2 Legal Aspects

TABLE OF CONTENTS

2 Legal Aspects

2.1 OVERVIEW

2.1.1 Introduction

Various drainage laws and rules applicable to highway facilities are discussed in this chapter. The intent of this chapter is to provide information and guidance on the designer's role with respect to legal issues associated with highway drainage. This chapter is not meant to summarize all existing laws and should not be treated as a substitute for obtaining an opinion from legal counsel.

The following generalizations can be made in reaching the proper conclusion regarding liability:

- A goal in highway drainage design should be to perpetuate natural drainage, insofar as practicable.
- The historic flow and path should be maintained as much as possible. For example, if a large borrow ditch is filled, the effects of the loss of detention storage should be considered.
- Courts generally look with disfavor upon infliction of injury or damage that could reasonably have been avoided by a prudent designer, even where some alteration in flow is legally permissible.
- There is a trend towards increased governmental liability, therefore, design is very important.

2.1.2 Order of Authority

There is an order of authority that is followed when applying various statutes, regulations, etc. In descending order they are as follows: Federal, State and local. Generally, the laws of the lower level do not bind the superior level. For example, the Federal government is not bound to follow a regulation established at the local level. However, the local level is required to follow not only local regulations but also those of the State and Federal governments.

Often, the State and local levels create regulations to ensure the requirements of the Federal laws are met. Occasionally there are conflicts. Many of these conflicts require constitutional interpretation and analysis. Such conflicts should be referred to the Colorado Attorney General's Office through CDOT's Chief Engineer.

2.1.3 Related Publications

There are numerous publications that discuss the legal aspects of drainage and water laws. The following publications provide guidance:

Volume 1, Chapter 2 – Legal Aspects of the American Association of State Highway and Transportation Officials (AASHTO) *Drainage Manual* (2014).

Volume 1, Chapter 2 – Drainage Law of the Urban Drainage and Flood Control District *Criteria Manual* (2016).

2.2 FEDERAL LAWS

2.2.1 General

Federal law consists of the U.S. Constitution, Acts of Congress, regulations, Executive Orders and case law. Federal law does not address drainage directly. However, many laws have implications that affect drainage design. These include laws concerning:

- Flood insurance and construction in flood hazard areas, navigation and construction in navigable waters (of which there are few in Colorado);
- Water pollution control;
- Environmental protection; and
- Protection of fish and wildlife.

2.2.2 Significant Federal Law

For a listing of the significant Federal law affecting highway drainage please refer to:

Volume 1, Chapter 2 – Legal Aspects of the American Association of State Highway and Transportation Officials (AASHTO) *Drainage Manual*, (Washington D.C., 2014).

2.2.3 Navigable Waters Regulations

The Congress of the United States asserts regulatory authority over certain waterways, which are deemed to be "navigable waters." The only waters in Colorado defined as navigable are the Colorado River west of Grand Junction and the Navajo Reservoir.

If a designer becomes involved in a project that involves navigable waters, the designer must be aware that coordination and approval from the Coast Guard and the Corps of Engineers is required. Also, a National Pollutant Discharge Elimination System (NPDES) permit will be required from the Colorado Department of Public Health and Environment (CDPHE). NPDES requirements are covered in the State Laws section below. Designers need to recognize that such coordination and approval takes time and failure to seek approvals early can lead to project delays.

2.3 FISH AND WILDLIFE SERVICE

2.3.1 Requirements

The Fish and Wildlife Coordination Act requires that "whenever the waters of any stream or body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatsoever, including navigation and drainage, by any department or agency of the United States, or by any

public or private agency under Federal permit or license, such department or agency shall first consult with the US Fish and Wildlife Service, Department of the Interior and with the head of the agency exercising administration over the wildlife resources of the particular state with a view to the conservation of wildlife resources by preventing loss and damage to such resources as well as providing for the development and improvement thereof."

2.3.2 Service's Role

The U.S. Fish and Wildlife Service's role in the permit review process is to review and comment on the effects of a proposal on fish and wildlife resources. It is the function of the regulatory agency (e.g. Corps of Engineers; US Coast Guard) to consider and balance all factors, including anticipated benefits and costs in accordance with the National Environmental Policy Act (NEPA), in deciding whether to issue the permit (40 FR 55810, December 1, 1975).

2.4 NATIONAL FLOOD INSURANCE PROGRAM

2.4.1 Flood Disaster Protection

Communities are required to adopt certain land use controls to qualify for flood insurance. Such land use requirements could impose restrictions on the construction of highways in floodplains and floodways in communities that have qualified for flood insurance.

A floodway is that portion of the floodplain required to pass a flood that has a one-percent chance of occurring in any one-year period without cumulatively increasing the water surface elevation more than one foot at any cross section.

2.4.2 Flood Insurance

Federal criteria have been developed to implement the requirement that communities adopt adequate land use and control measures to qualify for insurance. These federal criteria contain the following which can affect highway design:

In riverine situations, when the Administrator of the Federal Insurance Administration has identified the flood-prone area, the community must require that, until a floodway has been designated, no use, including land fill, be permitted within the floodplain area having special flood hazards for which base flood elevations have been provided, unless it is demonstrated that the cumulative effect of the proposed use, when combined with all other existing and reasonably anticipated uses of a similar nature, will not increase the water surface elevation of the 100-year flood more than one foot at any point within the community.

After the floodplain area having special flood hazards has been identified and the water surface elevation for the 100-year flood and floodway data have been provided, the community must designate a floodway which will convey the 100-year flood without increasing the water surface elevation of the flood more than one foot at any point and prohibit, within the designated floodway, fill, encroachments, new constructions and substantial improvements of existing structures which would result in any increase in flood heights within the community during the occurrence of the 100-year flood discharge.

The participating cities and/or counties agree to regulate new development in the designated floodplain and floodway through regulations adopted in a floodplain ordinance. The ordinance

requires that development in the designated floodplain be consistent with the intent, standards and criteria set by the National Flood Insurance Program.

2.4.3 Local Community

The local community with land-use jurisdiction, whether it is a city, county or state, has the responsibility for enforcing the National Flood Insurance Program (NFIP) regulations. Consistency with NFIP standards is a requirement for federal-aid highways actions involving regulatory floodways. The community, by necessity, is the proper entity for submitting proposals to the Federal Emergency Management Agency (FEMA) for amendments to NFIP ordinances and maps in that community. CDOT should work directly with the community and, through them, work with FEMA. Determination of the status of a community's participation in the NFIP and review of applicable NFIP maps and ordinances are, therefore, essential first steps in conducting location hydraulic studies and preparing environmental documents.

2.4.4 NFIP Maps

Where NFIP maps are available, their use is mandatory in determining whether a highway location alternative will include an encroachment on the base floodplain. Three types of NFIP maps are published:

- Flood Hazard Boundary Map (FHBM);
- Flood Boundary and Floodway Map (FBFM); and
- Flood Insurance Rate Map (FIRM).

An FHBM is generally not based on a detailed hydraulic study and, therefore, the floodplain boundaries shown are approximate. An FBFM, on the other hand, is generally derived from a detailed hydraulic study and should provide reasonably accurate information. The hydraulic data from which the FBFM was derived are available through the regional office of FEMA. This is normally in the form of computer input data records for calculating water surface profiles. The FIRM is generally produced at the same time using the same hydraulic model and has appropriate rate zones and base flood elevations added.

Communities may or may not have published one or more of the above maps depending on their level of participation in the NFIP. Information on community participation in the NFIP is provided in the *National Flood Insurance Program Community Status Book*, which is published semi-annually for each State.

2.4.5 Coordination With FEMA

CDOT or its representative should coordinate with FEMA in situations where administrative determinations are needed involving a regulatory floodway or where flood risks in NFIP communities are significantly impacted. Circumstances which require coordination with FEMA include the following:

- When a proposed crossing encroaches on a regulatory floodway and, as such, would require an amendment to the floodway map;
- When a proposed crossing encroaches on a floodplain where a detailed study has been performed but no floodway designated and the maximum one-foot increase in the base flood elevation would be exceeded;

- When a local community is expected to enter into the regular program within a reasonable period and detailed floodplain studies are underway; and
- When a local community is participating in the emergency program and base FEMA flood elevation in the vicinity of insurable buildings is increased by more than one foot. Where insurable buildings are not affected, it is sufficient to notify FEMA of changes to base flood elevations as a result of highway construction.

The draft Environmental Impact Statement or Environmental Assessment (EIS/EA) should indicate the NFIP status of affected communities, the encroachments anticipated and the need for floodway or floodplain ordinance amendments. Coordination means furnishing the draft EIS/EA to FEMA and, upon selection of an alternative, furnishing to FEMA, through the community, a preliminary site plan, water surface elevation information, technical data in support of a floodway revision request, as required. If a determination by FEMA would influence the selection of an alternative, a commitment from FEMA should be obtained prior to the Final Environmental Impact Statement (FEIS) or Finding Of No Significant Impact (FONSI) report. Otherwise this later coordination may be postponed until the design phase.

Consistent With Floodways

In many situations it is possible to design and construct highways in a cost-effective manner such that their components are excluded from the floodway. This is the simplest way to be consistent with the standards and should be the initial alternative evaluated. If a project element encroaches on the floodway but has a very minor effect on the floodway water surface elevation (such as piers in the floodway), the project may normally be considered as being consistent with the floodway standards provided hydraulic conditions can be improved so that no water surface elevation increase is reflected in the computer printout for the new conditions.

Revisions of Floodway

Where it is not cost effective to design a highway crossing to avoid encroachment on an established floodway, a second alternative would be a modification of the floodway itself. Often, the local community will be willing to accept an alternate floodway configuration to accommodate a proposed crossing provided NFIP limitations on increases in the base flood elevation are not exceeded. This approach is useful where the highway crossing does not cause more than a one-foot rise in the base flood elevation. In some cases, it may be possible to enlarge the floodway or otherwise increase conveyance in the floodway above and below the crossing in order to allow greater encroachment. Such planning is best accomplished when the floodway is first established. However, where the community is willing to amend an established floodway to support this option, the floodway may be revised.

The responsibility for demonstrating that an alternate floodway configuration meets NFIP requirements rests with the community. However, this responsibility may be borne by the agency proposing to construct the highway crossing. Floodway revisions must be based on the hydraulic model that was used to develop the currently effective floodway but updated to reflect existing encroachment conditions. This will allow determination of the increase in the base flood elevation that has been caused by encroachments since the original floodway was established. Alternate floodway configurations may then be analyzed.

Typically, base flood elevation increases are referenced to the profile obtained for existing conditions when the floodway was first established. The community may choose to compare base flood elevation increases with the "corrected-effective" condition. The "corrected-effective" condition incorporates changes in channel topography that have occurred since the floodway was first established.

Data for Floodway Revisions

Data submitted to FEMA, through the local community, in support of a floodway revision request should include the following:

- Copy of the current regulatory Flood Boundary Floodway Map, showing existing conditions, proposed highway crossing and revised floodway limits.
- Copy of water surface profile computer printouts (input, computation and output) for the current 100-year model and current 100-year floodway plan.
- Copy of water surface profile computer printouts (input, computation and output) for the revised 100-year floodway model. Any fill or development that has occurred in the existing flood fringe area must be incorporated into the revised 100-year floodway model.
- Copy of engineering certification is required for work performed by private contractors.

The revised and current computer data required above should extend far enough upstream and downstream of the floodway revision area to tie back into the original floodway and profiles using sound hydraulic engineering practices. This distance will vary depending on the magnitude of the requested floodway revisions and the hydraulic characteristics of the stream.

If input data representing the original hydraulic model are unavailable, an approximation should be developed. A new model should be established using the original cross-section topographic information, where possible, and the discharges contained in the Flood Insurance Study which established the original floodway. The model should then be run confining the effective flow area to the currently established floodway and calibrate to reproduce within 0.10 foot, the "with floodway" elevations provided in the Floodway Data Table, for the current floodway. Floodway revisions may then be evaluated using the procedures outlined above.

Allowable Floodway Encroachment

When it would be demonstrably inappropriate to design a highway crossing to avoid encroachment on the floodway and where the floodway cannot be modified such that the structure could be excluded, FEMA will approve an alternate floodway with backwater in excess of the one foot maximum only when the following conditions have been met:

- A location hydraulic study has been performed in accordance with the Federal Aid Policy Guide (23 CFR 650, subpart A), and FHWA finds the encroachment is the only practicable alternative.
- CDOT has made appropriate arrangements with affected property owners and the community to obtain flooding easements or otherwise compensate them for future flood losses due to the effects of backwater greater than one foot.
- CDOT has made appropriate arrangements to assure that the National Flood Insurance Program and Flood Insurance Fund will not incur any liability for additional future flood

losses to existing structures which are insured under the Program and grandfathered in under the risk status existing prior to the construction of the structure.

- Prior to initiating construction, the construction agency provides FEMA with revised flood profiles, floodway and floodplain mapping, and background technical data necessary for FEMA to issue revised Flood Insurance Rate Maps and Flood Boundary and Floodway Maps for the affected area, upon completion of the structure.

A. *Highway Encroachment on a Floodplain with a Detailed Study (FIRM)* - In communities where a detailed flood insurance study has been performed but no regulatory floodway designated, the highway crossing should be designed to allow no more than a 1-ft increase in the base flood elevation based on technical data from the flood insurance study. Technical data supporting the increased flood elevation shall be submitted to the local community and through them to FEMA for their files.

B. *Highway Encroachment on a Floodplain Indicated on a FHBM* - In communities where detailed flood insurance studies have not been performed, CDOT must generate its own technical data to determine the base floodplain elevation and design encroachments in accordance with (23 CFR 650) Subpart A. Base floodplain elevations shall be furnished to the community, and coordination conducted with FEMA as outlined previously where the increase in base flood elevations in the vicinity of insurable buildings exceeds 1 ft.

C. *Highway Encroachment on Unidentified Floodplains* - Encroachments that are outside of NFIP communities or NFIP-identified, flood hazard areas should be designed in accordance with (23 CFR 650) Subpart A.

2.4.6 Levee Systems

For the purposes of the National Flood Insurance Program (NFIP), FEMA will only recognize in its flood hazard and risk mapping effort those levee systems that meet, and continue to meet, minimum design operation, and maintenance standards that are consistent with the level of protection sought through the comprehensive floodplain management criteria as outlined in the NFIP. The levee system must provide adequate protection from the base flood. Information supporting this must be supplied to FEMA by the community or other party seeking recognition of such a levee system at the time a flood risk study or restudy is conducted, when a map revision is sought based on a levee system, and upon request by the Administrator during the review of previously recognized structures. The FEMA review will be for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and shall not constitute a determination by FEMA as to how a structure or system will perform in a flood event.

For more information on the requirements related to levee systems see the following publication:

National Flood Insurance Program and Related Regulations, Federal Emergency Management Agency, Revised October 1, 2011 (44 CFR 65.10).

2.4.7 Revisions to NFIP Maps

FEMA has established administrative procedures for changing or correcting effective FIRMs and Flood Insurance Study (FIS) reports based on new or revised technical data. Volume Two, Chapter 2 “Permits and Certifications” discusses the procedures associated with:

- Letter of Map Change (LOMC); and

- Conditional Letter of Map Revision (CLOMR).

2.5 EXECUTIVE ORDERS

2.5.1 Background

Presidential Executive Orders (EO) have the effect of law in the administration of programs by Federal agencies. Although Executive Orders do not directly apply to CDOT, these requirements are usually implemented through general regulations.

2.5.2 EO 11988

Executive Order 11988, May 24, 1977, requires each Federal agency, in implementing its activities, to take steps to achieve the following results:

- reduce the risk of flood loss;
- minimize the impact of floods on human safety, health, and welfare;
- restore and preserve the natural and beneficial values served by floodplains;
- evaluate the potential effect of any actions it may take in a floodplain; and
- ensure its planning programs reflect consideration of flood hazards and floodplain management.

These requirements are contained in 23 CFR 650 Subpart A and were published in the *Federal Register*, April 26, 1979, 44 FR 24678. The floodplain avoidance and evaluation requirements are addressed in the appropriate environmental document. The floodplain encroachment impacts are addressed in the design policies found in each chapter of this manual.

2.5.3 EO 11990

Executive Order 11990, May 24, 1977, orders each Federal agency to:

- Take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values to wetlands;
- Avoid undertaking or providing assistance for new construction in wetlands unless the head of the agency finds that there is no practicable alternative and all practicable measures are taken to minimize harm that may result from the action; and
- Consider factors relevant to the proposal's effects on the survival and quality of the wetlands.

These requirements are contained in 23 CFR 771, which are addressed in the appropriate environmental document.

2.6 COLORADO DRAINAGE LAW

2.6.1 Derivation of State Drainage Law

State drainage law is derived mainly from the common law and statutory law. *Common law* is a body of principles which developed from immemorial usage and custom and which receives judicial recognition and sanction through repeated application. These principles were developed

without legislative action and are embodied in the decisions of the courts. *Statutory laws* are created by the legislature to enlarge, modify, clarify or change the common law applicable to particular drainage conditions. This type of law is derived from constitutions, statutes, ordinances and codes.

2.6.2 The Natural Flow Rule

Colorado has statutory law or the natural flow rule that places a natural easement or servitude upon the lower land for the drainage of surface water in its natural course. The natural flow of the water cannot be obstructed by the servient owner to the detriment of the dominant owner. The owner of the upper lands has an easement over lower lands for drainage of surface waters and natural drainage conditions can be altered by an upper land owner provided the water is not sent down in a manner or quantity to cause more harm than formerly. *Hankins v. Borland*, 431 P.2d 1007 (1967); *H. Gordon Howard v. Cactus Hill Ranch Company*, 529 P.2d 660 (1974); *Hoff v. Ehrlich*, 511 P.2d 523 (1973); *Ambrosio v. Perl-Mack Construction Company*, 351 P.2d 803 (1960).

2.6.3 Basic Water Rules

Two major rules have been developed by the courts regarding the disposition of surface waters. The first is known as the civil law rule of natural drainage. The second is referred to as the common enemy doctrine. Modification of both rules has tended to bring the concepts closer together, and in some cases the original rule has been replaced by a compromise rule known as the reasonable use rule.

Much of the law regarding stream waters is founded on a common law maxim that states "water runs and ought to run as it is by natural law accustomed to run." Thus, as a general rule, any interference with the flow of a natural watercourse to the injury or damage of another will result in liability. This may involve augmentation, obstruction and detention, or diversion of a stream. However, there are qualifications.

In common law, floodwaters are treated as a "common enemy" of all people, lands and property attacked or threatened by them.

In ground water law, the "English Rule," which is analogous to the common enemy rule in surface water law, is based on the doctrine of absolute ownership of water beneath the property by the landowner.

2.6.4 Classification of Waters

The first step in the evaluation of a drainage problem is to classify the water. There are four classifications, which are defined below. Once the classification has been established, the rule that applies to the particular class of water determines responsibilities with respect to the disposition of the water.

A. *Surface Water* - Surface waters are those waters which have been precipitated on the land from the sky or forced to the surface in springs, and which have been spread over the surface of the ground without being collected into a definite body or channel.

B. *Stream Water* - Stream waters are former surface or ground waters which have entered and now flow in a well-defined natural watercourse, together with other waters reaching the stream

by direct precipitation, or rising from springs in the bed or banks of the watercourse (a definite channel with bed and banks within which water flows either continuously or intermittently).

C. *Flood Water* - Flood waters are former stream waters which have escaped from a watercourse and flow or stand over adjoining lands. They remain floodwaters until they disappear from the surface by infiltration or evaporation, or return to a natural watercourse.

D. *Ground Water:* - Ground waters are either percolating waters or underground streams. Percolating waters include all waters which pass through the ground beneath the surface of the earth without a definite channel. The general rule is that all underground waters are presumed to be percolating. To be considered an underground stream, the existence and course of an underground permanent channel must be clearly shown. Underground streams are waters passing through the ground beneath the surface in permanent, distinct, well-defined channels.

2.6.5 Surface Waters

The civil law rule is based upon the perpetuation of natural drainage. The rule places a natural easement or servitude upon the lower land for the drainage of surface water in its natural course and the natural flow of the water cannot be obstructed by the servient owner to the detriment of the dominant owner. Most states following this rule have modified it to be similar to Colorado's version.

2.6.6 Stream Waters

Where natural watercourses are unquestioned in fact, and in permanence and stability, there is little difficulty in application of the rule. Highways cross channels on bridges and culverts, usually with some constriction of the width of the channel and obstruction by substructure within the channel, both causing backwater upstream and acceleration of flow downstream. The changes in regime must be so small as to be tolerable by adjoining owners, or there may be liability of any injuries or damages suffered.

Surface waters from highways are often discharged into the most convenient watercourse. The right is unquestioned if those waters were naturally tributary to the watercourse and unchallenged if the watercourse has adequate capacity. However, if all or part of the surface waters have been diverted from another watershed to a small watercourse, any lower owner may complain and recover for resulting loss (a damage).

2.6.7 Flood Waters

Considering floodwaters as a common enemy permits all affected landowners including owners of highways, to act in any reasonable way to protect themselves and their property from the common enemy. They may obstruct its flow from entering their land, backing or diverting water onto lands of another without penalty, by gravity or pumping, by diverting dikes or ditches, or by any other reasonable means.

Again, the test of reasonableness has frequently been applied, and liability can result where unnecessary damage is caused. Ordinarily, the highway designer should make provisions for overflow in areas where it is feasible that it will occur. There is a definite risk of liability if such waters are impounded on an upper owner or, worse yet, are diverted into an area where they would not otherwise have gone. Merely to label waters as “flood waters” does not mean that they can be disregarded.

2.6.8 Ground Water

The “English Rule” has been modified by the “Reasonable Use Rule” which states in essence that each landowner is restricted to a reasonable exercise of his own right and a reasonable use of his property in view of the similar right of his neighbors.

The key word is “reasonable.” While this may be interpreted somewhat differently from case to case, it can generally be taken to mean that a landowner can utilize subsurface water on his property for the benefit of agriculture, manufacturing, irrigation, etc. pursuant to the reasonable development of his property although such action may interfere with the underground waters of neighboring property. However, it generally precludes the withdrawal of underground waters for distribution or sale for uses not connected with any beneficial ownership or enjoyment of the land from whence they were taken.

A further interpretation of reasonable in relation to highway construction would view the excavation of a deep cut section that intercepts or diverts underground water to the detriment of adjacent property owners as unreasonable. There are also cases where highway construction has permitted the introduction of surface contamination into subsurface waters and thus incurred liability for resulting damages.

2.6.9 C.R.S. § 33-5-101 to 107

This law requires all state agencies to get Colorado Parks and Wildlife (CPW) certification before construction in any stream, its banks, or its tributaries. The primary emphasis is on fishing waters. A Memorandum of Agreement (MOA) between CDOT and CPW was signed in November 1990 allowing limited programmatic certification.

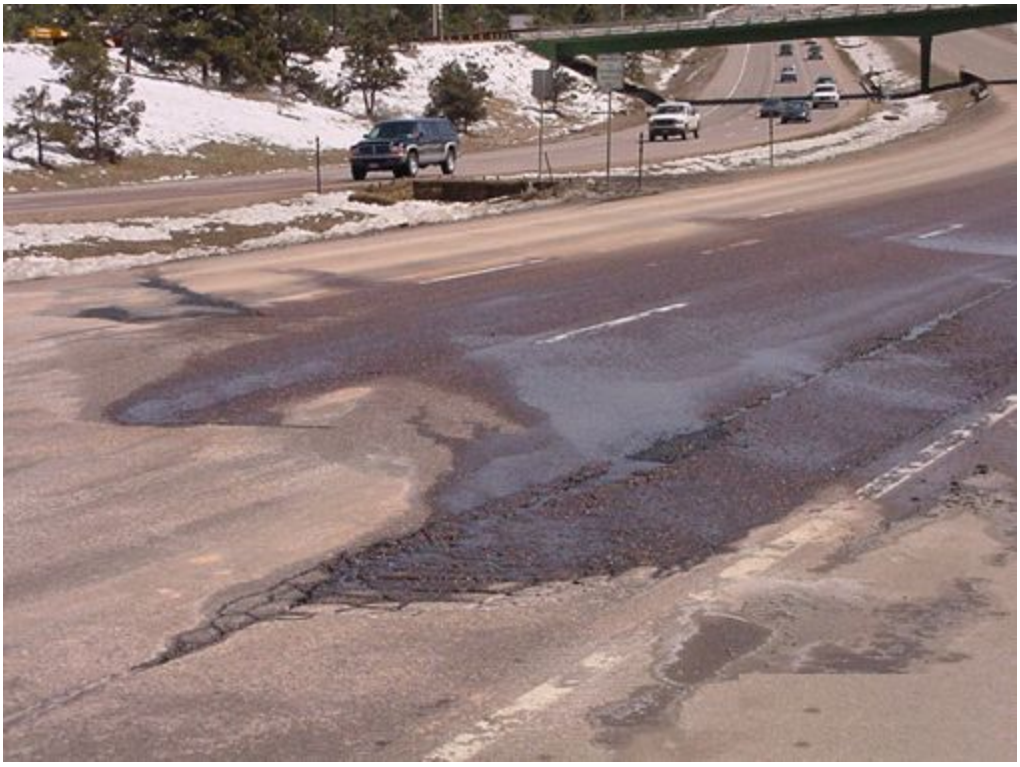

Photo 2.1

2.6.10 Clean Water Act

In Colorado, the Department of Public Health and Environment, Water Quality Control Divisions ("Division") has been delegated the NPDES program with the Environmental Protection Agency retaining oversight. Therefore, a CDPS (Colorado Discharge Permit System) permit must be obtained in Colorado. The permits are designed to limit the amount of pollutants entering streams, lakes, rivers and groundwater in order to protect established beneficial uses and water quality standards. The permit program covers the following categories:

- stormwater discharges;
- industrial waste discharges;
- sanitary sewage/domestic wastewater discharges; and
- discharges to ground water.

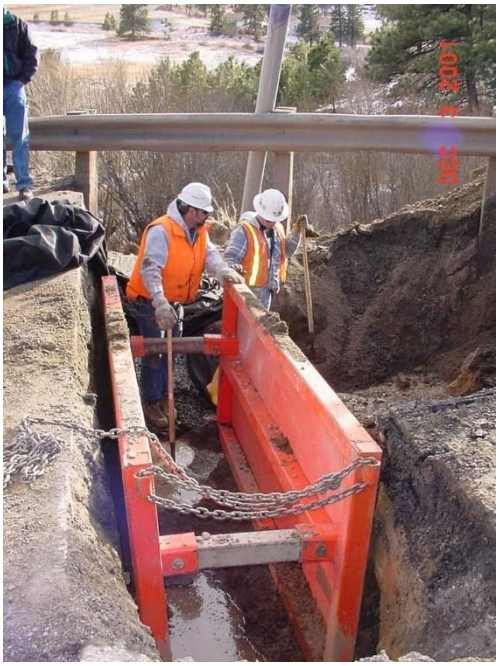

Photo 2.2

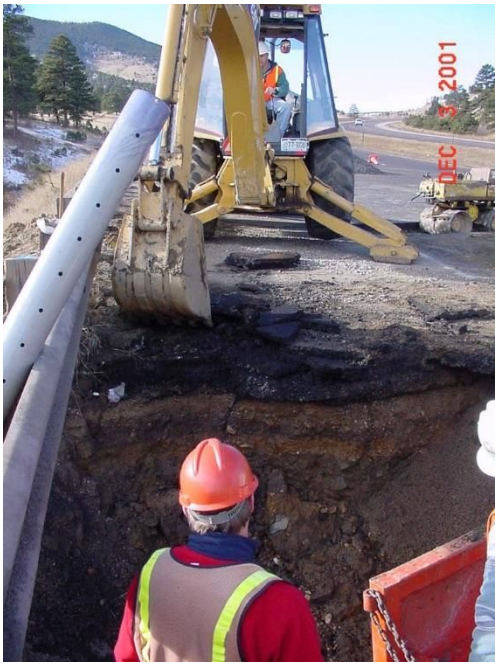

Photo 2.3

2.7 STATUTORY LAW

2.7.1 Introduction

Statutes have been enacted that affect drainage in one way or another. Statutes may have been enacted in areas previously covered by the common law. In the event of applicable rules from both, statutes prevail. If there is no statute, the common law rules developed by State courts apply.

2.7.2 Eminent Domain

Eminent domain is the power of the government to take private property for public use. CDOT often uses the power of eminent domain to acquire property for highway purposes, including the right to discharge highway drainage across adjoining lands.

Title 38 of the Colorado Revised Statutes codifies the State's right of eminent domain. If the State exercises its power of eminent domain, the private landowner must be fairly compensated for his loss. The landowner may dispute the taking of property or the amount of compensation offered. Therefore, the designer must be prepared to testify in court regarding the design, the design's effect on the property taken and the need for the taking.

2.7.3 Water Rights

The water right, which attaches to a watercourse, is a right to the use of the flow, not ownership of the water itself. This is true under both the riparian doctrine and the appropriation doctrine. This right of use is a property right, entitled to protection to the same extent as other forms of property, and is regarded as real property. After the water has been diverted from the stream flow

and reduced to possession, the water itself becomes the personal property of the riparian owner or the appropriator.

1. Riparian Doctrine: Under the riparian doctrine, lands contiguous to watercourses have prior claim to waters of the stream solely by reason of location and regardless of the relative productive capacities of riparian and non-riparian lands.

2. Doctrine of Prior Appropriation: The essence of this doctrine is the exclusive right to divert water from a source when the water supply naturally available is not sufficient for the needs of all those holding rights to its use. Such exclusive right depends upon the effective date of the appropriation, the first in time being the first in right. **This is the doctrine that is used in Colorado**. See *Comstock*, 145 P. 700 (1914); C.R.S. § 37-82-101.

Generally, the important thing for designers to keep in mind in the matter of water rights is that the proposed work in the vicinity of a stream or irrigation ditch should not impair either the quality or quantity of flow of any water rights. A ditch agreement is needed when work is proposed on a multiple user irrigation system. A ROW agreement is used for single user irrigation systems.

2.7.4 Urban Drainage and Flood Control District

The Urban Drainage and Flood Control District was created by the state legislature in 1969 (Senate Bill 202). The boundaries are generally the metropolitan area (approximately 1360 square miles) around Denver and Boulder. They have the authority to review and approve all major drainage work. Normally, the Urban Drainage and Flood Control District restricts itself to multi-jurisdictional drainage ways.

Information about other jurisdictions can be obtained from the Department of Local Affairs to check if the drainage design would affect others.

2.7.5 The Colorado Department of Transportation Access Code

The State Highway Access Code is found in 2 CCR 601-1. This code was developed pursuant to the authority granted in C.R.S. § 43-2-147. The State Highway Access Code requires anyone applying for an access permit to have his or her drainage reviewed by CDOT. Specifically, 2 CCR 601-1 § 4.11addresses drainage requirements for new accesses.

2.7.6 Colorado Statutes

Specifically, title 37 of the Colorado Revised Statutes discusses water issues. It may be helpful for the designer to be familiar with these laws. Some of the laws include the following:

- § 37-84-106 provides that all bridges constructed over any ditch, race, drain or flume crossing any public highway, street or alley, after construction shall be maintained by and at the expense of the county or municipality.
- § 37-84-119 states that the owners or persons in control of any ditch or canal used for irrigating purposes shall maintain it in good order and repair and ready to receive water by April 1 each year.
- § 37-84-101 states that the owner of any ditch shall carefully maintain the embankment thereof so that the waters of such ditch do not flood or damage the premises of others.

- § 37-84-103(1) provides that any bridge constructed on a public highway to accommodate the crossing of any ditch or otherwise must be constructed in accordance with applicable standards established by the State.
- § 37-86-106 provides that whenever it is necessary to convey water through the land of another, the shortest and most direct route practicable should be selected.
- § 37-96-103(2) states that when a public entity responsible for landscaping and maintaining any public project or facility builds or makes changes, the plan for such building or changes shall seek to conserve water. Standards and considerations are located in the statute.

2.8 LOCAL LAWS AND APPLICATIONS

2.8.1 Local Laws

Local governments usually have ordinances and codes that require consideration during design. For example, zoning ordinances can have a substantial effect on the design of a highway and future drainage from an area. On occasion, a question may arise as to whether the State must comply with local ordinances. Generally, the State is not legally required to comply with local ordinances except where compliance is required by specific State statute. Quite often, however, CDOT attempts to conform to local ordinances as a matter of courtesy especially when it can be done without imposing a burden on the State.

2.8.2 Municipal Liability

A municipality is generally treated like a private party in State drainage matters. A municipality undertaking a public improvement is liable like an individual for damage resulting from negligence or an omission of duty. As a general rule, municipalities are under no legal duty to construct drainage improvements unless public improvements necessitate drainage – as in those situations in which street grading and paving or construction accelerate or alter storm runoff. In addition, it is generally held that municipalities are not liable for adoption or selection of a defective plan of drainage.

Municipalities can be held liable for negligent construction of drainage improvements, for negligent maintenance, for repair of drainage improvements and, if they fail to provide a proper outlet, for drainage improvements.

2.8.3 Acts of Others

The general rule is that a municipality is not liable for the acts of officers, agents, or employees that are governmental in nature, but is liable for negligent acts of its agents in the performance of duties relating to proprietary or private corporate purposes of the city. If the construction, maintenance and repair of drainage improvements is regarded as proprietary or corporation functions, then a municipality may be held liable for the acts of its officers, agents or employees for injuries resulting from negligent construction, maintenance, or dangerous conditions of a public facility.

2.8.4 Acts of Developers

Unless an ordinance or statute imposes a duty on a municipality to prevent or protect land from surface water drainage, a municipality will not incur liability for wrongfully issuing building permits, failing to enforce an ordinance, or approving defective subdivision plans. However, there is a trend toward imposing a greater burden or responsibility on municipalities for the drainage consequences of urban development.

2.8.5 Personal Liability

Public employees generally have been personally liable for injuries caused by their negligent actions within the scope of their employment, even when the defense of sovereign immunity was available to their employers.

2.8.6 Drainage Improvements

A municipality's inherent police powers enable it to enact ordinances that serve the public health, safety, morals or general welfare. Ordinances addresses drainage problems are clearly a proper exercise of a municipality's police powers.

2.8.7 Special Matters

A. *Irrigation Ditches* - In situations in which an irrigation ditch intersects a drainage basin, the irrigation ditch does not have to take underground waters diverted by a tile drain. However, the surface drainage must be accepted if the irrigation ditch is constructed in a way into which surface water would naturally flow. Irrigation ditch owners have reluctantly accepted historic peak and volume runoff.

B. *Dams and Detention Facilities* - The Dam Inspection Unit of the Office of the State Engineer is responsible for reviewing all permanent impoundments in Colorado. Generally, if a dam's permanent pool level is less than 25 acres and less than 10 feet high, the dam will not fall under the State Engineer's jurisdiction.

2.9 National Permits/Certifications

2.9.1 Section 401 of the *Clean Water Act*

Purpose

The purpose of the *Clean Water Act*, Section 401 Certification is to restore and maintain the chemical, physical, and biological integrity of the nation's waters through the prevention, reduction, and elimination of pollution.

Applicability

A Section 401 Certification may be required in conjunction with any Section 404 permits, individual or nationwide.

Responsible State Agency

Section 401 of the Federal *Clean Water Act* requires states to review projects and Federal permits to ensure that they will not impact the stream quality or violate Surface Water Standards.

Typically, a state Department of Environment and Natural Resources (DENR) conducts this review and issues a Section 401 certification.

Legal References

The following lists the legal references for the Section 401 Certification:

- Section 401 of the Federal *Water Pollution Control Act* (1972), as amended by the *Clean Water Act* (1977 and 1987), 33 USC 1341;
- 33 CFR 320-332; and
- 40 CFR 230 and 233.

2.9.2 Section 402 of the *Clean Water Act*

Purpose

The purpose of Section 402 of the *Clean Water Act*, which is also known as Section 402 National Pollutant Discharge Elimination System (NPDES) Construction Permit program, is to restore or maintain, or both, the chemical, physical, and biological integrity of the nation's waters through the prevention, reduction, and elimination of pollution.

Applicability

Section 402 NPDES Construction Permits are required for all construction activities involving clearing, grading, and excavation that disturb one acre or more of land area. In addition, all construction activities that are on or adjacent to waters of the state must require a construction permit regardless of land area disturbed. The NPDES Program consists of a Surface Water Discharge (SWD) permit and stormwater permits. The SWD permit controls discharges from point sources of pollution such as construction dewatering activities. The stormwater program regulates stormwater discharges from three potential sources - municipal separate storm sewer systems (MS4s), construction activities, and industrial activities. Most stormwater discharges are considered point sources, and operators of these sources may be required to receive an NPDES permit before they can discharge. This permitting mechanism is designed to prevent stormwater runoff from washing harmful pollutants into local surface waters (e.g., streams, rivers, or lakes).

Responsible State Agency

The Colorado Department of Natural Resources administer the NPDES program, which includes enforcement, management, and implementation of the permit program.

Responsible CDOT Unit

CDOT Environmental is responsible for the NPDES Program.

Legal References

The following lists the legal references for the NPDES Construction Permit:

- Section 402 of the Federal *Water Pollution Control Act* (1972), as amended by the *Clean Water Act* (1977 and 1987), 33 USC 1342; and
- 40 CFR 122-136.

2.9.3 Section 404 of the *Clean Water Act*

Purpose

The purpose of Section 404 of *the Clean Water Act* is to ensure that the physical, biological, and chemical quality of our nation's water is protected from irresponsible and unregulated discharges of dredged or fill material that could permanently alter or destroy these valuable resources.

Applicability

Section 404 of the Federal *Clean Water Act* requires that anyone, including a government agency, political subdivision, landowner, or developer, who is proposing to conduct activities that involve the discharge of "dredged or fill material" into "waters of the United States," obtain a permit. The term "discharge of dredged material" includes "all mechanized land clearing, ditching, channelization, and other excavation activities that would have the effect of degrading or destroying waters of the United States." The term "waters of the United States" includes all lakes, waterways, rivers, streams, and jurisdictional wetlands. Waters of the United States includes essentially all surface waters such as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. The term "fill" means any material used that will replace an aquatic area with dry land or change the bottom elevation of a wetland (e.g., concrete, riprap, earth fill).

Responsible Federal Agency

For Section 404 Permits, the U.S. Army Corps of Engineers is the Federal agency with overall responsibility for administering the program, reviewing permit applications, and issuing permits. Note that each Corps District has its own procedures and permit requirements.

Responsible CDOT Unit

CDOT is responsible for securing Section 404 Permits for state highway projects. Hydraulic engineers assist CDOT Environmental in completing the permit application by providing necessary technical data. CDOT Environmental is responsible for submitting all completed application forms and required details showing the location, nature, and quantity of the fill into the waters of the United States. These sketches should be in accordance with the permit application instructions and should include a location map.

The local government engineers are responsible for securing Section 404 Permits for local government road and structure Federal-aid projects. Local government engineers are responsible for completing the application forms and assembling the required details, including a location map, and the nature and quantity of fill into the waters of the United States. These items shall be in accordance with the permit application instructions.

Documentation

Appendix A summarizes the documentation that should be included in the Permit File for a Section 404 Permit.

Definitions

The following definitions are applicable to Section 404 Permits:

Headwaters of the United States. The point on a non-tidal stream above which the average annual flow is less than five cubic feet per second (ft3/s). The U.S. Army Corps of Engineers District Engineer may estimate this point from available data by using the mean annual area precipitation, area drainage basin maps, and the average runoff coefficient, or by similar means. For streams that are dry for long periods of the year, District Engineers may establish the headwaters as that point on the stream where a flow of five cfs is equaled or exceeded 50 percent of the time (33 CFR 330).

Ordinary Highwater (OHW). The line showing on the shore that is established by fluctuations of water and is indicated by physical characteristics such as clear, natural lines impressed on the waterway bank, shelving, changes in the character of the soil, destruction of terrestrial plants, the presence of litter or debris, or other appropriate means that consider the characteristics of the surrounding area. In the absence of documented ordinary highwater data, states have used the computed 2-year flow depth as the ordinary highwater depth for permit applications.

Special Aquatic Sites. Mudflats, refuges, riffle and pool complexes, sanctuaries, vegetated shallows, and wetlands.

Waters of the United States. In general, for identification, the "Waters of the United States" include all jurisdictional wetlands and areas within a blue solid line or a blue dash line on the USGS quadrangle maps. Each river, stream, creek, intermittent tributary, pond, impoundment, lake, or wetlands is considered part of the Waters of the United States. Irrigation ditches or channel modifications that intersect a blue line and intercept the flow may also be considered Waters of the United States.

Jurisdictional Wetlands. Bogs, marshes, sloughs, and swamps are other terms used to describe these areas. Floodplains, or areas where water stands on, at, or near the groundline, may be considered suspected jurisdictional wetlands. Guidelines, as established by the U.S. Army Corps of Engineers Wetland Delineation Manual (available online), indicate that jurisdictional wetlands should have all of the following characteristics:

- a majority of water-tolerant plants;
- saturated soils; and
- water on, at, or near the surface of the ground during a specified portion of the growing season.

On January 9, 2001, the U.S. Supreme Court issued a decision, *Solid Waste Agency of Northern Cook County vs. U.S. Army Corps of Engineers* (521 U.S. 159, 2001) that limits the scope of the U.S. Army Corps of Engineers *Clean Water Act* (CWA) regulatory permitting program (Section 404) applied to isolated waters of the United States. The Supreme Court overturned the Corps' assertion of Federal jurisdiction over certain isolated wetlands based upon the presence of migratory birds.

The U.S. Supreme Court has ruled in *Rapanos vs. United States*, Nos. 04-1034-1384 (June 19, 2006) that not all wetlands are under the jurisdiction of the *Clean Water Act*. The requirement for a Clean Water Act permit to discharge dredged or fill material into "navigable waters" only applies to relatively permanent, standing, or continuously flowing waters. It does not apply to channels through which water flows intermittently or ephemerally, or which periodically provide drainage for rainfall. Wetlands near ditches or man-made drains that empty into traditional navigable waters are not included.

Types of Section 404 Permits

The U.S. Army Corps of Engineers issues individual permits as well as Nationwide and Regional General Permits. Each of these is discussed in the following sections.

Individual Permits: These permits are the basic form of authorization under the U.S. Army Corps of Engineers permit program. Individual permits are required where a proposed project does not meet the terms or conditions of either a regional or nationwide general permit, or both, due either to the type of activity, size of project, or when it is probable that the project will cause more than minimal impact to the aquatic environment. The following applies:

- Individual permits are issued following a full public interest review of an individual application for a Department of the Army permit. A public notice is distributed to all known interested persons. After evaluating all comments and information received, a final decision on the application is made.
- The permit decision is influenced by the outcome of a public interest balancing process where the benefits of the project are balanced against the detriments. A permit is often granted unless the proposal is found to be contrary to the public interest.
- Processing time usually takes 60 to 120 days unless a public hearing is required or an environmental impact statement is prepared.

Nationwide Permits (NWP): Nationwide general permits are issued to the general public every five years and are applicable anywhere (with some special limitations) in the United States. There are currently 50 different categories of activities authorized under this permit program. Some of the activities require notification to the U.S. Army Corps of Engineers prior to implementation, and some require submittal of wetland delineation if the project is proposed to be constructed within a wetland. All nationwide general permits have restrictions based on activity, project size, area impacted, construction method, etc. Some of the nationwide general permits currently in effect include approved categorical exclusions, maintenance, minor road crossings, bank stabilization, etc.

The most common types of these permits for transportation purposes are covered under NWP Nos. 3, 7, 13, 14, 23, 27, 41, and 43. CDOT usually submits a Section 404 permit application for all projects that appear to qualify for a Nationwide Permit, plus those that will require an Individual 404 Permit. For Nationwide Permits requiring a preconstruction notification, the preconstruction notification requirement is satisfied by submitting the Section 404 Permit application.

1. NWP No. 3: Maintenance. This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill. In addition, it can allow the removal of accumulated sediment and debris in the vicinity of existing structures, or permit temporary structures, fill, and work to conduct the maintenance activity. All permitted work is to restore the facility back to original conditions. A preconstruction notification is required for the sediment and debris removal activities.
2. NWP No. 7: Outfall Structures and Maintenance. This NWP is not likely to be used by states.
3. NWP No. 13: Bank Stabilization. This NWP is for the placement of stream bank stabilization for erosion prevention. This permit is limited to 500 linear ft and with material below ordinary highwater being an average of less than one cubic yard per running foot. A preconstruction

notification for fills is required in special aquatic sites in excess of 500 linear ft in length or involving the discharge of fill material greater than one cubic yard per running foot along the bank below the plane of the ordinary highwater mark.

4. NWP No. 14: Linear Transportation Crossings. This NWP for public projects is limited to the loss of one half acre. The permittee must submit a preconstruction notification to the District Engineer prior to commencing the activity if (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands (Sections 10 and 404).
5. NWP No. 23: Approved Categorical Exclusions. This NWP is applicable to highway projects with at least partial Federal funding that have FHWA-approved categorical exclusions. This is the primary Nationwide Permit used for state DOT projects that have been categorically approved by the FHWA.
6. NWP No. 27: Stream and Wetland Restoration Activities. The permittee must submit a preconstruction notification to the District Engineer prior to commencing the activity.
7. NWP No. 41: Reshaping Existing Drainage Ditches. A Preconstruction Notification is required for projects that affect greater than 500 linear ft.
8. NWP No. 43: Stormwater Management Facilities. The discharge must not cause the loss of greater than one-half acre of non-tidal waters of the United States, including the loss of no more than 300 linear ft of streambed unless, for intermittent and ephemeral streambeds, this 300-linear ft limit is waived in writing by the District Engineer. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters. This NWP does not authorize discharges of dredged or fill material for the construction of new stormwater management facilities in perennial streams.

Regional General Permits (RGP): The U.S. Army Corps of Engineers is authorized to issue, after notice and opportunity for public hearing, general permits on a regional or statewide basis for any category of recurring activities that are similar in nature, similar in their impact on water quality and the aquatic environment, and cause only minimal adverse impact both individually and cumulatively. The purpose of the general permit is to allow certain minimal impact activities to occur with little, if any, delay or paperwork. These permits may be issued to a specific group, entity, or agency, or to the public in general.

The term “general permit” means a Department of the Army authorization that is issued on a nationwide or regional basis for a category or categories of activities when those activities are substantially similar in nature (as stated above), and the general permit would result in avoiding unnecessary duplication of regulatory control exercised by another Feder, State, or local agency provided that it has been determined that the environmental consequences of the action are individually and cumulatively minimal.

When an RGP is designated or implied, the hydraulic engineer should prepare a memorandum for the hydraulic project file stating the following: This project qualifies for an RGP in that (each eligibility criteria for the RGP should be listed and the level of adherence to those criteria noted).

Nationwide Permits Regional Conditions

Individual USACE regions may set its own Regional Conditions that apply within their jurisdiction for any of the Nationwide Permits. Regional Conditions are asserted by the District

Engineer using discretionary authority to ensure that the NWP would not result in more than minimal adverse environmental effects either individually or cumulatively. The Regional Conditions may be for a specific geographic area, class of activity, or class of waters within the state whenever there are sufficient concerns for the environment under the section 404(b)(1) Guidelines or any other factor of the public interest so requires. States should become familiar with any regional conditions to ensure that the Nationwide Permit is granted in a timely fashion.

Nationwide Permits Mitigation Information

Mitigation includes measures that avoid, minimize, or compensate for impacts to the aquatic ecosystem. Avoidance and minimization associated with NWP authorizations are limited to on-site measures. The following descriptions apply:

1. Avoid. Take all appropriate and practical measures to avoid adverse impacts to the aquatic ecosystem.
2. Minimize. Take all appropriate and practical measures to minimize adverse impacts to the aquatic ecosystem.
3. Compensate. The applicant may be required to implement appropriate and practical measures to compensate for adverse project impacts to the aquatic ecosystem that cannot reasonably be avoided or minimized. Compensatory mitigation can take many forms, some of which are the use of buffer zones adjacent to the stream corridors and wetland areas, stream restoration or "naturalization," specific mitigation, mitigation banking, in-lieu fee-based mitigation, protection of areas by deed restrictions, or conservation easements.

Section 404 permittees are responsible for developing a mitigation plan and submitting it to the Corps. Include the following in the mitigation plan:

- A complete description of efforts made to avoid and minimize adverse project impacts to the aquatic ecosystem and a thorough description of the proposed compensatory mitigation.
- Wetland delineation (if appropriate), conducted in accordance with the U.S. Army Corps of Engineers *Wetlands Delineation Manual*.
- A detailed description of the nature and location of all proposed ground-disturbing activities and structures associated with the compensatory mitigation project.
- For work that would create new aquatic resources or modify existing aquatic resources, provide a description of the proposed hydrology, a soil description, and a planting plan.
- A proposal for monitoring the success of the proposed mitigation plan, including the name and telephone number of the responsible party, success criteria, and a compliance reporting program. Continue monitoring for at least two years after all mitigation activities have been completed and planting survival requirements have been achieved. Include all appropriate contingency plans and address provisions for long-term operations and maintenance.

Application Procedure

A typical Section 404 application procedure is provided in Appendix A. CDOT Environmental may choose to follow a Section 404 application procedure different from that found in Appendix A.

Distribution of Permits

Upon receipt of the Corps Section 404 Permit, CDOT Environmental will notify the Hydraulics Engineer and Bid Letting Office of the receipt of the permit, the expiration date of the permit, the type of permit received, and the locations permitted. Depending upon the project activities, other state offices may be notified of the permit conditions.

At the time a project with a Section 404 Permit is advertised for letting, CDOT Environmental will forward the permit letter, the permit application, any application quantity attachments, and the wetland table to the area engineer responsible for the project construction for their use during construction.

Legal References

The following lists the legal references for Section 404 Permits:

- Section 404 of the Federal *Water Pollution Control Act* (1972), as amended by the *Clean Water Act* (1977 and 1987), 33 USC 1344; and
- 33 CFR 320-332.

2.9.4 Section 9 of the Rivers and Harbors Appropriation Act of 1899

Purpose

The purpose of the Section 9 of the Rivers and Harbors Act is 1899 is to ensure that there will be no interference to navigation on navigable waterways of the United States.

Applicability

A Section 9 Navigable Waters Permit is required for the construction, modification, replacement, or removal of any bridge or causeway over a navigable waterway. Coast Guard permits are not required for the following projects:

- Construction of Federal-aid bridges (23 CFR 650, Subpart H) crossing non-tidal waters not presently used as or susceptible to use as a means of transporting interstate or foreign commerce;
- Removal of an existing bridge that will not be replaced by another bridge;
- If the state DOT will retain the entire bridge or designated sections for purposes other than transporting people or physical matter across a navigable waterway (i.e., fishing pier), the state should notify the U.S. Army Corps of Engineers (USACE) District Office with jurisdiction over the bridge's geographic area. USACE will either approve or deny the request. If the state receives USACE approval, the state must adhere to the USACE permit requirements, because USCG no longer has jurisdiction over the bridge. If USACE denies the request, USCG retains jurisdiction to prescribe removal conditions to protect navigation; and
- Repair or replacement of worn or obsolete parts on an existing bridge.

Responsible Federal Agency

For Section 9 Navigable Waters Permits, the U.S. Army Corps of Engineers is the Federal agency with overall responsibility for reviewing permit applications and issuing permits. THE USCG,

Bridge Administration Division is responsible for issuing permits. If a Section 9 permit is also required, the United States Coast Guard is the Federal agency with overall responsibility for reviewing permit applications and issuing permits.

Responsible CDOT Unit

Typically, Staff Bridge is responsible for the Section 9 Permit. Hydraulics engineers are responsible for submitting all completed application forms, required sketches showing the project location, etc.

Legal References

The following lists the legal references for Section 9 Permits:

- Section 9 of the *Rivers and Harbors Appropriation Act of 1899*, 33 USC 401;
- 23 CFR Part 650, Subpart H; and
- 33 CFR 114-118.

2.9.5 Section 10 of the Rivers and Harbors Appropriation Act of 1899

Section 10(b) of the *Rivers and Harbors Appropriation Act* approved March 3, 1899 (33 USC 403) (hereinafter referred to as Section 10), prohibits the unauthorized obstruction or alteration of any navigable water of the United States. The construction of any structure in or over any navigable water of the United States, the excavating from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters is unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The instrument of authorization is designated a permit.

Purpose

The purpose of the Section 10 Navigable Waters Permit is to protect and preserve the navigable waterways of the United States.

Applicability

A Section 10 Navigable Waters Permit is required for structures or work (other than bridges or causeways) affecting a navigable waterway. Examples of work include dredging, channelization, and filling.

Responsible Federal Agency

For Section 10 Navigable Waters Permits, the U.S. Army Corps of Engineers is the Federal agency with overall responsibility for reviewing permit applications and issuing permits. If a Section 9 permit is also required, the United States Coast Guard is the Federal agency with overall responsibility for reviewing permit applications and issuing permits.

Responsible CDOT Unit

Typically, Staff Bridge is responsible for the Section 10 Permit. Hydraulics engineers are responsible for submitting all completed application forms, required sketches showing the project location, etc.

Legal References

The following lists the legal references for Section 10 Permits:

- Section 10 of the *Rivers and Harbors Appropriation Act of 1899*, 33 USC 403;
- 23 CFR Part 650, Subpart H; and
- 33 CFR 320-332.

2.9.6 State/County/City Permits and Certifications

In addition to the various national permits that may be required for a construction project, projects may be subject to state, county, and city permitting requirements.

State

The Colorado Division of Water Resources has the responsibility for water rights, dam safety, and other water related activities.

Water Rights: Whether a water rights permit is needed depends on the type of proposed water use. These permits may be required for domestic water use, or for water distribution systems.

Dam Saftey: Typically, state agency approval is needed if the proposed highway fill forms a dam that meets any of the following conditions:

- The proposed dam will impound more than 25 acre-ft of water at the primary spillway elevation;
- Regardless of the amount of water impounded, diversions will be made from the dam to serve some use other than reasonable domestic use; or
- Dam height; or
- The proposed dam is being constructed on a navigable stream.

Additional conditions may apply; therefore, the designer must research additional state dam requirements from the Colorado Department of Natural Resources, Division of Water Resources, Office of the State Engineer, Dam Safety Branch.

County/City

Hydraulic engineers should be aware that many county and city government entities may have drainage ordinances or other permitting requirements that need to be considered. Generally, the state is not legally required to comply with local ordinances except where compliance is required by specific state statute. Contact the local NFIP coordinator for details.

2.10 ROLE OF THE DESIGNER

2.10.1 Responsibility

The designer has a two-fold responsibility relating to legal issues associated with highway drainage. First, the designer should be aware of the legal principles involved and apply that knowledge to their designs. Second, the designer should be prepared to consult CDOT's legal staff, as necessary, in the preparation and trial of cases involving drainage issues. The duties of a designer include direct legal involvement in the following areas:

- Conduct investigations, advise and provide expert testimony on the technical aspects of drainage claims involving existing highways;
- Provide drainage design information during right-of-way acquisitions to assist appraisers in evaluating damage; and
- Provide testimony in condemnation proceedings when necessary.

2.10.2 Investigating a Complaint

Drainage complaints should be addressed promptly and in an unbiased manner. This means accepting that the flooding is a serious problem for the complainer, and not accepting anyone's preconceived conclusions. All facts must be assembled and analyzed before conclusions can be determined on what happened and why. Also, it is advisable to list any action by others that could possibly be responsible for the flooding.

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

Step 1 - Determine facts

A. Obtain the general 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 by obtaining information including what area was flooded; complainer's opinion on what caused the flooding; description of the alleged damages; and dates, times, and durations 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 or improvements, or both, were acquired by those claiming damages.

B. Collect facts about the specific flood event(s) involved.

- Obtain rainfall data including dates, amounts, time periods, and locations of gauges. 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 the alleged damage. Determine the direction of flood flow at the damaged site. Describe the condition of the stream before, after, and during flood(s). Determine if the growth in the channel was light, medium, or heavy and if there were drift jams. Determine if the stream carries significant drift in flood stage. Determine if the flow was fast or sluggish, and if light, moderate, or severe erosion occurred.

- Document the flood history at the site. Determine if the highway was overtopped by the flood. If so, determine 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 (e.g., newspaper accounts, witnesses, measurements by other agencies (USGS, USACE, NRCS), individuals, maps, National Weather Service rainfall records).

C. 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 (e.g., county road, city street, abandoned railroad embankment). Also, include a description of the drainage facilities and drainage patterns that existed prior to the highway.
- Provide a description of the existing drainage facilities.
- Provide the original drainage design criteria, or give capacity and frequency of the existing facility based upon current criteria.

Step 2 - List possible effects by others

- Determine if there are any other stream crossings in the vicinity of the damaged site that could have affected the flooding.
- Determine if there are any other contributing factors (e.g., pipelines, highways, streets, railroads, dams).
- Determine if there have been any significant constructed changes to the stream or watershed that might affect the flooding.

Step 3 - Analyze the facts

- From the facts, determine what should be done to relieve the problem regardless of who has responsibility for the remedy.
- Identify others who may possibly provide assistance.

Step 4 - Make conclusions and recommendations

- Determine the contributing factors leading to the alleged flood damage.
- Specify feasible remedies. This should be done without regard for who has responsibility to implement a remedy.

The list under Step 1 is not all-inclusive, nor is it intended that the entire list will be applied in every 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 advantageous to have available hydraulic design documentation as outlined in Chapter 4 “Documentation Procedures.” When adequate information has been obtained, the designer should again analyze the facts, consider the conclusions and recommendations, and prepare a response to the complainer explaining the results of the investigation. Documentation of the facts and findings is important if there is future action.

2.10.3 Legal Matters

Drainage matters range from the simple to the complex. If the facts are ascertained and plan developed before initiating a proposed improvement, the likelihood of an injury to a landowner is remote and CDOT or the developer should be able to undertake such improvements relatively assured of no legal complications.

A designer may require a legal opinion on a particular drainage problem or improvement. In order to obtain an opinion, the designer must clearly and concisely relay all of the information and be prepared to answer questions.

The designer may also be called upon to act as an expert or factual witness in a legal proceeding. Testimony often involves preparation time before a court hearing, the ability to present technical information in layman's terms, and the ability to clearly describe the issues at hand.

2.10.4 As a Witness

When requested, the designer should accept the responsibility of providing expert testimony in highway drainage litigation. 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, the 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. Documentation of design considerations and evidence of conditions existing prior to construction of the highway will be necessary to support all testimony.

2.10.5 Witness Conduct

The designer who will be 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 on 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 loudly 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 questioner 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.
- 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.

REFERENCES

1. AASHTO, *Drainage Manual*. Chapter 2, Legal Aspects, American Association of State Highway and Transportation Officials, Volume 1, Washington D.C., 2014.

2. FEMA, *National Flood Insurance Program and Related Regulations*, 44 CFR 65.10, Federal Emergency Management Agency, Washington D.C.,

3. UDFCD, *Criteria Manual*. Chapter 2, Drainage Law, Urban Drainage and Flood Control District, Volume 1, Denver, 2016.

APPENDIX A - TYPICAL SECTION 404 APPLICATION PROCEDURE

The Section 404 application should be prepared and submitted to the U.S. Corps of Engineers at least 90 days prior to the letting date to allow the U.S. Corps of Engineers sufficient time to process the application and issue a permit prior to preparation of the bid documents and FHWA review. The Corps criterion is 30 days for processing NWPs. If it is known that a permit may be an individual permit, the lead time should be increased to 6 months prior to letting as the individual permit requires the U.S. Corps of Engineers to advertise with a public notice for up to 30 days, and sufficient time is needed to address any public comments.

The typical application package includes the Section 404 application form, optional fill quantity sheet, an environmental document (Environmental Classification (EC)), batched environmental studies or an Environmental Assessment (EA), a location map (the project plans title sheet and a copy of the USGS quadrangle map for the project area), and appropriate project plan sheets to define the proposed work activity.

In addition to the permanent construction activity, the application package should address anticipated temporary fill activities associated with the project construction (e.g., traffic diversions, stream diversions, cofferdams, contractor work platforms, falsework piling, haul road crossings).

The permit application packet shall be on 81/2 in × 11 in sheets, or 11 in × 17 in plan sheets, defining all impacts to "Waters of the United States," such as bridge and culvert crossing locations or fill placement into jurisdictional wetlands locations. Bridge location drawings require a plan and elevation view, and wetlands impact details should be shown on a plan view with a cross section through the fill area. Indicate the acres of the wetlands filled on the drawing.

The level of detail required in the permit application packet is as follows:

Vicinity Map (taken from USGS quad map):

- Location of activity or wetland mitigation site (if applicable);
- Name of waterbody;
- Names or numbers of highways/roads;
- North arrow; and
- Scale.

Plan View Sketch:

- Name of waterbody and all highways/roads;
- Area showing the limits of the fill placement;
- Location of all wetlands;
- North arrow; and
- Scale.

Elevation View (or typical cross section):

- OHW elevation;

- Other water elevations;
- Riprap; and
- Other fill material.

Other Documentation:

- Hydrogeomorphic classification (HGM document);
- Wetlands delineation/documentation; and
- Wetland mitigation plan.

On major road projects that are expected to require individual Section 404 Permits, the U.S. Army Corps of Engineers has deemed it necessary to include a detail showing the plan view and a longitudinal cross section of each 36-in. diameter or greater culvert falling in naturally occurring waterways. An overall project map shall be included with the permit application to show the location of each such culvert and the locations of the wetlands impacts throughout the project. In this case, the U.S. Army Corps of Engineers interprets the definition of "Waters of the United States" to include all naturally occurring draws.

Include the quantities of the various fill materials and show both the total cubic yards and the cubic yards placed below the Ordinary Highwater (OHW) elevation in the permit application. In addition, provide the total area in square feet or acres of the fill material placed below OHW. Any wetland mitigation plans required should also be submitted with the permit application.

The hydraulics engineer should review constructability issues at project sites where temporary work causeways and cofferdams will be required. Construction activities such as bridge pier construction, storm drain outfalls in rivers, and earth haul roads across streams may all require temporary filling of the "Waters of the United States." Engineers should submit detailed sketches of temporary causeways, etc., with the applications. All construction activities that impact the "Waters of the United States" (either permanent or temporary) should be included in the permit application.

Projects that have both road construction and bridge construction shall have one combined Section 404 Permit application. Multiple projects in the same contiguous section of roadway will also usually be submitted in one combined application.

Projects that consist of several individual sites in one project but on several waterways, highway routes, or counties may require separate applications by waterway, highway, or county to aid the U.S. Army Corps of Engineers in processing the application.