2 DESCRIPTION OF THE PROPOSED ACTION

2.1 PROPOSED FACILITIES

CIG is proposing to expand its existing pipeline system in Weld, Adams, and Morgan Counties, Colorado. An overview map showing the Project location is provided in figure 2.1-1. Detailed maps showing the proposed pipeline routes and aboveground facility locations are provided in appendix B.

2.1.1 Pipeline Facilities

The natural gas pipeline facilities proposed by CIG would consist of a total of about 163.7 miles of 24-and 30-inch-diameter pipeline in Weld, Adams, and Morgan Counties, Colorado. The pipelines would include:

- Line 250A – 84.8 miles of 24- and 30-inch-diameter pipeline in Weld and Adams Counties;
- Line 251A – 57.9 miles of 24-inch-diameter pipeline in Weld, Adams, and Morgan Counties;
- Line 252A – 14.9 miles of 30-inch-diameter pipeline in Weld County; and
- Line 253A – 6.1 miles of 24-inch-diameter pipeline in Adams County.

Table 2.1.1-1 lists the pipelines by name, pipe diameter, milepost (MP), length, and county.

Table 2.1.1-1 – Pipeline Facilities

Facility	Pipe Diameter (inches)	MP Range	Length (miles)	County
Line 250A	30	0.0 – 64.5	64.5	Weld
	24	64.5 – 72.2	7.7	Weld
	24	72.2 – 84.8	12.6	Adams
Line 251A	24	0.0 – 33.7	33.7	Adams
	24	33.7 – 37.0	3.3	Weld
	24	37.0 – 57.9	20.9	Morgan
Line 252A	30	0.0 – 14.9	14.9	Weld
Line 253A	24	0.0 – 6.1	6.1	Adams

Line 250A would operate at a maximum allowable operating pressure (MAOP) of 1,000 pounds per square inch gauge (psig). Lines 251A, 252A, and 253A would operate at a MAOP of 1,200 psig.

2.1.2 Aboveground Facilities

The aboveground facilities for the Project would include:

- 10 meter stations at eight sites in Weld, Adams, and Morgan Counties;
- 12 pig launchers/receivers at 10 sites in Weld, Adams, and Morgan Counties; and
- 19 MLVs at 17 sites in Weld, Adams, and Morgan Counties.

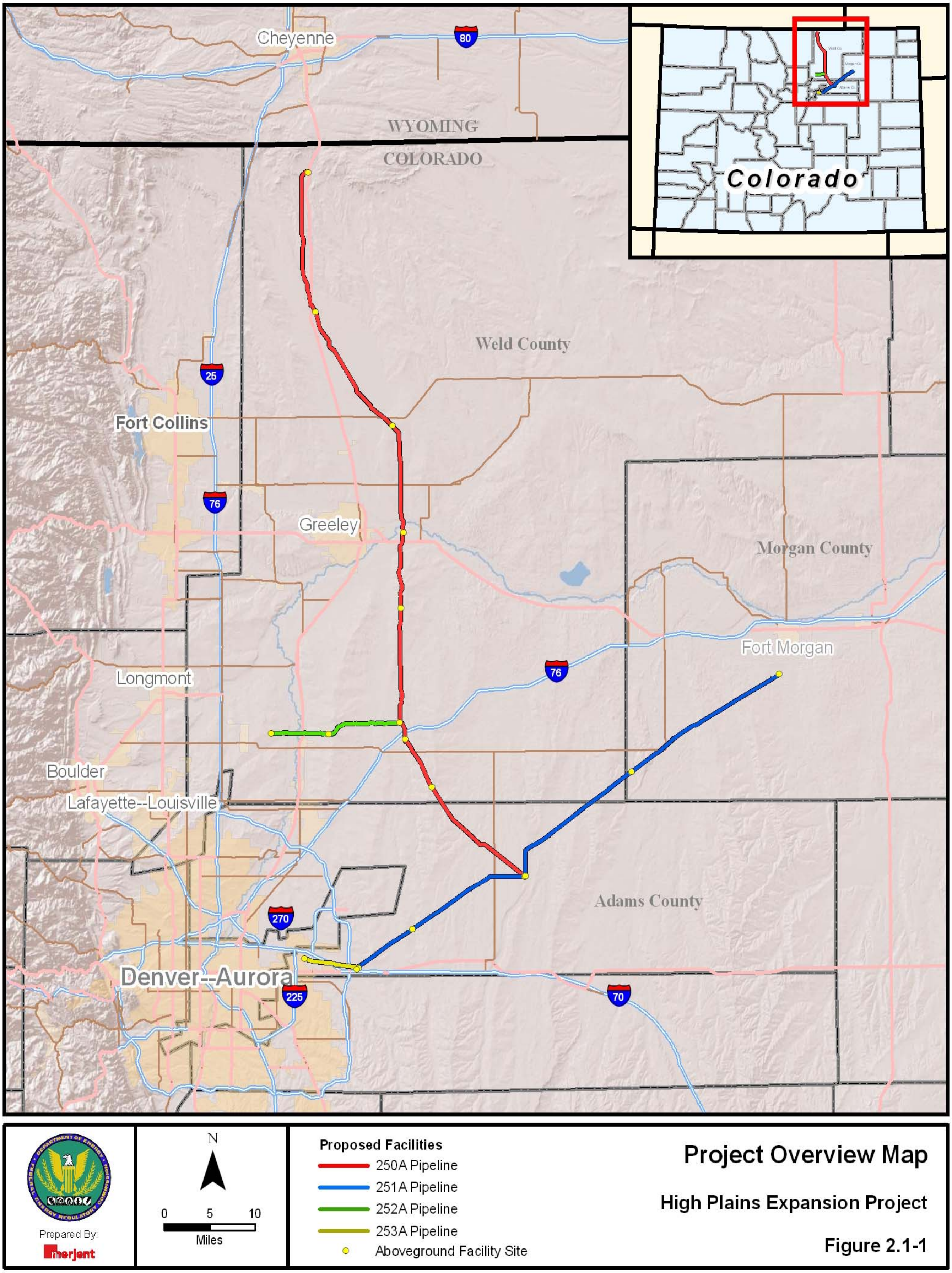
Cheyenne
WYOMING
COLORADO
Colorado
Weld County
Fort Collins
Greeley
Morgan County
Fort Morgan
Longmont
Boulder
Lafayette--Louisville
Adams County
Denver--Aurora
80
25
76
270
225
70
N
0 5 10
Miles
Prepared By:
merjent
Proposed Facilities
250A Pipeline
251A Pipeline
252A Pipeline
253A Pipeline
Aboveground Facility Site
Project Overview Map
High Plains Expansion Project
Figure 2.1-1

Table 2.1.2-1 lists the facilities by associated pipeline, MP, approximate construction workspace dimensions, collocated existing facility (if any), and county.

Table 2.1.2-1 – Aboveground Facilities

Associated Pipeline / Aboveground Facilities	MP	Approx. Dims. (feet)	Collocated with Existing Facility[a]	County
LINE 250A				
2 Meter Stations, 1 Launcher, 1 MLV	0.0	200 x 200	Cheyenne CS	Weld
1 MLV	15.7	45 x 75		Weld
1 MLV	30.8	45 x 75		Weld
1 MLV	42.4	45 x 75		Weld
1 MLV	50.4	45 x 75		Weld
1 Launcher, 1 Receiver, 1 MLV	62.5	200 x 200		Weld
1 Meter Station	64.5	200 x 200		Weld
1 MLV	70.6	45 x 75		Weld
1 Meter Station, 1 Receiver, 1 MLV	84.8	400 x 400		Adams
LINE 251A				
1 Meter Station, 1 Launcher, 1 MLV	0.0	200 x 200	Watkins CS	Adams
1 MLV	7.4	45 x 75		Adams
1 Launcher, 1 Receiver, 3 MLVs[b]	21.5	NA		Adams
1 MLV	38.5	45 x 75		Morgan
2 Meter Stations, 1 Receiver, 1 MLV	57.9	400 x 400		Morgan
LINE 252A				
1 Launcher[c]	0.0	NA		Weld
1 MLV	8.3	45 x 75		Weld
1 Meter Station, 1 Receiver, 1 MLV	14.9	200 x 200		Weld
LINE 253A				
1 Launcher, 1 MLV	0.0	200 x 200	Watkins CS	Adams
1 Meter Station, 1 Receiver, 1 MLV	6.0	200 x 200	East Denver MS	Adams
EXISTING LINES 2A & 2B				
1 Meter Station	228.8	25 x 207	Watkins CS	Adams

[a] CS = Compressor Station; MS = Meter Station

[b] These aboveground facilities would be installed at the same site as the aboveground facilities on Line 250A at MP 84.8.

[c] These aboveground facilities would be installed at the same site as the aboveground facilities on Line 250A at MP 62.5.

2.2 LAND REQUIREMENTS

Construction of the proposed Project would disturb about 2,683.1 acres of land, including the pipeline construction right-of-way (1,984.1 acres), temporary extra workspaces (297.8 acres), contractor/pipe storage/offloading yards (145.4 acres), access roads (208.2 acres), and aboveground facility sites (47.6 acres). Table 2.2-1 summarizes the land requirements for the proposed Project. A detailed description and breakdown of land requirements and use is presented in section 4.7.

Table 2.2-1 – Summary of Land Requirements

Facility	Land Affected During Construction (acres)	Land Affected During Operation (acres)
PIPELINE FACILITIES		
Construction Right-of-Way	1,984.1	993.2
Temporary Extra Workspace	297.8	0.0
Contractor, Storage, Offloading Yards	145.4	0.0
Access Roads	208.2[a]	0.0
	2,635.5	993.2
ABOVEGROUND FACILITIES		
Meter Stations, Launchers/Receivers, MLVs	47.6	14.5[b]
	2,683.1	1,007.7

[a] Farm or ranch roads or two-track trails may (or may not) require grading, filling, or widening to make them passable or to maintain them in a drivable condition

[b] Includes 3.7 acres for aboveground facilities located inside existing CIG compressor and meter stations.

Of the 2,683.1 acres of land required for construction, about 1,007.7 acres would be required for operation. Of this total, about 993.2 acres would be for the pipeline permanent right-of-way and 14.5 acres would be for the aboveground facilities. The remaining 1,675.4 acres of land would be restored and allowed to revert to former use.

About 5 percent of the land affected by construction and operation of the proposed Project would be on public lands owned by the State of Colorado (3 percent) and local governments (2 percent). The remainder of land (95 percent) that would be affected by the proposed Project is privately owned (see section 4.7.2).

2.2.1 Pipeline Right-of-Way and Additional Construction Work Areas

About 80.1 miles (49 percent) of the pipeline would be constructed on new right-of-way. The remaining 83.6 miles (51 percent) would be constructed adjacent to existing pipeline, powerline, fiber optic line, road, and railroad rights-of-way. Table 2.2.1-1 identifies where the proposed Project pipeline right-of-way would be along an existing right-of-way by MP, the existing right-of-way company/owner and type of right-of-way, the length of adjacent construction, the offset of the proposed pipeline to the existing easement, the overlap of the proposed construction workspace onto the existing easement, and the overlap of the proposed permanent pipeline easement onto the existing easement.

CIG would use a 100-foot-wide construction right-of-way for the majority of the pipeline route. A 75-foot-wide construction right-of-way would be used in non-agricultural wetlands. CIG would retain a 50-foot-wide permanent right-of-way centered on the pipeline for operation. Figures 2A through 2E in appendix C illustrate typical right-of-way layouts.

In addition to the construction right-of-way, CIG would require temporary extra workspaces for staging construction at the beginning and end of each pipeline segment; at wetland, waterbody, road, and railroad crossings; and in areas of rocky soils, steep slopes, and rugged terrain where additional space is typically required for spoil and/or equipment storage. The approximate locations and sizes of temporary extra workspaces identified by CIG are listed in appendix K.

Table 2.2.1-1 – Parallel Rights-of-Way

Pipeline / MP	Company	Utility Type	Pipeline Offset[a] (feet and direction)	Total Length (miles)	Const. Overlap[b] (feet)	Operation Overlap[b] (feet)	Drawing No.[c]
LINE 250A							
1.0 – 11.6	Front Range Pipeline Co.[d]	Gas Pipeline	50 East	10.6	15	0	2B
60.5 – 62.3	United Power	Powerline	50 East	1.8	44	4	2B
63.9 – 64.8	PSC	Powerline	75 West	0.9	0	0	2A
LINE 251A							
0.0 – 1.2	CIG	Gas Pipeline	35 South	1.2	25	15	2C
1.2 – 1.51	Panhandle Eastern Pipeline Co.	Gas Pipeline	35 South	0.3	25	15	2C
1.5 – 17.6	CIG	Gas Pipeline	35 South	16.1	25	15	2C
18.6 – 21.1	Encana	Gas Field Flow Line	25 South	2.5	35	25	2C-1
24.2 – 57.9	CIG	Gas Pipeline	35 East	33.7	25	15	2C
LINE 252A							
0.2 – 2.6	United Power	Powerline	35 South	2.4	0	0	2C
4.9 – 5.8	Weld County	County Road 18	50 South	0.9	15	0	2B
7.6 – 9.0	PSC	Gas Pipeline	35 South	1.4	25	15	2C
9.8 – 10.9	United Power	Powerline	35 South	1.1	35	30	2C
11.3 – 11.4	PSC	Gas Pipeline	35 South	0.1	25	15	2C
11.5 – 11.9	PSC (South Platte River)	Gas Pipeline	95 South	0.4	0	0	2A
11.9 – 13.1	PSC	Gas Pipeline	50 South	1.2	25	0	2B
13.9 – 14.8	PSC	Powerline	50 South	0.9	27	17	2B
LINE 253A							
0.3 – 2.6	PSC	Gas Pipeline	35 South	2.3	25	15	2C
3.1 – 6.0	Level 3 Communications	Fiber Optic	10-15 South	2.9	12	12	2C-1
3.1 – 6.0	Union Pacific Railroad	Railroad	175 North	2.9	100	50	2A
TOTAL							
Line 250A				13.3			
Line 251A				53.8			
Line 252A				8.4			
Line 253A				8.1			
				83.6			

[a] Offset is measured from centerline to centerline, and the direction is relative to the proposed facility.

[b] Assumes existing pipeline and utility easements are 50 feet wide.

[c] Refers to drawing numbers in appendix C where a typical layout of the pipeline relative to parallel pipelines and utilities is provided.

[d] Panhandle Eastern Pipeline Co.'s natural gas pipeline is collocated in this corridor from MP 1.2 to 1.5.

To support construction activities, CIG would use six contractor, pipe storage, and offloading yards on a temporary basis. The names and locations of yards identified by CIG are listed in appendix L.

CIG would use existing public roads to provide access to the construction right-of-way. In many cases, the roads are paved or graveled public roads and would not require modification. However, CIG plans to use some dirt roads such as farm or ranch roads or two-track trails. These roads may require grading, filling, and widening to make them passable or to maintain them in a drivable condition during construction, particularly if rain occurs and deteriorates the roads' condition. CIG indicated that one dirt access road passes through a wetland (Line 250A at MP 62.7). CIG would install a temporary rock-flume bridge across this wetland to prevent rutting and other disturbance during construction. After construction, CIG would remove the rock-flume bridge and restore the wetland to its original condition. The locations of dirt access roads are listed in appendix M.

2.2.2 Aboveground Facilities

Aboveground facilities would consist of 10 meter stations, 12 pig launchers/receivers, and 19 MLVs, all of which would be installed at 18 sites (see table 2.1.2-1). Five of these sites would be within existing CIG compressor or meter stations.

About 47.6 acres of land would be required for construction of the proposed aboveground facilities. About 14.5 acres would be required for operation. About 3.7 acres of land required for operation would be within existing CIG compressor and meter stations. All of the permanently affected area for the aboveground facility sites would be graveled and fenced. Access would be via existing roads or by driving down the proposed permanent right-of-way.

2.3 CONSTRUCTION PROCEDURES

2.3.1 Pipeline Construction Procedures

Pipeline construction typically proceeds as a moving assembly line, as shown in figure 2.3.1-1 and described below. Most activities in the construction sequence proceed at an average rate of about 3,000 to 4,000 feet per day, depending on terrain and the density and/or sensitivity of nearby development and environmental resources. Accordingly, each area along the pipeline would be subject to each phase of pipeline construction activities for a limited timeframe during the construction period. When construction conditions are ideal (*e.g.*, generally flat, few obstacles, and good weather), it is reasonable to assume that a construction spread or crew would take about six to eight weeks to work through a one-mile section of pipeline, from clearing and grading to final clean-up and restoration. Additional factors that can affect the construction duration include the weather and extent to which tie-in crews are needed to return to an area to tie-in the pipeline sections (*e.g.*, waterbody crossing).

The following subsections present a general description of the environmental inspection program that CIG would implement during construction of the project, as well as company-specific descriptions of the construction procedures that would be used.

The pipeline facilities would be designed, constructed, tested, and operated in accordance with all applicable requirements included in the U.S. Department of Transportation (USDOT) regulations in Title

Figure 2.3.1-1 – Typical Steps of Cross-country Pipeline Construction

49 CFR Part 192,[6] Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards; and other applicable federal and state regulations, including U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) requirements. These regulations are intended to ensure adequate protection for the public and to prevent natural gas pipeline accidents and failures. Among other design standards, Title 49 CFR Part 192 specifies pipeline material and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

In addition, CIG would implement most of the construction and restoration procedures identified in our Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures) (January 17, 2003 versions)[7] (see FERC website at www.ferc.gov/industries/gas/enviro/guidelines.asp). CIG has used our Plan and Procedures to develop its own project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (CIG's Plan) and Wetland and Waterbody Construction and Mitigation Procedures (CIG's Procedures) (see appendices C and D, respectively). In most instances, CIG's Plan and Procedures provide an equal or greater level of environmental protection as our Plan and Procedures. In some cases, however, CIG's Plan and Procedures are less protective and additional measures would be required to achieve the same level of protection. Differences between CIG's and our Plan and Procedures, as well as the additional measures that we recommend being incorporated into the CIG's Plan and Procedures, are addressed in sections 4.2.3, 4.3.3, and 4.4.1. CIG also developed Waste and Spill Management Specifications (Spill Plan); Best Management Practices (BMPs); a Hydrostatic Test Plan; a Reclamation Plan; and an Invasive Species Plan (see appendices E, F, G, H, and I, respectively). The Spill Plan describes the practices and procedures that CIG would implement to prevent, respond to, and clean up spills (see section 4.3.1). The BMPs describe the practices and procedures that CIG would implement to protect fish and wildlife during construction across waterbodies (see section 4.3.2). The Hydrostatic Test Plan describes the proposed water sources and discharge locations for hydrostatic testing (see section 4.3.2). The Reclamation Plan describes the practices and procedures that CIG would implement to ensure successful revegetation of disturbed areas (see section 4.4.1). The Invasive Species Plan describes the practices and procedures that CIG would implement to prevent and control infestations of noxious weeds in the proposed Project area (see section 4.4.4).

We believe the proposed project-specific environmental construction plans as modified by our recommendations in this EIS are adequate, and if implemented properly would minimize construction impacts.

Equipment Cleaning

CIG stated that it would thoroughly clean all equipment prior to arrival at the work site to prevent or minimize the spread of noxious weeds. Additionally, CIG would establish cleaning sites at known locations of noxious weed infestations, and would clean equipment operating in infested areas before moving to other locations (see drawing 2G in appendix C and the Invasive Species Plan in appendix I).

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[6] Pipe design regulations for steel pipe are contained in subpart C, Part 192. Section 192.105 contains a design formula for the pipeline's design pressure. Sections 192.107 through 192.115 contain the components of the design formula, including yield strength, wall thickness, design factors, longitudinal joint factor, and temperature derating factor, which are adjusted according to the project design conditions, such as pipe manufacture specifications, steel specifications, class location, and operating conditions. Pipeline operating regulations are contained in subpart L, Part 192.

[7] Our Plan and Procedures are a set of construction and mitigation measures that were developed in collaboration with other Federal and state agencies and the natural gas pipeline industry to minimize the potential environmental impacts of construction of pipeline projects in general. Proper implementation of our Plan and Procedures would adequately minimize construction-related impacts on soils, waterbodies, and wetlands.

Survey and Staking

Before the start of construction, land surveys would be finalized, the pipeline centerline and construction work space would be marked, and land or easement acquisition would be completed. If the necessary land or easements cannot be obtained through good faith negotiations with landowners and the project has been certificated by the Commission, CIG may use the right of eminent domain granted to it under section 7(h) of the NGA and the Rules of Civil Procedure to obtain a right-of-way.

The limits of the approved work area (*i.e.*, the construction right-of-way boundaries and extra workspaces) would be marked. Foreign pipelines and utilities would be identified during preliminary surveys. Prior to construction, contractors would contact the “Call Before You Dig” or “One Call” system to verify and mark all utilities along the project workspaces to minimize the potential for damage to other buried facilities in the area. Where there is a question as to the location of utilities, such as water, cable, gas, and sewer lines, they would be located by field instrumentation and test pits.

Existing utility lines and other sensitive resources, identified in easement agreements or by federal and state agencies, would be located and marked to prevent accidental damage during pipeline construction. Signs, as appropriate, would be posted marking these resources and any associated setbacks.

According to the National Oceanic and Atmospheric Administration, National Geodetic Survey (NGS), the NGS must be notified 90 days in advance of any activity which may disturb or destroy a geodetic control monument. At this time, no geodetic control monuments have been identified that would be disturbed or destroyed by project construction and operation.

Landowner fences would be braced and cut where they cross the construction right-of-way, and temporary gates and fences would be installed to contain livestock if present.

Clearing and Grading

A clearing crew would clear the work area of vegetation and obstacles (*e.g.*, trees, logs, brush, and rocks). Trees, brush, and shrubs within the construction corridor would be cut mechanically or by hand or scraped at or near ground level. Vegetative waste would be temporarily stored along the edge of the right-of-way before being hauled away for proper disposal.

In areas where noxious weed infestations are known to occur, vegetation would be stockpiled in the area from where it was stripped and would be off limits to construction equipment. This would be consistent with CIG’s Invasive Species Plan.

A grading crew would excavate the construction right-of-way to provide a relatively level work surface and a sufficiently wide work space for the passage of heavy construction equipment. Additional grading may be required in areas where the pipeline runs up and down steep slopes. Steep slopes often need to be flattened to accommodate to the bending limitations of the pipe. In such areas, the slopes would be cut away, and, after the pipeline is installed, reconstructed to their original contours. In areas where the pipeline would run laterally along the side of a slope, additional grading may also be required. Generally, on steep side slopes, soil from the high side of the right-of-way would be moved to the low side of the right-of-way to create a safe and level terrace. This is called side-hill construction or two-toning. After the pipeline is installed, the soil from the low side of the right-of-way would be returned to the high side, and the slope’s original contours would be restored.

Where extensive grading occurs, CIG would remove topsoil from the full width of the right-of-way and store it separately from subsoil. Topsoil would be returned to its original horizon after subsoil is backfilled in the trench.

Trenching

After topsoil is removed, the trench would be excavated by rotary trenching machines, track-mounted backhoes, or other similar equipment to a depth that provides sufficient cover over the pipeline after backfilling as required by USDOT specifications. Typically, the trench would be about 6 feet deep (to allow for about 3 feet of cover) and about 14 to 18 feet wide. In sandy, unstable soils, the trench could be considerably wider because the walls could cave or slough during trenching. Additional cover would be provided at road and waterbody crossings. Less cover would be required in consolidated rock areas (*i.e.*, 18 inches in Class 1 locations, 24 inches in Class 2, 3, and 4 areas).

CIG would separate topsoil from subsoil over the trench line along the entire Project. This would be accomplished by using the two-pass trenching technique. The first pass of trenching equipment would result in a shallow excavation to remove the topsoil only. The second pass would excavate the subsoil from the trench. The soils from each of the excavations would be placed in separate piles within construction workspace to prevent mixing, which would allow for proper restoration of the soil during the backfilling process.

Where rock or rocky formations are encountered, tractor-mounted mechanical rippers or rock trenchers would be used for fracturing the rock prior to excavation. Excavated rock would be used to backfill the trench to the top of the existing bedrock profile. CIG anticipates that it would not require any blasting to excavate rock for Project construction.

Generally, the trench would be backfilled immediately at the crossings of waterbodies, roads that are open cut, and residential areas. Where access across the trench is required, trench plugs or steel plates would be installed to permit safe crossing for livestock, vehicles, equipment, or people.

Dewatering

During periods of excessive precipitation or where high water tables are encountered, the excavated trench may collect water and may need to be dewatered. This would be done in accordance with our Plan and Procedures. Under no circumstances would heavily silt-laden water be discharged from the trench directly into wetlands or waterbodies. To the extent possible, discharges would occur in well-vegetated upland areas on stable, non-erosive surfaces. If dewatering/discharge activities must be located off the right-of-way, locations would be chosen that would minimize off-right-of-way impacts and impacts to sensitive resources. Water would often be discharged into an energy dissipating device (*e.g.*, straw bale structure/silt fencing surrounding a silt bag), or by reducing pumping rates, to minimize off-right-of-way impacts.

Pipe Stringing, Bending, and Welding

Prior to or following trenching, sections of externally coated pipe up to 80 feet long (also referred to as joints) would be transported over public road networks and authorized private access roads to the right-of-way by truck and placed or "strung" along the side of the trench in a continuous line.

After the joints of pipe are strung along the trench and before the sections of pipe are joined together by welding, individual sections of the pipe may be bent by using a track-mounted, hydraulic pipe-bending machine to tailor the shape of the pipe to conform to the contours of the terrain. Where multiple or complex bends are required, that section of the pipeline would be bent at the factory.

After the pipe joints are bent, they would be aligned, welded together into long strings, and placed on temporary supports along the edge of the trench. Welding is one of the most crucial phases of pipeline construction because the overall integrity of the pipeline depends on this process. Each weld must exhibit the same structural integrity with respect to strength and ductility as the pipe. Only experienced welders highly proficient in pipeline welding and qualified according to applicable standards would be used. Each weld would be inspected by quality control personnel to determine the quality of the weld. Governmental regulations require nondestructive testing of all welds in areas such as inside railroad or public road rights-of-way and in certain other areas. Radiographic examination is a nondestructive method of inspecting the inner structure of welds and determining the presence of defects. Contractors specializing in radiographic inspection would be hired to perform the inspections in a manner consistent with the regulations outlined in Title 49 CFR Part 192 to insure structural integrity. Welds that do not meet established specifications would be repaired or removed. Once the welds are approved, a protective coating would be applied to the welded joints.

Pipe Coating, Inspection and Repair

Pipeline used for interstate transport of natural gas is typically coated to protect it from the environment and accelerated degradation. Using coated pipeline is the modern standard. Pipe is normally mill-coated or yard-coated prior to stringing. However, the pipeline also would require a coating in the field at the welded joints where bare metal has been exposed. Prior to lowering the pipeline segment into the trench, the pipeline coating would be visually and electronically inspected to locate and repair coating faults or voids; this is commonly referred to as “jeeping” the pipe.

Lowering-in and Backfilling

Before the pipeline is lowered into the trench, the trench would be inspected to be sure it is free of rocks and other debris that could damage the pipe or protective coating. Dewatering may be necessary to inspect the bottom of the trench in areas where water has accumulated. In areas of rock, padding material such as finer grain sand, soil, or gravel would be placed in the bottom of the trench to protect the pipeline. No topsoil would be used as padding material.

The pipeline would then be lowered into the trench. Trench breakers (stacked sand bags or polyurethane foam) would be installed in the trench on slopes at specified intervals to prevent subsurface water movement along the pipeline. The trench would then be backfilled using the excavated material. If the excavated material is rocky, the pipeline would be protected with a rock shield (fabric or screen that is wrapped around the pipe to protect the pipe and coating from damage by rocks, stones, roots, and other debris) or would be covered with a more suitable fill obtained by separating suitable material from the existing, excavated trench material or from a commercial source. In irrigated land, CIG would backfill the trench to the top of the pipe and then would saturate the trench with water to compact the backfill material around and over the pipeline. Successive layers of soil would be compacted in this way, or by using mechanical means, until the trench is completely backfilled.

Tie-In Crews

Tie-in crews are self-sufficient crews that work in tandem with the construction spread. They have equipment, welders, and labor to perform a specialized task (*e.g.*, waterbody/wetland crossing, road crossing). Tie-in crews would be used in areas that would normally slow-down the main spread or in locations where construction has been skipped due to lack of access.

Hydrostatic Testing

After backfilling, the pipeline would be tested to ensure the system is capable of withstanding the operating pressure for which it was designed (see the Hydrostatic Test Plan in appendix G). This procedure is called hydrostatic testing. Test water would be pumped into each test section, pressurized to design test pressure, and maintained at that pressure for about 8 hours. Test pressures and durations would be consistent with the requirements of Title 49 CFR Part 192. If leaks are found, they would be repaired and the section of pipe retested until the required specifications are met.

The pipeline may be partitioned into separate test segments, depending on water availability and terrain conditions. Water for hydrostatic testing would be obtained from surface waters of the South Platte River through specific agreements with federal, state, and local regulations. Following testing, the hydrostatic test water would be discharged into sediment filtration/energy dissipation devices along the construction right-of-way. Test water discharges would be in accordance with CIG's Procedures and Hydrostatic Test Plan, and applicable federal, state, and local agency requirements. After completion of construction and hydrostatic testing, the pipeline would be cleaned and dried using mechanical tools (pigs) that are moved through the pipeline with pressurized, dry air. The pipeline would be internally inspected after testing to detect whether dents or other damage occurred during construction. If the pipeline fails the hydrostatic test, or if damage to the pipeline was detected during the in-line tool inspection, it would be exposed, repaired, and retested as needed.

Cleanup and Restoration

During cleanup, construction debris in the work area would be disposed of and work areas would undergo final grading and would be restored to preconstruction contours as closely as possible. Within 20 calendar days of backfilling the trench in any area, weather and soil conditions permitting, CIG would final grade all work areas so they would be restored as closely as possible to preconstruction contours. This would be consistent with the recommendation in our Plan that an applicant completes final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days of backfilling the trench (10 days in residential areas).

To compensate for settling, a mound of soil about the width of the trench and one foot high may be left over the backfilled trench in upland areas, except where the trench soils would be compacted during backfilling. Appropriately spaced breaks would be left in the mounded soil to prevent interference with groundwater runoff and irrigation. Segregated topsoil would be spread over the surface of the right-of-way and permanent erosion controls (waterbars or slope breakers) would be installed within the right-of-way, except in agricultural and pasture land where the landowner has not consented to their installation. After final grading is completed, the right-of-way would be seeded. CIG would make every effort to seed disturbed areas within 14 calendar days after final grading. Our Plan specifies that, in the absence of written recommendations from the local soil conservation authorities, all disturbed areas be seeded within 6 working days of final grading, weather and soil conditions permitting. CIG obtained written concurrence from the local soil conservation authority to extend the seeding time requirement from 6 working days to 14 calendar days. Therefore, CIG's Plan is consistent with our Plan.

Seeding would be conducted in accordance with the dates and mixes identified in section 3 of the Reclamation Plan (see appendix H). After seeding, the right-of-way would be stabilized by applying 1.5 tons per acre of weed-free straw or hay (or functional equivalent) to uncultivated, slopes with greater than 5 percent grade. Our Plan specifies a mulch rate of 2 tons per acre unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing. CIG obtained written concurrence from the local soil conservation authority to reduce the mulch rate to 1.5 tons per acre. Therefore, CIG's Plan is consistent with our Plan.

Some access roads used for construction may require grading and would be restored to their preconstruction condition, unless the property owner requests otherwise.

Markers showing the location of the pipeline would be installed at fence and road crossings in order to identify the owner of the pipeline and convey emergency information in accordance with applicable governmental regulations, including USDOT safety requirements. Special markers providing information and guidance for aerial patrol pilots would also be installed.

Post Construction Monitoring

All areas disturbed by construction would be monitored until the right-of-way surface conditions are similar to the adjacent undisturbed land and all temporary erosion control devices are removed. Agricultural areas would be monitored for at least 2 years for issues such as loss in crop productivity, soil settling, excessive soil compaction, excessive rocks, and excessive wetness. Other upland areas would be monitored for at least two full growing seasons. Upland revegetation would be considered successful when the density and cover of non-nuisance vegetation on the disturbed right-of-way are similar to the density and cover off the right-of-way. In accordance with our Procedures, wetlands would be monitored for 3 to 5 years for the reestablishment of wetland vegetation. Revegetation would be considered successful when the cover of native herbaceous and/or woody species is at least 80 percent of the total area and the diversity of native species is at least 50 percent of the diversity originally found in the wetland. CIG would repair and correct any areas where restoration and revegetation is not successful. The U.S. Army Corps of Engineers (USACE) may have additional requirements for wetland restoration and mitigation as part of its permit.

2.3.2 Special Pipeline Construction Procedures

Construction across paved roads, highways, railroads, steep terrain, waterbodies, and wetlands may require special construction techniques. These are described in general below.

Road, Highway, and Railroad Crossings

Construction across paved roads, highways, and railroads would be in accordance with the requirements of CIG's road and railroad crossing permits and approvals. They may be crossed by open-cut, bore, or horizontal directional drill (HDD).

Open Cut

Most smaller, unpaved roads and driveways would be open cut where permitted by local authorities or private owners. The open-cut method would require temporary closure of the road and establishment of detours. If no reasonable detour is feasible, at least one lane of the road being crossed would be kept open to traffic, except during brief periods when it is essential to close the road to install the pipeline. Most open-cut road crossings would be completed and the road resurfaced in 1 or 2 days. CIG would take measures at open-cut crossings to ensure safety and minimize traffic disruptions.

Bore

Major paved roads, highways, and railroads generally would be crossed by boring beneath the road (bored crossing) or railroad. Boring requires the excavation of a pit on each side of the road/railroad, the placement of boring equipment in the pit, then boring a straight-line hole under the road at least as large as the diameter of the pipe. Once the hole is bored, a prefabricated pipe section would be pushed through the borehole. For long crossings, sections may be welded onto the pipe string just before being pushed through the borehole. There would be little or no disruption to traffic at road or railroad crossings that are bored.

HDD

An HDD may also be used to cross paved road, highways, railroads, and sensitive resources. It is similar to a bore, except that the hole can follow a longer, curved path. The first step in HDD would be to drill a small diameter pilot hole from one side of the crossing to the other. As the pilot hole progresses, segments of drill pipe would be inserted into the hole to extend the length of the drill. The drill bit would be steered and monitored throughout the process until the desired pilot hole has been completed. The pilot hole then would be enlarged using several passes of successively larger reaming tools. Once reamed to a sufficient size, a prefabricated segment of pipe would be attached to the drill string on the exit side of the hole and pulled back through the drill hole toward the drill rig. There would be little or no disruption to traffic at road or railroad crossings that are bored.

Steep Terrain

Additional grading may be required in areas where the pipeline route crosses steep slopes. Steep slopes often need to be graded down to a gentler slope to accommodate pipe bending limitations. In such areas, the slopes would be cut away, and, after the pipeline is installed, reconstructed to their original contours during restoration.

In areas where the pipeline route crosses laterally along the side of a slope, cut and fill grading may be required to obtain a safe, flat work terrace. Generally, on steep side slopes, soil from the high side of the right-of-way would be excavated and moved to the low side of the right-of-way to create a safe and level work terrace. After the pipeline is installed, the soil from the low side of the right-of-way would be returned to the high side, and the slope's original contours would be restored.

In steep terrain, temporary sediment barriers such as silt fence and straw bales would be installed during clearing to prevent the movement of disturbed soil off the right-of-way. Temporary slope breakers consisting of mounded and compacted soil would be installed across the right-of-way during grading, and permanent slope breakers would be installed during cleanup. Following construction, seed would be applied to steep slopes and the right-of-way would be mulched in accordance with CIG's Plan or covered with erosion control fabric. Sediment barriers would be maintained across the right-of-way until permanent vegetation is established.

Waterbody Crossings

The Project would cross perennial and intermittent waterbodies as well as irrigation canals. No coldwater fisheries would be crossed; but, the South Platte River is considered sensitive because of special status fish known to be supported by the waterbody.

Before construction, temporary bridges would be installed across flowing waterbodies and canals to allow for equipment passage. Bridges would include clean rock fill over culverts, timber mats supported by flumes, railcar flatbeds, or other types of spans. Construction equipment would use bridges at all times, except for the equipment used by the initial clearing crew who would be allowed one pass through the waterbody before the bridge is installed. Bridges would not be installed across the South Platte River; construction equipment would move around the South Platte River using approved access roads since it is considered a sensitive waterbody. Bridges and supports would be removed immediately after restoration is complete.

In general, equipment refueling and lubricating would take place in upland areas more than 100 feet from the edges of waterbodies and their associated wetlands. There may be certain instances where equipment refueling and lubrication may be necessary in or near waterbodies. For example, stationary equipment, such as water pumps for hydrostatic test water, may need to be operated continuously on the banks of waterbodies and may require refueling in place. Section 6.1 of CIG's Spill Plan (see appendix E) addresses the handling of fuel and other potentially hazardous materials in or within 100 feet of waterbodies and wetlands.

Clearing adjacent to waterbodies and canals would involve the removal of trees and brush from the construction right-of-way and temporary extra workspaces. During clearing, CIG would install and maintain sediment barriers across the right-of-way adjacent to waterbodies and within temporary extra workspaces to minimize the potential for sediment runoff. Silt fence or straw bales located across the working side of the right-of-way may be removed during the day when vehicle traffic is present, but would be replaced each night. Alternatively, CIG may install and maintain drivable berms across the right-of-way in lieu of silt fence or straw bales.

To minimize the possibility of construction interfering with fish migration and spawning, in-stream construction in warmwater fisheries considered significant by the state would occur between June 1 and November 30. Other time windows may be used if permitted or required by federal or state agencies. The South Platte River is the only waterbody classified as a warmwater fishery that would be crossed by the Project.

CIG proposes to use the open-cut method to cross all waterbodies except irrigation canals that have flow at the time of crossing. If flow is present, CIG would use the bore method (see road crossing discussion above) or flume method (see discussion below) to construct across the irrigation canal.

<u>Open-Cut</u>

The open-cut crossing method would involve trenching through the waterbody or canal while water continues to flow through the trench area (see drawing 8 in appendix D). Prior to initiating construction across the waterbody, pipe segments for the crossing would be prefabricated in adjacent temporary extra workspaces. Trackhoes or other excavating equipment staged on one or both sides of the waterbody would dig a trench in the flowing waterbody. Where the waterbody is too wide to excavate the trench from the banks, equipment may operate from within the waterbody. Equipment operating in the waterbody would be limited to that needed to construct the crossing. Spoil excavated from the trench would be placed a minimum of 10 feet from the edge of the waterbody for temporary storage within workspaces along the construction right-of-way. The exception to this would occur at the South Platte River where spoil may be sidecast to the water's edge and within the water.

Earthen trench plugs would be left in place on both banks of the waterbody until immediately before pipe installation. This would separate the waterbody trench from the upland trench and would prevent streamflow from being diverted into the upland portions of the pipeline trench and muddy water that accumulates in the upland trench from flowing into the waterbody.

Once the trench is excavated across the waterbody, a prefabricated segment of pipe would be placed in the trench. Most pipe installed under waterbodies would be coated with concrete or equipped with set-on weights to provide negative buoyancy. The trench would then be backfilled with native streambed spoil. In a manner consistent with our Procedures, CIG would complete all in-stream work within 24 hours in minor (10 feet wide or less) waterbodies and 48 hours in intermediate (10 to 100 feet wide) waterbodies.

Flume

The flume crossing method is a dry crossing method since it would involve diverting the flow of water across the trenching area through one or more flume pipes. There would be no surface water flowing across the trench while it is excavated, the pipe installed, the trench backfilled, and the streambanks restored (see drawing 6 in appendix D). The first step in the flume crossing method would involve placing a sufficient number of adequately sized flume pipes in the waterbody to accommodate the highest anticipated flow during construction. After placing the pipes in the waterbody, sand or pea gravel bags, water bladders, or metal wing deflectors would be placed in the waterbody upstream and downstream of the proposed trench. These devices would serve to dam the stream and divert the water flow through the flume pipes, thereby isolating the water flow from the construction area between the dams. They also help to stabilize the flume pipes in place.

Leakage from the dams, or subsurface flow from below the waterbody bed, may cause water to accumulate in the isolated area between the upstream and downstream dams. If water accumulates in this area, it may be periodically pumped out and discharged into energy dissipation/sediment filtration devices, such as geotextile filter bags or straw bale structures.

Backhoes staged on both banks of the waterbody would excavate a trench under the flume pipe in the dewatered streambed. Spoil excavated from the waterbody trench would be placed or stored a minimum of 10 feet from the edge of the waterbody within workspaces along the construction right-of-way. Once the trench is excavated, a prefabricated segment of pipe would be installed beneath the flume pipes. The trench would then be backfilled with native spoil that was excavated from the waterbody bed. The banks would be stabilized before removing the dams and flume pipes and returning flow to the waterbody channel.

Dam and Pump

The dam and pump crossing method is a dry crossing method that would involve constructing temporary sand or pea gravel bag dams upstream and downstream of the proposed crossing site while using a high capacity pump to divert water from the upstream side around the construction area to the downstream side. Energy dissipation devices, such as plywood boards would be placed on the downstream side at the discharge point to prevent streambed scour.

After installing the dams and commencing pumping, a portable pump (separate from that pumping the stream flow around the construction area) may be used to pump standing water from between the dams into a dewatering structure consisting of straw bales/silt fence or into a geotextile filter bag located away from the stream banks, thereby creating a “dry” construction area.

Once the area between the dams is stable, backhoes located on both banks would excavate a trench across the stream. Spoil excavated from the trench would be stored in a straw bale/silt fence containment area located a minimum of 10 feet from the edge of the stream banks. Leakage from the dam, or subsurface flow from below the stream bed, may cause water to accumulate in the trench. As water accumulates in the trench, it may be periodically pumped out and discharged into a dewatering structure located away from the stream banks.

After trenching across the stream bed is complete, a prefabricated segment of pipe would be installed in the trench. The streambed portion of the trench would be immediately backfilled with stream bed spoil. Once restoration of the streambed is complete, the dams would be removed and normal flow would be re-established in the stream.

<u>Restoration</u>

After the pipeline is installed beneath the waterbody, restoration would begin. Waterbody banks would be restored to preconstruction contours or to a stable angle of repose. Rock riprap or gabion baskets (rock enclosed in wire bins) may be installed on steep waterbody banks in accordance with permit requirements. More stable banks would be seeded with native grasses and mulched or covered with erosion control fabric. Waterbody banks would be temporarily stabilized within 24 hours of completing in-stream construction. Sediment barriers, such as silt fence and/or straw bales or drivable berms would be maintained across the right-of-way at all waterbody approaches until permanent vegetation is established. Temporary equipment bridges would be removed following the completion of pipeline construction.

Wetland Crossings

Pipeline construction across unsaturated wetlands would be similar to typical conventional upland cross-country construction procedures, with several modifications and limitations to reduce the potential impact on wetland hydrology and soil structure.

In non-agricultural wetlands, CIG would typically use a 75-foot-wide construction right-of-way. Temporary extra workspaces would be required on both sides of wetlands to stage construction, fabricate the pipeline, and store materials. The temporary extra workspaces would be in upland areas a minimum of 50 feet from the wetland edge except where adjacent uplands consists of actively cultivated or rotated cropland or other disturbed land. In agricultural wetlands, CIG would use the typical 100-foot-wide construction right-of-way and would implement the construction and restoration procedures identified in CIG's Plan for construction in agricultural land.

Construction equipment working in wetlands would be limited to that needed for clearing the right-of-way, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the right-of-way. In areas where there is no reasonable access to the right-of-way except through wetlands, non-essential equipment would be allowed to travel through wetlands only if the ground is firm enough or has been stabilized to avoid rutting. Otherwise, non-essential equipment would be allowed to travel through wetlands only once.

Clearing of vegetation in wetlands would be limited to trees and shrubs, which would be cut flush with the surface of the ground and removed from the wetland. To avoid excessive disruption of wetland soils and the native seed and rootstock within the wetland soils, stump removal, grading, topsoil segregation (in unsaturated wetlands), and excavation would be limited to the area immediately over the trench line. However, stump removal and grading may occur in other workspaces for safety during construction. During clearing, sediment barriers, such as silt fence and staked straw bales, would be installed and maintained adjacent to wetlands and within temporary extra workspaces as necessary to minimize the potential for sediment runoff. Sediment barriers would be installed across the full width of the construction right-of-way at the base of slopes adjacent to wetland boundaries. Silt fence or straw bales installed across the working side of the right-of-way would be removed during the day when vehicle traffic is present and would be replaced each night. Alternatively, drivable berms may be installed and maintained across the right-of-way in lieu of silt fence or straw bales if they are adequate to control the movement of sediment into the wetlands. Sediment barriers would also be installed within wetlands along the edge of the right-of-way, where necessary, to minimize the potential for sediment to run off the construction right-of-way and into undisturbed wetland areas outside the work area.

Temporary trench plugs may be left in the trench at the edge of the wetland if there is a significant possibility of water flowing down the trench and into the wetland. The temporary trench plugs would minimize the discharge of sediment into the wetland from the upland ditch. If trench dewatering is necessary in wetlands, silt-laden trench water would be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale structure, to minimize the potential for erosion and sedimentation into the wetland.

The method of pipeline construction used in wetlands would depend largely on the stability of the soils at the time of construction. If wetland soils are not saturated at the time of construction and can support construction equipment on equipment mats or timber riprap, construction would occur in a manner similar to conventional upland cross-country construction techniques. In unsaturated wetlands, topsoil from the trench line would be stripped and stored separately from subsoil. Where wetland soils are saturated and/or inundated, the pipeline may be installed using the push-pull technique. The push-pull technique would involve stringing and welding pipe outside of the wetland to develop a prefabricated section of pipeline and excavating the trench using a backhoe supported by equipment mats or timber riprap. The prefabricated pipeline would be installed in the wetland by equipping it with buoys and pushing or pulling it across the water-filled trench. After the pipeline is floated into place, the floats would be removed and the pipeline would sink into place. Then the trench would be backfilled by a backhoe supported by equipment mats or timber riprap. Most pipe installed in saturated wetlands would be coated with concrete or equipped with set-on weights to provide negative buoyancy.

Original topographic conditions and contours would be restored after completion of construction. Because little or no grading would occur in wetlands, restoration of contours would be accomplished during backfilling. Prior to backfilling, trench breakers would be installed at the base of slopes near the boundary between the wetland and adjacent upland areas and where necessary to prevent the subsurface drainage of water from wetlands. Where topsoil has been segregated from subsoil, the subsoil would be backfilled first, followed by the topsoil. Topsoil would be replaced to the original ground level leaving no crown over the trench line. In some areas where wetlands overlie rocky soils, the pipe would be padded with rock-free soil or sand before backfilling with native bedrock and soil. Equipment mats, timber riprap, gravel fill, geotextile fabric, and/or straw mats would be removed from wetlands following backfilling.

Permanent slope breakers would be constructed across the right-of-way in upland areas adjacent to the wetland boundary where wetlands are at the base of slopes with greater than 5 percent grade and where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. Temporary sediment barriers would be installed where necessary until revegetation of adjacent upland areas is successful. Once revegetation is successful, temporary sediment barriers would be removed from the right-of-way and disposed of properly.

In non-agricultural wetlands where no standing water is present, the construction right-of-way would be seeded in accordance with the recommendations of the local soil conservation authorities, or in the absence of recommendations, with annual ryegrass at a rate of 40 pounds per acre. Annual rye grass would provide temporary cover while allowing native herbaceous and woody vegetation to become reestablished without excessive competition. Lime, mulch, and fertilizer would not be used in wetlands.

To minimize wetland impacts, CIG would implement the measures described in its Procedures (appendix D) as modified and described in section 4. We believe they are adequate and would minimize impacts to wetland resources.

Powerlines

The proposed pipelines would be constructed adjacent to or within powerline rights-of-way as identified in section 2.2.1. Safety and design considerations for construction under or near powerlines are addressed on a federal level in 29 CFR 1910.269 (Electric Power Generation, Transmission and Distribution), 29 CFR 1926.950-960 (Power Transmission and Distribution), 29 CFR 1926.416 (Electrical Safety Related Practices), and 29 CFR 1926.550 (Cranes and Derricks). These regulations establish safe clearances for equipment and personnel working near powerlines as well as precautionary actions that must be taken to protect equipment and personnel from electric shock.

Although construction techniques would not significantly differ from those described above, additional special construction, maintenance, and operating procedures would be implemented to minimize risk to workers, the pipeline, and the powerline. These procedures can include specialized training for workers, maintaining minimum distances between power structures and lines, providing grounding equipment on all construction vehicles, and additional monitoring of construction equipment operating within powerline rights-of-way. Additionally, the powerline company may request that CIG use additional precautions to minimize the potential for damage to the powerline structures and associated facilities, and possible power outages. Therefore, **we recommend that:**

- **Where the proposed pipelines would be constructed adjacent to or within powerline rights-of-way, CIG consult with the affected powerline companies and develop measures for construction and operation in the vicinity of powerlines. These measures should be filed with the Secretary prior to construction.**

Residential and Commercial Areas

Construction within residential areas or in close proximity to homes may require special construction techniques to accommodate limited workspace and to minimize disturbance to residents and structures. CIG's construction workspace would be within 50 feet of three residential structures, within 25 feet of a restaurant, and cross two heavily developed commercial/industrial areas. The locations of these areas are described in section 4.7.3.

In order to minimize impacts to residential and commercial areas, and as described further in section 4.7.3, we recommend that CIG develop a Residence and Business Construction Mitigation Plan (R&BCM Plan) to be implemented as-needed during construction.

2.3.3 Aboveground Facility Construction Procedures

Aboveground facilities would consist of 10 meter stations, 12 pig launchers/receivers, and 19 MLVs, all of which would be installed across 18 separate sites (see table 2.1.2-1). Five of the sites would be within existing CIG compressor or meter stations; eight would be within the permanent pipeline right-of-way; and the remaining five would be new sites that either straddle, or are adjacent to the permanent right-of-way. Two of the remaining five sites would be collocated with other new sites that straddle or are adjacent to the permanent right-of-way.

The first step of construction would be to clear the sites of vegetation where the new facilities would be constructed. Clearing would be followed by grading the terrain to the extent necessary to install the facility and provide a level platform and sufficient space to execute the work safely. The area would be prepared for building and other structural foundations. After grading, silt fence and/or straw bales would be installed where necessary to minimize soil runoff and sedimentation outside construction workspaces. Typically, the procedures used in aboveground facility construction include installing electric service, installing underground piping, erecting buildings, installing piping inside the buildings, inspecting and testing the piping, and inspecting and testing the control equipment.

After the completion of testing, or as soon as weather permits, the disturbed areas that would become part of the operating aboveground facility would be final graded, graveled, and fenced. Temporary workspaces would be restored to pre-construction contours using similar techniques as discussed for pipeline workspace restoration. Some site modifications (*e.g.*, re-contouring) may be required to provide sufficient drainage and site access.

2.4 CONSTRUCTION SCHEDULE

CIG proposes beginning construction in January 2008 and complete construction by October 2008. CIG would place each pipeline segment in service as it is completed. Consistent with other FERC-regulated pipeline projects, CIG would be required to obtain approval to begin service on each pipeline segment.

2.5 ENVIRONMENTAL COMPLIANCE INSPECTION AND MITIGATION MONITORING

To ensure that construction of the proposed facilities would comply with mitigation measures identified in CIG's application, the FERC Certificate, and other permits, CIG would employ at least one Environmental Inspector (EI) on each construction spread during construction and restoration. EIs would report to the Chief Inspector (CI) who would have overall authority over construction, but would have peer status with all other activity inspectors. EIs would have the authority to stop activities that violate the environmental conditions of the FERC Certificate, other permits, or landowner requirements, and to order appropriate corrective action. At a minimum, the EIs would be responsible for:

- ensuring and documenting compliance with the requirements of CIG's Plan, Procedures, Spill Plan, BMPs, Hydrostatic Test Plan, Reclamation Plan, Invasive Species Plan, the environmental conditions of the FERC Certificate, the mitigation measures proposed by CIG (as approved and/or modified by the certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements;

- identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

- verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;

- verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, noxious weed infestations, and areas with special requirements along the construction work area and confirming that the appropriate resource monitoring is being conducted to protect these areas;

- verifying that equipment and vehicles have been cleaned prior to arrival at the work site, and are cleaned after working in areas of known noxious weed infestations before moving on to other areas;

- identifying erosion/sediment control and soil stabilization needs in all areas;

- ensuring that the location of dewatering structures and slope breakers would not direct water into known cultural resources sites or locations of sensitive species;

- verifying that hydrostatic test dewatering structures are located at approved discharge sites;

- verifying that trench and hydrostatic test dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetland or waterbody. If such deposition is occurring, the dewatering activity would be stopped and the design of the discharge would be changed to prevent recurrence;

- ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;

- documenting that trench spoil has been properly water-packed in irrigated land;

- advising the CI when conditions (such as wet weather) make it advisable to restrict construction activities to avoid excessive rutting;

- documenting that materials and wastes are properly handled, stored, transported and disposed of in accordance with the Spill Plan;

- documenting that spills are controlled, contained, and cleaned up in accordance with the Spill Plan;

- ensuring restoration of contours and topsoil;

- verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;

- determining the need for and ensuring that temporary erosion controls are properly installed as necessary to prevent sediment flow into wetlands, waterbodies, sensitive areas, and onto roads;

- documenting that seeding, fertilizing, mulching, and tree and shrub planting are carried out in accordance with the Reclamation Plan;

- inspecting and ensuring the maintenance of temporary erosion control measures at least:

  - on a daily basis in areas of active construction or equipment operation;

  - on a weekly basis in areas with no construction or equipment operation; and

  - within 24 hours of each 0.5 inch of rainfall;

- ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification;

- keeping records of compliance with the environmental conditions of the FERC Certificate, and the mitigation measures proposed by CIG in the application submitted to the FERC, and other federal, state, or local environmental permits during active construction and restoration; and

- identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase.

After construction, CIG would conduct follow-up inspections of all disturbed areas after the first and second growing seasons to determine the success of revegetation. Revegetation would be considered successful in agricultural areas if crop yields are similar to adjacent undisturbed portions of the same field. In other areas, revegetation would be considered successful if, upon visual survey, the density and cover of non-nuisance vegetation is similar in density and cover to adjacent undisturbed lands. In all cases, construction debris must be removed (unless requested otherwise by the landowner or land management agency) and proper drainage must be restored. CIG would submit quarterly reports to the FERC for at least two years following construction documenting any problems identified by CIG or landowners and describing the corrective actions taken to remedy those problems.

For a period of at least three years after construction, CIG would monitor the proposed Project area annually for noxious weed infestations. Areas where noxious weeds are noted would be further evaluated to determine if remedial action or treatment is necessary. Treatment may involve mechanical means (*e.g.*, mowing or disking) and/or herbicide application. Treatment methods would be based on site-specific conditions and would be coordinated with the landowner and appropriate federal, state, and local regulatory authorities.

After construction, the FERC would continue to conduct oversight inspection and monitoring. If it is determined that any of the proposed monitoring time frames are not adequate to assess the success of restoration, CIG would be required to extend its post-construction monitoring programs.

As the lead federal agency for the proposed Project, the FERC may impose conditions on any Certificate granted for the proposed Project. These conditions could include additional requirements and mitigation measures identified in this EIS to minimize the environmental impact that would result from the construction of the proposed Project (see section 5.0). We would recommend to the Commission that these additional requirements and mitigation measures (offset with bold type in the text) be included as specific conditions to any approving Certificate issued for the proposed Project. If it approves the proposed Project, the FERC will require CIG to implement the construction procedures and mitigation measures that CIG has proposed as part of the Project unless specifically modified by other Certificate conditions.

We recognize that during or after construction, issues or complaints may develop that were not addressed during the environmental proceedings at the Commission and it is imperative that landowners continue to have an avenue to contact CIG's representatives. We are interested in ensuring that landowner issues and complaints received during construction are resolved in a timely and efficient manner (if the proposed Project is approved). Therefore, **we recommend that:**

- **CIG develop and implement an environmental complaint resolution procedure. The procedure should provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Project and restoration of the right-of-way. Prior to construction, CIG should mail the complaint procedures to each landowner whose property would be crossed by the Project.**

  a. In its letter to affected landowners, CIG should:

  (1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;

  (2) instruct the landowners that if they are not satisfied with the response, they should call CIG's Hotline; the letter should indicate how soon to expect a response; and

(3) instruct the landowners that if they are still not satisfied with the response from CIG's Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030, or at hotline@ferc.gov.

b. In addition, CIG should include in its weekly status report a copy of a table that contains the following information for each problem/concern:

(1) the date of the call;

(2) the identification number from the certificated alignment sheets of the affected property and approximate location by MP;

(3) the description of the problem/concern; and

(4) an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.

2.6 OPERATION, MAINTENANCE, AND SAFETY CONTROLS

CIG stated that it would operate the pipeline facilities in compliance with USDOT regulations at Title 49 CFR Part 192, and would implement a comprehensive operations and maintenance program for the proposed facilities. The purpose of this program would be to prevent operational incidents and to effectively respond to any incident that may occur. CIG's program would include cleaning of the pipeline itself, corrosion control, leak inspection surveys, repair, and regularly scheduled aerial and ground patrols of the pipeline right-of-way.

The proposed facilities would be automated and no additional permanent employees would be added to operate the new pipeline or aboveground facilities. Current permanent employees would perform operational and maintenance tasks on the system. CIG would maintain 24-hour emergency response capabilities, including an emergency-only phone number, which accepts collect charges. The number would be included in informational mail-outs, posted on all pipeline markers, and provided to local emergency agencies in the vicinity of the pipeline.

The pipeline facilities would be clearly marked at line-of-sight intervals and at crossings of roads, railroads, and other key points. The markers would clearly indicate the presence of the pipeline and provide a telephone number and address where a company representative could be reached in the event of an emergency or prior to any excavation in the area of the pipeline by a third party. CIG would participate in all existing "One Call" systems. CIG representatives would visit any nearby construction site and mark the location of its underground facilities.

CIG operating personnel would be trained in detection of natural gas, emergency shutdown procedures, and blow-off/blow-down procedures to reduce line pressure in the event of an emergency. Each MLV installed on the pipeline would be equipped with valve actuators, some of which would be monitored and controlled remotely from the central control facility. However, operations personnel also would be able to close valves manually to stop the flow of gas. A telemetry system would notify personnel locally and at the gas control headquarters of the activation of safety systems and alarms, who would in turn instruct maintenance personnel to investigate and take proper corrective action. The proposed Project's operations facilities along the route have been located to facilitate all pipeline operations, including emergency response.

CIG stated that its representatives would work with the emergency services departments of the municipalities and counties along its pipeline facilities. Fire and safety equipment would be maintained along the pipeline system, and project personnel and local emergency response groups would be trained in response procedures. CIG personnel would consult with local fire departments and emergency response agencies to determine if additional equipment, training, and support are needed and provide additional training and preparedness support where the needs are identified. CIG would provide these departments with the 24-hour emergency numbers and verbal, written, and mapping descriptions of the pipeline system. Project representatives would meet with all local emergency service units on an on-going basis.

During construction, an external fusion-bonded epoxy coating would be applied to the pipeline and all buried facilities to protect against corrosion. Cathodic protection of the pipeline would be installed with impressed current systems that employ rectifier/groundbed systems. Rectifier units would be installed along the pipeline and aboveground test stations would be installed at various locations along the pipeline to gather accurate information for potential current adjustments. The cathodic protection system would be regularly monitored and the required pipe-to-soil potential would be maintained in accordance with USDOT requirements.

In order to maintain accessibility of its pipelines and aboveground facilities and to accommodate USDOT mandated pipeline integrity surveys, vegetation along the pipeline right-of-way would be periodically cleared from the permanent right-of-way as described in CIG's Plan and Procedures (appendices C and D). In most areas, the permanent right-of-way would be maintained in an herbaceous state.

CIG would periodically conduct integrity surveys of its pipeline and aboveground facilities in compliance with USDOT requirements. Inspections would be conducted by air, on the ground, and from inside the pipeline. Surveys by air would involve flying over the system to visually inspect the pipeline for leaks, third-party encroachment (*e.g.*, landowners building permanent structures on the permanent right-of-way), and potential damage. Surveys on the ground would typically involve walking along the right-of-way to visually examine the pipeline corridor and to record soil and other conditions that can provide insight into the condition of the pipeline. Surveys performed from inside the pipeline would use "smart pigs" propelled through the pipeline to record information about the condition of the pipeline. Where problems are evident from surveys, further investigations and repairs would be made.

2.7 FUTURE PLANS AND ABANDONMENT

CIG currently has no plans for future expansion of the proposed facilities. CIG stated that it is continually working with shippers to serve natural gas transportation requirements, and that market forces would determine the timing and need for expansion. Should facilities be expanded or abandoned, a FERC authorization would be required and an appropriate environmental analysis would be conducted. The expansion or abandonment would be subject to applicable federal, state, and local regulations in effect at that time.