

APPENDIX E
BIOLOGICAL RESOURCES

Supplemental Environmental Impact Report (SEIR) for the Shell Guadalupe Dunes Gravel Remediation In-Lieu Project

Project Site Visit – 20 February 2014

Overall Biological Value of the 4 Gravel Sites

Biologist Jon True conducted a site reconnaissance survey on 20 February 2014 to assess the biological value of the four gravel sites. Overall, the sites appear to provide beneficial ecological services including the presence of native dune vegetation, foraging and nesting habitat for western snowy plover (*Charadrius nivosus nivosus*), and sensitive native plant species. The presence of native dune vegetation provides habitat for a variety of native wildlife species. It appears that the presence of the gravel in the dunes as inert, non-toxic pieces of rock has not caused any detrimental effect on either the flora or fauna of the dunes habitat. Gravel removal activities would result in the removal and/or disruption of these biological resources.

Site Observations

The project site is characterized by a combination of active coastal dunes which are unvegetated to sparsely vegetated, and stands of denser native vegetation (coastal dune scrub). Non-native vegetation is widely distributed but occurs in low densities. In the sparsely vegetated dunes, dominant species consist of pioneers of dune stabilization including yellow sand verbena (*Abronia latifolia*), beach bur-sage (*Ambrosia chamissonis*), sea rocket (*Cakile maritima*), and crisp monardella (*Monardella undulata* subsp. *crispa*). Dominant shrub or subshrub species in the coastal dune scrub community include dune lupine (*Lupinus chamissonis*), mock heather (*Ericameria ericoides*), and seaside woolly sunflower (*Eriophyllum staechadifolium*). Common herbaceous species include beach bur-sage, sea rocket, shrubby phacelia (*Phacelia ramosissima* var. *austrolittoralis*), beach evening-primrose (*Camissoniopsis* [*Camissonia*] *cheiranthifolia* ssp. *cheiranthifolia*), yarrow (*Achillea millefolium*), and Indian paintbrush (*Castilleja affinis* ssp. *affinis*).

It should be noted that the site reconnaissance survey was conducted during a period of below normal rainfall, and the presence of annual plant species was likely suppressed as a result. Nonetheless, four of the five previously recorded sensitive plant species were also detected during the survey. Similar to what was documented during the FLx surveys of 2010 (FLx, 2010, Appendix C of AECOM Restoration Work Plan), crisp monardella was observed most frequently, and was relatively common at the four gravel sites. Blochman's groundsel (*Senecio blochmaniae*) was widely scattered at all the sites. Suffrutescent wallflower (*Erysimum insulare* ssp. *suffrutescens*) was common along the Gravel Road (Road), and was rare in the southern portion of Area 2. Dunedelion (*Malacothrix incana*) was rare and found only along the Road and at Site D. As described in the FLx 2010 report (FLx, 2010), at the time of the 2010 surveys Blochman's leafy daisy (*Erigeron blochmaniae*) was scattered in the Upper Area, along the Road, and Area 2, and it was rare at Site D. This species was not observed during the AMEC survey, likely due to the very low rainfall conditions. However, based on the presence of this species during both the 2008 and 2010 surveys, it is very likely that this species continues to occupy the Project area.

As described in the NOP and verified by AMEC on-site, it appears that the larger particle-size gravel has helped anchor windblown seeds, thus assisting native vegetation establish and expand in the dunes. As documented in the AECOM Restoration Work Plan (2010, Section 2.6), between 2002 and 2008 vegetation had proliferated substantially on Area 2 and the Upper Area, as well as on numerous scattered mobile sand mounds that have established across the Site D area. Stands of native vegetation, including sensitive plant species, are present along the edges of the Road, particularly in the western

portion. Between 2008 and 2010 the dune topography had changed considerably due to the additional deposition of wind-blown sand, particularly in the Upper Area (FLx, 2010, Appendix C of Work Plan). Based on the AMEC reconnaissance survey and examination of aerial photography, it appears that topography has continued to change and native vegetation has continued to establish and expand since 2010.

The perennial shrubs and subshrubs of the existing coastal dune scrub form an interlocking root system that stabilizes the sand. This habitat contains greater species diversity than open sand and foredunes. The soils contain more organic matter, retain more water, are more fertile, and have a lower salt content than the soils of the active coastal dunes and foredunes. As the dominant shrubs grow, the stabilized areas expand to create favorable conditions for the increased spread of additional plants. A thin fragile layer of mosses and lichens develops over time and delicately binds the surface sand together. This soil resists invasion by non-natives, but is easily broken up by foot, animal and vehicle traffic (Holland, et al., 1995). When vegetation is removed, this process is disrupted and the impacted area reverts to active dunes; it may take many years for coastal dune scrub to reestablish (or in some cases it may not reestablish at all). The decrease in vegetated area can result in an increase in wind erosion, and newly activated dunes may overwhelm other adjacent areas that are densely vegetated.

In addition to the gravel's positive effect on the development of native dune vegetation, the gravel material has been used by ground-nesting western snowy plovers in the construction of their nests as documented by federally authorized snowy plover monitors. The larger particle size of the gravels helps protect nests against the persistent sea breeze (AECOM, 2010). Suitable plover nesting habitat was observed by AMEC in all of the four sites, although the areas along the Road appear to be the least favorable based on previous surveys and the presence of denser vegetation. Although California least tern (*Sterna antillarum browni*) was not detected in the Project area during previous studies or during the AMEC survey, suitable nesting habitat for this species is also present. In 2004 a small number of terns arrived at Rancho Guadalupe Dunes County Park in mid-June and established a breeding colony in the foredunes just inland of the beach (Persons, 2004, Appendix B of Work Plan). Protection of these species will require restriction of public access to the area during the nesting season.

The Project area contains suitable habitat for a number of vertebrates including birds (numerous resident and migratory species including American peregrine falcon [*Falco peregrinus anatum*], and brown pelican [*Pelecanus occidentalis*], in addition to western snowy plover and California least tern), amphibians (including western spadefoot toad, *Spea hammondi*), reptiles (including silvery legless lizard, *Aniella pulchra*; and coast horned lizard, *Phrynosoma blainvillii*), and mammals (numerous species common to the area including mountain lion, bobcat, gray fox, coyote, Virginia opossum, raccoon, California mule deer, and American badger, a species of special concern in California). Over 400 species of invertebrates have been identified in the area, consisting of common species as well as sensitive species such as globose dune beetle (*Coelus globosus*) and monarch butterfly (*Danaus plexippus*) (Sheridan, 1994). The native vegetation in the Project area provides habitat for native wildlife that require cover and protection from the sea breeze. Predation and harassment of native wildlife by common ravens, gulls, coyotes, raccoons, shrikes, humans, and other predators may be reduced due to the cover that the vegetation provides. Removal of vegetation would likely result in a decrease in the diversity, distribution, and abundance of native wildlife in the Project area.

Preliminary Impact Analysis and Alternatives

The Project – Long-term Retention of Gravel in Situ

Based on an analysis of previous studies and the AMEC reconnaissance survey, in terms of biological resources it appears that the presence of the gravel in the dunes does not present a significant adverse impact to either the flora or fauna of the dune habitat; in fact, the gravel appears to be beneficial for the establishment and expansion of native dune vegetation (including sensitive plant species), nesting habitat for western snowy plover, and habitat for a variety of other native wildlife species. It appears that implementation of the Project – the long-term retention of the gravel in place – would not result in potentially significant or unavoidable adverse impacts to biological resources. Since no potentially significant or unavoidable adverse impacts are expected from leaving the gravel in place, mitigation measures would not likely be required (I believe this statement will stand, but I will do some more research; also, this would refer only to bio mitigation measures, other mit measures may be required).

- I will look further into any potential **adverse** effects to bio resources that may result from **leaving the gravel in place**. Can you think of anything?

Gravel Removal Alternative (aka No Project Alternative)

The No Project Alternative (i.e. the removal of gravel based on permit requirements) could generally result in degradation of the dune ecosystem and specifically result in potentially significant impacts to biological resources including sensitive species. These impacts include the removal of native dune vegetation, sensitive plant species, nesting habitat for western snowy plover, and habitat for other sensitive species such as globose dune beetle and silvery legless lizard. These impacts would likely be considered Unavoidable and Significant Impacts (Class I). These impacts could be avoided by implementing the Project (i.e. retention of the gravel in situ).

The “mining operation” of the gravel removal alternative would involve noise-generating diesel-fired construction equipment, human presence, fencing, and some vegetation (both native and non-native) removal. As such, this alternative is expected to have potentially significant short-term temporary impacts to the dune habitat (from NOP). Gravel removal would result in the removal or disruption of native wildlife and habitat. Additional potential impacts include the introduction of non-native plants and indirect impacts to nearby vegetation communities resulting from adverse “edge effects” which can occur along the edges of the removal activities (e.g. removal activities increase could airborne dust particulates which can disrupt the vitality of plants in the vicinity). The introduction of invasive non-native plant species can adversely affect native plant cover and diversity in the vicinity, as well as adversely modify habitat for wildlife.

Direct impacts to wildlife resources from gravel removal would be associated with removal and disruption of habitat, potentially resulting in the displacement or death of common and/or sensitive wildlife species. Gravel removal would result in the loss of habitat that provides nesting, foraging, roosting, and denning opportunities for a variety of wildlife species. Vegetation removal and soil disturbance would result in the direct removal of nesting and foraging habitat for a variety of bird species, and would likely result in the loss of common small mammals, reptiles, invertebrates and other slow-moving animals that may reside in the proposed impact area. More mobile wildlife species that are utilizing the Project area would be forced to move into adjacent areas in the vicinity, which would consequently increase competition for available resources in those areas. This situation could result in the loss of individuals that cannot successfully compete. Birds can be indirectly affected by construction-

related noise, which can result in the disruption of foraging, nesting, and reproductive activities. Thus, indirect impacts to birds due to construction-related noise may occur during gravel removal activities.

Wildlife species utilizing nearby habitats may be affected by gravel removal, thereby decreasing biodiversity beyond the actual removal boundaries. Potential impacts to local wildlife could include, but are not limited to the following: habitat degradation due to non-native plant invasion; an increase in human activity; an increase in ambient noise; the increased threat of road-kill by vehicle and machinery traffic; deposition of trash and debris; exposure to pollutants and hazardous materials (i.e. oil and gas from vehicles and machinery); and increased soil erosion. Movement of terrestrial wildlife through the gravel removal areas would be temporarily impeded during removal activities.

The SEIR must analyze and attempt to quantify both the adverse impacts of gravel removal as well as the beneficial impacts of gravel removal, and the mitigation measures that could be available to reduce adverse impacts.

- I'm not sure there are any **beneficial** impacts to biological resources that would result from gravel **removal**. Any preliminary thoughts? I will do some more digging into this (no pun intended).

Partial Gravel Removal Alternative

- This section still needs work, partially because it ties in with the other concurrent AMEC analyses (e.g. visual/aesthetics, recreational, etc.).

Working closely with County staff, AMEC would analyze a Partial Gravel Removal Alternative, which has the potential to provide an Environmentally Superior Alternative, given anticipated significant adverse and beneficial impacts associated with both the proposed Project and the No Project Alternative. Based on analysis of focused resource areas, partial retention of gravel where beneficial for biologically sensitive resources combined with removal of gravel in regions that would enhance aesthetic/visual and recreational resources.

What about retention of portions of the gravel sites with potential biological resource benefits and removal in open sand areas?

There is still dune mint in the active dune areas (no veg or sparsely vegetated), maybe other plants (check FLx language), and also plover nesting habitat.

If they did partial removal, identify mitigation measures to reduce potential impacts upon biological resources. Where a particular impact is potentially significant, mitigation measures that are available to avoid or reduce the impact to the maximum extent feasible. The SEIR must also quantify and assess the impacts that could occur if the gravel was to be removed, and the mitigation measures that could be available to reduce impacts.

No matter what, some adverse impacts would occur. At a minimum, temporary disturbance of plover nesting habitat and loss of rare plants (found in all areas).

Environmentally Superior Project Alternative

Based on an analysis of the alternatives outlined above, the environmentally superior project alternative (in terms of biological resources) is to implement the Project (i.e. leave the gravel in place). The Project

would not result in potentially significant or unavoidable adverse impacts to biological resources, and since no adverse impacts are expected from leaving the gravel in place, mitigation measures would not likely be required (again, more research required, but I believe this statement will stand).

Mitigation

- We can spend more time getting mitigation measures refined, but these are some general thoughts.

Vegetation

- Protect whatever native vegetation is present to the greatest extent feasible.
- Protect sensitive plant species – focused surveys for rare plants, identify locations, and avoid impacts where feasible.
- On-site monitoring during removal activities.
- If impacts are unavoidable, see mitigation measures below outlined in the FLx report of 2010.
- Dust control measures designed to minimize effects to vegetation in the vicinity should be implemented.
- Many invasive non-native species can spread readily into natural areas from equipment, vehicles, machinery, etc. Make sure it is clean and free of non-native weed seeds.
- Monitor Project area for non-native species invasion after gravel removal activities and treat weeds as needed.
- Implement erosion control/water quality BMPs as needed to avoid adverse impacts to vegetation.
- If active recreation is proposed, provide for protection of native dune vegetation including sensitive species.

Page 3 of FLx 2010 report (Recommendations), Appendix C in AECOM Restoration Work Plan:

We recommend that wherever possible during implementation of project activities, dune topsoil with existing native vegetation (but without gravel material) should be salvaged and stockpiled. It is likely that this soil contains a valuable seed bank of native and rare plants. The soil stockpiles could be stored in areas relatively protected from the wind, and/or covered with soil stabilizing material such as jute netting. Following completion of the removal of gravel, the salvaged topsoil should be redeposited in the project area. The methods and locations for redistribution of this soil can be developed in the future based upon final post-project topographic contours. It may be preferable to replace the soil in shallow mounds or ridges to mimic natural dune topography, rather than distributing it in a uniform layer over the sites.

Seeds of native plants, particularly the rare plant species impacted during the project, also should be collected locally on the site before and during project activities, and within the appropriate collecting periods for the various plant species. Specifically, the following rare species may be collected, since they will be impacted directly: crisp monardella (*Monardella crispata*), Blochman's leafy daisy (*Erigeron blochmaniae*), Blochman's groundsel (*Senecio blochmaniae*), and suffrutescent wallflower (*Erysimum insulare* ssp. *suffrutescens*). Other native species that also may be collected include beach-bur (*Ambrosia chamissonis*), beach eveningprimrose (*Camissonia cheiranthifolia* ssp. *cheiranthifolia*), seaside woolly sunflower (*Eriophyllum staechadifolium*), shrubby phacelia (*Phacelia ramosissima* var. *austrolittoralis*), and yarrow (*Achillea millefolium*). Specific seed mix proportions and the identification of seeding

locations can be defined later, based upon the availability of seed from various species, and final post-project topography.

Wildlife

- Focused surveys for western snowy plover and CA least tern prior to gravel removal, and on-site monitoring during removal.
- General nesting bird surveys (for all species) if removal occurs during nesting season.
 - If vegetation removal, soil disturbance, or any other construction related activity is to occur during the avian nesting season (select dates appropriate for the area, maybe Feb 1 through Sept 15), a preconstruction nesting survey shall be conducted prior to initiation of construction. If nests are discovered, they should be avoided through establishment of an appropriate buffer setback, as determined by a qualified wildlife biologist. The temporary "no construction" area would have to be maintained until the nest has completed its cycle, as determined by a qualified wildlife biologist. Once the nest cycle is complete and all nestlings have fledged and left the nest, then construction in the area could resume.
- If active recreation is proposed, provide for protection of native wildlife including sensitive species.

Questions for Nick

- Are there areas within the Project area mapped as ESHA(s)?
 - If so, what is there designation?
 - If ESHA(s) are present, Coastal Act Policy 30240 provides for protection against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.
- I'm not sure there are any beneficial impacts to biological resources that would result from gravel removal.
 - Any preliminary thoughts?
 - I will do some more investigating in this.
- Similarly, I will look further into any potential adverse effects to bio resources that may result from leaving the gravel in place.
 - Can you think of anything?
- Would we provide a table of sensitive species that may be present in the Project area and their potential to occur?
- Please give me feedback on these notes and let me know what else I can provide at this stage (see the next section for my initial thoughts).

Next Steps for Jon

- I will look further into any potential adverse effects to bio resources that may result from leaving the gravel in place.
- Similarly, I will look into potential beneficial impacts to biological resources that would result from gravel removal.
- I will continue to work up an analysis for the Partial Gravel Removal Alternative.