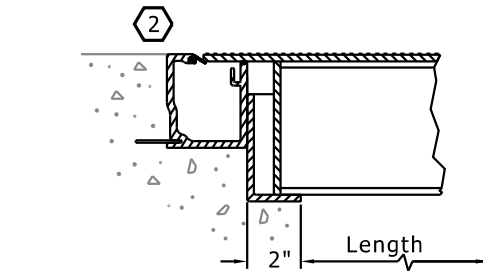


NOTE: DESIGNED TO WITHSTAND AASHTO H-20 WHEEL LOADINGS SUITABLE FOR USE IN OFF-STREET LOCATIONS WHERE NOT SUBJECT TO HIGH DENSITY TRAFFIC



CHANNEL SUPPORT SHELF MUST BE SUPPORTED BY CONCRETE OR STEEL TO CARRY H-20 LOADING

SECTION B-B

DESIGN NOTES

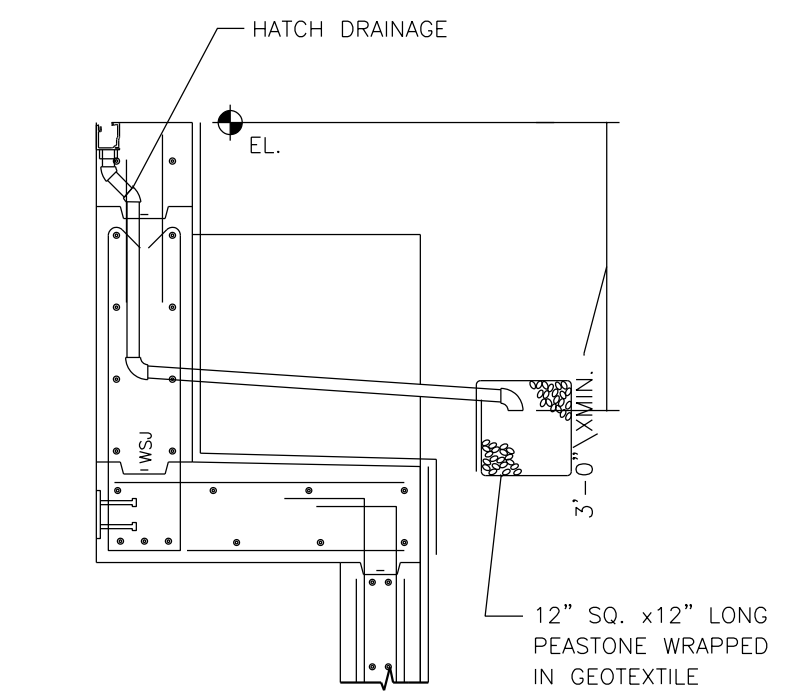
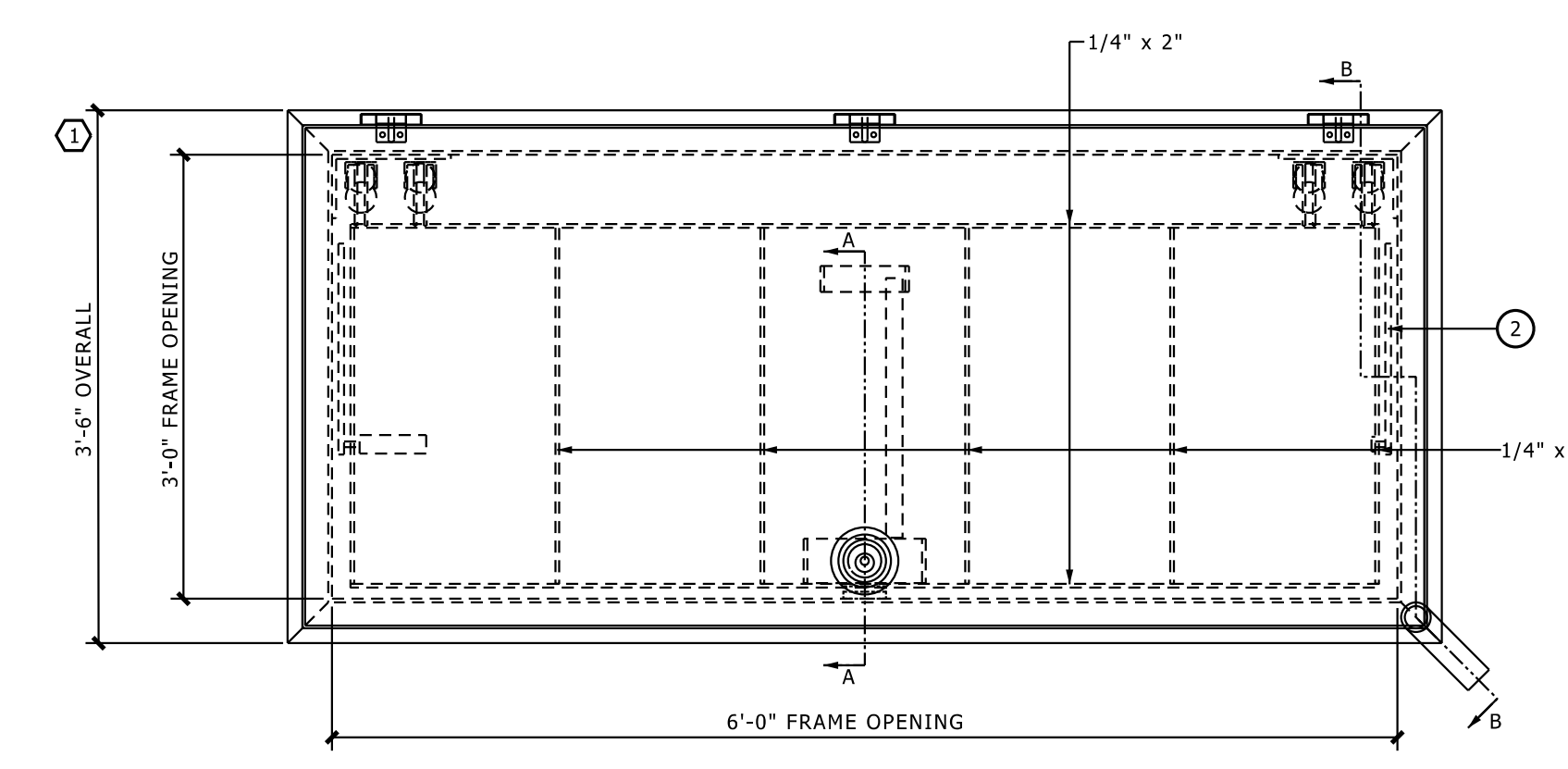
- ① ENGINEER TO DETERMINE WHETHER HATCH LENGTH DIMENSION CAN BE REDUCED, BASED ON ACCESS CLEARANCE REQUIRED FOR REPLACEMENT EXPANSION JOINTS INSTALLED AT THE TUNNEL SEGMENT LOCATION.
- ② HATCH & FRAME MUST BE SET FLUSH OR SLIGHTLY RECESSED (+0, -1/8) TO AVOID SNOW PLOW BLADE INTERFERENCE.

KEY NOTES (Typical)

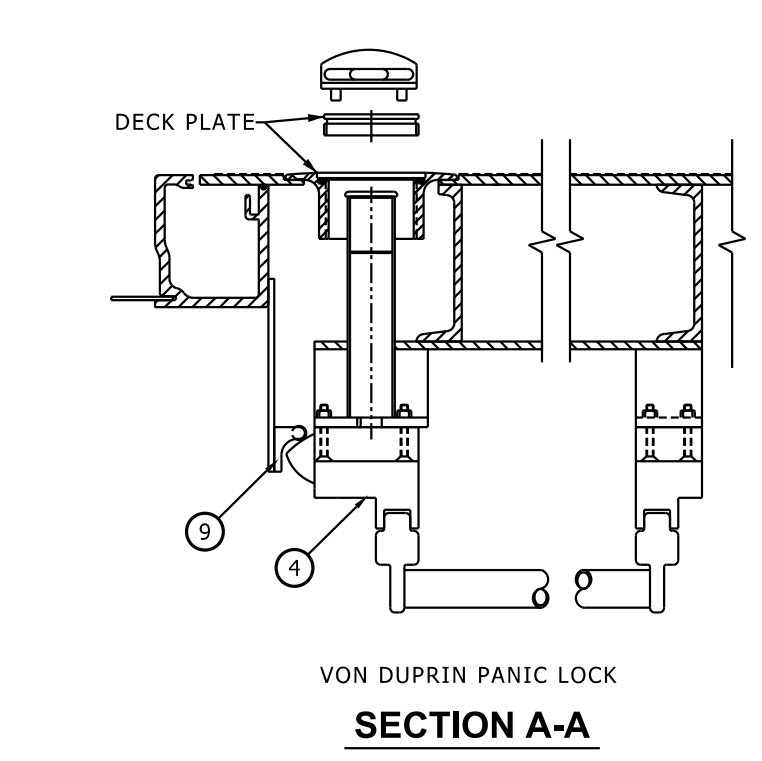
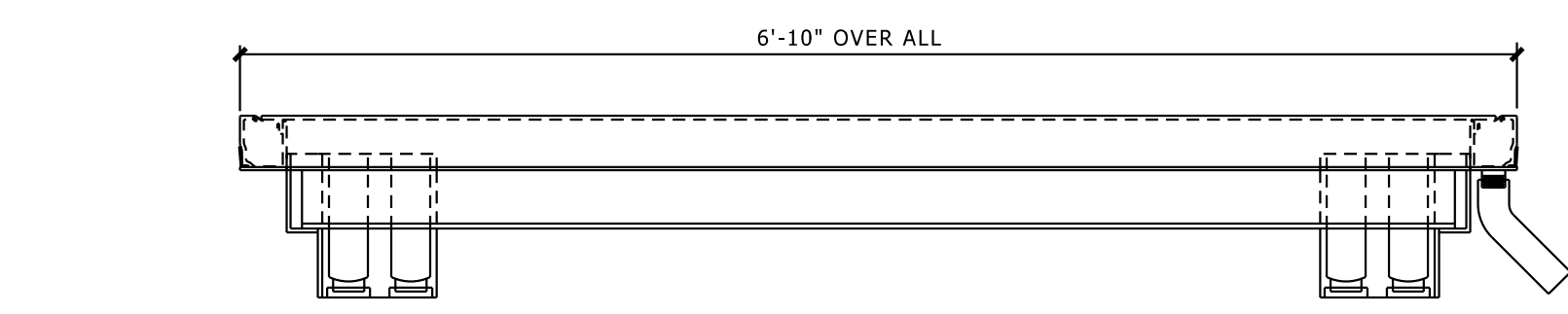
- ① BILCO HEAVY DUTY FORGED STAINLESS STEEL HINGES WITH STAINLESS STEEL PINS
- ② STAINLESS STEEL GUIDE ARM
- ③ 1-1/2" DRAIN COUPLING
- ④ VON DUPRIN 88NLS4 PANIC LOCK (KEYED TOPSIDE & ALIKE) W/ BEST 1E72 RIM CYLINDER W/ REMOVABLE CORE
- ⑤ CONTINUOUS EPDM DEBRIS GASKET
- ⑥ BILCO STAINLESS STEEL AUTOMATIC LOCK OPEN ARM
- ⑦ 1/4" ALUMINUM DIAMOND PATTERN PLATE COVER
- ⑧ BILCO 1/4" ALUMINUM CHANNEL FRAME WITH RECESSED ANCHORS
- ⑨ STAINLESS STEEL LOCK STRIKE
- ⑩ STAINLESS STEEL SPRING LIFTING MECHANISM

INSTALLATION NOTES (Typical)

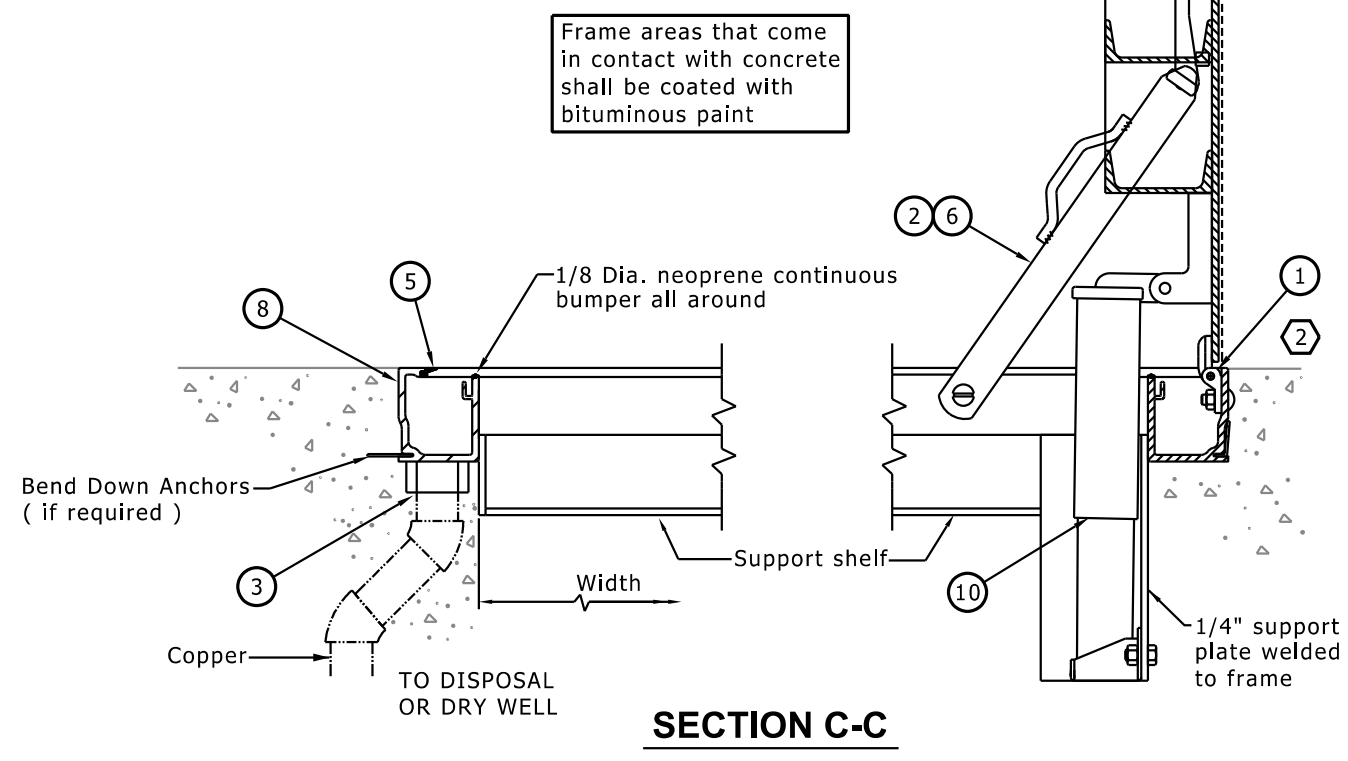
USE CAUTION. COVER IS SPRING LOADED. DO NOT REMOVE SAFETY SHIPPING BOLT UNTIL UNIT IS TO BE INSTALLED AND IN NORMAL HORIZONTAL OPERATING POSITION.
BE SUBE UNIT IS SET ON SLIGHT PITCH TOWARD DRAIN CORNER.
BEFORE ANCHORING IN PLACE OPEN AND CLOSE DOOR. CHECK TO SEE THAT THE DOOR IN THE CLOSED POSITION RESTS ON THE FRAME ALL AROUND. IF NOT, SHIM UNDER THE FRAME AT THE PROPER CORNER.
DO NOT REDUCE 1 1/2" DRAIN PIPE TO DISPOSAL SYSTEM.
BEND DOWN ANCHORS IF REQUIRED.



HATCH DRAINAGE SECTION
NOT TO SCALE



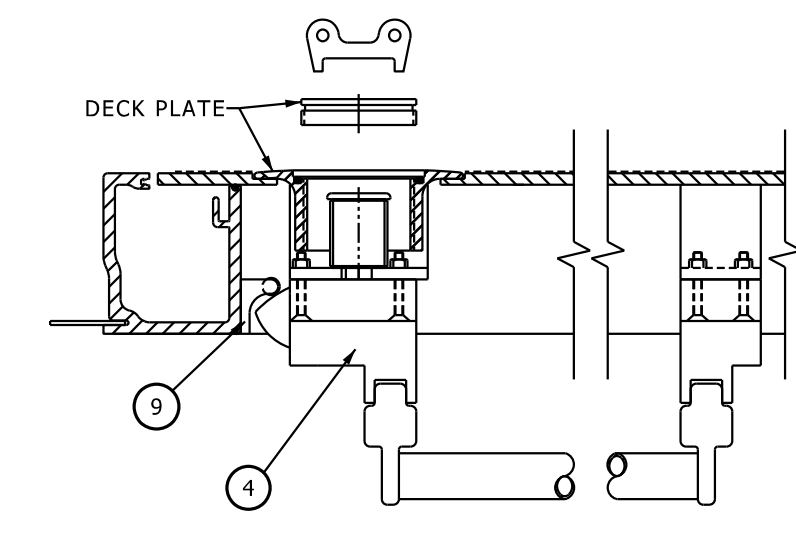
SECTION A-A



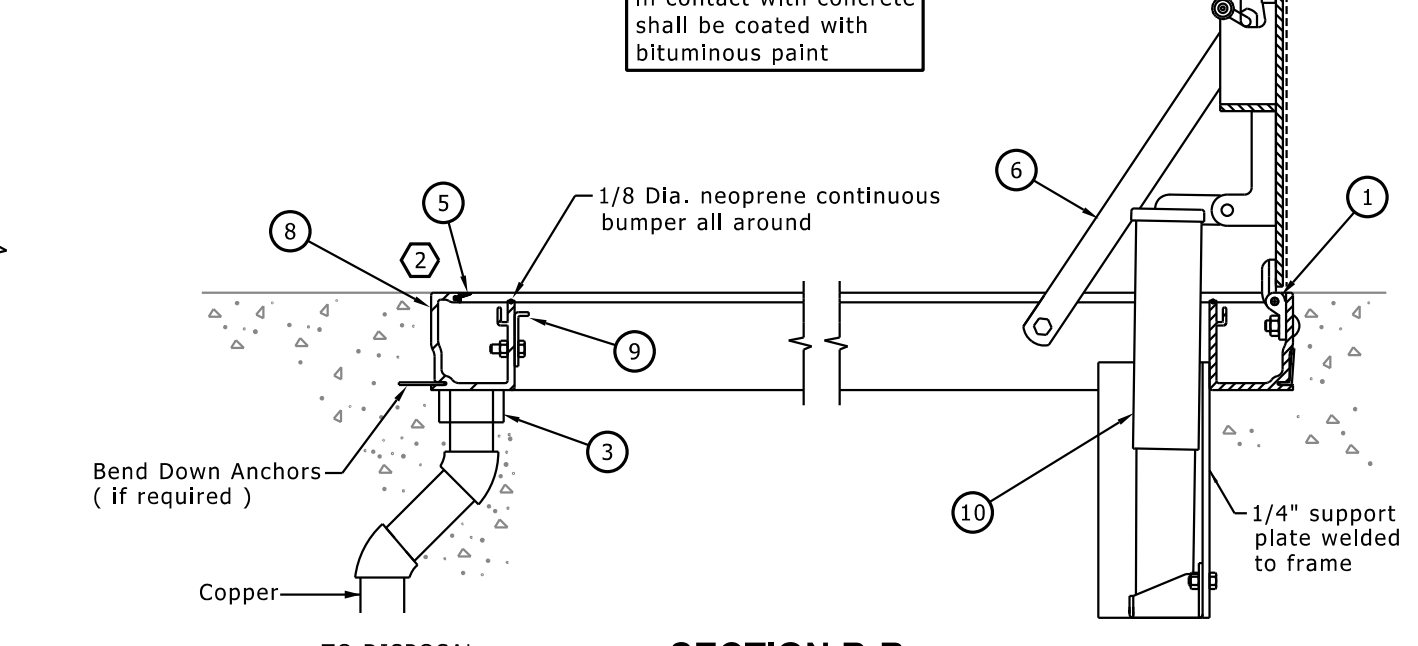
SECTION C-C

SIDEWALK/VAULT (H2O) DOOR DETAIL
NOT TO SCALE

- (1) FOR USE IN AREAS SUBJECT TO VEHICULAR TRAFFIC, INCLUDING OVER SIDEWALK AND HARDSHAPED AREAS OF PLAZAS.
- (2) VERIFY SIZE OF DOOR WITH TUNNELS MANAGER FOR EACH PROJECT AND EACH LOCATION.



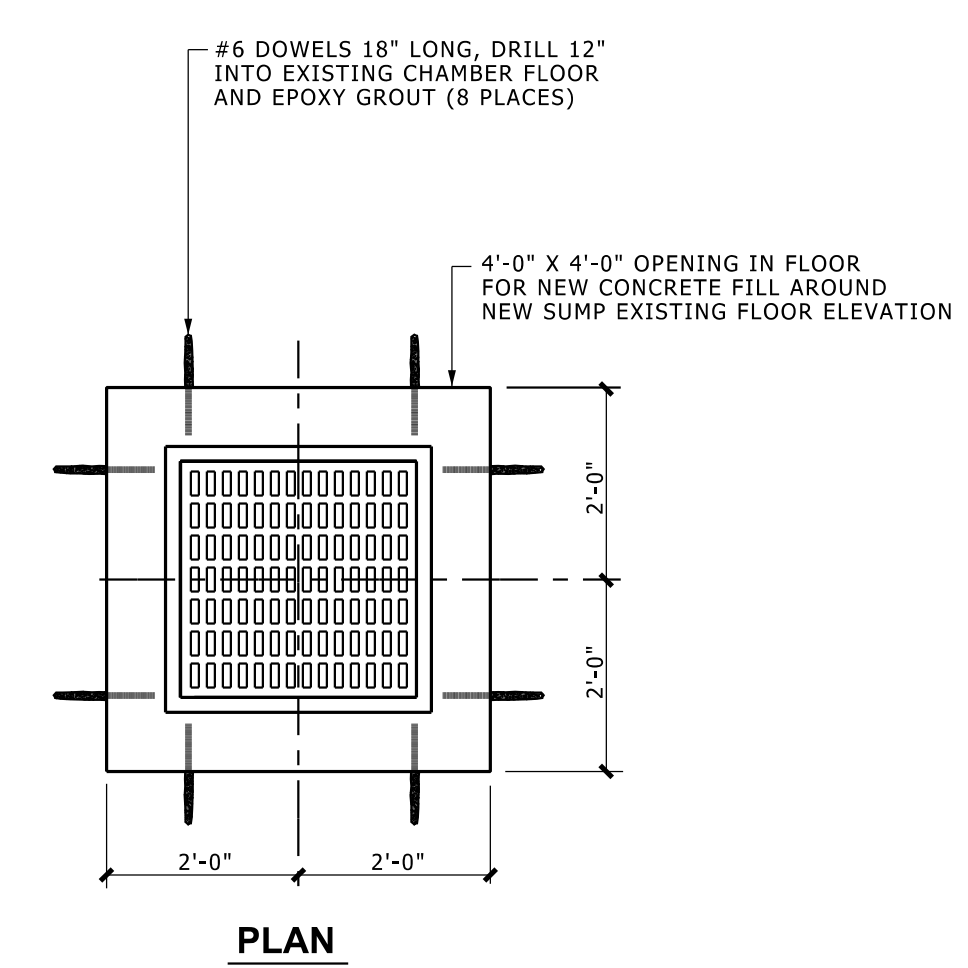
SECTION A-A



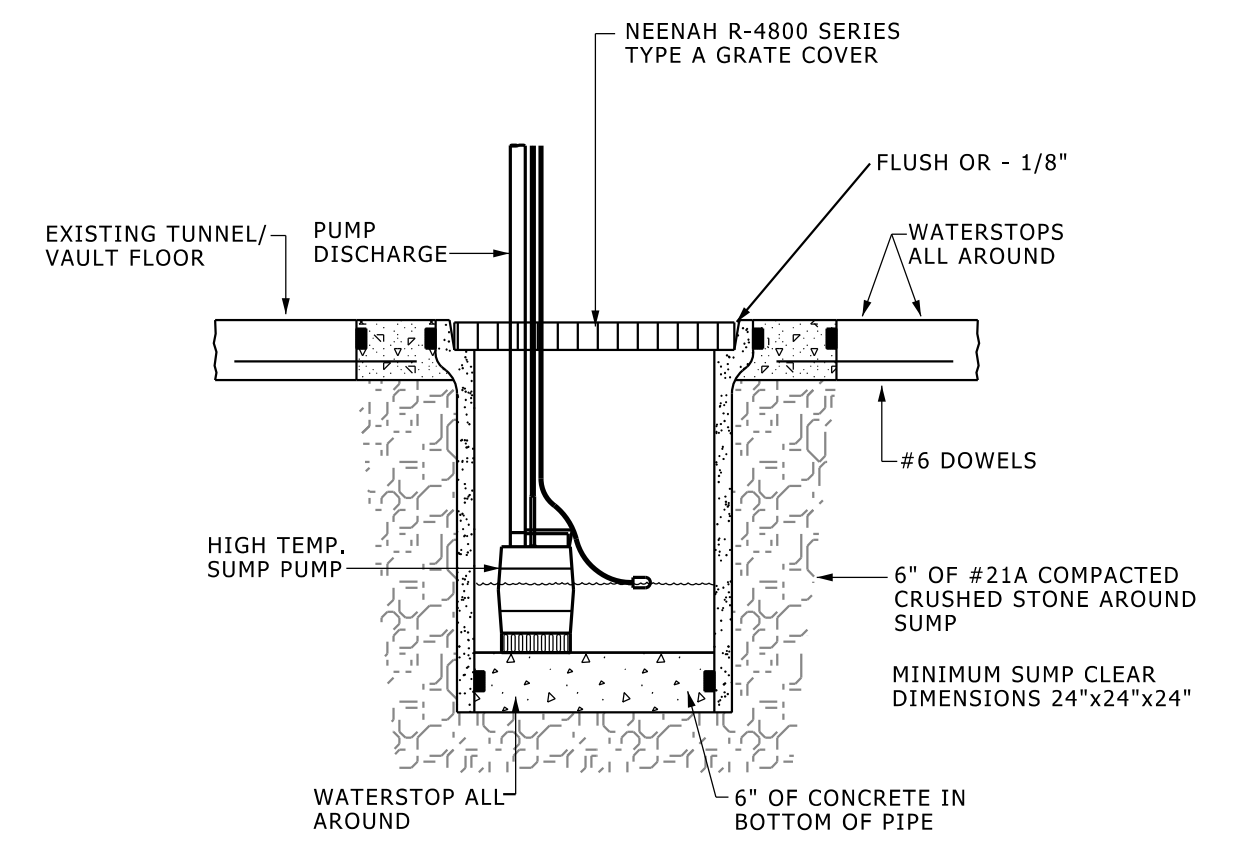
SECTION B-B

SIDEWALK/VAULT DOOR DETAIL
NOT TO SCALE

- (1) FOR USE IN AREAS WHERE THERE IS NO POSSIBILITY OF VEHICULAR TRAFFIC OVER THE HATCH.
- (2) VERIFY SIZE OF DOOR WITH TUNNELS MANAGER FOR EACH PROJECT AND EACH LOCATION.
- (3) EVALUATE FOR EACH INSTALLATION IF EXISTING BUILT FACTORS DO NOT ALLOW ACCESS FOR LONGER PIPE LENGTHS, CONSIDER REDUCING DOOR LENGTH. MAINTAIN 36" WIDE FRAME OPENING.



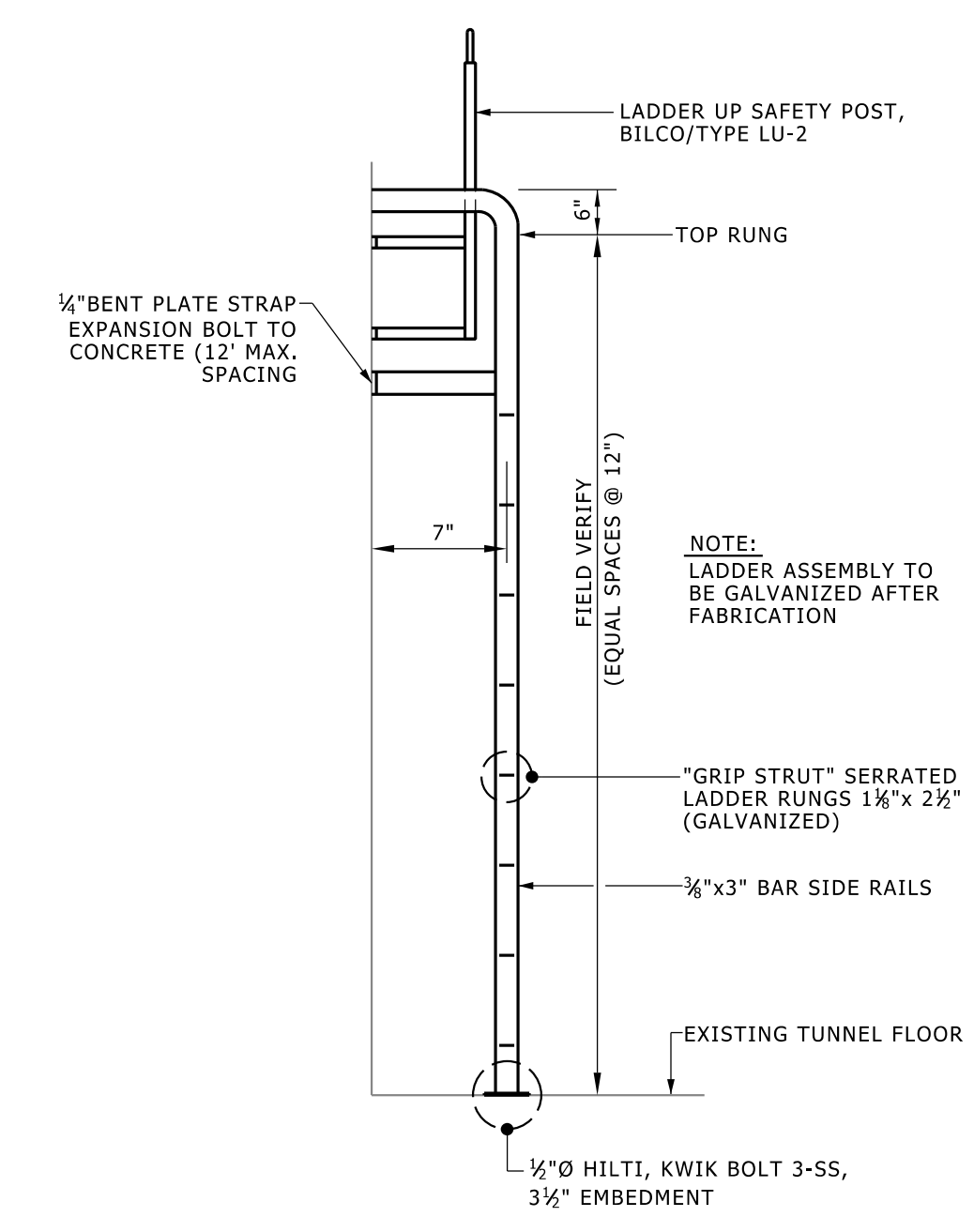
NEW SUMP IN EXISTING FLOOR DETAIL
SCALE: 1/2" = 1'-0"



HIGH TEMPERATURE SUMP PUMP SCHEDULE								
MARK	SERVICE	PUMPS		MOTORS		MOTOR ELECTRICAL REQUIREMENTS		
		GPM	HEAD	HP	RPM	VOLTS	PH	HZ
SP-1								

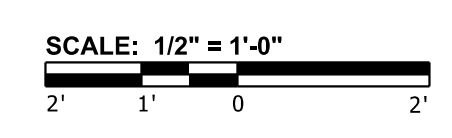
BASIS OF DESIGN: GRUNDFOS UNILIFT AP12

SUMP PUMP DETAIL
NO SCALE



FOR ALL LADDERS USED IN THE TUNNELS AND TUNNEL VAULTS.

VERTICAL LADDER DETAIL
SCALE: 1/2" = 1'-0"



Tom Girard
U OF M DESIGN SUPERVISOR
APPROVED BY
AEC - Architecture & Engineering
REPRESENTING
AF/BB WPG
DRAWN BY PROJECT LEAD
CWV/VSM
DESIGNED BY REVIEWED BY

MARK	ISSUED FOR/REVISIONS	DATE
	New Master	03/20/15
	Tunnel Group Revision	08/09/12

Tunnels

Tool Kit

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Ann Arbor, MI

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U OF M PROJECT NO. BUILDING NO.

Typical Sections and Details for New Construction

SHEET TITLE
Tunnels
SHEET NO. 10 OF 13 SHEET FILE NO. TK-8 04 15.dgn

TK-8