GENERAL NOTES:

1. Construct Perimeter Walls in accordance with Specification Section 534.
2. Choice of either Precast Option or Masonry Option is at the discretion of the Contractor. Contractor must also select the desired foundation type. Modifications to this index is restricted to those required for geometric needs only.
3. Post spacing is measured from centerline to centerline of foundation element: For this index, post and foundation elements have been designed for 20 ft. spacings. Use post spacings less than 20 feet only at change in horizontal alignment, wall terminations or to accommodate steep grades.
4. See "Perimeter Wall Data Tables" in the plans for project requirements.
5. Field verify the locations of all overhead and underground utilities shown in the Wall Control Drawings.

PRECAST OPTION NOTES:

6. WALL NOTES:
   A. Walls may consist of either a single height panel or two stacked panels. Minimum panel height is 4'-3".
   B. Only when reduced overhead clearance between posts prohibits installation of panels from the top, side-installed panels are allowed. After panel is centered between posts, grout between panel ends and posts.
7. CONCRETE AND GROUT:
   A. Cast-in-Place and Precast Concrete: Class IV
   B. Grout for Auger Cast Piling: Minimum 7 Day Strength = 5000 psi
   C. Minimum Compressive Strength for Form Removal and Handling of Posts, Panels and Precast Spread Footings:
      i. 2,000 psi for horizontally cast panels and precast spread footings.
      ii. 2,000 psi for vertically cast panels or when lift-in form tables are used for horizontally cast panels.
8. REINFORCING STEEL:
   A. Concrete Cover: 3/4" unless otherwise noted.
   B. In addition to the requirements of Specification Section 415, tie post and pile stirrups at the following locations as a minimum:
      i. Post Stirrups - tie at all four corner bars and at every third interior bar intersection.
      ii. Pile Stirrups - Tie to the main vertical reinforcing at alternate intersections.
9. BEARING PADS:
   A. Bearing Pads for Collar or Pedestal Bearing Points and between stacked panels, may be either Plain or Fiber Reinforced Neoprene Pads, in accordance with Specification Section 932 for ancillary structures.
10. CASTING TOLERANCES:
    A. Overall Height & Width: +/- 1/8".
    B. Thickness: +/- 1/32".
    C. Plane of side mold: +/- 1/32".
    D. Openings: +/- 1/32".
    E. Out of Square: " per 6 ft., but not more than 3/8" total along any side.
    F. Warping: 1/4" per foot distance to nearest corner.
    G. Bowing: 1/240 panel dimension.
11. PILING:
    A. Construct Auger Cast Piling in accordance with the Plans and Specification Section 455.

MASONRY OPTION NOTES:

12. WALL NOTES:
    A. Inspect construction in accordance with the International Building Code (IBC) Section 17.
    B. Construct masonry walls with 8"x16" block using a running bond pattern and concave cooled joints.
    C. Make all elevation changes (steps) in footing and top of wall using full height blocks. Make top of wall steps at pilasters exclusively. Footing steps may be made between pilasters as necessary to maintain minimum soil cover.
    D. Fully Grout all cells with horizontal or vertical reinforcing bars.
    E. Use reinforcing bar positioners to maintain vertical and horizontal bar placement.
    F. Fully grout first three courses of the wall.
    G. Joint Reinforcement: Use W 1.7 (9mm) galvanized ladder reinforcing spaced at 16" vertically. Provide special accessories for corners, intersections, etc. Joint reinforcing shall be continuous except it shall not pass through vertical masonry control joints. Lap joint reinforcing a minimum of 6".
    H. Construct expansion joints in the foundation at 90 foot maximum intervals, and directly below a wall control joint.
    I. Dowel Load Transfer Devices will be ASTM A 36 smooth round bars hot-dip galvanized in accordance with Specification Section 962. Install Dowel Load Transfer Devices in accordance with Specification Section 250.
    J. For spread footings, use a walk-behind compactor of at least 600 lbs. in weight. Obtain a minimum density of 95% of the maximum dry density as determined by FM 1 T-180. Perform soil density tests at 100 foot intervals.
    K. Protect walls during construction from soil, grout or mortar stains. Clean wall as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
    L. Use soap and potable water to clean walls. If stain removal is necessary, use a cleaning method indicated in NCMA MORTAR: Type S meeting requirements of ASTM C1329.
    M. Fully Grout all cells with horizontal or vertical reinforcing bars.
    N. Use reinforcing bar positioners to maintain vertical and horizontal bar placement.
    O. Fully grout first three courses of the wall.
    P. Joint Reinforcement: Use W 1.7 (9mm) galvanized ladder reinforcing spaced at 16" vertically. Provide special accessories for corners, intersections, etc. Joint reinforcing shall be continuous except it shall not pass through vertical masonry control joints. Lap joint reinforcing a minimum of 6".
    Q. Construct expansion joints in the foundation at 90 foot maximum intervals, and directly below a wall control joint.
    R. Dowel Load Transfer Devices will be ASTM A 36 smooth round bars hot-dip galvanized in accordance with Specification Section 962. Install Dowel Load Transfer Devices in accordance with Specification Section 250.
    S. For spread footings, use a walk-behind compactor of at least 600 lbs. in weight. Obtain a minimum density of 95% of the maximum dry density as determined by FM 1 T-180. Perform soil density tests at 100 foot intervals.
    T. Protect walls during construction from soil, grout or mortar stains. Clean wall as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
    U. Use soap and potable water to clean walls. If stain removal is necessary, use a cleaning method indicated in NCMA MORTAR: Type S meeting requirements of ASTM C1329.
DRAINAGE HOLES TYPES A, B, C & D

* Hole Types A, B, C, & D refer to distance from bottom of panel/wall to center of the pipe.

NOTES:
1. Drainage holes may be formed with 4" NPS PVC pipe that may remain in place.
2. See Wall Control drawings for number, Type and location/spacing of drainage holes.
ELEVATION STEP AT TOP OF WALL
(Precast Panel Cap not Shown)

3" (Typ.)

Bottom Panel

Auger Cast Pile (Typ.)

ELEVATION STEP AT BOTTOM OF WALL

Auger Cast Pile (Typ.)

TYPICAL PLAN

Non-roadway face of wall/Back Face of Panel
Roadway face of wall/Front Face of Panel

3" Min.
1'-0" Max.

4'-0" Max.
Varies
6" Min.

TYPICAL ELEVATION
(Front Face Shown, Textured Finish not Shown for Clarity)

PIVOTING JOINT DETAILS
NOTE: Shop Drawings shall include specific pivoting point details of panel ends at locations where the deflection angle (2°) between panels exceeds 20°.

SECTION D-D

SECTION E-E

Fill with Non-Shrink Grout

Pivot Post (Typ.)

L (Top-Installed)
L (Side-Installed)

3" x 4" x 1/2" Bearing Pad

PreCast Cap (Type "C" Shown)

Top of Wall Elevation

Top of Post

Step Varies (1'-4" Max.)

Step Varies

3" x 3" x 1/2" Bearing Pads

2° Min. - 4" Max.

1/2" Chamfer (Typ.)

Auger Cast Pile

Detail "A"
(Back Face Chamfer Shown
Front Face Chamfer Similar)

NOTE: Shop Drawings shall include specific pivoting point details of panel ends at locations where the deflection angle (2°) between panels exceeds 20°.
**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 lift cables prior to lifting from form. In this case, pick points must 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:**
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.)
- Horizontal Steel - #4 Bars @ 7/8" (As=0.32 in.²/ft.) (Typ.)
LOW CLEARANCE OPTION

NOTES:
1. See Shop Drawing for Post Lengths.
**SECTION H-H**

*Reinforcing not shown for clarity*

- **Post, Collar and Auger Cast Pile**
- **Finished Grade**
- **Top of Wall per Plan**
- **Exposed Precast Post & Pile Reinforcement**
- **Bars S1 (Typ.)**
- **30" Ø Auger Cast Pile**
- **Post & Pile**
- **30" Ø Auger Cast Pile**

**Notes:**
1. For Reinforcing Steel Sizes and Pile Lengths, see Table 1, Sheet 6.
2. For Corner Posts, see Sheet 8.
3. For Typical Post Section Dimensions, see Sheet 6.

**Typical Post Option**

**Low Clearance Option**

**Standard Post Placement in Auger Cast Pile**

*Standard Post Shown, 45° and 90° Corner Posts Similar*
**NOTES:**

1. End vertical reinforcing bars 1½" from top of bond beam blocks and horizontal bars 1½" from edge of control joints.
2. Do not continue horizontal #4 bond beam reinforcing through control joint.
3. Use stainless steel joint stabilizing anchors spaced at 16" vertically at all control joints. Install per manufacturer's instructions.
4. Seal Control Joints with backer rod and Type "A" silicone sealant (top and both sides).
5. See Sheet 10 for Bar placement details.
6. For Pilaster Cap Details, see Sheet 2.

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**Table 2**

<table>
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<tr>
<th>Wind Speed Category</th>
<th>Masonry Walls (8x8x16)</th>
<th>Foundations</th>
<th>Bars</th>
<th>T-Footing Width</th>
<th>Trench Footing Depth</th>
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<td>1'-0</td>
<td>#5</td>
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</tbody>
</table>

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**BAR BENDING DETAIL**

BAR F1
Length = 5'-2"

All bar dimensions in bending diagram are out to out. All bars not shown in the bending diagrams are straight.

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**MASONRY OPTION**

Table 2

**PILASTER REINFORCING AND WALL CONTROL JOINT DETAIL**
1. For location of Sections K-K and L-L see Sheet 9.
2. Provide and install ½” Preformed Expansion Joints with 1” Ø Dowel Load Transfer Devices at 90° Max. as shown. See Sections L-L for placement details.
3. For reinforcing sizes and spacings, see Table 2, Sheet 9.
4. For Reinforcing sizes and spacings, see Table 2, Sheet 9.
5. Pairs F1, V1 are required in the wall cells on both sides of pilasters, plus a pair in each pilaster cell. Space wall reinforcing per Table 2, Sheet 9.