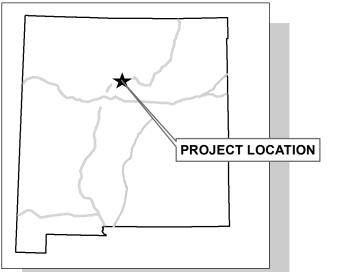
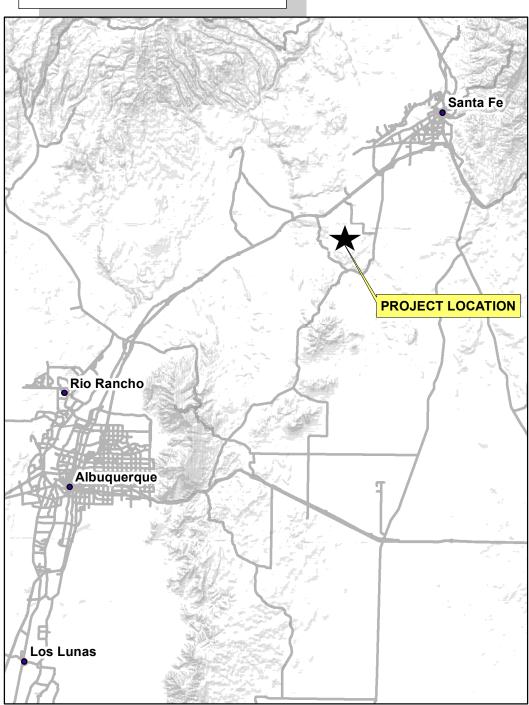
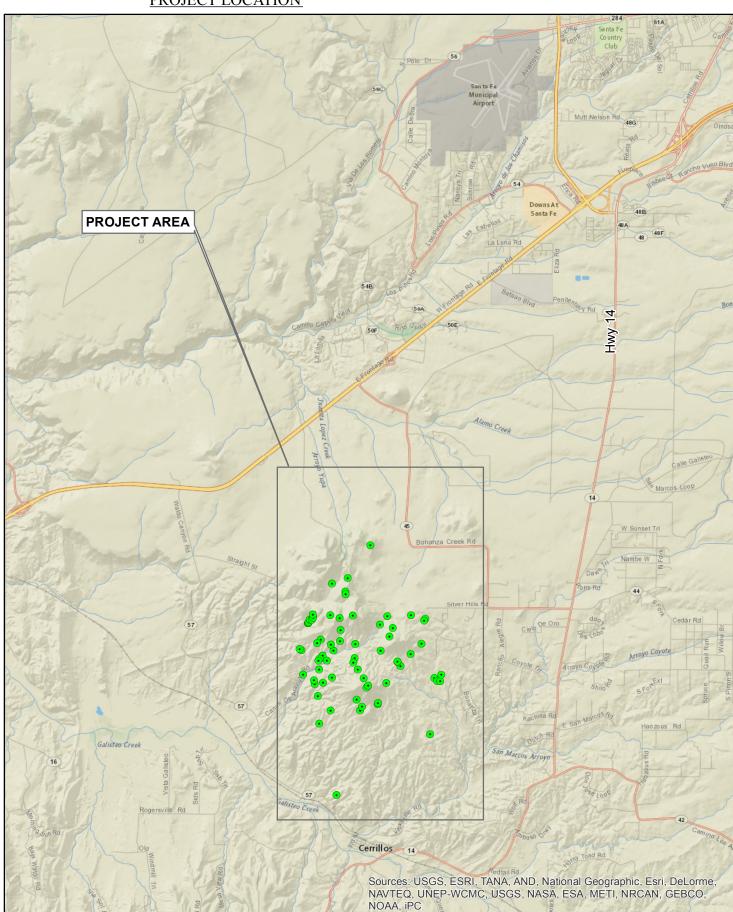
CERRILLOS CENTRAL/BONANZA CREEK MINE SAFEGUARD PROJECT - PHASE III





CERRILLOS, NEW MEXICO PROJECT LOCATION



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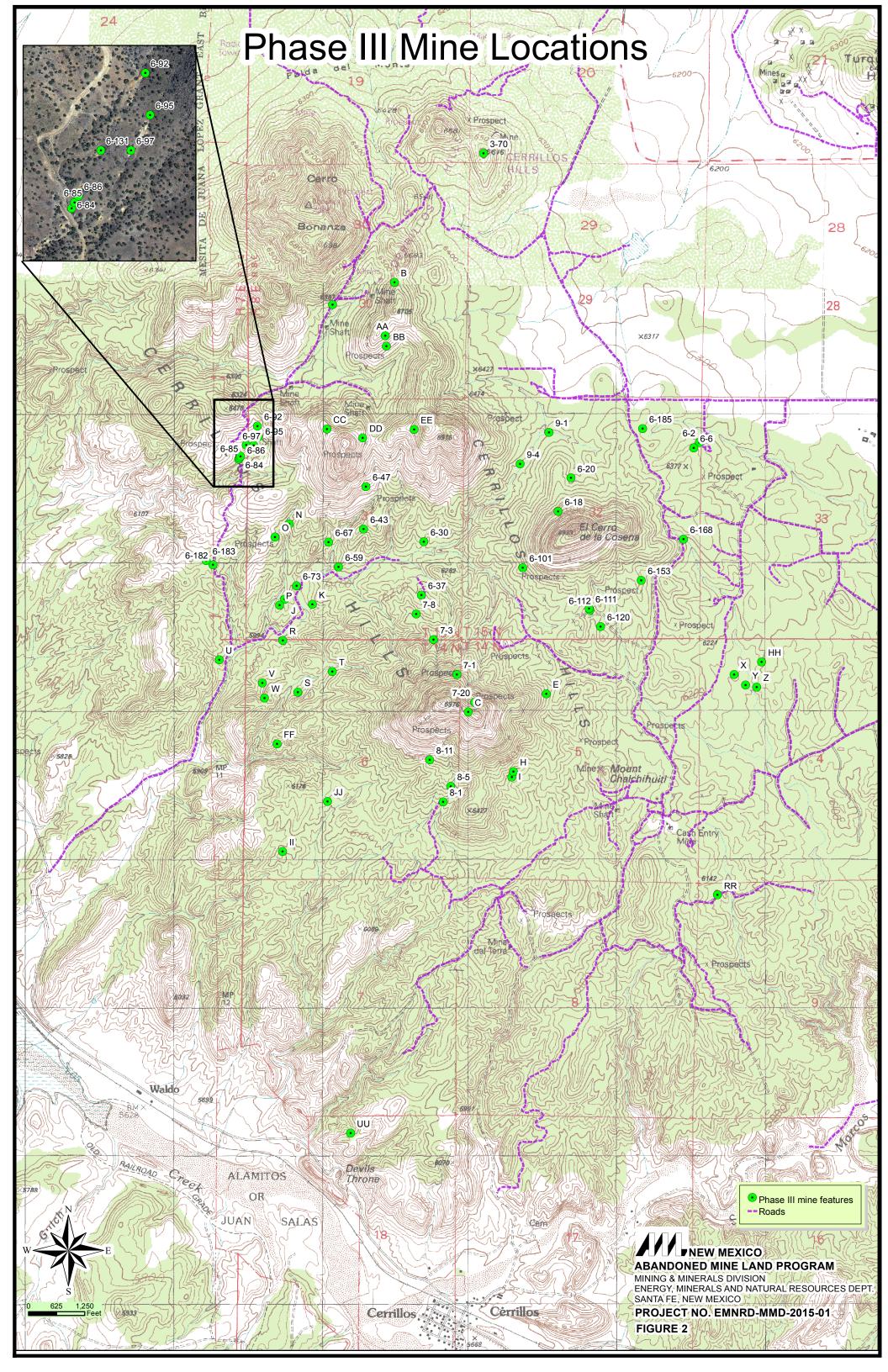
- 1. TITLE SHEET
- 2. SITE LOCATION MAP
- 3. FEATURE 6-30 CUPOLA CLOSURE
- 4. FEATURE 6-30 CUPOLA DETAILS
- 5. FEATURE 6-37 CUPOLA CLOSURE
- 6. FEATURE 6-37 CUPOLA DETAILS7. FEATURE 6-92 CULVERT WITH BAT GATE
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- 13. STEEL MESH CLOSURE
- 14. WELDED WIRE FENCE DETAILS
- 15. METAL PICKET FENCE DETAILS
- 16. TYPICAL SHAFT BACKFILL DESIGN
- 17. TYPICAL ADIT BACKFILL DESIGN

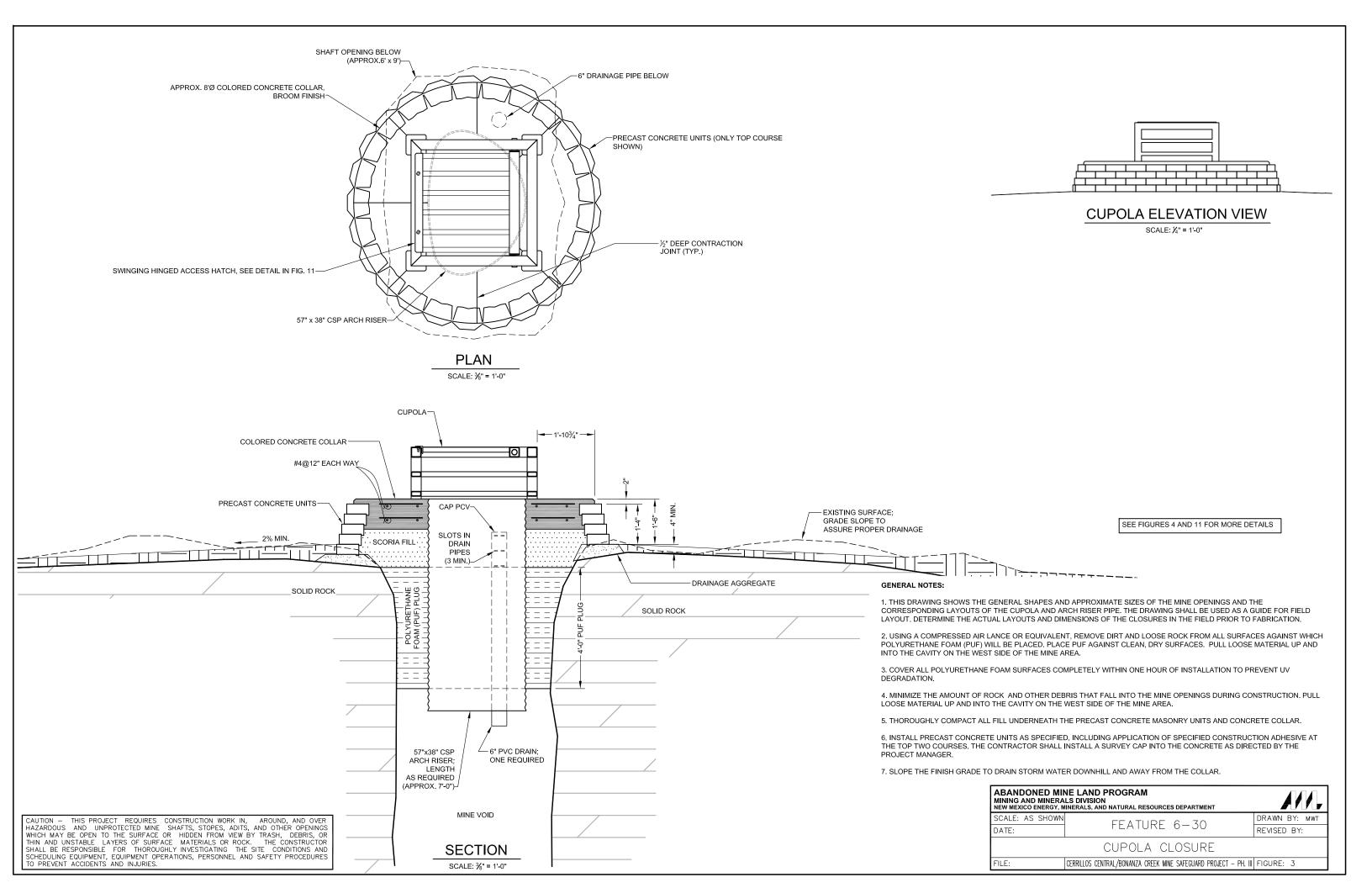


ABANDONED MINE LAND PROGRAM

MINING & MINERALS DIVISION ENERGY, MINERALS AND NATURAL RESOURCES DEPT. SANTA FE, NEW MEXICO

PROJECT NO. EMNRD-MMD-2015-01

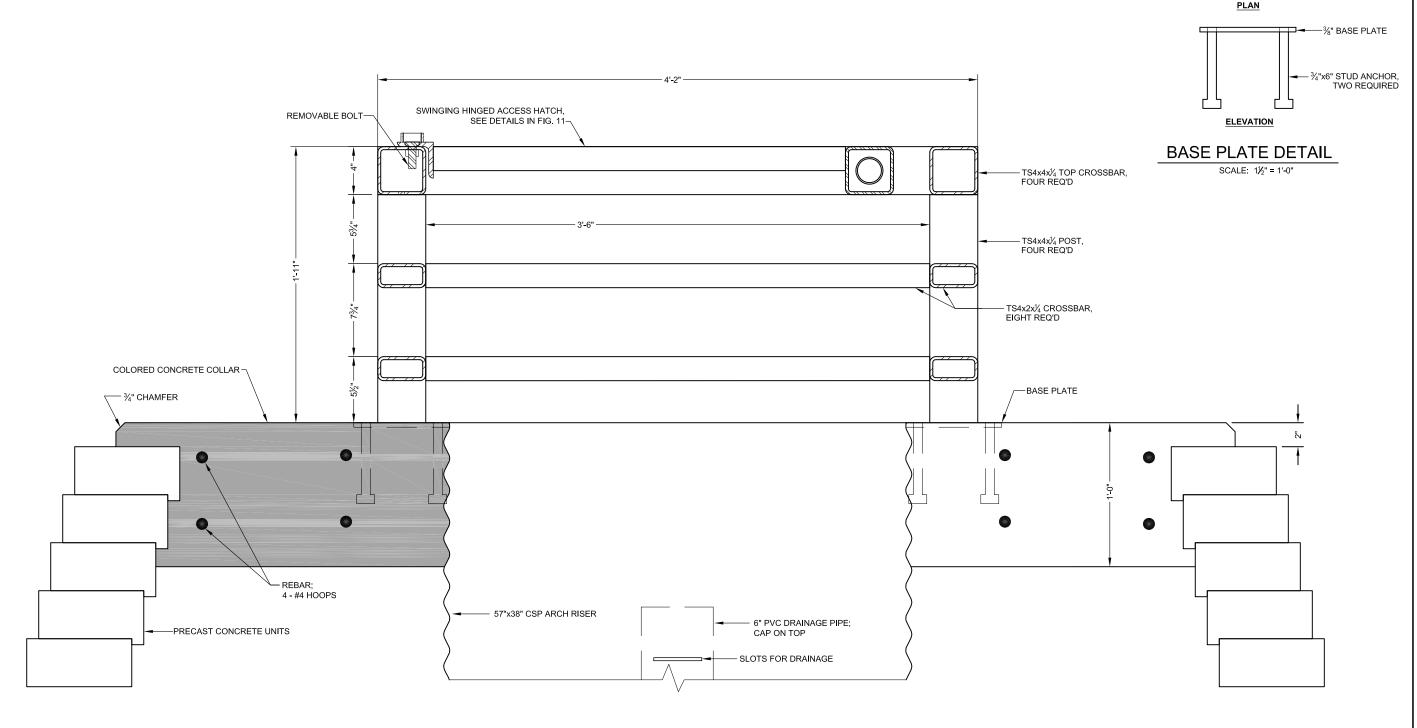




GENERAL NOTES:

CAUTION — THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER WHAT AROUND, AND UNPROPORTED MINE SHAPES, SUPES, ADITS, AROUND, ON OHER OPENINGS WHICH MAY BE OPEN TO THE SUPENACE OF HUDDER HOW MEN BY TRASH, DEBRIS, OF THIS AND MATERIALS OF ROCK. THE CONSTRUCTION TO THE CONTROL OF THE

- 1. STEEL PLATES, SHAPES AND BARS SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE CUPOLA AND HATCH ASSEMBLY TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. PLIES OF MATERIAL SHALL BE TIGHT TO PREVENT THE INCURSION OF MOISTURE. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
- 2. AS AN ALTERNATIVE TO THE DRAINAGE PIPE, THE CONTRACTOR MAY OPT TO DRILL FOUR $\frac{1}{4}$ "-Ø DRAINAGE HOLES IN THE CSP DIRECTLY ABOVE THE TOP LEVEL OF POLYURETHANE FOAM AND THOROUGHLY COAT WITH A ZINC-RICH PAINT.
- 3. THE CONTRACTOR SHALL INSTALL THE SURVEY CAP INTO THE CONCRETE AS DIRECTED BY THE PROJECT MANAGER.



TYPICAL SECTION OF CUPOLA

SCALE: 11/2" = 1'-0"

-½" CHAMFER (TYP.)

-%" BASE PLATE

CORNER COLUMN,

DRAWN BY: MWT

REVISED BY:

TS4x4x1/4

STUD ANCHOR BELOW, TWO REQUIRED

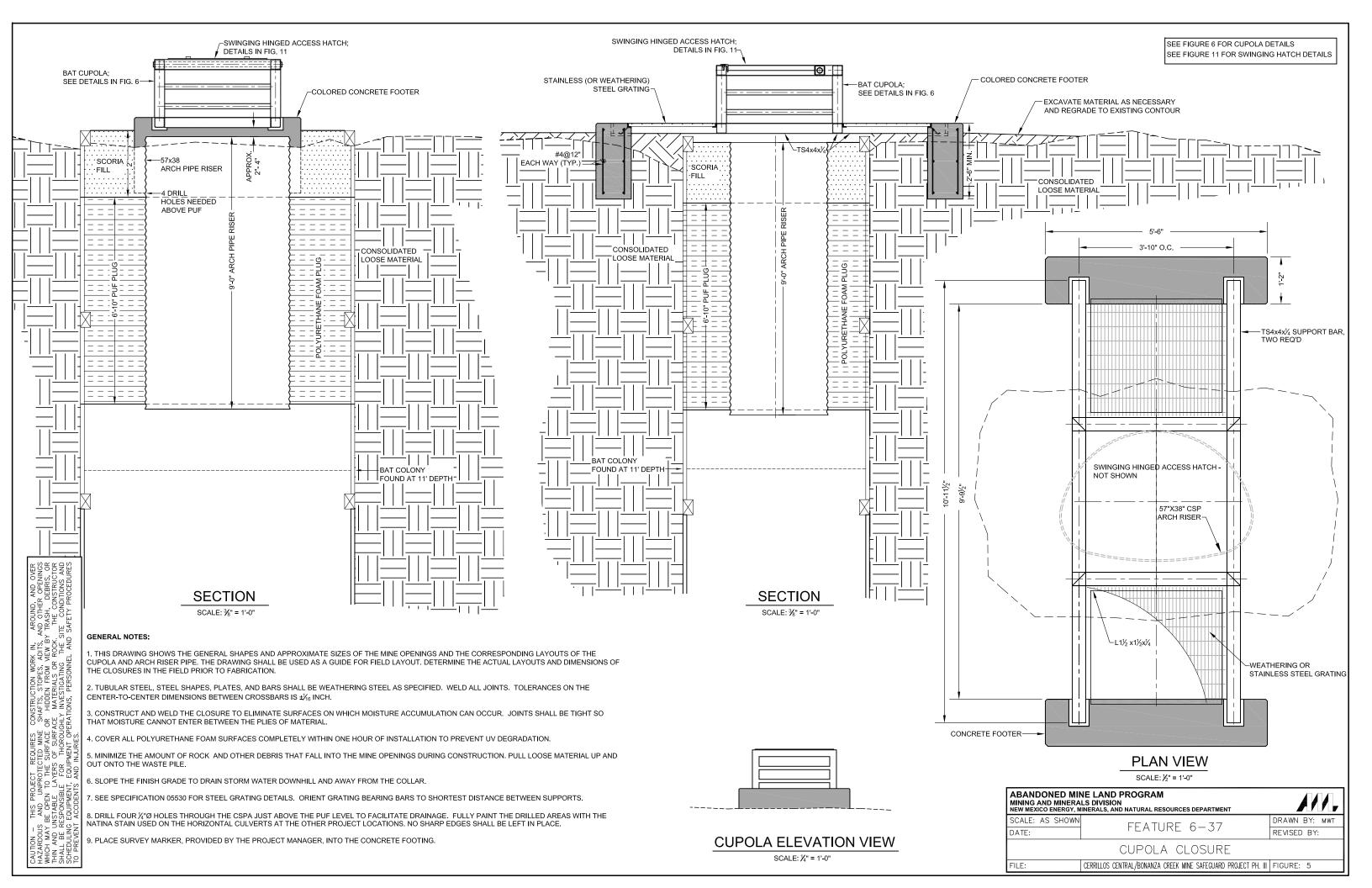
ABANDONED MINE LAND PROGRAM

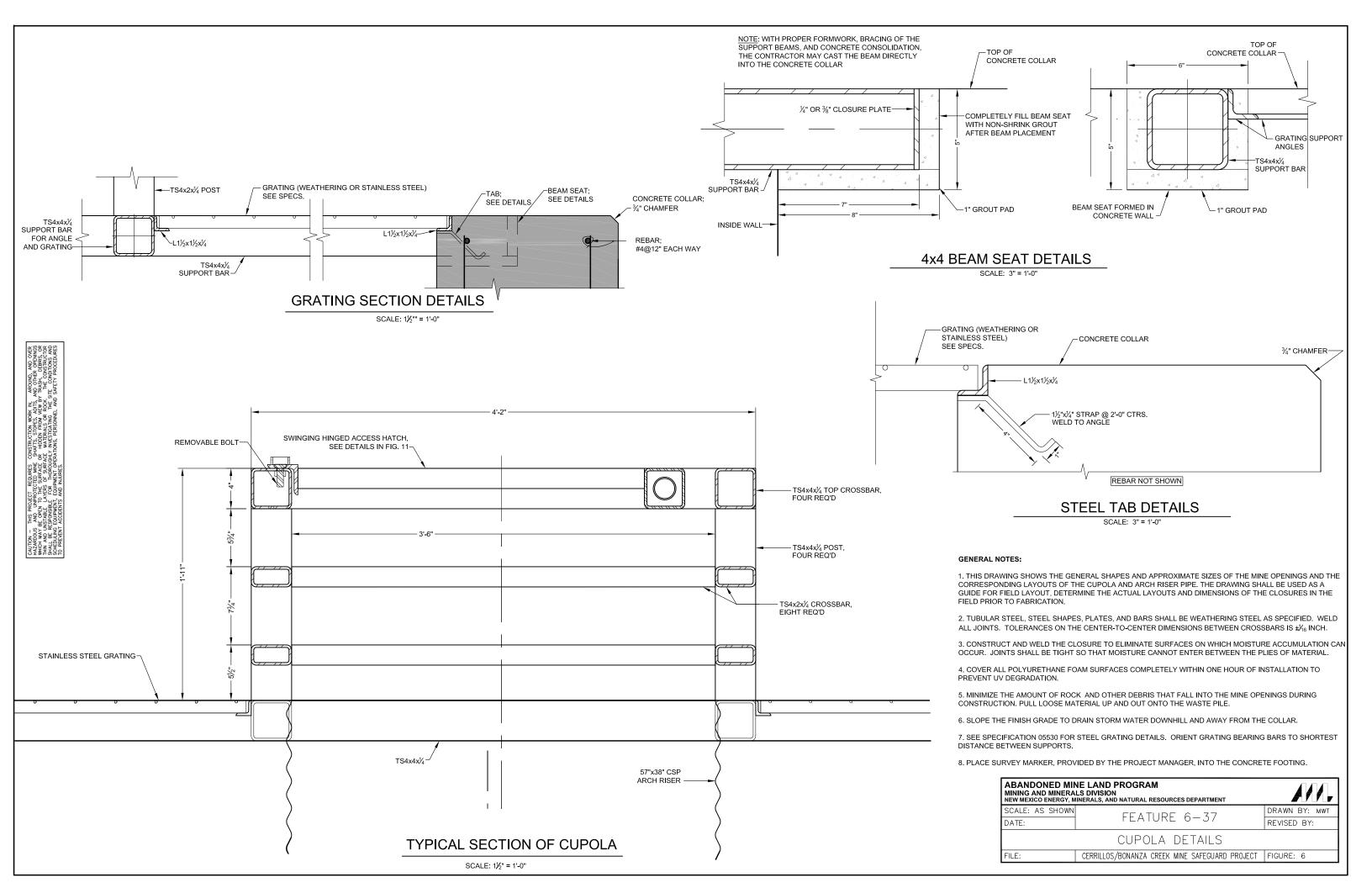
MINING AND MINERALS DIVISION
NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT

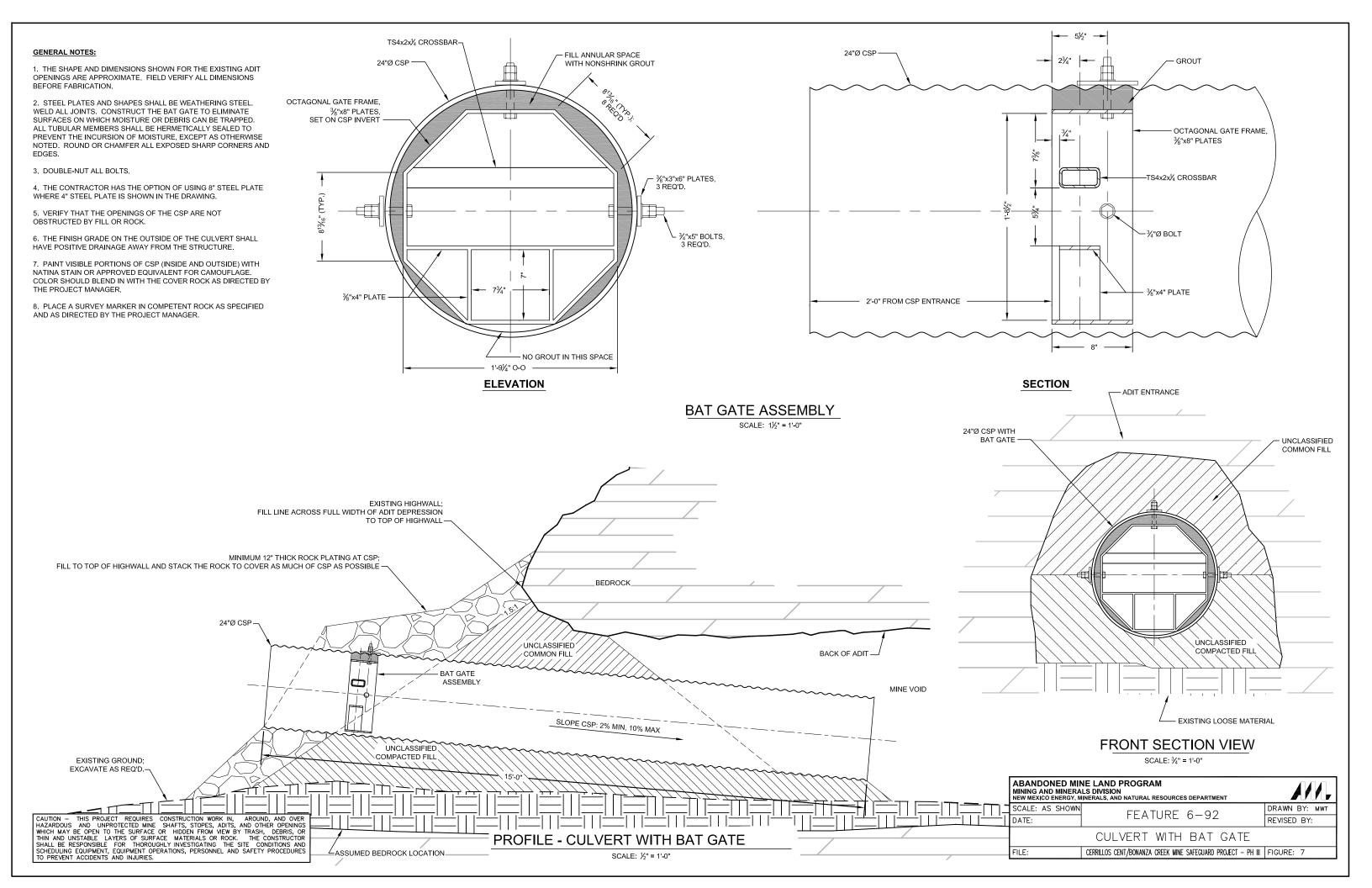
FEATURE 6-30

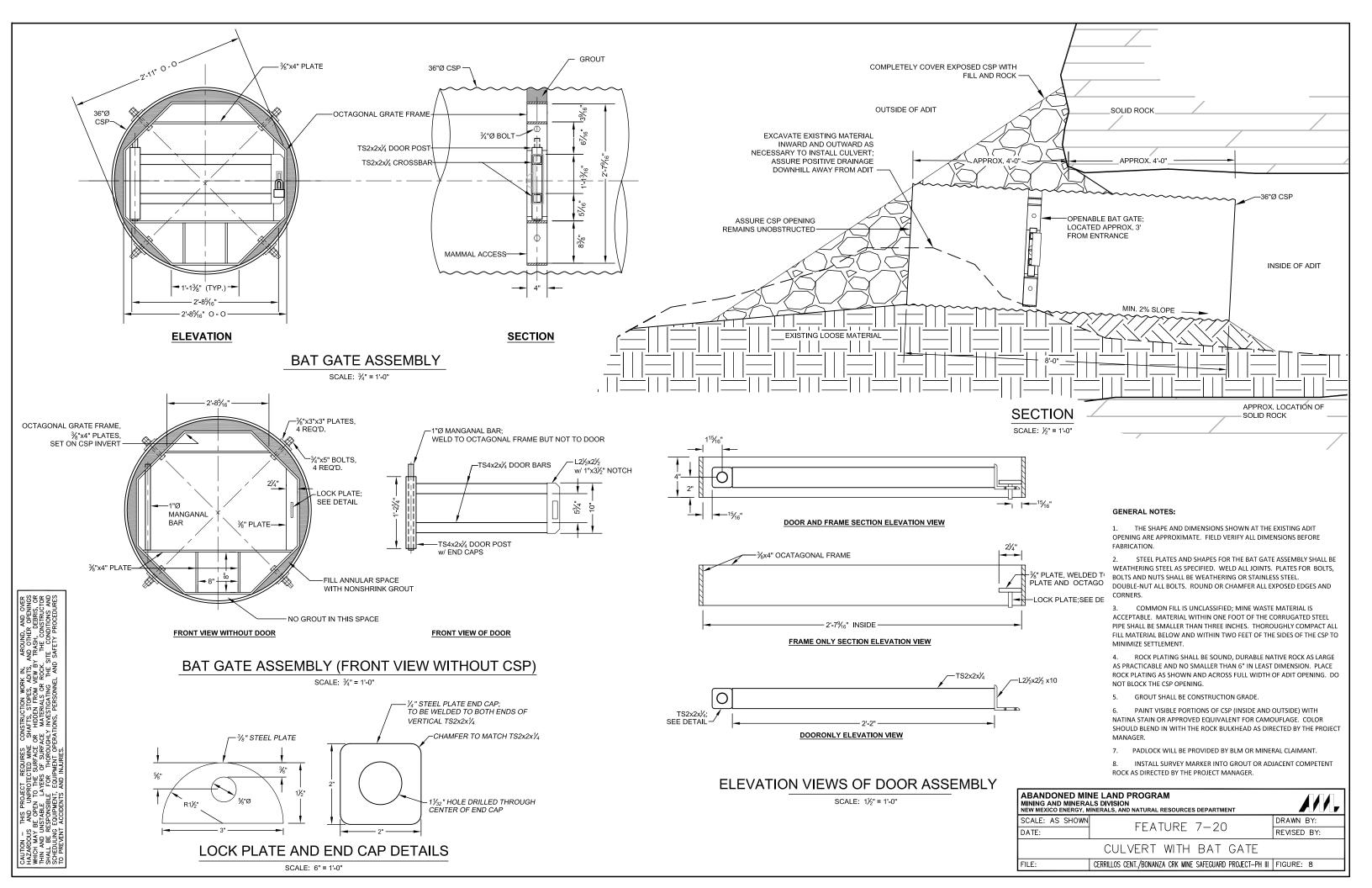
CUPOLA DETAILS

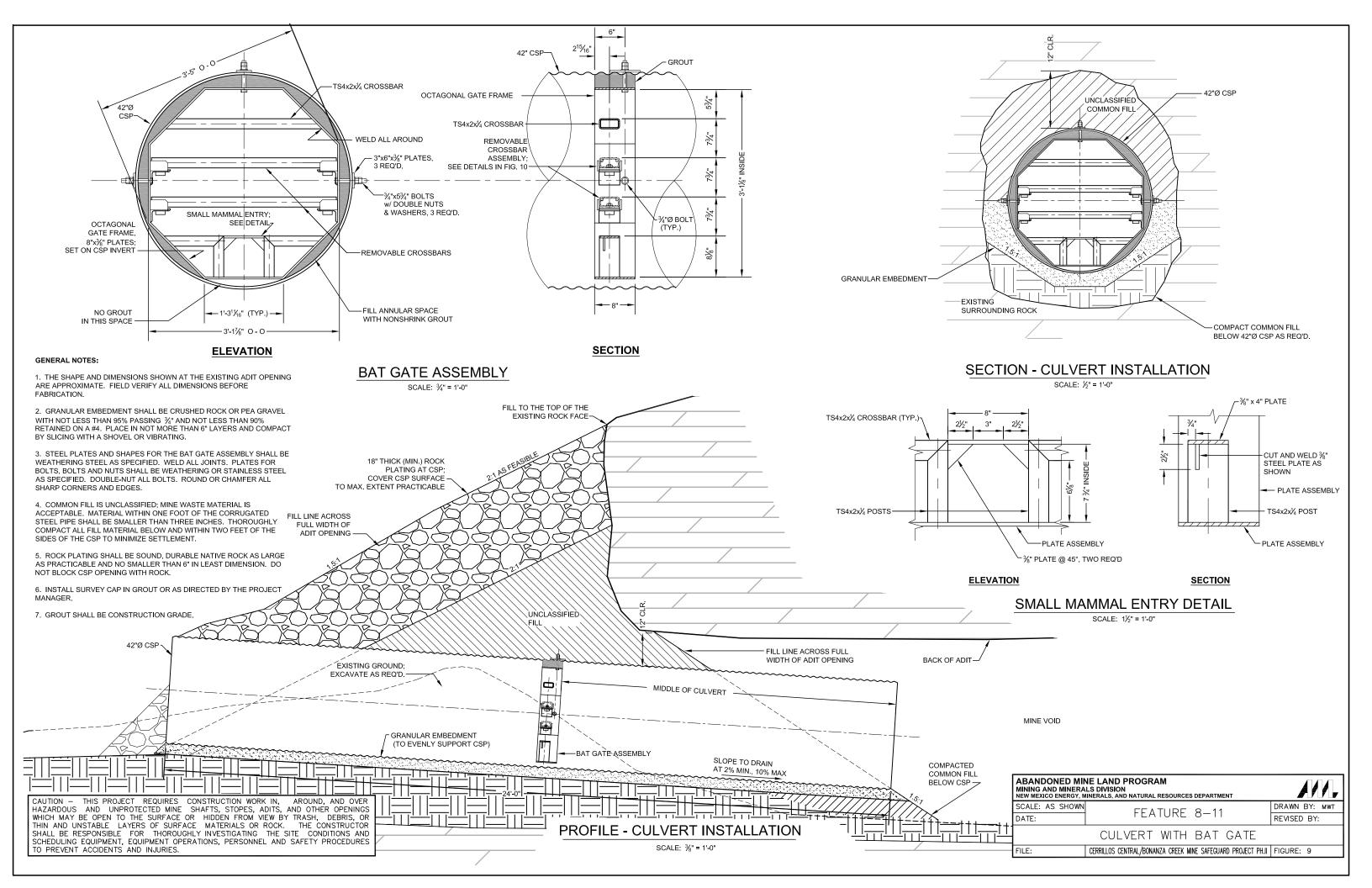
CERRILLOS CENT./BONANZA CREEK MINE SAFEGUARD PROJECT Ph. III FIGURE: 4

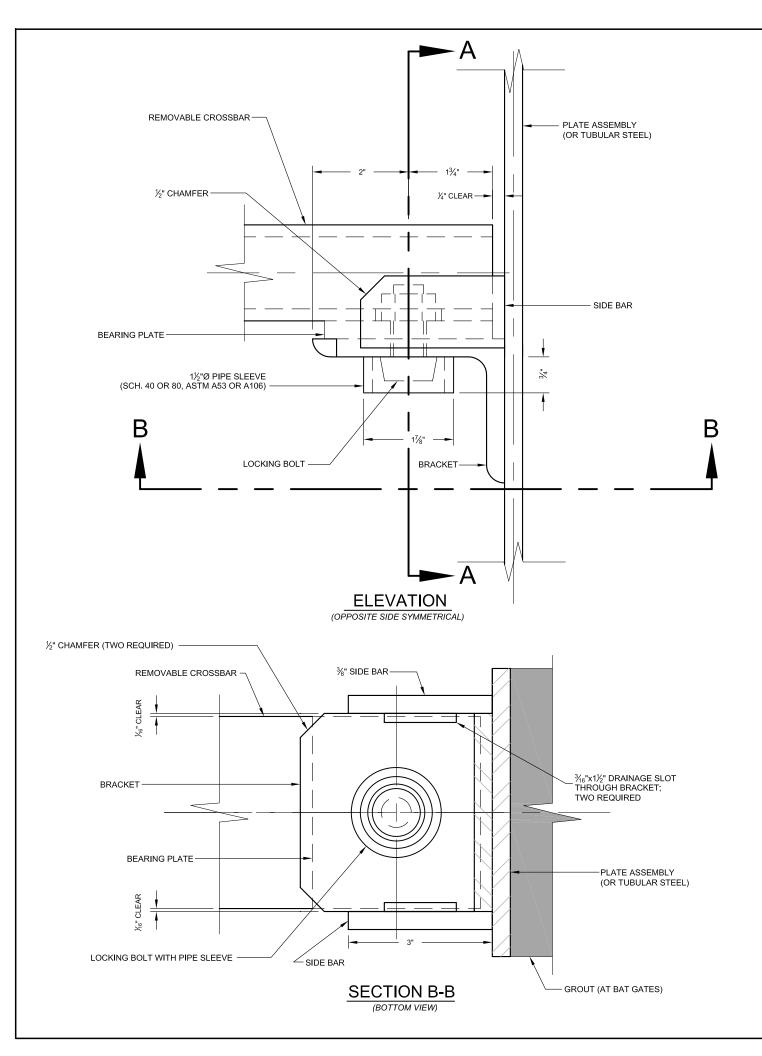


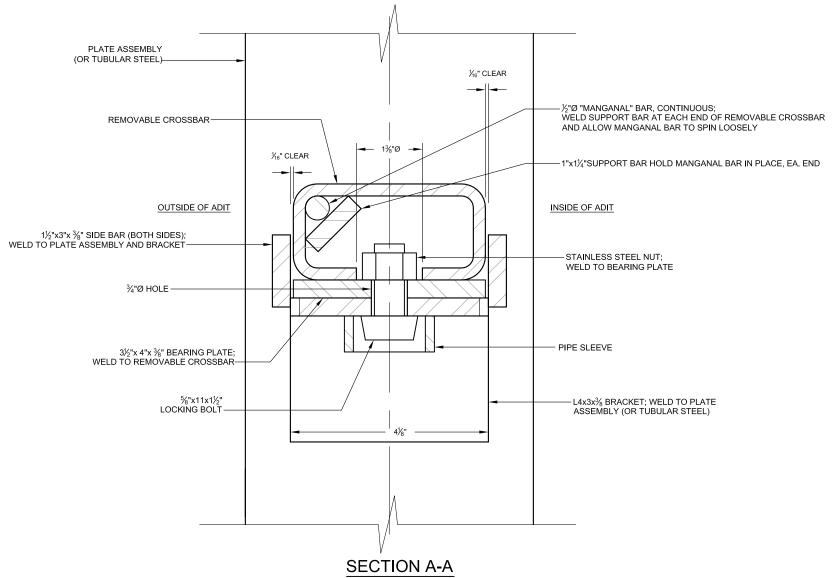








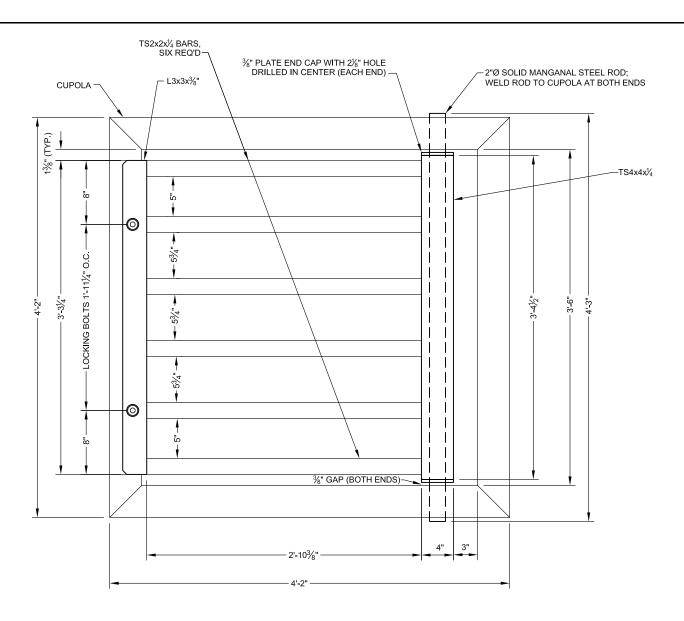




GENERAL NOTES:

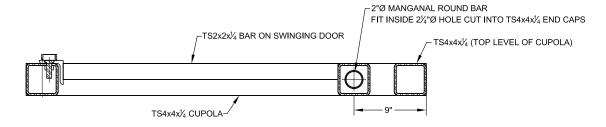
- 1. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS, EXCEPT AS OTHERWISE INDICATED. CONSTRUCT THE LOCK TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. JOINTS SHALL BE TIGHT SO THAT MOISTURE CANNOT ENTER BETWEEN THE PLIES OF MATERIAL. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
- 2. "MANGANAL" BARS SHALL BE HIGH MANGANESE STEEL WITH 12% TO 14% MANGANESE. EACH BAR SHALL EXTEND THE FULL LENGTH OF EACH REMOVABLE CROSSBAR.
- 3. ALONG THE BOTTOM OF EACH REMOVABLE CROSSBAR, DRILL $\frac{1}{2}$ " DIAMETER HOLES AT 1'-0" O.C.
- 4. THE CONTRACTOR SHALL PROVIDE THE NUTS (%"Ø 11 UNC CLASS 2A THREAD). THE PROJECT MANAGER WILL SUPPLY THE LOCKING BOLTS.
- $5.\,$ COAT THE THREADS OF THE LOCKING BOLTS WITH LPS1 LUBRICANT AND INSTALL FIRMLY WITH 50 TO 75 POUNDS OF TORQUE.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT				
SCALE: 6"=1'-0"	FFATURF 8—11	DRAWN BY: JAK		
DATE:	FEATURE 0-11	REVISED BY: MWT		
REMOVABLE CROSSBAR LOCK DETAIL				
FILE:	CERRILLOS CENTRAL/BONANZA CREEK MINE SAFEGUARD PROJECT PH.III	FIGURE: 10		



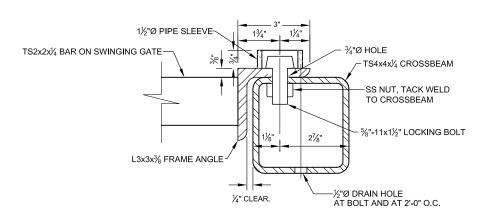
PLAN - FRAME FOR OPENABLE HATCH

SCALE: 1" = 1'-0"



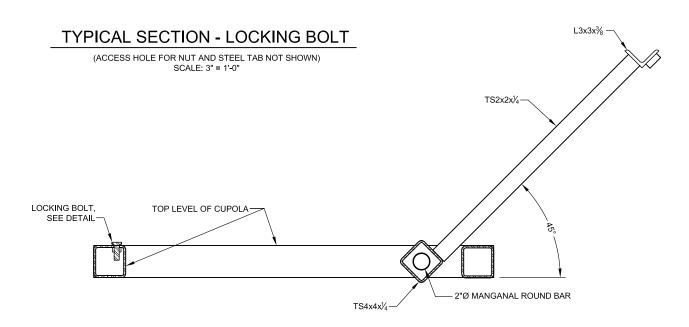
SECTION IN CLOSED POSITION

SCALE: 1" = 1'-0"



NOTES FOR LOCKING BOLTS:

- 1. FIRST DRILL AN $^{1}\text{$\%$}_{6}$ " HOLE THROUGH THE FRAME ANGLE.
- 2. THEN USE A 1 % " DRILL BIT TO MAKE A COUNTERBORE INTO THE TOP OF THE FRAME ANGLE THAT WILL FORM A BEARING SURFACE FOR THE BOLT HEAD. DRILL TO A DEPTH OF $\%_6$ " SO THAT THE TOP OF THE BOLT WILL BE SLIGHTLY ABOVE THE TOP OF THE ANGLE.
- 3. WHILE DRILLING THE COUNTERBORE, THE BIT SHALL NOT GO COMPLETELY THROUGH THE FRAME ANGLE. THE BOLT SEATING AREA SHALL BE ON THE ANGLE WHEN INSTALLED.
- 4. GREASE THREADS OF BOLTS AND INSTALL FIRMLY WITH 50 TO 75 POUNDS OF TORQUE.
- 5. THE PROJECT MANAGER WILL PROVIDE THE LOCKING BOLTS

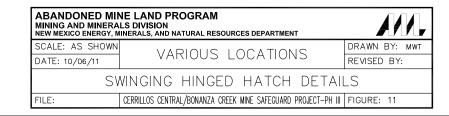


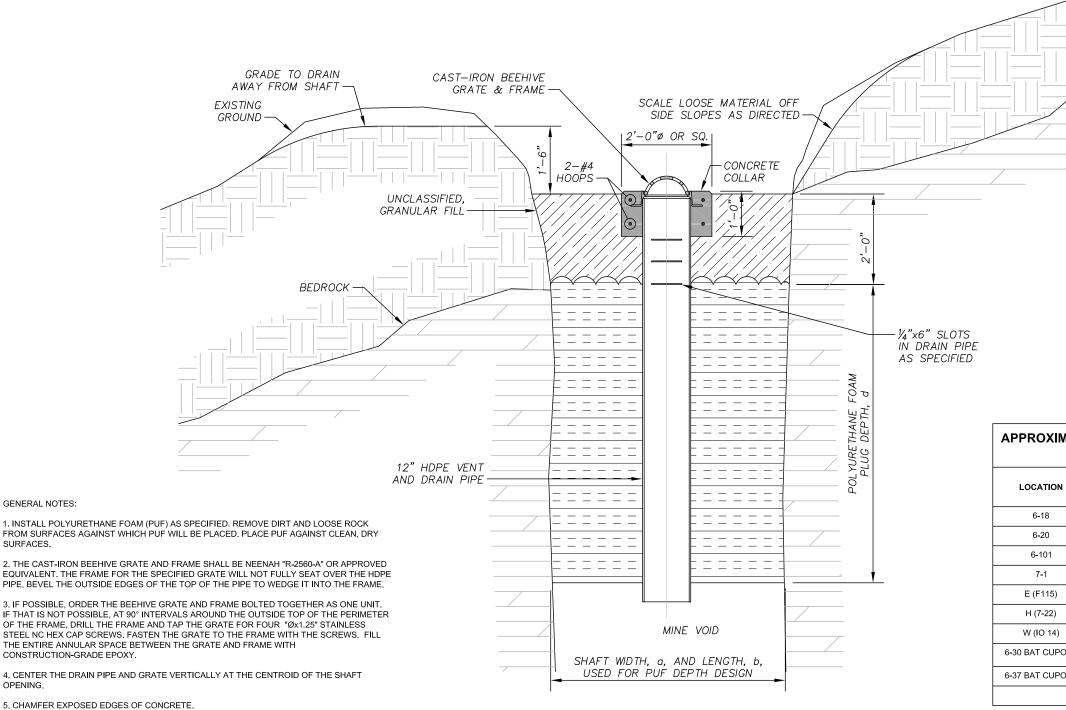
SECTION IN OPEN POSITION

SCALE: 1" = 1'-0"

GENERAL NOTES:

- 1. STEEL PLATES AND SHAPES SHALL BE WEATHERING STEEL. WELD ALL JOINTS. CONSTRUCT THE CLOSURE FRAME AND SWINGING HATCH TO ELIMINATE SURFACES ON WHICH MOISTURE OR DEBRIS CAN BE TRAPPED. PLIES OF MATERIAL SHALL BE TIGHT TO PREVENT THE INCURSION OF MOISTURE. ALL TUBULAR MEMBERS SHALL BE HERMETICALLY SEALED TO PREVENT THE INCURSION OF MOISTURE, EXCEPT AS OTHERWISE NOTED. ROUND OR CHAMFER ALL EXPOSED SHARP CORNERS AND EDGES.
- 2. AT EACH OF THE TWO REMOVABLE BOLT LOCATIONS, CUT A SMALL ACCESS HOLE THROUGH THE INSIDE FACE OF THE CROSSBEAM TO PLACE AND TACK WELD THE NUT. FOR DRAINAGE DRILL A ½"Ø HOLE THROUGH THE BOTTOM CENTER OF THE CROSSBEAM AT EACH ACCESS HOLE AND AT 2"-0" O.C. ALONG THE FULL LENGTH OF THE BEAM. THE PROJECT MANAGER WILL PROVIDE THE LOCKING BOLTS. THE CONTRACTOR SHALL PROVIDE THE NUTS (¾"Ø-11 UNC CLASS 2A THREAD). NUTS SHALL BE STAINLESS STEEL.





1. IF THE AVERAGE SHAFT WIDTH OR LENGTH AT THE BOTTOM OF THE PUF PLUG VARIES MORE THAN TEN PERCENT FROM THE STATED VALUES IN THIS TABLE, RECALCULATE THE DEPTH OF THE PUF PLUG IN ACCORDANCE WITH THE FOLLOWING FORMULA: d = 0.5a + 0.65b. RELOCATE THE BOTTOM OF

2. PRIOR TO PLACING THE PUF PLUG, INFORM THE PROJECT ENGINEER OF ANY PROPOSED CHANGES TO THE DEPTHS OF THE PUF PLUG FOR HIS REVIEW AND APPROVAL.

APPROXIMATE SHAFT DIMENSIONS AND CORRESPONDING PUF PLUG DESIGN **DEPTHS**

LOCATION	a, SHAFT WIDTH (FT.)	b, SHAFT LENGTH (FT.)	d, PUF PLUG DEPTH (FT.)	APPROX. PUF VOLUME (C.Y.)
6-18	5.0	9.0	8.5	14.2
6-20	7.0	11.0	10.7	30.6
6-101	5.0	8.0	7.7	11.5
7-1	5.0	9.0	8.5	14.2
E (F115)	9.0	10.0	11.0	36.7
H (7-22)	6.0	9.0	9.0	18.0
W (IO 14)	4.0	8.0	7.2	8.6
6-30 BAT CUPOLA		PUF for CUPOLA		
6-37 BAT CUPOLA	PUF for CUPOLA			35
			TOTAL	185

TYPICAL SECTION

CONSTRUCTION-GRADE EPOXY.

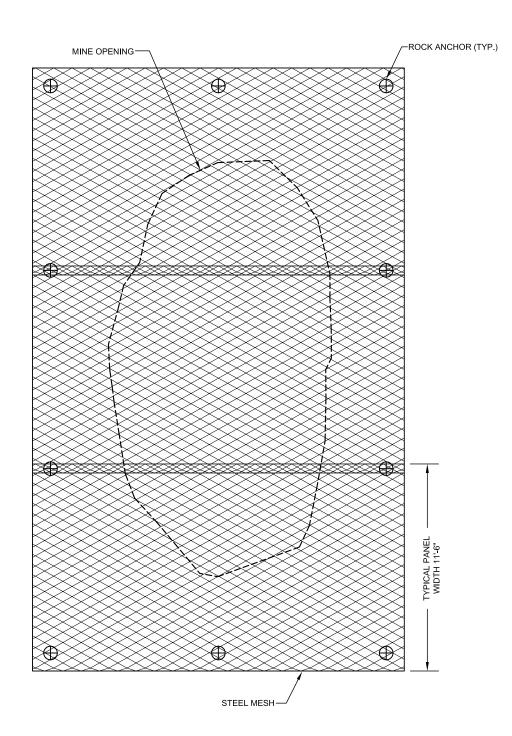
GENERAL NOTES:

 ${\bf 6}.$ AS PRACTICABLE, SHAPE THE REMAINING MINE WASTE MATERIAL TO RESEMBLE AN UNDISTURBED MINE WASTE PILE.

7. INSTALL SURVEY CAP IN ACCORDANCE WITH SECTION 02890.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT DRAWN BY: SCALE: AS SHOWN VARIOUS LOCATIONS REVISED BY: MWT DATE: 9/17/2013 POLYURETHANE FOAM PLUG CLOSURE FILE: Cerrillos Central/Bonanza Creek Mine Safeguard Project-Phase III FIGURE: 12

MESH LOCATIONS				
LOCATION	MINE OPENING (FT)	APPROX. MESH NEEDED (SQ. FT.)	APPROX. NO. OF ANCHORS NEEDED	
8-1	8' x 4'	460	6	
8-5	8' x 8'	575	6	
6-153	9' x 6'	1035	10	

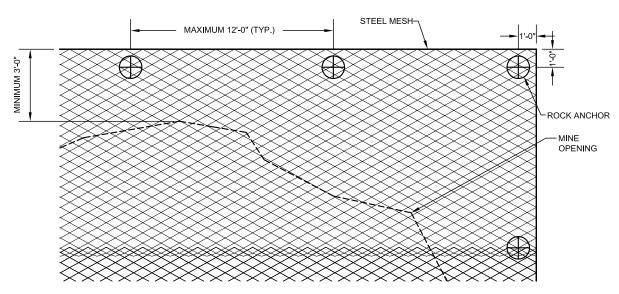


MESH LAYOUT - PLAN VIEW

SCALE: 3/16" = 1'-0'

GENERAL NOTES:

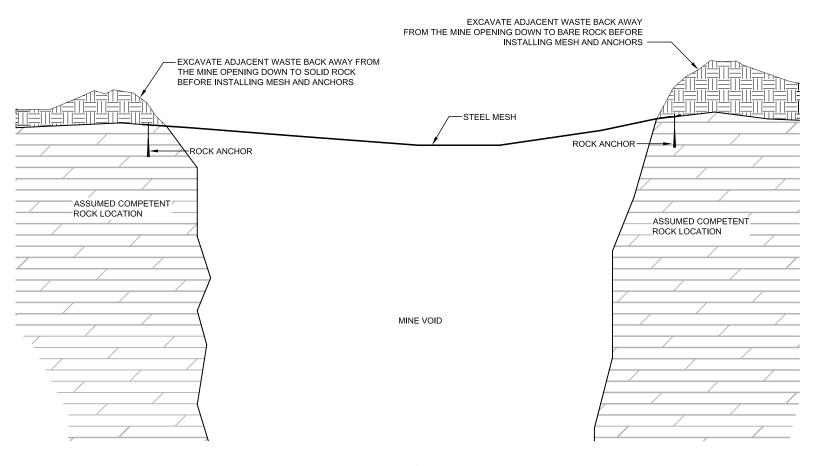
- 1. THE LOCATION AND DIMENSIONS INDICATED FOR THE STEEL MESH AND MINE OPENING ARE APPROXIMATE. ADJUST THE POSITION AND AREA OF THE MESH FOR FIELD CONDITIONS.
- 2. THE ROCK ANCHOR LOCATIONS INDICATED ARE PRELIMINARY. ADJUST LOCATIONS AND NUMBER OF ANCHORS TO FIT FIELD CONDITIONS. ANCHORS SHALL BE SPACED NO MORE THAN TWELVE FEET FROM THE NEAREST ANCHOR. LOCATE ANCHORS TO AVOID THIN ROCK BACK OF STOPE OPENING BELOW, AT MESH INSTALLATION CORNERS, ALONG MESH EDGES, AND AS REQUIRED TO SNUG THE MESH ONTO THE GROUND SURFACE.
- 3. PULL BACK WASTE PILES FROM THE STOPE PERIMETER AS NEEDED TO ALLOW FOR THE PROPER INSTALLATION OF THE MESH. REGRADE THE MOVED MATERIAL AS DIRECTED BY THE PROJECT MANAGER TO BLEND IN WITH THE EXISTING WASTE PILES. MINIMIZE THE AMOUNT OF MATERIAL THAT FALLS INTO THE STOPE OPENING.
- 4. WHERE THE STEEL MESH IS PLACED OVER THE EXISTING GROUND, COVER THE MESH WITH AT LEAST TWO INCHES OF WASTE ROCK MATERIAL AS DIRECTED BY THE PROJECT MANAGER.
- 5. ESTIMATED LENGTHS DO NOT ACCOUNT FOR SAG OF MESH.
- 6. INSTALL SURVEY CAP IN ACCORDANCE WITH SECTION 02890.



TYPICAL

ANCHOR PLACEMENT DETAIL - PLAN VIEW

SCALE: 3/16" = 1'-0"



SECTION VIEW

SCALE: 1/16" = 1'-0"

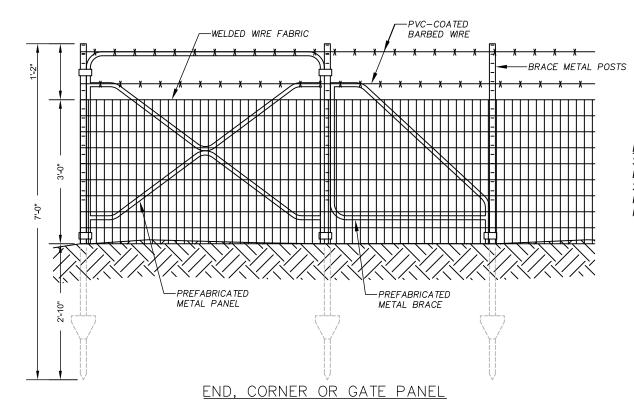
CAUTION — THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBIS, OR THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING EQUIPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: AS SHOWN	VARIOUS LOCATIONS	DRAWN BY: MWT	
DATE:	VARIOUS LOCATIONS	REVISED BY:	
FILE: CERRILLOS CENT./BONANZA CREEK MINE SAFEGUARD PRJ – PH. III		FIGURE: 13	

CAUTION — THIS PROJECT REQUIRES CONSTRUCTION WORK IN, AROUND, AND OVER HAZARDOUS AND UNPROTECTED MINE SHAFTS, STOPES, ADITS, AND OTHER OPENINGS WHICH MAY BE OPEN TO THE SURFACE OR HIDDEN FROM VIEW BY TRASH, DEBRIS, OF THIN AND UNSTABLE LAYERS OF SURFACE MATERIALS OR ROCK. THE CONSTRUCTOR SHALL BE RESPONSIBLE FOR THOROUGHLY INVESTIGATING THE SITE CONDITIONS AND SCHEDULING COULPMENT, EQUIPMENT OPERATIONS, PERSONNEL AND SAFETY PROCEDURES TO PREVENT ACCIDENTS AND INJURIES.

WELDED WIRE FENCE LOCATIONS			
LOCATION	MINE OPENING (FT)	APPROX. FENCE NEEDED (FT.)	NO. OF GATES NEEDED
6-111	7' x 5'	42	1
6-112	7' x 7'	44	0
V (IO 3)	7' x 5'	42	0
P (6-81)	8' x 8'	48	0





NOTE: RIGHT SIDE PANEL IS SHOWN. LEFT SIDE PANELS AT ENDS, CORNERS AND GATES SHALL BE OPPOSITE. PLACE PANELS AND BRACES ON THE INSIDE OF THE FENCE ENCLOSURE.

-PVC-COATED PREFABRICATED METAL PANEL -WELDED WIRE FABRIC - x x -BRACE METAL POSTS —PREFABRICATED PREFABRICATED METAL BRACE METAL BRACE

INTERMEDIATE BRACE PANEL

GATE FRAME; 1.66" OD GALV. STEEL PIPE
(1.83 LBS/FT.), PVC-COATED; CAP TOPS COATED BARBED WIRE GATE POSTŠ; 2.375 OD GALV. ŠTEEL PIPE (3.11 LBS./FT.), PVC-COATED; CAP TOP-HINGES WELDED CATE LOCK GATE PANEL GATE PANEL WIRE FABRIC (SEE WELDED WIRE (SEE WELDED WIRE FENCE DETAILS) FENCE DETAILS) -BRACE METAL POST; REMOVE FLANGES CONCRETE FOOTING; USE CONCRETE TUBE FORM 4'-0" CLEAR 1'-2"Ø **ELEVATION**

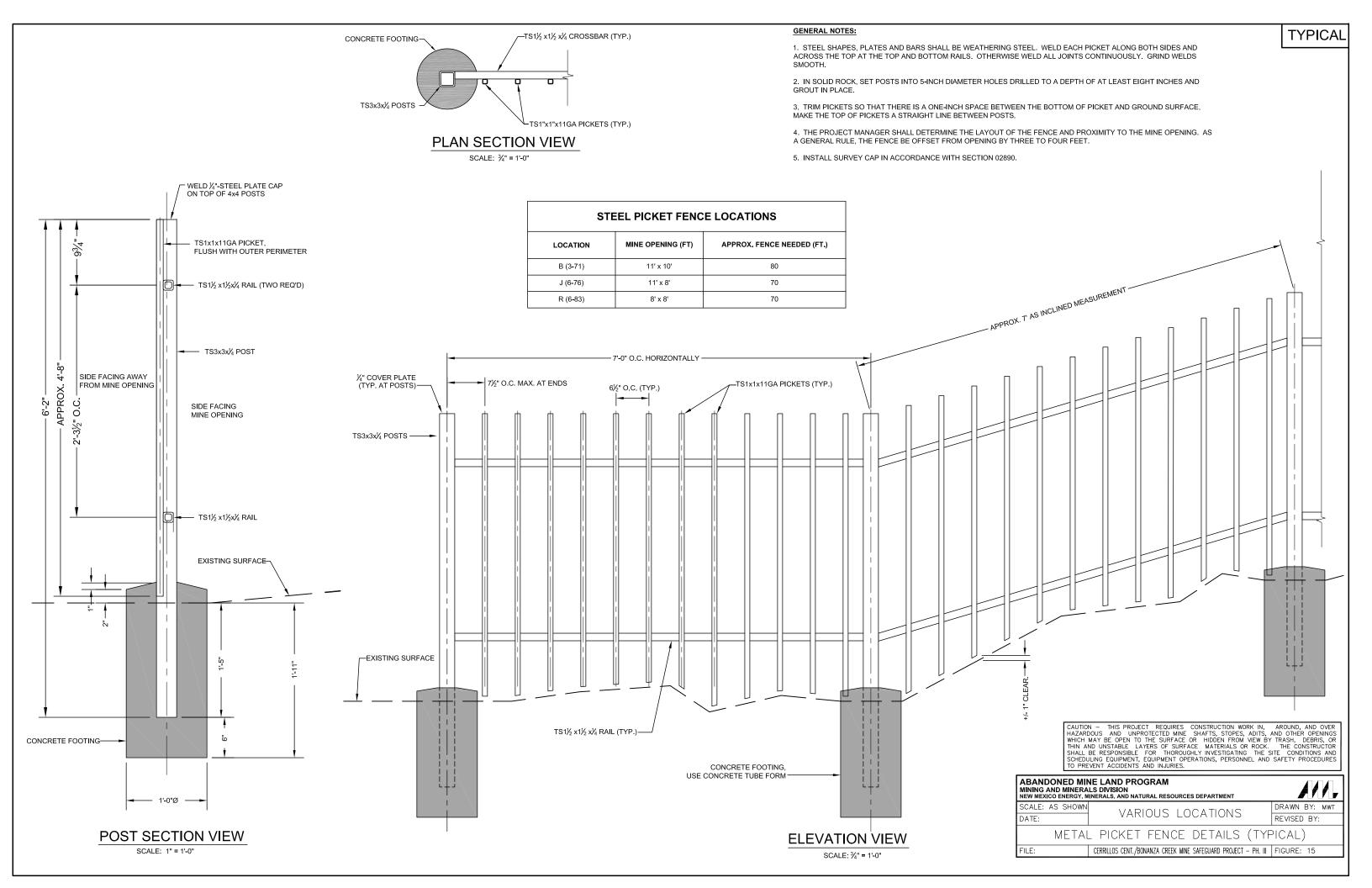
WELDED WIRE GATE DETAILS

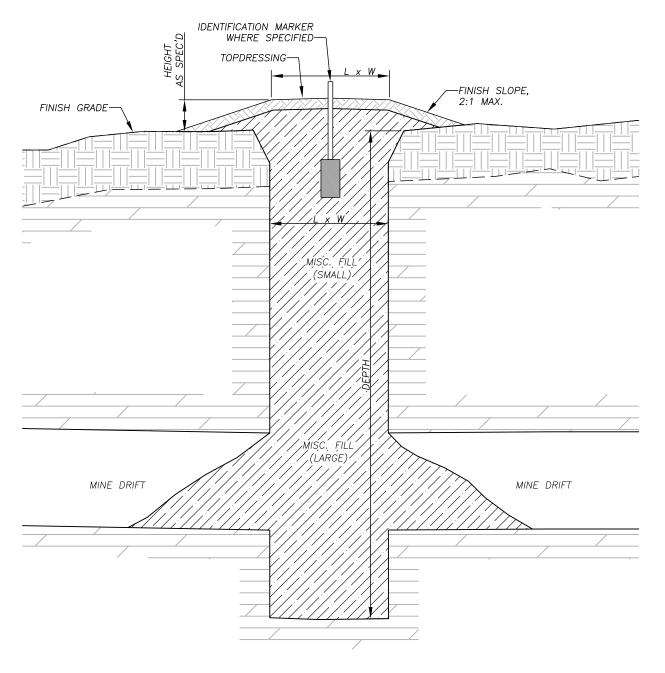
GENERAL NOTES:

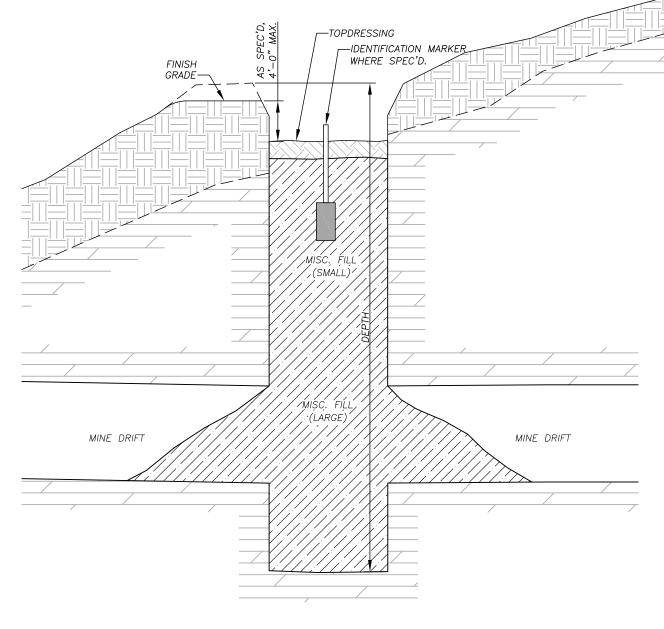
- USE CLAMPS PROVIDED BY THE MANUFACTURER TO ATTACH METAL POSTS TO PANELS AND BRACES, INSTALL BRACE PANELS ACCORDING TO MANUFACTURER'S INSTRUCTIONS. PREFABRICATED PANELS AND BRACES SHALL BE 'EASY FENCE' BY D-C INDUSTRIES OR EQUIVALENT.
- 2. RUN FENCE IN STRAIGHT LINES BETWEEN END AND CORNER POSTS. AVOID ACUTE ANGLES (LESS THAN 90°) AT FENCE CORNERS.
- IN SOLID ROCK, SET POSTS INTO HOLES ONE-HALF INCH LARGER IN DIAMETER THAN THE MAXIMUM CROSS-SECTIONAL DIMENSION OF THE POSTS. DRILL HOLES TO A DEPTH OF AT LEAST THREE TIMES THE HOLE DIAMETER.
- 4. GATE LOCATION SHALL BE DETERMINED IN THE FIELD BY THE PROJECT MANAGER.
- ALL GALVANIZED METAL SHALL BE PAINTED WITH "NATINA STEEL" BY NATINA PRODUCTS (WWW.NATINAPRODUCTS.COM) OR AN APPROVED EQUIVALENT. APPLICATION RATE SHALL BE AS DIRECTED BY THE MANUFACTURER.
- 6. GATE LOCK SHALL BE SELF-LOCKING "LOCINOX," OR APPROVED EQUIVALENT (AVAILABLE FROM HOOVER FENCE CO. AS CHAIN LINK GATE LOCK "HA504-PLUS." (800) 355-2335. WWW.HOOVERFENCE.COM).
- THE PROJECT MANAGER SHALL DETERMINE THE LAYOUT OF THE FENCE AND PROXIMITY TO THE MINE OPENING. AS A GENERAL RULE, THE FENCE BE OFFSET FROM OPENING BY THREE TO FOUR FEET.

ABANDONED MINE LAND PROGRAM MINING AND MINERALS DIVISION NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT			
SCALE: 1/2"=1'-0	, Various Locations	DRAWN BY: JAK	
DATE:	VARIOUS LOCATIONS	REVISED BY: MWT	
	WELDED WIRE FENCE DETAILS		
FILE:	CERRILLOS CENT./BONANZA CREEK MINE SAFEGUARD PROJECT - PH. III	FIGURE: 14	

-2 STRANDS PVC-







MOUNDED BACKFILL DESIGN (TYPICAL SECTION)

<u>DEPRESSED BACKFILL DESIGN</u>
(TYPICAL SECTION)

GENERAL NOTES:

- 1. THE FILL AT AND ABOVE DRIFT LEVELS SHALL CONSIST OF THE COARSEST MATERIAL AVAILABLE. SMALLER MATERIAL MAY BE USED ELSEWHERE. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- 2. AS PRACTICABLE, SHAPE THE REMAINING MINE WASTE MATERIAL TO RESEMBLE AN UNDISTURBED MINE WASTE PILE.
- 3. THE LENGTH AND WIDTH OF THE TOP OF THE MOUND SHALL BE EQUAL TO OR GREATER THAN THE INTERNAL SHAFT LENGTH AND WIDTH RESPECTIVELY.

