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DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF FORESTRY AND WILDLIFE  
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June 28, 2019

TO: Kaleo Manuel, Deputy Director  
Commission on Water Resource Management

FROM: David Smith, Administrator *DES*  
Division of Forestry and Wildlife

SUBJECT: Comments on Alexander and Baldwin, Inc. applications for stream diversion works permits for abandonment.

Thank you for the opportunity to comment on the applications for stream diversion works permits for abandonment submitted to the Commission on Water Resource Management (Commission) by Alexander and Baldwin, Inc. (A&B). It is our understanding that the applicant intends to abandon 70 stream diversions and is in the process of securing the appropriate permits to do so. We understand further that the diversions are being grouped into different categories for administrative purposes and that separate applications are being submitted for each category.

The Division appreciates A&B's long-standing commitment to the conservation of East Maui's vital watersheds. We have worked closely with A&B and the other partners of the EMWP to implement effective conservation measures at a landscape scale with unprecedented success. We provide our comments here in the spirit of that partnership to further our shared commitment to the effective conservation of the watersheds of east Maui.

In a memo dated December 18, 2018, the Division provided comments on one of those applications, filed as SDWP 4915.6 (<https://dlnr.hawaii.gov/cwrm/surfacewater/review/>). In that memo, we expressed concerns that the applicant intends to leave in place a number of stream alterations that may substantially alter the natural condition of the streams, concrete fixtures, channels, walls, catchments, and tunnels that potentially alter stream flows and surfaces, exacerbate erosion, encourage establishment of invasive species, degrade plant and wildlife habitats, and affect wildlife dispersal and movements. Our comments were general, citing the biological and regulatory reasons for our concerns, and noting that the applicant did not explain its rationale for leaving certain stream alterations in place. We

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requested that the applicant provide additional information to inform its proposal to leave those alterations in place.

In a follow-up discussion on March 28, 2019 with you and your staff regarding a subsequent application, filed as SDWP 4950.6, Division staff reiterated our concerns and offered to provide more specific comments and recommendations regarding the proposed abandonments. Pursuant to that, we conducted field assessments at selected diversions for which abandonment is planned. Our findings and recommendations from those assessments are provided in Attachments A and B.

Finally, we appreciate A&B's expressed desire to restore stream flow in a timely manner. While we acknowledge that implementation of some of the measures we recommend here may require additional time, we suggest that the primary tasks to restore stream flow can be implemented initially, ensuring that water is returned to the streams in a timely manner, with the additional recommended work to proceed on a reasonable schedule.

## Attachment A

### General comments

The Division of Forestry and Wildlife is responsible for the management of forest and wildlife resources within the Ko'olau Forest Reserve that may be affected by the actions proposed in the subject application. The applicant currently holds authorizations to employ certain structural improvements within the forest reserve to effect the diversion of water for collection and use. At such time that those structures will no longer be used for that, or any other, approved purpose, the Division requests that they be removed, to the extent practicable. We believe this request is consistent with the Commission's Conclusions of Law, dated June 20, 2018, in which it is noted that instream uses shall be guided by the general principles set forth in §13-169-20, Hawaii Administrative Rules, which include that, where practicable, streams should be maintained with water sufficient to preserve fish, wildlife, scenic, aesthetic, recreational, and other uses, and stream systems should be retained substantially in their natural condition.

In our field assessments conducted in May of this year, we noted several general issues of concern related to the proposed abandonment of diversion structures in the forest reserve. Those include:

1. Walls, structures, or channels that alter the natural course of the stream, such that water becomes trapped and stagnant in areas where flow is restricted. Stagnant waters become breeding sites for mosquitoes, which are vectors for introduced diseases that are a major threat to native forest birds.
2. Use of pipes or other structures that are known to obstruct passage of native fish.
3. Alteration of streams that result in high levels of erosion, affecting water quality.
4. Abandonment of accessory structures, including pipes, pump houses, intakes, mechanisms, or other items no longer in use, which may become derelict if not maintained.

## Attachment B

### Specific comments

#### 1) Honopou Stream

a) Honopou is a perennial stream approximately 10 miles in length, originating in the Koolau Forest Reserve. The stream is reported by DAR to have native macro faunal diversity > 5 species, including native fish, crustaceans, and insects.

#### b) Diversions

##### i) Wailoa ditch intake (W-22)

##### (1) Comments

(a) Diversion located in Koolau FR

(b) Grate captures water diverting it to the Wailoa ditch. Application proposes to seal grate to allow stream to flow. Accessory pipes were found in the diversion area.

##### (2) Recommendations

(a) Remove any pipes and accessories not in use.



Figure 1. Wailoa ditch intake (W-22). Collection grate (left) and accessory pipes (right).

ii) New Hamakua ditch intake (NH-22)

(1) Comments

- (a) Diversion located in Koolau FR
- (b) Grate on the west side of stream captures water for diversion. Application proposes to seal grate by filling with concrete.

(2) Recommendations

- (a) After the grate is sealed, the steel plate should be removed and sufficient concrete should be used to ensure that stream flow is continuous over the grate area and water cannot become trapped and stagnant, creating breeding sites for mosquitoes.
- (b) Remove any accessory structures not in use, such as the pump house shown in the figure below.



Figure 2. Grate to be sealed (left). Accessory pump house above grate (right).

iii) Lupi long intake at Wailoa ditch (W-22a)

(1) Comments

- (a) Diversion located in Koolau FR
- (b) Grate is sealed. This tributary leads to Honopou stream.
- (c) The tributary appears to take a modified path through cut and disturbed soil that may be prone to extensive erosion. It is not clear why this is the case and whether this is an unnatural condition that has resulted from ground disturbance.

(2) Recommendation

- (a) Further investigation is recommended to assess whether there is an erosion problem that can be addressed.

iv) Wailole intake at New Hamakua ditch (NH-23)

(1) Comments

- (a) This diversion is on EMI lands.
- (b) The tributary feeds Honopou stream, which runs through the Koolau Forest reserve.
- (c) The road crossing this tributary to Honopou stream appears to be prone to high levels of erosion.

(2) Recommendation

- (a) Please assess erosion and impacts to water quality resulting from this location and consider installation of a concrete swale or other measures to control erosion.



Figure 3. Road crossing tributary would appear to be prone to high levels of erosion.

v) Honopou at Haiku ditch (H-8)

(1) Comments

- (a) This diversion is on EMI lands.
- (b) The diversion structures appear to include a steel plate that overhangs the stream. This plate may interfere with fish passage.

(2) Recommendation

- (a) In addition to measures identified in the application, please remove the steel plate that overhangs the stream. This plate may obstruct fish passage.



2) Hanehoi stream

a) Hanehoi Stream is a perennial stream approximately 5.4 miles in length, originating in the Koolau FR. Hanehoi Stream supports native algae, crustaceans, and insects, including *Megalagrion pacificum*, listed as endangered under state and federal law.

b) Diversions

i) Hanehoi at Wailoa ditch (W-18)

(1) Comments

(a) Diversion located in Koolau FR

(b) Walls on both sides of the stream prevent the stream water from taking its natural course. The walls create sections where water stands and cause pooling of water, which becomes stagnant and creates breeding sites for mosquitoes.

(c) Water is also standing and foul in the sluice basin or catchment entry structure where the gate is located.

(2) Recommendations

(a) In addition to the measures identified in the application to seal the grate, remove the walls to restore the natural stream flow and eliminate mosquito breeding sites.

(b) Prevent stagnant water and mosquito breeding sites sealing the sluice basin or other measures to avoid water standing in the structure.

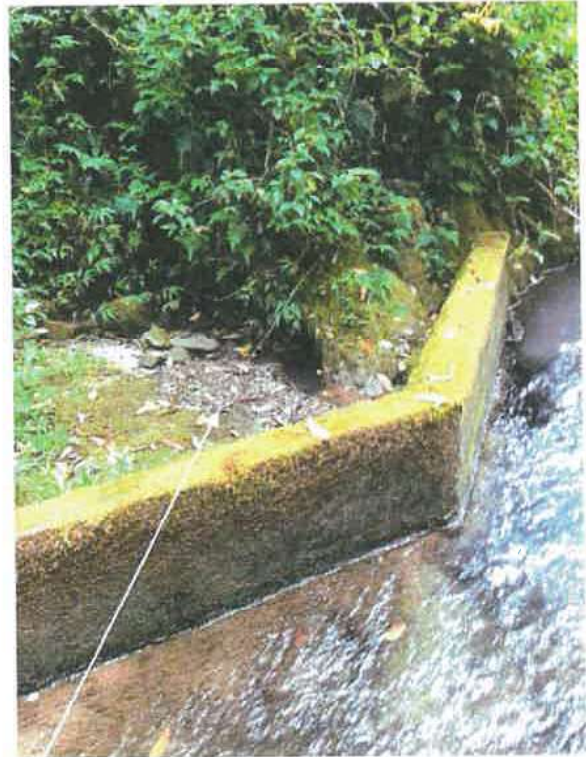


Figure 4. Stagnant water standing in depressions created by the walls and the gate structure.

ii) Hanehoi Huelo intake at New Hamakua ditch (NH-17)

(1) Comments

(a) The wall across the stream bed creates a dam that obstructs the natural course of the stream.

(2) Recommendations

(a) In addition to the measures identified in the application to seal the grate, please remove the wall across the stream bed to restore the natural stream flow.



Figure 5. Wall across stream bed creates a dam that that alters flow and creates standing water.

iii) West Hanehoi (Puolua) intake at New Hamakua ditch (NH-17a)

(1) Comments

(a) Located in Koolau FR

(b) This tributary enters the New Hamakua ditch where the access road runs along and makai of the ditch. The application proposes to install a stream bypass to enable the tributary to cross over the ditch.

(c) The stream must also cross the road and the application does not describe how that will be constructed.

(2) Recommendations

(a) The methods employed to enable the stream to cross the road should ensure that erosion of the road is avoided. This may be done by installing a concrete swale or by installation of a culvert of appropriate diameter under the road.

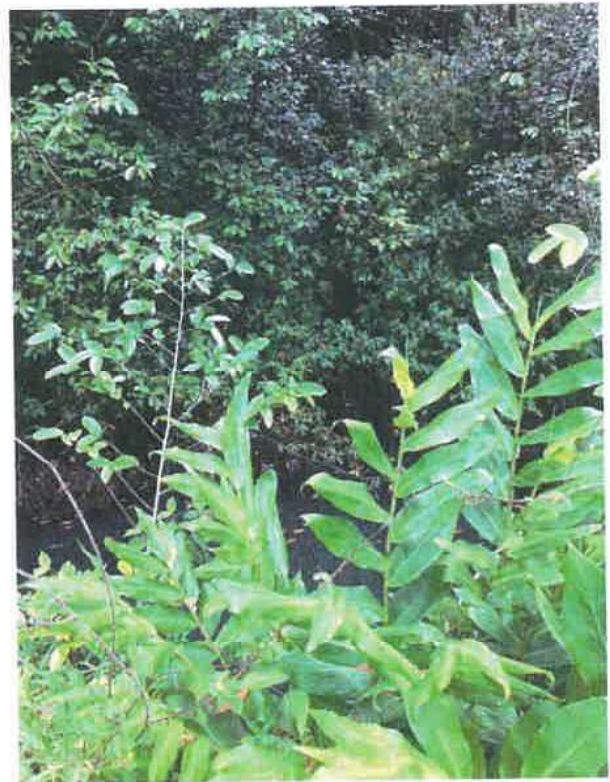
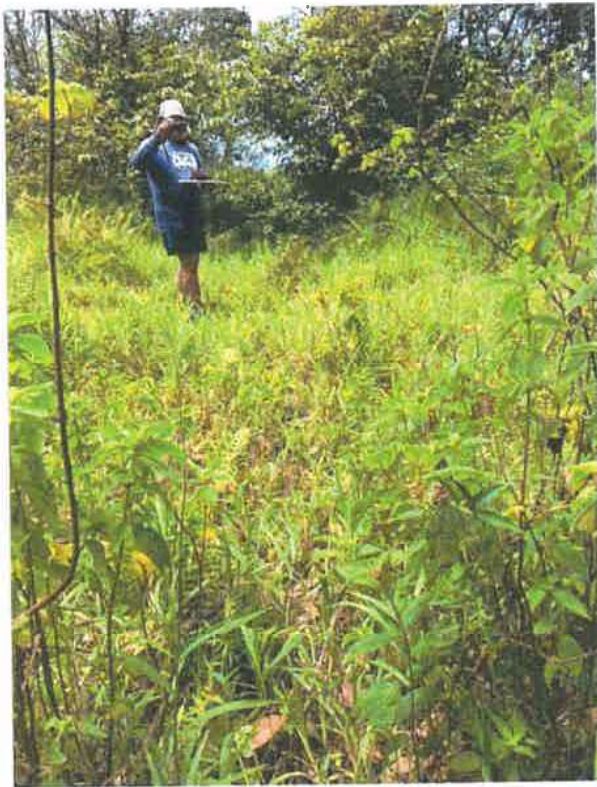


Figure 6. Location where tributary will cross the access road.

iv) Hanehoi (Puoloa) Roseapple intake at Lowrie ditch (L-7a).

(3) Comments

(a) The application proposes to construct an overpass that will allow the stream to cross the ditch. Since the access road runs parallel to the ditch at this location, the stream will also need to cross the road.

(4) Recommendations

(a) A concrete swale should be constructed across the road at this location to avoid erosion of the road, which appears to be currently comprised of soil only.

(b) A culvert should not be used at this site since this stream is a fish corridor and fish are not expected to cross through culverts.



Figure 7. Location where stream will cross access road.

3) East Wailuanui Stream

a) Wailuanui Stream is a perennial stream that originates in the Koolau FR and spans a length of approximately 9.6 miles. Wailuanui Stream supports a high diversity of native species, including crustaceans, fish, snails, and insects.

b) Diversions

i) East Wailuanui at Koolau ditch (K-18)

(1) Comments

(a) This diversion consists of walls on both sides of the stream that divert the stream into the ditch on the west side of the stream. The east wall crosses nearly the entire stream bed to divert the water to the west.

(b) The walls trap standing water on both sides of the stream, as well as in the intake, which we found to be very stagnant, creating breeding sites for mosquitoes. The application proposes to permanently remove the sluice gate to restore stream flow and to fill the intake with concrete.

(2) Recommendations

(a) Remove the walls on the east and west side of the stream in their entirety. Those walls will no longer be used for diversion purposes and their presence creates large areas of stagnate water that creates breeding sites for mosquitoes.

(b) Ensure that sufficient fill material is used for the intake to ensure that water does not become stagnant in the intake.

(c) Remove the pillar and structures at the intake since they will no longer be used for water diversion purposes.

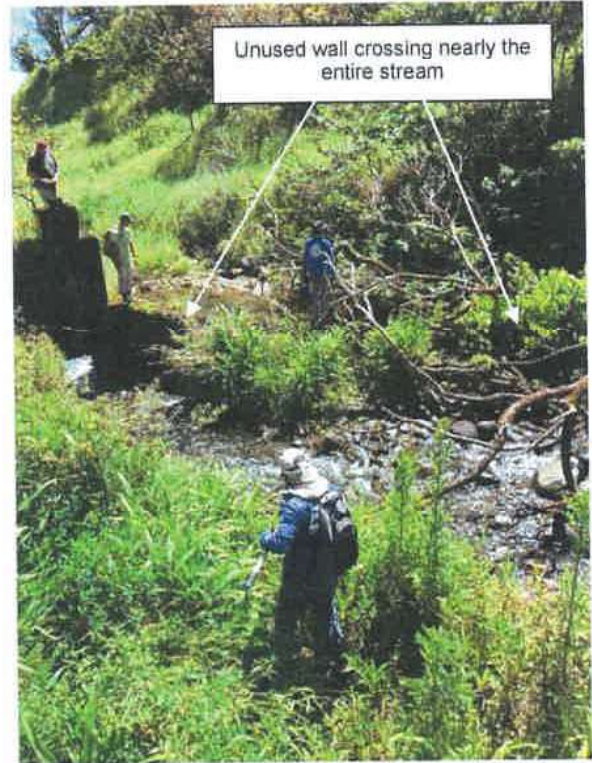


Figure 8. East Wailuanui at Koolau ditch (K-18). Stagnant water outside the west wall (top left), wall crossing stream (top right), stagnant water on the east side of the stream.

ii) East Wailuanui to Koolau ditch at control house (K-19)

(1) Comments

- (a) Diversion consists of walls that channel the stream flow over the ditch where a collection grate allows the water to fall into the ditch.
- (b) The application proposes to cover and seal the grate so that water will continue downstream.

(2) Recommendations

- (a) The channel that is created by the walls is relatively narrow and low. It is unknown whether it may should be monitored regularly to ensure that it does not become obstructed by debris.
- (b) The control house and related structures should be removed if they are no longer in use.

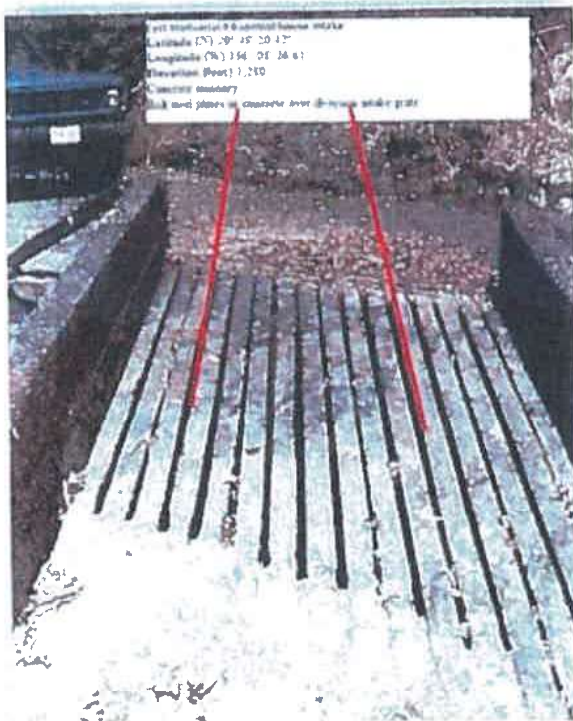


Figure 9. Channel to enable stream to cross ditch (left). Control house at K-19 (right).



iii) West Wailuanui intake #7 at Koolau ditch

(1) Comments

- (a) Diversion at a tributary that consists of a wing wall on the west side of the stream that directs flow into a set of slots in a wall on the east side.
- (b) Application proposes to fill the collection slots to enable stream to flow down. Where the stream crosses the access road, a pipe under the road directs water under the road. The road has a concrete swale.
- (c) The wing wall appears to be creating pooling of stagnant water and the pipe was found to be clogged. The pipe obstructs movement of fish upstream.

(2) Recommendations

- (a) Remove the wing wall to prevent standing water
- (b) Seal the pipe so that water will flow freely over the swale and enable fish movement upstream.



Figure 10. Wing wall causing pooling of stagnant water at K-20.

iv) West Wailuanui at Koolau ditch (K-21)

(1) Comments

- (a) Diversion consists of a large dam that directs the stream flow into collection slots on the east side of the stream.
- (b) The dam is fitted with a sluice and gate to enable water to flow downstream when it is not being diverted.
- (c) The application proposes to cover the collection slots and permanently remove the gate.

(2) Recommendations

- (a) The sluice is relatively narrow and may become clogged. Monitoring is recommended to ensure it does not become clogged.
- (b) If the gate house structure is no longer used it should be removed.
- (c) The dam will also not be used. However, since it is of substantial size and mass, we recommend that consideration of its disposition be deferred until further assessments can be conducted to determine the best course of action.



Figure 11. Dam, gate, and control structure at K-21.