DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII

MARCH 7, 2012

ADDENDUM NO. 2 TO

PROPOSAL, SPECIFICATIONS, CONTRACT AND BOND FOR
IFB NO.: IFB-12-HHL-001

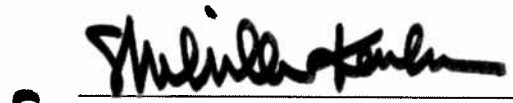
KAKAINA SUBDIVISION, WAIMANALO

LOCATION: ISLAND OF OAHU, HAWAII
TAX MAP KEY: 4-1-08: 10, 81, & 91

NOTICE TO ALL PROSPECTIVE BIDDERS

This addendum is hereby made a part of the contract documents for KAKAINA SUBDIVISION, WAIMANALO, OAHU, HAWAII, and it shall amend the said contract documents as detailed within this Addendum document.

APPROVED:



Albert "Alapaki" Nahale-A, Chairman
Hawaiian Homes Commission

Date: March 7, 2012

Please detach, execute, and return immediately, the receipt below, to the Department of Hawaiian Home Lands, P. O. Box 1879, Honolulu, HI 96805, or by facsimile to 620-9299.

Receipt of Addendum No. 2 for KAKAINA SUBDIVISION, WAIMANALO, OAHU, HAWAII, is hereby acknowledged.

Signed_____ Title_____

Firm_____ Date_____

ADDENDUM NO. 2 TO
PROPOSAL, SPECIFICATIONS, CONTRACT AND BOND FOR
KAKAINA SUBDIVISION, WAIMANALO

IFB-12-HHL-001
OAHU, HAWAII
TAX MAP KEY: 4-1-08: 10, 81, & 91

IFB-11-HHL-001 is revised as follows:

ADVERTISEMENT FOR BIDS

1. Sealed Bids for IFB-12-HHL-001 for the construction of on- and off-site infrastructure and lot grading for Kakaina Subdivision, Waimanalo, Oahu, Hawaii (TMK: 4-1-08: 10, 81 & 91) will be received by the Department of Hawaiian Home Lands (DHHL), Land Development Division at the 91-5420 Kapolei Parkway, Kapolei, Hawaii 96707 until **2:00 p.m., Hawaii Standard Time,** ~~**March 8, 2012**~~ **March 15, 2012** and then at said office publicly opened and read aloud.

CONTRACTOR'S SUBMITTALS - BID OFFER FORM

1. Delete the Bid Offer Form in its entirety and replace with Addendum No. 2 (March 7, 2011) Bid Offer Form attached to this addendum.

CONSTRUCTION PLANS

1. Replace Sheets 1, 10, 11, 12, 16, 20, 22, 23, 24, 25 and 42 with the attached:
    - Sheet 1 – Title Sheet
    - Sheet 10 – Elevation Plan – Kakaina Street
    - Sheet 11 – Elevation Plan – Hihimanu Street
    - Sheet 12 – Elevation Plan – Poalima Street
    - Sheet 16 – Erosion Control Details
    - Sheet 20 – Plan & Profile Road "A" – Sta 0+00 to 5+00
    - Sheet 22 – Plan & Profile Road "B"
    - Sheet 23 – Plan & Profile; Hihimanu Street
    - Sheet 24 – Plan – Kakaina Street & Miscellaneous Profiles
    - Sheet 25 – Plan Poalima & Mekia Street
    - Sheet 42 – Water Details 20" Waterline External Corrosion Protection & Trench Repavement

REQUESTS FOR INFORMATION

1. The plans and specifications for the subject project included US Department of Agriculture Rural Utilities Service "Contractor's" bond forms. I assume the included form, if used, would be in lieu of the usual State Performance and State Payment bond

forms. Please advise if DHHL will accept the usual State Performance & Payment bond forms.

This solicitation will result in three contracts for different components of the work (DHHL contract, Na Kupa'a contract, SIC contract). Each will require separate performance and payment bonds on different approved forms. Please refer to the following sections of the IFB: DHHL Contract (Section 06f); Na Kupa'a contract (Sections 06h and 06i); SIC contract (Section 05a, pages 151 – 157).

2. The plans and specs also include a Bid Bond form prepared by the Engineers Joint Contract Documents Committee. Please advise if DHHL will accept the usual and customary State Bid Bond form normally used for DHHL project in lieu of the sample EJCDC form?

   The State format for Bid Bonds (Section 06f, Exhibit A) may be submitted instead of the EJCDC form, provided that surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

3. The soils report calls for impervious non-expansive import fill. If impervious fill cannot be found that meets the spec, Fewell (FGE) suggests using fill that is more pervious, but a sub-drain system is needed. There is no layout or details for a sub-drain system. If one is needed, would it connect to the catch basins? What is the spacing of the sub-drains?

   Per the soils report the suggestion to use a sub-drain system if more pervious fill is utilized is correct. At this time, due to the unknown factor of the type of soil fill being proposed, the plans will not be modified to accommodate a layout/design or details of a sub-drain system. Contractors shall bid the plans and specification as outlined in the proposal schedule.

4. Is there a pay item for the mailbox?

   No. The United States Postal Service will furnish and install the cluster mailbox units.

5. Does the dust screen have chain link fabric? The plan does not call it out, but if the Mirafi 140 NL fabric is attached with grommets, what does the grommets attach to? If there is chain link, what gauge would the wire be? Would the cross brace be welded between each post? What is the cross brace? A pipe? What size is it? In past DHHL projects, dust screens using wood posts and braces were specified. Can this be an option for the dust screen in lieu of the 4" pipe posts with concrete footings?

   Please refer to revised sheet 16 for updated dust screen detail.
   Details provided in the plans for the dust screen are to accommodate the existing condition of the site. If the Contractor chooses to use wood posts and braces as mentioned and specified in past DHHL projects, it is the Contractor's sole

responsibility to ensure that the dust screen is can be built and that the site is constructible at no additional cost or time to DHHL.

6. There are some companies that will rent a dust screen fence. As this fence will not be permanent, would it be possible to bid the project using a rental dust screen fence?

   Provided that the dust screen can remain in place as specified per the contract documents the Contractor can bid the item as it sees fit.

7. Is there select fill under the grade adjustment wall or the concrete ditch? The details do not show any, and the lot sections may or may not show select fill underneath. The cross sections are too small to make a definite determination.

   There is no select fill under the grade adjustment wall or concrete ditch. There is as indicated on the plans and in the cross sections relatively impermeable low-expansion fill.

8. Will the Contractor be able to have 24 hour lane closures during the construction of the offsite roads? It would be hard to excavate and come up in lifts in a single day. The paving Subcontractor will charge a mobilization fee for each start and stop of the paving. Can we close the roads to two-way traffic for several days? One way traffic can be provided, for access to the local traffic, during non-working hours.

   Contractor specific traffic control must be submitted to the City for review and approval at the Contractor's expense.

9. In the bid items for the 2" AC, cold planning is included. Where are the areas that are supposed to be cold planed?

   No cold planing as indicated in the addendum #1 proposal schedule. Please refer to the addendum #2 proposal schedule.

10. In the grading cross sections, it shows the sidewalk planter areas do not have select fill underneath, the typical road section for Road "A" and Road "B" also show the sidewalk on the native soil. Is this correct? The sidewalks on the offsite roadways show 6" of select borrow.

    Per the soils report, no select borrow subbase is necessary under the sidewalks, curbs and gutters for the streets as shown on the plans.
    The work on off-site roadways (Kakaina Street & Hihimanu Street) includes 6-inches of select borrow in lieu of the 3-feet of overexcavation.

11. What are limits for bid items 22, 23, 24 & 24? Would the balance of paving on Poalima and Mekia Streets be incidental the drainage excavation? The pavement for the trench repair differs from the unit price items.

Please refer to the addendum #2 proposal schedule for additional bid item for trench repavement.

12. What are the limits for bid items 26, 27, 28, & 29? Would the balance of paving be incidental to the water excavation item?

Please refer to the addendum #2 proposal schedule for additional bid item for trench repavement.

Bid Form

Project Identification: **Kakaina Subdivision**

Contract Identification and Number: **IFB-12-HHL-001**

TABLE OF ARTICLES

ARTICLE 1 - BID RECIPIENT

1.01 This Bid Is Submitted To: Department of Hawaiian Home Lands, 91-5420 Kapolei Parkway, Kapolei, Hawaii 96707

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in the Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGMENTS

2.01 Bidder accepts all of the terms and conditions of the Advertisement and Instructions to Bidders, including without limitations those dealing with the dispositions of Bid security. The Bid will remain subject to acceptance for 120 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date
1	02/29/2012
2	03/07/2012

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in SC-4.02, and (2) reports and drawings of Hazard Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of the Work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

J. Bidder will submit written evidence of its authority to do business in the State or

other jurisdiction where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 - BIDDER'S CERTIFICATION

4.01 Bidder further represents that:

A. This Bid is genuine and not made in the interest of or on the behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 - BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Item No.	Estimated Quantity	Description	Unit Price	Total

I. MASS GRADING

The prices bid herein for the following items shall include furnishing all materials, labor, tools, equipment, machinery and all incidentals necessary to install or to construct these items in place complete, all in accordance with the plans and specifications.

1	9	Acres, Clearing and Grubbing of subdivision site, including removal of debris and grubbed material from the site. Per Acre	$ _____	$ _____
2	47,500	Cu. yds., Unclassified Mass Excavation for Roadways and Lots including removal and disposal of uncompacted fill and expansive soils, and placement compaction and grading of the suitable excavated material placed 4.0 below lot finish grade and 3.0 feet below residential street pavement section. The licensed surveyor selected in Special Conditions (SC-05) shall be retained by the Contractor to accurately compute quantities of site excavation by the average area end method under the pay item. When site excavation quantities by average area end method cannot be computed, the Construction Manager will determine the use computation methods that will produce an accurate quantity. The licensed surveyor shall perform a topographic survey of the existing site conditions, after clearing and grubbing is completed, but before excavation. The level of detail provided by the survey shall require concurrence by DHHL prior to excavation activities. The cost of the surveyor is incidental to this pay item. Payment shall be at the contract price pay unit as shown in the proposal schedule. The total shown on the bid proposal cost shall be used for bid comparison purposes only. Per Cu. Yd.	$ _____	$ _____
3	28,270	Sq. yds., Fine Grading of lot areas, including transformer easement and cluster mail box easement locations. Per Sq. Yd.	$ _____	$ _____

4	41,900	Cu. yds., Imported low-expansion impermeable borrow fill, in place complete. The difference between the excavation survey and the final grading survey shall be used to compute the quantities of fill material. The licensed surveyor for Pay Item No. 2 shall be used to accurately compute quantities of import fill by the average area end method under this pay item. When imported fill quantities by average area end method cannot be computed, the Construction Manager will determine and use computation methods that will produce an accurate quantity. Payment shall be at the contract price pay unit as shown in the proposal schedule. The total shown on the bid proposal cost shall be used for bid comparison purposes only.	Per Cu. Yd.	$ _____	$ _____
5	30,763	Sq. Ft., Hydromulch with seeds for grassing of slope banks, lot swales and ditches.	Per Sq. Ft.	$ _____	$ _____
6	221,990	Sq. Ft., Hydromulch with seeds for grassing of lot pads.	Per Sq. Ft.	$ _____	$ _____
7	30,935	Sq. Ft., Hydromulch with seeds for grassing of remainder lot after the Contractor's use as a baseyard/staging area	Per Sq. Ft.	$ _____	$ _____
8	1,710	Lin. Ft., Dust Screen & Silt Fence combination, in place complete, including maintenance and removal as specified and required.	Per Lin. Ft.	$ _____	$ _____
9	1,410	Lin. Ft., Dust Screen, in place complete, including maintenance and removal as specified and required.	Per Lin. Ft.	$ _____	$ _____
10	L.S.	Temporary Erosion Control (inclusive of but not limited to, sediment basins, earth berms, NPDES permit requirements, roadway cleaning and other erosion control measures, including maintenance and removal as specified and required.	Lump Sum		$ _____

11	2	Temporary storm drain inlet protection "Dandy Bag" sediment filter (by Dandy Products, Inc. or equal).		
		Per Each	$	$
	730	Lin. Ft., 6-foot high chain link fence around remainder lot.		
12		Per Lin. Ft.	$	$
	1	Each., 6-foot high double swing gate at remainder lot.		
13		Per Each	$	$
	728	Lin. Ft., Grade Adjustment Wall “A”		
14		Per Lin. Ft.	$	$
	151	Lin. Ft., Grade Adjustment Wall “B”		
15		Per Lin. Ft.	$	$
	L.S.	Items related to maintaining a Fire Contingency Plan as specified in the Special Conditions (SC-31 & SC-32)		
16		Lump Sum		$
17	L.S.	Field Office, including installation and removal, in place complete.		
		Lump Sum		$
		SUB-TOTAL FOR MASS GRADING (Items 1 to 17 inclusive)		$

II. ROADWAYS

The prices bid herein for the following items shall include furnishing all materials, labor, tools, equipment, machinery and all incidentals necessary to install or to construct these items in place complete, all in accordance with the plans and specifications.

18	7,080	Sq. Yds., Fine Grading of Right of Way areas.		
		Per Sq. Yd.	$	$
19	3,360	Sq. Yds., Asphaltic Concrete Pavement, Mix No. 4, 2 inches thick.		
		Per Sq. Yd.	$	$
20	3,360	Sq. Yds., Asphalt Concrete Base Course, 3 inches thick, including prime coat.		
		Per Sq. Yd.	$	$
21	3,360	Sq. Yds., Untreated Aggregate Base Course, 6 inches thick.		
		Per Sq. Yd.	$	$

22	L.S.	Connection to existing Poalima Street including smooth riding connection to the existing pavement		
		Lump Sum		$
23	190	Sq. Yds., Asphalt Concrete Base Course, 4 inches thick (Poalima Street)		
		Per Sq. Yd.	$	$
24	190	Sq. Yds., Aggregate Base Course, 12 inches thick (Poalima Street)		
		Per Sq. Yd.	$	$
25	190	Sq. Yds., 2 inches Asphaltic Concrete Pavement, including cold planing (Poalima Street)		
		Per Sq. Yd.	$	$
26	L.S.	Connection to existing Hihimanu Street including smooth riding connection to the existing pavement		
		Lump Sum		$
27	530	Sq. Yds., Asphalt Concrete Base Course, 4 inches thick (Hihimanu Street)		
		Per Sq. Yd.	$	$
28	530	Sq. Yds., Aggregate Base Course, 12 inches thick (Hihimanu Street)		
		Per Sq. Yd.	$	$
29	530	Sq. Yds., 2 inches Asphaltic Concrete Pavement, including cold planing (Hihimanu Street)		
		Per Sq. Yd.	$	$
30	L.S.	Connection to existing Kakaina Street including smooth riding connection to the existing pavement		
		Lump Sum		$
31	1,770	Sq. Yds., Asphalt Concrete Base Course, 4 inches thick (Kakaina Street)		
		Per Sq. Yd.	$	$
32	1,770	Sq. Yds., Aggregate Base Course, 12 inches thick (Kakaina Street)		
		Per Sq. Yd.	$	$

33	1,770	Sq. Yds., 2 inches Asphaltic Concrete Pavement, including cold planing (Kakaina Street)		
		Per Sq. Yd.	$	$
34	13	Each, Standard City & County of Honolulu street survey monument		
		Per Each	$	$
35	3	Each, Standard City & County of Honolulu street centerline monument		
		Per Each	$	$
36	4,110	Lin. Ft., Standard integral concrete curb and gutter, including curb & gutter transition.		
		Per Lin. Ft.	$	$
37	19,370	Sq. Ft., Class "B" Concrete sidewalk, 4 inches thick		
		Per Sq. Ft.	$	$
38	2,690	Sq. Ft., Class "B" Concrete curb ramp, 4 inches thick		
		Per Sq. Ft.	$	$
39	5,940	Sq. Ft., Reinforced concrete driveway apron, 4 inches thick		
		Per Sq. Ft.	$	$
40	21,580	Sq. Ft., Topsoil, 4 inches thick		
		Per Sq. Ft.	$	$
41	3	Each, 6' x 6' USPS Concrete Pad		
		Per Each	$	$
42	470	Sq. Yds., Repave trench with A.C. pavement, base course and select subbase course to match exsting pavement (Kakaina St, Poalima St & Mekia St)		
		Per Sq. Yd.	$	$
		SUB-TOTAL FOR ROADWAY (Items 18 to 42 inclusive)		$

III. DRAINAGE SYSTEM

The prices bid herein for the following items shall include furnishing all labor, equipment, tools, materials and all incidental work necessary to construct the drainage system in place complete, including excavating for catch basins and manholes, trenching for pipes, removing and disposing of unsuitable material and replacing with select material for pipe cushion, sheeting and shoring as required, backfilling, all in accordance with the plans and specifications.

43	1,500	Cu. Yds., Unclassified excavation for drain lines, catch basins, drain manholes, concrete ditch, and inlets, including backfill and pipe cushion		
		Per Cu. Yds.	$ _____	$ _____
44	445	Lin. Ft., 24" Reinforced concrete pipe, Class III		
		Per Lin. Ft.	$ _____	$ _____
45	1,210	Lin. Ft., 18" Reinforced concrete pipe, Class III		
		Per Lin. Ft.	$ _____	$ _____
46	460	Lin. Ft., 3' x 1.25' Reinforced concrete box culvert		
		Per Lin. Ft.	$ _____	$ _____
47	125	Lin. Ft., 3' x 2' Reinforced concrete box culvert		
		Per Lin. Ft.	$ _____	$ _____
48	8	Each, Standard reinforced concrete catch basin, Type A		
		Per Each	$ _____	$ _____
49	12	Each, Standard reinforced concrete catch basin, Type B		
		Per Each	$ _____	$ _____
50	1	Each, Special Type "B" reinforced concrete catch basin "B8" on Road "B"		
		Per Each	$ _____	$ _____
51	1	Each, Special Type "B" reinforced concrete catch basin "D1" over existing 42" drain line		
		Per Each	$ _____	$ _____
52	1	Each, Standard shallow drain manhole for sidewalk area, 4' - 4.99'		
		Per Each	$ _____	$ _____
53	2	Each, Standard shallow drain manhole for pavement area, 7' - 7.99'		
		Per Each	$ _____	$ _____

54	2	Each, Standard shallow drain manhole for pavement area, 6' - 6.99'		
		Per Each	$	$
55	1	Each, Standard shallow drain manhole for pavement area, 5' - 5.99'		
		Per Each	$	$
56	3	Each, Standard shallow drain manhole for pavement area, 4' - 4.99'		
		Per Each	$	$
57	3	Each, Standard shallow drain manhole for pavement area, 3' - 3.99'		
		Per Each	$	$
58	327	Lin. Ft., Reinforced concrete ditch		
		Per Lin. Ft.	$	$
59	3	Each, Drain inlet with grate		
		Per Each	$	$
60	L.S.	Demolition of existing drain inlet on Hihimanu Street		
		Lump Sum		$
61	L.S.	Drain Outlet "B"		
		Lump Sum		$
62	14	Lin. Ft., 6' High Chain Link Fence, including fabric, posts, top rail, bracings, fittings, tension wires, excavation and backfill, concrete footings and other incidentals.		
		Per Lin. Ft.	$	$
63	755	Cu. Yds., Unclassified excavation for Underground Detention System (bottom of uncompacted fill to bottom of Detention System)		
		Per Cu. Yd.	$	$
64	486	Cu. Yds., 3B fine compacted aggregate backfill (hand tamp) for Underground Detention System		
		Per Cu. Yd.	$	$

65	106	Cu. Yds., Suitable native backfill material (95% compaction, hand tamp) for Underground Detention System		
			Per Cu. Yd. $	$
66	L.S.	Underground Detention System with access ports		
			Lump Sum	$
67	L.S.	Protective measures (ie: underpinning, shoring, etc.) necessary to mitigate damage to surrounding buildings during the removal of the existing drain line and construction of Drain Line "B" through exsiting 10' wide easement		
			Lump Sum	$
68	L.S.	Clearing of easement area including removal of debris from construction site at TMK 4-1-23:47		
			Lump Sum	$
69	L.S.	Restore existing concrete driveway, property fence and mailbox for lot at TMK 4-1-23:47 as necessary.		
			Lump Sum	$
70	Allowance	Restoration of landscaping within easement area at TMK 4-1-23:47 as necessary.		
			Allowance	$2,000.00
		SUB-TOTAL FOR DRAINAGE SYSTEM (Items 43 to 70 inclusive)		$

IV. TRAFFIC

The prices bid herein for the following items shall include furnishing all labor, equipment, tools materials and all incidental work necessary to construct all necessary traffic control devices in place complete, all in accordance with the plans and specifications.

71	4	Each, Pair Street name sign with post		
			Per Each $	$
72	5	Each, R1-1 "STOP" sign.		
			Per Each $	$
73	1	Each, W14-1 "DEAD END" sign		
			Per Each $	$
74	3	Each, R2-1(20) "SPEED LIMIT 20 M.P.H." sign		
			Per Each $	$

75	4	Each, R2-1(25) "SPEED LIMIT 25 M.P.H." sign Per Each	$	$
76	2	Each, Relocate existing "SPEED LIMIT 25 M.P.H." sign Per Each	$	$
77	3	Each, Removal of existing sign Per Each	$	$
78	16	Each, "NO PARKING" sign Per Each	$	$
79	3	Each, "NO PARKING BEGIN" sign Per Each	$	$
80	2	Each, "NO PARKING END" sign Per Each	$	$
81	70	Lin. Ft., 12 inch solid white line Per Lin. Ft.	$	$
82	1,440	Lin. Ft., 4 inch solid double yellow stripe w/ type "D" rpm @ 20' o.c. Per Lin. Ft.	$	$
83	1	Lump Sum, Traffic control work including traffic control devices, special duty police officers, flag men, placement and removal of devices, cleanup, restoration and incidentals per the effective traffic control plans. Lump Sum		$
84	1	Allowance, Additional traffic control work including traffic control devices, special duty police officers, flag men, placement and removal of devices, cleanup, restoration and incidentals as directed by the Engineer or Owner's Representative. Allowance		$16,000.00
		SUB-TOTAL FOR TRAFFIC (Items 71 to 84 inclusive)		$

V. LANDSCAPING

The prices bid herein for the following items shall include all labor, tools and equipment, materials, appurtenances, and incidentals necessary to install or to construct the following items in place and complete in accordance with the plans, specifications, and to the satisfaction of the Owner. The prices do not include bonding costs.

85	24	Each, Installation of 25 Gal., Silver Buttonwood (3" min. caliper, 8'-10' height), in place complete.	Per Each	$ _____	$ _____
86	15	Each, Installation of 25 Gal., Tulipwood Tree (3" min. caliper, 8'-10' height), in place complete.	Per Each	$ _____	$ _____
87	20,730	Sq. Ft., Installation of Seashore Paspalum Grass (hydroseed), in place complete.	Per Sq. Ft.	$ _____	$ _____
88	255	Cu. yds., Installation of 4" layer topsoil under all planting areas, in place complete.	Per Cu. Yd.	$ _____	$ _____
89	610	Lin. Ft., Installation of root barrier, in place complete.	Per Sq. Ft.	$ _____	$ _____
90	3	Months, Formal Landscape Maintenance Period, in place complete.	Per Month	$ _____	$ _____
		SUB-TOTAL FOR LANDSCAPING (Items 85 to 90 inclusive)			$

VII. ELECTRICAL

The prices bid herein for the following items shall include all labor, tools and equipment, materials except that to be supplied by the utility companies, appurtenances and incidentals necessary to install or to construct the following items in place and complete in accordance with the drawings and specifications and standard practices of Hawaiian Electric Co. (HECO), Sandwich Isles Communications, Inc. (SIC), Hawaiian Telcom (HTCO), Oceanic Time Warner Cable (OCEANIC), and the City & County of Honolulu Department of Design & Construction, and to the satisfaction of the Developer.

91	140	Lin. Ft., Furnish and Install One 2-Inch Concrete Encased HECO Conduit. Work shall consist of excavation and providing 2" diameter conduit, with spacers, couplings, appurtenances, and concrete jacket, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$ _____	$ _____
92	400	Lin. Ft., Furnish and Install Two 2-Inch Concrete Encased HECO Conduits. Work shall consist of excavation and providing 2" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$ _____	$ _____
93	150	Lin. Ft., Furnish and Install Two 2-Inch Direct Buried HECO Conduits. Work shall consist of excavation and providing 2" diameter conduits, with spacers, couplings, and appurtenances, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$ _____	$ _____
94	1,500	Lin. Ft., Furnish and Install One 3-Inch Concrete Encased HECO Conduit. Work shall consist of excavation and providing 3" diameter conduit, with spacers, couplings, appurtenances, and concrete jacket, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$ _____	$ _____

95	60	Lin. Ft., Furnish and Install One 3-Inch Direct Buried HECO Conduit. Work shall consist of excavation and providing 3" diameter conduit, with spacers, couplings and appurtenances, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$	$
96	10	Lin. Ft., Furnish and Install Two 3- Inch Direct Buried HECO Conduit. Work shall consist of excavation and providing 3" diameter conduit, with spacers, couplings and appurtenances, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$	$
97	10	Lin. Ft., Furnish and Install Three 3- Inch Direct Buried HECO Conduit. Work shall consist of excavation and providing 3" diameter conduit, with spacers, couplings and appurtenances, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$	$
98	300	Lin. Ft., Furnish and Install Two 2- Inch And One 3-Inch Concrete Encased HECO Conduit. Work shall consist of excavation and providing 2 & 3" diameter conduit, with spacers, couplings and appurtenances, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$	$
99	400	Lin. Ft., Furnish and Install Two 2- Inch And One 3-Inch Direct Buried HECO Conduit. Work shall consist of excavation and providing 2 & 3" diameter conduit, with spacers, couplings and appurtenances, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$	$
100	50	Lin. Ft., Furnish and Install Two 2- Inch And Two 3-Inch Direct Buried HECO Conduit. Work shall consist of excavation and providing 2 & 3" diameter conduit, with spacers, couplings and appurtenances, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$	$

101	100	Lin. Ft., Furnish and Install One 4-Inch Concrete Encased CATV Conduit. Work shall consist of excavation and providing 4" diameter conduit, with spacers, couplings, appurtenances, and concrete jacket, backfilled per Oceanic Cable requirements, complete and in place.		
		Per Lin. Ft.	$ _____	$ _____
102	400	Lin. Ft., Furnish and Install One 1/4-Inch Concrete Encased Street Light Conduit. Work shall consist of excavation and providing 1/4" diameter conduit, with spacers, couplings, appurtenances, and concrete jacket, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$ _____	$ _____
103	350	Lin. Ft., Furnish and Install One 1/2-Inch Concrete Encased Street Light Conduit. Work shall consist of excavation and providing 1/2" diameter conduit, with spacers, couplings, appurtenances, and concrete jacket, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$ _____	$ _____
104	50	Lin. Ft., Furnish and Install One 2-Inch Concrete Encased Street Light Conduit. Work shall consist of excavation and providing 2" diameter conduit, with spacers, couplings, appurtenances, and concrete jacket, backfilled per HECO requirements, complete and in place.		
		Per Lin. Ft.	$ _____	$ _____
105	10	Each, Furnish and Install 17"x 30" Non-Concrete HECO Pullbox, cover with locking device and extension, provided in accordance with HECO standard drawing No. 30-2006 and 011314, complete and in place.		
		Per Each	$ _____	$ _____
106	4	Each, Furnish and Install 13"x 24" Non-Concrete HECO Pullbox, cover with locking device, provided in accordance with HECO standard drawing No. 30-2006, complete and in place.		
		Per Each	$ _____	$ _____

107	13	Each, Furnish and Install 2'x 4' Reinforced Concrete HECO Pullbox with precast concrete covers, provided in accordance with HECO standard drawing No. 30-2005, complete and in place.		
		Per Each	$	$
108	6	Each, Furnish and Install 3'x 5' Reinforced Concrete HECO Handhole with precast concrete covers, provided in accordance with HECO standard drawing No. 15501, complete and in place.		
		Per Each	$	$
109	1	Each, Furnish and Install 4'x 6' Reinforced Concrete HECO Handhole with precast concrete covers, provided in accordance with HECO standard drawing No. 18842, complete and in place.		
		Per Each	$	$
110	1	Each, Furnish and Install 2'x 4' Reinforced Concrete HTCO Pullbox with two piece checkered steel plate covers, similar to HTCO standard drawing No. 34056 except with "CATV" inscribed on cover, complete and in place. Provide additional base if more than two 4" conduits enter the "short" end.		
		Per Each	$	$
111	2	Each, Furnish and Install Type “A” Precast Concrete Street Light Pullbox (City) with polymer cover, provided in accordance with the City & County of Honolulu Dept. of Transportation Services Type “A” standard pullbox drawing.		
		Per Each	$	$
112	5	Each, 6'x 7' HECO Transformer Pad Lot. Work shall consist of reinforced concrete transformer pad and ground rod, provided as indicated on the drawings and in accordance with HECO standard drawing No. 30-5001 and 011249, complete and in place.		
		Per Each	$	$
113	1	Each, Install CATV Power Supply Pedestal, FRP Pad, and Plastic Support Box furnished by Oceanic Cable.		
		Per Each	$	$

114	7	Each, Furnish and Install Street Lighting Luminaire (100W) and Bracket Arm. Work shall consist of providing street lighting luminaire and bracket arm, mounted on utility pole, in accordance with the City & County of Honolulu Mechanical/Electrical Division Standards and as indicated on the drawings, complete and in place.		
		Per Each	$	$
115	2	Each, Furnish and Install Street Lighting Luminaire (100W), Bracket Arm, and Pole. Work shall consist of excavating, constructing reinforced concrete foundation, and backfilling for new pole, and providing street lighting luminaire and bracket arm, mounted on utility new pole, in accordance with the City & County of Honolulu Mechanical/Electrical Division Standards and as indicated on the drawings, complete and in place.		
		Per Each	$	$
116	18	Each, Furnish and Install Street Lighting Standard (70W IES Type III). Work shall consist of excavating, constructing reinforced concrete foundation, backfilling, and providing street lighting standard, luminaire and bracket arm in accordance with the City & County of Honolulu Mechanical/Electrical Division Standard and as indicated on the drawings, complete and in place.		
		Per Each	$	$
117	800	Lin. Ft., Street Lighting Circuit(s) (Multiple System). Work shall consist of providing cables and accessories from street lighting standards to nearest HECO secondary cables, complete and in place.		
		Per Lin. Ft.	$	$
118	1	Each, Remove Street Lighting Luminaire & Bracket Arm. Work shall consist of removing existing pole mounted street light luminaire and bracket arm, and disposing in a lawful manner.		
		Per Each	$	$
119	2	Each, Furnish and Install 2” HECO Conduit Risers. Provide conduit risers up utility pole per HECO requirements, complete and in place.		
		Per Each	$	$

SUB-TOTAL FOR ELECTRICAL (Items 91 to 119 inclusive)	$

VII. HIHIMANU STREET 20-INCH WATER MAIN RELOCATION

The prices bid herein for the following items shall include furnishing all labor, equipment, tools materials and all incidental work necessary to construct the water system in place complete, including excavating for water lines and appurtenances, pipe cushion, backfilling, sheeting and shoring as required, all in accordance with the plans and specifications.

120	381	Cu. yds., Unclassified excavation for water mains, manholes and appurtenances, including backfill, and pipe cushion (high resistance cushion material).		
		Per Cu. Yd.	$ _____	$ _____
121	339	Lin. ft., 20-inch Ductile iron pipe, Class 52 including bonded tape coating		
		Per Lin. Ft.	$ _____	$ _____
122	24	Lin. ft., 8-inch Ductile iron pipe, Class 52 including bonded tape coating.		
		Per Lin. Ft.	$ _____	$ _____
123	16	Lin. Ft., 8" Polyvinyl chloride pipe, C900, Class 150.		
		Per Lin. Ft.	$ _____	$ _____
124	2	Each, 8-inch Gate Valve including bonded tape coating		
		Per Each	$ _____	$ _____
125	2	Each, Standard C.I. valve box and cover.		
		Per Each	$ _____	$ _____
126	2	Each, 20-inch Resilient Gate Valve with Dismantling Joint 4-inch by-pass line including bonded tape coating		
		Per Each	$ _____	$ _____
127	2	Each, Type A Manhole for Butterfly Gate Valves		
		Per Each	$ _____	$ _____
128	1	Each, Offset Air Relief Valve for 20" Main		
		Per Each	$ _____	$ _____
129	1	Each, Type D Manhole for Offset Air Relief Valve		
		Per Each	$ _____	$ _____

130	18	Cu. yds., DWS 2500 concrete including reinforced steel wherever necessary for pipe reaction and test blocks.	Per Cu. Yd.	$	$
131	29	Lin. ft., Reinforced concrete jacket.	Per Lin. Ft.	$	$
132	8,405	Pounds, Cast iron fittings including bonded tape coating	Per Lb.	$	$

2 - 20"x8" Tee, MJ @ 845	1,690
1 - 20" 1/4 Bend MJ @ 790	790
2 - 20" 1/8 Bend, MJ @ 595	1,190
2- 20" 1/8 Bend, MJ x FE @ 565	1,130
4 - 20" 1/16 Bend MJ @ 605	2,420
2 - 20" 1/32" Bend, MJ @ 610	1,220
2 - 20" 1/32" Bend, MJ x FE @ 500	1,000
2 - 20" Coupling (CCP to D.I.) @ 125	250
1 - 8" Tee, MJ @ 185	185
1 - 8" 1/4 Bend MJ @ 125	125
1 - 8" 1/16 Bend MJ @ 110	110
1 - 8" 1/32 Bend MJ @ 110	110
1 - 8" Plug @ 45	45
TOTAL	10,265

133	2	20” Baker Coupling (CCP to DI)	Per Each	$	$
134	28	Electronic Markers	Per Each	$	$
135	2	Each, Connection to existing 20-inch main	Per Each	$	$
136	1	Each, Connection to existing 8 inch service main.	Per Each	$	$
137	2	Each, 4-inch Cleanout Assembly	Per Each	$	$
138	5	Each, Cut and Plug existing 20-inch main	Per Each	$	$
139	275	Sq. Yds., 2 inches Asphaltic Concrete Pavement, including cold planning (Hihimanu Street)	Per Sq. Yds.	$	$
140	275	Sq. Yds., Asphalt Concrete Base Course, 4 inches thick (Hihimanu Street)	Per Sq. Yd.	$	$

141	275	Sq. Yds., Aggregate Base Course, 12 inches thick (Hihimanu Street) Per Sq. Yd.	$	$
142	L.S.	Remove existing 20-inch main within private property, plug existing to be abandoned in-place Lump Sum		$
143	L.S.	Remove existing 6-inch main within private property, plug existing to be abandoned in-place Lump Sum		$
144	L.S.	Pipe Joint Bonding at the joints of all buried metallic pipe, including vault and manhole piping and all fittings except joints specified to be threaded, welded or insulated. Also includes electrical continuity testing as specified in BWS Water System External Corrosion Control Standards Lump Sum		$
145	3	Each, Flush Mounted Test Station type "I" per BWS standard corrosion control detail 9 including testing as specified in BWS Water System External Corrosion Control Standards Per Each	$	$
146	1	Each, Flush Mounted Test Station type "T" with 18 lb zinc anode (ASTM-B-418 Type II),1.4"x1.4"x36", per BWS standard corrosion control detail 8 including testing as specified in BWS Water System External Corrosion Control Standards Per Each	$	$
147	3	Each, Galvanic Anode Installation using 18 lb zinc anode (ASTM-B-418 Type II),1.4"x1.4"x36", per BWS standard corrosion control detail 13 including testing as specified in BWS Water System External Corrosion Control Standards Per Each	$	$
148	L.S.	Flushing, testing and chlorination of the entire system. Lump Sum		$
149	L.S.	Temporary Erosion Control Lump Sum		$
150	L.S.	Restore Existing Concrete Driveway, Curb and Gutter at TMK: 4-1-06:267 Lump Sum		$
		SUB-TOTAL FOR HIHIMANU ST. 20-INCH WATER MAIN RELOCATION (Items 120 to 150 inclusive)		$

VIII. SEWER SYSTEM

The prices bid herein for the following items shall include furnishing all labor, equipment, tools materials and all incidental work necessary to construct the sewer system in place complete, including excavating for pipes and manholes, crushed rock cradle, rungs, frame and cover for manholes, sheeting and shoring as required, backfilling, all in accordance with the plans and specifications.

151	751	Cu. Yds., Unclassified excavation for sewer lines, cradles and manholes, including backfill and manhole seals.	Per Cu. Yds.	$	$
152	1,215	Lin. Ft., 8" PVC pipe	Per Lin. Ft.	$	$
153	1,092	Lin. Ft., 6" PVC pipe	Per Lin. Ft.	$	$
154	30	Each, 8" x 6" PVC sewer pipe wye.	Per Each	$	$
155	38	Each, 6" PVC sewer pipe 1/8 bend.	Per Each	$	$
156	44	Each, 2" PVC Marker	Per Each	$	$
157	44	Each, 6" x 4" Extra heavy cast iron soil pipe reducer with 4" T.C. Cap.	Per Each	$	$
158	1,215	Lin. Ft., Crushed rock cradle for 8" sewer pipe.	Per Lin. Ft.	$	$
159	1,092	Lin. Ft., Crushed rock cradle for 6" sewer pipe.	Per Lin. Ft.	$	$
160	99	Lin. Ft., Plain concrete jacket for 6" sewer pipe.	Per Lin. Ft.	$	$
161	40	Lin. Ft., Reinforced concrete jacket for 6" sewer pipe.	Per Lin. Ft.	$	$
162	39	Lin. Ft., Reinforced concrete jacket for 8" sewer pipe.	Per Lin. Ft.	$	$
163	8	Each, Reinforced concrete manhole base	Per Each	$	$

164	8	Each, C.I. manhole frame and cover Per Each	$		$
165	1	Each, Standard plain manhole, 6' - 6.99' Per Each	$		$
166	4	Each, Standard plain manhole, 7' - 7.99' Per Each	$		$
167	2	Each, Standard plain manhole, 8' - 8.99' Per Each	$		$
168	1	Each, Standard plain manhole, 10' -10.99' Per Each	$		$
169	1	Each, Adjust existing sewer manhole to grade Per Each	$		$
170	L.S.	Connection new 8" sewer to existing SMH in Hihimanu Street at Station 3+52.96 Hihimanu Street, including excavation and backfilling. Lump Sum			$
171	L.S.	Connection of new SMH over existing 8” sewer in Poalima Street at Station 3+48.78 Road B, including excavation and backfilling. Lump Sum			$
172	4	Each, Double Wye Per Each	$		$
		SUB-TOTAL FOR SEWER SYSTEM (Items 151 to 172 inclusive)			$

IX. WATER SYSTEM

The prices bid herein for the following items shall include furnishing all labor, equipment, tools materials and all incidental work necessary to construct the water system in place complete, including excavating for water lines and appurtenances, pipe cushion, backfilling, sheeting and shoring as required, all in accordance with the plans and specifications.

173	515	Cu. Yds., Unclassified excavation for water mains and appurtenances, including backfill and pipe cushion. Per Cu. Yds.	$		$
174	1,430	Lin. Ft., 8" Polyvinyl chloride pipe, C900, Class 150. Per Lin. Ft.	$		$
175	80	Lin. Ft., 6" Polyvinyl chloride pipe, C900, Class 150. Per Lin. Ft.	$		$

176	90	Lin. Ft., 4" Polyvinyl chloride pipe, C900, Class 150.	Per Lin. Ft.	$	$
177	170	Lin. Ft., 8" Ductile iron pipe., CL 52	Per Lin. Ft.	$	$
178	30	Lin. Ft., 4" Ductile iron pipe., CL 52	Per Lin. Ft.	$	$
179	4,320	Lbs., Ductile Iron Fittings	Per Lb.	$	$

1 - 8" CROSS	235
4 - 8" x 6" TEE, M.J.	700
3 - 8" 1/8 BEND, M.J.	330
25 - 8" 1/16 BEND, M.J.	2,750
2 - 8" 1/32 BEND, M.J.	220
1 - 6" 1/4 BEND, M.J.	85
TOTAL	4,320

180	19	Each, Deflection coupling	Per Each	$	$
181	4	Each, 8" Gate valve, Class 150	Per Each	$	$
182	4	Each, 6" Gate valve, Class 150	Per Each	$	$
183	6	Each, 3/4" Air release valve including meter box and all appurtenances	Per Each	$	$
184	1	Each, Fire Hydrant, 5.5' curb to invert	Per Each	$	$
185	1	Each, Fire Hydrant, 4.5' curb to invert	Per Each	$	$
186	2	Each, Fire Hydrant, 4.0' curb to invert	Per Each	$	$
187	78	Sq. Ft., 4" thick concrete slab for fire hydrant	Per Sq. Ft.	$	$
188	16	Each, 1-1/2" Service lateral with Type C-1 service connection.	Per Each	$	$
189	12	Each, 1" Service lateral with Type A service connection.	Per Each	$	$

190	44	Each, Type "X" meter box Per Each	$	$
191	4	Each, Blue reflector FH pavement marker Per Each	$	$
192	8	Each, Cast iron valve box & cover Per Each	$	$
193	60	Cu. Yds., Class "B" concrete for reaction blocks, gate valve anchor blocks, etc. Per Cu. Yd.	$	$
194	1	Each, 4" Cap tapped for 2-1/2" I.P.T. w/ 2-1/2" Cleanout assembly & 1-1/2" lateral connection Per Each	$	$
195	170	Lin. Ft., Reinforced concrete jacket for 8" water main Per Lin. Ft.	$	$
196	30	Lin. Ft., Reinforced concrete jacket for 4" water main Per Lin. Ft.	$	$
197	L.S.	Connect new 8" water main to existing 12" water main (Kakaina St.) Lump Sum		$
198	L.S.	Connect new 8" water main to existing 6" water main (Poalima St.) Lump Sum		$
199	L.S.	Chlorination and testing of the entire system Lump Sum		$
200	61	Each, Electronic markers Per Each	$	$
201	4	Each, Adjust existing water lateral Per Each	$	$
202	2	Each, Cut & plug existing lateral at main. Remove existing water meter, box, valve & cover. Abandon existing lateral in place. Per Each	$	$
203	5	Each, Adjust existing water valve box to finish grade. Per Each	$	$
		SUB-TOTAL FOR WATER SYSTEM (Items 173 to 203 inclusive)		$

X. SANDWICH ISLE COMMUNICATIONS

The prices bid herein for the following items shall include all labor, tools and equipment, materials except that to be supplied by Sandwich Isles Communications, Inc. (SIC), appurtenances and incidentals necessary to install or to construct the following items in place and complete in accordance with the drawings and specifications and standard practices of Sandwich Isles Communications, Inc., Hawaiian Telecom (HTCO), and the City & County of Honolulu Department of Public Works, and to the satisfaction of the DHHL.

204	62	Lin. Ft., Furnish and Install Two 1-Inch Direct Buried SIC Conduits - UD(2X1-1"). Work shall consist of excavation and providing 1" diameter conduits, with spacers, couplings and appurtenances, backfilled per SIC requirements, complete and in place. Per Lin. Ft.	$	$
205	1,070	Lin. Ft., Furnish and Install Two 1-Inch Concrete Encased SIC Conduits - UD(2X1-1")E. Work shall consist of excavation and providing 1" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place. Per Lin. Ft.	$	$
206	322	Lin. Ft., Furnish and Install Four Concrete Encased SIC Conduits - UD (2X2-1")E. Work shall consist of excavation and providing 1" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place. Per Lin. Ft.	$	$
207	56	Lin. Ft., Furnish and Install Six Concrete Encased SIC Conduits - UD (3X2-1")E. Work shall consist of excavation and providing 1" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place. Per Lin. Ft.	$	$
208	750	Lin. Ft., Furnish and Install Two 4-Inch Concrete Encased SIC Conduits - UD(1X2-4")E. Work shall consist of excavation and providing 4" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place. Per Lin. Ft.	$	$

209	30	Lin. Ft., Furnish and Install Six 4-Inch Concrete Encased SIC Conduits - UD(3X2-4")E. Work shall consist of excavation and providing 4" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place.		
			Per Lin. Ft. $	$
210	250	Lin. Ft., Furnish and Install Two 4-Inch & Two 1-Inch Concrete Encased SIC Conduits - UD(2X1-4") & UD(2X1-1")ED. Work shall consist of excavation and providing 4" and 1" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place.		
			Per Lin. Ft. $	$
211	112	Lin. Ft., Furnish and Install Two 4-Inch & Four 1-Inch Concrete Encased SIC Conduits - UD(2X1-4") & UD(2X2-1")ED. Work shall consist of excavation and providing 4" & 1" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place.		
			Per Lin. Ft. $	$
212	158	Lin. Ft., Furnish and Install Two 4-Inch & Six 1-Inch Concrete Encased SIC Conduits - UD(2X1-4") & UD(3X2-1")ED. Work shall consist of excavation and providing 4" & 1" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place.		
			Per Lin. Ft. $	$
213	22	Lin. Ft., Furnish and Install Two 4-Inch & Eight 1-Inch Concrete Encased SIC Conduits - UD(2X1-4") & UD(4X2-1")ED. Work shall consist of excavation and providing 4" & 1" diameter conduits, with spacers, couplings, appurtenances, and concrete jacket, backfilled per SIC requirements, complete and in place.		
			Per Lin. Ft. $	$

214	6	Each, Furnish and Install 13”x 24”x 36” Polymer Concrete Pullbox Type UHC 13x24x36 with 20K “traffic” rated polymer concrete covers, and cable racks, provided in accordance with SIC standard requirements, complete and in place.		
		Per Each	$	$
215	8	Each, Furnish and Install 30"x 48" x 33" Type UHC 30x48 Polymer Concrete Handhole with 20K “traffic” rated polymer concrete covers, and cable racks, provided in accordance with SIC standard requirements, complete and in place.		
		Per Each	$	$
216	1	Each, Furnish and Install 3'-9"x 5'-9"x 4'-2.5" Type UH 3x5 Reinforced Concrete Handhole, with two piece hinged traffic rated covers, and cable racks, provided in accordance with SIC standard requirements, complete and in place.		
		Per Each	$	$
217	1	Each, Furnish and Install Housing Ground Assembly Unit BM 2(5/8)(8), with copper clad ground rod, ground rod clamp and the required length of bare #6 AWG tinned copper ground wire connected to an auxiliary grounding connector within the housing, provided in accordance with SIC standard requirements, complete and in place.		
		Per Each	$	$
218	1	Each, Furnish and Install Underground Manhole Rearrangement Unit(W-UM). Place new ducts into existing manhole using available knock out or core drilling side wall. Contractor to provide bell ends and duct plugs. Contractor shall patch manhole and backfill per SIC specifications. Location of entering conduit will be determined by project manager at time of construction.		
		Per Each	$	$
219	22	Lin. Ft., Furnish and Install One 4-Inch Direct Buried HTCO Conduit. Work shall consist of excavation and providing 4” diameter conduit, with spacers, couplings, and appurtenances, backfilled per HTCO requirements, complete and in place.		
		Per Lin. Ft.	$	$

220	1	Each, Furnish and Install 2'x4' Precast Concrete HTCO Pullbox with two piece steel "slip-not" grip or polymer "non-skid" covers and ground rod, provided in accordance with HTCO standard drawing No. 34056. A minimum of two precast concrete pullbox sections shall be required at each pullbox.	Per Each $	$
221	1	Each, Furnish and Install 4" HTCO Conduit Risers. Provide conduit risers up utility pole per HTCO requirements, complete and in place.	Per Each $	$

SUB-TOTAL FOR SANDWICH ISLES COMMUNICATIONS (Items 204 to 221 inclusive)	$

RECAPITULATION

DHHL Work

I. Mass Grading (Items 1 to 17, inclusive)	$_____	
II. Roadways (Items 18 to 42, inclusive)	$_____	
III. Drainage System (Items 43 to 70, inclusive)	$_____	
IV. Traffic (Items 71 to 84, inclusive)	$_____	
VI. Landscaping (Items 85 to 90, inclusive)	$_____	
VII. Electrical (Items 91 to 119 inclusive)	$_____	
VIII. Hihimanu Street 20-Inch Water Main Relocation (Items 120 to 150, inclusive)	$_____	
TOTAL DHHL WORK		$_____

Na Kupaa Work

VIII. Sewer System (Items 151 to 172, inclusive)	$_____	
IX. Water System (Items 173 to 203, inclusive)	$_____	
TOTAL NA KUPAA WORK		$_____

Sandwich Isles Communications, Inc. Work

Section X. (Items 204 to 221, inclusive)		$_____
TOTAL SUM BID		**$_____**

Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the contract Documents.

ARTICLE 6 - TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with paragraph 4.02 of the Agreement Between Owner and Contractor for Construction Contract and Section SC-03 of the DHHL Special Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damage.

ARTICLE 7 - ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of the Bid:

A. Required Bid security in the form of a Bid Bond (EJCDC No. C-430) or Certified Check (circle type of security provided);

B. List of Joint Contractors or Subcontractors;

C. Hawaii Products Preference schedule.

D. If applicable, Certification Form 1 verifying the participation in an apprenticeship program registered with the State Department of Labor and Industrial Relations (DLIR).

E. Tax Clearance Certificate from State Department of Taxation and Internal Revenue Service.

F. If Bid amount exceeds $10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in paragraph 18.10 of the General Conditions;

G. If Bid amount exceeds $25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions (AD-1048);

H. If Bid amount exceeds $100,000, signed RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grants, and Loans.

ARTICLE 8 - DEFINED TERMS

8.01 The terms used in this Bid with the initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 - BID SUBMITTAL

9.01 This Bid is submitted by:

*_____

Exact Legal Name of Company (Bidder)

The Bidder represents that it is: **(Check √ one only)**

☐ A **Hawaii business** incorporated or organized under the laws of the State of Hawaii; **OR**

☐ A **Compliant Non-Hawaii business** not incorporated or organized under the laws of the State of Hawaii, is or shall be registered at the State of Hawaii Department of Commerce and Consumer Affairs Business Registration Division (DCCA-BREG) to do business in the State of Hawaii.

State of incorporation: _____

Bidder is:

☐ Sole Proprietor ☐ Partnership ☐ Corporation ☐ Joint Venture ☐ Other: _____

Federal I.D. No.: Hawaii General Excise Tax ID No.:

State Contractor License No. _____.

Business address

_____

(Street Address, City, State, Zip Code)

Payment address (other than street address above)

_____

(Street Address, City, State, Zip Code)

Telephone No.: ( ) Fax No.: ( ) E-Mail address:

If Bidder is:

An Individual

Name (typed or printed): _____ SEAL, if required by State

By: _____
(Individual's signature)

Doing business as:
_____

A Partnership

Partnership Name: _____ SEAL, if required by State

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed):
_____

A Corporation

Corporation Name:
_____

State or Jurisdiction of Incorporation: _____

Type (General Business, Profession, Service, Limited Liability):
_____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed):
_____

Title: _____ CORPORATE SEAL, if required by State

Attest _____
(Signature of Corporate Secretary)

Date of Qualification to do business in _____ [State or other jurisdiction where Project is located] is ___/___/_____

A Joint Venture

Name of Joint Venture:
_____

First Joint Venture Name: _____ SEAL, if required by State ___

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed):
_____

Title: _____

Second Joint Venture Name: SEAL, if required by State
_____

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed):
_____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is party to the venture should be in the manner indicated above.)

Phone and FAX Numbers, and Address for receipt of official communications, if different from Business contact information:

_____

_____

9.02 Bid submitted on _____, 20___.

ALL JOINT CONTRACTORS OR SUBCONTRACTORS TO BE ENGAGED ON THIS PROJECT

The Bidder certifies that the following is a complete listing of all joint Contractors or Subcontractors covered under Chapter 444, Hawaii Revised Statutes, who will be engaged by the Bidder on this project to perform the nature and scope of work indicated pursuant to Section 103D-302, Hawaii Revised Statutes, and understands that failure to comply with this requirement shall be just cause for rejection of the bid.

The Bidder further understands that only those joint Contractors or Subcontractors listed shall be allowed to perform work on this project and that all other work necessary shall be performed by the Bidder with his own employees. If no joint Contractor or Subcontractor is listed, it shall be construed that all of the work shall be performed by the Bidder with his own employees.

The Bidders must be sure that they possess and that the Subcontractors listed in the proposal possess all the necessary licenses needed to perform the work for this project. The bidder shall be solely responsible for assuring that all the specialty licenses required to perform the work are covered in his bid.

The Bidder shall include the license number of the joint Contractors or Subcontractors listed below. Failure to provide the correct names and license numbers as registered with the Contractor's Licensing Board may cause rejection of the bid submitted.

Complete Firm Name of Joint Contractor or Subcontractor for Total Sum Bid	License Number	Nature and Scope of Work to be Performed

(Add additional sheets if necessary)

HAWAII PRODUCTS PREFERENCE

Section 103D-1002, Hawaii Revised Statutes (HRS), as amended by Act 175 (Session Laws of Hawaii 2009), provides preference for Hawaii products. The previous Hawaii products list established pursuant to HRS §103D-1002 was suspended effective July 1, 2009, and a new list has been published by the State Procurement Office (SPO). DHHL will be supplementing the list with additional approved products for this solicitation.

Pursuant to HRS §103D-1002(b) (2) and Procurement Circular No. 2009-13, bidders intending to use Hawaii products should distribute the attached SPO-38, *Certification for Hawaii Product Preference*, to each of the manufacturers and producers of such products which bidders intend to use if the manufacturers and producers and their products are not listed on the SPO Hawaii Products List or in the DHHL's list below. The manufacturers and producers must complete and submit SPO-38 to DHHL. The form must be received by DHHL no later than **2:00 p.m., February 23, 2012**. Submittal by facsimile (808 620-9299) is acceptable. If DHHL receives and approves SPO-38s relating to this solicitation DHHL will issue an addendum listing the additional certified and qualified Hawaii products by **4:00 p.m., February 29, 2012.**

Bidders may claim a Hawaii product preference for products that it manufactures or produces with its own workforce and equipment. The SPO-38, *Certification for Hawaii Product Preference*, must be submitted in accordance with the procedures described above in order for Bidder to claim a Hawaii product preference for such Hawaii products Bidder intends to use in this work.

A partial list of approved products is provided below. The complete current list as compiled by the State Procurement Office is available at:

http://www4.hawaii.gov/spoh/HiProducts/hiProducts.htm

Preferences, Hawaii Products

CONSTRUCTION PRODUCTS AND SOIL AMENDMENTS/PRODUCTS

Aggregates – Basaltic Termite Barrier

Product Subcategory *as applicable*	Effective	**Revised**	**Manufacturer**	Oahu	Maui	Hawaii	Kauai
	11/03/09		Ameron International Corporation	X	X		

Aggregates and Sand – Basalt, Rock, Cinder, Limestone and Coral

Product Subcategory *as applicable*	Effective	**Revised**	**Manufacturer**	Oahu	Maui	Hawaii	Kauai
	11/03/09		Ameron International Corporation	X	X		
	10/23/09		CTS Earthmoving, Inc.			X	
	11/03/09	1/20/10	Delta Construction Corporation	X			
	12/14/09		Edwin Deluz Trucking & Gravel LLC			X	
	01/28/10		Goodfellow Bros., Inc.	X			

	11/02/09		Grace Pacific	X		X	X
	4/26/11		GW Construction			X	
	11/03/09		Hawaiian Cement	X	X		
	12/15/09		Jas. W. Glover, Ltd.			X	X
	06/30/10		Kauai Aggregates				X
	10/20/09	07/22/10	Sanford's Service Center, Inc.			X	
	11/05/09		Tileco, Inc.	X	X	X	X
	11/03/09		West Hawaii Concrete			X	
	11/02/09		Yamada and Sons, Inc.			X	

Aggregates – Recycled Asphalt and Concrete

Product Subcategory *as applicable*	Effective	**Revised**	**Manufacturer**	Oahu	Maui	Hawaii	Kauai
	12/15/09		Glover Honsador				X
	11/02/09		Grace Pacific	X			
	12/15/09		Jas. W. Glover, Ltd.	X		X	
	10/18/10		West Oahu Aggregate Co. Inc.	X			

Asphalt and Paving Materials - HI Products

Product Subcategory *as applicable*	**Effective**	**Revised**	**Manufacturer**	Oahu	Maui	Hawaii	Kauai
	06/15/10		Black Maui Rose LLC		X		
	12/22/09		Black Plumeria LLC	X			
	10/21/09	11/02/09	Grace Pacific Corporation	X		X	X
	12/05/09		Jas. W. Glover, Ltd.			X	X
	11/03/11		Maui Asphalt X-IV, LLC		X		
	10/28/09		Maui Paving LLC		X		
	11/20/09		Walker-Moody Pavement Products and Equipment	X	X	X	X
	11/22/09		Yamada and Sons, Inc. dba YS Rock and Con-Agg of Hawaii			X	

Cement and Concrete Products

Product Subcategory *as applicable*	**Effective Date**	**Last Revised Date**	**Manufacturer**	Oahu	Maui	Hawaii	Kauai
	11/03/09		Ameron International Corporation	X			
	01/19/10		BOMAT, Ltd.	X	X	X	X
	12/15/09		Glover Honsador				X
	11/03/09		Hawaiian Cement	X	X		
	12/15/09		Jas. W. Glover, Ltd.			X	X
	12/15/09		Kohala Coast Concrete & Precast LLC			X	
	06/30/10		O. Thronas, Inc.				X
	11/05/09		Tileco, Inc.	X	X	X	X
	11/03/09		West Hawaii Concrete			X	

Precast Concrete Products

Product Subcategory *as applicable*	Effective Date	Revised Date	Manufacturer	Oahu	Maui	Hawaii	Kauai
	7/12/10		Aloha Precast, Inc.	X	X	X	X
	11/03/09	04/15/10	Ameron International Corporation	X			
	08/02/10		GPRM Prestress, LLC	X	X	X	X
	11/03/09		Hawaii Concrete Products, Inc.	X			
	12/15/09		Kohala Coast Concrete & Precast LLC			X	
	11/03/09		Ramtek Fabrication Co., Inc.	X	X	X	X
	06/30/10	02/26/10	Walker Industries, Ltd.	X	X	X	X

Environmental Sewage-Treatment Innovative System (ESIS) Individual Wastewater System which utilizes anaerobic/aerobic processing to treat wastewater to R-2 quality at discharge

Product Subcategory *as applicable*	Effective	Revised	Manufacturer	Oahu	Maui	Hawaii	Kauai
	11/20/09		Environmental Waste Management Systems, Inc.	X	X	X	X
Septic Tanks	11/03/09		Ameron International Corporation	X			
	11/05/09	02/26/10	Walker Industries, Ltd.	X	X	X	X

Hot Dip Galvanizing

Product Subcategory *as applicable*	Effective Date	Revised Date	Manufacturer	Oahu	Maui	Hawaii	Kauai
	03/03/10		Universal Associates, Inc.	X			

Pipes-Aluminum and Galvanized

Product Subcategory *as applicable*	Effective Date	Revised Date	Manufacturer	Oahu	Maui	Hawaii	Kauai
Pipes-Miscellaneous	11/03/09		Ameron International Corporation	X			

Aluminum Docks, Floating, etc. - Miscellaneous

Product Subcategory *as applicable*	Effective	Revised	Manufacturer	Oahu	Maui	Hawaii	Kauai
	05/25/10	06/14/10	Bluewater Marine and Dock Specialties	X	X	X	X

Playground Surfaces

Product Subcategory as applicable	Effective	Revised	Manufacturer	Oahu	Maui	Hawaii	Kauai
	01/07/10		Innovative Playgrounds and Recreation, Inc.	X	X	X	X

Signs - Traffic, Regulatory and Construction

Product Subcategory *as applicable*	Effective	Revised	Manufacturer	Oahu	Maui	Hawaii	Kauai
	12/14/09		GP Roadway Solutions, Inc.	X	X	X	X
	11/20/09		Safety Systems Hawaii, Inc.	X	X	X	X

Veneer

Product Subcategory as applicable	Effective	Revised	Manufacturer	Oahu	Maui	Hawaii	Kauai
	11/14/11		Big Rock Manufacturing	x	x	x	x

Soil Amendments, Mulch, Compost

Product Subcategory *as applicable*	Effective Date	Revised Date	Manufacturer	Oahu	Maui	Hawaii	Kauai
	10/16/09		Kauai Nursery & Landscaping, Inc.	X	X	X	X
	10/20/09		Sanford's Service Center, Inc.			X	

Compost Filter

Product Subcategory *as applicable*	Effective Date	Revised Date	Manufacturer	Oahu	Maui	Hawaii	Kauai
	01/25/10		EnviroTech BioSolutions Hawaii, Inc.	X	X	X	X
	6/02/11		Certified Erosion Control Hawaii LLC	X	X	X	X

DESIGNATION OF HAWAII PRODUCTS TO BE USED		
Description	Manufacturer	Cost FOB Jobsite, Unloaded Including Applicable General Excise and Use Taxes
		$_____
		$_____
		$_____
		$_____
		$_____
		$_____
		$_____
		$_____
		$_____
		$_____
		$_____
		$_____

(Add additional sheets if necessary)

The Bidder agrees that preference for Hawaii products shall be taken into consideration to determine the low Bidder in accordance with said sections and the rules promulgated; however, the award of contract will be in the amount of the bid offered exclusive of any preferences.

It is further understood by the Bidder that if upon being granted Hawaii Products, and being awarded the contract, if the Bidder fails to use such products or meet the requirements of such preference, the Bidder shall be subject to penalties, if applicable.

APPRENTICESHIP AGREEMENTS

Section 103-55.6, Hawaii Revised Statutes (HRS), was added by Act 17 (Special Legislative Session 1, 2009), and provides the 5% bid adjustment for bidders that are parties to apprenticeship agreements. To be eligible for the preference, the bidder shall:

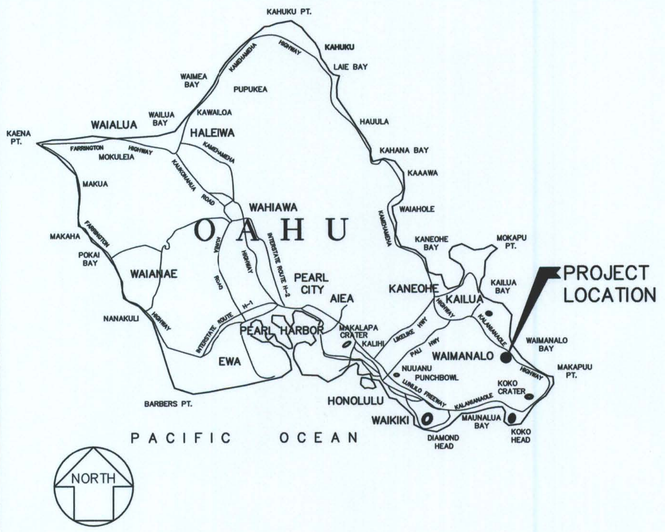
1. State the trades the bidder will employ to perform the work.

2. For each trade to be employed to perform the work, the bidder shall submit a completed signed original *Certification Form 1* verifying the participation in an apprenticeship program registered with the State Department of Labor and Industrial Relations (DLIR).

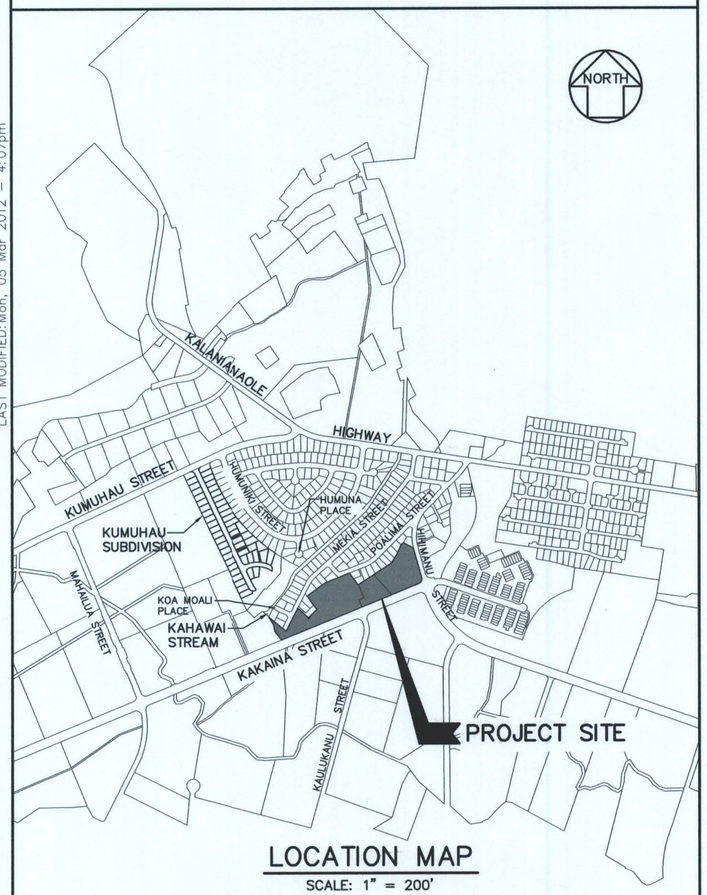
3. The *Certification Form 1* shall be authorized by an apprenticeship sponsor of the DLIR list of registered apprenticeship programs. The authorization shall be an original signature by an authorized official of the apprenticeship sponsor.

4. The completed *Certification Form 1* for each trade must be submitted by the bidder with the proposal. Previous certifications shall not apply.

Upon receiving *Certification Form 1*, DHHL will verify with DLIR that the apprenticeship program is on the list of apprenticeship programs registered with DLIR. If the program(s) are not confirmed by DLIR, the bidder will not qualify for the preference.



ISLAND MAP



LOCATION MAP

SCALE: 1" = 200'

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

KAKAINA SUBDIVISION

DEVELOPED UNDER THE HAWAIIAN HOMES COMMISSION ACT

WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

TAX MAP KEY: 4-1-08: 10, 81, 91 & 92

(SUB'D. FILE NO. 2011/SUB-23)

PREPARED BY
AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS
HONOLULU, HAWAII

APPROVED:

CHAIRMAN, DEPARTMENT OF HAWAIIAN HOME LANDS — DATE
STATE OF HAWAII

DIRECTOR, DEPARTMENT OF PLANNING AND PERMITTING — DATE
CITY & COUNTY OF HONOLULU

MANAGER AND CHIEF ENGINEER, BOARD OF WATER SUPPLY — DATE
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY)
CITY & COUNTY OF HONOLULU

CHIEF, ENVIRONMENTAL MANAGEMENT DIVISION, DEPARTMENT OF HEALTH — DATE
STATE OF HAWAII

INDEX TO DRAWINGS

ADDENDUM #2
MARCH 7, 2012

KAKAINA SUBDIVISION

FILE	POCKET	FOLDER	NO.

PREFIX: G:\DHHL06-02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum#2\
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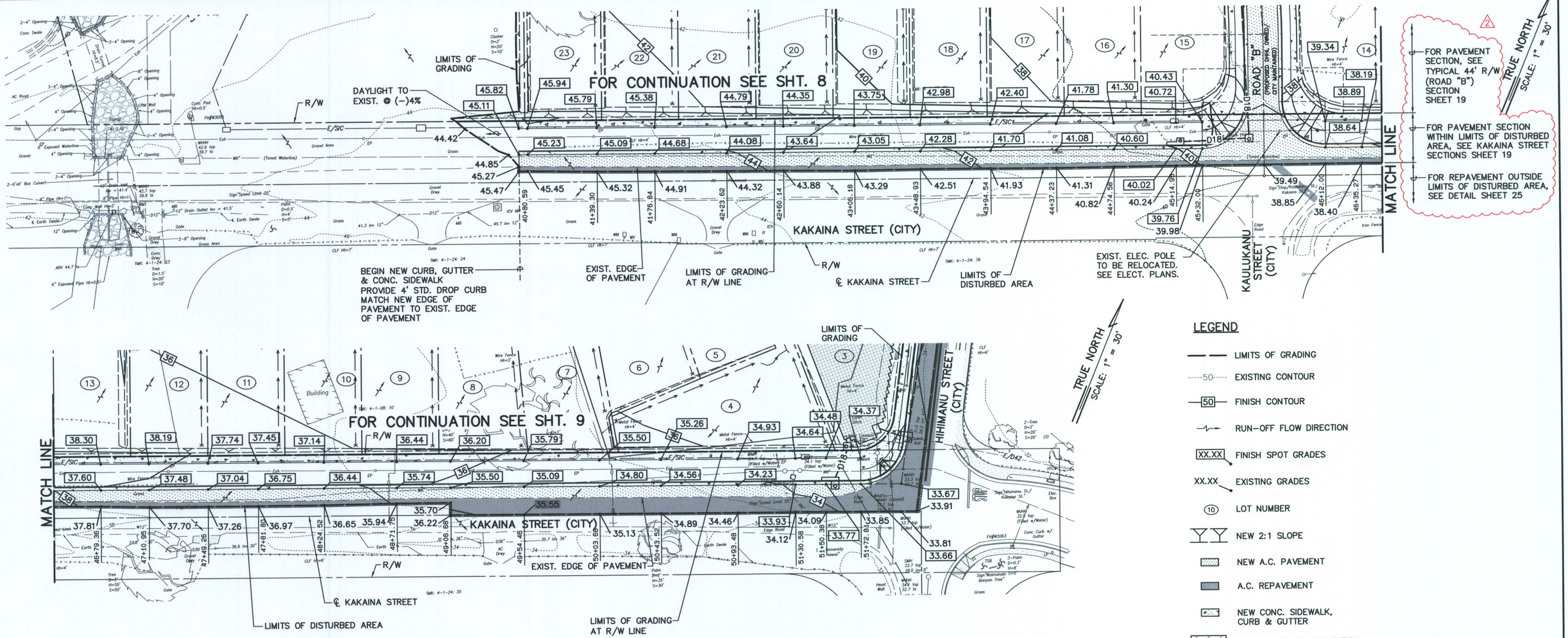
CURRENT TIME: Mar 05, 2012 - 4:08pm
LAST SAVED BY: msm
LAST MODIFIED: Mon, 05 Mar 2012 - 4:07pm



ELEVATION PLAN – KAKAINA STREET

SCALE: 1" = 30'

LEGEND

- LIMITS OF GRADING
- 50 EXISTING CONTOUR
- 50 FINISH CONTOUR
- RUN-OFF FLOW DIRECTION
- XX.XX FINISH SPOT GRADES
- XX.XX EXISTING GRADES
- (10) LOT NUMBER
- NEW 2:1 SLOPE
- NEW A.C. PAVEMENT
- A.C. REPAVEMENT
- NEW CONC. SIDEWALK, CURB & GUTTER
- SMOOTH RIDING CONNECTION

NOTE:

1. CONTRACTOR SHALL DEMOLISH AND REMOVE EXIST. STRUCTURES, CONC. SLABS, A.C. PAVEMENTS, FENCE AND TREES UNLESS OTHERWISE NOTED.

30' 0 30' 60'

SCALE: 1" = 30'

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
2 3/7/2012	CLARIFY PAVEMENT SECT. LIMITS	A&A	

DEPARTMENT OF HAWAIIAN HOME LANDS

KAKAINA SUBDIVISION

TAX MAP KEY: 4-1-08: 10, 81, 91 & 92

WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

ELEVATION PLAN – KAKAINA STREET

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

AKINAKA & ASSOCIATES, LTD.

CONSULTING ENGINEERS

JONI C. TANIMOTO LICENSED PROFESSIONAL ENGINEER No.11878-C HAWAII, U.S.A.

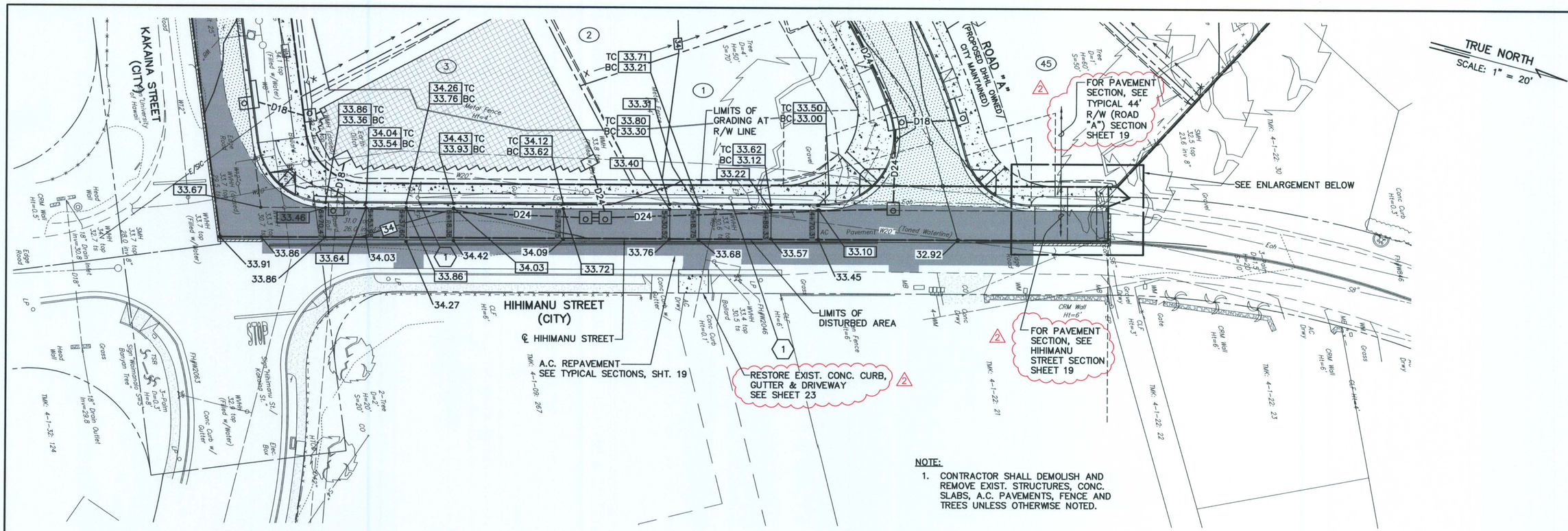
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION
LICENSE EXPIRES 4/30/12

SHEET 10 OF 87 SHEETS

FILE	POCKET	FOLDER	NO.

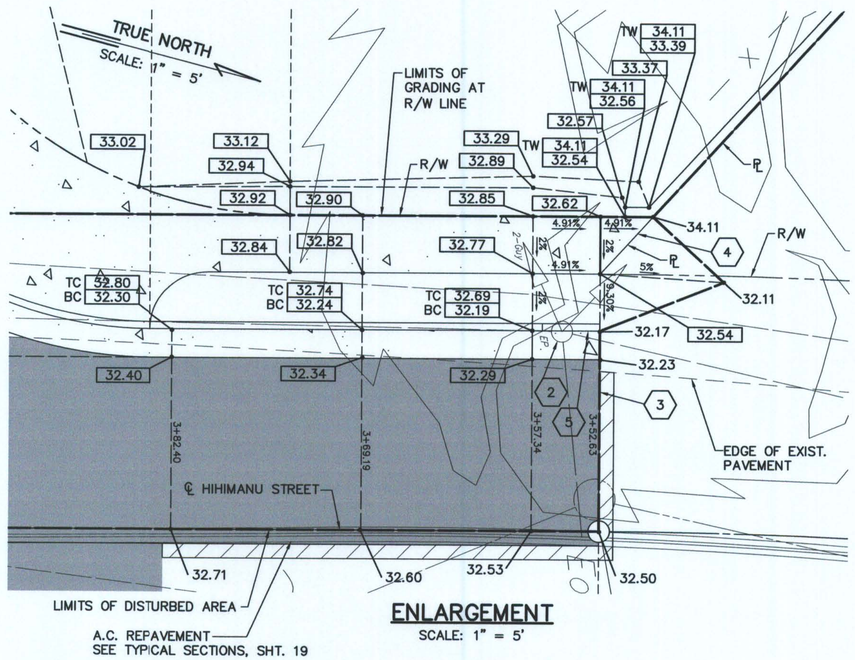
Last Save by: MSM
Last Saved: 3/6/2012
Plotted on: 3/6/2012

G:\DHHL06-02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum #2\DHHL0602KA08.dwg



ELEVATION PLAN – HIHIMANU STREET

SCALE: 1" = 20'



ENLARGEMENT

SCALE: 1" = 5'

1. EXIST. ELECT. POLE TO REMAIN, SEE ELECT. PLANS
2. EXIST. ELECT. POLE TO BE RELOCATED, SEE ELECT. PLANS
3. END A.C. REPAVEMENT, CONC. CURB & GUTTER. PROVIDE SMOOTH–RIDING CONN. SEE DETAIL, SHT. 44
4. END NEW CONC. SIDEWALK AT ℄
5. CONSTRUCT 4' STD. DROP CURB

LEGEND

- LIMITS OF GRADING
- 50 EXISTING CONTOUR
- 50 FINISH CONTOUR
- RUN–OFF FLOW DIRECTION
- XX.X FINISH SPOT GRADES
- XX.X EXISTING GRADES
- (10) LOT NUMBER
- NEW 2:1 SLOPE
- NEW A.C. PAVEMENT
- A.C. REPAVEMENT
- NEW CONC. SIDEWALK, CURB & GUTTER
- SMOOTH RIDING CONNECTION

EXIST. LOT / NEW LOT
LIMITS OF GRADING AT ℄
NEW WALL
TOP OF WALL ELEV. 41.74 TW 41.61
FINISH GROUND ELEV. AT FACE OF WALL
39.51 EXIST. GROUND ELEV. AT FACE OF WALL

20' 0 20' 40'
SCALE: 1" = 20'

NOTE:
1. CONTRACTOR SHALL DEMOLISH AND REMOVE EXIST. STRUCTURES, CONC. SLABS, A.C. PAVEMENTS, FENCE AND TREES UNLESS OTHERWISE NOTED.

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	RESTORE EXIST. DWY., CLARIFY PAVT LIMITS	A&A	

DEPARTMENT OF HAWAIIAN HOME LANDS
KAKAINA SUBDIVISION
TAX MAP KEY: 4–1–08: 10, 81, 91 & 92
WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

ELEVATION PLAN – HIHIMANU STREET

APPROVED:
CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

JONI C. TANIMOTO LICENSED PROFESSIONAL ENGINEER No.11878-C HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION
LICENSE EXPIRES 4/30/12

FILE	POCKET	FOLDER	NO.

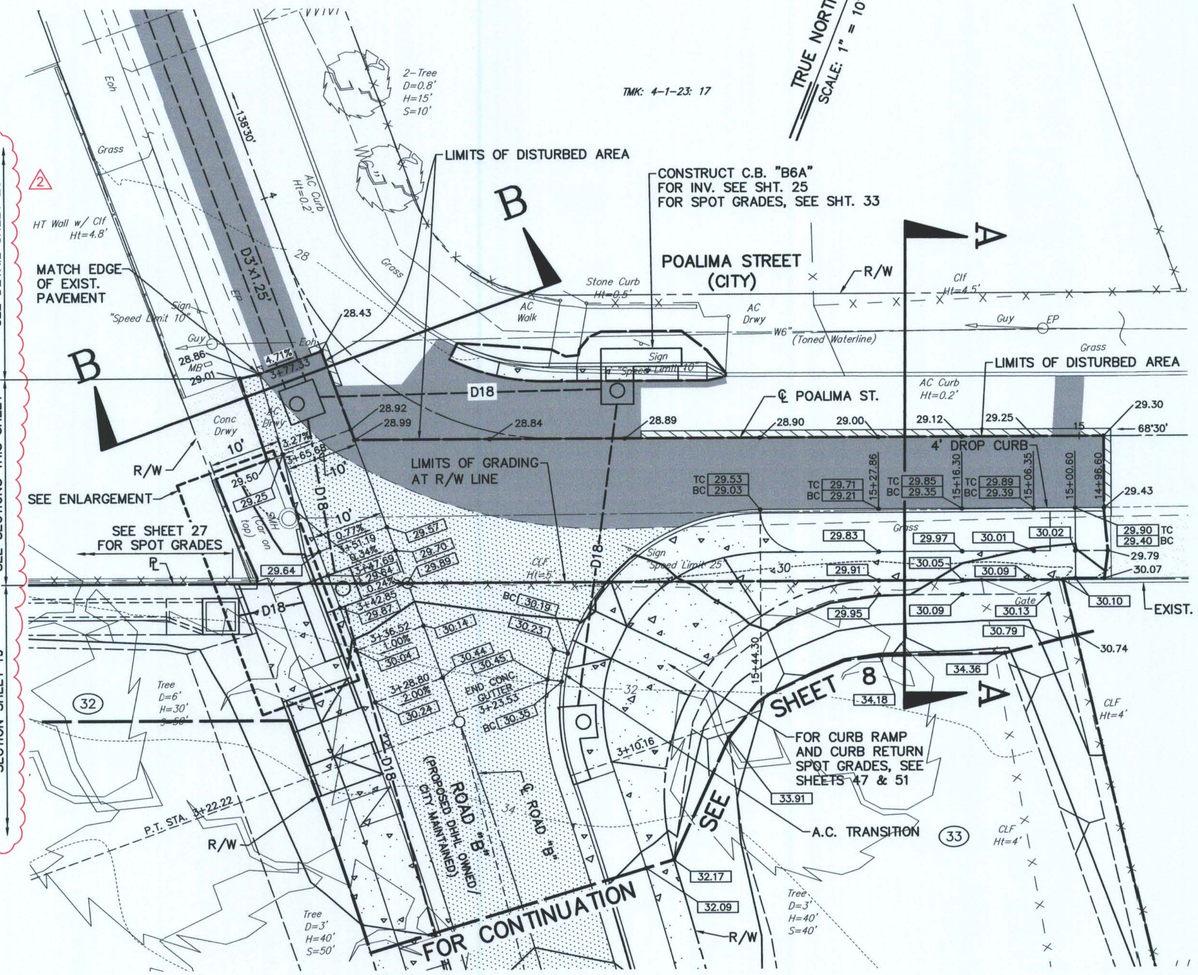
SHEET 11 OF 87 SHEETS

Last Save by: MSM
Last Saved: 3/6/2012
Plotted on: 3/6/2012
G:\DHHL06-02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum #2\DHHL0602KA09.dwg

FOR REPAVEMENT OUTSIDE LIMITS OF DISTURBED AREA, SEE DETAIL SHEET 25

FOR PAVEMENT SECTION WITHIN LIMITS OF DISTURBED AREA, SEE SECTIONS THIS SHEET

FOR PAVEMENT SECTION, SEE TYPICAL 44' R/W (ROAD "B") SECTION SHEET 19

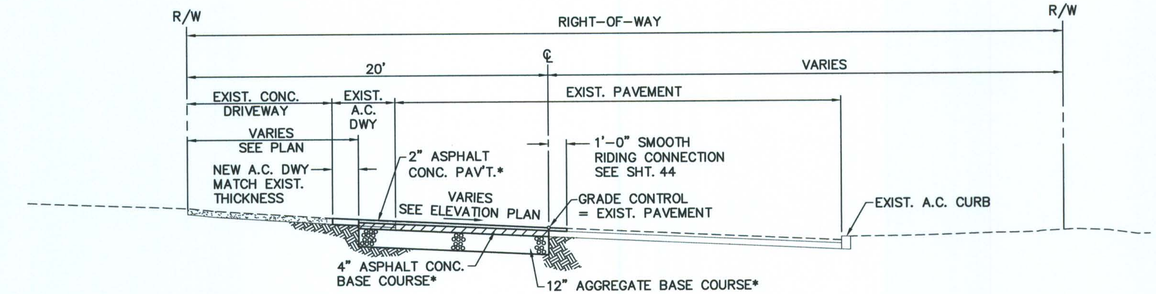


NOTE:

1. CONTRACTOR SHALL DEMOLISH AND REMOVE EXIST. STRUCTURES, CONC. SLABS, A.C. PAVEMENTS, FENCE AND TREES UNLESS OTHERWISE NOTED.

ELEVATION PLAN – POALIMA STREET

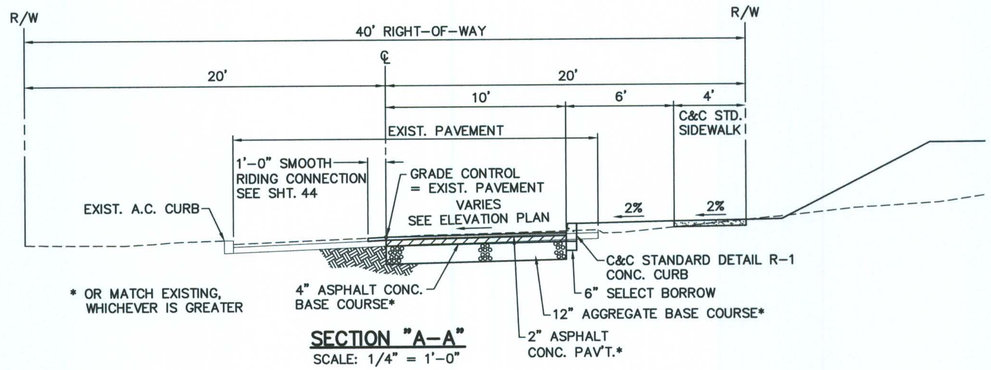
SCALE: 1" = 10'



* OR MATCH EXISTING, WHICHEVER IS GREATER

SECTION "B–B"

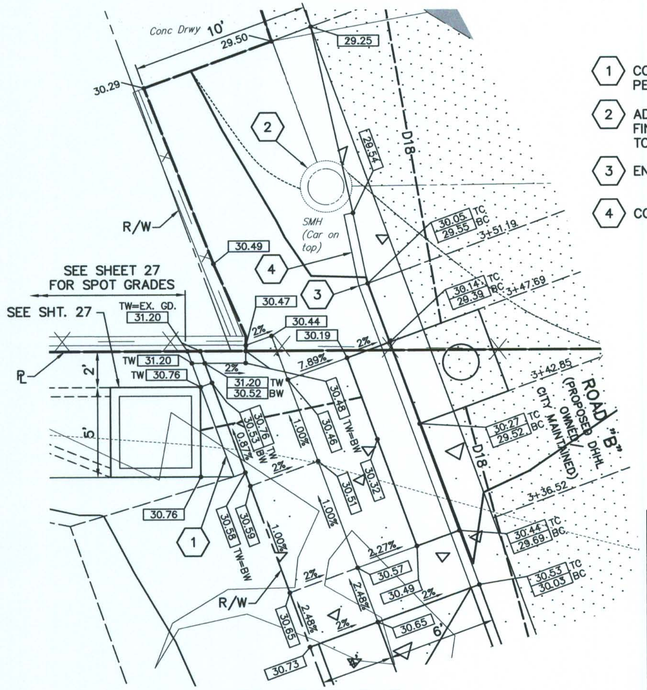
SCALE: 1/4" = 1'-0"



* OR MATCH EXISTING, WHICHEVER IS GREATER

SECTION "A–A"

SCALE: 1/4" = 1'-0"



ENLARGEMENT

SCALE: 1" = 4'

1. CONSTRUCT TYPE "B" WALL PER DPW STD. DETAIL R-31
2. ADJUST EXIST. SMH TOP TO FINISH GRADE TOP = 26.61
3. END CONC. CURB & GUTTER
4. CONSTRUCT 4' STD. DROP CURB

LEGEND

- LIMITS OF GRADING
- 50 EXISTING CONTOUR
- 50 FINISH CONTOUR
- RUN-OFF FLOW DIRECTION
- XX.XX FINISH SPOT GRADES
- XX.XX EXISTING GRADES
- (10) LOT NUMBER
- NEW 2:1 SLOPE
- NEW A.C. PAVEMENT
- A.C. REPAVEMENT
- NEW CONC. SIDEWALK, CURB & GUTTER
- SMOOTH RIDING CONNECTION

4' 2' 0 4' 8'
SCALE: 1/4" = 1'-0"

4' 0 4' 8'
SCALE: 1" = 4'

10' 0 10' 20'
SCALE: 1" = 10'

APPROVED:

CHIEF, WASTEWATER BRANCH, DPP — DATE
(FOR CONFORMANCE WITH CITY STANDARDS AND WORK WITHIN CITY R/W ONLY)

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	CLARIFY PAVEMENT SECT. LIMITS	A&A	

DEPARTMENT OF HAWAIIAN HOME LANDS

KAKAINA SUBDIVISION

TAX MAP KEY: 4-1-08: 10, 81, 91 & 92

WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

ELEVATION PLAN – POALIMA STREET

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP — DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

JONI C. TANIMOTO
LICENSED PROFESSIONAL ENGINEER
No.11878-C
HAWAII, U.S.A.

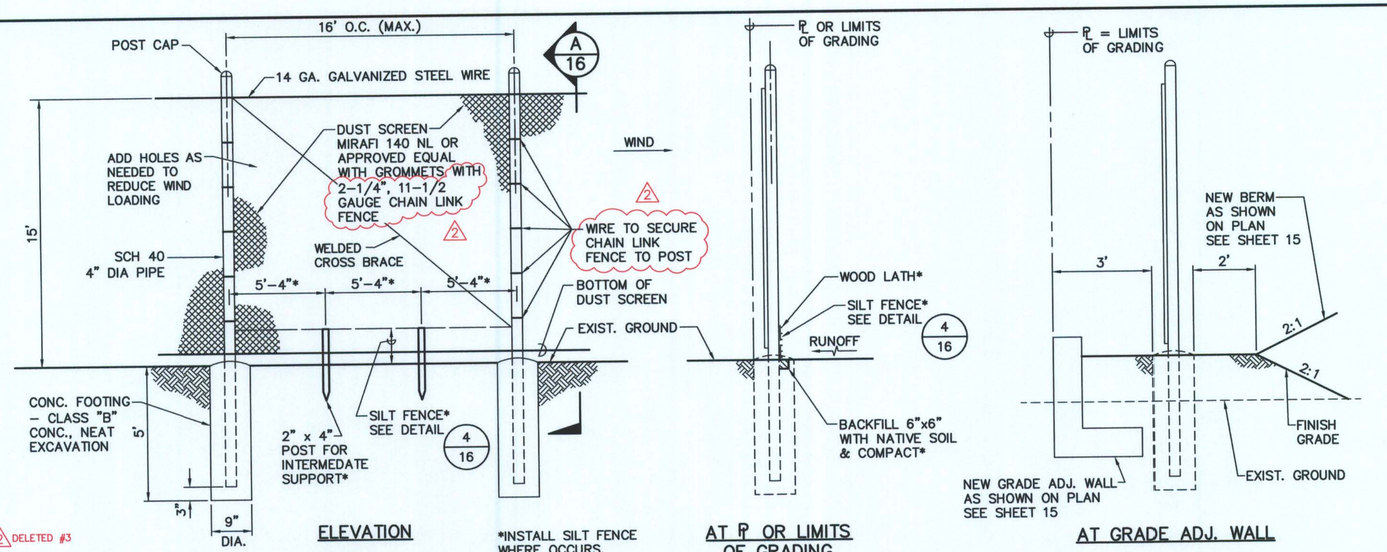
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION
LICENSE EXPIRES 4/30/12

FILE	POCKET	FOLDER	NO.

SHEET 12 OF 87 SHEETS

Last Save by: MSM
Last Saved: 3/6/2012
Plotted on: 3/6/2012

G:\DHHL06-02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum #2\DHHL0602KA09A.dwg

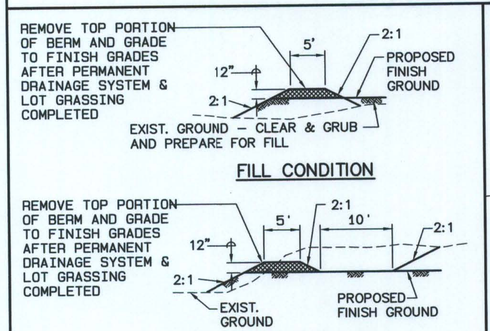


2 DELETED #3

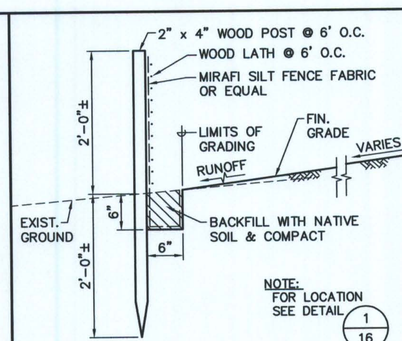
NOTES:
1. POSTS SHALL BE SCHEDULE 40 (STANDARD WEIGHT) PIPE. SIZES SPECIFIED ARE OUTSIDE DIAMETER.
2. ALL FENCING MATERIAL SHALL BE GALVANIZED STEEL.
3. TOP OF CONCRETE FOOTING SHALL BE CROWNED TO SHED WATER.
4. INSTALL DUST SCREEN AND MAINTAIN FOR DURATION OF CONSTRUCTION. 2

*INSTALL SILT FENCE WHERE OCCURS. SEE SHEET 15

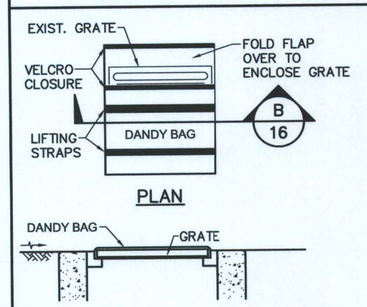
1/16 DUST SCREEN DETAIL
NOT TO SCALE

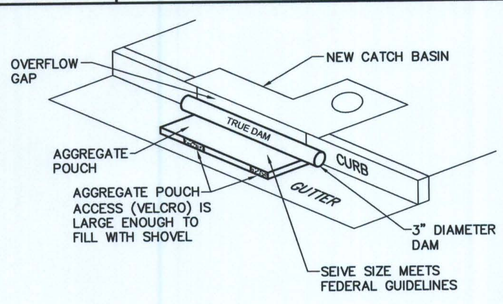


2/16 TYPICAL BERM SECTION
NOT TO SCALE



4/16 TYPICAL SILT FENCE INSTALLATION
SCALE: 1" = 1'-0"

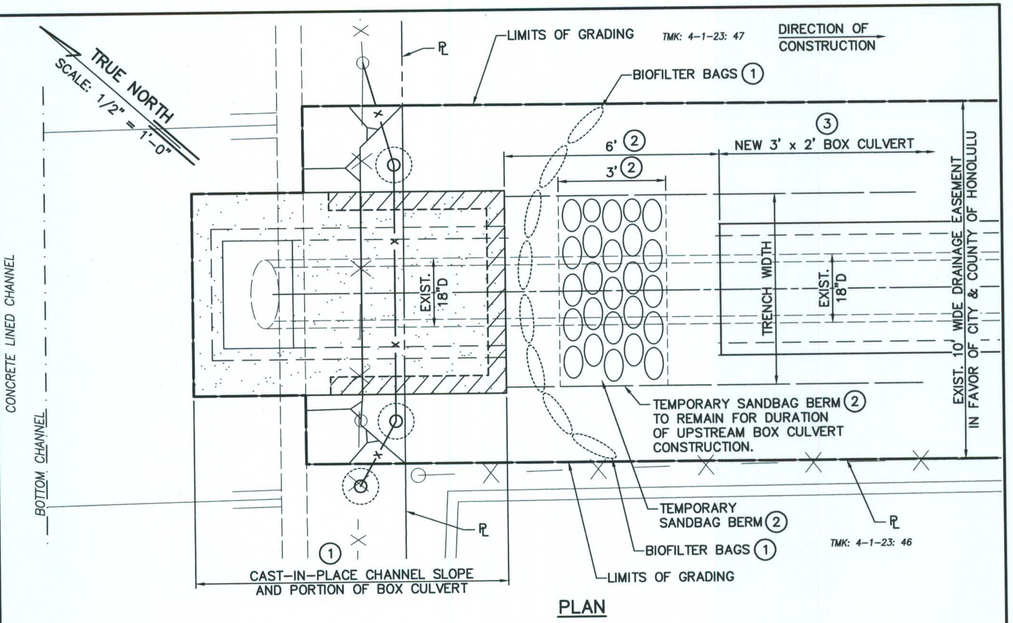




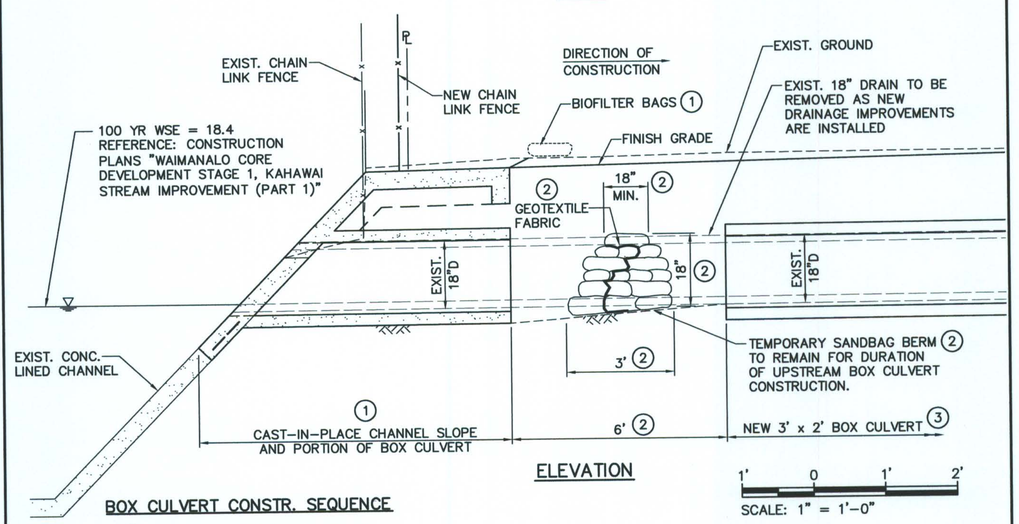
3/16 SEDIMENT CONTROL DEVICES
NOT TO SCALE

EROSION CONTROL/BMP NOTES

1. MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY CONSTRUCTION WORK IS INITIATED. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY.
3. CONSTRUCT TEMPORARY SILT FENCE AS SHOWN PER PLANS.
4. ALL STORM DRAIN INLETS THAT MAY RECEIVE RUNOFF AS A RESULT OF THE CONSTRUCTION WORK SHALL USE AN INLET FILTER DEVICE. INLET FILTERS SHALL REMAIN UNTIL COMPLETION OF CONSTRUCTION WORK. CONTRACTOR SHALL PERIODICALLY INSPECT INLET FILTERS TO ENSURE DRAINAGE THROUGH MATERIAL IS MAINTAINED. CONTRACTOR SHALL REMOVE SEDIMENT FILTER DURING AN EVENT OF ABOVE NORMAL RAINFALL AND TO REPLACE FILTER AFTER EVENT HAS PASSED.
5. AT THE END OF THE GRADING OPERATION, EXISTING STORM DRAIN INLETS SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE STORM DRAIN INLETS SHALL BE REMOVED. FLUSHING INTO THE STORM DRAINS IS PROHIBITED.
6. GOOD HOUSEKEEPING SHALL BE UTILIZED TO ENSURE PROTECTION OF ROADWAYS FROM MUD, DIRT, AND DEBRIS.
7. STABILIZATION CONTROLS ARE TO INCLUDE PERMANENT SEEDING OF ALL EXPOSED AREAS IMMEDIATELY FOLLOWING FINAL GRADING OPERATIONS.
8. CONTRACTOR SHALL CONDUCT ON-GOING ON-SITE CLEANUP OF DELETERIOUS AND/OR HAZARDOUS MATERIAL.
9. 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 OF TIRES WITH WATER WILL NOT BE ACCEPTABLE UNLESS THE RUNOFF IS CONTAINED AND DOES NOT ENTER THE STORM DRAIN SYSTEM OR ONTO THE CITY OR STATE ROW.
10. THE CONTRACTOR SHALL ENSURE THAT EXISTING ROADWAYS USED TO ACCESS THE PROJECT ARE CLEANED OF ALL DEBRIS, TRASH, DIRT, MUD, ETC., THROUGHOUT THE WORK DAY.
11. THE FINAL LIFT OF EACH DAY'S WORK SHALL BE COMPACTED TO PREVENT EROSION OF FILL MATERIAL.
12. ANY DIRT OR GRASSED AREA DISTURBED SHALL BE RESTORED BY SEEDED HYDRO-MULCH. CONTRACTOR TO ENSURE GRASS IS FULLY ESTABLISHED.



PLAN



ELEVATION

BOX CULVERT CONSTR. SEQUENCE

1. PLACE BIOFILTER BAGS WHERE SHOWN. CONSTRUCT NEW CHANNEL SLOPE AND PORTION OF BOX CULVERT.
2. REMOVE BIOFILTER BAGS, EXCAVATE 6' LONG TRENCH AND INSTALL SANDBAG BERM.
3. INSTALL NEW 3' x 2' BOX CULVERT UPSTREAM OF SANDBAG BERM. INSTALL 6' LONG BOX CULVERT WITHIN SANDBAG BERM LIMITS AFTER COMPLETION OF UPSTREAM BOX CULVERT CONSTRUCTION.

5/16 BMP FOR DRAINAGE IMPROVEMENTS AT TMK: 4-1-23:47
SCALE: 1/2" = 1'-0"

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	REVISE DUST SCREEN DETAIL	A&A	

DEPARTMENT OF HAWAIIAN HOME LANDS
KAKAINA SUBDIVISION
TAX MAP KEY: 4-1-08: 10, 81, 91 & 92
WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

EROSION CONTROL DETAILS

JONI C. TANIMOTO LICENSED PROFESSIONAL ENGINEER No.11878-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRES 4/30/12

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

FILE	POCKET	FOLDER	NO.

SHEET 16 OF 87 SHEETS

Last Save by: MSM
Last Saved: 3/5/2012
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G:\DHHL06-02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum #2\DHHL0602KA11A.dwg

ROAD NOTES

R1 P.I. STA. (−)0+22.83 ℄ ROAD "A" = STA. 4+13.77 ℄ HIHIMANU ST. INSTALL ST. SURVEY MON.

R2 P.I. STA. 0+00 ℄ ROAD "A" INSTALL ℄ MON.

R3 P.C. STA. 0+18.16 ℄ ROAD "A" INSTALL ST. SURVEY MON.

R4 P.T. STA. 1+43.04 ℄ ROAD "A" INSTALL ST. SURVEY MON.

R5 P.C. STA. 1+93.04 ℄ ROAD "A" INSTALL ST. SURVEY MON.

R6 P.T. STA. 3+51.58 ℄ ROAD "A" INSTALL ST. SURVEY MON.

R7 6'x6' CONC. PAD WITH TYPE III (16) CBU SEE DETAIL 1/45

R8 STA. 0+41.32 O/S 23.97' LT. ℄ ROAD "A" = ℄ P.I.

R9 STA. 1+27.21 O/S 22' LT. ℄ ROAD "A" = ℄ P.I.

SEWER NOTES

S1 STA. (−)0+20.59 O/S 14.33' RT. ℄ ROAD "A" = STA. 4+00.56 O/S 6' RT. ℄ HIHIMANU ST. CONSTRUCT SMH "A1" TOP = 32.66 INV. = 24.12

S2 STA. 0+97 O/S 5' RT. ℄ ROAD "A" CONSTRUCT SMH "A2" TOP = 32.24 INV. = 24.68

S3 STA. 2+56.35 O/S 5' RT. ℄ ROAD "A" CONSTRUCT SMH "A3" TOP = 33.06 INV. = 25.43

S4 STA. 3+39.54 O/S 5' RT. ℄ ROAD "A" CONSTRUCT SMH "A4" TOP = 33.47 INV. = 25.81

S5 7 L.F. PLAIN CONC. JACKET FOR 6" SEWER

S6 STA. 0+50.53 O/S 2.94' RT. ℄ ROAD "A" INSTALL DOUBLE WYE

DRAIN NOTES

D1 STA. (−)0+03.70 O/S 21.84' LT. ℄ ROAD "A" CONSTRUCT DMH "A2" STD. DETAIL D−18 TOP = 32.78 INV. = 27.27

D2 STA. 0+30.16 ℄ ROAD "A" CONSTRUCT C.B. "A3" TYPE "B" INV. = 28.01 (18") INV. = 27.50 (24")

D3 STA. 0+24.18 ℄ ROAD "A" CONSTRUCT C.B. "A3A" TYPE "A" INV. = 28.21

D4 STA. 0+99.71 ℄ ROAD "A" CONSTRUCT C.B. "A4" TYPE "B" INV. = 28.37 (18") INV. = 27.85 (24")

D5 STA. 1+19.58 ℄ ROAD "A" CONSTRUCT C.B. "A4A" TYPE "A" INV. = 28.56

D6 STA. 2+12.24 ℄ ROAD "A" CONSTRUCT C.B. "A5" TYPE "B" INV. = 28.41

D7 STA. 2+74.22 ℄ ROAD "A" CONSTRUCT DMH "A6" STD. DETAIL D−17 INV. = 28.73

D8 STA. 3+44.70 ℄ ROAD "A" CONSTRUCT C.B. "A7" TYPE "B" INV. = 29.58 (18" N) INV. = 29.10 (18" E & W)

D9 STA. 3+51.84 ℄ ROAD "A" CONSTRUCT C.B. "A7A" TYPE "A" INV. = 29.81

WATER NOTES

W1 STA. (−)0+26.86 O/S 14.29' LT. ℄ ROAD "A" INSTALL: 1 − 20" x 8" TEE, D.I. M.J. 1 − 8" G.V., C.L. 150 M.J. W/ ANCHOR BLOCK 1 − CONC. BLOCK 1 − VALVE BOX & COVER

W2 STA. (−)0+19.04 O/S 12.12' LT. ℄ ROAD "A" DEFLECT PIPE (VERT.) 1 − DEFLECTION COUPLING

W3 STA. 0+03.91 O/S 5.74' LT. ℄ ROAD "A' DEFLECT PIPE (VERT.) 1 − DEFLECTION COUPLING

W4 STA. 0+10.36 O/S 3.94' LT. ℄ ROAD "A" 1 − 8" 1/32 BEND, D.I. M.J. 1 − 1 CONC. BLOCK.

W5 STA. 0+13.67 O/S 3.70' LT. ℄ ROAD "A" INSTALL F.H. CONN. 1 − 8" x 6" TEE, D.I. M.J. 1 − 6" G.V. C.L. 150 W/ ANCHOR BLOCK 1 − DEFLECTION COUPLING 1 − C.I. VALVE BOX & COVER 1 − 6" 1/4 BEND, D.I. M.J. 1 − 6" HYDRANT ELBOW, M.J. x F.E. 1 − F.H. (HT. = 5.5') 1 − F.H. EXTENSION PIECE 1 − F.H. MARKER 23 L.F. 6" PVC PIPE, CL. 150 3 − CONC. BLOCKS SEE F.H. PROFILE, SHT. 41

W6 STA. 0+20.68 O/S 3.16' LT. ℄ ROAD "A" DEFLECT PIPE (VERT.)

W7 21.2 L.F. REINF. CONC. JACKET FOR 8" WATER, D.I. PIPE

W8 STA. 0+25.14 O/S 2.74' LT. ℄ ROAD "A" 1 − 8" 1/32 BEND, D.I. M.J.

W9 STA. 0+33.19 O/S 3.29' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (B.V.)

W10 STA. 0+40.06 O/S 3.54' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (T.V.)

W11 STA. 0+42.97 O/S 3.59' LT. ℄ ROAD "A" DEFLECT PIPE (HORIZ.) 1 − DEFLECTION COUPLING

W12 STA. 0+61.25 O/S 3.88' LT. ℄ ROAD "A" DEFLECT PIPE (HORIZ.) 1 − DEFLECTION COUPLING

W13 STA. 0+87.98 O/S 3.35' LT. ℄ ROAD "A" 1 − 3/4" ARV (APCO) (W.P. = 87.2 P.S.I.) 1 − ARV BOX 1 − 8" BOSSED TEE, D.I. TAPPED FOR 3/4" C.C.T. SEE B.W.S. STD. DETAIL V2

W14 STA. 0+92.02 O/S 3.13' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (T.V.)

W15 STA. 0+98.21 O/S 2.67' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (B.V.)

W16 STA. 1+01.22 O/S 2.38' LT. ℄ ROAD "A" 1 − 8" 1/32 BEND, D.I. M.J.

W17 STA. 1+09.94 O/S 3.01' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (B.V.)

W18 26.1 L.F. REINF. CONC. JACKET FOR 8" WATER, D.I. PIPE

W19 STA. 1+16.31 O/S 3.27' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (T.V.)

W20 STA. 1+28.31 O/S 3.30' LT. ℄ ROAD "A" DEFLECT PIPE (HORIZ.) 1 − DEFLECTION COUPLING

W21 STA. 1+46.49 O/S 3.00' LT. ℄ ROAD "A" DEFLECT PIPE (HORIZ.) 1 − DEFLECTION COUPLING

W22 STA. 2+05.13 O/S 3.31' LT. ℄ ROAD "A" DEFLECT PIPE (HORIZ.) 1 − DEFLECTION COUPLING

W23 STA. 2+36.34 O/S 4.70' LT. ℄ ROAD "A" 1 − 8" 1/32 BEND, D.I. M.J. 1 − CONC. BLOCK

W24 STA. 2+79.32 O/S 4.79' LT. ℄ ROAD "A" 1 − 8" 1/32 BEND, D.I. M.J. 1 − CONC. BLOCK

W25 STA. 3+25.74 O/S 4.41' LT. ℄ ROAD "A" 1 − 8" 1/32 BEND, D.I. M.J. 1 − CONC. BLOCK

W26 STA. 3+31.13 O/S 3.88' LT. ℄ ROAD "A" 1 − 3/4" ARV (APCO) (W.P. = 87.6 P.S.I.) 1 − ARV BOX 1 − 8" BOSSED TEE, D.I. TAPPED FOR 3/4" C.C.T. SEE B.W.S. STD. DETAIL V2

W27 STA. 3+35.06 O/S 3.58' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (T.V.)

W28 STA. 3+41.24 O/S 3.79' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (B.V.)

W29 24.6 L.F. REINF. CONC. JACKET FOR 8" WATER, D.I. PIPE

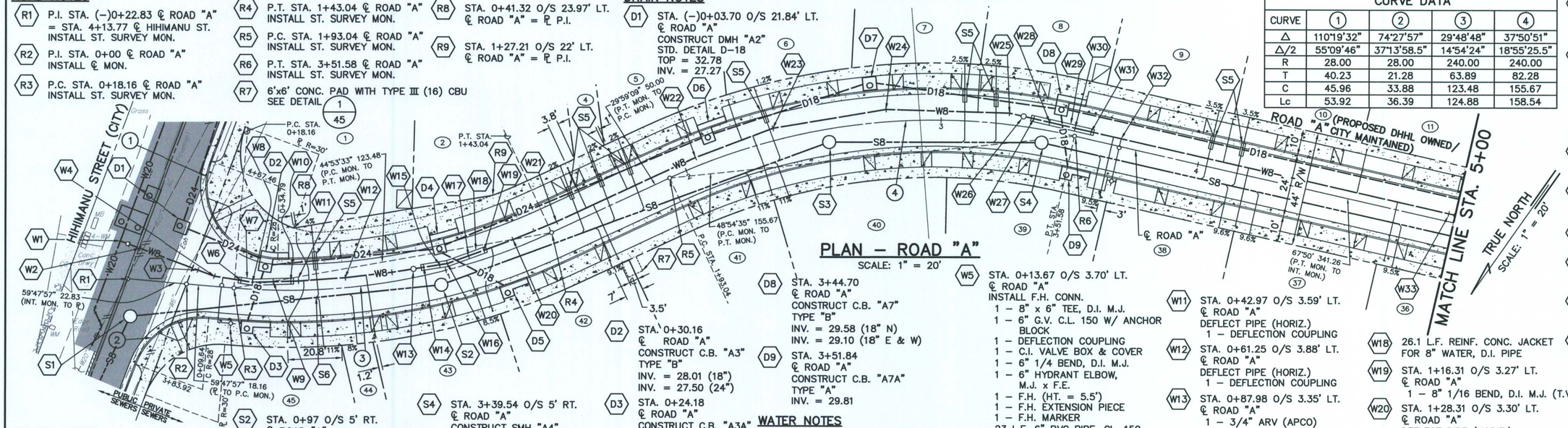
W30 STA. 3+51.11 O/S 3.00' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (B.V.)

W31 STA. 3+57.41 O/S 3.00' LT. ℄ ROAD "A" 1 − 8" 1/16 BEND, D.I. M.J. (T.V.)

W32 STA. 3+69.19 O/S 3.00' LT. ℄ ROAD "A" INSTALL F.H. CONN. 1 − 8" x 6" TEE, D.I. M.J. 1 − 6" G.V. C.L. 150 W/ ANCHOR BLOCK 1 − C.I. VALVE BOX & COVER 1 − 6" HYDRANT ELBOW, M.J. x F.E. 1 − F.H. (HT. = 4.0') 1 − F.H. EXTENSION PIECE 1 − F.H. MARKER 17 L.F. 6" PVC PIPE, CL. 150 2 − CONC. BLOCKS SEE F.H. PROFILE, SHT. 41

W33 STA. 4+97.80 O/S 3.00' LT. ℄ ROAD "A" DEFLECT PIPE (VERT.)

CURVE DATA				
CURVE	(1)	(2)	(3)	(4)
Δ	110°19'32"	74°27'57"	29°48'48"	37°50'51"
Δ/2	55°09'46"	37°13'58.5"	14°54'24"	18°55'25.5"
R	28.00	28.00	240.00	240.00
T	40.23	21.28	63.89	82.28
C	45.96	33.88	123.48	155.67
Lc	53.92	36.39	124.88	158.54



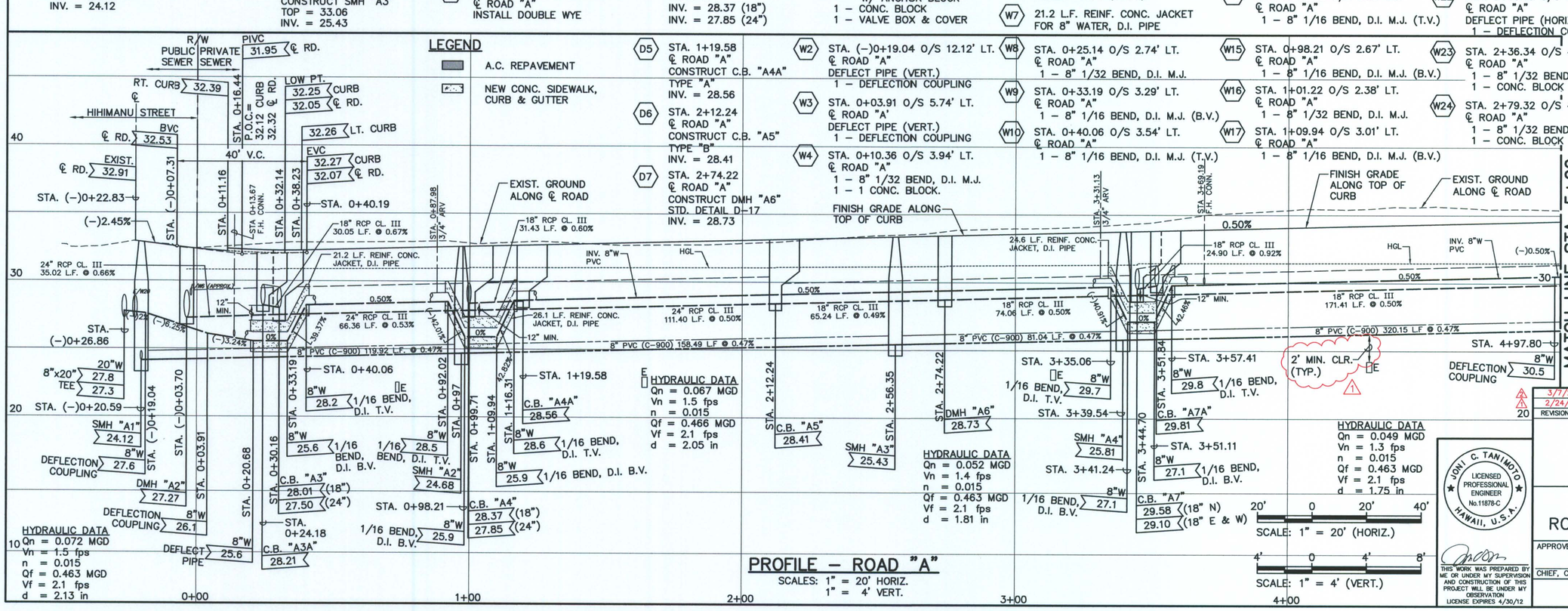
PLAN − ROAD "A"

SCALE: 1" = 20'

LEGEND

A.C. REPAVEMENT

NEW CONC. SIDEWALK, CURB & GUTTER



PROFILE − ROAD "A"

SCALES: 1" = 20' HORIZ.
1" = 4' VERT.

NOTES:

1. ALL WATER PIPE FITTINGS AND ALL WATER PIPE SECTIONS REQUIRING REINFORCED CONCRETE JACKETING SHALL BE DUCTILE IRON PIPE CLASS 52.
2. FOR DRIVEWAY TIES, SEE SHEET 19
   1 1/2" DOUBLE SERVICE WATER LATERAL W/ TYPE C−1 CONNECTION FOR TWO 3/4" METERS
   1" SINGLE SERVICE WATER LATERAL W/ TYPE A CONNECTION FOR ONE 3/4" METER
3. A.C. REPAVEMENT (EXIST. STREET IMPROVEMENTS) SEE SHT. 11 FOR PAV'T. SECT. LIMITS

APPROVED:

CHIEF, WASTEWATER BRANCH, DPP — DATE
(FOR CONFORMANCE WITH CITY STANDARDS AND WORK IN CITY R/W ONLY)

CHIEF, TRAFFIC REVIEW BRANCH, DPP — DATE

MANAGER AND CHIEF ENGINEER, BWS — DATE
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY)
CITY & COUNTY OF HONOLULU

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	CLARIFY PAVEMENT SECT. LIMITS	A&A	
2/24/2012	LABEL ELEC. VERT. CLR.	A&A	

DEPARTMENT OF HAWAIIAN HOME LANDS

KAKAINA SUBDIVISION

TAX MAP KEY: 4−1−08: 10, 81, 91 & 92

WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

PLAN & PROFILE ROAD "A" − STA. 0+00 TO 5+00

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP — DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

JONI C. TANIMOTO — LICENSED PROFESSIONAL ENGINEER No.11878-C — HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION
LICENSE EXPIRES 4/30/12

FILE	POCKET	FOLDER	NO.

SHEET 20 OF 87 SHEETS

Last Save by: MSM
Last Saved: 3/6/2012
Plotted on: 3/6/2012
G:\DHHL06−02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum #2\DHHL06026KA13.dwg

SEWER NOTES

(S1) STA. 2+08.47 O/S 6' RT. ℄ ROAD "B" CONSTRUCT SMH "B2" TOP = 34.92 INV. = 26.78 (6") INV. = 26.58 (8")

(S2) STA. 3+48.78 O/S 11' RT. ℄ ROAD "B" CONSTRUCT SMH "B1" OVER EXIST. 8" SEWER CHANNELIZE BASE OF NEW SMH TOP = 29.40 INV. = 23.37 (EXIST. & NEW 8", CONTRACTOR TO FIELD VERIFY)

(S3) 7 L.F. PLAIN CONC. JACKET FOR 6" SEWER

(S4) 8 L.F. REINF. CONC. JACKET FOR 6" EXIST. SEWER

(S5) 5 L.F. REINF. CONC. JACKET FOR EXIST. 8" SEWER

(S6) REINF. CONC. JACKET SEE SHEET 25 ⚠1

DRAIN NOTES

(D1) STA. (−)0+15.45 O/S 9.67' LT. ℄ ROAD "B" CONSTRUCT DMH "B9A" STD. DETAIL D-18 TOP = 38.90 INV. = 34.10 (18" IN) INV. = 32.22 (18" OUT)

(D2) DMH "B9" STD. DETAIL D-18 SEE SHT. 21

(D3) STA. 2+17.45 ℄ ROAD "B" CONSTRUCT SPECIAL C.B. "B8" TYPE "B" INV. = 28.78 SEE DETAIL, SHT. 38

(D4) STA. 3+45.27 ℄ ROAD "B" CONSTRUCT C.B. "B7" TYPE "B" INV. = 26.00 (18")

(D5) STA. 3+16.64 ℄ ROAD "B" CONSTRUCT C.B. "B6B" TYPE "A" INV. = 27.10

(D6) D.I. "B7A" SEE SHT. 27

DRAIN NOTES (CON'T.)

(D7) CONCRETE DITCH "E" SEE SHEET 27

(D8) STA. 3+71.60 O/S 4.96' LT. ℄ ROAD "B" CONSTRUCT DMH "B6" STD. DETAIL D-18 TOP = 28.90 INV. = 24.93 (18" S) INV. = 24.73 (18" E & 3'x1.25' N)

(D9) C.B. "B6A" SEE SHT. 25

(D10) STA. 4+86.19 O/S 5.13' LT. ℄ ROAD "B" CONSTRUCT DMH "B5" STD. DETAIL D-18 TOP = 25.71 (EXIST.) INV. = 22.27

(D11) STA. 4+92.85 O/S 35.52 LT. ℄ ROAD "B" CONSTRUCT D.I. "B5A" TOP = 26.34 (EXIST.) INV. = 22.45 SEE DETAIL, SHT. 40 FOR PROFILE, SEE SHT. 26

(D12) STA. 4+91.54 ℄ ROAD "B" CONSTRUCT C.B. "B4" TYPE "B" INV. = 21.90 SEE DETAIL, SHT. 35

(D13) 18" DRAIN LINE (BRANCH DMH "B6") SEE PROFILE, SHT. 26

ROAD NOTES

(R1) P.I. STA. (−)0+40.00 ℄ ROAD "B" = STA. 45+72.00 ℄ KAKAINA ST. INSTALL ST. SURVEY MON.

(R2) P.I. STA. 0+00 ℄ ROAD "B" INSTALL ℄ MON.

(R3) P.C. STA. 0+52.17 ℄ ROAD "B" INSTALL ST. SURVEY MON.

(R4) P.T. STA. 1+00.58 ℄ ROAD "B" INSTALL ST. SURVEY MON.

(R5) P.I. STA. 1+22.36 ℄ ROAD "B" = STA. 6+92.84 ℄ ROAD "A" ST. SURVEY MON. SEE SHEET 21

(R6) P.C. STA. 2+22.66 ℄ ROAD "B" INSTALL ST. SURVEY MON.

(R7) P.T. STA. 3+22.22 ℄ ROAD "B" INSTALL ST. SURVEY MON.

(R8) P.I. STA. 3+42.85 ℄ ROAD "B" INSTALL ℄ MON.

(R9) P.I. STA. 3+92.15 ℄ ROAD "B" = STA. 16+21.40 ℄ POALIMA ST.

(R10) P.I. STA. 5+07.37 ℄ ROAD "B"

(R11) STA. 3+23.53 ℄ ROAD "B" END CONC. GUTTER PROVIDE 4' A.C. TRANSITION SEE SHT. 12 FOR SPOT ELEV.

(R12) STA. 3+28.80 O/S LT. ℄ ROAD "B" BEGIN TRANSITION TO EXIST. SUPERELEVATION, SEE SHT. 12

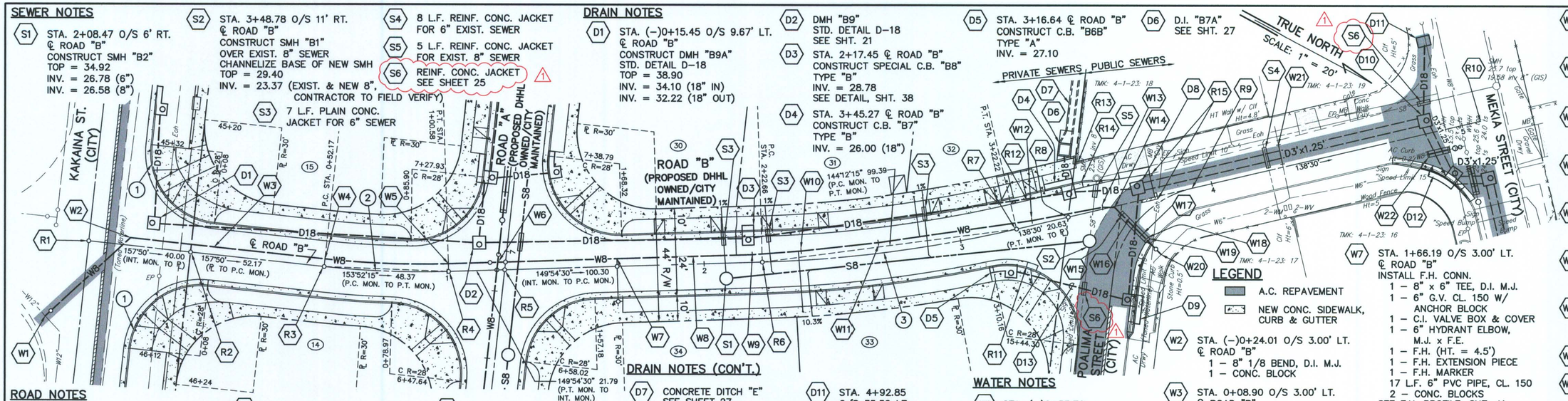
(R13) END CONC. SIDEWALK AT EXIST. WALL SEE SHT. 12 FOR SPOT GRADES

(R14) STA. 3+51.19 ℄ ROAD "B" END CONC. CURB & GUTTER BEGIN 4' DROP CURB & A.C. TRANSITION SEE SHT. 12 FOR SPOT GRADES

(R15) STA. 3+77.33 ℄ ROAD "B" END NEW A.C. PAVEMENT SEE SHT. 12 PROVIDE SMOOTH RIDING CONN. SEE DETAIL, SHT. 44

PLAN — ROAD "B"

SCALE: 1" = 20'



LEGEND

- A.C. REPAVEMENT
- NEW CONC. SIDEWALK, CURB & GUTTER

WATER NOTES

(W1) STA. (−)0+53.70 O/S 30.96' RT. ℄ ROAD "B" CONN. NEW W8 TO EXIST. W12 (CONTRACTOR TO FIELD VERIFY) INSTALL:
- 1 — 12"x8" TAPPING SLEEVE & VALVE, C.L. 150
- 1 — CONC. BLOCK, W/STRUCTURAL STRUTS
- 1 — VALVE BOX
- 1 — 8" SLEEVE, 12" LONG
- 8± L.F. 8" PVC PIPE, C.L. 150

TEMP FOR TESTING:
- 1 — 8" CAP TAPPED FOR 2 1/2" I.P.T.
- 1 — 2 1/2" CLEANOUT
- 1 — CONC. BLOCK

(W2) STA. (−)0+24.01 O/S 3.00' LT. ℄ ROAD "B"
- 1 — 8" 1/8 BEND, D.I. M.J.
- 1 — CONC. BLOCK

(W3) STA. 0+08.90 O/S 3.00' LT. ℄ ROAD "B" DEFLECT PIPE (VERT.)
- 1 — DEFLECTION COUPLING

(W4) STA. 0+52.17 O/S 3.00' LT. ℄ ROAD "B" BEGIN PIPE DEFLECTION
- 1 — DEFLECTION COUPLING

(W5) STA. 1+00.58 O/S 3.00' LT. ℄ ROAD "B" END PIPE DEFLECTION
- 1 — DEFLECTION COUPLING

(W6) STA. 1+19.75 O/S 3.00' LT. ℄ ROAD "B" 8" CROSS SEE SHT. 21

(W7) STA. 1+66.19 O/S 3.00' LT. ℄ ROAD "B" INSTALL F.H. CONN.
- 1 — 8" x 6" TEE, D.I. M.J.
- 1 — 6" G.V. CL. 150 W/ ANCHOR BLOCK
- 1 — C.I. VALVE BOX & COVER
- 1 — 6" HYDRANT ELBOW, M.J. x F.E.
- 1 — F.H. (HT. = 4.5')
- 1 — F.H. EXTENSION PIECE
- 1 — F.H. MARKER
- 17 L.F. 6" PVC PIPE, CL. 150
- 2 — CONC. BLOCKS

SEE F.H. PROFILE, SHT. 41

(W8) STA. 1+95.83 O/S 3.00' LT. ℄ ROAD "B" DEFLECT PIPE (VERT.)
- 1 — DEFLECTION COUPLING

(W9) STA. 2+18.84 O/S 3.00' LT. ℄ ROAD "B" DEFLECT PIPE (HORIZ. & VERT.)
- 1 — DEFLECTION COUPLING

(W10) STA. 2+37.99 O/S 3.63' LT. ℄ ROAD "B" DEFLECT PIPE (HORIZ.)
- 1 — DEFLECTION COUPLING

(W11) STA. 2+68.20 O/S 4.15' LT. ℄ ROAD "B" DEFLECT PIPE (HORIZ.)
- 1 — DEFLECTION COUPLING

(W12) STA. 3+28.81 O/S 1.87' LT. ℄ ROAD "B" DEFLECT PIPE (HORIZ.)
- 1 — DEFLECTION COUPLING

(W13) STA. 3+56.64 O/S 0.69' LT. ℄ ROAD "B"
- 1 — 8" 1/32 BEND, D.I. M.J.
- 1 — CONC. BLOCK

(W14) STA. 3+61.27 O/S 0.43' RT. ℄ ROAD "B"
- 1 — 8" 1/8 BEND, D.I. M.J.
- 1 — CONC. BLOCK

(W15) STA. 3+63.38 O/S 3.91' RT. ℄ ROAD "B"
- 1 — 8" 1/8 BEND, D.I. M.J. (T.V.)

(W16) STA. 3+64.92 O/S 6.43' RT. ℄ ROAD "B"
- 1 — 8" 1/16 BEND, D.I. M.J. (B.V.)

(W17) STA. 3+69.08 O/S 13.27' RT. ℄ ROAD "B"
- 1 — 8" 1/16 BEND, D.I. M.J. (B.V.)

(W18) STA. 3+70.30 O/S 15.27' RT. ℄ ROAD "B"
- 1 — 8" 1/16 BEND, D.I. M.J. (T.V.)

(W19) 15.3 L.F. REINF. CONC. JACKET FOR 8" WATER, D.I. PIPE

(W20) STA. 3+74.67 O/S 22.44' RT. ℄ ROAD "B" CONN. NEW W8 TO EXIST. W6 (CONTRACTOR TO FIELD VERIFY) INSTALL:
- 1 — 6" TAPPING SLEEVE & VALVE, C.L. 150
- 1 — CONC. BLOCK W/ STRUCTURAL STRUTS
- 1 — VALVE BOX W/ CONC. COLLAR
- 1 — 6" SLEEVE, 12" LONG
- 1 — 8"x6" REDUCER, F.E.xM.J.

TEMP FOR TESTING:
- 1 — 8" CAP TAPPED FOR 2 1/2" I.P.T.
- 1 — 2 1/2" CLEANOUT
- 1 — CONC. BLOCK

(W21) ADJUST EXIST. WATER LAT.

(W22) ADJUST E/W8 SEE POALIMA PROFILE, SHT. 26

NOTES:

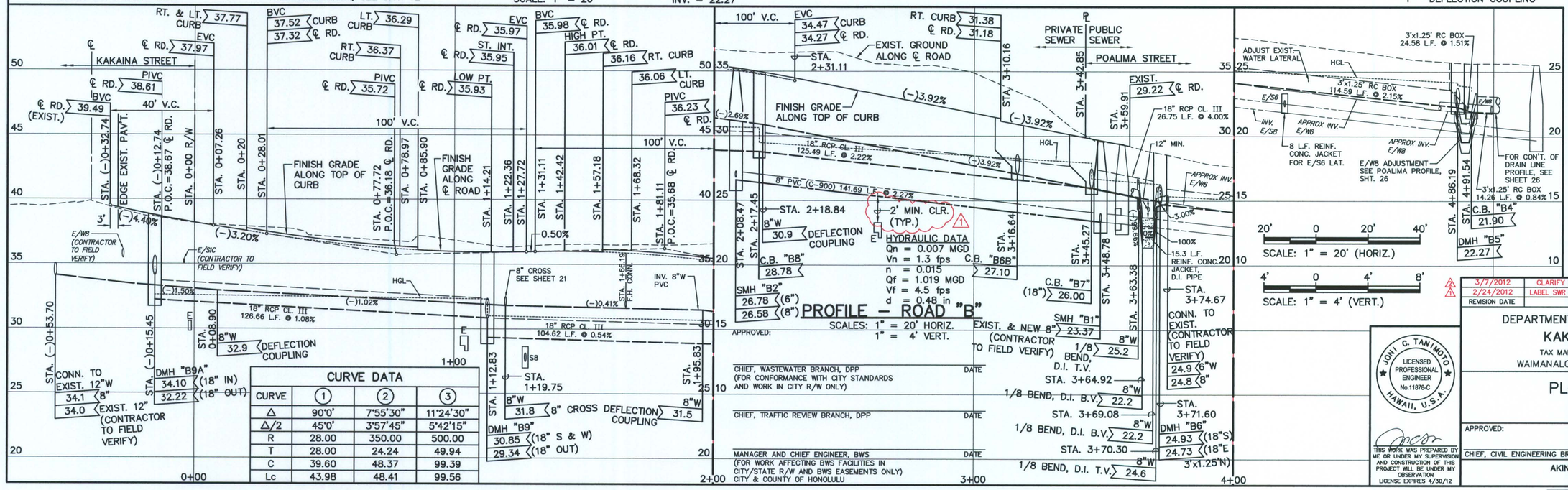
1. FOR ROAD IMPROVEMENTS TO POALIMA STREET, SEE SHT. 25
2. ALL WATER PIPE FITTINGS AND ALL WATER PIPE SECTIONS REQUIRING REINFORCED CONCRETE JACKETING SHALL BE DUCTILE IRON PIPE CLASS 52.
3. FOR DRIVEWAY TIES, SEE SHT. 19

   1 1/2" DOUBLE SERVICE WATER LATERAL W/ TYPE C-1 CONNECTION FOR TWO 3/4" METERS

   1" SINGLE SERVICE WATER LATERAL W/ TYPE A CONNECTION FOR ONE 3/4" METER
4. AC REPAVEMENT (EXIST. STREET IMPROVEMENTS) SEE SHTS. 10 & 12 FOR PAVEMENT SECTION LIMITS. ⚠2

PROFILE — ROAD "B"

SCALES: 1" = 20' HORIZ.
1" = 4' VERT.



CURVE DATA

CURVE	(1)	(2)	(3)
Δ	90°0'	7°55'30"	11°24'30"
Δ/2	45°0'	3°57'45"	5°42'15"
R	28.00	350.00	500.00
T	28.00	24.24	49.94
C	39.60	48.37	99.39
Lc	43.98	48.41	99.56

APPROVED:

CHIEF, WASTEWATER BRANCH, DPP (FOR CONFORMANCE WITH CITY STANDARDS AND WORK IN CITY R/W ONLY) DATE

CHIEF, TRAFFIC REVIEW BRANCH, DPP DATE

MANAGER AND CHIEF ENGINEER, BWS (FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY) CITY & COUNTY OF HONOLULU DATE

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	CLARIFY PAVEMENT SECT. LIMITS	A&A	
2/24/2012	LABEL SWR JACKET & ELEC. VERT. CLR.	A&A	

DEPARTMENT OF HAWAIIAN HOME LANDS

KAKAINA SUBDIVISION

TAX MAP KEY: 4-1-08: 10, 81, 91 & 92

WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

PLAN & PROFILE ROAD "B"

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

JONI C. TANIMOTO — LICENSED PROFESSIONAL ENGINEER — No. 11878-C — HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION
LICENSE EXPIRES 4/30/12

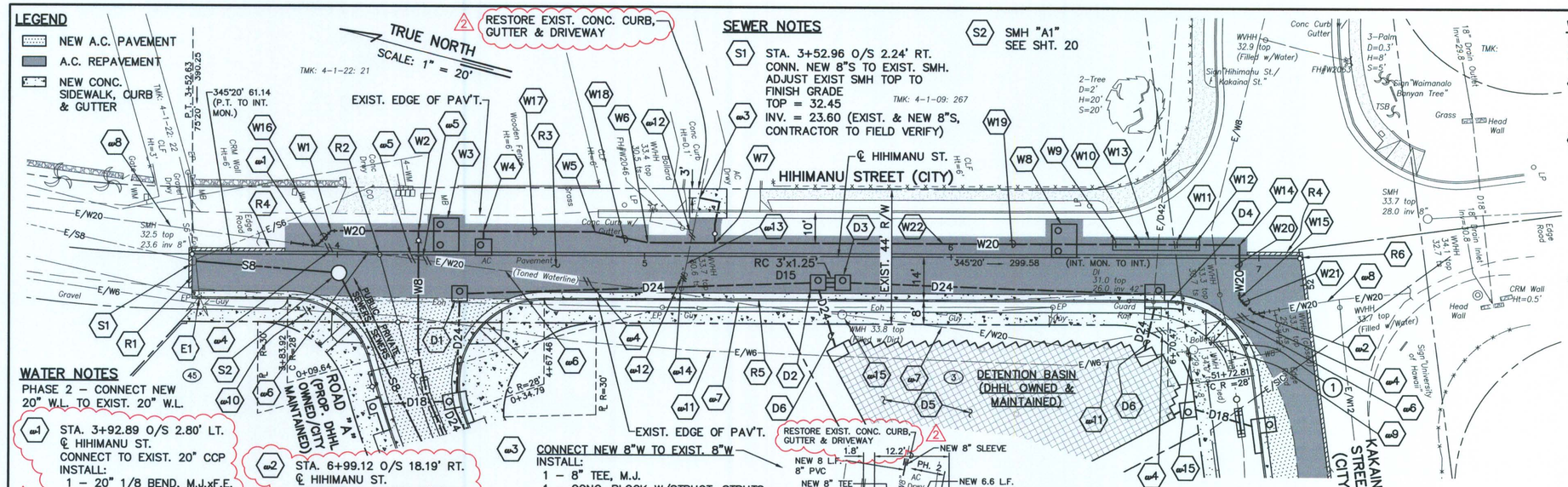
FILE	POCKET	FOLDER	NO.

SHEET 22 OF 87 SHEETS

Last Save by: MSM
Last Saved: 3/6/2012
Plotted on: 3/6/2012
G:\DHHL06-02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum #2\DHHL0602KA14.dwg

LEGEND

- NEW A.C. PAVEMENT
- A.C. REPAVEMENT
- NEW CONC. SIDEWALK, CURB & GUTTER



WATER NOTES

PHASE 2 – CONNECT NEW 20" W.L. TO EXIST. 20" W.L.

(W1) STA. 3+92.89 O/S 2.80' LT.
℄ HIHIMANU ST.
CONNECT TO EXIST. 20" CCP
INSTALL:
1 – 20" 1/8 BEND, M.J.xF.E.
1 – 20" 1/32 BEND, F.E.xM.J.
2 – CONC. BLOCKS
5.5 L.F. 20" D.I. PIPE, CL. 52
(CONNECT AT (W'))
8 L.F. 20" D.I. PIPE, CL. 52
1 – 20" INSULATED COUPLING
1 – 20" BAKER COUPLING OR APPROVED EQUIVALENT
TEMP FOR TESTING @ (W1) :
1 – 20" CAP TAPPED FOR 4" I.P.T.
1 – 4" CLEANOUT
1 – CONC. BLOCK
SEE CONN. DETAIL, SHEET 42

(W2) STA. 6+99.12 O/S 18.19' RT.
℄ HIHIMANU ST.
CONNECT TO EXIST. 20" CCP
INSTALL:
1 – 20" 1/8 BEND, M.J.xF.E.
1 – 20" 1/32 BEND, F.E.xM.J.
2 – CONC. BLOCKS
5.8 L.F. 20" D.I. PIPE, CL. 52
(CONNECT AT (W15))
2.8 L.F. 20" D.I. PIPE, CL. 52
1 – 20" INSULATED COUPLING
1 – 20" BAKER COUPLING OR APPROVED EQUIVALENT
TEMP FOR TESTING @ (W15) :
1 – 20" CAP TAPPED FOR 4" I.P.T.
1 – 4" CLEANOUT
1 – CONC. BLOCK
SEE CONN. DETAIL, SHEET 42

ROAD NOTES

(R1) STA. 3+52.63 ℄ HIHIMANU ST. BEGIN NEW A.C. PAV'T, CONC. CURB, GUTTER & S/W. PROVIDE STD. 4' DROP CURB. SEE SPOT ELEV. SHEET 11

(R2) ST. SURVEY MON. SEE SHEET 20

(R3) A.C. REPAVEMENT SEE TYPICAL SECTION, SHT. 19 SEE SHT. 42 FOR PAV'T SECT. LIMITS

(R4) PROVIDE SMOOTH-RIDING CONN. SEE DETAIL, SHT. 44

(R5) CONSTRUCT STD. CONC. CURB & GUTTER

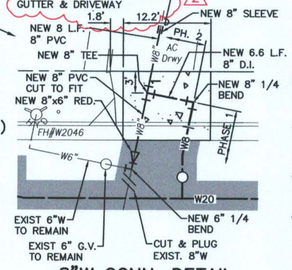
(R6) P.I. STA. 7+13.35 ℄ HIHIMANU ST. = P.I. STA. 52+08.85 ℄ KAKAINA ST. END NEW A.C. PAVEMENT FOR CONTINUATION, SEE SHEET 24

SEWER NOTES

(S1) STA. 3+52.96 O/S 2.24' RT.
CONN. NEW 8"S TO EXIST. SMH.
ADJUST EXIST SMH TOP TO FINISH GRADE
TOP = 32.45
INV. = 23.60 (EXIST. & NEW 8"S, CONTRACTOR TO FIELD VERIFY)

(S2) SMH "A1" SEE SHT. 20

(S3) CONNECT NEW 8"W TO EXIST. 8"W
INSTALL:
1 – 8" TEE, M.J.
1 – CONC. BLOCK W/STRUCT. STRUTS
6.6 L.F. 8" D.I. PIPE, CL. 52
8 L.F. 8" PVC, CL. 150
1 – 8" SLEEVE, 12" LONG
8" PVC, CL. 150, CUT TO FIT (≈ 8 L.F.)
TEMP FOR TESTING (@ 8" 1/4 BEND):
1 – 8" CAP TAPPED FOR 2 1/2" I.P.T.
1 – 2 1/2" C.O.
1 – CONC. BLOCK
CONNECT TO EXIST. 6"W
REMOVE:
1 – EXIST. 8" x 6" TEE
INSTALL:
1 – 8" x 6" REDUCER, M.J., L.E.B.
1 – 6" 1/4 BEND, M.J.
1 – CONC. BLOCK
EXIST. 6"W, G.V. & F.H. TO REMAIN
SEE PROFILE 6/26



8"W CONN. DETAIL
SCALE: 1" = 10'

(W4) CUT & PLUG EXIST. 20"W

(W5) CUT & PLUG EXIST. 20"W REMOVE PORTION OF E/W20 (WITHIN NEW 8"W CROSSING) AFTER NEW 20"W IN SERVICE

PLAN – HIHIMANU STREET
SCALE: 1" = 20'

(W6) ABANDON EXIST. 20"W IN PLACE

(W7) REMOVE PORTION OF EXIST. 20"W

(W8) EXIST. 20"W TO REMAIN

(W9) CUT & PLUG EXIST. 6"W AT MAIN
INSTALL:
1 – 6" PLUG
1 – 6" HUB CLAMP W/ STRONG BACK TIE
1 – CONC. BLOCK

(W10) CUT & PLUG EXIST. 6"W

(W11) REMOVE PORTION OF EXIST. 6"W

(W12) CUT & PLUG EXIST. 8"W

(W13) ABANDON EXIST. 8"W IN PLACE

(W14) REMOVE PORTION OF EXIST. 8"W

(W15) DEMOLISH EXIST. MH/V.B., SALVAGE C.I. FRAME & COVER

ELECTRICAL NOTES

(E1) RELOCATE EXIST. ELECT. POLE, SEE ELECT. PLANS

NOTE:
1. EXIST. ELECT. POLES TO REMAIN UNLESS OTHERWISE NOTED

CURVE DATA	
CURVE	(1)
Δ	82°30'
Δ/2	41°15'
R	28.00
T	24.56
C	36.92
Lc	40.32

WATER NOTES

PHASE 1 – CONSTRUCT NEW 20" WATERLINE

(W1) STA. 3+97.94 O/S 7.71' LT.
℄ HIHIMANU ST.
1 – 20" 1/8 BEND, M.J.
1 – CONC. BLOCK

(W2) STA. 4+26.46 O/S 7.71' LT.
℄ HIHIMANU ST.
1 – 20" x 8" TEE, M.J.
1 – CONC. BLOCK
8" D.I. PIPE, CL. 52, P.E., CUT TO FIT
1 – 8" G.V., CL. 150, M.J. (3' FROM TEE)
1 – VALVE BOX
1 – TEMP. 8" PLUG @ 8" G.V.
1 – CONC. BLOCK @ 8" PLUG

(W3) STA. 4+35.54 O/S 7.71' LT.
℄ HIHIMANU ST.
1 – 20" BGGV W/ 3" BYPASS, FL., CL. 150
1 – TYPE "A" MANHOLE
2 – 20" ADAPTERS, FL. x B.E., 3'–0"
1 – 20" DISMANTLING JOINT, FL.
2 – CONC. CAPPING COLLARS

(W4) STA. 4+47.62 O/S 7.71' LT.
℄ HIHIMANU ST.
1 – 2" ARV (OFFSET) (W.P. = 87.7 P.S.I.)
1 – TYPE "D" MANHOLE

(W5) STA. 4+83.95 O/S 7.71' LT.
℄ HIHIMANU ST.
1 – 20" 1/32 BEND, M.J.
1 – CONC. BLOCK

(W6) STA. 5+01.08 O/S 4.30' LT.
℄ HIHIMANU ST.
1 – 20" 1/32 BEND, M.J.
1 – CONC. BLOCK

(W7) STA. 5+22.98 O/S 4.30' LT.
℄ HIHIMANU ST.
1 – 20" x 8" TEE, M.J.
1 – CONC. BLOCK
1 – 8" G.V., CL. 150, M.J.
1 – VALVE BOX
1 – 8" 1/32 BEND, M.J. (HORIZ.)
1 – 8" 1/16 BEND, M.J. (B.V.)
1 – 8" 1/4 BEND, M.J. (HORIZ. & T.V.)
1 – TEMP. 8" PLUG @ 8" 1/4 BEND
4 – CONC. BLOCKS
13.6 L.F. 8" D.I. PIPE, CL. 52
CONNECTION TO EXIST. 8"W TO BE DONE IN PHASE 2
SEE PROFILE 6/26

(W8) STA. 6+36.62 O/S 4.30' LT.
℄ HIHIMANU ST.
1 – 20" BGGV W/ 3" BYPASS, FL., CL. 150
1 – TYPE "A" MANHOLE
2 – 20" ADAPTERS, FL. x B.E., 3'–0"
1 – 20" DISMANTLING JOINT, FL.
2 – CONC. CAPPING COLLARS

(W9) STA. 6+53.37 O/S 4.30' LT.
℄ HIHIMANU ST.
1 – 20" 1/16 BEND, M.J. (T.V.)

(W10) STA. 6+60.89 O/S 4.30' LT.
℄ HIHIMANU ST.
1 – 20" 1/16 BEND, M.J. (B.V.)

(W11) STA. 6+73.28 O/S 4.30' LT.
℄ HIHIMANU ST.
1 – 20" 1/16 BEND, M.J. (B.V.)

(W12) STA. 6+79.51 O/S 4.30' LT.
℄ HIHIMANU ST.
1 – 20" 1/16 BEND, M.J. (T.V.)

(W13) 28.1 L.F. REINF. CONC. JACKET FOR 20" WATER

(W14) STA. 6+93.67 O/S 4.30' LT.
℄ HIHIMANU ST.
1 – 20" 1/4 TEE, M.J.
1 – CONC. BLOCK

(W15) STA. 6+93.67 O/S 13.19' RT.
℄ HIHIMANU ST.
1 – 20" 1/8 BEND, M.J.
1 – CONC. BLOCK

(W16) 298°56'01" → 5.51' (1/32 BEND TO 1/8 BEND)

(W17) 345°20' → 86.00' (1/8 BEND TO 1/32 BEND)

(W18) 356°35' → 17.47' (1/32 BEND TO 1/32 BEND)

(W19) 345°20' → 192.59' (1/32 BEND TO TEE)

(W20) 75°20' → 17.49' (TEE TO 1/8 BEND)

(W21) 30°20' → 5.84' (1/8 BEND TO 1/32 BEND)

(W22) SEE SHEET 42 FOR EXTERNAL CORROSION PROTECTION PLAN

DRAIN NOTES

(D1) DMH "A2" SEE DETAIL D–18 SEE SHT. 20

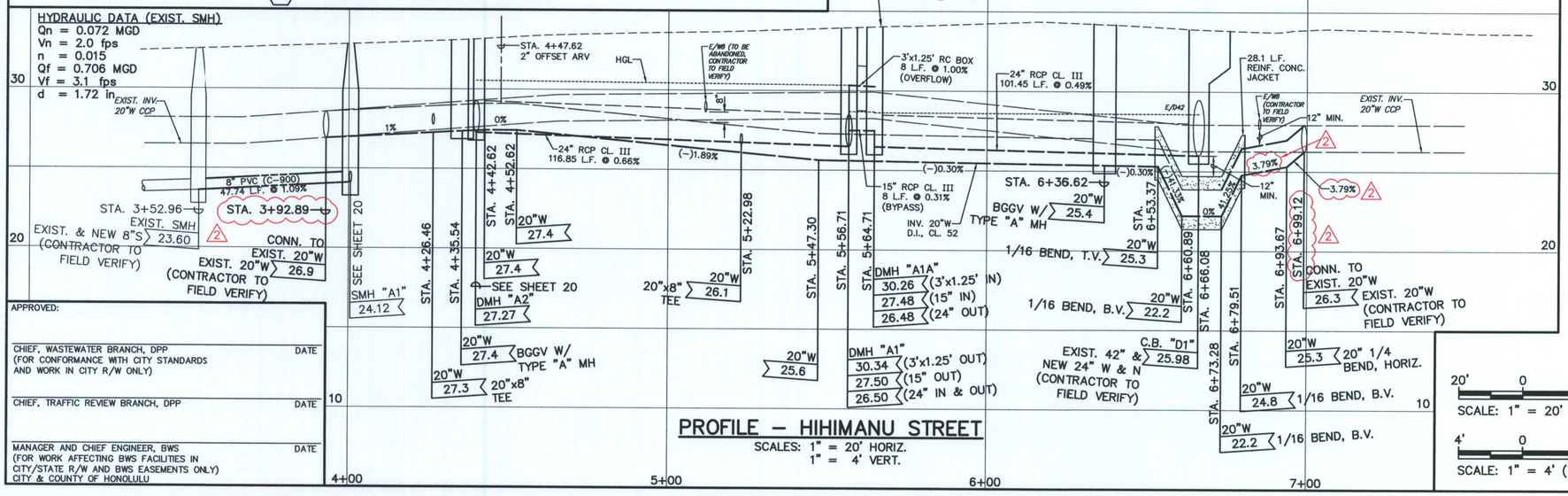
(D2) STA. 5+56.71 O/S 8.52' RT.
℄ HIHIMANU ST.
CONSTRUCT DMH "A1"
SEE DETAIL D–18
TOP = 33.71
INV. = 30.34 (3'x1.25" OUT)
INV. = 27.50 (15" OUT)
INV. = 26.50 (24" IN & OUT)

(D3) STA. 5+64.71 O/S 8.52' RT.
℄ HIHIMANU ST.
CONSTRUCT DMH "A1A"
SEE DETAIL D–18
TOP = 33.75
INV. = 30.26 (3'x1.25" IN)
INV. = 27.48 (15" IN)
INV. = 26.48 (24" OUT)
SEE DETAIL, SHT. 39

(D4) STA. 6+66.08 ℄ HIHIMANU ST.
CONSTRUCT SPECIAL TYPE "B" C.B. "D1" OVER EXIST. 42" DRAIN.
DEMOLISH EXIST. D.I.
INV. = 25.98 (EXIST. 42" & NEW 24" W & N, CONTRACTOR TO FIELD VERIFY)
SEE DETAIL, SHT. 39

(D5) UNDERGROUND DETENTION BASIN, DHHL OWNED & MAINTAINED, SEE SHT. 29

(D6) SEE SHEET 29 FOR CONTINUATION



PROFILE – HIHIMANU STREET
SCALES: 1" = 20' HORIZ.
1" = 4' VERT.

SCALE: 1" = 20' (HORIZ.)
SCALE: 1" = 4' (VERT.)

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	RESTORE EXIST. DWY., CLARIFY PAV'T LIMITS	A&A	
3/7/2012	REVISE 20" W.L. CONN.	A&A	

APPROVED:

CHIEF, WASTEWATER BRANCH, DPP — DATE
(FOR CONFORMANCE WITH CITY STANDARDS AND WORK IN CITY R/W ONLY)

CHIEF, TRAFFIC REVIEW BRANCH, DPP — DATE

MANAGER AND CHIEF ENGINEER, BWS — DATE
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY)
CITY & COUNTY OF HONOLULU

JONI C. TANIMOTO
LICENSED PROFESSIONAL ENGINEER
No.11878-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION
LICENSE EXPIRES 4/30/12

DEPARTMENT OF HAWAIIAN HOME LANDS
KAKAINA SUBDIVISION
TAX MAP KEY: 4-1-08: 10, 81, 91 & 92
WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

PLAN & PROFILE
HIHIMANU STREET

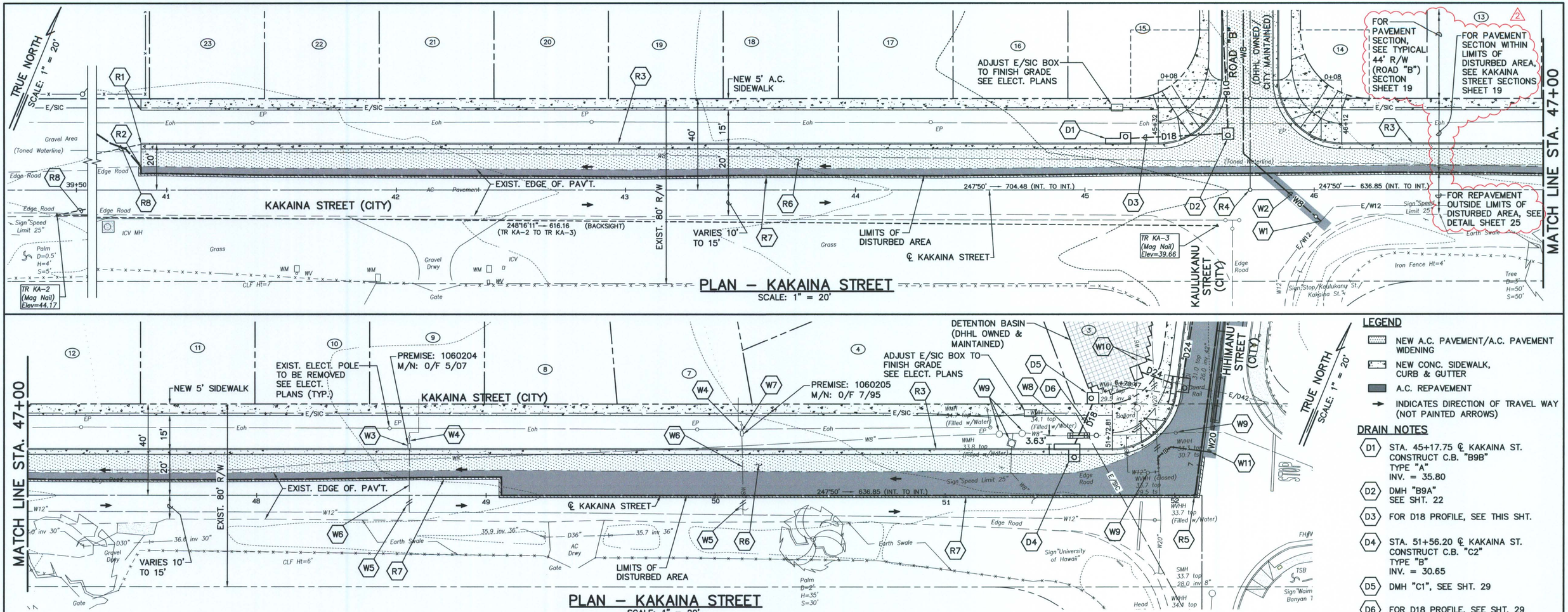
APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP — DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

Last Save by: MSM
Last Saved: 3/6/2012
Plotted on: 3/6/2012
G:\DHHL06-02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum #2\DHHL0602KA20.dwg

FILE	POCKET	FOLDER	NO.

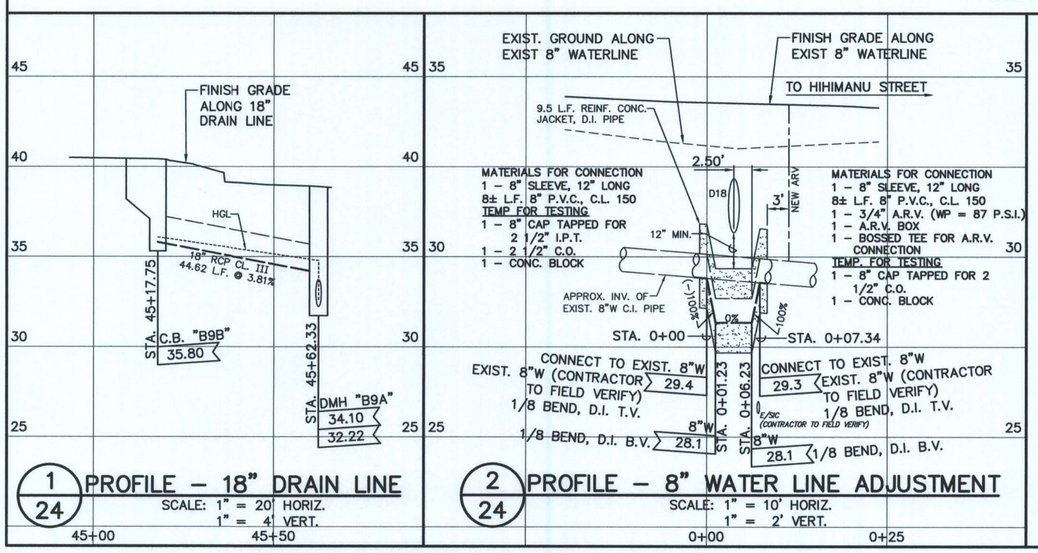


LEGEND

- NEW A.C. PAVEMENT/A.C. PAVEMENT WIDENING
- NEW CONC. SIDEWALK, CURB & GUTTER
- A.C. REPAVEMENT
- → INDICATES DIRECTION OF TRAVEL WAY (NOT PAINTED ARROWS)

DRAIN NOTES

- (D1) STA. 45+17.75 ℄ KAKAINA ST. CONSTRUCT C.B. "B9B" TYPE "A" INV. = 35.80
- (D2) DMH "B9A" SEE SHT. 22
- (D3) FOR D18 PROFILE, SEE THIS SHT.
- (D4) STA. 51+56.20 ℄ KAKAINA ST. CONSTRUCT C.B. "C2" TYPE "B" INV. = 30.65
- (D5) DMH "C1", SEE SHT. 29
- (D6) FOR D18 PROFILE, SEE SHT. 29



1/24 PROFILE — 18" DRAIN LINE
SCALE: 1" = 20' HORIZ.
1" = 4' VERT.

2/24 PROFILE — 8" WATER LINE ADJUSTMENT
SCALE: 1" = 10' HORIZ.
1" = 2' VERT.

ROAD NOTES

- (R1) STA. 40+88.59 O/S LT. ℄ KAKAINA ST. BEGIN NEW CURB, GUTTER & CONC. SIDEWALK PROVIDE 4' STD. DROP CURB
- (R2) STA. 40+88.59 O/S 10.2' LT. ℄ KAKAINA ST. MATCH NEW EDGE OF PAVEMENT TO EXIST. EDGE OF PAVEMENT
- (R3) CONSTRUCT STD. CONC. CURB & GUTTER
- (R4) P.I. STA. 45+72.00 ℄ KAKAINA ST. = STA. (—)0+40.00 ℄ ROAD "B" ST. SURVEY MON. SEE SHT. 22
- (R5) P.I. STA. 52+08.85 ℄ KAKAINA ST. = STA. 7+13.35 ℄ HIHMANU ST.
- (R6) CONSTRUCT NEW PAVEMENT SEE TYPICAL SECTION, SHT. 19
- (R7) PROVIDE SMOOTH—RIDING CONNECTION SEE DETAIL, SHT. 44
- (R8) TIE: TR KA—2 TO STA. 40+88.59 O/S 20' LT. ℄ KAKAINA ST. (BEGIN NEW CURB) 235°56'09" — 150.32

WATER NOTES

- (W1) CONN. NEW 8"W TO EXIST. 12"W SEE SHT. 22
- (W2) FOR 8"W PROFILE, SEE SHT. 22
- (W3) PREMISE: 1060204 M/N: 0/F 5/07 CONTRACTOR TO CUT AND PLUG LATERAL AT MAIN. REMOVE AND DISPOSE OF EXIST. WATER METER.
- (W4) REMOVE EXIST. WM BOXES, VALVES & COVERS
- (W5) CUT & PLUG AT MAIN
- (W6) ABANDON EXIST. WATER LAT. IN PLACE
- (W7) PREMISE: 1060205 MIN: 0/F 7/95 CONTRACTOR TO CUT AND PLUG LATERAL AT MAIN. REMOVE AND DISPOSE OF EXIST. WATER METER.
- (W8) 8" WATER LINE ADJUSTMENT, SEE PROFILE, THIS SHT.
- (W9) ADJUST EXIST. WATER VALVE BOXES TO FINISH GRADE
- (W10) REMOVE EXIST. 6"W & 20"W SEE SHT. 23
- (W11) NEW 20"W SEE SHT. 23

NOTES:

1. ALL WATER PIPE FITTINGS AND ALL WATER PIPE SECTIONS REQUIRING REINFORCED CONCRETE JACKETING SHALL BE DUCTILE IRON PIPE CLASS 52.

10' 0 10' 20'
SCALE: 1" = 10' (HORIZ.)

2' 0 2' 4'
SCALE: 1" = 2' (VERT.)

20' 0 20' 40'
SCALE: 1" = 20' (HORIZ.)

4' 0 4' 8'
SCALE: 1" = 4' (VERT.)

JONI C. TANIMOTO
LICENSED PROFESSIONAL ENGINEER
No.11878-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION
LICENSE EXPIRES 4/30/12

APPROVED:

CHIEF, TRAFFIC REVIEW BRANCH, DPP DATE

MANAGER AND CHIEF ENGINEER, BWS DATE
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY)
CITY & COUNTY OF HONOLULU

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	CLARIFY PAVEMENT SECT. LIMITS	A&A	

DEPARTMENT OF HAWAIIAN HOME LANDS
KAKAINA SUBDIVISION
TAX MAP KEY: 4—1—08: 10, 81, 91 & 92
WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

PLAN — KAKAINA STREET & MISCELLANEOUS PROFILES

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

FILE	POCKET	FOLDER	NO.

SHEET 24 OF 87 SHEETS

Last Save by: MSM
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ROAD NOTES

(R1) TR MEK–2 (MAGNAIL) ELEV. = 25.22

(R2) TR HU–4 (MAGNAIL) ELEV. = 28.58

(R3) TR MEK–1 (MAGNAIL) ELEV. = 23.11

(R4) TIE: TR MEK–2 TO (D6) 135°03'01"→ 8.46

(R5) TIE: TR MEK–2 TO (D7) 226°21'28"→ 191.78

(R6) TIE: TR MEK–1 TO (D8) 50°45'16"→ 108.25

(R7) TIE: TR MEK–1 TO (D10) 59°48'37"→ 110.35

(R8) P.I. STA. 16+00.54 ℄ POALIMA ST. = STA. 3+64.14 ℄ ROAD "B"

(R9) PROVIDE SMOOTH–RIDING CONNECTION SEE DETAIL, SHT. 44

(R10) STA. 14+96.60 ℄ POALIMA ST. END NEW A.C. PAVEMENT, CURB & GUTTER. PROVIDE SMOOTH RIDING CONNECTION. SEE DETAIL SHEET 44

(R11) CONSTRUCT STD. CONC. CURB

(R12) STA. 15+00.60 ℄ POALIMA ST. BEGIN 4' DROP CURB & END NEW SIDEWALK

(R13) P.I. STA. 3+92.15 ℄ ROAD "B" = P.T. STA. 16+21.40 ℄ POALIMA ST.

(R14) END A.C. PAVEMENT SEE SHEET 22

DRAIN NOTES

(D1) DMH "B6" SEE SHT. 22

(D2) STA. 15+63.88 ℄ POALIMA ST. CONSTRUCT C.B. "B6A" TYPE "B" INV. = 24.95 SEE DETAIL 1/34

(D3) DMH "B5" SEE SHT. 22

(D4) D.I. "B5A" SEE SHT. 22

(D5) C.B. "B4" SEE SHT. 22

(D6) CONSTRUCT DMH "B3" STD. DETAIL D–18 TOP = 25.40 (EXIST.) INV. = 21.78 FOR PROFILE, SEE SHT. 26

(D7) CONSTRUCT DMH "B2" STD. DETAIL D–18 TOP = 23.55 (EXIST.) INV. = 20.16 FOR PROFILE, SEE SHT. 26

(D8) CONSTRUCT DMH "B1" OVER EXIST. 18" DRAIN LINE STD. DETAIL D–18 TOP = 23.07 (EXIST.) INV. = 19.79 (EXIST. 18" IN, CONTRACTOR TO FIELD VERIFY) INV. = 19.51 (3'x1.25' IN) INV. = 19.01 (3'x2' OUT) FOR PROFILE, SEE SHT. 26

(D9) EXIST. D.I. TO REMAIN TOP = 22.5 (EXIST.) INV. = 20.00 (EXIST.)

(D10) DEMOLISH & REMOVE EXIST. D.I. CONSTRUCT D.I. "B0" TOP = 22.18 (EXIST.) INV. = 18.68 SEE DETAIL, SHT. 40 FOR PROFILE, SEE SHT. 26

(D11) CONSTRUCT OUTLET "B" INV. = 18.08 FOR PROFILE, SEE SHT. 26 FOR OUTLET DETAIL, SEE SHT. 28

(D12) DRAIN LINE "B" SEE PROFILE 1/26

(D13) 18" DRAIN LINE (BRANCH DMH "B6") SEE PROFILE 2/26

(D14) 18" DRAIN LINE (BRANCH DMH "B5") SEE PROFILE 3/26

SEWER NOTES

(S1) SMH "B1" SEE SHT. 22

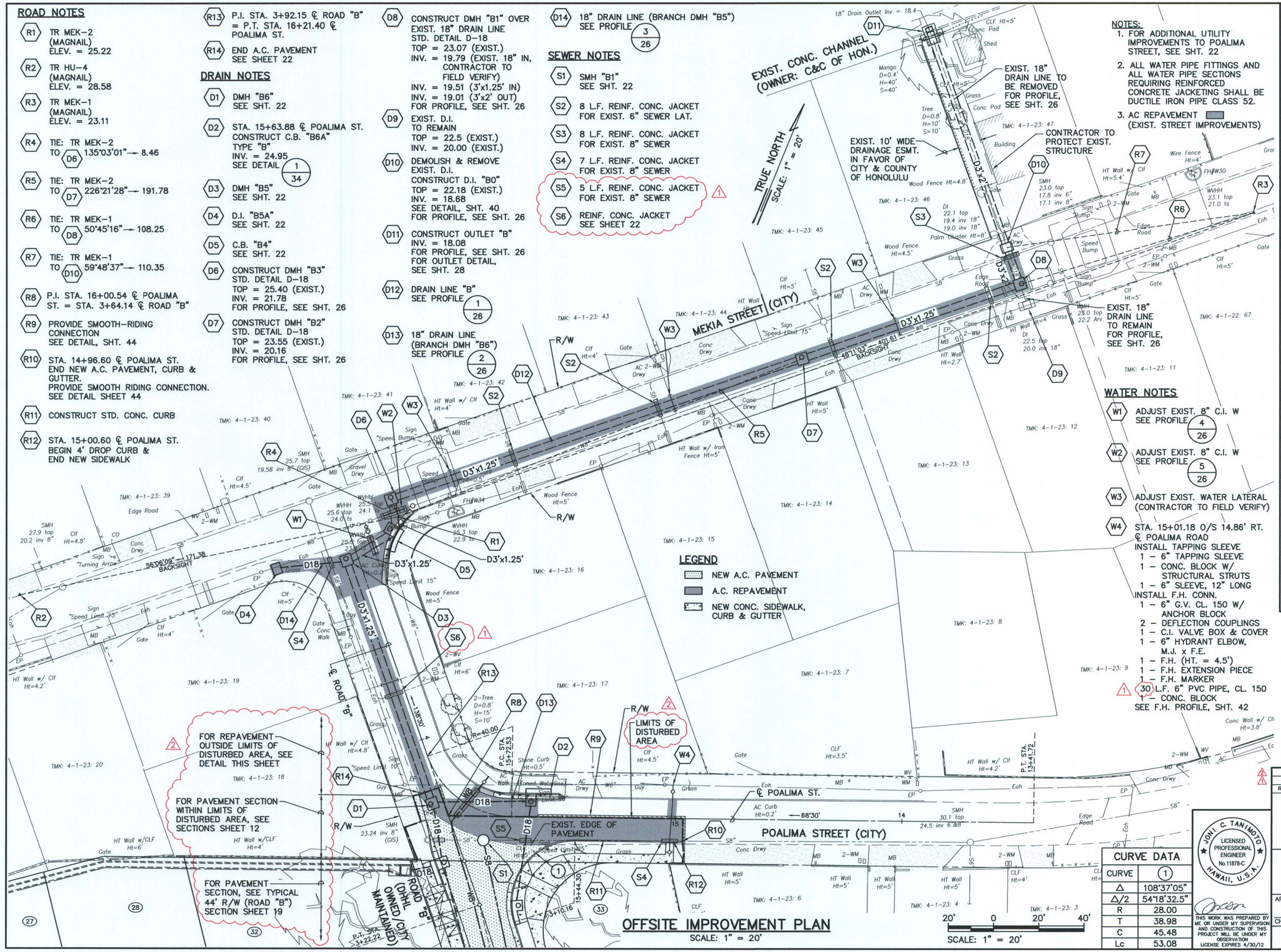
(S2) 8 L.F. REINF. CONC. JACKET FOR EXIST. 6" SEWER LAT.

(S3) 8 L.F. REINF. CONC. JACKET FOR EXIST. 8" SEWER

(S4) 7 L.F. REINF. CONC. JACKET FOR EXIST. 8" SEWER

(S5) 5 L.F. REINF. CONC. JACKET FOR EXIST. 8" SEWER

(S6) REINF. CONC. JACKET SEE SHEET 22



OFFSITE IMPROVEMENT PLAN

SCALE: 1" = 20'

NOTES:
1. FOR ADDITIONAL UTILITY IMPROVEMENTS TO POALIMA STREET, SEE SHT. 22
2. ALL WATER PIPE FITTINGS AND ALL WATER PIPE SECTIONS REQUIRING REINFORCED CONCRETE JACKETING SHALL BE DUCTILE IRON PIPE CLASS 52.
3. AC REPAVEMENT (EXIST. STREET IMPROVEMENTS)

WATER NOTES

(W1) ADJUST EXIST. 8" C.I. W SEE PROFILE 4/26

(W2) ADJUST EXIST. 8" C.I. W SEE PROFILE 5/26

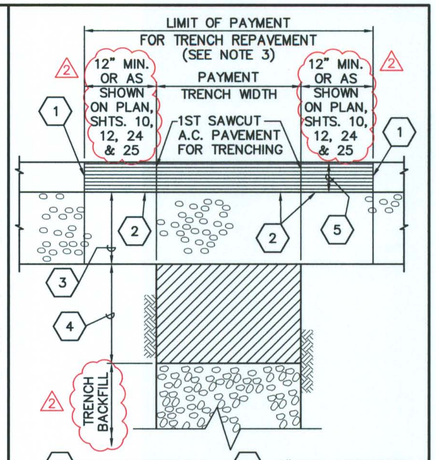
(W3) ADJUST EXIST. WATER LATERAL (CONTRACTOR TO FIELD VERIFY)

(W4) STA. 15+01.18 O/S 14.86' RT. ℄ POALIMA ROAD
INSTALL TAPPING SLEEVE
1 – 6" TAPPING SLEEVE
1 – CONC. BLOCK W/ STRUCTURAL STRUTS
1 – 6" SLEEVE, 12" LONG
INSTALL F.H. CONN.
1 – 6" G.V. CL. 150 W/ ANCHOR BLOCK
2 – DEFLECTION COUPLINGS
1 – C.I. VALVE BOX & COVER
1 – 6" HYDRANT ELBOW, M.J. x F.E.
1 – F.H. (HT. = 4.5')
1 – F.H. EXTENSION PIECE
1 – F.H. MARKER
(1) 30 L.F. 6" PVC PIPE, CL. 150
1 – CONC. BLOCK
SEE F.H. PROFILE, SHT. 42

LEGEND

- NEW A.C. PAVEMENT
- A.C. REPAVEMENT
- NEW CONC. SIDEWALK, CURB & GUTTER

CURVE DATA	
CURVE	(1)
Δ	108°37'05"
Δ/2	54°18'32.5"
R	28.00
T	38.98
C	45.48
Lc	53.08



(1) 2ND SAWCUT A.C. PAVEMENT FOR REPAVEMENT AND APPLY TACK COAT

(2) APPLY PRIME COAT (SEE NOTE 2)

(3) 6" MIN. AGGREGATE BASE COURSE

(4) SUBBASE TO MATCH EXISTING

(5) *4" MIN. A.C. PAVEMENT, MIX V

* A.C. PAVEMENT, BASE COURSE AND SUBBASE TO MATCH EXISTING THICKNESS OR THE MINIMUM THICKNESS SHOWN, WHICHEVER IS GREATER

NOTES:
1. PAVEMENT STRUCTURE SHALL BE EQUAL TO OR BETTER THAN EXISTING IN THICKNESS AND QUALITY.
2. FOR ROAD GRADE 0% TO 7.99% AND PRIME COAT IS NOT AVAILABLE, NONE REQUIRED. IF PRIME COAT IS AVAILABLE, USE PRIME COAT.
3. EXCAVATION FOR EXTRA 12" WIDTH OF REPAVING TO BE INCLUDED WITH TRENCH EXCAVATION.

TRENCH REPAVEMENT SECTION WITHIN KAKAINA, POALIMA & MEKIA STREET

NOT TO SCALE

APPROVED:

CHIEF, WASTEWATER BRANCH, DPP — DATE
(FOR CONFORMANCE WITH CITY STANDARDS AND WORK IN CITY R/W ONLY)

CHIEF, TRAFFIC REVIEW BRANCH, DPP — DATE

MANAGER AND CHIEF ENGINEER, BWS — DATE
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY)

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	REVISE TRENCH DET., CLARIFY PAVT. LIMITS	A&A	
2/24/2012	REVISE POALIMA FH & SWR JACKET	A&A	

DEPARTMENT OF HAWAIIAN HOME LANDS

KAKAINA SUBDIVISION

TAX MAP KEY: 4–1–08: 10, 81, 91 & 92

WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

PLAN – POALIMA & MEKIA STREET

JONI C. TANIMOTO — LICENSED PROFESSIONAL ENGINEER No.11878-C — HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION LICENSE EXPIRES 4/30/12

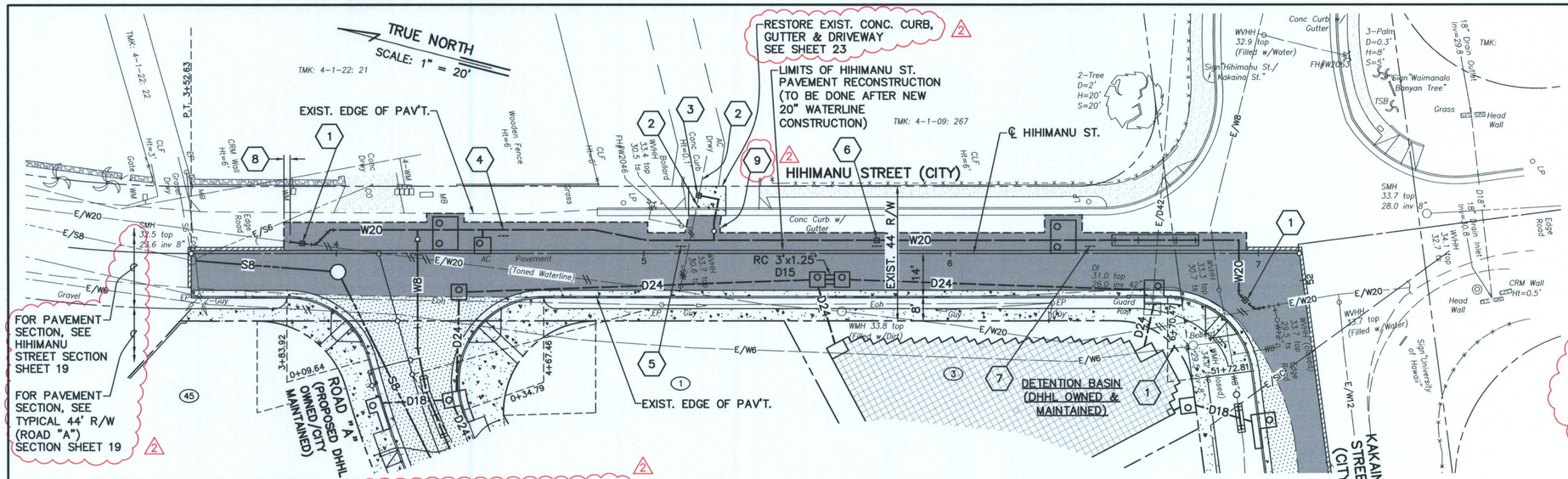
APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP — DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

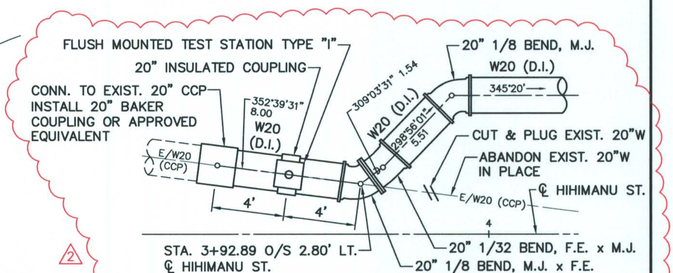
Last Save by: MSM
Last Saved: 3/6/2012
Plotted on: 3/6/2012
G:\DHHL06-02 Kumuhau & Kakaina Subd\ACAD\KAKAINA\Addendum #2\DHHL0602KA21.dwg

FILE	POCKET	FOLDER	NO.

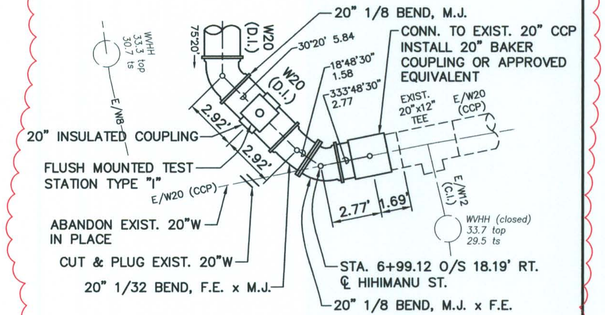


NEW 20" WATERLINE EXTERNAL CORROSION PROTECTION NOTES

1. UNLESS OTHERWISE SPECIFIED, ALL EXTERNAL CORROSION MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY & COUNTY OF HONOLULU BOARD OF WATER SUPPLY'S "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
2. DUCTILE IRON PIPES SHALL BE CLASS 52. ALL DUCTILE PIPES, FITTINGS AND VALVES SHALL BE BONDED COATING, WITH AN EXTERNAL CORROSION CONTROL SYSTEM APPLIED.
3. TO FORM AN ELECTRICALLY CONTINUOUS PIPELINE AND ASSOCIATED VALVES AND FITTINGS, THE JOINTS OF ALL BURIED METALLIC PIPE, INCLUDING VAULT AND MANHOLE PIPE AND ALL FITTINGS SHALL BE ELECTRICALLY BONDED, EXCEPT JOINTS SPECIFIED TO BE THREADED, WELDED OR INSULATED.
4. INSULATED JOINTS SHALL BE INSTALLED TO ELECTRICALLY ISOLATE THE PIPELINE FROM OTHER STRUCTURES.
5. PROVIDE A CATHODIC PROTECTION SYSTEM PER THE CONSTRUCTION PLANS AND THE "WATER SYSTEM EXTERNAL CORROSTION CONTROL STANDARDS", DATED 1991.
6. PROVIDE HIGH RESISTANCE CUSHION MATERIAL. SEE WATER NOTES, SHEET 5.



STA. 3+92.89 ℄ HIHIMANU ST.



STA. 6+99.12 ℄ HIHIMANU ST.

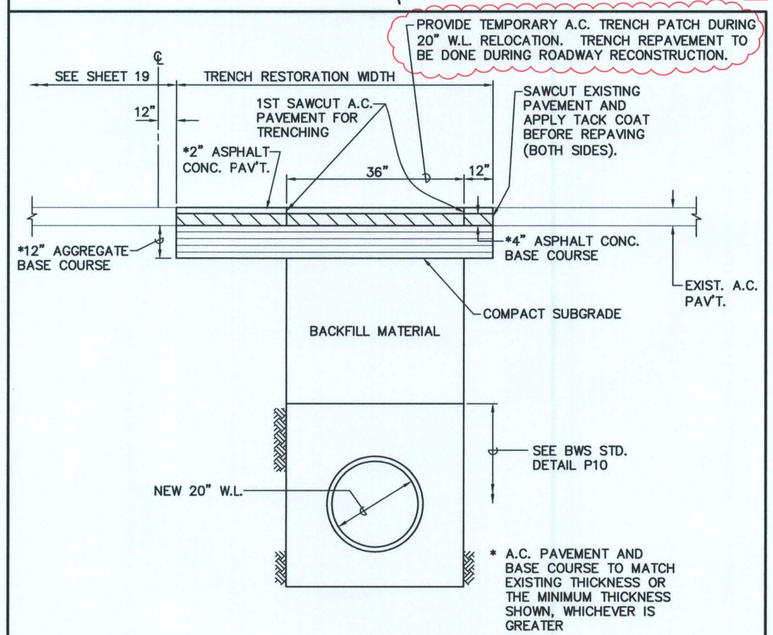
3/42 CONN. TO EXIST. 20" W.L. DETAIL

SCALE: 1" = 4'

APPROVED:

CHIEF, TRAFFIC REVIEW BRANCH, DPP — DATE

MANAGER AND CHIEF ENGINEER, BWS — DATE
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE R/W AND BWS EASEMENTS ONLY)



NOTES:

1. PAVEMENT STRUCTURE SHALL BE EQUAL TO OR BETTER THAN EXISTING IN THICKNESS AND QUALITY.
2. ALL DISTURBED PAVEMENT MARKINGS SHALL BE REPLACED AND ALL REQUIRED UTILITY ADJUSTMENTS SUCH AS MANHOLE COVERS ETC. SHALL BE DONE BY THE PERMITTEE.
3. PERMITTEE SHALL COORDINATE WORK WITH ALL OTHER UTILITY ENTITIES AND DEPT. OF FACILITY MAINTENANCE.

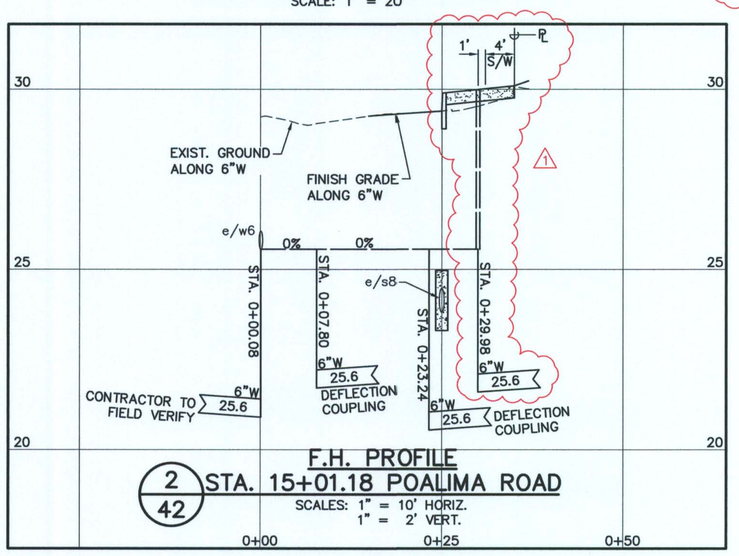
1/42 TRENCH REPAVEMENT SECTION FOR NEW 20" WATERLINE

NOT TO SCALE

1. INSTALL FLUSH MOUNTED TEST STATION TYPE "I" PER BWS STD. CORROSION CONTROL DETAIL (9) 1 – 20" INSULATED COUPLING FOR ELECTRICAL ISOLATION SEE W.L. CONN. DETAIL, THIS SHEET
2. 8" PVC PIPE FOR ELECTRICAL ISOLATION SEE W.L. CONN. NOTES, SHEET 23
3. INSTALL FLUSH MOUNTED TEST STATION TYPE "I" PER BWS STD. CORROSION CONTROL DETAIL (9)
4. STA. 4+54.36 ℄ HIHIMANU ST. INSTALL GALVANIC ANODE PER BWS STD. CORROSION CONTROL DETAIL (13) ANODE = 18 LBS ZINC ANODE (1.4"x1.4"x36")
5. STA. 5+12.19 ℄ HIHIMANU ST. INSTALL GALVANIC ANODE PER BWS STD. CORROSION CONTROL DETAIL (13) ANODE = 18 LBS ZINC ANODE (1.4"x1.4"x36")
6. STA. 5+76.02 ℄ HIHIMANU ST. INSTALL FLUSH MOUNTED TEST STATION TYPE "I" WITH ANODE OVER NEW 20" WATERLINE PER BWS STD. CORROSION CONTROL DETAIL (8) ANODE = 18 LBS ZINC ANODE (1.4"x1.4"x36")
7. STA. 6+45.21 ℄ HIHIMANU ST. INSTALL GALVANIC ANODE PER BWS STD. CORROSION CONTROL DETAIL (13) ANODE = 18 LBS ZINC ANODE (1.4"x1.4"x36")
8. EXTEND A.C. PAVEMENT FOR TRENCH RESTORATION 2' BEYOND EDGE OF TRENCH
9. TRENCH RESTORATION A.C. PAVEMENT FOR NEW 8"W & CONN. SIMILAR TO 1/42

PLAN – HIHIMANU STREET

SCALE: 1" = 20'



2/42 F.H. PROFILE STA. 15+01.18 POALIMA ROAD

SCALES: 1" = 10' HORIZ.
1" = 2' VERT.

LEGEND

A.C. REPAVEMENT
SEE TYPICAL SECTION, SHT. 19
SEE TRENCH REPAVEMENT DETAIL 1/42

NEW A.C. PAVEMENT

NEW CONC. SIDEWALK, CURB & GUTTER

20' 0 20' 40'
SCALE: 1" = 20'

10' 0 10' 20'
SCALE: 1" = 10' (HORIZ.)

2' 0 2' 4'
SCALE: 1" = 2' (VERT.)

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
3/7/2012	RESTORE EXIST. DWY., CLARIFY PAV'T LIMITS	A&A	
3/7/2012	ADD CONN. DETAIL, REV. TRENCH DETAIL	A&A	
2/24/2012	REVISE FH PROFILE	A&A	

JONI C. TANIMOTO — LICENSED PROFESSIONAL ENGINEER No.11878-C HAWAII, U.S.A.

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LICENSE EXPIRES 4/30/12

DEPARTMENT OF HAWAIIAN HOME LANDS

KAKAINA SUBDIVISION

TAX MAP KEY: 4–1–08: 10, 81, 91 & 92

WAIMANALO, KOOLAUPOKO, OAHU, HAWAII

WATER DETAILS

20" WATERLINE EXTERNAL CORROSION PROTECTION & TRENCH REPAVEMENT

APPROVED:

CHIEF, CIVIL ENGINEERING BRANCH, DPP — DATE

AKINAKA & ASSOCIATES, LTD.
CONSULTING ENGINEERS

FILE	POCKET	FOLDER	NO.

SHEET 42 OF 87 SHEETS

Last Save by: MSM
Last Saved: 3/6/2012
Plotted on: 3/6/2012

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