

APPENDIX W  
FRAMEWORK WATER RESOURCES  
PROTECTION PLAN

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## ACRONYMS

Applicant	TransWest Express LLC, also TransWest
ATV	all-terrain vehicle
BLM	Bureau of Land Management
BMP	Best Management Practice
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEIS	Draft Environmental Impact Statement
DEQs	Departments of Environmental Quality
EPA	United States Environmental Protection Agency
FEIS	Final Environmental Impact Statement
NDEP	Nevada Division of Environmental Protection
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NTP	Notice to Proceed
NWP	Nationwide Permit
OHWM	ordinary high water mark
Plan	Water Resources Protection Plan
POD	Plan of Development
Project	TransWest Express Transmission Project, also TWE Project
ROD	Record of Decision
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
TransWest	TransWest Express LLC, also Applicant
TWE Project	TransWest Express Transmission Project, also Project
U.S.C.	United States Code
UDEQ	Utah Department of Environmental Quality
UDNR	Utah Department of Natural Resources
USACE	Unites States Corps of Engineers
USFWS	Unites States Fish and Wildlife Service
WDEQ	Wyoming Department of Environmental Quality
WQC	Water Quality Certification

## **W1.0 INTRODUCTION**

This framework Water Resources Protection Plan (Plan) describes TransWest Express LLC's (TransWest or Applicant) approach for avoiding and minimizing impacts to water resources from the proposed TransWest Express Transmission Project (TWE Project or Project). The permit requirements of the U.S. Army Corps of Engineers (USACE) are described in this Plan; however, these requirements will be addressed separately in coordination with the USACE permitting process.

### **W1.1 Plan Purpose**

This framework Plan represents the commitment on the part of TransWest to protect water resources. The overall objective is to provide measures to protect these resources from potential impacts during construction, operation, and maintenance. This plan incorporates mitigation measures contained in the Draft Environmental Impact Statement (DEIS) for the Project. This plan is intended for use as a guide to determine the appropriate site-specific measures to be implemented during construction activities. The goals of this plan are to control Project-related erosion and sedimentation into streams and wetlands and minimize disturbance and erosion of streambeds and banks. This document provides a template for the final Water Resources Protection Plan to be developed by the Construction Contractor(s).

### **W1.2 Plan Updates**

Based on detailed preliminary engineering and design for the selected Agency Preferred Alternative, an updated Plan will be completed with the Record of Decision (ROD) Plan of Development (POD). This Plan will provide initial measures for the protection of water resources identified in the Agency Preferred Alternative in the Final Environmental Impact Statement (FEIS). For the Notice to Proceed (NTP) POD, the Plan will be updated based on final detailed engineering and design and the results of field surveys. The Construction Contractor(s) will be responsible for implementing the final Water Resources Protection Plan.

## **W2.0 REGULATORY OVERVIEW**

Construction, operation, and maintenance of the Project would include ground disturbing activities that could impact wetlands and waters of the U.S. and aquatic resources. The following regulations and associated permits and authorizations may be required for the Project.

### **W2.1 Federal Regulations**

The Clean Water Act (CWA) (33 United States Code [U.S.C.] §1251 et seq., formerly the Federal Water Pollution Control Act of 1972) was enacted with the intent of restoring and maintaining the chemical, physical and biological integrity of the waters of the U.S. Specific sections of the CWA that may apply to the Project are described below, followed by a brief description of the associated permits.

#### ***W2.1.1 Clean Water Act – Section 303(d) List of Impaired Waters***

Section 303(d) of the federal CWA requires states to assess the condition of state waters to determine where water quality is impaired (does not fully support uses identified in the stream classification or does not meet all water quality standards) or threatened (is likely to become impaired in the near future). The result of this review is the compilation of a 303(d) list, which states must submit to the U.S. Environmental Protection Agency (EPA) biannually.

### **W2.1.2 Clean Water Act – Section 130.7 Total Maximum Daily Load**

Section 130.7 of the CWA required states to establish Total Maximum Daily Load (TMDL) programs, which are approved by the EPA for streams and lakes that do not meet adopted water quality standards. A TMDL includes a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect water bodies. A TMDL budget takes into account loads from point, nonpoint, and natural background sources. National Pollutant Discharge Elimination System (NPDES) permits address point-source pollution to surface waters. Non-point source pollution is addressed by the application of Best Management Practices (BMPs) and environmental mitigation measures.

In compliance with the federal CWA, the Wyoming Department of Environmental Quality (WDEQ), Colorado Department of Public Health and Environment (CDPHE), Utah Department of Environmental Quality (UDEQ), and Nevada Division of Environmental Protection (NDEP) have identified Section 303(d) water quality limited streams and lakes for development of TMDL criteria. TMDLs have been established for surface waters in Colorado, Utah, and Nevada. WDEQ has developed few TMDLs at this time since they are just implementing the TMDL program. From the time a water body is listed as impaired, a TMDL for that water body would be developed within one to five years. A list of impaired water bodies on the 303(d) list will be identified for the selected Agency Preferred Alternative.

### **W2.1.3 Clean Water Act - Section 401 Water Quality Certification**

Pursuant to Section 401 of the federal CWA, any permit or license issued by a federal agency for an activity that may result in a discharge into waters of the U.S. requires certification from the state in which the discharge originates. This requirement allows each state to have input into federally approved projects that may affect its waters (rivers, streams, lakes, and wetlands) and to ensure the projects will comply with state water quality standards and any other water quality requirements of state law. State certification ensures that the project will not adversely impact impaired waters (waters that do not meet water quality standards) and that the project complies with applicable water quality improvement plans (total maximum daily loads). The States must grant, deny, or waive water quality certification for a project before a federal permit or license can be issued. The Departments of Environmental Quality (DEQs) for Wyoming, Colorado, Utah, and Nevada must provide Section 401 Water Quality Certifications (WQCs) for the federally issued permits, including the 404 permits in all four states.

### **W2.1.4 Clean Water Act – Section 402 National Pollutant Discharge Elimination System Permits**

To comply with criteria in EPA's CWA, all construction site operators engaged in clearing, grading, and excavating activities that disturb one acre or more, must obtain an NPDES permit for stormwater discharges (Code of Federal Regulations [CFR], Title 40, Parts 122 and 123). NPDES permits (also called Construction General Permits) are issued by the EPA or similar authorized state entity following submittal of a Notice of Intent (NOI) for construction activities, and preparation of a Stormwater Pollution Prevention Plan (SWPPP) that describes how erosion and sediment transport will be minimized to adjacent water bodies.

### **W2.1.5 Clean Water Act – Section 404 Waters of the U.S. Permits**

Waters of the U.S., including wetlands, are subject to the USACE jurisdiction under Section 404 of the CWA. A Section 404 permit is required for the discharge of dredged or fill material into waters of the U.S. Section 404 of the CWA applies to all jurisdictional waters of the U.S., including wetlands

that have significant nexus to interstate commerce. The USACE jurisdiction over non-tidal waters of the U.S. extends to the “ordinary high water mark provided the jurisdiction is not extended by the presence of wetlands” (33 CFR Part 328.4); and under Title 40 CFR Part 230.3 (s)(1). Jurisdictional waters include surface waters, such as navigable waters and their tributaries, all interstate waters and their tributaries, natural lakes, all wetlands adjacent to other jurisdictional waters and all impoundments of these waters.

The majority of the Project lies within the Sacramento District of the USACE. The Nevada portion of the Project lies within the Los Angeles District of the USACE and a small portion of the Project near Rawlins, Wyoming is within the Omaha District of the USACE. The Districts within which unavoidable wetland impacts would occur would provide regulatory review and permitting services for the Project.

Under Section 404, the USACE issues a number of Nationwide Permits for different types of activities that result in minimal individual and cumulative adverse effects on the aquatic environment and Individual Permits for larger and more complex impacts.

### **W2.1.6 Rivers and Harbors Appropriation Act of 1899, Section 10**

Under Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. §403; Chapter 425, March 3, 1899; 30 Stat. 1151), the building of any wharfs, piers, jetties and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. Authority of the USACE to issue permits for the discharge of refuse matter into or affecting navigable waters under Section 13 of the 1899 Act (33 U.S.C. §401; 30 Stat. 1152) was modified by title IV of P.L. (33 U.S.C. §§1341-1345; 86 Stat. 877), as amended, which established the NPDES permits.

USACE permits are required under Section 10 for construction in, over or under navigable waters of the United States except as otherwise noted by USACE. Certain activities specified in 33 CFR Part 330 are permitted by that regulation (“nationwide general permits”). Other activities may be authorized by district or division engineers on a regional basis (“regional general permits”). If an activity is not exempted by USACE or authorized by a general permit, an individual Section 10 permit will be required for the proposed activity.

The Fish and Wildlife Coordination Act (16 U.S.C. §§661-667e; 48 Stat. 401), as amended, provides authority for the U.S. Fish and Wildlife Service (USFWS) to review and comment on the effects on fish and wildlife of activities proposed to be undertaken or permitted by the USACE.

### **W2.1.7 Executive Order 11988 Protection of Wetlands**

The requirements for all regulatory actions specified in Executive Order 11988 are summarized in Section 1 from the order: *“(a) Each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. (b) This Order does not apply to the issuance by Federal agencies of permits, licenses, or allocations to private parties for activities involving wetlands on non-Federal property.”*

### **W2.1.8 Executive Order 11988 Floodplain Management**

The requirements for all regulatory actions specified in Executive Order 11988 are summarized in Section 1 from the order: *“Each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for (1) acquiring, managing, and disposing of Federal lands, and facilities; (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.”*

### **W2.1.9 Wild and Scenic Rivers**

Wild and Scenic Rivers were established by the Wild and Scenic Rivers Act of 1968 to protect and preserve designated rivers throughout the nation in their free-flowing condition and to protect and preserve their immediate environments. To meet the eligibility criteria, a waterway must be “free-flowing” and, along with its adjacent land area, must possess at least one “outstandingly remarkable value.” The Act provides three levels of protection: wild, scenic, and recreational. “Wild” rivers are free of dams, generally inaccessible except by trail, and represent vestiges of primitive America. “Scenic” rivers are free of dams, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads. “Recreational” rivers are readily accessible by road or railroad, may have some development along their shorelines, and may have been dammed in the past.

The Wild and Scenic Rivers Act describes procedures and limitations for control of lands in federally administered components of the system and for dealing with disposition of lands and minerals under Federal ownership.

## **W2.2 State Regulations**

Many States regulate waterways and adjacent wetlands, either through specific regulatory programs or via Section 401 of the CWA, also known as 401 WQC. State regulatory programs may incorporate permitting procedures to authorize jurisdictional impacts to waterways and wetlands and may require compensatory mitigation for unavoidable impacts. In the absence of a specific regulatory program, States may utilize 401 WQC to require measures over and above those required by the USACE Section 404 permit. Section 401 allows a state to review, authorize or deny, and implement requirements additional to those of the USACE 404 permit. If a state chooses to utilize its authority under Section 401, the Section 404 permit does not go into effect until the State issues the 401WQC.

The state agencies, authorizations and guidance that are applicable to wetlands and waters of the U.S. permitting and mitigation requirements for the TWE Project are summarized below.

### **W2.2.1 Wyoming**

WDEQ, Water Quality Division:

- CWA Section 401 WQC.
- Request for WQC submitted to WDEQ by USACE for Section 404 permits.
- Section 401 certification issued by WDEQ prior to federal Section 404 approval.

- In 2012, the WDEQ certified, with certain conditions, the use of Nationwide Permit (NWP) 12 on all waters in Wyoming other than those designated as Class 1 waters.

### **W2.2.2 Colorado**

CDPHE, Water Quality Control Division:

- CWA Section 401 WQC.
- Under the Colorado 401 Certification Regulation, all Nationwide CWA Section 404 permits are certified by statute and do not require a certification by the Water Quality Control Division.
- All WQCs for Individual CWA Section 404 permits and licenses are subject to specified state requirements. The TWE Project would comply with these additional requirements.
- For Individual CWA Section 404 permits, documents must be submitted to the Water Quality Control Division for CWA Section 401 certification.
- In 2012, the CDPHE Water Quality Control Division certified, with conditions, the use of NWP 12 in the State of Colorado.

### **W2.2.3 Utah**

Utah Department of Natural Resources (UDNR), Division of Water Rights:

- Stream Channel Alteration Permit for alteration of bed or banks of a natural stream.
- State Engineer's Office has entered into a joint permitting program with the USACE to issue Section 404 approvals through the State Stream Alteration Program.
- Draft Mitigation Guidance.
- Utah Division of Water Rights, Stream Program Fact Sheet SA-5, Draft, Post-Construction Establishment of Vegetation.

UDEQ, Division of Water Quality:

- CWA Section 401 WQC.
- Request for certification submitted to UDEQ by USACE for Section 404 permits.
- Section 401 certification issued by UDEQ prior to federal Section 404 approval.
- In 2012, the UDEQ Division of Water Quality certified, with conditions, the use of NWP 12 in the State of Utah.

U.S. EPA:

- Section 404 permits on tribal lands will also require a Section 401 WQC from the EPA's regional office.

### **W2.2.4 Nevada**

NDEP, Bureau of Water Pollution Control:

- CWA Section 401 WQC.
- Request for certification submitted to NDEP by USACE for Section 404 permits.
- Section 401 certification issued by NDEP prior to federal Section 404 approval.
- In 2012, the NDEP certified, with conditions, the use of NWP 12 in the State of Nevada.

U.S. EPA:

- Section 404 permits on tribal lands will also require a Section 401 WQC from the EPA's regional office.

## **W3.0 OVERVIEW OF WATER RESOURCES**

### **W3.1 Jurisdictional Waters of the U.S.**

Waters of the U.S. are defined in 40 CFR 230.3(s). Waters of the U.S. for the TWE Project would be determined by field surveys.

#### **W3.1.1 Wetlands**

Wetlands are defined for regulatory purposes as “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” (33 CFR Part 328.3, 40 CFR Part 230.3). Wetlands are important ecological resources that perform many functions including groundwater recharge, flood flow attenuation and conveyance, erosion control, and water quality improvement. They also provide habitat for many plants and animals, including threatened or endangered species.

#### **W3.1.2 Non-wetland Waters of the U.S.**

The USACE regulates the discharge of fill material within the plane of the ordinary high water mark (OHWM) of streams, and also regulates the overhead crossing of navigable waterways. The OHWM is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3(e)). These physical characteristics include a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.

### **W3.2 Non-Jurisdictional Water Resources**

Non-jurisdictional water resources may include intermittent, ephemeral streams and drainages, irrigation ditches and canals, wells, isolated wetlands and others.

## W4.0 AVOIDANCE AND ENVIRONMENTAL MITIGATION MEASURES

In addition to adhering to USACE and state regulations and guidelines regarding waters of the U.S., the TWE Project will avoid and minimize adverse impacts to other water resources to the extent practicable. This section describes the environmental mitigation measures that TransWest and its Construction Contractor(s) will implement and the access road designs used by TransWest to minimize impacts to water resources.

### W4.1 Environmental Mitigation Measures

TransWest has prepared other framework plans included in the FEIS POD for consideration during the National Environmental Policy Act (NEPA) analysis. Many of these plans provide protection to water resources either directly or indirectly and are listed in Table W1 below.

**TABLE W1 OTHER FRAMEWORK PLANS CONTRIBUTING TO THE PROTECTION OF WATERS OF THE U.S.**

FRAMEWORK PLAN	WATER PROTECTION MEASURES	FEIS POD APPENDIX
Access Road Siting and Management Plan	This plan will outline methods to prevent adverse impacts to the environment that could result from access road siting and management.	A
Blasting Plan	This plan will outline methods to prevent adverse impacts to the environment that could potentially result from the use of explosives and blasting procedures during Project construction.	C
Emergency Preparedness and Response Plan	Measures identified in this plan will be in compliance with applicable state and federal laws and policies while allowing access to the Project in a timely, cost effective and safe manner.	F
Environmental Compliance and Monitoring Plan	This is the centralized Project environmental compliance reference and is intended to facilitate environmental compliance across the entire Project.	G
Hazardous Materials Management Plan	This plan will reduce the risks associated with the use, storage, transportation, production and disposal of hazardous materials.	L
Noxious Weed Management Plan	This plan will ensure noxious weeds are identified and controlled during construction of Project facilities and all federal, state, county and local requirements are satisfied.	N
Reclamation Plan	This plan will combine TransWest's project-wide BMPs with site-specific mitigation developed in consultation with agencies.	Q
ROW Preparation and Vegetation Management Plan	This plan will present the measures for vegetation management within the right-of-way for operation and maintenance activities for the Project.	R
Spill Prevention and Response Plan	This plan will include measures for spill prevention practices, requirements for refueling and equipment operation near water bodies, procedures for emergency response and incident reporting and training requirements.	S
Stormwater Pollution Prevention Plan	This plan will include measures for temporary and permanent erosion and sediment control that will be used during construction, operation and maintenance of	T

FRAMEWORK PLAN	WATER PROTECTION MEASURES	FEIS POD APPENDIX
	the Project facilities.	
Wildlife and Plant Conservation Measures Plan	This plan will present the measures for avoidance and minimization of impacts to special status wildlife species as related to construction activities for the Project.	X

In addition to the identified water resources mitigation measures in the DEIS, all applicable laws and regulations will be followed in respect to the protection of water resources.

## W4.2 Water Body Crossings

The TWE Project is designed to utilize existing access roads wherever practicable in order to minimize environmental impacts associated with new road construction. Design engineering avoided new crossings of perennial streams, river and artificial water conveyances where practicable. TransWest plans to use existing water body crossings (e.g., river, stream, and drainage channel) where feasible and practicable. New roads are planned to cross water bodies only where avoidance is infeasible and largely where water bodies are ephemeral or intermittent. Preliminary water body crossings will be identified for the ROD POD. Final water body crossing and culvert standards will be determined for the NTP POD. The specific loads and the stream conditions will dictate the type of stream crossing.

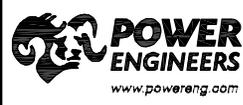
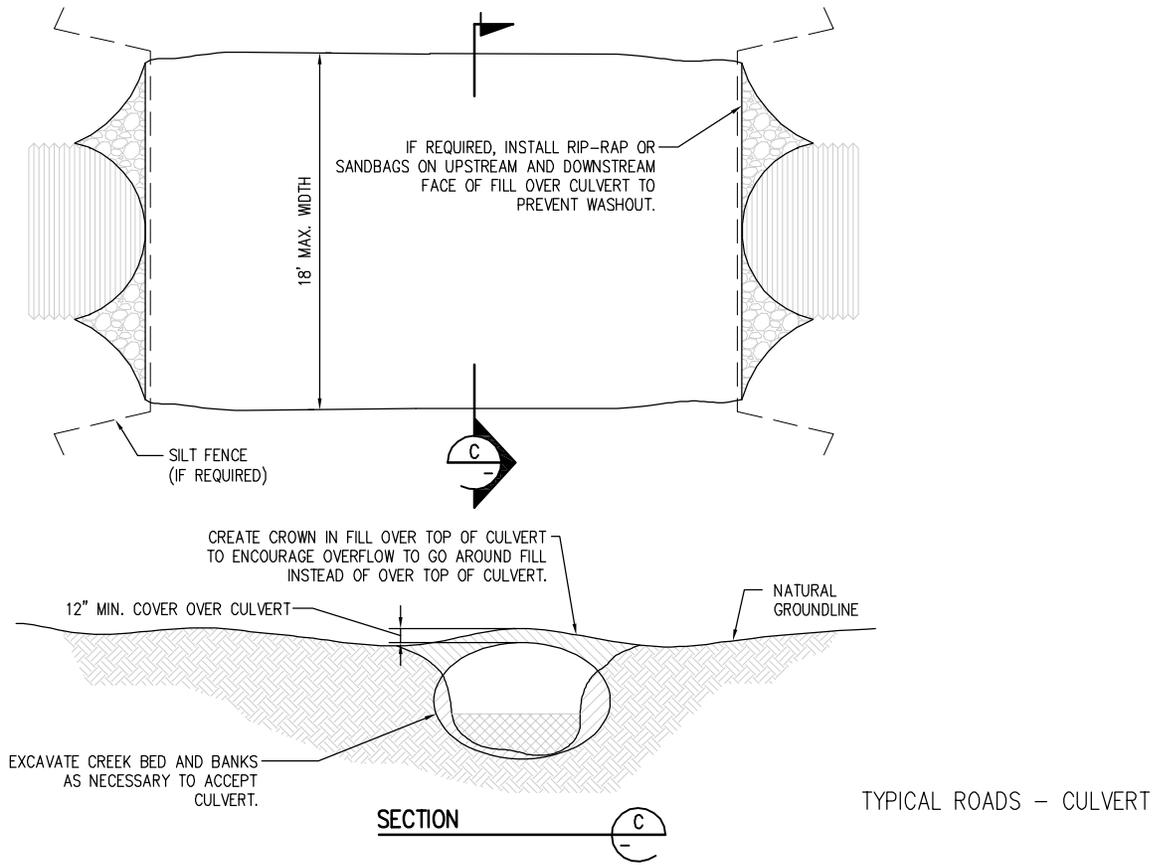
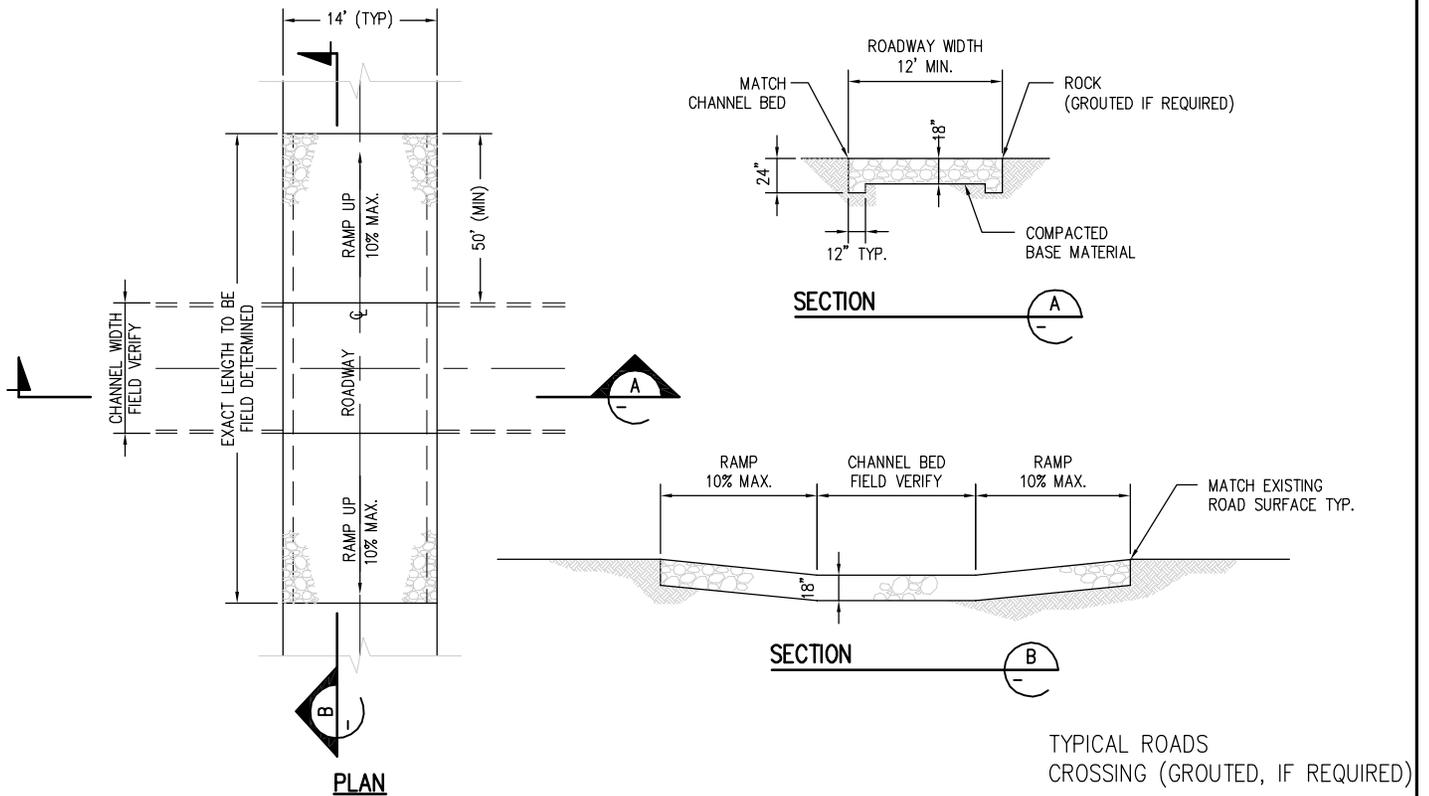
Roads will be built as near as possible at right angles to the streams and washes. Culverts will be installed where necessary. All construction and maintenance activities will be conducted in a manner that will minimize disturbance to vegetation, drainage channels and intermittent or perennial stream banks. Typical road designs for low water and culvert crossings are shown in Figure W1. The following water body crossings would be used where avoidance is not practicable:

- Drive through (Arizona crossing):** Crossing of a channel with only minimal vegetation removal and no cut or fill is needed. This is typical for much of the low precipitation sagebrush country characterized by rolling topography and streams that rarely flow with water.
- Ford:** Crossing of a channel that includes grading and stabilization. Stream banks and approaches will be graded and stabilized with rock or other erosion control devices to allow vehicle passage. Coarse rock would be installed in the streambed in a manner such that it would not raise the level of the streambed, allowing continued movement of water, fish and debris. This typically would be used on intermittent, larger ephemeral streams, or smaller perennial streams that would be expected to remain passable during a typical runoff season (e.g., estimated average peak stream flow in the magnitude of 100 cubic-feet per second or less and considering water velocity and depth).
- Culvert:** Crossing of a water body that includes installation of a culvert and a stable road surface established over the culvert for vehicle passage. Construction will occur during periods of low water. Culverts must be a minimum 18-inch diameter and able to pass a 10-year flow event. They typically would be partially buried in the streambed to maintain streambed material in the culvert. Non-erosive material would be placed around culverts to prevent scour or water flow outside the culvert. Stream banks and approaches also might be stabilized with rock or other erosion control devices. Culvert crossings could be used to limit impacts from in-stream erosion due to traffic within intermittent and smaller perennial

streams. Ground disturbing activities will comply with agency approved BMPs where practicable.

During final design, consultation would be conducted with the land managing agency regarding relevant standards and guidelines for water body road crossing methods. Wherever needed, culverts, low water crossings and other agency approved designs would be used to accommodate estimated peak flows of waterways (e.g., 10-year or 50-year flow event) according to the relevant land managing agency requirements. Each water body crossing would be designed and reviewed as advanced engineering is completed. Construction disturbances of banks and beds of water bodies would be minimized during this design process. Performance of low water stream crossings (i.e., drive through and ford) and culvert installations would be monitored for the life of the access road, and maintained as necessary.

For 303(d) listed streams with sediment as the primary contaminant of concern, additional erosion and sediment control methods will be used if flow is present during installation of in-stream structures and other BMPs are not effective. Additional BMPs contained in agencies' land management guidance (BLM Field Office and forest-specific) would apply to further minimize impacts, such as avoidance zones from waterways and specific requirements for access road crossing design.



TRANSWEST EXPRESS TRANSMISSION PROJECT  
 FIGURE W1  
 TYPICAL ROAD DESIGNS FOR  
 LOW WATER & CULVERT CROSSINGS

### W4.3 Wetland Crossings

During construction and for routine and emergency operations, access roads across wetlands to structure locations may be necessary. A combination of methods for road access across wetlands is proposed:

- Construction of permanent above grade roads that will be utilized during construction, operation and maintenance. This will typically entail placement of permanent fill in wetlands such that the travel surface would be higher in elevation than the OHWM. The construction of above grade access roads allows for the use of the types of equipment needed for construction, operation, maintenance and for expedited access for emergency restoration throughout the year.
- Construction or use of temporary roads during construction, followed by restoration of the disturbance after construction. TransWest only proposes this approach in areas where there may be extensive wetlands. Smaller wetland and riparian area crossings would be constructed using permanent crossing methods because it would not be feasible to provide for temporary crossing materials for scattered crossings along 750 miles of Project. Where temporary roads will be used, construction equipment may travel overland if the area is dry. If construction occurs when the ground is solidly frozen, ice roads could be used.

If construction must occur when the ground is wet, temporary matting materials will be installed to allow for heavy vehicles and equipment. The mats typically come in the form of heavy timbers bolted together. They are often used over a geotextile that is applied directly over the wet soil surface. When construction use is complete, the mats are removed and the geotextile taken up. This approach will be used where feasible since it further reduces vegetation damage and compaction and reduces the time for full restoration.

Where temporary road access is utilized, road areas will be rehabilitated after construction. Any geotextiles and matting used will be removed and wetland vegetation allowed to re-grow. No permanent roads will be available for routine inspections or repairs. Operational inspections and repairs will be scheduled for times when the ground is dry or frozen and access will be overland along the road alignment by all-terrain vehicle (ATV). Emergency repairs requiring heavy equipment will access the damaged area using matting if necessary. After emergency repairs are completed, matting will be removed and the wetland areas will be allowed to restore naturally.

## W5.0 REFERENCES

- U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, US Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS, 100pp. and appendices.
- \_\_\_\_\_. 2008. *A Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (A Delineation Manual)*, U.S. Army Corps of Engineers Research and Development Center, 77 pp.
- \_\_\_\_\_. 2012. Reissuance of Nationwide Permits 77 *Federal Register* 10271-10272 February 2012 / Notices.
- Utah Division of Water Rights. 2008. Post Construction Establishment of Vegetation. Stream Alteration Fact Sheet SA-5. First Edition. February 15, 2008. Available here: <http://www.waterrights.utah.gov/strmalt/whitepapers/default.asp> (Accessed January 8, 2014).