

Appendix C
Attachment 7

Steep Slope Construction Techniques

BLUESTONE PIPELINE PROJECT STEEP SLOPE

SITE SPECIFIC PIPELINE INSTALLATION

STA# 29+00 to STA#38+67

The following pipeline installation construction process will be followed during the installation of the Bluestone 20" OD Pipeline. The pipeline ROW will be cleared and graded from Sta#29+00 to Sta#38+67 to facilitate the installation of the 20"OD steel pipeline. All necessary ECD's will be installed along the steep slope pipeline installation ROW. The pipeline trench will be excavated and the trench bottom will be prepared by installing earth filled bags in the bottom of the trench to protect the pipe from engaging any rocks or debris lying in the bottom of the trench. Approximately 975ft of the 20" OD steel line pipe will be strung, bent, welded, x-rayed, and coated, in one single continuous section, beside the excavated trench. The 975ft 20"OD pre-fabricated steel pipe section will be secured with pipe to sub grade cable anchors to ensure the pipe section will remain in place prior to lowering in the pipe section in to the trench. The 20" OD pre-fabricated pipe section will then be inspected for coating holidays, pipe lowering in operations will be completed and the trench breakers installed. The pipe will be mechanically padded, and backfill of the trench will be completed. Permanent water bars will be installed and the final grade and ROW restoration of the pipeline ROW will be completed. The lowered in pipe section will then be tied in to the previously installed 20"OD steel pipe creek section at Sta#29+00. The lowered in pipe section will then be tied in to the 20"OD steel pipe mainline section at Sta#38+67. The tie in weld will be x-rayed, coated, and inspected for coating holidays. Excavator shaker buckets will be used to pad the pipe with fine spoils at the tie in locations to protect the pipe from any rocks in the backfill materials.

The installation of the pre-fabricated 975ft 20"OD steel pipe section will not require any tie in to be performed on the steep slope.

Due to the abundance of rock ledges and rock outcroppings, winch tractors with 1 ¼" or larger winch cables will be utilized to enhance equipment stability when equipment is engaged in any work being performed on the steep slope. All mobile equipment operators will ensure they wear a seat belt at all times during any steep slope construction operations.

All temporary water bars and slope breakers will be graded smooth prior to any equipment or vehicles traveling up or down steep slope, but replaced at the end of each workday.

BLUESTONE PIPELINE PROJECT STEEP SLOPE

SITE SPECIFIC PIPELINE INSTALLATION

STA#260+25 to STA#267+09

The following pipeline installation construction process will be followed during the installation of the Bluestone 20" OD Pipeline. The pipeline ROW will be cleared and graded from Sta#260+25 to 267+09 to facilitate the installation of the 20"OD steel pipeline. All necessary ECD's will be installed along the steep slope pipeline installation ROW. The pipeline trench will be excavated and the trench bottom will be prepared by installing earth filled bags in the bottom of the trench to protect the pipe from engaging any rocks or debris lying in the bottom of the trench. Approximately 700ft of the 20"OD steel line pipe will be strung, bent, welded, x-rayed, and coated in one single continuous pipe section, beside the previously excavated trench. The 700ft 20"OD pre-fabricated steel pipe section will be secured with pipe to sub-grade dead man cable anchors to ensure the pipe section will remain in place until the lowering in operation of the pre-fabricated pipe section begins. The 20" pre-fabricated pipe section will then be inspected for coating holidays. Then the pre-fabricated 20"OD steel line pipe section will be lowered in to the previously excavated trench. Steel line pipe transition pieces will be welded on to the both ends of the lowered in steel line pipe sections. The lowered in pipe section with steel line pipe transitions will then be tied in to the previously installed 400ft guided bore steel line pipe section of stream S-BR-24, Tennant Road, S-BR-25, and W-BR-Z at Sta#260+25. The tie in weld will be x-rayed, coated, and inspected for holidays. The 20"OD steel line pipe steep slope section pipe section will then be final tie in welded to the previously installed 20"OD steel line pipe section of ARD #5 at Sta#267+09. The final tie in weld will be x-rayed, coated, and inspected for coating holidays. Excavator shaker buckets will be used to pad the tie in locations with fine spoils to protect the pipe from any rocks in the backfill material. The trench breakers will be installed at the required intervals along the recently installed lowered in 20"OD steel line pipe section. The pipe will be mechanically padded with fine spoils to protect the pipe from any rock in the backfill material and the backfill of the trench will be completed. Final grade of the ROW will be restored and the permanent water bars will be installed and the final ROW restoration will be completed.

The installation of the pre-fabricated 700ft OD steel pipe section will not require any tie in welds to be performed on the steep slope.

Due to the abundance of rock ledges and rock outcropping, winch tractors with 1 1/4" or larger winch cables will be utilized to enhance equipment stability when any equipment is engaged in any work being performed on the steep slope. All mobile equipment operators will ensure they wear a seat belt at all times during any steep slope construction operations.

All temporary water bars and slope breakers will be graded smooth prior to any equipment or vehicles traveling up or down the steep slope, but replaced at the end of each workday.

BLUESTONE PIPELINE PROJECT STEEP SLOPE

SITE SPECIFIC PIPELINE INSTALLATION

STA#306+33 to STA#321+00

The following pipeline installation construction process will be followed during the installation of the Bluestone 20"OD Pipeline.

The pipeline ROW will be cleared and graded from Sta#306+33 to Sta#321+00 to facilitate the installation of the 20"OD steel pipeline. All necessary ECD's will be installed along the steep slope pipeline installation ROW. The pipeline trench will be excavated from Sta#306+33 to Sta#316+69 and the trench bottom will be prepared by installing earth filled bags in the bottom of the trench to protect the pipe from any rocks or debris lying in the bottom of the trench. Approximately 1050ft of the 20"OD steel line pipe will be strung, bent, welded, x-rayed, and coated in one single continuous pipe section beside the previously excavated trench. The 1050ft 20"OD pre-fabricated pipe section will be secured with pipe to sub-grade dead man cable anchors to ensure the pipe section will remain in place until the lowering in operation of the pre-fabricated pipe section begins. The 20"OD pre-fabricated pipe section will then be inspected for coating holidays. Then the pre-fabricated 20"OD steel line pipe section will be lowered into the previously excavated trench. The 20" steel pipe transition will be welded on the 20"OD steel line pipe section. The 20" steel line pipe transition weld will be x-rayed, coated and inspected for coating holidays. The 20" OD steel line pipe section will then be tie in welded to the previously installed conventional bore pipe section of the New York Susquehanna Western Railroad at Sta+306+33. The tie in weld will be x-rayed, coated, and inspected for coating holidays. Excavator shaker buckets will be used to pad the tie in location with fine spoils to protect the pipe from any rocks in the backfill material. The trench breakers will be installed at the required intervals along the recently installed lowered in 20"OD steel line pipe section. The pipe will be mechanically padded with fine spoils to protect the pipe from any rocks in the backfill material and the backfill of the trench will be completed. Final grade of the ROW will be restored and the permanent water bars will be installed.

The pipeline trench will be excavated across the field logging roads from Sta#316+69 to Sta#321+00. The trench bottom will be prepared by installing earth filled bags in the bottom of the trench to protect the pipe from any rocks or debris lying in the bottom of the trench. Approximately 450ft of the 20"OD steel line pipe will be strung, bent, welded, x-rayed and coated in one single continuous pipe section beside the previously excavated trench. The 450ft pre-fabricated section will be secured with pipe to sub-grade dead man anchors to ensure the pipe will remain in place until the lowering in operation of the pre-fabricated pipe section begins. The pre-fabricated steel line pipe section will then be inspected for coating holidays. Then the pre-fabricated 20"OD steel line pipe section will be lowered in to the previously excavated trench. The 20"OD steel line pipe field logging road pipe section will be tied in welded to the previously installed steep slope 20"OD steel line pipe section at Sta#316+69. The tie in weld will be x-rayed, coated, and inspected for holidays. Excavator shaker

buckets will be used to pad the tie in location with fine spoils to protect the pipe from any rocks or debris in the backfill material. The final tie in weld of the field logging road steel line pipe section to the 20"OD mainline will be completed at Sta#321+00. The final tie in weld will be x-rayed, coated, and inspected for coating holidays. Excavator shaker buckets will be used to pad the tie in location with fine spoils. The trench breakers will be installed at the required intervals along the recently installed 20"OD steel line pipe section. The pipe will be mechanically padded to protect the pipe from any rocks in the backfill material and the backfill of the trench will be completed. Final grade of the ROW will be restored and the permanent water bars will be installed and the final ROW restoration will be completed. The logging roads will then be able to be opened up for the any future logging operations.

Due to the abundance of rock ledges and rock outcroppings, winch tractors with 1 ¼" or larger winch cables will be utilized to enhance equipment stability when any equipment is engaged in any work being performed on the steep slope. All mobile equipment operators will ensure they wear a seat belt at all times during any steep slope construction operations.

All temporary water bars and slope breakers will be graded smooth prior to any equipment or vehicles traveling up or down the steep slope, but replaced at the end of each workday.

BLUESTONE PIPELINE PROJECT STEEP SLOPE

SITE SPECIFIC PIPELINE INSTALLATION

STA#358+25 to STA#371+20

The following pipe installation construction process will be followed during the installation of the Bluestone 20" OD Pipeline.

The pipeline ROW will be cleared and graded from Sta#358+25 to Sta#371+20 to facilitate the installation of the 20" steel line pipe. All necessary ECD's will be installed along the steep slope pipeline installation ROW. The pipeline trench will be excavated and the trench bottom will be prepared by installing earth filled bags in the bottom of the trench to protect the pipe from engaging any rocks or debris lying in the bottom of the trench. Approximately 1300ft of the 20"OD steel line pipe will be strung, bent, welded, x-rayed, and coated in one continuous pipe section, beside the previously excavated trench. The 1300ft 20"OD pre-fabricated steel pipe section will be secured with pipe to sub-grade dead man anchors to ensure the pipe section will remain in place until the lowering in operation of the pre-fabricated pipe section begins. The 20"OD pre-fabricated pipe section will then be inspected for coating holidays. Then the pre-fabricated 20"OD steel line pipe section will be lowered in to the previously excavated trench. The 20"OD steel line pipe section will then be tie in welded to the previously installed 212ft 20"OD steel line pipe stream S-BR-33 pipe section. The tie in weld will be x-rayed, coated, and inspected for coating holidays. Excavator shaker buckets will be used to pad the tie in location with fine spoils to protect the pipe from any rocks in the backfill material. The trench breakers will be installed at the required intervals along the recently installed 20"OD steel line pipe steep slope section. The pipe will be mechanically padded with fine spoils to protect the pipe from any rock in the backfill material and the backfill of the trench will be completed. The 20"OD steel line pipe steep slope section will then be tie in welded to the 20"OD steel line pipe mainline at Sta#371+20. The tie in weld will be x-rayed, coated and inspected for coating holidays. Excavator shaker buckets will be used to pad the tie in location to protect the pipe from any rocks in the backfill material. Final grade of the ROW will be restored and the permanent water bars will be installed and the final ROW restoration will be completed.

The installation of the pre-fabricated 1300ft steel line pipe section will not require any tie in welds to be performed on the steep slope.

Due to the abundance of rock ledges and rock outcroppings, winch tractors with 1 ¼" or larger winch cables will be utilized to enhance equipment stability when any equipment is engaged in any work being performed on the steep slope. All mobile equipment operators will ensure they wear a seat belt at all times during any steep slope construction operations.

All temporary water bars and slope breakers will be graded smooth prior to any equipment or vehicles traveling up or down the steep slope, but replaced at the end of each workday.