NOTE:
8" Coarse aggregate layer shall be removed immediately prior to installation of roadway base course.

EXIST.
EXIST. ROADWAY
LOCATION AS SHOWN ON PLAN

EXISTING
BASE COURSE

EXISTING
AC PAV'T

SECTION

GEOTEXTILE FILTER FABRIC
SEE TABLE A BELOW

TABLE A  GEOTEXTILE REQUIREMENTS

<table>
<thead>
<tr>
<th>PHYSICAL PROPERTY</th>
<th>REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAB TENSILE STRENGTH</td>
<td>220 LB (ASTM D1682)</td>
</tr>
<tr>
<td>ELONGATION FAILURE</td>
<td>60% (ASTM D1682)</td>
</tr>
<tr>
<td>MULLEN BURST STRENGTH</td>
<td>430 LB (ASTM D3768)</td>
</tr>
<tr>
<td>PUNCTURE STRENGTH</td>
<td>125 LB (ASTM D751, MODIFIED)</td>
</tr>
<tr>
<td>EQUIVALENT OPENING</td>
<td>SIZE 40-80 (U.S. STD SIEVE, CW-02215)</td>
</tr>
</tbody>
</table>

CONSTRUCTION INGRESS/EGRESS DETAILS
NOT TO SCALE
GEOTEXTILE FABRIC (MIRAFI 100X or EQUIVALENT) SILT FENCE ANCHORED WITH REBAR

EXIST. GROUND

FASTEN SILT FENCE TO REBAR (TYP.)

#6 REBAR W/CAP (TYP.)

ELEVATION

PROPERTY LINE

VARIES 2' MIN.

LIMITS OF GRADING

GEOTEXTILE FABRIC

EXIST. GROUND

RUNOFF

FILL W/ NATIVE SOIL & COMPACT

#6 REBAR W/CAP (TYP.)

SECTION

6' O.C. MAX

6" MIN

18"

18"

18"

CITY & COUNTY OF HONOLULU

SCALE: NTS AUGUST 16, 2017

BMP STANDARD DETAILS - SILT FENCE
VERIFY AGGREGATE POUCH ACCESS (VELCRO) IS LARGE ENOUGH TO FILL WITH SHOVEL, FILL POUCH HALF-FULL WITH #3 COARSE AGGREGATE

3"-DIAMETER DAM

WOVEN MONOFILAMENT

OVERFLOW GAP VARIES WITH DIAMETER OR DAM AND HOOD HEIGHT

AGGREGATE POUCH

CURB DROP INLET OR MEDIAN INLET WITHOUT GRATE

LOW PROFILE WITH GUTTER FOR SAFETY AND CURB APPEAL

SEDIMENT FILTER FOR CATCH BASINS

NOT TO SCALE
## BMP STANDARD DETAILS - SEDIMENT FILTER
FOR DRAIN INLETS

### CITY & COUNTY OF HONOLULU
SCALE: NTS  AUGUST 16, 2017

**SEDIMENT FILTER FOR DRAIN INLETS**

*NOT TO SCALE*

<table>
<thead>
<tr>
<th>Mechanical Properties</th>
<th>Test Method</th>
<th>Units</th>
<th>MARV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grab Tensile Strength</td>
<td>ASTM D 4632</td>
<td>kN (lbs)</td>
<td>1.62 (365) X 0.89 (200)</td>
</tr>
<tr>
<td>Grab Tensile Elongation</td>
<td>ASTM D 4632</td>
<td>%</td>
<td>24 X 10</td>
</tr>
<tr>
<td>Puncture Strength</td>
<td>ASTM D 4833</td>
<td>kN (lbs)</td>
<td>0.40 (90)</td>
</tr>
<tr>
<td>Mullen Burst Strength</td>
<td>ASTM D 3786</td>
<td>kPa (psi)</td>
<td>3097 (450)</td>
</tr>
<tr>
<td>Trapezoid Tear Strength</td>
<td>ASTM D 4533</td>
<td>kN (lbs)</td>
<td>0.51 (115) X 0.33 (75)</td>
</tr>
<tr>
<td>UV Resistance</td>
<td>ASTM D 4355</td>
<td>%</td>
<td>90</td>
</tr>
<tr>
<td>Apparent Opening Size</td>
<td>ASTM D 4751</td>
<td>Mm (US Std Sieve)</td>
<td>0.425 (40)</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>ASTM D 4491</td>
<td>1/min/m²/gal/min/ft³</td>
<td>5907 (145)</td>
</tr>
<tr>
<td>Permittivity</td>
<td>ASTM D 4491</td>
<td>Sec⁻¹</td>
<td>2.1</td>
</tr>
</tbody>
</table>
EROSION PREVENTION/SEDIMENT CONTROL NOTES:

1. The contractor shall follow the guidelines in the City and County of Honolulu’s “Rules Relating to Water Quality.”
2. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
3. Slope protection slope protection is required on areas with slopes greater than 15% and on areas of moderate slope that are prone to erosion unless they are being actively worked. Use diversion upstream of slope (dikes, swales, slope drains) to divert water around the slope. Provide a 10-ft buffer zone at the toe of slope only. 5 acres may be disturbed at any time on slopes greater than 15%.
4. Temporary Stabilization
   - Temporary stabilization is required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
   - Permanent stabilization shall be permanently stabilized using vegetation, covering, pavement, or equivalent. Prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil which result from the removal of the temporary measures shall be immediately and permanently stabilized.
   - Preserve existing vegetation clearly mark the areas to be preserved with flags or temporary fencing. Where temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright position.
   - Minimize soil compaction areas where final stabilization or revegetation practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to control the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction revegetation areas. Clearly mark the areas to be avoided with flags or temporary fencing. Where temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright position.
5. Perimeter Controls
   - Perimeter controls are required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
6. Sediment Barriers and Fences
   - Sediment fences or barriers shall be used downslope of all disturbed areas. Until slopes are stabilized a sediment fence or barrier shall be installed at the toe of the slope and on contours at the following spacing:
     - Slope < 2:1 10 ft spacing
     - Slope > 2:1 and < 4:1 15 ft spacing
     - Slope > 4:1 20 ft spacing
7. Inlet Protection
   - All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device unless they are directed to a sediment basin.
   - Sediment levels may not exceed one third of the height of a sediment barrier or inlet protection device at any point along the length of the sediment barrier or the inlet protection device.
   - Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
   - Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
8. Sediment Basins: Sediment basins must be kept in effective operating condition and sediment shall be removed to maintain at least one half of the design capacity at all times.
9. Tracking Control
   - Minimize sediment track-out onto off-site streets, other paved areas, and sidewalks from vehicles exiting the construction site by restricting vehicle traffic to properly designated areas and using additional controls to remove sediment from vehicle tires prior to exiting the site.
   - Vehicle parking and movements on project sites must be confined to paved surfaces or designated parking areas and vehicle paths, which shall be marked with flags or boundary fencing.
   - All pollutants and materials that are dropped, washed, tracked, spilled, or otherwise discharged from a project site to off-site streets, other paved areas, sidewalks, or the WS must be cleaned using dry methods such as sweeping or vacuuming.
   - Washing pollutants and materials that are discharged from the project site to the WS into drain inlets or catch basins is prohibited unless the material is sediment and the inlets are directed to a sediment basin or sediment trap.
10. Best Management Practices (BMPs) shall not be removed until final stabilization is complete for that phase.
11. Refer to City and County of Honolulu Best Management Practices Manual - Construction, for more information on BMPs.
12. A comprehensive list of BMPs based on the DPP Rules relating to water quality and CCH Construction BMP manual were deemed to complete this ESP. The following BMPs were determined to be not applicable because they would not effectively manage erosion prevention and sediment control based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
   - De-watering practices are not applicable.
EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN:

PROJECT SEQUENCE:
1. Install stabilized construction entrances, perimeter controls, inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMPs.
2. Construct diversion ditch with check dams upslope of the graded area to direct runoff around the site. Install velocity dissipation structure at temporary outlet.
3. Construct temporary sediment basins, stabilize immediately.
4. Construction temporary swales to direct runoff into the sediment basins. Stabilize immediately.
5. Install permanent drainage system with temporary inlet protection for inlets that do not drain to the sediment basins. Clear and grub as needed for installation.
6. Clear, grub and grade the site in 2 phases, refer to site plan. Relocate, reconstruct and maintain BMPs as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed in each phase.
7. Initiate stabilization of steep slopes (> 15%) with hydroseeding as soon as grading is completed on those areas. Install permanent irrigation system prior to permanent seeding.
8. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
9. Plant permanent ground cover according to the landscaping plan as soon as possible.
10. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
11. Practice good housekeeping measures throughout the duration of construction.
12. Inspections will be performed weekly.

RAIN RESPONSE PLAN:
1. The following will be performed when heavy rains, tropical storm or hurricane is imminent or is forecasted in the next 48 hours:
2. Temporary suspension of active grading, grubbing and trenching.
3. Inspect all sediment basins, temporary ditches/swales, perimeter controls, and inlet protection devices, and maintain as needed. Reinstall any perimeter controls that were removed due to active work in the area. If a severe storm is expected, remove inlet protection devices to prevent flooding on surrounding streets.
4. Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater.
5. Place spill pans or oil-only spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any accumulated oily water after the rain event.
6. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMPs as needed.
GOOD HOUSEKEEPING BMPs:

1. STREET SWEETING AND VACUUMING. ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEEP OR VACUUMED EACH DAY BEFORE LEAVING THE JOB SITE.

2. MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT. PREVENT, REDUCE, OR ELIMINATE THE DISCHARGE OF POLLUTANTS FROM MATERIAL DELIVERY, STORAGE, AND USE TO THE STORMWATER SYSTEM. INSTALL SECONDARY CONTAINMENT OR BARRIERS TO PREVENT THE STORAGE OF HAZARDOUS MATERIALS AND OTHER MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT OR BARRIERS TO PROTECT VARIOUS SOURCES OF POLLUTION SHALL NOT BE STORED IN BUFFER AREAS, NEAR AREAS OF CONCENTRATED FLOW, OR AREAS AButting THE MS4, RECEIVING WATERS, OR DRAINAGE IMPROVEMENTS THAT DISCHARGE OFF-SITE. PRIMARY AND SECONDARY CONTAINMENT CONTROLS AND COVERS SHALL BE IMPLEMENTED TO THE ME.

3. SPILL PREVENTION AND CONTROL. CREATE AND IMPLEMENT SPILL PREVENTION AND RESPONSE PLANS TO ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO THE MS4 AND RECEIVING WATERS FROM LEAKS AND SPILLS BY REDUCING THE CHANCE FOR SPILLS, ABSORBING, CONTAINING, AND CLEANING UP SPILLS AND PROPERLY DISPOSING OF SPILL MATERIALS. AT A MINIMUM, ALL PROJECTS SHALL CLEAN UP ALL LEAKS AND SPILLS IMMEDIATELY.


5. NONHAZARDOUS MATERIALS. IN THE EVENT THAT NONHAZARDOUS MATERIALS DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

6. VEHICLE AND EQUIPMENT CLEANING. ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EQUIPMENT CLEANING OPERATIONS BY USING OFF-SITE FACILITIES WHEN FEASIBLE, WASHING IN DESIGNATED, CONTAINED AREAS ONLY, AND ELIMINATING DISCHARGES TO THE STORMDRAIN SYSTEM BY EVAPORATING AND/OR TREATING WASH WATER, AS APPROPRIATE OR INFILTRATING WASH WATER FOR EXTERIOR CLEANING ACTIVITIES THAT USE WATER ONLY.

7. VEHICLE AND EQUIPMENT FUELING. PREVENT FUEL SPILLS AND LEAKS BY USING OFF-SITE FACILITIES, FUELING ONLY IN DESIGNATED AREAS, ENCLOSING OR COVERING STORED FUEL, AND IMPLEMENTING SPILL CONTROLS SUCH AS SECONDARY CONTAINMENT AND ACTIVE MEASURES USING SPILL RESPONSE KITS.

8. VEHICLE AND EQUIPMENT FUELING. ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EQUIPMENT MAINTENANCE OPERATIONS BY USING OFF-SITE FACILITIES WHEN FEASIBLE, PERFORMING WORK IN DESIGNATED AREAS ONLY, USING SPILL PADS UNDER VEHICLES AND EQUIPMENT, CHECKING FOR LEAKS AND SPILLS, AND CONTAINING AND CLEANING UP SPILLS IMMEDIATELY.

9. SOLID WASTE MANAGEMENT. PREVENT OR REDUCE DISCHARGE OF POLLUTANTS TO THE LAND, GROUNDWATER, AND STORM WATER FROM SOLID WASTE OR CONSTRUCTION AND DEMOLITION WASTE BY PROVIDING DESIGNATED WASTE COLLECTION AREAS, COLLECT SITE TRASH DAILY, AND ENSURING THAT CONSTRUCTION WASTE IS COLLECTED, REMOVED, AND DISPOSED OF ONLY AT AUTHORIZED DISPOSAL AREAS.

10. SANITARY/SEPTIC WASTE MANAGEMENT. TEMPORARY AND PORTABLE SANITARY AND SEPTIC WASTE SYSTEMS SHALL BE MOUNTED OR STAKED IN, WELL-MAINTAINED AND SCHEDULED FOR REGULAR WASTE DISPOSAL AND SERVICING. SOURCES OF SANITARY AND OR SEPTIC WASTE SHALL NOT BE STORED NEAR THE MS4 OR RECEIVING WATERS.

11. STOCKPILE MANAGEMENT. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS, WITHIN 50 FEET OF AREAS OF CONCENTRATED FLOWS, AND ARE NOT ALLOWED IN THE CITY RIGHT-OF-WAY. SEDIMENT BARRIERS OR SILT FENCES SHALL BE USED AROUND THE BASE OF ALL STOCKPILES. STOCKPILES SHALL NOT EXCEED 15 FEET IN HEIGHT, STOCKPILES GREATER THAN 15 FEET IN HEIGHT SHALL REQUIRE 3 FOOT WIDE BENCHING IN ACCORDANCE WITH ROH CHAPTER 14, ARTICLE 15. STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY USED WITHIN 30 DAYS.

12. LIQUID WASTE MANAGEMENT. LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, LIQUID貣 BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUITABLE VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPEDEABLE AND LEAK FREE AND SHOULD NOT BE LOCATED WHERE ACCIDENTAL RELEASE OF THE CONTAINED LIQUID CAN DISCHARGE TO WATER BODIES, CHANNELS, OR STORM DRAINS.

13. CONCRETE WASTE MANAGEMENT. PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM CONCRETE WASTE BY CONDUCTING WASHOUT OFFSITE OR PERFORMING ONSITE WASHOUT IN A DESIGNATED AREA CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MILLIMETER POLYETHYLENE SHEETING AND SHOULD BE OF HOLE, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL. CONTAINMENT AREAS OR DEVICES SHOULD NOT BE LOCATED WHERE ACCIDENTAL RELEASE OF THE CONTAINED LIQUID CAN DISCHARGE TO WATER BODIES, CHANNELS, OR STORM DRAINS. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75 PERCENT FULL. ONCE CONCRETE WASTES ARE WASHED INTO THE DESIGNATED AREA AND ALLOWED TO HARDEN, THE CONCRETE SHOULD BE BROKEN UP, REMOVED, AND DISPOSED OF AS SOLID WASTES.

14. CONTAMINATED SOIL MANAGEMENT. AT MINIMUM CONTAIN CONTAMINATED MATERIAL ON SURROUNDING WITH IMPEDEABLE LINED BERM OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.