| UHM STORMWATE | RM | ONITO | RING SYSTE | M SERVICI | NG CHECKLIST | | TY OF THE PARTY OF |
|--|-----|--------|---|--|-------------------------------|---------|--|
| Project Description: Stormwater Monitoring | | | Client: | | S. F. | 334444 | |
| Site Location: | | | Date: | | Time: | O tre t | O KA 'AIN'A YE |
| | | | Instrument | Description(s) |) | • | |
| Instrument Description(s) | Мо | odel # | Serial # Special Instructions | | | | |
| Isco® Flow Meter | | | | | | | |
| Isco® Automated Sampler | | | | | | | |
| YSI Water Quality Sonde | | | | | | | |
| | | S | ervicing Equipm | ent and Supp | ly List | | |
| Matériel Description | Qty | Units | | Comments Acq | | | Load |
| Laptop PC & Serial Cable | 1 | each | charged, loaded wi | th FlowLink®, Eco | oWatch® software, & site file | | |
| Housing Keys | 1 | each | for accessing instru | for accessing instrument housings and gates (servicing kit) | | | |
| Isco/YSI Servicing Kit | 1 | each | DO membranes, O | DO membranes, O-rings, desiccant, silicone grease, tools, etc. | | | |
| Isco & YSI Manuals | 1 | each | flow meter, sample | flow meter, sampler, and software (pilot's case) | | | |
| Paper Towels, Q-Tips, etc. | | asstd | for cleaning Isco® sampler & YSI sonde as necessary | | | | |
| De-ionized Water | | liters | 2 L for cleaning Isco® & YSI; 12 L for YSI calibrations | | | | |
| 50-mL Liquinox® | 1 | each | for cleaning Isco® sampler & YSI as necessary | | | | |
| Backpack | 1 | each | for carrying all matériel | | | | |
| Pens, Pencils, & Clipboard | | asstd | for labeling sample bottles (Sharpie®) & completing log sheets | | | | |
| Isco Sampling & YSI Calib. Logs | 1 | each | both logs stored in | poth logs stored in plastic folder in field PC case | | | |
| Personal Watch | 1 | each | set to USNO or NIS | et to USNO or NIST master clock via W3 | | | |
| Large Plastic Bags | 2 | each | for sample bottles, trash, & to protect PC from rain | | | | |
| 0.5-L or 1-L Isco Sample Bottles | 24 | each | cleaned, capped & placed in plastic bags | | | | |
| 12-VDC Battery | 1 | each | fully charged deep-cycle battery (check with battery checker) | | | | |
| Fresh Desiccant | 500 | mL | fully charged (i.e., blue) in Ziplock® bag (or cartridges) | | | | |
| Fresh Ant Baits | 4 | each | ant control | | | | |
| Ziplock Sandwich Bags | 2 | each | for charged & exhausted desiccant | | | | |
| YSI 610-DM Datalogger w/ cables | 2 | each | for deleting files from YSI sonde & backup (<i>only</i>) communications | | | | |
| YSI Calibration Cup | 1 | each | for calibrations & to keep probes moist (servicing kit) | | | | |
| New, Disposable AA Batteries | 8 | each | for YSI sonde (servicing kit) | | | | |
| Plastic Retrieval Hook | 1 | each | for retrieving YSI sonde from housing (servicing kit) | | | | |
| Chain-type Pipe Wrench | 1 | each | for removing end cap on YSI housing (servicing kit) | | | | |
| YSI Calibration Kit | 1 | each | standards, barometer (in servicing kit), clamps, etc. | | | | |
| Ring Stand with Clamps | 1 | each | to hold YSI sonde of | during calibration | | | |
| Trace-metal Sample Bottles | | each | double bagged & filled with 18-MΩ DIW (for grab samples) | | | | |

for handling Isco® bottles and collecting grab sample

Vinyl Gloves (Class 10)

3

pair

UHM STORMWATER MONITORING SYSTEM SERVICING CHECKLIST Project Description: Stormwater Monitoring Client: Time: Site Location: Date: Servicing Steps Step# Description Init. Time Date **GRAB SAMPLES** Walk down to stream with trace-metal bottles and gloves (only at appropriate stations) 2 Open the outer bag of both bottles 3 Don clean gloves Open the inner bag, label bottle with location & sample (e.g., WM-G1), date, & time 4 Collect grab sample after rinsing bottle 3 times with stream water 5 6 Cap bottle and place in inner Ziplock®, and seal inner bag 7 Repeat step #s 5 through 7 for second sample bottle **⊘**8 Seal both outer Ziplock® bags and remove gloves (record sample date & time here) ISCO FLOWMETER & SAMPLER While at stream, check stage sensor (~1 bubble/sec [bubbler] or audible click [ultrasonic]) 1 **②** 2 Record water level on staff gauge or reference mark: in ft cm 3 Unlock & open instrument housing 4 Remove Isco® flow meter (if necessary) & connect to PC with serial cable Go to DOS, then CD C:\FLOLINK3 & Start FLOWLINK®, OPEN appropriate site file 5 6 **CONNECT** to flow meter **Ø** 7 When connected, record the following: 7a battery voltage (should be >11.0 VDC): or: 7b current weather: 7с stream conditions: ☐ flume/weir/channel OK ☐ debris in flume/weir/channel 7d □ debris removed stage (record units): 7e 7f streamflow (record units): 7g total flow (record units): 8 Go to MEMORY (on newer Iscos®, this is not a step) 9 Record date and time last interrogated: INTERROGATE **⊘** 10 While interrogating, check external desiccant (bubbler flowmeter), replace as necessary 11 12 Check internal desiccant, replace as necessary (also check sampler control box desiccant) While waiting for download to complete, close case to keep animals out 13

UHM STORMWATER MONITORING SYSTEM SERVICING CHECKLIST Project Description: Stormwater Monitoring Client: Time: Site Location: Date: 14 When interrogation is complete HANGUP 15 Go to REPORT, begin with last servicing date & view SAMPLE REPORT **2** 16 Record bottle #s and sample dates and times on Isco® Sampling Record 17 Go to GRAPH and check hydrograph to see if sampler should have triggered but did not 18 EXIT FlowLink®, disconnect cable, and stow PC; replace connector cap 19 If battery is OK, go to Step #23, if not, go to Step #20 **20** If battery voltage is < 11.0 VDC or <1/3, shut off (1) sampler then (2) flow meter Replace 12-VDC, deep-cycle battery, make sure polarity is correct 21 **22** Turn on flow meter, then sampler (in this order or sampler will start sampling) 23 If removed from box, place flowmeter back in box & make sure lines & cables are OK 24 Pull Isco® sampler from housing, remove cover, & check status of sampler (fatal error?) **⊕** 25 Check Isco sampler time against watch, adjust if necessary, and record times Time: Reset to: **⊕** 26 Remove top of sampler and record number of bottles in sampler: 27 If sampler OK and no samples collected, go to Step #43, otherwise go to Step #28 **28** Switch Isco® sampler to STANDBY by pressing STOP 29 Remove top part of sampler to check sample bottles 30 Don clean gloves 31 Cap bottles (caps will be in a clean Ziplock® bag inside center of sampler) If not labeled, label bottles 1 through 24 (or at least up to the last full bottle); refer to base # 32 Compare sample #s with those recorded in Step #16 33 34 Move lifting straps out of way, remove locking ring, & remove filled sample bottles 35 Clean base of Isco® sampler, especially if ants have accumulated in base 36 Insert fresh capped bottles (empty bottles may be left in place & augmented with new) Total # of Bottles: 37 Re-insert locking ring (if there are <24 bottles, use foam rubber to fill in) Carefully place lifting straps, if present, back into base but away from bottle mouths 38 If your gloves have been compromised, don clean gloves 39 40 Remove caps and place in clean Ziplock® bag 41 Place top of sampler onto base and close latches **⊘**42 Press START SAMPLING, START (at Bottle #_ _?) and ENTER (do not forget this) Ignore "Sampler Inhibited" message (means sampler is waiting for flow meter) or "Waiting for Triggering Event" 43 Replace cover on sampler, do not pinch lines or wires, & carefully lower sampler into box 44 45 Insert fresh ant baits in box (to control the ants) as necessary 46 Close and lock box

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|---------------|---|---|-------------------------|-------------------|-------|-----------------|--|------------------|--|
| Project Des | scription: Stormwater Monitoring | | Client: | | | | E "ALAMAIAM" | | |
| Site Location | on: | Date: | Date: Time: | | 1.8 | | | TE EN O KA -AINA | |
| | | YS | I SONDE | • | | | | | |
| 1 | Unlock lock and remove cap and lock | (usually the chain p | pipe wrench is req | uired) | | | | | |
| ② 2 | Use retrieval hook to remove sonde from housing | | | | | | | | |
| 3 | Fill calibration cup with small amount of water and replace probe guard with cup | | | | | | | | |
| 4 | Remove cap and replace all 8 AA batteries and replace cap after greasing O-rings | | | | | | | | |
| 5 | Remove connector plug | Remove connector plug | | | | | | | |
| 6 | Connect sonde to PC loaded with Eco | Connect sonde to PC loaded with EcoWatch® using appropriate cables | | | | | | | |
| 7 | CONNECT (sonde icon) then type Mi | ENU | | | | | | | |
| 8 | Select FILE → UPLOAD → file name | ⇒ PROCEED ⇒ PC | 6000 | | | | | | |
| 9 | Wait for data to upload to PC, then ex | xit communications (| with sonde) windo | ow | | | | | |
| 10 | When finished, disconnect cable from | PC to sonde (this p | protects the downlo | oaded data) | | | | | |
| 11 | Open data file & check the data to se | e if there are any ap | parent problems v | with probes | | | | | |
| 12 | Change graph title to indicate station & start time of record (e.g., WK113099) | | | | | File Name: | | | |
| ② 13 | Rename file to match graph title (th | nis will prevent inac | dvertent overwrit | ing of data file) | | | | | |
| 14 | Connect 610-DM datalogger to sonde | (Note: spare 610-l | DM in pilot's case) | 1 | | | | | |
| 15 | Select POWER → ESC → DEPLOY S | SONDE → FILE → D | PELETE to delete | file | | | | | |
| 16 | If calibrating YSI, go to Step #17, if no | ot, go to Step #22 | | | | | | | |
| 17 | Press ESC to step back in menu until | CALIBRATE is an | option | | | | | | |
| 18 | Remove calibration cup and clean pro | Remove calibration cup and clean probes with 18-MΩ DIW & paper towels | | | | | | | |
| 19 | Place sonde in clamp on ring stand to | facilitate calibration | 1 | | | | | | |
| 2 20 | Record calibration information on | YSI Calibration Log | g; note start time | here | | | | | |
| 21 | Replace calibration cap containing a | small amount of (18- | -MΩ DIW) | | | | | | |
| ② 22 | Check YSI time against watch, adjust if necessary, and record times | | | | 1 | Time: Reset to: | | | |
| 2 3 | ESC ⇒ RUN ⇒ UNATTENDED ⇒ S | TART LOGGING ⇒ | YES ⇒ ESC³ ⇒ P | POWER | | | | | |
| 24 | Disconnect cables and replace conn | ector plug (IMPOR | PTANT) | | | | | | |
| 25 | Wait for wiper on turbidity probe to ac | tivate indicating that | t sonde is logging | data | | | | | |
| 26 | At YSI housing, remove calibration ca | p & replace with pro | obe guard | | | | | | |
| 2 7 | Place sonde in housing with retriev | /al hook | | | | | | | |
| 28 | Thread lock through housing & bale of | n sonde & lock | | | | | | | |
| 29 | Replace housing cap (finger tight only | <i>'</i>) | | | | | | | |
| | SAMPLE | S (if any), DATA R | EDUCTION, ANA | LYSIS, AND QC | | | | | |
| Ø 1 | Use label tape & Sharpie® pen, lab | el each bottle with | station # (e.g., W | /K-##), date, & | | | | | |

| UHM STORMWATER MONITORING SYSTEM SERVICING CHECKLIST | | | | | | E CONTROL OF THE PARTY OF THE P | |
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| Project Desc | ription: Stormwater Monitoring | | Client: | | | E TALAMATANA DO | |
| Site Location | : | Date: | | Time: | | TREAD KA -AITA | |
| ② 2 | Place labeled sample bottle | s in MSB 302 (core refrigera | ator) | | | | |
| 3 | Run EcoWatch® & open renamed file, print graph depicting YSI in situ water quality data | | | | | | |
| 4 | Run FlowLink® and open appropriate site file | | | | | | |
| 5 | Go to GRAPH, print copy of hydrograph to match in situ data (see Step #1), exit FlowLink® | | | | | | |
| ⊕ 6 | Enter TSS filtration data into storm spreadsheet | | | | | | |
| ② 7 | Enter stage data (from FlowLink®) into spreadsheet for each sample collected | | | | | | |
| ⊕8 | Copy YSI water quality data for time nearest sample time to spreadsheet | | | | | | |
| Comments: | | | | | | | |
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| Signatures and Review | | | | | | | |
| Serviced by: | | Date: | Reviewed by: | | | Date: | |

^{*} Only those steps with a "O" require a date and time and MUST be initialed. Always consult the appropriate manual if you have any questions.