Construction Activities Report

The construction of a pipeline can be compared with a moving assembly line. A large pipeline construction project is usually broken into manageable lengths called “spreads”. Each spread is attacked one at a time utilizing highly specialized and qualified workgroups. Each spread consists of various crews having their own responsibilities. As one crew finishes its work, the next crew takes its position to complete its piece of the pipeline construction process. Exhibit A – Phases of Pipeline Construction, attached, offers a visual representation of the phases of the pipeline construction process from start to finish.

The construction of pipelines is a multi-step process. Front-end activities for pipeline construction are listed below:

- Staking Right of Way (ROW) for construction operations
- Clearing and grading
- Installation of BMPs
- Hauling and stringing
- Trenching
- Bending
- Welding and radiography
- Joint coating
- Lowering
- Backfilling

The back-end pipeline construction activities are listed below:

- Tie-ins
- Crossings
- Hydrotesting
- Valve installation
- Final cleanup and restoration
- Installation of pipeline markers
- Documentation
- Stacking of ROW
- Marking of ROW boundaries
- ROW grading is adequate to maintain the maximum allowable pipe bending radius.
- Provide ramps, road crossing diversions, and pipe culverts to maintain water flow across the ROW

Nature of Construction Activity - Pipeline

The standard open-cut construction method will be used to install sections of the pipeline, where applicable. This method includes clearing, grading, trenching, hauling and pipe stringing, pipe bending, welding, non-destructive weld testing (NDT), joint coating, padding where required, lowering in, backfilling, hydrostatic pressure testing, cleanup, and restoration. The surface of the pipeline route will be cleared to provide a uniform surface for trenching equipment. Typically, the ditch line is bladed to clear the area of vegetation and prepare a level working surface. Pipeline construction equipment that will be used generally includes trucks, dozers, graders, excavators, backhoes, trenchers, side-booms, bending machines, welding and testing supplies, directional drill boring equipment, and pickup trucks. Topsoil and ditch cuttings will be removed and stockpiled, and/or windrowed on the spoil side of the ditch within the ROW.

Where requested by agencies or landowners, topsoil will be salvaged before trenching, and will be windrowed or stockpiled within the ROW, off the traveled route, to prevent its loss or compaction. Salvaging of topsoil will be used to preserve native seed stock on the right-of-way, assist in productivity of agricultural farmlands, and assist in the re-vegetation and stabilization process. This procedure will also be followed on portions of the route that contain native vegetation in accordance with regulatory and easement requirements.

Soils from ditching and excavations will typically be used as backfill at the site of origin. In areas where the pipeline is located within existing roads, the backfill will be compacted following the requirements of local permitting agencies.

Equinox will design, construct, operate, and maintain the proposed pipeline and facilities in accordance with the U.S. Department of Transportation regulations codified at Code of Federal Regulations, Title 49, Part 195, "Transportation of Hazardous Liquids by Pipeline", and other applicable federal and state regulations.

Sequence of Major Soil Disturbance Activities - Pipeline

General construction stages for the pipeline construction, and changes in site erosion potential and stormwater runoff that accompany each stage, are described below. The stages and duration of specific construction sequences may vary depending on location.

Stage 1: Pre-Construction

Stormwater runoff from the site is at pre-developed levels and erosion is minimal. Site perimeter erosion controls may be required prior to initial disturbance to protect areas designated as high importance. Measures are implemented to protect off-site properties, including the installation of construction entrances.

Stage 2: Construction

- Clearing and grading will be completed across the entire width of the ROW to allow for construction activities and access for the construction equipment. Clearing will not be performed outside of the right-of-way except for construction of access roads and staging areas approved by appropriate agencies or landowners. The clearing and grading will be performed only to the extent necessary to allow access for the construction equipment and the ground surface will not be grubbed or cleared of vegetation less than 4 inches in height, when possible. The grading of ROW is sufficient to be consistent with the maximum permitted pipe bending radius. At this stage, Best Management Practices (BMPs) will be implemented as applicable.
- Trenching will be performed with equipment such as wheel ditchers, backhoes, draglines, rock plows, or similar equipment. If required, blasting, sawing, or pneumatic hammers may also be needed to break solid rock into removable pieces. Trenching activities will be performed in accordance with standard engineering practices, as specified by Equinox and any applicable regulations. The trenches will be excavated to sufficient depth to provide adequate cover and at least 6 inches of padding between the outside of the pipe and the sidewalls of the trench.
- Hauling and stringing of pipe
- Pipe bending and welding consists of the following parts of pipeline construction. The bending of the pipe is required to negotiate changes in the vertical and horizontal alignment of the pipeline. The bending procedure must be approved before bending pipes. Cold field bends shall only be used. Welding procedure specification must be prepared for approval of the procedure and qualification of the welders as per API 1104. Welding is done using a vertical down technique with cellulose-coated electrodes. Generally, an internal line-up clamp shall be used for proper alignment of the joint.
- Non-Destructive Weld Testing (NDT) is carried out by using x-rays. Visual inspection of all welds is carried out by a qualified welding inspector having a minimum qualification of Level II certification. All joints at the following locations shall be radiographed:
    - Cased road/rail submerged crossings
    - Tie-ins
    - Marshy areas, if applicable
    - Valves and insulating couplings
    - 20% of balance mainline joints
- Joint coating is accomplished by the pipe surface sandblasted to SA-21/2 specification. The sandblasted area is heated up to 60˚C and the epoxy primary is applied on the surface. The sleeve is wrapped around and then shrunk on the joint using a propane/LPG torch. Air bubbles that become trapped are removed using hand rollers. The integrity of the joint coating is tested by conducting a peel test. Different types of coating can be applied depending on the application in the field.
- Padding where required to protect the pipeline from rocky areas prior to lowering in, backfilling will be completed immediately after lowering and should be free of hard lumps, boulders, and

rocks that could damage the line. If imported padding is used to protect the pipeline it will be completely buried. Slope breakers can be used in steep gradients in the trench to help prevent erosion or wash out of trench. All native spoils will be returned to trench.

- Backfilling the trench will be performed using appropriate methods to minimize impacts to the right-of-way and to minimize soil disturbance. After backfilling, any remaining soil will be placed in the pipeline trench and spread on both sides of the pipeline trench. When backfilling on hillsides or sloping ground, furrows (Slope Breakers) or terraces may be constructed across the pipeline trench and ROW to direct the flow of water into the natural vegetation or drainages. Existing drainage ditches will be monitored and left unobstructed to prevent the ponding of water against the spoil bank or backfill crown.
- Hydrostatic pressure testing establishes that the pipeline has the required strength for which it was designed. The clean pipeline will be filled with water and pressured under industry standards to show specifications have been met.
- Cleanup and restoration are finalized after construction is complete. ROW is leveled and restored to the original grades to the satisfaction of the landowners/authorities. Hydrology will not be affected and is to be equivalent to pre-construction levels.

Stage 3: Post Construction and Site Stabilization

Disturbed areas are stabilized with mulch or other suitable non-erosive cover material. Once all areas of the site are stabilized, temporary sediment control measures will be removed from the site. These post-construction stormwater management measures will be installed at the end of the construction process to control stormwater discharges. Table 1-1, below, shows the approximate waterline length, temporary construction workspace (disturbance) area, and permanent ROW area acreage for California and Nevada.

Table 1-1: Estimated Pipeline Length Workspace Areas

Location	Equinox Pipeline Length (Feet, approx.)	Temporary Workspace Areas (Acres, approx.)	Permanent ROW Areas (Acres, approx.)
California San Bernardino County	57,210.08	85.79	26.27
Nevada Clark County	114,051.22	171.37	52.37
Totals	171,261.30	257.16	78.64

Other Potential Pollution Sources - Pipeline

Other potential pollution sources include spills, particularly those resulting from vehicle or equipment leaks or refueling incidents. No industrial activities or hazardous waste storage associated with this project

will take place onsite. However, construction equipment and vehicles may be parked or refueled within the construction ROW, as necessary.

Storage areas will be provided for chemicals, paints, solvents, fuel, lubricating oils, and other potentially toxic or hazardous materials will be protected from stormwater runoff. Any spills of liquid or dry materials that have occurred will be promptly cleaned up. Spills of toxic or hazardous material will be reported to the appropriate federal, state, or local government agency. The Contractor will prepare a Spill Prevention, Control, and Countermeasure (SPCC) plan for the entire scope of the project prior to construction commencing. The discharge of hazardous substances or oil in stormwater discharges from the construction site must be prevented in accordance with the Contractor's SPCC plan.

A Materials Management Plan (MMP) will be developed by Equinox and will be available on-site during construction. The MMP describes measures to be taken by its construction contractors in the management of soils, groundwater, and/or other materials excavated and encountered during pipeline construction. The measures identified in this plan apply to work within the project-defined ROW, temporary use areas, and other areas used during construction of the project.

Significant levels of dust/particulate could be generated by the construction activities associated with this project. Vehicle wash stations and tracking pads may be required to limit the spread of noxious weeds and other invasive species. These BMPs shall be placed at locations where vehicles exit the work area prior to entering public roadways. Appropriate BMPs will be implemented at all potential wash stations to limit sedimentation and stormwater discharge.

Non-Stormwater Discharges - Pipeline

Construction trench dewatering and hydrostatic test dewatering are the only non-stormwater discharges that may occur on the project area during construction. These discharges will be permitted under the appropriate permit(s).

Hydrostatic Testing

Hydrostatic test water will not be discharged onto the ground surface. The test water will be recycled into a frac tank and disposed of in a proper manner by subcontractor. A permit will be acquired, if needed, to discharge on the ground surface.

Construction Trench Dewatering

The pipeline will be lowered into a trench that is free of standing water. In the event that groundwater or stormwater is encountered during construction within the right-of-way, dewatering of the excavated areas or trenches will be required. Portable water pumps will typically be used at various locations along the right-of-way as needed for dewatering. Where water is pumped from the trench, it will be disposed

of in such a manner to avoid flooding and erosion of land both on and off the right-of-way. Filter bags and/or other dewatering structures and measures will be placed at the discharge point where erosion and siltation need to be controlled.

Trench dewatering discharges will be infrequent in most areas, and discharge will be in accordance with all permit requirements. Because the source of the trench water will be groundwater or stormwater, the water quality is likely to be comparable to the groundwater at the site, with the addition of sediments from the project-related ground disturbances. A permit will be acquired, if needed, to discharge on the ground surface.

Erosion and Sediment Controls

Erosion controls limit the amount and rate of erosion occurring on disturbed sites. Sediment controls are generally designed to retain on-site sediments to the extent feasible. During construction, BMPs will be employed as identified on the maps and drawings associated with a stormwater management plan (SWMP) and as deemed necessary to reduce erosion and control sediment on the disturbed areas.

Equinox's Environmental Inspector (EI) will serve as the SWMP Administrator and will be responsible for ensuring that appropriate control measures are installed and maintained at all areas along the project work boundaries. The EI will maintain status reports and all appropriate records for compliance with permit requirements imposed by federal, state, or local agencies.

All control measures must be properly selected, installed, and maintained in accordance with any relevant manufacturer specifications and industry-standard engineering practices to minimize the effects of erosion caused by stormwater runoff. In most cases, a combination of vegetative, structural, and stormwater management practices are used to control erosion and transport of sediment. Selection of appropriate erosion control measures will be based on soil properties, incline of slope, and anticipated surface flow or runoff. In general, wattles and/or silt fences will be the appropriate control measures to be used for sediment and erosion control during construction in the vicinity of drainage crossings or adjacent to roadways. As conditions require, other control measures such as straw bale barriers, rock check-dams, slope breakers, and sediment traps or basins may be considered. Conditions vary throughout the project site and these decisions will be made on a site-specific basis.

Once all areas of the site are stabilized and the area has regained 70% of vegetative cover, temporary BMPs will be removed from the site prior to finalizing the project.

Erosion Control BMPs

Minimizing the area being disturbed at any given time is one of the most effective erosion control measures. Therefore, during clearing of the right-of-way and construction activities, efforts will be made

to preserve existing vegetation by clearing the right-of-way to a minimum width that is necessary for safe and efficient construction.

During construction, erosion-control structures, including slope breakers and terraces, will be utilized as deemed necessary to reduce erosion and runoff from the right-of-way to adjacent areas. Construction of temporary roads and bridges, temporary diversion of streams, stabilization of soil to support heavy equipment, and various other kinds of practices may be needed within the right-of-way.
In riparian areas, clearing will be minimized as much as possible to preserve riparian vegetation. In the event there is stream flow within drainages, a flumed or dry-ditch construction method may be implemented so the construction zone is free of water flow.

Trenching and backfill work within drainages will generally be completed within 24 hours unless site-specific conditions make completion within 24 hours infeasible. Stockpiled topsoil or spoil material will not be stored near a stream channel or riparian area for more than 30 days.

Permanent slope breakers or terraces will be constructed across the right-of-way on sloping ground to prevent erosion where necessary. On steep grades, earth-filled sacks or stone riprap may be necessary to stabilize the ground surface. On slopes greater than 33%, erosion control mats should be utilized. For slopes less than 33%, mulch may be utilized to control erosion. Common erosion control measures to be used are reviewed in detail, below:

Slope Breakers

Slope breakers consist of a horizontal ridge of soil placed perpendicular to the slope and angled slightly to provide drainage along the contour, along with a swale or a small channel upslope of it to convey the diverted water. Temporary slope breakers can be constructed by excavation of a V-shaped trench or ditch on the down slope side of the cut to reduce runoff velocity and divert water.

Erosion Control Blankets (ECB)

An erosion control blanket is a fibrous mat of straw, excelsior, or coconut material trenched in and staked down over prepared soil and/or seedbed. The matting serves to stabilize disturbed areas by promoting vegetative growth and reduce both wind and water erosion. All erosion control blankets and netting should be made of 100% natural and biodegradable, weed free material. Blankets should be oriented correctly, with seams overlapping a minimum of 4 inches and secured with staples, stakes, or pins. Erosion control blankets should be used on slopes greater than 33%.

Sediment Control BMPs

Sediment controls are generally designed to retain sediment on-site to the extent feasible. Velocity dissipation devices must be placed at all potential discharge locations, including culverts and drainages to

reduce sediment loads. Rock, fiber wattles, straw bales, or silt fences may be used. Clearing could also be used in conjunction with the devices above. These controls will slow the water velocity, decrease erosion, and decrease sediment transport, which protects water quality for receiving streams, wetlands, etc. Common measures to be used are discussed in more detail below:

Silt Fencing (SF)

Silt fencing is a temporary sediment barrier made of woven, synthetic fabric supported by wood or metal posts. The bottom portion of the silt fence should be trenched in and compacted so that at least 4 inches of the silt fencing filter fabric is buried and cannot be easily pulled out by hand. Where joints are required, silt fence should be spliced together at a supporting post with appropriate overlap and securely sealed.

Sediment Control Logs (Wattles) (SCL)

Sediment control logs consisting of manufactured logs (wattles) made of straw, excelsior, or coconut fiber may be placed parallel to the contour at the base of a hill slope as a sediment barrier. The sediment control log should be trenched into the ground a minimum of 2 inches and staked or stapled into the ground every 24 inches. Where multiple logs are required, they will be firmly packed against each other or overlapped so that all gaps are eliminated. Sediment accumulated upstream of wattles should be removed when the sediment depth up-gradient of the wattle is within ½ of the height of the crest or when debris accumulation compromises the effectiveness of the feature. These devices generally require less maintenance than silt fences and straw bales and will eventually degrade into the ground.

Straw Bale Structures

A straw bale structure is a series of straw bales placed on a level contour to intercept sheet flows. When properly installed, straw bales intercept, slow, and filter sheet flow runoff. Straw bales should be trenched into the ground and securely staked. Straw bales have been found to not be as effective as other methods of sediment control, such as silt fencing or sediment control logs, due to increased maintenance requirements. Straw bales should not be placed in areas of expected high flow.

Temporary Access Pads

Temporary access pads to paved roads, also referred to as Vehicle tracking control devices, or VTCs, will be installed at access points to paved public roadways to prevent or minimize tracking of mud, dirt, sediment, or similar materials onto the roadway, as necessary. Deposits that have been tracked by vehicles or have been transported off the right-of-way by wind or stormwater will be promptly removed.

Check Dams (CD)

A check dam is a rock dam that is constructed in a drainage to reduce flow velocities to minimize erosion. The ends of the check dam should be a minimum of 1’-6” higher than the center of the check dam.

Sediment accumulated upstream of check dams should be removed when the sediment depth upstream of the check dam is within ½ of the height of the crest or when debris accumulation compromises the effectiveness of the feature.

Filter Bags

Geotextile filter bags allow water to be discharged while filtering out silt and other potential pollutants. The discharge location will be located within the construction ROW in a well-vegetated area and installed so that all filtered water will flow away from the work area. The filter bag will be monitored during discharge for proper use and will be replaced before being filled with sediment. All used filter bags will be disposed of properly.

Other Controls

The following control measures and good housekeeping practices may be implemented to prevent or minimize potentially polluting construction materials from contact with stormwater:

- Water sprinkling implemented for control of airborne dust along the construction right-of-way and on unpaved haul roads and other graded traffic routes; right-of-way will be re-sprayed, as needed;
- Regular disposal of garbage, rubbish, construction waste, and sanitary waste maintained at all times during construction. Sanitary sewage facilities (portable chemical toilets provided by Contractor at work locations). Sanitary waste collected and removed for disposal at an appropriate licensed sewage disposal facility. No sewage is to be buried, dumped, or discharged to waters of the U.S. or state;
- All hazardous materials or products are to be properly contained and disposed of in accordance with applicable laws, rules, and regulations. No wastes of imported materials are to be buried, dumped, or discharged to waters of the U.S. or state;
- Equipment will not be refueled or lubricated within 100 feet of any waterway, riparian area, floodplain, or wetland. Chemicals, paints, solvents, fuel, lubricating oils, and other potentially toxic or hazardous materials will not be stored within 100 feet of waterways or wetlands;
- Any spills of liquid or dry materials that have occurred will be promptly cleaned up. Spills of toxic or hazardous material will be reported to the appropriate federal, state, or local government agency;
- If any measurable quantity of sediment is discharged from the right-of-way because of structural failure or lack of designed capacity of temporary erosion control measures, the sediment will be cleaned up as soon as practicable and replaced on the right-of-way or properly disposed of in a manner approved by the general permit;
- Construction equipment and vehicles will be inspected for leaks, and necessary repairs will be made before returning the equipment to service. No leaking equipment will be allowed within any waterway;

- Wash-down areas protected from stormwater runoff will be provided for construction equipment and vehicle cleanup where required.

Hazardous materials and petroleum products to be used in construction of the pipeline are limited to fuel for construction equipment and vehicles as well as small quantities of paints and solvents. An MMP has been developed by Equinox if a previously unreported or unanticipated hazardous waste or contaminated site is discovered during construction.

Temporary and Permanent Stabilization Practices

After the final installation of the pipeline and backfilling has occurred, disturbed portions of the construction workspace (including the construction ROW, travel lane, and temporary use areas) will be returned to pre-construction grades and contours. Topsoil will then be replaced over the construction ROW from the approximate area in which it was stripped. Stabilization measures, including seeding and mulching, will be implemented after final grade has been reached.

Seeding and mulching on private lands will be completed depending upon requirements from landowners. Original meanders, profiles, and other contours of all drainages crossed will be restored as close to pre-construction conditions as possible. Erosion control blankets may be installed for effective vegetation stabilization and erosion control along drainage banks where applicable. Temporary controls, such as check dams, will not be removed until final stabilization.

Final stabilization will occur when all surface disturbing activities have been completed and a uniform vegetative cover has been established with an individual plant density of 70 percent of pre-disturbance levels.

Construction Vehicles

The largest anticipated loads will be semi-trucks with lowboy trailers hauling heavy construction equipment including tracked excavators, pipelayers, and dozers estimated to be 140,000 lbs. maximum. These trucks, when loaded, will primarily be transporting loads on Nipton Highway in California, Highway 164 (Joshua Tree Highway) and Walking Box Ranch Road in Nevada. These trucks will also be transporting equipment on crossroads as construction progresses from the north to the south. Pipe hauling semi-trucks are the second largest trucks and deliver pipeline to the staging areas across the pipeline construction area that parallels the alignment.

Below is a list of the estimated type of vehicles that will be accessing and leaving the construction right-of-way during peak construction commuting hours. Note that these vehicles come on different days and only come as needed.

- Semi-truck and Trailer: Heavy-duty commercial vehicle consisting of 18 wheels (cab and trailer) designed to carry heavy loads over long distances. These trucks will haul the heaviest loads to and from the construction site.

- Tracked Excavators: Standard and high-capacity hydraulic excavators clear the right-of-way, dig the primary trench, and backfill the trench with material once the pipe is laid.
- Pipelayers: Modified tractors with heavy lateral cranes. They safely lift, carry, and lower heavy pipe segments into the trench without damaging protective coatings.
- Dozer: Equipped with heavy-duty continuous tracks, broad metal blade at the front used for pushing and clearing material. Dozers are commonly equipped with a ripper (claw-like hook) mounted on the rear of the machine to break up dense, highly cemented, and impenetrable materials.
- Drilling Rig: Specialized rigs drill an underground pilot hole along a calculated path, allowing crews to install the pipeline without surface disruption.
- Light to Heavy Duty Trucks: Come in many different variations to support construction in a variety of ways. For example; crew member transportation, utility and service variations for welding and pipeline operations, open flat beds utilized for water or hauling specialized equipment. Common pipeline construction are water trucks, hydro-seeding trucks, and welding trucks.

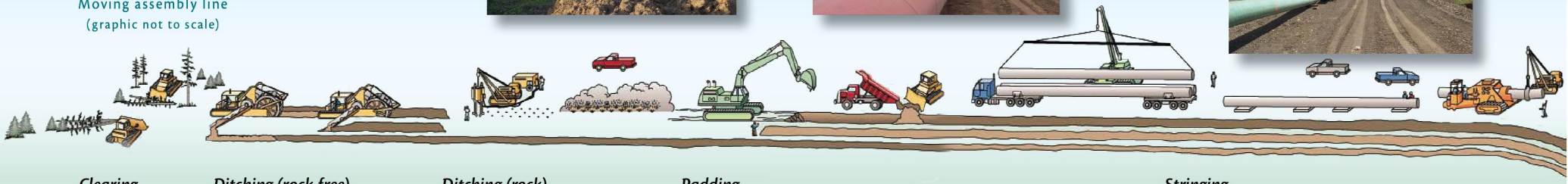
Semi-trucks hauling pipe will move throughout the day. Restoration/seeding tractors etc. will only enter/exit if crossing directly across or short distance from one access to the next, otherwise they will be transported in/out on semi-trucks with trailers.

Attachments

Exhibit A – Phases of Pipeline Construction

Pipeline Construction

Moving assembly line
(graphic not to scale)



Clearing and grading

Ditching (rock-free)

Ditching (rock)

Padding ditch bottom

Stringing

continued below

Welding

X-ray and weld repair

Coating welds

Inspection and repair of coating

Lowering in

Backfill

Pressure testing for leaks

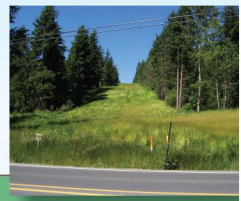
Bending

Cleanup

Restoring residential area

Reseeding the right-of-way

Restored right-of-way



Federal Energy Regulatory Commission
Office of Energy Projects