

WATER NOTES

- All work shall be done according to the Water System Standards, State of Hawaii, dated 2002, as amended.
- The Contractor shall inform the Department of Water Supply (DWS) Engineer 72 hours prior to the beginning of any waterline work and two weeks prior to any connection, chlorination, shut-off or relocation work.
- The Contractor shall pay for all work, equipment and materials furnished by the DWS.
- All existing waterlines, waterline opportunities and other utility locations shown on the plans are obtained from the latest reliable sources. The Contractor shall be responsible to verify the exact location of all utilities in the field and shall bear all cost for damages done to the water system.
- All connections to existing waterlines shall be done by the DWS. Contractor shall perform all excavation, backfill, road repair, traffic control, and provide equipment necessary to complete the connection.
- Where water shut-off of more than 3 hours becomes necessary, the Contractor, at his own expense, shall provide a temporary by-pass line. The DWS Engineer shall determine regardless of the expected shut-off period.
- Outside of state roads: minimum cover on pipelines 4-inch through 8-inch to be 2.0 feet. Minimum cover on 12-inch and larger to be 2.5 feet. Minimum cover on pipelines installed on private property in accordance with DWS standard detail No. W-9 and departmental staff must approve the installation before water service can be started.
- For private water systems: the Department of Water Supply (DWS) is providing its review and inspection for the subsurface water system improvements only. This review is based on the information and certification provided to DWS by the developer, licensed architect or engineer, and the owner of the water company/utility and successors or assigns, for general conformance to the current water systems standards and DWS rules and regulations.

WATER NOTES (CONT.)

- Block flow device installation may not be required for subdivision approval but must be installed, where required, before water service is allowed.
- Lots requiring a Department of Water Supply approved backflow prevention assembly shall have one. Its installation is not required for final subdivision approval. It must be installed on private property in accordance with DWS standard detail No. W-9 and departmental staff must approve the installation before water service can be started.
- For private water systems: the Department of Water Supply (DWS) is providing its review and inspection for the subsurface water system improvements only. This review is based on the information and certification provided to DWS by the developer, licensed architect or engineer, and the owner of the water company/utility and successors or assigns, for general conformance to the current water systems standards and DWS rules and regulations.

GRADING NOTES

- All grading work shall conform to Chapter 10 of the Hawaii County Code. Should a Grading Permit be required, no work shall commence until the Department of Public Works, (DPW) approves a grading permit.
- The Contractor shall remove all silt and debris deposited in drainage facilities, roadways, and other areas resulting from his work. The cost incurred for any necessary remedial action by the Department of Public Works shall be payable by the Contractor.
- The Contractor, at his own expense, shall keep the project and surrounding areas free from dust nuisances. The work shall be in full conformance with the Air Pollution Control Rules of the State Department of Health, HAR 11-601, Fugitive Dust.
- All grading operation shall be performed in conformance with the applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 55, Water Pollution Control and Chapter 54, Water Quality Standards, and to the Erosion and Sedimentation Control Standards and Guidelines of the Department of Public Works, County of Hawaii.
- The Contractor shall sod or plant all slopes and exposed areas immediately after the grading work has been completed.
- Fills on slopes steeper than 5:1 shall be keyed.
- The Contractor shall inform the Department of Public Works of the location of the disposal and/or borrow site(s) required for this project when an application for a Grading Permit is made. The disposal and/or borrow site(s) must also fulfill the requirements of the grading ordinance.
- No grading work shall be done on Saturdays, Sundays and holidays anytime without prior approval from the Department of Public Works. Grading work on normal working days shall be between the hours of 7:00 a.m. to 3:30 p.m.
- Fills shall be compacted to 90 percent (90%) of maximum density per ASTM D-1557 Test.
- The Contractor shall remove all vegetation before the placing of fills on a natural ground surface.

ESTIMATED EARTHWORK QUANTITIES

TOTAL BANK CUT = 612 C.Y.
 TOTAL BANK FILL = 44671 C.Y.
 TOTAL AREA TO BE GRADED = 124,964.74 SF. = 2.869 ACRES

NOTES

- The quantities shown are for grading purposes only. The Contractor shall be responsible to determine the exact quantities for bidding purposes.
- No adjustment factor is applied to the row cut/fill quantities.
- Earthwork quantities shown were taken from existing ground to finish grade.

GENERAL CONSTRUCTION NOTES

- All work shall be done in accordance with the "Standard Details for Public Works Construction", dated September 1984, "Standard Specifications for Public Works Construction", dated September 1986, as amended, of the Department of Public Works, county of Hawaii and the "Hawaii Standard Specification for Road and Bridge Construction", Department of Transportation, Highway Division, 1985.
- Survey of monument stakes shall be made by registered land surveyors.
- Registered surveyors shall submit a letter to the Department of Public Works, certifying that the monuments are staked-out and installation is correct.
- The Contractor shall verify the location of all existing utilities, whether shown on the plan or not, and shall be responsible for the repair or replacement of same in the event of damages due to his construction practices. The Contractor shall coordinate his work with the respective utility companies.
- The Contractor shall maintain vehicular and pedestrian access to existing hospital facilities at all times and shall stabilize and prosecute his work in such manner as to avoid interruption of normal activities at the existing facilities. The Contractor shall provide early notification of and obtain approval for any anticipated interruptions. Contractor shall submit a construction phasing plan for approval prior to beginning construction.
- The Contractor shall provide and install all traffic control devices in conformance with the Manual of Uniform Traffic Control Devices For Streets and Highways, and to the satisfaction of the Engineer.
- Except during actual working hours, all signs which do not pertain to the construction activity, such as "Men Working" and "Trigon Ahead" shall be covered or hid down. However, all signs necessary for the safety of the public shall be maintained.
- No construction equipment shall be parked within the road right-of-way in such a manner that the equipment will obstruct the normal movement and sight distance of the driving moment, except during actual working hours.
- All existing powerlines, wells, utilities and other facilities whether shown or not, which are shown on the plans shall be protected, replaced by the Contractor at his own expense to the original undamaged condition.
- No trenching shall be left open for more than five (5) working days. Contractor shall properly barricade all open trenches during all phases of construction.

NOTES FOR WORKING WITHIN THE COUNTY RIGHT-OF-WAY

- All work shall be done in accordance with the County of Hawaii, Department of Public Works (DPW), "Standard Specifications for Public Works Construction" dated September 1986 and "Standard Details for Public Works Construction", dated September 1985.
- The Contractor shall verify the location of all existing utilities, whether shown on the plan or not, and shall be responsible for the repair or replacement of same in the event of damages due to his construction practices. The Contractor shall coordinate his work with the respective utility companies.
- The Contractor shall provide and install all traffic control devices in conformance with the current edition of the Manual of Uniform Traffic Control Devices for Streets and Highways, and as directed by the Department of Public Works.
- The Contractor shall notify the Department of Public Works 48 hours before the commencement of any utility line work to schedule a field review and secure approval of the proposed utility location within the County right-of-way.
- The proposed utility location shall be laid out in the field by the Department of Public Works.
- Field adjustments shall be made as directed by the Department of Public Works prior to the commencement of any utility line work.
- The required permit, under Chapter 22, Article 4, Section 22-41, of the Hawaii County Code, shall be obtained from the Department of Public Works by the Contractor for work within the County right-of-way.
- The Contractor shall provide at least one (1) lane for traffic movement at all times. Two (2) lanes for traffic movement shall be provided between the hours of 3:30 p.m. to 8:00 a.m.
- The existing pavement shall be saw-cut before commencement of trenching work.
- Any pavement outside the contract zone limits damaged as a result of construction operations shall be restored to its original condition, or better, as directed by the DPW.
- A temporary cold mix patch shall be applied immediately upon completion of the backfilling operation and shall be maintained by the Contractor until a permanent patch is authorized by the Department of Public Works.
- No material, except the trench excavated material, shall be stockpiled closer than six (6) feet from the existing edge of pavement.
- No construction equipment shall be parked within the road right-of-way in such a manner that the equipment will obstruct the normal movement and sight distance of the driving moment, except during actual working hours.
- Except during actual working hours, all signs that do not pertain to the construction activity, such as "Men Working" and "Trigon Ahead" shall be covered or hid down. However, all signs necessary for the safety of the public shall be maintained.
- Any pavement markings, structures, and opportunities (within or outside of the contract zone limits) damaged and/or worn away under the permit shall be repaired or reconstructed as directed by the Department of Public Works.
- No trenching shall be left open for more than five (5) working days.
- Should trenching occur through an existing sidewalk, or should damage occur to the sidewalk as a result of any construction work, the following procedure shall be utilized to repair the sidewalk:
 - All Portland cement concrete to be removed shall first be cut with a diamond or corundum concrete abrasive wheel. Those cuts shall be made to a depth equal to at least one-fourth of the depth of the slab, or enough as is deemed necessary by the Department of Public Works, to permit breaking out the bottom of the concrete. The spacing between the exposed edges of the slab shall be in place.
 - If any concrete block is located, the whole block shall be removed and later replaced, unless a minor variation is authorized by the DPW or its representative.
 - Any damage to adjacent areas due to settlement or to any other effects whatsoever caused by the construction work, shall be properly repaired and corrected.
 - All other incidental work shall be satisfactorily performed to effect the proper restoration of a sidewalk curb and/or other curb at a location where a curb ramp should exist, or to a driveway that does not meet with the requirements of the Americans with Disabilities Act (ADA), repair work shall include the construction of a curb ramp, or reconstruction to the driveway such that the repair work complies with the ADA and meets with the approval of the DPW.

STANDARD TRAFFIC NOTES

- All traffic signs and pavement markings shall conform to the latest edition of the "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", as amended, and applicable sections of Part V of the "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", dated September, 1984, and the HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, 1994 edition, unless otherwise specified on the plans, specifications, or the STANDARD TRAFFIC NOTES.
- The Contractor shall install permanent or temporary pavement markings, striping and markings as required by Section 629 of the HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, 1994 edition. The temporary striping must be installed as close as possible to the final location to ensure proper lane widths & safe flow of traffic, but not in the way of pavement marking layout operations.
- The Contractor shall coordinate and file special duty police officer(s) as needed to provide traffic control while working within the County Right of Way.
- The Contractor shall inform the Traffic Division at least six (6) working days prior to any work on pavement markings operations and/or sign installations to schedule a review and approval of the striping and/or signing plans.
- The approved striping plan shall be typed out using three-out punch or other approved methods. Field signmen shall be made as directed by the Engineer before the final markings are applied.
- All pavement markings that become illegible shall be removed by the Contractor at his own expense. Removal shall be by excavation or by other methods approved by the Engineer before the new pavement markings are applied. Excessive spalling of the pavement is not acceptable and shall be repaired at the Contractor's expense.
- Pavement striping shall be with reflective Thermoplastic Compound Pavement Marking as specified in Sections 629 and 71253 of the Hawaii Standard Specifications for Road, Bridge and Public Works Construction (1994 Edition) on all roadways. The Contractor shall submit Certificate of Compliance certifying that the thermoplastic material to be used meets the current State of Hawaii Department of Transportation specifications.
- Heat applied re-cured thermoplastic marking tape with visible temperature indicators, or an equal or better, shall be used by the Contractor for all pavement markings. The Contractor shall use reflective stripes, pavement brooms, sponges, and sponges in lieu of Thermoplastic Compound.
- ReflectORIZED road pavement markers shall be the regular size markers with approximate dimensions of 4" by 4" by 0.7". The Contractor shall submit Certificate of Compliance certifying that the raised pavement markers to be used meets and/or exceeds the current State of Hawaii, Department of Transportation specifications.
- All traffic signs & posts shall meet the requirements of the County of Hawaii Standard Detail T-1-EXPERT MARK FLANGED CHANNEL POSTS AND OCTAGONAL POSTS. WILL NOT BE ACCEPTABLE Z" square telescopic tubing No. 20 F 12 or equivalent with 2X" square telescopic anchor post.
- All traffic signs shall be completely reflectORIZED with Type III or Type IV High Intensity Retroreflective Sheeting. Overhead Street Name signs shall be High Intensity.
- The 2 1/4" square anchor post for signs shall be driven into the ground, or concrete sidewalk in accordance with the plans. All damage to the surrounding area shall be repaired to its original condition or better. Before driving into concrete a neat hole of approximately 3 inch diameter shall be drilled through the concrete. The installation of the anchor post shall be done through the hole. The hole shall be filled with concrete to the surrounding concrete or a pavement 12" by 12" square shall be saw-cut and removed prior to the installation of the anchor post and then patched with hot mix to match the existing a.c. pavement, or concrete to match the existing concrete sidewalk.
- Upon completion of the construction work, the Contractor shall install all pavement markings within the construction work area and adjacent roadway pavements up to 200 feet beyond the construction area in accordance with Item 6 of the current Standard Traffic Notes. All traffic signs & posts within the construction area and object areas that have been damaged, removed, or adversely affected by the construction work shall be replaced by the Contractor according to Item 9, 10, and 11 of the current Standard Traffic Notes.
- All defaced signs must have Street Names which have been approved by resolution before acceptance of the street by County of Hawaii.
- Install PRIVATE ROAD sign(s) or private road(s). Signs shall be an 18" wide by 12" high aluminum plate with 4" block lettering on white reflectORIZED sheeting with border.
- All signs & markings for private roadways shall be maintained by the private owners.

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

- The permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
- Cones or delineator shall be extended to a point where they are visible to approaching traffic.
- Traffic control devices shall be installed such that the sign or device furthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
- Regulatory and warning signs within the construction zone that are in conflict with the Traffic Control Plans shall be removed or covered. All signs shall be restored upon completion of the work.
- Flags and/or police officers shall be in sight of each other or in direct communication at all times.
- When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the Traffic Control Plans.
- Sign spacings (0), taper lengths (1) and spacings of cones or delineators shall be as shown in Table 1, unless otherwise noted on the Traffic Control Plans.
- All traffic lanes shall be a minimum of 10 feet wide.
- All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
- The backs of all signs used for traffic control shall be appropriately covered to preclude the display of illegible sign messages (i.e., when signs have messages on both faces).
- At the end of each day's work or as soon as the work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of traffic. Traffic removal shall be in the reverse order of installation.
- Permanent pavement markings and traffic signs shall be replaced upon the completion of each phase of work.

STREET LIGHT NOTES

- No changes will be allowed without prior approval from Traffic Division.
- All street light identification tag numbering for metal poles shall start with "1" and continue numerically for each street in the subdivision.
- All streetlight ID tag numbering for wooden poles shall be in accordance with HCLCO's numbering system.
- The contractor shall provide all necessary secondary circuit extensions to the nearest HCLCO secondary.
- If the streetlights are installed before HCLCO installs their secondary, the contractor is responsible for coordination and informing HCLCO of street light locations and pole contacts.
- The contractor shall arrange and assume costs to energize streetlights for a minimum of 6 hours for final inspection.
- Two weeks notice must be given for final inspection. The inspectors' presence to section 2-53 of the Hawaii County Code, Department of Public Works shall pay for all costs associated with overtime inspections.
- The contractor shall insulate the month one year of installation of protocols and lamps. All P.E.'s shall have the North facing North.
- All labor and materials shall be warranted for a minimum of one year from date of dedication to County.
- Underground system--Contractor to remove all fuses after testing and given to Traffic Division.
- Acceptable street light materials:
 - Luminaires, with FE receptacle and 120-220 volt THTT ballast.
 - American Electric: SRK-55, SP2 90, SP2 135 & SP2 180 with polycarbonate semi-cutoff lens.
 - RL & S: Model PM-55-120-BK-CY, FM-90-120-BK-RC, FM-180-120-BK-RC. Contractor shall drill four (4) 3/8" diam holes on ballast cover. Spacing between lights 130' - 160'
 - ALLSCAPE LPS fixtures: AL-08-55LPS-120-SMII-BK-RC, AL-08-90-LPS-120-SMII-BK-RC, AL-08-180-LPS-120-SMII-BK-RC-CP. Spacing between lights 130' - 160'
- Protocols, completely solid state. Full "ON".
 - ALR SST PV
- Aluminum Poles:
 - Internally mounted vibration damper; minimum .188 wall thickness. Must be approved by F.H.W.A. to be in compliance with the 2001 amended and adopted MASH70 specifications with 10 inch max base bolt circle. Arm length shall be per plans.
 - Leaning: 2708-4590614, 2208-4580614
 - HAZCO: B73582-001, B73583-002, B75005-001, B72005-002, 73892-001, 73892-002, 73892-003.
- Transformer bases:
 - Aluminum with 15-inch base bolt circle. Must be approved by F.H.W.A. to be in compliance with the 2001 amended and adopted MASH70 breakaway specifications.
 - Leaning 08R-1315H-17
 - Alcon Foundry 1B1-17
- Wooden Poles:
 - 35 feet. Poles treated. Pole hole shall be termite treated before pole installation.
- A scaled drawing of street light locations (Prefer on one sheet) and details of fixture mounting, luminaire type, arm length, identification tags (and circuits, foundation, base, and pole if underground) shall be submitted to the Traffic Division after plan approval and before construction begins.
- Shop drawings shall be submitted for approval by Traffic Division.
- When streetlights are installed on roadways under State jurisdiction, the developer shall submit plans to the State D.O.T. for approval. Traffic Division will install streetlight on existing pole(s) with cost dependent on height of pole.
- All overhead wiring street light fixtures shall be bonded to the neutral wire. All bonded street light fixtures shall have 2"x2" reflectORIZED green sticker placed at the base of wire opening on aluminum arm, signifying that streetlights are bonded.
- All underground wiring streetlights shall be grounded to provide a maximum 25 OHMS to ground.
- All work shall conform to the latest National Electrical Code.

NOTES

DATE: MAY 2007
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SUBDIVISION IMPROVEMENT PLAN FOR:
HELLSTERN SUBDIVISION
 PUUA-KAPOHO, PUNA, ISLAND OF HAWAII, HAWAII
 T.M.K.: (3) 1-4-001 : 073

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF HAWAII.
 CONTRACTOR OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 SIGNATURE: *[Signature]*



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