

³⁰ The map below can be found in the 2018 EA, Attach. B fig. 4.

³¹ MASTER PLAN at 16, 18.

³² Compare 2018 EA, Attach. A at 2 fig.2 (attached as Ex. 16), with MASTER PLAN at 111 Ex. 15.

To comply with the Master Plan, El Dorado requested a 404 Permit to fill 51 acres of jurisdictional waters associated with Phase I:

<u>Discharge of Fill Material</u>	<u>Acres</u>
Residential & Commercial Development	17.8
Golf Courses	11.7
Road	14.7
Secondary Road	4.0
Trail	0.6
Utilities	2.0
Contingency	0.2
<u>Total:</u>	51³³

The jurisdictional washes are so ubiquitous on site that El Dorado needs a special “flexibility” condition in the 404 Permit to allow fill activities anywhere along the 475-acres of ephemeral washes on the property, instead of at fixed locations.³⁴

El Dorado proposes to obtain authorization from the Corps to fill jurisdictional washes through a phased permitting process. El Dorado has requested a 404 Permit to disturb jurisdictional waters embedded throughout Phase 1 of the development, which would encompass approximately 8,212 acres.³⁵ El Dorado plans to obtain an additional 404 permit for the remaining 3,995-acres acres of the Master Plan, “which have the same characteristics as the initial 8,200 acres that was permitted by the [Corps].”³⁶

To analyze El Dorado’s request for a 404 Permit, the Corps identified the overall purpose of the project as “build[ing] a master-planned community consisting of residential, commercial, and recreational facilities, including all appurtenant features such as building pads, roads, and utilities, in the Benson, Arizona area that is proximate to local, regional, and national transportation facilities.”³⁷

El Dorado would not, however, be able to meet its overall purpose and need of developing a master-planned community on the site without a 404 Permit.³⁸ Several “key objectives, principally related to transportation and access and to land use” cannot be achieved without a 404 permit.³⁹ An “effective north-south transportation network” would not be possible due to the jurisdictional washes crisscrossing the property.⁴⁰ As a result, access to the property

³³ 2018 EA at 7.

³⁴ *Id.* at 108.

³⁵ MASTER PLAN at 13.

³⁶ *Id.*

³⁷ 2018 EA at 14–15.

³⁸ *Id.* at 52.

³⁹ U.S. ARMY CORPS OF ENG’RS, ACOE FILE NO. 2003-00826-SDM: NO FEDERAL ACTION ALTERNATIVE DESCRIPTION at 7 (2017) [hereinafter “NO ACTION ALTERNATIVE”] (attached as Ex. 17).

⁴⁰ *Id.*

would “be limited to right in and right out turning movements,” precluding an integrated roadway system and constraining “the integration of multi-modal transportation pathways with parks, golf courses, and the Village Center.”⁴¹

El Dorado admitted that it cannot develop a master-planned community without a 404 Permit, stating in a letter to the Corps that it would not be able to “meet [its] project purpose” of developing an interconnected master-planned community or retain its “core concept of interconnected villages” without a 404 Permit.⁴²

There is no evidence El Dorado would be able to develop an integrated, master-planned community on the remaining portions of the property, unless it obtains a 404 Permit from the Corps for the initial 8,212-acres of the Master Plan.

D. The Vigneto Development May Affect Listed Species and Critical Habitat

If constructed, the Vigneto development would likely adversely affect listed species and critical habitat in several ways. Phase I would transform 8,212 acres of upland habitat into a master-planned community, in turn degrading or eliminating critical habitat for listed species and leading to increased runoff and erosion. In addition, the groundwater pumping from the development will dewater the regional aquifer and reduce or eliminate surface flows along the San Pedro River. The later phases of the Master Plan would compound these harms by expanding the footprint of the development by 3,995 acres and increasing the rate of groundwater drawdown by 2,395 acre-feet per year.

1. The Vigneto Development Would Degrade or Eliminate Suitable Habitat for Listed Species

The Vigneto development would degrade or eliminate suitable habitat for the western yellow-billed cuckoo. The proposed development site is located between two areas of occupied critical habitat (the San Pedro River and Guindani Canyon), meaning that cuckoos likely migrate across the Vigneto site. In addition, the site contains ephemeral washes and mesquite woodlands that the species likely uses to travel between these two areas of occupied habitat.⁴³ Transforming these washes and woodlands into a master-planned community is reasonably certain to directly impact the species.⁴⁴

The Vigneto development also poses a number of threats to the jaguar and its critical habitat. In 2014, FWS designated 94,269 acres of the Whetstone Mountains and foothills as

⁴¹ *Id.* at 7–8.

⁴² Letter from Jim Kenny, President, El Dorado Benson LLC, to Sallie Diebolt, Chief, Ariz. Branch, U.S. Army Corps of Eng’rs, Regulatory Div. – L.A. Dist. 3 (Sept. 14, 2017) [hereinafter “El Dorado Letter”] (attached as Ex. 18).

⁴³ JENNIFER HOLMES, REVIEW COMMENTS FOR BIOLOGICAL EVALUATION FOR SPL-2003-00826 2–3 (2017) [hereinafter “HOLMES, BE COMMENTS”] (attached as Ex. 19).

⁴⁴ Letter from Steven L. Spangle, Field Supervisor, U.S. Fish & Wildlife Serv., to Sally Diebolt, Chief, Arizona Branch, U.S. Army Corps of Eng’rs 2 (July 14, 2015) [hereinafter “FWS 2015 Letter”] (attached as Ex. 20).

critical habitat for the species. *See* Designation of Critical Habitat for Jaguar, 79 Fed. Reg. 12,572, 12,572 (Mar. 5, 2014). The jaguar’s critical habitat is adjacent to Phase 1 of the Vigneto development.⁴⁵ As a result, Phase 1 could result in indirect effects to the species due to increased recreation, noise, and olfactory and light pollution, all of which will occur in areas adjacent to the jaguar’s critical habitat. Furthermore, the later phases of the development would overlap with approximately 650 acres of designated critical habitat.⁴⁶ Development on these lands would eliminate or alter the jaguar’s critical habitat, thereby affecting the species.⁴⁷ The Vigneto development would also fragment Wildlife Linkage 97 between the Whetstone Mountains and the San Pedro River corridor.⁴⁸

2. The Vigneto Development Would Increase Surface Runoff and Erosion

Studies have indicated that increased surface runoff and/or sediment yield from residential developments can result in harmful impacts to aquatic ecosystems.⁴⁹ These impacts may include more frequent and severe flooding, stream channel adjustment, stream bank erosion, water quality degradation from sedimentation and contaminant transport, habitat destruction and decreased biological diversity.⁵⁰

Levick et al. (2006) modeled the effects of the prior Whetstone Ranch proposal, which would have occupied lands within the Vigneto development area, on surface hydrology. They concluded that filling washes and developing the 8,200-acre Whetstone parcel would significantly increase stormwater runoff and sediment transport into the San Pedro River, affecting downstream habitat through more frequent and severe flooding, stream channel adjustment, stream bank erosion, water quality degradation from sedimentation and contaminant transport, habitat destruction, and decreased biological diversity.⁵¹

⁴⁵ *See* ARIZ. BRANCH, L.A. DIST. REGULATORY DIV., U.S. ARMY CORPS OF ENG’RS, BIOLOGICAL EVALUATION FOR SPL-2003-00826 3 fig.4 (2017) [hereinafter “2017 BE”] (attached as Ex. 21).

⁴⁶ Letter from Matt Clark, Conservation Policy Analyst, Tucson Audubon Soc’y, Christina McVie, Conservation Chair, Tucson Audubon Soc’y, and Karen Fogas, Exec. Dir., Tucson Audubon Soc’y, to William Miller, Dist. Eng’r, L.A. Dist., U.S. Army Corps of Eng’rs, and Sallie Diebolt, Chief, Ariz. Branch, U.S. Army Corps of Eng’rs 23 (May 19, 2015) [hereinafter “Tucson Audubon Society Comment Letter (May 19, 2015)”] (attached as Ex. 22) (identifying 650-acre overlap).

⁴⁷ 2017 BE at 12.

⁴⁸ ARIZ. GAME AND FISH DEP’T, ARIZONA’S WILDLIFE LINKAGE ASSESSMENT 108 (2006) [hereinafter “ARIZ. WILDLIFE LINKAGES”] (attached as Ex. 23). The attachment only contains Section VII of the report. The entire report is available at <http://azdot.gov/business/environmental-planning/programs/wildlife-linkages..>

⁴⁹ *See* L. LEVICK ET AL., U.S. DEP’T OF AGRIC. RESEARCH SERV., U.S. ENVTL. PROT. AGENCY, EPA/600/R-06/158, ARS/1873, SIMULATED CHANGES IN RUNOFF AND SEDIMENT IN DEVELOPING AREAS NEAR BENSON, ARIZONA 1–3 (2006) [hereinafter “LEVICK ET AL. (2006)”] (attached as Ex. 24).

⁵⁰ LESLIE DORWORTH & ROBERT MCCORMICK, IMPACTS OF DEVELOPMENTS ON WATERWAYS 1–5 (2005) [hereinafter “DORWOTH & MCCORMICK (2005)”] (attached as Ex. 25).

⁵¹ LEVICK ET AL. (2006) at 19–20.

The Vigneto development would have an even greater impact on surface runoff and sediment yield at the San Pedro River.⁵² El Dorado would develop approximately 8,212-acres of upland habitat during Phase I and an additional 3,995-acres during later phases, all within the same watershed.⁵³ The resultant increase in impervious surfaces (over 50% greater than the proposed Whetstone development) poses a much greater impact on the hydrology of the river. The runoff and sediment generated by these impervious surfaces may affect yellow-billed cuckoos, southwestern willow flycatchers, and northern Mexican gartersnakes that depend on downstream critical habitat along the river.⁵⁴

3. The Vigneto Development Would Drawdown Groundwater, Adversely Affecting Riparian Habitat Along the San Pedro River

The Vigneto development would depend solely on groundwater pumping to serve future residents, businesses, and landscaping. The City of Benson allocated 12,000 acre-feet of water per year to the Villages at Vigneto, nearly 15 times Benson's current groundwater demand of approximately 800 acre-feet per year.⁵⁵ El Dorado projects that it would require at least 6,032 acre-feet per year for Phase 1 of the development and up to 8,427 acre-feet per year for the 28,000 residential units planned for all phases of the development.⁵⁶

Hydrological modeling shows that the Vigneto development would "have the potential to adversely impact spring flow in the St. David Cienega area 'on the order of 0.25 to 0.45 meters after 100 years.'"⁵⁷ The magnitude of this drawdown would have a significant impact on this portion of the river, which is already losing water to the aquifer.⁵⁸ Indeed, the projected drawdown could capture the remaining surface flows along this segment of the San Pedro River.⁵⁹

⁵² *Id.*

⁵³ RE-EVALUATION NOTICE at 4.

⁵⁴ See FWS 2015 Letter at 3.

⁵⁵ Decision and Order at 1–2, In the Matter of the Application of the City of Benson for A Designation As Having An Adequate Water Supply (July 14, 2008) (No. 41-401803.0001) [hereinafter "ADWR Water Designation"] (attached as Ex. 26).

⁵⁶ 2018 EA at 68; see also MASTER PLAN at 52.

⁵⁷ WESTLAND RES., INC., TECHNICAL MEMORANDUM ANALYSIS OF EFFECTS OF GROUNDWATER USE WITHIN U.S. ARMY CORPS OF ENGINEERS SCOPE OF ANALYSIS FOR PHASE 1 OF VILLAGES AT VIGNETO 8 (2018) [hereinafter "GROUNDWATER USE MEMO"] (attached as Ex. 27) (quoting ROBERT H. PRUCHA, INTEGRATED HYDRO SYS., LLC, EVALUATION OF IMPACTS OF PROPOSED WELL PUMPING AT THE VILLAGES OF VIGNETO DEVELOPMENT, SOUTHWEST OF BENSON, ARIZONA ON SPRINGS ADJACENT TO THE SAN PEDRO RIVER 37 (2016) [hereinafter "PRUCHA (2016)"] (attached as Ex. 28)).

⁵⁸ JAMES M. LEENHOUTS ET AL., U.S. GEOLOGIC SURVEY, DEP'T OF THE INTERIOR, SCI. INVESTIGATION REPORT 2005–5163, HYDROLOGIC REQUIREMENTS OF AND CONSUMPTIVE GROUND-WATER USE BY RIPARIAN VEGETATION ALONG THE SAN PEDRO RIVER, ARIZONA 32 (2006) [hereinafter "LEENHOUTS ET AL. (2006)"] (attached as Ex. 29).

⁵⁹ See EASTOE (2018) at 12 (discussing how groundwater depletion caused by Vigneto pumping could "capture" surface flows at St. David Cienega).

The point of greatest predicted drawdown under the San Pedro River is east of the Development Project and approximately 3.3 miles north of the San Pedro Riparian National Conservation Area. The reduction in groundwater elevation in this reach of the San Pedro River from water use attributable to the Vigneto development is approximately 5 meters after 100 years.⁶⁰

Reduced surface flows would likely adversely affect listed species that depend on the river and St. David Cienega for their survival, as demonstrated by the FWS's analysis of the nearby Rosemont Mine and the instant project. There, the FWS surveyed the existing literature on groundwater drawdown,⁶¹ including studies of the San Pedro River.⁶² The agency identified a clear cause-and-effect relationship between groundwater drawdown and riparian habitat:

The reduction in groundwater lowers the water table, while the reduction in streamflow reduces the length, width, and depth of wetted streambed. The net result is reduced plant regeneration, herbaceous and shrub growth, tree survival, foliar cover, woodland width, and prey abundance that coincides with the reduced length, width, and depth of wetted streambed and depth to groundwater.⁶³

The FWS found that “increasing depths to groundwater will eventually result in changes in the species composition of a given sites’ riparian community (i.e., hydriparian communities would suffer decreased vigor and extent, eventually transitioning to a xeriparian community).”⁶⁴

Even minor declines in groundwater levels can have devastating impacts on riparian vegetation and the associated ecosystem.⁶⁵ Riparian systems, such as the San Pedro River ecosystem, are particularly sensitive to hydrologic changes.⁶⁶ Even a minimal drawdown on surface flows can have far reaching consequences for the aquatic ecosystem. The FWS has thus found that “*any* appreciable (i.e. measurable) loss of stream flow, regardless of its cause (mining or climate change) constitutes an adverse effect on threatened and endangered aquatic species, and, as applicable, proposed and final critical habitat.”⁶⁷

⁶⁰ WESTLAND RES., INC., VILLAGES AT VIGNETO SECTION 404(B)(1) ALTERNATIVES ANALYSIS: EL DERADO BENSON LLC 41 (2018) [hereinafter “ALTERNATIVES ANALYSIS MEMO”] (attached as Ex. 30) (citing PRUCHA (2016)).

⁶¹ FISH AND WILDLIFE SERV., DEP’T OF THE INTERIOR, AMENDED FINAL REINITIATED BIOLOGICAL AND CONFERENCE OPINION FOR THE ROSEMONT COPPER MINE, PIMA COUNTY, ARIZONA 61–62 (2016) [hereinafter “ROSEMONT AM. BIOP”] (attached as Ex. 31)

⁶² See, e.g., LEENHOUTS ET AL. (2006) at 3.

⁶³ ROSEMONT AM. BIOP at 242.

⁶⁴ *Id.* at 62.

⁶⁵ *Id.*; see also LEENHOUTS ET AL. (2006) at 3 (explaining how groundwater drawdown can impact riparian habitat “across the riparian system”).

⁶⁶ See, e.g., Christer Nilssen & Kajsa Berggren, *Alterations of Riparian Ecosystems Caused by River Regulation*, 50 BIOSCIENCE, 783, 783–792 (2000) [hereinafter “Nilssen & Berggren (2000)”] (attached as Ex. 32).

⁶⁷ ROSEMONT AM. BIOP at 38 (emphasis added).

Groundwater pumping at the Vigneto development would have a measurable impact on surface water levels along the San Pedro River, as documented above. Reduced surface flows due to groundwater pumping at the Vigneto development could adversely affect endangered species and their critical habitat along the San Pedro River, including the threatened western yellow-billed cuckoo, endangered southwestern willow flycatcher, threatened northern Mexican gartersnake, and Huachuca water umbel.

Reduced surface flows would adversely affect the western yellow-billed cuckoo by (1) reducing depth to groundwater and wetted length and width of the stream that would result in reduced riparian and mesquite habitat quality and quantity, (2) reducing prey population, and (3) reducing flood flows that promote regeneration as well as scouring out any regeneration that grows in the narrowed stream channel. Furthermore, the cuckoo relies on cottonwood-willow gallery forests that depend on fairly persistent streamflows and shallow (high) groundwater depths to survive. FWS thus found that hydrology along the San Pedro River segment adjacent to Vigneto must be managed to mimic natural flows to conserve the habitat features essential to the conservation of the cuckoo.⁶⁸ By reducing these critical flows, groundwater pumping at the Vigneto development could have an adverse effect on the cuckoo's critical habitat by threatening cottonwood-willow habitats.⁶⁹ In addition, groundwater pumping would foster encroachment of salt cedar, which has a deep tap-root and has been targeted by the Corps for removal to protect the cuckoo. Ultimately, groundwater pumping could cause a transition of the San Pedro River from a hydri-riparian to xerri-riparian corridor with significant adverse effects for cuckoo critical habitat.⁷⁰

⁶⁸ See Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo, 79 Fed. Reg. 48,548–48,558–60 (Aug. 15, 2014). Studies demonstrate that riparian habitat, such as that used by the cuckoo, will die off wherever the San Pedro River dries up. Webb and Leake (2005) have already documented the reductions in riparian vegetation resulting from groundwater use in the desert Southwest. See Robert H. Webb & Stanley A. Leake, *Ground-water surface-water interactions and long-term change in riverine riparian vegetation in southwestern United States*, 320 J. OF HYDROLOGY 302, 302–23 (2006) [hereinafter “Webb & Leake (2006)”] (attached as Ex. 33). So too, Stromberg *et al.* (2005) found that ground-water and surface flow depletions are altering riparian ecosystems throughout the southwestern United States, including Fremont cottonwood and Goodding willow. Juliet C. Stromberg *et al.*, *Effects of Stream Flow Intermittency on Riparian Vegetation of Semiarid Region River (San Pedro River, Arizona)*, 21 RIVER RES. APPLICATIONS 925, 925–38 (2005) [herein after “Stromberg *et al.* (2005)”] (attached as Ex. 34). And Nguyen *et al.* (2014) documented with satellite imagery the impacts of regional groundwater pumping on riparian habitat along the San Pedro. See Uyen Nguyen *et al.*, *Long-term decrease in satellite vegetation indices in response to environmental variables in an iconic desert riparian ecosystem: the Upper San Pedro, Arizona, United States*, ECOHYDROLOGY, July 2014 [hereinafter “Nguyen *et al.* (2014)”] (attached as Ex. 35).

⁶⁹ FWS 2015 Letter at 4

⁷⁰ ROSEMONT AM. BIOP at 62.

Reduced surface flows along the San Pedro River would also adversely affect the southwestern willow flycatcher. Groundwater pumping may adversely affect San Pedro River stream flows north of the Narrows,⁷¹ including at least one of the two perennial river reaches near Cascabel (Three Links), which presently provides a nesting stronghold for this species.⁷² Reduced stream flows in the San Pedro north of the Narrows may alter or destroy the riparian habitat in the flycatcher's critical habitat.⁷³

Increased groundwater pumping poses an indirect impact to gartersnakes in downstream habitats within the San Pedro River and to proposed critical habitat in the same way they may affect the western yellow-billed cuckoo and its habitat along the river. Gartersnakes may occasionally occur in the artesian spring system located at St. David Cienega.⁷⁴ Groundwater pumping at the Vigneto development likely will reduce stream flows at this site, as documented above, thereby altering or destroying the riparian habitat on which the gartersnake relies.

Not surprisingly, the FWS found that groundwater drawdown caused by the Vigneto development would adversely affect all of these species and their critical habitat.⁷⁵ The FWS reasoned that the anticipated displacement of water in the aquifer caused by pumping at the Vigneto development "is likely to reduce flows in the San Pedro River, in reaches designated as critical habitat for the southwestern willow flycatcher and proposed as critical habitat for the yellow-billed cuckoo and northern Mexican garter snake."⁷⁶ The Service explained that "appreciable direct and indirect effects to endangered and threatened species, including proposed and final critical habitat, are reasonably certain to occur."⁷⁷

Impacts to the Huachuca water umbel could be even more severe due to the anticipated drawdown along the San Pedro River. Jim Rorabaugh, a retired FWS employee, observed a ten-meter long and approximately 0.5 meter wide patch of umbel in May of 2017 next to St. David Monastery.⁷⁸ This stretch of the San Pedro River is intermittent and depends heavily on discharge flows from the St. David Cienega. Groundwater pumping could deplete surface flows

⁷¹ PRUCHA (2016) at 37; MEIXNER (2017) at 3.

⁷² See JEANMARIE HANEY & JIM LOMBARD, THE NATURE CONSERVANCY, ON THE GROUND: INTERBASIN GROUNDWATER FLOW AT BENSON NARROWS 1-2 (2005) [hereinafter "HANEY & LOMBARD (2005)"] (attached as Ex. 36).

⁷³ FWS 2015 Letter at 4.

⁷⁴ Letter from Steven L. Spangle, Field Supervisor, Ariz. Ecological Servs. Field Office, Fish and Wildlife Serv., to Sally Diebolt, Chief, Ariz. Branch, L.A. Dist., U.S. Army Corps of Eng'rs 8 (Oct. 26, 2017) [hereinafter "Concurrence Letter"] (attached as Ex. 37).

⁷⁵ FWS 2015 Letter at 3.

⁷⁶ Letter from Steven L. Spangle, Field Supervisor, Ariz. Ecological Servs. Field Office, Fish and Wildlife Serv., to Sally Diebolt, Chief, Ariz. Branch, L.A. Dist., U.S. Army Corps of Eng'rs 3 (Oct. 14, 2016) (attached as Ex. 37a).

⁷⁷ *Id.*

⁷⁸ See E-Mail from Jim Rorabaugh, to Julie Crawford and Doug Duncan (May 4, 2017 17:57 MST) [hereinafter "Rorabaugh Email"] (attached as Ex. 38). Mr. Rorabaugh sent this email, along with the two attached photos, to Ms. Crawford, an employee of the FWS. See E-Mail from Rorabaugh, Jim to Crawford, Julie.

along this segment of the river, especially during the driest part of the season, thereby “precipitat[ing] degradation of the aquatic habitat in which Huachuca water umbel occurs.”⁷⁹ These effects could be “potentially severe” if the projected drawdown eliminates pools at St. David Cienega,⁸⁰ as anticipated by the relevant hydrological studies.⁸¹

The impacts of the Vigneto development would be even more significant given the projected impacts of climate change. For example, a team of hydrologists estimates that climate change will deplete groundwater recharge in the San Pedro basin by at least 30% by reducing precipitation (i.e. recharge rates) and increasing evapotranspiration.⁸² Any groundwater pumping at the Vigneto development would exacerbate these anticipated trends.

E. The Corps Refused to Analyze the Effects of the Vigneto Development

The Corps decided not to analyze the effects of the Vigneto development for two reasons. First, the Corps assumed that someone else could hypothetically develop Phase I of the property without a 404 Permit (i.e. the No Action Alternative), and thus concluded that Phase I of the development was outside of its control and responsibility.⁸³ Second, the Corps concluded that remaining phases of the Vigneto development, as laid out in the Master Plan, were “uncertain at this time” and thus were not included in the action area.⁸⁴

Based on this rationale, the Corps did not analyze the proposed development (12,167 acres), but instead limited the action area to the jurisdictional washes running across the property (475 acres), plus narrow buffer areas along those washes where El Dorado agreed to forego development if it received the permit (100 acres of upland areas adjacent to waters of the United States proposed to be filled, 385 acres of uplands adjacent (within 25 feet) to all unfilled waters, and 815 acres of upland open space to be preserved).⁸⁵ In total, the action area on the development site consists of 1,775 acres.

⁷⁹ ROSEMONT AM. BIOP, at 220.

⁸⁰ *Id.*

⁸¹ EASTOE (2018) at 12.

⁸² Thomas Meixner et al., *Implications of projected climate change for groundwater recharge in the western United States*, 534 J. OF HYDROLOGY 124, 132–33 (2016) [hereinafter “Meixner et al. (2016)”] (attached as Ex. 39). *See also* Letter from Letter from Matt Clark, Conservation Policy Analyst, Tucson Audubon Soc’y, Christina McVie, Conservation Chair, Tucson Audubon Soc’y, and Karen Fogas, Exec. Dir., Tucson Audubon Soc’y, to Daniel M. Ashe, Dir., U.S. Fish and Wildlife Serv. 30–33 (Mar. 13, 2015) [hereinafter “Tucson Audubon Society Comment Letter (Mar. 13, 2015)”] (attached as Ex. 40) (collecting studies regarding impacts of climate change on San Pedro River).

⁸³ U.S. ARMY CORPS OF ENG’RS, NATIONAL ENVIRONMENTAL POLICY ACT SCOPE OF ANALYSIS AND ENDANGERED SPECIES ACT ACTION AREA FOR PHASE I VILLAGES AT VIGNETO COMMUNITY MASTER PLAN AREA (PERMIT # SPL-2003-00826) 5 (2017) [hereinafter “SCOPE OF ANALYSIS MEMO”] (attached as Ex. 41).

⁸⁴ 2018 EA at 27.

⁸⁵ *Id.* at 11-12.

Based on this limited scope of analysis, the Corps concluded that there would be no effect to listed species or critical habitat on the development site.⁸⁶ The Corps did not therefore consult with the FWS regarding the effects of the proposed development set forth in the Master Plan. Instead, it requested concurrence from the Service that the activities on the offsite mitigation parcel may affect but were not likely to affect the northern Mexican gartersnake or western yellow-billed cuckoo.⁸⁷

On October 26, 2017, the FWS concurred in the Corps' decision that the proposed activities on the off-site parcels would not adversely affect listed species.⁸⁸ The FWS also deferred to the Corps' decision to limit the action area to only 1,775 acres of the project site, and thus did not consult with the Corps regarding the known effects of the Vigneto development on listed species and critical habitat.

The Corps issued a 404 Permit for Phase I on October 18, 2018, without any further consultation under Section 7 of the ESA.

II. The Endangered Species Act

The ESA is “the most comprehensive legislation for the preservation of endangered species ever enacted by any nation,” intended to “halt and reverse the trend toward species extinction, whatever the cost.” *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180, 184 (1978). The ESA authorizes the FWS to designate a species as “threatened” or “endangered,” and to also designate its “critical habitat.” *See* 16 U.S.C. §§ 1532(5)(A)(i), (6), (15) and (16), 1533(a)(1) and (b)(6)(C). When FWS designates a species as threatened or endangered, other federal departments and agencies are required to follow certain methods and procedures necessary to protect that species and its habitat. *See* 16 U.S.C. §§ 1531, 1532, 1536, 1538.

The ESA imposes a strict duty on the Corps to ensure that any action it authorizes “is not likely to jeopardize the continued existence of any . . . threatened species or result in the destruction or adverse modification of [critical] habitat of such species.” 16 U.S.C. § 1536(a)(2). The ESA and its implementing regulations establish an interagency consultation process to assist the Corps in complying with this substantive duty. Compliance with Section 7’s procedural requirements is necessary to prevent substantive violations of the ESA. *See Thomas v. Peterson*, 753 F.2d 754, 764 (9th Cir.1985) (“If a project is allowed to proceed without substantial compliance with those procedural requirements, there can be no assurance that a violation of the ESA’s substantive provisions will not result.”).

The Corps must consult with FWS under Section 7 if the issuance of a 404 Permit for the Vigneto development “may affect” a listed species. 50 C.F.R. § 402.14(a). The “[e]ffects of the action” refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that

⁸⁶ 2017 BE at 17.

⁸⁷ *See* Letter from Sallie Diebolt, Chief, Ariz. Branch, L.A. Dist., U.S. Army Corps of Eng’rs, to Steve Spangle, Field Supervisor, Ariz. Ecological Servs., Fish and Wildlife Serv. 1 (Sept. 25, 2017) [hereinafter “Corps Letter (Sept. 25, 2017)”] (attached as Ex. 42).

⁸⁸ *See* Concurrence Letter at 1.

action.” *Id.* § 402.02. Courts “interpret the term ‘agency action’ broadly,” because “caution can only be exercised if the agency takes a look at all the possible ramifications of the agency action.” *Conner v. Burford*, 848 F.2d 1441, 1453 (9th Cir. 1988); *Sierra Club v. Marsh*, 816 F.2d 1376, 1387 (9th Cir. 1987) (explaining that an agency’s duty to reinstate consultation is imposed where new information reveals interrelated or interdependent actions may have effects on listed species).

The minimum threshold for an agency action to trigger consultation with FWS is low. *W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 496 (9th Cir. 2011). “Any possible effect, whether beneficial, benign, adverse, or of an undetermined character, triggers the formal consultation requirement.” *Ctr. for Biological Diversity v. U.S. Bureau of Land Mgmt.*, 698 F.3d 1101, 1124 (9th Cir. 2012). The “threshold for formal consultation must be set sufficiently low to allow Federal agencies to satisfy their duty to ‘insure’ under section 7(a)(2).”⁸⁹ 51 Fed. Reg. 19,926, 19,949 (June 3, 1986) (final rule codified at 50 C.F.R. pt. 402). Where actions “may affect” listed species, “the burden is on the Federal agency to show the absence of likely, adverse effects to listed species or critical habitat as a result of its proposed action in order to be exempted from the formal consultation obligation.” *Id.* By placing this burden of proof on the action agency, the regulations ensure “full protection for listed species or critical habitat,” *id.*, and give the benefit of the doubt to the species. *See Conner*, 848 F.2d at 1454 (noting “Congress’ intent to ‘give the benefit of the doubt to the species.’”).

To determine whether its action triggers this low threshold, the Corps must prepare a biological evaluation (a.k.a. a biological assessment) that “shall evaluate the potential effects of the action on listed and proposed species and designated and proposed critical habitat.” 50 C.F.R. § 402.12(a). The purpose of the biological evaluation is to determine whether any “species or habitat are likely to be adversely affected by the action and is used in determining whether formal consultation or a conference is necessary.” *Id.*

Formal consultation is not required if the Corps determines, with the FWS’ written concurrence, that the proposed action may affect but “is not likely to adversely affect” the listed species. 50 C.F.R. § 402.14(b)(1). A finding of “not likely to adversely affect” can be made only if the effects of the proposed action on the listed species are expected to be “discountable, or insignificant, or completely beneficial.”⁹⁰ Otherwise, formal consultation must proceed, and the FWS must formulate a Biological Opinion that, among other things, includes “[a] detailed discussion of the effects of the action on listed species or critical habitat.” 50 C.F.R. § 402.14(h)(2).

⁸⁹ Section 7(a)(2) also imposes a substantive duty on federal agencies to ensure that their actions are not likely to jeopardize the continued existence of a listed species or adversely affect the critical habitat. *See* 16 U.S.C. § 1536(a)(2).

⁹⁰ U.S. FISH AND WILDLIFE SERV. & NAT’L MARINE FISHERIES SERV., ENDANGERED SPECIES CONSULTATION HANDBOOK: PROCEDURES FOR CONDUCTING CONSULTATION AND CONFERENCE ACTIVITIES UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT 3-12 (1998) [hereinafter “CONSULTATION HANDBOOK”] (attached as Ex. 43).

DISCUSSION

I. The Corps Violated Section 7 of the ESA by Adopting an Impermissibly Narrow Scope of Analysis.

Under the ESA, the Corps must evaluate the “potential effects of a proposed action,” 50 C.F.R. § 402.12(a), including indirect effects and the effects of interrelated or interconnected actions, *id.* § 402.02. Here, the Vigneto development is an indirect effect or interrelated/interconnected action of granting El Dorado a 404 Permit, and thus must be included as part of the action area subject to analysis under the ESA. El Dorado cannot develop Phase I as planned without a 404 Permit from the Corps. Nor can El Dorado construct the remaining phases of the development without the issuance of a permit for Phase I. The Corps violated the ESA by adopting an impermissibly narrow action area that excluded the Vigneto development, and thereby ignored the known effects of the development on listed species and critical habitat.

A. The Villages at Vigneto is an Indirect Effect of Granting a 404 Permit

The regulations implementing Section 7(a)(2) of the ESA require the Corps to consider “the effects of the action,” which “refers to the direct and indirect effects of an action on the species or critical habitat.” *Id.* The Ninth Circuit has held that indirect effects are “attenuated” consequences of the agency action. *San Luis & Delta-Mendota Water Auth. v. Locke*, 776 F.3d 971, 1009 (9th Cir. 2014). To show that something is an indirect effect of a proposed action, the plaintiff “must demonstrate (1) that it is caused by the action, (2) that it is later in time than the action, and (3) that it is reasonably likely to occur.” *Id.* All three of these elements are satisfied here, confirming that the entire Vigneto development is an indirect effect of granting a 404 Permit and must be analyzed under the ESA.

First, the 404 Permit makes the Vigneto development possible, thereby satisfying the causation requirement for indirect effects. “An indirect effect—as envisioned by 50 C.F.R. § 402.02—is one that the action makes possible (or indeed, more probable), but does not directly cause.” *Id.* Here, El Dorado needs a 404 permit from the Corps to develop the property, as specified in the Master Plan. The site is characterized by 475 acres of jurisdictional washes that are braided throughout the property. El Dorado cannot develop the property in an integrated, efficient, or practical manner without discharging fill into jurisdictional waters. El Dorado needs a 404 permit to develop the transportation network that will connect residences with commercial spaces, open spaces, parks, golf courses, resorts, and a Town Center – the “heart of the community” under the proposed Master Plan.⁹¹ El Dorado also depends on a 404 Permit to achieve the “harmonious” balance of uses set forth in the Master Plan, including the development of residential, mixed use, and golf courses in jurisdictional washes across the site.⁹²

⁹¹ See MASTER PLAN at 4, 67, 68 Ex. 11. El Dorado needs to fill 14.7 acres of jurisdictional waters for roads, an additional 4.0 acres for secondary roads, and 0.6 acres of for trails. See 2018 EA at 7. Figure 2 of the EA depicts the extent of impacts to waters of the United States. See 2018 EA Attach. A at 2 fig. 2.

⁹² See 2018 EA at 7 (identifying need to discharge dredge and fill material to create Residential and Commercial Development” and “Golf Courses”).

The 404 Permit makes the proposed project viable, satisfying the first requisite of an indirect effect.

Second, the Vigneto development is “reasonably certain to occur” as a result of granting a 404 Permit to the Corps. *See San Luis & Delta-Mendota Water Auth.*, 776 F.3d at 1009. El Dorado prepared a detailed Master Plan for the Villages at Vigneto and obtained approval from the City of Benson to develop 12,167 acres consistent with the Master Plan. El Dorado also entered into an agreement with the City of Benson to develop the Villages at Vigneto,⁹³ and in turn received authorization from the City to establish Special Taxation Districts to raise over \$1 billion in public financing to construct the Vigneto development on an accelerated timeline. Given these approved plans and commitments, it is reasonably certain that El Dorado would develop the Villages at Vigneto as planned, if it obtains a 404 Permit from the Corps.

Third, El Dorado plans to develop the property at a point “later in time,” satisfying the final requirement for indirect effects. *See San Luis & Delta-Mendota Water Auth.*, 776 F.3d at 1009. El Dorado has laid out a 35-year timeline to transform approximately 12,167 acres of largely undeveloped habitat into 28,000 residential units, 2,995,186 square feet of commercial development, eight to fourteen recreational centers (ranging from 8,000 square feet to 55,000 square feet in size), four golf courses, civic facilities, schools, fountains, lakes, a Village Center, and an extensive road and utility network.⁹⁴ Obtaining the 404 Permit would allow Vigneto to develop the property consistent with its overall purpose and need.

Given that the Vigneto development is an indirect effect of granting the 404 Permit, the Corps must analyze the total impact of development on listed species and critical habitat. For example, in *National Wildlife Federation v. Coleman*, 529 F.2d 359, 373–74 (5th Cir. 1976), the evidence showed that the construction of a highway would lead to increased residential and commercial development, which, in turn, would affect the habitat of the endangered Mississippi sandhill crane. The “total impact of the highway on the crane,” not merely the direct loss of habitat taken by the highway right-of-way, had to be considered. *Id.* at 373. The court thus required the transportation agency to consult with FWS to determine whether the private development accompanying the construction of the highway would jeopardize the existence of the crane. *Id.* at 362. That same reasoning applies here where granting a 404 Permit would lead to the development of the Villages at Vigneto, which in turn would affect listed species and critical habitat due to alteration of habitat, increased runoff, and groundwater pumping, as discussed above.

B. The Vigneto Development is an Interdependent or Interrelated Action of Granting the 404 Permit

Under the ESA, the effects of the action under consultation must be analyzed together with the effects of other activities that are interrelated to, or interdependent with, that action. 50 C.F.R. § 402.02. “Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent

⁹³ DRAFT DEVELOPMENT AGREEMENT at 4.

⁹⁴ RD APPLICATION, at pdf. 154-155 (Ex. J) (setting forth the build out scenario for development through 2053).

utility apart from the action under consideration.” *Id.* “The test for interrelatedness or interdependentness is ‘but for’ causation: but for the federal project, these activities would not occur” *Sierra Club*, 816 F.2d at 1387 (citation omitted); *see* 51 Fed. Reg. at 19,932.

El Dorado planned the Vigneto development as one cohesive 12,167-acre community, which it plans to build in sequential phases over the next 35 years. It also entered into an agreement with the City of Benson to develop the property pursuant to the 12,167-acre Master Plan. Phase 1 of the Vigneto development would not occur as planned but for the Corps’ issuance of a 404 Permit to El Dorado to commence construction. In other words, Phase 1 has “no independent utility apart from” the 404 Permit. *See* 50 C.F.R. § 402.02. Indeed, El Dorado conceded that a master-planned community—the essential purpose and need for the project—would not be viable on this site without the 404 Permit. The 404 Permit thus “makes possible (or indeed, more probable)” this phase of the Vigneto development, satisfying the FWS’s “but for” test. *See San Luis & Delta-Mendota Water Auth.*, 776 F.3d at 1009.

The remaining phases of the Vigneto development are also interdependent or interrelated actions as they would not occur as planned without the Corps issuance of a 404 Permit for Phase 1 of the development. As an initial matter, the Master Plan sets forth a comprehensive vision for developing 12,167-acres. While the Corps has attempted to segment this Master Plan into separate phases for permitting purposes, the permit boundaries are based on a prior development (the 8,212-acre Whetstone Ranch) and thus do not align with the planning units specified in the Master Plan for the Villages at Vigneto. As a result, the planning units *overlap and extend beyond* the permit boundary area for Phase I.⁹⁵ Developing these planning units consistent with the Master Plan depends on whether or not El Dorado obtains a 404 Permit for Phase I. This is particularly apparent for Planning Unit # 10, which is located in the southeastern quadrant of the development,⁹⁶ as access to this unit is constrained by the major jurisdictional wash running along the southern edge of the Corps’ Phase I permit area.⁹⁷

Furthermore, the Master Plan envisions a seamless integration across all 12,167 acres. As a result, the remaining planning units contain unique elements, such as the 220-acre resort,⁹⁸ that only make sense if Phase I is developed as planned. The remaining planning units also lack a Town Center and other amenities, which would be located within Phase I. Finally, El Dorado plans a sequential build-out of the project, commencing with the initial planning units (partially encompassed within Phase I) and moving on to the remaining phases.⁹⁹ El Dorado would not proceed with its Master Plan for the site unless it obtains the requisite 404 Permit for Phase I.

For these reasons, the action area encompasses the entire Vigneto development.

⁹⁵ Compare MASTER PLAN at 17 Ex. 5: Existing 404 Permit Boundary *with id.* at 22 Ex. 6: Planning Unit Maps. Planning Units 10 and 11 (PU # 10 & 11) clearly overlap the boundary identified by the Corps for Phase 1 of the development.

⁹⁶ *See id.* at 22 Ex. 6.

⁹⁷ *See* 2018 EA Attach. A at 2 fig. 2.

⁹⁸ *See* MASTER PLAN at 112 Ex. 16: Land Use Budget. The proposed resort would be located on the western side of State Highway 90 and would back up to the Whetstone mountains.

⁹⁹ RD APPLICATION at pdf. 154-155 (Ex. J).

C. The Corps' Impermissibly Narrowed the Action Area

The Corps assumed that someone else could hypothetically develop the property without a 404 Permit (i.e., the No Action Alternative) with the same effects on listed species, and thereby narrowed the action area to exclude the vast majority of the planned development.¹⁰⁰ The Corps' reliance on a hypothetical development scenario is fundamentally wrong, unsupported by the record, and leads to an improper, piecemeal analysis of the Vigneto development.

1. The Corps Cannot Limit the Action Area Based on a Hypothetical Development Scenario That Does Not Meet the Purpose of the Project

The Corps attempts to constrain the action area based on the premise that it lacks “control and responsibility” over the vast majority of the development because El Dorado could theoretically develop the property without a 404 Permit.¹⁰¹ The argument is fundamentally wrong and based on a misreading of the Corps' NEPA Guidelines, which do not constrain the action area under the ESA in any event.

The NEPA Guidelines set forth a multi-factor test to determine whether the Corps has sufficient “control and responsibility” over a project to require analysis of the project's effects in an EA or EIS. The regulations make it clear that the Corps' control and responsibility is not based on “generic” development of the property; rather, it is defined by the actual project. *See, e.g.*, 33 C.F.R. Pt. 325, App. B §7(b)(1) (“The district engineer should establish the scope of the NEPA document . . . to address the impacts of the specific activity requiring a DA permit and those portions of the entire project over which the district engineer has sufficient control and responsibility.”).

The Ninth Circuit has interpreted the Corps' Guidelines as focusing on “the relationship between the jurisdictional waters and the projects for which the dredge and fill permit were sought.” *White Tanks Concerned Citizens, Inc. v. Strock*, 563 F.3d 1033, 1041 (9th Cir. 2009). In determining the extent of the Corps' control and responsibility, the critical inquiry is “whether the waters must be affected *to fulfill the project's goals*.” *Id.* (emphasis added).

Here, El Dorado admittedly cannot fulfill its goal of developing an interconnected master-planned community without a 404 Permit due to the density and layout of washes on this site. El Dorado concedes that it would be unable to “meet [its] project purpose” of developing an interconnected master-planned community or retain its “core concept of interconnected villages.”¹⁰² In short, developing the property without the 404 Permit would not meet the overall purpose and need of the project,¹⁰³ and thus is “not feasible, because the result would not be a cohesive master-planned community.” *White Tanks*, 563 F.3d at 1041. Because the proposed project cannot be built as planned without the 404 Permit, the Corps must identify *those portions of the proposed project* that could not be developed without the issuance of the 404 Permit.

¹⁰⁰ *See generally* NO ACTION ALTERNATIVE.

¹⁰¹ *Id.*

¹⁰² El Dorado Letter at 3.

¹⁰³ NO ACTION ALTERNATIVE at 5.

There is no evidence here that El Dorado would develop any portion of the Vigneto development, as set forth in the Master Plan, without a 404 Permit. Indeed, El Dorado has told the Corps that the project, as El Dorado conceives it, would not proceed without a 404 Permit from the Corps due to the extent of the jurisdictional washes.¹⁰⁴ These facts are analogous to *White Tanks* where “the developers themselves have told the Corps that, without the permit, *the project as they conceive it*, could not proceed.” 563 F.3d at 1041–42 (emphasis added). There, as here, the Corps’ control and responsibility extends over the entire site.

The Corps, however, wholly failed to undertake the requisite analysis to determine the scope of its control and responsibility over the proposed development. Instead of focusing on the operative principle, that the Corps’ control and responsibility is determined by the proposed development’s impact on jurisdictional waters, the Corps assessed its control and responsibility based on the wrong test – whether the property was capable of being developed, *separate and apart from the proposed project*, without impacting jurisdictional waters (i.e. the no-action alternative). Under this test, the scope of analysis under NEPA is not based on what will happen if the agency takes action and the proposed development goes forward, but instead on what will happen if the permit does not issue. Clearly, this is not the approach set forth in *White Tanks* and would lead to an arbitrary analysis that overlooks the known effects of the agency action on listed species and critical habitat in violation of the ESA. *See Defs. of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 130 (D.D.C. 2001) (agencies violated ESA by failing “to define the ‘action area’ to include areas where pronghorn may be directly or indirectly affected by the agency action”).

The Corps further erred by assuming that the Guidelines limit the scope of the “action area” under the ESA. To the contrary, the Guidelines direct the Corps to determine whether the Endangered Species Act “expand[s]” the scope of Federal action and would “justify expanding the scope of a Corps NEPA document to cover upland portion[s]” of the development.¹⁰⁵ Here, the Vigneto development would adversely affect listed species and critical habitat due to habitat modification, groundwater pumping and surface runoff. As the FWS determined:

If the large groundwater withdrawals required to serve the Villages at Vigneto development curtails this presumed subflow, we *anticipate adverse effects* to yellow-billed cuckoos (and the cuckoo’s proposed critical habitat) as well as southwestern willow flycatchers (and the flycatcher’s critical habitat in the middle and potentially lower reaches of the San Pedro River).¹⁰⁶

These adverse effects confirm the Corps’ control and responsibility over the proposed development, and dictate a larger, not smaller, action area.

¹⁰⁴ El Dorado Letter at 3.

¹⁰⁵ 33 C.F.R. Part 325, Appx. B §7(b)(3).

¹⁰⁶ FWS 2015 Letter at 4 (emphasis added)

2. There is no Evidence Supporting the Corps' Assumption That Someone Else Would Hypothetically Develop the Property Without a 404 Permit

Any development of the property without a 404 Permit (i.e., the No Action Alternative) would be unreasonable, impractical, and contrary to El Dorado's overall purpose of developing a master-planned community. Nonetheless, the Corps presumes that someone else could hypothetically develop the property under the No-Action Alternative in essentially the same manner as the Villages at Vigneto. This assumption is based on pure speculation, overlooks significant constraints on any development of the property, and contradicts the Corps' rationale for granting a 404 Permit to El Dorado.

As an initial matter, neither the Corps nor El Dorado has provided *any* development plan demonstrating how they would avoid the jurisdictional washes while constructing 20,000 residences on the site. This oversight is problematic given that "the development of over 8,000 acres *demand*s . . . a high level of planning,"¹⁰⁷ especially given the web of jurisdictional washes on the site.¹⁰⁸ While the Corps assumes that development could occur on a random, *ad-hoc* basis, this assumption violates "[s]ound urban planning principles"¹⁰⁹ and would lead to a fragmented, undesirable development that lacks "the sense of place and cohesive continuity afforded through development of a master-planned community."¹¹⁰

Instead of identifying a plan for the No Action Alternative, the Corps simply assumes that future landowners "would seek to build the number of residential units allowed under the existing zoning" in the Master Plan.¹¹¹ But the No-Action Alternative would be *inconsistent* with the approved Master Plan. Future developers would not therefore be allowed to rely on the Master Plan to circumvent the zoning restrictions on the property, unless and until they obtained approval from the City of Benson to significantly amend the Master Plan to accommodate an entirely different development. Yet, there is no evidence the Mayor and City Council would approve a major amendment given that the No-Action Alternative lacks an integrated transportation network and presents erosion hazard potential.¹¹²

The Corps has also failed to identify *who* would develop the property without a 404 Permit. According to the Corps, it is "very likely" that any development of the property under

¹⁰⁷ 2018 EA at 49 (emphasis added).

¹⁰⁸ In fact, it took El Dorado over two and a half years to carefully develop the Master Plan for the Villages at Vigneto. Master Plan at 8 ("El Dorado has spent over two and a half years carefully planning this project with some of the industry's best experts. The Project involves nearly 25 years of predevelopment entitlements and approvals, which has led to this Final CMP.").

¹⁰⁹ 2018 EA at 49.

¹¹⁰ *Id.* at 51.

¹¹¹ NO ACTION ALTERNATIVE at 3.

¹¹² Under the No-Action Alternative, "erosion hazard potential and lack of roadway connectivity within any future development may significantly hinder the potential of the City of Benson to ensure required mix housing to meet the city residential development needs and objectives. Moreover, the city's housing potential stock and diversity will significantly be reduced without any impact to the U.S. waters." Permit Application at 5-6.

the No-Action Alternative “will not be under the control of a single master developer.”¹¹³ Instead, El Dorado would subdivide and sell the property to other, unidentified “future builders.”¹¹⁴ Development of the property would not therefore occur pursuant to a comprehensive community master plan.

Moreover, there is no evidence that the No Action Alternative is financially viable given the lack of any secured public financing. In August 2017, El Dorado petitioned for the creation of special taxing districts that would allow it to raise approximately \$1 billion in public financing for the Vigneto Development.¹¹⁵ Creation of these taxation districts is, however, contingent on El Dorado’s compliance with the Master Plan, and thus would not be available under the No-Action Alternative. El Dorado has not explained how future developers would finance the staggering infrastructure costs under the No-Action Alternative.¹¹⁶

In addition, any future builder would run the risk of civil and criminal liability if they attempted to develop the property without the 404 Permit. Under the Clean Water Act, any builder would be liable for any unauthorized discharge of fill material into the 75-miles of jurisdictional washes braided throughout the site. This is a real concern. The developer of the immediately adjacent Canyons at Whetstone improperly discharged fill into jurisdictional washes during the construction of that development, leading to an enforcement action by the Environmental Protection Agency (EPA).¹¹⁷ Nobody has attempted to develop the Villages at Vigneto site without a 404 Permit since then. Indeed, El Dorado made no effort to implement any portion of the Master Plan over the past two-and-a-half years while the 404 permit was suspended.¹¹⁸

The Corps and El Dorado also fail to specify *when* the property would be developed under the No-Action Alternative. The principal problem is the apparent lack of demand for undesirable and isolated subdivisions on this site. El Dorado has aggressively marketed the Villages at Vigneto as a “dynamic, world-class, master planned community that facilitates a socially interactive lifestyle” to lure future residents and stimulate demand for housing in this area.¹¹⁹ No such vision would exist for the No-Action Alternative, which would involve a series

¹¹³ NO ACTION ALTERNATIVE at 8.

¹¹⁴ El Dorado Letter at 2.

¹¹⁵ RD APPLICATION at 8.

¹¹⁶ In fact, the infrastructure costs of the No Action Alternative would be even greater due to the “[i]ncreased costs for requisite wash crossings to avoid waters of the United States by using spanned crossings.” 2018 EA at 51.

¹¹⁷ In 2006, the EPA brought an enforcement action against the developer of the Canyons at Whetstone under the Clean Water Act. See Thelma Grimes, “Whetstone builders ordered to stop work,” NEWS-SUN (Mar. 30, 2005), https://www.bensonnews-sun.com/news/article_0ffb19e5-cdee-5ed7-a164-314dc4c10fdd.html. There has been little to no development since EPA’s enforcement action.

¹¹⁸ The 404 Permit was suspended on July 20, 2016. Letter from David J. Castanon, Chief, Regulatory Div., U.S. Army Corps of Eng’rs, to Michael T. Reinbold, Dir. of Bus. & Dev., El Dorado Benson, LLC (July 20, 2016) [hereinafter “Suspension Letter”] (attached as Ex. 44).

¹¹⁹ MASTER PLAN at 3.

of scattered developments that lack a sense of community or place. The No-Action alternative would also lack the amenities of the Vigneto master-planned community, such as the integrated network of open spaces, parks, golf courses, trails, resorts, and a Town Center.¹²⁰ Any development under the No-Action Alternative would therefore be much “less desirable” to any future residents (or developers).¹²¹

Without the carefully planned and marketed vision of Vigneto, it is pure speculation to assume demand for 28,000 homes (70,000 new residents) on this site by 2040. Indeed, the *high-growth* projection for the City of Benson (5,105 residents) over this twenty-year timeframe is only 20%, resulting in at most 3,700 new residents by 2040.¹²² There is no evidence that the Benson market could absorb 28,000 new homes over this timeframe, especially where such homes are not part of a cohesive, “world-class,” master-planned community.

In fact, the EA concedes that development of the property would not occur at the same rate due to the lack of demand. The Corps explains that development would be hindered by a “decreased absorption” rate under the No-Action Alternative.¹²³ Rather than building unwanted residential or commercial units, El Dorado would set aside 3,000 acres for transitional agricultural uses (i.e. vineyards and apple orchards), a vastly different land use. There is no timeframe for developing these agricultural lands into commercial real estate or residences.

Even assuming there were (contrary to fact) demand for 28,000 new homes (an unprecedented 1200% growth rate for Benson by 2040), there is no evidence El Dorado would be able to develop the property at the same, accelerated rate under the No-Action Alternative. For the Villages at Vigneto Master Plan, El Dorado obtained the authority to raise almost \$1 billion in public financing, which it needed to “accelerate the installation” of infrastructure.¹²⁴ El Dorado has identified no such financing under the No-Action Alternative, and thus no way to accelerate build-out of the property. Indeed, there is no timetable for when El Dorado (or somebody else) would build out the entire site.

Furthermore, there is no evidence El Dorado would develop any lands beyond the 8,212 acres identified under the No-Action Alternative. El Dorado has no plans and expresses no intention to develop its additional 3,995-acres of land, if it does not receive a 404 Permit. This lies in sharp contrast with El Dorado’s commitment to the City of Benson to develop these lands

¹²⁰ Compare MASTER PLAN at 112 Ex. 16 (allocating 1,624 acres for natural open space, 280 acres for developed open space, 120 acres for parks, 546 acres for golf courses, 220 acres for a resort, and 260 acres for trails), with NO ACTION ALTERNATIVE at 4 tbl.1 (allocating 960 acres for natural open space, 150 acres for developed open space, 90 acres for public park, 500 acres for golf courses, and 0 acres for trails or resorts).

¹²¹ 2018 EA at 52.

¹²² CTY. OF BENSON, ARIZ., BENSON GENERAL DEVELOPMENT PLAN: TECHNICAL APPENDIX 8 tbl.5 (2015) [hereinafter “GENERAL DEVELOPMENT PLAN TECHNICAL APPENDIX”] (attached as Ex. 45).

¹²³ NO ACTION ALTERNATIVE at 4.

¹²⁴ RD APPLICATION at 1.

under the Master Plan¹²⁵ and its specific timetable for developing 28,033 residences and 2,602,045 square feet of commercial space within the 12,167-acre Vigneto boundary by 2037.¹²⁶ These differences translate into radically different groundwater use projections. Whereas the Vigneto development would consume 8,427 acre feet of water per year, the No Action Alternative (assuming “conceptual buildout”) would consume 6,032 acre feet per year – a difference of over 2,000 acre feet.¹²⁷

Finally, the Corps’ assumption that someone could develop the property under the No Action Alternative undercuts its basis for granting El Dorado a 404 Permit. The Clean Water Act prohibits the Corps from issuing a 404 permit for a project if there is a “practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem.” 40 C.F.R. § 230.10(a)(3)). The No-Action Alternative would not involve any discharge of dredge or fill material into waters of the United States, and thus would have the least adverse impact on waters of the United States. The Corps, however, dismissed the No Action Alternative on the grounds that it was not practical.¹²⁸ That determination highlights the Corps’ arbitrary assumption – for the purposes of narrowing the action area and circumventing the ESA – that the No-Action Alternative is practical.

In sum, there is no evidence supporting the Corps’ bare assumption that someone else would develop the property in the same manner under the No Action Alternative. Even taking the Corps assertions at face value, there are significant differences in the density, layout, and timing of development under the No-Action Alternative, which lead to significantly different impacts on the environment that must be analyzed under the ESA. The action area must therefore encompass the entire Vigneto development to ensure analysis of the effects of the Corps’ decision to grant the 404 Permit.

3. The Corps Has Impermissibly Piecemealed Its Analysis of the Vigneto Development

The Corps claims that it need not analyze the remaining phases of the Vigneto development because Phase 1 “would stand on its own.”¹²⁹ The argument misapplies the but-for test, runs contrary to the evidence, and results in an impermissible piecemeal analysis of the Vigneto development.

The relevant test for interrelated or interdependent effects is whether the *remaining* phases of the Vigneto development would occur but for the Corps’ decision to grant a 404 Permit to El Dorado for Phase I. See 50 C.F.R. § 402.02; *Nat. Res. Def. Council v. Rodgers*, 381 F.Supp.2d 1212, 1234–35 (E.D. Cal. 2005) (“The test for interrelated or interdependent effects is ‘but for’ causation, i.e., but for the proposed action, would the other action occur.”). The FWS’ Consultation Handbook highlights the relevant inquiry:

¹²⁵ DRAFT DEVELOPMENT AGREEMENT at 4.

¹²⁶ RD APPLICATION at pdf. 154–55 Ex. J (setting forth El Dorado’s build out scenario through 2053, which exceeds even the 28,000 residences projected in the Master Plan).

¹²⁷ 2018 EA at 68.

¹²⁸ ALTERNATIVES ANALYSIS MEMO at 34–35.

¹²⁹ SCOPE OF ANALYSIS MEMO at 68.

The biologist should ask whether another activity in question would occur “but for” the proposed action under consultation. If the answer is “no,” that the activity in question would not occur but for the proposed action, then the activity is interrelated or interdependent and should be analyzed with the effects of the action.¹³⁰

Here, there is no evidence in the record showing that the remaining phases of the development would occur, without the Corps’ issuance of a 404 Permit to El Dorado for Phase I of this master-planned community. To the contrary, the evidence outlined above, including El Dorado’s own statements, demonstrate that development of the remaining phases of the Master Plan depend on the issuance of a 404 Permit for Phase I.

There are significant reasons to reject the Corps’ attempt to segment the Vigneto development. Such impermissible segmentation would allow the Corps to engage in a series of limited consultations without ever undertaking a comprehensive assessment of the impacts of the Vigneto development on protected species. The ESA forecloses such piecemeal analysis. *See Conner*, 848 F.2d at 1457–58 (the ESA “does not permit the incremental-step approach” of consultation because “biological opinions must be coextensive with the agency action”).

In sum, the Corps cannot refuse to analyze the impacts of the Vigneto development based on surmise and speculation contradicted by the record. The Vigneto development is an indirect effect made possible by the issuance of a 404 permit, which is essential to the Master Plan. Alternatively, the Vigneto development is an interrelated or interdependent action, as it would not occur “but for” the issuance of the 404 Permit. The Corps cannot exclude the impacts of the Vigneto development from the action area based on the unsupported assumption that someone else would develop the property in the same manner without an approved master plan, secured financing, projected demand, or a 404 Permit. Even if such a counter-factual scenario were possible, it would occur at a different scale, layout, and time, resulting in differing impacts on listed species that cannot escape review under the ESA.

II. The Corps Violated Section 7 of the ESA by Failing to Ensure that Granting a 404 Permit Would Not Jeopardize Listed Species or Adversely Modify Critical Habitat

Phase 1 of the proposed Vigneto development would eliminate or degrade upland habitat, increase surface runoff and erosion, and dewater the regional aquifer that supports surface flows and critical habitat along the San Pedro River. The remaining phases of the development would exacerbate these impacts, causing additional impacts to threatened and listed species. By impermissibly constraining the action area, the Corps turned a blind eye to these effects, violating its statutory duty to consult with FWS and ensure that its actions do not jeopardize the jaguar, western yellow-billed cuckoo, southwestern willow flycatcher, northern Mexican gartersnake, and Huachuca water umbel, or adversely modify their critical habitat.

Phase 1 of the Vigneto development would degrade or eliminate suitable habitat for the western yellow-billed cuckoo, impacting the species’ potential use of this area to move between

¹³⁰ CONSULTATION HANDBOOK at 4-27.

critical habitat along the San Pedro River and Guardini Canyon. These direct effects trigger the “low” threshold for finding that an action may affect species. *W. Watersheds Project*, 632 F.3d at 496.

Phase 1 of the Vigneto development may also indirectly impact the jaguar, which is known “to avoid human development and highly disturbed areas.”¹³¹ The development would transform 8,212 acres of undisturbed habitat into an urban city, increasing recreation, noise, and olfactory and light pollution in the jaguar’s directly-adjacent critical habitat. The Corps must consult with the FWS regarding the impacts of the Vigneto development on the species’ movement and use of this critical habitat. See *S. Yuba River Citizens League v. Nat’l Marine Fisheries Serv.*, 723 F. Supp. 2d 1247, 1270 (E.D. Cal. 2010) (“The reality of judicial review, however, obliges [the Corps] to respond to this evidence with a reasoned explanation.”).

In addition, the development would convert thousands of acres of upland habitat into impervious surfaces, including a network of roads, buildings, parking structures, and golf courses. Hydrological models show that the development would increase stormwater runoff and sediment transport into the San Pedro River, thereby affecting downstream critical habitat and proposed critical habitat for the western yellow-billed cuckoo, northern Mexican gartersnake, and southwestern willow flycatcher. Because these indirect effects “can be expected to result” from the Vigneto development, they must be analyzed under the ESA. *Locke.*, 776 F.3d at 1009 (citation omitted).

Further, groundwater pumping at the Vigneto development is reasonably certain to affect endangered species and critical habitat along the San Pedro River. In the arid environment of the southwest, the FWS has unequivocally stated that “any appreciable (i.e. measurable) loss of stream flow, regardless of its cause . . . constitutes an adverse effect on threatened and endangered aquatic species, and, as applicable, proposed and final critical habitat.”¹³² Here, hydrological modeling shows that the Vigneto development would “drawdown the aquifer below the St. David Cienega area ‘on the order of 0.25 to 0.45 meters after 100 years.’”¹³³ The model predicts a maximum drawdown of 5 meters along the San Pedro River adjacent to the property.¹³⁴ These groundwater drawdowns are measurable and will likely result in “adverse effects to yellow-billed cuckoos (and the cuckoos critical habitat) as well as southwestern willow flycatchers (and the flycatcher’s critical habitat in the middle and potentially lower reaches of the San Pedro River) and Huachuca water umbel.”¹³⁵

The remaining phases of the Vigneto development would exacerbate these impacts to listed species and critical habitat. The later phase would overlap and degrade up to 650 acres of jaguar critical habitat. This clearly constitutes an effect triggering Section 7’s consultation requirements. Moreover, the Vigneto development will alter 3,995 additional acres of upland habitat, increasing the amount of surface runoff and sediment yield into the San Pedro River, and

¹³¹ 2017 BE at 12.

¹³² ROSEMONT AM. BIOP at 38 (emphasis added).

¹³³ GROUNDWATER USE MEMO at 8 (quoting PRUCHA (2016)).

¹³⁴ ALTERNATIVES ANALYSIS MEMO at 41 (citing PRUCHA (2016)).

¹³⁵ FWS 2015 Letter at 4.

exacerbating effects to downstream critical habitat and listed species that depend upon that habitat, including the western yellow-billed cuckoo, southwestern willow flycatcher, and northern Mexican gartersnake.¹³⁶ Furthermore, the whole development would consume significantly more groundwater, drawing down the aquifer and further effecting flows along the San Pedro River that support yellow-billed cuckoos as well as southwestern willow flycatchers and Huachuca water umbel, including the species' listed and proposed critical habitat.

The effects of groundwater pumping on listed species and critical habitat is a textbook example of an indirect effect that must be analyzed under the ESA. *See* 51 Fed. Reg. at 19935 (stating that the ESA requires consideration of indirect effects such as “ground water pumping that occurs on land adjacent to the critical habitat area, but nevertheless diminishes essential groundwater levels within the critical habitat”). In *Center for Biological Diversity*, 698 F.3d at 1124, the Ninth Circuit held that groundwater withdrawals associated with a pipeline constituted a “relevant factor” in determining whether the Project would result in jeopardy to listed fish species or adverse modification of those species' critical habitat. The groundwater withdrawals in that case (approximately 337.8 million gallons or 1,037 acre-feet) were not “de minimis, and so ‘may affect’ listed species.” *Id.* Here, the Vigneto development will depend on groundwater pumping at a rate of at least 5.38 million gallons per day (6,032 acre-feet per year) for Phase I alone, and approximately 7.52 million gallons per (8,427 acre-feet per year) for the entire development.¹³⁷ Hydrologic modeling demonstrates that these groundwater withdrawals will likely have a measurable impact on surface flows along the San Pedro River, effecting downstream endangered species and critical habitat, as acknowledged by the FWS. The Corps refusal to consider these impacts violated the ESA. *Id.* at 1124.

The impacts of groundwater pumping on the western yellow-billed cuckoo, southwestern willow flycatcher, and northern Mexican gartersnake are anticipated to become even more severe due to climate change and anticipated additional pumping in the upper San Pedro river. The best available science already indicates that climate change is both a current and foreseeable stressor for riparian-dependent species along the San Pedro River.¹³⁸ Additional pumping along the river is also a reasonably foreseeable threat given that current pumping already exceeds the natural recharge rate.¹³⁹ The Corps must assess the effects of climate change and future pumping on river hydrology, listed species, and critical habitat. *See Pac. Coast Fed'n of Fishermen's Ass'n v. Gutierrez*, 606 F. Supp. 2d 1122, 1184 (E.D. Cal. 2008) (holding that agency's failure to

¹³⁶ *See id.* at 3.

¹³⁷ 2018 EA at 68.

¹³⁸ Tucson Audubon Society Comment Letter (Mar. 13, 2015) at 30–33 (collecting studies); Meixner et al. (2016) at 132–33.

¹³⁹ *See* STANLEY A. LEAKE ET AL., SIMULATED U.S. GEOLOGICAL SURVEY, EFFECTS OF GROUND-WATER WITHDRAWALS AND ARTIFICIAL RECHARGE ON DISCHARGE TO STREAMS, SPRINGS, AND RIPARIAN VEGETATION IN THE SIERRA VISTA SUBWATERSHED OF THE UPPER SAN PEDRO BASIN, SOUTHEASTERN ARIZONA 2 (2014) (“Currently, water outflow from the subwatershed, including water withdrawn by pumping, exceeds natural inflow to the regional aquifer within the subwatershed. As a result, ground-water levels in parts of the subwatershed are declining and ground-water storage is being depleted.”).

address, adequately explain, and analyze impacts of climate change on species violated the ESA).

The FWS' Letter of Concurrence cannot save the Corps' flawed approach. Because the FWS simply deferred to the Corps' impermissibly narrow definition of the action area in the Biological Evaluation, it did not consider the indirect or interrelated effects of the Vigneto development either. Thus, the Corps cannot therefore rely on the Letter of Concurrence to satisfy its obligation to demonstrate that granting a 404 Permit will "not likely to adversely affect any listed species or critical habitat," as is required to forego the requisite formal consultation. 50 C.F.R. § 402.14(b)(1).

In sum, the Corps must consult with the FWS regarding the effects of the Vigneto development to comply with its obligations under Section 7 of the ESA to ensure that granting a 404 Permit will not jeopardize any listed species or adversely affect critical habitat.

III. The Corps Failed to Consult with FWS Regarding the Effects of Actions within its Impermissibly Narrow Scope of Analysis and Ignored the Best Available Science

Even accepting the Corps' impermissibly narrow definition of the action area, the Corps still failed to analyze the effects of granting a 404 Permit on listed species and critical habitat, rendering its "no effect" determination for onsite actions arbitrary, capricious, and contrary to the ESA. Furthermore, the Corps failed to consider the best available science in disregarding the impacts of groundwater pumping.

"Any possible effect, whether beneficial, benign, adverse, or of an undetermined character, triggers the formal consultation requirement." *Ctr. for Biological Diversity*, 698 F.3d at 1224. Thus, while the conservation organizations bear the burden of showing that the groundwater withdrawals within the Corps' action area "may affect" listed species or critical habitat, the burden is not a heavy one. "Essentially, petitioners need to show only that an effect on listed species or critical habitat is plausible." *Id.*

Here, the evidence shows that groundwater withdrawals within the Corps' 1,775-acre action area may plausibly affect listed species or critical habitat. As documented above, the FWS has compiled extensive literature, including studies from the San Pedro River, documenting how even small drawdowns in groundwater can have far-reaching impacts on riparian ecosystems.¹⁴⁰ Indeed, "any appreciable (i.e. measurable) loss of stream flow . . . constitutes an adverse effect on threatened and endangered aquatic species, and, as applicable, proposed and final critical habitat."¹⁴¹ *See also Ctr. for Biological Diversity*, 698 F.3d at 1124 ("[T]he groundwater withdrawals at the level contemplated are not . . . de minimis, and so 'may affect' listed fish species").

Groundwater models demonstrate that pumping within the Corps' 1,775 action area will have a measurable impact on stream flow along the San Pedro River, causing an adverse effect to

¹⁴⁰ ROSEMONT AM. BIOP at 61–62; *see also* LEENHOUTS ET AL. (2006) at 3 (explaining how groundwater drawdown can impact riparian habitat "across the riparian system").

¹⁴¹ ROSEMONT AM. BIOP at 38.

listed species and critical habitat. The Corps acknowledges that pumping within the action area will be equivalent to 159,100 gallons per day or 178 acre feet per year.¹⁴² This magnitude of pumping will drawdown surface flows along the San Pedro River between 2 to 3 inches after 100 years, according to the available hydrological models.¹⁴³ This drawdown may affect listed species and critical habitat along the San Pedro River by reducing plant regeneration, herbaceous and shrub growth, tree survival, foliar cover, woodland width, and prey abundance that coincides with the reduced length, width, and depth of wetted streambed and depth to groundwater.¹⁴⁴ There is thus the potential for adverse effects to the western yellow-billed cuckoo, northern Mexican gartersnake, southwestern willow flycatcher, and Huachuca water umbel.

The Corps provides no rational basis for ignoring these effects on listed species and critical habitat. The Corps did not analyze the impacts of groundwater drawdown anywhere in its Biological Evaluation, despite the availability of hydrological models on point. *See Ctr. for Biological Diversity v. Salazar*, 804 F. Supp. 2d 987, 1008 (D. Az. 2011) (“Where a plaintiff demonstrates the existence of ‘data that was omitted from consideration,’ courts may find a violation of the ESA for failure to use the best scientific and commercial data.”) (quoting *Kern Cnty. Farm Bureau v. Allen*, 450 F.3d 1072, 1081 (9th Cir. 2006)). Furthermore, the Corps refused to consult with FWS regarding the effects of groundwater drawdown, entirely overlooking the issue.

The Corps attempts to dismiss the predicted drawdown on the grounds that groundwater pumping would have “no interference with the San Pedro River subflow hydrologic regime” because the San Pedro River is not hydrologically connected to the regional aquifer.¹⁴⁵ This assertion is based on an outdated study from 2004 by Golder and Associates. Even more problematic, the Corps has ignored two recent hydrological studies confirming the existence of a hydrological connection between the deep aquifer and surface flows at St. David Cienega.¹⁴⁶ The Corps overlooked these recent studies, violating the ESA’s best available science mandate. *See Salazar*, 804 F. Supp. 2d at 1008 (“Where a plaintiff demonstrates the existence of ‘data that was omitted from consideration,’ courts may find a violation of the ESA for failure to use the best scientific and commercial data.”).

The Corps also tries to write off the Prucha study on the grounds that it is not perfect.¹⁴⁷ But courts do not “insist on perfection: The best scientific data available does not mean the best scientific data possible.” *Nat’l Wildlife Fed’n v. Nat’l Marine Fisheries Serv.*, 184 F. Supp. 3d 861, 878 (D. Or. 2016) (internal quotations and citations omitted). While the Corps generically suggests that groundwater models can “most reliably predict impacts down to the 5-ft to 10-ft

¹⁴² 2018 EA at 68.

¹⁴³ *Id.* at 94.

¹⁴⁴ ROSEMONT AM. BIOP at 242.

¹⁴⁵ 2018 EA at 87.

¹⁴⁶ *See* EASTOE (2017) at 1–3, 7; Eastoe (2018) at 1, 9 & fig.6; *see also* MEIXNER (2017) at 4 (concluding that Eastoe’s “isotopic results confirm that there is a hydrologic connection between the confined aquifer and the surface flow system of the San Pedro at St. David.”).

¹⁴⁷ GROUNDWATER USE MEMO at 10.

drawdown contours,”¹⁴⁸ it provides no credible reason for disputing the reliability of the Prucha model, which predicts a drawdown of 0.25 to 0.45 meters at St. David Cienega. At any rate, the Prucha model also predicts a drawdown of 5 meters under the San Pedro River, which is well within even the Corps’ self-described zone of predictive capability. The Corps cannot disregard this “available biological information.” *Id.*

The Corps asserts that a drawdown of between 2 and 3 inches in 100 years would have “discountable” effect on the San Pedro River or riparian habitat.¹⁴⁹ But there is no analysis or evidence to support this bare assertion. To the contrary, the best available scientific data in the record establishes a measurable loss of surface and baseflows due to groundwater drawdown. This drawdown is a “relevant factor” that the Corps must analyze to determine if there are any adverse effects on listed species or critical habitat. *See Ctr. for Biological Diversity*, 698 F.3d at 1124.

In sum, the Corps’ wholesale refusal to analyze the impacts of groundwater drawdown, even groundwater withdrawal within its impermissibly circumscribed action area, was arbitrary, capricious, and contrary to the ESA.

IV. Conclusion

For the foregoing reasons, the Corps has violated and remains in violation of the ESA. If these violations of law are not cured within sixty days, the Conservation Organizations intend to file suit for declaratory and injunctive relief, as well as for attorney and expert witness fees and costs. 16 U.S.C. § 1540(g).

Sincerely,



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Enclosure: USB Drive containing attachments

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¹⁴⁸ *Id.*

¹⁴⁹ 2018 EA at 78.

EXHIBIT LIST

Ex.	Full Name	Short Name
1	Letter from Alexis Strauss, Dir., Water Div., Env'tl. Prot. Agency, to Colonel Alex Dornstrauder, U.S. Army Corps of Eng'rs (May 25, 2006)	EPA Letter (May 25, 2006)
2	PAUL M. BARLOW & STANLEY A. LEAKE, STREAMFLOW DEPLETION BY WELLS — UNDERSTANDING AND MANAGING THE EFFECTS OF GROUNDWATER PUMPING ON STREAMFLOW, U.S. GEOLOGICAL SURVEY (2012).	BARLOW & LEAKE (2012)
3	CHRIS EASTOE, A STABLE ISOTOPE STUDY OF GROUNDWATER AND SURFACE WATER NEAR THE ST. DAVID CIENEGA, SAN PEDRO VALLEY, ARIZONA (2017)	EASTOE (2017)
4	CHRIS EASTOE, STABLE ISOTOPE STUDY OF ST. DAVID CIENEGA AND SURROUNDINGS – 2018 SAMPLING (2018)	EASTOE (2018)
5	THOMAS MEIXNER, POTENTIAL IMPACTS OF THE GROUNDWATER PUMPING RELATED TO THE VILLAGES AT VIGNETO ON SURFACE WATER RESOURCES ALONG THE SAN PEDRO RIVER (2017)	MEIXENER (2017)
6	JEFFREY T. CORDOVA ET AL., U.S. GEOLOGICAL SURVEY, HYDROLOGY OF THE MIDDLE SAN PEDRO WATERSHED, SOUTHEAST ARIZONA (2015)	CORDOVA ET AL. (2015)
7	Julie C. Stromberg & Duncan T. Patten, <i>Riparian Vegetation Instream Flow Requirements—A Case Study from a Diverted Stream in the Eastern Sierra Nevada, California, USA</i> , 14 ENVTL. MGMT. 185 (1990)	Stromberg & Patten (1990)
8	J.C. Stromberg, R. Tiller, & B. Richter, <i>Effects of Groundwater Decline on Riparian Vegetation of Semiarid regions: The San Pedro River, Arizona</i> , 6 ECOLOGICAL APPLICATIONS 113, 113–131 (1996)	Stromberg, Tiller, & Richter (1996)
9	Brian D. Richter et al., <i>How Much Water Does a River Need?</i> , 37 FRESHWATER BIOLOGY 231, 231–249 (1997)	Richter et al. (1997)
10	EL DORADO BENSON, LLC, THE VILLAGES AT VIGNETO: FINAL COMMUNITY MASTER PLAN AND DEVELOPMENT PLAN (2016)	MASTER PLAN
11	U.S. ARMY CORPS OF ENG'RS, DEP'T OF THE ARMY, DEPARTMENT OF THE ARMY ENVIRONMENTAL ASSESSMENT AND STATEMENT OF FINDINGS FOR THE ABOVE-REFERENCED STANDARD INDIVIDUAL PERMIT APPLICATION, FILE NO. SPL 2003-00826 68 (2018)	2018 EA
12	EL DERADO BENSON, LLC, APPLICATION FOR THE FORMATION OF THE VILLAGES AT VIGNETO SPECIAL TAXATION DISTRICTS: REVITALIZATION DISTRICTS NO. 1, NO. 2, NO. 3, NO. 4, NO. 5, NO. 6, AND NO. 7 (2017)	RD APPLICATION
12a	DEVELOPMENT AND INTERGOVERNMENTAL AGREEMENT FOR THE VILLAGES AT VIGNETO COMMUNITY FACILITIES	TAXATION AGREEMENTS

	DISTRICTS NOS. 1, 2, & 3, AND REVITALIZATION DISTRICTS NOS. 1, 2, 3, 5, 6, & 7 (2017)	
13	WILLIAM STEPHENS, CITY MANAGER, CITY OF BENSON, THE VILLAGES AT VIGNETO DEVELOPMENT AGREEMENT DRAFT 4 (2016)	DRAFT DEVELOPMENT AGREEMENT
14	U.S. ARMY CORPS OF ENG'RS, PUBLIC NOTICE: RE-EVALUATION OF PERMIT PHASE 1 VILLAGES AT VIGNETO: SPL-2003-00826-KAT 4 (2017)	RE-EVALUATION NOTICE
15	RICK ENGINEERING CO., 404 INDIVIDUAL PERMIT FOR WHETSTONE RANCH, FILE NO. 2003-00826-SDM (2003)	PERMIT APPLICATION
16	2018 EA, Attach. A	2018 EA, Attach. A
17	U.S. ARMY CORPS OF ENG'RS, ACOE FILE NO. 2003-00826-SDM: NO FEDERAL ACTION ALTERNATIVE DESCRIPTION (2017)	NO ACTION ALTERNATIVE
18	Letter from Jim Kenny, President, El Dorado Benson LLC, to Sallie Diebolt, Chief, Ariz. Branch, U.S. Army Corps of Eng'rs, Regulatory Div. – L.A. Dist. (Sept. 14, 2017)	El Dorado Letter
19	JENNIFER HOLMES, REVIEW COMMENTS FOR BIOLOGICAL EVALUATION FOR SPL-2003-00826 (2017)	HOLMES, BE COMMENTS
20	Letter from Steven L. Spangle, Field Supervisor, U.S. Fish & Wildlife Serv., to Sally Diebolt, Chief, Arizona Branch, U.S. Army Corps of Eng'rs (July 14, 2015)	FWS 2015 Letter
21	ARIZ. BRANCH, L.A. DIST. REGULATORY DIV., U.S. ARMY CORPS OF ENG'RS, BIOLOGICAL EVALUATION FOR SPL-2003-00826 (2017)	2017 BE
22	Letter from Matt Clark, Conservation Policy Analyst, Tucson Audubon Soc'y, Christina McVie, Conservation Chair, Tucson Audubon Soc'y, and Karen Fogas, Exec. Dir., Tucson Audubon Soc'y, to William Miller, Dist. Eng'r, L.A. Dist., U.S. Army Corps of Eng'rs, and Sallie Diebolt, Chief, Ariz. Branch, U.S. Army Corps of Eng'rs (May 19, 2015)	Tucson Audubon Society Comment Letter (May 19, 2015)
23	ARIZ. GAME AND FISH DEP'T, ARIZONA'S WILDLIFE LINKAGE ASSESSMENT (2006)	ARIZ. WILDLIFE LINKAGES
24	L. LEVICK ET AL., U.S. DEP'T OF AGRIC. RESEARCH SERV., U.S. ENVTL. PROT. AGENCY, EPA/600/R-06/158, ARS/1873, SIMULATED CHANGES IN RUNOFF AND SEDIMENT IN DEVELOPING AREAS NEAR BENSON, ARIZONA (2006)	LEVICK ET AL. (2006)
25	LESLIE DORWORTH & ROBERT MCCORMICK, IMPACTS OF DEVELOPMENTS ON WATERWAYS (2005)	DORWORTH & MCCORMICK (2005)
26	Decision and Order, In the Matter of the Application of the City of Benson for A Designation As Having An Adequate Water Supply (July 14, 2008) (No. 41-401803.0001)	ADWR Water Designation

27	WESTLAND RES., TECHNICAL MEMORANDUM ANALYSIS OF EFFECTS OF GROUNDWATER USE WITHIN U.S. ARMY CORPS OF ENGINEERS SCOPE OF ANALYSIS FOR PHASE 1 OF VILLAGES AT VIGNETO (2018)	GROUNDWATER USE MEMO
28	ROBERT H. PRUCHA, INTEGRATED HYDRO SYS., LLC, EVALUATION OF IMPACTS OF PROPOSED WELL PUMPING AT THE VILLAGES OF VIGNETO DEVELOPMENT, SOUTHWEST OF BENSON, ARIZONA ON SPRINGS ADJACENT TO THE SAN PEDRO RIVER (2016)	PRUCHA (2016)
29	JAMES M. LEENHOUTS ET AL., U.S. GEOLOGIC SURVEY, DEP'T OF THE INTERIOR, SCI. INVESTIGATION REPORT 2005-5163, HYDROLOGIC REQUIREMENTS OF AND CONSUMPTIVE GROUND-WATER USE BY RIPARIAN VEGETATION ALONG THE SAN PEDRO RIVER, ARIZONA (2006)	LEENHOUTS ET AL. (2006)
30	WESTLAND RES., INC., VILLAGES AT VIGNETO SECTION 404(B)(1) ALTERNATIVES ANALYSIS: EL DERADO BENSON LLC (2018)	ALTERNATIVES ANALYSIS MEMO
31	FISH AND WILDLIFE SERV., DEP'T OF THE INTERIOR, AMENDED FINAL REINITIATED BIOLOGICAL AND CONFERENCE OPINION FOR THE ROSEMONT COPPER MINE, PIMA COUNTY, ARIZONA (2016)	ROSEMONT AM. BIOP
32	Christer Nilssen & Kajsa Berggren, <i>Alterations of Riparian Ecosystems Caused by River Regulation</i> , 50 BIOSCIENCE, 783 (2000)	Nilssen & Berggren (2000)
33	Robert H. Webb & Stanley A. Leake, <i>Ground-water surface-water interactions and long-term change in riverine riparian vegetation in southwestern United States</i> , 320 J. OF HYDROLOGY 302 (2006)	Webb & Leake (2006)
34	Juliet C. Stromberg et al., <i>Effects of Stream Flow Intermittency on Riparian Vegetation of Semiarid Region River (San Pedro River, Arizona)</i> , 21 RIVER RES. APPLICATIONS 925 (2005)	Stromberg et al. (2005)
35	Uyen Nguyen et al., <i>Long-term decrease in satellite vegetation indices in response to environmental variables in an iconic desert riparian ecosystem: the Upper San Pedro, Arizona, United States</i> , ECOHYDROLOGY, July 2014	Nguyen et al. (2014)
36	JEANMARIE HANEY & JIM LOMBARD, THE NATURE CONSERVANCY, ON THE GROUND: INTERBASIN GROUNDWATER FLOW AT BENSON NARROWS (2005)	HANEY & LOMBARD (2005)
37	Letter from Steven L. Spangle, Field Supervisor, Ariz. Ecological Servs. Field Office, Fish and Wildlife Serv., to Sally Diebolt, Chief, Ariz. Branch, L.A. Dist., U.S. Army Corps of Eng'rs (Oct. 26, 2017)	Concurrence Letter

37a	Letter from Steven L. Spangle, Field Supervisor, Ariz. Ecological Servs. Field Office, Fish and Wildlife Serv., to Sally Diebolt, Chief, Ariz. Branch, L.A. Dist., U.S. Army Corps of Eng'rs 3 (Oct. 14, 2016)	FWS 2016 Letter
38	E-Mail from Jim Rorabaugh, to Julie Crawford and Doug Duncan (May 4, 2017 17:57 MST)	Rorabaugh Email
39	Thomas Meixner et al., <i>Implications of projected climate change for groundwater recharge in the western United States</i> , 534 J. OF HYDROLOGY 124 (2016)	Meixner et al. (2016)
40	Letter from Matt Clark, Conservation Policy Analyst, Tucson Audubon Soc'y, Christina McVie, Conservation Chair, Tucson Audubon Soc'y, and Karen Fogas, Exec. Dir., Tucson Audubon Soc'y, to Daniel M. Ashe, Dir., U.S. Fish and Wildlife Serv. (Mar. 13, 2015)	Tucson Audubon Society Comment Letter (Mar. 13, 2015)
41	U.S. ARMY CORPS OF ENG'RS, NATIONAL ENVIRONMENTAL POLICY ACT SCOPE OF ANALYSIS AND ENDANGERED SPECIES ACT ACTION AREA FOR PHASE I VILLAGES AT VIGNETO COMMUNITY MASTER PLAN AREA (PERMIT # SPL-2003-00826) (2017)	SCOPE OF ANALYSIS MEMO
42	Letter from Sallie Diebolt, Chief, Ariz. Branch, L.A. Dist., U.S. Army Corps of Eng'rs, to Steve Spangle, Field Supervisor, Ariz. Ecological Servs., Fish and Wildlife Serv. (Sept. 25, 2017)	Corps Letter (Sept. 25, 2017)
43	U.S. FISH AND WILDLIFE SERV. & NAT'L MARINE FISHERIES SERV., ENDANGERED SPECIES CONSULTATION HANDBOOK: PROCEDURES FOR CONDUCTING CONSULTATION AND CONFERENCE ACTIVITIES UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT (1998)	CONSULTATION HANDBOOK
44	Letter from David J. Castanon, Chief, Regulatory Div., U.S. Army Corps of Eng'rs, to Michael T. Reinbold, Dir. of Bus. & Dev., El Dorado Benson, LLC (July 20, 2016)	Suspension Letter
45	CTY. OF BENSON, ARIZ., BENSON GENERAL DEVELOPMENT PLAN: TECHNICAL APPENDIX (2015)	GENERAL DEVELOPMENT PLAN TECHNICAL APPENDIX
46	STANLEY A. LEAKE ET AL., U.S. GEOLOGICAL SURVEY, DEP'T OF THE INTERIOR, SCI. INVESTIGATION REPORT 2005-5207, EFFECTS OF GROUND-WATER WITHDRAWALS AND ARTIFICIAL RECHARGE ON DISCHARGE TO STREAMS, SPRINGS, AND RIPARIAN VEGETATION IN THE SIERRA VISTA SUBWATERSHED OF THE UPPER SAN PEDRO BASIN, SOUTHEASTERN ARIZONA (2014)	LEAKE ET AL. (2014)