GENERAL NOTES

1. Work this Index with the Noise Wall Data Tables, and Wall Control Drawings in the Plans.

2. Construct Noise Walls in accordance with the requirements of Specification Section 334, and Auger Cast Piles in accordance with Specification Section 455.

3. Field verify the location of all overhead and underground services shown in the Wall Control Drawings.

4. Wall Height is the nominal height of the walls above finished grade. The Wall Embedment Depth for design is 1'-0". The actual embedment depth may vary plus or minus 6" along the length of the wall.

5. Post Spacing in this Index are nominal, and are measured from centerline to centerline of the auger cast piles. Actual post spacing may vary as shown in the Wall Control Drawings.

6. Panels:
   A. The sum of the individual stacked panel heights is the Wall Height plus 1'-0" (embedment depth).
   B. Where special graphics are required, locate the horizontal panel joints outside of the graphics. Where possible, hold horizontal panel joints at a constant elevation.
   C. Side Installed Panels are only permitted when reduced overhead clearance between posts prohibits installing panels from the top.
      1. For Flush Face panels, install panel into posts from the roadway (front face) of the wall. Recessed panels may be installed from the back face of the wall.
      2. After panels are installed and centered between posts, grout between both panel ends and the adjoining posts (see Sheets 4 and 5 for details).
   D. Individual panel heights should be between 6'-0" and 12'-0" tall. The minimum panel height is 4'-0" and may be used where overhead clearance is limited, or where graphic panels are required on shorter walls.

7. Concrete And Grout:
   A. Concrete Class and Compressive Strength for:
      1. Precast Panels, Posts, and Post caps: Class IV (fc' = 5500 psi)
      2. Cast-in-Place Collars: Class IV (fc' = 5500 psi)
   B. Minimum Compressive Strength for form removal and handling of posts and panels:
      1. 2,500 psi for horizontally cast post and panels
      2. 2,000 psi for vertically cast panels or when tilt-up tables are used for horizontally cast panels.
   A. Grout for Auger Cast Piles:
      1. Maximum Working Compressive Strength = 2,000 psi
      2. Minimum 28 day strength = 5,000 psi

8. Reinforcing Steel:
   A. In addition to the requirements of Specification Section 415, tie post and pile stirrups at the following locations as a minimum.
      1. Post Stirrups Tie at all four corner bars and at every third interior bar intersection.
      2. Pile Stirrups Tie to the main vertical reinforcing at alternate intersections for circular configurations and at the four corners and at every third interior bar intersection for rectangular configurations.
   B. Provide 2" concrete cover unless noted otherwise.

9. Casting Tolerances for precast panels and posts:
   A. Overall Height and Width: +/- 1/2" per foot
   B. Thickness: +/- 1/8"
   C. Plane of side mold: +/- 1/16" per foot
   D. Openings: +/- 1/8" per foot
   E. Out of Square: 1/8" per foot, but not more than 1/8" total along any side
   F. Warpage: 1/16" per foot distance to nearest corner
   G. Bowing: 1/240 panel dimension
   H. Surface Smoothness for Type "A"Smooth Surface Texture Option: +/- 1/16"

10. Provide Fiber Reinforced Neoprene pads with a Durometer Hardness between Grade 50 and 80, or Plain Neoprene Pads with a minimum Durometer Hardness of Grade 50 in accordance with Specification Section 932.
    A. For Collar Bearing Points provide:
       1. 4" x 4" x ½" Fiber Reinforced Pads;
       2. Plain Pads with a may be substituted for Fiber Reinforced Pads when sufficient bearing area is available on the concrete collar for the following:
          a. 10' Post Spacing: 4" x 4" x ½"
          b. 20' Post Spacing and Wall Height < 17 feet: 4" x 4" x ½"
          c. 20' Post Spacing and Wall Height ≥ 17 feet: 4" x 5" x ½"
    B. At panel bearing points between stacked panels, use Plain or Fiber Reinforced Neoprene Pads.
**Type "A"**  
SMOOTH

**Type "B"**  
ASHLAR STONE

3/8" Back Face  
1/4" Front Face  
Varies  
3/8" to 1/4"

**Type "C"**  
SPLIT FACE RUNNING BOND BLOCK

3/8" Mortar Joint  
3/8" Amplitude

8" x 16"  
Running Bond Block

**Type "D"**  
FRACUTED GRANITE

3/8" Depth

**Type "E"**  
WIRE-CUT BRICK

3/8" Depth  
1/4" Max.  
Mortar Joint

20" x 7/16"  
Running Bond Brick

**Type "F"**  
PEA GRAVEL

Random 3/8" - 1/2"  
Gravel Texture

**Type "G"**  
VERTICAL FRACUTED FIN

1 1/16" Width  
3"  
Mortar Joint

**Type "H"**  
TRAPEZOID VERTICAL FINS W/ FRACUTED FACE (COLORADO DRAG AGGREGATE)

1 1/16" Width  
3"  
Mortar Joint

**Type "I"**  
CUT CORAL BLOCK (RUNNING BOND)

Running Bond Block:

<table>
<thead>
<tr>
<th>Course</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>12&quot; x (12&quot;, 14&quot;, 16&quot; &amp; 18&quot;)</td>
</tr>
<tr>
<td>2nd</td>
<td>6&quot; x (12&quot;, 14&quot;, 16&quot; &amp; 24&quot;)</td>
</tr>
<tr>
<td>3rd</td>
<td>12&quot; x (9&quot;, 10&quot;, 12&quot;, 14&quot;, 16&quot;, 18&quot;, &amp; 24&quot;)</td>
</tr>
<tr>
<td>4th</td>
<td>6&quot; x (16&quot;, 14&quot;, &amp; 24&quot;)</td>
</tr>
</tbody>
</table>

**NOTES:**

1. Surfaces shall be formed, rolled, or pressed using form liners in accordance with the Plans and Specifications for Class 3 Surface Finish.
2. See Noise Wall Data Tables for project aesthetic requirements.
TYPICAL FORMING DETAIL
(Front Face Panel Texture Type "H" shown)
(Back Face Panel Texture Type "D" shown)
(Post Forming Details Similar)

NOTES:
1. Submit specific form liner samples for approval by the Engineer.
2. Textures and graphics shown are for demonstration purposes only. See Noise Wall Data Tables in the plans for project specific texture and graphic requirements.

HALF ELEVATION
(Front Face Post and Panel Texture Type "H" shown)
(Graphic Type SE-2 shown)
(Two stacked panels shown, three stacked panels similar)
**NOTES:**
At the Contractor's option, Smooth or Deformed Welded Wire Reinforcement may be used (equal area).

* Vertical Steel ~ #4 Bars @ 10" (As=0.24 in.²/ft.) (Typ.)

**DETAIL "B" - SIDE-INSTALLED**
(Typical both ends)

**DETAIL "B" - TOP-INSTALLED**
(Typical both ends)

**SECTION D-D**
(Showing Recessed Type Panel)

**SECTION D-D**
(Showing Flush Type Panel)

**TYPICAL PANEL ELEVATION**
* In lieu of utilizing the standard pick up points below, panels may be cast vertically or cast horizontally then tilted upright using tilt-tables prior to lifting from form. In this case, pick points shall be placed in the top of panels only and transported maintaining the vertical orientation. If these criteria are met, the vertical steel may be reduced to #4 Bars @ 1'-3" (As=0.16 in.²/ft.).

**STANDARD PICK UP POINTS FOR PANELS**
(Panels shall be rotated about long axis only)
NOTE: The shop drawings shall include specific pivoting details of panel ends at locations where the deflection angle (2Δ°) between panels exceeds 7°.

NOTE: The shop drawings shall include specific pivoting details of panel ends at locations where the deflection angle (2Δ°) between panels exceeds 20°.
**DESCRIPTION:**

**REVISION:**

**INDEX NO.**

**SHEET NO.**

---

**PRECAST NOISE WALLS**

**DRAINAGE HOLES TYPES A, B, C & D**

*Hole Types A, B, C and D refer to distance from bottom of panel to center of opening. See Wall Control Drawings in the plans.*

**SECTION F-F**

*Expansion Anchors: Use 1/2" Ø x 3" ASTM A307, vandal resistant, hot-dip galvanized expansion anchors to connect grates to panels.*

*Grating mounted to back face of wall.*

**SECTION G-G**

*3'-3" Outside 1'-2" (Typ.) 2" X 2" X 1/4" Bar (Typ.) 2" X 1/8" Louvers (Typ.)*

**DRAINAGE HOLE DETAILS**

1. Grating shall be ASTM A36 steel welded in accordance with the current edition of ANSI/AWS D1.1 Steel Welding Code. Hot-dip galvanize grate after fabrication in accordance with Specification Section 962.

2. Expansion anchors: Use 1/2" Ø x 3" ASTM A307, vandal resistant, hot-dip galvanized expansion anchors to connect grates to panels.

3. Grating mounted to back face of wall.
LOW CLEARANCE OPTION

* Extend Post 2" above top of high side wall panel when post caps are shown in plans. See Sheet 4, "ELEVATION STEP AT TOP OF WALL".

NOTES:
1. For Post Reinforcing see Sheets 15 and 16.
2. For Pile Lengths Tables see Sheets 15 and 16.
**POST PLACEMENT & PILE REINFORCING STEEL DETAILS**

**TYPICAL POST**

STANDARD POST PLACEMENT IN AUGER CAST PILE

(H-Post Shown, 45° Corner Posts Similar)

**LOW CLEARANCE OPTION**

NOTE:
1. For Pile Length Tables, see Sheets 15 and 16.

* Extend Post 2" above top of high side wall panel when post caps are shown in plans. See Sheet 4, "ELEVATION STEP AT TOP OF WALL".

* Top of Wall

Precast Post

Precast Post

* Top of Wall

Precast Post

* Top of Wall

Precast Post

Exposed Precast Post Reinforcement (Typ.)

Bars P3 (Typ.)

10 - #9 Bars (Typ.), See Section P-P

Bottom of Augered Hole per Plan

Bottom of Augered Hole per Plan

Auger Cast Pile

30" Ø Auger Cast Pile

30" Ø Auger Cast Pile

Projected Location of Bearing Pad (Typ.)

(See Sheet 1, Note H)

NOTE:
1. For Pile Length Tables, see Sheets 15 and 16.

STANDARD POST PLACEMENT IN AUGER CAST PILE

(H-Post Shown, 45° Corner Posts Similar)

Precast Post

Precast Collar, Elev. A

Top of Precast Collar, Elev. A

Top of Augered Collar, Elev. A

Top of Wall

* Top of Wall

Precast Post

Precast Post

Post & Pile

Post & Pile

FINISHED GRADE

FINISHED GRADE

NOTE:
1. For Pile Length Tables, see Sheets 15 and 16.
45° POST NOTES:
1. Reference Sheets 8 & 9 for location of Sections.
   Space Bars P7 as shown for Bars P1.
   Space Bars P8 as shown for Bars P2.
2. Match texture thickness with appropriate Panel face.
3. For Post Reinforcing, see sheets 15 & 16.
4. For Pile Length Tables, see sheets 15 & 16.

1. Reference Sheets 8 & 9 for location of Sections.
   Space Bars P7 as shown for Bars P1.
   Space Bars P8 as shown for Bars P2.
2. Match texture thickness with appropriate Panel face.
3. For Post Reinforcing, see sheets 15 & 16.
4. For Pile Length Tables, see sheets 15 & 16.
LOW CLEARANCE OPTION

* Extend Post 2" above top of high side wall panel when post caps are shown in plans. See Sheet 4, "ELEVATION STEP AT TOP OF WALL".

90° CORNER POST NOTES:
1. For Post Reinforcing, see Sheets 15 and 16.
2. For Pile Length Tables, see Sheets 15 and 16.
3. Reduce typical panel length or adjust pile spacing at each 90° Corner Post.
4. Match texture thickness, with appropriate Panel Face.

90° CORNER POST DETAILS

(Typ. Both Sides)

SECTION R-R

SECTION S-S

TYPICAL POST

90° CORNER POST REINFORCEMENT

(Post Surface Features Not Shown For Clarity)
NOTES:
1. For Pile Length Tables, see Sheets 15 and 16.
2. Trowel finish top of Collar to allow placement of Bearing Pads.
* Extend Post 2' above top of high side wall panel when post caps are shown in plans. See Sheet 4, "ELEVATION STEP AT TOP OF WALL".

90° CORNER TYPICAL POST PLACEMENT DETAILS
NOTES:
1. For Pile Length Tables, see Sheets 15 and 16.
2. Trowel Finish top of auger cast pile to allow placement of Bearing Pads.

* Extend Post 2" above top of high side wall panel when post caps are shown in plans. See Sheet 4, "ELEVATION STEP AT TOP OF WALL".
### TABLE 2A - TABLE OF POST REINFORCING STEEL

<table>
<thead>
<tr>
<th>WALL HEIGHT (Feet)</th>
<th>POST LENGTHS</th>
<th>WIND SPEED = 130 MPH</th>
<th>10'-0&quot; POST SPACING</th>
<th>WALL HEIGHT (Feet)</th>
<th>20'-0&quot; POST SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL 1</td>
<td>SOIL 2</td>
<td>SOIL 1</td>
<td>SOIL 2</td>
<td>SOIL 1</td>
<td>SOIL 2</td>
</tr>
<tr>
<td>BARS A</td>
<td>BARS B</td>
<td>BARS C</td>
<td>BARS D</td>
<td>BARS A</td>
<td>BARS B</td>
</tr>
<tr>
<td>SIZE</td>
<td>DIM</td>
<td>SIZE</td>
<td>DIM</td>
<td>SIZE</td>
<td>DIM</td>
</tr>
<tr>
<td>12</td>
<td>13-0'</td>
<td>13-0'</td>
<td>#4 #4 10'-5&quot;</td>
<td>#4 #4 9'-5&quot;</td>
<td>#4 #4 9'-5&quot;</td>
</tr>
<tr>
<td>13</td>
<td>14-0'</td>
<td>14-0'</td>
<td>#4 #4 10'-5&quot;</td>
<td>#4 #4 9'-5&quot;</td>
<td>#4 #4 9'-5&quot;</td>
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<tr>
<td>14</td>
<td>15-0'</td>
<td>15-0'</td>
<td>#5 #5 12'-7&quot;</td>
<td>#5 #5 12'-7&quot;</td>
<td>#7 #7 10'-6&quot;</td>
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<tr>
<td>15</td>
<td>16-0'</td>
<td>16-0'</td>
<td>#5 #5 12'-7&quot;</td>
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<td>#7 #7 10'-6&quot;</td>
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<tr>
<td>16</td>
<td>17-0'</td>
<td>17-0'</td>
<td>#5 #5 12'-7&quot;</td>
<td>#5 #5 12'-7&quot;</td>
<td>#7 #7 10'-6&quot;</td>
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<td>18-0'</td>
<td>#5 #5 12'-7&quot;</td>
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<td>#7 #7 10'-6&quot;</td>
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<td>18</td>
<td>19-0'</td>
<td>19-0'</td>
<td>#5 #5 12'-7&quot;</td>
<td>#5 #5 12'-7&quot;</td>
<td>#7 #7 10'-6&quot;</td>
</tr>
<tr>
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<td>20-0'</td>
<td>20-0'</td>
<td>#6 #6 15'-8&quot;</td>
<td>#6 #6 15'-8&quot;</td>
<td>#8 #8 13'-10&quot;</td>
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<tr>
<td>20</td>
<td>21-0'</td>
<td>21-0'</td>
<td>#6 #6 15'-8&quot;</td>
<td>#6 #6 15'-8&quot;</td>
<td>#8 #8 13'-10&quot;</td>
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<tr>
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<td>22-0'</td>
<td>#6 #6 15'-8&quot;</td>
<td>#6 #6 15'-8&quot;</td>
<td>#8 #8 13'-10&quot;</td>
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<tr>
<td>22</td>
<td>23-0'</td>
<td>23-0'</td>
<td>#7 #7 16'-4&quot;</td>
<td>#7 #7 16'-4&quot;</td>
<td>#9 #9 14'-7&quot;</td>
</tr>
</tbody>
</table>

### TABLE 3A - TABLE OF POST REINFORCING STEEL

<table>
<thead>
<tr>
<th>WALL HEIGHT (Feet)</th>
<th>POST LENGTHS</th>
<th>WIND SPEED = 150 MPH</th>
<th>10'-0&quot; POST SPACING</th>
<th>WALL HEIGHT (Feet)</th>
<th>20'-0&quot; POST SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL 1</td>
<td>SOIL 2</td>
<td>SOIL 1</td>
<td>SOIL 2</td>
<td>SOIL 1</td>
<td>SOIL 2</td>
</tr>
<tr>
<td>BARS A</td>
<td>BARS B</td>
<td>BARS C</td>
<td>BARS D</td>
<td>BARS A</td>
<td>BARS B</td>
</tr>
<tr>
<td>SIZE</td>
<td>DIM</td>
<td>SIZE</td>
<td>DIM</td>
<td>SIZE</td>
<td>DIM</td>
</tr>
<tr>
<td>12</td>
<td>13-0'</td>
<td>13-0'</td>
<td>#4 #4 10'-5&quot;</td>
<td>#5 #5 10'-2&quot;</td>
<td>#7 #7 10'-6&quot;</td>
</tr>
<tr>
<td>13</td>
<td>14-0'</td>
<td>14-0'</td>
<td>#5 #5 11'-2&quot;</td>
<td>#5 #5 10'-2&quot;</td>
<td>#7 #7 10'-6&quot;</td>
</tr>
<tr>
<td>14</td>
<td>15-0'</td>
<td>15-0'</td>
<td>#5 #5 11'-2&quot;</td>
<td>#5 #5 10'-2&quot;</td>
<td>#7 #7 10'-6&quot;</td>
</tr>
<tr>
<td>15</td>
<td>16-0'</td>
<td>16-0'</td>
<td>#5 #5 11'-2&quot;</td>
<td>#5 #5 10'-2&quot;</td>
<td>#7 #7 10'-6&quot;</td>
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<tr>
<td>16</td>
<td>17-0'</td>
<td>17-0'</td>
<td>#5 #5 11'-2&quot;</td>
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<tr>
<td>19</td>
<td>20-0'</td>
<td>20-0'</td>
<td>#7 #7 15'-4&quot;</td>
<td>#7 #7 15'-4&quot;</td>
<td>#9 #9 13'-7&quot;</td>
</tr>
</tbody>
</table>

### TABLE NOTE:
1. Bars D and Bars E are for 49 Corner Posts only.
2. See Contract Plans for project wind speed.
   Soil 2 = Medium Dense Granular Soil, N = 10 to 40.