ITEM SPECIAL - NOISE GENERALS

1. DESCRIPTION
   These works consist of preparing any necessary shop drawings, and manufacturer's testing, transportation, storing, and installing noise barriers, including foundation, embedment, and backfilling, and restoring the work area in accordance with the contract documents and in conformity with the dimensions, lines and grades shown on the project plans.

2. DESIGN SPECIFICATIONS
   Sound Absorbing Material.
   Sound Absorbing Material shall be integral with the precast concrete panels. Select a preapproved sound absorbing material from the list below or notify the Engineer when the product is to be used.

   a. Acoustic.
   b. Fireproofing.
   c. Taping.

3. DESIGN LOADS
   a. Wind Load.
      - Applied wind load on posts is 25 PSF (1.0 kPa).(0.6)
      - 20 PSF (1.0 kPa). (10)
   b. Snow Load.
      - Applied snow load on all panels is 25 PSF

4. DESIGN CONSIDERATION
   a. Load in Wind.
      - Applied wind load on posts is 25 PSF

5. VERTICAL EXCITATION
   a. Load due to vertical excitation.
      - 0.2 kPa

6. MATERIALLS SPECIFICATIONS
   a. Reinforcing Steel.
      - Reinforcing steel shall be precast as per CMS 78-8 and CMS 78-9.

7. CONCRETE MOLDING:
   a. Concrete shall be cast in a water repellent admixture and box by height 90 inches or 720 square inches.

8. STRUCTURAL:
   a. ASTM 2405, ASTM 2483, ASTM 783, and ASTM E-110.

9. FIRE PROOFING:
   a. Fireproofing shall be applied to all noise barriers.

10. ROLLER SHEETS:
    a. The noise barrier posts shall be supported by 10" diameter steel pipe foundations.

11. BEARING:
    a. All bottom noise barrier posts shall be supported by girders for 6"x6" by 8"x8. (10)

12. INSTALLATION:
    a. The noise barrier panels shall be installed in accordance with the contract documents and in conformity with the dimensions, lines and grades shown on the project plans.

13. ELECTRONIC DOCUMENTS:
    a. All electronic documents shall be in portable document format (PDF).
    b. The sound absorbtion shall be submitted in 1" x 1" sheet size and acceptance letters shall be submitted in 1" x 1" sheet size.

14. CONCRETE NOISE BARRIER PANELS:
    a. Concrete noise barrier panels shall be supplied and installed.

15. INSTALLATION:
    a. All noise barrier panels and posts shall be installed in accordance with the contract documents and in conformity with the dimensions, lines and grades shown on the project plans.

16. MATERIALS:
    a. All materials shall be submitted to the Architect for approval before installation.

17. CONSTRUCTION:
    a. All construction shall be in accordance with the contract documents and in conformity with the dimensions, lines and grades shown on the project plans.

18. ACCEPTANCE:
    a. All acceptance shall be in accordance with the contract documents and in conformity with the dimensions, lines and grades shown on the project plans.

19. FIELD INSPECTION:
    a. All field inspections shall be in accordance with the contract documents and in conformity with the dimensions, lines and grades shown on the project plans.
CONSTRUCTION METHODS

1. LOCATE AND ERECT NOISE BARRIERS IN THE FIELD AND VERIFY THE PROPOSED WALL GEOMETRY AND ORIENTATION OF THE POSTS AND PANELS PRIOR TO THE INSTALLATION OF ANY NECESSARY SHOP DRAWINGS AND ORDERING DIRECTION TO THE BARRIERS COMPONENTS.

2. CLEAR BRUSH AND HEAVY FALLOUT FROM OR/AND REMOVE TREES IN CONFLICT WITH THE PROPOSED LOCATION OF THE SYSTEM. DEMOLISH OR REMOVE TREES THAT ARE ABSOLUTELY NECESSARY TO PERFORM THE WORK. OBTAIN APPROVAL FROM THE PROJECT ENGINEER PRIOR TO REMOVING ANY SMALL TREES OR FALLOUT THAT MAY HINDER THE INSTALLATION OF THE SYSTEM. DEMOLISH OR REMOVE ALL TREES, BRUSH, TREE STumps, AND OTHER OBSTRUCTIONS THAT ARE NECESSARY TO COMPLETE THE INSTALLATION OF THE BARRIERS COMPONENTS. DACR.

3. DO NOT DRILL CONCRETE PANELS, POSTS, OR LIP UNITS. THE CONCRETE OBTAINED FROM THE SYSTEM IS RUBBAGE AND IS NOT REUSABLE. USE EXTREME CARE TO NOT CAUSE CHIPS OR BREAKAGE ON THE COMPONENTS. USE STYLUS TO MEASURE OR ORGANIZE THE COMPONENTS. DO NOT USE A DRILL THAT CAN CAUSE CHIPS ON THE CONCRETE OR DAMAGE TO THE PANELS. INSTALL COMPONENTS. DO NOT INSTALL COMPONENTS THAT ARE DEFECTIVE. THE DEPARTMENT WILL CONSIDER COMPONENTS THAT ARE MARRIED, CRACKED, SPLITTED, CRACKED, DAMAGED OR HAVE ANY OTHER DAMAGE GAINST THE REQUIREMENTS TO THE NOISE BARRIERS BY THE ENGINEER PRIOR TO FINAL ACCEPTANCE AS DEPARTMENT WORK IN ACCORDANCE WITH CM10500.

4. INSTALL NOISE BARRIERS IN ACCORDANCE WITH THE PROJECT PLAN, SECURE JOINTS AND CONNECTIONS IN SUCH A MANNER AS TO BE STRUCTURALLY ADEQUATE WITH NO SIGNS OF DISTORTIONS OR DISARRANAGE, NOISE PANEL ATTACHMENTS TO POSTS AND INSTALLATION METHODS SHALL BE STRUCTURALLY ADEQUATE, SEE SUBSECTIONS OF CM10500 FOR INSTALLATION, MOUNTING, AND MACHINING. USE ONE PANEL OR EA PER 10' LONG PANELS AT LOCATIONS OTHER THAN THOSE SHOWN IN THE STANDARD DRAWING. TRANSFER AND STORE PANELS ON AN URGENT POSITION PROVIDE UNAUTHORIZED SUPPORT CAPABLE OF SUPPORTING THE PANELS IN AN URGENT POSITION.

WHEN TRANSPORTING, HANDLING, STORAGE, OR INSTALLING THE CONCRETE POSTS, CABLES, AND PANELS, USE EXTREME CARE TO NOT CAUSE CHIPS OR BREAKAGE ON THE COMPONENTS. USE STYLUS TO MEASURE OR ORGANIZE THE COMPONENTS. DO NOT USE A DRILL THAT CAN CAUSE CHIPS ON THE CONCRETE OR DAMAGE TO THE PANELS. INSTALL COMPONENTS. DO NOT INSTALL COMPONENTS THAT ARE DEFECTIVE. THE DEPARTMENT WILL CONSIDER COMPONENTS THAT ARE MARRIED, CRACKED, SPLITTED, CRACKED, DAMAGED OR HAVE ANY OTHER DAMAGE GAINST THE REQUIREMENTS TO THE NOISE BARRIERS BY THE ENGINEER PRIOR TO FINAL ACCEPTANCE AS DEPARTMENT WORK IN ACCORDANCE WITH CM10500.

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7. RESTORATION OF WORK AREA: UPON COMPLETION OF NOISE BARRIER INSTALLATION, RESTORE ALL AREAS DISTURBED BY THE NOISE BARRIERS CONSTRUCTION TO THEIR ORIGINAL CONDITION. RESTORATION SHALL INCLUDE: - RESTORATION TO ALL RESIDENTS' PROPERTIES IS DEEMED TO WORK SITES, AS SHOWN IN CM10500 USING A WORKING DRAWING OF SHEET METAL AS DEFINED IN SECTION 605.09. THE DEPARTMENT WILL REMOVE THE RESTORATION FROM TREES IN DURING THE MONTHS OF SEPTEMBER AND OCTOBER, BUT ALL OTHER RESTRICTIONS AND REQUIREMENTS OF 605.09 SHALL APPLY.


METHOD OF MEASUREMENT

The Department will measure the noise barrier by the number of square feet. The Department will determine the area of the noise barrier segment from project plan dimensions using a sounding board from the bottom of the panel to the top of the panel. The sound board is located at the center of the noise barrier segment. The calculated noise barrier area in the project plan is based upon the panel, width, length, and height of the noise barrier in the project plan. The Department will not adjust the projection for noise barrier heights or lengths greater than the projection in the project plan.

BASIS OF PAYMENT

Payment for noise barriers is full compensation for furnishing and installing foundations, posts, panels, and panel brackets and connections, concrete sidewalks, decorative planter boxes or other architectural design improvements, sample modeling and panels, design fees, installation, excavation, grading, and the area that do not have separate payment items but are necessary to complete the noise barrier. The Department will pay for the additional length of the noise barrier in the project plan dimensions for an area of unoccupied space in accordance with CM10500, AS EXTRA WORK FOR PAYMENT IN ACCORDANCE WITH CM10500.

The Department will pay for the additional foundations, posts, panels, and panel brackets and connections at the discretion of the designer to avoid unexpected costs or other constructions as extra work in accordance with CM10500. The Department will pay for the following additional costs under Item 203 - EMBARKMENT.

The Department will pay for furnishing, erecting, maintaining, and removing temporary fences under Item 203 - EMBARKMENT.

The Department will pay for laying out and staking the noise barrier under Item 203 - EMBARKMENT.

The Department will pay for a temporary fence or extension, maintaining, and removing temporary fences under Item 203 - EMBARKMENT.

If the contract includes a quantity for Item 653 - EMBARKMENT, the Department will pay for the temporary fence or extension, maintaining, and removing temporary fences under Item 203 - EMBARKMENT. If the contract does not include a quantity for the temporary fence or extension, the Department will pay for the temporary fence or extension directly but will consider it incidental to payment for the noise barrier.

Where the noise barrier length was decreased from the project plan dimensions due to unforeseen conditions or expected reduction, the Department will non-perform the noise barrier work below the proposed elevation and pay for the rock work and incidental as extra work according to CM10500.

The Department will not pay for refined or replaced components damaged by improper handling, transporting, storing, or demolishing. The Department will pay for accepted quantities at the contract prices as follows:

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<tr>
<th>Item</th>
<th>Unit</th>
<th>Description</th>
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<tr>
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<td>Sq. ft.</td>
<td>Noise barrier reflective, over 10' to 100' width</td>
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### B" PRECAST CONCRETE POST DATA

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<tr>
<th>GEOMETRY</th>
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<th>TYPE D POST</th>
<th>TYPE E POST</th>
<th>TYPE C POST</th>
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### NOTES:

1. FOR GENERAL NOTES REFER TO SHEETS 1-3/13.
2. B" THREADED RODS ARE USED FOR THE STEEL BASE PLATE CONNECTIONS ON THE 60" POST INSTALLATION. ALL STEEL BASE PLATE STUDS ARE 6" IN LENGTH, EXTENDED "A" HELIXS SHALL BE 27" IN LENGTH.
3. INSTALL REINFORCING STEEL WITH A MINIMUM CLEARANCE OF 3/4" FROM ALL CONCRETE SURFACES UNLESS NOTED OTHERWISE.
4. FOR ADDITIONAL POST INSTALL SCHEDULE REFER TO SHEET 7/13.

### LEGEND:

- TYPE 1:
- TYPE 2:
- CENTER OF DRILLED SHAFT DIAMETER
STEEL BASE PLATE PLAN (16" #2 POST SHOWN, OTHERS SIMILAR)

NOTES:
1. FOR GENERAL NOTES REFER TO SHEETS 3-SYS.
2. FOR SECTIONS SEE SHEET 6-SYS.
3. INSTALL ALL THREADED NUTS AND BOLTS ACCORDING TO THE ANCHOR BOLT NUT REQUIREMENTS OF CAN. 670.09.
4. PROVIDE SANDING AND WASHING OF BASE PLATE WITH STANDARD SCRUB BRUSHES. REQUIRED LINES AND NUTS ARE NOT INCL. IN BASE PLATE.
5. IN LIEU OF PROVIDING SEPARATE THREADED NUTS, THE 4 BOLTS MAY BE FACILITATED WITH THREAD NUTS AND EXTRUDE TO CONNECT THE BASE PLATE TO THE SILT BOTTOM. THE BASE PLATE WILL BE CALLED FULL LENGTH. THE BASE PLATE TO SITE AND SIDES OF STEEL DRIVING.
6. THREADED PLATE CONNECTIONS. IN LIEU OF 8-thread plate connection, the base plate holes may be tapered to accommodate the threaded anchors or threaded rods. Threads at rear of threaded rods shall be threaded into the base plate (1" 3/4" minus 2 threads). Make sure the bolts and nuts are threaded correctly into the bolts and nuts.
7. FABRICATOR SHALL DETAIL ANCHOR BOLT PROJECTION ON SHOP DRAWINGS. WHEN INSTALLED, THE END OF THE BOLT SHALL PROJECT AT LEAST TWO THREADS LENGTHS OUTSIDE THE BOLT NUT.

BASE PLATE DATA FOR 16" PRECAST CONCRETE POSTS

BASE PLATE DATA FOR 20" PRECAST CONCRETE POSTS

LEGEND:
- UNI = UNIFIED NATIONAL COARSE AS PER AASHTO AND AASHTO D457-75 AND D610-75
- "A" = "A" ANCHOR BOLT "EMBED" LENGTH PT = PRECAST BASE PLATE THICKNESS
- CENTER OF DRILLED SHAFT

O = USA 20" PRECAST CONCRETE POST.
TYPICAL DRILLED SHAFT ELEVATION

SECTION 1-1: TYPICAL DRILLED SHAFT

PROVIDE A MINIMUM OF 2-#8 REINFORCING BARS ALONG THE VERTICAL EMBEDMENT BARS MAY BE ALIGHTLY ADJUSTED TO AVOID INTERFERENCE WITH THE ANCHOR BOLTS.

POST & O'FACED SHAFT AXIS

STANDARD CIRCULAR WASHERS (#20 YARD(S))

# TIES

LAP SPACES (#4)

STABILE SPACING LOCATIONS BETWEEN TIES

NOTES:
1. REFER TO THE REINFORCING STEEL LIST IN THE PROJECT PLANS FOR THE REINFORCING STEEL DETAILS FOR EACH DRILLED SHAFT DESIGN.