ATTACHMENT H

See attached.

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 FARTHWORK IS INITIATED.

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. MUSE DIVERSION OF SLOPE (DIKES, SWALLES, 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-C.

- 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

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING. PAYEMENT, OR SPRAYED WITH SOIL SEMENT CHEMICAL STABILIZET 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

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 UPERIOR POSITION.

MINIMIZE SOIL COMPACTION

AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE AREAS WHERE FINAL STABILIZATION OR INVILIDATION FRACINES WILL BE INSTALLED SHALL BY 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 ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.

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.

- MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAVED AREAS, AND SIDEWALKS FROM VEHICLES EXTING 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 PEDEFINED 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
- 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.
- 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 RMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF
- THAN 15%, THE EXPOSED SLUYES WILL NOT BE SUBJECT TO SCHOOL ENOUGH TO SUBJECT TO SEPTIMENT BASINS) WILL BE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
- DEWATERING PRACTICES - IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE EN_{COUNTERED} WITHIN THE PROJECT
- SITE.
- SEDIMENT BARRIERS
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- SEPARATE DOCUMENTATION PROVIDED TO DPP.
- INLET PROTECTION
- THERE ARE NO EXISTING DRAIN INLETS WITHIN THE PROJECT AREA. RUFFER ZONES
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 THE PROJECT IS NOT WITHIN 50 FEET OF STATE WATERS AND THE MAJORITY OF GRADING
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- POTENTIAL SEDIMENT RUNOFF.

 VELOCITY DISSIPATION DEVICE

 THERE ARE NO OUTLETS.

EROSION PREVENTION / SEDIMENT CONTROL NOTES (CONT'D)

- 14. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER OR THEIR AUTHORIZED AGENT MUST DESIGNAITE 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
- 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. STRFFT SWFFPING AND VACUUMING
- ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT OR VACUUMED EACH DAY BEFORE LEAVING THE JOB SITE.

PREVENT, REDUCE, OR FUMINATE 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 SECONDA 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 MAS, 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).

CREATE AND IMPLEMENT SPILL PREVENTION AND RESPONSE PLANS TO FLIMINATE AND MINIMIZE THE ORENIE AND IMPLEMENT SPILE PREVENTION AND RESPONSE POUND FOR THE MINIMALE AND MINIMALE HE 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

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 REEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE

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 FVAPORATING AND/OR TREATING WASH WATER. AS APPROPRIATE OR INFILTRATING WASH WATER FOR EXTERIOR CLEANING ACTIVITIES THAT USE WATER ONLY.

7. VEHICLE AND FOLIPMENT FLIFLING.

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.

FLIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND ELIMINATE AND MINIMIZE THE DISCUSPECE OF POLITIVES IN STORM WALTER FROM VEHICLE AND EQUIPMENT RESULTING WORK IN DESIGNATED AREAS ONLY, USING SPILL PADS UNDER VEHICLES AND EQUIPMENT, CHECKING FOR LEAKS AND SPILLS, AND CONTAINING AND CLEANING UP SPILLS IMMEDIATELY.

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.

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 EXCEPT. 15 FEET IN HEIGHT STOCKPILES CREATER 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

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 STOULD 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 STANDARD CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1. "AIR POLLUTION CONTROL."

THE CONTRACTOR SHALL MAINTAIN TEMPORARY FROSION 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

- INSTALL STABILIZED CONSTRUCTION ENTRANCE, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
- 2. CONSTRUCT TEMPORARY SEDIMENT TRAPS AND STABILIZE IMMEDIATELY.
- 3. PROVIDE WATER TRUCKS FOR DUST CONTROL.
- CLEAR, GRUB AND GRADE THE SITE IN 2 INCREMENTS IN SEQUENTIAL NUMERCIAL ORDER, REFER TO ESCP PLANS. ONLY I GRADING INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BURPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH
- 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 F 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, SEDIMENT TRAPS, 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
- 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

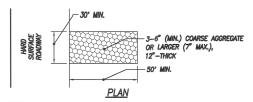
PROTECTED AREA WORK AREA 晉路 RUNOFF FLOW 12° SECURE EACH END <u>PLAN</u> - LIMITS OF WORK AREA MIN. LENGTH=18" MIN. WIDTH=12" MIN. THICKNESS=3" PLACE EVERY 6' TI PROTECTED AREA RUNOFF FLOW FILTER SOCK SECTION SANDBAG MIN. LENGTH=18" MIN. WIDTH=12" MIN. THICKNESS=3 PLACE EVERY 6' 1 PROTECTED AREA OVERLAP 12" DIA. FILTER SOCK

OVERLAP COMPOST FILTER SOCK DETAIL

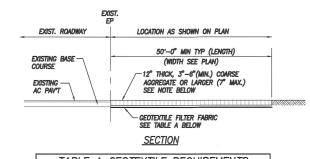
WORK AREA

12" DIA FILTER SOCK

RUNOFF FLOW



NOTE: 12° COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO



EXTILE REQUIREMENTS
REQUIREMENTS
220 LB (ASTM D1)
60% (ASTM D1682)
430 LB (ASTM D3/68)
125 LB (ASTM D751, MODIFIED)
SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

HO'OPILI DEVELOPMENT PERMANENT DRAINAGE **BASIN GRADING PLAN -**PHASE 1 HONOULIULI, EWA, OAHU, HAWAII TMK: 9-1-010: 002 R. M. TOWILL CORPORATION W.B. NA LICENSED PROFESSIONAL ENGINEER Brent Rakada 4/30/: No. 11106-C/ MAII. U.S. Mon LICENSED PROFESSION/ ENGINEER

SIGNATURE No. 14001-0

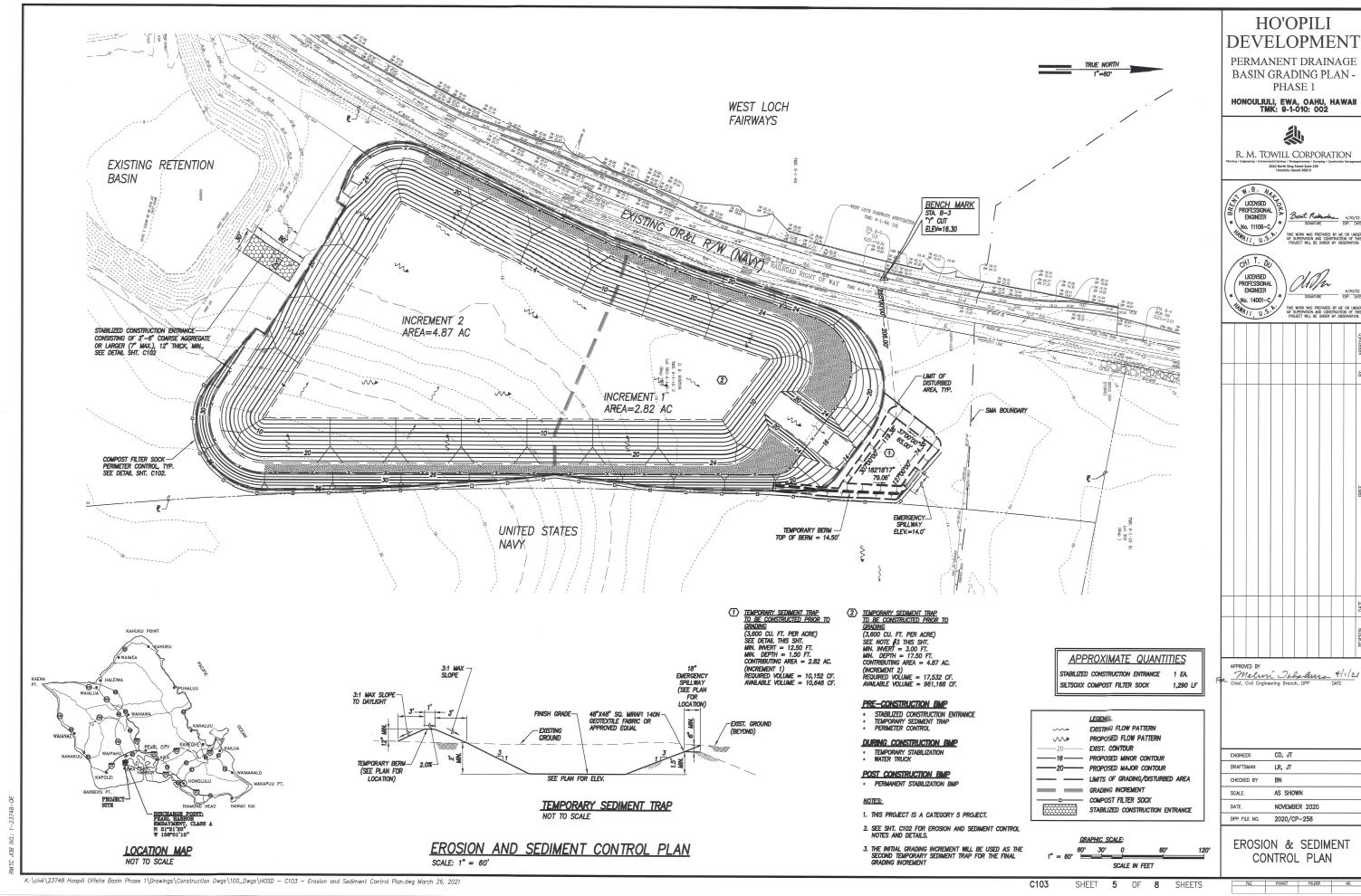
Malin Ochsaus

APPROVED BY

CD, JT ENGINEER DRAFTSMAN LR, JT CHECKED BY BN AS SHOWN NOVEMBER 2020 DATE DPP FILE NO. 2020/CP-258

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

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."
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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 DIMERSION 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

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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.

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- MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAVED AREAS, AND SIDEWALKS FROM VEHICLES EXTING 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.
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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 ONSTITE STORING MATERIALS ON A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, MASTE, TOXIC AND MAZARDOUS SUBSTANCES, STOCKPILES AND OTHER SOURCES OF POLLUTION SHALL NOT BE STORED IN BUFFER AREAS, NEAR AREAS OF CONCENTRATED FLOW, OR AREAS ABUTTING THE MSA, RECEIVING WATERS, OR DRAWAGE IMPROVEMENTS THAT DISCHARGE OFF-SITE. PRIMARY AND SECONDARY CONTAINMENT CONTROLS AND COVERS SHALL BE MIGH ELISTED TO THE MASTER MATERIAL PROTECTION.

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

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 ESC? 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

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 FOUIPMENT 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.

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.

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.

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 MASTE COLLECTION AREAS, COLLECT SITE TRASH DAILY, AND ENSURING THAT CONSTRUCTION WASTE IS

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.

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.

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 MILLMETER POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE MIFFEMENBILITY OF THE MATERIAL CONTAINMENT AREAS OR DEVICES SHOULD NOT BE LOCATED WHERE ACCIDENTAL RELEASE OF THE CONTAINED LIQUID CAN DISCHARGE TO MATER BODIES, CHANNELS, OR STORM DRAINS, WASHOLIT FACILITIES MUST BE CLEANED, OR NEW FACILITIES BUDIES, CHANNELS, OR STORM INVAIRS. WASHOUT PAULITIES MUST BE CLEAVED, OR NEW PAULITIES MUST BE CORRECTED 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

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

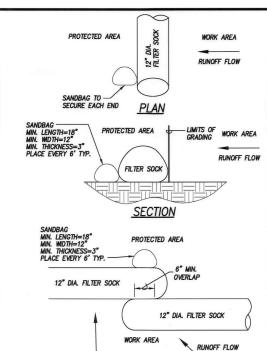
THE CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A WEEKLY BASIS.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE AND RAIN RESPONSE PLAN NOTES

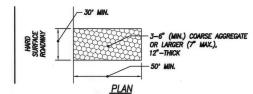
- INSTALL STABILIZED CONSTRUCTION ENTRANCE, AND PERIMETER CONTROLS. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
- 2. PROVIDE WATER TRUCKS FOR DUST CONTROL.
- 3. CLEAR, GRUB AND GRADE THE SITE IN 3 INCREMENTS IN SEQUENTIAL NUMERCIAL ORDER, REFER TO ESCP PLANS. ONLY 1 GRADING 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.
- INITIATE STABILIZATION OF STEEP SLOPES (> 15%) WITH HYDROSEEDING AS SOON AS GRADING IS COMPLETED ON THOSE AREAS. INSTALL PERMANENT IRRIGATION SYSTEM PRIOR TO
- REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER. 6. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
- 7. INSPECTIONS WILL BE PERFORMED WEEKLY.

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.
- INSPECT ALL PERIMETER CONTROLS, SEDIMENT BASIN, 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
- 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.
- RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.



OVERLAP COMPOST FILTER SOCK DETAIL



12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO

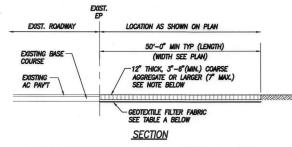


TABLE A GEOT	IEXTILE REQUIREMENTS
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS

HO'OPILI **DEVELOPMENT**

PERMANENT DRAINAGE **BASIN GRADING PLAN-**PHASE 2

HONOULIULI, EWA, OAHU, HAWAII TMK: 9-1-010: 002



R. M. TOWILL CORPORATION

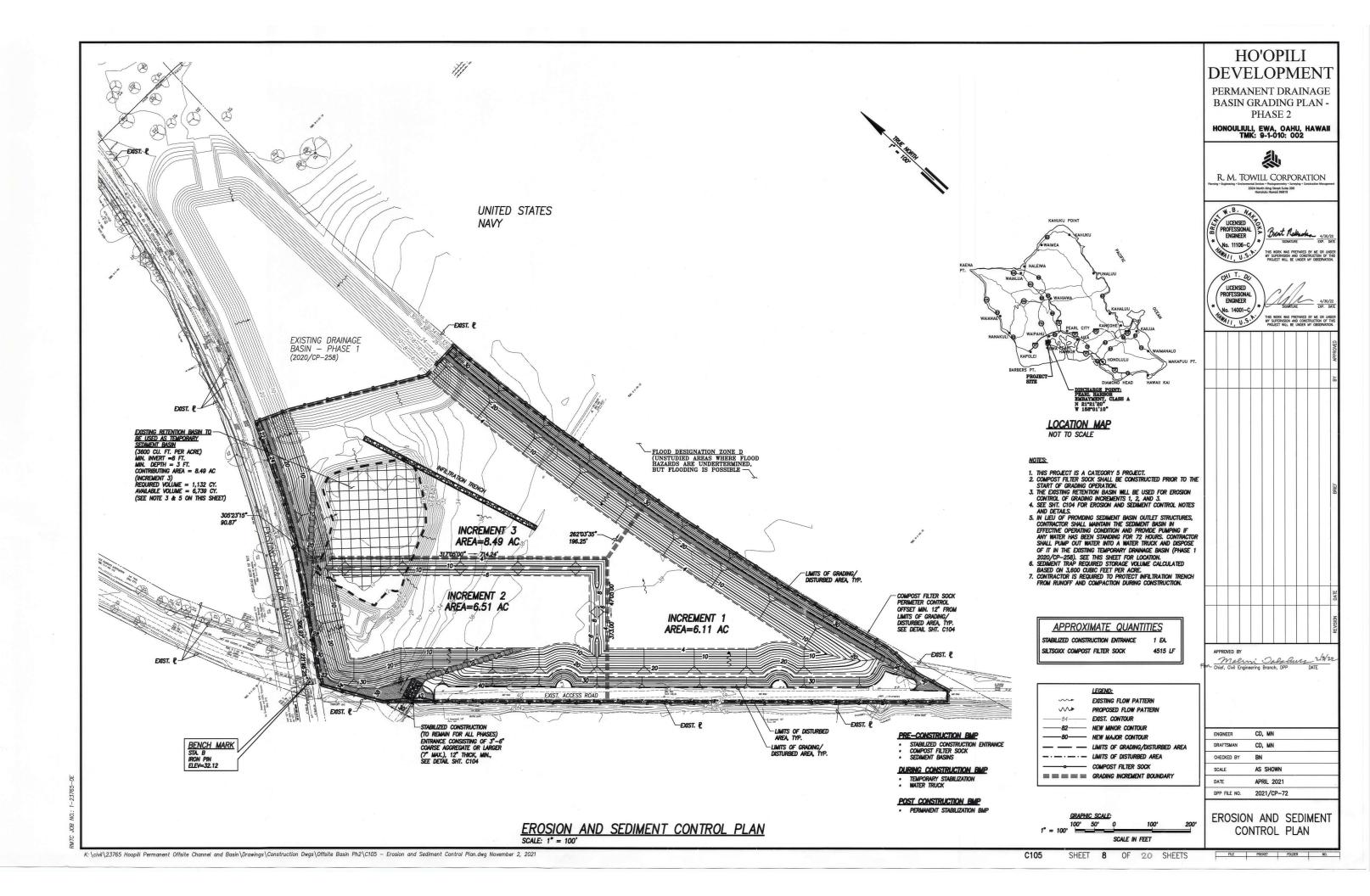


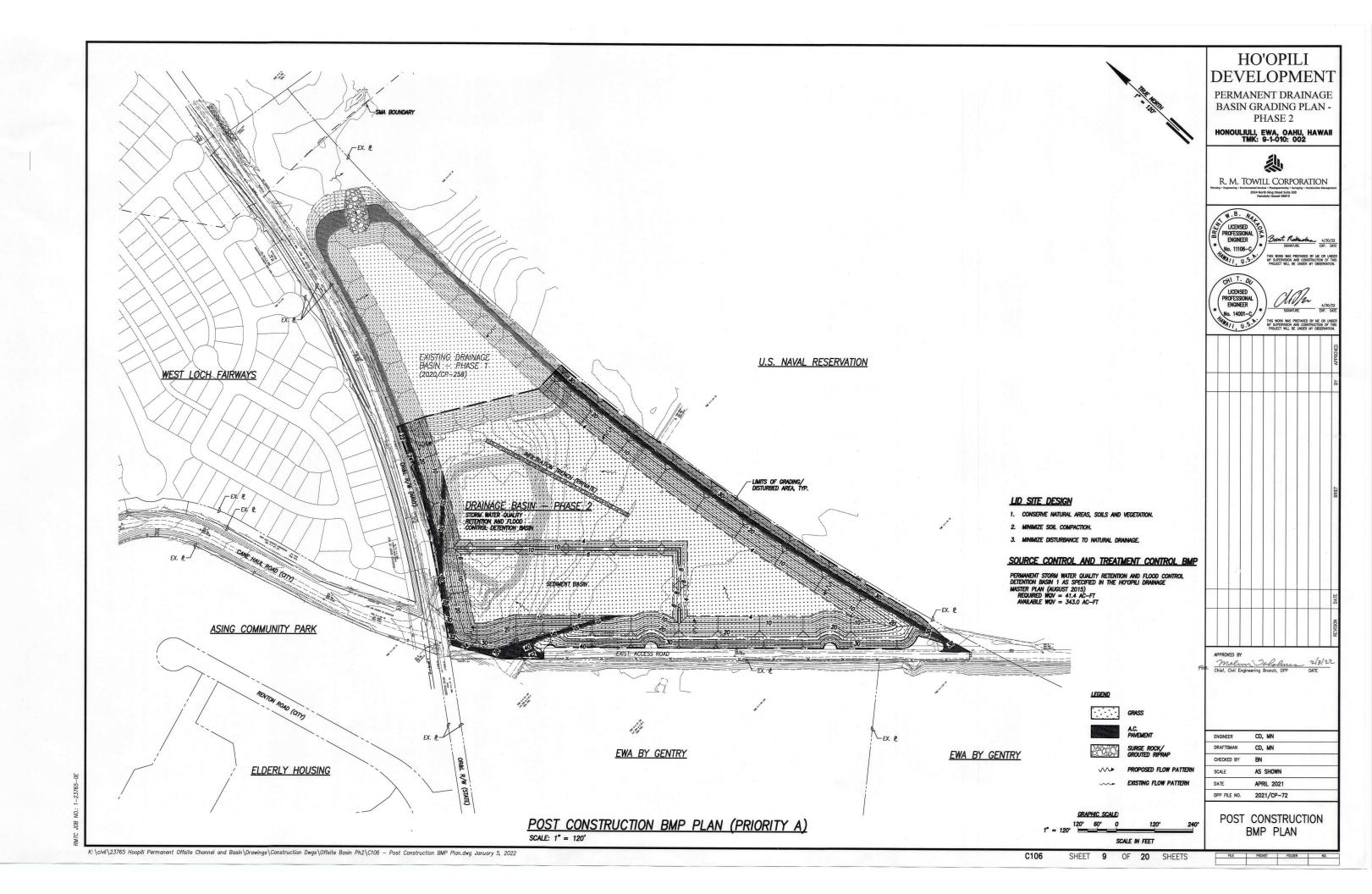
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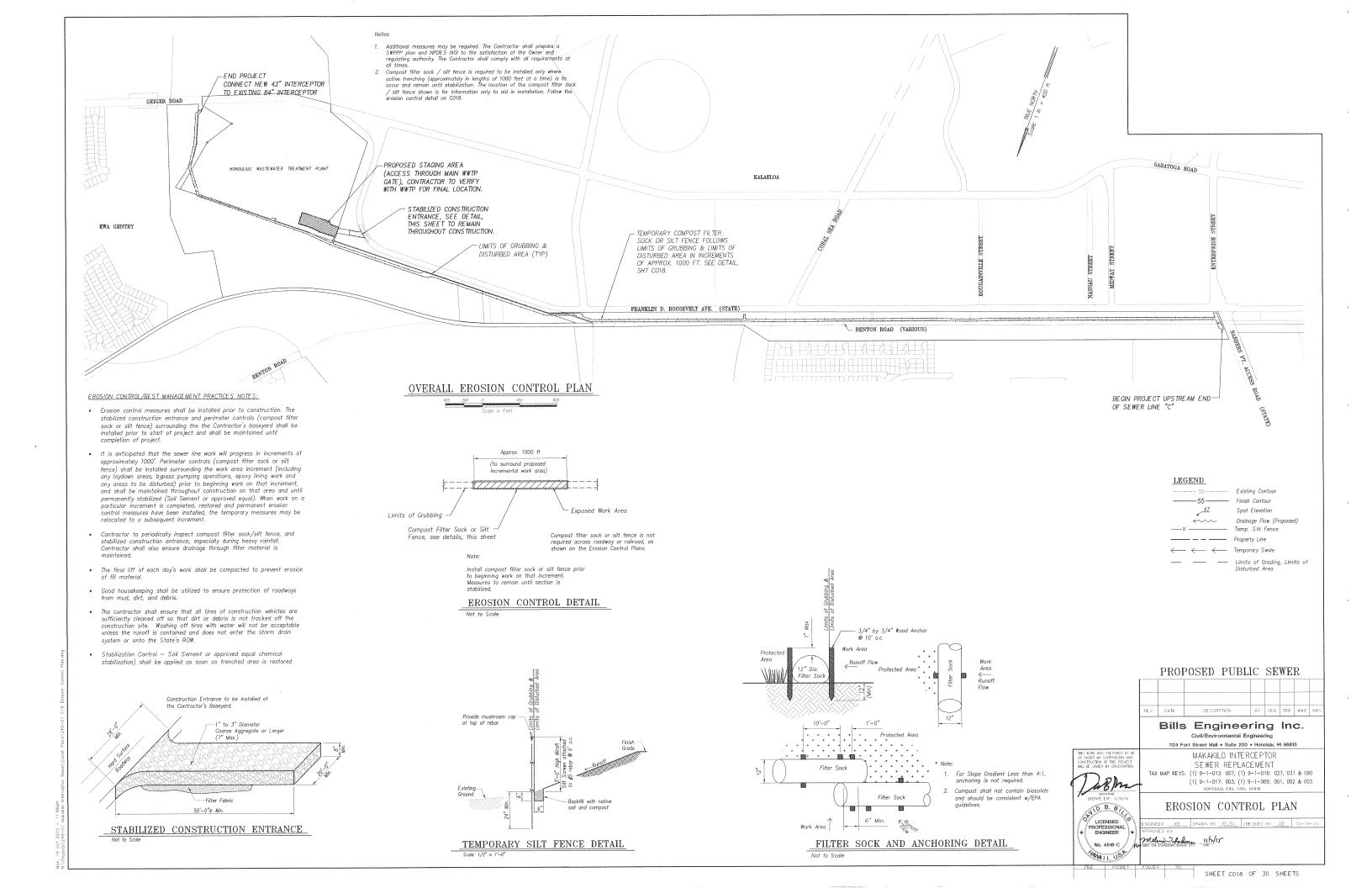
CD. MN ENGINEER CD, MN CHECKED BY BN AS SHOWN SCALE DATE APRIL 2021 DPP FILE NO. 2021/CP-72

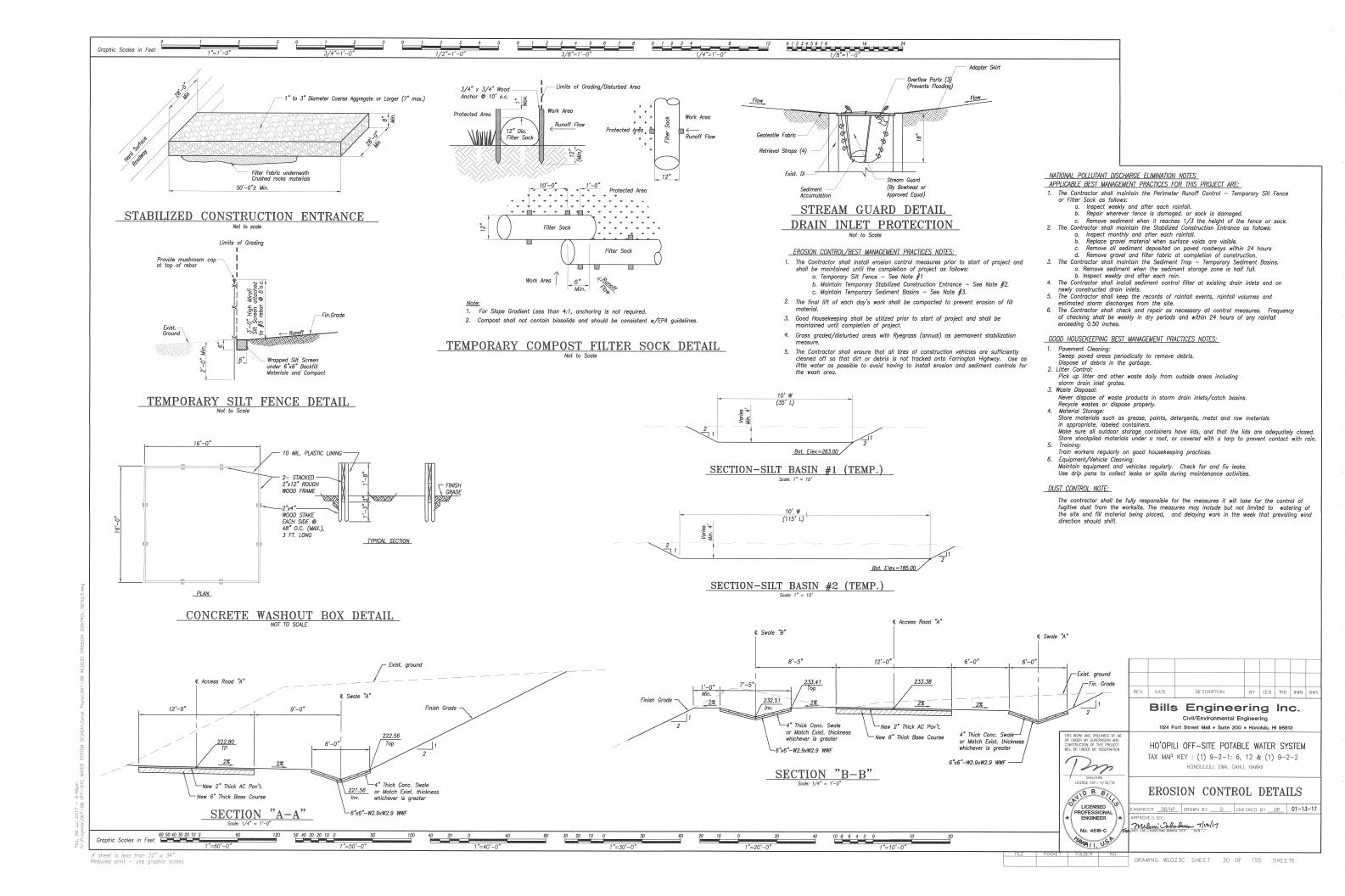
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

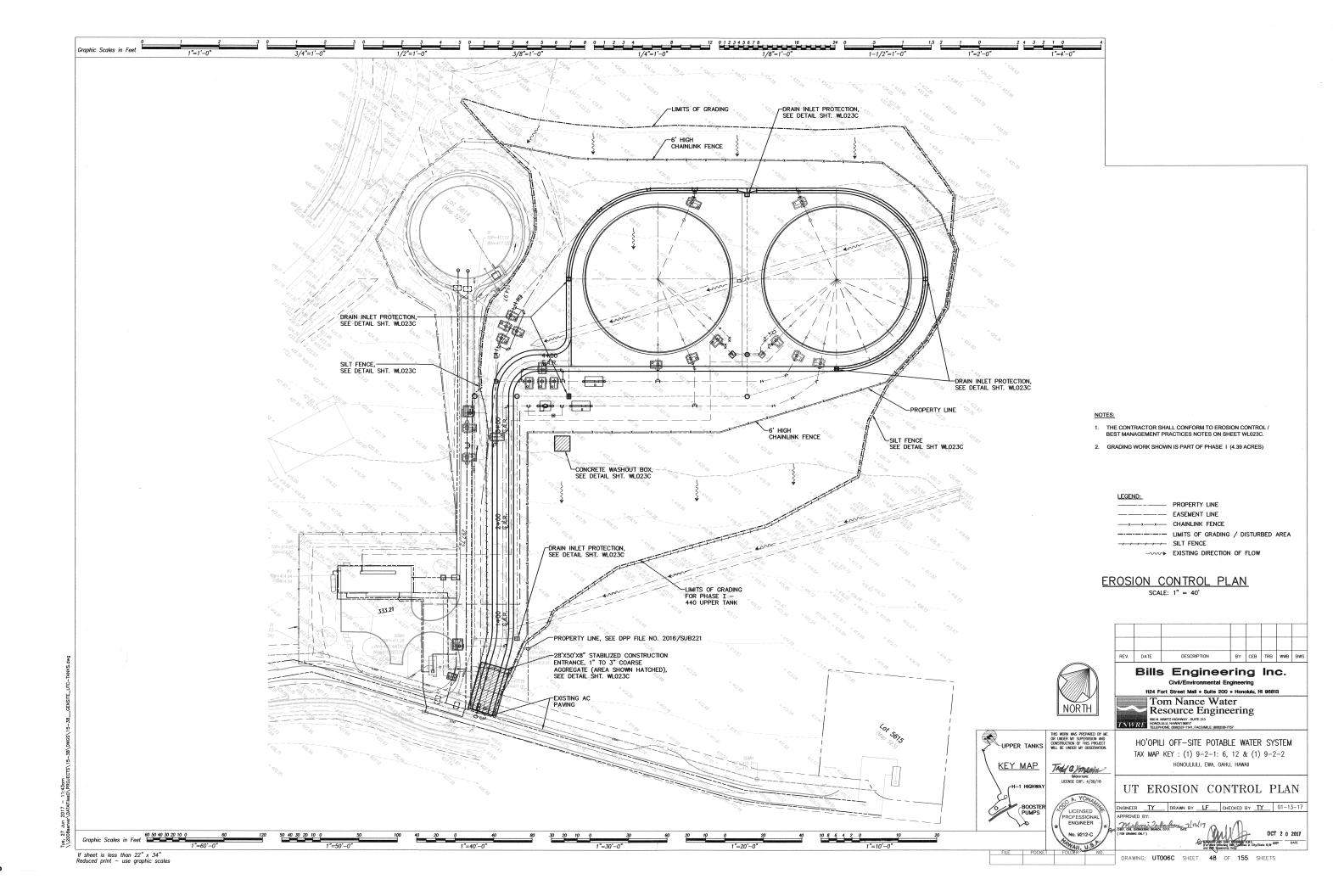
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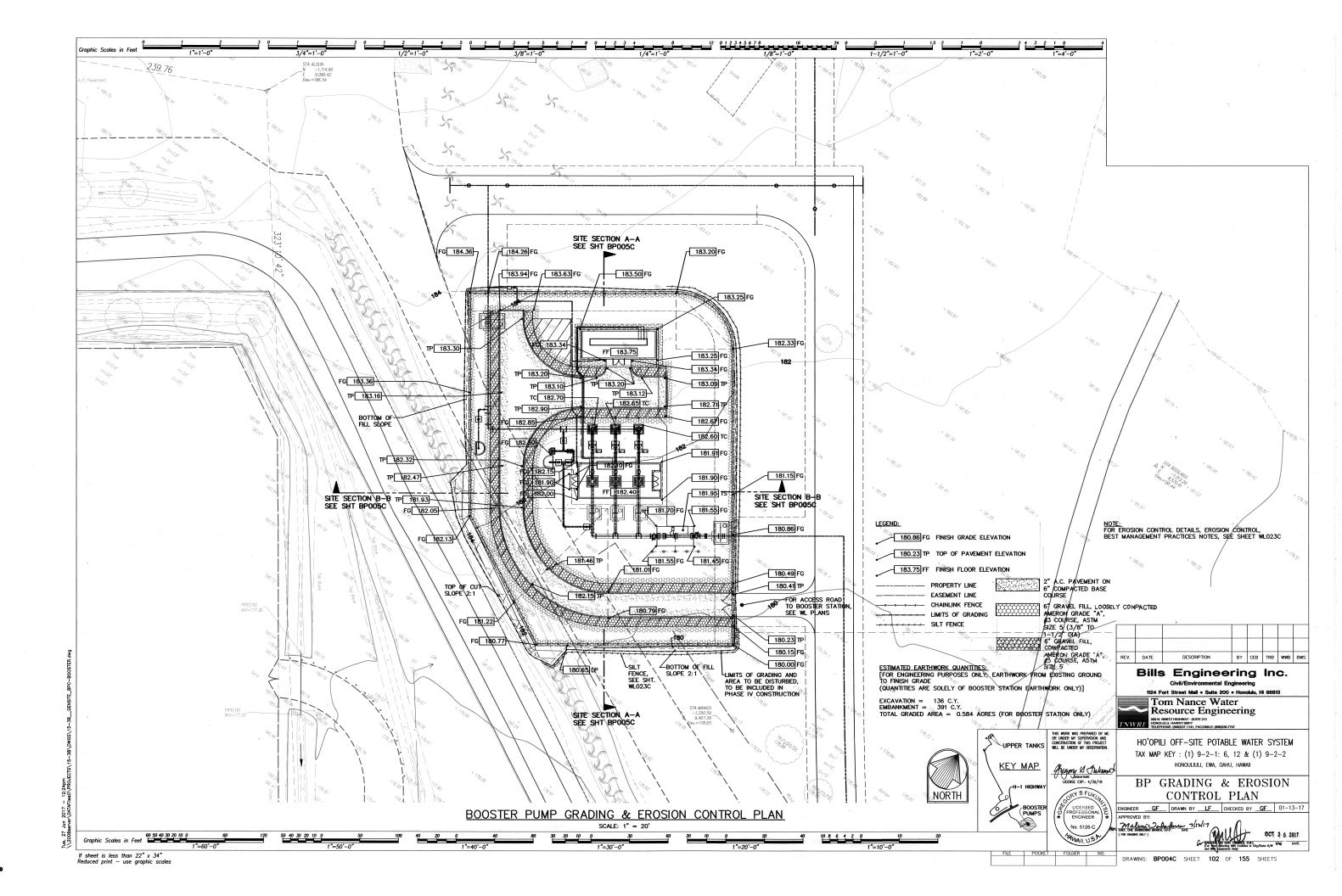




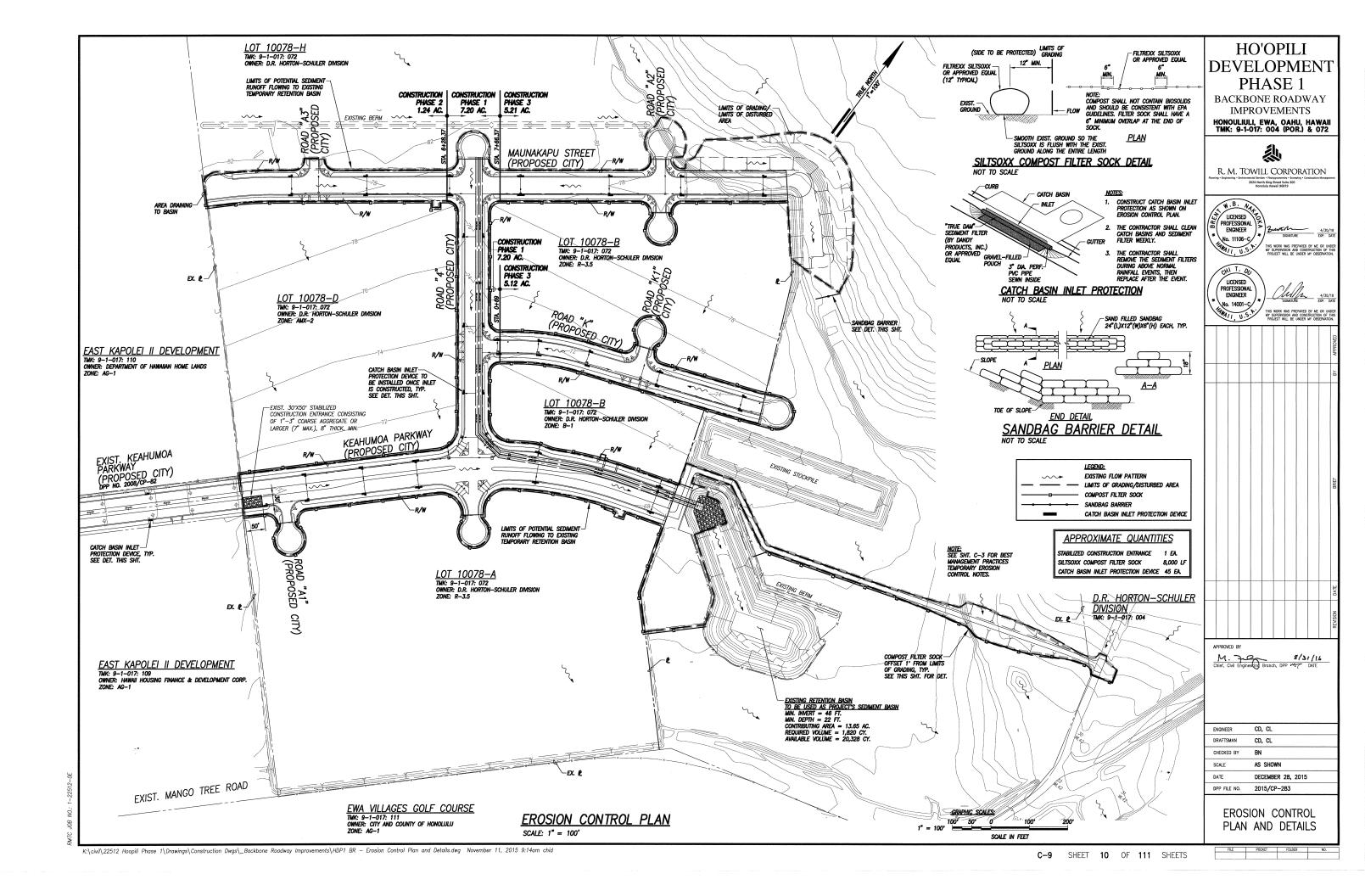


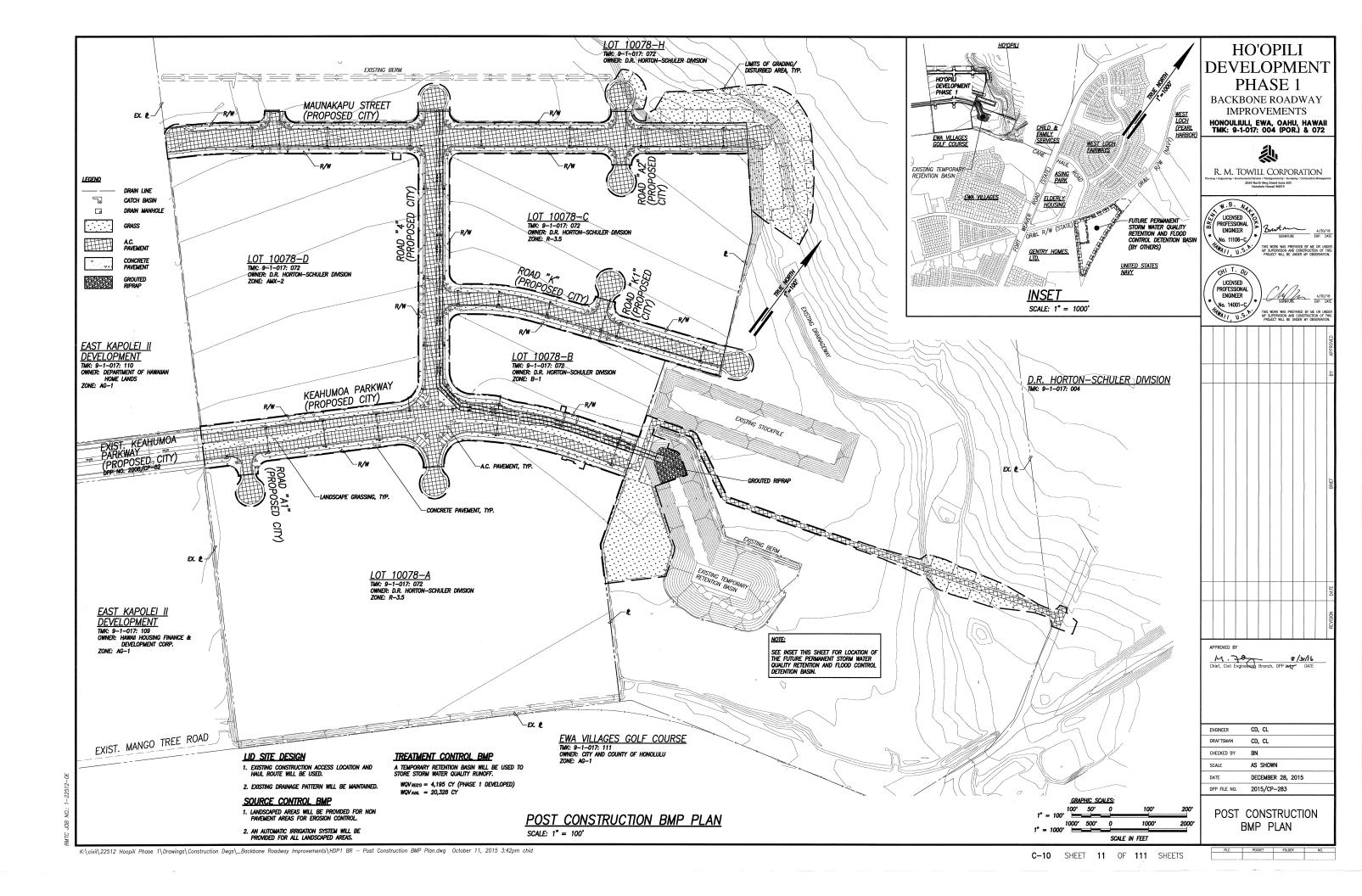


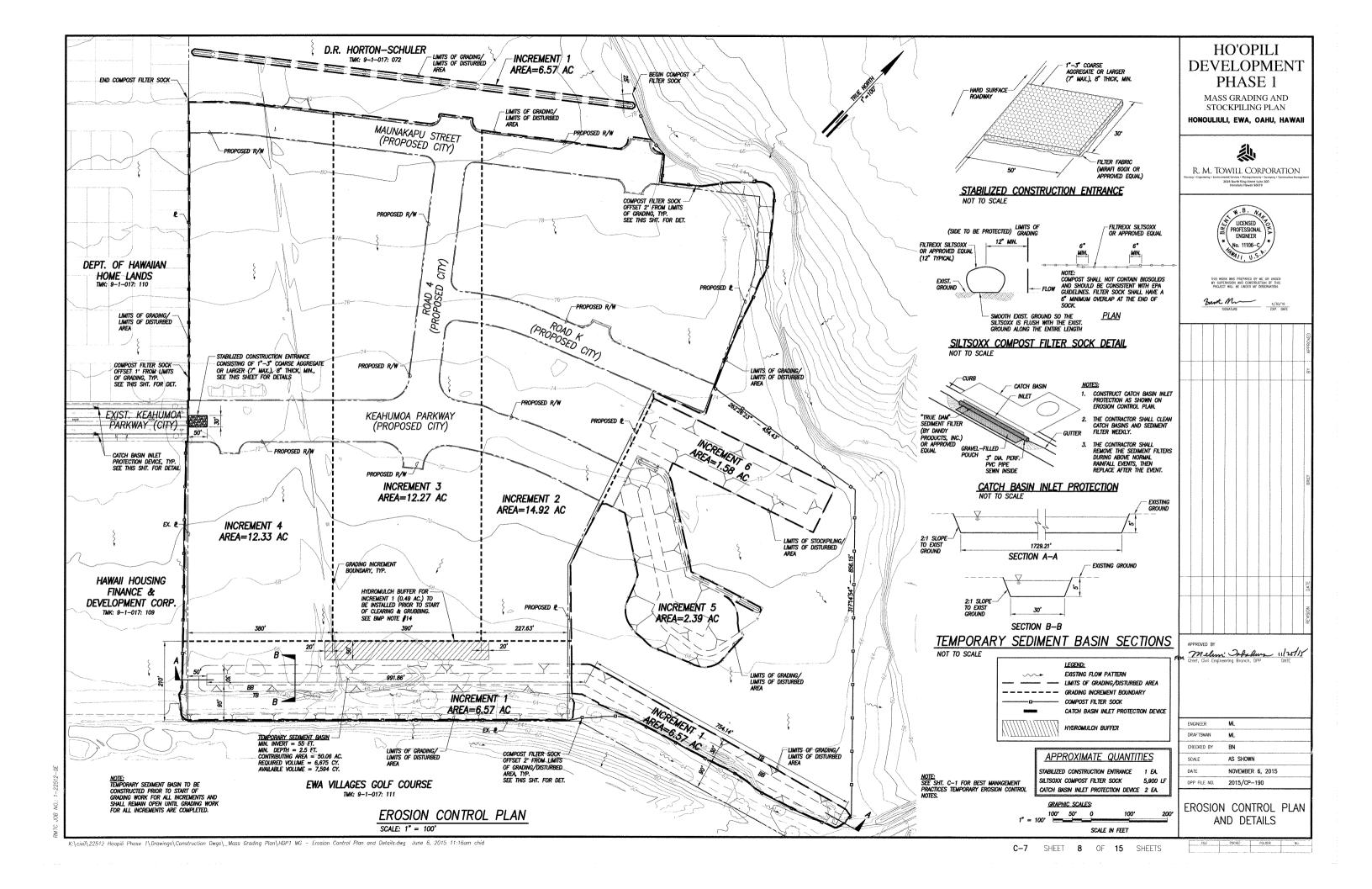


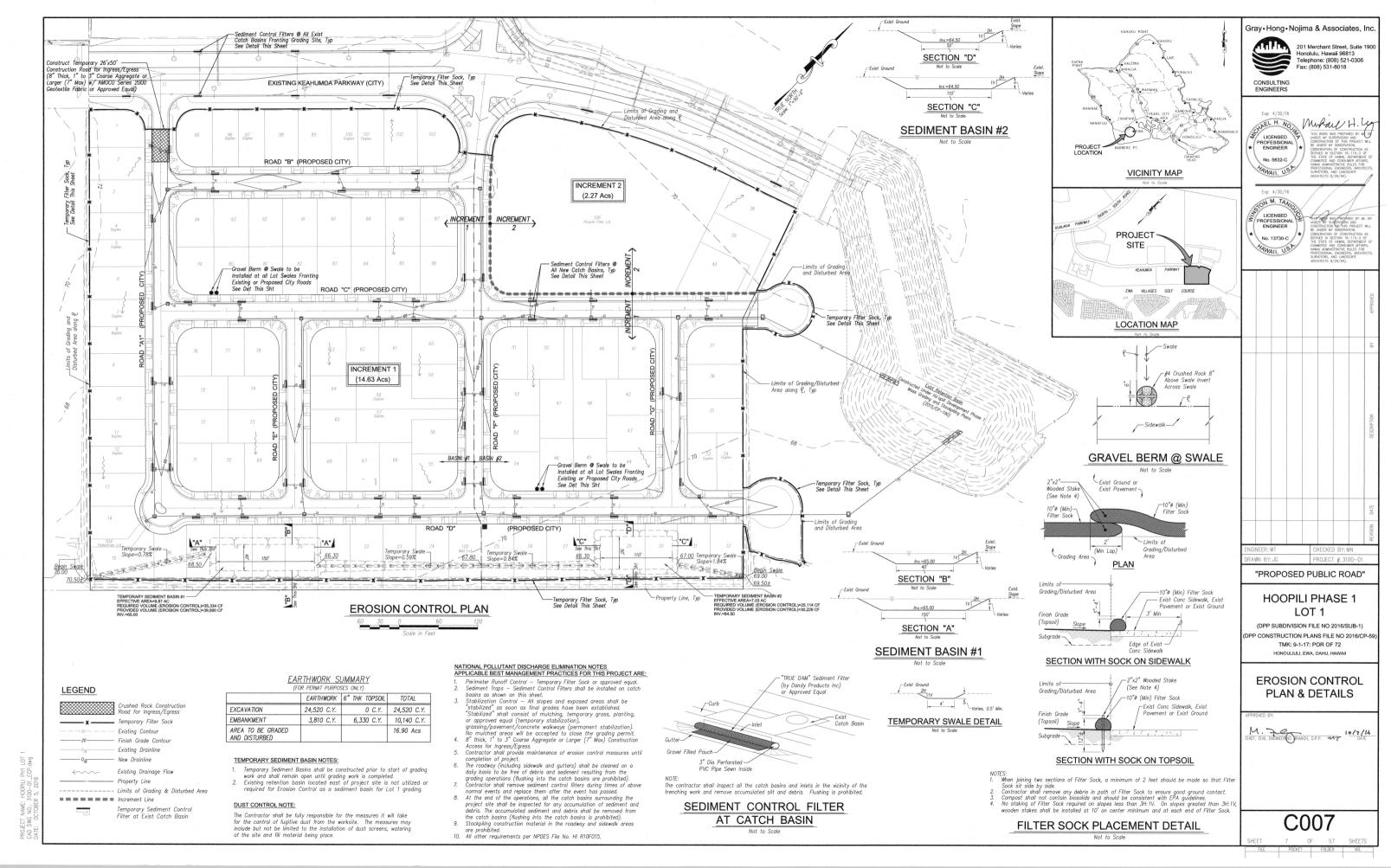


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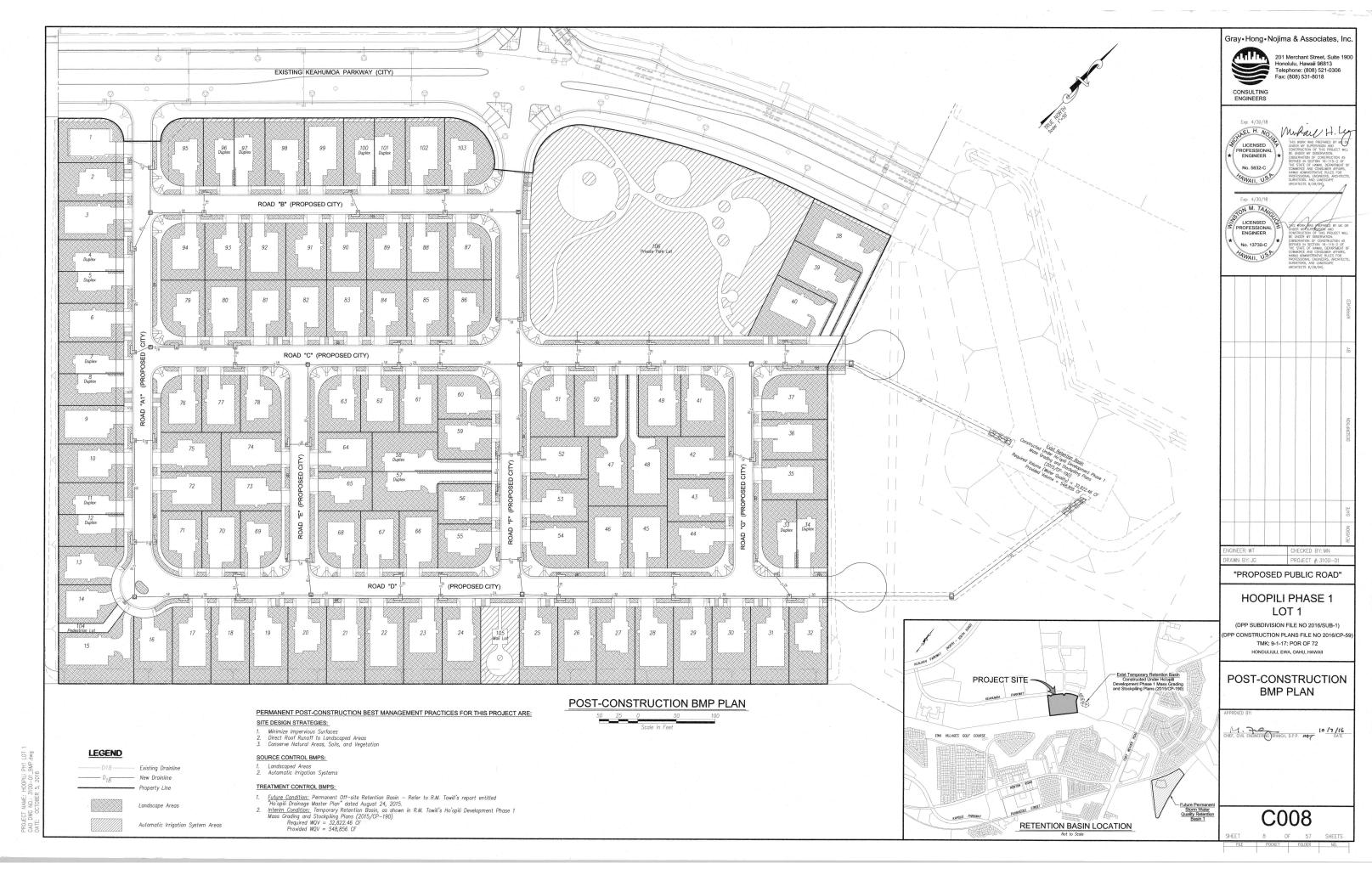




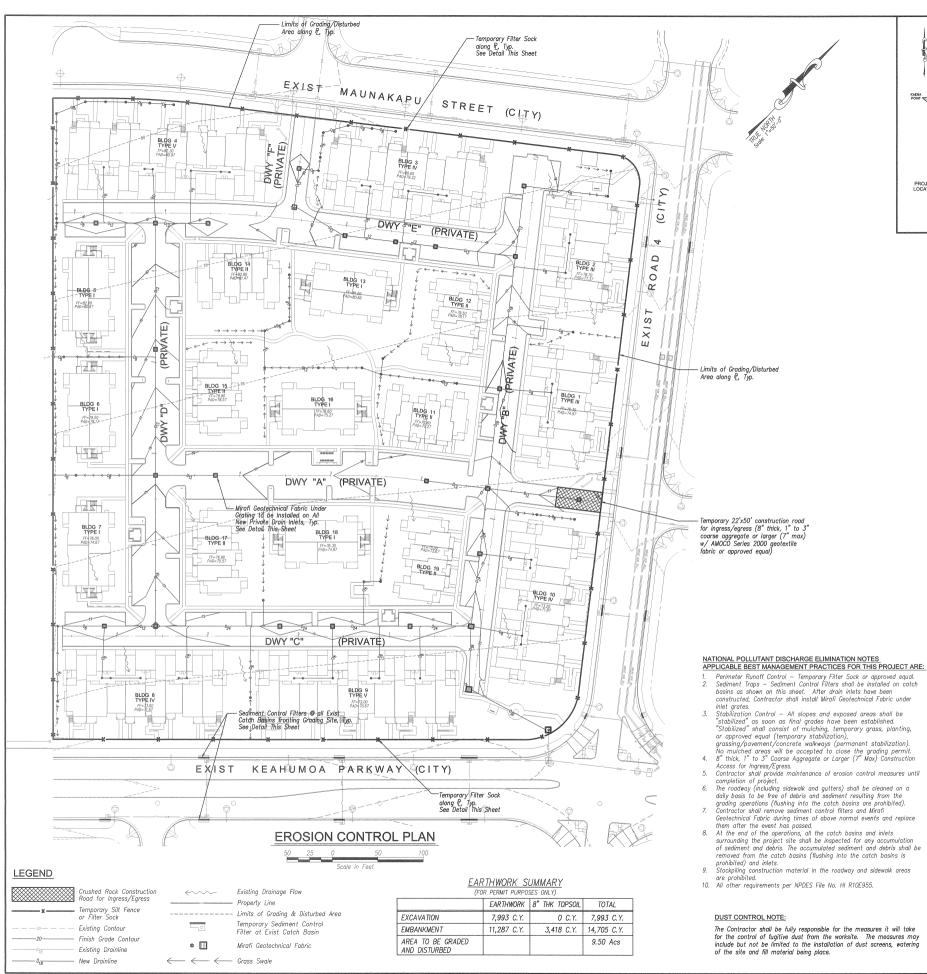


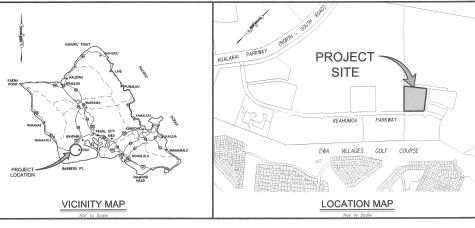


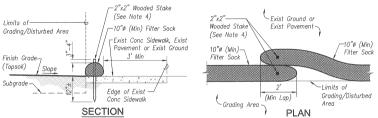
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ing name: P:13100-01 Hoopill Ph 1A.1 - Lot 1 Subd/3100-01 DWGS/Construction Plans/3100-01_BMP.dwg Oct 05,







- NOTES:

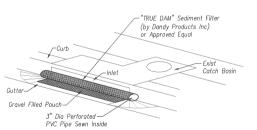
 1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.

 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.

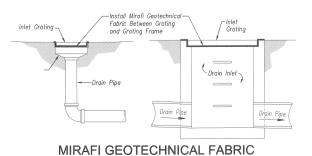
 4. No staking of Filter Sock required on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be
- installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL



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



PRIVATE DRAIN INLET DETAIL

Gray · Hong · Nojima & Associates, Inc.

201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Telephone: (808) 521-0306

CONSULTING ENGINEERS

WAEL H. NO Muhael H. lig LICENSED ROFESSIONA ENGINEER No. 5632-C MANAII, USP

Exp: 4/30/18 JON M. TANIO LICENSED PROFESSIONA ENGINEER No. 13730-C MANAII, USP

PROPOSED PRIVATE DRIVEWAY

HO'OPILI PHASE 1, LOT 2 MULTIFAMILY DEVELOPEMENT

DPP CONSTRUCTION PLANS FILE NO 2015/CP-27 TMK: 9-1-17: POR OF 72 HONOULIULI, EWA, OAHU, HAWAI

EROSION CONTROL PLAN & DETAILS

Melmi Jefalus

C007

Stockpiling construction material in the roadway and sidewalk areas are prohibited.

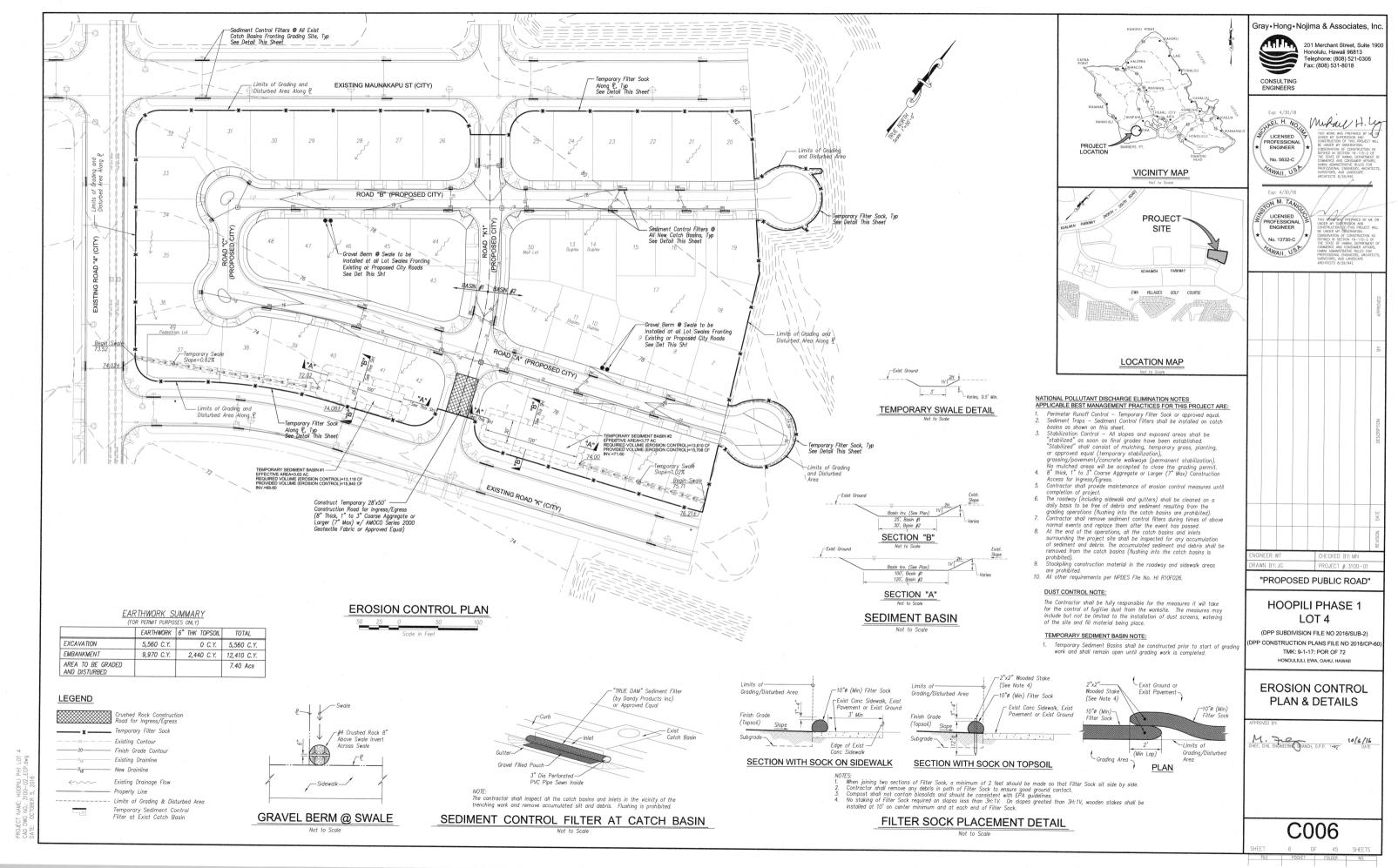
All other requirements per NPDES File No. HI R10E955.

DUST CONTROL NOTE:

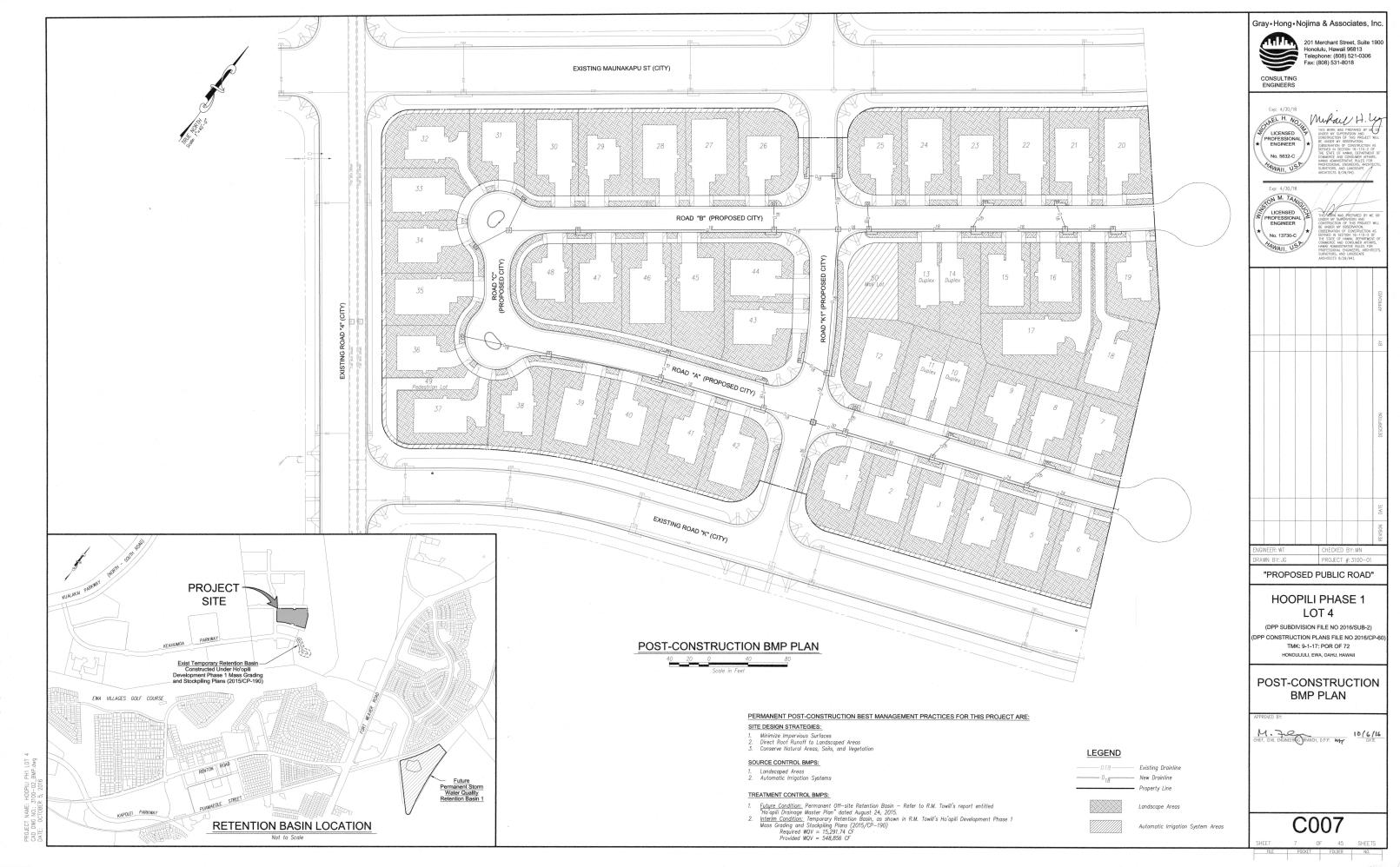
The Contractor shall be fully responsible for the measures it will take for the control of fugitive dust from the worksite. The measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.



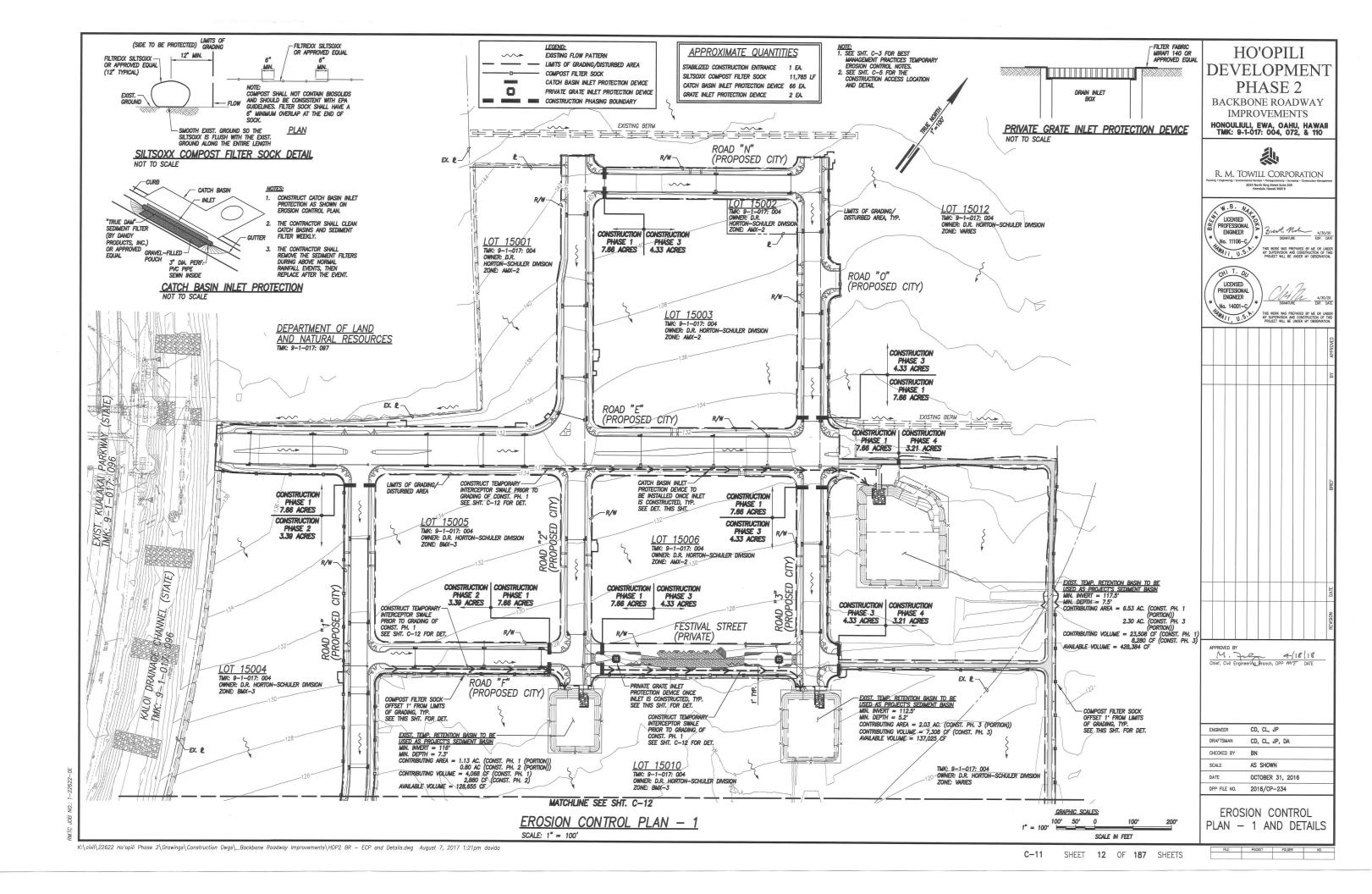
ing name; P:3100-03 Hoopill Ph 14.1 - Lot 2 MFI3100-03 DWG/Construction Plans/3100-03_BMP Plan.dwg Soy

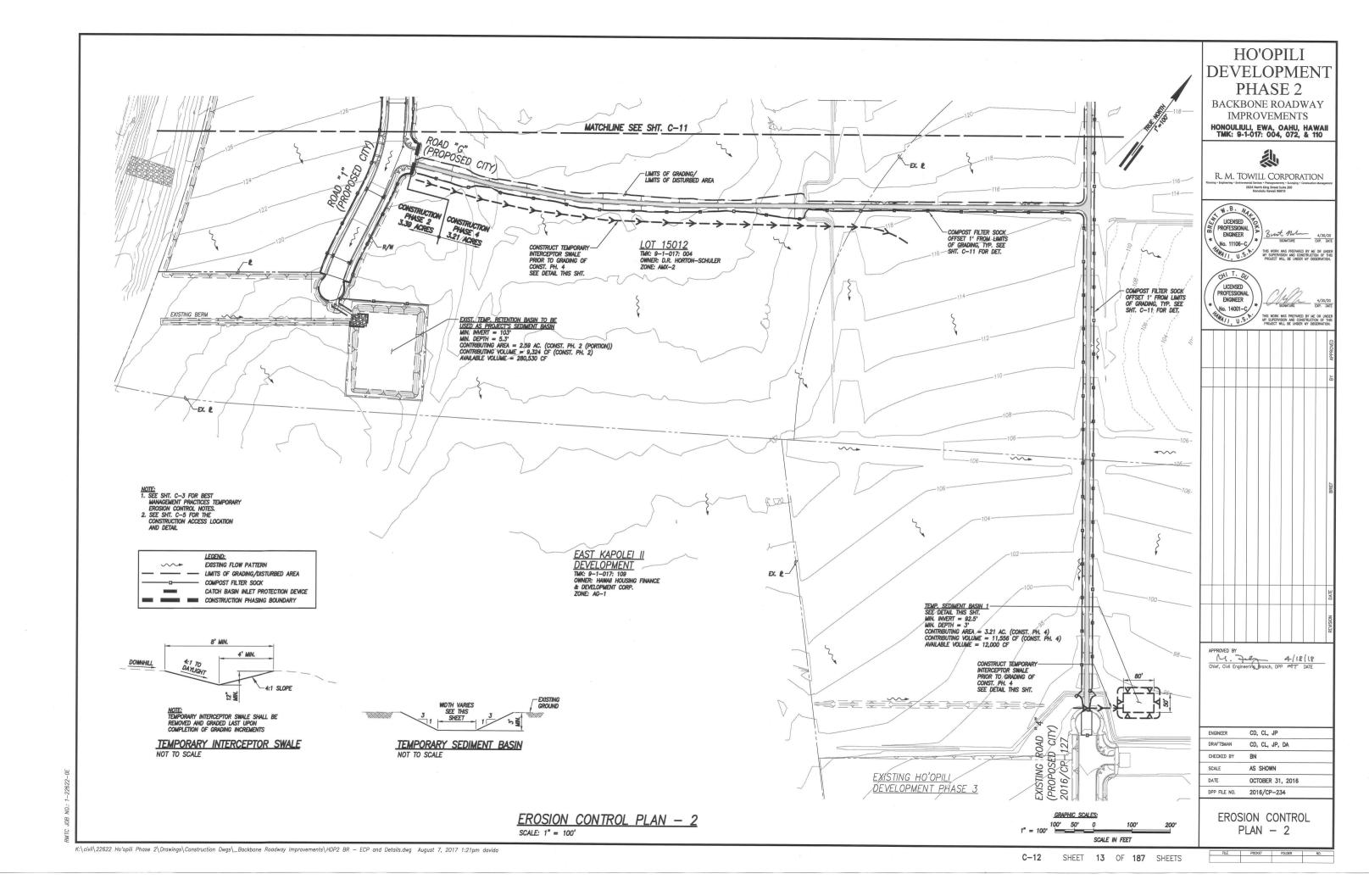


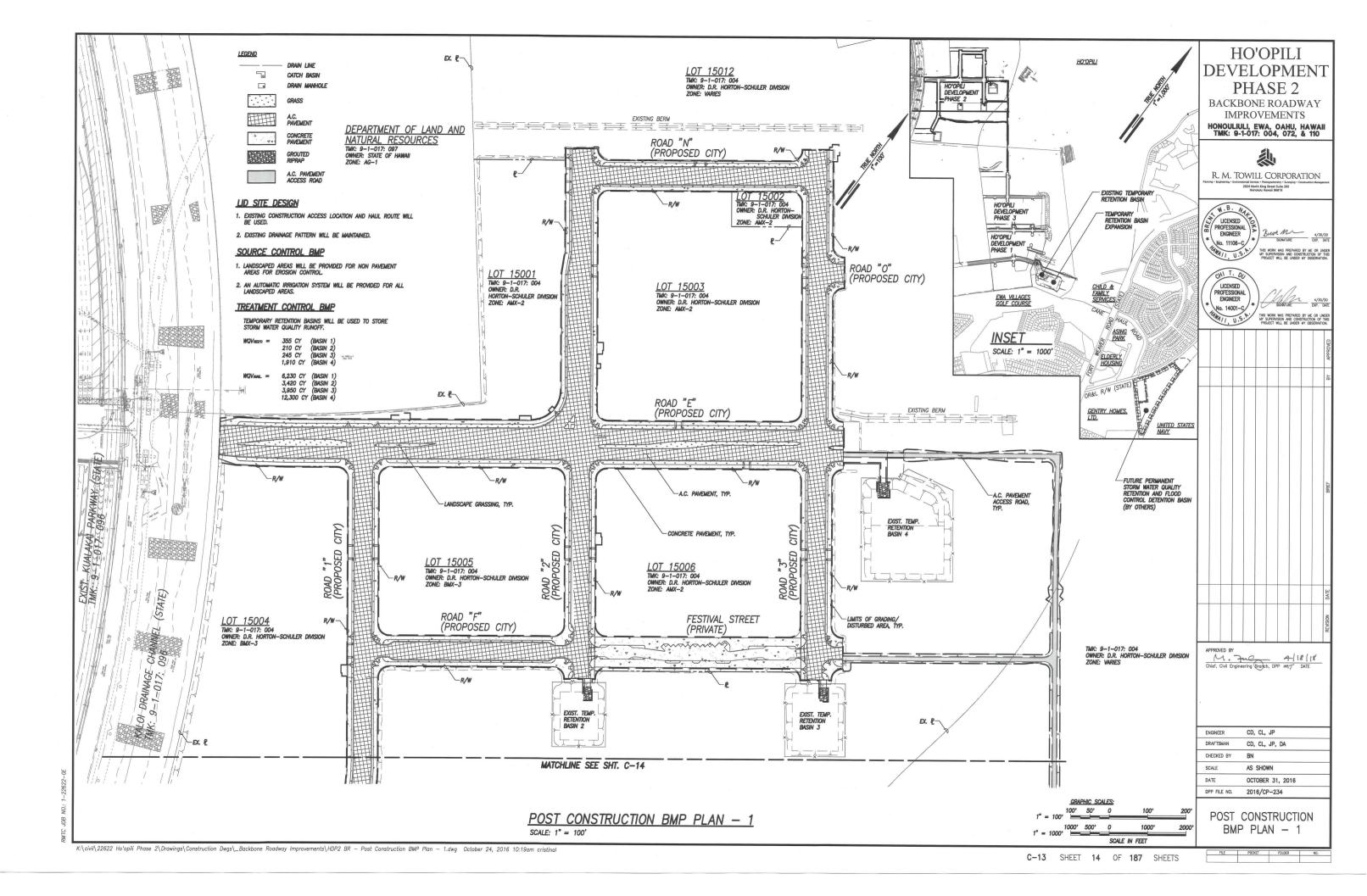
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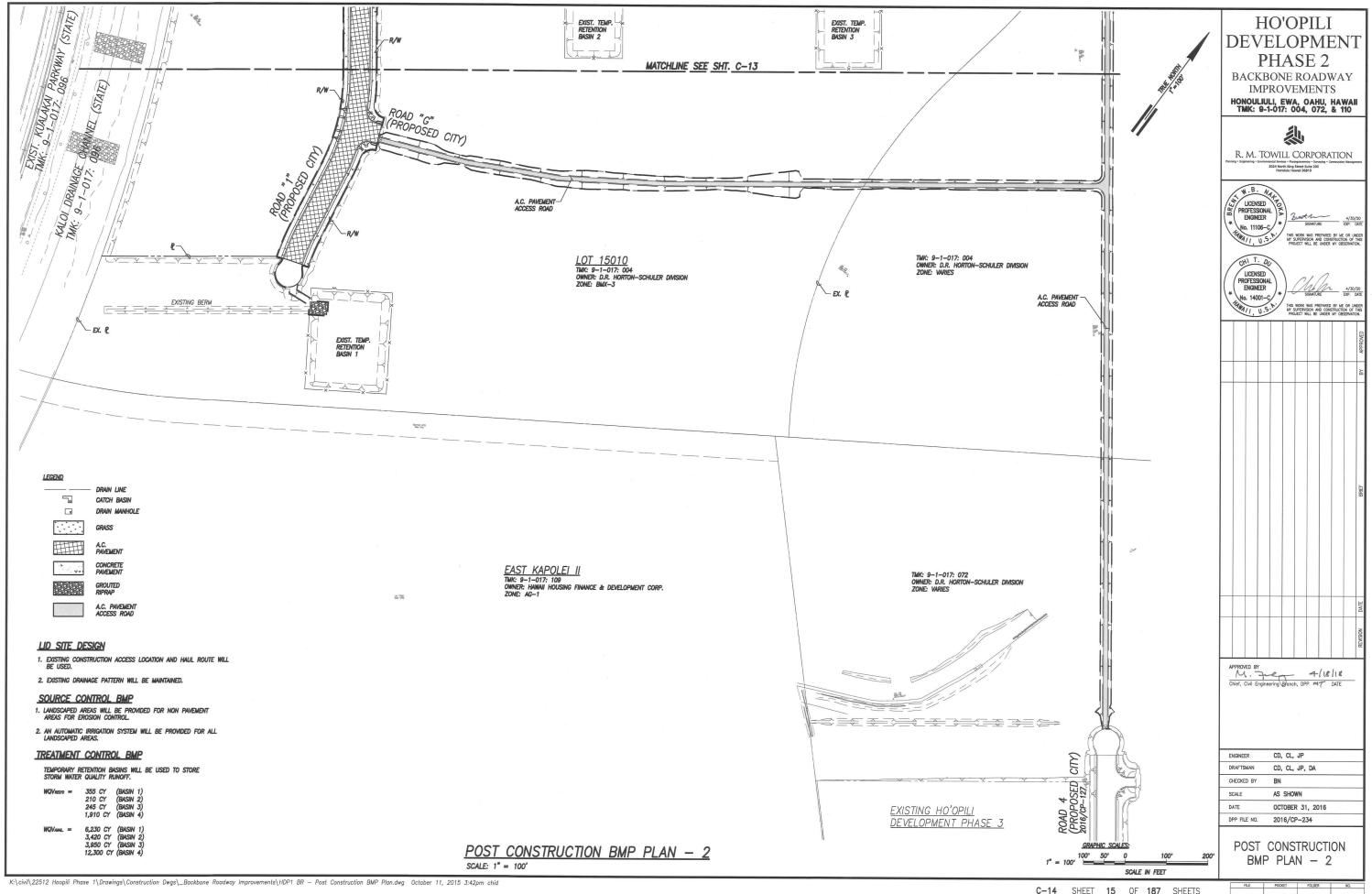


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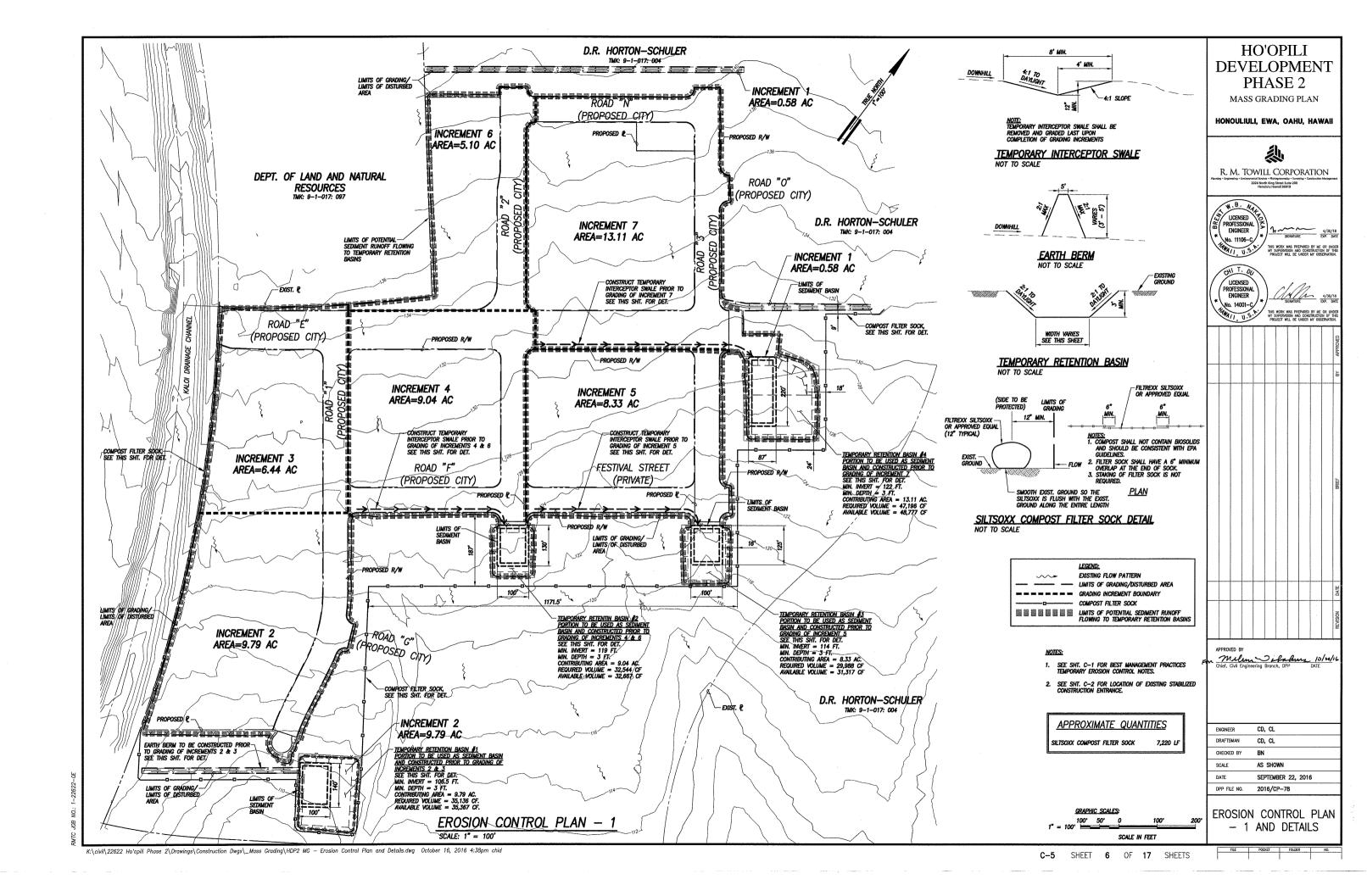


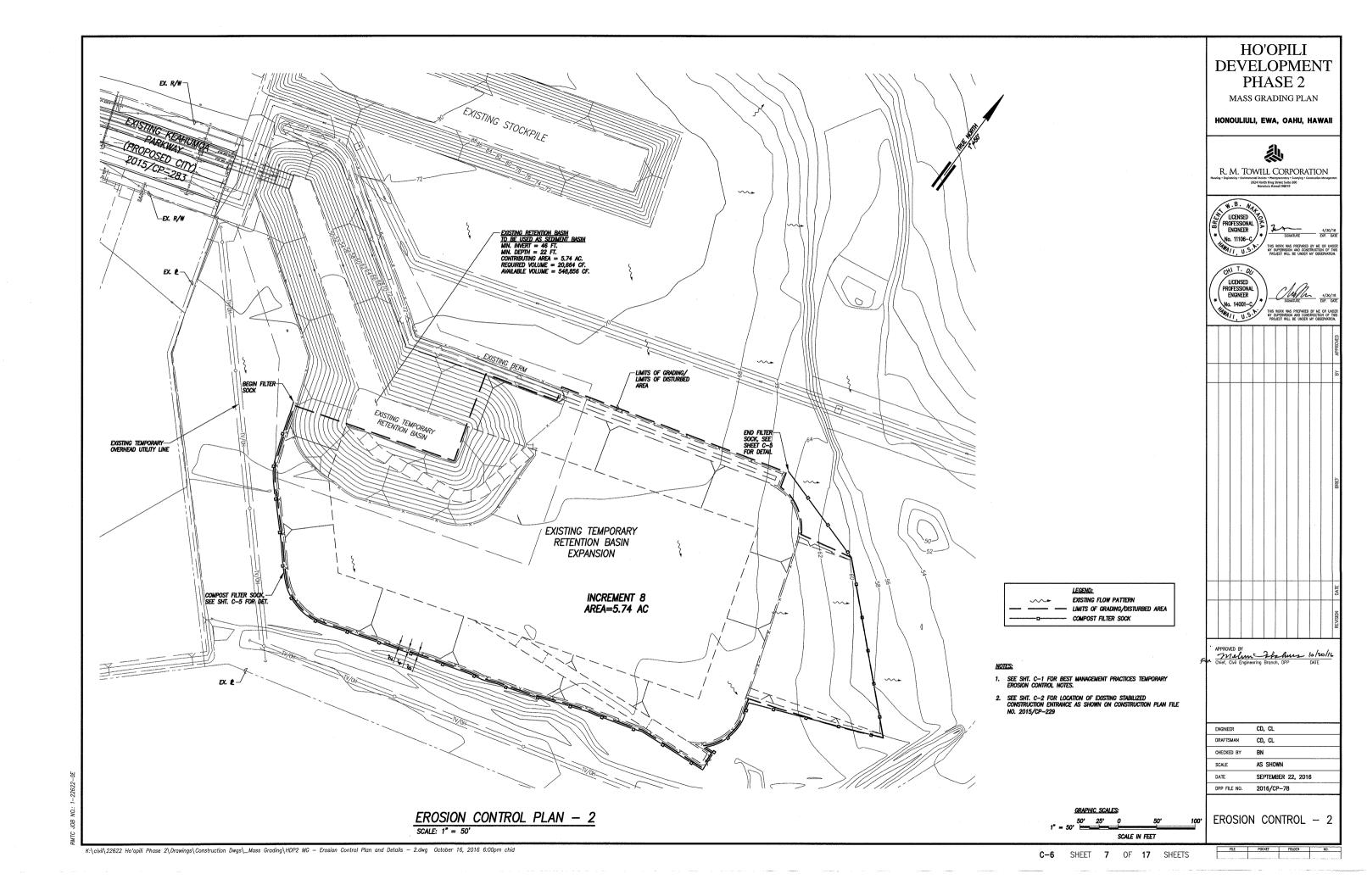


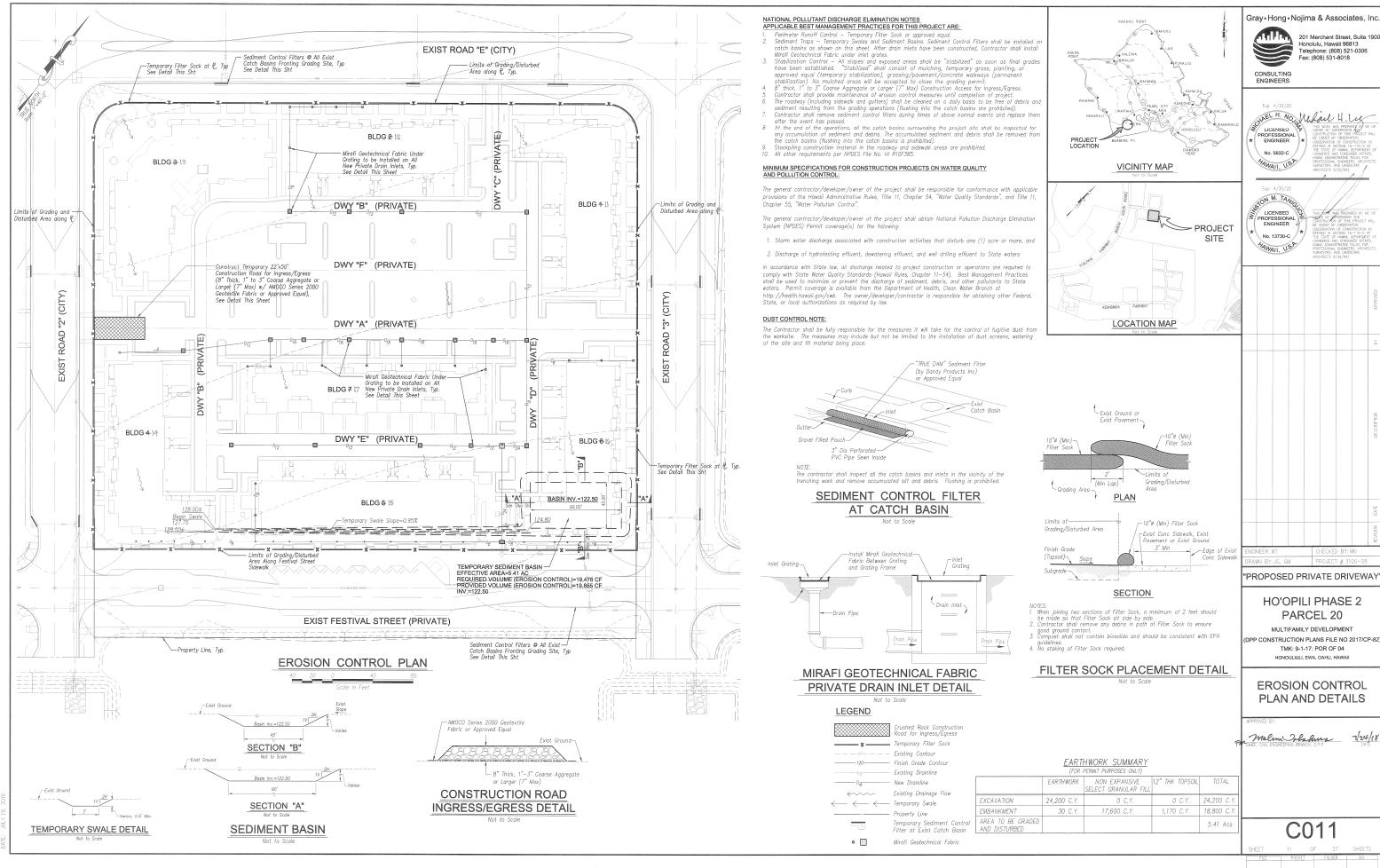




C-14 SHEET 15 OF 187 SHEETS







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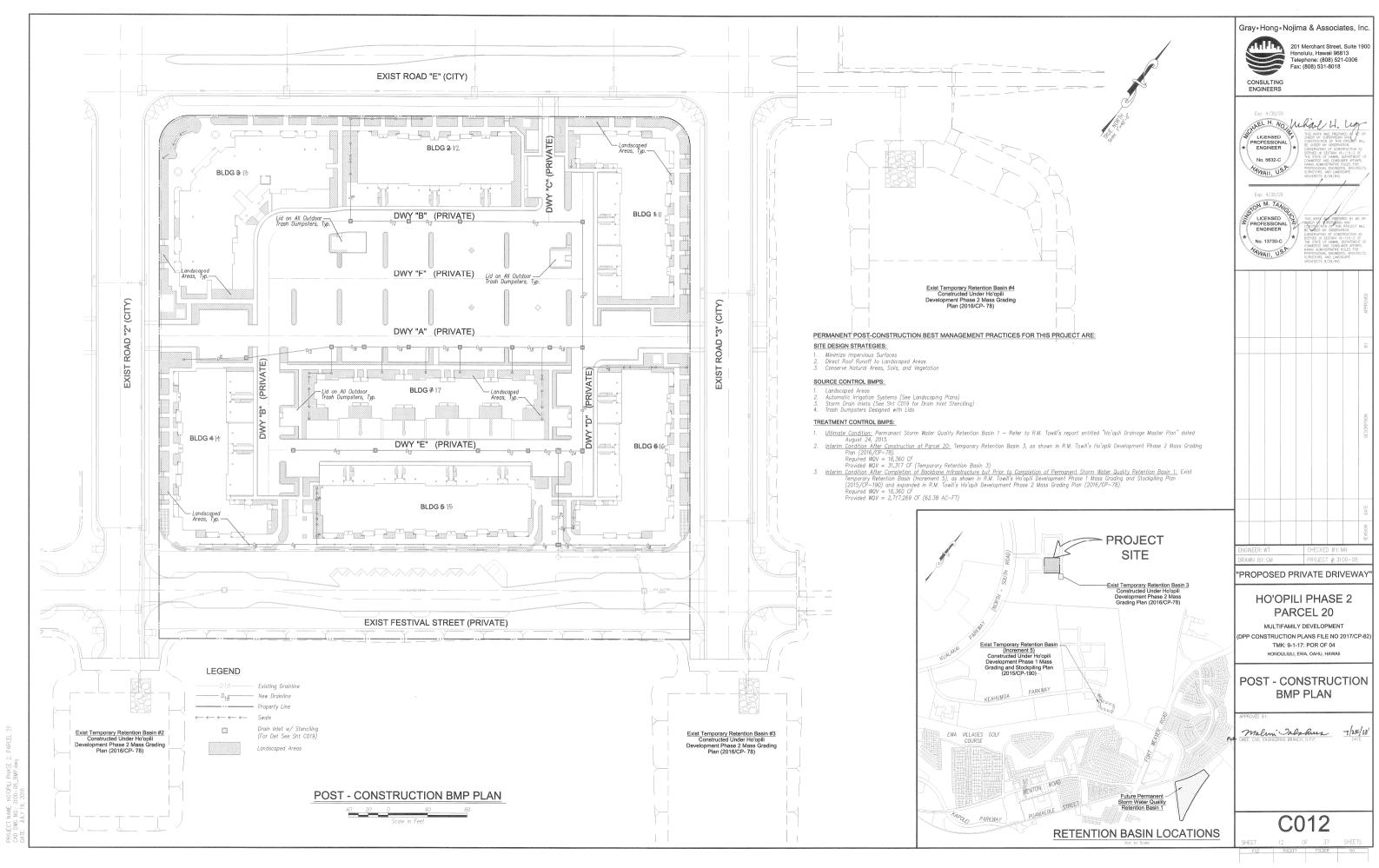
201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Telephone: (808) 521-0306 Fax: (808) 531-8018

JAEL H. NO, Makaul 4. Ly

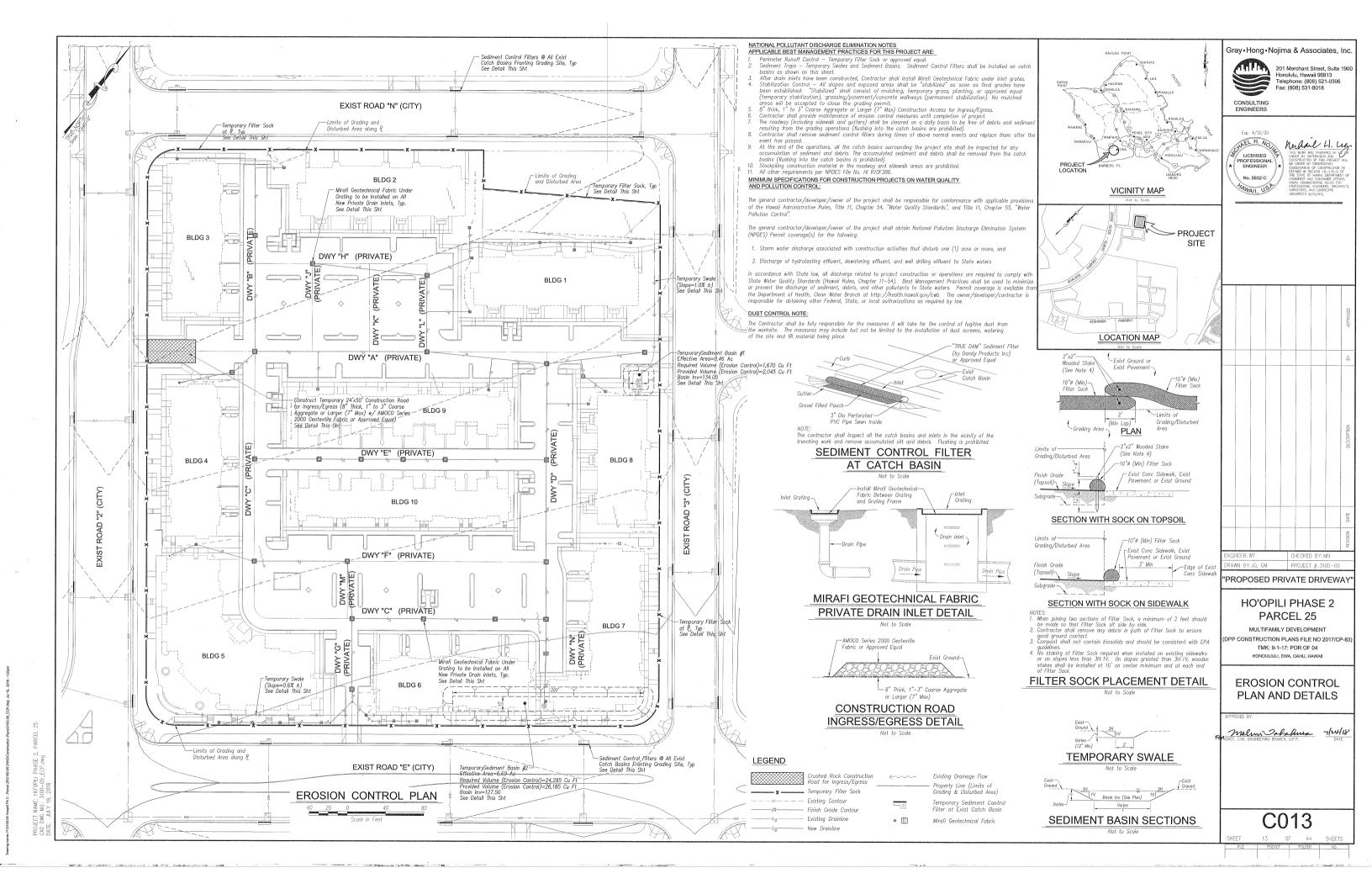
EROSION CONTROL PLAN AND DETAILS

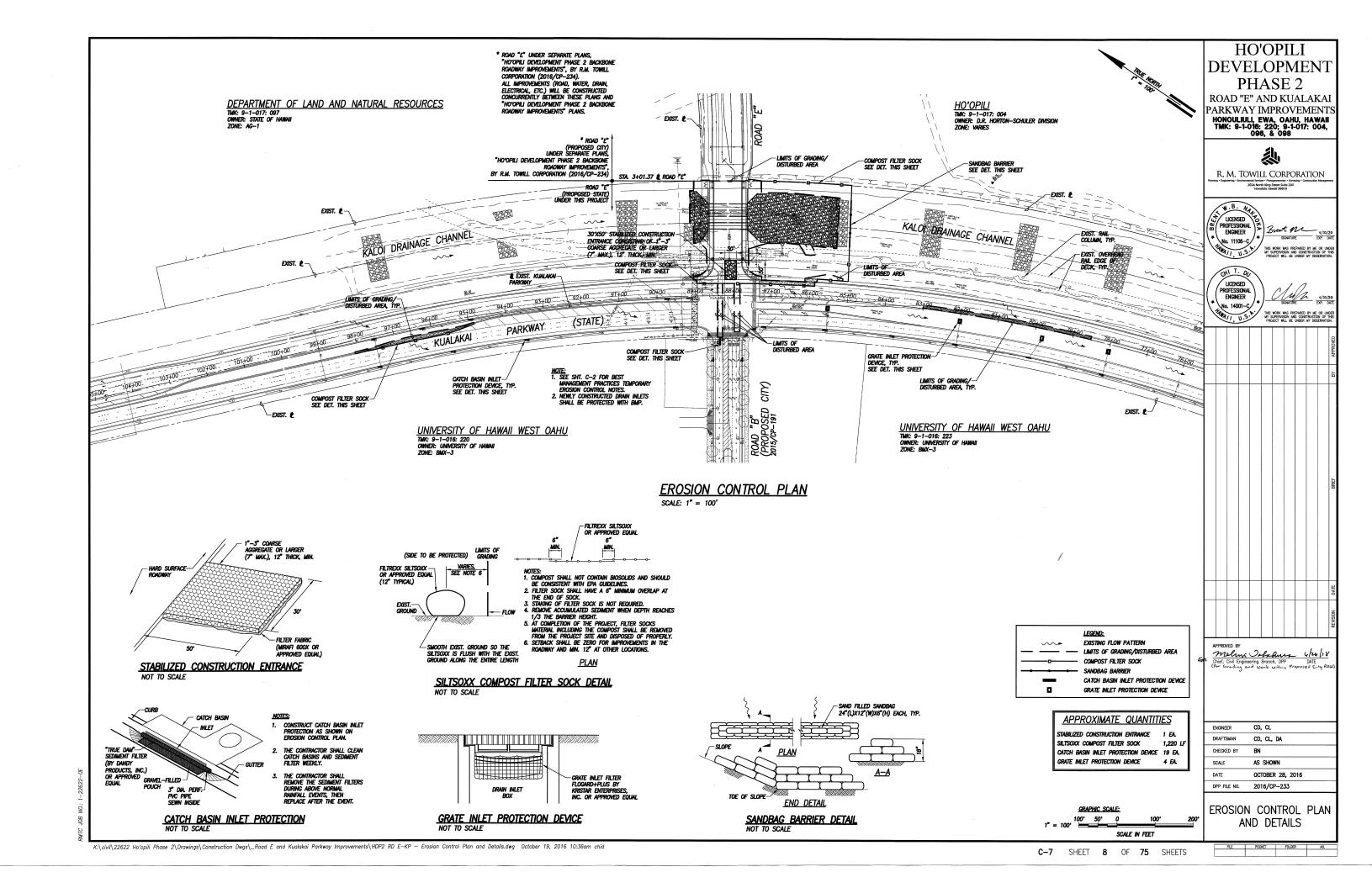
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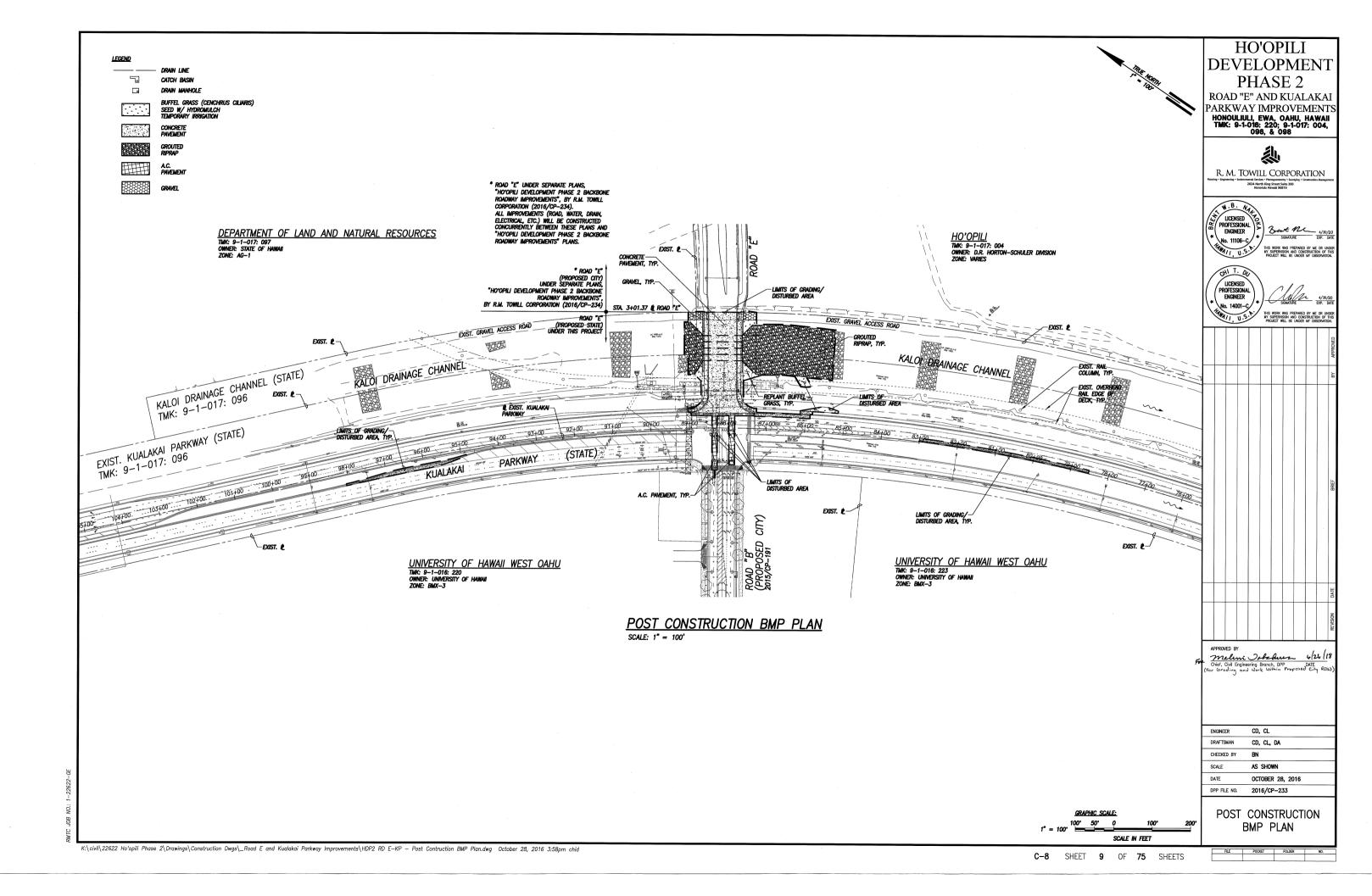
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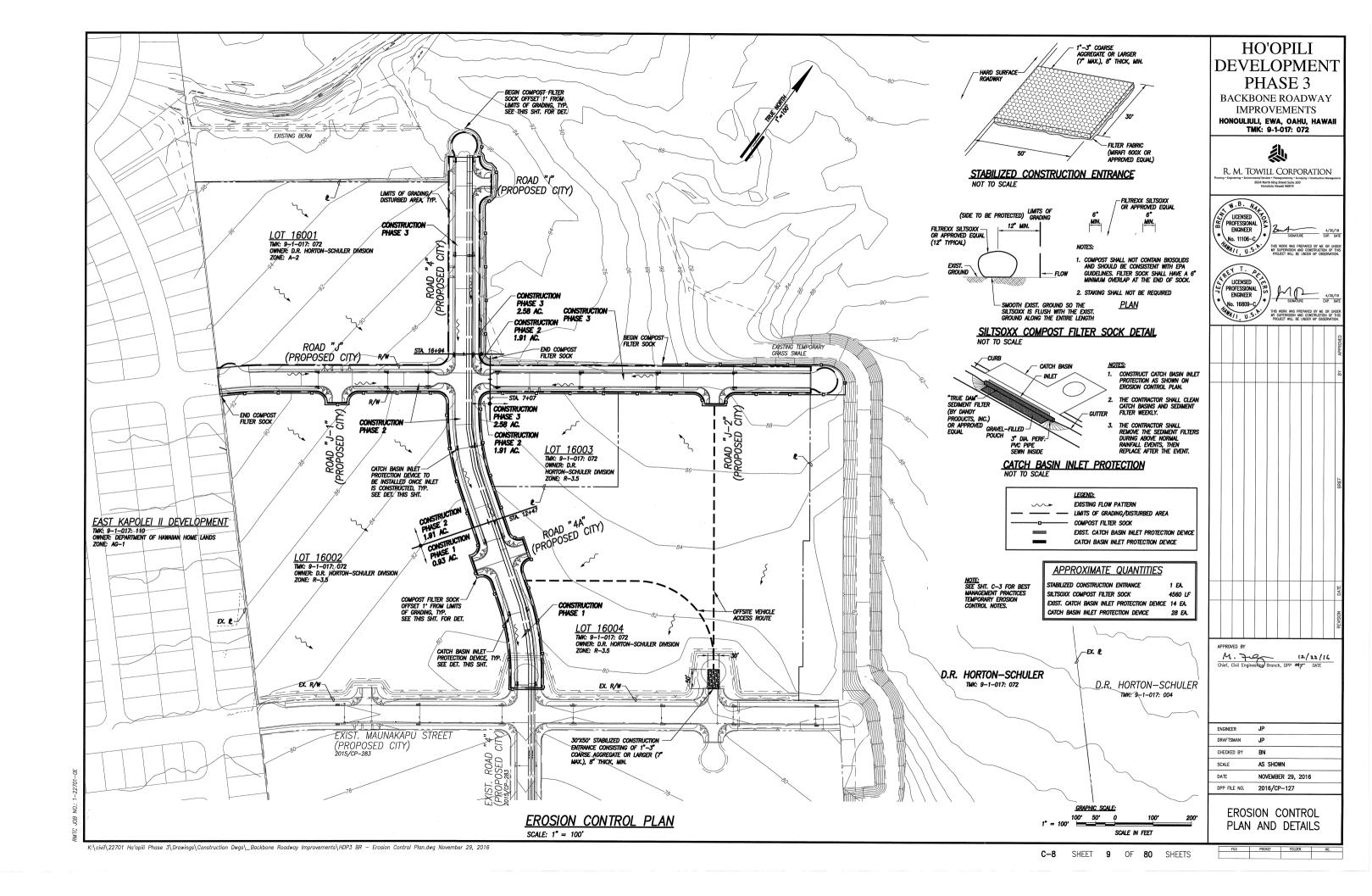


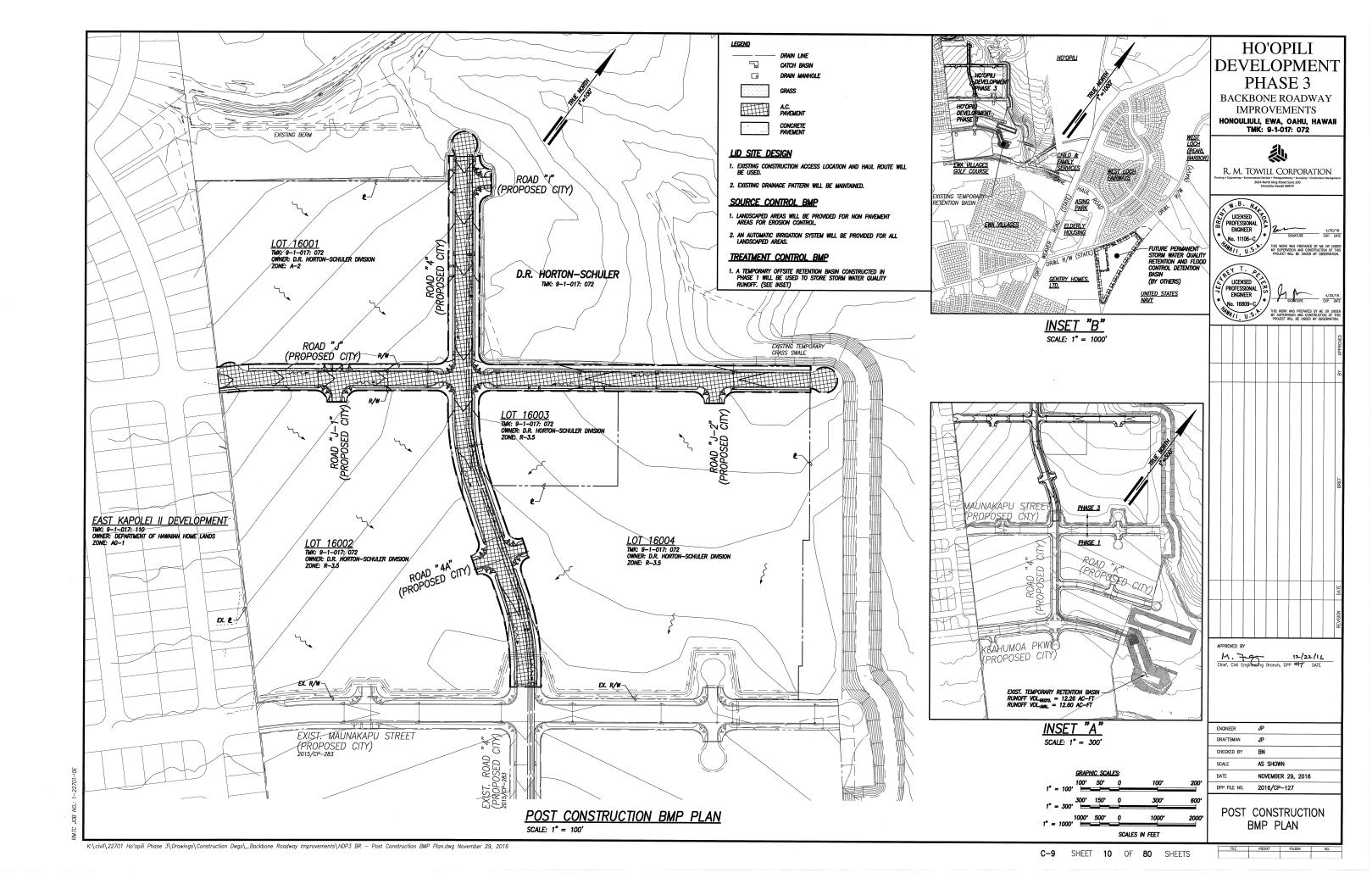
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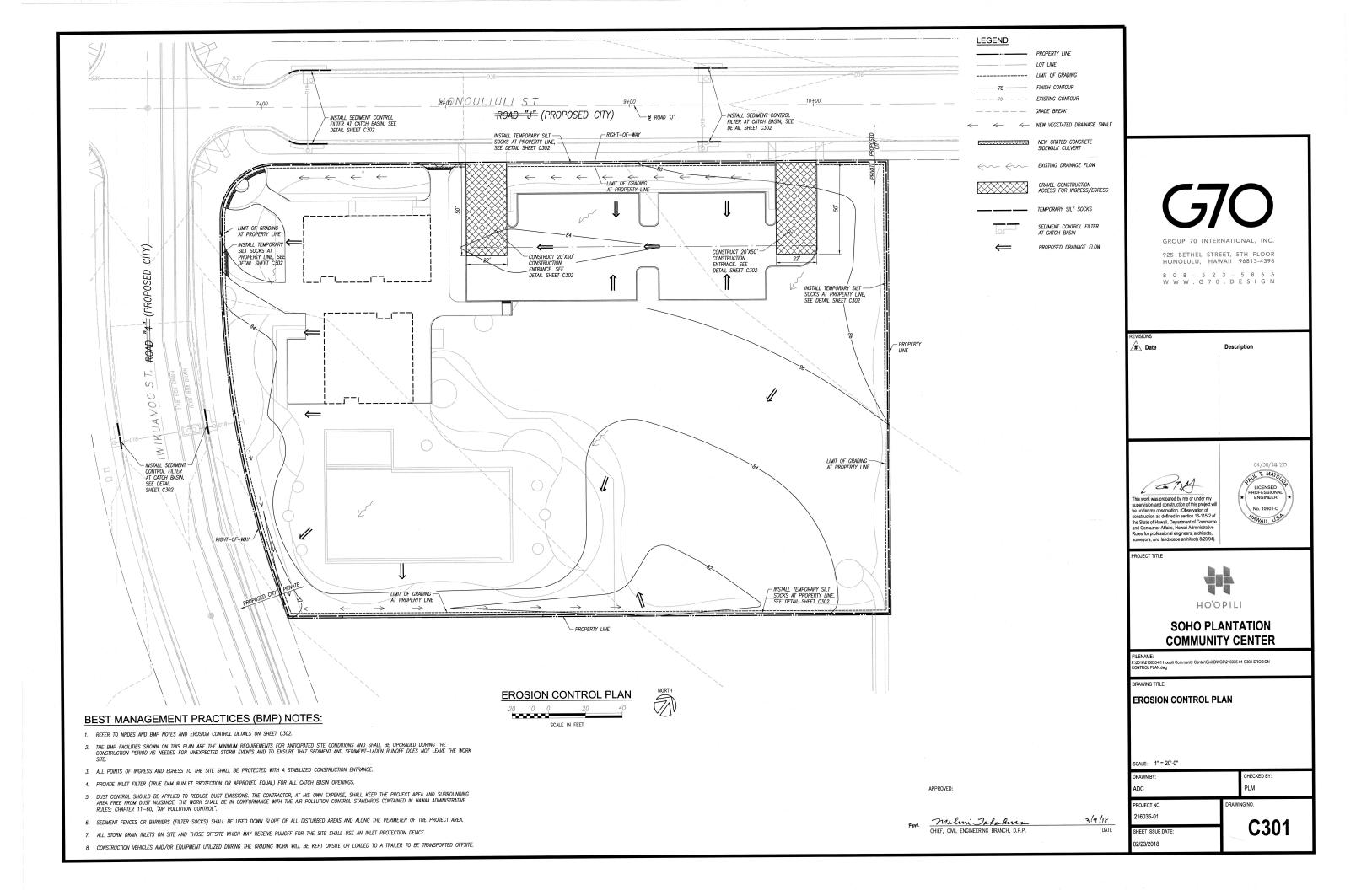












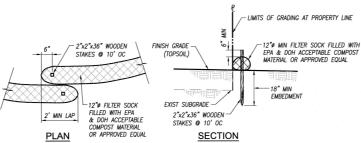
NATIONAL POLLUTANT DISCHARGE ELIMINATION AND BEST MANAGEMENT PRACTICE (BMP) NOTES:

- 1. PERIMETER RUNOFF CONTROL
 - LIMITETING ROTHOLOGIAND.

 A. 12" & FILTER SOCKS: CONTRACTOR TO INSTALL PERPENDICULAR TO THE DIRECTION OF FLOW AND ALONG THE DOWNHILL SIDE OF THE OPEN GRADING AREAS. LOCATION SHALL BE ADJUSTED DURING THE GRADING OPERATIONS. TEMPORARY SILT FENCE MAY BE USED IN LIEU OF FILTER SOCK AT CONTRACTOR'S
- - A. TEMPORARY ALL SLOPES AND EXPOSED AREAS SHALL BE IMMEDIATELY MULCHED OR PLANTED WHEN FINAL GRADES ARE ESTABLISHED OR WHEN GRADING WORK WILL BE DELAYED FOR MORE THAN TWO WEEKS AND BEFORE THE REMOVAL OF THE PROJECT'S TEMPORARY BMP.
 - B. PERMANENT ALL SLOPES AND EXPOSED AREAS SHALL BE LANDSCAPED WHEN FINAL GRADES ARE
- 3 STABILIZED CONSTRUCTION ENTRANCE FOR INGRESS/EGRESS WITH AMOCO SERIES 2000 GEOTEXTILE FABRIC OR APPROVED EQUAL, 20' x 50' x 8" THICK, 1" TO 3" COARSE AGGREGATE OR LARGER (7" MAX.)
- 4. THE CONTRACTOR SHALL ENSURE THAT ALL TIRES OF CONSTRUCTION VEHICLES ARE SUFFICIENTLY CLEANED OFF SO THAT DIRT OR DEBRIS IS NOT TRACKED OFF THE CONSTRUCTION SITE. WASHING OFF TIRES WITH WATER WILL NOT BE ACCEPTABLE UNLESS RUNOFF IS CONTAINED AND DOES NOT ENTER THE STORM DRAIN SYSTEM OR ONTO THE PUBLIC RIGHT-OF-WAY.
- 5. TEMPORARY EROSION CONTROLS SHALL BE IN PLACE PRIOR TO ANY GRADING OR GRUBBING WORK.
- 6. MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED THROUGHOUT DURATION OF PROJECT.
- BMP PROVIDED HEREIN ARE MINIMUM REQUIREMENTS. CONTRACTOR SHALL USE DISCRETION WHETHER ADDITIONAL BMP MEASURES ARE NECESSARY FOR CONTROLLING SEDIMENT RUNOFF FROM THE PROJECT SITE.
- EROSION CONTROL MEASURES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- FILTER SOCKS, SILT FENCES, AND TEMPORARY CONSTRUCTION ENTRANCES WILL REMAIN IN-PLACE UNTIL
 PERMANENT BMP ARE INSTALLED. CONTRACTOR SHALL MAINTAIN ALL EXISTING BMP MEASURES AND ENSURE THAT
 IT REMAINS OPERABLE AT ALL TIMES.
- 10. THE FINAL LIFT OF EACH DAYS WORK SHALL BE COMPACTED TO PREVENT EROSION OF FILL MATERIAL.
- 11. THE CONTRACTOR SHALL HAVE A COPY OF CURRENT NPDES AND GRADING PERMIT(S) ON SITE AT ALL TIMES. THE CONTRACTOR SHALL ALSO PROVIDE A COMPLETED BMP CHECKLIST AT TIME OF OBTAINING THE GRADING PERMIT AND MAINTAIN AN UPDATED RECORD OF SITE INSPECTIONS ON SITE THROUGH THE USE OF BMP CHECKLISTS.
- 12 THE CONTRACTOR SHALL NOT PERFORM FARTHWORK DURING INCLEMENT WEATHER.
- 13. THE EXISTING PAVED ROADWAYS INCLUDING SIDEWALKS AND GUTTERS SHALL BE CLEANED ON A DAILY BASIS TO BE FREE OF DEBRIS AND SEDIMENT RESULTING FROM THE GRADING OPERATIONS. FLUSHING INTO THE DRAIN STRUCTURES IS PROHIBITED
- 14. STOCKPILING CONSTRUCTION MATERIAL IN THE EXISTING ROAD RIGHT-OF-WAY AREA OR ADJACENT LOT(S) ARE
- 15. IF ANY EXPOSED GRADED AREAS THAT ARE NOT BEING WORKED ON OR WHOSE FINAL GRADES HAVE BEEN ESTABLISHED FOR MORE THAN 14 DAYS, THE CONTRACTOR SHALL MULCH THE AREA.
- 16. AT THE CONCLUSION OF GRADING OPERATIONS AND PRIOR TO PROJECT COMPLETION, ALL DRAINAGE STRUCTURES WITHIN LIMITS OF DISTURBED AREA SHALL BE INSPECTED AND CLEANED OF ACCUMULATED DEBRIS AND SEDIMENT. THE ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE CATCH BASINS (FLUSHING
- 17. WASH WATER SHALL NOT DRAIN INTO EXISTING CATCH BASINS.
- 18. DURING CONSTRUCTION, INLET PROTECTION SHALL BE APPLIED TO ALL DRAIN INLET STRUCTURES IMMEDIATELY
- 19. THE CONTRACTOR SHALL ADHERE TO ALL OTHER REQUIREMENTS AS DETAILED IN THE STORMWATER POLLUTION
- 20. ALL OTHER REQUIREMENTS PER NPDES FILE NO. HI R10F358.FNL.17.

MAINTENANCE NOTE:

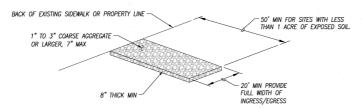
EROSION CONTROL MEASURES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.



NOTES:

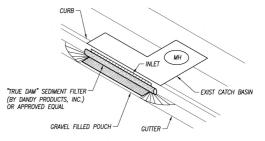
- 1. WHEN JOINING TWO SECTIONS OF FILTER SOCK, A MINIMUM OF 2 FEET SHOULD BE MADE SO THAT FILTER SOCK SIT SIDE BY SIDE
- CONTRACTOR SHALL REMOVE ANY DEBRIS IN PATH OF FILTER SOCK TO ENSURE GOOD GROUND CONTACT.
- 3. COMPOST SHALL NOT CONTAIN BIOSOLIDS AND SHOULD BE CONSISTENT WITH EPA GUIDELINES.
- SHOULD THE FILTER FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE FILTER SOCK STILL BE NECESSARY, THE FILTER SOCK SHALL BE REPLACED PROMPTLY.

FILTER SOCK/FILTRATION TUBE



<u>NOTE:</u>
1. ANY SEDIMENT CARRIED FROM THE SITE ONTO THE STREET SHALL BE CLEANED UP IMMEDIATELY.

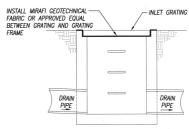
GRAVEL CONSTRUCTION ENTRANCE DETAIL



NOTES:

- SEDIMENT CONTROL FILTERS SHALL BE INSTALLED ON ALL NEW CATCH BASINS WITHIN PROJECT SITE AS WELL AS ALL CATCH BASINS FRONTING THE PROJECT SITE AS SHOWN ON THIS SHEET.
- AT THE END OF THE OPERATIONS, ALL THE CATCH BASINS SURROUNDING THE PROJECT SITE SHALL BE INSPECTED FOR ANY ACCUMULATION OF SEDIMENT AND DEBRIS. THE ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE CATCH BASINS. FLUSHING INTO THE CATCH BASIS IS PROHIBITED.
- CONTRACTOR SHALL REMOVE SEDIMENT CONTROL FILTERS DURING TIMES OF ABOVE—NORMAL RAINFALL EVENTS AND REPLACE THEM AFTER THE EVENT HAS

SEDIMENT CONTROL FILTER AT CATCH BASIN



NOTE:

MIRAFI GEOTECHNICAL FABRIC SHALL BE INSTALLED UNDER ALL NEW PRIVATE DRAIN INLET GRATES WITHIN THE PROJECT SITE.

PRIVATE DRAIN INLET



925 BETHEL STREET, 5TH FLOOR HONOLULU, HAWAII 96813-4398

8 0 8 - 5 2 3 - 5 8 6 6 W W W . G 7 0 . D E S I G N

Date



04/30/#820 AUL T. MATSU LICENSED ROFESSIONA ENGINEER No. 10901-C



SOHO PLANTATION COMMUNITY CENTER

FILENAME:
P:2016/216035-01 Hoopili Community Centerl Civil DWGS\216035-01 C302 EC

EROSION CONTROL NOTES AND DETAILS

CALE: 1" = 20'-0"

HECKED BY PLM ADC OJECT NO.

216035-01

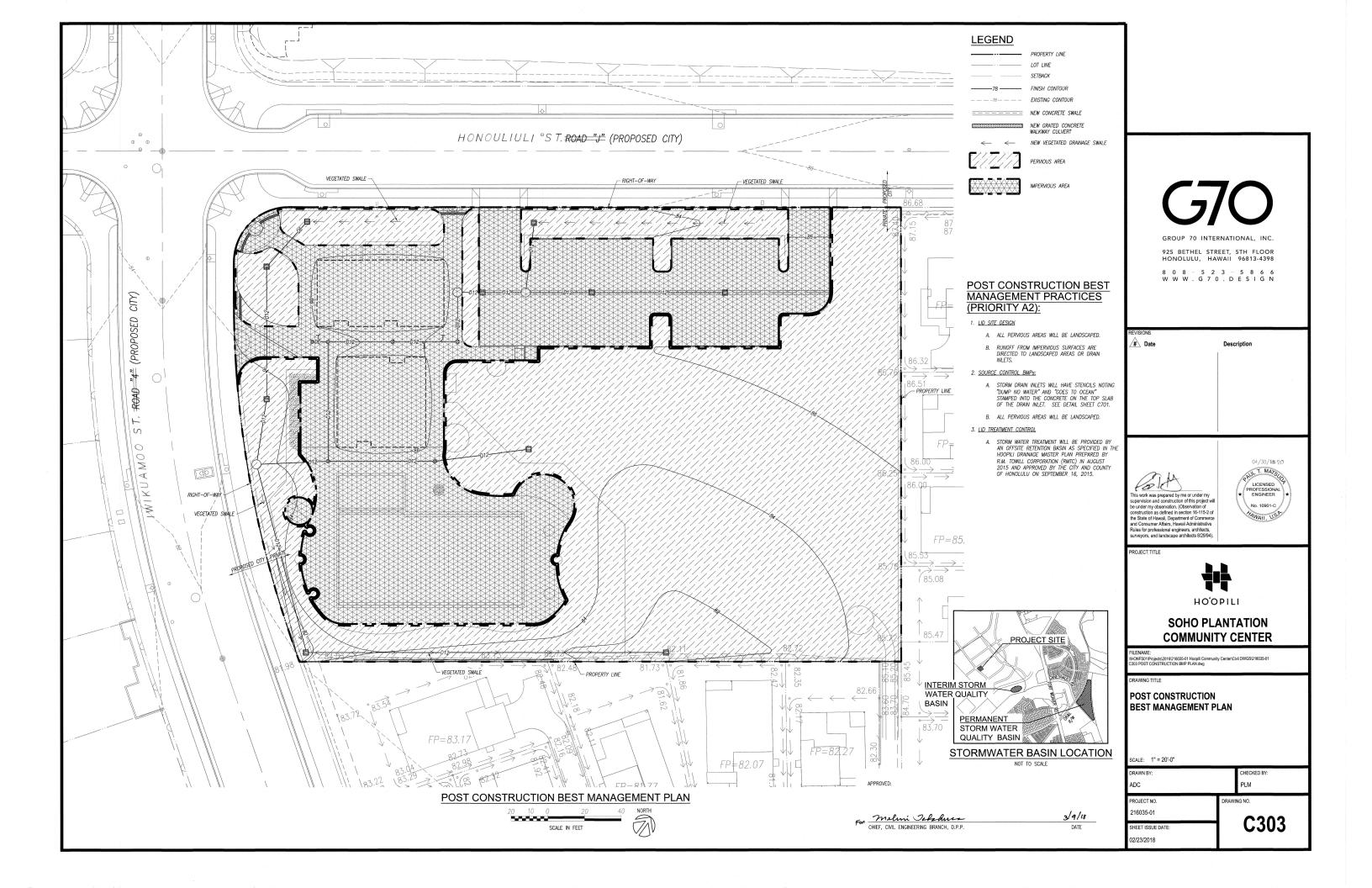
HEET ISSUE DATE 02/23/2018

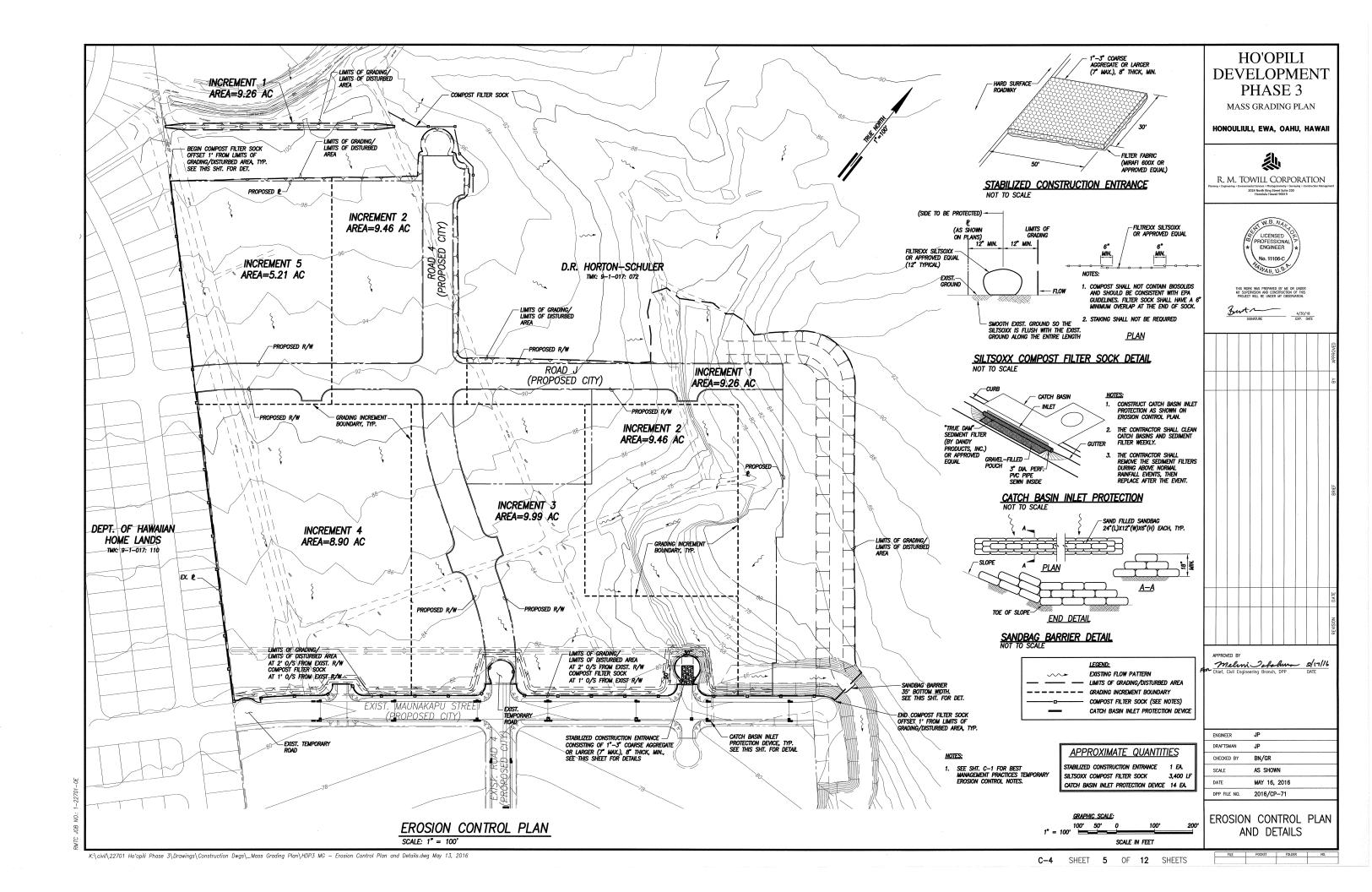
C302

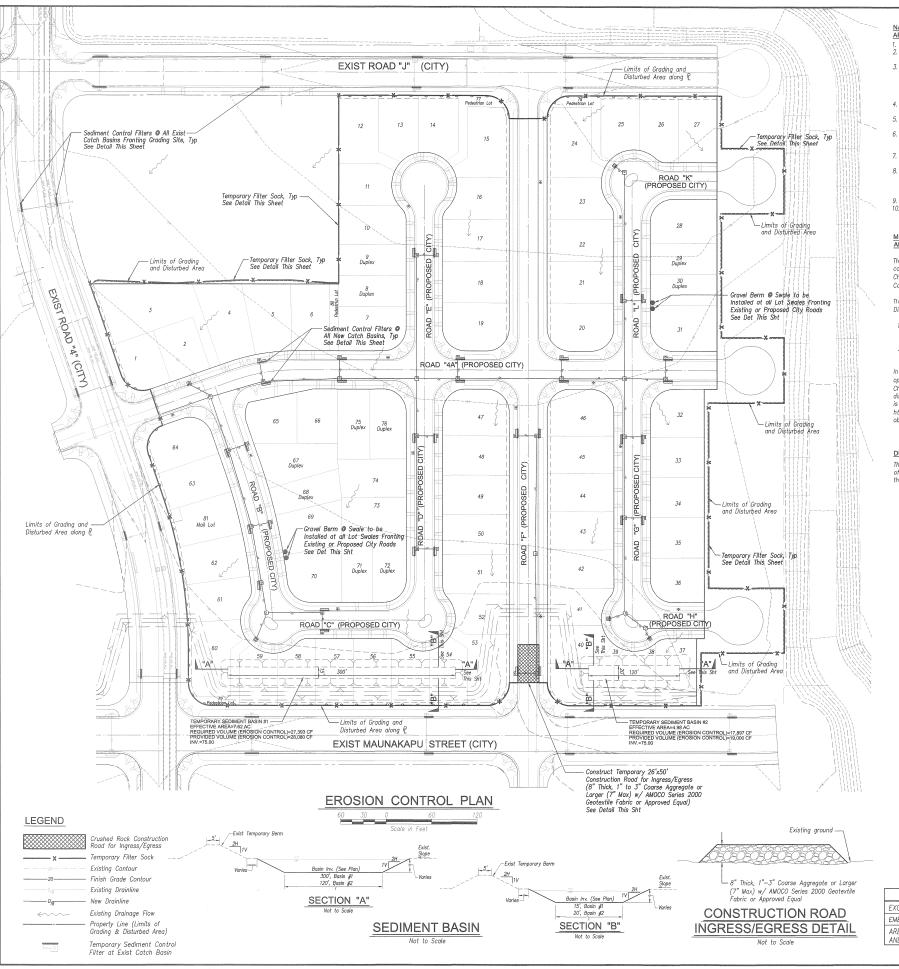
For Melini Telahurs CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.

APPROVED:

3/9/18







NATIONAL POLLUTANT DISCHARGE ELIMINATION NOTES

- APPLICABLE BEST MANAGEMENT PRACTICES FOR THIS PROJECT ARE:
- Perimeter Runoff Control Temporary Filter Sock or approved equal. Sediment Traps Sediment Control Filters shall be installed on catch basins as
- Sediment Traps Sediment Control Filters shall be installed on cotch basins as shown on this sheet.
 Stabilization Control All slopes and exposed areas shall be "stabilized" as soon as final grades have been established. "Stabilized" shall consist of mulching, temporary grass, planting, or approved equal (temporary stabilization), grassing/powement/concrete walkways (permanent stabilization). No mulched areas will be accepted to close the grading permit.
 8" thick, 1" to 3" Coarse Aggregate or Larger (7" Max) Construction Access for Ingress/Egress.
 Contractor shall provide maintenance of erosion control measures until completion of control.
- of project.

- of project.

 The roadway (including sidewalk and gutters) shall be cleaned on a daily basis to be free of debris and sediment resulting from the grading operations (flushing into the catch basins are prohibited).

 Contractor shall remove sediment control filters during times of above normal events and replace them after the event has passed.

 At the end of the operations, all the cotch basins surrounding the project site shall be inspected for any accumulation of sediment and debris. The accumulated sediment and debris shall be removed from the catch basins (flushing into the catch basins is prohibited). catch basins is prohibited).
- Stockpiling construction material in the roadway and sidewalk areas are prohibited. 10. All other requirements per NPDES File No. HI R.

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, "Woter Pollution

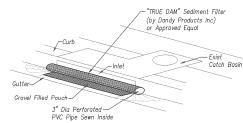
Discharge Elimination System (NPDES) Permit coverage(s) for the following:

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

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.

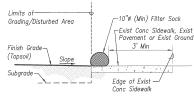
DUST CONTROL NOTE:

The Contractor shall be fully responsible for the measures it will take for the control of fugitive dust from the worksite. The measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.



The contractor shall inspect all the catch basins and inlets in the vicinity of the

SEDIMENT CONTROL FILTER AT CATCH BASIN



SECTION WITH SOCK ON SIDEWALK

EARTHWORK SUMMARY

	EARTHWORK	6" THK TOPSOIL	TOTAL
EXCAVATION	33,370 C.Y.	0 C.Y.	33,370 C.Y.
EMBANKMENT	6,650 C.Y.	4,035 C.Y.	10,685 C.Y.
AREA TO BE GRADED AND DISTURBED			12.60 Acs



VICINITY MAP



Gray • Hong • Nojima & Associates, Inc.

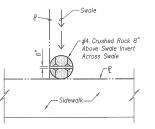


Telephone: (808) 521-0306 ENGINEERS



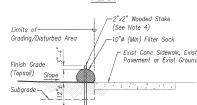


LOCATION MAP



GRAVEL BERM @ SWALE Not to Scale

2"x2"— Wooded Stake (See Note 4) √10"ø (Min) Filter Sock 10"ø (Min)— Filter Sock Limits of (Min Lap) Grading Area PLAN



SECTION WITH SOCK ON TOPSOIL

- 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 on slopes less than 3H:1V. On slopes greater than 3H:1V. Filter Sock to be placed on grade and wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL

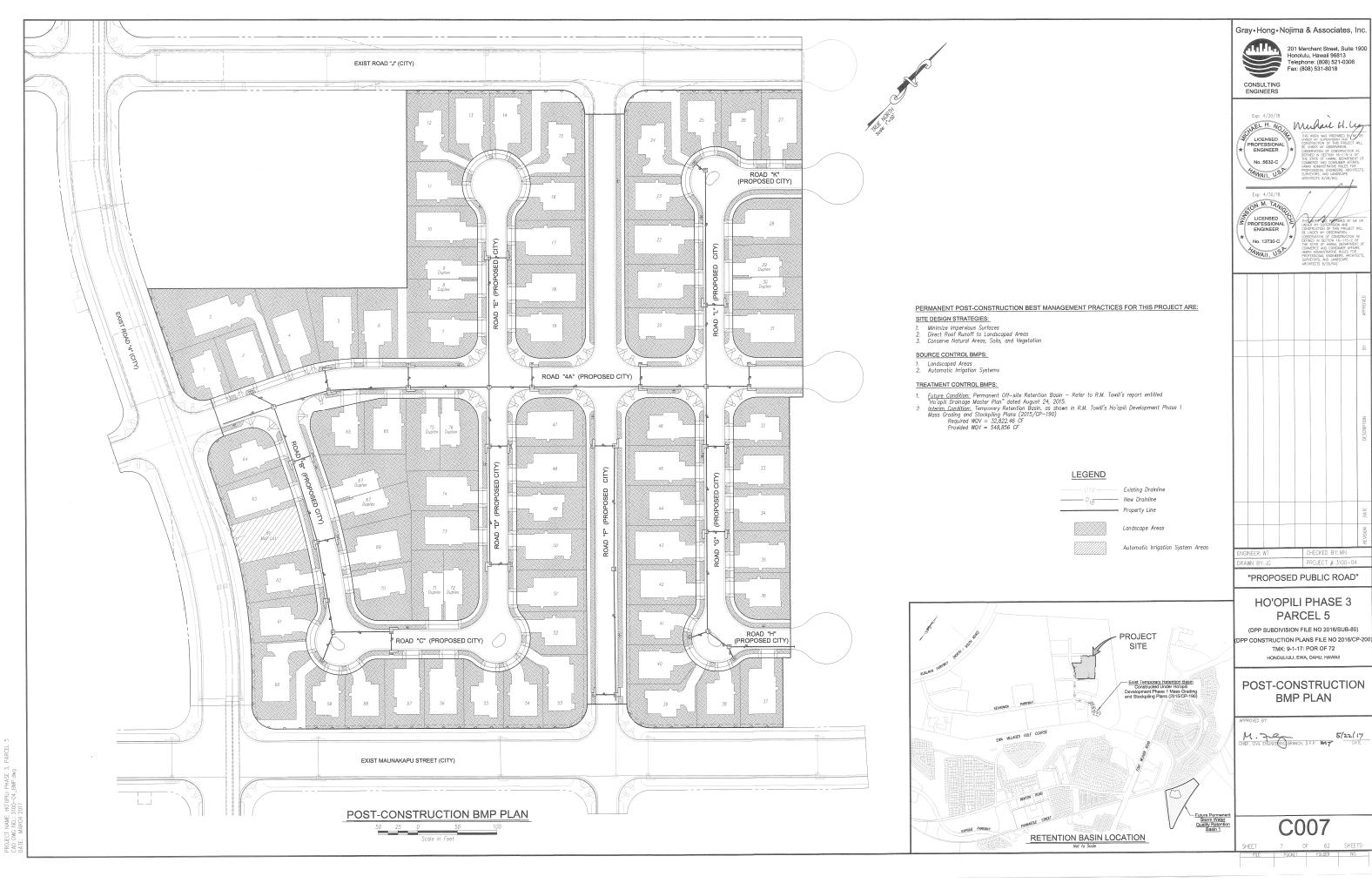
"PROPOSED PUBLIC ROAD"

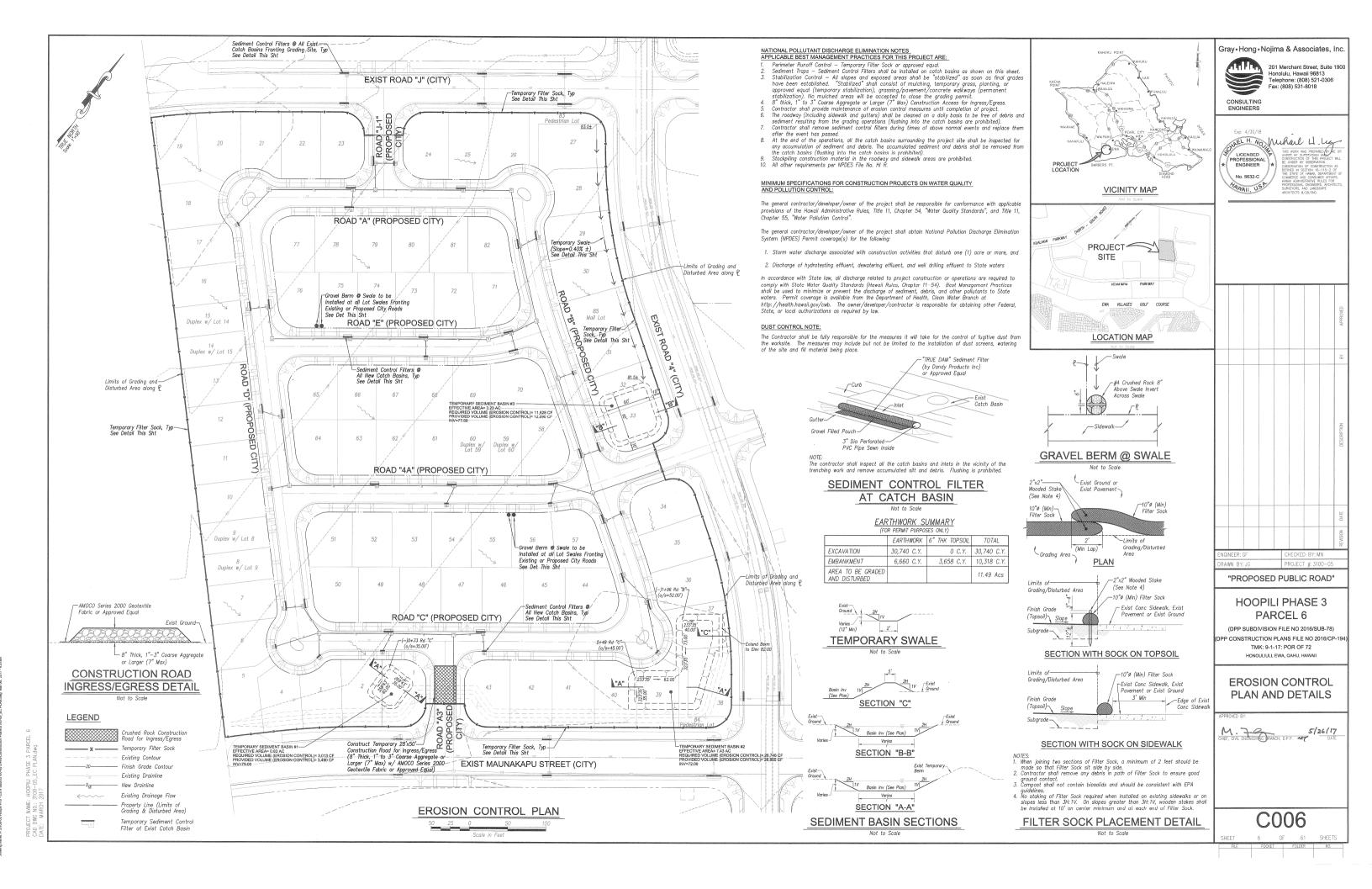
HO'OPILI PHASE 3 PARCEL 5

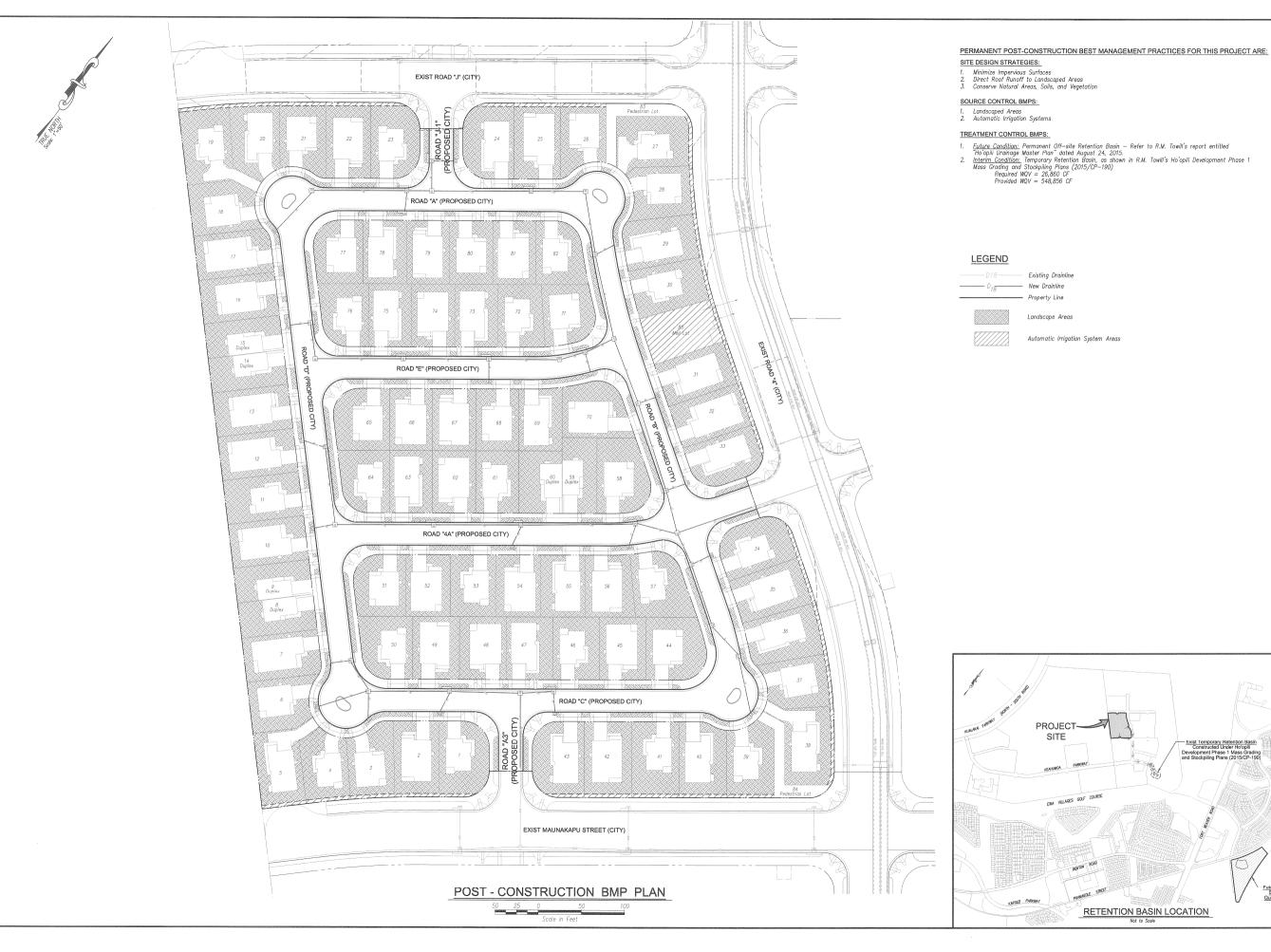
(DPP SUBDIVISION FILE NO 2016/SUB-80) OPP CONSTRUCTION PLANS FILE NO 2016/CP-200 TMK: 9-1-17: POR OF 72 HONOULIULI, EWA, OAHU, HAWAII

EROSION CONTROL PLAN AND DETAILS

CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. MT







Gray • Hong • Nojima & Associates, Inc.



201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Telephone: (808) 521-0306 Fax: (808) 531-8018

CONSULTING ENGINEERS





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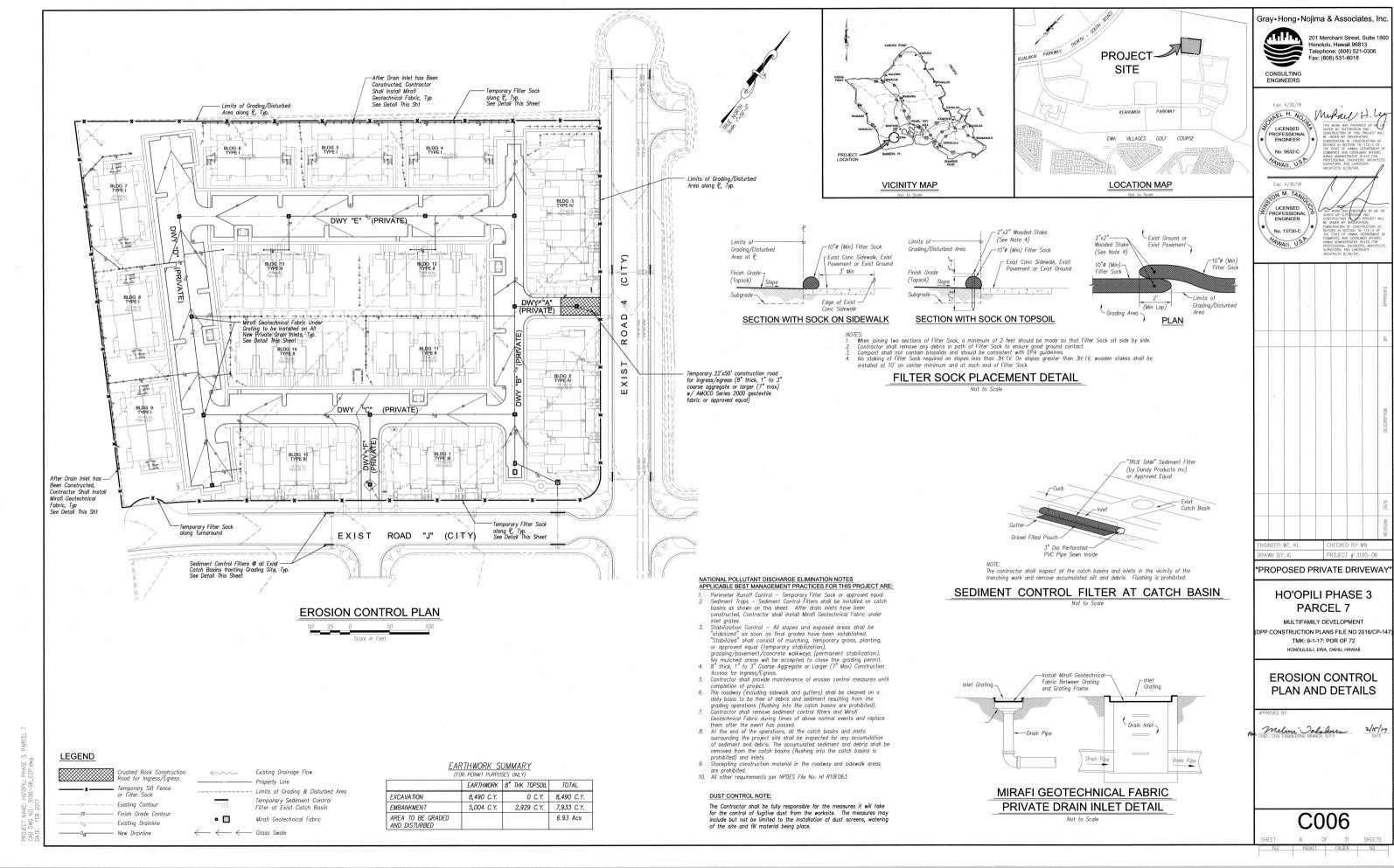
"PROPOSED PUBLIC ROAD"

HOOPILI PHASE 3 PARCEL 6

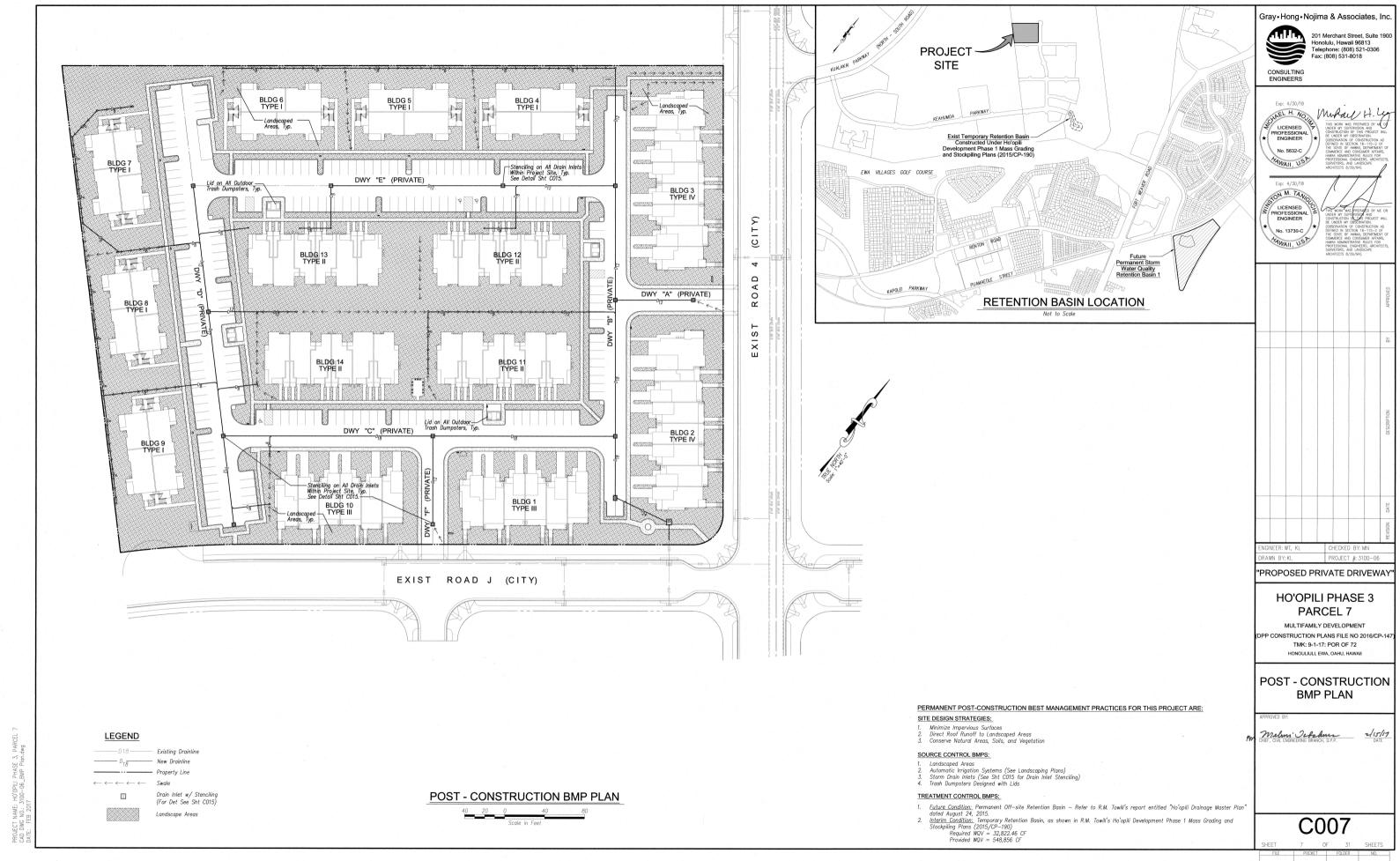
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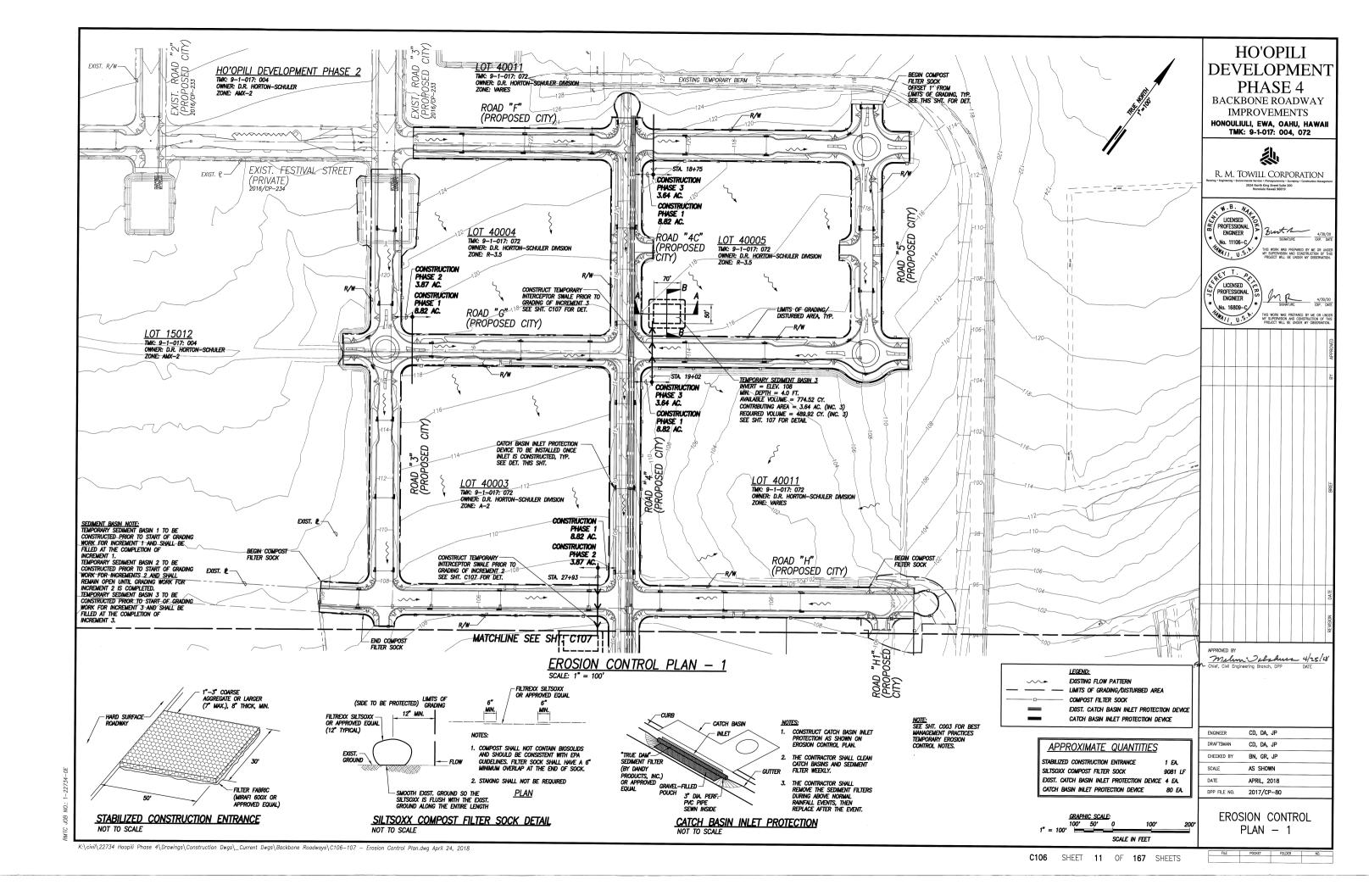
POST-CONSTRUCTION **BMP PLAN**

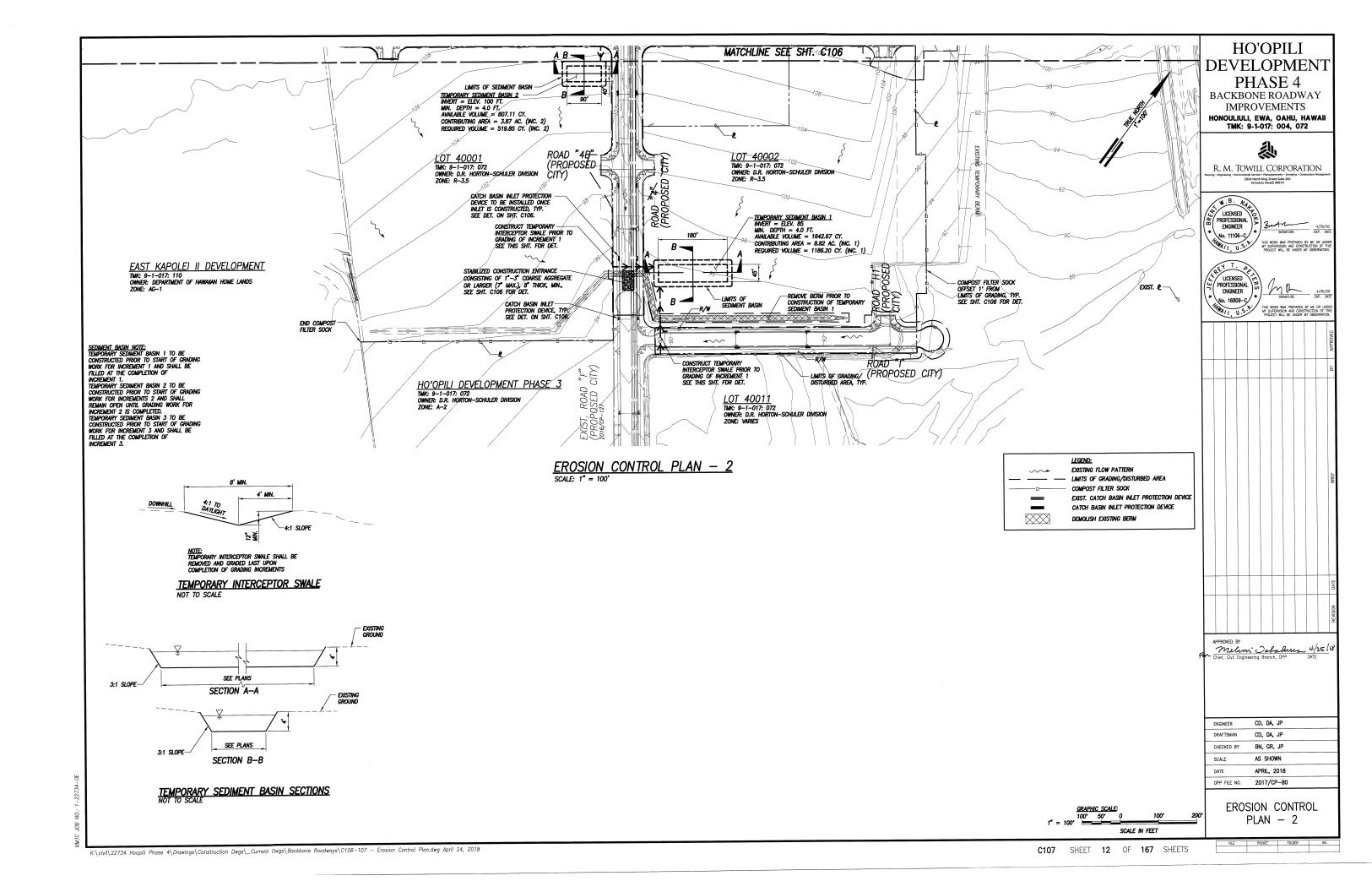


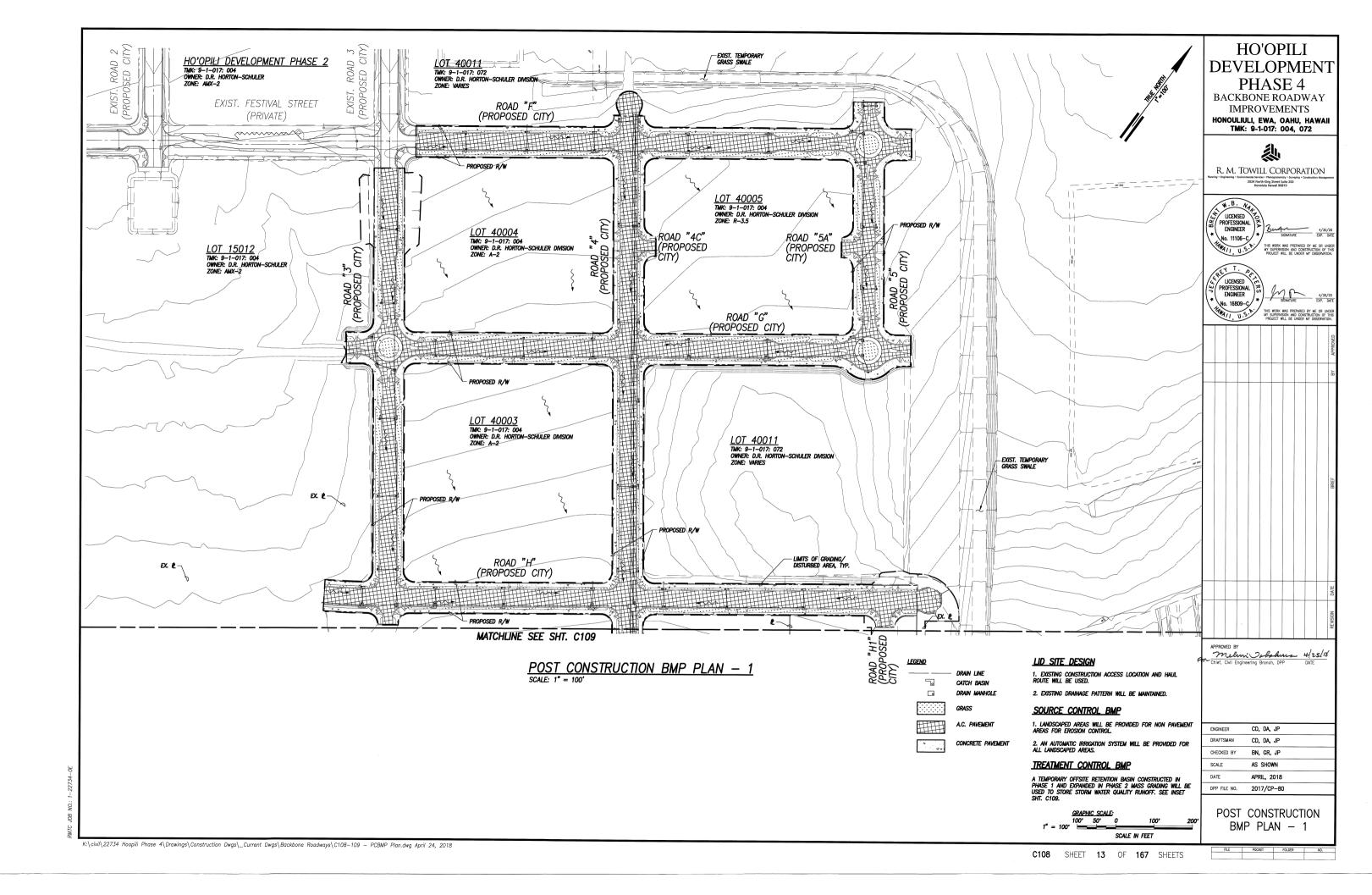


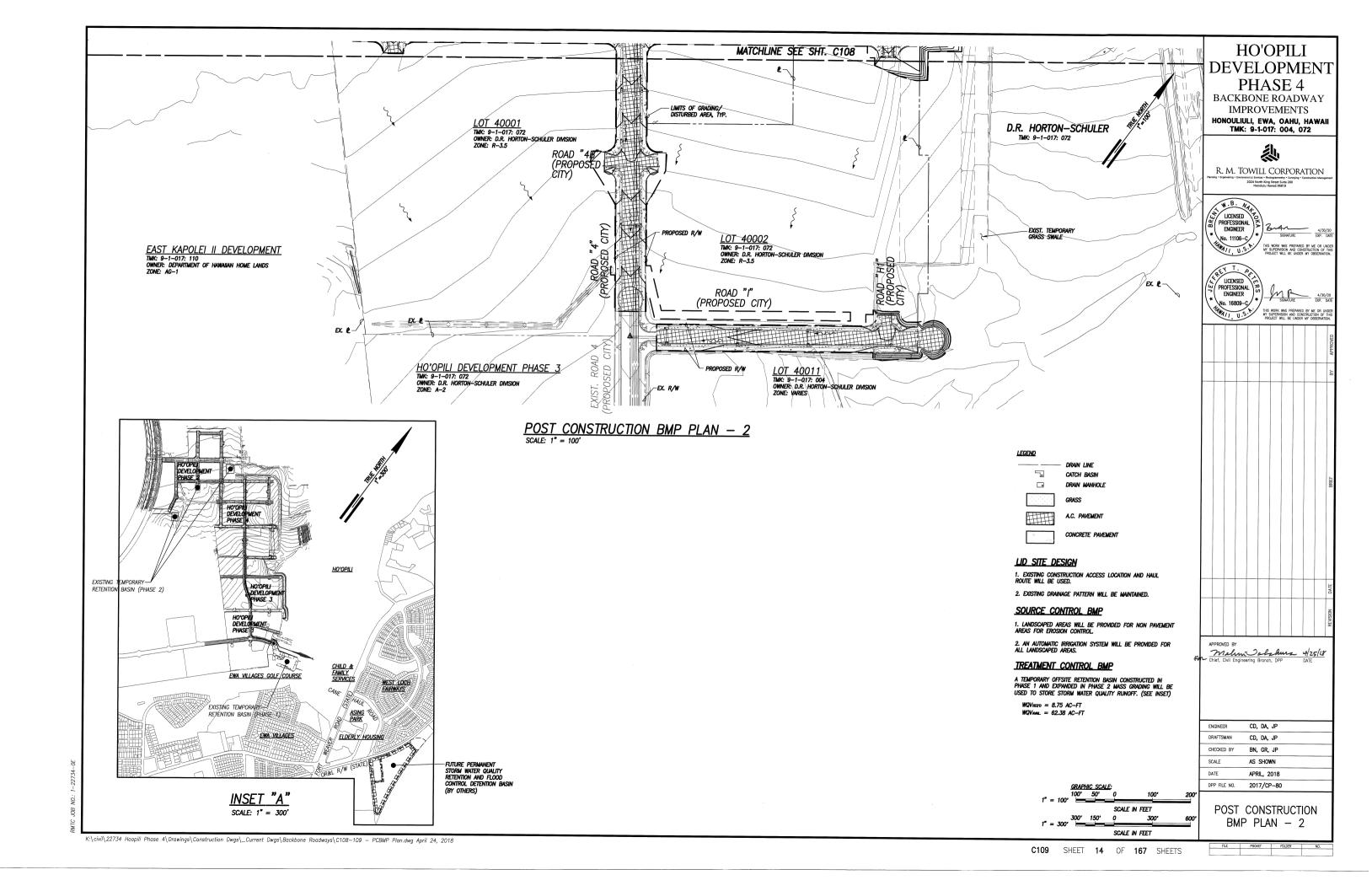
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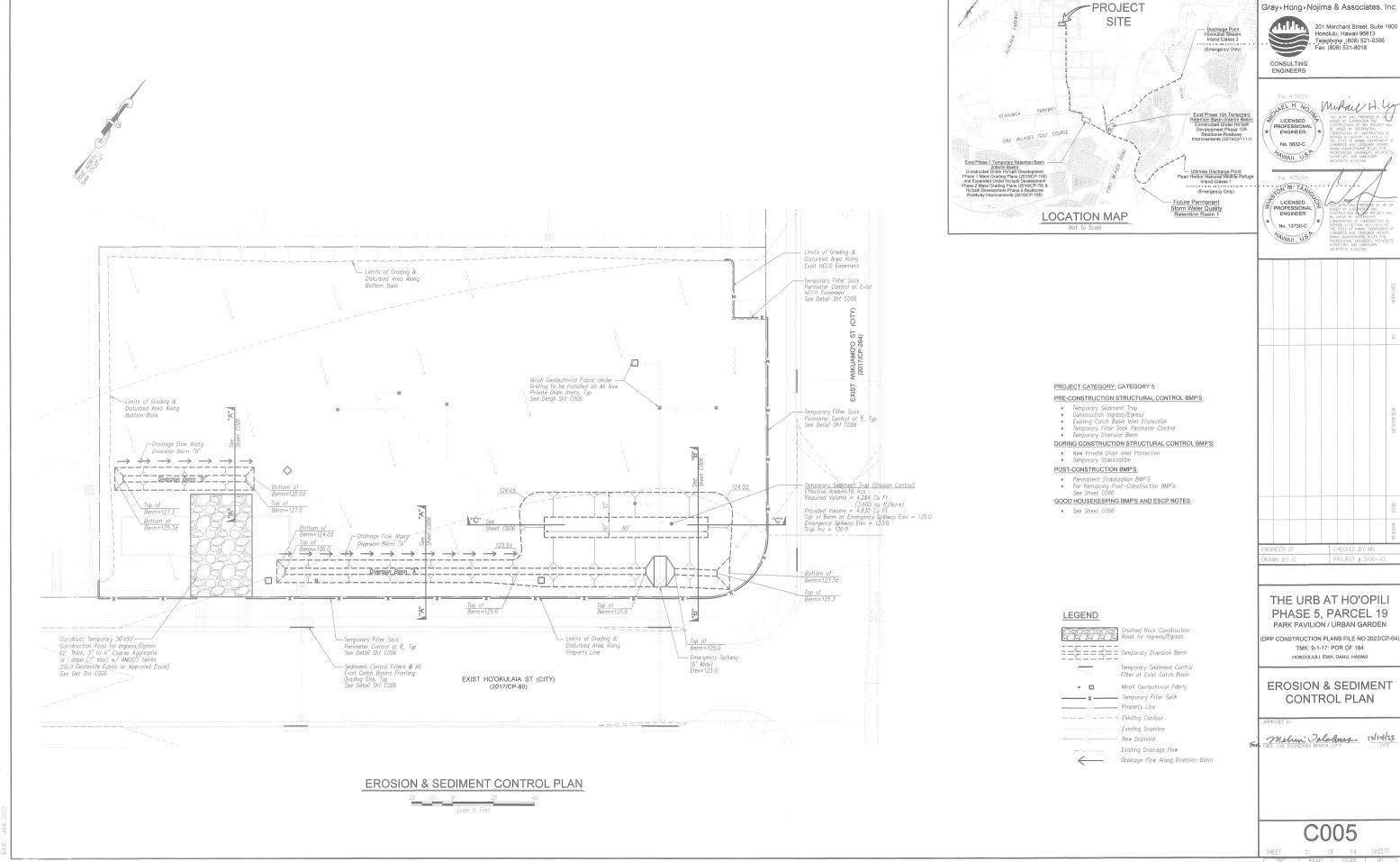




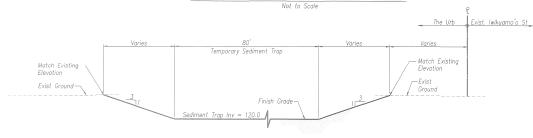




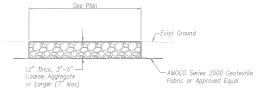




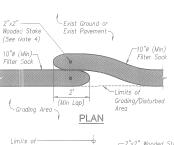
SECTION "B-B" (SEDIMENT TRAP)

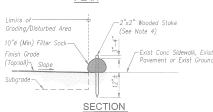


SECTION "C-C" (SEDIMENT TRAP)



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL





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.

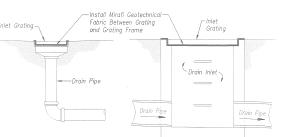
2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.

3. Compost shall not contain biosolids and should be consistent with EPA.

guidelines.

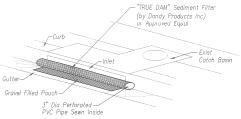
No staking of Filter Sock required when installed on existing sidewalks or an slapes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

Not to Scale



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

DIVERSION BERM "A" DIVERSION BERM "B" O(10w-1hr)=1.25 ofs Q(10yr-1hr)=0.32 ofs S=0.004 ft/ft n=0.035 V=0.66 ft/s dn=0.27 ft V=0.48 ft/s - Exist Slope See ESCP for Botton

SECTION "A-A" (DIVERSION BERM)

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- The Contractor shall follow the quidelines in the City and County of Honolulu's "Rules Relating to Water Quality"
- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality".

 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.

 The Contractor shall comply with the project scheduling requirements of 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: 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 slape (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: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas within any actification. All disturbed areas will not be worked for 14 consecutive days or more. 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 pressive shall be immediately and permanently shabilized.

 Preserve existing vegetation: Clearly mark the areas to be preserved with flags or temporary feacing in where temporary feacing is used.

- temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright
- Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be Mmmize 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
- All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet
- 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. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced

- Sediment Traps:
 A. Sediment traps must be kept in effective operating condition and sediment shall be removed when the sediment occumulation reaches one third of the trap capacity.

 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.

 Vehicular parking and movements on project sites must be confined to paved surfaces or preferred parking areas and vehicles 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 paper site to the first extreets other properly areas sidewalls on the Minist he plagned using dry.
- C. All pollutants and materials that are dropped, washed, trocked, spilled, or otherwise discharged from a project site to off-site streets, other poved 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.
 All best management practices (SMP's) shall not be removed until the entire project is complete.
 Refer to City and County of Hanolulu Best Management Practices Manual Construction, for more information on BMP's.
 The following RMP's were determined to be not applicable based on the specific site conditions. As conduction.
- on binn s. The following BMP's were determined to be not applicable based on the specific site conditions. As construction Ine hollowing BMF'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 proctices 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.

 E. Sediment Branicas:

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.

- 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.
- Construct temporary sediment trap and stabilize immediately.
- Construct temporary sealment trap and stabulze immediately. Construct temporary were no needed to direct runoff into the sediment trap. 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 hydrosed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection. Install remaining parts of permanent drainage system with temporary inlet protection. Grade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective stabilities build be a season of the site.
- at all times. Initiate temporary stabilization immediately once grading is completed in each phase.

 Plant permanent vegetation according to landscaping plan on terraces, bennches, and steep slopes (215%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary.
- stabilization methods as planned.

 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.

 Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Plant permanent ground cover according to the landscaping plans as soon as possible.

 Remove or dismantle temporary erosion control structures after full establishment of permanent

- Practice good housekeeping measures throughout the duration of construction.
 Inspections will be performed weekly.

Rain Response Plan:

- The following will be performed when heavy rains, tropical storm or hurricone is imminent or is forecasted in the next 40 hours.
 Temporary suspension of active grading and construction.
 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 floading an surrounding streets.
 Cover or relocate material stockings and liquid material contingers to avoid contact with cinquister.
- Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwayers. 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 ally water after the rain event. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's

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 vacuuming. All pollutants discharged from construction site to off-site areas must be swept or vacuuming and Vacuuming 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 practicoble.

 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 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, an
- **Monitoring by priving a specific priving state of the s rehicle and equipment cleaning operations by using affsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or reating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use

- treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.

 9. <u>Vehicle and Equipment Fueling:</u> 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. <u>Vehicle and Equipment Maintenance:</u> 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. <u>Solid Waste Management:</u> 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 uthorized disposal areas.

 12. <u>Sanitary/Septic Waste Management:</u> Temporary and partable sanitary and septic waste systems shall be mounted or stoked 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. <u>Stockpile Management:</u> Stockpile shall not be stored near the MS4 or receiving waters.

 14. Liquid Waste Management: liquid waste shall be constrained in a controlled green such as a holding ait.
- 7 agys.
 14. <u>Liquid Waste Management:</u> 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. here accidental release of the contained liquid can discharge to water bodies, channels, or storn
- drains.

 15. Concrete Waste Management: Prevent or reduce discharge of pollutants to storm water from concrete waste by conducting washout offsite or performing ansite washout in a designated area constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated 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 impermentality of the material. Containment areas or devices should not be located where accidental release of the contained liquid con Containment areas or devices should not be located where accidental release of the contained liquid and discharge to water bodies, channels, or storm drains. Washout facilities must be clonerd, 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.

 Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berns 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.

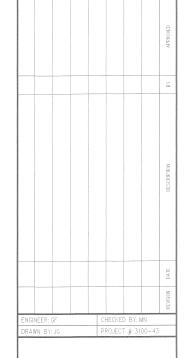
Gray • Hong • Nojima & Associates, Inc.



ENGINEERS

AEL H. NO Mukail H. Ly No. 5632-C MAWAII, US.P.



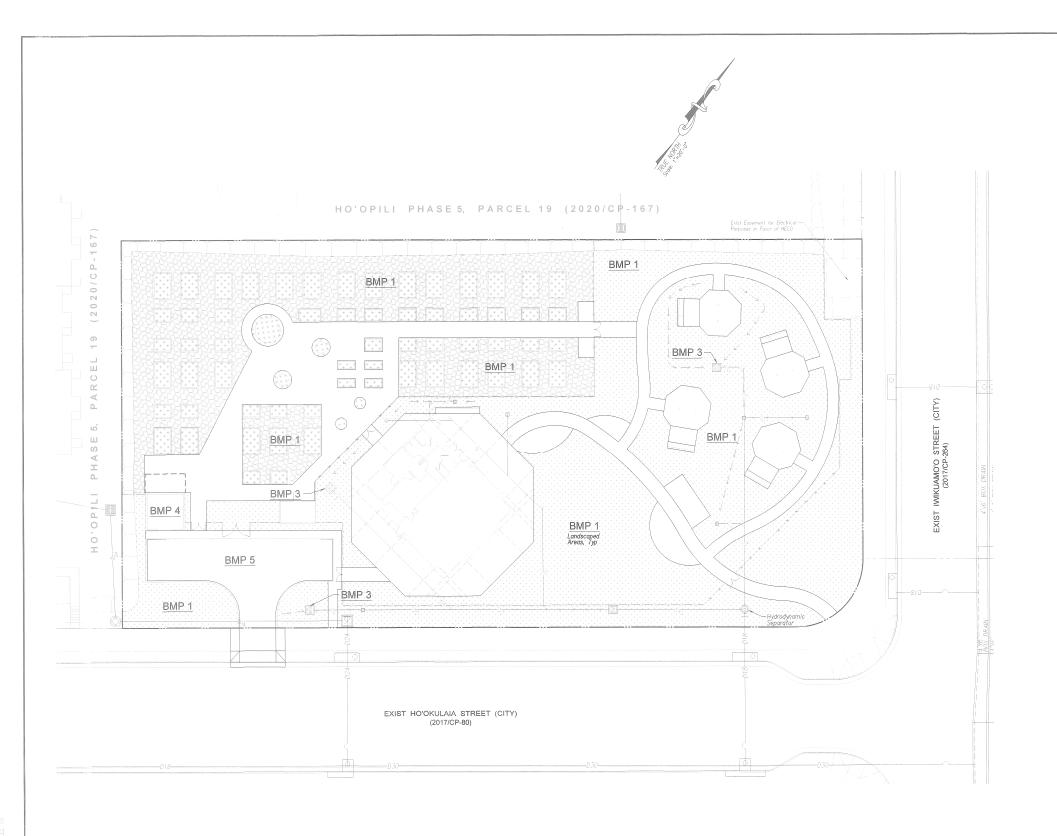


THE URB AT HO'OPILI PHASE 5, PARCEL 19 PARK PAVILION / URBAN GARDEN

(DPP CONSTRUCTION PLANS FILE NO 2023/CP-64 TMK: 9-1-17: POR OF 184 HONOULIULI, EWA, OAHU, HAWAI

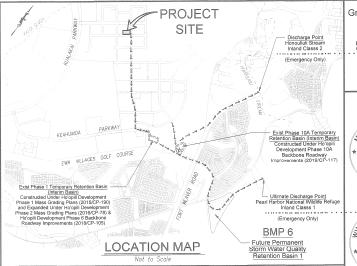
EROSION & SEDIMENT CONTROL NOTES AND DETAILS

Melin Jelslan 12/14/23



POST-CONSTRUCTION BMP PLAN (PRIORITY A PROJECT)





PERMANENT STORM WATER MANAGEMENT PRACTICES (BMP)

BMP No	BMP Type	
1	1 Landscape Areas	
2 Automatic Irrigation System		
3 Storm Drain Marker on Drain Inlets		
4 Trash Dumpsters Outfitted with Lids		
5 Parking Areas		
TREATMEN	T CONTROL BMP	
6	Future 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:

- Conserve Natural Areas, Soils, and Vegetation
 Minimize Soil Compaction
 Minimize Disturbances to Natural Drainages
 Minimize Impervious Surfaces
 Direct Runoff to Landscaped Areas (refer to Landscaping Plans for tree selection)

SOURCE CONTROL BMPs:

- SOURCE CONTROL BMPs:

 1. Landscaped Areas Protect slopes with landscaping.

 2. Automotic 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 Intels (See Detail on 5ht C010).

 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 towards vegetated/landscaped areas.

TREATMENT CONTROL BMPs:

Interim Condition: Temporary Retention Basin, as shown in Ho'opili Development, Phase 1 Mass Grading and Stockpilling 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 Phase 6 Backbane Roadway Improvements (R.M. Towill Corporation, 2018/CP-105).

Required WQV = 15.02 ac-ft (all areas covered by the Ho'opili Drainage Moster Plan) Provided WQV = 86.68 ac-ft

<u>Future Permonent Condition:</u> Future Permanent SWQ Retention Basin 1 – Refer to "Ha'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 (all areas covered by the Ho'opili Drainage Master Plan) Provided WQV = 283.06 ac-ft

PROHIBITED AND/OR NOT APPLICABLE ACTIVITIES:

- Nehicle and Equipment Fueling Areas Not applicable for this project.
 Vehicle and Equipment Repair Will not be allowed for this project.
 Vehicle and Equipment Washing and Cleaning Will not be allowed for this project.
 Loading Dacks Not applicable for this project.
 Uutdoor Material Storage Will not be allowed for this project.
 Outdoor Work Areas Not applicable for this project.
 Outdoor Work Areas Not applicable for this project.
 Outdoor Process Equipment Operations Not applicable for this project.

LEGEND



Planters (Pervious)

Gravel (Pervious)

Gray • Hong • Nojima & Associates, Inc.



FNGINEERS

CHAEL H. NOUTE Muhaul H. Ly LICENSED No. 5632-C YAWAII, U.S.P.

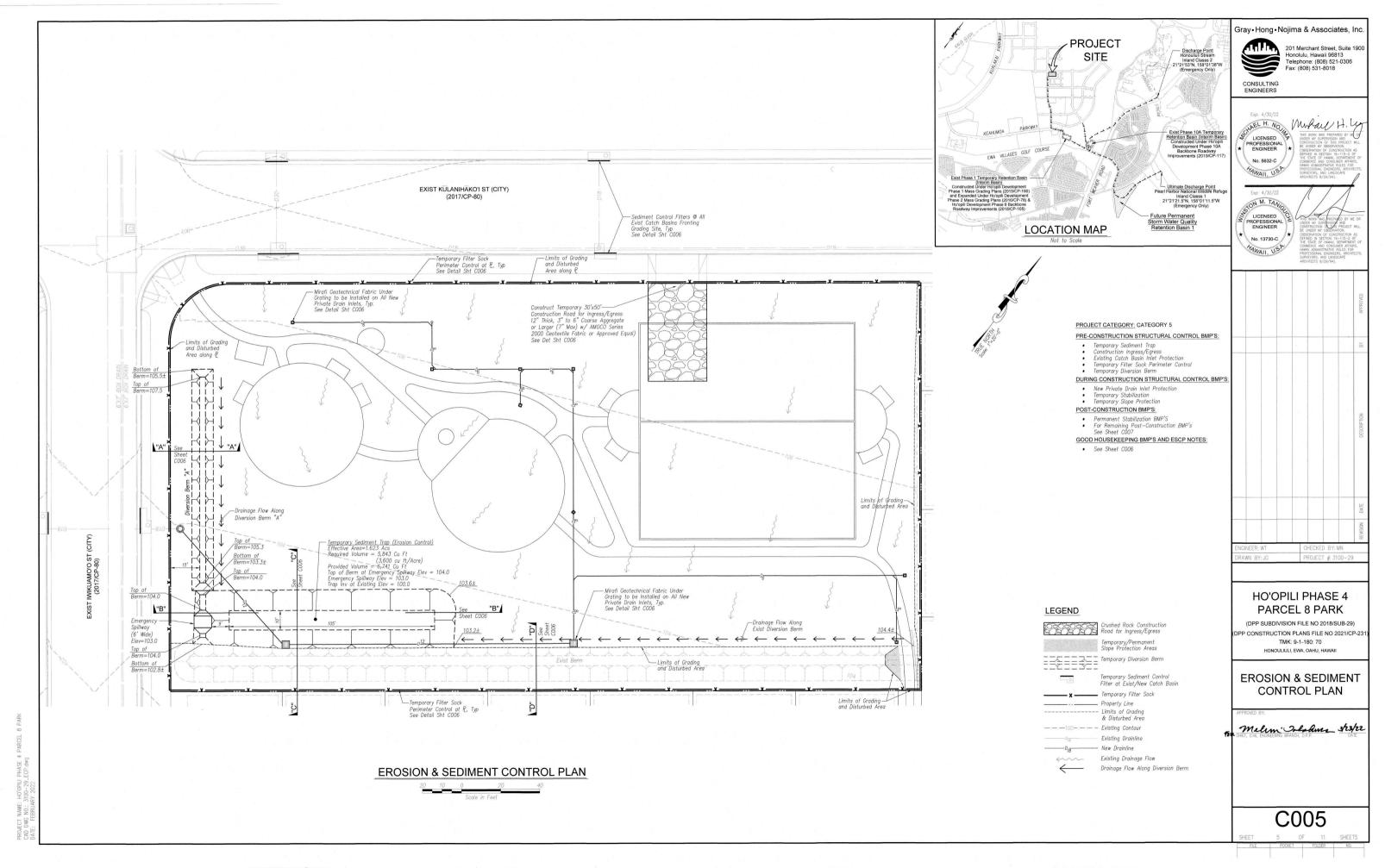
ON M. TAN No. 13730-C YAWAII, USA

THE URB AT HO'OPILI PHASE 5. PARCEL 19 PARK PAVILION / URBAN GARDEN

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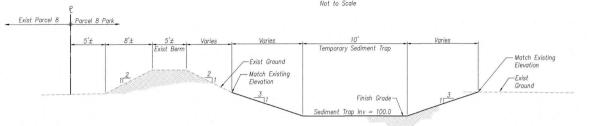
POST-CONSTRUCTION BMP PLAN

Foll Melmi Valadura 1/14/23

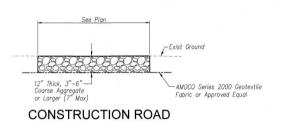


PTI 4 PRICES & PRINCUMSS/ALCHBRITCHON PHRIBIS/TUD-29 TCUP, GWG 1160 23, 2022 - 4

SECTION "B-B" (SEDIMENT TRAP)



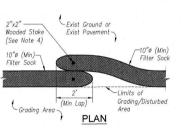
SECTION "C-C" (SEDIMENT TRAP)

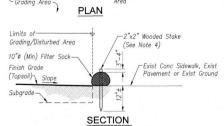


EXIST DIVERSION BERM A=0.91 Acs Q(10yr-1hr)=1.68 cfs 5'± Exist Berm V=0.77 ft/s dn=0.29 ft See ESCP for Botton

SECTION "D-D" (EXIST DIVERSION BERM)

INGRESS/EGRESS DETAIL





- NVILES:

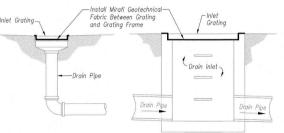
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 2. Contractor shall remove any debris in path of Filter Sock to ensure good ground contact.

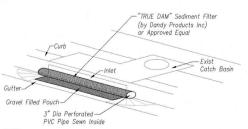
 3. Compost shall not contain biosolids and should be consistent with EPA
- guidelines.

 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



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL



The contractor shall inspect all the catch basins and inlets in the vicinity of the

SEDIMENT CONTROL FILTER AT CATCH BASIN

Exist. Iwikuamo'o St Parcel 8 Park_ DIVERSION BERM "A" A=0.03 Acs Q(10vr-1hr)=0.06 cfs S=0.0195 ft/ft V=0.47 ft/s dn=0.07 ft -Frist Slope See ESCP for Bottom

SECTION "A-A" (DIVERSION BERM)

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality".
- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Mater Quality."
 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.
 The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's
 'Rules Relating to Water Quality.'
 Weasures to control erosion and other pollutants shall be in place before any earthwork is initiated.
 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 (falkes, 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 anotime on slopes greater than 15%.
- 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 Stobilization: Temporary grass, planting, mulching, or equivalent, shall be required and isturbed areas which are at final grade or when the disturbed orea will not be worked for 14 consecutive days or more.
 Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative covering, povement, or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed solve 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 feeding. Where
- temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be
- Minimize Soil Compaction: Areas where final stobilization or intilitation 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 inflitation 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
- A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inle
- 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
- 13. Sediment Traps:
- Sediment traps must be kept in effective operating condition and sediment shall be removed when the
- 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 poved 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 poved 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 poved 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.

- or seament trap.

 All best management practices (BMP's) shall not be removed until the entire project is complete.

 Refer to City and County of Honolulu Best Management Practices Manual Construction, for more information
- The following BMP's were determined to be not applicable based on the specific site conditions. As construction

- Inte tollowing 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.

 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.

- 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 BMPs.
- Construct temporary sediment trap and stabilize immediately.
- Construct temporary sediment trap and stabilize immediately.

 Construct temporary diversion berms as needed to direct runoff into the sediment trap.

 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.

 Install remaining parts of permanent drainage system with temporary inlet protection.

 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. 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 or langed.

- stabilization methods as planned
- stabilization methods as planned, 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. Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Plant permanent ground cover according to the landscaping plans as soon as possible. Remove or dismantle temporary erosion control structures after full establishment of permanent
- Practice good housekeeping measures
 Inspections will be performed weekly. Practice good housekeeping measures throughout the duration of construction.

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 all-only spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any accumulated ally 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:

- GOOD HOUSEKEEPING BMP'S:

 1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

 Dust Control: The controctor 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.

 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.

 Materials Delivers, 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 on soils, 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.

 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, obsorbing, containing, and cleaning up spills and properly disposing of spill materials. At a minimum, all projects shall cleanup all leaks and spills immediately.

 Hazardous Materials: Prevent or reduce the discharge of pollutants to tarm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the properly owner or ESCP
- discharge by telephone. A written report describing the pollutants that were discharged, the reasons to the discharge, and the measures that have been taken or will be taken to prevent or executence of the discharge shall be submitted to the Director no less than 3 days after notification by phone. 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 rotification by uphone.
- notification by phone.

 8. <u>Vehicle and Equipment Cleaning:</u> 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
- <u>Vehicle and Equipment Fueling:</u> Prevent fuel spills and leaks by using off—site facilities, fueling only in designated areas, enclosing or covering stored fuel, and implementing split controls such as secondary containment and active measures using split response kits.

 10. <u>Vehicla and Equipment Maintenance</u>, Eliminate and minimize the discharge of pollutants to storm water

- Ordinates and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment, there are so nily, using spill pads under vehicles and equipment, hecking for leaks and spills, and containing and cleaning up spills immediately.

 1. Spild 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.

 1. 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 M3-4 or receiving waters.

 13. Slockpile Management: Slockpile 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, doys.
- 7 days.

 14. <u>Liquid Waste Management</u>. 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
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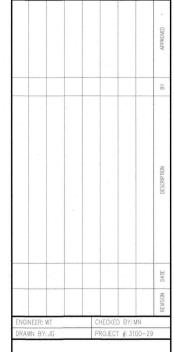
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ENGINEERS

LAEL H. NO. Muhail H. Ly LICENSED PROFESSION ENGINEER No. 5632-C YAWAII, USP



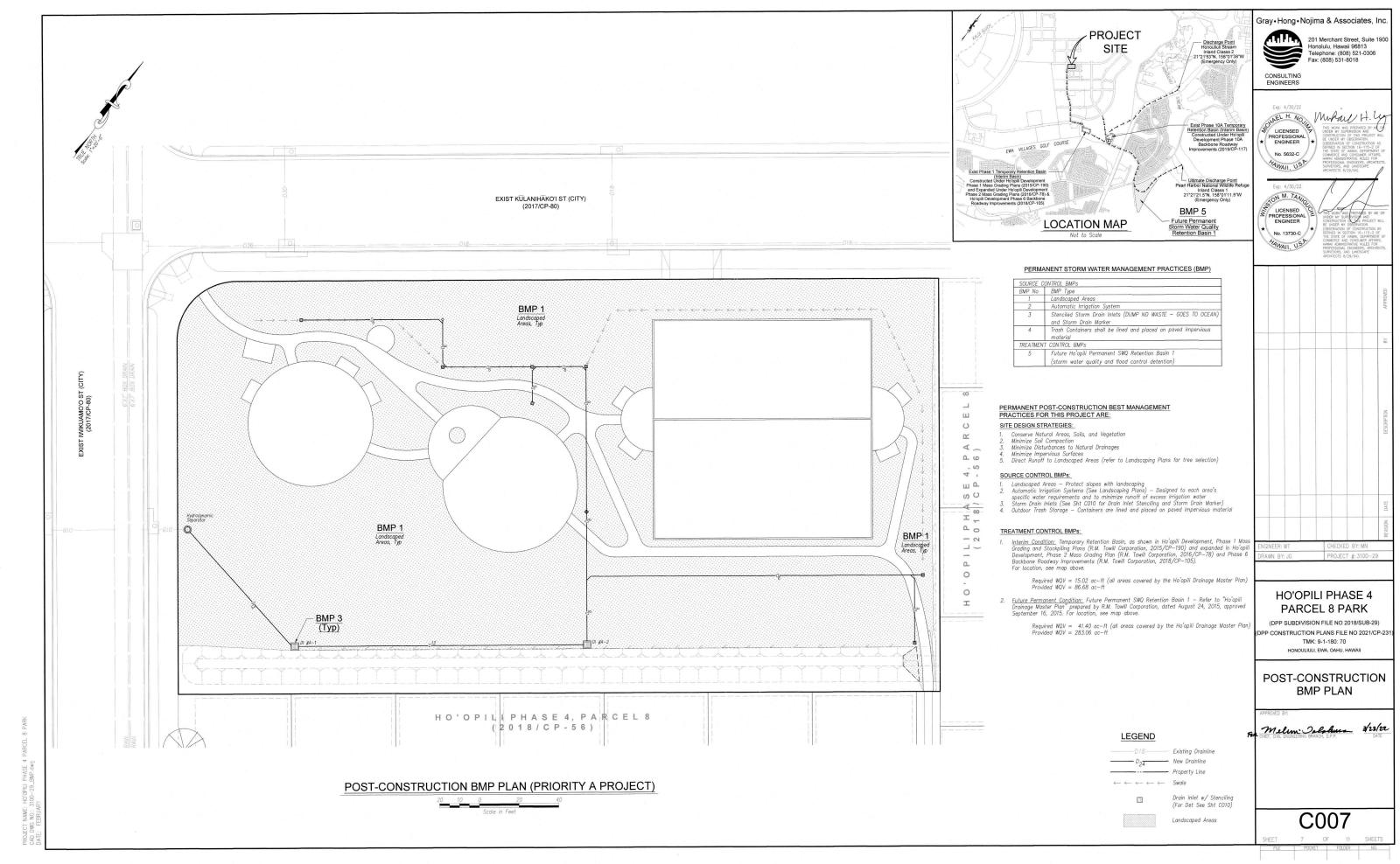


HO'OPILI PHASE 4 PARCEL 8 PARK

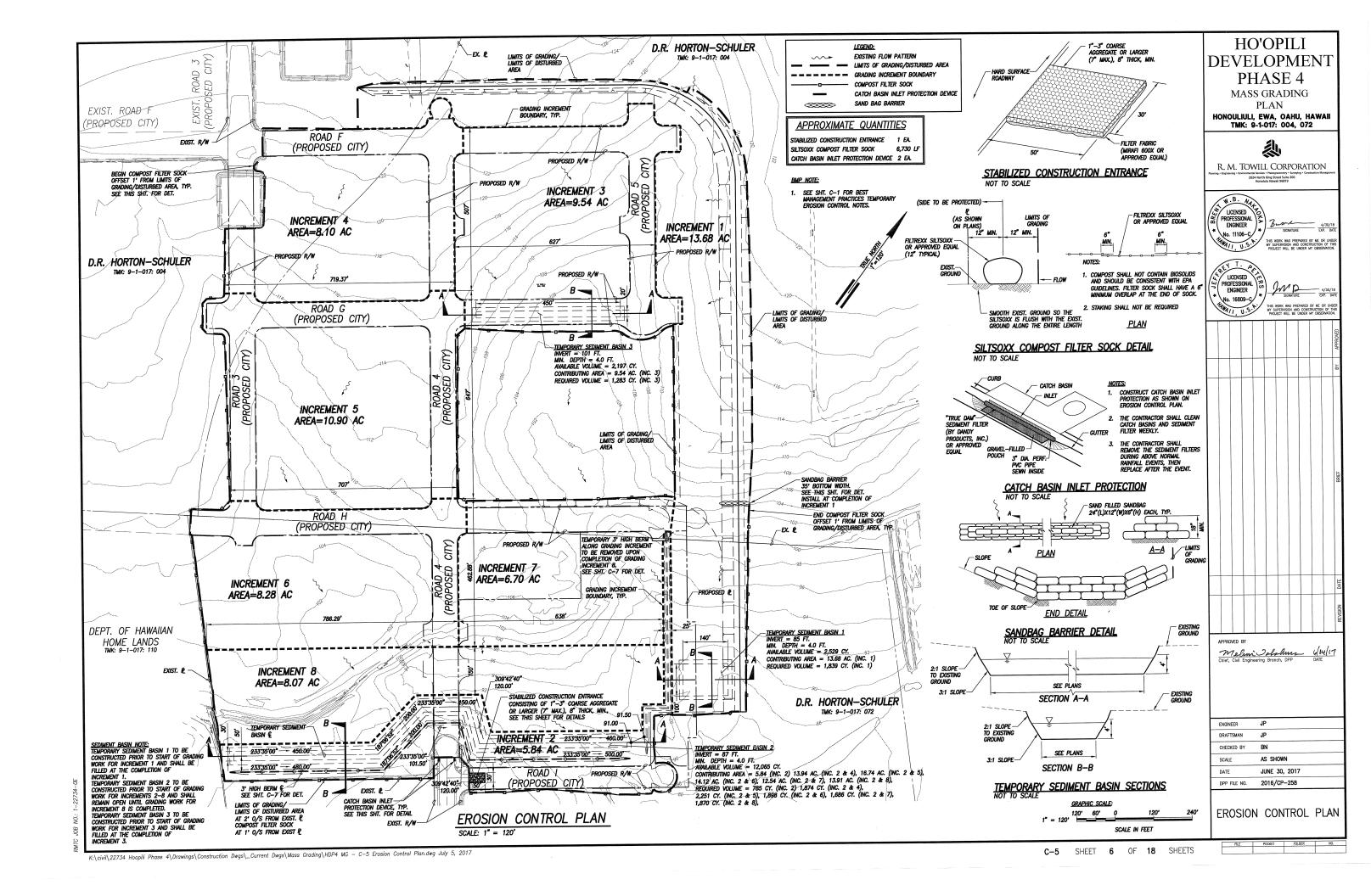
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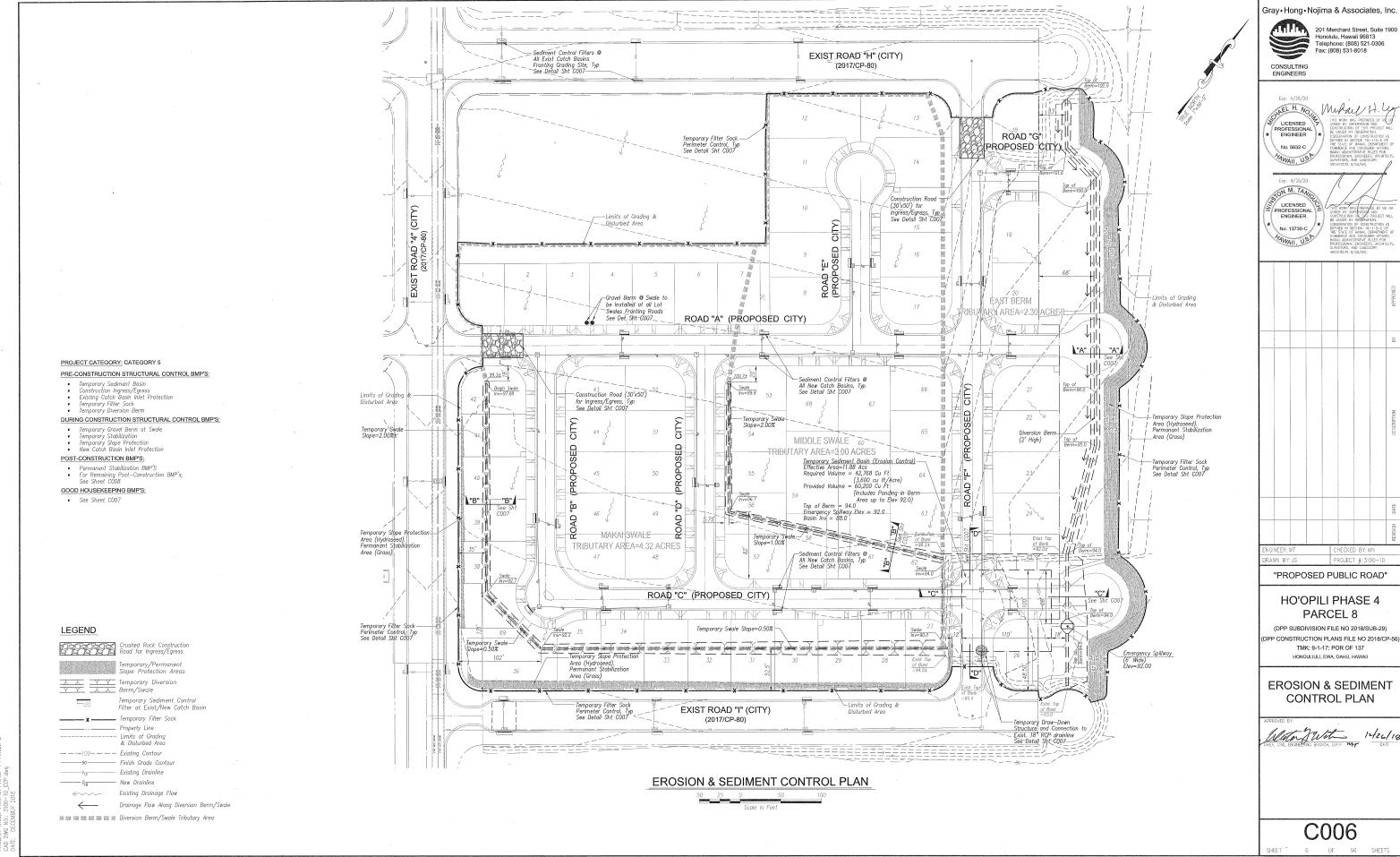
EROSION & SEDIMENT CONTROL NOTES AND DETAILS

Melin Jalabur 3/23/22

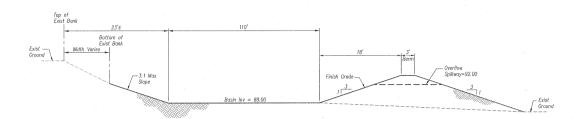


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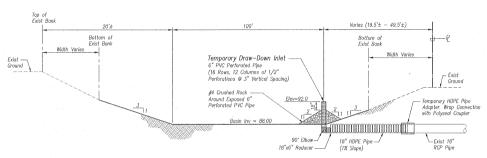




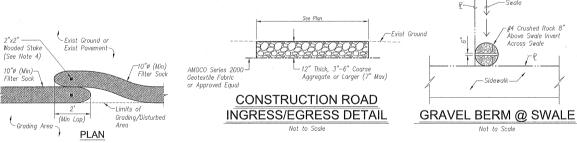
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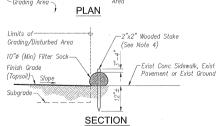


SEDIMENT BASIN SECTION "C-C"



SEDIMENT BASIN SECTION "D-D"





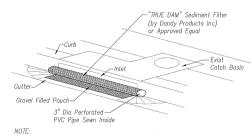
- NOTES:

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- guidelines.

 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



The contractor shall inspect all the catch basins and inlets in the vicinity of the

SEDIMENT CONTROL FILTER AT CATCH BASIN

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality".
 Owner shall designate an ESCP Coordinator with ESCP Coordinator's name, phone number, mailing address and
 e-mail provided to the DPP Director in writing at least two weeks prior to commencing of any work.
 ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on
- ESSP 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 and obtain written approval from the Director at each stage of planned activity before proceeding to the next activity.

 Measures to control erosion and other pollutaris shall be in place before any earthwork is initiated. 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-rt buffer zone at the toe of slope. Only 5 acres may be disturbed at anytime on slopes greater than 15%. 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.
- which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more. 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. 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 provider.
- 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 vegetation small be implemented in the areas that inverse are compacted and are designated to remain vegetative or post-construction infiltration areas. Gendy 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 unpright position.

 10. Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.

- A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet
- Sediment levels may not exceed one third of the height of a sediment barrier or inlet protection device at
- ony 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
- D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced
- immediately. 12. 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
- 13. Tracking Control:
- Minimize sediment track—out onto off—site streets, other paved areas, and sidewalks from vehicles exiting
- Minimize sediment track—out onto off—site streets, other paved areas, and sidewalks from vehicles exitin 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 vehicles 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 mathods each or exceeding are executively. nethods such as sweeping or vacuuming.
- Mashing 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
- cotch basins is prohibited unless the material is sediment and the inlets are directed to a sediment basin or sediment trape.

 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.
- Velocity dissipation devices are not applicable.
- Ruffer zones are not applicable.
- Butter zones are not apprisone. Sediment traps are not applicable. Diversion BMP's to divert runoff from upstream areas around disturbed areas of the site.

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.

- 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.
 Construct temporary sealiment basin and stabilize immediately.
 Construct temporary diversion berms as needed to direct runoff into the sediment basin.
 Clear and grub remainder of the site or first increment of grading. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydroseed temporary vegetation use other temporary stabilization methods, unless remaining vegetation provides adequate protection.
 Install remaining parts of permanent drainage system with temporary inlet protection.
 Grade the site, or first increment, 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.
- keep them effective at all times, imitate temporary stabilization immediately once grading is completed in each phase. 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.
- stabilization methods as planned.
 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.
 Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Plant permanent ground cover according to the landscaping plans as soon as possible.
 Remove or dismantle temporary erosion control structures after full establishment of permanent

- Practice good housekeeping measures throughout the duration of construction.
 Inspections will be performed weekly.

- The following will be performed when heavy rains, tropical storm or hurricane is imminent or is
- forecasted in the next 48 hours.

Rain Response Plan:

- rorectisted in the next 40 nours.

 Temporary suspension of active grading, and trenching.

 Inspect sediment basin, temporary berms/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.

 Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater.

 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.

 Re—inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BIMP's

GOOD HOUSEKEEPING BMP'S:

- 1. Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued
 - Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

 <u>Dust Control</u>: 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.

 <u>Street Sweeping and Youruning</u>: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.

be swept or vacuumed each day before leaving the job site.

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 hozardous 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 obutting 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.

- secondary containment controls and covers shall be implemented to the maximum extent practicable.

 Spill Prevention and Cantrol. 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 of spill. 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 Prole Department of the discharge, and the measures that have been taken or will be taken to prevent a recocurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone. Nonbazardous Materials: In the event that nonbazardous 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, and the measures that have been taken or will be taken to prevent a reoccurrence of 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 verlicle of 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. <u>Vehicle and Equipment Maintenance</u>: Eliminate and minimize the discharge of pollutants to storm water facilities, fueling only in designated areas, enclosing or covering stored fuel, and implementing spill control such as secondary containment and active measures using spill response kits. <u>Vehicle and Equipment Maintenance</u>: Eliminate and minimize the discharge of pollutants to storm water than the properties of the using affitial facilities when feasible, performing

- Vehicle and Equipment Mointenance: 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 puds under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately.
 Solid Wuste 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.
 Sanitary/Seatic 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 MA-or receiving waters.
 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-Ol-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 plostic sheeting or a comparable material if they will not be actively used within 17 days.
- / days.

 14. <u>Liquid Waste Management:</u> 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 wasto 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 impermeditily of the naterial. Containment areas or devices should not be located where accidental release of the contained liquid can Contamment areas or devices should not be located where accidental release of the contained liquid of 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 dilowed 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 berns 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 in accordance with state Value, on asstraige rended 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. Grav. Hong. Nojima & Associates, Inc.



Exp: 4/30/20

CONSULTING

ENGINEERS

LAEL H. NO. Mikay H. Ly LICENSED No. 5632-C MANAII, USP

TON M. TAN LICENSED PROFESSIONAL ENGINEER No 13730-C MAWAII, USP

"PROPOSED PUBLIC ROAD"

CHECKED BY: MN

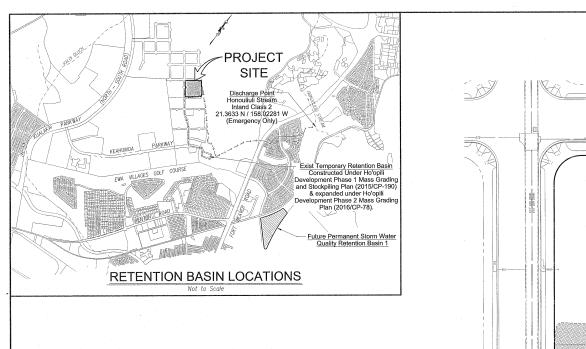
HO'OPILI PHASE 4 PARCEL 8

NGINEER: WT

(DPP SUBDIVISION FILE NO 2018/SUB-29) OPP CONSTRUCTION PLANS FILE NO 2018/CP-56 TMK: 9-1-17: POR OF 137 HONOULIULI, EWA, OAHU, HAWA

EROSION & SEDIMENT CONTROL NOTES





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

- Minimize Impervious Surfaces Direct Roof Runoff to Landscaped Areas Minimize Soil Compaction

SOURCE CONTROL BMPs:

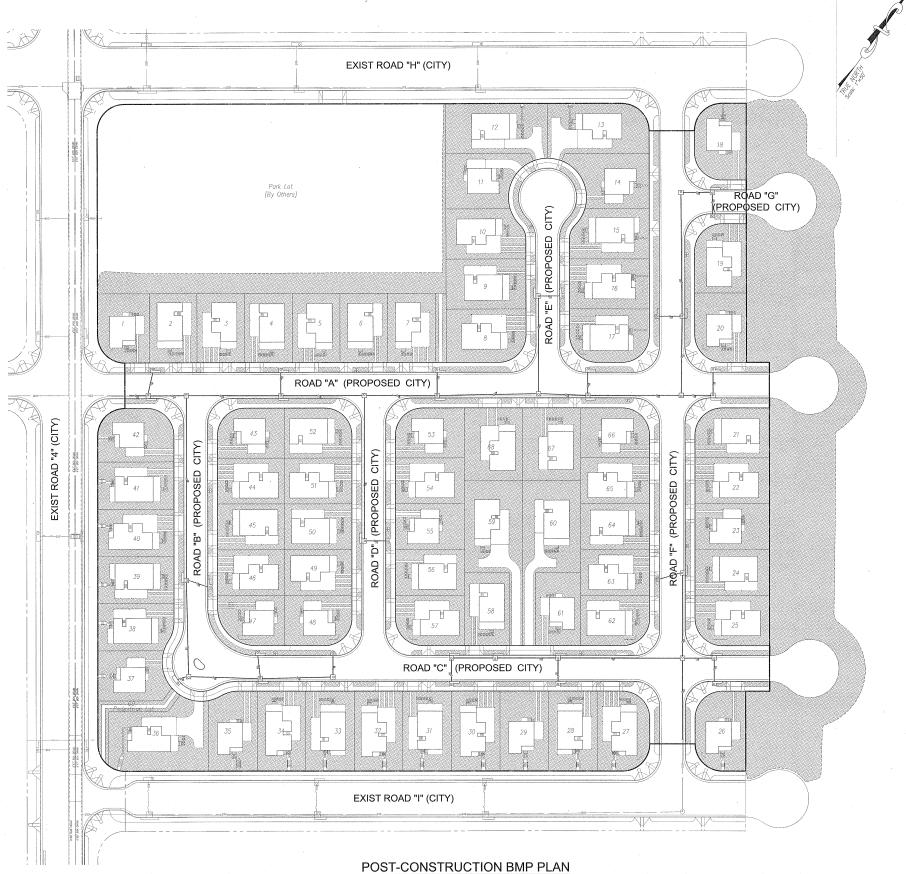
Landscaped Areas
 Storm Drain Markers on Catch Basins (approved 4" diameter SS discs affixed to catch basins)

TREATMENT CONTROL BMPs:

- <u>Future Condition:</u> 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 permanent offsite basin location, see inset above.
- Interim Condition: Temporary Retention Basin, as shown in Ho'opili Development, Phase 1 Mass Crading 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). For interim basin location, see inset above. Required WOV = 8.75 AC-FT Provided WOV = 62.38 AC-FT

LEGEND

--- D₂4 Property Line



Gray • Hong • Nojima & Associates, Inc.



201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Telephone: (808) 521-0306 Fax: (808) 531-8018

CHAEL H. NOTAL Mukail H. Ly LICENSED PROFESSIONAL ENGINEER No. 5632-C YAWAII, USP

50N M. TANIC LICENSED PROFESSIONA ENGINEER No. 13730-C MAWAII, US.P.

"PROPOSED PUBLIC ROAD"

CHECKED BY: MN

NGINEER: WT

HO'OPILI PHASE 4 PARCEL 8

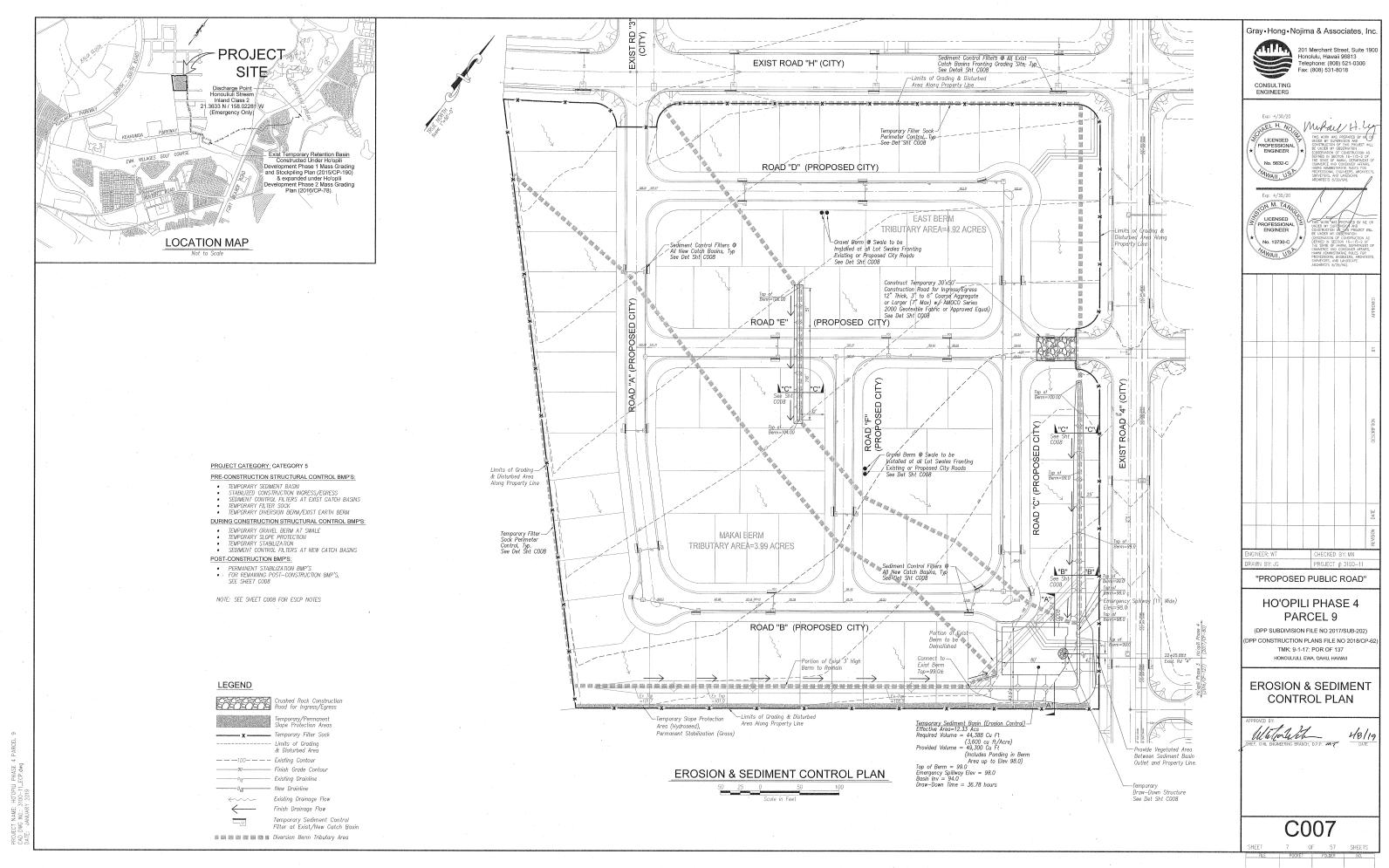
(DPP SUBDIVISION FILE NO 2018/SUB-29) DPP CONSTRUCTION PLANS FILE NO 2018/CP-56 TMK: 9-1-17: POR OF 137 HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION **BMP PLAN**

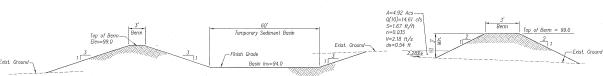
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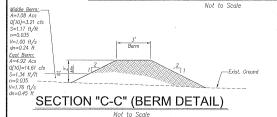


TEMPORARY DRAW-DOWN STRUCTURE



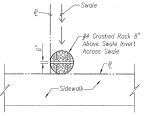
SECTION "A-A" (SEDIMENT BASIN DETAIL)

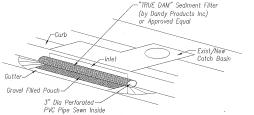
SECTION "B-B" (BERM DETAIL)



AMOCO Series 2000 Geotextile Fabric or Approved Faual Exist Ground--- 12" Thick 3"-6" Coarse

CONSTRUCTION ROAD INGRESS/EGRESS DETAIL

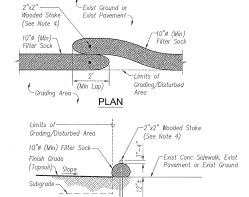




GRAVEL BERM @ SWALE

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



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 and designation and the social security contact.

good ground contact.
3. Compost shall not contain biosolids and should be consistent with EPA

Compost shall not contain biosolids and should be consistent with EPA guidelines.
 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

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- 1. The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water
- oudings.

 Owner shall designate an ESCP Coordinator with ESCP Coordinator's name, phone number, mailing address and e-mail provided to the DPP Director in writing at least two weeks prior to commencing of
- any work.

 ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and
- 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 and ablain written approval from the Director at each stage of planned activity before proceeding to the next activity. Measures to control erosion and other pollutants shall be in place before any earthwork is initiated. 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%. Temporary forsos, 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.
- consecutive days or more.

 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
- remanently stabilized.

 Treserve existing vegetation: Clearly mark the areas to be preserved with flags or temporary fencing, there 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
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- 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. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is
- compromised.

 D. Tom, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.

 12. Sediment Basin: Sediment basin 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.
- Minimize sediment track—out onto off—site streets, other paved areas, and sidewalks from vehicles
- minimize seament track—out onto off-site streets, other powed 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 proved surfaces or predefined parking areas and vehicles 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 poved areas, sidewalks or the MS4 must be cleaned using dry methods such as sweeping or vicuorities.
- 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
- 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.
- 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.
- Buffer zones are not applicable.

 Diversion BMP's to divert runoff from upstream areas around disturbed areas of the site.
- Sediment Barriers Velocity Dissipation Devices

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.

- effective erosion control shall be developed.

 1. Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fending 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 berms as needed to direct runoff into the sediment basin.

 4. Clear and grub remainder of the site or first increment of grading. When cleared and grubbed areas are not to be graded or disturbed for 14 days or more, seed, plant, or hydrosed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.

 5. Install remaining parts of permonent drainage system with temporary inlet protection.

 6. Grade the site, or first increment, 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 or vegetative cover according to the landscaping plans as soon as possible.

- 11. remove or aismante temporary erosion control structures after full establishm 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. Temporary suspension of active grading, grubbing, and trenching.
- Inspect all sediment basins, temporary berm, 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.

- Streets. Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater. Place spill pans or oil-only spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any occumulated oily water after the rain event. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's

GOOD HOUSEKEEPING BMP'S:

- Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

 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.

 Street Sweeping and Vacuuming: All pollutants discharged from construction site to off-site areas must be sweet or vacuumed each day here feeving the bis site.

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 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 milimizing the storage of hazardous materials ansite, 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.
 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 change for spills, baschbing containing and cleaning us soils and properly discorbing it spill.

- 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.

 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.

 Nanhazardous 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.
- notification by phone.

 8. <u>Vehicle and Equipment Cleaning:</u> 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
- Vehicle and Equipment Fueling: Prevent fuel spills and leaks by using off-site facilities, fueling only in
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 <u>Vehicle and Equipment Maintenance</u>, 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 expertise and equipment and expertise the specific of the control of the
- 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. Sonitary/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 located in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the City Right-Ol-Way. Sediment barriers or silt fences shall be used around the base of all stockpiles to prevent storm water carrying contaminatis into drainage
- 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 occordance 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 decre.
- 14. <u>Liquid Waste Management:</u> 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
- 15. <u>Concrete Waste Management:</u> Prevent or reduce discharge of pollutants to storm water from concrete 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 impermentially 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, emoved, 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/awaer 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 omply 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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Exp: 4/30/20 TON M. TANIO LICENSED ENGINEER No. 13730-C MAII, USP

CHECKED BY: MN GINEER: WT

"PROPOSED PUBLIC ROAD"

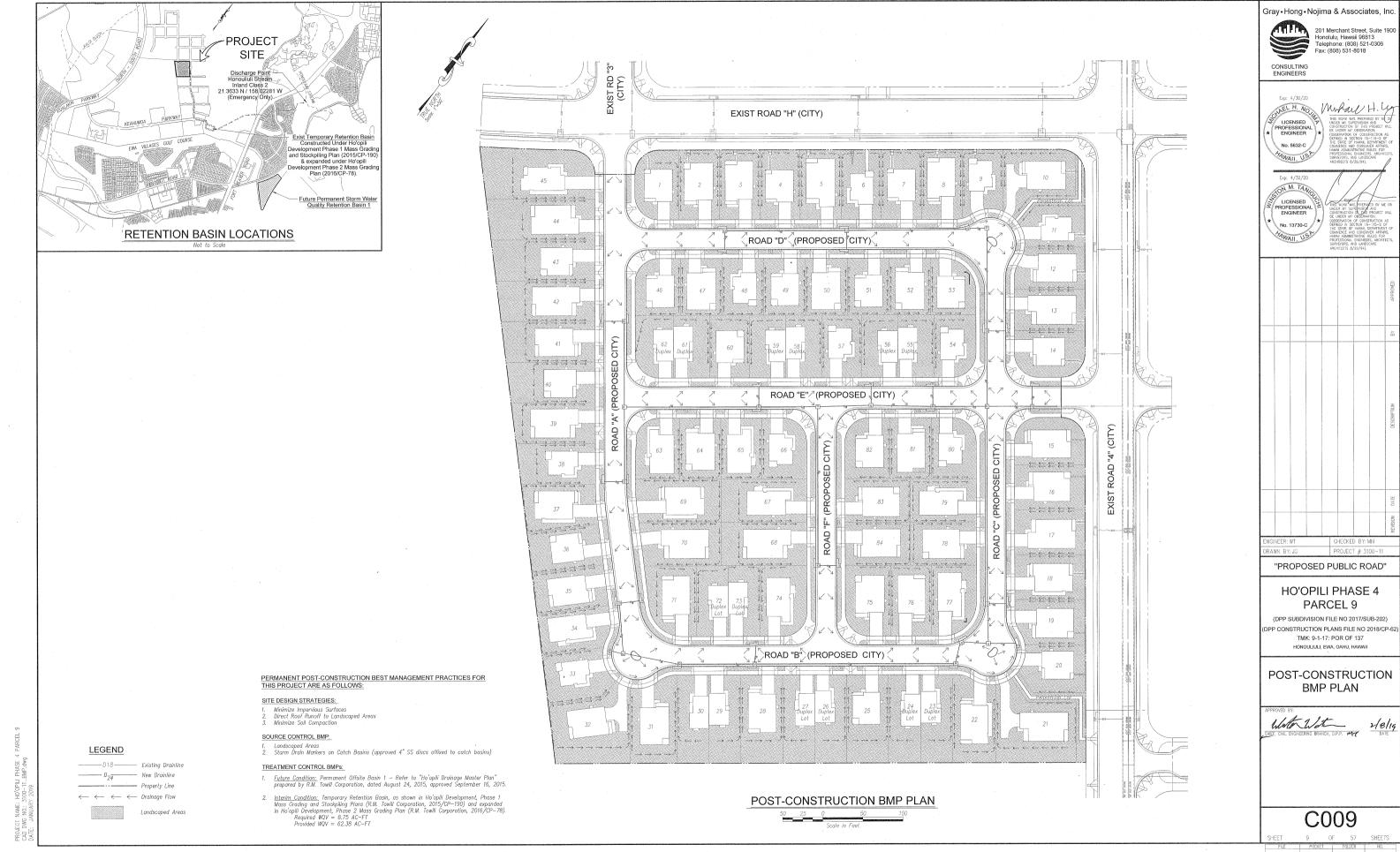
HO'OPILI PHASE 4 PARCEL 9

(DPP SUBDIVISION FILE NO 2017/SUB-202) DPP CONSTRUCTION PLANS FILE NO 2018/CP-62 TMK: 9-1-17: POR OF 137 HONOULIULI, EWA, OAHU, HAWA

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

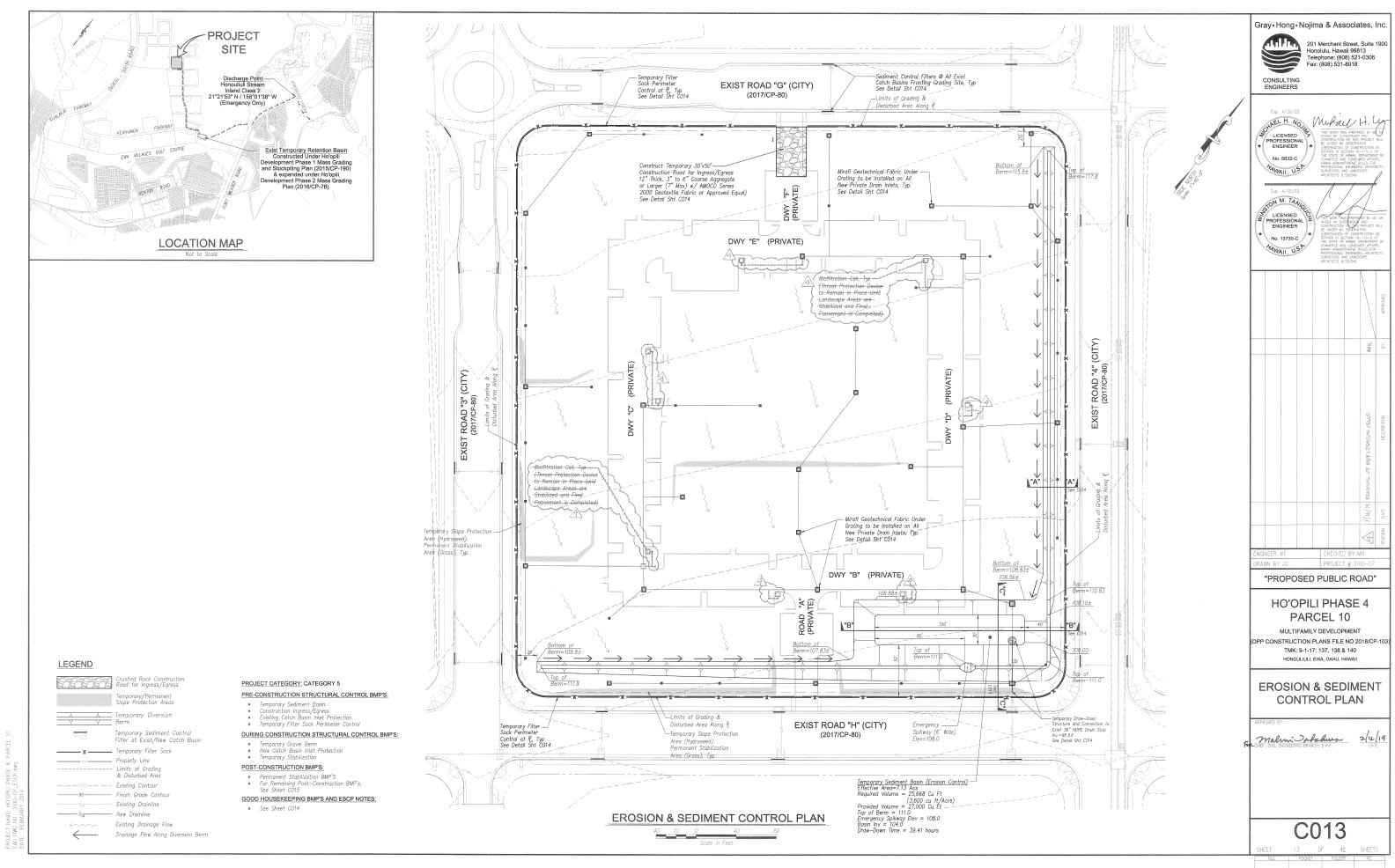
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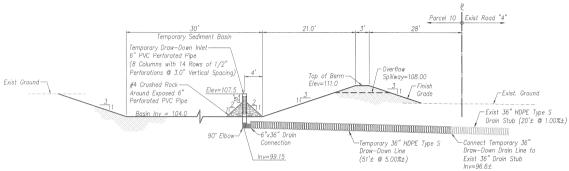


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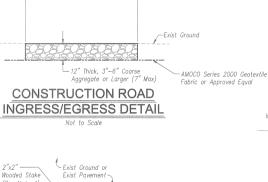
TEMPORARY DIVERSION BERM SECTION "A-A"

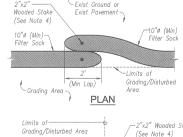


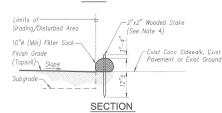
SEDIMENT BASIN SECTION "B-B"



SEDIMENT BASIN SECTION "C-C"



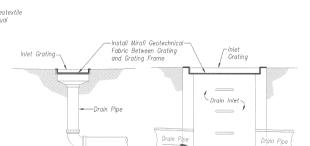




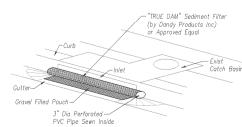
OIES: When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side. Contractor shall remove any debris in path of Filter Sock to ensure

- ost shall not contain biosolids and should be consistent with EPA
- guidelines. 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



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL



The contractor shall inspect all the catch basins and inlets in the vicinity of the

SEDIMENT CONTROL FILTER AT CATCH BASIN

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 shall designate an ESCP Coordinator with ESCP Coordinator's name, phone number, mailing address and e-mail provided to the DPP Director in writing at least two weeks prior to commencing of any work.

 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 and obtain written approval from the Director at each stage of planned activity before proceeding to the next activity.

 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%.

 1. Temporary Stabilization: Temporary canso shading any advisable to shall be required an disturbed greas.
- be disturbed at anytime an slopes greater than 15% Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed areas will not be worked for 14 consecutive days or more. Permonent Stabilization: All disturbed areas shall be permanently stabilized using vegetative covering, povement, or equivalent, prior to removing erosion and sediment measures. Irapped sedement 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
- Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be Minimize Soil Compaction: Areas where final stabilization or inhifraction 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
- All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet
- 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
- compromisea. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced
- immediately.

 13. Sediment Dasins:

 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
- ocking Control:

 Minimize sediment track-out onto off-site streets, other poved 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 poved surfaces or predefined parking oreas and vehicles 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
- nethods such as sweeping or vacuuming. 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
- off best management practices (BMP's) shall not be removed until the entire project is complete. The lefer to City and County of Honolulu Best Management Practices Manual Construction, for more information
- 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.
- Velocity dissipation devices are not applicable.
- Buffer zones are not applicable.
- burier zoiles are not uppricable. Sediment traps are not applicable. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site. Sediment Barriers

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.

- Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inlet protection, and temporary fencing for protected areas, cleaning and grubbing as necessary for the installation of these BMP's.
- Construct temporary sediment basin and stabilize immediately.

- Construct temporary sediment basis and stabilize immediately.

 Construct temporary diversion berms as needed to direct runoff into the sediment basin.

 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.

 Install remaining parts of permanent drainage system with temporary inlet protection.

 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. Plant permanent vegetation according to landscoping 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.

- as soon as grading is completed. Hant or seed temporary vegetative cover or use other temporary stabilization methods as planned. 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. Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Plant permanent ground cover according to the landscaping plans as soon as possible. Remove or dismantle temporary erosion control structures after full establishment of permanent supports and the structures after full establishment of permanent supports.
- Practice good housekeeping measures throughout the duration of construction.
 Inspections will be performed weekly.

Rain Response Plan:

- The following will be performed when heavy roins, tropical storm or hurricane is imminent or is forecasted in the next 48 hours.
 Temporary suspension of active grading.
 Inspect sediment basin, temporary berms, perimeter controls, and inlet protection devices, and mainta 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-anly spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any accumulated oily water offer the rain event.

 6. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's

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 Vaccuuming. All pollutants discharged from construction site to off-site areas must be swept or vaccuumed 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 notify the City Department of Facilities Maintenance, Honollub Tire Department, and Honollub Police Department of the discharge and waste disposal. In the event that hazardous materials are discharges shall be submitted to the Director no less than 3 days af
- notification by prone.

 8. <u>Vehicle and Equipment Cleaning:</u> 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.

 <u>Vehicle and Equipment Fueling:</u> 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.

 <u>Vehicle and Equipment Mointenance:</u> Eliminate and minimize the discharge of pollutants to storm water
- <u>Vehicle and Layupment Maintenance</u>: Liminate and minimize the discharge of pollutarits 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. <u>Solid Waste Managament</u>: 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 about an authorized disposed for gream surring that construction waste is collected, removed, and disposed of about an authorized disposed for gream.
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 12. Sanitary/Septic Moste 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.
- ot sanitary and/or septic waste shall not be stored near the MS4 or receiving waters.

 3. <u>Stockpile Management</u>. Stockpile shall not be located in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the City Right-Ol-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.
- 7 / adys. 14 <u>Liquid Waste Management:</u> Liquid waste shall be contained in a controlled area such as a holding pil, 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.

 1. 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 liming material should be a minimum of 10 millimeter polyethyhere sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material. Containment greas or devices should not be located where accidental release of the contained liquid can Containment areas or devices should not be located where accidental release of the contained liquid clischarge 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.

 5. Contaminated Soil Management: At minimum contain contaminated soil material by surrounding with impermeable lined berns 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

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.

Gray · Hong · Nojima & Associates, Inc.



CONSULTING ENGINEERS

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TANK LICENSED ENGINEER No. 13730-C YAWAII, U.S.P.

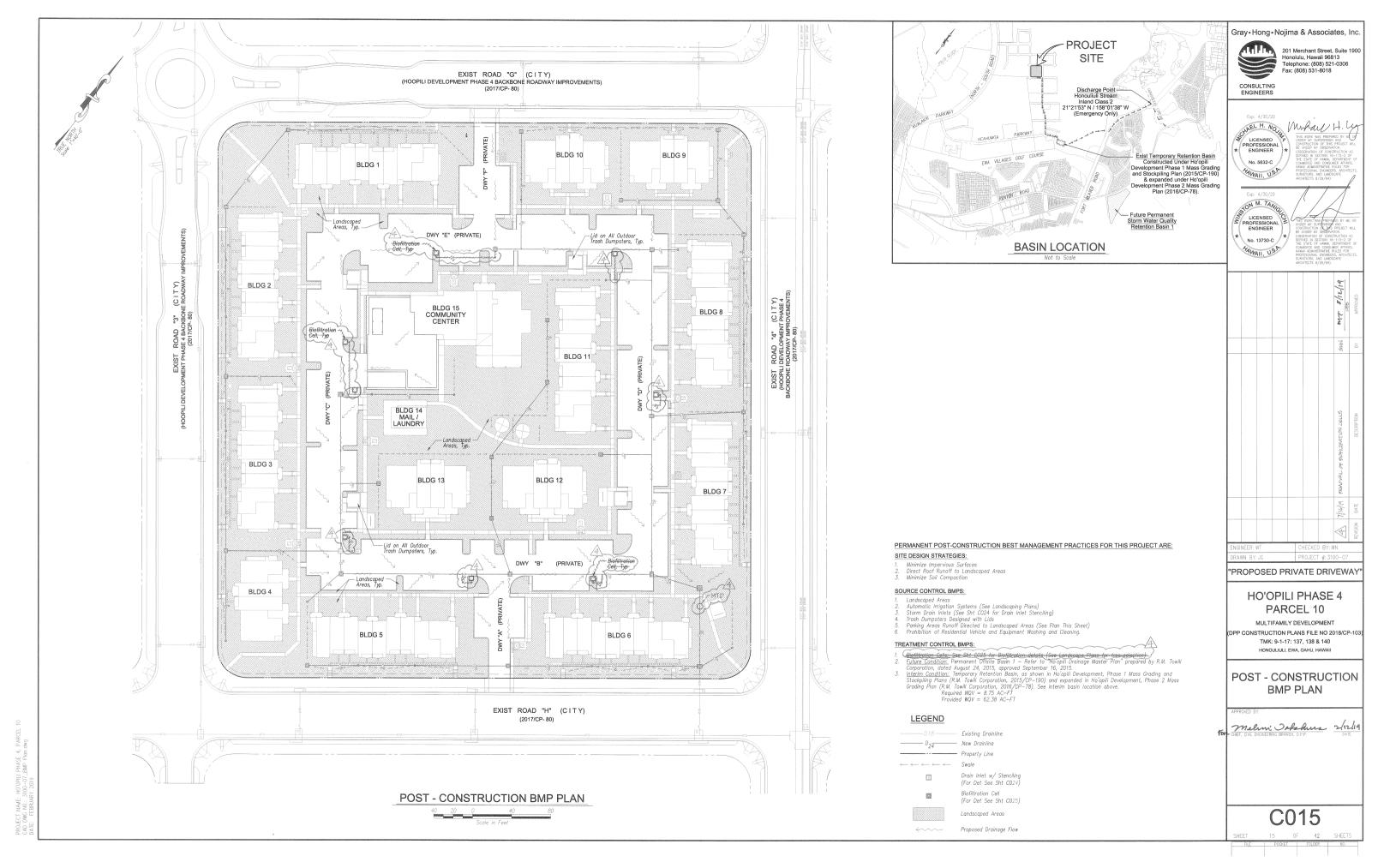
"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 4 PARCEL 10

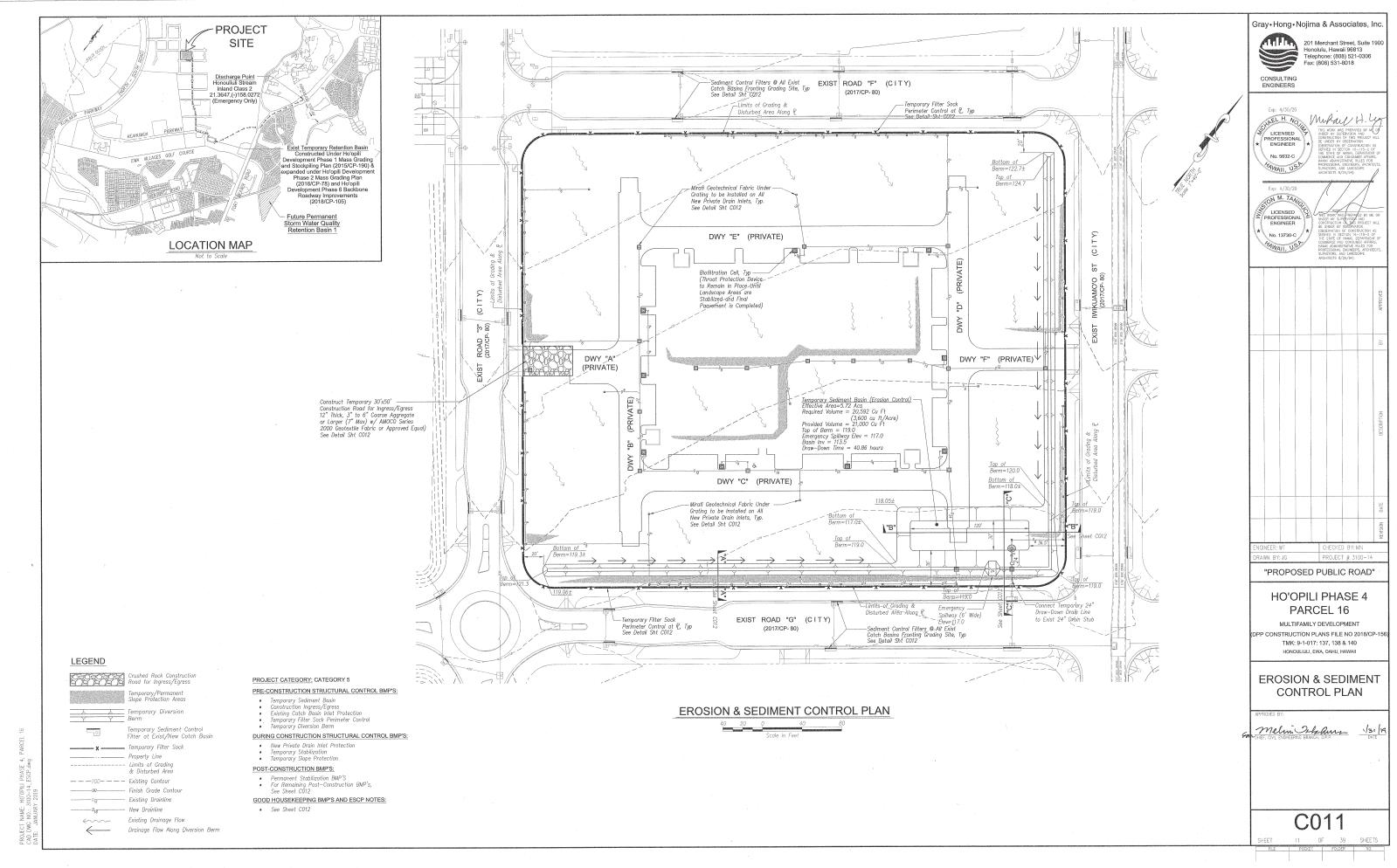
MULTIFAMILY DEVELOPMENT PP CONSTRUCTION PLANS FILE NO 2018/CP-103 TMK: 9-1-17: 137, 138 & 140 HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES

melini Jakabura 2/12/19



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g name: PK3100-14 Hoopië Ph 4 - Peroel 1683(00-14 DWGlConstruction Phrask)100-14_ESCP.chg Len 30, 2013

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality":

 Owner shall designate an ESCP Coordinator with ESCP Coordinator's name, phone number, moiling address and
 e-mail provided to the DPP Director in writing at least two weeks prior to commencing of any work.

 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 and obtain written approval from the Director
 at each stage of planned activity before proceeding to the next activity.

 Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.

 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%.

 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 clonesceutive days or more.

 Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative covering, powement,
 or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil
 which result from the removal of the temporary measures shall be immediately and permanently stabilized.

 Preserve existing vegetation: Clearly mark the areas to be preserved with flags or temporary fencing. Where
 temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright

- 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 availed with flags or temporary fencing. Where temporary fencing is used, fencing must be adequated by supported by note and marketic fedicing unarish tending.
- adequately supported by posts and maintained in an upright position.

 Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
- 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 unclagged and cleaned when performance is

- D. Torn, weathered or sagaing sediment barriers or inlet protection devices must be repaired or replaced
- 1.3. 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.
 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.
- conruns to remove seament from venicle tires prior to exiting the site. 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. 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 tran.
- or seament 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
- 17. The following BMP's were determined to be not applicable based on the specific site conditions. As construction gresses, revisions may be necessary and will be provided to DPP inspectors.

 Devatering practices are not applicable.

 Buffer zones are not applicable.

 Buffer zones are not applicable.

- Sediment traps are not applicable.

 Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site 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.

- Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inle protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.

- protection, and temporary tencing for protected areas, clearing and grupping as necessary for the installation of these BMP.'S. Construct temporary sediment basin and stabilize immediately. Construct temporary sediment basin and stabilize immediately. Construct temporary sediment basin. 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. Install remaining parts of permanent drainage system with temporary inlet protection. Grade the site as planned. Relocate, reconstruct and miniation BMP's as needed to keep them effective at all times, initiate temporary stabilization immediately once grading is completed in each phase. Plant permanent vegetation according to landscaping plan on terroces, benches, and steep stopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned. Install temporary or permanent irrigation system is planned, it should be installed prior to seeding. Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.

- Practice good housekeeping measures throughout the duration of construction.
 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.
 Temporary suspension of active grading, and trenching.
 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.

- severe starm is expected, remove mise trained and related to prevent nooting on surrounding streets.

 1. Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater.

 5. Place spill pans or oil-anly spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any occumulated oilly water after the rain event.

 6. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's as a needed.

GOOD HOUSEKEEPING BMP'S

- Mointenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

 <u>Dust Control:</u> The contractor of 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

- from dust nuisance. The work shall be in conformance with the Hawiii 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.

 Street Sweeping and Yacuuming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.

 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, west, toxic and hazardous substances, stockpiles and other sources of pollution shall not be stored in buffer areas, near areas of concentrated flow, or areas obutting 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.

 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, Honolula Fire Department, and Honolula Price Department of the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted
- revent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after
- notification by ponce.

 8. <u>Vehicle and Equipment Cleaning:</u> 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
- 9. <u>Vehicle and Equipment Fueling:</u> Prevent fuel spills and leaks by using off-site facilities, fueling only in
- <u>vennes and Equipment Training</u>, Prevent user spins and leaks by asing on-site decides, usering only in designated areas, enclosing or covering stored fuel, and implementing spill controls such as secondary containment and active measures using spill response kits.

 <u>Vehicle and Equipment Maintenances</u> 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.

 <u>Solid Waste Management</u>: 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 worste
- 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
- collection areas, collect site trosh daily, and ensuring that construction waste is collected, removed, and disposed of only at authorized disposal areas.

 12. <u>Sanitary/Septic. Waste. Management:</u> 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. <u>Stockpile Management.</u> Stockpile shall not be located in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the City Right-OI-Way. Sediment barriers or sit fences shall be used around the have of all stockpiles to prevent starm water convince automismus in decirioner.
- be used around the base of all stockpiles to prevent storm water corrying contaminants into draining systems and State waters. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height 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
- 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
- 15. <u>Concrete Waste Management:</u> Prevent or reduce discharge of pollutants to storm water from concrete <u>Concrete Waste Management:</u> Prevent or reduce discharge of pollutants to storm water from concrete waste by conducting washout offsite or performing ansite 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. emoved, and disposed of as solid wastes.
- 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 ns 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 in accordance with state law, an assuing render to project constitution of 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

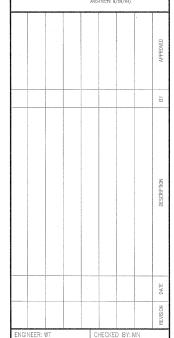
Gray • Hong • Nojima & Associates, Inc



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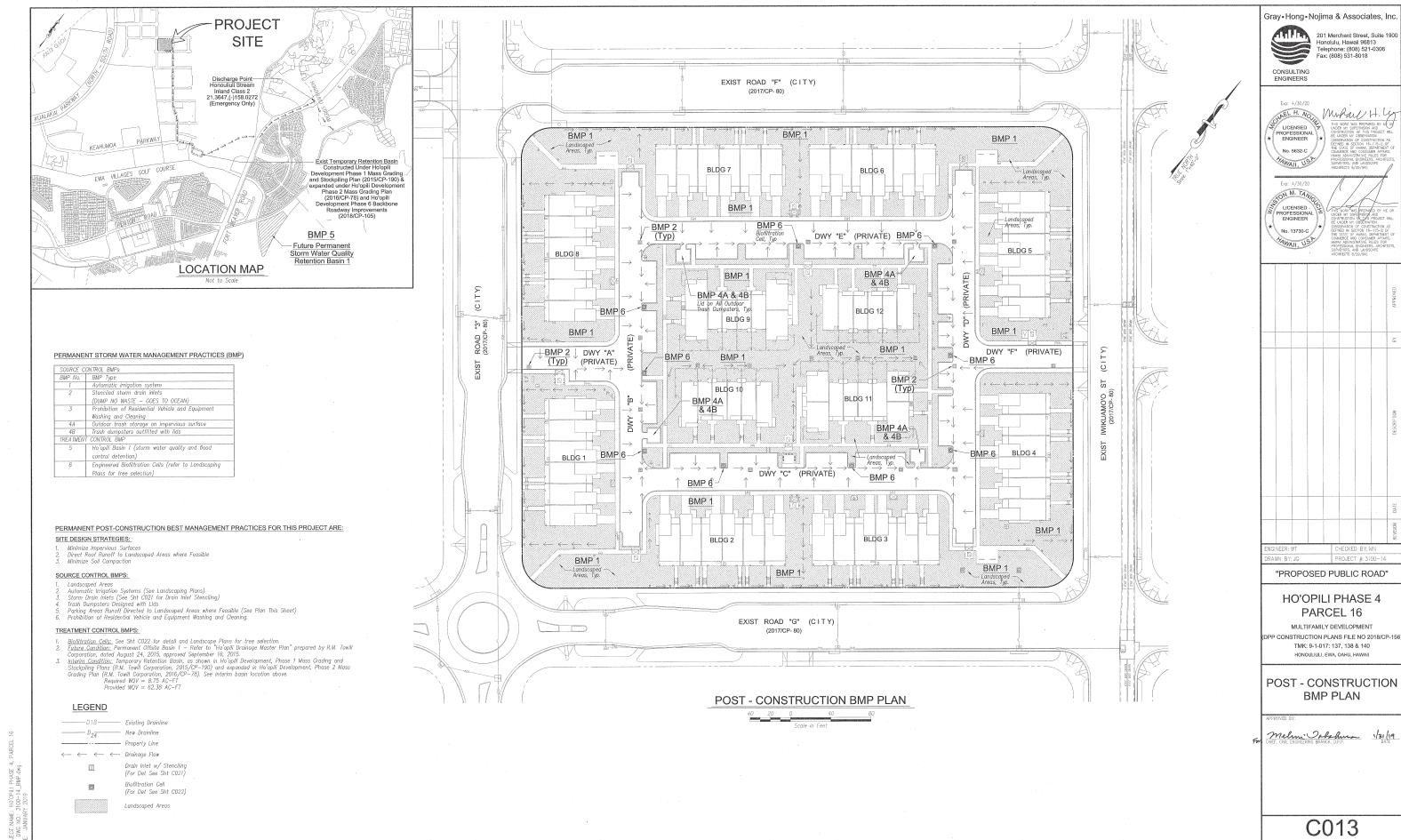
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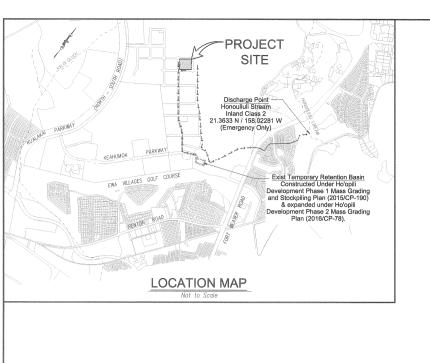
HO'OPILI PHASE 4 PARCEL 16

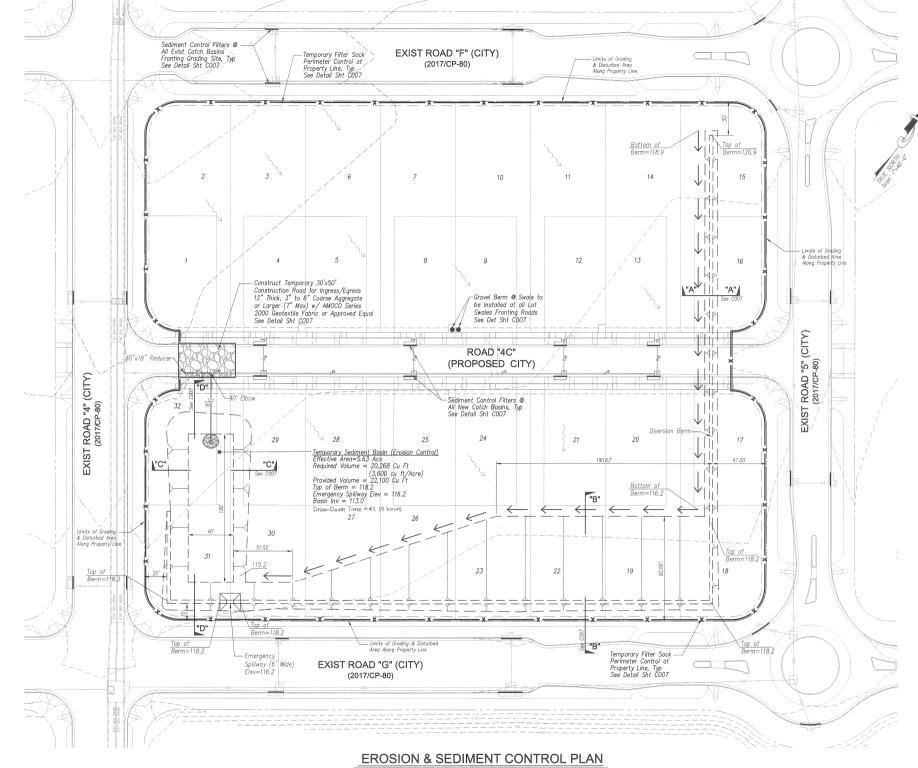
MULTIFAMILY DEVELOPMENT PP CONSTRUCTION PLANS FILE NO 2018/CP-156 TMK: 9-1-017: 137, 138 & 140 HONOULIULI, EWA, OAHU, HAWA

EROSION & SEDIMENT CONTROL NOTES

Melm Jakahura







LEGEND



Existing Drainage Flow Drainage Flow Along Diversion Berm GOOD HOUSEKEEPING BMP'S:

NOTES: 1. See Sheet COO7 for ESCP Notes. 2. This Erosion and Sediment Control Plan does not address building permit work.

PROJECT CATEGORY: CATEGORY 5

PRE-CONSTRUCTION STRUCTURAL CONTROL BMP'S:

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

DURING CONSTRUCTION STRUCTURAL CONTROL BMP'S:

Temporary Gravel Berm at Swale Temporary Stabilization Temporary Slope Protection New Catch Basin Inlet Protection

POST-CONSTRUCTION BMP'S:

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



Gray • Hong • Nojima & Associates, Inc.



ENGINEERS

Exp: 4/30, -THIS WORK WAS PREPARED BY ME OR UNDER MY WAS PREPARED BY ME OR CONSTRUCTION OF THIS PROJECT WILL BE INIPER MY ORSPRAYING LICENSED PROFESSIONAL ENGINEER No. 5632-C MANAII, US.A.



"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 4 PARCEL 17

(DPP SUBDIVISION FILE NO 2018/SUB-79) DPP CONSTRUCTION PLANS FILE NO 2018/CP-113) TMK: 9-1-17: 140 HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL PLAN

PPROVED BY:

Weller List

From Frinkering Branch, D.P.P. mg

DATE

The Contractor shall follow the guidelines in the City and County of Hanolulu's "Rules Relating to Water Quality".

The owner of the property or their Authorized Agent shall 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 in the City and County of Hanolulu's "Rules Relating to Water Quality".

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.

Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.

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%.

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. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative covering, poverment, or equivalent, prior to removing terusion 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 odequately supported by posts and maintained in an upright position.

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- 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 of an area 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
- 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. Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is
- Tom, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced
- immediately.

 12. 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.
- 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. Vehicular parking and movements on project sites must be confined to poved surfaces or predefined
- Vehiculor 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.

 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.
- All best management practices (BMP's) shall not be removed until the entire project is complete. Refer to City and County of Honolulu Best Management Practices Manual — Construction, for more information
- 6.1 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 omitted BMP is unnecessary or impracticable for the project has been provided under separate documentation.
- Velocity dissipation devices are not applicable. Buffer zones are not applicable.
- BUTHEr zones are mor uppnicame. Sediment traps are not applicable. Diversion BMP's to divert runoff from upstream areas around disturbed areas of the site.

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 bosin and stabilize immediately.

 3. Construct temporary sediment bosin and stabilize immediately.

 4. Clear and grup 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.

- tassion as ground as compared to the stabilization methods as planned 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.

 Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
- Plant permanent ground cover according to the landscaping plans as soon as possible.

 Remove or dismantle temporary erosion control structures after full establishment of permanent
- Practice good housekeeping measures throughout the duration of construction.
 Inspections will be performed weekly.

- The following will be performed when heavy rains, tropical storm or hurricane is imminent or is forecasted in the next 48 hours.
- forecasted in the next 48 hours.

 7. Temporary suspension of active grading and trenching.

 8. 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.

 7. Place spill pans or oil—only spill pads under construction vehicles to prevent unoff from contacting any spilled petroleum products. Properly dispose of any accumulated oily water after the rain event.

 8. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

- 600D 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 of 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, storiges and other sources of pollution shall not be stored in buffer areas, near areas of concentrated flow, or areas abutifing 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 immediately.

 6. Hazardous Materials. Prevent or reduce the discharge of pollutants to the MS4 under 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 of Honolulu Police Department of the discharge and the measures that how been taken

- notification by pnone.

 8. <u>Vehicle and Equipment Cleaning:</u> 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 <u>Vehicle and Equipment Fueling:</u> 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. <u>Vehicle and Equipment Maintenance</u>, Eliminate and minimize the discharge of pollutants to storm water

- 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.
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- / days.

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 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:

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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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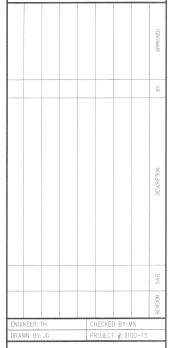


CONSULTING ENGINEERS

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"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 4 PARCEL 17

(DPP SUBDIVISION FILE NO 2018/SUB-79) PP CONSTRUCTION PLANS FILE NO 2018/CP-113 TMK: 9-1-17: 140

HONOULIULI, EWA, OAHU, HAWAI

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

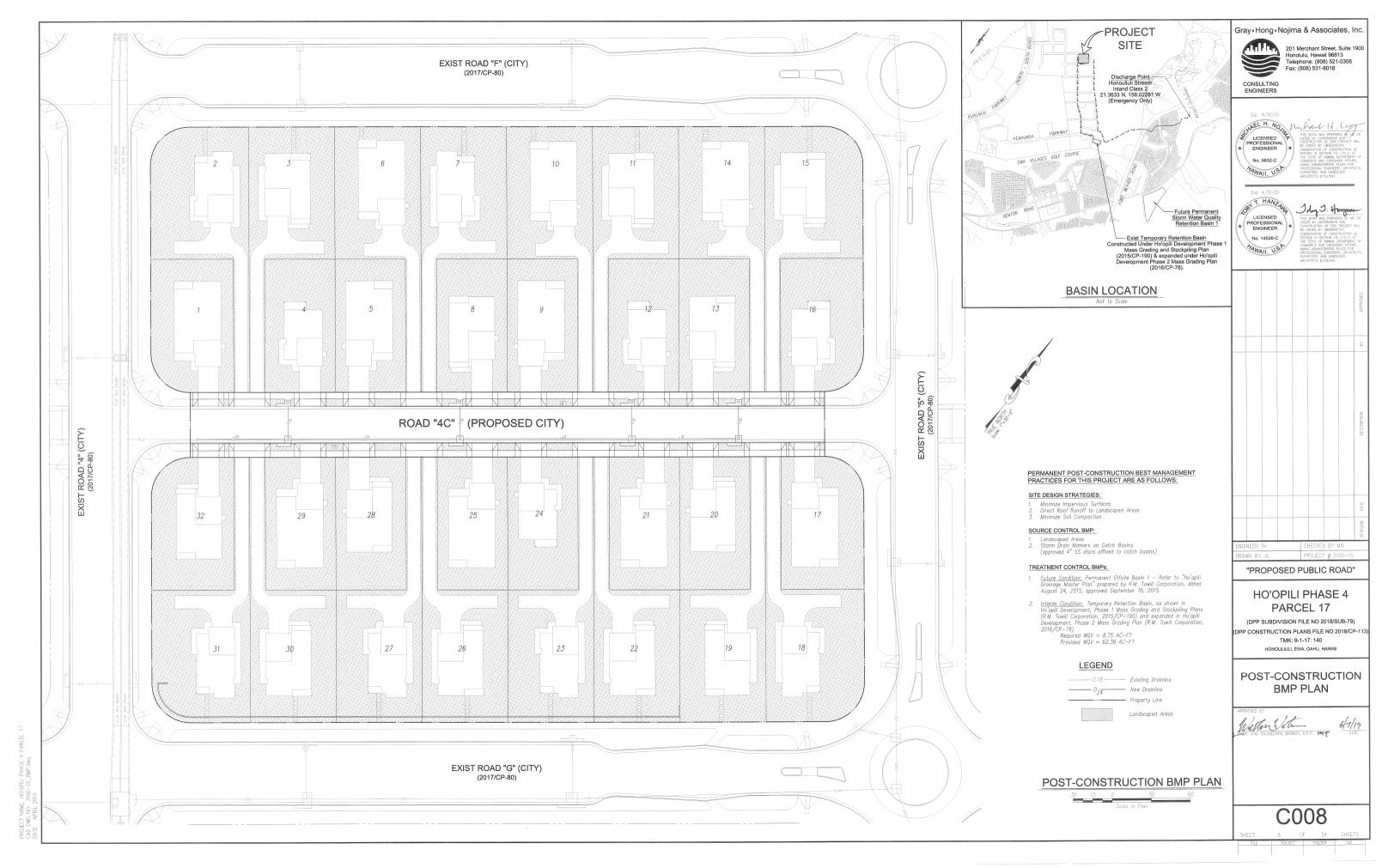
Water Web 6/2/19

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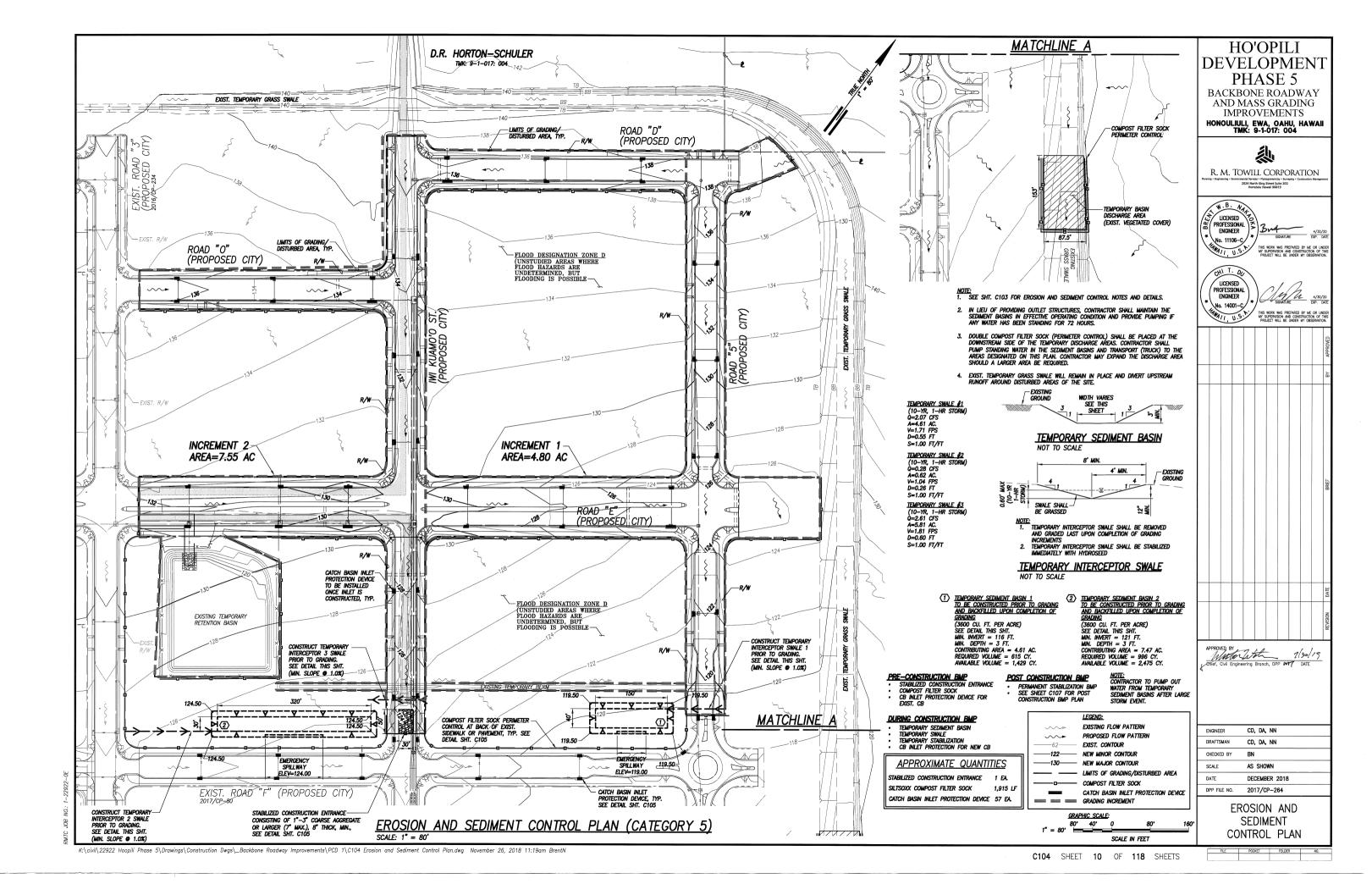
FILTER SOCK PLACEMENT DETAIL

AT CATCH BASIN

The contractor shall inspect all the catch basins and inlets in the vicinity of the SEDIMENT CONTROL FILTER



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GOOD HOUSEKEEPING BMPS NOTES:

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.

MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT.

PREVENT, REDUCE, OR FUMINATE THE DISCHARGE OF POLLUTANTS FROM MATERIAL DELIVERY. STORAGE. AND USE TO THE STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE STORAGE, AND DE TO THE STORM WATER STSTEM OW MATERCOURSES 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 DRAINA 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 ELMINATE 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

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 MAILENIUS ARE DISCARRED IN THE MISS, THE PROPERTY OWNER OR ESST OPERATIONS SHALL MINIEDIATELY ONLY THE DEPARTMENT OF THE DISCARRE 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 B

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 OWNER OF ESSE OVERDINGUES 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

VEHICLE AND EQUIPMENT CLEANING

FLIMINATE 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 EXTERIOR CLEANING ACTIVITIES THAT USE WATER ONLY.

7. VEHICLE AND FOLIPMENT FLIFLING.

AREAS, ENCLOSING OR COVERING STORED FUEL, AND IMPLEMENTING SPILL CONTROLS SUCH AS SECONDARY CONTAINMENT AND ACTIVE MEASURES USING SPILL RESPONSE KITS.

VEHICLE AND EQUIPMENT MAINTENANCE.

FILMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND ECHIMINALE AND MINIMALE LIFE DISCHARGE OF PEDIATORS BY USING OFF-STE 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.

PREVENT OR REDUCE DISCHARGE OF POLLUTANTS TO THE LAND, GROUNDWATER, AND IN STORM WAITER 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.

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 FEFT IN HEIGHT STOCKPILES GREATER THAN 15 FEFT IN HEIGHT SHALL REQUIRE 8 FOOT WIDE BENCHMO 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

PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM CONCRETE WASTE PREVENT OR REDUCE THE DISCHARGE OF POLICIANTS TO STAMM MATER FROM CONCRETE WASH 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 POLYETH/LENE 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

GOOD HOUSEKEEPING BMPS NOTES (CONT'D):

14 CONTAMINATED SOIL MANAGEMENT

T 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.

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 THROUGHOUT THE PROJECT DURATION. THE CONTRACTOR SHALL CLEAN TRASH AND DEBRIS AROUND THE SURROUNDING AREA ON A

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

PROJECT SEQUENCE:

- INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS, INLET PROTECTION, AND CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
- CLEAR, GRUB AND GRADE THE SITE IN 2 INCREMENTS IN SEQUENTIAL ORDER, REFER TO GENERAL GRADING PLAN. ONLY I INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH STABILIZATION OF SUCH PRIOR TO COMMENCING THE SUSSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BURS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH
- 3. INITIATE STABILIZATION OF STEEP SLOPES (> 15%) WITH HYDROSEEDING AS SOON AS GRADING IS COMPLETED ON THOSE AREAS. INSTALL PERMANENT IRRIGATION SYSTEM PRIOR TO
- PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND
- REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
- 6. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION
- 7. 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, AND WHEN PROPOSED ROADWAY IMPROVEMENTS ARE CONSIDERED TRENCHING:

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

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.
- 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

- 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 STARILIZATION

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 DIVINING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOLIS 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 (CONT'D):

8. PERIMETER CONTROLS

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

- 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

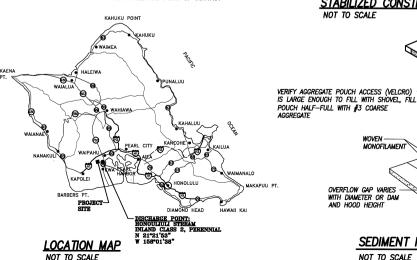
SEDIMENT BASINS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE HALF OF THE DESIGN CAPACITY AT ALL TIMES.

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 STIE TO OFF—SITE STREETS, OTHER PAYED 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
- 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.
- 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. A BRIEF EXPLANATION OF WHY EACH OMITTED BIMP IS UNNECESSARY OR IMPRACTICABLE FOR THE PROJECT HAS BEEN PROVIDED UNDER SEPARATE DOCUMENTATION TO DPP.
- DEWATERING PRACTICES ARE NOT APPLICABLE. DEMAIRINIO FORMICES ARE NOT APPLICABLE.
 BUFFER ZONES ARE NOT APPLICABLE.
 SEDIMENT TRAPS ARE NOT APPLICABLE.
 SEDIMENT BARRIERS ARE NOT APPLICABLE.
 VELOCITY DISSIPATION DEVICES ARE NOT APPLICABLE.

- 15. 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.
- 16. 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.
- 17 THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS THE CONTRACTOR SHALL COMPLY MITH 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 NEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES
- 18. CONTRACTOR SHALL NOTIFY STORMWATER QUALITY BRANCH 14 DAYS PRIOR TO THE START OF GROUND DISTURBANCE.

 EMAIL: CLEANWATER GHONOLULU.GOV. PROVIDE PROJECT TITLE AND POINT OF CONTACT INFORMATION



- LIMITS OF WORK AREA MIN. LENGTH=18" MIN. WDTH=12" MIN. THICKNESS=3 PROTECTED AREA RUNOFF FLOW FILTER SOCK WORK AREA RUNOFF FLOW 5 **SECTION** CANDDA PROTECTED AREA <u>PLAN</u> OVERI AP 12" DIA. FILTER SOCK

PROTECTED AREA

SECURE FACH FND

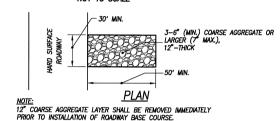
COMPOST FILTER SOCK DETAIL NOT TO SCALE

WORK ARFA

OVERLAP

12" DIA. FILTER SOCK

RUNOFF FLOW



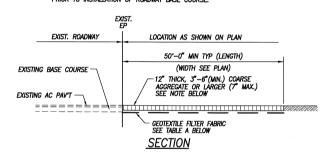
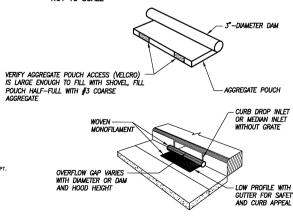


TABLE A GEO	TEXTILE REQUIREMENTS
PHYSICAL PROPERTY	<u>REQUIREMENTS</u>
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD. SIEVE, CW-02215)

STABILIZED CONSTRUCTION ENTRANCE



SEDIMENT FILTER FOR CATCH BASINS

HO'OPILI DEVELOPMENT PHASE 5

BACKBONE ROADWAY AND MASS GRADING **IMPROVEMENTS** HONOULIULI, EWA, OAHU, HAWAII TMK: 9-1-017: 004



R. M. TOWILL CORPORATION 124 North King Street Suite 200 Honolulu Hawaii 96819



LICENSED PROFESSIONA ENGINEER No. 14001-C MAII, U.S.

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CD, DA, NN ENGINEER DRAFTSMAN CD, DA, NN CHECKED BY BN AS SHOWN SCALE DATE DECEMBER 2018 DPP FILE NO. 2017/CP-264

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

GOOD HOUSEKEEPING BMPS NOTES:

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

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 ESON COMMITTED RANGE AND MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESON COMMITTED RANGE AND MATERIALS AND HONOLULU FIRE DEPARTMENT OF FACILITIES MAINTEMANCE, HONOLULU FIRE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGE, 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

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 OWNER OF ESCY OVERSIONERS SHALL NOTIFY THE CITY DEPARTMENT OF PACIFIES MANIFEMENT 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 FOUIPMENT 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 FOLIPMENT FLIFLING.

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.

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 LISED 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,

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 AN 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 IMPERMEBILITY 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".

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

PROJECT SEQUENCES

- INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS, INLET PROTECTION, AND CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
- 2. CONSTRUCT TEMPORARY SEDIMENT BASINS, STABILIZE IMMEDIATELY.
- 3. CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT BASINS. STABILIZE
- CLEAR, GRUB AND GRADE THE SITE IN 4 INCREMENTS IN SEQUENTIAL ORDER, REFER TO GENERAL GRADING PLAN. ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME WITH SHALLBER 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 INFORMER.
- 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
- 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.
- 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
- 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.
- RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

- 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
- 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

- 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 INFILIRATION 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 INFILIRATION AREAS, CLEARLY MARK THE AREAS TO BE ANOIDED WITH ELASE OR DESTRUCTION INFILIRATION AREAS, CLEARLY MARK THE AREAS TO BE AVOIDED WITH FLACS 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 (CONT'D):

8. PERIMETER CONTROLS

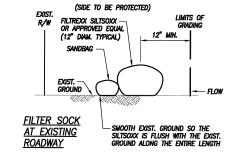
PERIMETER CONTROLS ARE REQUIRED DOWNSLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER ARFA.

- 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.

SEDIMENT BASINS MUST BE KEPT IN FFFECTIVE 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 PROPERTY DESIGNATED AREAS AND USING ADDITIONAL CONTROLS TO REMOVE SEDIMENT FROM VEHICLE TIRES PRIOR TO
 - 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 PAYED 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 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.
 - BUFFER ZONES ARE NOT APPLICABLE.
 SEDIMENT TRAPS ARE NOT APPLICABLE.
 SEDIMENT BARRIERS ARE NOT APPLICABLE.
 VELOCITY DISSIPATION DEVICES ARE NOT APPLICABLE.
- 15. 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.
- 16. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE DIRECTOR AT EACH STAGE OF DEVELOPMENT BEFORE PROCEEDING TO THE NEXT STEP IN
- 17. 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

MIN. LENGTH=18 MIN WIDTH=12" MIN. THICKNESS=3" PLACE EVERY 6' TYP. - FILTREXX SILTSOXX (SIDE TO BE PROTECTED) LIMITS OF FILTREXX SILTSOXX OR APPROVED EQUA (12" DIAM. TYPICAL) 12" MIN. SANDBAG 1. COMPOST SHALL NOT CONTAIN BIOSOLIDS AND SHOULD BE CONSISTENT WITH EPA EXIST. — GROUND 2. STAKING SHALL NOT BE REQUIRED <u>PLAN</u> -SMOOTH EXIST. GROUND SO THE SILTSOXX IS FLUSH WITH THE EXIST.



SILTSOXX COMPOST FILTER SOCK DETAIL

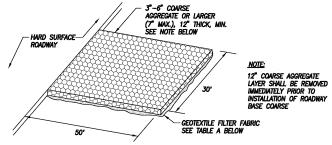
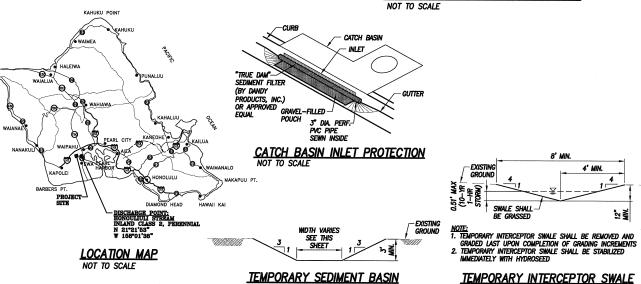


TABLE A GEO	TEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS	
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)	
ELONGATION FAILURE	60% (ASTM D1682)	
MULLEN BURST STRENGTH	430 LB (ASTM D3768)	
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)	
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD. SIEVE, CW-02215	

STABILIZED CONSTRUCTION ENTRANCE



NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 5 MASS GRADING PLAN

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



R. M. TOWILL CORPORATION 2024 North King Street Suite 200 Honolulu Hawaii 96819



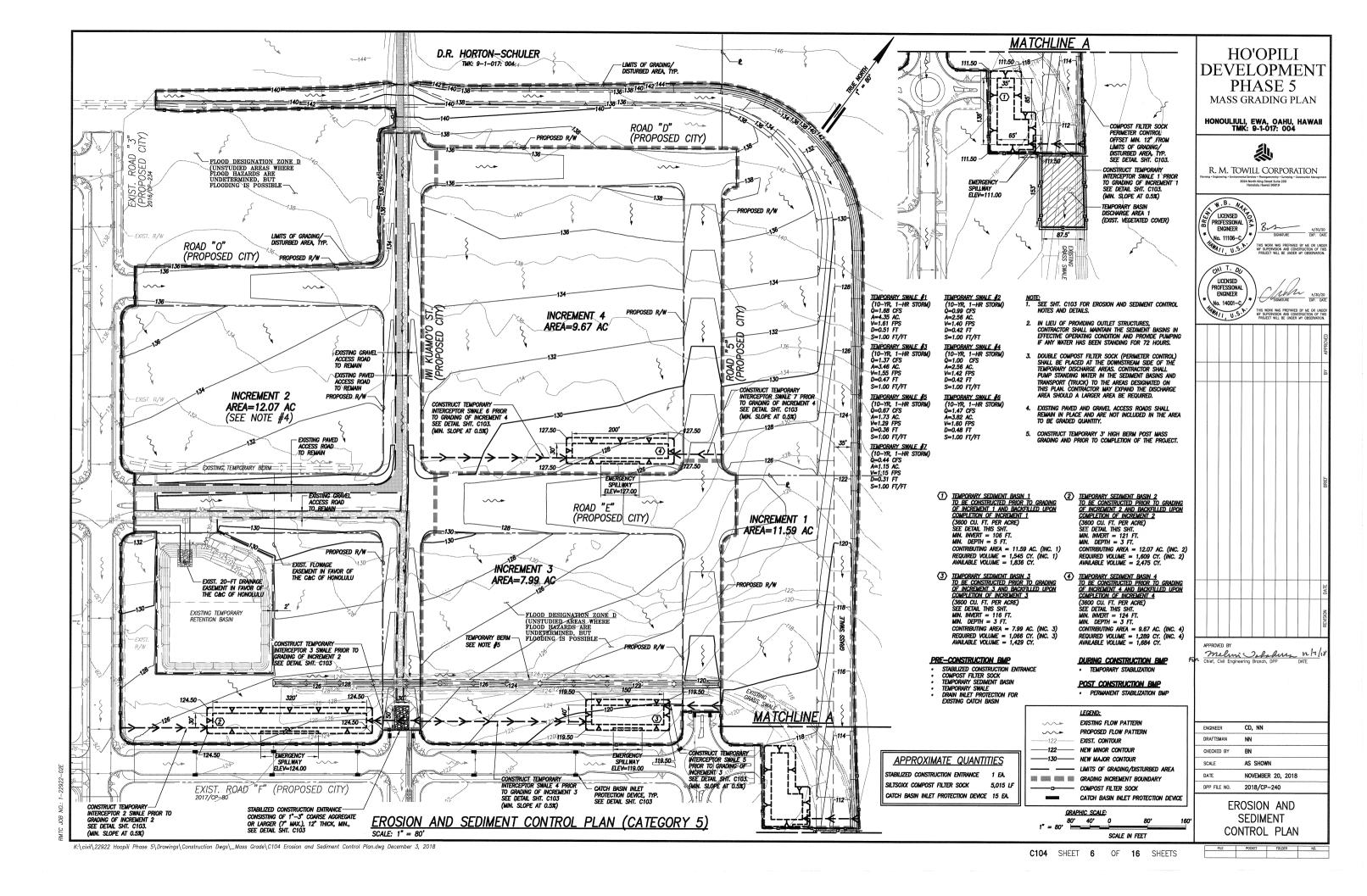
LICENSED PROFESSION/ ENGINEER When EMM/1 U.S. THIS WORK WAS PREPARED BY ME OR UN MY SUPERVISION AND CONSTRUCTION OF

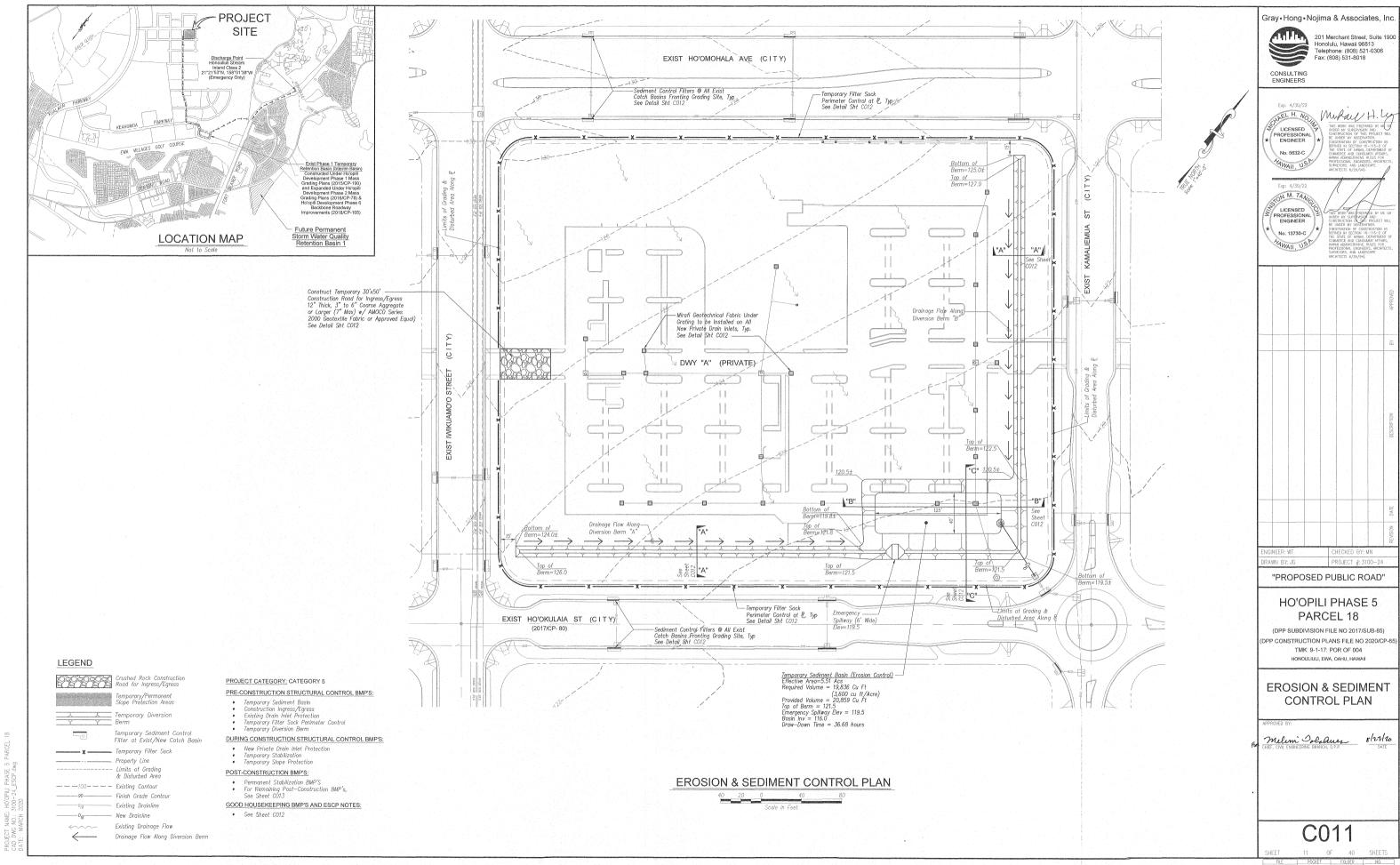
APPROVED BY melini Ortalina 12/7/11

CD. NN ENGINEER DRAFTSMAN CHECKED BY SCALE AS SHOWN DATE NOVEMBER 20, 2018 DPP FILE NO. 2018/CP-240

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

NOT TO SCALE





DIVERSION BERM "A" A=2.56 Acs DIVERSION BERM "B" 0(10ur-1hr)=7.99 cfs 0(10w-1br)=253 cfc V=2.13 ft/s V=1.69 ft/s dn=0.22 ft 2.0%± Slone-

TEMPORARY DIVERSION BERM SECTION "A-A"

EROSION PREVENTION/SEDIMENT CONTROL NOTES

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality".

 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.

 ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on
- Cordinator 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 and obtain written approval from the Director at each stage of planned activity the project scheduling requirements of the City's Rules Relating to Water Quality.

 Measures to control erosion and other pollulants shall be in place before any earthwork is initiated. Slope Protection: Required on areas with slopes greater than 15% and on oreas 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%. Improving yards, 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. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative covering, powement, or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil which result from the removal of the temporary measures shall be immediately and permanently stabilized. Preserve existing vegetation: Clearly mark the areas to be preserved with flags or temporary fencing. Where temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright here.

- 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 compocted 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
- 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
- D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced
- 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.

- 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 traffic to properly designated areas and using additional controls to remove sediment from vehicle traffic to paved surfaces or predefined parking areas and vehicles paths, which sholl 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.
- All best management practices (BMP's) shall not be removed until the entire project is complete. Refer to City and County of Honolulu Best Management Practices Manual - Construction, for more information
- on BMP's.

 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.

 B. Buffer zones are not applicable.

- Sediment traps are not applicable. Diversion BMPs to divert runoff from upstream areas ground disturbed areas of the site are not applicable.

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Construction activities and implementation of RMP's shall be sequenced to minimize erosion and amount of Construction occurres and imperientation of own's strain be sequenced to minimize crossion and amount of seafment leaving the site. It is recommended that continuity and collivities 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.

- 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.
- installation of these blur s. Construct temporary sediment basin and stabilize immediately
- Construct temporary sediment basin and stabilize immediately.

 Construct temporary diversion berms as needed to direct runoff into the sediment basin.

 Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or

 disturbed for 14 doys or more, seed, plant, or hydroseed temporary vegetation or use other temporary

 stabilization methods, unless remaining vegetation provides adequate protection.

 Install remaining parts of permanent drainage system with temporary inlet protection.

 forade 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.

 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.

- stabilization methods as planned.

 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.

 Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Plant permanent ground cover according to the landscaping plans as soon as possible.

 Remove or dismantle temporary erosion control structures after full establishment of permanent
- Practice good housekeeping measures throughout the duration of construction.
- 13. Inspections will be performed weekly

- 1. The following will be performed when heavy rains, tropical storm or hurricane is imminent or is
- forecasted in the next 48 hours.
- 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:

- Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

- 1. Maintenance: Regularly inspect and maintain required erasion and sediment controls to ensure continued performance of their intended function.

 2. Dust Control: The controctro 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 II, Chapter 60, "Nir 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 Vaccuming: All pollutants discharged from construction site to off-site areas must be swept or vaccumed 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 on soils, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other sources of pollution shill 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, obsorbing, 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: The reduce the discharge of pollutants to the most water from hazardous waste through proper material use and waste disposal. In the event that hozardous materials are discharged to the MS4, the property owner or ESCP coordinators s
- 8. <u>Vehicle and Equipment Cleaning:</u> 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
- 9. Vehicle and Equipment Fueling: Prevent fuel spills and leaks by using off-site facilities, fueling only in
- Vehicle and <u>Equipment Fueling</u>: 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.
 Vehicle and <u>Equipment Mointenance</u>: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment mointenance operations by using offsite facilities when feasible, performing work in designated areas only, using spill pods under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately.
 Solid <u>Waste Management</u>: 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 collection areas.
- collection areas, collect site trash daily, and ensuring that construction waste is collected, removed, and lisposed of only at authorized disposal areas.
- disposed of only at authorized disposal areas.

 2 Sanitary/Septic Mass 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.

 33. Slockpile 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 float 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. <u>Liquid Waste Management:</u> 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
- 15. Concrete Waste Management: Prevent or reduce discharge of pollutants to storm water from concrete 15. Concrete Waste Management. Prevent or reduce discharge of pollutants to storm water from concrete waste by conducting washout offsite or performing ansite 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 sheeling 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. Washoul 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 impermental lined thems or cover exposed contaminated material with plastic sheeting. Contaminated
- impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contamii soil should be disposed of properly in accordance with all applicable federal regulations.

MINIMUM SPECIFICATIONS FOR CONSTRUCTION PROJECTS ON WATER QUALITY

The general contractor/developer/owner of the project shall be responsible for conformance with applicable ons 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, Chopter 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. Gray. Hong. Nojima & Associates, Inc.



CONSULTING. ENGINEERS

201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Telephone: (808) 521-0306 Fax: (808) 531-8018

Muhay H. Ly AEL H. NO. ROFESSIONAL ENGINEER No. 5632-C MANAII, USP

Exp: 4/30/22 ON M. TAN LICENSED ENGINEER

No. 13730-C YAWAII, USP

CHECKED BY: MN

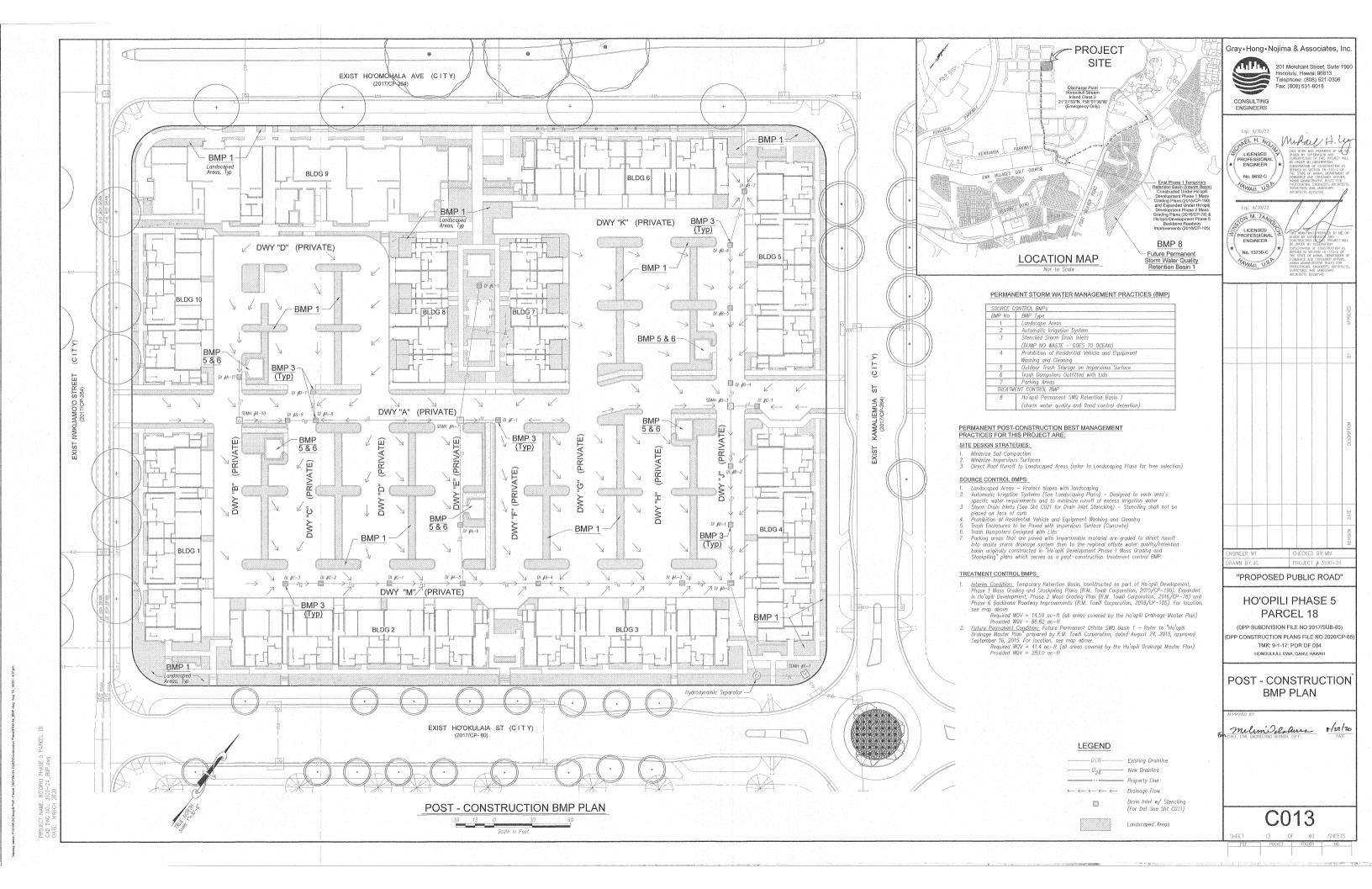
"PROPOSED PUBLIC ROAD"

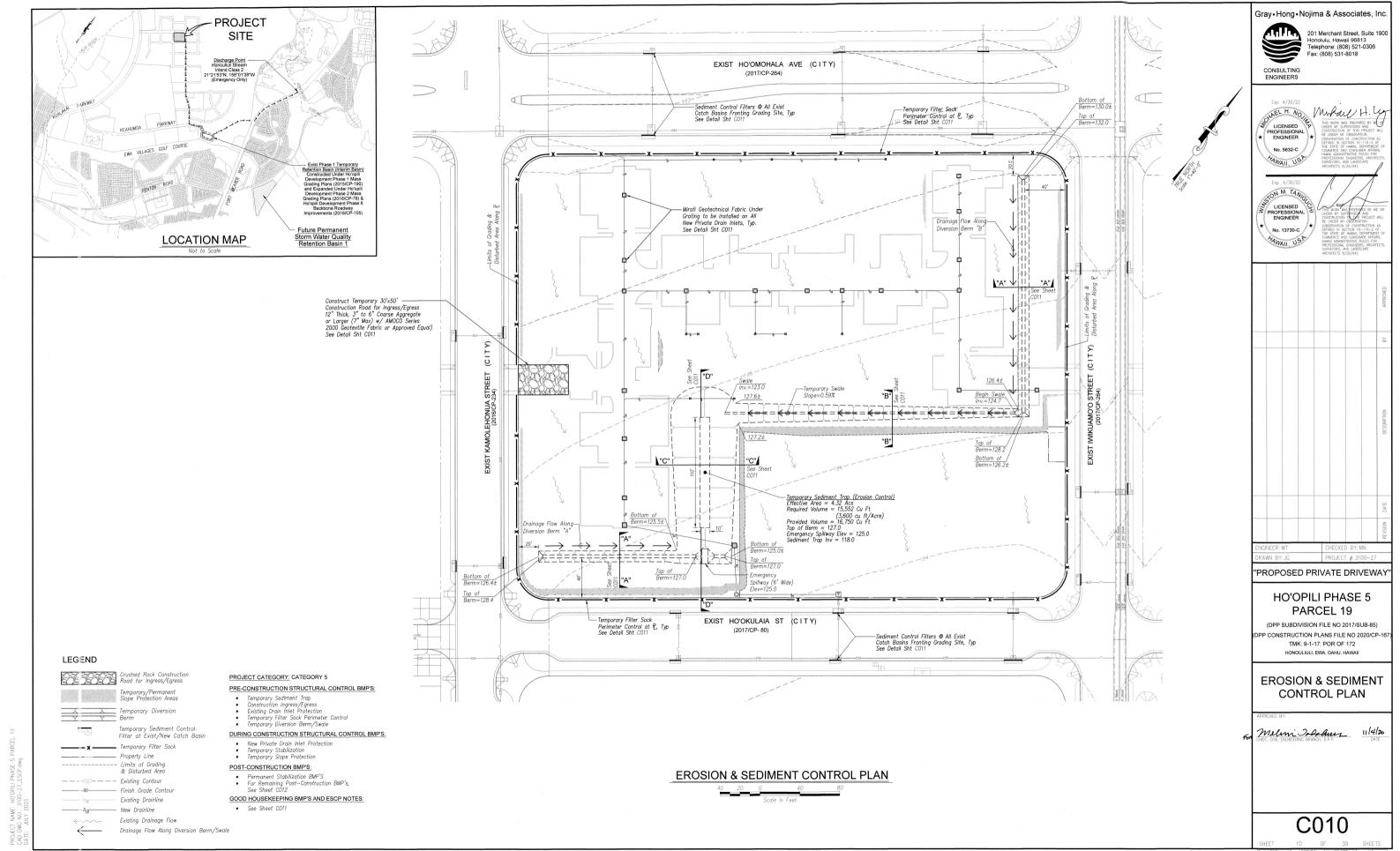
HO'OPILI PHASE 5 PARCEL 18

(DPP SUBDIVISION FILE NO 2017/SUB-85) OPP CONSTRUCTION PLANS FILE NO 2020/CP-65 TMK: 9-1-17: POR OF 004 HONOULIULI, EWA, OAHU, HAWA

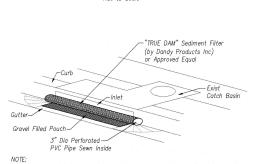
EROSION & SEDIMENT CONTROL NOTES

Melini Jolsans 8/21/20





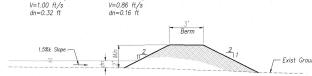
mm name: You Lot / Hoopin Pro - Faren 1945 Lot / Lot /



The contractor shall inspect all the catch basins and inlets in the vicinity of the

SEDIMENT CONTROL FILTER AT CATCH BASIN

DIVERSION BERM "A" DIVERSION BERM "B" Q(10yr-1hr)=2.67 cfs Q(10yr-1hr)=0.57 cfs S=0.0165 ft/ft S=0.0065 ft/ft



TEMPORARY DIVERSION BERM SECTION "A-A"

EROSION PREVENTION/SEDIMENT CONTROL NOTES

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality"
- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality". The Owner of the property or their authorized agent must designate a person responsible for implementing the ESCP at the Project Sitle ("ESCP Coordinator") prior to permit issuance using the form provided A to the Rules Relating to Water Quality. The Contractor shall comply with the project scheduling requirements of 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: 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%. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas will not be worked for 14 consecutive days or more. Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative covering, povement, or equivalent, prior to removing erosion and sediment measures. Tropped 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 in use of the process of the posts and maintained in an upright

- temporary fencina is used, fencina must be adequately supported by posts and maintained in an upright
- Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be Minimize Soil Compaction: Areas where final stabilization or inititation 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 inflitation 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.
- A. All storm drain inlets ansite and those affsite which may receive runoff from the site shall use an inlet
- 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
- D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced
- 13. Sediment Trans: A. Sediment traps must be kept in effective operating condition and sediment shall be removed when the

- 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. Woshing 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.
- All best management practices (BMP's) shall not be removed until the entire project is complete.

 Refer to City and County of Honolulu Best Management Practices Manual Construction, for more information
- 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.

- Dewatering procurses are not applicable.

 Buffer zones are not applicable.

 Buffer zones are not applicable.

 Sediment basis are not applicable.

 Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site 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 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 ension control shall be developed.

- 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.
 Construct temporary sediment trap and stabilize immediately.
- Construct temporary diversion berms as needed to direct runoff into the sediment trap.

 Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or
- 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. Install remaining parts of permanent drainage system with temporary inlet protection. 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. 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 are clared.
- 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.

 Proceed with construction with least possible disturbance of vegetative areas and temporary structures.

 Plant permanent ground cover according to the landscaping plans as soon as possible.

 Remove or dismantle temporary erosion control structures after full establishment of permanent
- Practice good housekeeping measures throughout the duration of construction
 Inspections will be performed weekly.

- The following will be performed when heavy rains, tropical sterm or hurricane is imminent or is forecasted in the next 48 hours.
 Temporary suspension of active grading.
 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

GOOD HOUSEKEEPING BMP'S:

- Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

 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
- Chapter 60, "kir Pollution Control". Measures may include but not be limited to the installation of dust screens, watering of the site and fill material being place.

 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.

 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 obutting 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.
- secondary containment controls and covers shall be implemented to the maximum extent practicable.

 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 propedy disposing of spill materials. At a minimum, all projects shall cleanup all leaks and spills immediately apposing the chance for spills; the property disposing of spill materials. At a minimum, all projects shall cleanup all leaks and spills immediately 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 Mainteanace, Honolulu Fire Department, and Honolulu Police Department of the discharge, and the measures that have been taken or will be token to prevent or reoccurrence of the discharge, and the measures that have been taken or will be token to prevent or reoccurrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone. Nanhazardous 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, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge, and the measures that have been taken or will be taken to prevent a reo
- notification by phone.

 Nehicle 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 of treating wash water for exterior cleaning activities that use
- water only.

 9. Vehicle and <u>Equipment Fueling</u>. 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 <u>Equipment Maintenance</u>. Eliminate and minimize the discharge of pollutants to storm water

- 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.
 1. 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.
 2. Sanitary/Septic Waste Management: Temporary and portable sanitary and septic waste systems shall be mounted or stoked in, well-maintained and scheduled for regular waste disposal and servicing. Sources of sanitary and/or spetic waste shall not be stored near the MS-4 or receiving waters.
 13. Stockpile Management: Stockpile shall not be stored near the MS-4 or receiving waters.
 14. Stockpile Management: Stockpile shall not be lacated in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the City Right-Ol-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 6 foot wide benching in accordance with ROH Chapter 14, Article 15. Stockpiles must be covered with plastic sheeting or comparable material if they will not be actively used within 7 days.
- 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 greas 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
- where occupental releases of the contained input can discharge to water bodies, challens, or storm drains.

 Concrete Waste Management: Prevent or reduce discharge of pollutants to storm water from concrete waste by conducting wishout offsite or performing nosite 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 controlled liquid condischarge to water bodies, channels, or storm drains. Woshout 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.

 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.

Gray • Hong • Nojima & Associates, Inc.



ENGINEERS

Telephone: (808) 521-0306 Fax: (808) 531-8018 CONSULTING

Eyn: 4/30/2 LAEL H. NO. Muhay H. Ly LICENSED No. 5632-C YAWAII, USP.



PROPOSED PRIVATE DRIVEWAY

HO'OPILI PHASE 5 PARCEL 19

(DPP SUBDIVISION FILE NO 2017/SUB-85) PP CONSTRUCTION PLANS FILE NO 2020/CP-16 TMK: 9-1-17: POR OF 172 HONOULIULI, EWA, OAHU, HAWAI

EROSION & SEDIMENT CONTROL NOTES

Melini Jalshusz

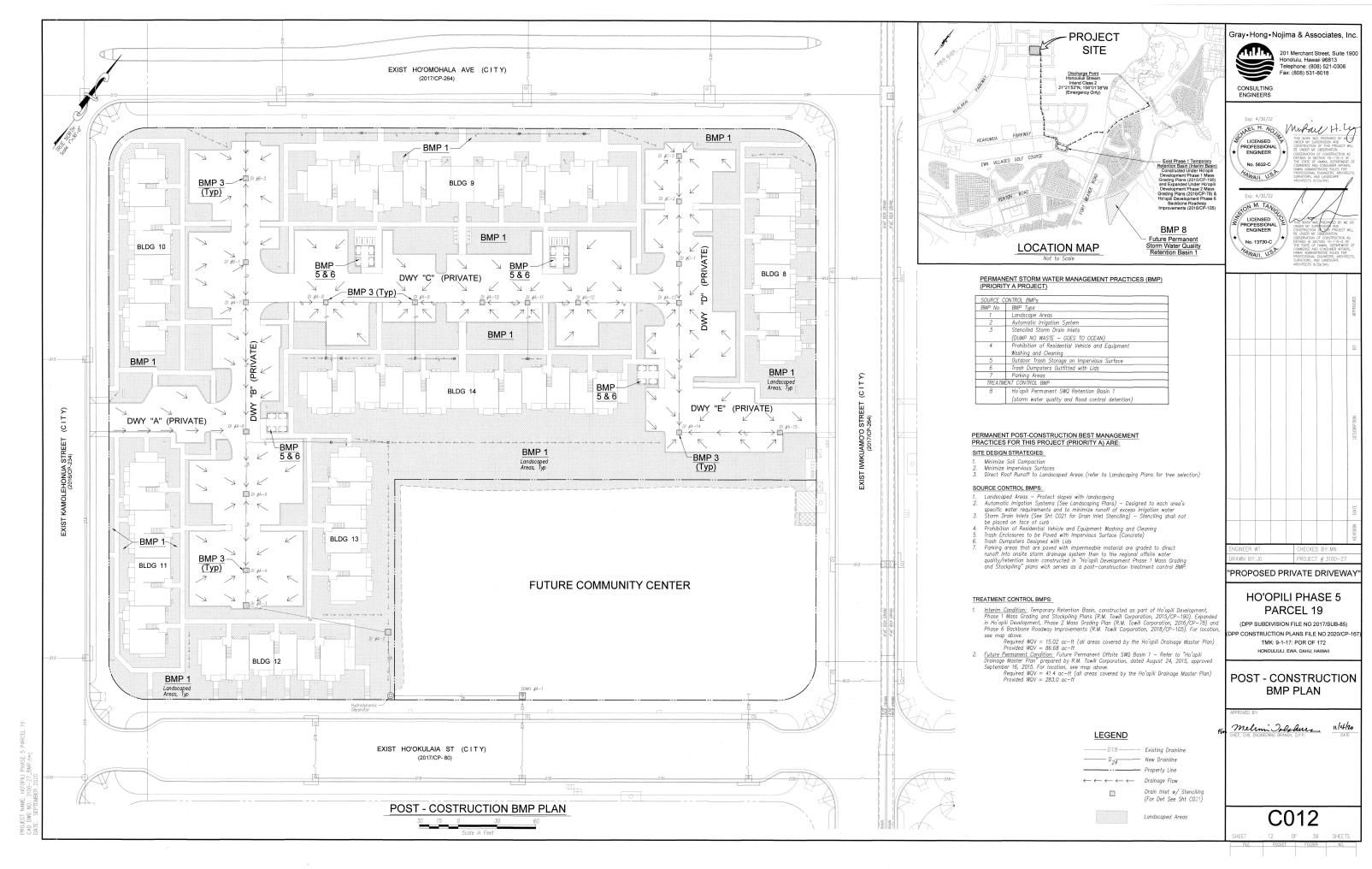
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good ground contact. Compost shall not contain biosolids and should be consistent with EPA

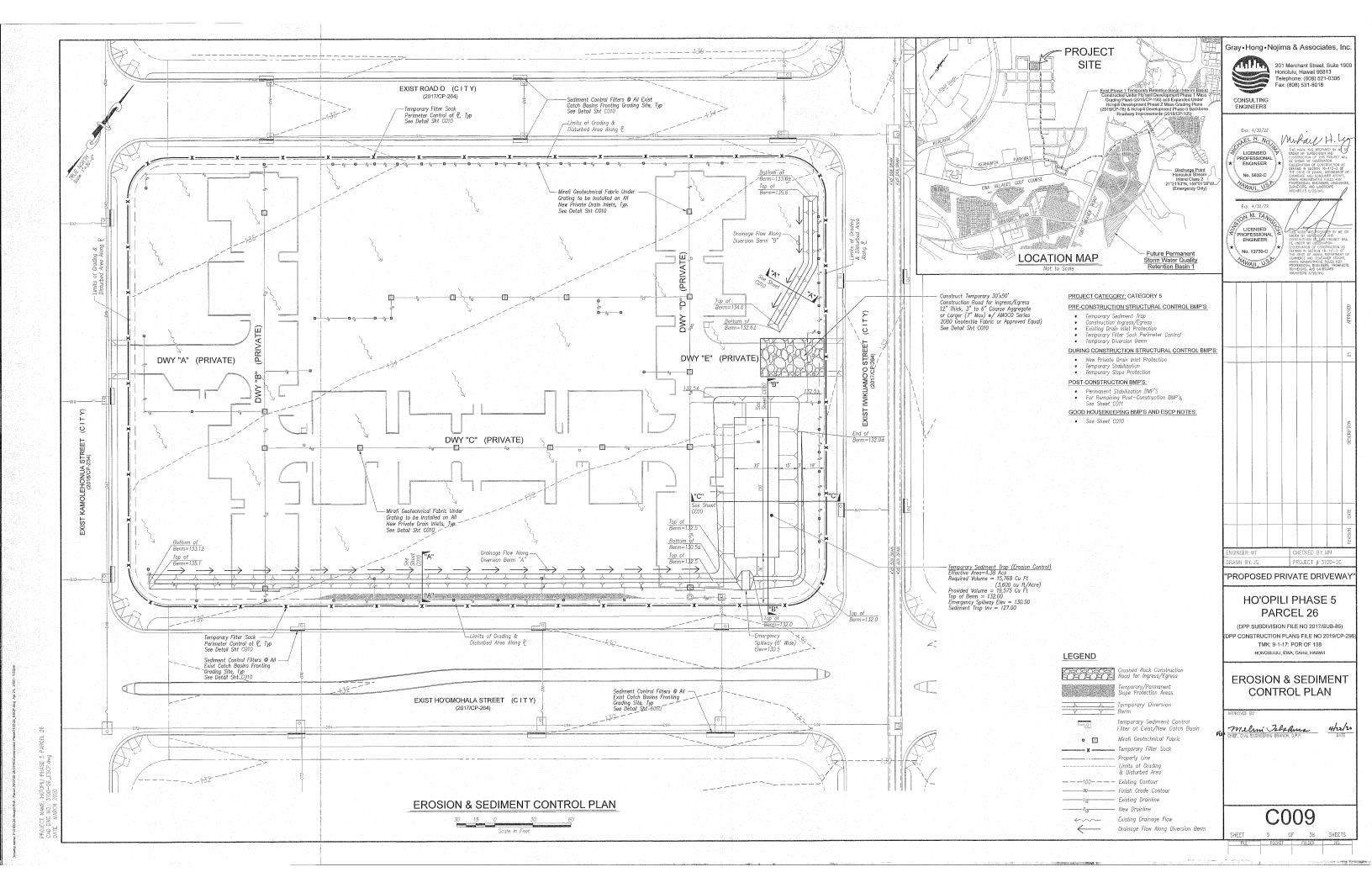
guidelines.

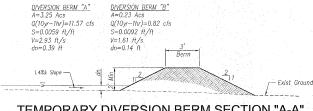
No staking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL



awing name; P\3100-27 Hoopiii Ph5 - Parcel 19\3100-27 DWG\Construction Pians\3100-27_BIAP.dwg Oct 15, 2





TEMPORARY DIVERSION BERM SECTION "A-A"

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality". 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 in the City and County of Honolulu's "Rules Relating to Water Quality".
- in the City and County of Honolulu's 'Rules Relating to 'Water Quality'.

 The Contractor shall comply with the project scheduling requirements of 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: 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 acress may be disturbed at anytime on slopes greater than 15%.

 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.

- which are at final grade or when the disturbed area will not be worked for 14 consecutive days or more. Permanent Stobilization: All disturbed areas shall be permanently stobilized 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. Preserve existing vegetation: Clearly mark the areas to be preserved with flags or temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright nosition.
- 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 compacted and the designated to remain weedlands of post-construction introduction areas. Greatly 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area. Inlet protection:

 A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet

- protection device. 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
- D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced
- 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 copocity.
- 14, Tracking Control: Minimize sediment track—out onto off—site streets, other poved areas, and sidewalks from vehicles exiting

 - Minimize sediment track—out onto off-site streets, other poved areas, and sidewalks from vehicles exiting the construction site by restricting vehicle traffic to properly designeded areas and using additional controls to remove sediment from vehicle tires prior to exiting the site. Vehicular porking and movements on project sites must be confined to poved surfaces or predefined parking areas and vehicles 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 proved 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 from
 - or sediment trap.
- All best management practices (BMP's) shall not be removed until the entire project is complete. Refer to City and County of Honolulu Best Management Practices Manual — Construction, for more information
- on BMP's.

 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. Dewalering practices are not applicable.

 B. Velocity dissipation devices are not applicable.
- Buffer zones are not applicable.
- Sediment basins are not applicable
- Diversion BMPs to divert runoff from upstream greas ground disturbed greas of the site 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 temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.

- protection, and temporary renorg for protected dreas, clearing and grubbing as necessary for the installation of these BMP's.

 Construct temporary sediment trap and stabilize immediately.

 Construct temporary sediment trap and stabilize immediately.

 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.

 Install remaining parts of permanent drainage system with temporary inlet protection.

 Grade the site os 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. Plant permanent vegetation according to inadscoping plan on terroces, benches, and steep stopes (>15%) as soon as grading is completed. Plant or seed temporary vegetative cover or use other temporary stabilization methods as planned.

 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.

 Proceed with construction with least possible disturbance of vegetative areas and temporary structures.

 Plant permanent ground cover according to the landscaping plans as soon as possible.

 Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.

- Practice good housekeeping measures throughout the duration of construction.
 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.
- forecasted in the next 48 hours.

 Temporary suspension of active grading.

 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 sovere storm is expected, remove inlet protection devices to prevent flooding on surrounding streets.

 Cover or relocate material stockpiles and liquid material containers to avoid contact with reinwater. 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 ally water after the roin event.

 Re—inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

- Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
- performance of their intended function.

 <u>Dust Control</u>. 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.

 <u>Street Sweeping and Vacuuming:</u> All pollutants discharged from construction site to off-site areas must be sweet for vacuumed each day before leaving the job site.

 <u>Materials Delivery. Storage and Use Management: Prevent, reduce, or eliminate the discharge of pollutants from materials tellisipers storage, and use to the storm water system or watercourses by</u>
- 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
- 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. 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 of spills materials. At a minimum, all projects shall cleanup all leaks and spills immediately on the propertion of 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 ESGP 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 shall be submitted to the Director no less than 3 days after notification by phone.

 Nonhazardous Materials: In the event that nonhazardous inaterials are discharged to the MS4, the property owner or ESGP 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 recocurrence of the discharge, and the measures that have been taken
- prevent a reoccurrence of the discharge shall be submitted to the Director no less than 3 days after
- Notice and Explained 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 oppropriate or infiltrating wash water for exterior cleaning activities that use
- 9. <u>Vehicle and Equipment Fueling:</u> Prevent fuel spills and leaks by using off-site facilities, fueling only in
- 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.
 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.
 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 genes collect its tensh deliv underswright that construction waste is collected removed and
- collection areas, collect site trash daily, and ensuring that construction waste is collected, removed, and
- collection areas, collect site trash daily, and ensuring that construction waste is collected, removed, and disposed of only at uthorized disposed areas.

 12. <u>Sanitary/Septic Waste Management:</u> 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. <u>Stockpile Management</u>. Stockpile shall not be located in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the CtV Right-Ot-Way. Sediment barriers or silt fences shall be used around the base of all stockpiles to prevent storm water corrying 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 convent with lastic sheeting on a company that the wide to the other parts within nust be covered with plastic sheeting or a comparable material if they will not be actively used within
- 14. <u>Liquid Waste Management.</u> 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.

 Soncete Wiste 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 mointained in sufficient quantity and size to contain all liquid and concrete waste generately washot 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 horden, the concrete should be broken up, removed, and disposed of as solid wastes.
- removed, and disposed of as solid wastes.

 16. Contaminated Soil Management, At minimum contain contaminated soil material by surrounding with impermedable lined berns 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

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

Gray · Hong · Nojima & Associates, Inc.



CONSULTING ENGINEERS

JAEL H. NO. Muhail H. Ly LICENSED ROFESSION ENGINEER No. 5632-0 MAWAII, USP

KON M. TANIG LICENSED PROFESSION/ ENGINEER No. 13730-C MAWAII, USP

CHECKED BY: MN PROJECT #: 3100

PROPOSED PRIVATE DRIVEWAY

HO'OPILI PHASE 5 PARCEL 26

(DPP SUBDIVISION FILE NO 2017/SUB-85) PP CONSTRUCTION PLANS FILE NO 2019/CP-29 TMK: 9-1-17: POR OF 138 HONOULIULI, EWA, OAHU, HAWAII

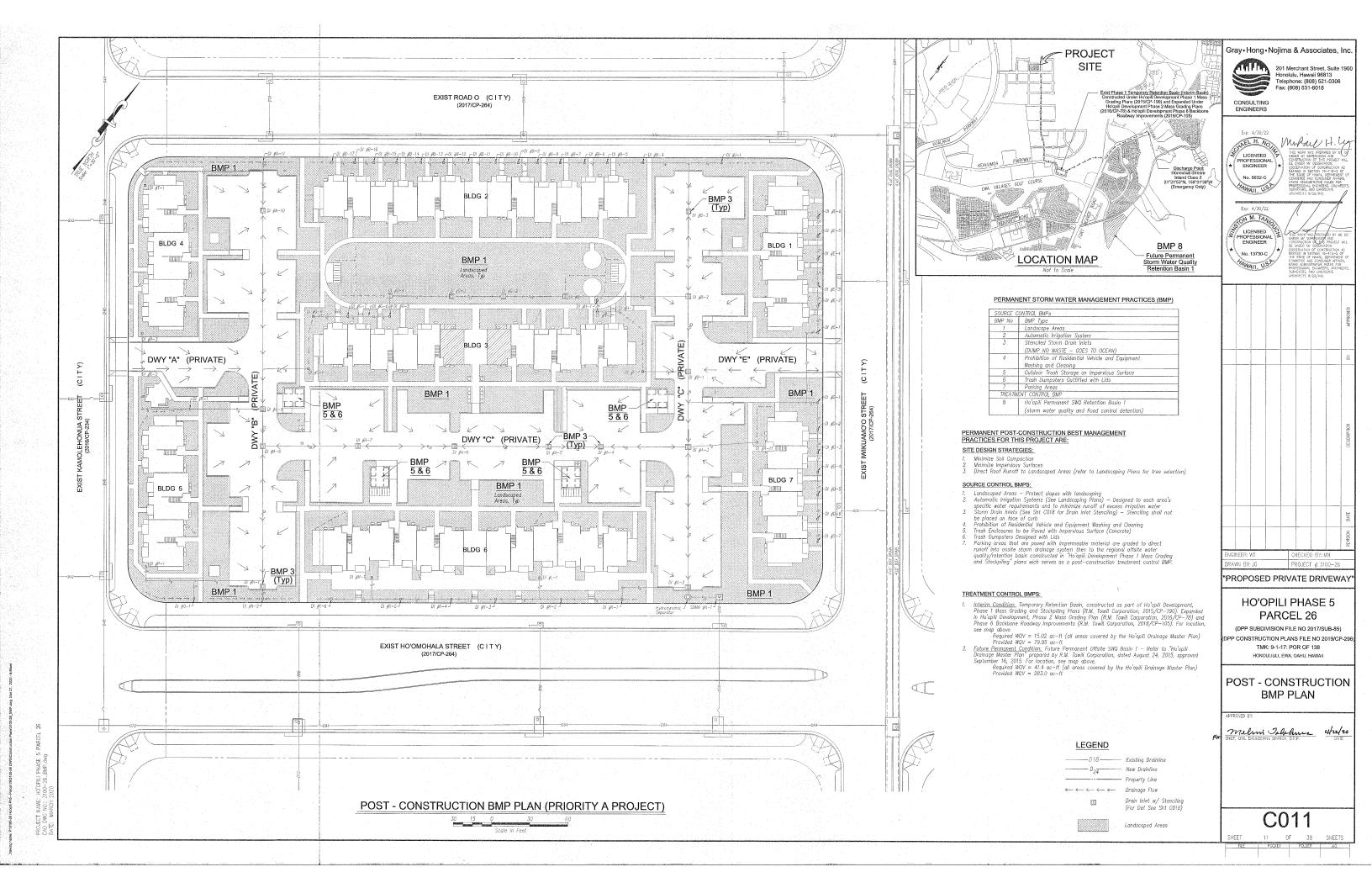
EROSION & SEDIMENT CONTROL NOTES

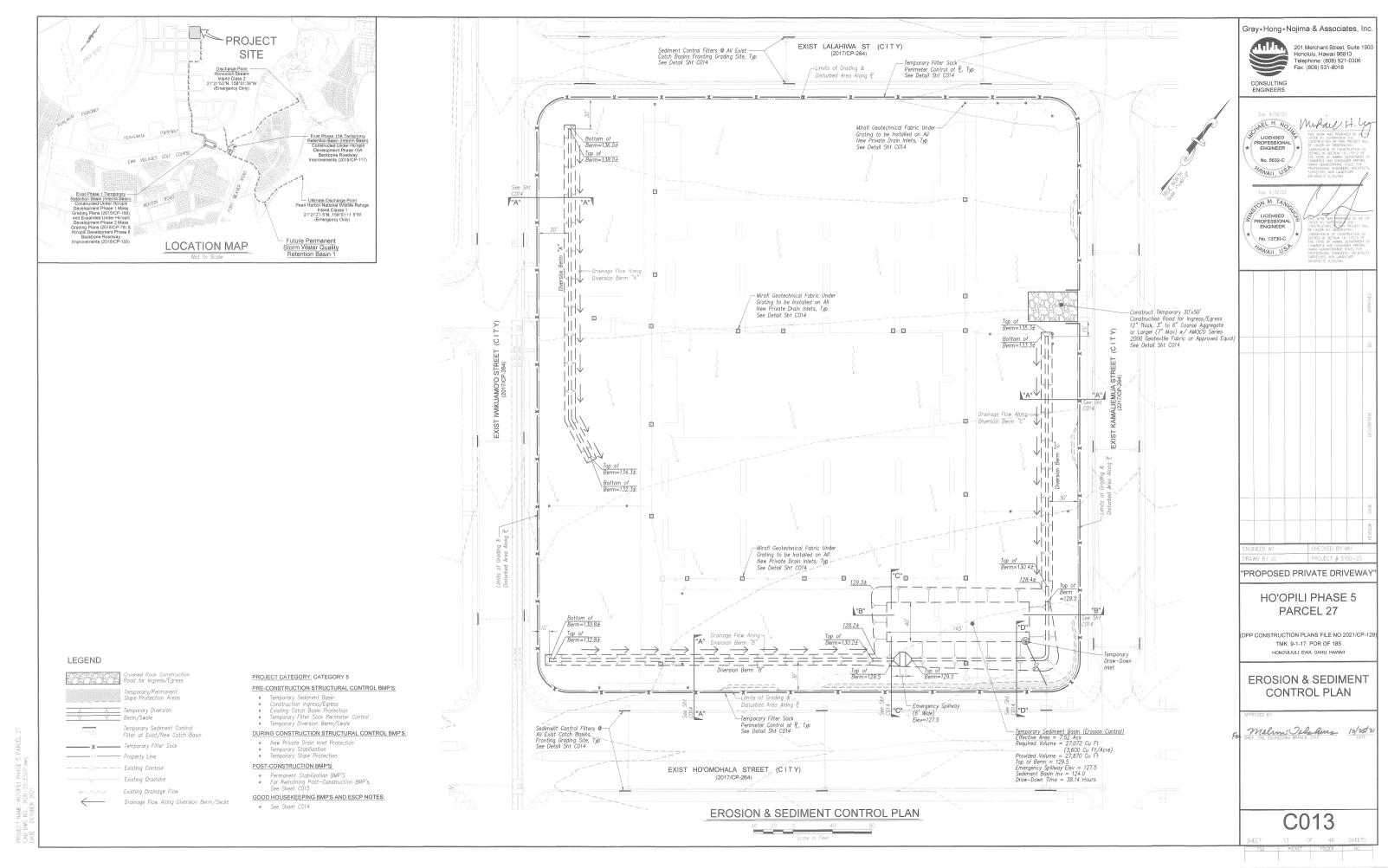
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ood ground contact. Impost shall not contain biosolids and should be consistent with EPA

guidelines.

No stoking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stokes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL

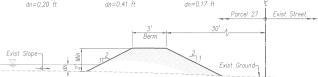
The contractor shall inspect all the catch basins and inlets in the vicinity of the trenching work and remove accumulated silt and debris. Flushing is prohibited.

SEDIMENT CONTROL FILTER AT CATCH BASIN

DIVERSION BERM "A" A=1.04 Acs Q(10yr-1hr)=1.78 cfs S=0.0100 ft/ft

DIVERSION BERM "B" A=4.37 Acs Q(10yr-1hr)=11.11 cfs S=0.0080 ft/ft V=2.54 ft/s dn=0.41 ft

DIVERSION BERM "C" A=0.75 Acs Q(10yr-1hr)=1.50 cfs S=0.0190 ft/ft V=2.00 ft/s dn=0.17 ft



TEMPORARY DIVERSION BERM SECTION "A-A"

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality". 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.

The Contractor shall comply with the project scheduling requirements of the City and County of Honolulu's Rules Relating to Water Quality

"Rules Relating to Water Quality".

Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.

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 if buffer zone at the toe of slope. Only 5 acres may be disturbed at anytime on slopes greater than 15%. Temporary Stabilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed areas which are at final grade or when the disturbed areas will not be worked for 14 consecutive days or more. Permonent Stabilization: All disturbed areas shall be permanently stabilized using vegetative covering, powernent, or equivalent prior to removing personal and seeding managers. Trapped sediment and areas of disturbed so

reminiant Stubilization. An assurance areas snain be perinimenry Stubilized using vegetating, purently or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of alsturbed 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 teamingues to Collation the sous support vegetation similar en implementation in the dread and three documents of the compacted and are designated to remain vegetative or post-construction infiltration areas. Clearly mark the areas to be avoided with flogs or temporary fencing. Where temporary fencing is used, fencing must be adequately supported by posts and maintained in an upringht position.

Perimeter Controls: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.

Inlet protection:

A. All storm drain inlets ansite and those offsite which may receive runoff from the site shall use an inlet 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

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 on half of the design capacity at all times.

at least on half of the design capacity at all times.

1. 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.

methods such as sweeping or vacuuming.

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

15. All best management practices (BMP's) shall not be removed until the entire project is complete.

16. Refer to City and County of Handlulu Best Management Practices Manual — Construction, for more information

on BMPs.

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.

Velocity dissipation devices are not applicable. Buffer zones are not applicable.

Sediment traps are not applicable.

Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.

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 improctical. If this is the case, a sequence that provides the most effective erosion control shall be developed.

Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inle

Install stabilized construction entrances, perimeter controls (e.g. temporary inter sock, etc.), inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's. Construct temporary ediment basin and stabilize immediately. Construct temporary diversion berms and swale as needed to direct runoff into the sediment basin. 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.

assurveu or 14 ags or more, seed, plant, or hydroseed temporary vegetation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection. Install remaining parts of permanent drainage system with temporary inlet protection. 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. 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.

stabilization methods as planned.
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.
Proceed with construction with least possible disturbance of vegetative areas and temporary structures.

Plant permanent ground cover according to the landscaping plans as soon as possible. Remove or dismantle temporary erosion control structures after full establishment of permanent

Practice good housekeeping measures throughout the duration of construction
 Inspections will be performed weekly.

1. The following will be performed when heavy rains, tropical storm or hurricane is imminent or is

The following will be performed when heavy rains, tropical starm or nurricane is trainment or is forecasted in the next 48 hours.

Temporary suspension of active grading.
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

Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwate

Place spill pans or oil-only spill pads under anstruction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any accumulated oily water after the rain event. Re-inspect after the approaching heavy rains, tropical storm or hurricone and replace or maintain BMP's

GOOD HOUSEKEEPING BMP'S:

Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

Maintenance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

Dust Control; The contractor of this 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 Youcuming: 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 Managament: 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 on site, 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 some soon of the stored in the 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 socionally the MS4, receiving waters, or drainage improvements that discharge off-site. Primary and socionally the MS4, receiving waters and the implementation and constrained from the stored of 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 the chance for spills, absorbing, containing, and cleaning up spills and properly disposing of spill the chance for spills, absorbing, containing, and cleaning up spi

notification by phone.

Webicle 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, for exterior cleaning activities that use

water only. Vehicle and Equipment Fueling: Prevent fuel spills and leaks by using off-site facilities, fueling only in designated areas, enclosing or occurring stored fuel, and implementing spill controls such as secondary containment and active measures using spill response kits.

Vehicle and Equipment Maintenance: Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite footilities when feasible, performing work in designated areas only, using spill pads under vehicles and equipment, checking for leaks and

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 trosh daily, and ensuring that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Sonitary/Septic Waste Management: Temporary and portable sonitary and septic waste systems shall be mounted or stoked in, well-maintained and scheduled for regular waste disposal and servicing. Sources of sonitary and/or septic waste shall not be stored near the M34 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 dround 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.

1.4 days. 1.4 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 starm

drains.

dra

facilities must be constructed and ready for used once the washout is 75 percent Tull. 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. <u>Contaminated Soil Management:</u> 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.

$\underline{\text{MINIMUM}}$ 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, Chanter 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

 $2. \ \, \textit{Discharge of hydrotesting effluent, dewatering effluent, and well drilling effluent to State waters}$

In occordance 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. Gray • Hong • Nojima & Associates, Inc.



ENGINEERS

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No. 5632-C YAWAII, USP

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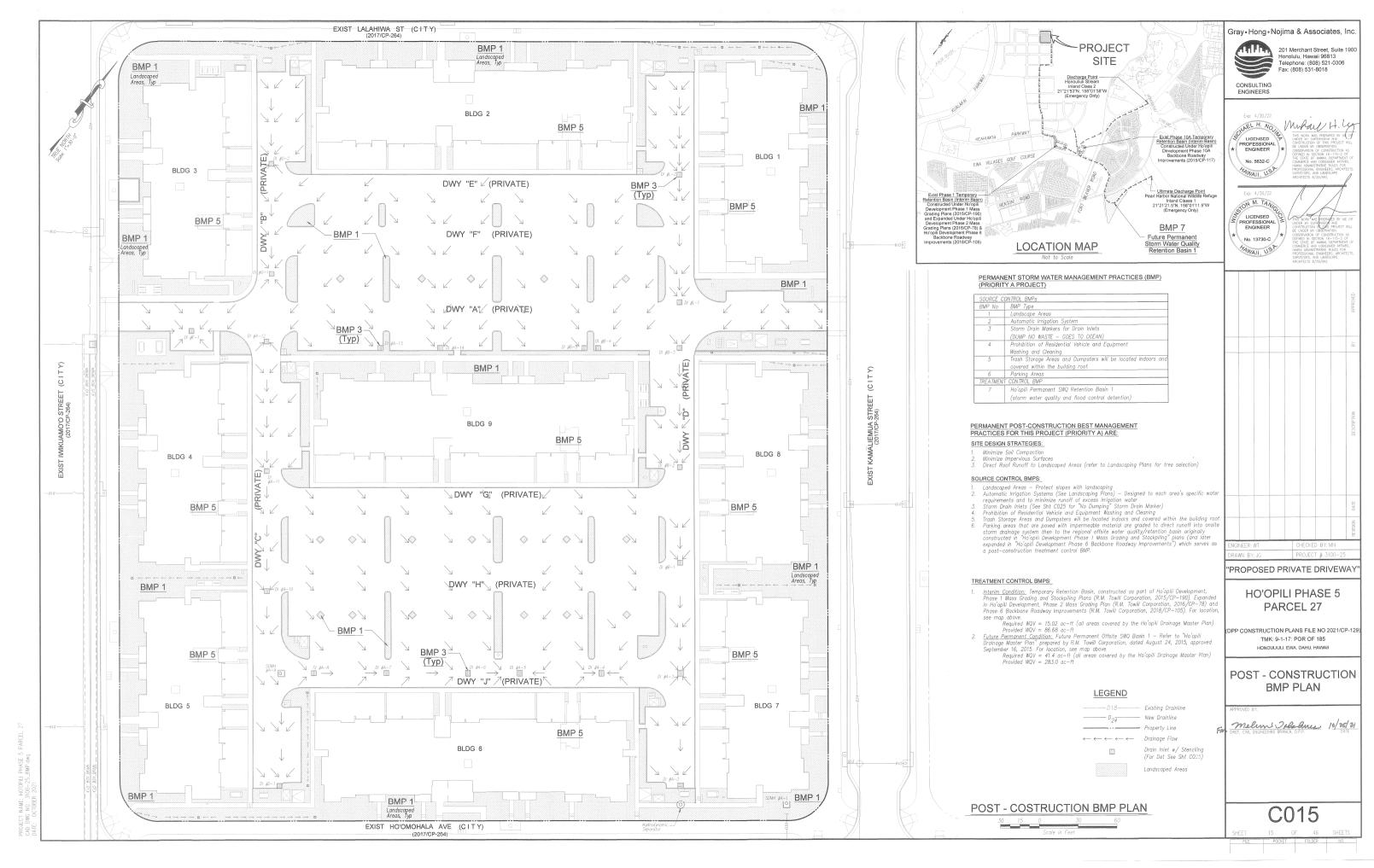
PROPOSED PRIVATE DRIVEWAY

HO'OPILI PHASE 5 PARCEL 27

DPP CONSTRUCTION PLANS FILE NO 2021/CP-129 TMK: 9-1-17: POR OF 185 HONOULIULI, EWA, OAHU. HAWAII

EROSION & SEDIMENT CONTROL NOTES

Melin Oclobures 10/28/2



Drawing name; P\\000.25 Hoopii Ph5 - Parcel Z7/3100-25 DWCNConstruction Plans/3100-25_BMP-dwg Oct 21.

GOOD HOUSEKEEPING BMPS NOTES:

1 STREET SWEEPING AND VACHILIMING

ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT OF VACUUMED EACH DAY BEFORE LEAVING THE JOB SITE.

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 HAZAROUS MATERIALS ONSTIE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZAROUS 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 FLIMINATE AND MINIMIZE THE CREATE AND INFLEMENT SPILL PREVENTION AND RESPONSE PLANT TO ELIMINATE AND MINIMALE IT DISCHARGE OF POLLUTANTS TO THE MS4 AND RECEIVING WATERS FROM LEAKS AND SPILLS BY REDUCING THE CHANCE FOR SPILLS, ABSORBING, CONTINUING, AND CLEANING UP SPILLS AND PROPERLY DISPOSING OF SPILL MATERIALS. AT A MINIMUM, ALL PROJECTS SHALL CLEANUP ALL

PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE PREVENT OR REDUCE THE DISCIPLIFIED OF THE MISS. THE OFFICE OF THE MISS OF THE MISS OF THE MISS OF THE MISS. THE MISS OF THE MISS OF THE MISS. THE PROPERTY OWNER OR ESCP COORDINATOR SHALL. IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT. MMEDIATELY NOTIFY THE DEPARTMENT OF PARLITIES MONITERIORICE, PHONOLOGY THRE 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

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 FOUIPMENT CLEANING.

FLIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND FOLIPMENT 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.

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 FOLIPMENT MAINTENANCE

ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND FOLIPMENT 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 SCHEDLIED 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 HALL 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

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 MIST BE IMPERMEABLE AND LEAK FREE AND SHOULD NOT BE LOCATED WHERE ACCIDENTIAL RELEASE OF THE CONTAINED LIQUID CAN DISCHARGE TO WATER BODIES, CHANNELS, OR STORM DRAINS.

1.3 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

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

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 POLILUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLILUTION CONTROL".

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:

- INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS, INLET PROTECTION, AND TEMPORARY FENCING FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
- 2 CONSTRUCT TEMPORARY SEDIMENT RASINS STARILIZE IMMEDIATELY
- CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT BASINS.
- INSTALL PERMANENT DRAINAGE SYSTEM WITH TEMPORARY INLET PROTECTION FOR INLETS THAT DO NOT DRAIN TO THE SEDIMENT BASINS. CLEAR AND GRUB AS NEEDED FOR INSTALLATION.
- 5. CLEAR, GRUB AND GRADE THE SITE IN 1 PHASE, REFER TO SITE PLAN.
 RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM
 EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE GRADING IS COMPLETED IN EACH PHASE.
- 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. PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
- PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS POSSIBLE.
- 9. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER
- 10. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF
- 11. 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.
- 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
- 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
- RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR

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.
- 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, AS INDICATED ON GRADING LOG, CONTRACTOR SHALL MAINTAIN GRADING LOG IN SWPPP TO DOCUMENT WHEN GRADING ACTIVITIES BEGIN

4. PERMANENT STABILIZATION

ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR EQUIVALENT, PRIOR TO REMOVING EROSION AND SEDIMENT MAGASURES. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY AND PERMANENTLY STABILIZED.

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

6. MINIMIZE SOIL COMPACTION

AREAS WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE AREAS WHERE FINAL STABILIZATION OR INFILITATION 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 INFILITATION AREAS. CLEARLY MARK THE AREAS TO BE ANOIDED WITH FLAGS OR TEMPORARY FENCING. WHERE TEMPORARY FENCING IS USED, FENCING MUST BE ADEQUATELY SUPPORTED BY POSTS AND MAINTAINED IN AN UPRIGHT

7 PERIMETER CONTROLS

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

- 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

10. TRACKING CONTROL

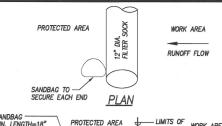
- MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAVED AREAS, AND SIDEWALKS FROM VEHICLES EXITING THE CONSTRUCTION SITE BY RESTRICTING VEHICLE TRAFFIC TO PROPERLY DESIGNATED AREAS AND USING ADDITIONAL CONTROLS TO REMOVE SEDIMENT FROM VEHICLE TIRES PRIOR TO EXITING THE SITE
- VEHICULAR PARKING 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
- 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 TRAF
- 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
- 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 DEP INSPECTIORS. A BRIEF EXPLANATION OF WHY EACH OMITTED BMP IS UNINECESSARY OR IMPRACTICABLE FOR THE PROJECT HAS BEEN PROVIDED.
 - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE

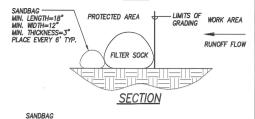
 - RUNOFF FROM UPSTREAM AREAS WILL NOT BE DIVERTED AROUND THE DISTURBED
 - AREAS OF THE SITE SINCE THE MAJORITY OF GRADING DOES NOT OCCUR ON SLOPES WITH A GRADE OF 15% OR MORE.
 - DEWATERING PRACTICES - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HO'OPILI DEVELOPMENT — PHASE 6; EWA, OAHU, HAWAII" DATED FEBRUARY 16, 2018, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
 - BUFFER ZONES THE PROJECT SITE IS LOCATED MORE THAN 50 FEET AWAY FROM STATE WATERS. GRADING DOES NOT OCCUR ON SLOPES WITH A GRADE OF 15% OR MORE.
 - THE PROJECT IS A CATEGORY 5 PROJECT THAT HAS GREATER THAN 5 ACRES OF DISTURBED AREA. THEREFORE, SEDIMENT BASINS WILL BE USED IN LIU OF SEDIMENT
 - MENT INVOLVES.
 THE PROPOSED BMPS INCLUDE FILTER SOCK PERIMETER CONTROL, INLET PROTECTION, GRASSED SWALES AND SEDIMENT BASINS, WHICH WILL ADDRESS ANY POTENTIAL SEDIMENT KINOFF.

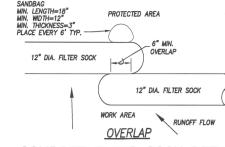
SEDIMENT BARRIERS

- GRADING DOES NOT OCCUR ON SLOPES WITH A GRADE OF 15% OR MORE.
- GROUNG DUES NOT OCCUPANT OF SECRETARY THE PROJECT STEELS THAT AND POTENTIAL FOR SCOUR OR EROSION IS LOW SINCE VELOCITY THROUGH THE PROJECT STE IS LOW. THERE ARE NO OUTLETS THAT REQUIRE VELOCITY DISSIPATION DEVICES.
- 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, ITILE 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.
- 16. CONTRACTOR SHALL NOTIFY STORMWATER QUALITY BRANCH 14 DAYS PRIOR TO THE START OF GROUND DISTURBANCE.

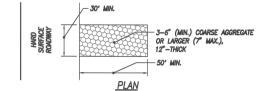
 EMAIL: CLEANWATER@HONOLULU.GOV. PROVIDE PROJECT TITLE, AND POINT OF CONTACT







COMPOST FILTER SOCK DETAIL



12° COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO

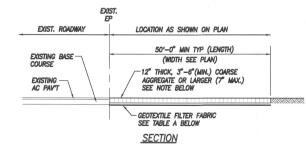
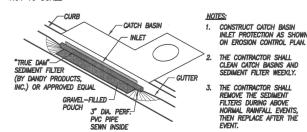


TABLE A GEOTI	EXTILE REQUIREMENTS
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS



CATCH BASIN INLET PROTECTION

HO'OPILI DEVELOPMENT PHASE 6

BACKBONE ROADWAY **IMPROVEMENTS**

HONOULIULI, EWA, OAHU, HAWAII TMK: 9-1-017: 110, 138



2024 North King Street Suite 200 Honolulu Hawaii 96819



CD. DA. NN ENGINEER CD. DA. NN

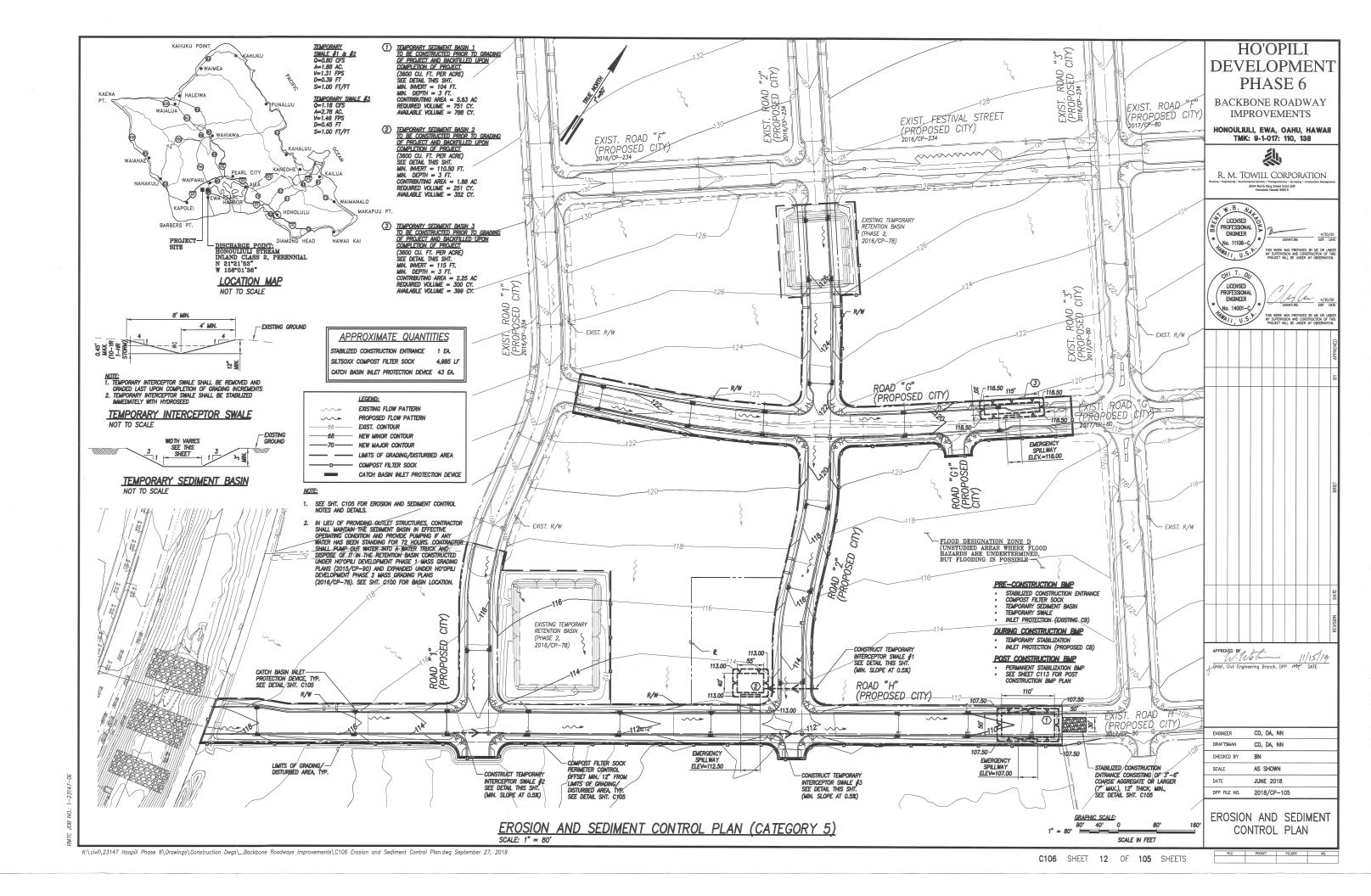
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

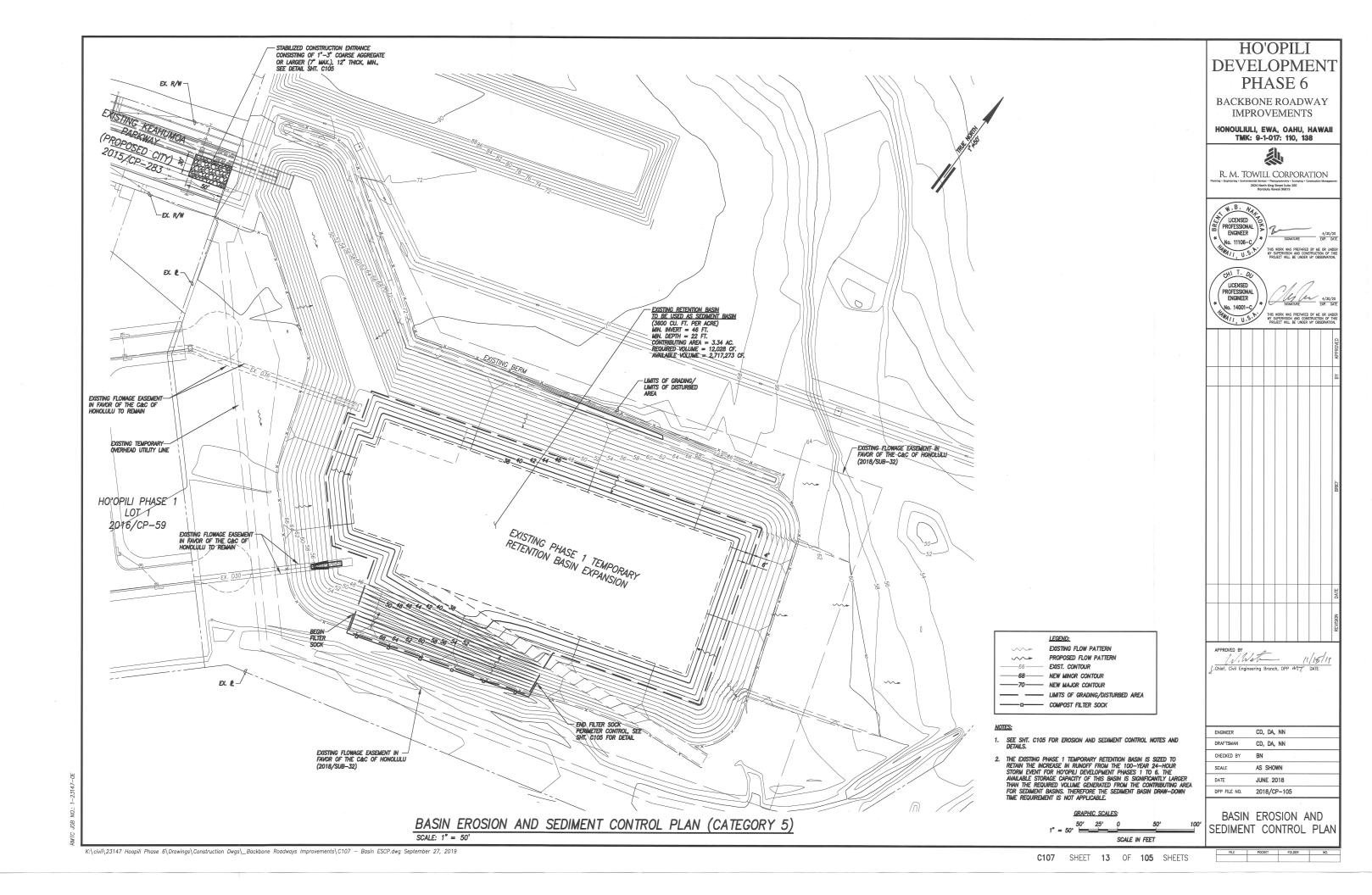
JUNE 2018

2018/CP-105

DATE

FILE POCKET FOLDER NO.





GOOD HOUSEKEEPING BMPS NOTES:

STREET SWEEPING AND VACULIMING

ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEPT OR VACUUMED FACH DAY REFORE LEAVING THE JOB SITE.

2. MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT.

PREVENT. REDUCE, OR FLIMINATE 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

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 MIMEDIATELY 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 RESONS 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

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.

FLIMINATE 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 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.

ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND ELMINIVE AND MINIMIZE THE DISCHARGE OF POLITIONIST IS STORM MATTER PROVINCE THE PROGRAMMENT OF THE PROFILE PREPARATIONS BY USING OFF-SITE FACILITIES WHITH FESSIBLE, 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.

PREVENT OR REDUCE DISCHARGE OF POLLUTANTS TO THE LAND, GROUNDWATER, AND IN STORM PREVENT OR REDUCE DISCORDER OF POLICIAINS OF THE DUBLY GOLOUDININES, AND MY STAND WAS STAND WAS THE WARTER 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.

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.

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 NO 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 PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY

12. LIQUID WASTE MANAGEMENT.

LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BISIN, ROLL-OFF BIN, OR PORTABLE TANK OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINNENT 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 BY CONDUCING WASHOUT OFFSITE ON PERFORMING ONSITE WASHOUT IN A DESIGNATION MAD 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 MATER 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

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

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 POLILUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLILUTION CONTROL".

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 BAIS.

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

- INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS, INLET PROTECTION, AND TEMPORARY FENCING FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
- 2. CONSTRUCT TEMPORARY SEDIMENT BASINS, STABILIZE IMMEDIATELY.
- 3. CONSTRUCT TEMPORARY SWALES TO DIRECT RUNOFF INTO THE SEDIMENT BASINS.
- CLEAR, GRUB AND GRADE THE SITE IN 5 INCREMENTS, REFER TO SITE PLAN.
 GRADE IN SEQUENTIAL ORDER WITH ONLY 1 INCREMENT BEING GRADED AT ANY
 ONE TIME. RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP
 THEM EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY
 ONCE GRADING IS COMPLETED IN EACH PHASE BEFORE PROCEEDING TO GRADE THE NEXT INCREMENT
- 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.
- PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
- 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 PLANS

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
- 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 NORK IN THE AREA. IF A SEVERE STORM IS EXPECTED. REMOVE INLET
- COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
- 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.
- RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

- 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.
- 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.

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.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

6. PRESERVE EXISTING VEGETATION

CLEARLY MARK THE AREAS TO BE PRESERVED WITH FLAGS OR TEMPORARY FENCING. WHERE TEMPORARY FENCING IS USED, FINCING 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

8. PERIMETER CONTROLS

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

- · 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 LEVELS MAY NOT EXCEED ONE THIRD OF THE HEIGHT OF A SEDIMENT BARRIER OR THE 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

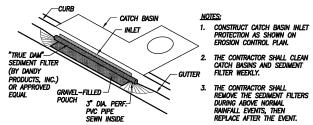
SEDIMENT BASINS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE HALF OF THE DESIGN CAPACITY AT ALL TIMES.

12. TRACKING CONTROL

- MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS OTHER PAVED AREAS AND MINIMIZE SEDIMENT IPPLATED VINTO OFF-3 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
- 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
- REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL—CONSTRUCTION, FOR MORE INFORMATION ON BMPS.
- 15. THE FOLLOWING BMPS WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS. AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND 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
- 16. AN ESCP COORDINATOR IS REQUIRED FOR THIS PROJECT. THE OWNER SHALL SUBMIT AN AUTHORIZATION LETTER TO DESIGNAITE THE ESCP COORDINATOR FOR THIS PROJECT AT LEAST 2 WEEKS PRIOR TO THE START OF THE PROJECT.
- THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE DIRECTOR AT EACH STAGE OF DEVELOPMENT BEFORE PROCEEDING TO THE NEXT STEP IN DEVELOPMENT.
- 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



<u>CATCH BASIN INLET PROTECTION</u>



MASS GRADING PLAN

HONOULIULI, EWA, OAHU, HAWAII





4/30/20 SIGNATURE EXP. DAT No. 11106-C MAII, U.S.F. LICENSED

PROFESSION A SIGNATURE EXP. DAT FNGINFFR No. 14001-0

COMPOST FILTER SOCK DETAIL

OVERLAP

WORK ARFA

PROTECTED AREA

SECURE FACH END

MIN. LENGTH=18" MIN. WIDTH=12" MIN. THICKNESS=3" PLACE EVERY 6' TYF

MIN. LENGTH=18" MIN. WIDTH=12" MIN. THICKNESS=3

PLACE EVERY 6' TYP

FILTER SOCK

<u>PLAN</u>

PROTECTED AREA

FILTER SOCK

SECTION

PROTECTED AREA

OVERLAP

FILTER SOCK

RUNOFF FLOW

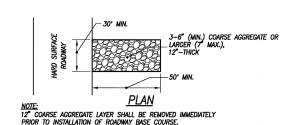
WORK AREA

RUNOFF FLOW

WORK AREA

RUNOFF FLOW

- LIMITS OF



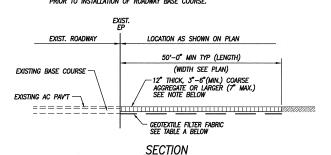
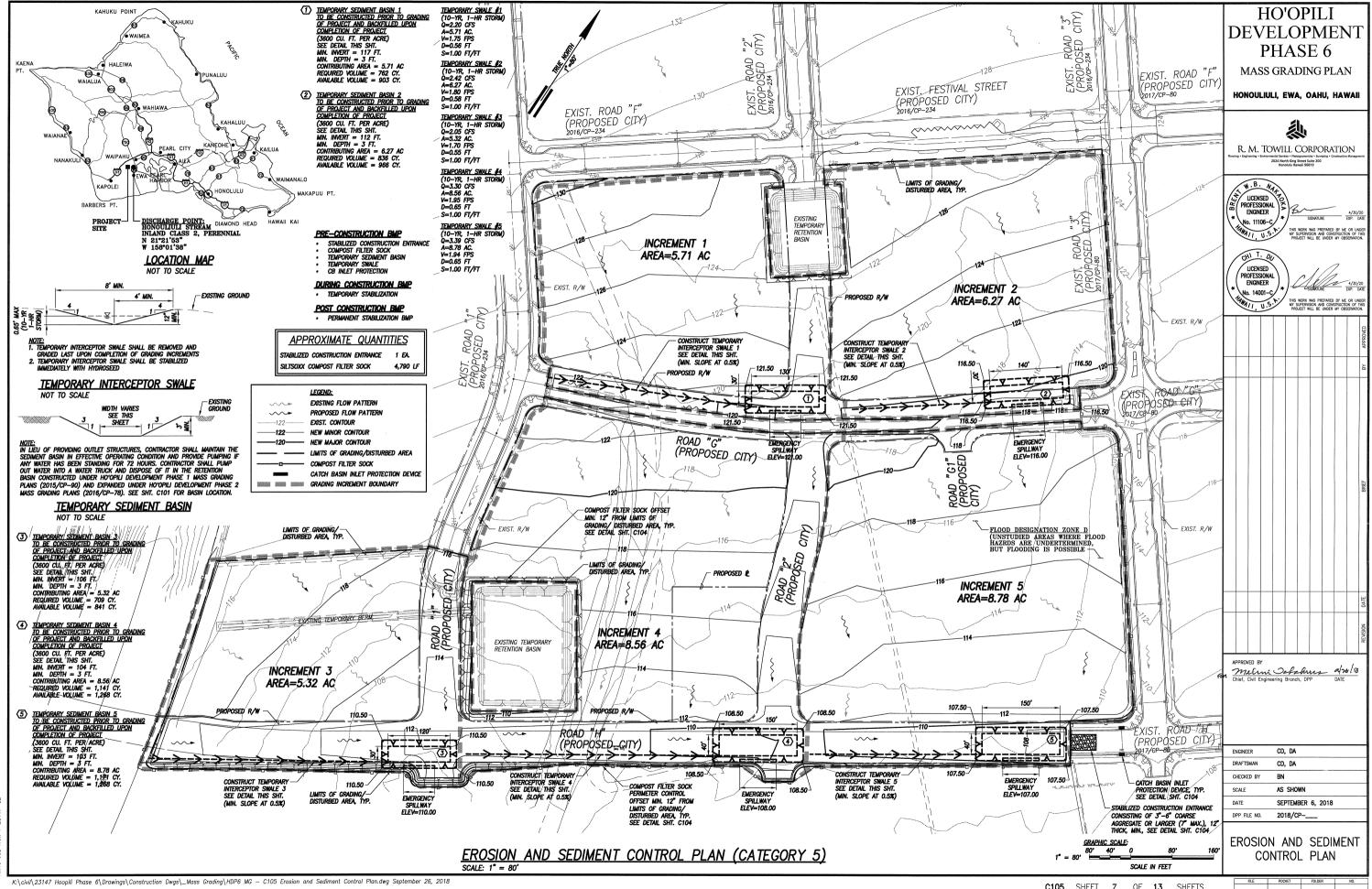


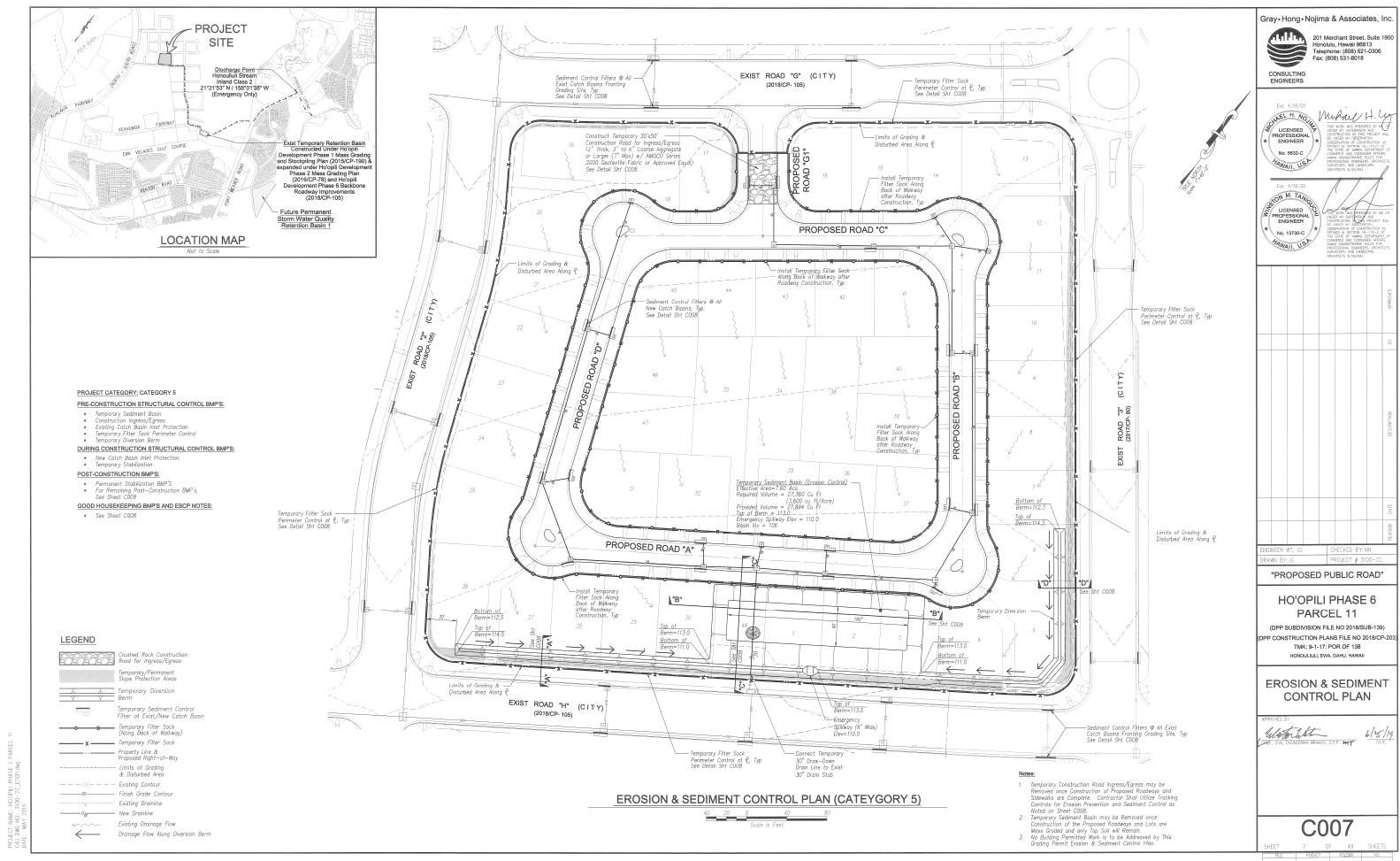
TABLE A GEO	TEXTILE REQUIREMENTS
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD. SIEVE, CW-02215)

STABILIZED CONSTRUCTION ENTRANCE

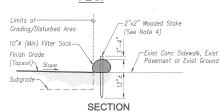
APPROVED BY melin Islams ENGINEER CD, DA DRAFTSMAN CD, DA CHECKED BY BN AS SHOWN SEPTEMBER 6, 2018 NPP FILE NO. 2018/CP-165 **EROSION AND SEDIMENT** CONTROL NOTES AND DETAILS

FILE POCKET FOLDER NO.





Wooded Stake 10"ø (Min)— Filter Sock Grading/Disturbed PLAN



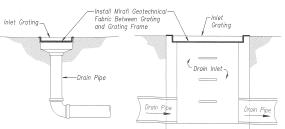
- NOTES:

 1. When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.

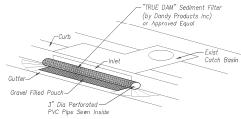
 2. Contractor shall remove any debris in path of Filter Sock to ensure and result contact.
- good ground contact. Compost shall not contain biosolids and should be consistent with EPA
- guidelines.

 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



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL



The contractor shall inspect all the catch basins and inlets in the vicinity of the

SEDIMENT CONTROL FILTER AT CATCH BASIN

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality".

 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. ESCP Coordinator shall provide to the DPP Director or project schedule of all planned actions and activities on this project at least two weeks prior to commencing of any work.

 Measures to control erosion and other pollutants shall be in place before any earthwork is initiated. 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%. Temporary Stobilization: Temporary Stobilization is required on disturbed areas which are at final grade or when
 - be disturbed at anytaine on slopes greater than 10%. 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.
 - the disturbed area will not be worked for 14 consecutive days or more. Permanent Stobilization: All disturbed areas shall be permanently stabilized using vegetative covering, povement, or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil which result from the removal of the temporary measures shall be immediately and permanently stabilized. Preserve existing vegetation: Clearly mark the areas to be preserved with flags or temporary fencing. Where temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright
- 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 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area. Inlet protection:

 A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet areastering device.
- protection device.

 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 unalogged and cleaned when performance is
- D. Torn, weathered or sagaing sediment barriers or inlet protection devices must be repaired or replaced
- Intrinediately.

 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:
- Minimize sediment track—out onto off—site streets, other paved areas, and sidewalks from vehicles exiting

- minimize seament track—out on off-site streets, other powed areas, and sidewals from vehicles extuling the construction site by restricting vehicle traffic to properly designated areas and using additional cuntruls to remove sediment from vehicle these prior to exiting the site. 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. 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 even as sweeping or vencing in 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 tran

- or sediment trap.

 All best management practices (BMP's) shall not be removed until the entire project is complete.

 Refer to City and County of Honolulu Best Management Practices Manual Construction, for more information
 on BMP's.

 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.
- Dewatering practices are not applicable.
- Velocity dissipation devices are not applicable.
- Buffer zones are not applicable.
- BUTTEL ZOTES are not uppricable. Sediment traps are not applicable. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site 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.

- Install stabilized construction entrances, perimeter controls (e.a. temporary filter sock, etc.), inlet

- 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 BMPs.

 Construct temporary sediment basin and stabilize immediately.

 Construct temporary diversion berms as needed to direct runoff into the sediment basin.

 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 getation or use other temporary stabilization methods, unless remaining vegetation provides adequate protection.

 Crade the site and construct the roadway and permanent drainage system. Install temporary inlet protection, once drainings existent index are constructed.
- nouse are are unu unisuate are trouway and permanent arrange system. Install temporary inlet protection once drainage system inlets are constructed. Remove temporary sediment basin after lot mass grading is completed, and only lot fine grading for top soil remains.

- soil remains.
 Install perimeter control BMP's around proposed roadways once roadway construction is completed. Remove temporary construction ingress/egress once roadway construction is completed, and perimeter control BMP's around proposed roadways are installed.
 Fine grade lots up to top soil as planned. Limit fine grading to less than 1 acre at any one time. 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.

- stabilization methods as planned.

 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.

 Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Plant permanent ground cover according to the landscaping plans as soon as possible.

 Remove or dismantle temporary erosion control structures after full establishment of permanent
- vegetative cover.

 Practice good housekeeping measures throughout the duration of construction.
- Inspections will be performed weekly.

- The following will be performed when heavy rains, tropical storm or hurricane is imminent or is forecasted in the next 48 hours.
- forecasted in the next 48 hours.

 Temporary suspension of active grading, and trenching.

 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. Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater. Place spill pans or oil—orly 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. Re—inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's as needed.

GOOD HOUSEKEEPING BMP'S:

- 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 controctor 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 Vocuuming: 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 on site, 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 obutting the MS4, receiving waters, or drainage improvements that discharge off-site. Primary and 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.
- secondary containment controls and covers shall be implemented to the maximum extent practicable.

 Spill Prevention and Control: Create and implement spill prevention and response plans to eliminate 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 apills, absorbing, containing, and cleaning up apills and properly disposing of spill materials. At a minimum, all projects shall cleanup all leaks and spills immediately from hazardous waste through proper material use and waste disposol. 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, and the measures that have been token or will be token to prevent a recourrence of the discharge shall be submitted to the Director no less than 3 days after notification by phone. Nonbazardous Materials in the event that nonbazardous 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 recourrence of the discharge, and the measures that have been taken or will be taken to prevent a rescourrence of the discharge, and the measures that have been taken or will be taken to prevent a rescourrence of the discharge, and the measures that have been taken or will be taken to prevent a rescourrence of the discharge, and the measures that have been taken or will be taken to prevent a rescourrence of the discharge and the measures that have been taken or will be taken to prevent a rescourrence of the discharge and the measures that have been taken or will be taken to preven
- 8. <u>Vehicle and Equipment Cleaning:</u> 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. <u>Vehicle and Equipment Fueling:</u> 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. <u>Vehicle and Equipment Maintenance:</u> 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 calcining and cleaning up spills immediately.
- work in designated areas only, using spill pads under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately pollutants to the land, groundwater, and in starm 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.

 Sanitary/Septic Waste Management: Temporary and portable sanitary and septic waste systems shall be apparted for sched in well as in the sources of the sources of the source of
- <u>Sonitary/Septic Maste Management</u>: Temporary and portable sanitary and septic waste systems shall be mounted or staked in, well-mointained and scheduled for regular waste disposal and servicing. Sources of sanitary and/or septic waste shall not be located in drainage ways, within 50 feet from areas of <u>stockpile Management</u>: Stockpile shall not be located in drainage ways, within 50 feet from areas of concentrated flaws, and are not allowed in the City Right-Oil-Way. Sediment harriers or sill 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. <u>Liquid Waste Management:</u> 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 contin 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
- tracilities must be constructed and ready for used once the washout is 75 percent mill. 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.

 Contominated 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 omply with State Water Quality Standards (Hawaii Rules, Chapter 11–54). Best Managament Proctices 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. Gray • Hong • Nojima & Associates, Inc.



CONSULTING ENGINEERS

Mukay H. Ly HAEL H. NO. LICENSED No. 5632-C YAWAII, USP.



CHECKED BY: MN GINEER: WT

"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 6 PARCEL 11

(DPP SUBDIVISION FILE NO 2018/SUB-139) OPP CONSTRUCTION PLANS FILE NO 2018/CP-203 TMK: 9-1-17: POR OF 138 HONOULIULI, EWA, OAHU, HAWA

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

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

SITE DESIGN STRATEGIES:

- Minimize Impervious Surfaces
 Minimize Soil Compaction
 Direct Roof Runoff to Landscaped Areas

SOURCE CONTROL BMP:

- Landscaped Areas
 Storm Drain Markers on Catch Basins (approved 4" SS discs affixed to catch basins), Reference Storm Drain Marker Detail on Sheet C019

TREATMENT CONTROL BMPs:

- 1. <u>Future Condition:</u> Permanent Offsite Basin 1 Refer to "Hoʻopili 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 Stockpling 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 WOV = 14.50 AC-FT
 Provided WOV = 86.82 AC-FT

LEGEND

D18 _____ Existing Drainline --- New Drainline — Property Line & Proposed Right—of—Way Swale Flow Pattern Landscaped Areas

POST-CONSTRUCTION BMP PLAN

EXIST ROAD "G" (CITY) (2018/CP-105) CITY) (PROPOSED ROAD "C" 200 200 200 200 CITY) CITY 7353 '3" -80) ROAD ' ROAD "A" (PROPOSED CITY) EXIST ROAD "H" (CITY) (2018/CP-105)

Gray • Hong • Nojima & Associates, Inc.

201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Telephone: (808) 521-0306 Fax: (808) 531-8018

CONSULTING ENGINEERS

HICENICE H. NOUL Mukail H. Ly LICENSED PROFESSIONAL ENGINEER No. 5632-C MAII, USP

> AON M. TANIC No. 13730-C MAWAII, U.S.P.

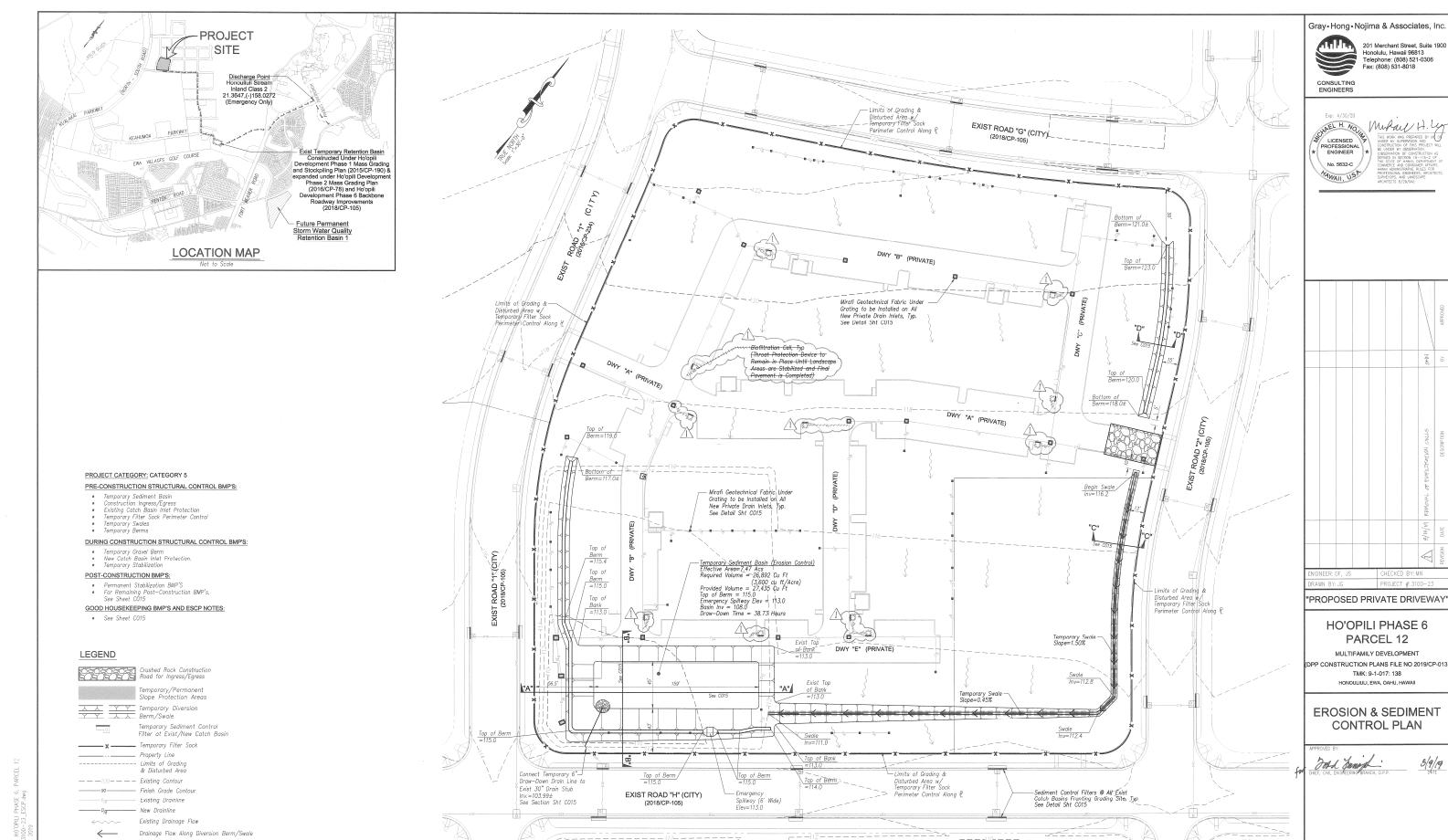
"PROPOSED PUBLIC ROAD"

HO'OPILI PHASE 6 PARCEL 11

(DPP SUBDIVISION FILE NO 2018/SUB-139) DPP CONSTRUCTION PLANS FILE NO 2018/CP-203) TMK: 9-1-17: POR OF 138 HONOULIULI, EWA, OAHU, HAWAII

POST-CONSTRUCTION BMP PLAN

Water With CHIEF, CIVIL ENGINEERING BRANCH, D.P.P. MY DATE



EROSION & SEDIMENT CONTROL PLANT

FROJECT NAME: CAD DWG NO.: ... CATE: APR 15

Diversion Berm/Swale Tributary Area

Gray • Hong • Nojima & Associates, Inc.

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

- gualetines.

 No stoking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stokes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality".

 Owner shall designate an ESCP Coordinator responsible for implementing the ESCP at the project site using form in Appendix A to the Rules Relating to Water Quality (downloaded from the DPP website) prior to
- ESCP Coordinator shall provide to the DPP Director a project schedule of all planned actions and activities on
- ESUC Cooldinator sinal produce 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.

 Measures to control erosion and other pollutants shall be in place before any earthwork is initiated.

 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%. Temporary Stabilization: Required on disturbed areas which are at final grade or when the disturbed area will not be worked for 14 consequiped not a propose.
- Permanent Stabilization: All disturbed areas shall be permanently stabilized using vegetative covering, pavement, or equivalent, prior to removing erasion and sediment measures. Trapped sediment and areas of disturbed sail 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

- All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet

- D. Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced

- Best management practices (BMP's) shall not be removed until final stabilization is complete for that phase. 15. Refer to City and County of Honolulu Best Management Practices Manual - Construction, for more infor
- 16. The following BMPs were determined to not be applicable based on the site specific conditions. A brief explanation of why each omitted BMP is unnecessary or impracticable has been provided under separate documentation to DPP. As construction progresses, revisions may be necessary and will be provided to DPP.
- Velocity dissipation devices are not applicable.
- Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable,

EROSION AND SEDIMENT CONTROL PLAN SCHEDULE & RAIN RESPONSE PLAN:

Construction activities and implementation of RMP's shall be sequenced to minimize erosion and amount of construction activities and implementation or burn's snail be sequenced to minimize erosion and amount is 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

- Install stabilized construction entrances, perimeter controls (e.g. temporary filter sock, etc.), inle
- installation of these BMP's.

 Construct temporary sediment basin and stabilize immediately.

 Construct temporary diversion berms and swales as needed to direct runoff into the sediment basin.

 Clear and grub remainder of the site. When cleared and grubbed areas are not to be graded or

 disturbed for 14 days or mare, seed, plant, or hydroseed temporary vegetation or use other temporary

 stabilization methods, unless remaining vegetation provides adequate protection.

 Relicate, reconstruct and maintain BMP's as needed to keep them effective at all times.

 Install permanent drainage system with temporary intelleptrotection.

 Crade the site as planned. Relocate, reconstruct and maintain BMP's as needed to keep them effective

 at all times, lailiste temporary stabilization immediately once aparties is completed in each phase.

- 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. 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.

 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.

 Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Plant permanent ground cover according to the landscaping plans as soon as possible.

 Remove or dismantle temporary erasion control structures after full establishment of permanent wagestative cover.

- Practice good housekeeping measures throughout the duration of construction.

Rain Response Plan:

- Cover or relocate material stockpies and liquid material containers to avoid contact with rainwater.

 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.

 Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's

GOOD HOUSEKEEPING BMP'S:

- <u>Maintenance:</u> Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
- performance of their intended function.

 <u>Qust Control</u>: 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 80, "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.

 <u>Street Sweeping and Vacuuming</u>: All pollutants discharged from construction site to off-site areas must be sweep! or vacuumed each day before leaving the job site.

- 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, stockples 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. Spall Prevention and Control: Create and implement spill prevention and response plants of 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 cleaning all leaks and spills immodiately.

 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 natify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharges and the measures that have been taken or will be taken to prevent a reoccurrence of the discharges and the measures that have been taken or will be taken to prevent a reoccurrence of the discharges and the measures that have been taken or will be taken to prevent a reoccurrence of
- are uiscrarge, 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.
 Nonhazardous Materiols: 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. notification by phone.

 8. <u>Vehicle and Equipment Cleaning:</u> Eliminate and minimize the discharge of pollutants to storm water from
- vehicle and equipment cleaning operations by using affsite facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water for exterior cleaning activities that use
- <u>Vehicle and Equipment Fueling:</u> Prevent fuel spills and leaks by using off-site facilities, fueling only in <u>venice and coupling relevant.</u> Prevent rule spins and reads by using off-site variates, tolening only in designated areas, enclosing or covering stored fuel, and implementing spill controls such as secondary containment and active measures using spill response kits.

 <u>Vehicle and Equipment Maintenance:</u> 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

- 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 trosh 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 MAS or receiving waters.

 13. Stackpile 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. Stockpile 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. <u>Liquid Waste Management:</u> 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 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 impermebble lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable 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

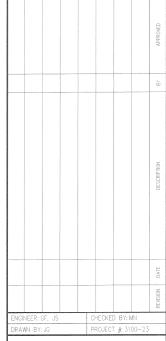
In accordance with State law, all discharge related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Rules, Chapter 11–54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to 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.

Gray · Hong · Nojima & Associates, Inc



CONSULTING **ENGINEERS**

Exp: 4/00, Mukail H. Ly LICENSED PROFESSIONA ENGINEER No. 5632-C YAWAII, U.S.P.



PROPOSED PRIVATE DRIVEWAY

HO'OPILI PHASE 6 PARCEL 12

MULTIFAMILY DEVELOPMENT OPP CONSTRUCTION PLANS FILE NO 2019/CP-013

TMK: 9-1-017: 138 HONOULIULI, EWA, OAHU, HAW

EROSION & SEDIMENT CONTROL NOTES AND DETAILS



C015

SEDIMENT CONTROL FILTER AT CATCH BASIN

not be worked for 14 consecutive days or more.

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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.

protection device unless they are directed to a sediment basin.

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

immediately.

12. 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 of the design capacity of all times.

A. Minimize sediment track—out anto off—site streets, other paved areas, and sidewalks from vehicles exiting

A. Minimize sediment track-out onto off-site streets, other poved 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 poved 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 carcib hasins is prohibited unless the material is sediment and the inlets are directed to a sediment basin

catch basins is prohibited unless the material is sediment and the inlets are directed to a sediment basin

Dewatering practices are not applicable

Buffer zones are not applicable. Sediment traps are not applicable

effective erosion control shall be developed.

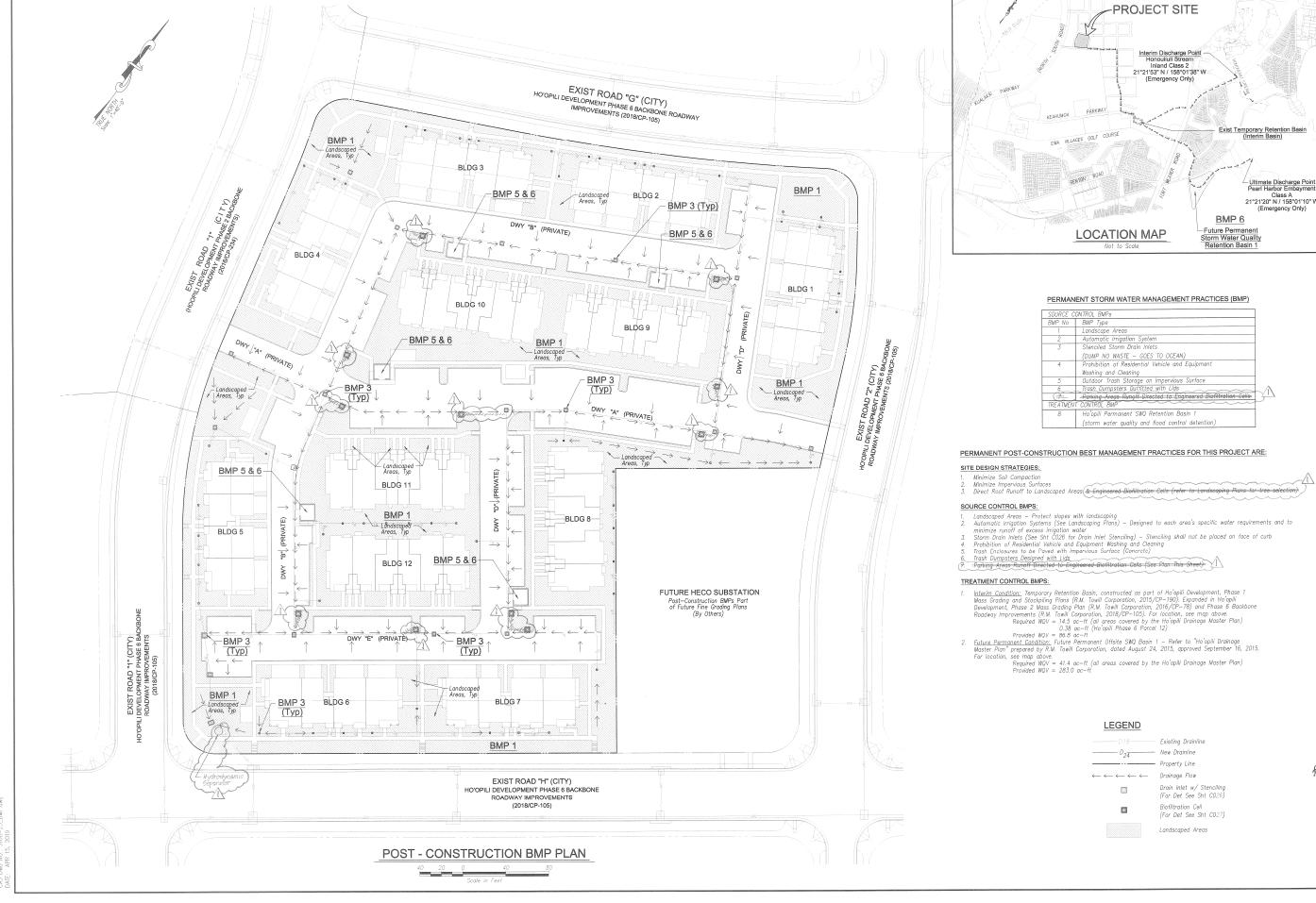
protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these BMP's.

14. Inspections will be performed weekly

The following will be performed when heavy rains, tropical storm or hurricane is imminent or is forecasted in the next 48 hours. Iremporry suspension of active grading. 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

Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater

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.



Gray • Hong • Nojima & Associates, Inc.



CONSULTING

201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Telephone: (808) 521-0306 Fax: (808) 531-8018

9/13/19

MY

CAREL H. NO. 11 THIS WORK WAS PREPARED BY M OF UNDER MY SUPERMOON AND No. 5632-C YAWAII, USP

POST - CONSTRUCTION BMP PLAN

CHECKED BY: MN

"PROPOSED PRIVATE DRIVEWAY

HO'OPILI PHASE 6

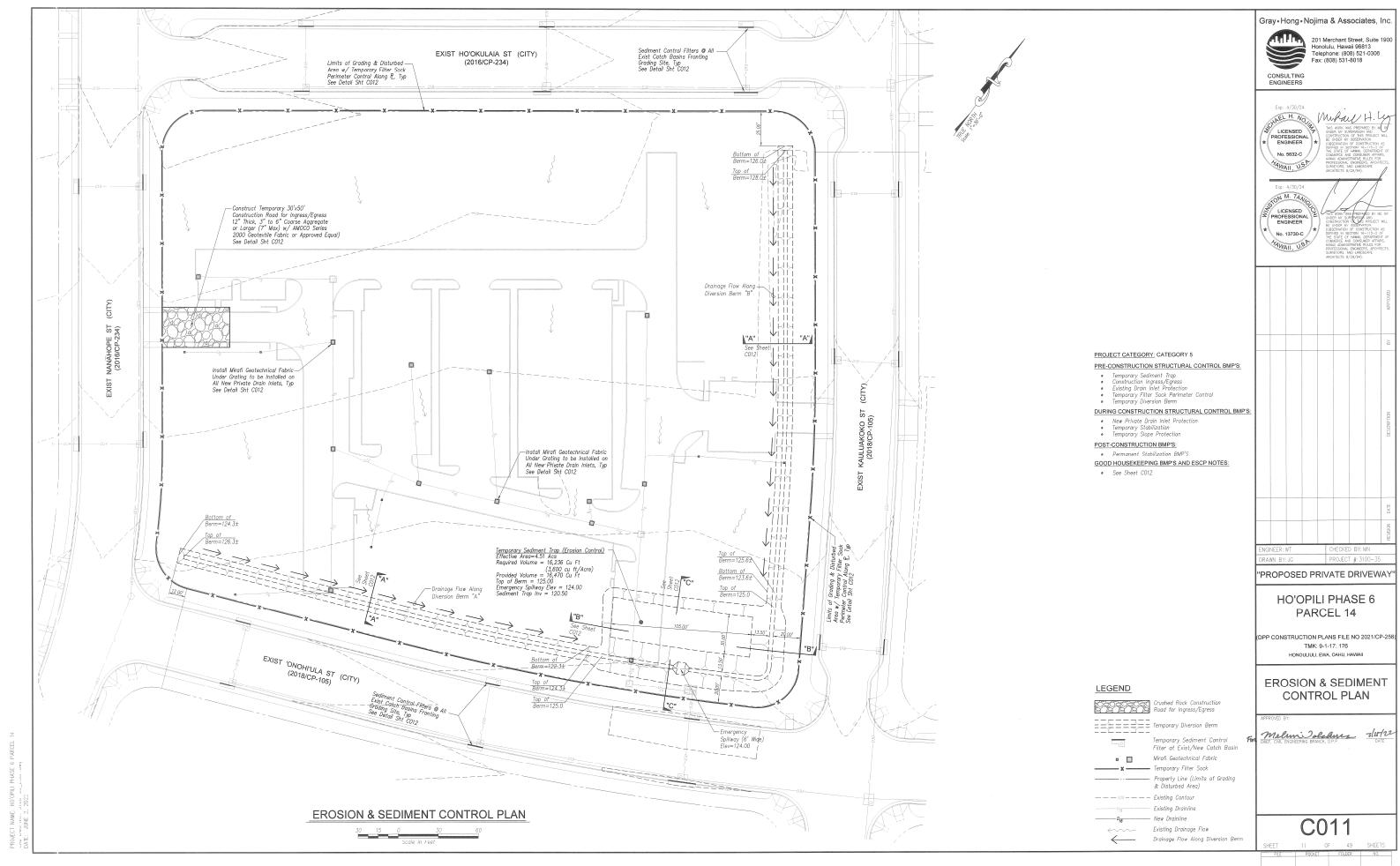
PARCEL 12

MULTIFAMILY DEVELOPMENT

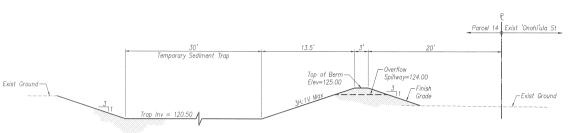
OPP CONSTRUCTION PLANS FILE NO 2019/CP-013

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

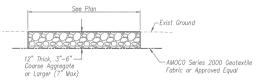
CHIEF, CIVIL ENGINEERING BRANCH, D.P.P.



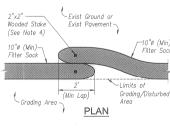
SEDIMENT TRAP SECTION "B-B"

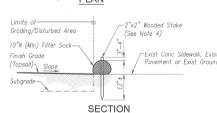


SEDIMENT TRAP SECTION "C-C"



CONSTRUCTION ROAD INGRESS/EGRESS DETAIL





OTES:

When joining two sections of Filter Sock, a minimum of 2 feet should be made so that Filter Sock sit side by side.

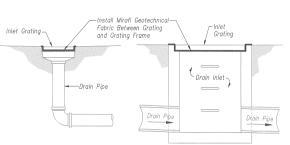
Contractor shall remove any debris in path of Filter Sock to ensure

r ground contact. post shall not contain biosolids and should be consistent with EPA.

guidelines.

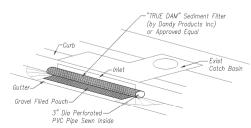
No stoking of Filter Sock required when installed on existing sidewalks or on slopes less than 3H:1V. On slopes greated than 3H:1V, wooden stakes shall be installed at 10' on center minimum and at each end of Filter Sock.

FILTER SOCK PLACEMENT DETAIL



MIRAFI GEOTECHNICAL FABRIC PRIVATE DRAIN INLET DETAIL

Not to Scale



The contractor shall inspect all the catch basins and inlets in the vicinity of the

SEDIMENT CONTROL FILTER AT CATCH BASIN Not to Scale

DIVERSION BERM "A" A=2.55 Acs DIVERSION BERM "B" A=0.71 Acs O(10yr-1hr)=2.53 cfs

Q(10yr-1hr)=9.08 cfs S=0.0062 ft/ft S=0.0068 ft/ft V=0.95 ft/s dn=0.32 ft - Exist Ground

TEMPORARY DIVERSION BERM SECTION "A-A"

EROSION PREVENTION/SEDIMENT CONTROL NOTES

The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality".

The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality."

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 in the City and County of Honolulu's "Rules Relating to Water Quality."

The Contractor shall comply with the project scheduling requirements of 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: 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 10-16 tuffer zone at the toe of slope. Only 5 acres may be disturbed at anytime on slopes greater than 15%.

Temporary Stabilization: Temporary arass, plantina, mulchina, or equivalent, shall be required on disturbed areas

be disturbed at anytime on slopes greater than 15%. Temporary Stobilization: Temporary grass, planting, mulching, or equivalent, shall be required on disturbed area which are at find grade or when the disturbed area will not be worked for 14 consecutive days or more. Permanent Stobilization: All disturbed areas shall be permanently stobilized using vegetative covering, powement, or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil which result from the removal of the temporary measures shall be immediately and permanently stabilized. Preserve existing vegetation: Clearly mark the areas to be preserved with flags or temporary fencing. Where

temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright

Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be Minimize Soil Compaction: Areas where final stobilization or mitiration 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 inflitration 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: Required downslope of all disturbed areas. Maintain downstream vegetated buffer area.

All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet

protection device.

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

Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced

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.

cacking Control:

Minimize sediment track—out onto off—site streets, other poved 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 porking and movements on project sites must be confined to poved surfaces or predefined parking areas and vehicles paths, which shall be marked with flags or boundary fencing.

All pollulants 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.

catton passins is promotined winess the majorian is assumed to the second of the construction of sediment trap.

All best management practices (BMP's) shall not be removed until the entire project is complete.

Refer to City and County of Honolulu Best Management Practices Manual — Construction, for more information

on BMF's.
The following BMP's were determined to be not opplicable 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.

Velocity dissipation devices are not applicable.

Buffer zones are not applicable

ourner zones are not applicable. Sediment basins are not applicable. Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable. 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 improctical. 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 sediment trap end stabilize immediately.

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. Initiale temporary stabilization immediately none grading is completed in each phase.

7. Plant permanent vegetation occording to landscoping plan on terraces, benches, and steep slopes (215%) as son as grading is completed. Plant or seed temporary vegetative cover or use ather 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 dismantie temporary erosion control structures after full establishment of permanent vegetative over or use temporary structures.

regetative cover.

2. Practice good housekeeping measures throughout the duration of construction.

3. 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.
 Temporry suspension of active grading and trenching.
 Inspect sediment trap, temporary berms, perimeter controls, and inlet protection devices, and maintain as needed. Reinstall only 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-anily 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

GOOD HOUSEKEEPING BMP'S:

Maintengance: Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

<u>Pust Control</u>. The controctor 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.

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 Delivers, Starage and Use Managamenti. 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 on saite, 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 ESOP coordinator shall immediately notify the City Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge shall be submitted to the Director no less than 3 days after notification by phone.

7. Nonhozardous Materials: In the event that nonhazardous materials are discharged to the MS4, the reproperty owner or

tification by phone.

natification by phone.

8. <u>Vehicle and Equipment Cleaning:</u> 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.

<u>Vehicle and Equipment Fueling:</u> 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.

<u>Vehicle and Equipment Maintenance:</u> Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using offsite facilities when feasible, performing mork in designated oreas only, using spill pods under vehicles and equipment, checking for leaks and

work in designated areas only, using spill pads under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately.

1. 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 trosh adily, and ensuring that construction waste is collected, removed, and disposed of only at authorized disposal areas.

1. Sonitary/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 MAS or receiving waters.

13. Stockgile 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 sit 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 floot 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.

/ days.

14. <u>Liquid Waste Management:</u> 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 ansite 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 Identities must be cleaned, or new facilities must be constructed and ready for used once the washout is 75 percent full. Once concrete

receives must be constructed and ready for disea once the washout is 75 percent but. Once contacte 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.

Gray • Hong • Nojima & Associates, Inc.



Honolulu, Hawaii 96813 Telephone: (808) 521-0306 Fax: (808) 531-8018 CONSULTING ENGINEERS

WAEL H. NO. Mukay H. Ly LICENSED No. 5632-C YAWAII, USP.



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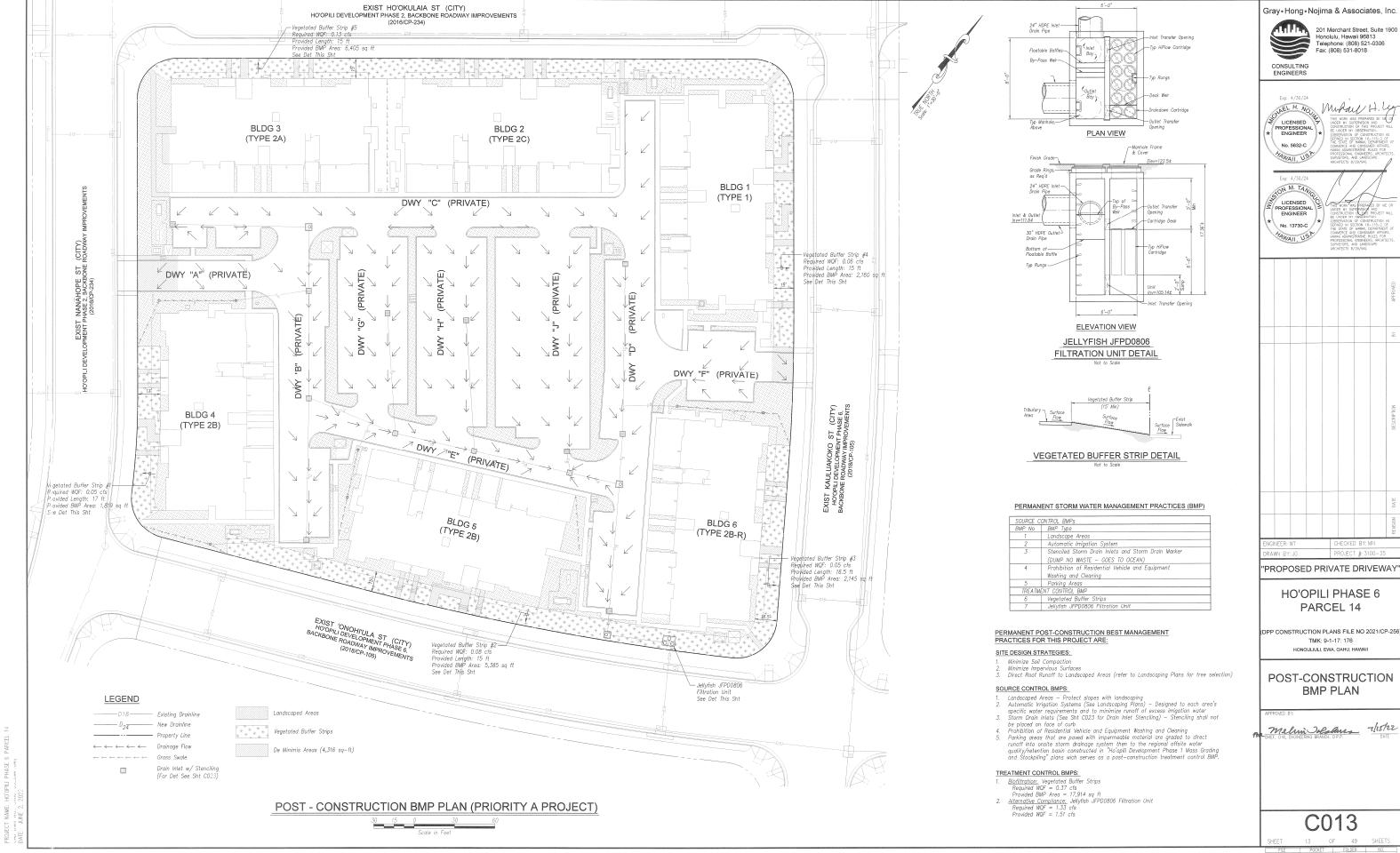
PROPOSED PRIVATE DRIVEWAY

HO'OPILI PHASE 6 PARCEL 14

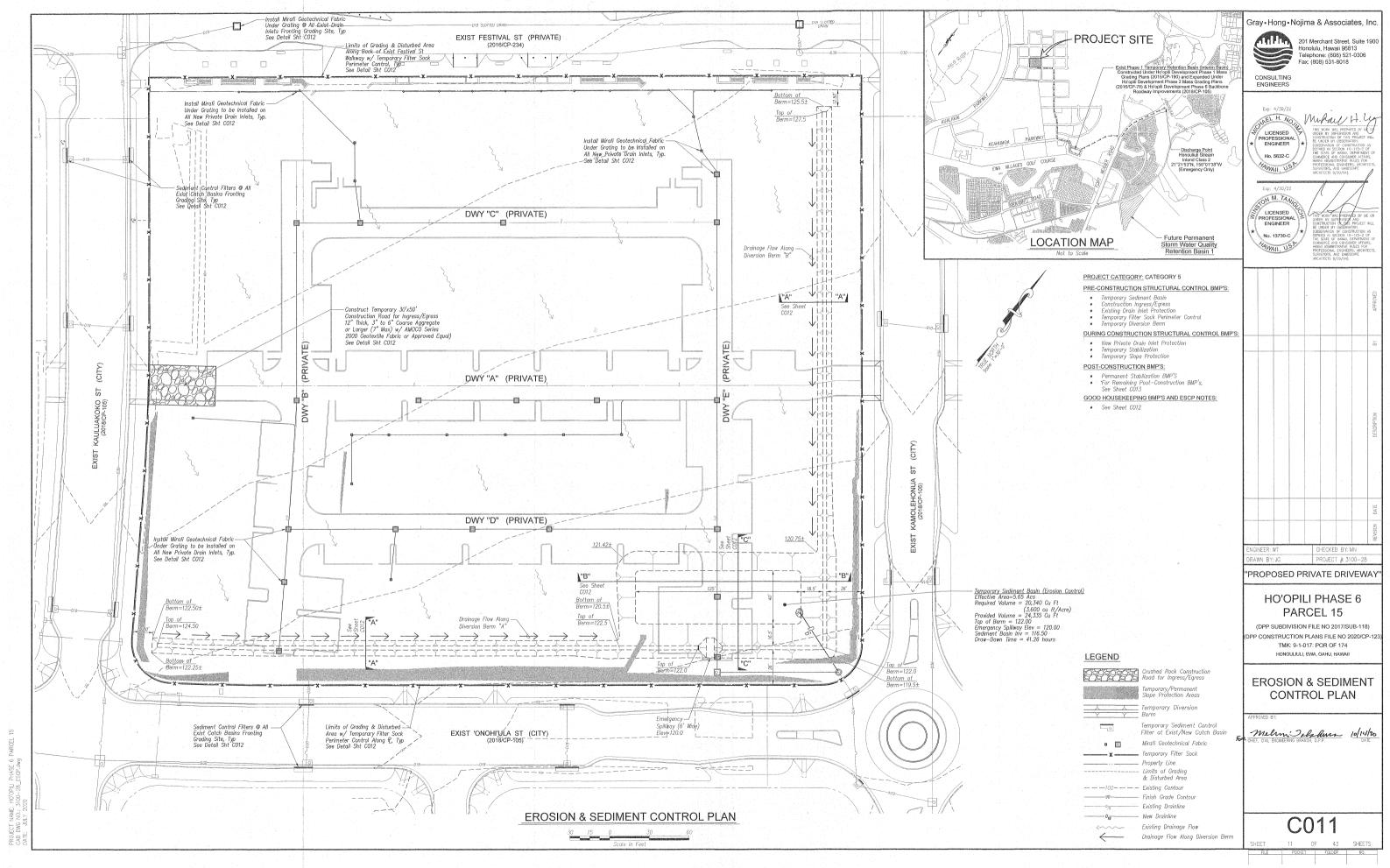
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EROSION & SEDIMENT CONTROL NOTES AND DETAILS

Melun Dalanz Vistre



Gray • Hong • Nojima & Associates, Inc.



The contractor shall inspect all the catch basins and inlets in the vicinity of the

SEDIMENT CONTROL FILTER

AT CATCH BASIN

Not to Scale

DIVERSION BERM "A" A=2.22 Acs DIVERSION BERM "B" A=0.40 Acs Q(10yr-1hr)=7.90 cfs S=0.0078 ft/ft Q(10yr-1hr)=1.43 cfs S=0.0142 ft/ft V=1.14 ft/s dn=0.22 ft Berm 1.80%± Slope Exist Ground

TEMPORARY DIVERSION BERM SECTION "A-A"

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality". 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 in the City and County of Honolulu's "Rules Relating to Water Quality".
- in the City and County of Honolulu's "Rules Relating to Water Quality".

 The Contractor shall comply with the project scheduling requirements of 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: 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 10-1t buffer zone at the toe of slope. Only 5 acres may be disturbed at anytime on slopes greater than 15%. Temporary this built property groups, 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.
- which are at mind group or when the disturbed area will not be worked for 14 consecutive days or more. Permanent's Isobilization: All disturbed areas shall be permanently stabilized using vegetative covering, povement, or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil which result from the removal of the temporary measures shall be immediately and permanently stabilized Preserve existing vegetation: Clearly mark the areas to be preserved with flags or temporary fencing. Where temporary fencing is used, fencing must be adequately supported by posts and maintained in an upright position.
- Minimize Soil Compaction: Areas where final stabilization or infiltration practices will be installed shall be maintnes som compaction: Areas where final stabilization or minitarium 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: Required downslope of all disturbed areas. Mointain downstream vegetated buffer area. International controls are supported by producing the producing and controls are supported by producing the producing and the producing the produ
- Inlet protection:
 A. All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet
- protection device. 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
- 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:
- Tracking Control:

 A. Minimize sediment track—out anto 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 poths, 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 earth having such pairs is conditived unless the material is estimated to retire the inlets or directed to a sediment having a sediment and sediment and sediment having a sediment and sedim
- catch basins is prohibited unless the material is sediment and the inlets are directed to a sediment basin
- 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
- Refer to City and County of Honolous best Management Practices Manual Construction, for more information on BMP's.

 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.

- Sediment traps are not applicable
- Diversion BMPs to divert runoff from upstream greas ground disturbed greas of the site 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.

- protection, and temporary tencing for protected areas, cleaning and grubbing as necessary for the installation of these BMPs. Sonstruct temporary sediment basin and stabilize immediately. Construct temporary sediment basin and stabilize immediately. Construct temporary sediment basin. 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. Install remaining parts of permanent drainage system with temporary inlet protection. Grade the site as planned. Relocate, reconstruct and maintain BMPs as needed to keep them effective at all times, initiate temporary stabilization immediately once grading is completed in each phase. 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. Install temporary or permanent irrigation system is planned, it should be installed prior to seeding. Proceed with construction with least possible disturbance of vegetative areas and temporary structures. Plant permanent ground cover according to the landscaping plans as soon as possible. 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.
- Temporary suspension of active grading and trenching.
- nemporary suspension of octive groung and executing.

 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 an surrounding streets. Cover or refoace temperal stockpiles and liquid material containers to avoid contact with rainwater. 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.

 Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMP's

GOOD HOUSEKEEPING BMP'S

- <u>Maintenance:</u> Regularly inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.

 <u>Dust Control:</u> 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
- 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.

 Street Sweeping and Yocuruming: All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.

 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, 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 practicoble.

 Salli Prevention and Control. Create and implement split 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 splits, absorbing, containing, and cleaning up splits and properly disposing of split materials. At a minimum, all projects shall cleanup all leaks and spills immediately.

 Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and woste disposal. In the event that hazardous materials are
- Hazardous Materials: Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposols. 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 Honolulus Proleo Bepartment 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. Nanhazardous Materialis; 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 discharges shall be submitted to the Director no less than 3 days after notification by whone.
- 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
- <u>Vehicle and Equipment Fueling:</u> Prevent fuel spills and leaks by using off-site facilities, fueling only in
- 9. Vehicle and Lajument Fueling: Prevent tuel 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 Maintengance: 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. Spatiary/Septic Waste Management: Temporary and portable sanitary and septic waste systems shall be

- 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 contamina 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. Stockpile grust be covered with lastic schedular or a companyle material if they will not be activation. nust be covered with plastic sheeting or a comparable material if they will not be actively used within
- 14. <u>Liquid Waste Management.</u> 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 badies, 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 ansite 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 con discharge to water bodies, channels, or storm drains. Woshout 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. 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

The general contractor/developer/owner of the project shall be responsible for conformance with applicable ons 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 (Howaii 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.

Gray • Hong • Nojima & Associates, Inc

201 Merchant Street, Suite 1900 Honolulu, Hawaii 96813 Telephone: (808) 521-0306 Fax: (808) 531-8018

CONSULTING

ENGINEERS

Exp: 4/30/22 JAEL H. NO Mukay H. Ly LICENSED No. 5632-C YAWAII, US!P



PROPOSED PRIVATE DRIVEWAY

HO'OPILI PHASE 6 PARCEL 15

(DPP SUBDIVISION FILE NO 2017/SUB-118) PP CONSTRUCTION PLANS FILE NO 2020/CP-12 TMK: 9-1-017: POR OF 174 HONOULIULI, EWA, OAHU, HAWAII

EROSION & SEDIMENT CONTROL NOTES

melini Jolsans 10/14/20

C012

DWG

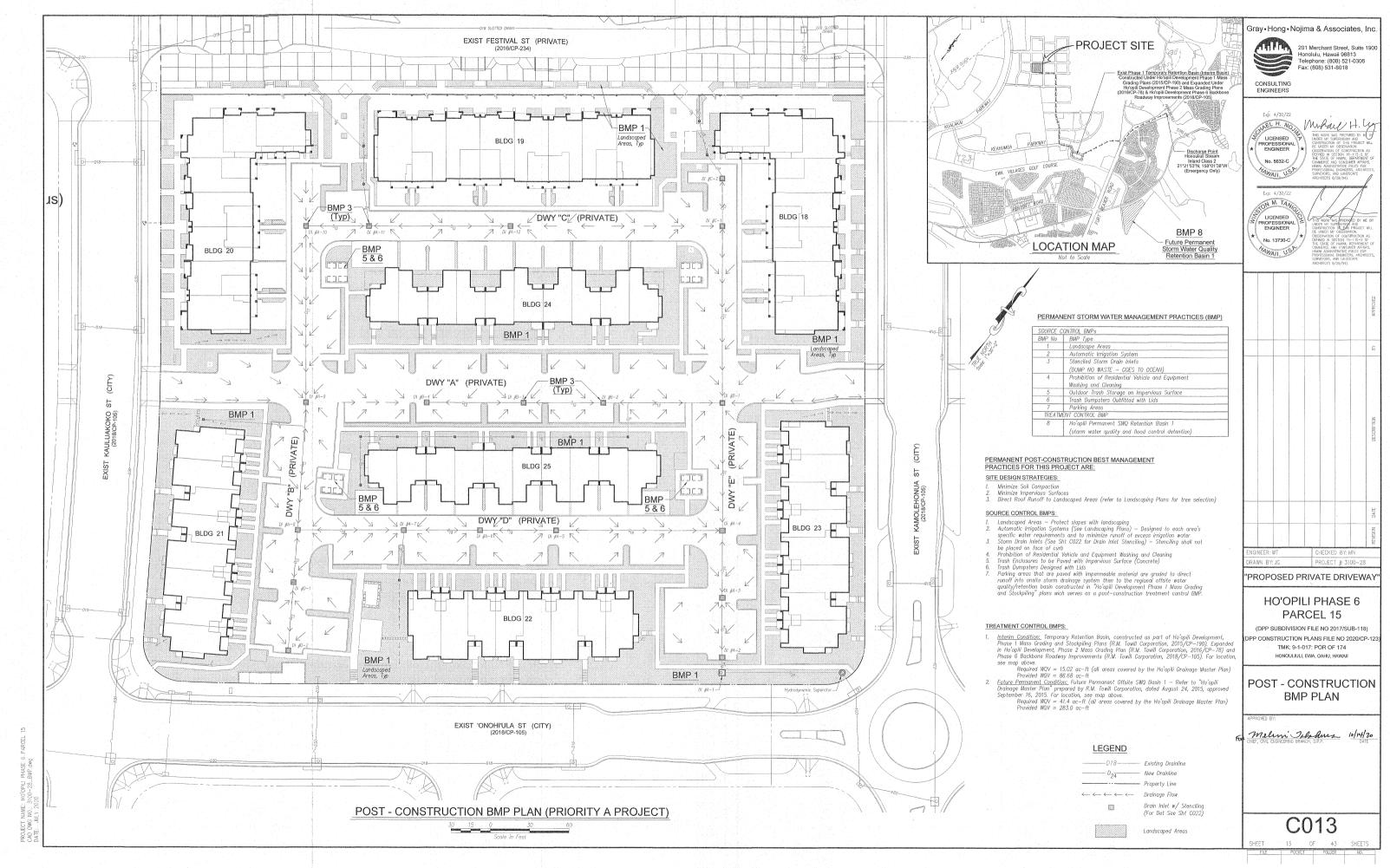
NAME NO.:

guidelines.

A. 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



mame: Pxi3100-28 Hoopii Phase 6 - Parcel 1603100-29 DWG1Construction Plans(3100-28_BMP-dwg Oct t

GOOD HOUSEKEEPING BMPS NOTES:

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.

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 ABITTING THE MS-4, RECEITING 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

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 THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE RESONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE RGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY

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 POLITIANTS 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.

VEHICLE AND EQUIPMENT CLEANING.

FLIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND FOUIPMENT 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.

VEHICLE AND FOLIPMENT FLIFTING

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.

ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EDILIPHENT MAINTENANCE OPERATIONS BY USING OFF-SITE FACILITIES WHEN FEASIBLE, PERFORMING WORK IN DESIGNATED AREAS ONLY, USING SPILL PAUS 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 PORTARI E 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.

STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS, WITHIN 50 FEET FROM AREAS OF CONCENTRATED FLOWS, AND ARE NOT ALLOWED IN THE CITY MORTH-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, OF 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,

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 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 OTHER DEFECTS THE COMPROMISE THE INTERCENCENT OF THE INTERCENCE INTERCENCE OF THE CONTRIBUTED 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

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 CONTRINED IN THE HAMAI

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 TRAPS, STABILIZE IMMEDIATELY.
- CLEAR, GRUB AND GRADE THE SITE IN 1 PHASE, REFER TO SITE PLAN.
 RELOCATE, RECONSTRUCT AND MAINTAIN BMPS AS NEEDED TO KEEP THEM
 EFFECTIVE AT ALL TIMES. INITIATE TEMPORARY STABILIZATION IMMEDIATELY ONCE
 GRADING IS COMPLETED.
- INITIATE STABILIZATION OF STEEP SLOPES (> 15%) WITH HYDROSEEDING AS SOON AS GRADING IS COMPLETED ON THOSE AREAS.
- PROCEED WITH CONSTRUCTION WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
- 6. PLANT PERMANENT GROUND COVER AS SOON AS POSSIBLE.
- 7. REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL
- 8. PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION
- 9. INSPECTIONS WILL BE PERFORMED WEEKLY.

RAIN RESPONSE PLANS

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
- INSPECT ALL SEDIMENT TRAPS, 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
- 3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS
- 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.
- RE—INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

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.

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%.

- 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.

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

MINIMIZE SOIL COMPACTION

AREAS WHERE FINAL STARILIZATION OR INFILTRATION PRACTICES WILL BE INSTALLED SHALL BE AREAS WHERE FINAL STABILIZATION OR INFILITATION PRACTICES WILL BE INSTALLED SPACE 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 INFILITATION 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

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 LEVELS MAY NOT EXCEED ONE THIRD OF THE HEIGHT OF INLET PROTECTION DEVICE AT ANY POINT ALONG THE LENGTH OF THE INLET PROTECTION DEVICE.
 - INLET PROTECTION DEVICES MUST BE UNCLOGGED AND CLEANED WHEN PERFORMANCE IS
 - . TORN, WEATHERED OR SAGGING 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 TWO THIRDS OF THE DESIGN CAPACITY AT ALL TIMES.

TRACKING CONTROL

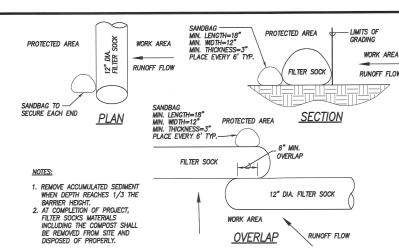
- MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAVED AREAS, AND MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAYED AREAS, AND SIDEWALKS FROM VEHICLES EXITING THE CONSTRUCTION SITE BY RESTRICTING VEHICLE TRAFFIC TO PROPERLY DESIGNATED AREAS AND USING ADDITIONAL CONTROLS TO REMOVE 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
- 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.
- BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS
- REFER TO CITY AND COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL—CONSTRUCTION, AND HOOT BMP MANUAL, FOR MORE INFORMATION ON BMPS.
- 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 OPP INSPECTIONS. A BRIEF EXPLANATION OF WHY EACH OMITTED BMP IS UNINECESSARY OR IMPRACTICABLE FOR THE PROJECT HAS BEEN PROVIDED.
- DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF re 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.

 DEWATERING PRACTICES
- BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HO'OPILI DEVELOPMENT — PHASE 6; EWA, OAHU, HAWAIT DATED FEBRUARY 16, 2018, IT IS NOT ANTICIPATED THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT BUFFER ZONES
- SEDIMENT TRAP WILL BE LOCATED IMMEDIATELY DOWNSTREAM OF THE GRADED AREA EXCEEDING SLOPES OF 15%. THEREFORE BUFFER ZONES ARE NOT NEEDED
- THE PROJECT SITE GRADED AREA IS LESS THAN 5 ACRES SO SEDIMENT TRAPS WILL BE USED IN LIEU OF SEDIMENT BASINS.
- EDIMENT BANCHER THE PROPOSED BMPS INCLUDE FILTER SOCK PERIMETER CONTROL, INLET PROTECTION, SANDBAGS, AND SEDIMENT TRAPS, WHICH WILL ADDRESS ANY POTENTIAL SEDIMENT
- THE OWNER OF THE PROPERTY OR THEIR AUTHORIZED AGENT MUST DESIGNATE A PERSON PRIOR TO PERMIT ISSUANCE USING THE FORM PROVIDED AS APPENDIX A TO THE RULES
- THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULING REQUIREMENT AS SPECIFIED IN THE "ADMINISTRATIVE RULES. TITLE 20. DEPARTMENT OF PLANNING AND PERMITTING. IN THE ADMINISTRATIVE ROLES, THE 24, DEPARTMENT OF TECHNISTIC AT TECHNISTIC AT FEMALTIC STATE OF THE STATE OF THE STATE OF THE DIRECTOR IN WRITING 2 WEEKS PRIOR TO COMMENCING ANY WORK GOVERNED BY THESE RULES.
- CONTRACTOR SHALL NOTIFY STORMWATER QUALITY BRANCH 14 DAYS PRIOR TO THE START OF GROUND DISTURBANCE.

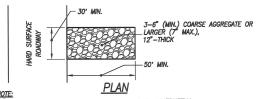
 : CLEANWATER HONOLULU.GOV. PROVIDE PROJECT TITLE, AND POINT OF CONTACT INFORMATION.

ADDITIONAL EROSION CONTROL/BMPS NOTES:

- 1. THE FINAL LIFT OF EACH DAY'S WORK SHALL BE COMPACTED TO PREVENT EROSION OF FILL MATERIAL.
- 2. AT THE END OF GRADING OPERATIONS AND AT THE COMPLETION OF PROJECT. CONTRACTOR SHALL AT THE EIRU OF GROWING DETERATIONS AND AT THE COMPLETION OF PROJECT, CONTRICTION SHILL INSPECT ALL CATCH BASINS, DRAIN INLET, AND DRAIN MANHOLE SURROUNDING THE PROJECT SITE INCLUDING THE RALOI DRAINAGE CHANNEL. ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE STORM DRAIN STRUCTURES SHALL BE REMOVED. FLUSHING INTO THE DRAIN STRUCTURES ARE PROHIBITED.

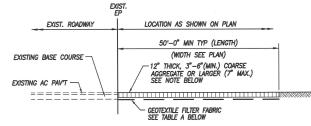


COMPOST FILTER SOCK DETAIL



NOTE:

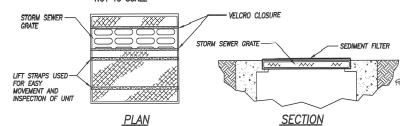
12 COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY
RASE COURSE.



SECTION

TABLE A GEO	TEXTILE 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



MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
GRAB TENSILE ELONGATION	ASTM D 4632	%	24 X 10
PUNCTURE STRENGTH	ASTM D 4833	kN (lbs)	0.40 (90)
MULLEN BURST STRENGTH	ASTM D 3786	kPa (psi)	3097 (450)
TRAPEZOID TEAR STRENGTH	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV RESISTANCE	ASTM D 4355	*	90
APPARENT OPENING SIZE	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
FLOW RATE	ASTM D 4491	1/min/m²(gal/min/ft)²	5907 (145)
PERMITTIVITY	ASTM D 4491	Sec ⁻¹	2.1

SEDIMENT FILTER FOR GRATE DRAIN INLETS NOT TO SCALE

HO'OPILI DEVELOPMENT PHASE 6

ROAD "H" AND KUALAKAI PARKWAY IMPROVEMENTS HONOULIULI, EWA, OAHU, HAWAII TMK: 9-1-017: 096, 098, 138, & 161









APPROVED BY Melini Ochsburs 3/8/21

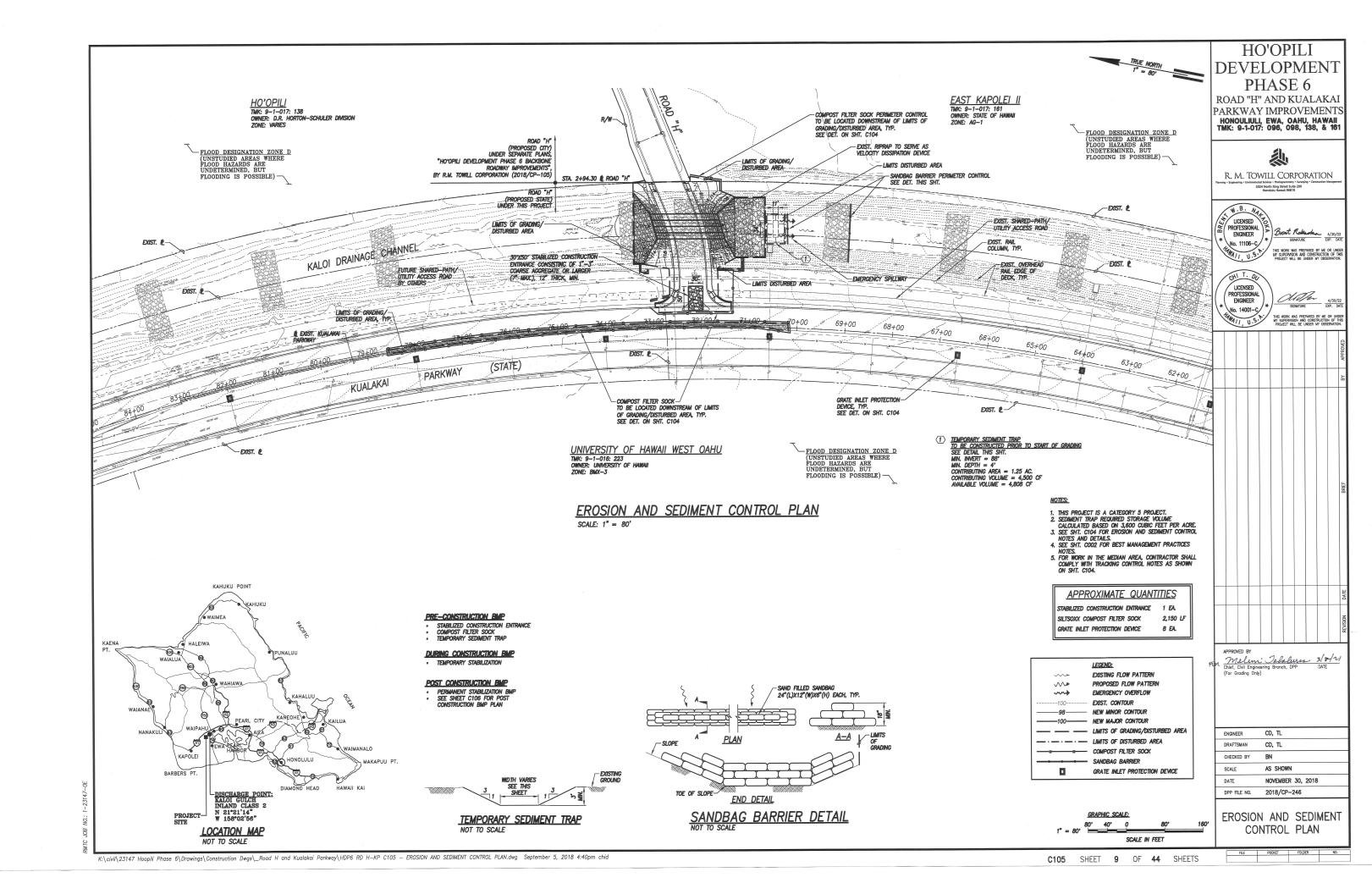
CD, TL ENGINEER CD, TL DRAFTSMAN RN SCALE AS SHOWN NOVEMBER 30, 2018 DATE

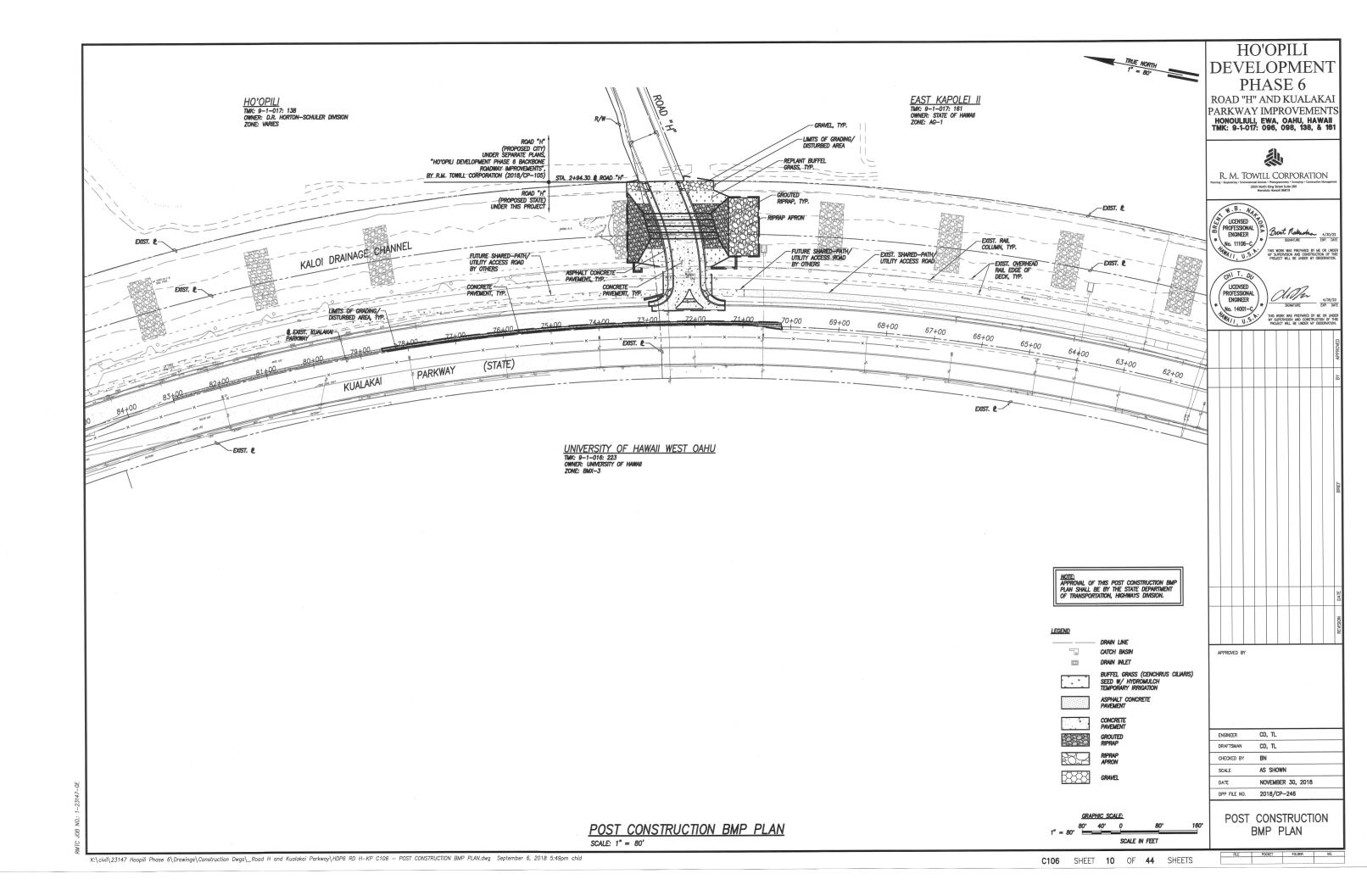
FROSION AND SEDIMENT CONTROL NOTES AND DETAILS

FILE POCKET FOLDER

2018/CP-246

DPP FILE NO.





GOOD HOUSEKEEPING BMPS NOTES:

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. PREFER, REDUCE, OR EDIMINATE THE INSURPANCE OF PULLIDIANTS TROOM INMIGRAL DELIVERY, STORAGE, AND USE TO THE STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSTIE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTRIBUIENT. 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

PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZAROUS 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 THACKEN OR MILL BE TAKEN TO PREVENT A RECOURSENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY

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

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.

PREVENT FUEL SPILLS AND LEAKS BY USING OFF-SITE FACILITIES. FUFLING 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 PAGS UNDER VEHICLES AND EQUIPMENT, CHECKING FOR LEAKS AND SPILLS, AND CONTAINING AND CLEANING UP SPILLS IMMEDIATELY.

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.

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.

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 B 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 PREVENTI ON REDUCE THE DISCHARGE OF POLICIONIS TO STORM MICE FYRMS UNDERSET MISSIE BY CONDUCTING MISSIOUT OFFSTRE OR PERFORMING ONSITE MISSIOUT 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 POLYETHYLBUE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL CONTAINMENT AREAS OTHER DEFECTS THAT COMPROMISE THE IMPERMENDIATE OF THE MATERIAL CONTINUED THE ARCHIVATION OF DEVICES SHOULD NOT BE LOCATED WHERE ACCIDENTAL RELEASE OF THE CONTINUED LOUDLO AN DISCHARGE TO WATER BODIES, CHANNELS, OR STORM DRAINS. WISHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WISHOUT 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

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.

THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL PROVIDE EFFECTIVE MEASURES FOR THE CONTROL OF DUST FROM THE PROVECT 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 HAMMI ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1,

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 WESLY BASIS.

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

PROJECT SEQUENCE:

- INSTALL STABILIZED CONSTRUCTION ENTRANCES, PERIMETER CONTROLS AND INLET PROTECTION FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BIMPS.
- 2. CONSTRUCT TEMPORARY SWALES AND STABILIZE IMMEDIATELY. CONSTRUCT PROPOSED TEMPORARY SEDIMENT BASIN 1 AND PROVIDE MAINTENANCE FOR EXISTING RETENTION BASIN TO BE USED AS A SEDIMENT BASIN.
- 3. PROVIDE WATER TRUCKS FOR DUST CONTROL.
- 4. CLEAR, GRUB AND GRADE THE SITE IN 4 INCREMENTS IN SEQUENTIAL NUMERICAL ORDER, REFER TO ESCP PLANS, ONLY 1 INCREMENT SHALL BE GRADED AT ANY ONE TIME. THE CURRENT INCREMENT SHALL BE STABLIZED PRIOR TO COMMENCING THE SUBSEQUENT INCREMENT. RELOCATE, RECONSTRUCT AND MAINTAIN BUPS AS NEEDED TO KEEP THEM EFFECTIVE AT ALL TIMES, INITIAE 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
- 7. PLANT PERMANENT GROUND COVER ACCORDING TO THE LANDSCAPING PLAN AS SOON AS
- 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.
- 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
- COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
- 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.
- RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE AND REPLACE OR MAINTAIN BMPS AS NEEDED.

EROSION PREVENTION / SEDIMENT CONTROL NOTES

- 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 REFORE 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-FF BUFFER ZONE AT THE TOE OF SLOPE. ONLY 5 ACRES MAY BE DISTURBED AT ANYTIME ON SLOPES GREATER THAN

- 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 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 EXCESSING COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO COMPITION 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 SU

8. PERIMETER CONTROLS

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

- · 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 BAS
- 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
- TORN, WEATHERED OR SAGGING SEDIMENT BARRIERS OR INLET PROTECTION DEVICES MUST BE REPAIRED OR REPLACED IMMEDIATELY.

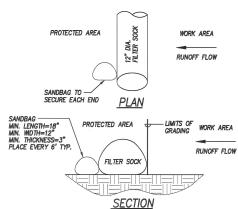
10. SEDIMENT BASINS

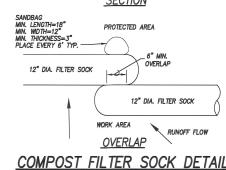
SEDIMENT BASINS MUST BE KEPT IN EFFECTIVE OPERATING CONDITION AND SEDIMENT SHALL BE REMOVED TO MAINTAIN AT LEAST ONE HALF OF THE DESIGN CAPACITY AT ALL TIMES. CONTRACTOR SHALL PROVIDE A STAFF GAGE SHOWING ELEVATION AND DEPTH OF SEDIMENT BASIN.

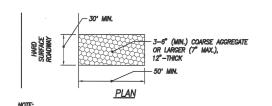
- MINIMIZE SEDIMENT TRACK-OUT ONTO OFF-SITE STREETS, OTHER PAVED AREAS, AND SIDEWALKS FROM VEHICLES EXTING THE CONSTRUCTION SITE BY RESTRICTING VEHICLE TRAFFIC TO PROPERLY DESIGNATED AREAS AND USING ADDITIONAL CONTROLS TO REMOVE SEDIMENT FROM VEHICLE TIRES PRIOR TO EXITING THE SITE.
- VEHICULAR PARKING 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
- ALL POLLUTANTS AND MATERIALS THAT ARE DROPPED, WASHED, TRACKED, SPILLED, OR OTHERWISE DISCHARGED FROM A PROJECT SITE TO OFF-SITE STREETS, OTHER PAYED 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
- 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 UPSTRFAM ARFAS ARQUIND DISTURBED AREAS OF THE SITE DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
 - THE MUNORITY 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.

 DEWALTERING PRACTICES
 - BASED ON THE SOILS REPORT ENTITLED, "GEOTECHNICAL ENGINEERING EXPLORATION HOOPILL
 DEVELOPMENT — PHASE 7; EWA, OAHU, HAWAIP DATED JANUARY 25, 2024, IT IS NOT ANTICIPATED
 THAT GROUNDWATER WILL BE ENCOUNTERED WITHIN THE PROJECT SITE.
- SEDIMENT BARRIERS EDIMENT BARRIERS ARE NOT REQUIRED AS THE PROPOSED BMPS (PERIMETER CONTROLS & SEDIMENT BASINS) ARE SUFFICIENT TO ADDRESS ANY POTENTIAL SEDIMENT RUNOFF.
- SECHMENT INSTANCE OF THE STATE WATERS AND THE MAJORITY OF GRADING DOES

 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
 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. 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.







12° COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO

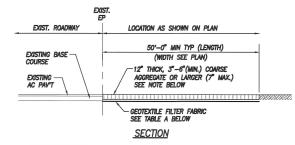
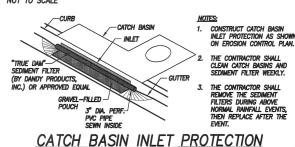


TABLE A GEOTEXTILE REQUIREMENTS		
PHYSICAL PROPERTY	REQUIREMENTS	
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)	
ELONGATION FAILURE	60% (ASTM D1682)	
MULLEN BURST STRENGTH	430 LB (ASTM D3768)	
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)	
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)	

CONSTRUCTION INGRESS/EGRESS DETAILS



HO'OPILI DEVELOPMENT PHASE 7A

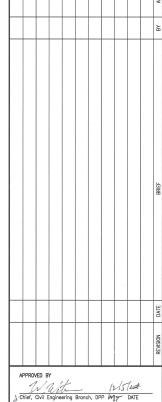
BACKBONE ROADWAY **IMPROVEMENTS**

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





SCNATI PF



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

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

NOT TO SCALE