FOREST STEWARDSHIP PLAN

for

PHILLIPS SEEDLING AND RECLAMATION, INC.
11843 Billings
Lafayette, CO 80026
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Part of the
NW1/4 NW1/4 NW1/4, Sec 31, T1N, R68W, S.P.M.

(2.5 Acres)

Prepared By:

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Boulder, CO 80302
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TABLE OF CONTENTS

OBJECTIVE

To create visual screens to block the view from developments to the north and east. To create "thicket" plantings on the west and south to break up outlines of buildings and machinery seen from a distance.

DESCRIPTION

The property is located on the southeast corner of Arapahoe Road and Weld County Road 1.

The site is currently occupied by an office/shop building, sheds and machinery. During construction the site was leveled with soil being moved from the west side of the lot and filled on the east side. There is now several feet of "contractor soil" where the visual screen and southeastern thickets are to be and subsoil is exposed along the west side where the "thicket" plantings are to go. There is a driveway easement along the north and west sides and the existing driveway cuts the northeast corner. A fende will be built along the top edge of the fill, leaving about 30 feet for the visual barrier planting.

Plant cover on the site is currently Russian-thistle and tumbling mustard with a scattering of other plants.

Olney Soil Capability[1]

This is a deep, well drained soil on plains at elevations of 4,600 to 5,200 feet. It formed in mixed outwash deposits. ....

Typically the surface layer of this Olney soil is grayish brown fine sandy loam about 10 inches thick. The subsoil is yellowish brown and very pale brown snady clay loam about 14 inches thick. The substratum to a depth of 60 inches is very pale brown, calcareous fine sandy loam.

Permeability and avaible water capacity are moderate. The effective rooting depth is 60 inches or more. Surface runoff is medium, and the erosion hazard is low.[2]

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[1]Crabb, James A., Soil Survey of Weld County, Colorado - Southern Part, USDA Soil Conservation Service, Denver, 1980.

[2]Forester's Note: This soil is subject to blowing and water erosion. Weed barrier and/or grass cover is needed.

....

The potential native vegetation on this site is dominated by sand bluestem, sand reedgrass and blue grama. Needleandthread, switchgrass, sideoats grama, and western wheatgrass are also prominent. .... As range condition deteriorates, the sand bluestem, sand reedgrass and switchgrass decrease and blue grama, sand dropseed, and sand sage increase. Annual weeds and grasses invade the site as range condition becomes poorer.

.... Sand bluestem, sand reedgrass, switchgrass, sideoats grama, blue grama, and pubescent wheatgrass are suitable for seeding. .... It can be seeded into a clean, firm sorghum stubble, or it can be drilled into a firm prepared seedbed. Seeding early in spring has proven most successful.

Windbreaks and enviornmental plantings are generally suited to this soil. Soil blowing, the principle hazard in establishing trees and shrubs, can be controlled by cultivating only in the tree row and by leaving a strip of vegetation between the rows. Supplemental irrigation may be needed at the time of planting and during dry periods. Trees that are best suited and have good survival are Rocky Mountain juniper, eastern redcedar, ponderosa pine, Siberian elm, Russian-olive and hackberry. The shrubs best suited are skunkbush sumac, lilac and Siberian peashrub.[3]

Wildlife is an important secondary use of this soil. The cropland areas provide favorable habitat for ring-necked pheasant, and mourning dove. Many nongame species can be attracted by establishing areas for nesting and escape cover. For pheasants, undisturbed nesting cover is essential and should be included in plans for habitat development, especially in areas of intensive agriculture. Rnageland wildlife, for example, the pronghorn antelope, can be attracted by developeing livestock watering facilities, managing livestock grazing, and reseeding where needed.

.... Lawns, shrubs and trees grow well. Capability subclass IIe irrigated, IVe nonirrigated; Sandy Plains range site.

WILDLIFE

Wildlife use of the property is not a primary purpose of this planting. Rabbits make use of the site and will proably be a problem for seedling survival.

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[3]Caragana.

PLANTING PROJECTS

Visual Barrier:

Purpose: To screen the site from the view of developments, especially to the east southeast.

Description: In this planting, trees and shrubs are arranged somewhat differently from the straight rows that urban planners mistakenly think constitute a "windbreak," but the need for a visual barrier dictates a tall-growing species arranged in a continuous row.

The desire for fast growth eliminates the use of evergreens as the tall-row species. Eastern cottonwood and Siberian elm are the only fast-growing, tall species suitable to this site and available. Eastern cottonwood is not as subject to frost damage as Siberian elm and is not attacked by elmleaf beetles. It is the better choice, if protected from competition by weed barrier.

A fast-growing species will overtop and suppress a slower-growing species planted next to it. Thus, a tall, fast-grower like cottonwood should not be planted next to a slow-grower like ponderosa pine. When it eventually grows up, ponderosa pine makes the better year-round visual screen, but it may take twenty-five to thirty years for it to reach a significant height.

Shrubs should occupy the outer edge of the planting where they can obtain light from the side and block the view through the planting at ground level. American plums are hardy and grow rapidly to a height of six to eight feet, where they stop growing. They can provide a short-term, low-height visual screen while you are waiting for other species to catch up. They also produce edible fruit for wildlife and have orange leaves in the fall. Other, slower-growing shrubs like cottoneaster (bright fall colors), Nanking cherry (brilliant pink flowers in April/May) and caragana would work well to vary the species mix and break up the formal effect. I suggest about ten plants of one species, followed by ten plants of another species in a rotating pattern.

Between the tall and shrub rows, a "filler" of medium-height trees and shrubs should be used. If the fast-growth option is used, the medium-height species will have to be exclusively Rocky Mountain juniper as it is the only medium-height evergreen available for this site and, fortunately, well-adapted to conditions found here.

If ponderosa pines are used as the tall row, then there are many choices for the medium-height rows, including Rocky Mountain juniper, Russian-olive, eastern redcedar and caragana. Some "shrubs" such as Nanking cherry and "trees" such as honeylocust could be used. These should be planted in small clusters of like species to break up the appearance of rows.

There is more space available than needed for the center "row." This could be used to advantage by planting the medium-height species in a staggered or random pattern, even mixing some species together.

Including both legs, this planting is 550 feet long, 30 feet wide (50 feet, counting buffer strips), occupies 0.7 acres and "benefits" 2.5 acres (5.0 acres using NRCS standards).

Recommendation: Plant a row of ponderosa pines four feet from the inside fence. Plant a row of American plums three feet inside the driveway easement. Fill the area between with a mix of species groups, including Rocky Mountain juniper, cottoneaster, American plum, Nanking cherry and caragana at a density of one seedling per 36 square feet.

Cost summary for recommended visual barrier planting:

150 American plums @ $0.41 ea.:	$ 61.50
60 Large-pot Rocky Mtn. junipers @ $0.94 ea.:	56.40
60 Large-pot ponderosa pines @ $0.94 ea.:	56.40
50 Nanking cherries @ $0.41 ea.:	20.50
50 Caraganas @ $0.41 ea.:	20.50
50 cottoneasters @ $0.41 ea.:	20.50
460 Seedlings	$ 235.80
3000 Staples @ $43.40/1000:	130.20
2400' Weed Barrier @ $110.00/300':	880.00
SUB-TOTAL	$1246.00
Sales Tax (3%)	37.38
TOTAL, MATERIALS:	$1283.38
MACHINE PLANTING; 192 trees @ $0.75 ea.:	$ 144.00
LABOR, PLANTING; 223 trees @ $2.00 ea.:	446.00
LABOR, WEED BARRIER; 733 yards @ $1.10 ea.:	806.30
GRAND TOTAL	$2679.78

Thicket Plantings:

Purpose:

1. To break up the appearance of buildings and machinery and partially mask them from the road.
2. To provide cover and a food source for non-game wildlife.

Description: There will be six thickets, three along the west side, two along the south side and one in the southwest corner. The west-side thickets are each 10'X20'. The north one will contain 8 Rocky Mountain junipers; the middle one will contain 4 ponderosa pines and the south one will contain 15 American plums.

On the south side, each thicket will be 25'X25' and contain 16 Rocky Mountain junipers.

The corner planting will contain 5 ponderosa pines and extend 20 feet along each side. It might be desirable to plant larger trees in the corner as a show of good faith to the city.

Collectively, these plantings occupy 0.12 acres and extend 150 feet along the property line.

Below is a summary of costs:

30 Large-pot ponderosa pines @ $0.94 ea.:	$ 28.20
60 Large-pot Rocky Mtn. junipers @ $0.94 ea.:	56.40
50 American plums @ $0.41 ea.:	20.50
140 Seedlings:	$ 105.10
1000 Staples @ $43.40/1000:	43.40
600' Weed Barrier @ $110.00/300':	220.00
SUB-TOTAL	$ 263.40
Sales Tax (3%)	7.90
TOTAL, MATERIALS:	$ 271.30
LABOR, PLANTING; 64 trees @ $2.00 ea.:	128.00
LABOR, WEED BARRIER; 120 yards @ $1.10/yd.:	132.00
TOTAL, LABOR:	$ 260.00
GRAND TOTAL:	$ 531.30

*Based on 1996 prices. Prices are approximate and subject to change. Bulk rates are available if you do several projects at once and order enough trees (In this case, if you order enough trees to do the whole project, the bulk rate discount will pay for the thicket trees entirely.). Also, I know where we can get weed barrier at $108.00 per

300' roll, rather than $110.00 and we might even get it for as low as $100.00 per roll. You can buy #11, 6-inch wire staples from Bowman Construction in Denver for less than $43.40 per thousand. There are several ways to whittle the price down if circumstances work out. Again, the bigger the project, the more likely we are to find better rates.

MAINTENANCE

The use of weed barrier just about eliminates the need for maintenance, if it can be placed by mid-June (preferably June 1st). The only thing needed is an occasional inspection tour to re-anchor weed barrier that comes loose. Watering will increase survival and growth, but it is not needed.

You can expect about 15% loss during the first year a planting is in the ground. One year after planting, seedlings usually look terrible, but are recovering from shock by the end of the third year. You should also plan on using rabbit guards to protect the seedlings from our furry friends (Plan on about $300 at planting time and again two years later.). By the third year, transplant losses should no longer be a problem. A seedling is considered established after surviving five years.

The wall-to-wall weed barrier approach above will minimize grasshopper problems, but to be sure, you should mow the grass and weeds around the plantings during the early part of each season. After mid-July, quit mowing so that weeds can come up and provide some protection from winter winds.

Grass is a vigorous competitor with tree seedlings. It drinks up water and adds compounds to soil to poison competition. Seedlings grow much better if they don't have to fight it.

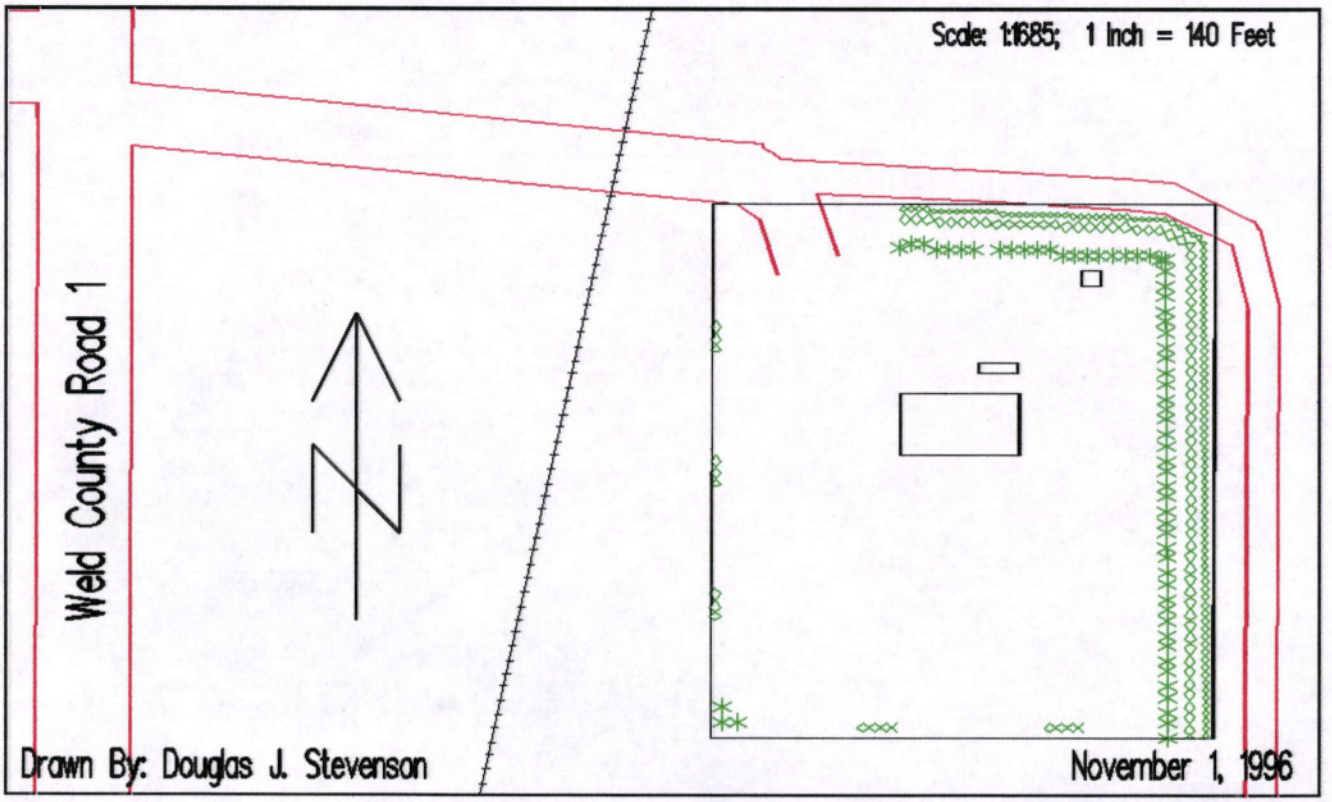
Weed barrier is a woven plastic cloth. It kills grass. Laid around tree seedlings, it provides needed relief from competition.

Maintenance is the landowner's responsibility. The above prices do not include things like re-anchoring weed barrier after a storm, or watering seedlings should drought threaten the planting during the first summer (Although, this can be arranged.).

Respectfully Submitted By:

Douglas J Stevenson

Douglas J. Stevenson
Assistant District Forester



Phillips Seeding and Reclamation, Inc.

Visual Screen Plantings

Part of the
NW1/4 NW1/4 NW1/4, Sec 31, T1N, R68W, S.P.M.

Property Line
Building
Shrubs
Junipers
Trees
Road
Abandoned Railroad Grade