

| Stream | Koolau/Wailoa | New Hamakua | Lowrie | Haiku |
|----------------|---|--|---|--|
| Hibnopou | Sealing of stream intake is by bolting plates over intake grate. Haiku and New Hamakua Ditch projects on this stream must be completed first. | Sealing of stream intake is by bolting plates over intake grate. Haiku Ditch project on this stream must be completed first. | Sealing of stream intake is by closing an existing gate; no work on diversion or in stream required. Haiku Ditch project on this stream must be completed first and may require an abandonment permit before proceeding. | Sealing of stream intake is by bolting plates over intake grate and sealing openings below grate with rocks/concrete. It is believed that covering the grate alone will not prevent flow into the ditch, so rocks and concrete will be needed to block part of the intake. |
| Puolua | N/A | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate large diameter pipe to handle up to 100 MGD. Option of passing stream in pipe/culvert over ditch, but this may complicate CWA Section 404 exemption. Haiku and Lowrie ditch projects needs to be completed prior to work on this diversion. | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate up to 42-inch diameter pipe to handle 60 MGD. Haiku ditch project needs to be completed prior to work on this diversion. | Sealing of stream intake is by bolting small plate over opening into ditch (not in stream). |
| Hanehoi | Intent is to seal 4 ft x 5 ft intake grate by bolting steel plate. Haiku, Lowrie and New Hamakua ditch project needs to be completed prior to work on this diversion. | Sealing of stream intake is by bolting plates over intake grate. Haiku and Lowrie ditch project work needs to be completed prior to work on this diversion. | Sealing of stream intake is by bolting plates over intake grate. Need to repair leakage into ditch along edge of grate first. Haiku ditch project work needs to be completed prior to work on this diversion. | Sealing of stream intake opening is by bolting plate over intake grate openings in intake grate. |
| | | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate large diameter pipe to handle up to 100 MGD. Option of passing stream in pipe/culvert over ditch, but this may complicate CWA Section 404 exemption. Haiku and Lowrie ditch projects needs to be completed prior to work on this diversion. | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate up to 42-inch diameter pipe to handle 60 MGD. Haiku ditch project needs to be completed prior to work on this diversion. | |
| Piinaau | Seal opening with concrete | N/A | N/A | N/A |
| Palauhulu | Most flow will be restored by removal of sluice gate. Scope of work for full restoration is to be determined. All work is anticipated to be restricted to tunnel. | N/A | N/A | N/A |
| West Wailuanui | Sealing of stream intake is by bolting plates to seal openings in the diversion structure. | N/A | N/A | N/A |
| East Wailuanui | Sealing of stream intake is by bolting plates to seal two small openings in the diversion structure. | N/A | N/A | N/A |

Work can proceed immediately after CWRM gives verbal approval (consultation with the USACE is recommended prior to any work in the stream)

Work can proceed after CWRM gives verbal approval and OCCL approves site plan (consultation with the USACE is recommended prior to any work in the stream)

Work can proceed after CWRM issues diversion abandonment permit and OCCL approves site plan (consultation with USACE is recommended prior to any work in the stream)

Extensive stream work required. Letter to USACE recommended in addition to other approvals.

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LYN SCOTT WR-666

Phase I Projects

| Lowrie Honopou | Haiku Puolua | Haiku Hanehoi | Lowrie Hanehoi | Koolau Palauhulu | Timetable to complete Phase I projects |
|--|---|--|---|---|--|
| Sealing of stream intake is by closing an existing gate; no work on diversion or in stream required. Haiku Ditch project on this stream must be completed first and may require an abandonment permit before proceeding. | Sealing of stream intake is by bolting small plate over opening into ditch (not in stream) | Sealing of stream intake opening is by bolting plate over intake grate openings in intake grate. | Sealing of stream intake is by bolting plates over intake grate. Need to repair leakage into ditch along edge if grate first. Haiku ditch project work needs to be completed prior to work on this diversion. | Most flow will be restored by removal of sluice gate. Scope of work for full restoration is to be determined. All work is anticipated to be restricted to tunnel. | 4 to 6 months after obtaining all required approvals and completing any required consultations |
| Lowrie Hanehoi (Huelo # 2) | Lowrie Hanehoi (Huelo # 3) | | | | |
| Sealing of stream intake is by bolting plates over intake grate. Need to repair leakage into ditch along edge if grate first. Haiku ditch project work needs to be completed prior to work on this diversion. | Sealing of stream intake is by bolting plates over intake grate. Need to repair leakage into ditch along edge if grate first. Haiku ditch project work needs to be completed prior to work on this diversion. | | | | |

Phase II Projects

| New Hamakua Hanehoi | Koolau West Wailuanui | Koolau East Wailuanui | Timetable to complete Phase II projects |
|---|--|--|--|
| Sealing of stream intake is by bolting plates over intake grate. Haiku and Lowrie ditch project work needs to be completed prior to work on this diversion. | Sealing of stream intake is by bolting plates to seal openings in the diversion structure. | Sealing of stream intake is by bolting plates to seal two small openings in the diversion structure. | 1 to 2 months after obtaining all required approvals and completing any required consultations |

Phase III Projects

| Wailoa Honopou | New Hamakua Honopou | Haiku Honopou | Wailoa Hanehoi | Koolau Piinaau | Timetable to complete Phase III projects |
|----------------|---------------------|---------------|----------------|----------------|--|
| | | | | | 3 to 4 months after obtaining all required approvals and completing any required consultations |

Phase IV Projects

| New Hamakua Puolua | Lowrie Puolua | New Hamakua West Hanehoi | Lowrie East Hanehoi | Lowrie West Hanehoi # 1 | Lowrie Hanehoi small | Lowrie West Hanehoi # 2 | Timetable to complete Phase IV projects |
|---|---|---|---|---|---|---|--|
| Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate large diameter pipe to handle up to 100 MGD. Option of passing stream in pipe/culvert over ditch, but this may complicate CWASection 404 exemption. Haiku and Lowrie ditch projects needs to be completed prior to work on this diversion. | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate up to 42-inch diameter pipe to handle 60 MGD. Haiku ditch project needs to be completed prior to work on this diversion. | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate large diameter pipe to handle up to 100 MGD. Option of passing stream in pipe/culvert over ditch, but this may complicate CWASection 404 exemption. Haiku and Lowrie ditch projects needs to be completed prior to work on this diversion. | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate up to 42-inch diameter pipe to handle 60 MGD. Haiku ditch project needs to be completed prior to work on this diversion. | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate up to 42-inch diameter pipe to handle 60 MGD. Haiku ditch project needs to be completed prior to work on this diversion. | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate up to 42-inch diameter pipe to handle 60 MGD. Haiku ditch project needs to be completed prior to work on this diversion. | Ditch is cut into stream bed, so would need to install a pipe or box culvert with wing walls in the stream bed through which the ditch can pass beneath the stream. Anticipate up to 42-inch diameter pipe to handle 60 MGD. Haiku ditch project needs to be completed prior to work on this diversion. | 12 to 15 months after obtaining all required approvals and completing any required consultations |

- Work can proceed immediately after CWRM gives verbal approval (consultation with the USACE is recommended prior to any work in the stream)
- Work can proceed after CWRM gives verbal approval and OCCL approves site plan (consultation with the USACE is recommended prior to any work in the stream)
- Work can proceed after CWRM issues diversion abandonment permit and OCCL approves site plan (consultation with USACE is recommended prior to any work in the stream)
- Extensive stream work required. Letter to USACE recommended in addition to other approvals
- Revised to include additional stream diversions projects

Honopou / Hanehoi



