

FED. ROAD DIS. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(26)	1994	ADD 89	238

SEWER NOTES:

- ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS, SEPT. 1986, THE DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS, SEPT. 1984, CURRENT CITY PRACTICES AND REVISED ORDINANCES OF HONOLULU, 1990 AS AMENDED, AND THE DESIGN STANDARDS OF THE DEPARTMENT OF WASTEWATER MANAGEMENT VOL. 1, JULY 1993.
- IN THE EVENT THAT ANY CHANGE IN ALIGNMENT OR GRADE FOR THE PROPOSED SEWERS ARE REQUIRED DUE TO UNFORESEEN CONFLICT WITH OTHER UTILITIES, THE ENGINEER IN CHARGE OR THE MAKER OF THE PLANS SHALL BE RESPONSIBLE FOR THE REQUIRED CHANGES WHICH ARE TO BE PRESENTED TO THE DEPARTMENT OF WASTEWATER MANAGEMENT FOR APPROVAL.
- THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DEPT. OF WASTEWATER MANAGEMENT AT 527-5820 OR 523-4345 TO ARRANGE FOR INSPECTION SERVICES AND SUBMIT FOUR SETS OF APPROVED CONSTRUCTION PLANS SEVEN DAYS PRIOR TO COMMENCEMENT OF SEWER WORK.
- CRUSHED ROCK CRADLE IS PERMITTED WHERE SOIL IS STABLE. IN AREAS OF UNSTABLE SOIL, THE MAKER OF THE PLANS AND THE CONSTRUCTION ENGINEER WILL DETERMINE THE PIPE SUPPORT REQUIRED.
- THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS RESEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING THE AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS SEWER SERVICE TO ALL AFFECTED AREAS DURING CONSTRUCTION.
- THE CONSULTING ENGINEER SHALL SUBMIT TO THE DEPT. OF WASTEWATER MANAGEMENT MYLAR "AS-BUILT" TRACINGS OF THE CONSTRUCTION PLANS AS ACTUALLY CONSTRUCTED, SHOWING ALL CHANGES FROM THE ORIGINAL PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SEWAGE SPILLS CAUSED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE STATE DEPARTMENT OF HEALTH AND UTILIZE APPROPRIATE SAMPLING AND ANALYZING PROCEDURES.
- THE CONTRACTOR SHALL INSTALL "RAINSTOPPER" MANHOLE INSERTS IN ALL SEWER MANHOLES WITH TYPE "SA" FRAME AND COVER.
- FOR ENTRY BY CITY PERSONNEL, INCLUDING INSPECTORS, INTO A PERMIT REQUIRED CONFINED SPACED AS DEFINED IN 29 CFR PART 1910.146(b), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:
 - ALL SAFETY EQUIPMENT REQUIRED BY THE CONFINED SPACE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
 - FULL BODY HARNESSSES FOR UP TO TWO PERSONNEL.
 - LIFELINE AND ASSOCIATED CLIPS.
 - INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT.
 - TWO-WAY RADIO (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
 - EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
 - CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
 - CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20- FEET AWAY).
 - PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
 - CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
 - ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).
- ALL SEWER PIPE JOINTS WITHIN EASEMENTS SHALL BE WRAPPED WITH GEOTEXTILE ROOT BARRIER.
- S4C PIPE CRADLE SEALS SHALL BE INSTALLED 10 FEET FROM ALL SEWER MANHOLES TO PREVENT SOIL MIGRATION.
- GEOTEXTILE FABRIC TO ENVELOPE THE PIPE CRADLE AND SELECT BACKFILL MATERIAL SHALL BE PROVIDED WHERE WATER OR UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED.
- TOPS OF ALL EXISTING SMH SHALL BE ADJUSTED TO NEW GRADES. IF ADJUSTED UPWARD <3", SEE STANDARD DETAIL S-25. IF ADJUSTED DOWNWARD OR IF ADJUSTED UPWARD >3", RECONSTRUCT SMH FROM BELOW CONE SECTION.

PUBLIC HEALTH, SAFETY AND CONVENIENCE NOTES:

- THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND ITS SURROUNDING AREAS FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH. THE CITY MAY REQUIRE SUPPLEMENTARY MEASURES AS NECESSARY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANING AND REMOVAL OF ALL SILT AND DEBRIS GENERATED BY HIS WORK AND DEPOSITED AND ACCUMULATED WITHIN DOWNSTREAM WATERWAYS, DITCHES AND DRAIN PIPES AND ON PUBLIC AND PRIVATE ROADWAYS. THE CONTRACTOR AGREES TO REIMBURSE THE CITY AND COUNTY OF HONOLULU FOR ALL COSTS EXPENDED IN PERFORMANCE OF THE ABOVE WORK IF REQUIRED FOR PUBLIC HEALTH AND SAFETY OR MADE NECESSARY BY NONPERFORMANCES BY THE CONTRACTOR.
- THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.
- THE CONTRACTOR SHALL APPLY FOR A CONSTRUCTION PERMIT WITH A NOISE POLLUTION CONTROL PLAN.

GASCO NOTES:

- THE GASCO, INC. GAS PIPELINES IN THE PROJECT AREA ARE PLASTIC COATED AND CATHODICALLY PROTECTED. THE CONTRACTOR SHALL BE EXTREMELY CAREFUL WHEN WORKING NEAR THESE GAS PIPELINES.
- FOR RELOCATION OF ANY GAS PIPELINES, THE CONTRACTOR SHALL NOTIFY GASCO, INC. TWENTY (20) WORKING DAYS BEFORE STARTING WORK. THE CONTRACTOR SHALL PROVIDE THE NECESSARY EXCAVATION AND BACKFILL, ARRANGE FOR TRAFFIC PERMITS AND RESTORE SIDEWALK, PAVEMENT OR OTHER FACILITIES. ANY RELOCATION OF GAS FACILITIES SHALL BE DONE BY GASCO, INC. AND PAID FOR BY THE CONTRACTOR.
- THE CONTRACTOR SHALL NOTIFY GASCO, INC. IMMEDIATELY AFTER ANY DAMAGE HAS BEEN CAUSED TO EXISTING GAS PIPELINES, THEIR COATINGS OR THEIR CATHODIC PROTECTION DEVICES. REPAIR WORK ON THIS DAMAGE SHALL BE DONE BY GASCO, INC. WITH PAYMENT FOR THIS WORK TO BE BORNE BY THE CONTRACTOR.
- MINIMUM VERTICAL CLEARANCE OR HORIZONTAL CLEARANCE BETWEEN GAS PIPELINES AND OTHER PIPELINES, CONDUITS OR DUCTLINES SHALL BE 12 INCHES. ADEQUATE SUPPORT AND PROTECTION FOR GAS PIPELINES EXPOSED IN THE TRENCH SHALL BE PROVIDED. SUCH SUPPORT AND PROTECTION SHALL BE APPROVED BY GASCO, INC.
- THE CONTRACTOR SHALL WORK IN AN EXPEDITIOUS MANNER IN ORDER TO KEEP UNCOVERED GAS PIPELINES EXPOSED FOR AS SHORT A PERIOD OF TIME AS POSSIBLE.
- PRIOR WRITTEN CLEARANCE MUST BE OBTAINED FROM GASCO, INC. AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING EXCAVATION NEAR THESE GAS LINES. SINCE GAS LINE LOCATIONS ON FIELD MAPS ARE APPROXIMATE, THE CONTRACTOR, AFTER OBTAINING A WRITTEN CLEARANCE, SHALL CALL GASCO, INC. A MINIMUM OF 48 HOURS BEFORE STARTING EXCAVATION TO ARRANGE FOR FIELD LOCATION OF EXISTING GAS LINES. THE TELEPHONE NUMBER IS 547-3575 DURING BUSINESS HOURS, AND 526-0066 AFTER HOURS. THE CONTRACTOR SHALL EXCAVATE AND BACKFILL AROUND GAS PIPELINES IN THE PRESENCE OF A GASCO, INC. REPRESENTATIVE. ALL BACKFILL WITHIN SIX (6) INCHES OF GAS PIPELINE SHALL BE SELECT CUSHION MATERIAL APPROVED BY GASCO, INC.

WATER NOTES:

SEE SHEET NO. WT2 FOR WATER NOTES

HTCO NOTES:

SEE SHEET NO. E3 AND E4 FOR HTCO NOTES

HECO NOTES:

SEE SHEET NO. E3 AND E4 FOR HECO NOTES

APPROVED:

CHIEF, DIV. OF PLANNING & SERVICE CONTROL, DWMW
(For Sewer Work within Public Road R/W only)

10/10/94
DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
DATE 10/10/94
Dexter S. Eui, Inc.
CIVIL ENGINEERING

T.M.K.: 4-5-23, 4-5-26, 4-5-79, 4-5-80,
4-6-12, 4-6-28 AND 4-6-31

6/07/94	ADDED SEWER NOTE.
DATE	REVISION

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
UTILITY NOTES	
KAHEKILI HIGHWAY WIDENING Likelike Hwy. to Vicinity of Haiku Road F.A. PROJECT NO. NH-083-1(26)	
SCALE: AS NOTED	DATE: APRIL 1994
SHEET No. U1 OF U4 SHEETS	

AS-BUILT ADD. 89

DATE	
SURVEY PLANNED BY	
DRAWN BY	
CHECKED BY	
DESIGNED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NO.	

Note:

For New Drain Line,
See Plan on Sht. D21

Sta. 0+32.08 W.L.
= # 55+02.68 (o/s 18' Rt.)
1- 12" 1/8 Bend (H & BV)
1- Conc. Blk.

Sta. 0+20 W.L.
= # 54+94.14 (o/s 26.5' Rt.)
1- 1/16 Bend (BV)
1- Conc. Blk.

Sta. 0+55 W.L.
= # Sta. 55+25.60 (o/s 18' Rt.)
1- 12" 1/16 Bend (TV)
1- Conc. Blk.

Field Change No. 21,
dated Nov. 7, 1996

Sta. 1+00 W.L.
= # 55+70.60 (o/s 18' Rt.)
1- 12" Gate Valve, 200#
1- Conc. Blk. w/Struct. Struts
(See Sht. U2)

New 8" Water
(See Profile this Sheet)

CURVE DATA			
①	②	③	
Δ	8° 54' 30"	4° 28' 48"	4° 25' 42"
Δ/2	4° 27' 15"	2° 14' 24"	2° 12' 51"
R	3600.00	3600.00	3600.00
T	280.43	140.82	139.19
C	559.16	281.42	278.17
Lc	559.73	281.49	278.24

Sta. 9+37.59 W.L.
= # 63+19.5± (o/s 87' Lt.)
Connect to Exist. 12" Water Line
Materials for Connection:
1- 12" Sleeve, 12" Long
10 L.F. 12" Pipe
1- 12" 1/8 Bend (H)
1- Conc. Blk. w/Struct. Struts
Temporary for Testing:
1- 12" Cap Tapped for 2 1/2" I.P.T.
1- 2 1/2" Cleanout
1- Conc. Blk.
Contractor to verify exact location & invert in the field.

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Sta. 9+25.57 W.L.
= # 63+27.84 (o/s 78.5' Lt.)
1- 12" 1/8 Bend (H)
1- Conc. Blk.

Sta. 8+75.57 W.L.
= # 63+27.84 (o/s 28.5' Lt.)
1- 12" 1/8 Bend (H)
1- Conc. Blk.

Sta. (-)0+03 W.L.
= # 54+75 (o/s ±41' Rt.)
Install A.R.V. on Exist. 12" Water
1- 3/4" Air Relief Valve
1- ARV Box

Sta. 0+00 W.L.
= # 54+80 (o/s ±41' Rt.)
Connect to Exist. 12" Water Line
Material for Connection:
1- 12" 1/8 Bend (H & TV)
1- 12" Sleeve, 12" Long
10 L.F. 12" Pipe
1- Conc. Blk. w/Struct. Struts
Temporary for Testing:
1- 12" Cap Tapped for 2 1/2" I.P.T.
1- 2 1/2" Cleanout
1- Conc. Blk.
Contractor to verify exact location and invert in the field.

Sta. 0+00 W.L.(8")
= Sta. 2+29.4 W.L.(12")
= # Sta. 57+00 (o/s 18' Rt.)
1- 8" Tee
1- 8" Gate Valve, 200#
1- Valve Box
1- Conc. Blk.

Sta. 0+70 W.L.(8")
= # Sta. 57+00 (o/s 51' Lt.)
Connect to Exist. 8" Water Line
Material for Connection:
1- 8" Sleeve, 12" long
10 L.F. 8" Pipe
1- 8" 1/16 Bend (H)
1- Conc. Blk. w/Struct. Struts
Inv. = 162.6 (±)
Temporary for Testing:
1- 8" Cap Tapped for 2" IPT
1- 2" Cleanout
1- Conc. Blk.
Contractor to verify exact location and invert in the field.

Sta. 5+00 W.L.
= # 59+70.60 (o/s 18' Rt.)
1- 3/4" Air Relief Valve
1- ARV Box

Sta. 8+10.23 W.L.
= # 62+82.00 (o/s 18' Rt.)
1- 12" 1/8 Bend (H)
1- Conc. Blk.

Kahekili Sta. 63+29.10
= Haiku Sta. 37+15.37

Note: For Connection to Exist. 12" Water Line See Schematic Layout on Sheet U4

PLAN
Scale: 1" = 40'

12" WATER CURVE DATA			
Δ	3° 43' 50"		
Δ/2	1° 51' 55"		
R	3582.00		
T	116.65		
C	233.18		
Lc	233.22		

LEGEND:

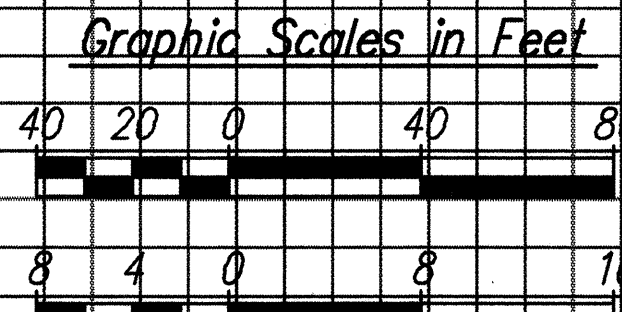
- (2) Ductile Iron Pipe Alternate (Cl. 52)
 - (3) Polyvinyl Chloride Pipe Alternate (Cl. 200)
- Note: If Contractor chooses PVC Alternate, all R.C. Jacketed Sections shall be D.I. Pipe, Cl. 52.
Note applies to all PVC Pipes.

Sta. 9+37.59 W.L.
Connect to Exist. 12" Water
Inv. = 173.71
Contractor to verify exact location and invert in the field.

PROFILE - 8" WATER

Scale: Horiz. 1" = 40'
Vert. 1" = 8'

PROFILE
Scale: Horiz. 1" = 40'
Vert. 1" = 8'



APPROVED:

CHIEF, PLANNING & ENGINEERING DIV. BWS
CHIEF, DIV. OF PLANNING & SERVICE CONTROL DWM
(For Sewer Work within Public Road R/W only)

7/12/94

10/10/94

6/07/94

REVISED LOCATION NEW SEWER LINE.
REVISED PVC PIPE, ALTERNATE CLASS.
REVISED RC JACKET FOR 16" FM.
REVISED WATER NOTE.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY RELOCATION
12" WATER MAIN
W.L. STA. 0+00 TO END

KAHEKILI HIGHWAY WIDENING
Likeli Hwy. to Vicinity of Haiku Road
F.A. PROJECT NO. NH-083-1(26)

SCALE: AS NOTED
DATE: APRIL 1994

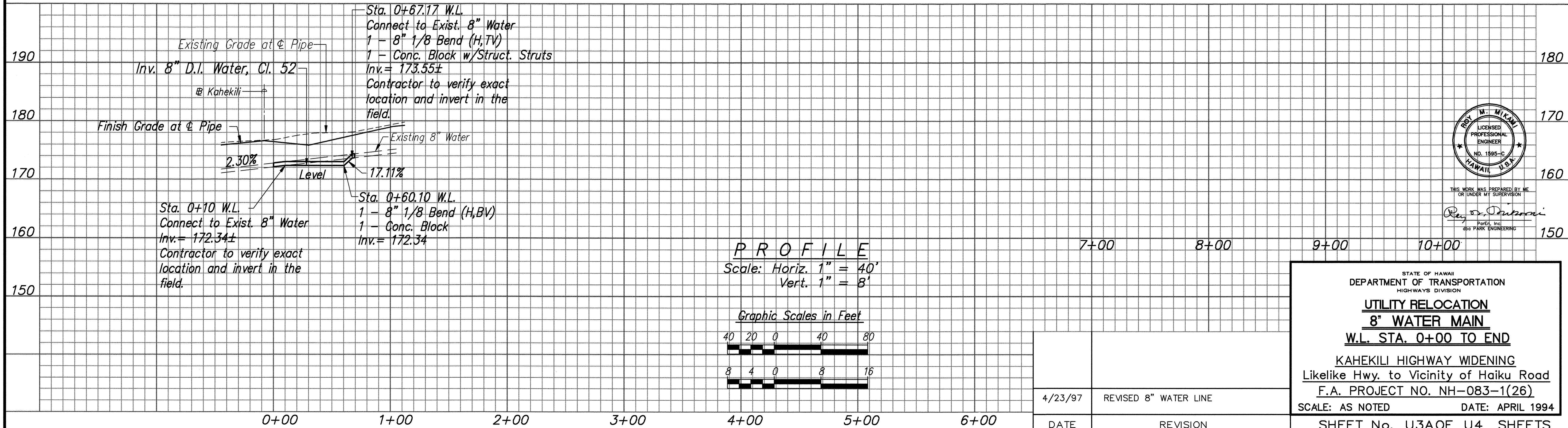
SHEET No. U3 OF U4 SHEETS

AS-BUILT ADD. 91



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
DATE: 10/10/94
D.D. PARK ENGINEERING

B CURVE DATA			
	①	②	③
Δ	8' 54" 30"	4' 28' 48"	4' 25' 42"
$\Delta/2$	4' 27' 15"	2' 14' 24"	2' 12' 51"
R	3600.00	3600.00	3600.00
T	280.43	140.82	139.19
C	559.16	281.42	278.17
L_c	559.73	281.49	278.24



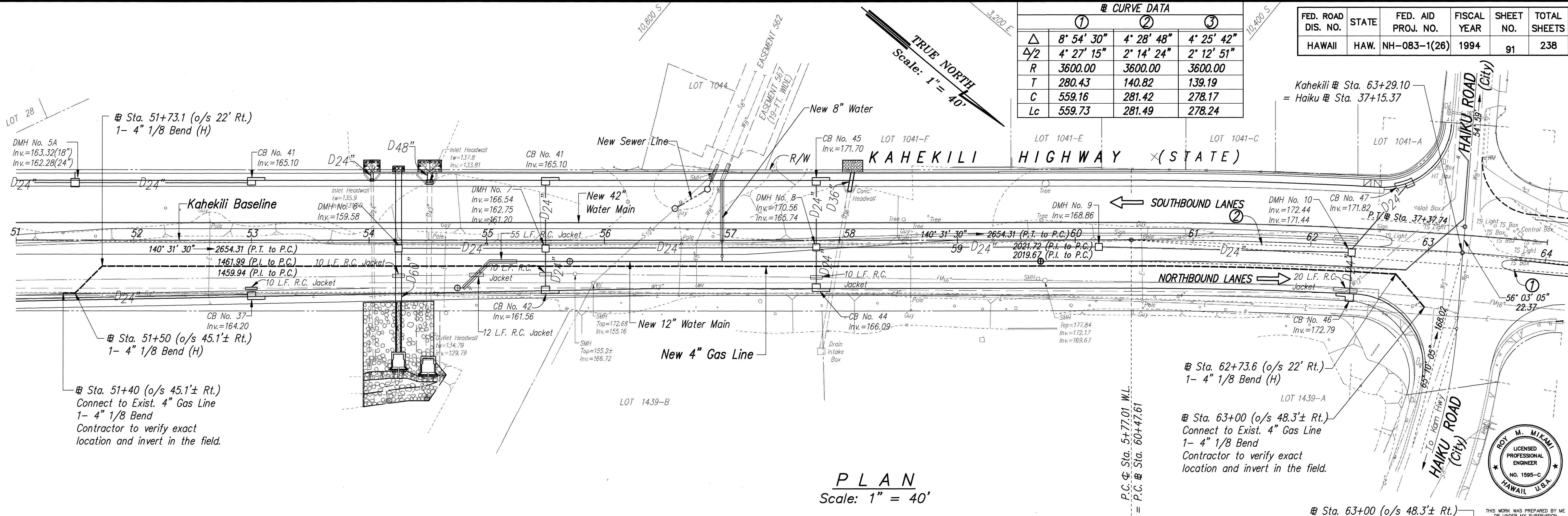
ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
NOTEBOOK	DRAWN BY _____	_____
	TRACED BY _____	_____
	DESIGNED BY _____	_____
	QUANTITIES BY _____	_____
No. _____	CHECKED BY _____	_____

ROTATED: 129° 28' 30"
BASE PT. 0,0

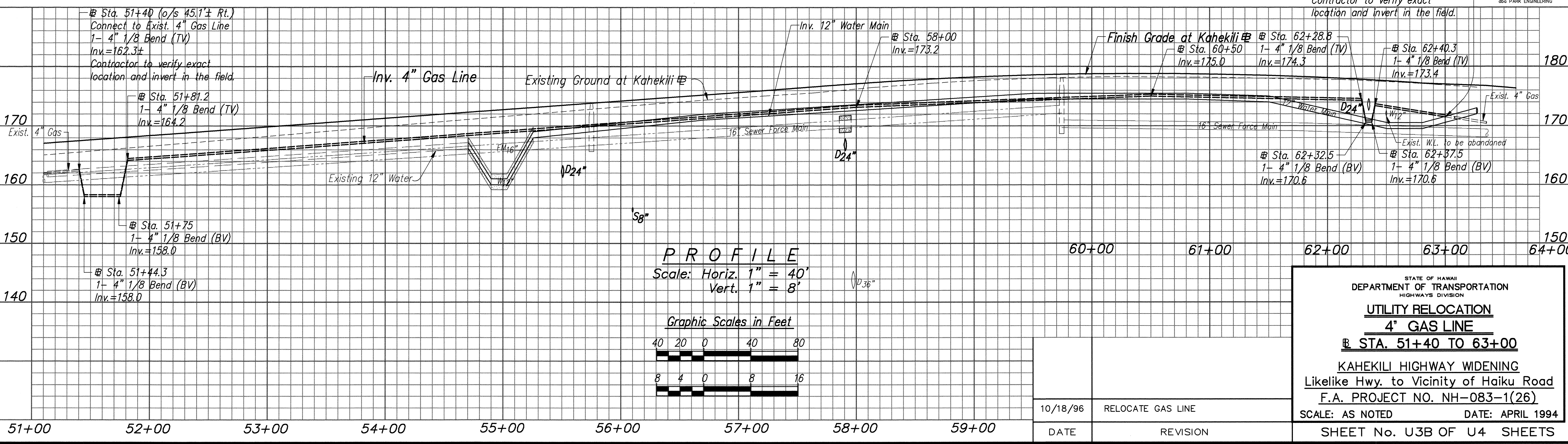
JB: STATE\DOT\KAHEKILI\ADDENDUM
UTI 3RC1 4/23/97 AMM KSI

FED. ROAD DIS. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(26)	1994	91	238

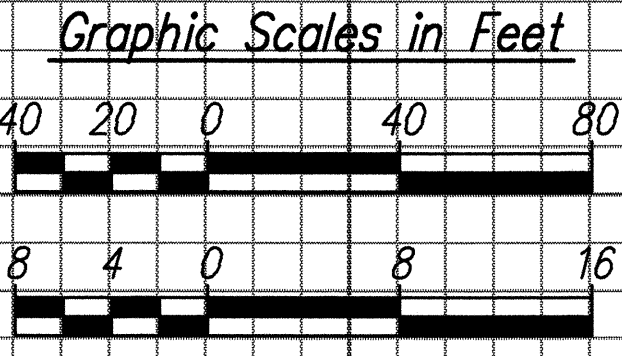
CURVE DATA			
	①	②	③
Δ	8° 54' 30"	4° 28' 48"	4° 25' 42"
Δ/2	4° 27' 15"	2° 14' 24"	2° 12' 51"
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T	280.43	140.82	139.19
C	559.16	281.49	278.17
Lc	559.73	281.49	278.24



PLAN
Scale: 1" = 40'



PROFILE
Scale: Horiz. 1" = 40'
Vert. 1" = 8'

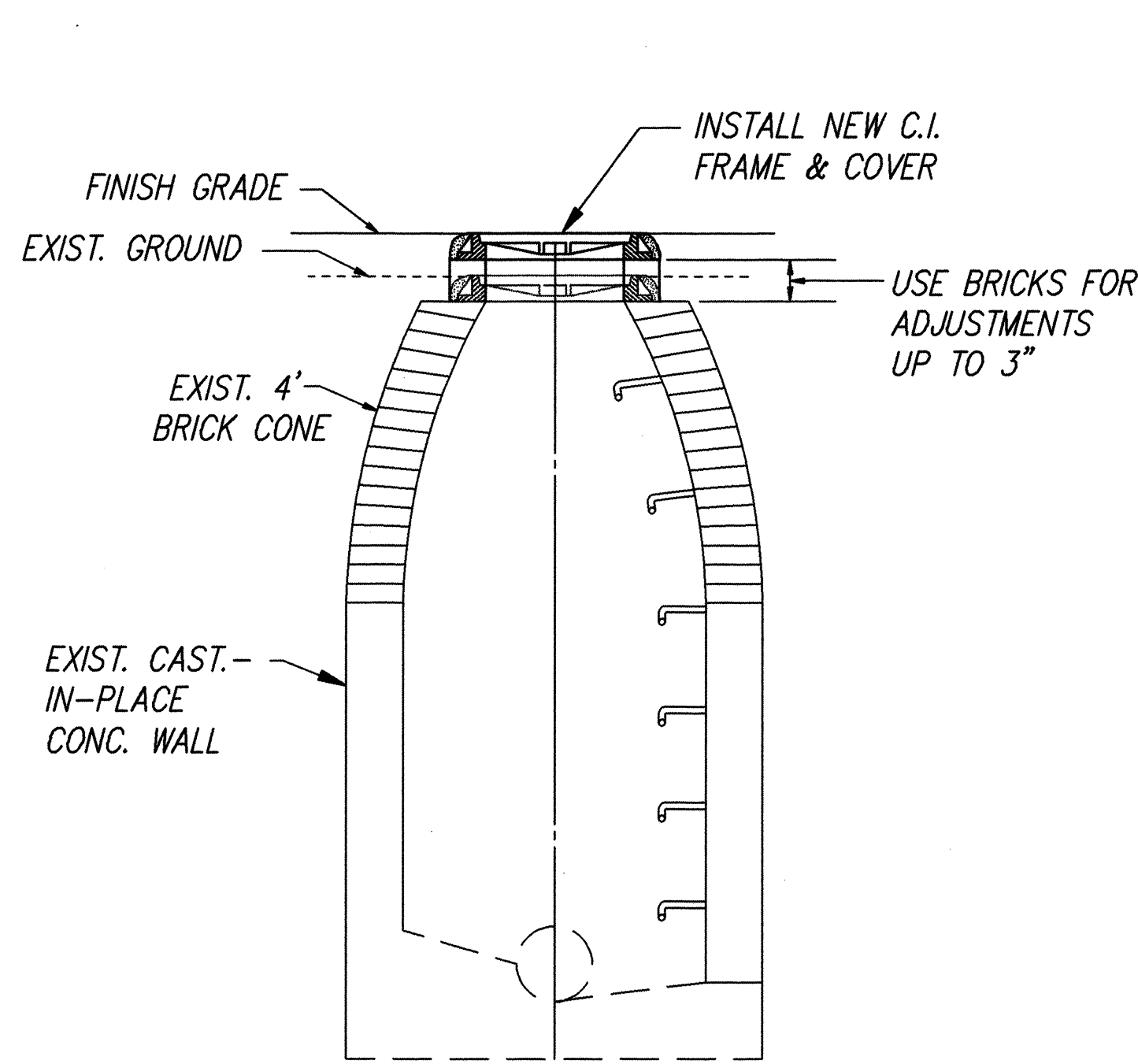


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
ROY M. MIKAMI
 LICENSED PROFESSIONAL ENGINEER
 NO. 1595-C
 HAWAII, U.S.A.
 P.E. & INC.
 dbo PARK ENGINEERING

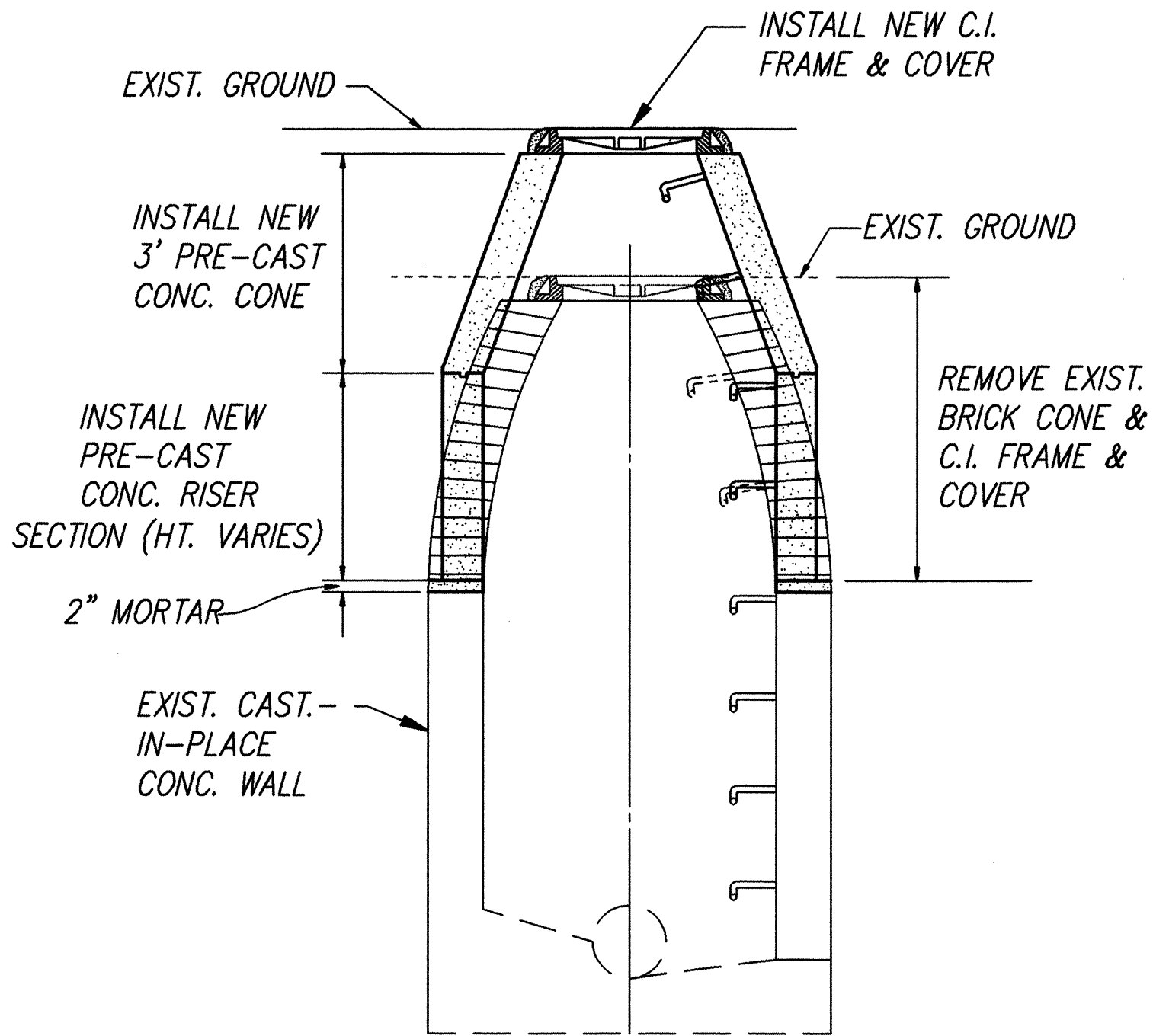
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
UTILITY RELOCATION
4" GAS LINE
STA. 51+40 TO 63+00
 KAHEKILI HIGHWAY WIDENING
 Likelike Hwy. to Vicinity of Haiku Road
 F.A. PROJECT NO. NH-083-1(26)
 SCALE: AS NOTED
 DATE: APRIL 1994
 SHEET No. U3B OF U4 SHEETS

10/18/96	RELOCATE GAS LINE
DATE	REVISION

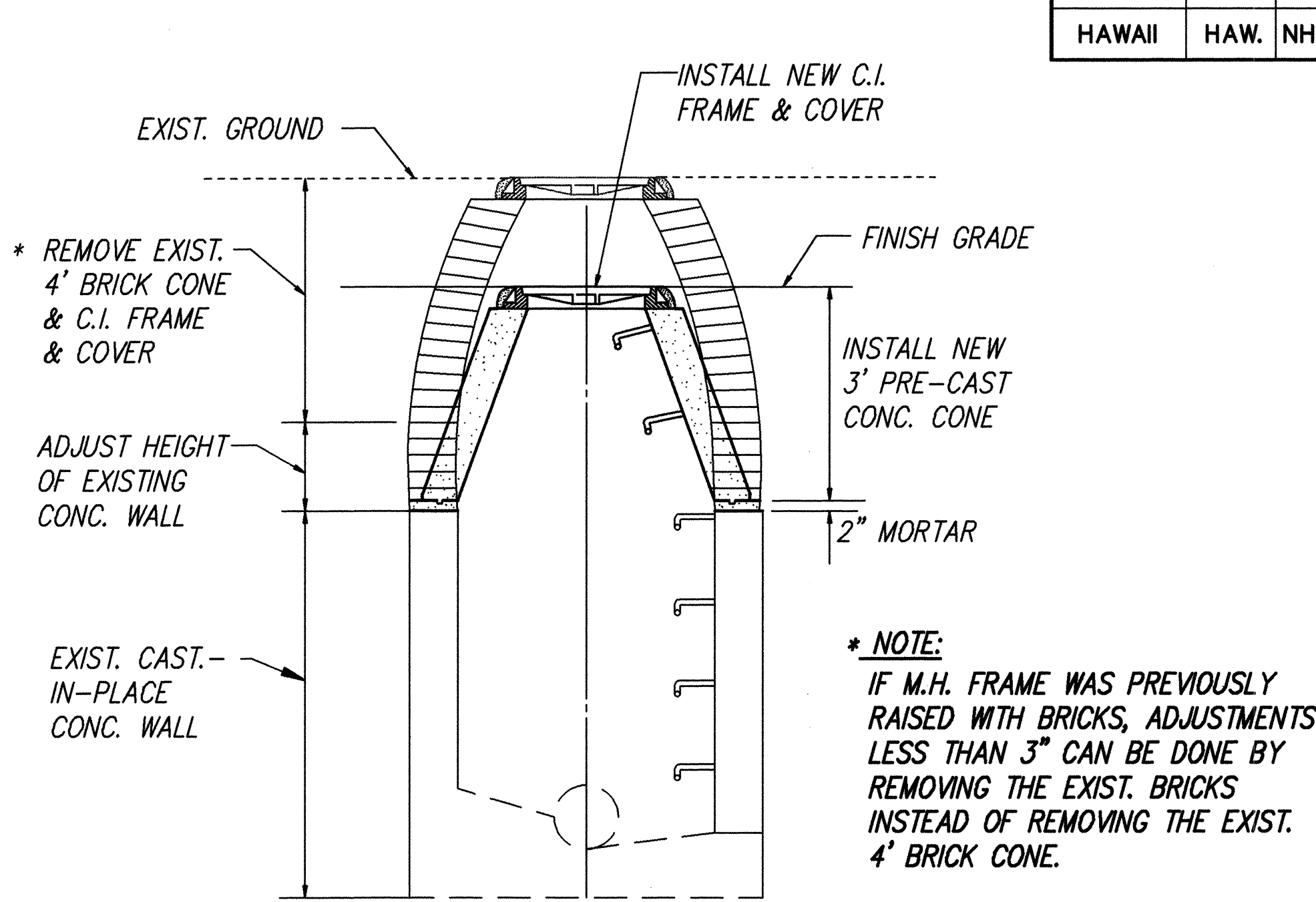
FED. ROAD DIS. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(26)	1994	ADD. 92S-1R	238



SMH ADJUSTMENT DETAIL
(RAISE UP TO 3")
NOT TO SCALE

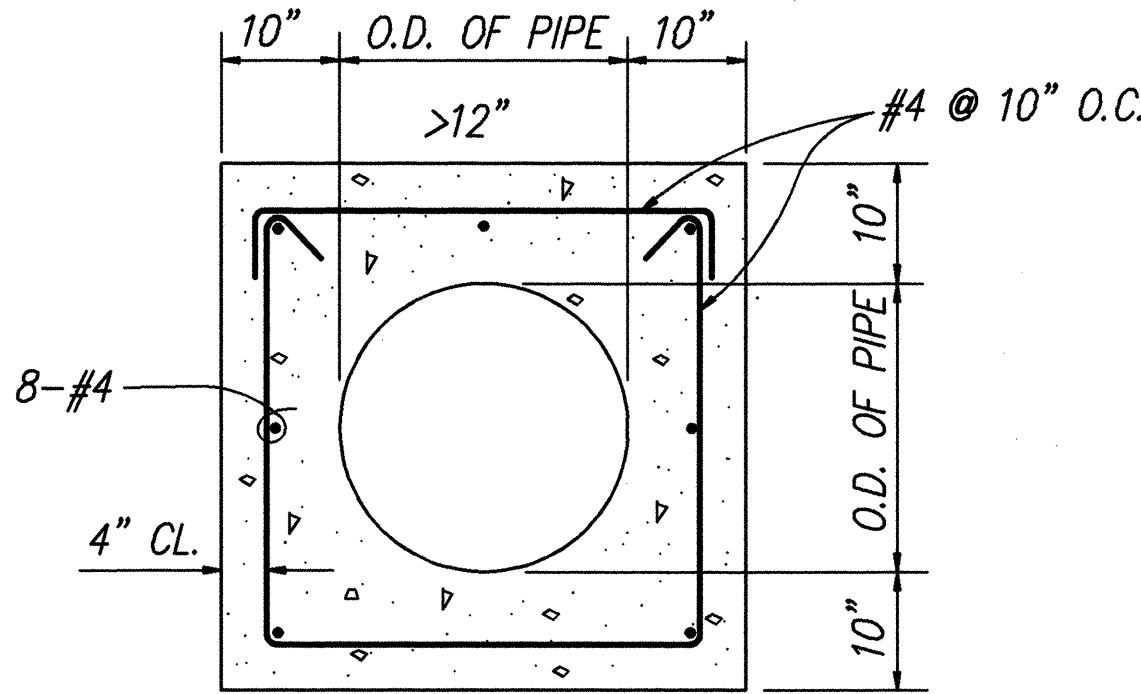


SMH ADJUSTMENT DETAIL
(RAISE MORE THAN 3")
NOT TO SCALE



* NOTE:
IF M.H. FRAME WAS PREVIOUSLY
RAISED WITH BRICKS, ADJUSTMENTS
LESS THAN 3" CAN BE DONE BY
REMOVING THE EXIST. BRICKS
INSTEAD OF REMOVING THE EXIST.
4' BRICK CONE.

SMH ADJUSTMENT DETAIL
(LOWER MORE THAN 3")
NOT TO SCALE



REINFORCED
CONCRETE JACKET (PIPE $\phi > 12"$)
NOT TO SCALE



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION
[Signature]
Poreh, Inc.
dba PARK ENGINEERING

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
MISCELLANEOUS DETAILS	
KAHEKILI HIGHWAY WIDENING Likelike Hwy. to Vicinity of Haiku Road F.A. PROJECT NO. NH-083-1(26)	
SCALE: AS NOTED	DATE: APRIL 1994
SHEET No. U4AOF U4 SHEETS	

7/13/94	ADDED D.N.W.M. SIGNATURE BLOCK.
6/07/94	ADDED NEW SHEET
DATE	REVISION

APPROVED: *[Signature]* 10/10/94
CHIEF, DIV. OF PLANNING & SERVICE CONTROL, DNWM
(FOR SEWER WORK WITHIN PUBLIC ROAD R/W ONLY) DATE *mw*

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
TRACKED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTES	
No.	

