

1.0 GENERAL ENGINEERING GUIDELINES

Equitrans Midstream Corporation (ETRN) constructs, repairs, operates and maintains its pipelines in compliance with current U.S. Department of Transportation (DOT) regulations, industry and company standards for safe operations. Should Encroaching Party propose plans that infringe on ETRN's rights or affect ETRN's ability to meet these requirements, modifications to the pipeline(s) or plan(s) will be required. The cost of all such modifications shall be borne by the Encroaching Party. The following guidelines apply to Encroaching Party and any contractors, agents and or representatives it uses for construction activities conducted in ETRN's right-of-way and/or affecting ETRN's pipelines or facilities. The following guidelines, although not all inclusive, are provided in order to assist you in your project planning. THESE GUIDELINES ARE NOT TO BE CONSIDERED APPROVAL FOR CONSTRUCTION ACTIVITY WITHIN ETRN'S RIGHT-OF-WAY OR NEAR ETRN'S PIPELINES OR FACILITIES.

- 1.1 In order to maintain immediate and unimpeded access to the pipeline, NO trees, shrubs, permanent structures (i.e. buildings, decks, sheds, swimming pools, inlets, drainage structures, hydrants, poles, etc.) or bodies of water shall be placed within the pipeline right-of-way.
- 1.2 The depth of earth cover over the pipelines shall be maintained and never changed in any manner without the express written consent of ETRN. In some cases, additional cover may be required.
- 1.3 In areas where the pipeline currently has less than three feet (3') of cover, no grade cuts shall be allowed. 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 (Items 1.10 through 1.14).
- 1.4 Proposed grading which will place the pipeline at depths greater than seven feet (7') shall require written approval from ETRN's Engineering Department.
- 1.5 In areas where buildings are proposed within fifty feet (50') of an ETRN pipeline, the depth of cover over the pipeline may be increased to a minimum of four feet (4') and maximum of seven feet (7').
- 1.6 The creation of steep slopes within the pipeline right-of-way that will hinder ETRN access and maintenance shall be avoided. Maximum slope of 5 to 1 within the right-of-way will be accepted.
- 1.7 The creation of storm water outfalls or other water management controls resulting in the pipeline right-of-way being more susceptible to erosion shall be avoided or mitigated. Proposed gabions and rip rap structures must adhere to the two foot (2') vertical clearance requirement. Geotextile protection may also be required.
- 1.8 Drainage swales shall maintain a minimum of three feet (3') of vertical clearance between outside diameter ("O.D.") of the pipeline and the bottom of the swale. Additional protection may be required in order to minimize erosion susceptibility over the existing pipeline and across its associated right of way.

- 1.9** No fences shall be constructed on the right-of-way without ETRN's prior written approval. Fences shall be easily removable and not to obstruct the view of the right-of-way for inspection purposes. No masonry, brick, or stone fences will be allowed. 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 five feet (5') of the pipeline(s). Fences that are parallel to the pipeline(s) shall be located outside the pipeline(s) right-of-way.
- 1.10** Proposed residential driveway crossings shall be designed to provide a minimum of three feet (3') and maximum of seven feet (7') of vertical clearance between the O.D. of the pipeline and the finished surface. ETRN's Engineering Department may provide written exceptions.
- 1.11** Proposed driveway/road crossings shall be designed to be as perpendicular to the pipeline as possible. Proposed crossings of angles less than thirty degrees (30°) shall not be accepted.
- 1.12** Proposed commercial entrance crossings shall be designed to provide a minimum of four feet (4') and maximum of seven feet (7') of vertical clearance between the O.D. of the pipeline and the finished surface.
- 1.13** Proposed road ditches shall be designed to provide a minimum of four feet (4') and maximum of seven feet (7') of vertical cover above the top of the pipeline and the bottom of the ditch.
- 1.14** Road under-drains shall maintain a two foot (2') minimum vertical clearance from the top of the pipeline.
- 1.15** Construction of parking lots over the pipeline(s) shall not be permitted without ETRN's prior written approval in an Encroachment Agreement releasing ETRN from any and all future damages to the parking lot due to pipeline maintenance and repair.
- 1.16** Structures such as guide rails, concrete paving, sidewalks, curbing, etc. shall be designed in a manner that would facilitate their removal in the event of pipeline maintenance or an emergency repair.
- 1.17** Proposed crossings by utilities or underground structures shall be designed to pass under the pipeline unless otherwise approved by ETRN's Engineering Department.
- 1.18** The utility line shall not cross ETRN's pipeline under a body of water or permanent structure. Said utility line shall be parallel to ETRN's pipeline in the same right-of-way or require temporary shoring on ETRN's right-of-way during construction.
- 1.19** Proposed utilities shall cross as perpendicular to the pipeline as possible.
- 1.20** All underground facilities or structures crossing the pipeline shall maintain a two foot (2') minimum vertical clearance between the O.D. of the pipeline and the proposed utility structure.

1.21 Utility crossings of the pipeline shall be shown on profile with field verified pipeline depths and proposed clearances clearly labeled.

1.22 Power Cable Installations

- A.** Secondary Crossings (less than 440 Volts):
Shall be installed UNDER the pipeline, (unless otherwise approved by ETRN's Engineering Department), and the two-foot (2') minimum vertical clearance shall be maintained between the bottom of the pipeline and the top of the conduit. The cable shall be placed in conduit for the width of the right-of-way.
- B.** Primary Crossings (greater than 440 volts):
Shall be installed UNDER the pipeline, (unless otherwise approved by ETRN's Engineering Department), with a minimum two-foot six-inch (2'6") vertical clearance between the pipeline O.D. and the top of the conduit. The cable shall be placed in conduit for the width of the pipeline right-of-way. The conduit shall be protected by pouring of 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 ditch. A minimum two-foot (2') vertical clearance shall be maintained between the O.D. of the pipeline and the top of the concrete.
- C.** 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.

1.23 Open Trench Fiber Optic Mainline Cable Installations

- A.** 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 O.D. and the top of the fiber optic cable.
- B.** 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 pipeline. The concrete shall span the width of the ditch.
- C.** Fiber optic company markers shall be installed and maintained at the crossing location on both sides of the pipeline right-of-way.
- D.** For bored or HDD installations, please consult ETRN's Construction Guidelines Section 2.8.

1.24 Cathodic Protection:

- A.** Cathodic protection is employed to control corrosion on ETRN's pipelines and other facilities. Cathodic protection may have a detrimental (interference) effect on adjacent and crossing metallic structures.

- B.** Possible detrimental cathodic protection effects shall be evaluated by the owner/developer with appropriate mitigative actions taken if these effects are found to be an issue for the owner/developer facility. Mitigation of detrimental effects from cathodic protection is possible by using non-metallic structure materials, loose barrier coatings, bonded coatings and/or bonded coatings with cathodic protection. However, it is best to consult with those knowledgeable in the field of cathodic protection and cathodic protection interference mitigation to determine what is best for the owner/developer's structure and configuration.
- C.** If cathodic protection is planned for the owner/developer's structure, the ETRN Engineering and Operations Departments shall be notified to allow corrosion control personnel to install appropriate test facilities and evaluate possible detrimental cathodic protection effects on the ETRN facilities.
- D.** Crossings shall be identified with markers placed on each side of the foreign Company right-of-way. Please consult ETRN's Design Standard, Cathodic protection facility design for additional details and guidelines.
- E.** When a foreign pipeline Company plans to route a pipeline that crosses an ETRN facility, notification will be given through the local One Call Process.

1.25 Proposed Residential Development

- A.** Residential landowner shall submit a full set of plans, including detail sheets, whereby ETRN's easement is depicted through the proposed development.
- B.** The Residential landowner's proposed residential layout shall be designed so that ETRN's access along the right-of-way is not impeded.
- C.** The Residential landowner's proposed residential layout shall be designed so that designated equipment crossing locations are identified. Prior to construction, the residential landowner shall submit a list of equipment types and weights so that stress calculations can be completed to ascertain what type of protection over the pipeline right-of-way will be required to allow the crossing(s).
- D.** Proposed landscaping utility, drainage, grading and roadways as well as means of excavation, compaction, blasting, and rock removal within the development shall comply with all restrictions stated in this document.

1.26 Encroaching Party shall incorporate ETRN's Engineering and Construction Guidelines contained, herein, into any of the Encroaching Party's design and construction drawings issued "FOR BID purpose".

2.0 GENERAL CONSTRUCTION GUIDELINES

The following guidelines apply to Encroaching Party and any contractors, agents and or representatives it uses for construction activities conducted in ETRN's right-of-way and/or affecting ETRN's pipeline(s) or Facilities. The following guidelines, although not all inclusive, are provided in order to assist you in your project planning. THESE GUIDELINES ARE NOT TO BE CONSIDERED APPROVAL FOR CONSTRUCTION ACTIVITY WITHIN ETRN'S RIGHT-OF-WAY OR NEAR ETRN'S PIPELINES OR FACILITIES.

- 2.1 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".
- 2.2 Encroaching Party shall conduct their activities in compliance with ETRN's Design and Construction Guidelines as well as any applicable agreement in place with Encroaching Party
- 2.3 The continued integrity of ETRN's pipelines and the safety of all individuals in the area of proposed work are of the utmost importance. Therefore, Encroaching Party shall meet with ETRN's Operations and emergency representatives prior to construction. ETRN's on-site representative shall require discontinuation of any work that, in their opinion, endangers the operation or safety of personnel, pipelines, or facilities.
- 2.4 Notification shall be given to ETRN at least ten (10) days before 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 ETRN's on site representative. Any Encroaching Party schedule changes shall be provided to ETRN immediately.
- 2.5 Encroaching Party shall not commence work within ETRN's right-of-way or within twenty-five feet (25') of an ETRN pipeline or appurtenance(s) without an ETRN representative being present.
- 2.6 An ETRN inspector shall be onsite during any work within the pipeline right-of-way.
- 2.7 No construction equipment shall be allowed on the right-of-way unless written approval to do so has been obtained from ETRN and the required or approved protection has been put in place to protect the pipeline and its right of way.
- 2.8 During installation of underground utilities or facilities that will utilize drilling, boring, or HDD the following shall be adhered to:
 - A. Pothole and expose the pipeline(s) to verify depth with hydro-vacuum machine (with ETRN representative on site to observe activities).
 - B. Excavation of the boring and receiving pits shall be outside the pipeline right-of-way.

- C. Each bore to be a minimum of three feet (3') from the bottom of the pipeline to top of proposed utility. For HDD installation, the completed drilled bore shall be a minimum of five feet (5') below the bottom of the pipeline(s).
 - D. Each bore shall cross existing pipeline as close to perpendicular (90 degrees) as possible.
 - E. During pilot hole boring procedure, boring subcontractor shall be aware of the depth of the boring bit head as it passes under the pipeline with metal detector type device.
 - F. Bore shall extend the entire width of the pipeline right of way.
 - G. Pothole and bore pits shall be backfilled with suitable fill material and compacted to the satisfaction of the ETRN's onsite representative.
 - H. Shall install above ground cable markers at each side of the right-of-way.
 - I. Boring profile shall be available to ETRN upon request.
- 2.9** Encroaching Party shall install rock shield – Tuff-n-Nuff brand or PipeSak PipeJacket brand – around the ETRN pipeline to protect from damage during construction.
- 2.10** When a backhoe is used, the bucket teeth shall have a plate installed over the teeth to reduce the chance of teeth contacting the pipe.
- 2.11** No "Non-Explosive" seismic testing shall be performed or construction equipment with steady state vibrator, intermittent vibrator, or thumper sources operated within 150 feet of ETRN's pipeline without ETRN's written approval.
- 2.12** No blasting shall be allowed within 300 feet of ETRN's pipelines or facilities without a blast plan reviewed and approved in writing by ETRN. Notification of proposed blasting shall be submitted to ETRN including a complete blasting plan. At a minimum the blasting plan shall include a 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. ETRN 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.
- 2.13** No materials or equipment shall be stored within the existing pipeline right-of-way without ETRN's prior written approval.
- 2.14** No leach beds, wells, cesspools or sewer systems shall be permitted within the ETRN right-of-way.

Contacting ETRN directly DOES NOT exonerate you of the legal obligation to notify your State's One Call Center. *Always call 811 before you dig!!*