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Storm Drain Maintenance Program Under Development at NAVFAC Hawaii

PEARL HARBOR-HICKAM, Hawaii – Naval Facilities Engineering Command (NAVFAC) Hawaii Facilities and Environmental (JB4) is leading an initiative to implement a storm drain maintenance program which will service federal facilities throughout Joint Base Pearl Harbor-Hickam (JBPHH).

“We are currently implementing strategies to improve the way we respond to storm drain related issues,” said Facilities Management Division Director Lt. Cmdr. Marcus Williamson. “Our aim is to assist our customers in understanding how emergency maintenance affects our operations and how preventative action could alleviate urgent situations.”

Storm drain maintenance and emergency response is a deep-rooted issue that traces back many years, but it wasn't until this past year specific actions were taken to plan a strategy going forward.

The storm drain problem was particularly demonstrated during the forty-days-of-rain in early 2006, when the Hawaiian Islands received a record amount of rain which affected all areas of the base, including an especially vulnerable location for flooding on the Pearl Harbor Naval Shipyard. Over the years, these types of emergency service calls became part of a regular occurrence for NAVFAC Hawaii causing the customer anxiety, command employees overtime and extra work, and the government unforeseen costs.

“When it rained everyone was concerned about storm drain clearance and potential flooding throughout the base and funding was discussed to eliminate these fears,” said Production Division Deputy Chetwin Sakanoi. “However when the weather was dry for long periods of time, the desire to identify funding for storm drain maintenance and future actions evaporated and dollars were used for other more immediate problems.”

Realizing the prevalence of this issue throughout the Navy's property on Oahu (active and Public-Private Venture housing areas) it became evident that the storm drain system needed to be surveyed. In September 2011, a \$1.8 million contract was awarded to Element Environmental LLC to determine which storm drains were most predisposed to flooding and blockages. Subcontractors, Environmental Science International Inc. and Control Point Surveying Inc., began compiling work plans and collecting and updating information to prepare documentation prior to the field work portion of the investigation. The contractors along with command environmental personnel launched their field

(more)

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2-2-2-2 Storm Drain Maintenance Program Under Development at NAVFAC Hawaii

work inspections in August 2013 at Camp Stover and they are currently continuing storm drain surveys in Lualualei and West Loch.

The contract involves a comprehensive examination of Navy storm drain systems to include: (1) surveying the locations and elevations of system components, (2) measurements and observations of dimensions, configuration and piping materials, (3) assessing condition and (4) measuring the amount of sediment within the drains. The final report will contain a complete assessment of the condition of the drains concerning collapsed lines due to debris caused blockages, flooding etc. The project consists of 1,100 manholes, 4,200 drain inlets connected by approximately 600,000 feet of piping. The final database will be recorded into the Georeadiness Portal to update the storm drain system maps. There are approximately 6,000 storm drains throughout JBPHH which require evaluation.

“The effort is currently approximately 15 percent complete,” said Lead Project Engineer Anne Hong. “The contractors have surveyed approximately 1,200 inlets so far, but have not started on sampling yet. This work aligns with our goal of meeting National Pollutant Discharge Elimination System permit requirements for inspections and maintenance and our field work is expected to continue through 2015.”

In the fall of 2013, various sections of NAVFAC Hawaii determined that serious consideration was needed to explore solutions to the storm drain issue at JBPHH. Leaders from the Facilities Maintenance Division (FMD), Facilities Engineering and Acquisition Division (FEAD), Environmental (EV), Public Works (PW), Base Support Vehicles and Equipment (BSVE) and Utilities Energy Management (UEM) convened and agreed to proceed with this effort by taking a preventative approach and identifying areas of JBPHH that required the most storm drain maintenance and emergency response.

A ‘Just Do It’ initiative was formulated as a NAVFAC Hawaii pilot project to create a means of preventing debris from entering key, flood prone storm drain manholes. In August 2013 the Facilities Sustainment (FS) division team constructed and mounted two prototype baskets just below the drain entrance to collect leaves and other natural materials and sediment. Each was constructed in-house of steel, and designed for simple removal by hand when needed to prevent storm drain obstructions.

The two baskets were monitored over a three-month period between September and November 2013. This pilot project was effective in keeping leaves and other foliage from collecting in the storm drain; however it appears that further study is needed due to the amount of sediment that was able to bypass the basket. The FS team is in the process of installing an additional seven baskets in different areas of the base for evaluation.

“NAVFAC is committed working towards a better method of averting storm drain blockages through preventative actions.” said Sakanoi.

From the fall of 2013 into early 2014, the leaders from the FEAD, EV, PW BSVE and UEM met to reform how in-house forces operated and provided storm drain services. It was decided that the next step would possibly be either the solicitation of a contractor to regularly maintain storm drains or to develop a permanent reoccurring maintenance agreement using in-house forces. The group began constructing a written document, an interim Memorandum of Agreement (MOA), concerning the cleaning and maintenance of storm drains. The MOA outlines actions and responsibilities for each of

(more)

3-3-3-3 Storm Drain Maintenance Program Under Development at NAVFAC Hawaii

the command's departments in an emergency situation as well as some regular preventative maintenance. It also includes direction on how a storm drain that may contain hazardous material should be handled by the EV team.

“We are collectively building a foundation for addressing storm issues,” said Williamson. “The final storm drain survey report will be an invaluable resource towards meeting our objective of contracting JBPHH’s drainage systems to a fully functional maintenance program.”

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Photos/cutlines: High-resolution image is available. Please contact Denise Emsley.



140408-N-YL258-011

PEARL HARBOR-HICKAM, Hawaii (April 8, 2014) A welder from Naval Facilities Engineering Command Hawaii's Facilities Sustainment Division installs a handcrafted steel basket into a storm drain entrance near a large banyan tree on Joint Base Pearl Harbor-Hickam April 8. (U.S. Navy photo by Sila Manahane, NAVFAC Hawaii Public Affairs/Released)



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PEARL HARBOR-HICKAM, Hawaii (April 8, 2014) Two Naval Facilities Engineering Command Hawaii Facilities Sustainment employees excavate debris consisting of leaves, silt and stagnant water from a storm drain April 8 near a historic home on Joint Base Pearl Harbor-Hickam. (U.S. Navy photo by Sila Manahane, NAVFAC Hawaii Public Affairs/Released)



140408-N-YL258-040

PEARL HARBOR-HICKAM, Hawaii (April 8, 2014) Two Naval Facilities Engineering Command Hawaii Facilities Sustainment employees excavate debris consisting of leaves, silt and stagnant water from a storm drain April 8 near a historic home on Joint Base Pearl Harbor-Hickam. (U.S. Navy photo by Sila Manahane, NAVFAC Hawaii Public Affairs/Released)

For more information about NAVFAC Hawaii and/or Naval Facilities Engineering Command visit: www.navfac.navy.mil.

Naval Facilities Engineering Command: The Facilities and Expeditionary Combat Systems Command

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