

2.8 Role Of The Designer

2.8.1 Responsibility

The designer has a three-fold responsibility for the legal aspects of highway drainage. First, the designer should know the legal principles involved and apply this knowledge to the designs; and, secondly, work closely with the Attorney General's office, as necessary, in the preparation and trial of drainage cases. Thirdly, become familiar with drainage rights and other property considerations. The following should be considered in the development of drainage designs.

- At any location where highway drainage is to be discharged onto abutting property, except where such drainage is into an existing stream at a point within the limits of the highway right of way, appropriate rights must be secured. These include the concentrated discharge from any culvert, storm drainage system or channel regardless of whether the waters so discharged primarily originate within the highway limits or from land beyond the highway limits.
- The outlets shall be located, insofar as possible, on or adjacent to the boundary line between abutting owners. Where one owner has extensive frontage along the highway and there is a drainage depression or swale in that frontage, the outlet may be located at or near the depression. In order to minimize property damage, it may be necessary to install pipe to the rear of buildings or to minimum depth of a building lot.
- The course of flow of such drainage should be investigated for a sufficient distance, particularly in urban or suburban areas, to insure that other downgrade owners will not be adversely affected. It may be necessary to purchase drainage rights from owners not immediately adjoining the highway in such cases.
- The course of such outlet drainage shall be shown on the construction plans for a minimum distance of 61 m (200 ft.) or shown to terminate by dissipation or entrance into a watercourse or body of water. New or updated drainage rights should be dimensioned on the plans. No drainage shall be outletted into a wetland or natural depression which does not have an adequate outlet unless proper rights for storage in, or provision for an adequate outlet from, such an area are secured or provided.
- It should be noted that the damage done to a property, by the establishment of a drainage outlet, is determined by its location and its capacity. Frequently the rights to install a small or moderate size outlet can be obtained at a reasonable cost but rights for large outlets can be obtained only with great difficulty and at considerable expense. In court or referee decisions, the full capacity of the outlet pipe is usually the determining factor, with an almost invariable refusal to consider the lesser capacity of conduit lines leading to the outlet conduit or lesser capacities of inlets leading into the entire system.
- It is important that outlets be of adequate capacity to pass the inlet capacity and any reasonable increase in inlet capacity which may be provided in the future. No excess capacity should be provided. Careful adherence to this policy will minimize the cost of securing the needed drainage rights.
- The acquisition of property, flowage or flooding rights beyond the normal highway line may, in certain circumstances, result in a lower net cost of the project by allowing the installation of smaller culverts and storm drainage systems.

2.8.2 Investigating Complaints

It is imperative that drainage complaints be dealt with promptly and in an unbiased manner. This means accepting the fact that the flooding is a serious problem for the complaining party, and not accepting anyone's preconceived conclusions. All facts must be assembled and analyzed before deciding on what happened and why it happened. Also, other agencies should be listed that could possibly have responsibility for a remedy to the flooding.

When the designer is requested to investigate a complaint, the following guidelines are recommended:

Determine Facts About The Complaint

- Show on a map the location of the problem on which the complaint is based.
- Clearly determine the basis for the complaint (what was flooded, complainer's opinion as to what caused the flooding, description of the alleged damages, dates, times and duration of flooding).
- Briefly relate the history of any other grievances that were expressed prior to the claim presently being investigated.
- Obtain approximate dates that the damaged property and/or improvements were acquired by those claiming damages.
- Collect facts about the specific flood event(s) involved.
- Rainfall data (dates, amounts, time periods and locations of gages). Rainfall data are often helpful regardless of the source.
- Document observed highwater information at or in the vicinity of the claim. Locate highwater marks on a map and specify datum. Always try to obtain highwater marks both upstream and downstream of the highway and the time the elevations occurred.
- Determine the duration of flooding at the site of alleged damage.
- Determine the direction of flood flow at the damaged site.
- Describe the condition of the stream before, after, and during flood(s). Was the growth in the channel light, medium, heavy; were there drift jams; does the stream carry much drift in flood stage; was the flow fast or sluggish; did light, moderate, or severe erosion occur?
- Document the flood history at the site.
- Was highway overtopped by the flood? If so, what was the depth of overtopping; and, if possible, estimate a flow velocity across the highway.
- Obtain narratives of any eyewitnesses to the flooding.
- Obtain facts about the flood(s) from sources outside the Department, such as newspaper accounts, witnesses, measurements by other agencies (USGS, Corps of Engineers, Natural Resources Conservation Service (NRCS) and individuals), maps and Weather Bureau rainfall records.
- State facts about the highway crossing involved.
- Show profile of the highway across the stream valley.
- Give the date of the original highway construction and dates of all subsequent alterations to the highway, and describe what the alterations were.
- Describe what existed prior to the highway, such as town road, city street, or abandoned railroad embankment, etc. Also include a description of the drainage facilities and drainage patterns that were there prior to the highway.
- Give a description of the existing drainage facilities.
- Determine peak rates of flow for a range of return frequencies.

- Give the original drainage design criteria, or give capacity and related frequency) of the existing facility based upon current criteria.

Possible Effects By Others

- Are there any other stream crossings in the vicinity of the damaged site that could have affected the flooding (pipelines, highways, streets, railroads, dams)?
- Have there been any significant man-made changes to the stream or watershed that might affect the flooding?

Analyze The Facts

- From the facts decide what should be done to relieve the problem regardless of who has responsibility for the remedy. Could others possibly provide assistance?

Make Conclusions And Recommendations

- What were the contributing factors leading to the alleged flood damage?
- Specify feasible remedies. (This should be done without any regard for who has responsibility to effect a remedy.)

This list of Determining Facts About the Drainage Complaint is not all-inclusive, nor is it intended that the entire list will be applied in each case. This outline is given as a guide to the type and scope of information desired from an investigation of a drainage complaint. It is beneficial to have available hydraulic design documentation as outlined in Chapter 1. A report should be prepared with a response to the complainer explaining the results of the investigation. Documentation of the facts and findings is important in the event there is future action.

2.8.3 Legal Opinion

Drainage matters range from the simple to the complicated. If the facts are ascertained and a plan developed before initiating a proposed improvement, the likelihood of an injury to a landowner is remote and ConnDOT should be able to undertake such improvements without legal complications.

If the designer needs a legal opinion on a particular drainage problem or improvement, the requested opinion should state as a minimum whether:

- the watercourse under study has been viewed
- there are problems involved, and what causes them (obstructions, topography, development - present and future)
- the proposed improvements will make the situation better
- the proposal requires that the natural drainage be modified
- there is potential liability for doing something versus doing nothing
- someone will benefit from the proposed improvements
- the proposed improvement is "reasonable"

2.8.4 Witness Obligation

Witness duty ordinarily requires considerably more time of a witness than the time spent in the courtroom. The best use of the designer's time can be arranged by consulting with legal counsel to determine what types of information and data will be needed, types of presentation needed and when testimony will be required.

Testimony often involves presenting technical facts in layman's language so that it will be clearly understood by those in the courtroom. The designer's testimony generally describes the highway drainage system involved in the alleged injury or damage, and how that system affects the complainant. Design considerations and evidence of conditions existing prior to construction of the highway are important points.

The designer who is to serve as a witness should bear one fact in mind; the purpose of the court is to administer justice. Testimony should have one purpose — to bring out all known facts relevant to the case so that justice can better be served. Following are some pointers in being a witness:

- Tell the truth and do not try to color, shade or change your testimony to help either side.
- Never lose your temper or show prejudice in favor of one side that is not supported by facts.
- Do not be afraid of lawyers and give your information honestly.
- Speak clearly and loud enough to be heard by everyone involved in the courtroom proceeding.
- If you do not understand a question, ask that it be explained. If you still do not understand what is being asked, explain that you cannot give an answer to that question.
- Answer all questions directly and never volunteer information the question does not ask for.
- Stick to the facts and what you personally know.
- Do not be apprehensive. Your purpose is to present the facts as you know them and that is all that will be expected.
- If you do not know the answer to a question, just admit it. It is to your credit to be honest, rather than try to have an answer for everything that is asked you.
- Do not try to memorize your story. There is no more certain way to cross yourself than to memorize your story and try to fit this story with the questions being asked.
- Work with your lawyer in preparing your testimony and stick to the facts as you know them.