INSTRUCTIONS FOR USING STANDARD SOUND WALL - WOOD PLANK, PLYWOOD SHEET AND FRAMED PLYWOOD PANEL DETAIL SHEETS

Attached are instructions for using the following sheets:

"Sound Wall – Wood Plank – Details No. 1"	(File XS-3-78.0)
"Sound Wall – Wood Plank – Details No. 2"	(File XS-3-78.1)
"Sound Wall – Wood Plank – Details No. 3"	(File XS-3-78.2)
"Sound Wall – Plywood Sheet – Details No. 1"	(File XS-3-79.0)
"Sound Wall – Plywood Sheet – Details No. 2"	(File XS-3-79.1)
"Sound Wall – Plywood Sheet – Details No. 3"	(File XS-3-79.2)
"Sound Wall – Framed Plywood Panel – Panel Details No. 1"	(File XS-3-80.0)
"Sound Wall – Framed Plywood Panel – Panel Details No. 2"	(File XS-3-80.1)
"Sound Wall – Framed Plywood Panel – Post Details No. 1"	(File XS-3-80.2)
"Sound Wall – Framed Plywood Panel – Post Details No. 2"	(File XS-3-80.3)

The detail sheets are shown on pages 20-36, 20-36.1, 20-36.2, 20-36.3, 20-36.4, 20-36.5, 20-36.6, 20-36.7, 20-36.8, and 20-36.9 of the *Bridge Design Details* manual.

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Guy D. Mancarti

JPH:mp
Attachment(s)

Supersedes Memo to Designers 22-25 dated April 1986

INSTRUCTIONS FOR USING STANDARD SOUND WALL DETAIL SHEETS WOOD PLANK, PLYWOOD SHEET AND FRAMED PLYWOOD PANEL

These instructions are for use with the standard sound wall details sheets: Sound Wall – Wood Plank, Sound Wall – Plywood Sheet, and Sound Wall – Framed Plywood Panel.

Since changes can be made on the standard details from time to time, it is important to always order new copies from the original tracings. Making copies from a film already on hand has resulted in project plans going to contract with outdated details. Duplicate vellums of the original standard details for use by Office of Structure Design and District Project Development may be ordered from the Floor Clerks, telephone 916-324-0553 (ATSS 8-454-0553) or telephone 916-327-2004 (ATSS 8-467-2004). Duplicate reproducibles for use by private consultants can be obtained from the Technical Publications Section, telephone 916-324-7439 (ATSS 8-454-7439). There is a charge to the consultants unless the request is made for them through the Externally Financed Branch for jobs being constructed on the State Highway System.

Using the sound wall detail sheets is similar to using the retaining wall detail sheets shown in the book of Standard Plans. The sound wall detail sheets show only the structural details of the wall. The plan views, elevation views, and architectural requirements, if any, must be shown on other sheets.

These details *are not* to be used for retaining earth and *are not* to be used at locations 15 feet or less from the edge of pavement unless protected from traffic by an intervening concrete safety shaped barrier. Also, the details from these standard sheets are not to be used on bridges or retaining walls or at locations where the wind pressure is greater than 15 pounds per square foot. Local building officials can normally provide information on wind loads. The 15 pounds per square foot wind pressure shown in the design notes is based on a wind velocity of approximately 55 miles per hour.

Since these standards are designed to span horizontally between the posts, access openings through the walls require additional posts on each side of the opening. To eliminate the need for a special access opening design, it is suggested that the wall be overlapped to provide access between adjacent panels. The length of longitudinal overlap should be three times the lateral distance between wall panels.

When using these standard sound wall details it is necessary to verify that the wall heights, ground conditions and soil properties for each wall and wall site agree with the design parameters shown.

When showing the elevation views of the wall, indicate the bottom of wall elevations and the wall heights ("H") with their limits. For walls located on sloping ground where the bottom of wall is parallel to the slope, show top of pile or top of concrete backfill elevations at the centerline of posts and show top of panel elevations. In addition to the elevations, it is suggested that the design wall height of those posts that are located in sloping ground also be shown in order to assure that the correct tabular post data will be used. The bottom of wall should be set to provide a minimum of 6" embedment below the finished ground line. After establishing the embedment, verify that the resulting exposed wall height above the ground line meets the required heights for sound attenuation. In order to minimize

lumber and plywood waste, users of these standard details are advised to establish bottom of wall grades that result in wall heights that conform with the plywood and lumber dimensions commonly used in wood construction.

For *Ground Line 1* where the finished ground is level on both sides of the sound wall, the detail sheets show foundation designs for two allowable ultimate lateral soil pressures. The proper one to be used will be recommended by the Engineering Geology and Technical Services Branch of the Transportation Laboratory. To make the soil pressure and soil property determination, the Geology Branch requires a preliminary wall plan, a site plan, an index map and any other pertinent information that applies. The criteria for level ground on both sides of the wall are shown on Figure 1. The finished ground condition *must be determined* during the design phase. *Add* a note to the plans that indicates whether the post data is to be taken from the tabular values of Ground Line 1 or Ground Line 2. Should the condition for level ground on both sides of the wall apply, add the allowable ultimate soil pressure value recommended by the Geology Branch to Note S of the General Notes. The "Log of Test Borings" sheet accompanying the foundation report must be included with the contract plans.

Special architectural requirements, if any, must be indicated on the plans. All sound walls that are designed in the District without architectural review, either in-house or from other sources, are to be submitted to the Office of Structure Design for such a review prior to finalizing plans.

All wood members on these standards are to be preservative-treated. It can be anticipated that the wood may be slightly colored as a result of the treating process. Exposure to natural weathering should cause any residual treating color to fade. Staining will be permitted on the planks, plywood posts as a means of enhancing the appearance of the wall. For those walls that are to be stained, the Special Provisions will require that the treating process leave the wood stainable.

Only semi-transparent or penetrating stains will be used. Opaque or heavy-bodied stains that mask or obscure the substrate characteristics of the wood are not recommended. The metal panel cleats that are used with concrete posts on the Framed Plywood Panel standard should be stained or painted to match the color of the adjacent panels.

The plywood siding for the Framed Plywood Panel and Plywood Sheet Standards may be aggregate coated or rough sawn. If an aggregate-coating is to be used, the size, color and gradation of the aggregate must be shown on the plans or described in the Special Provisions. In the interest of economy, it is suggested that the aggregate selection be based on material that is commercially available with the plywood coating manufacturers.

The Framed Plywood Panel Standard has details for an optional architectural feature at the end of wall. The end panels of the wall may have sloped or level tops. The end panel to be used must be determined during the design phase. Note on the plans which End Panel Detail is to be used.

The Aesthetics and Models Section, telephone 916-445-2138 (ATSS 8-485-2138), can provide assistance in determining architectural requirements. Standard Architectural Feature sheets are not available for this wall type.

Each sound wall site may require an acoustical analysis to determine the height of sound wall to provide the desired attenuation.

The Special Provisions will allow the contractor to use any of the alternative post types that are shown on the plans but will allow only one post type on a given wall or project.

Regardless of the post type used, the pay items will be as follows:

Sound Wall - Framed Plywood Panel

Sound Wall (Plywood Panel)	SQ FT

Sound Wall - Plywood Sheet

Sound Wall (Plywood Sheet)	SQ FT

Sound Wall - Wood Plank

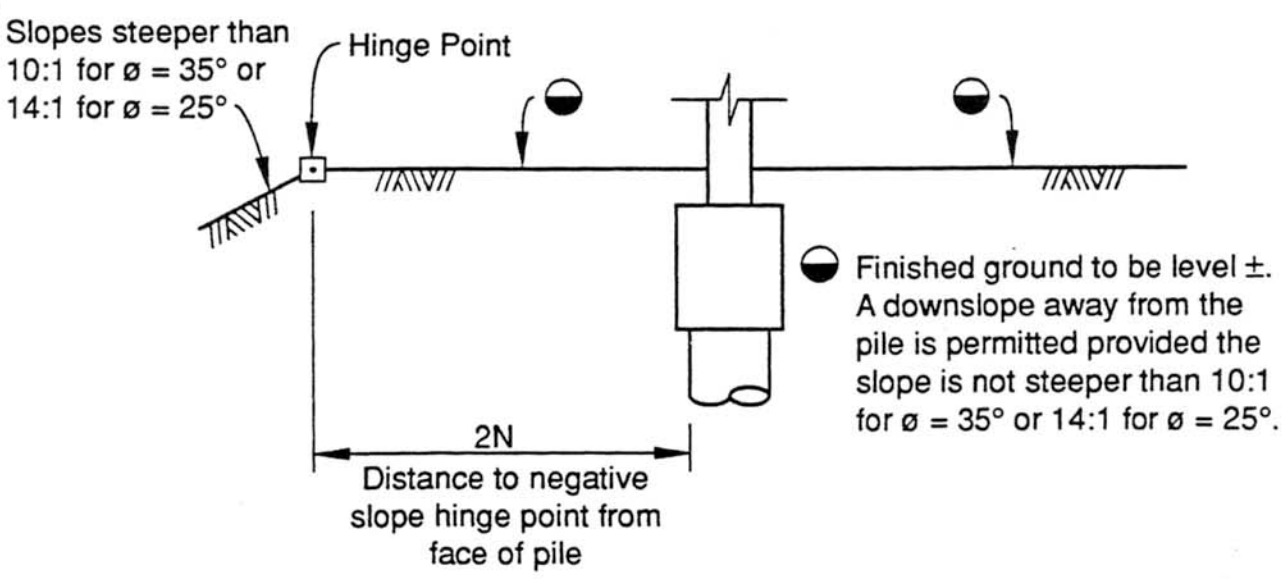
Sound Wall (Wood Plank)	SQ FT

The total area of Sound Wall will be measured using the vertical limits between the top and bottom of wall and the horizontal length of the wall with no deduction for the posts. The length of Post Embedment (per post) is shown in tabular form on the standards.

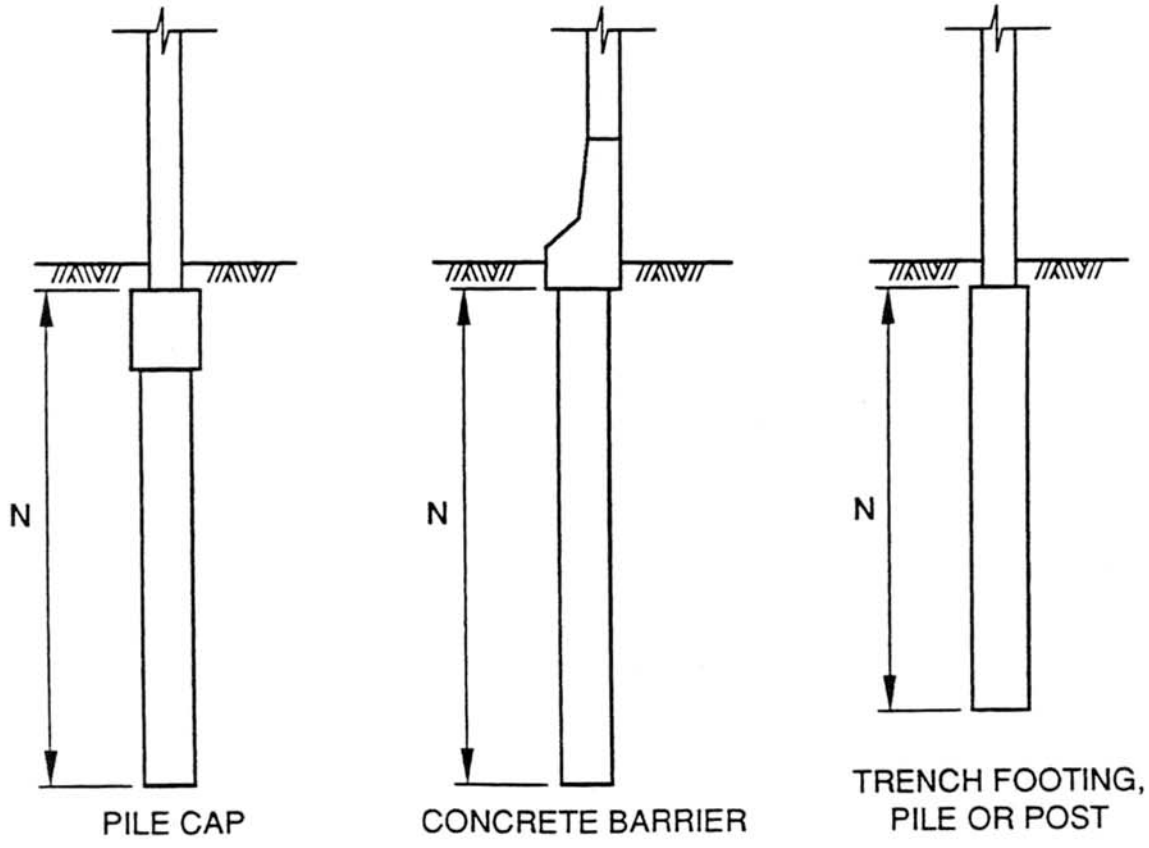
Construction Considerations

To facilitate building this sound wall a minimum of 2' wide access is required on both sides of the sound wall. Also the existence of overhead or underground utilities may limit the use of construction equipment as specified by OSHA. Review by Construction may assist in preparing the final plans.

Questions regarding the use of the standard sheets or the instructions should be directed to the Walls and Railings staff specialist, telephone 916-445-9196 (ATSS 8-485-9196).



Note: If the location of the slope hinge point is less than 2N, the level ground ground condition *cannot* be used.



CRITERIA FOR LEVEL GROUND

Figure 1