

Appendix 5: Inspection checklists

INSPECTION CHECKLIST

Date: 24 and 28 March 2022

Inspected by ...M O'Halloran.....File

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Checked by

The inspection was carried out following a period of rain with high river levels. The gates may have been open for 12 hours.

This was the first time the current has been observed reflecting from the right bank of Fords Cut back to the left bank. There was at least 0.7m depth of water above the central ridge in the Cut invert. There was also a southerly wind.

This checklist is to be used to aid regular inspections of the re-diversion. The gate control systems have a separate inspection programme.

See Figures 1 to 3 of the Operations and Maintenance Manual for the identification of each part of the project referred to in the sheets.

A sheet has been included at the end to summarise the maintenance work required and give it a priority.

| Location | What to look for | Observations |
|--------------------------------|---|-------------------------|
| Waterway | | |
| Diversion Inlet | Loss/movement of rip rap | ✓ |
| | Erosion of banks | ✓ |
| | Debris accumulation | minor |
| | Channel marker condition | ✓ |
| Diversion Channel (right bank) | Loss/movement of rip rap | ✓ |
| | Damage to grass berm | ✓ |
| | Debris accumulation on berm | minor on top of rip rap |
| Stopbank | Crest condition, rutting, pot holes etc. | - |
| | Settlement of crest | - |
| | Vegetation cover | - |
| | Overlay condition, shape, ponding, pugging, grass cover | - |
| | Damage to batters | - |
| | Boundary fence condition | - |
| | Security gate condition | - |
| | Access ways to berm | - |
| | Pipe penetration area, signs of leakage, settlement | - |
| | Pump shed area | - |
| Diversion Channel (left bank) | Erosion / slumping of bank | below water |
| | Rutting, ponding, scouring in berm | berm being over-topped |

| Location | What to look for | Observations |
|--------------------------|---|---|
| | Vegetation cover | establishing in places weeds establishing near inlet |
| Diversion Channel Outlet | Erosion at left bank | under water |
| | Erosion/damage at right bank rip rap transition | - |
| Old River Channel | Damage/movement of rip rap on south side of Ford Island | - |
| | Condition of plantings on south side of Ford Island | - |
| | Scouring/slumping of right bank | - |
| | Vegetation cover of right bank | - |
| | Accumulation of rubbish/debris | - |
| Boat Ramp Area | | |
| Barge mooring | Erosion/slumping around mooring area | ✓ |
| Rock Bund | Damage to rock/shape | ✓ |
| | Debris accumulation | weeds |
| Log Deflector | Debris accumulation | weed mat |
| | Damage to pole connections | ✓ |
| | Damage to rubbing strips | top of far rubbing strip missing |
| Public Jetty | Debris accumulation | minor |
| | Damage to timber work | - |
| | Damage to rubbing strips (both sides) | - |
| | Missing bolts/nuts | - |

| Location | What to look for | Observations |
|--------------------------|---|--------------|
| | Condition of geogrid | - |
| | Condition of access path and abutment | ✓ |
| Boat ramp | Accumulation of debris | minor |
| | Damage to concrete | - |
| | Condition of poles on right side | ✓ |
| River bank | Rip rap condition between barge and boat ramp | ✓ |
| | Vegetation/grass condition | ✓ |
| Pump Station Crossing | Surface | ✓ |
| | Rubbish/debris | ✓ |
| | Crib wall condition | ✓ |
| | Access to stilling well | ✓ |
| | Handrail condition | ✓ |
| Picnic Area | Rip rap condition | ✓ |
| | Erosion / scouring | ✓ |
| Ford Road Drain Crossing | Batter condition | ✓ |
| | Signage | ✓ |
| | Guardrail and gate condition | ✓ |
| | Pavement | ✓ |
| Ford Rd Drain outlet | Erosion, sedimentation | ✓ |

| Location | What to look for | Observations |
|--|------------------------------|--|
| Ford Road Drain (between crossings) | Rip rap condition | ✓ |
| | Vegetation | sprayed |
| | Screen load out area | some debris on screen |
| | Rubbish/debris | ✓ |
| Carpark | Pavement condition | ✓ |
| | Swale drain/culvert | full of long grass and weeds |
| | Plantings | ✓ |
| Compound | Fence/gate condition | - |
| | Drainage | - |
| Control Gates | | |
| Gate control building | Leaks | Some water along eastern wall, unable to tell where it came from. Driven through door? |
| | Damage to doors | catch not repaired |
| | Damage to ventilators | ✓ |
| | Drainage | some water in cable pit |
| | External light | ✓ |
| | Generator connection | ✓ |
| | Transformer | ✓ |
| | Graffiti | by door |
| Culverts | Debris accumulation upstream | weed mat across gates 1 to 4 |

| Location | What to look for | Observations |
|--------------------------|--|--------------------------------|
| | Rip rap adjacent to outlet | ✓ |
| | Debris in downstream, right bank corner | accumulating |
| | Concrete cracking, spalling, rust stains | ✓ |
| | Surface drainage | ✓ |
| | Debris in fence area | stones between fence and gates |
| North log clearing area | Gate condition | ✓ |
| | Surface | ✓ |
| | Erosion, scouring | ✓ |
| | Debris/rubbish | some logs |
| | Rip rap condition | ✓ |
| South log clearing area | Gate condition | ✓ |
| | Surface | ✓ |
| | Erosion, scouring | ✓ |
| | Debris/rubbish | accumulating |
| | Rip rap condition | ✓ |
| Upstream stilling well | Damage | ✓ |
| | Staff gauge | catching weeds |
| Downstream stilling well | Damage | ✓ |
| | Sensor junction box | ✓ |
| | Staff gauge | catching weeds |

| Location | What to look for | Observations |
|------------|---|---|
| Gate fence | Damage | ✓ |
| | Lock condition | ✓ |
| | Hinge condition | ✓ |
| | Corrosion | minor |
| Gates | Visible damage | ✓ |
| | Operation as expected, noises when moving | <p>Gate 2 There is a slight knocking sound (spindle) over the last 500mm going down.</p> <p>Gate 4 There is a knocking sound over the top 1.5m going down and last 1.0m on the way up. The thrust nut can be seen moving in its housing. This only has shims.</p> <p>Gate 5 There is loud knocking over the top 1.0m going down and the last 1.0m on the way up. This thrust nut only has shims.</p> <p>Gate 6 There is a ringing noise in the gear box and an occasional rattle when the gate is going down.</p> <p>Gate 7 There is a slight knocking when the gate is going down.</p> <p>Gate 8 This gate is noticeably slower going up and down than the two next to it.</p> <p>Gate 10 There is a rattle over the top 500mm going down and the last 500mm going up.</p> <p>Gate 12 There is a rattle in the gear box going down.</p> |
| | Condition of spindle bellows | losing coating Gates 1, 2, 4, 7, 9, 10 |

| Location | What to look for | Observations |
|-----------------------|---|--------------|
| | Condition of hoses, damage, leaks | ✓ |
| | Visible seal leaks | ✓ |
| Ford's Cut | | |
| | Erosion of true left bank | - |
| | Rip rap condition on right bank | ✓ |
| | Visible bars in channel | - |
| | Outlet into estuary, erosion, sedimentation | - |
| Salinity Block | | |
| Compound fence | Damage | ✓ |
| | Netting condition | ✓ |
| | Post corrosion | ✓ |
| | Foundation cracking, spalling, rust stains | ✓ |
| | Slide gate condition | ✓ |
| Timber fences | Damage | ✓ |
| | Graffiti | ✓ |
| | Missing nuts/bolts | ✓ |
| Rip rap | Condition in mooring area | ✓ |
| | Condition along access track edge | ✓ |
| Compound | Surface shape, drainage | ✓ |
| | Surface condition | ✓ |

| Location | What to look for | Observations |
|--------------------|------------------------|---|
| | Weeds etc. | weeds around fence line |
| Waterhouse jetty | Erosion around piles | Hole found at toe of rip rap at the end of Waterhouse jetty in December 2021 survey. To be monitored. |
| | Damage to structure | - |
| | Handrail condition | - |
| | Deck condition | - |
| | Missing nuts/bolts | - |
| Coastguard pontoon | Security gate | - |
| | Gangway, condition | - |
| | Gangway movement | - |
| | Pontoon condition | - |
| | Pontoon movement | - |
| | Pile damage | - |
| | Ground beam condition | - |
| light | Condition | - |
| | Pillar box | ✓ |
| Mooring basin | Sedimentation, erosion | - see Feb 2022 erosion report |
| | Debris accumulation | some debris |
| Wetland area | Slumping, scour | - |
| | Vegetation | weeds |

| Location | What to look for | Observations |
|--------------------------|--------------------------------------|--|
| Ford Island access | Security gate condition | ✓ |
| | Track surface, shape | ✓ |
| | Boundary fence condition | ✓ |
| | Farm gate condition | ✓ |
| | Vegetation | weeds |
| | Debris | some |
| Ford Island north | Erosion protection condition | ✓ |
| | Picnic area, vegetation Drainage | ✓ |
| Ford Road | | |
| River edge | Erosion, slumping | ✓ |
| Pavement | Pavement damage | ✓ |
| | Signage | - |
| | Guardrail condition | corrosion on one post |
| | Salinity block carpark area | rubbish being dumped |
| Fence | Wetland fence condition | damaged towards river mouth |
| | Rock vehicle protection | pushed open and chain missing at Fords Cut |
| | Dumped rubbish | accumulating |
| Te Pa Ika Wetland | | |
| Culverts to Fords Cut | Erosion at inlets | - |
| | Erosion at outlet | - |
| | Erosion and slumping of access track | getting wider due to vehicle movements |

| Location | What to look for | Observations |
|-----------------------------|---------------------------------|--------------|
| Culvert to river | Inlet clear | - |
| estuary edge (drone) | Erosion | - |
| | Debris/rubbish | - |
| Papahikahawai Island | | |
| Gate | Condition | = |
| Bridge | Damage | = |
| | Abutments, scouring | = |
| | Handrail condition | = |
| | Deck | = |
| Shoreline (drone) | Chernier erosion | - |
| | Inlet erosion, sedimentation | - |

Maintenance work required

Date: 1 April 2022

| Location | Issue (include photos) | Work required | Priority |
|-----------------------|--------------------------------|--|----------|
| new channel left bank | on-going erosion | consider protection measures and need for access to inlet | high |
| Fords Cut | left bank erosion | consider erosion protection measures consider methods to control access | high |
| Fords Cut | right bank scour hole movement | consider effect of central ridge in waterway on scour | medium |
| Flood gates | debris from road | install steel angle to protect gates | medium |
| drainage swale | weeds | control | medium |
| Ford Road | Te Pa Ika fence damage | repair wires | low |
| control building | broken door latch | repair | low |
| | | | |