



MEMORANDUM

DATE: 8/15/12

TO: Faamao Asalele, Christianera Tuitele, and Kuka Matavao (AS-EPA); Kathy Chaston, Steve Frano, Fatima Sauafea-Leau (NOAA), Mayor Uso Lago'o (Faga'alu)

FROM: Anne Kitchell (Horsley Witten Group) and Sadie Drescher (Center for Watershed Protection)

RE: Post-Construction Stormwater Training Workshop, Field Work, and Interagency Meeting Summary

The purpose of the memorandum is to document activities and findings by the Horsley Witten Group (HW) and the Center for Watershed Protection (CWP) during training and field work the week of July 18-26, 2012 in American Samoa. This memo is organized as follows:

- 1.0 Post-Construction Stormwater Training
- 2.0 Faga'alu Watershed Assessment and Restoration Projects
 - 2.1 Structural Projects
 - 2.2 Non-structural Activities
- 3.0 Stormwater Program Recommendations
- 4.0 Recommendations for Future Watershed Planning

The restoration project concepts summarized here are currently under refinement and will be presented in a separate report entitled the *Faga'alu Watershed Plan Implementation Supplement* that can be attached to the *Final Faga'alu Watershed Plan*. This report will include 10-30% designs for proposed stormwater retrofits, planning level cost estimates, project description, photos, and potential sediment load reduction estimates, where practicable.

Recommendations presented here related to enhancing the territorial stormwater program and for future watershed planning activities are intended to support AS-EPA in prioritizing future funding requests and developing scope of service requests.

Given the timing of the upcoming Coral Reef Task Force meeting and the time sensitive nature of addressing quarry operations, we wanted to submit these findings as soon as possible, recognizing that additional detail will follow shortly.

1.0 Post-Construction Stormwater Training

The Post-Construction Stormwater Training Workshop was held on July 23-24, 2012 and included classroom sessions, a field trip to observe installation of stormwater practices at the AS-EPA building redevelopment site, and a half-day of watershed assessment training in the Faga'alu watershed (Figure 1). The workshop agenda is attached to this memo. Thirty-five participants were in attendance (see attached sign in sheet) representing a number of territorial agencies, academia, businesses, and residents. Drainage engineers from the Department of Public Works did not attend the workshop, which was unfortunate as they are responsible for much of the drainage infrastructure design and construction on the island. The Mayor of the Faga'alu Village and the owner of Samoa Maritime (Quarry operation) were also in attendance. AS-EPA provided lunch for Day 1. News coverage of the workshop was provided by Channel 2 and the Samoa News. For a copy of the article coverage, go to <http://www.samoanews.com/?q=node/7182>.

Va'asa Simanu, AS-EPA Assistant Director, welcomed attendees and formally introduced the instructors. HW and CWP provided classroom sessions on why post-construction stormwater management is important, examples of structural and non-structural best management practices (BMPs) that are appropriate for the South Pacific, and an initial discussion on program elements and island stormwater standards.

Participants walked next door to the new AS-EPA building site, which once completed, will be the first LEED-certified new construction project in the South Pacific (to our knowledge). Brian Rippey, design engineer for the site, coordinated and led the field trip to specifically showcase the permeable pavers, green roof, and bioretention applications used on site. Without this field trip, it would have been difficult to convey some of the key tenants of post-construction stormwater management since there are very few examples of stormwater management practices on the island.

Approximately 25 participants joined us in the field on the second day to evaluate drainage patterns in the Faga'alu watershed and to learn watershed assessment techniques. We started at Faga'alu Park for a brief training overview,



Figure 1. Classroom and field trip activities during post-construction stormwater management training in American Samoa.

then walked to the mouth of the stream, traveled upstream to visit the major bridge repair, assessed restoration opportunities at the quarry, and finally performed drainage analysis at the hospital. HW and CWP provided an overview of watershed planning and field data collection methods; at each site, a group discussion was led by HW and CWP that included teaching points, targeted questions, data gathering, and a discussion for potential solutions or next steps. Prior to the workshop, the team met with Mayor Uso to obtain permission to work in the Village of Faga'alu and to pre-identify a handful of key sites for field assessment (e.g., shoreline erosion in the park, drainage problems in the residential area, and the quarry). Since the quarry is a major impact to the Faga'alu stream, we discussed what the obstacles were on site, reviewed past BMPs implemented, discussed maintenance, and brainstormed for a quarry site plan that will reduce pollution to the stream. Quarry operator George Porsky joined us in the field during the reconnaissance and during both days of the workshop.

Slideshows, field forms, and other materials presented during this training were provided to AS-EPA and will either be posted to the agency website, or provided to participants upon request.

2.0 Faga'alu Watershed Assessment and Restoration Projects

HW, CWP, AS-EPA, and Mayor Uso conducted stormwater assessments in the Faga'alu watershed July 24-25, 2012. Sites to investigate were pre-identified based on desktop mapping analysis (e.g., high impervious cover areas such as the hospital, stream crossings, the school, and open space), as well as on recommendations from the Watershed Protection Plan (Pedersen 2000), the Draft Faga'alu Watershed Plan (2011) and from the Mayor during our reconnaissance on July 23. The objectives of this activity were to support the Faga'alu watershed planning project by:

- Identifying opportunities to reduce land-based sources of pollution;
- Developing engineering concept designs for structural practices (e.g., stormwater retrofits, stream restoration, shoreline stabilization, wastewater improvements, infrastructure repair); and
- Outlining non-structural and programmatic actions (e.g., maintenance, trash cleanup, education and outreach, animal waste control).

2.1 Structural Practices

Over 20 individual sites were investigated in the field. Structural restoration projects were identified at 16 locations (Figure 2). These structural practices are summarized in Table 1, which include stormwater retrofits, shoreline stabilization, stream restoration, road and sewer improvements, culvert repair, and piggery upgrades. Site numbering is for referencing purposes only and should not be interpreted as a prioritization or ranking. The stream network was not comprehensively evaluated beyond the reaches visible at road crossings and behind the hospital.

Information collected at each site was recorded either digitally using an iPad or by hand on field forms and aerial maps. Figures 3-7 show examples of how data was collected in the field. These project concepts will be more thoroughly documented in the *Faga'alu Watershed Plan Implementation Supplement*.

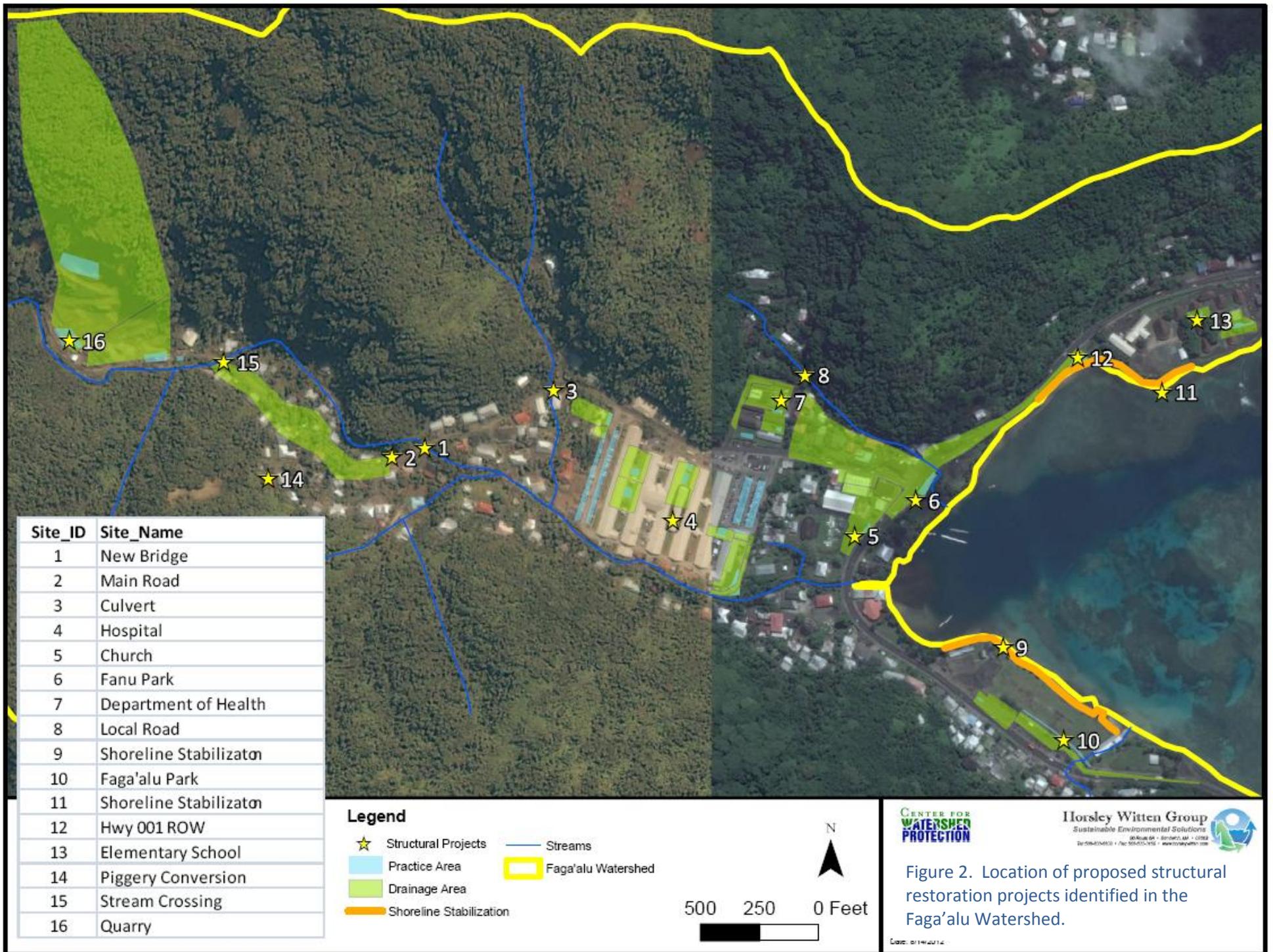


Figure 2. Location of proposed structural restoration projects identified in the Faga'alu Watershed.

Table 1. Summary of Structural Restoration Opportunities Identified in the Faga’alu Watershed.

Site ID	Project Type	Description
1. New Bridge	Stream Restoration	Improve fish passage at newly constructed bridge by installing a 6” high concrete wall to create low flow channel.
2. Main Road	Retrofit	Divert portion of road drainage into demonstration bioretention in existing open area; help reduce erosive flows visible in cinder/gravel areas above revetment.
3. Culvert	Culvert Replacement	Reduce flooding by replacing undersized culvert pipes with box culvert.
4. Hospital	Retrofit	Numerous opportunities for rain gardens/bioretention facilities, planters, and porous pavers (if repaving opportunities arise).
5. Church	Retrofit	Dry swale between road and parking lot.
6. Fanu Park	Retrofit; Source Control	Separate dirty runoff from clean stream discharge; Realign existing stream in park; treat runoff with gravel mangrove to treat commercial area and main road; work with commercial businesses on trash management and DPW on culvert maintenance and trash-trap design.
7. Dept. of Health	Retrofit	Bioretention facilities and relocation of sewer line.
8. Local Road	Sewer Extension/Road Improvement	Connect remaining seven residences to sewer line, repave road and improve drainage.
9. Shoreline at Faga’alu Park	Shoreline Stabilization	Restoration of seawall/revetment along shoreline, particularly near boat house.
10. Faga’alu Park	Retrofit	Dry swale between field and parking lot to collect diverted road runoff above south entrance; demonstration rain garden near north entrance.
11. Shoreline near Matafao Elem. Sch.	Shoreline Stabilization	Extend rock seawall from new building around property to tie into wall at adjacent beach.
12. Road Right-of-Way	Retrofit	Divert portion of HWY 001 road drainage into bioretention.
13. Matafao Elementary School	Retrofit	Tie into historic outfall pipe running below school; install drains in inner courtyard with shallow bioretention; rain garden near new building.
14. Piggery Conversion	Source Control	Completed conversion of private piggery from wet to dry compost; next phase is final upgrade with AS-EPA grant.
15. Stream Crossing	Culvert Installation	Install box culvert to eliminate continuous flow across road surface.
16. Quarry	Erosion and Sediment Control	Divert clean groundwater seepage around site; install settling basin at a number of locations throughout the site.

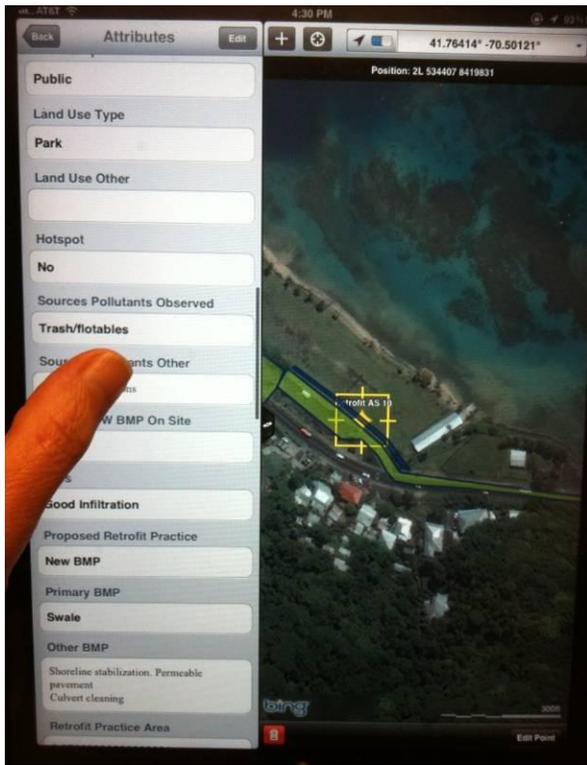


Figure 4. Example of data entry, drainage area mapping and photo rendering in the field using HW's prototype iPad technology.

RETROFITS
 Site Name/ID: AS-13B Subwatershed: Faga'alu
 Date: 7/25/12 Assessed by: Shay, J, R, M, P, K.

EXISTING SITE/STORMWATER MANAGEMENT
 Site Contact Info: School, data on iPad

Land Use: Public Private Unknown:
 Single Family Residential Multi-Fam. Residential School Golf Course Park Agricultural Road
 Commercial/Industrial Resort Marina Other: _____

Is the site a hotspot? Yes No Unknown:
 Sources/pollutants observed? No Sediment Nutrients/organics Oil/grease Trash/Floatables

Existing Stormwater BMP on site? Yes No Unknown:
 Soils: Unknown poor infiltration good infiltration

Describe Existing Stormwater Conditions, Including Existing Site Drainage and Conveyance:

PROPOSED RETROFIT CONCEPT (CONT. ON BACK)
 Proposed Retrofit Practice(s): existing BMP upgrade new BMP

bio/train garden swale planter tree pits infiltration permeable paver sand filter pond
 constructed wetland proprietary practice soil amendments reforestation impervious cover removal
 rainwater harvesting disconnection Other (describe): _____

Area Draining to Retrofit: Hotspot Individual rooftop Parking Lot other small impervious area Street Pervious area Other (describe): _____

Drainage Area to retrofit ≈ _____ acres/sq ft
 Imperviousness ≈ _____ %
 Impervious Area ≈ _____ acres/sq ft

Benefits of Retrofit (primary & secondary): Storage Water Quality Recharge
 Demonstration / Education Repair Other: _____

Possible Conflicts due to: Soils Access Adjacent Land Use Existing Utilities Contamination High water table Wetlands Other: _____

Describe conflicts:

NEXT STEPS
 Candidate for pilot project yep, love it OK undecided no, but keep listed no way

Follow-up needed to Complete Field Concept
 Confirm property ownership Obtain existing as-builts/site plans Obtain utility mapping
 Confirm drainage area/impervious cover Obtain detailed topography Perform test pits
 Confirm volume computations Confirm storm drain invert elevations
 Complete concept sketch Other: _____

Site ID AS-13B Page 1 of 2

☐ SITE AERIAL INCLUDED

PROPOSED RETROFIT CONCEPT (CONT.)
 Narrative Description (Including key elements, approx. surface area/ depth of treatment, conveyance structures):

Sketch and/or Sizing Cales:

Existing Head Available/Where Measured:

Initial Feasibility and Construction Considerations/ Design or Delivery Notes:

Thoughts on Maintenance Burden: Low Medium High

Site ID AS13B Page 2 of 2

Figure 5. Field forms were also used to collect site information.

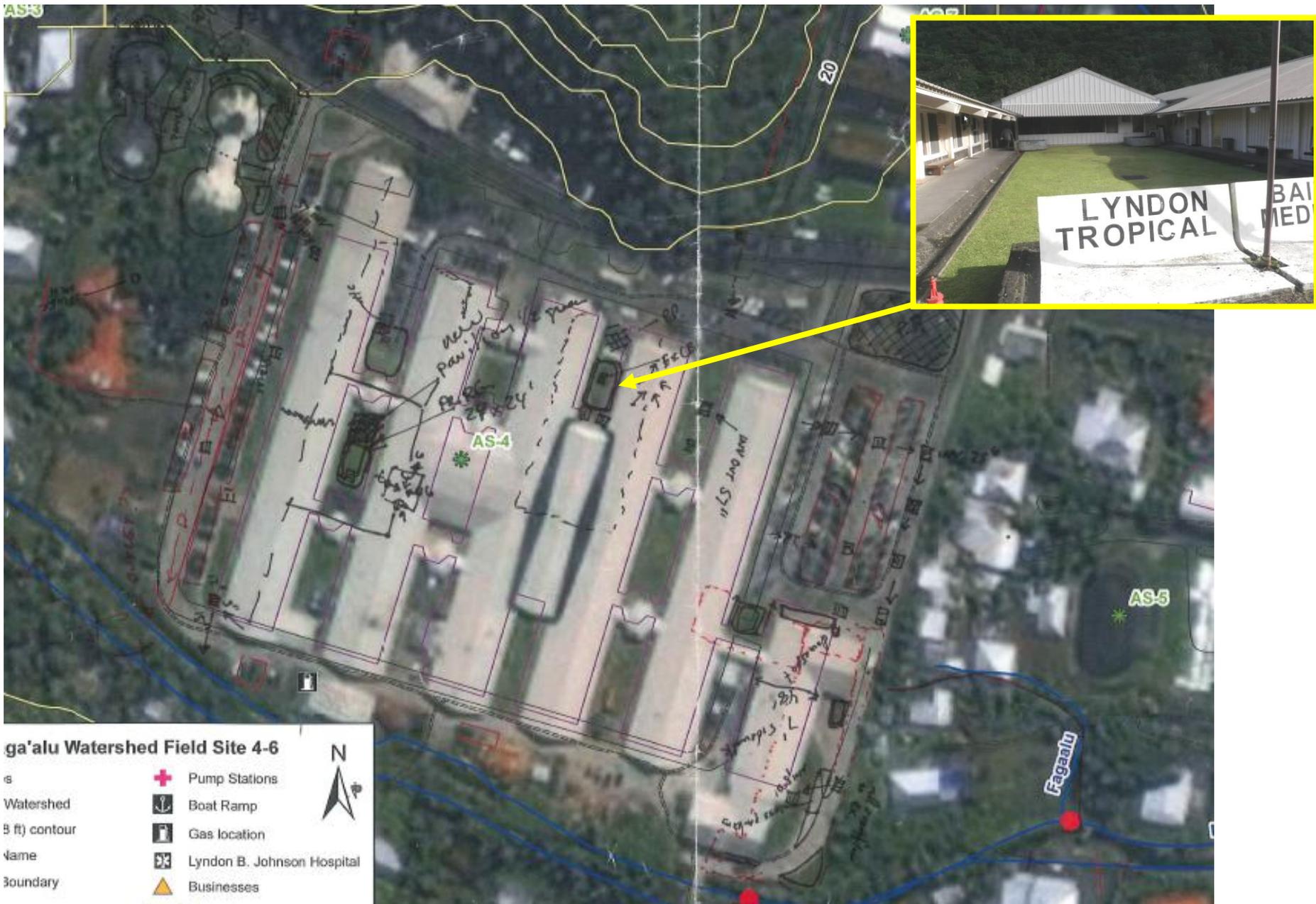


Figure 6. Sketches of multiple bioretention and permeable paver locations and contributing drainage areas at the Hospital.



Figure 7. Two areas to address shoreline erosion— Faga’alu Park and the Matafao School were pre-identified by Mayor Uso as high priority projects to include in the list of watershed restoration projects.

2.2 Non-Structural Activities

Non-structural actions such as infrastructure maintenance, trash clean-ups, and watershed education were also identified during this assessment. A summary of recommended activities is provided in Table 2. Non-structural measures are often voluntary, but can provide good opportunities for watershed residents and businesses to actively engage in watershed stewardship. Awareness of watershed-friendly alternatives to trash management and disposal of household wastes (Figure 8) could be a key management priority for Faga’alu watershed.



Figure 8. (Left) Example of commercial area where uncovered dumpster is located adjacent to stream and culvert is full of trash. (Right) Newly paved residential road drains surface runoff from neighborhood directly into the stream.

Table 2. Summary of Non-Structural Activities in the Faga’alu Watershed.

Project Type	Description	Example Locations
Buffer protection and re-vegetation	Maintain 50ft vegetated/natural buffer between structures and streams/shorelines; maintain canopy shading for in-stream temperature regulation, habitat, and bank stabilization; re-vegetate shorelines with trees and other species as part of stabilization projects	Quarry, parks, and (where feasible) in the village when repair, redevelopment, and new construction opportunities arise
Dust control	Incorporate dust control measures at quarry (see erosion control plan for new island quarry site which includes double dust control measures).	Quarry
Culvert/catchbasin maintenance	Clean out sediment, debris, and trash collected in existing culverts; develop an operations and maintenance (O&M) plan and solicit funding to support Village-run maintenance program for culverts and catch basins.	HWY 001 at Fagaalu and Fanu parks
Trash Management	Install trash cans at strategic locations; conduct Village stream cleanups and link with recycling deposit collection; organize Village household hazardous and solid waste collection days; work with businesses to maintain covered dumpsters.	Bus stop; Fanu park; commercial dumpster along Hwy 001; streams in residential area
Animal waste management	Continue with piggery conversion; investigate impact of dog waste on water quality.	Village-wide
Identification and elimination of non-stormwater discharges	Work with American Samoa Power Authority (ASPA) to identify and eliminate illicit discharges including sanitary sewer overflows/leaks during ongoing Inflow & infiltration (I&I) evaluation (estimated at 30-40%)	Junction manholes and exposed lines at stream crossings
Watershed education	Watershed signage is scheduled for installation in early August; residential campaign to discuss proper disposal of wash water, car fluids and other wastes (similar to Piggery flyers/campaign); develop watershed restoration materials to be shown at public gatherings and events; create a watershed field trip/curriculum for students.	Village-wide
Public involvement	Trash cleanup in streams and shorelines; volunteer installation and maintenance of demonstration rain garden/bioretenion and cisterns/rain barrels.	Village-wide; demonstration site

More detail will be incorporated into the *Faga’alu Watershed Plan Implementation Supplement* regarding each of these recommendations. Specifically, a preliminary watershed education plan and Village-administered drainage infrastructure operations and maintenance plan will be provided.

3.0 Stormwater Program Recommendations

An inter-agency meeting was held on 7/26/12 at the NOAA offices, which included representatives from AS-EPA, Department of Commerce (DOC), and NOAA. A summary of field findings by HW and CWP was followed by a brainstorming session on the future of a post-construction stormwater program on American Samoa. In general, the AS-EPA appears poised to take the lead on administering the island's stormwater management program.

A number of key educational needs and technical tools were identified by the group to help advance the program. The following list includes the items mentioned during the group brainstorm followed by a bulleted list of suggestions for filling these gaps with future grant requests:

- 1. Restoration plans.** There are not many examples of stormwater management practices on the island. The group wanted design plans for proposed stormwater retrofits in Faga'alu including an action plan to send to Samoa Maritime for implementation and maintenance of erosion and sediment control measures at the Quarry. This would be helpful not only for improving conditions in the Faga'alu watershed, but would also help AS-EPA and DOC enforcement officers.
 - *HW/CWP is in the process of providing some of these design concepts for the Faga'alu watershed.*
 - *AS-EPA and Department of Public Works (DPW) to identify and collect as-builts on existing stormwater management practices that have been installed on the island (four practices at new EPA office building, Mormon Church, etc.).*
 - *DOC to sponsor a student from College of American Samoa, off-island graduate program, or NOAA fellow to create a stormwater infrastructure mapping layer in GIS that can be accessed and updated by DPW, AS-EPA, ASPA, and others. This layer should include locations of pipes, inlets, catch basins, outfalls, and stormwater practices, with a photo and any dimensional information that is available. Integrate new LIDAR data (pending).*
- 2. Stormwater Education.** In addition to trainings for contractors and the engineering professionals on ESC and post-construction stormwater management, the group thought that specific training for managers and Village mayors is key to building long-term support for stormwater regulations and program growth. Targeting schools and students with watershed and stormwater messaging as part of their curriculum was also deemed important.
 - *AS-EPA to host a one-day conference for mayors on stormwater and watersheds. Use the Faga'alu watershed plan as a case study. Visit existing stormwater facilities on the island to show impacts and potential solutions.*
 - *Prior to AS-EPA's next ESC training for contractors, spend a day with managers from other agencies reviewing the impacts of erosion and identify opportunities for better collaboration and enforcement.*
 - *Construct a demonstration stormwater project at a school. As part of the effort, design a 1-hr stormwater lesson plan tailored for elementary vs. high school.*
- 3. Village-scale operation and maintenance plans (O&M) for drainage infrastructure.** The level of maintenance on culverts and catch basins is not adequate to ensure proper function in many

cases. Clogging with debris and trash was observed in most structures in the Faga'alu watershed. The group discussed possible private-sector and public sector alternatives for improved maintenance. Developing basic maintenance plans to be implemented at the Village level could help supplement DPW's efforts on the primary roads.

- *HW/CWP will use the Faga'alu as a model for developing such an O&M plan*
- *Solicit funding to purchase supplies and provide wages for Village manager to pay local residents for maintenance. Use deposit collections from recycling to help support program.*
- *Investigate options for quarterly household hazardous waste and white goods collection.*

4. **Stormwater management guidelines.** Technical assistance in establishing realistic standards for stormwater management is needed, particularly for water quality and recharge. Specifically, what storm events should be managed and do new rainfall analyses need to be conducted? What criteria should be established for water quality treatment and should recharge requirements be more stringent in the Tafuna Plain? Which development and re-development/repair projects should be required to manage stormwater?

- *Complete rainfall analysis to determine appropriate storm events and depths for management. Evaluate how soils/geological conditions and location of surface and groundwater resources may influence stormwater standards.*
- *Hold a series of work sessions with island engineers, DPW, and AS-EPA to review options and reach consensus on feasible management standards.*
- *Draft a standards manual and regulatory language for consideration; conduct another series of work sessions with attorneys and managers to review recommendations.*
- *Finalize standards.*
- *Conduct a series of workshops for contractors, engineers, and review staff on how to implement standards.*

5. **Stormwater design and specifications manual.** Guam, CNMI, and Palau each have a stormwater design manual. A technical guidance manual of acceptable practices, design considerations, maintenance requirements and specifications would help engineers and agency staff to operate with the same standards. Materials should be in line with island supplies.

- *HW/CWP is currently under contract with NOAA to develop a few design specifications for practices that are specifically tailored to the islands.*
- *Combine some of the specifications from the above NOAA effort, with information from other Pacific islands manuals and local designs to create a reference manual specific for American Samoa.*
- *This guidance should be prepared and presented concurrently with the standards manual, as well as training on practice sizing, design, construction, and maintenance.*

4.0 Recommendations for Future Watershed Planning

The watershed planning process in Faga'alu can serve as a model for subsequent community-based approaches in other watersheds on the island. According to AS-EPA, the next two other watersheds, Vatia and Nu'u'uli, are potential candidates for future watershed planning (Figure 9). These two watersheds differ in a number of ways, which will influence the scope of a watershed planning process (see Table 3).

Table 3. Summary of Key Factors in Scoping Watershed Planning Projects

Planning Consideration	Vatia (#10)	Nuu’uli Pala (#27)
Size —influences the type of field assessments and amount of time necessary to conduct field work.	1.89 sq mi; 14.4 stream mi; 4 mi shoreline; 34 wetland acres	6.7 sq mi; 24 stream mi; 8.8 mi shoreline; 123 wetland acres
Number of Jurisdictions —influences the number of parties involved in the process, number of public meetings, and amount of coordination effort to reach agreement on watershed recommendations. Also corresponds to the potential number of volunteers, local resources, and community groups that can participate in implementation activities, as well as visibility.	Vatia, Amalau, National Park (~750 residents, 2010 Census)	Nuu’uli, Malaeimi, Mesepa, Mapusaga, and a portion of Tafuna (>6,000 residents, not including Tafuna, 2010 Census)
Land Use —affects degree of impairment and type of restoration opportunities. More urbanized areas may have more stormwater management issues; less developed areas may have more forest conservation, septic system, or piggery issues, for example.	Residential villages; steep forested, park lands, subsistence farming;	Tafuna Industrial Park, Airport; Lions Park; commercial shopping district; residential areas
Schools —provide opportunities for education and demonstration; raising watershed awareness	Mauga-O-Alava Elementary School	American Samoa Community College
Key Watershed Management Concerns —will determine the areas of focus for the watershed plan and generally the most important points of discussion from the community	<ul style="list-style-type: none"> • Water supply—Leafu and Lausaa streams; develop rainwater catchment & groundwater sources • Protection of detention and recharge function of wetlands • Protection of shorebird and bat habitats • Erosion control from new residential development and subsistence farming on slopes • Sanitary system • Culvert maintenance 	<ul style="list-style-type: none"> • Protection of groundwater supplies • Pala Lagoon and wetland/mangrove protection • Managing urban runoff (treatment and recharge) • Recycling and household hazardous waste • Restoration of marine communities
Existing Information —availability of existing watershed reports, monitoring data, mapping, etc. supports the planning efforts.	Pederson (2000) watershed report; water supply studies; coral studies; AS-EPA water quality sampling stations, etc	
Implementation Drivers —other programs or mandates that would help support watershed planning activities	303(d) listings; ASPA expansion plans, NOAA or AS-EPA priority watersheds, community support, etc.	

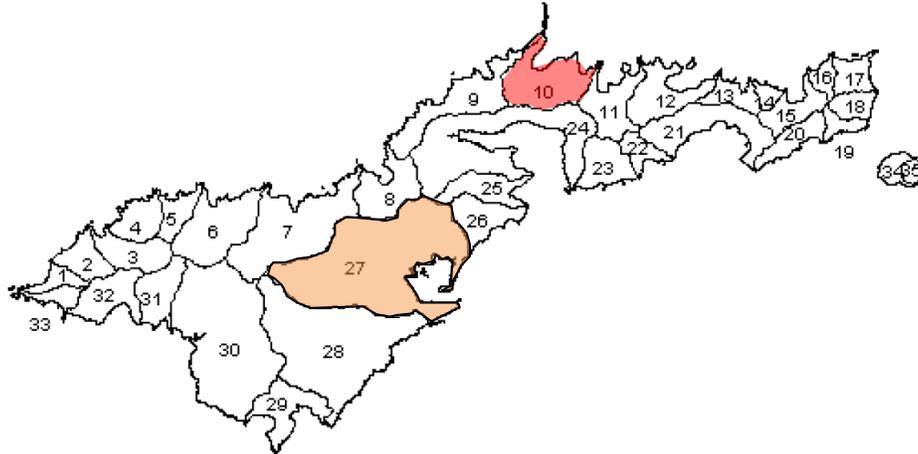


Figure 9. Map of the watersheds of Tutuila. Shading indicates the location of the Nuū’uli and Vatia watersheds.

A preliminary work plan is provided below. The intent of this work plan is to provide AS-EPA with guidance material that can be used in developing funding proposals or request for services to develop a watershed plan that meets US EPA a-i planning criteria.

Task 1. Watershed Characterization—Compile all existing management plans, water quality studies, GIS data, and any other relevant information. Pre-identify potential sources of pollution and restoration opportunities, and use a simplified model to estimate existing pollutant loads. Generate watershed maps that can be used for meetings, reports, and field work. Prepare a draft and final summary report describing existing watershed conditions.

Task 2. Community Engagement— Similar to the community-based approach taken in Faga’alu, hold Village council meetings to discuss local needs, observations, and watershed goals. Use meetings and maps during all phases of the planning process to: 1) hone in on problem areas and potential restoration opportunities, 2) obtain contact information for other important stakeholders in the watershed, 3) meet in the field, 4) discuss findings, and 5) provide input on recommendations and implementation plans. Once the watershed plan is developed, meet again to discuss findings, feasibility of identified restoration concepts, and moving forward with the implementation plan. Consider establishing a page on the AS-EPA website for the watershed plan where reports, maps, and meeting schedules can be posted.

Task 3. On-the-ground Assessment—Perform a field reconnaissance of existing conditions, identified problem areas (from Task 2), and restoration opportunities. Restoration opportunities could include: stormwater treatment, stream stabilization, piggery management, septic system upgrades, pollution prevention, improved hazardous materials storage, re-vegetation, shoreline protection, erosion and sediment control, trash management, and public education. Fill out field forms with relevant information about each site and take photographs. Talk to as many people in the watershed as possible to learn more background on the area.

Task 4. Restoration Opportunities – Develop concepts for the priority restoration projects (structural and non-structural). Use a simplified model to estimate pollutant load reductions from the proposed sites, as applicable. Provide a summary report of field findings and restoration potential. Consider the level of engineering design requested at the planning level phase, as more detailed designs will require survey work, etc. Concepts for projects should include a planning level cost estimate and implementation recommendations that can be incorporated in the watershed plan.

Task 5. Education Plan—Develop a watershed-specific education plan for priority target audiences (e.g., businesses, residents, agencies). This plan should include a description of activities, planning level cost estimates, lead coordinators, and a schedule that can all be incorporated into the overall watershed management plan.

Task 6. Village Operations and Maintenance Plan for Drainage Infrastructure—Because the need for maintenance of drainage infrastructure is ubiquitous across the island, consider including a task to map and develop a Village O&M plan for key infrastructure.

Task 7. Watershed Management Plan –Develop a draft watershed management plan for review and comment. Include a summary of watershed characterization, top priority restoration opportunities, the education plan, an O&M plan, and an implementation plan that describes next steps, a schedule, and possible funding sources. After a few meetings and several rounds of comments, finalize the plan. Include development of an educational brochure and glossy executive summary that can be distributed to the community and funders.

Watershed planning typically should take between 12-18 months, depending on the complexity of the watershed issues, level of design, staffing, and public involvement.

The overall cost of the effort will be dependent on the size of the watershed and complexity of watershed issues; whether the plan is done internally or through the use of consultants; and the extent of detail desired in the ultimate watershed plan. The factors summarized in Table 3 should help AS-EPA better refine level of effort estimates and specific scoping needs.

It is important to remember that completion of the plan is not the end goal; community buy-in, implementation, and improved water quality are the prize!

Attachments

Workshop Agenda

Workshop Sign-In Sheet

Post-Construction Stormwater Training Workshop



July 23-24, 2012
Office of Samoan Affairs
Conference Room



Agenda

Monday, July 23: CLASSROOM and FIELD TRIP

- 8:30-9:00** **Registration**
- 9:00-9:30** **Welcome and Introductions (AS-EPA)**
- 9:30-10:00** **Stormwater Management: The Pacific Context**
Discuss the impacts of unmanaged stormwater on American Samoa aquatic resources; federal regulations for post-construction and construction activities; and what watershed factors influence how stormwater is managed.
- 10:00-11:00** **Island Stormwater Practices: PART 1**
An introduction to the world of stormwater best management practices (BMPs) including green roofs, bioretention, sand filters, and permeable pavers. Examples of how these BMPs are applied in other Pacific Islands will be emphasized.
- 11:00-11:30** *Break and Travel*
- 11:30-12:30** **BMP Installation Field Trip (AS-EPA)**
Tour the post-construction stormwater BMPs planned for and/or installed at the new EPA Building including: green roofs, permeable pavement, bioretention, and sediment basin.
- 12:30-1:30** *Lunch*
- 1:30-2:30** **Island Stormwater Practices: PART 2**
As a continuation of the morning's session, we will cover cisterns, chambers, detention ponds and stormwater wetlands, as well as some non-structural BMPs.
- 2:30-2:15** *Break*
- 2:45-3:45** **Island Stormwater Standards**
Discuss various stormwater standards and design criteria (e.g., sizing BMPs for water quality and/or runoff reduction, redevelopment vs. new development, and pretreatment requirements) applied in the continental US and islands.
- 3:45-4:00** **Wrap Up/Questions and Answer Session/Planning for Tuesday**

Tuesday, July 24: FIELD ASSESSMENT

9:00 **Meet in Faga'alu (specific location TBD)**

9:00-9:30 **Introduction to Watershed Assessment**

Discuss stormwater management at the watershed scale and introduce the day's retrofit inventory and pollution prevention investigations and schedule.

9:30-12:00 **Faga'alu Field Assessment**

Help support watershed planning efforts while learning how to identify stormwater and other watershed restoration opportunities in the field. Break up into small groups to investigate priority sites and develop engineering design concepts for implementation.

STORM WATER CONTROL TRAINING

JULY 23-24, 2012

Organization	Name:	Registered:	Contact #:	Email Address	Tuesday	Wednesday	Sign-In
1	NOAA			Fatima_Sauafea-Leau@noaa.gov			
1	ASPA	✓	733-1117	avel@aspower.com		✓	
1	DOC	✓	633-5155	marvis.vaiagae@doc.as		✓	
1	DOC	✓	633-5155	tino.mao@doc.as		✓	
1	AS-EPA	✓	633-2304	flaititi@gmail.com		✓	
1	AS-EPA	✓	633-2304	jocie_regis96799@yahoo.com			
1	AS-EPA	✓	633-2304	sagaga7@yahoo.com		✓	
1	AS-EPA	✓	633-2304	sfelelua03@gmail.com		✓	
1	ASCC-LG	✓	699-1394	donvargo@rocketmail.com		✓	
1	ASCC-LG		733-2426	amsvargo@yahoo.com			
1	AS-EPA	✓	633-2304	tumaulokeni@gmail.com	✓	✓	
1	AS-EPA	✓	633-2304	moiraavapalu@gmail.com			
1	AS-EPA	✓	633-2304	luimaea@gmail.com		✓	
1	ASTCA	✓	733-9051		✓	✓	
1	ASTCA	✓	733-9196	d_siatunuu@yahoo.com	✓	✓	
1	DPW		699-9167	DPW - DIRECTOR			
1	DPW		699-9167	epe.jennings@gmail.com		✓	
1	DPW		699-9167	faleosina@asgdpw.org			
1	DPW		699-9167	faalavai@asgdpw.org			
1	DPW		699-9167	estela@asgdpw.org			
1	DPW		699-9167	mikaele@asgdpw.org			

GOVERNMENT

STORM WATER CONTROL TRAINING

JULY 23-24, 2012

Organization	Name:	Registered:	Contact #.	Email Address	Tuesday	Wednesday	Sign-in
1 DPW	MIKE TUIOLESEGA		699-9167				
1 DPW	MALO INO		699-9167	malouamaia@asgdpw.org			
1 DPW	ALOFA TANUVASA		699-9167	alofa@asgdpw.org			
1 DPW	REUBEN SIATU'U		699-9167	reuben@asgdpw.org			
1 DPW	DORIS SIPELLI		699-9167	doris@asgdpw.org			
1 DPW	TAAFUA TAAFUA	✓	699-9167			X	<i>[Signature]</i>
1 CTC	TONY TOGIAI	✓	699-7526	Jayopher Togiai			<i>[Signature]</i>
1 APECS	EPHRAIM TANGHAL	✓	699-5859	apecs96799@gmail.com		✓	<i>[Signature]</i>
1 APECS	JOELL LOGSIN	✓	699-5859	apecs96799@gmail.com		✓	<i>[Signature]</i>
1 APECS	JOEL BASILIO	✓	699-5859	apecs96799@gmail.com		✓	<i>[Signature]</i>
1 APECS	GLICERIO AMIT	✓	699-5859	apecs96799@gmail.com		✓	<i>[Signature]</i>
1 MIKAELE'S ENTERPRISE	MATHEW MIKAELE	✓	699-5934			✓	Matthew A. Mikale
1 "	TUPOLO LEOMITI		"				
1 MECCINELL	FERNANDO NAVARRO	✓	699-2239			✓	
1 DOWELL	TOETAU POUFI	✓	699-2239	Poufi.Tufuga@macrow-60.nz		✓	
1 TUFUGA	TUFUGA	✓	731-7136			✓	
1 SAMOA NEWS	LEUA A'ONO	✓	258-2988			✓	
1 SAMOA MARITIME	GEORGE PORSKY	✓				✓	
1 SAMOA MARITIME	MITCH SHIMASAKI	✓				✓	
1 SAMOA MARITIME	GUS GREY	✓				✓	
1 MAYOR Fagaalu	USO IAGO'O	✓	633-4755			✓	633-4755
1 LOCAL RESIDENT	SIMA VAITAUTOLU	✓	258-6910			✓	258-6910

CONTRACTOR

755
258-6910

STORM WATER CONTROL TRAINING

JULY 23-24, 2012

Organization	Name:	Registered:	Contact #.	Email Address	Tuesday	Wednesday	Sign-In
1 ARMY RESERVE	FAIMA LAVATAI JR. TUIMOA		731-8063	faima.lavatai@us.army.mil			
1 MAYOR LAULII	MULTAUAUPELE		644-4074				
1 CITIZEN	VERONICA VAOUILI		256-5387	<i>Veronica Vaouili</i>	<i>V.V.</i>		<i>Veronica Vaouili</i>
1 CITIZEN	KISO GASIO		256-5387	<i>Kiso Gasio</i>	<i>KG.</i>		<i>Kiso Gasio</i>
1 CITIZEN	YVONNE BALLARD		699-1716	<i>Yvonne Ballard</i>		<i>Y</i>	<i>Yvonne Ballard</i>
1 CITIZEN	STEFANNY TALIGA						
1 CITIZEN	ALBERT SILIGA		770-1185	<i>albertsiliga@gmail.com</i>	<i>AS</i>		

Total attendances 49

8 HW/ASEPA STAFFS (Faamao, Nera, Kuka)

Fai'ai A. Feleky Jr.

Luano Leasiolagi

Happy Trucking -

633-2353 ✓

770-4328 luano.leasiolagi@gmail.com ✓