US Army Corps of Engineers
Honolulu District
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Public Notice of Application for Permit

Regulatory Branch
Building 230
Fort Shafter, Hawaii 96858-5440

Public Notice Date: May 21, 2013
Expiration Date: June 21, 2013
Corps File No.: **POH-2007-00127**

Interested parties are hereby notified that an application has been received for a Department of the Army (DA) permit for certain work in waters of the United States as described below and shown on the attached drawings.

APPLICANT: Mr. Daniel A. Grabauskas, Honolulu Authority for Rapid Transportation (HART), City and County of Honolulu, Alii Place, Suite 1700, 1099 Alakea Street, Honolulu, Hawaii 96813

AGENT: Mr. David Atkin, Parsons Brinckerhoff, 1001 Bishop Street, Suite 2400, Honolulu, Hawaii 96813

LOCATION: Latitude: 21° 23' 48.7" N; Longitude 157° 58' 57.3" W

PROPOSED ACTIVITY: The HART proposes to discharge dredged and/or fill material into waters of the United States for the construction of the Honolulu High-Capacity Transit Corridor project, including portions of the elevated guideway (i.e., piers/columns) and the Pearl Highlands Station and transit center.

AUTHORITY(S): This permit application will be reviewed under Section 404 of the Clean Water Act (33 U.S.C. § 1344). The Corps' public interest review will consider the guidelines set forth under Section 404(b)(1) of the Clean Water Act (40 C.F.R. 230).

EVALUATION FACTORS: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic

properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for the work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

ADDITIONAL INFORMATION:

PROJECT DESCRIPTION: The overall proposed Honolulu High-Capacity Transit Corridor project (also known as the Honolulu Rail Transit Project; "HRTP") is an approximately 20-mile-long grade-separated fixed guideway that would accommodate rail transit between Kapolei and the Ala Moana Center in Honolulu using steel-wheel-on-steel-rail technology. The HRTP proposes to cross 22 streams, the majority of which would be completely spanned. The HRTP would operate in an exclusive right-of-way (ROW) to minimize travel times and potential vehicle and pedestrian conflicts. Consequently, the majority of the HRTP guideway would be elevated, except near Leeward Community College where transit vehicles would run in an exclusive ROW at or below grade.

The HART is the project proponent and applicant for the proposed project and the Federal Transit Administration (FTA) is the lead Federal agency under the National Environmental Policy Act (NEPA). The FTA issued its Final Environmental Impact Statement (FEIS) for the proposed project in 2010 and signed its Record of Decision (ROD) in January 2011. In addition to NEPA, as the lead Federal action agency, FTA is responsible for conducting consultations, as applicable, with appropriate Federal and state agencies in order to comply with the requirements of Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, Section 106 of the National Historic Preservation Act (NHPA) of 1966, Section 307(c)(3)(A) of the Coastal Zone Management Act, Section 305(b)(2)-(4) of the Magnuson-Stevens Fishery Conservation Act (i.e., Essential Fish Habitat), as well as all other applicable federal laws, regulations and Executive Orders.

Proposed Activity(s) Requiring DA Authorization. The HART has applied for DA authorization to discharge dredged and/or fill material into a total of approximately 0.74-acre of waters of the United States, of which 0.7-acre would be permanently lost. There are several proposed activities associated with the construction of the HRTP that would result in the discharge of dredged and/or fill material into Waiawa Stream and an unnamed tributary to Waiawa Stream. The applicant has proposed to construct these activities in three phases as follows:

Phase I would entail the discharge of approximately 70 cubic yards (cy) of fill material for the construction of a temporary storm drain diversion to contain and convey water around the work area while the guideway support shafts, pile cap, and column are being constructed. The temporary diversion would provide the necessary work area isolation where the new guideway structures would be constructed close to the ordinary high water mark (OHWM) of the unnamed tributary to Waiawa Stream. HART would also install temporary gabions within the stream bank of Waiawa Stream below the OHWM where the temporary storm drain diversion would outlet into the stream, resulting in the temporary impact to 0.01-acre of waters of the U.S. A total of approximately 129 cy of material would be dredged from waters of the U.S. during Phase I construction activities to accommodate the guideway column footing and gabions. Construction of Phase I is scheduled to commence in October 2013 and would be completed by February 2015.

Phase II construction would involve the installation of the first portion of the vegetated reinforced soil slope (VRSS) and rock keys along the left (mauka) bank of Waiawa Stream to stabilize the stream bank from further erosion. In addition, there would be a permanent storm drain pipe constructed and attached to the existing headwall that would replace the temporary diversion pipe constructed during the Phase I activities. This diversion pipe would carry runoff that currently ponds at the headwaters of the unnamed tributary to Waiawa Stream and would outlet at Waiawa Stream. The temporary gabions that would be installed during Phase I work would be replaced with permanent cement rubble masonry (CRM). Rock keys would also be placed along 90 linear feet of Waiawa Stream to prevent scour around the existing columns that support Farrington Highway where it crosses over the stream. Approximately 1,970 cy of material would be dredged and 1,894 cy of fill material would be placed to construct the storm drain pipe and install a portion of the VRSS as part of the overall bank stabilization. Construction of Phase II is estimated to take place between February 2015 and September 2016.

Phase III: Phase III would require the dredging of approximately 9,230 cy of material from the Waiawa Stream and unnamed tributary to Waiawa Stream and the discharge of approximately 7,730 cy of fill material as part of the long-term VRSS and rock key bank stabilization of Waiawa Stream. Construction of Phase III is estimated to commence in February 2016 and be completed by March 2018.

Table 1 – Summary of Direct Impacts to Waters of the U.S.

Activity	**Impacts to Waters of the U.S.**			
	Permanent Impacts (acres)		Temporary Impacts (acres)	
	Non-Wetlands	Wetlands	Non-Wetlands	Wetlands
PHASE I				
Temporary storm drain diversion and manhole	0	0	0.03	0
Temporary gabions	0	0	0.01	0
PHASE II				
Water isolation barriers	0	0	403 linear feet; 350 cubic yards	0
Bank stabilization, permanent storm drain pipe and manhole	0.09	0	0	0
Bridge scour protection	0.04	0	0	0

Activity	Impacts to Waters of the U.S.			
	Permanent Impacts (acres)		Temporary Impacts (acres)	
	Non-Wetlands	Wetlands	Non-Wetlands	Wetlands
PHASE III				
Water isolation barriers	0	0	1,470 linear feet; 1,691 cubic yards	0
Bank stabilization	0.57	0	0	0

Construction Equipment and Staging Areas/Access. Typical machinery and equipment that would be expected to be used during construction includes, but is not limited to: bulldozers, excavators, backhoes, graders, pavers, mixers, trucks, cranes, saws, generators, compressors, pumps, gantry crane or trestle, soil augers, jackhammers, pavement breakers, pile drivers, vibratory sheetpile drivers and hoe rams.

According to HART's application, there would be multiple ingress and egress points at the Pearl Highlands Station construction area, including temporary access roads around the work area for machinery and construction equipment to maneuver and to access Waiawa Stream as well as the unnamed tributary to Waiawa Stream. Construction materials would be stockpiled within designated upland areas and protected by appropriate best management practices (BMPs) to avoid direct and/or indirect adverse impacts to the aquatic environment. In addition, site mobilization, preparation, and construction of all temporary access roads and haul roads would avoid any direct or indirect impact to jurisdictional waters of the U.S. HART has committed to ensuring all construction staging areas and site access would be located outside waters of the U.S.

Basic and Overall Project Purpose. The overall project purpose serves as the basis for the Corps' 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the applicant's goals for the project, and which allows a reasonable range of alternatives to be analyzed. The basic project purpose is rail transit transportation, a non-water dependent activity that does not require siting in special aquatic sites, such as wetlands. The NEPA project purpose was developed by the lead Federal agency, FTA, during its NEPA process. The Corps has generally concurred with FTA's NEPA project purpose and as such, has determined the overall project purpose for evaluation of alternatives under the Section 404(b)(1) Guidelines is to provide high-capacity transit in the east-west transportation corridor between Kapolei and Ala Moana Center.

Baseline Information.

Watershed. The 17,400-acre Waiawa watershed drains from the western slope of the Koolau Mountain Range ridgeline through both preservation and largely fallow agriculture lands above urban and light industrial areas of Pearl City. The State of Hawaii, Department of Land and Natural Resources-Division of Aquatic Resources (DAR) has assigned the Waiawa watershed an overall rating of 9 on a scale of 0 to 10 (0 is the lowest score and 10 is the highest). The overall rating considers land cover, shallow waters, stewardship, size, wetness, and reach diversity. DAR has also provided this watershed with an overall biological rating of 2. The low

biological rating reflects the low number of native species and moderate number of introduced genera.

Existing Flow Characteristics and Stream Conditions. The U.S. Geological Service (USGS) has maintained a flow gage (No. 16216000) approximately 1/4-mile below the Kamehameha Bridge (just above the H-1 Freeway) since 1952, monitoring flow from 16,640 acres of the watershed. Statistics from the USGS gage indicate that the mean daily flow from 1952 to 2004 averaged about 32 cubic feet per second (cfs) with annual variations in daily average from about 7 to 80 cfs. Peak flows above 27,000 cfs were recorded on two occasions during the 52-year period, but average annual peak flows were typically above 10,000 cfs. The channel forming flow (i.e., daily mean flow that occurs about 2 out of 3 years) is approximately 1,700 cfs.

Waiawa Stream - Within the HRTP study area Waiawa Stream combines flows from intermittent Panakauahi Gulch and the other unnamed Waiawa tributaries. Flow from the Panakauahi Gulch joins Waiawa Stream less than 1/4 mile upstream of the Kamehameha Highway Bridge. The portion of Waiawa Stream affected by the proposed HRTP encompasses the stream and floodway located between Kamehameha Highway, Farrington Highway, and the H-1 Freeway, often referred to by local residents as the "Banana Patch". In this area of Pearl City, Waiawa Stream is perennial and exhibits a natural bed and banks. Waiawa Stream eventually flows into Middle Loch, Pearl Harbor (Pacific Ocean), a traditional navigable water (TNW). The approximate location of Waiawa Stream is 21°23'48.761" North and 157°59'56.918" West. The bottom elevation of the stream invert below the Farrington Highway Bridge is approximately 12 feet. Observations and data collected during field surveys document the stream bed and lower banks are, for the most part, natural with a mean distance across the active stream bed of about 20 to 25 feet. Along the 1,800-foot reach of Waiawa Stream that occurs within the HRTP study area, the stream bed falls 8.6 feet (from an elevation of 10.8 feet to 2.25 feet), equal to a slope of about 0.5 percent. The OHWM was determined to occur at approximately 8 feet above the stream bed by using various field indicators, such as visible scour marks, bank shelving, water staining, and sediment deposition.

Floodplains beyond the bank appear to have been reduced by fill from adjacent properties, with the fill edge typically steeper than a 1:1 slope. Much of this fill appears to have been placed decades ago as large trees occur on the side slopes and tops of these presumably unauthorized fill areas. Below the upper Kamehameha Highway Bridge, the stream appears to have been directed to the left by placement of a large boulder revetment on the right bank. The placement of the revetment and the alignment of the bridge pilings strongly suggest that the stream alignment used to be much more to the right (south) immediately below the Kamehameha Bridge. Possibly in response to this thalweg shift, approximately 350 feet downstream of the bridge, increased erosion on the left bank has threatened the stability of a large power pole, requiring the placement of concrete rubble reinforcement along the lower bank below the pole. Similarly, where the channel approaches the lower bridge—Farrington Highway—the stream parallels the bridge design opening, veering strongly to the right at the eastern (left bank) bridge support wall. The soft sandy soils on the land above the left bank suggest that this bend has also been "engineered." Based on the field surveys conducted by HART's consultants, no wetlands were identified occurring in or adjacent to Waiawa Stream.

Unnamed Waiawa Stream Tributary. The unnamed Waiawa Stream tributary is a 3- to 5-foot wide tributary to Waiawa Stream located at approximately 21°23′47.697″ North and 157°58′48.063″ West. The tributary's flow arises from a 36-inch diameter storm water drainage pipe serving the lower end of Kuala Street and passing under Kamehameha Highway. The small stream flows south about 150 feet before it confluences with Waiawa Stream just a short distance upstream of the Farrington Highway (west bound) bridge. During field surveys conducted by the applicant's consultants, no wetlands were identified occurring in or adjacent to this drainage.

Existing Biological Resources. The Pearl Highlands Station area is relatively undeveloped, but does support some residential and industrial uses, and is surrounded by urban development of moderate density. The site also appears to have been adversely affected by the placement of what appears to be unauthorized fill and grading activities. The banks of Waiawa Stream have become steep in places where the stream flow has cut into unstable areas created by past fill. Despite these human-induced disturbances and DAR's watershed assessment that ranks the stream's biological diversity as relatively low, Waiawa Stream and its adjoining floodplain provide important aquatic resource functions, including water quality and habitat.

The majority of the stream's riparian zone displays a healthy development of understory vegetation and a mature tree canopy. Aquatic fauna within the stream was relatively diverse, including six species of fishes, a frog, and two species of crustaceans.

- Five Spot Cichlid (*Hemichromis elongates*)
- Oopu, gobie (*Eleotris sandwicensis*)
- Tilapia (*Oreochromis sp.*)
- Mollies (*Poecilia sp.*)
- Mosquitofish (*Gambusia affinis*)
- Armored catfish (*Hypostomus sp.*)
- Crayfish (*Procambarus clarki*)
- Prawn (*Macrobrachium lar*)
- Frog and tadpole (species unidentified)

MITIGATION: The applicant's proposed mitigation may change as a result of comments received in response to this public notice, the applicant's response to those comments, and/or the need for the project to comply with the Section 404(b)(1) Guidelines and the public interest review factors. In consideration of the above, the proposed mitigation sequence (i.e., avoidance/minimization/compensation), as applied to the proposed project is summarized below.

Avoidance – The HART and FTA considered and evaluated a number of alternatives in the EIS for the Honolulu High-Capacity Transit Corridor project (refer to *Alternatives Analysis* in the Final EIS, which can be accessed through the project's Environmental Clearances Document Library at http://honolulutransit.org/document-library/eis.aspx). However, the number and distribution of north to south flowing streams occurring within the transportation corridor, in conjunction with the engineering constraints associated with clear spanning streams, made the avoidance of all impacts to waters of the U.S. not practicable. Section 4.14 of FTA's

Final EIS describes how the applicant's preferred alternative was selected and is the least environmentally damaging to the aquatic ecosystem.

Although the guideway itself spans the narrow unnamed tributary to Waiawa Stream, the engineering design requirements for the spacing between guideway piers/columns over the stream and the location of the Pearl Highlands Station directly above it render it engineeringly/logistically infeasible to avoid direct impacts to the stream channel. The piers near the Pearl Highlands Station cannot be relocated because they would be supporting the guideway as it enters the station, as well as a concourse, stairs, and escalators. Moving the Pearl Highlands Station, the parking structure, bus transit center, and other project features to a different location, or eliminating them altogether, would avoid impacts to the unnamed tributary to Waiawa, but in the Final EIS these avoidance alternatives were determined to be not practicable based on the unreasonably high costs. Off-site alternatives, such Leeward Community College and the Hawaii Laborers Training Program site were considered as potential sites for locating the rail station, parking structure and transit center. However, locating the transportation facilities at either of these two off-site locations would require the partial or complete "taking" of the property or at a minimum, would result in a substantial negative impact on the current business operations occurring at these two sites. In addition, the Leeward Community College and Hawaii Laborers Training Program sites provide less efficient transportation circulation since access would be less direct, and would cost substantially more. Because the Pearl Highlands Station is projected to have the second-highest passenger volume of all stations, and would serve as a transfer point for all users in Central Oahu, ease of access from the station to area roadways and the H-1 and H-2 Freeways is critical to the system's overall operational efficiency. Therefore, the applicant has concluded that moving the station and associated transportation facilities to other upland sites, or eliminating them altogether, would not be practicable nor satisfy the project's purpose and need.

Minimization - Elevating the guideway and other project-related facilities in the Pearl Highlands Station area, including the parking structure and transit center would minimize adverse environmental effects, including lessening the area of ground disturbance and reducing the amount of fill material discharged into Waiawa Stream and the unnamed tributary to Waiawa Stream. The applicant has proposed to implement a number of BMPs to further minimize impacts on the aquatic environment. These BMPs include:

- Install or use silt fences, steel casings, berms, or other measures around drilled shaft construction to contain drill cuttings and fluids,
- Refule the foundation drilling crane and other equipment away from streams,
- Collect and handle drill cuttings from the drilled shaft foundations in accordance with applicable regulations,
- Place a net below the guideway superstructure as it is being built and above the Waiawa Stream to prevent construction debris from falling into the waterway,
- Air test the post-tensioning ducts before grouting to ensure no grout seepage,

- Place cloth or plastic sheeting under the guideway pre-cast segment joints to catch excess epoxy used to seal the joint when the segments are post-tensioned,

- Place toe boards along the edge of the guideway deck to prevent loose material from being knocked off of the deck, and

- Secure materials to prevent discharge to waters via wind.

Compensation - The applicant has proposed the following compensatory mitigation measures for the unavoidable adverse impacts to waters of the U.S.:

- Remove potentially contaminated fill material (e.g., trash, contaminated sediments) that has been dumped along the Waiawa stream bank to restore a more natural stream morphology, slope, and vegetated bank that in turn would improve flood water retention and conveyance of the Waiawa Stream and its adjoining floodplain,

- Install vegetated reinforced soil slope (VRSS) and rock key stabilization along the left (mauka) stream bank of Waiawa Stream to provide a more stable stream bank that would better withstand higher velocity flows, thereby reducing excess scour and erosion, and

- Plant native vegetation in areas disturbed by construction (e.g., revegetation of temporary access roads used during construction)

WATER QUALITY CERTIFICATION: A DA permit for the described work will not be issued until a certification or waiver of certification as required under Section 401 of the Clean Water Act (Public Law 95-217), has been received from the State of Hawaii Department of Health (DOH). Based on information in the application, the HART submitted a 401 water quality certification application to DOH in June 2010.

COASTAL ZONE MANAGEMENT ACT CERTIFICATION: Section 307(c)(3) of the Coastal Zone, Management Act of 1972, as amended by 16 U.S.C. 1456(c)(3), requires the applicant to certify that the described activity affecting land or water uses in the coastal zone complies with the State's Coastal Zone Management Program. A DA permit will not be issued until the Office of State Planning, Department of Business, Economic Development, and Tourism has concurred with the applicant's certification.

CULTURAL RESOURCES: As the lead Federal agency, FTA determined the project would have an adverse effect on historic properties and accordingly, developed a Programmatic Agreement (PA) with the State Historic Preservation Division (SHPD) and other consulting parties pursuant to section 106 of the National Historic Preservation Act (NHPA). During the EIS process, a technical report identifying and evaluating archaeological resources was prepared by HART and FTA (City and County of Honolulu, RTD, 2008). Known and potential historic resources were identified and evaluated, and the project's effects on them were determined. Historic properties within the overall project's area of potential effect (APE) were identified.

The APE contains 81 historic resources (individual or districts) under Section 106 of the NHPA; however, none are located in the vicinity of Waiawa Stream Tributary or Waiawa Stream.

Through consultation between FTA, SHPD and HART, the project was determined to have an adverse effect on 33 historic resources. Adverse effect determinations recommended by the State Historic Preservation Officer (SHPO) were accepted by the FTA. All comments from consulting parties were considered in the development of the PA (refer to Appendix H of the Final EIS for details on the PA), which was signed in January 2011 and is available at *www.honolulutransit.org*. The archaeological inventory survey and traditional cultural properties study have been completed in this area. For a more complete discussion of historical and cultural resources, reviewers may refer to Section 4.16 and Chapter 5 of the FEIS.

The project completed a study of traditional cultural properties (TCPs) for sections 1 through 3, which includes the area of Waiawa Stream Tributary and Waiawa Stream. Hawaii Revised Statutes Chapter 343 includes a cultural component, referred to as Act 50. The study drew from personal interviews, oral traditions, archival documents and historic maps to identify TCPs, and plot them relative to the project's APE. Four sites were identified in the vicinity of Waiawa Stream, but only one intersected the stream. It is referred to as Kahoaiai, and is the location of an important battle recorded in oral traditions. The study was subject to native Hawaiian and consulting party review. Through this process the FTA and HART determined that the site was not eligible for nomination to the NRHP. SHPD concurred with this determination.

ENDANGERED SPECIES: The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of ESA on all Federal actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or any designated critical habitat.

The FTA, as the lead Federal agency, has consulted with the USFWS as required under Section 7 of the ESA. The FTA concluded the 20-mile-long rail transit project would have "no effect" on federally-listed threatened and endangered species known to occur or have the potential to occur within or adjacent to the project area, except the Ko'oloa'ula (*Abutilon menziesii*; "red ilima"), a federally protected endemic plant species. The FTA determined the overall project "may affect, but would not adversely affect" the Ko'oloa'ula based on its proximity to the East Kapolei Station and the Abutilon Contingency Reserve. In October 2010, the U.S. Fish and Wildlife Service (USFWS) concurred with FTA's determination of "may affect, not likely to adversely affect".

Common Name	Scientific Name	Present within ESA Action Area	FTA "Effect" Determination
Endangered Flora			
Kooloaula or red ilima	*Abutilon menziesii*	No	May Affect, NLAA
Maui chaff flower	*Achyranthes splendens spp. Rotundata*	No	No Effect
Skottsberg's broomspurge	*Chamaesyce skottsbergii*	No	No Effect
Awiwi	*Centaurium sebaeoides*	No	No Effect

Ihi ihi	*Marseilea villosa*	No	No Effect
Endangered Terrestrial Fauna			
Hawaiian hoary bat	*Lasiurus cinereus semotus*	Potentially	No Effect
Oahu elepaio	*Chasiempis sandwichensis ibidis*	No	No Effect
Hawaiian common moorhen	*Gallinula chloropus sandvicensis*	Potentially	No Effect
Hawaiian coot	*Fulica alai*	Potentially	No Effect
Hawaiian stilt	*Himantopus mexicanus knudseni*	Potentially	No Effect
Hawaiian duck	*Anas wyvilliana*	Potentially	No Effect

In addition, in 2008 the National Oceanic and Atmospheric Administration (NOAA) issued a letter to FTA indicating no federally-listed threatened and/or endangered marine species or designated critical habitat occur within the project's action area or would be affected by the overall project. Based, in part, on this correspondence, the FTA determined the project would have "no effect" on federally-listed species under the jurisdiction of NOAA.

ESSENTIAL FISH HABITAT: The proposed work is being evaluated by FTA for possible effects to Essential Fish Habitat (EFH) pursuant to the Magnuson Stevens Fishery Conservation and Management Act of 1996 (MSFCMA), 16 U.S.C. 1801 *et seq.* and associated federal regulations found at 50 C.F.R. Part 600, Subpart K.

The applicant has proposed stormwater runoff be filtered through landscaped median areas and sedimentation collars where possible. In addition, stormwater would be filtered through specially designed bio-infiltration units near waterbodies, including those on the State of Hawaii's Department of Health Section 303(d) list of water quality-limited segments. In locations where space does not allow for their use, downspout filters would be installed on drains near impaired waters. Permanent pollution prevention BMP measures, such as regular inspection and cleaning of the drainage system, would be a part of the stormwater management plan developed during final design.

Permanent BMPs would reduce stormwater runoff pollutants from the park-and-ride facilities before runoff enters State waters to the maximum extent practicable. The permanent stormwater BMP measures would be designed, installed, and maintained in accordance with the criteria and guidelines described in the respective authority having jurisdiction of the stormwater management plan. Types and sizes of permanent stormwater BMP measures would depend upon the runoff quality and water quality requirements of each receiving water body.
Permanent BMP measures, such as bio-retention areas, vegetated buffer strips, dry swales, water quality basins, and structural BMP measures with oil/water separators, would be considered, as needed, during the park-and-ride site and maintenance and storage facility design process. Selection of BMP measures would be site-specific and may be modified as a result of geotechnical data collection during final design. Proper training, maintenance, and reporting of permanent BMP measures would also be needed for the long-term success of the stormwater pollution reduction efforts.

Based on the construction methods, the deployment of temporary and permanent BMPs, anticipated permit conditions and requirements of water quality authorizations from Federal and/or state regulatory agencies, the minimal short-term impacts associated with construction, the low intensity of adverse impacts, and the distance of the construction site from the boundary

of the EFH, the FTA determined the proposed construction activities described above would not adversely affect EFH, including federally managed fishery resources (refer to FTA letter dated April 4, 2013 to Mr Gerry Davis, NOAA Fisheries). In a response letter, dated May 13, 2013, NOAA Fisheries indicated FTA's determination of no adverse effect to be problematic in that the proposed minimization and compensatory mitigation measures were too broad and general to allow NMFS to determine the potential indirect and cumulative adverse effect on EFH. Accordingly, NMFS provided five EFH recommendations for FTA/HART's consideration.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings must state clearly and concisely, the reasons and rationale for holding a public hearing.

COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice received during the comment period will be made part of the record and will be considered in determining whether it would be in the public interest to authorize this proposal. In order to be accepted, e-mail comments must originate from the author's e-mail account and must include on the subject line of the e-mail message the permit applicant's name and Corps file number POH-2007-00127.

All e-mail comments should be sent to:

susan.a.meyer@usace.army.mil.

Conventional mail comments should be sent to:

U.S. Army Corps of Engineers
Honolulu District, Regulatory Branch
Building 230 (Attn: CEPOH-EC-R)
Ft. Shafter, Hawaii 96858-5440

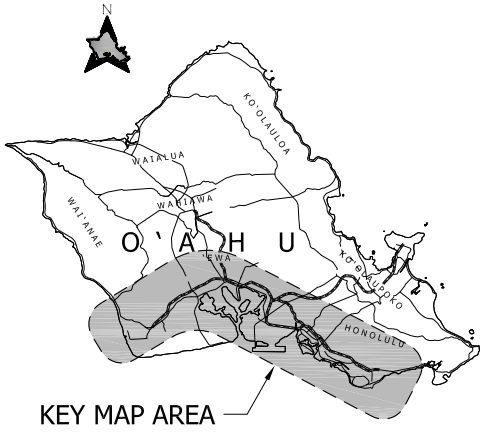
Both conventional mail and e-mail comments must reach this office no later than the expiration date of this public notice to become part of the record and be considered in the decision. Please contact Susan A. Meyer at (808) 835-4599 if further information is desired concerning this notice. This public notice is issued by the Chief, Regulatory Branch.

Attachments

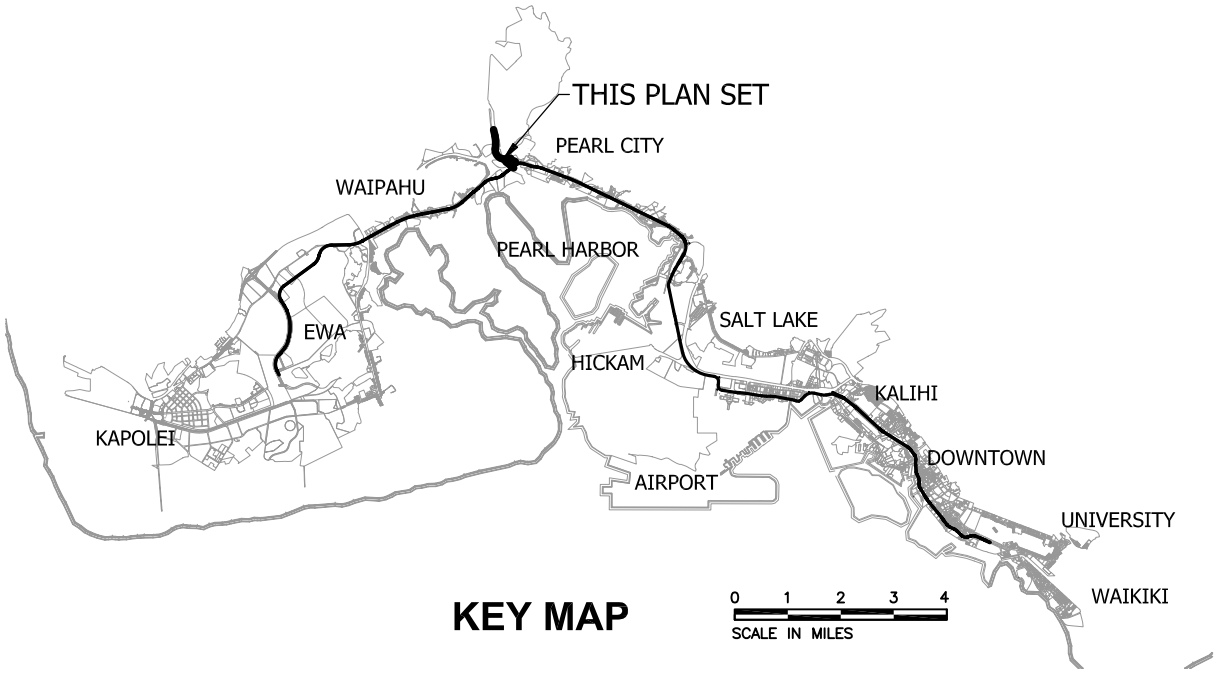
HONOLULU RAIL TRANSIT PROJECT

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

404 ATTACHMENTS



HONOLULU AUTHORITY for RAPID TRANSPORTATION



KEY MAP

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INDEX OF DRAWINGS
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
404 ATTACHMENTS

LEGEND:

(PREVIOUS PHASE)		(CURRENT PHASE)
	Tax Map Key (TMK) Identification	9-6-003:001
	Limits of Potential Ground Disturbance	
	Work	
	Aerial Guideway Substructure & Superstructure	
	Utility Work/ Relocations	
	Silt Fence (SE-1) or Compost Socks (SE-16)	
	Stabilized Construction Entrance/Exit (TR-1)	
	Ordinary High Water Mark (OHWM)	
	Runoff Flow Direction	
	Water Isolation Barrier (SE-8)	
	Rock Key or Refusal	
	Vegetated Reinforced Soil Slope (VRSS)	
	Cement Rubble Masonry (CRM)	
	Articulated Blocks (Open Cell or Closed Cell)	
	Landscape	
	Clear and Grub	

LEGEND (cont.):

(PREVIOUS PHASE)		(CURRENT PHASE)
	Water Surface Elevation	
	Excavation Area	
	Temporary Fill Area	
	Base	
	Trench	

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

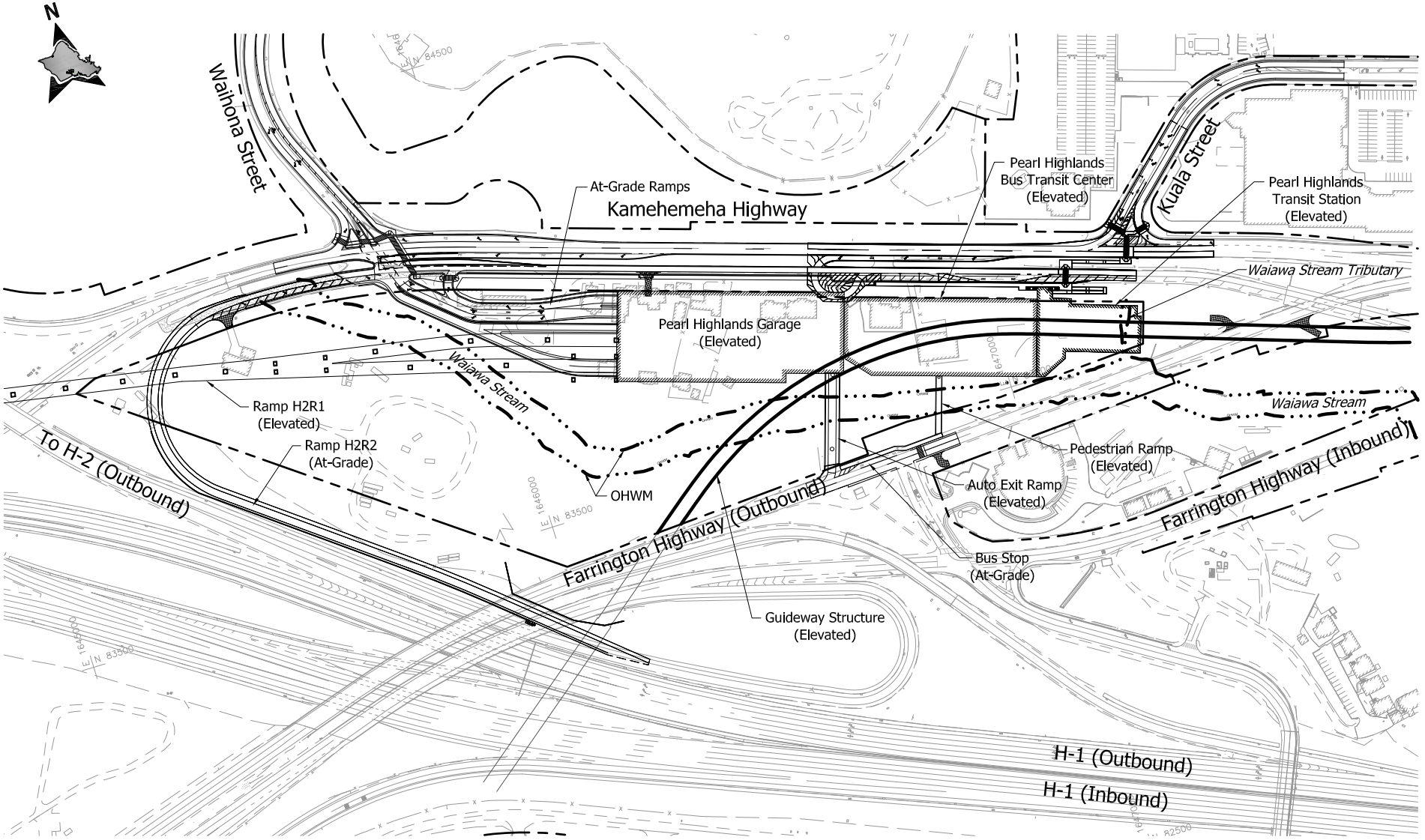
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

LEGEND

Dwg. No. GN002

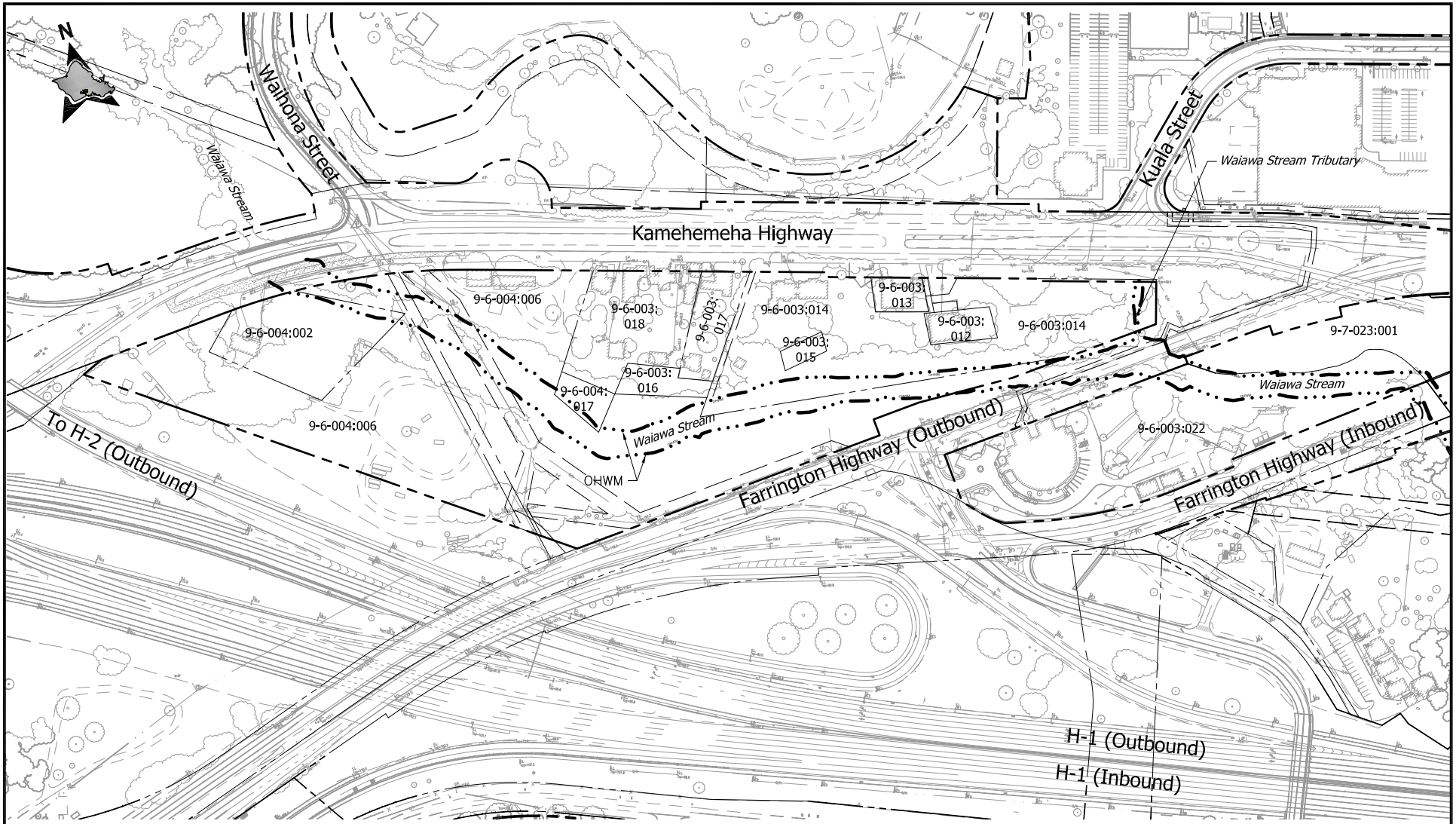
December 17, 2012

2012-12-14 9:39 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\401 Permitting Plans\Legend.dwg



HART HONOLULU AUTHORITY for RAPID TRANSPORTATION	HONOLULU RAIL TRANSIT PROJECT Prepared By: PARSONS BRINCKERHOFF 1003 Bishop Street, Suite 1000 – Honolulu, HI 96813	WAIAWA STREAM TRIBUTARY & WAIAWA STREAM PROJECT OVERVIEW	Dwg. No. GN003 December 17, 2012

2012-12-14 6:51 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\GN000F.dwg



Notes:

1. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with The North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).
2. Elevations shown on these plans are reference to Mean Sea Level (MSL)

150' 0 150'

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

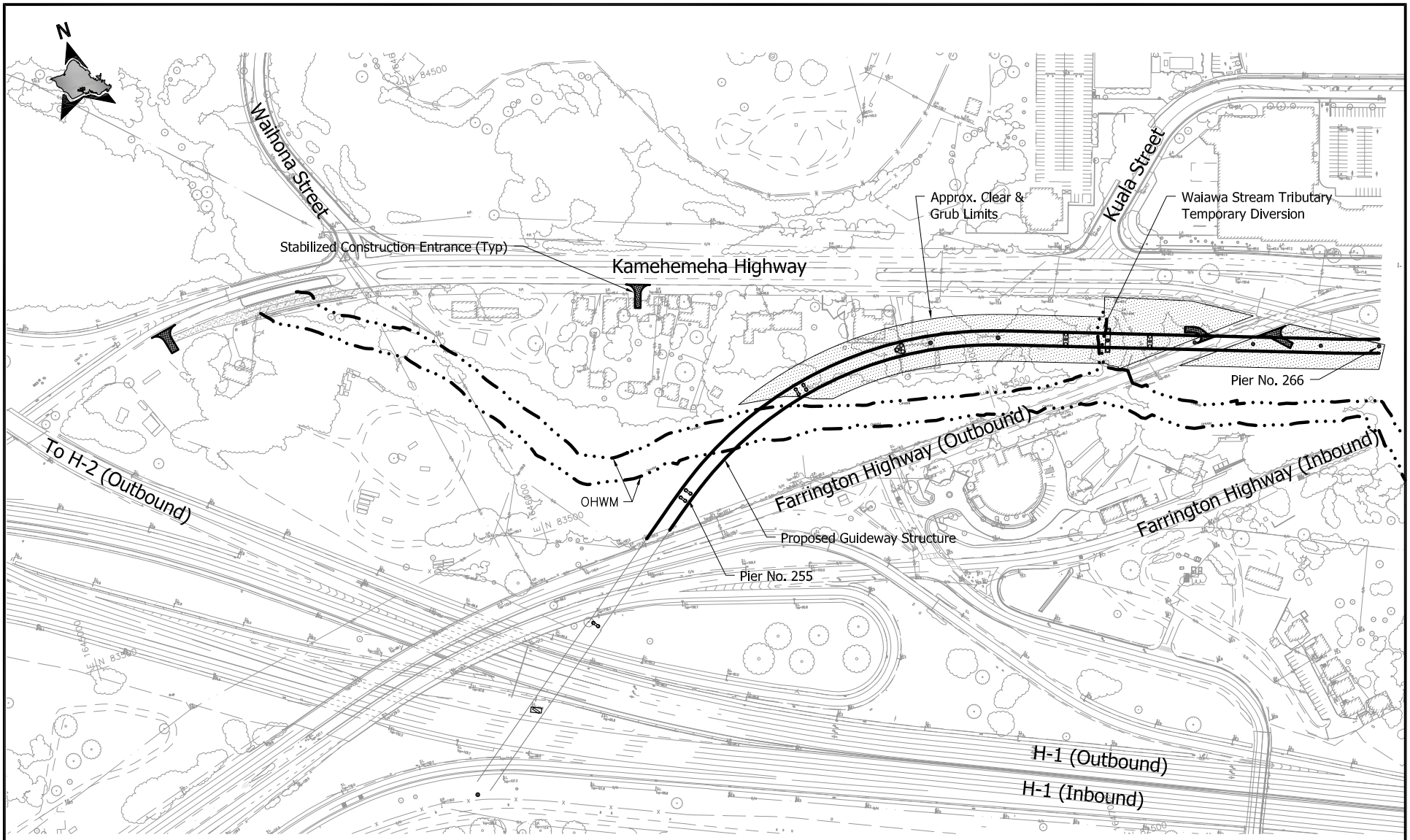
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

VICINITY MAP

Dwg. No. GN004

December 17, 2012

2012-12-14 6:53 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\VicinityMap.dwg



Phase 1 – Construction Activities:

- Construct Stabilized Construction Entrance/Exit
- Clear and Grub
- Install Waiawa Stream Tributary Temporary Storm Drain Diversion
- Construct Guideway Pier Columns (No. 255 thru 266)
- Construct Guideway Superstructure
- Relocate Utilities

150' 0 150'

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

CONSTRUCTION OVERVIEW

PHASE 1 - CONSTRUCTION

Dwg. No. GN005

December 17, 2012

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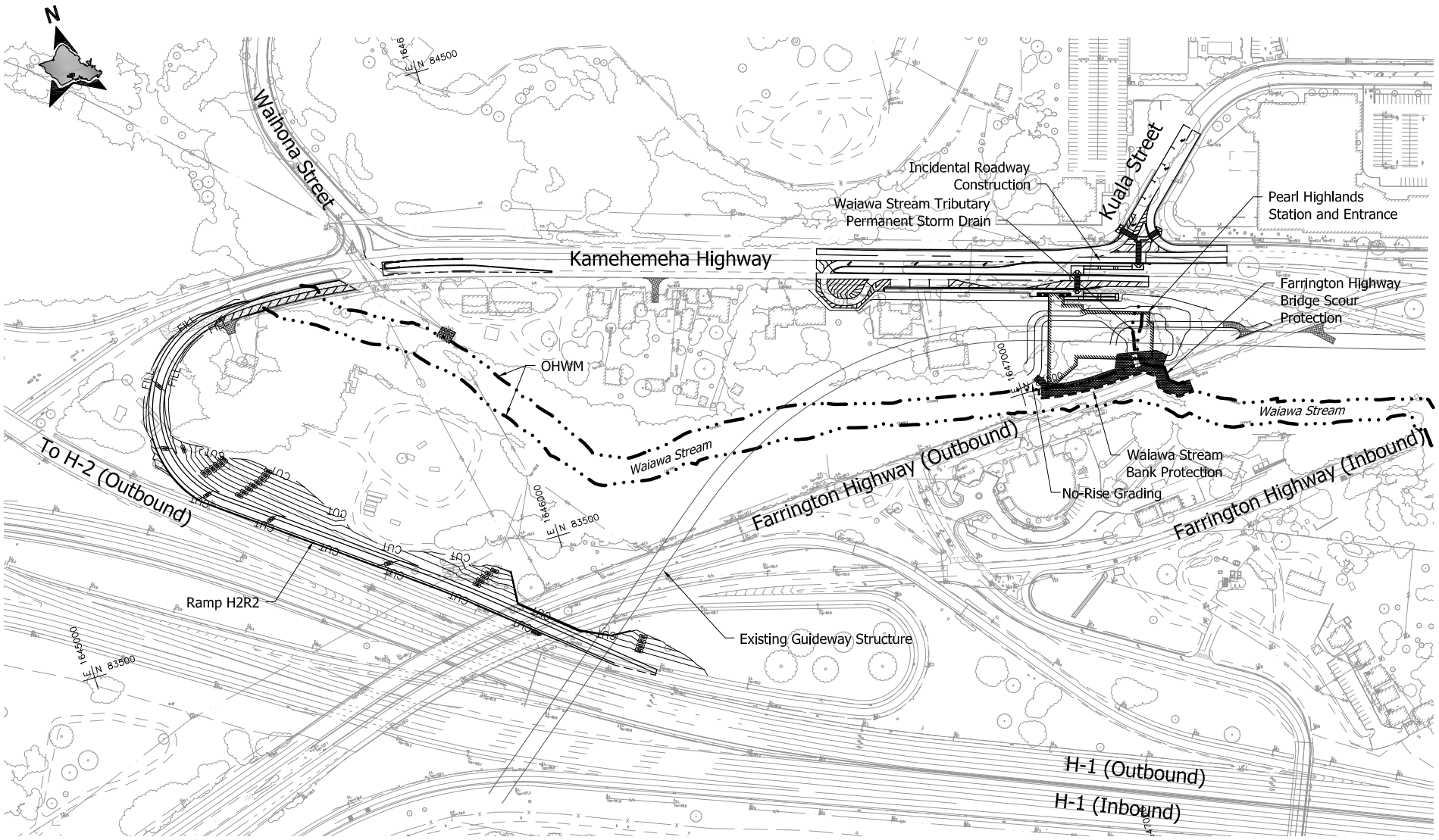

Phase 2 – Construction Activities:

- Clear and Grub
- Grade to No-Rise Finished Elevations
- Construct Ramp H2R2
- Construct Waiawa Stream Bank Protection
- Construct Farrington Highway Bridge Scour Protection
- Construct Pearl Highlands Station and Entrance
- Construct Waiawa Stream Tributary Permanent Storm Drain
- Construct Incidental Roadway Items

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
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WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

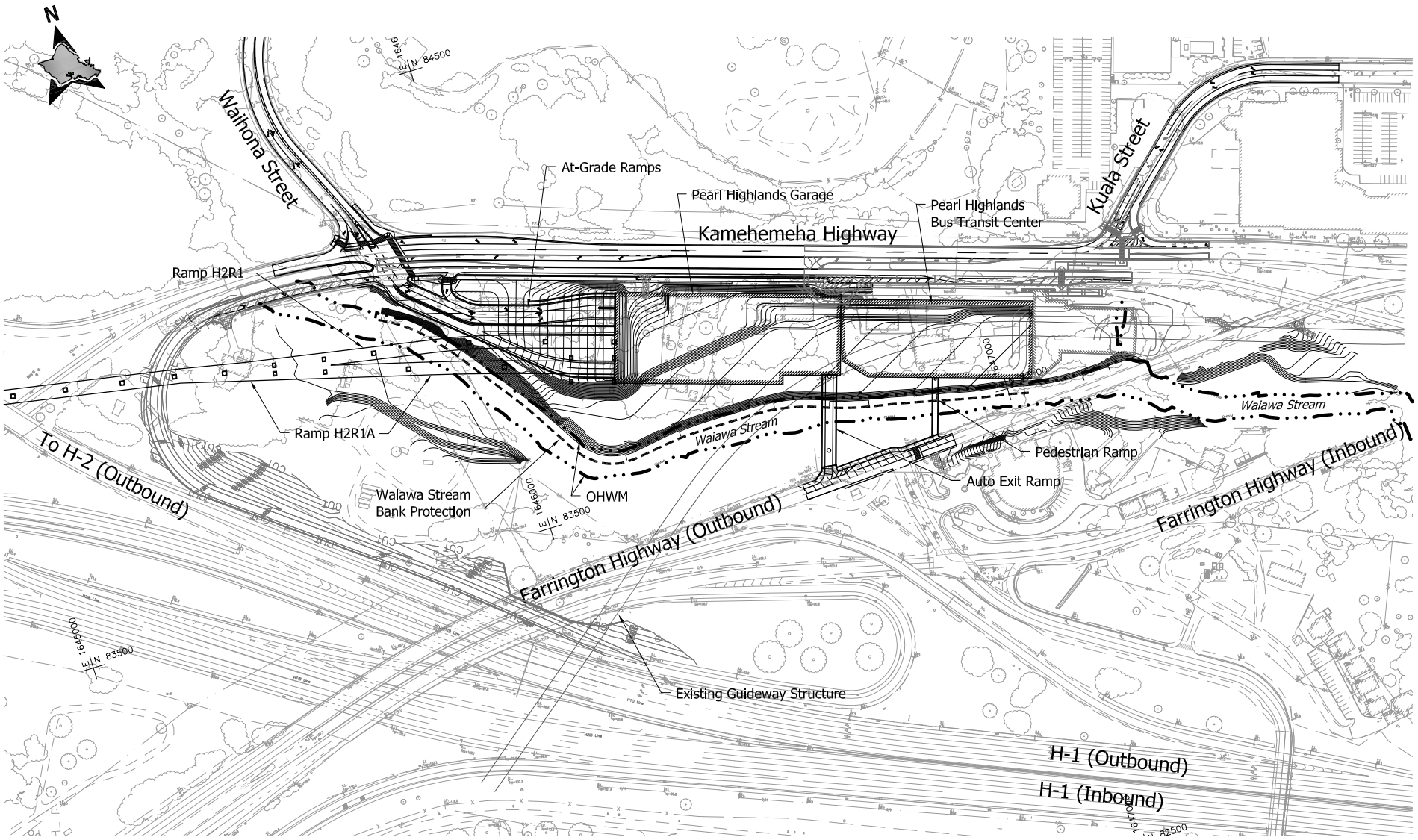
CONSTRUCTION OVERVIEW

PHASE 2 - CONSTRUCTION

Dwg. No. GN006

December 17, 2012

2012-12-14 6:56 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\GN006.dwg



Phase 3 – Construction Activities:

- Clear and Grub
- Grade to No–Rise Finished Elevations
- Construct Waiawa Stream Bank Protection
- Construct Ramps H2R1 and H2R1A
- Construct Garage and Bus Transit Center
- Construct Auto Exit Ramp & Pedestrian Ramp

150' 0 150'

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
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WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

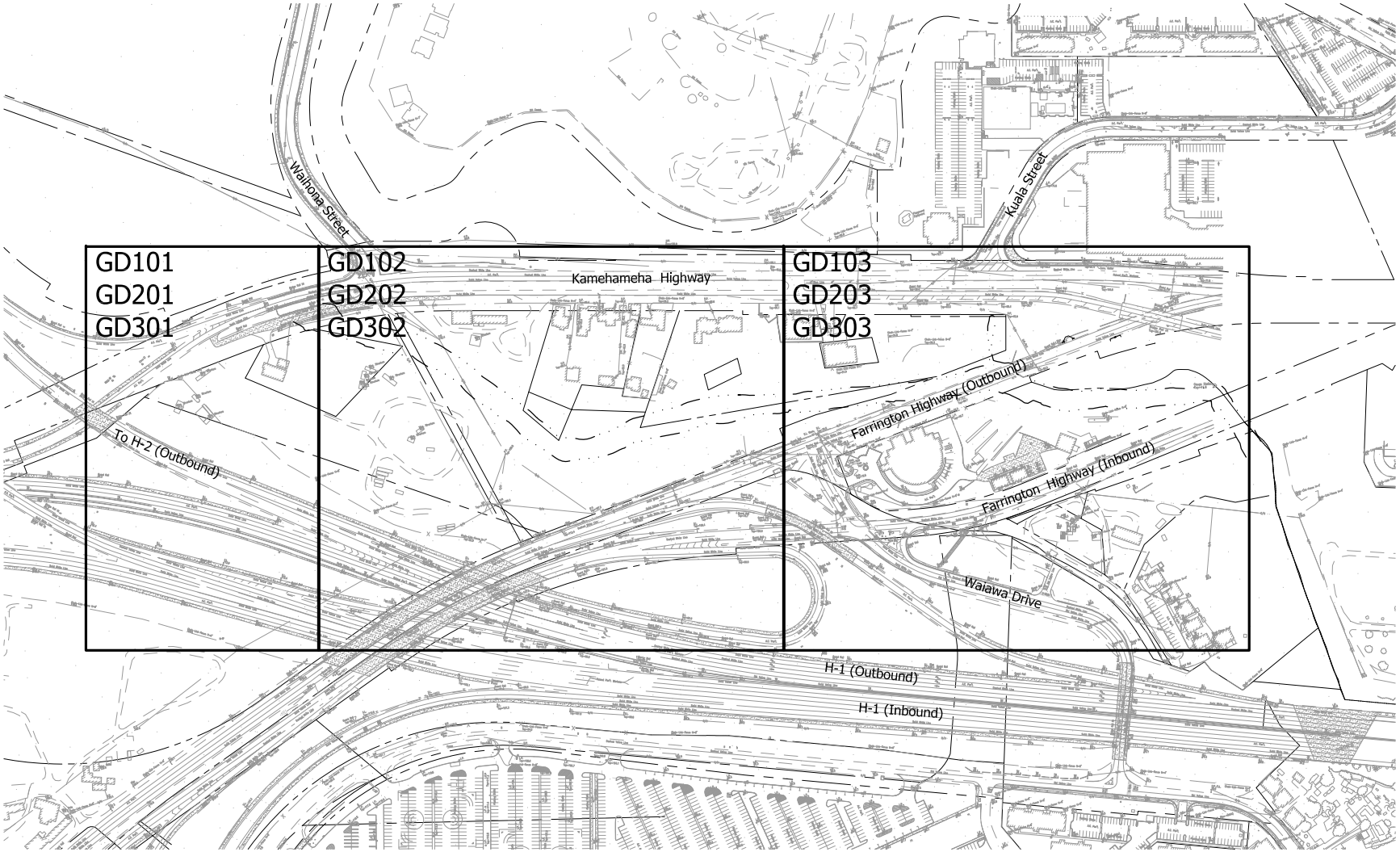
CONSTRUCTION OVERVIEW

PHASE 3 - CONSTRUCTION

Dwg. No. GN007

December 17, 2012

2012–12–14 6:58 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\GN007.dwg



HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
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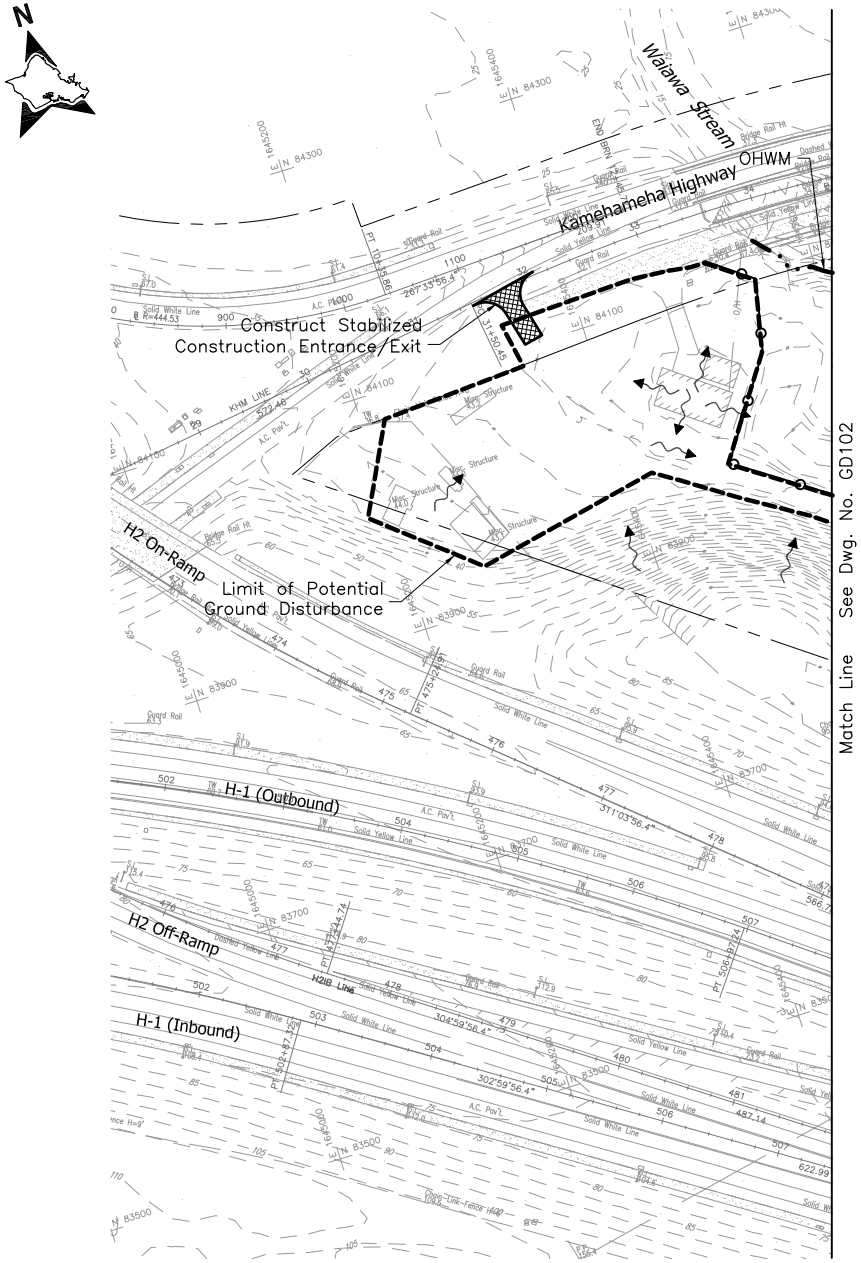
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

SHEET LAYOUT INDEX

Dwg. No. GN008

December 17, 2012

2012-12-14 7:00 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\Phase1\G_Sheet_Layout_17x22_Index_Phase1.dwg



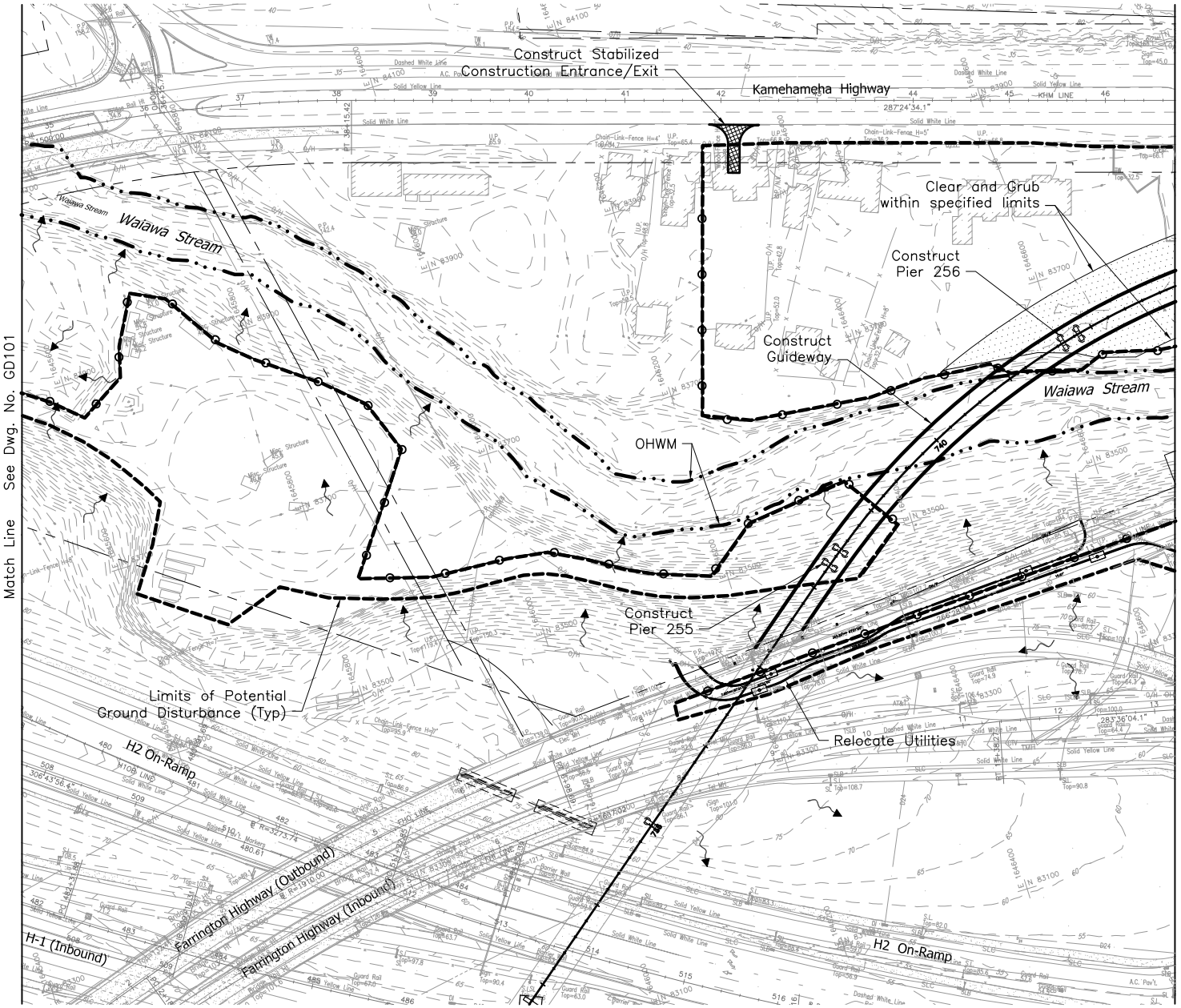
Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

			HONOLULU RAIL TRANSIT PROJECT	WAIAWA STREAM TRIBUTARY & WAIAWA STREAM	Dwg. No. GD101
			Prepared By: PARSONS BRINCKERHOFF 1003 Bishop Street, Suite 1000 – Honolulu, HI 96813	SITE PLAN (1 of 3) PHASE 1 - CONSTRUCTION	December 17, 2012

2012-12-14 7:06 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase1_GD100.dwg



Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

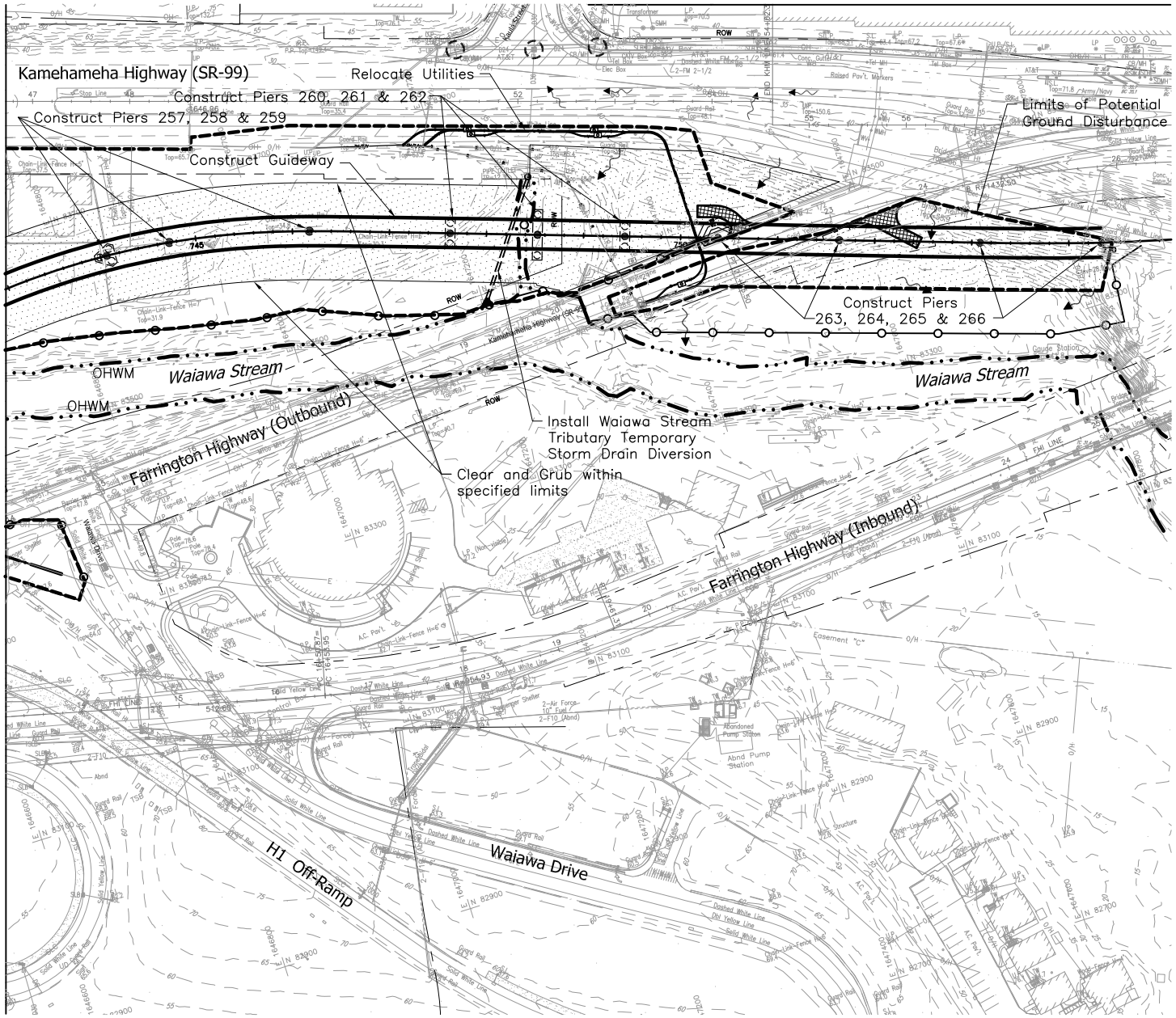
SITE PLAN (2 of 3)

PHASE 1 - CONSTRUCTION

Dwg. No. GD102

December 17, 2012

2012-12-14 7:06 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase1_GD100.dwg

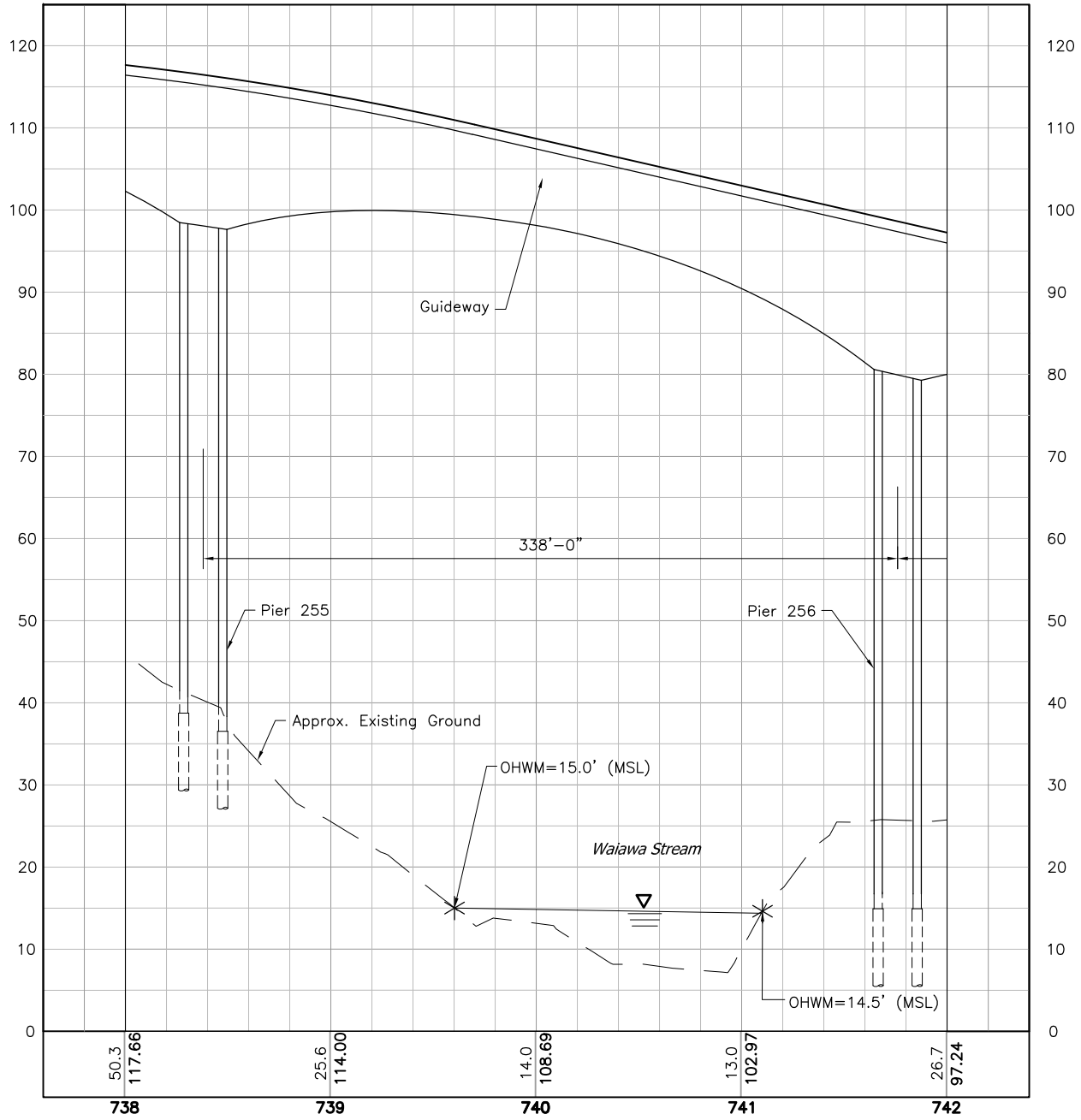


Notes:

1. For legend, see Dwg. No. GN002.

HART — HONOLULU AUTHORITY for RAPID TRANSPORTATION	HONOLULU RAIL TRANSIT PROJECT	WAIAWA STREAM TRIBUTARY & WAIAWA STREAM	Dwg. No. GD103
	Prepared By: PARSONS BRINCKERHOFF 1003 Bishop Street, Suite 1000 – Honolulu, HI 96813	SITE PLAN (3 of 3) PHASE 1 - CONSTRUCTION	December 17, 2012

2012-12-14 7:06 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase1_GD100.dwg



NOTES:

1. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with the North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).
2. Elevations shown on these plans are reference to Mean Sea Level (MSL).

HORIZ. 40' 0' 40'

VERT. 10' 0' 10'

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
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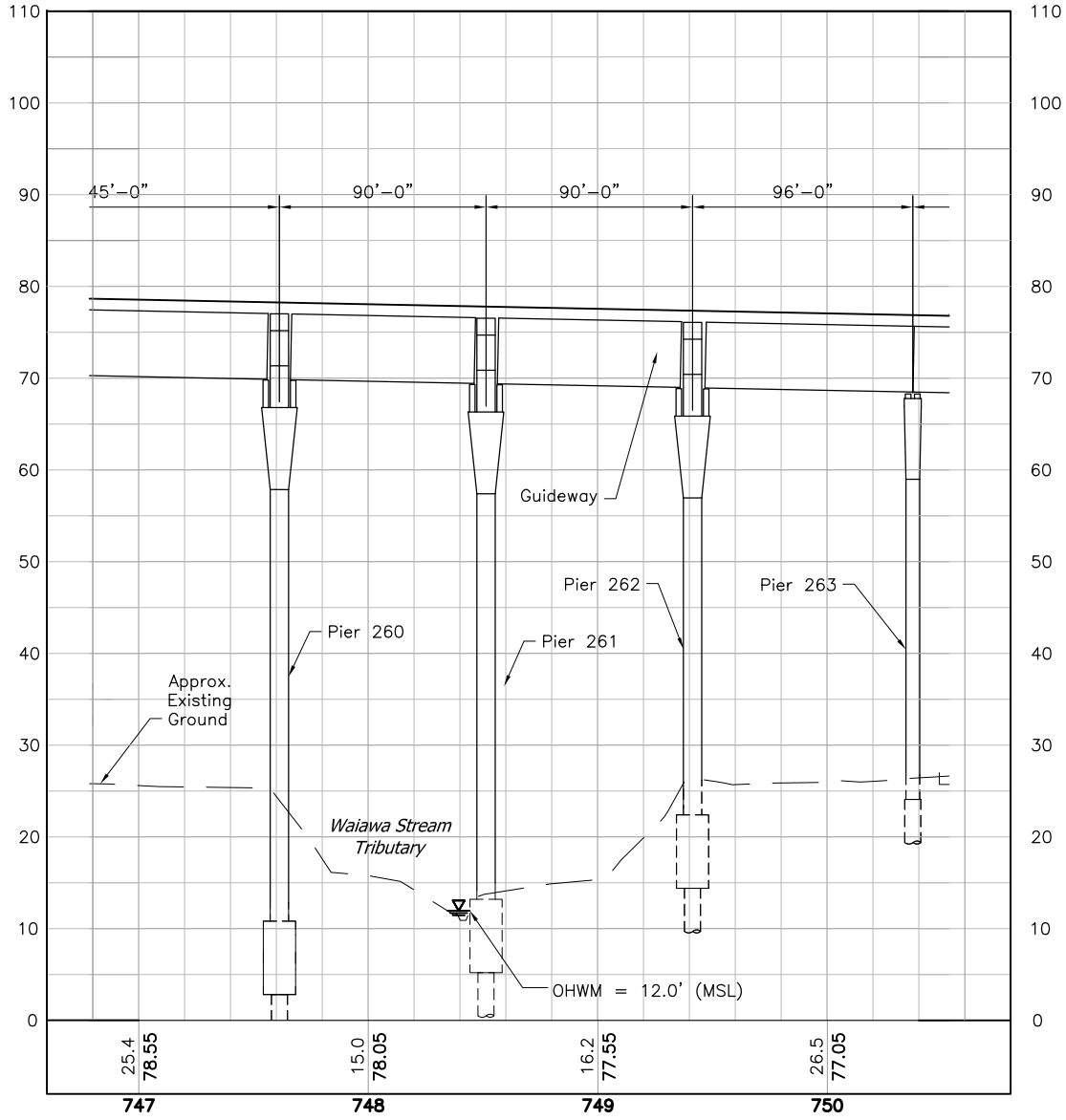
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
GUIDEWAY PROFILE OVER WAIAWA STREAM
PHASE 1 - CONSTRUCTION

Dwg. No. GD104

December 17, 2012

2012–12–14 7:10 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\GD104A.dwg



NOTES:

1. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with the North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).
2. Elevations shown on these plans are reference to Mean Sea Level (MSL).

HORIZ. 40' 0' 40'

VERT. 10' 0' 10'

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

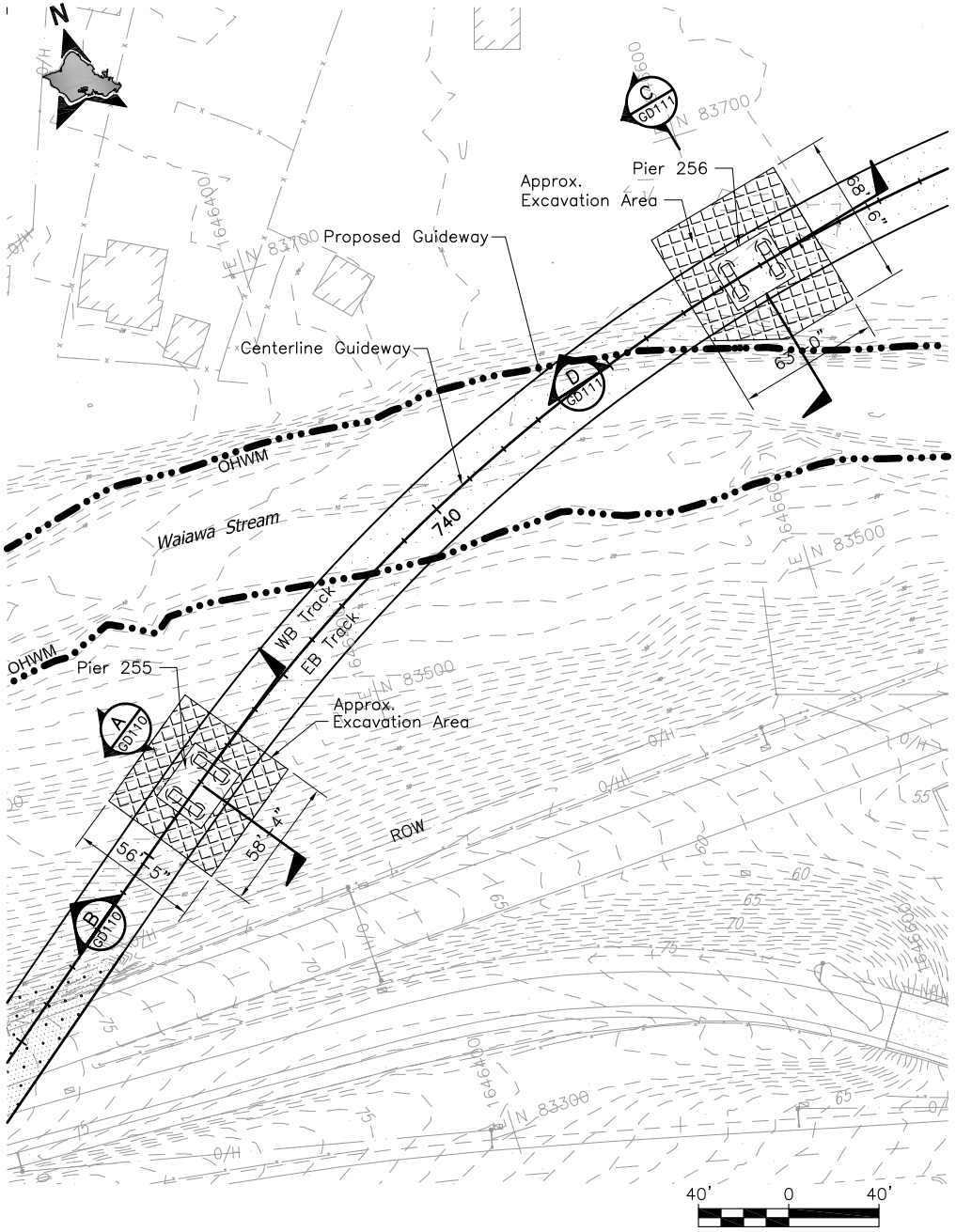
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

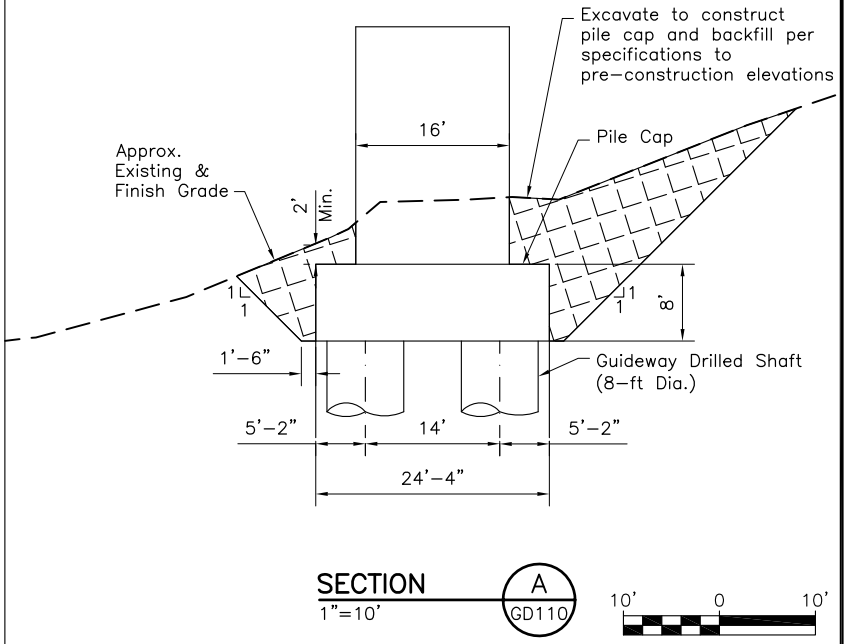
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
GUIDEWAY PROFILE
OVER WAIAWA TRIBUTARY
PHASE 1 - CONSTRUCTION

Dwg. No. GD105

December 17, 2012

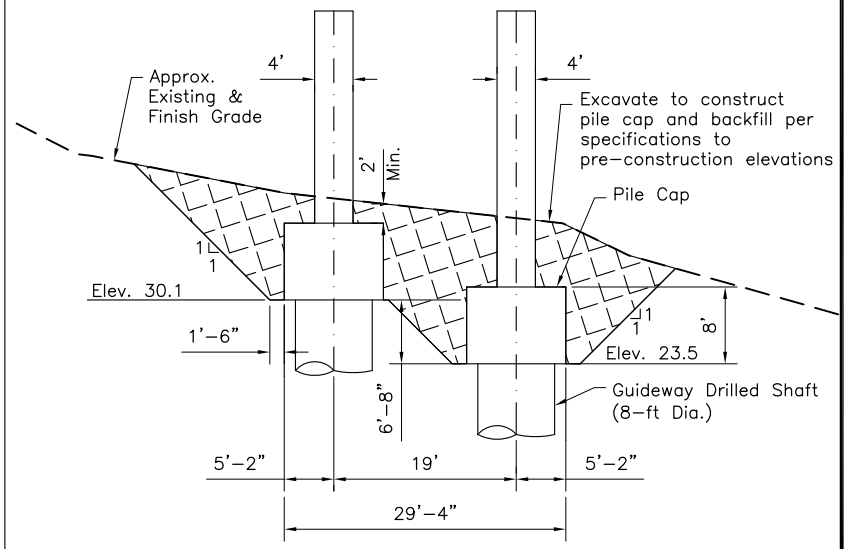
2012–12–14 7:10 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\GD104A.dwg





SECTION A GD110
1"=10'

10' 0 10'



SECTION B GD110
1"=10'

10' 0 10'

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

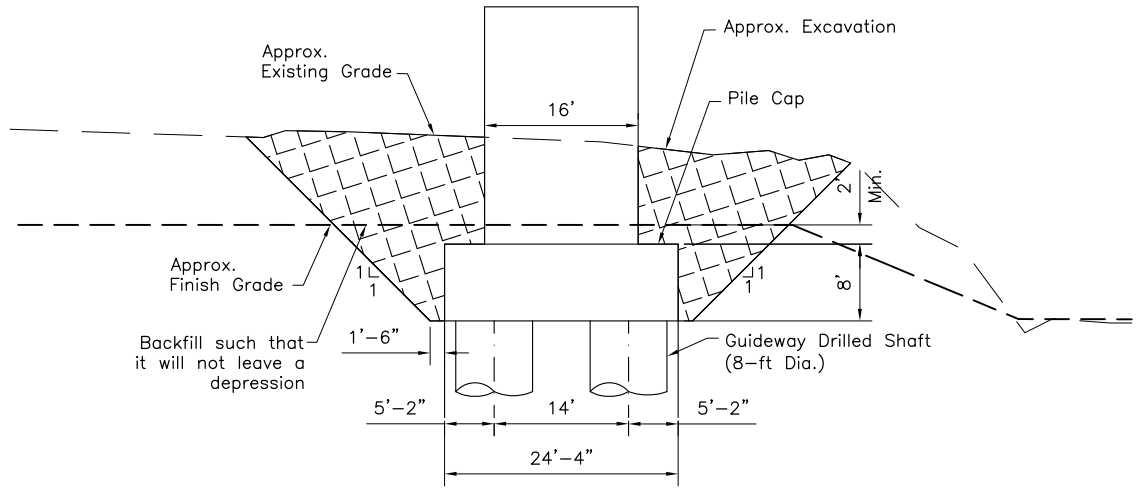
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PIER 255 CONSTRUCTION
PHASE 1 - CONSTRUCTION

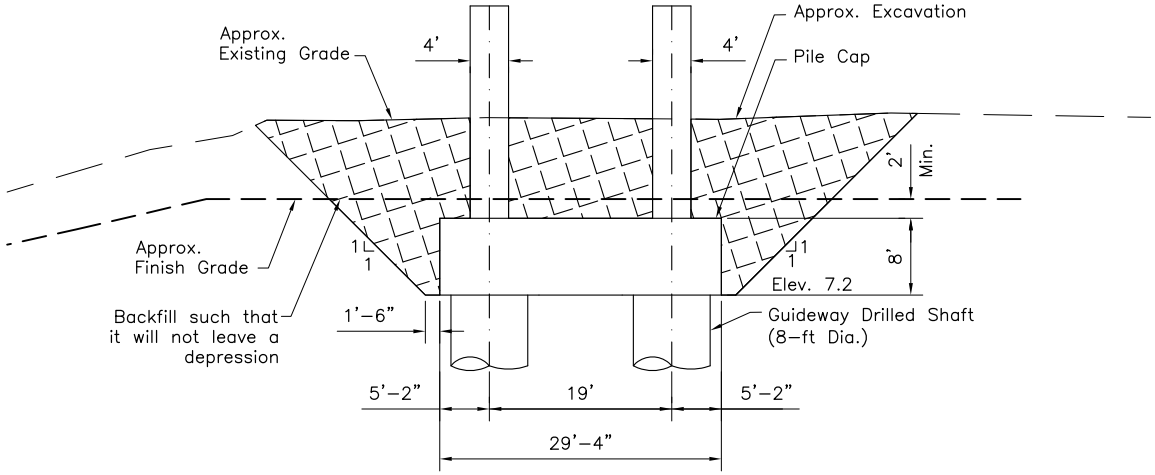
Dwg. No. GD110

December 17, 2012

2012-12-14 7:18 AM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\Pier255-256.dwg



SECTION C
1"=10'
GD110



SECTION D
1"=10'
GD110

10' 0 10'

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

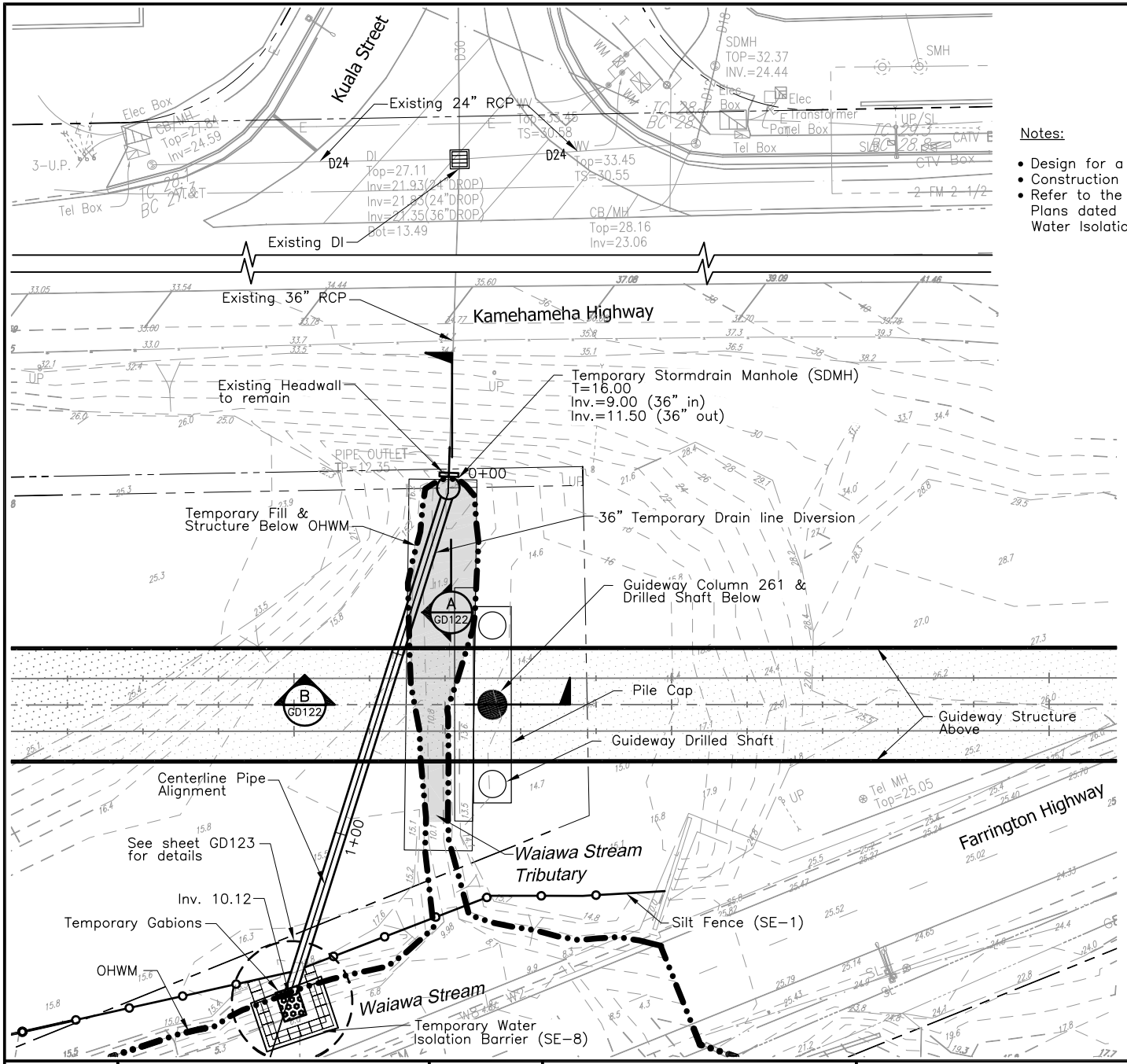
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PIER 256 CONSTRUCTION
PHASE 1 - CONSTRUCTION

Dwg. No. GD111

December 17, 2012

2012–12–14 7:18 AM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream–2012\Sheet Files\Pier255–256.dwg



Notes:

- Design for a 2-yr storm event
- Construction during dry months
- Refer to the City & County of Honolulu Stormwater BMP Plans dated November 2011 for details on Silt Fence and Water Isolation Barrier

20' 0 20'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

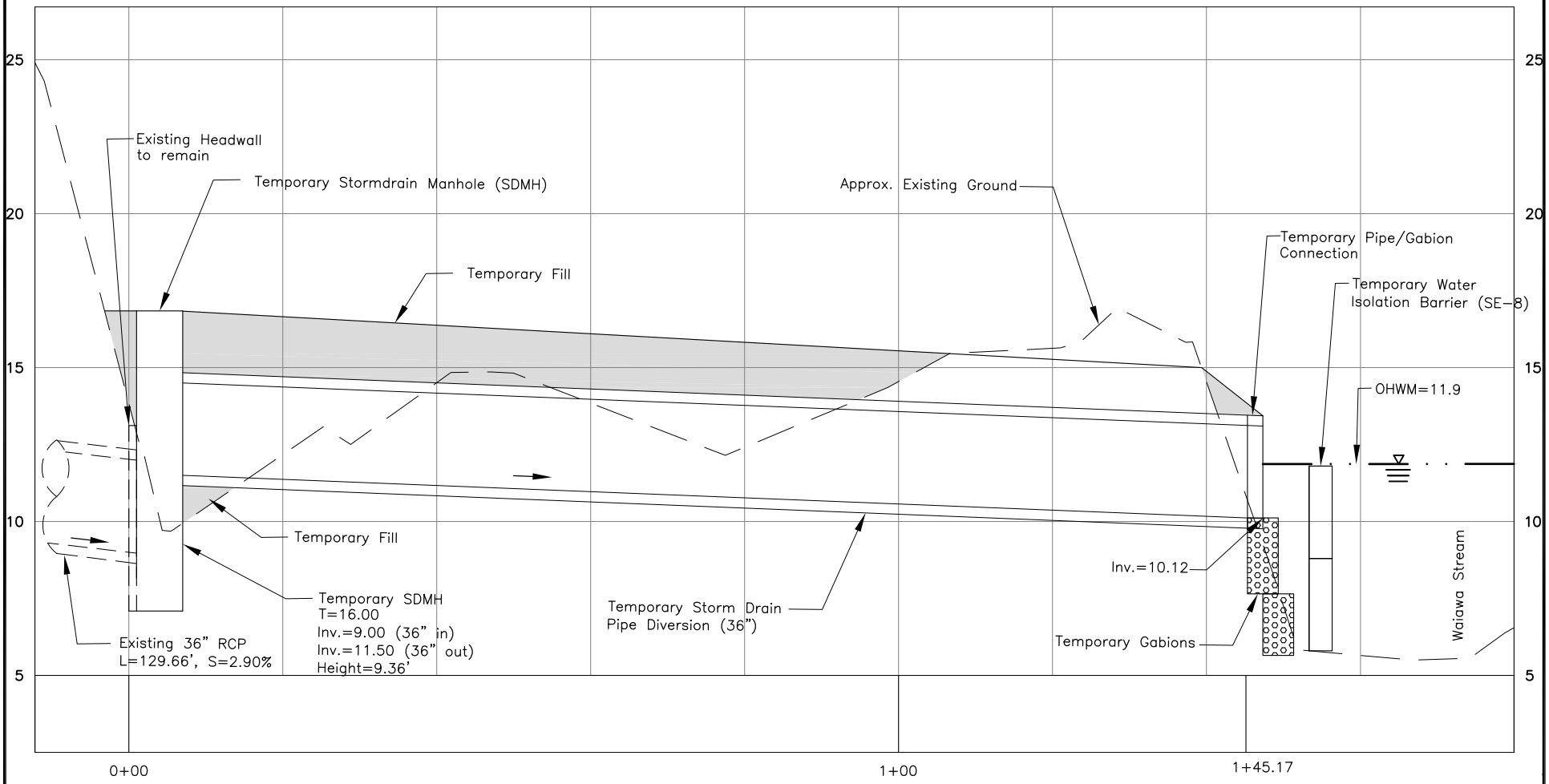
TEMPORARY STORM DRAIN DIVERSION-PLAN

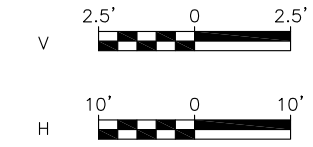
PHASE 1 - CONSTRUCTION

Dwg. No. GD120

December 17, 2012

2012-12-17 10:59 AM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\Waiawa Tributary TempPipe.dwg





HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL
TRANSIT PROJECT

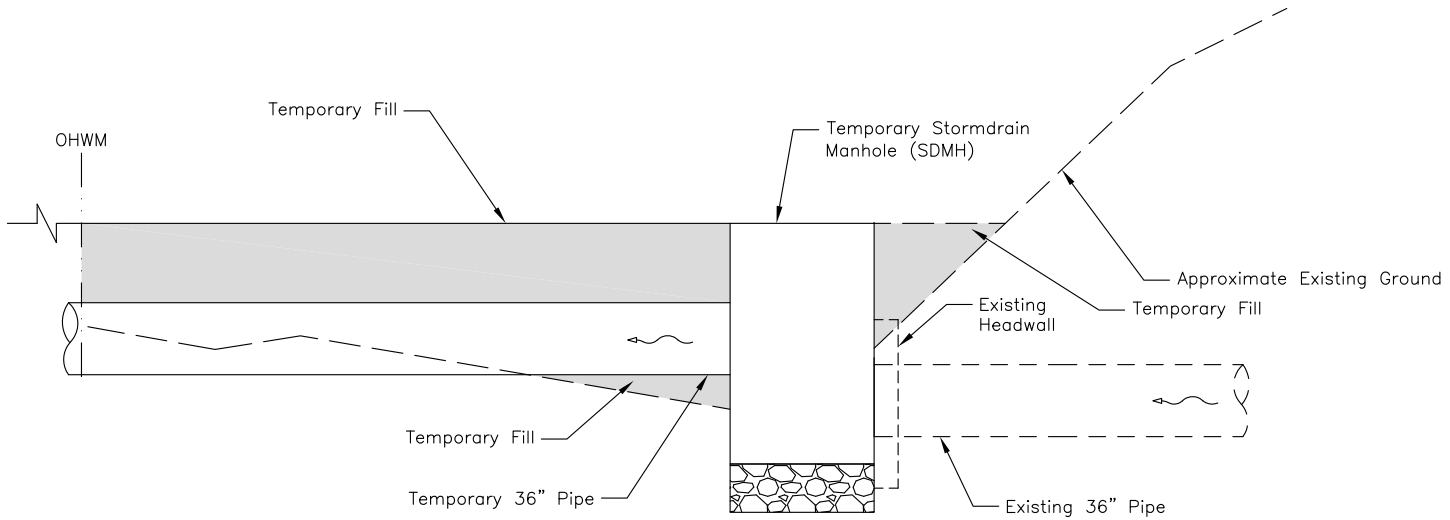
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
TEMPORARY STORM DRAIN DIVERSION-PROFILE
PHASE 1 - CONSTRUCTION

Dwg. No. GD121

December 17, 2012

2012-12-14 3:35 PM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\WT Proposed PH Site.dwg



SECTION A
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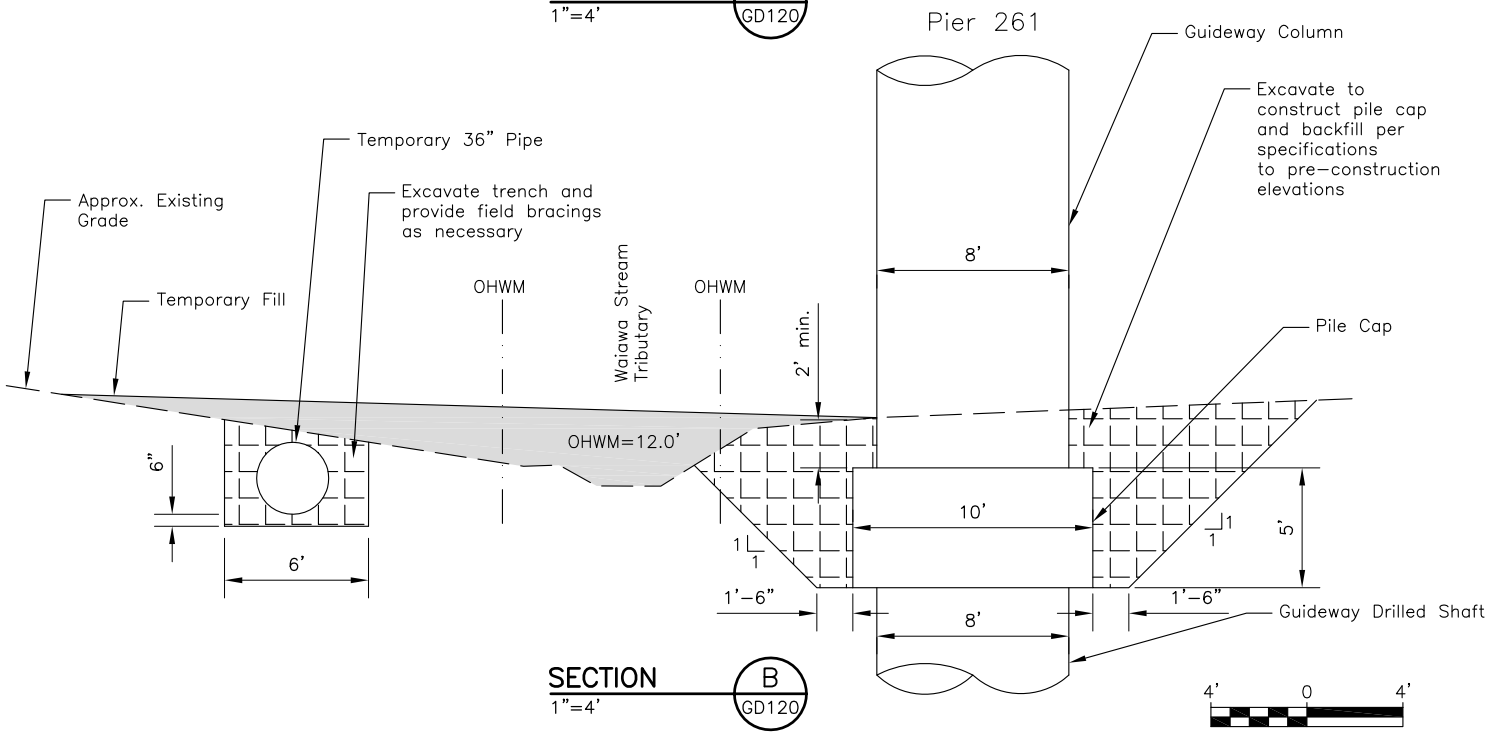
GD120



SECTION B
1"=4'
GD120

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

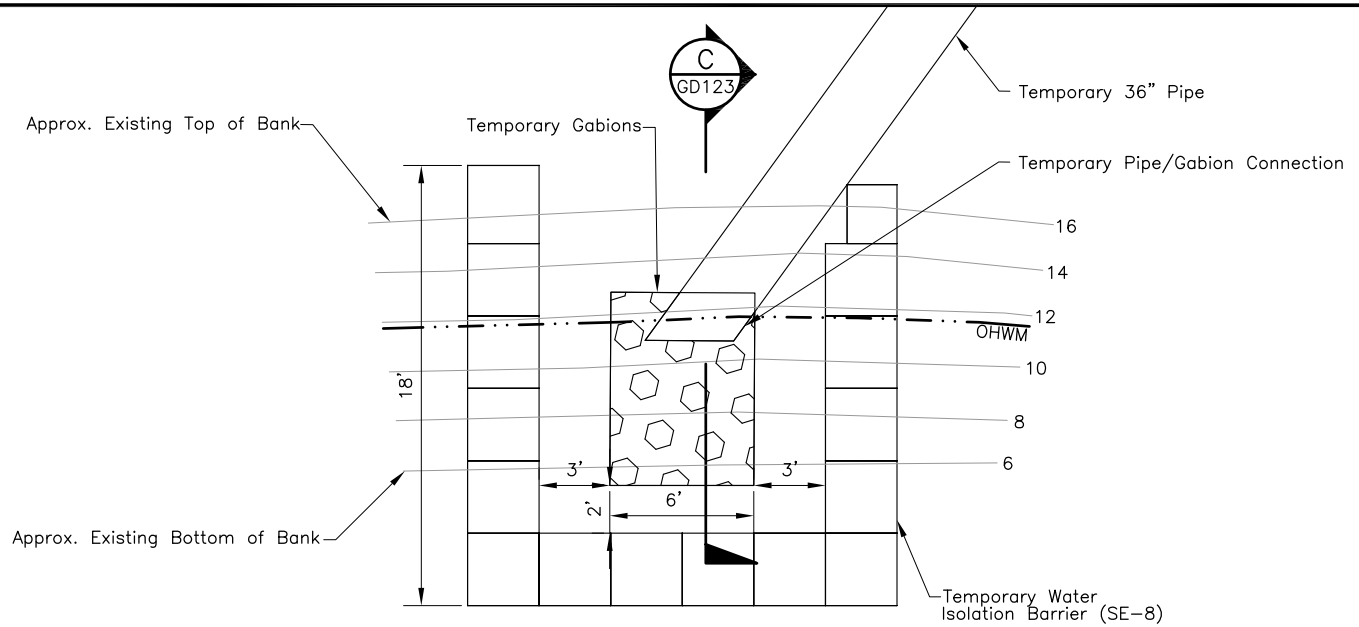
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
TEMPORARY STORM DRAIN DIVERSION-SECTIONS
PHASE 1 - CONSTRUCTION

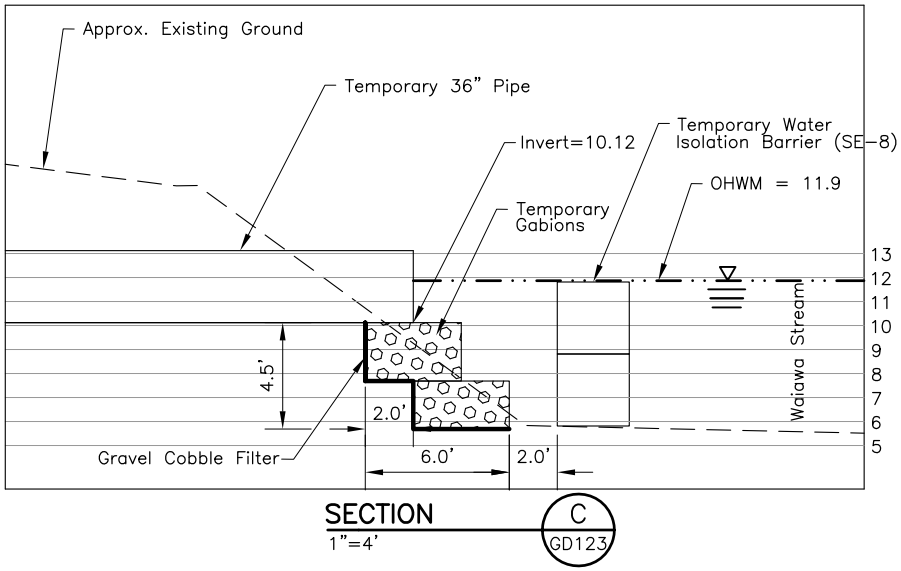
Dwg. No. GD122

December 17, 2012

2012-12-14 3:32 PM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\Waiawa Tributary TempPipe.dwg



DETAILS OF GABION INSTALLATION



SECTION C GD123
1"=4'

4' 0 4'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

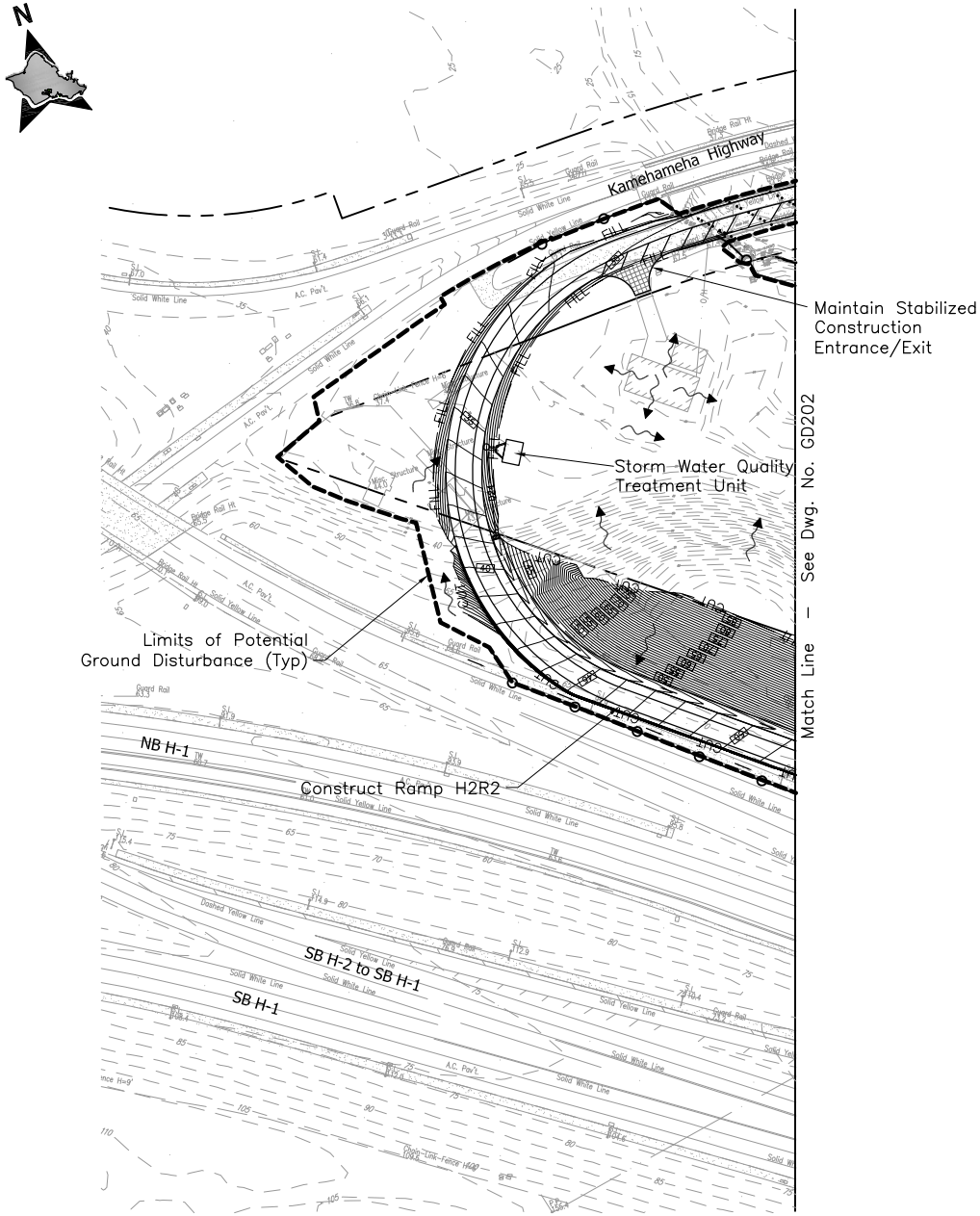
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
TEMPORARY STORM DRAIN DIVERSION-DETAILS
PHASE 1 - CONSTRUCTION

Dwg. No. GD123

December 17, 2012

2012-12-17 10:59 AM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\Waiawa Tributary TempPipe.dwg



Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

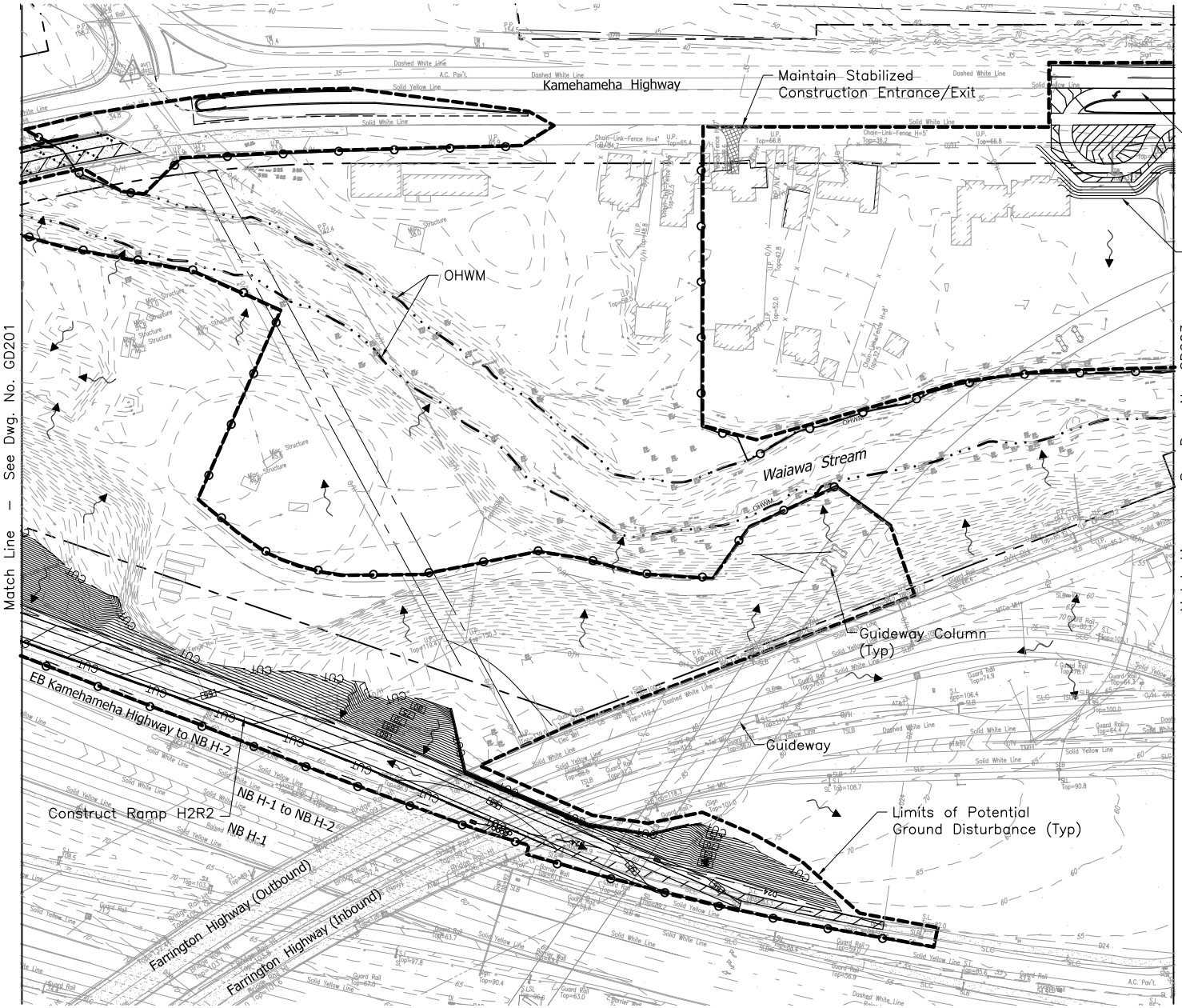
SITE PLAN (1 of 3)

PHASE 2 - CONSTRUCTION

Dwg. No. GD201

December 17, 2012

2012-12-14 7:23 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase2_GD200A.dwg



N

Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

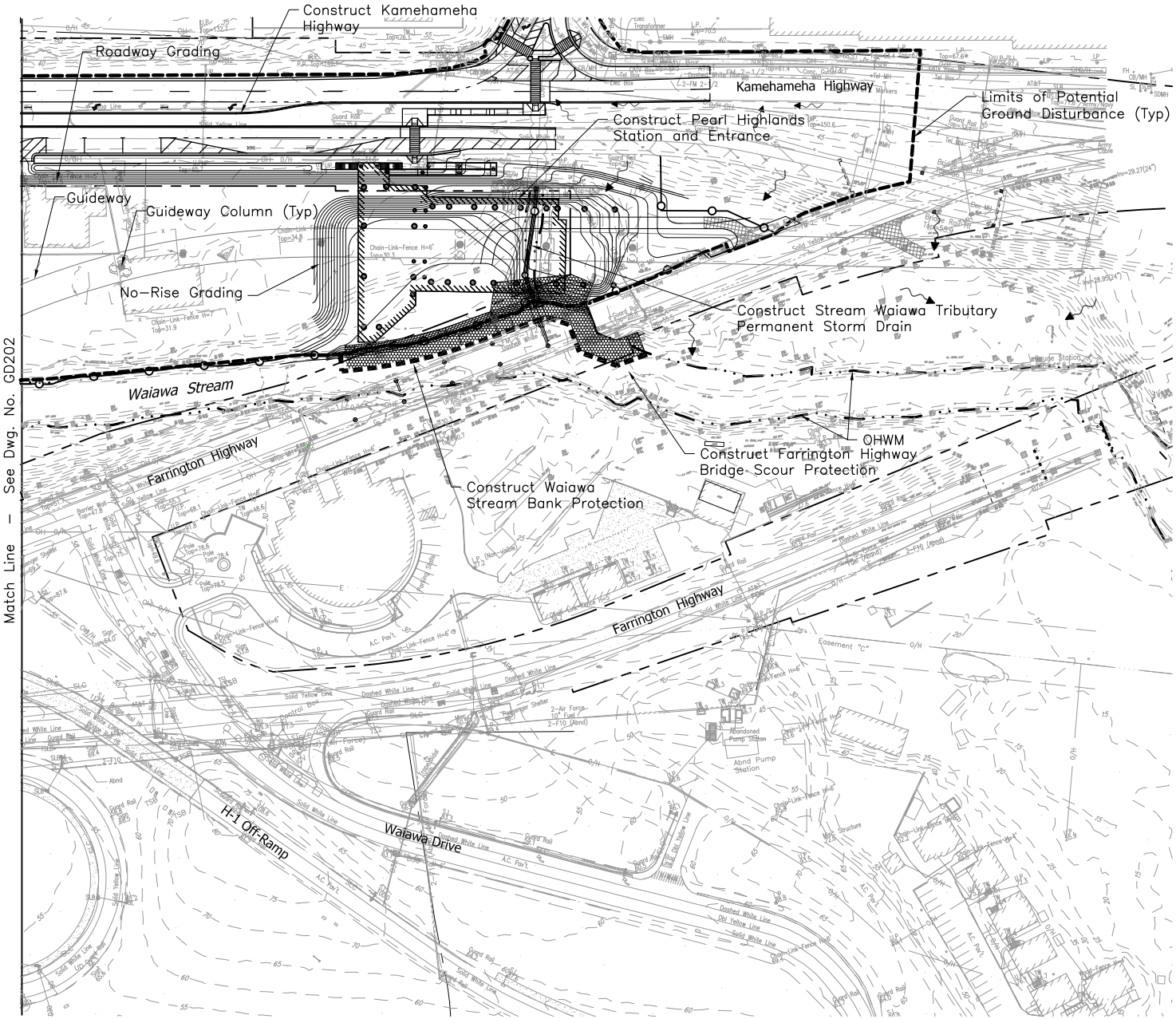
SITE PLAN (2 of 3)

PHASE 2 - CONSTRUCTION

Dwg. No. GD202

December 17, 2012

2012-12-14 7:23 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase2_GD200A.dwg



N

Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

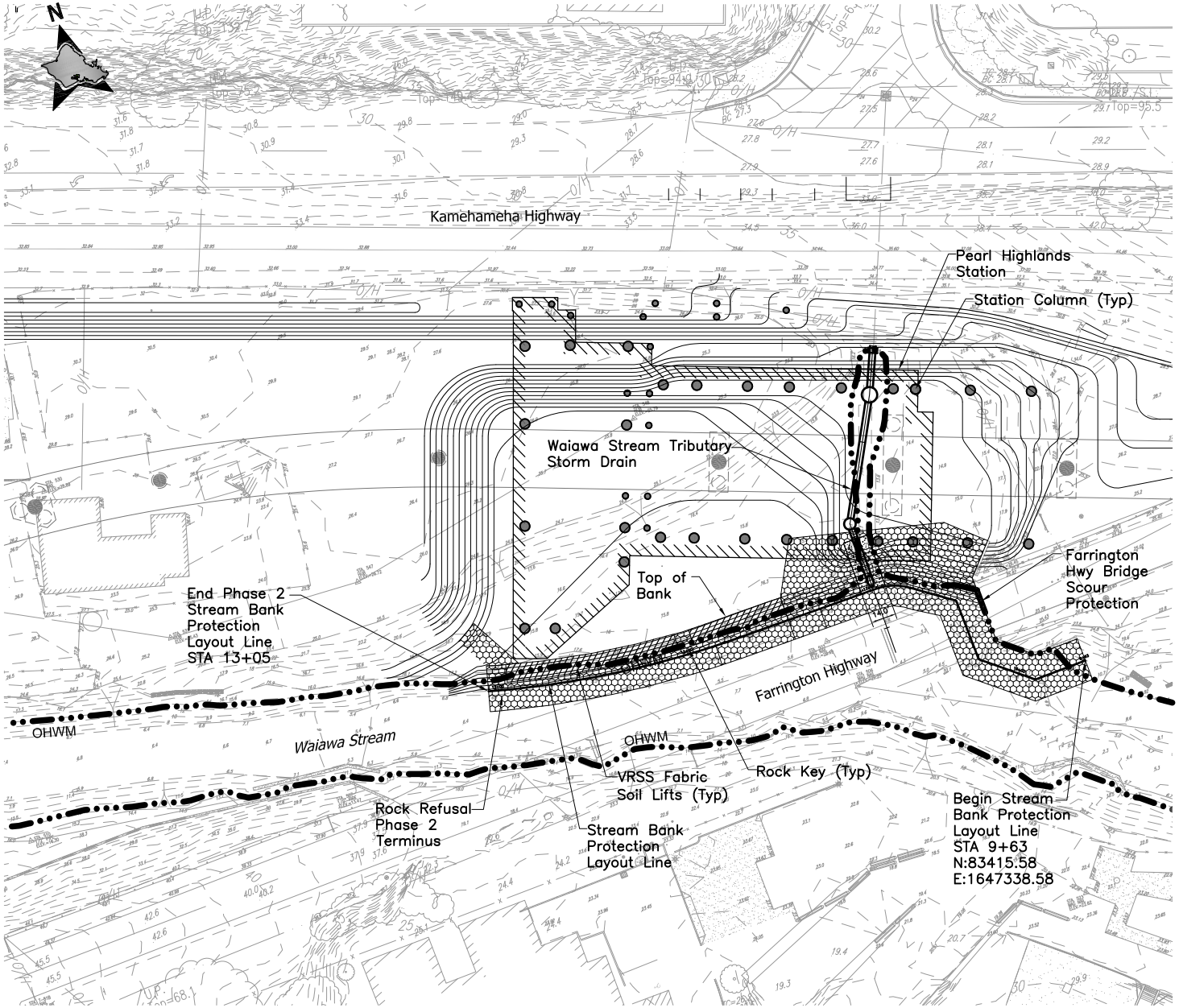
SITE PLAN (3 of 3)

PHASE 2 - CONSTRUCTION

Dwg. No. GD203

December 17, 2012

2012-12-14 7:23 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase2_GD200A.dwg



NOTES:

1. For legend, see Dwg. No. GN002
2. For VRSS Layout Line Geometric Details, See Dwg. No. GD211
3. For Typical VRSS Detail, See Dwg. No. GD230
4. For Typical Rock Key Detail, See Dwg. No. GD 231
5. For Farrington Highway Bridge Scour Protection Details, See Dwg. No. GD232

40' 0 40'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
STREAM BANK PROTECTION
PHASE 2 - CONSTRUCTION

Dwg. No. GD210

December 17, 2012

2012-12-17 1:23 PM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase2_GD210,260.dwg

STREAM BANK PROTECTION HORIZONTAL CONTROL DATA– VRSS LAYOUT LINE

TYPE	STATION	NORTHING	EASTING	BEARING	DISTANCE	Δ	R	T	Lc
POB	9+62.96	83415.58	1647338.58	86° 42' 15.43"	27.63	-	-	-	-
PT	9+90.59	83413.99	1647311.00	127° 00' 42.38"	31.09	-	-	-	-
PT	10+21.68	83432.71	1647286.17	176° 20' 34.30"	12.18	-	-	-	-
PT	10+33.86	83444.86	1647285.39	176° 20' 34.30"	20.30	-	-	-	-
PT	10+54.16	83465.12	1647284.10	123° 07' 46.54"	25.20	-	-	-	-
PC	10+79.36	83478.89	1647262.99	-	-	35° 22' 05.36"	28.02	8.93	17.30
PT	10+96.66	83483.43	1647246.59	87° 45' 41.18"	75.92	-	-	-	-
PC	11+72.58	83480.46	1647170.72	-	-	17° 06' 33.24"	500.00	75.21	149.31
PT	13+21.89	83496.83	1647022.87	104° 52' 14.42"	6.63	-	-	-	-
PC	13+28.52	83498.53	1647016.46	-	-	07° 28' 37.82"	348.89	22.80	45.53
PT	13+74.05	83507.31	1646971.82	97° 23' 36.60"	0.11	-	-	-	-
PC	13+74.16	83507.33	1646971.71	-	-	05° 18' 04.81"	450.00	20.83	41.64
PT	14+15.80	83514.59	1646930.72	102° 41' 41.41"	162.59	-	-	-	-
PC	15+78.39	83550.32	1646772.11	-	-	02° 33' 57.88"	450.00	10.08	20.15
PT	15+98.54	83554.30	1646752.35	100° 07' 43.53"	18.27	-	-	-	-
PC	16+16.81	83557.52	1646734.37	-	-	10° 26' 02.27"	638.25	58.28	116.23
PT	17+33.04	83588.23	1646622.44	110° 33' 45.81"	8.83	-	-	-	-
PC	17+41.87	83591.34	1646614.17	-	-	20° 47' 17.96"	395.35	72.52	143.44
PT	18+85.31	83616.52	1646473.75	89° 46' 27.85"	119.77	-	-	-	-
PC	20+05.08	83616.05	1646353.99	-	-	08° 04' 59.22"	500.00	35.33	70.54
PT	20+75.62	83610.81	1646283.70	81° 41' 28.63"	71.23	-	-	-	-
PC	21+46.85	83600.51	1646213.22	-	-	66° 41' 42.49"	106.81	70.29	124.33
PT	22+71.18	83650.21	1646106.83	148° 23' 11.12"	113.87	-	-	-	-
PC	23+85.05	83747.18	1646047.14	-	-	04° 28' 14.21"	500.00	19.52	39.01
PT	24+24.06	83779.58	1646025.41	143° 54' 56.91"	130.23	-	-	-	-
PC	25+54.29	83884.82	1645948.71	-	-	05° 38' 39.61"	707.80	34.89	69.73
PT	26+24.02	83939.06	1645904.94	138° 16' 17.30"	40.09	-	-	-	-
PC	26+64.11	83968.98	1645878.25	-	-	22° 03' 26.60"	260.06	50.69	100.12
PT	27+64.23	84029.20	1645799.04	116° 12' 50.69"	7.78	-	-	-	-
POE	27+72.00	84032.63	1645792.07	-	-	-	-	-	-

HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

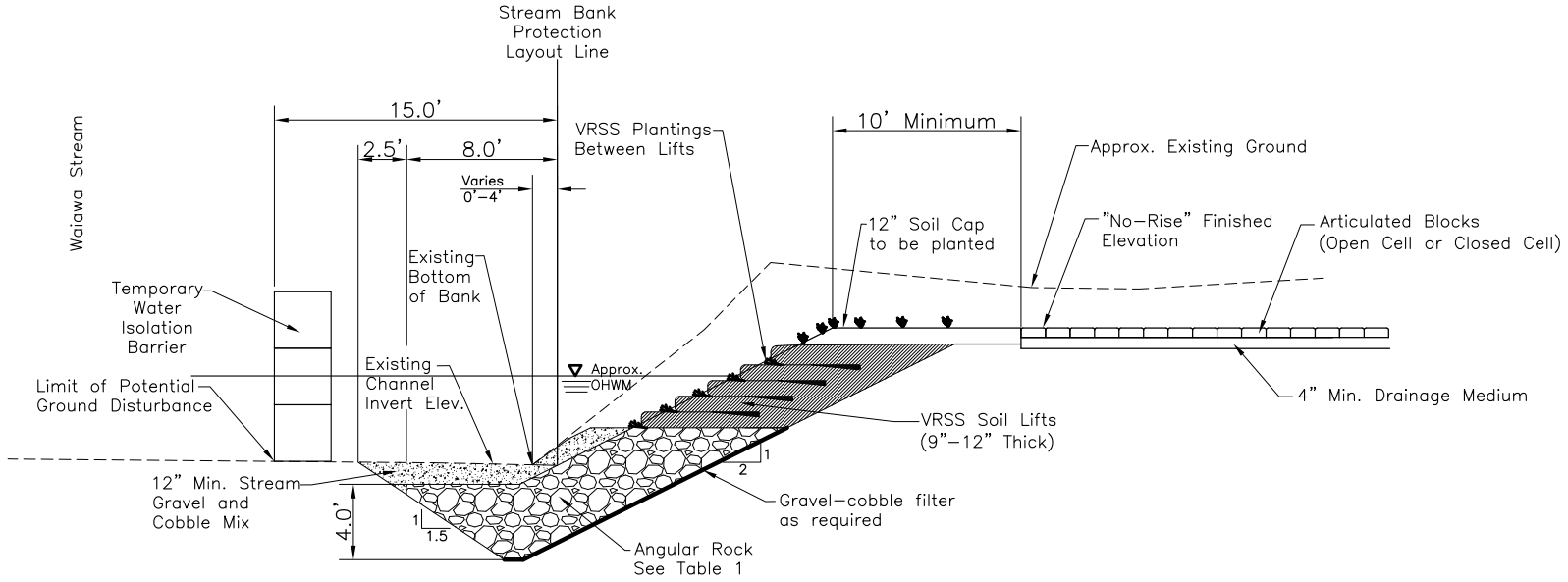
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
STREAM BANK PROTECTION
GEOMETRIC DATA
PHASE 3 - CONSTRUCTION

Dwg. No. GD211

December 17, 2012

2012–12–14 7:28 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\GD211.dwg



TYPICAL VEGETATED REINFORCED SOIL SLOPE (VRSS) DETAIL

TABLE 1: ROCK GRADATION

ROCK SIZE, IN	% SMALLER BY WEIGHT
30	100
21	90
18	50
15	30

5' 0 5'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

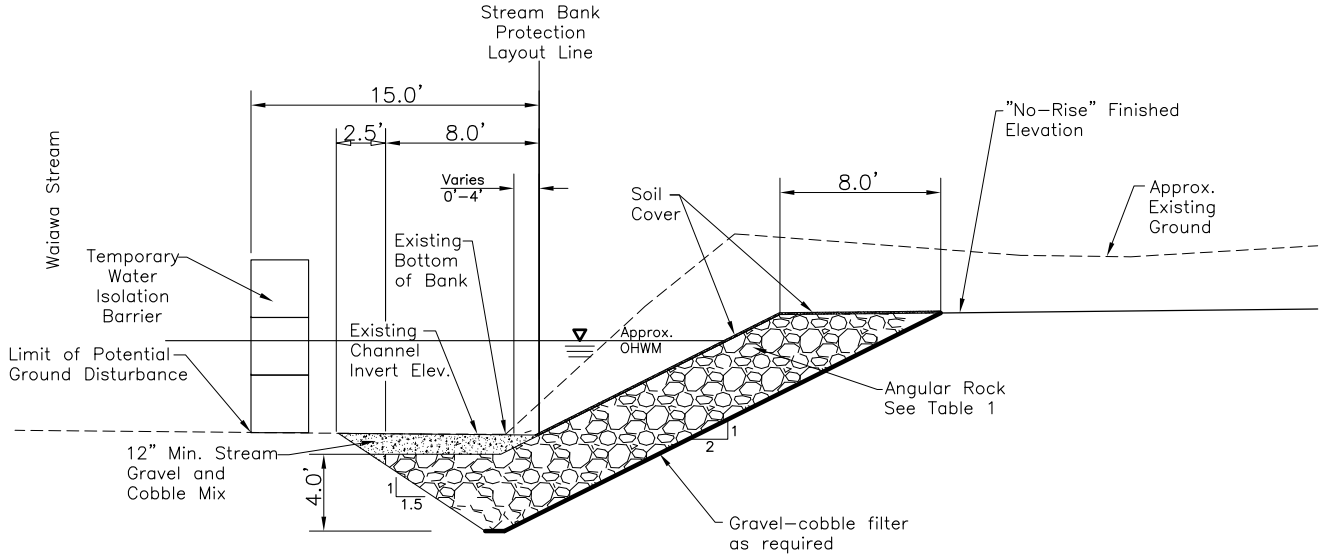
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
VEGETATED REINFORCED SOIL SLOPE DETAILS
PHASE 2 - CONSTRUCTION

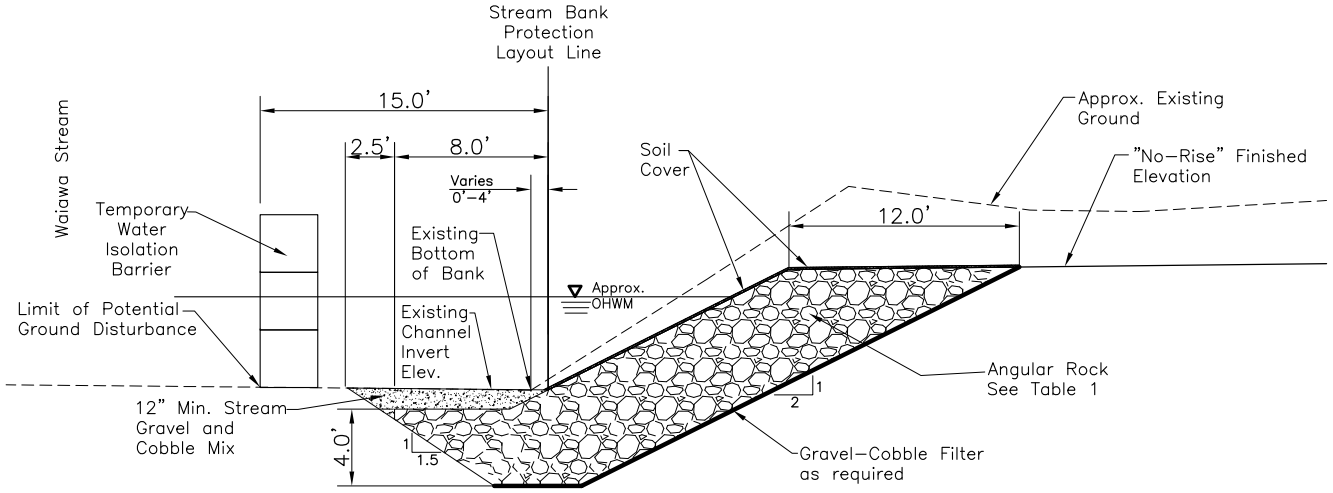
Dwg. No. GD230

December 17, 2012

2012–12–14 7:34 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase2_GD230–232.dwg



TYPICAL ROCK KEY (8' WIDE)



ROCK REFUSAL (12' WIDE)

(at terminus of Phase 2 VRSS)

TABLE 1: ROCK GRADATION

ROCK SIZE, IN	% SMALLER BY WEIGHT
30	100
21	90
18	50
15	30

5' 0 5'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

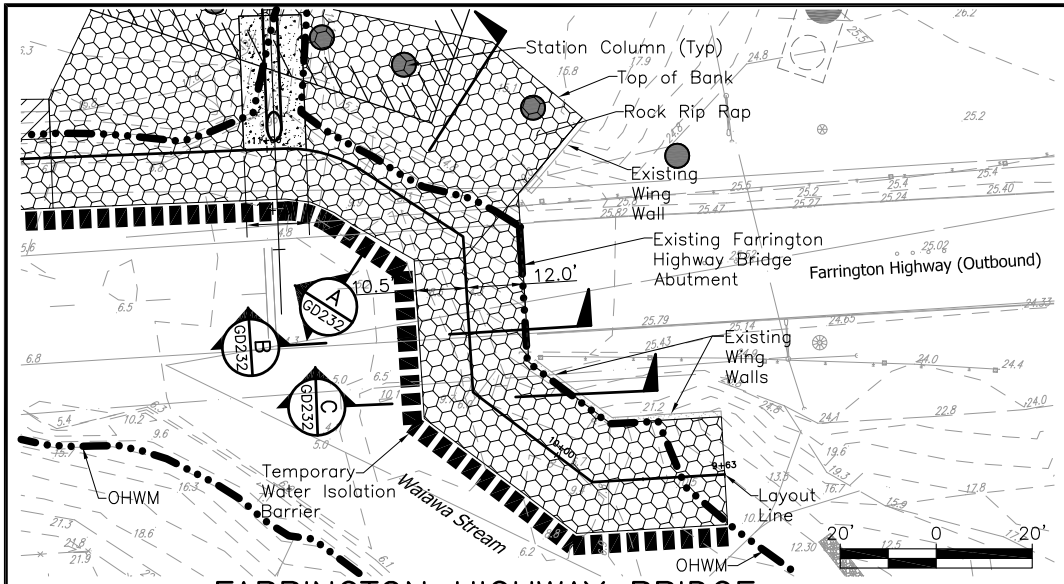
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
ROCK KEY DETAILS

PHASE 2 - CONSTRUCTION

Dwg. No. GD231

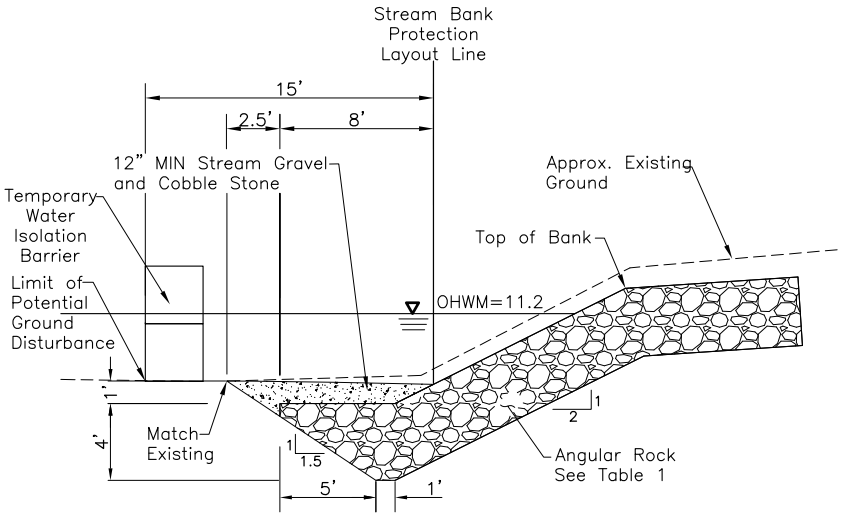
December 17, 2012

2012–12–14 7:34 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase2_GD230–232.dwg



FARRINGTON HIGHWAY BRIDGE SCOUR PROTECTION DETAILS

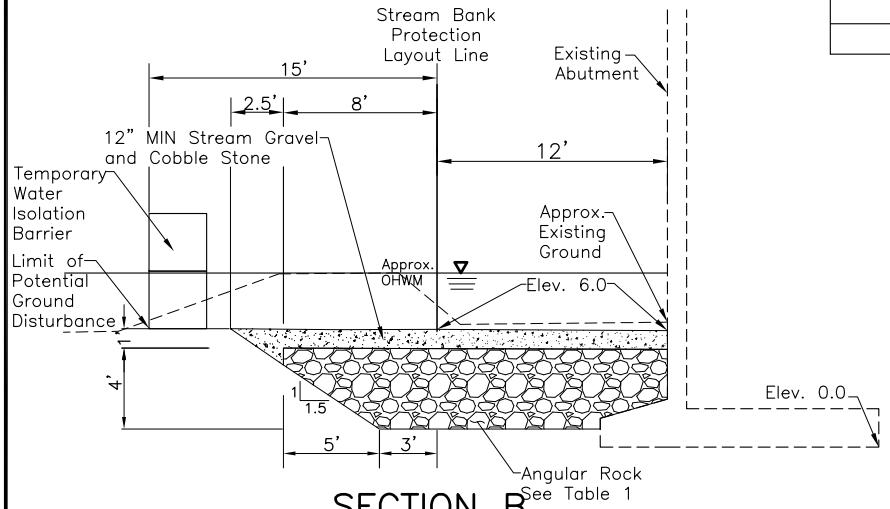
10+00 to 10+50



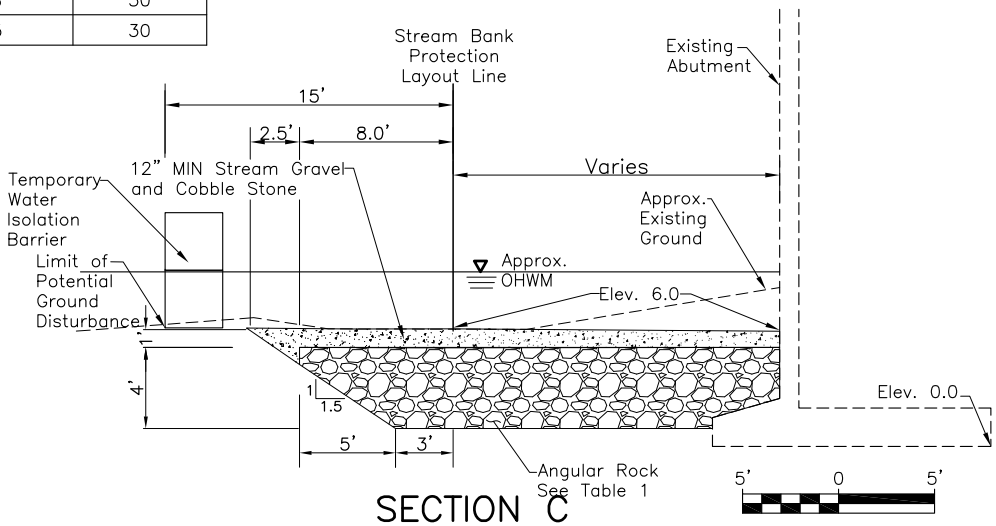
SECTION A

TABLE 1: ROCK GRADATION

ROCK SIZE, IN	% SMALLER BY WEIGHT
30	100
21	90
18	50
15	30



SECTION B



SECTION C

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

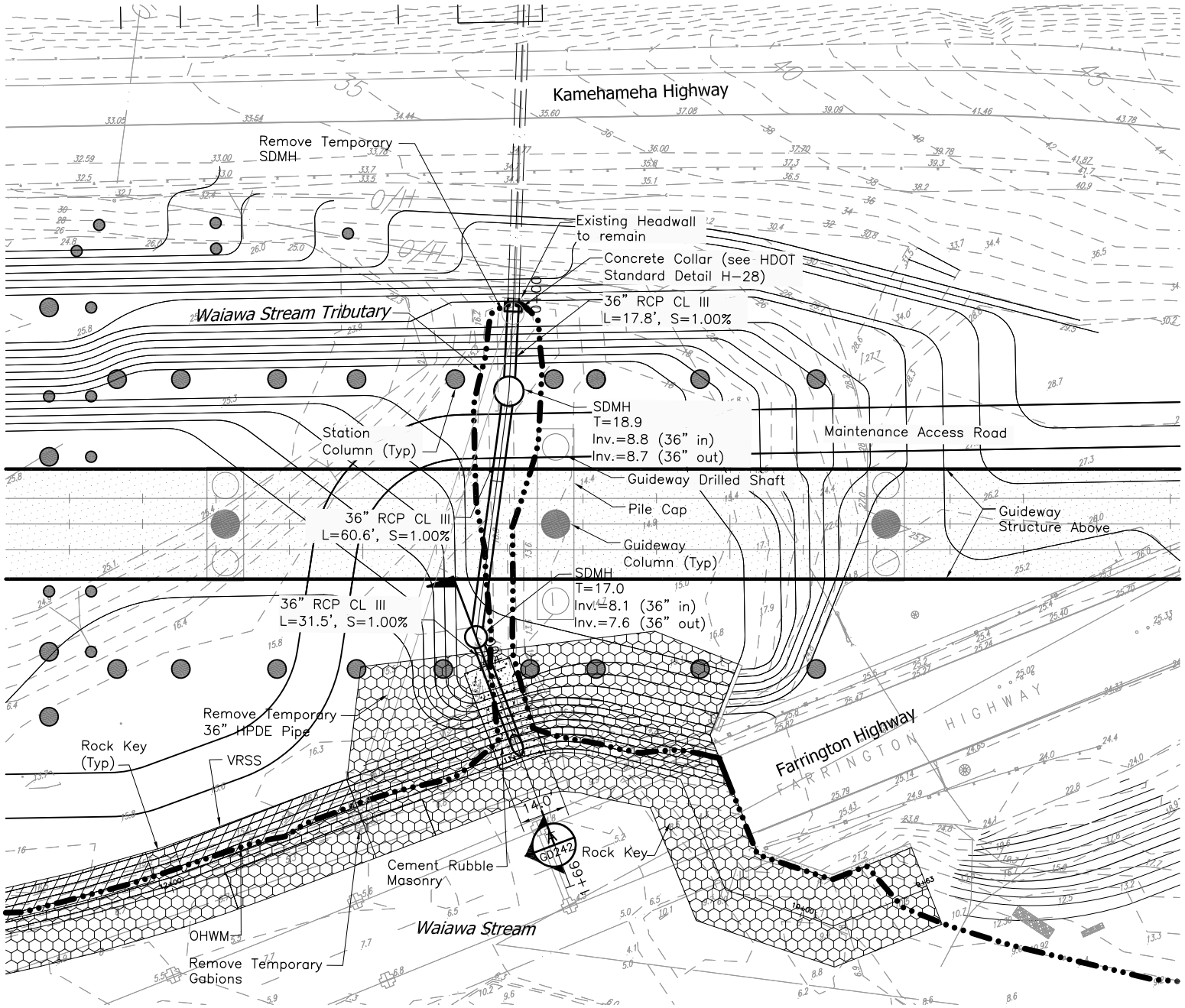
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
FARRINGTON HIGHWAY BRIDGE SCOUR PROTECTION DETAILS
PHASE 2 - CONSTRUCTION

Dwg. No. GD232

December 17, 2012

2012-12-14 7:34 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase2_GD230-232.dwg



HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

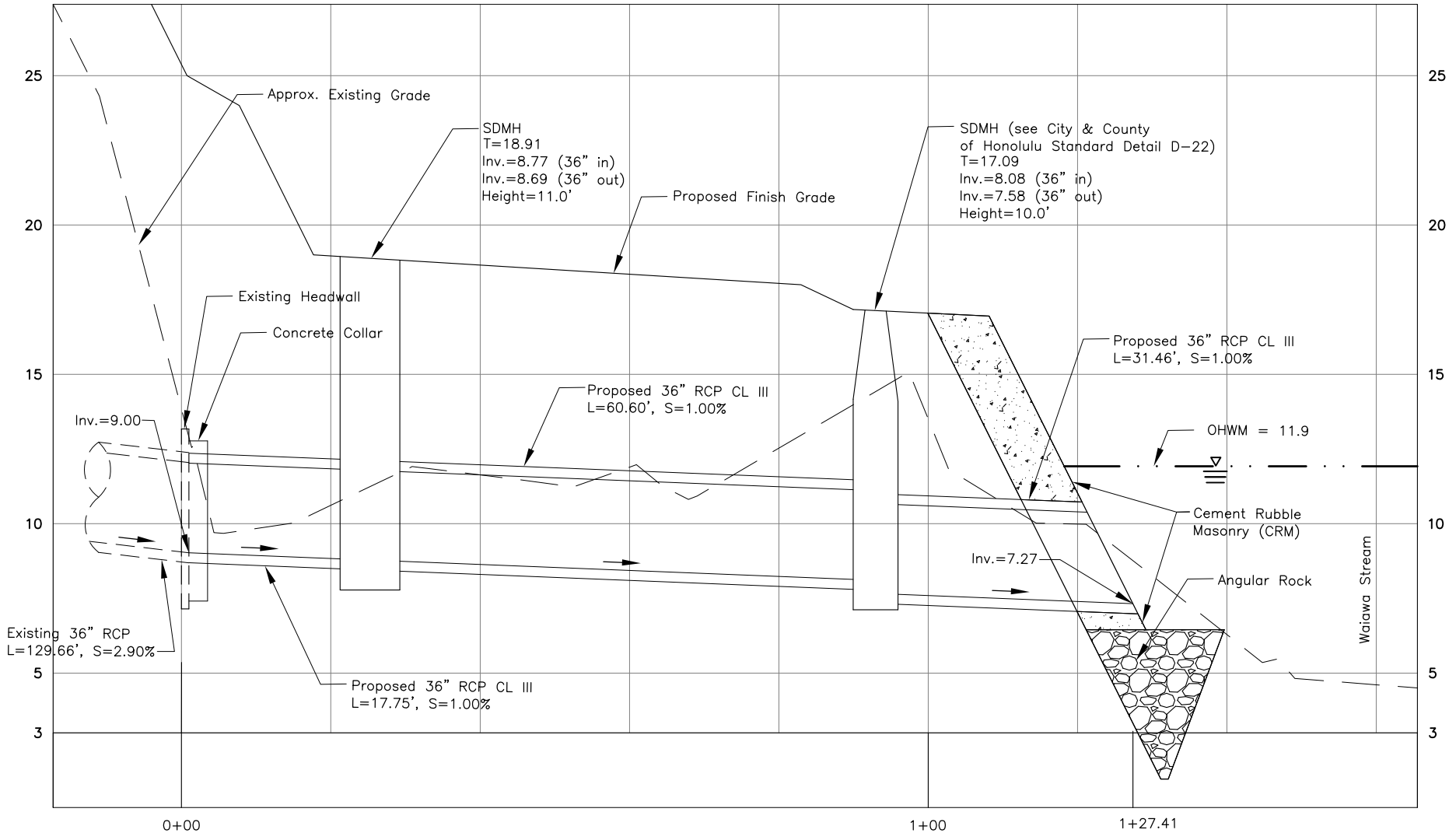
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

PERMANENT STORM DRAIN PLAN PHASE 2 - CONSTRUCTION

Dwg. No. GD240

December 17, 2012

2012-12-17 2:31 PM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\WT-PermanentPipe.dwg



HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

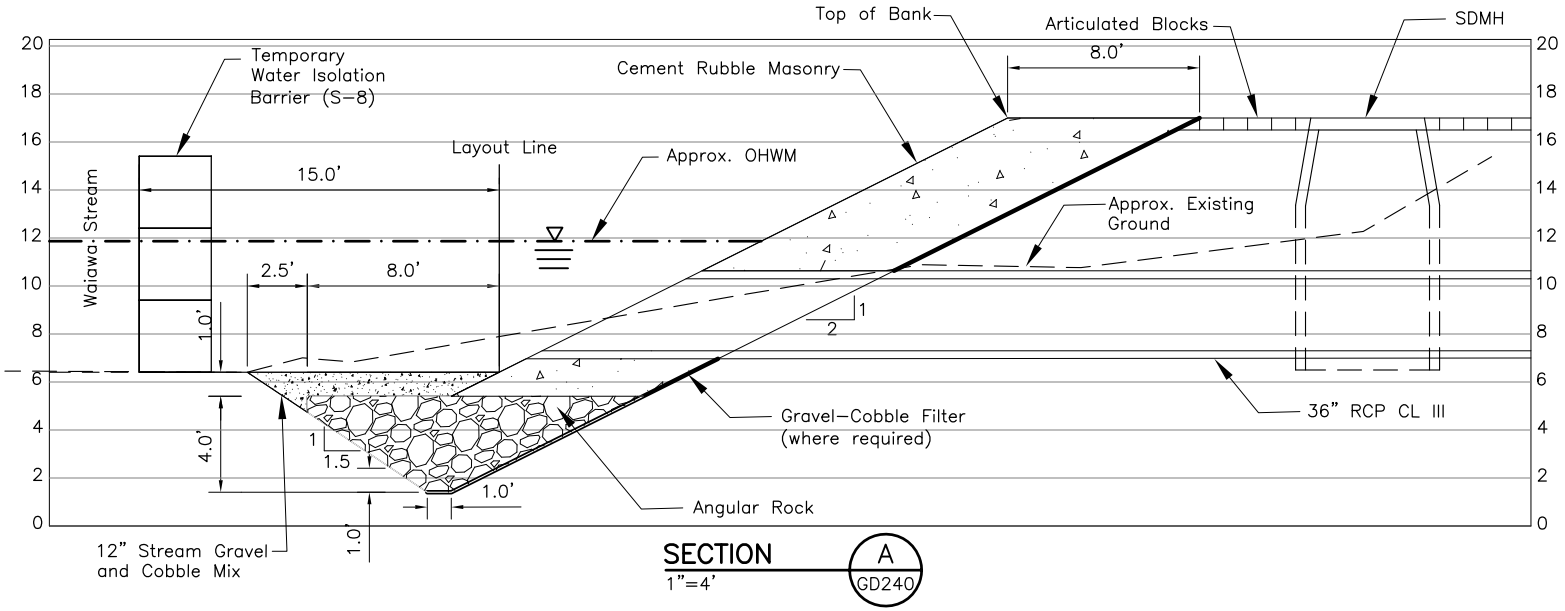
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PERMANENT STORM DRAIN PROFILE
PHASE 2 - CONSTRUCTION

Dwg. No. GD241

December 14, 2012

2012-12-17 11:10 AM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\WT Proposed PH Site.dwg



SECTION A
1"=4'
GD240

4' 0 4'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

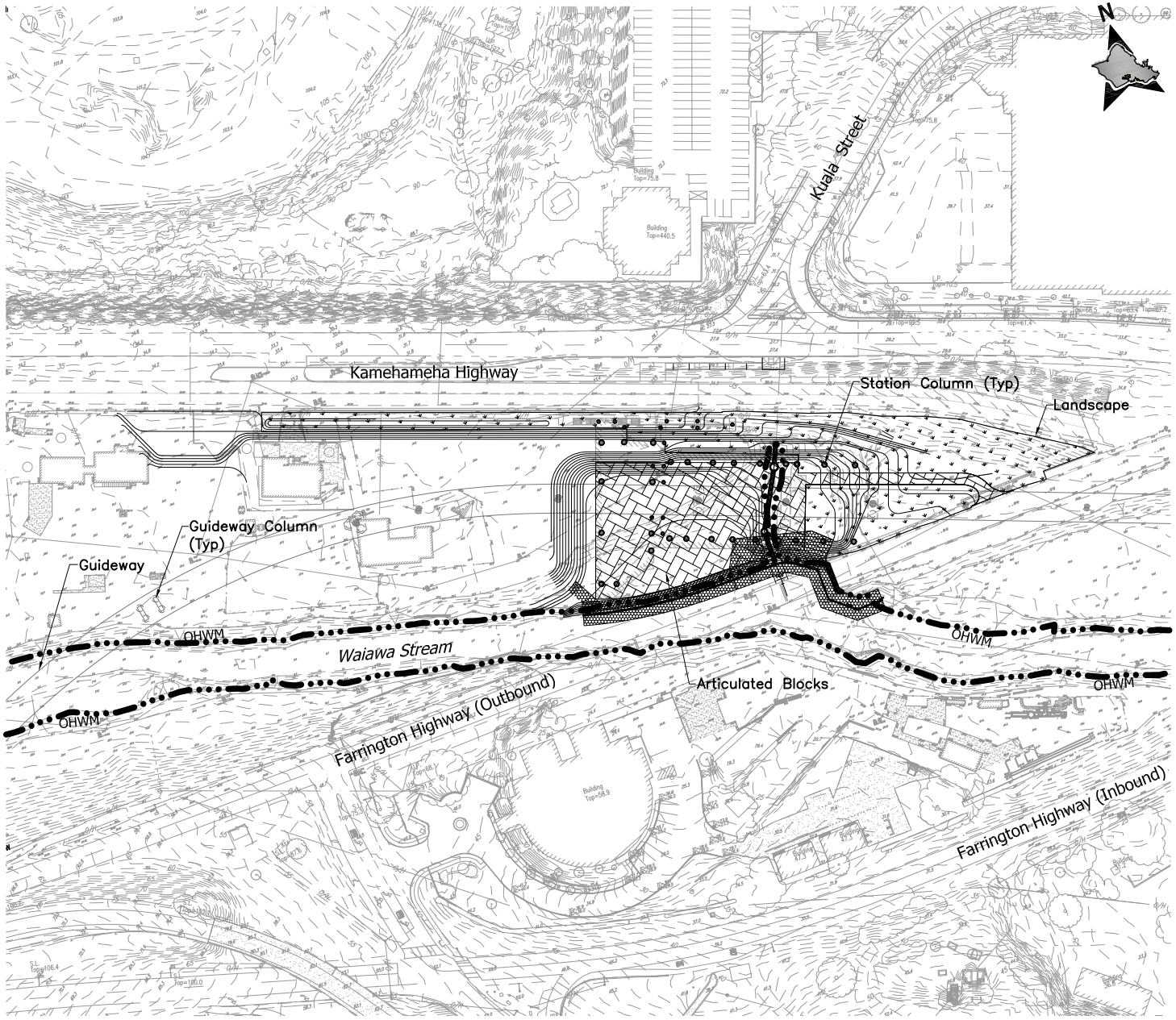
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PERMANENT STORM DRAIN DETAILS
PHASE 2 - CONSTRUCTION

Dwg. No. GD242

December 17, 2012

2012-12-13 5:08 PM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\WT-PermanentPipe.dwg



Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

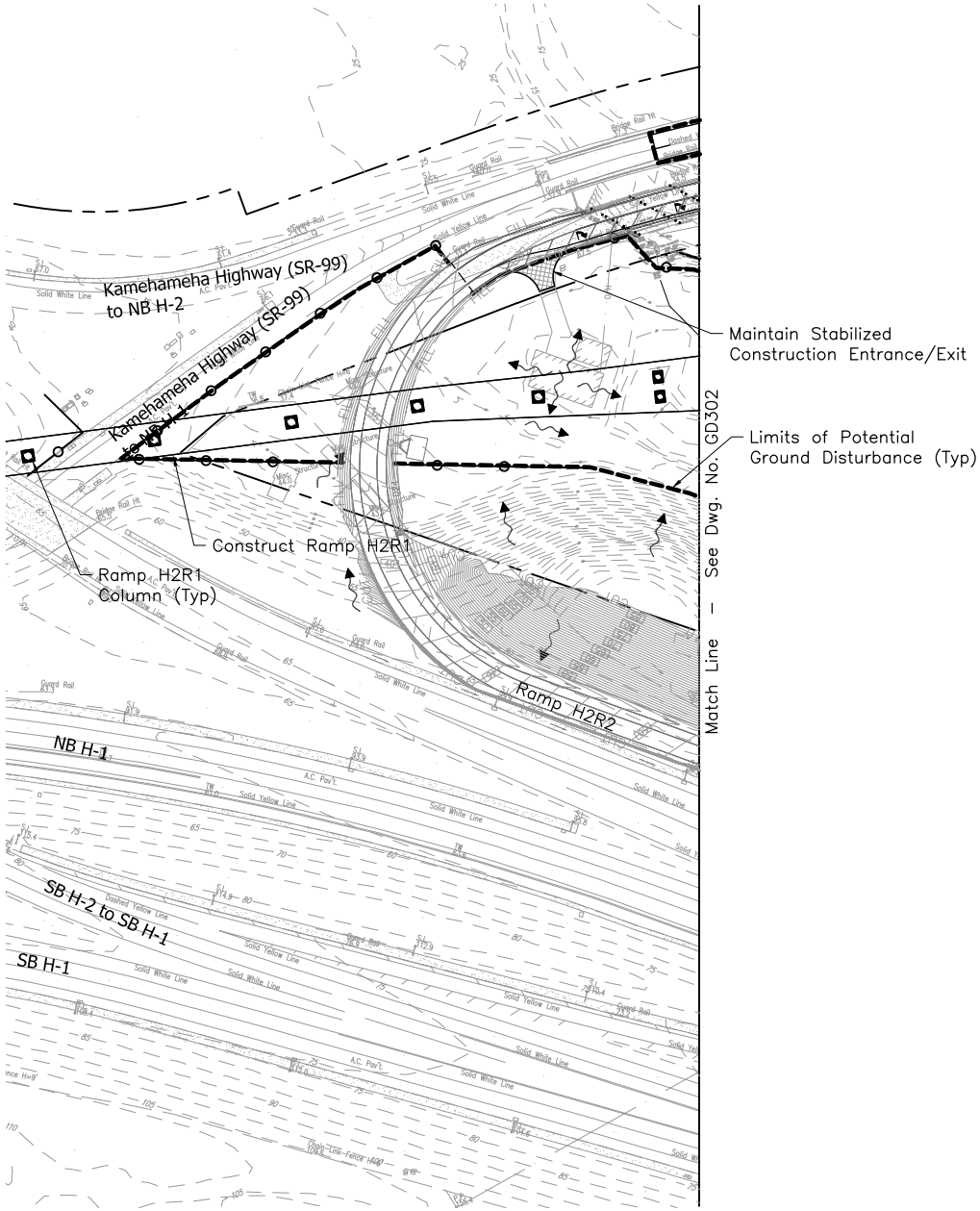
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PERMANENT EROSION CONTROL PLAN
PHASE 2 - CONSTRUCTION

Dwg. No. GD260

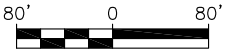
December 17, 2012

2012-12-14 7:36 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase2_GD210,260.dwg



Notes:

1) For legend, see Dwg. No. GN002.



HART
HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

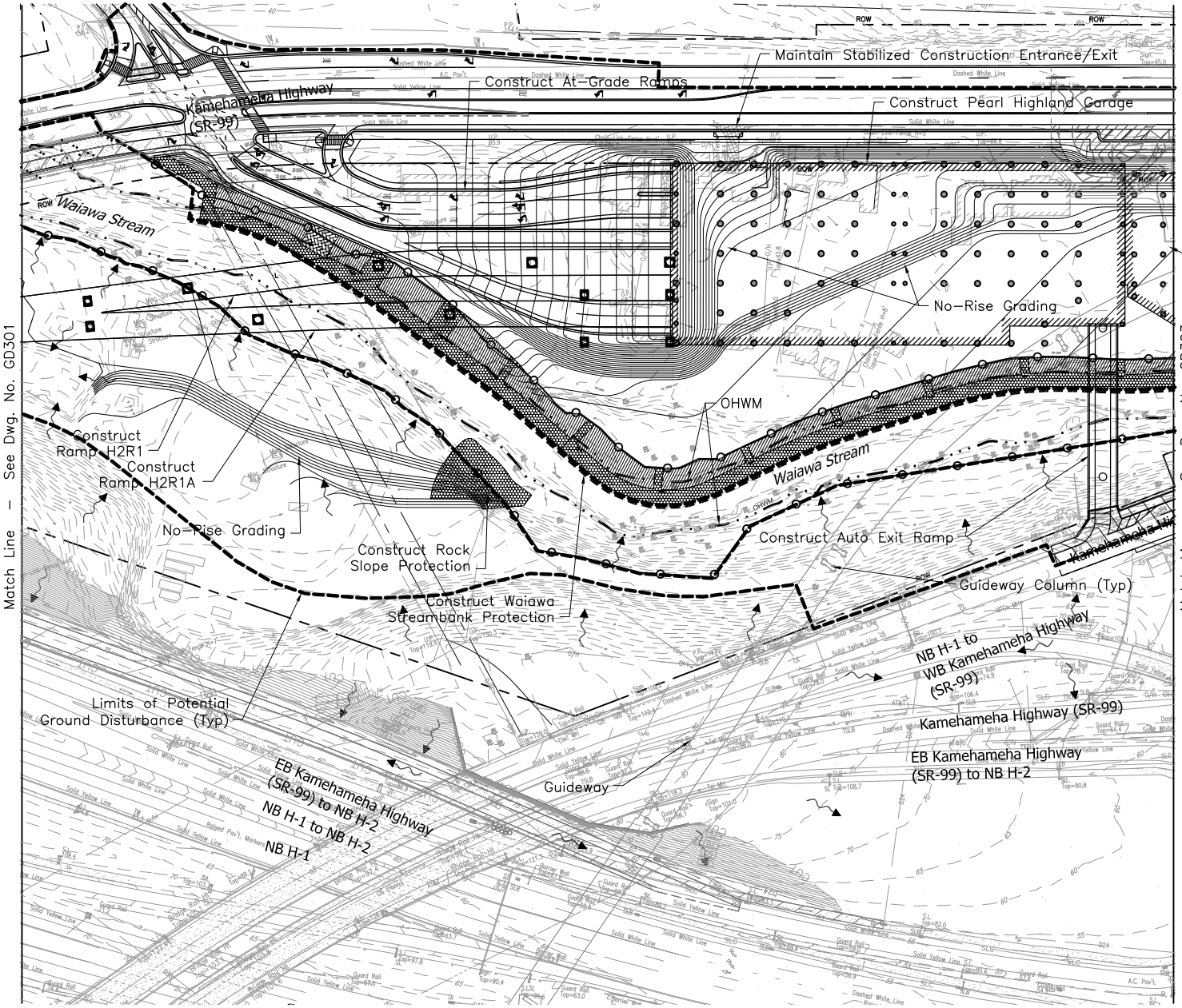
SITE PLAN (1 of 3)

PHASE 3 - CONSTRUCTION

Dwg. No. GD301

December 17, 2012

2012-12-14 7:41 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD300_SitePlans.dwg

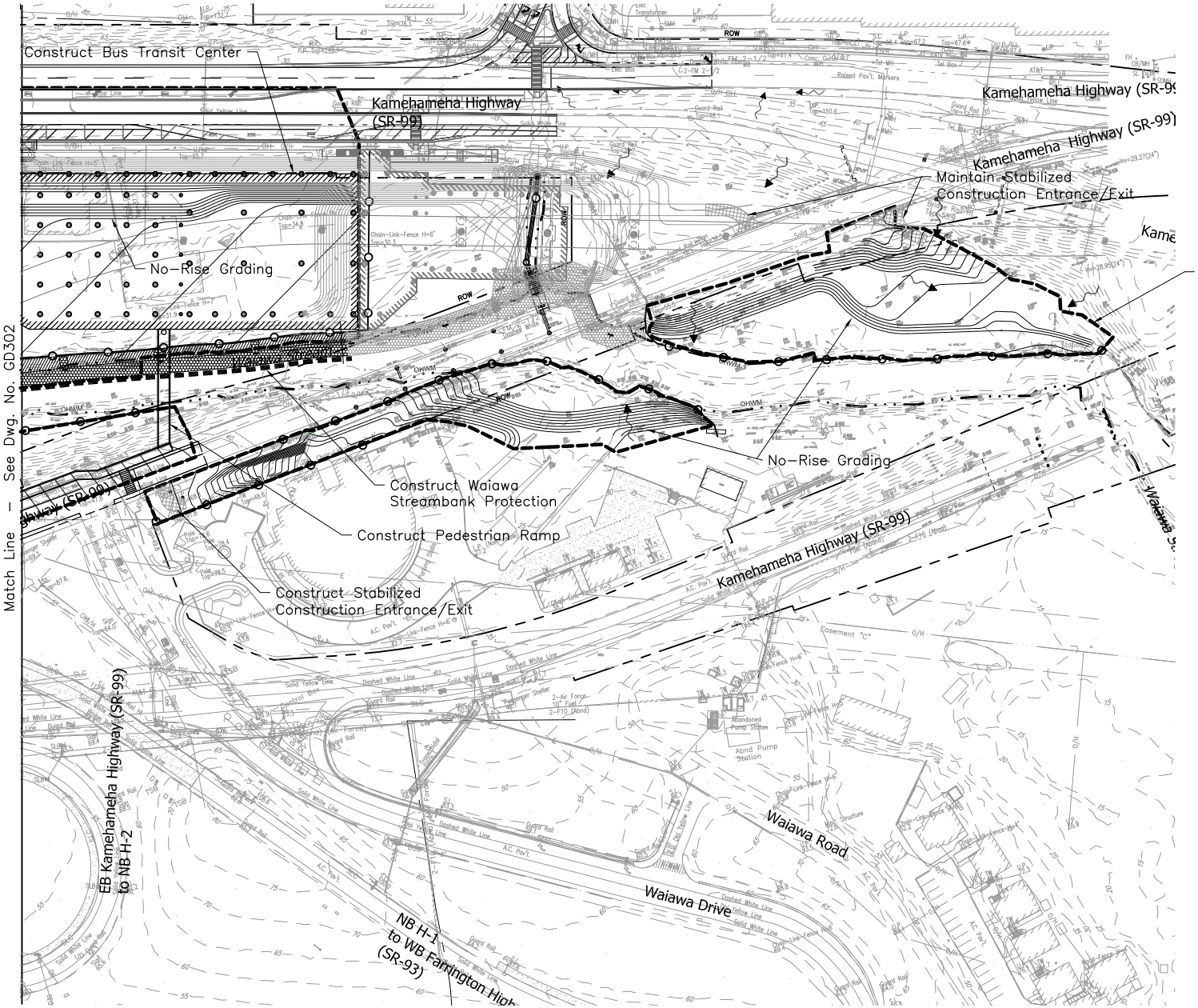


Notes:

1) For legend, see Dwg. No. GN002.

HART HONOLULU AUTHORITY for RAPID TRANSPORTATION	HONOLULU RAIL TRANSIT PROJECT Prepared By: PARSONS BRINCKERHOFF 1003 Bishop Street, Suite 1000 – Honolulu, HI 96813	WAIAWA STREAM TRIBUTARY & WAIAWA STREAM SITE PLAN (2 of 3) PHASE 3 - CONSTRUCTION	Dwg. No. GD302 December 17, 2012

2012-12-14 7:41 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD300_SitePlans.dwg



N

Notes:

1) For legend, see Dwg. No. GN002.

80' 0 80'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM

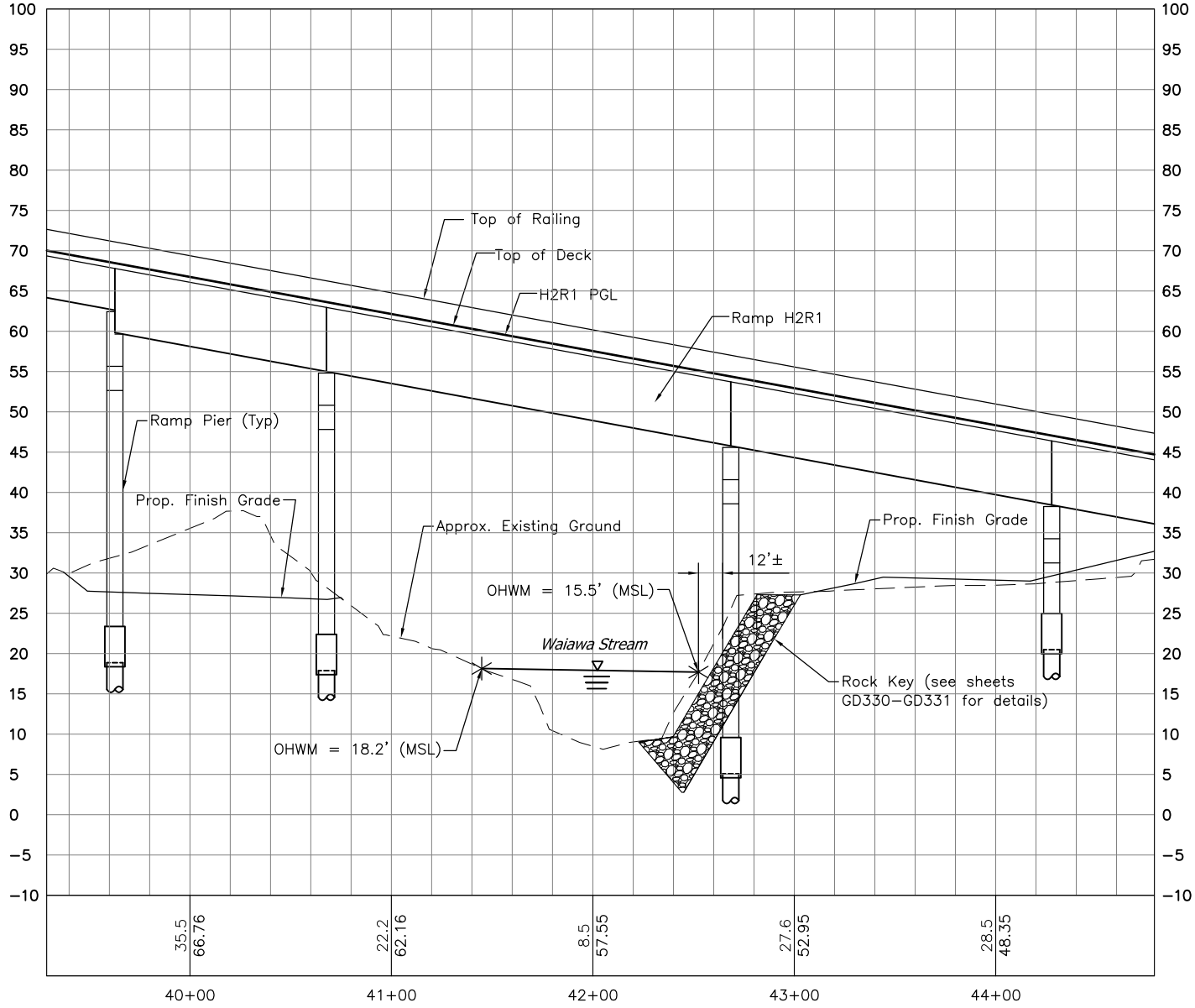
SITE PLAN (3 of 3)

PHASE 3 - CONSTRUCTION

Dwg. No. GD303

December 17, 2012

2012-12-14 7:41 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD300_SitePlans.dwg



NOTES:

1. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with the North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).
2. Elevations shown on these plans are reference to Mean Sea Level (MSL).

HORIZ. 40' 0 40'

VERT. 10' 0 10'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

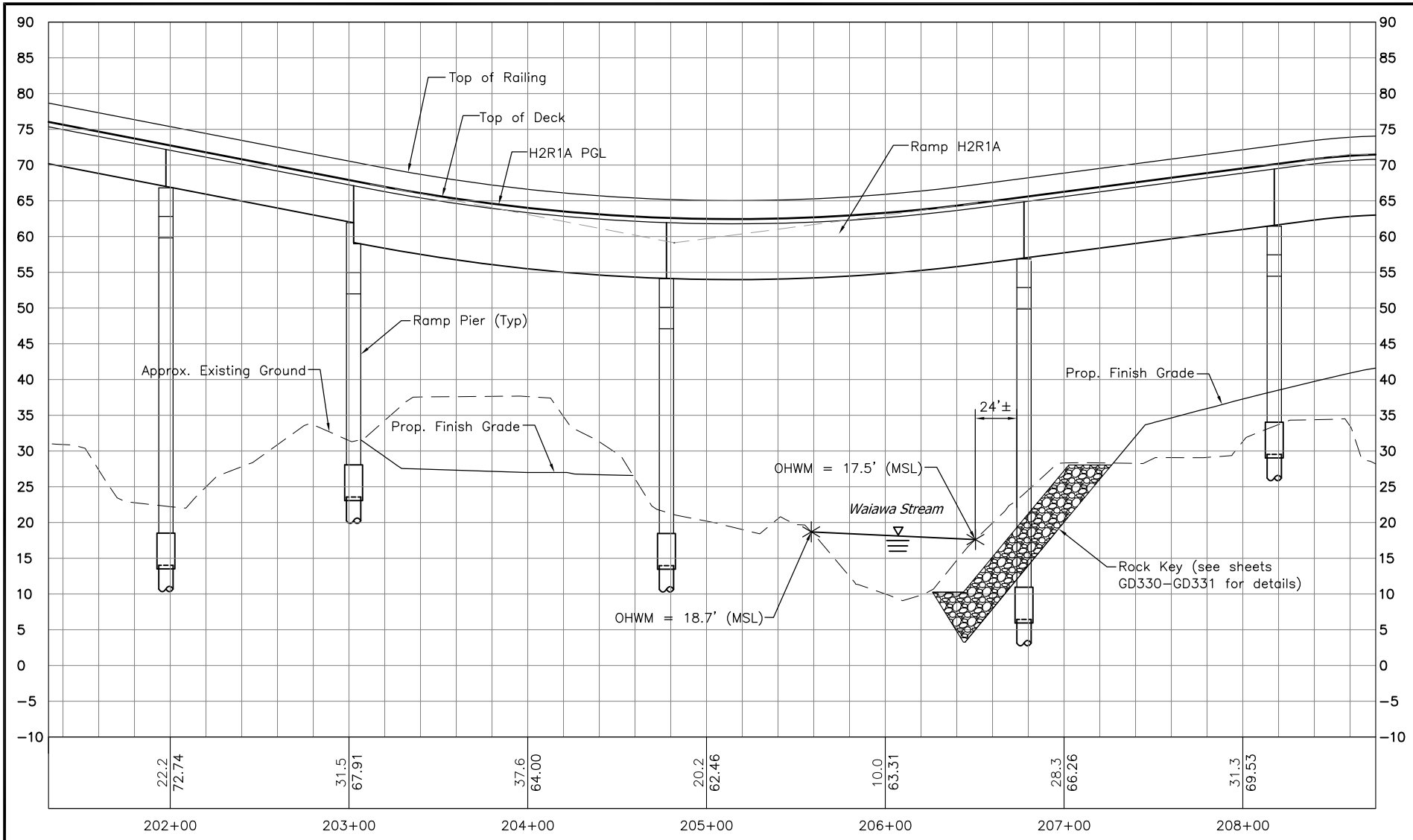
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
RAMP H2R1 PROFILE OVER WAIAWA STREAM
PHASE 3 - CONSTRUCTION

Dwg. No. GD305

December 17, 2012

2012-12-14 7:45 AM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\H2-Ramp.dwg



NOTES:

1. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with the North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).
2. Elevations shown on these plans are reference to Mean Sea Level (MSL).

HORIZ. 40' 0 40'

VERT. 10' 0 10'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
RAMP H2R1A PROFILE OVER WAIAWA STREAM
PHASE 3 - CONSTRUCTION

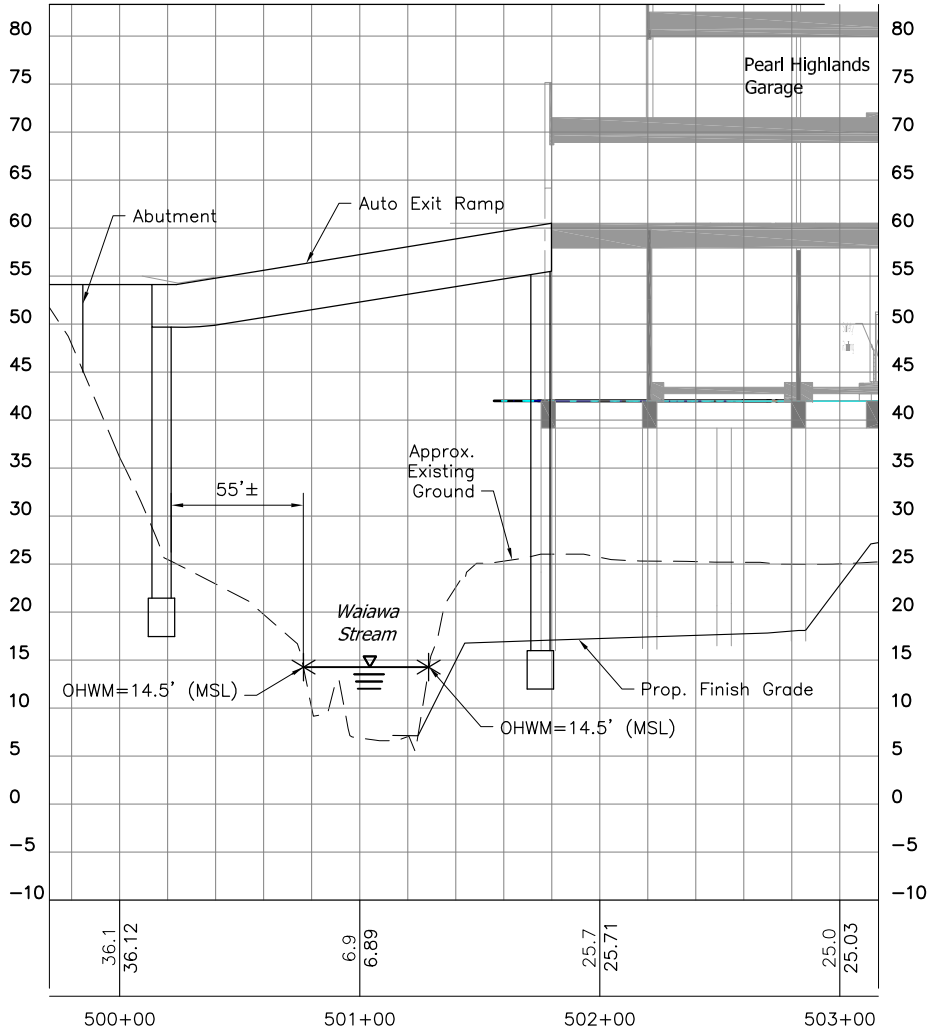
Dwg. No. GD306

December 17, 2012

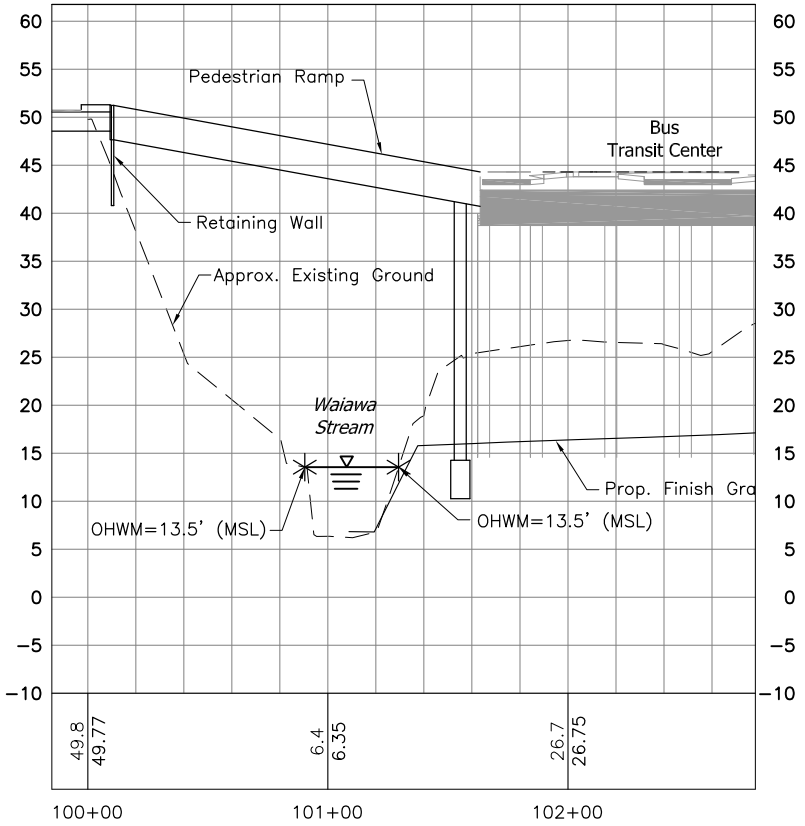
2012-12-14 7:45 AM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\H2-Ramp.dwg

NOTES:

1. Origin of Coordinates: Hawaii State Plane Coordinate Grid System, Zone III with the North American Datum of 83 High Accuracy Reference Network (NAD83 HARN).
2. Elevations shown on these plans are reference to Mean Sea Level (MSL).



AUTOMOBILE EXIT RAMP



PEDESTRIAN RAMP

HORIZ. 40' 0' 40'

VERT. 10' 0' 10'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

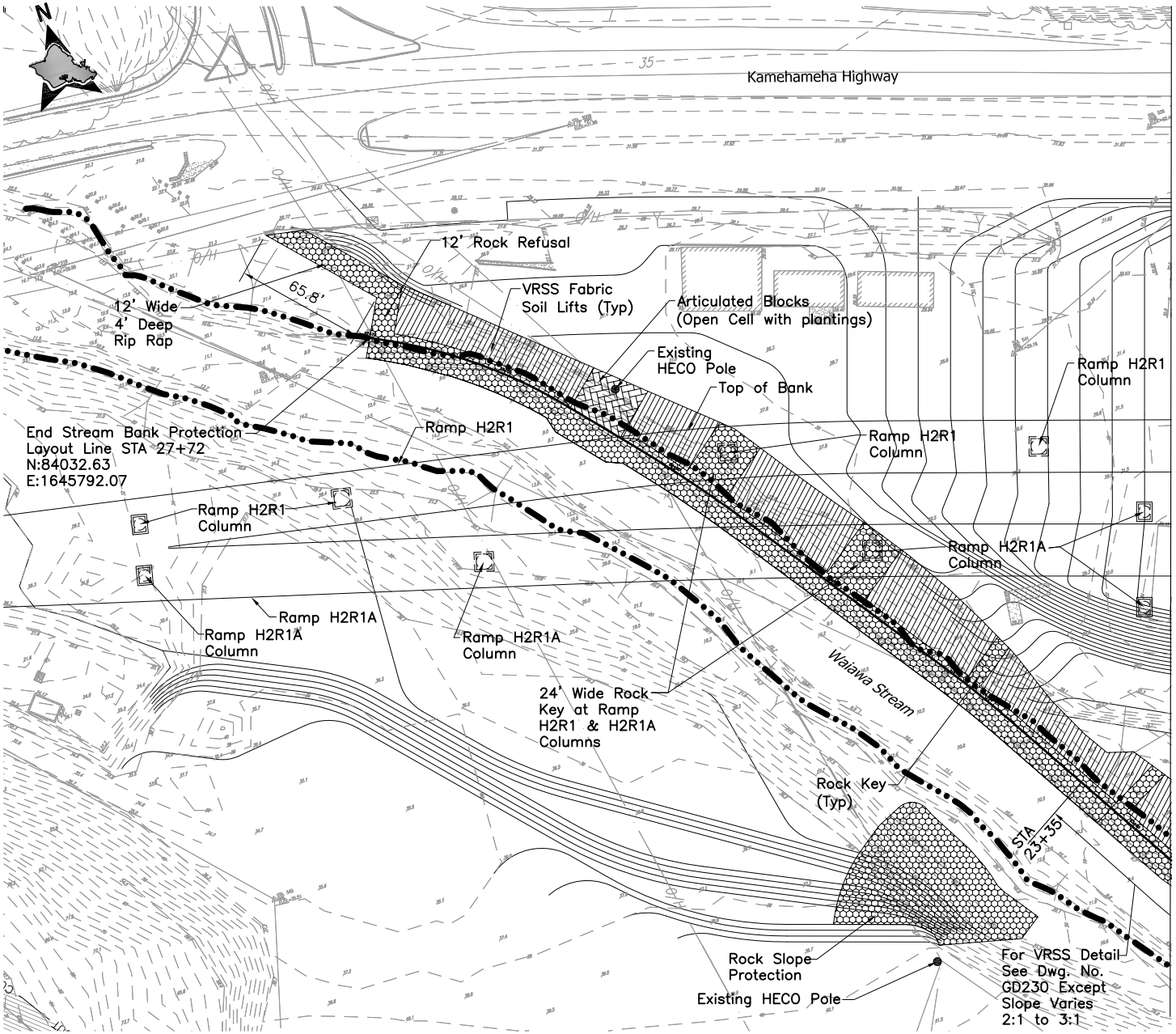
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PEDESTRIAN & AUTO EXIT RAMP
PROFILE OVER WAIAWA STREAM
PHASE 3 - CONSTRUCTION

Dwg. No. GD307

December 17, 2012

2012-12-14 7:43 AM K:\CADD\Corps Permitting\404 Plan&Profiles Wetland and Waters of US\WaiawaStream-2012\Sheet Files\Ped and Auto Ramp.dwg



NOTE:

1. For legend, see Dwg. No. GN002
2. For VRSS Layout Line Geometric Details, See Dwg. No. GD211
3. For Typical VRSS Detail, See Dwg. No. GD230
4. For Typical Rock Key Details, See Dwg. GD231

40' 0 40'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

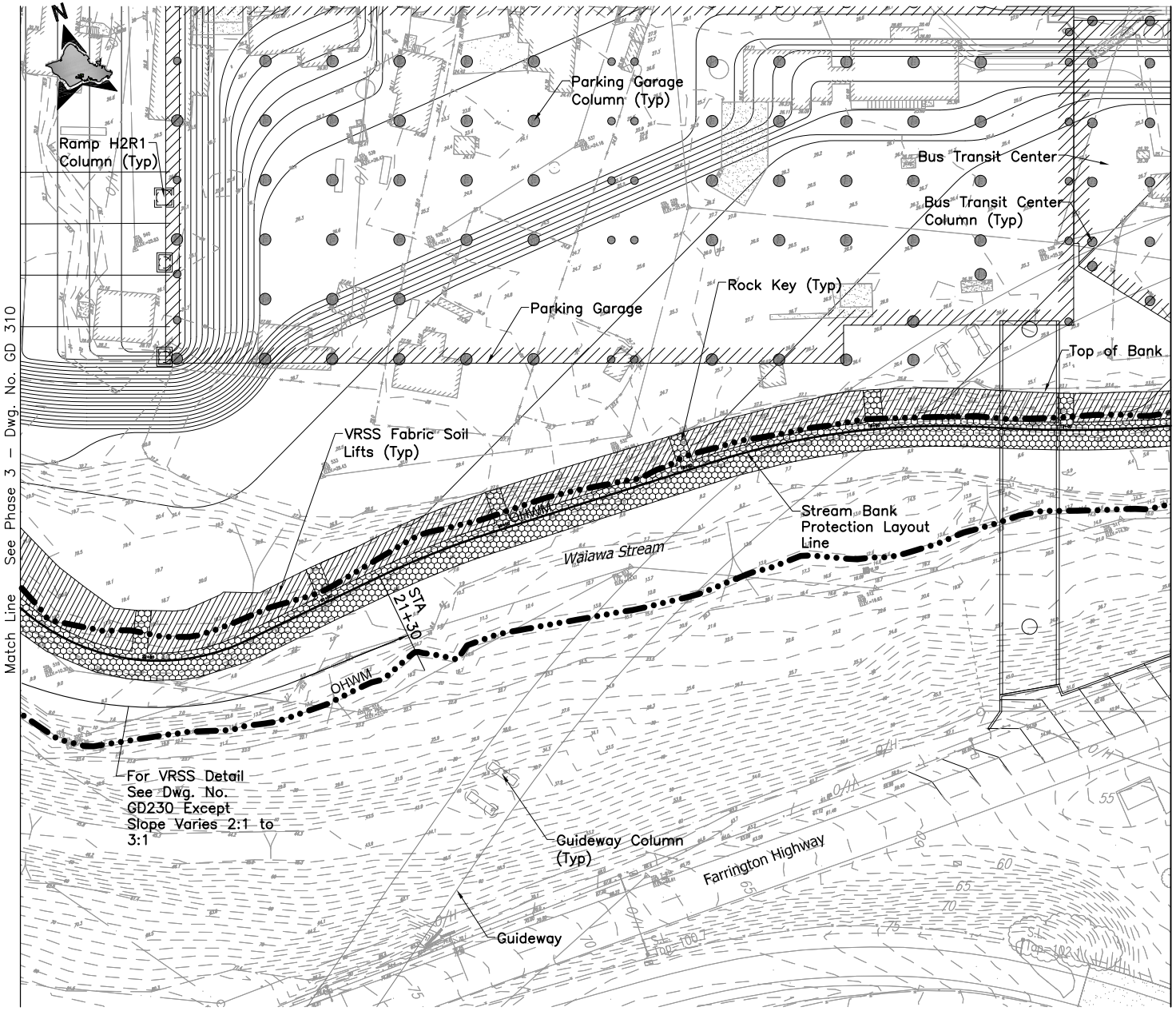
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
STREAM BANK PROTECTION
(1 of 3)
PHASE 3 - CONSTRUCTION

Dwg. No. GD310

December 17, 2012

2012-12-14 7:39 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD310-313.dwg



NOTE:
1. For legend, see Dwg. No. GN002
2. For VRSS Layout Line Geometric Details, See Dwg. No. GD211
3. For Typical VRSS Detail, See Dwg. No. GD230
4. For Typical Rock Key Details, See Dwg. GD231

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

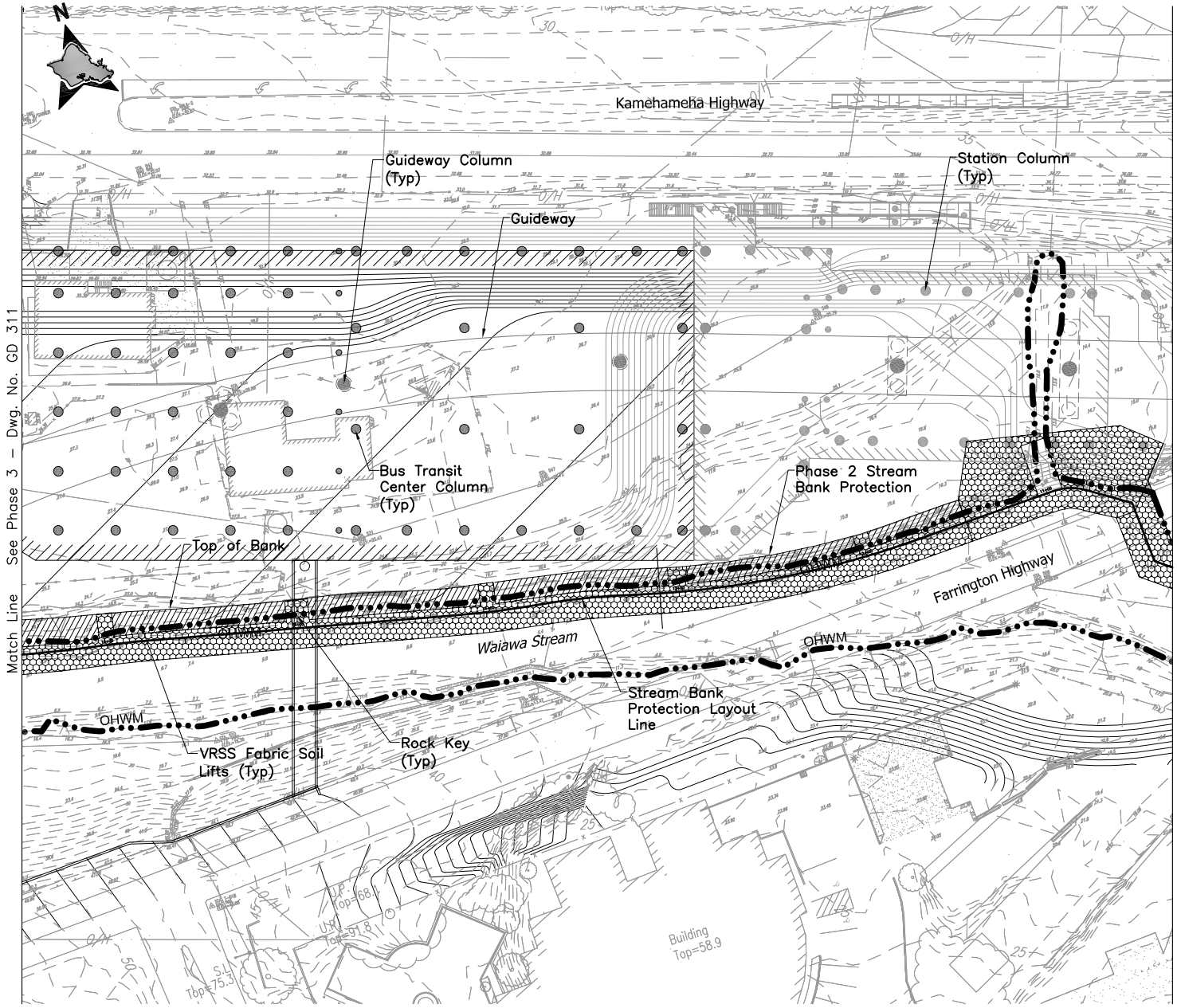
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
STREAM BANK PROTECTION
(2 of 3)
PHASE 3 - CONSTRUCTION

Dwg. No. GD311

December 17, 2012

2012-12-14 7:39 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD310-313.dwg



NOTE:
1. For legend, see Dwg. No. GN002
2. For VRSS Layout Line Geometric Details, See Dwg. No. GD211
3. For Typical VRSS Detail, See Dwg. No. GD230
4. For Typical Rock Key Details, See Dwg. GD231

40' 0 40'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

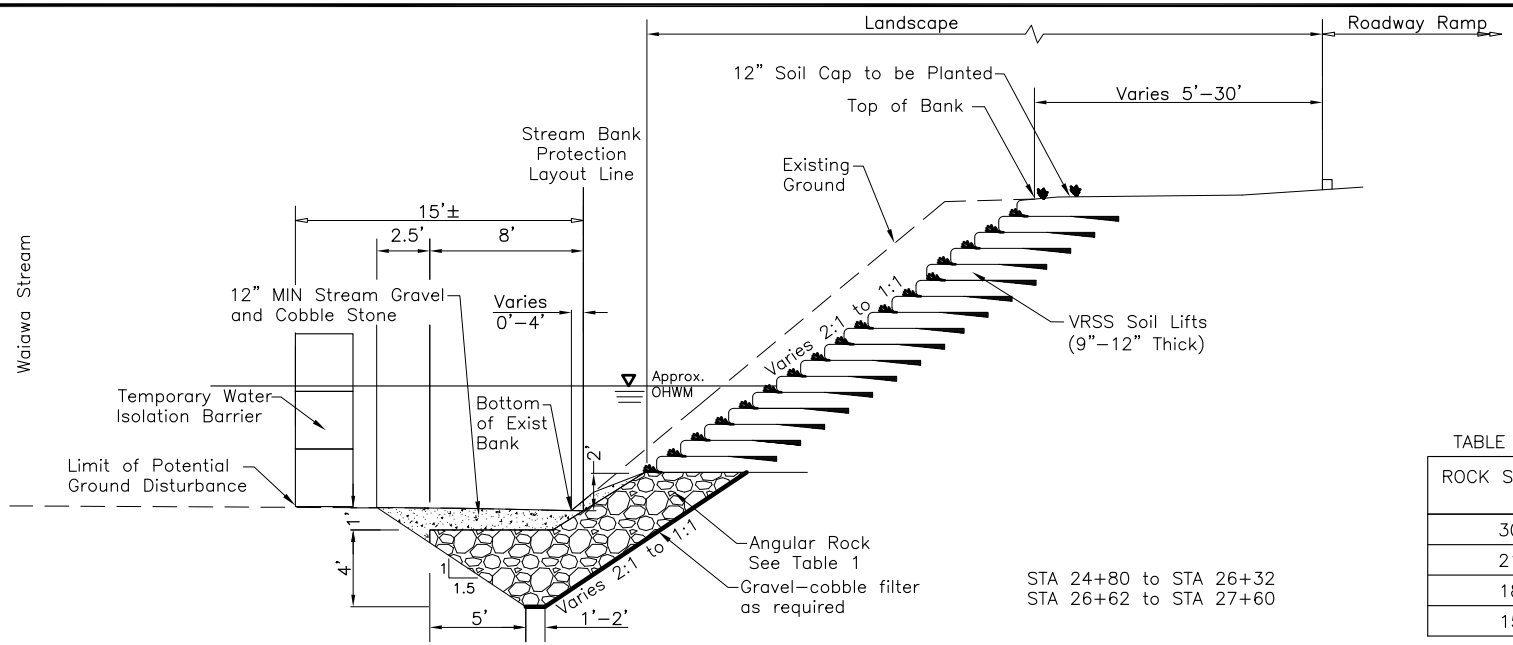
Prepared By:
PARSONS BRINCKERHOFF
1003 Bishop Street, Suite 1000 – Honolulu, HI 96813

WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
STREAM BANK PROTECTION
(3 of 3)
PHASE 3 - CONSTRUCTION

Dwg. No. GD312

December 17, 2012

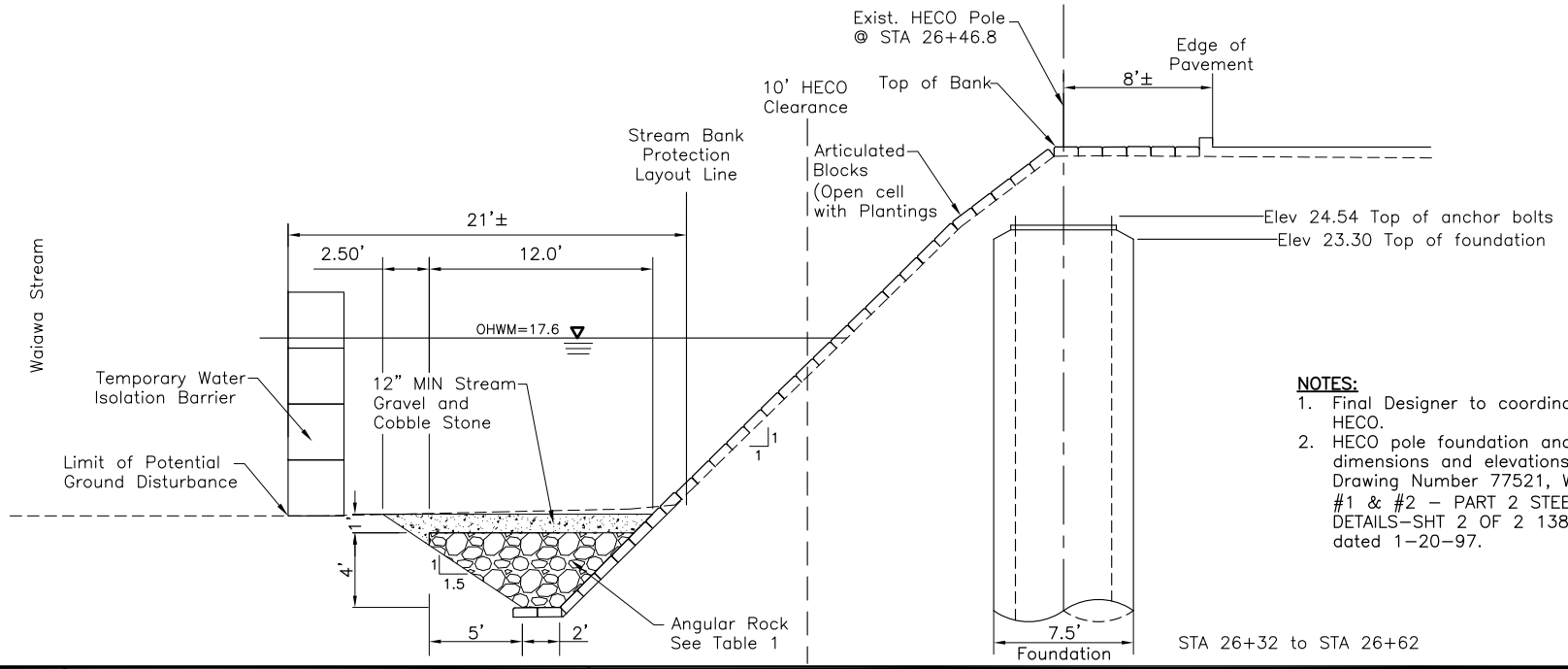
2012-12-14 7:39 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD310-313.dwg



STA 24+80 to STA 26+32
STA 26+62 to STA 27+60

TABLE 1: ROCK GRADATION

ROCK SIZE, IN	% SMALLER BY WEIGHT
30	100
21	90
18	50
15	30



STA 26+32 to STA 26+62

NOTES:
1. Final Designer to coordinate final design with HECO.
2. HECO pole foundation and anchor bolts dimensions and elevations are from HECO Drawing Number 77521, Waiau–CIP 138kV LINE #1 & #2 – PART 2 STEEL POLE FOUNDATION DETAILS–SHT 2 OF 2 138kV OVERHEAD LINES, dated 1–20–97.

5' 0 5'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
PARSONS BRINCKERHOFF
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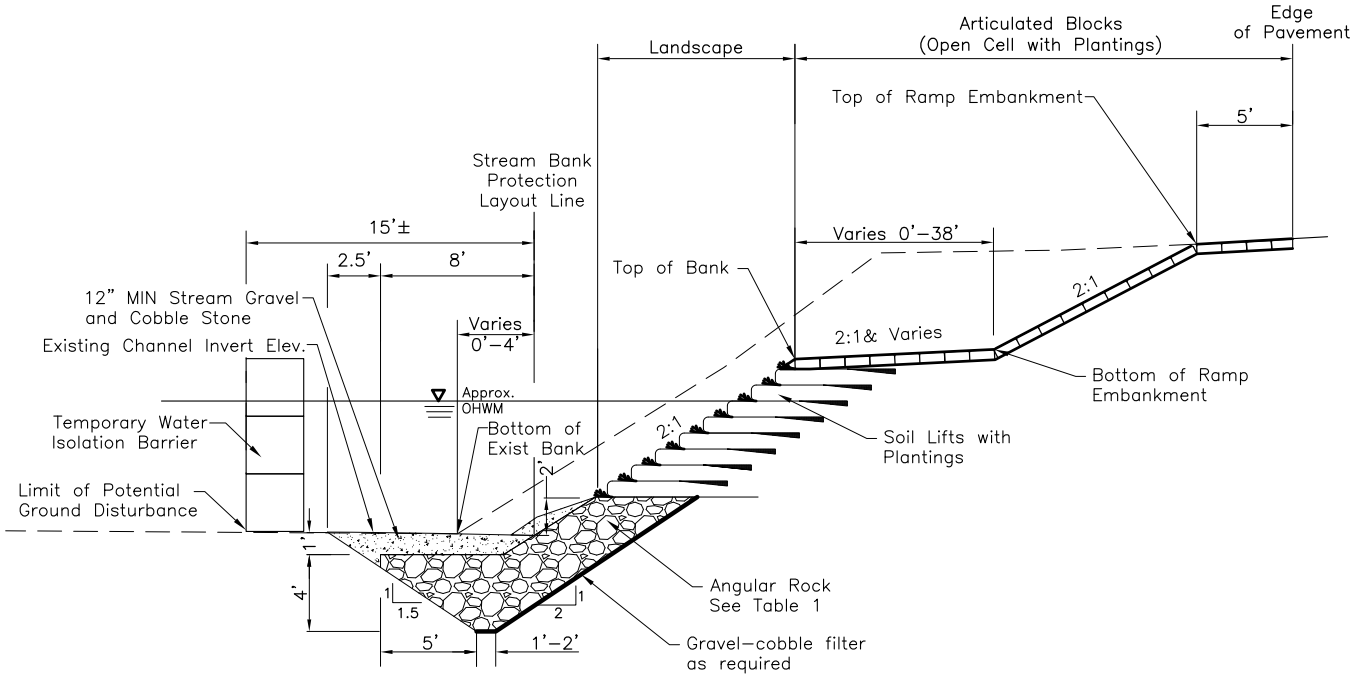
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
VRSS DETAILS
STA 24+80 to 27+60
PHASE 3 - CONSTRUCTION

Dwg. No. GD330

December 17, 2012

2012–12–14 7:30 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD330–331.dwg



STA 23+60 to STA 24+80

TABLE 1: ROCK GRADATION

ROCK SIZE, IN	% SMALLER BY WEIGHT
30	100
21	90
18	50
15	30

5' 0 5'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

Prepared By:
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WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
VRSS DETAILS
STA 23+60 to 24+80
PHASE 3 - CONSTRUCTION

Dwg. No. GD331

December 17, 2012

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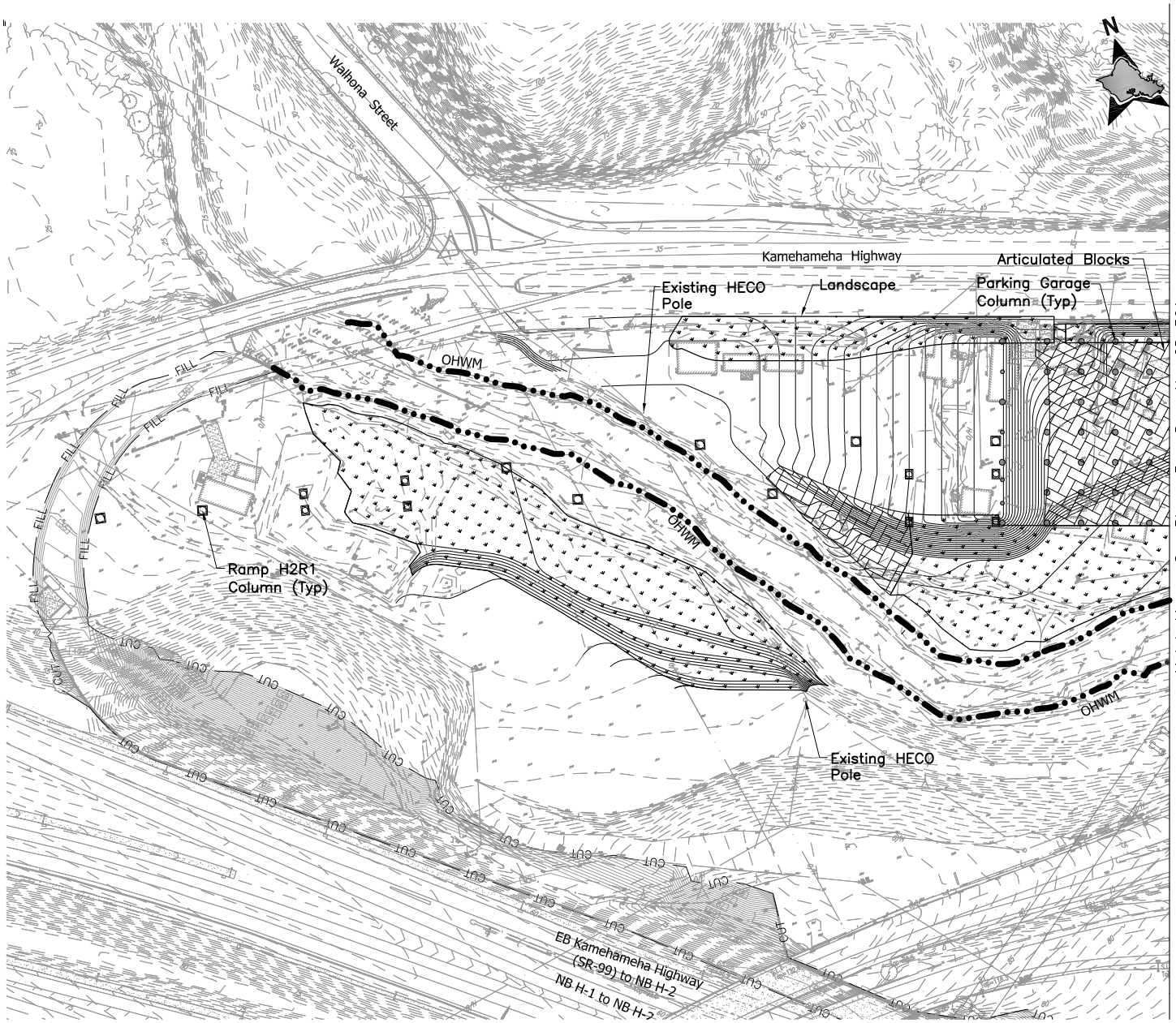

Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

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WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PERMANENT EROSION CONTROL PLAN (1 of 3)
PHASE 3 - CONSTRUCTION

Dwg. No. GD360

December 17, 2012

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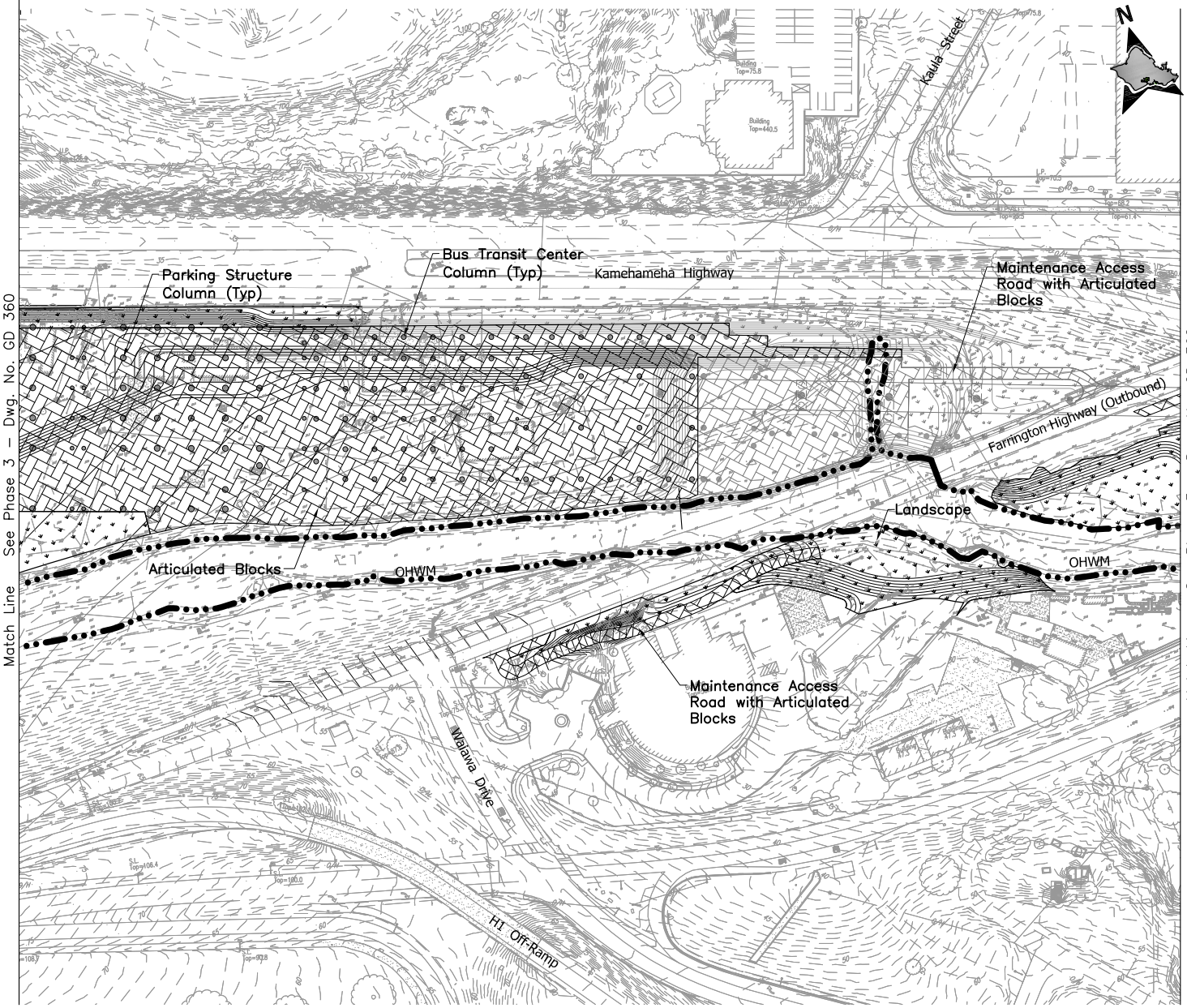

Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

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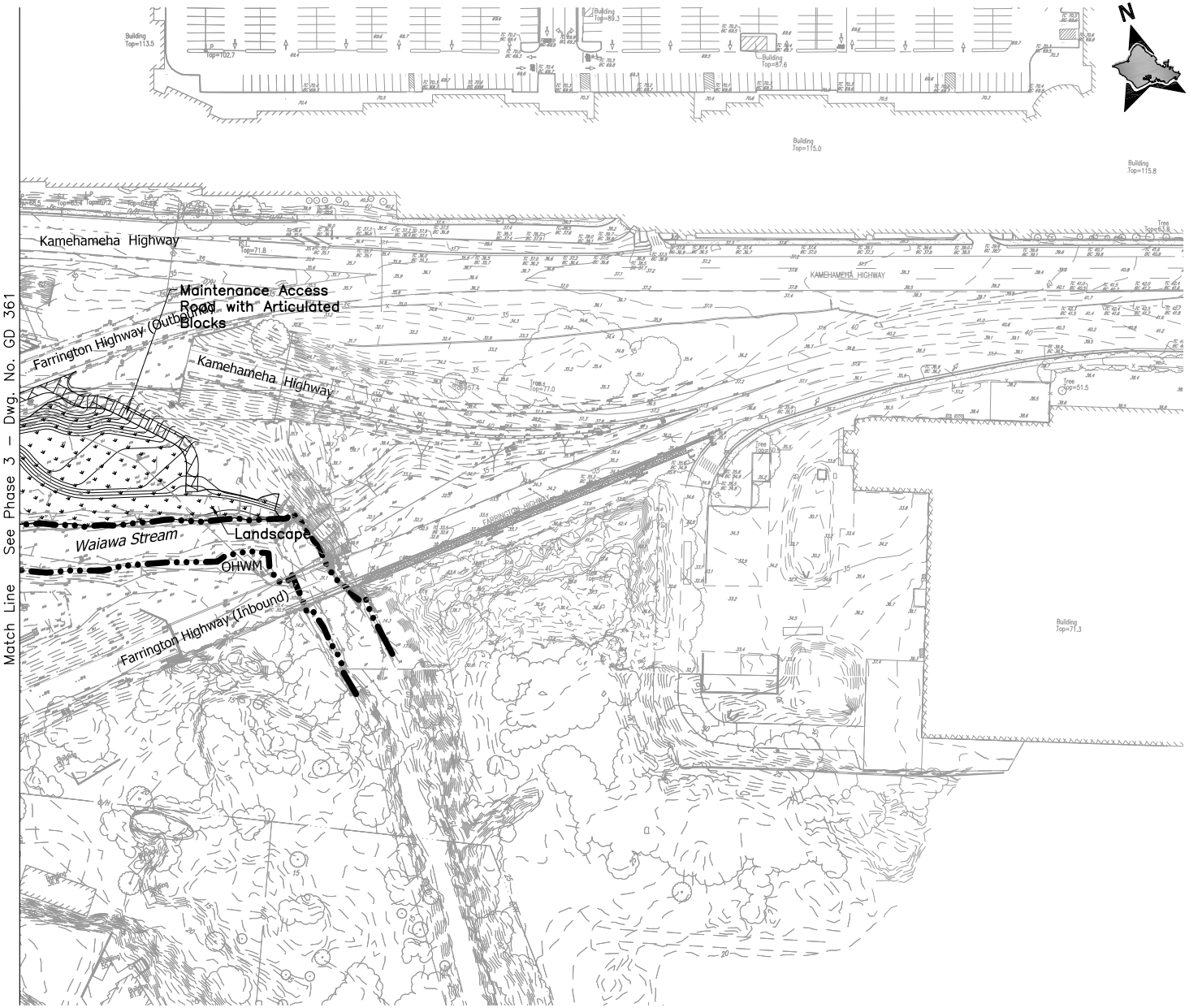
WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PERMANENT EROSION CONTROL PLAN (2 of 3)
PHASE 3 - CONSTRUCTION

Dwg. No. GD361

December 17, 2012

2012-12-14 7:28 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD360-362.dwg



Notes:

1. For legend, see Dwg. No. GN002.

80' 0 80'

HONOLULU AUTHORITY for RAPID TRANSPORTATION

HONOLULU RAIL TRANSIT PROJECT

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WAIAWA STREAM TRIBUTARY & WAIAWA STREAM
PERMANENT EROSION CONTROL PLAN (3 of 3)
PHASE 3 - CONSTRUCTION

Dwg. No. GD362

December 17, 2012

2012-12-14 7:28 AM K:\CADD\Permitting\Waiawa Stream BMP Submittal\DWG\Sheet Files\404 Permitting Plans\Phase3_GD360-362.dwg