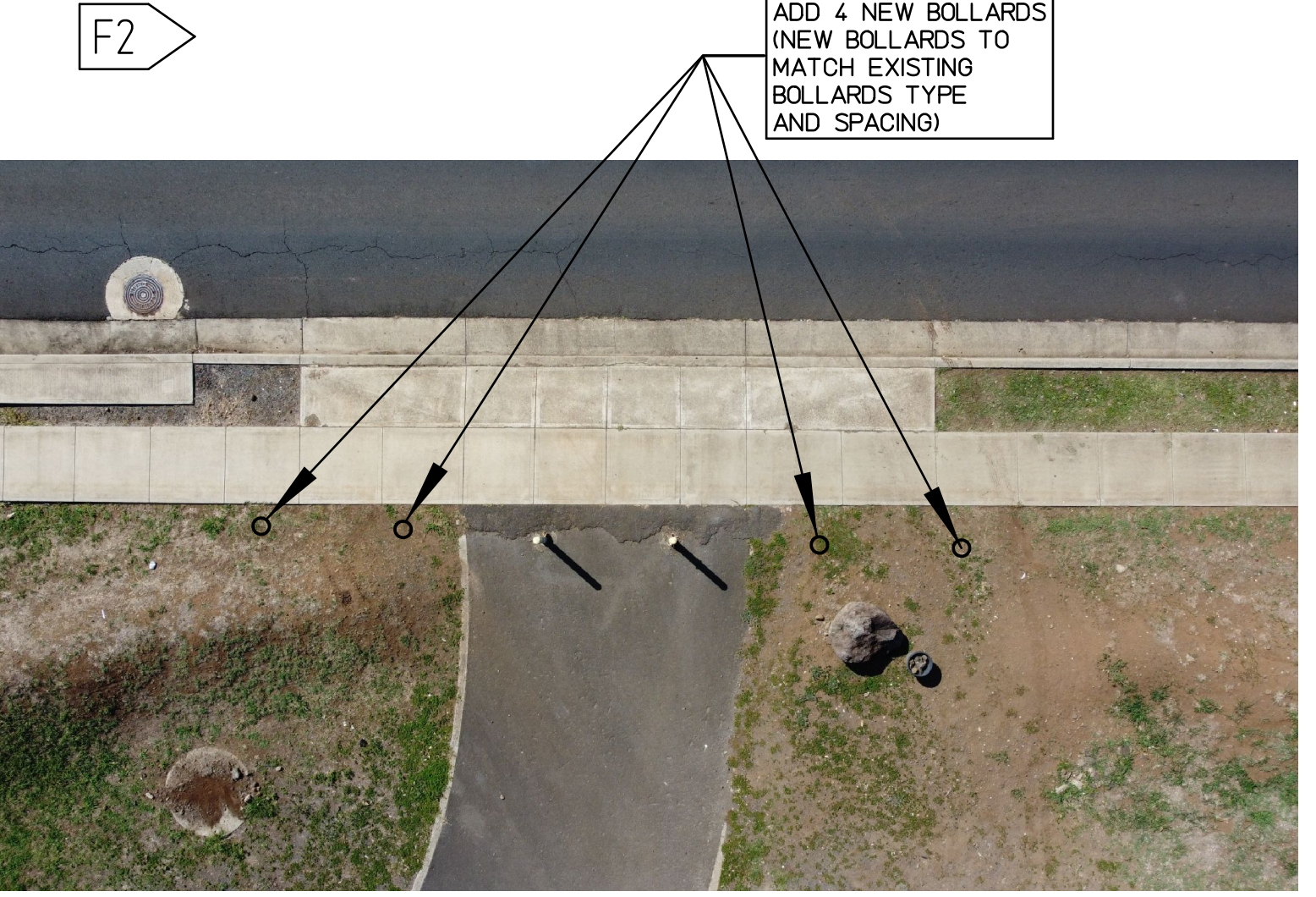
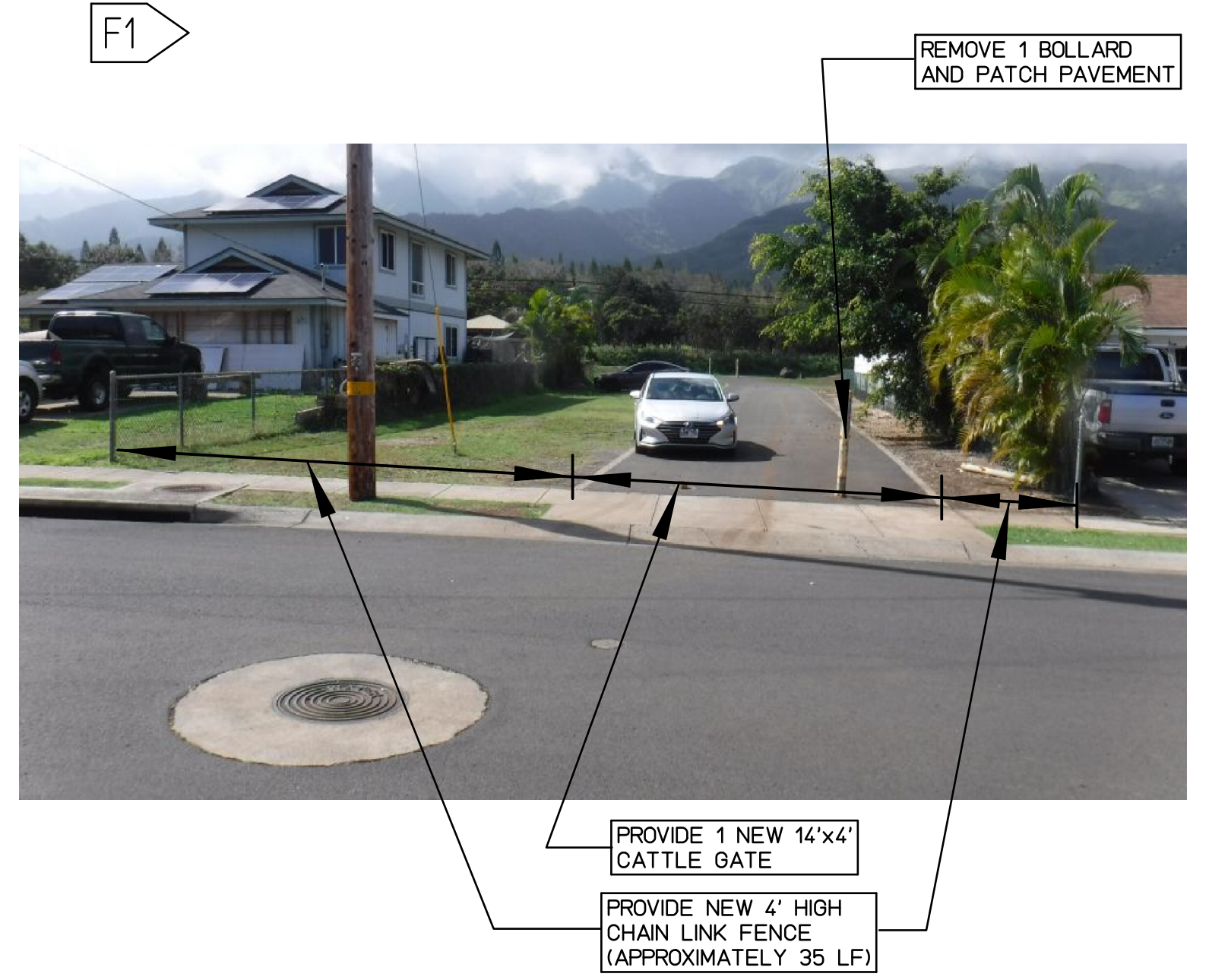




CHANNEL ENTRANCE - CHAIN LINK FENCE REPAIR AND NEW BOLLARDS PLAN
NOT TO SCALE

- REPAIR TYPE:
- 1 REPLACE FENCE FABRIC
 - 2 REPLACE TOP RAIL
 - 3 REPLACE FENCE POST
 - 4 REPLACE POST CAP
 - 5 REPLACE GATE
 - 6 REPLACE CATTLE GATE
 - 7 REPLACE BOTTOM GUIDE WIRE
 - 8 NEW CHAIN LINK FENCE TO MATCH EXISTING
 - 9 NEW CHAIN LINK FENCE
 - 10 NEW FABRIC
 - 11 NEW TOP RAIL
 - 12 NEW POST
 - 13 NEW GATE
 - 14 NEW POST CONNECTION
 - 15 NEW BOLLARD
 - 16 REMOVE GATE
 - 17 NEW CATTLE GATE

KEY PLAN



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REVISION NO.	DATE	REVISIONS	BY
DEPARTMENT OF HAWAIIAN HOME LANDS WAIEHU KOU FENCING IMPROVEMENT WAIEHU, MAUI, HAWAII			
CHANNEL ENTRANCE CHAIN LINK FENCE REPAIR AND NEW BOLLARDS PLAN			
DESIGNED BY: AD	HAWAII ENGINEERING GROUP, Inc.		JOB NO.
DRAWN BY: DL, AK	Civil & Structural Engineers		
CHECKED BY: AD	1088 BISHOP STREET #2506 HONOLULU, HI 96813 TEL: 808-539-2092		SHEET C501
SUPV:	DATE: 01/28/2021		27 OF 29 SHTS
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION			

Plot date: 12-Jan-2023

\\2021\Projects\21-002_DHLL_PS-21-LDD-011_T01_Waehu_Kou_Fencing\Drawings\Civil\ME\0\C601

CHAIN LINK - FENCE, WALK GATE & DOUBLE SWING GATE SPECIFICATIONS

- FABRIC SHALL MEET THE GENERAL REQUIREMENTS FOR METALLIC-COATED STEEL CHAIN LINK FENCE FABRIC FOR INDUSTRIAL USAGE, AS COVERED BY ASTM A392. THE FABRIC SHALL BE OF A 2-INCH MESH WOVEN FROM A GOOD COMMERCIAL QUALITY STEEL WIRE OF NO. 9 GAUGE, 0.148 INCH NOMINAL DIAMETER BEFORE GALVANIZING. THE WIRE SHALL WITHSTAND A BREAKING LOAD OF 1,290 LBS. THE FABRIC SHALL BE HOT DIPPED GALVANIZED, NOT LESS THAN 1.2 OZ. OF ZINC PER SQUARE FOOT OF ACTUAL SURFACE COVERED. AFTER WEAVING AND FINISHED WITH TOP AND BOTTOM SELVAGE TWISTED. THE FABRIC HEIGHT SHALL BE AS SHOWN ON THE PROJECT DRAWING.
- POST SHALL BE HOT DIPPED GALVANIZED, INSIDE AND OUTSIDE, ROUND PIPE CONFORMING TO ASTM A120 STANDARD WEIGHT. ALL POSTS SHALL BE SET TRUE TO LINE AND GRADE AND EMBEDDED IN CONCRETE FOOTINGS. ORNAMENTAL TOPS SHALL BE PROVIDED WHEN NECESSARY.

LINE POSTS SHALL BE 2-3/8 INCH O.D. PIPE, 3.65 LBS. PER LINEAL FOOT BEFORE GALVANIZING, SPACED NOT MORE THAN 10 FEET CENTER-TO-CENTER. FASTEN FABRIC TO LINE POSTS WITH GALVANIZED STEEL WIRE AT INTERVALS NOT EXCEEDING 15 INCHES. CORNER OR END POSTS SHALL BE 2-7/8 INCH O.D. PIPE 5.79 LBS. PER LINEAL FOOT BEFORE GALVANIZING.

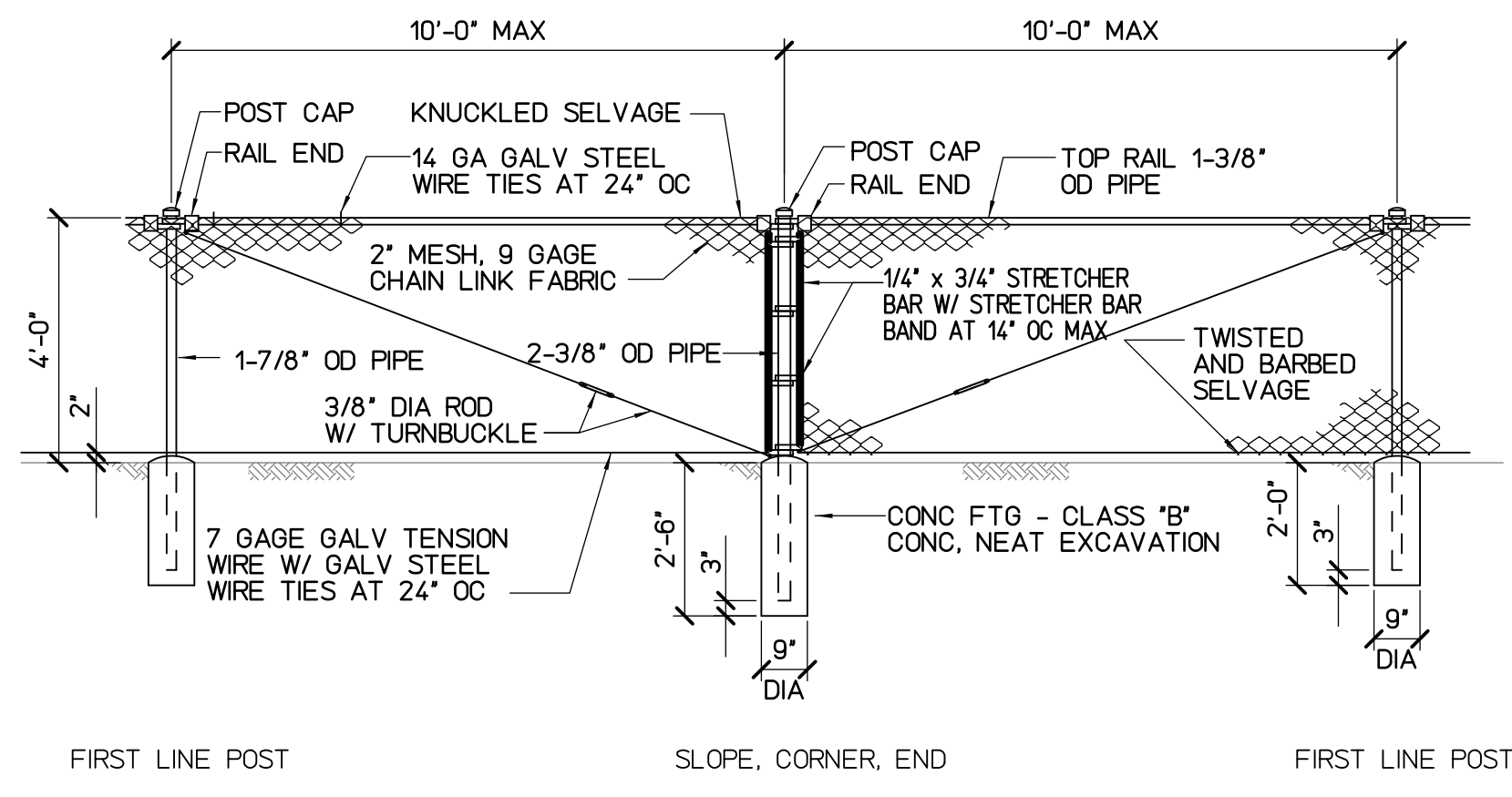
WALK GATE POSTS SHALL BE 2-7/8 INCH O.D. PIPE, 5.79 LBS. PER LINEAL FOOT BEFORE GALVANIZING, SPACED 4 FEET CENTER-TO-CENTER.
- BRACING AND TOP RAIL SHALL BE HOT DIPPED GALVANIZED, INSIDE AND OUTSIDE, 1-5/8 INCH O.D. PIPE, 2.27 LBS. PER LINEAL FOOT, CONFORMING TO ASTM A120 STANDARD WEIGHT. INSTALL THE HORIZONTAL BRACE AT EACH CORNER, END, WALK GATE, AND DRIVE-GATE POSTS AT MID-HEIGHT OF THE FABRIC. EACH BRACE SHALL BE DIAGONALLY TRUSSED WITH A 3/8 INCH ROUND ROD, HOT DIPPED GALVANIZED, FROM THE LINE POST BACK TO THE CORNER, END, WALK GATE, OR DRIVE-GATE POST. EACH TRUSS ROD SHALL BE PROVIDED WITH A TURNBUCKLE, A HEAVY TRUSS TIGHTENER, AND BRACE END FITTINGS. FASTEN FABRIC TO BRACE RAIL WITH STEEL WIRE SPACED 24 INCHES O.C. ALL MATERIALS SHALL BE GALVANIZED.
- GATES SHALL BE SWING TYPE, COMPLETE WITH LATCHES, STOPS, KEEPERS AND HINGES.

GATE FRAMES SHALL BE CONSTRUCTED OF HOT DIPPED GALVANIZED, INSIDE AND OUTSIDE, 2 INCH O.D. PIPE, 2.72 LBS. PER LINEAL FOOT, CONFORMING TO ASTM A120 STANDARD WEIGHT. THE MEMBERS SHALL BE WELDED AT ALL CORNERS OR ASSEMBLED WITH FITTINGS AND RIGIDLY TRUSSED AND BRACED TO PREVENT SAG OR TWIST. WHERE WELDING IS DONE, CLEAN AND GRIND SMOOTH THE AREA BEFORE APPLYING AMERON "AMERCOAT 160" OR CARBOLINE "CARBOMASTIC 15" PER THE MANUFACTURER'S DIRECTION.

GATE HINGES SHALL BE MALLEABLE INDUSTRIAL HINGES (90 DEGREES), GALVANIZED. THE HINGES SHALL BE OF ADEQUATE STRENGTH AND CAPABLE OF THE GATE BEING OPENED OR CLOSED EASILY BY ONE PERSON.

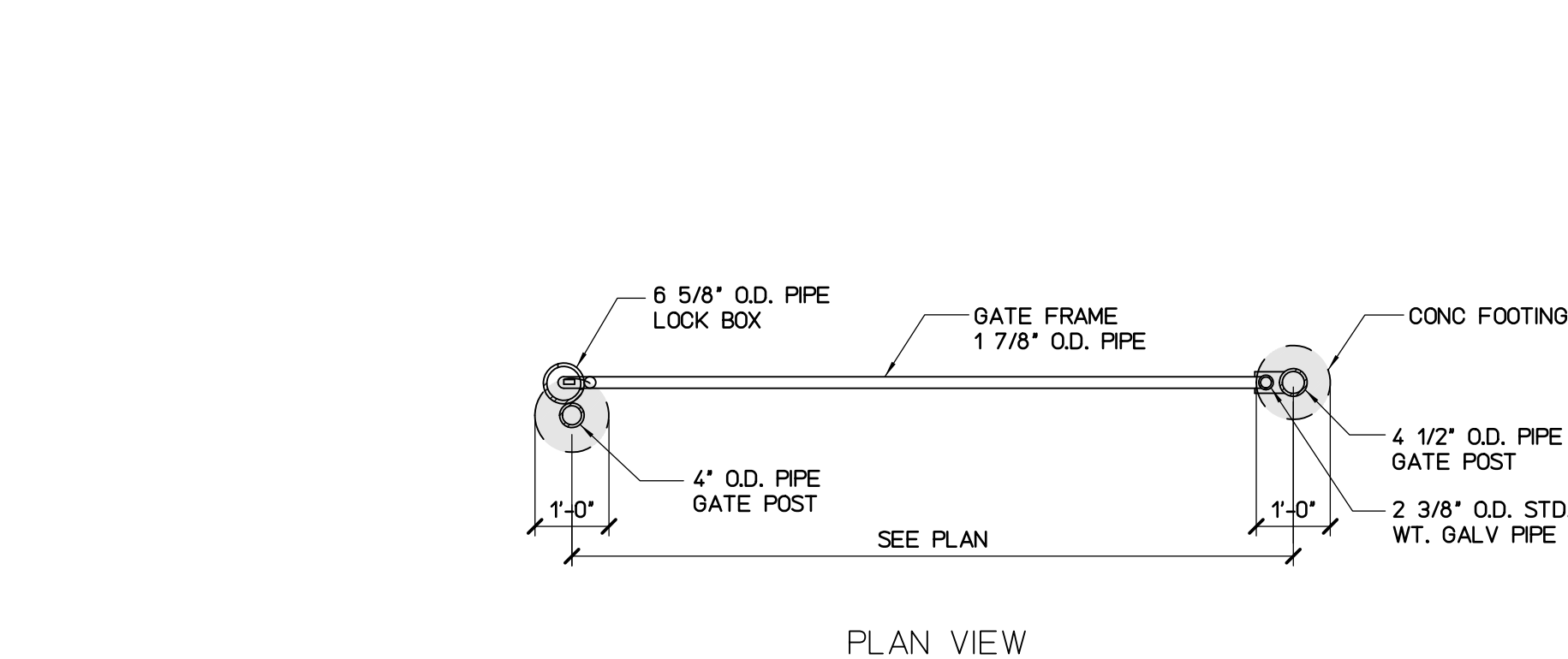
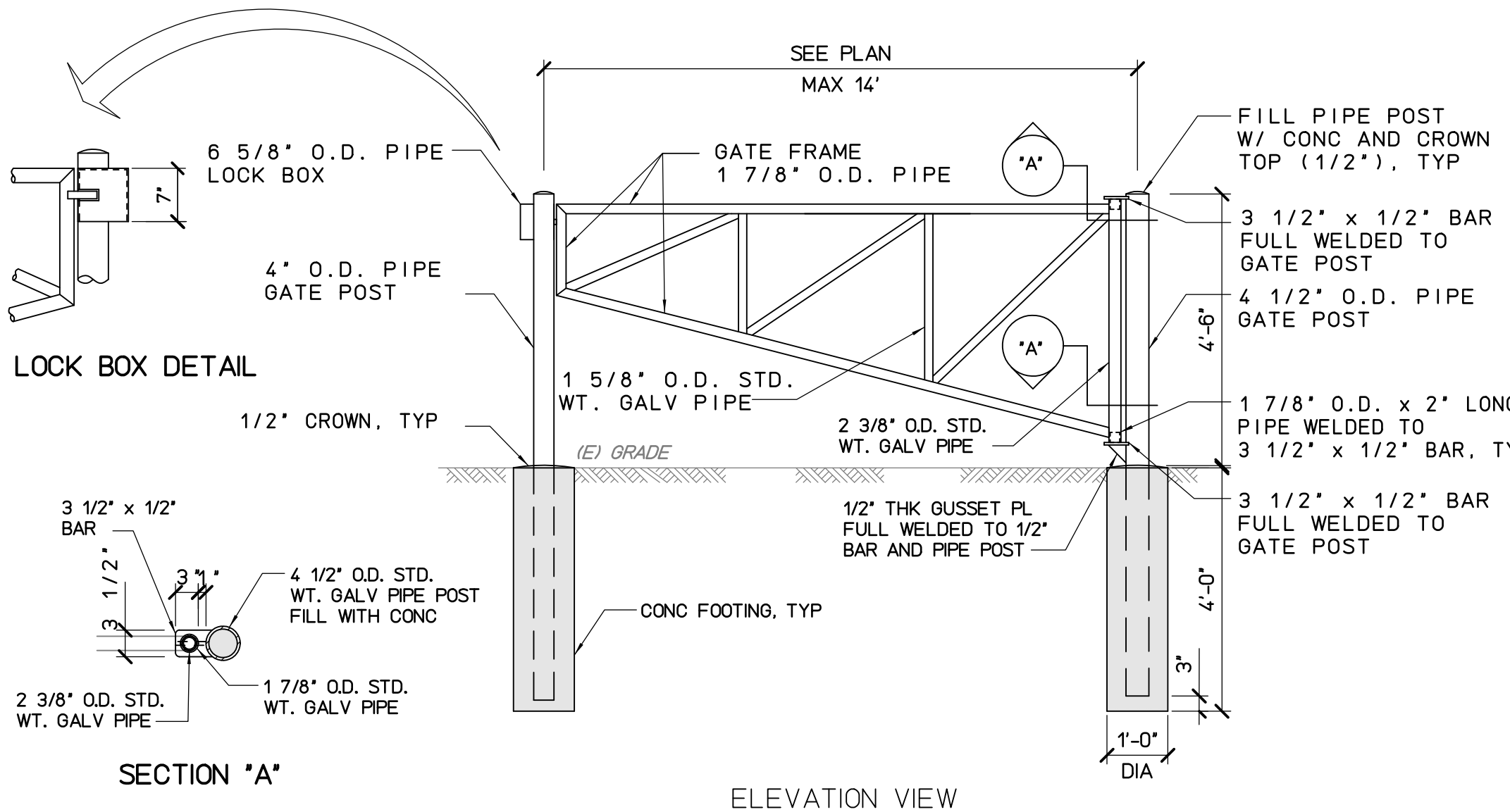
GATE LATCHES, STOPS OR KEEPERS SHALL BE PROVIDED FOR ALL GATES. ALL DOUBLE SWING GATES SHALL HAVE A LATCH OF THE PLUNGER (DROP) ROD TYPE ARRANGED TO FULLY ENGAGE THE CENTER STOP. ALL SINGLE LEAF GATES SHALL BE EQUIPPED WITH A MALLEABLE FORK LATCH. ALL LATCHES SHALL BE ARRANGED FOR LOCKING (PAD LOCKS SHALL BE PROVIDED BY DEPARTMENT OF HAWAIIAN HOME LANDS). KEEPERS SHALL CONSIST OF A MECHANICAL DEVICE FOR SECURING THE FREE END OF THE GATE WHEN IN THE FULL OPEN POSITION. ALL MATERIALS SHALL BE GALVANIZED.

GATE FABRIC SHALL BE THE SAME TYPE AS USED IN THE FENCE CONSTRUCTION. THE FABRIC SHALL BE ATTACHED SECURELY TO THE GATE FRAME AT INTERVALS NOT EXCEEDING 15 INCHES.
- TENSION BARS AND BANDS SHALL BE PROVIDED AT ALL CORNER, END, AND GATE POSTS. TENSION BARS SHALL NOT BE LESS THAN 2 INCHES SHORTER THAN THE HEIGHT OF THE FABRIC WITH WHICH IT IS TO BE USED. TENSION BANDS SHALL BE OF ADEQUATE STRENGTH AND OF SUFFICIENT NUMBER TO ADEQUATELY FASTEN THE FABRIC AND TENSION BAR TO THE CORNER, END, OR GATE POSTS AT INTERVALS NOT EXCEEDING 15 INCHES. ALL MATERIALS SHALL BE GALVANIZED.
- TENSION WIRE SHALL BE MARCELLED NO. 7 GAUGE, 0.177 INCH NOMINAL DIAMETER, GALVANIZED WIRE. THE TENSION WIRE SHALL BE FASTENED TO THE FABRIC AT INTERVALS NOT EXCEEDING 24 INCHES.
- INSTALLATION OF FENCING, INCLUDING GATES, SHALL MEET THE REQUIREMENTS OF ASTM F567.
- GALVANIZING OF ALL STEEL PARTS FOR THE FENCING AND GATES ABOVE AND BELOW GROUND SHALL BE BY THE HOT DIPPED PROCESS IN ACCORDANCE WITH THE ASTM DESIGNATION FOR THE PARTICULAR PART.
- FENCE GROUND WIRE SHALL BE IN ACCORDANCE WITH THE PROJECT GROUNDING PLAN AND SPECIFICATIONS.
- FOOTINGS SHALL BE CONSTRUCTED WITH REGULAR WEIGHT CONCRETE, DESIGNED IN ACCORDANCE WITH ACI 211.1, OF 2,500 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS. THE CONCRETE SHALL BE EITHER JOB MIXED (IF APPROVED BY THE ENGINEER), IN ACCORDANCE WITH ACI 304, OR PLANT MIXED, CONFORMING TO THE PROVISIONS OF ASTM C-94, IN AN APPROVED TYPE OF POWER OPERATED MIXER THAT WILL INSURE UNIFORMITY AND HOMOGENEITY OF THE CONCRETE PRODUCED. HAND MIXING WILL NOT BE PERMITTED. CONCRETE THAT HAS STARTED TO HARDEN WILL NOT BE PERMITTED. ADDITION OF WATER IN ORDER TO MAINTAIN THE REQUIRED CONSISTENCY WILL NOT BE PERMITTED. THE TOP 6 INCHES OF ALL FOOTINGS SHALL BE FORMED. THE TOP OF ALL FOOTINGS SHALL BE TROWELLED SMOOTH AND CROWNED SLIGHTLY SO AS TO SHED WATER.
- GENERAL ALL MATERIALS SHALL BE NEW AND MANUFACTURED IN THE UNITED STATES OF AMERICA. THERE SHALL BE NO SPLICING OF PIPES AND RODS ALLOWED.
- FENCE POST FOOTING SHALL BE INSPECTED BEFORE FILLING WITH CONCRETE. FOOTING HOLE SHALL BE SQUARED (NOT ROUND) AT BOTTOM.
- GATES SHALL BE PROVIDED WITH 1 INCH O.D. PIPE PLUNGER AS DROP ROD GUIDE, AND LATCH ASSEMBLY. PROVIDE PER DETAILS. THIS SHEET, NO EXCEPTIONS ALLOWED.



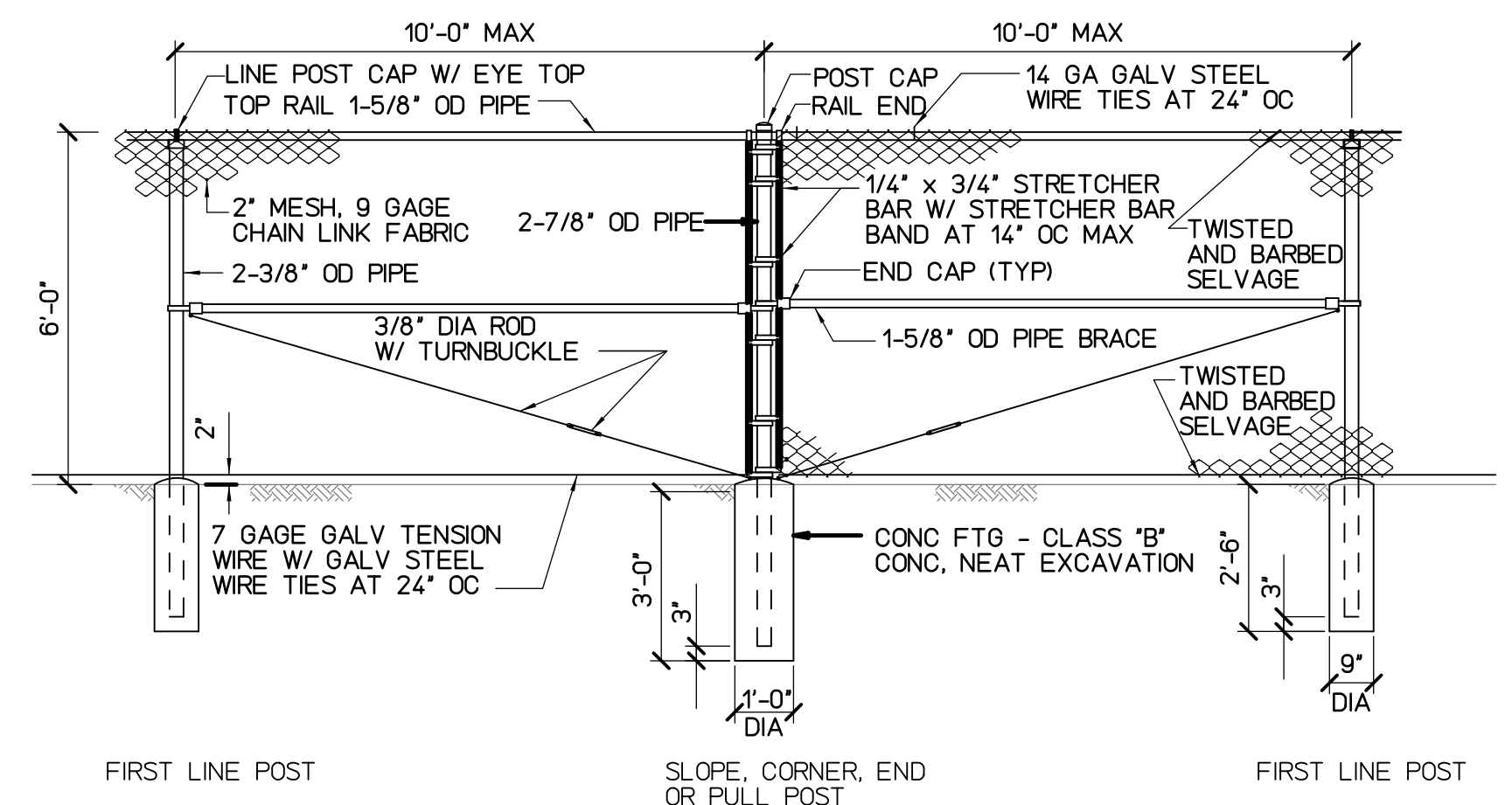
- NOTES:
- POST AND BRACES SHALL BE SCHEDULE 40 (STANDARD WEIGHT) PIPE. SIZES SPECIFIED ARE OUTSIDE DIAMETER.
 - ALL FENCING MATERIAL SHALL BE GALVANIZED STEEL.
 - TOP RAIL COUPLINGS SHALL BE LOCATED WITHIN 6" OF LINE POSTS.
 - TOP OF CONCRETE FOOTING SHALL BE CROWNED TO SHED WATER.

4 TYPICAL 4' CHAIN LINK FENCE DETAILS
C601 NOT TO SCALE



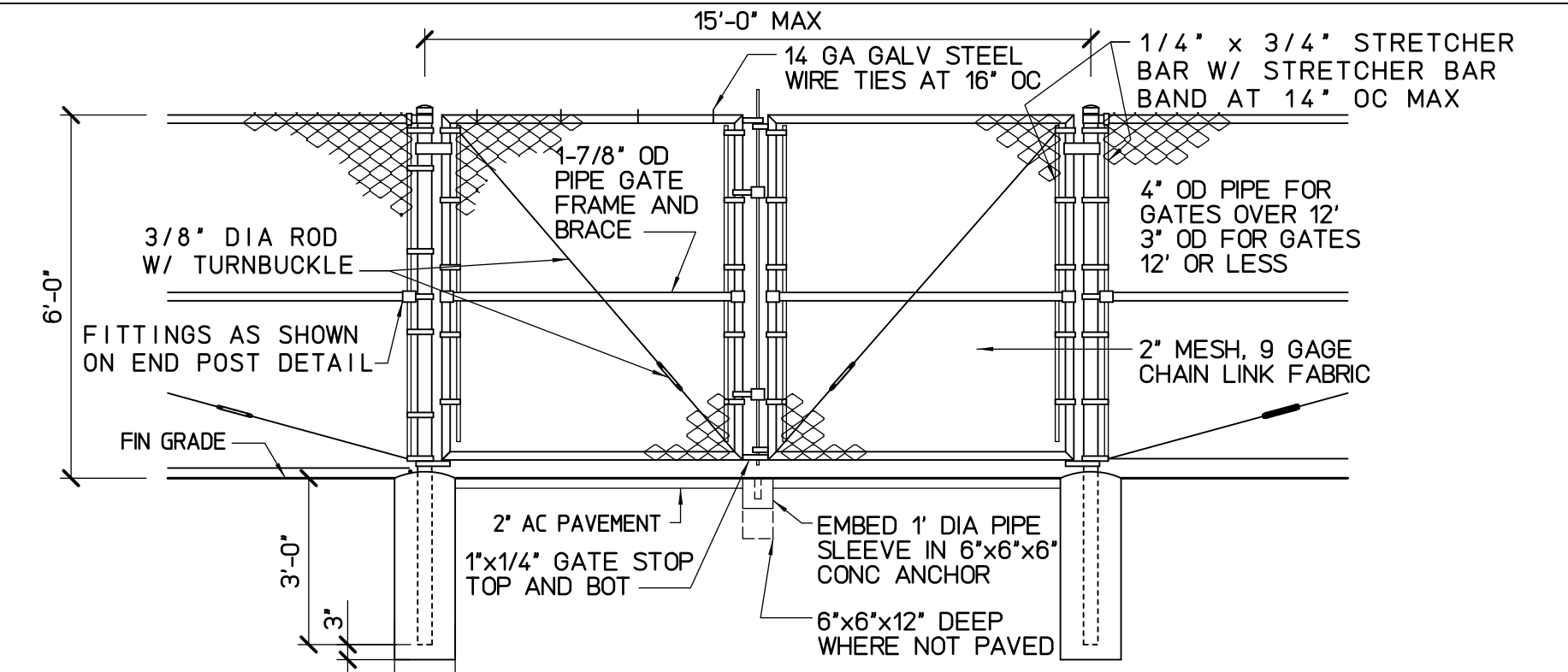
- NOTES:
- ALL PIPES SHALL BE GALVANIZED STEEL.
 - WRAP REFLECTIVE TAPE AROUND ENTIRE PIPE GATE FRAMES AND POSTS. ALTERNATE 12" BANDS OF RED AND SILVER.
 - ADJUST CLEAR DIMENSION TO MAKE BOTH FRAMES LEVEL EACH OTHER AND TO ALLOW CLEARANCES FOR GATE SWING.
 - ALL CONCRETE FOOTINGS SHALL BE CLASS 'B' CONCRETE.

1 TYPICAL GATE POST AND FRAME DETAILS
C601 NOT TO SCALE



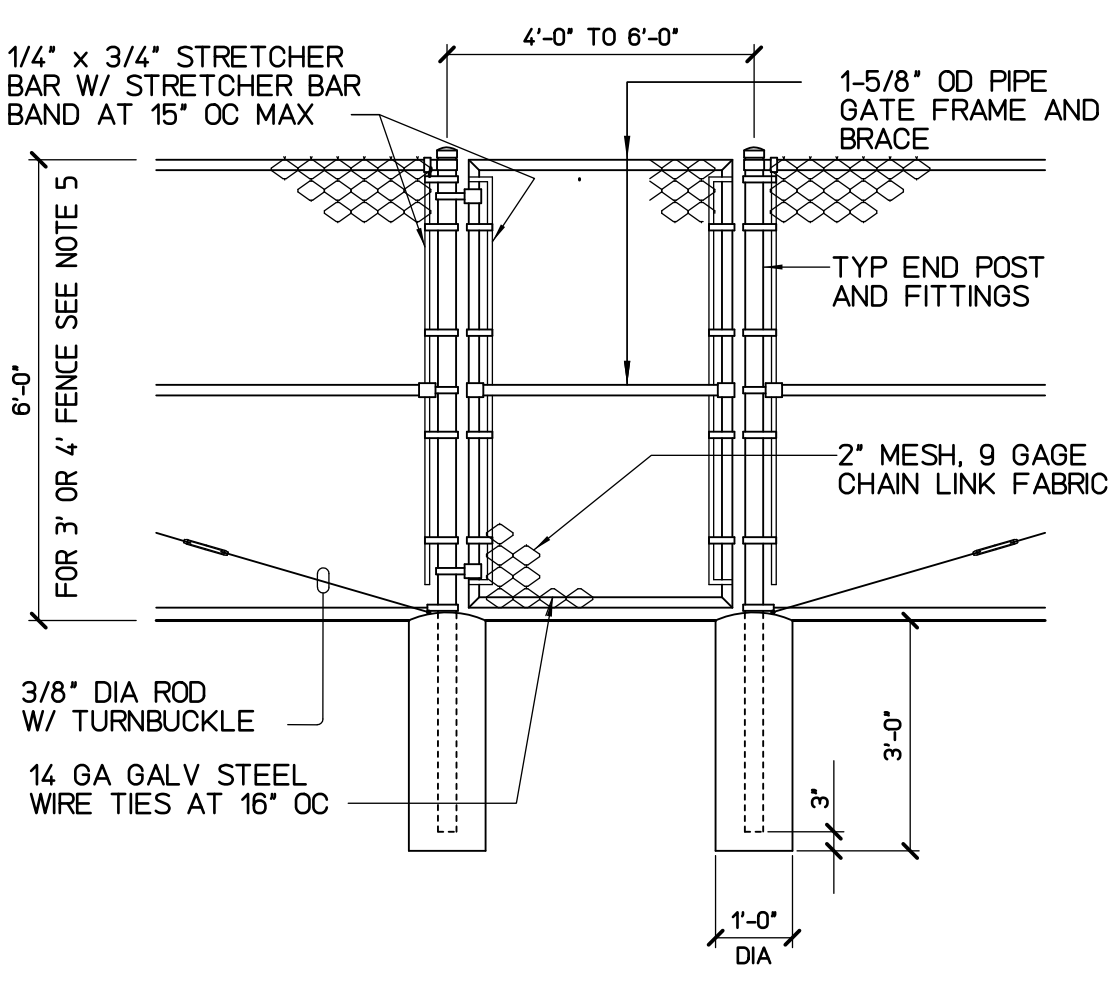
- NOTES:
- POST AND BRACES SHALL BE SCHEDULE 40 (STANDARD WEIGHT) PIPE. SIZES SPECIFIED ARE OUTSIDE DIAMETER.
 - ALL FENCING MATERIAL SHALL BE GALVANIZED STEEL.
 - TOP RAIL COUPLINGS SHALL BE LOCATED WITHIN 6" OF LINE POSTS.
 - TOP OF CONCRETE FOOTING SHALL BE CROWNED TO SHED WATER.

5 TYPICAL 6' CHAIN LINK FENCE DETAILS
C601 NOT TO SCALE



- NOTES:
- ALL FENCING MATERIAL INCLUDING GATE HARDWARE SHALL BE GALVANIZED STEEL.
 - POSTS, BRACES AND GATE FRAMES SHALL BE SCHEDULE 40 (STD WT) PIPE. SIZES SPECIFIED ARE OUTSIDE DIAMETER.
 - GATE SHALL BE PROVIDED WITH TUBULAR PLUNGER BAR, 1 LOCK KEEPER, 1 LOCK KEEPER GUIDE, 2 LATCH FORKS, 2 FORK CATCHES, 1 CATCH FOR PLUNGER BAR, AND 2 GATE STOPS LOCATED AS DIRECTED BY THE ENGINEER.
 - CORNER FITTINGS FOR GATE FRAMES MAY BE USED IN LIEU OF WELDING.
 - GATE SHALL HAVE KNUCKLED SELVAGE TOP AND BOTTOM.
 - TOP OF CONCRETE FOOTING SHALL BE CROWNED TO SHED WATER.

3 TYPICAL DOUBLE SWING GATE
C601 NOT TO SCALE

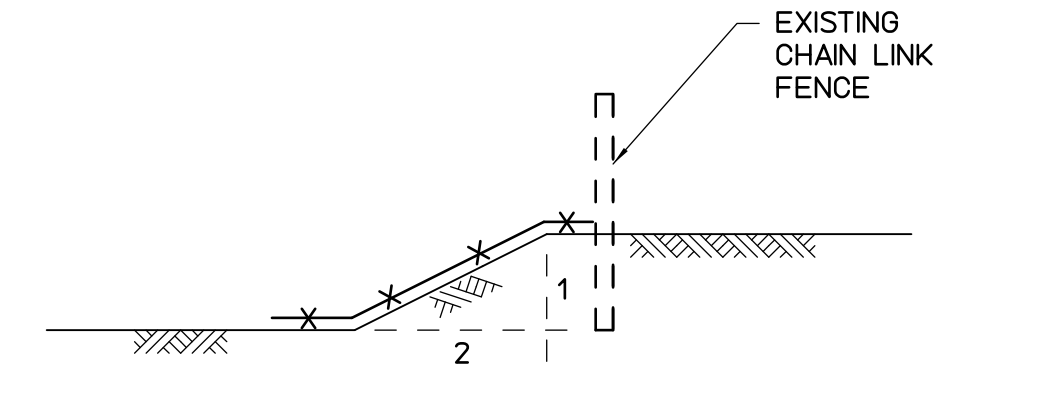


- NOTES:
- THE CHAINLINK FABRIC SHALL ALSO BE PLASTIC COATED WHERE EXISTING CHAINLINK FENCE FABRIC BEING REPAIRED OR REPLACED IS PLASTIC COATED. COLOR TO MATCH EXISTING PLASTIC COATING.

- NOTES:
- ALL FENCING MATERIAL INCLUDING GATE HARDWARE SHALL BE GALVANIZED STEEL.
 - POSTS, BRACES AND GATE FRAMES SHALL BE SCHEDULE 40 (STD WT) PIPE. SIZES SPECIFIED ARE OUTSIDE DIAMETER.
 - GATE SHALL BE PROVIDED WITH PROVISIONS FOR PADLOCKING.
 - CORNER FITTINGS FOR GATE FRAMES MAY BE USED IN LIEU OF WELDING.
 - FOR 3' OR 4' HIGH GATE, ELIMINATE ALL HORIZONTAL BRACING AND ATTACH TRUSS ROD TO TOP OF ADJACENT LINE POST. CHAIN LINK FABRIC SHALL BE 2" MESH, 11 GAUGE.
 - GATE SHALL HAVE KNUCKLED SELVAGE TOP AND BOTTOM.
 - TOP OF CONCRETE FOOTING SHALL BE CROWNED TO SHED WATER.

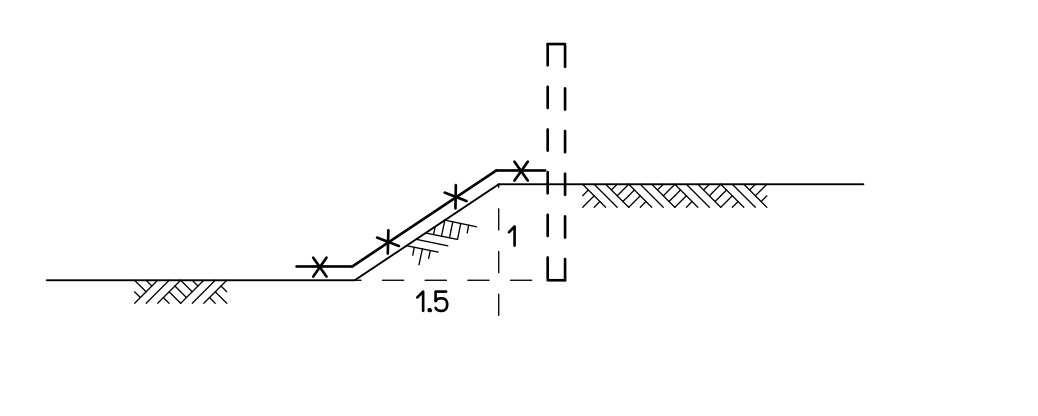
2 TYPICAL WALK GATE DETAILS
C601 NOT TO SCALE

- LOCATION TO RESTORE GROUND SLOPE TO MATCH EXISTING.
- INSTALL GEOTEXTILE FABRIC TO COVER SLOPE.
- PLANT GROUND COVER (GRASS TO MATCH EXISTING) MAINTAIN FOR 3 MONTHS UNTILL IT TAKES ROOT.



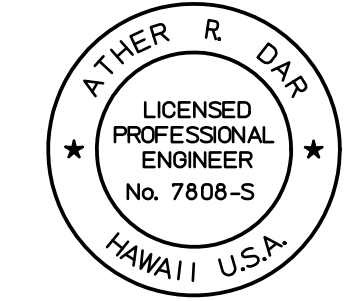
6 RESTORE GROUND SLOPE (GRASS)
C601 NOT TO SCALE

- CONTRACTOR TO RESTORE GROUND SLOPE TO MATCH EXISTING.
- INSTALL GEOTEXTILE FABRIC TO STABILIZE SLOPE.
- PLANT GROUND COVER (WEDELIA) AND MAINTAIN FOR 3 MONTHS UNTILL IT TAKES ROOT.



7 RESTORE GROUND SLOPE (WEDELIA)
C601 NOT TO SCALE

REVISION NO.	DATE	REVISIONS	BY



Exp. Date: 4-30-22

DEPARTMENT OF HAWAIIAN HOME LANDS

WAEHU KOU FENCING IMPROVEMENT

WAEHU, MAUI, HAWAII

CHAIN LINK FENCE REPAIR

DETAILS AND NOTES

JOB NO.

SHEET

C601

28 OF 29 SHEETS

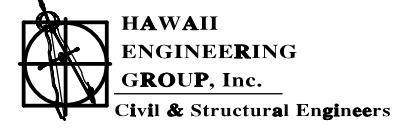
DESIGNED BY: AD

DRAWN BY: DL, AK

CHECKED BY: AD

SUPV:

DATE: 01/28/2021



HAWAII ENGINEERING GROUP, Inc.

Civil & Structural Engineers

1088 BISHOP STREET #2506

HONOLULU, HI 96813

TEL: 808-539-2092

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

J:\2021 Projects\21-002 DHHL PS-21-LDD-011 T01 Waiehu Kou Fencing\Drawings\Civil\ME\0\C602 Plot date: 24-Mar-2022

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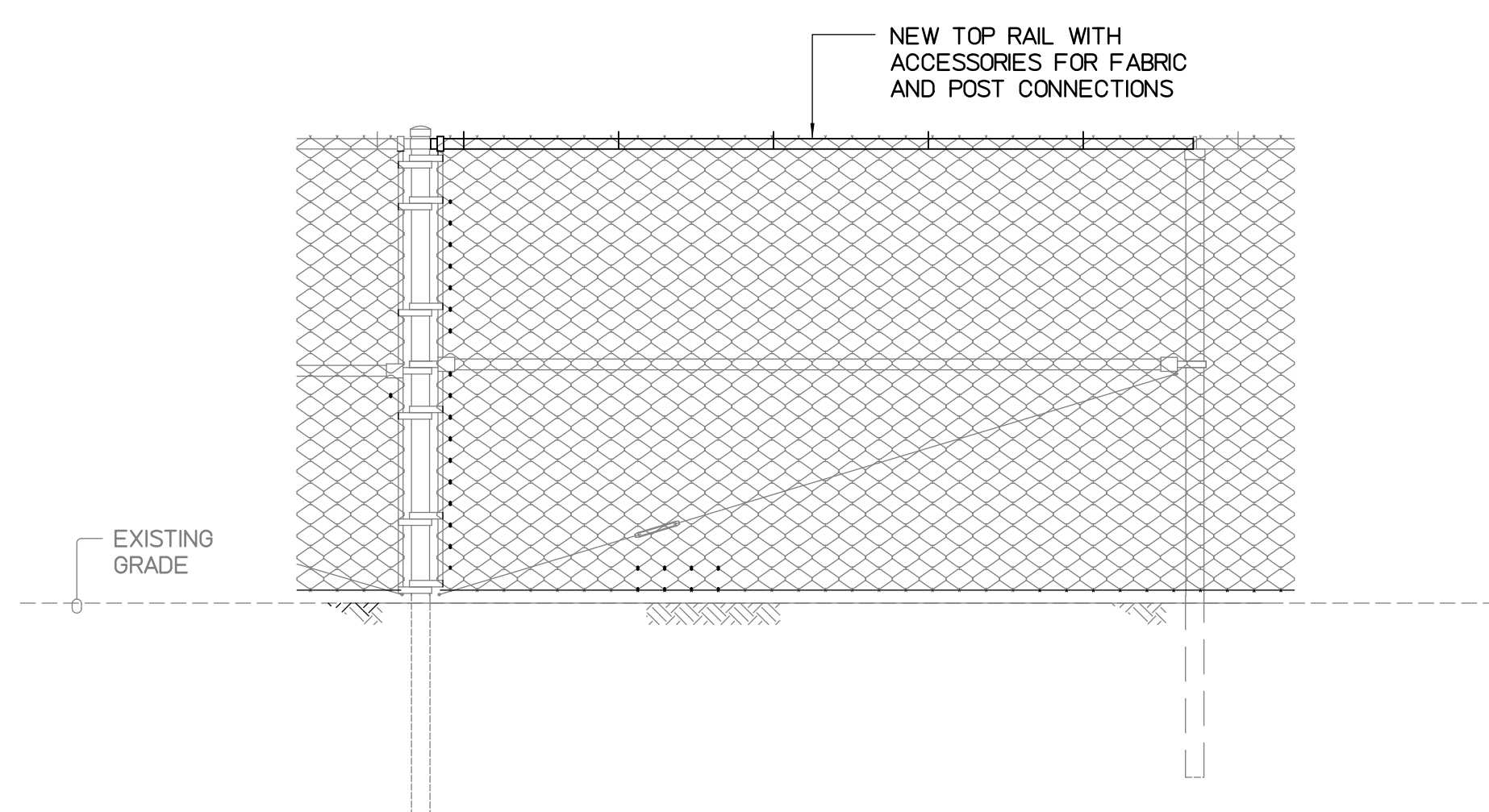
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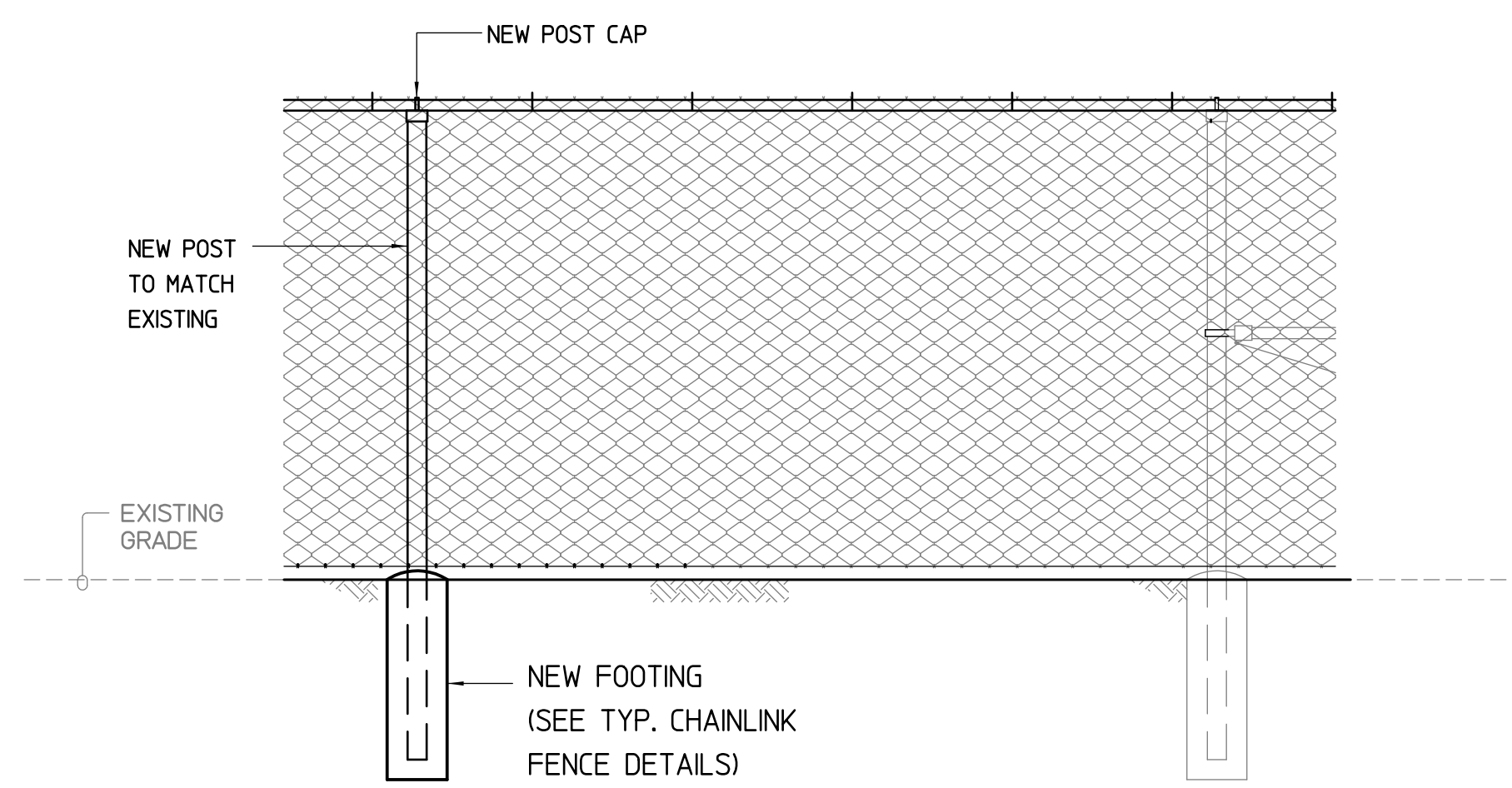
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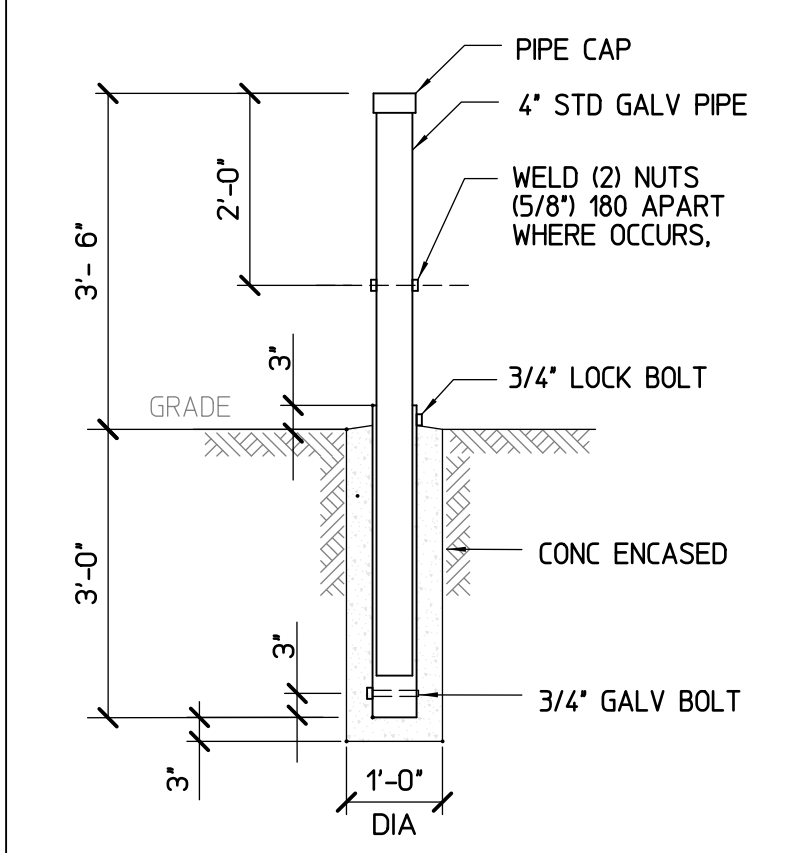
1 REPAIR TYPE A - NEW TOP RAIL
C602 NOT TO SCALE



2 REPAIR TYPE B - NEW POST
C602 NOT TO SCALE

NOTES:
CONTRACTOR TO DISMANTLE EXISTING FOUNDATION AND REPLACE WITH NEW FOUNDATION.

NOTES:
THE WELDED NUTS ARE FOR SCREWING IN BOLTS TO ACT AS 'HANDLES' FOR LIFTING. THE BOLTS ARE TO BE REMOVED AFTER INSTALLATION.



3 TYPICAL BOLLARD DETAIL
C602 NOT TO SCALE

REVISION NO.	DATE	REVISIONS	BY
DEPARTMENT OF HAWAIIAN HOME LANDS WAIIEHU KOU FENCING IMPROVEMENT WAIIEHU, MAUI, HAWAII			
CHAIN LINK FENCE REPAIR AND BOLLARD DETAILS			
DESIGNED BY: AD	HAWAII ENGINEERING GROUP, Inc.		JOB NO.
DRAWN BY: DL, AK	Civil & Structural Engineers		SHEET
CHECKED BY: AD	1088 BISHOP STREET #2506		C602
SUPV:	HONOLULU, HI 96803		29 of 29 SHEETS
DATE: 01/28/2021	Tel: 808-533-2092		

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