Saipan Watershed Assessment 2020

Site ID: AS102	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/19/2020 8:33 PM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 2	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Ditch on uphill side of road, crosses road in 90 deg culvert to headwall.

Description of Proposed Opportunity:
Maintenance: clean. Repair trash rack, increase swale and pipe size. Reduce angles of 90 degree turn, add sediment forebay.

Challenges/Constraints:
Main road, limited space, developed

Additional Notes:

Site Photo

Site Overview Caption: Outfall toward wetland

Additional Photo Caption: Headwall on downstream end

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK (EH) JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS 102

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Ditch crosses road via 90° culvert.
Headwall on downstream end.
Lots of trash.

Severity/Rating (circle): 5 (*Severe*) 4 3 (2) 1 0 (*Not significant*)

Description of Proposed Opportunity:

At minimum – clean.

Install trash rack, increase swale & pipe size. Add sediment forebay.

Possibly change angle of culvert?

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

Additional Notes and/or Sketch:

Site ID: AS105	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/19/2020 8:57 PM
Project Type: • Stormwater Retrofit	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Catch basin & inlet to dry swale. Flow goes through culvert to drainage ditch with standing water (recently cleared by DPW Roads & Grounds).

Description of Proposed Opportunity:
Install a sediment forebay at inlet to wet swale for enhanced water quality treatment and reduced maintenance. Possibility for educational signage.

Challenges/Constraints:
Industrial area. Road with catch basin may be redone. Land ownership/future use could be an issue. Side slope stabilization could be difficult in steep ditch.

Additional Notes:
Recently excavated drainage ditch

Site Photo

Site Overview Caption: Swale area

Additional Site Photos

Additional Photo Caption: Ditch

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS 105

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

CB & inlet to dry swale. Through culvert to ditch ~~wet swale~~ (recently cleared) by DPW Roads & grounds

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

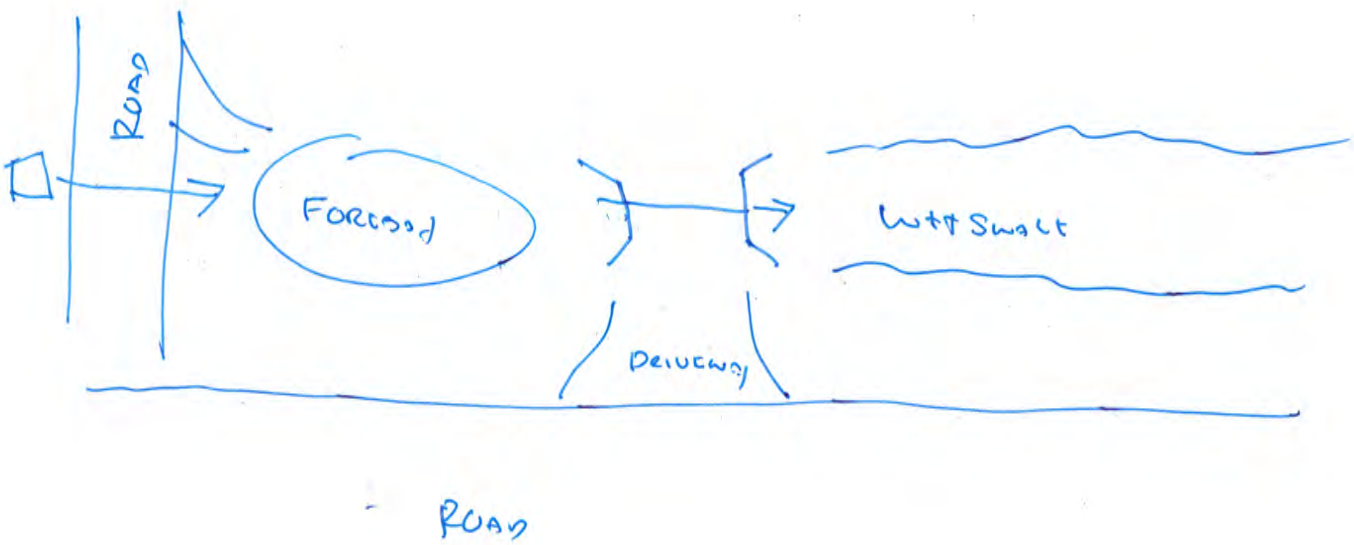
Scoiment Forbay to wet swale

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

~~SAFETY~~ LAND OWNERSHIP, INDUSTRIAL AREA, SIDE SLOPE STABILIZATION

Additional Notes and/or Sketch:



Site ID: AS106	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/19/2020 9:12 PM
Project Type: • Drainage Infrastr., Maint. & Repair • Wastewater Improvement	
Enforcement Needed: Yes	
Severity Rating: 5 (Severe)	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Municipal transfer station. Two leaking water main bubbling up in road, picking up trash and dumpster juice. Discharging to historic wetland. May be for fire suppressant.

Description of Proposed Opportunity:
Fix water line leaks.

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption: Water bubbling up.

Additional Photo Caption: Another leaking main or pipe

Additional Photo Caption: Runoff from the leaks, wetland is to the right.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS-106

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☒ Other LEAKING WATER LINE?

Description of Existing Conditions:

WATER BUBBLING UP THROUGH VALVE - THROUGH TRASH DISCHARGING WETLAND

Severity/Rating (circle): 5 *Severe* 4 3 2 1 0 *Not significant*

Description of Proposed Opportunity:

FIX WATER LINE

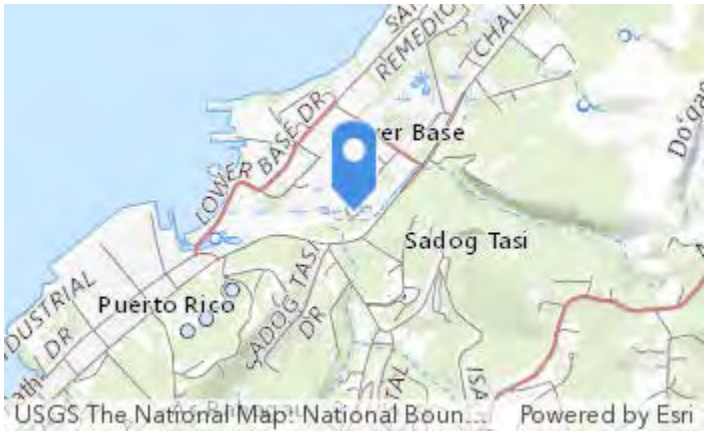
Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

WORKING W/ LOCAL AGENCY TO FIX

Additional Notes and/or Sketch:

NONE NEEDED

Site ID: AS109	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/19/2020 9:26 PM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: No	
Severity Rating: 5 (Severe)	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Transfer station drainage network clogged. Unclear where runoff is discharged.

Description of Proposed Opportunity:
Build swale along landscape strip between wetland, fence, and roadway.

Challenges/Constraints:
Transfer station, maintenance, pollutants, large tree.

Additional Notes:

Site Photo

Site Overview Caption: Proposed swale location.

Additional Site Photos

Additional Photo Caption: Transfer station (photo from the swale area)

Additional Photo Caption: Proposed swale location.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS-109

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☒ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

TRANSFER STATION DRAINAGE CLOGGED - UNCLEAR WHERE RUN OFF PUSH ARCHES

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

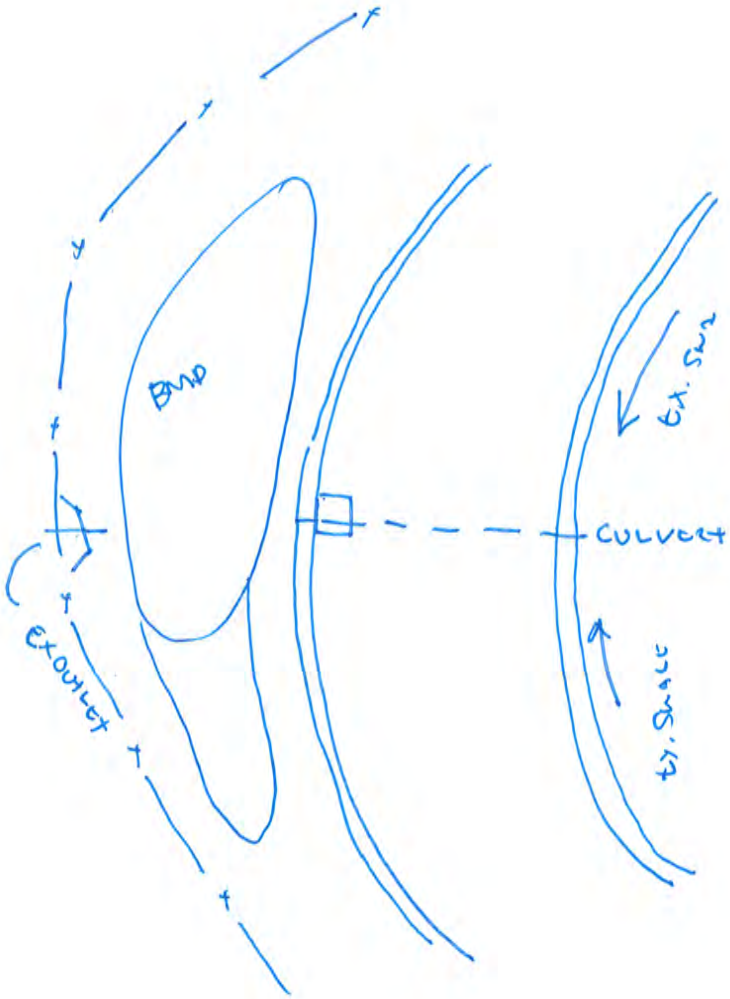
Description of Proposed Opportunity:

SWALE ALONG LANDSCAPE TOCIE BETWEEN WETLAND & ROADWAY

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: TRANSFER STATION, MAINTENANCE, POLLUTANT, LARGE TREE

Additional Notes and/or Sketch:



2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: A3-109

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Severity/Rating (circle): 5 4 3 2 1 0

Severe *Not significant*

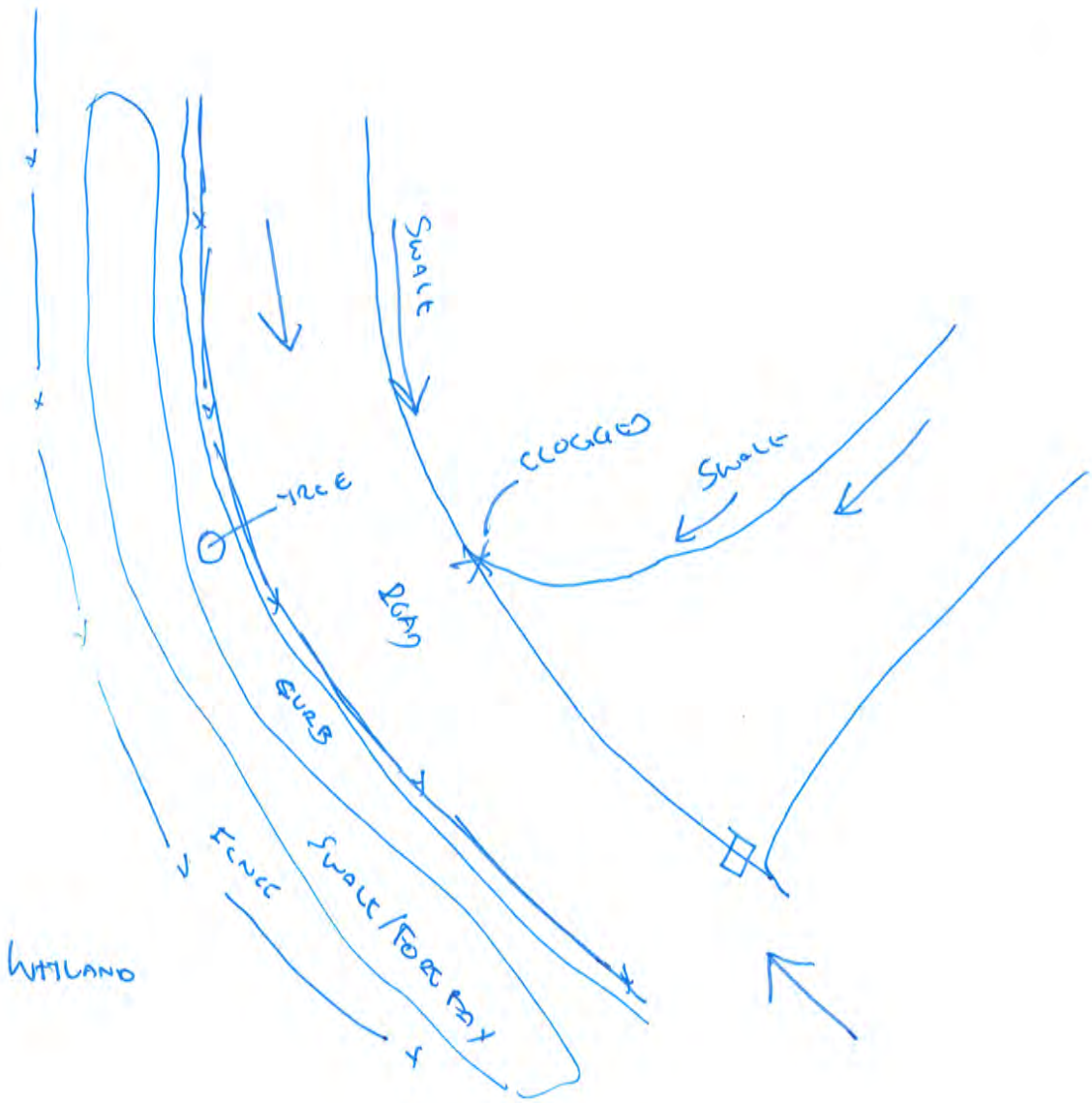
Description of Proposed Opportunity:

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

TRANSFER STATION, MAINTENANCE, LARGE TREE

Additional Notes and/or Sketch:



Site ID: AS122	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 12:55 AM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Concrete road swale. Clogged with sediment

Description of Proposed Opportunity:
Clean and remove sediment.

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption:
Swale clogged with sediment (flowing toward sign)

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS - ~~KA~~ 122

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

~~A~~ CONCRETE SWALE / INLET ~~across~~ ~~[illegible]~~ IS CLOGGED w/ SEDIMENT

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

CLEAN SWALE TO ALLOW FOR PROPER FLOW

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

ON GOING MAINTENANCE, ACROSS CONSTRUCTION SITE
SEE AS-159

Additional Notes and/or Sketch:

NONE - CLEAN SWALE

Site ID: AS128	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 1:38 AM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: No	
Severity Rating: 5 (Severe)	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Concrete swale along side of road. Collapsed culvert. Old tidal gate (WWII era?)

Description of Proposed Opportunity:
Formalize inlet and add sediment forebay. For industrial businesses nearby-- implement individual BMPs to control sediment. Replace culvert & restore side slopes. (also see AS168)

Challenges/Constraints:
Access to down gradient/outfall area is difficult. Abutting private property.

Additional Notes:

Site Photo

Site Overview Caption: Large amount of sediment accumulation in channel

Additional Site Photos

Additional Photo Caption: Proposed location of sediment forebay, with swale to forested area (stream).

Additional Photo Caption: Trash near headwall of culvert (left)

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): (BK) BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS - 128

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

COLLAPSED CULVERT
OLD TIDAL GATE WW TRA

Severity/Rating (circle): (5) *Severe* 4 3 2 1 0 *Not significant*

Description of Proposed Opportunity:

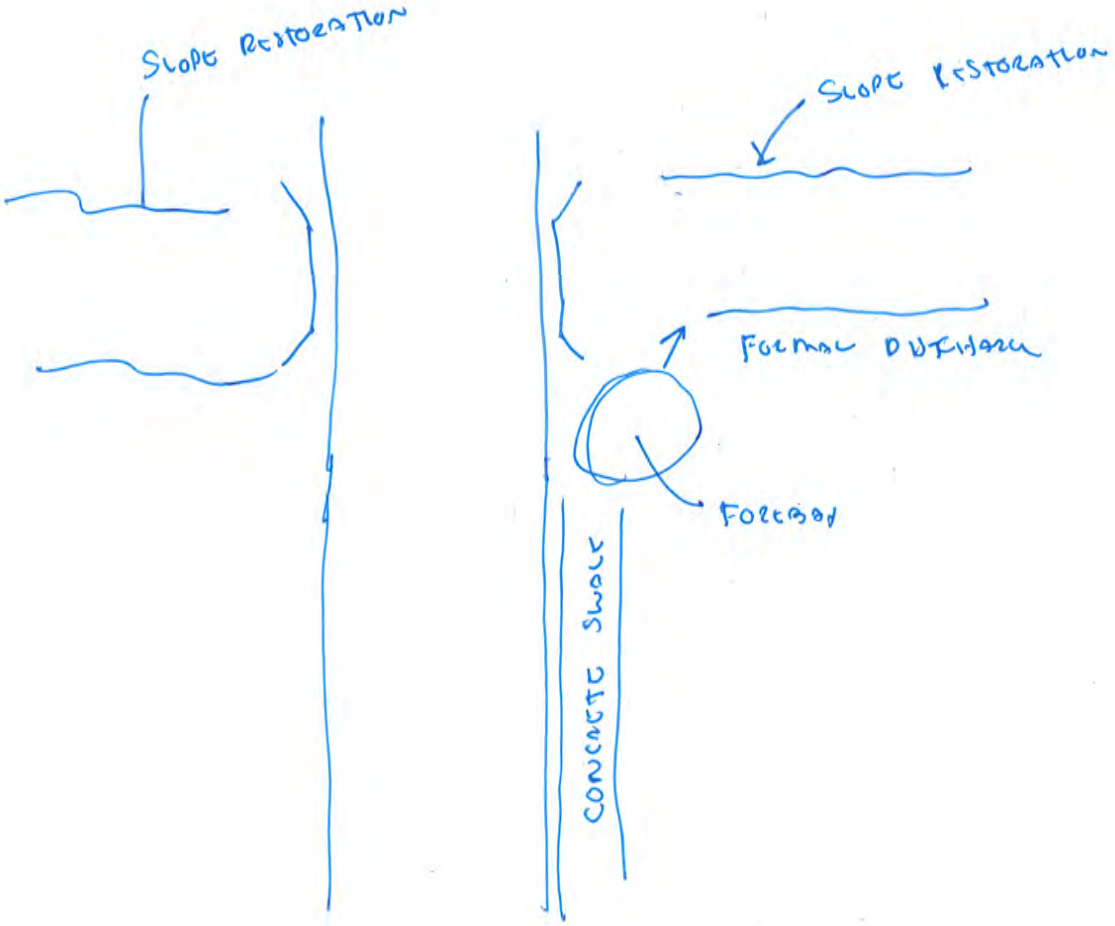
SEDIMENT FORE BAY
FORMALIZE INLET
BMPS FOR INDUSTRY TO CONTROL SEDIMENT
REPLACE CULVERT
RESTORE SIDE SLOPES

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

+ ACCESS TO DOWN GRADIENT AREA ~ OUTFALL
+ ABUTTING PROPERTY OWNERS

Additional Notes and/or Sketch:



Site ID: AS132	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 2:19 AM
Project Type: • Stream/Wetland Restoration	
Enforcement Needed: Yes	
Severity Rating: 5 (Severe)	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Agatan Stream has base flow and has been rerouted as part of development. Stream runs freely across the road and then along gutter line. Constant flow to another gut. (Also see AS134)

Description of Proposed Opportunity:
PRIORITY PROJECT. Restore and reestablish stream to remove water and erosion of road gutter line. Fix culvert (AS133).

Challenges/Constraints:
Middle Road and property access.

Additional Notes:

Site Photo

Site Overview Caption: Looking north along middle road. Driveway on right is to old garment factory.

Additional Site Photos

Additional Photo Caption: Standing water (with electric box) at the end of driveway from old garment factory.

Additional Photo Caption: Stream runs along the outside of this wall.

Site ID: AS134	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 2:27 AM
Project Type: • Stream/Wetland Restoration	
Enforcement Needed: Yes	
Severity Rating: 5 (Severe)	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Clogged culvert. Part of AS132 restoration.

Description of Proposed Opportunity:
Stream restoration along Middle Road and culvert restoration.

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption: Clogged culvert and drainage infrastructure.

Additional Site Photos

Additional Photo Caption: Informal drainage from along Middle Road into streambed.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS 132 ; AS 134

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☒ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

~~SPRING~~ AGATAN STREAM HAS BASE FLOW ; HAS BEEN RE ROUTED AS PART OF ~~DEVELOP~~ DEVELOPMENT. STREAM ~~NO~~ RUNS ACROSS THE ROAD ; THEN RUNS ALONG GUTTER LINE - CONSTANT FLOW - TO ANOTHER GUT.

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

RESTABLISH ~~RE~~ AND RESTABLISH STREAM TO REMOVE WATER AND EROSION OF ROAD GUTTER LINE.

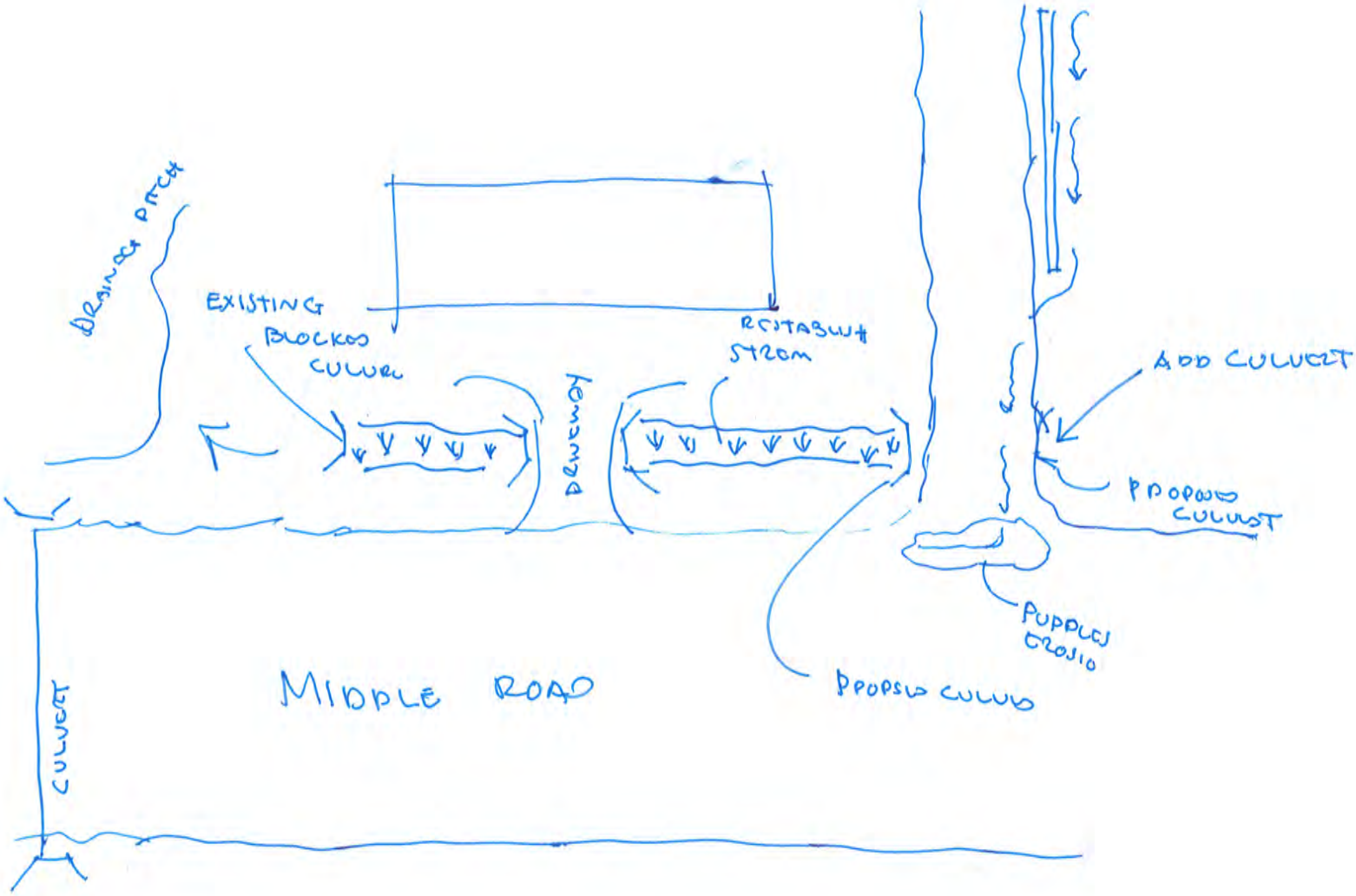
THIS SHOULD BE A PRIORITY PROJECT

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

+ ROAD / PROPERTY ACCESS

Additional Notes and/or Sketch:



Site ID: AS137	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 7:06 PM
Project Type: • Stormwater Retrofit • Unpaved Road Stabilization • Watershed Education/Signage	
Enforcement Needed: No	
Severity Rating: 3	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Paved roads drain to unpaved dirt road in park. Road runoff appears to pond and scour.

Description of Proposed Opportunity:
Add waterbar or cross drain to direct runoff from Tanapag Ave (paved) to forebay and bio/rain garden in park. May have to be a wet swale. Education opportunity in park.

Challenges/Constraints:
Overflow-- where would that go? Maintenance could be difficult. Should be careful to not change/damage park. Very flat paved roads could make getting the water into swale difficult.

Additional Notes:

Site Photo

Site Overview Caption: Tanapag Ave (to right) and Santa Remedio Drive (bottom right to top) and park to left.

Additional Site Photos

Additional Photo Caption: Swale location.

Additional Photo Caption: Paved/dirt interface. Tanapag Ave (top) and Santa Remedio Drive to left and right.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS- ~~136~~ 137

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

ROAD RUNOFF APPEARS TO DRAIN ? POND — SOME SCOURING

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

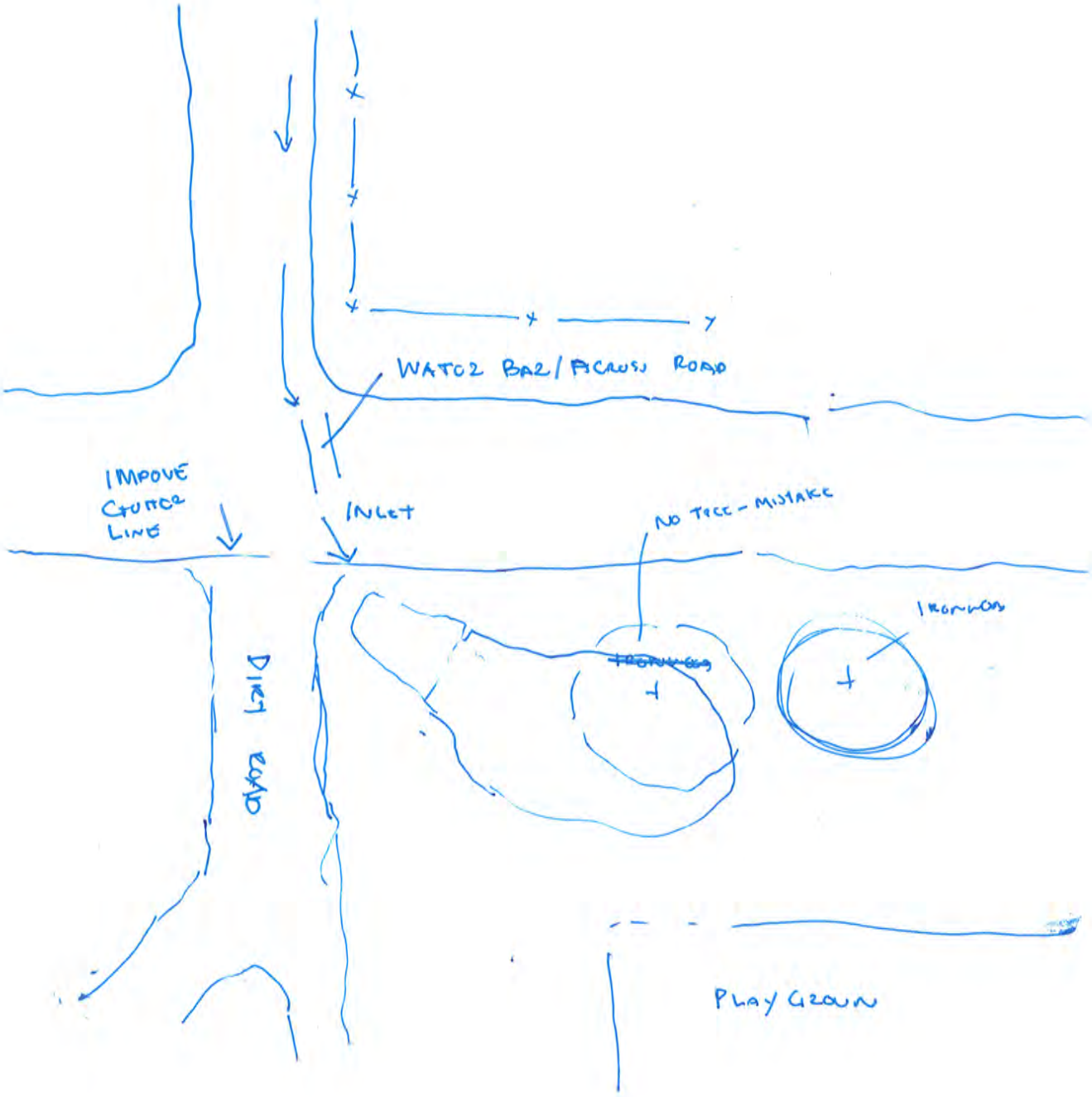
STORMWATER RETROFIT / BIO W/ FORE BAY ? WET SWALE ? EDUCATION OPPORTUNITY IN PARK

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

OVERFLOW – WHERE DOES IT GO.
MAINTENANCE – NOT CHANGING / DAMAGING PAR

Additional Notes and/or Sketch:



Site ID: AS138	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 7:16 PM
Project Type: • Upland Revegetation/Restoration	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: Not that important (Low)	

Descriptions of Existing Conditions:
Park with boat ramp and several roads with unorganized vehicular traffic. Dirt roads causing minor erosion and sedimentation. Overall park is in good condition except lots of trash.

Description of Proposed Opportunity:
Eliminate some roads by reorganizing circulation and re-vegetating former roads. Add signage for litter.

Challenges/Constraints:
None-- complete as part of a larger improvement project of the entire park.

Additional Notes:

Site Photo

Site Overview Caption: Roads within the park.

Additional Site Photos

Additional Photo Caption: Shelter in park, roads.

Additional Photo Caption: Erosion at trees along shoreline.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS-~~137~~ 138

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☑ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

PARK / BOAT RAMP W/ UNORGANIZED VEHICULAR TRAFFIC. ~~KS~~ DIRT ROAD CAUSING MINOR ~~ESIO~~ EROSION / SEDIMENTATION

OVERALL PARK IN GOOD CONDITION EXCEPT TRASH

Severity/Rating (circle): 5 (Severe) 4 3 (2) 1 0 (Not significant)

Description of Proposed Opportunity:

REORGANIZE CIRCULATION : REVEGETATE

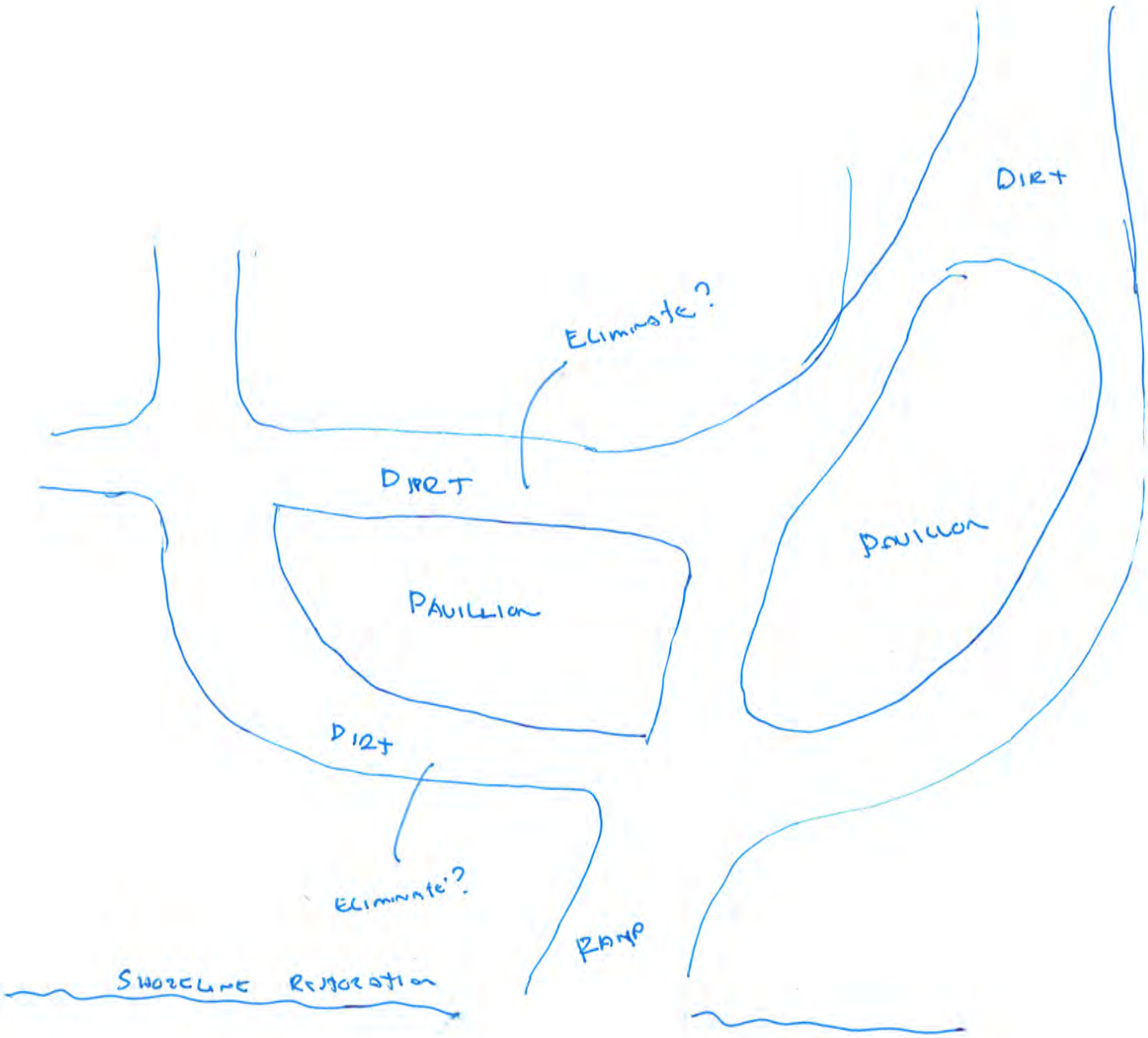
+ ADD SIGNAGE RE: LITTER

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☑ not that important (low) ☐ unsure

Challenges/Constraints:

NONE – COMPLETE AS PART OF AN IMPROVEMENT PROJECT

Additional Notes and/or Sketch:



Site ID: AS139	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 7:25 PM
Project Type: • Stormwater Retrofit • Watershed Education/Signage	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Roof runoff discharges directly to park through downpipes.

Description of Proposed Opportunity:
Rain garden to capture runoff from building roof, eliminate nearby dirt access road. (See AS138)

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption: Downpipe from roof, informal swale discharge.

Additional Site Photos

Additional Photo Caption: Back of building.

Additional Photo Caption: Front of building, rain garden location.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS- ~~138~~ 139

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

ROOF RUNOFF DISCHARGING TO PARK

Severity/Rating (circle): 5 (*Severe*) 4 3 (2) 1 0 (*Not significant*)

Description of Proposed Opportunity:

RAIN GARDEN TO CAPTURE RUNOFF ~~FR~~ FROM BUILDING ROOF

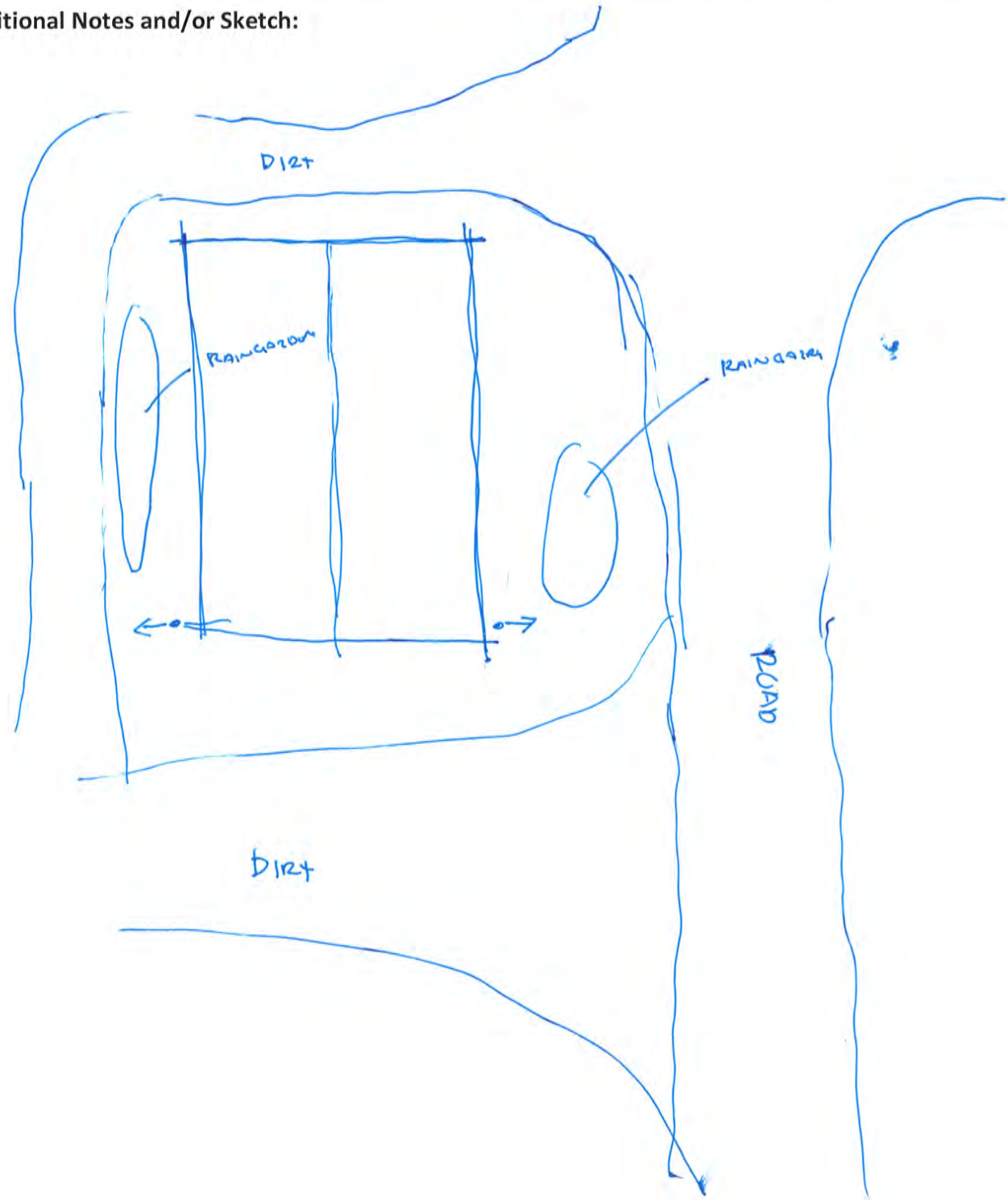
ELIMINATE DIRT ACCESS ROAD

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

ELIMINATION OF ROAD. SOILS? / FLOODING

Additional Notes and/or Sketch:



Site ID: AS140	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 7:48 PM
Project Type: • Stormwater Retrofit	
Enforcement Needed: No	
Severity Rating: 1	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Road has little/no drainage infrastructure, so runoff goes into grass.

Description of Proposed Opportunity:
Stormwater practice in grass area (NW corner of school).

Challenges/Constraints:
Possibly soil?

Additional Notes:

Site Photo

Site Overview Caption: Talaabwogh Rd

Additional Photo Caption: Chamolinian Dr

Additional Photo Caption: intersection and corner of school yard (behind fence).

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS-~~139~~ 140

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

ROAD RUNOFF W/ LITTLE TO NO DRAINAGE INFRA STRUCTURE

Severity/Rating (circle): 5 *Severe* 4 3 2 (1) 0 *Not significant*

Description of Proposed Opportunity:

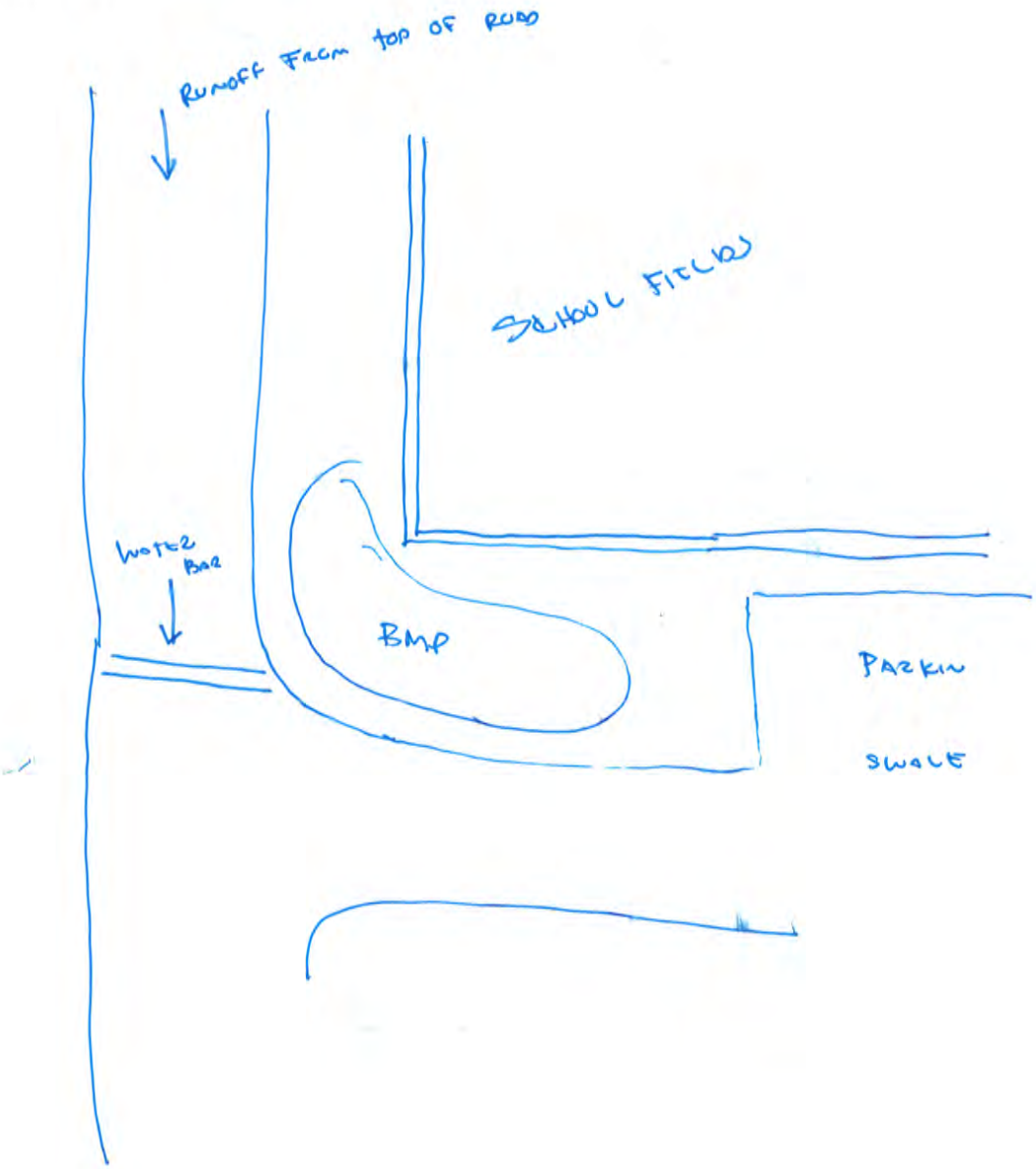
STORMWATER PRACTICE IN GRASS AREA NW CORNER OF SCHOOL

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

SOIL ? - NONE

Additional Notes and/or Sketch:



Site ID: AS142	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 7:59 PM
Project Type: • Stormwater Retrofit	
Enforcement Needed: No	
Severity Rating: 1	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Paved parking lot drains to swale and weep holes in school wall drain to infiltration trench with pipe overflow. Water from paved swale discharges to lawn w/ erosion and then crosses road.

Description of Proposed Opportunity:
Drainage/vegetated swale along road and tie into infiltration trench overflow near the school yard wall. Possible combination with AS140.

Challenges/Constraints:
Possibly soil?

Additional Notes:

Site Photo

Site Overview Caption: Inlet from parking lot by wall, water flows along left side of road and then crosses.

Additional Photo Caption: Right side of road where water crosses.

Additional Photo Caption: Right side of road where water crosses.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☑ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS - ~~141~~ 142

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

PAVED PARKING LOT TO SWALE & WOOD HOLES IN SCHOOL WALL ~~AT~~ TO INFILTRATION TRENCH W/ PIPE OVERFLOW

WATER FROM PAVED SWALE DISCHARGES TO LAWN W/ EROSION & CROSSES ROAD

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

DRAINAGE / VEGETATED SWALE — POSSIBLE COMBINATION W/ AS - ~~139~~ 140

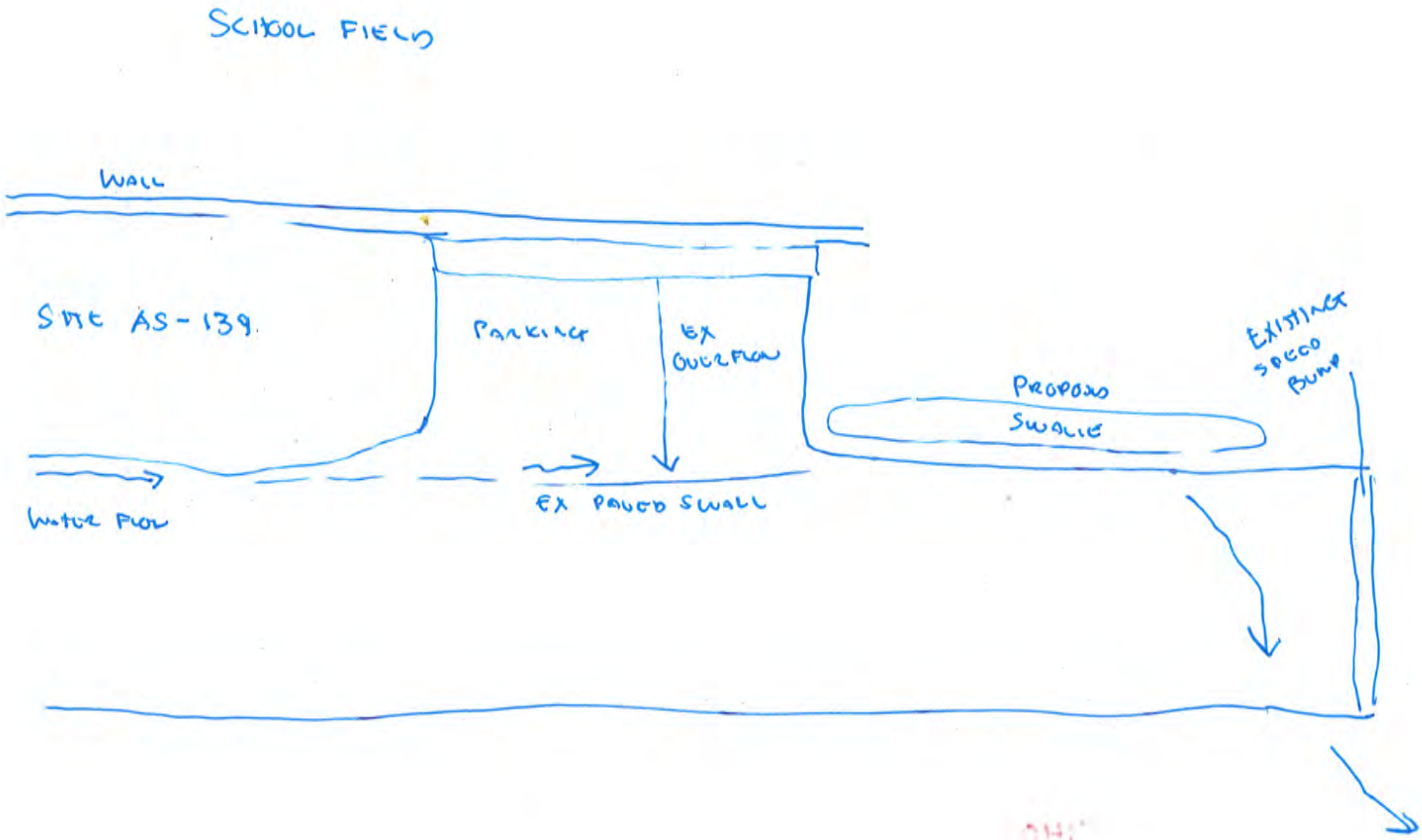
TIE IN INFILTRATION TRENCH OVER FLOW

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

SOILS

Additional Notes and/or Sketch:



Site ID: AS147	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 9:00 PM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: Not that important (Low)	

Descriptions of Existing Conditions:
Informal swale draining runoff from end of dirt road and school yard that discharges off site. Eroded swale. Runoff goes between tanks and pump house.

Description of Proposed Opportunity:
Fix dirt road grades and direct to basin (AS149) on site.

Challenges/Constraints:
Ideally would get this runoff to basin-- may not be possible.

Additional Notes:

Site Photo

Site Overview Caption: Runoff goes between tank (left) and pump house (right).

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS - ~~146~~ 147 - INFORMAL SWALE ~~PERIMETER~~ DRAINING OFF SITE

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

INFORMAL SWALE DRAINS RUNOFF FROM SCHOOL YARD & DISCHARGES OFF SITE - GRADED SWALE

Severity/Rating (circle): 5 (*Severe*) 4 3 (2) 1 0 (*Not significant*)

Description of Proposed Opportunity:

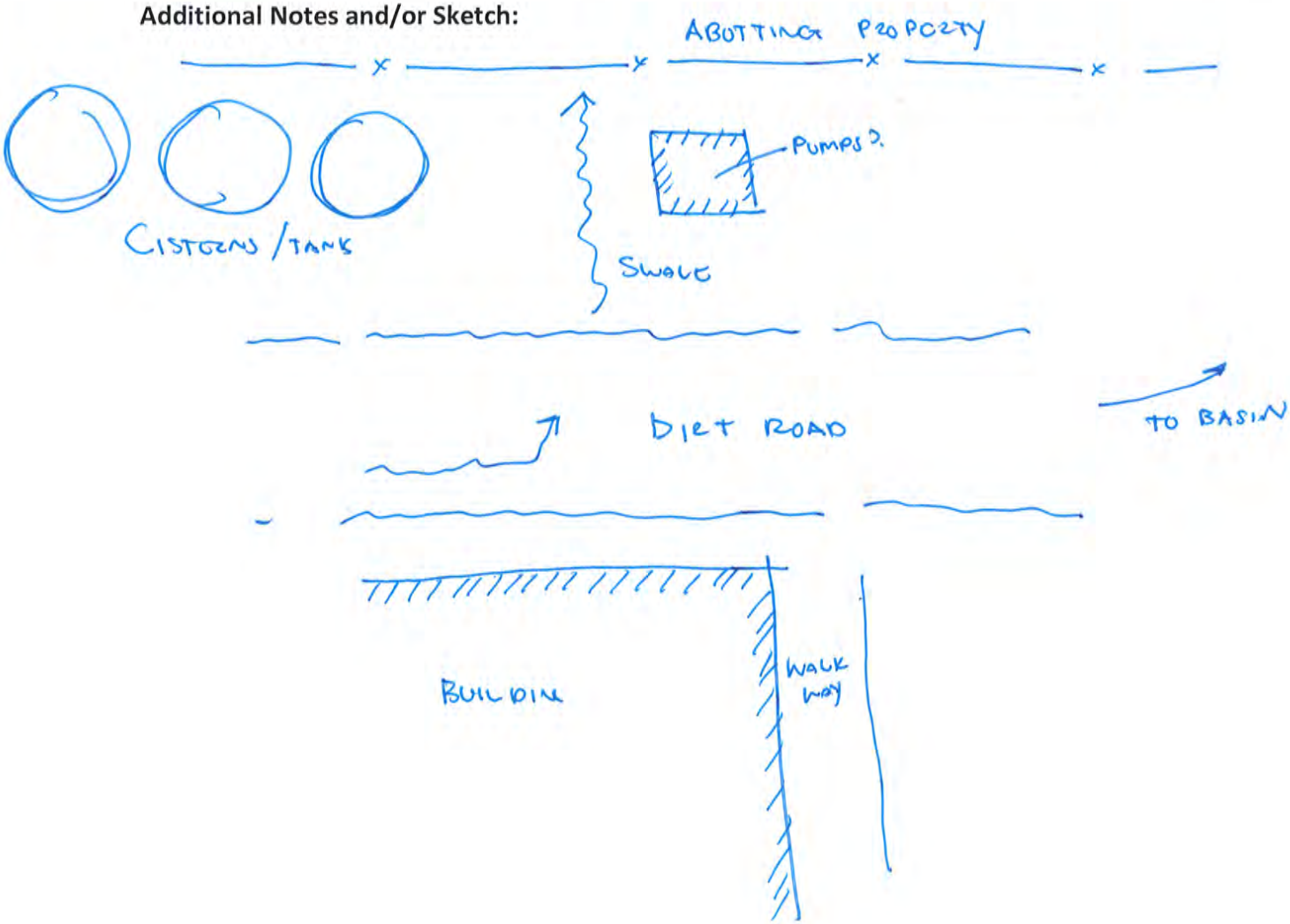
FIX DIRT ROAD GRADES & DIRECT TO BASIN ON SITE

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

COULD BE A CHALLENGE TO GET RUNOFF TO THE BASIN.

Additional Notes and/or Sketch:



Site ID: AS149	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 9:15 PM
Project Type: • Drainage Infrastr., Maint. & Repair • Stormwater Retrofit	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Large basin in the NW corner of school site. Takes roof, walkway and field runoff. Vegetation is overgrown and should be cleared/cut and maintained. Standing water observed. Water overtops in the SW corner of basin and contributes to drainage issues at AS142. Basin is 4-6' deep, varies in width; up to 20'.

Description of Proposed Opportunity:
Clean basin. Explore possibility of expanding capacity and address overflow issue?

Challenges/Constraints:
Access-- will disturb school yard field if capacity is expanded.

Additional Notes:

Site Photo

Site Overview Caption: Upstream

Additional Photo Caption: Downstream

Additional Photo Caption: Standing water

2020 SAIPAN WATERSHED FIELD NOTES

SHOULD BE CLEANED → **Enforcement Needed:** ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS - ~~148~~ ~~147~~ 149 DRAINAGE BASIN

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

LARGE BASIN IN THE NW CORNER OF SCHOOL SITE TAKES ROOF, WALKWAY & FIELD RUNOFF. VEGETATION IS OVERGROWN AND SHOULD BE CLEARED / CUT MAINTAINED. STANDING WATER OBSERVED.
WATER OVER TOPS IN THE SW CORNER OF BASIN & CONTRIBUTES TO DRAINAGE ISSUES @ SITE AS - ~~147~~ 142

Severity/Rating (circle): 5 (*Severe*) 4 (3) 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

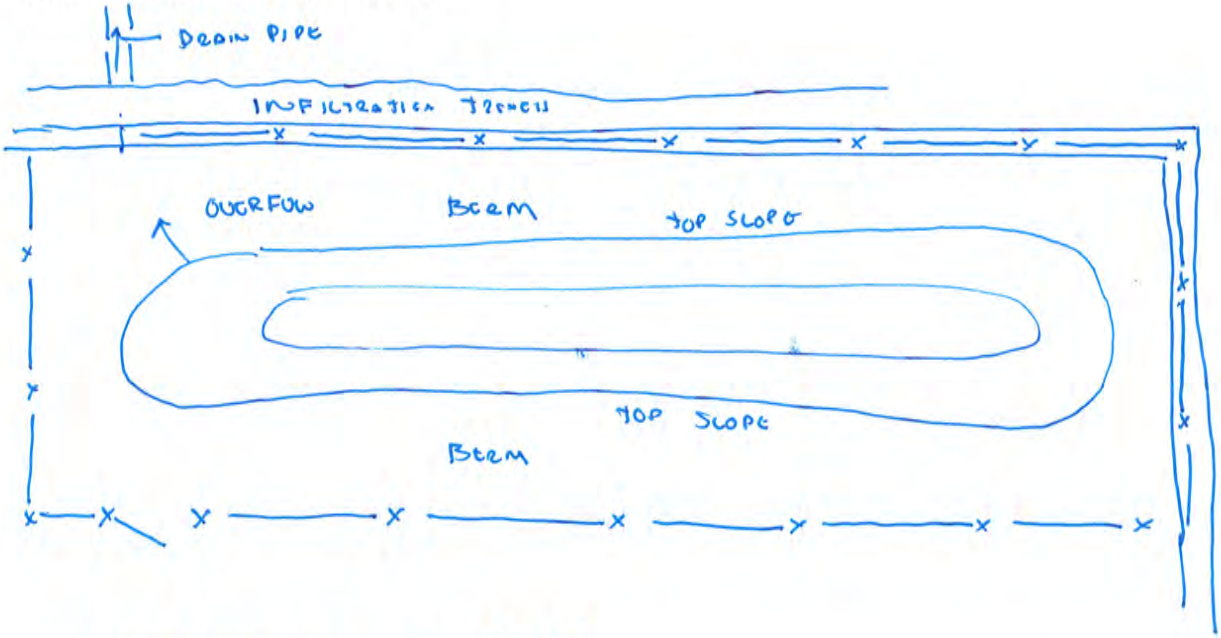
CLEAN BASIN
EXPLORE POSSIBILITY OF EXPANDING CAPACITY & ADDRESS OVERFLOW ISSUE

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

ACCESS - WILL DISTURB SCHOOL YARD FIELD IF EXPANDED CAPACITY IS COMPLETED

Additional Notes and/or Sketch:



+ OVERGROWN - CLEAN

+ EXPAND CAPACITY?

Site ID: AS150	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 9:15 PM
Project Type: • Stormwater Retrofit • Education	
Enforcement Needed: No	
Severity Rating: 1	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Roof runoff and overland flow uncontrolled in courtyard at school. Does not appear to be a problem but could be an opportunity to integrate stormwater into school/curriculum. Spoke with principal, who thought students and faculty would like that.

Description of Proposed Opportunity:
Stormwater BMP to manage roof runoff. Great possible outreach (cool project) but not big impact.

Challenges/Constraints:
Use of open area by kids

Additional Notes:

Site Photo

Site Overview Caption: Grass courtyard

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS – ~~148~~ 150 – School ~~Bat~~ Educational Basin

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☒ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

+ Roof runoff & runoff uncontrolled in courtyard does not appear to be problem, but could be an opportunity to integrate SW into school. Spoke to principal & thought students would like that.

Severity/Rating (circle): 5 (Severe) 4 3 2 (1) 0 (Not significant)

Description of Proposed Opportunity:

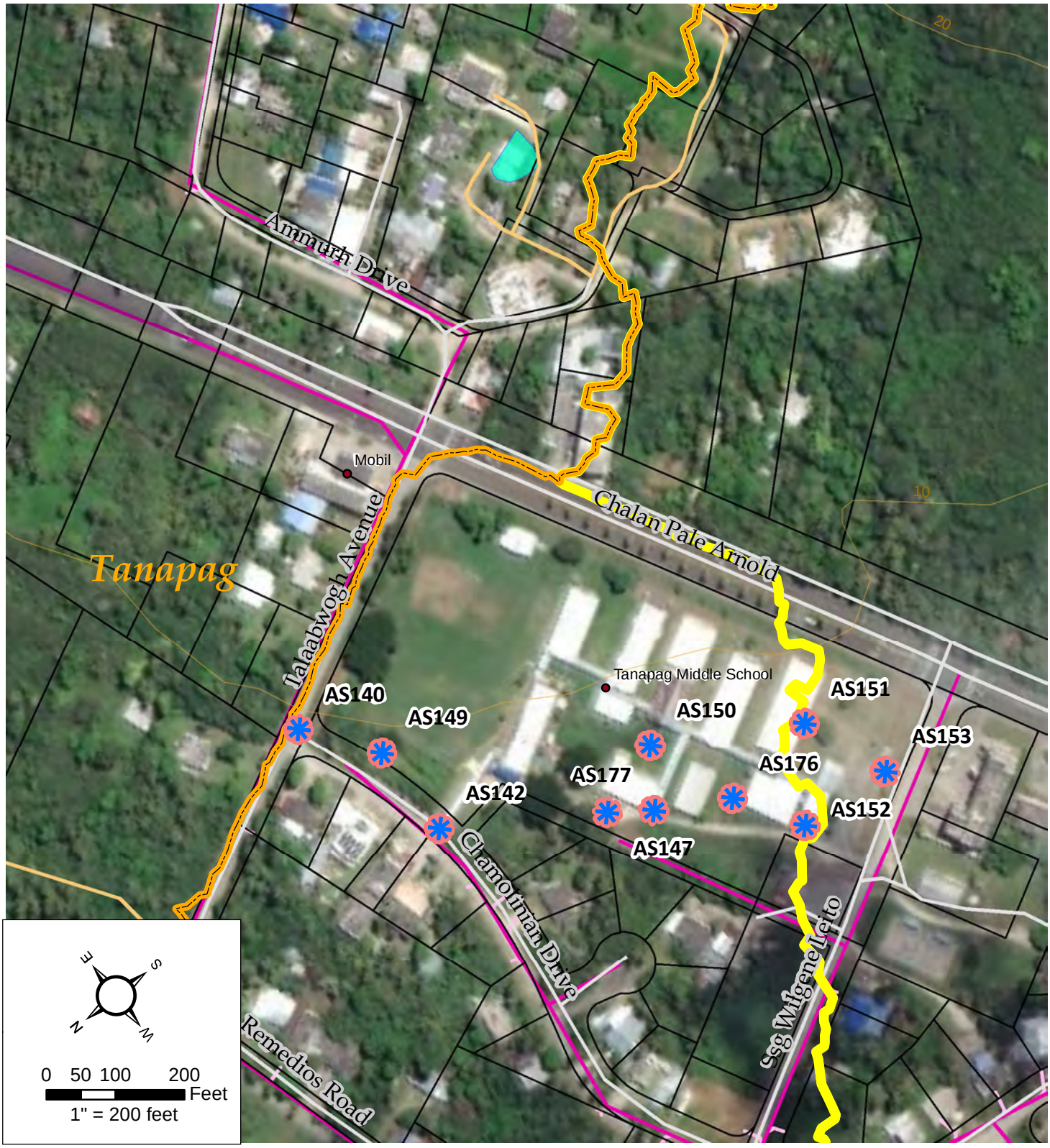
+ Stormwater BMP to manage roof runoff
+ Great possible outreach – cool project – not big impact

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☒ not that important (low) ☐ unsure

↑ I love it but probably low priority

Challenges/Constraints:

Additional Notes and/or Sketch:



Legend

- Subwatershed Boundary (2018)
- Wetlands (2019)
- Parcel Boundary (2015)
- Municipal Boundaries (2019)
- HW Identified Subwatershed Boundary
- BM Beach Monitoring Site (2019)
- SW SWQAMP Monitoring Point (2019)
- HW Identified Field Site
- Streams/Rivers (2019)
- 10m Contours (2019)
- Sewer Pressurized Mains (2019)
- Sewer Gravity Mains (2019)
- Sewer Lateral Lines (2019)
- Sanitary Sewer pump station

Roads (2016)

- 4WD
- Local

Stream Assessment Points

- Abandoned Vehicles
- Animals
- Erosion
- Human Waste
- Outfall
- POI
- Trash
- UXO

Horsley Witten Group
Sustainable Environmental Solutions
90 Route 6A • Unit 1 • Sandwich, MA 02563
508-833-6600 • horsleywitten.com

Tanapag School
Field Site Map
Achugao Watershed
Saipan, CNMI

Data provided by BECQ/NOAA in 2019 for the purposes of this project

Site ID: AS151	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 9:30 PM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Existing planters at school with downspouts directed to them. Downspouts may not actually discharge into planters (may go underneath). No plants. Spoke to principal: they have tried to grow plants but have issues with watering.

Description of Proposed Opportunity:
Convert planters into stormwater planters. Low hanging fruit and great education opportunity!

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption: Planters.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS - ~~149~~ 157 - STORM WATER PLANTERS

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☒ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

EXISTING PLANTERS W/ DOWNSPOUTS DIRECTED TO THEM. NO PLANTS SPOKE TO ~~THE~~ PRINCIPAL; THEY HAVE TRIED TO GROW PLANTS BUT ISSUES W/ WATERING

Severity/Rating (circle): 5 (*Severe*) 4 3 (2) 1 0 (*Not significant*)

Description of Proposed Opportunity:

~~FUEL PLANTS~~

CONSIDER PLANTING INTO STORMWATER PLANTERS

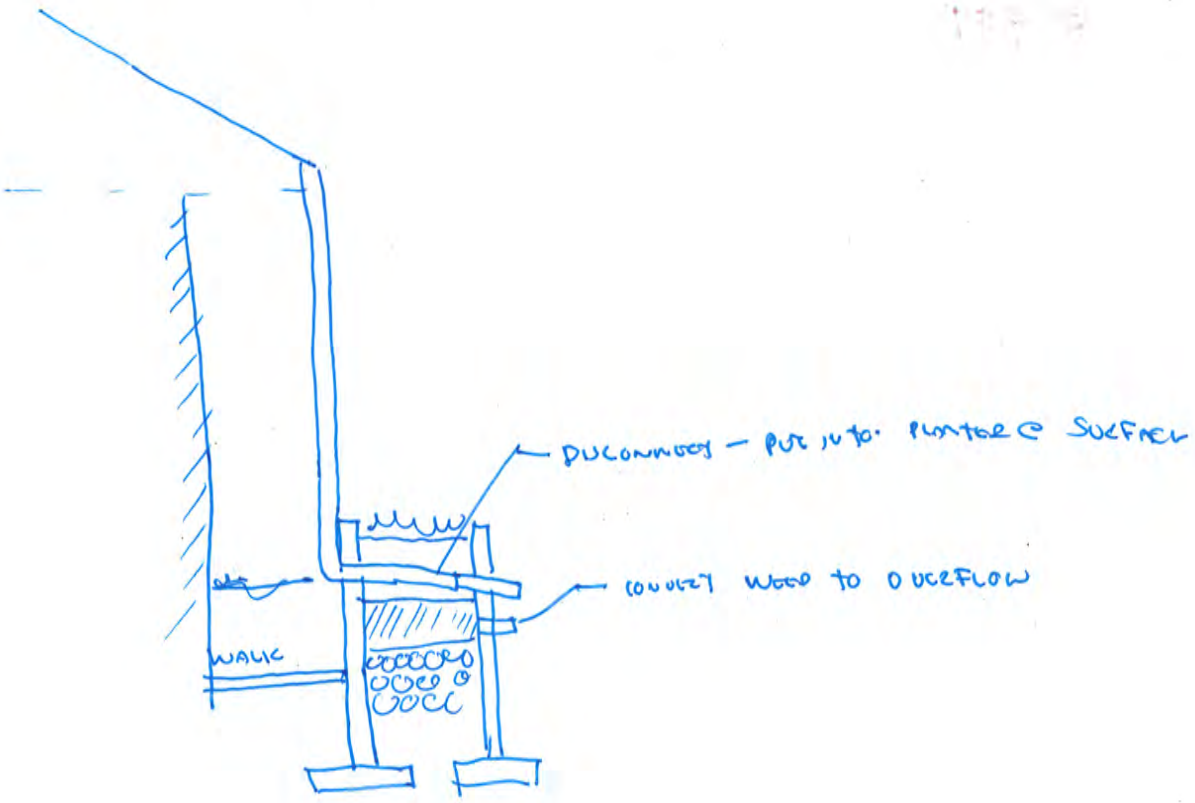
LOW HANGING FRUIT

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

NOT NONE

Additional Notes and/or Sketch:



Site ID: AS152	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 9:45 PM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Wet/mushy soils.

Description of Proposed Opportunity:
Determine cause-- leaking pipe? Stormwater? other?

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption: Mushy soils (see mud and tracks).

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS- ~~150~~ 152 – ~~WETSO~~ WET SOILS

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

+ WET SOILS

Severity/Rating (circle): 5 (*Severe*) 4 (3) 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

+ DETERMINE CAUSE OF WET SPONGY SOILS

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

UNKNOWN

Additional Notes and/or Sketch:

NO SKETCH NEEDED

Site ID: AS153	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 10:00 PM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Parking lot drainage directed to existing swale. Two inlets and one outlet. Inlets clogged- too small. Runoff may not actually be entering swale. Drainage area is parking lot of school and runoff overflow via concrete swales.

Description of Proposed Opportunity:
Add inlets to allow for better drainage/more inflow. Fix existing inverts and outlets to ensure flow. Clean swale and replant.

Challenges/Constraints:
Soils and water table seem to be an issue at the middle school in general. (see AS 152)

Additional Notes:

Site Photo

Site Overview Caption: Inlet

Additional Photo Caption: Swale from outlet upstream

Additional Photo Caption: Single outlet

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS – ~~151~~ 153

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

PARKING LOT DRAINAGE DIRECTED TO EXISTING SWALE.
2 INLETS W/ ONE OUTLET. INLETS CLOGGED – TOO SMALL
RUNOFF MAY NOT BE ENTERING SWALE

DRAINAGE AREA: PARKING LOT & SCHOOL RUNOFF OVERFLOW
~~SEE FOR~~ VIA CONCRETE SWALES

Severity/Rating (circle): 5 (*Severe*) 4 3 (2) 1 0 (*Not significant*)

Description of Proposed Opportunity:

ADD INLETS TO ALLOW FOR BETTER DRAINAGE –
FIX EXISTING INLETS

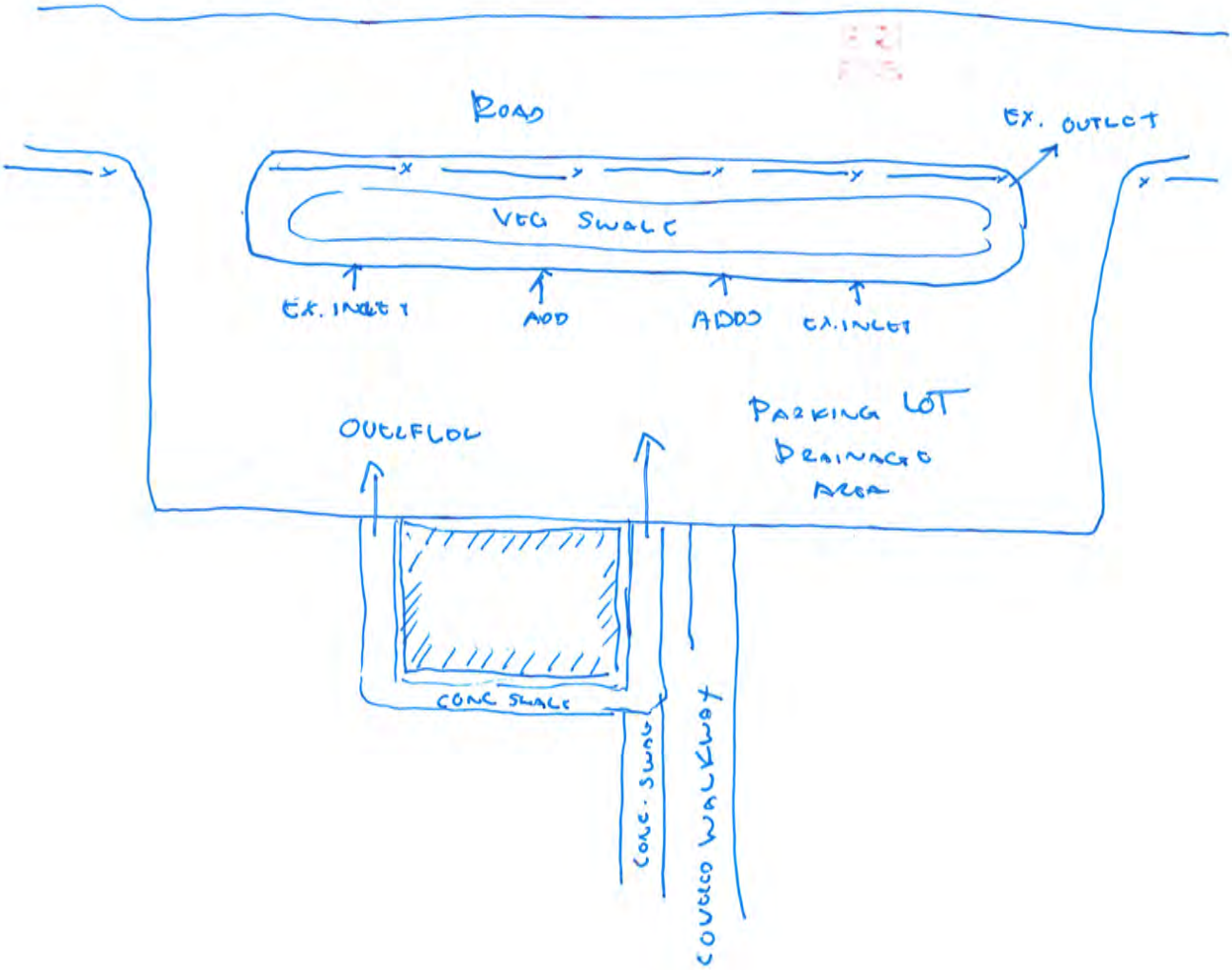
+ CLEAN SWALE & RE PLANT

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

SOILS ; WATER TABLE SEEM TO BE AN ISSUE @ MIDDLE SCHOOL SITE

Additional Notes and/or Sketch:



Site ID: AS154	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/20/2020 10:13 PM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 2	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Water on road

Description of Proposed Opportunity:
Confirm water source. Eliminate water from road.

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption: Water

Additional Site Photos

Additional Photo Caption: upstream of puddle

Additional Photo Caption: Downstream of puddle

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS - 154

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

WATER RUNNING ACROSS ROAD - UNCLEAR WHY.

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

CONFIRM WATER SOURCE & - ELIMINATE ~~ONCE~~ WATER FROM ROAD

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☒ not that important (low) ☐ unsure

Challenges/Constraints:

NONE

Additional Notes and/or Sketch:

NONE

Site ID: AS159 (see AS502)	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/21/2020 12:17 AM
Project Type: • Construction Site ESC	
Enforcement Needed: Yes	
Severity Rating: 4	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Imperial Casha construction site. Gravel drive to main road. Runoff from inactive site discharges to road at construction entrance without erosion controls.

Description of Proposed Opportunity:
Erosion control on site at entrance. Stabilize site if construction is inactive.

Challenges/Constraints:
Cooperation from property owner and enforcement.

Additional Notes:

Site Photo

Site Overview Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS - 159

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☒ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

RUNOFF FROM INACTIVE CONSTRUCTION SITE DUCHARGES TO ROAD @ CONSTRUCTION ENTRANCE W/ OUT ANY EROSION CONTROLS IN PLACE

Severity/Rating (circle): 5 *Severe* 4 3 2 1 0 *Not significant*

Description of Proposed Opportunity:

EROSION CONTROL INSTALLED @ ENTRANCE.

STABILIZE SITE IF CONSTRUCTION IS INACTIVE

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

COOPERATION FROM PROPERTY OWNER & ENFORCEMENT

Additional Notes and/or Sketch:

NONE - SEE PHOTOS

Site ID: AS168	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/21/2020 1:33 AM
Project Type: • Drainage Infrastr., Maint. & Repair • Education-commercial/industrial site owners	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Swale full of sediment. Industrial areas don't control their sediment runoff.

Description of Proposed Opportunity:
Clean swale. Require BMPs in contributing industrial area at each site. May be opportunities to install BMPs to control sediment in the ROW.

Challenges/Constraints:
Elimination & reduction of offsite sediment. Frequency of cleaning/controlling source.

Additional Notes: Do these places have SWPPPs? Could develop a SWPPP for each willing owner.

Site Photo

Site Overview Caption: (left) South and (right) North

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS-~~168~~ 168

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

CONCRETE SWALE IS CLOGGED W/ SEDIMENT

Severity/Rating (circle): 5 (*Severe*) 4 (3) 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

CLEAN SWALE
REQUIRE BMPS FOR ~~[illegible]~~ PROPERTIES CONTRIBUTING TO ON GOING SEDIMENTATION.

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

ELIMINATION / REDUCTION ~~OFF~~ OF OFF SITE SEDIMENT
FREQUENCY OF CLEANING / CONTROLLING THE SOURCE

Additional Notes and/or Sketch:

NO SKETCH NEEDED – SEE ALSO 128

Site ID: AS170	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/21/2020 2:01 AM
Project Type: • Drainage Infrastr., Maint. & Repair • Stormwater Retrofit	
Enforcement Needed: Yes	
Severity Rating: 4	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Concrete swale with sump box. Clogged with sediment. Culvert discharges to wetland. Sedimentation observed in wetland. Evidence of past cleaning and removal of sediment from wetland.

Description of Proposed Opportunity:
Clean box sump. Unclog pipe. Remove sediment from wetland. BMPs needed for all the sites in this area to manage disturbed surfaces with no stabilization. Make box sump easier to clean.

Challenges/Constraints:
Removal of sediment from wetland. Encouraging/forcing companies along the road to manage sediment on site may be difficult. Land use (next to power plant). Very flat.

Additional Notes:

Site Photo

Site Overview Caption: Wetland on south side.

Additional Site Photos

Additional Photo Caption: Clogged north side.

Additional Photo Caption: South.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS - ~~167~~ 170 - CULVERT CLEANING

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

CONCRETE SWALE W/ SUMP BOX. CLOGGED W/ SEDIMENT CULVERT DISCHARGES TO WETLAND. SEDIMENTATION OBSERVED IN WETLAND, EVIDENCE OF PAST CLEANING & REMOVAL OF SEDIMENT FROM WETLAND

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

CLEAN BOX SUMP. UNCLOG PIPE, REMOVE SEDIMENT FROM WETLAND

BMP'S NEEDED FOR ALL THE SITES IN THIS AREA TO MUCH DISTURBED SURFACES W/ NO STABILATION

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

REMOVAL OF SEDIMENT FROM WETLAND
ENCOURAGING / FORCING COMPANIES ALONG THE ROAD TO
MANAGE SEDIMENT ON SITE

Additional Notes and/or Sketch:

+ NO SKETCH NEEDED.

+

Site ID: AS171	**Watershed:** Achugao South
Crew: EH	**Date/Time:** 01/21/2020 2:05 AM
Project Type: • Stormwater Retrofit • Watershed Education/Signage	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Open space in front of DFW building. Appears that road runoff drains there now. There is a lot of sediment on the road.

Description of Proposed Opportunity:
Great spot for a bioretention facility near DFW sign to treat small amount of road runoff from crowned road. Small drainage area but highly visible. Would like to get DFW involved as educational/public opportunity.

Challenges/Constraints:
Possibly soils/groundwater?

Additional Notes:

Site Photo

Site Overview Caption: DFW sign to the left of this photo.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS - ~~166~~ 171 - DFW BMP / BIO

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☒ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

OPEN SPACE @ DFW COULD BE USED FOR GSI.
APPROX ROAD RUNOFF ~~RUNS~~ DRAINS THERE NOW

~~EXHIBIT OF ROADLINE~~

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

PROPOSED BIO @ DFW SIGN TO TREAT SMALL AMOUNT OF ROAD RUNOFF FROM GROWNED ROAD

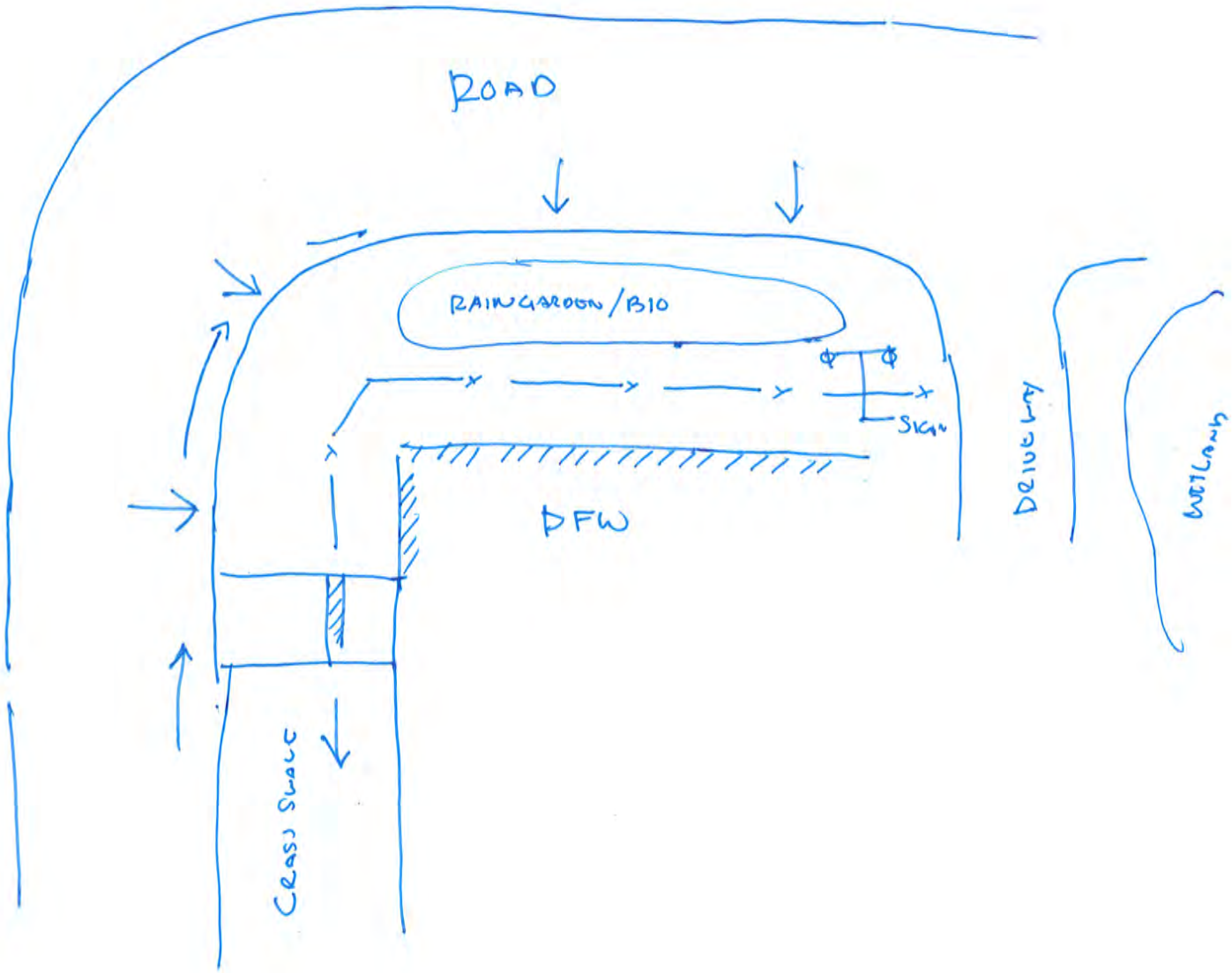
+ SMALL DRAINAGE AREA, BUT HIGHLY VISIBLE

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

SOILS / GW ?

Additional Notes and/or Sketch:



Site ID: AS172	**Watershed:** Achugao South
Crew: EH	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Full Catchbasin

Description of Proposed Opportunity:
Clean

Challenges/Constraints:
None

Additional Notes:

Site Photo

Site Overview Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK (EH) JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS172 (w/AS107)

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Full catch basin.

Severity/Rating (circle): 5 (*Severe*) 4 (3) 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

Clean!

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: None

Additional Notes and/or Sketch:

N/A

Site ID: AS173	**Watershed:** Achugao South
Crew: EH	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Trash in culvert (w/ AS115)

Description of Proposed Opportunity:
Clean and remove debris

Challenges/Constraints:
None

Additional Notes:

Site Photo

Site Overview Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK (EH) JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS173 (w/ AS115)

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Large box culvert w/ lots of trash/debris.

Severity/Rating (circle): 5 (*Severe*) 4 (3) 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

Clean & remove debris.

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: None

Additional Notes and/or Sketch:

N/A

Site ID: AS174	**Watershed:** Achugao South
Crew: EH	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair • Trash prevention • Education	
Enforcement Needed: Yes	
Severity Rating: 5 (Severe)	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Outfall of Dogas stream. LOTS of trash, including human waste (diapers).

Description of Proposed Opportunity:
Remove trash and discourage future dumping (signs, community education). Focus location for MINA.

Challenges/Constraints:
Changing habits.

Additional Notes:

Site Photo

Site Overview Caption: Trash on beach.

Additional Photo Caption: Burn area.

Additional Photo Caption: Abandoned boat (?)

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS174 (w/ AS115 & AS116)

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☒ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Outfall of Dogas Stream. LOTS of trash, including diapers.

Severity/Rating (circle): 5 *Severe* 4 3 2 1 0 *Not significant*

Description of Proposed Opportunity:

Remove trash & discourage dumping. Install signs or otherwise communicate to residents.

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

changing habits.

Additional Notes and/or Sketch:

N/A

Site ID: AS175	**Watershed:** Achugao South
Crew: EH	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 4	
Implementation Priority: Not that important (Low)	

Descriptions of Existing Conditions:
Overgrown and clogged culvert (see AS131)

Description of Proposed Opportunity:
Clean and clear.

Challenges/Constraints:
Not main road.

Additional Notes:

Site Photo

Site Overview Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK (EH) JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS175

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Overgrown & clogged culvert.
(see AS131)

Severity/Rating (circle): 5 *Severe* (4) 3 2 1 0 *Not significant*

Description of Proposed Opportunity:

Clean & clear.

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☒ not that important (low) ☐ unsure

Challenges/Constraints: Not on main road.

Additional Notes and/or Sketch:

N/A

Site ID: AS176	**Watershed:** Achugao South
Crew: EH	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair • Education	
Enforcement Needed: Yes	
Severity Rating: 5 (Severe)	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Clogged inlet of rain garden at Tanapag Middle School (see AS145). May contribute to flooding of building. Also, rain garden outlet may be at too high an elevation causing backup.

Description of Proposed Opportunity:
Clean inlet. Widen and clean outlet spillway. Maintain positive drainage from outlet to road. Consider replanting with native plants

Challenges/Constraints:
Poor soils and/or high groundwater (poor infiltration nearby).

Additional Notes:

Site Photo

Site Overview Caption: Inlet to rain garden.

Additional Photo Caption: Outlet spillway

Additional Photo Caption: Behind rain garden.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK (EH) JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS 176

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

clogged inlet of Rain garden at Tanapag Middle School (see AS145)

May contribute to flooding of building?

Severity/Rating (circle): (5) 4 3 2 1 0

Severe *Not significant*

Description of Proposed Opportunity:

Clean inlet. Widen & clean outlet spillway. Maintain positive drainage from outlet to road.

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: poor soils and/or high groundwater.

Additional Notes and/or Sketch:

N/A - existing practice

Site ID: AS177	**Watershed:** Achugao South
Crew: EH	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: No	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Existing culvert clogged and unclear where it goes (off school property?).

Description of Proposed Opportunity:
Unclog culvert and consider a stormwater BMP at the downstream inlet.

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption: Culvert (bottom) with swale draining into it.

Additional Photo Caption: Outlet of culvert

Additional Photo Caption: farther downstream of culvert

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AS177 CULVERT

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

EXISTING CULVERT CLOGGED & UNCLEAR WHERE IT GOES
(SEE AS146)

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

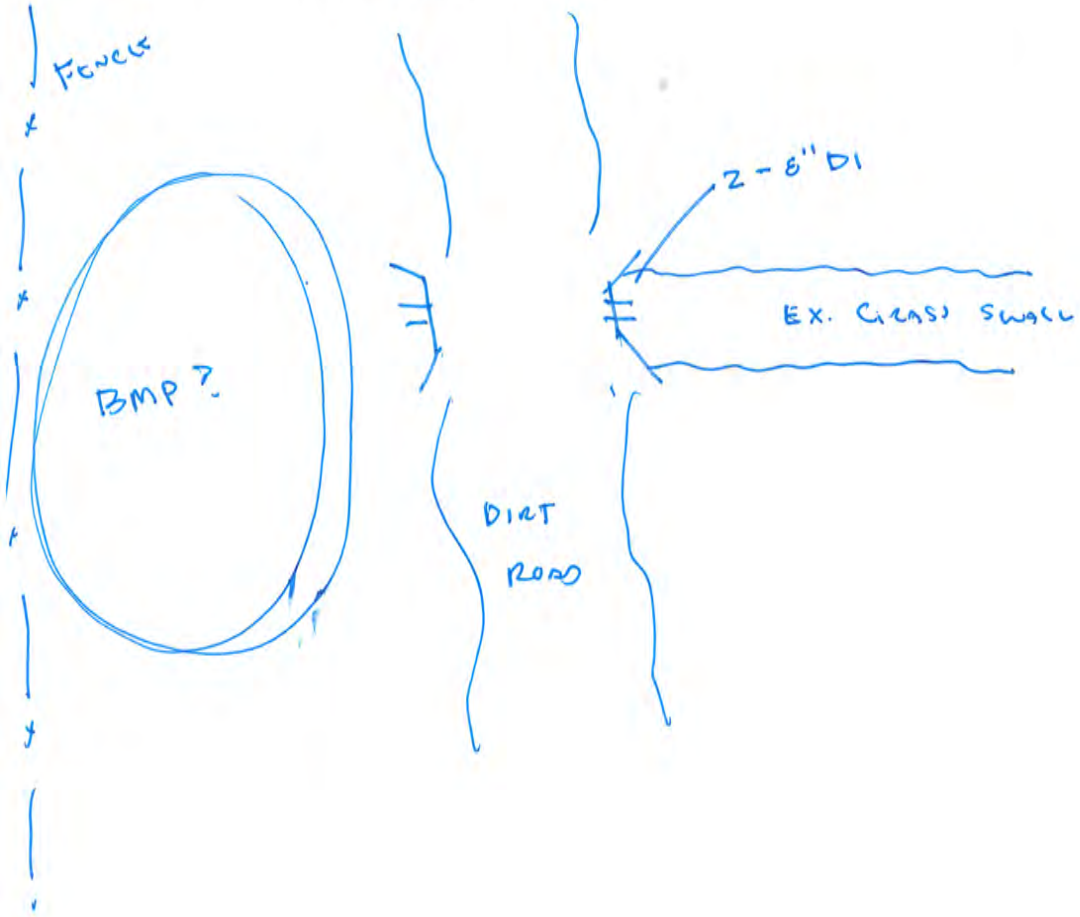
UNCLOG CULVERT & CONSIDER A STORMWATER BMP @ THE ~~DOWN~~ DOWNSTREAM INLET

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

SCHOOL & SOILS

Additional Notes and/or Sketch:



Site ID: AS178	**Watershed:** Achugao South
Crew: EH	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: Not that important (Low)	

Descriptions of Existing Conditions:
Culvert clogged with lots of sediment (see AS158).

Description of Proposed Opportunity:
Clean culvert

Challenges/Constraints:
Off main roads.

Additional Notes:

Site Photo

Site Overview Caption:

Site ID: AS179	**Watershed:** Achugao South
Crew: EH	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: Not that important (Low)	

Descriptions of Existing Conditions:
Large catchbasin clogged with sediment.

Description of Proposed Opportunity:
Clean it out.

Challenges/Constraints:
None

Additional Notes:

Site Photo

Site Overview Caption:

Site ID: AS201	**Watershed:** Achugao South
Crew: JI	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 4	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Standing water and trash on open side. Trash and large vegetation on other side of the road/culvert with no standing water.

Description of Proposed Opportunity:
Clean out trash. Remove large vegetation restricting flow.

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: AS 201

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Standing water and trash on open side of culvert. Trash & large vegetation on other side of road/culvert with no standing water

Severity/Rating (circle): 5 (*Severe*) (4) 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

Clean out trash. Remove large vegetation restricting flow.

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Site ID: AS502	**Watershed:** Achugao South
Crew: AK	**Date/Time:** 01/20/2020 6:10 AM
Project Type: • Construction Site ESC	
Enforcement Needed: Yes	
Severity Rating: 5 (Severe)	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Imperial Casha. Site to be stabilized with vegetation, mulch, or other cover— it's been left exposed for 2 yr+. Stream buffer encroachment and removal of vegetation in the buffer. Significant sedimentation is evident in stream bed. Existing sediment basins in need of maintenance/removal of accumulated sediment. What happened to the small isolated wetland that was supposed to be protected on site? This construction site is in clear violation of regulations. Is there a performance bond?

Description of Proposed Opportunity:
Site stabilization and restoration/protection of stream. Use money from fines to intervene on behalf of the owner who is not doing the work. Start with replanting vegetation in the buffer; add a perimeter berm to divert flows away from stream into additional sediment traps; clean out existing sediment basins; hydroseed remaining site. Take down the billboards so everyone can see what a horrific mess this place is.

Challenges/Constraints:
Unsure why the lack of enforcement. Seems political. Use performance bond/fines to pay local company to install protective berms and enlarge sediment trap. Revegetate site.

Site Overview Caption: Stream channel full of accumulated sediment from site, no perimeter controls or phased approach to site clearing. They are violating construction general permit leaving cleared soils exposed. Replant stream buffer and install perimeter controls.

Additional Site Photos

Additional Photo Caption:

Additional Photo Caption: Sediment basin at entrance

NEIGHBORHOOD ASSESSMENT

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☑ No

Completed by (circle): (BK) BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: NEIGHBOR HOOD – MIDDLE SCHOOL / RESIDENTIAL / PARK

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

GOOD CONDITION – DID NOT SEE ANY SIGNIFICANT POLLUTANT SOURCES – 1
MINIMAL EROSION / DRAINAGE ISSUE
ASKED LOCAL ABOUT FLOODING – NOT BAD
NO DRAINAGE STRUCTURES OBSERVED
ONE OUTLET

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 (0) (*Not significant*)

Description ~~of Proposed Opportunity~~:

+ MIDDLE SCHOOL ; MOSTLY WELL MAINTAINED RESIDENTIAL PROPERY . PARK ALONG WATER FRONT .

+ SEE ~~#~~ ~~PROJ~~ PROPOSED PROJECT SITES.

Implementation Priority: ~~☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure~~

NA

Challenges/Constraints:

Additional Notes and/or Sketch:

NEIGHBOR HOOD ASSESSEMUT

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: NEIGHBOR HOOD 2 - RESIDENTIAL

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

SOUTH OF TOGAI STREAM.
RELATIVELY FLAT - NO DRAINAGE INFRASTRUCTURE.
CULVERT SEEMS TO BE IN GOOD SHAPE
NOT ENTIRELY CLEAR HOW STORMWATER DRAINS FROM THE NEIGHBORHOOD, ~~APPEA~~ APPEAR TO GENTLY DRAIN FROM MIDDLE ROAD TOWARDS LAGOON

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

NONE

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☒ not that important (low) ☐ unsure

NA.

Challenges/Constraints:

Additional Notes and/or Sketch:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North (Achugao South) Laolao Garapan

Site ID/Name: NEIGHBORHOOD 3 - WETLAND / COMONTARY

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

MOSTLY WETLAND W/ MINIMAL RESIDENTIAL & COMONTARY

+ UNDEVELOPED
+ ONE ~~to~~ OUTLET
+ NO DRAINAGE STRUCTURES

Severity/Rating (circle): 5 4 3 2 1 0

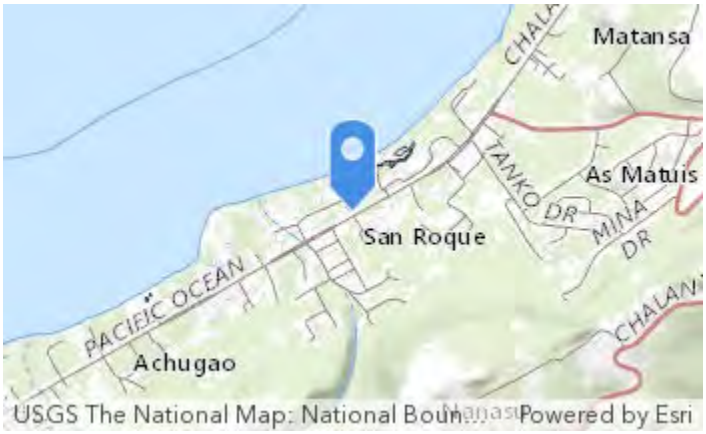
Severe *Not significant*

Description of Proposed Opportunity:

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

Additional Notes and/or Sketch:

Site ID: AN300	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/19/2020 9:06 PM
Project Type: • Stormwater Retrofit	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Grassed area along road shoulder between unpaved driveway and gravel parking lot @ Latte Stone; evidence of sediment tracking onto road.

Description of Proposed Opportunity:
Divert drainage with forebay; 15'W x 100' long between sidewalk and UT poles. Divert parking lot and two driveways' runoff into rain garden or bioswale. Sediment forebay on either side. Overflow into inlet in the road. Loose aggregate driveways contributing sediment to street. Approximately 1-2 acre drainage area.

Challenges/Constraints:
Private land along main road. Could be utilities in the ROW.

Additional Notes:
High visibility, opportunity to provide water quality treatment and reduce sedimentation onto public road. Existing infrastructure in road make overflow connection relatively easy.

Site Photo

Site Overview Caption: Evidence of sediment tracking onto road from unpaved driveway

AVAILABLE
AN 332-335
AN 353 →

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☑ No

Completed by (circle): BK (BL) AK EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: AN-300

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☑ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:
Shallow Rain Garden @ Latte Stone 1-2 acres

Severity/Rating (circle): 5 (*Severe*) 4 3 (2) 1 0 (*Not significant*)

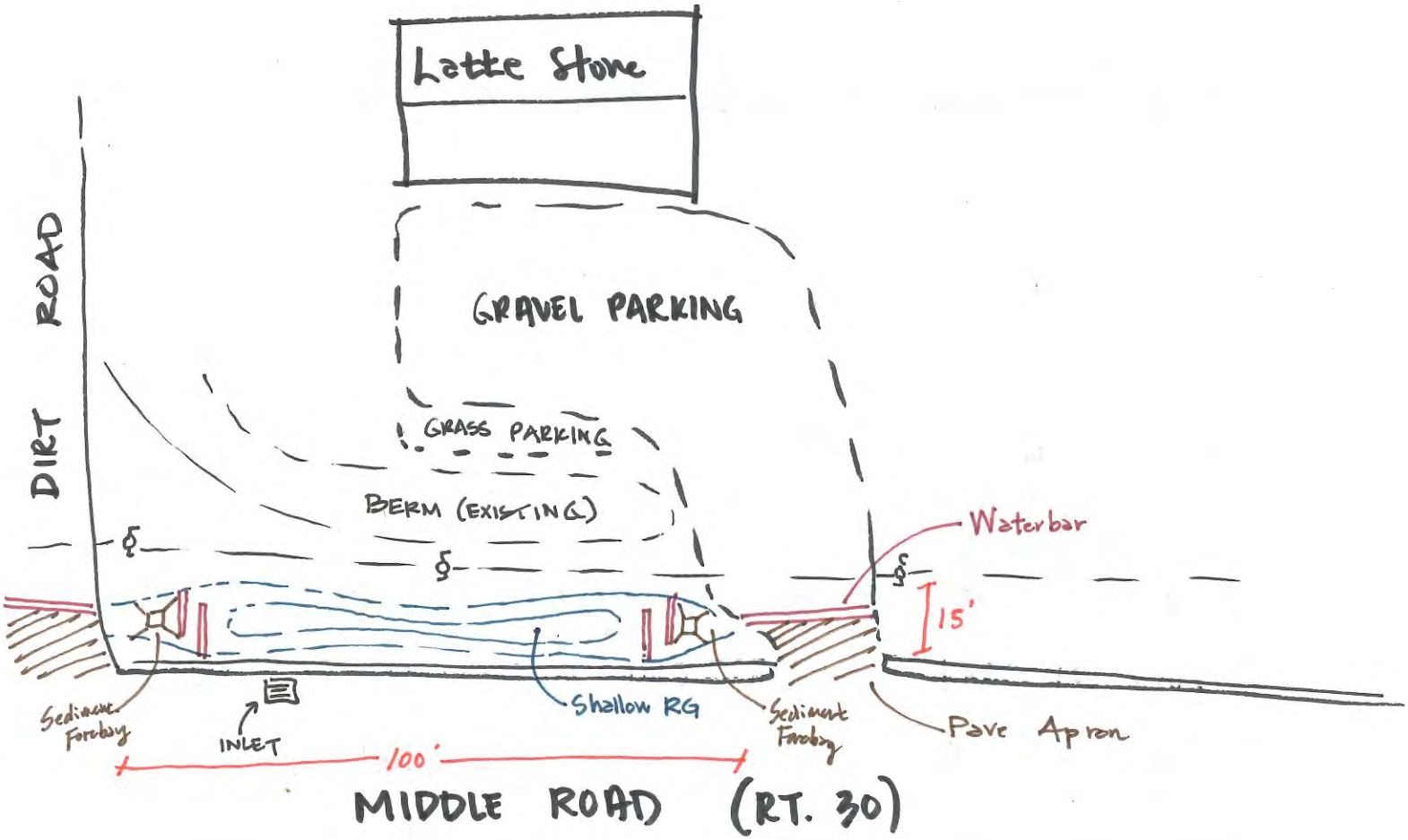
Description of Proposed Opportunity:
15'w x 100' long between Sidewalk & UT Poles. Divert parking lot and two driveway runoff into RG. Sediment forebay on either side. Overflow into inlet in road. Loose aggregate driveways contributing sed. to street.

Implementation Priority: ☑ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Blavs Special
Small DR
High Vis

Challenges/Constraints:

Additional Notes and/or Sketch:



Site ID: AN303	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/20/2020 2:45 PM
Project Type: • Stormwater Retrofit	
Enforcement Needed: No	
Severity Rating: 3	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Edge of road between sidewalk and utility poles approximately 25'Wx1000' owned by municipality. Dual box culverts as outlet

Description of Proposed Opportunity:
Green street. extend detention time and add check dams to road. Simple depression no more than 12" to maintain invert elevations for flow. Trash rack and sediment forebay are optional. Significant amount of road

Challenges/Constraints:

Additional Notes:
Space available. Linear green street. Tree plantings - mature below UT lines. Same applies to AN304

Site Photo

2020 SAIPAN WATERSHED FIELD NOTES

SWORD GRASS

Enforcement Needed: ☐ Yes ☑ No

Completed by (circle): BK (BL) AK EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: AN-303

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☑ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Edge of Road between sidewalk & UT Poles ~25'w x 1000' owned by Munc. - dual box culverts as outlet - extend detention time and add check dams to road.

GREEN STREET ↳ Same applies to AN-304

Severity/Rating (circle): 5 (Severe) 4 (3) 2 1 0 (Not significant)

Description of Proposed Opportunity:

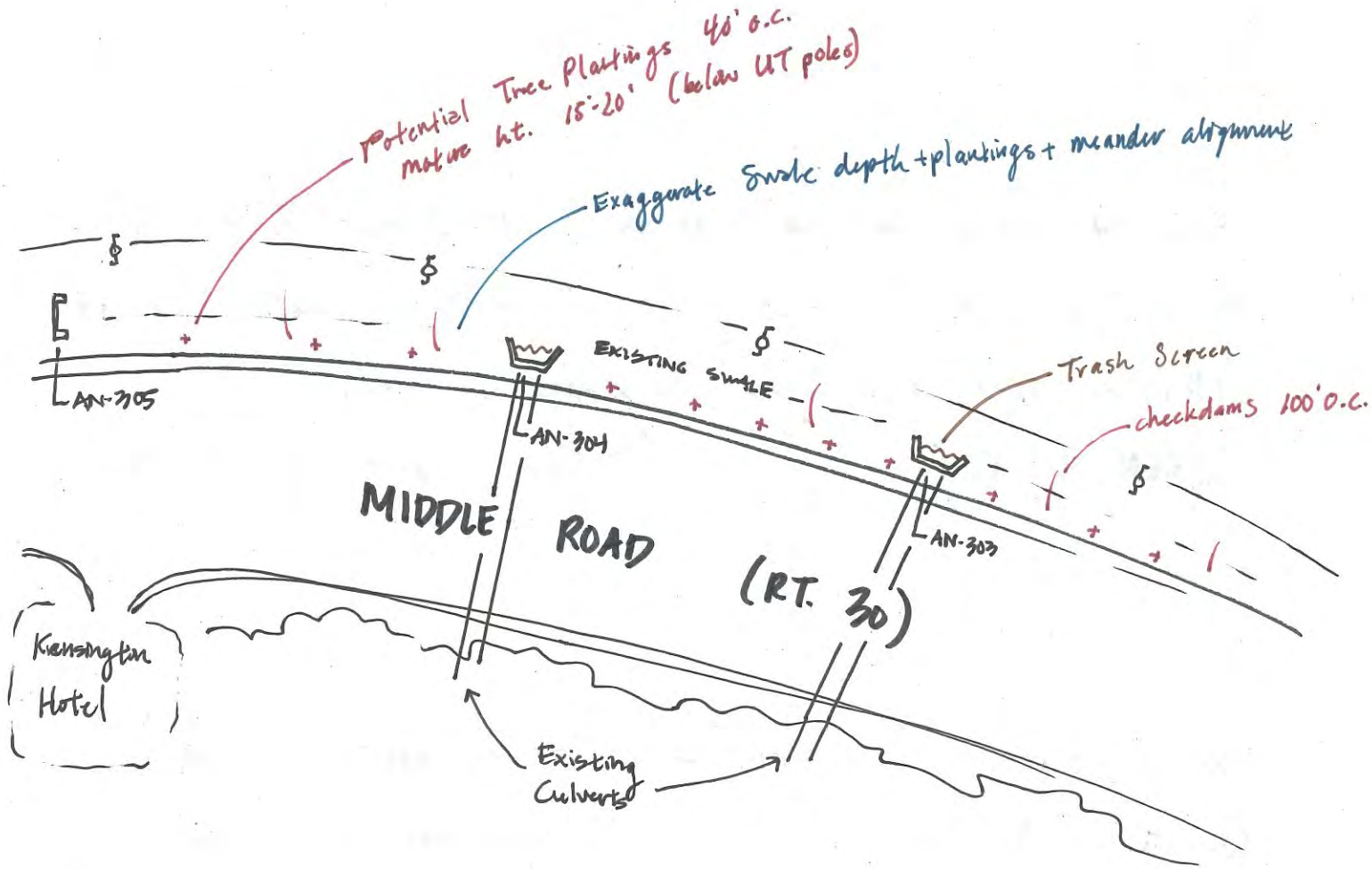
Simple depression no more than 12" to maintain invert elevations for flow. Trash rack & sediment forebay are optional. Significant amount of road runoff - thermal pollution & trash.

Implementation Priority: ☑ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Space Available
Linear Green Street
Tree Plantings - mature below UT lines

Challenges/Constraints:

Additional Notes and/or Sketch:



Site ID: AN307	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/20/2020 1:00 PM
Project Type: • Unpaved Road Stabilization	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Grass/Gravel lot overflow parking area contributes sediment to parking lot at Aqua Resort. -

Description of Proposed Opportunity:
access lane could be stabilized with grass pave or similar. Maintain/improve porosity and reduce channelized flow. This would be a great project to help achieve water quality improvement objectives of the CNMI Sustainable Hotels Guide

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption:
Looking down flow path to the paved lot.

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☑ No

Completed by (circle): BK (BL) AK EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: AN-307

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☑ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Grass/Gravel lot - access lane could be stabilized with grasspave or similar. Maintain / improve porosity & reduce channelized flow.

Severity/Rating (circle): 5 (Severe) 4 3 (2) 1 0 (Not significant)

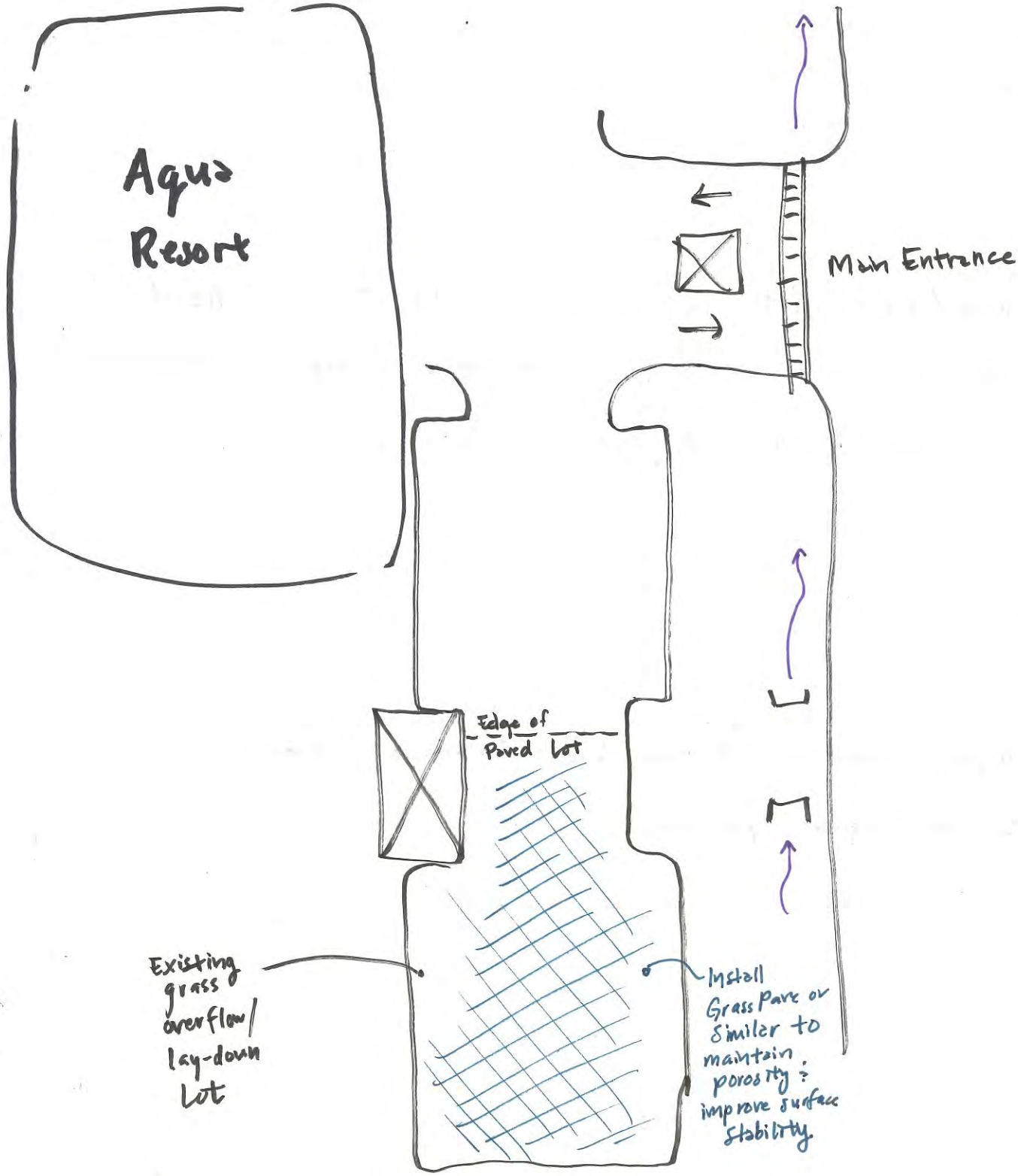
Description of Proposed Opportunity:

Aqua Resort Overflow lot - Formalize ground plane and maintain / improve porosity.

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: Private Property (Existing Resort lease)

Additional Notes and/or Sketch:



Site ID: AN308	**Watershed:** Achugao North
Crew: JI	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Damaged storm gate at channelized outlet north of the Aqua Resort held up by sticks and some rebar

Description of Proposed Opportunity:
Remove debris and repair or replace gate; determine if the purpose of metal cover is to block access to the outfall/culvert, or if it to prevent storm surge.

Challenges/Constraints:

Additional Notes:

Site Photo

Additional Site Photos

Additional Photo Caption:

Additional Photo Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AN308

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

outfall — Damaged storm gate held up by sticks. ~~Existing~~ rebar. some existing rebar is still there

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

Repair Storm gate ~~[illegible]~~

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Site ID: AN313	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/20/2020 1:41 AM
Project Type: • Stormwater Retrofit, • Stream/Wetland Restoration • Watershed Education	
Enforcement Needed: No	
Severity Rating: 4	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Existing trench drain at school drains to infiltration or ponding basin; overflow backs up into trench drain at south of school at access road and discharges into wooded basin. Trash and debris collecting along drain line.

Description of Proposed Opportunity:
Educational opportunity at school for invasive management and conversion of basin into bioretention basin. Overgrowth could be thinned and bio basin formed. Plant bioretention with native species. Highly visible educational opportunity. Enhanced capacity with more appreciation. Develop a routine maintenance plan for the drainage system.

Challenges/Constraints:
Buried electrical or communication lines

Additional Notes:
Should evaluate existing basin to determine if lack of maintenance is the capacity issue or if enhanced capacity is warranted with a retrofit

Site Photo

Site Overview Caption: Trench drain and fenced in area

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☑ No

Completed by (circle): BK (BL) AK EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: AN-313

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☑ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☑ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Existing trench drain @ school drains to infiltration basin and overflow charges T drain back up south of school @ access road and discharges into deep wooded basin. Overgrowth could be thinned and bio basin formed. Education of for kids?

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

High Vis — Ed Opp — Same capacity with more appreciation

Implementation Priority: ☐ Love it! (high) ☑ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: _____

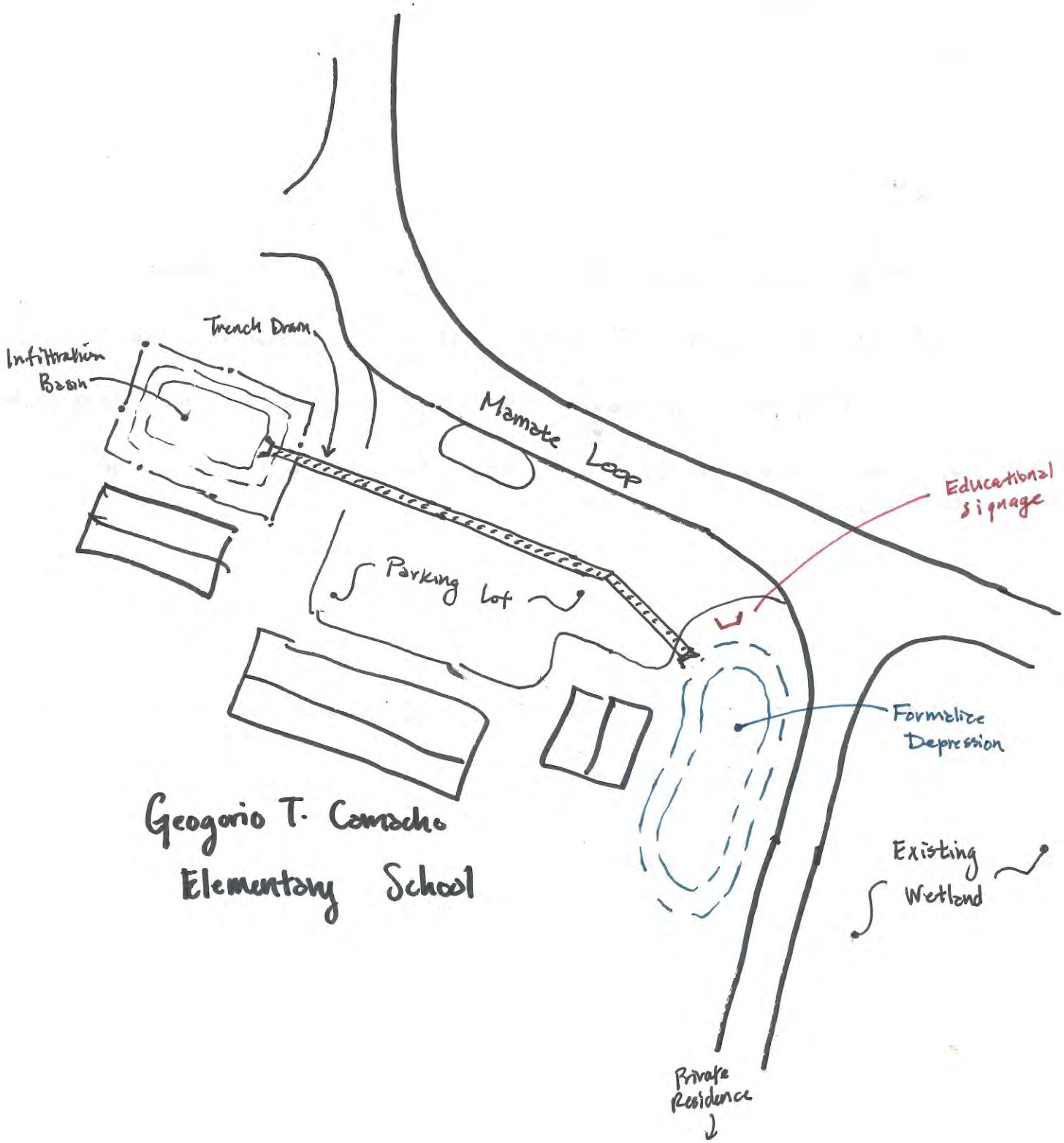
_____

_____

_____

_____

Additional Notes and/or Sketch:



Site ID: AN314	**Watershed:** Achugao North
Crew:	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
trash and debris blocking culvert. Damage to structure

Description of Proposed Opportunity:
Clean out culvert and make repairs

Challenges/Constraints:
none

Additional Notes:

Site Photo

Photo Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AN314

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

trash & debris blocking culvert
damage to structure

Severity/Rating (circle): 5 4 3 2 1 0

Severe *Not significant*

Description of Proposed Opportunity:

Clean out culvert & make repairs

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Site ID: AN318	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/20/2020 7:17 PM
Project Type: • Stream/Wetland Restoration • Shoreline stabilization	
Enforcement Needed: No	
Severity Rating: 3	
Implementation Priority: Low	

Descriptions of Existing Conditions:
Dogas Channel width 17' at outlet on shoreline. Channel showing hairline root exposure/erosion. Mild sheen on open water pockets - minimal trash. Likely bacteria sheen. No infrastructure being threatened.

Description of Proposed Opportunity:
Restoration and stabilization. Channel edge/revegetation/stabilization; likely projects further up in the watershed to help reduce bank erosion.

Challenges/Constraints:
Storm surge; accessibility

Additional Notes:

Site Photo

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AN-318

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☑ Shoreline Stabilization
- ☑ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Channel showing hair line root exposure / erosion. Mild detergent / oil sheen on open water pockets — minimal trash

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

Channel Edge / Revegetation / stabilization

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Site ID: AN319	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/20/2020 7:35 PM
Project Type: • Maintenance of tank	
Enforcement Needed: Yes	
Severity Rating: 0 (Not significant)	
Implementation Priority: Not that important (Low)	

Descriptions of Existing Conditions:
Tank leaking through hole. Looks like it hasn't been used in a while, is this active CUC water tank? Standing water around tank.

Description of Proposed Opportunity:
Investigate leak to determine if it is an issue or simply an overflow. Clear vegetation around tank for better access.

Challenges/Constraints:
Access to the site is not easy, but there is an unpaved road to the site

Additional Notes:
Are these still actively used as part of the waters system or have they been abandoned?

Site Photo

Site Overview Caption:

Additional Site Photos

Additional Photo Caption:

Additional Photo Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AN 319

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☒ Other tank leaking Maintenance of tank

Description of Existing Conditions:

Tank leaking through hole. Looks like it hasn't been used in awhile. Standing water around tank

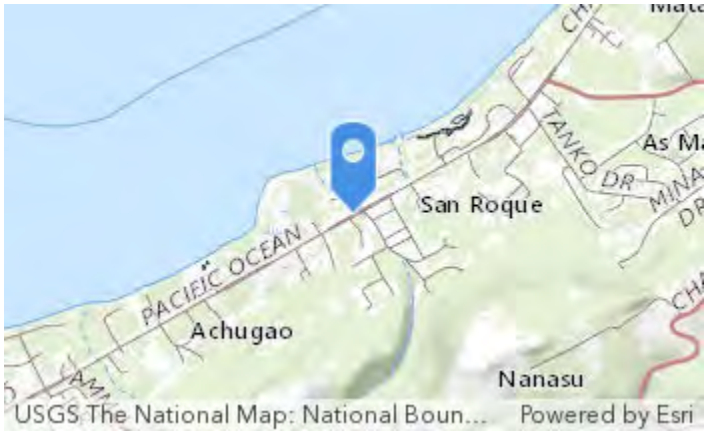
Gravity fed tank. Abandoned > 10 years. Well station up the road is abandoned too

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

Fix leak?

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☒ not that important (low) ☐ unsure

Site ID: AN328	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/20/2020 9:54 PM
Project Type: • Stormwater Retrofit	
Enforcement Needed: No	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Sediment. At San Roque Market flows from parking to concrete swale at edge of Route 30. Minimal pitch in either direction. Sediment build up in channel along roadside. Vacant/wooded lot to north of low point. Potential GSI practice. Shell gas station also located in the contributing drainage area.

Description of Proposed Opportunity:
Erosion control. Install a vegetated sand filter to help with oil/grease and other water quality issues at site?

Challenges/Constraints:
property ownership?

Additional Notes:

Site Photo

Photo Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AN - 329

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☑ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

@ San Roque Market Sheet flow from parking to conc. swale @ edge of Route 30. Minimal Pitch in either direction - Sediment build up in channel along roadside. Vacant/Wooded lot to north ▷ LP. Potential GSI practice. Shell Gas also contributes to micro-DA.

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

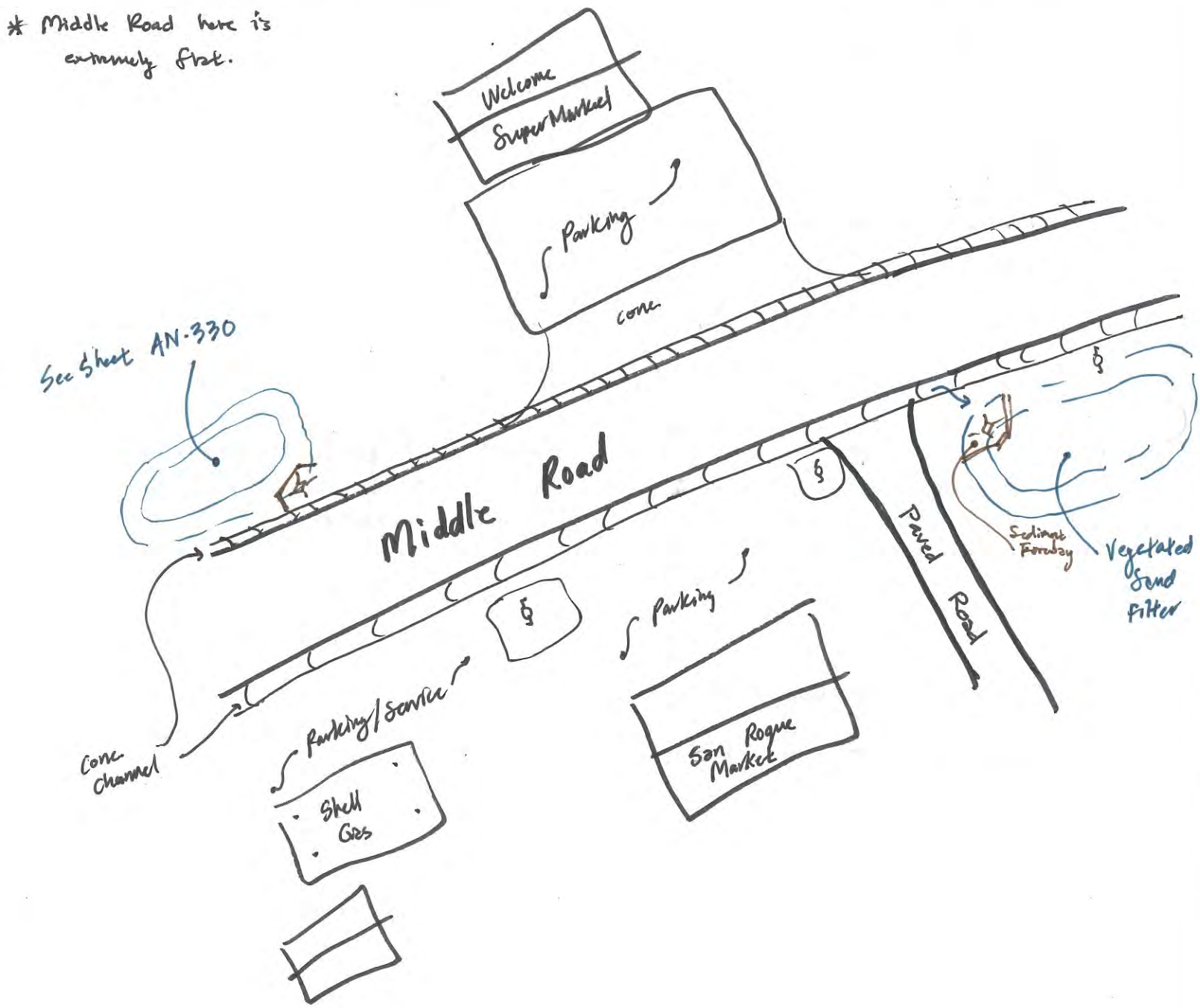
Description of Proposed Opportunity:

Vegetated Sand Filter?

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: Property Ownership?

Additional Notes and/or Sketch:



Site ID: AN330	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/20/2020 9:59 PM
Project Type: • Stormwater Retrofit	
Enforcement Needed: No	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Across from shell gas station - road is flat and sediment accumulates on street – low point is wooded. Near new condo construction - lease line unknown

Description of Proposed Opportunity:
Install bioretention in linear outlet swale

Challenges/Constraints: land ownership

Additional Notes:

Site Photo

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK (BL) AK EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: AN-330

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Across from Shell Gas - road is flat and sediment accumulates on street - LP is wooded could embrace SW - near new condo construction - Lease line unknown

Severity/Rating (circle): 5 (*Severe*) 4 (3) 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

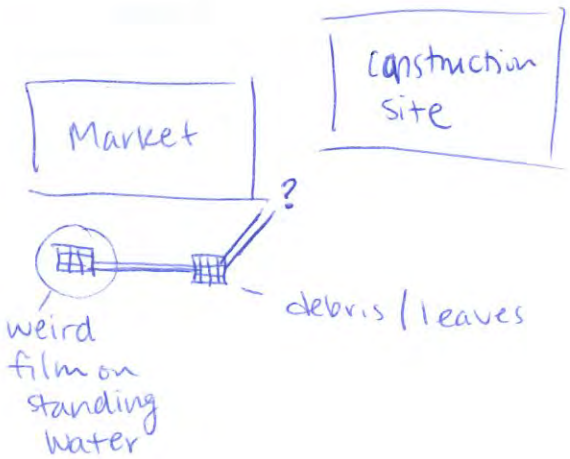
Vegetated Bio Basin in Linear outlet swale

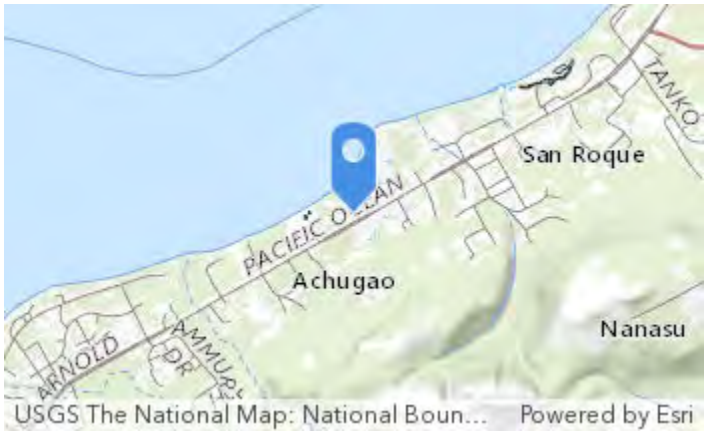
Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: unsure of where pipe in CBs is coming from

Additional Notes and/or Sketch:

CBs in parking lot are connected. Sheen / film was observed on western CB. May be from slop sink located inside market.



Site ID: AN342	**Watershed:** Achugao North
Crew: JI	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 4	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Overgrown vegetation in trench. Power/telephone line down in trench. Serious damage to structure.

Description of Proposed Opportunity:
Remove excess vegetation, repair structure, and repair/remove damaged utility line

Challenges/Constraints:

Additional Notes:

Site Photo

Additional Photo Caption:

Additional Photo Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AN 342

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Overgrown vegetation in trench. serious damage to drainage structure. Power or telephone line is down in trench.

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

Remove excess vegetation, repair structure, and repair / remove damaged utility line

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Site ID: AN344	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/21/2020 1:31 AM
Project Type: • Unpaved Road Stabilization	
Enforcement Needed: No	
Severity Rating: 4	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Old mall dirt road. where dirt turns and meets back of the mall (Magazine Drive). Gulling and wash/sediment accumulation at low point. Road also seems much wider (20') than needed.

Description of Proposed Opportunity:
Road stabilization - suggest paved to top of turn/construction site - or water bars/cross drains and collection swale with check dams. Need a place to collect runoff/turn out.

Challenges/Constraints:
Construction site nearby. Steep unpaved road.

Additional Notes:

Site Photo

Site Overview Caption:

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK (BL) AK EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: Old Mall Dirt Road AN-344

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☒ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Where dirt road turns and meets back of mall, (Magazine Drive) gullying and wash / sediment accumulation @ LP. Road also seems much wider (20') than needed.

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

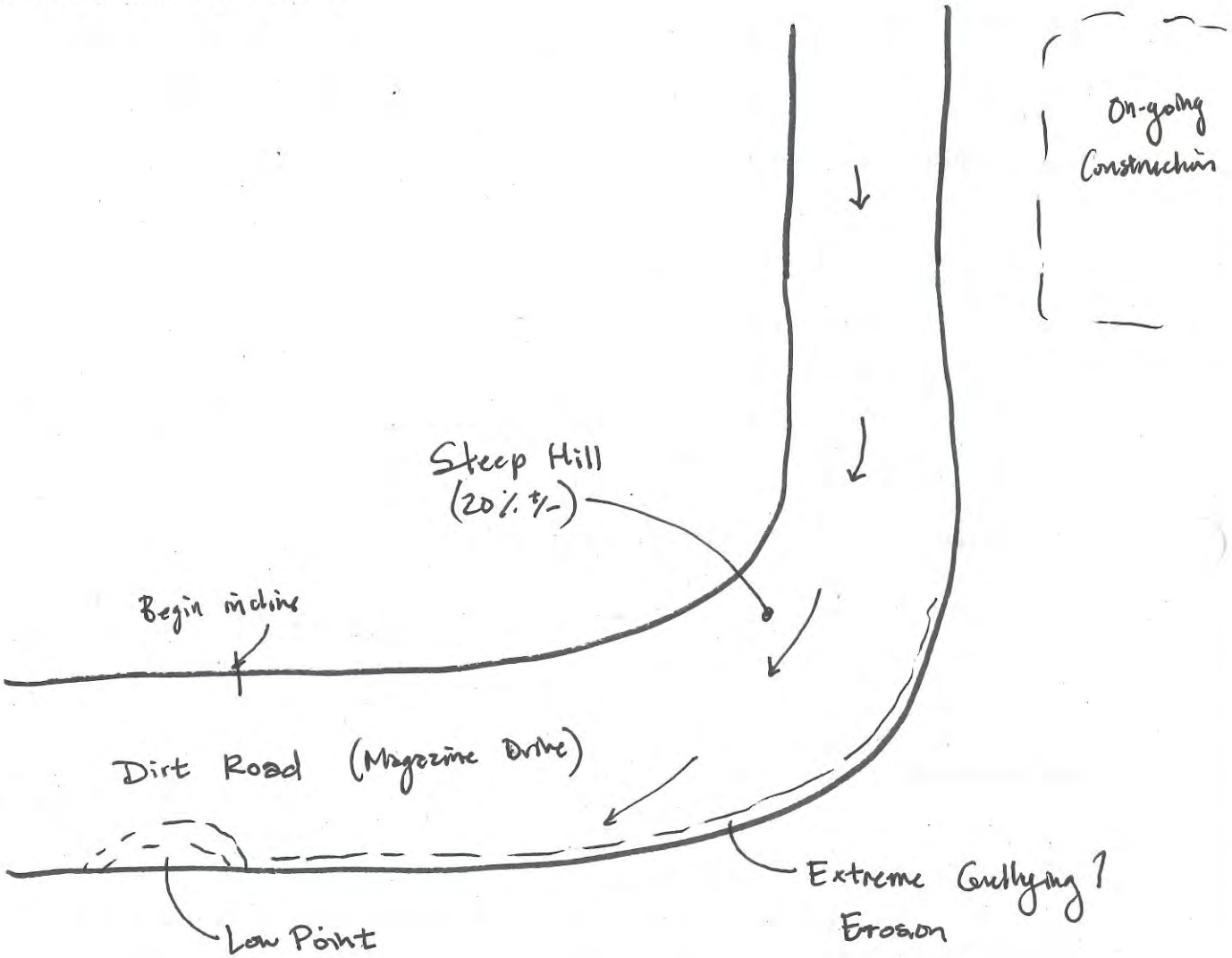
Description of Proposed Opportunity:

Suggest Paved to top of turn / construction site — or water bars & collection swale with check dams.

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

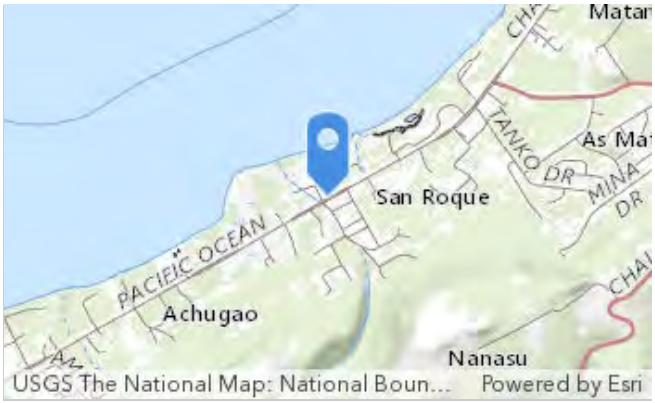
Challenges/Constraints: Steep Unpaved Road

Additional Notes and/or Sketch:



La Fiesta Mall

Saipan Watershed Assessment 2020

Site ID: AN346	**Watershed:** Achugao North
Crew: JI + BAL	**Date/Time:**
Project Type: • Drainage Infrastructure Maintenance and Repairs • Pavement Reduction • Retrofit	
Enforcement Needed: Yes	
Severity Rating: 2	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Full of leaves. Broken section of concrete structure. Lack of pretreatment.

Description of Proposed Opportunity:
Clean out leaves and repair concrete structure. Reduce existing road widths within San Roque and install linear bioswales to collect and treat road runoff.

Challenges/Constraints:
Large drainage area, must be divided into smaller subcatchments to properly manage. Stormwater conveyance of natural stream is directed into concrete trench and conveyed adjacent to road. Treatment opportunities within the developed San Roque Village will need to accommodate vehicular and pedestrian circulation patterns. Capacity/sizing of concrete trench and proposed BMPs should be analyzed prior to continued development within the Village for future impervious cover and associated retrofits.

Additional Notes: Driveways must be better understood to finalize sizing and orientation of bioswales. If pavement reduction is feasible, use roadway painting to direct traffic flows and areas of one-way traffic.

Site Photo


BABAUTA

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☒ Yes ☐ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: AN346

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

~~Clean out leaves and repair concrete structure - 1 section is broken~~

full of leaves ; broken section of concrete structure

Severity/Rating (circle): 5 (*Severe*) 4 3 (2) 1 0 (*Not significant*)

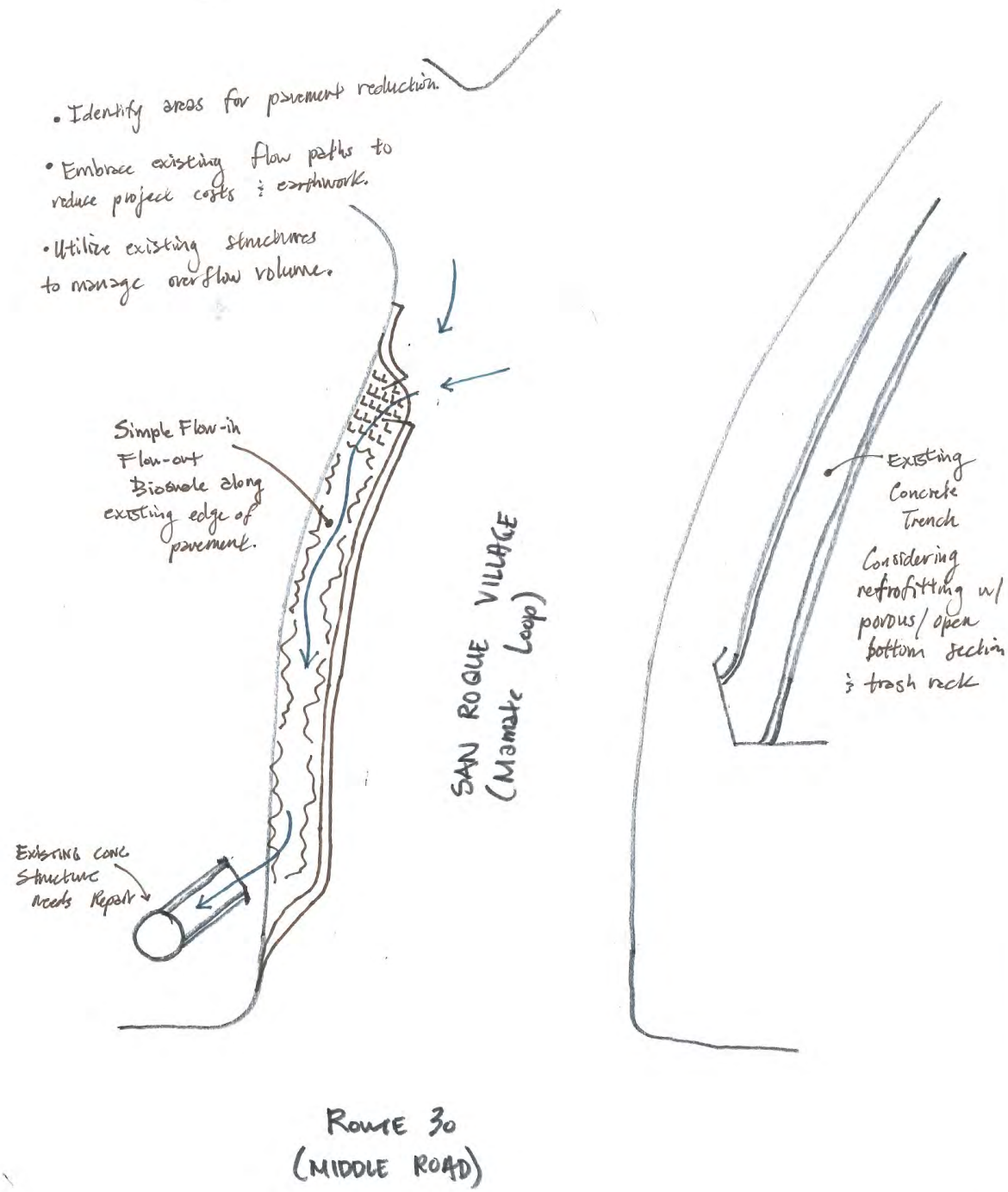
Description of Proposed Opportunity:

Clean out leaves and repair concrete structure

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints: Large drainage area. Stormwater conveyance for capacity / sizing should be analyzed prior to continued development.

Additional Notes and/or Sketch:



* Street Tree Plantings along Mamate Loop should be considered.

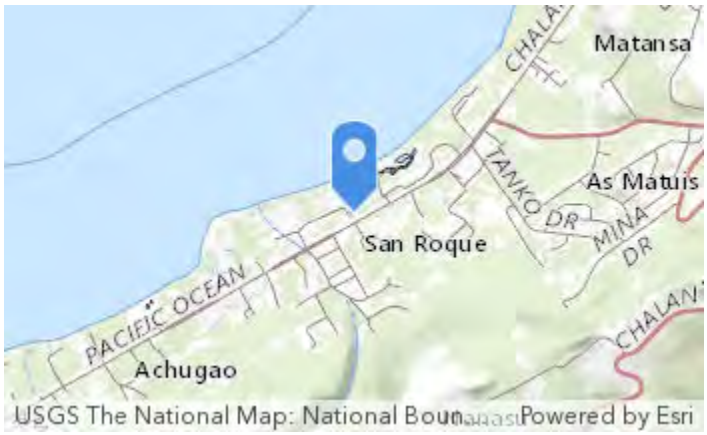
Site ID: AN350	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/21/2020 5:00 PM

Project Type:
- Drainage Infrastr., Maint. & Repair
- Trash cleanup
- Stream Restoration
- Vegetation management
- Education

Enforcement Needed: Yes

Severity Rating: 4

Implementation Priority: Love it! (High)



Descriptions of Existing Conditions:
Channel and culvert full of trash and overgrown vegetation and stagnant water. Neighbors report having problems with trash and mosquitoes and complained about needing to clean up. Flood issues in past. Includes drainage points AN345 and AN350. Culverts on both ends of area have trash. Open channel is fenced off; on drive entrance to school. Hard to see condition of channel due to vegetation.

Description of Proposed Opportunity:
General maintenance – need to clean out vegetation and remove trash. Reevaluate channel to determine if stream/buffer restoration is appropriate. Important to re-establish positive drainage at this site to avoid mosquito breeding conditions. Could be opportunity to beautify area and provide education for school on drainage. Further investigate opportunities upstream for retrofits/volume reduction.

Challenges/Constraints:
Space constraints

Additional Notes:

Site Photo

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK (BL) AK EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: AN-350

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Met with Mosquito Manny! Son shy squid super into ditch clean up. Flood issues in past, hog ort vegetation: get the mayor boy to clean trash.

Severity/Rating (circle): 5 *Severe* (4) 3 2 1 0 *Not significant*

Description of Proposed Opportunity:

General Maintenance

Lease Line reconsideration / Natural Buffer Integration

{Profound}

Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

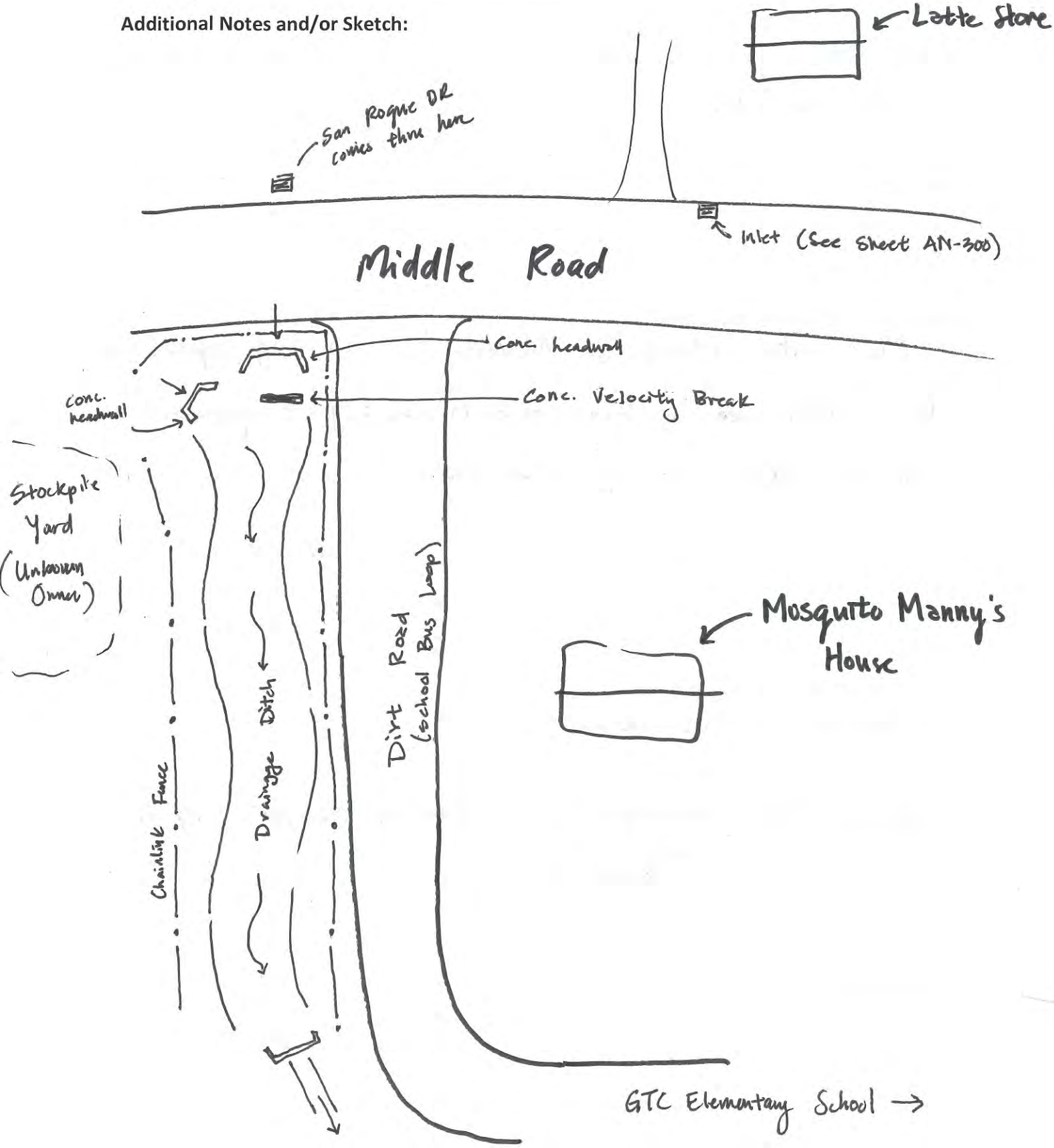
EZ

Challenges/Constraints: SO MUCH TRASH !!!

Hog out Brush & Trash

Vegetate & maintain

Additional Notes and/or Sketch:



Site ID: AN351	**Watershed:** Achugao North
Crew: JI	**Date/Time:** 01/20/2020 2:23 AM
Project Type: • Drainage Infrastr., Maint. & Repair	
Enforcement Needed: Yes	
Severity Rating: 3	
Implementation Priority: Not that important (Low)	

Descriptions of Existing Conditions:
Significant sediment accumulation in swale

Description of Proposed Opportunity:
Clean out swale to allow for appropriate drainage.

Challenges/Constraints:
none

Additional Notes:

Site Photo

Site Overview Caption:

Additional Site Photos

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL AK EH JI

Watershed (circle one): Achugao North Achugao South Laolao Garapan

Site ID/Name: ~~AN354~~ AN351

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☐ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Sediment build up ~~of~~ in swale

Severity/Rating (circle): 5 (*Severe*) 4 3 2 1 0 (*Not significant*)

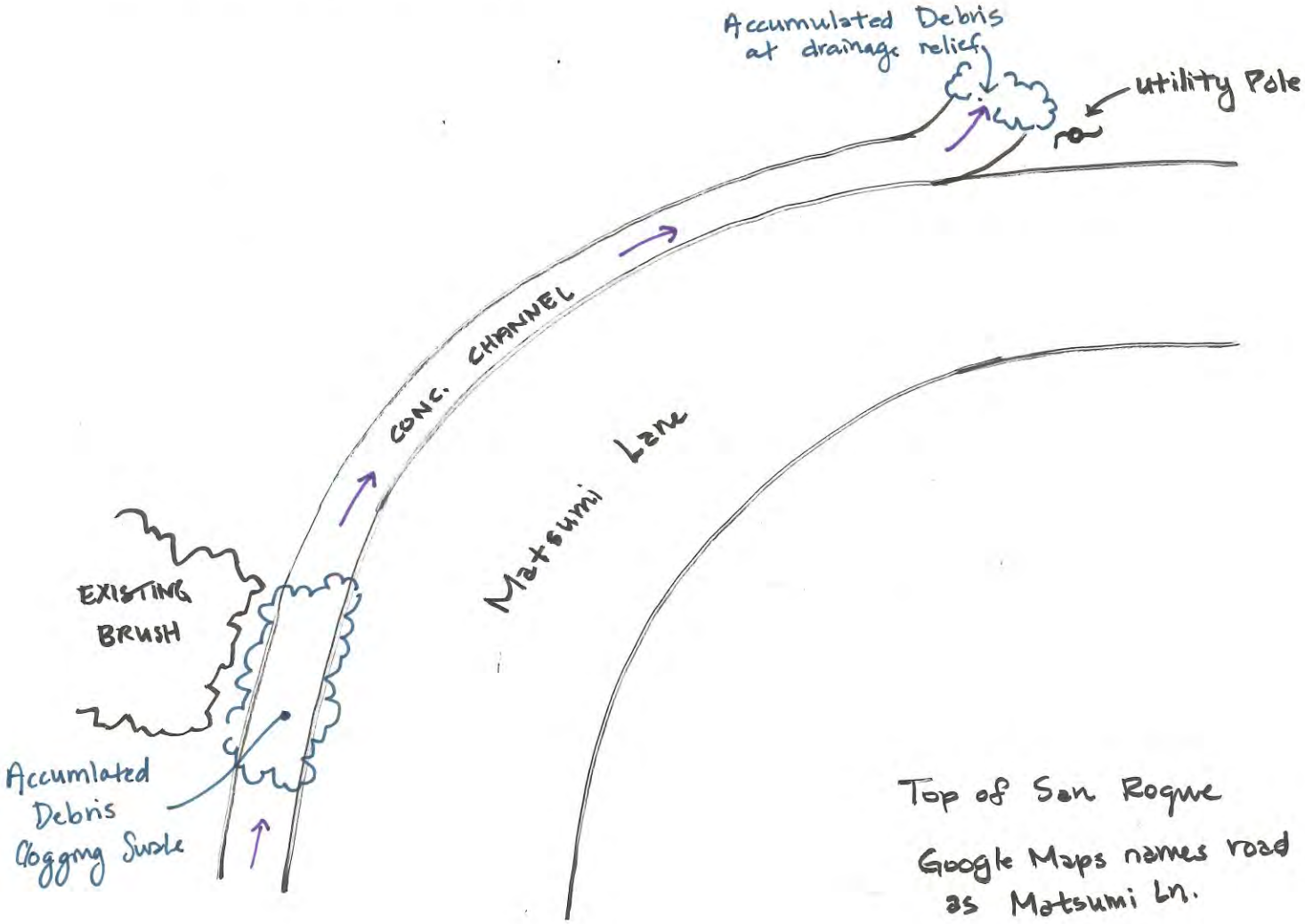
Description of Proposed Opportunity:

Clean out swale

Implementation Priority: ☐ Love it! (high) ☐ It is OK (med) ☒ not that important (low) ☐ unsure

Challenges/Constraints: Remote location. Channel is on up-gradient pavement edge making it easy for SW to short-circuit control.

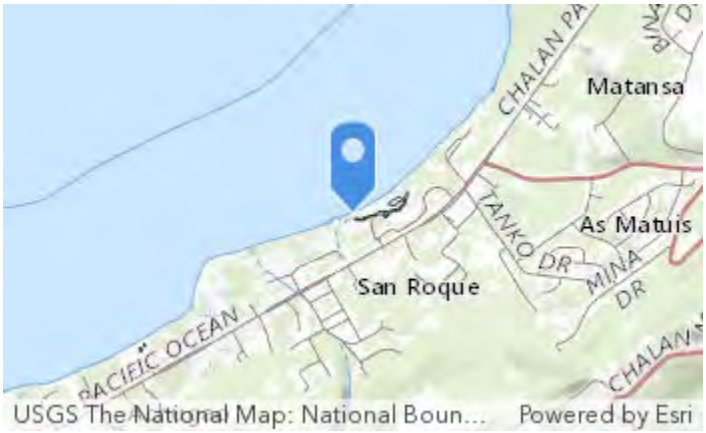
Additional Notes and/or Sketch:



Top of San Roque

Google Maps names road as Matsumi Ln.

Inspect & remove accumulated debris to prevent channel from clogging.

Site ID: AN-501	**Watershed:** Achugao North
Crew: AK	**Date/Time:** 01/20/2020 6:07 AM
Project Type: • Drainage Infrastr., Maint. & Repair, • Stormwater Retrofit	
Enforcement Needed: No	
Severity Rating: 4	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Existing ponds at Kensington, full of algae and possibly dead jellyfish. Smells. Discharges onto beach. See drainage form

Description of Proposed Opportunity:
Clean out organic debris at outlet structure. Get site plans from hotel to determine if ponds serve as stormwater treatment. If so, possibly retrofit ponds to improve water quality treatment (floating wetlands, extended detention, or added wetland features). .

Challenges/Constraints: ownership

Additional Notes:

Site Photo

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☒ No

Completed by (circle): BK BL (AK) EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: AN-S01 KENSINGTON

Project Type (check box):

- ☒ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☒ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

OUTLET STRUCTURE FROM SERIES OF PONDS THAT RUN THRU THE PROPERTY. ORGANIC DEBRIS (MAYBE JELLYFISH) ARE CLOGGING OUTLET STRUCTURE. PONDS DON'T LOOK LIKE THEY PROVIDE MUCH WQ TREATMENT.

Severity/Rating (circle): 5 (*Severe*) (4) 3 2 1 0 (*Not significant*)

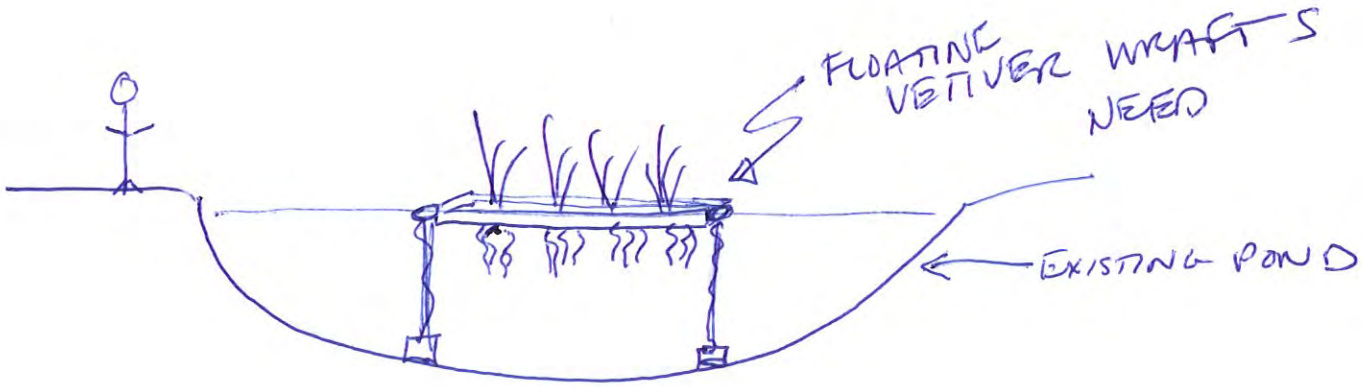
Description of Proposed Opportunity:

AWESOME SPOT FOR FLOATING WETLANDS TREATMENT CELLS!!

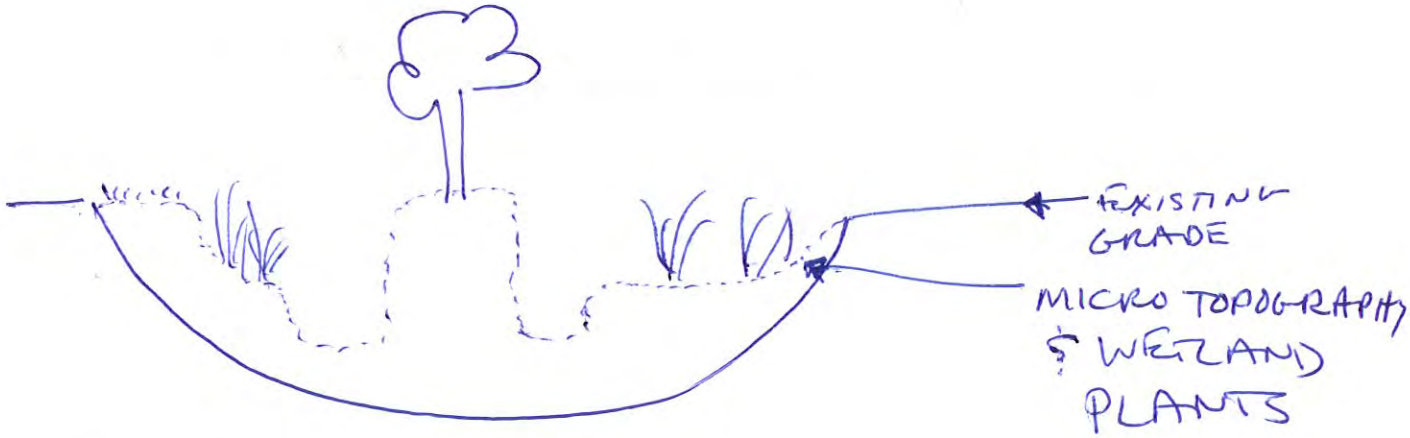
Implementation Priority: ☒ Love it! (high) ☐ It is OK (med) ☐ not that important (low) ☐ unsure

Challenges/Constraints:

Additional Notes and/or Sketch:



-OR-



Site ID: AN-502	**Watershed:** Achugao North
Crew: AK	**Date/Time:** 01/20/2020 6:19 AM
Project Type: • Construction Site ESC	
Enforcement Needed: No	
Severity Rating: 2	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Beverly construction site. No evidence of issues yet, but also not able to observe ESC practices, including perimeter controls.

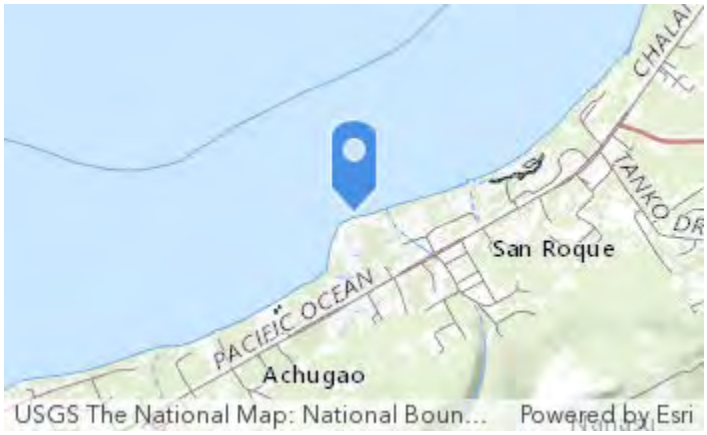
Description of Proposed Opportunity:
Recently started clearing, active work on site. Need to get out to inspect to ensure proper ESC.

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption: photo from perimeter of site.

Site ID: AK-504	**Watershed:** Achugao North
Crew: AK	**Date/Time:** 01/20/2020 6:26 AM
Project Type: • Conservation	
Enforcement Needed: No	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

Descriptions of Existing Conditions:
Zachary Williams identified potential Bonsai Mangrove species growing out of karst shoreline at Saipan Global construction. There is potential application from hotel to build a boardwalk along karst shoreline to give guests access to water (there is no sandy beach at this site).

Description of Proposed Opportunity:
Protect bonsai mangrove—need to confirm species. Need to review beach access plans to ensure protection of mangrove

Challenges/Constraints:

Additional Notes:

Site Photo

Site Overview Caption:

Site ID: AN-510	**Watershed:** Achugao North
Crew: AK	**Date/Time:** 02/04/2020 10:32 AM
Project Type: • Stormwater Retrofit, • Stream/Wetland Restoration, • Construction Site ESC	
Enforcement Needed: Yes	
Severity Rating: 4	
Implementation Priority: Love it! (High)	

Descriptions of Existing Conditions:
Global Saipan walled off section of existing wetland to be used as stormwater practice for resort and convention center. From renderings, the facility does not appear to be sized to manage the full development, but no other stormwater management BMPs are shown.

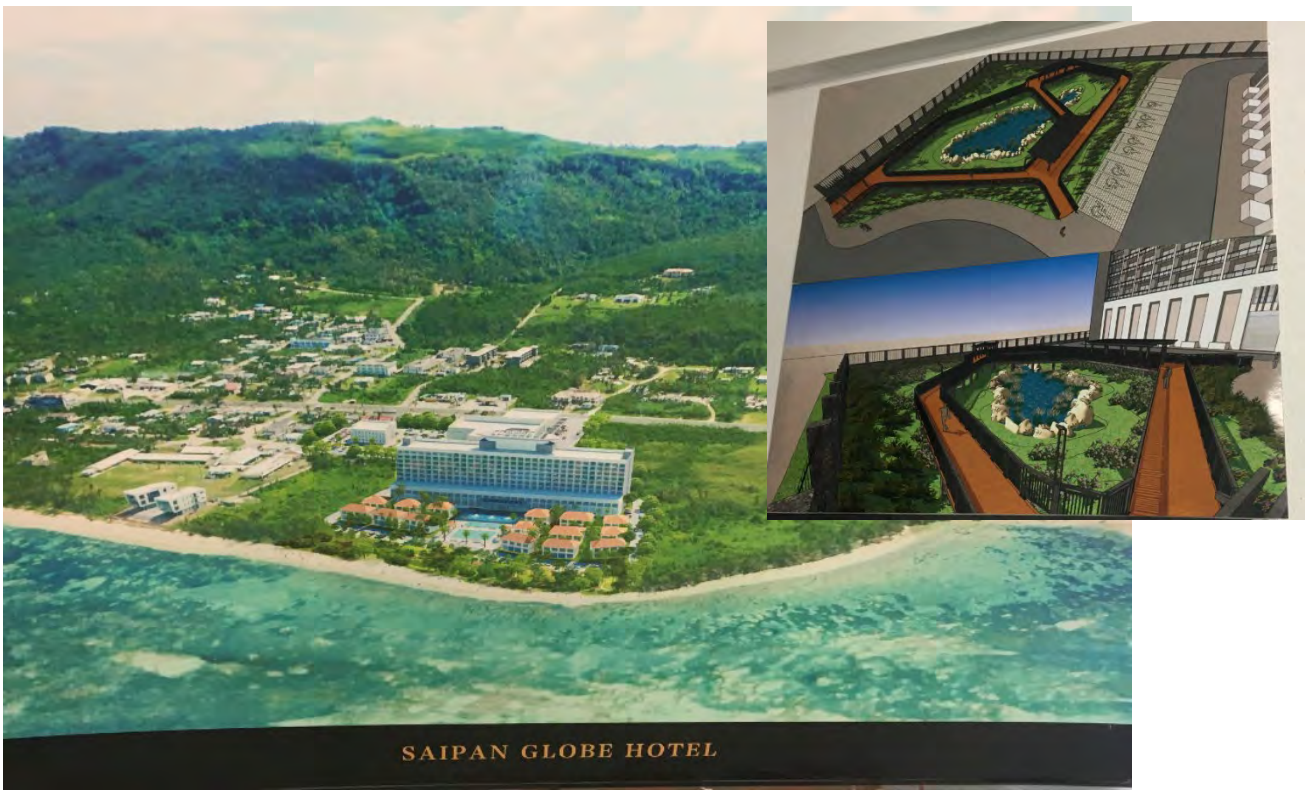
Description of Proposed Opportunity:
Revisit permit to ensure compliance with stormwater standards. Require mitigation or make them restore wetland and redesign stormwater plan.

Challenges/Constraints:
Already under construction. Could use this as leverage when they request a permit to put a boardwalk across karst at beach.

Additional Notes:

Site Photo

Site Overview Caption: Wall constructed to separate section of wetland to be used for stormwater management. Soil stockpiles in wetland area.



Caption: Renderings of resort design showing “stormwater wetland” amenity with boardwalk, sandy beach, and other elements of site (no other stormwater BMPs shown).

2020 SAIPAN WATERSHED FIELD NOTES

Enforcement Needed: ☐ Yes ☐ No

Completed by (circle): BK (BL) AK EH JI

Watershed (circle one): (Achugao North) Achugao South Laolao Garapan

Site ID/Name: AN 601

Project Type (check box):

- ☐ Drainage Infrastr. Maint. & Repair
- ☒ Stormwater Retrofit
- ☐ Unpaved Road Stabilization
- ☐ Shoreline Stabilization
- ☐ Stream/Wetland Restoration
- ☐ Upland Revegetation/Restoration
- ☐ Wastewater Improvement
- ☐ Construction Site ESC
- ☐ Pollution Prevention (hotspot)
- ☐ Residential Stewardship
- ☐ Watershed Education/Signage
- ☐ Land Conservation
- ☐ Other _____

Description of Existing Conditions:

Kensington Hotel parking lot is managed by concrete channels that surround the perimeter of the parking lot. Runoff enters the channels informally without pretreatment. It is unclear where the concrete channels discharges, though it is our assumption the channels tie into an existing wetland rather than entering the stream outlet. More information is required to determine and confirm outlet connection.

Severity/Rating (circle): 5 (*Severe*) 4 (3) 2 1 0 (*Not significant*)

Description of Proposed Opportunity:

Adding canopy trees to the parking lot will reduce heat island effect as well as reducing the time of concentration. Linear filter strips can be added between the parking stalls & concrete channels to slow the stormwater, provide pretreatment and stabilize the channel slopes.

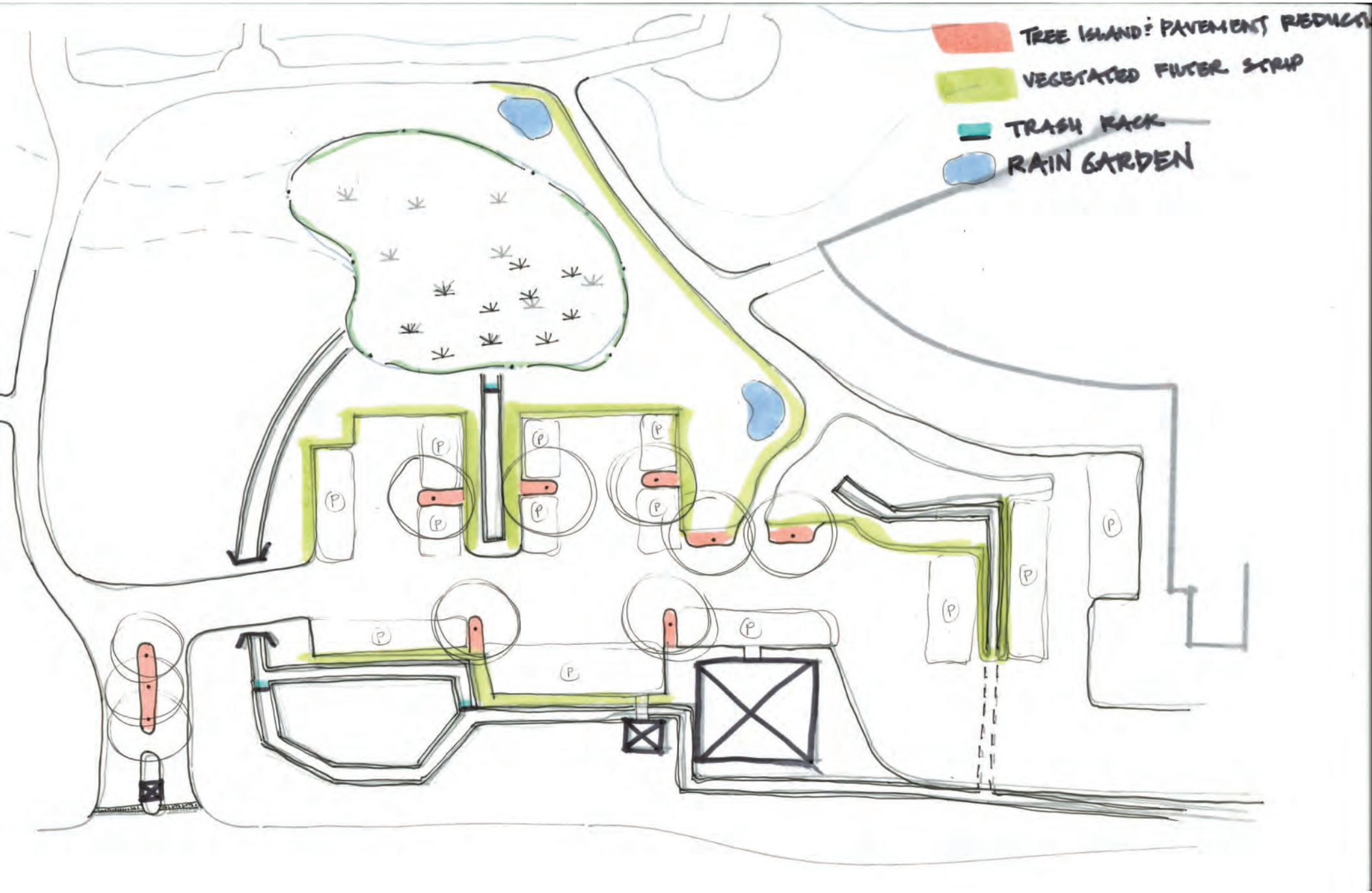
Trash Racks may be installed within the conc. channels to provide an consolidated opportunity for debris removal.

Implementation Priority: ☐ Love it! (high) ☒ It is OK (med) ☐ not that important (low) ☐ unsure

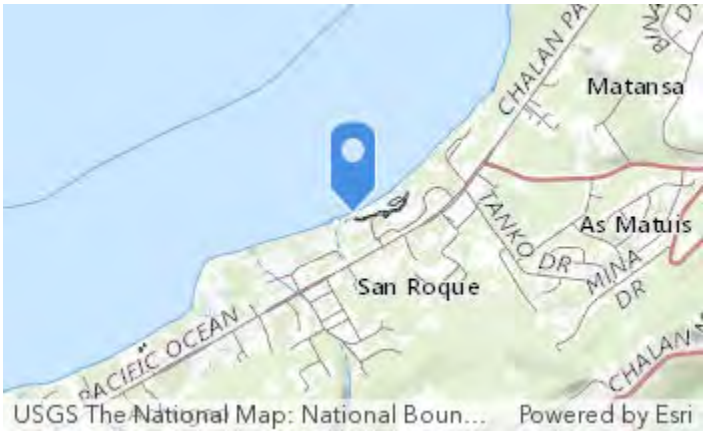
Challenges/Constraints: Safety & vehicular circulation. Potential interest to reduce pavement by hotel/owner(s).

Need more information to confirm outfall connection.

Additional Notes and/or Sketch:


TREE ISLAND: PAVEMENT REDUCTI
VEGETATED FILTER STRIP
TRASH RACK
RAIN GARDEN

Saipan Watershed Assessment 2020

Site ID: AN-602	**Watershed:** Achugao North
Crew: BL	**Date/Time:**
Project Type: • Drainage Infrastr., Maint. & Repair, • Stream restoration • Trash and debris removal	
Enforcement Needed: No	
Severity Rating: 3	
Implementation Priority: It's OK (Med)	

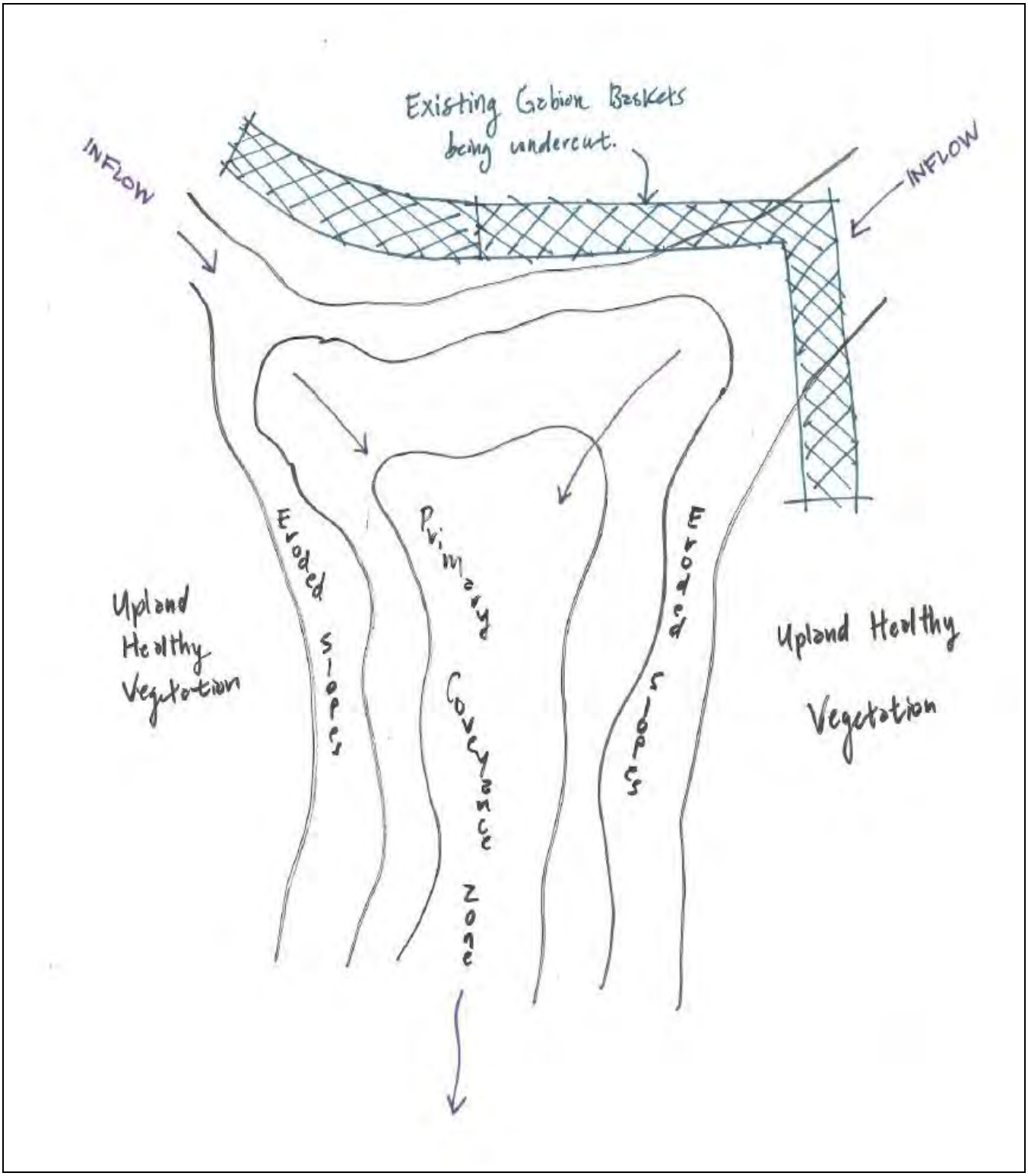
Descriptions of Existing Conditions:
Channel outlet draining San Roque and potentially the Kensington parking lot. Gabion baskets being undermined; trash and debris. This outlet is adjacent to the outfall on the beach from ponds at Kensington.

Description of Proposed Opportunity:
Further investigation of the flow paths and the gabion structure is needed to evaluate the site for any restoration activity. Track down the site plans from Kensington that may show this feature. Could be a good location for cleanup and debris removal.

Challenges/Constraints: ownership

Additional Notes: Access relatively easy due to maintenance access for pond outlet structure.

Site Photo


Existing Gabion Baskets being undercut.
INFLOW
INFLOW
Upland Healthy Vegetation
Eroded Slopes
Primary Conveyance Zone
Eroded Slopes
Upland Healthy Vegetation