Dewey Stewardship - Road 213A
General Notes

1. Relative to the Montana Stream Restoration Act, all stream related work shall be completed according to the specific control measures of the 124 permit.

(a)- No instream work will occur in moving water. The area of construction will be dewatered. For culvert removals, the existing pipes can be used as the diversions while as much bed work as possible is completed. During additional construction, such as the removal of the existing pipe and streambed construction, the disturbed area will be isolated from the stream flow by diverting flow through a temporary pipe or diversion. Water may be pumped around the site. At the outflow of temorary pipe, large rock should be temporarily placed to dissipate the energy in the diverted water. Following temporary pipe removal, these rocks should be removed.

2. -- Refresh Stakes -- Construction stakes have been set by the Forest Service. It is the contractor's responsibility to maintain the survey work until construction has been completed. Wildlife, recreation, vegetation growth, and weather related deterioration are known factors affecting stake longevity. Re-establishing the road stakes will require walking the road prism and re-stake according to the road logs.

3. -- Remove Old Tires -- This work consists of the removal of approximately 1 large dump truck load of old, discarded tires and pieces from the fill slope of road 213A around station 13+30. All tires and pieces designated for removal shall become the property of the contractor and shall be removed from National Forest land.

4. -- Remove Culvert -- All corrugated metal pipe designated for removal shall become the property of the contractor and shall be removed from National Forest land.

5. -- Stream Restoration --

(a)- Unless otherwise noted, excavated material from the stream restorations shall be placed at a a setback of 20 feet from the edge of the excavation. This excavated material shall have a maximum slope 1(V) : 4(H).

(b)- All stream restoration sites shall have straw wattles (minimum 8" diameter) placed parallel and immediately alongside each stream channel for the entire length of the disturbed area as shown on the Stream Restoration Typical Drawing. Product shall be secured in accordance with manufacturer's recommendations.

(c)- Seeding and mulching, erosion control blankets, and straw wattles accomplished by this contract are incidental to the Stream Restoration. Seed stream restoration slopes prior to placing erosion control blankets.

6. -- Machine Placed Riprap, Class 3 -- The contractor is required to haul riprap for the Stream Restoration Sites. The rock source is located at Freeland Quarry, T25N, R22W, Sec 04, Forest Service Road #10315 off of Road #2990. No stockpiled riprap is available in the quarry. It is the contractor's responsibility to mine/excavate required materials at locations and dimensions designated by the CO. Contractor is responsible for restoration activities directed by the CO.

In addition to hauled riprap, suitable rock from excavation of culverts or stream restorations shall be conserved and placed as riprap on headwalls, in stream channels or along the toe of the excavation. Conservation and placement of riprap is considered incidental to the Stream Restoration.

Dewey Stewardship - Road 213A
General Notes

Stream Restoration

Description

Work. This work consists of excavating material associated with culvert removals, roadway re-contouring, stream restorations, erosion control work, shaping and compacting excavated material, and re-establishing turf in all disturbed areas. This includes hauling, stockpiling, placing, disposing, sloping, shaping, and compacting earthen and rocky material.

This work may also include necessary diverting of live streams, pumping, bailing, draining, sheeting, bracing, and miscellaneous items, required for execution of the work.

Materials

Requirements. Furnish material that conforms to the specifications in the following notes :

Riprap Rock	Fertilizer
Seed	Mulch

Erosion Control Bales, Wattles, Logs, and Rolls

Temporary Rolled Erosion Control Products

Construction Requirements

Streams. Any site where there is running water through a channel crossing shall be dewatered by rerouting the flow around the site before and during excavation operations that has the potential for sediment delivery to the live stream. For work in stream channels with flowing water include a detailed dewatering plan.

Culverts. All drainage structures and appurtenances (culverts, downpipe, anchors, drop inlets, and trash racks, etc.) designated for removal shall become the property of the contractor and shall be removed from National Forest land.

Excavation. Excavation includes the removal of fill material over culverts and bedding material underneath, reconstruction of the natural channel course and blending of sideslopes. Stream channel width after drainage structures have been removed will be as shown in the plans. The depth and alignment of excavation will be to the depth and position of the existing culvert, plus removal of any material between the natural channel and the culvert (bedding), unless specified otherwise in the plans. A uniform grade shall be constructed from the inlet to the outlet to facilitate a free draining channel for the entire length

(a) General. Excavate all material at stream restoration sites to the lines and elevations SHOWN ON THE DRAWINGS. Culvert removal excavation consists of placing and compacting excavated material. This excavation includes all material encountered regardless of its nature or characteristics. This work includes:

(1) Moving and/or hauling excavated material away from the excavation site to desired setbacks or disposal areas.

(2) Placing excavated material away from existing road fill slope.

(3) Placing excavated material into existing road back slope.

(4) Shaping excavated material slopes no steeper than 4(H):1(V) or as SHOWN ON THE DRAWINGS.

Do not disturb material and vegetation outside the construction limits.

At the end of each day's operations, shape to drain and compact the work area to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

(b) Sloping, shaping, and finishing.

(1) Sloping. Round the tops of all slopes. Leave all earth slopes with uniform roughened surfaces with no noticeable break as viewed from the lower extent of the excavation. In solid rock, round the material overlaying solid rock to the extent practical.

Dewey Stewardship - Road 213A
General Notes

Stream Restoration

Excavation (Cont).

(b) Sloping, shaping, and finishing.

(2) Shaping. Shape the slopes to a smooth surface and to the cross section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. Adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground. Shape slopes of excavated material no steeper than 4(H):1(V) or as SHOWN ON THE DRAWINGS.

(3) Finishing Slopes. Ensure that finished slopes conform reasonably to the lines SHOWN ON THE DRAWINGS. Finish slopes in a roughened condition to facilitate the establishment of vegetative growth. Establish turf according to Notes. Place wattles and blankets according to manufacturer specifications and as SHOWN ON THE DRAWINGS.

(c) Conserved Rock. Conserve suitable rock from culvert excavation areas. Utilize all suitable excavated rock for stream restorations as SHOWN ON THE DRAWINGS.

Riprap. Placed riprap is rock placed on a prepared surface to form a well_graded mass.

Place riprap to its full thickness in one operation to avoid displacing the underlying material. Do not place riprap material by methods that cause segregation or damage to the prepared surface. Place or rearrange individual rocks by mechanical or hand methods to obtain a dense uniform blanket with a reasonably smooth surface to the lines SHOWN ON THE DRAWINGS.

Wattles and Erosion Control Blankets.

(a) Straw wattles, logs or rolls. Furnish straw wattles that are manufactured from certified weed free straw and wrapped in a tubular photodegradable plastic netting made from 85% high density polyethylene, 14% ethyl vinyl acetate and 1% color for UV inhibition. Conform to the following:

1) Diameter	9 inches min.
2) Netting strand thickness	0.030 inches
3) Netting knot thickness	0.055 inches
4) Mass of netting	0.315 to 0.385 ounces per foot

(b) Temporary Rolled Erosion Control Products. Furnish temporary rolled erosion control products composed of natural fibers mechanically bound between two natural fiber nettings to form a continuous matrix with a 12-month typical functional longevity designed for use on geotechnically stable slopes with gradients as SHOWN ON THE DRAWINGS.

The following products meet the above requirements:

1. East Coast Erosion Blanket ECS-2B.
2. North American Green S-150BN.
3. American Excelsior Curlex II Fibernet.
4. Western Excelsior Products Excel SS-2 (All Natural).
5. Ero-Guard EG-2s (NN)

Place wattles and erosion blankets on excavated slopes according to manufacturer specifications and as SHOWN ON THE DRAWINGS.

Seeding. Seed, fertilize, and mulch all disturbed ground according to Turf Establishment Notes.

Dewey Stewardship - Road 213A
General Notes

Turf Establishment

Description

Work. This work consists of soil preparation, seeding, fertilizing, laying erosion control blankets, wattles, and mulching. Seeding, fertilizing, and mulching methods are designated as dry or hydraulic.

Material

Requirements. Furnish material that conforms to the specifications in the following notes:

Fertilizer

Mulch

Seed

Erosion Control Wattles

Temporary Rolled Erosion Control Products

Construction Requirements

General. Apply turf establishment to finished slopes, waterbars, and berms within 14 days after completion of construction. Do not seed during windy weather or when the ground is excessively wet, frozen, snow covered, extremely dry, cloddy, hard pan, or not friable.

Lay erosion control wattles and blankets at stream restoration sites according to the manufacturer's recommendations and as SHOWN ON THE DRAWINGS.

Preparing Seedbed. Finish the areas to be seeded, as required by other applicable sections, to the lines and grades SHOWN ON THE DRAWINGS. Restore areas that are damaged by erosion or other causes. Ensure that the surface soil is in a roughened condition favorable for germination and growth

Fertilizing. Apply fertilizer having a chemical analysis as listed in below by the dry methods.

(a) Dry Method. Use hand-operated devices, mechanical, landscape, or cultipacker seeders, seed drills, fertilizer spreaders, or other approved mechanical seeding equipment to apply the fertilizer.

(b) Chemical Analysis. Apply fertilizer at the rate of 100 pounds per acre. Apply fertilizer having the following chemical analysis:

Nutrient	Percent
Nitrogen, N	16
Phosphorus, P_2O_5	16
Potassium, K	16

Seeding. Apply seed having a seed mix as listed below by the dry method.

(a) Dry method. Use hand-operated devices, mechanical, landscape, or cultipacker seeders, seed drills, fertilizer spreaders, or other approved mechanical seeding equipment to apply the seed. Lightly compact the seedbed within 24 hours after seeding.

(b) Seed Mix. In terms of pure live seed, furnish and apply the following kinds and amounts of seed. Obtain the pounds of seed to furnish per acre by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

Dewey Stewardship - Road 213A
General Notes

Turf Establishment

Seeding (Cont).

(b) Seed Mix.

Kind of Seed	Quantity of Pure Live Seed (Lbs/Acre)
1. Slender Wheatgrass (elymus trachycaulus)	6.0
2. Mountain Brome (bromus marginatus)	9.0
3. Bluebunch Wheatgrass (pseudoroegneria spicata)	4.0
4. Blue Wild Rye (elymus glaucus)	5.0
Total	24.0

Pounds of seed to be furnished per acre shall be obtained by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

Example: = 6.55 lbs commercial seed per acre applied

Where: 5 lbs. PPLS = pounds pure live seed per acre required; Purity = 90%: Germination = 85%

Contractor shall provide to the Forest Service:

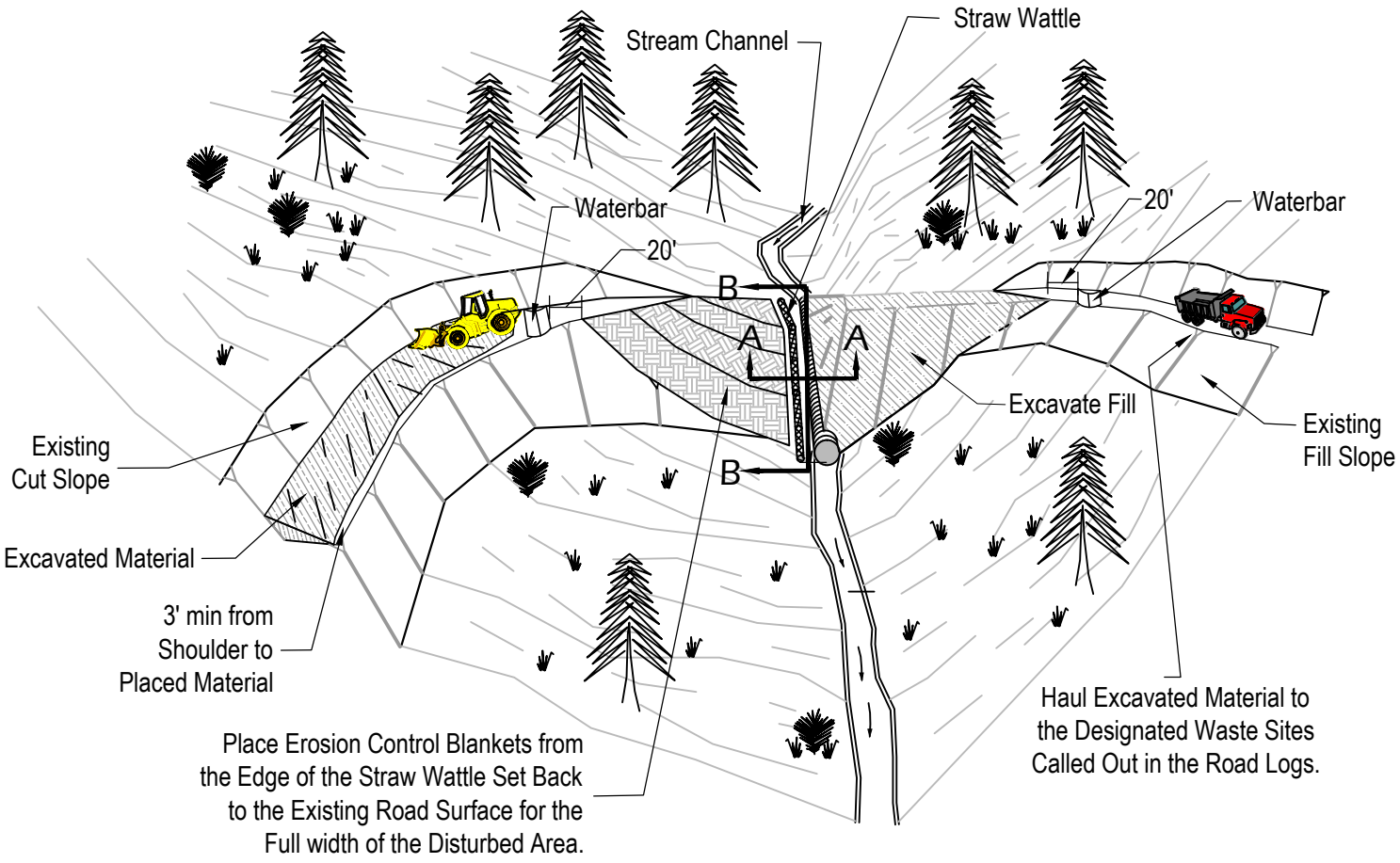
1. **Blue tags, or copies of blue tags from each seed lot used in the specified mix. Only certified, blue-tagged seed shall be used. The blue tag represents a field certification and serves as evidence of the genetic purity and varietal identity of the seed contained in the seed lot.**
2. **Labels which indicate the percentage composition of the various species in the seed mix.**
3. **Copies of the Seed analysis Report from a certified seed analyst for each lot used in the specified seed mix. Analysis report must include at a minimum, content of any noxious weed seeds listed on the current "State of Montana Noxious Weeds List". The Contractor will obtain this report from the seed provider. Only after the Forest Service has verified that the seed does not contain any weed seeds on the current "State of Montana Noxious Weeds List" will the seed be accepted and used.**

Mulching. Apply certified weed free straw mulch immediately after seeding. Apply mulch uniformly over the disturbed area not covered by erosion control blankets. Apply by hand methods so that by visual observation, 60 percent of the seeded area is covered by a thin layer of straw.

Protecting and Caring for Seeded Areas. Protect and care for seeded areas until final acceptance. Repair all damage to seeded areas by reseeding, and remulching. Apply supplemental applications of seed, mulch, or fertilizer.

Dewey Stewardship - Road 213A
Stream Channel Restoration Typical

Not to Scale



Notes:

1. Place excavated material on either side of the pipe as shown above or haul material to designated waste sites called out in the road log. Shape excavated material to blend into the existing cut slope and to avoid holding or trapping water. Block existing ditches by placing excavated material so that it acts as a waterbar and diverts any future surface water and ditch flow across the road into a vegetative filter zone and not directly into the stream. Do not deposit any excavated material on the existing fill slopes or in the existing channel. Conserve rocks from the excavation having a largest dimension between one foot and two feet. Place the conserved rocks and any additional riprap called for in the Schedule of Items along the toe of the slopes adjacent to the restored stream channel as shown on the Typical Cross Section Drawing. Place rock on the erosion blanket as much as possible, beginning at the outlet end. Woody debris may be placed on excavated slopes not to exceed 50% of ground cover.

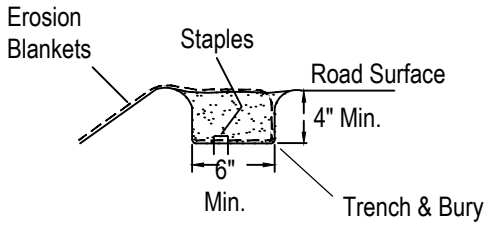
2. If the invert of the existing culvert outlet is above the existing streambed, remove material below the existing CMP to create a straight-line gradient between the invert of the inlet and the streambed at the outlet.

3. Waddles and straw mats must be placed along streambed on all excavated slopes as called for in the Stream Restoration notes. Certified weed free straw shall be applied and the area seeded.

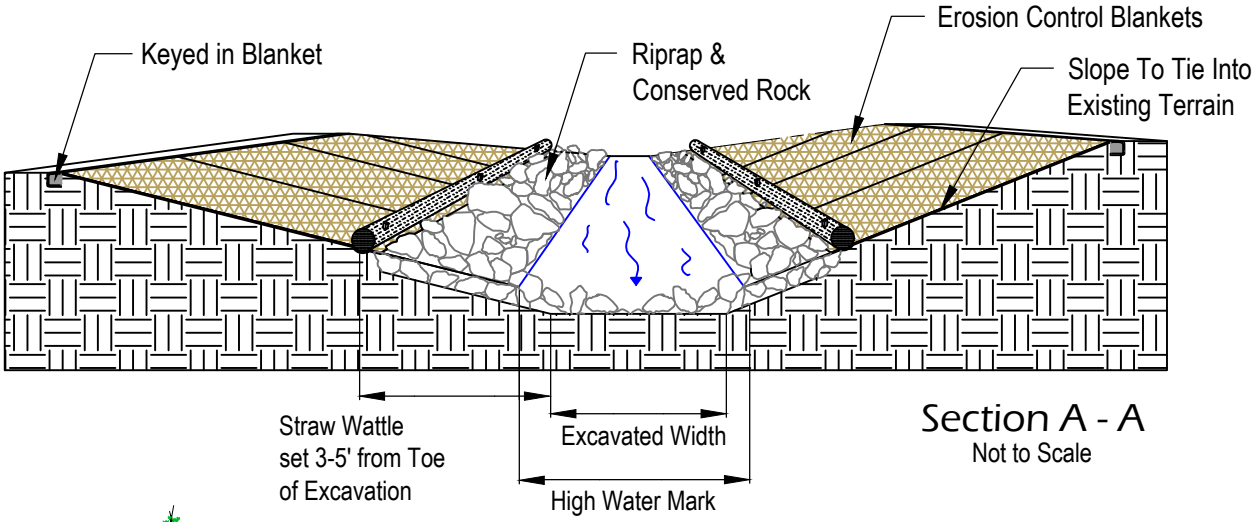
4. Keep piled fill material at a maximum slope of 4:1 and a minimum of three feet from road shoulder to accommodate foot traffic and horses.

Dewey Stewardship - Road 213A
Stream Channel Restoration Typical

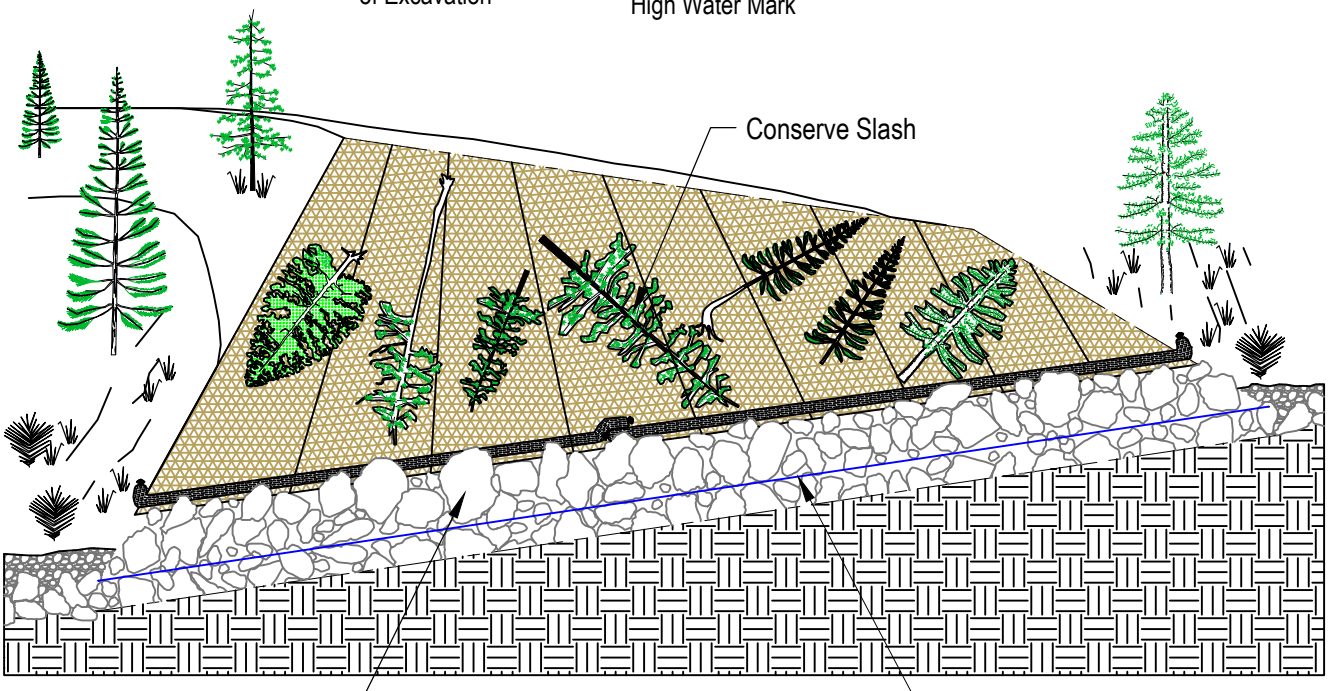
CROSS SECTIONS



Keyed in Blanket
Not to Scale

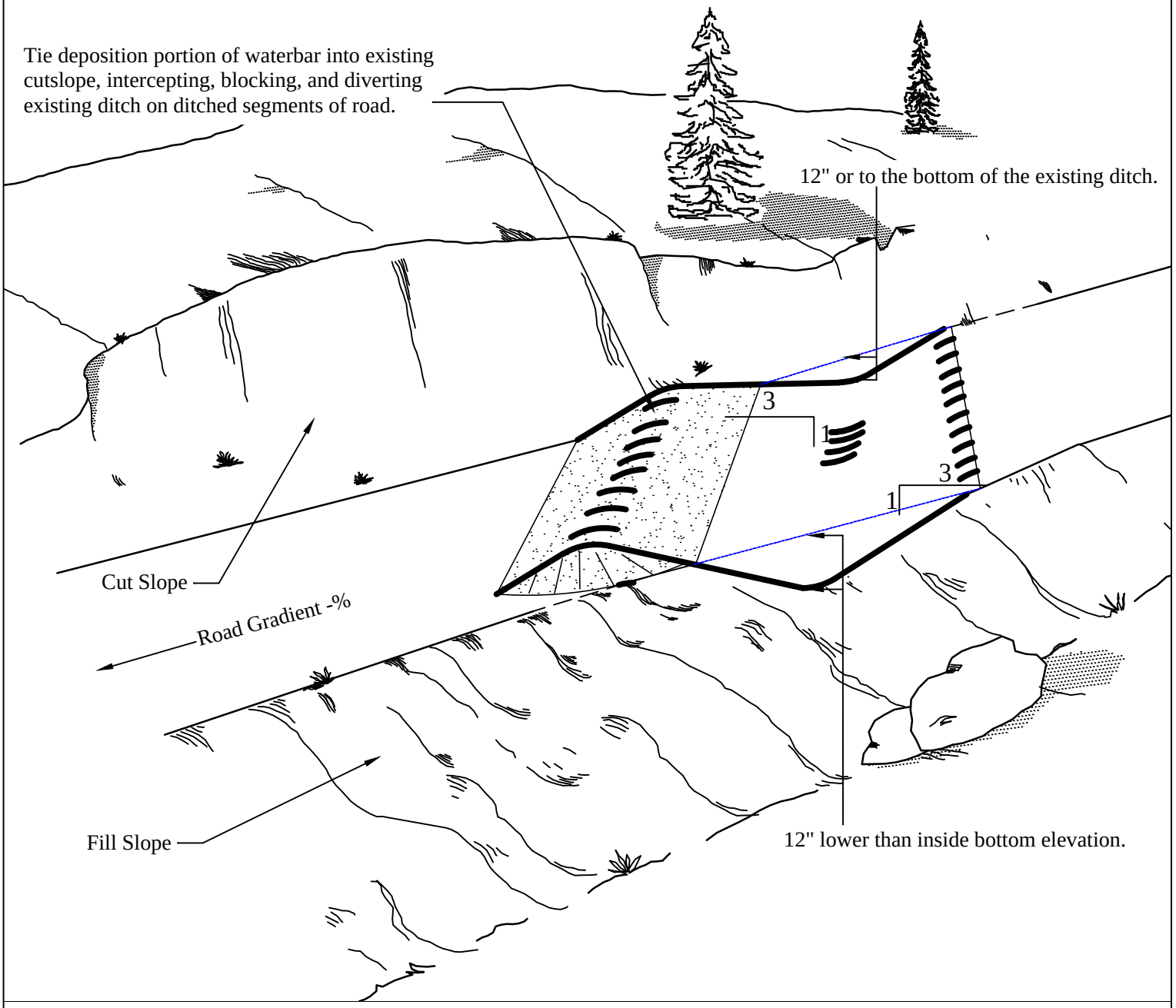


Section A - A
Not to Scale



Section B - B
Not to Scale

Dewey Stewardship - Road 213A
Type I Waterbar Installation



Notes:

1. Care shall be taken to not deposit any excavated material into existing fill slopes.

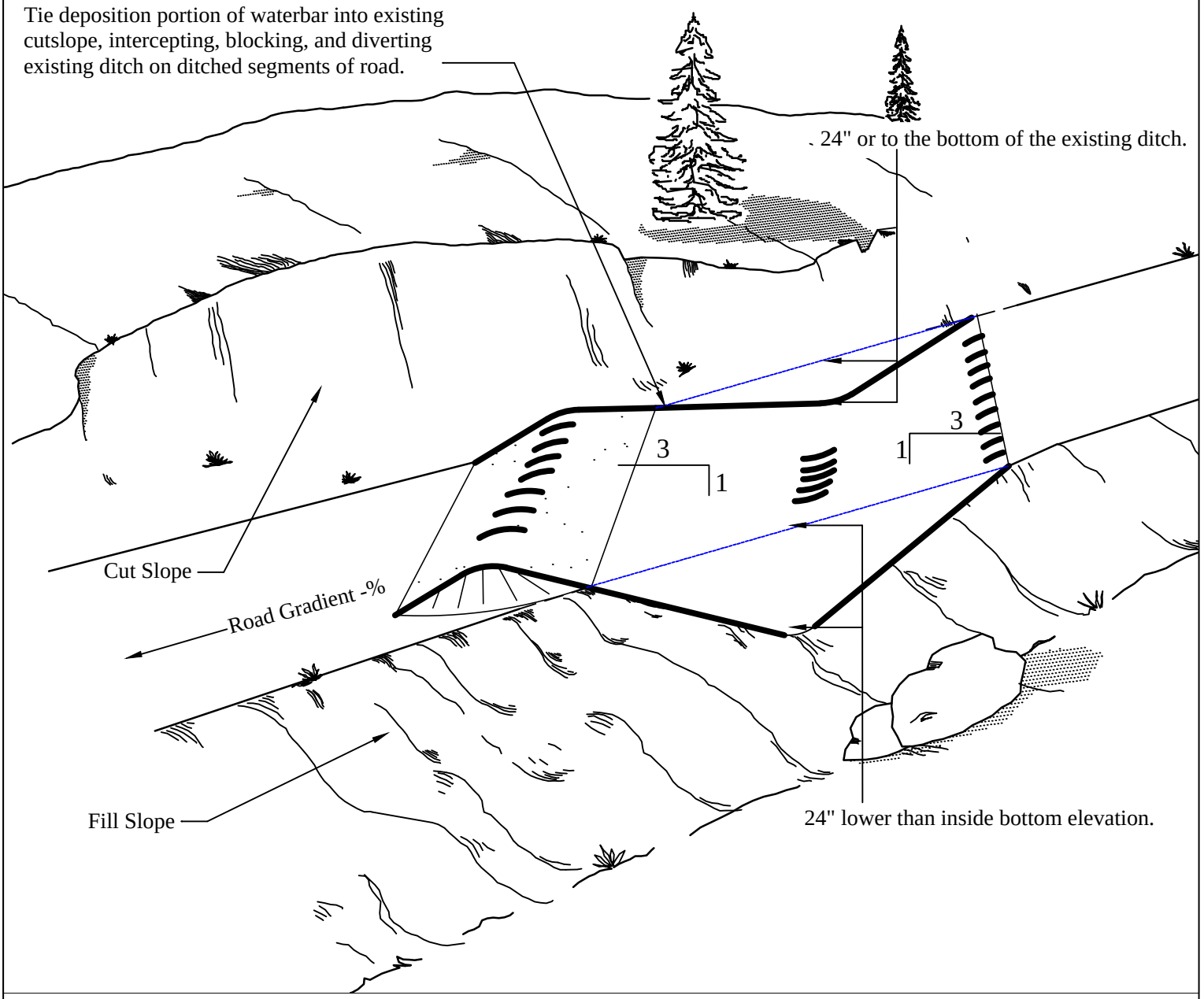
2. When built on ditched segments of road, construct waterbars to tie into the existing cut slope and to intercept, block, and drain the ditch across the road.

3. Seed and mulch all disturbed areas utilizing the appropriate materials.

4. When built on grades greater than 2% skew waterbars to facilitate drainage.

5. Grade changes over the length of the waterbar shall be smooth with no abrupt or sharp angle breaks..

Dewey Stewardship - Road 213A
Type II Waterbar Installation



Notes:

1. Care shall be taken to not deposit any excavated material into existing fill slopes.

2. When built on ditched segments of road, construct waterbars to tie into the existing cut slope and to intercept, block, and drain the ditch across the road.

3. Seed and mulch all disturbed areas utilizing the appropriate materials.

4. When built on grades greater than 2%, skew waterbars to facilitate drainage.

5. Grade changes over the length of the waterbar shall be smooth with no abrupt or sharp angle breaks..

ROAD LOG

PROJECT: DEWEY STEWARDSHIP WATERPROOFING---------- ROAD #213A

STATION	WORK DESCRIPTION	Refresh Stakes	Type I Waterbar	Clean Culvert	Remove Old Tires	Type II Waterbar	Remove Culvert	Stream Restoration	Rip Rap Class III				
0+00	BEGIN PROJECT --- MP 4.14 on Road #213												
	Begin Waterproofing.												
1+40	Existing Jersey Barriers												
	2 - 10' Jersey Barriers / Remove & Replace												
2+00	Construct Waterbar		1										
2+10	Existing 18" CMP --- Clean Inlet			1									
5+50	Construct Waterbar		1										
7+80	Construct Waterbar		1										
7+95	Existing 18" CMP --- Clean Inlet			1									
12+25	Construct Waterbar		1										
13+30	Remove and Dispose of Old Tires on Fillslope				1								
	Roughly 1 Truck Load												
14+80	Construct Waterbar		1										
14+90	Existing 18" CMP --- Clean Inlet			1									
18+90	Construct Waterbar		1										
20+00	Existing 18" CMP --- Clean Inlet			1									
23+20	Construct Waterbar												
26+35	Construct Waterbar		1										
26+70	Existing 18" CMP --- Clean Inlet			1									
30+30	Construct Waterbar		1										
33+50	Construct Waterbar		1										

Refresh Roadstakes (From Roadlogs)

ROAD LOG

PROJECT: DEWEY STEWARDSHIP WATERPROOFING---------- ROAD #213A

STATION	WORK DESCRIPTION	Refresh Stakes	Type I Waterbar	Clean Culvert	Remove Old Tires	Type II Waterbar	Remove Culvert	Stream Restoration	Rip Rap Class III				
34+70	Remove Existing 24" CMP --- Small Stream						1						
	Stream Channel Restoration							1	12				
35+50	Construct Type II Waterbar					1							
37+75	Construct Waterbar		1										
40+30	Remove Existing 48" CMP --- Large Stream						1						
	Stream Channel Restoration							1	18				
41+75	Construct Type II Waterbar					1							
44+35	Construct Waterbar		1										
51+70	Construct Waterbar		1										
53+60	Historic Road Junction Right												
56+30	Remove Existing 36" CMP --- Large Stream						1						
	Stream Channel Restoration							1	16				
57+30	Construct Type II Waterbar					1							
58+50	Seep w/ French Drain - No Work Needed												
70+90	Construct Waterbar			1									
74+50	Construct Waterbar			1									
76+25	Historic Road Junction Right												
77+45	Construct Waterbar			1									
83+40	Construct Waterbar			1									
93+50	Construct Waterbar			1									
98+45	Large Turnaround Left												
101+10	End Of Road / End Of Work												

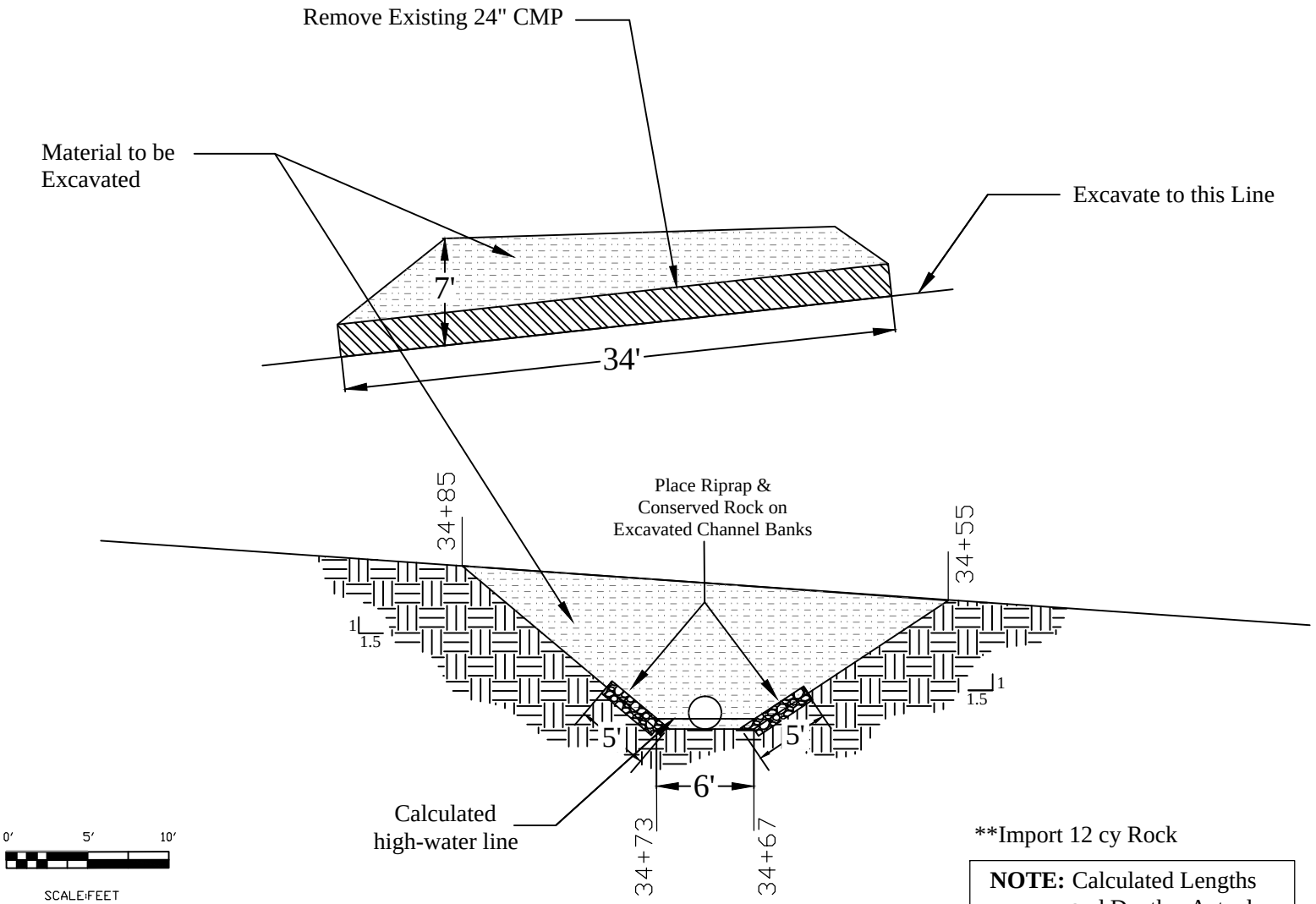
Refresh Roadstakes (From Roadlogs)

ROAD LOG

PROJECT: DEWEY STEWARDSHIP WATERPROOFING---------- ROAD #213A

STATION	WORK DESCRIPTION	Refresh Stakes	Type I Waterbar	Clean Culvert	Remove Old Tires	Type II Waterbar	Remove Culvert	Stream Restoration	Rip Rap Class III				
	ROAD #213A TOTALS												
	REESTABLISH ROAD STAKES	1.77 MI											
	WATERBAR, TYPE I		18 EA										
	CLEAN CULVERT INLET			5 EA									
	REMOVE OLD TIRES				1 LS								
	WATERBAR, TYPE II					3 EA							
	CULVERT REMOVAL						3 EA						
	STREAM RESTORATION							3 EA					
	MACHINE PLACED RIPRAP, CLASS 3								46 CY				

ROAD 213A



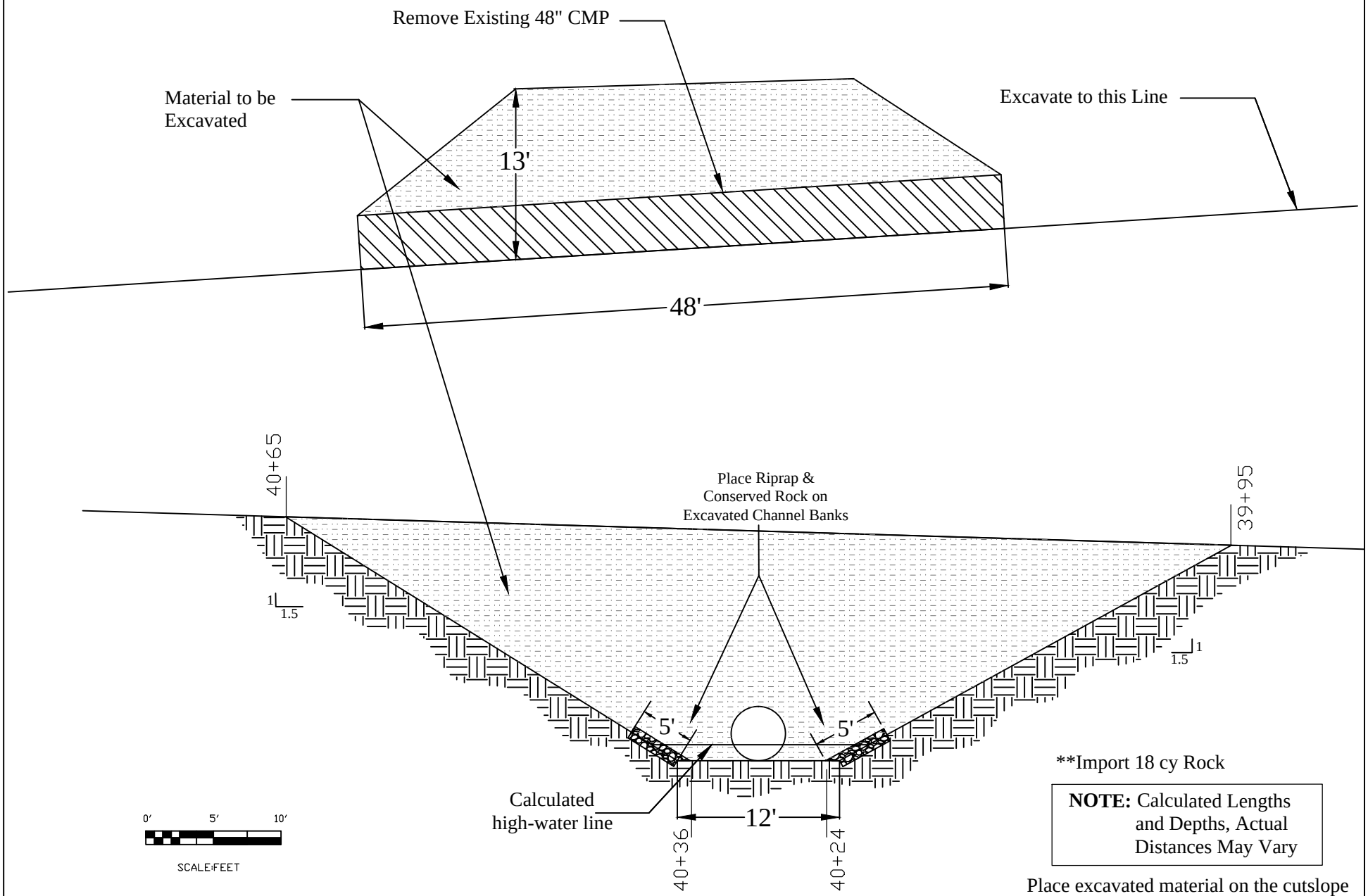
**Import 12 cy Rock

NOTE: Calculated Lengths and Depths, Actual Distances May Vary

Place all excavated material on the cutslope downhill of the stream restoration.

Station 34+70

ROAD 213A



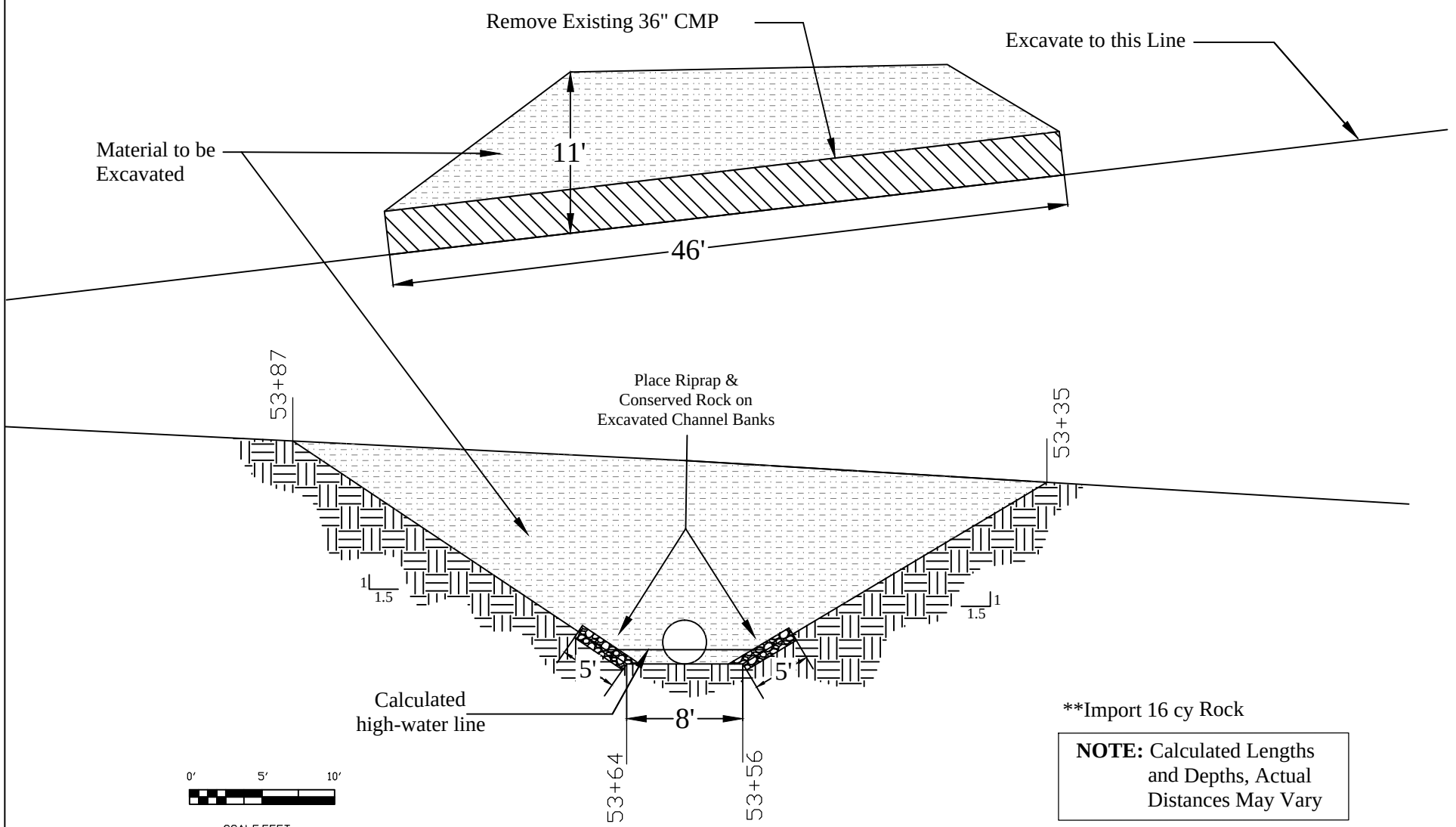
Station 40+30

**Import 18 cy Rock

NOTE: Calculated Lengths and Depths, Actual Distances May Vary

Place excavated material on the cutslope either side of the stream restoration. Lots of room available downhill.

ROAD 213A



Station 53+60

**Import 16 cy Rock

NOTE: Calculated Lengths and Depths, Actual Distances May Vary

Place excavated material on the cutslope either side of the stream restoration.