GENERAL NOTES:

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 condensation can be trapped. Plates of material shall be treated to prevent the incursion of moisture. All structural members shall be permanently 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 2" oval 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 caps into the concrete as directed by the project manager.

ABANDONED MINE LAND PROGRAM
ENVIRONMENTAL QUALITY AND NATURAL RESOURCES DEPARTMENT

SCALE: AS SHOWN
FEATURE 6-30
DRAWN: M. W. D.
CHECKED: M. E. R.

TYPICAL SECTION OF CUPOLA
SCALE: 1/2" = 1'-0"
GENERAL NOTES:
1. INSTALL POLYURETHANE FOAM (PUF) AS SPECIFIED, REMOVE DIRT AND LOOSE ROCK FROM SURFACES AGAINST WHICH PUF WILL BE PLACED. PLACE PUF AGAINST CLEAR, DRY SURFACES.
2. THE CAST-IRON BEEHIVE GRATE AND FRAME SHALL BE NEECH "THERMO" OR APPROVED EQUIVALENT. THE FRAME FOR THE SPECIFIED GRATE WILL NOT FULLY SEAT OVER THE HOLE PIPE, SEAT THE OUTER EDGES OF THE TOP OF THE PIPE TO HIDE IT INTO THE FRAME.
4. CENTER THE DRAIN PIPE AND GRATE VERTICALLY AT THE CENTER OF THE DRAIN OPENING.
5. CHAMFER EXPOSED EDGES OF CONCRETE.
6. AS PRACTICABLE, SHAPE THE REMAINING MINE WASTE MATERIAL TO RESEMBLE AN UNDISTURBED MINE WASTE PILE.
7. INSTALL SURVEY CAP IN ACCORDANCE WITH SECTION 1000.

NOTES:
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 PLUGS IN ACCORDANCE WITH THE FOLLOWING FORMULA: d = 2.06 + 0.01, RELOCATE THE BOTTOM OF THE PUF PLUGS AS REQUIRED.
2. PRIOR TO PLACING THE PUF PLUG, INFORM THE PROJECT ENGINEER OF ANY PROPOSED CHANGES TO THE DEPTHS OF THE PUF PLUGS FOR HIS REVIEW AND APPROVAL.

APPROXIMATE SHAFT DIMENSIONS AND CORRESPONDING PUF PLUG DESIGN DEPTHS

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>A. SHAFT WIDTH (FT)</th>
<th>B. SHAFT LENGTH (FT)</th>
<th>C. PUF PLUG DEPTH (FT)</th>
<th>APPROX. PUF VOLUME (CF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>6.5</td>
<td>6.0</td>
<td>3.0</td>
<td>9.0</td>
</tr>
<tr>
<td>G2</td>
<td>6.2</td>
<td>6.0</td>
<td>10.0</td>
<td>30.0</td>
</tr>
<tr>
<td>G3</td>
<td>5.0</td>
<td>6.0</td>
<td>7.7</td>
<td>11.8</td>
</tr>
<tr>
<td>E</td>
<td>5.0</td>
<td>6.0</td>
<td>8.5</td>
<td>10.0</td>
</tr>
<tr>
<td>H</td>
<td>5.0</td>
<td>6.0</td>
<td>10.5</td>
<td>30.0</td>
</tr>
<tr>
<td>W</td>
<td>5.0</td>
<td>6.0</td>
<td>7.2</td>
<td>8.0</td>
</tr>
<tr>
<td>SUBMIT CAP COUPLA</td>
<td>6.0</td>
<td>6.0</td>
<td>7.2</td>
<td>8.0</td>
</tr>
<tr>
<td>SUBMIT CAP COUPLA</td>
<td>6.0</td>
<td>6.0</td>
<td>9.0</td>
<td>10.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TYPICAL SECTION

POLYURETHANE FOAM PLUG CLOSURE

FILE:

ABANDONED MINE LAND PROGRAM
MINES AND MINERAL LANDS
STATE OF MONTANA, DEPARTMENT OF ECONOMIC DEVELOPMENT

SCALE AS SHOWN
VARIATIONS LOCATIONS
DRAWN BY
REVISED BY
DATE 6/7/2012
FILE RED (ENVIRONMENTAL)
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 LOCATION 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 MINE OPENING BELOW AT MESH INSTALLATION CORNER, ALONG MESH EDGE, AND AS REQUIRED TO BRING THE MESH ONTO THE GROUND SURFACE.

3. PULL BACK WASTE ROCK FROM THE MINE OPENING AS NEEDED TO ALLOW FOR THE PROPER INSTALLATION OF THE MESH. REDUCE THE MESH MATERIAL, AS DIRECTED BY THE PROJECT MANAGER, TO ALIGN WITH THE EXISTING WASTE ROCK. MINIMIZE THE AMOUNT OF MATERIAL THAT FALLS INTO THE MINE OPENING.

4. WHERE THE STEEL MESH IS PLACED OVER THE EXISTING GROUND, COVER THE MESH WITH AT LEAST TWO INCHES OF VASTE ROCK CONCRETE AS DIRECTED BY THE PROJECT MANAGER.

5. ESTIMATED LENGTHS DO NOT ACCOUNT FOR SAG OF MESH.

6. INSTALL SURVEY CAP IN ACCORDANCE WITH SECTION 08902.

ABANDONED MINE LAND PROGRAM
WRECKAGE AND OVERHANGS REMOVAL
STEEL MESH CLOSURE

TYPICAL

MESH LOCATIONS

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>MINE OPENING (FT)</th>
<th>APPROX. MESH NEEDED (NO. FT)</th>
<th>APPROX. NO. OF ANCHORS NEEDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-1</td>
<td>4 x 4</td>
<td>400</td>
<td>8</td>
</tr>
<tr>
<td>8-15</td>
<td>6 x 4</td>
<td>575</td>
<td>8</td>
</tr>
<tr>
<td>8-153</td>
<td>8 x 8</td>
<td>1035</td>
<td>10</td>
</tr>
</tbody>
</table>
WELDED WIRE FENCE LOCATIONS

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>FENCE OPENINGS (FT)</th>
<th>APPROX. FENCE WIDTH (IN)</th>
<th>NO. OF GATES NEEDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-73</td>
<td>7' x 6</td>
<td>42</td>
<td>1</td>
</tr>
<tr>
<td>A-72</td>
<td>7' x 5</td>
<td>42</td>
<td>1</td>
</tr>
<tr>
<td>1' (6&quot;)</td>
<td>6' x 5</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td>3' (6&quot;)</td>
<td>6' x 6</td>
<td>48</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

WELDED WIRE GATE DETAILS

GENERAL NOTES:
1. 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 US INSPECTOR OR EQUIVALENT.
2. RUN FENCE IN STRAIGHT LINE BETWEEN END AND CORNER POSTS. AVOID ACUTE ANGLES (LESS THAN 90°) AT FENCE CORNERS.
3. IN STOCR ROOF, SET POSTS INTO MOLDS 1/2" INCH LARGER IN DIAMETER THAN THE WARREN 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.
5. ALL GALVANIZED METAL SHALL BE PAINTED WITH NUTRA STIX BY NUTRA PRODUCTS (WWW.NUTRAPRODUCTS.COM) OR AN APPROVED EQUIVALENT. APPROVED NON-PAINT SHALL BE AS DIRECTED BY THE MANUFACTURER.
6. GATE LOCKS SHALL BE SELECTED FROM CANADIAN MADE LOCKS, ANY APPROVED EQUIVALENT AVAILABLE FROM CANADIAN MADE LOCKS, CANADA'S LOCKS, 200-359-4235. WWW.MYGATE.COM.
7. THE PROJECT MANAGER SHALL DETERMINE THE LAYOUT OF THE FENCE AND PROXIMITY TO THE FENCE OPENINGS, AS A GENERAL RULE, THE FENCE BY OFFSET FROM OPENING BY THREE TO FOUR FEET.
GENERAL NOTES:
1. STEEL SHAFTS, PLATES, AND BARS SHALL BE WEATHERING STEEL, WELD EACH PICKET ALONG BOTH SIDES AND ACROSS THE TOP AT THE TOP AND BOTTOM RAILS. OTHERWISE WELD ALL JOINTS CONTINUOUSLY, GRIND WELDS SMOOTH.
2. IN SOLID ROCK SET POSTS INTO 6-INCH DIAMETER HOLES DRILLED TO A DEPTH OF AT LEAST EIGHT INCHES AND GROUT IN PLACE.
3. TRIM PICKETS SO THAT THERE IS A OPENING SPACE BETWEEN THE BOTTOM OF PICKET AND GROUND SURFACE. MAKE THE TOP OF PICKETS A STRAIGHT LINE BETWEEN POSTS.
4. THE PROJECT MANAGER SHALL DETERMINE THE LOCATION OF THE POSTS AND PERMISSIBILITY OF THE PICKET OPENING. AS A GENERAL RULE, THE POSTS BE OFFSET FROM OPENINGS BY THREE TO FOUR FEET.
5. INSTALL SURVEY CAP IN ACCORDANCE WITH SECTION E065.

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**STEEL PICKET FENCE LOCATIONS**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>PICKET OPENING (FT)</th>
<th>APPROX. FENCE WIDTH (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(B.2-71)</td>
<td>10' x 3'</td>
<td>10'</td>
</tr>
<tr>
<td>(J-15-6)</td>
<td>10' x 6'</td>
<td>10'</td>
</tr>
<tr>
<td>(R.6-43)</td>
<td>8' x 6'</td>
<td>9'</td>
</tr>
</tbody>
</table>

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**PLAN SECTION VIEW**

**ELEVATION VIEW**
MOUNDED BACKFILL DESIGN
(TYPICAL SECTION)

DEPRESSED BACKFILL DESIGN
(TYPICAL SECTION)

GENERAL NOTES:

1. THE FILL AT AND ABOVE DRAFT 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 HILL.

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.