Appendix E

ELBA EXPRESS PIPELINE PROJECT
UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

ELBA EXPRESS COMPANY'S
UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

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ELBA EXPRESS COMPANY'S UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

I. APPLICABILITY

A. Elba Express Company, LLC (EEC)'s Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) for the Elba Express Pipeline Project is based upon the Federal Energy Regulatory Commission's (FERC's) Upland Erosion Control, Revegetation, and Maintenance Plan published in January 2003 (FERC Plan). The FERC Plan states that project sponsors should specify in their applications for a FERC Certificate (Certificate) any individual measures in the FERC Plan they consider unnecessary, technically infeasible, or unsuitable due to local conditions and fully describe any alternative measures they would use. Applicants should also explain how those alternative measures would achieve a comparable level of mitigation. As such, EEC has identified exceptions for the Elba Express Pipeline Project in bold text throughout this document.

If the Elba Express Pipeline Project is certificated, further changes to EEC's Plan may be approved by the Director of the Office of Energy Projects (Director), upon the applicant's written request, if the Director agrees that an alternative measure:

1 provides equal or better environmental protection;
2 is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or
3 is specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Project-related impacts on wetland and waterbody systems are addressed in EEC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

II. SUPERVISION AND INSPECTION

A. ENVIRONMENTAL INSPECTION

1. EEC will provide at least one Environmental Inspector for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread will be appropriate for the length of the construction spread and the number/significance of resources affected.

2. Environmental Inspectors shall have peer status with all other activity inspectors.

3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the Certificate, state and Federal environmental permit conditions, or landowner requirements; and to order appropriate corrective action.

B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Ensuring compliance with the requirements of EEC's Plan, EEC's Procedures, the environmental conditions of the Certificate authorization, the mitigation measures proposed by EEC (as approved and/or modified by the Certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements.

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;

4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;

5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the location of dewatering structures and slope breakers will not direct water into known cultural resources sites or locations of sensitive species;

7. Verifying that trench 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 shall be stopped and the design of the discharge shall be changed to prevent reoccurrence;

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

9. Advising the Chief Construction Inspector when conditions (such as wet weather) make it advisable to restrict construction activities to avoid excessive rutting;

10. Ensuring restoration of contours and topsoil;

11. 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;

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

13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:

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

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

c. within 24 hours of each 0.5 inch of rainfall;

14. EEC will ensure the repair of all ineffective temporary erosion control measures within 24 hours of identification.

15. Keeping records of compliance with the environmental conditions of the FERC Certificate, and the mitigation measures proposed by EEC in the application submitted to the FERC, and other Federal or state environmental permits during active construction and restoration; and

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

III. PRECONSTRUCTION PLANNING

EEC shall do the following before construction:

A. CONSTRUCTION WORK AREAS

1. EEC will identify all construction work areas [e.g., construction right-of-way (ROW), extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads, etc.] that would be needed for safe construction. Appropriate cultural resources and biological surveys have been conducted.

2. EEC will expand any required cultural resources and endangered species surveys in anticipation of the need for activities outside of certificated work areas.

B. DRAIN TILE AND IRRIGATION SYSTEMS

1. EEC will attempt to locate existing drain tiles and irrigation systems.

2. EEC will contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.

3. EEC will develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.

4. EEC will engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. GRAZING DEFERMENT

EEC will develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

EEC will plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

EEC will determine methods and locations for the disposal of construction debris (e.g., timber, slash, mats, garbage, drilling fluids, excess rock, etc). Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner permission, and mitigation requirements.

F. AGENCY COORDINATION

EEC will coordinate with the appropriate local, state, and Federal agencies as outlined in this Plan and in the Certificate.

1. EEC will obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.

2. EEC will develop specific procedures in coordination with the appropriate agency to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities.

G. STORMWATER POLLUTION PREVENTION

In compliance with the June 12, 2006, amendment to 40 CFR Part 122, National Pollutant Discharge Elimination System Regulations for Discharges Associated With Oil and Gas Exploration, Production, Processing, or Treatment Operations or Transmission Facilities, EEC will apply best-management practices for construction activities to minimize erosion and control sediment to protect surface water quality during storm events.

FERC Staff Comment – This approach is reasonable and adequately justified. However, EEC's plans must be consistent with the permit requirements from other jurisdictional agencies (e.g., the COE, the GDNR, and the SCDNR), especially in reference to hydrostatic test water discharge.

IV. INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance shall be limited to the construction ROW, extra work space areas, pipe storage yards, borrow and disposal areas, access

roads, and other areas approved in the Certificate. Any project-related ground disturbing activities outside these Certificated areas, except those needed to comply with EEC's Plan and Procedures (e.g., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) will require prior Director approval. All construction or restoration activities outside of the Certificated areas are subject to all applicable survey and mitigation requirements.

2. The construction ROW width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a Certificate condition. However, in limited, non-wetland areas, this construction ROW width may be expanded by up to 25 feet without Director approval to accommodate full construction ROW topsoil segregation and to ensure safe construction where topographic conditions (such as side-slopes) or soil limitations require it. Twenty-five feet of extra construction ROW width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

   Project use of these additional limited areas is subject to landowner approval and compliance with all applicable survey and mitigation requirements. When such additional areas are used, each one should be identified and the need explained in the weekly or biweekly construction reports to the FERC, if required. The following material should be included in the reports:

   a. the location of each additional area by station number and reference to a previously filed alignment sheet, or updated alignment sheets showing the additional areas;

   b. identification of where the Commission's records contain evidence that the additional areas were previously surveyed; and

   c. a statement that landowner approval has been obtained and is available in project files.

   Prior written approval of the Director is required when the Certificated construction ROW width would be expanded by more than 25 feet.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, EEC will prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:

   a. actively cultivated or rotated croplands and pastures;

   b. residential areas;

   c. hayfields; and

d. other areas at the landowner's or land managing agency's request.

2. In residential areas importation of topsoil will be an acceptable alternative to topsoil segregation.

3. In deep soils (more than 12 inches of topsoil), EEC will segregate at least 12 inches of topsoil. In soils with less than 12 inches of topsoil EEC will make every effort to segregate the entire topsoil layer.

4. Where topsoil segregation is required, EEC will maintain separation of salvaged topsoil and subsoil throughout all construction activities.

5. Segregated topsoil will not be used for padding the pipe.

C. DRAIN TILES

1. EEC will mark locations of drain tiles damaged during construction.

2. EEC will probe all drainage tile systems within the area of disturbance to check for damage.

3. EEC will repair damaged drain tiles to their original or better condition. EEC will not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. EEC will use qualified specialists for testing and repairs.

4. EEC will ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, EEC will install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

EEC will maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. EEC will maintain safe and accessible conditions at all road crossings and access points during construction.

2. If crushed stone access pads are used in residential, or active agricultural areas, EEC will place the stone on synthetic fabric to facilitate removal.

F. TEMPORARY EROSION CONTROL

EEC will install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls will be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers

   a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction ROW. Temporary slope breakers will be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

   b. EEC will install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers will be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing (closer spacing should be used if necessary):

Slope (%)	Spacing (feet)
5 – 15	300
>15 – 30	200
>30	100

   c. EEC will direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction ROW.

   d. EEC will position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive resources.

2. Sediment Barriers

   a. Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments into sensitive resources. They may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.

   b. At a minimum, EEC will install and maintain temporary sediment barriers across the entire construction ROW at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. EEC will leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

   c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, EEC will install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

3. Mulch

   a. EEC will apply mulch on all slopes (except in actively cultivated cropland) concurrent with or immediately after seeding, where necessary

to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

b. Mulch will consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

c. EEC will mulch before seeding if:

(1) final grading and installation of permanent erosion control measures, will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

(2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

d. If mulching before seeding, EEC will increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

e. EEC will not use wood chips as mulch on the ROW.

f. EEC will ensure that mulch is adequately anchored to minimize loss due to wind and water.

g. When anchoring with liquid mulch binders, EEC will use rates recommended by the manufacturer. EEC will not use liquid mulch binders within 100 feet of wetlands or waterbodies.

h. EEC will install erosion control fabric on waterbody banks at the time of final bank recontouring. EEC will anchor the erosion control fabric with pegs, staples or other appropriate devices

V. RESTORATION

A. CLEANUP

1. EEC will commence cleanup operations immediately following backfill operations. EEC will complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, EEC will maintain temporary erosion controls (temporary slope breakers and sediment barriers) until conditions allow completion of cleanup.

EEC will file with the Secretary for the review and written approval of the Director, a winterization plan if construction will continue into the winter season

when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane will be removed and the ROW restored.

3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench will be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.

4. EEC will remove excess rock from at least the top 12 inches of soil in all actively cultivated or rotated cropland and pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area should be similar to adjacent areas not disturbed by construction. The landowner may approve other provisions in writing.

5. EEC will grade the construction ROW to restore pre-construction contours and leave the soil in the proper condition for planting.

6. EEC will remove construction debris from all construction work areas unless the landowner or land managing agency approves otherwise.

7. EEC will remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers

a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. EEC will not use topsoil in trench breakers.

b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.

c. In agricultural fields and residential areas where slope breakers are not typically required, EEC will install trench breakers at the same spacing as if permanent slope breakers were required.

d. At a minimum, EEC will install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland.

2. Permanent Slope Breakers

a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction ROW, and prevent sediment deposition into sensitive resources. Permanent slope breakers will be constructed of materials such as soil, sand bags, or some functional equivalent.

b. EEC will construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction ROW:

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

c. EEC will construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, EEC will construct appropriate energy-dissipating devices at the end of the breaker.

d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction ROW to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction ROW, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

1. EEC will test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. EEC will conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. EEC will plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, EEC will plow the subsoil before replacing the segregated topsoil.

Alternatively, EEC will make arrangements with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. EEC will perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

a. EEC will be responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.1.b.

b. EEC will restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

EEC will fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. EEC will incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as possible after application.

3. Seeding Requirements

a. EEC will prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.

b. EEC will seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in actively cultivated croplands unless requested by the landowner.

c. EEC will perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, appropriate temporary erosion control measures discussed in section IV.F. will be used and seeding of permanent vegetation at the beginning of the next recommended seeding season will be performed. Lawns may be seeded on a schedule established with the landowner.

d. In the absence of written recommendations from the local soil conservation authorities, EEC will seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a-c.

e. EEC will base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

e. EEC will treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker will be preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands EEC will offer to install and maintain measures to control unauthorized vehicle access to the ROW. These measures may include:

A. Signs;

B. Fences with locking gates;

C. Slash and timber barriers, pipe barriers, or a line of boulders across the ROW; and

D. Conifers or other appropriate trees/or shrubs across the ROW.

VII. POST-CONSTRUCTION ACTIVITIES

A. MONITORING AND MAINTENANCE

1. EEC will conduct follow-up inspections of all disturbed areas after the first and second growing seasons to determine the success of revegetation.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful if crop yields are similar to adjacent undisturbed portions of the same field.

   EEC will continue revegetation efforts until revegetation is successful.

3. EEC will monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in active agricultural areas until restoration is successful.

4. Restoration shall be considered successful if the ROW surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless

requested otherwise by the land owner or land managing agency), revegetation is successful, and proper drainage has been restored.

5. EEC will perform routine vegetation maintenance clearing not more frequently than every 3 years.

   EEC will perform annual vegetation maintenance in DOT Class 3 population centers where annual maintenance is requested by the landowner. EEC has indicated that DOT Class 3 locations or residential areas often need a more frequent interval of ROW mowing due to nuisance vegetation growth that increases aesthetic impacts as well as increases in human and nuisance fauna interaction (i.e., rats, snakes, opossums, mosquitoes, other biting insects, etc).

   In no case shall routine vegetation maintenance clearing occur between April 15 and August 1 of any year, or in areas that have been identified as protected species habitat, between March 1 and October 1.

6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and vehicle trails as necessary.

B. REPORTING

1. EEC shall maintain records that identify by milepost:

   a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;

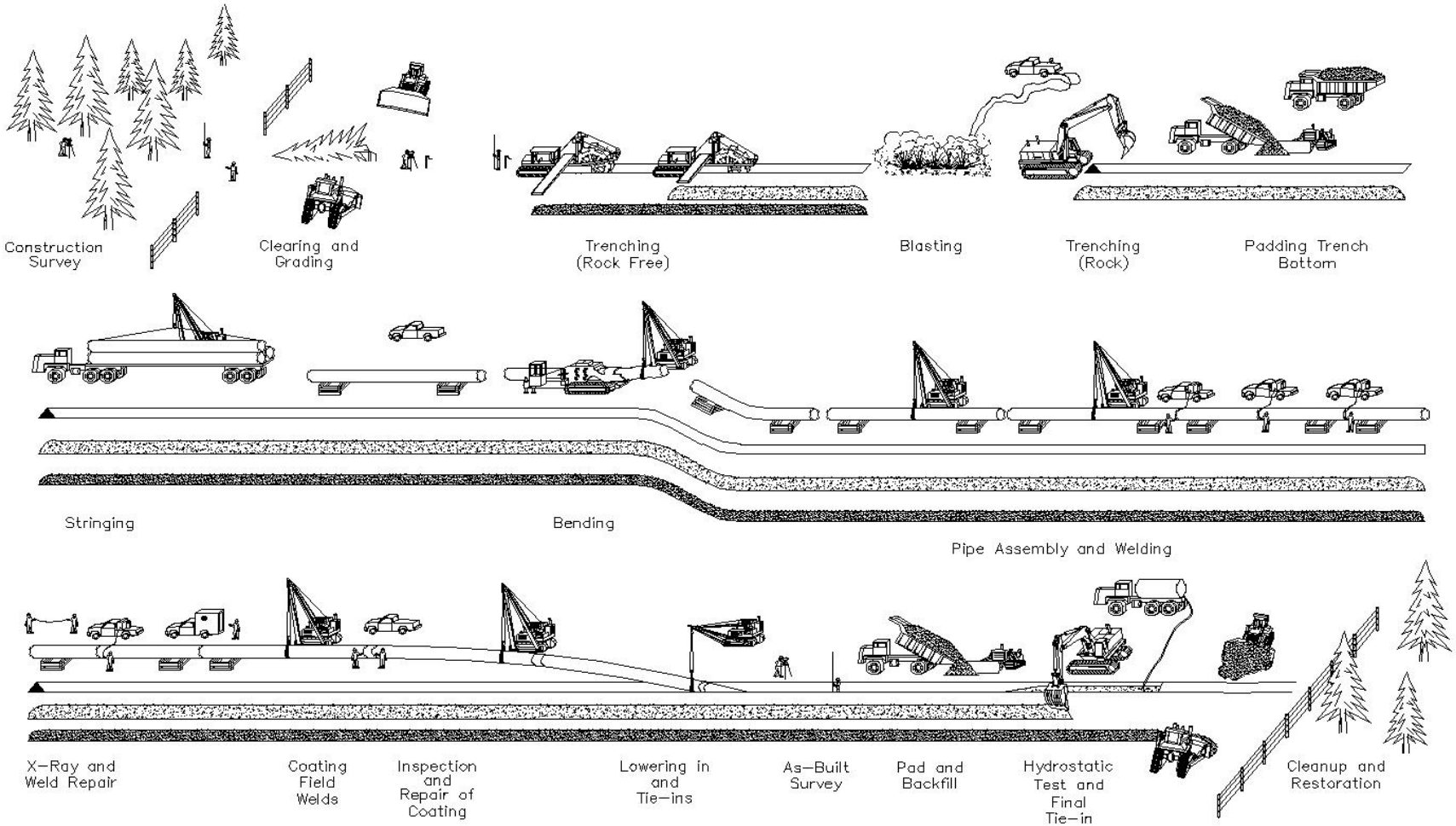
   b. acreage treated;

   c. dates of backfilling and seeding;

   d. names of landowners requesting special seeding treatment and a description of the follow-up actions; and

   e. any problem areas and how they were addressed.

2. EEC shall file with the Secretary quarterly activity reports documenting problems, including those identified by the landowner, and corrective actions taken for at least 2 years following construction.



ENG. RECORD		DATE
DRAWN BY:		
DRAWING APPROVAL		
PROJECT APPROVAL		
SURVEY DATE:		
SCALE:		
PROJECT ID:		
FILE NAME: 03687721		

TYPICAL PIPELINE CONSTRUCTION SEQUENCE

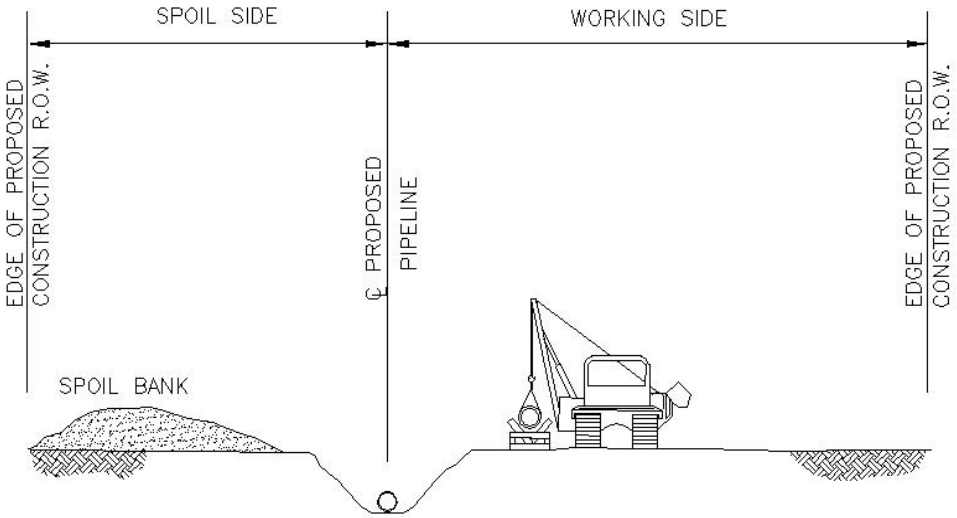
DWG. NO. PLAN – 1

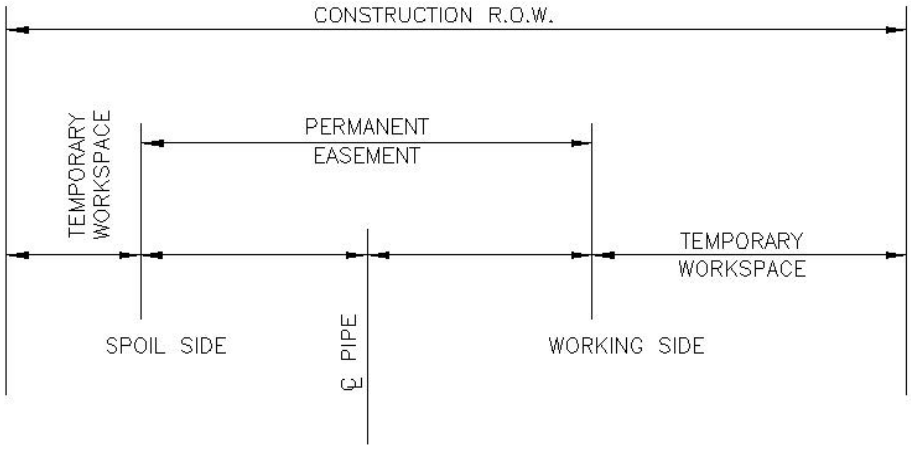
REV.

DATE	BY	DESCRIPTION	PROJ. ID	APPR.

REVISIONS

TGPLETTERLANDSCAPE (Rev. 2/01)





NOTE:

1. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE FOR CROSSINGS AND SIDE HILL SLOPE.

ENG. RECORD		DATE
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DRAWING APPROVAL		
PROJECT APPROVAL		
SURVEY DATE:		
SCALE:		
PROJECT ID:		
FILE NAME: 03687741		

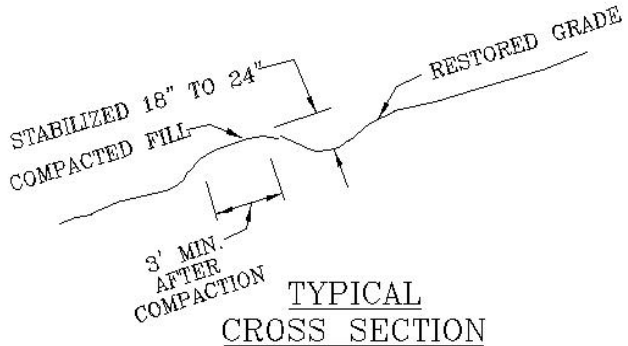
NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.

REVISIONS

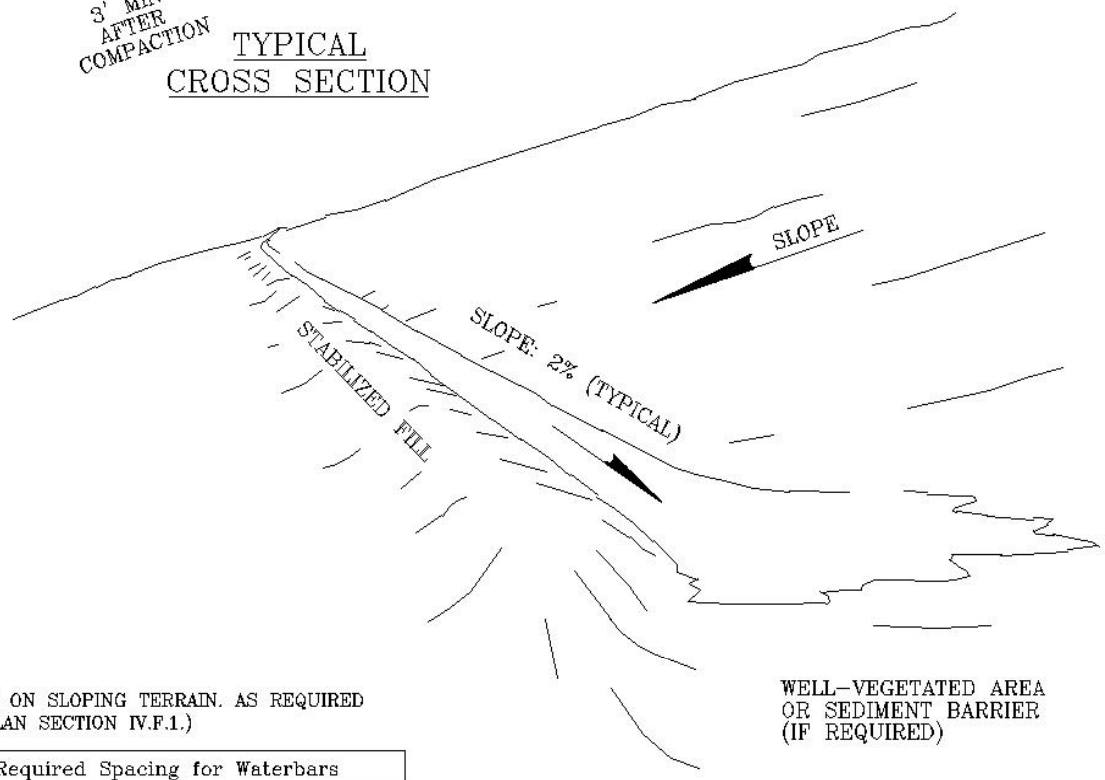
TYPICAL CONSTRUCTION RIGHT-OF-WAY

DWG. NO. PLAN – 2

TGPLETTERPORTRAIT (Rev. 2/01)



TYPICAL
CROSS SECTION



NOTES:

1. INSTALL ON SLOPING TERRAIN. AS REQUIRED (SEE PLAN SECTION IV.F.1.)

Required Spacing for Waterbars	
Slope Percent	FERC's Spacing (Ft.)
5 – 15	300
15 – 30	200
> 30	100

2. MAINTAIN THROUGHOUT CONSTRUCTION AND REPAIR AT THE END OF EACH DAY.
3. OUTLET INTO AREAS STABILIZED BY EXISTING VEGETATION OR INSTALL STAKED STRAW BALES/SILT FENCE.
4. CONTOUR TO ALLOW PASSAGE OF CONSTRUCTION EQUIPMENT
5. TEMP SLOPE BREAKERS MUST BE INSTALLED ON SLOPES > 5% WHERE THE BASE OF THE SLOPE IS < 50 FEET FROM WATERBODY, WETLAND, AND ROAD CROSSINGS UNTIL REVEGETATION IS SUCCESSFUL AS DEFINED IN THE PLAN.
6. TEMPORARY WATER BARS/TERRACES MUST BE DESIGNED TO PREVENT WATER FROM ENTERING THE TRENCH. A SAPT/HARD PLUG MAY BE USED TO ALLOW A CONTINUOUS WATER BAR/ TERRACE TO CROSS THE TRENCHLINE.

ENG. RECORD		DATE
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ep

TYPICAL
PERMANENT WATER BARS
OR TERRACES

DWG. NO.

PLAN – 3

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.

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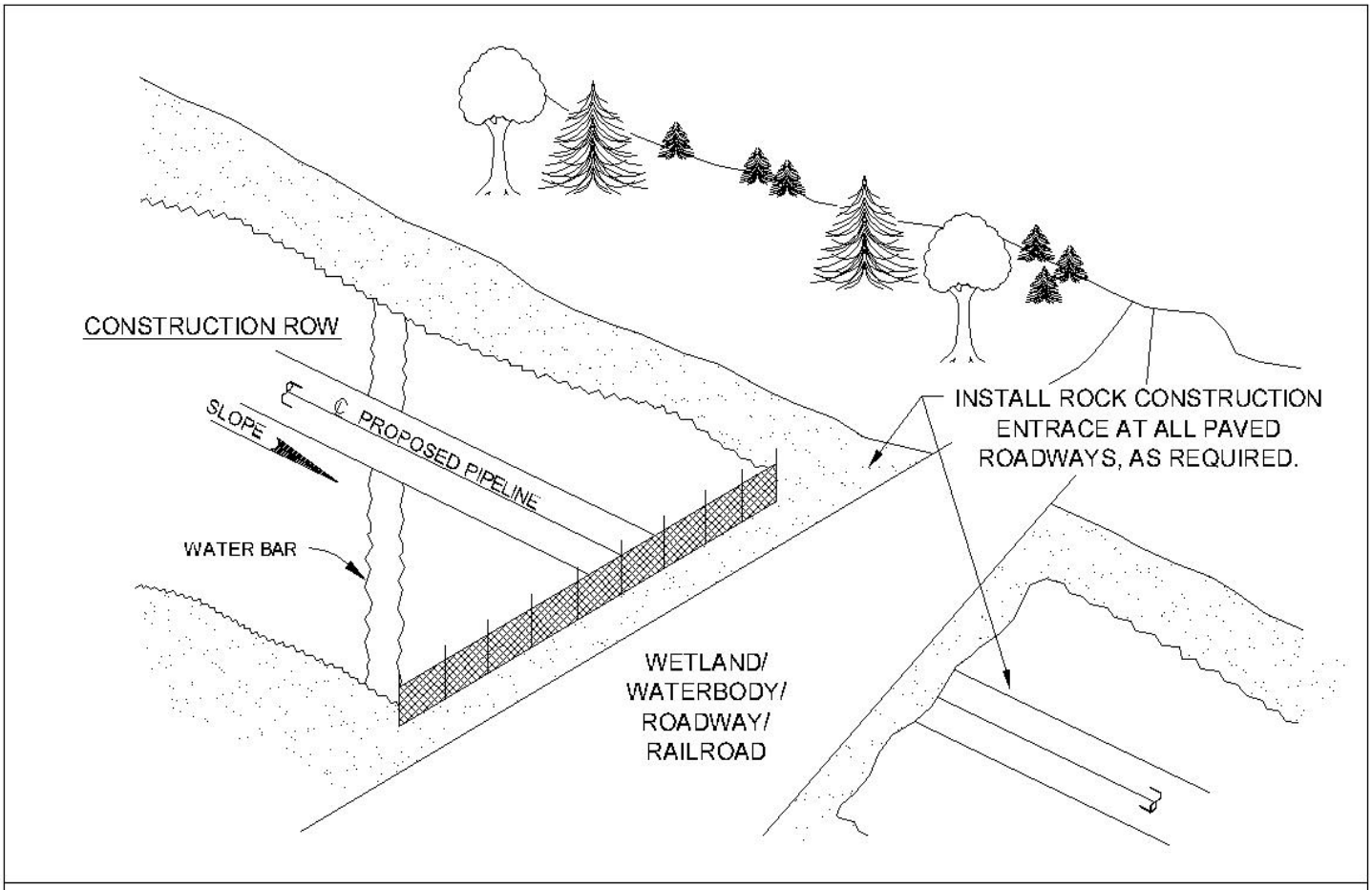

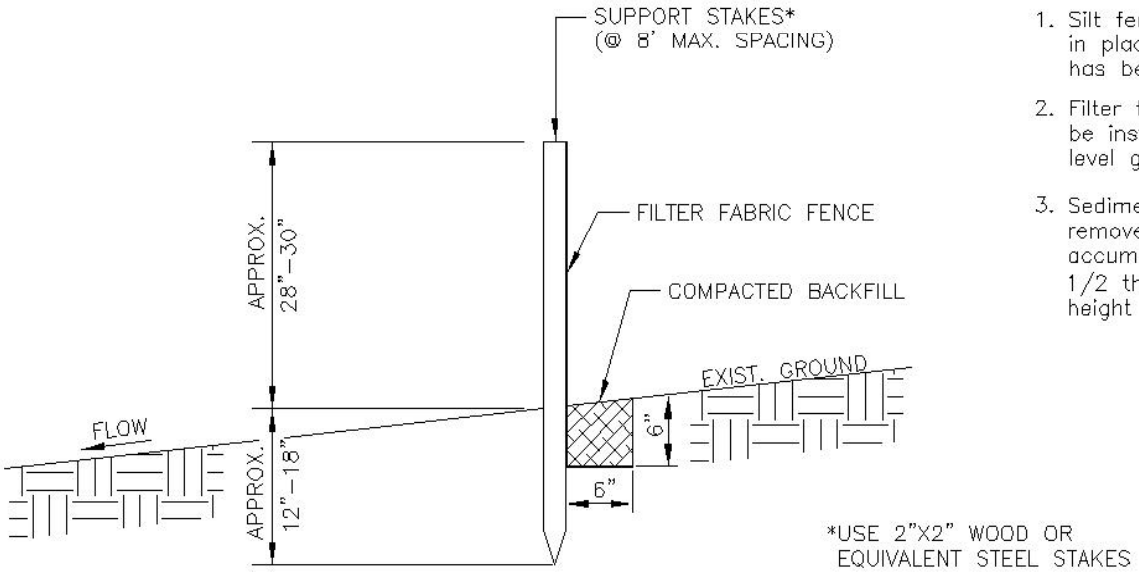

NOTES:

1. Silt fence must be left in place until vegetation has been established.
2. Filter fabric fence must be installed at existing level grade.
3. Sediment must be removed where accumulations reach 1/2 the above ground height of the fence.

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TYPICAL SILT FENCE INSTALLATION

DWG. NO. PLAN – 4

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.

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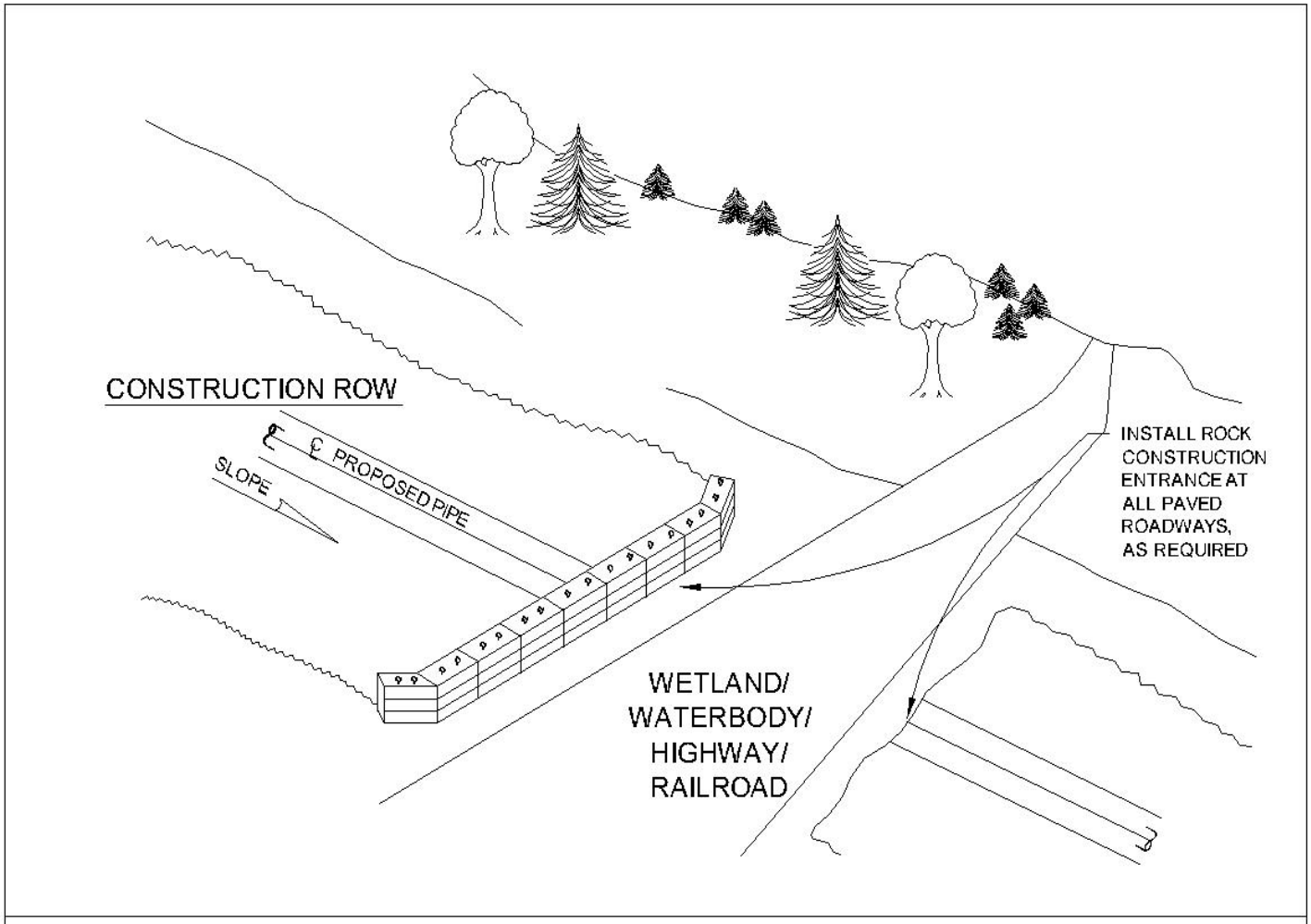
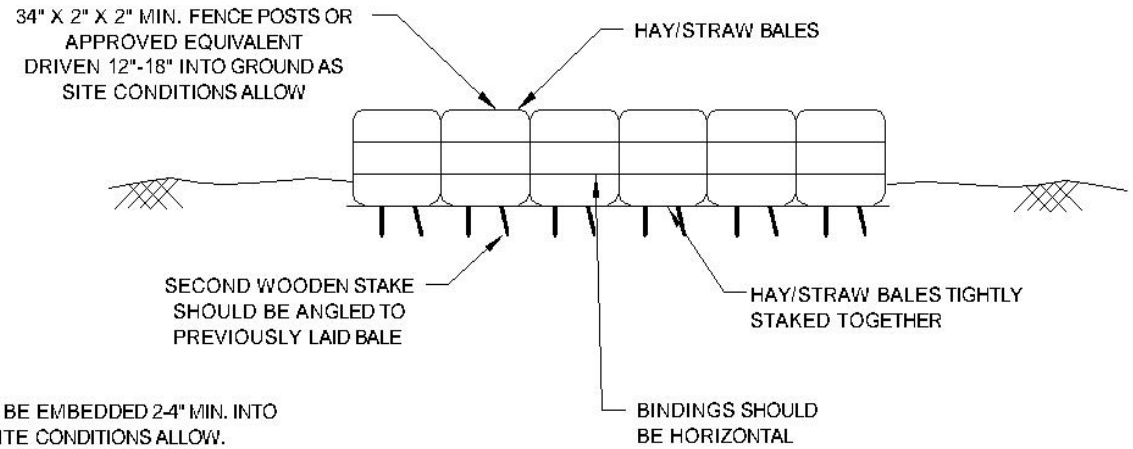


FRONT VIEW



NOTES:

1. HAY BALES TO BE EMBEDDED 2-4" MIN. INTO GROUND AS SITE CONDITIONS ALLOW.
2. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUNDS HEIGHT OF THE BARRIER.
3. HAY/STRAW BALES REMOVED FOR ACCESS PURPOSES DURING THE DAY MUST BE REINSTALLED AFTER THE CONSTRUCTION ACTIVITY HAS PASSED THROUGH OR BY THE END OF THE DAY.

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TYPICAL HAY/STRAW BALE INSTALLATION

DWG. NO. PLAN – 5

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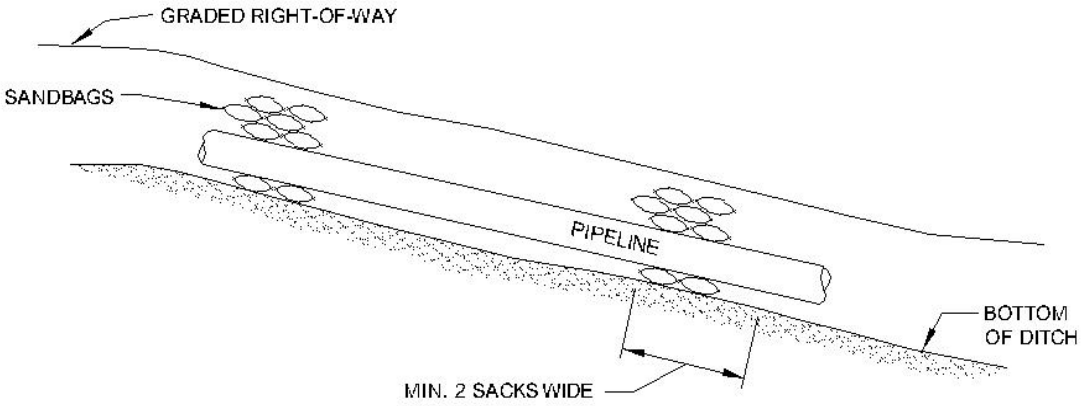
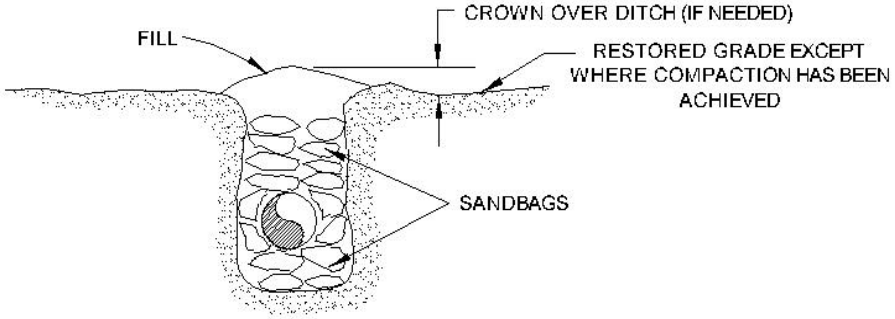
SIDE VIEW CROSS SECTION



END VIEW CROSS SECTION



NOTE

1. CONSTRUCT ON SLOPING TERRAIN AND ADJACENT TO ALL WATERBODIES AND WETLANDS, AS REQUIRED (SEE TABLE).
2. PRIOR TO LOWERING IN PIPE REMOVE ALL DECOMPOSABLE MATERIAL AND LARGE ROCKS.
3. BREAKERS MAY BE COMPOSED OF SANDBAGS OR OTHER APPROVED MATERIAL.
4. MINIMUM 12 INCHES COVER OVER SANDBAGS IN ALL CASES AND MUST BE A MINIMUM OF 2 SACKS WIDE.
5. TOPSOIL SHALL NOT BE USED TO FILL SACKS.

TYPICAL SPACING FOR TRENCH PLUGS	
SLOPE PERCENT	FERC'S SPACING (FT.)
5 – 15	300
15 – 30	200
> 30	100

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TYPICAL TRENCH BREAKERS

DWG. NO. PLAN – 6

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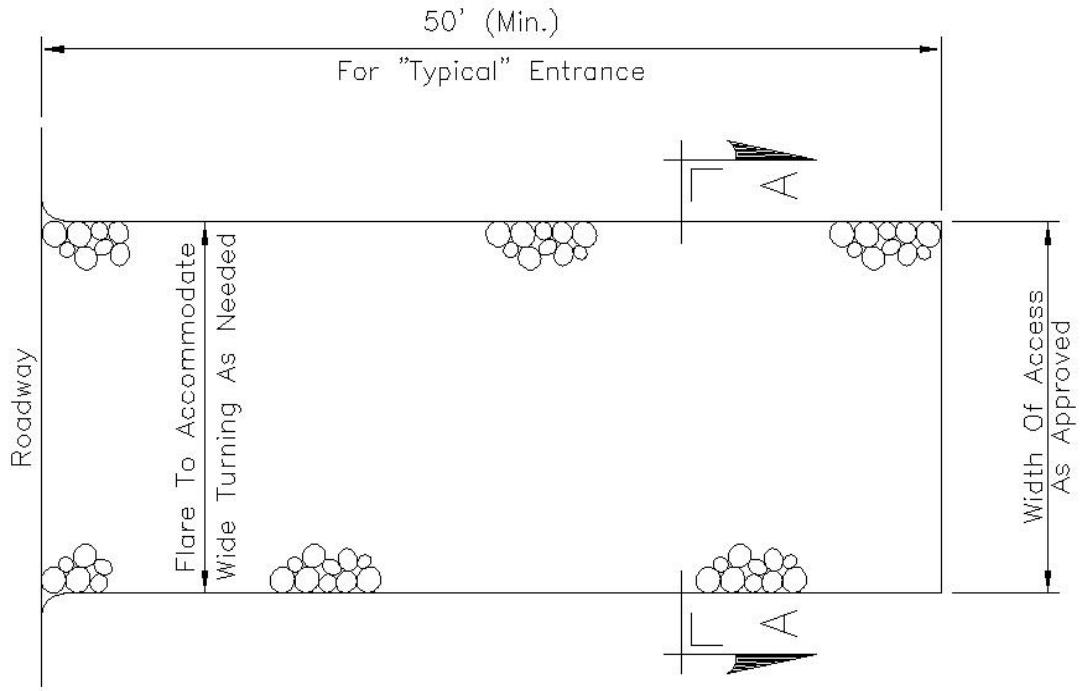
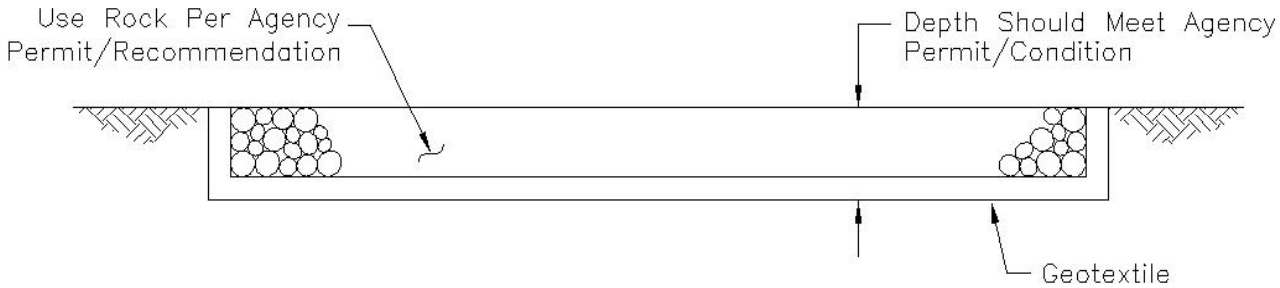


PLAN VIEW



SECTION A–A

NOTE:

Install at intersection of public, paved roadway, and construction right–of–way as needed. Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site. Washing roadway is not permitted. Culverts or flume pipes must be installed under the rock entrance/exit to allow for water drainage, if required due to topographical conditions or per agency permit/condition.

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TYPICAL ROCK CONSTRUCTION ENTRANCE

DWG. NO. PLAN – 7

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.

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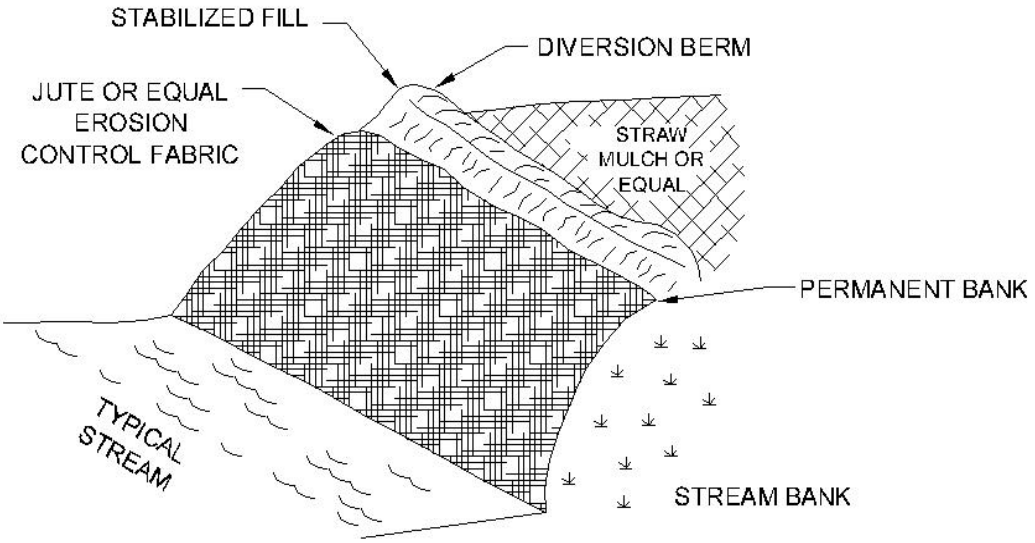
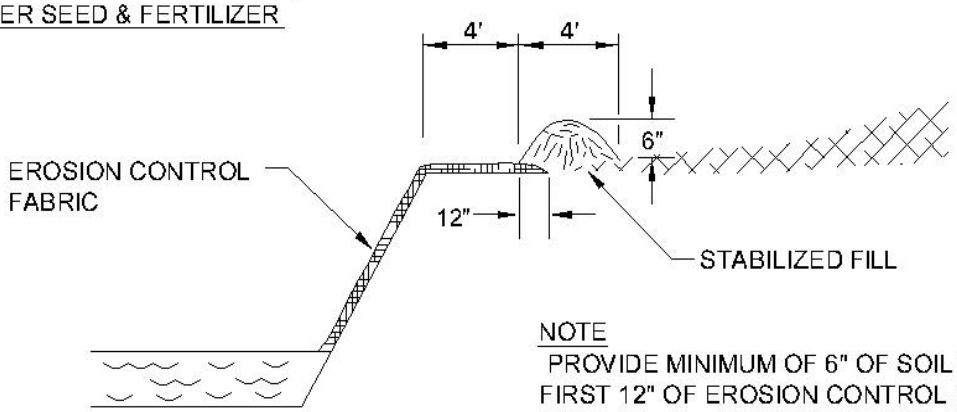
STAKE TO THE SLOPE WITH WOOD PEGS OR STAPLE
PER MANUFACTURERS SPECIFICATION



STRAW MULCH OR EQUAL
OVER SEED & FERTILIZER



NOTE
PROVIDE MINIMUM OF 6" OF SOIL COVER OVER FIRST 12" OF EROSION CONTROL FABRIC AS SHOWN.

SLOPE SECTION

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TYPICAL EROSION CONTROL FABRIC

DWG. NO. PLAN – 8

NO	DATE	BY	DESCRIPTION	PROJ. ID	APPR.

REVISIONS

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