

EROSION AND SEDIMENT CONTROL PLAN

Pre-Construction Phase

A person who conducts or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unacceptable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 MRS.A § 480-B. Erosion control measures permanently stabilize, protect and, if necessary, temporarily and permanent stabilization measures must be taken. The site must be maintained to prevent unacceptable erosion and sedimentation. Minimize disturbed areas and protect natural down-gradient buffer areas to the extent practicable.

BMP Construction Phase

A. Sediment barriers. Prior to the beginning of any construction, properly install sediment barriers at the edge of any down-gradient disturbed area and adjacent to any drainage channels within the proposed disturbed area. Maintain the sediment barriers until the disturbed area is permanently stabilized.

B. Construction entrance. Prior to any clearing or grubbing, a construction entrance shall be constructed at the intersection with the proposed access drive and the existing roadway to avoid tracking of mud, dust and debris from the site.

C. Riprap. Since riprap is used where erosion potential is high, construction must be sequenced so that the riprap is put in place with the minimum delay. Disturbance of areas where riprap is to be placed should be undertaken only when preparation and placement of the riprap can follow immediately behind the initial construction of the pipe or channel so that it is in place when the pipe or channel begins to operate. Maintain temporary riprap, such as temporary check dams until the disturbed area is permanently stabilized.

D. Temporary stabilization. Stabilize with temporary seeding, mulch, or other non-erodible cover any exposed soils that will remain unworked for more than 14 days except stabilize areas within 100 feet of a wetland or waterbody within 7 days or prior to a predicted storm event, whichever comes first. If hay or straw mulch is used, the application rate must be 2 bags (70-90 pounds) per 1000 sq ft or 1.5 to 2 tons (90-100 bales) per acre. An erosion control blanket (ECB) or mulch mat shall be used at the base of exposed waterbody slopes (15% or greater) and on any disturbed soil within 100 feet of lakes, streams and wetlands. Grading shall be completed so as to minimize the length of time between operation and completing the first phase up to final grading and seeding before starting the second phase, and so on.

E. Vegetated waterway. Upon final grading, the disturbed areas shall be immediately seeded to permanent vegetation and mulched and will not be used as outlets until a dense, vigorous vegetative cover has been established. Vegetated waterways need to be stabilized early during the growing season (prior to September 15). If final seeding of waterways is delayed past September 15, emergency provisions such as sod or riprap may be required to stabilize the channel. Waterways should be fully stabilized prior to directing runoff to them.

F. Seeded areas. For seeded areas, permanent stabilization means an 90% cover of the disturbed area with mulch, healthy plants with no evidence of washing or filling of the topsoil.

G. Sodded areas. For sodded areas, permanent stabilization means the complete binding of the sod roots into the underlying soil with no slumping of the sod or die-off.

H. Permanent mulch. For mulched areas, permanent mulching means total coverage of the exposed area with an approved application rates and limitations.

I. Riprap. For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have a minimum 90% coverage of riprap. Riprap shall be placed in a minimum 18" depth. Riprap shall be placed in a minimum 18" depth. Riprap shall be placed in a minimum 18" depth. Riprap shall be placed in a minimum 18" depth.

J. Agricultural use. For construction projects on land used for agricultural purposes (E.g., agriculture, crop land), permanent stabilization may be accomplished by returning the disturbed land to agricultural use.

K. Paved areas. For paved areas, permanent stabilization means the placement of the compacted gravel subbase is completed.

L. Ditches, channels and swales. For open channels, permanent stabilization means the channel is stabilized with mulch, vegetation at least three inches in height, with well-graded gravel, or with another non-erose lining capable of withstanding the anticipated flow velocities and flow depths without reliance on check dams to slow flow. There must be no evidence of slumping of the lining, undercutting of the banks, or down-cutting of the channel.

M. General Construction Phases
The following erosion control measures shall be followed by the contractor throughout construction of this project:

- A. All topsoil shall be collected, stockpiled, seeded with 1/2" of 3 pounds/1,000 sq ft and mulched, and raised as required. Silt fencing shall be placed down gradient from the stockpiled loam. Stockpile to be located by designation of the owner and inspecting engineer.
- B. The inspecting engineer of his/her discretion, may require additional erosion control measures and/or supplemental vegetative provisions to maintain stability of earthworks and finish graded areas. The contractor shall be responsible for providing and installing any supplemental measures as directed by the inspecting engineer. Failure to comply with the engineer's directions will result in discontinuation of construction activities.
- C. Erosion control mesh shall be applied in accordance with the plans over all finish seeded areas as specified on the design plans.
- D. All graded or disturbed areas including slopes shall be protected during clearing and construction in accordance with the approved erosion and sediment control plan until they are adequately stabilized.
- E. All erosion, and sediment control practices and measures shall be constructed, applied and maintained in accordance with the approved erosion and sediment control plan.
- F. Areas to be filled shall be cleared, grubbed and stripped of topsoil to remove trees, vegetation, roots or other objectionable materials.
- G. Areas shall be certified to a minimum depth of 3 inches prior to placement of topsoil.
- H. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Methods of support buildings, structures and conduits, etc., shall be completed in accordance with best requirements or codes.
- I. All fills shall be placed and compacted in layers not to exceed 8 inches in thickness.
- J. Except for approved landfills or non-structural fills, fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris and other objectionable materials that would interfere with or prevent construction of satisfactory fills.
- K. Frozen material or soft, muddy or highly compressible materials shall not be incorporated into fill slopes or structural fills.
- L. Fill shall not be placed on a frozen foundation.
- M. Seeps or springs encountered during construction shall be handled appropriately.
- N. All graded areas shall be permanently stabilized immediately following finished grading.
- O. Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.
- P. Permanent Vegetation
Permanent vegetative cover should be established on disturbed areas where permanent, long lived vegetative cover is needed to stabilize the soil, to reduce damages from sediment and runoff, and to enhance the environment.
- Q. Seeded Preparation
A. Grade as feasible to permit the use of conventional equipment for seeded preparation, seeding, mulch application and anchoring, and maintenance.
- R. Apply limonite and fertilizer according to soil tests such as those offered by the University of Maine soil testing laboratory. Soil sample meters are available from the local cooperative extension service office. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 800 pounds per acre of 18-4-20 (or 1,000 square feet using 10-20-20 (or 10-20-20-420) or equivalent fertilizer. A nitrogen substitute (equivalent to 50% calcium plus magnesium oxide) at a rate of 3 tons per acre (139 lb. Per 1,000 sq. ft.)
- S. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth tillage or a similar implement. Equipment used for seeding shall be equipped with a silt and coarse sand shield to be rolled to firm the seeded wherever feasible. Remove from the surface all stones 2 inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, concrete, clogs, lumps or other unstable material.
- T. Inspect seeded just before seeding. If traffic has left the soil compacted, the area must be filled and firmed as above.
- F. Permanent seeding should be made 45 days prior to the first killing frost or as a dormant seeding with much after the first killing frost and before snowfall. When crown weath is seeded in later summer, at least 50% of the seed should be hard seed (unstrawed). If seeding control, be done within the seeding dates, much according to the temporary mulching BMP and overwinter stabilization and construction to protect the site and delay seeding until the next recommended seeding period.

G. Following seed bed preparation, silt areas, fill areas and back slopes shall be seeded at a rate of 3 lbs./1,000 sq. ft. with a mixture of 55% creeping red f, Fescue, 6% red top, 24% Kentucky bluegrass, 10% perennial ryegrass, 20% annual ryegrass and 5% white Dutch clover.

I. Areas which have been temporarily or permanently seeded shall be mulched immediately following seeding. The areas which cannot be seeded within the growing season shall be mulched for over-winter protection and the area should be seeded at the beginning of the growing season.

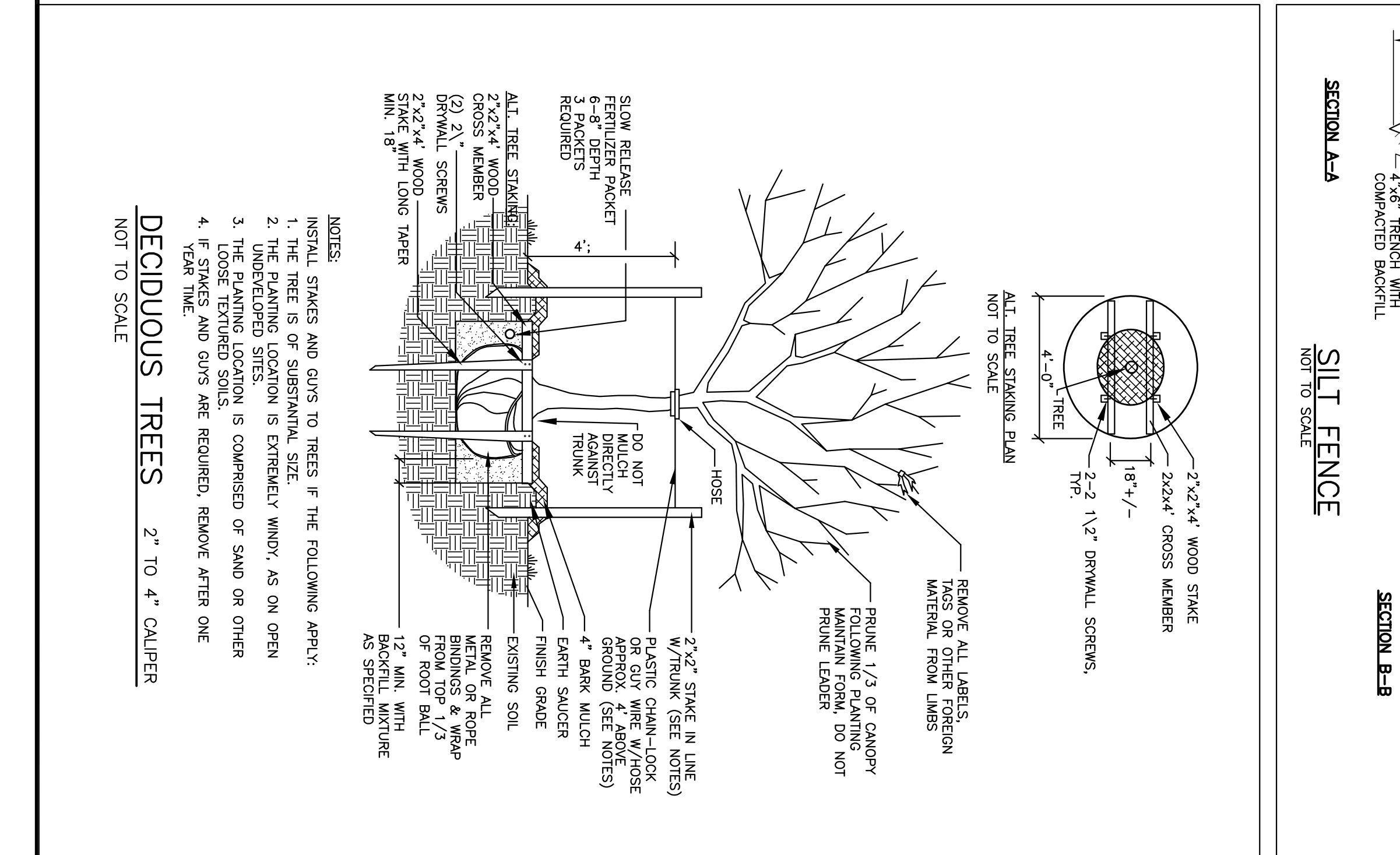
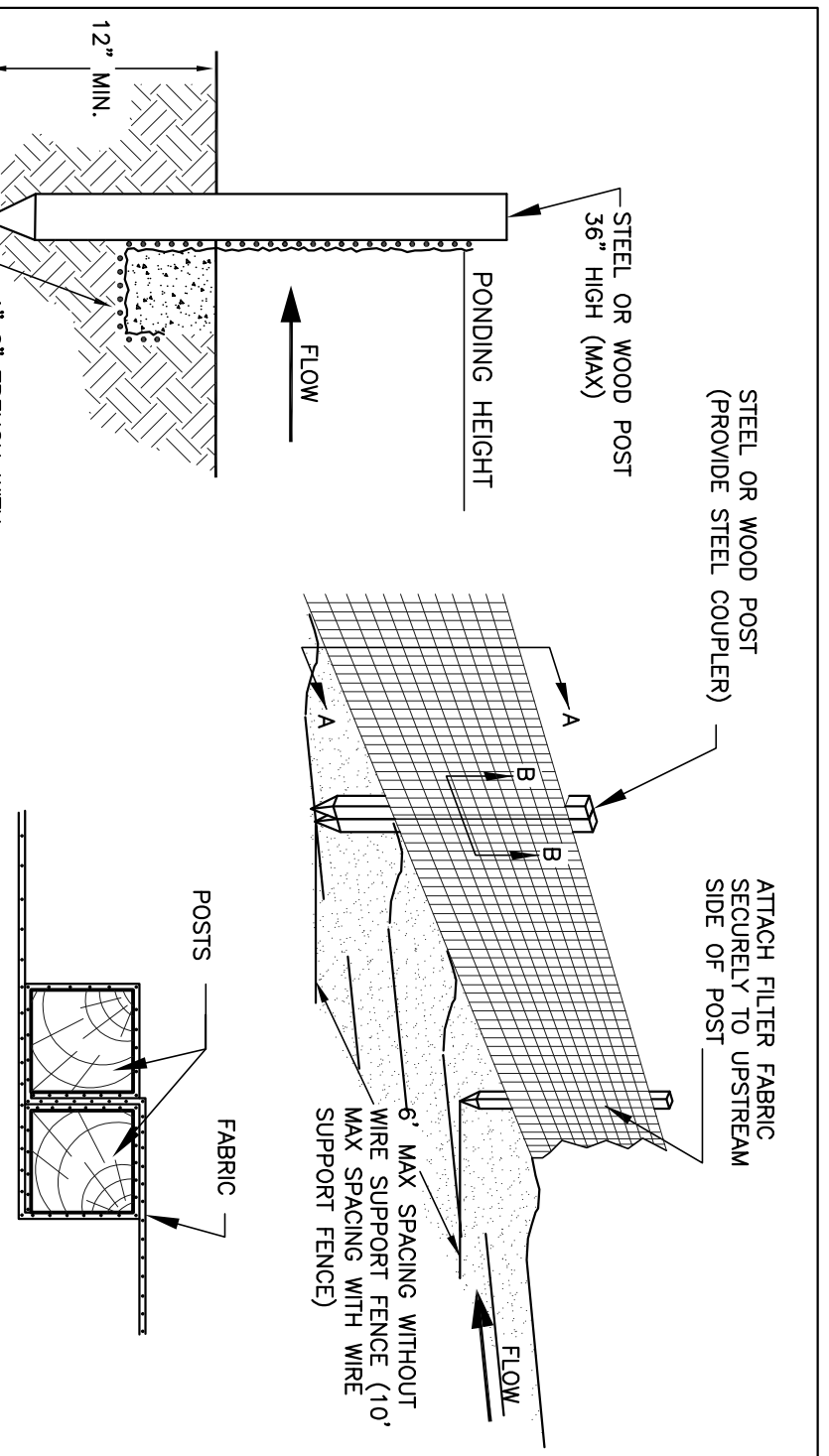
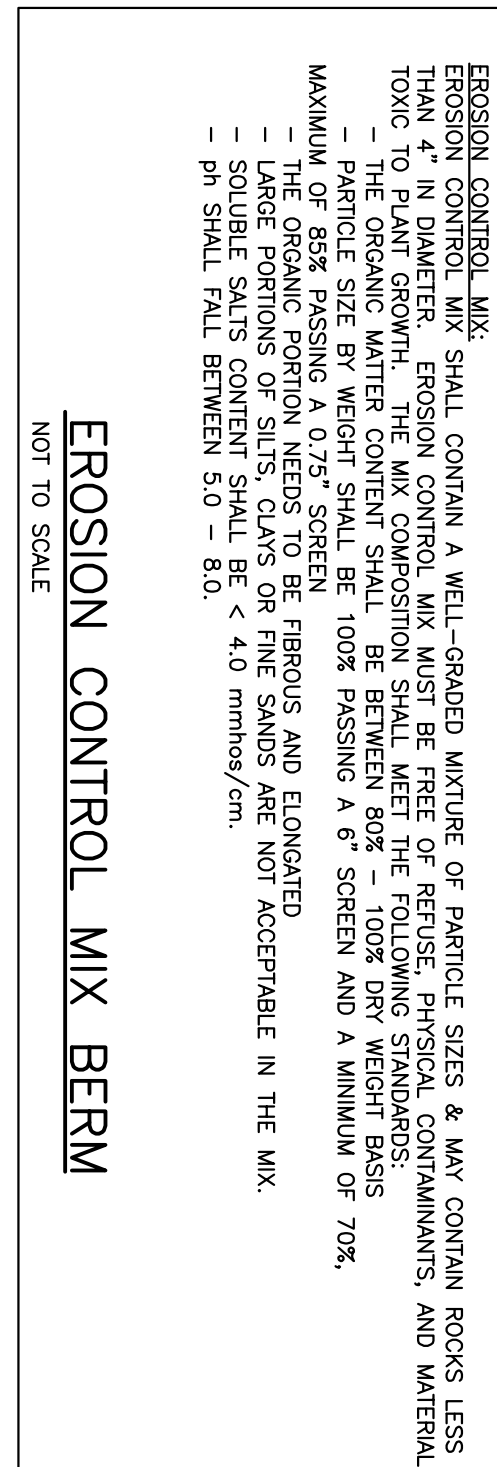
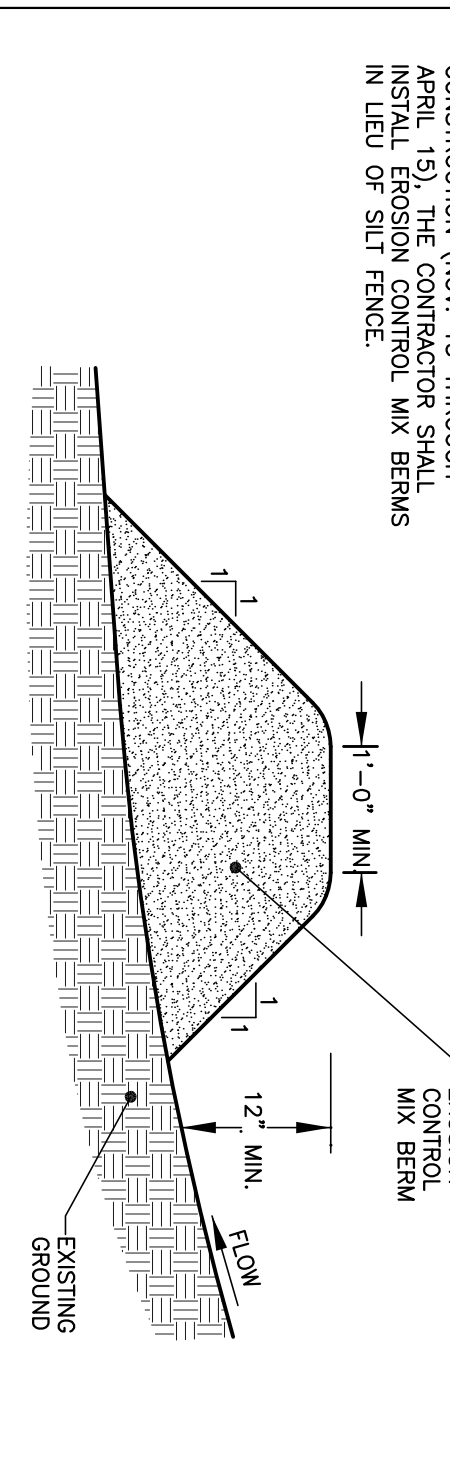
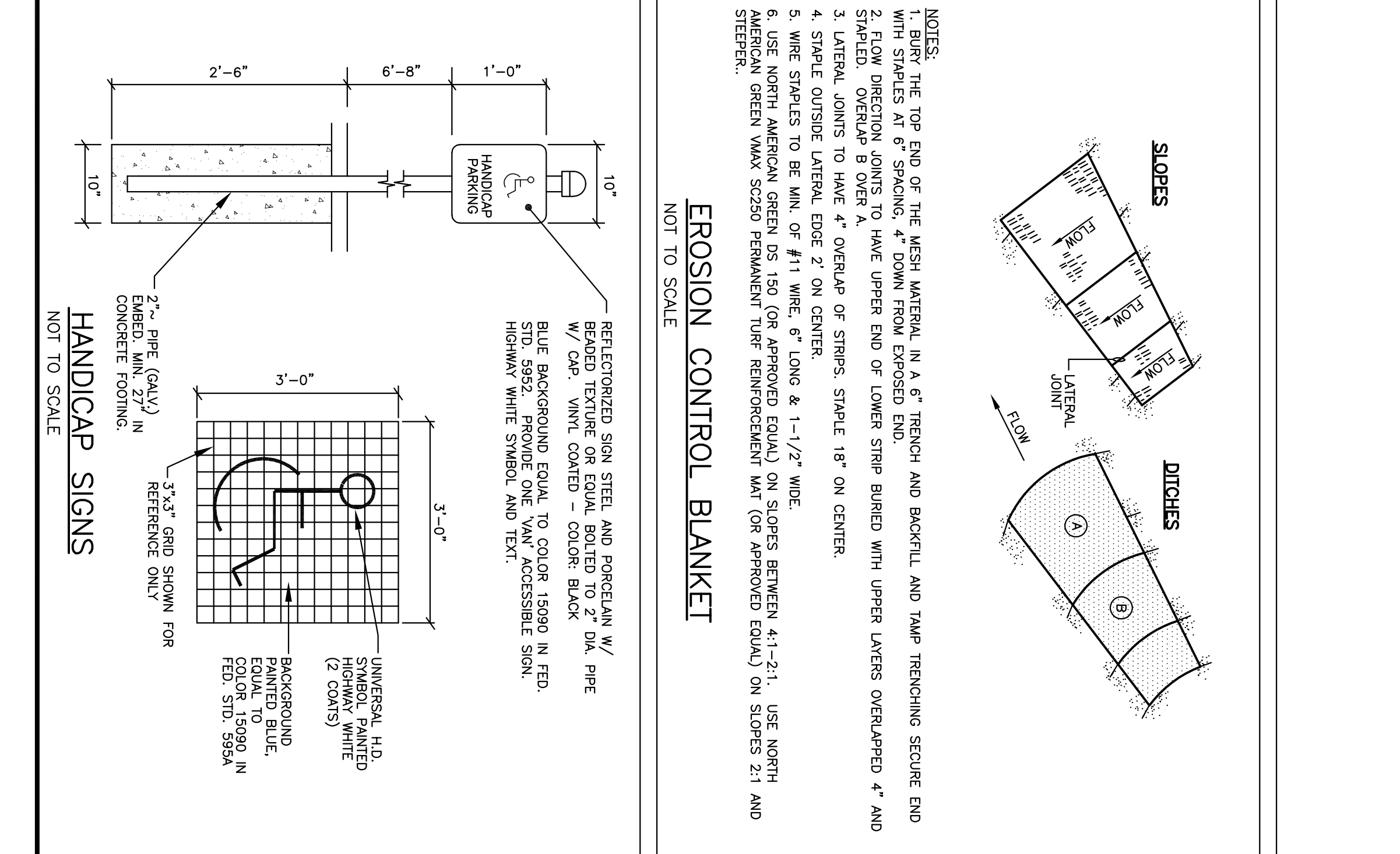
J. Areas which cannot be seeded within the growing season shall be mulched for over-winter protection and the area should be seeded at the beginning of the growing season.

A. Permanent stabilization consists of at least 90% vegetation, pavement/gravel base or riprap.
B. Do not expose slopes or leave slopes exposed over the winter or for any other extended time of work suspension unless fully protected with mulch.
C. Apply mulch at twice the standard rate (150 lbs. Per 1,000 sq ft). The mulch must be thick enough such that the ground surface will not be visible and must be anchored.
D. Use mulch and mulch netting or an erosion control mulch blanket or all slopes greater than 8 % or other areas exposed to direct wind.
E. Install an erosion control blanket in all driveways (bottom and sides) with a slope greater than 3 %.
F. See the vegetation measures for more information on seeding dates and types.
G. Winter excavation and earthwork shall be completed so that no more than 1 acre of the site is without stabilization at any one time.
H. An area within 100 feet of a protected natural resource must be protected with a double row of sediment border.
I. Temporary mulch must be applied within 7 days of soil exposure or prior to any storm event, but offer every workday in areas within 100 feet from a protected natural resource.
J. Areas that have been brought to final grade must be permanently mulched that same day.
K. If snowfall is greater than 1 inch (fresh or cumulative), the snow shall be removed from the areas due to be seeded and mulched.
L. Loam shall be free of frozen clumps before it is applied.

M. All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or protective wires specifically designed for this standard by the department.

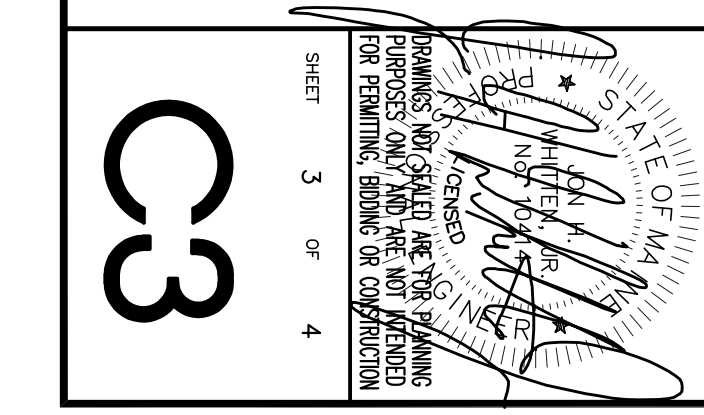
N. Maintenance and Inspection Phase
A. Contractor shall inspect disturbed and impervious areas, and erosion and stormwater control measures, once a week and before and after a storm event, prior to completion of permanent stabilization. A person with knowledge of erosion and stormwater must conduct the inspection. This person shall be identified in the inspection log. If best management practices (BMPs) need to be modified or if additional BMPs are necessary, implementation must be completed within 48 hours and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

B. A log (report) must be kept summarizing the scope of the inspection, name(s) and qualifications of the personnel making the inspection, the date(s) of the inspection, and major observations relating to operation of the erosion and sedimentation control measures. The log shall be maintained in the project files for a particular location, and location(s) where additional BMPs are needed that did not exist at the time of inspection. Follow-up to correct deficiencies or enhance controls must also be indicated in the log and dated, including what action was taken and when.



CONSTRUCTION NOTES:

1. All work shall conform to the applicable codes and ordinances.
2. Contractor shall visit the site and familiarize him or herself with all conditions affecting the proposed work and shall provide a copy of the contract documents, field conditions and dimensions and confirming that the work may be accomplished as shown prior to proceeding with construction. Any discrepancies shall be brought to the attention of the engineer prior to the commencement of work.
3. Contractor shall notify engineer of all products or items noted as "existing" which are not found in the field.
4. Install all equipment and materials in accordance with manufacturer's recommendations and owner's requirements unless specifically otherwise indicated or where local codes or regulations state otherwise.
5. Contractor shall verify all dimensions and conditions in the field prior to fabrication and erection of any material. Any unusual conditions shall be reported to the attention of the engineer.
6. Contractor shall clean and remove debris and sediment deposited on public streets, sidewalks, adjacent areas, or other public ways due to construction.
7. Contractor shall incorporate provisions as necessary in construction to protect existing structures, physical features, and maintain site stability during construction. Contractor shall restore all areas to original condition and as directed by design.
8. Site contractor shall obtain all required permits prior to construction.
9. All erosion and sediment control measures shall be installed in accordance with Maine Erosion and Sedimentation Control Handbook for Construction, Best Management Practices published by the Cumberland County Soil and Water Conservation District and Maine Department of Environmental Protection, March 2004 or all times.
10. The contractor is hereby authorized that all site features shown hereon are based on field observations by exact or complete. The contractor shall contact Dig Site (1-888-digsite) at least three (3) but not more than thirty (30) days prior to commencement of excavation or demolition to verify horizontal and vertical location of all utilities.
11. Contractor shall be aware that Dig Site only notifies its "member" utilities about the dig. When notified, Dig Site will advise contractor of member utilities in the area. Contractor is responsible for identifying and contacting non-member utilities directly. Non-member utilities may include town or city water and sewer districts and small local utilities, as well as USC public works systems.
12. Contractors shall be responsible for compliance with the requirements of 23 MRS.A 3380-A. It shall be the responsibility of the contractor to coordinate with the appropriate utilities to obtain authorization prior to relocation of any existing utilities which conflict with the proposed improvements shown on these plans. If a relocation is required, the contractor shall notify the owner, the municipality and appropriate utility company prior to proceeding with any relocation.
13. All pavement markings and directional signage shown on the plan shall conform to the Manual of Uniform Traffic Control Devices (MUTCD) standards.
14. All pavement joints shall be sawcut prior to paving to provide a durable and uniform joint.
15. No holes, trenches or structures shall be left open overnight in any excavation accessible to the public or in public rights-of-way.
16. All work within the public right-of-way shall require a M.D.O.T. Permit as well as permits from the town as applicable.
17. The proposed limits of clearing shown hereon are approximate based upon the proposed limits of site grading. The applicant reserves the right to perform normal forest management activities outside of the clearing limit as shown. Tree removal outside of the limits of clearing may be necessary to remove dead or damaged or defective material and workmanship in conjunction with the contract work. The contractor shall provide a copy of the final clearing plan to the inspecting engineer for review and approval prior to any work.
18. Immediately upon completion of cuts/fills, the contractor shall stabilize disturbed areas in accordance with erosion control notes and as specified on plans.
19. The contractor shall be fully and solely responsible for the removal, replacement and re-vegetation of all damaged or defective material and workmanship in conjunction with the contract work. The contractor shall provide a copy of the final clearing plan to the inspecting engineer for review and approval prior to any work.
20. All work performed by the general contractor and/or trade subcontractor shall conform to the requirements of local, state or federal laws, as well as any other governing requirements, whether or not specified on the drawings.
21. Where the terms "approved equal", "other approved", "equal to", "acceptable" or other general qualifying terms are used in these notes, it shall be understood that reference is made to the ruling and judgment of Plymouth Engineering, Inc.
22. The general contractor shall provide all necessary protection for the work until turned over to the owner.
23. The general contractor shall maintain a current and complete set of construction drawings on site during all phases of construction for use of all trades.
24. The contractor shall take full responsibility for any changes and deviation of approved plans not authorized by the architect/engineer and/or client/owner.
25. Details are intended to show end result of design. Any modification to suit field dimension and condition shall be submitted to the engineer for review and approval prior to any work.
26. Before the final acceptance of the project, the contractor shall remove all equipment and materials, repair or replace private or public property which may have been damaged or destroyed during construction, clean the areas within and adjacent to the project which have been obstructed by his/her operations, and leave the project area neat and presentable.

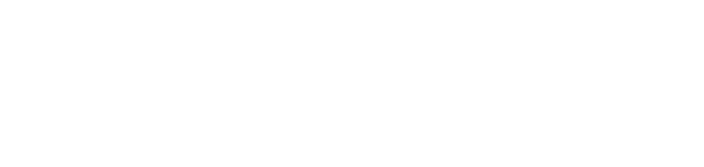


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DESIGNED: JHW PROJECT NO. 16055
DRAWN: JHW DRAWING NO. 16055B2
CHECKED: SEB FIELDBOOK
APPROVED: JHW SCALE:
PLAN DATE: 5-11-16 DATE ISSUED: _____
CLIENT/RECORD OWNER:
BANNER PROPERTIES, LLC
126 UNDERWOOD ROAD
FALMOUTH, ME 04105

PROJECT NAME: SEVEN-UNIT BUILDING
30 MERRILL STREET
PORTLAND MAINE
SHEET NAME: EROSION & SEDIMENTATION CONTROL DETAILS

REVISIONS		NO.	DATE	DESCRIPTION	DRAWN	APPD.
1	9/23	REVISED PER CITY REVIEW COMMENTS	JHW	JHW		
2	10/3	REVISED PER CITY REVIEW COMMENTS	JHW	JHW		



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