The information contained in Chapter Thirteen: Planning and Project Development, dated May 2022, has been updated to reflect the **May 2025 Errata**. The errata addresses errors, changes in procedure, changes in NDOT department titles, changes in other Roadway Design Manual chapters and other reference material citations occurring since the latest publication of this chapter.

Chapter Thirteen presents guidance for the design of New, Reconstructed and 3R projects: additional design guidance for 3R projects is provided in Chapter Seventeen.

Chapter Thirteen
Planning and Project Development

1. INTRODUCTION AND GENERAL CONSIDERATIONS

Prior to the preliminary design stage, a roadway project goes through extensive planning, analysis, and evaluation to assure that the **Nebraska Department of Transportation** (**NDOT**) provides improvements when and where they are most needed. Among the many factors that are considered during the planning and project development stages are:

- Traffic counts and forecast evaluation
- Needs assessment (State Highway Inventory Report)
- Environmental effects of the project
- Public participation and input into the project
- Social and economic effects of the project
- Alternative courses of action

The **Materials and Research Division** (**M&R**), the **Strategic Planning Division**, the **Project Development Division** (**PDD**) and the **Project Scheduling Section of the Program Management Division** are responsible for the planning and project development processes and for liaison with other agencies and organizations that are involved in a project. The **Communications Division** coordinates the public meetings and hearings that are part of the process.

2. PLANNING AND SCHEDULING

- The **M&R Classification, Needs, and Pavement Management Unit** performs ongoing data collection, analysis, prioritization, and evaluation involving roadway inventories, pavement condition, traffic forecasts, demographics, and economic information.
- The **Project Scheduling Section of the Program Management Division** plans and programs highway improvements and then manages Clarity©, which programs, schedules, and monitors projects through preconstruction stages.
- The **Project Scheduling Section of the Program Management Division** develops One Year Programs and Five Year and Beyond Programs.

The factors noted in Section 1 of this chapter are used to develop the highway plan for non-metropolitan areas. In metropolitan areas such as **Omaha**, **Lincoln**, and **South Sioux City**, transportation planning is part of the continuing, cooperative, and comprehensive (3C) planning process performed by **Metropolitan Planning Organizations** (**MPOs**) consisting of state and local government officials and citizen representatives. Transportation modeling in urban areas consists of trip generation, distribution, assignment, and modal split models that forecast system needs.

3. ENGINEERING REVIEW AND LOCATION STUDIES

3.A Engineering Review

Once a project has been initiated with a "Highway Improvement Programming Request", NDOT Form 73 (See Chapter Twelve: Cost Estimating & Funding, Section 3.B, of this manual), but before it has been approved, the scope of the project and the Status 05 Cost Estimate (Initial Estimate) are determined.

After the NDOT Form 73 has been approved, the **PDD Project Scoping Section** conducts an engineering review. Engineering review is a process performed very early in the development of a project to establish the concept of work to be performed and the Status 10 Cost Estimate (initial itemized cost estimate for the project) (See Chapter Twelve: Cost Estimating & Funding, Section 4, of this manual). Engineering reviews are generally performed for major, non-Interstate projects such as resurfacing, major bridge work, reconstruction, relocation, etc. Usually an engineering review is not performed for safety projects, traffic signal projects or other minor engineering projects.

The engineering review summarizes the existing highway condition, pavement condition, traffic volumes, and highway classification and includes a description of the existing typical roadway section and of adjacent roadway sections. It outlines or describes the horizontal and vertical alignment geometrics. The engineering review includes a listing of any structures within the proposed project limits and their condition. It also includes a listing of historical bridges, wetland involvement, underground fuel tanks, hazardous waste locations, safety history, railroad involvement, utilities, etc.

PDD then reviews the existing conditions, confers with the **District Engineer** (**DE**) and other engineers, reviews the photolog or visits the site, if necessary, and decides upon a recommendation for the type of project to be undertaken. The engineering review and its recommendations then are circulated to the **Roadway Design Engineer**, the **DE** and the **Deputy Director-Engineering** for their approval.

The engineering review provides a starting point and direction for the roadway designer. The designer must use it as a guideline but has the option of making significant scope modifications, with proper documentation and approval, as more information becomes available.

Using the engineering review, the **Project Scoping Section** of **PDD** prepares a Scoping Document containing project data, a brief description of the proposed work and a recommendation as to the environmental classification of the proposed project, (See Section 4 of this chapter). This form is submitted to the **Federal Highway Administration** (**FHWA**) for review, comments, and concurrence in the environmental classification. Once **FHWA** environmental classification concurrence is obtained, preliminary design may proceed.

3.B Location Studies

Location studies are conducted to address social, economic, environmental and other issues associated with alternative project locations. Location studies may be conducted for specific "spot" locations, such as new bridge crossings of the Missouri River, or for longer corridors.

Corridor study projects often involve some relocation and some community bypasses. Corridor study results are published in report form. Contents of a corridor report include information similar to that in an engineering review, e.g., alignment location factors, cost estimates, etc. They may include Plan and Profile Sheets (See Chapter Eleven: Highway Plans Assembly, Section 4.L, of this manual) developed from as built plans or **U.S. Geological Survey (USGS)** contour maps.

Location studies usually take from eighteen months to two years to complete. Public information meetings and a location public hearing are usually part of the study. Location studies are also circulated among various **NDOT** divisions for comment and input. Projects on new location are normally taken to the **State Highway Commission** and the **Governor** for location approval shortly after the location hearing.

4. PROJECT COORDINATION MEETINGS

Project Coordination Meetings (PCMs) are used to communicate project details between different **Divisions/Units/Districts** within **NDOT**. The importance of these meetings is to establish impacts and threshold levels early in the project to alleviate schedule changes and project delays. For more information on the threshold levels, refer to the Environmental Procedure Manual (Environmental Guidance Library - NDOT).

The PCMs will be scheduled by **Roadway Design**. Four of the five meetings listed below are required for each project unless a determination is made that states a specific PCM is not required. PCM 50 is optional, the applicability of the meeting will be determined at PCM 35. It may be determined that the PCM 50 is necessary if the time frame between PCM 35 and PCM 70 will likely exceed more than one year, and/or the project requires right-of-way. The meetings and their occurrence throughout the life of a project, as shown in EXHIBIT 13.1, follows:

- PCM 20 – End of Phase 2, Planning Phase (Clarity Task 5290)
- PCM 30 – Beginning of Phase 3, Design Phase (Clarity Task 5315)
- PCM 35 – End of Phase 3, after the Plan-in-Hand, Design Phase (Clarity Task 5331)
- PCM 50 – Schedule as required - Applicability will be determined at PCM 35. End of Phase 3, prior to completion of the National Environmental Policy Act (NEPA) document (See Section 5 of this chapter) (Clarity Task 5510)
- PCM 70 – During Phase 7, Plans Package Phase (Clarity Task 5770)

For additional information see the Design Process Outline (*DPO*) (Ref. 13.2) (Design Process Outline).

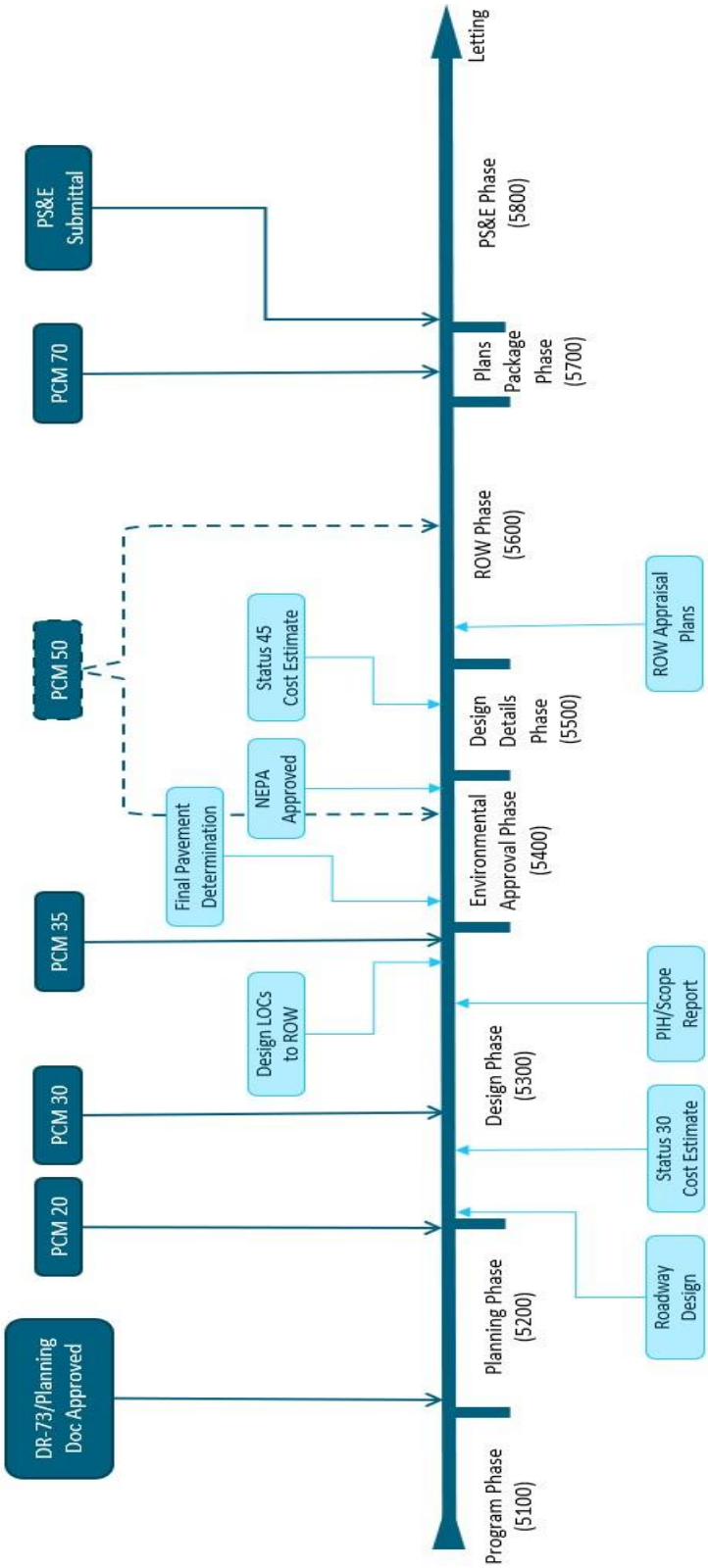

Exhibit 13.1 Project Coordination Meeting Timeline

5. ENVIRONMENTAL STUDIES

5.A. Environmental Classification and Documentation

The National Environmental Policy Act (NEPA) (Ref. 13.1), (https://ceq.doe.gov/), specifies that all federal agencies, including **FHWA**, must protect the environment through their policies, goals, and actions. **PDD** is responsible for the required research, documentation and applications for approvals and permits.

Roadway design should be coordinated with environmental impact mitigation measures. If the designer encounters potential problems during design (e.g., learns of the possible presence of an endangered species, underground fuel tank, electrical substation, wetland, channel relocation), he/she should contact the **Environmental Section Manager** of **PDD**.

5.A.1 Environmental Classification

Federal regulations divide all projects into three classes, depending on their potential for impacting the environment. The three classes are:

A. Class I Projects may significantly affect the environment and require preparation of an environmental impact statement (EIS), and the issuance of a Record of Decision (ROD) by **FHWA.** Basically, new four-lane construction on new location or projects with a significant environmental impact will be Class I projects.

   When **FHWA** concurs that a project is a Class I project, **PDD** conducts a social, economic, and environmental review (SEE). Issues of significant impact and possible alternatives are identified. Appropriate federal, state and local agencies are contacted for coordination and comments throughout the development of the project.

B. Class II Projects, based on past experience, do not have a significant effect on the environment. These will include projects such as overlays, bridge replacement, lighting, and various other projects with no significant impact. Class II projects, identified as categorical exclusions (CE), are divided into two groups:

   - Group 1 CE - normally do not require NEPA documentation or **FHWA** approval as a CE
   - Group 2 CE - normally do require minimal environmental documentation and **FHWA** approval of the proposed CE

C. Class III Projects are projects on which the significance of the effect on the environment must be determined. Class III projects require the preparation of an environmental assessment (EA) and result in a finding of no significant impact (FONSI). Class III projects that find possible significant impact are reclassified as Class I.

5.A.2 4(f) Evaluation (Publicly Owned Lands/Historic Places)

Section 4(f) of the 1966 Transportation Act (Ref. 13.3), (https://www.environment.fhwa.dot.gov/legislation/section4f.aspx) applies to **U.S. Department of Transportation** (**USDOT**) agencies and projects. It limits use of the following publicly owned lands:

- Public parks
- Recreation areas
- Wildlife/waterfowl refuges
- Lands having historic sites of national, state, or local significance

These lands are known as 4(f) lands.

FHWA may not approve the use of 4(f) lands for roadway improvements unless *"no feasible and prudent alternative is possible and all possible planning has been done to minimize harm".* Among the impacts that are considered in 4(f) evaluations are: amount of land to be used for the project, facilities and functions affected, noise/air pollution, visual impact, etc. The designer must contact the **EDU** if any of the above listed facilities may be impacted by the project.

5.A.3 6(f) Lands (Land Water Conservation Funds Used For Park Improvements)

In addition to 4(f) documentation, **PDD** must also determine if any improvements to the public park lands were funded with monies from Section 6(f) of the Land Water Conservation Fund Act (Ref. 13.4) (Section 4(f) Related Statutes). Section 6(f) is administered by the **National Park Service**. Use of areas improved with 6(f) funds for roadway projects will require coordination with the **National Park Service** and possible replacement of any lands used for the roadway project. Contact the **PDD Environmental Documents Unit** (**EDU**) to determine if 6(f) lands are present on the project. If 6(f) lands are present, the designer should attempt to avoid impacting them, minimize the impact if avoidance is not possible, and/or mitigate the impact.

5.B Wetlands and Section 404 Permits

Under Section 404 of the Clean Water Act, (Ref. 13.5), Permit Program under CWA Section 404 | US EPA), and under Title 117 of the Nebraska Surface Water Quality Standards, (http://dee.ne.gov/RuleAndR.nsf/Title_117.xsp), impacts to wetlands are to be avoided if possible, minimized if avoidance is not possible, and/or mitigated.

5.B.1 Wetlands Definitions

The **U.S. Army Corps of Engineers** (**Corps of Engineers**) and the **U.S. Environmental Protection Agency** (**EPA**) define wetlands as follows:

> *"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."*

Wetlands generally include swamps, marshes, bogs and similar areas.

Wetland determination is based upon an evaluation of soil type, hydrology and plants that live in the area. Situations that suggest that a wetland determination should be made include:

- Area is in a floodplain or otherwise has low spots in which water stands at or above the soil surface during the growing season (however, most wetlands lack both standing water and waterlogged soils during at least part of the growing season).
- Area has plant communities that commonly occur in areas having standing water for part of the growing season.
- Area has soils that are peats or mucks.
- Area is designated on a National Wetlands Inventory Map as being a wetland (Wetlands Mapper | U.S. Fish & Wildlife Service)

5.B.2 Wetlands Procedures

Impacts to wetlands should be avoided. If this is not practicable, then wetlands encroachment should be minimized. Mitigation for wetland encroachment may be required. Wetlands are replaced at a minimum rate of 1:1 or more. If any work is planned in or near a river, stream, pond, or wetland, contact the **Technical Resources Unit** (**TRU**) in **PDD** as early as possible during project planning. The following procedures should be followed to coordinate roadway design, wetland delineation and wetland mitigation design.

1. During engineering review, the **TRU Wetlands Biologists** will inspect the project site and delineate the wetlands on Environmental/Aerial Sheets (See Chapter Eleven: Highway Plans Assembly, Section 4.E, of this manual).
2. **TRU** drafts the wetland delineation on CAD and sends the CAD file and Waterway Permit Data Sheet (NDOT Form 290) to the roadway designer. This permit data sheet covers waterway permit information, historic bridges, and other environmental issues.
3. The designer will use the Environmental/Aerial Sheets and his/her cross-sections to calculate the areas in acres of impacted wetland for each type of wetland as delineated on the Environmental/Aerial Sheets (See NDOT Form 290).

4. At the plan-in-hand, the impact on wetlands will be discussed and alternative designs may be considered.
5. After the plan-in-hand changes, if any, have been incorporated into the project the designer completes the Waterway Permit Data Sheet (NDOT Form 290) using the limits of construction. The completed Environmental/Aerial Sheets, with the limits of construction, and Waterway Permit Data Sheet (NDOT Form 290) will be returned to **TRU** for preparation of the waterway permit applications.
6. If mitigation is required for a project the roadway designer and the **TRU Manager** will study alternate mitigation sites and select the proper mitigation site prior to the public hearing dry run.
7. **TRU** will review the information and will send mitigation requirements, suggested mitigation sites, reconstruction sites, etc. to the designer. The designer will make final site decisions based on this information, present land use and other engineering considerations.
    - When possible, only one mitigation site should be shown on the public hearing plans
    - When no apparent suitable mitigation site is available, public hearing plans should not show any wetland mitigation sites
    - If mitigation will be accomplished at a wetland mitigation bank site, the bank's name and legal description should be stated at the public hearing
8. If mitigation is required along the project, the roadway designer designs the mitigation site area with wetland design parameters from **TRU** before the public hearing.
9. After considering public hearing inputs, the final mitigation site design is incorporated into the project plans.
10. Once the mitigation area is designed, the **Roadway Design Division** (**Roadway**) sends the Plan and Profile Sheets and the cross-sections to **TRU** for further processing.
    - Mitigation areas should be noted on the profile and on the cross-sections to assure that areas specifically designed not to drain are not changed during construction
11. **TRU** then develops and sends to the designer an environmental summary sheet that includes threatened and endangered species, specifications, special provisions, conditions, copies of the applicable permits and instructions on additional plans needed and aerials to be included in the final plans. **TRU** will also send this package to other concerned parties.
12. The roadway designer will provide the necessary pay item quantities, plans, cross-sections and other relevant information for the plans, specifications and estimates (PS&E) package.
13. The **TRU Manager** will provide the Environmental/Aerial Sheets delineating wetlands both on and off the project, special provisions, and the permit documents with conditions for the PS&E package.

Deeds for land acquired for wetlands mitigation shall be written specifying the reason for the acquisition to forestall selling this land in the future. It is the responsibility of the roadway designer to inform the **Right-Of-Way Design Division** (**ROW Design**) when, and what, land is being acquired for wetlands mitigation.

5.B.3 Public Notification of Wetland Mitigation

It is **NDOT's** intent to make the public aware of wetland issues as early in the life of a project as is feasible. To that end **NDOT** has adopted the following policy regarding public notification of wetland mitigation:

A. Public information meetings held for Engineering Reviews or Location Studies
1. A preliminary determination of wetlands will be done on aerial photos for use in the development of alternative concepts.
2. Information about the anticipated impact to wetlands will be made available to the public, either on handout material or on the displays. The wetland impact will be described as either major (more than three acres) or minor (less than three acres).

B. Major projects on new alignments that have a corridor study and hearing.
1. Location Hearing
    a. The **Location Studies Engineer** provides avoidance analysis and preliminary estimate of wetland impacts to **TRU**.
    b. The **TRU Wetlands Biologist** returns the required mitigation area and potential mitigation sites.
    c. At the location hearing, existing wetlands and potential mitigation sites that are truly feasible are shown.
2. Before Plan-In-Hand
    a. The designer sends updated wetland impacts, based on limits of construction, to **TRU** (four weeks prior to plan-in-hand). Include revised avoidance analysis if impacted wetlands are different from corridor study.
    b. The **TRU Wetlands Biologist** sends the designer updated mitigation areas and prioritized mitigation sites.
3. During Plan-In-Hand
    a. The preferred mitigation site is decided upon.
4. After Plan-In-Hand
    a. The designer notifies **TRU** of the preferred mitigation site and continues design. (Include in plan-in-hand report.)
5. Design Hearing
    a. The preferred mitigation site is shown.
    b. Show existing wetlands and other alternate mitigation sites, if they are truly feasible.
    c. The public hearing notice will include a location map with preferred site and other potential sites shown.

C. Design Hearing Held and Corridor Hearing Not Held
1. Before Plan-In-Hand
    a. For a project with proposed new alignments, the designer sends avoidance analysis and estimated wetland impact based on limits of construction, to **TRU**. (four weeks prior to plan-in- hand.)
    b. The **TRU Wetlands Biologist** sends the designer required mitigation areas and prioritized mitigation sites.
2. During Plan-In-Hand
    a. The preferred mitigation site is decided upon.

3. After Plan-In-Hand
    a. The designer notifies **TRU** of the preferred mitigation site and continues design. (Include in plan-in-hand.)
4. Design Hearing
    a. The preferred mitigation site is shown.
    b. Show existing wetlands and other alternate mitigation sites, if they were truly feasible.
    c. The public hearing notice will include a location map with preferred site and other potential sites shown.

D. Design Hearing Not Held and Three Acres or More Mitigation Required

1. Before Plan-In-Hand
    a. The designer sends avoidance analysis and estimated wetland impacts, based on limits of construction, to **TRU**. (four weeks prior to plan-in- hand.)
2. During Plan-In-Hand
    a. The preferred mitigation site is decided upon.
3. After Plan-In-Hand
    a. The designer notifies **TRU** of the preferred mitigation site and continues design (Include in plan-in-hand report.)
4. Hold Wetlands Information Meeting
    a. The preferred mitigation site is shown.
    b. Show existing wetlands and other alternate mitigation sites, if they were truly feasible.
    c. The public information meeting notice will include a location map with preferred site and other potential sites shown.

E. Design Hearing Not Held and Less Than Three Acres of Mitigation Required

1. Before Plan-In-Hand
    a. The designer sends avoidance analysis and estimated wetland impacts, based on limits of construction, to **TRU**. (four weeks prior to plan-in- hand.)
    b. The **TRU Wetlands Biologist** sends the designer the required mitigation area and prioritized mitigation sites.
2. During Plan-In-Hand
    a. The preferred mitigation site is decided upon.
3. After Plan-In-Hand
    a. The designer notifies **TRU** of the preferred mitigation site and continues designing. (Include in plan-in-hand report.)
    b. A location map with the preferred site and other potential sites will be sent to local newspapers with a note that **NDOT** will be mitigating the loss of wetlands due to the construction of pending Project No. _____.
    For more information contact _____.

F. If wetland mitigation is handled by taking credit from a wetland bank, specific wetland information meetings are not necessary.

5.B.4 Section 404 Permits

Section 404 of the Clean Water Act (Ref. 13.5) requires that anyone interested in depositing dredged or fill material into waters of the United States, including wetlands, must receive authorization for such activities through permitting from the **Corps of Engineers**. Activities in wetlands for which permits may be required include placement of fill material, ditching activities, levee and dike construction, mechanized land clearing, land leveling, most road construction and dam construction.

The **Corps of Engineers** issues three types of permits: individual, regional and nationwide (NWP) general permits. An individual permit is required when a project is not exempted from regulation and is of a scope and magnitude that it does not fall under the other two categories. Regional and nationwide permits are issued for projects that have minimal environmental impacts. In evaluating a permit application, the **Corps of Engineers** analyzes the following factors:

- Conservation
- Economics
- Aesthetics
- General environmental concerns
- Historic values
- Fish and wildlife values
- Flood damage prevention
- Land use, navigation
- Recreation
- Water supply and water quality
- The needs and welfare of the people

For an individual permit on new alignments, the **Corps of Engineers** will require alternatives analysis. Impacts for alternate alignments must be calculated and retained in the project file by the designer. Required alternatives analysis includes:

- What was done to avoid wetlands impacts
- What was done to minimize wetlands impacts

Erosion control is a condition of the Section 404 permit, (See Chapter Two: Erosion and Sediment Control of the Drainage Design and Erosion Control Manual (*Drainage Manual*) (Ref. 13.6) (https://dot.nebraska.gov/media/ajjpyh3d/e-chap-2-erosion-control.pdf). Plans must include control of water (and siltation due to runoff) into any water body including wetlands. **PDD** will identify any location where roadway runoff or other non-point source pollution may adversely impact sensitive water resources such as water supply reservoirs, ground water recharge areas, high quality streams and threatened and endangered aquatic species. **PDD** submits the necessary applications for Section 404 permits.

5.B.5 Section 10 of the Rivers and Harbors Act

Structures or work affecting navigable waters of the U.S. are regulated under Section 10 of the Rivers and Harbors Act of 1899 as amended (Ref. 13.7), (Section 10 of the Rivers and Harbors Appropriation Act of 1899 | US EPA). In Nebraska, only the Missouri River is considered a navigable river. If required, **TRU** will obtain a Section 10 permit from the **Corps of Engineers**.

5.B.6 Channel Changes

When a channel change is required to meet project objectives, site conditions should be evaluated early in the design process. Channel width and length, vegetation, ponding, existing erosion control measures, etc. should be noted and the new channel should be designed so as to equal or better these conditions. **TRU** should be notified of the proposed channel change as soon as possible in order to determine mitigation, special conditions, and to get the necessary outside agencies involved at the beginning of the project. This will benefit **NDOT** in the permitting process.

The **Nebraska Department of Environmental Quality** (**NDEQ**) and the **Corps of Engineers** typically requires the following conditions for channel changes for Nationwide (404) Permits:

1. A 50-foot minimum width buffer strip of native vegetation on each side of the channel, starting at the top of the bank and measuring outward.
2. In some cases 2:1 tree and shrub replacement, planted in the buffer strip.
3. Construction of a channel wide enough so that the new stream bottom area is equal to or greater than that of the channel to be filled and the cross-sectional area of the new channel is equal to or greater than that of the old channel.
4. New channel banks should be sloped no steeper than 1:3, (1:2 if certified by an engineer).
5. Channel length shall be equal to or greater than that of the channel to be filled if the total channel length is less than 100 feet (net loss).
6. No more than 300 feet of channel can be impacted.

If these conditions cannot be met, meet with the **EDU Supervisor** as soon as possible because an individual 404 permit will be required, increasing the time required for the permit process.

The **Corps of Engineers** also requires that any channel change designed without a grade control structure must have a registered engineer verify, in writing, that a grade control structure is not required. The following example statement has been accepted by **PDD** and by the **Corps of Engineers** as fulfilling this requirement:

“I have determined that the channel change from Station 252 +/- 50 Rt. to Station 253 +/- Rt. does not require a grade control structure.”

A copy of this transmittal shall be kept in the project file.

Deeds for land acquired for channel changes shall be written specifying the reason for the acquisition to forestall selling this land in the future. It is the responsibility of the roadway designer to inform **ROW Design** when, and what, land is being acquired for channel changes.

5.B.6.a Bridge Channel Work

The pay limits provided for channel work as a **Bridge Division** (**Bridge**) pay item will be from ROW to ROW (or as specified on the Bridge Data Sheet) and from centerline of abutment to centerline of abutment, (See EXHIBIT 13.2). Payment for channel work (and riprap) beyond the Bridge Plan quantity limits may be paid for as either Excavation (Established Quantity) or Earthwork Measured in Embankment. Excavation (Established Quantity) will be provided if the greatest earthwork net volume is excavation while Earthwork Measured in Embankment will be used if the greatest net volume is in fill. The roadway designer will coordinate with the **Bridge Designer** to decide how the work will be shown in the plans and how the limits of payment will apply.

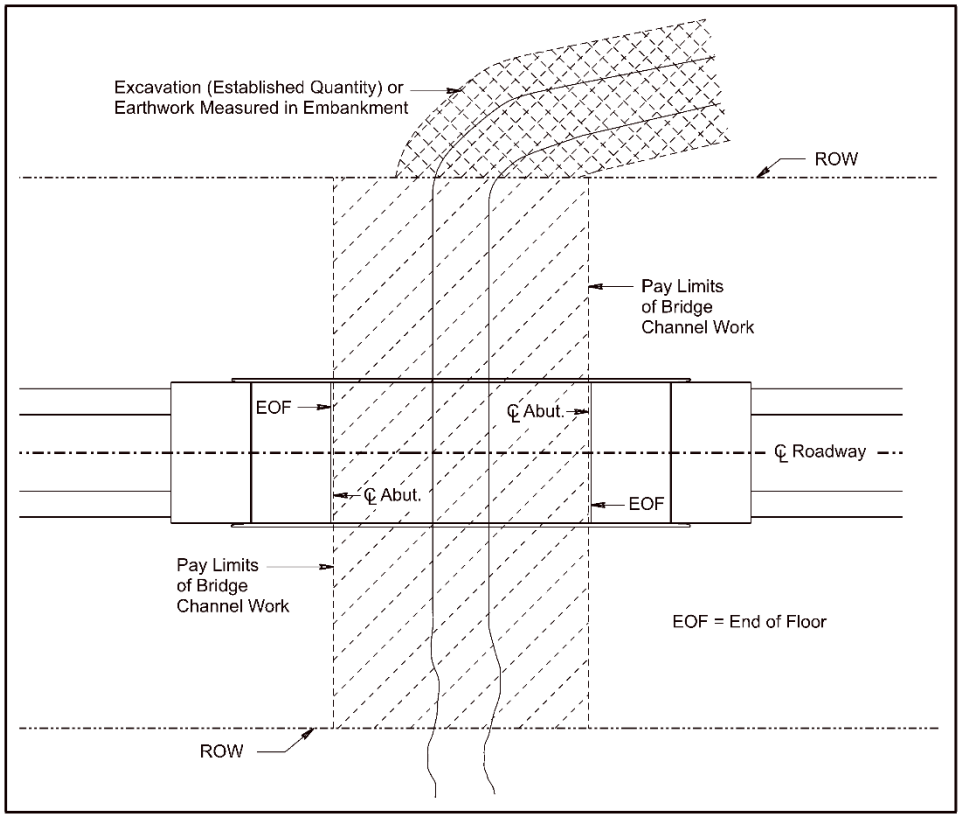

Exhibit 13.2 Pay Limits for Bridge Channel Work

5.B.7 Floodplains

The **Federal Emergency Management Agency (FEMA**) administers the National Flood Insurance Program (NFIP). **FEMA** has established regulations for the modification of floodways and floodplains.

There can be no surcharge or increase of the 100-year flood profile resulting from highway construction in floodway (See the *Drainage Manual*, Ref. 13.6), Chapter One: Drainage, Section 5.C). If an area is mapped **FEMA** zone A or a flood fringe area on a Flood Insurance Rate Map (FIRM) and there is a local (**Town, City or County**) designated regulating authority, **NDOT** must obtain a Floodplain/Floodway permit if construction activities occur in the mapped area. Flood Insurance Rate Maps may be found at (https://msc.fema.gov/portal/home). To apply for the permit a "No-Rise" certificate is required along with the application. For bridge construction activities in the mapped area, **Bridge** provides a "No-Rise" certificate and a Bridge Data Sheet. For roadway construction activities in the mapped area, **Roadway** provides a "No-Rise" certificate and a memo explaining the construction activities. Refer to Ref. 13.8 through 13.12 for further guidance. For additional information, see Chapter Seventeen: Resurfacing, Restoration and Rehabilitation (3R) Projects, Section 17.D, of this manual.

The designer will also add the appropriate floodplain wording to the PIH Report if/as required (See Appendix L "PIH Report & PQS Memo Floodplain Wording", of this manual).

5.B.8 Water Quality

NDOT must comply with federal regulations related to water quality including the Clean Water Act (Ref. 13.5) and the Safe Drinking Water Act (Ref. 13.13), (https://www.epa.gov/sdwa). A Water Quality Certificate must be obtained from the **NDEQ**.

PDD will also research impacts of the project on any areas designed as principal or sole-source aquifers under Section 1424(e) of the Land Water Conservation Fund Act, (Ref. 13.4). If a rest area with a point source discharge is proposed as part of the project, **PDD** will also obtain a Section 402 permit (Procedures for Coordinating Highway Encroachments on Floodplains with Federal Emergency Management Agency, Ref. 13.8), (https://www.fhwa.dot.gov/engineering/hydraulics/policymemo/0650asu3.cfm).

NDOT is responsible for the quality of water exiting state right-of-way. **NDOT** is also responsible for maintaining the Stormwater Treatment Facilities (STFs) on Interstate and freeway projects (See Chapter Three: Stormwater Treatment of the *Drainage Manual*, Ref. 13.6). By statute, cities with a population over 10,000 are responsible for maintaining STFs placed on roadway projects other than Interstate and freeway. A statement highlighting this responsibility will be placed in the project agreement with the **City**.

5.C Air Quality

The Clean Air Act (Ref. 13.14), (https://www.epa.gov/clean-air-act-overview), was passed to protect and enhance the quality of the nation's air resources. **EPA** has established air quality standards that must be followed. **Noise, Air & Hazardous Materials** in the **Roadside Development and Compliance Unit** (**RDC**) of **PDD** will make all necessary air quality evaluations. Air analysis will be made for projects where the traffic exceeds 15,000 vehicles in the year of construction or 30,000 vehicles in the design year.

5.D Noise

Noise is defined as unwanted sound. Vehicles generate noise, and designers should work with **RDC Noise, Air, & Hazardous Materials** to evaluate expected noise levels and measures to reduce traffic noise levels through location and design features. Sometimes embankment design and design features may serve to reduce noise levels. Criteria have been developed to analyze anticipated noise levels to determine if additional noise abatement measures should be incorporated into design. Noise sensitive areas, e.g. residences, businesses, schools, parks, etc., should be noted in the early project stages for both developed and undeveloped lands for which development is planned, designed, and programmed. The designer should work with **RDC Noise, Air, & Hazardous Materials** if noise levels are expected to be a problem.

Noise levels should be considered during design of alignment, cross-section, earthwork balance and right-of-way. Sometimes natural barriers from the terrain may be effective noise barriers. Noise barrier structures should be located outside of the Horizontal Clear Zone if practicable. Stopping sight distance should be maintained. Some noise barrier designs incorporate concrete safety shapes. Barriers should begin or terminate at least 200 feet from the nose of gore areas. Refer to **American Association of State Highway and Transportation Officials (AASHTO)** A Policy on Geometric Design of Highways and Streets (*Green Book*) (Ref. 13.15), Chapter 4, for further information.

5.E Wildlife Issues

Transportation agencies are responsible for recognizing potential conflicts between wildlife and transportation facilities and for minimizing those conflicts during all phases of roadway development. **PDD** coordinates wildlife and habitat studies and will notify **Roadway** of project-related concerns. The designer should consider the effects of roadway design on wildlife habitat and incorporate appropriate measures in project design.

Direct impacts on wildlife by roadway development stem from the disturbance of essential habitat components such as key forage areas, nesting sites, breeding grounds and essential escape cover. The Migratory Bird Act (https://www.fws.gov/laws/lawsdigest/migtrea.html) protects nesting bird habitat. Tree removal cannot be done during primary nesting season, (from April 1 through July 15), without a survey to check for nesting activity. If the tree removal activity will disrupt nesting, a permit must be obtained. The contractor shall be responsible for the nesting survey and for obtaining the permit. Wildlife also may be disturbed by interruptions of migration paths and highway mortality. The placement of fencing should take into consideration any restrictions it will have on animal movement. Any use of or modification to water bodies that may impact wildlife will also be included in any environmental documentation, (See Section 4.A of this chapter).

PDD provides early project coordination with the **Nebraska Game and Parks Commission** to identify endangered and/or threatened species concerns for use in design, copies of the determination will be provided to the designer. An endangered species is defined as any species that is in danger of extinction throughout all or a significant portion of its range. A threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. If endangered or threatened species are concerns on a project, **TRU** will work with the designer to avoid or minimize impacts. If, at a public meeting/hearing or during other design activities, concerns are raised regarding the presence of endangered species, contact **TRU**.

AASHTO's A Design Guide for Wildlife Protection and Conservation for Transportation Facilities (Ref. 13.16) provides additional information, terms and concerns of the biological community.

5.F Social, Economic, and Environmental Impacts

As part of the social, economic and environmental review (SEE) for Class I and Class III projects (See Section 4 of this chapter) the following social impacts are considered:

1. Changes in community or neighborhood identity, such as splitting neighborhoods, isolating ethnic groups, separating residents from community facilities such as police and fire protection, school districts, churches, businesses, etc.
2. Travel patterns, accessibility, transit captives such as elderly, handicapped, non-drivers, pedestrian, bicyclists, etc.
3. Relocation impacts (See Chapter Twelve: Cost Estimating & Funding, Section 7.B.4, of this manual).
4. Impacts on the handicapped and minorities.
5. Economic impacts both for the region as well as adjacent highway-related and other businesses, etc.

Executive Order 12898 (2/11/94) (Descriptions of All Policies | FEMA.gov) covers Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations. **FHWA** has developed policies and procedures to use in complying with this Executive Order. Any project with Federal funding will require **NDOT**, through the NEPA process, to identify and address disproportionately high and adverse effects on minority and low-income populations. In design, avoidance, minimization, and/or mitigation must be considered for disproportionately high and adverse effects. Public involvement opportunities must be provided to the affected populations for proper alternative consideration. **PDD** will notify **Roadway** when Environmental Justice issues must be addressed.

5.G Archeological and Historical Features

Section 106 of the National Historic Preservation Act of 1966 (Ref. 13.17), (National Historic Preservation Act | Advisory Council on Historic Preservation), requires an investigation be made for possible impacts of transportation projects on historic or archeological resources. A determination is necessary if any historic or archeological resources that are on or may be eligible to be on the National Register of Historic Places will be adversely impacted.

NDOT works with the **State Historic Preservation Officer** to evaluate sites to determine if they should be preserved or if they may be researched only, without the need for preservation. Historic sites may be bridges, buildings, neighborhoods, farmsteads, sites where significant events occurred, etc. If historic sites are present, the designer should coordinate with **TRU Section 106**.

5.H Hazardous Materials

5.H.1 Materials Prohibited or Restricted as Fill Materials

The **Corps of Engineers** has issued generic prohibitions of use of certain materials as fill in waters of the **United States** as defined by the Clean Water Act (Ref. 13.5). The following materials are prohibited or restricted as fill materials in waters of the United States within the regulatory boundaries of the **Omaha District of the Corps of Engineers**:

1. Vehicle bodies, farm machinery and metal junk including appliances, containers and barrels (including plastic barrels).
2. The use of small aggregate, in the form of streambed material, for bank stabilization and erosion control below the ordinary high water mark of a waterbody or wetland when the material to be discharged is removed from a stream or river for such purpose. Small aggregate, from any source, placed below the ordinary high-water mark of a waterbody or wetland when the proposed project will be unstable and subject to frequent failure.
3. The use of old or used asphalt as a fill material and the use of asphalt in general for bank stabilization or erosion control.
4. The use of organic debris (properly anchored trees and treetops are excluded).
5. Biodegradable building materials including wood debris, sheetrock, roofing materials, and chemically treated materials subject to leaching when placed in an aquatic environment. The use of clean brick and broken concrete will continue to be allowed on a case-by-case basis. Broken concrete should be free of exposed rebar and old asphalt.
6. Tires shall be prohibited unless placed in the form of a mat or other design and anchored to preclude entering the waterway.

The **PDD Roadside Development & Compliance Unit** (**RDC**) will obtain proper authorization from the **Corps of Engineers** for any discharge of dredged or fill material into a water of the **United States**.

5.H.2 Guidelines for Handling Petroleum Tanks/Leaks on Construction Projects

The Resource Conservation and Recovery Act (RCRA) (Ref. 13.18), (Summary of the Resource Conservation and Recovery Act | US EPA), and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (Ref. 13.19), (https://www.epa.gov/laws-regulations/summary-comprehensive-environmental-response-compensation-and-liability-act), regulate hazardous waste sites. The locations of permitted and non-regulated hazardous waste sites should be identified.

On federal-aid highway projects, **FHWA** expects early investigation of all potential hazardous waste/petroleum sites to preclude costly delays. An initial site assessment should be done, as early as possible in the project development stages, to identify any known or potential waste site within the project limits.

For projects where no significant excavation is involved and a paper review of the tank sites reveals no problems, **NDOT** will not perform on-site drilling and testing. For projects with major excavation in the vicinity of fuel tanks, site drilling and testing may be required with the results incorporated into the EIS, (See Section 4.A.1 of this chapter).

During the on-site engineering review of projects, the locations of active and inactive fuel stations should be noted. Any stations converted to other uses should be flagged for follow-up. Once preliminary design is begun and the design is roughed out, the designer can request that **PDD** make a paper review of any fuel tank locations. The following activities will be included in the paper review:

1. Plans will be checked to see that the tank fill pipes/gas pumps are shown. A fill pipe is usually but not always directly over the tank. Vent pipes are almost always remotely located.
2. Cross-sections will be checked for cuts and fills, presence of storm sewer pipe, longitudinal or cross pipes. Even if the old grade line is matched, excavation may be needed for pavement widening, storm sewer pipes, or modern ditch sections.
3. The amount of right-of-way and its impact on existing tanks will be reviewed.
4. The **Fire Marshall's Office** will be contacted to find out tank registrations, approximate ages and sizes, when the sites were last inspected, and the results of any precision (tightness) testing.
5. The **NDEQ** will be contacted for sites on the active spill/leak list.
6. Local governments and longtime residents may be contacted for history.
7. The CERCLA map will also be checked.

Upon completion of this review, **PDD** will write a memo to **Roadway** (and **FHWA**, as appropriate, for the EIS) summarizing their findings.

In some cases, contaminated soil is not anticipated. In other cases, where questions remain, on-site drilling and testing may be needed. In those cases, **PDD** will request that **M&R** arrange testing. **M&R** will send a report to **PDD** which is then forwarded to **Roadway** and, if necessary, to **FHWA**.

5.H.3 Guidelines for Handling Contaminated Soils on Highway Right-of-Way

Sometimes unanticipated contaminated soils are encountered during construction activities. **NDEQ** has issued guidelines for handling petroleum-contaminated soils from an excavation or construction activity (e.g., during a trenching operation). The soils may be temporarily removed within the area of contamination and subsequently re-deposited back into the excavation and contaminated area under the following conditions:

1. The placement of underground equipment, such as a storm sewer line, cannot be allowed to act as a conduit for further migration of the contamination.
2. Impervious geological features, such as clay silt, cannot be punctured so as to open a path for contamination to migrate into an aquifer.
3. Cross-contamination of stacked fill material that expands the area of contamination cannot be allowed, i.e., the soil should not be stirred.
4. Migration of contamination from storm runoff due to the stockpiling of consolidated excavated soil cannot be allowed. The material shall be re-deposited at the end of the day or be covered with plastic cover until it is re-deposited.
5. Inversion of the layers of contamination in the replaced soil is not allowed. The contaminated soil needs to be placed back in the trench at the same layer from which it came.

These **NDEQ** guidelines do not apply to mass grading operations (e.g., cut and fill) in which contaminated soils are encountered. If contaminated soils are found during a mass grading operation, these soils need to be kept separate from the "clean" soils as recommended by **NDEQ**. Special handling will be needed.

6. LIAISON WITH OTHER AGENCIES AND ORGANIZATIONS

6.A Agreements

Intergovernmental agreements outlining the scope and participation of all parties will be executed for projects involving other units of government. The **Agreements & Consultants Services Section** (**Agreements**) in **PDD** prepares all agreements, except relinquishment agreements. Prior to the public hearing or meeting, covenant relinquishment agreements are prepared by **M&R**. Final relinquishment agreements are prepared prior to plans submittal to the **Construction Division Plans, Specifications, and Estimates Section** (**PS&E**). **Design** may provide input for exhibits and/or displays which may be needed for the agreements. For additional information, see Chapter Seventeen: Resurfacing, Restoration and Rehabilitation (3R) Projects, Section 10.E, of this manual.

6.B Federal Agencies

Ordinarily, **FHWA** is the lead federal agency for **NDOT** contact. However, **NDOT** may also work with the **U.S. EPA**, **Corps of Engineers, U.S. Fish and Wildlife Service, National Park Service, FEMA, U.S. Forest Service, Bureau of Land Management, Bureau of Indian Affairs, the Architectural and Transportation Barriers Compliance Board (Access Board)** and other federal agencies. **PDD** serves as liaison with these agencies.

6.C Other State Agencies

NDOT works with many state agencies including the **Nebraska State Historical Society**, the **Natural Resource Commission**, the **Game and Parks Commission**, etc. In addition, **NDEQ** issues water quality certification, the **Advisory Council on Historic Preservation** works with **NDOT** on historic site issues, and the **Paleontological and Archaeological Highway Salvage Program** addresses archeological issues.

6.D Local and Regional Agencies

PDD coordinates with **MPOs** in metropolitan areas, and the **Local Assistance Division** coordinates with city and county governments, natural resource districts, et. al.

6.E Public Participation and Input

Federal Policy requires public involvement in the development of transportation plans. The public participates in the planning process through the **State Highway Commission**, the **Board of Public Roads Classifications and Standards** and through other committees, meetings and hearings. In addition, information about transportation plans, projects and programs is disseminated through the public media and through mailings to interested organizations and individuals such as the **Nebraska Highway Coalition,** the **American Automobile Association,** the **Nebraska Motor Carriers Association**, etc.

Types of public meetings that are held by the **Roadway** include public information meetings, city officials' meetings, pre-hearings, location public hearings, and design public hearings.

Communication between **NDOT** and the public is an important ongoing activity coordinated by the **Highway Programs Specialist** in the **Communications and Public Policy Division** (**Communications**). Depending upon the nature of the project, several types of contact may be made during the course of a project.

The **Public Involvement Specialist** publishes notices of opportunity for hearings in general circulation newspapers in project areas to provide general information about the proposed projects to the general public and also to provide them the opportunity to submit a written request to **NDOT** to hold a public hearing. If no requests are submitted, **NDOT** may notify **FHWA** that no requests were received and that hearing requirements were thus satisfied.

6.F Consultants

Consultants are hired to assist **NDOT** on various projects. **Agreements** provides liaison with consultants, including:

- Participating in the selection of and negotiation with consultants
- Maintaining certification records of consultants
- Reviewing consultant billings

Engineers who work in the **Consultant Design Units** in **Roadway** will be responsible for day to day business contacts with consultants including transmittal of data, progress inspections and meetings as set out in the scope of work. This does not include authorization to change the scope of work for the project, to exceed the agreed upon project cost or to extend the completion date. These authorizations come from the **Agreements Engineer**. If a change in scope of work is necessary, it should be discussed with the **Agreements Engineer** and that office will prepare a supplemental agreement for the additional cost. If a time extension is necessary, the **Agreements Engineer** will ask the consultant to provide a written extension request and will discuss this with the appropriate **Division** for approval of the time extension.

The **Agreements Engineer** should be informed of design public hearings so he/she can be prepared to have the consultant ready to go on Roadway Design Details. The **Agreements Engineer** will set up the scope of work and be in charge of the negotiations. Following a design public hearing, the negotiations will be completed so the consultant will be ready for Roadway Design Details as soon as approval is received from the **State Highway Commission** and **Governor**.

7. REFERENCES

13.1 National Environmental Policy Act of 1969: 42 U.S.C. 4321-4347, 23 CFR 771 Environmental Impact and Related Procedures, 40 CFR 1500-1508 Council on Environmental Quality Regulations. (https://ceq.doe.gov/)

13.2 Nebraska Department of Transportation, Design Process Outline, (*DPO*) Current Edition. (Design Process Outline)

13.3 Section 4(f), U.S. Department of Transportation Act of 1966. (https://www.environment.fhwa.dot.gov/legislation/section4f.aspx)

13.4 Section 6(f), Land Water Conservation Fund Act. (Section 4(f) Related Statutes)

13.5 Clean Water Act of 1977, 33 U.S.C. 1251 et seq. (Permit Program under CWA Section 404 | US EPA)

13.6 Nebraska Department of Transportation, Drainage Design and Erosion Control Manual (*Drainage Manual*), Current Edition. (Roadway Design Manuals - NDOT)

13.7 Section 10, Rivers and Harbors Act of 1899, 33 U.S.C. 403, as amended and supplemented, 33 CFR 114-115. (Section 10 of the Rivers and Harbors Appropriation Act of 1899 | US EPA)

13.8 U.S. Department of Transportation, Federal Highway Administration, "Procedures for Coordinating Highway Encroachments on Floodplains with Federal Emergency Management Agency." (https://www.fhwa.dot.gov/engineering/hydraulics/policymemo/0650asu3.cfm)

13.9 "The Floodway: A Guide for Community Permit Officials," Federal Emergency Management Agency.

13.10 Executive Order No. 11988: Floodplain Management (as amended by Executive Order 12148). (https://www.epa.gov/cwa-404/floodplain-management-executive-order-11988)

13.11 Executive Order No. 11990: Federal Wetlands. (https://www.epa.gov/cwa-404/protection-wetlands-executive-order-11990)

13.12 U.S. Department of Transportation, Federal Highway Administration, "Location and Hydraulic Design of Encroachments on Flood Plains, "Federal Aid Policy Guide, Volume 6, Chapter 7, Section 3, Subsection 2. (https://www.gpo.gov/fdsys/pkg/CFR-2011-title23-vol1/pdf/CFR-2011-title23-vol1-part650-subpartA.pdf)

13.13 Safe Drinking Water Act: 42 U.S.C. 300f, 300h and 300j-6, 23 CFR 650, Subpart E. (https://www.epa.gov/sdwa)

13.14 The Clean Air Act: 23 U.S.C. 109(1) as amended, 42 U.S.C. 7401-7428. (https://www.epa.gov/clean-air-act-overview)

13.15 American Association of State Highway and Transportation Officials, A Policy on the Geometric Design of Highways and Streets (*Green Book*), Washington, DC., 2011.

13.16 American Association of State Highway and Transportation Officials, A Design Guide for Wildlife Protection and Conservation for Transportation Facilities, 1976, Washington, DC.

13.17 Section 106, National Historic Preservation Act as amended: 16 U.S.C. 470f. (National Historic Preservation Act | Advisory Council on Historic Preservation)

13.18 Resource Conservation and Recovery Act of 1976 (RCRA) as amended: 42 U.S.C. 6901, 40 CFR 260-271. Summary of the Resource Conservation and Recovery Act | US EPA)

13.19 Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended: 42 U.S.C. 9601-9657 (https://www.epa.gov/laws-regulations/summary-comprehensive-environmental-response-compensation-and-liability-act)