



Developer Handbook

Version 1.0

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Notice to User

This Developer Handbook has been prepared as guidance for planners, engineers, developers, land surveyors, landowners, and their consultants and contractors, who might be planning construction, development, crossings, and other similar activities in the vicinity of Mountain Valley Pipeline's rights-of-way. The information contained herein is subject to change without notice. It is the responsibility of the user to ensure that the latest version is being used.

All persons engaging in activities on or near a Mountain Valley Pipeline right-of-way shall follow all safety rules and guidelines in this Developer Handbook; federal, state, and local regulations; easements or Encroachment Agreements with Mountain Valley Pipeline LLC; and any other relevant instructions from Mountain Valley Pipeline LLC. Persons engaging in such activities are solely responsible for their actions. Strict adherence to these requirements is necessary to minimize the risk to the user, public, and the Mountain Valley Pipeline.

Current versions of this Developer Handbook can be obtained from Mountain Valley's website www.mountainvalleypipeline.info.

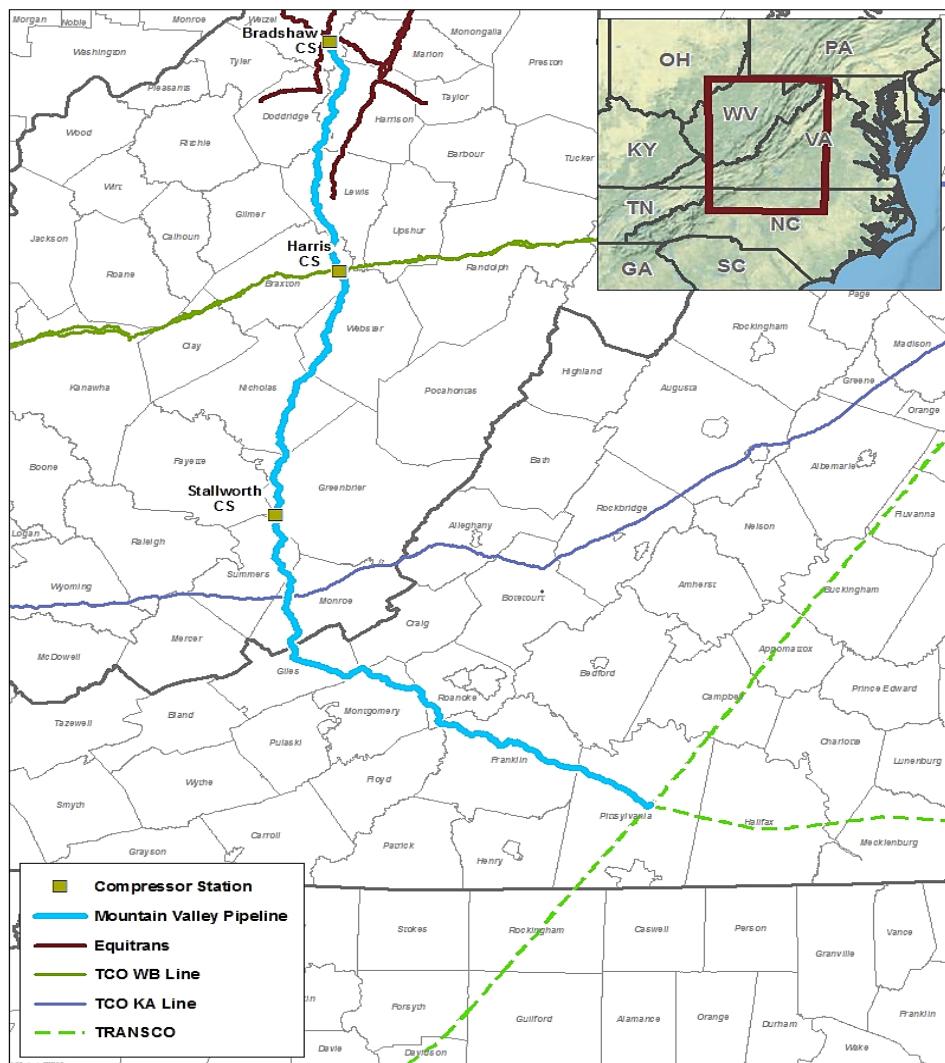
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Introduction

This handbook serves as a guideline of the safety and construction requirements that all Mountain Valley Pipeline (Mountain Valley or MVP) project personnel must adhere to during construction activities, maintenance, or when planning development on land near rights-of-way. The handbook is intended for use by planners, engineers, developers, land surveyors, landowners, and anyone involved in the initial stages of land development. By including Mountain Valley Pipeline, LLC (Mountain Valley) in the initial planning stages, project delays can be avoided and safe development practices near pipelines can be implemented.

The handbook is designed to make the reader aware of the standards and procedures that MVP requires to protect its facilities in areas of changing land use. Each proposed development or activity will require a case-specific evaluation by a qualified MVP representative. MVP's review of the proposed activity may require more stringent protective measures than those outlined in this handbook. The reader should become familiar with the contents of this handbook. If the reader has any further questions or assistance is needed, please contact Mountain Valley at **1-833-929-1736**.



1. Safety

The MVP team is dedicated to personal and operational safety and committed to providing a safe working environment for our employees. We prioritize a culture of safety by recognizing excellence in safety performance while vigorously addressing opportunities for improvement. In addition to meeting or exceeding all applicable laws and regulations, Mountain Valley has developed detailed procedures for the safe use of our equipment, and we provide extensive training to employees and contractors regarding best practices to ensure that their work environment remains safe for themselves, their co-workers, and the community.

All members of the MVP team believe that public safety and environmental protection are top priorities for effective pipeline operations. We utilize a 24-hour, 7 day per week Gas Control Center that monitors pipeline operations to ensure that our facilities and the communities along our pipeline route are safe. MVP uses an emergency call center that is open 24-hours, 7 days per week and our operations personnel are on-call and available to manage issues, should they arise.

1.1 How Do We Implement Safety?

According to the National Transportation Safety Board and the U.S. Department of Transportation (DOT), pipelines are the safest way to transport natural gas, however, as with any type of transportation, caution should be exercised when working near these facilities. To minimize the likelihood of incidents, Mountain Valley uses many preventive measures when designing, constructing, and operating natural gas pipelines and facilities.

1.1.1 Safety in Design

- Design in a manner that meets or exceeds applicable regulations and industry standards; and
- Evaluate and optimize pipeline routes to avoid sensitive areas to the extent practical and to identify potential safety issues related to geological hazards such as landslides, Karst formations, geological faults and seismic zones.

1.1.2 Safety in Construction

- Inspect construction activities to verify that the installation meets or exceeds all regulatory, industry, and MVP-specific construction safety standards;
- Conduct nondestructive testing on welds to ensure they comply with performance standards; and
- Strength test pipelines prior to placing them in-service to verify their integrity.

1.1.3 Safety in Operations

- Monitor, analyze, and control the natural gas flow;
- Monitor corrosion by implementing processes and techniques into operations such as cathodic protection, fluid samples, corrosion coupons, and in-line inspections;
- Maintain rights-of-way via facility patrols and routine on-site inspections; and
- Automatic, remotely operated emergency shutdown and isolation systems.

1.1.4 Integrity Management

An Integrity Management Program (IMP) is the cradle-to-grave approach of understanding and operating pipelines in a safe, reliable manner. An IMP considers all stages of the pipeline life cycle from conception (including engineering, design, construction, operation, inspection), to repair or replacement, if necessary.

In accordance with federal regulations, Mountain Valley has developed and implemented an IMP, which includes:

- Identification of high consequence areas along our transmission lines based on population and land/building use;
- Creating a risk model that prioritizes the high consequence areas for integrity assessment and assists in creating preventative and mitigative measures to reduce risk; and
- Specific evaluations, such as corrosion investigations and pressure testing, to verify the integrity of the pipeline.

1.1.5 Cathodic Protection

Cathodic Protection (CP) is a technique used to control corrosion on the pipeline.

- Rectifier and ground beds are used to supply a protective current to the pipeline;
- Test Stations are stationary monitoring points along the pipeline that are used to measure the effectiveness of the CP system at that point on the pipeline; and
- Close Interval Potential Surveys determine the effectiveness of the CP system and pipe coating over the entire section of the pipeline surveyed.

1.1.6 In-Line Inspection (ILI)

In Line Inspection (ILI or Smart Pigging) is a technique used to assess the integrity of a pipeline. Based on the integrity assessment results, an evaluation can be conducted to determine whether remedial action is required.

1.1.7 Facility Patrols and Digital Imagery

Facility patrols are performed to identify any issues that may compromise the integrity of the pipeline and to check for leaks. Patrols may be conducted by walking, driving, flying, or other appropriate means of traversing the right-of-way.

Patrols

- Identify encroachments on the pipeline rights-of-way;
- Identify any geological conditions such as landslides, erosion, or other unfavorable conditions; and
- Can be performed with aircraft equipped with leak detection technology.

Digital Imagery

- Periodically obtain LiDAR (Light Detection and Ranging) surveys to monitor surface changes; and
- Periodically obtain updated aerial imagery for population density studies.

1.1.8 National Pipeline Mapping System

The United States Department of Transportation (www.npms.phmsa.dot.gov) provides maps of operator transmission lines and a list of pipeline operators searchable by state, county, and zip code via their website. There are two mapping capabilities available:

- National Pipeline Mapping System (NPMS) Public Map Viewer – Allows the general public to access pipeline and pipeline company information for a specific county (<https://pvnpms.phmsa.dot.gov/PublicViewer/>); and
- NPMS Pipeline Information Management and Mapping Application – Allows local, state, and federal government officials monitor pipeline activity in their regions

1.2 Working Near MVP – Damage Prevention

One of the most significant challenges to safe pipeline operations is associated with accidental damage caused by excavation, drilling, construction, farming activities, or even homeowners digging in their yards. If you are a homeowner, farmer, excavator, or developer, Mountain Valley provides you with this information to assist in preventing pipeline emergencies caused by accidental damage to the pipeline system.

As part of our commitment to local communities, Mountain Valley has dedicated resources to develop and implement damage prevention initiatives. The initiatives focus on maintaining the integrity of its pipelines and the safety of individuals working and living in proximity to Mountain Valley's pipelines and facilities. Additionally, adhering to One-Call requirements can help ensure work being conducted in proximity to Mountain Valley's pipelines and facilities is performed safely.

1.2.1 What is One Call (811)? – Call Before You Dig!

811 is required by law in all states and is the national “Call Before You Dig” number. By dialing this number, you are connected directly to your state’s One Call Center, where you can report your planned digging or excavation project. The One Call Center will broadcast your information to operators of all underground utilities in the area and, as applicable, the operators will mark the locations of their facilities. If underground facilities are in the area of the planned work, the operator will assist you by providing an understanding of the allowable work that can be performed and possibly an inspector to ensure that their facilities are not damaged.

1.2.2 How One Call Works

Call the applicable 811 system in your state before digging is scheduled to begin, and be prepared to provide the following information:

- Location of project
- Type of excavation
- Contact information

Mountain Valley, as well as other utility companies in the area of the dig site, will be notified and will send a representative to mark the approximate location of the underground utility lines, so that they may be avoided.

1.2.3 The One Call Process

- Notify the One Call system before work begins in accordance with your state's laws;
- Wait the required amount of time for utility companies to respond;
- Confirm all affected operators have responded to the request and marked their underground utilities;
- Respect the marked area; and
- Dig carefully around the marked area.

1.2.4 State One Call Contact Numbers

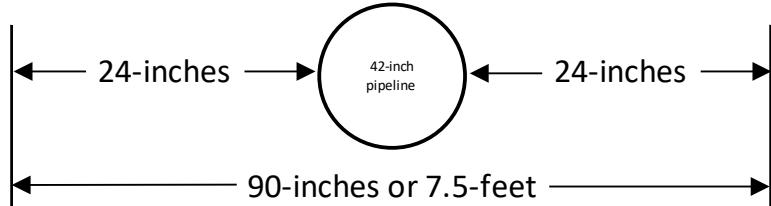
- West Virginia (wv811.com): **811** or **1-800-245-4848**
- Virginia (va811.com): **811** or **1-800-552-3120**

1.2.5 Dig with Care

Excavators are responsible to work in such a manner as to avoid damage to underground facilities in the vicinity of the intended work site, including hand digging, when necessary.

The tolerance zones established by your state's One Call law must be followed. In most cases, the tolerance zone includes 24-inches on each side of the utility plus the width of the utility itself. In this case, the tolerance zone for Mountain Valley's 42-inch pipeline is 90-inches or 7.5-feet.

Sample Tolerance Zone (not to scale)



The excavator must verify the actual location and depth of the utility by means of hand-dug test holes or soft excavation techniques.

- Soft excavation techniques or soft dig methods are minimally invasive excavation activities designed to reduce the potential damage to underground utilities. These methods typically include the use of pressurized water, compressed air, or vacuum.

Powered equipment may be used for removing pavement, but only to the depth of the pavement.

The excavator shall meet with MVP's operations and emergency response representatives prior to construction. MVP's on-site representative may require discontinuation of any work that, in their opinion, endangers the safety of the public, personnel, pipelines, or facilities.

The excavator shall not commence work within MVP's right-of-way or within twenty-five feet (25') of a Mountain Valley pipeline or appurtenance(s) without an MVP representative being present.

Resources:

- <https://wv811.com/excavators/excavator-guide/#tab-id-8>
- <https://www.fm.virginia.edu/docs/ohs/programs/2020/ProfExcavatorsManual.pdf>
- https://scc.virginia.gov/getattachment/2b5ded47-332c-467c-b3e3-af067ad39639/exp_bp.pdf

- 1.2.6 Contacting Mountain Valley directly DOES NOT exonerate you of the legal obligation to notify your state's One Call Center. Always call **811** before you dig!
- 1.2.7 If you strike one of Mountain Valley's pipelines or facilities, you should stop, immediately shutdown all equipment, move everyone to a safe area, and immediately contact the MVP Emergency Number at **1-833-929-1736**. If there is a release of gas, call **911**.

1.3 Working Near Mountain Valley's Pipelines – Encroachments

Please call MVP directly at **1-833-929-1736**.

Email information to encroachment@equitransmidstream.com.

Through knowledge and education, we can work together to ensure that everyone stays safe when working within the proximity of underground utilities. Advanced preparation, communication, and placing a call to **811** can help prevent emergency situations. Let's keep everyone safe, **Call Before You Dig!**

See Section 3.0 Encroachment Guidelines for more information.

1.4 Use Your Senses to Detect a Pipeline Leak When Working Near Mountain Valley's Pipelines

- 1.4.1 If you observe or suspect a leak while working in or around Mountain Valley's right-of-way, you should immediately stop work, shutdown all equipment, move yourself and anyone else near the right-of-way to a safe area, call **911**, and contact the MVP Emergency Number at **1-833-929-1736**.

1.4.2 Sight

- Flames burning above or coming from the ground;
- Dead or discolored vegetation in the midst of green vegetation;
- Dirt blowing from a hole in the ground;
- A dry patch in a damp field; and
- Water bubbling or blowing into the air at a body of water.

1.4.3 Sound

- An unusual hissing or roaring sound

1.4.4 Smell

- Gas transmission pipelines, such as MVP, are generally odorless, but may contain a hydrocarbon smell (like gasoline, propane, or butane used in lighters)

1.4.5 What NOT to Do When You Suspect a Pipeline Leak

- If the leak is suspected inside a house or building:
 - DO NOT do anything that could cause a spark such as:
 - Turn lights on or off
 - Use your garage door opener
 - Use your house or cell phone to make calls from the immediate vicinity of the leak, including inside, or near a house or other structure
 - Light a cigarette lighter or match
 - DO NOT close windows or doors. Leave them open while exiting to allow gas to disburse
- If the leak is suspected outdoors:
 - DO NOT do anything that could cause a spark (see examples in previous section)
 - DO NOT start or turn off motor vehicles or electrical equipment (such as cell phones, pagers, two-way radios, or lights) as this could cause the gas to ignite
 - DO NOT drive into an area with a suspected leak

1.4.6 What to DO When You Suspect a Pipeline Leak

- DO leave the house, building, or nearby area immediately. Remember to leave the doors open as you leave
- DO abandon any equipment being used in or near the area
- DO move to a safe area, call 911 or your local emergency number, then call the MVP Emergency Number at **1-833-929-1736**
- DO discourage others from entering the area
- DO wait for MVP to tell you it is safe to return to your house, building, or property

1.5 Emergency Responders

Mountain Valley realizes that coordination with emergency responders during a natural gas leak or emergency is a key to safely managing these events. Mountain Valley is committed to public outreach in the communities that it operates in including Coordinated Response Exercises with emergency responders. For more information concerning training in your area please visit wv.pipeline-awareness.com or va.pipeline-awareness.com.

For information and mapping on Transmission Pipeline Operators please visit the National Pipeline Mapping System (NPMS) at www.npms.phmsa.dot.gov.

Further product-specific information may be found in the US Department of Transportation (DOT) *Emergency Response Guidebook for First Responders*. The Guidebook is available at <http://phmsa.dot.gov/hazmat/outreach-training/erg>.

For more information about pipeline emergency response training visit <http://www.pipelines.training>.

Emergency responders involved with a natural gas leak or emergency should adhere to the following actions:

- DO NOT drive into an area where a leak is suspected
- DO NOT operate pipeline valves, unless directed by MVP
- DO eliminate ignition sources
- DO setup a perimeter around the leak area
- DO coordinate actions with MVP

2. Pipeline Rights-of-Way

Mountain Valley is committed to operating its entire pipeline system in a safe, reliable and environmentally sound manner. Our pipeline rights-of-way are regularly inspected by qualified personnel. A clear and unobstructed right-of-way enables MVP representatives to safely operate, patrol, inspect, maintain, and efficiently repair its pipelines.

The following is general information regarding pipeline rights-of-way and maintenance through effective clearing activities, which help Mountain Valley safely operate and maintain its pipelines and associated facilities.

2.1 What is a Pipeline Right-of-Way?

A pipeline right-of-way is a property right for a piece of land that has limited, and specific uses conveyed by a right-of-way grant (sometimes called an easement) by the property owner(s) to another party such as a pipeline company. The right-of-way, in most cases, is for the purpose of constructing, operating, maintaining and/or replacing one or more pipelines. The written agreement for the right-of-way grant is usually filed in the applicable county recorder's office where deeds are recorded. The right-of-way agreement typically provides for a permanent but limited interest in the land. Rights-of-way vary in width, however, a right-of-way width of 50 feet is typical for Mountain Valley's pipelines.

The pipeline rights-of-way are often recognizable as corridors that are cleared of trees, and are free of buildings or other structures, except for pipeline markers and any other associated appurtenances. Rights-of-way may also contain fenced and secured areas with some above ground piping.

Rights-of-way must be kept free of buildings, trees, storage materials, and other obstructions. Right-of-way clearing, tree trimming, and mowing are part of MVP's routine maintenance and are necessary to facilitate ground and aerial inspection. If a pipeline crosses your property, please do not plant trees or shrubs within the right-of-way. For your safety and the safety of others, do not dig, store or place anything on or near the right-of-way without first having MVP representatives mark the location, stake the right-of-way, and explain Mountain Valley's requirements to you.

The following activities outline what is generally permissible, not permissible, and may be permissible with Mountain Valley's approval within the right-of-way. Also see Section 3.0 Encroachment Guidelines for more information.

2.1.1 The following activities are generally permissible within the right-of-way.

- Farming activities;
- Livestock grazing; and
- Recreational use (e.g., hiking, horseback trails, hunting).

2.1.2 The following activities are generally not permissible within the right-of-way.

- Adding obstructions to the easement area (e.g., vehicles, equipment, buildings, houses, structures or foundations, overhanging roofs and balconies, patios, concrete slabs, signs, swimming pools, garages, sheds, trees);
- Installation of facilities that can be harmful to the pipeline such as sewer systems, leach beds, wells, or cesspools;
- Pile driving or blasting;
- Storage of materials of any kind;
- Intentionally allowing the easement to be covered by standing water, except in the course of normal seasonal water migration or water table changes;
- Burning of any kind; and
- Excavation.

2.1.3 The following activities may be permissible within the right-of-way, with approval from Mountain Valley.

- Crossing the easement with roads, driveways, drainage ditches, underground utilities, etc.;
- Paving or parking on a long-term basis;
- Installation of posts or fences;
- Land development;
- Logging operations crossings;
- Heavy machinery or equipment crossings; and
- Sports and game fields, parks, golf courses (subject to limits on re-grading, landscaping, or paving, and on the installation of structures such as exercise equipment, goal posts, and backstops).

2.2 Identifying Pipeline Facilities

2.2.1 Line Markers

Like other companies that transport natural gas, Mountain Valley places pipeline markers to indicate where the pipelines are located. Line markers are used to mark the pipeline, identify the operator and the product being transported, thereby increasing awareness and reducing the possibility of damage or interference with the operation of the pipeline. These markers are generally placed at road crossings, railroad crossings, stream crossings, at changes in direction, and within line-of-sight of one another.

The public should not rely solely on these line markers; always call **811** when planning a project that involves excavation.



2.2.2 Pipeline Casing Vents

Pipeline casing vents are markers with a curved top, often located along roadways, railroads, and waterbodies. They allow leakage inspection of the pipe installed in the casing.



2.2.3 Cathodic Protection Test Stations

Cathodic protection test stations resemble line markers but have a removable top. They can often be found along roadways, railroads, waterbodies or in fields. The test stations are used to measure the effectiveness of the cathodic protection system.



2.2.4 Above-Grade Facilities

There are various facilities involved in the transportation of natural gas. The above grade facilities are typically enclosed by a fence and will have signs identifying the pipeline operator, the station name or designation, and a contact number for emergencies. Although pipelines are generally installed below grade, there are also above-grade facilities, such as:

- **Valves** are installed in easily accessible locations to safely isolate or blow down sections of the pipeline in the event of an emergency or to perform maintenance activities.



- **Compressor stations** increase the pressure of the natural gas to facilitate its movement through the pipeline. Station sites range from small single compressor units to large multi-unit locations. Compressor station are equipped with safety equipment such as natural gas detectors, fire detectors, and emergency shutdown systems.



- **Interconnect stations** (also known as meter stations or regulator stations) are used to facilitate the passage of natural gas between pipelines. Equipment at interconnect locations include filters, meters, regulators and flow control valves.



2.2.5 Security

On-site security at Mountain Valley's facilities may consist of electronic monitoring, fences, buildings, locks, and surveillance equipment.

Pipeline rights-of-way monitoring is conducted by aerial surveillance, facility patrols, and periodic facility inspection.

If you see any suspicious activity or vandalism occurring at any of Mountain Valley's pipelines or pipeline facilities, please call the MVP Emergency Number at **1-833-929-1736**.

2.3 Pipeline Right-of-Way Maintenance and Clearing

Pipeline right-of-way clearing is a periodic process that facilitates the safe and efficient operation, maintenance, and monitoring of the pipeline rights-of-way. Right-of-way clearing enables Mountain Valley to protect the integrity of its pipelines, effectively respond to emergency situations, and provide community awareness of the location of its pipeline.

The frequency and location of clearing within the pipeline right-of-way are regulated by the Federal Energy Regulatory Commission's (FERC) Upland Erosion Control, Revegetation and Maintenance Plan. Below is an excerpt from the most recent (May 2013) version.

- *Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands shall not be done more frequently than every three (3) years. However, to facilitate periodic corrosion/leak surveys, a corridor not exceeding 10 feet in width centered on the*

pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In no case shall routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the U.S. Fish and Wildlife Service.

The U.S. Department of Transportation (Title 49 CFR Part 192) requires that pipeline rights-of-way is routinely patrolled to promote safe operations. In recent years there has been an increase in regulations governing inspection, maintenance, and protection standards for pipelines. Accordingly, Mountain Valley is continually improving its approach and techniques for pipeline damage prevention and protection. These protective measures include maintaining a clear right-of-way. The MVP team consistently assesses and updates its maintenance guidelines to ensure compliance with all appropriate standards.

Clearing the right-of-way of trees and vegetation that can threaten pipeline integrity helps ensure the safety of the surrounding community. The clearing of any trees located within or near the pipeline is necessary because their roots within or approaching the right-of-way can adversely impact the pipeline coating and cathodic protection system.

Mountain Valley needs direct and immediate access to its pipelines to enable a prompt response in the event of an emergency. In the event of a pipeline release of natural gas, MVP representatives must have unimpeded access to the right of way. With clear access to the pipeline, routine maintenance, monitoring, and repairs can be performed in a safe and efficient manner.

A clear pipeline right of way enables MVP representatives to conduct foot and aerial patrols to identify encroachments or potential encroachments (based on activity near the right-of-way), issues with drainage, landslides, and potential leaks. In addition, a clear pipeline right-of-way also provides a visual indication to the public of the pipeline's location. Third-party excavation damage is the number one cause of pipeline damage in the United States, and Mountain Valley is committed to preventing such incidents.

3. Encroachment Guidelines

This section contains information regarding allowable land use within Mountain Valley's pipeline rights-of-way, as well as information for land development work or improvements in and around its pipeline rights-of-way.

3.1 Working Near Mountain Valley Pipelines and in its Rights-of-Way

For safety purposes, any planned activities within a Mountain Valley pipeline right-of-way, adjacent to a Mountain Valley pipeline, or crossing of a Mountain Valley pipeline require a formal review and written approval of Mountain Valley. An MVP representative must be present during any such work. Please note that some landowner easement agreements contain pre-negotiated landowner rights which could supersede the detailed information contained herein.

Please contact Mountain Valley early in the planning process to review your project plans. This step is necessary to eliminate any conflicts, issues, or delays associated with your project proximate to Mountain Valley's pipelines. Proper planning and communication will help to ensure the safety and

integrity of our pipeline system, the safety of the communities in which we operate, as well as ensure environmental protection.

Mountain Valley welcomes your questions at **1-833-929-1736** or encroachment@equitransmidstream.com.

3.2 Agricultural Heavy Equipment Crossings

The MVP is designed to accommodate crossings by a 40,000-pound piece of farm equipment in agriculture areas. Any equipment with a total payload that exceeds 40,000 pounds requires review by MVP Engineering.

- Sample Farm Equipment:

Sample Make/Model	HP	Weight (lbs)	Weight Limit
Massey Ferguson 4610 4WD	80	6,503	Acceptable
Massey Ferguson 5600 4WD	90	11,900	Acceptable
Massey Ferguson 8700 4WD	290	23,810	Acceptable
Mack GU533 Grain Truck	NA	40,000	Acceptable
Claas 770 Combine	500	81,100	Eng. Review

3.3 Engineering Guidelines

Mountain Valley constructs, repairs, operates, and maintains its pipelines in compliance with the current U.S. Department of Transportation (DOT) regulations (Title 49 CFR Part 192), as well as industry and MVP-specific standards. Should an encroaching party propose plans that infringe on Mountain Valley's rights-of-way and impact our ability to meet these requirements, modifications will be required to Mountain Valley's pipeline(s) or the encroaching parties plan(s). The encroaching party shall bear the cost of all such modifications.

The following guidelines apply to the encroaching party and any contractors, agents and/or representatives it uses for construction activities. The following guidelines, although not inclusive, are provided to assist you in your project planning.

These guidelines are not to be considered approval for construction activity within or near Mountain Valley's rights-of-way, pipelines, or facilities. MVP must be contacted, an engineering review conducted of the proposed changes, and site-specific approval granted.

3.3.1 Obstructions

To maintain immediate and unimpeded access to the pipeline, the right-of-way must remain unobstructed. See Section 2.1 for general guidelines.

Structures such as guide rails, concrete paving, sidewalks and curbing shall be designed in a manner that would facilitate their removal in the event of pipeline maintenance or an emergency repair.

3.3.2 Depth of Pipeline Cover

The depth of earth cover over the pipelines shall be maintained and not changed without the expressed written consent of Mountain Valley. Depending on the type of development activities, additional cover may be required.

The location of the pipeline can be obtained by contacting the One-Call process documented in Section 1.2. Always call **811** before you dig. The depth of cover over the pipeline may be obtained by methods described in Section 1.2.5. However, Section 3.4.1-3 must be adhered to by anyone performing excavation activities Mountain Valley's rights-of-way.

The pipeline will not have more than ten feet (10') of cover without prior approval from MVP.

No grade cuts are allowed without prior approval from MVP. In areas where the pipeline currently has more than three feet (3') depth cover, grade cuts will be considered. Grade cuts are not permitted in areas where the pipeline has three feet (3') or less of depth coverage. Cover over the pipeline shall be increased to a minimum of three feet (3') if there are proposed "improvements" over the pipeline or within the pipeline right-of-way. Proposed road crossings have additional requirements (See Section 3.3.6).

In areas where buildings are proposed within fifty feet (50') of a Mountain Valley pipeline, the depth of cover over the pipeline may be increased with MVP's approval.

Care shall also be taken to eliminate rutting within the right-of-way from agricultural or recreational vehicle activities.

3.3.3 Grade Changes

The creation of steep slopes within the pipeline right-of-way that will hinder access and maintenance shall be avoided. A maximum slope of 5H:1V (11° or 20%) within the right-of-way may be accepted.

3.3.4 Drainage

The creation of storm water outfalls or other water management controls could result in the pipeline right-of-way being more susceptible to erosion and shall be avoided or mitigated through consultation with MVP. Proposed gabions and rip rap structures must maintain a minimum of two foot (2') vertical clearance between the outside of the pipeline and the drainage structure. Geotextile protection may also be required, if erosion is still a concern.

Drainage swales shall maintain a minimum of three feet (3') of vertical clearance between the top of the pipeline and the bottom of the swale. Additional protection may be required to minimize erosion susceptibility over the pipeline and the associated right-of-way.

3.3.5 Fences

Fences shall not be constructed on the right-of-way without Mountain Valley's prior written approval. Any MVP approved fence shall be easily removable and not obstruct the view of the right-of-way for inspection purposes. Masonry, brick, or stone fences are not permitted. Fences that are perpendicular to the pipeline(s) shall include a gate, sixteen feet (16') in width, to allow equipment to pass through unencumbered. Fence posts shall not be placed within a five foot (5')

horizontal distance from the edge of the pipeline. Fences along (e.g., parallel) the pipeline(s) shall be located outside of the pipeline right-of-way.

3.3.6 Heavy Equipment Crossings

The MVP is designed to accommodate crossings by a 40,000-pound piece of equipment. Heavy Equipment Crossing requests that exceed the 40,000-pound limit are reviewed by MVP Engineering.

Heavy equipment crossings are assessed based upon the increase in pipe stress that will be added by the crossing equipment. Consideration of whether the heavy equipment crossing is temporary or permanent will impact which right-of-way modification are available for use.

Heavy equipment crossings with acceptable stress levels will be approved by MVP Engineering without any modifications to the right-of-way. Heavy equipment crossings that have an unacceptable stress level will be evaluated to see if right-of-way modifications will reduce the stress to an acceptable level. The right-of-way modifications can include adding fill over the pipeline, adding a layer of stone over the pipeline, installing timber mats to form an air bridge, installing steel plates, adding pavement, etc. After selecting the best right-of-way modification, MVP Engineering will provide instructions or drawings on how to make the modification to the MVP Land Agent who will share the information with the Landowner or Developer.

Proposed heavy equipment crossings shall be designed in consultation with MVP to provide a minimum of three feet (3') and a maximum of ten feet (10') of vertical clearance between the top of the pipeline and the crossing surface. Mountain Valley's Engineering Department may provide written exceptions. Proposed heavy equipment crossings shall be designed to be as perpendicular to the pipeline as possible. Proposed crossings of angles less than thirty degrees (30°) will not be accepted. MVP will inspect the crossing during installation and periodically while the heavy equipment crossing is in use to ensure the crossing is placed at the agreed upon location and that the proper clearance is provided and maintained by the right-of-way modification.

3.3.6.1 Emergency Service Vehicle Crossing

In an emergency, emergency service vehicles that are authorized to operate in compliance with local laws can cross Mountain Valley's pipelines without prior notification to MVP. However, in this case, the landowner shall notify Mountain Valley at **1-833-929-1736** within 48 hours of learning about the crossing so MVP can evaluate any impact to the pipeline.

3.3.7 Road Crossings

Proposed commercial and residential roadway crossings shall be designed in consultation with MVP to provide a minimum of five feet (5') and maximum of ten feet (10') of vertical clearance between the top of the pipeline and the finished surface. Mountain Valley's Engineering Department may provide written exceptions. The materials utilized for the installation of the road crossing shall be typical for road construction. The materials may include sand, crushed rock, asphalt, concrete, and other granular materials. Roadway crossings shall not be installed in a manner that would interfere with above ground pipeline structures or appurtenances.

Proposed roadway crossings shall be designed to be as perpendicular to the pipeline as possible. Additionally, proposed crossings of angles less than thirty degrees (30°) will not be accepted.

3.3.8 Ditches and Under Drains

Proposed road ditches shall be designed to provide a minimum of three feet (3') and maximum of ten feet (10') of vertical cover above the top of the pipeline and the bottom of the ditch.

Road under-drains shall maintain a two foot (2') minimum vertical clearance from the top of the pipeline.

The construction of parking lots over the pipeline(s) shall not be permitted without Mountain Valley's prior written approval in an Encroachment Agreement releasing Mountain Valley from any future damages to the parking lot due to pipeline maintenance and repair.

3.3.9 Utility Crossings

Proposed crossings by utilities or underground structures shall be designed to pass under the pipeline unless otherwise approved by Mountain Valley's Engineering Department.

Where Mountain Valley's pipeline is located under a body of water or permanent structure, no other utilities shall cross. Said proposed utility lines shall be installed parallel to Mountain Valley's pipeline and will require temporary shoring of Mountain Valley's assets during construction.

Proposed utilities shall cross as perpendicular to the pipeline as possible.

All underground facilities or structures crossing the pipeline shall maintain a two foot (2') minimum vertical clearance between the pipeline and the proposed utility.

Proposed utility drawings shall show the pipeline on a profile with field verified pipeline depths and proposed clearances.

Crossings shall be identified with markers placed on each side of the foreign company right-of-way.

When a foreign pipeline company plans to route a pipeline that crosses a Mountain Valley facility, a notification shall be given through the local One Call process.

3.3.9.1 Overhead Utility Crossings

Overhead utility crossings shall be installed with a minimum of twenty-five feet (25') of vertical clearance above the MVP right-of-way to provide adequate equipment clearance. No poles or appurtenances shall be located within the MVP right-of-way.

Overhead utility crossings shall not be installed within twenty-five feet (25') as measured horizontally of any MVP above-grade facility discussed in Section 2.2.4.

Utility lines shall be designed according to applicable industry codes and standard practices for the type of utility.

3.3.10 Power Cable and Communications Installations

3.3.10.1 Secondary Crossings (less than 440 Volts)

Secondary crossings, installations less than 440 volts, shall be installed UNDER the pipeline, (unless otherwise approved by Mountain Valley's Engineering Department), with a minimum two-foot (2') vertical clearance between the bottom of the pipeline and the top of the conduit. The cable shall be placed in a PVC conduit for the width of the right-of-way.

3.3.10.2 Primary Crossings (greater than 440 volts)

Primary crossings, installations greater than 440 volts, shall be installed UNDER the pipeline, (unless otherwise approved by MVP's Engineering Department), with a minimum two-foot eight-inch (2'-8") vertical clearance between the bottom of the pipeline and the top of the conduit. The cable shall be placed in a PVC conduit for the width of the pipeline right-of-way. The conduit shall be protected by placing 2000 psi concrete, dyed red, into the ditch for a minimum distance of five feet (5') on both sides of the pipeline. The concrete shall span the width of the conduit ditch. A minimum two-foot (2') vertical clearance shall be maintained between the outside diameter of the pipeline and the top of the concrete.

Power Cable Crossings – Greater Than 440 volts		
Minimum Vertical Clearance (Bottom of Pipeline to Top of Electrical Conduit)	Minimum 32 inches	
Burial Depth	Must meet National Electrical Code (NEC) 300.5 Non-Utility Feeds, or	National Electric Safety Code (NESC) Table 352-1
Signage/Tape/Markings	See Notes Below for Additional Information	
Notes:	See Below for Additional Information	

NOTES:

National Electric Safety Code (IEEE-C2-2017)

- Section 32, Rule 320, Section B. 5
5. Gas and other lines that transport flammable material - Radial separation of conduit from gas and other lines that transport flammable material shall be not less than 300 mm (12 in) as measured from the nearest duct in the conduit and should have sufficient separation from gas and other lines that transport flammable material to permit the use of pipe maintenance equipment. Conduit shall not enter the same manhole, handhole, or vault with gas or other lines that transport flammable material.
- Section 9, Rule 095, Section B. 2
2. Made grounds or grounded structures should be separated by 3.0 m (10 ft) or more from pipelines used for the transmission of flammable liquids, or gases operating at high pressure [1030 kPa (150 lb./in²) or greater], unless they are electrically interconnected and cathodically (sic) protected as a single unit. Grounds within 3.0 m (10 ft) of such pipelines should be avoided or shall be coordinated so that hazardous conditions will not exist, and cathodic protection of the pipeline will not be nullified.

- Two "Danger" tapes equally spaced over the concrete buried at a minimum depth of 12 inches, to be installed within the pipeline ROW. Tape shall be minimum 3 inches wide, Detectable, Polyethylene on Aluminum, APWA Uniform Color Code Red, "Buried Electric Line Below".
- If depth of conduit is to be 2-1/2'(feet) below bottom of pipeline, cable must be de-rated: Per NEC 310.60(C)(2)(a) - Cable must be de-rated if the burial depth increases for more than 25% of the overall run.

3.3.10.3 Marking

For all electrical crossings, a drive post with an electric company marker shall be placed and maintained on each side of the pipeline right-of-way.

3.3.10.4 Open Trench Fiber Optic Mainline Cable Installations

The cable shall be installed UNDER the pipeline with a minimum two-foot six-inch (2'-6") vertical clearance between the bottom of the pipeline and the top of the fiber optic cable.

Fiber optic cables shall be encased in six inches (6") of concrete, dyed orange, for a minimum distance of five feet (5') on both sides of the outer edge of the pipeline. The concrete shall span the width of the ditch.

Fiber optic company markers shall be installed and maintained at the crossing location on both sides of the pipeline right-of-way.

For bored or HDD installations, please consult MVP's Construction Guidelines Section 3.4.4.

3.3.11 Cathodic Protection

Cathodic protection is employed to control corrosion on Mountain Valley's pipelines and other facilities. Cathodic protection may have a detrimental effect (interference) on metallic structures that run across or adjacent to the pipeline right-of-way.

Possible detrimental cathodic protection effects shall be evaluated by the owner or developer of the pipeline and if found to be an issue, appropriate mitigative actions shall be taken. Mitigation of detrimental effects from cathodic protection is possible by using non-metallic structure materials, loose barrier coatings, or bonds between the pipeline and structures in question. It is recommended that the owner or developer consult with those knowledgeable in the field of cathodic protection and cathodic protection interference mitigation, to determine what is best for the proposed structure.

If cathodic protection is planned for the owner or developer's structure, the Mountain Valley Engineering and Operations Departments shall be notified so installation of appropriate test facilities and evaluation of possible detrimental cathodic protection effects on any Mountain Valley facilities.

3.3.12 Proposed Development

The developer or landowner shall submit a full set of plans, including detail sheets, whereby MVP's easement is depicted through the proposed development.

The developer or landowner's proposed layout shall be designed so that Mountain Valley's access along the right-of-way is not impeded.

The developer or landowner's proposed layout shall be designed so that designated equipment crossing locations (if necessary) are identified. Prior to the start of construction, the developer or landowner shall submit a list of equipment types and weights to MVP so that stress calculations can be completed. This will determine what type of protection will be necessary over the pipeline right-of-way to accommodate the crossing(s).

Proposed landscaping, utilities, drainage, grading, roadways as well as means of excavation, compaction, blasting, and rock removal within the development shall comply with all restrictions stated in this document or by the MVP approval notification.

3.3.13 Encroaching Party

The encroaching party shall incorporate MVP's Engineering and Construction Guidelines contained herein, into any of the party's design and construction drawings. The encroaching party's design and construction drawings shall also include any other pre-negotiated landowner rights and any other Mountain Valley restrictions including those dictated by environmental and regulatory agencies.

3.4 Construction Guidelines

The following guidelines apply to an encroaching party and any contractors, agents and or representatives it uses for construction activities conducted in MVP's rights-of-way and/or affecting Mountain Valley's pipeline(s) or facilities. The following guidelines, although not all-inclusive, are provided to assist you with your project planning.

The encroaching party shall conduct their activities in compliance with MVP's Engineering and Construction Guidelines stated herein, as well as any applicable agreement in place with an encroaching party.

Please note, these guidelines are not to be considered approval for construction activity within or near Mountain Valley's rights-of-way, pipelines, or facilities. MVP must be contacted, an engineering review conducted of the proposed changes, and site-specific approval granted.

3.4.1 Notifications

State law requires that the contractor and excavation companies contact the state One Call Center, prior to any excavation activity as required by your state law. The nationwide telephone number for the state One Call Center is "811". See Section 1.2 for more information.

Mountain Valley must be notified at least ten (10) days prior to the start of construction. A schedule of activities for the duration of the project shall be made available at that time to facilitate the scheduling of MVP's on-site representative. Any encroaching party schedule changes shall be provided to Mountain Valley immediately.

3.4.2 Inspection

The continued integrity of Mountain Valley's pipelines and the safety of all individuals in the area of proposed work are of the utmost importance. The encroaching party shall meet with MVP's operations and emergency response representatives prior to construction. MVP's on-site representative may require discontinuation of any work that, in their opinion, endangers the safety of the public, personnel, pipelines, or facilities.

The encroaching party shall not commence work within MVP's right-of-way or within twenty-five feet (25') of a Mountain Valley pipeline or appurtenance(s) without an MVP representative being present.

An MVP inspector shall be onsite during any work within the pipeline right-of-way.

3.4.3 Protection of MVP Pipelines and Rights-of-Way

Construction equipment is not permitted on the right-of-way unless written approval has been obtained from Mountain Valley and the required protective measures for the MVP right-of-way and pipeline have been put in place.

First, pothole and expose the pipeline(s) to verify depth via hand digging or other soft excavation techniques. See Section 1.2.5 for more information.

When a backhoe or similar equipment is used within the right-of-way, the bucket teeth shall have a plate installed over the teeth to reduce the risk of puncturing the pipeline.

The encroaching party shall install a rock shield (Tuff-n-Nuff brand or PipeSak Pipe Jacket brand) around any Mountain Valley pipeline to protect it from damage during construction.

Materials or equipment shall not be stored within the existing pipeline right-of-way without Mountain Valley's prior written approval.

Leach beds, wells, cesspools, sewer systems, or similar equipment is not permitted within the MVP right-of-way.

3.4.4 Utility Installation

Utility lines shall be installed according to applicable industry codes and standard practices for the type of utility.

Above ground utility markers shall be installed at each side of the right-of-way.

3.4.4.1 Utility Installation via Bore/Drill

During installation of underground utilities or facilities that will utilize drilling, boring, or HDD, the following shall be adhered to:

- Boring excavation and receiving pits shall be located outside of all pipeline's rights-of-way;
- Each bore to be a minimum of five feet (5') from the bottom of the pipeline(s) to top of the proposed utility's bore hole. For HDD installation, the completed drilled bore hole shall be a minimum of ten feet (10') below the bottom of the pipeline(s);

- Any bore that crosses an existing pipeline shall intersect the existing pipeline at an approximate 90° (degrees) angle or as close to 90° as possible;
- When boring a pilot hole, a boring subcontractor shall be aware of the depth of the boring-bit head as it passes under the pipeline by using precise downhole survey instruments and surface location equipment;
- Each bore shall extend the entire width of the pipeline right-of-way;
- Potholes and other excavations (e.g., bore pits) within the MVP right-of-way shall be backfilled with suitable fill material and compacted to the satisfaction of the MVP's onsite representative; and
- A boring profile shall be available to MVP upon request.

3.4.5 Seismic Testing and Blasting

Neither "Non-explosive" seismic testing nor the use of construction equipment with steady state vibrator, intermittent vibrator, or thumper sources will be allowed to operate within 150 feet of Mountain Valley's pipeline without Mountain Valley's written approval.

Blasting shall not be allowed within 500 feet of Mountain Valley's pipelines or facilities without a blast plan reviewed and approved in writing by Mountain Valley. Notification of proposed blasting shall be submitted to Mountain Valley and include a completed blasting plan. At a minimum the blasting plan shall include: drawing with blast pattern, distance from pipeline and orientation with respect to the pipeline. The plan shall include spacing between holes, rows, number of explosives in each hole, manufacturer, and associated energy release ratio. A pre-blast meeting shall be conducted by the organization responsible for blasting. Mountain Valley requires a signed and executed blasting indemnification agreement before authorized permission to blast will be given. A written emergency plan shall be provided by the organization responsible for blasting.

3.5 Encroachment Request Process

The following describes the process and information required for Mountain Valley to consider allowing an encroachment upon the pipeline right-of-way with a permanent or temporary structure, or any other earth disturbance. Any activity, including the operation of heavy equipment, on MVP's rights-of-way requires a fully executed crossing agreement between Mountain Valley and the requester of the encroachment (typically the landowner). Please note that some landowner easement agreements contain pre-negotiated landowner rights.

The initiation of the process starts with the requester contacting an MVP land agent via **1-833-929-1736** or encroachment@equitransmidstream.com. The land agent serves as the communicator and liaison between the requester and Mountain Valley.

The requester shall provide, at minimum, the following information:

3.5.1 Utility Crossings

- A completed MVP Encroachment Form;
- The size, material, and type of the utility line; and
- A list of the construction equipment that will be used for the installation (makes and models) within the right-of-way.

3.5.2 Permanent Highway/Road Crossings

- A completed MVP Encroachment Form;
- A plan, profile, and cross-section drawing of the proposed road/facility, with geographic coordinates of the subject location(s);
- A proposed design composition of the road with the thicknesses of pavement layers;
- A list of the construction equipment planned to use for the installation (makes and models); and
- The maximum weight of the traffic expected to utilize the road throughout the life of the road.

3.5.3 Temporary Equipment Crossings

- A completed MVP Encroachment Form; and
- A list of the construction equipment expected to cross the pipeline (makes and models).

3.5.4 Typical Driveway Crossings

- A completed MVP Encroachment Form;
- A list of the vehicles or equipment expected to cross the pipeline (makes and models);
- The maximum weight of the traffic expected to utilize the road throughout the life of the road; and
- Proposed design composition of the road with the thicknesses of pavement layers.

Once MVP Engineering receives the requested information and completes a desktop review, a site visit with the requester may be scheduled, depending on the complexity of the design. During this visit any aspects of the design that are unclear or any issues with the design will be discussed. The requester is responsible for resolving any concerns or issues with the proposal.

See Sections 3.3 and 3.4, Engineering and Construction Guidelines to assist the developer or landowner in creating a successful encroachment application.

After the parties resolve any design issues or concerns, Mountain Valley will prepare a crossing agreement. Once the document is ready for execution, two copies shall be sent to the requester for signature. Both executed copies shall be returned to Mountain Valley and a fully executed copy will be provided to the requester for their records.

Any other type of encroachment not discussed herein shall be reviewed in an equivalent manner by Mountain Valley.

3.5.5 Encroachment Form

An Encroachment Form will be completed by the requestor wanting to cross the Mountain Valley and submitted directly to the MVP Land Agent or e-mailed to encroachment@equitransmidstream.com.

The completed form will have the date the form was submitted to MVP along with the date that the requestor would like to start work. The “Entity Responsible” is considered to be the landowner, developer, or utility wanting to encroach upon the Mountain Valley right-of-way. The “Entity Performing the Work” is the contractor or sub-contractor who will be working within the Mountain Valley right-of-way.

In the Crossing Information Section of the Form, the requestor will provide information about the crossing such as:

- permanent or temporary (include duration of proposed temporary crossing).
- GPS coordinates of the proposed crossing of the Mountain Valley right-of-way.
- Roadway or Equipment Crossings - the anticipated width and sub-base/pavement description including thickness along with the maximum weight of equipment expected to cross from the Tracked or Wheeled Section of the Form.
- Utility Crossings - describe the type (electric, water, sewer, cable, natural gas, phone, etc.), the size of utility including a description of the material make-up, and the proposed depth of burial.
- Tracked and Wheeled Equipment - provide detailed information about all equipment planned to cross the Mountain Valley right-of-way whether it is a permanent or temporary crossing.



Date Submitted _____

Date Required _____

Requester Information

Entity Performing Work

Company _____
 Contact _____
 Address _____
 City/St/Zip _____
 Phone _____
 Cell _____
 Email _____

Entity Responsible for Work

Company _____
 Contact _____
 Address _____
 City/St/Zip _____
 Phone _____
 Cell _____
 Email _____

Crossing Information:

Crossing Type (Permanent Road / Temporary Equipment / Utility Line)

Duration of Equipment Crossing _____ Years _____ Months _____
 GPS Coordinate of Crossing (Decimal Degrees) _____ Latitude _____ Longitude _____

Width of Proposed Roadway?

Composition of Proposed Roadway (Sub Base Characteristics, Driveway Thickness & Material, etc.):

Maximum weight of the traffic expected to utilize the road.

Characteristics of the Utility Line (type, size, material, wall thickness)

Depth of burial of the Utility Line _____

Other Specifics:

Tracked Equipment:

MUST fill in all information

Type	Maximum
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Make	Model	(backhoe, excavator, crane, etc.)	Operating Weight (include payload)	Track Width (in)	Track Length (ft)

Wheeled Equipment:

MUST fill in all information

Type	Maximum
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Make	Model	(crane, tri-axial truck, drill rig, etc.)	Operating Weight (payload included)	No. of axles	Wheels per axle	Weight per axle