

SECTION 02861

PRECAST RETAINING/NOISE WALLS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Materials and procedures for constructing Precast Noise and Retaining/Noise Walls.

1.2 RELATED SECTIONS

- A. Section 02056: Embankment, Borrow, and Backfill
- B. Section 02075: Geotextiles
- C. Section 03055: Portland Cement Concrete
- D. Section 03152: Concrete Joint Control
- E. Section 03211: Reinforcing Steel and Welded Wire
- F. Section 03310: Structural Concrete
- G. Section 03390: Concrete Curing
- H. Section 09981: Concrete Coating

1.3 REFERENCES

- A. AASHTO LRFD Bridge Construction Specifications
- B. ASTM D 1621: Compressive Properties of Rigid Cellular Plastics
- C. ASTM D 1777: Thickness of Textile Materials
- D. ASTM D 6364: Determining Short-Term Compression Behavior of Geosynthetics
- E. UDOT Quality Management Plans

11 x 17 inch sheets with a 1½ inch blank margin on the left edge. Title block location is at the top of 8½ x 11 inch sheets or the lower right corner of 11 x 17 inch sheets.

Place the following information in the title block:

- 1) State Project Designation
 - 2) State Project Name
 - 3) State Structure Number
 - 4) Contractor, Fabricator, or Erector Name
 - 5) Contractor, Fabricator, or Erector Drawing Number
 - 6) Contractor, Fabricator, or Erector Sheet Number
- b. Provide the seal of a PE or SE licensed in the State of Utah on all engineering calculations. Place the seal on the calculation cover sheet.
 - c. Certify that engineering calculations have been checked according to the Department QC/QA Procedures.
4. Allow the Engineer 14 calendar days to review and approve working drawings and supporting calculations.
 - a. The Engineer may grant an increase in the number of working days for the project when that time is exceeded.
 - b. This review period applies each time the drawings and calculations are submitted.
 5. Do not deviate from the approved drawings unless authorized in writing by the Engineer. Assume the responsibility for costs incurred due to faulty detailing or fabrication.
- B. Material Submittals
1. Manufacturer's product data, specifications, and recommended wall installation instructions.
 2. Samples of the specified surface texture architectural treatments for approval before casting the panels.
 - a. Refer to the plans for the required surface texture architectural treatments.

1.6 SHIPPING, HANDLING, AND STORAGE

- A. Shipment Acceptance – Panels or posts may be accepted for shipment if they meet the following requirements:
1. 28 day concrete compressive strength.
 2. Cured according to Section 03390.
 3. Water repellent applied according to Section 09981.
 - a. Water repellent may be applied at the project site after installation when approved by the Engineer.
 4. Not cracked or damaged.
- B. Do not ship any panel or post that does not satisfy strength requirements.

B. Tinted Concrete Sealer – Refer to Section 09981.

2.7 GRAVEL FOR POST HOLES

A. Use Free Draining Granular Backfill. Refer to Section 02056.

2.8 ELASTOMERIC BEARING PAD

A. Refer to AASHTO LRFD Bridge Construction Specifications, Article 18.2.

B. Use 60 hardness.

2.9 BACKER ROD

A. Refer to Section 03152.

2.10 CONSTRUCTION ADHESIVE

A. Apply as recommended by the wall manufacturer.

2.11 WOOD SHIMS

A. Use any grade fir.

2.12 COMPOSITE DRAINAGE MATERIAL

- A. Use a two-layer geocomposite sheet drain consisting of drainage geotextile bonded to one side of a three-dimensional drainage core.
1. Drainage geotextile – Refer to Section 02075.
 2. Drainage core:
 - a. High strength polystyrene or polypropylene.
 - b. Minimum compressive strength = 15,000 lbs/ft². Refer to ASTM D 1621 or ASTM D 6364.
 - c. Minimum thickness = 0.40 inches. Refer to ASTM D 1777.
 - d. Capable of multidirectional flow.

2.13 DRAINAGE GEOTEXTILE

A. Refer to Section 02075.

2.14 LIFTING DEVICES

A. Use the number, type, and size necessary to lift the largest precast panel used on the project.

2. Permanently mark each panel with the casting date and the panel identification number supplied by Engineer on the panel end near the top.
3. Provide the specified surface texture architectural treatment on both sides of noise panels. Provide the specified surface texture architectural treatment on the exposed side of retaining panels. Remove all residue from panel surfaces.
 - a. Use a concrete form liner to achieve the specified concrete texture.
 - b. Provide panel faces that are free of joint marks, grain, and other obvious defects. Provide corners including false joints that are uniform, straight, and sharp.
4. The Department accepts panels when:
 - a. Panels meet the 28 day compressive strength.
 - b. Panels are cured according to Section 03390.
 - c. Water repellent is applied according to Section 09981.
 - 1) Water repellent may be applied at the project site after installation when approved by the Engineer.
 - d. Panels have been visually inspected and accepted by the Engineer.
 - e. Panels have sides that do not deviate from a straight line by more than $\frac{1}{8}$ inch in 10 ft.
5. Replace panels that:
 - a. Are cracked or damaged.
 - b. Do not match in contrast.
 - c. Are not permanently marked.
 - d. Show discoloration from release agents or curing agents.
6. Use a single, full-height noise panel between posts for all noise walls. Use a single noise panel and a single retaining panel between posts for retaining/noise walls.
 - a. The noise and retaining panels may be cast as a single panel when there is less than 3 ft of soil provided that the portion of the panel retaining soil meets all retaining panel requirements.

D. Limitations

1. Refer to Section 03310 for hot and cold weather concrete limitations.

E. Curing

1. Cure as specified in Section 03390.

3.6 RETAINING WALLS

- A. Follow SW Series Standard Drawings.
- B. Composite Drainage Material
 1. Place behind the retaining panels at each weep hole location.
 2. Place the fabric side of the material against the fill. Extend the length of the material from the bottom of the retaining panel to the top of the fill.
 3. Attach to panels using construction adhesive.
 4. Follow manufacturer's recommendations.
- C. Drainage Geotextile
 1. Place around the back side of the posts as shown in the drawings.
 2. Extend the material from the bottom of the retaining panel to the top of the fill.
 3. Attach to posts using construction adhesive.
 4. Follow manufacturer's recommendations.
- D. Free Draining Granular Backfill
 1. Place and tamp down behind the retaining panels, between the posts to the fill height and length, and at the locations shown on the plans.

3.7 CONCRETE COATING SYSTEM

- A. Apply tinted concrete sealer to exposed concrete surfaces of posts and panels after installation is complete and as specified on the plans. Refer to Section 09981.
- B. Coat concrete surfaces to 6 inches below the finished ground line.

END OF SECTION