

STATE OF HAWAI'I  
DEPARTMENT OF HAWAIIAN HOME LANDS

JOB NO. HS-2006-08B

# PI`ILANI MAI KE KAI SUBDIVISION PHASE II

Anahola, Kaua'i, Hawai'i

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner: Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

PREPARED BY:  
ESAKI SURVEYING AND MAPPING, INC.  
LĪHU'E, KAUA'I, HAWAI'I 96766

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## APPROVED:

CHAIRMAN, HAWAIIAN HOMES COMMISSION STATE OF HAWAI'I	DATE
DIRECTOR, PLANNING DEPARTMENT COUNTY OF KAUA'I	DATE
COUNTY ENGINEER, DEPT. OF PUBLIC WORKS COUNTY OF KAUA'I	DATE
CHIEF, ENVIRONMENTAL MANAGEMENT DIVISION, DEPARTMENT OF HEALTH STATE OF HAWAI'I	DATE
MANAGER & CHIEF ENGINEER, DEPT. OF WATER COUNTY OF KAUA'I	DATE
CHIEF, HIGHWAYS DIVISION STATE DEPARTMENT OF TRANSPORTATION (FOR WORK WITHIN STATE RIGHT-OF-WAY)	DATE



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ESAKI

SURVEYING AND

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CIVIL ENGINEERS • SURVEYORS • PLANNERS

REVISION	DATE	DESCRIPTION	BY	APPROVED
REVISIONS				

WAYNE T. WADA

LICENSED

PROFESSIONAL

ENGINEER

No. 5281-C

HAWAII, USA

THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

Wayne T. Wada

EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDMISION  
PHASE II

Anahola, Kaua'i, Hawai'i

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

COUNTY  
STANDARDS LIST

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

DATE: 03/27/12

SHEET

C-2

2 OF 44 SHEETS

NOTE:  
STANDARD PLANS APPLICABLE TO THIS  
PROJECT ARE INDICATED BY A "●" NEXT  
TO THE STANDARD PLAN NO. (7 ●)



## GENERAL CONSTRUCTION NOTES

(revised April 19, 2011)

- All construction work is to be constructed in accordance with the "Hawai'i Standard Specifications for Road and Bridge Construction, 2005" and its amendments and the "Standard Details for Public Works Construction, September 1984" as amended of the Department of Public Works, City and County of Honolulu, and the Counties of Kaua'i, Maui, and Hawai'i.
- No grading between 7 PM to 7 AM on any given day or on Saturdays, Sundays and Holidays without written permission from the County Engineer and State Department of Health.
- Contractor to notify Public Works Department five (5) business days prior to commencing any grading work. When completed and ready for final inspection; notify Public Works Department Inspection Section.
- Construction plans are valid for a period of one year from the date of approval. If construction does not commence within this one-year time from the date of approval, the construction plans shall be resubmitted to all approving agencies for review, approval and recertification.
- All grading, grubbing and stockpiling work shall be performed in accordance with County of Kaua'i ordinance no. 808.
- The Contractor shall remove all silt and debris resulting from his work and deposited in drainage facilities, roadways and other areas. The cost incurred for any necessary remedial action by the County Engineer shall be payable by the Contractor.
- During cleaning operations, the Contractor shall supply a water truck for dust control purposes until vegetation has re-established itself. Excess water, including silt and dirt, shall not be allowed to run-off the property.
- Best Management Practices (BMP's) shall be employed at all times to the maximum extent practicable to prevent damage by sedimentation, erosion or dust to streams, watercourses, natural areas and the property of others.
- Surveys shall be done under the supervision of a surveyor licensed in the State of Hawai'i.
- If system conditions require non-emergency nighttime work during the autumn seabird fall season (September 15 through December 15), use of lighting shall be restricted between 9:00 PM to 4:30 AM. If lighting of the work area is required in such situation, all lights shall be shielded (minimum light spill towards the sky) and directed downwards to the maximum extent practicable. Minimum requirements for lighting by HIOSH and OSHA shall be provided and assured by the Contractor. The Contractor shall train all employees working at night (records retained by the Contractor) on how to handle any downed birds and shall have appropriate equipment as approved by Save Our Shearwaters (SOS) on site to hold and transport any retrieved downed birds to an SOS facility. This requirement does not allow lighting as may be restricted by other government agencies.

## NOTES FOR CONSTRUCTION WITHIN COUNTY RIGHT-OF-WAY

(revised March 1, 2012)

- All pavement shall be restored to its original condition in accordance with County of Kaua'i, "Hawai'i Standard Specifications for Road and Bridge Construction (2005)" and its amendments with 2" minimum hot mixed asphalt concrete pavement (State Design Mix V) and 8" base course.
- The Contractor shall provide, install, maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of the public traffic. All such protective facilities and precautions to be taken shall conform with rules and regulations governing the use of traffic control devices at work sites on or adjacent to public streets and highways adopted by the Highway Safety Coordinator and U.S. Federal Highway Administration manual on uniform traffic control devices for streets and highways dated 2009 and its amendments.
- The Contractor shall, whenever necessary, properly sheet and brace all excavations to render it secure and shall remove all such sheeting and bracing before completion of the backfill for water mains. The minimum cover requirements (from top of pipe to finished grade over pipe) is three (3) feet.
- A permit shall be obtained by the Contractor from the Department of Public Works, at the Contractor's expense.
  - Driveways shall be kept open unless owners of the abutting lots using these right-of-way are otherwise provided for satisfactorily.
  - All work including repair of damaged pavement and shoulders shall be inspected and approved by the Department of Public Works. All unapproved work shall be considered unacceptable and shall be reworked and corrected as directed by the Department of Public Works, at the Contractor's expense.
  - Damaged shoulders shall be restored to a condition equal to or better than existing condition.
  - Work on a public street area may be performed only between the hours of 8:00 a.m. to 3:30 p.m. Monday through Friday, except on holidays recognized by the County of Kaua'i, unless otherwise permitted in writing by the County Engineer.
  - During non-working hours, all trenches shall be covered with a safe non-skid bridging material and all lanes shall be opened to public vehicular and pedestrian traffic.
  - No material and/or equipment shall be stockpiled or otherwise stored within County right-of-way except at locations designated in writing and approved by the County Engineer.
  - The Contractor shall conduct his operations so as to offer the least possible obstructions and inconvenience to the public and he shall have under construction no greater length or amount of work that he can execute properly with due regard to the rights of the public.
  - All existing drainage flow conditions shall be maintained.
- The Contractor shall retain the services of a Geotechnical Engineer for quality control. Certification from the geotechnical engineer shall be submitted to the Department of Public Works at the completion of the construction work. The Geotechnical Engineer shall certify that the construction work meets "Standard Specifications". The Geotechnical Engineer shall also submit test results as requested by the Department of Public Works.
- The Contractor shall hold a preconstruction meeting with the Construction Inspection and Design Sections of the County Department of Public Works prior to commencing any work.
- Contractor shall exercise extreme caution to preserve benchmarks (survey monuments) whenever the center of a survey monument is less than three (3) feet from the edge of construction. The Contractor shall retain a licensed surveyor to reference the location of said survey monument.
- Benchmarks that are disturbed or destroyed shall be restored under a licensed land surveyor's direction. Copies of field notes, descriptions and new values of the new benchmark shall be sent to the Department of Public Works Survey Section for review and approval prior to final acceptance of the project.
- The Contractor shall be responsible for all overtime or night work payments for County's staff and inspection personnel including consultants when the Contractor requires overtime or night work to be performed, or directs the Contractor to work additional shifts or overtime for County's convenience.

## GRADING NOTES

(revised August 2, 2011)

### TEMPORARY DUST CONTROL MEASURES

- The graded or project site that is cleared of vegetation shall be kept damp with water continuously for seven (7) days a week. At the end of each day, the site shall be sufficiently dampened with water on a continual basis so that the site will remain moistened during the night.
- The Contractor shall conduct his operations so that excavation, embankment, and imported material shall be dampened with water on a continual basis to prevent dust problems.
- In applying for a grading permit, the Contractor shall submit plans, schedules and/or written measures which provides for dust control. The dust control measures shall contain positive statements which require actions or work that prevent dust problems. No permits will be issued unless the County is assured that dust and erosion problems will be minimized.

### TEMPORARY EROSION CONTROL MEASURES

- Temporary vegetative cover shall be planted within a period of 30 calendar days after the site has been graded or bared of vegetation or if the site will be suspended for more than 30 calendar days.
- Temporary vegetative cover shall consist of 40 lbs. common rye grass seed per acre, 400 lbs. per acre 10-10-10 or equivalent fertilizer worked into the seed bed before planting. Temporary sprinkler system is to be installed concurrently with all plantings. Planting and maintenance of grass shall conform to the "Hawai'i Standard Specifications for Road and Bridge Construction, 2005" and its amendments.

### PERMANENT EROSION CONTROL MEASURES

- The Contractor shall grass the entire project site, except paved areas with Bermuda grass sprigs. The grass shall be planted, fertilized, and maintained in accordance with the "Hawai'i Standard Specifications for Road and Bridge Construction, 2005" and its amendments.
- The Contractor shall grass all exposed areas that have been constructed to final grades within a period of 30 calendar days.
- In lieu of grass sprigs (note 1), the Contractor may use hydromulch with seedings and irrigation sprinkler system.

### ENVIRONMENTAL CONTROL NOTES

- In accordance with Chapter 11-60.1, Air Pollution Control, Title 11, Hawai'i Administrative Rules, the Contractor shall be responsible for ensuring that effective control measures are provided to minimize or prevent any visible dust emission caused by the construction work from impacting the surrounding areas including the off-site roadways used to enter/exit the project. These measures include but are not limited to the use of water wagons, sprinkler systems, dust fences, etc.
- In accordance with Chapter 11-55, Water Pollution Control and Chapter 11-54, Water Quality Standards, Title 11, Hawai'i Administrative Rules, the Contractor shall be responsible for ensuring that the Best Management Practice (BMP) to minimize or prevent the discharge of sediments, debris and other water pollutant into State Waters are provided at all times.
- In accordance with Chapter 11-58, Solid Waste Management Control, Title 11, Hawai'i Administrative Rules, the Contractor shall be responsible for ensuring that grub material, demolition waste and construction waste generated by the project are disposed of in a manner or at a site approved by the State Department of Health. Disposal of any of these wastes by burning is prohibited.
- The Contractor shall be responsible for obtaining and paying for all applicable permits from the Department of Health including but not limited to National Pollution Discharge Elimination System (NPDES), Notice of Intent and General Permit for storm water, hydrostatic test and dewatering discharges prior to commencing construction. NPDES permit shall be required prior to grading or grubbing work over an area of one acre or more.
- The Contractor shall remove all silt and debris resulting from this work and deposited in drainage facilities, roadways and other areas. The cost incurred for any necessary remedial action by the County Engineer shall be payable by the Contractor.
- Best Management Practices (BMP's) shall be employed at all times to the maximum extent practicable to prevent damage by sedimentation, erosion or dust to streams, watercourses, natural areas and the property of others.
- The Contractor shall obtain and comply with National Pollution Discharge Elimination System (NPDES) Permit requirements for all projects which will disturb one (1) acre or more of land. The Contractor shall not start construction until Notice of General Permit Coverage (NPGC) is received from the Department of Health, State of Hawai'i and has satisfied any other permitting requirements of the NPDES permit program.
- Noise will be generated during the clearing and grading phases of this project. The applicable maximum permissible sound levels as stated in Title 11, Hawai'i Administrative Rules (HAR), Chapter 11-46, Community Noise Control shall not be exceeded, unless a noise permit is obtained from the Department of Health (DOH).
- The property may harbor rodents which will be dispersed to the surrounding areas when the site is cleared. In accordance with Title 11, HAR, Chapter 11-26, Vector Control, the applicant shall ascertain the presence or absence of rodents on the property. Should the presence of rodents be determined, the applicant shall eradicate the rodents prior to clearing the site.
- A copy of the plans, construction schedule and/or written measures that is required to be submitted by the contractor (DUST CONTROL MEASURES/PLANS) should also be sent to the DOH for monitoring purposes.

## HISTORICAL PRESERVATION NOTES

(revised April 12, 2011)

- Should historic remains such as artifacts, burials, concentration of shell or charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find and the find shall be protected from further damage. The Contractor shall cordon off the area and immediately notify the Planning Department at (808) 241-4050 and the State Historic Preservation Division at (808) 692-8015, which will assess the find and recommend the appropriate mitigation measures, if necessary.

## WATER POLLUTION AND EROSION CONTROL NOTES

(revised December 3, 2009)

### GENERAL NOTES

- The Contractor is reminded of the requirements of Section 209 - WATER POLLUTION AND EROSION CONTROL and Section 620 - DUST CONTROL in the "Hawai'i Standard Specifications for Road and Bridge Construction 2005," as amended. Section 209 describes but is not limited to: submittal requirements; scheduling of a Water Pollution and Erosion Control Conference with the Engineer; Construction requirements; method of measurement; and basis of payment. No work shall commence without a BMP plan approved by the Department of Health.
- The Contractor shall follow the guidelines in the "Interim Best Management Practices Manual for Construction Sites for County of Kaua'i, April 2004" in developing, installing and maintaining the Best Management Practices (BMPs) for the project. The Contractor may submit alternate methods to the Engineer for acceptance.
- The Contractor shall keep a copy of the approved BMP, NOI, etc. on the project site. The BMP shall be updated to reflect any changes made during the course of construction for the duration of the project.
- The Engineer may assess liquidated damages of up to \$27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
- The Engineer may deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State, and/or County for the full amount of the outstanding cost incurred by the State, whichever is greater.

### WASTE DISPOSAL NOTES

- Waste materials: All waste materials shall be collected and stored in a securely lidded metal dumpster that does not leak. The Dumpster shall meet all local and State Solid Waste Management Regulations. All trash and construction debris from the site shall be deposited in the Dumpster. The Dumpster shall be emptied a minimum of twice per week or as often as is deemed necessary. No construction waste materials shall be buried onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Notices stating these practices shall be posted in the Office Trailer and the Contractor shall be responsible for seeing that these procedures are followed.
- Hazardous waste: All hazardous waste materials shall be disposed of in the manner specified by local or State regulation or by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.
- Sanitary waste: All sanitary waste shall be collected from the portable units a minimum of once per week, or as required.

### EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES

- All control measures shall be inspected at least once each week and within 24 hours following any rainfall event of 0.5 inches or greater.
- All measures shall be maintained in good working order. If repair is necessary, it shall be initiated within 24 hours after the inspection.
- Built up sediment shall be removed from silt fence when it has reached one-third the height of the fence.
- Silt screen or fence shall be inspected for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slob and to verify that the fence posts are firmly in the ground.
- Temporary and permanent seeding and planting shall be inspected for bare spots, wash outs and healthy growth.
- The Contractor shall submit to the Engineer a maintenance inspection report promptly after each weekly inspection.
- The Contractor shall select a minimum of three personnel who shall be responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.
- Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.
- All slopes and exposed areas shall be grassed as final grades have been established, grading to final grade shall be continuous, and any area in which work has been interrupted or delayed or exposed for more than 15 days shall be grassed in order to prevent dust, erosion and silt runoff. Areas with imported soils shall be grassed not more than 5 working days after final grades have been established.
- Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.

### GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES

#### MATERIALS POLLUTION PREVENTION PLAN

- Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory of the construction Contractor's site-specific BMP plan.

Concrete	Fertilizers
Detergents	Petroleum based products
Paints (Enamels and Latex)	Cleaning solvents
Metal Studs	Wood
Tar	Masonry Block
- Material management practices shall be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. An effort shall be made to store only enough products as is required to do the job.
- All materials stored onsite shall be stored in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
- Products shall be kept in their original containers with the original manufacturer's label.
- Substances shall not be mixed with one another unless recommended by the manufacturer.
- A product shall be used up completely before disposing of the container.
- Manufacturer's recommendations for proper use and disposal shall be followed.
- The Contractor shall conduct a daily inspection to ensure proper use and disposal of materials onsite.

### GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES CONTINUATION

#### HAZARDOUS MATERIAL POLLUTION PREVENTION PLAN

- Products shall be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets (MSDS) shall be retained and made available to the Engineer upon request.
- Surplus products shall be disposed of according to manufacturer's instructions or local and State recommended actions.

#### ONSITE AND OFFSITE PRODUCTS SPECIFIC PLANS

- The following product specific practices shall be followed onsite:
  - Petroleum based products: All onsite vehicles shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used onsite shall be applied according to the manufacturer's recommendation.

#### NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS

- The Contractor shall obtain and comply with the National Pollutant Discharge Elimination System (NPDES) requirements for Kaua'i District permit projects. This is available at the Kaua'i District Office at 3040 Umi Street, Suite 205. Due to potential cost impacts, the Contractor needs to be aware of these requirements.
- The Contractor shall complete and submit a Contractor's certification of NPDES compliance, including completion of the Best Management Practice (BMP) checklist and submittal of a written BMP Plan and drawings, prior to issuance of the permit to perform work upon County roadways.

## NOTES FOR ENVIRONMENTAL PROTECTION

(revised September 2, 2010)

- In accordance with Chapter 11-60.1, Air Pollution Control, Title 11, Hawai'i Administrative Rules, the Contractor shall be responsible for ensuring that effective control measures are provided to minimize or prevent any visible dust emission caused by the construction work from impacting the surrounding areas including the off-site roadways used to enter/exit the project. These measures include but are not limited to the use of water wagons, sprinkler systems, dust fences, etc.
- In accordance with Chapter 11-55, Water Pollution Control and Chapter 11-54, Water Quality Standards, Title 11, Hawai'i Administrative Rules, the Contractor shall be responsible for ensuring that the Best Management Practice (BMP) to minimize or prevent the discharge of sediments, debris and other water pollutant into State Waters is provided at all times.
- In accordance with Chapter 11-58, Solid Waste Management Control, Title 11, Hawai'i Administrative Rules, the Contractor shall be responsible for ensuring that grub material, demolition waste and construction waste generated by the project are disposed of in a manner or at a site approved by the State Department of Health. Disposal of any of these wastes by burning is prohibited.
- The Contractor shall be responsible for obtaining and paying for all applicable permits from the Department of Health including but not limited to National Pollution Discharge Elimination System (NPDES), Notice of Intent and General Permit for storm water, hydrostatic test and dewatering discharges prior to commencing construction. NPDES permit shall be required prior to grading or grubbing work over an area of one acre or more.
- The Contractor shall remove all silt and debris resulting from this work and deposited in drainage facilities, roadways and other areas. The cost incurred for any necessary remedial action by the County Engineer shall be payable by the Contractor.
- Best Management Plans (BMP's) shall be employed at all times to the maximum extent practicable to prevent damage by sedimentation, erosion or dust to streams, watercourses, natural areas and the property of others.
- The Contractor shall obtain and comply with National Pollution Discharge Elimination System (NPDES) Permit requirements for all projects which will disturb one (1) acre or more of land. The Contractor shall not start construction until notice of General permit coverage (NPGC) is received from the Department of Health, State of Hawai'i and has satisfied any other applicable requirements of the NPDES permit program.
- Noise will be generated during the construction and grading phase of this project. The applicable maximum permissible sound levels as stated in Title 11, Hawai'i Administrative Rules (HAR), Chapter 11-46, entitled Community Noise Control shall not be exceeded unless a noise permit is obtained from the Department of Health (DOH).
- The property may harbor rodents which will be dispersed to the surrounding areas when the site is cleared. In accordance with Chapter 11-26, entitled Vector Control of Title 11, HAR, the applicant shall ascertain the presence or absence of rodents on the property. Should the presence of rodents be determined, the applicant shall eradicate the rodents prior to clearing the site.
- A copy of the plans, construction schedule and/or written measures that is required to be submitted by the contractor (dust control measures/plans) should also be sent to the Department of Health for monitoring purposes.

## ESAKI SURVEYING AND MAPPING, INC.

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REVISION	DATE	DESCRIPTION	BY	APPROVED	

#### REVISIONS



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*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

#### PILANI MAI KE KAI SUBDIVISION PHASE II

Anahola, Kaua'i, Hawai'i

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89  
Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapaolei Parkway  
Kapaolei, HI 96707

## CONSTRUCTION NOTES

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W)

N.A.

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI

DESIGNED BY: WW  
DRAWN BY: CG  
DATE: 03/27/12

SHEET  
C-3  
3 OF 44 SHEETS



WATER NOTES

(revised January 9, 2012)

- Unless otherwise specified, all materials and construction of water facilities and appurtenances shall be in accordance with the "Water System Standards", 2002, as adopted by the Department of Water, County of Kaua'i, including all subsequent amendments and additions.
- The Contractor shall arrange a pre-construction conference at least 10 days before construction and shall notify the Department of Water at least 3 working days prior to the start of construction.
- The Contractor shall submit the name and telephone number of its authorized superintendent on the job, and the names and telephone numbers of at least three (3) persons to contact in case of emergency during non-working hours.
- The Contractor shall notify the Department of Water at least 24 hours prior to any trenching, pipe laying, backfilling, testing or chlorination to insure that inspectional services will be available.
- All materials (pipe, pipe lubricants, paints, sealants, form oil, concrete admixtures, etc.) in direct contact with the potable water shall have National Sanitation Foundation (NSF) approvals. The Contractor shall submit these approvals to the Department of Water for review and approval prior to its application.
- The location of existing water mains and appurtenances shown on the plans are approximate only. The Contractor shall verify the exact locations in the field. Excavation around any existing water main shall be done by hand.
- The Contractor shall provide unobstructed access to existing hydrants, valves and water meters at all times.
- The Contractor shall secure all excavations in accordance with OSHA regulations.
- There shall be no physical connection between a public or private potable water system and a non-potable water system, sewer, or appurtenance thereto which could permit the passage of any sewage or polluted water into the potable water supply.
- Trench excavation, backfilling in lifts, and repaving shall conform to the "Hawaii Standard Specifications for Road and Bridge Construction, 2003" or amended.
- Warning tape shall be in accordance with Division 200, Section 212.08 of the "Water System Standards". The warning tape shall be four mil thick, non-metallic, acid and alkali resistant polyethylene and 6-inches wide with minimum strength of 1,750 psi lengthwise and 1,500 psi crosswise. Tape color shall be "Safety Precaution Blue" and shall bear a continuous printed inscription "Caution Water Line Buried Below". Inscription shall be 2-inches high, black text.
- All hydrants shall receive a minimum SSPC SP3 surface preparation and coated in accordance with Division 200, Section 206.01 of the "Water System Standards".
- Unless otherwise directed, prior to the connection of any pipeline to the existing main, the pipeline installed shall be cleaned, pressure tested, chlorinated, flushed, and sampled in accordance with Division 300, Sections 302.27 to 302.29 of the "Water System Standards".  
Water samples shall be analyzed by the MF method on m-ENDO Agar.  
In addition to the test for coliforms, a separate test for heterotrophic plate count (HPC) shall be conducted. The HPC count shall be less than 500 CFU/ML.
- Polurethane foam "pigs" shall be "pushed" through the length of the installed pipeline using pressurized water.
- All connections shall be scheduled in coordination with the Department of Water.
  - An advance deposit is required for operating valves, flushing lines and notifying consumers affected by a water shutdown during connections. The Contractor will be charged the actual cost.
  - The Contractor shall place the deposit prior to scheduling the connection date.
  - Connections shall be scheduled on Tuesdays through Thursdays. No connections shall be scheduled on Mondays, Fridays, weekends and holidays.
  - All materials shall be on hand and approved by the Engineer prior to scheduling the connection date.
  - Pumps used to de-water the connection area shall be operated in the presence of the Engineer prior to scheduling the connection date.
  - All connections shall be performed in the presence of the Engineer.
- In order to prevent damage to the polyethylene encasement from excessive handling, the polywrap shall be installed around the barrel of the ductile iron pipe at its final location along the trenchline. The polyethylene encased pipe shall be lifted using a fabric type sling or a suitably padded cable or chain to prevent damage to the polyethylene.
- The Contractor shall take all necessary compaction tests while the waterline trench is being backfilled and while the subbase/basecourse is being placed. If the test results indicate that additional compaction is required, the corrective work shall be completed before any additional trench excavation or placing of subbase/basecourse is allowed.  
The Contractor shall retain the services of a registered geotechnical engineer for quality control. The compaction test results shall be certified by the Geotechnical Engineer and submitted to the Department of Water, State Highways Division (for work done within State R/W) and the Department of Public Works (for work done within County R/W). The Geotechnical Engineer shall certify that the compaction results meet the requirements of the current standard specifications for road and bridge construction.
- The Contractor shall connect all existing consumer piping to the new service laterals. The Department of Water will transfer the existing water meters only.
- All fittings shall be mechanical joint (MJ) at each end unless otherwise noted. "Megalug" retainer glands shall be used with all mechanical joint fittings and valves used in connecting new water mains to existing water mains unless otherwise noted.
- All water valves that will be abandoned in place shall be placed in the "closed" position. Remove top section of valve box and concrete settlement slab. Fill remainder of valve box with concrete. Place backfill and repair pavement section to applicable state or county standards. Backfill to finish grade in road shoulder area.
- The Contractor shall obtain all applicable Department of Health permits prior to the start of construction. Permits include, but are not limited to, National Pollution Discharge Elimination System (NPDES) permits for storm water, hydrostatic test, dewatering, and for construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area.  
The Contractor shall be responsible for the proper disposal of storm water discharges and effluents associated with construction activities, including hydrotesting and disinfection operations, to safeguard public health and safety in accordance with applicable Department of Health requirements. All permits and licenses for storm water and construction water disposal, including all application, charges, fees, and taxes are the responsibility of the Contractor.
- The Contractor shall provide continuous water service to existing customers at all times. If required, temporary service shall be provided by the contractor at his expense. If service interruptions are unavoidable, the Contractor shall notify all affected property owners prior to shutting off water service. The Contractor shall coordinate his work with the Department of Water so that water service interruptions are minimized.

SPECIAL NOTES TO DEVELOPER/OWNER:

- Certificate of completion, building permit, and any water service shall not be approved until:
- All water improvements are complete and dedicated to the Department of Water.
  - As-built tracings are submitted to the Department of Water.
  - Final Cost Breakdown for the water improvements are submitted and approved by the Department of Water.
  - Roadway and pipeline easements are conveyed to the Department of Water (if applicable).
  - Payment of all applicable fees for the development (including but not limited to facilities reserve charges) have been received by the Department of Water.
    - Payment of all water fees shall be made immediately after approval of the tracings.
    - At the present time, the current facilities reserve charge (FRC) for one (1) additional meter is \$4,600 per 5/8" meter.  
Receipt # \_\_\_\_\_ Date \_\_\_\_\_
- \* FRC credit will be allowed in accordance with the terms of the State of Hawaii, Department of Hawaiian Home Lands Water Credit Agreements No. 530 for the Anahola water system between the State of Hawaii, Department of Hawaiian Home Lands and the County of Kaua'i, Department of Water. The effective date of the Water Credits Agreement is November 13, 2003

SEWER NOTES

(revised April 23, 2009)

- In the event that any changes in alignment or grade for the proposed sewer mains & laterals are required due to unforeseen conflicts, the Contractor shall notify the Owner's Representative who in turn will be responsible for the required changes.
- Minimum slope for all sewer laterals shall be 1.00 percent unless otherwise specified on the plans. As-built drawings showing lateral location, vertically & horizontally shall be provided.
- The Contractor shall verify the location and invert of all existing utilities whether shown or not shown as required.
- Pipeline inverts shall be installed at a constant slope and on a straight line connecting the invert elevations at manholes.
- Crushed rock cradle shall be required for all sewer lines, except in areas of unsuitable soils, the Owner's Representative will determine the pipe support required.
- For the construction and installation of sewer lines, sewer laterals, sewer manholes and sewer connections, the Contractor shall refer to the County of Kaua'i's Sewer Design Standards dated June 1973, Standard Details for Public Works Construction dated Sept. 1984 as amended of the Department of Public Works, City and County of Honolulu, and the Counties of Kaua'i, Maui and Hawaii, and the "Hawaii Standard Specifications for Road and Bridge Construction, 2003" and its amendments.
- Plastic sewer pipes and fittings shall be PVC (polyvinyl-chloride), extra strength bell and spigot, and conform to ASTM designation D3034.73 with an SDR of 35.
- Section 706.09 PVC Pipe for Sewer Systems, of the "Hawaii Standard Specification for Road and Bridge Construction, 2003" of the Department of Public Works, County of Kaua'i is the specifications for the pipe with modifications as follows:
  - Bedding and the first lift of backfill from the bottom of the pipe to 6 inches above the pipe barrel shall be crushed rock ASTM Gradation No. 67. The minimum thickness of the bedding below the pipe shall be 4 inches. Bedding shall be compacted to a relative compaction of not less than 90 percent.
  - The trench shall be backfill only to a height of 6 inches above the crown of the pipe. Further backfilling of the trench will only be permitted after the alignment and grade of the pipe has been inspected and passed. The Contractor shall provide proper facilities for access and inspection, including clearing the pipe of all dirt, joint compound and superfluous or foreign material.
  - No base course for roadway shall be placed until sewer line within said roadway has been inspected and passed. The Contractor shall provide proper facilities for access and inspection, including clearing the pipe of all dirt, joint compound and superfluous or foreign material.
  - Maximum allowable vertical pipe deflection (reduction in vertical inside diameter) shall be 5 percent. Deflection shall be checked by the Contractor in the presence of the inspector by using an approved deflectometer, calibrated television, properly sized "GO, NO-GO" mandrel or sewer ball. For the purpose of deflection measures the base inside diameter without deflection are provided below:

SIZE	BASE I.D.
6"	5.89"
8"	7.92"
10"	9.90"
- Locations with excessive deflection shall have the pipe replaced and retested.
- PVC pipe connection to manholes shall be made with elastomeric water seal stop or seal.

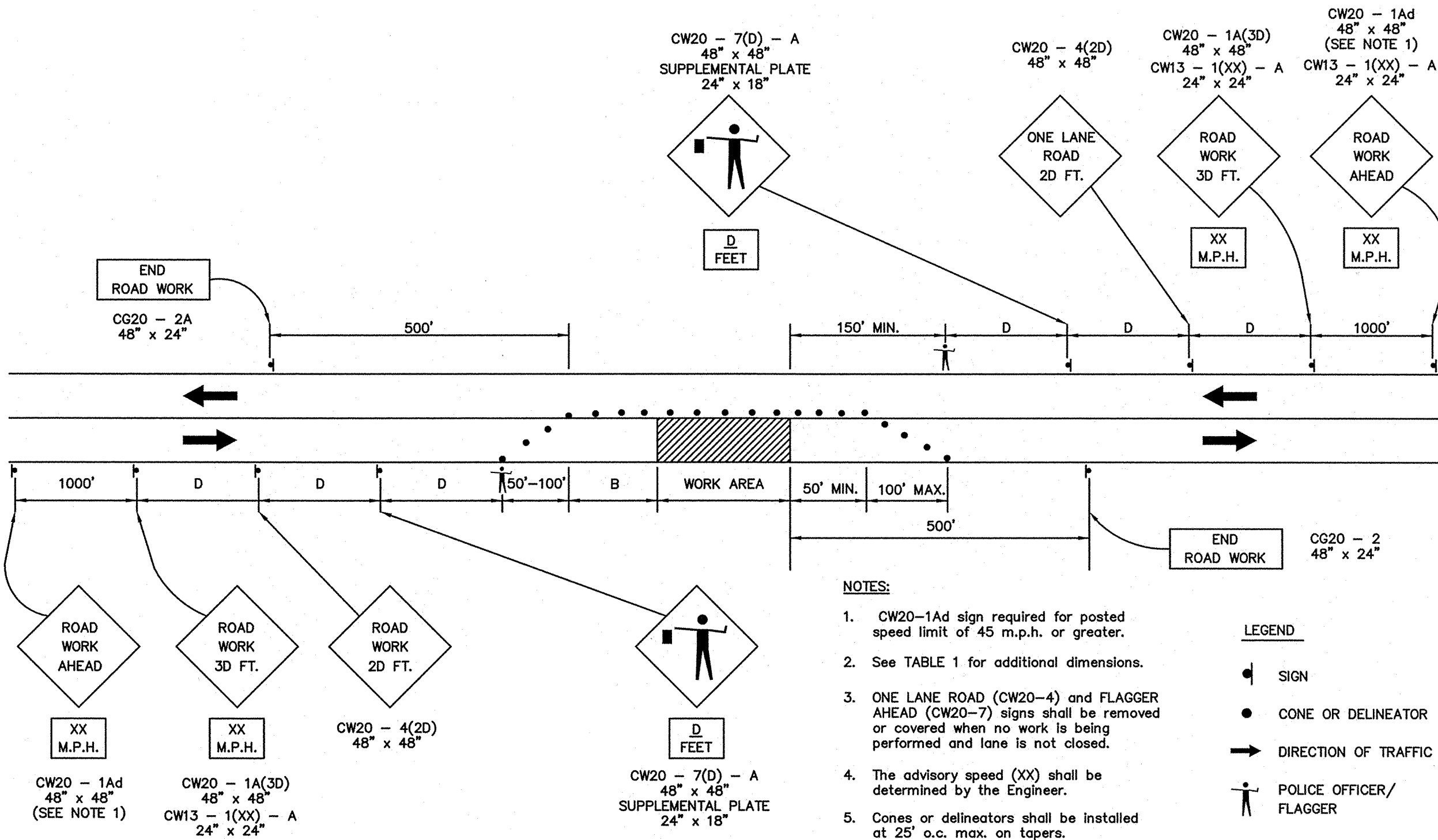
GENERAL NOTES FOR TRAFFIC CONTROL PLAN

- The permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
- Cones or delineators shall be extended to a point where they are visible to approaching traffic.
- Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
- Regulatory and warning signs within the construction zone that are in conflict with the Traffic Control Plans shall be removed or covered. All signs shall be restored upon completion of the work.
- Flaggers and/or police officers shall be in sight of each other or in direct communication at all times. Police officer shall be present at all times.
- When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the Traffic Control Plans.
- Sign spacings (D), taper lengths (T) and spacings of cones or delineators shall be as shown in Table 1, unless otherwise noted on the Traffic Control Plans.
- All traffic lanes shall be a minimum of 10 feet wide.
- All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
- The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
- At the end of each day's work or as soon as the work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation.
- Replace permanent pavement markings and traffic signs upon completion of each phase of work.
- All work zones traffic control devices shall comply with the "Statewide Guidelines for work zones Traffic Control Devices dated September 13, 2000".
- Police Officers/Flaggers shall be present at all times.
- All vehicles within the State & County Right of Way who are exposed to either vehicles using the roadway or to construction equipment shall wear high visibility safety apparel that meets the performance class 2 or 3 requirements of ANSI/ISEA 107-2004.  
  
"Workers" is defined as people on foot whose duties place them within the County Right of Way, such as but not limited to construction and maintenance forces, equipment operators, survey crew, utility crews, responders to incidents (eg. EMT, and firemen), and law enforcement personnel directing traffic, investigating accidents, handling lane closures and installing water service connections.

NOTES:

- Use advisory speeds when posted
- W = width of lane, shoulder, or offset
- not applicable for two-lane highways

POSTED SPEED LIMIT (1) (M.P.H.)	SIGN SPACING (D) (FEET)	TAPER LENGTH (T) (FEET)		LONGITUDINAL BUFFER SPACE (B) (FEET)	SPACING OF CONES OR DELINEATORS (FEET) (3)		
		W = 12' OR LESS (2)	W = GREATER THAN 12' (2)		TAPER	TANGENT	WORK AREA
20	250	200	W X 17	35	20	20	10
25	250	200	W X 17	55	25	25	10
30	250	250	W X 20	85	30	30	10
35	250	250	W X 20	120	35	35	10
40	500	350	W X 30	170	40	40	10
45	500	550	W X 45	220	45	45	10
50	1000	600	W X 50	280	50	50	10
55	1000	700	W X 55	335	55	55	10



ONE-LANE, TWO-WAY TRAFFIC TAPER

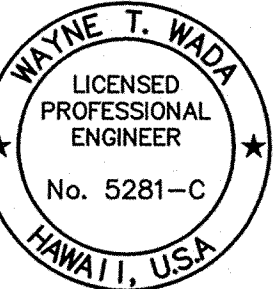
FIGURE 1 - TRAFFIC CONTROL PLAN

ESAKI SURVEYING AND MAPPING, INC.

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Wayne T. Wada  
EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II  
Anahola, Kaua'i, Hawaii  
Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89  
Developer/Owner:  
Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway  
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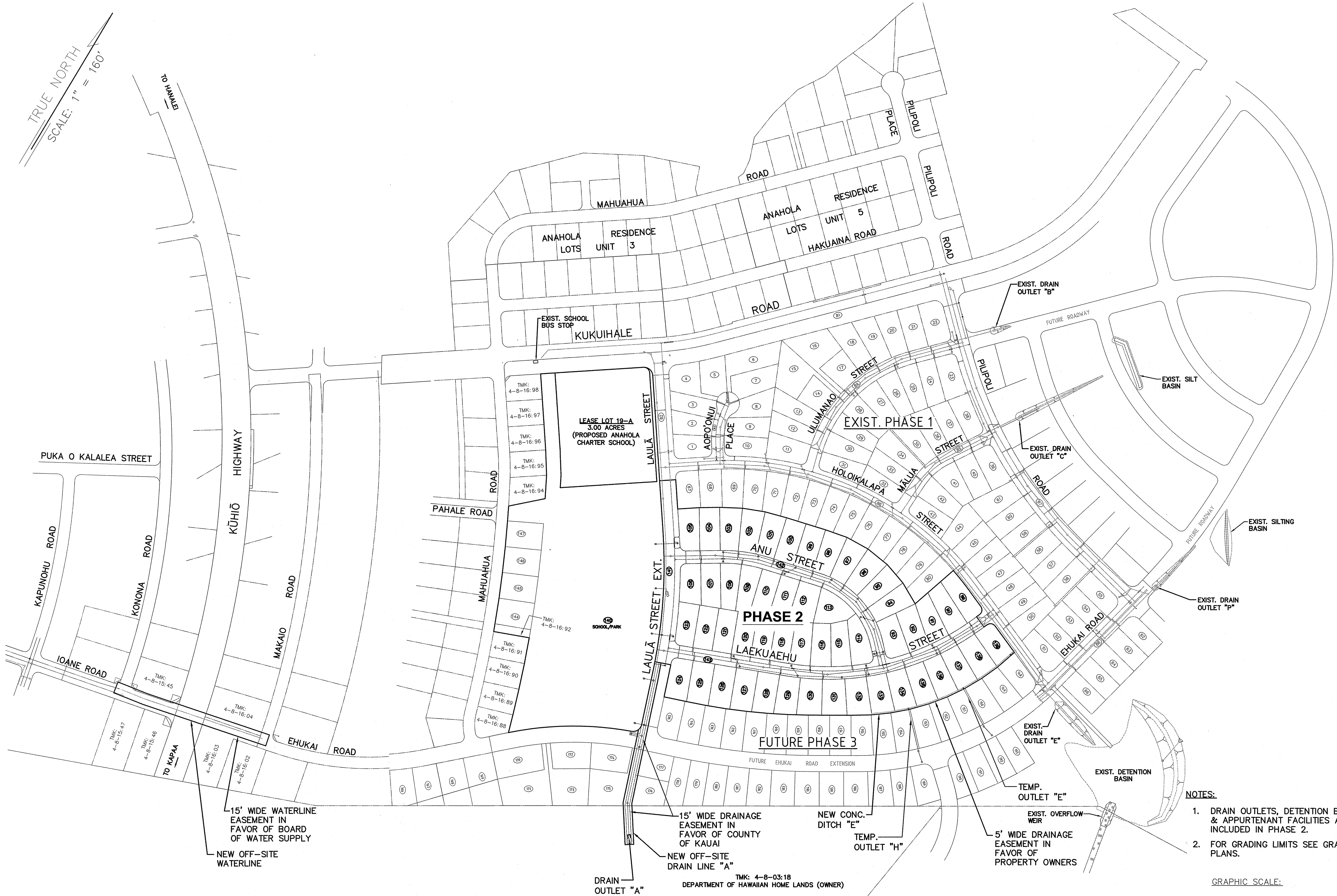
CONSTRUCTION NOTES

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE  
N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW  
DRAWN BY: CG  
DATE: 03/27/12  
SHEET  
C-4  
4 OF 44 SHEETS





GENERAL LAYOUT PLAN  
SCALE: 1" = 160'

- NOTES:
- DRAIN OUTLETS, DETENTION BASIN & APPURTENANT FACILITIES ARE INCLUDED IN PHASE 2.
  - FOR GRADING LIMITS SEE GRADING PLANS.
- GRAPHIC SCALE:  
160 0 160 320  
SCALE: 1" = 160'

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GENERAL LAYOUT PLAN

APPROVED:

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COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

DATE: 03/27/12

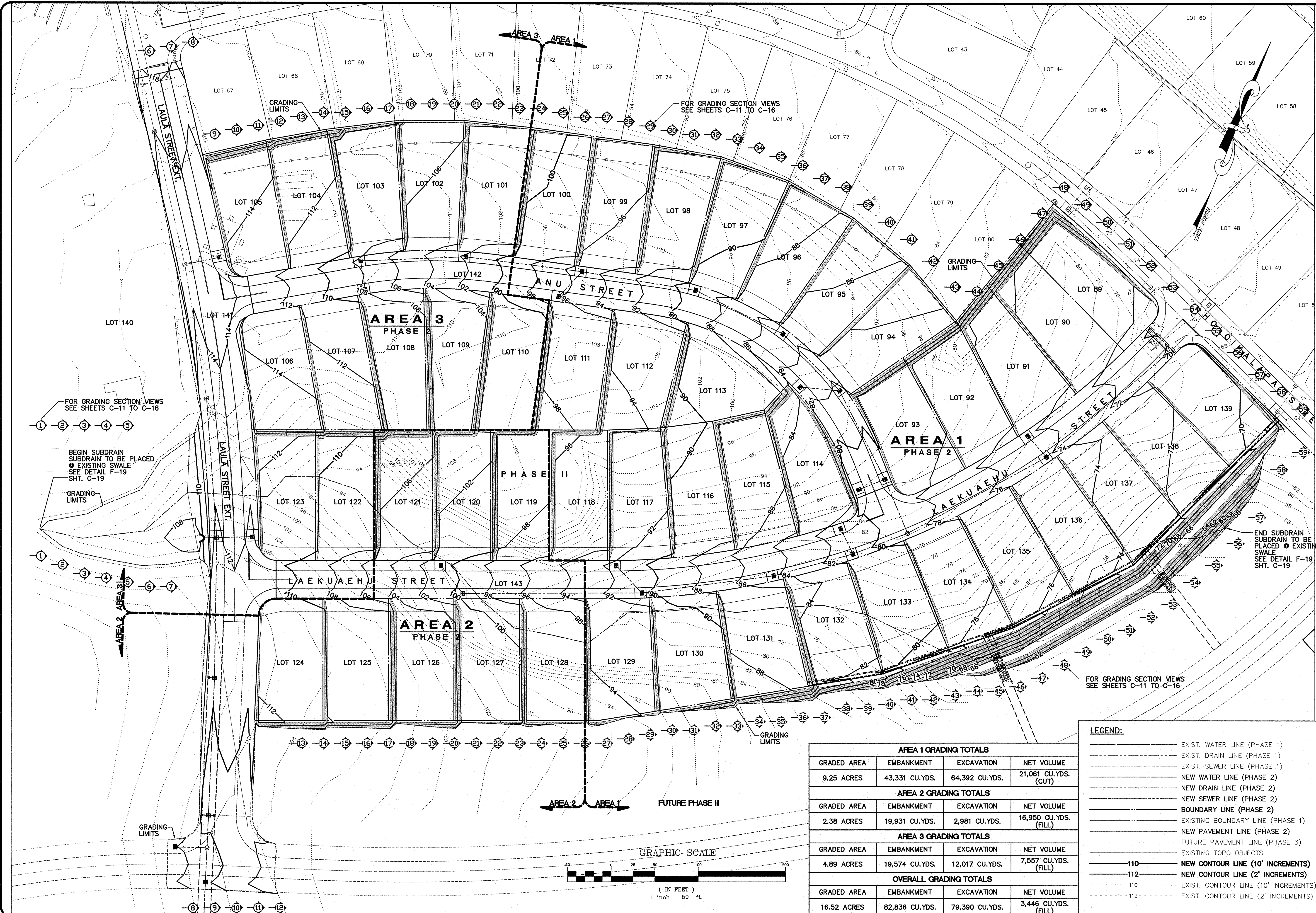
SHEET  
C-5  
5 OF 44 SHEETS

Project No.: 11-157  
Drawing No.: 11-157 SITE.dwg









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OVERALL  
GRADING PLAN

APPROVED:

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COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W)

N.A.

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI

DESIGNED BY: WW

DRAWN BY: CG

DATE: 3/27/12

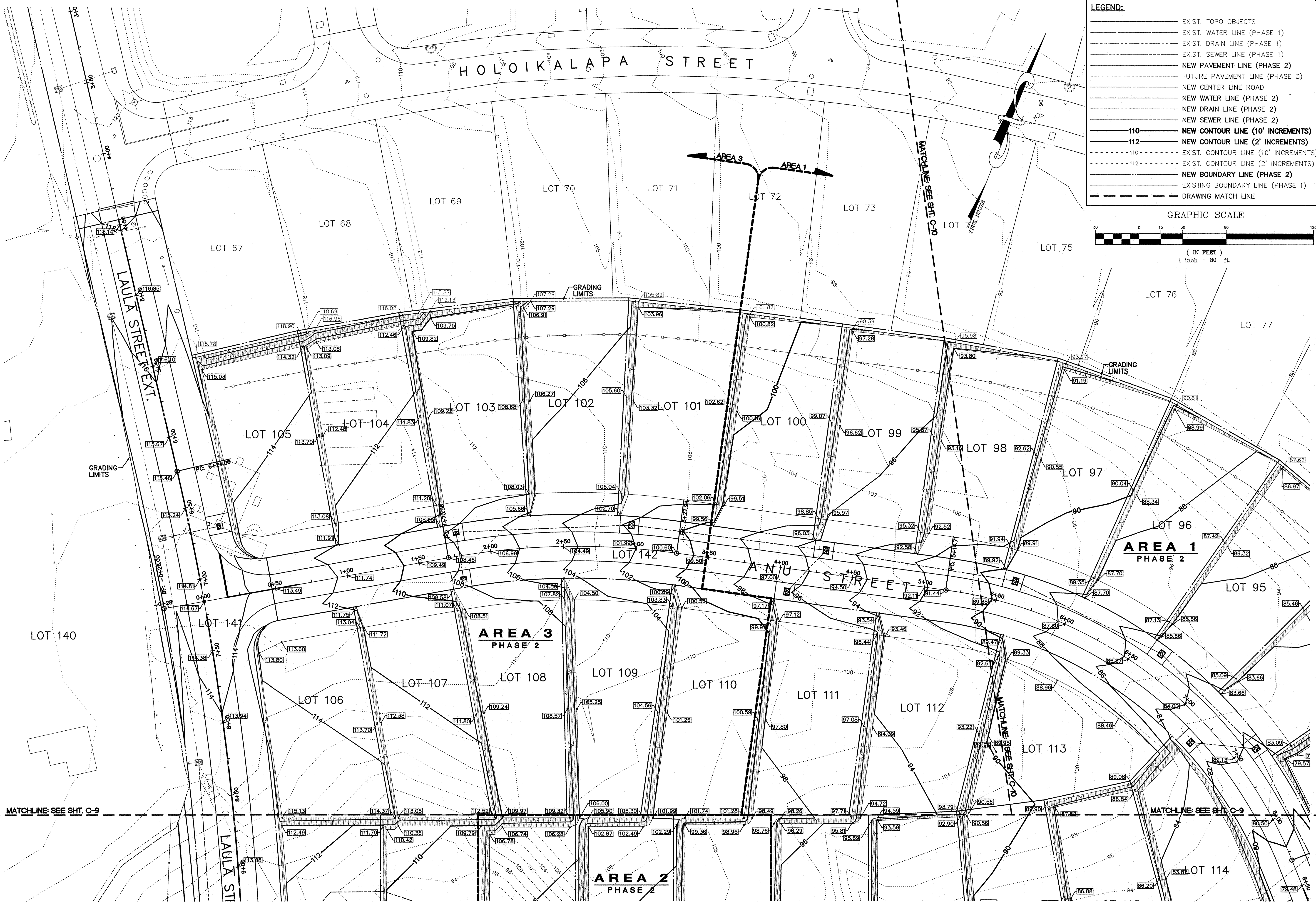
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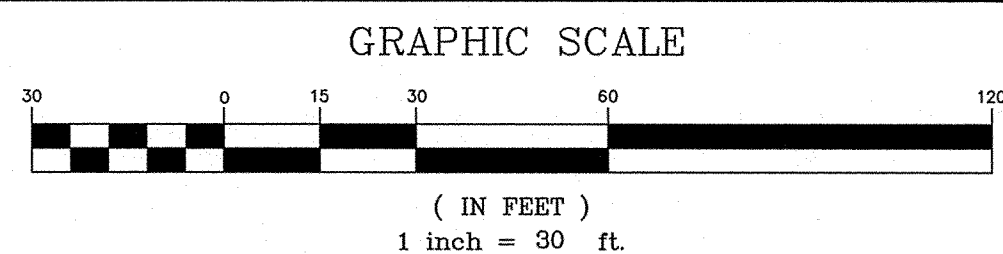
Project No.: 11-157  
Drawing No.: 11-157 CON.dwg





**LEGEND:**

- EXIST. TOPO OBJECTS
- EXIST. WATER LINE (PHASE 1)
- EXIST. DRAIN LINE (PHASE 1)
- EXIST. SEWER LINE (PHASE 1)
- NEW PAVEMENT LINE (PHASE 2)
- FUTURE PAVEMENT LINE (PHASE 3)
- NEW CENTER LINE ROAD
- NEW WATER LINE (PHASE 2)
- NEW DRAIN LINE (PHASE 2)
- NEW SEWER LINE (PHASE 2)
- 110 NEW CONTOUR LINE (10' INCREMENTS)
- 112 NEW CONTOUR LINE (2' INCREMENTS)
- 110 EXIST. CONTOUR LINE (10' INCREMENTS)
- 112 EXIST. CONTOUR LINE (2' INCREMENTS)
- NEW BOUNDARY LINE (PHASE 2)
- EXISTING BOUNDARY LINE (PHASE 1)
- DRAWING MATCH LINE



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REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS

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**GRADING PLANS**

**APPROVED:**

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N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

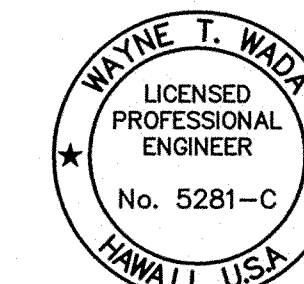
DESIGNED BY: WW	<b>SHEET</b> <b>C-8</b> 8 OF 44 SHEETS
DRAWN BY: CG	
DATE: 03/27/12	

Project No.: 11-157  
Drawing No.: 11-157 C-8.dwg



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*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kaua'i, Hawaii

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**GRADING PLANS**

**APPROVED:**

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

DATE: 03/27/12

SHEET

**C-9**

9 OF 44 SHEETS

MATCHLINE SEE SHT. C-8

BEGIN SUBDRAIN  
SUBDRAIN TO BE PLACED  
ON EXISTING SWALE  
SEE DETAIL F-19  
SHT. C-19

AREA 3  
AREA 2

LAULA STREET EXT.

**AREA 3  
PHASE 2**

**AREA 1  
PHASE 2**

**AREA 2  
PHASE 2**

LOT 123

LOT 122

LOT 121

LOT 120

LOT 119

LOT 118

LOT 117

LOT 116

LOT 115

LOT 130

LOT 131

LOT 129

LOT 128

LOT 127

LOT 126

LOT 125

LOT 124

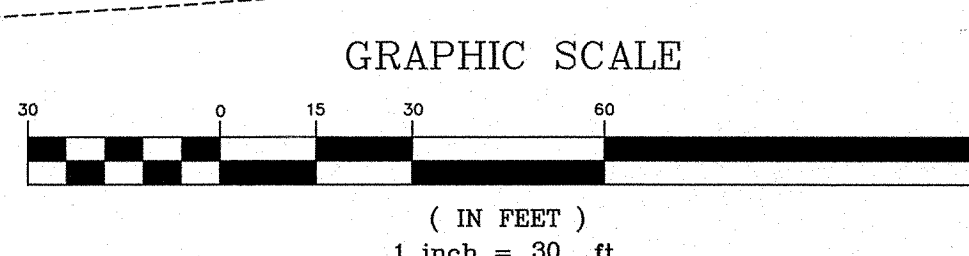
LALEKUAHEHU STREET

GRADING LIMITS

GRADING LIMITS

GRADING LIMITS

GRADING LIMITS



**LEGEND:**

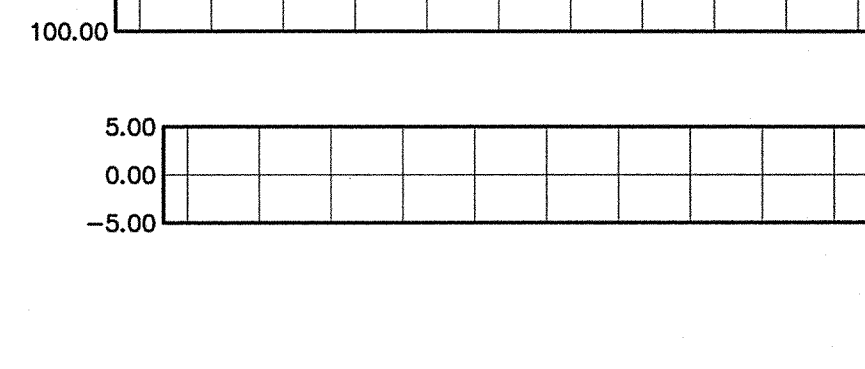
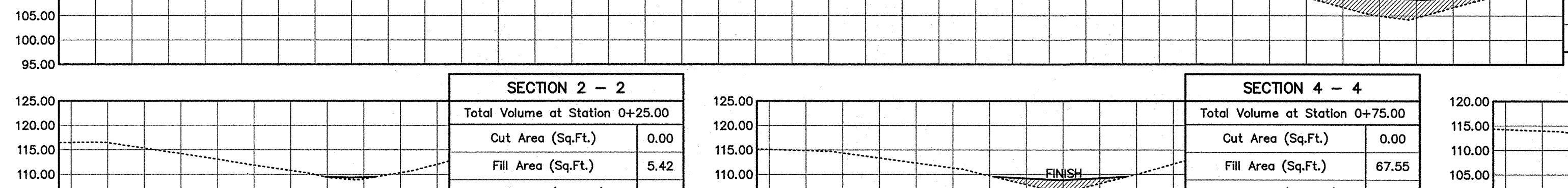
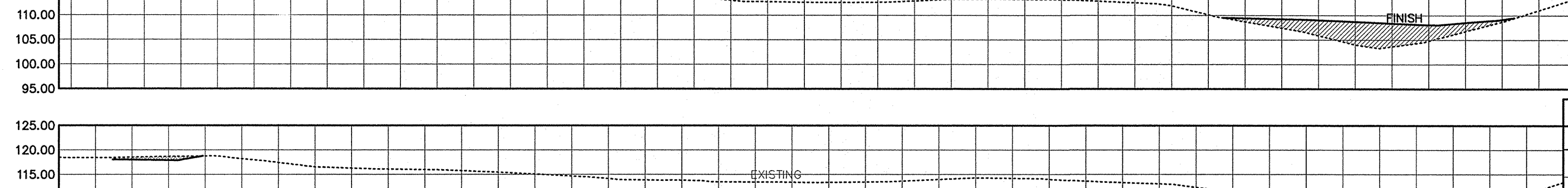
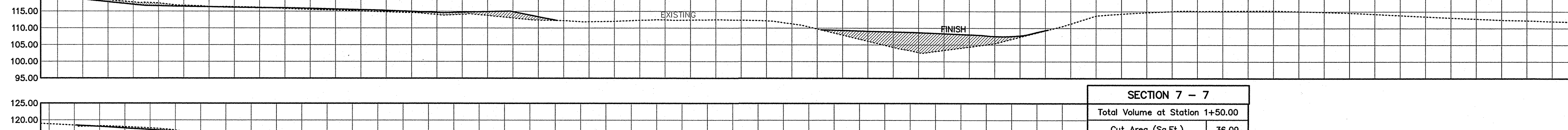
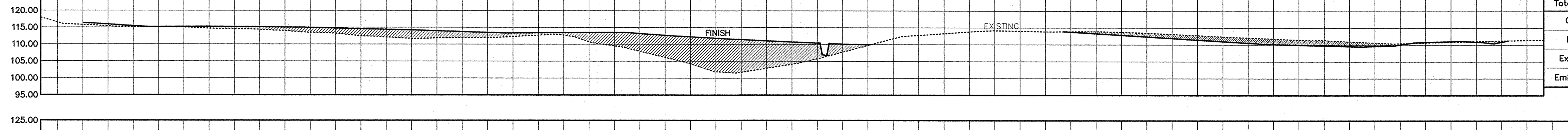
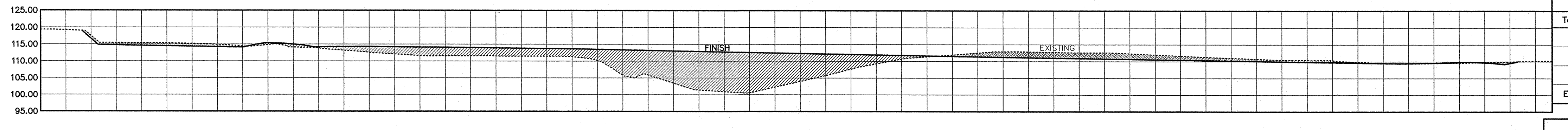
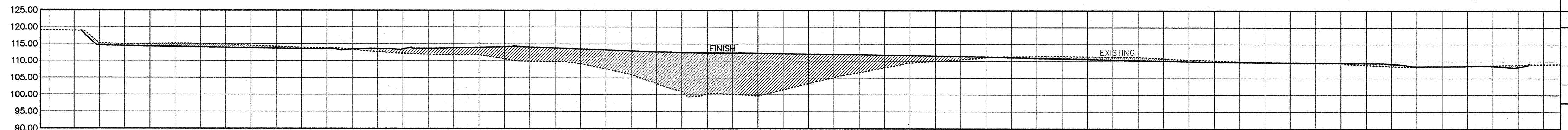
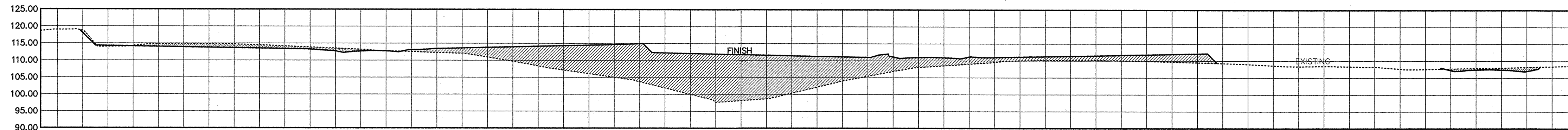
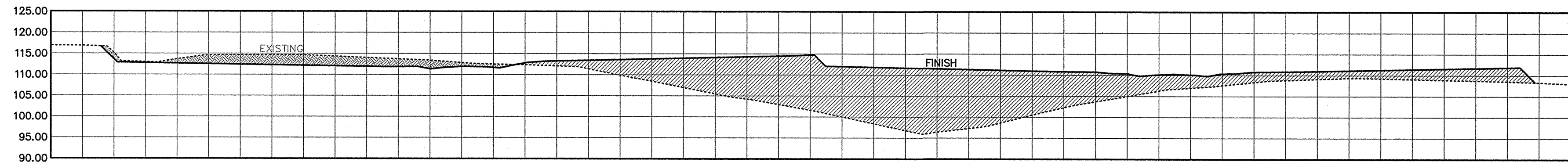
- EXIST. TOPO OBJECTS
- EXIST. WATER LINE (PHASE 1)
- EXIST. DRAIN LINE (PHASE 1)
- EXIST. SEWER LINE (PHASE 1)
- NEW PAVEMENT LINE (PHASE 2)
- FUTURE PAVEMENT LINE (PHASE 3)
- NEW CENTER LINE ROAD
- NEW WATER LINE (PHASE 2)
- NEW DRAIN LINE (PHASE 2)
- NEW SEWER LINE (PHASE 2)
- 110 — NEW CONTOUR LINE (10' INCREMENTS)
- 112 — NEW CONTOUR LINE (2' INCREMENTS)
- 110 — EXIST. CONTOUR LINE (10' INCREMENTS)
- 112 — EXIST. CONTOUR LINE (2' INCREMENTS)
- NEW BOUNDARY LINE (PHASE 2)
- EXISTING BOUNDARY LINE (PHASE 1)
- DRAWING MATCH LINE







Project No.: 11-157  
Drawing No.: 11-157 CON.dwg



SECTION 2 - 2	
Total Volume at Station 0+25.00	
Cut Area (Sq.Ft.)	0.00
Fill Area (Sq.Ft.)	5.42
Excavation (Cu.Yds.)	0.00
Embankment (Cu.Yds.)	2.51

SECTION 4 - 4	
Total Volume at Station 0+75.00	
Cut Area (Sq.Ft.)	0.00
Fill Area (Sq.Ft.)	67.55
Excavation (Cu.Yds.)	0.00
Embankment (Cu.Yds.)	46.25

SECTION 3 - 3	
Total Volume at Station 0+50.00	
Cut Area (Sq.Ft.)	0.00
Fill Area (Sq.Ft.)	32.34
Excavation (Cu.Yds.)	0.00
Embankment (Cu.Yds.)	17.48

SECTION 1 - 1	
Total Volume at Station 0+00.00	
Cut Area (Sq.Ft.)	0.00
Fill Area (Sq.Ft.)	0.00
Excavation (Cu.Yds.)	0.00
Embankment (Cu.Yds.)	0.00

SECTION 3 - 3	
Total Volume at Station 0+50.00	
Cut Area (Sq.Ft.)	0.00
Fill Area (Sq.Ft.)	32.34
Excavation (Cu.Yds.)	0.00
Embankment (Cu.Yds.)	17.48

SECTION 3 - 3	
Total Volume at Station 0+50.00	
Cut Area (Sq.Ft.)	0.00
Fill Area (Sq.Ft.)	32.34
Excavation (Cu.Yds.)	0.00
Embankment (Cu.Yds.)	17.48

SECTION 5 - 5	
Total Volume at Station 1+00.00	
Cut Area (Sq.Ft.)	0.00
Fill Area (Sq.Ft.)	124.41
Excavation (Cu.Yds.)	0.00
Embankment (Cu.Yds.)	88.87

SECTION 5 - 5	
Total Volume at Station 1+00.00	
Cut Area (Sq.Ft.)	0.00
Fill Area (Sq.Ft.)	124.41
Excavation (Cu.Yds.)	0.00
Embankment (Cu.Yds.)	88.87

LEGEND:

— FINISH GRADE LINE  
- - - EXISTING GRADE LINE

FILL AREA SECTION  
 CUT AREA SECTION

**ESAKI**  
**SURVEYING AND**  
**MAPPING, INC.**

1610 Haleukana Street  
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Ph. (808) 246-0625 Fax (808) 246-0229

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REVISION	DATE	DESCRIPTION	BY	APPROVED
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REVISIONS



THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kauai, Hawaii  
Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89  
Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**GRADING  
SECTIONS**

APPROVED:

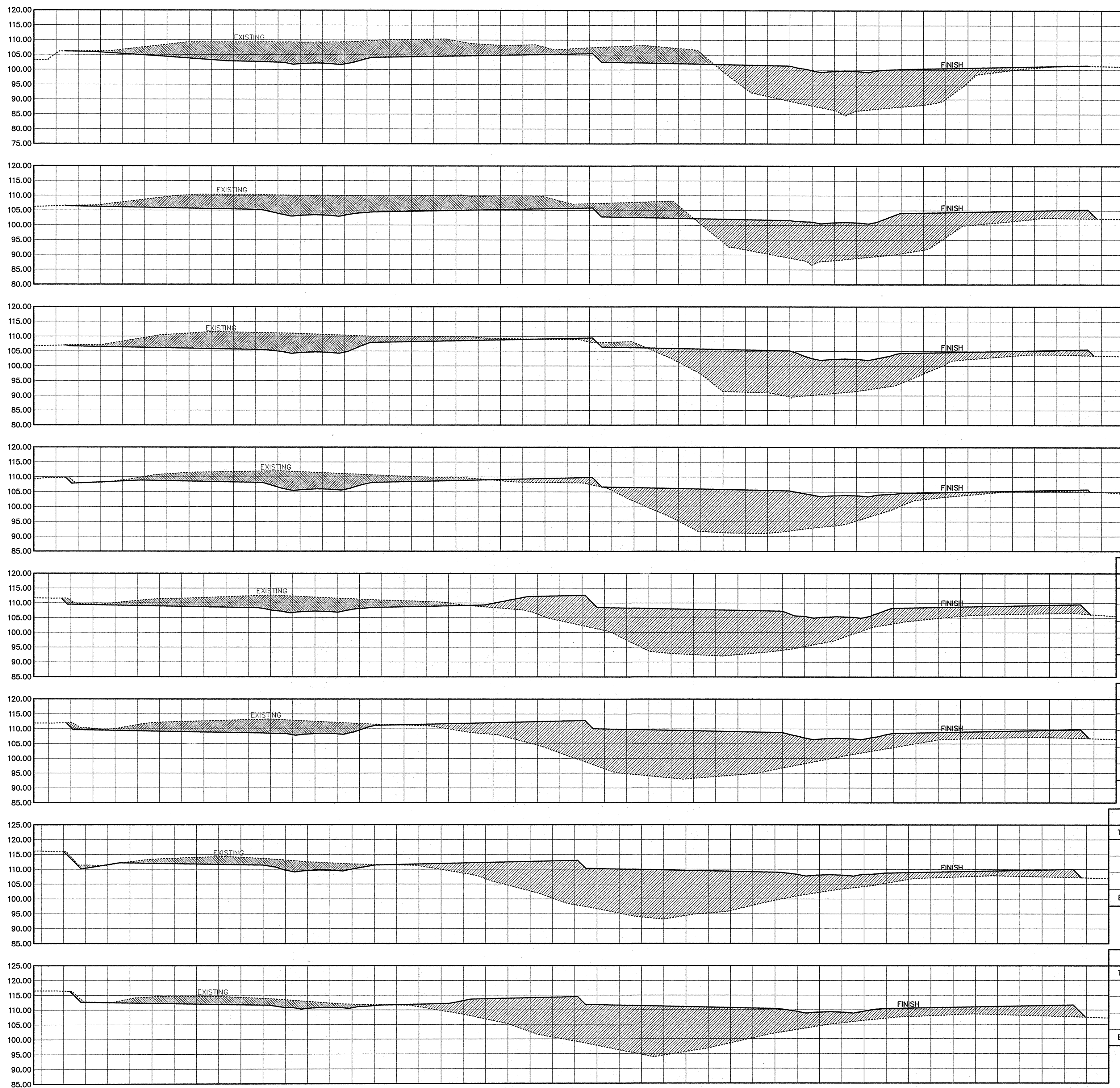
COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE  
*N.A.*  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW  
DRAWN BY: CG  
DATE: 3/27/12

SHEET  
**C-11**  
11 OF 44 SHEETS

SECTION VIEW  
HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 20'





LEGEND:  
—— FINISH GRADE LINE  
----- EXISTING GRADE LINE  
[Hatched Box] FILL AREA SECTION  
[Cross-hatched Box] CUT AREA SECTION

SECTION VIEW  
HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 20'

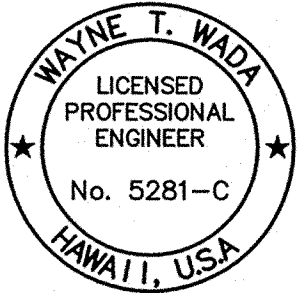
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EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDMISION  
PHASE II

Anahola, Kaua'i, Hawai'i

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MANAGER & CHIEF ENGINEER, DEPT. OF WATER, DATE  
COUNTY OF KAUAI

DESIGNED BY: WW

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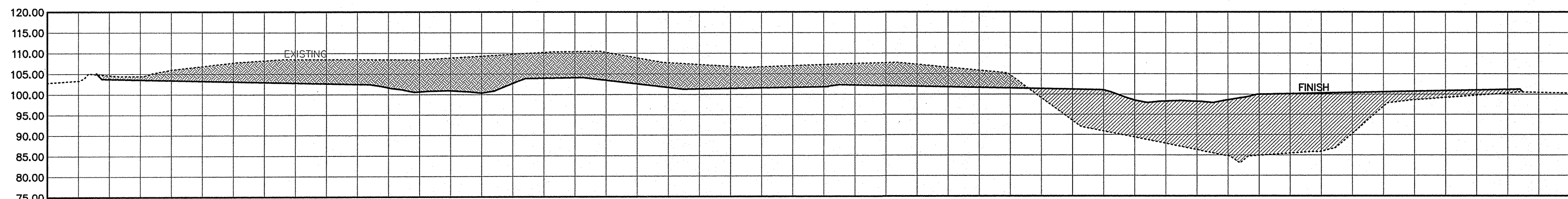
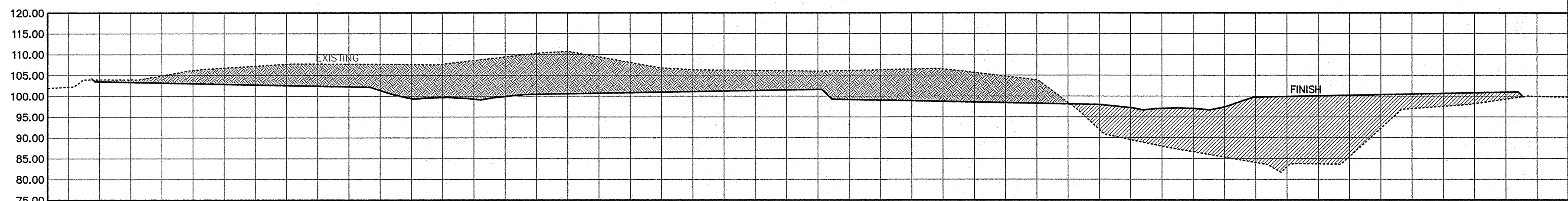
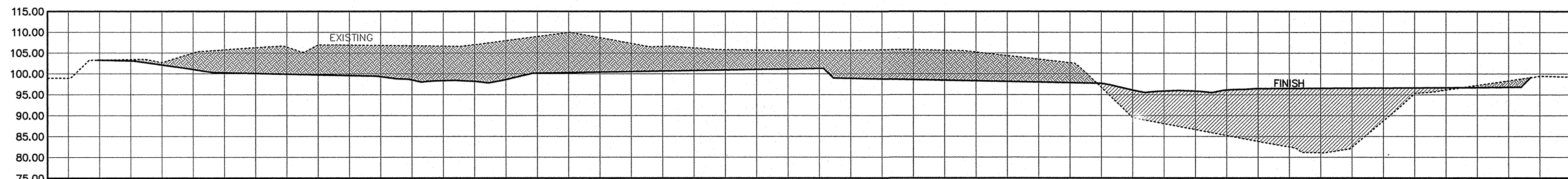
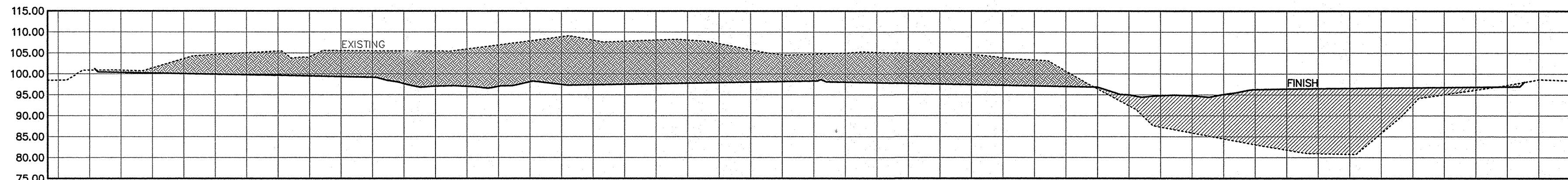
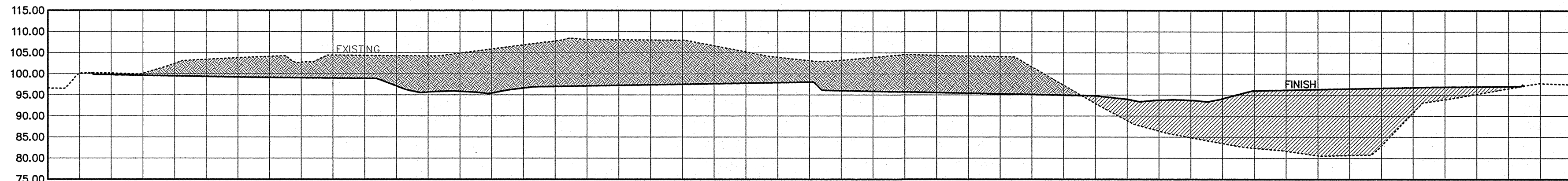
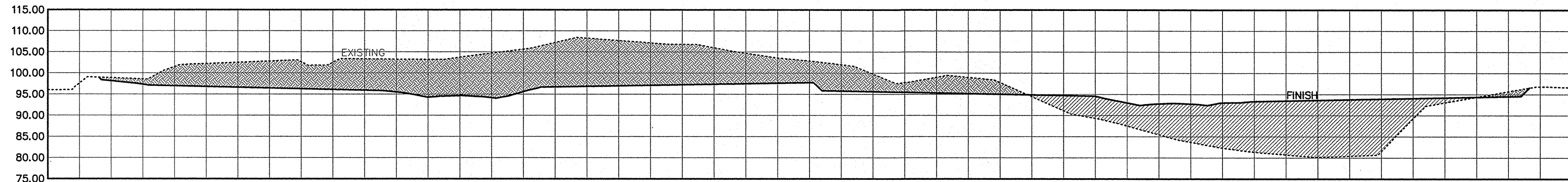
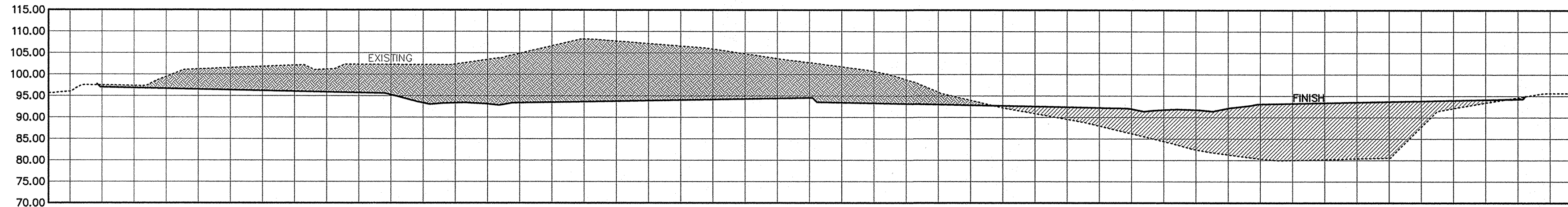
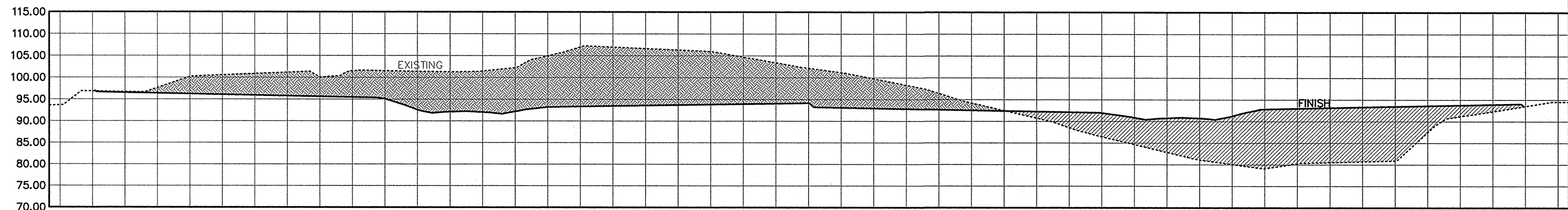
DATE: 3/27/12

SHEET

C-12

12 OF 44 SHEETS





LEGEND:

— FINISH GRADE LINE  
- - - EXISTING GRADE LINE

FILL AREA SECTION  
 CUT AREA SECTION

SECTION VIEW  
HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 20'

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REVISION	DATE	DESCRIPTION	BY	APPROVED
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REVISIONS



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EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kaua'i, Hawai'i  
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**GRADING  
SECTIONS**

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

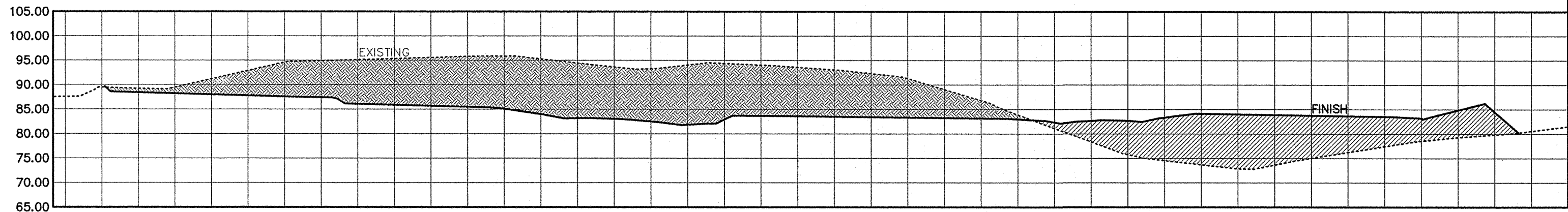
N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW  
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DATE: 3/27/12

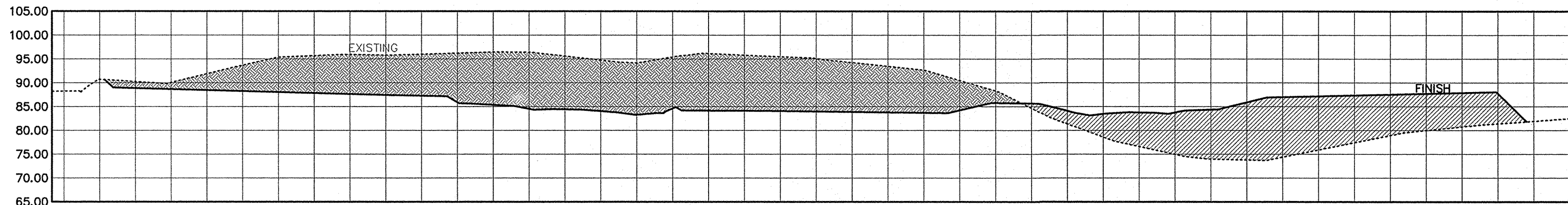
SHEET  
**C-13**  
13 OF 44 SHEETS



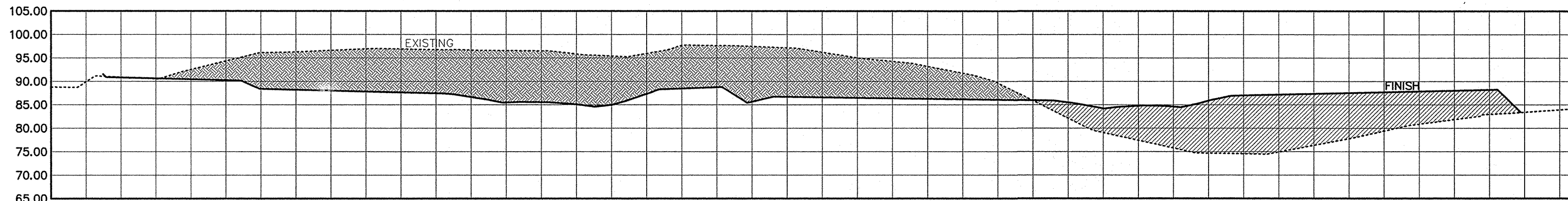
Project No.: 11-157  
Drawing No.: 11-157 CON.dwg



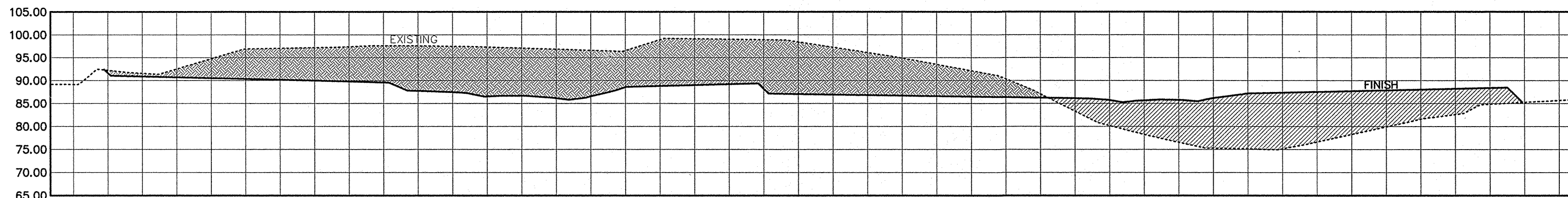
SECTION 37 - 37	
Total Volume at Station 9+00.00	
Cut Area (Sq.Ft.)	2988.69
Fill Area (Sq.Ft.)	1345.66
Excavation (Cu.Yds.)	2864.66
Embankment (Cu.Yds.)	1386.01



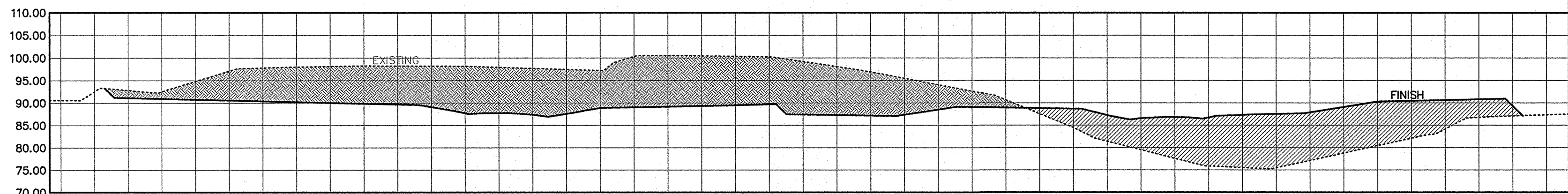
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Total Volume at Station 8+75.00	
Cut Area (Sq.Ft.)	3198.97
Fill Area (Sq.Ft.)	1648.11
Excavation (Cu.Yds.)	2885.39
Embankment (Cu.Yds.)	1518.45



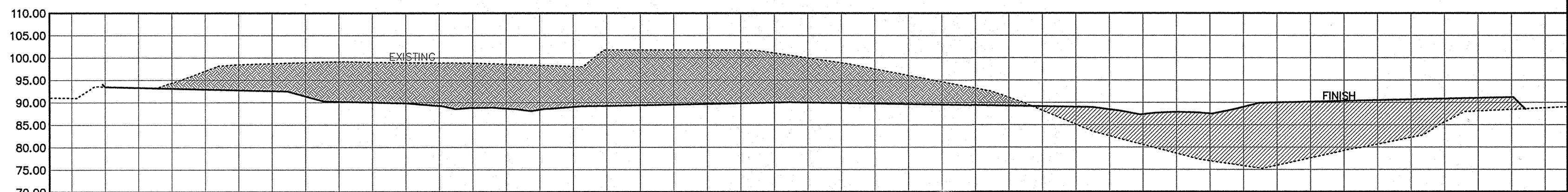
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Total Volume at Station 8+50.00	
Cut Area (Sq.Ft.)	3033.47
Fill Area (Sq.Ft.)	1631.73
Excavation (Cu.Yds.)	2869.51
Embankment (Cu.Yds.)	1478.32



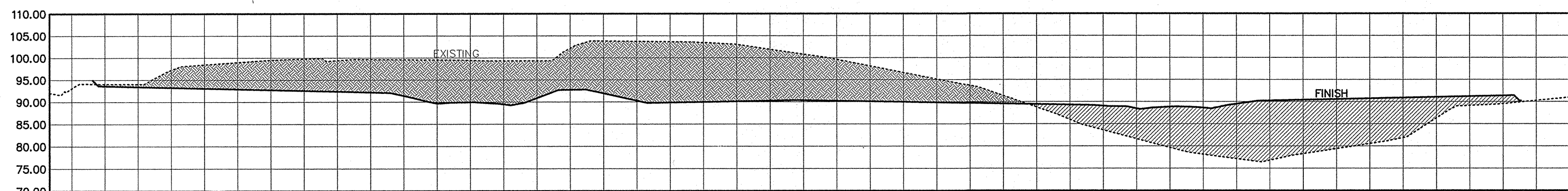
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Total Volume at Station 8+25.00	
Cut Area (Sq.Ft.)	3164.67
Fill Area (Sq.Ft.)	1561.44
Excavation (Cu.Yds.)	2991.54
Embankment (Cu.Yds.)	1512.64



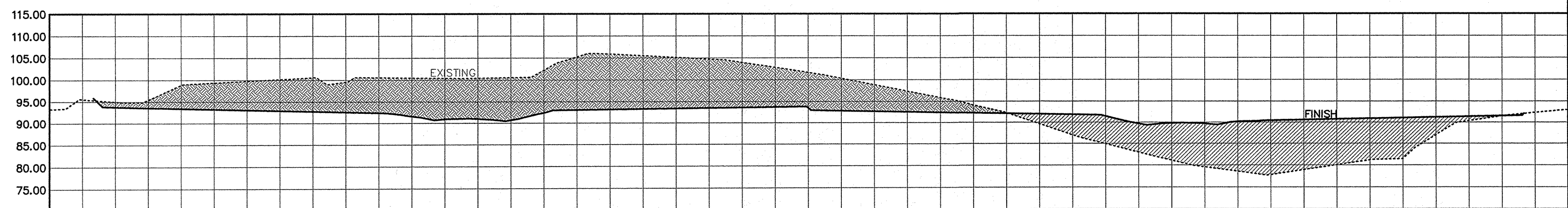
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Total Volume at Station 8+00.00	
Cut Area (Sq.Ft.)	3297.06
Fill Area (Sq.Ft.)	1705.86
Excavation (Cu.Yds.)	3026.26
Embankment (Cu.Yds.)	1601.17



SECTION 32 - 32	
Total Volume at Station 7+75.00	
Cut Area (Sq.Ft.)	3239.67
Fill Area (Sq.Ft.)	1752.66
Excavation (Cu.Yds.)	3047.20
Embankment (Cu.Yds.)	1590.72



SECTION 31 - 31	
Total Volume at Station 7+50.00	
Cut Area (Sq.Ft.)	3342.29
Fill Area (Sq.Ft.)	1683.29
Excavation (Cu.Yds.)	3015.22
Embankment (Cu.Yds.)	1539.22



SECTION 30 - 30	
Total Volume at Station 7+25.00	
Cut Area (Sq.Ft.)	3170.59
Fill Area (Sq.Ft.)	1641.43
Excavation (Cu.Yds.)	2900.13
Embankment (Cu.Yds.)	1586.22

LEGEND:  
—— FINISH GRADE LINE  
- - - - EXISTING GRADE LINE  
[Hatched Box] FILL AREA SECTION  
[Cross-hatched Box] CUT AREA SECTION

SECTION VIEW  
HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 20'

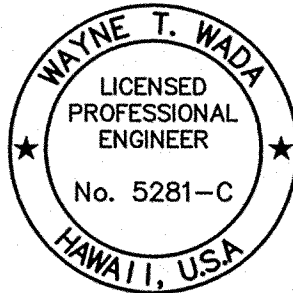
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REVISION

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*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

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PHASE II**

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**GRADING  
SECTIONS**

APPROVED

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS, COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.

MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI DATE

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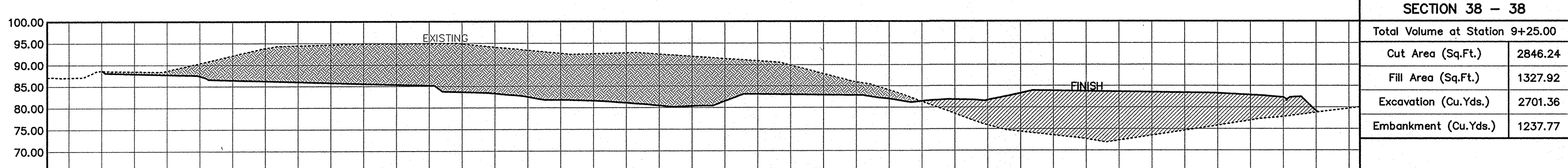
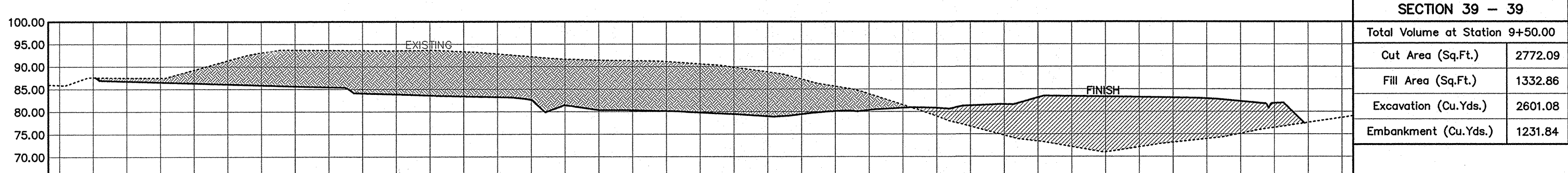
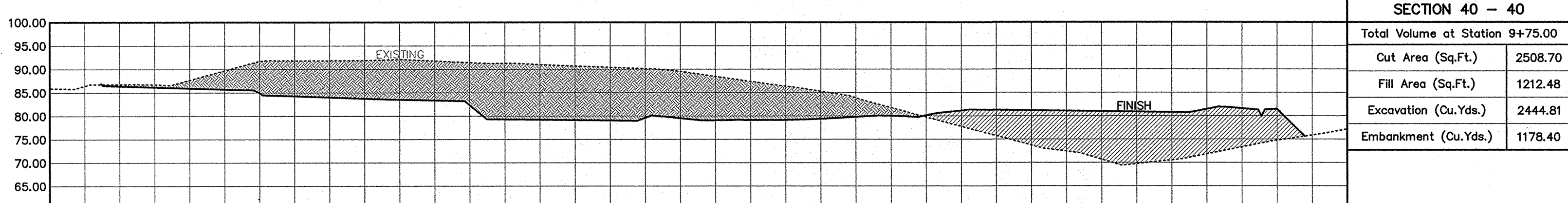
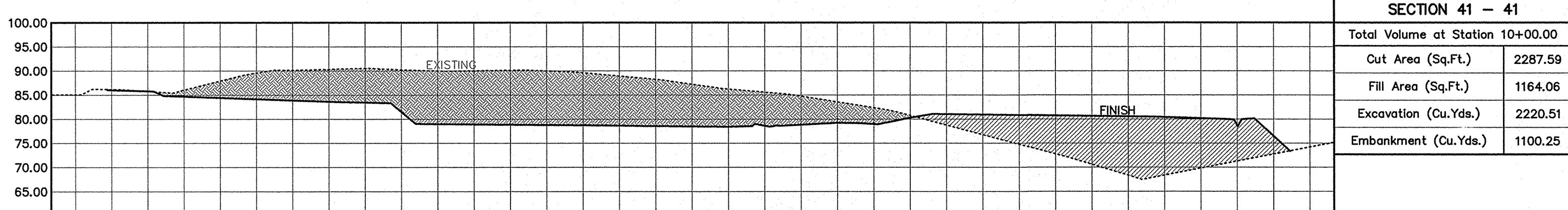
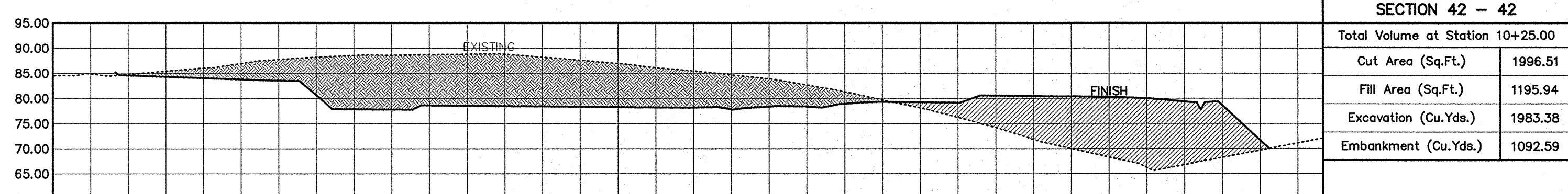
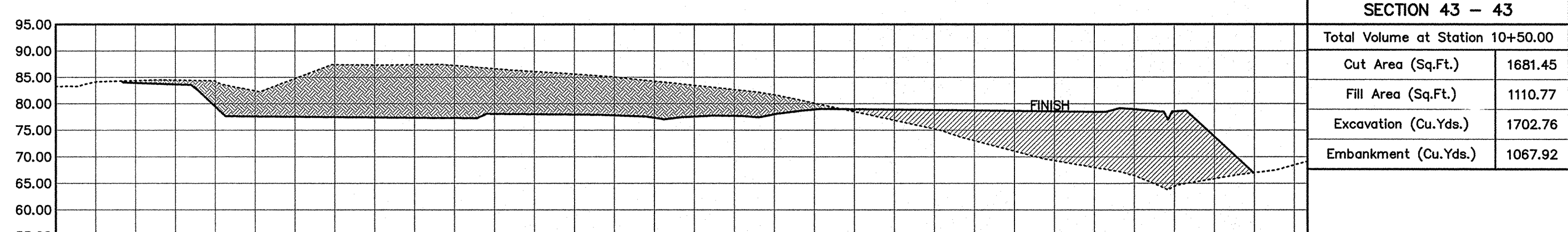
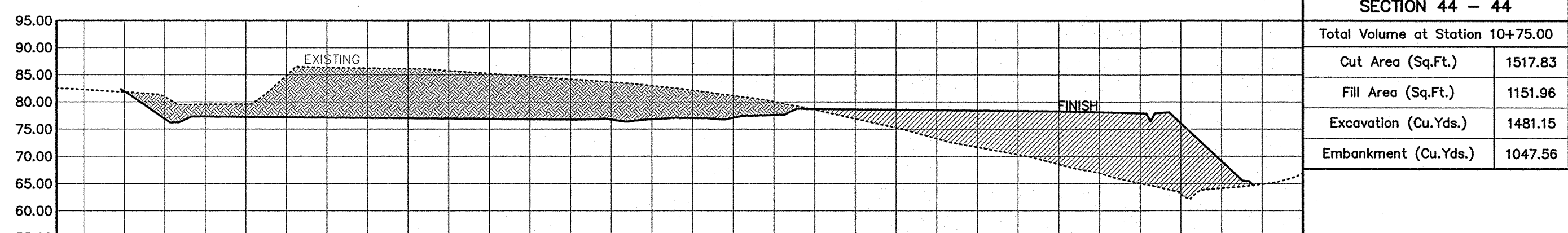
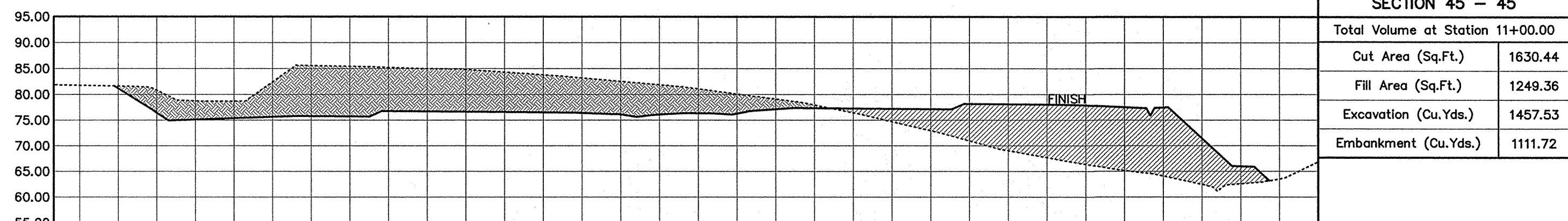
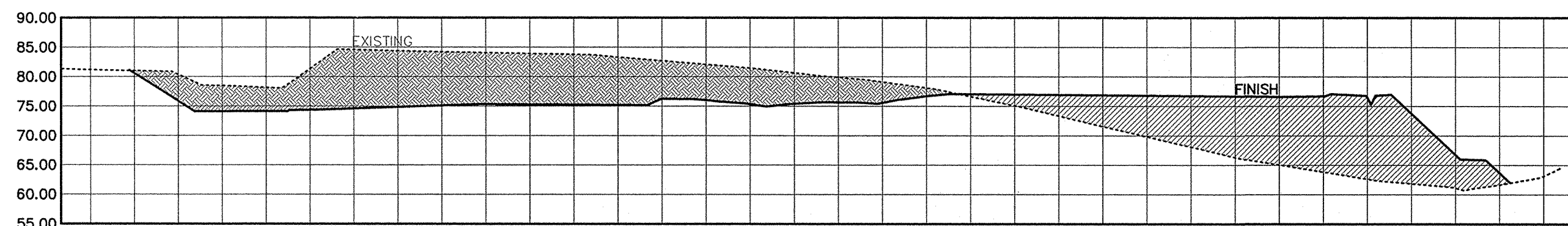
DATE: 3/27/12

SHEET

**C-14**

14 OF 44 SHEETS





LEGEND:

—— FINISH GRADE LINE  
----- EXISTING GRADE LINE

FILL AREA SECTION  
 CUT AREA SECTION

SECTION VIEW  
HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 20'

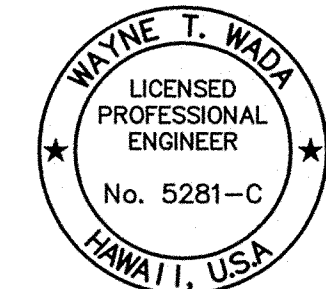
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REVISION	DATE	DESCRIPTION	BY	APPROVED
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N.A.	
MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI	DATE

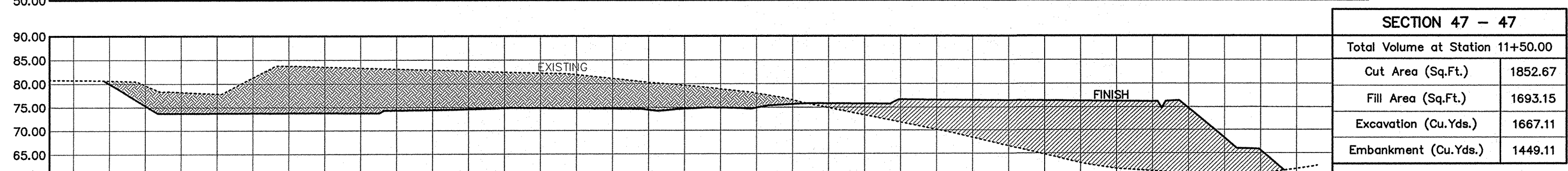
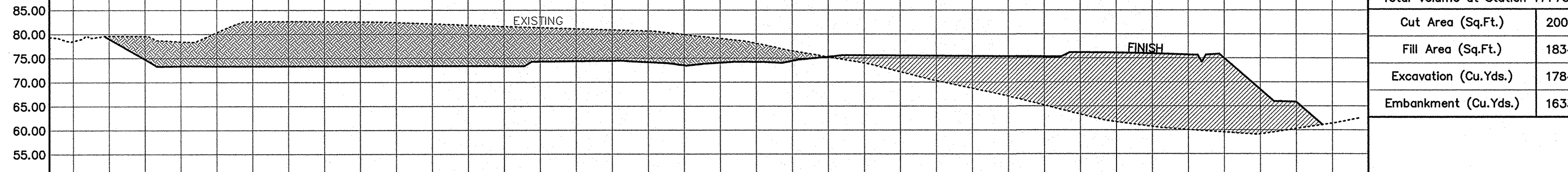
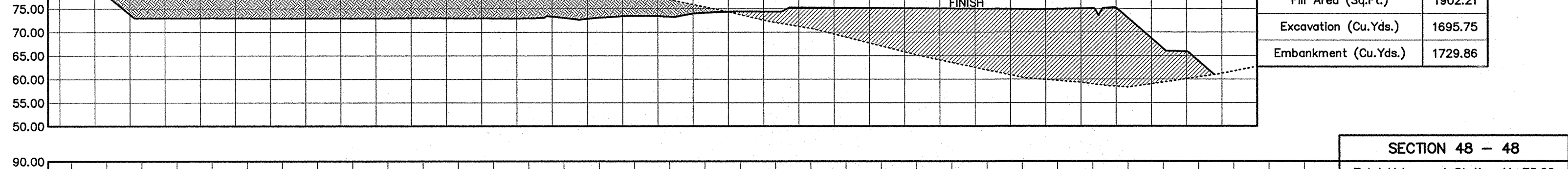
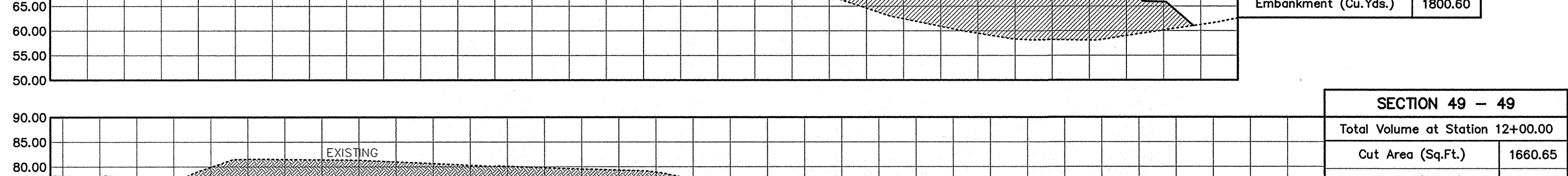
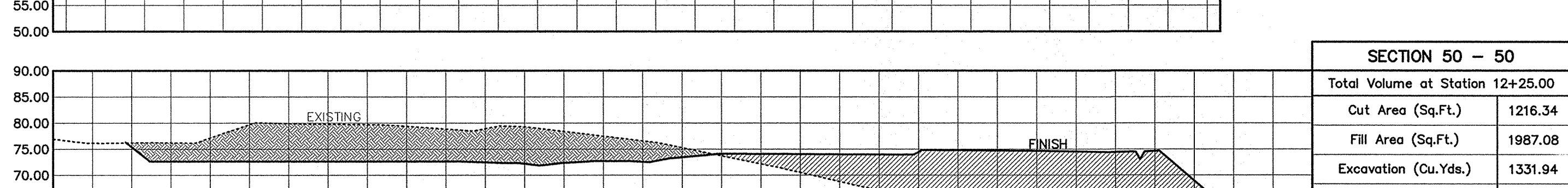
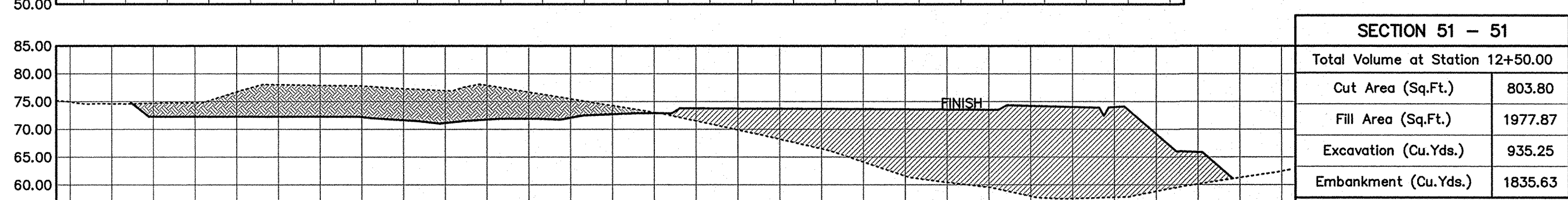
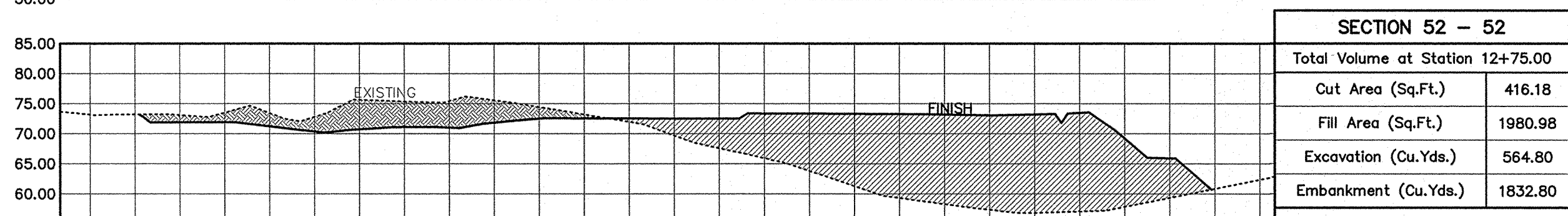
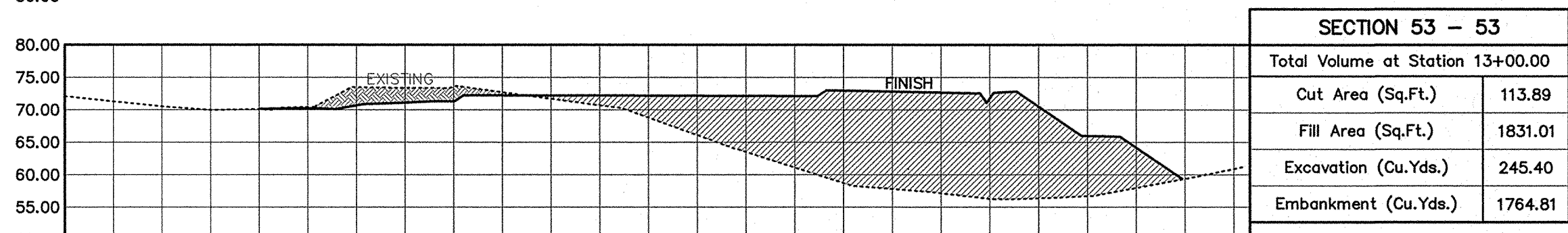
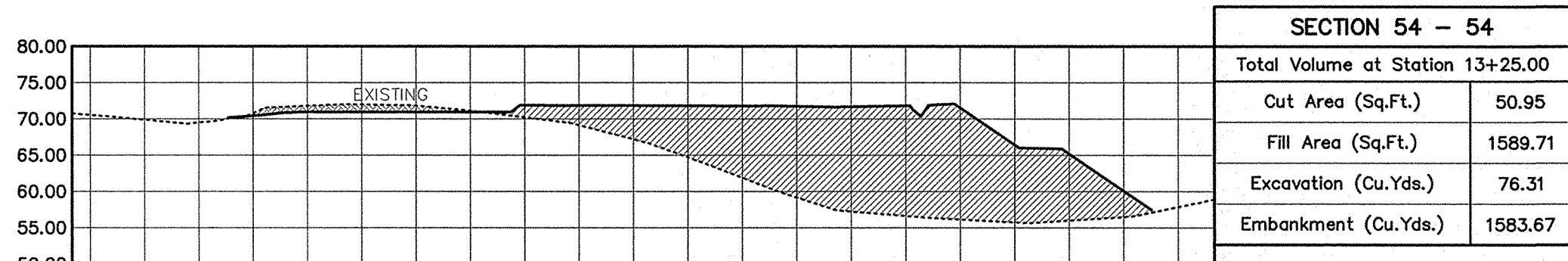
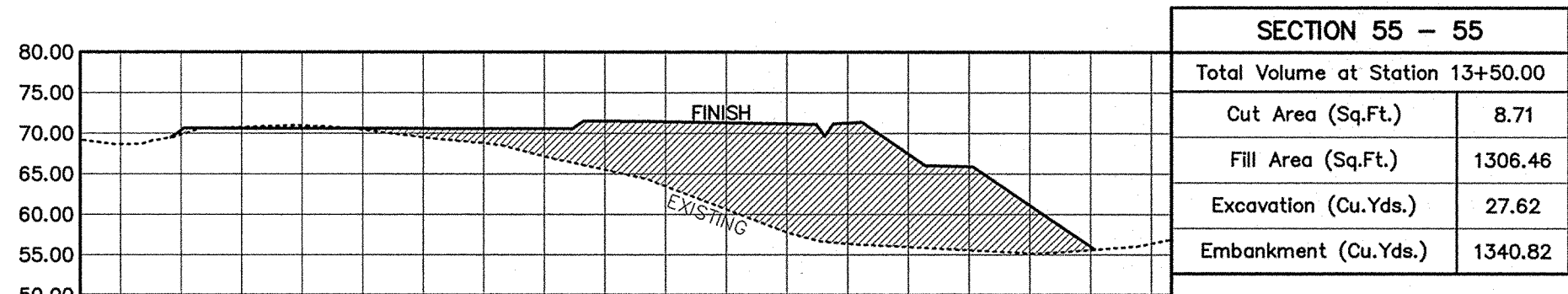
DESIGNED BY: WW
DRAWN BY: CG
DATE: 3/27/12

SHEET
<b>C-15</b>
15 OF 44 SHEETS



LEGEND:

- FINISH GRADE LINE  
EXISTING GRADE LINE  
FILL AREA SECTION  
CUT AREA SECTION

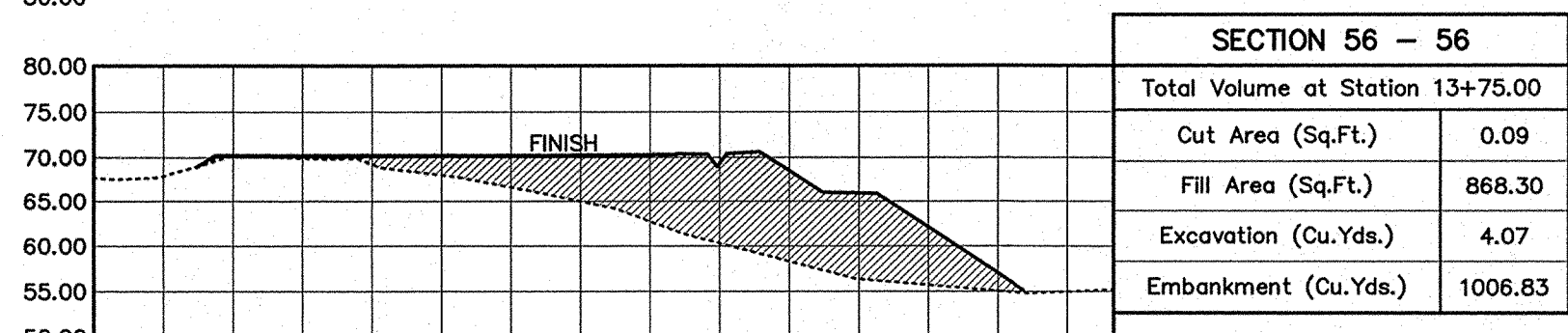
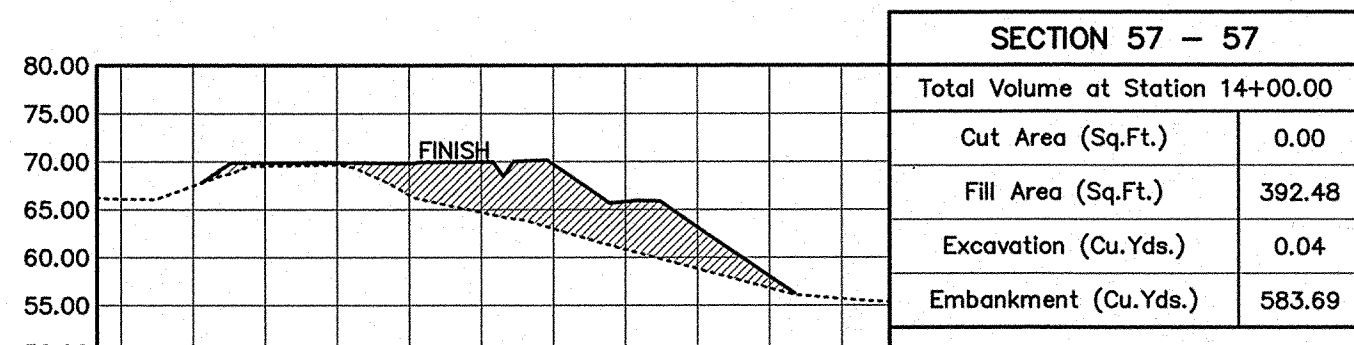
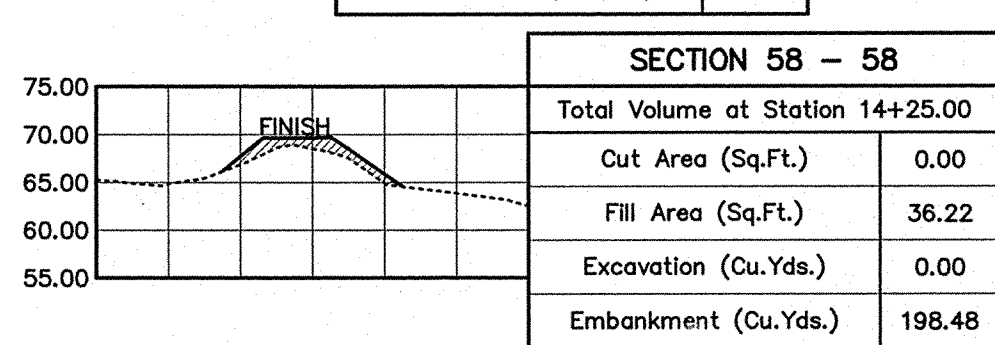
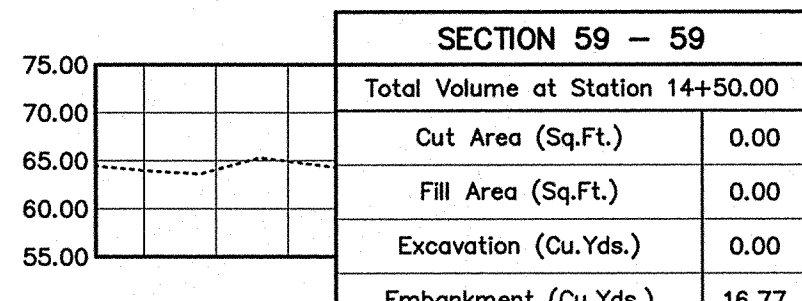


AREA 1 GRADING TOTALS			
GRADED AREA	EMBANKMENT	EXCAVATION	NET VOLUME
9.25 ACRES	43,331 CU.YDS.	64,392 CU.YDS.	21,061 CU.YDS. (CUT)

AREA 2 GRADING TOTALS			
GRADED AREA	EMBANKMENT	EXCAVATION	NET VOLUME
2.38 ACRES	19,931 CU.YDS.	2,981 CU.YDS.	16,950 CU.YDS. (FILL)

AREA 3 GRADING TOTALS			
GRADED AREA	EMBANKMENT	EXCAVATION	NET VOLUME
4.89 ACRES	19,574 CU.YDS.	12,017 CU.YDS.	7,557 CU.YDS. (FILL)

OVERALL GRADING TOTALS			
GRADED AREA	EMBANKMENT	EXCAVATION	NET VOLUME
16.52 ACRES	82,836 CU.YDS.	79,390 CU.YDS.	3,446 CU.YDS. (FILL)



SECTION VIEW  
HORIZONTAL SCALE: 1" = 40'  
VERTICAL SCALE: 1" = 20'

Total Volume Table						
Section Number	Station	Fill Area (Sq.Ft.)	Cut Area (Sq.Ft.)	Embankment (Cu.Yds.)	Excavation (Cu.Yds.)	Cumulative Embankment (Cu.Yds.)
1 - 1	0+00.00	0.00	0.00	0.00	0.00	0.00
2 - 2	0+25.00	5.42	0.00	2.51	0.00	2.51
3 - 3	0+50.00	32.34	0.00	17.48	0.00	19.99
4 - 4	0+75.00	67.55	0.00	46.25	0.00	66.24
5 - 5	1+00.00	124.41	0.00	88.87	0.00	155.11
6 - 6	1+25.00	193.04	20.95	146.97	9.70	302.09
7 - 7	1+50.00	307.85	36.09	231.90	28.41	533.98
8 - 8	1+75.00	490.87	58.14	369.78	43.63	903.76
9 - 9	2+00.00	1329.30	246.26	842.67	140.93	1746.43
10 - 10	2+25.00	1789.12	365.61	1443.71	283.27	3190.14
11 - 11	2+50.00	2059.92	211.68	1781.96	267.26	4972.10
12 - 12	2+75.00	2601.64	162.57	2158.13	173.26	7130.23
13 - 13	3+00.00	3099.78	314.60	2639.55	220.91	9769.77
14 - 14	3+25.00	3479.64	368.39	3046.03	316.20	12815.80
15 - 15	3+50.00	3314.15	380.57	3145.27	346.74	15961.07
16 - 16	3+75.00	3434.61	638.94	3124.43	471.99	19085.50
17 - 17	4+00.00	3137.18	743.59	3042.49	640.06	22127.99
18 - 18	4+25.00	2207.58	741.58	2474.42	687.58	24602.41
19 - 19	4+50.00	2236.60	1078.92	2057.49	842.82	26659.90
20 - 20	4+75.00	2223.83	1842.61	2065.01	1352.56	28724.92
21 - 21	5+00.00	1905.08	1991.17	1911.53	1774.90	30636.45
22 - 22	5+25.00	1934.42	2394.66	1777.54	2030.48	32413.99
23 - 23	5+50.00	1909.36	2791.36	1779.53	2400.93	34193.52
24 - 24	5+75.00	1517.44	2958.16	1586.48	2661.81	35780.00
25 - 25	6+00.00	1585.71	3292.15	1436.64	2893.66	37216.64
26 - 26	6+25.00	1757.31	3281.55	1547.69	3043.38	38764.34
27 - 27	6+50.00	1659.36	2920.34	1561.79	2871.24	40346.13
28 - 28	6+75.00	1722.50	3258.08	1565.68	2880.38	41911.81
29 - 29	7+00.00	1784.81	3093.69	1623.75	2940.64	43535.56
30 - 30	7+25.00	1641.43	3170.59	1586.22	2900.13	45121.78
31 - 31	7+50.00	1683.29	3342.29	1539.22	3015.22	46661.01
32 - 32	7+75.00	1752.66	3239.67	1590.72	3047.20	48251.73
33 - 33	8+00.00	1705.86	3297.06	1601.17	3026.26	49852.89
34 - 34	8+25.00	1561.44	3164.67	1512.64	2991.54	51365.53
35 - 35	8+50.00	1631.73	3033.47	1478.32	2869.51	52843.86
36 - 36	8+75.00	1648.11	3198.97	1518.45	2885.39	54362.30
37 - 37	9+00.00	1345.66	2988.69	1386.01	2864.66	55748.31
38 - 38	9+25.00	1327.92	2846.24	1237.77	2701.36	56986.08
39 - 39	9+50.00	1332.86	2772.09	1231.84	2601.08	58217.92
40 - 40	9+75.00	1212.48	2508.70	1178.40	2444.81	59396.32
41 - 41	10+00.00	1164.06	2287.59	1100.25	2220.51	60496.57
42 - 42	10+25.00	1195.94	1996.51	1092.59	1983.38	61589.16
43 - 43	10+50.00	1110.77	1681.45	1067.92	1702.76	62657.08
44 - 44	10+75.00	1151.96	1517.83	1047.56	1481.15	63704.64
45 - 45	11+00.00	1249.36	1630.44	1111.72	1457.53	64816.36
46 - 46	11+25.00	1436.93	1748.29	1243.66	1564.23	66060.02
47 - 47	11+50.00	1693.15	1852.67	1449.11	1667.11	67509.14
48 - 48	11+75.00	1834.28	2002.17	1633.07	1784.65	69142.21
49 - 49	12+00.00	1902.21	1660.65	1729.86	1695.75	70872.06
50 - 50	12+25.00	1987.08	1216.34	1800.60	1331.94	72672.66
51 - 51	12+50.00	1977.87	803.80	1835.63	935.25	74508.28
52 - 52	12+75.00	1980.98	416.18	1832.80	564.80	76341.08
53 - 53	13+00.00	1831.01	113.89	1764.81	245.40	78105.90
54 - 54	13+25.00	1589.71	50.95	1583.67	76.31	79689.57
55 - 55	13+50.00	1306.46	8.71	1340.82	27.62	81030.38
56 - 56	13+75.00	868.30	0.09	1006.83	4.07	82037.22
57 - 57	14+00.00	392.48	0.00	583.69	0.04	82620.91
58 - 58	14+25.00	36.22	0.00	198.48	0.00	82819.39
59 - 59	14+50.00	0.00	0.00	16.77	0.00	82836.16

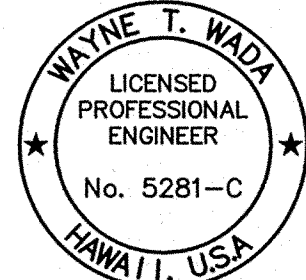
ESAKI  
SURVEYING AND  
MAPPING, INC.

1610 Haleukana Street  
Lihue, Kauai, Hawaii 96766  
Ph. (808) 246-0625 Fax (808) 246-0229

CIVIL ENGINEERS • SURVEYORS • PLANNERS

REVISION

REVISIONS



THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

Wayne T. Wada  
EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway

GRADING  
SECTIONS

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS, COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

DATE: 3/27/12

SHEET

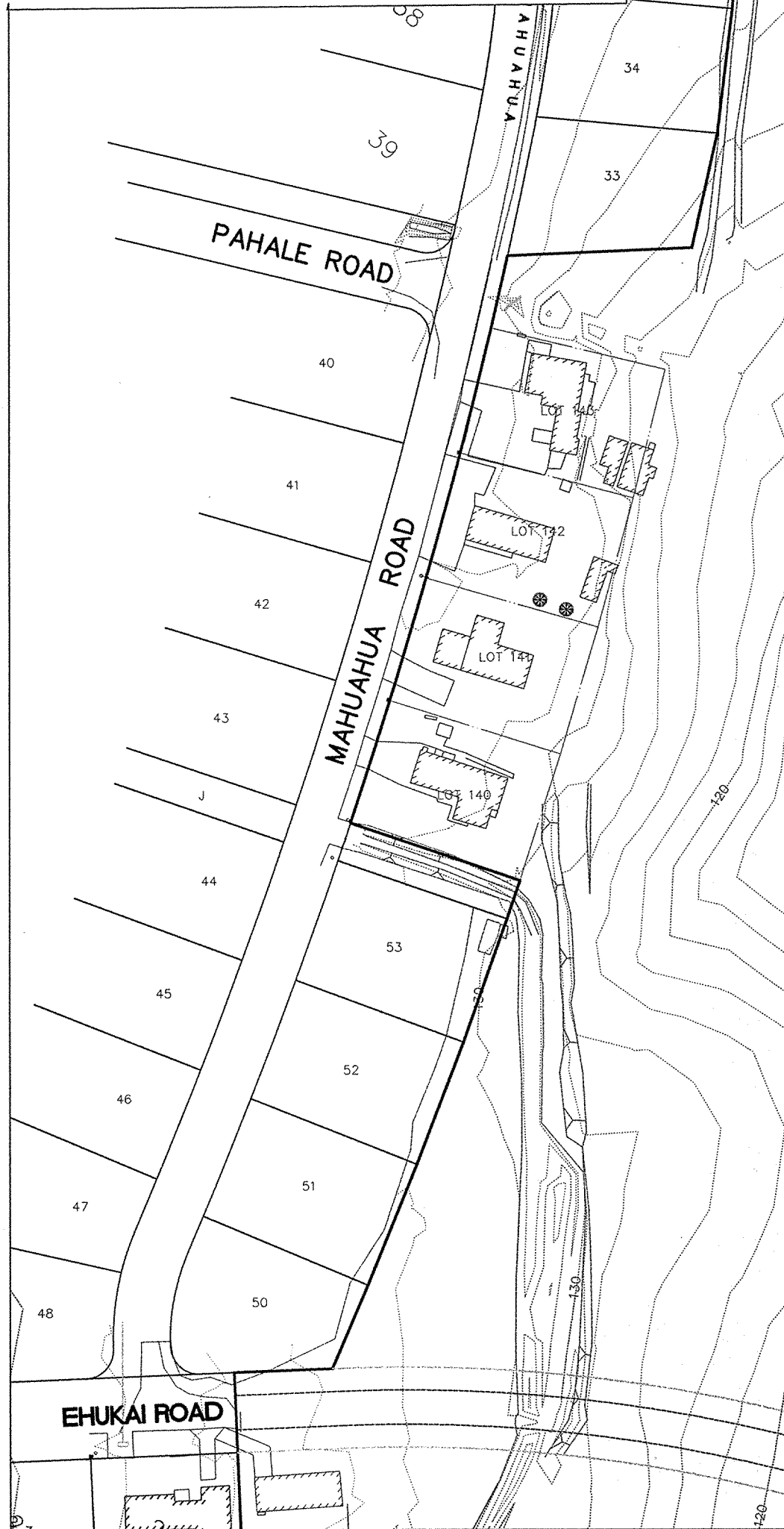
C-16

16 OF 44 SHEETS



NOTES:

1. GRADING SHALL BE DONE IN NUMERICAL INCREMENTS SPECIFIED. BEFORE INITIATING THE NEXT GRADING INCREMENT, THE GRASSING FOR THE PRIOR INCREMENT SHALL BE ESTABLISHED (BARE SPOTS SHALL NOT EXCEED ONE SQUARE FOOT) AND PERMISSION MUST BE OBTAINED FROM THE CONSTRUCTION INSPECTION SECTION, DIVISION OF ENGINEERING, DEPARTMENT OF PUBLIC WORKS.
2. INSTALL SEDIMENT CONTROL DEVICE FOR NEW GRATED INLETS. REMOVE UPON APPROVAL FROM THE CONSTRUCTION INSPECTION SECTION, DIVISION OF ENGINEERING, DEPT. OF PUBLIC WORKS.
3. CONTRACTOR SHALL PROVIDE MAINTENANCE OF PROJECT SILTING BASINS AFTER STORM EVENTS SO THAT REQUIRED CAPACITIES ARE MAINTAINED.



LEGEND:

- EXIST. WATER LINE (PHASE 1)
- EXIST. DRAIN LINE (PHASE 1)
- EXIST. SEWER LINE (PHASE 1)
- NEW DRAIN LINE (PHASE 2)
- BOUNDARY LINE (PHASE 2)
- EXISTING BOUNDARY LINE (PHASE 1)
- NEW PAVEMENT LINE (PHASE 2)
- FUTURE PAVEMENT LINE (PHASE 3)
- EXISTING TOPO OBJECTS
- 110 NEW CONTOUR LINE (10' INCREMENTS)
- 112 NEW CONTOUR LINE (2' INCREMENTS)
- 110 EXIST. CONTOUR LINE (10' INCREMENTS)
- 112 EXIST. CONTOUR LINE (2' INCREMENTS)
- FILTER FABRIC FENCE
- DUST SCREEN FENCE
- 23 LOT NUMBER
- D18 DRAIN INLET
- DRAIN PIPE
- DRAIN MANHOLE
- FLOW DIRECTION

AREA 1 GRADING TOTALS			
GRADED AREA	EMBANKMENT	EXCAVATION	NET VOLUME
9.25 ACRES	43,331 CU.YDS.	64,392 CU.YDS.	21,061 CU.YDS. (CUT)
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GRADED AREA	EMBANKMENT	EXCAVATION	NET VOLUME
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OVERALL GRADING TOTALS			
GRADED AREA	EMBANKMENT	EXCAVATION	NET VOLUME
16.52 ACRES	82,836 CU.YDS.	79,390 CU.YDS.	3,446 CU.YDS. (FILL)

GRADING SEQUENCE:

1. CONSTRUCT GRAVEL CONSTRUCTION INGRESS/EGRESS.
2. INSTALL DUST SCREENS AND SILT FENCE.
3. CONSTRUCT TEMP. EARTH BERMS.
4. INSTALL 24" TEMP. DRAIN AND GRAVEL FILTER BERM.
5. PHASE 1: (AREA 1)
  - A. CLEAR AND GRUB AREAS TO BE GRADED
  - B. INSTALL SUBDRAIN
  - C. BEGIN GRADING AT LOWER ENDS OF WORK AREA
  - D. GRASS EXPOSED AREAS AS SOON AS FINISH GRADES ATTAINED
6. PHASE 2: (AREA 2)
  - A. CLEAR AND GRUB AREAS TO BE GRADED
  - B. INSTALL SUBDRAIN
  - C. BEGIN GRADING AT LOWER ENDS OF WORK AREA
  - D. GRASS EXPOSED AREAS AS SOON AS FINISH GRADES ATTAINED
7. PHASE 3: (AREA 3)
  - A. CLEAR AND GRUB AREA TO BE GRADED
  - B. INSTALL SUBDRAIN
  - C. BEGIN GRADING AT LOWER END OF WORK AREA
  - D. GRASS EXPOSED AREAS AS SOON AS FINISH GRADES ATTAINED

**ESAKI**  
**URVEYING AND**  
**APPING, INC.**

1610 Haleukana Street  
Lihua, Kauai, Hawaii 96766  
Ph. (808) 246-0625 Fax (808) 246-0229

• CIVIL ENGINEERS • SURVEYORS • PLANNERS

REVISION	DATE	DESCRIPTION	BY	APPROVED
----------	------	-------------	----	----------

REVISIONS



THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kauai, Hawaii  
Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**EROSION  
CONTROL PLAN**

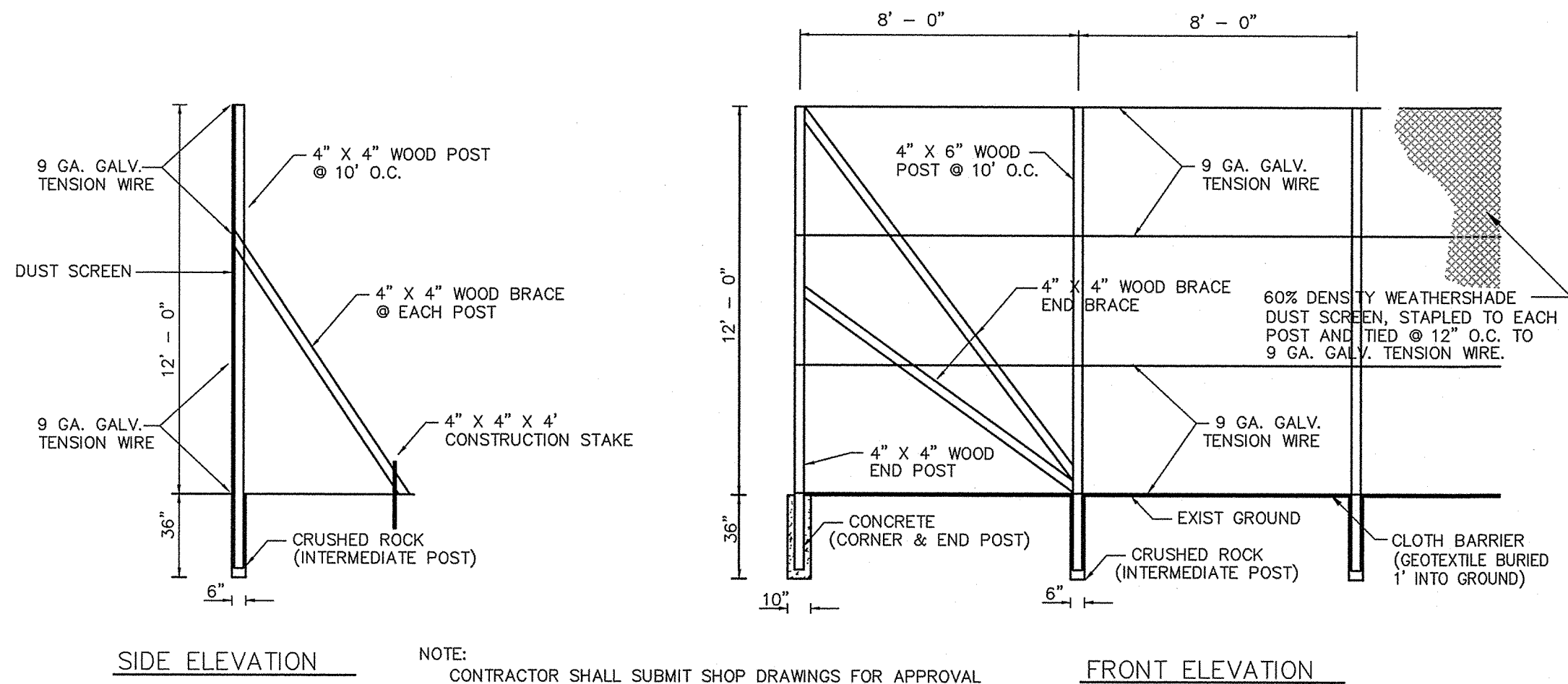
APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW	SHEET
DRAWN BY: CG	C-17
DATE: 03/27/12	17 OF 44 SHEETS

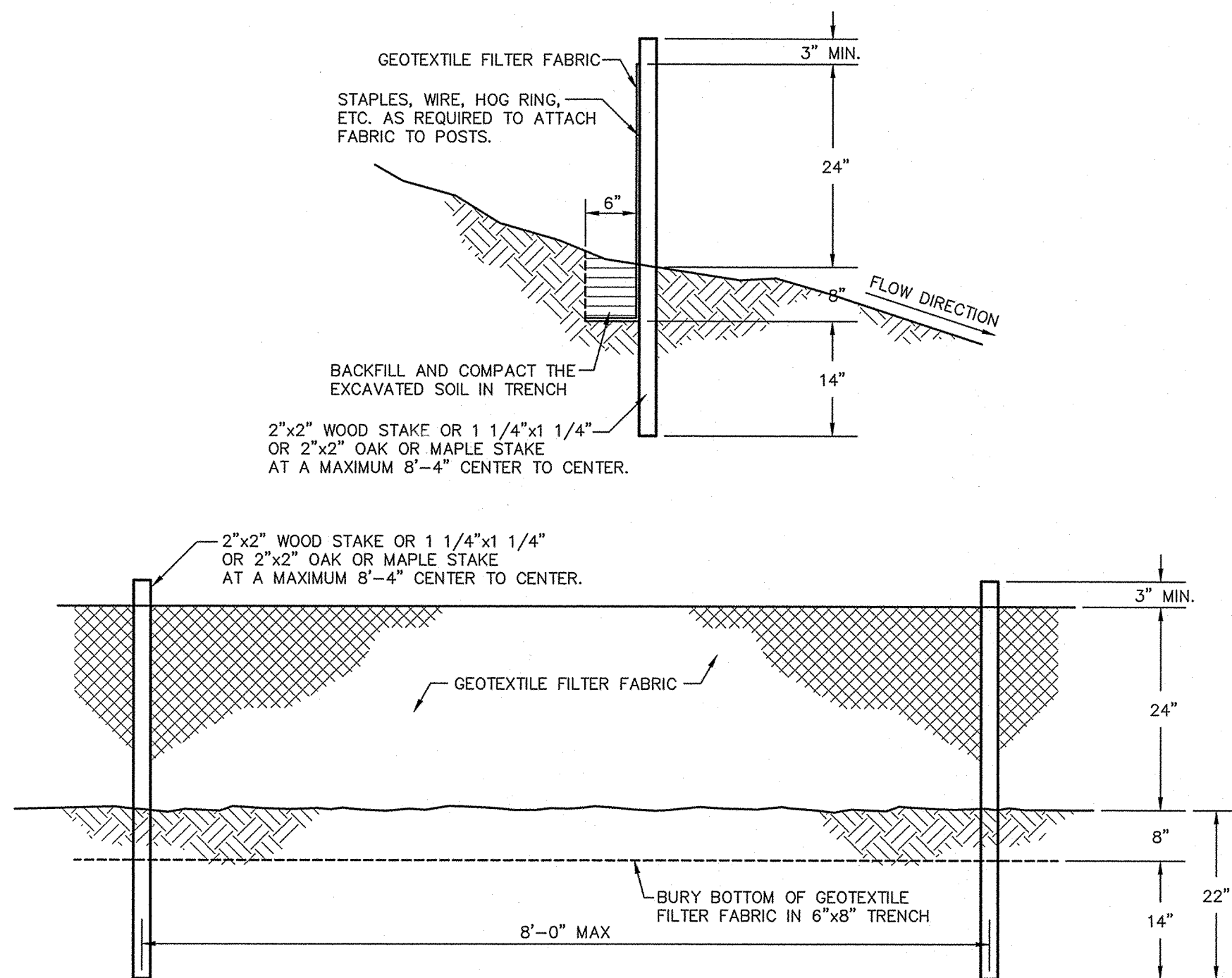




NOTE:  
CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL  
PRIOR TO THE START OF THE PROJECT.

**DUST SCREEN DETAIL**  
N.T.S.

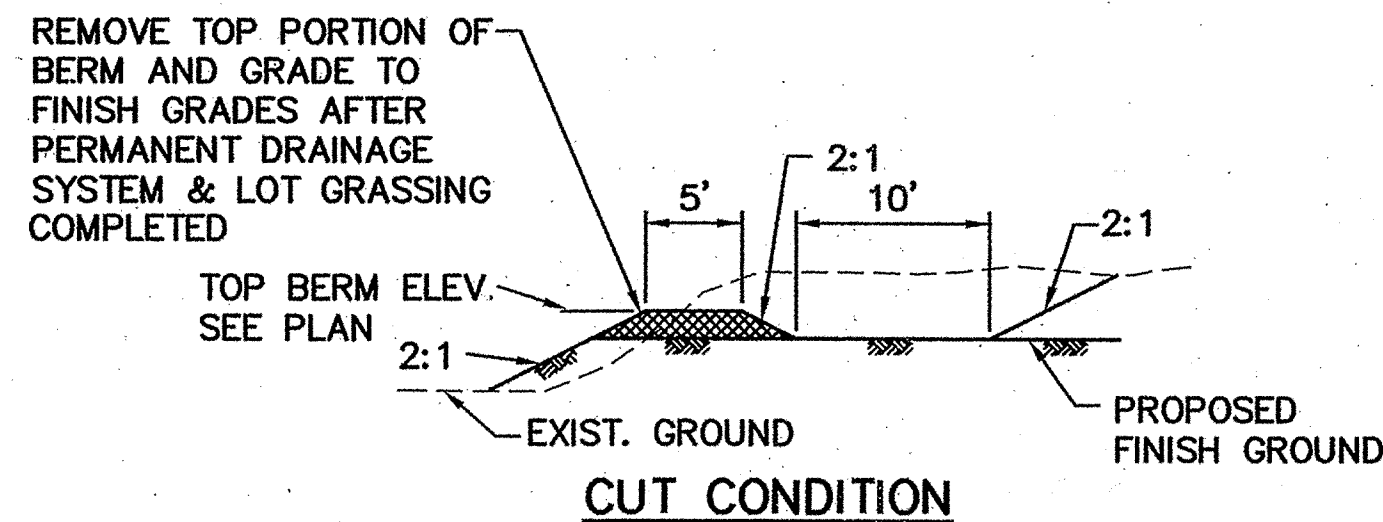
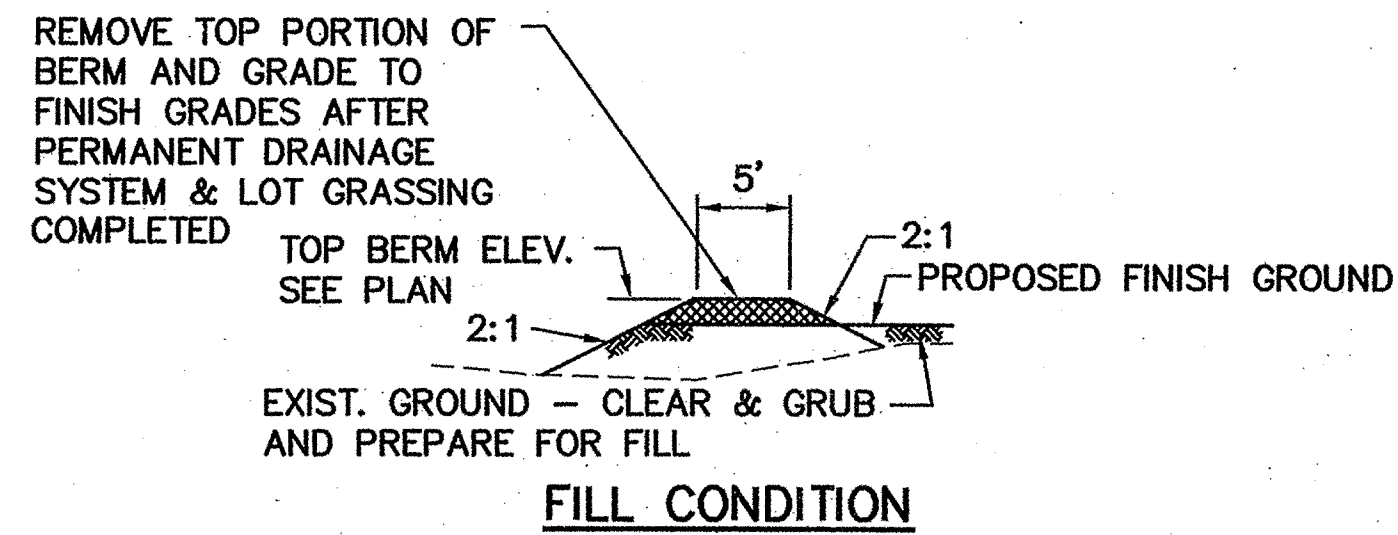
**1 FILTER FABRIC FENCE**  
SCALE: N.T.S.



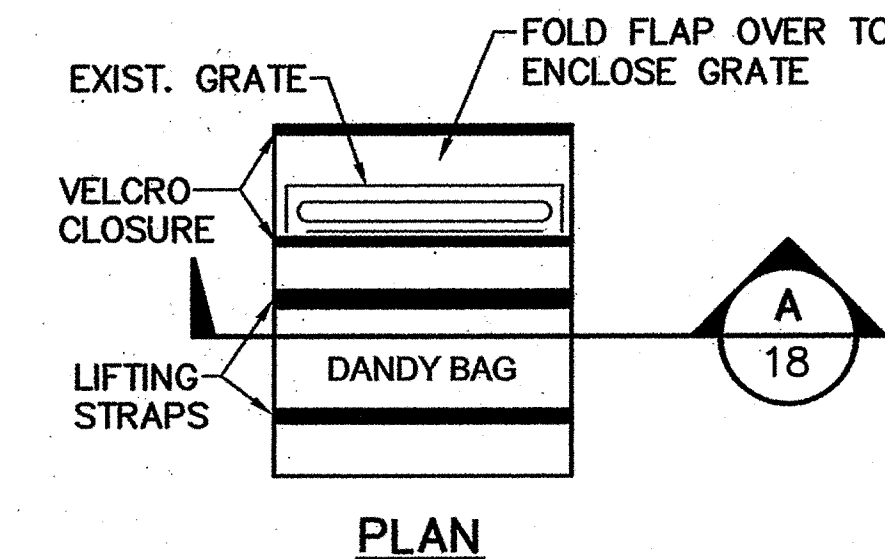
- NOTES:
1. THE FILTER FABRIC SHALL BE A MINIMUM OF 36 INCHES WIDE.
  2. IF SILT FENCE IS OBTAINED FROM MANUFACTURER AS A PACKAGE (I.E. FABRIC ATTACHED TO POST) THE MANUFACTURER'S INSTALLATION INSTRUCTION SHALL BE ADHERED TO.
  3. FENCE STAKES MAY BE WOOD OR METAL, MUST BE CAPABLE OF SUPPORTING ANTICIPATED LOADS.

**FILTER FABRIC FENCE**  
NTS

**4 FILTER FABRIC FENCE**  
SCALE: N.T.S.

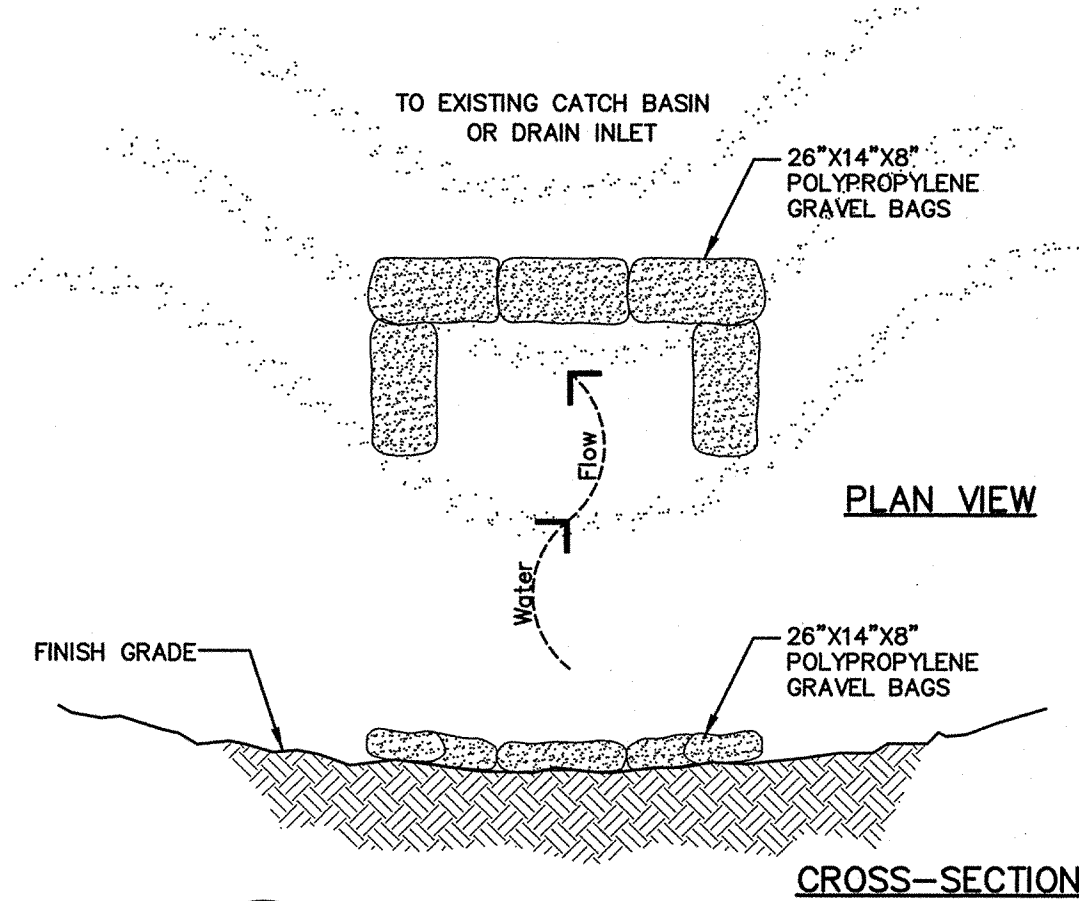


**2 TYPICAL BERM SECTION**  
SCALE: N.T.S.

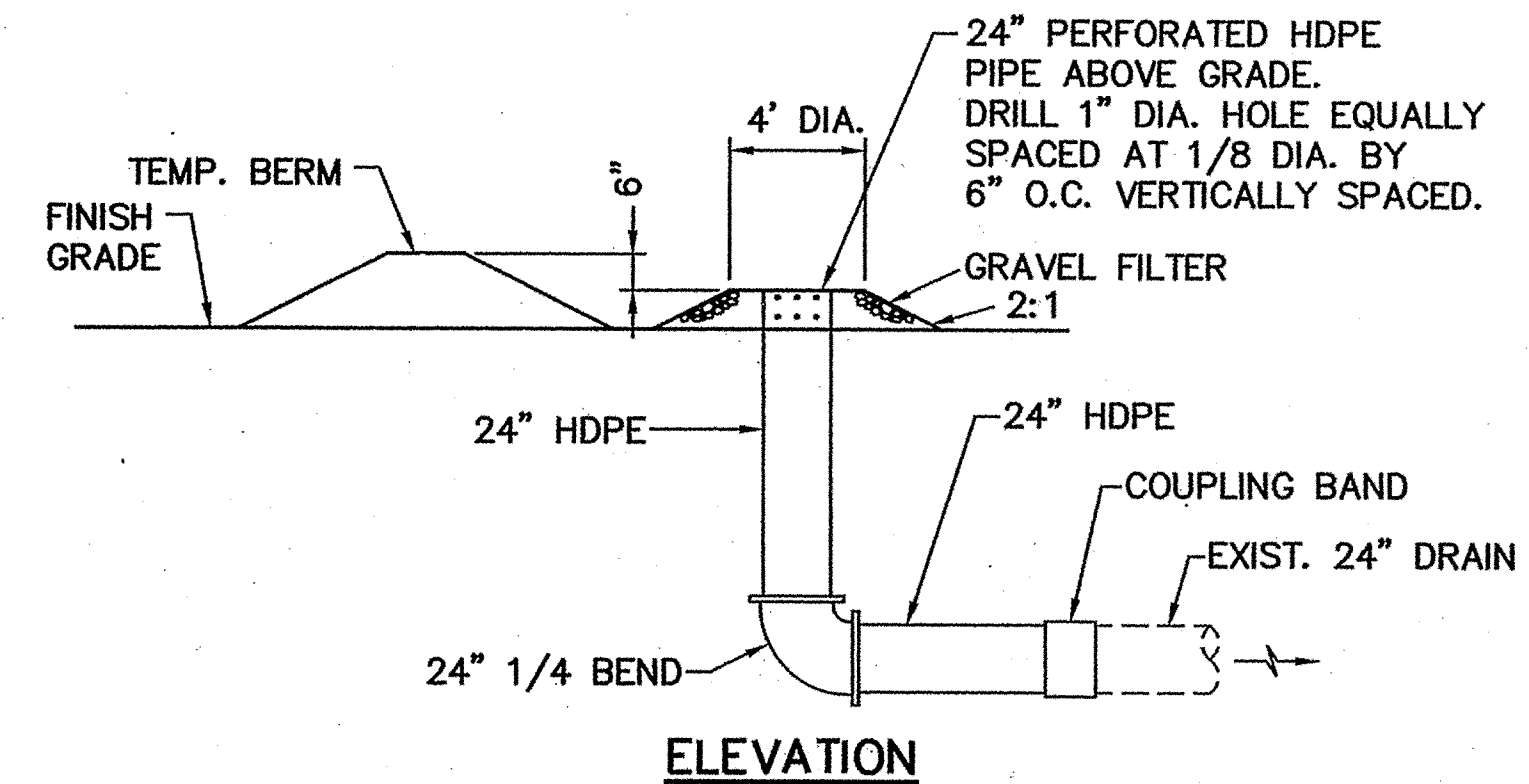


**A SECTION**  
18

**5 SEDIMENT CONTROL DEVICE FOR GRATED INLET**  
SCALE: N.T.S.

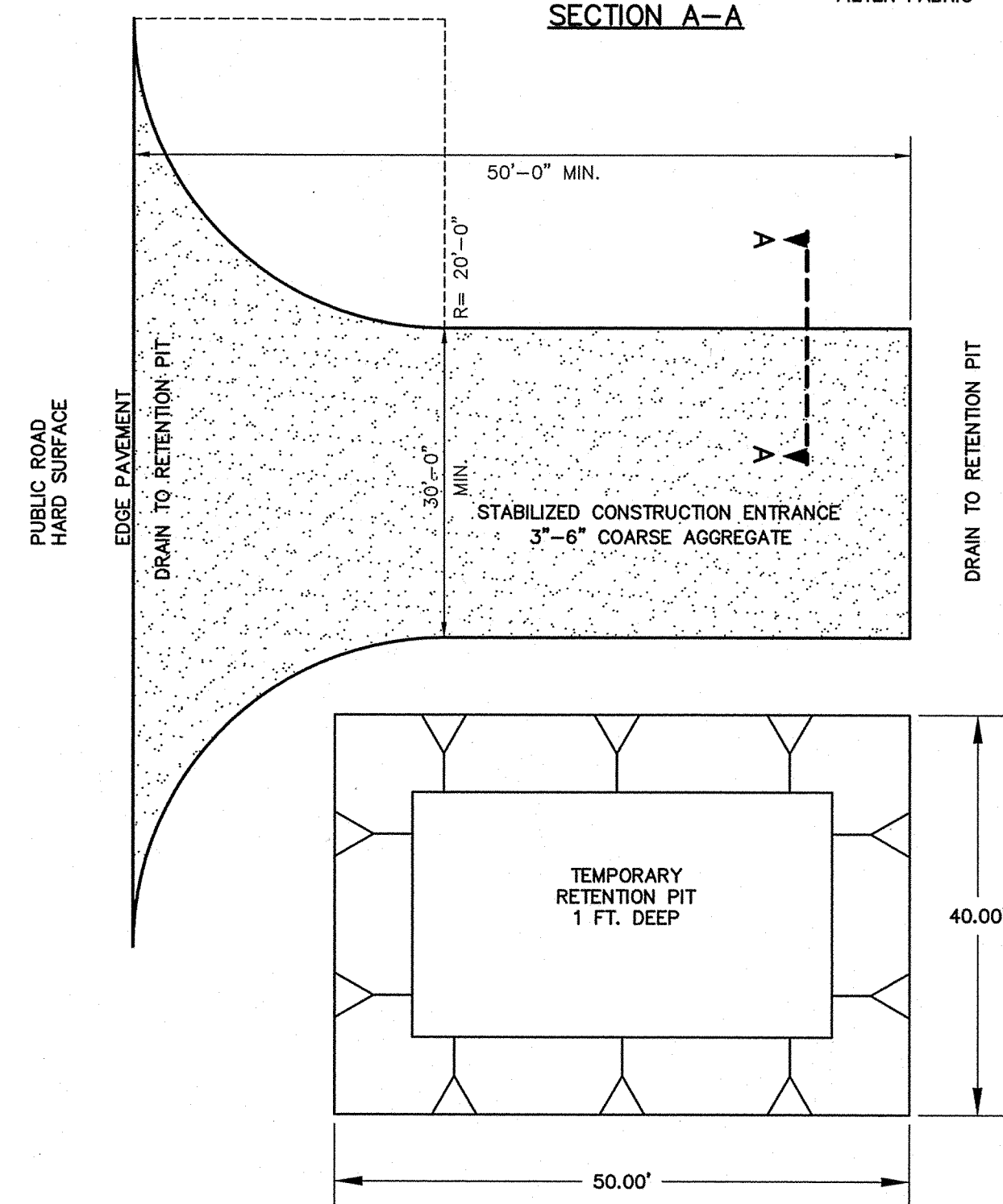
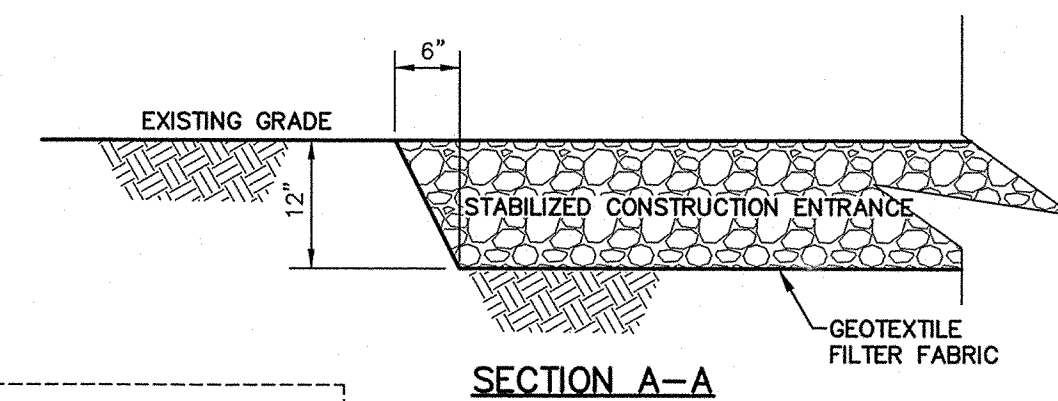


**7 GRAVEL BAG DETAIL**  
SCALE: N.T.S.



**PLAN**  
18

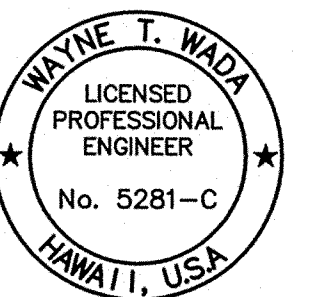
**3 TEMPORARY PERFORATED DRAIN INLET**  
SCALE: N.T.S.



**6 STABILIZED CONSTRUCTION ENTRANCE**  
SCALE: N.T.S.

REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS



THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION**  
**PHASE II**

Anahola, Kauai, Hawaii  
Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89  
Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**EROSION & DUST CONTROL**  
**DETAILS**

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE  
N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

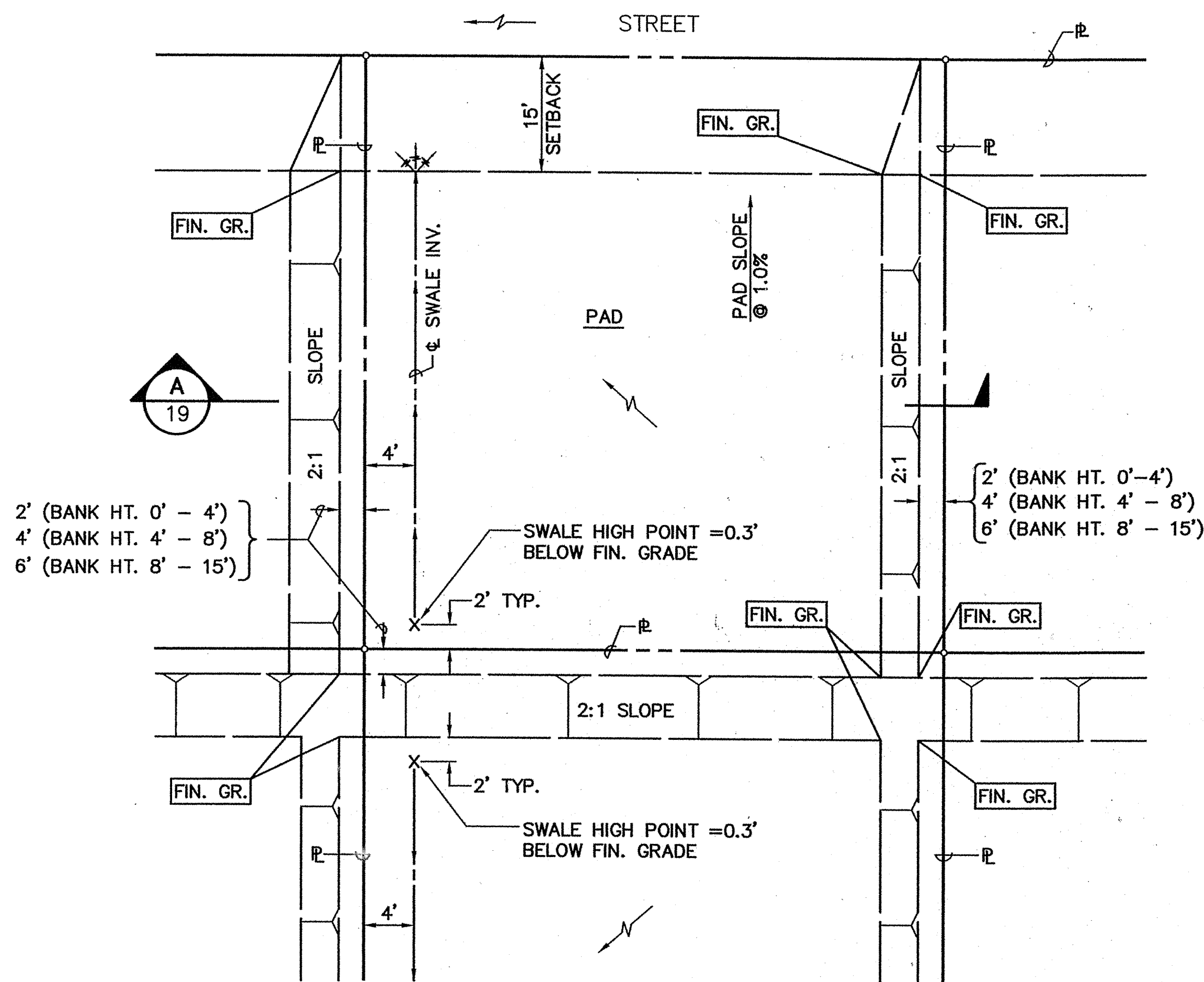
DATE: 3/27/12

SHEET

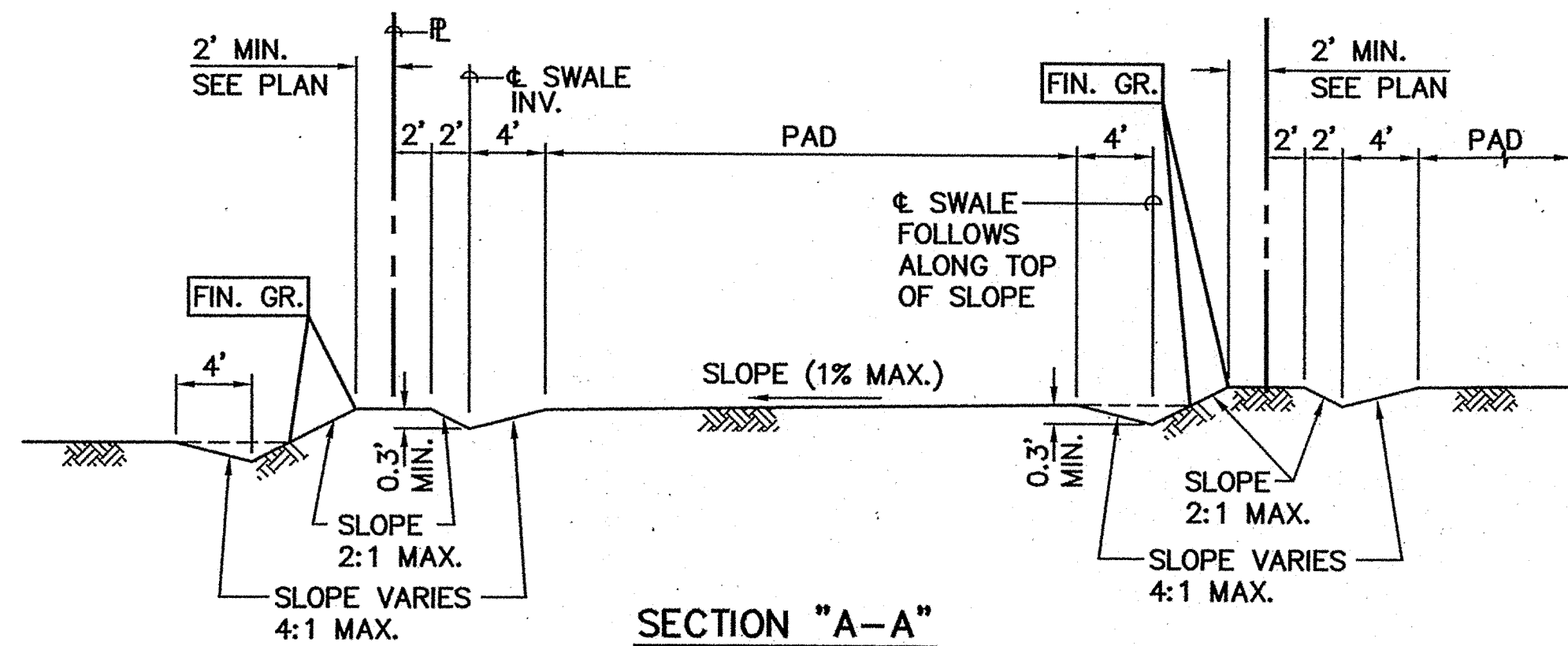
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18 OF 44 SHEETS



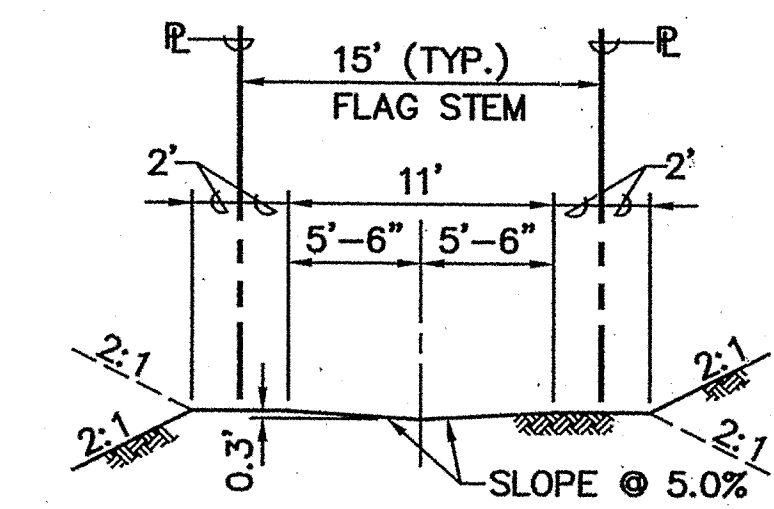


PLAN

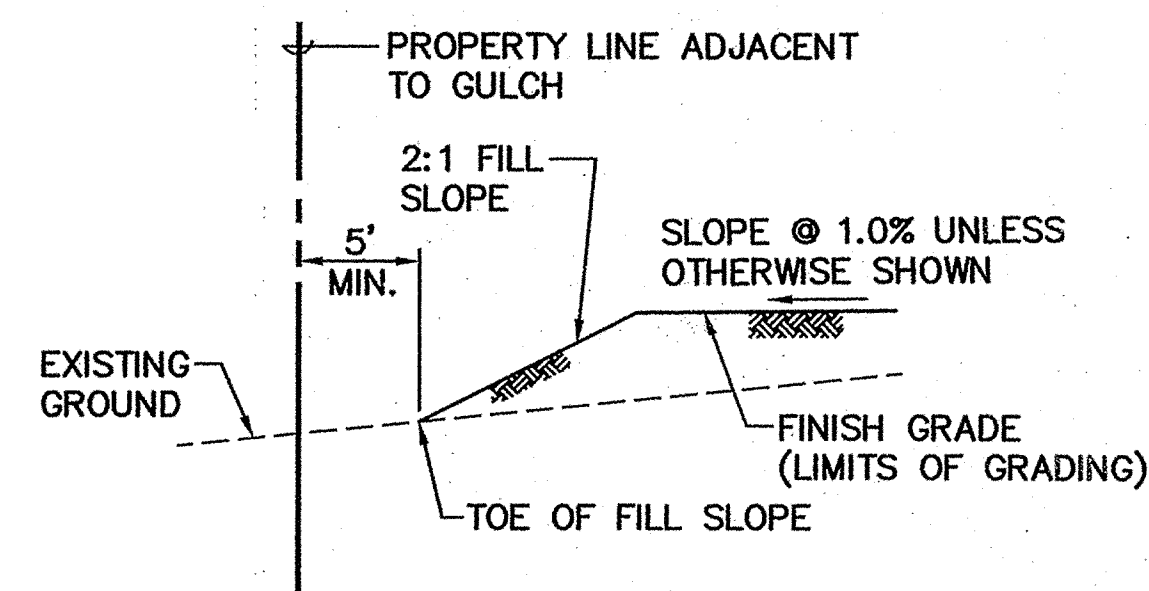


SECTION "A-A"

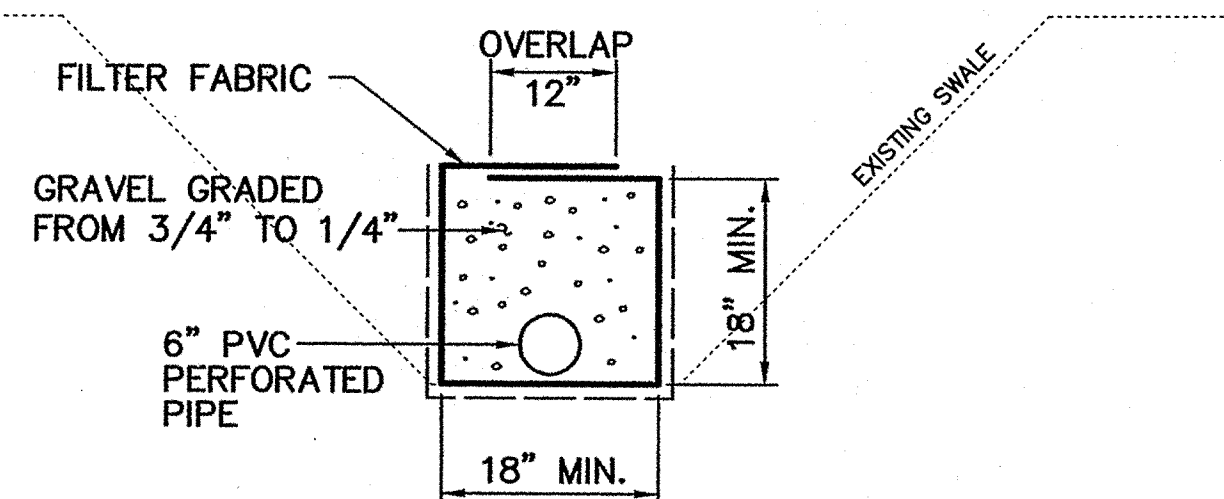
A TYPICAL LOT GRADING DETAIL  
NTS



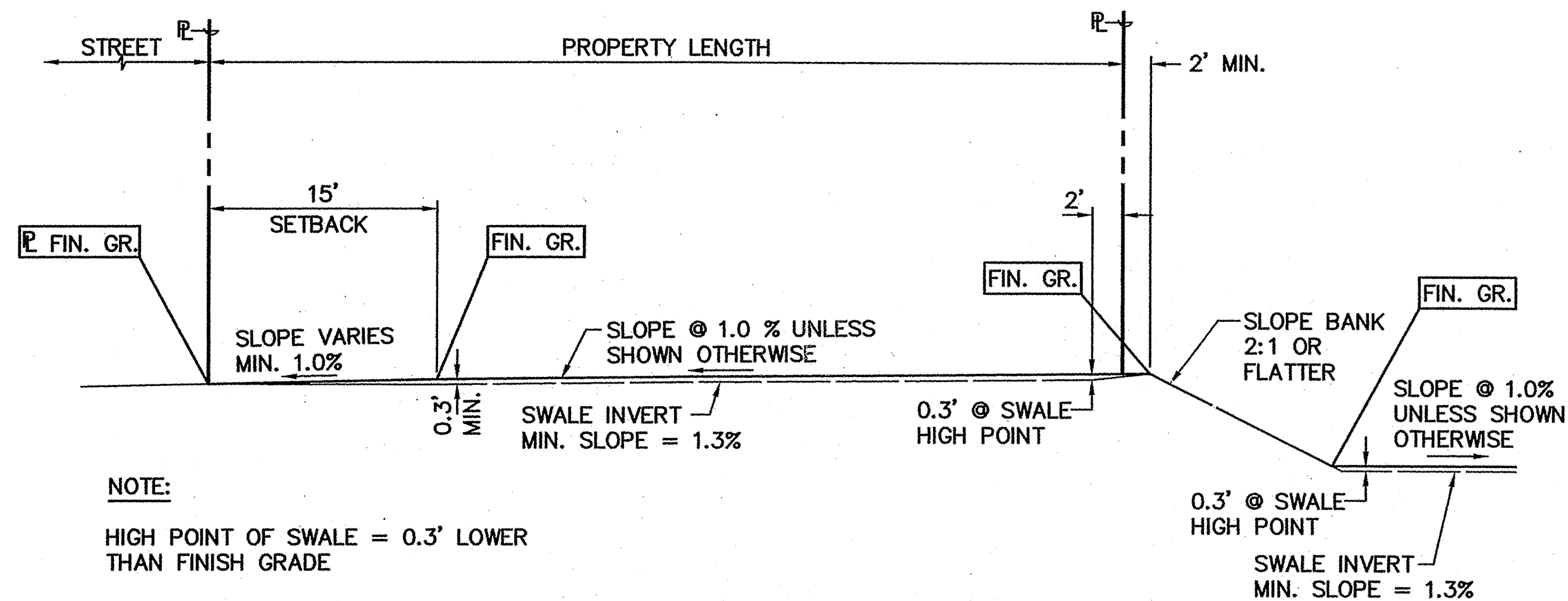
B CONDITION AT FLAG LOT STEM  
NTS



D TYPICAL LONGITUDINAL SECTION OF LOTS  
ADJACENT TO GULCH  
NTS



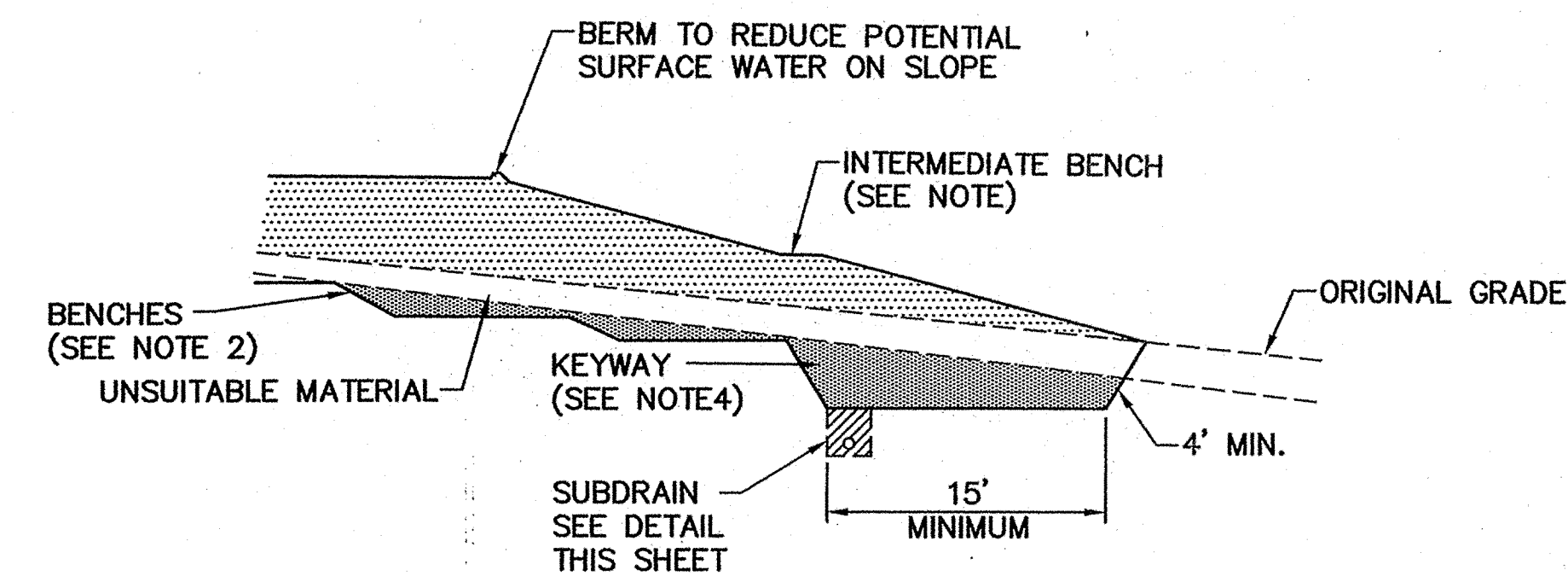
F TYPICAL SUBDRAIN DETAIL  
NTS



NOTE:

HIGH POINT OF SWALE = 0.3' LOWER THAN FINISH GRADE

C TYPICAL LONGITUDINAL SECTION OF PROPERTY  
NTS

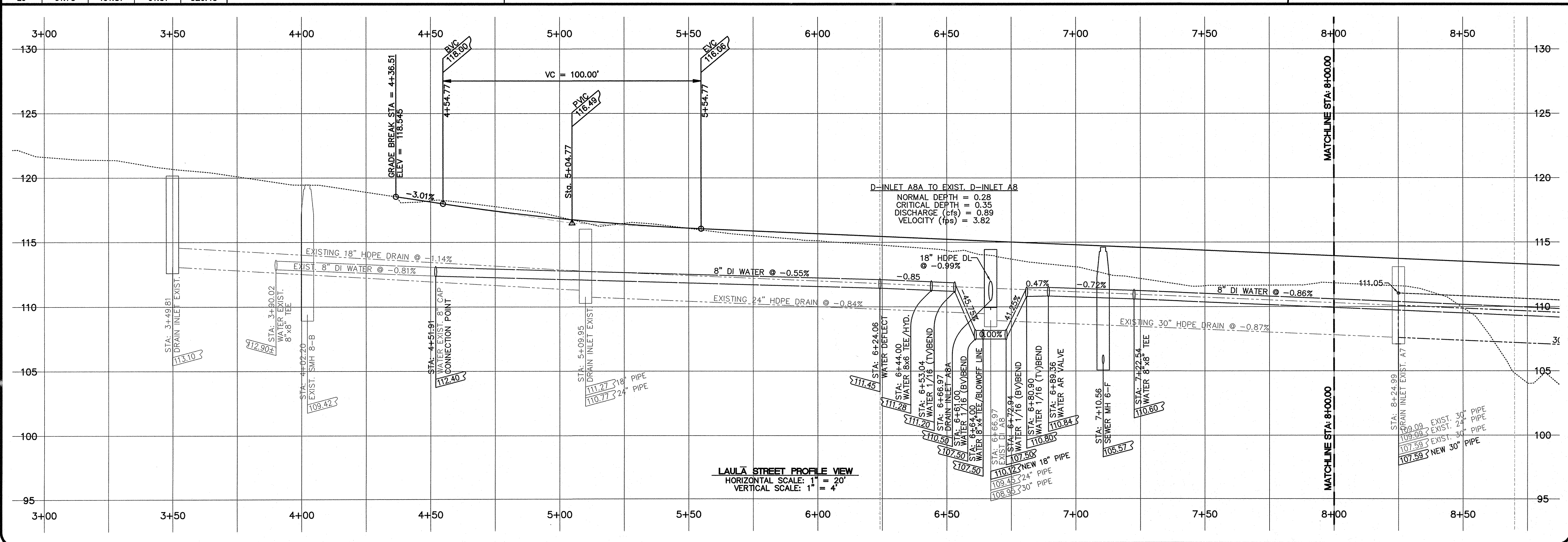
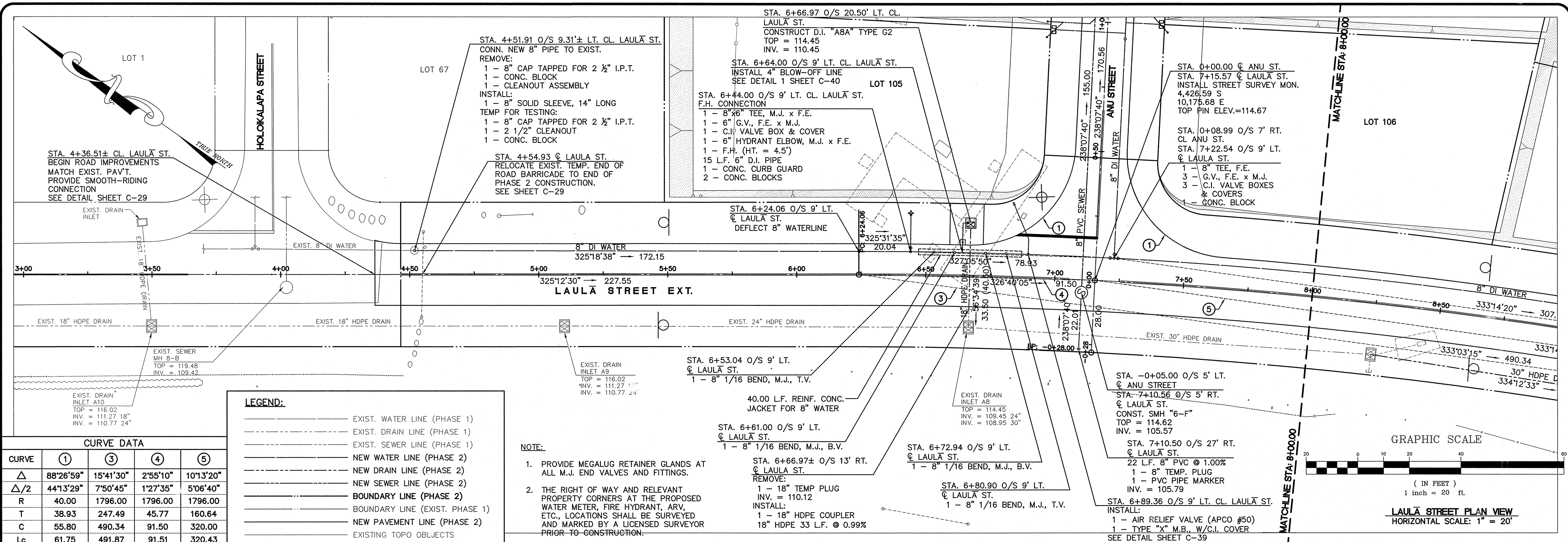


NOTES:

- INTERMEDIATE BENCHES SHOULD BE SPACED EVERY 20 VERTICAL FEET.
- WHERE NATURAL GRADE IS STEEPER THAN 5H:1V, BENCH INTO STIFF SOIL AS RECOMMENDED BY SOIL ENGINEER.
- SUBDRAIN SHOULD DISCHARGE VIA A CLOSED PIPE TO STORM DRAIN OR SUITABLE NATURAL DRAINAGE.
- KEYWAY SHOULD EXTEND AT LEAST 2 FEET INTO STIFF SOIL AS RECOMMENDED BY THE SOIL ENGINEER. KEYWAY WIDTH SHOULD BE A MINIMUM OF 15 FEET OR 1/3 OF THE FILL SLOPE HEIGHT, WHICHEVER IS GREATER. GEO TECH WILL OVERSEE WORK.

E TYPICAL KEYING AND BENCHING DETAIL  
NTS





SAKI

URVEYING AND

APPING, INC.

1610 Haleukana Street  
Lihu'e, Kaua'i, Hawai'i 96766  
Ph. (808) 246-0625 Fax (808) 246-0229

CIVIL ENGINEERS • SURVEYORS • PLANNERS

REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS

WAYNE T. WADA

LICENSED PROFESSIONAL ENGINEER

No. 5281-C

HAWAII, USA

THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

Wayne T. Wada

EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kaua'i, Hawai'i

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

PLAN & PROFILE  
LAULA STREET

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W)

DATE

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI

DATE

DESIGNED BY: WW

DRAWN BY: CG

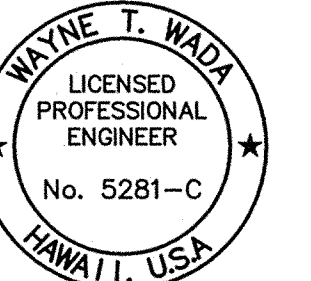
DATE: 03/27/12

SHEET  
C-20  
20 OF 44 SHEETS



REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS



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*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:

**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**PLAN & PROFILE  
LAULA STREET**

APPROVED:

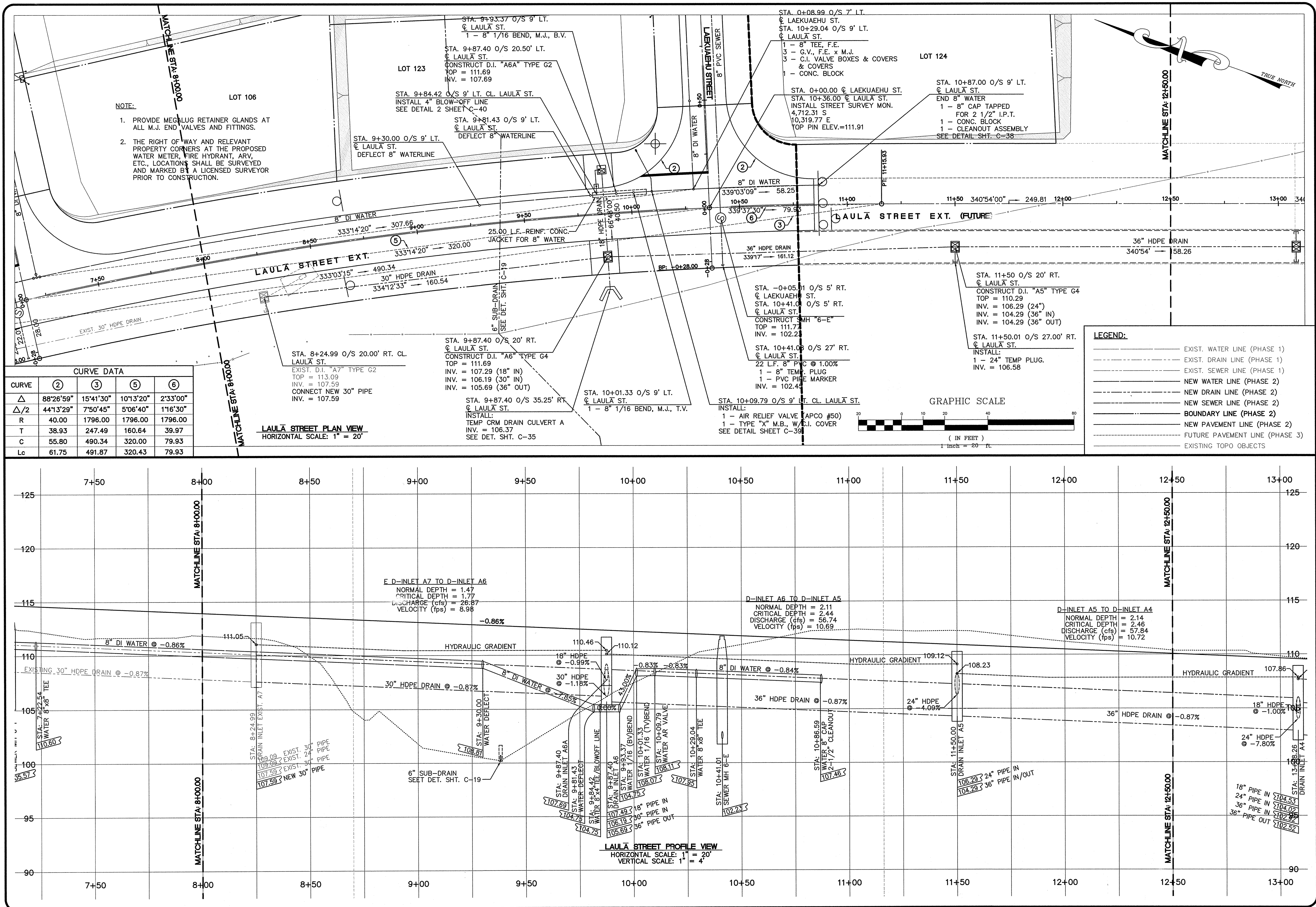
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COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE  
  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW  
DRAWN BY: CG  
DATE: 03/27/12

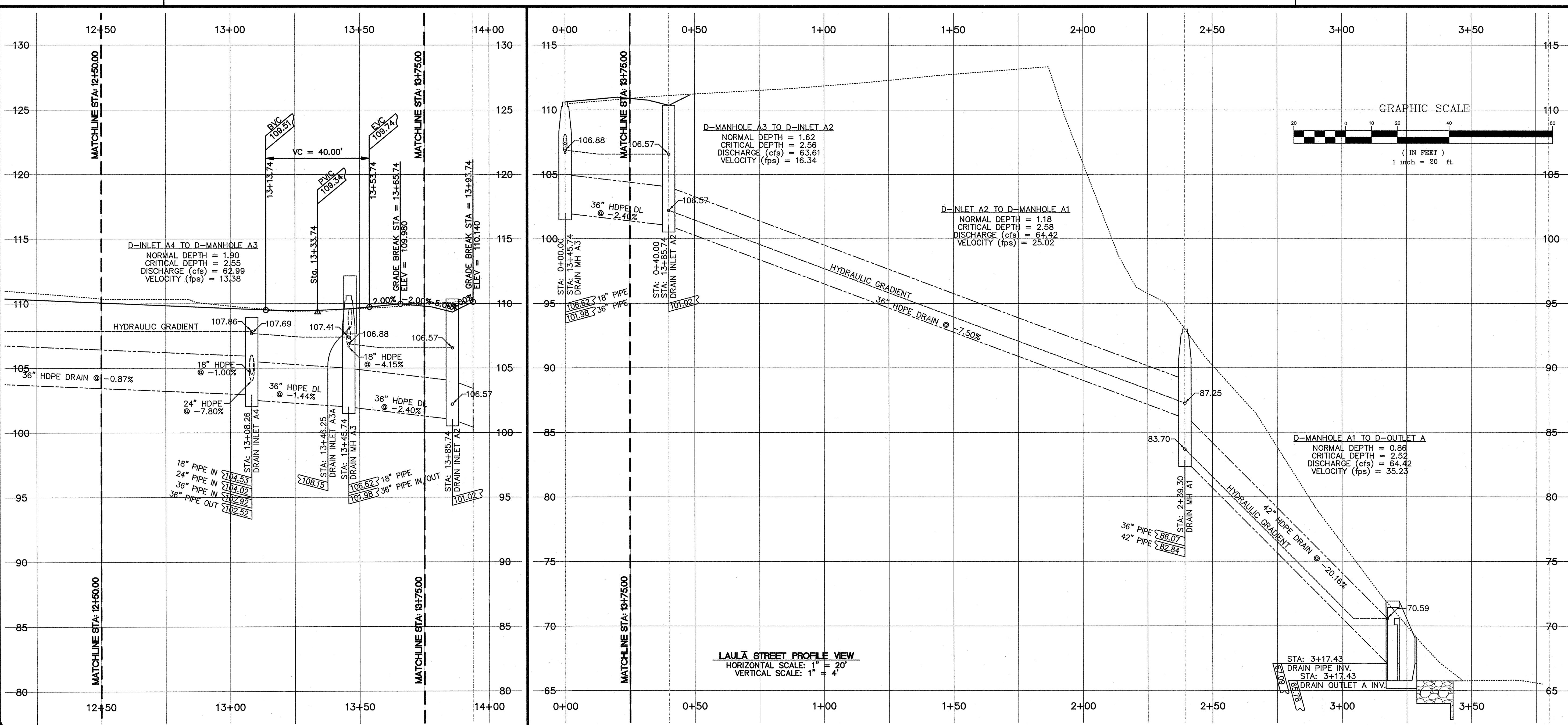
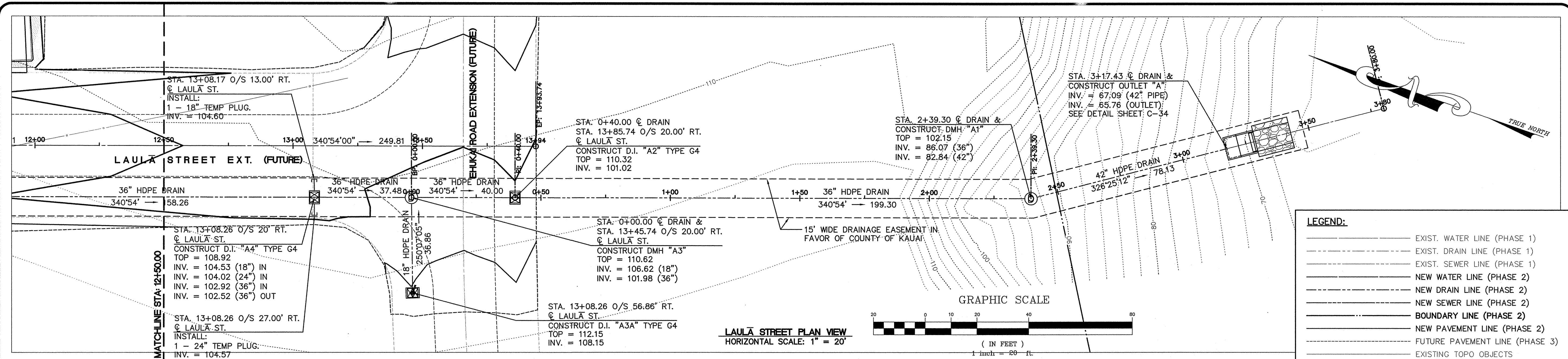
SHEET

**C-21**

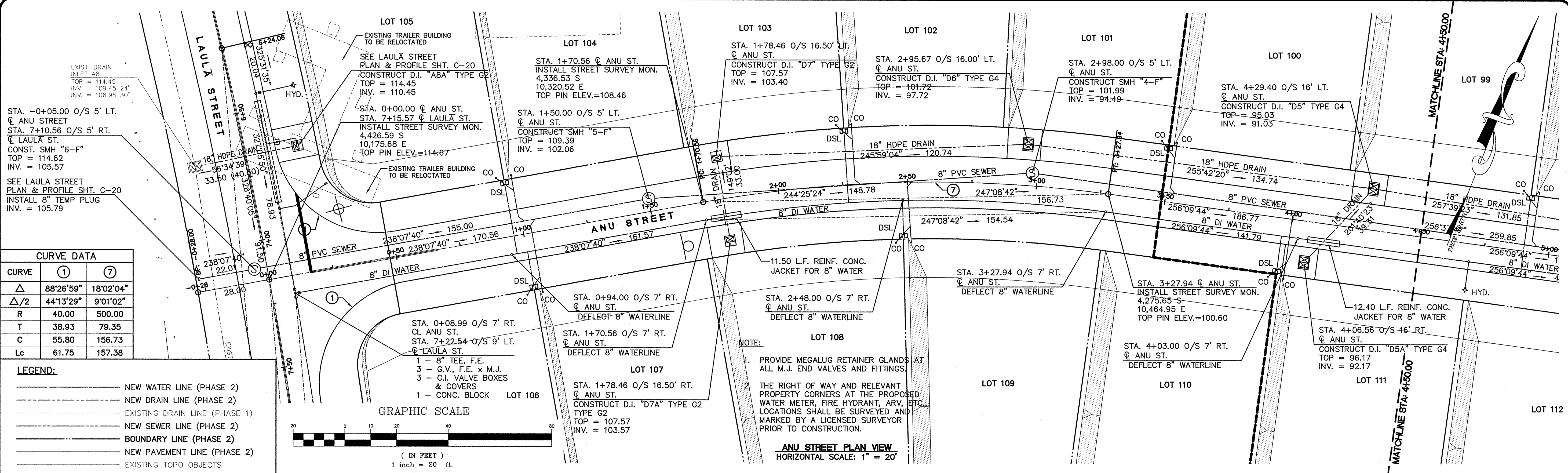
21 OF 44 SHEETS





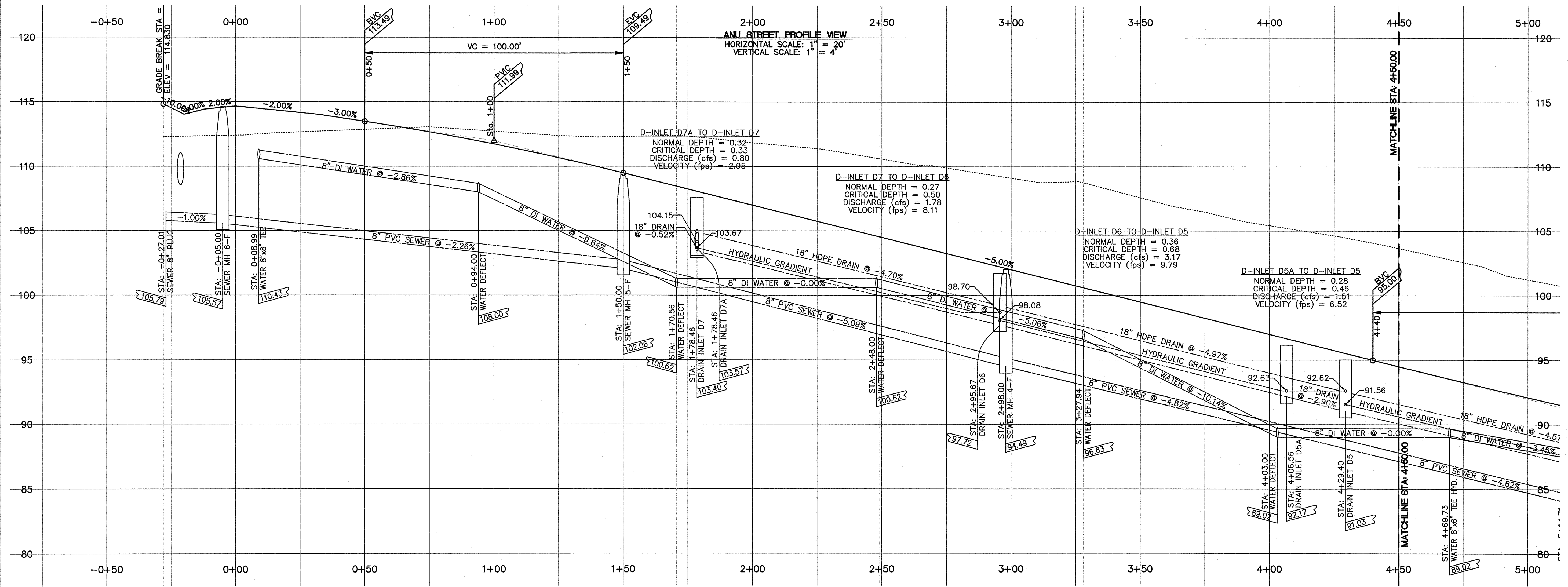
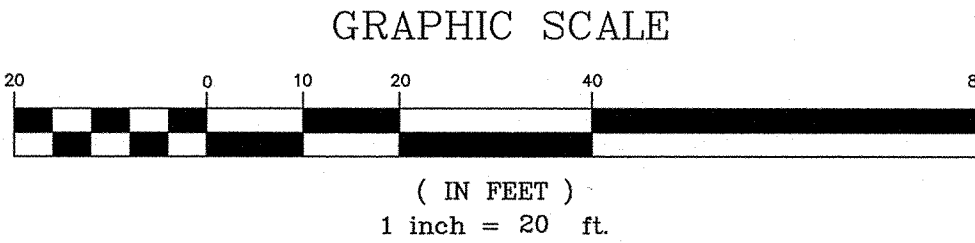






CURVE DATA		
CURVE	①	⑦
Δ	88°26'59"	18°02'04"
Δ/2	44°13'29"	9°01'02"
R	40.00	500.00
T	38.93	79.35
C	55.80	156.73
Lc	61.75	157.38

- LEGEND:**
- NEW WATER LINE (PHASE 2)
  - NEW DRAIN LINE (PHASE 2)
  - EXISTING DRAIN LINE (PHASE 1)
  - NEW SEWER LINE (PHASE 2)
  - BOUNDARY LINE (PHASE 2)
  - NEW PAVEMENT LINE (PHASE 2)
  - EXISTING TOPO OBJECTS



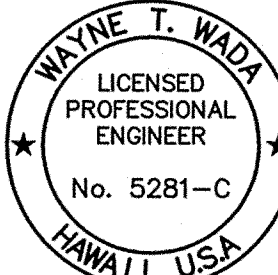
**ESAKI**  
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1610 Haleukana Street  
Lihue, Kaua'i, Hawai'i 96766  
Ph. (808) 246-0625 Fax (808) 246-0229

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REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS



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BY ME OR UNDER MY SUPERVISION

*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kaua'i, Hawai'i

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**PLAN & PROFILE  
ANU STREET**

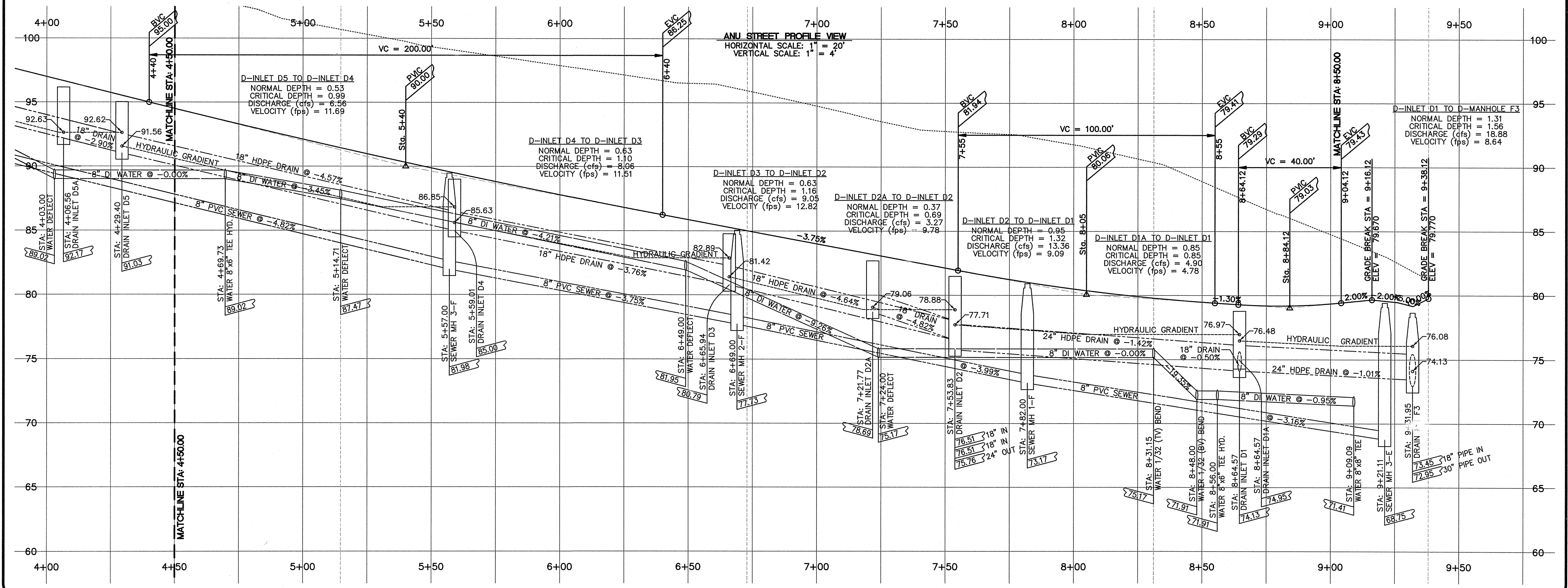
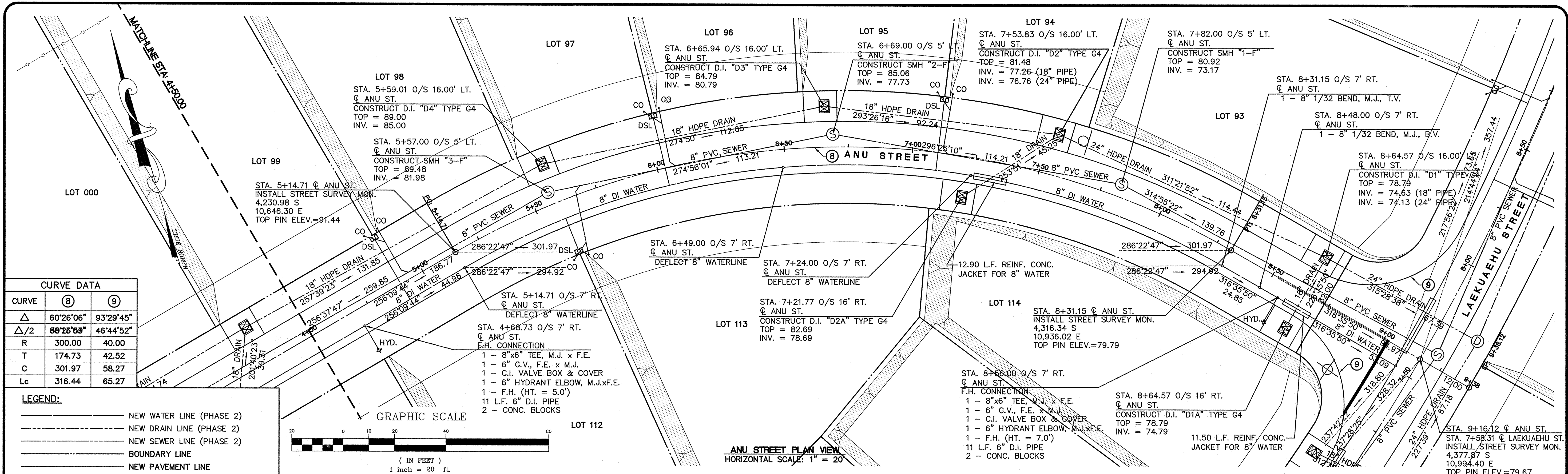
**APPROVED:**

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW	SHEET
DRAWN BY: CG	<b>C-23</b>
DATE: 03/27/12	23 OF 44 SHEETS





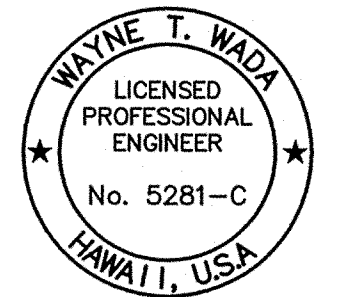
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*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

## PLAN & PROFILE ANU STREET

**APPROVED:**

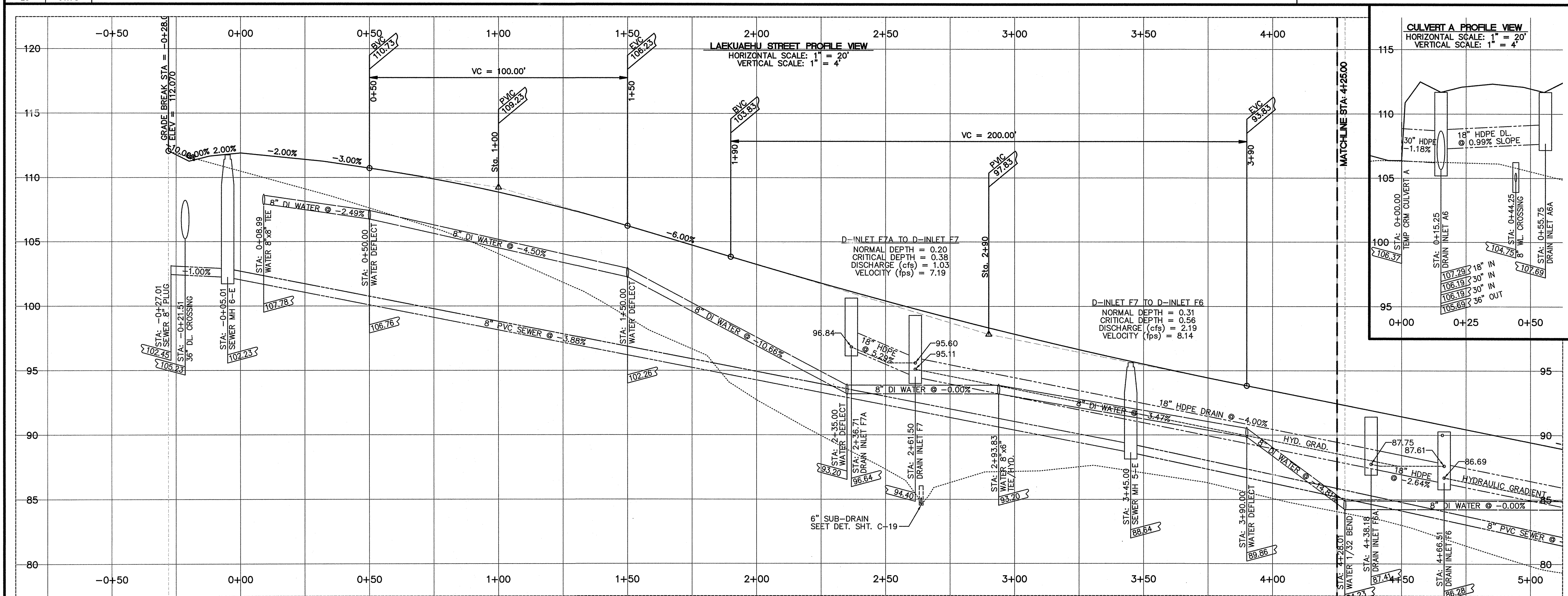
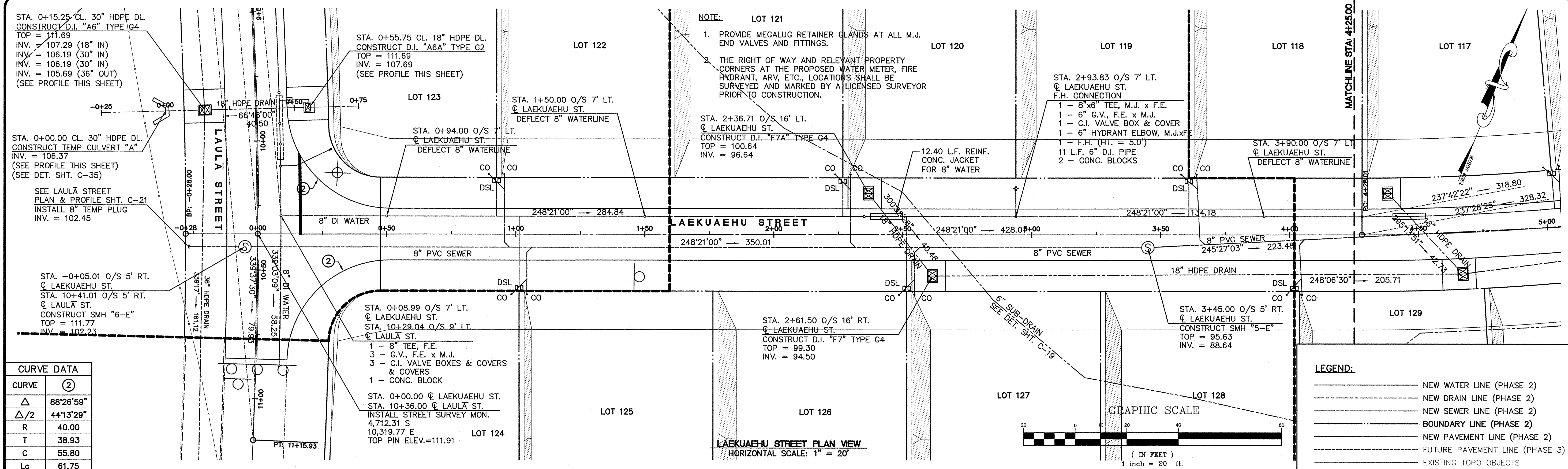
COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

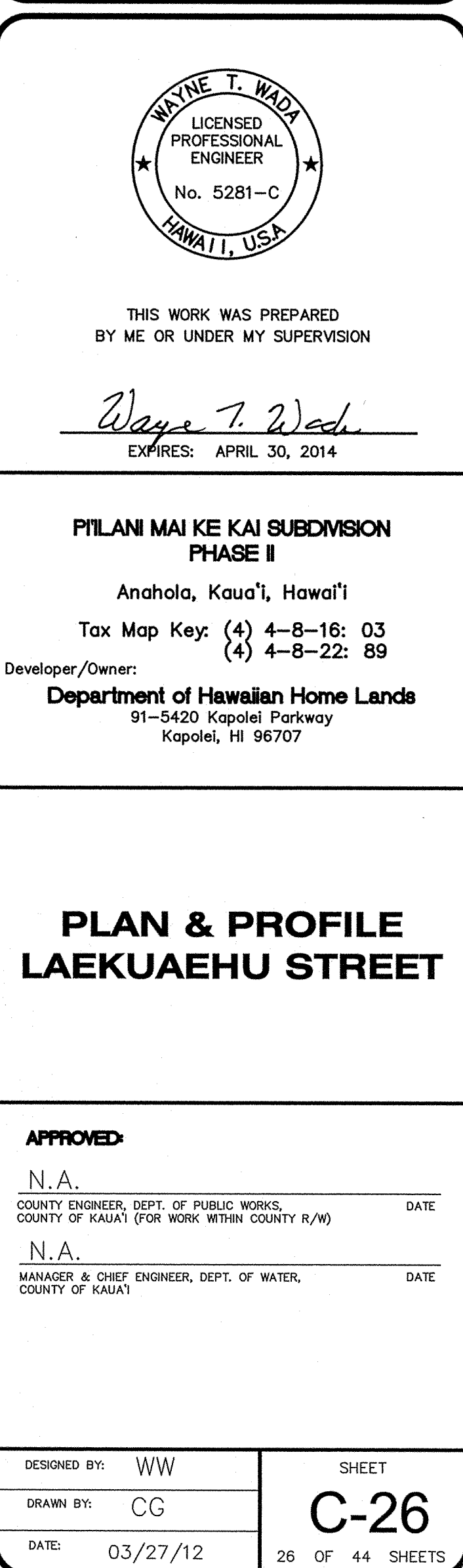
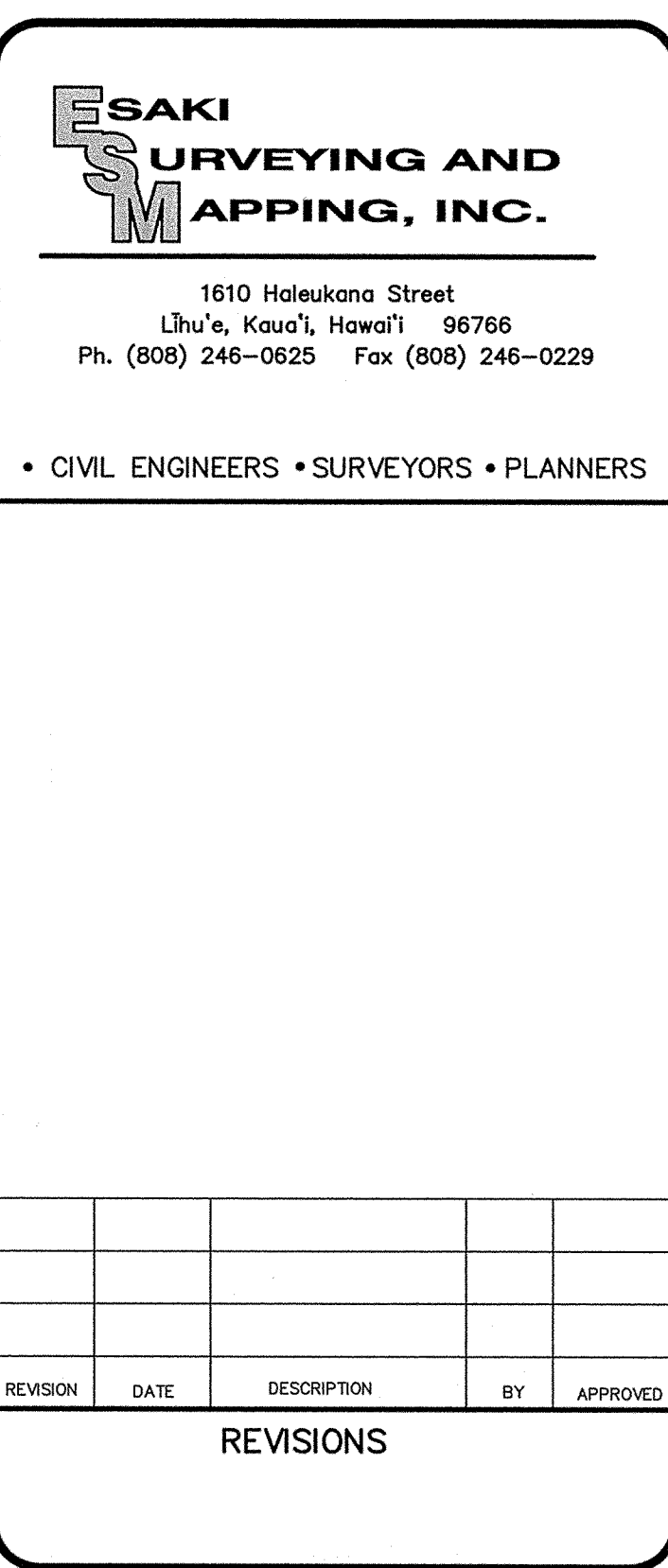
DESIGNED BY: WW  
DRAWN BY: CG  
DATE: 03/27/12

SHEET  
**C-24**  
24 OF 44 SHEETS







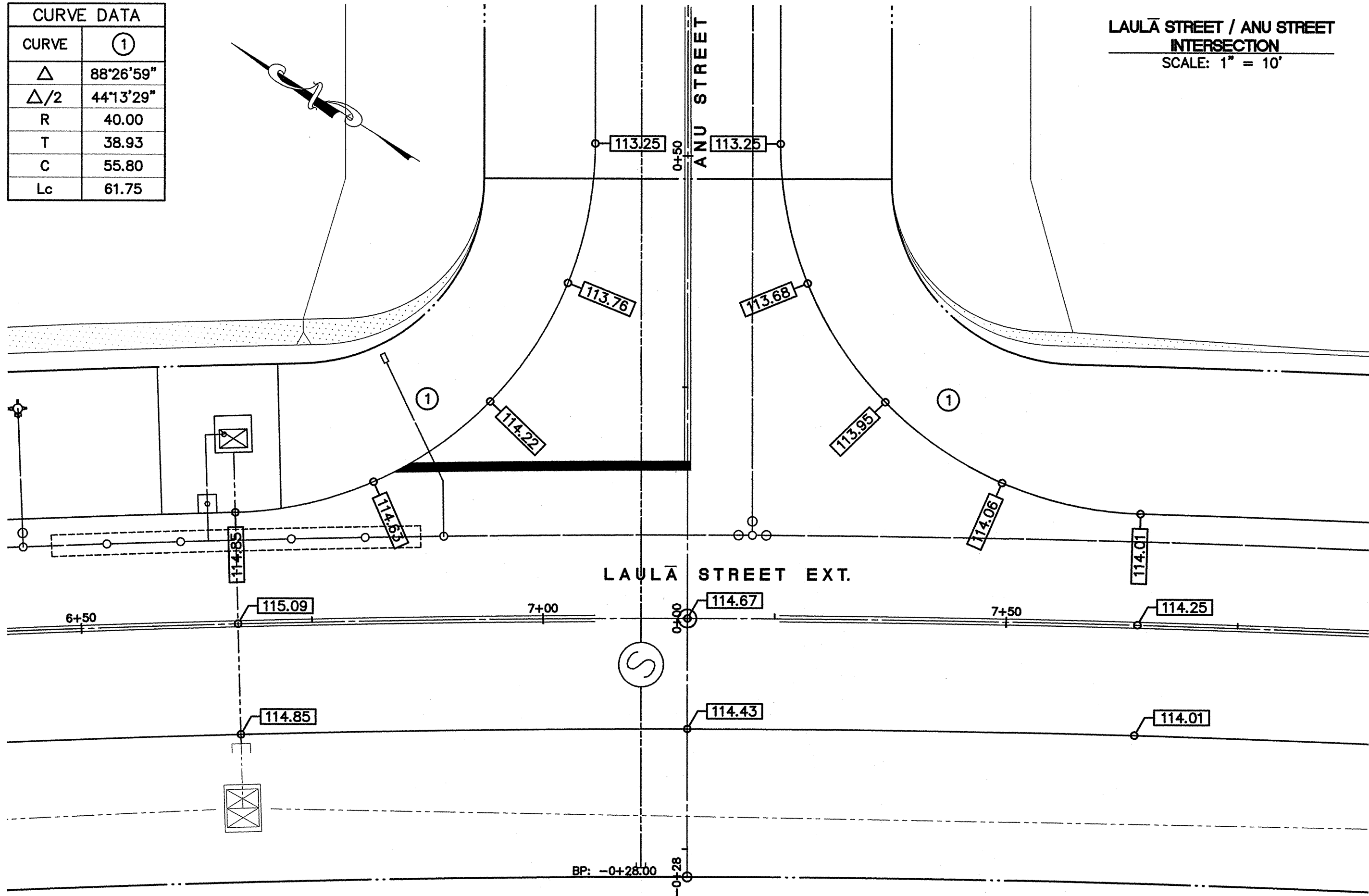






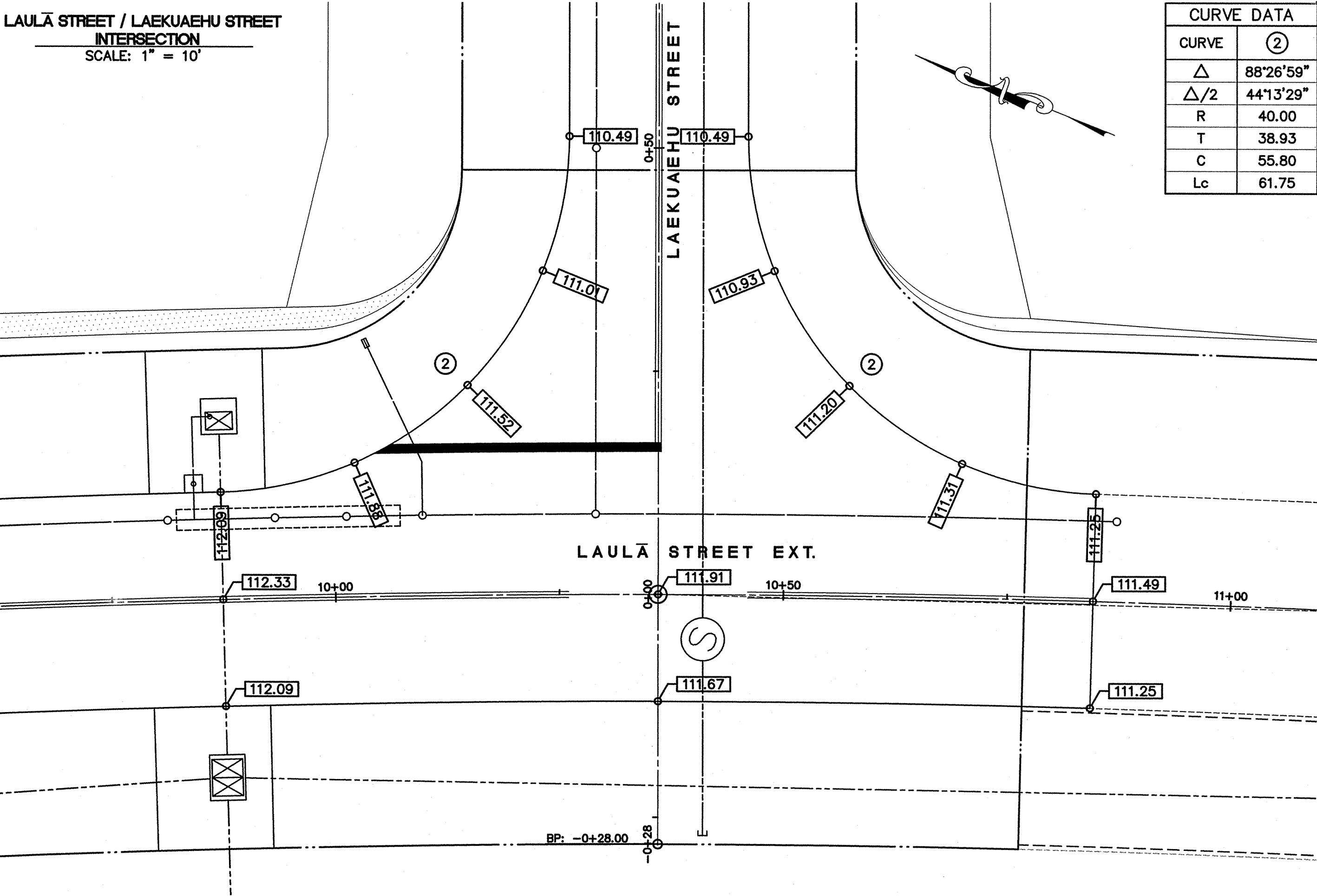


CURVE DATA	
CURVE	①
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Δ/2	44°13'29"
R	40.00
T	38.93
C	55.80
Lc	61.75

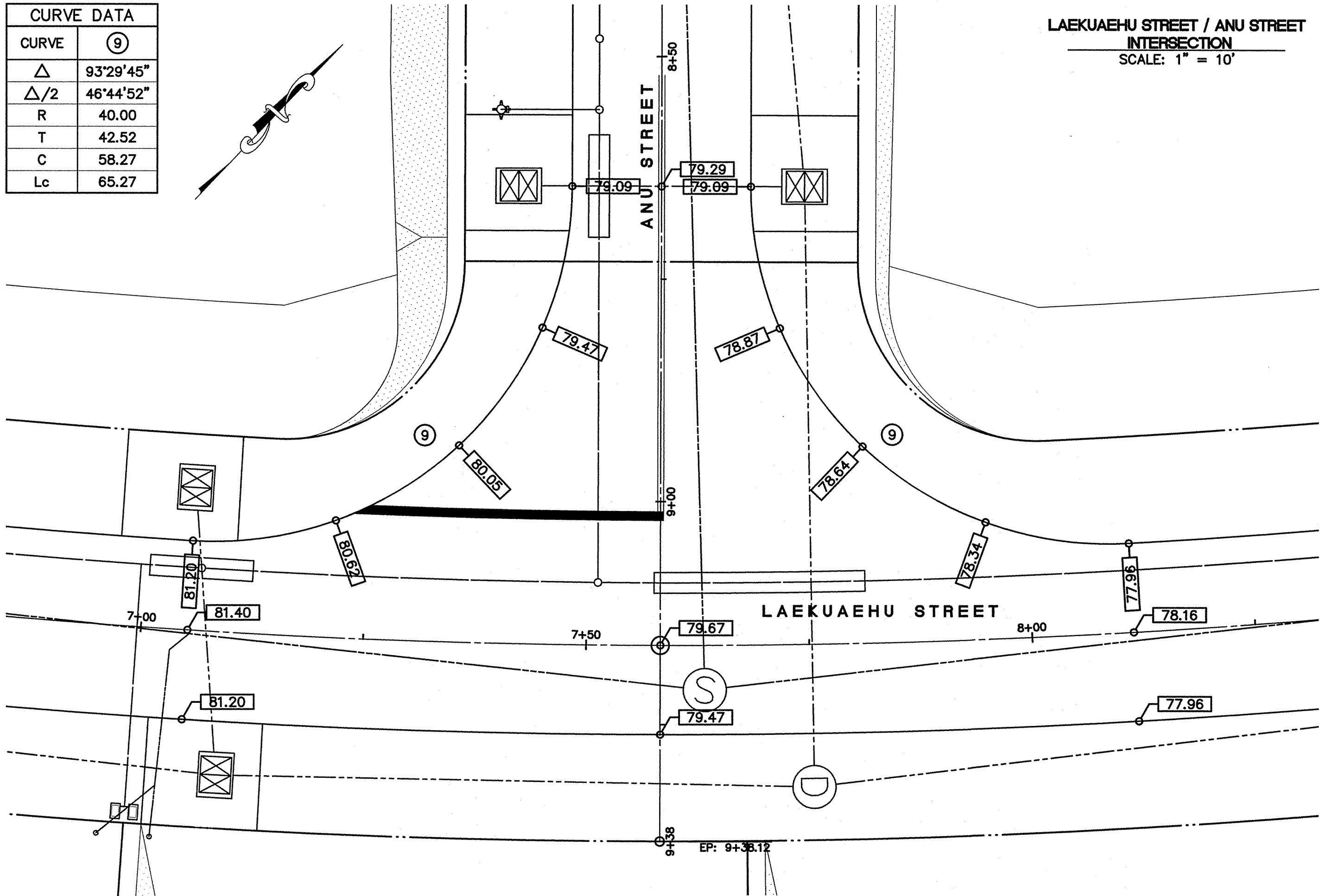


LAULĀ STREET / LAEKUAEHU STREET  
INTERSECTION  
SCALE: 1" = 10'

CURVE DATA	
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Δ	88°26'59"
Δ/2	44°13'29"
R	40.00
T	38.93
C	55.80
Lc	61.75

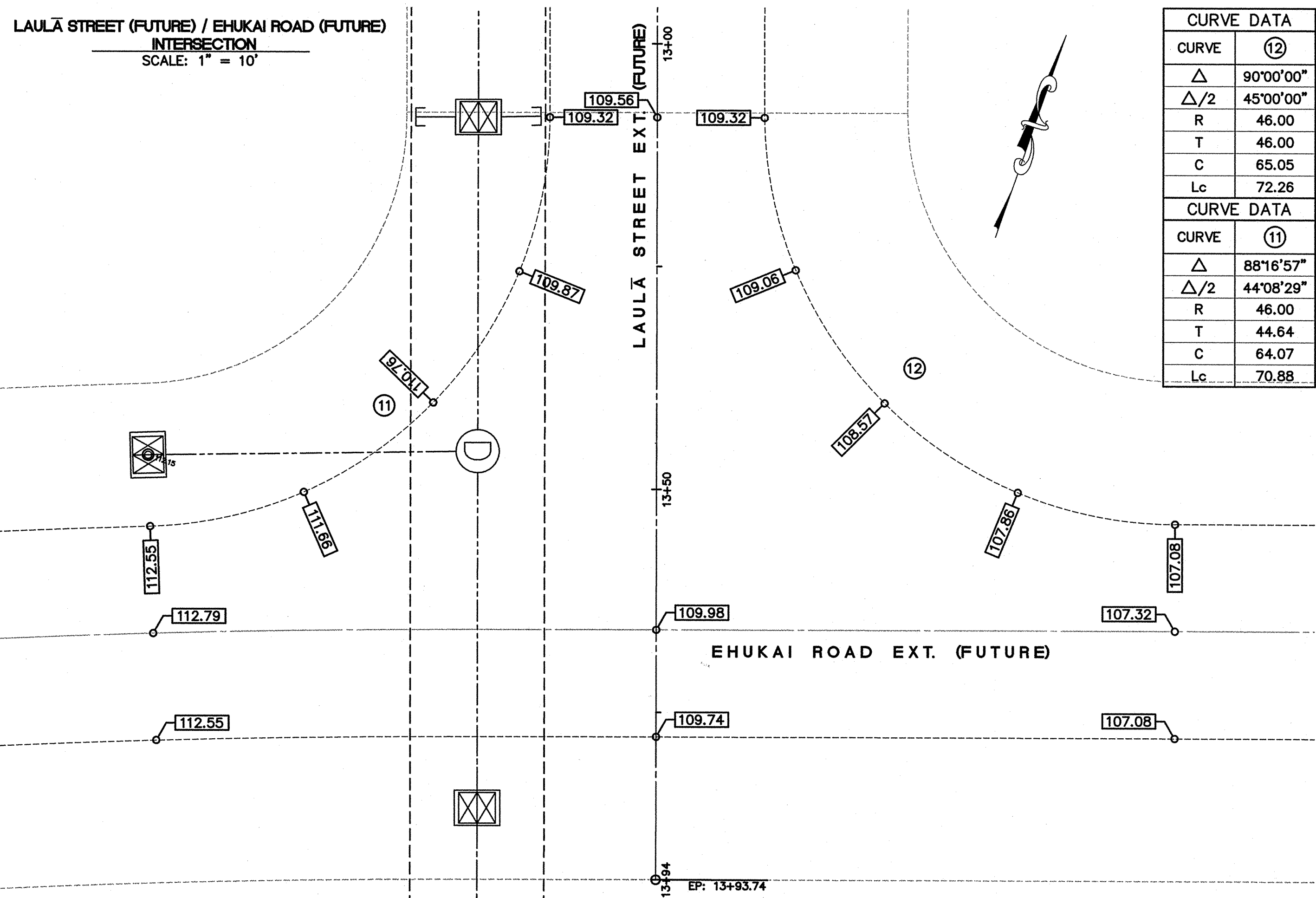


CURVE DATA	
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Δ/2	46°44'52"
R	40.00
T	42.52
C	58.27
Lc	65.27



LAULĀ STREET (FUTURE) / EHKAI ROAD (FUTURE)  
INTERSECTION  
SCALE: 1" = 10'

CURVE DATA	
CURVE	⑫
Δ	90°00'00"
Δ/2	45°00'00"
R	46.00
T	46.00
C	65.05
Lc	72.26
CURVE DATA	
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Δ/2	44°08'29"
R	46.00
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C	64.07
Lc	70.88



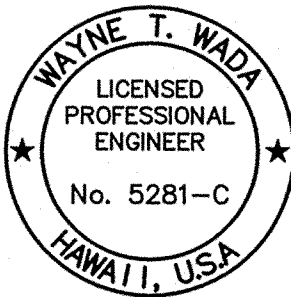
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REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS



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*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kaua'i, Hawai'i  
Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89  
Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**EDGE PAVEMENT  
RETURN GRADES**

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE  
N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER, DATE  
COUNTY OF KAUAI

DESIGNED BY: WW

DRAWN BY: CG

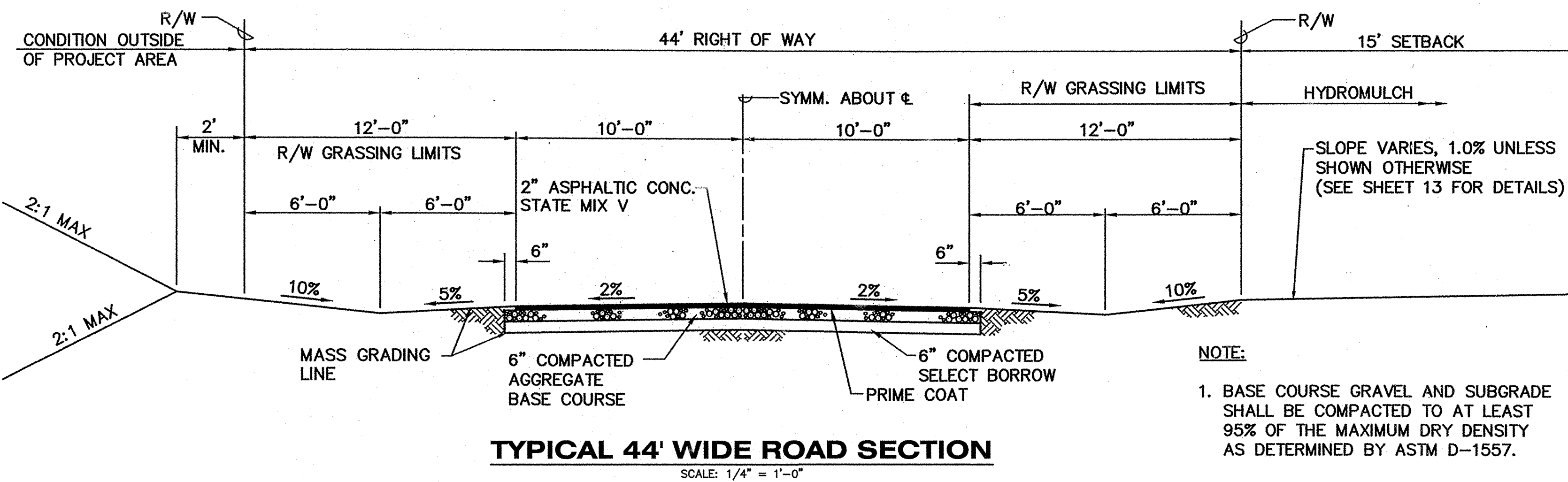
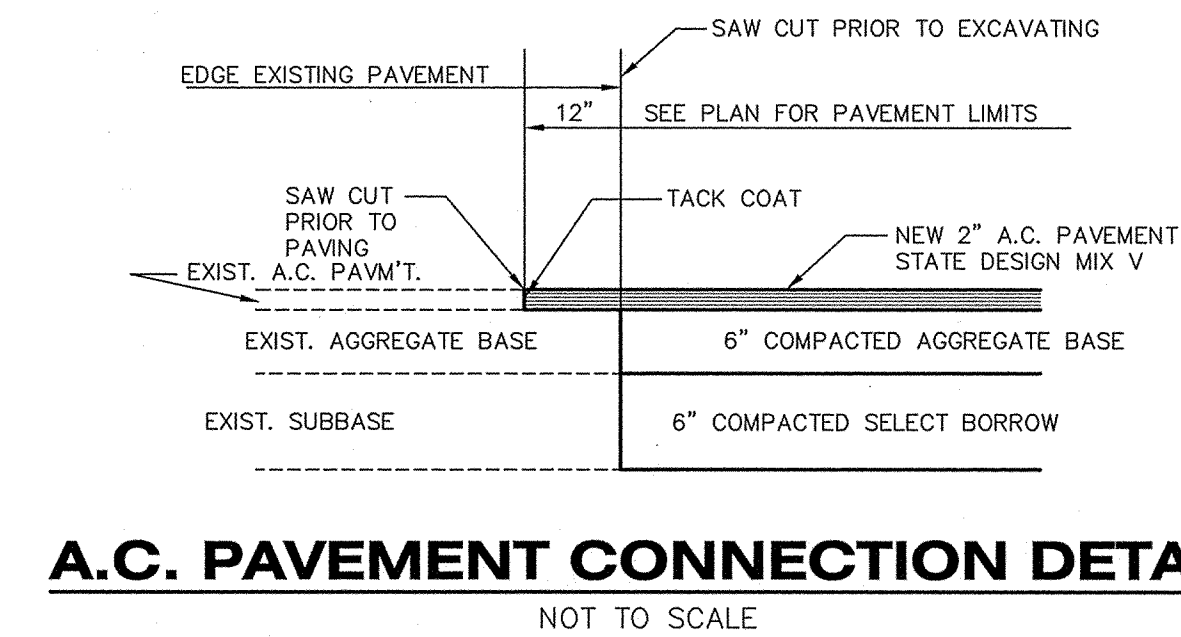
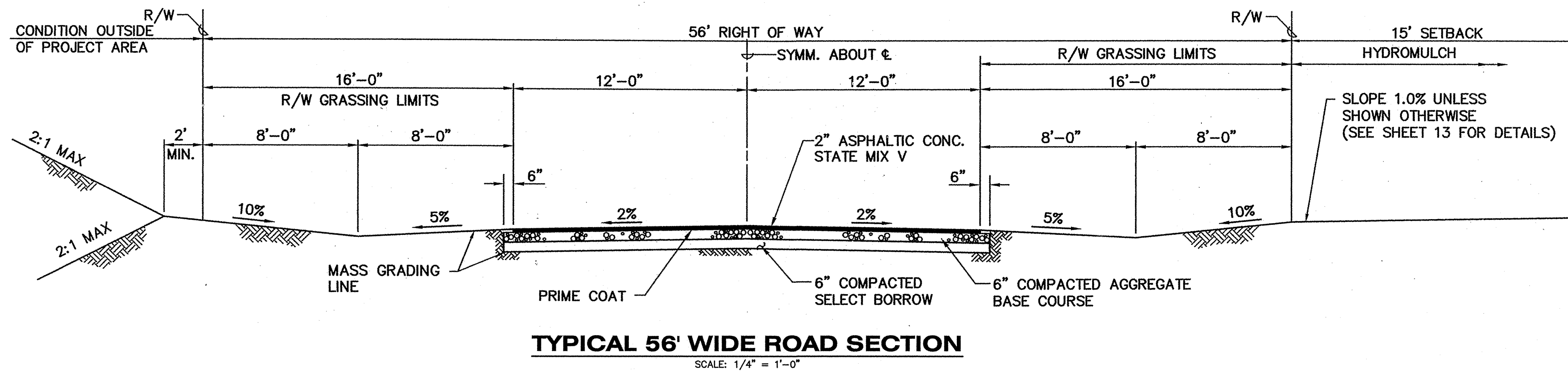
DATE: 03/27/12

SHEET

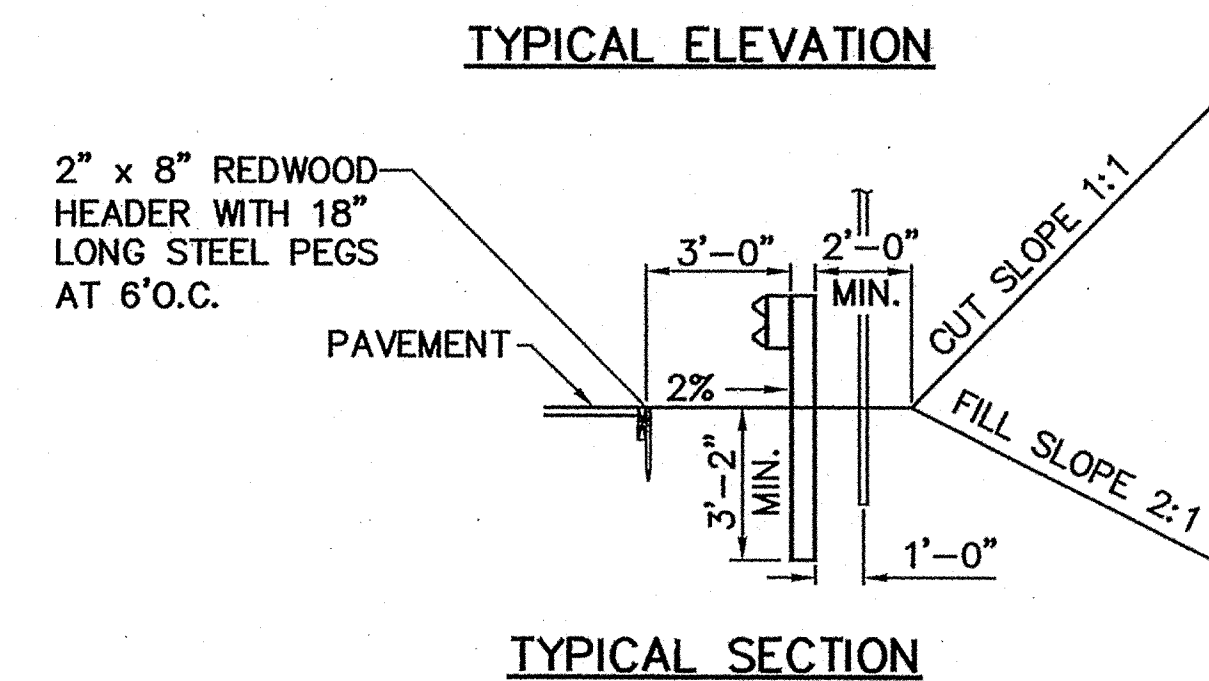
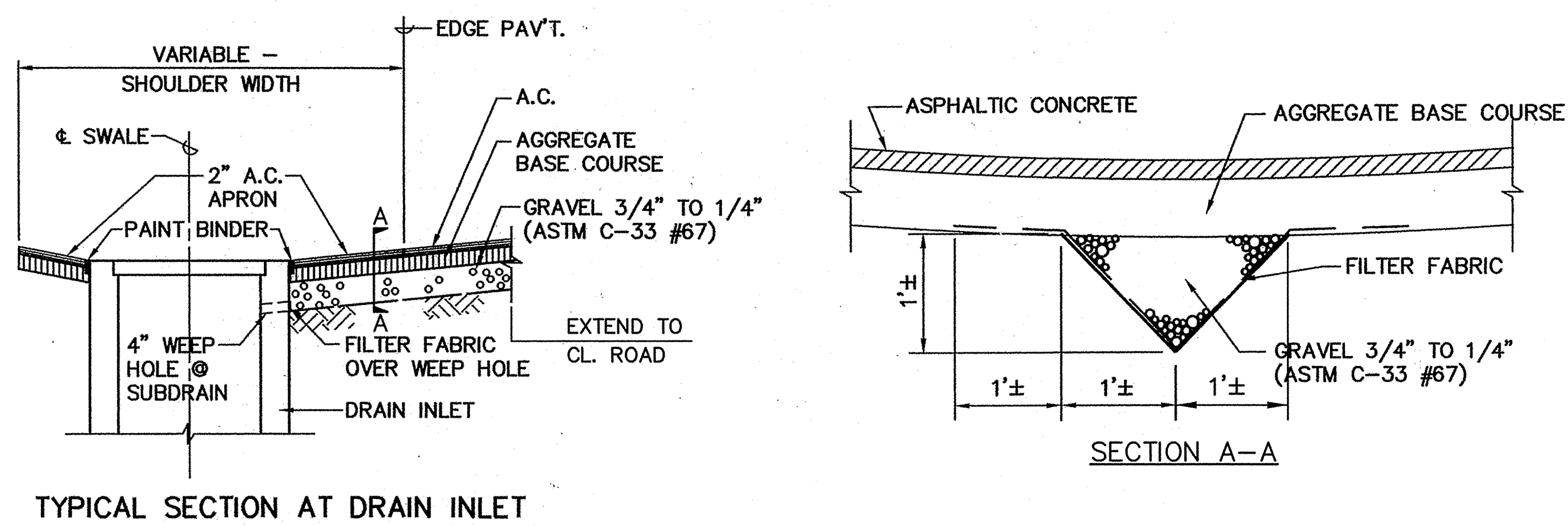
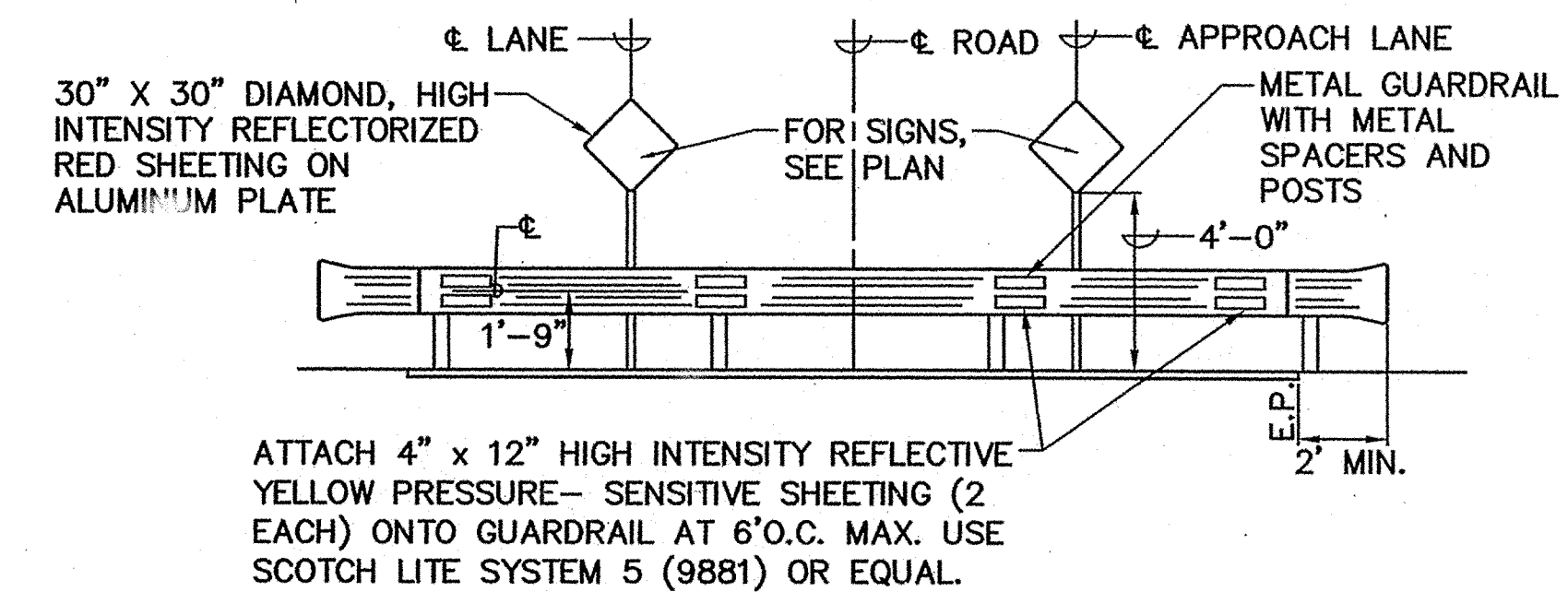
**C-28**

28 OF 44 SHEETS

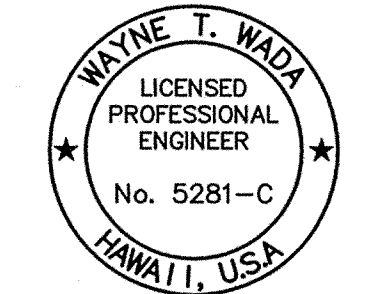




- NOTE:
1. BASE COURSE GRAVEL AND SUBGRADE SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.



END OF ROAD BARRICADE DETAIL  
SCALE: 1/4" = 1'-0"



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Wayne T. Wada  
EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

## ROADWAY DETAILS

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COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

DATE: 3/27/12

SHEET

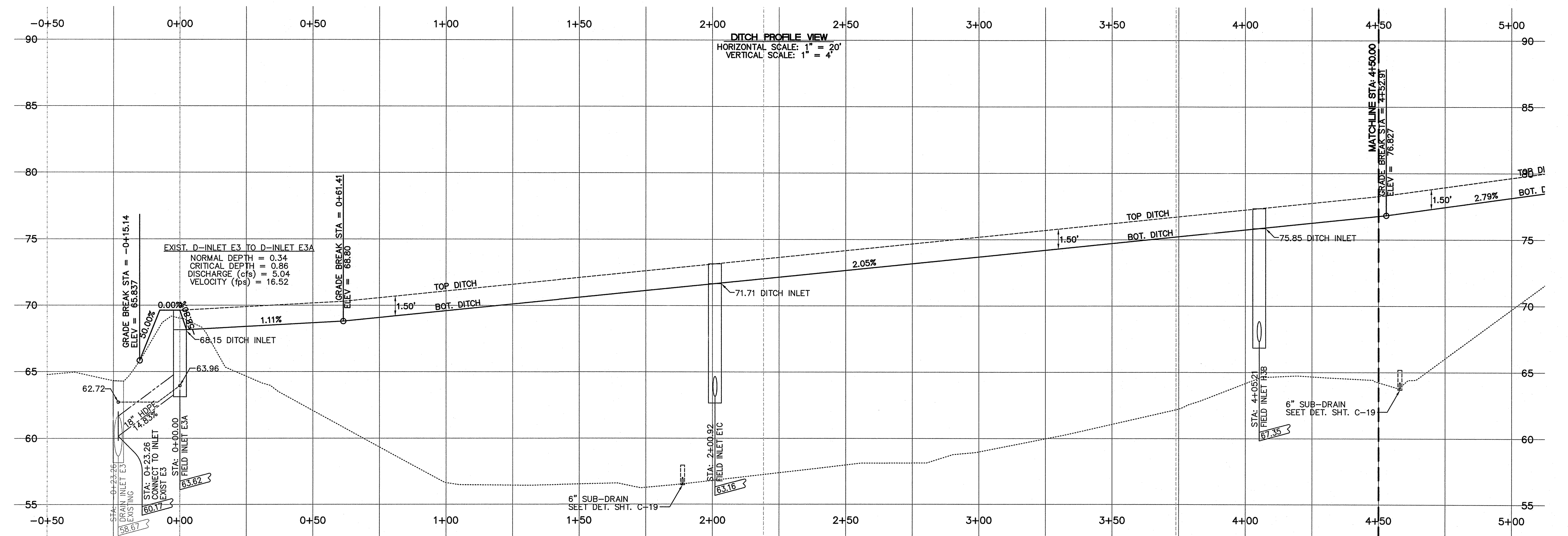
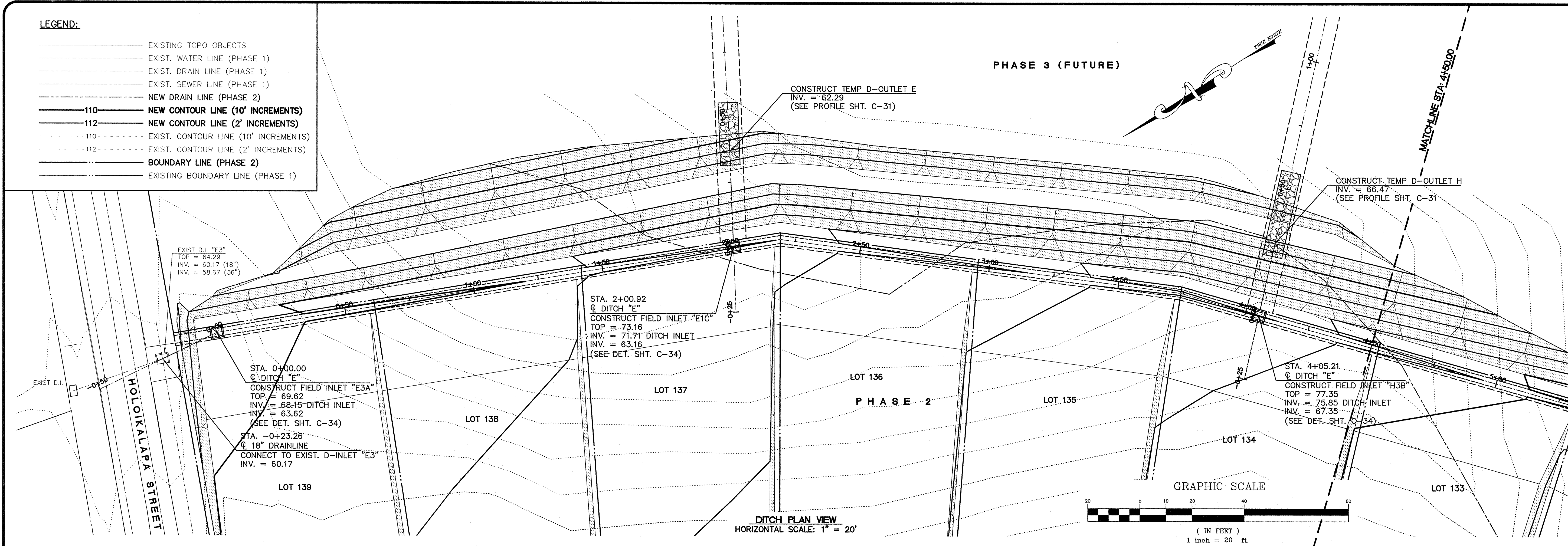
C-29

29 OF 44 SHEETS



LEGEND:

- EXISTING TOPO OBJECTS
- EXIST. WATER LINE (PHASE 1)
- EXIST. DRAIN LINE (PHASE 1)
- EXIST. SEWER LINE (PHASE 1)
- NEW DRAIN LINE (PHASE 2)
- NEW DRAIN LINE (PHASE 2)
- NEW CONTOUR LINE (10' INCREMENTS)
- NEW CONTOUR LINE (2' INCREMENTS)
- EXIST. CONTOUR LINE (10' INCREMENTS)
- EXIST. CONTOUR LINE (2' INCREMENTS)
- BOUNDARY LINE (PHASE 2)
- EXISTING BOUNDARY LINE (PHASE 1)



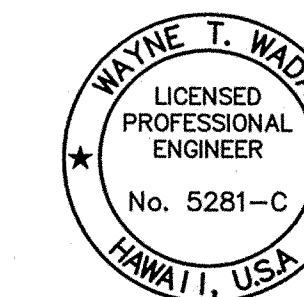
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Lihue, Kauai, Hawaii 96766  
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*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
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Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420, Kapolei Parkway  
Kapolei, HI 96707

## DRAINAGE AND DITCH PLAN AND PROFILE

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COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

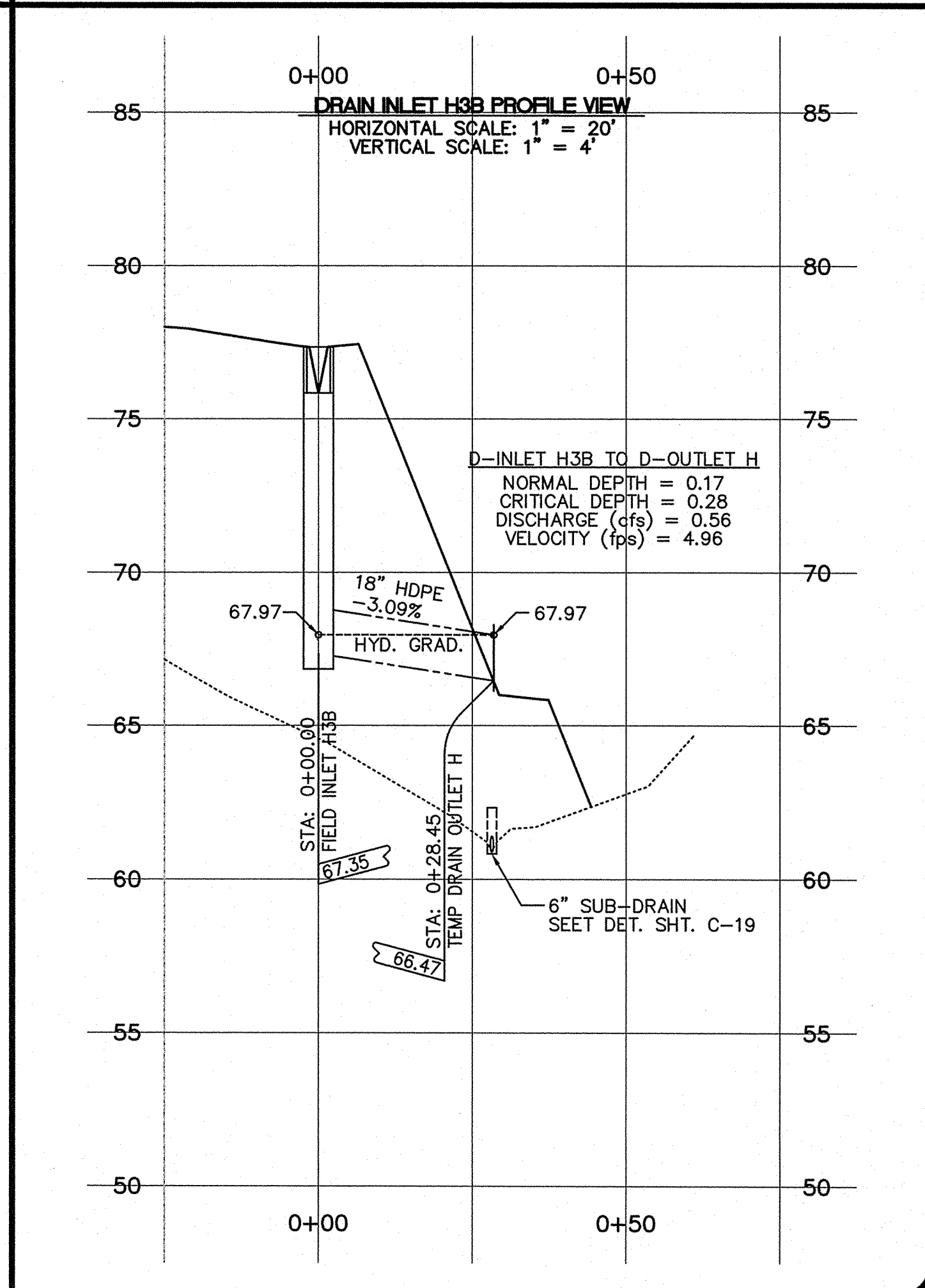
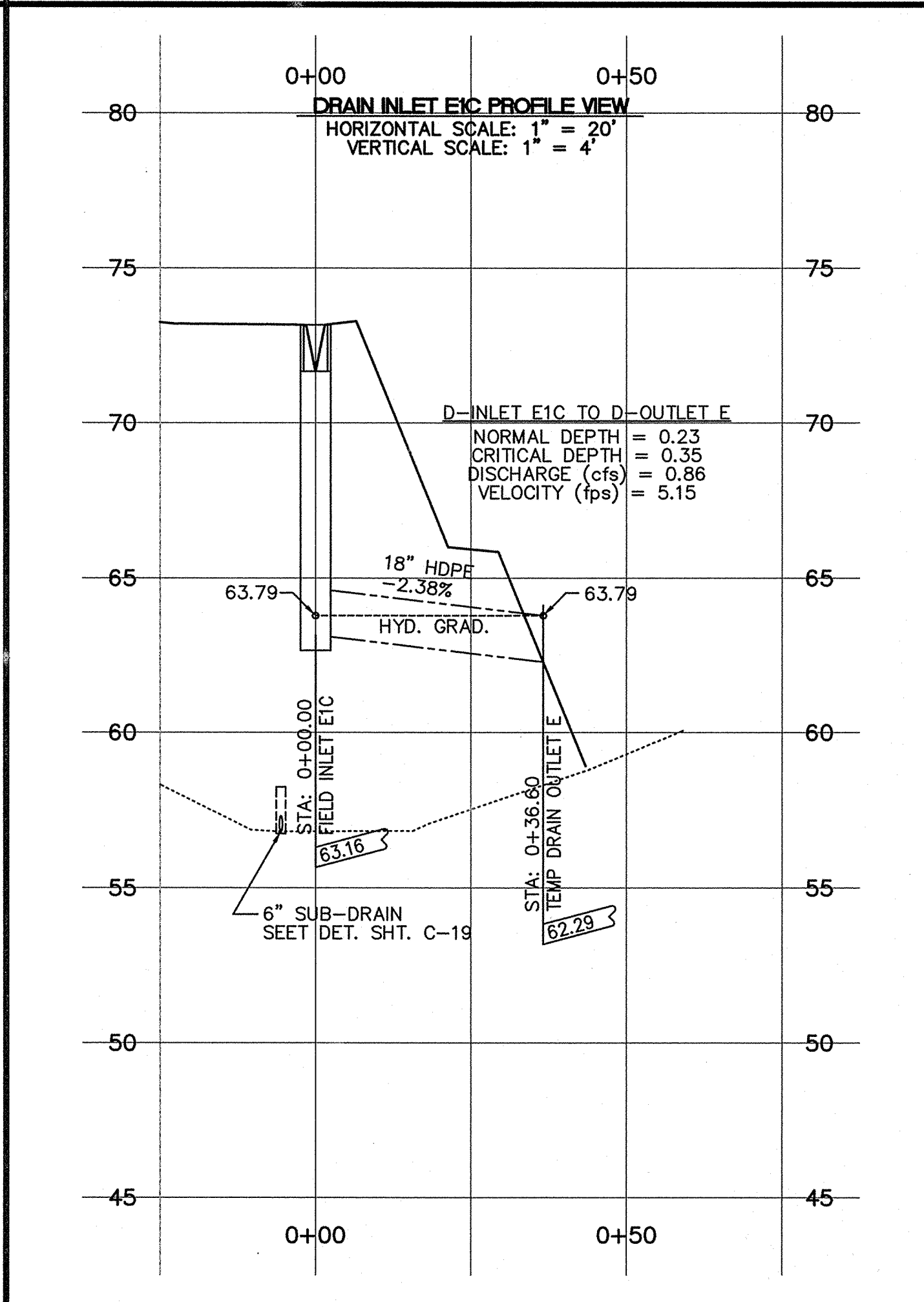
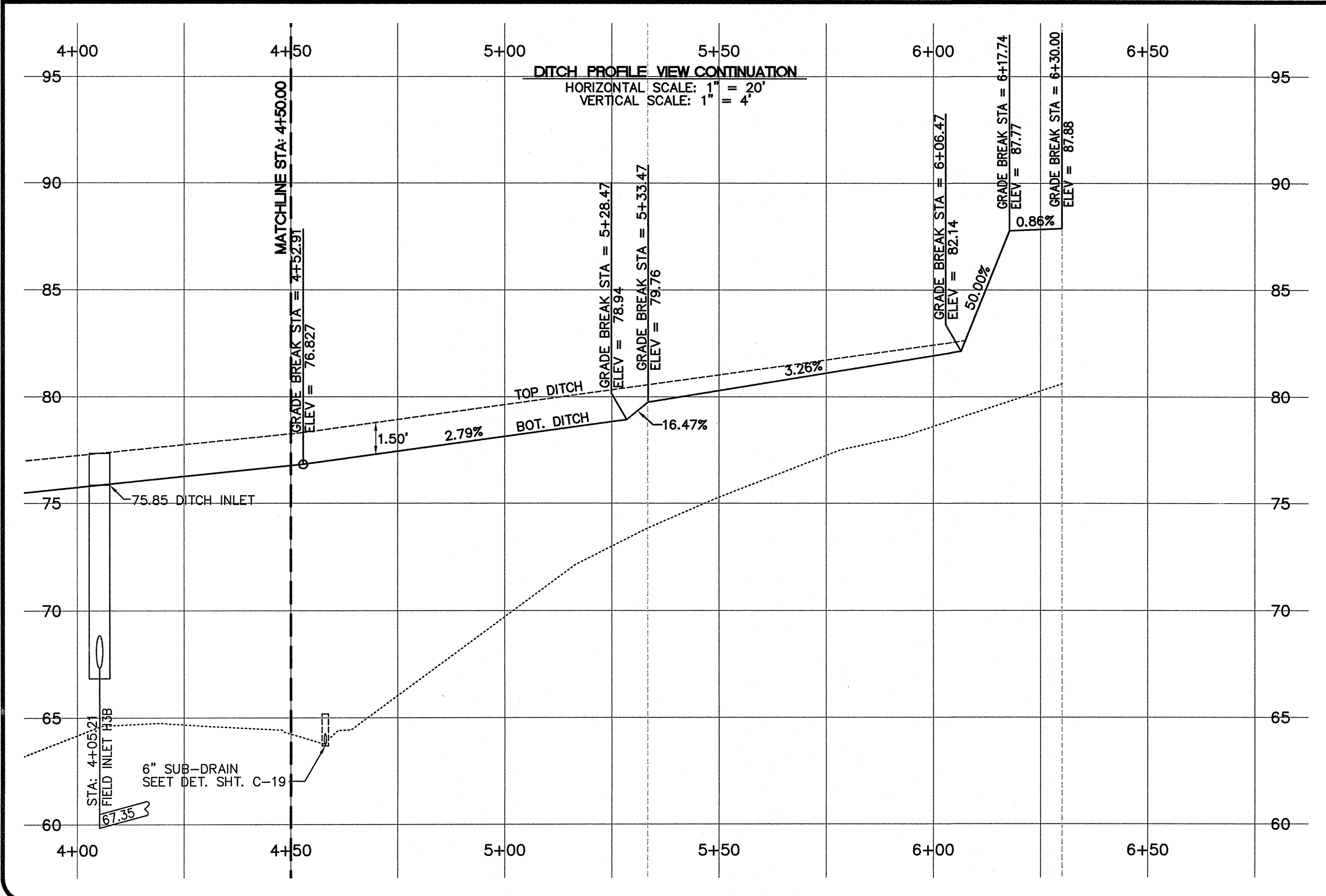
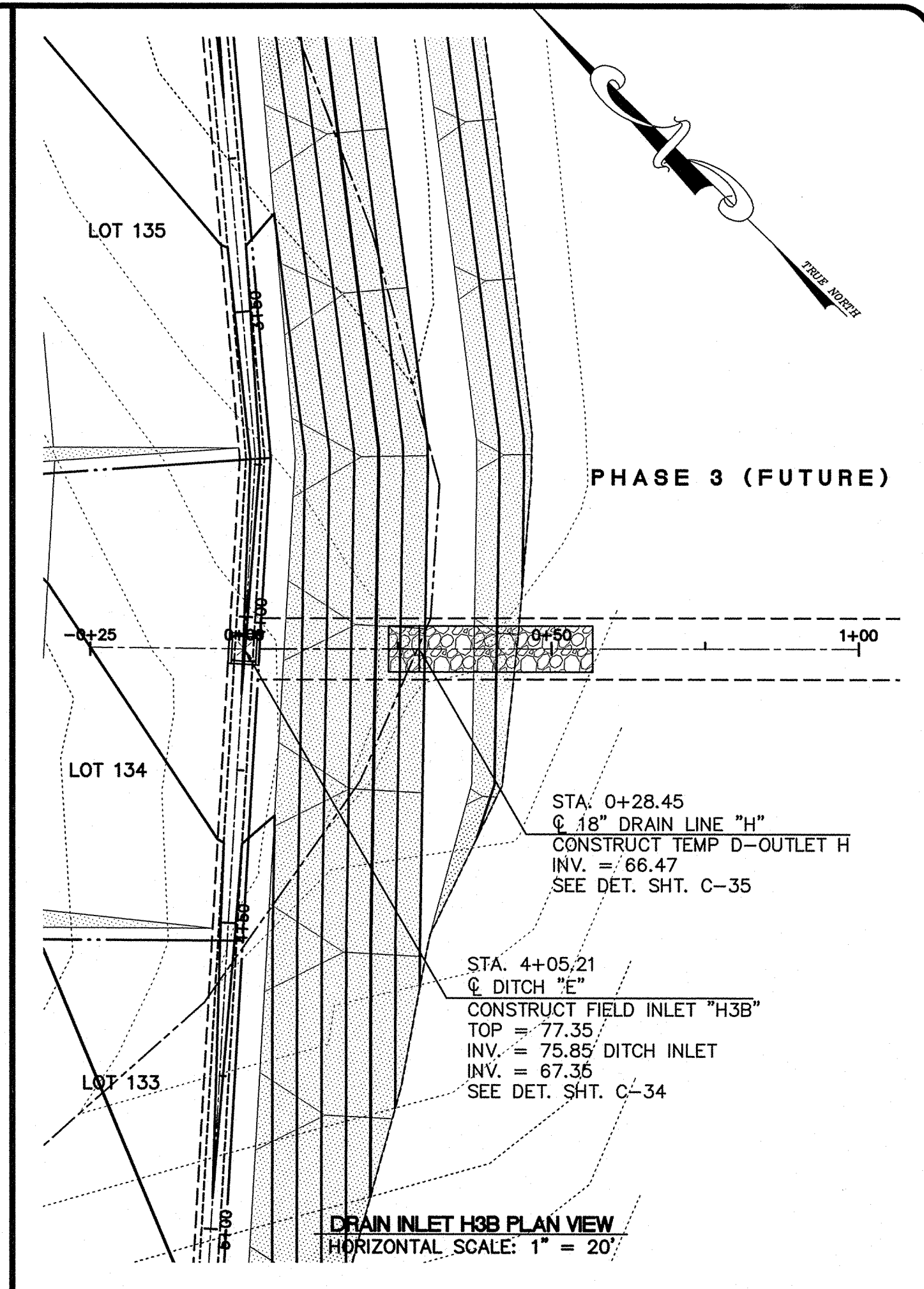
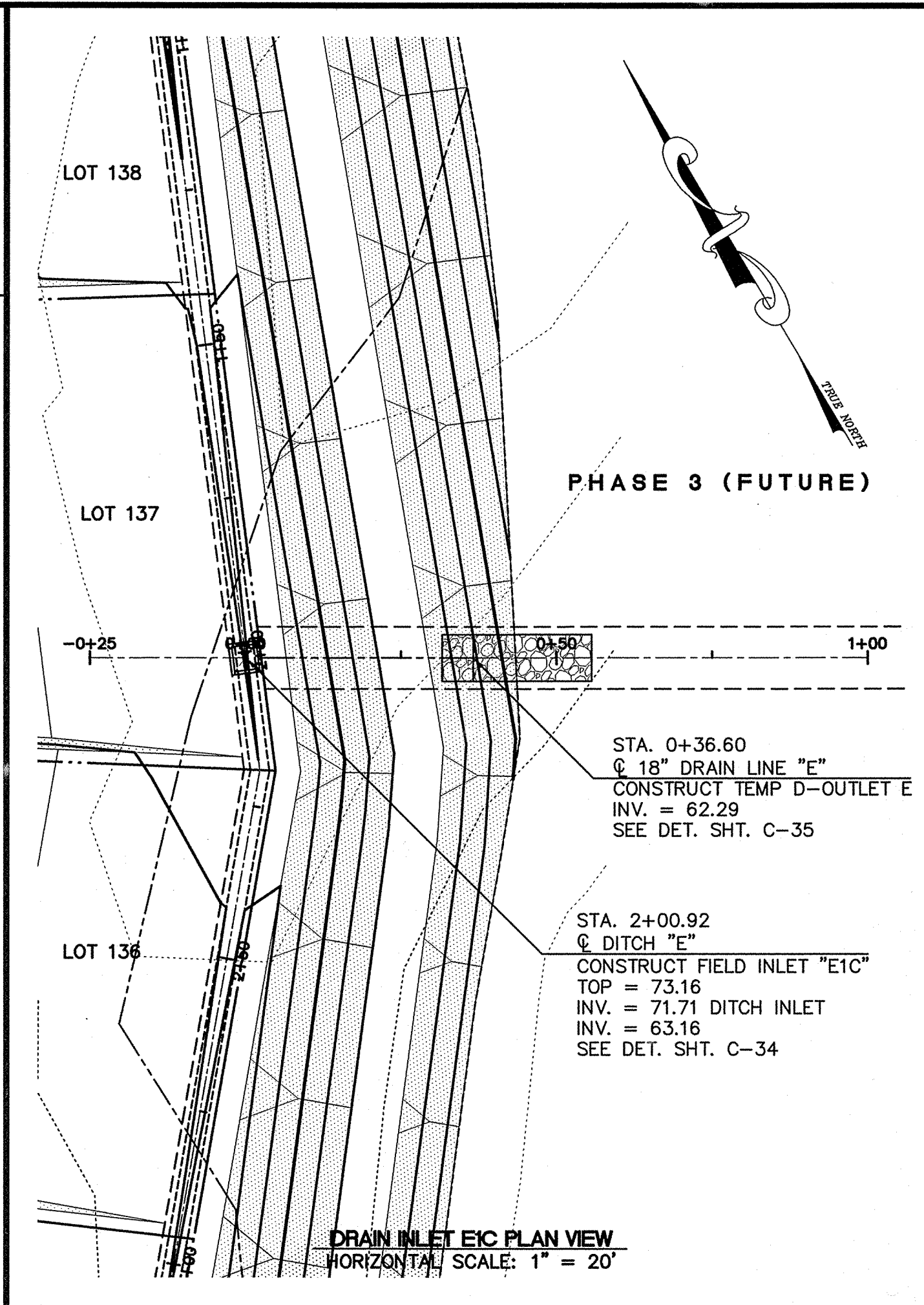
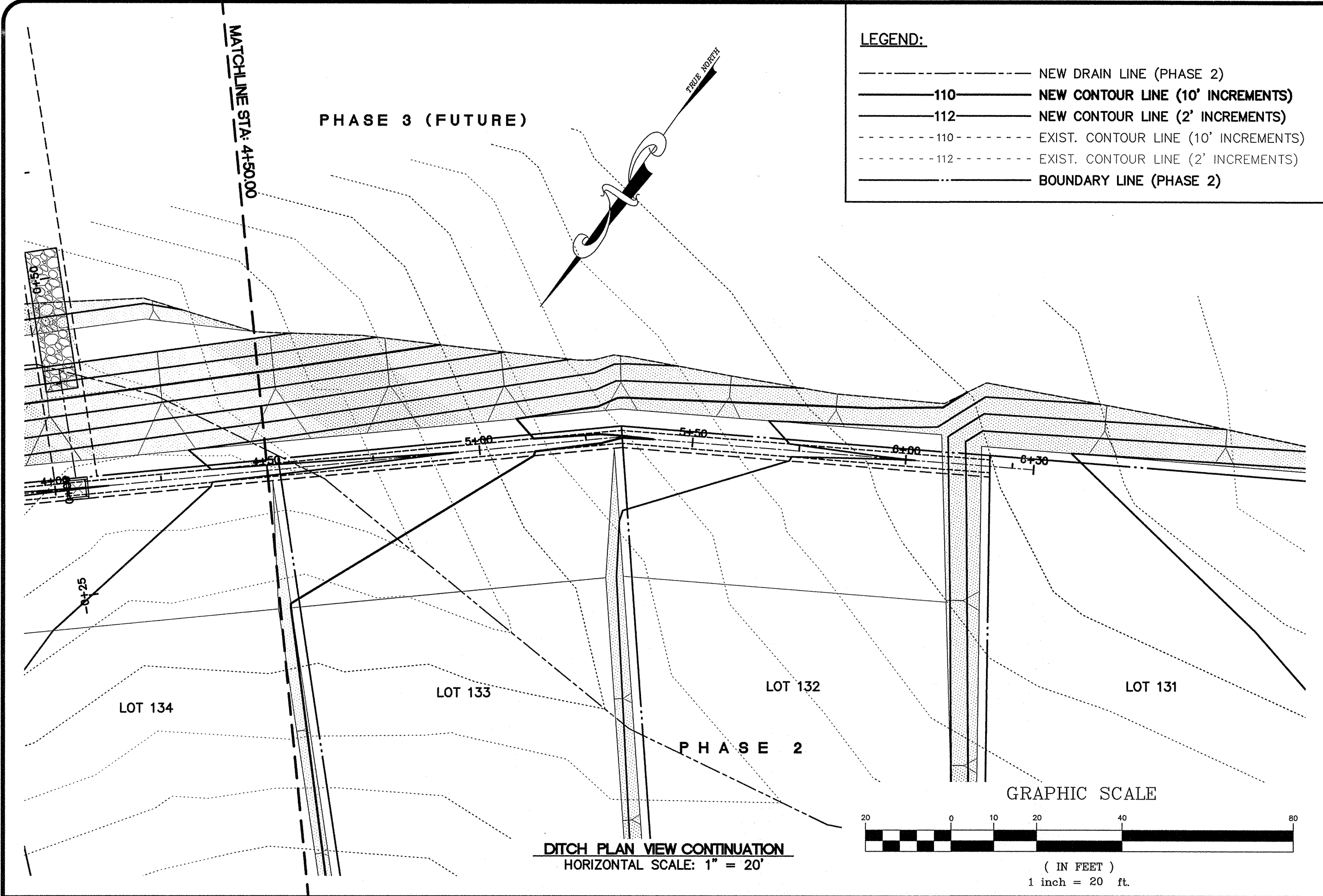
DATE: 03/27/12

SHEET

**C-30**

30 OF 44 SHEETS





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REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS

**WAYNE T. WADA**  
LICENSED PROFESSIONAL ENGINEER  
No. 5281-C  
HAWAII, USA

THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
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Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**DRAINAGE  
AND DITCH  
PLAN AND PROFILE**

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

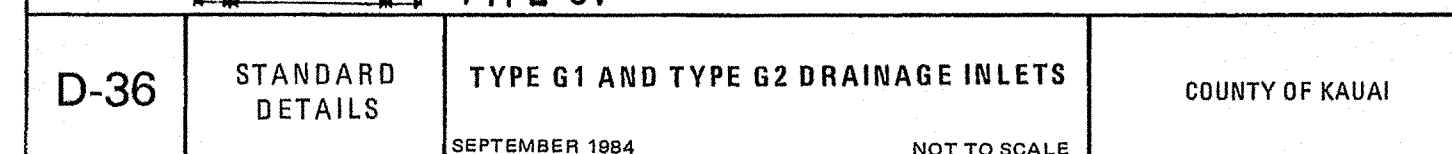
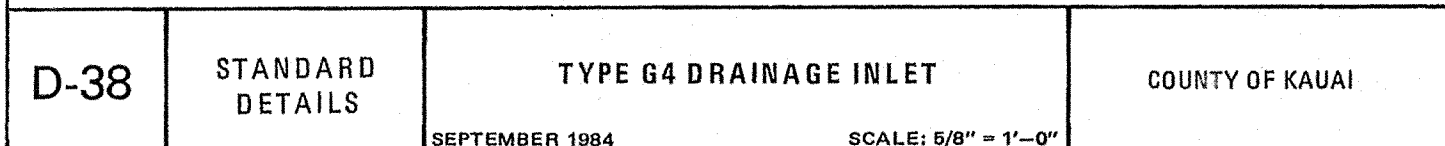
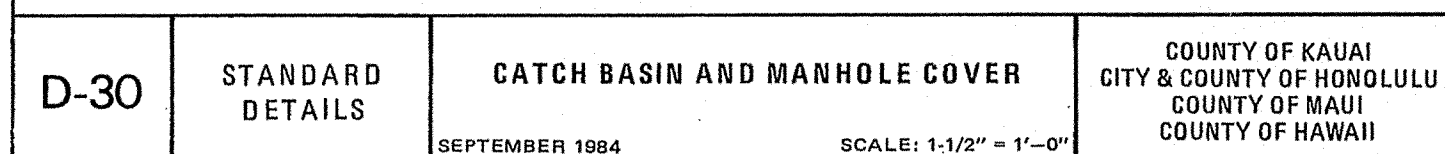
DESIGNED BY: WW  
DRAWN BY: CG  
DATE: 03/27/12

SHEET  
**C-31**  
31 OF 44 SHEETS

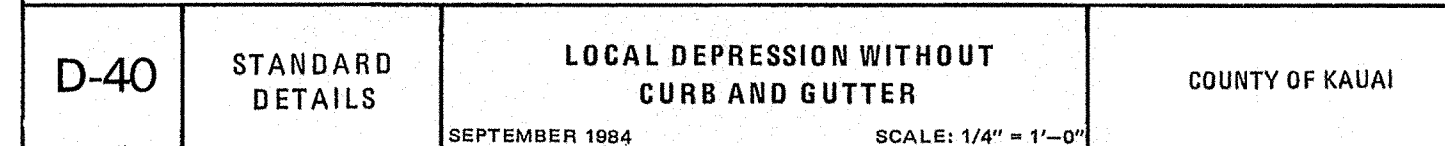




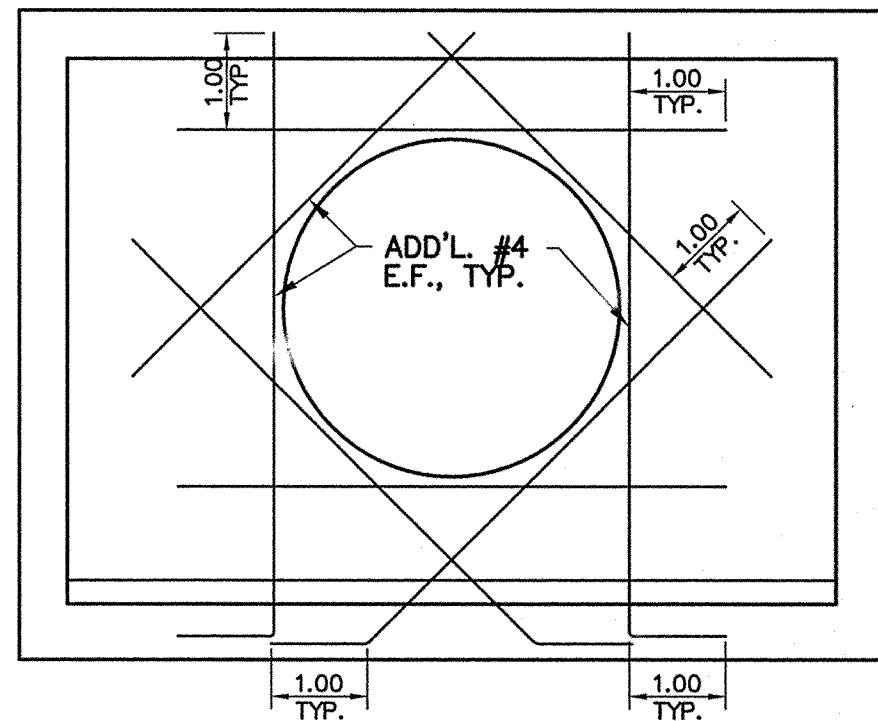




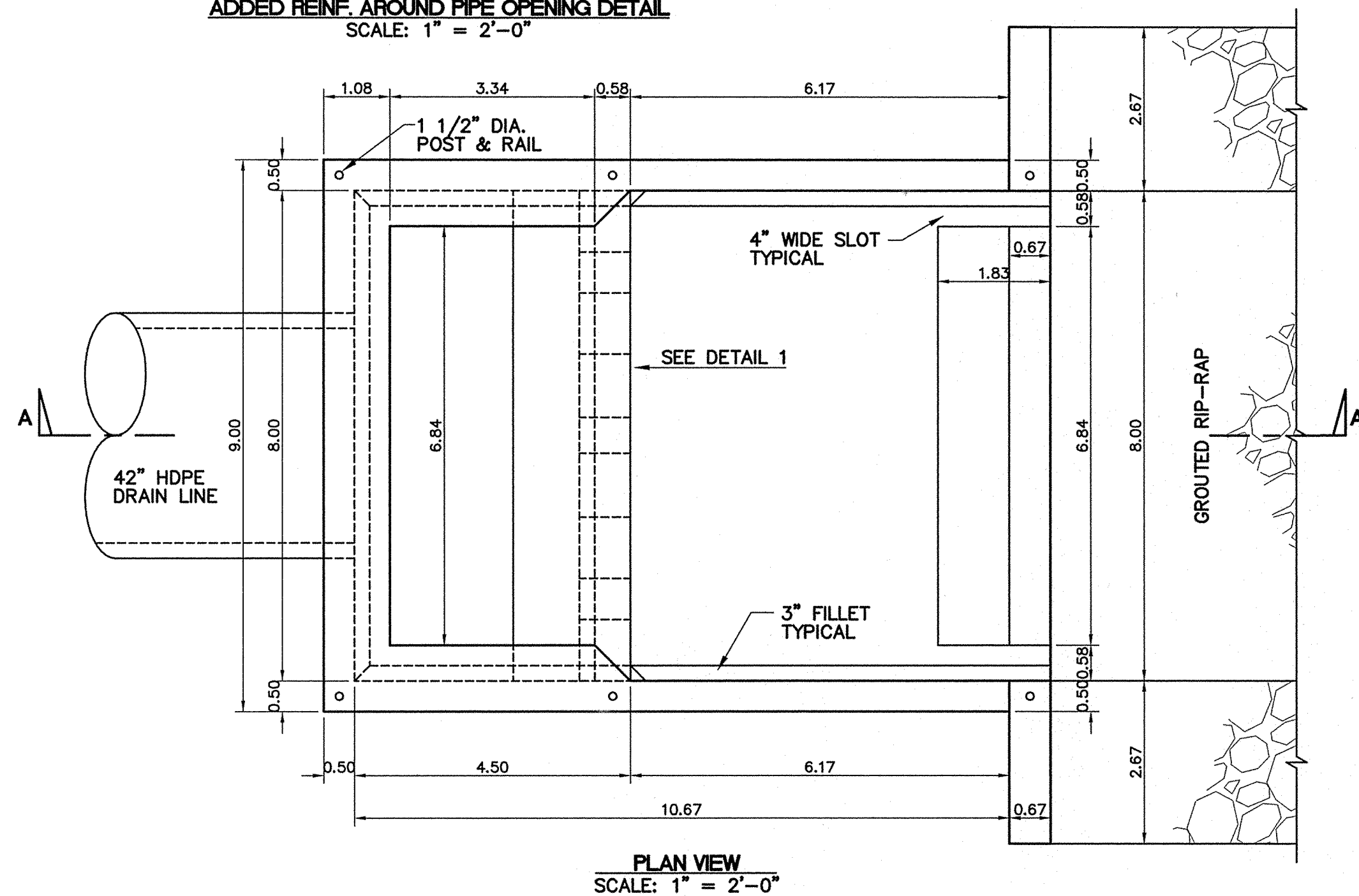
COUNTY OF KAUAI	TYPE G3 DRAINAGE INLET	STANDARD DETAILS	D-37
SCALE: 3/8" = 1'-0"		SEPTEMBER 1984	



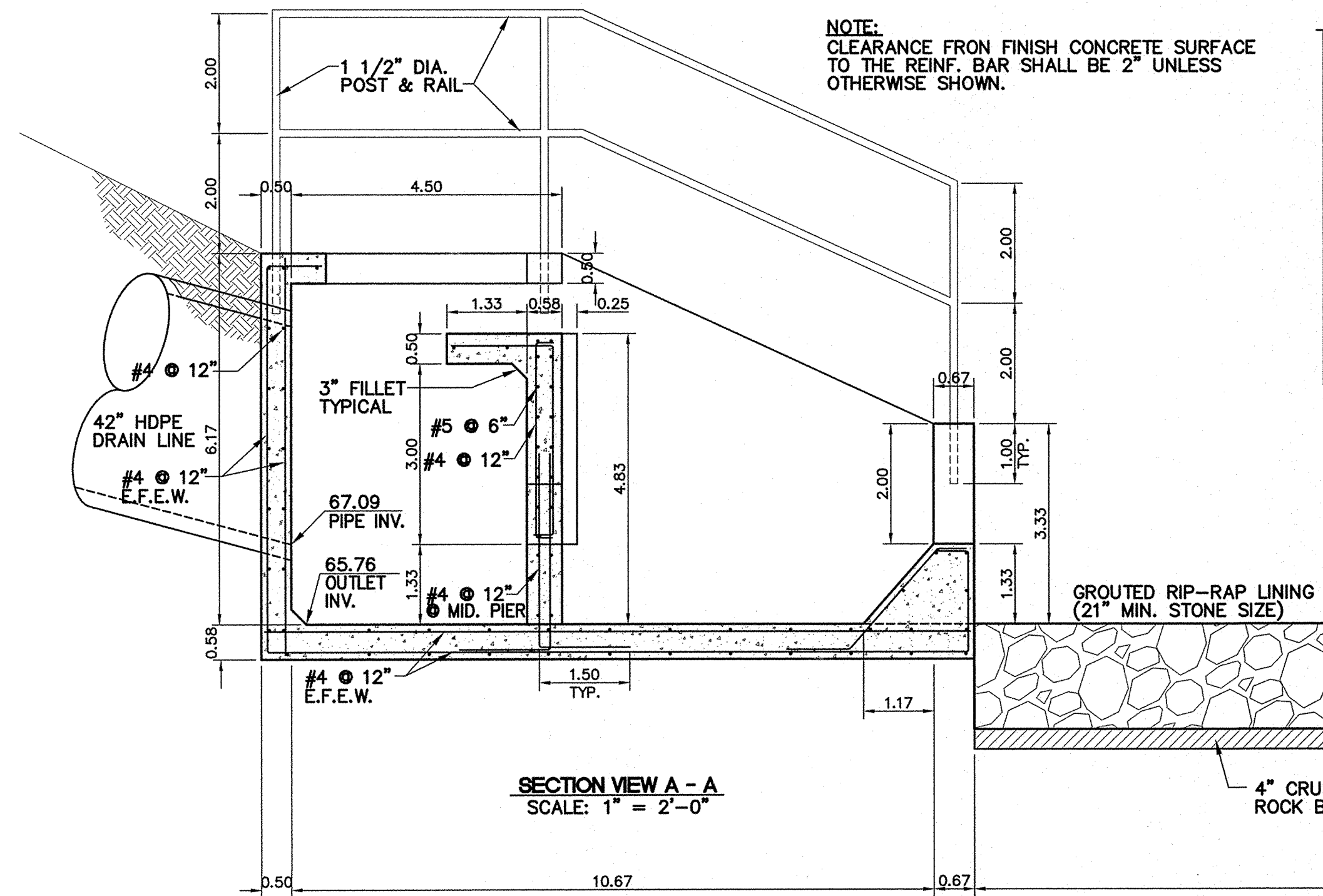




ADDED REINF. AROUND PIPE OPENING DETAIL  
SCALE: 1" = 2'-0"

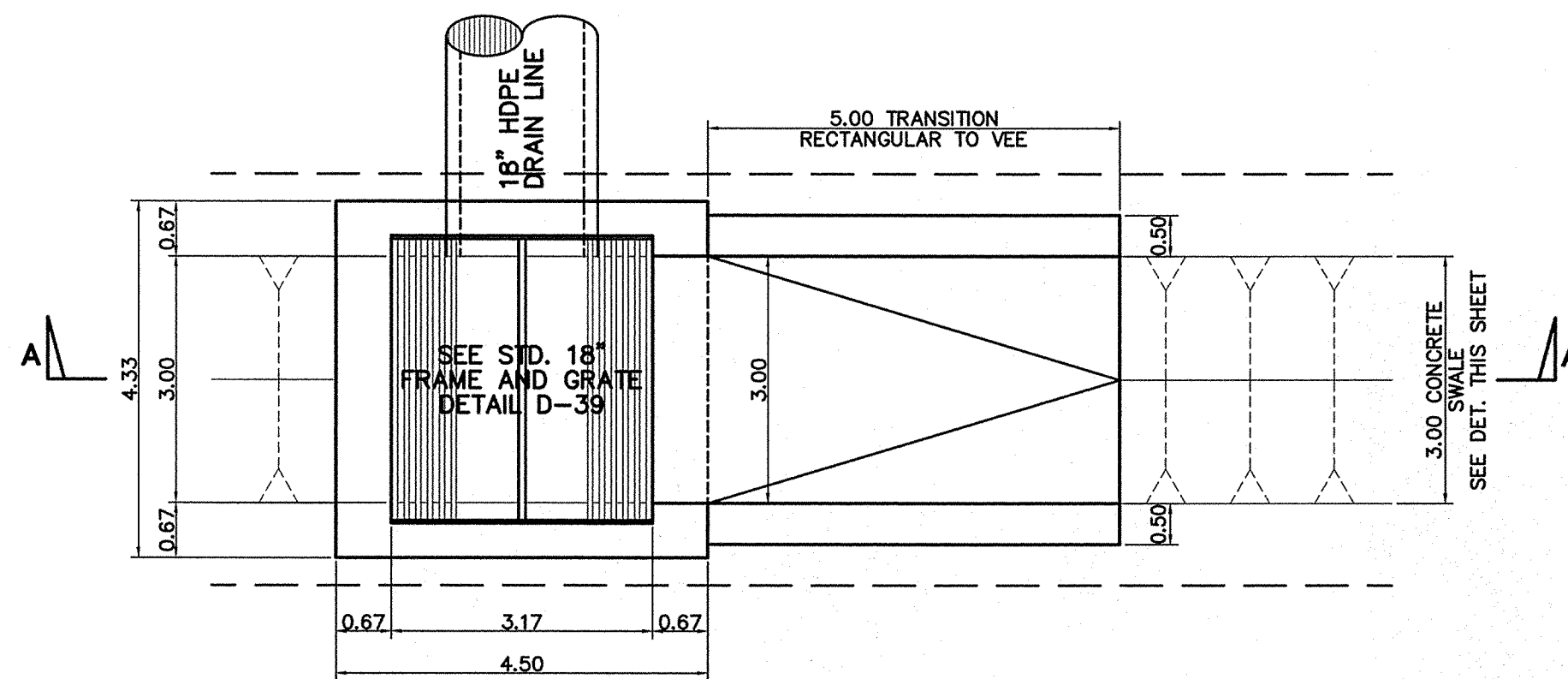


PLAN VIEW  
SCALE: 1" = 2'-0"

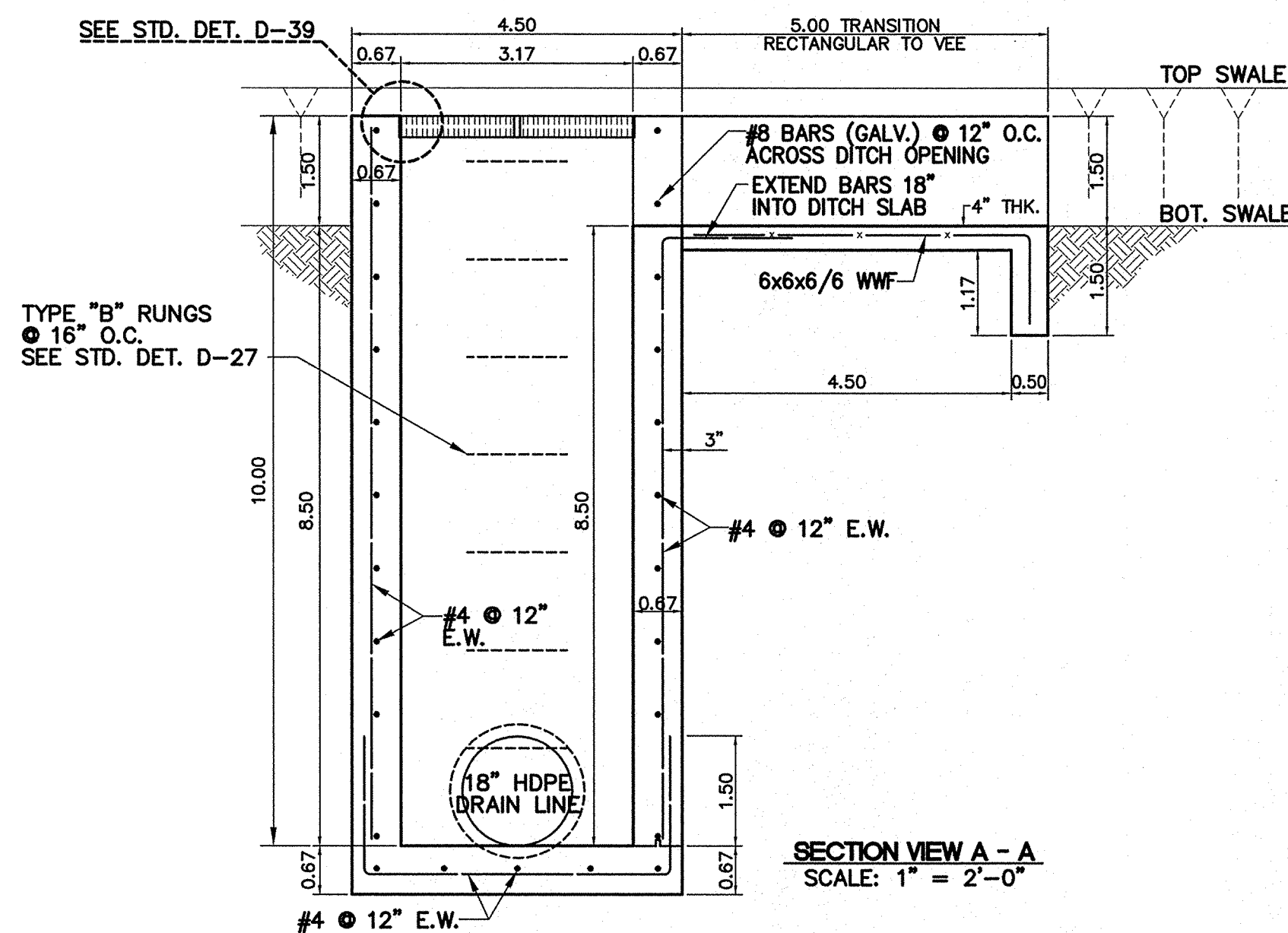


SECTION VIEW A - A  
SCALE: 1" = 2'-0"

OUTLET STRUCTURE "A"  
SCALE: 1" = 2'-0"

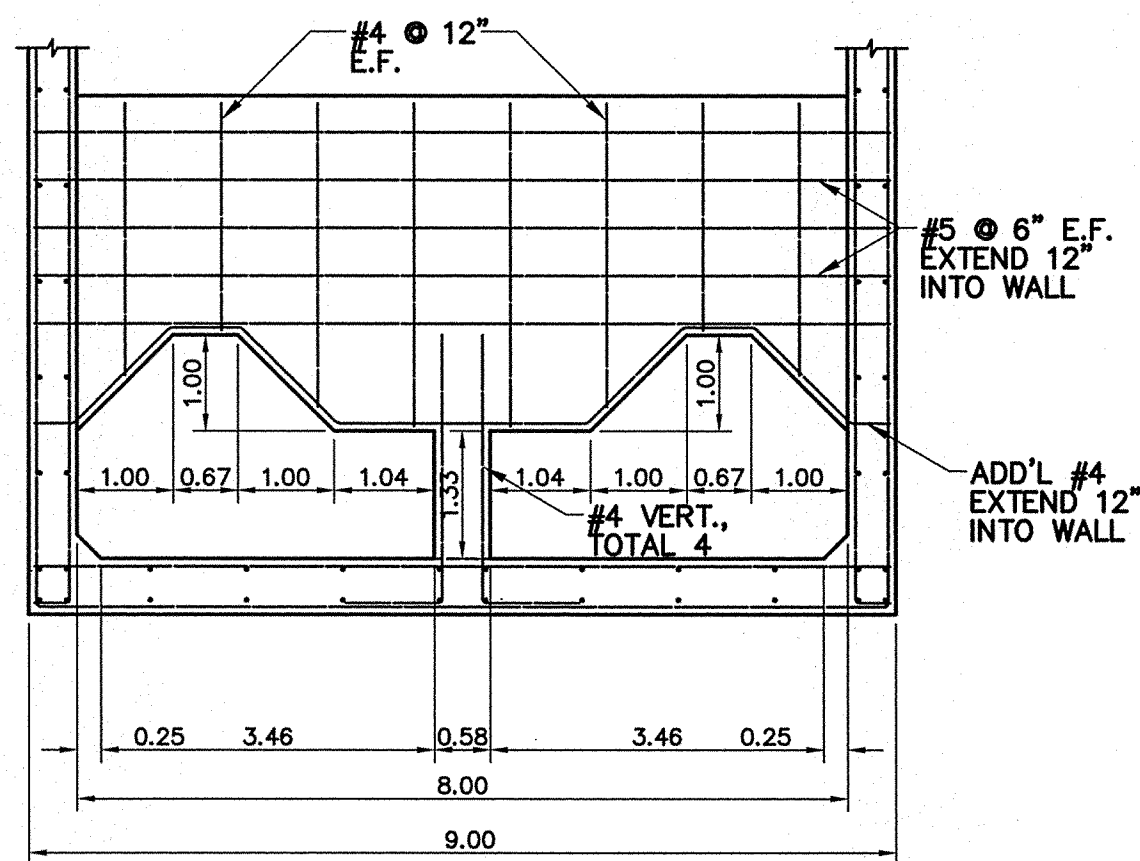


PLAN VIEW  
SCALE: 1" = 2'-0"

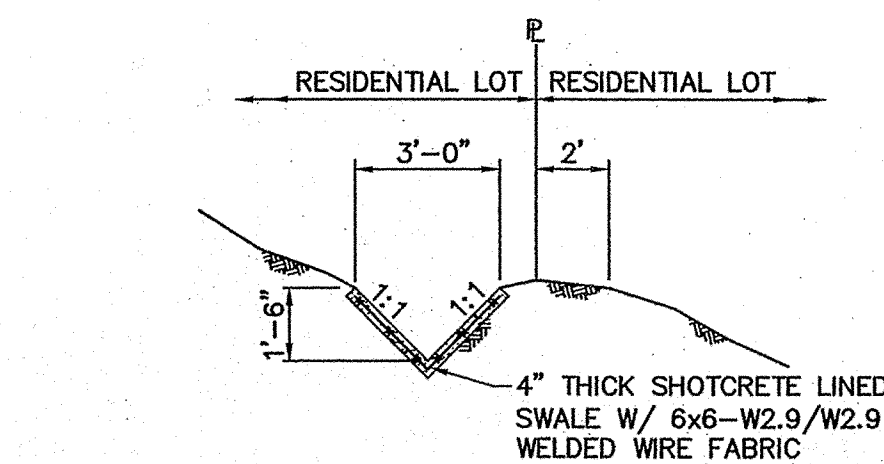


SECTION VIEW A - A  
SCALE: 1" = 2'-0"

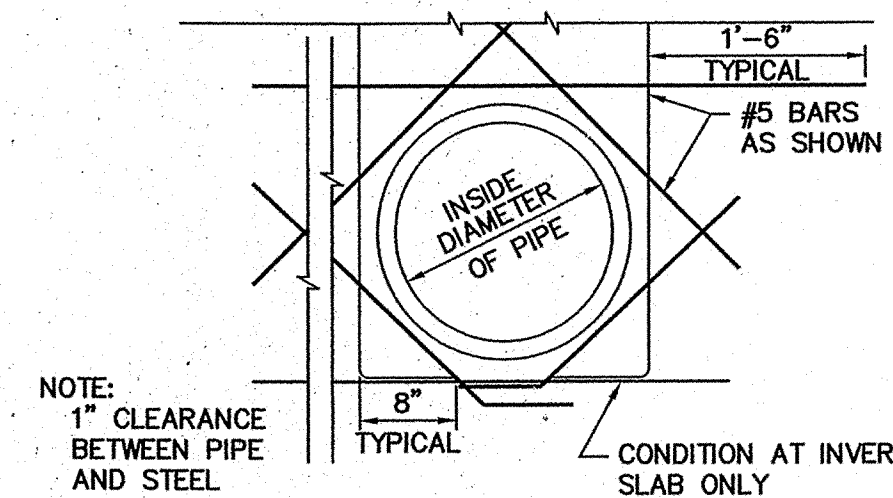
FIELD INLET "E1C" & "H3B"  
SCALE: 1" = 2'-0"



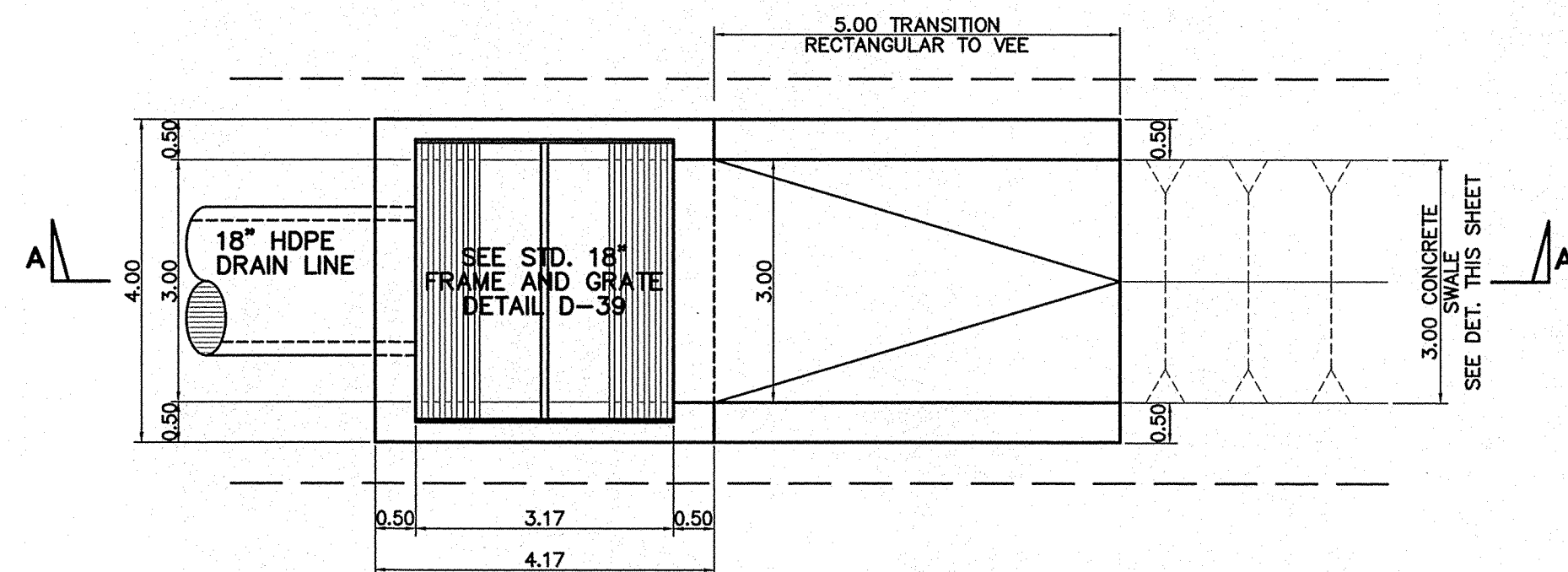
DETAIL 1  
SCALE: 1" = 2'-0"



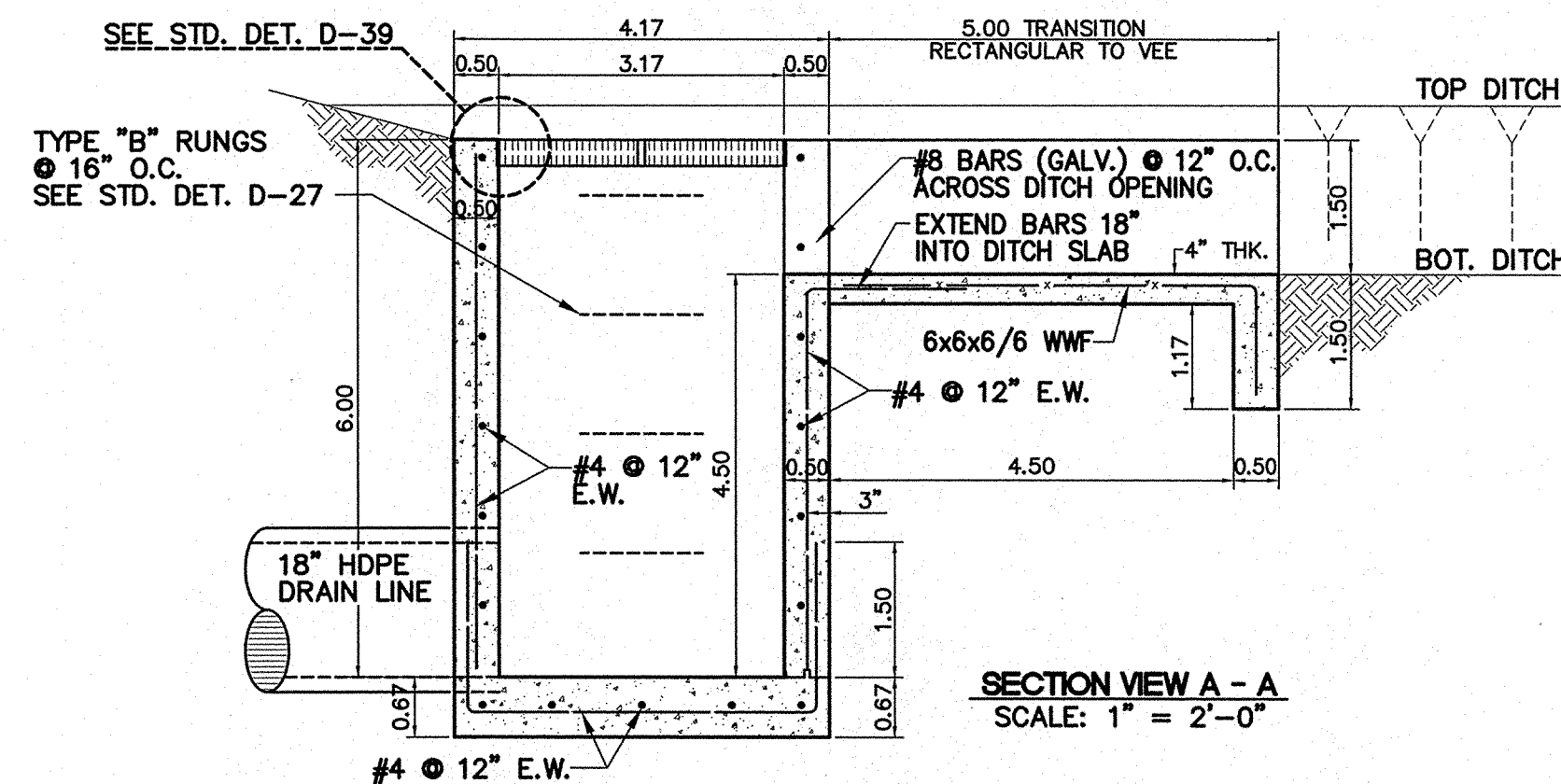
TYPICAL CONC. SWALE DETAIL  
SCALE: N.T.S.



TYPICAL REINFORCEMENT AT PIPES  
SCALE: N.T.S.



PLAN VIEW  
SCALE: 1" = 2'-0"

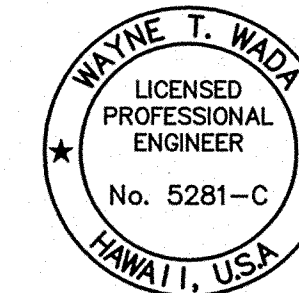


SECTION VIEW A - A  
SCALE: 1" = 2'-0"

FIELD INLET "E3A"  
SCALE: 1" = 2'-0"

REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS



THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

## DRAINAGE DETAILS

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE  
N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

DATE: 03/27/12

SHEET

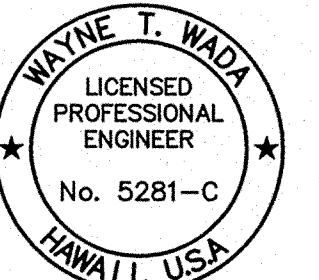
C-34

34 OF 44 SHEETS



REVISION	DATE	DESCRIPTION	BY	APPROVED

REVISIONS



THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:

**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**DRAINAGE  
DETAILS**

**APPROVED:**

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS, DATE  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W)

N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER, DATE  
COUNTY OF KAUAI

DESIGNED BY: WW

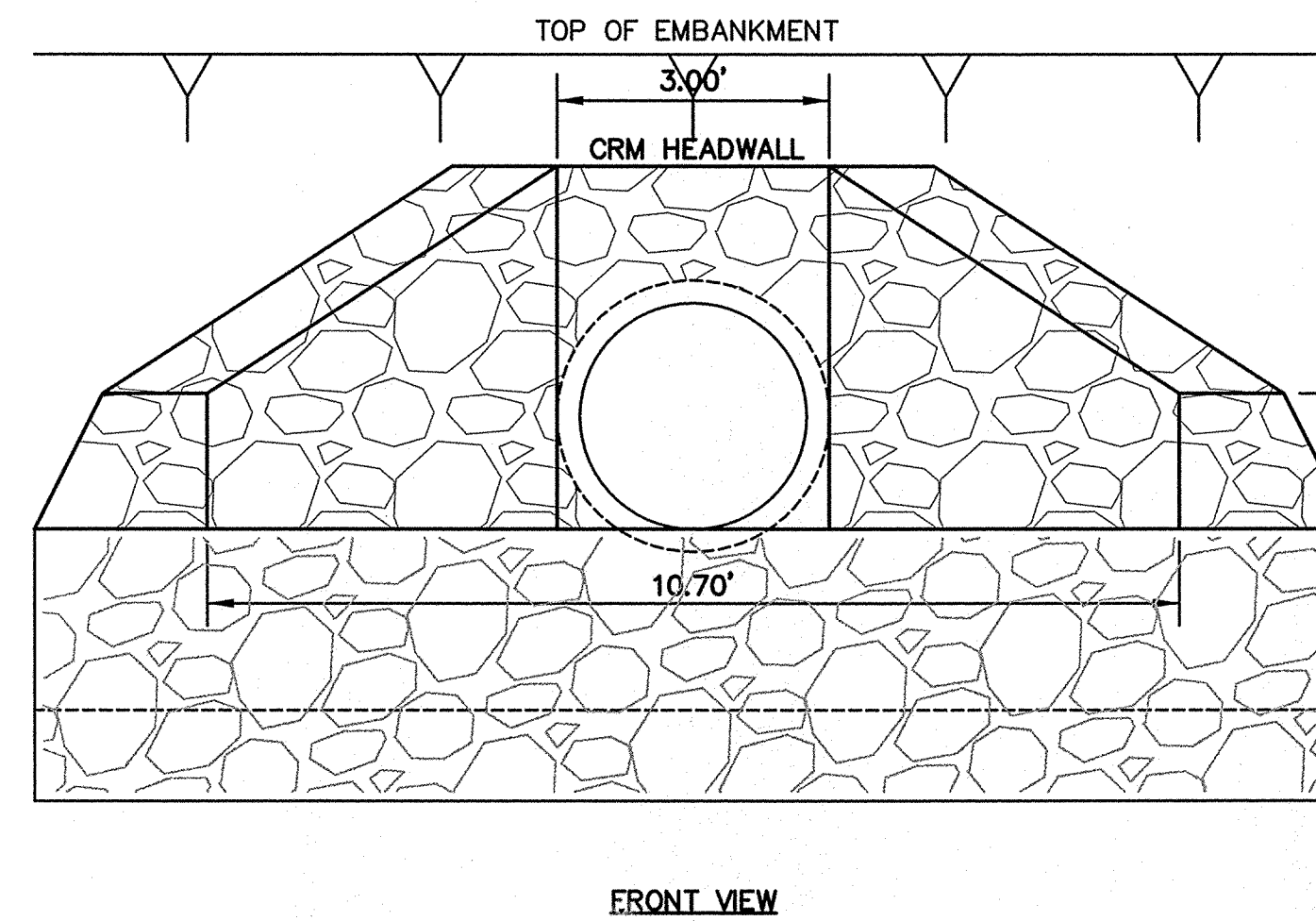
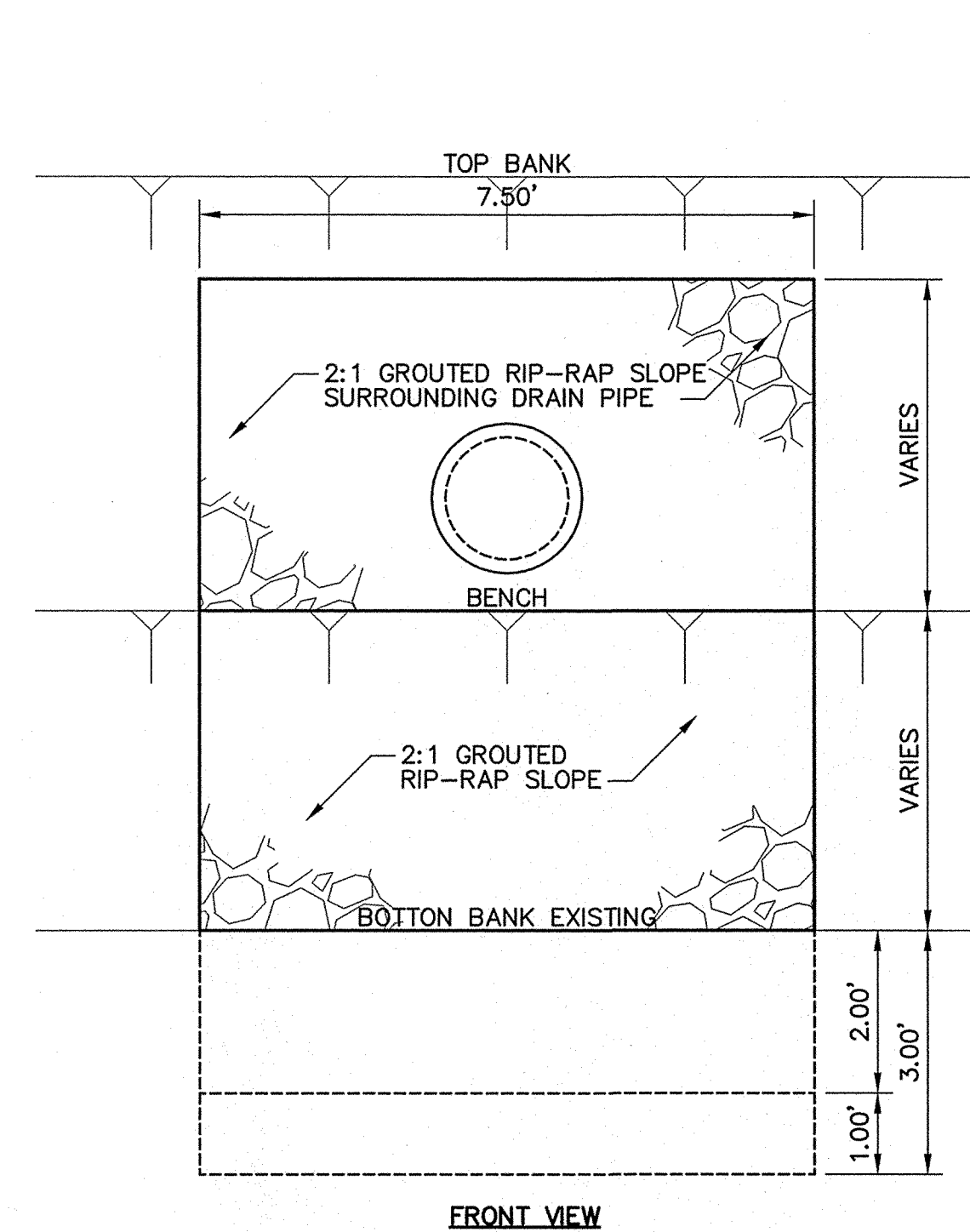
DRAWN BY: CG

DATE: 03/27/12

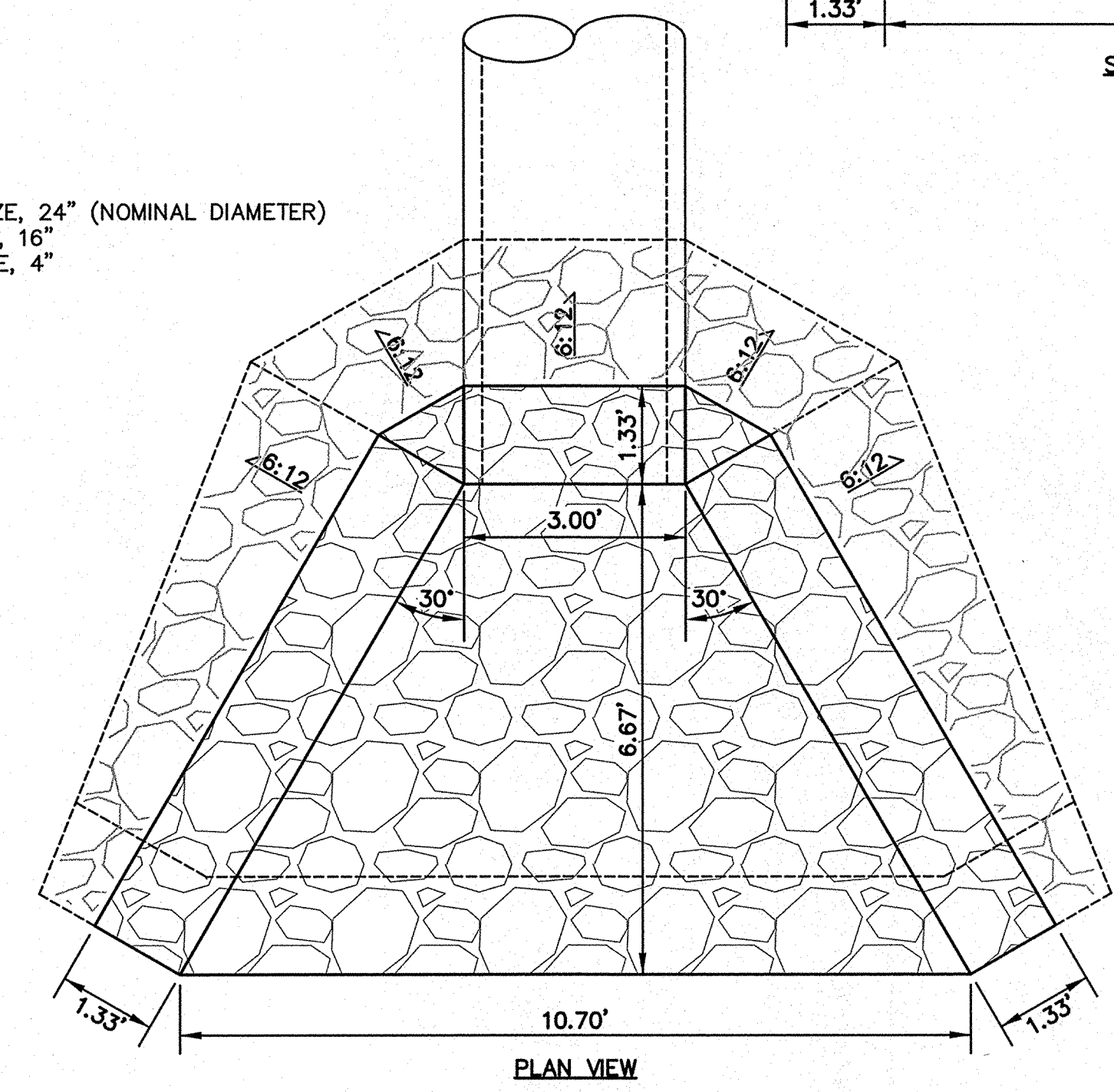
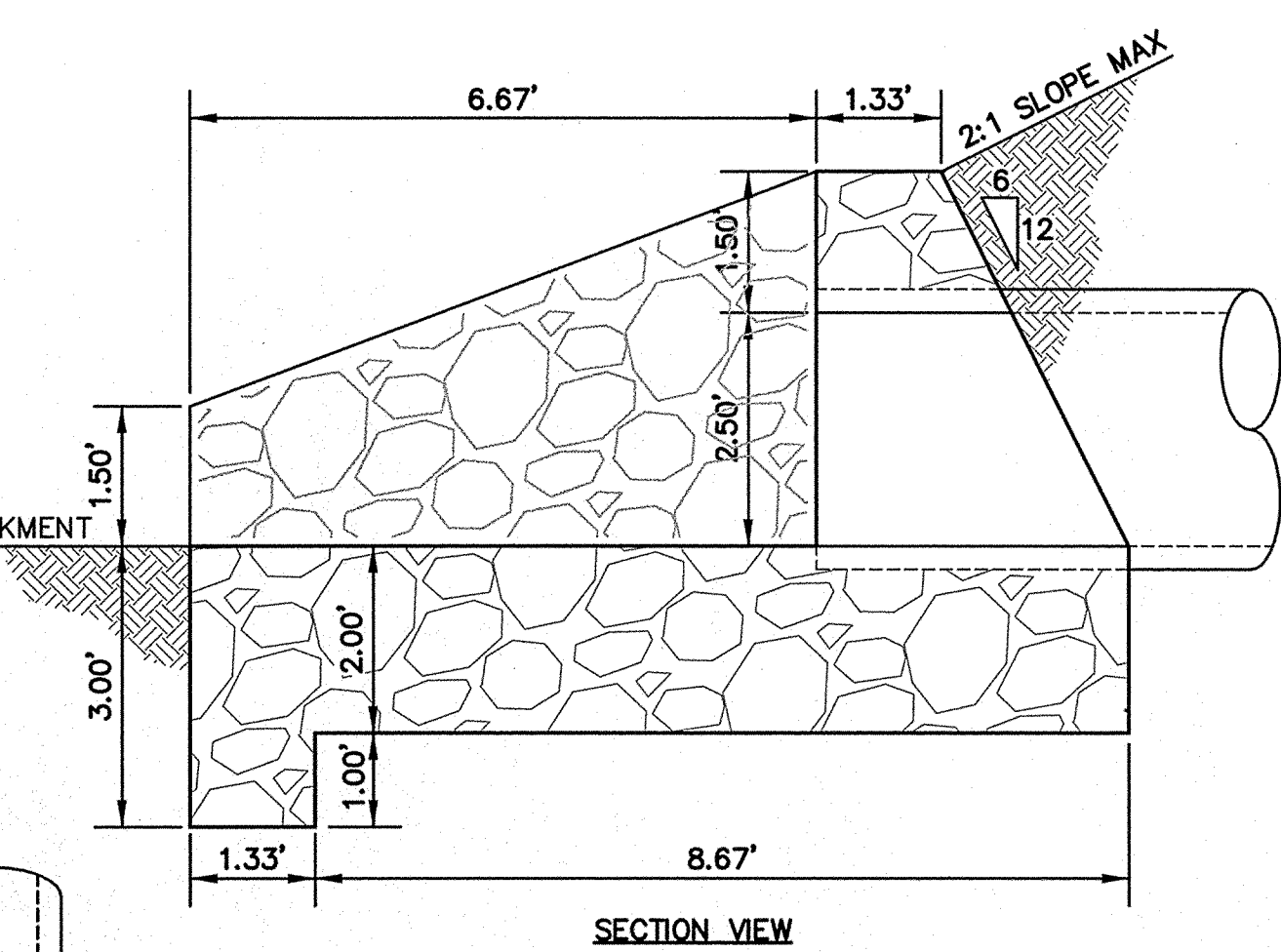
SHEET

**C-35**

35 OF 44 SHEETS

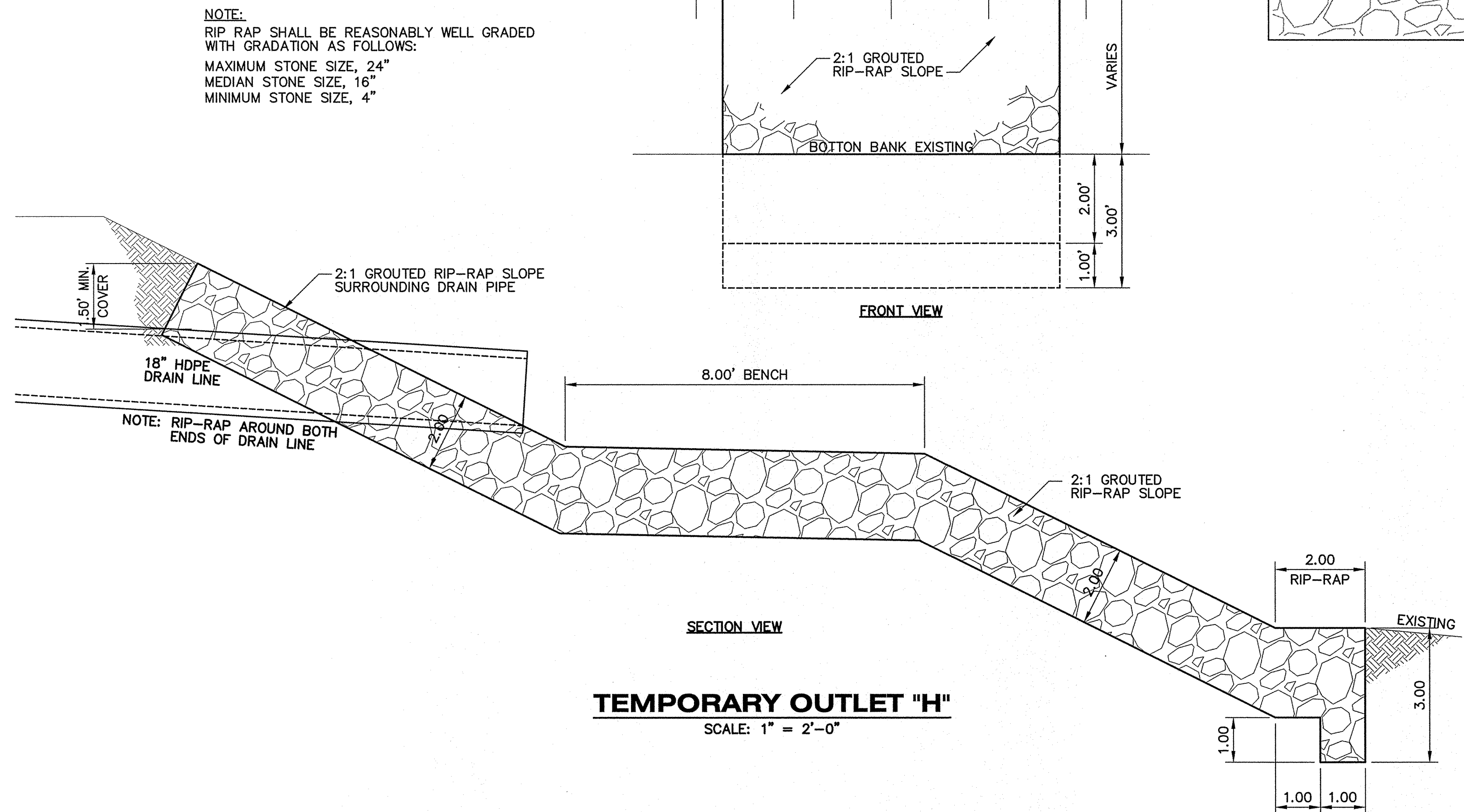
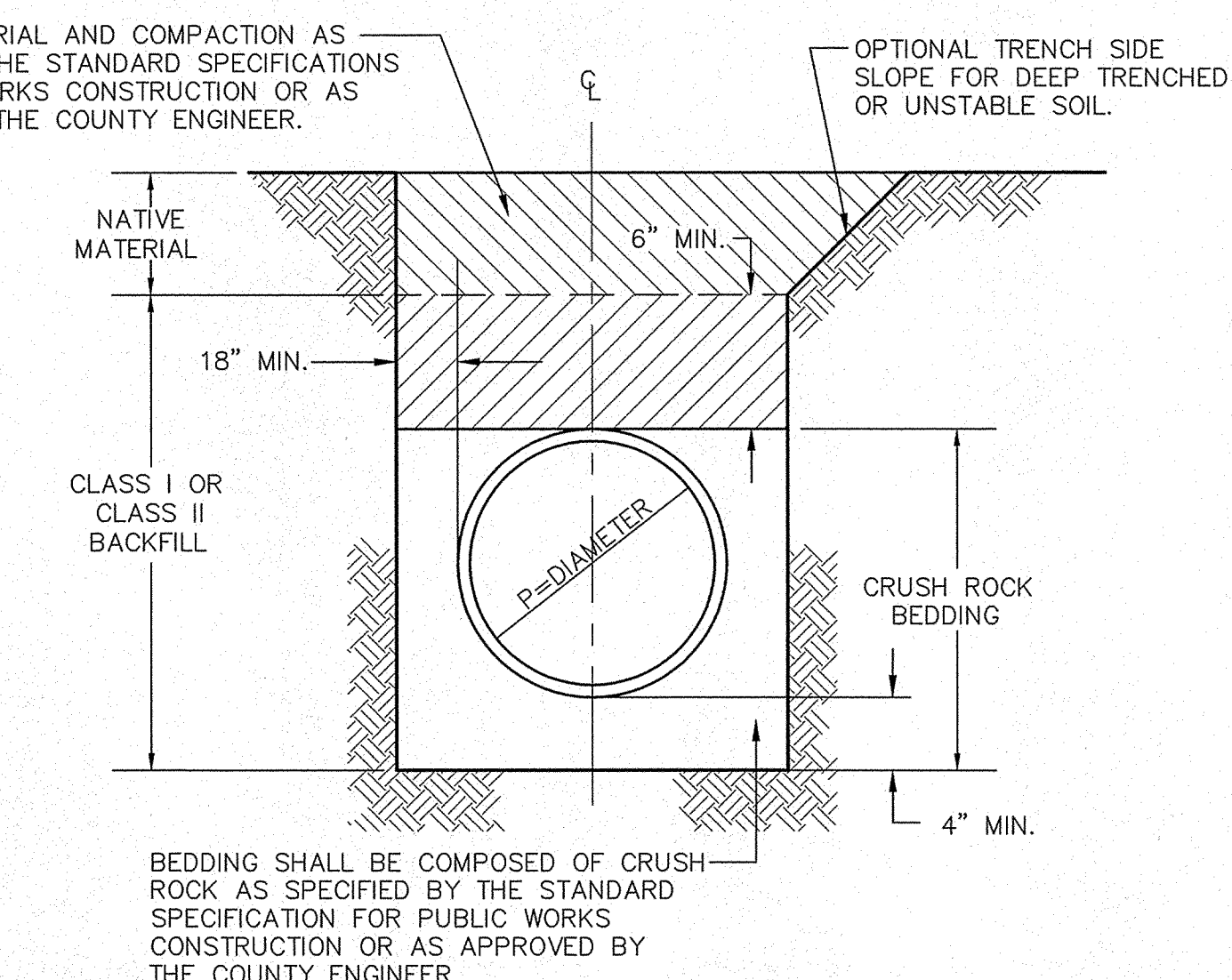


NOTE:  
MAXIMUM STONE SIZE, 24" (NOMINAL DIAMETER)  
MEDIAN STONE SIZE, 16"  
MINIMUM STONE SIZE, 4"

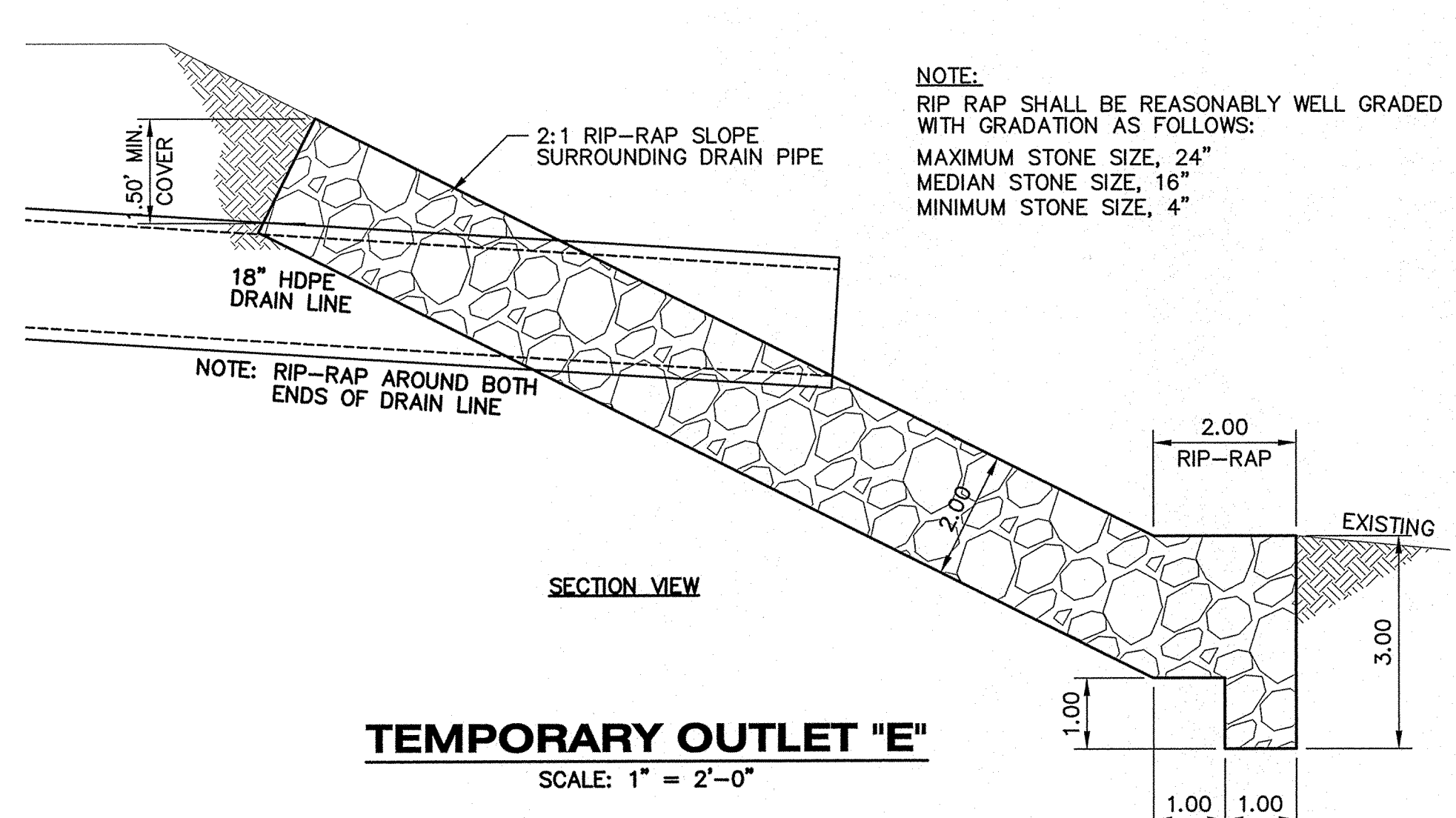


**TEMP CRM DRAIN CULVERT "A"**  
SCALE: 1" = 2'-0"

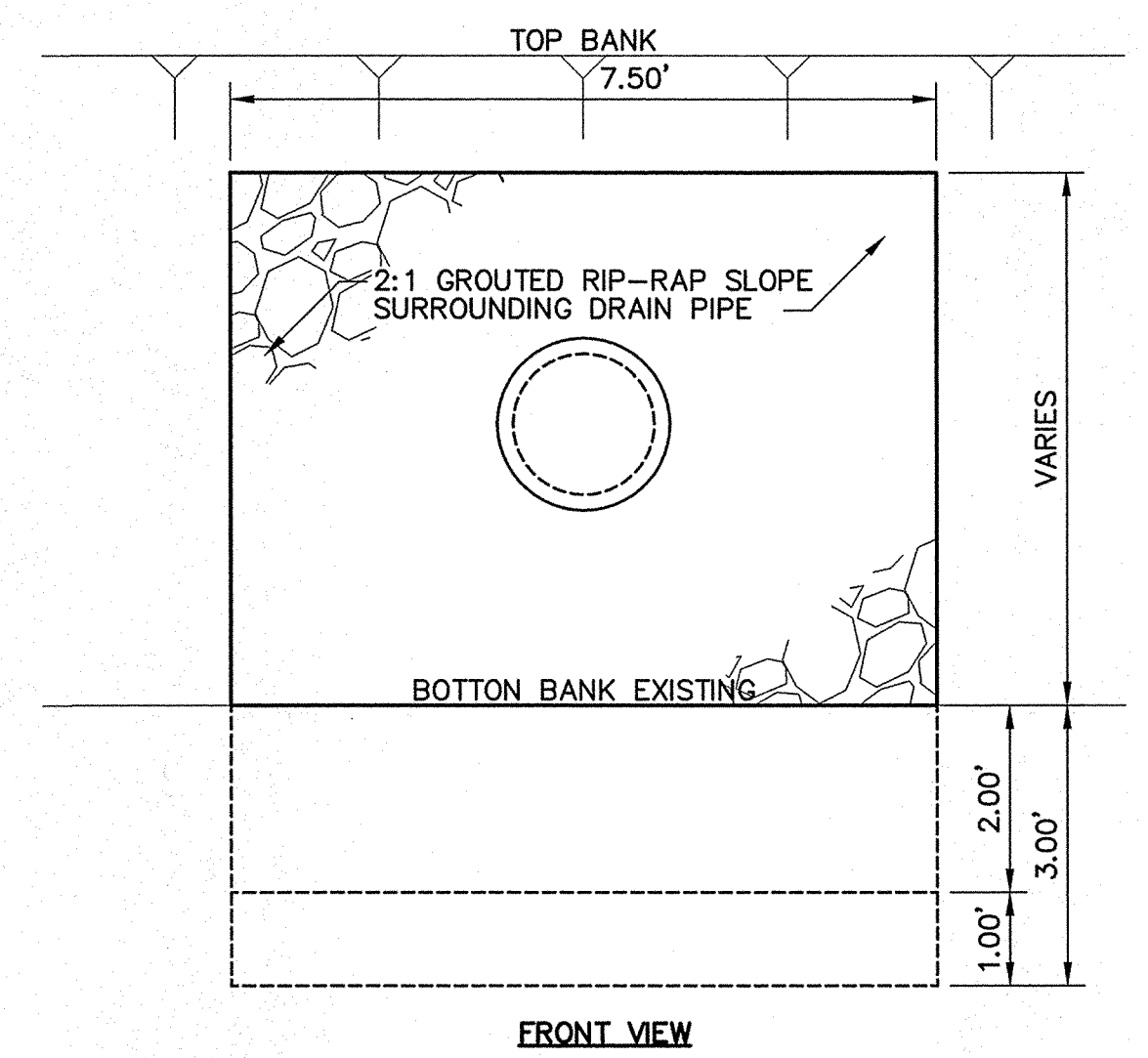
BACKFILL MATERIAL AND COMPACTION AS SPECIFIED BY THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OR AS APPROVED BY THE COUNTY ENGINEER.



**TEMPORARY OUTLET "H"**  
SCALE: 1" = 2'-0"



**TEMPORARY OUTLET "E"**  
SCALE: 1" = 2'-0"



NOTE:  
RIP RAP SHALL BE REASONABLY WELL GRADED WITH GRADATION AS FOLLOWS:  
MAXIMUM STONE SIZE, 24"  
MEDIAN STONE SIZE, 16"  
MINIMUM STONE SIZE, 4"

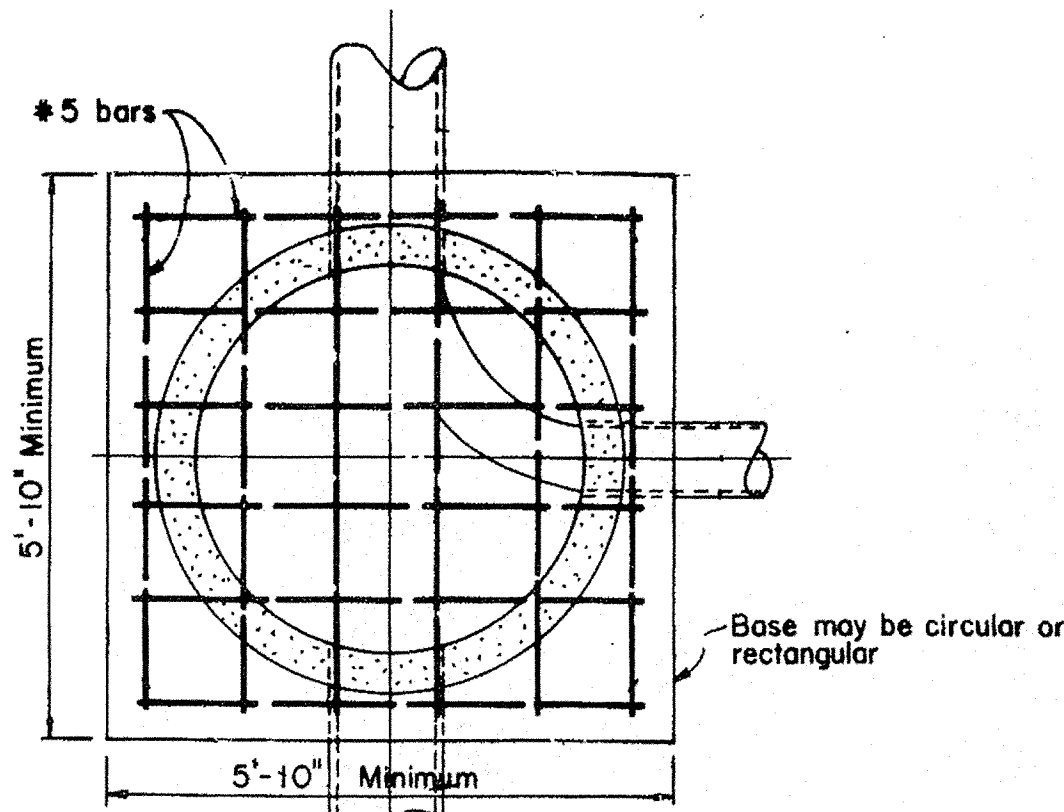
NOTE:  
RIP RAP SHALL BE REASONABLY WELL GRADED WITH GRADATION AS FOLLOWS:  
MAXIMUM STONE SIZE, 24"  
MEDIAN STONE SIZE, 16"  
MINIMUM STONE SIZE, 4"





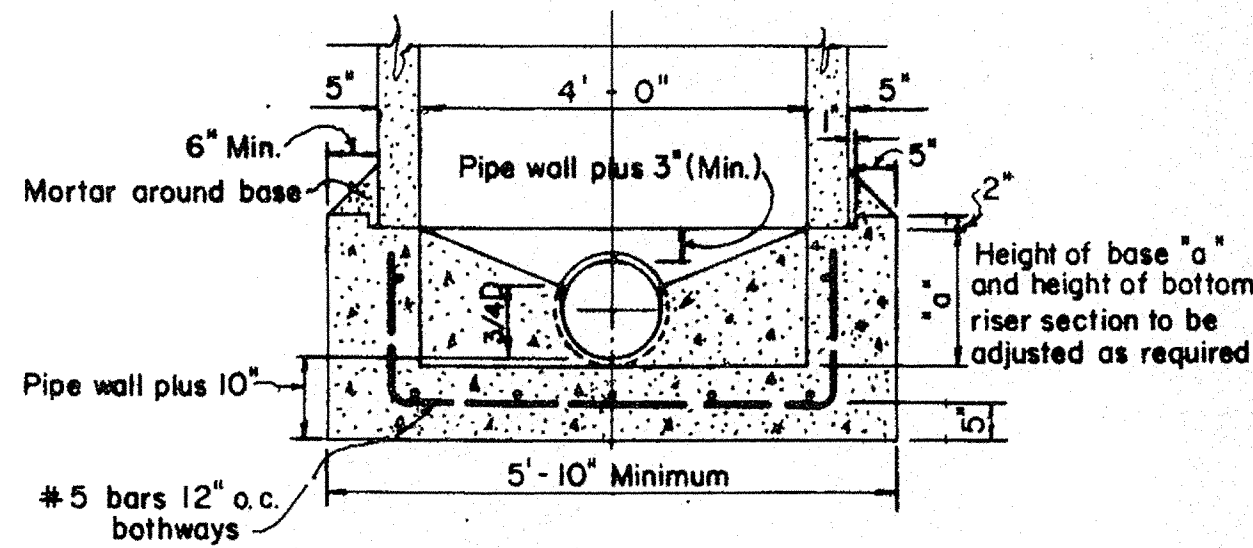


Project No.: 11-157  
Drawing No.: SEWER DETAILS.dwg



SECTION A-A

Scale: 1/2" = 1'-0"



ALTERNATE BASE  
PRE-CAST CONCRETE M. H.

Scale: 1/2" = 1'-0"

S-14

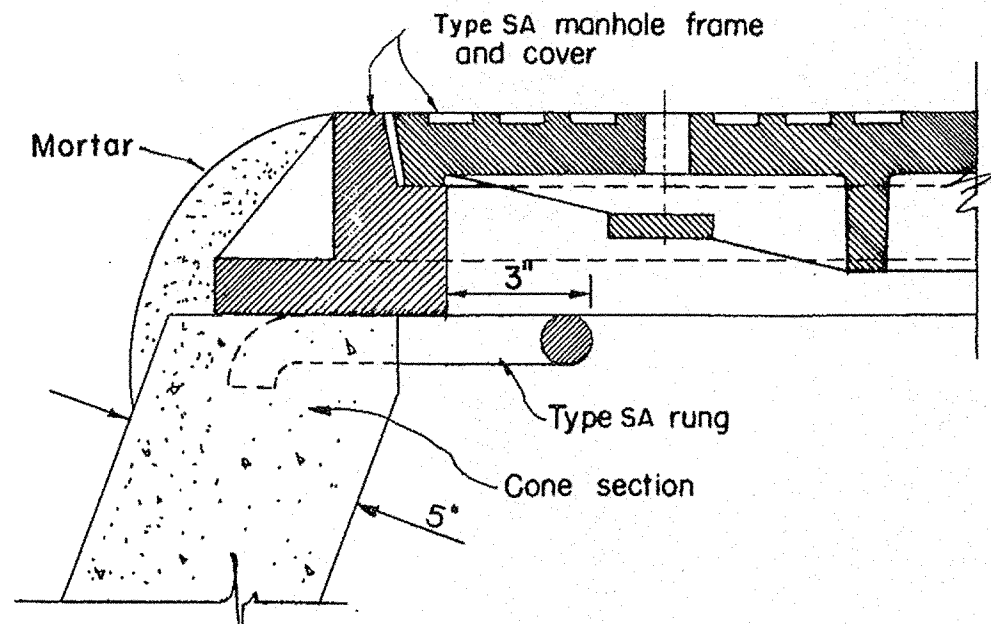
STANDARD  
DETAILS

PRE-CAST CONCRETE PLAIN MANHOLE -  
SECTION AND ALTERNATE BASE

SEPTEMBER 1984

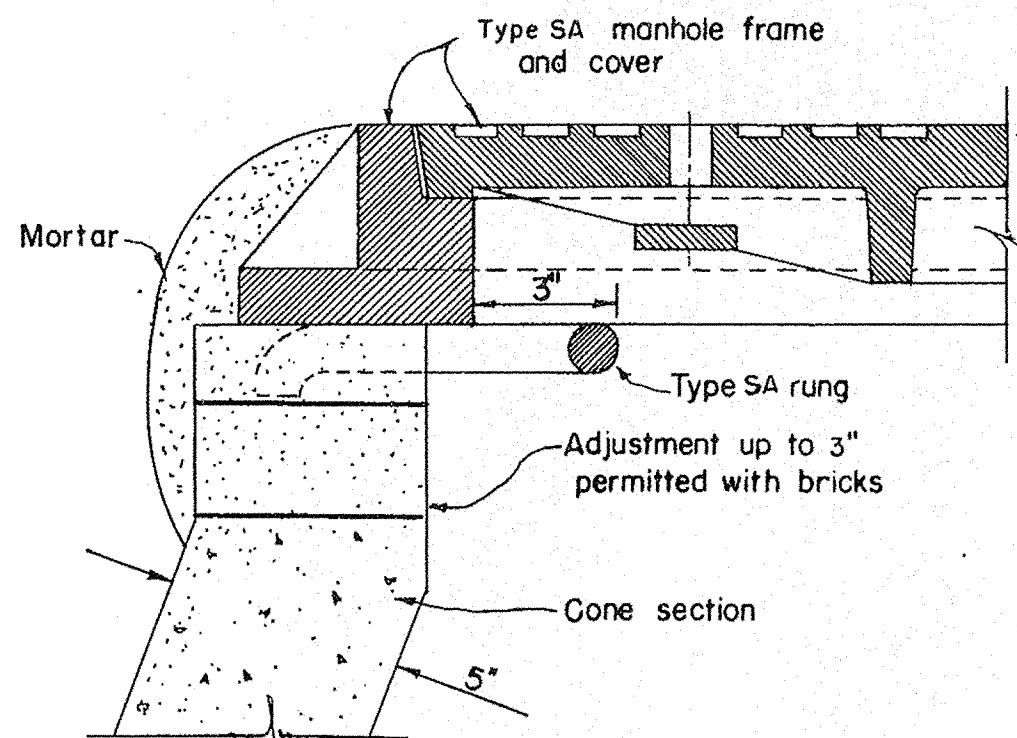
SCALE: 1/2" = 1'-0"

COUNTY OF KAUAI  
CITY & COUNTY OF HONOLULU  
COUNTY OF MAUI  
COUNTY OF HAWAII



SHOWN WITHOUT GRADE RING

Scale: 3" = 1'-0"



SHOWN WITH GRADE RING  
PRE-CAST MANHOLE  
DETAIL AT TOP RING

COUNTY OF KAUAI  
CITY & COUNTY OF HONOLULU  
COUNTY OF MAUI  
COUNTY OF HAWAII

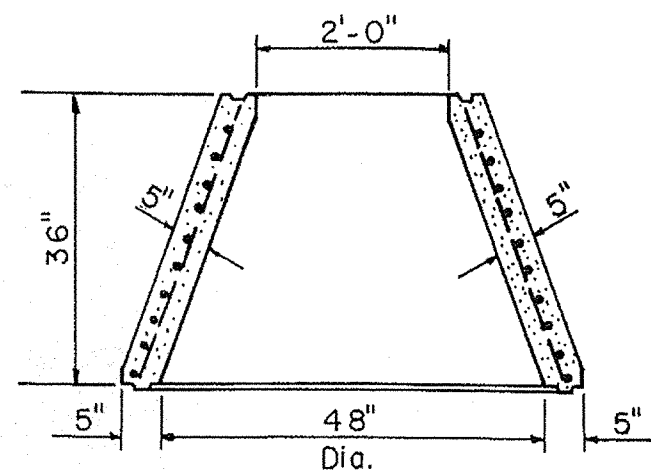
PRE-CAST CONCRETE MANHOLE -  
DETAIL AT TOP RING

SCALE: 3" = 1'-0"

SEPTEMBER 1984

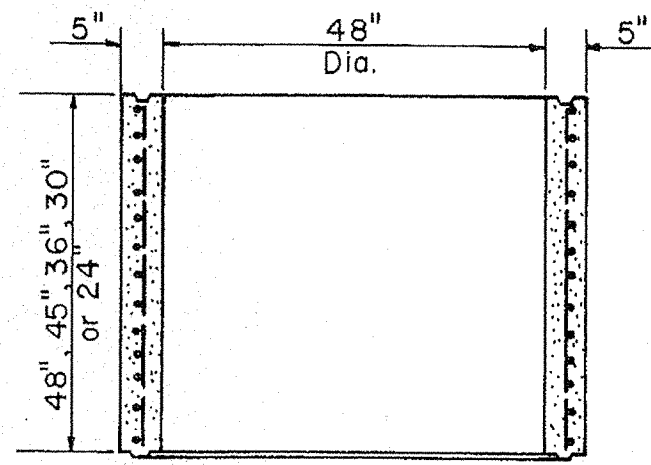
STANDARD  
DETAILS

S-25



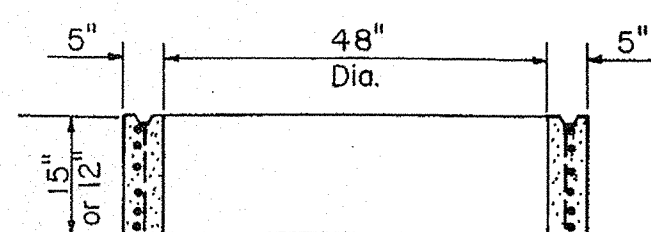
36" CONE

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



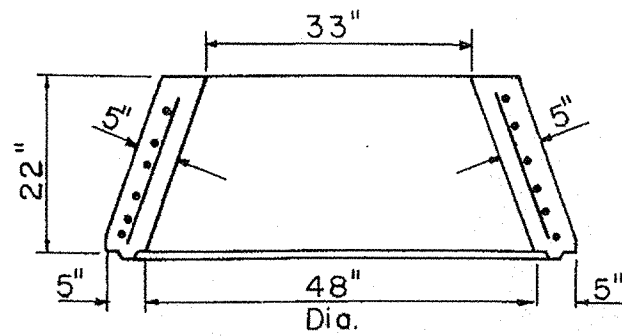
RISER

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



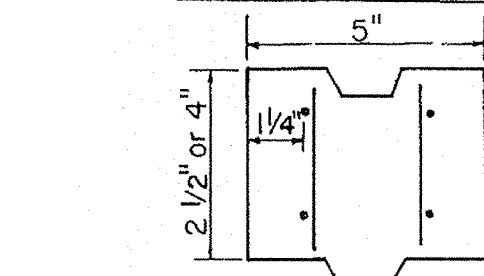
RISER

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



22" CONE

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



GRADE RING

SCALE: 3" = 1'-0"

SECTION	A <sub>s</sub> /L.F.
48" x 48" Riser	0.15
48" x 45" Riser	0.15
48" x 36" Riser	0.15
48" x 30" Riser	0.15
48" x 24" Riser	0.15
48" x 15" Riser	0.15
48" x 12" Riser	0.15
48" x 24" x 36" Cone	0.16
48" x 33" x 22" Cone	0.16
22" x 4" Grade Ring	0.12
22" x 2 1/2" Grade Ring	0.12

NOTES

1. Pre-cast sections shall conform to ASTM C478
2. Manufacturers may submit to the Engineer for approval, prior to manufacturing, designs other than those shown on this sheet.

COUNTY OF KAUAI  
CITY & COUNTY OF HONOLULU  
COUNTY OF MAUI  
COUNTY OF HAWAII

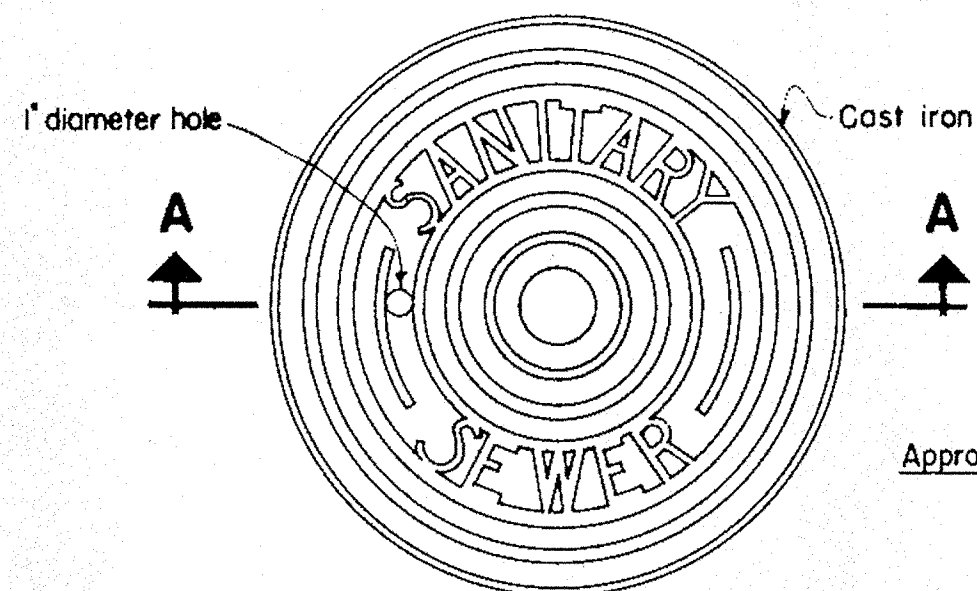
PRE-CAST CONCRETE MANHOLE WALL

SCALE: AS NOTED

SEPTEMBER 1984

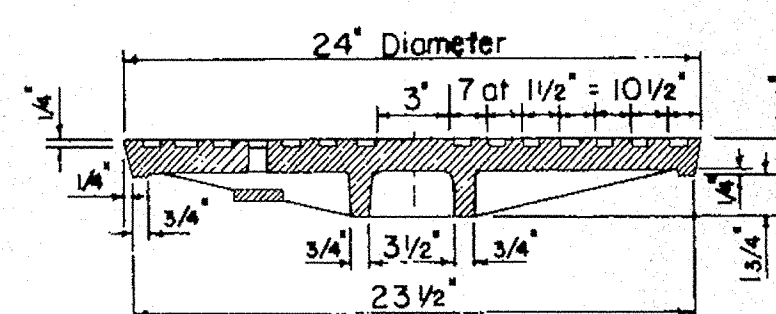
STANDARD  
DETAILS

S-21



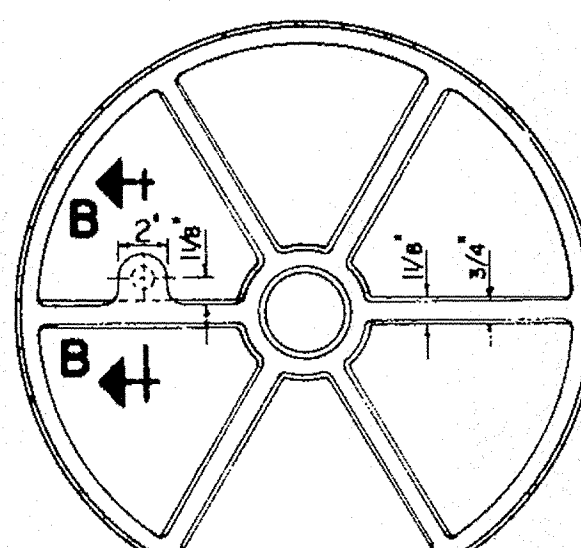
PLAN OF MANHOLE COVER

Scale: 1 1/2" = 1'-0"



SECTION A-A

Scale: 1 1/2" = 1'-0"



BOTTOM VIEW OF COVER

Scale: 1 1/2" = 1'-0"

NOTE:  
This cover is used with  
the SA or SD frame.

SECTION B-B

COUNTY OF KAUAI  
CITY & COUNTY OF HONOLULU  
COUNTY OF MAUI  
COUNTY OF HAWAII

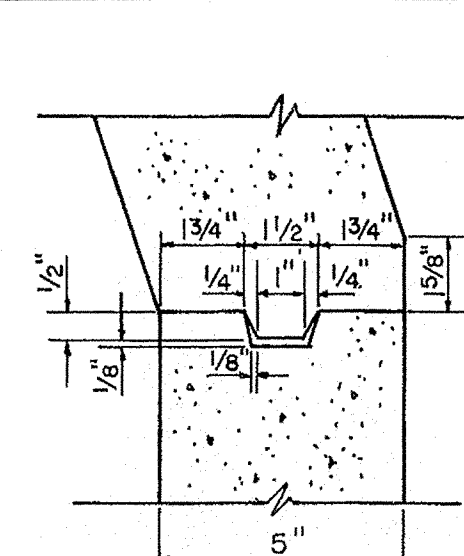
MANHOLE COVER - TYPE SA

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

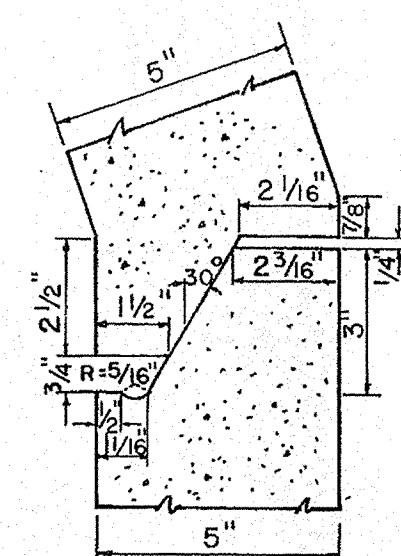
SEPTEMBER 1984

STANDARD  
DETAILS

S-31

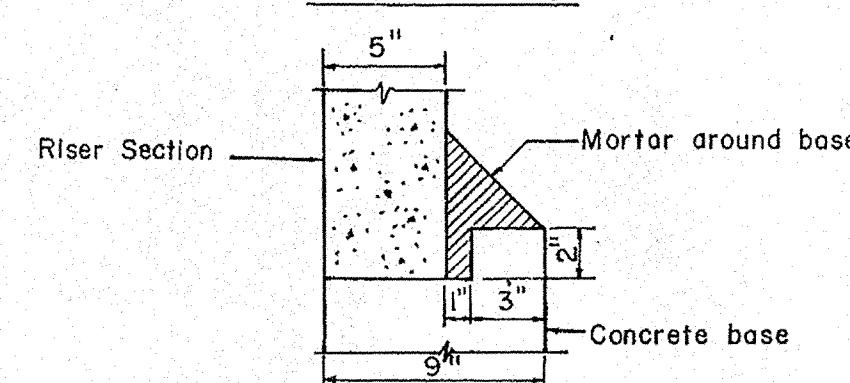


CONE SECTION



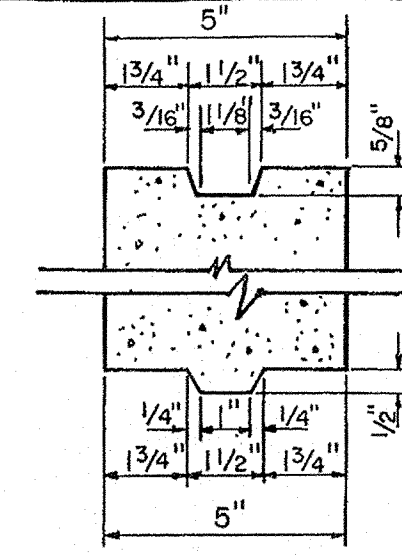
CONE SECTION  
(Alternate Detail)

Scale: 3" = 1'-0"

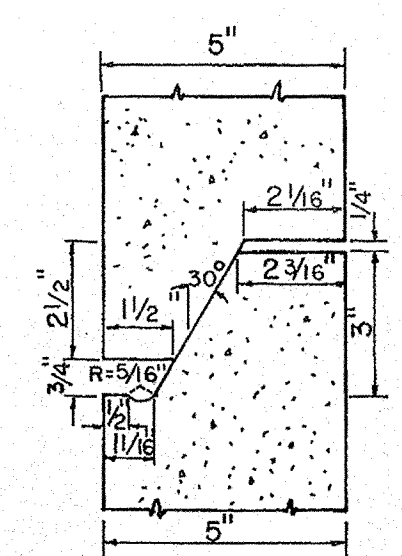


RISER AND MANHOLE BASE JOINT

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



RISER SECTION



RISER SECTION  
(Alternate Detail)

S-24

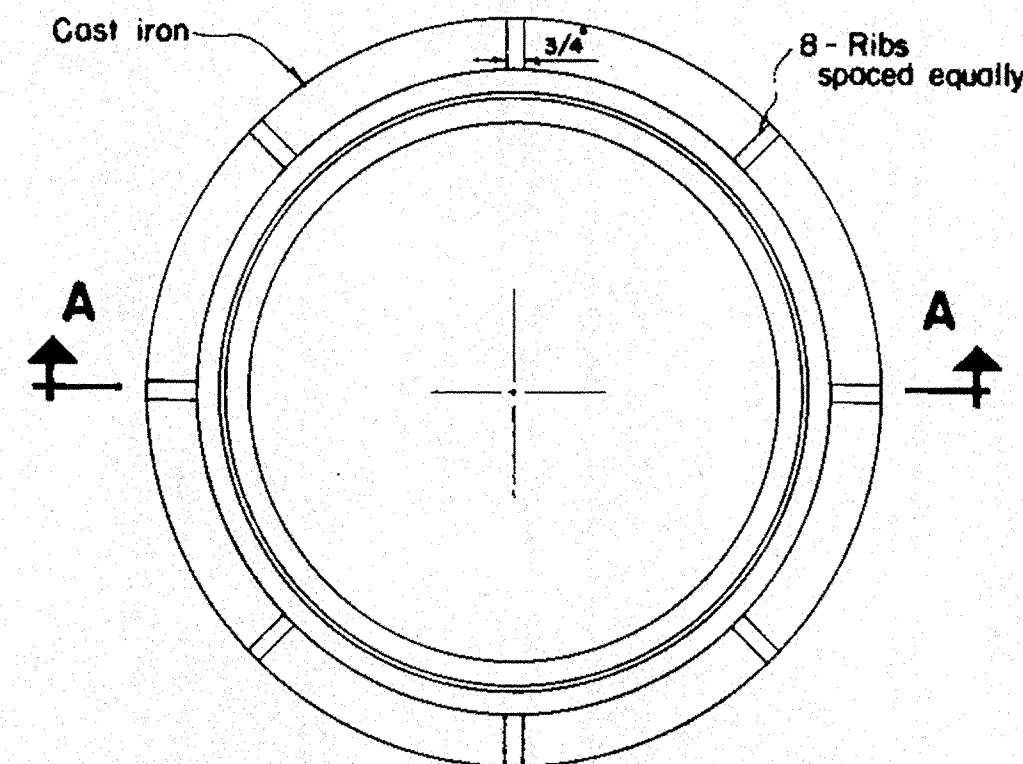
STANDARD  
DETAILS

PRE-CAST CONCRETE MANHOLE  
WALL JOINTS

SEPTEMBER 1984

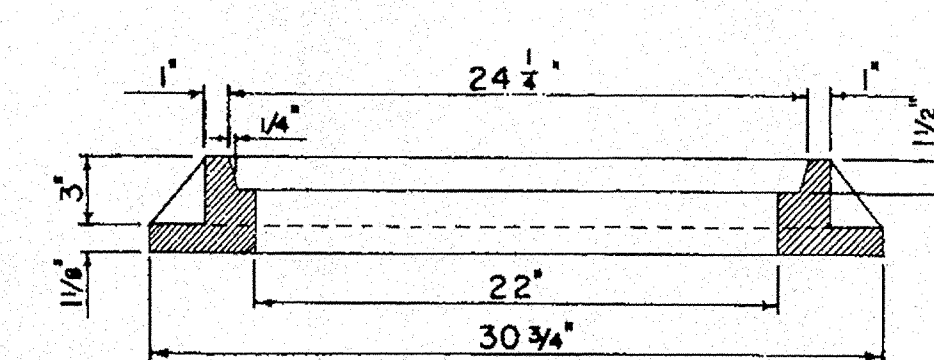
SCALE: AS NOTED

COUNTY OF KAUAI  
CITY & COUNTY OF HONOLULU  
COUNTY OF MAUI  
COUNTY OF HAWAII



PLAN OF MANHOLE FRAME

Scale: 1 1/2" = 1'-0"



SECTION A-A

Scale: 1 1/2" = 1'-0"

Approx. weight 156 pounds

S-32

STANDARD  
DETAILS

MANHOLE FRAME - TYPE SA

SEPTEMBER 1984

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

COUNTY OF KAUAI  
CITY & COUNTY OF HONOLULU  
COUNTY OF MAUI  
COUNTY OF HAWAII

ESAKI  
SURVEYING AND  
MAPPING, INC.

1610 Haleukana Street  
Lihue, Kauai, Hawaii 96766  
Ph. (808) 246-0625 Fax (808) 246-0229

CIVIL ENGINEERS • SURVEYORS • PLANNERS

REVISIONS

REVISIONS

WAYNE T. WADA  
LICENSED  
PROFESSIONAL  
ENGINEER  
No. 5281-C  
HAWAII, USA

THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

Wayne T. Wada  
EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
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Department of Hawaiian Home Lands  
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SEWER DETAILS

APPROVED

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

N.A.  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

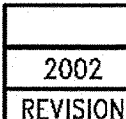
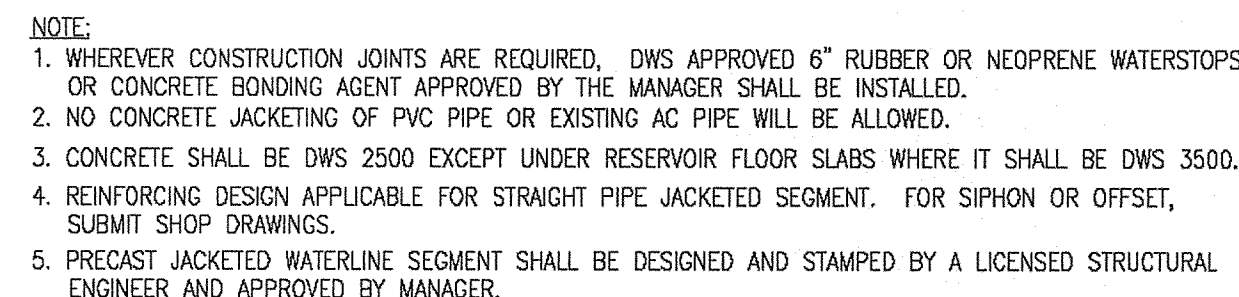
DATE: 03/27/12

SHEET

C-37

37 OF 44 SHEETS





COMPACTED BACKFILLED

TERRA-TAPE "D" STRIP, PLACED IN CONTINUOUS LENGTH OVER ALL PIPES INSTALLED AS MAIN

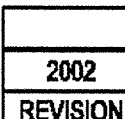
SELECTED BACKFILL MATERIAL

PIPELINE

SELECTED MATERIAL WHEN ROCK CONDITIONS ENCOUNTERED

FINISH GRADE

DETAIL AT JOINT



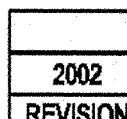
NOTES:

1. CLEANOUT SHALL INCLUDE THE CAP, PLUG, AND APPURTENANCES AS SHOWN.
2. ALL CLEANOUTS INSTALLATION SHALL BE BRASS OR COPPER.

CLEANOUTS AND RISER  
MODIFIED DWS DET. V22  
NOT TO SCALE

Standard Detail V22 (Revised)  
For Kauai Only

**NOTE:**  
INSTALL TYPE "X" CONC. METER BOX W/ CAST IRON COVER IN SIDEWALK OR PAVED AREAS. TOP OF METER BOX TO BE FLUSHED WITH FINISHED GRADE.



**PLAN**

GROUND LINE

WATER MAIN (3" OR SMALLER)

WATER MAIN (C-900 PVC OR DUCTILE IRON PIPE, 4" OR LARGER)

22"

14"

12"

PROPERTY LINE

COMMON BOUNDARY

**NOTE:**  
INSTALL TYPE "X" CONCRETE METER BOX W/ CAST IRON COVER IN SIDEWALK OR PAVED AREAS. TOP OF METER BOX TO BE FLUSHED WITH FINISHED GRADE.

(FABRICATED BRANCH DETAIL) STD. DET. L3

**PROFILE**

18" MIN.

8" MIN.

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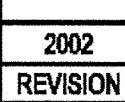
44

1" COPPER TUBE, TYPE 'K'  
12" LONG

1" MALE ADAPTER  
(SOLDER JOINT)

PLASTIC THREAD PROTECTOR  
ON ONE END.

LINESETTER DETAIL



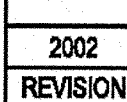
Technical drawing showing the assembly of a valve wrench nut. The drawing includes the following dimensions and labels:

- 18" (Total height)
- 2" (Height of the top section)
- TOP OF VALVE BOX COVER
- 2" SQ. NUT (FROM MILD STEEL SQ. BAR)
- 1/4" (Dimension of the nut)
- 1/4"x5" DIA. PLATE
- 3/16" (Dimension of the plate)
- 1 1/2" DIA SCH. 80 PIPE
- 3/16" (Dimension of the pipe)
- OUTLINE OF VALVE WRENCH NUT
- 2± VERIFY WITH WRENCH NUT DIMENSION OF VALVE
- 2 1/8"x2 1/8" INSIDE DIMENSION
- 1/4"x3" SQUARE PLATE

NOTE:

1. FURNISH AND INSTALL VALVE EXTENSION TO 18" FROM TOP OF VALVE BOX COVER.
2. VALVE EXTENSION SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
3. FOR VALVE OPERATORS DEEPER THAN 3.5' TO FINISH GRADE.

FOR GATE VALVE, BEVEL  
GEARED GATE VALVE AND  
BUTTERFLY VALVES

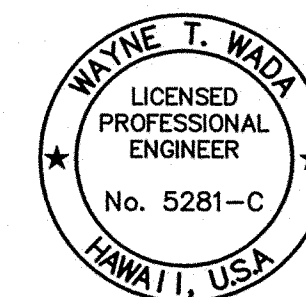


1610 Haleukana Street  
Līhu'e, Kaua'i, Hawai'i 96766  
Ph. (808) 246-0625 Fax (808) 246-0229

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REVISION	DATE	DESCRIPTION	BY	APPROV
----------	------	-------------	----	--------

## REVISIONS



THIS WORK WAS PREPARED  
BY ME OR UNDER MY SUPERVISION

Wayne T. Woch  
EXPIRES: APRIL 30, 2014

**PILANI MAI KE KAI SUBDIVISION  
PHASE II**

Anahola, Kaua'i, Hawai'i

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

## WATER DETAILS

**APPROVED:**

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

MANAGER &amp; CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI DAT

DESIGNED BY: WW

DRAWN BY: CG

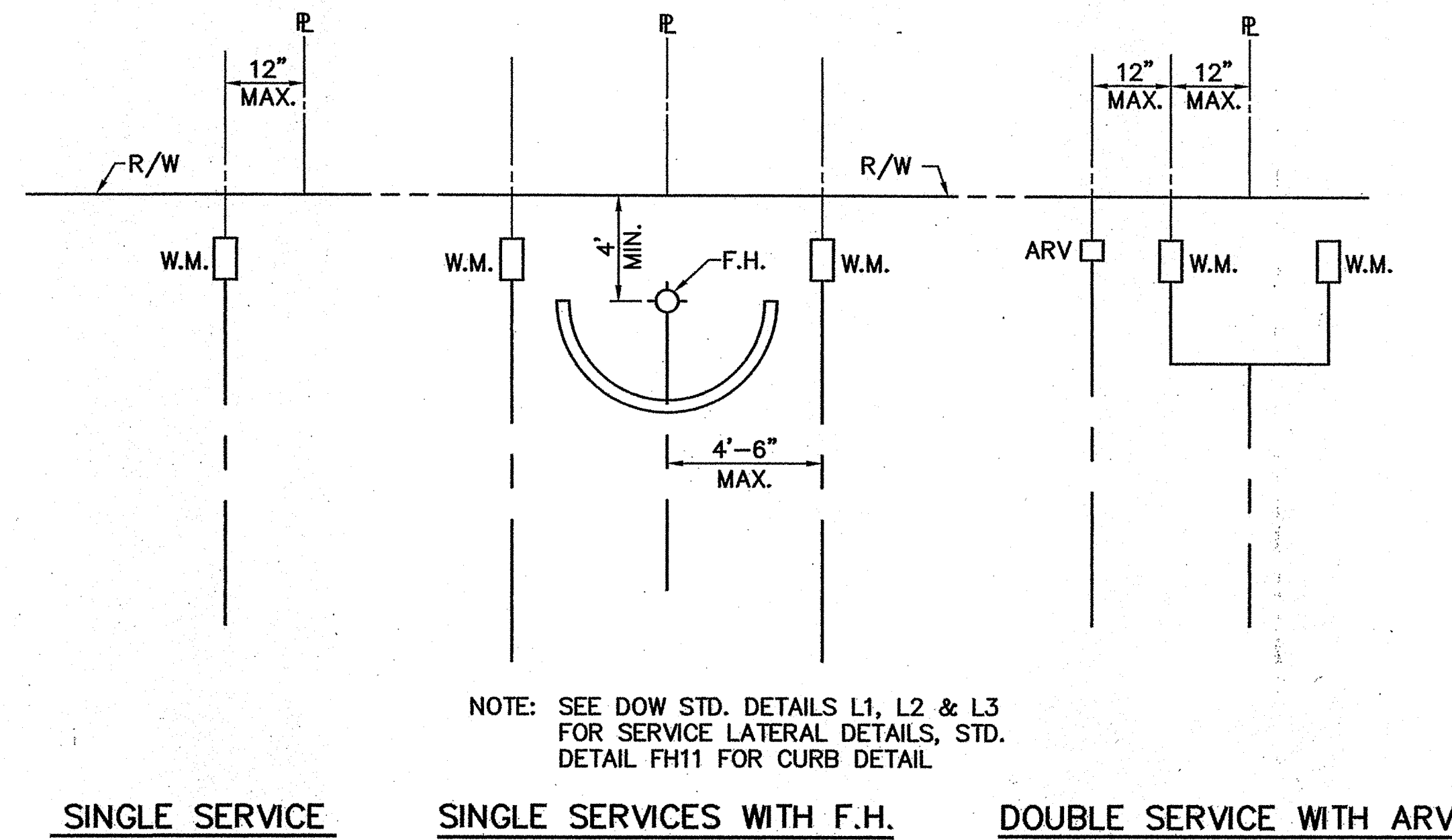
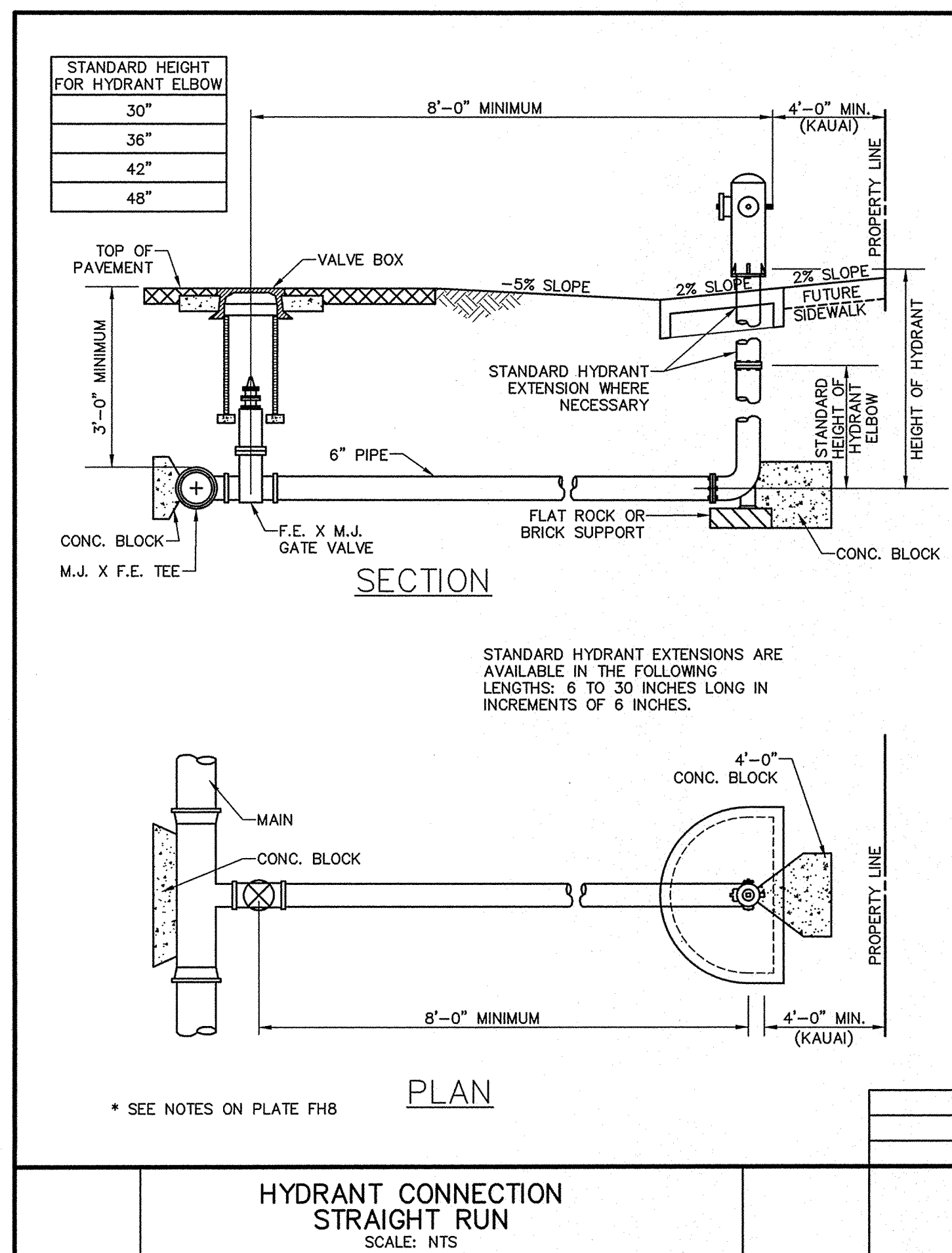
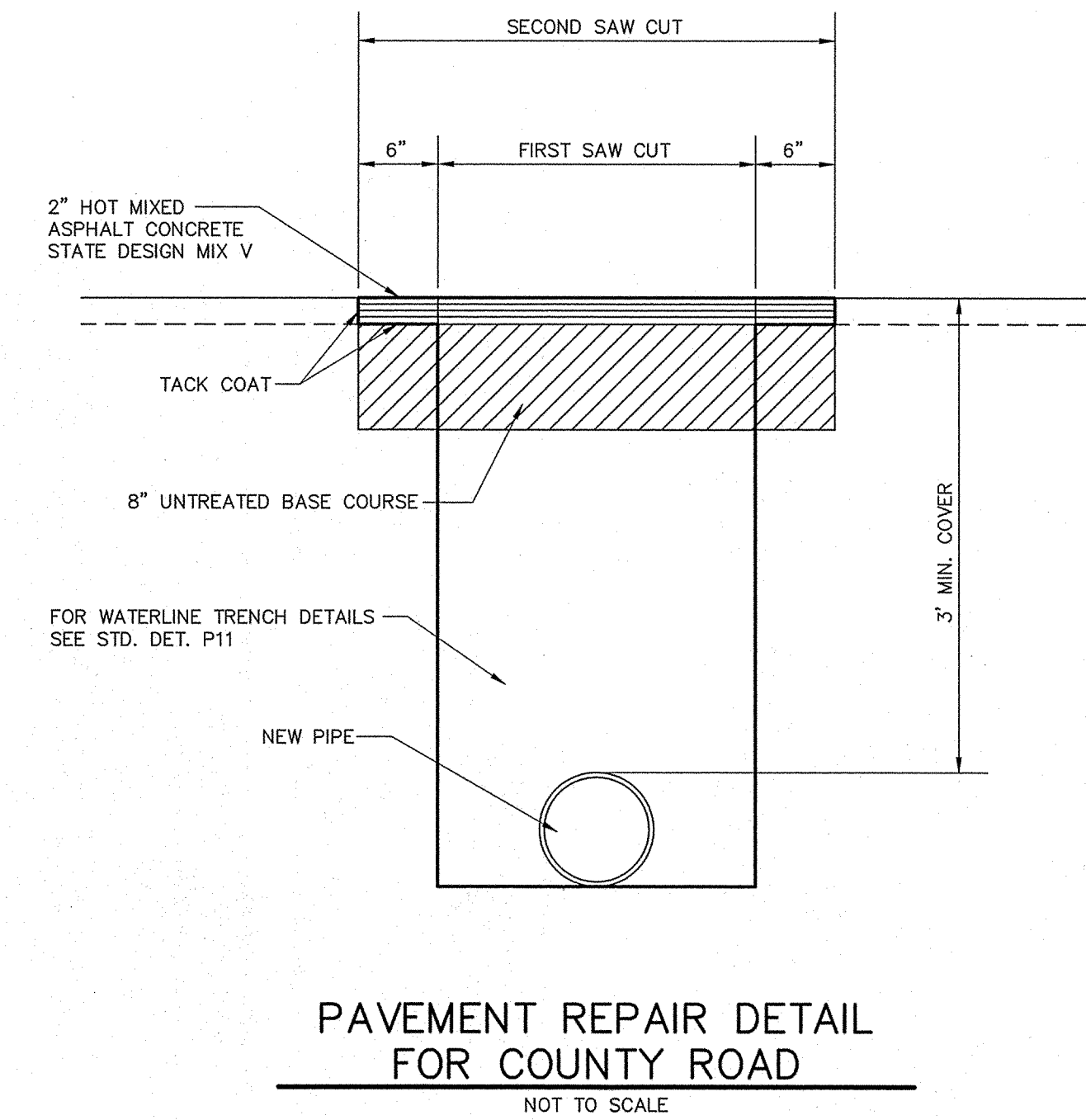
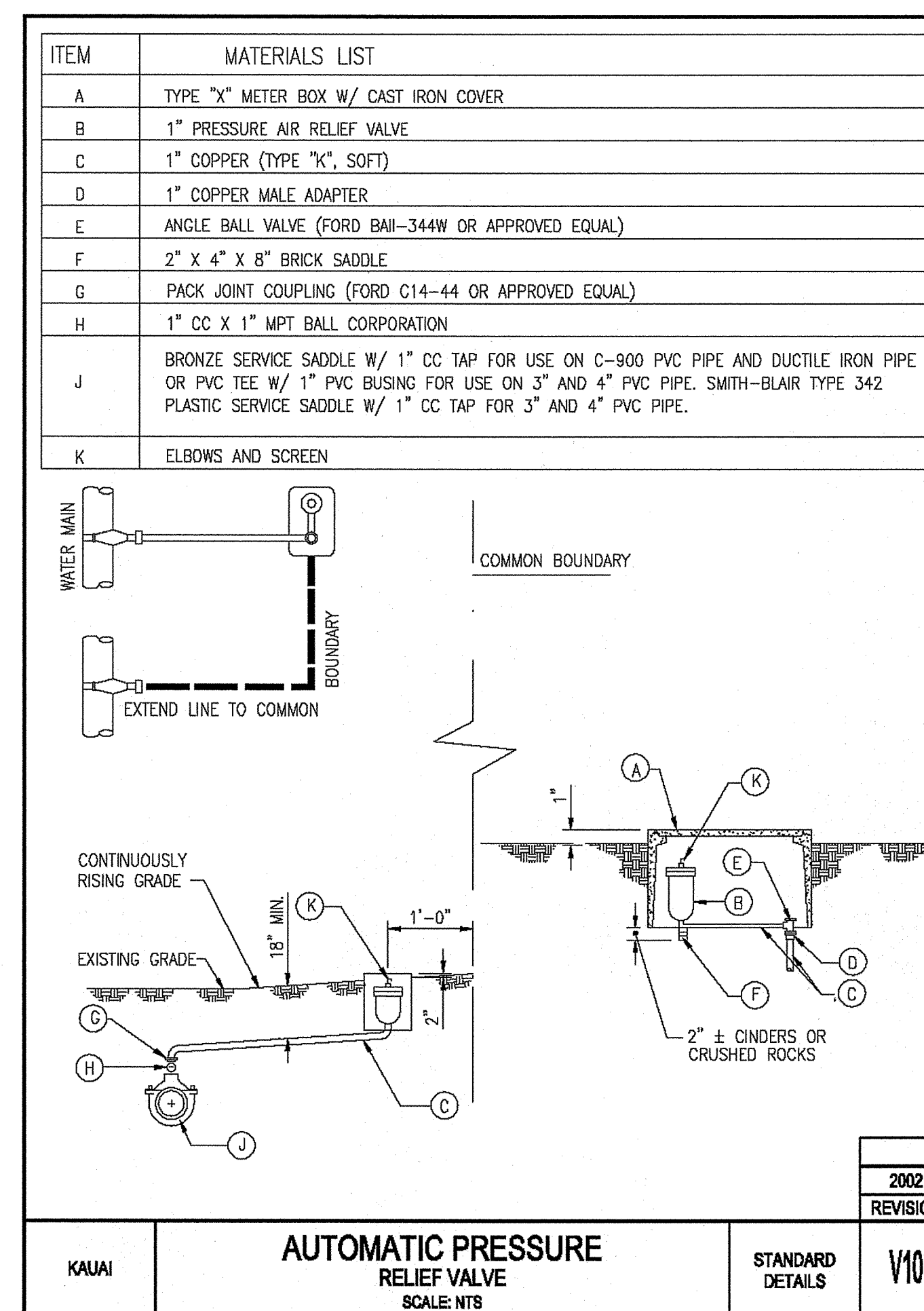
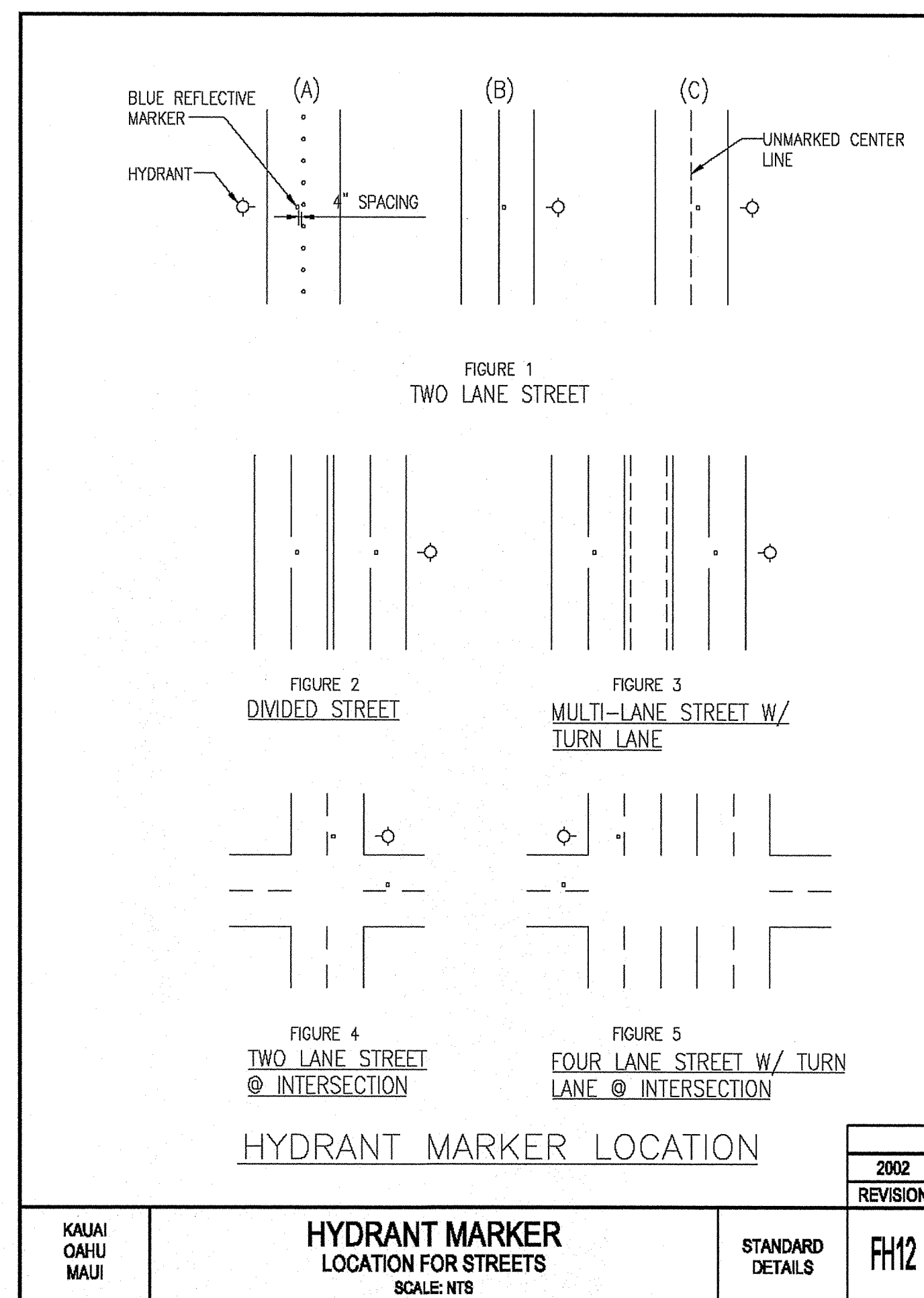
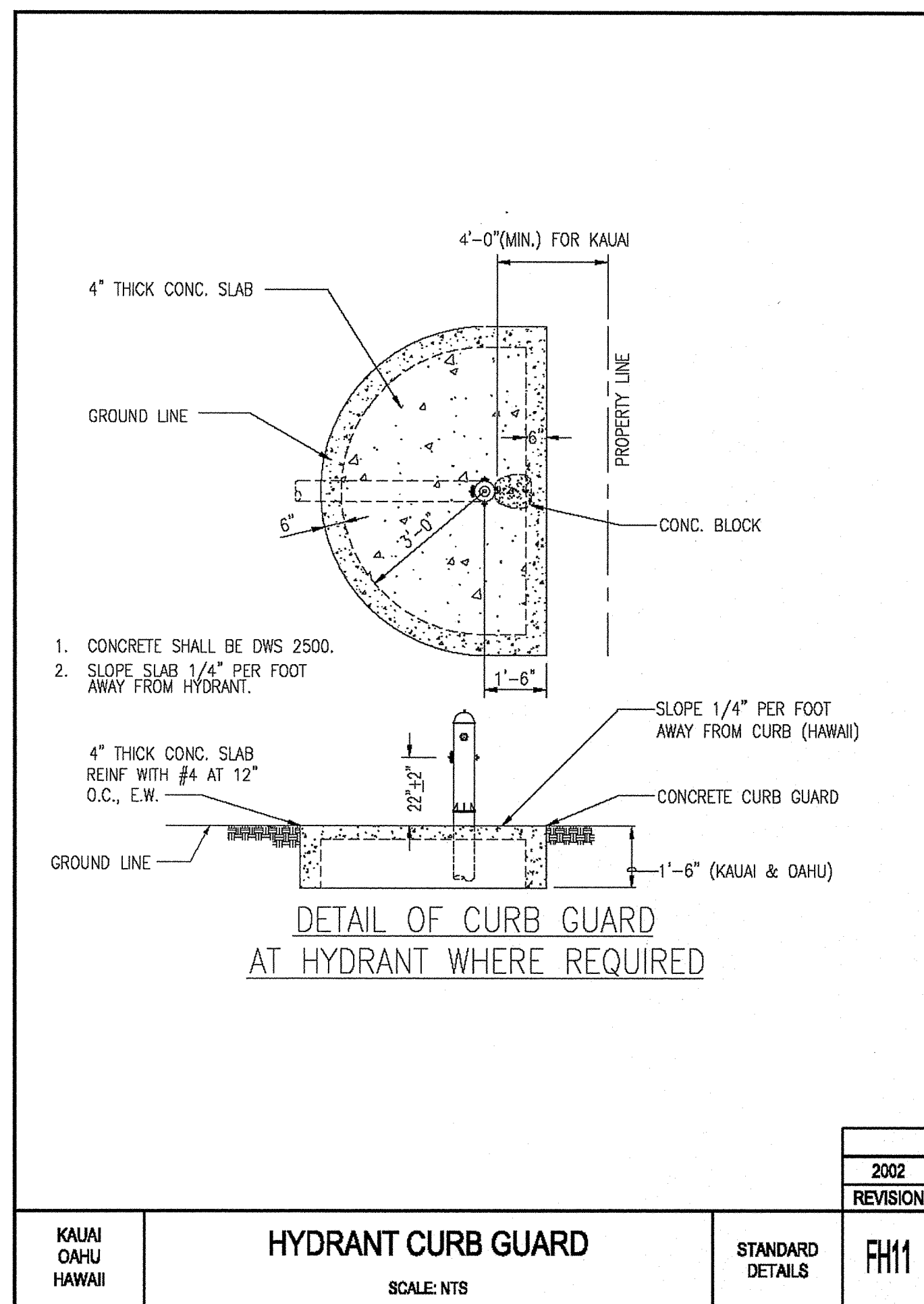
DATE: 03/27/12

SHEET

C 38

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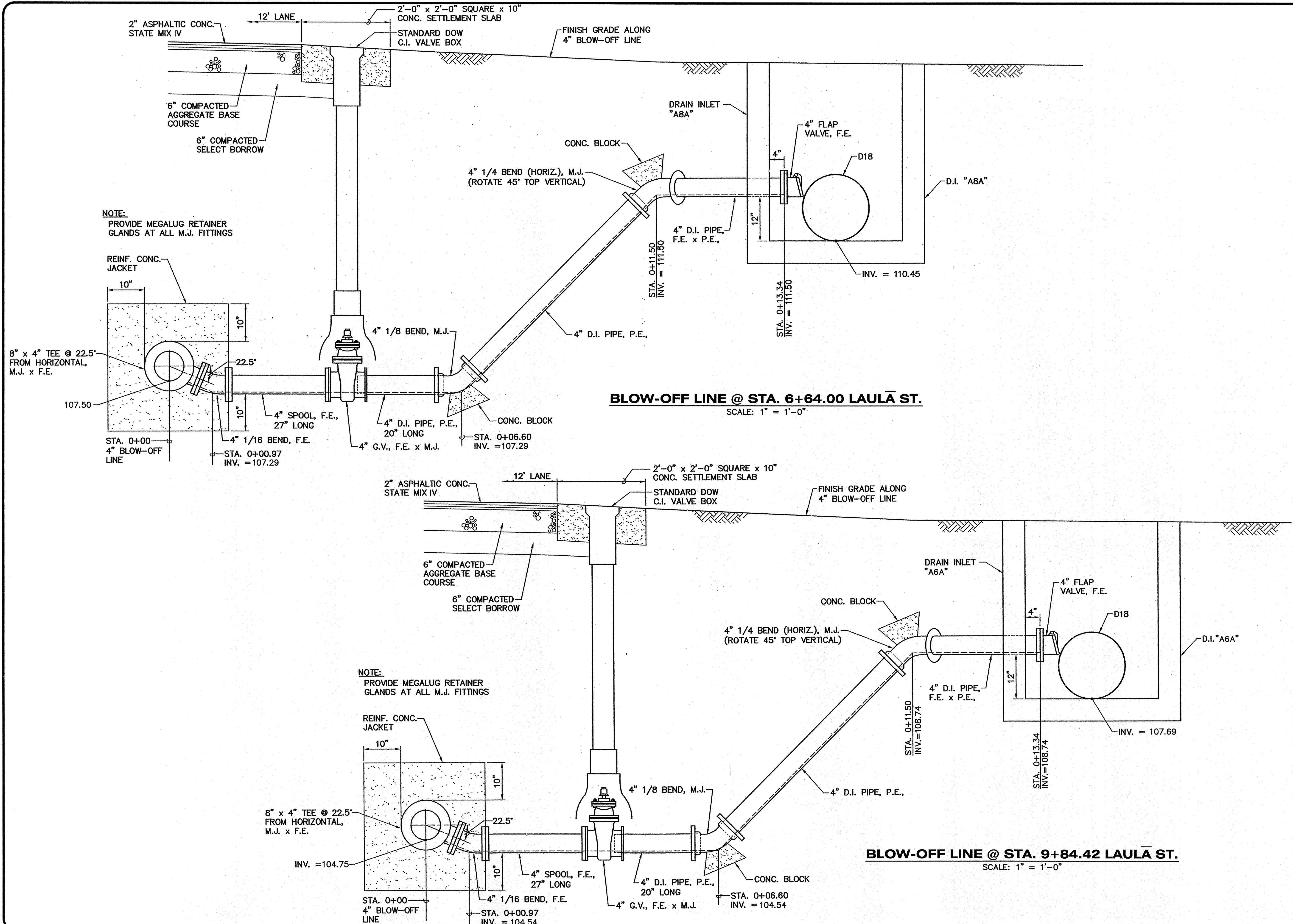


- NOTES:

1. GASKETS FOR FLANGED JOINTS SHALL BE 1/8" DUCK-INSERTED RUBBER PACKING GARLOCK NO. 19.
2. BOLTS SHALL BE BREAK-OFF TYPE, 5/8" DIA. X 3" LONG MACHINE BOLTS WITH CUT THREADS, AMERICAN STANDARD COARSE HEXAGON HEADS, HOT-DIPPED GALVANIZED STEEL. INSTALL BOLT WITH THREADS FACING DOWN.
3. NUTS SHALL BE AMERICAN STANDARD HEAVY COLD PUNCHED HEXAGON NUTS, HOT-DIPPED GALVANIZED STEEL.
4. CONCRETE SHALL BE DWS 2500.
5. INSTALL CURB GUARDS FOR FIRE HYDRANTS. REFER TO PLATE FH11 FOR FIRE HYDRANT INSTALLATION WITH CURB GUARD.
6. PROVIDE FLANGED OUTLET FOR THE TEE.
7. TAPPING SLEEVE WITH TAPPING VALVE ASSEMBLY MAY BE USED FOR CONNECTION TO EXIST. MAIN.
8. LUBRICATE HYDRANT NOZZLE THREADS WITH NON-TOXIC GREASE.
9. INSTALL HYDRANT MARKERS. (SEE PLATES FH12 AND FH13)



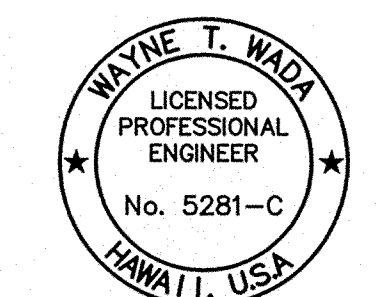
Project No: 11-157  
Drawing No: WATER DETAILS.dwg



**ESAKI**  
**SURVEYING AND**  
**MAPPING, INC.**  
1610 Halekuna Street  
Lihue, Kauai, Hawaii 96766  
Ph. (808) 246-0625 Fax (808) 246-0229  
• CIVIL ENGINEERS • SURVEYORS • PLANNERS

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*Wayne T. Wada*  
EXPIRES: APRIL 30, 2014

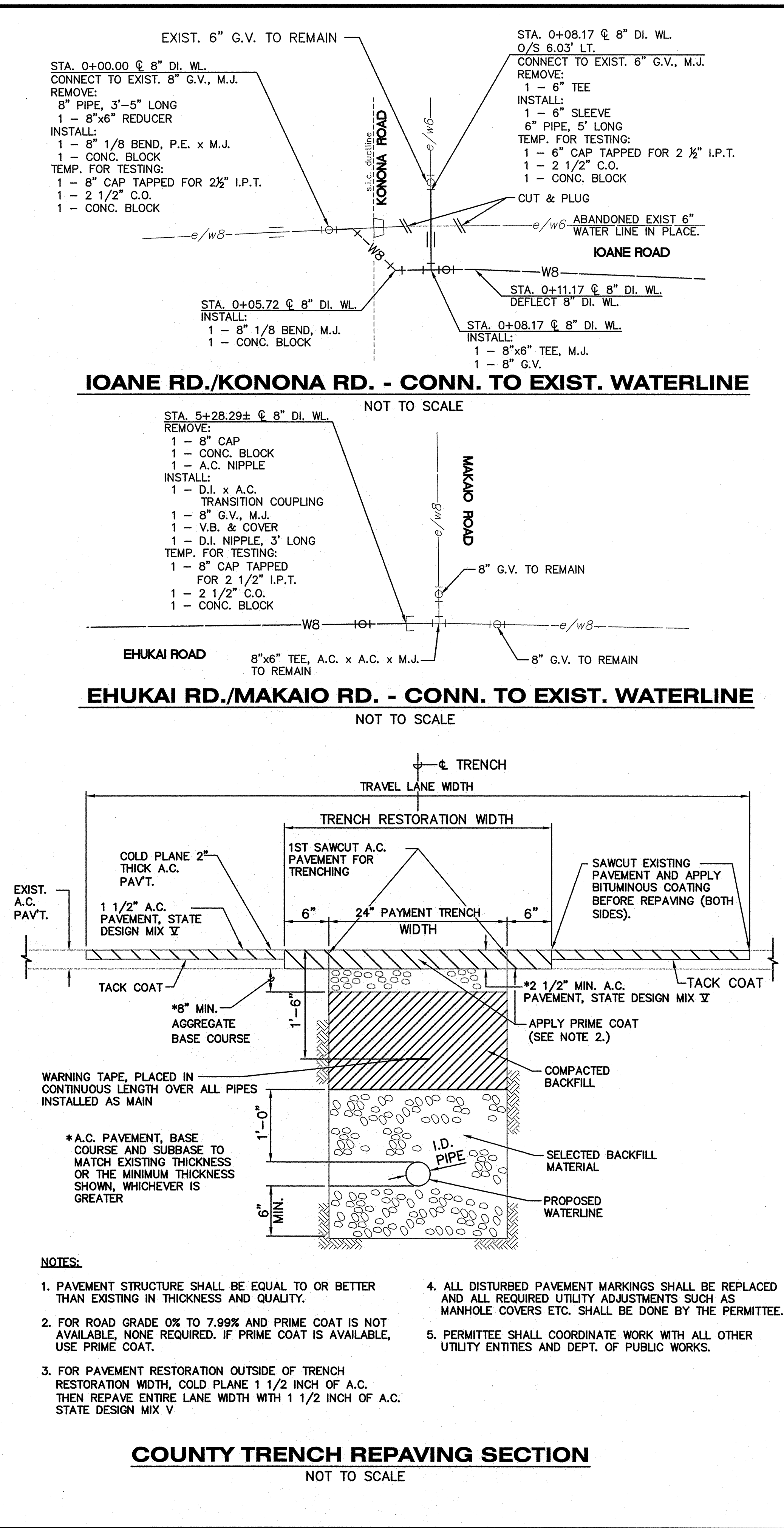
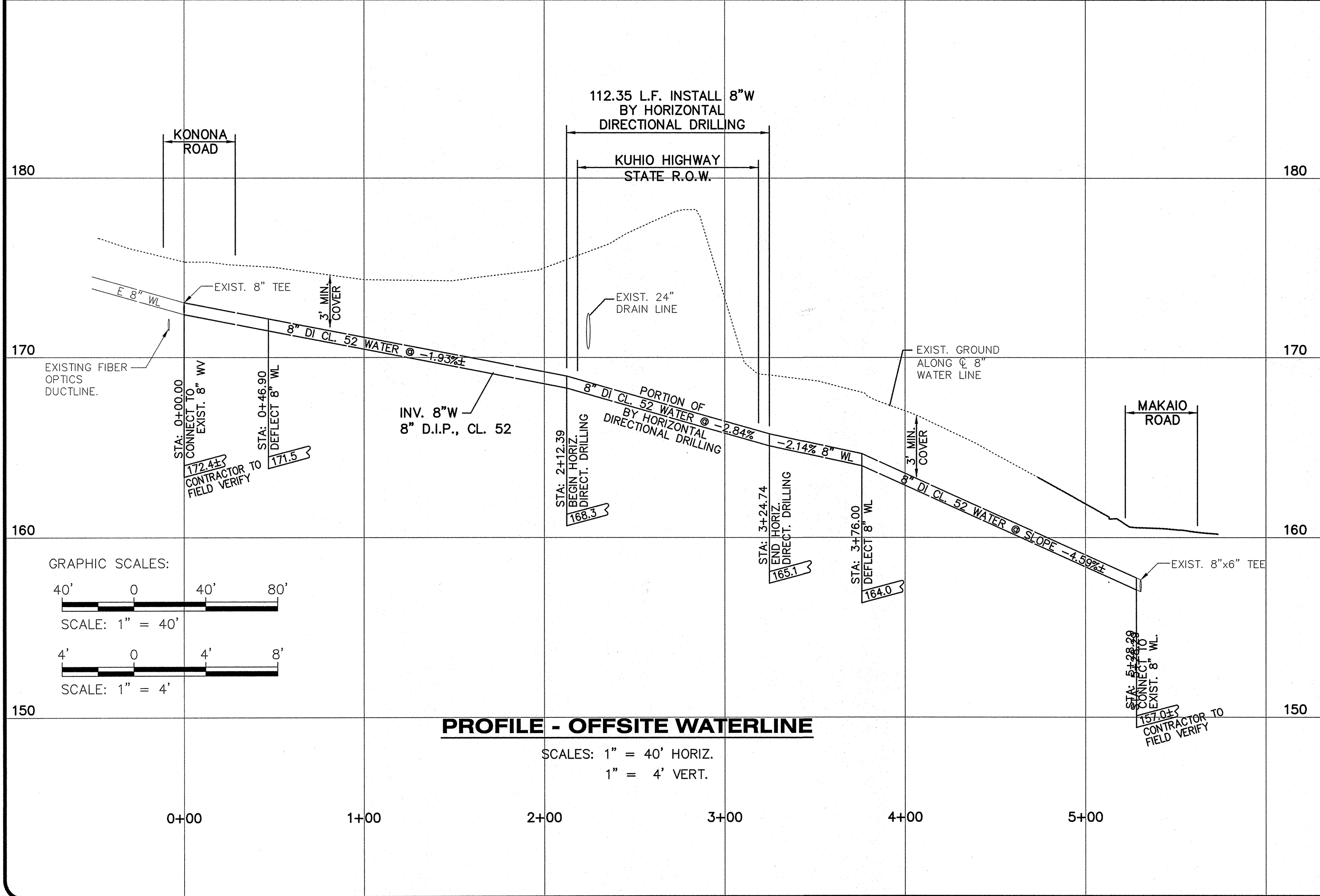
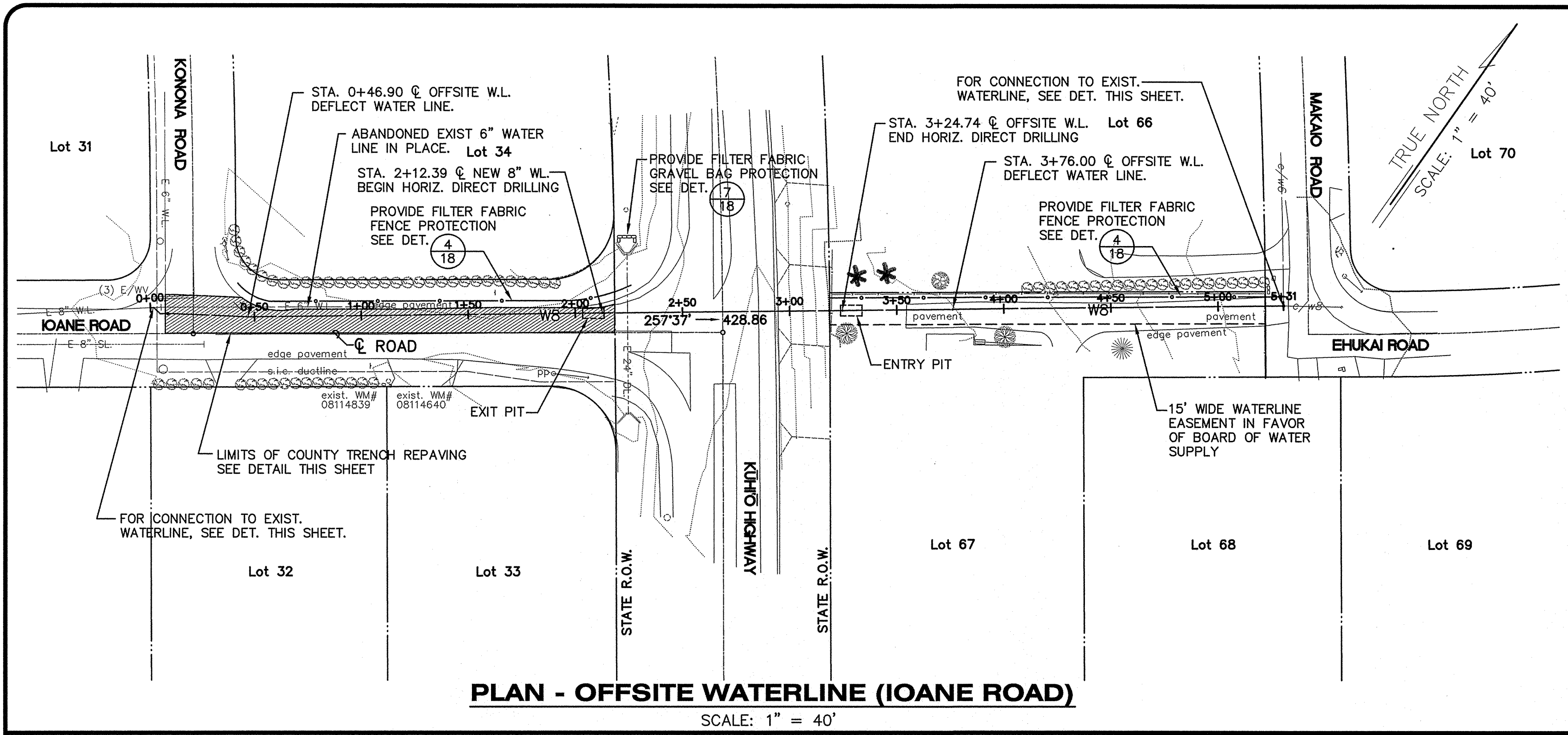
**PILANI MAI KE KAI SUBDIVISION  
PHASE II**  
Anahola, Kauai, Hawaii  
Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89  
Developer/Owner:  
**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

**WATER DETAILS**

**APPROVED:**  
COUNTY ENGINEER, DEPT. OF PUBLIC WORKS, COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE  
MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI DATE

DESIGNED BY: WW  
DRAWN BY: CG  
DATE: 03/27/12  
SHEET  
**C-40**  
40 OF 44 SHEETS





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MAPPING, INC.

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REVISIONS

WAYNE T. WADA

LICENSED PROFESSIONAL ENGINEER

No. 5281-C

HAWAII, USA

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BY ME OR UNDER MY SUPERVISION

Wayne T. Wada

EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:  
Department of Hawaiian Home Lands  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

OFFSITE WATERLINE  
(IOANE ROAD) &  
DETAILS

APPROVED:

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COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW SHEET

DRAWN BY: CG C-41

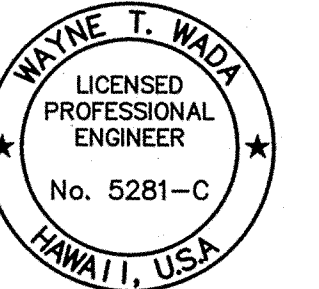
DATE: 03/27/12 41 OF 44 SHEETS

Project No.: 11-157  
Drawing No.: 11-157 OFFSITE WL.dwg



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PHASE II**

Anahola, Kauai, Hawaii

Tax Map Key: (4) 4-8-16: 03  
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Developer/Owner:  
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Kapolei, HI 96707

**TRAFFIC  
CONTROL PLAN  
FOR OFFSITE  
WATERLINE**

APPROVED:

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COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

DATE: 03/27/12

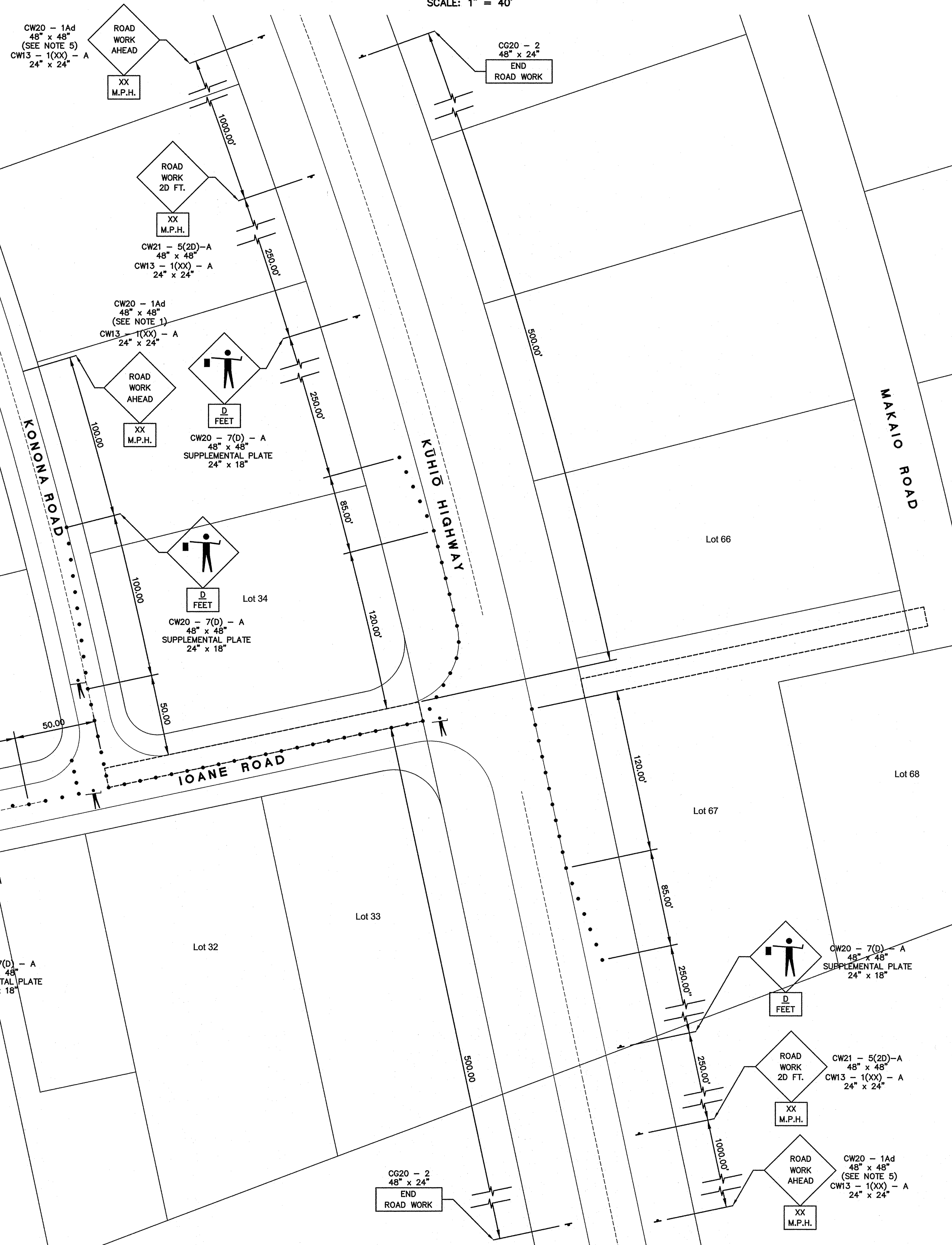
SHEET

**C-42**

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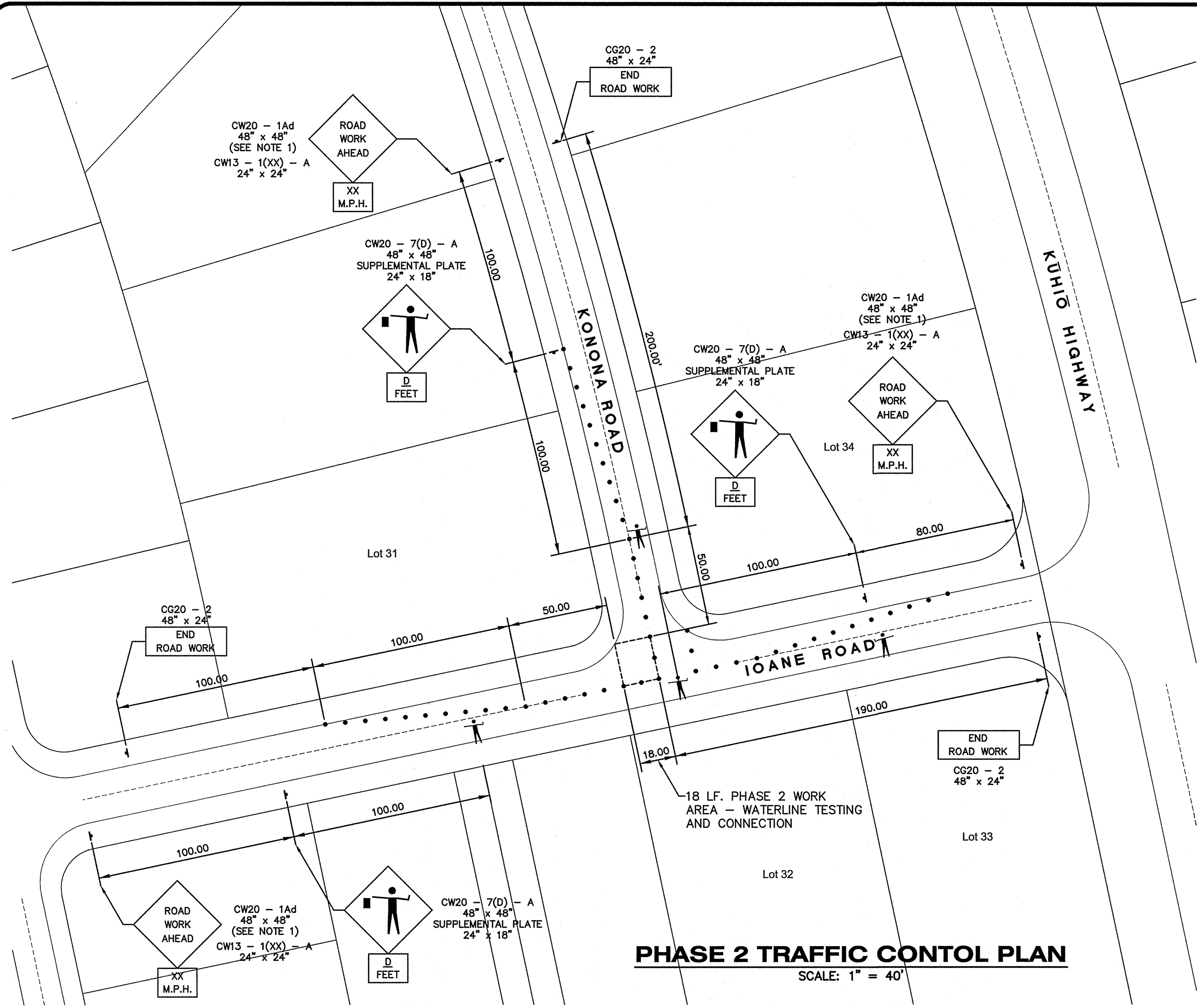
**PHASE 1 TRAFFIC CONTROL PLAN**

SCALE: 1" = 40'



**PHASE 2 TRAFFIC CONTROL PLAN**

SCALE: 1" = 40'



**TABLE 1 FOR TRAFFIC CONTROL PLAN**

POSTED SPEED LIMIT ① (M.P.H.)	SIGN SPACING (D) (FEET)	TAPER LENGTH (T) (FEET)		LONGITUDINAL BUFFER SPACE (B) (FEET)	SPACING OF CONES OR DELINEATORS (FEET) ③		
		W = 12' OR LESS ②	W = GREATER THAN 12' ②		TAPER	TANGENT	WORK AREA
20	250	200	W X 17	35	20	20	10
25	250	200	W X 17	55	25	25	10
30	250	250	W X 20	85	30	30	10
35	250	250	W X 20	120	35	35	10
40	500	350	W X 30	170	40	40	10
45	500	550	W X 45	220	45	45	10
50	1000	600	W X 50	280	50	50	10
55	1000	700	W X 55	335	55	55	10

FOR GENERAL NOTES FOR TRAFFIC CONTROL PLAN  
SEE SHEET C-4

ADDITIONAL NOTES:

- CW20-1Ad sign required for posted speed limit of 45 m.p.h. or greater.
- TABLE 1 for additional dimensions.
- ONE LANE ROAD (CW20-4) and FLAGGER AHEAD (CW20-7) signs shall be removed or covered when no work is being performed and lane is not closed.
- The advisory speed (XX) shall be determined by the Engineer.
- Cones or delineators shall be installed at 25' o.c. max. on tapers.
- During non-working hours two lanes are to be open and steel plates are to be used in work area. Ioane Road
- During working hours Type II barricades w/ steady burn lights are to be used in work area. Ioane Road

TABLE 1 NOTES:

- Use advisory speeds when posted
- W = width of lane, shoulder, or offset
- not applicable for two-lane highways

LEGEND

- SIGN
- CONE OR DELINEATOR
- DIRECTION OF TRAFFIC
- POLICE OFFICER/FLAGGER



NOTES FOR CONSTRUCTION  
WITHIN STATE RIGHT-OF-WAY  
(revised March 05, 2012)

- The Contractor shall obtain a construction permit from the State's Highway District Engineer at 1720 Haleukana Street, Lihue, Hawaii 96766 prior to commencement of work within State highway right-of-way (ph. 241-3000).
- Construction and restoration of all existing highway facilities within State right-of-way shall be done in accordance with all applicable sections of the current "Hawaii Standard Specifications for Road and Bridge Construction 2005," and the "Specification for Installation of Miscellaneous Improvements Within State Highways," of the State Highway Division.
- All lanes shall be open to traffic during the morning peak hours from 6:30 a.m. to 8:30 a.m., and during the afternoon peak hours from 3:30 p.m. to 5:30 p.m., and during off work hours.
- The Contractor shall provide, install, and maintain all necessary signs, light, flares, barricades, markers, cones, and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of public traffic. All such protective facilities and precautions to be taken shall conform with the "Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways" adopted by the Director of Transportation, and the current U.S. Federal Highway Administration "Manual on Uniform Traffic Control devices for Streets and Highways, Part VI - Traffic Control for Highway Construction and Maintenance Operations". If lane closures are required during construction, a traffic control plan shall be incorporated into the construction plans and must be approved by the Division prior to the issuance of the permit.
- The minimum pavement structure shall consist of:
  - Commercial Driveways, Side roads and Utility Installations on Minor Highways
    - 2-1/2" asphalt concrete, 8" aggregate base course and 12" aggregate subbase, or 2-1/2" asphalt concrete and 8" asphalt concrete base course or asphalt concrete
    - 6" of Class "A" concrete reinforced with 6"x6" - 6/8 wire mesh on 12" aggregate subbase if deemed necessary by the Engineer.
  - No material and/or equipment shall be stockpiled or otherwise stored within highway rights-of-way except at locations designed in writing and approved by the District Engineer. If use of location is approved by the Engineer, the contractor shall obtain a permit to use the property within the highway R/W from the State Highways Division, Ph. 241-3000.
  - Compaction tests shall be taken in accordance with the Specifications for Installation of Miscellaneous Improvements Within State Highways, as follows:
    - Subbase: one (1) compaction test(s) for every 300 lineal feet of travel way.
    - Base Course: one (1) compaction test(s) for every 300 lineal feet of travel way.
    - One (1) compaction test(s) for each 300 lineal feet of trench.
- Prior to commencing trench excavation work, the Contractor shall take a profile along the new centerline of utility trench and that such information shall be used in the verification of restoring the roadway to its original condition. A copy of the profile shall be submitted to the District Engineer.
- The Contractor shall be required to provide adequate, safe, nonskid bridging material over the trench, including shoring , when trenching in pavement areas to handle all types of vehicular traffic.
- No trench shall be opened more than 200 feet in advance of the installed and tested pipe and/or ductline.
- Longitudinal drainage along the highway shall be maintained at all times.
- Pavement striping and marking shall be done by Contractor at no cost to the State.
- Approval of permit construction plans shall be valid for a period of one year thereof from the date of notification of approval to the applicant. In the event construction does not commence within this one-year period, the applicant will be required to resubmit his construction plans for Division's review and approval.
- All regulatory, guide and construction signs and barricades shall be of high intensity reflective sheeting.
- Contractor shall inform the State Highways Office (phone# 241-3000) at least 2 days prior to closing any lanes.
- The Contractor shall reference to the satisfaction of the District Engineer, all existing traffic signs, posts, and pavement markings prior to the commencement of construction. The Contractor shall replace or repair all traffic signs, posts, and pavement markings disturbed by his activities unless directed otherwise by the District Engineer or his representative.
- The Contractor shall exercise care when excavating in areas with utilities, streetlights, signals, etc. Damage to these existing facilities shall be immediately reported to the respective utility companies, county, or state agency. The repair work shall be done at the Contractor's expense.
- The permit to perform work upon state highways may be revoked because of default in any of the following:
  - Work performed before or after permitted hours;
  - Failure to maintain roadway surfaces in a smooth and safe condition;
  - Failure to clean up construction debris generated from project work;
  - Failure to provide proper traffic control;
  - Failure to replace damaged pavement marking and signs.
- The Contractor shall comply with the attached traffic control plans and sign spacing table.
- Contractor shall implement Best Management Practices (BMP) for erosion and silt control for work within the State R/W.
- Prior to construction, the Contractor shall contact the various agencies for location of existing utilities within the project limits. The Contractor shall locate and protect all existing utilities whether or not shown on the plans. Any costs incurred by damages to existing utilities will be borne by the Contractor. Contractor shall request toning of utilities from One-Call Center, Phone: 1-866-423-7287. The Contractor shall also call the County of Kauai Department of Water, Phone 245-5411 and the Wastewater Division, Phone 241-6642 for toning of waterlines and sewer lines, respectively.
- Work may be performed from 7:00 am Monday to 5:30 pm Friday, except State Holidays, unless otherwise permitted by the District Engineer.
- The Contractor shall notify the State Highways Division, Kaua'i District Office, Area Engineer three days prior to commencing work.
- Unless otherwise requested in writing by the contractor and approved in writing by the District Engineer, use of steel plates within the travelway will not be permitted at any time. When permitted, only one steel plate will be used within the travelway at any time.
- Any work that disrupts, damages, or destroys existing traffic loop detectors shall be followed with re-establishment of the traffic loops before reopening the lanes to traffic. The Contractor may also use temporary pole mounted presence detectors to replace any loops taken out of service. The cost for the temporary detectors shall be considered incidental to pavement work.
- Night work shall not be done during the period from September 15 to December 31 of each year.

- All workers within the State Right-Of-Way who are exposed to either vehicles using the roadway or to construction equipment shall wear high visibility safety apparel that meets the performance class 2 or 3 requirements of ANSI/SEA 107-2004. "Workers" is defined as people on foot whose duties place them within the State Right-Of-Way such as but no limited to construction and maintenance forces, equipment operators, survey crews, utility crews, responders to incidents (e.g. EMT and firemen) and law enforcement personnel directing traffic, investigating accidents, and handling lane closures and obstructed roadways.

EROSION CONTROL / BMP NOTES

- 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.
- All control measures shall be checked and repaired as necessary.
- Construct temporary silt fence as shown per plans.
- All storm drain inlets that may receive runoff as a result of the construction work shall use a inlet filter device. Inlet filters shall remain until completion of construction work. Contractor shall periodically inspect inlet filters, especially during heavy rainfall, to ensure drainage through material is maintained.
- 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.
- Good housekeeping shall be utilized to ensure protection of roadways from mud, dirt, and debris.
- The contractor shall ensure that all tires of construction vehicles are sufficiently cleaned off so that dirt and debris is not tracked off the construction site. Washing off tires with water will not be acceptable unless the runoff is contained and does not enter the storm drain system or into State's ROW.
- The Contractor shall ensure that existing roadways used to access the project are cleaned of all debris, trash, dirt, mud, etc., throughout the working day.
- The final lift of each day's work shall be restored by seeded hydro-mulch. Contractor to ensure grass is fully established.

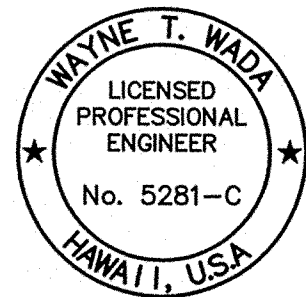


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Wayne T. Wadd  
EXPIRES: APRIL 30, 2014

PILANI MAI KE KAI SUBDIVISION  
PHASE II

Anahola, Kaua'i, Hawai'i

Tax Map Key: (4) 4-8-16: 03  
(4) 4-8-22: 89

Developer/Owner:

**Department of Hawaiian Home Lands**  
91-5420 Kapolei Parkway  
Kapolei, HI 96707

STATE D.O.T. NOTES

APPROVED:

COUNTY ENGINEER, DEPT. OF PUBLIC WORKS,  
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI) DATE

DESIGNED BY: WW

DRAWN BY: CG

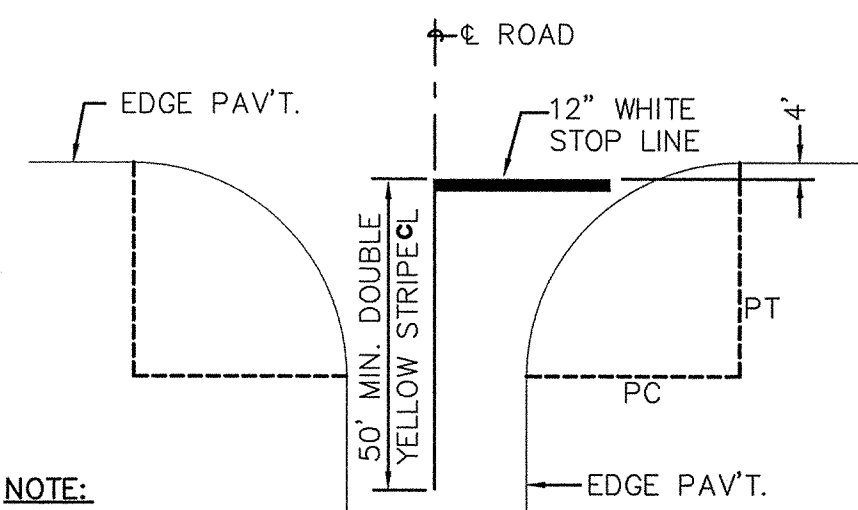
DATE: 03/27/12

SHEET

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NOTE:  
SEE STD. DET. T-9  
REFERENCED ABOVE FOR  
ADDITIONAL INTERSECTION  
STRIPPING DETAILS.

1  
44  
TYPICAL LOCAL STREET  
INTERSECTION STRIPING

EXIST. SIGN  
KUKUIHALE RD.  
0000  
LAULĀ ST.  
0000

EXIST. SIGN  
SPEED LIMIT  
25

EXIST. SOLID 4-INCH DOUBLE  
YELLOW STRIPE

EXIST. SIGN  
LAULĀ ST.  
0000

EXIST. SIGN  
LAULĀ ST.  
0000

RELOCATE EXIST. SIGN & TEMP.  
END-OF-ROAD BARRICADE TO STA.  
10+84.65 LAULĀ ST.

EXIST. SIGN  
ROAD  
CLOSED

LAULĀ ST.  
0000

ANU ST.  
0000

SOLID 4-INCH DOUBLE  
YELLOW STRIPE  
TYP. LAULĀ ST.

LAULĀ ST.  
0000

LAEKUAEHU ST.  
0000

RELOCATED EXIST. SIGN &  
END-OF-ROAD BARRICADE

EXIST. PHASE 1

EXIST. PHASE 1

PHASE 2

FUTURE PHASE 3

FUTURE PHASE 3

LAEKUAEHU ST.  
0000

ANU ST.  
0000

LEGEND

1  
STOP  
R1-1  
30" x 30"

2  
SPEED  
LIMIT  
20  
R2-1(20)  
24" x 30"

3  
SPEED  
LIMIT  
25  
R2-1(25)  
24" x 30"

4  
ROAD  
CLOSED  
R11-2  
48" x 30"

5  
STOP  
EXIST. SIGN

6  
REMOVE EXIST. SIGN &  
TEMP. END-OF-ROAD  
BARRICADE

7  
REPLACE EXIST.  
SIGN WITH SCHOOL  
SPEED LIMIT  
ASSEMBLY

SCHOOL  
SPEED  
LIMIT  
15  
S4-3  
24" x 8"  
R2-1(20)  
24" x 30"  
S4-2  
24" x 10"

DEPARTMENT OF  
PUBLIC WORKS  
COUNTY OF KAUAI'S  
STANDARD DETAIL

TYPICAL INSTALLATIONS

HEIGHT & LATERAL LOCATION OF SIGN T-2

LOCATION FOR STOP SIGNS T-3

INTERSECTION DETAIL FOR STRIPING T-9

STRIPING DETAILS T-10

STREET NAME & SIGN DETAIL T-11

REFERENCE:

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR  
STREETS AND HIGHWAYS OF THE U.S. DEPARTMENT OF  
TRANSPORTATION, FEDERAL HIGHWAYS ADMINISTRATION,  
LATEST EDITION.

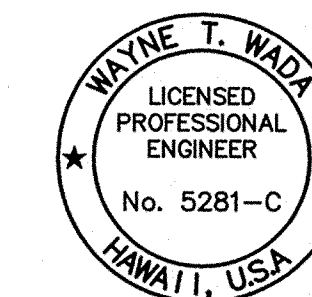
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SIGNAGE & PAVEMENT  
MARKING PLAN

APPROVED:

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COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W) DATE

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MANAGER & CHIEF ENGINEER, DEPT. OF WATER,  
COUNTY OF KAUAI DATE

DESIGNED BY: WW

DRAWN BY: CG

DATE: 03/27/12

SHEET

C-44

44 OF 44 SHEETS

NOTES:

1. ALL PAVEMENT STRIPING SHALL BE  
THERMOPLASTIC EXTRUSION MARKINGS.  
PAINTING IS NOT ACCEPTABLE.

2. ALL MARKING TAPE SHALL BE APPLIED IN  
ACCORDANCE WITH THE MANUFACTURERS  
RECOMMENDATIONS.

3. ALL REGULATORY AND WARNINGS SIGNS  
SHALL BE HIGH INTENSITY.

100 0 100 200  
SCALE: 1" = 100'