

ATTACHMENT J

ATM Reports: Executive Summaries



Marina Due Diligence Assessment Simpson Bay Yacht Club Marina

St. Maarten, N.A.

DRAFT EXECUTIVE SUMMARY

Prepared For
Island Global Yachting
Ft. Lauderdale, Florida

NOVEMBER 15, 2006

EFTA01119825

EXECUTIVE SUMMARY

A marina assessment was conducted by Applied Technology & Management, Inc. for Island Global Yachting to assist with the review of the facilities at Simpson Bay Yacht Harbor, St. Maarten, N.A. The review concentrated specifically on the items of condition of the existing physical facilities and environmental issues. The major features on this site include the marina, a two-story condominium office building, separate gate houses, a restaurant and outdoor eating area, a fuel dock building and a maintenance shed.

Marina Engineering Summary

Overall, the property is in fair condition. It appears that regular maintenance has been conducted on the upland elements, but the docks/piers and utilities are showing some significant deterioration and deferred maintenance, particularly for a facility that was initially constructed in 1989 (17 years ago).

ATM conducted an engineering evaluation of the marina structures and utilities. The following highlights the findings of this effort.

- *Site Exposure* - The marina docks and amenities are generally well-protected from prevailing environmental forces. Simpson Bay is sheltered from the effects of offshore wave conditions; therefore, only wind-generated waves within the bay can affect the site. Snoopy Island and the Bay geometry limit exposure to the NNE through SE directions. The slips are largely oriented ENE-WSW direction, which is generally bow into the prevailing winds. Tides in Simpson Bay average 1 ft. Storm surge during hurricanes can increase water levels on the order of 1 m, according to regional reports by Alkyon. The most exposed slips (megayacht med-moors) would be anticipated to be unoccupied during hurricane season, although reports from previous storms (Lenny, Luis, etc.) indicate that smaller vessels remained in the marina.
- *Navigable Depths and Sedimentation Potential* – Sedimentation in the marina basin has historically only been a localized problem and is believed to be primarily due to stormwater runoff carrying sediments into the marina basin from the surrounding areas and effects of significant tropical storms. According to the marina operators, the basin has only been dredged twice in the past 8 years. Records received from the owners were limited; however, they indicated dredging of ~6,000 cy in 2003 to deepen the entrance approach behind Snoopy Island and 31,000 cy in 1999. Over the effective plan area of the marina and immediately surrounding channels (~ 10 acres), this equates to less than 0.25 ft/yr accumulation.

Three depth surveys provided by SBYC dated December 21, 2001 and July 25, 2003 were compared with a spot sounding check by ATM on September 26, 2006. The SBYC surveys are in feet *assumed* relative to low water datum. ATM corrected our lead line soundings to approximate low water based on predicted tides at St. Barthelemy. Comparison of ATM to the SBYC surveys reveals slight changes in the recorded mean low water depths, notably some shallowing in A Dock and A/B fairway areas. Docks B and C appear more stable. Marina management reports the need for some maintenance dredging in 2006. ATM's survey check indicated some areas of 7.5-10 ft under A Dock, with depths in the med-moor area of 12-16 ft. This should be included in the present owner's operating budgets and should be confirmed.

An issue for future maintenance dredging is disposal of the materials. Previous events had included material disposal on Snoopy Island, which resulted in lower unit costs of \$5-7/cy. The requirement to dispose of material offshore could easily increase unit dredging costs to \$20+/cy.

- *Shoreline Stabilization* – The shoreline within the property limits extend approximately 300 ft. The shoreline is stabilized with a mix of cast-in-place and pre-cast concrete panels. Specifics of the construction were not determined, but it appears to be in average/fair condition. Low water depths are generally less than 3 ft along the west portions of the shoreline. Dredged depths approach 9-10 ft along the east portion of the shoreline, where larger vessels berth adjacent to the high-speed fuel dispenser. There was no apparent loss of soil observed along this deeper portion of the shoreline. The shoreline structures should be monitored frequently for any potential failures and/or safety concerns to pedestrians and repairs made promptly.
- *Marina Structures Overview* - The marina consists of fixed concrete docks supported by reinforced concrete pile caps (painted blue) and driven concrete piles. Dock main walkways and fingers have a pre-cast and poured in place concrete decking surface with integral utility raceways. The raceways are accessed via cast concrete panels in the deck. Portions of the decks are dressed with ceramic tile inlays and different concrete finishes.

The site visit consisted of observation from the fixed docks as well as by inflatable tender, which was provided by the marina. ATM also reviewed previous structural assessment reports by CCS who conducted a personal inspection of the property in August 2005. The facilities were reported to be generally in average condition with minor instances of deferred maintenance noted during the inspection.

Based on our observations, the docks appear to be in poor condition. Several concrete piles and pile caps are missing and/or are deteriorating, leaving the steel rebar exposed and vulnerable to corrosion and loss of structural strength. The concrete surfaces of the docks are cracking and in some areas leaving holes and potential tripping hazards, particularly where the utility chase covers are cracked or broken.

- *Marina Utilities Overview* – The marina offers three phase and single phase shore power in a variety of configurations. Power is provided to the dock systems from two different Government transformer vaults. One vault provides 480 volt, three phase power to Dock A, while the other provides 208/120 volt three phase power to Docks B, C, and the upland development. Power distribution and condition for the upland elements appears generally adequate, with the exception of some potential safety issues related to exposed/loose tree wiring at Jimbo's. This wiring should be further inspected for safety compliance.

During the site visit, approximately 19 different types, styles or configurations of power pedestals were observed as being used on Docks A, B and C. Dock A has been renovated several times during the last 5 years in order to provide power that will accommodate the larger yachts. All wiring as well as the power pedestals are relatively new and therefore are in good condition. The only discrepancy noted was the fact that the total amount of power available to dock A via the power company's 600 kva transformer is far less than the total connected load of approximately 1100 kva. Wiring and pedestals on Docks B and C are more varied and in fair to poor condition. Significant dock electrical system issues are as follows:

- The most dangerous situation identified during our site visit was the cable taps and splices that have occurred in the cable trenches. The leakage of electrical current through these deteriorated splices not only causes damage to the boats through electrolysis, it also poses a life threatening situation to people that might be in the water working on their boats or walking barefoot on a wet dock. The repair of electrical taps and splices in the cable trenches is of paramount importance to life safety. There are an estimated 150 cable splices and taps located primarily on Docks C and B that should be replaced.

- Many of the boats that had plugged into the pedestals with their power cabling have created unsafe conditions. The extensive use of plug adapters and undersized cabling pose a fire hazard by potentially overloading the cables to the boats. In more than one case, a 16 gauge extension cord (rated at 13 amps) was plugged into a 50 amp receptacle.
- Replacement and repair of the broken power pedestal equipment would prevent further damage to the pedestal and perhaps avoid an electrical accident. Approximately 17 pedestals were identified as needing minor repairs that would include replacing mounting bolts, replacement of circuit breakers, and replacement of broken receptacles.
- As pedestals are being replaced, the newer ones are usually provided with multiple power and voltage configurations that would have the potential to overload the existing circuits. A load survey of all existing circuits should be made during peak season to determine the existing capacity of electrical system to the docks. This load survey should be accompanied by an accurate single line diagram showing the locations and sizes of cabling, supply transformers, fuses and protective circuit breakers. The results of this survey along with projections of future boat types and associated power requirements would dictate the extent of renovations that can be made to the existing dock system.
- Design of a new distribution system with added capacity for the larger boats (mega yachts) would be very difficult due to the limited space within each dock system where cables can be routed. Most of the cable trenches are completely filled and so additional means would be required in order to provide a new or increased capacity to Docks B and C.

There is no marina pump out available and as such this promotes dumping in the marina basin. However, when evaluated against the stormwater/sewer outfalls present in Simpson Bay, this does not present a significant water quality issue. Potable water is provided at the pedestals and metered. Diesel and gasoline are provided at the fuel dock and diesel is also provided at a dispenser east of the main dock access. Water and fuel utilities are discussed further in the environmental section below.

- *Layout and Potential Expansion* – The marina reports 120 slips. ATM's review indicates a total of 6,820 lf of leasable space (including 2 unavailable/owned slips C22 and C24). This includes berthing for approximately 16 megayachts (> 80 ft) and 98 small craft. The marina layout and fairways are generally adequate for current marina operations. By current minimum fairway standards, the interior double loaded slips are limited to 50-55 ft LOA, although the widths of these slips are narrower than current standards. The slip widths at 30-32 ft were likely sized by 1980s standards for 35-40 ft sailboats. The majority of vessels are sailboats under 50 ft. Some catamarans require wider berths and currently occupy two slips, and it is assumed that marina management needs to selectively berth vessels exceeding 35-40 ft to allow adequate berthing width in the double loaded slips.

It is noted that with future pier reconstruction comes the opportunity for reconfiguration of the marina basin. Though the facility may be adequate for current usage, accommodation for additional large slips is possible to provide berthing for larger yachts and wider sailboats (catamarans). The megayacht med-moor arrangement could be improved with alongside berthing in future expansions.

- *Recommendations and Deferred Maintenance Cost Estimate* – The marina's oldest components are 17 years old. Though some maintenance and improvements have occurred, the marina piers and electrical system have some significant problems that need attention. General cost estimates for immediate repair (life-safety), 0-5 year repair/replacement, and complete replacement (more than 5 years into the future) of the marina is attached. This

represents in-kind replacement (with appropriate updates, inclusion of pumpout, etc.) and does not include reconfiguration or expansion.

In addition, the following items are generally minor in nature and most can be handled with in-house staff or local contractors, as part of normal facility maintenance:

- ❖ Add safety ladders at miscellaneous locations around the marina basin.
- ❖ Monitor condition of power and water pedestals annually. Reattach loose pedestals to the decking with proper bolts. Replace any inoperable elements or replace pedestals as necessary.
- ❖ Replace cracked and broken concrete trench/utility access covers. These create potential tripping hazards for pedestrians.
- ❖ Continue general monitoring and replacement program of loose or damaged cleats and bollards, focusing on the large vessel docks (A Dock).
- ❖ Consider addition of more fire suppression equipment (i.e., portable foam and water cart, similar to those found at www.marinafires.com or similar. One cart should be maintained at the foot of the docks. Add extinguishers per NFPA 10 requirements at nominally 150 ft intervals along the docks.

It should be noted that deficiencies highlighted above were identified during this site investigation and interviews with the marina staff. Immediate expenditures indicate repairs or deficiencies, which pose a danger to public safety or are in violation of good practice. Also, if year 1-5 maintenance items are left uncorrected, these can lead to further deterioration of the facilities and increase corrective repair costs. This may also lead to a decrease in occupancy and impact marketability. Items noted should be handled on a priority basis, with life safety issues taking precedence over routine preventative maintenance.

Upland Structural Engineering Summary

The Simpson Bay Yacht Club site includes a two-story condominium office building, two gate houses at the entrance into the dock area, a maintenance/storage facility, a bar/restaurant with outdoor pool area, and a building at the end of C Dock that houses the fuel dispensing operation.

The buildings have sloped metal roofs which are covered with red barrel tiles or corrugated FRP and shingles that are supported by concrete or wood framing. The ceiling of the bottom floor of the two-story condominium office building is constructed of suspended metal grids supporting acoustic ceiling tiles. The exterior of the buildings consists of concrete walls and concrete masonry block covered with painted stucco. The floors are concrete or wood decking and some are finished with ceramic tiles. The restaurant building structure consists of timber framing and corrugated FRP and shingle roofing. The wooden floor deck has several elevated wooden seating areas.

- *2-Story Condominium Office Building* – The ~1,560 sq ft marina main office is located within the condominium office building, which is adjacent to the main pier. There is exposed rebar apparent along the ceiling on the second floor of the West side of the building. Evidence of water stains is apparent along the first and second floor ceilings on the East side of the building.
- *Gate Houses* – Located near the marina entrance there are two separate 480 square foot gate house buildings, separated by a covered walkway. The East gate house building is occupied by the Dockmaster's Office and the West gate house is rented by a yacht charter service. The roof of the East gate house appears to have had some repairs attempted due to a leaky air conditioning unit. There are also some water stains evident on the ceiling. The floor was constructed too low (same level as exterior) and reported to develop puddles during storms, as

several cracks were also noted. The concrete floor in the West gate house has some cracks and holes that need to be sealed and the window exterior needs to be refurbished.

- *Jimbo's Bar & Restaurant* – The restaurant was constructed in 2002 which includes both enclosed and outdoor areas with a pool and swim up bar. The roof has some pin hole leaks and there are some water stains evident along the ceiling.
- *Fuel Dock Building* – An approximately 650 sq ft fuel dock building is located at the T-head of C Dock which houses the fuel dispensing operation. The concrete floor appears to have been raised approximately 4-6 in above the dock. There is some corrosion apparent along eave end of the metal roof. There are several rusting nails along the exterior walls.

Environmental & Upland Infrastructure Summary

In addition to the engineering evaluation of the marina structures at Simpson Bay Yacht Club, the marina was inspected for operations and conditions which present the most common environmental concerns. The components of these inspections are listed below with a brief summary of out findings, followed by several recommendations for additional investigation:

- *Potable Water* – Water is supplied to the marina via the public water system. No significant deficiencies were noted with the water supply to the marina. All potable water uses at SBYC are metered to make sure there are no unaccounted leaks or usage. Water is charged at the marina at \$0.12/gallon.
- *Sanitary Wastewater* – No vessel pump out is provided at SBYC. Despite limited potential usage, provision of a waste pump out is always recommended as well as enforcement of a "no discharge" policy within the marina basin. Sanitary wastewater from the offices and upland facilities is reportedly discharged to septic systems on the upland. No known problems exist with the septic systems. The condominium regime at Plaza del Lago maintains the septic systems. Jimbo's Bar/Restaurant has individual septic systems for the facility.
- *Stormwater Runoff* – Stormwater runoff does not appear to be a significant problem within the limits of the property. However, it is believed that stormwater runoff from adjacent areas to the project site contribute sediment and contaminants to the local waters, and thus may impact water quality and sedimentation in the marina.
- *Fueling System* – Sol is responsible for providing fuel and owns and maintains the storage tanks, fuel supply piping, and dispensers. The supply piping and dispensers were replaced in 2003-2004. The dispensers are in good condition and include 2 for diesel (high speed capability, one on land and one on the fuel dock) and 1 dual-product unit on the fuel dock. The UST construction material and tank capacity was not verified. Varied sources of documentation revealed that the diesel tank holds 10,000 gal and the gasoline tank holds 4,360 gal. These should be verified prior to purchase. There appear to be adequate electric and manual shutoff valves to stop the flow of fuel in an emergency. There are apparently no local regulations that would require remediation and/or replacement of the USTs; however, the UST release described above should be further investigated. No soil contamination in the vicinity of the waste oil storage areas was observed.
- *Waste Management* – Solid waste receptacles are provided at the foot of the piers. These receptacles are emptied daily by marina staff. The collected solid wastes are stored in a dedicated storage area at the east end of the premises and removed periodically by a local waste hauler. Waste oil storage and general facility maintenance equipment is also located in this area.
- *Sediment, Water, and Soil Quality* - During the period September 26-27, 2006 sediment, water, and soil samples were collected from 4 locations each within the Simpson Bay Marina. The

analytical results of the sediment, surface water, and soil sampling effort undertaken suggest the following:

- Sediment Quality - Antimony, arsenic, copper, mercury, silver, and zinc concentrations were elevated in marina sediments. Silver concentrations are included because of elevated MDL values. No PAH compounds or PCB arochlors were detected in any of the sediment samples. TOC concentrations in all of the sediment samples were elevated. Tri-n-butyltin concentrations exceeded the USEPA lower screening value by two orders of magnitude in each of the samples.
 - Water Quality - Copper and selenium concentrations in surface water samples were elevated. Copper concentrations in each surface water sample exceeded both the acute and chronic U.S. EPA water quality criteria. Selenium concentrations exceeded the chronic water quality criteria value but not the acute exposure value. No PAH compounds were detected in any of the surface water samples. No dissolved phase BTEX compounds were detected above their respective MDLs in any of the water samples. Nutrients do not appear to be a significant concern in the marina waters. The copper source is likely leaching from bottom paints. The selenium source is unknown but likely from a natural source.
 - Soil Quality - Five PAH and one BTEX compound were detected in elevated concentrations in soil sample SBM-06SS. The reported analytical concentrations and weathered petroleum hydrocarbon odors noted during collection of soil samples in the vicinity of the diesel fuel UST indicated that a release of unknown quantity has occurred. Groundwater in the vicinity of the UST has likely been impacted as well. The extent and geometry of any groundwater contaminant plume that may be present is unknown.
- *Site Electrical System* – The main electrical substations are operated by the Government and were not accessible for observation during our visit. Since these substations are not within the control of the marina, it is assumed that any power upgrades required for the docks or buildings could be accommodated by the Government.
- *Parking* – Only 10 parking spaces are located within the SBYC property, adjacent to Jimbo's restaurant. Staff and guest parking is generally first-come, first-served and within the available surface parking lots in the Simpson Bay/Plaza del Lago development.
- *Areas of Environmental Concern* – During the inspection, a few areas of environmental concern were identified. ATM recommends the following for environmental compliance:
- Coordinate with Sol regarding additional sampling and remediation, if necessary, of the fuel product found during ATM's sampling effort.
 - A maintenance dredging fund should be established for potential post-tropical storm dredging in the basin and in particular, the entrance channel area that may occur. A regional dredged materials management approach should be considered for all facilities within Simpson Bay.
 - Additional fire suppression pump/foam carts should be considered to supplement the extinguishers that are placed around the docks.

**PRELIMINARY PROBABLE REPLACEMENT COST ESTIMATE
SIMPSON BAY YACHT CLUB**

Miscellaneous Costs					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes/Assumptions
Mobilization	1	EA	\$500,000	\$500,000	Dependent upon multiple factors
Sub-Total:				\$500,000	

Megayacht Slips (A Dock)					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes/Assumptions
Fixed Docks	7,529	SF	\$150	\$1,129,350	main walkways and fingers
Marina Power/Water - Pedestals	16	EA	\$35,000	\$560,000	3- & 1-phase supply to 480V at specific slips
Fire Suppression - Cabinets	3	EA	\$850	\$2,550	Spaced at ~150' per NFPA
Sub-Total:				\$1,691,900	

Small Craft Slips (B/C Dock)					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes/Assumptions
Fixed Docks	14,258	SF	\$120	\$1,710,960	main walkways and fingers
Marina Power/Water - Pedestals	98	EA	\$7,000	\$686,000	Typically 120/208V
Fire Suppression - Cabinets	8	EA	\$850	\$6,800	Spaced at ~150' per NFPA
Marina Sewer Pumpout - Fuel Dock	1	EA	\$70,000	\$70,000	discharge to local septic system
Fuel Dispensing - Diesel/Gasoline	1	EA	\$400,000	\$400,000	located on land and fuel dock (Sol responsibility)
Sub-Total:				\$2,873,760	

Building Costs					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes/Assumptions
2-Story Marina Office Building	1,506	SF	\$100	\$150,600	sf from plans
Gate Houses	960	SF	\$100	\$96,000	sf from plans
Fuel Dock Building	145	SF	\$75	\$10,875	sf from plans
Maintenance Shed	300	SF	\$65	\$19,500	sf from plans
Jimbo's Bar and Pool	1,700	SF	\$75	\$127,500	sf from plans
Sub-Total:				\$404,475	

TOTAL:				\$5,470,135	
Contingency		15%		\$820,521	
TOTAL ESTIMATED REPLACEMENT COSTS:				\$6,290,656	

General Notes/Assumptions	
1.	This estimate is conceptual in nature and not intended for use in construction bidding.
2.	Replacement costs do not include costs of shoreline stabilization or basin excavation.
3.	Main upland substations not included, they are under Government control

**DRAFT ESTIMATE OF PROBABLE REPAIR COSTS
SIMPSON BAY YACHT CLUB**

IMMEDIATE (LIFE SAFETY COSTS)					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes/Assumptions
<i>Fixed Docks</i>					
Main Walkways	9,110	SF	\$20	\$182,200	
Finger Docks	1,220	SF	\$20	\$24,400	
Concrete Surface	10,300	SF	\$5	\$51,500	
Utilities - Repair	1	LUMP	\$15,000	\$15,000	Provided by Epic Engineering
Total Immediate Costs				\$273,100	

YEAR 1-5 COSTS					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes/Assumptions
<i>Fixed Docks</i>					
Utilities - Repair/Maintenance	1	LUMP	\$350,000	\$350,000	Provided by Epic Engineering
<i>Upland Facilities</i>					
Condominium Office Building:					
Misc Repairs	1,506	SF	\$5	\$7,530	
Gate House Buildings:					
Repair Roof	960	SF	\$8	\$7,680	
Repair Floor	480	SF	\$2	\$960	
Repair Concrete Walls	960	SF	\$5	\$4,800	
Repair Window Exterior Trim	10	LF	\$3	\$30	
Jimbo's Bar & Restaurant:					
Repair Roof	1,700	SF	\$6	\$10,200	
Fuel Dock Building:					
Repair Roof	145	SF	\$8	\$1,160	
Replace Hardware	145	SF	\$5	\$725	
Total Year 1-5 Costs				\$383,085	

TOTAL:	\$656,185
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NOTES
1. Estimated costs are based upon limited information. Refinements and additions should be anticipated as additional information becomes available.
2. Above estimates are for informational purposes only and should not be used for bidding or construction purposes.
3. SF estimates include covered and open (deck) portions of structures.



Marina Due Diligence Assessment Virgin Gorda Yacht Harbor

Virgin Gorda, British Virgin Islands

DUE DILIGENCE SUMMARY

Prepared For
Island Global Yachting
Ft. Lauderdale, Florida

NOVEMBER 14, 2006

EFTA01119834

DUE DILIGENCE SUMMARY

A marina assessment was conducted by Applied Technology & Management, Inc. for Island Global Yachting to assist with the review of the facilities at Virgin Gorda Yacht Harbor, Virgin Gorda, British Virgin Islands. The review concentrated specifically on the items of Condition Assessment of existing physical facilities and environmental issues. The major features on this site include the leased shops, restaurant, and grocery store, boat storage and repair facility, marina office and chandlery, fixed docks, basin perimeter (bulkhead), restrooms, and fuel storage facility.

Marina Engineering Summary

This marina was constructed in the 1970's and is in generally good condition, save for the concrete bulkhead that surrounds the basin. The bulkhead remains from the original marina development and is in very poor, failing condition. The marina piers were replaced in the mid 1990's and are in good condition. These piers utilize pre-cast concrete elements from PresTCon out of Trinidad, the same component supplier as on the new Yacht Haven Grande marina.

The marina includes three main dock trees, a single marina pier for larger vessels, and side-tie mooring along the perimeter. It is noted that the side-tie slips along the perimeter are used mainly by local fisherman and supply boat operators. No utilities exist for these slips. Main dock trees and the large vessel pier provide standard marina power and water service via utility pedestals which are in fair condition. Fuel is available at the marina. A grocery, restaurant, and conglomeration of small retail stores exists on the property and nicely compliments marina activity and operations.

In addition to the marina wet slips, a large vessel service yard is located on an upland portion of the site adjacent to the marina. This yard has capacity to store some ~300 vessels and is widely recognized in the region for high quality service offerings. On the opposite side of the marina basin from the service yard is a large field which is used by locals for outdoor recreation. The upland facility at the marina is noted as the center of activity for the entire community.

Expansion and redevelopment opportunities at this site are many due to the large upland space available. This may include the development of additional upland structures and/or an expansion of the marina basin to augment slip offerings.

Specific areas of required maintenance include:

- Immediate replacement of ~2,220 linear feet of concrete bulkhead.
- In order to maximize the number of useful slips in the marina, construction of marina utilities along the perimeter of the basin should be considered.
- Repair/replacement of marina dropwell which has significant rust on steel bulkhead and significant concrete spalling and cracking of travel pad/cap
- Consider addition of marine sewage pumpout

Costs for this improvement are estimated to be approximately \$1,500/linear foot of bulkhead and approximately \$7,000/slip for construction of perimeter marina utilities (~17 slips). This yields a total cost of \$3.33MM for bulkhead repair (assuming a coated steel sheet pile bulkhead driven in front of existing wall & new concrete cap) which is required immediately and \$119,000 for utility improvements to increase the number of useful slips in the basin (utility improvements suggested, but not required).

Costs to improve the dropwell structure may range from \$10,000 for concrete repair and monitoring to \$500,000 for replacement of bulkhead and piers. These costs may be absorbed into redevelopment plans that shift the marina yard to the opposite side of the basin and call for the existing dropwell/yard to

be converted to an alternate upland use. A summary of these probable costs are listed on the attached spreadsheet.

Installation of a marine sewage pumpout may cost on the order of \$20,000.

Maintenance dredging does not appear to be an immediate need.

Environmental & Upland Infrastructure Summary

In addition to the engineering evaluation of the marina structures, ATM also analyzed the environmental condition of the marina and surrounding property, associated infrastructure, and structures on the property. Each of these components is listed below with a brief summary of our findings, followed by several recommendations for additional investigation:

- **Potable Water** – Currently, potable water is provided to VGYH via a 3" line from Little Dix Bay Resort. Due to ongoing expansion plans at Little Dix Bay, VGYH will be forced to connect directly to the municipal water system by March 2007. The piping and water meter are in place to make this connection with the 2" diameter water main. Given the size of this water main and the reported unpredictable pressure and flow of the municipal water, we concur with Sun Resorts plan to install high service pumps, 20,000 gallon storage tank, and chlorination system. Given peak potable water flows of about 12,000 gallons per day in June and July, the proposed improvements should provide an adequate supply of potable water. The current water rate is \$25/1,000 gallons and all uses at VGYH are metered.
- **Sanitary Wastewater** – All wastewater generated at Village Cay Marina is routed to the Little Dix Bay Resort sewer system via central lift station. Similar to the potable water supply, VGYH must remove this connection by March 2007. There is no municipal sewer system, so an on-site wastewater treatment plant must be installed. Sun Resorts has a preliminary wastewater plan in place, but must make a decision soon regarding treatment and disposal options. The on-site collection system and pump stations appear to be functioning adequately at the time of the inspection. According to long-term meter readings, about 42% of the potable water enters the sewer system.
- **Stormwater Runoff** – There are eight stormwater outfalls into the marina basin. However, only the outfall originating behind Buck's Grocery Store appears to contain offsite stormwater runoff and is the only one that is problematic. Buck's Grocery Store and the adjacent businesses have been flooded in the past due overflows from this system. The onsite drainage area has been regarded to help prevent this problem, but enlarging replacing the existing 10" line with a larger pipe will be necessary. There is no sewer system in the surrounding area, so it is likely that offsite stormwater runoff discharging to the marina basin is contaminated to some extent. Routing the offsite stormwater runoff out of the basin should be explored.
- **Fueling System** – The fueling facility consists of two above ground storage tanks - 8,000 gallon diesel and 2,000 gallon gasoline. There are no ground water monitoring wells at the tank farm. The Sol Group (formerly Shell) provides the fuel and is responsible for maintenance of the fueling system and two gas dispenser and two diesel dispensers. Currently, the tanks are fed from Little Dix Bay, but when the fuel tanks are moved to the other side of the marina to make way for the Investment Club development, they will be fed directly from Sol's fuel depot. The existing fuel lines will be replaced during this move. The existing lines are not that old but reportedly replaced older lines that were leaking. No evidence of above ground leaks were observed during the inspection, but additional investigation into the formerly leaking lines may be warranted.
- **Waste Management** – Two roll off dumpsters are provided for solid waste disposal. There is no used oil collection facility or other waste collection points, so it is assumed that all wastes

end up in these two dumpsters. The dumpsters are emptied at a municipal dump on Virgin Gorda.

- Water and Sediment Quality – The configuration of the marina basin and average tide range in the area precludes very good flushing. Rain events can result in turbid water from offsite stormwater runoff entering the basin. However, the water quality in the marina basin should be acceptable from an aesthetic standpoint at most times. Water quality and sediment samples were collected during a period of fairly dry weather during this due diligence effort. Results quantifying the water and sediment quality in the basin will be reported under separate cover when received.
- Structural Assessment – The upland facilities consist of the following:
 - A single story grocery store
 - A single story retail space
 - A two story fuel dock, marina reception building
 - A dive shop
 - The single story Chandlery (ship's store)
 - A maintenance shop
 - Two retail buildings (under construction)

The grocery store is a pre-engineered metal building. The exposed perimeter of the roof is in very poor condition and must be repaired. The electrical system within the building is in poor condition and should be replaced. The facility is "dated" and based on its overall condition should be replaced within 5 years.

The retail space consists of five apparent load bearing masonry, buildings which enclose an open courtyard. The interior canopy and roof overhangs of the buildings are in poor condition and need to be repaired and replaced. The storm drainage system including the above ground and above ground piping is severely undersized and the site drainage is poor. The facility is "dated" and based on its overall condition should be replaced in approximately 5 years. The fuel dock/ marina reception building, is a wood framed structure and in good condition with the exception of the wood deck and stairway which is in poor condition and should be replaced. The Chandlery appears to be in good condition and the Maintenance Shop is in fair condition.

- Site Electrical System – During the inspection, ATM conducted a cursory review of the electrical system at this site. Currently, all electrical power is routed through the Little Dix Bay Resort transmissions system. VGYH will have to be off of this system by March 2007 and connected directly with BVI Electric. The new transformer for this feed has been purchased by Sun Resorts and is now in place. The transfer over to BVI Electric should occur within the next several months. Much of the wiring and switch gear have been replaced, but there are several areas needing improvement and abandoned equipment that must be removed that are described in more detail in this report. A thorough detailed inspection of the electrical system is warranted. Backing up this system is a 500 kW 3-phase diesel generator in new condition that can handle the current electrical loads at VGYH. This generator is fed by a new dual-walled 1,000 gallon steel storage tank.
- Boat Storage Yard – This 13 acre area has a reported capacity of 280 boats and is served by a 70 tone Travel Lift. The boat storage yard is scheduled to be moved to the empty field on the east side of the property to accommodate construction of a village center by the Investment Club. The new 11 acre site is reported to be able to handle the same number of boats. This move will require a facility for the Travel Lift. Sun Resorts also indicated that they are considering a 150 ton Travel Lift to serve larger boats at the new storage yard area. Metered water and electricity are provided to the existing yard and all work, other than hull scraping, is accomplished by independent contractors under the direction of the boat yard manager. The contractors are responsible properly disposing of their wastes. At the time of

the inspection, the boat storage area was very clean with no evidence of significant spills of oil or other materials.

- Village Center Construction – The Investment Club has begun construction of a village center at the existing boat yard area. Sun Resorts indicated that utilities serving this development will be independent of the marina. Little additional information on this development was made available at the time of the inspection.
- Areas of Environmental Concern – During the inspection, several areas of environmental concern were noted. There is a potentially PCB containing transformer located adjacent to the restaurant that is slated to be abandoned in place when the new electrical connection is made. This transformer should either be drained of oil or removed from the site. At the Travel Lift, there is an area where boat hulls are pressure washed and scraped. This area drains to a sump that is pumped into the ocean. The results of soil sampling in this area will be provided under separate cover. Best management practices to contain paint chips and other contaminants from hull maintenance activities should be considered. In addition, the potential for contaminated soils from leaking fuel lines (that have been replaced) should be investigated as discussed above. This inspection did not include a lead-based paint or asbestos survey. While no obvious areas of lead-based paint or asbestos were observed, the age of the facility warrants additional investigation to verify their presence or absence.

ATM recommends the following tasks be undertaken. Probable costs for implementation are attached.

- Verify transfer of water, electric, and wastewater utilities from Little Dix Bay Resort. Prior to closing. Projected costs are attached should these tasks be undertaken by IGY.
- Conduct a detailed inspection of the electrical system to further delineate required improvements.
- Verify that the Investment Club development will have separate utilities.
- Conduct lead-based paint and asbestos survey.
- Institute marina best management practices in the area where boat hull maintenance occurs.
- Further investigate soils along the area where the old fuel lines were located to assure that contamination has not occurred.
- Remove or drain oil from potentially PCB containing abandoned electrical transformer.
- Repair exposed perimeter of the roof in grocery store and replace electrical system within the building. The facility is "dated" and based on its overall condition should be replaced within 5 years.
- The interior canopy and roof overhangs of the retail buildings need to be repaired and replaced along with repairing the storm drainage system. The facility is "dated" and based on its overall condition should be replaced in approximately 5 years.
- Replace the wood deck and stairway at the fuel dock/ marina reception building.

FINAL ESTIMATE OF PROBABLE COSTS - VIRGIN GORDA YACHT HARBOR UPLAND COMPONENTS

IMMEDIATE (LIFE-SAFETY) COSTS					
Component	Quantity	Unit	\$/Unit	Item Cost	Notes
<i>Upland Facilities</i>					
Bucks Grocery:					
Replace damaged roof framing	7,000	SF	\$26	\$182,000	
Replace electric panels & fuses	4	EA	\$6,500	\$26,000	
Replace Roof Drainage and Emergency Scuppers	500	LF	\$35	\$17,500	
Retail Space:					
Repair Canopy(Cols and Roof)	3,000	SF	\$16	\$48,000	
Replace roof (Back right corner)	2,000	SF	\$8	\$16,000	
Eliminate Mold/mildew in Vacant Space	1	LS	\$16,000	\$16,000	
Fuel Dock:					
Replace stairs/deck	500	SF	\$35	\$17,500	
Overall:					
Install Sanitary Sewer System	1	LS	\$180,000	\$180,000	Needed only if not completed by Sun
Install Potable Water Trmt. Sys.	1	LS	\$40,000	\$40,000	Needed only if not completed by Sun
Misc Env Investigations	1	LS	\$45,000	\$45,000	
Electrical Inspection & Misc	1	LS	\$35,000	\$35,000	
Total Immediate Costs				\$623,000	

YEAR 1 TO 5 COSTS					
Component	Quantity	Unit	\$/Unit	Item Cost	Notes
<i>Upland Facilities</i>					
Bucks Grocery:					
Replace soffit	4,000	SF	\$13	\$52,000	
Replace cracked sidewalks	1,000	SF	\$16	\$16,000	
Repair Mansard Fascia	250	LF	\$35	\$8,750	
Replace Clg (Tenant Respons?)	10,000	SF	\$13	\$130,000	
Retail Space:					
Replace Clg. In Little Dix (Tenant Respons?)	1,200	SF	\$13	\$15,600	
Replace storm drainage (above and below grade) and regrade	1	LS	\$45,000	\$45,000	
Correct moisture problems	1	LS	\$16	\$16	
Repair interior overhang	300	LF	\$150	\$45,000	
Fuel Dock:					
Repair stone work	1	LS	\$3,500	\$3,500	
Maint Facility:					
Repair Roof	1,500	SF	\$16	\$24,000	
Year 1 - 5 Costs				\$339,866	

YEAR 5+ COSTS					
Component	Quantity	Unit	\$/Unit	Item Cost	Notes
<i>Upland Facilities</i>					
Replace Grocery Building	10,000	SF	\$150	\$1,500,000	Shell Only. In lieu of 1-5 year repairs
Replace Retail Buildings	15,000	SF	\$150	\$2,250,000	Shell Only. In lieu of 1-5 year repairs
Year 5+ Costs				\$3,750,000	

TOTAL (0-5 YEARS): \$962,866

NOTES	
1. Estimated costs are based upon limited information. Refinements and additions should be anticipated as additional information becomes available.	
2. Above estimates are for informational purposes only and should not be used for bidding or construction purposes.	
3. Costs were increased approximately 200% to account for construction costs in the BVI.	



Virgin Gorda Yacht Harbour					
Estimate of Deferred Maintenance/Replacement Costs			Nov-06		
Marina Components	Quantity	Units	Cost/Unit	Item Cost	Year
STRUCTURES & PUBLIC AMENTITIES					
Bulkhead*	2,220	LF	\$1,500	\$3,330,000	0-5
Dropwell Repair**	1	LS	\$10,000	\$10,000	0-5
<i>Sub-Total</i>				\$3,340,000	
UTILITIES					
Electrical service, including pedestals	17	slip	\$7,000	\$119,000	0-5
Plumbing, including water, fire	17	slip	\$1,850	\$31,450	0-5
Communications at slips	17	slip	\$500	\$8,500	0-5
Fire System Repair/Maintenance***	1	LS	\$5,000	\$5,000	0-5
Marine Sewage Pumpout	1	LS	\$20,000	\$20,000	N/A
<i>Sub-Total</i>				\$183,950	
SOFT COSTS					
Engineering Design, Project Management	10%	% CAP	\$3,523,950	\$352,395	0-5
Development Fees/Permits	2%	% CAP	\$3,523,950	\$70,479	0-5
SUBTOTAL				\$422,874	
TOTAL				\$3,946,824	

*Assume bulkhead replacement. Alternative may be to install revetment in front of existing bulkhead and timber deck/walkway above. End costs likely less with revetment/walkway option. Revetment/walkway subject to spatial considerations in marina basin and on upland.

**Immediate repairs required for existing dropwell site. If dropwell is relocated to opposite side of basin, installation cost will be substantial higher, in the range of up to \$500,000. If dropwell is kept in existing location, additional repairs will be required within the next 10 years including replacement of sheetpile and cap. Estimated cost for this ~\$300,000 (150LF*\$2,000/LF).

***Includes minor repairs and maintenance only. If major piping repairs are required, costs may be much higher



Marina Due Diligence Assessment Village Cay Marina

Road Town, British Virgin Islands

DUE DILIGENCE SUMMARY

Prepared For
Island Global Yachting
Ft. Lauderdale, Florida

NOVEMBER 14, 2006

EFTA01119841

DUE DILIGENCE SUMMARY

A marina assessment was conducted by Applied Technology & Management, Inc. for Island Global Yachting to assist with the review of the facilities at Village Cay Marina, Road Town, British Virgin Islands. The review concentrated specifically on the items of Condition Assessment of existing physical facilities and environmental issues. The major features on this site include the hotel, restaurant, two associated condominiums, fixed docks, basin perimeter (bulkhead), administration offices and restrooms, and fuel storage facility.

Marina Engineering Summary

ATM conducted an engineering evaluation of the marina structures and utilities. The following highlight the findings of this effort.

- **Navigable Depths and Sedimentation Potential** – Depths in the marina basin range from 2-ft. to 28-ft. and are generally adequate for marina operations and berthing. ATM was provided a detailed depth survey from Mr. Paul Carrell, the Marina Manager. Depths were checked and provided to Mr. Carrell by Commercial Dive Services, an on-site diving company. This survey is presented in the Appendix to this report.

ATM also interviewed marina patrons with regard to marina depths and navigability within the marina basin. Owners of the Dreamaker, a 49-ft. sailboat moored on Dock A, indicated generally adequate mooring depths in the marina basin for their vessel. However, a ~7.5-ft. high spot in the entrance channel has proved difficult to traverse at low tide conditions. Marina patrons since 1994, the Owners of Dreamaker do not recall a specific dredging event between that time and the present. General observation around the stormwater outfalls entering the basin did not indicate any specific shoaling or sediment build up, but this should be investigated further and monitored.

- **Shoreline Stabilization** – The visible shoreline around the marina basin is naturally vegetated with no mechanical stabilization observed. The area beneath the restaurant deck was not observable from land or via kayak. ATM did not investigate the area on the eastern shore of the marina. There is some build-up of sediment along the south shoreline of the marina facility with specific shoaling/low water depths observed adjacent to the marina office. This area is currently used for dinghy/kayak/small boat mooring and affects ~1 permanent boat slip.
- **Marina Infrastructure Assessment and Structural Deficiencies** – ATM reviewed Piers A-C for general structural condition and deficiencies. This was done via visual observation from the deck and via kayak. Pier C was reported in the worst physical condition and Pier A in the best, due to shielding from wave activity from the east. The Piers are constructed of concrete and were designed/built using a steel piling with reinforced concrete caps and reinforced concrete deck components. Utility chaseways appear to have been cast into the deck components.

While Pier C exhibited definitive, easily observable deterioration of the concrete and reinforcing bar in decking components, all Piers exhibited similar deterioration upon observation from the water level via kayak. Concrete spalling, rusting, broken, and disintegrated rebar are typical throughout main walkway and finger decks in the marina. Topside deck cracking was observed in several locations throughout the marina also. Though mostly minor, some areas exhibited signs of significant cracks and stress on the concrete deck. Additionally, some pile cap deterioration was noted on all three docks. This included rust spots, concrete cracks, and spalling.

ATM understands that this facility was constructed in 1974. The estimated useful life of a concrete structure in a marine environment is ~30 years. As such and as evidenced by the significant deterioration of all the concrete piers at Village Cay, near-term complete pier replacement is indicated.

- Marina Utilities Overview – The marina offers three phase and single phase shore power in a variety of configurations. These offerings are generally well-distributed throughout the marina. However, shore power pedestals are dated and have been reported to be problematic by marina patrons (limited plug offerings at each pedestal/decreased flexibility for power at specific slips, plug collars are reported not to “fit” into pedestal housings, and shorts/minor fires have also been reports).

There is no marina pump out available and as such this promotes dumping in the marina basin. However, when evaluated against the stormwater/sewer outfalls present in the basin, this does not present a significant water quality issue. Potable water is provided at the pedestals. Diesel is available at the facility on the T-Head of Pier A. The dispensers are older, but appear adequate.

In general, with the need to replace the piers also is a need to replace the dated utilities at the marina facility.

- Layout and Potential Expansion – The marina layout and fairways are generally adequate for marina operations. Some catamarans require wider berths and currently occupy two slips. Access is also generally adequate with some shoaling reported in the entrance channel, which affects some larger sailboats (which make up a majority of vessels in this and other area facilities).

It is noted that with the needed pier reconstruction comes an opportunity for reconfiguration of the marina basin. Though the facility is generally adequate for current demand, accommodation for some larger slips is indicated to provide berthing for larger yachts and wider sailboats (catamarans). Expansion opportunities to the west should be investigated closely in terms of basin limits/submerged lands boundaries. Also, ATM understands that the slips along the eastern portion of the facility have been leased to an outside entity. Inclusion of these slips in a basin redevelopment could also provide additional layout options and flexibility.

- Recommendations and Deferred Maintenance Cost Estimate – As indicated previously the Village Cay Marina is 32 years old. Though some maintenance has occurred with respect to marina utilities, the marina piers have reached the end of their useful life and are in need of full replacement. In doing so, replacement of the dated utilities is also indicated. A general cost estimate for the replacement of the marina is attached. This generally represents in-kind replacement (with appropriate updates, inclusion of pumpout, etc.) and does not include reconfiguration or expansion.

Environmental & Upland Infrastructure Summary

In addition to the engineering evaluation of the marina structures, ATM also analyzed the environmental condition of the marina and surrounding property, associated infrastructure, and structures on the property. Each of these components is listed below with a brief summary of our findings, followed by several recommendations for additional investigation:

- Potable Water – Water is supplied to the marina via roof catchments with supplemental water from the public reverse osmosis water system. Potable water is stored on site in a 30,000 gallon cistern and is filtered and distributed throughout Village Cay via PVC piping served by two 5 HP service pumps. This arrangement is necessary due to extreme pressure changes in the public water supply due to cruise ship demands. A Dock, however, is fed directly from the public water system. Typical daily water usage at Village Cay approaches 7,000 gpd and the

rate for water from the public system is reported to be \$30/1,000 gallons. All potable water uses at Village Cay are metered to make sure there are no unaccounted leaks or uses. The water system appears adequate to meet the marina's water demands. ATM does recommend that a chlorinator be installed to assure that the cistern water is maintained in a sanitary condition.

- Sanitary Wastewater – All wastewater generated at Village Cay Marina is routed to the public sewer system via PVC gravity mains. Grease traps are utilized in the restaurant areas, but need to be better maintained. There are no sewage pump stations maintained on the property and no marina pump out facility is provided for the boaters. Treated wastewater from the public sewer system discharges well to the west of the marina basin and likely does not have much impact on water quality, but the inadequate collection system results in raw sewage discharges in the vicinity of the marina basin, especially after a storm event. Several marina users reported that the odor of raw sewage can be strong enough at times to warrant staying away from the restaurant and marina. Other than routinely cleaning the grease traps, no onsite improvements are recommended at this time. There is no charge for sewer service at this time and we recommend that a letter stating this will remain the case be obtained from Government.
- Stormwater Runoff – Stormwater runoff from the Village Cay property, along with much of the adjacent areas of Road Town, is directly discharged into the marina basin with no treatment. The onsite stormwater management system appears to be adequate enough to prevent localized flooding problems. Stormwater generated offsite that drains into the marina basin area is a cause for concern due to its commingling with untreated sewage. These discharges result in reduced water quality and unsightly conditions in the marina basin during periods of wet weather. One stormwater gut to the south of the marina is reported to carry diesel fuel in the stormwater runoff but this has not been verified.
- Fueling System – The fueling facility consists of a single 6,000 gallon above ground storage tank for diesel fuel. No leaks or soil contamination was noted and the secondary containment system appears adequate to contain any major spills. Peak fuel sales during the busy season approach 6,000 gallons per week at a reported sales price of \$3.41/gallon. Delta Petroleum is responsible for providing fuel and owns and maintains the storage tank, fuel meter, piping, and dispensers. There appear to be adequate electric and manual shutoff valves to stop the flow of fuel in an emergency. A small of diesel leak fuel was noted in the dispenser cabinet on the fuel dock. This leak should be repaired immediately.
- Waste Management – All solid wastes generated at Village Cay Marina are deposited in a roll off trash compactor located off property in an adjacent parking lot. A waste oil storage tank is also located in this area.
- Water and Sediment Quality – Due to the configuration of the marina and average tide range, the marina basin does not flush well. Rain events, combined with the inadequate sewage system in Road Town, result in significant turbidity and contaminated water entering the marina basin via nearby stormwater outfalls. The smell of raw sewage is evident at these times. Water quality and sediment samples were collected during a period of fairly dry weather during this due diligence effort. The results will be reported under separate cover. Due to short sample holding times, fecal coliform levels were not measured in the marina basin. However, fecal coliform counts in the basin are likely to be elevated after storm events due to the sewer overflows and stormwater runoff as opposed to operations by the marina or boaters at the facility.
- Structural Assessment – The upland facilities consist of the following:
 - A three story building (Bldg A) which includes 9 hotel rooms
 - A four story building (Bldg. B) which includes 10 hotel rooms

- The lower level of Buildings A and B included retail shops, a restaurant, marina and hotel services. The area at the ground floor of the buildings is approximately 6000 square feet
- Single story retail and hotel service space over the cistern southeast of the hotel facilities
- A pool and gazebo with a "stand alone" grill kitchen
- A two story Dock Master's office
- Two, 2 bedroom, 2 bath, ground floor condominiums

In general, the property is in good condition. The hotel rooms observed have been recently remodeled, and the exterior of the hotel buildings and dockmaster's office recently painted. The buildings are generally wood frame buildings with exterior load bearing walls.

The major deficiencies include:

- Roof leaks
 - Stairs with a very shallow riser creating a tripping hazard
 - A deteriorated covered walkway which supports AC condensers
 - Typical yearly required maintenance
- Electrical System – During the inspection, ATM conducted a cursory review of the electrical system at this site. This system needs minor repairs and abandoned electrical equipment and wired need to be removed. This system should be inspected in greater detail to assure that all applicable codes are met. Sun Resorts personnel indicated that almost all of the wiring at the facility was replaced within that last seven years to correct distribution problems at the facility. Due to unreliable power provided by the public power system, a 3-phase diesel generator on an automatic switch has been installed and is able to power the hotel, restaurant, pool, and marina office. This equipment is in good condition. Current electric rates are \$0.37/kWhr.
- Areas of Environmental Concern – During the inspection, no areas were identified as areas of significant environmental concern warranting further analysis. These findings confirm the results of the Phase I Environmental Assessment performed by Property Solutions, Inc. in November 2004. This inspection did not include a lead-based paint or asbestos survey. While no obvious areas of lead-based paint or asbestos were observed, the age of the facility warrants additional investigation to verify their presence or absence.
- Parking Facilities – Only two parking spaces are located within the Village Cay Marina property. Staff and guest parking is dependent on an adjacent dirt parking lot not owned or controlled by Village Cay Marina.

ATM recommends that the following upland infrastructure and environmental related tasks be undertaken:

- Conduct lead-based paint and asbestos survey.
- Determine long-term viability of utilizing the adjacent off-property parking lot for staff parking and storage of the solid waste compactor.
- Require Delta Petroleum to repair minor fuel leak in the diesel fuel dispenser cabinet.
- Install chlorination system to maintain chlorine residual in the 30,000 gallon potable water cistern.
- Obtain concurrence from Government that there is no charge for the sanitary sewer flows.
- Repair roof leaks, correct shallow riser on stairs, replace deteriorated covered walkway which supports AC condensers, implement yearly required maintenance, see attached summary spreadsheet.

Probable costs for these tasks are attached.

FINAL ESTIMATE OF PROBABLE COSTS - VILLAGE CAY MARINA UPLAND COMPONENTS

IMMEDIATE (LIFE-SAFETY) COSTS					
Component	Quantity	Unit	\$/Unit	Item Cost	Notes
Upland Facilities					
Bldg A					
Replace stairway canopy	250	SF	\$13	\$3,250	
Correct tripping hazards: add ramp	1	EA	\$3,500	\$3,500	
Repair flashing and roof leaks	1	LS	\$8,000	\$8,000	
Bldg B					
Repair Mechanical Platform	150	SF	\$20	\$3,000	
Repair Roof Leaks	1	LS	\$8,000	\$8,000	
Correct Tripping Hazard: add ramp	2	EA	\$3,500	\$7,000	
Correct moisture problem in office	1	EA	\$7,000	\$7,000	
Kitchen:					
Replace removable floor panel	1	EA	\$3,500	\$3,500	
Eating Area:					
Repair Steps	1	EA	\$7,000	\$7,000	
Pool:					
Repair electric panel in pump room	1	EA	\$7,000	\$7,000	
Dockmaster's Bldg:					
Correct tripping hazard	1	EA	\$3,500	\$3,500	
Condos:					
Repair leaks	1	EA	\$6,000	\$6,000	
Overall:					
Misc Environmental Studies	1	EA	\$25,000	\$25,000	
Electrical Inspection & Misc Repairs	1	EA	\$15,000	\$15,000	
Water System Improvements	1	EA	\$3,000	\$3,000	
Total Immediate Costs				\$109,750	

YEAR 1 TO 5 COSTS					
Component	Quantity	Unit	\$/Unit	Item Cost	Notes
Upland Facilities					
Bldg A					
Replace condensing units (1/yr)	5	EA	\$8,000	\$40,000	
Repair flashing and roof leaks	1	LS	\$16,000	\$16,000	
Repair gutter and downspout at Reception	1	LS	\$1,600	\$1,600	
Bldg B					
Replace condensing units (1/yr)	5	EA	\$8,000	\$40,000	
Repair stucco	1	LS	\$3,500	\$3,500	
Repair flashing and roof leaks	1	LS	\$16,000	\$16,000	
Retail Shops:					
Repair Door in Deli	1	LS	\$1,600	\$1,600	
Repair clay tile in covered walkway	200	SF	\$26	\$5,200	
Replace covered walkway	1,000	SF	\$16	\$16,000	
Replace condensing units (1/yr)	5	EA	\$8,000	\$40,000	
Replace damaged sidewalk	200	SF	\$16	\$3,200	
Kitchen:					
Replace ceiling	800	SF	\$13	\$10,400	
Repair clay tile floor	800	SF	\$26	\$20,800	
Eating Area:					
Correct lighting wiring	1	LS	\$3,500	\$3,500	
Restrooms(M&W):					
Replace clay tile floor	1,000	SF	\$26	\$26,000	
Pool/Gazebo:					
Repair brickpavers/tile	200	SF	\$26	\$5,200	
Repair pump room door	1	LS	\$3,500	\$3,500	
Replace fencing	20	LF	\$13	\$260	
Replace deteriorated gazebo columns and framing	1	LS	\$33,000	\$33,000	
Dockmaster's Bldg:					
Repair leaks and wall cracks	1	LS	\$3,500	\$3,500	
Replace wood deck	250	SF	\$35	\$8,750	
Condos:					
Repair leaks	1	EA	\$12,000	\$12,000	
Replace water pump	1	EA	\$3,500	\$3,500	
Replace fence	20	LF	\$15	\$300	
Repair stucco	1	LS	\$3,500	\$3,500	
Replace damaged sidewalk	100	SF	\$16	\$1,600	
Year 1 - 5 Costs				\$318,910	

YEAR 5+ COSTS					
Component	Quantity	Unit	\$/Unit	Item Cost	Notes
Upland Facilities					
Repair stucco and paint	1	LS	\$35,000	\$35,000	
Year 5+ Costs				\$35,000	

TOTAL(0-5 YEARS): \$463,660

NOTES					
1. Estimated costs are based upon limited information. Retirements and additions should be anticipated as additional information becomes available.					
2. Estimates are for informational purposes only and should not be used for bidding or construction.					
3. Costs were increased approximately 200% to account for construction costs in the BVI.					



Village Cay Marina					
Estimate of Deferred Maintenance/Replacement Costs			Nov-06		
Marina Components	Quantity	Units	Cost/Unit	Item Cost	Year
STRUCTURES & PUBLIC AMENITIES					
Demolition (all docks)	1	LS	\$50,000	\$50,000	0-5
Pier Replacement	18,320	SF	\$80	\$1,465,600	0-5
	<i>Sub-Total</i>			\$1,515,600	
UTILITIES					
Electrical service, including pedestals*	106	slip	\$7,000	\$742,000	0-5
Plumbing, including water, fire, sewer	106	slip	\$1,850	\$196,100	0-5
Communications at slips	106	slip	\$500	\$53,000	0-5
Fuel System**	1	EA	\$300,000	\$300,000	0-5
	<i>Sub-Total</i>			\$1,291,100	
SOFT COSTS					
Engineering Design, Project Management	10%	% CAP	\$2,806,700	\$280,670	0
Development Fees/Permits	2%	% CAP	\$2,806,700	\$56,134	0
SUBTOTAL				\$336,804	
TOTAL				\$3,143,504	

*Does not provide for megayacht pedestals/power which would be on the order of \$25k-\$45k/slip

**May be mitigated/eliminated through negotiation with fuel supplier for service contract



Marina Due Diligence Assessment American Yacht Harbor Marina

Red Hook, St. Thomas, U.S. Virgin Islands

DRAFT EXECUTIVE SUMMARY

Prepared For
Island Global Yachting
Ft. Lauderdale, Florida

NOVEMBER 15, 2006

EFTA01119848

EXECUTIVE SUMMARY

A marina assessment was conducted by Applied Technology & Management, Inc. for Island Global Yachting to assist with the review of the facilities at American Yacht Harbor Marina (AYH), Red Hook, St. Thomas, U.S. Virgin Islands. The review concentrated specifically on the condition of the existing physical facilities and environmental issues. The major features on this site include six multi-story commercial retail buildings, a marina office building, an abandoned gas station, an over water fuel building, fixed docks, a fuel storage facility, and a reverse osmosis (R/O) plant.

Marina Engineering Summary

Overall, the marina is in poor condition. Though it appears that regular maintenance has been conducted with respect to marina utilities, and repair/replacement has occurred following storm events (Hugo, Marilyn), the majority of the marina docks (with the exception of D Dock) have reached the end of their 30 year service life.

ATM conducted an engineering evaluation of the marina structures and utilities. The following highlight the findings of this effort.

- *Navigable Depths and Sedimentation Potential* – Depths in the marina basin range from 2 ft. to 12 ft. and are generally adequate for marina operations and berthing. Depths in the nearshore slips are generally shallow and suitable for vessels with shallow drafts. Deeper draft vessels (e.g. sailboats) are generally accommodated in slips at the end of the docks where depths are greater. AYH staff indicated that they have difficulty accommodating the large number of sailboat transients in the winter due to depth limitations in the marina. The marina was apparently dredged in 1996. AYH staff indicated they believed the limited sedimentation to be attributed to a bed load that is pushed in from easterly/northeasterly swells. The only area where unusual shoaling was identified existed at the entrance to the fairway between D and E Docks. Staff indicated this was caused by the prop wash from a particular large vessel which docks at the T-head on E Dock.

Tide range typically varies from 0.75 ft (neap) to 1.25 ft (spring). ATM was provided with a detailed depth investigation (c. 2004) from Mr. Chris Petty, General Manager of AYH. Depths were determined by AYH staff using a commercially available depth/fish finder and recorded in their approximate location relative to fingers, slips, fairways, etc., at each dock. During the assessment, ATM used a handheld depth/fish finder to spot check the 2004 "survey". It should be noted that actual depths may vary slightly due to equipment limitations (accuracy and precision) and variations in tidal stage at the time of each investigation.

Based on the depth investigations and anecdotal information obtained to date, ATM believes that maintenance dredging will be an ongoing, but relatively infrequent requirement at AYH. Additional effort is needed to calculate dredge volumes, research disposal alternatives and regulatory permitting issues, and coordinate with previous dredging contractors regarding potential costs.

- *Shoreline Stabilization* – The visible shoreline around the marina basin consists of a riprap revetment generally covered with a stand of natural, healthy mangroves. No areas of immediate concern were identified during the assessment.
- *Marina Structures Overview* – The Marina consists of six fixed docks labeled A through E and P Dock. There is a fixed main walkway located adjacent the shoreline along the perimeter of the marina, which each of the six docks connect to. A dingy dock runs approximately 2 feet

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below along the edge of the main perimeter walkway. ATM reviewed the main walkway adjacent the shoreline, docks A through E and P Dock for general structural condition and deficiencies.

The site visit consisted of observation from the fixed piers as well as from a small rowboat provided by American Yacht Harbor Marina. Due to the large number of boats in the slips, observation by boat was limited.

The structural system of the main walkway and docks A through E is made up of 2x6 timber decking over 2x10 timber stringers at approximately 16 inch on center, supported by reinforced concrete pile caps. The pile caps are supported by square (or round) 10 inch (or 12 inch) reinforced concrete piles and are located approximately 12 ft on center. P Dock is composed of timber decking over timber stringers supported by triple 2x10 timber pile caps. The pile caps are supported by round timber piles.

- Rebuilt in the year 2000, D Dock is by far, in the best condition of all the docks. Approximately 50 percent of dock hardware is corroded. There is no mid span utility support and PVC conduit and multiple utility lines are sagging.
- All dock main walkways, except D and P, have a second layer of decking added directly on top of the first layer. This causes water to be trapped within the first layer of decking, leading to quicker deterioration of the wood decking underneath. There are already signs of softening and rotting of the wood.
- Approximately 50 percent of the concrete piles and 25 percent of the concrete pile caps on docks A, B, C, and E exhibit significant deterioration (spalling, cracking) and exposed, corroded reinforcement. Between 80 to 100 percent of dock hardware along all dock walkways is corroded, except for D Dock.

ATM understands that this facility was originally constructed in 1974 and was renovated in 1990. The estimated useful life of a concrete structure in a marine environment is ~30 years. As such and as evidenced by the significant deterioration on the majority of the concrete dock structures at AYH, near-term complete pier replacement is indicated.

➤ *Marina Utilities Overview* – The marina offers three phase and single phase shore power in a variety of configurations. AYH is in the process of upgrading the electrical system in the entire facility but apparently has run out of cable. As such, no upgrades have been made to A Dock and only half of B Dock is upgraded.

- Older pedestals on Docks P, A, and B are manufactured by Hubbell and offer either 1*30A + 1*50A or 2*50A receptacles per slip. Cable is run under the dock from shore but is not connected to the pedestals.
- Upgraded slips on Docks B and C have refurbished utility pedestals from the former Yacht Haven Marina and offer 2*50A receptacles as well as telephone and cable for each slip.
- Pedestals on D Dock are manufactured by International Dock Products and offer 2*50A receptacles as well as telephone and cable for each slip.
- With the exception of the L-head on E Dock, no pedestals exist and shore power consists of 30A receptacles mounted to the timber decking.

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- Pedestals on the T-heads of docks P, B, C and D offer a mix of three phase (120A) and single phase (50A and 100A) receptacles for larger vessels.
- Interviews with slipholders indicated that shore power is generally very reliable and AYH maintenance staff is prompt and knowledgeable when maintenance is required.
- Potable water is provided at the slips, but hose bib connections are separate from the pedestals on all docks except D Dock.
- All shore power and water is separately metered.
- There is currently no marina pump out available, which promotes dumping into the marina basin. However, when evaluated against the stormwater/sewer outfalls present in the basin, this does not present a significant water quality issue.
- Diesel and unleaded gasoline are available at the facility on the T-Head of A Dock. An "in dock" portable fuel system allows slipholders to fill up anywhere on A, B, and C Docks.
- There are no fire extinguishers or stand pipe system on the docks. Portable fire carts (chemical foam suppression) are located on A Dock (at the Fuel Dock T-Head and at the shore connection) and C Dock.

In general, with the need to replace the fixed piers there is also a need to replace the outdated utilities at the marina facility.

- *Layout and Potential Expansion* – The marina layout and fairways are generally adequate for marina operations; however, the practice of berthing vessels that are longer than their slips reduces the effective fairway in some locations within the facility. The absence of finger piers in many locations provides for more flexible berthing opportunities, but fingers should be provided with all double-loaded slips in any type of replacement effort (see below).

A mooring field is located in Vessup Bay immediately south of AYH. Individual permits are issued for each mooring by the Department of Planning and Natural Resources (DPNR). Conversations with Tracy Roberts (Springline Architects) and James Casner, Esq. (Stryker, Duensing, Casner & Dollison) indicated that due to 1) the presence of the mooring field and 2) the tremendous regulatory challenges associated with expanding the submerged lands boundary, expansion of the facility would be nearly impossible. It was also noted that reconfiguration of the docks may require a new permit.

It is noted that with the needed pier reconstruction comes an opportunity for reconfiguration of the marina basin. Though the facility is generally adequate for current demand, the need to accommodate larger slips is indicated to provide berthing for larger yachts and wider sailboats (catamarans). A move towards larger slips/updated slip dimensions and the addition of fingers will likely result in a net reduction of slips.

- *Recommendations and Deferred Maintenance Cost Estimate* – As indicated previously, AYH is 32 years old. Though renovated in 1990, the marina docks (with the exception of Dock D) have reached the end of their service life and are in need of full replacement within the next 5 years. In doing so, replacement of the outdated utilities is also indicated. Preliminary cost estimates for immediate repair (life-safety) and 0-5 year repair/replacement of the marina is attached. This generally represents in-kind replacement (with appropriate updates, inclusion of pumpout, etc.) and does not include reconfiguration or expansion.

Upland Structural Engineering Summary

The American Yacht Harbor site includes approximately 82,800 square feet of buildings consisting of six multi-story commercial retail buildings, marina office building, an abandoned gas station and an over water fuel dock building. The six commercial retail buildings are referred to as buildings A, B, C, D, E and F.

Buildings A thru E are all similar in design and construction. They are built with a combination of wood and/or steel framing and corrugated metal roofing used for roof cover. Covered walkways with metal railings surround the perimeter of the buildings elevated floor levels. The metal railings surrounding the perimeter walkway have severely corroded supports and 1/4 inch bolts which appear to be undersized for adequate safety requirements. Our interview with Dennis Moon from Sun Resorts mentioned that they had seen a noticeable difference between the railings along the waterfront side of the buildings as opposed to the street side. They should be replaced in the immediate future due to safety concerns.

The most significant overall structural issue for buildings A through E is water intrusion and the resulting damages. The roofing was improperly installed with fasteners through the trough of the metal roofing and no flashing was observed on the exterior walls of the buildings. The structural elements of the buildings show moderate corrosion at various locations, but it does not appear that significant repairs are required at this time. However, if the water intrusion is allowed to continue, there will likely be significant structural repairs required in the near future. In addition to structural damage, the widespread water intrusion could result in mold growth throughout the buildings. Depending upon the extent of the mold growth, mold remediation costs could range from negligible to highly significant.

- *Building A* – The two-story commercial retail-office building is located on the far Northeast side of the site. Two sets of staircases are facing each other at the main entrance located in the middle of the building. Some of the main structural issues observed are as follows:
 - PSL wood beams extend to support exposed rafters and decking. They appear to be water stained and show initial signs of deterioration. They are intended for dry-use conditions only, unless properly treated.
 - Several tenants complained of water leaks and stain damages to their ceilings. One tenant mentioned their frustration with frequent electrical shortages and light bulb replacement.
 - The exterior perimeter beam is detaching from the PSL beams in several areas.
 - The metal railings are corroding in several areas, worse along the ocean front side of the building. The ¼ inch bolts appear undersized and could potentially be a safety hazard.
 - The steel beams and columns appear to be corroding in several areas.
- *Buildings B & C* – An open walkway and elevator separate the two buildings. There are three sets of metal stairs located on both sides of Building B and at the far end (closest to Building D) of Building C. The first floor of Building C has a connecting walkway over to buildings D and E. Some of the main structural issues which need to be addressed are as follows:
 - Several tenants complained of significant water leakage and damages caused by water stains on all three floor levels. At the time of our inspection, a certified waterproofing company was making repairs to the outside of the corrugated metal roof decking and was applying three coats of valcon sealant on all the exposed fasteners.
 - The metal railings surrounding the perimeter walkway have severely corroded supports and 1/4 inch bolts which appear to be undersized for adequate safety requirements.

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- The metal stairs show evidence of corrosion in several areas along the bottom and at support connections.
 - The exterior wood trim along the perimeter of the buildings is deteriorating and several are missing.
- *Buildings D & E* – Buildings D and E are both located on the far West side of the property. There are three sets of stairs, on each of the far ends of the buildings and one in the middle of the two. The structural issues observed are as follows:
- The metal railings have undersized bolts and are corroding at their supports.
 - Carpet damage was apparent on the second floor of Building E, where evidence of water intrusion was noted along the interior wall of the building.
- *Building F* – A two-story commercial building located at the northwest end of the property facing the road. The roofing is a flat concrete slab which is supported by reinforced concrete columns and CMU walls, resting on a concrete slab foundation. The following structural concerns were observed:
- The CMU walls have several large vertical cracks along both the interior and exterior of the building, possibly settlement related.
 - The concrete stairs along the backside of the building are deteriorating and have exposed rebar which is severely corroded. These will have to be replaced in the immediate future as they are a safety hazard.
 - An extension to the restaurant attached to the backside of the second floor of the building had several damaged areas. The underside of the concrete slab floor has several cracks and spalled areas. Several of the wooden beam supports have severe impact damage.
 - The concrete ceiling is deteriorating and exposed rebar was observed.
- A visual inspection of the building was done November 2002 by a local engineer. The building was reported to have similar structural damages as described above in addition to others which had been repaired immediately following the report. The roof was reported to have water ponding and a leaking air conditioning unit which resulted in water damage to the interior ceilings.
- *Ground Level Parking Garage* – The majority of the ground level of buildings B & C consists of a parking garage, with a small portion under Building C used as a storage/maintenance area. The parking garage entrance is located on the ocean side of the building, adjacent the marina office building. It is built on a concrete foundation with steel columns surrounding the exterior and 12 inch concrete encased steel columns as the interior supports. The ceilings consist of bar joists at 2 ft on center which span between steel beams. Approximately half of the ground floor ceiling has been coated with fireproofing and the other half (nearest the waterfront) has no apparent fireproofing and is covered with suspended acoustical tiles. Some of the main structural issues which need to be addressed are as follows:
- Several of the bar joists are moderately corroded and some acoustical tiles are missing or are damaged. There is also evidence of a water leak from the ceiling, damages were apparent.
 - The concrete wall surrounding the garage exterior has several damaged areas due to impact apparent and some unrelated cracking visible.
- *Marina Office* – The one-story marina office building is located on the ground level and centered between buildings B and C, closest to the ocean. There is some minor mechanical damage of the exterior wall surface and some minor corrosion and water stains apparent.

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- *Fuel Dock Building*– The building is located at the T-head of A Dock and houses the fuel dispensing operation. The building foundation is composed of concrete pile caps supported by concrete piles. The roof is corrugated metal. The hardware along the edges of the exterior is corroding and the piles and pile caps used for the building foundation are severely corroded and deteriorated. One pile has already been added by extending the concrete pile cap over it. The repair estimates are included in the estimated repair costs for Dock A.
- *Abandoned Gas Station* – A very small building located on the far Northeast side of the property, adjacent Building A. The abandoned building has some minor maintenance issues.

Environmental & Upland Infrastructure Summary

In addition to the engineering evaluation of the marina structures at AYH, the marina was inspected for operations and conditions which present the most common environmental concerns. These areas include:

1. Petroleum storage & handling – fuels, oils and used oil
2. Maintenance operations
3. Solid waste storage & handling
4. Wastewater conveyance and disposal/treatment
5. Spills and illicit discharges
6. Boating & operations related pollution

It should be noted that for a thorough evaluation of each of these areas, a complete review of all permits and inspections would be necessary. In many cases, ATM would need to call regulatory agencies to insure that the permit documents being reviewed were complete and up to date. This level of effort was not undertaken during the review process. ATM also analyzed the associated marina infrastructure on the property. The components of these inspections are listed below with a brief summary of our findings, followed by several recommendations for additional investigation:

- *Potable Water* – Currently, AYH contracts with TSG Technologies to provide chlorinated potable water from an on-site reverse osmosis (RO) water treatment plant which draws raw water from beneath B Dock. TSG is responsible for producing up to 25,000 gpd of potable quality water that is pumped to a series of cisterns located under Buildings A and B. The cisterns are in good condition and provide over 100,000 gallons of storage. Water from the cistern is filtered, chlorinated, and disinfected via UV radiation prior to entering the PVC distribution system at 60 psi via to 5 HP pumps. An additional cistern is located beneath Building F and serves only the laundromat in this building.

Normal water usage is 15,000 – 17,000 gpd, with a maximum usage approaching 21,000 gpd. All uses are metered with an average rate of \$0.14/gallon. Water costs from TSG include a \$5,500 monthly base charge plus \$10.31/1,000 gallon minus a power adjustment depending on the monthly electrical costs. This system is in good condition and operates under a public water utility permit with the discharge of brine to the marina basin under a TPDES discharge permit.

- *Sanitary Wastewater* – All wastewater generated at AYH is directed to an onsite lift station and pumped to the municipal wastewater treatment plant. The duplex lift station has a high level alarm and has recently been refurbished with new pumps. This system appears to be functioning adequately. Currently, AYH is not charged for wastewater disposal. AYH staff is reported to be seeking a letter of concurrence from the Water and Power Authority (WAPA) that this will remain the case. AYH uses a portable pumpout system to service boats with a charge per pumpout of \$35.

- *Stormwater Runoff* – All AYH roof areas are piped to the cisterns to augment the potable water supply. Runoff from AYH parking areas and roadways are routed to two french drains located adjacent the marina basin. These french drains are basically gravel filled pits that are designed to catch stormwater runoff and percolate it into the ground in lieu of storm water running directly into the marina basin. This system appears to be operating below its capacity and there is evidence of direct runoff to the marina basin. However, the first flush of stormwater containing the bulk of the pollutants picked up from the roadways and parking areas is likely contained on site. This french drain system should be rehabilitated to improve aesthetics and prevent stormwater discharges from AYH directly to the marina basin. There was no evidence of flooding problems on the AYH property. Offsite stormwater runoff from the surrounding properties and roads discharge directly to the marina basin.
- *Fueling System* – The fuel storage and transfer facilities generally present the largest environmental threat in most marina operations. The following section provides general discussion regarding the review of this facility.

Summary of capacity, tank type and containment description

Four - 10,000 gal double wall USTs - Permatank construction, 3 diesel, 1 unleaded
One ~ 1,000 gal AST diesel (generator)
One ~ 200 gallon AST diesel (generator belly tank)
One ~ 400 gal AST used oil in double wall tank in secondary containment vault

The fueling facility consists of four underground storage tanks – three 10,000 gallon diesel tanks and one 10,000 gallon unleaded gasoline tank. These tanks are located in the parking area at the front of the main building. According to the owner’s representatives, these tanks are Permatank construction, which utilizes a UL-58 steel tank wrapped with a polyethylene stand-off material and mylar sheeting around the outside of the tank. It is coated with a laminate mylar sheeting with fiberglass reinforced plastic (FRP) to provide both corrosion resistance and interstitial capacity. The tanks utilize composite manholes and overspill containers at the fill. The visible part of the system appeared to be constructed of high quality components, and in good operational condition.

The tanks are surrounded by a series of ground water monitoring wells. During the site investigation, ATM collected a groundwater sample for analysis from one of these adjacent monitoring wells. In addition to the groundwater monitoring wells, the UST system is monitored by a Veeder-Root TLS-350R Monitoring System. The fully integrated system automatically collects tank tightness testing results, dispensing data, in-tank inventories and deliveries, and reconciles total at selected intervals.

Conveyance from the USTs to the pumps is accomplished utilizing double wall flexible piping designed specifically for use with fuels. Several sump areas were unsecured, and available for inspection, including the shutoff valves near the USTs, and the quick connect sumps located along Dock A. Entry boots were utilized where fuel lines penetrated these containment sumps. Several sumps contained water, estimated to have come from stormwater (leaking cover) or seawater (leaking boot). As many of the covers were constructed from wood to match the decking, stormwater intrusion into these sumps would appear the probable source.

Fuel is dispensed by either of the two twin hose Gilbarco dispensers located at the end of Dock A. Both dispenser units utilize extended hose reels, and appear to be properly installed on polyethylene containment sumps. Several quick connect fittings were located along Docks

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A, B and C for use with the portable pump units. All sumps were clean and appeared in good condition. The visible part of these systems appeared to be constructed of high quality components, and all were in good operational condition.

A small generator with a belly tank (~ 200 gallon capacity) is located on the roof of Building C. The generator serves a tenant in Building C, and is believed to be serviced and fueled by their contractor. There is no provision for remote fueling. The fuel tank appeared to be structurally sound, however did not appear to have secondary containment. A leak from this tank would drain through the roof drains into the cisterns. Consideration should be given to providing this system with updated remote fill capacity, as well as secondary containment for the tank system.

- *Waste Management* – Three roll off dumpsters are provided for solid waste disposal. The monthly cost is \$1,100 through a contract with Yes, Inc. A ~400 gallon used oil tank is located along the western side of the facility, west of Building E. Used oil is collected here and properly disposed of by an outside licensed contractor. The sump area was generally very clean, and contained several small (<5 gallon containers) of unknown material. There were no environmental or operational problems noted with the used oil collection area.
- *Water and Sediment Quality* – The configuration of the marina basin results in good flushing as evidenced by relatively clear water and fairly abundant fish life around the marina basin. The local wastewater treatment plant empties into the water to the west of the marina and may result in elevated fecal coliform levels in the water if not functioning properly. Anecdotal evidenced obtained through interviews of marina customers indicates that the plant has failed in the past, but normally operates well. Rain events may result in turbid water from offsite stormwater runoff entering the basin. However, the water quality in the marina basin should be acceptable from an aesthetic standpoint at most times. Water quality and sediment samples were collected during a period of fairly dry weather during this due diligence effort. Results quantifying the water and sediment quality in the basin will be reported under separate cover when received.
- *Site Electrical System* – During the inspection, ATM conducted a cursory review of the electrical system at AYH. Power is provided by WAPA at an average cost of \$0.32/kwhr through a series of four 3-phase 500 KVA transformers located at the end of A, B, C, and D Docks. These transformers serve the entire AYH property with the exception of Building F which is fed directly from WAPA. The transformer at the end of A Dock is exceeding its rated capacity and is scheduled by the owner to be replaced. Due to voltage fluctuations at the transformer at the end of B Dock, this transformer is also scheduled to be replaced.

Most of the wiring and pedestals on the docks have been replaced with the exception of portions of A and B Docks and all of P Dock. The owner plans to complete the rewiring project on A and B Docks in the near future. P Dock is leased property however AYH has offered the owner of P Dock to install the electrical upgrades for free if they will pay for the equipment. To date, no progress has been made towards upgrading P Dock. The remainder of the electrical system at AYH appeared to be in reasonable shape and is functioning well. A thorough detailed inspection of the electrical system is warranted to assure that all equipment and meters are functioning properly and meet applicable electrical codes. Backing up WAPA is a Broadcrown 250 kw 3-phase diesel generator in new condition. This generator is wired to provide power to the marina office, maintenance room, RO water plant, fuel dock, exterior lights, sewage pump station, and several of the restaurants on site. The generator is fed by a new dual-walled 1,000 gallon steel storage tank.

- *Parking* – Both above and below ground parking is provided at AYH. According to the property survey provided to ATM, the parking garage below Building B encroaches onto the public right of way by up to 1.5 feet in places.

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- *Communications/Television* – Telephone service is provided through the local telephone company, as is internet service to the building tenants. Television service to the marina is provided by a Dish Network rack system located in the marina office. Internet service is provided to the marina via a wireless system operated by Ackley Communications. In exchange for allowing Ackley to provide wireless services to the marina, they provide a free DSL line for the marina office.
- *Areas of Environmental Concern* – No material testing was performed as part of this site investigation, but due to the age of the structures, the presence of asbestos containing materials (ACM) within the building is expected to be limited or non-existent. No ACM materials of concern were noted during the site inspections. While most of the transformers onsite were unlabeled, those that were indicated that the units were PCB free. There were no overhead transformers onsite, and no evidence of leakage from any of the transformer units. Due to the age of the facility, the presence of PCBs associated with the transformers is not expected.

Action Items

ATM recommends the following tasks be undertaken. Probable costs for implementation are attached.

- Repair damaged concrete pile caps and piles for A Dock within one year. Consider reconfiguration opportunities.
- Repair or replace damaged structural components for the main walkway and docks A, B, C, and E within one to five years. Consider reconfiguration opportunities.
- Renegotiate lease of P Dock and replace/reconfigure within one to two years. Consider reconfiguration opportunities.
- Upgrade utilities on Docks A, B (as necessary), E and P.
- Obtain letter of concurrence from WAPA stating that there are no wastewater disposal fees associated with pumping domestic wastewater to the municipal wastewater treatment system
- Rehabilitate the french drain stormwater collection system.
- Resolve the issue pertaining to the incursion of the parking garage beyond the AYH property line into the public right of way.
- Verify that the 500 KVA transformers located at the end of docks A and B have been replaced by the owner.
- Verify when the electrical wiring and pedestal replacement project for docks A and B will be completed by the owner.
- Recommend further inspection of the electrical system to ensure adequacy.
- Conduct lead-based paint and asbestos survey.
- Remove generator and single-wall fuel tank from the roof of Building C

**DRAFT ESTIMATE OF PROBABLE REPAIR COSTS
AMERICAN YACHT HARBOR**

IMMEDIATE (LIFE SAFETY) REPAIR COSTS					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes
Fixed Docks					
Dock A:					
Repair Concrete Piles & Pile Caps	42	EA	\$750	\$31,500	30% severely corroding
Perimeter Walkway					
Repair Light Fixtures	1	EA	\$300	\$300	
Replace Decking along Dingy Dock	10,800	SF	\$8	\$86,500	
Dock Repair Costs				\$118,300	
Upland Facilities					
Building A:					
Replace PSL Rafters & Floor Beams	9,232	SF	\$15	\$138,500	
Replace Railings	460	LF	\$25	\$11,500	
Building B & C:					
Replace Railings	1,600	LF	\$25	\$40,000	
Building D & E:					
Replace Railings	540	LF	\$25	\$13,500	
Building F:					
Replace Wood Deck Framing	573	SF	\$13	\$7,500	
Replace Concrete Stairs	1	LUMP	\$10,000	\$10,000	
Building Repair Costs				\$221,000	
Infrastructure					
Additional Environmental Studies				\$25,000	
Replace (2) 500 kVa transformers				\$40,000	if Sun Resorts has not completed
Infrastructure Repair Costs				\$65,000	
Total Immediate Costs				\$404,300	

MARINA - YEAR 1 TO 5 COSTS					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes
Fixed Docks					
Dock A:					
Replace Wood Decking, Walkers, and Rim Joists	1	LUMP	\$39,000	\$39,000	80% damaged
Replace Damaged Concrete Mooring Piles	21	EA	\$1,000	\$21,000	80% damaged
Replace Corroded Dock Hardware	3,825	SF	\$2	\$7,650	95% damaged
Upgrade/Add Utility Pedestals	12	EA	\$3,500	\$42,000	
Dock B:					
Replace Wood Decking, Walkers, and Rim Joists	1	LUMP	\$37,000	\$37,000	70% damaged
Replace Concrete Piles & Pile Caps	20	EA	\$1,000	\$20,000	15% corroded & rebar exposed
Replace Damaged Concrete Mooring Piles	19	EA	\$1,000	\$19,000	80% damaged
Replace Corroded Dock Hardware	3,063	SF	\$2	\$6,126	80% corroded
Upgrade/Add Utility Pedestals	8	EA	\$3,500	\$28,000	
Dock C:					
Replace Wood Decking, Walkers, and Rim Joists	1	LUMP	\$25,000	\$25,000	70% damaged
Replace Concrete Piles & Pile Caps	18	EA	\$1,000	\$18,000	20% corroded & rebar exposed
Replace Concrete Mooring Piles	13	EA	\$1,000	\$13,000	50% damaged
Replace Corroded Dock Hardware	2,331	SF	\$2	\$4,662	90% corroded
Dock E:					
Replace Wood Decking, Walkers, and Rim Joists	1	LUMP	\$18,000	\$18,000	75% damaged
Replace Concrete Piles & Pile Caps	14	EA	\$1,000	\$14,000	25% corroded & rebar exposed
Replace Corroded Dock Hardware	1,661	SF	\$2	\$3,322	90% corroded
Replace Wood Hose Holder	1	EA	\$200	\$200	damaged
Upgrade/Add Utility Pedestals	1	LUMP	\$13,500	\$13,500	
Perimeter Walkway:					
Replace Wood Decking & Rim Joists	1	LUMP	\$82,000	\$82,000	90% damaged
Replace Concrete Piles & Pile Caps	70	EA	\$1,000	\$70,000	25% corroded & rebar exposed
Replace Corroded Dock Hardware	6,518	SF	\$2	\$13,036	
Dock P:					
Replace Rim Joists and Split Pile Caps	1	LUMP	\$980	\$980	35% damaged
Replace Damaged Timber Piles	30	EA	\$800	\$24,000	90% damaged
Replace Corroded Dock Hardware	1,500	SF	\$2	\$3,000	75% corroded
Upgrade/Add Utility Pedestals	14	EA	\$3,500	\$49,000	
Dock Repair Costs				\$571,476	
Maintenance Dredging					
Mob/Demob	1	LS	TBD	TBD	additional investigation
Dredging and Disposal	TBD	CY	TBD	TBD	additional investigation
Maintenance Dredging Costs				TBD	

UPLAND FACILITIES - YEAR 1 TO 5 COSTS					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes
Upland Facilities					
Building A:					
Replace Roof, Exterior Trim and Stairs	1	LUMP	\$70,000	\$70,000	
Repair Steel Beams & Columns	250	SF	\$2	\$500	
Repair Interior Walls	460	LF	\$8	\$4,000	
Building B & C:					
Repair Concrete Walls, Exterior Trim, and Stairs	1	LUMP	\$53,000	\$53,000	
Replace/Repair Ceiling & Roof	1	LUMP	\$345,000	\$345,000	
Replace Light Fixtures	10	EA	\$500	\$5,000	



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Building D & E:					
Replace Roof	3,360	SF	\$8	\$27,000	
Replace Carpet	1,561	SF	\$18	\$28,000	
Replace Stairs	1	LUMP	\$20,000	\$20,000	
Building F:					
Repair Concrete Wall, Floor & Ceiling	1	LUMP	\$95,000	\$95,000	
Replace Window	1	EA	\$2,000	\$2,000	
Fuel Deck Building:					
Replace Roof	380	SF	\$8	\$3,000	
Replace Exterior Trim	380	SF	\$6	\$3,000	
Replace Hardware	380	SF	\$2	\$760	
Building Repair Costs				\$656,260	
Infrastructure					
Rehabilitate Storm Drains				\$30,000	
Remove roof-mounted generator				\$5,000	
Infrastructure Repair Costs				\$35,000	
Total Year 1-5 Costs				\$1,262,736	

YEAR 5+ COSTS					
Item	Quantity	Unit	\$/Unit	Item Cost	Notes
Fixed Docks					
Dock D:					
Replace Hardware	1,872	SF	\$2	\$4,000	
Dock P:					
Replace Decking	1,000	SF	\$8	\$8,000	
Total Year 5+ Costs				\$12,000	

TOTAL(0-5 YEARS) COSTS:	\$1,679,036
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NOTES	
1. Estimated costs are based upon limited information. Refinements and additions should be anticipated as additional information becomes available.	
2. Above estimates are for informational purposes only and should not be used for bidding or construction purposes.	
3. SF estimates include covered and open (deck) portions of structures.	

