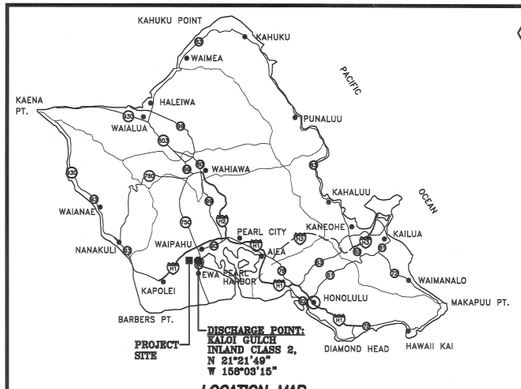


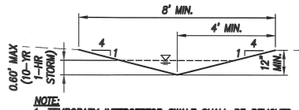
LOCATION MAP
NOT TO SCALE

① TEMPORARY SEDIMENT TRAP
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C104
MIN. INVERT = 138 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.23 AC
(INCREMENT 1)
REQUIRED VOLUME = 564 CY.
AVAILABLE VOLUME = 602 CY.

② EXISTING TEMPORARY RETENTION BASIN
TO BE USED FOR EROSION CONTROL
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C104
MIN. INVERT = 123 FT.
MIN. DEPTH = 3 FT.
MAX CONTRIBUTING AREA
AT GIVEN TIME = 8.11 AC
(INCREMENTS 2, 3, AND 4)
REQUIRED VOLUME = 1,081 CY.
AVAILABLE VOLUME = 17,035 CY.

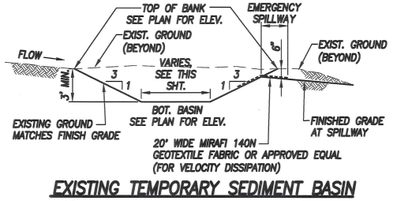
TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=2.39 CFS
A=3.49 AC.
V=1.30 FPS
D=0.62 FT
S=0.005 FT/FT

TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=0.99 CFS
A=1.45 AC.
V=1.17 FPS
D=0.46 FT
S=0.006 FT/FT

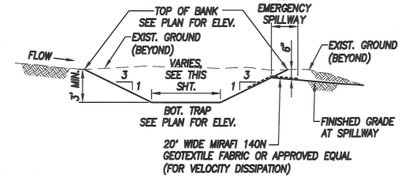


NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

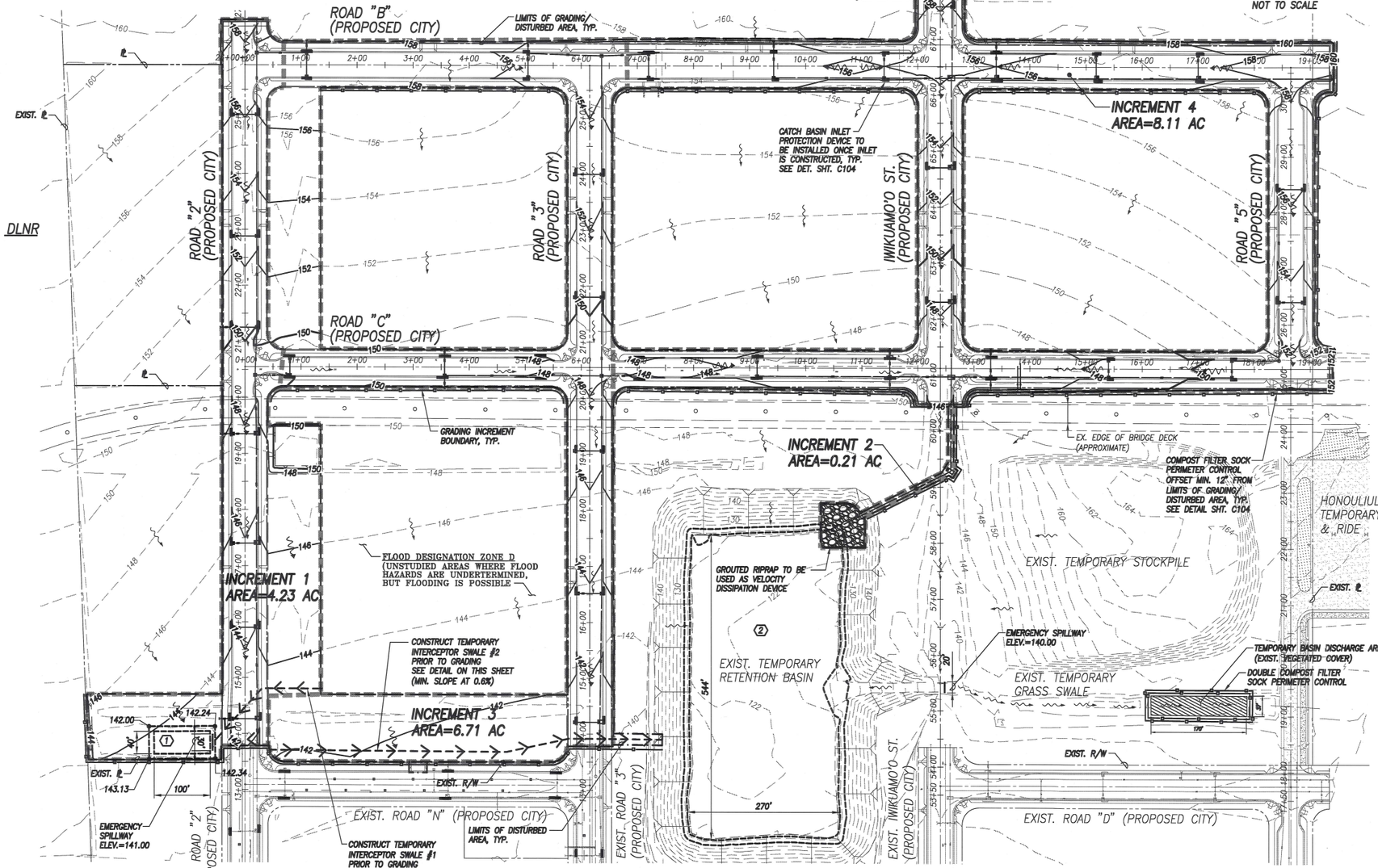
TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE



EXISTING TEMPORARY SEDIMENT BASIN
NOT TO SCALE



TEMPORARY SEDIMENT TRAP
NOT TO SCALE



EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 100'

NOTE:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHT. C104 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
3. IN LIEU OF PROVIDING OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS.
4. DOUBLE COMPOST FILTER SOCK (PERIMETER CONTROL) SHALL BE PLACED AT THE DOWNSTREAM SIDE OF THE TEMPORARY DISCHARGE AREAS. CONTRACTOR SHALL PUMP STANDING WATER IN THE SEDIMENT BASINS AND TRANSPORT (TRUCK) TO THE AREA DESIGNATED ON THIS PLAN. CONTRACTOR MAY EXPAND THE DISCHARGE AREA SHOULD A LARGER AREA BE REQUIRED.

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT BASIN
- EXISTING RETENTION BASIN AS SEDIMENT BASIN
- TEMPORARY SWALES

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	6,700 LF
CATCH BASIN INLET PROTECTION DEVICE	82 EA.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE:
1" = 100' — 100' 50' 0 100' 200'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 7A
BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 193, 194, 195

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Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
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CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE 4/30/26 EXP. DATE

REVISION	DATE	BRIEF	BY	APPROVED

APPROVED BY
Chief, Civil Engineering Branch, DPP DATE
(For grading and work within City R/W only)

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	CD
SCALE	AS SHOWN
DATE	DECEMBER 2022
DPP FILE NO.	2023/CP-2

EROSION AND SEDIMENT CONTROL PLAN

RMTC JOB NO.: 1-24002-0E

K:\civil\24002 Hoopili Phase 7A\Drawings\Construction Dwgs\Backbone Roadway\C107 – ESCP Plan.dwg November 18, 2024

FILE	POCKET	FOLDER	NO.

LID SITE DESIGN

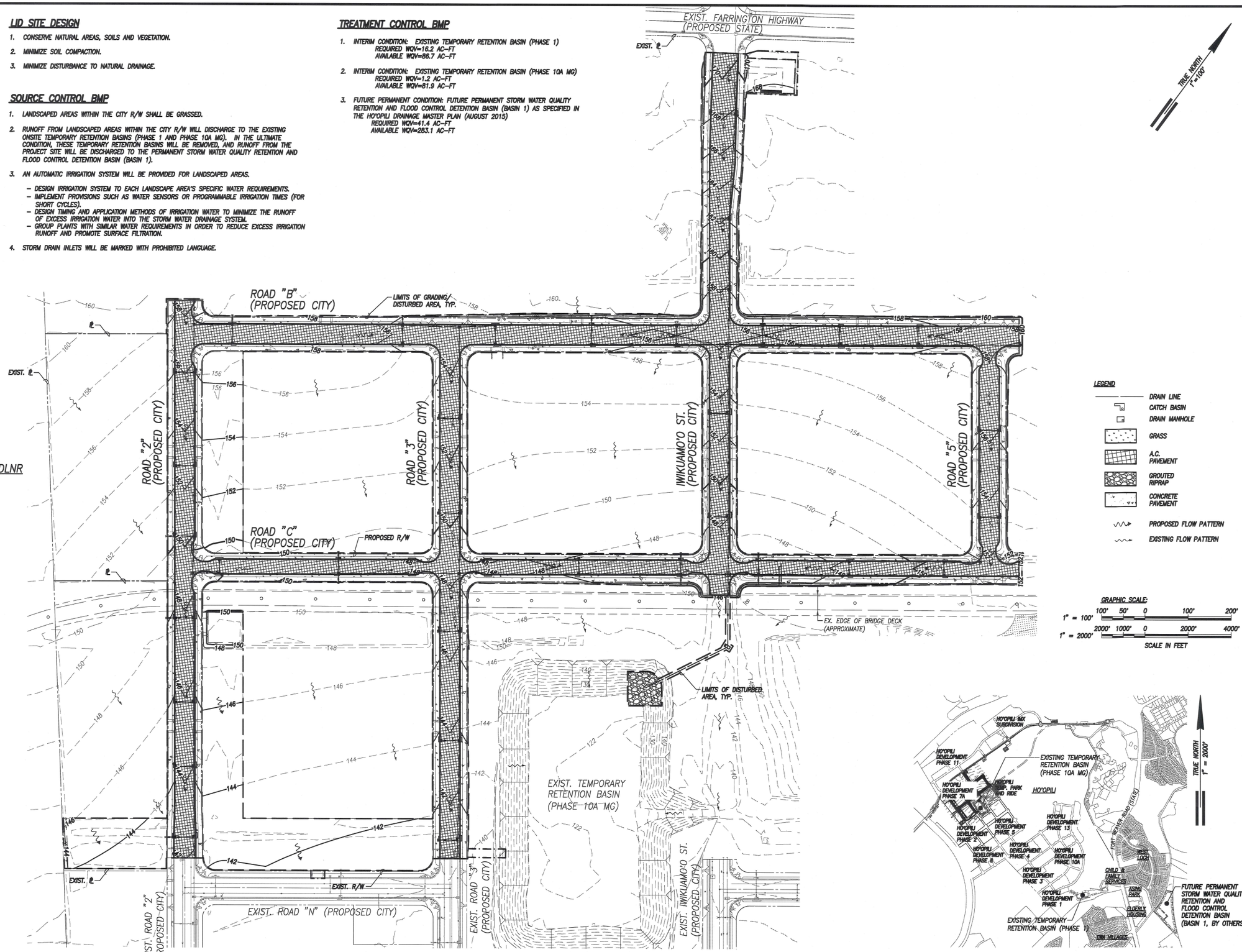
1. CONSERVE NATURAL AREAS, SOILS AND VEGETATION.
2. MINIMIZE SOIL COMPACTION.
3. MINIMIZE DISTURBANCE TO NATURAL DRAINAGE.

SOURCE CONTROL BMP

1. LANDSCAPED AREAS WITHIN THE CITY R/W SHALL BE GRASSED.
2. RUNOFF FROM LANDSCAPED AREAS WITHIN THE CITY R/W WILL DISCHARGE TO THE EXISTING ONSITE TEMPORARY RETENTION BASINS (PHASE 1 AND PHASE 10A MG). IN THE ULTIMATE CONDITION, THESE TEMPORARY RETENTION BASINS WILL BE REMOVED, AND RUNOFF FROM THE PROJECT SITE WILL BE DISCHARGED TO THE PERMANENT STORM WATER QUALITY RETENTION AND FLOOD CONTROL DETENTION BASIN (BASIN 1).
3. AN AUTOMATIC IRRIGATION SYSTEM WILL BE PROVIDED FOR LANDSCAPED AREAS.
   - DESIGN IRRIGATION SYSTEM TO EACH LANDSCAPE AREA'S SPECIFIC WATER REQUIREMENTS.
   - IMPLEMENT PROVISIONS SUCH AS WATER SENSORS OR PROGRAMMABLE IRRIGATION TIMES (FOR SHORT CYCLES).
   - DESIGN TIMING AND APPLICATION METHODS OF IRRIGATION WATER TO MINIMIZE THE RUNOFF OF EXCESS IRRIGATION WATER INTO THE STORM WATER DRAINAGE SYSTEM.
   - GROUP PLANTS WITH SIMILAR WATER REQUIREMENTS IN ORDER TO REDUCE EXCESS IRRIGATION RUNOFF AND PROMOTE SURFACE FILTRATION.
4. STORM DRAIN INLETS WILL BE MARKED WITH PROHIBITED LANGUAGE.

TREATMENT CONTROL BMP

1. INTERIM CONDITION: EXISTING TEMPORARY RETENTION BASIN (PHASE 1)
   REQUIRED WQV=16.2 AC-FT
   AVAILABLE WQV=86.7 AC-FT
2. INTERIM CONDITION: EXISTING TEMPORARY RETENTION BASIN (PHASE 10A MG)
   REQUIRED WQV=1.2 AC-FT
   AVAILABLE WQV=81.9 AC-FT
3. FUTURE PERMANENT CONDITION: FUTURE PERMANENT STORM WATER QUALITY RETENTION AND FLOOD CONTROL DETENTION BASIN (BASIN 1) AS SPECIFIED IN THE HO'OPILI DRAINAGE MASTER PLAN (AUGUST 2015)
   REQUIRED WQV=41.4 AC-FT
   AVAILABLE WQV=283.1 AC-FT



POST CONSTRUCTION BMP PLAN (PRIORITY A)
SCALE: 1" = 100'

LEGEND

- DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- GRASS
- A.C. PAVEMENT
- GROUTED RIPRAP
- CONCRETE PAVEMENT
- PROPOSED FLOW PATTERN
- EXISTING FLOW PATTERN

GRAPHIC SCALE:
1" = 100' 100' 50' 0 100' 200'
1" = 2000' 2000' 1000' 0 2000' 4000'
SCALE IN FEET

INSET
SCALE: 1" = 2000'

HO'OPILI DEVELOPMENT PHASE 7A

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 193, 194, 195

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SIGNATURE 4/30/25 EXP. DATE

REVISION	DATE	BRIEF	BY	APPROVED

APPROVED BY
Chief, Civil Engineering Branch, DPP ##A 7 DATE
(For grading and work within City R/W only)

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	CD
SCALE	AS SHOWN
DATE	DECEMBER 2022
DPP FILE NO.	2023/CP-2

POST CONSTRUCTION BMP PLAN

RMTC JOB NO.: 1-24002-0E

K:\civil\24002 Hoopili Phase 7A\Drawings\Construction Dwgs\Backbone Roadway\C108 – Post Construction BMP Plan.dwg November 18, 2024

FILE	POCKET	FOLDER	NO.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 7 CONSECUTIVE DAYS OR MORE.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS, 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.
6. 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.
7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.
8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
9. 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.
10. SEDIMENT TRAPS

    SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES.
11. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.
12. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
13. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION FOR MORE INFORMATION ON BMPS.
14. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - VELOCITY DISSIPATION DEVICES
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT – PHASE 7A; EWA, OAHU, HAWAII" DATED _____, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT TRAPS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT BASINS
      - SEPARATE DOCUMENTATION PROVIDED TO DPP.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE.
      - THE PROJECT OCCURS ON EXISTING SLOPES LESS THAN 15%.
    - BUFFER ZONES
      - THE PROJECT OCCURS ON EXISTING SLOPES LESS THAN 15% AND DOES NOT OCCUR WITHIN 50 FT OF STATE WATERS.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.
15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).
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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 A 6 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 7 DAYS.
12. LIQUID WASTE MANAGEMENT.

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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."
16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

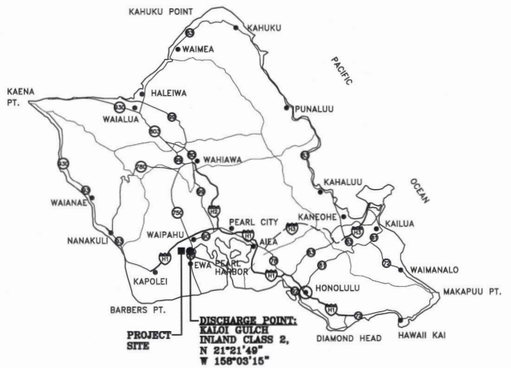
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, INLET PROTECTION, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT TRAPS AND STABILIZE IMMEDIATELY.
3. CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT TRAPS. STABILIZE IMMEDIATELY.
4. PROVIDE WATER TRUCKS FOR DUST CONTROL.
5. CLEAR, GRUB AND GRADE THE SITE IN 11 INCREMENTS IN NUMERICAL SEQUENTIAL ORDER STARTING WITH INC. 1, REFER TO GRADING PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
6. 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.
7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

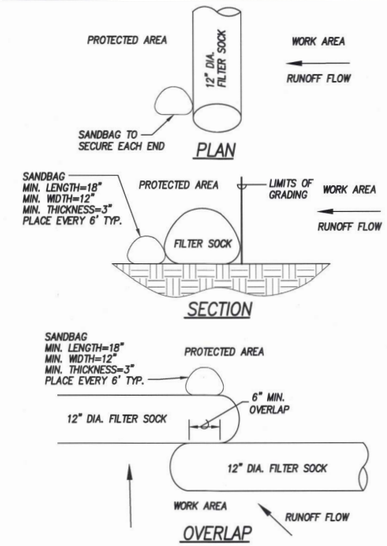
RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

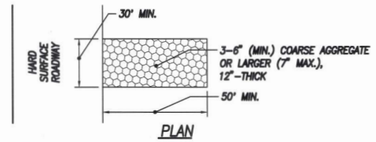
1. TEMPORARY SUSPENSION OF ACTIVE GRADING.
2. INSPECT ALL PERIMETER CONTROLS, TEMPORARY SEDIMENT TRAPS, TEMPORARY SWALES, AND INLET PROTECTION DEVICES, AND MAINTAIN AS NEEDED. REINSTALL ANY PERIMETER CONTROLS THAT WERE REMOVED DUE TO ACTIVE WORK IN THE AREA. IF A SEVERE STORM IS EXPECTED, REMOVE INLET PROTECTION DEVICES TO PREVENT FLOODING ON SURROUNDING STREETS.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



LOCATION MAP
NOT TO SCALE



COMPOST FILTER SOCK DETAIL
NOT TO SCALE



NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

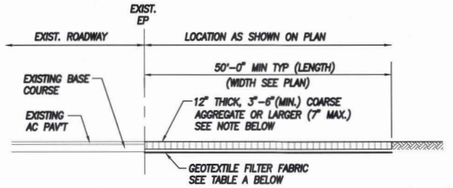
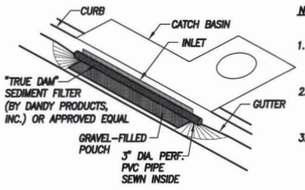


TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS
NOT TO SCALE



NOTES:
1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION
NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 7A

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 193, 194, 195

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE 4/30/26 EXP. DATE

NO.	REVISION	DATE	BY	APPROVED

APPROVED BY
for Chief, Civil Engineering Branch, DPP — DATE 8/13/26

ENGINEER	CD, MN, MC
DRAFTSMAN	CD, MN, MC
CHECKED BY	CD
SCALE	AS SHOWN
DATE	AUGUST 2022
DPP FILE NO.	2022/CP-151

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

RMTC JOB NO.: 1-24002-0E

FILE	POCKET	FOLDER	NO.

HO'OPILI DEVELOPMENT PHASE 7A

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 193, 194, 195

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SIGNATURE 4/30/26 EXP. DATE

INCREMENT 1
AREA=0.20 AC

INCREMENT 2
AREA=0.62 AC

INCREMENT 3
AREA=0.37 AC

INCREMENT 4
AREA=2.32 AC

INCREMENT 5
AREA=4.96 AC

INCREMENT 6
AREA=3.67 AC

INCREMENT 7
AREA=4.84 AC

INCREMENT 8
AREA=3.48 AC

INCREMENT 9
AREA=3.41 AC

INCREMENT 10
AREA=3.61 AC

INCREMENT 11
AREA=3.30 AC

ALIGNMENT "2"
ALIGNMENT "3"
ALIGNMENT "4"
ALIGNMENT "5"
ALIGNMENT "B"
ALIGNMENT "C"

LIMITS OF GRADING/ DISTURBED AREA, TYP.

DEPARTMENT OF LAND AND NATURAL RESOURCES

COMPOST FILTER SOCK PERIMETER CONTROL OFFSET MIN. 12" FROM LIMITS OF GRADING/ DISTURBED AREA, TYP. SEE DETAIL SHT. C107.

CONSTRUCT TEMPORARY INTERCEPTOR SWALE #1 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 0.8%)

CONSTRUCT TEMPORARY INTERCEPTOR SWALE #2 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 0.5%)

CONSTRUCT TEMPORARY INTERCEPTOR SWALE #3 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 0.8%)

CONSTRUCT TEMPORARY INTERCEPTOR SWALE #4 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 0.5%)

CONSTRUCT TEMPORARY INTERCEPTOR SWALE #5 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 0.5%)

CONSTRUCT TEMPORARY INTERCEPTOR SWALE #6 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN SLOPE AT 0.5%)

CONSTRUCT TEMPORARY INTERCEPTOR SWALE #7 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 0.5%)

CONSTRUCT TEMPORARY INTERCEPTOR SWALE #8 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 0.7%)

CATCH BASIN INLET PROTECTION DEVICE TO BE INSTALLED ONCE INLET IS CONSTRUCTED, TYP. SEE DET. SHT. C104

EMERGENCY SPILLWAY ELEV.=149.50
EMERGENCY SPILLWAY ELEV.=149.00
EMERGENCY SPILLWAY ELEV.=150.50
EMERGENCY SPILLWAY ELEV.=152.00
EMERGENCY SPILLWAY ELEV.=142.00
EMERGENCY SPILLWAY ELEV.=141.50

FLOOD DESIGNATION ZONE D
(UNSTUDIED AREAS WHERE FLOOD HAZARDS ARE UNDERTERMINED, BUT FLOODING IS POSSIBLE

EXIST. TEMPORARY RETENTION BASIN

EXIST. TEMPORARY STOCKPILE

HONOULIULI/HO'OPILI TEMPORARY PARK & RIDE

EXIST. ROAD "N" (PROPOSED CITY)
EXIST. ROAD "2" (PROPOSED CITY)
EXIST. ROAD "3" (PROPOSED CITY)
EXIST. ROAD "4" (PROPOSED CITY)
EXIST. ROAD "D" (PROPOSED CITY)

EX. R/W
EX. BERM
EX. ℄

TRUE NORTH
1"=100'

NOTES:

1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHT. C101 FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C104 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	11,249 LF
CATCH BASIN INLET PROTECTION DEVICE	14 EA.

(1) TEMPORARY SEDIMENT TRAP 1
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 139 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 2.32 AC
(INCREMENT 4)
REQUIRED VOLUME = 309 CY.
AVAILABLE VOLUME = 395 CY.

(2) TEMPORARY SEDIMENT TRAP 2
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 138.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.96 AC
(INCREMENT 5)
REQUIRED VOLUME = 661 CY.
AVAILABLE VOLUME = 784 CY.

(3) TEMPORARY SEDIMENT TRAP 3
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 146.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 3.67 AC
(INCREMENT 6)
REQUIRED VOLUME = 489 CY.
AVAILABLE VOLUME = 510 CY.

(4) TEMPORARY SEDIMENT TRAP 4
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 146.00 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.84 AC
(INCREMENT 7)
REQUIRED VOLUME = 645 CY.
AVAILABLE VOLUME = 784 CY.

(5) TEMPORARY SEDIMENT TRAP 5
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 146.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 3.48 AC
(INCREMENT 8)
REQUIRED VOLUME = 464 CY.
AVAILABLE VOLUME = 510 CY.

(6) TEMPORARY SEDIMENT TRAP 6
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 147.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 3.41 AC
(INCREMENT 9)
REQUIRED VOLUME = 455 CY.
AVAILABLE VOLUME = 510 CY.

(7) TEMPORARY SEDIMENT TRAP 7
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 149.00 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 3.61 AC
(INCREMENT 10)
REQUIRED VOLUME = 481 CY.
AVAILABLE VOLUME = 510 CY.

(8) TEMPORARY SEDIMENT TRAP 8
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 149.00 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 3.30 AC
(INCREMENT 11)
REQUIRED VOLUME = 440 CY.
AVAILABLE VOLUME = 510 CY.

TEMPORARY SWALE #1 (10-YR, 1-HR STORM) (INCREMENT 1)
Q=1.10 CFS
A=0.80 AC.
V=1.36 FPS
D=0.45 FT
S=0.008 FT/FT

TEMPORARY SWALE #2 (10-YR, 1-HR STORM) (INCREMENT 2)
Q=3.00 CFS
A=2.40 AC.
V=1.45 FPS
D=0.72 FT
S=0.005 FT/FT

TEMPORARY SWALE #3 (10-YR, 1-HR STORM) (INCREMENT 2)
Q=1.90 CFS
A=1.16 AC.
V=1.57 FPS
D=0.55 FT
S=0.008 FT/FT

TEMPORARY SWALE #4 (10-YR, 1-HR STORM) (INCREMENT 2)
Q=5.80 CFS
A=5.40 AC.
V=1.71 FPS
D=0.92 FT
S=0.006 FT/FT

TEMPORARY SWALE #5 (10-YR, 1-HR STORM) (INCREMENT 7)
Q=1.80 CFS
A=1.50 AC.
V=1.40 FPS
D=0.55 FT
S=0.005 FT/FT

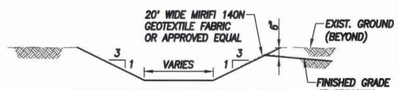
TEMPORARY SWALE #6 (10-YR, 1-HR STORM) (INCREMENT 4)
Q=1.30 CFS
A=1.00 AC.
V=1.16 FPS
D=0.53 FT
S=0.005 FT/FT

TEMPORARY SWALE #7 (10-YR, 1-HR STORM) (INCREMENT 4)
Q=2.20 CFS
A=1.90 AC.
V=1.34 FPS
D=0.64 FT
S=0.005 FT/FT

TEMPORARY SWALE #8 (10-YR, 1-HR STORM) (INCREMENT 4)
Q=2.00 CFS
A=1.70 AC.
V=1.49 FPS
D=0.58 FT
S=0.007 FT/FT

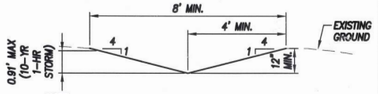
EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 100'



TEMPORARY SEDIMENT TRAP

NOT TO SCALE



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

TEMPORARY INTERCEPTOR SWALE

NOT TO SCALE

LEGEND:

- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE:
1" = 100'
100' 50' 0 100' 200'
SCALE IN FEET

APPROVED BY
Melvin Takehara 4/13/26
for Chief, Civil Engineering Branch, DPP DATE
(FOR SITE GRADING ONLY)

ENGINEER	CD, MN, MC
DRAFTSMAN	CD, MN, MC
CHECKED BY	CD
SCALE	AS SHOWN
DATE	AUGUST 2022
DPP FILE NO.	2022/CP-151

EROSION AND SEDIMENT CONTROL PLAN

REVISION	DATE	BRIEF	APPROVED

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-24002-0E

K:\civil\24002 Hoopili Phase 7A\Drawings\Construction Dwgs\Mass Grading\HDP7A MG C105 – ESCP Plan.dwg June 16, 2023

EXIST PUAPUA'A STREET (C I T Y)
HO'OPILI DEVELOPMENT PHASE 7A BACKBONE
ROADWAY IMPROVEMENTS
(2023/CP-2)

Sediment Control Filters @ All Exist Catch Basins Fronting Grading Site, Typ See Detail Sht C014

TRUE NORTH Scale: "= 30'-0"

Limits of Grading & Disturbed Area Along ℄

Bottom of Berm=154.7
Top of Berm=155.7
20'
10'

Drainage Flow Along Diversion Berm "C" Slope=1.0%±

"D" "D" See Sht C014

Drainage Flow Along Diversion Berm "C" Slope=0.7%±

Temporary Diversion Berm "C"

Top of Berm=154.0
Bottom of Berm=153.0

Mirafi Geotechnical Fabric Under Grating to be Installed on All New Private Drain Inlets, Typ. See Detail Sht C014

Top of Berm=158.0
Bottom of Berm=156.0
20'

Drainage Flow Along Diversion Berm "B" Slope=2.0%±

15"

Sediment Control Filters @ All Exist Catch Basins Fronting Grading Site, Typ See Detail Sht C014

"C" "C" See Sht C014

Temporary Diversion Berm "B"

EXIST KAMOLEHONUA STREET (C I T Y)
HO'OPILI DEVELOPMENT PHASE 7A BACKBONE
ROADWAY IMPROVEMENTS
(2023/CP-2)

EXIST IWIKUAMO'O STREET (C I T Y)
HO'OPILI DEVELOPMENT PHASE 7A BACKBONE
ROADWAY IMPROVEMENTS
(2023/CP-2)

Construct Temporary 30'x50' Construction Road for Ingress/Egress 12" Thick, 3" to 6" Coarse Aggregate or Larger (7" Max) w/ AMOCO Series 2000 Geotextile Fabric or Approved Equal) See Detail Sht C014

Limits of Grading & Disturbed Area w/ Temporary Filter Sock Perimeter Control Along ℄ Typ See Detail Sht C014

Mirafi Geotechnical Fabric Under Grating to be Installed on All New Private Drain Inlets, Typ. See Detail Sht C014

Limits of Grading & Disturbed Area w/ Temporary Filter Sock Perimeter Control Along ℄ Typ See Detail Sht C014

Temporary Sediment Basin (Erosion Control)
Effective Area = 5.88 Acs
Required Volume = 21,168 Cu Ft
(3,600 cu ft/Acre)
Provided Volume = 21,958 Cu Ft
Top of Berm = 149.30
Emergency Spillway Elev = 147.30
Sediment Basin Inv = 143.00
Draw-Down Time = 52.27 Hours

Top of Berm=150.5
Bottom of Berm=148.5
15' Berm Side Slope Transition (2:1 to 3:1)
Top of Berm=149.3
"A" "A" See Sht C014
"B" "B" See Sht C014
"C" "C" See Sht C014

20'
Bottom of Berm=149.6
Top of Berm=151.6
Drainage Flow Along Diversion Berm "A" Slope=0.5%±
Bottom of Berm=147.9
Top of Berm=149.9
25'
120'
18.90'
15'
18.90'
15'
Temporary Diversion Berm "A"

Temporary Draw-Down Inlet
Temporary 6" Draw-Down Line (32'± @ 5.0%±)
Connect Temporary 6" Draw-Down Line to Exist 30" Drain Provide Fittings & Adapters as Req'd Inv=137.57±

Top of Berm=149.3
15' Berm Side Slope Transition (2:1 to 3:1)
Emergency Spillway (6' Wide) Elev=147.30

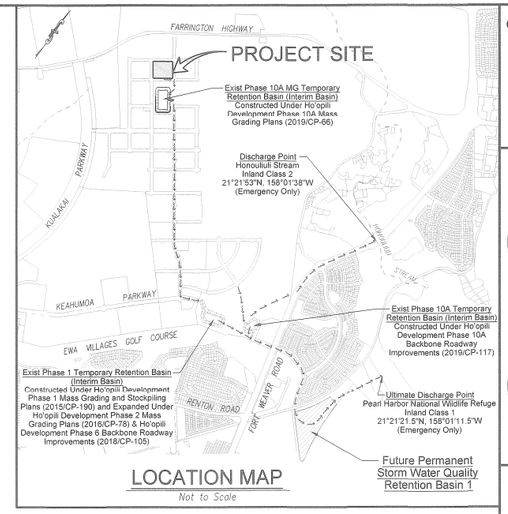
Sediment Control Filters @ All Exist Catch Basins Fronting Grading Site, Typ See Detail Sht C014

EXIST PUNOHU STREET (C I T Y)
HO'OPILI DEVELOPMENT PHASE 7A BACKBONE
ROADWAY IMPROVEMENTS
(2023/CP-2)

Limits of Grading & Disturbed Area w/ Temporary Filter Sock Perimeter Control Along ℄ Typ See Detail Sht C014

EROSION & SEDIMENT CONTROL PLAN

30 15 0 30 60
Scale in Feet



LOCATION MAP
Not to Scale

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist Basin
- Mirafi Geotechnical Fabric
- Temporary Filter Sock
- Property Line (Limits of Grading & Disturbed Area)
- Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:
- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:
- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:
- Permanent Stabilization BMP'S

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:
- See Sheet C014

Gray•Hong•Nojima & Associates, Inc.
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201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813
Telephone: (808) 521-0306
Fax: (808) 531-8018

Exp: 4/30/26
MICHAEL H. NOJIMA
LICENSED PROFESSIONAL ENGINEER
No. 5632-C
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2, OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

Exp: 4/30/26
WINSTON M. TANIGUCHI
LICENSED PROFESSIONAL ENGINEER
No. 13730-C
HAWAII, U.S.A.
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NO.	DESCRIPTION	DATE	APPROVED
1			

ENGINEER: WT	CHECKED BY: MN
DRAWN BY: JG	PROJECT #: 3100-46

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 7A PARCEL 34

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2024/CP-65)
TMK: 9-1-17: POR OF 193
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
for CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. (FOR GRADING ONLY)
11/8/24 DATE

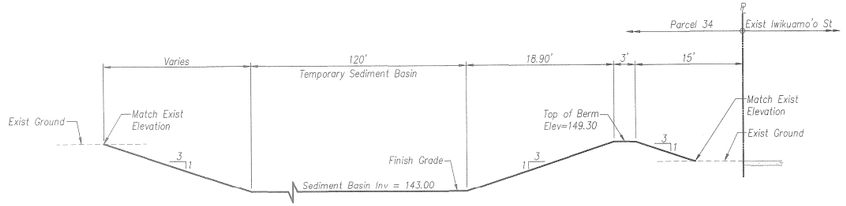
C013

SHEET 13 OF 43 SHEETS

FILE	POCKET	FOLDER	NO.

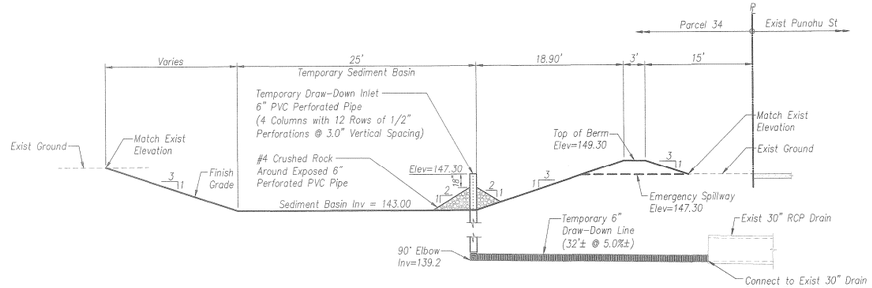
PROJECT NAME: HO'OPILI PHASE 7A PARCEL 34
CAD DWG NO.: 3100-46_ESC Plan.dwg
DATE: APRIL 2024

Drawing name: \\ghh-fs01\Projects\3100-46 Hoopili Ph 7A - Parcel 34\DWG\Construction Plans\3100-46_ESC Plan.dwg Mar 03, 2025 - 1:25pm



SECTION "A-A" (TEMP SEDIMENT BASIN)

Not to Scale



SECTION "B-B" (TEMPORARY SEDIMENT BASIN)

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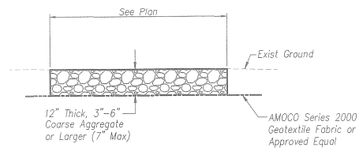

CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

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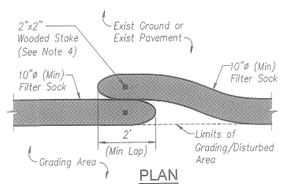

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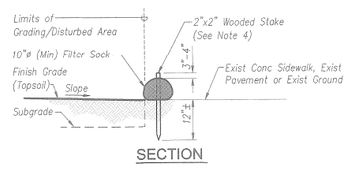
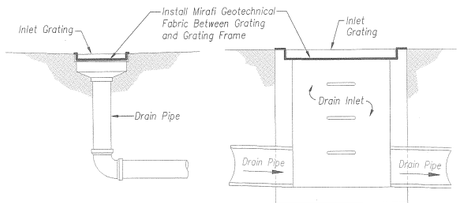


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

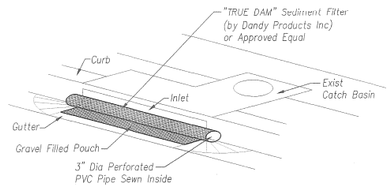
FILTER SOCK PLACEMENT DETAIL

Not to Scale



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

Not to Scale



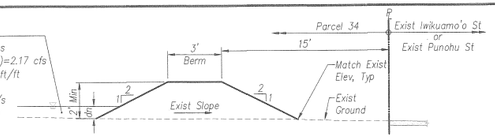
NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

BERM "A"
A=3.88 Acs
Q(10yr-1hr)=14.48 cfs
S=0.0050 ft/ft
n=0.035
V=1.34 ft/s
dn=0.63 ft

BERM "B"
A=0.58 Acs
Q(10yr-1hr)=2.17 cfs
S=0.0200 ft/ft
n=0.035
V=0.95 ft/s
dn=0.15 ft

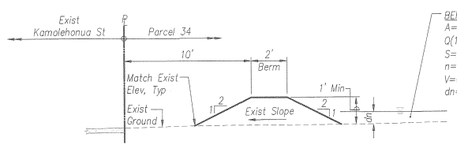


SECTION "C-C" (TEMPORARY DIVERSION BERM "A" & "B")

Not to Scale

BERM "C" (S=1.0%)
A=0.13 Acs
Q(10yr-1hr)=0.49 cfs
S=0.0100 ft/ft
n=0.035
V=0.63 ft/s
dn=0.14 ft

BERM "C" (S=0.7%)
A=0.35 Acs
Q(10yr-1hr)=1.31 cfs
S=0.0070 ft/ft
n=0.035
V=0.75 ft/s
dn=0.21 ft



SECTION "D-D" (TEMPORARY DIVERSION BERM "C")

Not to Scale

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. The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.
3. The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
12. Sediment Basins:
    A. 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.
13. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
14. All best management practices (BMP's) shall not be removed until the entire project is complete.
15. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
16. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment Traps are not applicable.
    F. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers are not applicable.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), and inlet protection, clear and grub as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and stabilize immediately.
3. Construct temporary diversion berms as needed to direct runoff into the sediment basin.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed.
6. Install remaining parts of permanent drainage system with temporary inlet protection.
7. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
8. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
9. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
10. Plant permanent ground cover according to the landscaping plans as soon as possible.
11. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
12. Practice good housekeeping measures throughout the duration of construction.
13. 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.
3. Inspect sediment basin, temporary berms, 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Non-hazardous Materials: In the event that non-hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 foot wide benching in accordance with ROH Chapter 18A, Article 3. Stockpiles must be covered with plastic sheeting or a comparable material if they will not be actively used within 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-46

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 7A PARCEL 34

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2024/CP-65)
TMK: 9-1-17: POR OF 193
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
For Melvin Takahara, CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
11/8/24 DATE

C014

SHEET 14 OF 43 SHEETS
FILE | POCKET | FOLDER | NO.

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CAD DWG NO: 3100-46 ESC Plan.dwg
DATE: APRIL 2024

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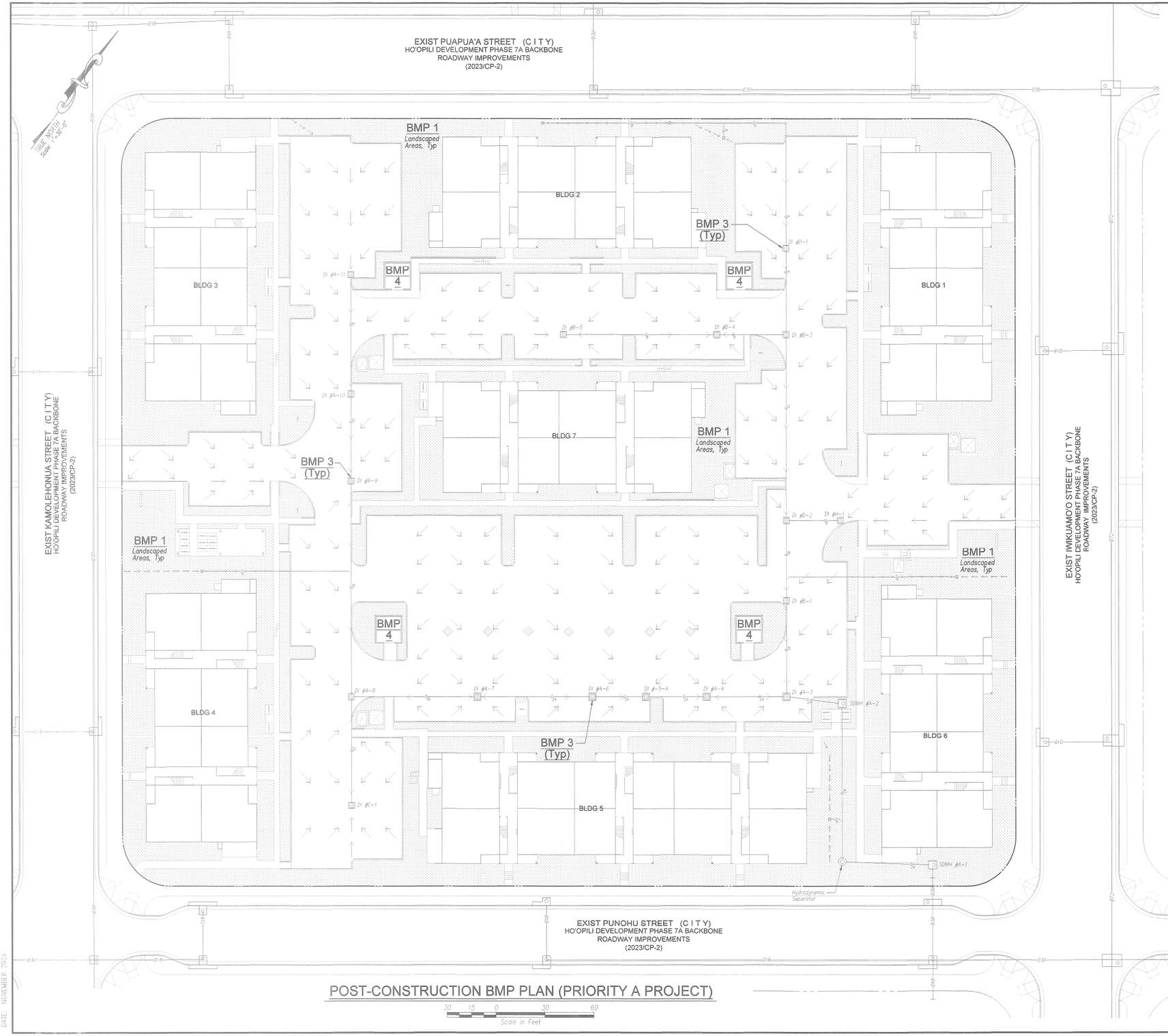

POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

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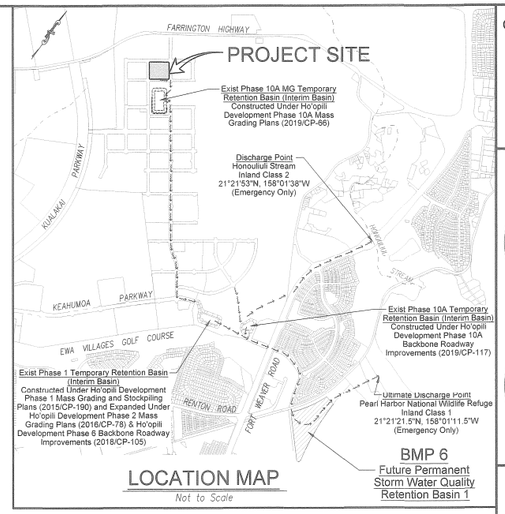
Scale in Feet



LOCATION MAP

Not to Scale

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:

SITE DESIGN STRATEGIES:

1. *Minimize Soil Compaction.*
2. *Minimize Impervious Surfaces.*
3. *Direct Roof Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection).*

SOURCE CONTROL BMPS:

1. *Landscaped Areas – Protect slopes with landscaping.*
2. *Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water.*
3. *Storm Drain Markers on Drain Inlets (See Detail on Sht C023).*
4. *Trash Dumpsters outfitted with lids and trash enclosures to be paved with impervious surface (concrete).*
5. *Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basin constructed in "Ho'opili Development Phase 10A Mass Grading Plan" which serves as a post-construction treatment control BMP.*

TREATMENT CONTROL BMPs:

1. *Interim Condition:*

   A. *Existing Phase 10A MG Temporary Retention Basin, constructed as part of Ho'opili Development, Phase 10A Mass Grading Plan (R.M. Towill Corporation, 2019/CP-66). For location, see map above.*
   Required WQV = 1.23 ac-ft
   Provided WQV = 81.89 ac-ft

   B. *Existing Phase 1 Retention Basin, constructed as part of Ho'opili Development, Phase 1 Mass Grading Plan and Stockpiling Plans (R.M. Towill Corporation, 2015/CP-190). Expanded in Ho'opili Development, Phase 2 Mass Grading Plan (R.M. Towill Corporation, 2016/CP-78) and Phase 6 Backbone Roadway Improvements (R.M. Towill Corporation, 2018/CP-105). For location, see map above.*
   Required WQV = 16.21 ac-ft
   Provided WQV = 86.68 ac-ft

2. *Future Permanent Condition: Future Permanent Offsite SWQ Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015. For location, see map above.*
   Required WQV = 41.4 ac-ft
   Provided WQV = 283.1 ac-ft

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. *Vehicle and Equipment Fueling Areas – Not applicable for this project.*
2. *Vehicle and Equipment Repair – Will not be allowed for this project.*
3. *Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.*
4. *Loading Docks – Not applicable for this project.*
5. *Outdoor Material Storage – Will not be allowed for this project.*
6. *Outdoor Work Areas – Not applicable for this project.*
7. *Outdoor Process Equipment Operations – Not applicable for this project.*

PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscape Areas
2	Automatic Irrigation System
3	Storm Drain Marker on Drain Inlets
4	Trash Dumpsters Outfitted with Lids, Placed on Paved Impervious Surfaces
5	Parking Areas
TREATMENT CONTROL BMP	
6	Ho'opili Permanent SWD Retention Basin 1 (storm water quality and flood control detention)

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line
- Swale
- Flow Pattern
- Drain Inlet w/ Marker (For Det See Sht C023)
- Landscaped Areas

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No. 13730-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

NO.	DESCRIPTION	DATE	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-46

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 7A PARCEL 34

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2024/CP-65)
TMK: 9-1-17: POR OF 193
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

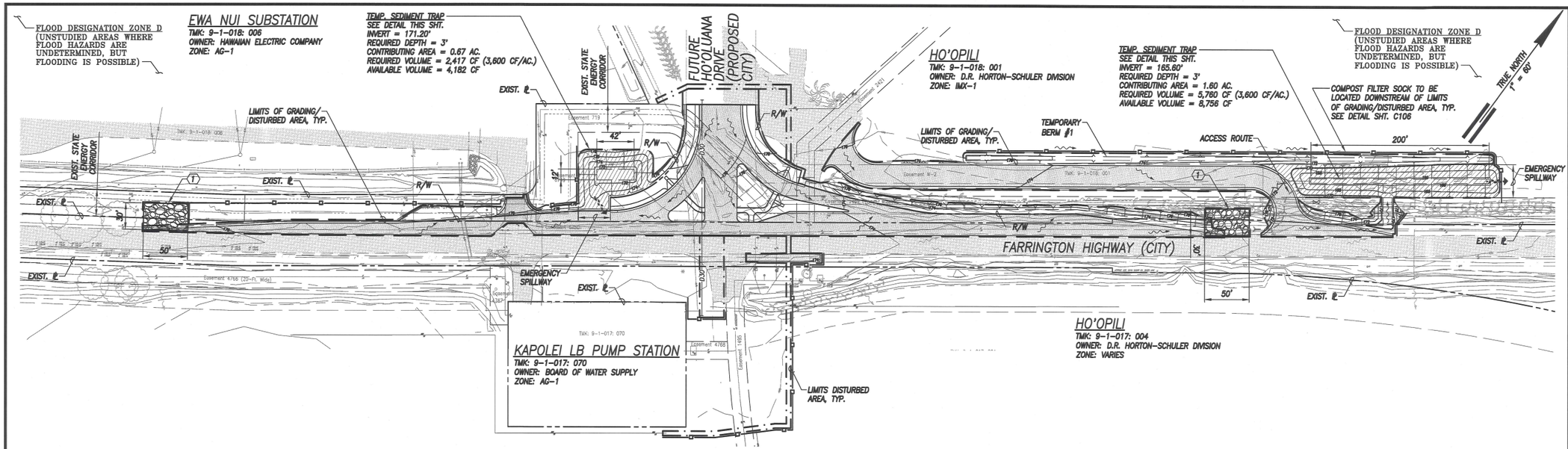
APPROVED BY:
For Melvin Sakahara 11/8/24
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. (FOR GRADING ONLY) DATE

C015

SHEET 15 OF 43 SHEETS

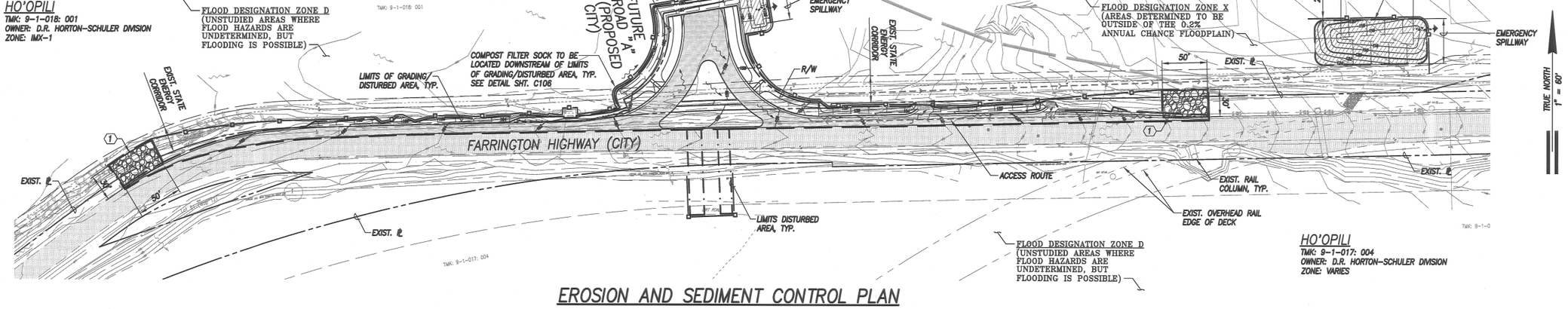
FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 7A PARCEL 34
CAD DWG NO.: 3100-46_BMP.dwg
DATE: NOVEMBER 2024



EROSION AND SEDIMENT CONTROL PLAN

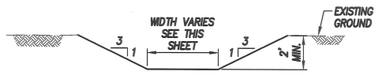
SCALE: 1" = 60'



EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 60'

(1) STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF 3"-6" COARSE AGGREGATE OR LARGER (7" MAX.), 12" THICK, MIN., SEE DETAIL SHT. C106



TEMPORARY SEDIMENT TRAP
NOT TO SCALE

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT TRAP

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP
- SEE SHEET C107 FOR POST CONSTRUCTION BMP PLAN

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	4 EA.
SILTSOXX COMPOST FILTER SOCK	3,300 LF

NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEDIMENT TRAP REQUIRED STORAGE VOLUME CALCULATED BASED ON 3,600 CUBIC FEET PER ACRE.
3. COMPOST FILTER SOCK AND TEMPORARY SEDIMENT TRAPS SHALL BE CONSTRUCTED PRIOR TO THE START OF GRADING OPERATION.
4. SEE SHT. C106 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- EMERGENCY OVERFLOW
- ACCESS ROUTE
- 162 EXIST. CONTOUR
- 122 NEW MINOR CONTOUR
- 130 NEW MAJOR CONTOUR
- LIMITS OF GRADING/DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- FLOOD ZONE BOUNDARY
- TEMPORARY SEDIMENT TRAP

GRAPHIC SCALE:
1" = 60' — 60' 30' 0 60' 120'
SCALE IN FEET

HO'OPILI DEVELOPMENT

INDUSTRIAL MIXED USE INTERSECTION IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 9-1-018: 010

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	BY	APPROVED

APPROVED BY
for Melvin Takahara 4/23/19
Chief, Civil Engineering Branch, DPP DATE

ENGINEER	CD, DA
DRAFTSMAN	CD, DA
CHECKED BY	BN
SCALE	AS SHOWN
DATE	DECEMBER 18, 2017
DPP FILE NO.	2017/CP-307

EROSION AND SEDIMENT CONTROL PLAN

FILE	POCKET	FOLDER	NO.

RM TC JOB NO.: 1-23023-0E

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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. 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.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE 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.
6. 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.
7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.
8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
9. SEDIMENT TRAPS

   SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES.
10. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.
11. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
12. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL- CONSTRUCTION FOR MORE INFORMATION ON BMPS.
13. THE FOLLOWING BMPS WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE ARE NOT APPLICABLE.
    - VELOCITY DISSIPATION DEVICES ARE NOT APPLICABLE.
    - DEWATERING PRACTICES ARE NOT APPLICABLE.
    - STORM DRAIN INLET PROTECTION IS NOT APPLICABLE.
    - SEDIMENT BARRIERS ARE NOT APPLICABLE.
    - BUFFER ZONES ARE NOT APPLICABLE.
14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE THE ESCP COORDINATOR FOR THIS PROJECT AT LEAST 2 WEEKS PRIOR TO THE START OF THE PROJECT.
15. THE OWNER OF THE PROPERTY OR THEIR AUTHORIZED AGENT MUST DESIGNATE A PERSON RESPONSIBLE FOR IMPLEMENTING THE ESCP AT THE PROJECT SITE ("ESCP COORDINATOR") PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY.
16. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.
17. CONTRACTOR SHALL NOTIFY STORMWATER QUALITY BRANCH 14 DAYS PRIOR O THE START OF GROUND DISTURBANCE. EMAIL: CLEANWATER@HONOLULU.GOV. PROVIDE PROJECT TITLE AND POINT OF CONTACT INFORMATION.

GOOD HOUSEKEEPING BMPS NOTES:

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).
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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.
12. LIQUID WASTE MANAGEMENT.

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."
16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES:

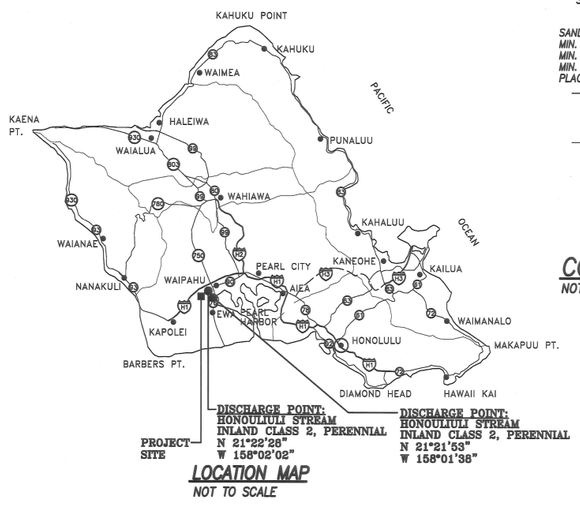
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND PERIMETER CONTROLS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. PROVIDE WATER TRUCKS FOR DUST CONTROL.
3. CONSTRUCT TEMPORARY SEDIMENT TRAPS, STABILIZE IMMEDIATELY.
4. 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.
5. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
6. PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.
7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

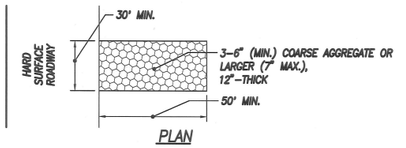
RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING, GRUBBING AND TRENCHING.
2. INSPECT ALL SEDIMENT TRAPS AND PERIMETER CONTROLS, 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

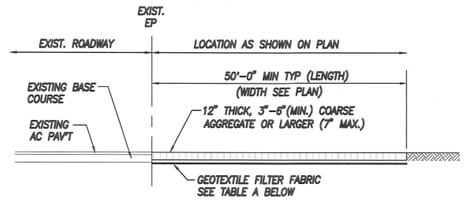


LOCATION MAP
NOT TO SCALE



PLAN

NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

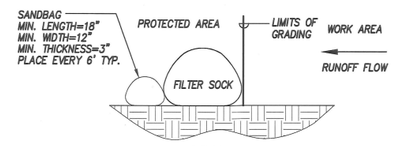


SECTION

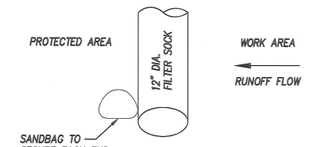
TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

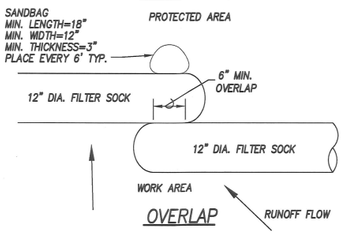
NOT TO SCALE



SECTION



PLAN



COMPOST FILTER SOCK DETAIL

NOT TO SCALE

HO'OPILI DEVELOPMENT

INDUSTRIAL MIXED USE INTERSECTION IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 9-1-018: 010

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Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
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Honolulu Hawaii 96819

BRENT W.B. NAKAKOA
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SIGNATURE 4/30/20 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

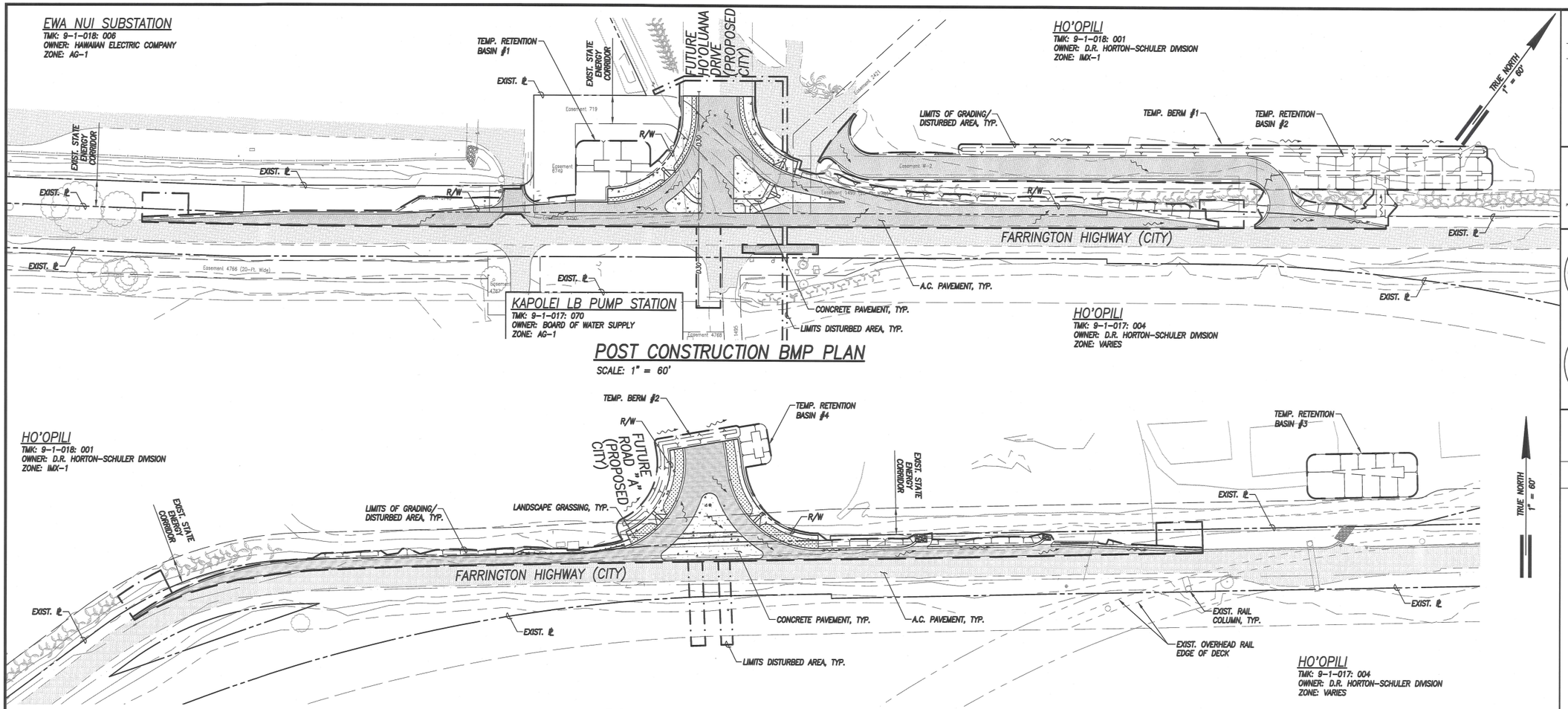
REVISION	DATE	BY	APPROVED
BRIEF			

APPROVED BY
for Chief, Civil Engineering Branch, DPP 8/23/19 DATE

ENGINEER	CD, DA
DRAFTSMAN	CD, DA
CHECKED BY	BN
SCALE	AS SHOWN
DATE	DECEMBER 18, 2017
DPP FILE NO.	2017/CP-307

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FILE	POCKET	FOLDER	NO.

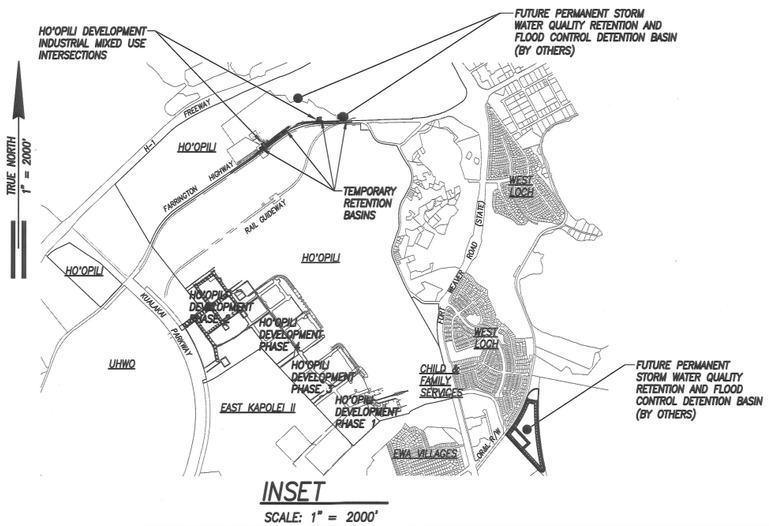


POST CONSTRUCTION BMP PLAN

SCALE: 1" = 60'

POST CONSTRUCTION BMP PLAN

SCALE: 1" = 60'



INSET

SCALE: 1" = 2000'

LID SITE DESIGN

1. EXISTING SURFACE FLOW PATTERN WILL BE MAINTAINED.
2. REDUCE DIRECTLY CONNECTED IMPERVIOUS AREAS (DCIA).

SOURCE CONTROL BMP

1. LANDSCAPED AREAS WILL BE PROVIDED FOR NON PAVEMENT AREAS FOR EROSION CONTROL.
2. AN AUTOMATIC IRRIGATION SYSTEM WILL BE PROVIDED FOR INTERSECTION LANDSCAPED AREAS.

TREATMENT CONTROL BMP

TEMPORARY RETENTION BASINS WILL BE USED TO STORE STORM WATER QUALITY RUNOFF.

WQV_{ZERO} =
- 0.051 AC-FT (TEMP. BASIN 1)
- 0.089 AC-FT (TEMP. BASIN 2)
- 0.044 AC-FT (TEMP. BASIN 3)
- 0.016 AC-FT (TEMP. BASIN 4)

WQV_{ANNL} =
- 0.096 AC-FT (TEMP. BASIN 1)
- 0.201 AC-FT (TEMP. BASIN 2)
- 0.082 AC-FT (TEMP. BASIN 3)
- 0.034 AC-FT (TEMP. BASIN 4)

LEGEND

- DRAIN LINE
- GRASS
- A.C. PAVEMENT
- CONCRETE PAVEMENT
- PROPOSED FLOW PATTERN

GRAPHIC SCALE:

1" = 60' — 60' 30' 0 60' 120'

1" = 2000' — 2000' 1000' 0 2000' 4000'

SCALE IN FEET

HO'OPILI DEVELOPMENT

INDUSTRIAL MIXED USE INTERSECTION IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 9-1-018: 010

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2024 North King Street Suite 200
Honolulu Hawaii 96819

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LICENSED PROFESSIONAL ENGINEER
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE

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BY	APPROVED

REVISION	DATE	BRIEF

APPROVED BY
For Chief, Civil Engineering Branch, DPP — DATE 8/23/19

ENGINEER	CD, DA
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DPP FILE NO.	2017/CP-307

POST CONSTRUCTION BMP PLAN

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-23023-0E

K:\civil\23023 Hoopili IMX Intersections\Drawings\Construction Dwgs\100_Dwgs\HD IMX INTERSECTIONS C107 – POST CONSTRUCTION BMP PLAN.dwg December 2, 2017 1:42pm chid

GOOD HOUSEKEEPING BMPS NOTES:

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).

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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.

4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.

12. LIQUID WASTE MANAGEMENT.

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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.

GOOD HOUSEKEEPING BMPS NOTES (CONT'D):

14. CONTAMINATED SOIL MANAGEMENT.

    AT MINIMUM CONTAIN CONTAMINATED MATERIAL SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL".

16. BMP AND SITE MAINTENANCE.

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES:

PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS AND INLET PROTECTION FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT BASINS, TEMPORARY SEDIMENT TRAPS AND TEMPORARY SWALES IN SEQUENTIAL ORDER, STABILIZE IMMEDIATELY.
3. PROVIDE WATER TRUCKS FOR DUST CONTROL.
4. CLEAR, GRUB AND GRADE THE SITE IN 15 INCREMENTS IN SEQUENTIAL ORDER (1A, 1B, 1C, 2A, 2B, 2C, 3A, 3B, 3C, 3D, 4A, 4B, 4C, 4D, 4E), REFER TO ESCP PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
5. 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.
6. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
7. PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.
8. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
9. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
10. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING AND TRENCHING.
2. INSPECT ALL SEDIMENT BASINS, TEMPORARY SEDIMENT TRAPS, TEMPORARY 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.

4. 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.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS 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.

6. 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.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

9. SEDIMENT TRAPS

   SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES.

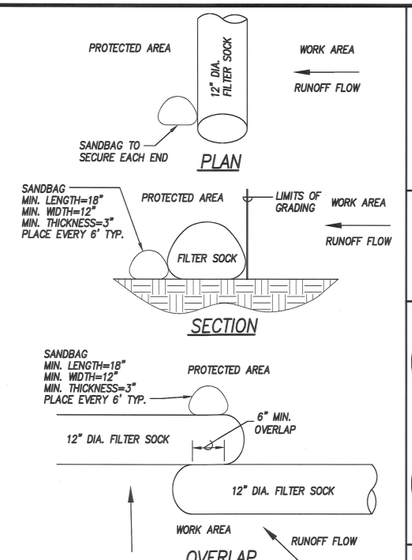
10. INLET PROTECTION
    - ALL STORM DRAIN INLETS ONSITE AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE UNLESS THEY ARE DIRECTED TO A SEDIMENT BASIN.
    - SEDIMENT LEVELS MAY NOT EXCEED ONE THIRD OF THE HEIGHT OF A SEDIMENT BARRIER OR INLET PROTECTION DEVICE 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.

9. 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. CONTRACTOR SHALL PROVIDE A STAFF GAGE SHOWING ELEVATION AND DEPTH OF SEDIMENT BASIN.

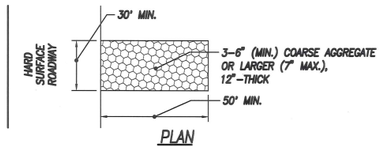
10. TRACKING CONTROL
    - MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAVED AREAS, AND SIDEWALKS FROM VEHICLES EXITING THE CONSTRUCTION SITE BY RESTRICTING VEHICLE TRAFFIC TO PROPERLY DESIGNATED AREAS AND USING ADDITIONAL CONTROLS TO REMOVE SEDIMENT FROM VEHICLE TIRES PRIOR TO EXITING THE SITE.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.

11. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
12. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION, FOR MORE INFORMATION ON BMPS.
13. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
      - THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE. GRADING ON SLOPES WITH A GRADE OF 15% OR MORE OCCURS ON LOCALIZED TRANSITION SLOPES OR CHANNEL OR BASIN SIDE SLOPES WITHIN THE PROJECT. WHERE GRADING OCCURS ON LOCALIZED TRANSITIONS, THERE IS NO SEVERE EROSION AND THE PROPOSED BMPS WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF. WHERE GRADING OCCURS ON CHANNEL OR BASIN SIDE SLOPES, ALL RUNOFF WILL BE RETAINED WITHIN THE CHANNEL OR BASIN.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT – PHASE 10A; EWA, OAHU, HAWAII" DATED JANUARY 28, 2019, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS, SEDIMENT BASINS AND SEDIMENT TRAPS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
14. THE OWNER OF THE PROPERTY OR THEIR AUTHORIZED AGENT MUST DESIGNATE A PERSON RESPONSIBLE FOR IMPLEMENTING THE ESCP AT THE PROJECT SITE ("ESCP COORDINATOR") PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY.
15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.



COMPOST FILTER SOCK DETAIL

NOT TO SCALE



NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

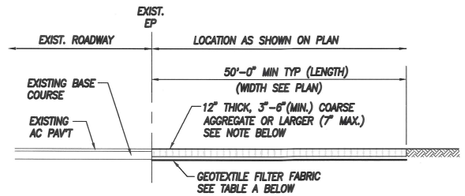
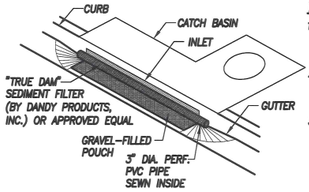


TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3786)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE



NOTES:
1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 10A

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 151

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SIGNATURE 4/30/22 EXP. DATE
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REVISION	DATE	BRIEF

BY	APPROVED

APPROVED BY
Chief, Civil Engineering Branch, DPP MT DATE 10/8/20

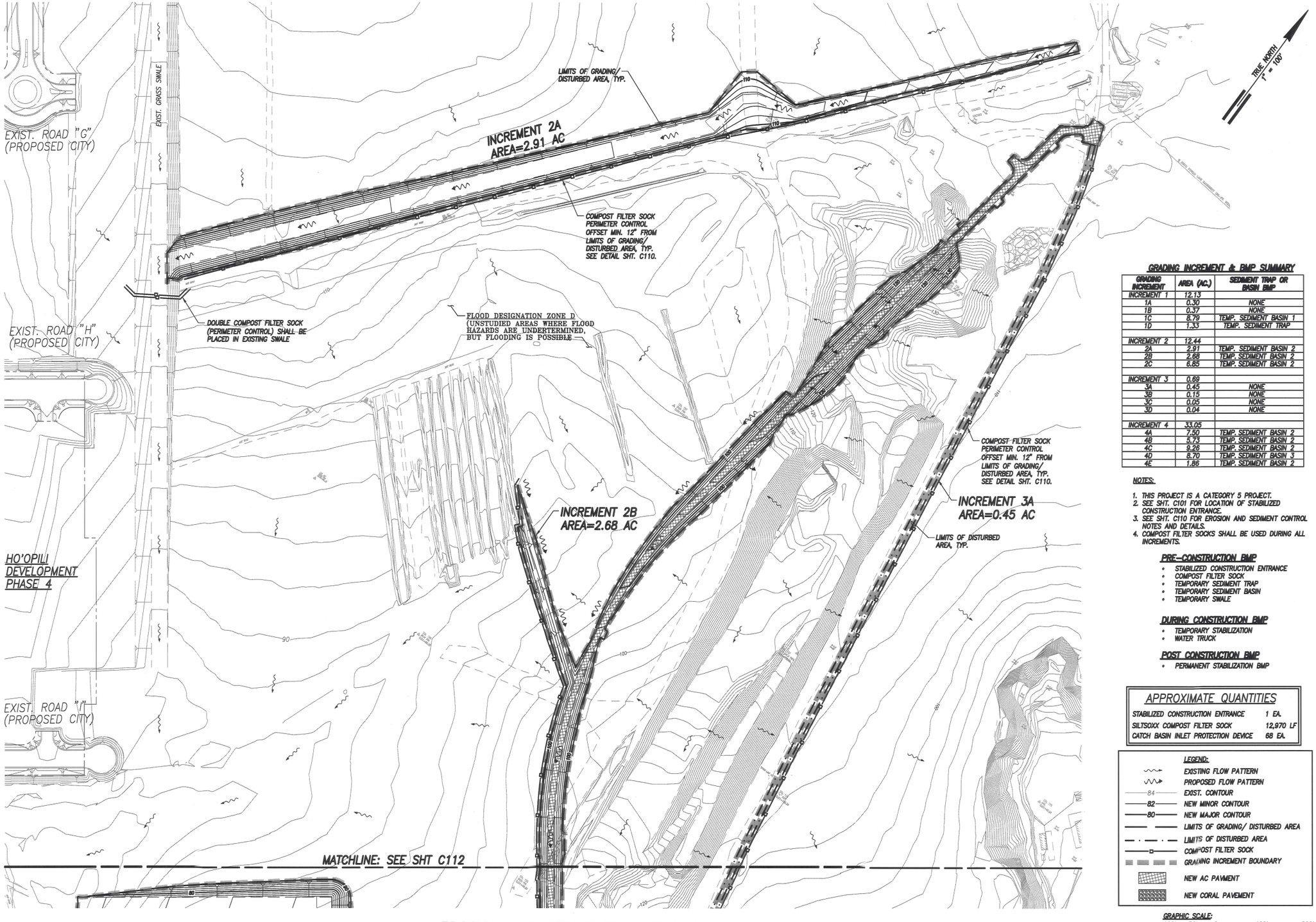
ENGINEER	CD, NN
DRAFTSMAN	CD, NN, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	MAY 17, 2019
DPP FILE NO.	2019/CP-117

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

RMTC JOB NO.: 1-23223-OE

K:\civil\23223 Hoopili Phase 10A\Drawings\Construction Dwgs_Backbone Roadway\C110 – Erosion and Sediment Control Notes & Details.dwg June 18, 2020

FILE | POCKET | FOLDER | NO.



EROSION AND SEDIMENT CONTROL PLAN – 1

SCALE: 1" = 100'

GRADING INCREMENT & BMP SUMMARY

GRADING INCREMENT	AREA (AC.)	SEDIMENT TRAP OR BASIN BMP
INCREMENT 1	12.13	
1A	0.30	NONE
1B	0.37	NONE
1C	8.79	TEMP. SEDIMENT BASIN 1
1D	1.33	TEMP. SEDIMENT TRAP
INCREMENT 2	12.44	
2A	2.91	TEMP. SEDIMENT BASIN 2
2B	2.68	TEMP. SEDIMENT BASIN 2
2C	6.85	TEMP. SEDIMENT BASIN 2
INCREMENT 3	0.69	
3A	0.45	NONE
3B	0.15	NONE
3C	0.05	NONE
3D	0.04	NONE
INCREMENT 4	33.05	
4A	7.50	TEMP. SEDIMENT BASIN 2
4B	5.73	TEMP. SEDIMENT BASIN 2
4C	9.26	TEMP. SEDIMENT BASIN 2
4D	8.70	TEMP. SEDIMENT BASIN 3
4E	1.86	TEMP. SEDIMENT BASIN 2

NOTES:

1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHT. C101 FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C110 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

PRE-CONSTRUCTION BMP

- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT TRAP
- TEMPORARY SEDIMENT BASIN
- TEMPORARY SWALE

DURING CONSTRUCTION BMP

- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP

- PERMANENT STABILIZATION BMP

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	12,970 LF
CATCH BASIN INLET PROTECTION DEVICE	68 EA.

LEGEND:

- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- NEW AC PAVMENT
- NEW CORAL PAVEMENT

GRAPHIC SCALE:
100' 50' 0 100' 200'
1" = 100'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 10A

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 151

R. M. TOWILL CORPORATION
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REVISION	DATE	BRIEF
A		APPROVED
B		

APPROVED BY
Chief, Civil Engineering Branch, DPP DATE

ENGINEER	CD, NN
DRAFTSMAN	CD, NN, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	MAY 17, 2019
DPP FILE NO.	2019/CP-117

EROSION AND SEDIMENT CONTROL PLAN – 1

RMTC JOB NO.: 1-23223-0E

K:\civil\23223 Hoopili Phase 10A\Drawings\Construction Dwgs_Backbone Roadway\C111-C113 – Erosion and Sediment Control Plan – 1 to 3.dwg June 18, 2020

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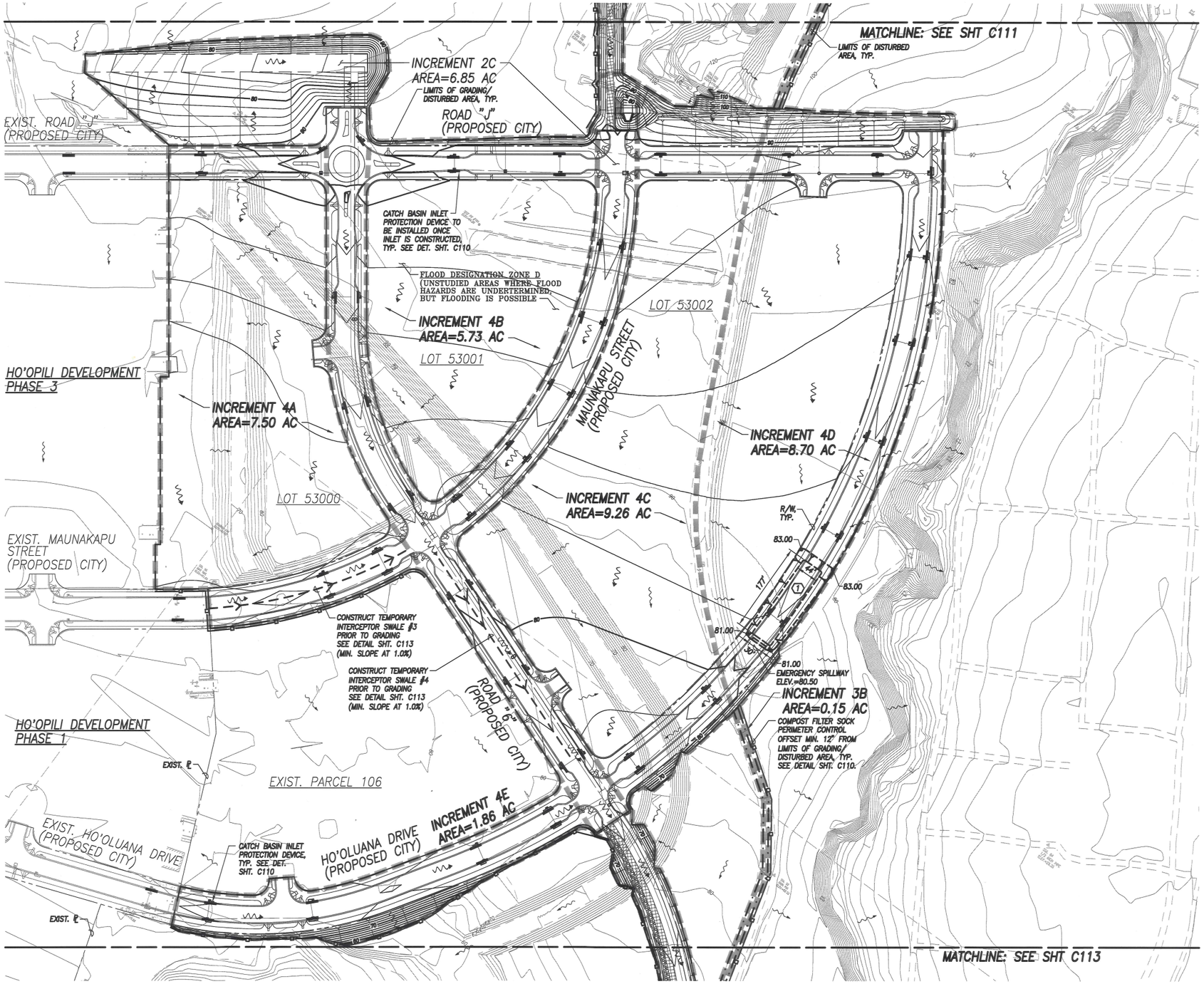

EROSION AND SEDIMENT CONTROL PLAN – 2

SCALE: 1" = 100'

TRUE NORTH
1" = 100'

① TEMPORARY SEDIMENT BASIN 3 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C113 FOR VELOCITY DISSIPATION DEVICE
MIN. INVERT = 77 FT.
MIN. DEPTH = 3.5 FT.
CONTRIBUTING AREA = 8.70 AC
(INCREMENT 4D)
REQUIRED VOLUME = 1,160 CY.
AVAILABLE VOLUME = 1,346 CY.

TEMPORARY SWALE #3
(10-YR, 1-HR STORM)
Q=2.80 CFS
A=6.61 AC.
V=1.88 FPS
D=0.61 FT
S=1.00 FT/FT

TEMPORARY SWALE #4
(10-YR, 1-HR STORM)
Q=10.60 CFS
A=25.01 AC.
V=2.60 FPS
D=1.01 FT
S=1.00 FT/FT

NOTE:
IN LIEU OF PROVIDING SEDIMENT BASIN OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE EXISTING TEMPORARY RETENTION BASIN.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- NEW AC PAVMENT
- NEW CORAL PAVEMENT
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE:
1" = 100' 100' 50' 0 100' 200'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 10A

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 151

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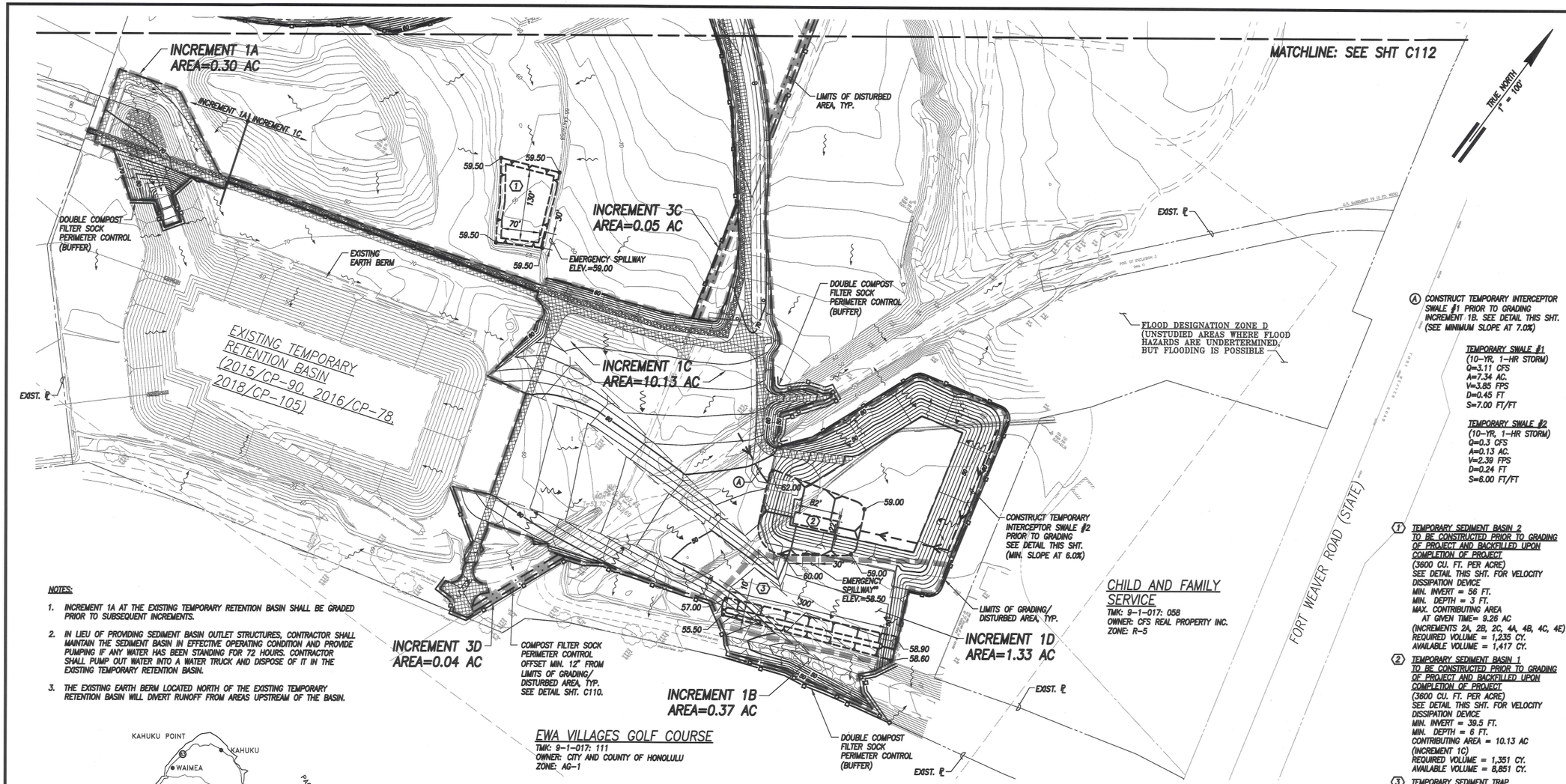
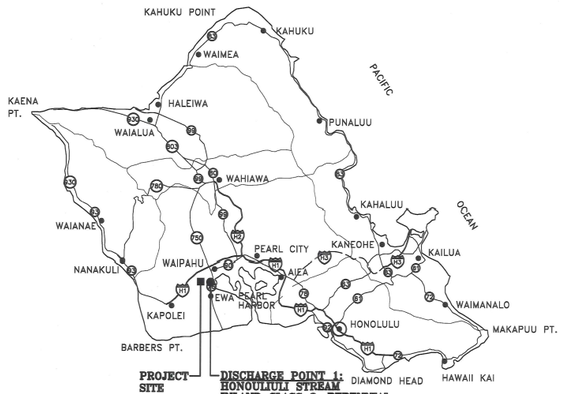
REVISION	DATE	BRIEF



NOTES:

1. INCREMENT 1A AT THE EXISTING TEMPORARY RETENTION BASIN SHALL BE GRADED PRIOR TO SUBSEQUENT INCREMENTS.
2. IN LIEU OF PROVIDING SEDIMENT BASIN OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE EXISTING TEMPORARY RETENTION BASIN.
3. THE EXISTING EARTH BERM LOCATED NORTH OF THE EXISTING TEMPORARY RETENTION BASIN WILL DIVERT RUNOFF FROM AREAS UPSTREAM OF THE BASIN.

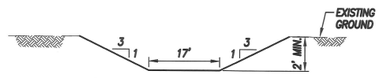


PROJECT SITE

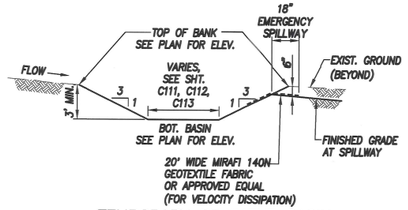
DISCHARGE POINT 1:
HONOULIULI STREAM
INLAND CLASS 2, PERENNIAL
N 21°21'53"
W 158°01'38"

DISCHARGE POINT 2:
PEARL HARBOR
EMBAYMENT, CLASS A
N 21°21'20"
W 158°01'10"

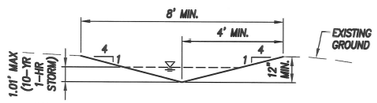
LOCATION MAP
NOT TO SCALE



TEMPORARY SEDIMENT TRAP
NOT TO SCALE



TEMPORARY SEDIMENT BASIN
NOT TO SCALE



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE

Ⓐ CONSTRUCT TEMPORARY INTERCEPTOR SWALE #1 PRIOR TO GRADING INCREMENT 1B. SEE DETAIL THIS SHT. (SEE MINIMUM SLOPE AT 7.0%)

TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
Q=3.11 CFS
A=7.34 AC.
V=3.85 FPS
D=0.45 FT
S=7.00 FT/FT

TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
Q=0.3 CFS
A=0.13 AC.
V=2.39 FPS
D=0.24 FT
S=6.00 FT/FT

① **TEMPORARY SEDIMENT BASIN 2 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT**
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT. FOR VELOCITY DISSIPATION DEVICE
MIN. INVERT = 56 FT.
MIN. DEPTH = 3 FT.
MAX. CONTRIBUTING AREA AT GIVEN TIME= 9.26 AC
(INCREMENTS 2A, 2B, 2C, 4A, 4B, 4C, 4E)
REQUIRED VOLUME = 1,235 CY.
AVAILABLE VOLUME = 1,417 CY.

② **TEMPORARY SEDIMENT BASIN 1 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT**
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT. FOR VELOCITY DISSIPATION DEVICE
MIN. INVERT = 39.5 FT.
MIN. DEPTH = 6 FT.
CONTRIBUTING AREA = 10.13 AC
(INCREMENT 1C)
REQUIRED VOLUME = 1,351 CY.
AVAILABLE VOLUME = 8,851 CY.

③ **TEMPORARY SEDIMENT TRAP TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT**
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 53 FT.
MIN. DEPTH = 2 FT.
CONTRIBUTING AREA = 1.33 AC
(INCREMENT 1D)
REQUIRED VOLUME = 177 CY.
AVAILABLE VOLUME = 453 CY.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- NEW AC PAVMENT
- NEW CORAL PAVEMENT

GRAPHIC SCALE:
1" = 100'
100' 50' 0 100' 200'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 10A
BACKBONE ROADWAY IMPROVEMENTS
HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 151

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APPROVED BY
Chief, Civil Engineering Branch, DPP
DATE 10/26/22

ENGINEER	CD, NN
DRAFTSMAN	CD, NN, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	MAY 17, 2019
DPP FILE NO.	2019/CP-117

EROSION AND SEDIMENT CONTROL PLAN – 3

EROSION AND SEDIMENT CONTROL PLAN – 3
SCALE: 1" = 100'

RM'C JOB NO.: 1-23223-0E

K:\civil\23223 Hoopili Phase 10A\Drawings\Construction Dwgs_Backbone Roadway\C111-C113 – Erosion and Sediment Control Plan – 1 to 3.dwg June 18, 2020

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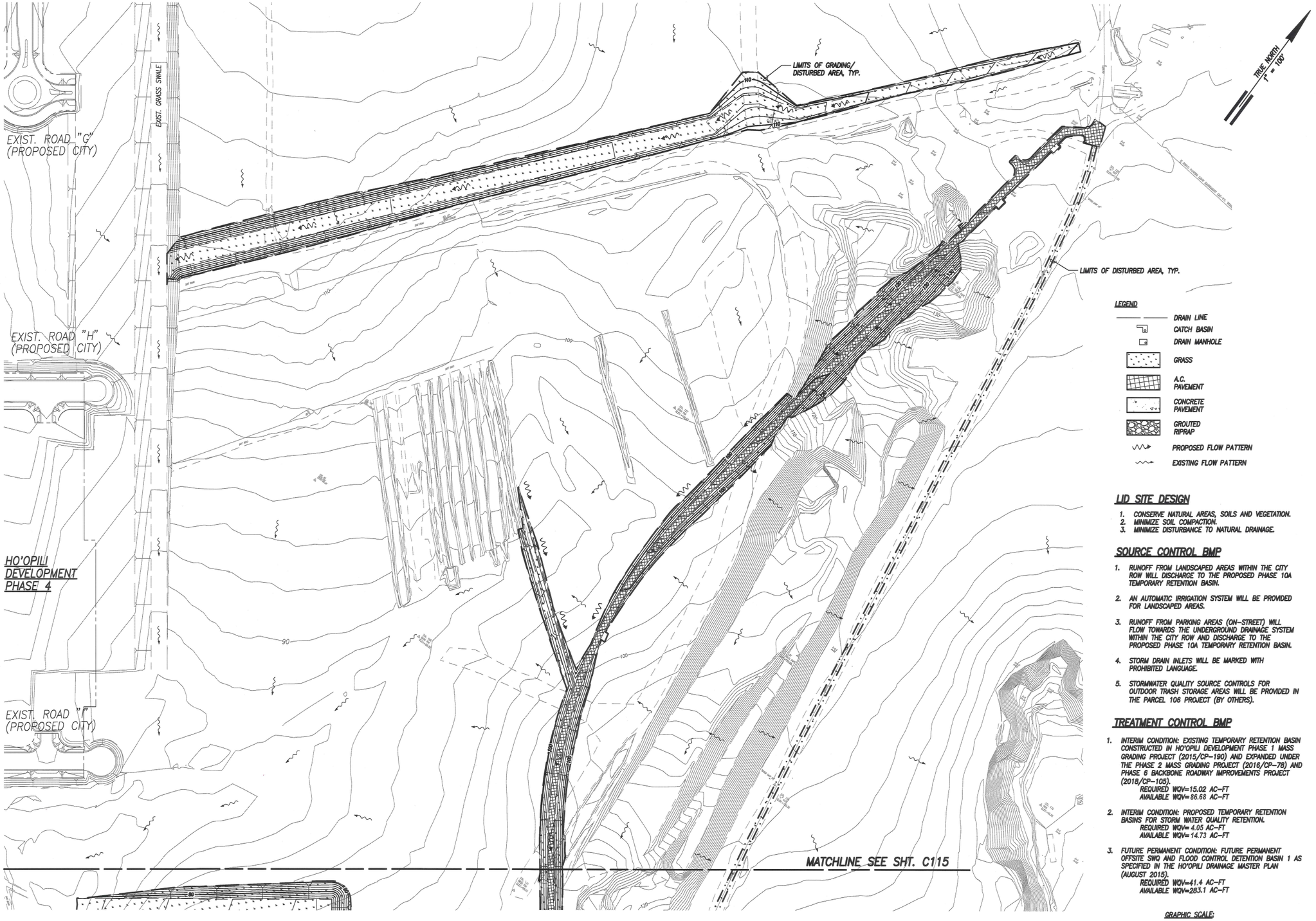

LID SITE DESIGN

1. CONSERVE NATURAL AREAS, SOILS AND VEGETATION.
2. MINIMIZE SOIL COMPACTION.
3. MINIMIZE DISTURBANCE TO NATURAL DRAINAGE.

SOURCE CONTROL BMP

1. RUNOFF FROM LANDSCAPED AREAS WITHIN THE CITY ROW WILL DISCHARGE TO THE PROPOSED PHASE 10A TEMPORARY RETENTION BASIN.
2. AN AUTOMATIC IRRIGATION SYSTEM WILL BE PROVIDED FOR LANDSCAPED AREAS.
3. RUNOFF FROM PARKING AREAS (ON-STREET) WILL FLOW TOWARDS THE UNDERGROUND DRAINAGE SYSTEM WITHIN THE CITY ROW AND DISCHARGE TO THE PROPOSED PHASE 10A TEMPORARY RETENTION BASIN.
4. STORM DRAIN INLETS WILL BE MARKED WITH PROHIBITED LANGUAGE.
5. STORMWATER QUALITY SOURCE CONTROLS FOR OUTDOOR TRASH STORAGE AREAS WILL BE PROVIDED IN THE PARCEL 106 PROJECT (BY OTHERS).

TREATMENT CONTROL BMP

1. INTERIM CONDITION: EXISTING TEMPORARY RETENTION BASIN CONSTRUCTED IN HO'OPILI DEVELOPMENT PHASE 1 MASS GRADING PROJECT (2015/CP-190) AND EXPANDED UNDER THE PHASE 2 MASS GRADING PROJECT (2016/CP-78) AND PHASE 6 BACKBONE ROADWAY IMPROVEMENTS PROJECT (2018/CP-105).
   REQUIRED WQV= 15.02 AC-FT
   AVAILABLE WQV= 86.68 AC-FT
2. INTERIM CONDITION: PROPOSED TEMPORARY RETENTION BASINS FOR STORM WATER QUALITY RETENTION.
   REQUIRED WQV= 4.05 AC-FT
   AVAILABLE WQV= 14.73 AC-FT
3. FUTURE PERMANENT CONDITION: FUTURE PERMANENT OFFSITE SWQ AND FLOOD CONTROL DETENTION BASIN 1 AS SPECIFIED IN THE HO'OPILI DRAINAGE MASTER PLAN (AUGUST 2015).
   REQUIRED WQV=41.4 AC-FT
   AVAILABLE WQV=283.1 AC-FT

GRAPHIC SCALE:
1" = 100' (100' 50' 0 100' 200')
SCALE IN FEET

POST CONSTRUCTION BMP PLAN – 1 (PRIORITY A)

SCALE: 1" = 100'

HO'OPILI DEVELOPMENT PHASE 10A

BACKBONE ROADWAY IMPROVEMENTS

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APPROVED BY
Chief, Civil Engineering Branch, DPP 10/25/22 DATE

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DRAFTSMAN	CD, NN, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	MAY 17, 2019
DPP FILE NO.	2019/CP-117

POST CONSTRUCTION BMP PLAN – 1

RMTC JOB NO.: 1-23223-OE

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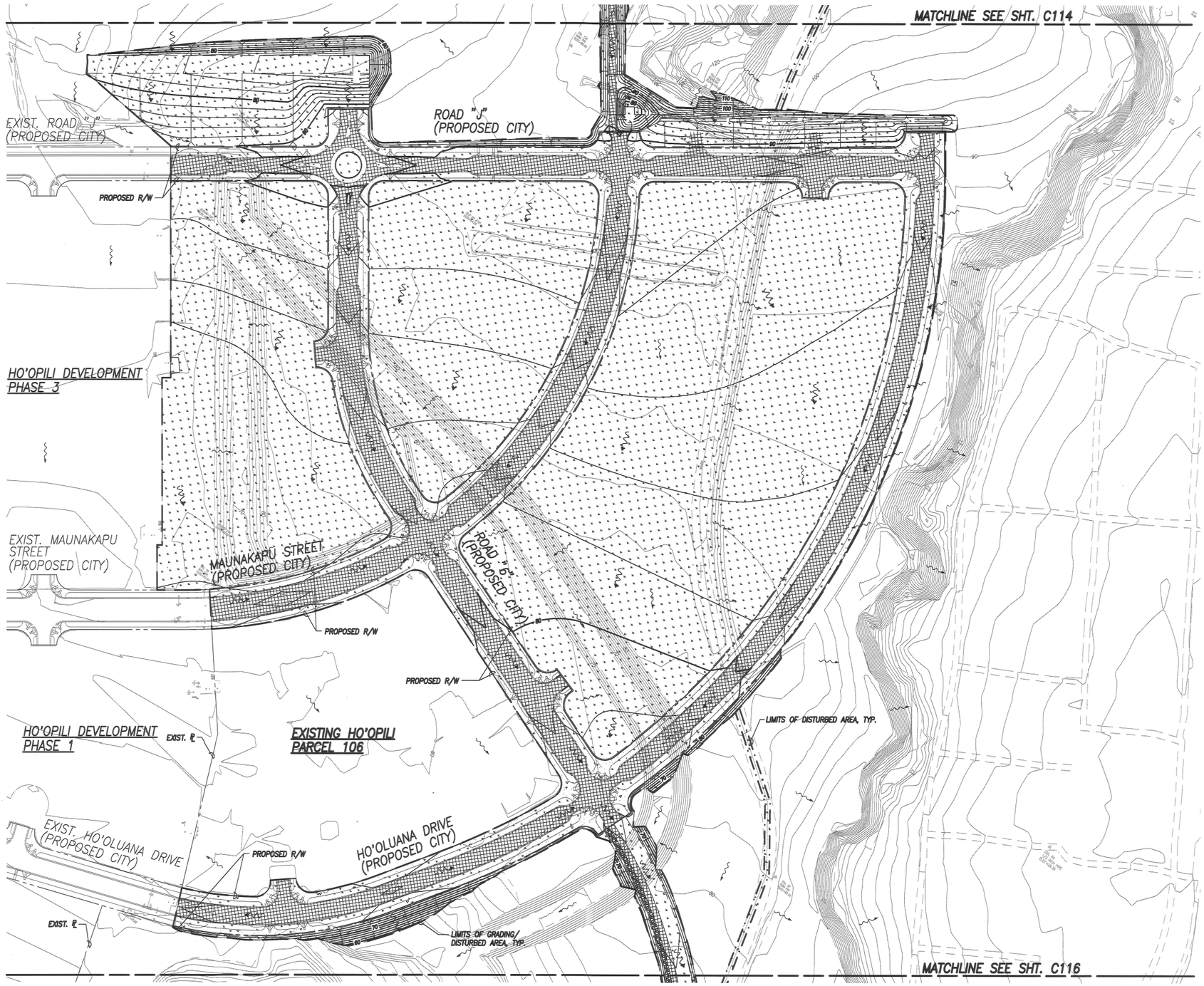

TRUE NORTH
1" = 100'

LEGEND

- DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- GRASS
- A.C. PAVEMENT
- CONCRETE PAVEMENT
- GROUTED RIPRAP
- CORAL
- PROPOSED FLOW PATTERN
- EXISTING FLOW PATTERN

NOTE:
SEE SHT C114 FOR PCBMP NOTES.

POST CONSTRUCTION BMP PLAN – 2 (PRIORITY A)

SCALE: 1" = 100'

GRAPHIC SCALE:
1" = 100'
100' 50' 0 100' 200'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 10A

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REVISION	DATE	BRIEF

APPROVED BY
Chief, Civil Engineering Branch, DPP DATE 12/08/20

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POST CONSTRUCTION BMP PLAN – 2

RMTC JOB NO.: 1-23223-0E

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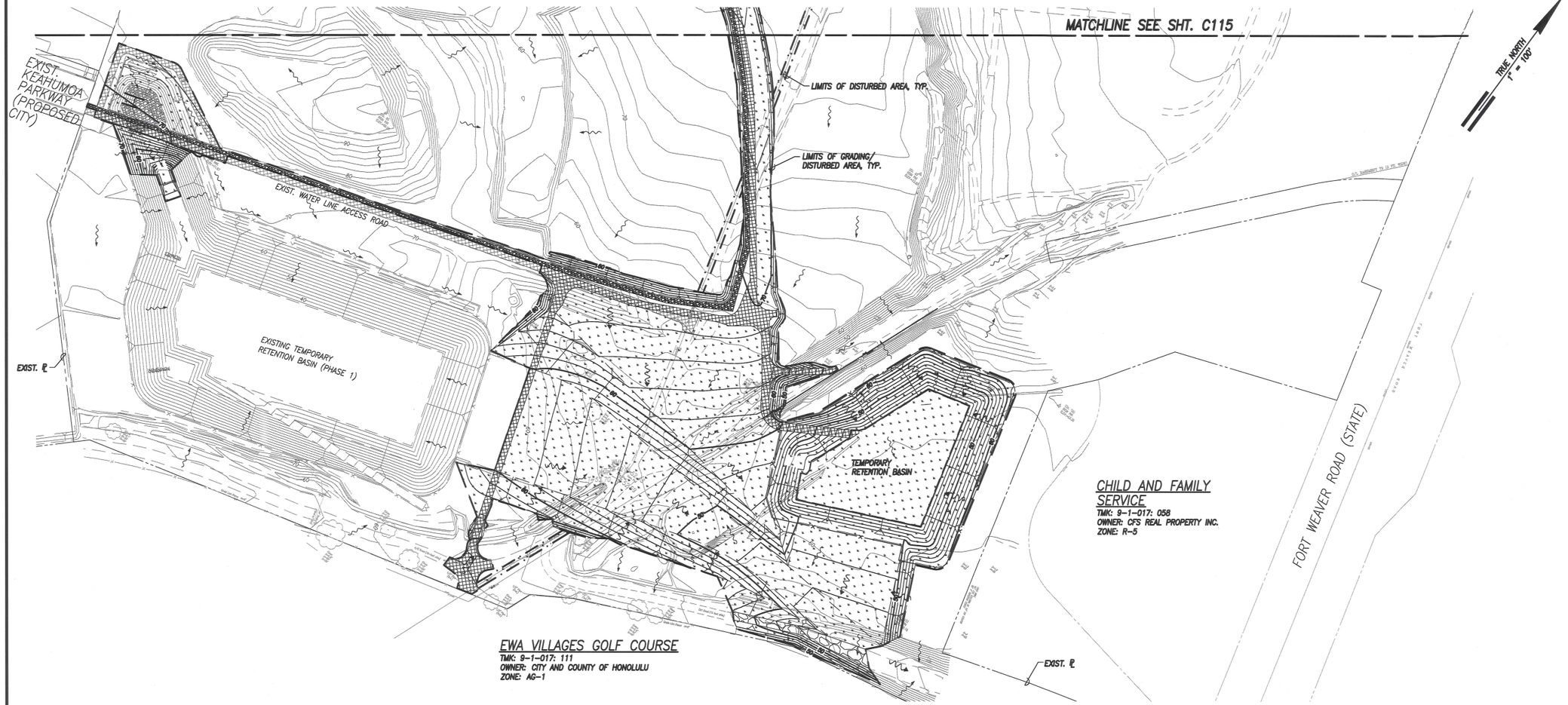
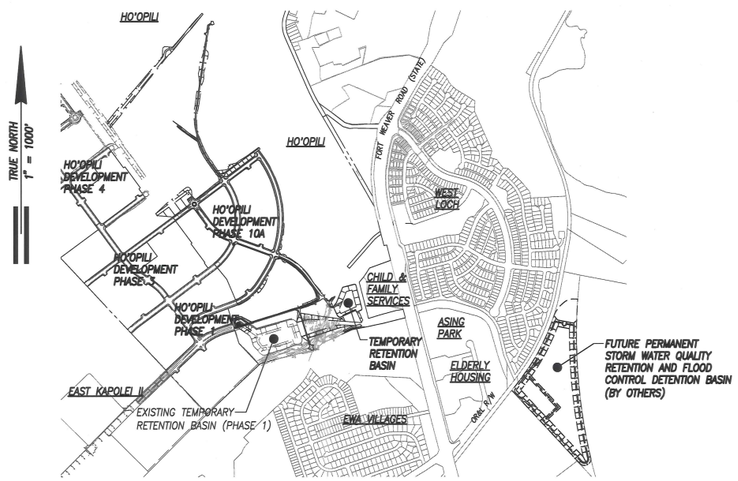


POST CONSTRUCTION BMP PLAN – 3 (PRIORITY A)

SCALE: 1" = 100'



INSET

SCALE: 1" = 1000'

TEMPORARY RETENTION BASIN

NOT TO SCALE

LEGEND

- DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- GRASS
- A.C. PAVEMENT
- CONCRETE PAVEMENT
- GROUTED RIPRAP
- CORAL
- PROPOSED FLOW PATTERN
- EXISTING FLOW PATTERN

NOTE:
SEE SHT C114 FOR PCBMP NOTES.

GRAPHIC SCALE:

1" = 100' — 100' 50' 0 100' 200'

1" = 2000' — 2000' 1000' 0 2000' 4000'

SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 10A

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
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REVISION	DATE	BRIEF

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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. 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.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS, 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.
6. 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.
7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.
8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
9. 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.
10. 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.
11. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.
11. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
12. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION FOR MORE INFORMATION ON BMPS.
13. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
      - RUNOFF FROM UPSTREAM AREAS WILL NOT BE DIVERTED AROUND THE DISTURBED AREAS OF THE SITE SINCE THE MAJORITY OF GRADING DOES NOT OCCUR ON SLOPES WITH A GRADE OF 15% OR MORE. THE RUNOFF FROM AREAS WHERE GRADING OCCURS ON SLOPES WITH A GRADE OF 15% OR MORE WILL BE MITIGATED BY DOUBLE SILT SOCK PERIMETER CONTROLS (BUFFER). THE TEMPORARY INTERCEPTOR SWALE #1 WITHIN INCREMENT 1 IS PROPOSED FOR THE PURPOSE OF CONVEYING RUNOFF TO THE TEMPORARY SEDIMENT BASIN 1.
    - VELOCITY DISSIPATION DEVICES
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT - PHASE 10A; EWA, OAHU, HAWAII" DATED JANUARY 28, 2019, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT BASINS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT TRAPS
      - THIS PROJECT WILL BE PHASED. A SEDIMENT BASIN WILL BE PROVIDED FOR INCREMENTS 1 & 6. GRADING INCREMENTS 2, 3, 4, & 5 ARE LESS THAN 1 ACRE TOTAL THEREFORE DO NOT REQUIRE A SEDIMENT TRAP OR BASIN BMP.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.
15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).
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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.
12. LIQUID WASTE MANAGEMENT.

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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."
16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

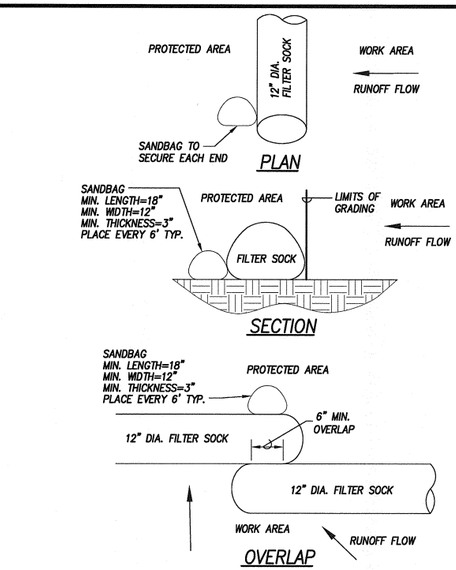
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, INLET PROTECTION, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT BASIN AND STABILIZE IMMEDIATELY.
3. CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT BASINS. STABILIZE IMMEDIATELY.
4. PROVIDE WATER TRUCKS FOR DUST CONTROL.
5. CLEAR, GRUB AND GRADE THE SITE IN 6 INCREMENTS IN SEQUENTIAL ORDER, REFER TO GRADING PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
6. 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.
7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING.
2. INSPECT ALL 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



COMPOST FILTER SOCK DETAIL

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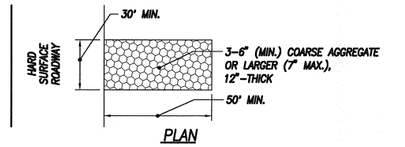
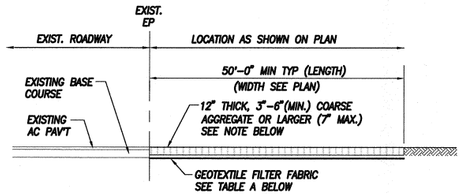


NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

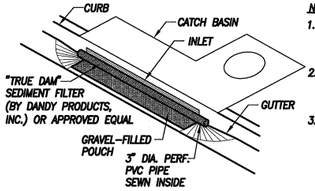


SECTION

TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE



NOTES:
1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 10A

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 138

R. M. TOWILL CORPORATION
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BRENT W.B. NAKAOKA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	BY	APPROVED

APPROVED BY
For Malmi Tolentino 5/22/19
Chief, Civil Engineering Branch, DPP DATE

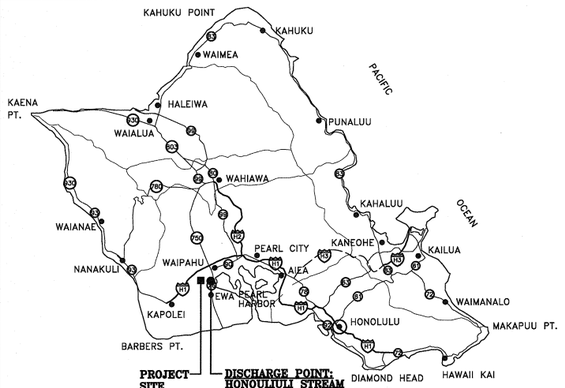
ENGINEER	CD, NN
DRAFTSMAN	NN, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	MARCH 2019
DPP FILE NO.	2019/CP-66

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-23223-0E

K:\civil\23223 Hoopili Phase 10A\Drawings\Construction Dwgs_Mass Grading\HDP10A MG - C102 - Erosion and Sediment Control Notes & Details.dwg May 10, 2019



LOCATION MAP
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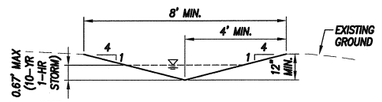


NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE

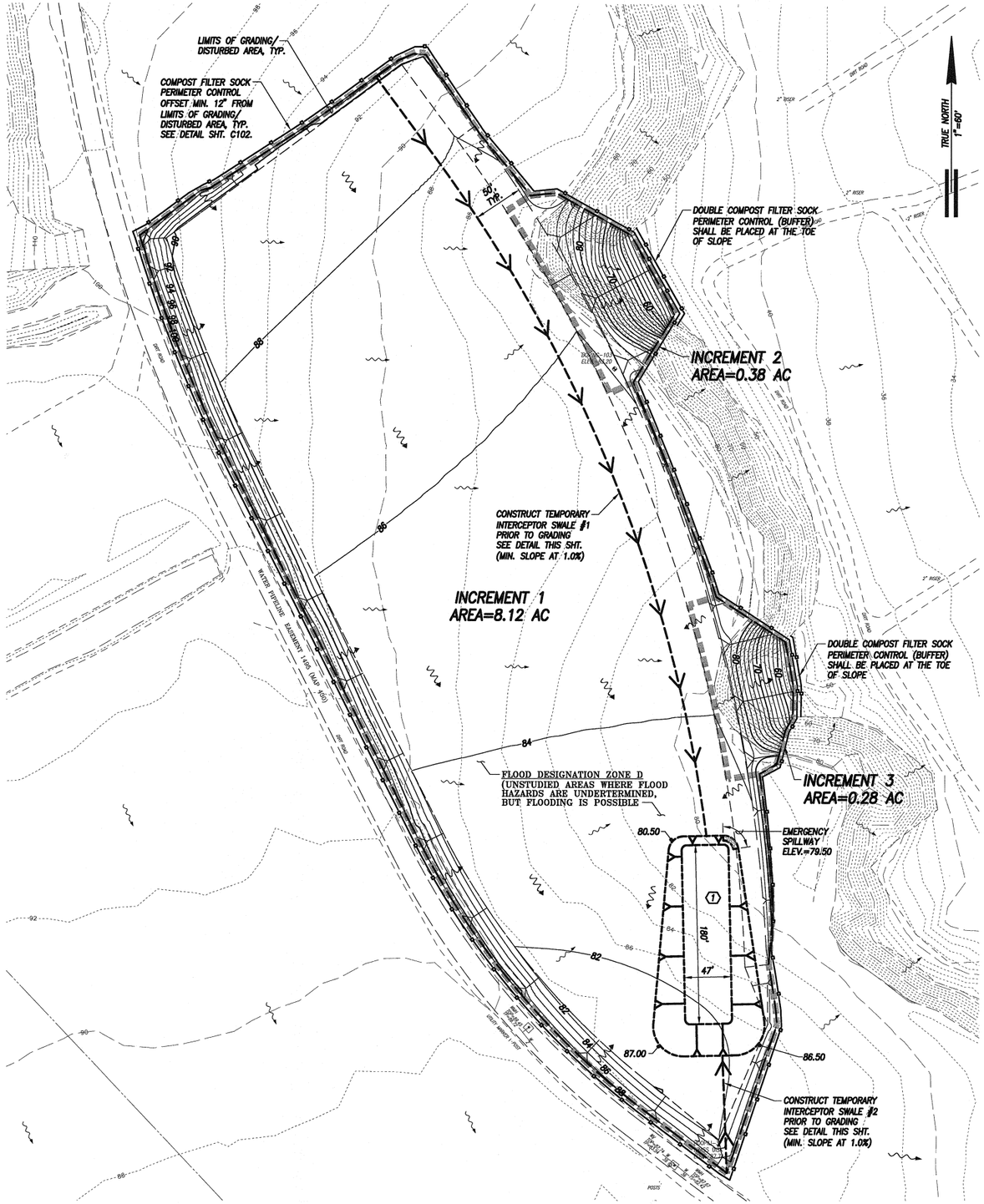
NOTE:
IN LIEU OF PROVIDING OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE TEMPORARY RETENTION BASIN CONSTRUCTED UNDER HO'OPILI DEVELOPMENT PHASE 1 MASS GRADING AND STOCKPILING PLAN (2015/CP-90), AND EXPANDED UNDER HO'OPILI DEVELOPMENT PHASE 2 MASS GRADING PLAN (2016/CP-78). SEE SHT. C101 FOR BASIN LOCATION.

TEMPORARY SEDIMENT BASIN
NOT TO SCALE

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT BASIN
- TEMPORARY SWALE

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP



EROSION & SEDIMENT CONTROL PLAN – 1
SCALE: 1" = 60'

NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHT. C101 FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE
3. SEE SHT. C102 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

(1) TEMPORARY SEDIMENT BASIN 1
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 76.50 FT.
MIN. DEPTH = 3.00 FT.
CONTRIBUTING AREA = 8.12 AC
REQUIRED VOLUME = 29,232 CF.
AVAILABLE VOLUME = 30,055 CF.

TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
Q=3.40 CFS
A=8.00 AC.
V=1.95 FPS
D=0.66 FT
S=1.00 FT/FT

TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
Q=0.13 CFS
A=0.30 AC.
V=0.81 FPS
D=0.20 FT
S=1.00 FT/FT

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	2 EA.
CATCH BASIN INLET PROTECTION DEVICE	13 EA.
SILTSOXX COMPOST FILTER SOCK	7,070 LF

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY

GRAPHIC SCALE:
1" = 60' (60' 30' 0 60' 120')
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 10A
MASS GRADING PLAN
HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 138

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

BRENT W.B. NAKAOKA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
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REVISION	DATE	BRIEF	BY	APPROVED

APPROVED BY
For Melvin Sekahara 5/12/20
Chief, Civil Engineering Branch, DPP DATE

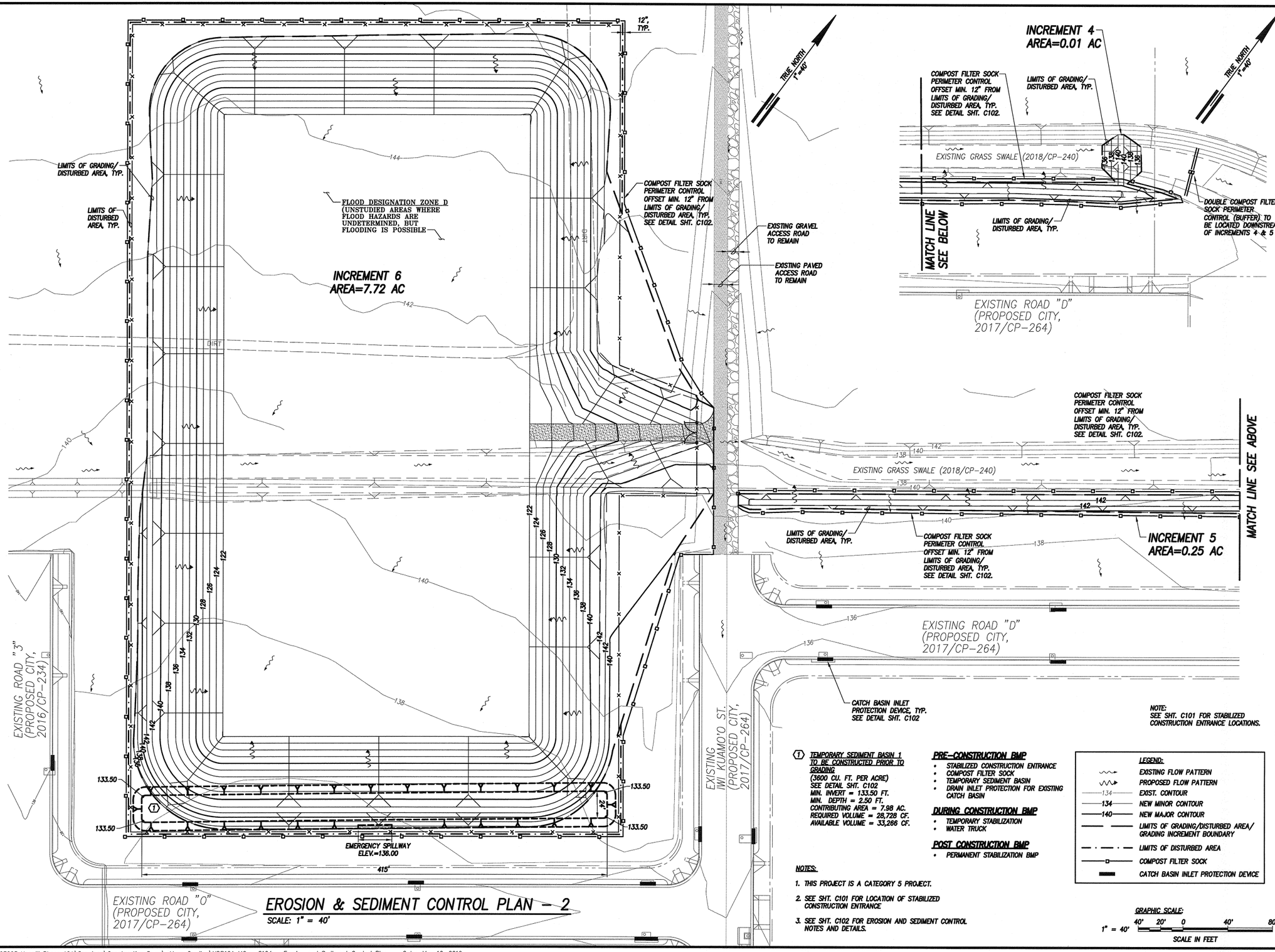
ENGINEER	CD, NN
DRAFTSMAN	NN, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	MARCH 2019
DPP FILE NO.	2019/CP-66

EROSION & SEDIMENT CONTROL PLAN – 1

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-23223-0E

K:\civil\23223 Hoopili Phase 10A\Drawings\Construction Dwgs_Mass Grading\HDP10A MG – C103 – Erosion and Sediment Control Plan – 1.dwg May 10, 2019



EROSION & SEDIMENT CONTROL PLAN – 2

SCALE: 1" = 40'

NOTE:
SEE SHT. C101 FOR STABILIZED CONSTRUCTION ENTRANCE LOCATIONS.

① **TEMPORARY SEDIMENT BASIN 1 TO BE CONSTRUCTED PRIOR TO GRADING**
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C102
MIN. INVERT = 133.50 FT.
MIN. DEPTH = 2.50 FT.
CONTRIBUTING AREA = 7.98 AC.
REQUIRED VOLUME = 28,728 CF.
AVAILABLE VOLUME = 33,266 CF.

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT BASIN
- DRAIN INLET PROTECTION FOR EXISTING CATCH BASIN

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHT. C101 FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE
3. SEE SHT. C102 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 134 EXIST. CONTOUR
- 134 NEW MINOR CONTOUR
- 140 NEW MAJOR CONTOUR
- LIMITS OF GRADING/DISTURBED AREA/ GRADING INCREMENT BOUNDARY
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE:
1" = 40' (40' 20' 0 40' 80')
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 10A

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 004 & 138

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
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No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

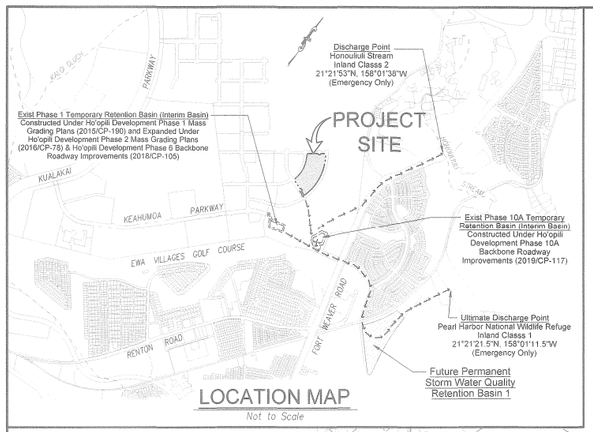
REVISION	DATE	BRIEF	BY	APPROVED

APPROVED BY
For Chief, Civil Engineering Branch, DPP 5/22/19 DATE

ENGINEER	CD, NN
DRAFTSMAN	NN, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	MARCH 2019
DPP FILE NO.	2019/CP-66

EROSION & SEDIMENT CONTROL PLAN – 2

FILE	POCKET	FOLDER	NO.



LOCATION MAP
Not to Scale

TRUE NORTH
Scale: 1"=50'-0"

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- *Temporary Sediment Basin*
- *Construction Ingress/Egress*
- *Existing Catch Basin Inlet Protection*
- *Temporary Filter Sock Perimeter Control*
- *Temporary Diversion Berm*

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- *New Catch Basin Inlet Protection.*
- *Temporary Stabilization*

POST-CONSTRUCTION BMP'S:

- *Permanent Stabilization BMP'S*
- *For Remaining Post-Construction BMP's, See Sheet C010*

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- *See Sheet C009*

Sediment Control Filters @ AN Exist Catch Basins Fronting Grading Site, Typ See Detail Sht C009

Limits of Grading & Disturbed Area Along Property Line

EXIST MAUNAKAPU ST (CITY) (2019/CP-117)

EXIST ROAD "J" (CITY) (2019/CP-117)

Construct Temporary 37'x50' Construction Road for Ingress/Egress 12" Thick, 3" to 6" Coarse Aggregate or Larger (7" Max) w/ AMOCO Series 2000 Geotextile Fabric or Approved Equal) See Detail Sht C009.

Install Temporary Filter Sock Perimeter Control Along Back of Walkway after Roadway Construction, Typ See Det Sht C009

ROAD "B" (PROPOSED CITY)

ROAD "C" (PROPOSED CITY)

ROAD "6A" (PROPOSED CITY)

EXIST ROAD "6" (CITY) (2019/CP-117)

Bottom of Berm=81.5±
Top of Berm=83.5
Bottom of Berm=87.0±
Top of Berm=89.0
Bottom of Berm=87.5±
Top of Berm=89.5
Bottom of Berm=84.5±
Top of Berm=86.5
Bottom of Berm=79.0±
Top of Berm=81.0
Top of Berm=80.0
Bottom of Berm=79.0±
Top of Berm=80.0
Bottom of Berm=79.50±
Top of Berm=81.50

Sediment Control Filters,@ All New Catch Basins, Typ See Detail Sht C009

Connect Temporary 6" Drainline to Existing 48" RCP Drainline. Inv. = 59.5±

1-6" 90° Elbow Inv.=60.43

Temporary Sediment Basin (Erosion Control)
Effective Area=12.91 Acs
Required Volume = 46,476 Cu Ft
(3,600 cu ft/Acre)
Provided Volume = 49,300 Cu Ft
Top of Berm at Existing Elev = 80.0
Emergency Spillway Elev = 78.0
Basin Inv at Existing Elev = 74.0
Drawdown Time = 51.27 Hrs

80.0±
79.5±
170'
55'
19'
21'

Emergency Spillway (6' Wide) Elev=78.0

EXIST HO'OLUANA DR (CITY) (2019/CP-117)

Sediment Control Filters @ All Exist Catch Basins Fronting Grading Site, Typ See Detail Sht C009

Limits of Grading & Disturbed Area Along Property Line

See Sheet C009

Notes:

1. *Temporary Construction Road Ingress/Egress may be Removed once Construction of Proposed Roadways and Sidewalks are Complete. Contractor Shall Utilize Tracking Controls for Erosion Prevention and Sediment Control as Noted on Sheet C009.*
2. *Temporary Sediment Basin may be Removed and restored back to existing grades once Construction of the Proposed Roadways and Lots are Mass Graded and only Top Soil will Remain.*

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Permanent Slope Protection Areas (See Grading Plan)
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist./New Catch Basin
- Temporary Filter Sock (Along Back of Walkway)
- Temporary Filter Sock
- Property Line & Proposed Right-of-Way
- Grading Increment Boundary
- Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm/Swale

EROSION & SEDIMENT CONTROL PLAN
(CATEGORY 5)

50 25 0 50 100
Scale in Feet

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813
Telephone: (808) 521-0306
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Exp: 4/30/22
MICHAEL H. NOJIMA
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION, OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS, 8/29/94).

Exp: 4/30/22
WINSTON M. TANIGUCHI
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No. 13730-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION, OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS, 8/29/94).

BY	DESCRIPTION
APPROVED	

DATE

REVISION

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-18

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A
PARCEL 103

(DPP SUBDIVISION FILE NO 2020/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2020/CP-124)
TMK: 9-1-17: POR OF 004
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
2/4/21
DATE

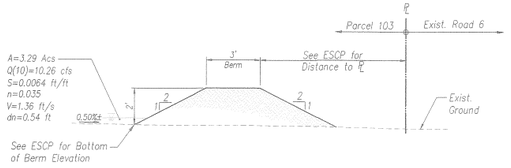
C008

SHEET 8 OF 58 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 103
CAD DWG NO.: 3100-18_ESCP.dwg
DATE: JANUARY 2021

Drawing name: P:\3100-18 Hoopili Ph 10A - Parcel 103\3100-18 DWGs\Construction Plans\3100-18_ESCP dwg Jan 28, 2021 - 10:30am



SECTION "A-A" (DIVERSION BERM)

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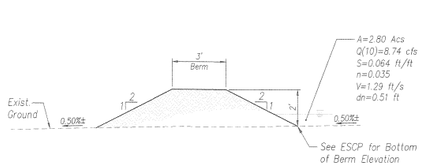

SECTION "B-B" (DIVERSION BERM)

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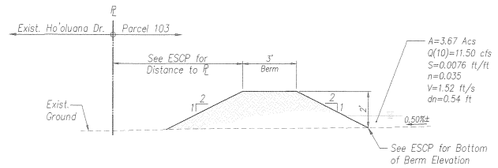

SECTION "C-C"(DIVERSION BERM)

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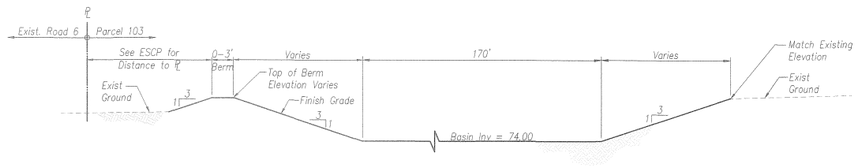
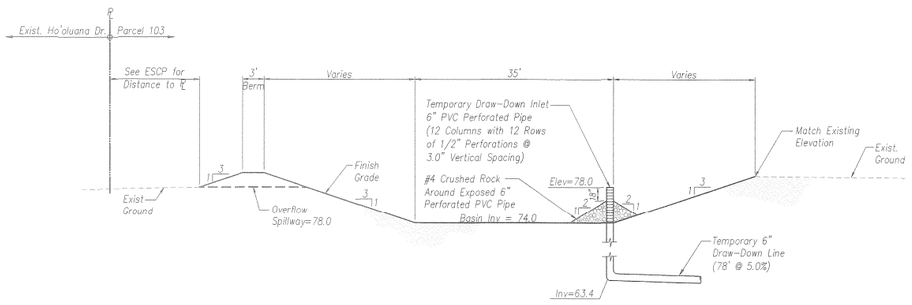


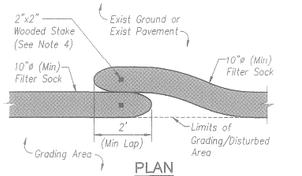
SECTION "D-D" (SEDIMENT BASIN)

Not to Scale

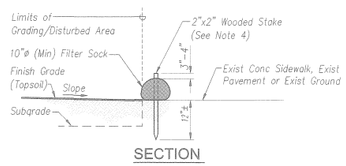


SECTION "E-E" (SEDIMENT BASIN)

Not to Scale



PLAN

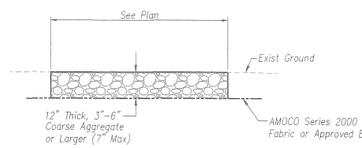


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

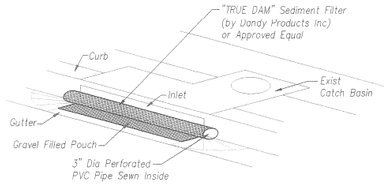
FILTER SOCK PLACEMENT DETAIL

Not to Scale



CONSTRUCTION ROAD
INGRESS/EGRESS DETAIL

Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER
AT CATCH BASIN

Not to Scale

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. Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.
3. ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work. The project schedule shall be in compliance with the requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. 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.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
13. Sediment Basins:
    A. 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.
14. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
15. All best management practices (BMP's) shall not be removed until the entire project is complete.
16. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
17. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors. A brief explanation of why each BMP is unnecessary or impracticable has been provided under separate documentation to DPP.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment traps are not applicable.
    E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers are not applicable

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11–54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and stabilize immediately.
3. Construct temporary diversion berms as needed to direct runoff into the sediment basin.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade the site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
6. Remove temporary sediment basin after lot mass grading is completed, and only lot fine grading for top soil remains.
7. Install perimeter control BMP's around proposed roadways once roadway construction is completed.
8. Remove temporary construction ingress/egress once roadway construction is completed, and perimeter control BMP's around proposed roadways are installed.
9. Fine grade lots up to top soil as planned. Limit fine grading to less than 1 acre at any one time.
10. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
11. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
12. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
13. Plant permanent ground cover according to the landscaping plans as soon as possible.
14. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
15. Practice good housekeeping measures throughout the duration of construction.
16. 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, and trenching.
3. Inspect sediment basin, temporary berms, 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. 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 storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-18

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A
PARCEL 103

(DPP SUBDIVISION FILE NO 2020/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2020/CP-124)
TMK: 9-1-17: POR OF 004
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE 2/4/21

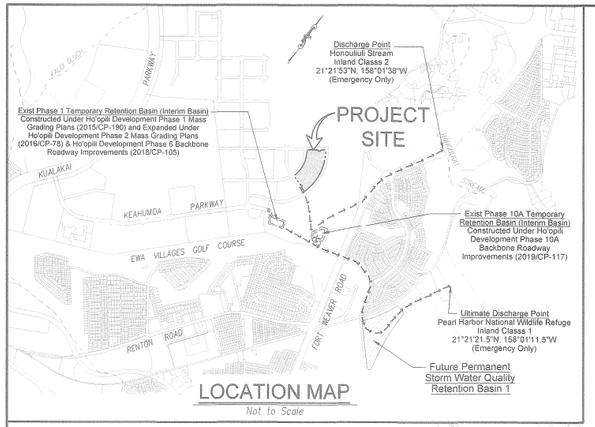
C009

SHEET 9 OF 58 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 103
CAD DWG NO.: 3100-18_ESCP.dwg
DATE: JANUARY 2021

Drawing name: P:\3100-18 Hoopili 10A - Parcel 103\3100-18 DWGS\Construction Plans\3100-18_ESCP.dwg Jan 28, 2021 - 10:31am



LOCATION MAP

Not to Scale

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE AS FOLLOWS:

LID SITE DESIGN STRATEGIES:

1. *Minimize Impervious Surfaces*
2. *Minimize Soil Compaction*
3. *Direct Roof Runoff to Landscaped Areas*

SOURCE CONTROL BMPs:

1. *Landscaped Areas Used to Protect Slopes*
2. *Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C021*
3. *Trash Containers shall be covered with roofs, awnings, or attached lids.*

TREATMENT CONTROL BMPs:

1. *Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.*
2. *Interim Condition:*
   - A. *Phase 1 Temporary Retention Basin, as shown in Ho'opili Development, Phase 1 Mass Grading and Stockpiling Plans (R.M. Towill Corporation, 2015/CP-190) and expanded in Ho'opili Development, Phase 2 Mass Grading Plan (R.M. Towill Corporation, 2016/CP-78) and Ho'opili Development, Phase 6 Backbone Roadway Improvements (R.M. Towill Corporation, 2018/CP-105).*
     Required WQV = 15.02 AC-FT
     Provided WQV = ~~15.05~~ 30.98 AC-FT
   - B. *Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP-117).*
     Required WQV = 4.05 AC-FT
     Provided WQV = 14.73 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. *Automatic Irrigation – Will not be installed for this project.*
2. *Vehicle and Equipment Fueling Areas – Not applicable for this project.*
3. *Vehicle and Equipment Repair – Will not be allowed for this project.*
4. *Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.*
5. *Loading Docks – Not applicable for this project.*
6. *Outdoor Material Storage – Will not be allowed for this project.*
7. *Outdoor Work Areas – Not applicable for this project.*
8. *Outdoor Process Equipment Operations – Not applicable for this project.*

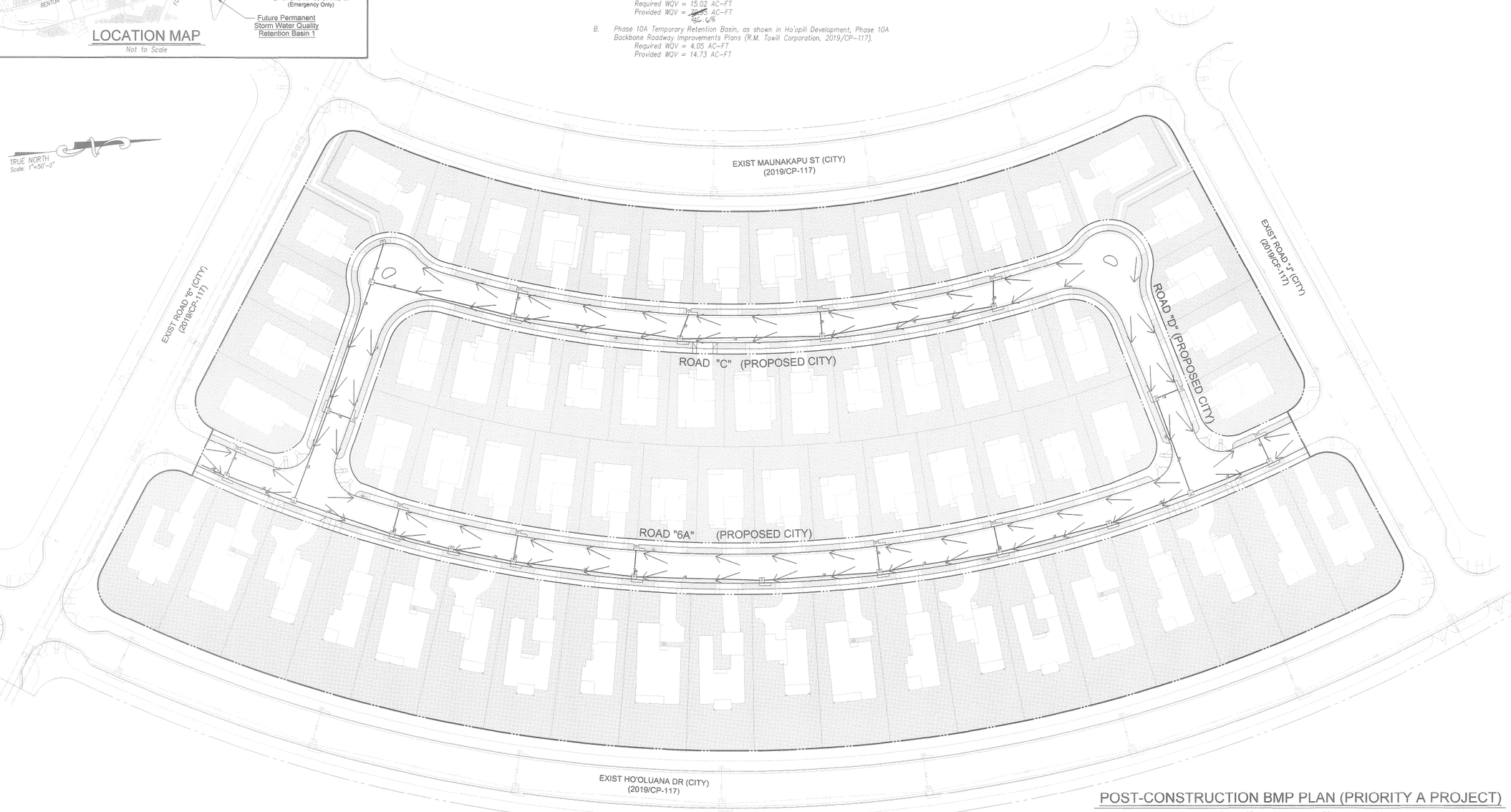
NOTE:

Each individual lot owner shall be responsible to maintain all source control BMPs affecting their property as noted on this plan. Individual lot owners shall notify DFM when there is a change in ownership. A new Owner's Certification must be submitted to DFM by the new owner each time there is a change in ownership.

LEGEND

- *Existing Drainline*
- *New Drainline*
- *Property Line & Proposed Right-of-Way*
- *Swale*
- *Flow Pattern*
- *Landscaped Areas*

TRUE NORTH
Scale: 1"=50'-0"



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

50 25 0 50 100
Scale in Feet

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NO.	BY	APPROVED

NO.	REVISION	DATE

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-18

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A PARCEL 103

(DPP SUBDIVISION FILE NO 2020/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2020/CP-124)
TMK: 9-1-17: POR OF 004
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
DATE: 2/9/21

C010

SHEET 10 OF 58 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 103
CAD DWG NO.: 3100-18_BMP.dwg
DATE: OCTOBER 2020

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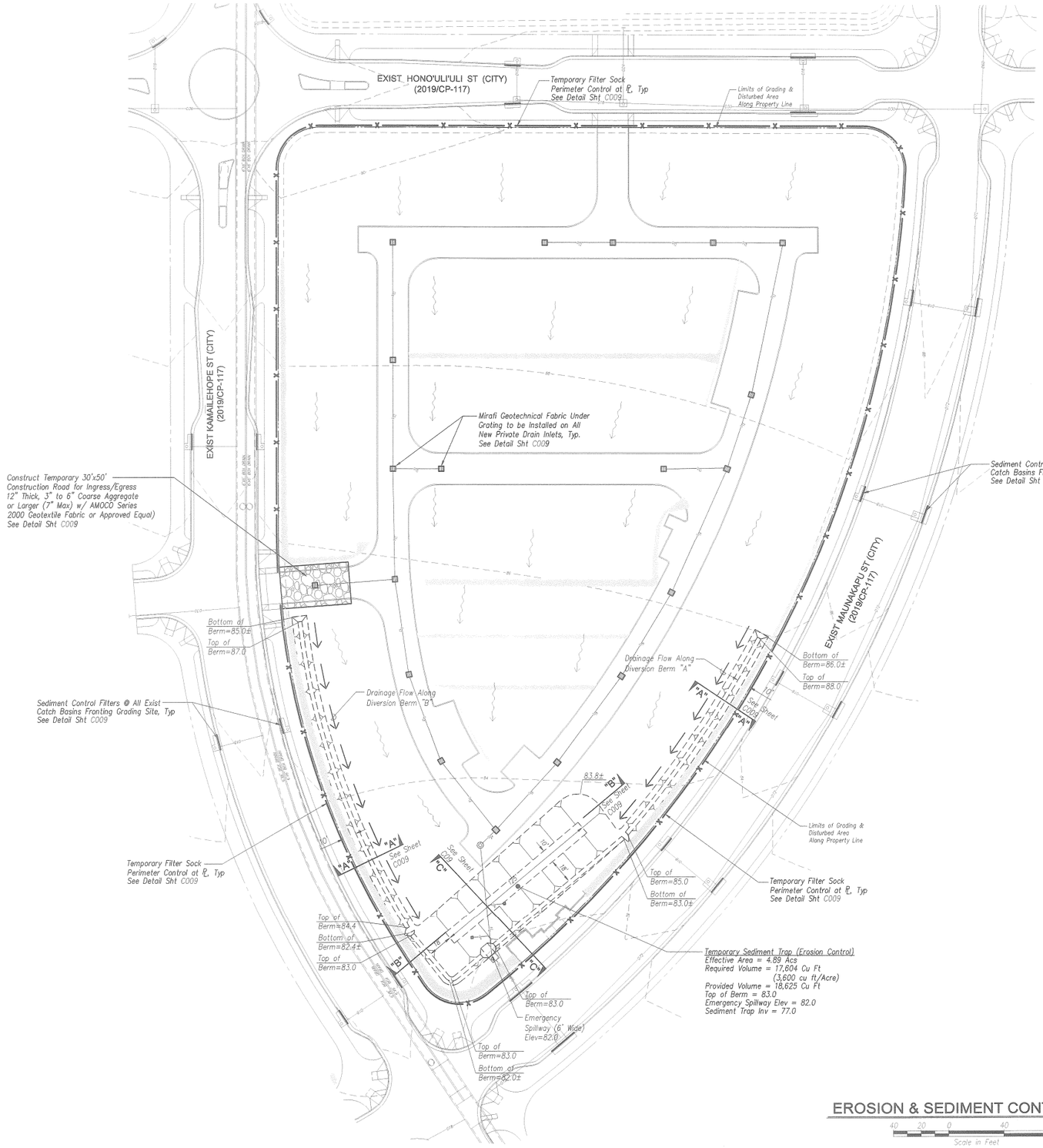
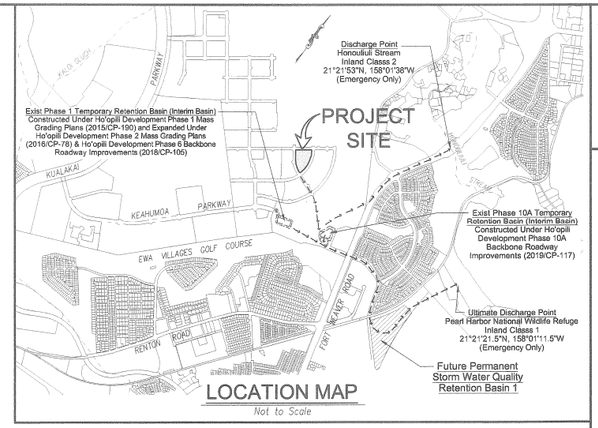


EROSION & SEDIMENT CONTROL PLAN

40 20 0 40 80

Scale in Feet



LOCATION MAP

Not to Scale

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Trap
- Construction Ingress/Egress
- Existing Drain Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP'S
- For Remaining Post-Construction BMP's, See Sheet C010

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C009

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Temporary Filter Sock
- Property Line
- Limits of Grading & Disturbed Area
- 100 Existing Contour
- 5/8 Existing Drainline
- 5/18 New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm

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NO.	DESCRIPTION	DATE	BY	APPROVED
	REVISION			

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-19

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 10A PARCEL 104

(DPP SUBDIVISION FILE NO 2020/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2020/CP-242)
TMK: 9-1-17: POR OF 172
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
for Mélemi Tokuma 3/12/21
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

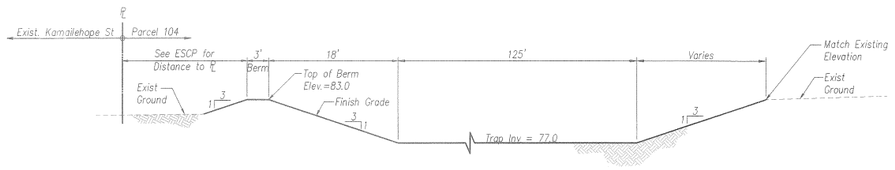
C008

SHEET 8 OF 41 SHEETS

FILE | POCKET | FOLDER | NO.

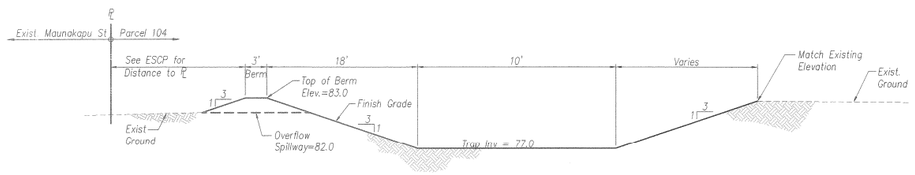
PROJECT NAME: HO'OPILI PHASE 10A PARCEL 104
CAD DWG NO.: 3100-19_ESCP.dwg
DATE: FEBRUARY 2021

Drawing name: P:\3100-19 Hoopili Ph 10A - Parcel 104\3100-19 ENG\Construction Plans\3100-19_ESCP.dwg Feb 26, 2021 - 4:11pm



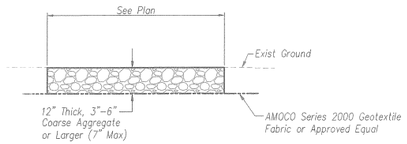
SECTION "B-B" (SEDIMENT TRAP)

Not to Scale



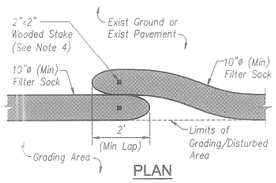
SECTION "C-C" (SEDIMENT TRAP)

Not to Scale

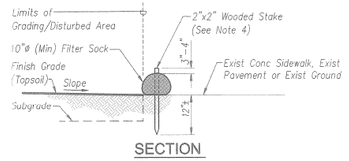


CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale



PLAN

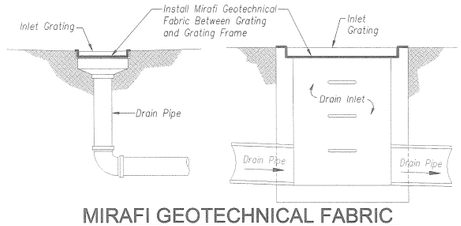


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

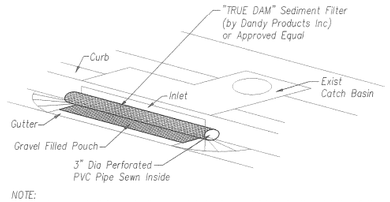
FILTER SOCK PLACEMENT DETAIL

Not to Scale



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

Not to Scale



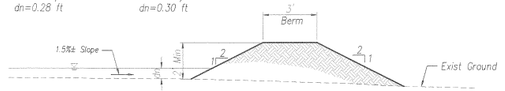
NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

DIVERSION BERM "A"
A=0.81 Acs
Q(10yr-1hr)=2.88 cfs
S=0.0173 ft/ft
V=1.41 ft/s
dn=0.28 ft

DIVERSION BERM "B"
A=0.78 Acs
Q(10yr-1hr)=2.78 cfs
S=0.0110 ft/ft
V=1.19 ft/s
dn=0.30 ft



TEMPORARY DIVERSION BERM SECTION "A-A"

Not to Scale

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. The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.
3. The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
13. Sediment Traps:
    A. Sediment traps must be kept in effective operating condition and sediment shall be removed when the sediment accumulation reaches one third of the trap capacity.
14. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
15. All best management practices (BMP's) shall not be removed until the entire project is complete.
16. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
17. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment basins are not applicable.
    E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment trap and stabilize immediately.
3. Construct temporary diversion berms as needed to direct runoff into the sediment trap.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Install remaining parts of permanent drainage system with temporary inlet protection.
6. Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed in each phase.
7. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
8. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
9. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
10. Plant permanent ground cover according to the landscaping plans as soon as possible.
11. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
12. Practice good housekeeping measures throughout the duration of construction.
13. 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.
3. Inspect sediment trap, temporary berms, 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

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BY	DESCRIPTION	DATE
	APPROVED	

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-19

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 10A PARCEL 104

(DPP SUBDIVISION FILE NO 2020/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2020/CP-242)
TMK: 9-1-17: POR OF 172
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
for Mahnir Tabahara 2/16/21
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

C009

SHEET 9 OF 41 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 104
CAD DWG NO.: 3100-19_ESCP.dwg
DATE: FEBRUARY 2021

Drawing name: P:\3100-19 Hoopili Ph 10A - Parcel 104\3100-19 DWGS\Construction Plans\3100-19 ESCP.dwg Feb 26, 2021 - 4:12pm

POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

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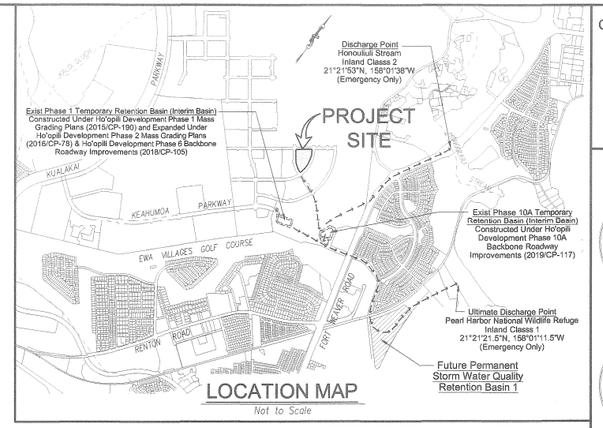
Scale in Feet



LOCATION MAP

Not to Scale

PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscape Areas
2	Automatic Irrigation System
3	Stenciled Storm Drain Inlets (DUMP NO WASTE – GOES TO OCEAN) and Storm Drain Marker
4	Prohibition of Residential Vehicle and Equipment Washing and Cleaning
5	Trash Containers shall be covered with roofs, awnings, or attached lids.
6	Parking Areas
TREATMENT CONTROL BMP	
7	Ho'opili Permanent SWQ Retention Basin 1 (storm water quality and flood control detention)

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:

SITE DESIGN STRATEGIES:

1. Minimize Soil Compaction
2. Minimize Impervious Surfaces
3. Direct Roof Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection)

SOURCE CONTROL BMPS:

1. Landscaped Areas – Protect slopes with landscaping
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water
3. Storm Drain Inlets (See Sht C018 for Drain Inlet Stenciling and Storm Drain Marker) – Stenciling shall not be placed on face of curb
4. Prohibition of Residential Vehicle and Equipment Washing and Cleaning
5. Trash Containers shall be covered with roofs, awnings, or attached lids.
6. Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basin constructed in "Ho'opili Development Phase 1 Mass Grading and Stockpiling" plans wich serves as a post-construction treatment control BMP.

TREATMENT CONTROL BMPs:

1. Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.
2. Interim Condition:
   - A. Phase 1 Temporary Retention Basin, as shown in Ho'opili Development, Phase 1 Mass Grading and Stockpiling Plans (R.M. Towill Corporation, 2015/CP-190) and expanded in Ho'opili Development, Phase 2 Mass Grading Plan (R.M. Towill Corporation, 2016/CP-78) and Ho'opili Development, Phase 6 Backbone Roadway Improvements (R.M. Towill Corporation, 2018/CP-105).
     Required WQV = 15.02 AC-FT
     Provided WQV = 86.68 AC-FT
   - B. Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP-117).
     Required WQV = 4.05 AC-FT
     Provided WQV = 14.73 AC-FT

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line
- Drainage Flow
- Drain Inlet w/ Stenciling (For Det See Sht C018)
- Landscaped Areas

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REVISION	DATE	DESCRIPTION
		APPROVED
		BY

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-19

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 10A PARCEL 104

(DPP SUBDIVISION FILE NO 2020/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2020/CP-242)
TMK: 9-1-17: POR OF 172
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
For Melvin Ishikawa 8/12/21
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

C010

SHEET 10 OF 41 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 104
CAD DWG NO.: 3100-19_BMP.dwg
DATE: FEBRUARY 2021

Drawing name: P:\3100-19 Hoopili Ph 10A - Parcel 104\3100-19 SWDR\Construction Plans\3100-19_BMP.dwg Mar 08, 2021 - 10:33am

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Permanent Slope Protection Areas (See Grading Plan)
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Temporary Filter Sock (Along Back of Walkway)
- Temporary Filter Sock
- Property Line & Proposed Right-of-Way
- 100 Existing Contour
- 90 Finish Grade Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm/Swale

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Catch Basin Inlet Protection.
- Temporary Stabilization

POST-CONSTRUCTION BMP'S:

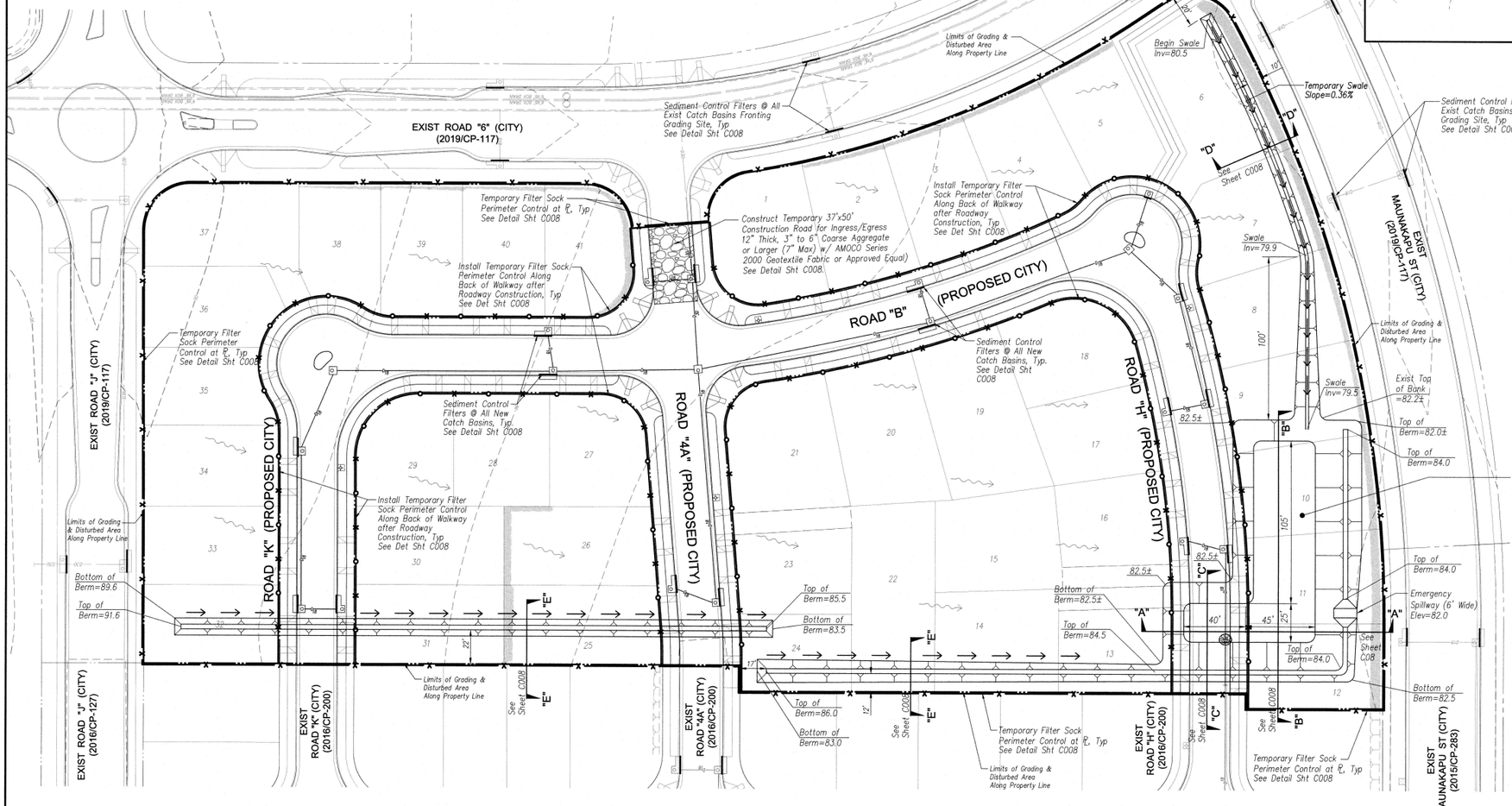
- Permanent Stabilization BMP'S
- For Remaining Post-Construction BMP's, See Sheet C009

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C008

Notes:

1. Temporary Construction Road Ingress/Egress may be Removed once Construction of Proposed Roadways and Sidewalks are Complete. Contractor Shall Utilize Tracking Controls for Erosion Prevention and Sediment Control as Noted on Sheet C008.
2. Temporary Sediment Basin may be Removed and restored back to existing grades once Construction of the Proposed Roadways and Lots are Mass Graded and only Top Soil will Remain.
3. No Building Permitted Work is to be Addressed by This Grading Permit Erosion & Sediment Control Plan.



EROSION & SEDIMENT CONTROL PLAN (CATEGORY 5)

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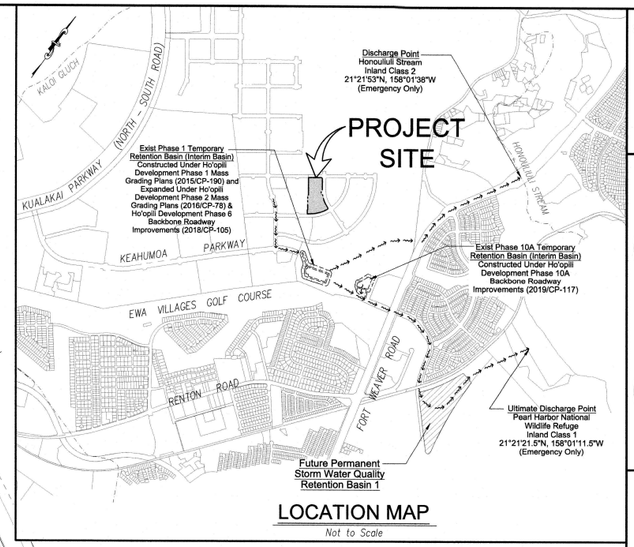
Scale in Feet



LOCATION MAP

Not to Scale

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REVISION	DATE	DESCRIPTION	BY	APPROVED

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-20

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A PARCEL 105

(DPP SUBDIVISION FILE NO 2019/SUB-130)
(DPP CONSTRUCTION PLANS FILE NO 2019/CP-202)
TMK: 9-1-17: POR OF 151
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
DATE

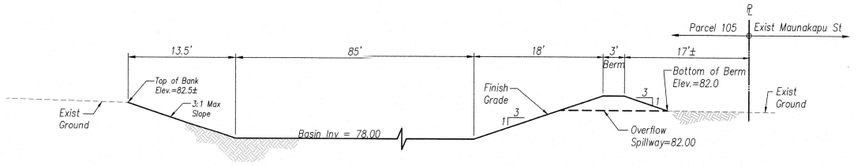
C007

SHEET 7 OF 40 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 105
CAD DWG NO.: 3100-20_ESCP.dwg
DATE: MARCH 2020

Drawing name: P:\3100-20 Hoopili Ph 10A - Parcel 105\3100-20 DWGS\Construction Plans\3100-20_ESCP.dwg Mar 02, 2020 - 1:17pm



SEDIMENT BASIN SECTION "A-A"

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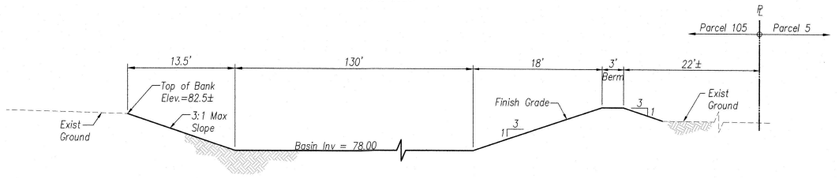

SEDIMENT BASIN SECTION "B-B"

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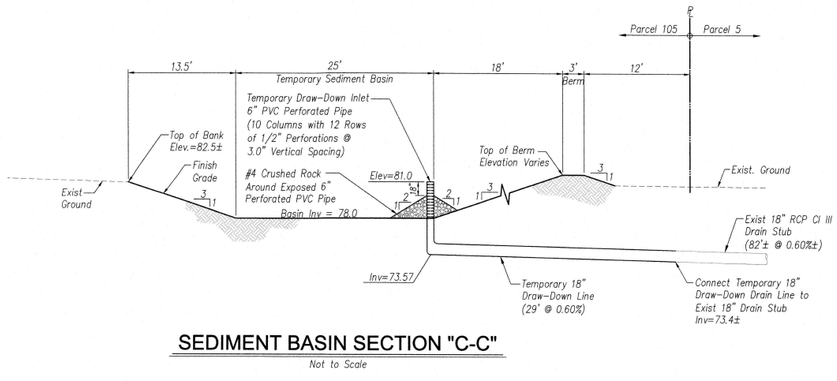

SEDIMENT BASIN SECTION "C-C"

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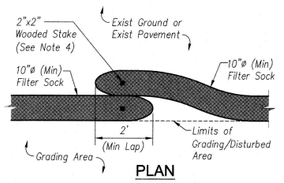
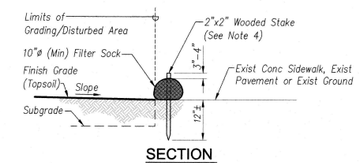


PLAN



SECTION

NOTES:

1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL

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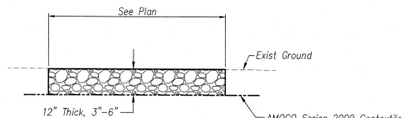
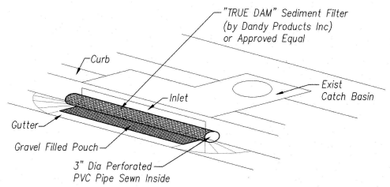


CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

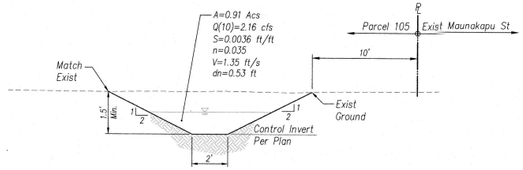
Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale



SECTION "D-D"

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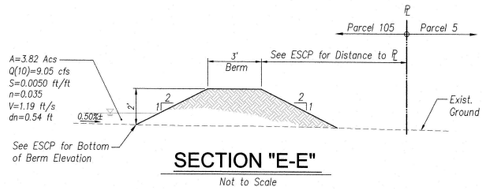

SECTION "E-E"

Not to Scale

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. *Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.*
3. *ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work.*
4. *Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.*
5. *Slope Protection: 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 anytime on slopes greater than 15%.*
6. *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.*
7. *Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.*
8. *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.*
9. *Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.*
10. *Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.*
11. *Inlet protection:*
    - *A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.*
    - *B. 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.*
    - *C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.*
    - *D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.*
13. *Sediment Basins:*
    - *A. 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.*
14. *Tracking Control:*
    - *A. 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.*
    - *B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.*
    - *C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.*
    - *D. Washing pollutants and materials that are discharged from the project site to the MS4 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.*
15. *All best management practices (BMP's) shall not be removed until the entire project is complete.*
16. *Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.*
17. *The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors. A brief explanation of why each BMP is unnecessary or impracticable has been provided under separate documentation to DPP.*
    - *A. Dewatering practices are not applicable.*
    - *B. Velocity dissipation devices are not applicable.*
    - *C. Buffer zones are not applicable.*
    - *D. Sediment traps are not applicable.*
    - *E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.*
    - *F. Sediment Barriers are not applicable*

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. *Storm water discharge associated with construction activities that disturb one (1) acre or more, and*
2. *Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters*

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. *Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.*
2. *Construct temporary sediment basin and stabilize immediately.*
3. *Construct temporary diversion berms as needed to direct runoff into the sediment basin.*
4. *Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.*
5. *Grade the site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.*
6. *Remove temporary sediment basin after lot mass grading is completed, and only lot fine grading for top soil remains.*
7. *Install perimeter control BMP's around proposed roadways once roadway construction is completed.*
8. *Remove temporary construction ingress/egress once roadway construction is completed, and perimeter control BMP's around proposed roadways are installed.*
9. *Fine grade lots up to top soil as planned. Limit fine grading to less than 1 acre at any one time.*
10. *Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.*
11. *Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.*
12. *Proceed with construction with least possible disturbance of vegetative areas and temporary structures.*
13. *Plant permanent ground cover according to the landscaping plans as soon as possible.*
14. *Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.*
15. *Practice good housekeeping measures throughout the duration of construction.*
16. *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, and trenching.*
3. *Inspect sediment basin, temporary berms, 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 BMP's as needed.*

GOOD HOUSEKEEPING BMP'S:

1. *Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.*
2. *Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.*
3. *Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.*
4. *Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.*
5. *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 cleanup all leaks and spills immediately.*
6. *Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.*
7. *Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.*
8. *Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.*
9. *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.*
10. *Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.*
11. *Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.*
12. *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.*
13. *Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.*
14. *Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.*
15. *Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.*
16. *Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.*

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NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-20

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A PARCEL 105

(DPP SUBDIVISION FILE NO 2019/SUB-130)
(DPP CONSTRUCTION PLANS FILE NO 2019/CP-202)
TMK: 9-1-17: POR OF 151
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE

C008

SHEET 8 OF 40 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 105
JOB NO.: 3100-20
DATE: MARCH 2020

Drawing Name: P:\3100-20 Hoopili Ph 10A - Parcel 105\3100-20 DWG\Construction Plans\3100-20_ESCP.dwg Mar 02, 2020 - 1:12pm

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE AS FOLLOWS:

LID SITE DESIGN STRATEGIES:

1. *Minimize Impervious Surfaces*
2. *Minimize Soil Compaction*
3. *Direct Roof Runoff to Landscaped Areas*

SOURCE CONTROL BMPs:

1. *Landscaped Areas Used to Protect Slopes*
2. *Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C017*
3. *Trash Containers shall be covered with roofs, awnings, or attached lids.*

TREATMENT CONTROL BMPs:

1. *Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.*

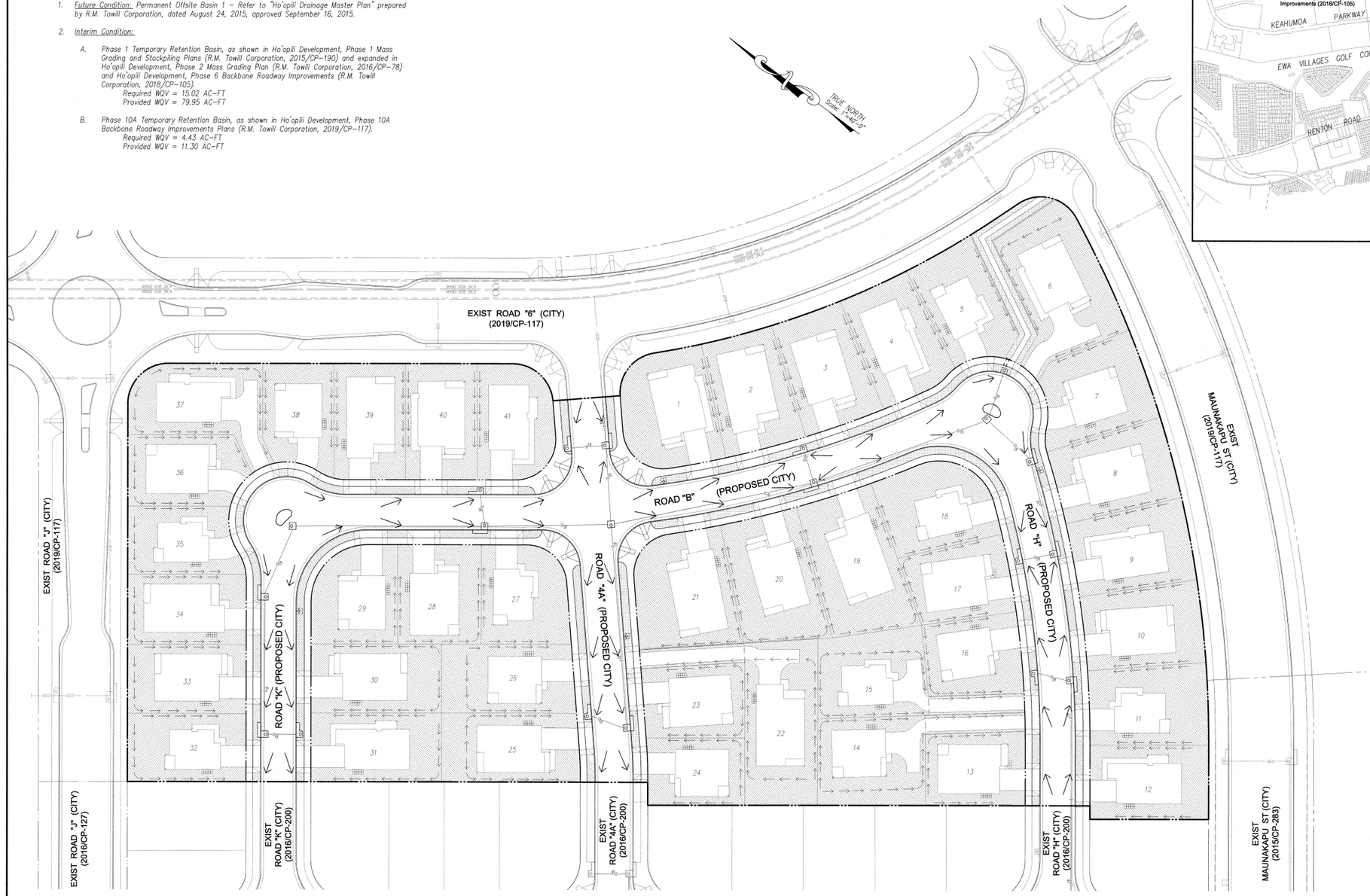
2. *Interim Condition:*

   A. *Phase 1 Temporary Retention Basin, as shown in Ho'opili Development, Phase 1 Mass Grading and Stockpiling Plans (R.M. Towill Corporation, 2015/CP-190) and expanded in Ho'opili Development, Phase 2 Mass Grading Plan (R.M. Towill Corporation, 2016/CP-78) and Ho'opili Development, Phase 6 Backbone Roadway Improvements (R.M. Towill Corporation, 2018/CP-105).*
   Required WQV = 15.02 AC-FT
   Provided WQV = 79.95 AC-FT

   B. *Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP-117).*
   Required WQV = 4.43 AC-FT
   Provided WQV = 11.30 AC-FT

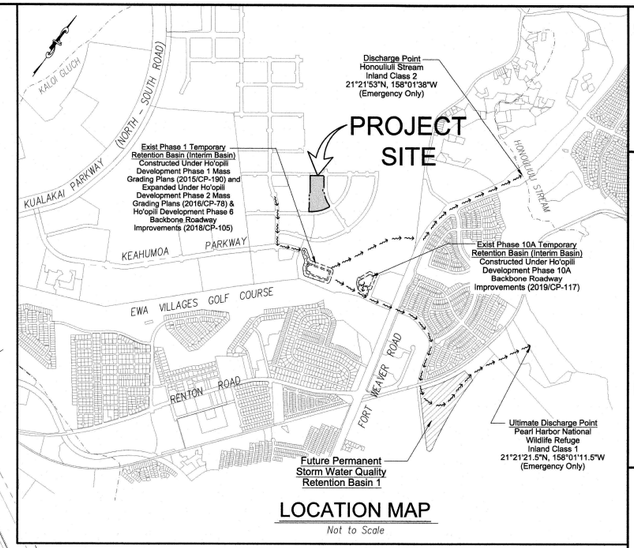
PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. *Automatic Irrigation – Will not be installed for this project.*
2. *Vehicle and Equipment Fueling Areas – Not applicable for this project.*
3. *Vehicle and Equipment Repair – Will not be allowed for this project.*
4. *Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.*
5. *Loading Docks – Not applicable for this project.*
6. *Outdoor Material Storage – Will not be allowed for this project.*
7. *Outdoor Work Areas – Not applicable for this project.*
8. *Outdoor Process Equipment Operations – Not applicable for this project.*



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

40 20 0 40 80
Scale in Feet



LOCATION MAP

Not to Scale

NOTE:

Each individual lot owner shall be responsible to maintain all source control BMPs affecting their property as noted on this plan. Individual lot owners shall notify DFM when there is a change in ownership. A new Owner's Certification must be submitted to DFM by the new owner each time there is a change in ownership.

LEGEND

- D18 — *Existing Drainline*
- D_{24} — *New Drainline*
- *Property Line & Proposed Right-of-Way*
- *Swale*
- *Flow Pattern*
- *Landscaped Areas*

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REVISION	DATE	DESCRIPTION	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-20

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A PARCEL 105

(DPP SUBDIVISION FILE NO 2019/SUB-130)
(DPP CONSTRUCTION PLANS FILE NO 2019/CP-202)
TMK: 9-1-17: POR OF 151
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE 11/20/20

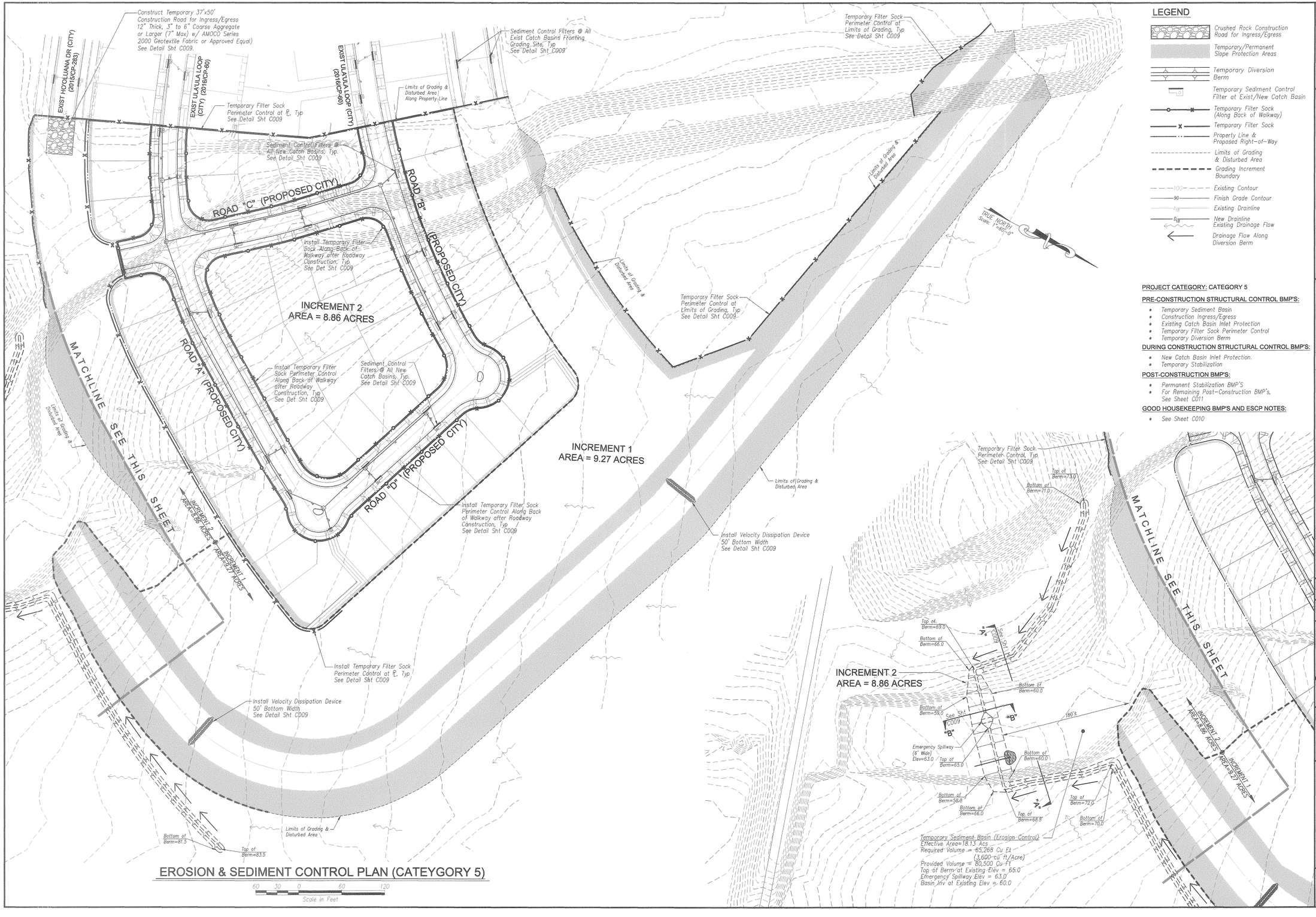
C009

SHEET 9 OF 40 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 105
CAD DWG NO.: 3100-20_BMP.dwg
DATE: MARCH 2020

Drawing name: P:\3100-20 Hoopili Ph 10A - Parcel 105\3100-20 DWGS\Construction Plans\3100-20_BMP.dwg Mar 02, 2020 - 1:29pm



EROSION & SEDIMENT CONTROL PLAN (CATEYGORY 5)

60 30 0 60 120
Scale in Feet

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Temporary Filter Sock (Along Back of Walkway)
- Temporary Filter Sock
- Property Line & Proposed Right-of-Way
- Limits of Grading & Disturbed Area
- Grading Increment Boundary
- 100 Existing Contour
- 90 Finish Grade Contour
- Existing Drainline
- New Drainline / Existing Drainage Flow
- Drainage Flow Along Diversion Berm

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Catch Basin Inlet Protection.
- Temporary Stabilization

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP'S
- For Remaining Post-Construction BMP's, See Sheet C011

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C010

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REVISION	DATE	DESCRIPTION	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-21

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A PARCEL 106

(DPP SUBDIVISION FILE NO 2019/SUB-58)
(DPP CONSTRUCTION PLANS FILE NO 2019/CP-111)
TMK: 9-1-17: POR OF 151
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
DEPT. OF CIVIL ENGINEERING BRANCH, D.P.P. — DATE

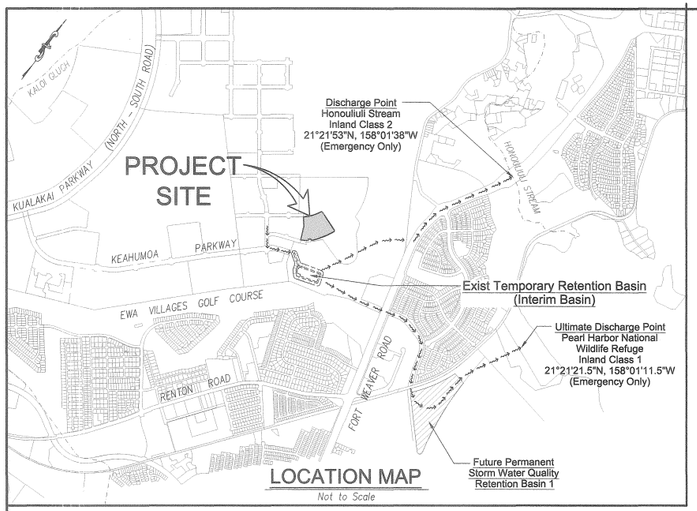
C008

SHEET 8 OF 50 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 106
CAD DWG NO.: 3100-21_ESCP.dwg
DATE: FEBRUARY 2020

Drawing name: P:\3100-21 Hoopili Ph 10A - Parcel 106\3100-21 DWGS\Construction Plans\3100-21_ESCP.dwg Feb 28, 2020 - 11:17am



LOCATION MAP

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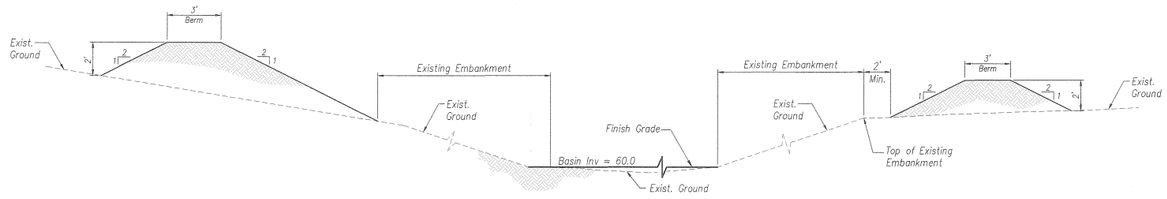

SEDIMENT BASIN SECTION "A-A"

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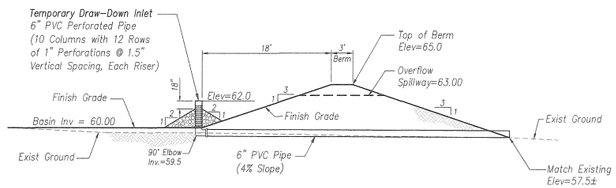

SEDIMENT BASIN SECTION "B-B"

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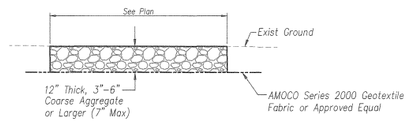

CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

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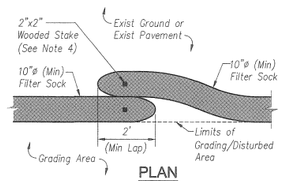
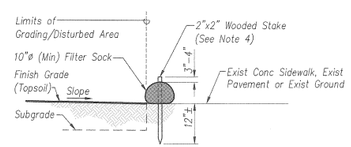


PLAN

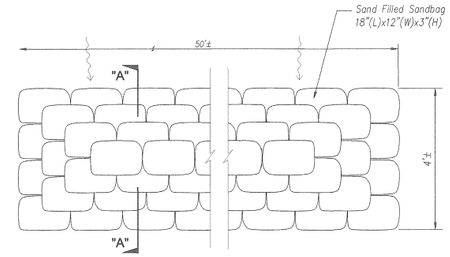


SECTION

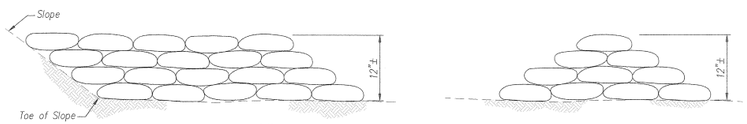
NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL

Not to Scale



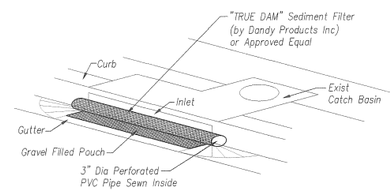
PLAN



END DETAIL SECTION "A-A"

VELOCITY DISSIPATION DEVICE DETAIL

Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

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REVISION	DATE	DESCRIPTION	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-21

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A PARCEL 106

(DPP SUBDIVISION FILE NO 2019/SUB-58)
(DPP CONSTRUCTION PLANS FILE NO 2019/CP-111)
TMK: 9-1-17: POR OF 151
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL DETAILS

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
DATE

C009

SHEET 9 OF 50 SHEETS
FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 106
CAD DWG NO.: 3100-21_ESCP.dwg
DATE: FEBRUARY 2020

Drawing name: P:\3100-21 Hoopili Ph 10A - Parcel 106\3100-21 DWG\6Construction Plans\3100-21_ESCP.dwg Feb 28, 2020 - 11:15am

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. Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.
3. ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work.
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. 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.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
13. Sediment Basins:
    A. 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.
14. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
15. All best management practices (BMP's) shall not be removed until the entire project is complete.
16. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
17. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors. A brief explanation of why each BMP is unnecessary or impracticable has been provided under separate documentation to DPP.
    A. Dewatering practices are not applicable.
    B. Buffer zones are not applicable.
    C. Sediment traps are not applicable.
    D. Sediment Barriers are not applicable.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary diversion berms as needed to direct off-site runoff away from project area.
3. Construct temporary sediment basin and stabilize immediately.
4. Clear and grub increment 1 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade increment 1 site.
4. Clear and grub increment 2 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade increment 2 site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
6. Install perimeter control BMP's around proposed roadways once roadway construction is completed.
7. Fine grade lots up to top soil as planned. Limit fine grading to less than 1 acre at any one time.
8. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
9. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
10. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
11. Plant permanent ground cover according to the landscaping plans as soon as possible.
12. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
13. Practice good housekeeping measures throughout the duration of construction.
14. 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, and trenching.
3. Inspect sediment basin, temporary berms, 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

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ENGINEER: WT	CHECKED BY: MN
DRAWN BY: JG	PROJECT #: 3100-21

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A PARCEL 106

(DPP SUBDIVISION FILE NO 2019/SUB-58)
(DPP CONSTRUCTION PLANS FILE NO 2019/CP-111)
TMK: 9-1-17: POR OF 151
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES

APPROVED BY:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE

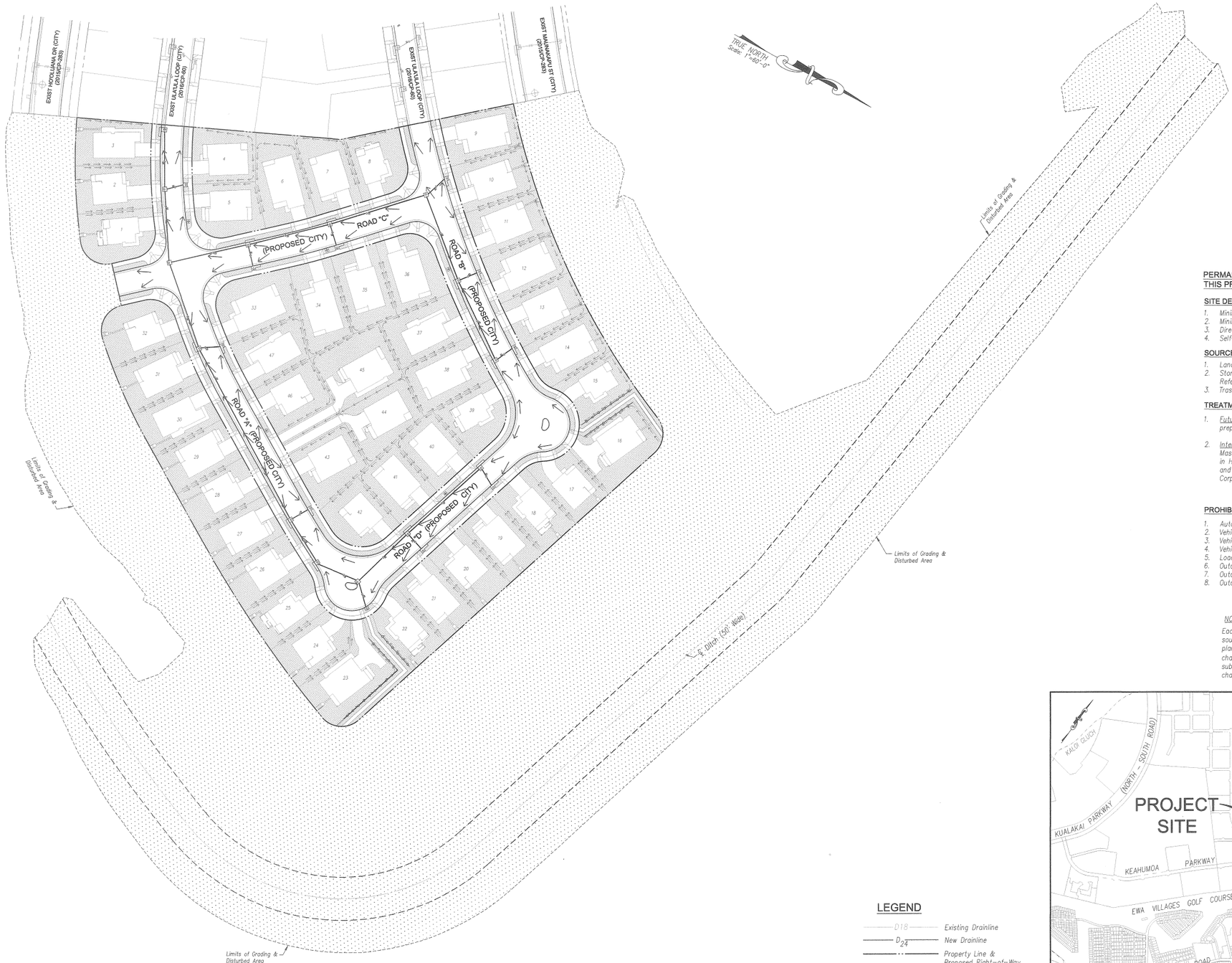
C010

SHEET 10 OF 50 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 106
CAD DWG NO.: 3100-21_ESCP.dwg
DATE: FEBRUARY 2020

Drawing name: P:\3100-21 Hoopili Ph 10A - Parcel 106\3100-21 DWGS\Construction Plans\3100-21_ESCP.dwg Feb 28, 2020 - 11:20am



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

60 30 0 60 120
Scale in Feet

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line & Proposed Right-of-Way
- Swale
- Flow Pattern
- Landscaped Areas
- Self Mitigating Areas

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE AS FOLLOWS:

SITE DESIGN STRATEGIES:

1. *Minimize Impervious Surfaces*
2. *Minimize Soil Compaction*
3. *Direct Roof Runoff to Landscaped Areas*
4. *Self-Mitigating Areas*

SOURCE CONTROL BMP:

1. *Landscaped Areas to protect slopes and channels.*
2. *Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C020*
3. *Trash Containers shall be covered with roofs, awnings, or attached lids.*

TREATMENT CONTROL BMPs:

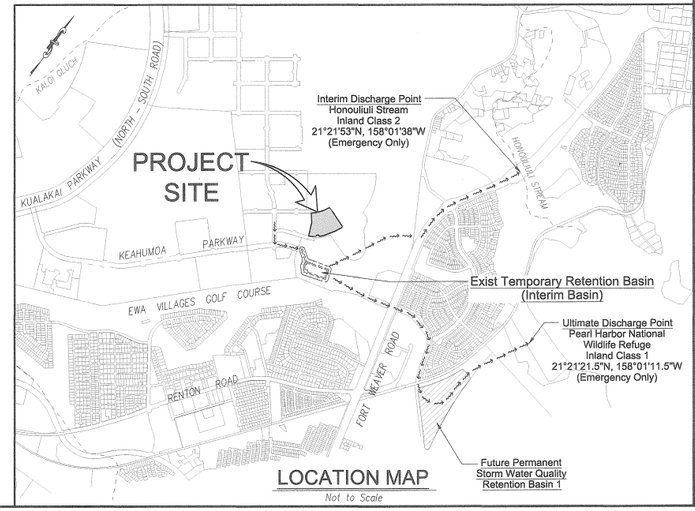
1. *Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.*
2. *Interim Condition: Temporary Retention Basin, as shown in Ho'opili Development, Phase 1 Mass Grading and Stockpiling Plans (R.M. Towill Corporation, 2015/CP-190) and expanded in Ho'opili Development, Phase 2 Mass Grading Plan (R.M. Towill Corporation, 2016/CP-78) and Ho'opili Development, Phase 6 Backbone Roadway Improvements (R.M. Towill Corporation, 2018/CP-105)*
   Required WQV = 15.02 AC-FT
   Provided WQV = 79.95 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. *Automatic Irrigation – Will not be installed for this project.*
2. *Vehicle and Equipment Fueling Areas – Not applicable for this project.*
3. *Vehicle and Equipment Repair – Will not be allowed for this project.*
4. *Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.*
5. *Loading Docks – Not applicable for this project.*
6. *Outdoor Material Storage – Will not be allowed for this project.*
7. *Outdoor Work Areas – Not applicable for this project.*
8. *Outdoor Process Equipment Operations – Not applicable for this project.*

NOTE:

Each individual lot owner shall be responsible to maintain all source control BMPs affecting their property as noted on this plan. Individual lot owners shall notify DFM when there is a change in ownership. A new Owner's Certification must be submitted to DFM by the new owner each time there is a change in ownership.



LOCATION MAP

Not to Scale

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BY	DESCRIPTION	DATE
	APPROVED	

ENGINEER: WT	CHECKED BY: MN
DRAWN BY: JG	PROJECT #: 3100-21

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 10A PARCEL 106

(DPP SUBDIVISION FILE NO 2019/SUB-58)
(DPP CONSTRUCTION PLANS FILE NO 2019/CP-111)
TMK: 9-1-17: POR OF 151
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE

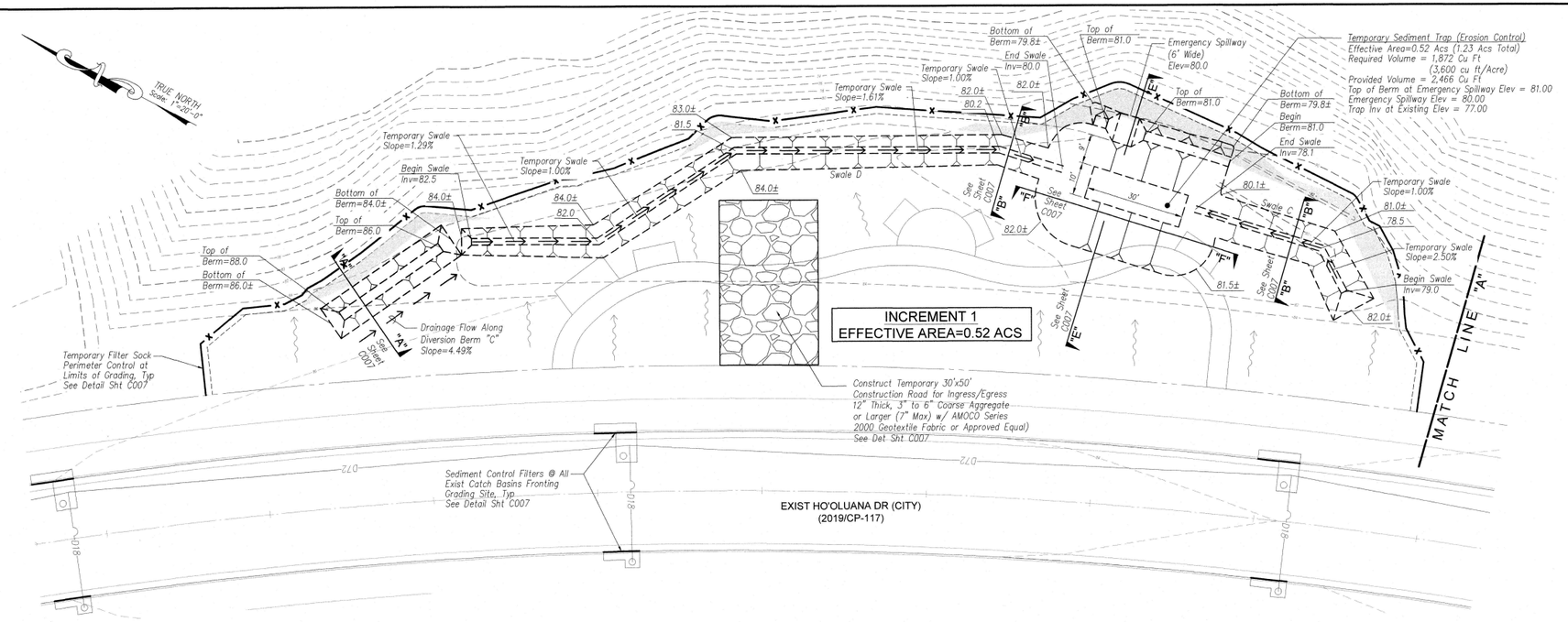
C011

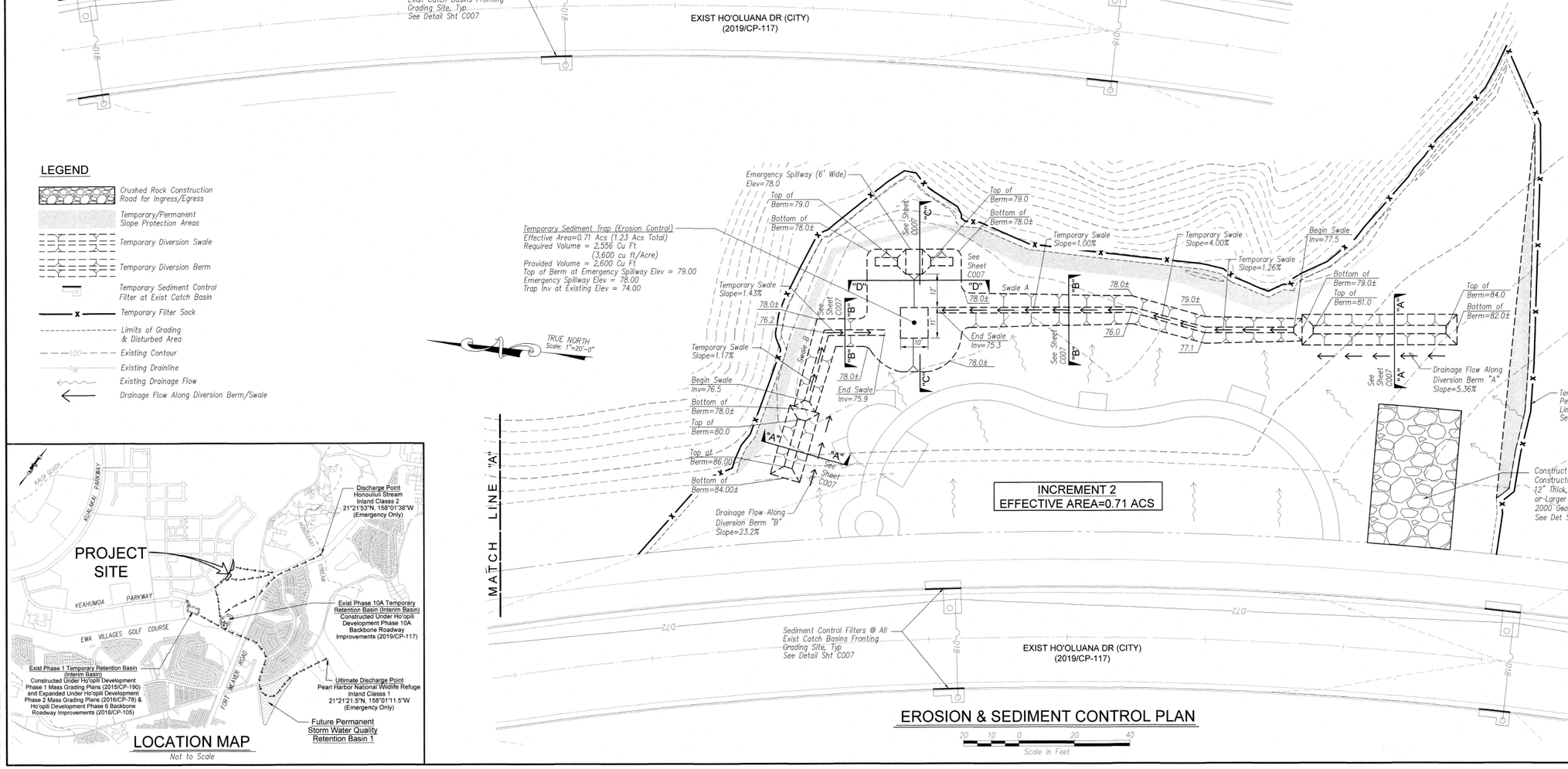
SHEET 11 OF 50 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 106
CAD DWG NO.: 3100-21_BMP.dwg
DATE: FEBRUARY 2020

Drawing name: P:\3100-21 Hoopili Ph 10A - Parcel 106\3100-21 DWGS\Construction Plans\3100-21_BMP.dwg Feb 28, 2020 - 11:53am





LOCATION MAP
Not to Scale

PROJECT NAME: HO'OPILI PHASE 10A, PARCEL 111 PARK
CAD DWG NO.: 3100-37_ESCP.dwg
DATE: APRIL 2023

Drawing name: P:\3100-37 Hoopili Ph 10A Park\3100-37 DWG\Construction Plans\3100-37_ESCP.dwg Apr 04, 2023 - 10:26am

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Traps
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berms/Swales

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP'S
- For Remaining Post-Construction BMP's See Sheet C008

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C007

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NO.	DESCRIPTION	DATE	BY	APPROVED
	REVISION			

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-37

HO'OPILI PHASE 10A PARCEL 111 OPEN LAND GREENWAY

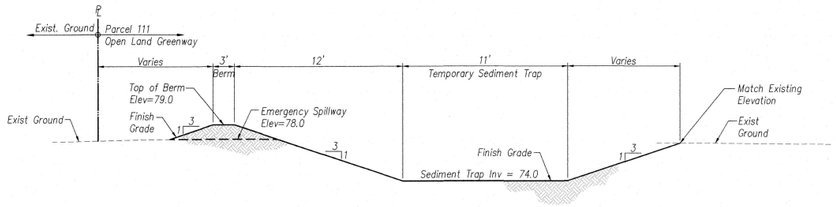
(DPP SUBDIVISION FILE NO 2019/SUB-122)
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-60)
TMK: 9-1-17: 207
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
for Melvin Kobayashi 8/10/22
CHIEF, CIVIL ENGINEERING BRANCH, E.P.D. DATE

C006

SHEET 6 OF 8 SHEETS
FILE | POCKET | FOLDER | NO.



SECTION "C-C" (SEDIMENT TRAP)

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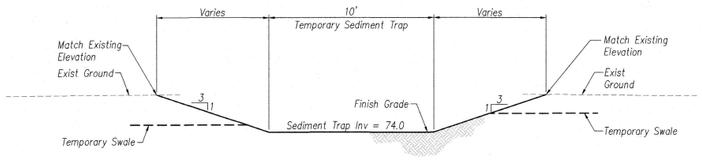

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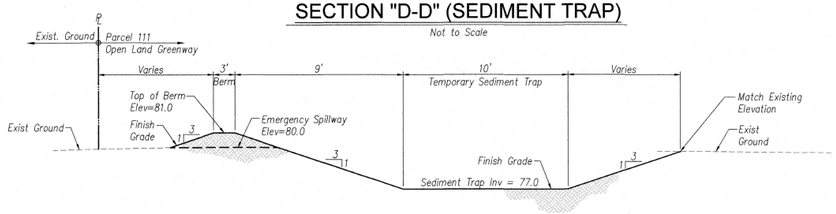

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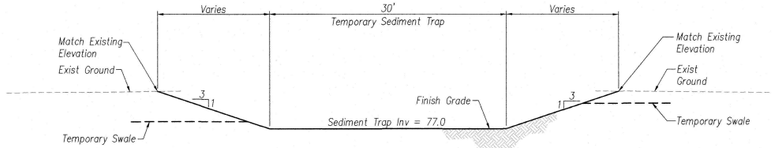

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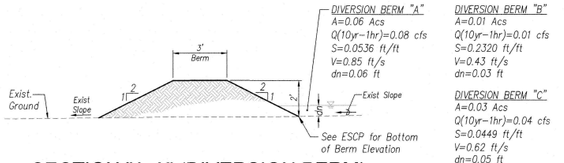


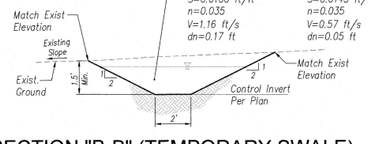
DIVERSION BERM "A"
A=0.06 Acs
Q(10yr-1hr)=0.08 cfs
S=0.0536 ft/ft
V=0.85 ft/s
dn=0.06 ft

DIVERSION BERM "B"
A=0.01 Acs
Q(10yr-1hr)=0.01 cfs
S=0.2320 ft/ft
V=0.43 ft/s
dn=0.03 ft

DIVERSION BERM "C"
A=0.03 Acs
Q(10yr-1hr)=0.04 cfs
S=0.0449 ft/ft
V=0.62 ft/s
dn=0.05 ft

SECTION "A-A" (DIVERSION BERM)

Not to Scale



SWALE "A"
A=0.36 Acs
Q(10yr-1hr)=0.46 cfs
S=0.0100 ft/ft
n=0.035
V=1.16 ft/s
dn=0.17 ft

SWALE "B"
A=0.05 Acs
Q(10yr-1hr)=0.06 cfs
S=0.0143 ft/ft
n=0.035
V=0.57 ft/s
dn=0.05 ft

SWALE "C"
A=0.07 Acs
Q(10yr-1hr)=0.09 cfs
S=0.0100 ft/ft
n=0.035
V=0.60 ft/s
dn=0.07 ft

SWALE "D"
A=0.26 Acs
Q(10yr-1hr)=0.33 cfs
S=0.0100 ft/ft
n=0.035
V=1.03 ft/s
dn=0.14 ft

SECTION "B-B" (TEMPORARY SWALE)

Not to Scale

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. The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.
3. The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
12. Sediment Traps:
    A. Sediment traps must be kept in effective operating condition and sediment shall be removed when the sediment accumulation reaches one third of the trap capacity.
13. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
14. All best management practices (BMP's) shall not be removed until the entire project is complete.
15. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
16. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment basins are not applicable.
    E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

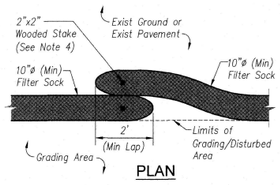
1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment traps and stabilize immediately.
3. Construct temporary diversion berms and swales as needed to direct runoff into the sediment traps.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed in each phase.
6. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
7. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
8. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
9. Plant permanent ground cover according to the landscaping plans 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:

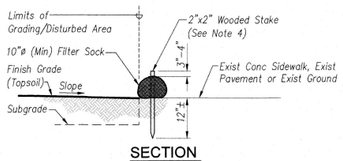
1. The following will be performed when heavy rains, tropical storm or hurricane is imminent or is forecasted in the next 48 hours.
2. Temporary suspension of active grading.
3. Inspect sediment traps, temporary berms, temporary swales, perimeter controls, and inlet protection devices, and maintain as 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.



PLAN

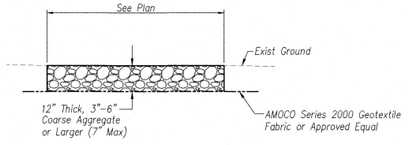


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

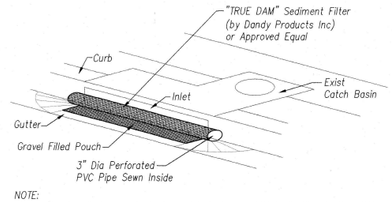
FILTER SOCK PLACEMENT DETAIL

Not to Scale



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

Gray • Hong • Nojima & Associates, Inc.
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813
Telephone: (808) 521-0306
Fax: (808) 531-8018
CONSULTING ENGINEERS

Exp: 4/30/24
MICHAEL H. NOJIMA
LICENSED PROFESSIONAL ENGINEER
No. 5632-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

Exp: 4/30/24
WINSTON M. TANIGUCHI
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No. 13730-C
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DESCRIPTION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-37

HO'OPILI PHASE 10A PARCEL 111 OPEN LAND GREENWAY

(DPP SUBDIVISION FILE NO 2019/SUB-122)

(DPP CONSTRUCTION PLANS FILE NO 2022/CP-60)

TMK: 9-1-17: 207

HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:

for Melvin Tokuuma 8/10/22
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

C007

SHEET 7 OF 8 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 10A PARCEL 111 PARK
CAD DWG NO.: 3100-37_ESCP.dwg
DATE: APRIL 2023

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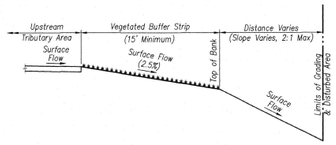

VEGETATED BUFFER STRIP DETAIL

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PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscaped Areas
2	Automatic Irrigation System
3	Trash Containers shall be lined and placed on paved impervious material
TREATMENT CONTROL BMPs	
4	Vegetated Buffer Strips

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:

SITE DESIGN STRATEGIES:

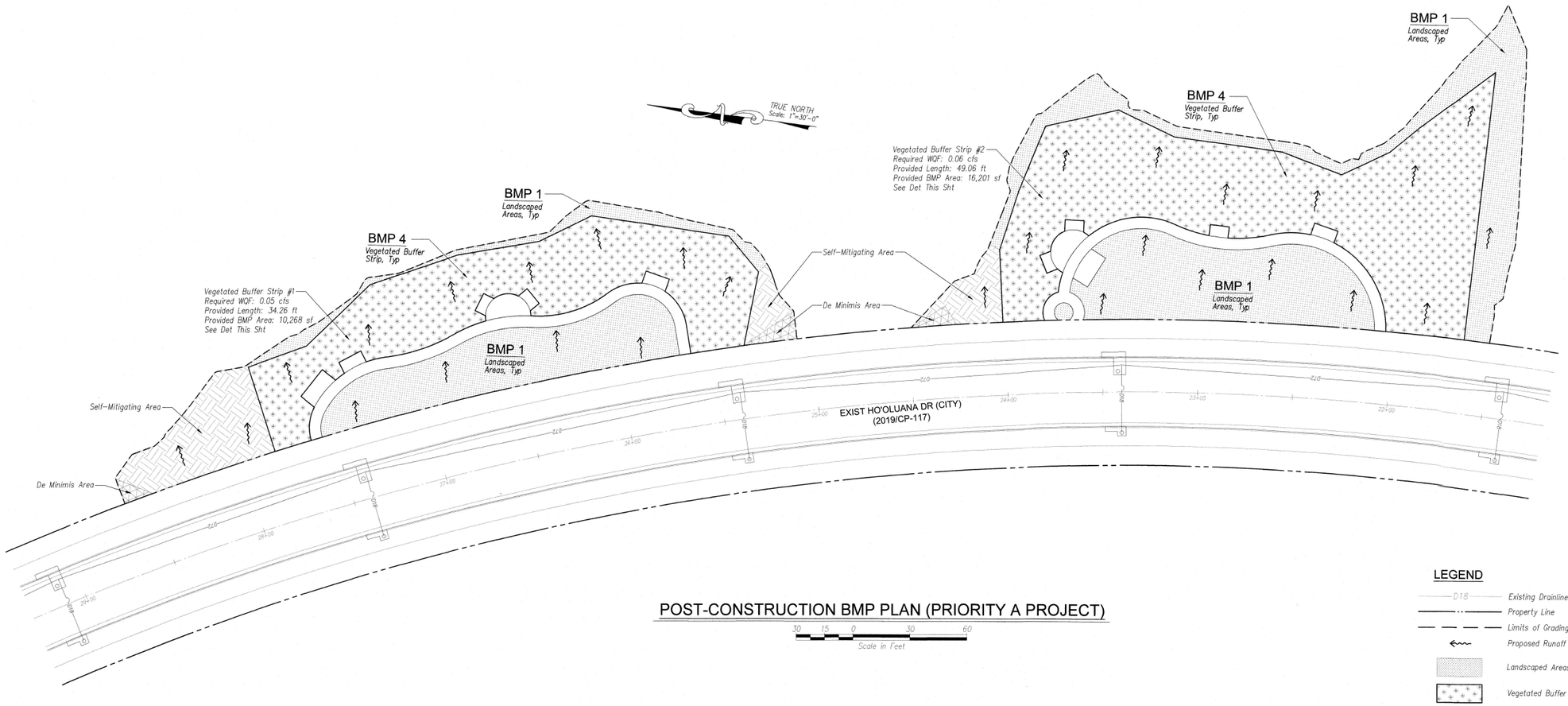
1. Conserve Natural Areas, Soils, and Vegetation
2. Minimize Soil Compaction
3. Minimize Disturbances to Natural Drainages
4. Minimize Impervious Surfaces
5. Direct Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection)
6. Self-Mitigating Areas

SOURCE CONTROL BMPs:

1. Landscaped Areas – Protect slopes with landscaping
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water
3. Outdoor Trash Storage – Containers are lined and placed on paved impervious material

TREATMENT CONTROL BMPs:

4. Biofiltration: Vegetated Buffer Strips
   Required WQF = 0.11 cfs
   Provided BMP Area = 26,469 sq ft



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

30 15 0 30 60

Scale in Feet

LEGEND

- D18 — Existing Drainline
- Property Line
- Limits of Grading
- Proposed Runoff Flow
- Landscaped Areas
- Vegetated Buffer Strips
- Self-Mitigating Areas
- De Minimis Areas

PROJECT NAME: HO'OPILI PHASE 10A, PARCEL 111 PARK
CAD DWG NO.: 3100-37_BMP.dwg
DATE: APRIL 2023

Drawing name: P:\3100-37 Hoopili Ph 10A Park\3100-37 DWG\Construction Plans\3100-37_BMP.dwg Apr 19, 2023 - 2:47pm

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REVISION	DATE	DESCRIPTION	BY	APPROVED

ENGINEER: WT	CHECKED BY: MN
DRAWN BY: JG	PROJECT #: 3100-37

HO'OPILI PHASE 10A PARCEL 111 OPEN LAND GREENWAY

(DPP SUBDIVISION FILE NO 2019/SUB-122)
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-60)
TMK: 9-1-17: 207
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:

for CHIEF, CIVIL ENGINEERING BRANCH, DPP

4/10/23
DATE

C008

SHEET 8 OF 8 SHEETS

FILE	POCKET	FOLDER	NO.

GOOD HOUSEKEEPING BMPS NOTES:

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).

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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.

4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.

12. LIQUID WASTE MANAGEMENT.

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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.

GOOD HOUSEKEEPING BMPS NOTES (CONT'D):

14. CONTAMINATED SOIL MANAGEMENT.

    AT MINIMUM CONTAIN CONTAMINATED MATERIAL SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL".

16. BMP AND SITE MAINTENANCE.

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES:

PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND PERIMETER CONTROLS FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT BASIN, STABILIZE IMMEDIATELY.
3. 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.
4. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
5. PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.
6. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
7. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
8. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING.
2. INSPECT ALL SEDIMENT BASINS AND PERIMETER CONTROLS, AND MAINTAIN AS NEEDED. REINSTALL ANY PERIMETER CONTROLS THAT WERE REMOVED DUE TO ACTIVE WORK IN THE AREA.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

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. 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.
4. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE 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.

5. 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.

6. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

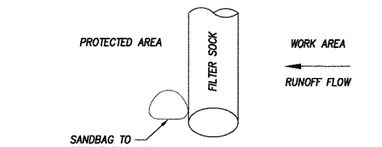
7. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

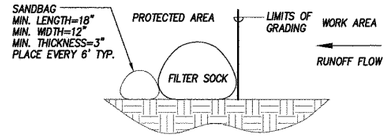
8. SEDIMENT BASINS

   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.

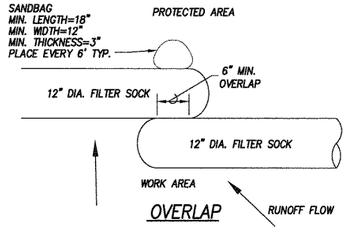
9. TRACKING CONTROL
   - MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAVED AREAS, AND SIDEWALKS FROM VEHICLES EXITING THE CONSTRUCTION SITE BY RESTRICTING VEHICLE TRAFFIC TO PROPERLY DESIGNATED AREAS AND USING ADDITIONAL CONTROLS TO REMOVE SEDIMENT FROM VEHICLE TIRES PRIOR TO EXITING THE SITE.
   - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
   - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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. THE FOLLOWING BMPS WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DEWATERING PRACTICES ARE NOT APPLICABLE.
    - SEDIMENT BARRIERS ARE NOT APPLICABLE.
    - BUFFER ZONES ARE NOT APPLICABLE.
    - SEDIMENT TRAPS ARE NOT APPLICABLE.
    - SLOPE PROTECTION IS NOT APPLICABLE.
    - VELOCITY DISSIPATION DEVICES ARE NOT APPLICABLE.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE ARE NOT APPLICABLE.
14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE THE ESCP COORDINATOR FOR THIS PROJECT AT LEAST 2 WEEKS PRIOR TO THE START OF THE PROJECT.
15. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE DIRECTOR AT EACH STAGE OF DEVELOPMENT BEFORE PROCEEDING TO THE NEXT STEP IN DEVELOPMENT.
16. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.



PLAN



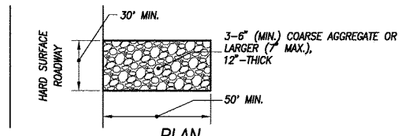
SECTION



OVERLAP

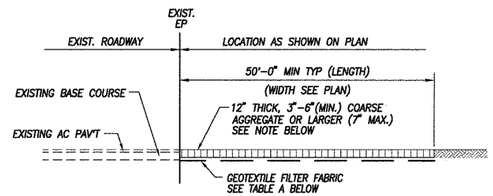
COMPOST FILTER SOCK DETAIL

NOT TO SCALE



PLAN

NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.



SECTION

TABLE A GEOTEXTILE REQUIREMENTS

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

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

HO'OPILI DEVELOPMENT PARCEL 113

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu, Hawaii 96819

BRENT W.B. NAKAOKA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/20 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	BY

APPROVED BY
for Chief, Civil Engineering Branch, DPP 12/13/18 DATE

ENGINEER	CD
DRAFTSMAN	CD
CHECKED BY	BN
SCALE	AS SHOWN
DATE	DECEMBER 12, 2018
DPP FILE NO.	2018/CP-238

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-23311-OE

HO'OPILI DEVELOPMENT PARCEL 113

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
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BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
SIGNATURE 4/30/22 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

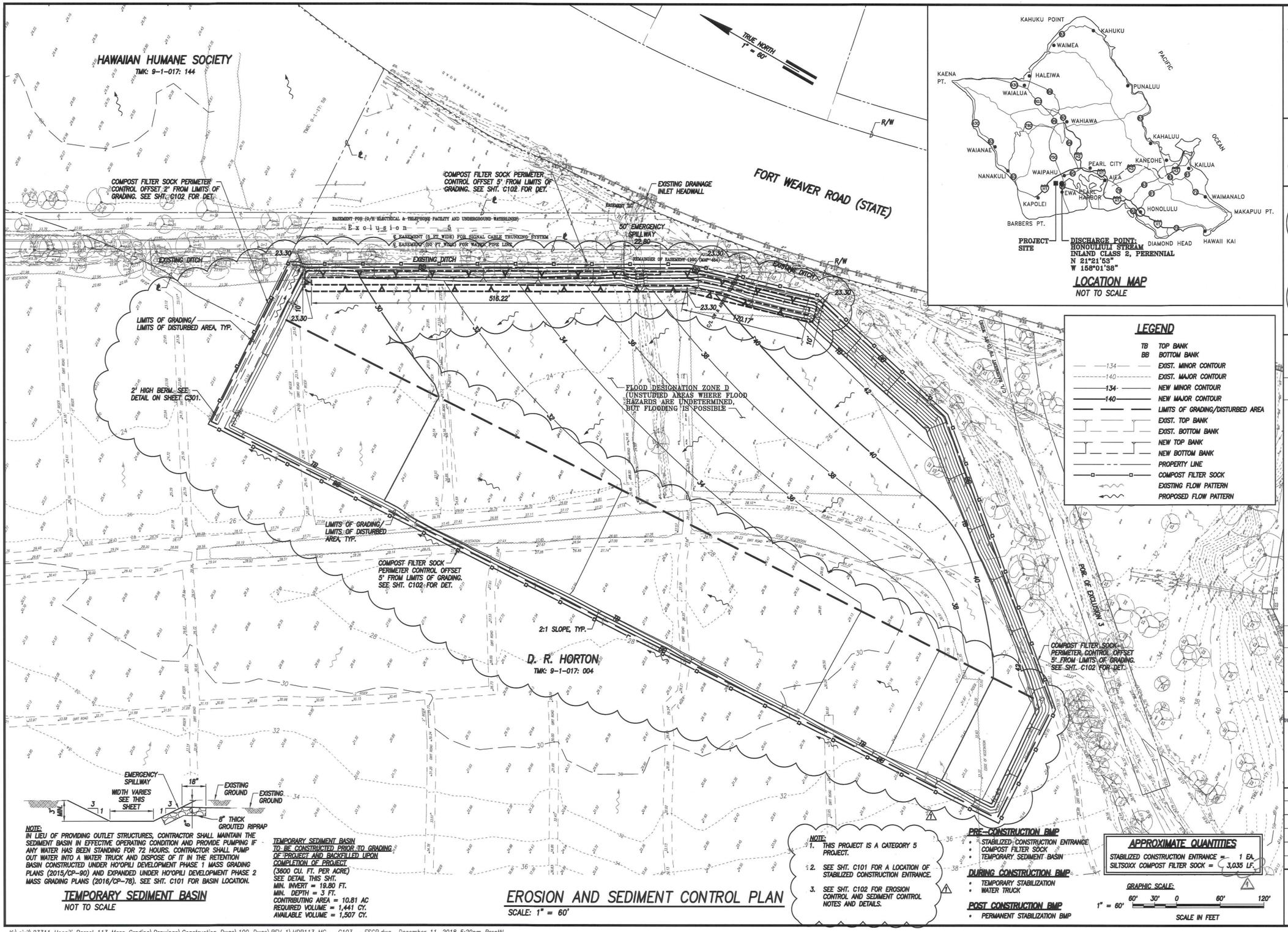
CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE 4/30/22 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	BRIEF	BY	APPROVED
4	06/05/20	NEW SHEET. REVISED GRADING LIMITS, NOTES ADDED, REV FILTER SOCK QUANTITIES	CD	

APPROVED BY
for Chief, Civil Engineering Branch, DPP — DATE 5/14/20

ENGINEER	CD
DRAFTSMAN	CD
CHECKED BY	BN
SCALE	AS SHOWN
DATE	DECEMBER 12, 2018
DPP FILE NO.	2018/CP-238

EROSION AND SEDIMENT CONTROL PLAN



LOCATION MAP
NOT TO SCALE

LEGEND

TB	TOP BANK
BB	BOTTOM BANK
134	EXIST. MINOR CONTOUR
140	EXIST. MAJOR CONTOUR
134	NEW MINOR CONTOUR
140	NEW MAJOR CONTOUR
	LIMITS OF GRADING/DISTURBED AREA
	EXIST. TOP BANK
	EXIST. BOTTOM BANK
	NEW TOP BANK
	NEW BOTTOM BANK
	PROPERTY LINE
	COMPOST FILTER SOCK
	EXISTING FLOW PATTERN
	PROPOSED FLOW PATTERN

NOTE:
IN LIEU OF PROVIDING OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE RETENTION BASIN CONSTRUCTED UNDER HO'OPILI DEVELOPMENT PHASE 1 MASS GRADING PLANS (2015/CP-90) AND EXPANDED UNDER HO'OPILI DEVELOPMENT PHASE 2 MASS GRADING PLANS (2016/CP-78). SEE SHT. C101 FOR BASIN LOCATION.

TEMPORARY SEDIMENT BASIN
NOT TO SCALE

TEMPORARY SEDIMENT BASIN
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 19.80 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 10.81 AC
REQUIRED VOLUME = 1,441 CY.
AVAILABLE VOLUME = 1,507 CY.

EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 60'

NOTE:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHT. C101 FOR A LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C102 FOR EROSION CONTROL AND SEDIMENT CONTROL NOTES AND DETAILS.

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT BASIN

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

APPROXIMATE QUANTITIES
STABILIZED CONSTRUCTION ENTRANCE = 1 EA.
SILTSOXX COMPOST FILTER SOCK = 3,035 LF.

GRAPHIC SCALE:
1" = 60'
60' 30' 0 60' 120'
SCALE IN FEET

RMTC JOB NO.: 1-23311-OE

K:\civil\23311 Hoopili Parcel 113 Mass Grading\Drawings\Construction Dwgs\100_Dwgs\REV 1\HDP113 MG – C103 – ESCP.dwg December 11, 2018 5:29pm BrentN

FILE	POCKET	FOLDER	NO.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 7 CONSECUTIVE DAYS OR MORE.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS, 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.
6. 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.
7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.
8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
9. SEDIMENT TRAPS

   SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES.
10. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.
11. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
12. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION FOR MORE INFORMATION ON BMPS.
13. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
      - RUNOFF FROM UPSTREAM AREAS WILL NOT BE DIVERTED AROUND THE DISTURBED AREAS OF THE SITE SINCE THE MAJORITY OF GRADING DOES NOT OCCUR ON SLOPES WITH A GRADE OF 15% OR MORE. WHERE DISTURBANCE OCCURS ON EXISTING SLOPES GREATER THAN 15%, THE EXPOSED SLOPES WILL NOT BE SUBJECT TO SEVERE EROSION FROM UPSLOPE RUNOFF AND THE PROPOSED BMPS (PERIMETER CONTROL AND SEDIMENT BASINS) WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - DEWATERING PRACTICES
      - IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT BASINS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT BASINS
      - THE AREA TO BE DISTURBED IS LESS THAN 5 ACRES.
    - INLET PROTECTION
      - THERE ARE NO EXISTING DRAIN INLETS WITHIN THE PROJECT AREA.
    - BUFFER ZONES
      - THE PROJECT IS NOT WITHIN 50 FEET OF STATE WATERS AND THE MAJORITY OF GRADING DOES NOT OCCUR ON SLOPES WITH A GRADE OF 15% OR MORE. WHERE DISTURBANCE OCCURS ON EXISTING SLOPES GREATER THAN 15%, THE EXPOSED SLOPES WILL NOT BE SUBJECT TO SEVERE EROSION FROM UPSLOPE RUNOFF AND THE PROPOSED BMPS (PERIMETER CONTROL AND SEDIMENT BASINS) WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - VELOCITY DISSIPATION DEVICES
      - THERE IS A PROPOSED OUTLET FOR THE GRADING SEDIMENT BASIN. THE 10-YR 1-HR FLOW IS LESS THAN 1 CFS. THEREFORE, A VELOCITY DISSIPATION DEVICE IS NOT REQUIRED AS THE POTENTIAL DISCHARGE FROM THE OUTLET IS LOW AND WILL NOT ERODE THE IMMEDIATE AREA DOWNSLOPE.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.
15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).
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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.
12. LIQUID WASTE MANAGEMENT.

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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."
16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

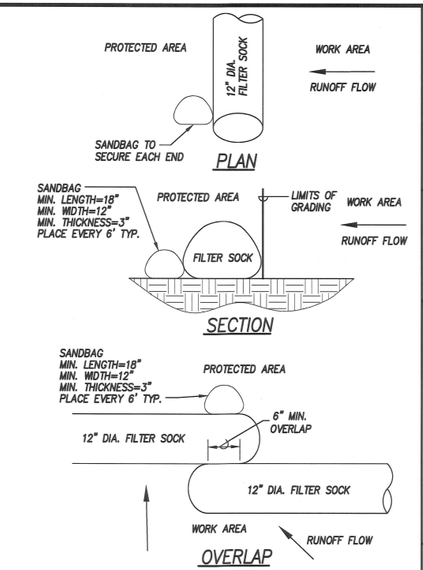
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND PERIMETER CONTROLS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. INSTALL TEMPORARY SEDIMENT TRAP.
3. PROVIDE WATER TRUCKS FOR DUST CONTROL.
4. PROCEED WITH STOCKPILING WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS.
5. TEMPORARILY STABILIZE DISTURBED AREAS AND THE STOCKPILE IF THE AREA WILL NOT BE ACTIVELY WORKED ON FOR 7 CONSECUTIVE DAYS OR MORE.
6. AFTER THE STOCKPILE HAS BEEN REMOVED, PERMANENTLY STABILIZE THE GROUND THAT WAS DISTURBED BY THE STOCKPILING OPERATION.
7. REMOVE PERIMETER CONTROLS AFTER STOCKPILE HAS BEEN REMOVED AND DISTURBED AREA HAS BEEN PERMANENTLY STABILIZE.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

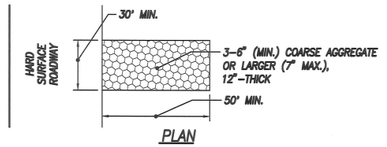
THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE STOCKPILING.
2. INSPECT ALL PERIMETER CONTROLS AND MAINTAIN AS NEEDED. REINSTALL ANY PERIMETER CONTROLS THAT WERE REMOVED DUE TO ACTIVE WORK IN THE AREA.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



COMPOST FILTER SOCK DETAIL

NOT TO SCALE



NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

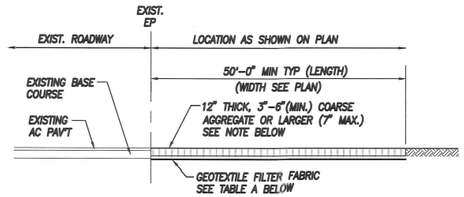


TABLE A GEOTEXTILE REQUIREMENTS

PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3786)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE

HO'OPILI DEVELOPMENT

PHASE 10A
STOCKPILE PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 172

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
Brent Nakaoka 4/30/22
SIGNATURE EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE 4/30/22 EXP. DATE
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BY	APPROVED

REVISION	DATE
BRIEF	

APPROVED BY
for Melvin Takiguchi 11/9/20
Chief, Civil Engineering Branch, DPP DATE

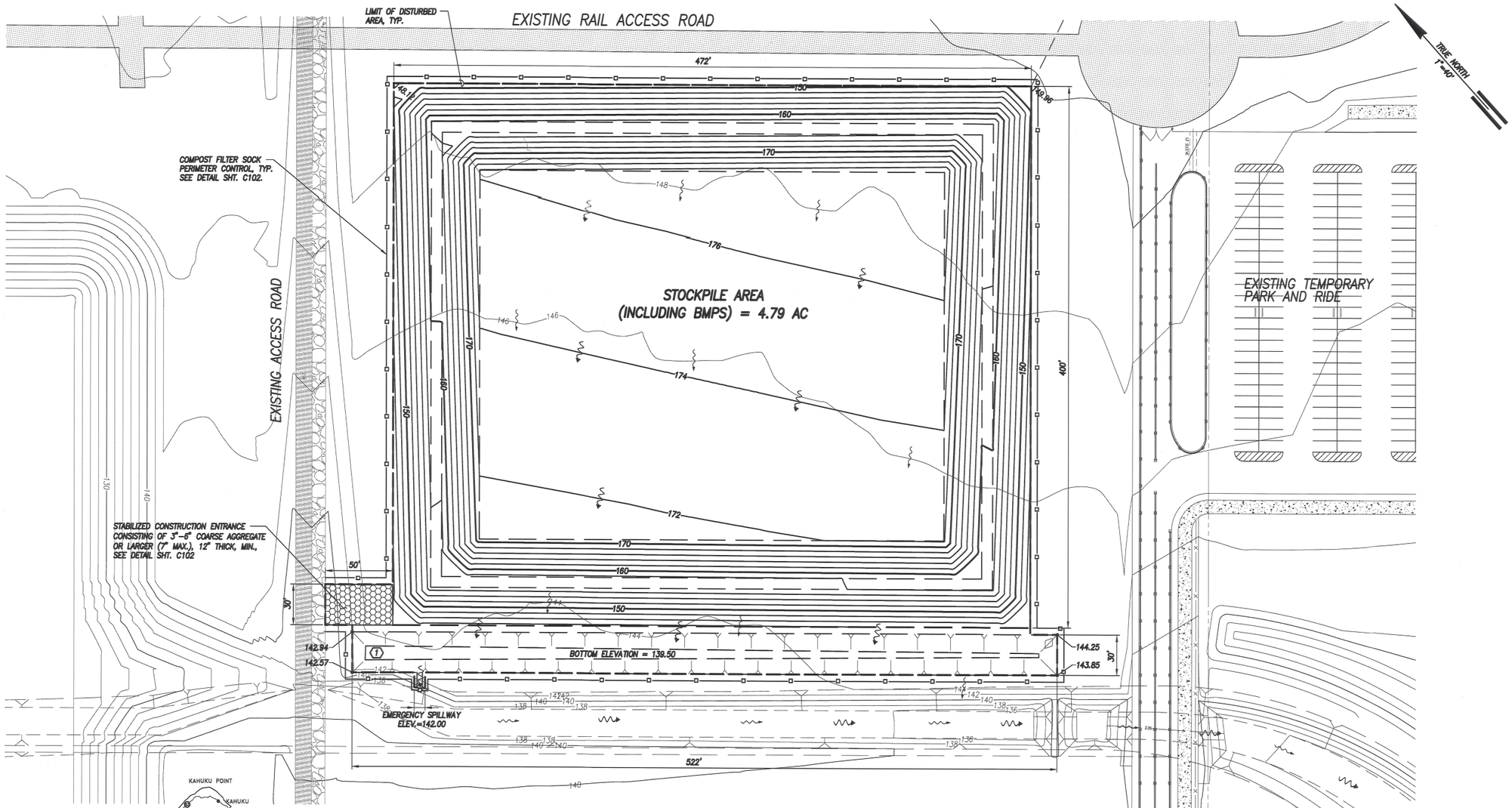
ENGINEER	CD, JT
DRAFTSMAN	JT
CHECKED BY	BN
SCALE	AS SHOWN
DATE	OCTOBER 2020
DPP FILE NO.	2020/CP-230

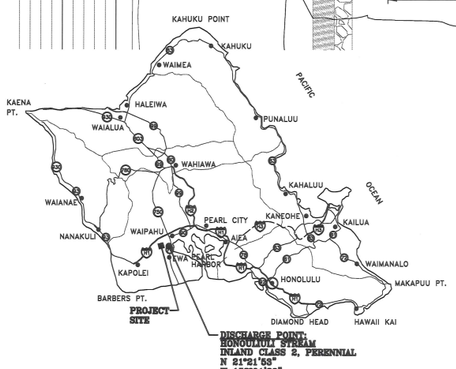
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

RMTC JOB NO.: 1-23223-1E

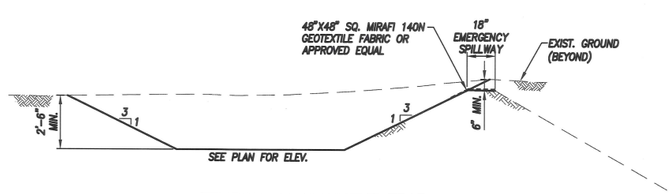
K:\civil\23223-01 Hoopili Phase 10A Stockpile Plan\Drawings\Construction Dwgs\100_Dwgs\HDP10A Stockpile - C102 - ESCP Notes & Details.dwg November 4, 2020

FILE	POCKET	FOLDER	NO.





LOCATION MAP
NOT TO SCALE



TEMPORARY SEDIMENT TRAP
NOT TO SCALE

EROSION & SEDIMENT CONTROL PLAN (CATEGORY 5)
SCALE: 1" = 40'

1 TEMPORARY SEDIMENT TRAP TO BE CONSTRUCTED PRIOR TO GRADING
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 139.50 FT.
MIN. DEPTH = 2.50 FT.
CONTRIBUTING AREA = 4.79 AC.
REQUIRED VOLUME = 17,244 CF.
AVAILABLE VOLUME = 17,553 CF.

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY SEDIMENT TRAP
- PERIMETER CONTROL

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHT. C102 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	1,835 LF

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 134 EXIST. CONTOUR
- 134 NEW MINOR CONTOUR
- 140 NEW MAJOR CONTOUR
- LIMITS OF STOCKPILING/DISTURBED AREA
- COMPOST FILTER SOCK
- STABILIZED CONSTRUCTION ENTRANCE

GRAPHIC SCALE:
40' 20' 0 40' 80'
1" = 40'
SCALE IN FEET

HO'OPILI DEVELOPMENT

PHASE 10A
STOCKPILE PLAN

HONOULIULI, EWA, OAHU, HAWAII
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GOOD HOUSEKEEPING BMPS NOTES:

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   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.

12. LIQUID WASTE MANAGEMENT.

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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.

GOOD HOUSEKEEPING BMPS NOTES (CONT'D):

14. CONTAMINATED SOIL MANAGEMENT.

    AT MINIMUM CONTAIN CONTAMINATED MATERIAL SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL".

16. BMP AND SITE MAINTENANCE.

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES:

PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS AND INLET PROTECTION FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SWALES AND STABILIZE IMMEDIATELY. PROVIDE MAINTENANCE FOR EXISTING DRAINAGE BASIN TO BE USED AS A SEDIMENT BASIN.
3. PROVIDE WATER TRUCKS FOR DUST CONTROL.
4. CLEAR, GRUB AND GRADE THE SITE IN 6 INCREMENTS IN SEQUENTIAL NUMERICAL ORDER, REFER TO ESCP PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME. THE CURRENT INCREMENT SHALL BE STABILIZED PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
5. 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.
6. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
7. PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.
8. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
9. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
10. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING AND TRENCHING.
2. INSPECT ALL SEDIMENT BASINS, TEMPORARY 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.

4. 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.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS 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.

6. 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.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

9. 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.

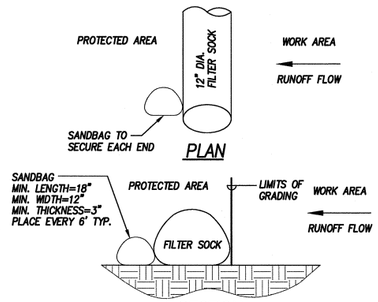
10. SEDIMENT BASINS

    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. CONTRACTOR SHALL PROVIDE A STAFF GAGE SHOWING ELEVATION AND DEPTH OF SEDIMENT BASIN.

11. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.

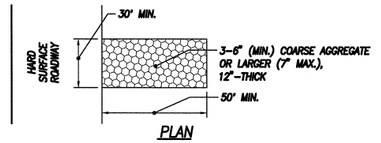
12. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
13. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL- CONSTRUCTION, FOR MORE INFORMATION ON BMPS.
14. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
      - THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE. GRADING ON SLOPES WITH A GRADE OF 15% OR MORE OCCURS ON LOCALIZED TRANSITION SLOPES OR CHANNEL OR BASIN SIDE SLOPES WITHIN THE PROJECT. WHERE GRADING OCCURS ON LOCALIZED TRANSITIONS, THERE IS NO SEVERE EROSION FROM UPSLOPE RUNOFF AND THE PROPOSED BMPS WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT – PHASE 11; EWA, OAHU, HAWAII" DATED SEPTEMBER 28, 2022, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT BASINS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - BUFFER ZONES
      - THE PROJECT IS NOT WITHIN 50 FT OF STATE WATERS AND THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE WITH THE EXCEPTION OF EXISTING GRADE TRANSITIONS. THE PROPOSED BMPS (PERIMETER CONTROL) WILL SUFFICIENTLY ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT TRAPS
      - THE AREA TO BE DISTURBED IS GREATER THAN 5 ACRES.

15. THE OWNER OF THE PROPERTY OR THEIR AUTHORIZED AGENT MUST DESIGNATE A PERSON RESPONSIBLE FOR IMPLEMENTING THE ESCP AT THE PROJECT SITE ("ESCP COORDINATOR") PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY.
16. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.



COMPOST FILTER SOCK DETAIL

NOT TO SCALE



NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

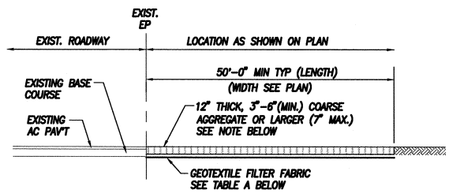
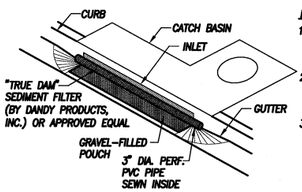


TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE



NOTES:
1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 11

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-018: 019, 020

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

BRENT W.B. NAKAKOA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.
SIGNATURE 4/30/24 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/24 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

NO.	REVISION	DATE	BY	APPROVED

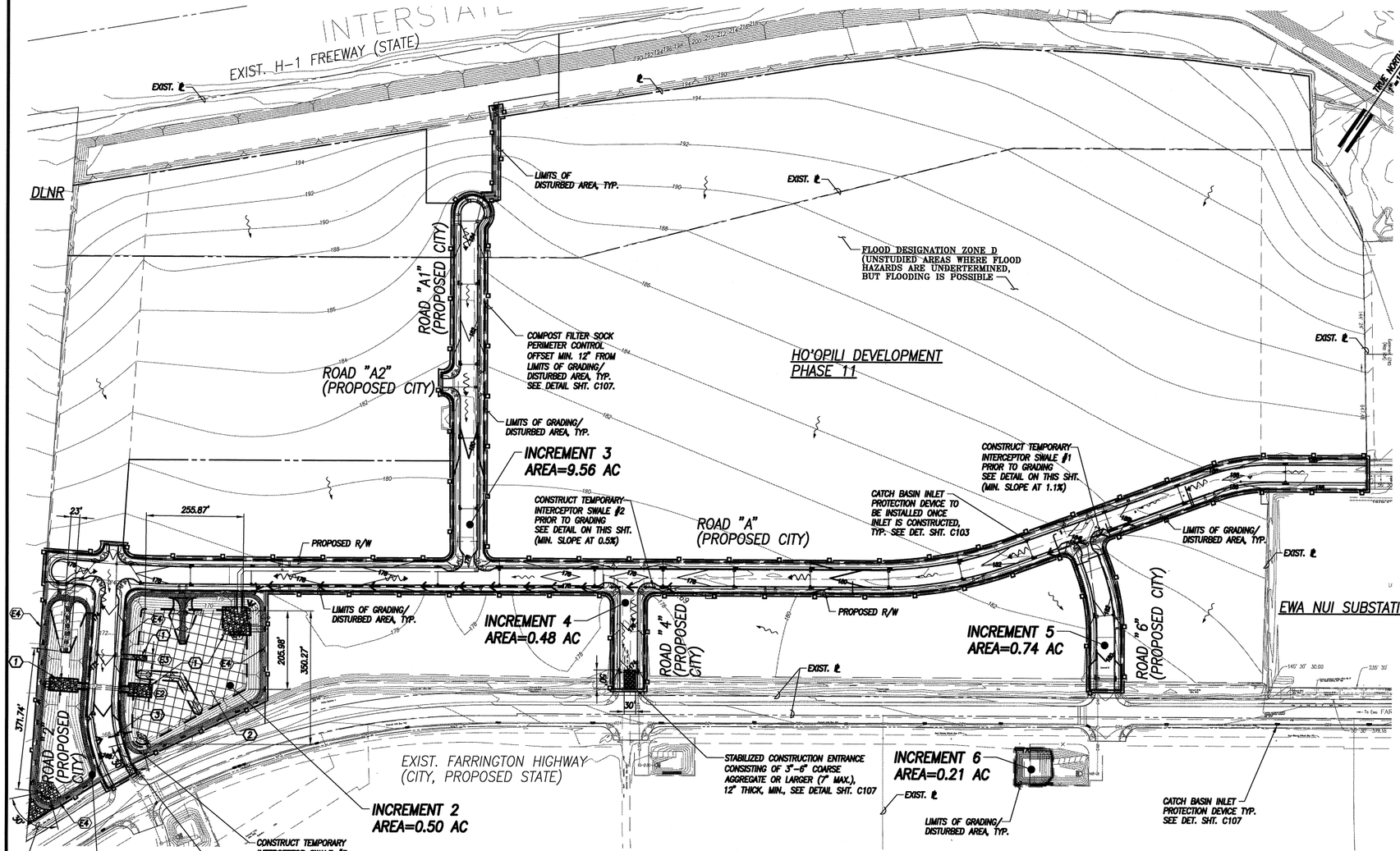
APPROVED BY
Chief, Civil Engineering Branch, DPP DATE 4/5/23

ENGINEER	CD, MN, RH
DRAFTSMAN	CD, MN, RH
CHECKED BY	BN
SCALE	AS SHOWN
DATE	JANUARY 2022
DPP FILE NO.	2022/CP-20

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

RMTC JOB NO.: 1-23766-0E

FILE	POCKET	FOLDER	NO.



TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
(INCREMENT 3)
Q=1.13 CFS
A=1.65 AC.
V=1.53 FPS
D=0.43 FT
S=0.011 FT/FT

TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
(INCREMENT 3)
Q=5.00 CFS
A=7.31 AC.
V=1.65 FPS
D=0.87 FT
S=0.005 FT/FT

TEMPORARY SWALE #3
(10-YR, 1-HR STORM)
(INCREMENT 3)
Q=6.54 CFS
A=9.56 AC.
V=1.89 FPS
D=1.07 FT
S=0.005 FT/FT

NOTES:

1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE THIS SHEET FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE
3. SEE SHT. C107 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- EXISTING DRAINAGE BASIN AS SEDIMENT BASIN
- TEMPORARY SWALES

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

APPROXIMATE QUANTITIES

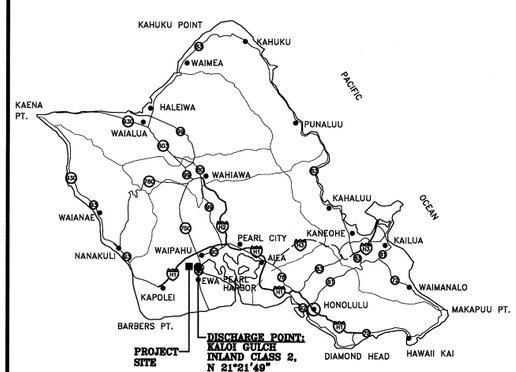
STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	11,430 LF
CATCH BASIN INLET PROTECTION DEVICE	68 EA.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE

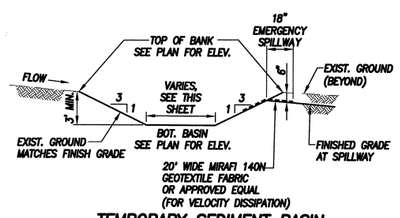
(1) RIPRAP TO BE USED AS VELOCITY DISSIPATION DEVICE

(2) EXISTING DRAINAGE BASIN TO BE USED FOR SEDIMENT BASIN
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHEET
MIN. INVERT = 161 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 9.56 AC
(INCREMENT 1)
REQUIRED VOLUME = 1,274 CY.
AVAILABLE VOLUME = 5,860 CY.

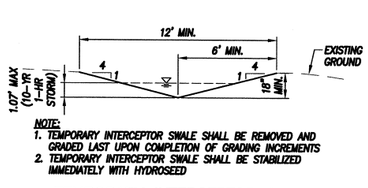
(3) CONSTRUCT TEMPORARY INTERCEPTOR SWALE #3 PRIOR TO GRADING SEE DETAIL ON THIS SHT. (MIN. SLOPE AT 2.0%)



LOCATION MAP
NOT TO SCALE



TEMPORARY SEDIMENT BASIN
NOT TO SCALE



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE

(E1) 25' WIDE DRAINAGE EASEMENT IN FAVOR OF THE C&C OF HONOLULU

(E2) 20' WIDE DRAINAGE EASEMENT IN FAVOR OF THE C&C OF HONOLULU

(E3) 15' WIDE DRAINAGE EASEMENT IN FAVOR OF THE C&C OF HONOLULU

(E4) FLOWAGE EASEMENT IN FAVOR OF THE C&C OF HONOLULU

NOTE:
IN LIEU OF PROVIDING SEDIMENT BASIN OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE TEMPORARY RETENTION BASIN CONSTRUCTED UNDER HO'OPILI DEVELOPMENT PHASE 10A MASS GRADING (2019\CP-117) (SEE SHEET C101 FOR EXISTING RETENTION BASIN.)

EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 150'

GRAPHIC SCALE:
1" = 150'
150' 75' 0 150' 300'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 11

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-018: 019, 020

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SIGNATURE 4/30/24 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
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REVISION	DATE	BY
		APPROVED

APPROVED BY
Chief, Civil Engineering Branch, DPP DATE 4/5/23

ENGINEER	CD, MN, RH
DRAFTSMAN	CD, MN, RH
CHECKED BY	BN
SCALE	AS SHOWN
DATE	JANUARY 2022
DPP FILE NO.	2022/CP-20

EROSION AND SEDIMENT CONTROL PLAN

RMTC JOB NO.: 1-23766-0E

K:\civil\23766 Hoopili Phase 11\Drawings\Construction Dwgs_Backbone Roadways\C108 - Erosion and Sediment Control Plan.dwg January 25, 2023

FILE	POCKET	FOLDER	NO.

LID SITE DESIGN

1. CONSERVE NATURAL AREAS, SOILS AND VEGETATION.
2. MINIMIZE SOIL COMPACTION.
3. MINIMIZE DISTURBANCE TO NATURAL DRAINAGE.

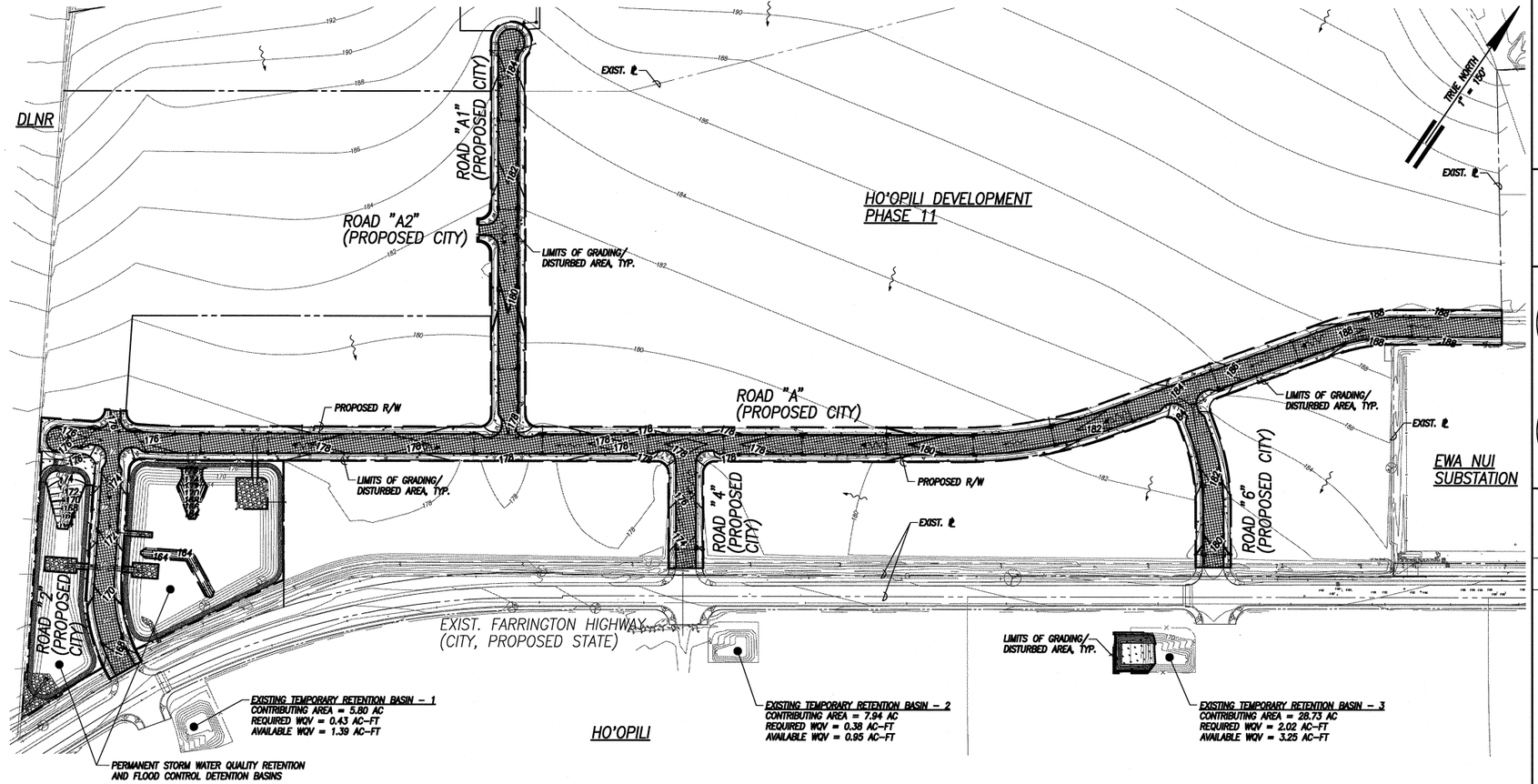
SOURCE CONTROL BMP

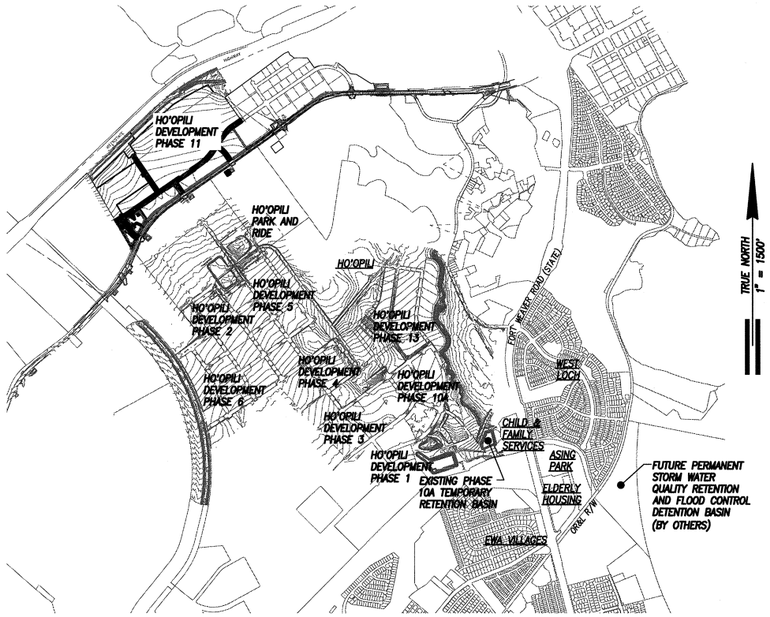
1. RUNOFF FROM LANDSCAPED AREAS WITHIN THE CITY R/W WILL DISCHARGE TO THE EXISTING ONSITE RETENTION BASIN AND TO THREE TEMPORARY DRAINAGE BASINS MAKAI OF FARRINGTON HIGHWAY.
2. AN AUTOMATIC IRRIGATION SYSTEM WILL BE PROVIDED FOR LANDSCAPED AREAS.
   - DESIGN IRRIGATION SYSTEM TO EACH LANDSCAPE AREA'S SPECIFIC WATER REQUIREMENTS.
   - IMPLEMENT PROVISIONS SUCH AS WATER SENSORS OR PROGRAMMABLE IRRIGATION TIMES (FOR SHORT CYCLES).
   - DESIGN TIMING AND APPLICATION METHODS OF IRRIGATION WATER TO MINIMIZE THE RUNOFF OF EXCESS IRRIGATION WATER INTO THE STORM WATER DRAINAGE SYSTEM.
   - GROUP PLANTS WITH SIMILAR WATER REQUIREMENTS IN ORDER TO REDUCE EXCESS IRRIGATION RUNOFF AND PROMOTE SURFACE FILTRATION.

   RUNOFF FROM PARKING AREAS (ON-STREET) WILL FLOW TOWARDS THE UNDERGROUND DRAINAGE SYSTEM WITHIN THE CITY R/W AND DISCHARGE TO THE EXISTING ONSITE RETENTION BASIN AND THREE TEMPORARY DRAINAGE BASINS MAKAI OF FARRINGTON HIGHWAY.
3. STORM DRAIN INLETS WILL BE MARKED WITH PROHIBITED LANGUAGE.

TREATMENT CONTROL BMP

1. INTERIM CONDITION: 3 EXISTING TEMPORARY RETENTION BASINS FOR STORM WATER QUALITY RETENTION.
2. PERMANENT CONDITION; PERMANENT ONSITE WATER QUALITY RETENTION AND FLOOD CONTROL DETENTION BASINS AS SPECIFIED IN THIS PLAN.
   REQUIRED WQV=5.54 AC-FT
   AVAILABLE WQV=7.90 AC-FT (TOTAL)
3. FUTURE PERMANENT CONDITION: FUTURE PERMANENT OFFSITE SWQ AND FLOOD CONTROL DETENTION BASIN 1 AS SPECIFIED IN THE HO'OPILI DRAINAGE MASTER PLAN (AUGUST 2015).
   REQUIRED WQV=41.4 AC-FT
   AVAILABLE WQV=283.1 AC-FT





INSET

SCALE: 1" = 1500'

POST CONSTRUCTION BMP PLAN (PRIORITY A)

SCALE: 1" = 150'

LEGEND

- DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- GRASS
- A.C. PAVEMENT
- GROUTED RIPRAP
- CONCRETE PAVEMENT
- PROPOSED FLOW PATTERN
- EXISTING FLOW PATTERN

GRAPHIC SCALE:

1" = 1500' — 1500' 750' 0 1500' 3000'

1" = 150' — 150' 75' 0 150' 300'

SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 11

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-018: 019, 020

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
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BY	DATE	REVISION
APPROVED		BRIEF

APPROVED BY
Chief, Civil Engineering Branch, DPP — DATE 4/5/23

ENGINEER	CD, MN, RH
DRAFTSMAN	CD, MN, RH
CHECKED BY	BN
SCALE	AS SHOWN
DATE	JANUARY 2022
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POST CONSTRUCTION BMP PLAN

RMTC JOB NO.: 1-23766-0E

K:\civil\23766 Hoopili Phase 11\Drawings\Construction Dwgs_Backbone Roadways\C109 - Post Construction BMP Plan.dwg February 8, 2023

FILE	POCKET	FOLDER	NO.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

- THE CONTRACTOR SHALL FOLLOW THE GUIDELINES IN THE CITY AND COUNTY OF HONOLULU'S "RULES RELATING TO WATER QUALITY."
- MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTHWORK IS INITIATED.
- 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 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 ANYTIME ON SLOPES GREATER THAN 15%.

- TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 7 CONSECUTIVE DAYS OR MORE.
- PERMANENT STABILIZATION

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS, 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 INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

- PERIMETER CONTROLS

PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

- 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.

10. 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.

11. 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.
- VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
- WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.

11. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.

12. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION FOR MORE INFORMATION ON BMPS.

13. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.

- VELOCITY DISSIPATION DEVICES
  - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
- DEWATERING PRACTICES
  - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT - PHASE 1,3A; EWA, OAHU, HAWAII" DATED JULY 29, 2019, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
- SEDIMENT BARRIERS
  - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT BASINS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
- SEDIMENT TRAPS
  - THE AREA TO BE DISTURBED IS GREATER THAN 5 ACRES.
- DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE.
  - THE PROJECT OCCURS ON EXISTING SLOPES LESS THAN 15%.
- BUFFER ZONES
  - THE PROJECT OCCURS ON EXISTING SLOPES LESS THAN 15% AND DOES NOT OCCUR WITHIN 50 FT OF STATE WATERS.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.
15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).

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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.

4. HAZARDOUS MATERIALS.

PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

5. NONHAZARDOUS MATERIALS.

IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

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 IN 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 FROM 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 8 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 7 DAYS.

12. LIQUID WASTE MANAGEMENT.

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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

15. DUST CONTROL.

THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."

16. BMP AND SITE MAINTENANCE

THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

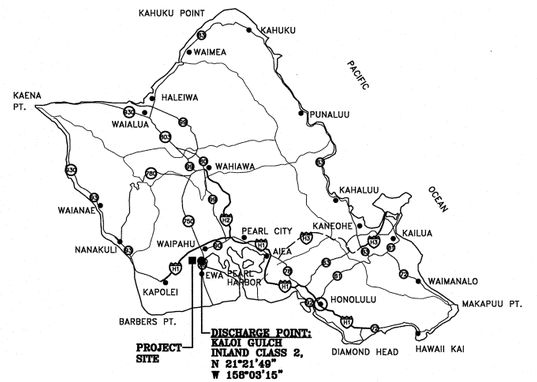
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, INLET PROTECTION, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT BASINS AND STABILIZE IMMEDIATELY.
3. CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT BASINS. STABILIZE IMMEDIATELY.
4. PROVIDE WATER TRUCKS FOR DUST CONTROL.
5. CLEAR, GRUB AND GRADE THE SITE IN 12 INCREMENTS IN NUMERICAL SEQUENTIAL ORDER STARTING WITH INC. 1, REFER TO GRADING PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
6. 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.
7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

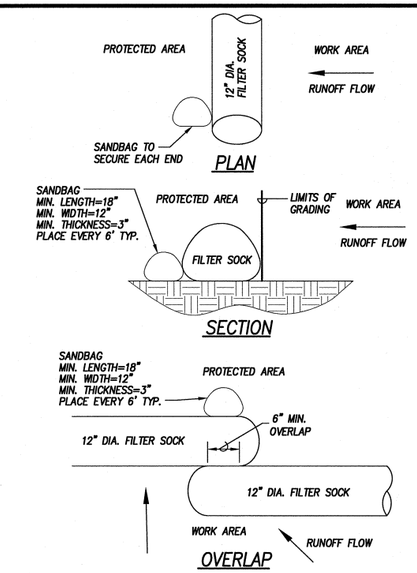
THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING.
2. INSPECT ALL PERIMETER CONTROLS, TEMPORARY SEDIMENT BASINS, TEMPORARY SWALES, 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



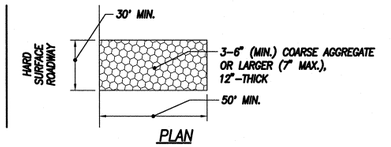
LOCATION MAP

NOT TO SCALE

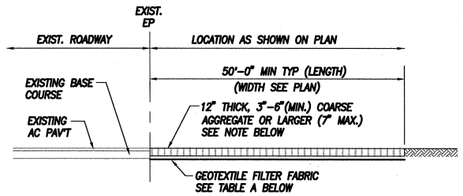


COMPOST FILTER SOCK DETAIL

NOT TO SCALE



NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

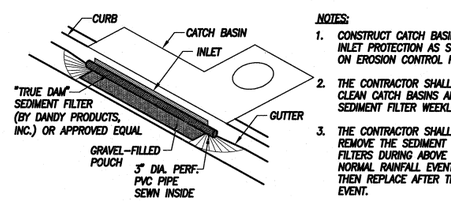


SECTION

TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE



NOTES:

1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 11

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-018: 019, 020

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Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

BRENT W.B. NAKAOKA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.
SIGNATURE 4/30/22 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/22 EXP. DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	BRIEF

TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=4.85 CFS
A=11.45 AC.
V=1.64 FPS
D=0.86 FT
S=0.005 FT/FT

TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
(INCREMENT 2)
Q=4.03 CFS
A=9.51 AC.
V=1.57 FPS
D=0.80 FT
S=0.005 FT/FT

TEMPORARY SWALE #3
(10-YR, 1-HR STORM)
(INCREMENT 3)
Q=3.78 CFS
A=8.92 AC.
V=1.77 FPS
D=0.73 FT
S=0.006 FT/FT

TEMPORARY SWALE #4
(10-YR, 1-HR STORM)
(INCREMENT 4)
Q=3.89 CFS
A=9.18 AC.
V=2.04 FPS
D=0.69 FT
S=0.010 FT/FT

TEMPORARY SWALE #5
(10-YR, 1-HR STORM)
(INCREMENT 5)
Q=3.68 CFS
A=8.67 AC.
V=1.64 FPS
D=0.75 FT
S=0.006 FT/FT

TEMPORARY SWALE #6
(10-YR, 1-HR STORM)
(INCREMENT 6)
Q=1.48 CFS
A=3.48 AC.
V=1.67 FPS
D=0.47 FT
S=0.012 FT/FT

TEMPORARY SWALE #7
(10-YR, 1-HR STORM)
(INCREMENT 7)
Q=2.54 CFS
A=5.99 AC.
V=2.14 FPS
D=0.46 FT
S=0.019 FT/FT

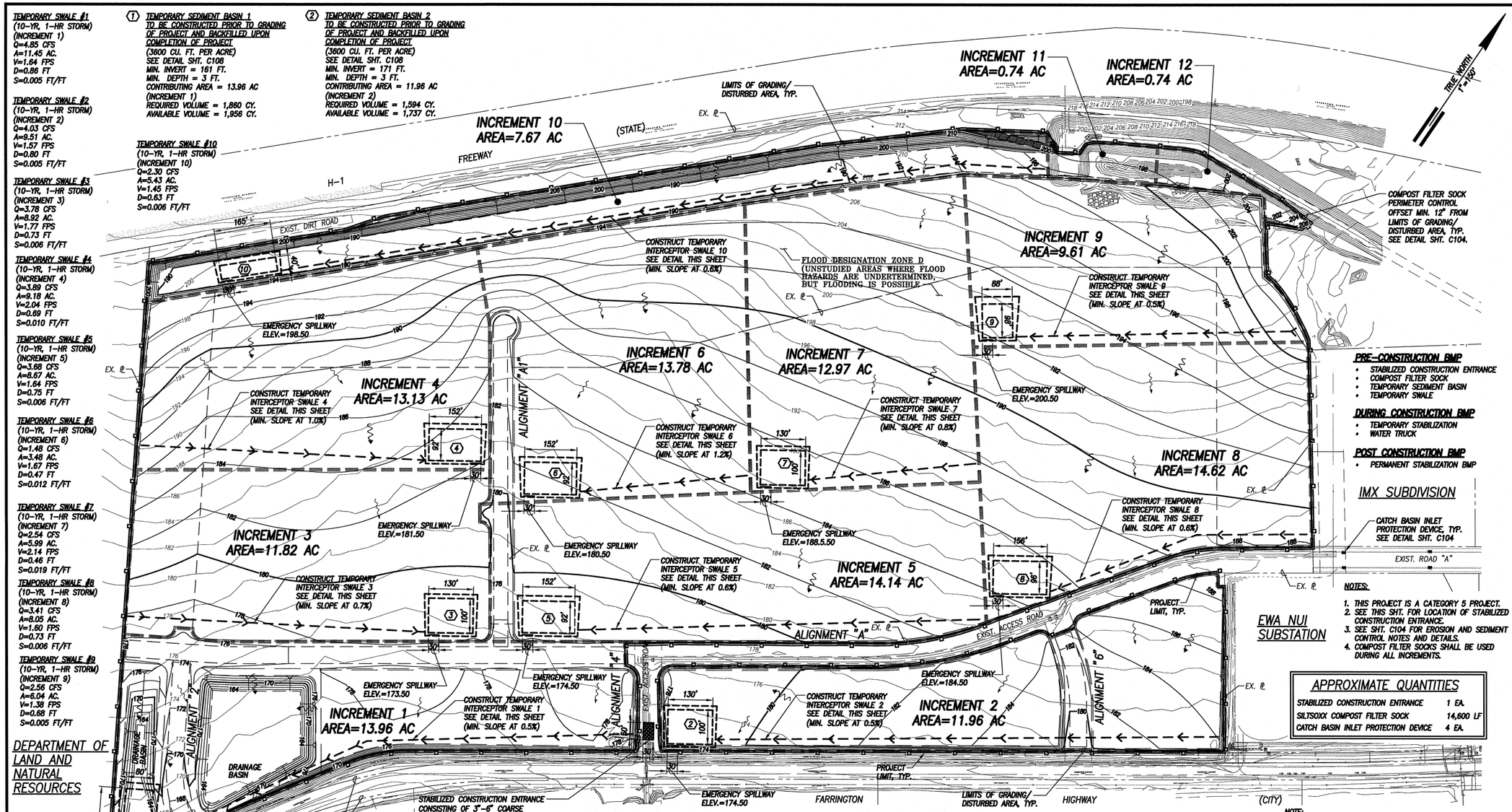
TEMPORARY SWALE #8
(10-YR, 1-HR STORM)
(INCREMENT 8)
Q=3.41 CFS
A=8.05 AC.
V=1.60 FPS
D=0.73 FT
S=0.006 FT/FT

TEMPORARY SWALE #9
(10-YR, 1-HR STORM)
(INCREMENT 9)
Q=2.56 CFS
A=6.04 AC.
V=1.38 FPS
D=0.68 FT
S=0.005 FT/FT

TEMPORARY SWALE #10
(10-YR, 1-HR STORM)
(INCREMENT 10)
Q=2.30 CFS
A=5.43 AC.
V=1.45 FPS
D=0.63 FT
S=0.006 FT/FT

① TEMPORARY SEDIMENT BASIN 1
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 161 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 13.96 AC
(INCREMENT 1)
REQUIRED VOLUME = 1,860 CY.
AVAILABLE VOLUME = 1,956 CY.

② TEMPORARY SEDIMENT BASIN 2
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 171 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 11.96 AC
(INCREMENT 2)
REQUIRED VOLUME = 1,594 CY.
AVAILABLE VOLUME = 1,737 CY.



③ TEMPORARY SEDIMENT BASIN 3
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 170 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 11.82 AC
(INCREMENT 3)
REQUIRED VOLUME = 1,576 CY.
AVAILABLE VOLUME = 1,737 CY.

④ TEMPORARY SEDIMENT BASIN 4
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 178 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 13.13 AC
(INCREMENT 4)
REQUIRED VOLUME = 1,750 CY.
AVAILABLE VOLUME = 1,911 CY.

⑤ TEMPORARY SEDIMENT BASIN 5
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 171 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 14.14 AC
(INCREMENT 5)
REQUIRED VOLUME = 1,885 CY.
AVAILABLE VOLUME = 1,911 CY.

⑥ TEMPORARY SEDIMENT BASIN 6
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 177 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 13.78 AC
(INCREMENT 6)
REQUIRED VOLUME = 1,837 CY.
AVAILABLE VOLUME = 1,911 CY.

⑦ TEMPORARY SEDIMENT BASIN 7
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 185 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 12.97 AC
(INCREMENT 7)
REQUIRED VOLUME = 1,729 CY.
AVAILABLE VOLUME = 1,737 CY.

⑧ TEMPORARY SEDIMENT BASIN 8
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 181 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 14.62 AC
(INCREMENT 8)
REQUIRED VOLUME = 1,949 CY.
AVAILABLE VOLUME = 2,031 CY.

⑨ TEMPORARY SEDIMENT BASIN 9
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 197 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 9.61 AC
(INCREMENT 9)
REQUIRED VOLUME = 1,281 CY.
AVAILABLE VOLUME = 1,317 CY.

⑩ TEMPORARY SEDIMENT BASIN 10
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 185 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 7.67 AC
(INCREMENT 10)
REQUIRED VOLUME = 1,022 CY.
AVAILABLE VOLUME = 1,038 CY.

NOTE:
IN LIEU OF PROVIDING SEDIMENT BASIN OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE TEMPORARY RETENTION BASIN CONSTRUCTED UNDER HO'OPILI DEVELOPMENT PHASE 10A MASS GRADING (2019\CP-117) (SEE SHEET C101 FOR PROPOSED RETENTION BASIN.)

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT BASIN
- TEMPORARY SWALE

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

IMX SUBDIVISION

EWA NUI SUBSTATION

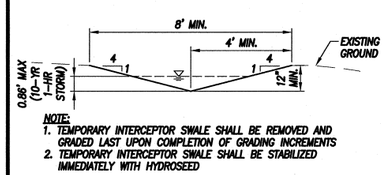
NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE THIS SHT. FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C104 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	14,600 LF
CATCH BASIN INLET PROTECTION DEVICE	4 EA.

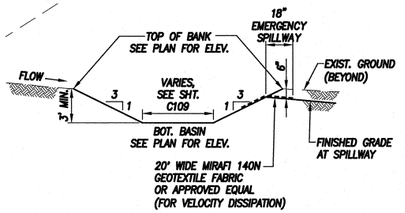
LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE:
1" = 150' (150' 75' 0 150' 300')
SCALE IN FEET



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE



TEMPORARY SEDIMENT BASIN
NOT TO SCALE

EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 150'

HO'OPILI DEVELOPMENT PHASE 11
MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-018: 019, 020

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BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
Brent Nakaoka 4/30/22
SIGNATURE EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
4/30/22
SIGNATURE EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

BY	DATE	REVISION
APPROVED		BRIEF

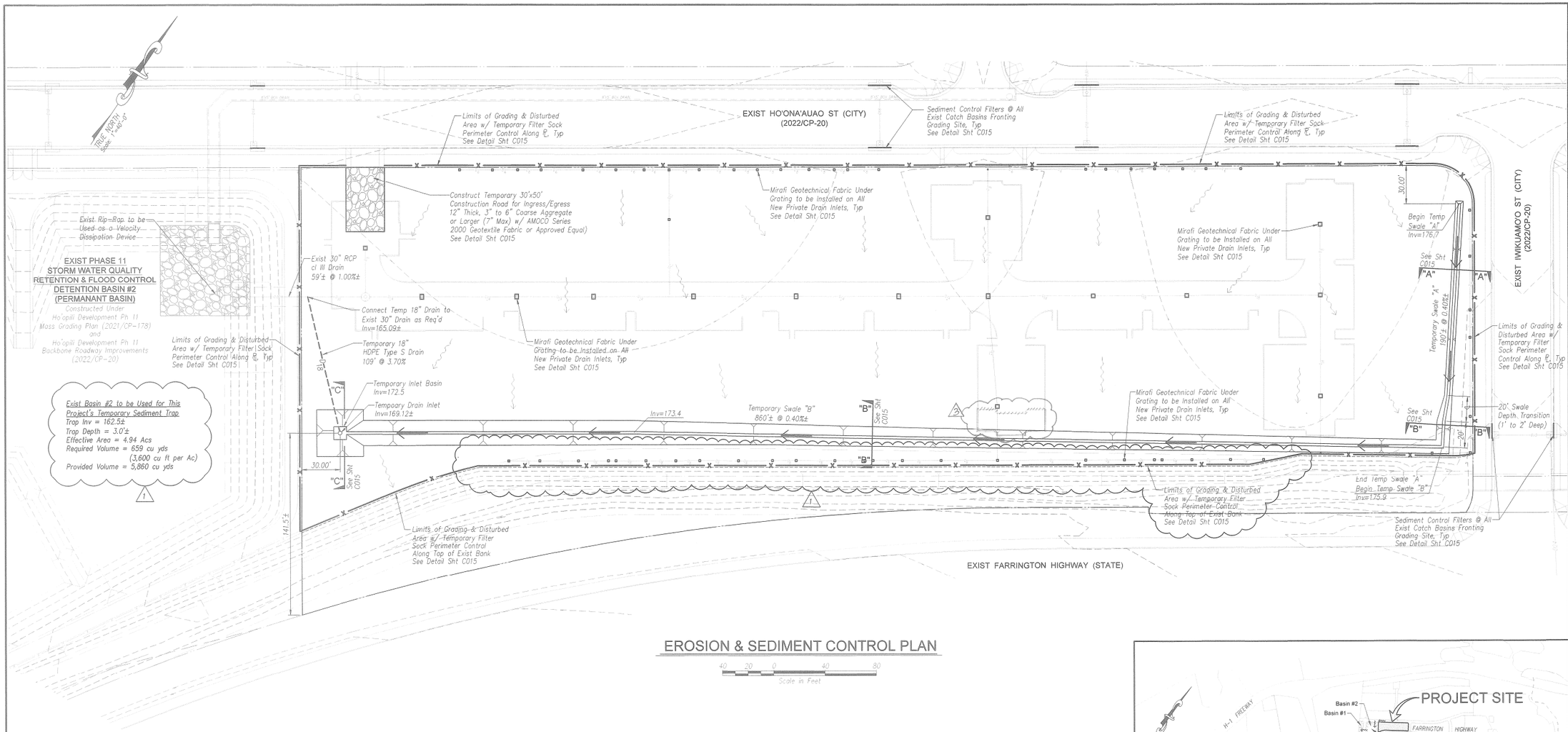
APPROVED BY
Melvin Takahara 2/25/22
Chief, Civil Engineering Branch, DPP DATE

ENGINEER	CD, MN, CB
DRAFTSMAN	CD, MN, CB
CHECKED BY	BN
SCALE	AS SHOWN
DATE	OCTOBER 2021
DPP FILE NO.	2021/CP-178

EROSION AND SEDIMENT CONTROL PLAN

RMTC JOB NO.: 1-23766-0E

FILE	POCKET	FOLDER	NO.



EROSION & SEDIMENT CONTROL PLAN

40 20 0 40 80
Scale in Feet

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Exist Drainage Basin Used as Sediment Trap
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Swale

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:

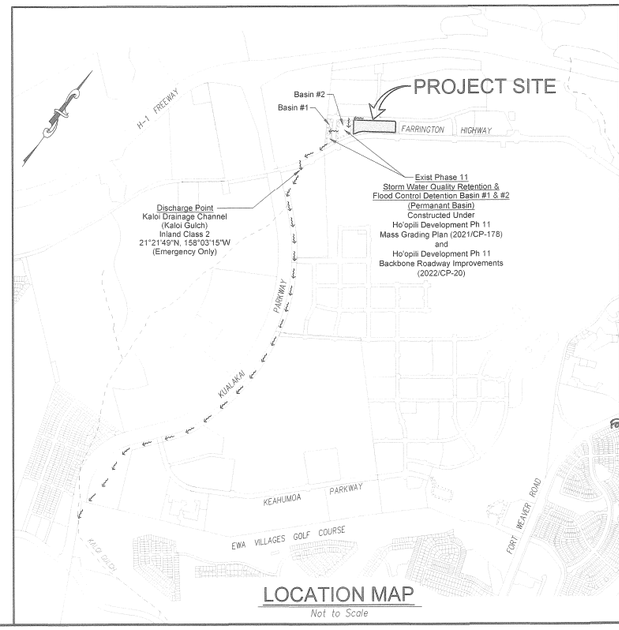
- Permanent Stabilization BMP'S

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C015

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Swale
- Temporary Sediment Control Filter at Exist Basin
- Mirafi Geotechnical Fabric
- Temporary Filter Sock
- Limits of Grading & Disturbed Area
- Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Swale
- Property Line (Limits of Grading & Disturbed Area, Where Indicated)



LOCATION MAP
Not to Scale

Gray • Hong • Nojima & Associates, Inc.
CONSULTING ENGINEERS
201 Merchant Street, Suite 1900
Honolulu, Hawaii 96813
Telephone: (808) 521-0306
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3 Exp: 4/30/24 '26
MICHAEL H. NOJIMA LICENSED PROFESSIONAL ENGINEER No. 5632-C HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. (OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

2 Exp: 4/30/24 '26
WINSTON M. TANIGUCHI LICENSED PROFESSIONAL ENGINEER No. 13730-C HAWAII, U.S.A.
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REV	DESCRIPTION	DATE	BY	APPROVED
3	REVISED PROPOSED SWALE & SEDIMENT TRAP	10/7/24	GHN	
2	ADDED NEW SHEET - REVISED EXIST GROUND, LIMITS OF GRADING, FILTER SOCK AND DRAINLINE & INLET LOCATION, SEDIMENT TRAP INFO	12/11/23	GHN	
1				

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-42

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCEL 42

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2023/CP-10)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
For Malmi Inbaraca 2/2/24
CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

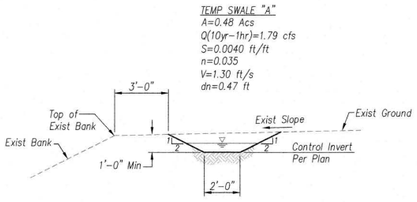
C014

SHEET 14 OF 41 SHEETS

FILE	POCKET	FOLDER	NO.

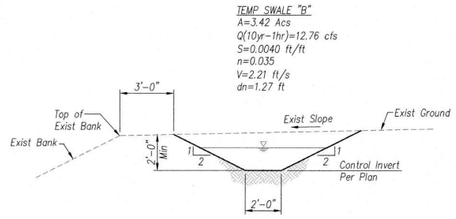
PROJECT NAME: HO'OPILI PHASE 11 PARCEL 42
CAD DWG NO.: 3100-42_ESCP.dwg
DATE: DECEMBER 2023

Drawing name: /ghn-tst01/Projects3100-42/Hoopili Parcel 42/3100-41 DWG/Construction Plans/3100-42_ESCP.dwg Feb 06, 2024 - 10:51am



SECTION "A-A" (TEMPORARY SWALE)

Not to Scale



SECTION "B-B" (TEMPORARY SWALE)

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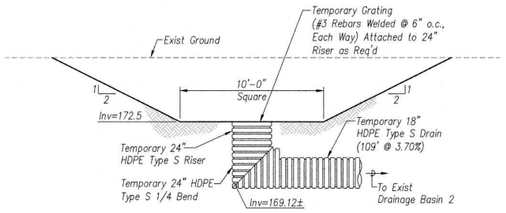
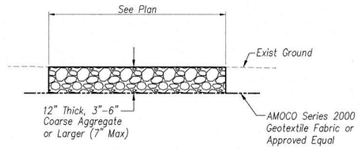


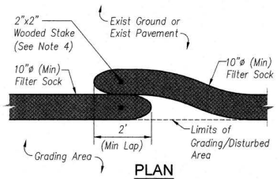
SECTION "C-C" (TEMPORARY INLET BASIN)

Not to Scale

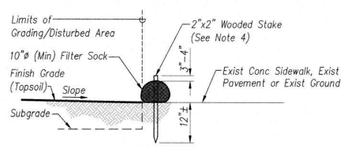


CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale



PLAN

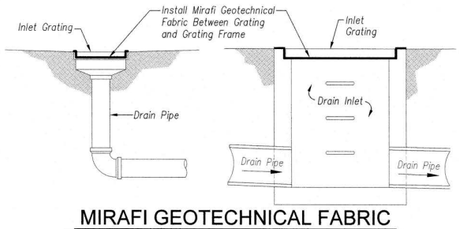


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

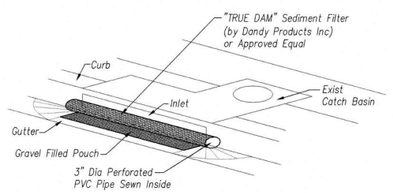
FILTER SOCK PLACEMENT DETAIL

Not to Scale



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

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. The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.
3. The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 prevent run-on around the slope. Provide a 10-ft buffer zone at the toe of slope. Only 5 acres may be disturbed at anytime on slopes greater than 15%.
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
12. Sediment Traps:
    A. Sediment traps must be kept in effective operating condition and sediment shall be removed to maintain at least one third of the design capacity at all times.
13. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
14. All best management practices (BMP's) shall not be removed until the entire project is complete.
15. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
16. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Buffer zones are not applicable.
    C. Sediment Basins are not applicable.
    D. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    E. Sediment Barriers are not applicable.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), and inlet protection, clear and grub as necessary for the installation of these BMP's.
2. Construct temporary inlet basin and install temporary inlet line.
3. Construct temporary diversion swales as needed to direct runoff into the temporary inlet basin.
4. Inspect and maintain the sediment trap (existing drainage basin 2) as required.
5. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
6. Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed.
7. Install remaining parts of permanent drainage system with temporary inlet protection.
8. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
9. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
10. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
11. Plant permanent ground cover according to the landscaping plans as soon as possible.
12. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
13. Practice good housekeeping measures throughout the duration of construction.
14. 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 and construction.
3. Inspect sediment trap, temporary berms, temporary 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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NO.	REVISION	DATE	DESCRIPTION	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-42

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCEL 42

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2023/ICP-10)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
For Melvin Kaku 6/29/23
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

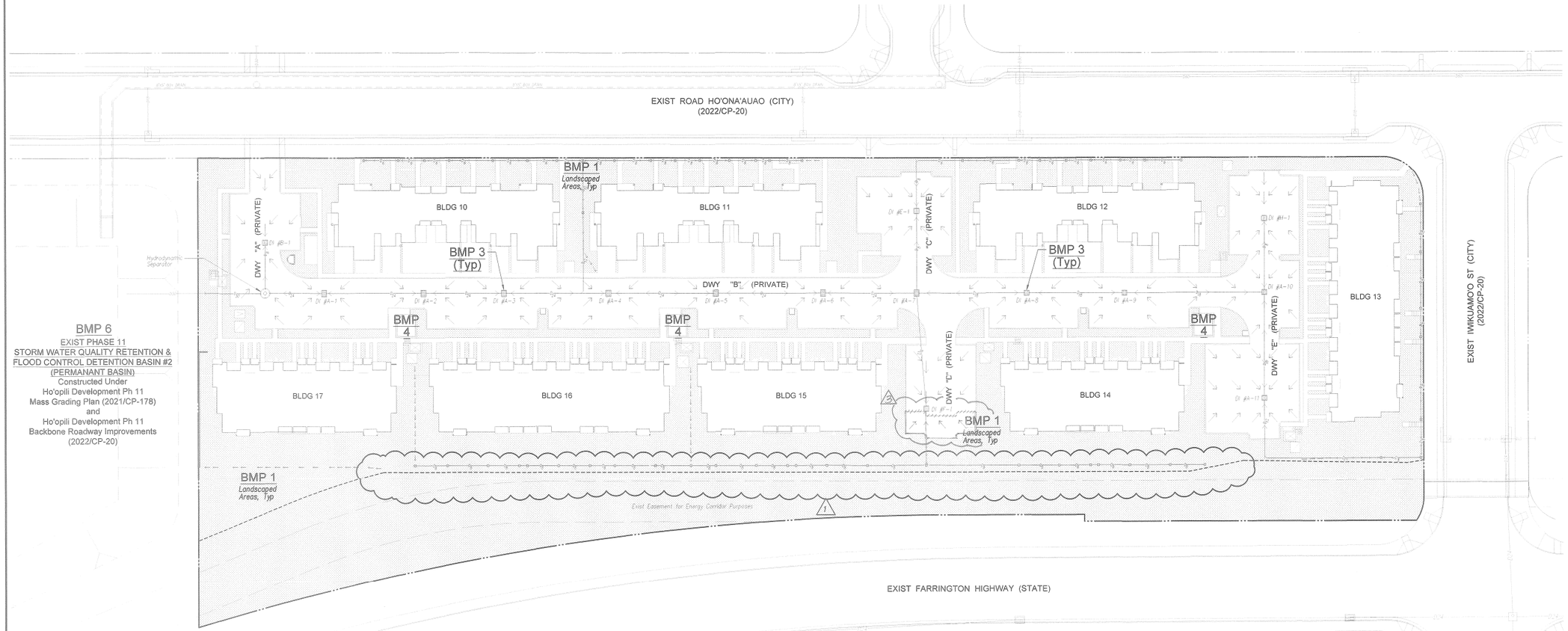
C015

SHEET 15 OF 41 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCEL 42
PROJECT NO.: 3100-42
DATE: JUNE 27, 2023

Xrefs: 3100-42 Hoopili Parcel 42\3100-42 CWD\Construction Plans\3100-42_ESCP.dwg, Jun 27, 2023 - 2:02pm



BMP 6
EXIST PHASE 11
STORM WATER QUALITY RETENTION & FLOOD CONTROL DETENTION BASIN #2
(PERMANANT BASIN)
Constructed Under
Ho'opili Development Ph 11
Mass Grading Plan (2021/CP-178)
and
Ho'opili Development Ph 11
Backbone Roadway Improvements
(2022/CP-20)

POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

30 15 0 30 60
Scale in Feet

TRUE NORTH
Scale: 1"=30'-0"

LEGEND

- D18 — Existing Drainline
- D24 — New Drainline
- Property Line
- Swale
- Flow Pattern
- Drain Inlet w/ Marker (For Det See Sht C0...)
- Landscaped Areas

PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscape Areas
2	Automatic Irrigation System
3	Storm Drain Marker on Drain Inlets
4	Trash Dumpsters Outfitted with Lids, Placed on Paved Impervious Surfaces
5	Parking Areas
TREATMENT CONTROL BMP	
6	Ho'opili Phase 11 Storm Water Quality Retention & Flood Control Detention Basins #1 & #2

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:

SITE DESIGN STRATEGIES:

1. Conserve Natural Areas, Soils, and Vegetation.
2. Minimize Disturbances to Natural Drainages.
3. Minimize Soil Compaction.
4. Minimize Impervious Surfaces.
5. Direct Roof Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection).

SOURCE CONTROL BMPS:

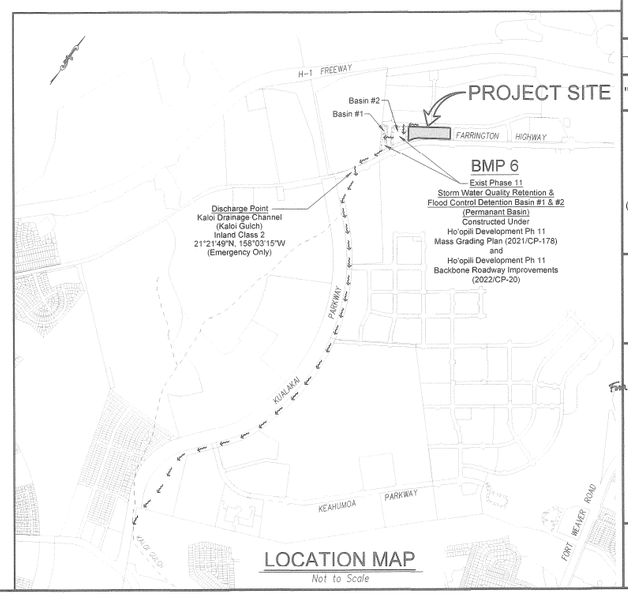
1. Landscaped Areas – Protect slopes with landscaping.
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water.
3. Storm Drain Markers on Drain Inlets (See Detail on Sht C022).
4. Trash Dumpsters outfitted with lids and trash enclosures to be paved with impervious surface (concrete).
5. Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basin constructed in "Ho'opili Development, Phase 11 Mass Grading Plan" (R.M. Towill Corporation, 2021/CP-178), which serves as a post-construction treatment control BMP.

TREATMENT CONTROL BMPs:

1. Permanent Condition: Phase 11 Storm Water Quality Retention & Flood Control Detention Basins #1 & #2, as shown in Ho'opili Development, Phase 11 Mass Grading Plan (R.M. Towill Corporation, 2021/CP-178) and Ho'opili Development, Phase 11 Backbone Roadway Improvements Plan (R.M. Towill Corporation, 2022/CP-20). Storm Water Quality Retention & Flood Control Detention Basins #1 & #2 represents the permanent offsite Basin 11 referenced in the "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.
   For location, see map this sheet.
   Required WQV = 5.54 AC-FT
   Provided WQV = 7.90 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. Vehicle and Equipment Fueling Areas – Not applicable for this project.
2. Vehicle and Equipment Repair – Will not be allowed for this project.
3. Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.
4. Loading Docks – Not applicable for this project.
5. Outdoor Material Storage – Will not be allowed for this project.
6. Outdoor Work Areas – Not applicable for this project.
7. Outdoor Process Equipment Operations – Not applicable for this project.



LOCATION MAP
Not to Scale

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REVISION	DATE	DESCRIPTION	BY	APPROVED
5	10/7/24	REVISED PRIMARY 'C' LAYOUT, LANDSCAPING AREA AND PRIVATE ENTRANCE RAMP	GHN	
4	12/11/23	ADDED NEW SHEET – REVISED DRAINLINE "F" & DRAINLINE "G"	GAN	

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-42

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCEL 42

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2023/CP-10)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
For CHIEF, CIVIL ENGINEERING BRANCH, DFFP
4/1/24 DATE

C016

SHEET 16 OF 41 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCEL 42
CAD DWG NO.: 3100-42_BMP.dwg
DATE: DECEMBER 2023

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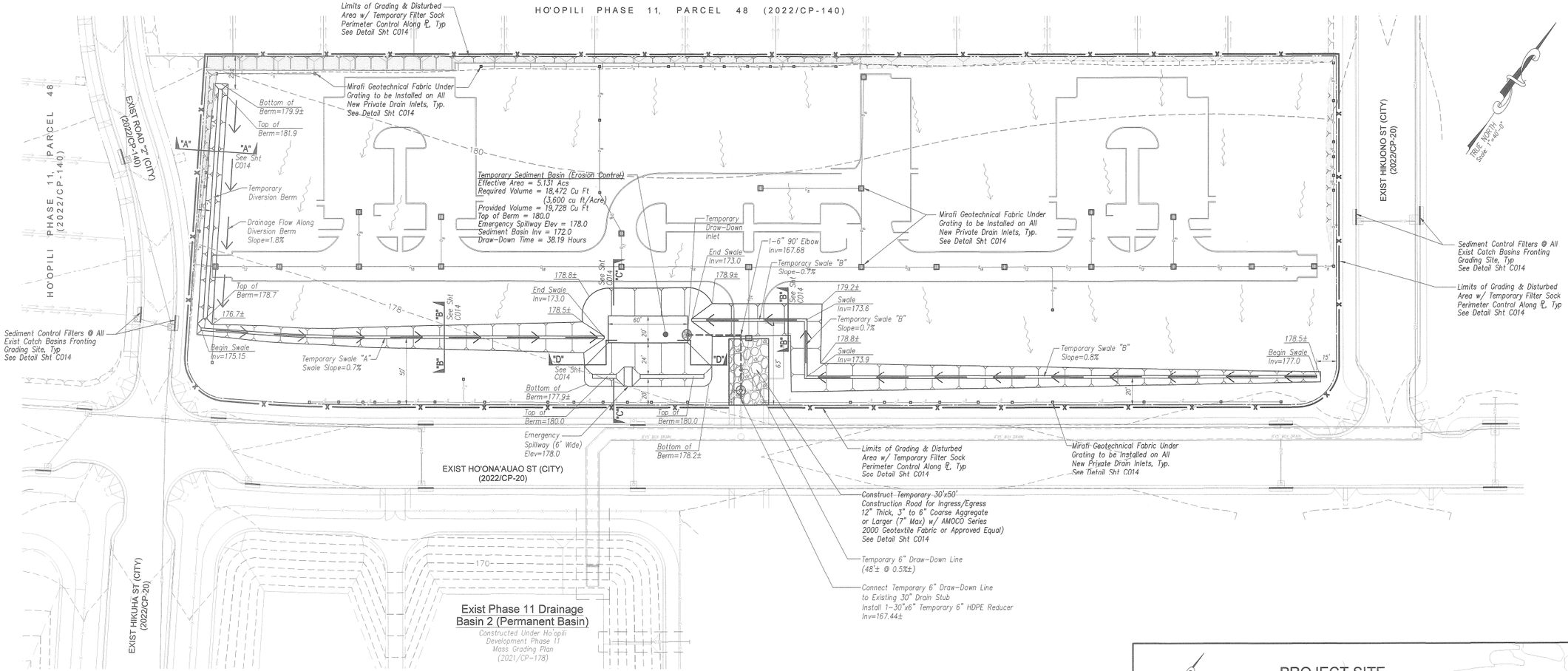


EROSION & SEDIMENT CONTROL PLAN

40 20 0 40 80
Scale in Feet

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm/Swale

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:

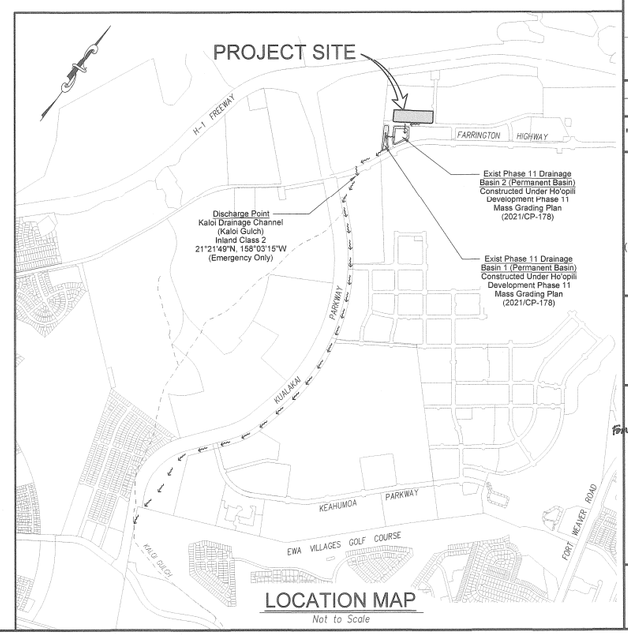
- Permanent Stabilization BMP'S

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C014

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Swale
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist Basin
- Mirafi Geotechnical Fabric
- Temporary Filter Sock
- Property Line (Limits of Grading & Disturbed Area)
- Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm/Swale



LOCATION MAP
Not to Scale

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REVISION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-41

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCELS 45 & 46

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-202)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
For CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE

C013

SHEET 13 OF 41 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCELS 45 & 46
CAD DWG NO.: 3100-41_ESCP.dwg
DATE: MAY 2023

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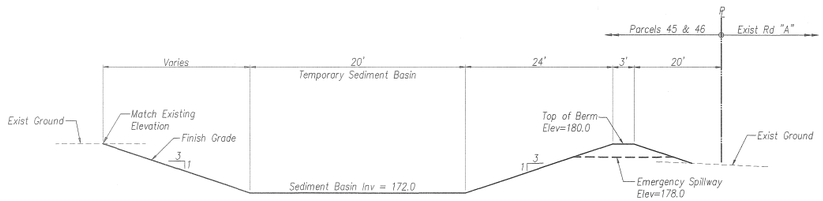

SEDIMENT BASIN SECTION "C-C"

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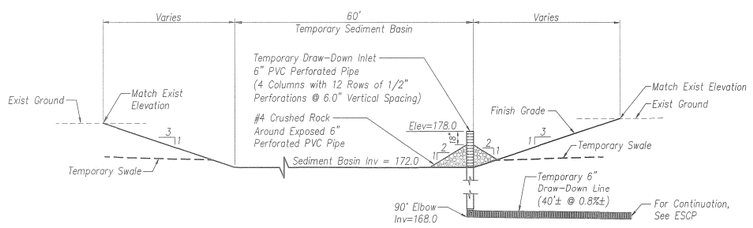

SEDIMENT BASIN SECTION "D-D"

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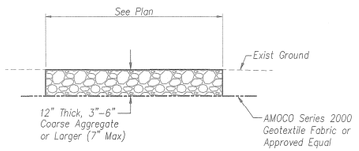

CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

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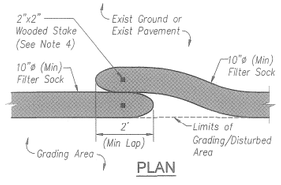
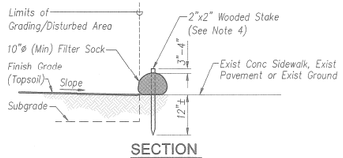


PLAN



SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL

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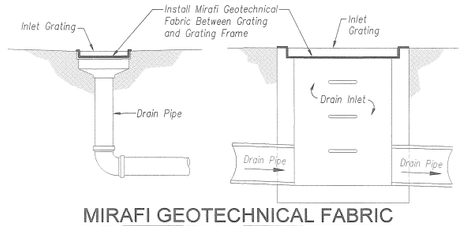
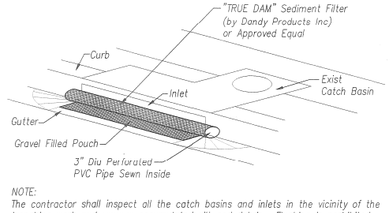


MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

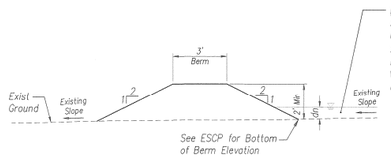
Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale



SECTION "A-A" (DIVERSION BERM)

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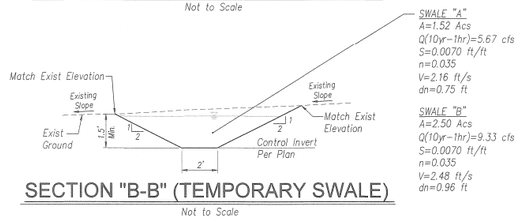

SECTION "B-B" (TEMPORARY SWALE)

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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. The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.
3. The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 7 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
12. Sediment Basins:
    A. 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.
13. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
14. All best management practices (BMP's) shall not be removed until the entire project is complete.
15. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
16. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment Traps are not applicable.
    E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers are not applicable.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), and inlet protection, clear and grub as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and stabilize immediately.
3. Construct temporary diversion berms and swales as needed to direct runoff into the sediment basin.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed.
6. Install remaining parts of permanent drainage system with temporary inlet protection.
7. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
8. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
9. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
10. Plant permanent ground cover according to the landscaping plans as soon as possible.
11. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
12. Practice good housekeeping measures throughout the duration of construction.
13. 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 and construction.
3. Inspect sediment basin, temporary berms, temporary 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for eventual disposal in areas that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. Sanitary/Septic Waste Management: Temporary and portable sanitary and septic waste systems shall be properly and stored 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-41

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCELS 45 & 46

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-202)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
for CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
6/12/23
DATE

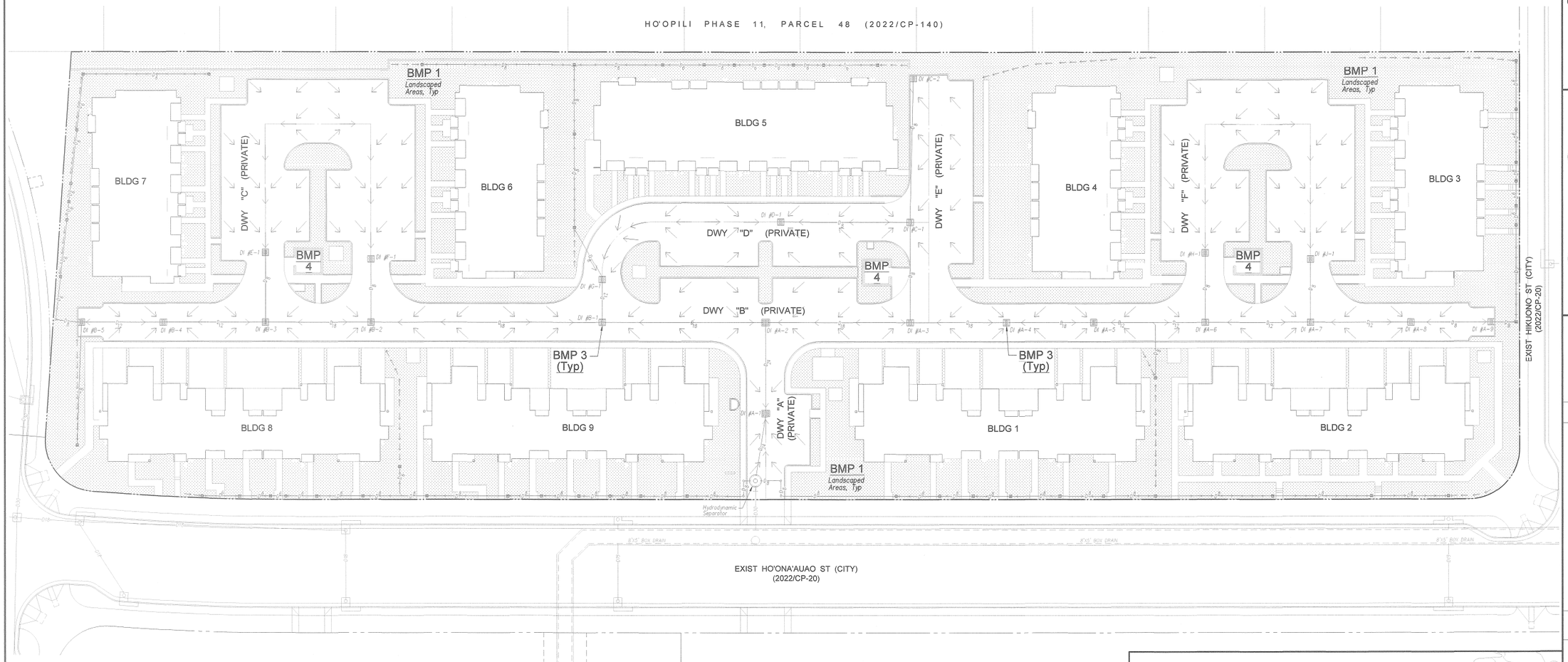
C014

SHEET 14 OF 41 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCELS 45 & 46
CAD DWG NO.: 3100-41_ESCP.dwg
DATE: MAY 2023

Drawing name: P:\3100-41 Hoopili Parcel 45-46\3100-41 DWG\Construction Plans\3100-41_ESCP.dwg May 02, 2023 - 1:30pm



PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscape Areas
2	Automatic Irrigation System
3	Storm Drain Marker on Drain Inlets
4	Trash Dumpsters Outfitted with Lids, placed on paved impervious surfaces
5	Parking Areas
TREATMENT CONTROL BMP	
6	Ho'opili Phase 11 Drainage Basins 1 & 2 (storm water quality and flood control)

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:

SITE DESIGN STRATEGIES:

1. Minimize Soil Compaction
2. Minimize Impervious Surfaces
3. Direct Roof Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection)

SOURCE CONTROL BMPS:

1. Landscaped Areas – Protect slopes with landscaping
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water
3. Storm Drain Markers on Drain Inlets (See Detail on Sht C022)
4. Trash Dumpsters outfitted with lids and trash enclosures to be paved with impervious surface (concrete)
5. Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basin constructed in "Ho'opili Development, Phase 11 Mass Grading Plan" (R.M. Towill Corporation, 2021/CP-178), which serves as a post-construction treatment control BMP.

TREATMENT CONTROL BMPs:

1. Permanent Condition: Phase 11 Drainage Basins 1 & 2, as shown in Ho'opili Development, Phase 11 Mass Grading Plan (R.M. Towill Corporation, 2021/CP-178). Drainage Basins 1 & 2 represents the permanent offsite Basin 11 referenced in the "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.
   For location, see map this sheet.
   Required WQV = 5.54 AC-FT
   Provided WQV = 7.90 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

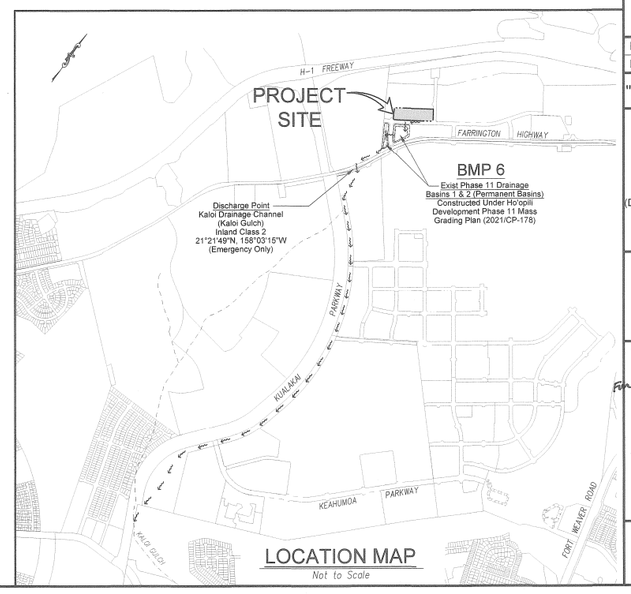
1. Vehicle and Equipment Fueling Areas – Not applicable for this project.
2. Vehicle and Equipment Repair – Will not be allowed for this project.
3. Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.
4. Loading Docks – Not applicable for this project.
5. Outdoor Material Storage – Will not be allowed for this project.
6. Outdoor Work Areas – Not applicable for this project.
7. Outdoor Process Equipment Operations – Not applicable for this project.

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line
- Swale
- Flow Pattern
- Drain Inlet w/ Marker (For Det See Sht C022)
- Landscaped Areas

POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

30 15 0 30 60
Scale in Feet



LOCATION MAP
Not to Scale

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REVISION	DATE	DESCRIPTION	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-41

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCELS 45 & 46

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-202)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
For CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
DATE

C015
SHEET 15 OF 41 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCELS 45 & 46
CAD DWG NO.: 3100-41_BMP.dwg
DATE: MAY 2023

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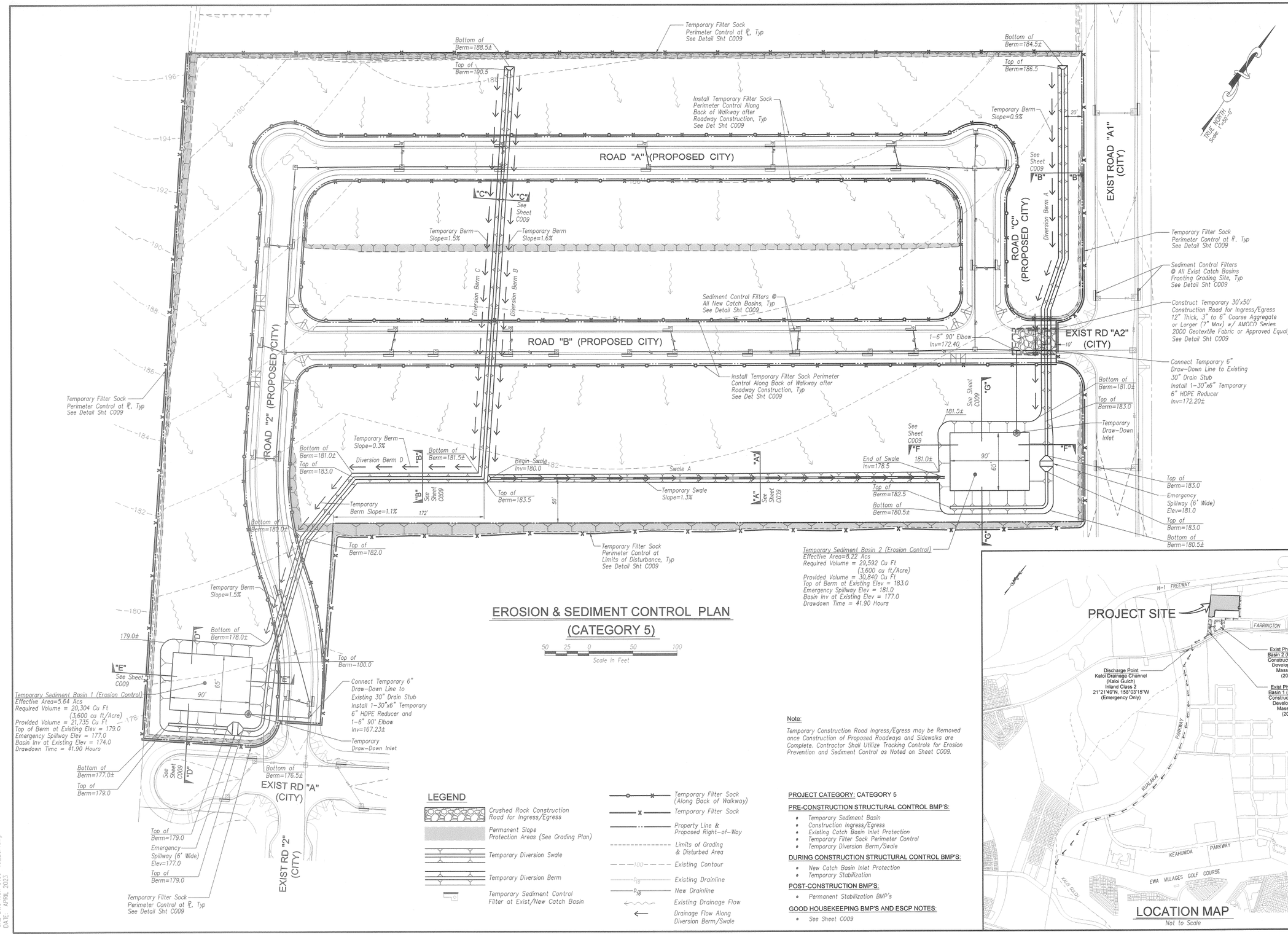

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BY	DESCRIPTION	DATE
APPROVED		

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-40

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 11 PARCEL 48

(DPP SUBDIVISION FILE NO 2022/SUB-94)
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-140)
TMK: 9-1-18: POR OF 19
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. MT
5/11/23 DATE

C008

SHEET 8 OF 52 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCEL 48
CAC DWG NO.: 3100-40_ECP.dwg
DATE: APRIL 2023

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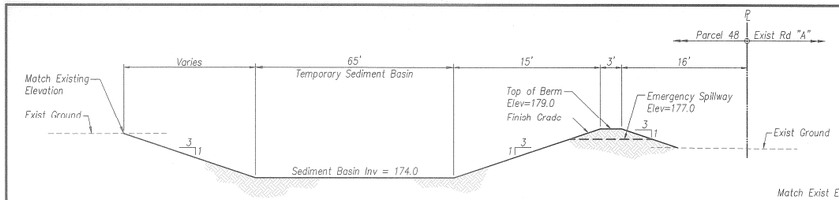

SECTION "D-D" (SEDIMENT BASIN 1)

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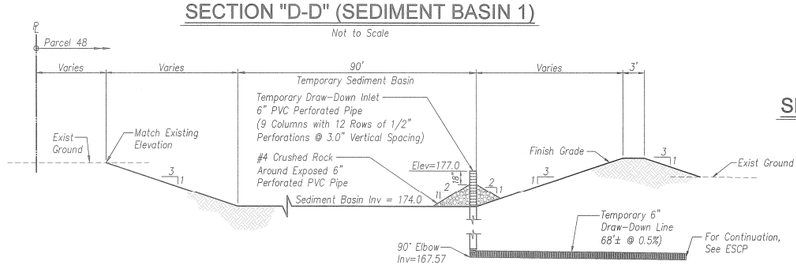

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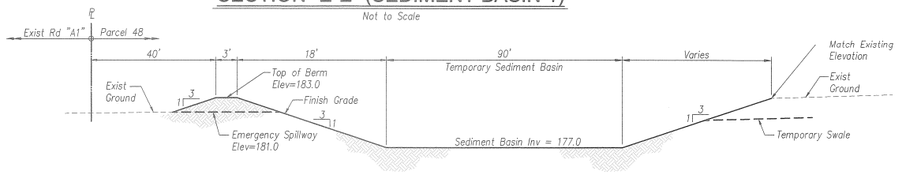

SECTION "F-F" (SEDIMENT BASIN 2)

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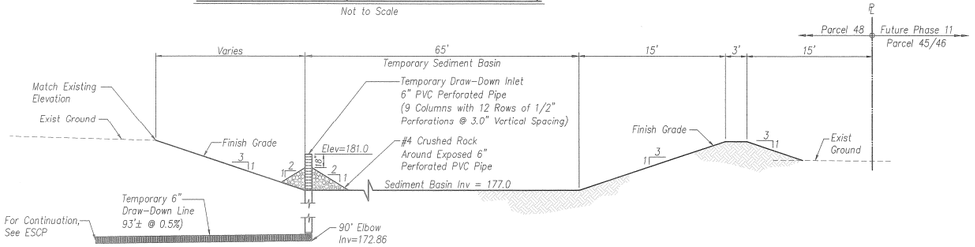

SECTION "G-G" (SEDIMENT BASIN 2)

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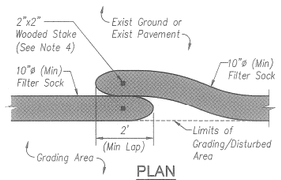
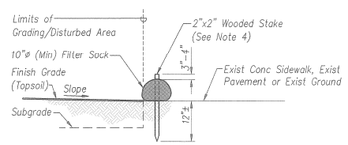


PLAN

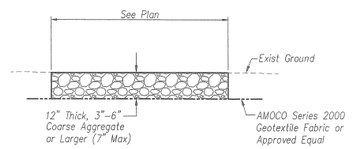


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL

Not to Scale



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

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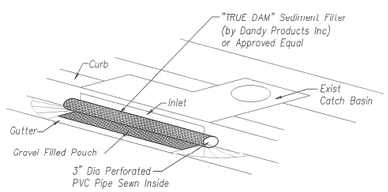

NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

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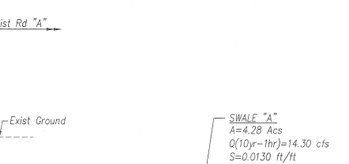

SECTION "A-A" (TEMPORARY SWALE)

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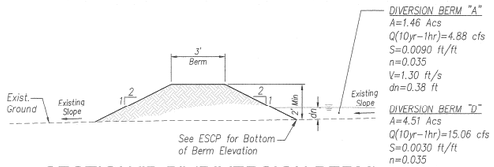

SECTION "B-B" (DIVERSION BERM)

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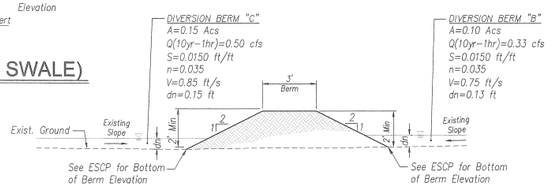

SECTION "C-C" (DIVERSION BERM)

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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. Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.
3. ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing any work. The project schedule shall be in compliance with the requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
12. Sediment Basins:
    A. 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.
13. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
14. All best management practices (BMP's) shall not be removed until the entire project is complete.
15. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
16. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    E. Sediment Barriers
    F. Sediment Traps are not applicable.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment basins and stabilize immediately.
3. Construct temporary diversion berms and swales as needed to direct runoff into the sediment basins.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade the site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
6. Remove temporary sediment basins after lot mass grading is completed, and only lot fine grading for top soil remains.
7. Install perimeter control BMP's around proposed roadways once roadway construction is completed.
8. Remove temporary construction ingress/egress once roadway construction is completed, and perimeter control BMP's around proposed roadways are installed.
9. Fine grade lots up to top soil as planned.
10. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
11. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
12. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
13. Plant permanent ground cover according to the landscaping plans as soon as possible.
14. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
15. Practice good housekeeping measures throughout the duration of construction.
16. 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 and construction.
3. Inspect sediment basins, temporary berms, temporary 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-40

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 11 PARCEL 48

(DPP SUBDIVISION FILE NO 2022/SUB-94)
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-140)
TMK: 9-1-18: POR OF 19
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. WT — DATE 5/16/23

C009

SHEET 9 OF 52 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCEL 48
CAD DWG NO.: 3100-40_ECP.dwg
DATE: APRIL 2023

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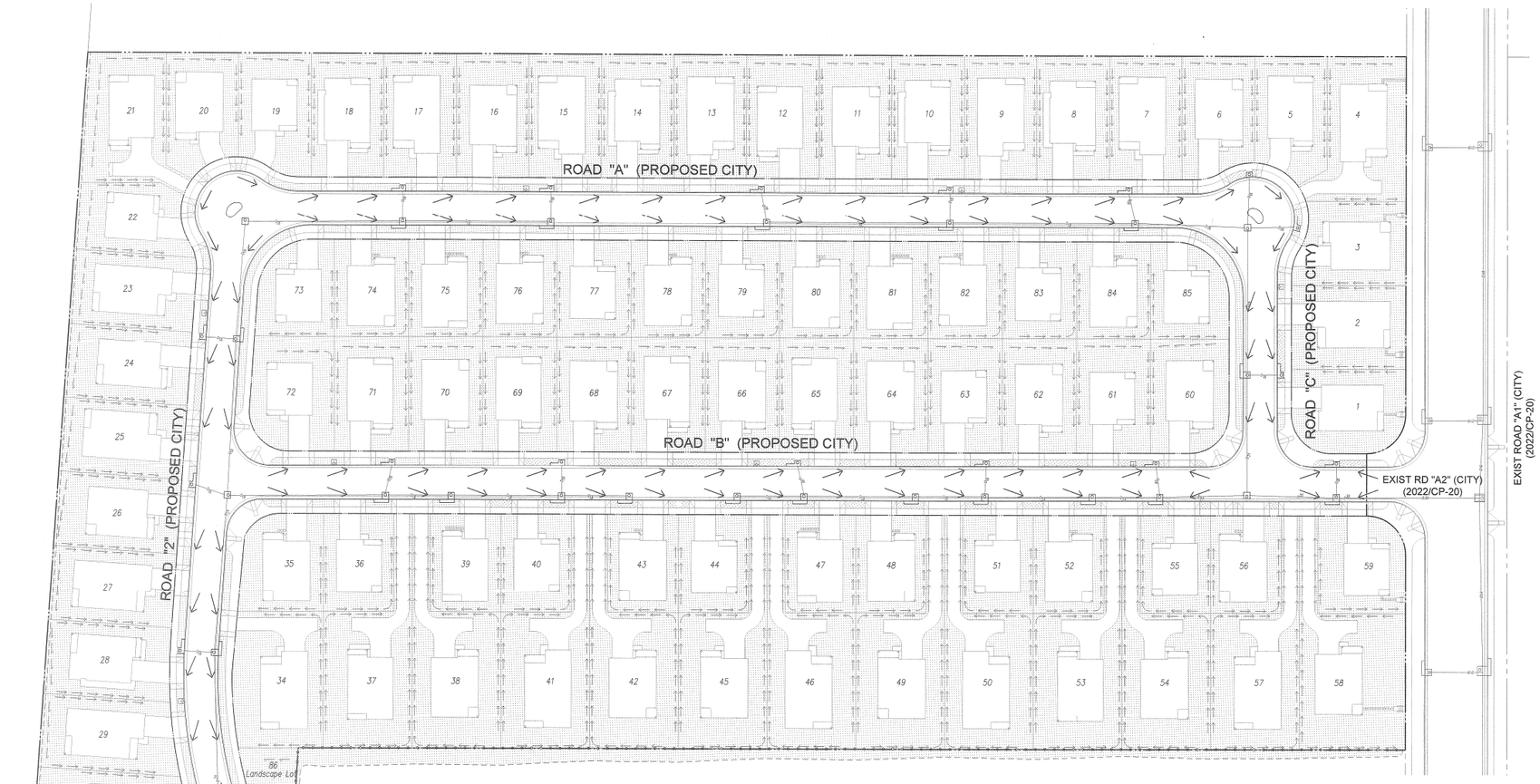


TRUE NORTH
Scale: 1"=50'-0"

POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

50 25 0 50 100
Scale in Feet

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE AS FOLLOWS:

LID SITE DESIGN STRATEGIES:

1. *Minimize Impervious Surfaces*
2. *Minimize Soil Compaction*
3. *Direct Roof Runoff to Landscaped Areas*

SOURCE CONTROL BMPs:

1. *Landscaped Areas Used to Protect Slopes*
2. *Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C021*
3. *Trash Containers shall be covered with roofs, awnings, or attached lids.*

TREATMENT CONTROL BMPs:

1. *Permanent Condition: Phase 11 Drainage Basins 1 & 2, as shown in Ho'opili Development, Phase 11 Mass Grading Plan (R.M. Towill Corporation, 2021/CP-178). Drainage Basins 1 & 2 represents the permanent offsite Basin 11 referenced in the "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.*
   For location, see map to the right.
   Required WQV = 5.54 AC-FT
   Provided WQV = 7.90 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

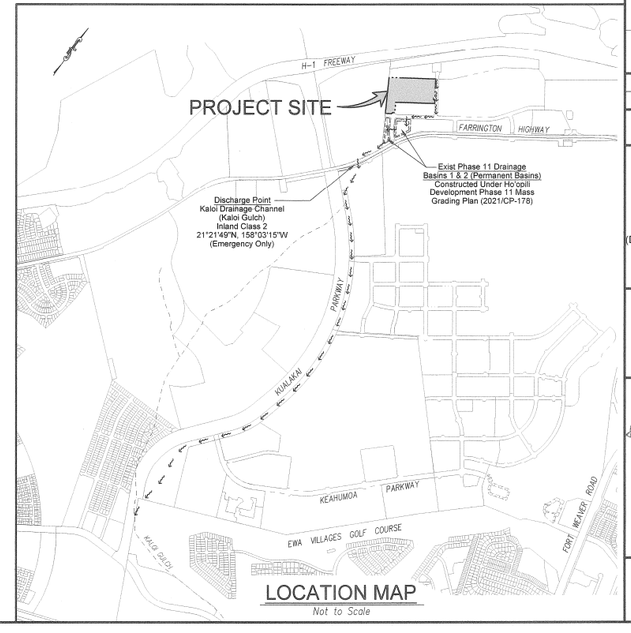
1. *Automatic Irrigation – Will not be installed for this project.*
2. *Vehicle and Equipment Fueling Areas – Not applicable for this project.*
3. *Vehicle and Equipment Repair – Will not be allowed for this project.*
4. *Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.*
5. *Loading Docks – Not applicable for this project.*
6. *Outdoor Material Storage – Will not be allowed for this project.*
7. *Outdoor Work Areas – Not applicable for this project.*
8. *Outdoor Process Equipment Operations – Not applicable for this project.*

NOTE:

Each individual lot owner shall be responsible to maintain all source control BMPs affecting their property as noted on this plan. Individual lot owners shall notify DFM when there is a change in ownership. A new Owner's Certification must be submitted to DFM by the new owner each time there is a change in ownership.

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line & Proposed Right-of-Way
- Limits of Grading & Disturbed Area
- Swale
- Flow Pattern
- Landscaped Areas



LOCATION MAP

Not to Scale

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BY	DESCRIPTION	DATE	REVISION

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-40

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 11 PARCEL 48

(DPP SUBDIVISION FILE NO 2022/SUB-94)
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-140)
TMK: 9-1-18: POR OF 19
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE 5/12/23

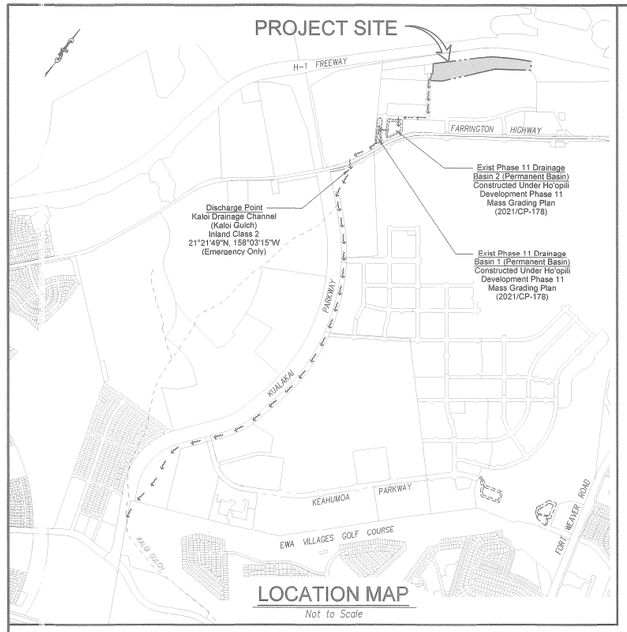
C010

SHEET 10 OF 52 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCEL 48
CAD DWG NO.: 3100-40_BMP.dwg
DATE: APRIL 2023

Drawing name: P:\3100-40 Hoopili Parcel 48\3100-40 DWG\Construction Plans\3100-40_BMP.dwg Apr 11, 2023 - 1:24pm



LOCATION MAP

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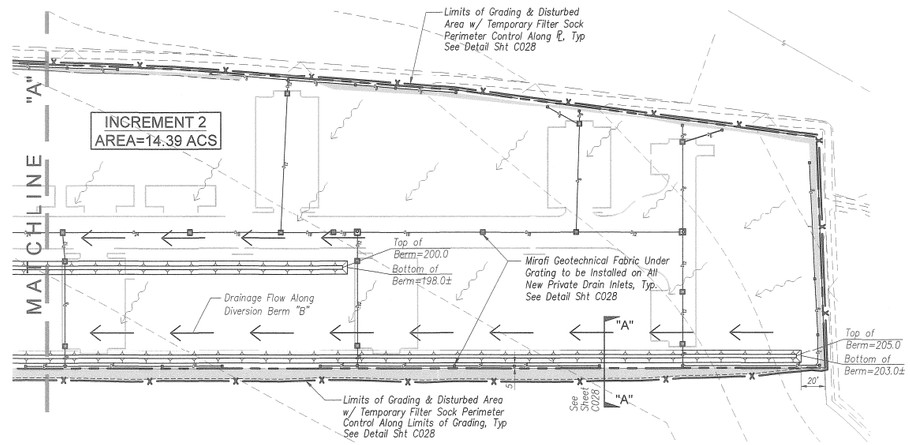

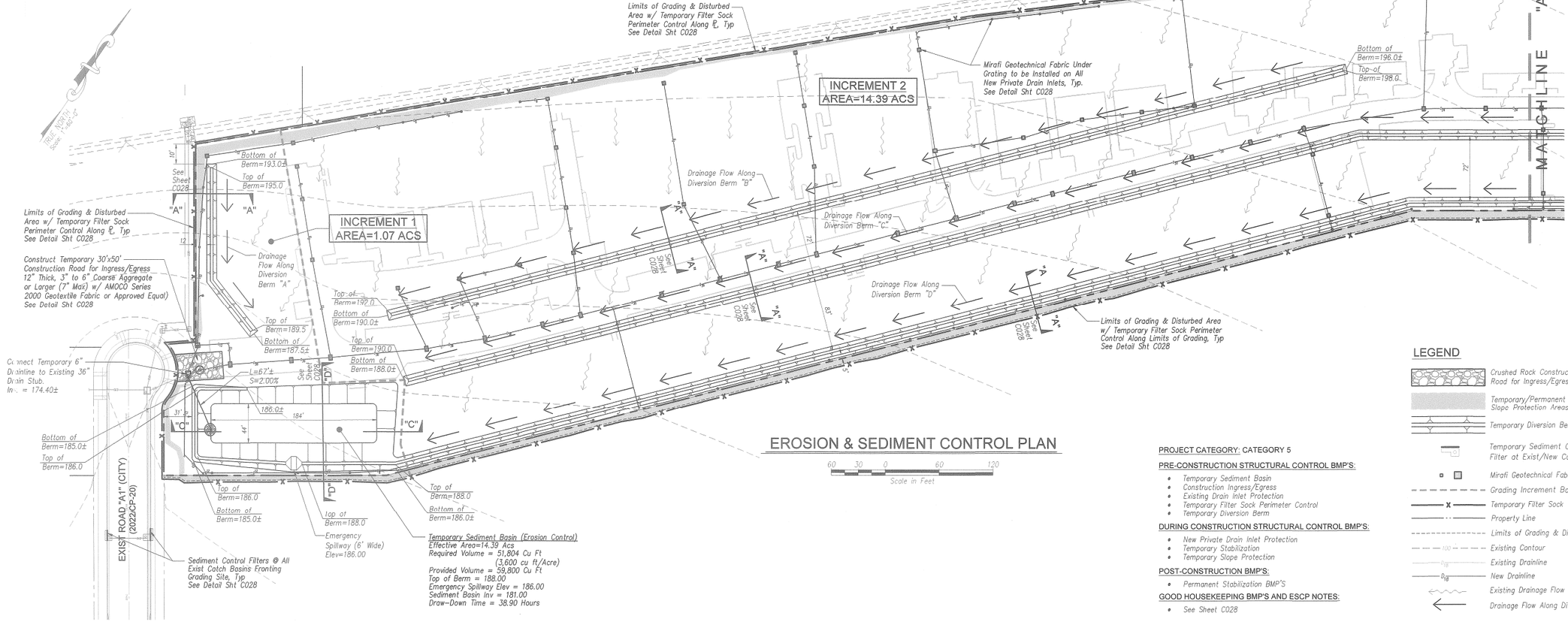

EROSION & SEDIMENT CONTROL PLAN

60 30 0 60 120

Scale in Feet

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Drain Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP'S

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C028

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Mirafi Geotechnical Fabric
- Grading Increment Boundary
- Temporary Filter Sock
- Property Line
- Limits of Grading & Disturbed Area
- Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm

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NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-39

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCEL 49

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-126)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
For: CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
4/14/23
DATE

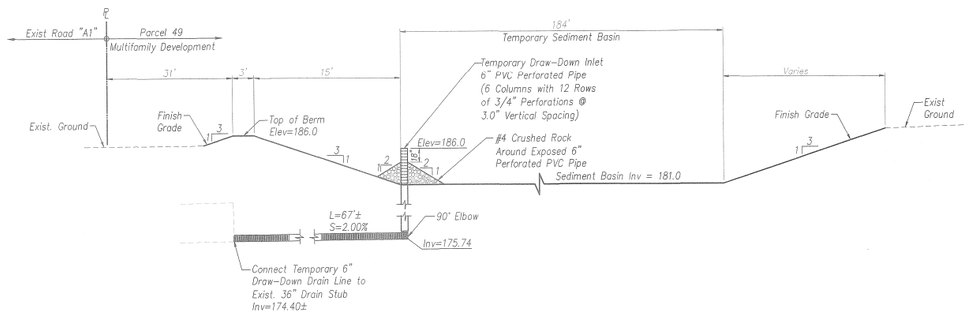
C027

SHEET 27 OF 62 SHEETS

FILE | POCKET | FOLDER | NO.

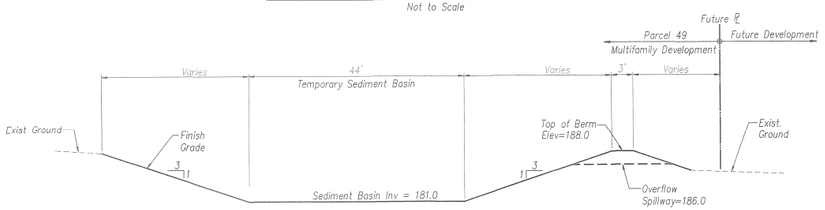
PROJECT NAME: HO'OPILI PHASE 11 PARCEL 49
CAD DWG NO.: 3100-39_ESCP.dwg
DATE: APRIL 2023

Drawing name: P:\3100-39 Hoopili Parcel 49 MF\3100-39 DWG\Construction Plans\3100-39_ESCP.dwg, Apr 11, 2023 - 10:31am



SEDIMENT BASIN SECTION "B-B"

Not to Scale



SEDIMENT BASIN SECTION "C-C"

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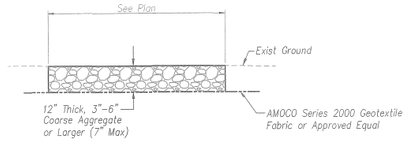
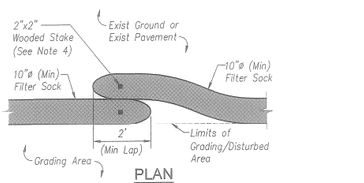
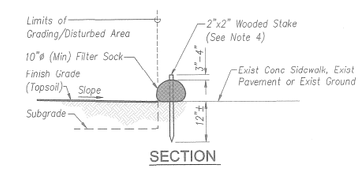


CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale

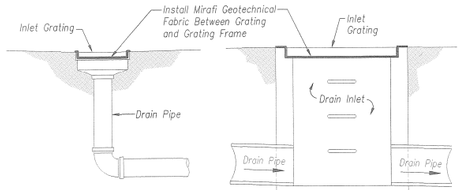




NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

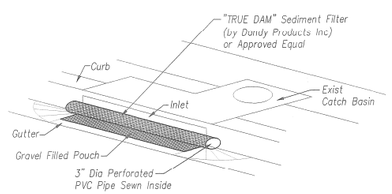
FILTER SOCK PLACEMENT DETAIL

Not to Scale



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

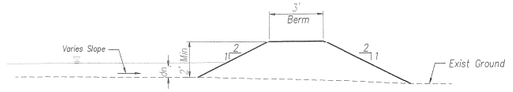
Not to Scale

DIVERSION BERM "A"
A=0.45 Acs
Q(10yr-1hr)=1.68 cfs
S=0.0274 ft/ft
V=1.47 ft/s
dn=0.21 ft

DIVERSION BERM "B"
A=4.24 Acs
Q(10yr-1hr)=15.82 cfs
S=0.0055 ft/ft
V=1.44 ft/s
dn=0.65 ft

DIVERSION BERM "C"
A=3.75 Acs
Q(10yr-1hr)=13.99 cfs
S=0.0065 ft/ft
V=1.49 ft/s
dn=0.60 ft

DIVERSION BERM "D"
A=4.62 Acs
Q(10yr-1hr)=17.23 cfs
S=0.0088 ft/ft
V=1.78 ft/s
dn=0.61 ft



TEMPORARY DIVERSION BERM SECTION "A-A"

Not to Scale

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. Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.
3. ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work. The project schedule shall be in compliance with the requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. 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.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
12. Sediment Basins:
    A. 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.
13. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
14. All best management practices (BMP's) shall not be removed until the entire project is complete.
15. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
16. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors. A brief explanation of why each BMP is unnecessary or impracticable has been provided under separate documentation to DPP.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    E. Sediment Barriers are not applicable
    F. Sediment Traps

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. *Storm water discharge associated with construction activities that disturb one (1) acre or more, and*
2. *Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters*

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. *Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.*
2. *Construct temporary sediment basin and stabilize immediately.*
3. *Construct temporary diversion berms as needed to direct runoff into the sediment basin.*
4. *Clear and grub increment 1 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.*
5. *Grade increment 1 site and construct the driveway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.*
6. *Seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods for increment 1 prior to start of clearing and grubbing of increment 2.*
7. *Clear and grub increment 2 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.*
8. *Grade increment 2 site and construct the driveway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.*
9. *Remove temporary sediment basin after lot mass grading is completed, and only lot fine grading for top soil remains.*
10. *Install perimeter control BMP's around proposed driveways once driveway construction is completed.*
11. *Remove temporary construction ingress/egress once driveway construction is completed, and perimeter control BMP's around proposed driveways are installed.*
12. *Fine grade lots up to top soil as planned.*
13. *Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temprorary vegetative cover or use other temporary stabilization methods as planned.*
14. *Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.*
15. *Proceed with construction with least possible disturbance of vegetative areas and temporary structures.*
16. *Plant permanent ground cover according to the landscaping plans as soon as possible.*
17. *Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.*
18. *Practice good housekeeping measures throughout the duration of construction.*
19. *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.*
3. *Inspect sediment basin, temporary berms, 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 BMP's as needed.*

GOOD HOUSEKEEPING BMP'S:

1. *Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.*
2. *Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.*
3. *Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.*
4. *Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.*
5. *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 cleanup all leaks and spills immediately.*
6. *Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.*
7. *Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.*
8. *Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.*
9. *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.*
10. *Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.*
11. *Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.*
12. *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.*
13. *Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.*
14. *Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.*
15. *Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.*
16. *Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.*

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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

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REVISION	DATE	DESCRIPTION	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-39

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCEL 49

MULTIFAMILY DEVELOPMENT
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-126)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
for CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE: 4/14/23

C028

SHEET 28 OF 62 SHEETS
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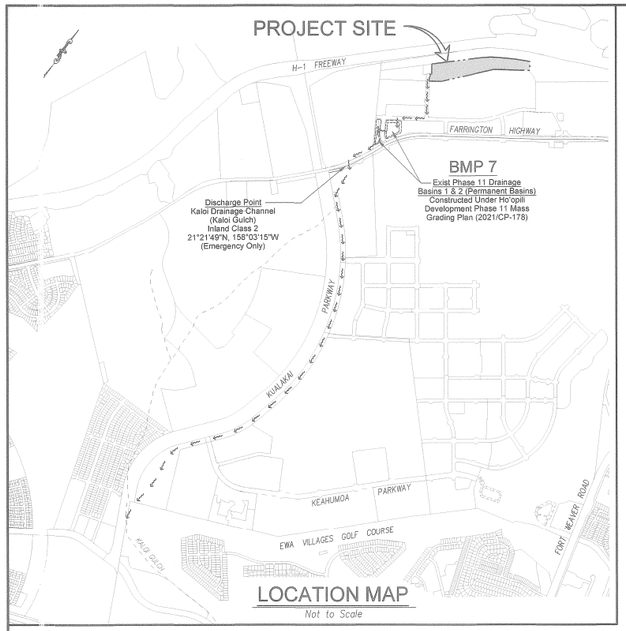

LOCATION MAP

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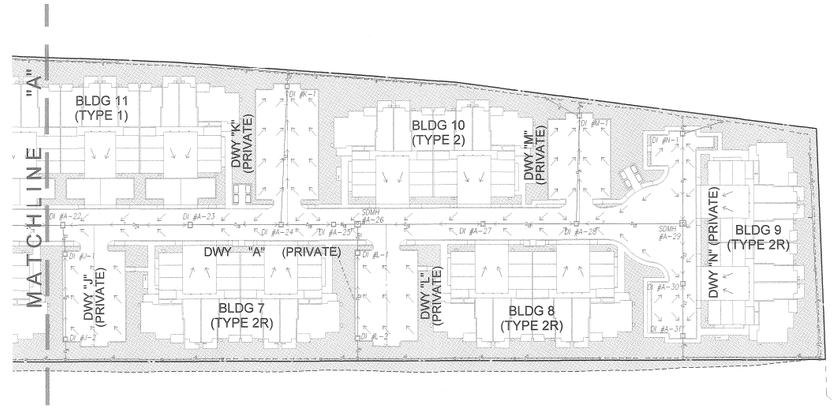

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line
- Swale
- Flow Pattern
- Drain Inlet w/ Marker (For Det See Sht C038)
- Landscaped Areas

POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

60 30 0 60 120

Scale in Feet

PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	*BMP Type*
1	Landscape Areas
2	Automatic Irrigation System
3	Storm Drain Marker on Drain Inlets
4	Prohibition of Residential Vehicle and Equipment Washing and Cleaning
5	Trash Dumpsters Outfitted with Lids, placed on paved impervious surfaces
6	Parking Areas
TREATMENT CONTROL BMP	
7	Ho'opili Phase 11 Drainage Basins 1 & 2 (storm water quality and flood control)

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:

SITE DESIGN STRATEGIES:

1. Minimize Soil Compaction
2. Minimize Impervious Surfaces
3. Direct Roof Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection)

SOURCE CONTROL BMPS:

1. Landscaped Areas – Protect slopes with landscaping
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water
3. Storm Drain Inlets (See Sht C038 for Storm Drain Marker)
4. Prohibition of Residential Vehicle and Equipment Washing and Cleaning
5. Trash Enclosures to be paved with impervious surface (concrete)
6. Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basin constructed in "Ho'opili Development, Phase 11 Mass Grading Plan" (R.M. Towill Corporation, 2021/CP-178), which serves as a post-construction treatment control BMP.

TREATMENT CONTROL BMPs:

1. Permanent Condition: Phase 11 Drainage Basins 1 & 2, as shown in Ho'opili Development, Phase 11 Mass Grading Plan (R.M. Towill Corporation, 2021/CP-178). Drainage Basins 1 & 2 represents the permanent offsite Basin 11 referenced in the "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.
   For location, see map this sheet.
   Required WQV = 5.54 AC-FT
   Provided WQV = 7.90 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. Vehicle and Equipment Fueling Areas – Not applicable for this project.
2. Vehicle and Equipment Repair – Will not be allowed for this project.
3. Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.
4. Loading Docks – Not applicable for this project.
5. Outdoor Material Storage – Will not be allowed for this project.
6. Outdoor Work Areas – Not applicable for this project.
7. Outdoor Process Equipment Operations – Not applicable for this project.

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MULTIFAMILY DEVELOPMENT

(DPP CONSTRUCTION PLANS FILE NO 2022/CP-126)

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HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE 4/14/23

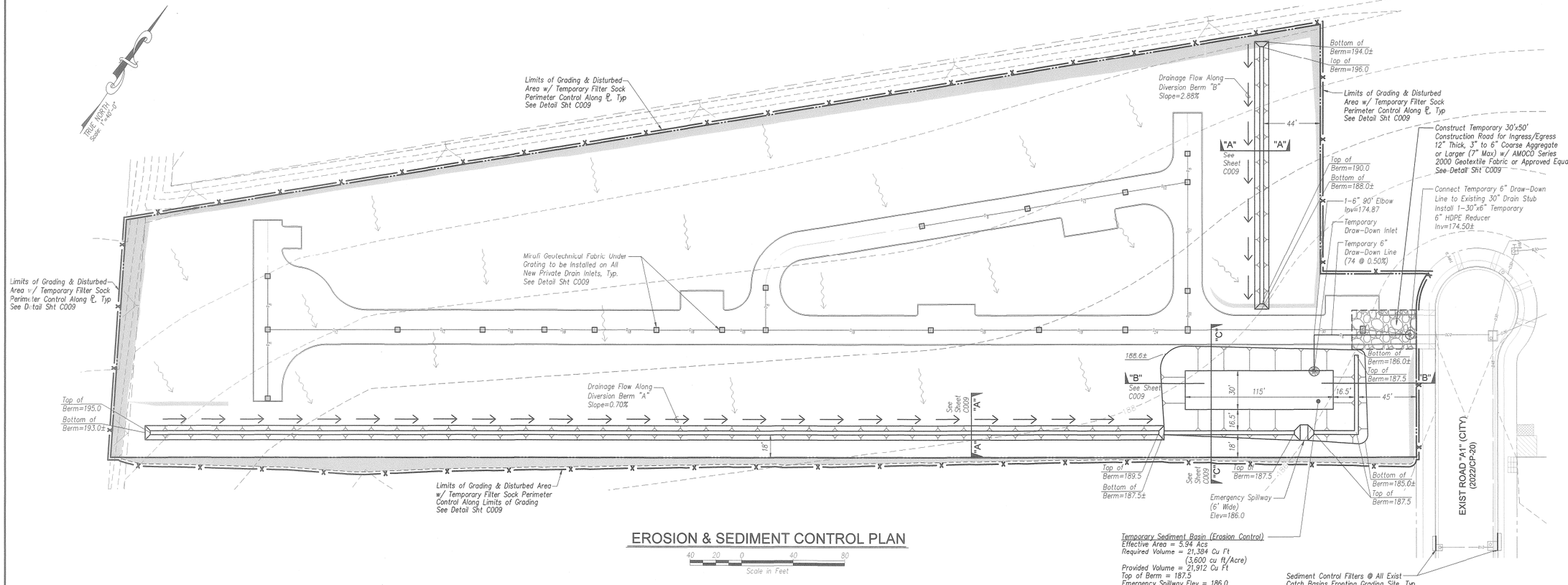
C029

SHEET 29 OF 62 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCEL 49
CAD DWG NO.: 3100-39_BMP.dwg
DATE: APRIL 2023

Drawing name: P:\3100-39 Hoopili Parcel 49 MP\3100-39 DWG\Construction Plans\3100-39_BMP.dwg Apr 11, 2023 - 10:40am



EROSION & SEDIMENT CONTROL PLAN

40 20 0 40 80
Scale in Feet

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Permanent Slope Protection Areas (See Grading Plan)
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Mirafi Geotechnical Fabric
- Temporary Filter Sock
- Property Line
- Limits of Grading & Disturbed Area
- 100 — Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Drain Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

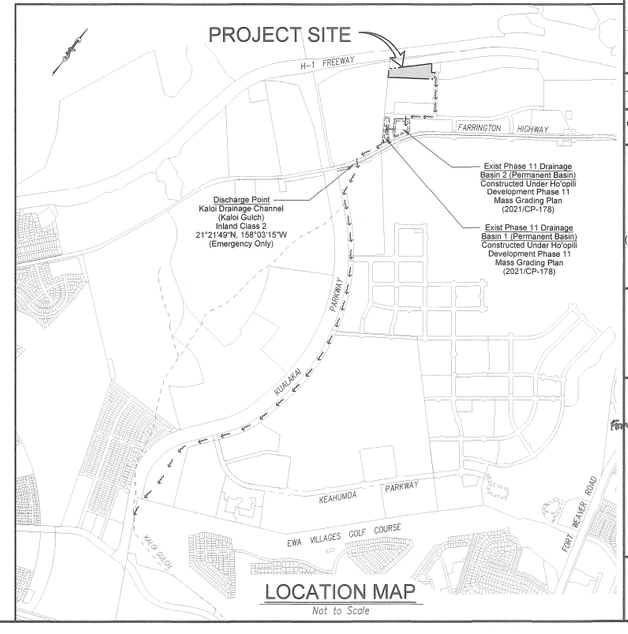
- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP'S

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C009



LOCATION MAP
Not to Scale

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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

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DESCRIPTION	BY	APPROVED

DATE	REVISION

ENGINEER: WT	CHECKED BY: MN
DRAWN BY: JG	PROJECT #: 3100-38

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCEL 49

SINGLE FAMILY CONDOMINIUM

(DPP CONSTRUCTION PLANS FILE NO 2022/CP-125)

TMK: 9-1-18: POR OF 019

HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:

For CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE 4/14/23

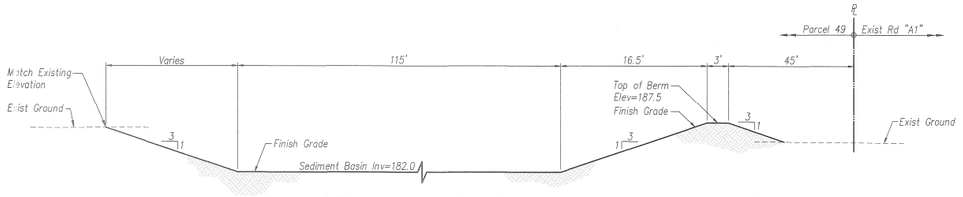
C008

SHEET 8 OF 34 SHEETS

FILE	POCKET	FOLDER	NO.

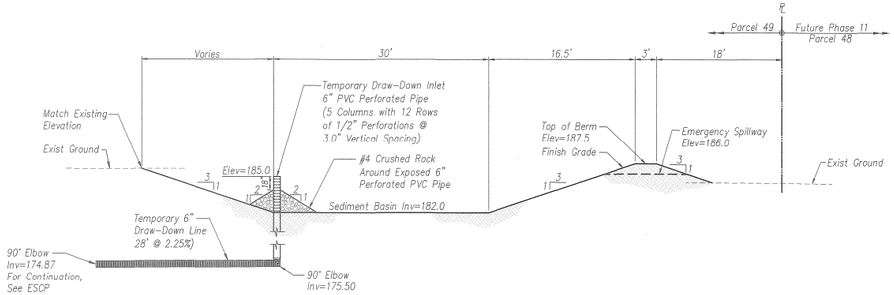
PROJECT NAME: HO'OPILI PHASE 11 PARCEL 49
CAD DWG NO.: 3100-38_ECP.dwg
DATE: APRIL 2023

Drawing name: F:\3100-38 Hoopili Parcel 49 Single Family\3100-38 DWG\Construction Plans\3100-38_ECP.dwg Apr 10, 2023 - 11:25am



SEDIMENT BASIN SECTION "B-B"

Not to Scale



SEDIMENT BASIN SECTION "C-C"

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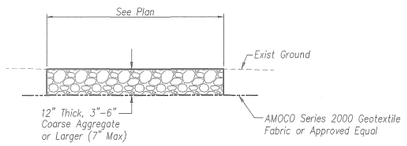
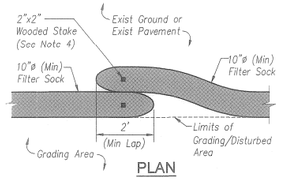
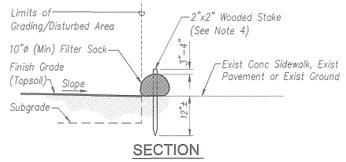


CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale



PLAN

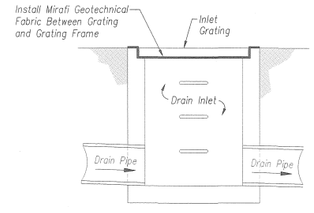


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

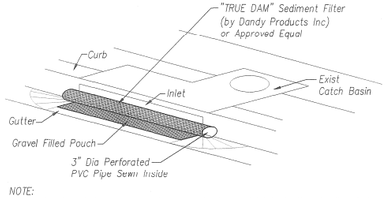
FILTER SOCK PLACEMENT DETAIL

Not to Scale



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

Not to Scale



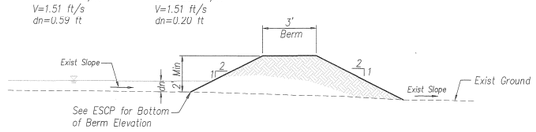
NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

DIVERSION BERM "A"
A=3.85 Acs
Q(10yr-1hr)=13.71 cfs
S=0.0070 ft/ft
V=1.51 ft/s
dn=0.59 ft

DIVERSION BERM "B"
A=0.44 Acs
Q(10yr-1hr)=1.57 cfs
S=0.0288 ft/ft
V=1.51 ft/s
dn=0.20 ft



TEMPORARY DIVERSION BERM SECTION "A-A"

Not to Scale

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. The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.
3. The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
12. Sediment Basins:
    A. 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.
13. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
14. All best management practices (BMP's) shall not be removed until the entire project is complete.
15. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
16. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment Traps are not applicable.
    E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and stabilize immediately.
3. Construct temporary diversion berms as needed to direct runoff into the sediment basin.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Install remaining parts of permanent drainage system with temporary inlet protection.
6. Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed.
7. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
8. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
9. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
10. Plant permanent ground cover according to the landscaping plans as soon as possible.
11. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
12. Practice good housekeeping measures throughout the duration of construction.
13. 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.
3. Inspect sediment basin, temporary berms, 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-38

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCEL 49

SINGLE FAMILY CONDOMINIUM
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-125)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
For MELVIN D. KAKU, CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
4/14/23 DATE

C009

SHEET 9 OF 34 SHEETS

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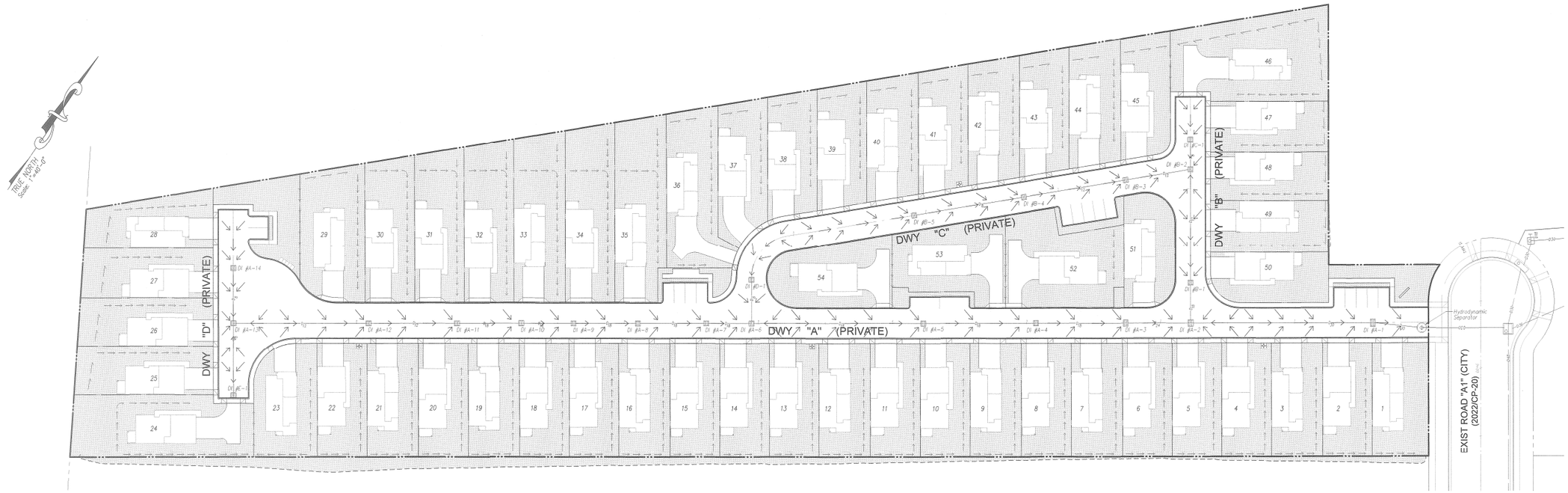


POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

40 20 0 40 80
Scale in Feet

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Condominium Line
- Property Line
- Limits of Grading & Disturbed Area
- Swale
- Flow Pattern
- Drain Inlet w/ Marker (For Det See Sht C017)
- Landscaped Areas

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:

SITE DESIGN STRATEGIES:

1. Minimize Soil Compaction
2. Minimize Impervious Surfaces
3. Direct Roof Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection)

SOURCE CONTROL BMPs:

1. Landscaped Areas – Protect slopes with landscaping
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water
3. Storm Drain Markers on Drain Inlets (See Detail on Sht C017)
4. Trash Containers shall be covered with roofs, awnings, or attached lids.
5. Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basins constructed in "Ho'opili Development, Phase 11 Mass Grading Plan" (R.M. Towill Corporation, 2021/CP-178), which serves as a post-construction treatment control BMP.

TREATMENT CONTROL BMPs:

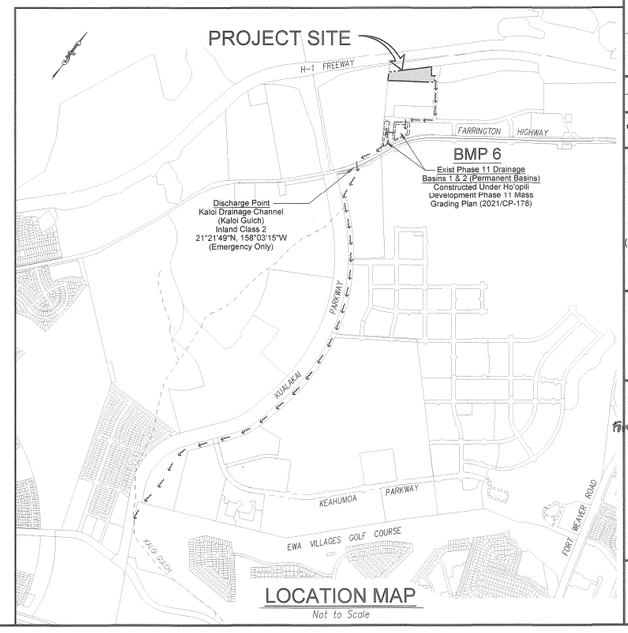
1. Permanent Condition: Phase 11 Drainage Basins 1 & 2, as shown in Ho'opili Development, Phase 11 Mass Grading Plan (R.M. Towill Corporation, 2021/CP-178). Drainage Basins 1 & 2 represents the permanent offsite Basin 11 referenced in the "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.
   For location, see map this sheet.
   Required WQV = 5.54 AC-FT
   Provided WQV = 7.90 AC-FT

PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscape Areas
2	Automatic Irrigation System
3	Storm Drain Markers on Drain Inlets
4	Trash Containers shall be covered with roofs, awnings, or attached lids.
5	Parking Areas
TREATMENT CONTROL BMPs	
BMP No	BMP Type
6	Ho'opili Phase 11 Drainage Basins 1 & 2 (storm water quality and flood control detention)

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. Vehicle and Equipment Fueling Areas – Not applicable for this project.
2. Vehicle and Equipment Repair – Will not be allowed for this project.
3. Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.
4. Loading Docks – Not applicable for this project.
5. Outdoor Material Storage – Will not be allowed for this project.
6. Outdoor Work Areas – Not applicable for this project.
7. Outdoor Process Equipment Operations – Not applicable for this project.



LOCATION MAP

Not to Scale

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REVISION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-38

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 11 PARCEL 49

SINGLE FAMILY CONDOMINIUM
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-125)
TMK: 9-1-18: POR OF 019
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
DATE: 4/14/23

C010

SHEET 10 OF 34 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 11 PARCEL 49
CAD DWG NO.: 3100-38_BMP.dwg
DATE: APRIL 2023

J:\data center P\3100-38 Hoopili Parcel 49 Single Family\3100-38 DWG\Construction Plans\3100-38_BMP.dwg Apr 10, 2023 - 1:18pm

GOOD HOUSEKEEPING BMPS NOTES:

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).

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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.

4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.

12. LIQUID WASTE MANAGEMENT.

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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.

GOOD HOUSEKEEPING BMPS NOTES (CONT'D):

14. CONTAMINATED SOIL MANAGEMENT.

    AT MINIMUM CONTAIN CONTAMINATED MATERIAL SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL".

16. BMP AND SITE MAINTENANCE.

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES:

PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS AND INLET PROTECTION FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT BASINS AND TEMPORARY SWALES FOR INCREMENT 1 AND STABILIZE IMMEDIATELY.
3. PROVIDE WATER TRUCKS FOR DUST CONTROL.
4. CLEAR, GRUB AND GRADE THE SITE IN 8 INCREMENTS IN SEQUENTIAL NUMERICAL ORDER, REFER TO ESCP PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME. THE CURRENT INCREMENT SHALL BE STABILIZED AND THE TEMPORARY SEDIMENT BASINS & SWALES FOR THE SUBSEQUENT INCREMENT INSTALLED PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
5. 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.
6. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
7. PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.
8. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
9. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
10. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING AND TRENCHING.
2. INSPECT ALL SEDIMENT BASINS, TEMPORARY SEDIMENT TRAPS, TEMPORARY 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.

4. 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.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS 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.

6. 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.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

9. 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.

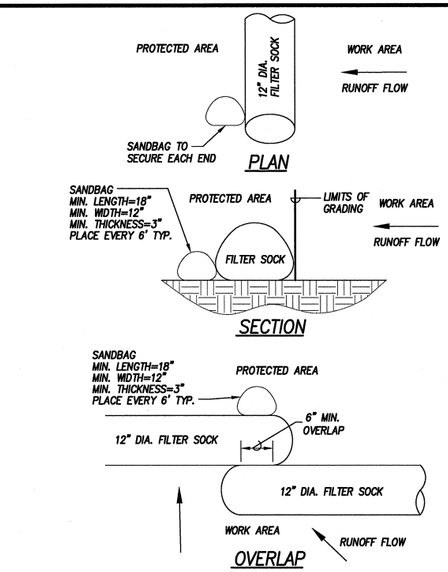
10. SEDIMENT BASINS

    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. CONTRACTOR SHALL PROVIDE A STAFF GAGE SHOWING ELEVATION AND DEPTH OF SEDIMENT BASIN.

11. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.

12. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
13. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL- CONSTRUCTION, FOR MORE INFORMATION ON BMPS.
14. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
      - THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE. GRADING ON SLOPES WITH A GRADE OF 15% OR MORE OCCURS ON LOCALIZED TRANSITION SLOPES OR CHANNEL OR BASIN SIDE SLOPES WITHIN THE PROJECT. WHERE GRADING OCCURS ON LOCALIZED TRANSITIONS, THERE IS NO SEVERE EROSION AND THE PROPOSED BMPS WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF. WHERE GRADING OCCURS ON CHANNEL OR BASIN SIDE SLOPES, ALL RUNOFF WILL BE RETAINED WITHIN THE CHANNEL OR BASIN.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT – PHASE 13A; EWA, OAHU, HAWAII" DATED JULY 29, 2019, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - VELOCITY DISSIPATION DEVICES
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT BASINS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - BUFFER ZONES
      - THE PROJECT IS NOT WITHIN 50 FT OF STATE WATERS AND THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE WITH THE EXCEPTION OF EXISTING GRADE TRANSITIONS. THE PROPOSED BMPS (PERIMETER CONTROL) WILL SUFFICIENTLY ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT TRAPS
      - THE AREA TO BE DISTURBED IS GREATER THAN 5 ACRES.

15. THE OWNER OF THE PROPERTY OR THEIR AUTHORIZED AGENT MUST DESIGNATE A PERSON RESPONSIBLE FOR IMPLEMENTING THE ESCP AT THE PROJECT SITE ("ESCP COORDINATOR") PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY.
16. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.



COMPOST FILTER SOCK DETAIL

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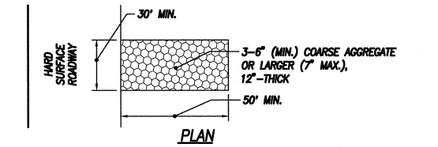
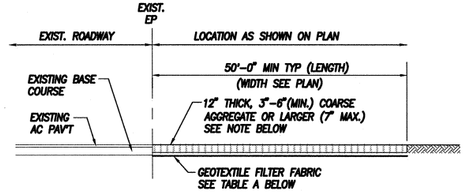


NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

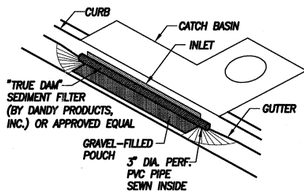


SECTION

TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE



NOTES:
1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 13

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII

TMK: 9-1-017: 197, 198 & 202

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
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BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
Brent Nakaoka 4/30/22 SIGNATURE EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
4/30/22 SIGNATURE EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

BY	DATE	REVISION	BRIEF

APPROVED BY
Chief, Civil Engineering Branch, DPP — DATE 12/21/22

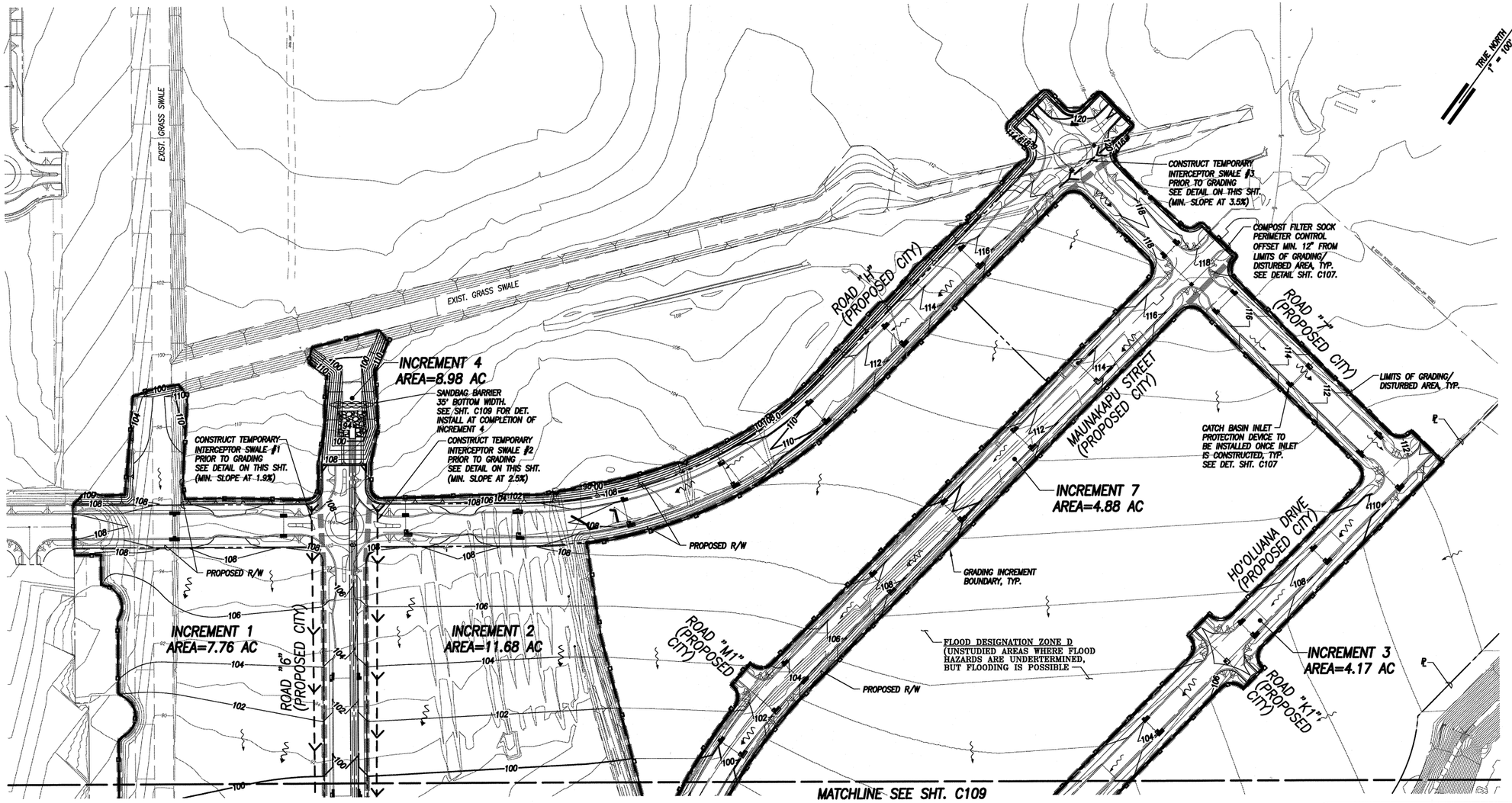
ENGINEER	CD, JT, MN, LR
DRAFTSMAN	CD, JT, MN, LR
CHECKED BY	BN
SCALE	AS SHOWN
DATE	JANUARY 2021
DPP FILE NO.	2021/CP-14

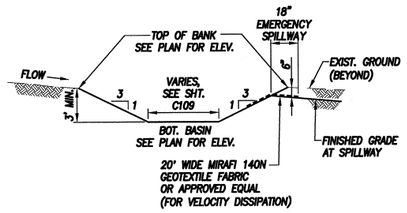
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

RMTC JOB NO.: 1-23452-0E

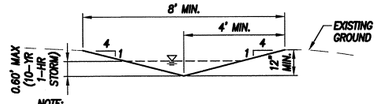
K:\civil\23452 Hoopili Phase 13A\Drawings\Construction Dwgs_Backbone Roadway\C107 – Erosion and Sediment Control Notes & Details.dwg November 8, 2021

FILE	POCKET	FOLDER	NO.





TEMPORARY SEDIMENT BASIN
NOT TO SCALE



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT BASIN
- TEMPORARY SWALE

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHT. C101 FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C107 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	19,749 LF
CATCH BASIN INLET PROTECTION DEVICE	116 EA.
SAND BAG BARRIER	2 EA.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE
- SAND BAG BARRIER

GRAPHIC SCALE:
1" = 100' 100' 50' 0 100' 200'
SCALE IN FEET

EROSION AND SEDIMENT CONTROL PLAN – 1
SCALE: 1" = 100'

HO'OPILI DEVELOPMENT PHASE 13
BACKBONE ROADWAY IMPROVEMENTS
HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 197, 198 & 202

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APPROVED BY
Chief, Civil Engineering Branch, DPP 12/21/21 DATE

ENGINEER	CD, JT, MN, LR
DRAFTSMAN	CD, JT, MN, LR
CHECKED BY	BN
SCALE	AS SHOWN
DATE	JANUARY 2021
DPP FILE NO.	2021/CP-14

EROSION AND SEDIMENT CONTROL PLAN – 1

RMTC JOB NO.: 1-23452-0E

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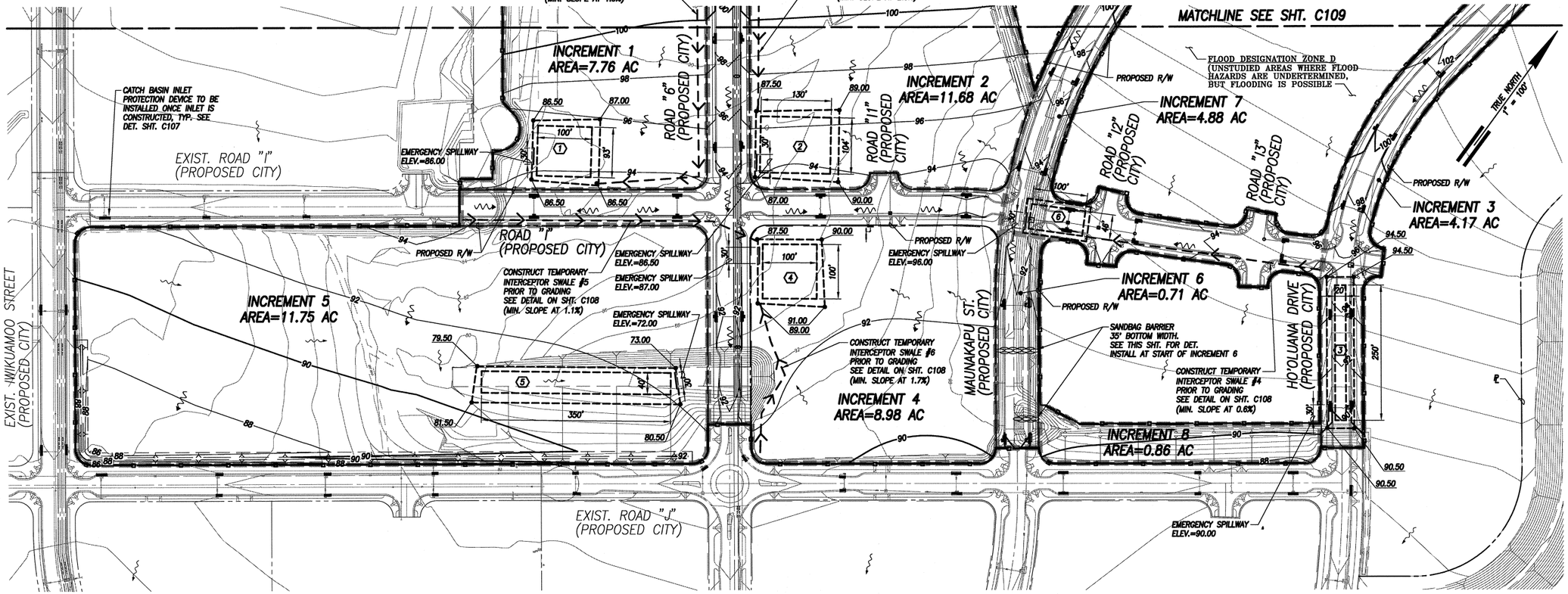
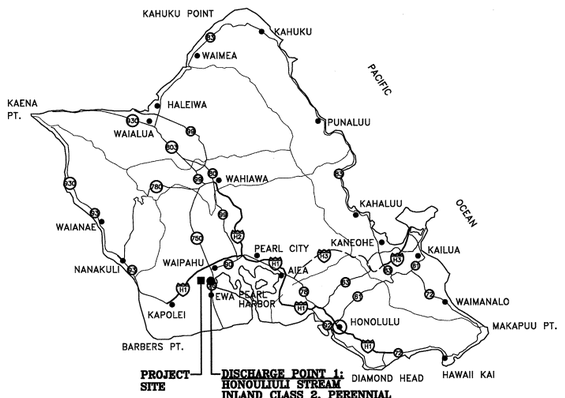




DISCHARGE POINT 1:
HONOULIULI STREAM
INLAND CLASS 2, PERENNIAL
N 21°21'53"
W 158°01'38"

DISCHARGE POINT 2:
PEARL HARBOR
EMBAYMENT, CLASS A
N 21°21'20"
W 158°01'10"

LOCATION MAP
NOT TO SCALE

① *TEMPORARY SEDIMENT BASIN 1*
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 83 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 7.76 AC
(INCREMENT 1)
REQUIRED VOLUME = 1,035 CY.
AVAILABLE VOLUME = 1,306 CY.

② *TEMPORARY SEDIMENT BASIN 2*
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 84 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 11.68 AC
(INCREMENT 2)
REQUIRED VOLUME = 1,555 CY.
AVAILABLE VOLUME = 1,736 CY.

③ *TEMPORARY SEDIMENT BASIN 3*
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 87 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.17 AC
(INCREMENT 3)
REQUIRED VOLUME = 556 CY.
AVAILABLE VOLUME = 825 CY.

④ *TEMPORARY SEDIMENT BASIN 4*
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 84 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 8.98 AC
(INCREMENT 4)
REQUIRED VOLUME = 1,196 CY.
AVAILABLE VOLUME = 1,311 CY.

⑤ *TEMPORARY SEDIMENT BASIN 5*
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 69 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 11.75 AC
(INCREMENT 5)
REQUIRED VOLUME = 1,567 CY.
AVAILABLE VOLUME = 1,946 CY.

⑥ *TEMPORARY SEDIMENT BASIN 6*
TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT
(3600 CU. FT. PER ACRE)
SEE DETAIL SHT. C108
MIN. INVERT = 93 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.88 AC
(INCREMENT 7)
REQUIRED VOLUME = 651 CY.
AVAILABLE VOLUME = 657CY.

TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=1.81 CFS
A=2.64 AC.
V=2.14 FPS
D=0.46 FT
S=0.019 FT/FT

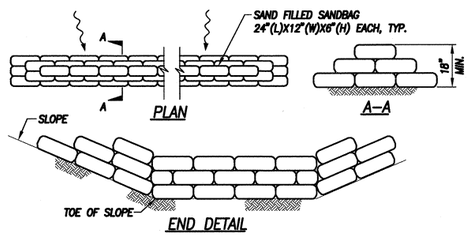
TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
(INCREMENT 2)
Q=1.01 CFS
A=1.48 AC.
V=1.95 FPS
D=0.36 FT
S=0.025 FT/FT

TEMPORARY SWALE #3
(10-YR, 1-HR STORM)
(INCREMENT 2)
Q=0.18 CFS
A=0.27 AC.
V=2.27 FPS
D=0.32 FT
S=0.035 FT/FT

TEMPORARY SWALE #4
(10-YR, 1-HR STORM)
(INCREMENT 7)
Q=0.64 CFS
A=0.94 AC.
V=1.05 FPS
D=0.39 FT
S=0.006 FT/FT

TEMPORARY SWALE #5
(10-YR, 1-HR STORM)
(INCREMENT 4)
Q=1.72 CFS
A=2.51 AC.
V=1.65 FPS
D=0.51 FT
S=0.011 FT/FT

TEMPORARY SWALE #6
(10-YR, 1-HR STORM)
(INCREMENT 4)
Q=1.26 CFS
A=1.84 AC.
V=1.87 FPS
D=0.41 FT
S=0.017 FT/FT



SANDBAG BARRIER DETAIL
NOT TO SCALE

NOTE:
IN LIEU OF PROVIDING SEDIMENT BASIN OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE EXISTING TEMPORARY RETENTION BASIN.(SEE SHT. C101 FOR EXISTING TEMPORARY RETENTION BASIN.)

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE
- SAND BAG BARRIER

GRAPHIC SCALE:
1" = 100' — 100' 50' 0 100' 200'
SCALE IN FEET

EROSION AND SEDIMENT CONTROL PLAN – 2
SCALE: 1" = 100'

HO'OPILI DEVELOPMENT PHASE 13
BACKBONE ROADWAY IMPROVEMENTS
HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 197, 198 & 202

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Brent Nakadoka 4/30/22
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REVISION	DATE	BY	APPROVED

APPROVED BY
Chief, Civil Engineering Branch, DPP — DATE 12/14/22

ENGINEER	CD, JT, MN, LR
DRAFTSMAN	CD, JT, MN, LR
CHECKED BY	BN
SCALE	AS SHOWN
DATE	JANUARY 2021
DPP FILE NO.	2021/CP-14

EROSION AND SEDIMENT CONTROL PLAN – 2

RMTC JOB NO.: 1-23452-OE

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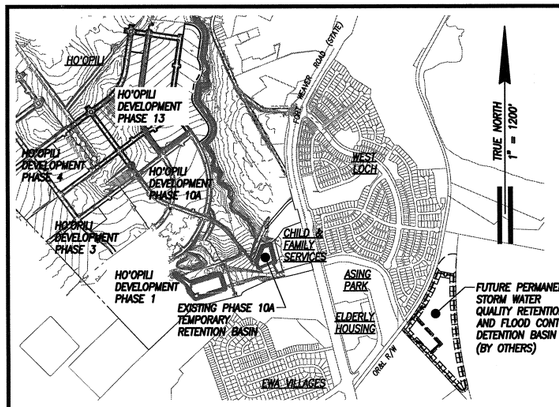


INSET

SCALE: 1" = 1200'

LID SITE DESIGN

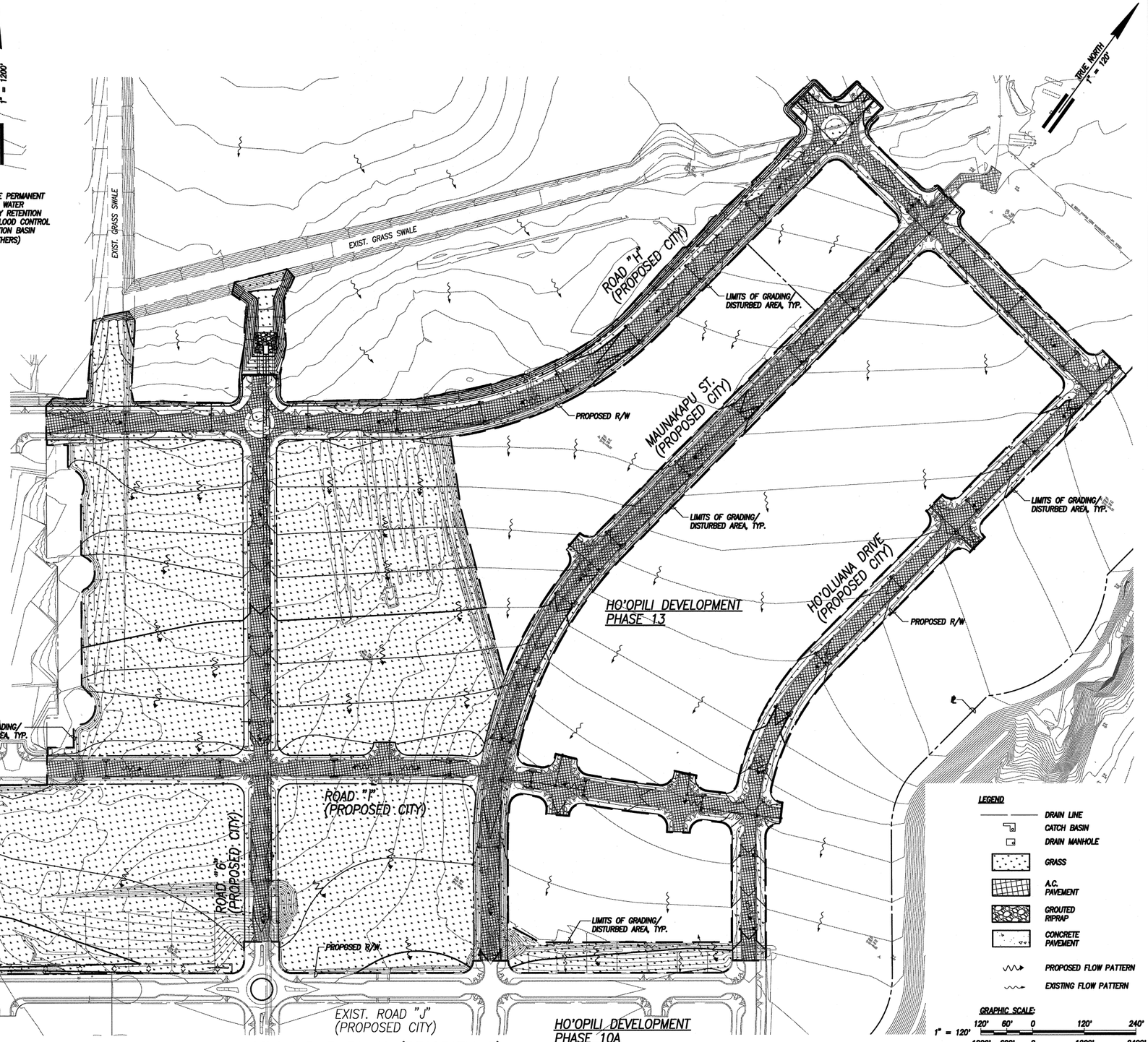
1. CONSERVE NATURAL AREAS, SOILS AND VEGETATION.
2. MINIMIZE SOIL COMPACTION.
3. MINIMIZE DISTURBANCE TO NATURAL DRAINAGE.

SOURCE CONTROL BMP

1. RUNOFF FROM LANDSCAPED AREAS WITHIN THE CITY ROW WILL DISCHARGE TO THE EXISTING PHASE 10A TEMPORARY RETENTION BASIN.
2. AN AUTOMATIC IRRIGATION SYSTEM WILL BE PROVIDED FOR LANDSCAPED AREAS.
   - DESIGN IRRIGATION SYSTEM TO EACH LANDSCAPE AREA'S SPECIFIC WATER REQUIREMENTS.
   - IMPLEMENT PROVISIONS SUCH AS WATER SENSORS OR PROGRAMMABLE IRRIGATION TIMES (FOR SHORT CYCLES).
   - DESIGN TIMING AND APPLICATION METHODS OF IRRIGATION WATER TO MINIMIZE THE RUNOFF OF EXCESS IRRIGATION WATER INTO THE STORM WATER DRAINAGE SYSTEM.
   - GROUP PLANS WITH SIMILAR WATER REQUIREMENTS IN ORDER TO REDUCE EXCESS IRRIGATION RUNOFF AND PROMOTE SURFACE FILTRATION.
3. RUNOFF FROM PARKING AREAS (ON-STREET) WILL FLOW TOWARDS THE UNDERGROUND DRAINAGE SYSTEM WITHIN THE CITY R/W AND DISCHARGE TO THE EXISTING PHASE 10A TEMPORARY RETENTION BASIN.
4. STORM DRAIN INLETS WILL BE MARKED WITH PROHIBITED LANGUAGE.

TREATMENT CONTROL BMP

1. INTERIM CONDITION: EXISTING PHASE 10A TEMPORARY RETENTION BASIN FOR STORM WATER QUALITY RETENTION.
   REQUIRED WQV=9.18 AC-FT
   AVAILABLE WQV=14.73 AC-FT
2. FUTURE PERMANENT CONDITION: FUTURE PERMANENT OFFSITE SWQ AND FLOOD CONTROL DETENTION BASIN 1 AS SPECIFIED IN THE HO'OPILI DRAINAGE MASTER PLAN (AUGUST 2015).
   REQUIRED WQV=41.4 AC-FT
   AVAILABLE WQV=283.1 AC-FT



POST CONSTRUCTION BMP PLAN (PRIORITY A)

SCALE: 1" = 120'

HO'OPILI DEVELOPMENT PHASE 13

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
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DRAFTSMAN	CD, JT, MN, LR
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POST CONSTRUCTION BMP PLAN

RMTC JOB NO.: 1-23452-OE

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C110 SHEET 15 OF 188 SHEETS

FILE	POCKET	FOLDER	NO.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 7 CONSECUTIVE DAYS OR MORE.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS, 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.
6. 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.
7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.
8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
9. 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.
10. 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.
11. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.
12. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
13. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION FOR MORE INFORMATION ON BMPS.
14. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - VELOCITY DISSIPATION DEVICES
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT - PHASE 13A; EWA, OAHU, HAWAII" DATED JULY 29, 2019, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT BASINS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT TRAPS
      - THE AREA TO BE DISTURBED IS GREATER THAN 5 ACRES.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.
15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).
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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.
12. LIQUID WASTE MANAGEMENT.

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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."
16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

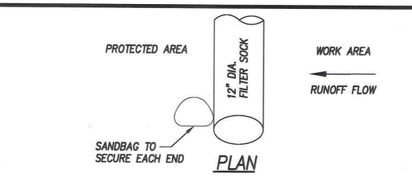
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, INLET PROTECTION, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT BASINS AND STABILIZE IMMEDIATELY.
3. CONSTRUCT TEMPORARY SWALES AND BERMS TO DIRECT RUNOFF INTO THE SEDIMENT BASINS. STABILIZE IMMEDIATELY.
4. PROVIDE WATER TRUCKS FOR DUST CONTROL.
5. CLEAR, GRUB AND GRADE THE SITE IN 5 INCREMENTS IN NUMERICAL SEQUENTIAL ORDER STARTING WITH INC. 1, REFER TO GRADING PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
6. 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.
7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

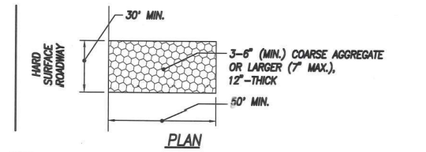
THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING.
2. INSPECT ALL 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

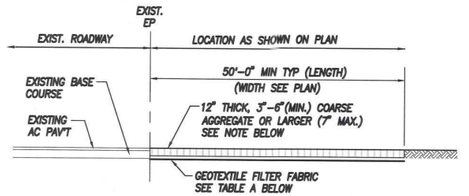


COMPOST FILTER SOCK DETAIL

NOT TO SCALE



NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

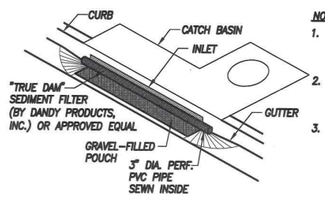


SECTION

TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE



NOTES:
1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 13

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 172

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LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/22 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	BY	APPROVED

APPROVED BY
for Melvin Inkawa 3/15/21
Chief, Civil Engineering Branch, DPP DATE

ENGINEER	CD, MN
DRAFTSMAN	CD, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	DECEMBER 2020
DPP FILE NO.	2020/CP-259

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-23452-0E

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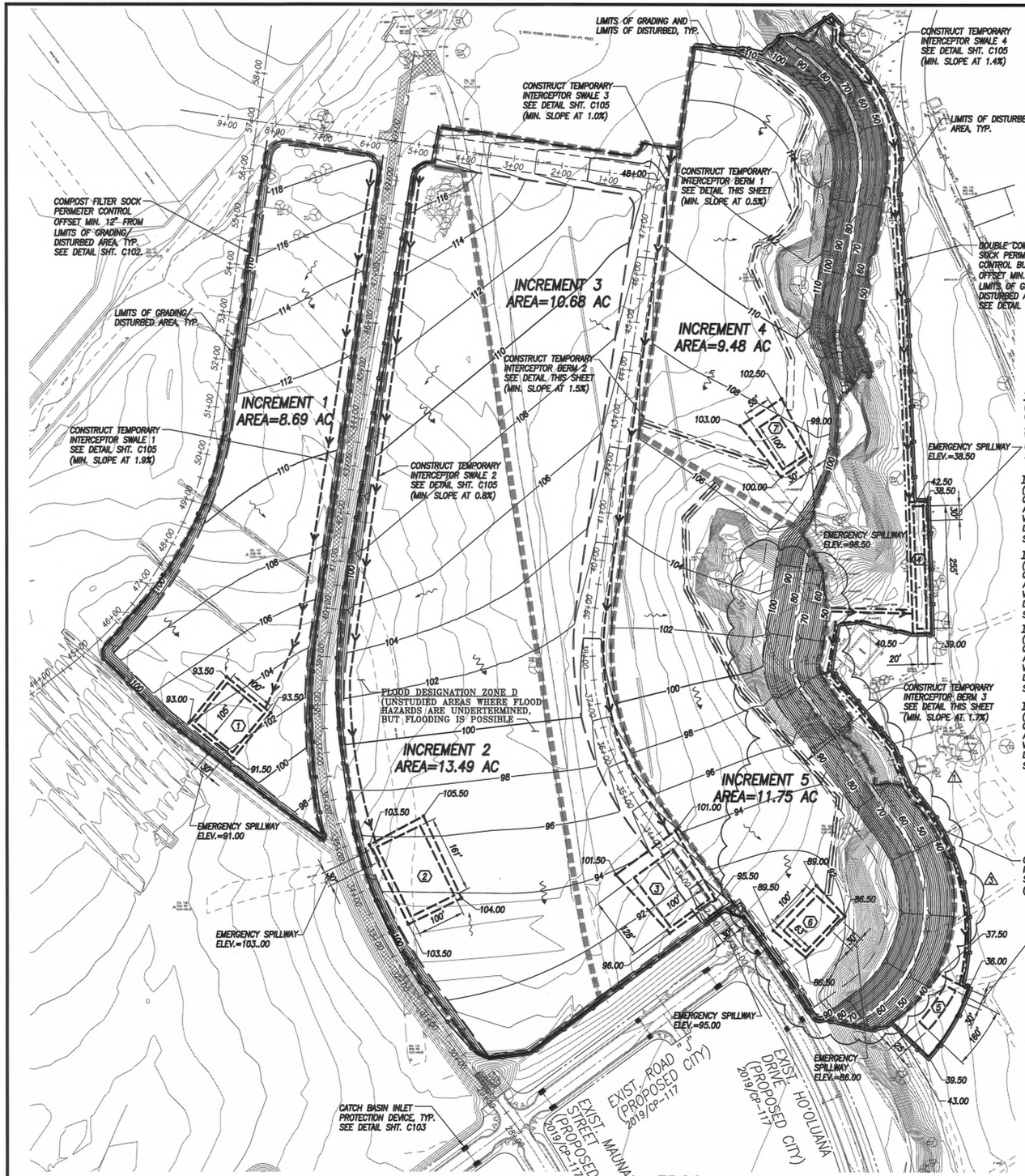


EROSION AND SEDIMENT CONTROL PLAN (CATEGORY 5)

SCALE: 1" = 120'

① *TEMPORARY SEDIMENT BASIN 1 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT*
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 88 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 8.69 AC
(INCREMENT 1)
REQUIRED VOLUME = 1,158 CY.
AVAILABLE VOLUME = 1,372 CY.

② *TEMPORARY SEDIMENT BASIN 2 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT*
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 100 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 13.49 AC
(INCREMENT 2)
REQUIRED VOLUME = 1,799 CY.
AVAILABLE VOLUME = 2,049 CY.

③ *TEMPORARY SEDIMENT BASIN 3 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT*
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 92 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 10.68 AC
(INCREMENT 3)
REQUIRED VOLUME = 1,424 CY.
AVAILABLE VOLUME = 1,650 CY.

④ *TEMPORARY SEDIMENT BASIN 4 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT*
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 38.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.96 AC
(PART OF INCREMENT 4)
REQUIRED VOLUME = 661 CY.
AVAILABLE VOLUME = 841 CY.

⑤ *TEMPORARY SEDIMENT BASIN 5 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT*
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 30.50 FT.
MIN. DEPTH = 5 FT.
CONTRIBUTING AREA = 6.40 AC
(PART OF INCREMENT 5)
REQUIRED VOLUME = 853 CY.
AVAILABLE VOLUME = 1424 CY.

⑥ *TEMPORARY SEDIMENT BASIN 6 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT*
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 83.00 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 5.35 AC
(PART OF INCREMENT 5)
REQUIRED VOLUME = 713 CY.
AVAILABLE VOLUME = 863 CY.

⑦ *TEMPORARY SEDIMENT BASIN 7 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT*
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 95.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.52 AC
(PART OF INCREMENT 4)
REQUIRED VOLUME = 603 CY.
AVAILABLE VOLUME = 766 CY.

TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
Q=4.9 CFS
A=4.20 AC.
V=2.93 FPS
D=0.75 FT
S=0.019 FT/FT

TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
Q=8.90 CFS
A=8.50 AC.
V=2.27 FPS
D=0.99 FT
S=0.008 FT/FT

TEMPORARY SWALE #3
(10-YR, 1-HR STORM)
Q=9.10 CFS
A=8.80 AC.
V=2.06 FPS
D=0.95 FT
S=0.01 FT/FT

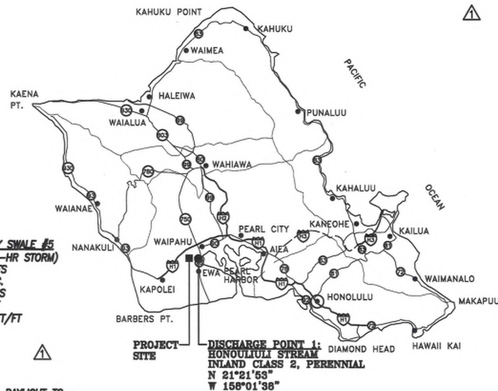
TEMPORARY SWALE #4
(10-YR, 1-HR STORM)
Q=5.31 CFS
A=5.37 AC.
V=2.49 FPS
D=0.73 FT
S=0.014 FT/FT

TEMPORARY SWALE #5
(10-YR, 1-HR STORM)
Q=7.00 CFS
A=6.40 AC.
V=2.88 FPS
D=0.78 FT
S=0.017 FT/FT

TEMPORARY BERM #1
(10-YR, 1-HR STORM)
Q=3.20 CFS
A=3.20 AC.
V=0.13 FPS
D=0.50 FT
S=0.005 FT/FT

TEMPORARY BERM #2
(10-YR, 1-HR STORM)
Q=0.70 CFS
A=0.6 AC.
V=0.13 FPS
D=0.23 FT
S=0.015 FT/FT

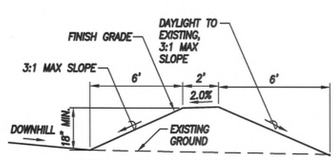
TEMPORARY BERM #3
(10-YR, 1-HR STORM)
Q=5.60 CFS
A=5.30 AC.
V=0.23 FPS
D=0.50 FT
S=0.017 FT/FT



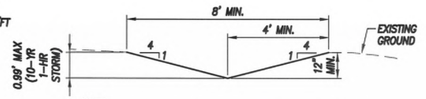
DISCHARGE POINT 1:
HONOULIULI STREAM
INLAND CLASS 2, PERENNIAL
N 21°21'53"
W 158°01'36"

DISCHARGE POINT 2:
PEARL HARBOR
EMBAYMENT, CLASS A
N 21°21'20"
W 158°01'10"

LOCATION MAP
NOT TO SCALE

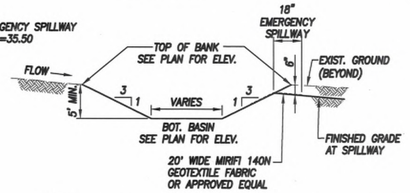


TEMPORARY INTERCEPTOR BERM
NOT TO SCALE



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE



NOTE:
IN LIEU OF PROVIDING OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE TEMPORARY RETENTION BASIN CONSTRUCTED UNDER HO'OPILI DEVELOPMENT PHASE 1 MASS GRADING AND STOCKPILING PLAN (2015/CP-90), AND EXPANDED UNDER HO'OPILI DEVELOPMENT PHASE 2 MASS GRADING PLAN (2016/CP-78). SEE SHT. C101 FOR BASIN LOCATION.

TEMPORARY SEDIMENT BASIN
NOT TO SCALE

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SWALES/BERMS

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
CATCH BASIN INLET PROTECTION DEVICE	11 EA.
SILTSOXX COMPOST FILTER SOCK	12,112 LF

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY

GRAPHIC SCALE:
1" = 120' 120' 60' 0 120' 240'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 13

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 172

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SIGNATURE 4/30/22 EXP. DATE
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REVISION	DATE	BY	APPROVED
1	12/16/21	CD	MN
2	06/04/21		

1 NEW SHEET. REVISED GRADING.
2 NEW SHEET. REVISED PORTION OF SLOPE, REVISED GRADING INCREMENT AREA, REVISED TEMPORARY SEDIMENT BASIN AND SWALE CALCS.

APPROVED BY
for Melvin Matsumura 5/11/22
Chief, Civil Engineering Branch, DPP DATE

ENGINEER	CD, MN
DRAFTSMAN	CD, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	DECEMBER 2020
DPP FILE NO.	2020/CP-259

EROSION AND SEDIMENT CONTROL PLAN

RMTC JOB NO.: 1-23452-0E

K:\civil\23452 Hoopili Phase 13A\Drawings\Construction Dwgs_Mass Grading\REV 3\HDP13 MG C104 – Erosion and Sediment Control Plan_rev 3.dwg December 15, 2021

FILE	POCKET	FOLDER	NO.

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- *Temporary Sediment Basin and Trap*
- *Construction Ingress/Egress*
- *Existing Catch Basin Inlet Protection*
- *Temporary Filter Sock Perimeter Control*
- *Temporary Diversion Berm/Swale*

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- *New Catch Basin Inlet Protection.*
- *Temporary Stabilization*

POST-CONSTRUCTION BMP'S:

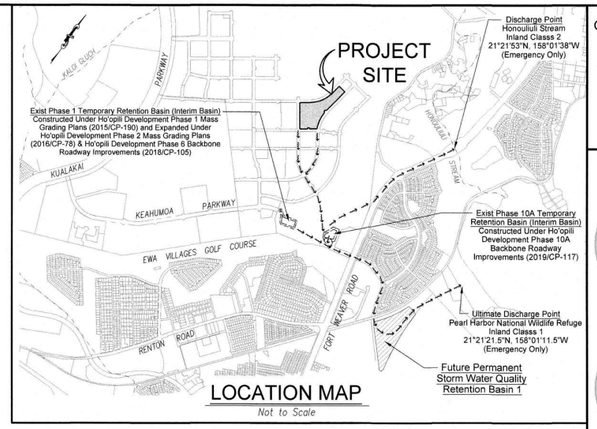
- *Permanent Stabilization BMP'S*
- *For Remaining Post-Construction BMP's, See Sheet C011*

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- *See Sheet C010*

Note:

Temporary Construction Road Ingress/Egress may be Removed once Construction of Proposed Roadways and Sidewalks are Complete. Contractor Shall Utilize Tracking Controls for Erosion Prevention and Sediment Control as Noted on Sheet C010.



LOCATION MAP
Not to Scale

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Honolulu, Hawaii 96813
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Exp: 4/30/24
MICHAEL H. NOJIMA
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WINSTON M. TANIGUCHI
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DESCRIPTION	DATE	BY	APPROVED

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-32

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 97

(DPP SUBDIVISION FILE NO 2021/SUB-180)
(DPP CONSTRUCTION PLANS FILE NO 2022/CP-19)
TMK: 9-1-17: POR OF 206
HONOULIULI, EWA, OAHU, HAWAII

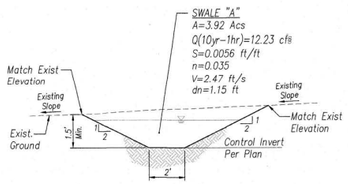
EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE: 9/13/22

C009
SHEET 9 OF 65 SHEETS
FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 13 PARCEL 97
CAD DWG NO.: 3100-32_ESCP.dwg
DATE: SEPTEMBER 2022

Drawing name: P:\3100-32 Hoopili Ph 13 - Parcel 97\3100-32 DWG\Construction Plans\3100-32_ESCP dwg Sep 06, 2022 - 3:40pm



SECTION "A-A" (TEMPORARY SWALE)

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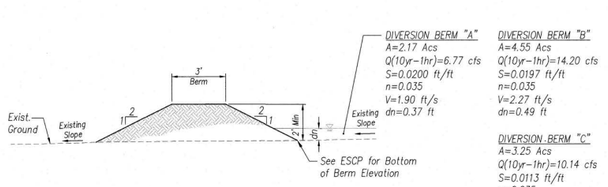

SECTION "B-B" (DIVERSION BERM)

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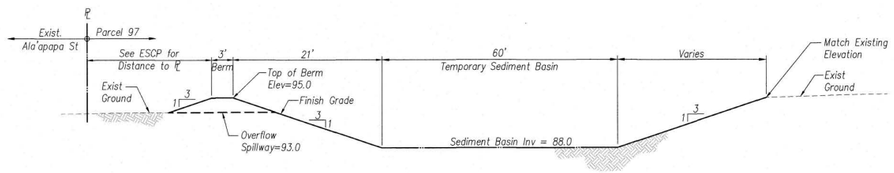

SECTION "C-C" (SEDIMENT BASIN)

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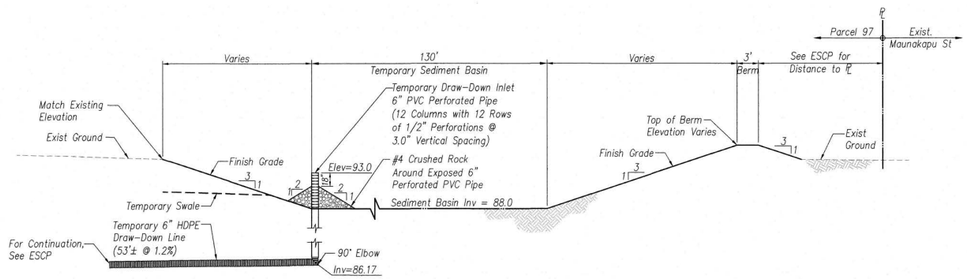

SECTION "D-D" (SEDIMENT BASIN)

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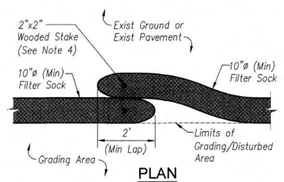
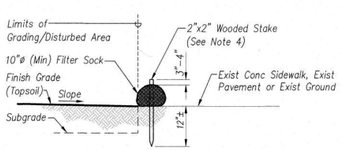


PLAN

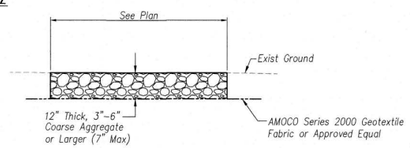


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

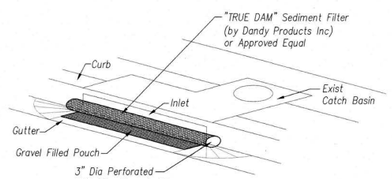
FILTER SOCK PLACEMENT DETAIL

Not to Scale



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

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. Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.
3. ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work. The project schedule shall be in compliance with the requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. 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.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
12. Sediment Basins:
    A. 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.
13. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
14. All best management practices (BMP's) shall not be removed until the entire project is complete.
15. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
16. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors. A brief explanation of why each BMP is unnecessary or impracticable has been provided under separate documentation to DPP.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Diversion BMP's to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    E. Sediment Barriers are not applicable
    F. Sediment Traps are not applicable

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and stabilize immediately.
3. Construct temporary diversion berms and swale as needed to direct runoff into the sediment basin.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade the site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
6. Remove temporary sediment basin after lot mass grading is completed, and only lot fine grading for top soil remains.
7. Install perimeter control BMP's around proposed roadways once roadway construction is completed.
8. Remove temporary construction ingress/egress once roadway construction is completed, and perimeter control BMP's around proposed roadways are installed.
9. Fine grade lots up to top soil as planned.
10. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
11. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
12. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
13. Plant permanent ground cover according to the landscaping plans as soon as possible.
14. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
15. Practice good housekeeping measures throughout the duration of construction.
16. 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, and trenching.
3. Inspect sediment basin, temporary berms, temporary swale, 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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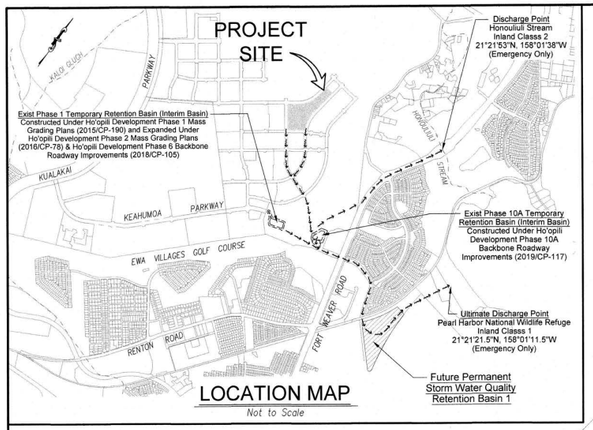

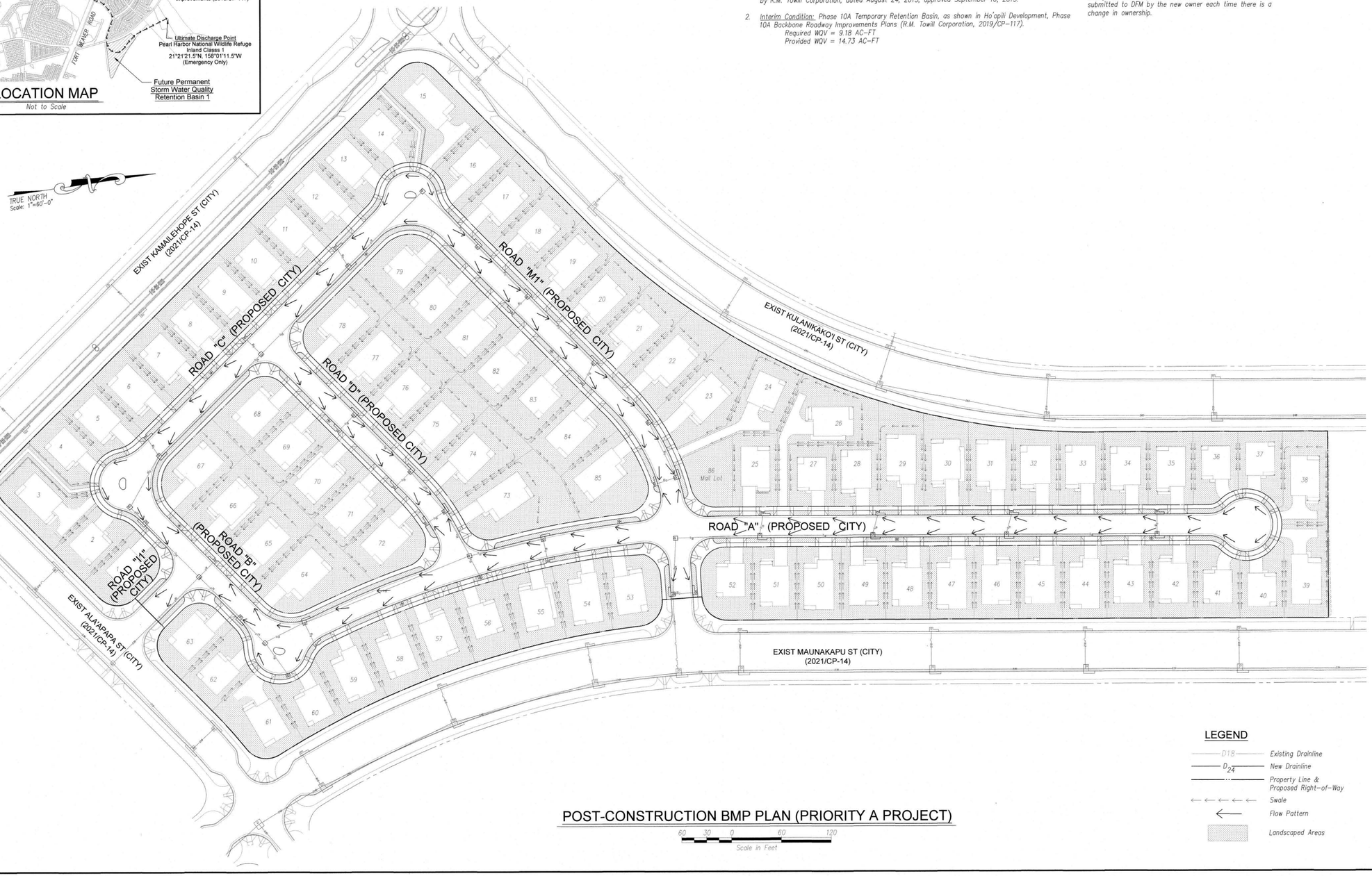

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE AS FOLLOWS:

LID SITE DESIGN STRATEGIES:

1. *Minimize Impervious Surfaces*
2. *Minimize Soil Compaction*
3. *Direct Roof Runoff to Landscaped Areas*

SOURCE CONTROL BMPs:

1. *Landscaped Areas Used to Protect Slopes*
2. *Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C025*
3. *Trash Containers shall be covered with roofs, awnings, or attached lids.*

TREATMENT CONTROL BMPs:

1. *Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.*
2. *Interim Condition: Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP-117).*
   Required WQV = 9.18 AC-FT
   Provided WQV = 14.73 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. *Automatic Irrigation – Will not be installed for this project.*
2. *Vehicle and Equipment Fueling Areas – Not applicable for this project.*
3. *Vehicle and Equipment Repair – Will not be allowed for this project.*
4. *Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.*
5. *Loading Docks – Not applicable for this project.*
6. *Outdoor Material Storage – Will not be allowed for this project.*
7. *Outdoor Work Areas – Not applicable for this project.*
8. *Outdoor Process Equipment Operations – Not applicable for this project.*

NOTE:

Each individual lot owner shall be responsible to maintain all source control BMPs affecting their property as noted on this plan. Individual lot owners shall notify DFM when there is a change in ownership. A new Owner's Certification must be submitted to DFM by the new owner each time there is a change in ownership.

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REVISION	DATE	DESCRIPTION	BY	APPROVED

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DRAWN BY: JG | PROJECT #: 3100-32

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POST-CONSTRUCTION BMP PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE 9/16/22

C011

SHEET 11 OF 65 SHEETS

FILE | POCKET | FOLDER | NO.

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CAD DWG NO.: 3100-32_BMP.dwg
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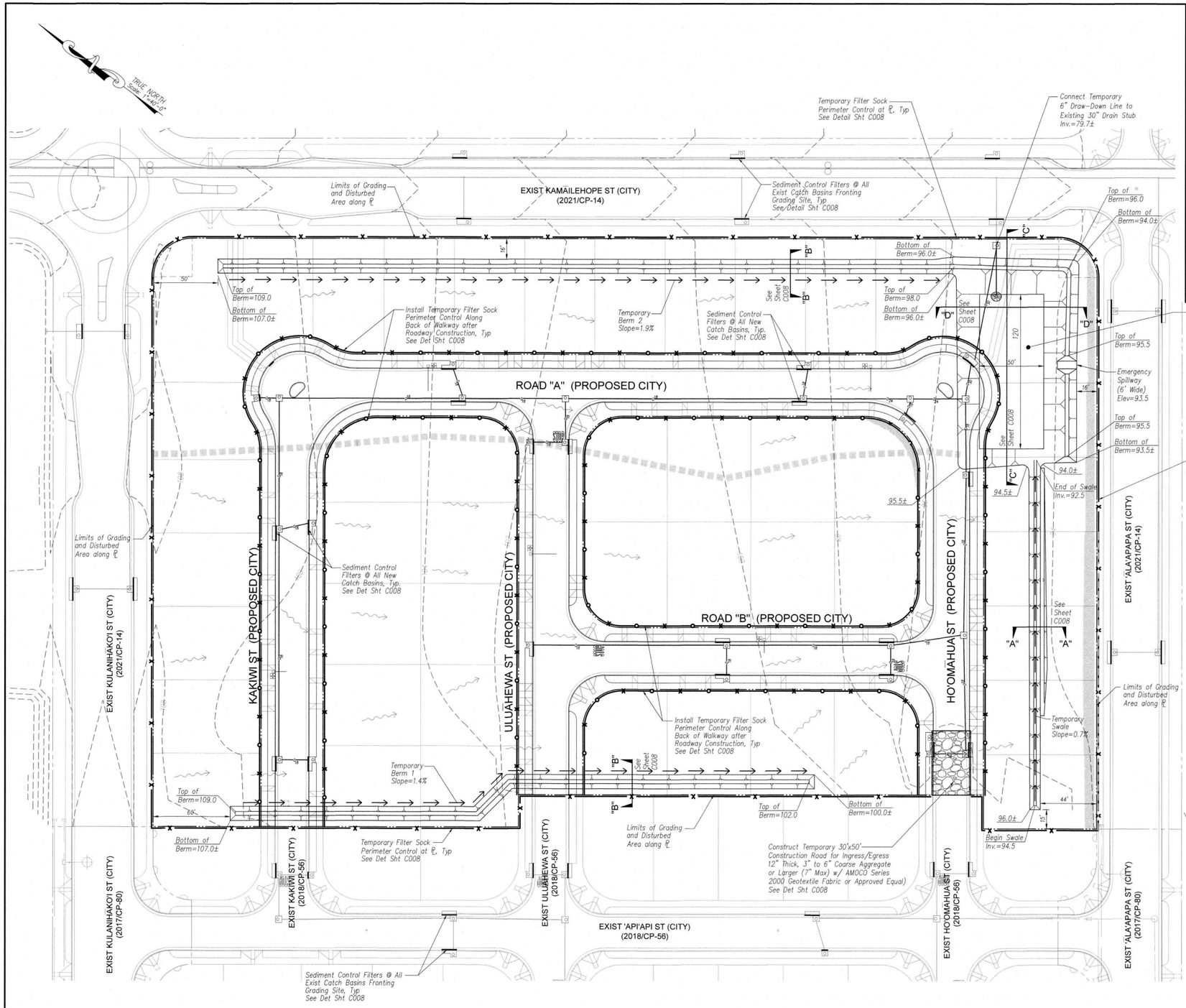
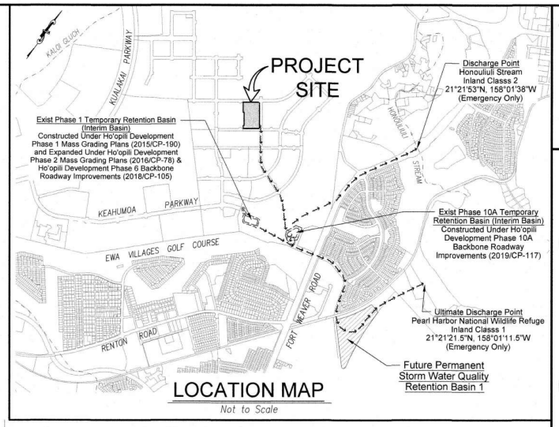


EROSION & SEDIMENT CONTROL PLAN (CATEGORY 5)

40 20 0 40 80
Scale in Feet



LOCATION MAP

Not to Scale

Temporary Sediment Basin (Erosion Control)
Effective Area=7.48 Acs
Required Volume = 26,928 Cu Ft
(3,600 cu ft/Acre)
Provided Volume = 28,019 Cu Ft
Top of Berm at Emergency Spillway Elev = 95.5
Emergency Spillway Elev = 93.5
Basin Inv at Existing Elev = 90.0
Drawdown Time = 39.62 Hrs

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm/Swale

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Catch Basin Inlet Protection.
- Temporary Stabilization

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP'S

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C008

Notes:

1. Temporary Construction Road Ingress/Egress may be Removed once Construction of Proposed Roadways and Sidewalks are Complete. Contractor Shall Utilize Tracking Controls for Erosion Prevention and Sediment Control as Noted on Sheet C008.
2. Temporary Sediment Basin may be Removed and restored back to existing grades once Construction of the Proposed Roadways and Lots are Mass Graded and only Top Soil will Remain.

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Permanent Slope Protection Areas (See Grading Plan)
- Temporary Diversion Swale
- Temporary Diversion Berm
- Diversion Berm/Swale Tributary Area
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Temporary Filter Sock (Along Back of Walkway)
- Temporary Filter Sock
- Property Line & Proposed Right-of-Way
- 100 Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm/Swale

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NO.	DESCRIPTION	DATE	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-33

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 98

(DPP SUBDIVISION FILE NO 2021/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-101)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE: 12/2/21

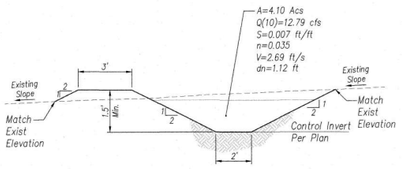
C007

SHEET 7 OF 48 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 13 PARCEL 98
CAD DWG NO.: 3100-33_ESCP.dwg
DATE: OCTOBER 2021

Drawing name: P:\3100-33 Hoopili Ph13 - Parcel 98\3100-33 DWG\BCore\Active Plans\3100-33_ESCP.dwg Oct 26, 2021 - 10:02am



SECTION "A-A" (TEMPORARY SWALE)

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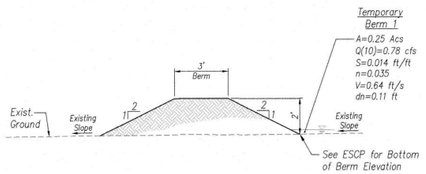

SECTION "B-B" (DIVERSION BERM)

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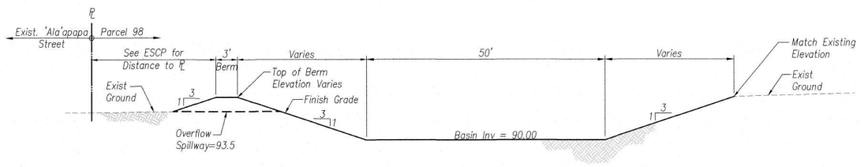

SECTION "D-D" (SEDIMENT BASIN)

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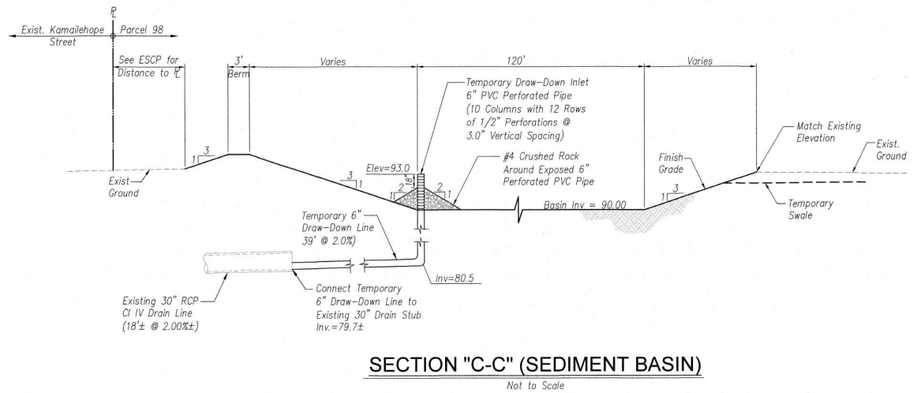

SECTION "C-C" (SEDIMENT BASIN)

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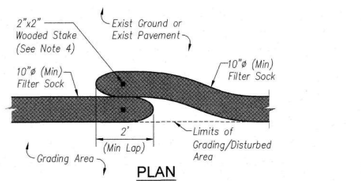
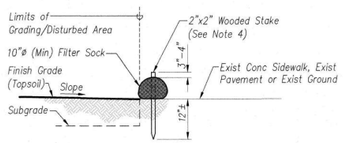


PLAN

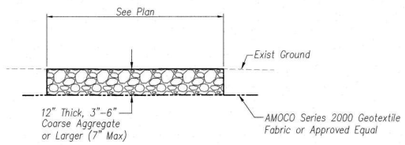


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

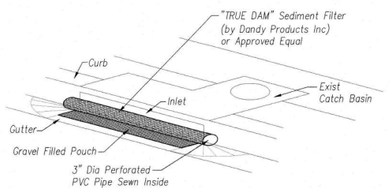
FILTER SOCK PLACEMENT DETAIL

Not to Scale



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

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. Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.
3. ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work. The project schedule shall be in compliance with the requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%
6. 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.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
13. Sediment Basins:
    A. 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.
14. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
15. All best management practices (BMP's) shall not be removed until the entire project is complete.
16. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
17. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors. A brief explanation of why each BMP is unnecessary or impracticable has been provided under separate documentation to DPP.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment traps are not applicable.
    E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers are not applicable

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and stabilize immediately.
3. Construct temporary diversion berms and swale as needed to direct runoff into the sediment basin.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade the site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
6. Remove temporary sediment basin after lot mass grading is completed, and only lot fine grading for top soil remains.
7. Install perimeter control BMP's around proposed roadways once roadway construction is completed.
8. Remove temporary construction ingress/egress once roadway construction is completed, and perimeter control BMP's around proposed roadways are installed.
9. Fine grade lots up to top soil as planned. Limit fine grading to less than 1 acre at any one time.
10. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
11. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
12. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
13. Plant permanent ground cover according to the landscaping plans as soon as possible.
14. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
15. Practice good housekeeping measures throughout the duration of construction.
16. 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, and trenching.
3. Inspect sediment basin, temporary berms and swale, 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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NO.	DESCRIPTION	BY	APPROVED

NO.	REVISION	DATE

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-33

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 98

(DPP SUBDIVISION FILE NO 2021/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-101)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

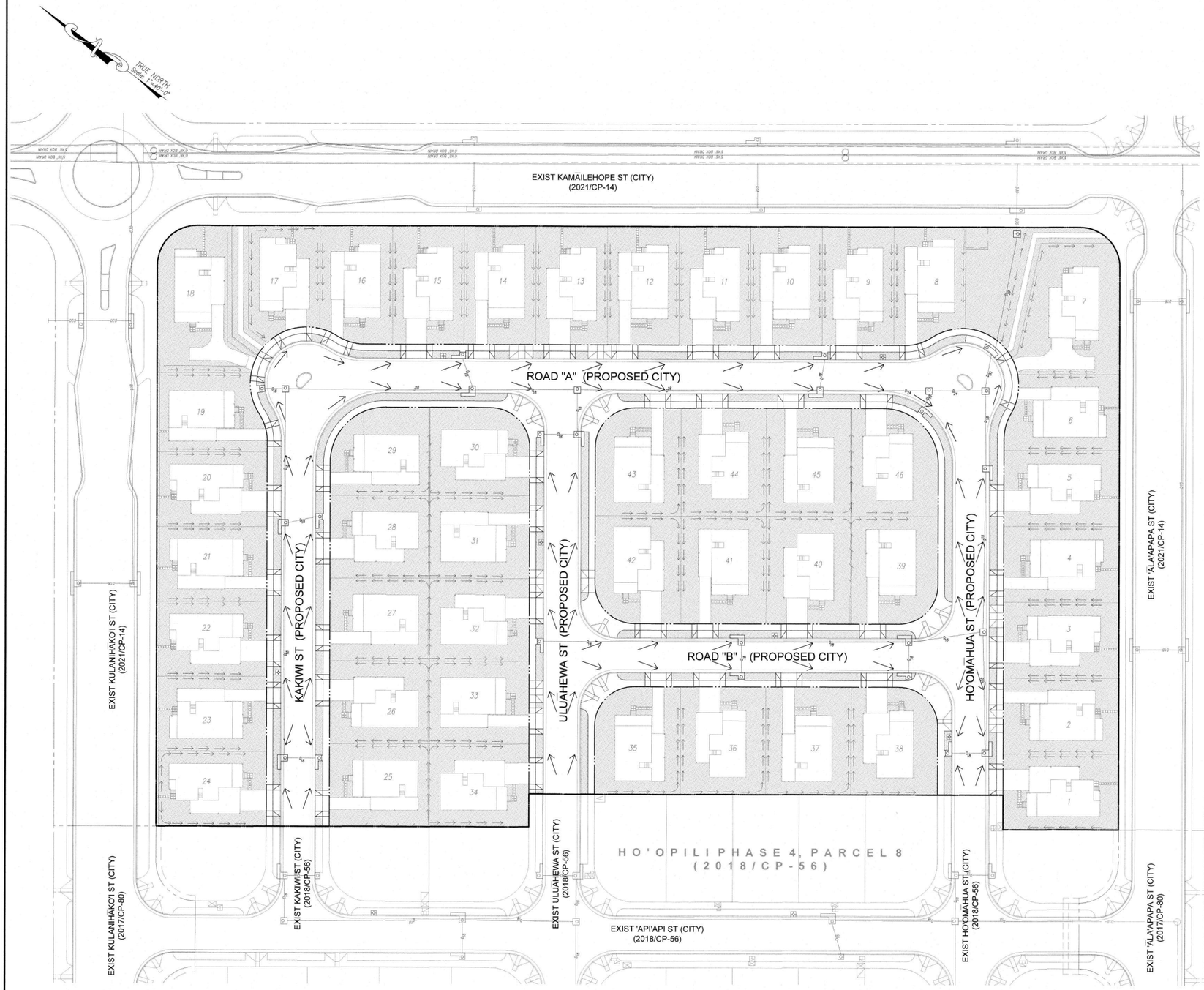
C008

SHEET 8 OF 48 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 13 PARCEL 98
CAD DWG NO.: 3100-33_ESCP.dwg
DATE: OCTOBER 2021

Drawing name: P:\3100-33 Hoopili Ph 13 - Parcel 98\3100-33 DWGS\Construction Plans\3100-33_ESCP.dwg Oct 26, 2021 - 10:02am



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

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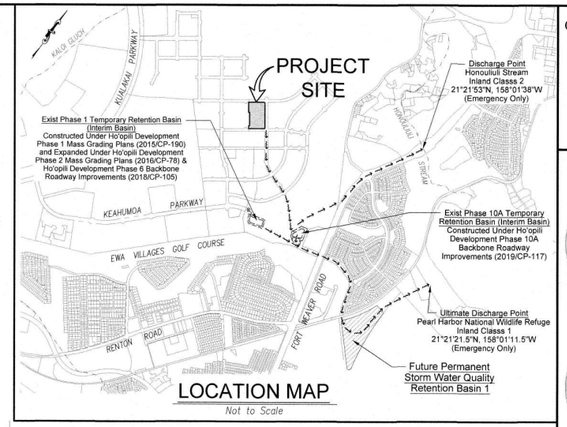
Scale in Feet



LOCATION MAP

Not to Scale

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE AS FOLLOWS:

LID SITE DESIGN STRATEGIES:

1. *Minimize Impervious Surfaces*
2. *Minimize Soil Compaction*
3. *Direct Roof Runoff to Landscaped Areas*

SOURCE CONTROL BMPs:

1. *Landscaped Areas Used to Protect Slopes*
2. *Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C018*
3. *Trash Containers shall be covered with roofs, awnings, or attached lids.*

TREATMENT CONTROL BMPs:

1. *Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.*
2. *Interim Condition:*
   - A. *Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP-117).*
     Required WQV = 9.18 AC-FT
     Provided WQV = 14.73 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. *Automatic Irrigation – Will not be installed for this project.*
2. *Vehicle and Equipment Fueling Areas – Not applicable for this project.*
3. *Vehicle and Equipment Repair – Will not be allowed for this project.*
4. *Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.*
5. *Loading Docks – Not applicable for this project.*
6. *Outdoor Material Storage – Will not be allowed for this project.*
7. *Outdoor Work Areas – Not applicable for this project.*
8. *Outdoor Process Equipment Operations – Not applicable for this project.*

NOTE:

Each individual lot owner shall be responsible to maintain all source control BMPs affecting their property as noted on this plan. Individual lot owners shall notify DFM when there is a change in ownership. A new Owner's Certification must be submitted to DFM by the new owner each time there is a change in ownership.

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line & Proposed Right-of-Way
- Swale
- Flow Pattern
- Landscaped Areas

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NO.	DESCRIPTION	DATE	APPROVED
1	REVISION		

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-33

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 98

(DPP SUBDIVISION FILE NO 2021/SUB-67)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-101)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. MT
DATE

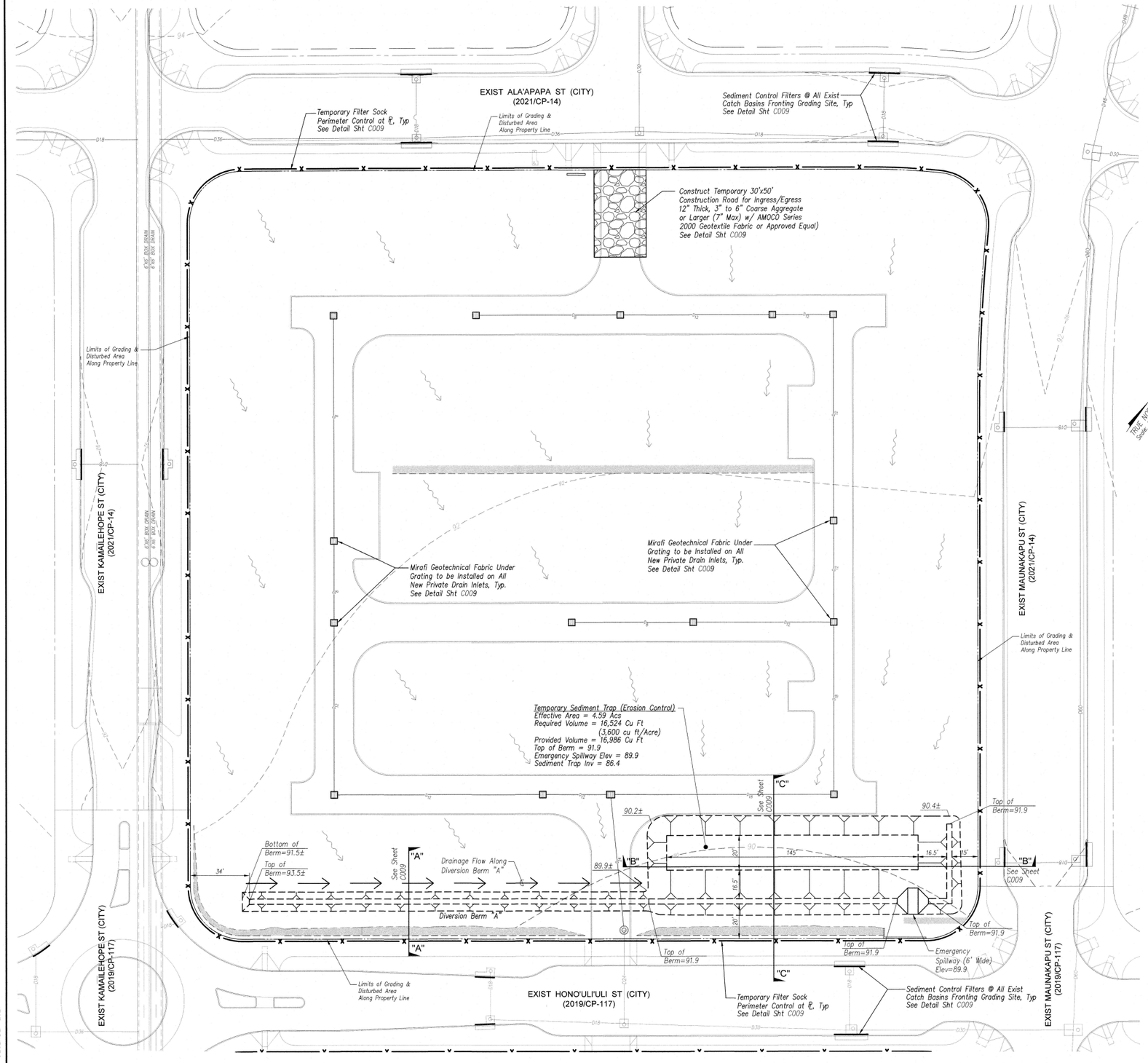
C009

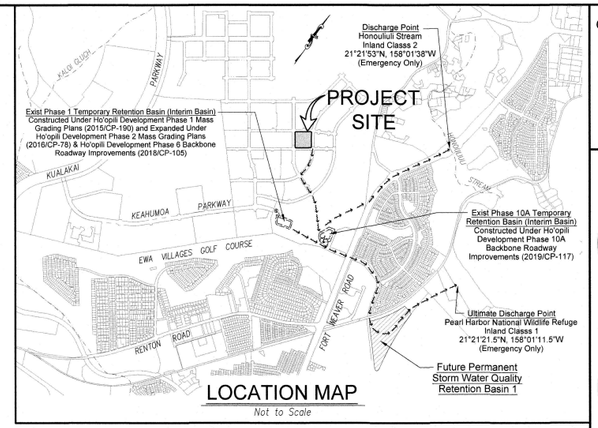
SHEET 9 OF 48 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 13 PARCEL 98
CAD DWG NO.: 3100-33_BMP.dwg
DATE: OCTOBER 2021

Drawing name: P:\3100-33 Hoopili Ph 13 - Parcel 98\3100-33 DWGS\Construction Plans\3100-33_BMP.dwg Oct 26, 2021 - 9:05am





LOCATION MAP
Not to Scale

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Trap
- Construction Ingress/Egress
- Existing Drain Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP'S
- For Remaining Post-Construction BMP's See Sheet C010

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C009

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Temporary Filter Sock
- Property Line
- Limits of Grading & Disturbed Area
- 100 Existing Contour
- 0/18 Existing Drainline
- 0/18 New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm

EROSION & SEDIMENT CONTROL PLAN
30 15 0 30 60
Scale in Feet

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REVISION	DATE	DESCRIPTION	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-34

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 13 PARCEL 100

(DPP CONSTRUCTION PLANS FILE NO 2021/CP-148)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
for CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE 7/2/22

C008

SHEET 8 OF 40 SHEETS

FILE | POCKET | FOLDER | NO.

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CAD DWG NO.: 3100-34_ESCP.dwg
DATE: DECEMBER 2021

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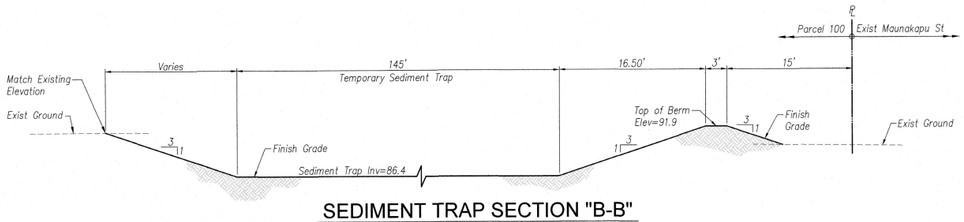
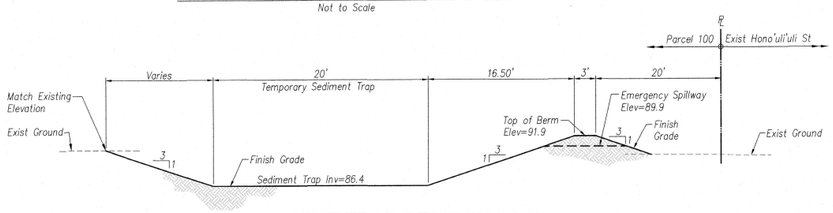


SEDIMENT TRAP SECTION "B-B"

Not to Scale



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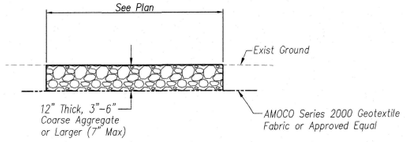
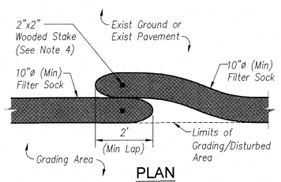
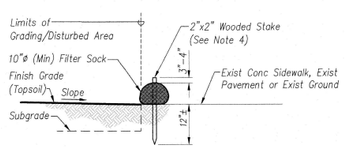


CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale



PLAN

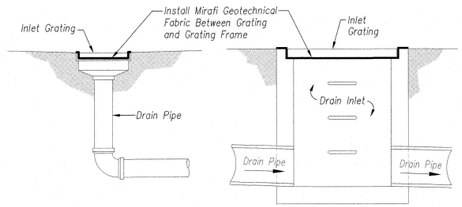


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

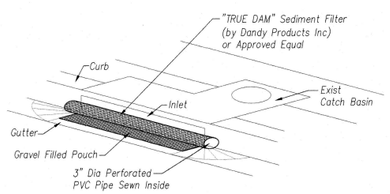
FILTER SOCK PLACEMENT DETAIL

Not to Scale



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

Not to Scale

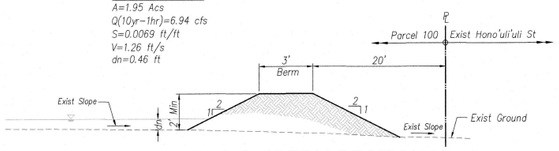


NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

DIVERSION BERM "A"
A=1.95 Acs
Q(10yr-1hr)=6.94 cfs
S=0.0069 ft/ft
V=1.26 ft/s
dn=0.46 ft



TEMPORARY DIVERSION BERM SECTION "A-A"

Not to Scale

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. *The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.*
3. *The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".*
4. *Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.*
5. *Slope Protection: 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 anytime on slopes greater than 15%.*
6. *Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.*
7. *Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.*
8. *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.*
9. *Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.*
10. *Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.*
11. *Inlet protection:*
    - *A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.*
    - *B. 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.*
    - *C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.*
    - *D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.*
13. *Sediment Traps:*
    - *A. Sediment traps must be kept in effective operating condition and sediment shall be removed when the sediment accumulation reaches one third of the trap capacity.*
14. *Tracking Control:*
    - *A. 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.*
    - *B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.*
    - *C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.*
    - *D. Washing pollutants and materials that are discharged from the project site to the MS4 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.*
15. *All best management practices (BMP's) shall not be removed until the entire project is complete.*
16. *Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.*
17. *The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.*
    - *A. Dewatering practices are not applicable.*
    - *B. Velocity dissipation devices are not applicable.*
    - *C. Buffer zones are not applicable.*
    - *D. Sediment basins are not applicable.*
    - *E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.*
    - *F. Sediment Barriers*

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. *Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.*
2. *Construct temporary sediment trap and stabilize immediately.*
3. *Construct temporary diversion berms as needed to direct runoff into the sediment trap.*
4. *Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.*
5. *Install remaining parts of permanent drainage system with temporary inlet protection.*
6. *Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed in each phase.*
7. *Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.*
8. *Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.*
9. *Proceed with construction with least possible disturbance of vegetative areas and temporary structures.*
10. *Plant permanent ground cover according to the landscaping plans as soon as possible.*
11. *Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.*
12. *Practice good housekeeping measures throughout the duration of construction.*
13. *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.*
3. *Inspect sediment trap, temporary berms, 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 BMP's as needed.*

GOOD HOUSEKEEPING BMP'S:

1. *Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.*
2. *Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.*
3. *Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.*
4. *Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.*
5. *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 cleanup all leaks and spills immediately.*
6. *Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.*
7. *Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.*
8. *Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.*
9. *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.*
10. *Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.*
11. *Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.*
12. *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.*
13. *Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.*
14. *Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.*
15. *Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.*
16. *Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.*

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. *Storm water discharge associated with construction activities that disturb one (1) acre or more, and*
2. *Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters*

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

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Telephone: (808) 521-0306
Fax: (808) 531-8018
CONSULTING ENGINEERS

Exp: 4/30/22
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NO.	DESCRIPTION	DATE	BY	APPROVED
	REVISION			

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-34

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 13 PARCEL 100

(DPP CONSTRUCTION PLANS FILE NO 2021/CP-148)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
For Melvin Takahara 2/2/22
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

C009

SHEET 9 OF 40 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 13 PARCEL 100
CAD DWG NO.: 3100-34_ESCP.dwg
DATE: DECEMBER 2021

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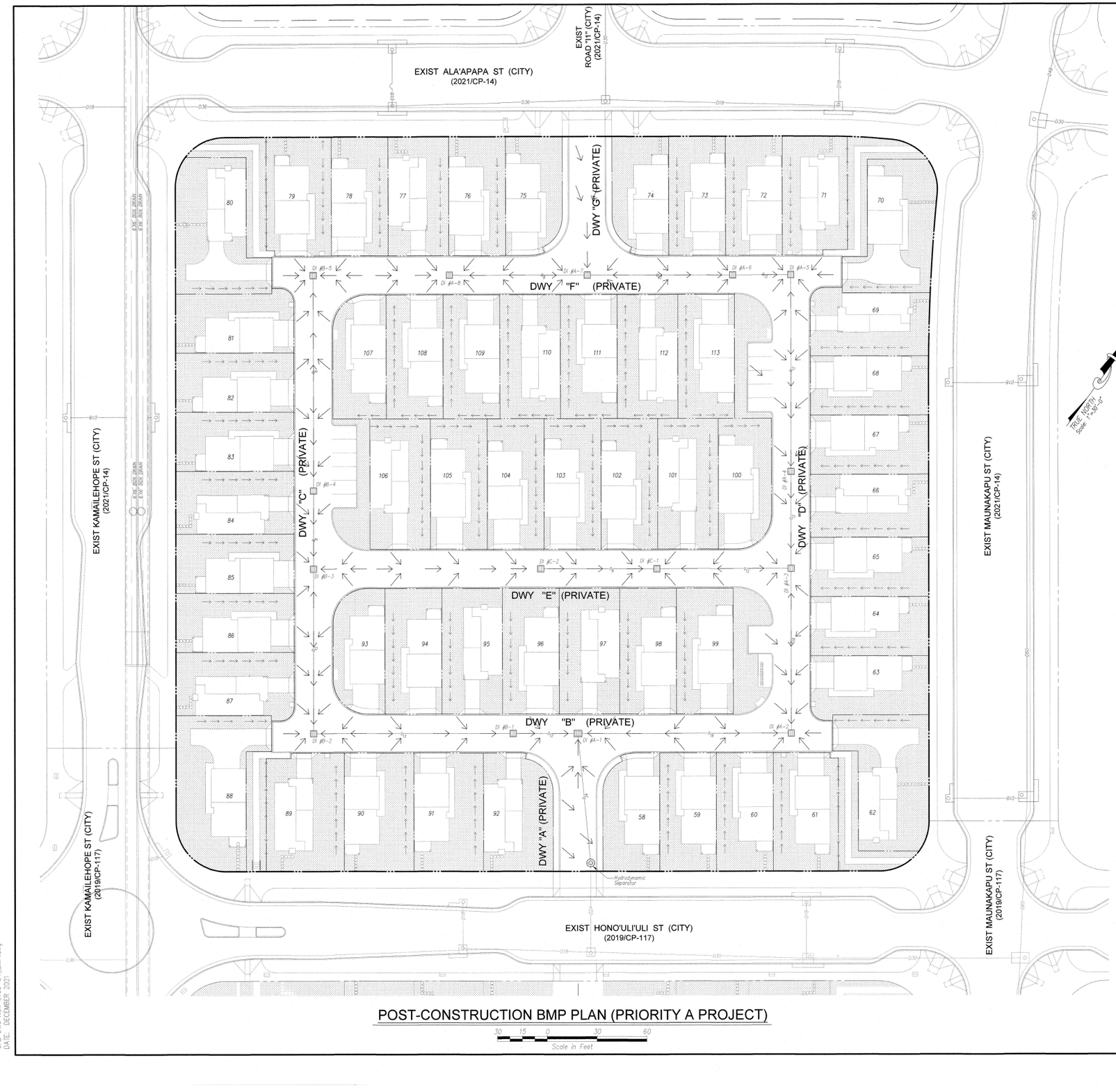

POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

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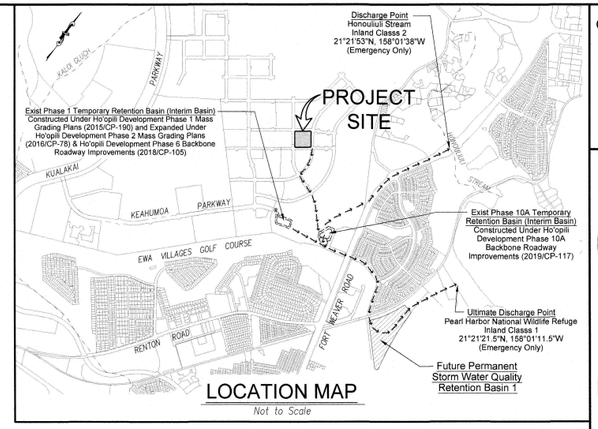
Scale in Feet



LOCATION MAP
Not to Scale

TRUE NORTH
Scale 1"=40'-0"

PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscape Areas
2	Automatic Irrigation System
3	Stenciled Storm Drain Inlets (DUMP NO WASTE – GOES TO OCEAN) and Storm Drain Marker
4	Prohibition of Residential Vehicle and Equipment Washing and Cleaning
5	Trash Containers shall be covered with roofs, awnings, or attached lids.
6	Parking Areas
TREATMENT CONTROL BMP	
7	Ho'opili Permanent SWQ Retention Basin 1 (storm water quality and flood control detention)

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:

SITE DESIGN STRATEGIES:

1. Minimize Soil Compaction
2. Minimize Impervious Surfaces
3. Direct Roof Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection)

SOURCE CONTROL BMPS:

1. Landscaped Areas – Protect slopes with landscaping
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water
3. Storm Drain Inlets (See Sht C018 for Drain Inlet Stenciling and Storm Drain Marker)
4. Prohibition of Residential Vehicle and Equipment Washing and Cleaning
5. Trash Containers shall be covered with roofs, awnings, or attached lids.
6. Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basin constructed in "Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans" (R.M. Towill Corporation, 2019/CP-117), which serves as a post-construction treatment control BMP.

TREATMENT CONTROL BMPs:

1. Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015. For location, see map above.
   Required WQV = 41.40 AC–FT
   Provided WQV = 283.06 AC–FT
2. Interim Condition:
   A. Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP–117). For location, see map above.
      Required WQV = 9.18 AC–FT
      Provided WQV = 14.73 AC–FT

LEGEND

- D18 — Existing Drainline
- D24 — New Drainline
- Property Line
- Swale
- Flow Pattern
- Drain Inlet w/ Stenciling (For Det See Sht C018)
- Landscaped Areas

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BY	DESCRIPTION	DATE
	APPROVED	

ENGINEER: WT	CHECKED BY: MN
DRAWN BY: JG	PROJECT #: 3100-34

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 13
PARCEL 100

(DPP CONSTRUCTION PLANS FILE NO 2021/CP-148)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
For Melvin Johnson 12/2/22
CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

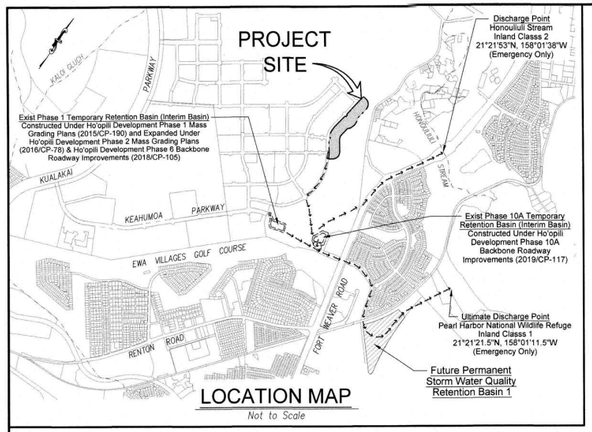
C010

SHEET 10 OF 40 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 13 PARCEL 100
CAD DWG NO.: 3100-34_BMP.dwg
DATE: DECEMBER 2021

Drawing name: P:\3100-34 Hoopili Ph13 - Parcel 100\3100-34 DWGS\Construction Plans\3100-34_BMP.dwg Dec 09, 2021 - 11:07am



PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- *Temporary Sediment Basin*
- *Construction Ingress/Egress*
- *Existing Catch Basin Inlet Protection*
- *Temporary Filter Sock Perimeter Control*
- *Temporary Diversion Berm*

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

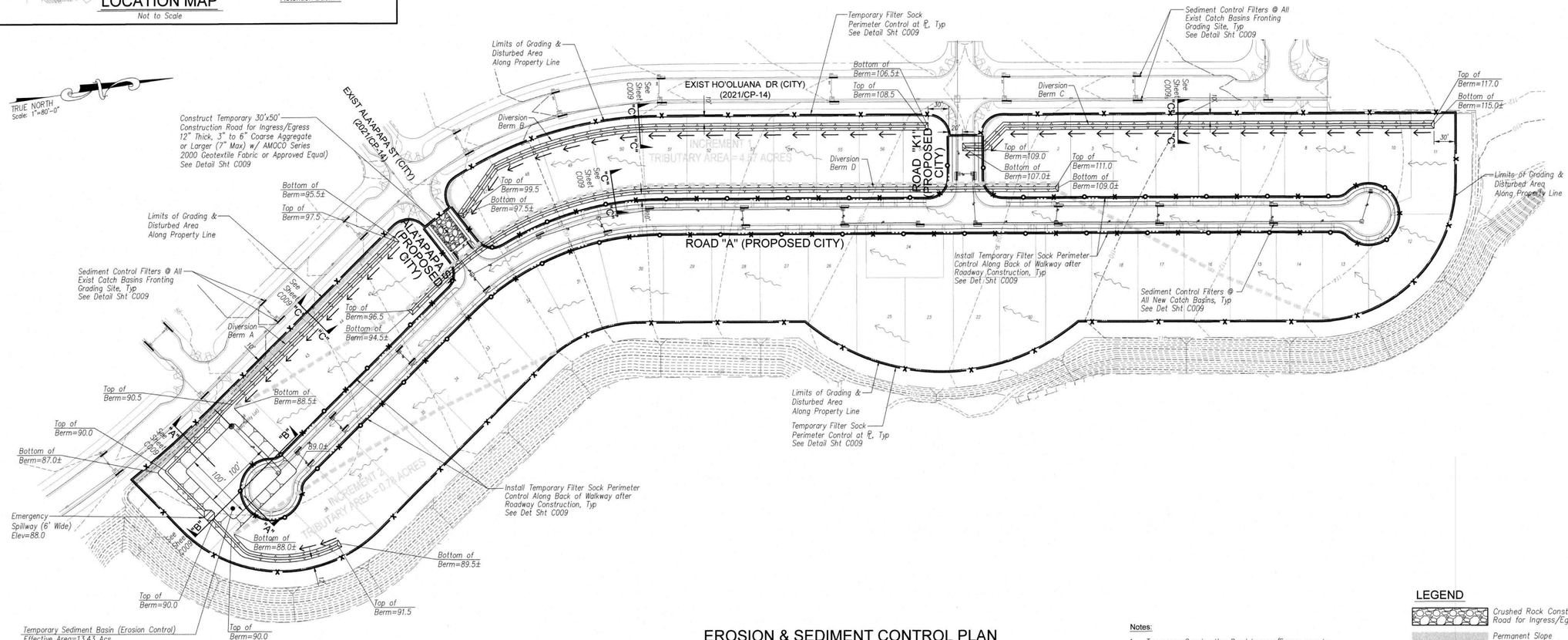
- *New Catch Basin Inlet Protection*
- *Temporary Stabilization*

POST-CONSTRUCTION BMP'S:

- *Permanent Stabilization BMP'S*
- *For Remaining Post-Construction BMP's, See Sheet C010*

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- *See Sheet C009*



EROSION & SEDIMENT CONTROL PLAN (CATEGORY 5)

80 40 0 80 160
Scale in Feet

Notes:

1. *Temporary Construction Road Ingress/Egress may be Removed once Construction of Proposed Roadways and Sidewalks are Complete. Contractor Shall Utilize Tracking Controls for Erosion Prevention and Sediment Control as Noted on Sheet C009.*

LEGEND

- *Crushed Rock Construction Road for Ingress/Egress*
- *Permanent Slope Protection Areas (See Grading Plan)*
- *Temporary Diversion Berm*
- *Temporary Sediment Control Filter at Exist/New Catch Basin*
- *Temporary Filter Sock (Along Back of Walkway)*
- *Temporary Filter Sock*
- *Property Line & Proposed Right-of-Way*
- *Existing Contour*
- *Existing Drainline*
- *New Drainline*
- *Existing Drainage Flow*
- *Drainage Flow Along Diversion Berm/Swale*

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NO.	DESCRIPTION	DATE	APPROVED

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT # 3100-36

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13
PARCEL 102
(DPP SUBDIVISION FILE NO 2021/SUB-174)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-254)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
8/10/22
DIR., CIVIL ENGINEERING BRANCH, D.P.P. MT
DATE

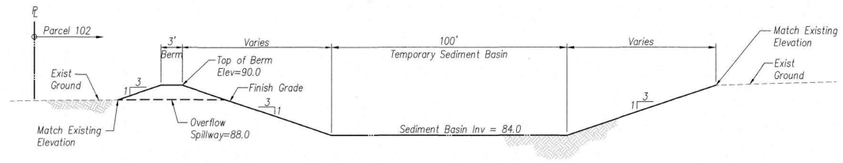
C008

SHEET 8 OF 55 SHEETS

FILE	POCKET	FOLDER	NO.

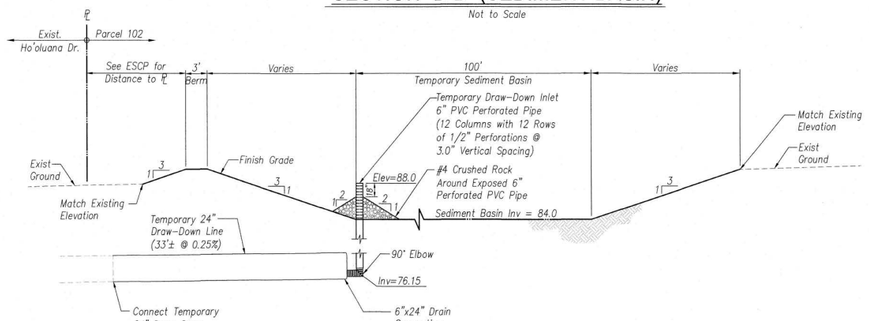
PROJECT NAME: HO'OPILI PHASE 13 PARCEL 102
CAD DWG NO.: 3100-36_ESCP.dwg
DATE: AUGUST 2022

Drawing name: P:\3100-36 Hoopili Ph 13 - Parcel 102\3100-36 DWG\Construction Plans\3100-36_ESCP.dwg Aug 01, 2022 - 1:37pm



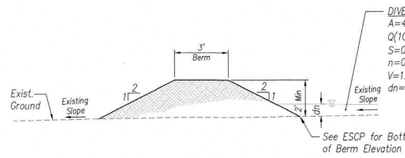
SECTION "B-B" (SEDIMENT BASIN)

Not to Scale



SECTION "A-A" (SEDIMENT BASIN)

Not to Scale



SECTION "C-C" (DIVERSION BERM)

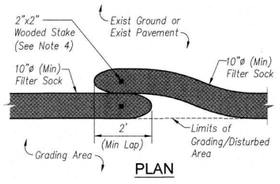
Not to Scale

DIVERSION BERM "A"
A=4.57 Acs
Q(10yr-1hr)=14.26 cfs
S=0.0100 ft/ft
n=0.035
V=1.75 ft/s
dn=0.56 ft

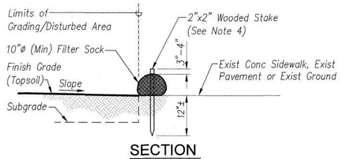
DIVERSION BERM "B"
A=3.93 Acs
Q(10yr-1hr)=12.26 cfs
S=0.0100 ft/ft
n=0.035
V=1.68 ft/s
dn=0.53 ft

DIVERSION BERM "C"
A=2.67 Acs
Q(10yr-1hr)=8.33 cfs
S=0.0100 ft/ft
n=0.035
V=1.51 ft/s
dn=0.46 ft

DIVERSION BERM "D"
A=4.16 Acs
Q(10yr-1hr)=12.98 cfs
S=0.0070 ft/ft
n=0.035
V=1.71 ft/s
dn=0.54 ft



PLAN

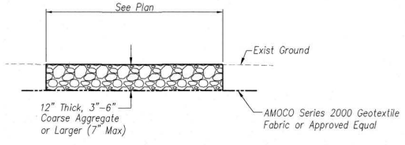


SECTION

NOTES:
1. *When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.*
2. *Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.*
3. *Compost shall not contain biosolids and should be consistent with EPA guidelines.*
4. *No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.*

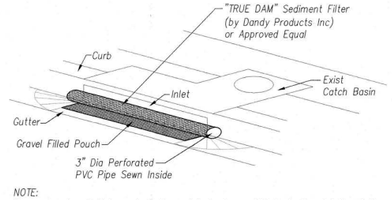
FILTER SOCK PLACEMENT DETAIL

Not to Scale



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

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. *Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.*
3. *ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work. The project schedule shall be in compliance with the requirements of the City and County of Honolulu's "Rules Relating to Water Quality".*
4. *Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.*
5. *Slope Protection: 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 anytime on slopes greater than 15%*
6. *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.*
7. *Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.*
8. *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.*
9. *Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.*
10. *Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.*
11. *Inlet protection:*
    - *A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.*
    - *B. 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.*
    - *C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.*
    - *D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.*
12. *Sediment Basins:*
    - *A. 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.*
13. *Tracking Control:*
    - *A. 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.*
    - *B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.*
    - *C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.*
    - *D. Washing pollutants and materials that are discharged from the project site to the MS4 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.*
14. *All best management practices (BMP's) shall not be removed until the entire project is complete.*
15. *Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.*
16. *The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors. A brief explanation of why each BMP is unnecessary or impracticable has been provided under separate documentation to DPP.*
    - *A. Dewatering practices are not applicable.*
    - *B. Velocity dissipation devices are not applicable.*
    - *C. Buffer zones are not applicable.*
    - *D. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.*
    - *E. Sediment Barriers are not applicable*
    - *F. Sediment Traps*

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. *Storm water discharge associated with construction activities that disturb one (1) acre or more, and*
2. *Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters*

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. *Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.*
2. *Construct temporary sediment basin and stabilize immediately.*
3. *Construct temporary diversion berms as needed to direct runoff into the sediment basin and sediment trap.*
4. *Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.*
5. *Grade the site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.*
6. *Remove temporary sediment basin and sediment trap after lot mass grading is completed, and only lot fine grading for top soil remains.*
7. *Install perimeter control BMP's around proposed roadways once roadway construction is completed.*
8. *Remove temporary construction ingress/egress once roadway construction is completed, and perimeter control BMP's around proposed roadways are installed.*
9. *Fine grade lots up to top soil as planned.*
10. *Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.*
11. *Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.*
12. *Proceed with construction with least possible disturbance of vegetative areas and temporary structures.*
13. *Plant permanent ground cover according to the landscaping plans as soon as possible.*
14. *Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.*
15. *Practice good housekeeping measures throughout the duration of construction.*
16. *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, and trenching.*
3. *Inspect sediment basin, temporary berms, 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 BMP's as needed.*

GOOD HOUSEKEEPING BMP'S:

1. *Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.*
2. *Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.*
3. *Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.*
4. *Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.*
5. *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 cleanup all leaks and spills immediately.*
6. *Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.*
7. *Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.*
8. *Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.*
9. *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.*
10. *Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.*
11. *Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.*
12. *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.*
13. *Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.*
14. *Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.*
15. *Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.*
16. *Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.*

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Exp: 4/30/24
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BY	DESCRIPTION	DATE
	APPROVED	

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-36

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 102

(DPP SUBDIVISION FILE NO 2021/SUB-174)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-254)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
CHIEF, CWA ENGINEERING BRANCH, D.P.P. — DATE 6/6/22

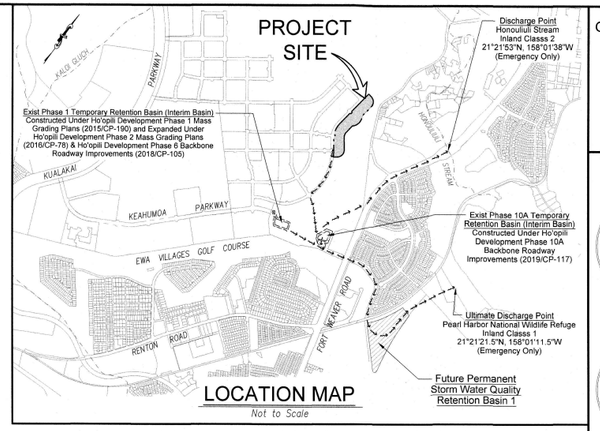
C009

SHEET 9 OF 55 SHEETS

FILE | POCKET | FOLDER | NO.

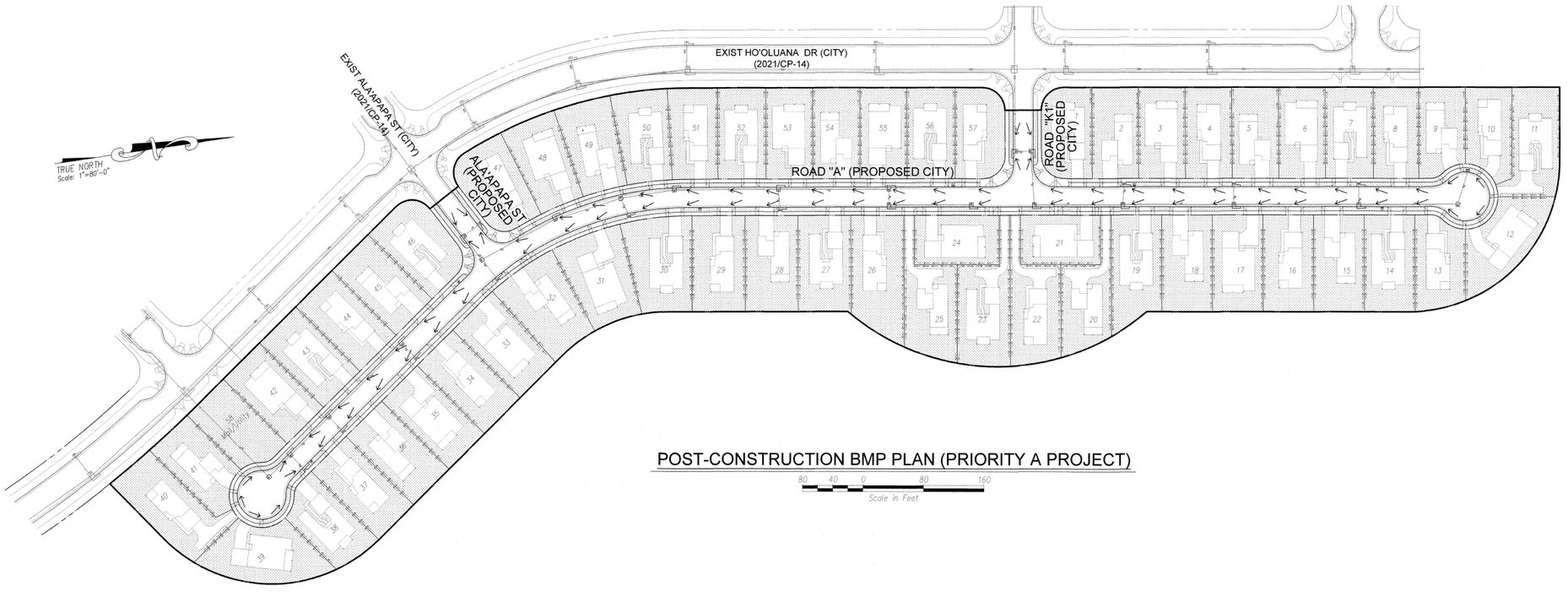
PROJECT NAME: HO'OPILI PHASE 13 PARCEL 102
CAD DWG NO.: 3100-36_ESCP.dwg
DATE: AUGUST 2022

Drawing name: P:\3100-36 Hoopili Ph13 - Parcel 102\3100-36 DWG\Construction Plans\3100-36_ESCP.dwg Aug 01, 2022 - 1:38pm



LOCATION MAP

Not to Scale



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

80 40 0 80 160

Scale in Feet

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line & Proposed Right-of-Way
- Swale
- Flow Pattern
- Landscaped Areas

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE AS FOLLOWS:

LID SITE DESIGN STRATEGIES:

1. Minimize Impervious Surfaces
2. Minimize Soil Compaction
3. Direct Roof Runoff to Landscaped Areas

SOURCE CONTROL BMPs:

1. Landscaped Areas Used to Protect Slopes
2. Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C019
3. Trash Containers shall be covered with roofs, awnings, or attached lids.

TREATMENT CONTROL BMPs:

1. Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.

2. Interim Condition:

   A. Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP-117).
      Required WQV = 9.18 AC-FT
      Provided WQV = 14.73 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. Automatic Irrigation – Will not be installed for this project.
2. Vehicle and Equipment Fueling Areas – Not applicable for this project.
3. Vehicle and Equipment Repair – Will not be allowed for this project.
4. Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.
5. Loading Docks – Not applicable for this project.
6. Outdoor Material Storage – Will not be allowed for this project.
7. Outdoor Work Areas – Not applicable for this project.
8. Outdoor Process Equipment Operations – Not applicable for this project.

NOTE:

Each individual lot owner shall be responsible to maintain all source control BMPs affecting their property as noted on this plan. Individual lot owners shall notify DFM when there is a change in ownership. A new Owner's Certification must be submitted to DFM by the new owner each time there is a change in ownership.

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REVISION	DATE	BY	APPROVED

ENGINEER: WT	CHECKED BY: MN
DRAWN BY: JC	PROJECT #: 3100-36

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 102

(DPP SUBDIVISION FILE NO 2021/SUB-174)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-254)
TMK: 9-1-17: POR OF 198
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:

W. Tolt
DEPT. DIV. ENGINEERING BRANCH, D.P.P. MT

8/10/22
DATE

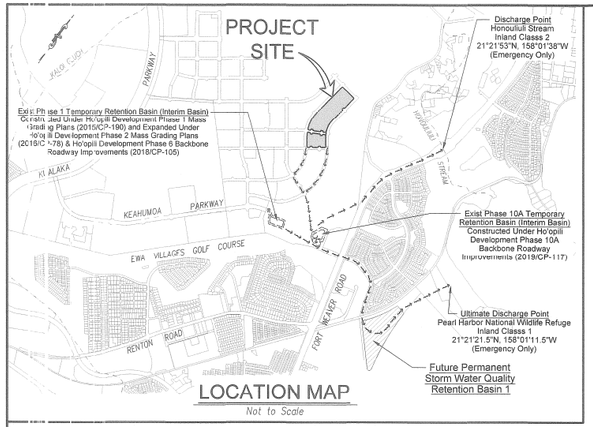
C010

SHEET 10 OF 55 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 13 PARCEL 102
DRAWING NO.: 3100-36_BMP.dwg
DATE: AUGUST 2022

Drawing name: P:\3100-36 Hoopili Ph13 - Parcel 102\3100-36 DWG\Construction Plans\3100-36_BMP.dwg Aug 01, 2022 - 1:44pm



TRUE NORTH
Scale: 1"=80'-0"

Temporary Filter Sock Perimeter Control at P, Typ See Detail Sht C010

Sediment Control Filters @ All Exist Catch Basins Fronting Grading Site, Typ See Detail Sht C010

Limits of Grading & Disturbed Area Along Property Line

EXIST MAUNAKAPU ST (CITY) (2021/CP-14)

Swale Inv.=93.30

94.80±

Temporary Swale Slope=0.80%

1-6" 90° Elbow Inv.=86.03

Connect Temporary 6" Draw-Down Line to Existing 24" Drain Stub
Install 1-24"x6" Temporary 6" HDPE Reducer
Inv.=85.19±

98.00± Begin Swale Inv.=96.50

Temporary Swale Slope=2.30%

End of Swale Inv.=92.00

96.40±

97.00±

Sediment Control Filters @ All New Catch Basins, Typ See Detail Sht C010

ROAD "I2" (PROPOSED CITY)

INCREMENT 1
AREA=12.25 ACS

Temporary Sediment Basin (Erosion Control)
Effective Area=15.11 Acs
Required Volume = 54,396 Cu Ft
(3,600 cu ft/Acre)
Provided Volume = 54,750 Cu Ft
Top of Berm at Existing Elev = 98.0
Emergency Spillway Elev = 96.0
Basin Inv at Existing Elev = 91.0
Drawdown Time = 40.32 Hours

Install Temporary Filter Sock Perimeter Control Along Back of Walkway after Roadway Construction, Typ See Det Sht C010

Bottom of Berm=103.00±
Top of Berm=105.00

Temporary Berm Slope=1.07%

Diversion Berm B

Top of Berm=112.00
Bottom of Berm=110.00±

ROAD "A" (PROPOSED CITY)

EXIST ROAD 7 (CITY) (2021/CP-14)

Limits of Grading & Disturbed Area Along Property Line

Bottom of Berm=92.15±
Top of Berm=94.15

Temporary Berm Slope=0.62%

Diversion Berm A

Bottom of Berm=98.00±
94.20±
Top of Berm=98.00

Temporary Draw-Down Inlet
Top of Berm=98.00
Emergency Spillway (6' Wide) Elev=96.00
Top of Berm=98.00

Swale A

ROAD "I3" (PROPOSED CITY)

INCREMENT 2
AREA=2.86 ACS

Temporary Berm Slope=1.21%

Diversion Berm C

Bottom of Berm=108.00±
Top of Berm=110.00

Temporary Berm Slope=0.70%

Temporary Berm Slope=0.80%

Top of Berm=113.00
Bottom of Berm=111.00±

ROAD "K11" (PROPOSED CITY)

Diversion Berm D

EXIST HO'OLUANA DR (CITY) (2021/CP-14)

EXIST LALAIAPAPA ST (CITY) (2021/CP-14)

Temporary Swale Slope=1.10%

Top of Berm=98.00
Bottom of Berm=96.05±

89.90±
End of Swale Inv.=85.20
90.45±

INCREMENT 3
AREA=4.48 ACS

ROAD "B" (PROPOSED CITY)

Top of Berm=92.05
Bottom of Berm=90.05±
Begin Swale Inv.=88.55

Limits of Grading & Disturbed Area Along Property Line

EXIST HONOULIULI ST (CITY) (2018/CP-117)

Temporary Swale Slope=1.00%

89.15±
88.35±
Top of Berm=90.00

Temporary Sediment Trap (Erosion Control)
Effective Area=4.48 Acs
Required Volume = 16,128 Cu Ft
(3,600 cu ft/Acre)
Provided Volume = 17,466 Cu Ft
Top of Berm at Existing Elev = 90.0
Emergency Spillway Elev = 88.0
Sediment Trap Inv at Existing Elev = 84.5

90.40±

Top of Berm=90.00
Emergency Spillway (6' Wide) Elev=88.00
Top of Berm=90.00

Begin Berm=90.00
Bottom of Berm=88.40±

Begin Swale\ Inv.=96.00
Top of Berm=99.50
Bottom of Berm=97.50±

Sediment Control Filters @ All Exist Catch Basins Fronting Grading Site, Typ See Detail Sht C010

Top of Berm=108.75
Bottom of Berm=106.75±

Top of Berm=111.00

Limits of Grading & Disturbed Area Along Property Line

Temporary Filter Sock Perimeter Control at P, Typ See Detail Sht C010

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Basin and Trap
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm/Swale

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Catch Basin Inlet Protection.
- Temporary Stabilization

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP'S
- For Remaining Post-Construction BMP's, See Sheet C011

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C010

Notes:

1. Temporary Construction Road Ingress/Egress may be Removed once Construction of Proposed Roadways and Sidewalks are Complete. Contractor Shall Utilize Tracking Controls for Erosion Prevention and Sediment Control as Noted on Sheet C010.
2. Temporary Sediment Basin and Trap may be Removed and restored back to existing grades once Construction of the Proposed Roadways and Lots are Mass Graded and only Top Soil will Remain.

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Permanent Slope Protection Areas (See Grading Plan)
- Temporary Diversion Swale
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Temporary Filter Sock (Along Back of Walkway)
- Temporary Filter Sock
- Property Line & Proposed Right-of-Way
- Grading Increment Boundary
- Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm/Swale

EROSION & SEDIMENT CONTROL PLAN
(CATEGORY 5)

80 40 0 80 160
Scale in Feet

DATE: MAY 2022

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BY	APPROVED

DESCRIPTION	DATE

ENGINEER: JS	CHECKED BY: MN
DRAWN BY: JG	PROJECT #: 3100-31

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 96 & 101

(DPP SUBDIVISION FILE NO 2021/SUB-143)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-171)
TMK: 9-1-17: POR OF 206
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:

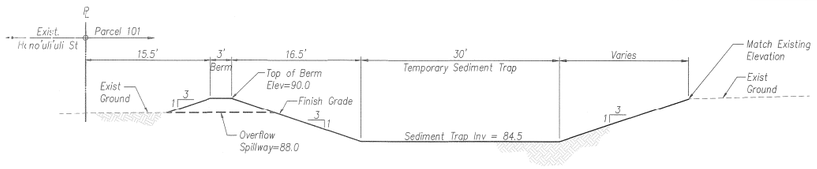
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE 7/18/22

C009

SHEET 9 OF 58 SHEETS

FILE	POCKET	FOLDER	NO.

Drawing name: F:\3100-31 Hoopili Phase 13 - Parcel 96 101\3100-31 DWG\Construction Plans\3100-31_ESCP dwg May 18, 2022 - 12:58pm



SECTION "C-C" (SEDIMENT TRAP)

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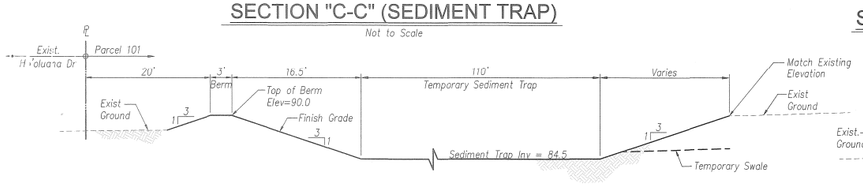

SECTION "D-D" (SEDIMENT TRAP)

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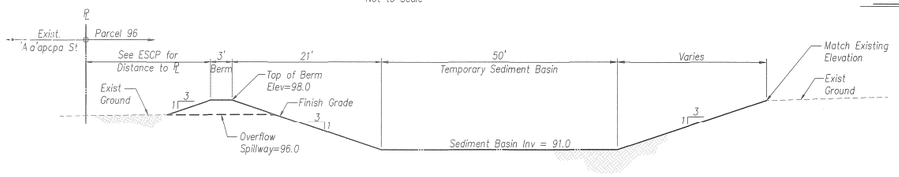
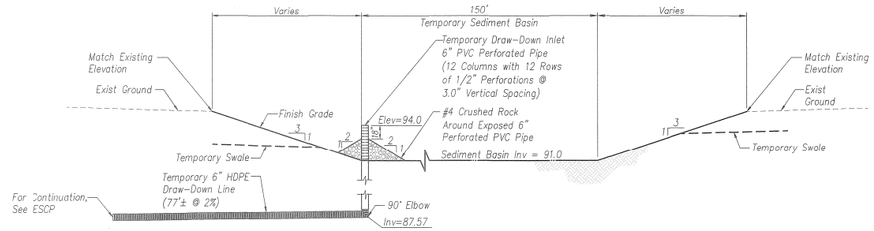


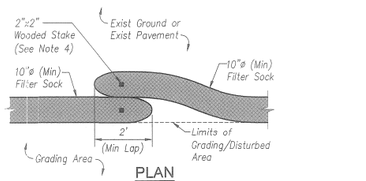
SECTION "E-E" (SEDIMENT BASIN)

Not to Scale

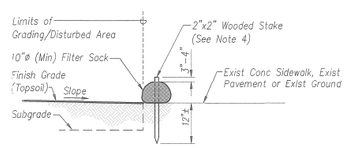


SECTION "F-F" (SEDIMENT BASIN)

Not to Scale



PLAN



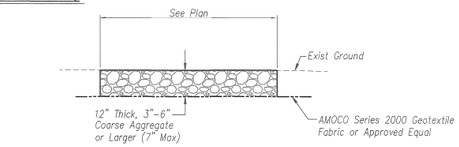
SECTION

NOTES:

1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

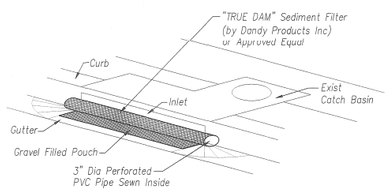
FILTER SOCK PLACEMENT DETAIL

Not to Scale



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

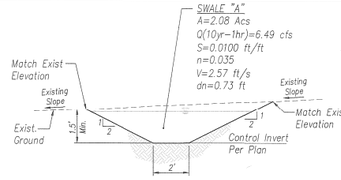
Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale

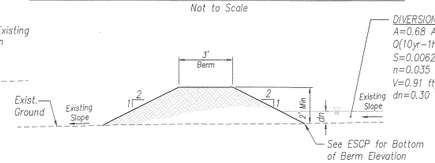


SWALE "B"
A=1.75 Acs
Q(10yr-1hr)=5.46 cfs
S=0.0080 ft/ft
n=0.035
V=2.25 ft/s
dn=0.71 ft

SWALE "C"
A=4.47 Acs
Q(10yr-1hr)=13.95 cfs
S=0.0110 ft/ft
n=0.035
V=3.29 ft/s
dn=1.04 ft

SECTION "A-A" (TEMPORARY SWALE)

Not to Scale



DIVERSION BERM "A"
A=0.68 Acs
Q(10yr-1hr)=2.12 cfs
S=0.0062 ft/ft
n=0.035
V=0.91 ft/s
dn=0.30 ft

DIVERSION BERM "B"
A=4.55 Acs
Q(10yr-1hr)=14.20 cfs
S=0.0107 ft/ft
n=0.035
V=1.81 ft/s
dn=0.55 ft

DIVERSION BERM "C"
A=3.46 Acs
Q(10yr-1hr)=10.80 cfs
S=0.0121 ft/ft
n=0.035
V=1.73 ft/s
dn=0.49 ft

DIVERSION BERM "D"
A=1.87 Acs
Q(10yr-1hr)=5.83 cfs
S=0.0070 ft/ft
n=0.035
V=1.21 ft/s
dn=0.43 ft

SECTION "B-B" (DIVERSION BERM)

Not to Scale

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. Owner or their Authorized Agent shall designate an ESCP coordinator to implement the ESCP at the Project Site prior to permit issuance using the form provided as Appendix A of the Water Quality rules.
3. ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work. The project schedule shall be in compliance with the requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. 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.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
13. Sediment Basins:
    A. 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.
14. Sediment Traps:
    A. Sediment traps must be kept in effective operating condition and sediment shall be removed when the sediment accumulation reaches one third of the trap capacity.
15. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
16. All best management practices (BMP's) shall not be removed until the entire project is complete.
17. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
18. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors. A brief explanation of why each BMP is unnecessary or impracticable has been provided under separate documentation to DPP.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    E. Sediment Barriers are not applicable

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and sediment trap and stabilize immediately.
3. Construct temporary diversion berms and swales as needed to direct runoff into the sediment basin and sediment trap.
4. Clear and grub increment 1 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade increment 1 site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
6. Seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods for increment 1 prior to start of clearing and grubbing of increment 2.
7. Clear and grub increment 2 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
8. Grade increment 2 site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
9. Seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods for increment 2 prior to start of clearing and grubbing of increment 3.
10. Clear and grub increment 3 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
11. Grade increment 3 site and construct the roadway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
12. Remove temporary sediment basin and sediment trap after lot mass grading is completed, and only lot fine grading for top soil remains.
13. Install perimeter control BMP's around proposed roadways once roadway construction is completed.
14. Remove temporary construction ingress/egress once roadway construction is completed, and perimeter control BMP's around proposed roadways are installed.
15. Fine grade lots up to top soil as planned.
16. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
17. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
18. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
19. Plant permanent ground cover according to the landscaping plans as soon as possible.
20. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
21. Practice good housekeeping measures throughout the duration of construction.
22. 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, and trenching.
3. Inspect sediment basin, sediment trap, temporary berms, temporary 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 BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Tile 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 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 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

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LICENSED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION, OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

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NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: JS | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-31

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 96 & 101

(DPP SUBDIVISION FILE NO 2021/SUB-143)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-171)
TMK: 9-1-17: POR OF 206
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. — DATE

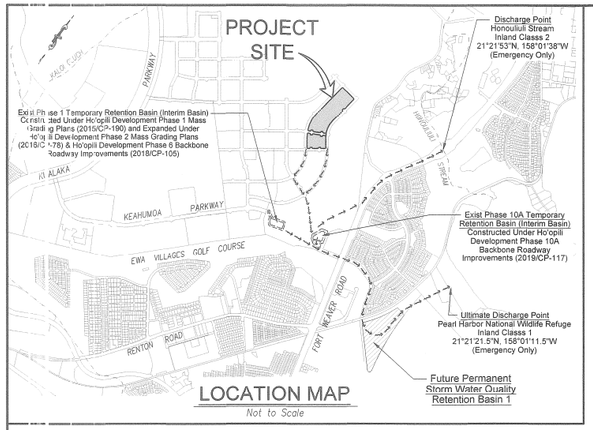
C010

SHEET 10 OF 58 SHEETS

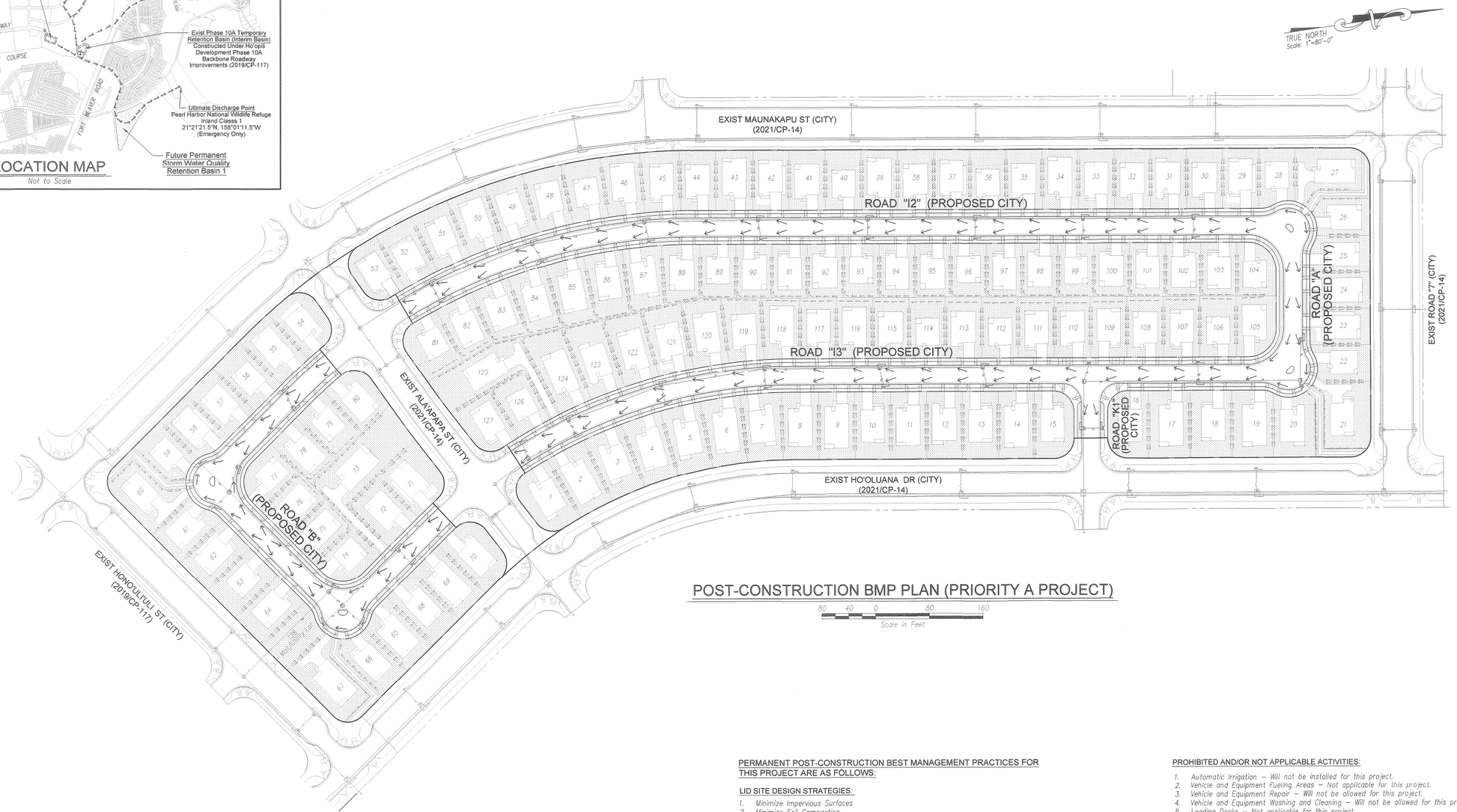
FILE	POCKET	FOLDER	NO.

DATE: MAY 2022

Drawing name: P:\3100-31 Hoopili Phase 13 Parcel 96-101\3100-31 DWG\Construction Plans\3100-31_ESCP.dwg May 19, 2022 - 12:07pm



LOCATION MAP
Not to Scale



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

80 40 0 80 160
Scale in Feet

LEGEND

- D18 — Existing Drainline
- D_{24} — New Drainline
- Property Line & Proposed Right-of-Way
- Swale
- Flow Pattern
- Landscaped Areas

PERMANENT POST-CONSTRUCTION BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE AS FOLLOWS:

LID SITE DESIGN STRATEGIES:

1. Minimize Impervious Surfaces
2. Minimize Soil Compaction
3. Direct Roof Runoff to Landscaped Areas

SOURCE CONTROL BMPs:

1. Landscaped Areas Used to Protect Slopes
2. Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C026
3. Trash Containers shall be covered with roofs, awnings, or attached lids.

TREATMENT CONTROL BMPs:

1. Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015.
2. Interim Condition:
   A. Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP-117).
      Required WQV = 9.18 AC-FT
      Provided WQV = 14.73 AC-FT

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. Automatic Irrigation – Will not be installed for this project.
2. Vehicle and Equipment Fueling Areas – Not applicable for this project.
3. Vehicle and Equipment Repair – Will not be allowed for this project.
4. Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.
5. Loading Docks – Not applicable for this project.
6. Outdoor Material Storage – Will not be allowed for this project.
7. Outdoor Work Areas – Not applicable for this project.
8. Outdoor Process Equipment Operations – Not applicable for this project.

NOTE:

Each individual lot owner shall be responsible to maintain all source control BMPs affecting their property as noted on this plan. Individual lot owners shall notify DFM when there is a change in ownership. A new Owner's Certification must be submitted to DFM by the new owner each time there is a change in ownership.

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REVISION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-31

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 13 PARCEL 96 & 101

(DPP SUBDIVISION FILE NO 2021/SUB-143)
(DPP CONSTRUCTION PLANS FILE NO 2021/CP-171)
TMK: 9-1-17: POR OF 206
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. MT
7/25/22
DATE

C011

SHEET 11 OF 58 SHEETS

FILE | POCKET | FOLDER | NO.

DATE: MAY 2022

Drawing name: P:\3100-31 Hoopili Phase 13 - Parcel 96-101\3100-31 DWG\Construction Plans\3100-31_BMP.dwg May 19, 2022 - 12:10pm

GOOD HOUSEKEEPING BMPS NOTES:

1. *STREET SWEEPING AND VACUUMING.*

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).

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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.

4. *HAZARDOUS MATERIALS.*

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

5. *NONHAZARDOUS MATERIALS.*

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.*

   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 IN 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 FROM 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 8 FOOT WIDE BENCHING IN ACCORDANCE WITH ROH CHAPTER 18A, ARTICLE 3. STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY USED WITHIN 7 DAYS.

12. *LIQUID WASTE MANAGEMENT.*

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

GOOD HOUSEKEEPING BMPS NOTES (CONT'D):

15. *DUST CONTROL.*

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL".

16. *BMP AND SITE MAINTENANCE.*

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES:

PROJECT SEQUENCE:

1. *INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS AND INLET PROTECTION FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.*
2. *CONSTRUCT TEMPORARY SWALES AND SEDIMENT TRAPS AND STABILIZE IMMEDIATELY.*
3. *PROVIDE WATER TRUCKS FOR DUST CONTROL.*
4. *CLEAR, GRUB AND GRADE THE SITE IN 6 INCREMENTS IN SEQUENTIAL NUMERICAL ORDER, REFER TO ESCP PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME. THE CURRENT INCREMENT SHALL BE STABILIZED PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.*
5. *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.*
6. *PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.*
7. *PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.*
8. *REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.*
9. *PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.*
10. *INSPECTIONS WILL BE PERFORMED WEEKLY.*

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. *TEMPORARY SUSPENSION OF ACTIVE GRADING AND TRENCHING.*
2. *INSPECT ALL SEDIMENT TRAPS, TEMPORARY 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.*
3. *COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.*
4. *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.*
5. *RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.*

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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. *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.*
5. *PERMANENT STABILIZATION*

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS 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.
6. *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.
7. *MINIMIZE SOIL COMPACTION*

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

8. *PERIMETER CONTROLS*

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

9. *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.*

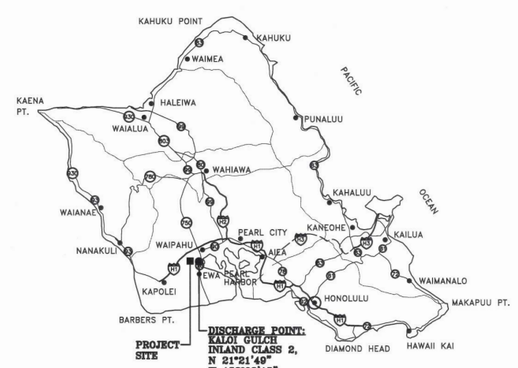
10. *SEDIMENT TRAPS*

    SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES. CONTRACTOR SHALL PROVIDE A STAFF GAGE SHOWING ELEVATION AND DEPTH OF SEDIMENT BASIN.

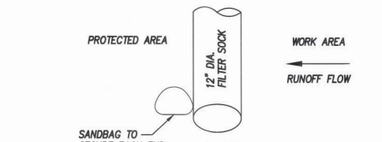
11. *TRACKING CONTROL*

    - *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.*
    - *VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.*
    - *WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.*

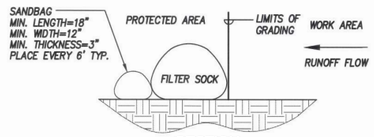
12. *BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.*
13. *REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL- CONSTRUCTION, FOR MORE INFORMATION ON BMPS.*
14. *THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.*
    - *DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE*
      - *THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE. GRADING ON SLOPES WITH A GRADE OF 15% OR MORE OCCURS ON LOCALIZED TRANSITION SLOPES OR CHANNEL OR BASIN SIDE SLOPES WITHIN THE PROJECT. WHERE GRADING OCCURS ON LOCALIZED TRANSITIONS, THERE IS NO SEVERE EROSION FROM UPSLOPE RUNOFF AND THE PROPOSED BMPS WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.*
    - *DEWATERING PRACTICES*
      - *BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT – PHASE 17; EWA, OAHU, HAWAII" DATED OCTOBER 10, 2023, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.*
    - *SEDIMENT BARRIERS*
      - *SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT TRAPS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.*
    - *SEDIMENT BASINS*
      - *SEPARATE DOCUMENTATION PROVIDED TO DPP.*
    - *BUFFER ZONES*
      - *THE PROJECT IS NOT WITHIN 50 FT OF STATE WATERS AND THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE WITH THE EXCEPTION OF EXISTING GRADE TRANSITIONS, WHICH ARE NOT SUBJECT TO SEVERE EROSION. THE PROPOSED BMPS (PERIMETER CONTROL) WILL SUFFICIENTLY ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.*
    - *VELOCITY DISSIPATION DEVICES*
      - *THERE ARE NO OUTLETS. THERE IS AN INLET WITH RIPRAP TO PREVENT EROSION AROUND INLET.*
15. *THE OWNER OF THE PROPERTY OR THEIR AUTHORIZED AGENT MUST DESIGNATE A PERSON RESPONSIBLE FOR IMPLEMENTING THE ESCP AT THE PROJECT SITE ("ESCP COORDINATOR") PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY.*
16. *THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.*



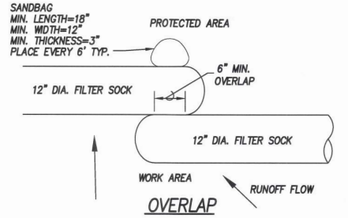
LOCATION MAP
NOT TO SCALE



PLAN



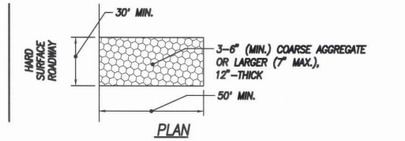
SECTION



OVERLAP

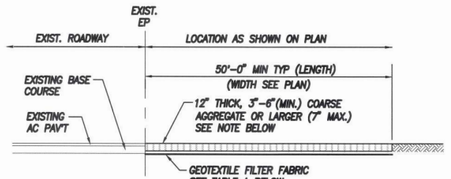
COMPOST FILTER SOCK DETAIL

NOT TO SCALE



PLAN

NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.



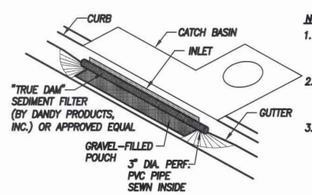
SECTION

TABLE A GEOTEXTILE REQUIREMENTS

PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3786)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE



NOTES:

1. *CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.*
2. *THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.*
3. *THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.*

CATCH BASIN INLET PROTECTION

NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 17A

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 213

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BRENT W.B. NAKAKOA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
Brent Nakakoa — SIGNATURE — 4/30/26 — EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE — 4/30/26 — EXP. DATE
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REVISION	DATE	BRIEF
1	4/30/26	ADDENDUM

APPROVED BY
Director, Civil Engineering Branch, DPP — DATE 7/12/24

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	MARCH 2023
DPP FILE NO.	2023/CP-66

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

RMTC JOB NO.: 1-24152-0E

FILE	POCKET	FOLDER	NO.

HO'OPILI DEVELOPMENT PHASE 17A

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Brent Nakaoka 4/30/26
SIGNATURE EXP. DATE

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4/30/26
SIGNATURE EXP. DATE

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BY	APPROVED
REVISION	DATE
	BRIEF

APPROVED BY
Chief, Civil Engineering Branch, DPP — DATE 7/2/24

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	MARCH 2023
DPP FILE NO.	2023/CP-66

EROSION AND SEDIMENT CONTROL PLAN

ROAD "F" (PROPOSED CITY)
50'
INCREMENT 4
AREA=2.05 AC
COMPOST FILTER SOCK PERIMETER CONTROL OFFSET MIN. 12" FROM LIMITS OF GRADING/ DISTURBED AREA, TYP. SEE DETAIL SHT. C104.
STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF 3"-6" COARSE AGGREGATE OR LARGER (7" MAX.), 12" THICK, MIN., SEE DETAIL SHT. C104
EXIST. ROAD "5" (PROPOSED CITY)
LIMITS OF GRADING/ DISTURBED AREA, TYP.
ROAD "G" (PROPOSED CITY)
INCREMENT 3
AREA=0.85 AC
ROAD "6" (PROPOSED CITY)
EXIST. GRASS SWALE
EMERGENCY SPILLWAY ELEV.=113.50
EMERGENCY SPILLWAY ELEV.=112.50
INCREMENT 2
AREA=3.45 AC
INCREMENT 1
AREA=1.96 AC
EMERGENCY SPILLWAY ELEV.=95.50
EXIST. ROAD "H" (PROPOSED CITY)
EMERGENCY SPILLWAY ELEV.=101.50
CATCH BASIN INLET PROTECTION DEVICE TO BE INSTALLED ONCE INLET IS CONSTRUCTED, TYP. SEE DET. SHT. C104
INCREMENT 5
AREA=1.32 AC
CONSTRUCT TEMPORARY INTERCEPTOR SWALE #1 PRIOR TO GRADING SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 1.4%)
R/W. TYP.
LIMITS OF GRADING/ DISTURBED AREA, TYP.
ROAD "7" (PROPOSED CITY)
INCREMENT 6
AREA=1.26 AC
EMERGENCY SPILLWAY ELEV.=119.00
EXIST. ROAD "7" (PROPOSED CITY)
EXIST. ROAD "H" (PROPOSED CITY)
EX. R/W
EX. ℄
FLOOD DESIGNATION ZONE D
(UNSTUDIED AREAS WHERE FLOOD HAZARDS ARE UNDERTERMINED, BUT FLOODING IS POSSIBLE
COMPOST FILTER SOCK PERIMETER CONTROL OFFSET MIN. 12" FROM LIMITS OF GRADING/ DISTURBED AREA, TYP. SEE DETAIL SHT. C104.
CATCH BASIN INLET PROTECTION DEVICE, TYP. SEE DET. SHT. C103
TRUE NORTH 1"=80'

NOTE:

1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE THIS SHEET FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C104 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SWALES

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	3,740 LF
CATCH BASIN INLET PROTECTION DEVICE	54 EA.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE: 1" = 80'
80' 40' 0 80' 160'
SCALE IN FEET

① TEMPORARY SEDIMENT TRAP 1
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 98.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 1.96 AC
(INCREMENT 1)
REQUIRED VOLUME = 261 CY.
AVAILABLE VOLUME = 308 CY.

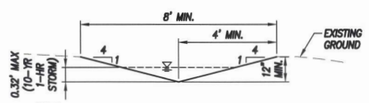
② TEMPORARY SEDIMENT TRAP 2
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 91.50 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 3.45 AC
(INCREMENT 2)
REQUIRED VOLUME = 460 CY.
AVAILABLE VOLUME = 517 CY.

③ TEMPORARY SEDIMENT TRAP 3
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 109.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 2.05 AC
(INCREMENT 4)
REQUIRED VOLUME = 273 CY.
AVAILABLE VOLUME = 308 CY.

④ TEMPORARY SEDIMENT TRAP 4
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 110.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 1.32 AC
(INCREMENT 5)
REQUIRED VOLUME = 176 CY.
AVAILABLE VOLUME = 308 CY.

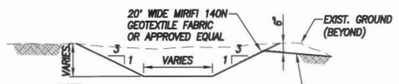
⑤ TEMPORARY SEDIMENT TRAP 5
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 116 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 1.26 AC
(INCREMENT 6)
REQUIRED VOLUME = 168 CY.
AVAILABLE VOLUME = 325 CY.

TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
(INCREMENT 6)
Q=0.59 CFS
A=1.26 AC.
V=1.46 FPS
D=0.32 FT
S=0.014 FT/FT



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE



NOTE:
SEDIMENT TRAPS TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT.

TEMPORARY SEDIMENT TRAP
NOT TO SCALE

EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 80'

RMTC JOB NO.: 1-24152-0E

K:\civil\24152 Hoopili Phase 17A\Drawings\Construction Dwgs\Backbone Roadways\C105 – ESCP Plan.dwg May 8, 2024

FILE	POCKET	FOLDER	NO.

HO'OPILI DEVELOPMENT PHASE 17A

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 213

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REVISION	DATE	BRIEF

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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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 7 CONSECUTIVE DAYS OR MORE.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING OR PAVEMENT 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.
6. 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.
7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.
8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
9. 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.
10. SEDIMENT TRAPS

    SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES.
11. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.
11. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
12. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION FOR MORE INFORMATION ON BMPS.
13. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - VELOCITY DISSIPATION DEVICES
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT - PHASE 17; EWA, OAHU, HAWAII" DATED OCTOBER 10, 2023, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT TRAPS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT BASINS
      - SEPARATE DOCUMENTATION PROVIDED TO DPP.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE.
      - THE PROJECT OCCURS ON EXISTING SLOPES LESS THAN 15%.
    - BUFFER ZONES
      - THE PROJECT OCCURS ON EXISTING SLOPES LESS THAN 15% AND DOES NOT OCCUR WITHIN 50 FT OF STATE WATERS.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.
15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).
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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 FOOT WIDE BENCHING IN ACCORDANCE WITH ROH CHAPTER 18A, ARTICLE 3. STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY USED WITHIN 7 DAYS.
12. LIQUID WASTE MANAGEMENT.

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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."
16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

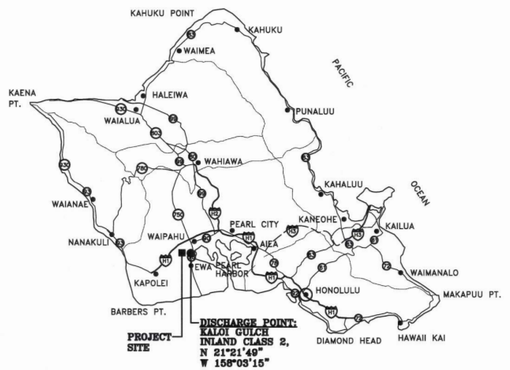
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, INLET PROTECTION, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT TRAPS AND STABILIZE IMMEDIATELY.
3. CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT TRAPS. STABILIZE IMMEDIATELY.
4. PROVIDE WATER TRUCKS FOR DUST CONTROL.
5. CLEAR, GRUB AND GRADE THE SITE IN 9 INCREMENTS IN NUMERICAL SEQUENTIAL ORDER STARTING WITH INC. 1, REFER TO GRADING PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
6. 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.
7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

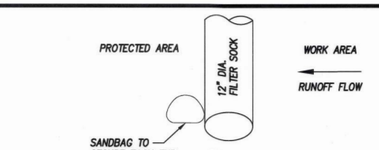
RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

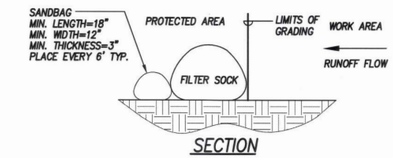
1. TEMPORARY SUSPENSION OF ACTIVE GRADING.
2. INSPECT ALL PERIMETER CONTROLS, TEMPORARY SEDIMENT TRAPS, TEMPORARY SWALES, AND INLET PROTECTION DEVICES, AND MAINTAIN AS NEEDED. REINSTALL ANY PERIMETER CONTROLS THAT WERE REMOVED DUE TO ACTIVE WORK IN THE AREA. IF A SEVERE STORM IS EXPECTED, REMOVE INLET PROTECTION DEVICES TO PREVENT FLOODING ON SURROUNDING STREETS.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



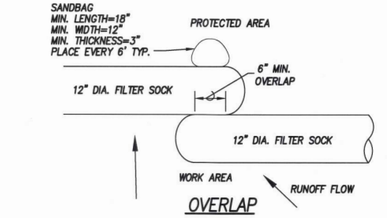
LOCATION MAP
NOT TO SCALE



PLAN



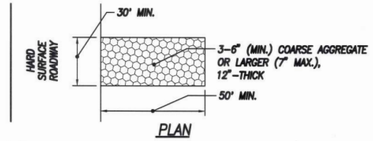
SECTION



OVERLAP

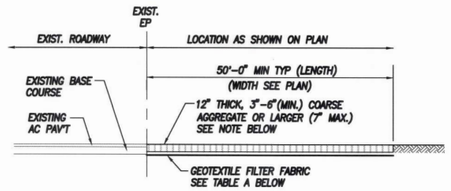
COMPOST FILTER SOCK DETAIL

NOT TO SCALE



PLAN

NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.



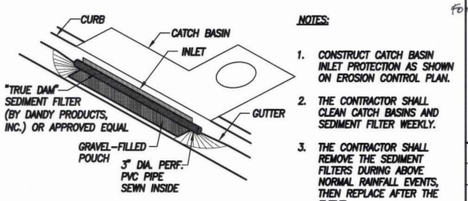
SECTION

TABLE A GEOTEXTILE REQUIREMENTS

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

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE



NOTES:

1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 17A

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 204, 213

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Honolulu Hawaii 96819

BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
SIGNATURE 4/30/24 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE 4/30/24 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

NO.	REVISION	DATE	BY
			APPROVED
			BRIEF

APPROVED BY
For Chief, Civil Engineering Branch, DPP — DATE 3/11/24

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	MARCH 2023
DPP FILE NO.	2023/CP-35

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: I-24152-0E

K:\civil\24152 Hoopili Phase 17A\Drawings\Construction Dwgs\Mass Grading\HDP17A MG C104 - Erosion and Sediment Control Notes & Details.dwg February 6, 2024

HO'OPILI DEVELOPMENT PHASE 17A

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 204, 213

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Brent Nakaoka 4/30/24 SIGNATURE DATE
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4/30/24 SIGNATURE DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	BRIEF	BY	APPROVED

APPROVED BY
Melvin Takahara 3/11/24
for Chief, Civil Engineering Branch, DPP DATE

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	MARCH 2023
DPP FILE NO.	2023/CP-35

EROSION AND SEDIMENT CONTROL PLAN

FILE	POCKET	FOLDER	NO.

C105 SHEET 7 OF 11 SHEETS

RMTC JOB NO.: 1-24152-0E

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TRUE NORTH 1" = 80'

TEMPORARY SWALE #1 (10-YR, 1-HR STORM) (INCREMENT 1) Q=1.70 CFS A=1.60 AC. V=1.77 FPS D=0.49 FT S=0.012 FT/FT

TEMPORARY SWALE #2 (10-YR, 1-HR STORM) (INCREMENT 2) Q=0.60 CFS A=0.50 AC. V=1.67 FPS D=0.30 FT S=0.024 FT/FT

TEMPORARY SWALE #3 (10-YR, 1-HR STORM) (INCREMENT 3) Q=0.50 CFS A=0.50 AC. V=1.30 FPS D=0.31 FT S=0.012 FT/FT

TEMPORARY SWALE #4 (10-YR, 1-HR STORM) (INCREMENT 4) Q=7.10 CFS A=5.40 AC. V=4.20 FPS D=0.65 FT S=0.046 FT/FT

TEMPORARY SWALE #5 (10-YR, 1-HR STORM) (INCREMENT 4) Q=0.60 CFS A=0.50 AC. V=1.67 FPS D=0.30 FT S=0.021 FT/FT

TEMPORARY SWALE #6 (10-YR, 1-HR STORM) (INCREMENT 5) Q=1.00 CFS A=0.80 AC. V=2.44 FPS D=0.32 FT S=0.046 FT/FT

TEMPORARY SWALE #7 (10-YR, 1-HR STORM) (INCREMENT 5) Q=0.50 CFS A=0.40 AC. V=2.17 FPS D=0.24 FT S=0.047 FT/FT

TEMPORARY SWALE #8 (10-YR, 1-HR STORM) (INCREMENT 8) Q=2.50 CFS A=2.10 AC. V=2.50 FPS D=0.50 FT S=0.023 FT/FT

TEMPORARY SWALE #9 (10-YR, 1-HR STORM) (INCREMENT 9) Q=0.20 CFS A=0.20 AC. V=0.74 FPS D=0.26 FT S=0.005 FT/FT

TEMPORARY SWALE #10 (10-YR, 1-HR STORM) (INCREMENT 9) Q=0.60 CFS A=0.50 AC. V=1.56 FPS D=0.31 FT S=0.019 FT/FT

FLOOD DESIGNATION ZONE D (UNSTUDIED AREAS WHERE FLOOD HAZARDS ARE UNDERTERMINED, BUT FLOODING IS POSSIBLE

INCREMENT 1 AREA=2.56 AC
INCREMENT 2 AREA=1.24 AC
INCREMENT 3 AREA=2.20 AC
INCREMENT 4 AREA=4.06 AC
INCREMENT 5 AREA=3.39 AC
INCREMENT 6 AREA=4.86 AC
INCREMENT 7 AREA=4.86 AC
INCREMENT 8 AREA=4.44 AC
INCREMENT 9 AREA=1.58 AC

EXIST. ROAD "5" (PROPOSED CITY)
EXIST. ROAD "6" (PROPOSED CITY)
EXIST. ROAD "7" (PROPOSED CITY)
EXIST. ROAD "H" (PROPOSED CITY)
EXIST. MAUNAKAPU ST. (PROPOSED CITY)
ALIGNMENT "F"
ALIGNMENT "G"
ALIGNMENT "6"
ALIGNMENT "7"
EX. R/W

TEMPORARY INTERCEPTOR SWALE #1 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 1.2%)
TEMPORARY INTERCEPTOR SWALE #2 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 2.4%)
TEMPORARY INTERCEPTOR SWALE #3 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 1.2%)
TEMPORARY INTERCEPTOR SWALE #4 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 4.6%)
TEMPORARY INTERCEPTOR SWALE #5 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 2.1%)
TEMPORARY INTERCEPTOR SWALE #6 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 4.6%)
TEMPORARY INTERCEPTOR SWALE #7 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 4.7%)
TEMPORARY INTERCEPTOR SWALE #8 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 2.3%)
TEMPORARY INTERCEPTOR SWALE #9 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 0.5%)
TEMPORARY INTERCEPTOR SWALE #10 SEE DETAIL ON THIS SHEET (MIN. SLOPE AT 1.9%)

LIMITS OF GRADING/ DISTURBED AREA, TYP.
STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF 3"–6" COARSE AGGREGATE OR LARGER (7" MAX.) 12" THICK, MIN., SEE DETAIL SHT. C104
COMPOST FILTER SOCK PERIMETER CONTROL OFFSET MIN. 12" FROM LIMITS OF GRADING/ DISTURBED AREA, TYP. SEE DETAIL SHT. C104.
CATCH BASIN INLET PROTECTION DEVICE, TYP. SEE DETAIL SHT. C104
EMERGENCY SPILLWAY ELEV.=117.50
EMERGENCY SPILLWAY ELEV.=111.00
EMERGENCY SPILLWAY ELEV.=106.50
EMERGENCY SPILLWAY ELEV.=117.00
EMERGENCY SPILLWAY ELEV.=115.00
EMERGENCY SPILLWAY ELEV.=103.00
EMERGENCY SPILLWAY ELEV.=113.50
EMERGENCY SPILLWAY ELEV.=107.00
EMERGENCY SPILLWAY ELEV.=99.00

① TEMPORARY SEDIMENT TRAP 1 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 112 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 2.56 AC (INCREMENT 1) REQUIRED VOLUME = 341 CY. AVAILABLE VOLUME = 360 CY.

② TEMPORARY SEDIMENT TRAP 2 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 114.50 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 1.24 AC (INCREMENT 2) REQUIRED VOLUME = 165 CY. AVAILABLE VOLUME = 220 CY.

③ TEMPORARY SEDIMENT TRAP 3 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 114 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 2.20 AC (INCREMENT 3) REQUIRED VOLUME = 293 CY. AVAILABLE VOLUME = 360 CY.

④ TEMPORARY SEDIMENT TRAP 4 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 108 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 4.06 AC (INCREMENT 4) REQUIRED VOLUME = 544 CY. AVAILABLE VOLUME = 602 CY.

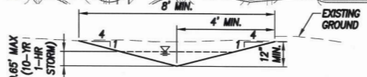
⑤ TEMPORARY SEDIMENT TRAP 5 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 103.50 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 3.39 AC (INCREMENT 5) REQUIRED VOLUME = 452 CY. AVAILABLE VOLUME = 481 CY.

⑥ TEMPORARY SEDIMENT TRAP 6 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 96 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 4.86 AC (INCREMENT 6) REQUIRED VOLUME = 648 CY. AVAILABLE VOLUME = 687 CY.

⑦ TEMPORARY SEDIMENT TRAP 7 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 100 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 4.86 AC (INCREMENT 7) REQUIRED VOLUME = 648 CY. AVAILABLE VOLUME = 682 CY.

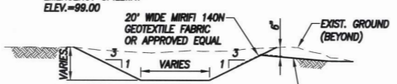
⑧ TEMPORARY SEDIMENT TRAP 8 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 104 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 4.44 AC (INCREMENT 8) REQUIRED VOLUME = 592 CY. AVAILABLE VOLUME = 613 CY.

⑨ TEMPORARY SEDIMENT TRAP 9 (3600 CU. FT. PER ACRE) SEE DETAIL THIS SHT. MIN. INVERT = 111 FT. MIN. DEPTH = 3 FT. CONTRIBUTING AREA = 1.69 AC (INCREMENT 9) REQUIRED VOLUME = 225 CY. AVAILABLE VOLUME = 325 CY.



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE CONSTRUCTED PRIOR TO GRADING OF INCREMENT
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED
3. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE



NOTE:
SEDIMENT TRAPS TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT.

TEMPORARY SEDIMENT TRAP
NOT TO SCALE

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT TRAP
- TEMPORARY SWALES

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

APPROXIMATE QUANTITIES

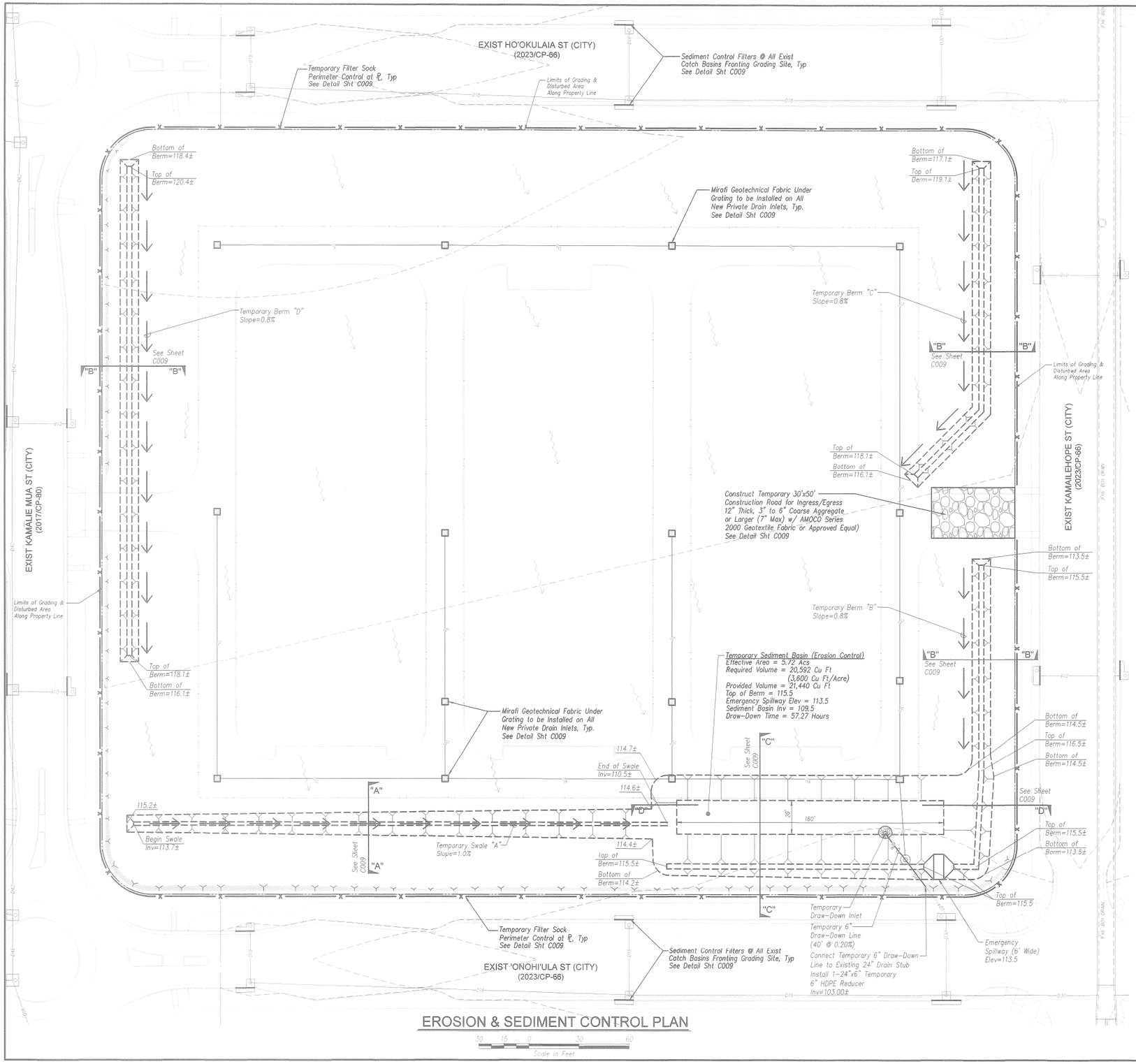
STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	4,016 LF
CATCH BASIN INLET PROTECTION DEVICE	28 EA.

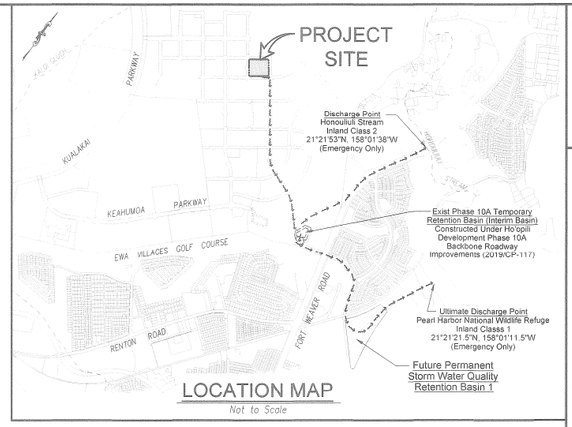
NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE THIS SHEET FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C104 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- PROPERTY LINE
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE:
80' 40' 0 80' 160'
1" = 80'
SCALE IN FEET

EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 80'





PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm/Swale

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:

- Permanent Stabilization BMP's

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:

- See Sheet C009

LEGEND

- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Swale
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Temporary Filter Sock
- Property Line
- Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm

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Exp: 4/30/26
MICHAEL H. NOJIMA
LICENSED PROFESSIONAL ENGINEER
No. 5632-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION, OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

Exp: 4/30/26
WINSTON M. TANIGUCHI
LICENSED PROFESSIONAL ENGINEER
No. 13730-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION, OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

NO.	DESCRIPTION	DATE	APPROVED
1			

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-48

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 17A PARCEL 92

SINGLE FAMILY CONDOMINIUM

(DPP CONSTRUCTION PLANS FILE NO 2023/CP-196)

TMK: 9-1-17: POR OF 213

HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:

FOR Melvin Takaburo 11/4/24
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. DATE

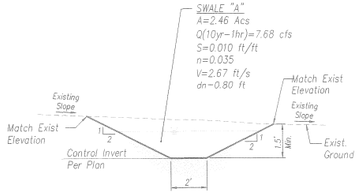
C008

SHEET 8 OF 37 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 17A PARCEL 92
CAD DWG NO.: 3100-48_ESCP.dwg
DATE: MAY 2024

Drawing name: P-3100-48 Hoopili Ph 17A - Parcel 92\3100-48 DWG\Construction Plans\3100-48_ESCP.dwg May 29, 2024 - 9:34am



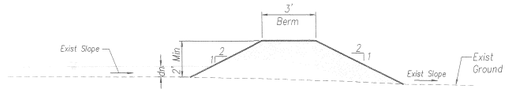
SECTION "A-A" (TEMPORARY SWALE)

Not to Scale

DIVERSION BERM "B"
A=0.56 Acs
Q(10yr-1hr)=1.75 cfs
S=0.008 ft/ft
n=0.035
V=0.92 ft/s
dn=0.27 ft

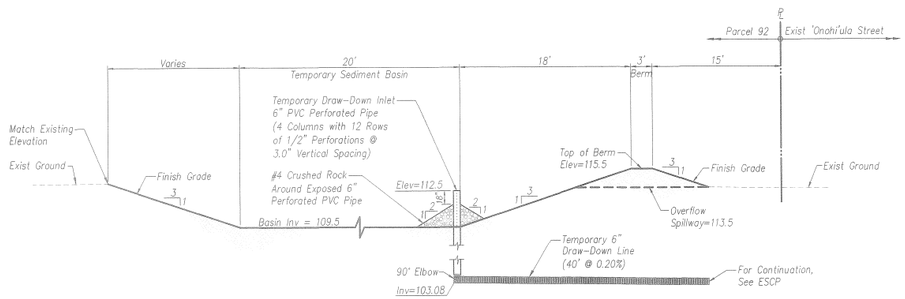
DIVERSION BERM "C"
A=0.46 Acs
Q(10yr-1hr)=1.44 cfs
S=0.005 ft/ft
n=0.035
V=0.76 ft/s
dn=0.27 ft

DIVERSION BERM "D"
A=0.14 Acs
Q(10yr-1hr)=0.44 cfs
S=0.008 ft/ft
n=0.035
V=0.66 ft/s
dn=0.16 ft



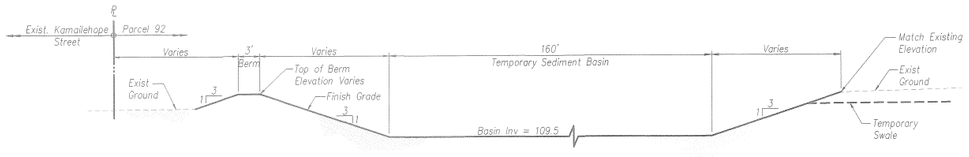
SECTION "B-B" (DIVERSION BERM)

Not to Scale



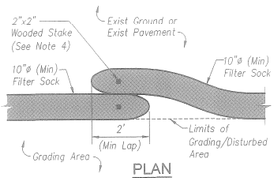
SECTION "C-C" (SEDIMENT BASIN)

Not to Scale

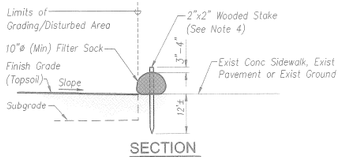


SECTION "D-D" (SEDIMENT BASIN)

Not to Scale



PLAN

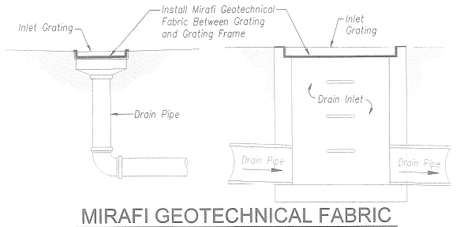


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

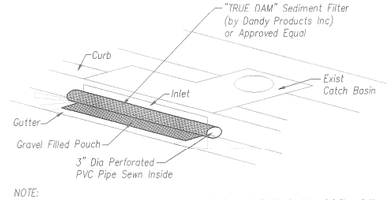
FILTER SOCK PLACEMENT DETAIL

Not to Scale



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

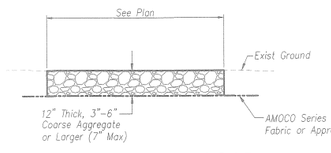
Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 foot wide benching in accordance with ROH Chapter 18A, Article 3. Stockpiles must be covered with plastic sheeting or a comparable material if they will not be actively used within 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

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. The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.
3. The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
13. Sediment Basins:
    A. Sediment basins must be kept in effective operating condition and sediment shall be removed when the sediment accumulation reaches one half of the trap capacity.
14. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
15. All best management practices (BMP's) shall not be removed until the entire project is complete.
16. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
17. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment traps are not applicable.
    E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers are not applicable.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and stabilize immediately.
3. Construct temporary diversion berms and swales as needed to direct runoff into the sediment basin.
4. Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Install remaining parts of permanent drainage system with temporary inlet protection.
6. Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed.
7. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
8. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
9. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
10. Plant permanent ground cover according to the landscaping plans as soon as possible.
11. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
12. Practice good housekeeping measures throughout the duration of construction.
13. 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 and construction.
3. Inspect sediment basin, temporary berms, temporary 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 BMP's as needed.

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Exp: 4/30/26
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DESCRIPTION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT # 3100-48

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 17A PARCEL 92

SINGLE FAMILY CONDOMINIUM

(DPP CONSTRUCTION PLANS FILE NO 2023/CP-196)

TMK: 9-1-17: POR OF 21

HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:

For CHIEF, CIVIL ENGINEERING BRANCH, DPP — 7/9/24 DATE

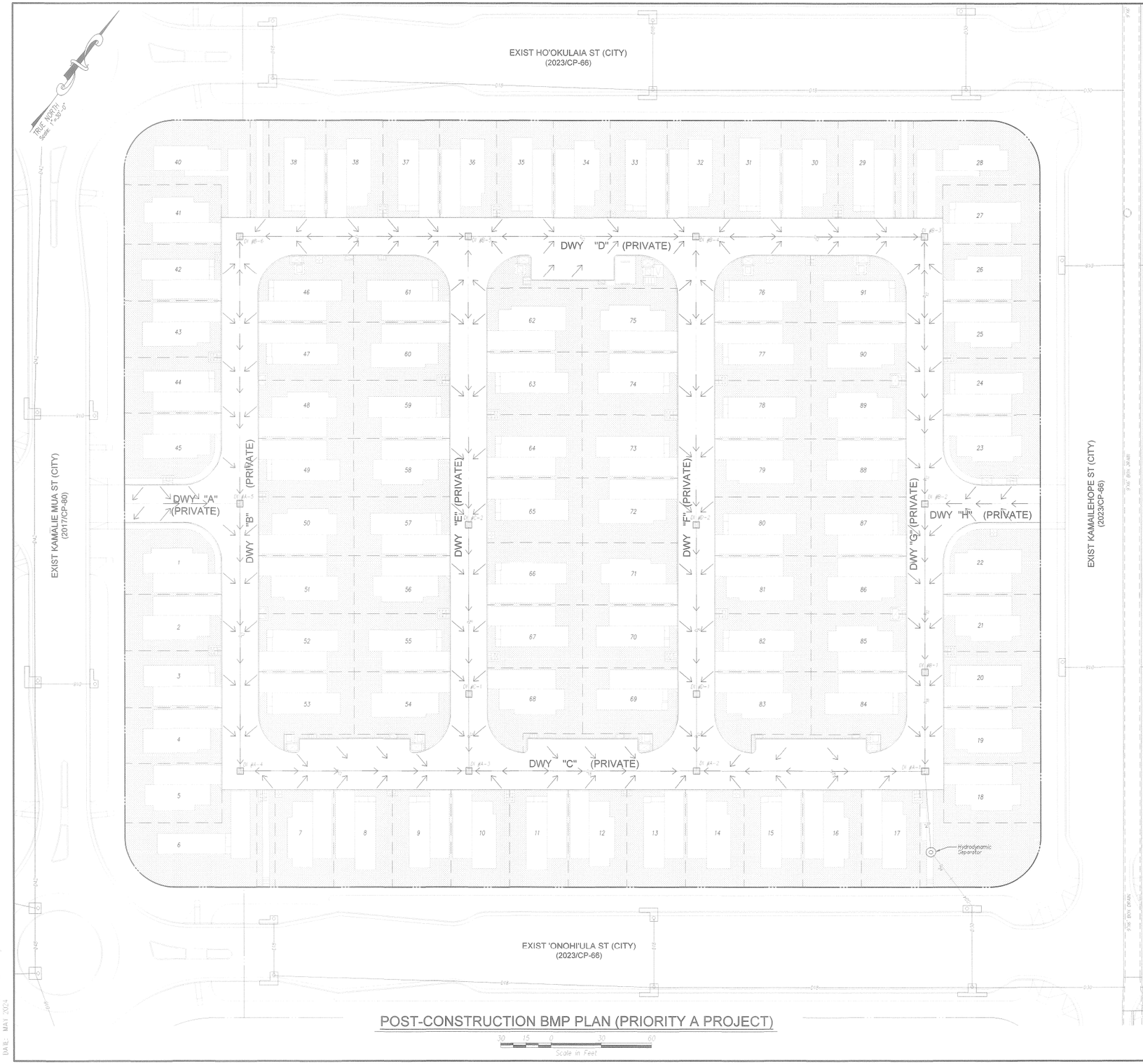
C009

SHEET 9 OF 37 SHEETS

FILE	POCKET	FOLDER	NO.

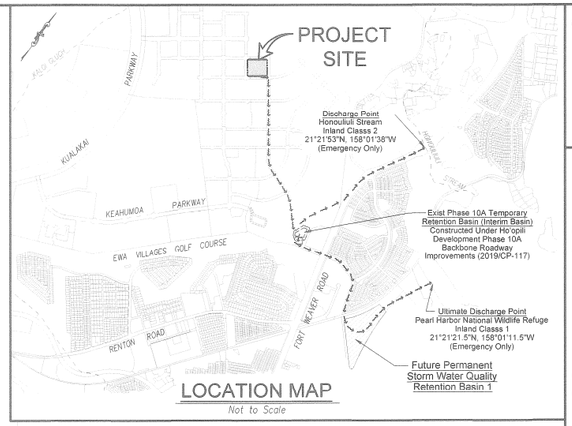
PROJECT NAME: HO'OPILI PHASE 17A PARCEL 92
CAD DWG NO.: 3100-48_ESCP.dwg
DATE: MAY 2024

Drawing name: P:\3100-48 Hoopili Ph 17A - Parcel 92\3100-48 DWG\Construction Plans\3100-48_ESCP.dwg, May 29, 2024 - 9:33am



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

Scale in Feet: 30 15 0 30 60



LOCATION MAP

Not to Scale

PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscape Areas
2	Automatic Irrigation System
3	Storm Drain Markers on Drain Inlets
4	Trash Containers shall be covered with roofs, awnings, or attached lids.
5	Parking Areas
TREATMENT CONTROL BMPs	
BMP No	BMP Type
6	Ho'opili Permanent SWQ Retention Basin 1 (storm water quality and flood control detention)

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. Vehicle and Equipment Fueling Areas – Not applicable for this project.
2. Vehicle and Equipment Repair – Will not be allowed for this project.
3. Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.
4. Loading Docks – Not applicable for this project.
5. Outdoor Material Storage – Will not be allowed for this project.
6. Outdoor Work Areas – Not applicable for this project.
7. Outdoor Process Equipment Operations – Not applicable for this project.

SOURCE CONTROL BMPS:

1. Landscaped Areas – Protect slopes with landscaping
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water
3. Storm Drain Markers on Drain Inlets (See Detail on Sht C018)
4. Trash Containers shall be covered with roofs, awnings, or attached lids.
5. Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basin constructed in "Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans" (R.M. Towill Corporation, 2019/CP-117), which serves as a post-construction treatment control BMP.

TREATMENT CONTROL BMPs:

1. Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015. For location, see map above.
   Required WQV = 41.40 AC-FT
   Provided WQV = 283.06 AC-FT
2. Interim Condition: Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP-117). For location, see map above.
   Required WQV = 10.93 AC-FT
   Provided WQV = 14.73 AC-FT

LEGEND

- Existing Drainline
- New Drainline
- Property Line
- Condominium Lot Line
- Swale
- Flow Pattern
- Drain Inlet w/ Marker (For Det See Sht C018)
- Landscaped Areas

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NO.	DESCRIPTION	DATE	APPROVED

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 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 ANYTIME ON SLOPES GREATER THAN 15%.

4. TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 7 CONSECUTIVE DAYS OR MORE.

5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS, 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.

6. 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.

7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

9. 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.

10. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.

11. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.

12. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION FOR MORE INFORMATION ON BMPS.

13. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.

    - VELOCITY DISSIPATION DEVICES
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT BASINS
      - LIMITS OF WORK LESS THAN 5 ACRES, THEREFORE, SEDIMENT BASINS WILL NOT BE USED.
    - SEDIMENT TRAPS
      - SEPARATE DOCUMENTATION PROVIDED TO DPP.
    - DIVISION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREA OF THE SITE.
      - WHERE GRADING OCCURS ON EXISTING SLOPES GREATER THAN 15%, THERE WILL BE NO SEVERE EROSION FROM UPSIDE RUNOFF AND THE PROPOSED BMPS (PERIMETER CONTROLS) WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - DEWATERING PRACTICES.
      - NO GROUNDWATER ANTICIPATED.
    - BUFFER ZONES
      - WHERE GRADING OCCURS ON EXISTING SLOPES GREATER THAN 15%, THE PROPOSED BMPS (PERIMETER CONTROLS) WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF AND THE PROJECT IS NOT WITHIN 50 FEET OF STATE WATERS.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.

15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).

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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.

4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 FOOT WIDE BENCHING IN ACCORDANCE WITH ROH CHAPTER 18A, ARTICLE 3. STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY USED WITHIN 7 DAYS.

12. LIQUID WASTE MANAGEMENT.

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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."

16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

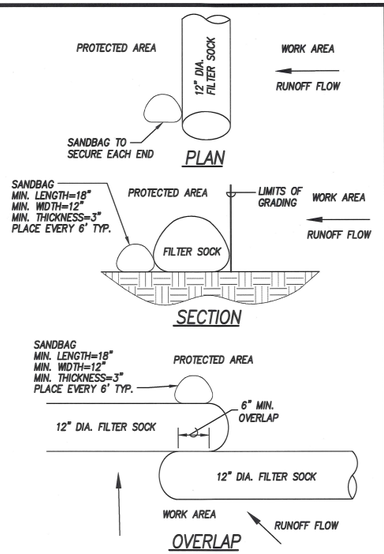
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. PROVIDE WATER TRUCKS FOR DUST CONTROL.
3. COMMENCE GRADING AND STOCKPILING IN 2 INCREMENTS IN NUMERICAL SEQUENTIAL ORDER STARTING WITH INC. 1. ONLY 1 INCREMENT SHALL BE DISTURBED AT ANY ONE TIME WITH STABILIZATION OF THE CURRENT INCREMENT PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE EARTHWORK IS COMPLETED IN EACH INCREMENT.
4. FOR CONTINUATION OF STOCKPILE ACTIVITIES AFTER STOCKPILE IS ESTABLISHED AND GRADING COMPLETED: STABILIZE DISTURBED AREAS WITH HYDROMULCH/GRASSING AFTER STOCKPILE IS FULLY CONSTRUCTED OR WHEN THERE IS NO ACTIVE STOCKPILING WORK. RELOCATE, RECONSTRUCT AND MAINTAIN TEMPORARY BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES UNTIL STOCKPILE IS REMOVED. STABILIZE DISTURBED AREAS WITH GRASSING AFTER STOCKPILE IS REMOVED.
5. 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.
6. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
7. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
8. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

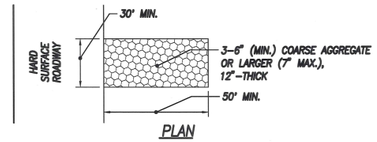
THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING.
2. INSPECT ALL 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

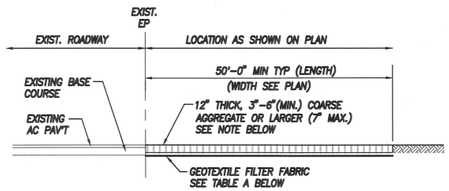


COMPOST FILTER SOCK DETAIL

NOT TO SCALE



NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

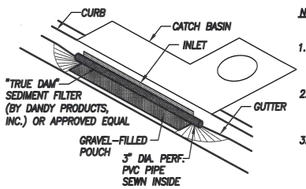


SECTION

TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

NOT TO SCALE

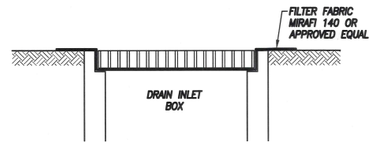


NOTES:

1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE



PRIVATE GRATE INLET PROTECTION DEVICE

NOT TO SCALE

HO'OPILI DEVELOPMENT PARCEL 93

GRADING, DRAINAGE, AND STOCKPILE PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 204

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE 4/30/24 EXP. DATE

REVISION	DATE	BY	APPR
BRIEF			

APPROVED BY

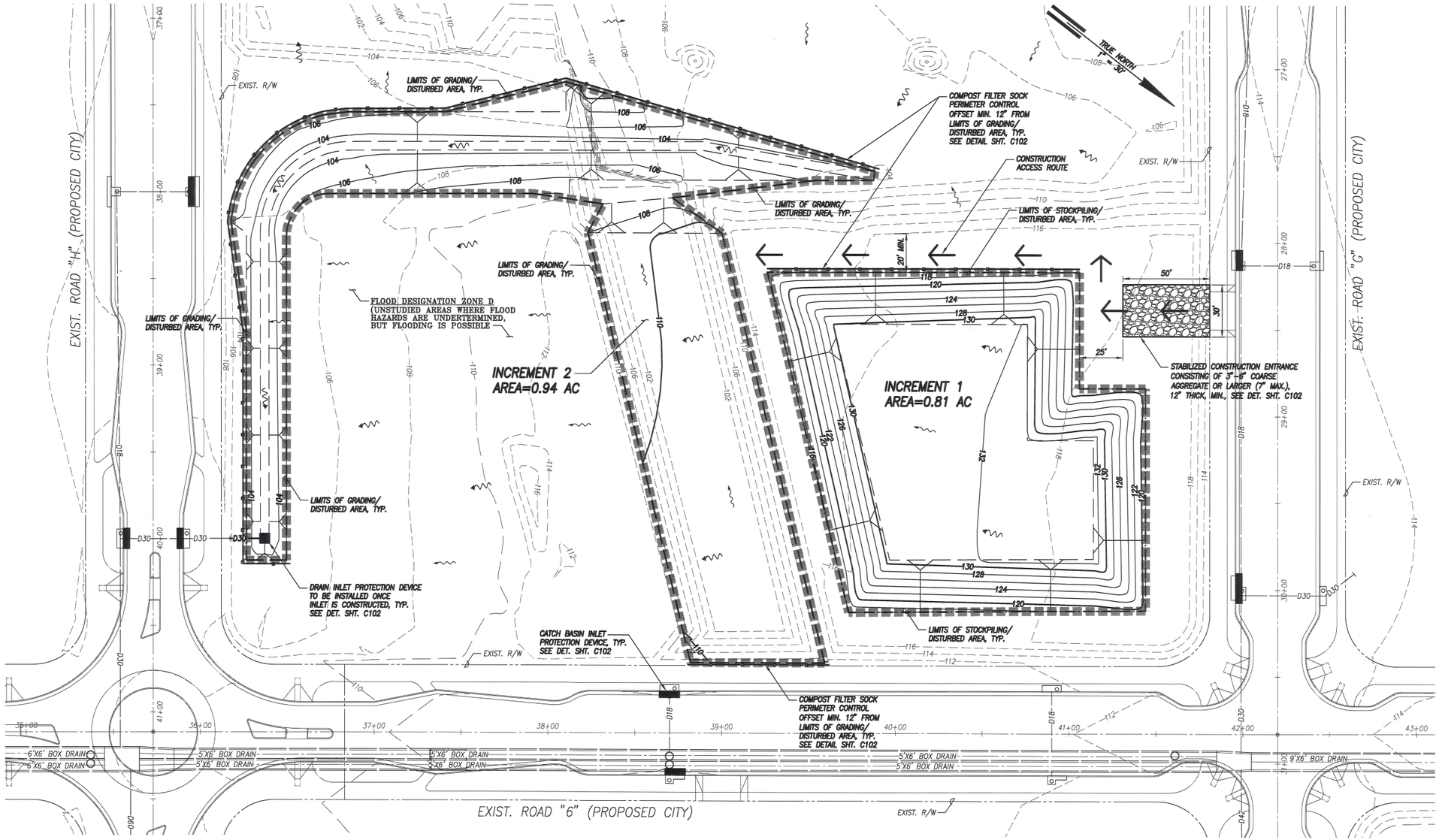
For Melvin Takiara 11/1/23
Chief, Civil Engineering Branch, DPP DATE

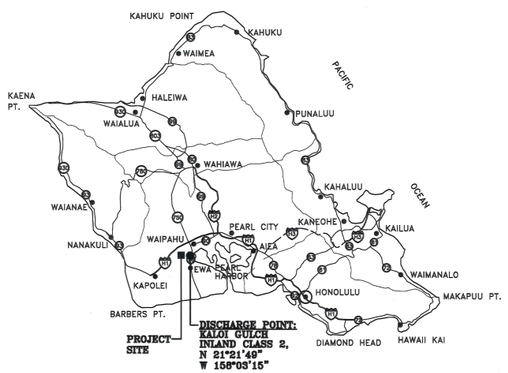
ENGINEER	CD, MN, MC
DRAFTSMAN	CD, MN, MC
CHECKED BY	BN
SCALE	AS SHOWN
DATE	AUGUST 2023
DPP FILE NO.	2023/CP-136

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

RMTC JOB NO.: 1-24242-0E

FILE	POCKET	FOLDER	NO.





LOCATION MAP
NOT TO SCALE

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- EXISTING CATCH BASIN INLET PROTECTION

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK
- NEW DRAIN INLET PROTECTION

POST-CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE THIS SHEET FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C102 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	910 LF
INLET PROTECTION DEVICE	8 EA.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- EXIST. CONTOUR
- NEW MINOR CONTOUR
- NEW MAJOR CONTOUR
- LIMITS OF GRADING/DISTURBED AREA
- LIMITS OF DISTURBED AREA
- PROPERTY LINE
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE
- DRAIN INLET PROTECTION DEVICE
- CONSTRUCTION ACCESS ROUTE

GRAPHIC SCALE: 1" = 30' — 30' 15' 0 30' 60' — SCALE IN FEET

EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 30'

HO'OPILI DEVELOPMENT PARCEL 93

GRADING, DRAINAGE, AND STOCKPILE PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 204

R. M. TOWILL CORPORATION
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Honolulu Hawaii 96819

BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
Brent Nakaoka — SIGNATURE — 4/30/24 — EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE — 4/30/24 — EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

REVISION	DATE	BY	APPROVED

APPROVED BY
Melanie Ishikawa 11/1/23
Chief, Civil Engineering Branch, DPP — DATE

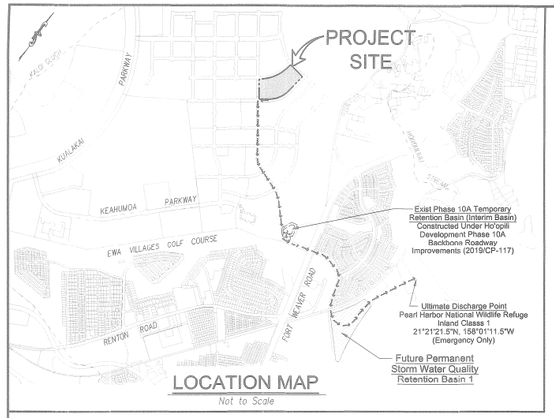
ENGINEER	CD, MN, MC
DRAFTSMAN	CD, MN, MC
CHECKED BY	BN
SCALE	AS SHOWN
DATE	AUGUST 2023
DPP FILE NO.	2023/CP-136

EROSION AND SEDIMENT CONTROL PLAN

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-24242-0E

K:\civil\24242 Hoopili Parcel 93 Grading Drainage and Stockpile\Drawings\Construction Dwgs\C103 – Erosion and Sediment Control Plan.dwg November 16, 2023



LOCATION MAP
Not to Scale

TRUE NORTH
Scale: 1"=30'-0"

EXIST 'ONOHI'ULA ST (CITY) (2023/CP-66)

EXIST LONOMEHA ST (CITY) (2023/CP-66)

EXIST KAMAILEHOPE ST (CITY) (2023/CP-66)

EXIST KULANIHAKOI ST (CITY) (2021/CP-14)

Limits of Grading & Disturbed Area Along Property Line

Temporary Filter Sock Perimeter Control at ℄, Typ See Detail Sht C012

Temporary Swale "C" Slope=1.0%

Temporary Swale "B" Slope=0.8%

Temporary Swale "A" Slope=0.8%

Temporary Swale "D" Slope=0.4%

Bottom of Berm=122.0±
Top of Berm=124.0±

Bottom of Berm=120.5±
Top of Berm=122.5±

Bottom of Berm=119.5±
Top of Berm=121.5±

Bottom of Berm=112.5±
Top of Berm=114.5±

Top of Berm=114.0±
Bottom of Berm=112.0±

Top of Berm=113.5±
Bottom of Berm=111.5±

Bottom of Berm=111.0±
Top of Berm=113.0±

Bottom of Berm=110.5±
Top of Berm=112.5±

Top of Berm=110.0±
Bottom of Berm=108.0±

Top of Berm=110.0±
Bottom of Berm=108.0±

INCREMENT 1
AREA=14.48 ACS

INCREMENT 2
AREA=1.27 ACS

Mirafi Geotechnical Fabric Under Grating to be Installed on All New Private Drain Inlets, Typ. See Detail Sht C012

Construct Temporary 30'x50' Construction Road for Ingress/Egress 12" Thick, 3" to 6" Coarse Aggregate or Larger (7" Max) w/ AMOCO Series 2000 Geotextile Fabric or Approved Equal) See Detail Sht C012

Temporary Sediment Basin (Erosion Control)
Effective Area = 14.48 Acs
Required Volume = 52,128 Cu Ft (3,600 Cu Ft/Acre)
Provided Volume = 57,600 Cu Ft
Top of Berm = 110.0
Emergency Spillway Elev = 108.0
Sediment Basin Inv = 104.0
Draw-Down Time = 60.20 Hours

Temporary Draw-Down Inlet

Temporary 6" Draw Down Line (35' @ 0.50%)

Emergency Spillway (6' Wide) Elev=108.0

Sediment Control Filters @ All Exist Catch Basins Fronting Grading Site, Typ See Detail Sht C012

Temporary Filter Sock Perimeter Control at ℄, Typ See Detail Sht C012

See Sheet C012

"A" "B" "C"

EROSION & SEDIMENT CONTROL PLAN
50 25 0 50 100
Scale in Feet

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:
- Temporary Sediment Basin
- Construction Ingress/Egress
- Existing Catch Basin Inlet Protection
- Temporary Filter Sock Perimeter Control
- Temporary Diversion Berm

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:
- New Private Drain Inlet Protection
- Temporary Stabilization
- Temporary Slope Protection

POST-CONSTRUCTION BMP'S:
- Permanent Stabilization BMP's

GOOD HOUSEKEEPING BMP'S AND ESCP NOTES:
- See Sheet C012

LEGEND
- Crushed Rock Construction Road for Ingress/Egress
- Temporary/Permanent Slope Protection Areas
- Temporary Diversion Berm
- Temporary Sediment Control Filter at Exist/New Catch Basin
- Mirafi Geotechnical Fabric
- Grading Increment Boundary
- Temporary Filter Sock
- Property Line
- Existing Contour
- Existing Drainline
- New Drainline
- Existing Drainage Flow
- Drainage Flow Along Diversion Berm

Gray • Hong • Nojima & Associates, Inc.
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Exp: 4/30/26
MICHAEL H. NOJIMA
LICENSED PROFESSIONAL ENGINEER
No. 5632-C
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

Exp: 4/30/26
WINSTON M. TANIGUCHI
LICENSED PROFESSIONAL ENGINEER
No. 13730-C
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. OBSERVATION OF CONSTRUCTION AS DEFINED IN SECTION 16-115-2 OF THE STATE OF HAWAII, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS, HAWAII ADMINISTRATIVE RULES FOR PROFESSIONAL ENGINEERS, ARCHITECTS, SURVEYORS, AND LANDSCAPE ARCHITECTS 8/29/94).

NO.	DESCRIPTION	DATE	BY	APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT # 3100-49

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 17A PARCEL 94

SINGLE FAMILY CONDOMINIUM
(DPP CONSTRUCTION PLANS FILE NO 2025/CP-9)
TMK: 9-1-17: POR OF 213
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

APPROVED BY:
Melvin Kaku 6/21/25
for CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE
(FOR GRADING ONLY)

C011
SHEET 11 OF 57 SHEETS
FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 17A PARCEL 94
CAD DWG NO.: 3100-49 ESCP.DWG
DATE: JANUARY 2025

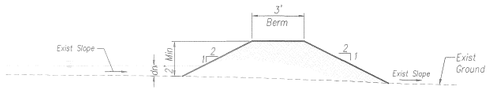
Drawing name: P:\3100-49 Hoopili Ph 17A - Parcel 94\3100-49 DWG\Construction Plans\3100-49_ESCP.dwg May 13, 2025 - 1:05pm

DIVERSION BERM "A"
A=4.75 Acs
Q(10yr-1hr)=14.82 cfs
S=0.008 ft/ft
n=0.035
V=1.37 ft/s
dn=0.46 ft

DIVERSION BERM "B"
A=4.55 Acs
Q(10yr-1hr)=14.20 cfs
S=0.008 ft/ft
n=0.035
V=1.37 ft/s
dn=0.45 ft

DIVERSION BERM "C"
A=3.60 Acs
Q(10yr-1hr)=11.23 cfs
S=0.010 ft/ft
n=0.035
V=1.38 ft/s
dn=0.40 ft

DIVERSION BERM "D"
A=0.68 Acs
Q(10yr-1hr)=2.12 cfs
S=0.004 ft/ft
n=0.035
V=0.67 ft/s
dn=0.25 ft



SECTION "A-A" (DIVERSION BERM)

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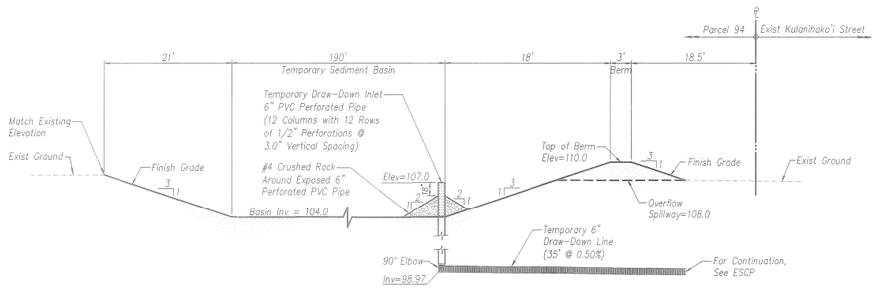

SECTION "B-B" (SEDIMENT BASIN)

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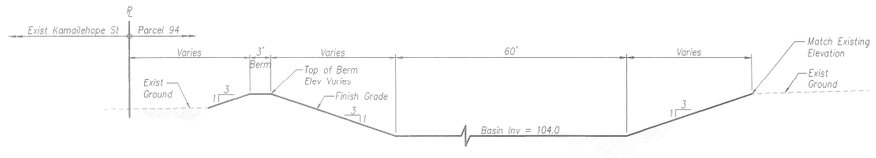

SECTION "C-C" (SEDIMENT BASIN)

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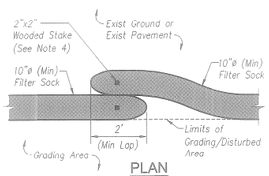
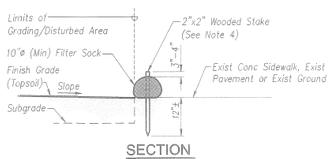


PLAN

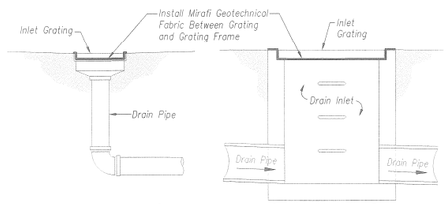


SECTION

NOTES:
1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA guidelines.
4. No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

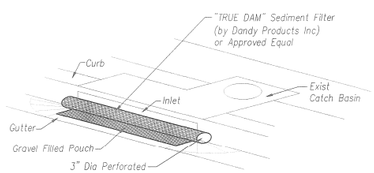
FILTER SOCK PLACEMENT DETAIL

Not to Scale



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

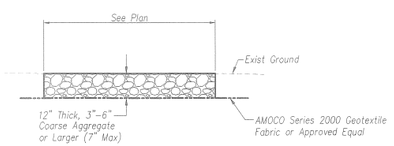
Not to Scale



NOTE:
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

Not to Scale



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

Not to Scale

GOOD HOUSEKEEPING BMP'S:

1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
2. Dust Control: The contractor at his own expense shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Hawaii Administrative rules: Title 11, Chapter 60, "Air Pollution Control" Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.
3. Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.
4. Materials Delivery, Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other 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 maximum extent practicable.
5. 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 cleanup all leaks and spills immediately.
6. Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
7. Nonhazardous Materials: In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone.
8. Vehicle and Equipment Cleaning: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using offsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.
9. 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.
10. Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite 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.
11. Solid Waste Management: Prevent or reduce discharge of pollutants to the land, groundwater, and in 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.
12. 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.
13. Stockpile Management: Stockpile shall not be located in drainage ways, within 50 feet from 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 to prevent storm water carrying contaminants into drainage systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require a 8 foot wide benching in accordance with ROH Chapter 18A, Article 3. Stockpiles must be covered with plastic sheeting or a comparable material if they will not be actively used within 7 days.
14. Liquid Waste Management: Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.
15. Concrete Waste Management: Prevent or reduce 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 free of holes, 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 used 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.
16. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable federal regulations.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY AND POLLUTION CONTROL:

The general contractor/developer/owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control".

The general contractor/developer/owner of the project shall obtain National Pollution Discharge Elimination System (NPDES) Permit coverage(s) for the following:

1. Storm water discharge associated with construction activities that disturb one (1) acre or more, and
2. Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters

In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at http://health.hawaii.gov/cwb. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

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. The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Site ("ESCP Coordinator") prior to permit issuance using the form provided as Appendix A to the Rules Relating to Water Quality.
3. The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's "Rules Relating to Water Quality".
4. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.
5. Slope Protection: 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 anytime on slopes greater than 15%.
6. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more.
7. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative 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.
8. 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.
9. Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be protected from excessive compaction during construction. Vehicle and equipment use shall be restricted or techniques to condition the soils to support vegetation shall be implemented in the areas that have been compacted and are designated to remain vegetative or post-construction infiltration 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.
10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
11. Inlet protection:
    A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device.
    B. 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.
    C. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
    D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
13. Sediment Basins:
    A. Sediment basins must be kept in effective operating condition and sediment shall be removed when the sediment accumulation reaches one half of the trap capacity.
14. Tracking Control:
    A. 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.
    B. Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.
    C. 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 MS4 must be cleaned using dry methods such as sweeping or vacuuming.
    D. Washing pollutants and materials that are discharged from the project site to the MS4 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.
15. All best management practices (BMP's) shall not be removed until the entire project is complete.
16. Refer to City and County of Honolulu Best Management Practices Manual – Construction, for more information on BMP's.
17. The following BMP's were determined to be not applicable based on the specific site conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
    A. Dewatering practices are not applicable.
    B. Velocity dissipation devices are not applicable.
    C. Buffer zones are not applicable.
    D. Sediment traps are not applicable.
    E. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
    F. Sediment Barriers are not applicable.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Project Sequence:

Construction activities and implementation of BMP's shall be sequenced to minimize erosion and amount of sediment leaving the site. It is recommended that earth-disturbing activities be scheduled during the dry season. The following is the recommended sequence of operations in normal development and should be followed unless conditions make it impractical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and clearing and grubbing as necessary for the installation of these BMP's.
2. Construct temporary sediment basin and stabilize immediately.
3. Construct temporary diversion berms and swales as needed to direct runoff into the sediment basin.
4. Clear and grub increment 1 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
5. Grade increment 1 site and construct the driveway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
6. Seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods for increment 1 prior to start of clearing and grubbing of increment 2.
7. Clear and grub increment 2 site. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
8. Grade increment 2 site and construct the driveway and permanent drainage system. Install temporary inlet protection once drainage system inlets are constructed.
9. Plant permanent vegetation according to landscaping plan on terraces, benches, and steep slopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.
10. Install temporary or permanent irrigation system for areas in the item above. When a permanent irrigation system is planned, it should be installed prior to seeding.
11. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
12. Plant permanent ground cover according to the landscaping plans as soon as possible.
13. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
14. Practice good housekeeping measures throughout the duration of construction.
15. 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 and construction.
3. Inspect sediment basin, temporary berms, temporary 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 BMP's as needed.

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DESCRIPTION	BY	APPROVED
REVISION	DATE	

ENGINEER: WT | CHECKED BY: O
DRAWN BY: JG | PROJECT #: 3100-49

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 17A PARCEL 94

SINGLE FAMILY CONDOMINIUM
(DPP CONSTRUCTION PLANS FILE NO 2025/CP-9)
TMK: 9-1-17: POR OF 213
HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

APPROVED BY:
For CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.
5/21/25
DATE

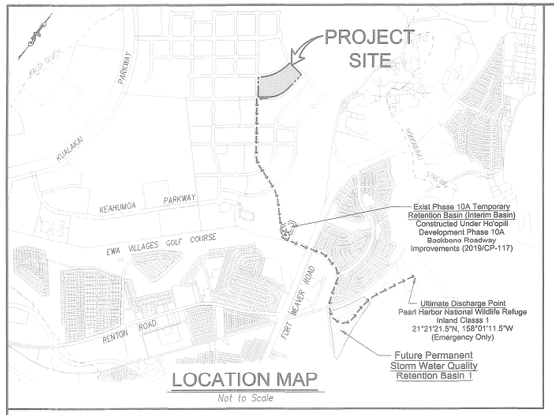
C012

SHEET 12 OF 57 SHEETS

FILE	POCKET	FOLDER	NO.

PROJECT NAME: HO'OPILI PHASE 17A PARCEL 94
CAD DWG NO.: 3100-49_ESCP.dwg
DATE: JANUARY 2025

Drawing name: P:\3100-49 Hoopili Ph 17A - Parcel 94\3100-49 DWG\Construction Plans\3100-49_ESCP.dwg, May 13, 2025 - 1:09pm



LOCATION MAP

Not to Scale

EXIST 'ONOHI'ULA ST (CITY)
HO'OPILI DEVELOPMENT, PHASE 17A
BACKBONE ROADWAY IMPROVEMENTS
(2023/CP-66)

EXIST LONOMEHA ST (CITY)
HO'OPILI DEVELOPMENT, PHASE 17A
BACKBONE ROADWAY IMPROVEMENTS
(2023/CP-66)

TRUE NORTH
SCALE 1"=50'-0"

EXIST KAMAILEHOPE ST (CITY)
HO'OPILI DEVELOPMENT, PHASE 17A
BACKBONE ROADWAY IMPROVEMENTS
(2023/CP-66)

EXIST KULANIHAKO'I ST (CITY)
HO'OPILI DEVELOPMENT, PHASE 13
BACKBONE ROADWAY IMPROVEMENTS
(2021/CP-114)

DWY "A" (PRIVATE)
DWY "B" (PRIVATE)
DWY "C" (PRIVATE)
DWY "D" (PRIVATE)
DWY "E" (PRIVATE)

Utility Lot

Hydrodynamic Separator

Inlet

POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)

50 25 0 50 100
Scale in Feet

LEGEND

- Existing Drainline
- New Drainline
- Property Line
- Condominium Lot Line
- Swale
- Flow Pattern
- Drain Inlet w/ Marker (For Det See Sht C021)
- Landscaped Areas

PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

SOURCE CONTROL BMPs	
BMP No	BMP Type
1	Landscape Areas
2	Automatic Irrigation System
3	Storm Drain Markers on Drain Inlets
4	Trash Containers shall be covered with roofs, awnings, or attached lids.
5	Parking Areas
TREATMENT CONTROL BMPs	
BMP No	BMP Type
6	Ho'opili Permanent SWQ Retention Basin 1 (storm water quality and flood control detention)

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

1. Vehicle and Equipment Fueling Areas – Not applicable for this project.
2. Vehicle and Equipment Repair – Will not be allowed for this project.
3. Vehicle and Equipment Washing and Cleaning – Will not be allowed for this project.
4. Loading Docks – Not applicable for this project.
5. Outdoor Material Storage – Will not be allowed for this project.
6. Outdoor Work Areas – Not applicable for this project.
7. Outdoor Process Equipment Operations – Not applicable for this project.

SOURCE CONTROL BMPS:

1. Landscaped Areas – Protect slopes with landscaping
2. Automatic Irrigation Systems (See Landscaping Plans) – Designed to each area's specific water requirements and to minimize runoff of excess irrigation water
3. Storm Drain Markers on Drain Inlets (See Detail on Sht C021)
4. Trash Containers shall be covered with roofs, awnings, or attached lids.
5. Parking areas that are paved with impermeable material are graded to direct runoff into onsite storm drainage system then to the regional offsite water quality/retention basin constructed in "Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans" (R.M. Towill Corporation, 2019/CP–117), which serves as a post–construction treatment control BMP.

TREATMENT CONTROL BMPs:

1. Future Condition: Permanent Offsite Basin 1 – Refer to "Ho'opili Drainage Master Plan" prepared by R.M. Towill Corporation, dated August 24, 2015, approved September 16, 2015. For location, see map above.
   Required WQV = 41.40 AC–FT
   Provided WQV = 283.06 AC–FT
2. Interim Condition: Phase 10A Temporary Retention Basin, as shown in Ho'opili Development, Phase 10A Backbone Roadway Improvements Plans (R.M. Towill Corporation, 2019/CP–117). For location, see map above.
   Required WQV = 10.93 AC–FT
   Provided WQV = 14.73 AC–FT

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BY	DATE	REVISION
GNN	4/28/25	1 UPDATED LOTS 4, 44, 130, 131 & UTILITY LOT LANDSCAPE AREAS

APPROVED

ENGINEER: WT | CHECKED BY: MN
DRAWN BY: JG | PROJECT #: 3100-49

"PROPOSED PRIVATE DRIVEWAY"

HO'OPILI PHASE 17A PARCEL 94

SINGLE FAMILY CONDOMINIUM
(DPP CONSTRUCTION PLANS FILE NO 2025/CP-9)
TMK: 9-1-17: POR OF 213
HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

APPROVED BY:

For CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. (FOR GRADING ONLY)

5/21/25
DATE

C013

SHEET 13 OF 57 SHEETS

FILE | POCKET | FOLDER | NO.

PROJECT NAME: HO'OPILI PHASE 17A PARCEL 94
CAD DWG NO.: 3100-49_BMP.dwg
DATE: JANUARY 2025

Drawing name: P:\3100-49 Hoopili Ph 17A - Parcel 94\3100-49 DWG\Construction Plans\3100-49_BMP.dwg May 13, 2025 - 1:11pm

GOOD HOUSEKEEPING BMPS NOTES:

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).

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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.

4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 FOOT WIDE BENCHING IN ACCORDANCE WITH ROH CHAPTER 18A, ARTICLE 3. STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY USED WITHIN 7 DAYS.

12. LIQUID WASTE MANAGEMENT.

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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.

GOOD HOUSEKEEPING BMPS NOTES (CONT'D):

14. CONTAMINATED SOIL MANAGEMENT.

    AT MINIMUM CONTAIN CONTAMINATED MATERIAL SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL".

16. BMP AND SITE MAINTENANCE.

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES:

PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS AND INLET PROTECTION FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SWALES AND SEDIMENT TRAPS AND STABILIZE IMMEDIATELY.
3. PROVIDE WATER TRUCKS FOR DUST CONTROL.
4. CLEAR, GRUB AND GRADE THE SITE IN 10 INCREMENTS IN SEQUENTIAL NUMERICAL ORDER, REFER TO ESCP PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME. THE CURRENT INCREMENT SHALL BE STABILIZED PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
5. 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.
6. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
7. PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.
8. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
9. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
10. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE GRADING AND TRENCHING.
2. INSPECT ALL SEDIMENT TRAPS, TEMPORARY 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.

4. 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.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL FOR COMPACTED CORAL AREAS 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.

6. 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.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

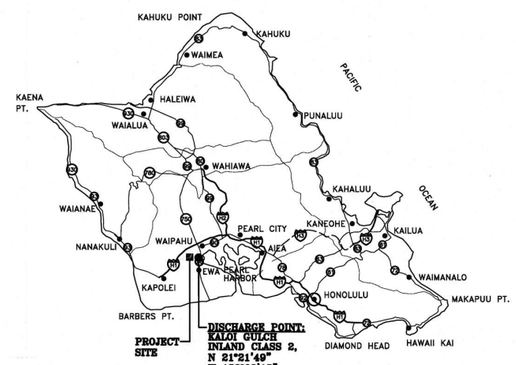
9. INLET PROTECTION
   - ALL STORM DRAIN INLETS ONSITE AND THOSE OFFSITE WHICH MAY RECEIVE RUNOFF FROM THE SITE SHALL USE AN INLET PROTECTION DEVICE UNLESS THEY ARE DIRECTED TO A SEDIMENT BASIN.
   - SEDIMENT LEVELS MAY NOT EXCEED ONE THIRD OF THE HEIGHT OF A SEDIMENT BARRIER OR INLET PROTECTION DEVICE 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.

10. SEDIMENT TRAPS

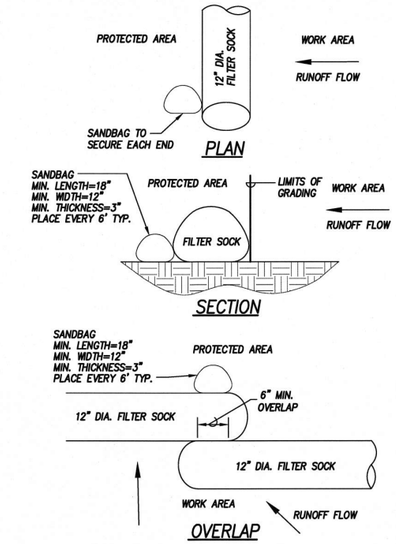
    SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES. CONTRACTOR SHALL PROVIDE A STAFF GAGE SHOWING ELEVATION AND DEPTH OF SEDIMENT BASIN.

11. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.

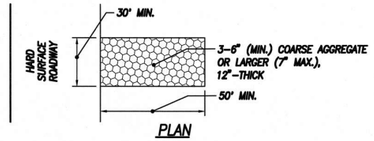
12. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
13. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL- CONSTRUCTION, FOR MORE INFORMATION ON BMPS.
14. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
      - THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE. GRADING ON SLOPES WITH A GRADE OF 15% OR MORE OCCURS ON LOCALIZED TRANSITION SLOPES OR CHANNEL OR BASIN SIDE SLOPES WITHIN THE PROJECT. WHERE GRADING OCCURS ON LOCALIZED TRANSITIONS, THERE IS NO SEVERE EROSION FROM UPSLOPE RUNOFF AND THE PROPOSED BMPS WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT - PHASE 17; EWA, OAHU, HAWAII" DATED OCTOBER 10, 2023, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIER
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT TRAPS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - VELOCITY DISSIPATION DEVICE
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - SEDIMENT BASINS
      - SEPARATE DOCUMENTATION PROVIDED TO DPP.
    - BUFFER ZONES
      - THE PROJECT IS NOT WITHIN 50 FT OF STATE WATERS AND THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE WITH THE EXCEPTION OF EXISTING GRADE TRANSITIONS, WHICH ARE NOT SUBJECT TO SEVERE EROSION. THE PROPOSED BMPS (PERIMETER CONTROL) WILL SUFFICIENTLY ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
15. THE OWNER OF THE PROPERTY OR THEIR AUTHORIZED AGENT MUST DESIGNATE A PERSON RESPONSIBLE FOR IMPLEMENTING THE ESCP AT THE PROJECT SITE ("ESCP COORDINATOR") PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY.
16. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.



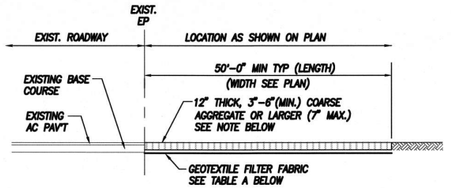
LOCATION MAP
NOT TO SCALE



COMPOST FILTER SOCK DETAIL
NOT TO SCALE



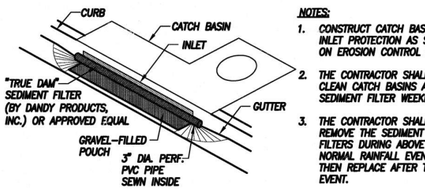
NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.



SECTION

TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS
NOT TO SCALE



NOTES:
1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION
NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 17B

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 195, 196, 213

R. M. TOWILL CORPORATION
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2024 North King Street Suite 200
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BRENT W.B. NAKAMOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
SIGNATURE 4/30/26 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE 4/30/26 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

BY	APPROV'D

REVISION	DATE	BRIEF

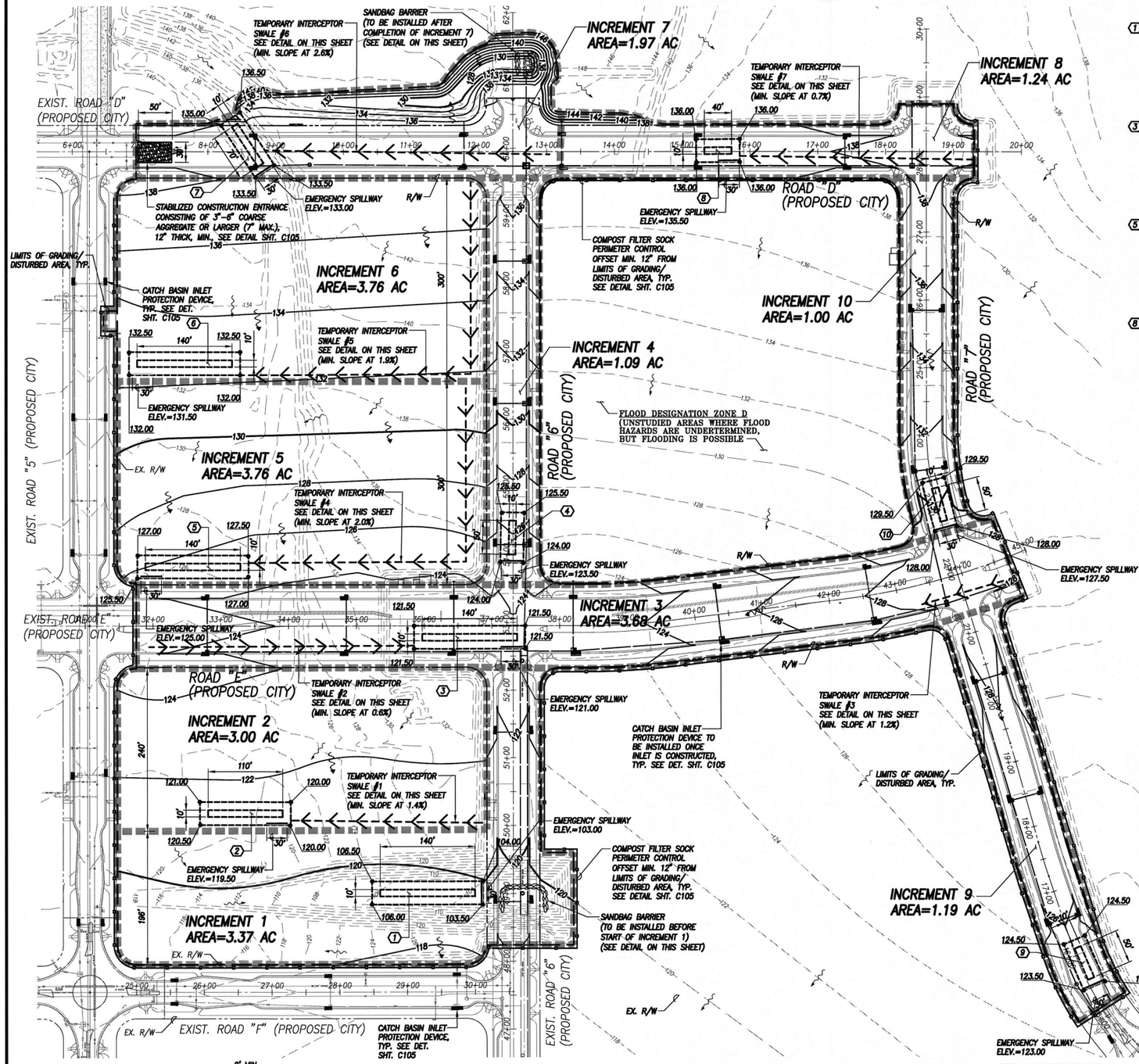
APPROVED BY
Chief, Civil Engineering Branch, DPP — DATE 6/12/24

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	SEPTEMBER 2023
DPP FILE NO.	2023/CP-155

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

RMTC JOB NO.: 1-24153-0E

FILE	POCKET	FOLDER	NO.



① TEMPORARY SEDIMENT TRAP 1
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 100.00 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 3.37 AC
(INCREMENT 1)
REQUIRED VOLUME = 449 CY.
AVAILABLE VOLUME = 517 CY.

② TEMPORARY SEDIMENT TRAP 2
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 116.50 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 3.00 AC
(INCREMENT 2)
REQUIRED VOLUME = 400 CY.
AVAILABLE VOLUME = 418 CY.

③ TEMPORARY SEDIMENT TRAP 3
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 118.00 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 3.68 AC
(INCREMENT 3)
REQUIRED VOLUME = 490 CY.
AVAILABLE VOLUME = 517 CY.

④ TEMPORARY SEDIMENT TRAP 4
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 120.50 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 1.09 AC
(INCREMENT 4)
REQUIRED VOLUME = 146 CY.
AVAILABLE VOLUME = 223 CY.

⑤ TEMPORARY SEDIMENT TRAP 5
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 122.00 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 3.76 AC
(INCREMENT 5)
REQUIRED VOLUME = 501 CY.
AVAILABLE VOLUME = 517 CY.

⑥ TEMPORARY SEDIMENT TRAP 6
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 128.50 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 3.76 AC
(INCREMENT 6)
REQUIRED VOLUME = 501 CY.
AVAILABLE VOLUME = 517 CY.

⑦ TEMPORARY SEDIMENT TRAP 7
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 130.00 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 1.97 AC
(INCREMENT 7)
REQUIRED VOLUME = 262 CY.
AVAILABLE VOLUME = 288 CY.

⑧ TEMPORARY SEDIMENT TRAP 8
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 132.50 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 1.24 AC
(INCREMENT 8)
REQUIRED VOLUME = 165 CY.
AVAILABLE VOLUME = 190 CY.

⑨ TEMPORARY SEDIMENT TRAP 9
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 120.00 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 1.19 AC
(INCREMENT 9)
REQUIRED VOLUME = 158 CY.
AVAILABLE VOLUME = 223 CY.

⑩ TEMPORARY SEDIMENT TRAP 10
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 124.50 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 1.00 AC
(INCREMENT 10)
REQUIRED VOLUME = 133 CY.
AVAILABLE VOLUME = 223 CY.

TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=0.62 CFS
A=0.52 AC.
V=1.42 FPS
D=0.33 FT
S=0.014 FT/FT

TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=1.00 CFS
A=0.83 AC.
V=1.83 FPS
D=0.37 FT
S=0.010 FT/FT

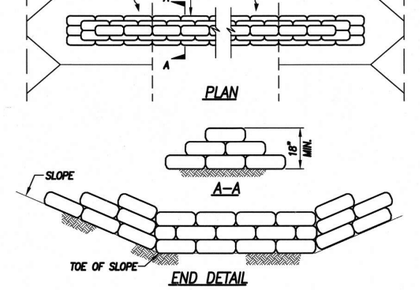
TEMPORARY SWALE #3
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=0.23 CFS
A=0.18 AC.
V=1.03 FPS
D=0.24 FT
S=0.010 FT/FT

TEMPORARY SWALE #4
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=2.43 CFS
A=2.03 AC.
V=2.34 FPS
D=0.51 FT
S=0.020 FT/FT

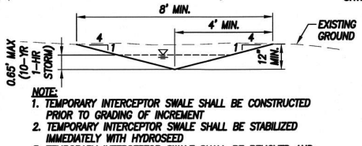
TEMPORARY SWALE #5
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=2.43 CFS
A=2.03 AC.
V=2.25 FPS
D=0.52 FT
S=0.019 FT/FT

TEMPORARY SWALE #6
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=1.03 CFS
A=0.84 AC.
V=1.99 FPS
D=0.36 FT
S=0.026 FT/FT

TEMPORARY SWALE #7
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=0.46 CFS
A=0.40 AC.
V=0.99 FPS
D=0.34 FT
S=0.007 FT/FT

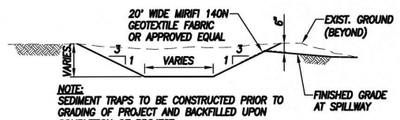


SANDBAG BARRIER DETAIL
NOT TO SCALE



NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE CONSTRUCTED PRIOR TO GRADING OF INCREMENT
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED
3. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE



NOTE:
SEDIMENT TRAPS TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT.

TEMPORARY SEDIMENT TRAP
NOT TO SCALE

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	5,630 LF
CATCH BASIN INLET PROTECTION DEVICE	60 EA.
SAND BAG BARRIER	130 LF.

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SWALES

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

NOTE:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE THIS SHEET FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C105 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE:
1" = 80'
80' 40' 0 80' 160'
SCALE IN FEET

EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 80'

HO'OPILI DEVELOPMENT PHASE 17B

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 195, 196, 213

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No. 11106-C
HAWAII, U.S.A.
SIGNATURE 4/30/26 EXP. DATE

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LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/26 EXP. DATE

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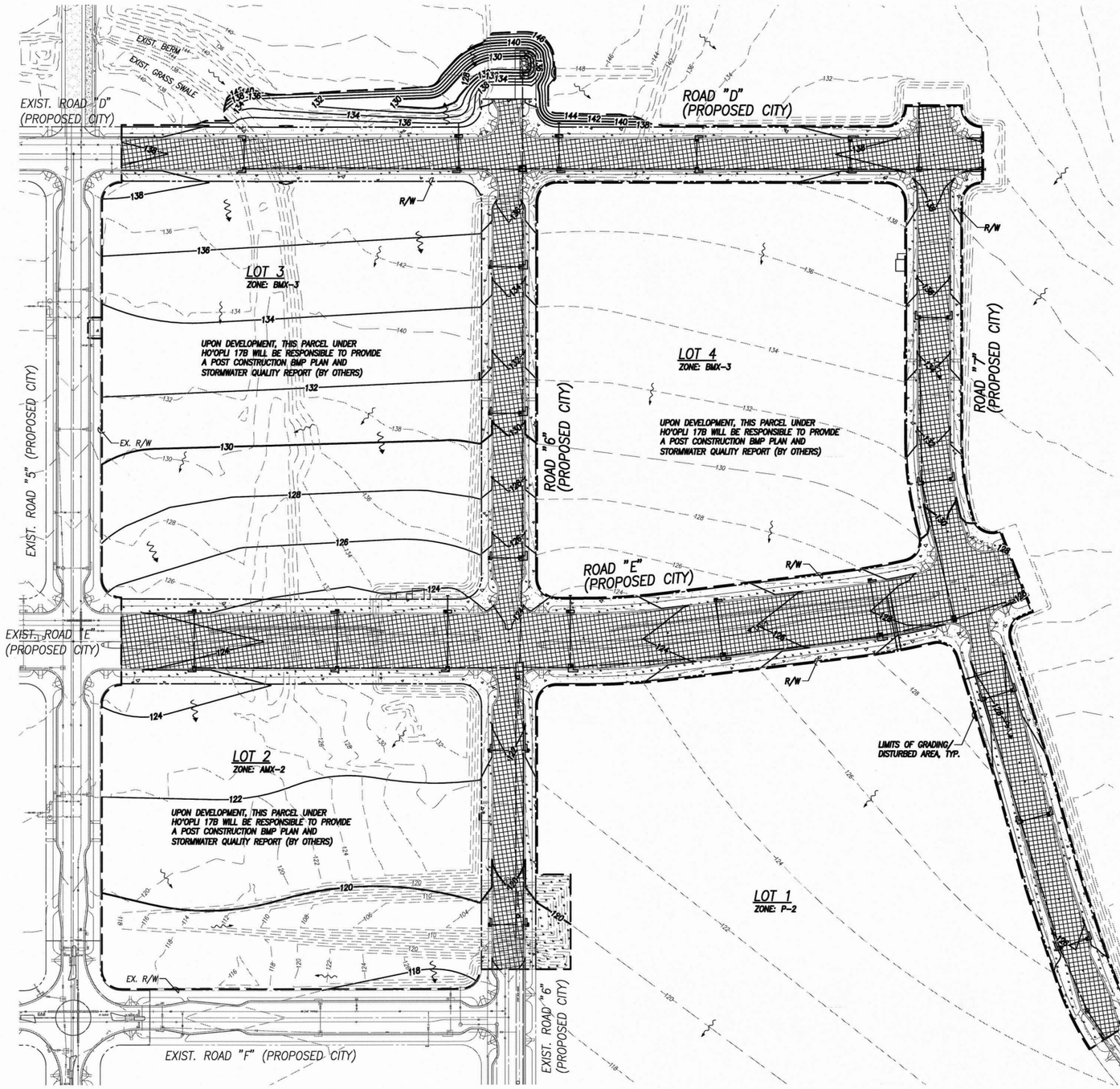
NO.	REVISION	DATE	BY	APPROVED

APPROVED BY
Chief, Civil Engineering Branch, DPP (for grading and work within proposed City R/W only) DATE 6/16/26

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	SEPTEMBER 2023
DPP FILE NO.	2023/CP-155

EROSION AND SEDIMENT CONTROL PLAN

RMTC JOB NO.: 1-24153-0E



POST CONSTRUCTION BMP PLAN
SCALE: 1" = 80'

LID SITE DESIGN

1. CONSERVE NATURAL AREAS, SOILS AND VEGETATION.
2. MINIMIZE SOIL COMPACTION.
3. MINIMIZE DISTURBANCE TO NATURAL DRAINAGE.

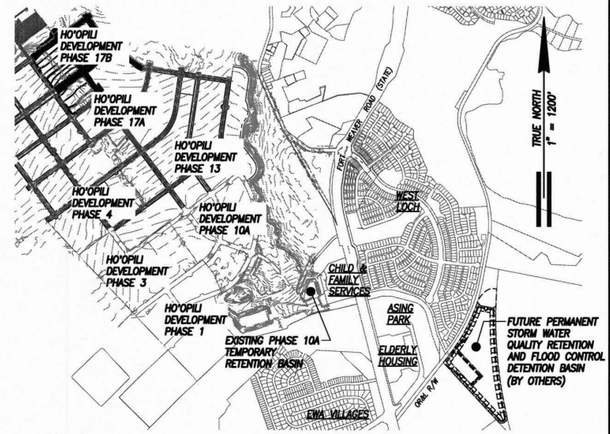
SOURCE CONTROL BMP

1. RUNOFF FROM LANDSCAPED AREAS WITHIN THE CITY ROW WILL DISCHARGE TO THE EXISTING PHASE 10A TEMPORARY RETENTION BASIN.
2. AN AUTOMATIC IRRIGATION SYSTEM WILL BE PROVIDED FOR LANDSCAPED AREAS.
   - DESIGN IRRIGATION SYSTEM TO EACH LANDSCAPE AREA'S SPECIFIC WATER REQUIREMENTS.
   - IMPLEMENT PROVISIONS SUCH AS WATER SENSORS OR PROGRAMMABLE IRRIGATION TIMES (FOR SHORT CYCLES).
   - DESIGN TIMING AND APPLICATION METHODS OF IRRIGATION WATER TO MINIMIZE THE RUNOFF OF EXCESS IRRIGATION WATER INTO THE STORM WATER DRAINAGE SYSTEM.
   - GROUP PLANTS WITH SIMILAR WATER REQUIREMENTS IN ORDER TO REDUCE EXCESS IRRIGATION RUNOFF AND PROMOTE SURFACE FILTRATION.
3. RUNOFF FROM PARKING AREAS (ON-STREET) WILL FLOW TOWARDS THE UNDERGROUND DRAINAGE SYSTEM WITHIN THE CITY R/W AND DISCHARGE TO THE EXISTING PHASE 10A TEMPORARY RETENTION BASIN.
4. STORM DRAIN INLETS WILL BE MARKED WITH PROHIBITED LANGUAGE.

TREATMENT CONTROL BMP

1. INTERIM CONDITION: EXISTING PHASE 10A TEMPORARY RETENTION BASIN (2029/CP-117) FOR STORM WATER QUALITY RETENTION.
   REQUIRED WQV=12.31 AC-FT
   AVAILABLE WQV=14.73 AC-FT
2. FUTURE PERMANENT CONDITION: FUTURE PERMANENT OFFSITE SWQ AND FLOOD CONTROL DETENTION BASIN 1 AS SPECIFIED IN THE HO'OPILI DRAINAGE MASTER PLAN (AUGUST 2015).
   REQUIRED WQV=41.4 AC-FT
   AVAILABLE WQV=283.1 AC-FT

TRUE NORTH 1"=80'



INSET
SCALE: 1" = 1200'

LEGEND

- DRAIN LINE
- CATCH BASIN
- DRAIN MANHOLE
- GRASS
- A.C. PAVEMENT
- CONCRETE PAVEMENT
- GROUTED RIPRAP
- PROPOSED FLOW PATTERN
- EXISTING FLOW PATTERN

GRAPHIC SCALE:
1" = 80' — 80' 40' 0 80' 160'
1" = 1200' — 1200' 600' 0 1200' 2400'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 17B

BACKBONE ROADWAY IMPROVEMENTS

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 195, 196, 213

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
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Honolulu Hawaii 96819

BRENT W.B. NAKAKOA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
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REVISION	DATE	BY
		APPROVED
		BRIEF

APPROVED BY
Chief, Civil Engineering Branch, DPP MT DATE 6/16/25
(For grading and work within proposed City R/W only)

ENGINEER	CD, RH, MN, MC
DRAFTSMAN	CD, RH, MN, MC
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	SEPTEMBER 2023
DPP FILE NO.	2023/CP-155

POST CONSTRUCTION BMP PLAN

RMTC JOB NO.: 1-24153-OE

FILE	POCKET	FOLDER	NO.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.

4. TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 7 CONSECUTIVE DAYS OR MORE.

5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING OR PAVEMENT 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.

6. 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.

7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.

8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

9. 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.

10. SEDIMENT TRAPS

    SEDIMENT TRAPS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE THIRD OF THE DESIGN CAPACITY AT ALL TIMES.

11. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.

12. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.

13. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL-CONSTRUCTION FOR MORE INFORMATION ON BMPS.

14. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.

    - VELOCITY DISSIPATION DEVICES
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - DEWATERING PRACTICES
      - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILI DEVELOPMENT - PHASE 17; EWA, OAHU, HAWAII" DATED OCTOBER 10, 2023, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT TRAPS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT BASINS
      - SEPARATE DOCUMENTATION PROVIDED TO DPP.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE.
      - THE PROJECT OCCURS ON EXISTING SLOPES LESS THAN 15%.
    - BUFFER ZONES
      - THE PROJECT OCCURS ON EXISTING SLOPES LESS THAN 15% AND DOES NOT OCCUR WITHIN 50 FT OF STATE WATERS.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.

15. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).

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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.

4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.

5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 FOOT WIDE BENCHING IN ACCORDANCE WITH ROH CHAPTER 18A, ARTICLE 3. STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY USED WITHIN 7 DAYS.

12. LIQUID WASTE MANAGEMENT.

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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."

16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

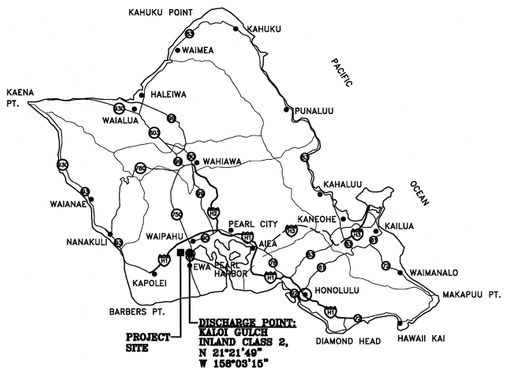
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, INLET PROTECTION, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT TRAPS AND STABILIZE IMMEDIATELY.
3. CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT TRAPS. STABILIZE IMMEDIATELY.
4. PROVIDE WATER TRUCKS FOR DUST CONTROL.
5. CLEAR, GRUB AND GRADE THE SITE IN 10 INCREMENTS IN NUMERICAL SEQUENTIAL ORDER STARTING WITH INC. 1, REFER TO GRADING PLANS. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH INCREMENT.
6. 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.
7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

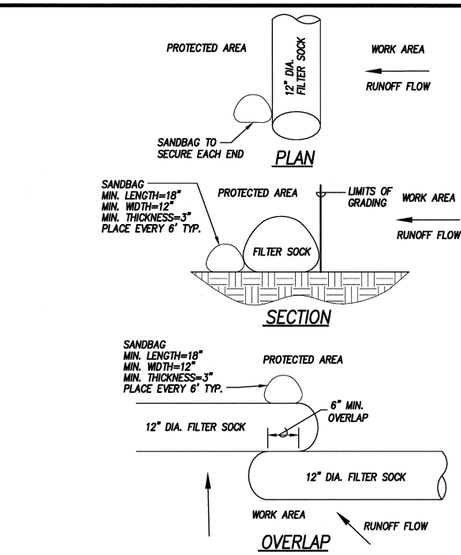
RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

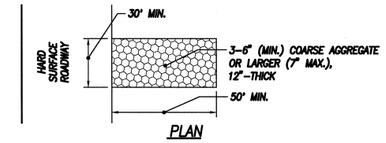
1. TEMPORARY SUSPENSION OF ACTIVE GRADING.
2. INSPECT ALL PERIMETER CONTROLS, TEMPORARY SEDIMENT TRAPS, TEMPORARY SWALES, AND INLET PROTECTION DEVICES, AND MAINTAIN AS NEEDED. REINSTALL ANY PERIMETER CONTROLS THAT WERE REMOVED DUE TO ACTIVE WORK IN THE AREA. IF A SEVERE STORM IS EXPECTED, REMOVE INLET PROTECTION DEVICES TO PREVENT FLOODING ON SURROUNDING STREETS.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



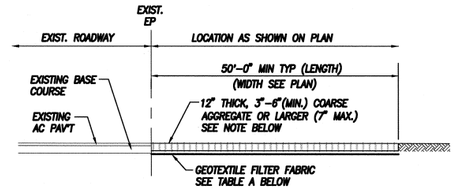
LOCATION MAP
NOT TO SCALE



COMPOST FILTER SOCK DETAIL
NOT TO SCALE



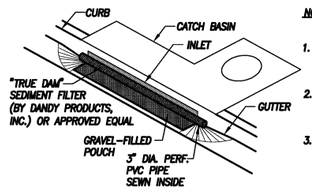
NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.



SECTION

TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS
NOT TO SCALE



NOTES:

1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION
NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 17B

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 196, 213

R. M. TOWILL CORPORATION
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BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
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NO.	REVISION	DATE	BY	APPROVED
	BRIEF			

APPROVED BY
For Chief, Civil Engineering Branch, DPP — DATE 10/17/25

ENGINEER	CD, MN, RH
DRAFTSMAN	CD, MN, RH
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	JUNE 2023
DPP FILE NO.	2023/CP-110

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-24153-0E

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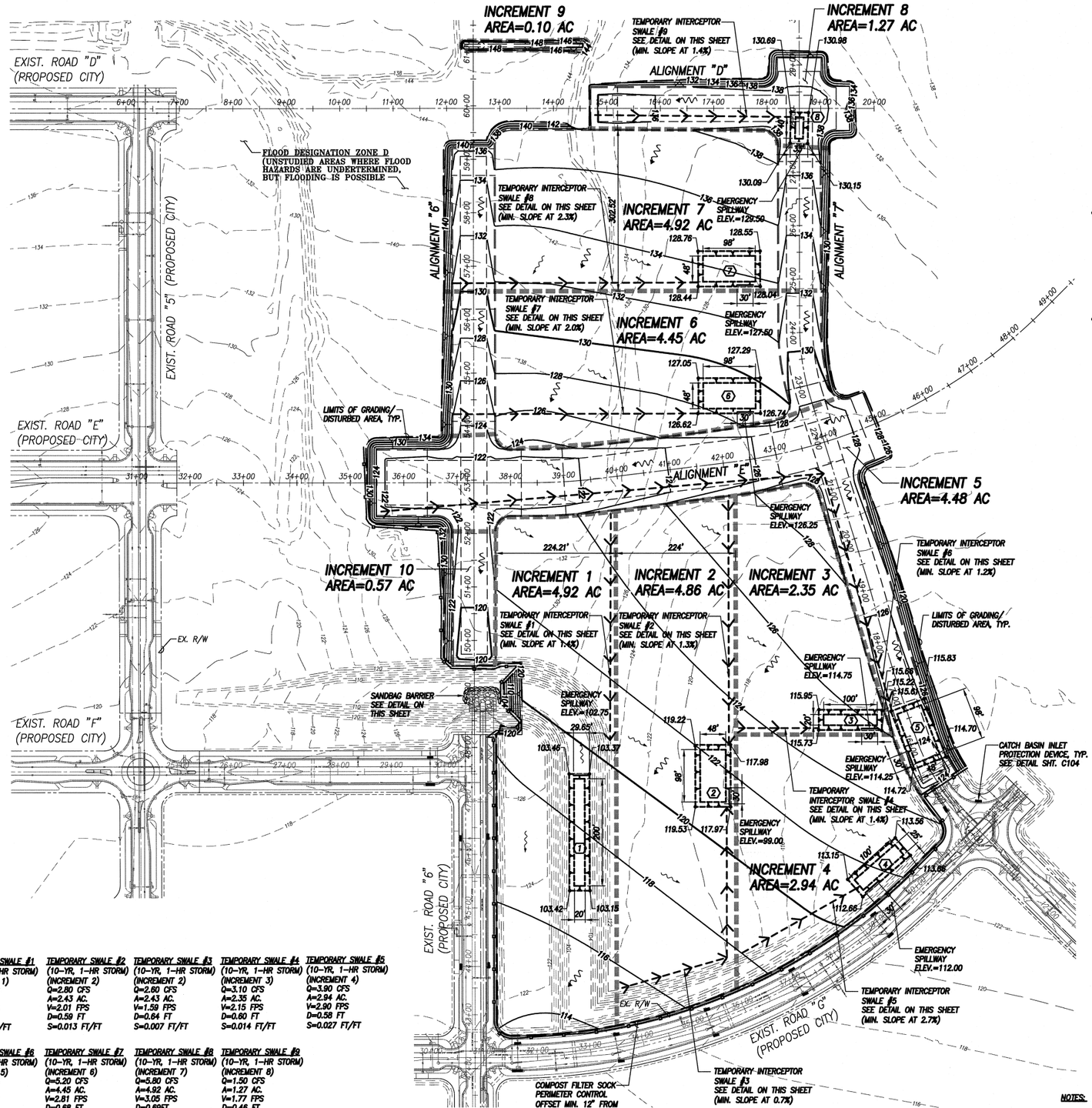


EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 100'

1 TEMPORARY SEDIMENT TRAP 1
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 100 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.92 AC
(INCREMENT 1)
REQUIRED VOLUME = 656 CY.
AVAILABLE VOLUME = 703 CY.

2 TEMPORARY SEDIMENT TRAP 2
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 114.75 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.86 AC
(INCREMENT 2)
REQUIRED VOLUME = 648 CY.
AVAILABLE VOLUME = 735 CY.

3 TEMPORARY SEDIMENT TRAP 3
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 112 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 2.35 AC
(INCREMENT 3)
REQUIRED VOLUME = 313 CY.
AVAILABLE VOLUME = 380 CY.

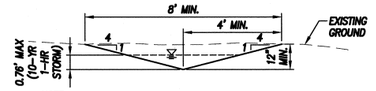
4 TEMPORARY SEDIMENT TRAP 4
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 109.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 2.94 AC
(INCREMENT 4)
REQUIRED VOLUME = 392 CY.
AVAILABLE VOLUME = 446 CY.

5 TEMPORARY SEDIMENT TRAP 5
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 111.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.48 AC
(INCREMENT 5)
REQUIRED VOLUME = 597 CY.
AVAILABLE VOLUME = 735 CY.

6 TEMPORARY SEDIMENT TRAP 6
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 123.50 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.45 AC
(INCREMENT 6)
REQUIRED VOLUME = 593 CY.
AVAILABLE VOLUME = 735 CY.

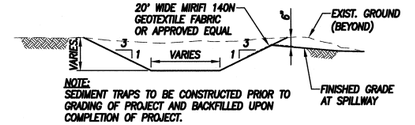
7 TEMPORARY SEDIMENT TRAP 7
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 125 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 4.92 AC
(INCREMENT 7)
REQUIRED VOLUME = 656 CY.
AVAILABLE VOLUME = 735 CY.

8 TEMPORARY SEDIMENT TRAP 8
(3600 CU. FT. PER ACRE)
SEE DETAIL THIS SHT.
MIN. INVERT = 127 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 1.27 AC
(INCREMENT 8)
REQUIRED VOLUME = 169 CY.
AVAILABLE VOLUME = 271 CY.



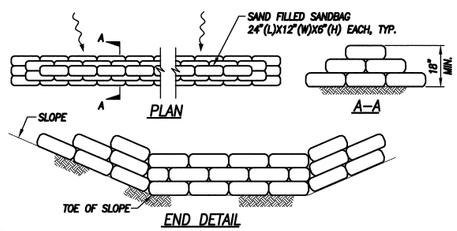
NOTE:
1. TEMPORARY INTERCEPTOR SWALE SHALL BE CONSTRUCTED PRIOR TO GRADING OF INCREMENT
2. TEMPORARY INTERCEPTOR SWALE SHALL BE STABILIZED IMMEDIATELY WITH HYDROSEED
3. TEMPORARY INTERCEPTOR SWALE SHALL BE REMOVED AND GRADED LAST UPON COMPLETION OF GRADING INCREMENTS

TEMPORARY INTERCEPTOR SWALE
NOT TO SCALE



NOTE:
SEDIMENT TRAPS TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT.

TEMPORARY SEDIMENT TRAP
NOT TO SCALE



SANDBAG BARRIER DETAIL
NOT TO SCALE

TEMPORARY SWALE #1
(10-YR, 1-HR STORM)
(INCREMENT 1)
Q=5.80 CFS
A=4.92 AC.
V=2.51 FPS
D=0.76 FT
S=0.014 FT/FT

TEMPORARY SWALE #2
(10-YR, 1-HR STORM)
(INCREMENT 2)
Q=2.80 CFS
A=2.43 AC.
V=2.01 FPS
D=0.59 FT
S=0.013 FT/FT

TEMPORARY SWALE #3
(10-YR, 1-HR STORM)
(INCREMENT 2)
Q=2.60 CFS
A=2.43 AC.
V=1.59 FPS
D=0.64 FT
S=0.007 FT/FT

TEMPORARY SWALE #4
(10-YR, 1-HR STORM)
(INCREMENT 3)
Q=3.10 CFS
A=2.35 AC.
V=2.15 FPS
D=0.60 FT
S=0.014 FT/FT

TEMPORARY SWALE #5
(10-YR, 1-HR STORM)
(INCREMENT 4)
Q=3.90 CFS
A=2.94 AC.
V=2.90 FPS
D=0.58 FT
S=0.027 FT/FT

TEMPORARY SWALE #6
(10-YR, 1-HR STORM)
(INCREMENT 5)
Q=4.40 CFS
A=4.48 AC.
V=2.24 FPS
D=0.70 FT
S=0.012 FT/FT

TEMPORARY SWALE #7
(10-YR, 1-HR STORM)
(INCREMENT 6)
Q=5.20 CFS
A=4.45 AC.
V=2.81 FPS
D=0.68 FT
S=0.020 FT/FT

TEMPORARY SWALE #8
(10-YR, 1-HR STORM)
(INCREMENT 7)
Q=5.80 CFS
A=4.92 AC.
V=3.05 FPS
D=0.69FT
S=0.023 FT/FT

TEMPORARY SWALE #9
(10-YR, 1-HR STORM)
(INCREMENT 8)
Q=1.50 CFS
A=1.27 AC.
V=1.77 FPS
D=0.46 FT
S=0.014 FT/FT

APPROXIMATE QUANTITIES

SILTSOXX COMPOST FILTER SOCK	2,600 LF
CATCH BASIN INLET PROTECTION DEVICE	18 EA.

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT TRAP
- TEMPORARY SWALES

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

NOTES:
1. THIS PROJECT IS A CATEGORY 5 PROJECT.
2. SEE SHEET C101 FOR LOCATION OF STABILIZED CONSTRUCTION ENTRANCE.
3. SEE SHT. C104 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
4. COMPOST FILTER SOCKS SHALL BE USED DURING ALL INCREMENTS.

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- LIMITS OF GRADING/ DISTURBED AREA
- PROPERTY LINE
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE

GRAPHIC SCALE:
1" = 100' 100' 50' 0 100' 200'
SCALE IN FEET

HO'OPILI DEVELOPMENT PHASE 17B

MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 196, 213

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

BRENT W.B. NAKAOKA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.
SIGNATURE 4/30/26 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU
LICENSED PROFESSIONAL ENGINEER
No. 14001-C
HAWAII, U.S.A.
SIGNATURE 4/30/26 EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

BY	DESCRIPTION	DATE	APPR'D
	REVISION		

APPROVED BY
for Chief, Civil Engineering Branch, DPP — DATE 10/17/25

ENGINEER	CD, MN, RH
DRAFTSMAN	CD, MN, RH
CHECKED BY	BN, CD
SCALE	AS SHOWN
DATE	JUNE 2023
DPP FILE NO.	2023/CP-110

EROSION AND SEDIMENT CONTROL PLAN

RMTC JOB NO.: 1-24153-0E

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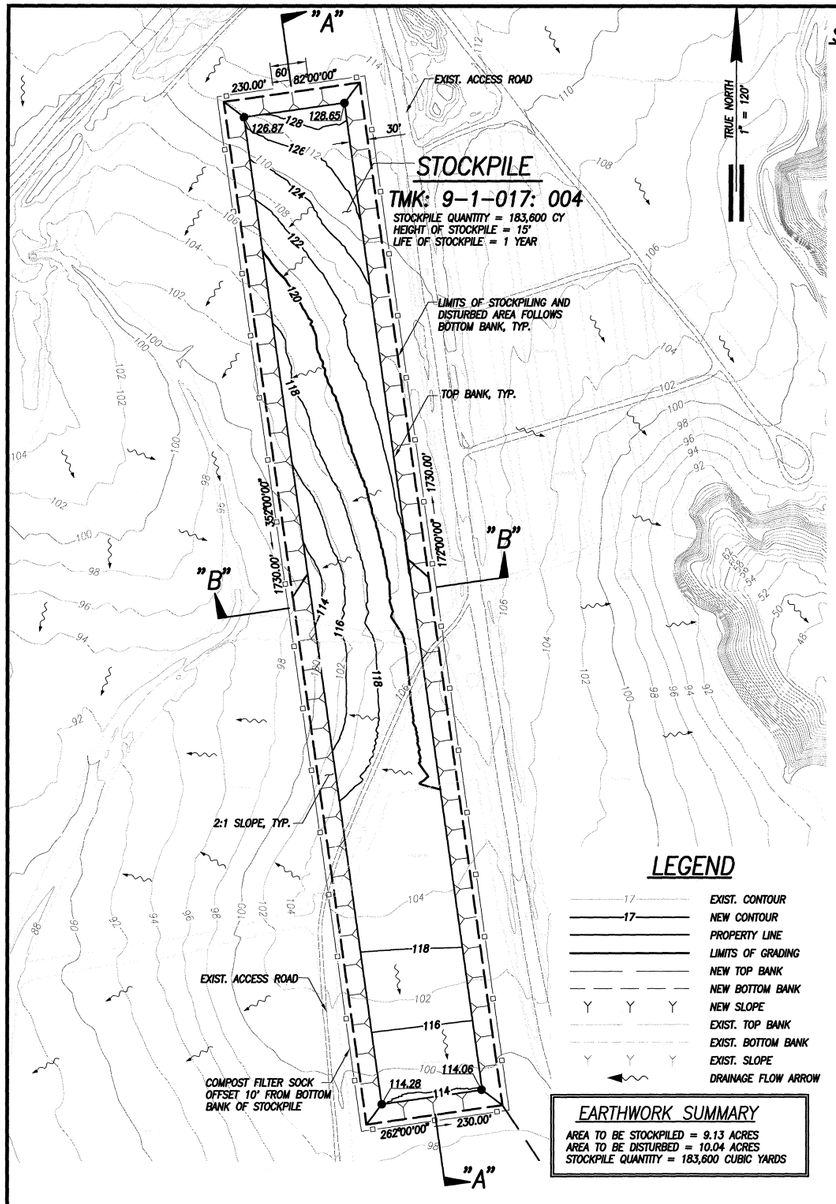
FILE	POCKET	FOLDER	NO.



STOCKPILE AND EROSION CONTROL PLAN

SCALE: 1" = 120'

LEGEND

- EXIST. CONTOUR
- NEW CONTOUR
- PROPERTY LINE
- LIMITS OF GRADING
- NEW TOP BANK
- NEW BOTTOM BANK
- NEW SLOPE
- EXIST. TOP BANK
- EXIST. BOTTOM BANK
- EXIST. SLOPE
- DRAINAGE FLOW ARROW

EARTHWORK SUMMARY

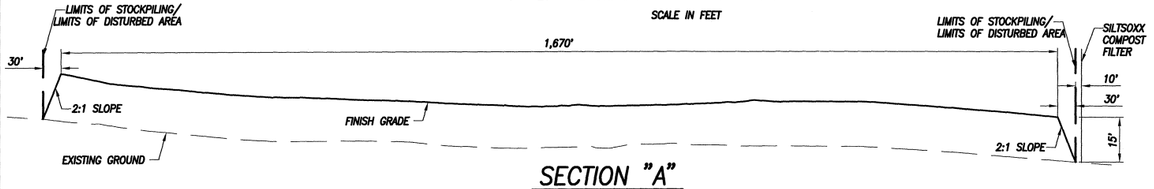
AREA TO BE STOCKPILED = 9.13 ACRES
AREA TO BE DISTURBED = 10.04 ACRES
STOCKPILE QUANTITY = 183,600 CUBIC YARDS

GRAPHIC SCALES

1" = 120' — 120' 60' 0 120' 240'

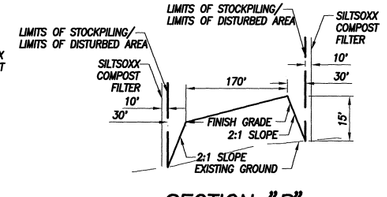
1" = 24' — 24' 12' 0 24' 48'

SCALE IN FEET



SECTION "A"

SCALE: HOR: 1" = 120'
VERT: 1" = 24'



SECTION "B"

SCALE: HOR: 1" = 120'
VERT: 1" = 24'

STOCKPILE NOTES

1. ALL STOCKPILING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13, 14, 15 AND 16, AS RELATED TO STOCKPILING, SOIL EROSION AND SEDIMENT CONTROL, OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED.
2. NO CONTRACTOR SHALL PERFORM ANY STOCKPILING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60.1, "AIR POLLUTION CONTROL".
4. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
5. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
6. ALL SLOPES AND EXPOSED AREAS SHALL BE GRASSED OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL AS SOON AS FINAL GRADES HAVE BEEN ESTABLISHED. GRASSING OR SPRAYING SHALL NOT BE DELAYED UNTIL ALL STOCKPILING WORK HAS BEEN COMPLETED. STOCKPILING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED SHALL BE GRASSED OR SPRAYED.
7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
8. THE CITY SHALL BE INFORMED OF THE LOCATION OF THE BORROW SITE FOR THE PROJECT WHEN THE APPLICATION FOR A STOCKPILING PERMIT IS MADE. THE BORROW SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
9. NO STOCKPILING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE DIRECTOR, D.P.P., PROVIDED SUCH STOCKPILING WORK IS ALSO IN CONFORMANCE WITH THE COMMUNITY NOISE CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 46, "COMMUNITY NOISE CONTROL".
10. THE LIMITS OF THE AREA TO BE STOCKPILED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE STOCKPILING WORK.

PUBLIC HEALTH, SAFETY AND CONVENIENCE

1. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH AND SAFETY AND ENVIRONMENTAL QUALITY.
2. THE CONTRACTOR AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND ITS SURROUNDING AREAS FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH. THE CITY SHALL REQUIRE SUPPLEMENTARY MEASURES AS NECESSARY.
3. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, BARRICADES, AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENT, AND SAFETY OF THE PUBLIC.
4. THE CONTRACTOR SHALL APPLY FOR A PERMIT WITH A NOISE CONTROL PLAN AND OTHER REQUIRED POLLUTION CONTROL PLANS.

NOTES FOR ENVIRONMENTAL PROTECTION

1. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE CHIEF ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
2. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF FUGITIVE DUST EMISSIONS FROM THE PROJECT AND SURROUNDING AREAS CAUSED BY HIS OPERATIONS. THESE MEASURES SHALL MEET THE REQUIREMENTS OF STATE ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, AIR POLLUTION CONTROL (11-60.1)
3. ALL STOCKPILING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE GRADING ORDINANCE TO PREVENT VIOLATION OF THE STATE ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS. (11-54, 11-55) DUE TO EROSION AND RUN OFF TO STATE WATERS.
4. GRUB MATERIAL, DEMOLITION WASTES, AND CONSTRUCTION WASTES SHALL BE DISPOSED OF AT AN AUTHORIZED SITE HAVING A DEPARTMENT OF HEALTH SOLID WASTE MANAGEMENT PERMIT. OPEN BURNING IS PROHIBITED. THE CONTRACTOR SHALL INFORM THE COUNTY ENGINEER OF THE LOCATION OF THE DISPOSAL SITES. THE DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCES.
5. ALL EXCESS MATERIAL SHALL BE REMOVED FROM THE PROJECT SITE.
6. THE PROJECT SITE SHALL BE KEPT DAMP WITH WATER FOR SEVEN (7) DAYS A WEEK. AT THE END OF EACH DAY, THE SITE SHALL BE SUFFICIENTLY DAMPENED SO THAT THE SITE WILL REMAIN MOISTENED DURING THE NIGHT.
7. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO THAT EXCAVATION, EMBANKMENT AND IMPORTED MATERIAL SHALL BE DAMPENED WITH WATER DURING THE STOCKPILING OPERATION.

STOCKPILE NOTES, CONTINUED

11. THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL BE RESPONSIBLE FOR ALL STOCKPILING OPERATIONS TO BE PERFORMED IN CONFORMANCE WITH APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS", AND TITLE 11, CHAPTER 55 "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.

    THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:
    1. STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
    2. DISCHARGES OF HYDROTESTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.

    IN ACCORDANCE WITH STATE LAW, ALL DISCHARGES RELATED TO PROJECT CONSTRUCTION OR OPERATIONS ARE REQUIRED TO COMPLY WITH STATE WATER QUALITY STANDARDS (HAWAII ADMINISTRATIVE RULES, CHAPTER 11-54). BEST MANAGEMENT PRACTICES SHALL BE USED TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENT, DEBRIS, AND OTHER POLLUTANTS TO STATE WATERS. PERMIT COVERAGE IS AVAILABLE FROM THE DEPARTMET OF HEALTH, CLEAN WATER BRANCH AT HTTP://HEALTH.HAWAII.GOV/CWB. THE OWNER/DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING OTHER FEDERAL, STATE, OR LOCAL AUTHORIZATIONS AS REQUIRED BY LAW.
12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY STOCKPILING WORK IS INITIATED.
13. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR STOCKPILING PERMIT.
15. IF THE STOCKPILING WORK INVOLVES CONTAMINATED SOIL, THEN ALL STOCKPILING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
16. THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEERING BRANCH, DEPARTMENT OF PLANNING AND PERMITTING AT 768-8084 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT TWO (2) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
17. FOR ALL PROJECTS, WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND, THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL A NOTICE OF GENERAL PERMIT COVERAGE (NGPC) IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAII, AND HAS SATISFIED ANY OTHER APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM. ALSO, FOR NON-CITY AND OTHER GOVERNMENTAL AGENCY PROJECTS, THE CONTRACTOR SHALL PROVIDE A WRITTEN COPY OF THE NGPC TO THE PERMITTING AND INSPECTION SECTION, CIVIL ENGINEERING BRANCH, D.P.P., AT LEAST SEVEN (7) CALENDAR DAYS BEFORE THE START OF CONSTRUCTION. FOR CITY OR OTHER GOVERNMENTAL PROJECTS, THE CONTRACTOR SHOULD PROVIDE A WRITTEN COPY OF THE NGPC TO THE APPROPRIATE CITY DEPARTMENT OR GOVERNMENTAL AGENCY PER THEIR REQUIREMENTS.
18. ALL STOCKPILING AND CONSTRUCTION WORK SHALL IMPLEMENT MEASURES TO ENSURE THAT THE DISCHARGE OF POLLUTANTS FROM THE CONSTRUCTION SITE WILL BE REDUCED TO THE MAXIMUM EXTENT PRACTICABLE AND WILL NOT CAUSE OR CONTRIBUTE TO ANY EXCEEDANCE OF WATER QUALITY STANDARDS.
19. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
20. FOR BENCH MARK, SHEET C-2.
21. LIFE OF THE STOCKPILE SHALL BE ONE YEAR.

BEST MANAGEMENT PRACTICES TEMPORARY EROSION CONTROL NOTES

1. PRIOR TO STOCKPILING, TEMPORARY EROSION CONTROL MEASURES, SUCH AS A SILTSOXX, STABILIZED CONSTRUCTION ENTRANCE, AND WATER TRUCK FOR DUST CONTROL SHALL BE INSTALLED.
2. STABILIZED ENTRY/EXIT DRIVEWAYS SHALL BE ESTABLISHED AS SHOWN ON PLANS, PRIOR TO STOCKPILING OPERATIONS.
3. FOLLOW SEQUENCE OF OPERATION AS RECOMMENDED BY THE "RULES RELATING TO SOIL EROSION STANDARDS AND GUIDELINES," DEPARTMENT OF PLANNING AND PERMITTING, CITY AND COUNTY OF HONOLULU, APRIL 1999.
4. THE CONTRACTOR SHALL MINIMIZE THE AMOUNT OF LAND TO BE EXPOSED AT ANY ONE TIME.
5. THE ABOVE PROCEDURE FOR EROSION AND SEDIMENT CONTROL MAY BE REVISED BY THE CONTRACTOR TO CONFORM TO HIS STOCKPILING OPERATION PROCEDURE. HOWEVER, ANY REVISIONS TO THE ABOVE SHALL BE SUBMITTED TO THE CHIEF, CIVIL ENGINEERING BRANCH, DEPARTMENT OF PLANNING AND PERMITTING FOR APPROVAL, BY THE CONTRACTOR.

WATER POLLUTION AND GOOD HOUSEKEEPING NOTES

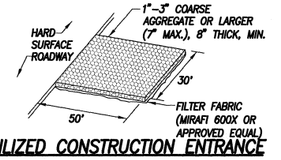
1. MATERIALS POLLUTION PREVENTION PLAN
   A. APPLICABLE MATERIALS OR SUBSTANCES LISTED BELOW ARE EXPECTED TO BE PRESENT ONSITE DURING CONSTRUCTION. OTHER MATERIALS AND SUBSTANCES NOT LISTED BELOW SHALL BE ADDED TO THE INVENTORY.

CONCRETE	FERTILIZERS
DETERGENTS	PETROLEUM BASED PRODUCTS
PAINTS (ENAMEL & LAYTEX)	CLEANING SOLVENTS
METAL STUDS	WOOD
	MASONARY BLOCK

   B. MATERIAL MANAGEMENT PRACTICES SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. AN EFFORT SHALL BE MADE TO STORE ONLY ENOUGH PRODUCT AS IS REQUIRED TO DO THE JOB.
   C. ALL MATERIALS STORED ONSITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE UNDER A ROOF OR OTHER ENCLOSURE.
   D. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
   E. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
   F. WHENEVER POSSIBLE, A PRODUCT SHALL BE USED UP COMPLETELY BEFORE DISPOSING OF THE CONTAINER.
   G. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED.
   H. THE CONTRACTOR SHALL CONDUCT A DAILY INSPECTION TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.
2. ONSITE AND OFFSITE PRODUCTS SPECIFIC PLAN
   A. THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ONSITE:
      (1) PETROLEUM BASED PRODUCTS: ALL ONSITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.
      (2) FERTILIZERS: FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE SHALL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
      (3) PAINTS: ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE CITY DRAINAGE SYSTEM BUT SHALL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURERS' INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
      (4) CONCRETE TRUCKS: CONCRETE TRUCKS SHALL BE ALLOWED TO WASH OUT OR DRUM WASH WATER ONLY AT A DESIGNATED SITE AS SHOWN. WATER SHALL NOT BE DISCHARGED IN THE CITY DRAINAGE SYSTEM OR WATERS OF THE UNITED STATES. THE CONTRACTOR SHALL CONTACT DRINKING WATER BRANCH.
   B. OFFSITE VEHICLE TRACKING: A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED STREET ADJACENT TO THE SITE ENTRANCE SHALL BE CLEANED DAILY OR AS REQUIRED TO REMOVE ANY EXCESS MUD, COLD PLANED MATERIALS, DIRT OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL TO/OR FROM THE CONSTRUCTION SITE SHALL BE COVERED WITH A TARPAULIN.

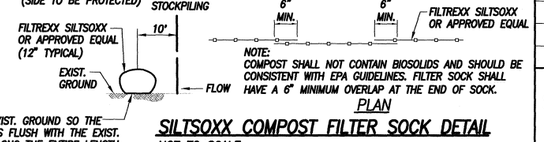
BEST MANAGEMENT PRACTICES TEMPORARY EROSION CONTROL NOTES

6. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO THAT EXCAVATION, EMBANKMENT, AND IMPORTED MATERIALS SHALL BE DAMPENED TO PREVENT DUST PROBLEMS.
7. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.
8. THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE STOCKPILE.
9. ACCESS POINT SHALL HAVE A STABILIZED CONSTRUCTION ENTRANCE WITH MINIMUM DIMENSIONS OF 20'x50' AND A SECTION CONSISTING OF 1"-3" COARSE AGGREGATE OR LARGER (7" MAX), 8" THICK MIN., OVER FILTER FABRIC (MIRAFI 600X OR APPROVED EQUAL).
10. ALL SLOPES AND EXPOSED AREAS SHALL BE GRASSED OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL AS SOON AS FINAL GRADES HAVE BEEN ESTABLISHED. GRASSING OR SPRAYING SHALL NOT BE DELAYED UNTIL ALL STOCKPILING WORK HAS BEEN COMPLETED. STOCKPILING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED SHALL BE GRASSED OR SPRAYED.



STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



SILTSOXX COMPOST FILTER SOCK DETAIL

NOT TO SCALE

HO'OPILI
STOCKPILE PLAN

'EWA, O'AHU, HAWAI'I

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
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BRENT W.B. NAKAOKA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE 4/30/16 EXP. DATE

BY	DATE	REVISION
APPROVED		BRIEF

APPROVED BY
for Chief, Civil Engineering Branch, DPP 4/27/15 DATE

ENGINEER	CL
DRAFTSMAN	CL
CHECKED BY	BN
SCALE	AS SHOWN
DATE	SEPTEMBER 28, 2015
DPP FILE NO.	2015/CP-229

STOCKPILE AND EROSION CONTROL PLAN

FILE	POCKET	FOLDER	NO.

C-3 SHEET 4 OF 4 SHEETS

RMTC JOB NO: 22647 Hoopili Stockpile Plan

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STOCKPILING NOTES

1. ALL STOCKPILING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13, 14, 15 AND 16, AS RELATED TO STOCKPILING, SOIL EROSION AND SEDIMENT CONTROL, OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED.
2. NO CONTRACTOR SHALL PERFORM ANY STOCKPILING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60.1, "AIR POLLUTION CONTROL".
4. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
5. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
6. ALL SLOPES AND EXPOSED AREAS SHALL BE GRASSED OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL AS SOON AS FINAL GRADES HAVE BEEN ESTABLISHED. GRASSING OR SPRAYING SHALL NOT BE DELAYED UNTIL ALL STOCKPILING WORK HAS BEEN COMPLETED. STOCKPILING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED SHALL BE GRASSED OR SPRAYED.
7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
8. THE CITY SHALL BE INFORMED OF THE LOCATION OF THE BORROW SITE FOR THE PROJECT WHEN THE APPLICATION FOR A STOCKPILING PERMIT IS MADE. THE BORROW SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
9. NO STOCKPILING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE DIRECTOR, D.P.P., PROVIDED SUCH STOCKPILING WORK IS ALSO IN CONFORMANCE WITH THE COMMUNITY NOISE CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 46, "COMMUNITY NOISE CONTROL".
10. THE LIMITS OF THE AREA TO BE STOCKPILED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE STOCKPILING WORK.
11. THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL BE RESPONSIBLE FOR CONFORMANCE WITH APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS," AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL," AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.

    THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:

    1. STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
    2. DISCHARGES OF HYDROTESTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.

    IN ACCORDANCE WITH STATE LAW, ALL DISCHARGES RELATED TO PROJECT CONSTRUCTION OR OPERATIONS ARE REQUIRED TO COMPLY WITH STATE WATER QUALITY STANDARDS (HAWAII ADMINISTRATIVE RULES, CHAPTER 11-54). BEST MANAGEMENT PRACTICES SHALL BE USED TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENT, DEBRIS, AND OTHER POLLUTANTS TO STATE WATERS. PERMIT COVERAGE IS AVAILABLE FROM THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH AT http://health.hawaii.gov/cwb. THE OWNER/DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING OTHER FEDERAL, STATE, OR LOCAL AUTHORIZATIONS AS REQUIRED BY LAW.
12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY STOCKPILING WORK IS INITIATED.
13. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR STOCKPILING PERMIT.
15. IF THE STOCKPILING WORK INVOLVES CONTAMINATED SOIL, THEN ALL STOCKPILING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
16. THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEERING BRANCH, DEPARTMENT OF PLANNING AND PERMITTING AT 768-8084 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT TWO (2) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
17. FOR ALL PROJECTS, WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND, THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL A NOTICE OF GENERAL PERMIT COVERAGE (NGPC) IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAII, AND HAS SATISFIED ANY OTHER APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM. ALSO, FOR NON-CITY AND OTHER GOVERNMENTAL AGENCY PROJECTS, THE CONTRACTOR SHALL PROVIDE A WRITTEN COPY OF THE NGPC TO THE PERMITTING AND INSPECTION SECTION, CIVIL ENGINEERING BRANCH, D.P.P., AT LEAST SEVEN (7) CALENDAR DAYS BEFORE THE START OF CONSTRUCTION. FOR CITY OR OTHER GOVERNMENTAL PROJECTS, THE CONTRACTOR SHOULD PROVIDE A WRITTEN COPY OF THE NGPC TO THE APPROPRIATE CITY DEPARTMENT OR GOVERNMENTAL AGENCY PER THEIR REQUIREMENTS.
18. ALL STOCKPILING AND CONSTRUCTION WORK SHALL IMPLEMENT MEASURES TO ENSURE THAT THE DISCHARGE OF POLLUTANTS FROM THE CONSTRUCTION SITE WILL BE REDUCED TO THE MAXIMUM EXTENT PRACTICABLE AND WILL NOT CAUSE OR CONTRIBUTE TO ANY EXCEEDANCE OF WATER QUALITY STANDARDS.
19. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
20. FOR BENCH MARK, SHEET C-3.
21. LIFE OF THE STOCKPILE SHALL BE ONE YEAR.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. TEMPORARY SOIL SEMENT CHEMICAL 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.
5. PERMANENT STABILIZATION

    ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE 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.
6. 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.
7. MINIMIZE SOIL COMPACTION

    AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.
8. PERIMETER CONTROLS

    PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
9. SEDIMENT BARRIERS AND FENCES

    SEDIMENT FENCES OR BARRIERS SHALL BE USED DOWN SLOPE 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 FEET SPACING
    SLOPE ≥ 4:1 AND < 2:1 15 FEET SPACING
    SLOPE < 4:1 20 FEET SPACING
10. 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.
11. 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.
12. 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.
    - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
    - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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.
13. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
14. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL- CONSTRUCTION, FOR MORE INFORMATION ON BMPS.
15. A COMPREHENSIVE LIST OF BMPS BASED ON THE DPP RULES RELATING TO WATER QUALITY AND CCH CONSTRUCTION BMP MANUAL WERE REVIEWED TO COMPLETE THIS ESCP. 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.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTRUBED AREAS OF THE SITE ARE NOT APPLICABLE.
    - VELOCITY DISSIPATION DEVICES ARE NOT APPLICABLE.
    - DEWATERING PRACTICES ARE NOT APPLICABLE.
    - STORM DRAIN INLET PROTECTION IS NOT APPLICABLE.
16. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNATE THE ESCP COORDINATOR FOR THIS PROJECT AT LEAST 2 WEEKS PRIOR TO THE START OF THE PROJECT.
17. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE DIRECTOR AT EACH STAGE OF DEVELOPMENT BEFORE PROCEEDING TO THE NEXT STEP IN DEVELOPMENT.
18. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES:

1. STREET SWEEPING AND VACUUMING.

    ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).
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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
4. HAZARDOUS MATERIALS.

    PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
5. NONHAZARDOUS MATERIALS.

    IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

    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 IN 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 FROM 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 8 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 7 DAYS.
12. LIQUID WASTE MANAGEMENT.

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL".
16. BMP AND SITE MAINTENANCE.

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE STOCKPILE. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES:

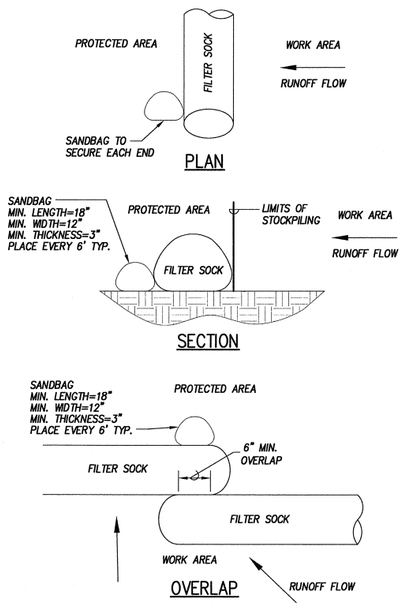
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES AND PERIMETER CONTROLS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. PROVIDE WATER TRUCKS FOR DUST CONTROL.
3. CONSTRUCT TEMPORARY SEDIMENT BASINS, STABILIZE IMMEDIATELY.
4. CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT BASINS. STABILIZE IMMEDIATELY.
5. INITIATE STABILIZATION OF STEEP SLOPES (> 15%) WITH CHEMICAL STABILIZATION AS SOON AS STOCKPILING IS COMPLETED ON THOSE AREAS.
6. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
7. APPLY CHEMICAL STABILIZATION TO THE STOCKPILE IF NOT BEING ACTIVELY USED WITHIN 7 DAYS.
8. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
9. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
10. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE STOCKPILING.
2. 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



FILTER SOCK

NOT TO SCALE

HO'OPILI
STOCKPILE PLAN (AREA 2)
'EWA, O'AHU, HAWAI'I

R. M. TOWILL CORPORATION
Planning • Engineering • Environmental Services • Photogrammetry • Surveying • Construction Management
2024 North King Street Suite 200
Honolulu Hawaii 96819

BRENT W.B. NAKAOKA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE 4/20/18 EXP. DATE

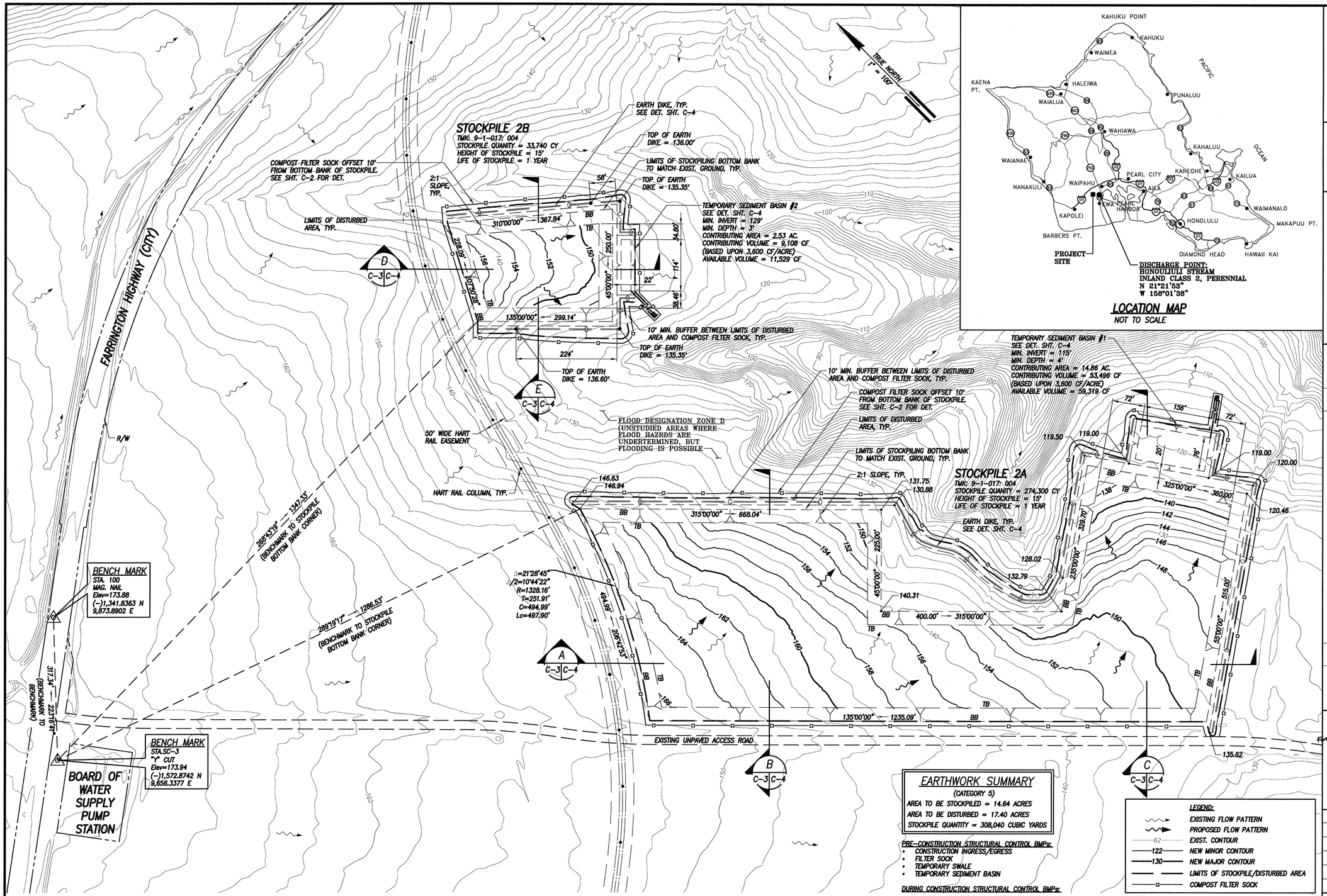
REVISION	DATE	BY	APPROVED

APPROVED BY
For Chief, Civil Engineering Branch, DPP — DATE 4/16/18

ENGINEER	BN
DRAFTSMAN	BN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	OCTOBER 31, 2017
DPP FILE NO.	2017/CP-280

STOCKPILE AND EROSION AND SEDIMENT CONTROL PLAN NOTES AND DETAIL

FILE	POCKET	FOLDER	NO.



STOCKPILE AND EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 100'

HO'OPILI
STOCKPILE PLAN (AREA 2)
'EWA, O'AHU, HAWAI'I

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SIGNATURE 4/30/18 EXP. DATE

REVISION	DATE	BRIEF	BY	APPROVED

APPROVED BY
Melvin Takehara 1/16/18
Chief, Civil Engineering Branch, DPP DATE

ENGINEER	BN
DRAFTSMAN	BN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	OCTOBER 31, 2017
DPP FILE NO.	2017/CP-280

STOCKPILE AND EROSION AND SEDIMENT CONTROL PLAN

FILE	POCKET	FOLDER	NO.

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 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 ANYTIME ON SLOPES GREATER THAN 15%.
4. TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 7 CONSECUTIVE DAYS OR MORE.
5. PERMANENT STABILIZATION

   ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZER OR APPROVED EQUAL 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.
6. 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.
7. MINIMIZE SOIL COMPACTION

   AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION 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.
8. PERIMETER CONTROLS

   PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
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.
   - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITES MUST BE CONFINED TO PAVED SURFACES OR PREDEFINED 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 MS4 MUST BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
   - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 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. 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.
11. SEDIMENT BASIN

    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.
12. BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
13. REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL- CONSTRUCTION FOR MORE INFORMATION ON BMPS.
14. THE FOLLOWING BMPS, WITH JUSTIFICATIONS, WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND WILL BE PROVIDED TO DPP INSPECTORS.
    - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
      - RUNOFF FROM UPSTREAM AREAS WILL NOT BE DIVERTED AROUND THE DISTURBED AREAS OF THE SITE SINCE THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE, WITH THE EXCEPTION OF EXISTING GRADE TRANSITIONS. THE RUNOFF FROM AREAS WHERE GRADING OCCURS ON SLOPES WITH A GRADE OF 15% OR MORE WILL BE SUFFICIENTLY ADDRESSED BY THE PERIMETER CONTROLS. STEEPER AREAS ARE NOT SUBJECT TO SEVERE EROSION FROM UPSLOPE RUNOFF.
    - VELOCITY DISSIPATION DEVICES
      - PROJECT IMPROVEMENTS DO NOT INCLUDE OUTLET STRUCTURES, PIPES, CULVERTS, STEEP DITCHES, OR FLUMES. SCOUR OR EROSION IS MINIMAL AS FLOW VELOCITY THROUGH THE PROJECT SITE IS LOW.
    - DEWATERING PRACTICES
      - IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
    - SEDIMENT BARRIERS
      - SEDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT BASINS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
    - SEDIMENT TRAPS
      - THE AREA TO BE DISTURBED IS GREATER THAN 5 ACRES.
    - BUFFER ZONES
      - THE PROJECT IS NOT WITHIN 50 FT OF STATE WATERS AND THE MAJORITY OF GRADING DOES NOT OCCUR ON EXISTING SLOPES WITH A GRADE OF 15% OR MORE WITH THE EXCEPTION OF EXISTING GRADE TRANSITIONS. THE PROPOSED BMPS (PERIMETER CONTROL) WILL SUFFICIENTLY ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
15. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER OR THEIR AUTHORIZED AGENT MUST DESIGNATE AN ESCP COORDINATOR PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES RELATING TO WATER QUALITY. CHANGES TO THE ESCP COORDINATOR SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING IMMEDIATELY FOR THE DEPARTMENT'S ACCEPTANCE.
16. THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES, TITLE 20, DEPARTMENT OF PLANNING AND PERMITTING, CHAPTER 3, RULES RELATING TO WATER QUALITY", SECTION 20-3-28. THE SCHEDULED START DATE SHALL BE SUBMITTED TO THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.

GOOD HOUSEKEEPING BMPS NOTES

1. STREET SWEEPING AND VACUUMING.

   ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT 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 STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER 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 MAXIMUM EXTENT PRACTICAL (MEP).
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 CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
4. HAZARDOUS MATERIALS.

   PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
5. NONHAZARDOUS MATERIALS.

   IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO 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 STORM DRAIN 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 MAINTENANCE.

   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 IN 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 FROM 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 8 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 7 DAYS.
12. LIQUID WASTE MANAGEMENT.

    LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE 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 FREE OF HOLES, 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 SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHOULD BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

GOOD HOUSEKEEPING BMPS NOTES (CONT'D)

15. DUST CONTROL.

    THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROJECT SITE AND HAUL ROADS SO IT SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL."
16. BMP AND SITE MAINTENANCE

    THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

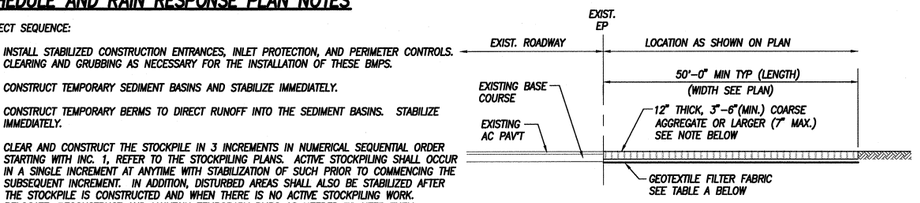
PROJECT SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCES, INLET PROTECTION, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
2. CONSTRUCT TEMPORARY SEDIMENT BASINS AND STABILIZE IMMEDIATELY.
3. CONSTRUCT TEMPORARY BERMS TO DIRECT RUNOFF INTO THE SEDIMENT BASINS. STABILIZE IMMEDIATELY.
4. CLEAR AND CONSTRUCT THE STOCKPILE IN 3 INCREMENTS IN NUMERICAL SEQUENTIAL ORDER STARTING WITH INC. 1, REFER TO THE STOCKPILING PLANS. ACTIVE STOCKPILING SHALL OCCUR IN A SINGLE INCREMENT AT ANYTIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. IN ADDITION, DISTURBED AREAS SHALL ALSO BE STABILIZED AFTER THE STOCKPILE IS CONSTRUCTED AND WHEN THERE IS NO ACTIVE STOCKPILING WORK. RELOCATE, RECONSTRUCT AND MAINTAIN TEMPORARY BMPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES UNTIL STOCKPILE IS REMOVED. STABILIZED DISTURBED AREAS WITH PERMANENT STABILIZATION AFTER STOCKPILE IS REMOVED.
5. PROVIDE WATER TRUCKS FOR DUST CONTROL.
6. INITIATE STABILIZATION OF STEEP SLOPES (> 15%) WITH HYDROSEEDING AS SOON AS STOCKPILING IS COMPLETED ON THOSE AREAS. INSTALL PERMANENT IRRIGATION SYSTEM PRIOR TO PERMANENT SEEDING.
7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER OR SOIL SEMENT CHEMICAL STABILIZATION.
8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
9. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN:

THE FOLLOWING WILL BE PERFORMED WHEN HEAVY RAINS, TROPICAL STORM OR HURRICANE IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:

1. TEMPORARY SUSPENSION OF ACTIVE STOCKPILING.
2. INSPECT ALL PERIMETER CONTROLS, SEDIMENT BASINS, TEMPORARY BERMS, INLET PROTECTION 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.
3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
4. 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.
5. RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



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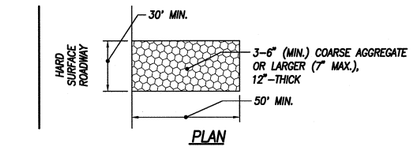


PLAN

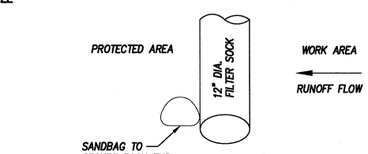
NOTE:
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COURSE.

TABLE A GEOTEXTILE REQUIREMENTS

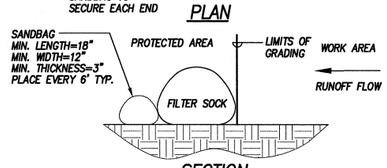
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

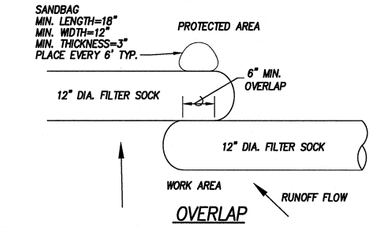
NOT TO SCALE



PLAN



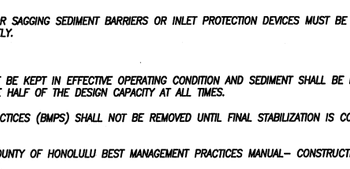
SECTION



OVERLAP

COMPOST FILTER SOCK DETAIL

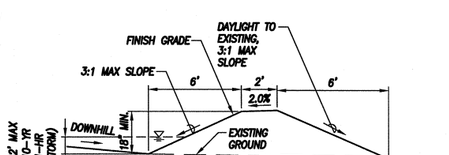
NOT TO SCALE



NOTES:
1. CONSTRUCT CATCH BASIN INLET PROTECTION AS SHOWN ON EROSION CONTROL PLAN.
2. THE CONTRACTOR SHALL CLEAN CATCH BASINS AND SEDIMENT FILTER WEEKLY.
3. THE CONTRACTOR SHALL REMOVE THE SEDIMENT FILTERS DURING ABOVE NORMAL RAINFALL EVENTS, THEN REPLACE AFTER THE EVENT.

CATCH BASIN INLET PROTECTION

NOT TO SCALE



TEMPORARY INTERCEPTOR BERM

NOT TO SCALE

HO'OPILI DEVELOPMENT

STOCKPILE PLAN (AREA 3)

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 200 & 207; 9-1-188: 060

R. M. TOWILL CORPORATION
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2024 North King Street Suite 200
Honolulu Hawaii 96819

BRENT W.B. NAKAOKA — LICENSED PROFESSIONAL ENGINEER — No. 11106-C — HAWAII, U.S.A.
Brent Nakaoka 4/30/22
SIGNATURE EXP. DATE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE EXP. DATE 4/30/22
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REVISION	DATE	BY	APPROVED
BRIEF			

APPROVED BY
Melanie Tokoshima 4/21/22
For Chief, Civil Engineering Branch, DPP DATE

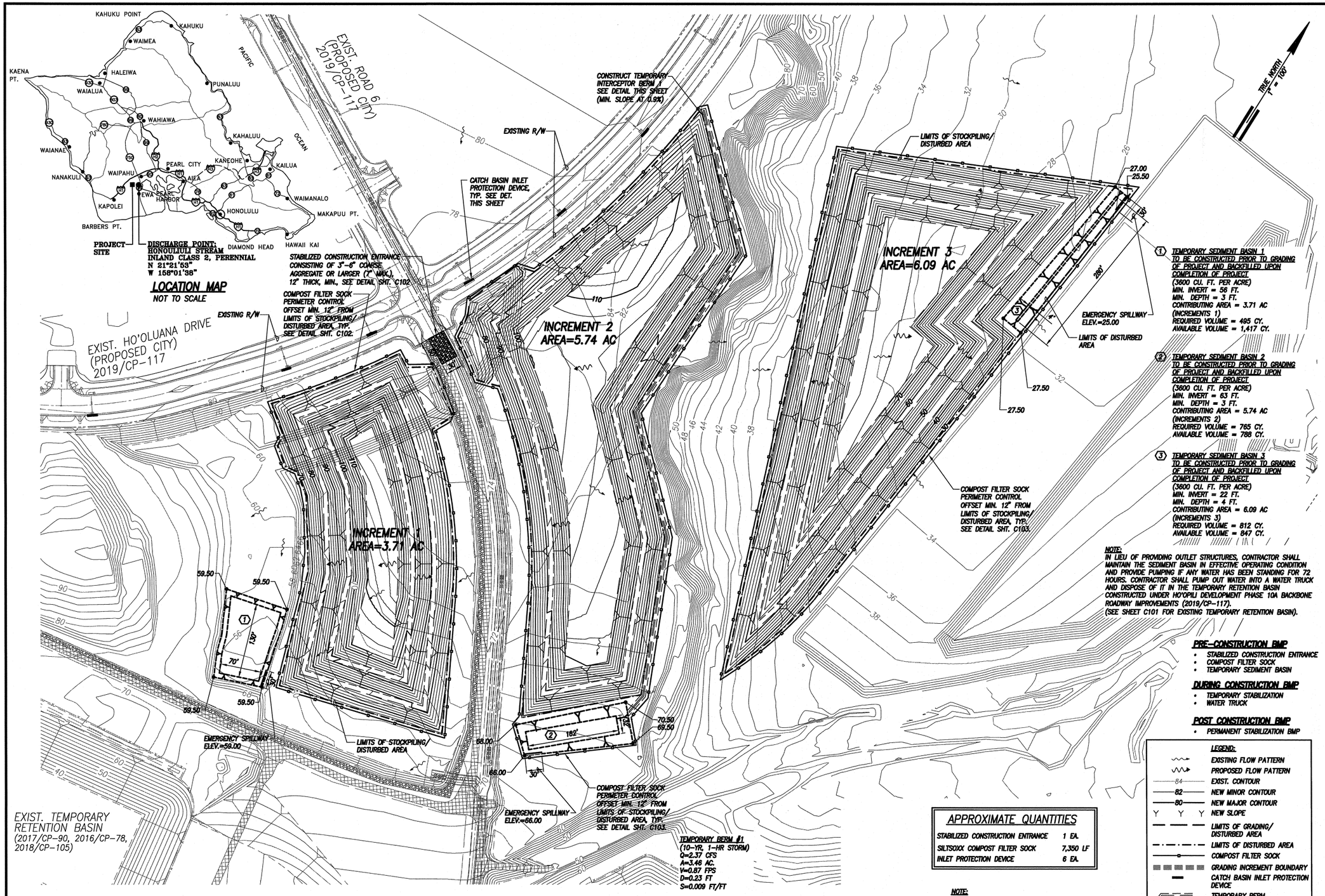
ENGINEER	CD, MN
DRAFTSMAN	CD, MN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	DEC 2021
DPP FILE NO.	2021/CP-249

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-23760-0E

K:\civil\23760 Hoopili Stockpile Plan – Parcels 109 110 and 111\Drawings\Construction Dwgs\100_Dwgs\C102 – Erosion and Sediment Control Notes and Details.dwg March 25, 2022



1 TEMPORARY SEDIMENT BASIN 1 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT.
(3600 CU. FT. PER ACRE)
MIN. INVERT = 56 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 3.71 AC
(INCREMENTS 1)
REQUIRED VOLUME = 495 CY.
AVAILABLE VOLUME = 1,417 CY.

2 TEMPORARY SEDIMENT BASIN 2 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT.
(3600 CU. FT. PER ACRE)
MIN. INVERT = 63 FT.
MIN. DEPTH = 3 FT.
CONTRIBUTING AREA = 5.74 AC
(INCREMENTS 2)
REQUIRED VOLUME = 765 CY.
AVAILABLE VOLUME = 788 CY.

3 TEMPORARY SEDIMENT BASIN 3 TO BE CONSTRUCTED PRIOR TO GRADING OF PROJECT AND BACKFILLED UPON COMPLETION OF PROJECT.
(3600 CU. FT. PER ACRE)
MIN. INVERT = 22 FT.
MIN. DEPTH = 4 FT.
CONTRIBUTING AREA = 6.09 AC
(INCREMENTS 3)
REQUIRED VOLUME = 812 CY.
AVAILABLE VOLUME = 847 CY.

NOTE:
IN LIEU OF PROVIDING OUTLET STRUCTURES, CONTRACTOR SHALL MAINTAIN THE SEDIMENT BASIN IN EFFECTIVE OPERATING CONDITION AND PROVIDE PUMPING IF ANY WATER HAS BEEN STANDING FOR 72 HOURS. CONTRACTOR SHALL PUMP OUT WATER INTO A WATER TRUCK AND DISPOSE OF IT IN THE TEMPORARY RETENTION BASIN CONSTRUCTED UNDER HO'OPILI DEVELOPMENT PHASE 10A BACKBONE ROADWAY IMPROVEMENTS (2019/CP-117). (SEE SHEET C101 FOR EXISTING TEMPORARY RETENTION BASIN).

PRE-CONSTRUCTION BMP
- STABILIZED CONSTRUCTION ENTRANCE
- COMPOST FILTER SOCK
- TEMPORARY SEDIMENT BASIN

DURING CONSTRUCTION BMP
- TEMPORARY STABILIZATION
- WATER TRUCK

POST CONSTRUCTION BMP
- PERMANENT STABILIZATION BMP

LEGEND:
- EXISTING FLOW PATTERN
- PROPOSED FLOW PATTERN
- 84 EXIST. CONTOUR
- 82 NEW MINOR CONTOUR
- 80 NEW MAJOR CONTOUR
- Y Y Y NEW SLOPE
- LIMITS OF GRADING/ DISTURBED AREA
- LIMITS OF DISTURBED AREA
- COMPOST FILTER SOCK
- GRADING INCREMENT BOUNDARY
- CATCH BASIN INLET PROTECTION DEVICE
- TEMPORARY BERM

APPROXIMATE QUANTITIES

STABILIZED CONSTRUCTION ENTRANCE	1 EA.
SILTSOXX COMPOST FILTER SOCK	7,350 LF
INLET PROTECTION DEVICE	6 EA.

NOTE:
1. SEE SHT. C102 FOR EROSION CONTROL AND SEDIMENT CONTROL NOTES AND DETAILS.

GRAPHIC SCALE: 1" = 100' (100' 50' 0 100' 200') SCALE IN FEET

EROSION AND SEDIMENT CONTROL PLAN (CATEGORY 5)
SCALE: 1" = 100'

HO'OPILI DEVELOPMENT
STOCKPILE PLAN (AREA 3)

HONOULIULI, EWA, OAHU, HAWAII
TMK: 9-1-017: 200 & 207; 9-1-188: 060

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Brent Nakaoka 4/30/22 SIGNATURE EXP. DATE
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CHI T. DU — LICENSED PROFESSIONAL ENGINEER — No. 14001-C — HAWAII, U.S.A.
SIGNATURE 4/30/22 EXP. DATE
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BY	APPROVED

UNIVERSITY OF HAWAII WEST OAHU
OWNER: UNIVERSITY OF HAWAII
TMK: 9-1-016:222

TRUE NORTH
1" = 80'

R/W

CATCH BASIN INLET PROTECTION, TYP.

KUALAKAI PARKWAY (STATE)

KALOI CHANNEL

KEAHUMOA PARKWAY (STATE)

KALOI CHANNEL

STATE
CITY

KEAHUMOA PARKWAY (CITY)

Chainlink Fence H=6'

R/W

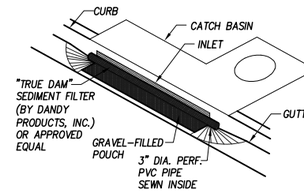
R/W

R/W

R/W

DEPARTMENT OF HAWAIIAN HOME LANDS
OWNER: STATE OF HAWAII
TMK: 9-1-017:110

KROC CENTER
OWNER: THE SALVATION ARMY
TMK: 9-1-017: 105



NOTES:
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CATCH BASIN INLET PROTECTION
NOT TO SCALE

APPROXIMATE QUANTITIES

CATCH BASIN INLET PROTECTION	6 EA.

NOTE:
KUALAKAI PARKWAY ' TAKEN FROM NORTH-SOUTH ROAD PHASE 1B FEDERAL AID PROJECT NO. STP-8930(2)

GRAPHIC SCALE:
1" = 40' 40' 20' 0 40' 80'
SCALE IN FEET

BEST MANAGEMENT PRACTICES PLAN
SCALE: 1" = 80'

HO'OPILI DEVELOPMENT

TRAFFIC SIGNAL IMPROVEMENTS AT THE INTERSECTION OF KUALAKAI PARKWAY AND KEAHUMOA PARKWAY

HONOULIULI, EWA, OAHU, HAWAII

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BRENT W.B. NAKAMOKA
LICENSED PROFESSIONAL ENGINEER
No. 11106-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE 4/30/18 EXP. DATE

BY	APPROVED	DATE	REVISION	BRIEF

APPROVED BY

ENGINEER	BN
DRAFTSMAN	BN
CHECKED BY	BN
SCALE	AS SHOWN
DATE	AUGUST 1, 2016
DPP FILE NO.	

BEST MANAGEMENT PRACTICES PLAN

FILE	POCKET	FOLDER	NO.

RMTC JOB NO.: 1-22733-0E

K:\civil\22733 Hoopili Keahumoa-Kualakai TS Imp\Drawings\Construction Dwgs\100_Dwgs\BMP Plan & Details.dwg September 12, 2016 8:44am cristinal