

## CHAPTER 14

## BRIDGE PLANS

BRIDGE PLANS

14-1

The bridge plans are the responsibility of the Structure Design Unit. The bridge plans are always a separate set of plans and are never combined with the roadway plans. However, the structure can be combined into the roadway contract. This preliminary determination of letting the Structure and Roadway as combined should be made early so the affect on traffic handling can be determined. The Contract Time Committee usually makes the final determination in the later stage of final preparation.

Reinforced concrete box culverts will usually be included in the same contract with the roadway. Many of the same coordination measures are required for culverts as for bridges.

Although the bridge and culvert sheet numbers are included in the roadway plans index of sheets, the plans are handled separately, including the printing and distribution.

COORDINATION WITH THE STRUCTURE DESIGN UNIT

14-2

There are a number of items, listed below, which require close coordination to insure that the bridge plans and roadway plans are compatible. This is the joint responsibility of the Structure Design Squad Leader and the Roadway Project Design Engineer. When unusual conditions occur, they shall be handled in an appropriate manner.

GRADES

The Roadway Design Unit sets the proposed grade lines. However, on roadway and railroad overpass structures involving significant embankments, the excess vertical clearance tolerance is severely limited and the assistance of the Structure Design Unit may be required to properly establish the grades. The Structure Design Unit is responsible for obtaining the necessary approvals when it appears that the vertical clearance is excessive.

EMBANKMENT SLOPES

The Geotechnical Engineering Unit determines the side slopes, and this information is furnished to the Structure Design Unit for all bridge and box culvert locations.

COORDINATION WITH THE STRUCTURE DESIGN UNIT DRAINAGE (cont.) 14-2

The Roadway Design Unit shall furnish all information relating to drainage in close proximity to a bridge or box culvert as early as possible in the plan development. This is particularly important where railroads are involved since the Structure Design Unit must obtain approval from the Railroad Company involved.

UNDERCUT AND DRAINAGE DITCH EXCAVATION

Where it is necessary to undercut below the floor slab of a box culvert to be let as a separate contract and the undercut done by the Roadway Contractor, notes shall be placed on the roadway plans as follows:

- (1) "No work shall be done on the culvert at STA. \_\_\_\_\_ until the roadway contractor has undercut the area of the box culvert and replaced unsuitable material with suitable material, properly compacted, to the elevation of the bottom of the proposed floor slab. The limits of this undercut excavation shall be at least the limits of the box culvert including the wings."
- (2) "No separate payment will be made for any culvert excavation required to construct the proposed culvert."

Notes (1) and (2) above will be provided to the Roadway Design Unit by the Structure Design Unit to be placed on the Roadway Plans. If additional undercut excavation is required to achieve the limits as specified in (1) above, the Structure Design Unit will compute the additional quantity and supply the Roadway Design Unit with this quantity.

If the bottom of culvert is below limits of unsuitable material, place the following note on the culvert plans: "Roadway undercut to be performed prior to constructing the culvert." If needed, the Structure Design Unit will provide this note to the Roadway Design Unit to be placed on the Roadway Plans.

The computation of and limits of drainage ditch excavation shall be carefully considered and indicated on the plans so as not to overlap the limits of the culvert excavation.

COORDINATION WITH THE STRUCTURE DESIGN UNIT (continued) 14-2GUARDRAIL ATTACHED TO BOX CULVERTS

All box culverts shall be reviewed immediately after proposed grades are set to determine if it will be necessary to attach guardrail posts to the top slab. The Structure Design Unit shall be advised of locations where this is required.

RIP RAP

Where rip rap will appear in both the bridge plans and roadway plans at the same site, care shall be exercised in clearly defining the limits covered by each set of plans.

REVISIONS

When revisions occur in the roadway plans during plan development affecting areas where bridges or box culverts occur, the Roadway Design Project Design Engineer shall be responsible for keeping the Structure Design Unit advised of all revisions that would affect them.

There are also several items of information, initially furnished on the structure recommendation plans, which should be confirmed immediately prior to completing final plans. These include points of guardrail attachment, drainage devices, and the location and type of median barriers. See Part I, Chapter 6 for structure recommendation plan information.