

**ZION LANDFILL PERIMETER BERMS  
AND PLANTINGS  
SITE 2 NORTH EXPANSION**

**Operations and Maintenance Manual**

Prepared by:  
The Lannert Group, Inc.,  
215 Fulton St., Geneva, IL 60134  
(630) 208-8088

Date: June 10, 2022

### Project Description

The proposed Operations and Maintenance Manual is intended to monitor the perimeter berms and plantings as shown on the accompanying Conceptual, End Use, Landscaping, and Planting Plans prepared by The Lannert Group, dated June 10, 2022, six drawings total.

### Responsible Parties

Zion Landfill shall be the Responsible Party for all aspects of the operations and maintenance. The proposed berms and landscape planting features will be maintained as proposed in this document.

### Maintenance Schedule

1. A sample Inspection Report is attached for documentation of inspection activity.
2. The Responsible Party will maintain the property, to include the berms, plantings, seeding, and woodlands surrounding the expansion.
3. The maintenance requirements include the following items.
  - a. Surface Drainage and Retention Basins
    - 1) Grass and/or vegetated areas to be mowed as described in the Landscape Matrix Schedule.
    - 2) Repair eroded areas, seed or sod, and replace trees and shrubs per the Landscape Matrix Schedule.
    - 3) Monitor sediment accumulation in drainageways.
    - 4) If debris is collected in any of the drainage swales, it shall be removed.
    - 5) Debris, and sediment removed shall be properly disposed of in accordance with applicable regulations.
    - 6) Check drainage pipe structures and culverts to ensure pipes are not blocked by debris. Remove debris when more than 6 inches deep with proper disposal.

### Overview Description of the Planted and Bermed Areas

The Zion Landfill expansion envisions both man-made and natural features to maximize the appearance of the landfill from surrounding and adjacent views. The measures outlined below will be performed as indicated within the maintenance schedule.

1. The drainage retention basin banks will be seeded with grass.
2. Drainage bio-swales, and end sections will collect sediment from overland areas prior to drainage into retention basins.
3. Drainage will flow into constructed swales prior to outlet into drainage culvert pipes. The riprap areas will slow the water velocity to avoid soil erosion.
4. Vegetation on berms and retention slope areas, will filter pollutants from runoff, and reduce velocity which will reduce soil erosion potential.

## Natural Features for Stormwater Control

The items listed below identify certain aspects of the landscape amenities and natural areas. These described conditions only serve to compliment the required action depicted on the Landscape Matrix Schedule.

Debris Removal: The removal and disposal of windblown refuse from the open spaces.

Fertilization: Fertilizer program shall be reviewed and adjusted annually to match site needs.

Inlet/Outlet Cleaning: Litter, clippings from mowing, and sediment runoff shall be removed from the flared inlet and outlet end sections.

Mowing (Native Stormwater Basins): Mow at a height of 6" per Landscape Matrix Schedule. Mowing height and frequency may be seasonally adjusted depending upon weather conditions in order to control annual weeds.

Pruning (Shrubs): Shrubs shall be shaped and thinned to allow for its natural form and habit.

Pruning (Trees): All shade and ornamental trees shall be pruned or evaluated for pruning at least once per year. Light pruning and the removal of deadwood can be done during the latter part of the growing season. If more extensive pruning is necessary, fall or winter pruning is preferred. The purpose is to maintain proper form, remove dead wood, and to promote overall tree health. Pruning shall conform to standard horticultural practices and be done in such a way as to not interfere with blooming of ornamental trees. Trees over 6" in DBH (diameter at breast height) will not be pruned other than removal of low branches or any sucker growth that may occur.

Site Assessment: An annual site assessment consists of an on-site inspection to evaluate the condition of the forested vegetation, inlets, outlets, and erosion problems, and will be conducted. The assessment includes a brief report outlining the overall basin condition and any necessary actions (i.e. gully repair, over-seeding, etc.) that may be outside of the standard maintenance program. When necessary, invasive species, weed control, and noxious plant materials will be removed.

Weed and Pest Control: Annual weeds and pests, can be spot sprayed as determined by annual site assessment and inspection required in the Landscape Matrix Schedule.

This Landscape Maintenance List/Matrix, identifies the item or condition measures of each element to be monitored and maintained. Each issue/action is noted and the shaded monthly block identifies the preferred month for execution, if determined to be necessary. Seasonal weather conditions can impact the schedule whether early in the month or later. The qualified on-site contractor or individual may adjust the sequencing of events.

	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR
Remove debris caught in trees, shrubs and naturalized areas												
Water if required												
Fertilize trees and shrubs with a nitrogen fertilizer; as required												
Bed clean-up; remove organic debris, excess mulch, etc.												
Naturalized stormwater basin assessment												
Remove accumulated sediment in drainage structures; as necessary												
Naturalized stormwater basin weed control												
Mow naturalized stormwater basin side slopes												
inspect Pines for Sawfly larva on shoots												
Prune blooming shrubs & hedges after bloom, if appropriate												
Install ornamental grasses												
Inspect for grubs, snails & slugs												
Water trees if needed to equal 1" of water per week												
Inspect for Bagworms, White Grubs, and Carpenter Ants												
Plant trees & shrubs as needed												
Replace missing, dead, and damaged plants												
Inspect for Bagworms on evergreens; remove infected branches												
Water evergreens & newly planted trees/shrubs, until ground freezes												
Apply Fall fertilizer to lawn areas												
Prune damaged tree branches while trees are dormant												
Check all winter cover evergreen boughs												
Remove all winter cover evergreen boughs												
Prune established trees to thin and shape the crown												
Prune dormant shade trees except Birch, Maple, Dogwood, Oak & Elm												
Prune winterkill from shrubs; prune back to green shoots or new growth												

## *Inspection Report For Berms and Plantings*

Inspector's Name: \_\_\_\_\_

Inspector's Signature: \_\_\_\_\_  
Date

General Information		Permit Number	
Project Name: Zion Landfill Perimeter Berm Maintenance and Landscape Inspection			
Type of Inspection: Annual			
Inspection Item	Maintenance Required?	Corrective Action Needed Notes	
1. Mowing needed per Landscape Matrix.	Yes No		
2. Dead or damaged vegetation to be replaced.	Yes No		
3. Eroded areas to be repaired.	Yes No		
4. Drainage Inlets; remove debris with proper disposal.	Yes No		
5. Note condition for replacement of vegetation on open space area berms.	Yes No		
6. Review of required landscape maintenance; Weed and fertilize per Landscape Matrix.	Yes No		
7. Evidence of vegetation pruning; Prune as needed per Landscape Matrix.	Yes No		
8. Plant communities around lake edge; Appearance and condition observed per Landscape Matrix.	Yes No		

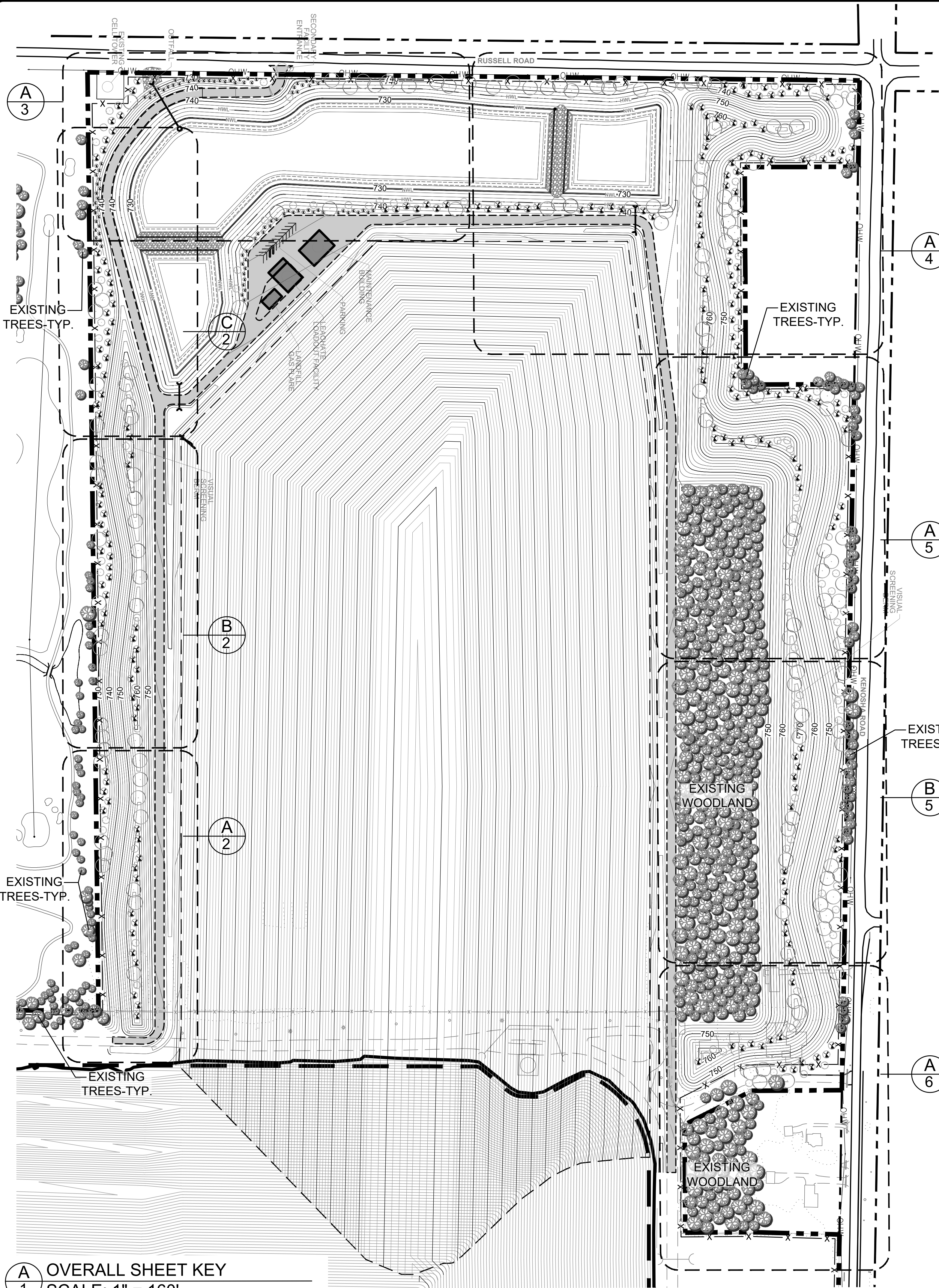
# *Inspection Report for Berms and Plantings*

## INSPECTION NOTES AND COMMENTS


Cost Estimate based upon plans dated June 10, 2022

QTY	KEY	BOTANICAL NAME / COMMON NAME	SIZE	COND.	UNIT	TOTAL
<b>Shade Trees</b>						
25	ACRS	Acer rubrum 'Franksred' Red Sunset Red Maple	2" cal.	b&b	445.00	11,125.00
17	BEWS	Betula populifolia 'Whitespire' Whitespire White Birch	2" cal.	b&b	407.50	6,927.50
24	CEOC	Celtis occidentalis Hackberry	2" cal.	b&b	520.00	12,480.00
22	GLSK	Gleditsia triacanthos 'Skyline' Skyline Honeylocust	2" cal.	b&b	557.50	12,265.00
14	GYDI	Gymnocladus dioica Kentucky Coffee Tree	2" cal.	b&b	462.50	6,475.00
15	PLOV	Platanus x acerifolia 'Morton Circle' Exclamation London Planetree	2" cal.	b&b	420.00	6,300.00
11	QUBI	Quercus bicolor Swamp White Oak	2" cal.	b&b	507.50	5,582.50
15	TADI	Taxodium distichum Baldcypress	2" cal.	b&b	495.00	7,425.00
6	ULMG	Ulmus x. 'MortonGlossy' Triumph Hybrid Elm	2" cal.	b&b	395.00	2,370.00
<b>Evergreen Trees</b>						
20	JUCA	Juniperus virginiana 'Canaertii' Red Cedar	8' ht.	b&b	592.50	11,850.00
27	PIAB	Picea abies Norway Spruce	8' ht.	b&b	717.50	19,372.50
77	PIBH	Picea glauca var. densata Black Hills spruce	8' ht.	b&b	862.50	66,412.50
53	PIMA	Picea mariana Black Spruce	8' ht.	b&b	862.50	45,712.50
64	PIVP	Pinus flexilis 'Vanderwolf's Pyramid' Limber Pine	8' ht.	b&b	742.50	47,520.00
72	THNI	Thuja occidentalis 'Nigra' Dark Green Arborvitae	8' ht.	b&b	535.00	38,520.00
<b>Ornamental Trees</b>						
30	AMCA	Amelanchier canadensis Serviceberry	6' ht.	b&b	520.00	15,600.00
28	CECA	Cercis canadensis Redbud	6' ht.	b&b	532.50	14,910.00
14	COGG	Cornus mas 'Golden Glory' Cornelian Dogwood	6' ht.	b&b	457.50	6,405.00
13	HAVI	Hamamelis virginiana Common Witch Hazel	6' ht.	b&b	395.00	5,135.00
14	RHTY	Rhus typhina Staghorn Sumac	6' ht.	b&b	322.50	4,515.00
<b>Deciduous Shrubs</b>						
25	CEPH	Cephalanthus occidentalis Common Buttonbush	4' ht.	#5/b&b	80.38	2,009.38
18	COCA	Cornus sericea 'Cardinal' Cardinal Redtwig Dogwood	4' ht.	#5/b&b	71.00	1,278.00
24	HEMI	Heptacodium miconioides Seven Son Flower	4' ht.	#5/b&b	68.63	1,647.00
7	SABL	Sambucus nigra 'Eva' Black Lace Elderberry	4' ht.	#5/b&b	76.13	532.88
16	VIDE	Viburnum dentatum Arrowwood Viburnum	4' ht.	#5/b&b	85.00	1,360.00
<b>TOTAL</b>						<b>\$353,729.75</b>





**A** OVERALL SHEET KEY  
1 SCALE: 1" = 160'

**LEGEND:**

- PROPERTY BOUNDARY
- RIGHT-OF-WAY
- EXISTING LANDFILL OVERLAP AREA
- LANDFILL FOOTPRINT PERIMETER
- PROPOSED FENCE
- OVER HEAD WIRE
- TYPICAL EXISTING TREES

**PLANT MATERIAL LIST**

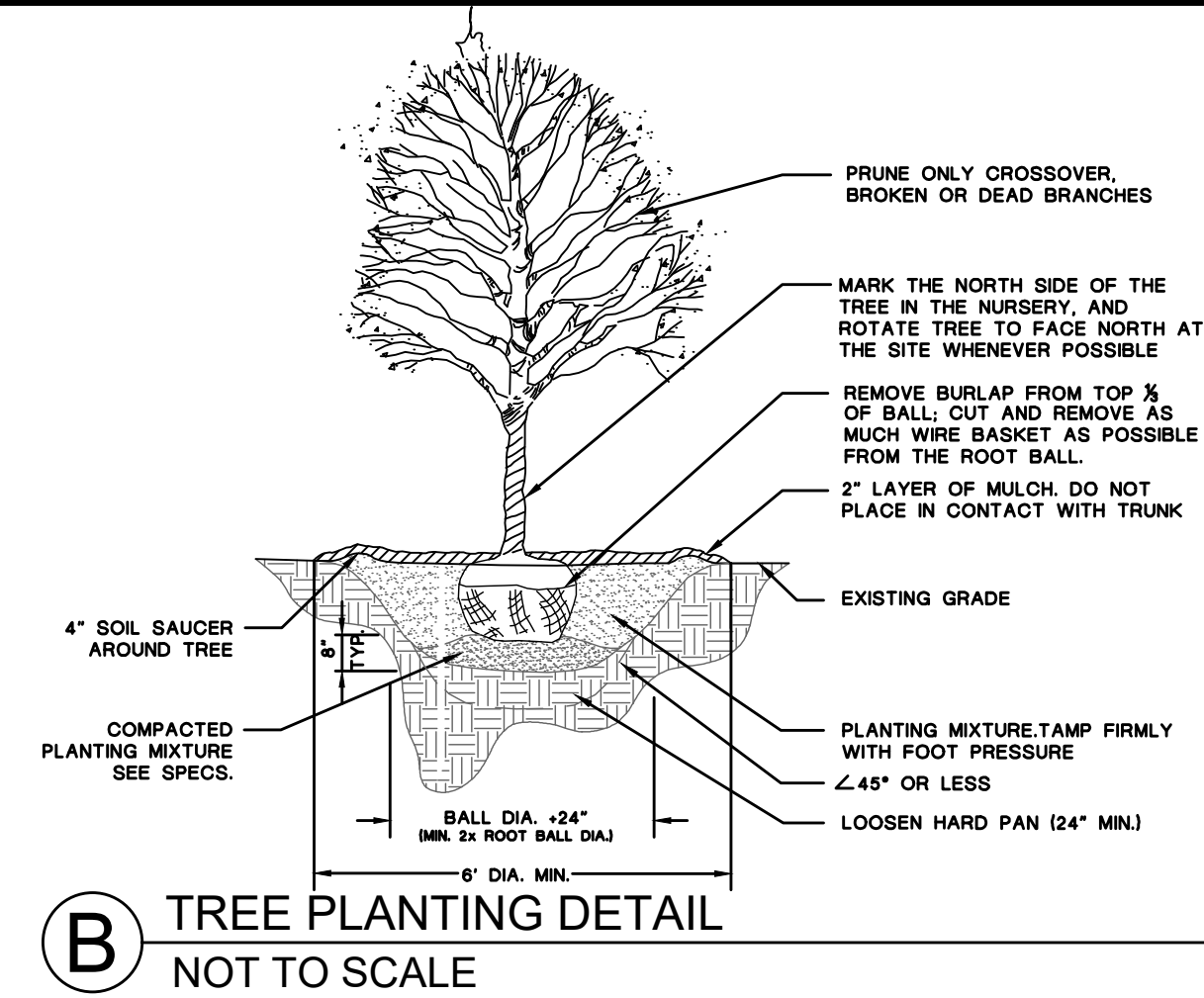
QTY	KEY	BOTANICAL NAME / COMMON NAME		SIZE	COND.
Shade Trees					
25	ACRS	Acer rubrum 'Frankred'	Red Sunset Red Maple	2' cal.	b&b
17	BEVS	Betula populifolia 'Whitespire'	Whitespire White Birch	2' cal.	b&b
24	CEOC	Celtis occidentalis	Hackberry	2' cal.	b&b
22	GLSK	Gleditsia triacanthos 'Skyline'	Skyline Honeylocust	2' cal.	b&b
14	GYDI	Gymnocladus dioica	Kentucky Coffee Tree	2' cal.	b&b
15	PLOV	Platanus x acerifolia 'Morton Circle'	Exclamation London Planetree	2' cal.	b&b
11	QUBI	Quercus bicolor	Swamp White Oak	2' cal.	b&b
15	TADI	Taxodium distichum	Baldypress	2' cal.	b&b
6	ULMG	Ulmus x 'MortonGlossy'	Triumph Hybrid Elm	2' cal.	b&b
Evergreen Trees					
20	JUCA	Juniperus virginiana 'Canoarti'	Red Cedar	8' ht.	b&b
27	PIAB	Picea abies	Norway Spruce	8' ht.	b&b
77	PIBH	Picea glauca var. densata	Black Hills spruce	8' ht.	b&b
53	PIMA	Picea mariana	Black Spruce	8' ht.	b&b
64	PVP	Pinus flexilis 'Vanderwolf's Pyramid'	Umber Pine	8' ht.	b&b
72	THNI	Thuja occidentalis 'Nigra'	Dark Green Arborvitae	8' ht.	b&b
Ornamental Trees					
30	AMCA	Amelanchier canadensis	Serviceberry	6' ht.	b&b
28	CECA	Cercis canadensis	Redbud	6' ht.	b&b
14	COGG	Cornus mas 'Golden Glory'	Golden Glory Cornelian Dogwood	6' ht.	b&b
13	HAVI	Hamelis virginiana	Common Witch Hazel	6' ht.	b&b
14	RHTY	Rhus typhina	Staghorn Sumac	6' ht.	b&b
Deciduous Shrubs					
25	CEPH	Cephalanthus occidentalis	Common Buttonbush	4' ht.	#5/b&b
18	COCA	Cornus sericea 'Cardinal'	Cardinal Redtwig Dogwood	4' ht.	#5/b&b
24	HEIM	Heptacodium miconioides	Seven Son Flower	4' ht.	#5/b&b
7	SABL	Sambucus nigra 'Eva'	Black Lace Elderberry	4' ht.	#5/b&b
16	VIDE	Viburnum dentatum	Arrowwood Viburnum	4' ht.	#5/b&b

**GENERAL NOTES:**

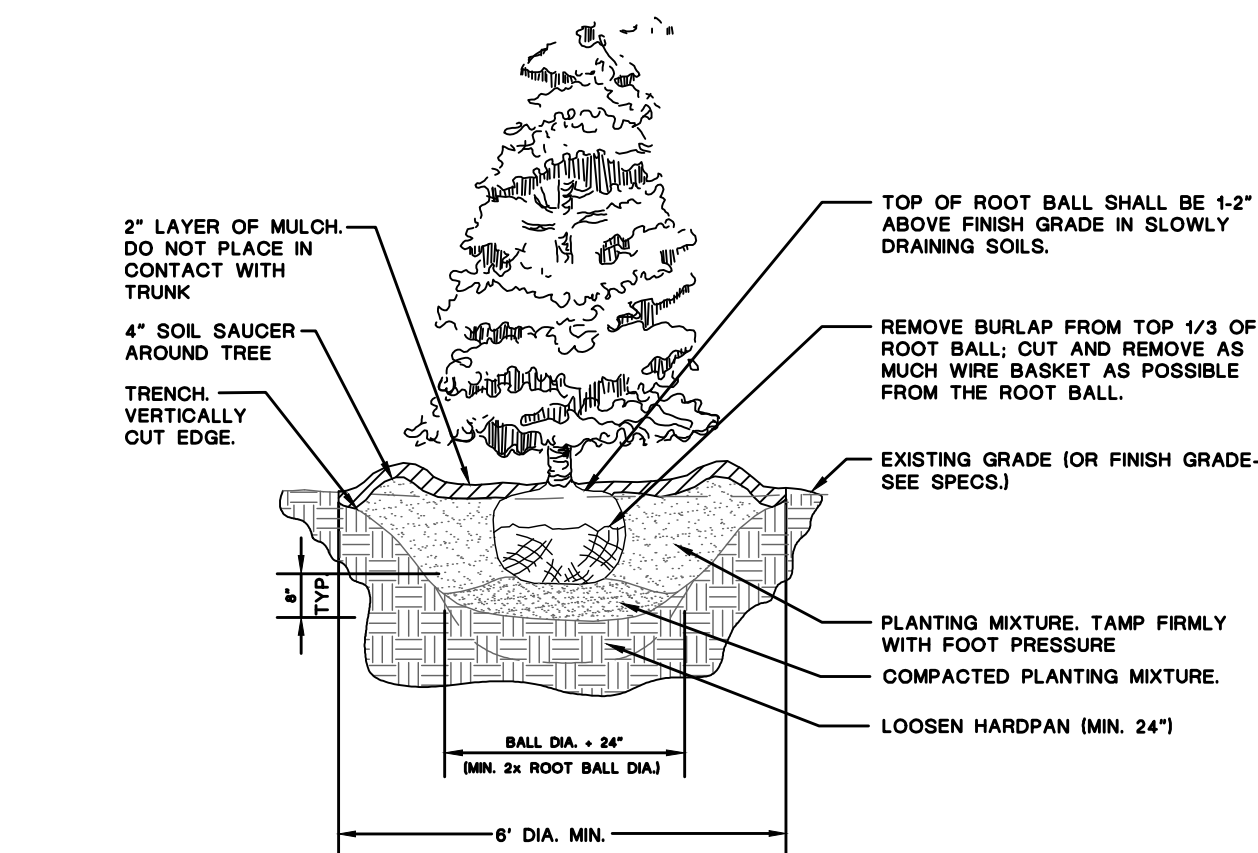
- Contractor is responsible for verification of underground utility lines and is responsible for any damage occurring as a product of his work.
- Contractor shall maintain clear and open access to the vehicular and pedestrian entrances to and from the property during all periods of work.
- Contractor is responsible for verification of all existing conditions in the field prior to bidding and construction and shall notify the Landscape Architect and/or Owner of any variances.
- Contractor is responsible for acquisition of and payment for all permits, fees and inspections necessary for the proper execution of this work and for compliance with all codes applicable to this work.
- Contractor shall protect the property and is directly responsible for all damages caused by his work and for daily removal of all trash and debris from his work area to the satisfaction of the Landscape Architect and/or the Owner.

**LANDSCAPE NOTES:**

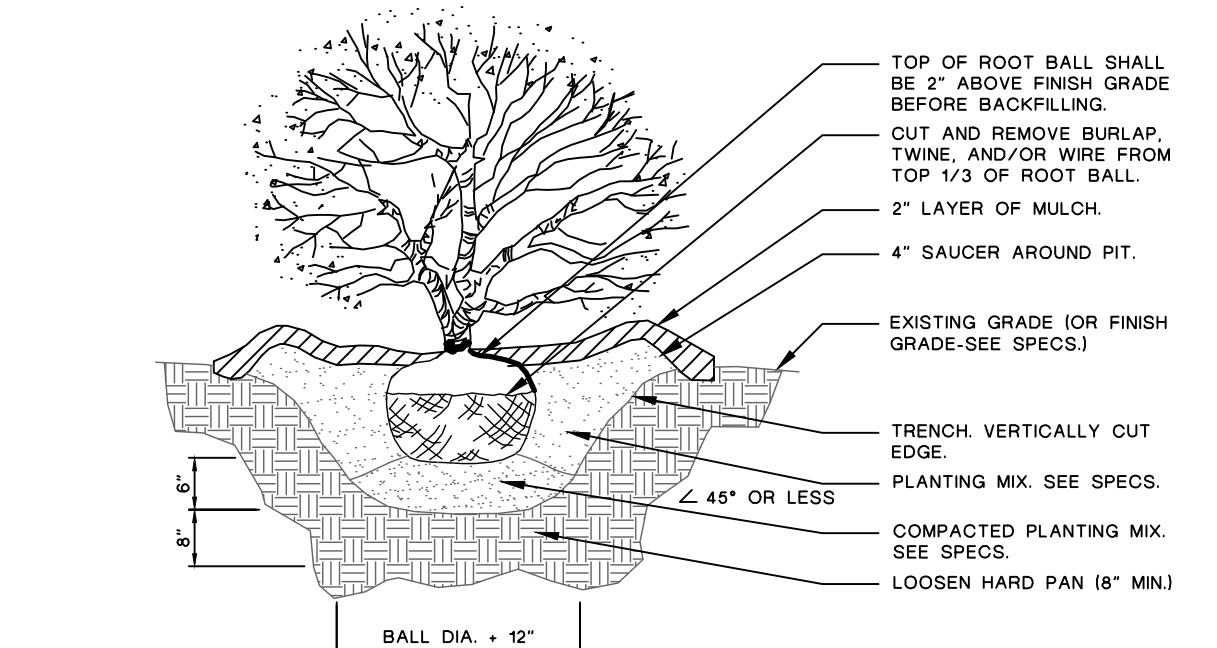
- Material quantities are shown only for the convenience of the Contractor. The Contractor is responsible for verification of all materials and supplies in sufficient quantity to complete the job per plan.
- All work shall conform to American Nursery & Landscape Association 2004 edition of the American Standard for Nursery Stock, State of Illinois Horticultural Standards and local municipal requirements.
- All plant material installation shall be as detailed on these Drawings.
- All pruning work shall be performed only with hand pruners.
- All deciduous plant material shall be thin pruned to remove 1/4 interior branches, dead branches and broken branches. Pruning shall complement the plants natural form. Absolutely no tip pruning is allowed, except for hedges as noted on the Drawing. Any plant that is tip pruned is subject to rejection by the Landscape Architect and/or Owner.
- Evergreen trees shall be pruned of dead and broken branches and as directed by the Landscape Architect and/or Owner.
- The Landscape Architect and/or Owner reserves the right to inspect trees and shrubs either at the place of growth or at the site prior to planting for compliance with requirements of variety, size and quality.
- Provide pre-mixed planting mixture for use around the balls and roots of the plants consisting of 5 parts topsoil to 1 part leaf compost and 1/2 lb. Organic Bio-tone Starter Plus plant fertilizer as available from Espoma for each cu. yd. of mixture. If leaf compost is unavailable mushroom compost can be substituted.
- Prior to mulching, all individual trees and shrub beds shall be treated with a pre-emergent herbicide, such as Snap-Shot®. All areas shall be free from weeds prior to herbicide application.
- Guying of trees shall be at the option of the Landscape Contractor; however, all trees shall be plumb and straight through final inspection and warranty. When guying of trees is deemed necessary to insure proper planting and positioning of the tree, it should be done immediately after lawn seeding or sodding operations and prior to acceptance.
- Water trees and shrubs within the first 12 hours of initial planting. Continue watering weekly or as needed until the end of the maintenance period.
- Specifications for vegetative work shall follow Sections 250 and 254, "Seeding" and "Mulching", in the Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction.
- Seed mixture should comply with Article 250.07 of the IDOT Standard Specifications for Road and Bridge Construction Table 1 or equivalent as approved by the Engineer.
- Slopes in excess of 1:5 shall be seeded using Class 3 Northern Illinois Slope Mixture seed mix. All remaining site restoration seeding shall implement Class 2 Roadside Mixture seed mix.



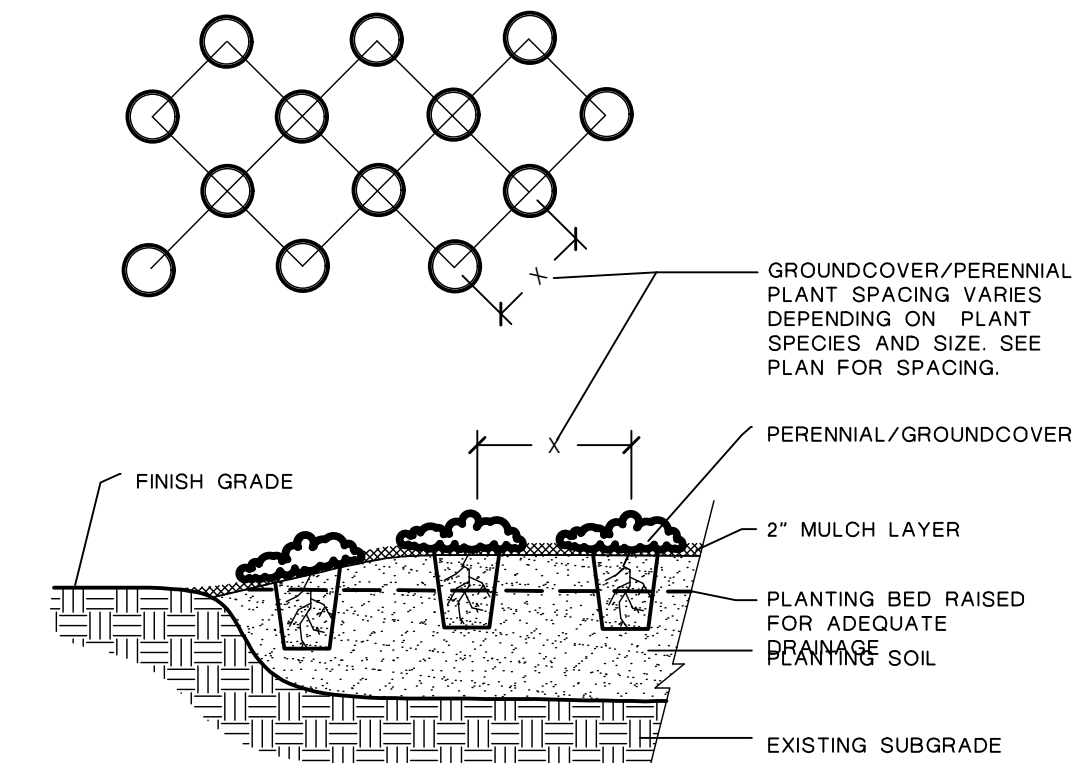
**B** TREE PLANTING DETAIL  
NOT TO SCALE



**C** EVERGREEN TREE PLANTING  
NOT TO SCALE



**D** SHRUB PLANTING DETAIL  
NOT TO SCALE



**E** PERENNIAL PLANTING DETAIL  
NOT TO SCALE

JOB NO.: 2103  
DATE: 06/10/22  
REVISIONS:  
DRAWN BY: KL

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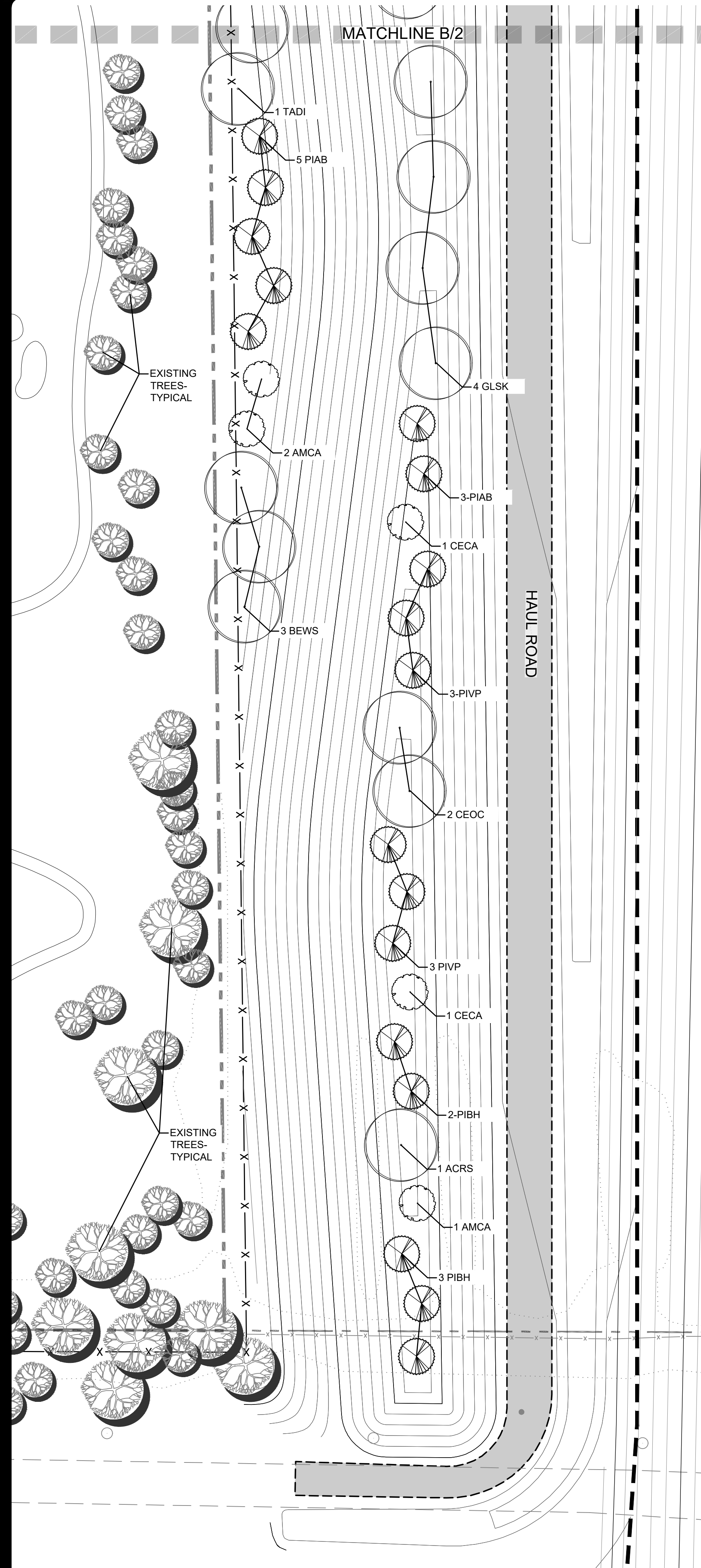
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CONCEPTUAL END USE & LANDSCAPE PLAN

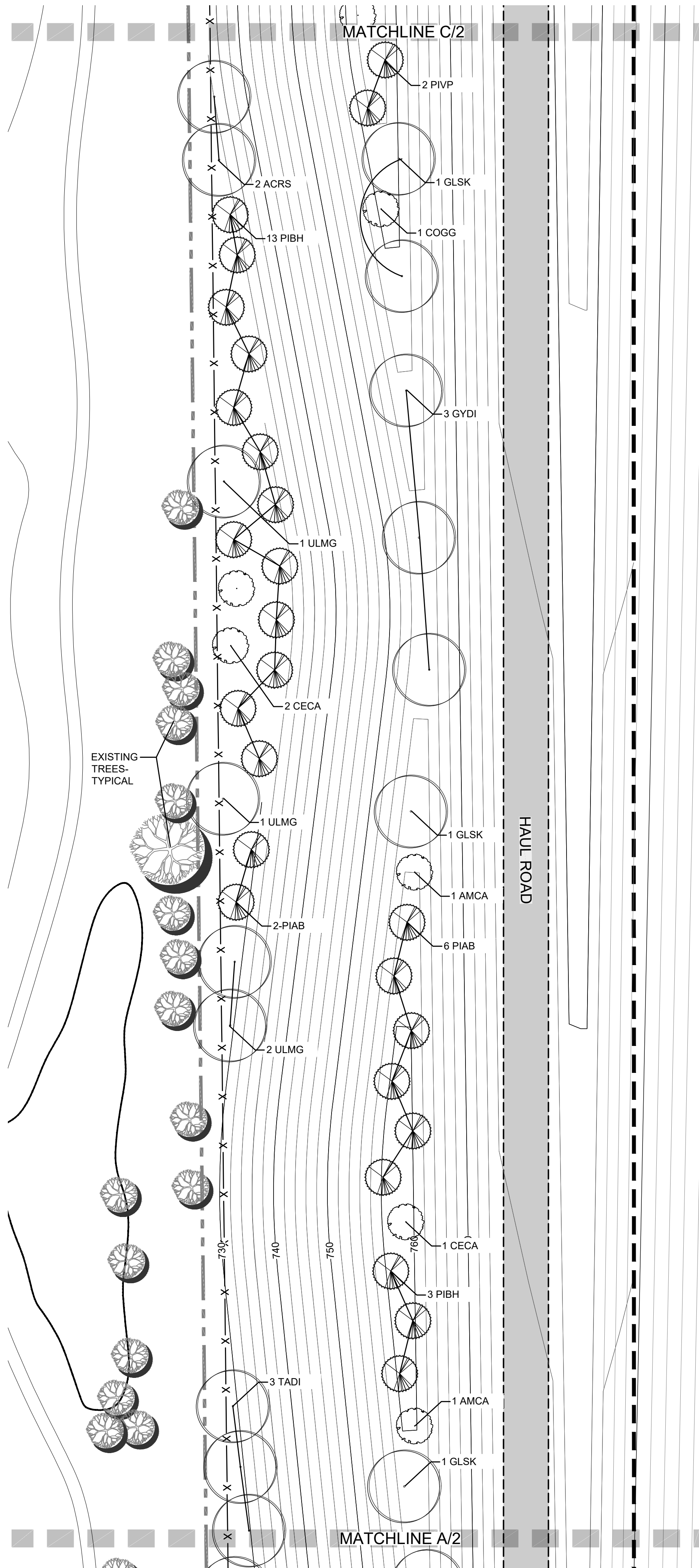
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1  
OF 6

SCALE 1"=

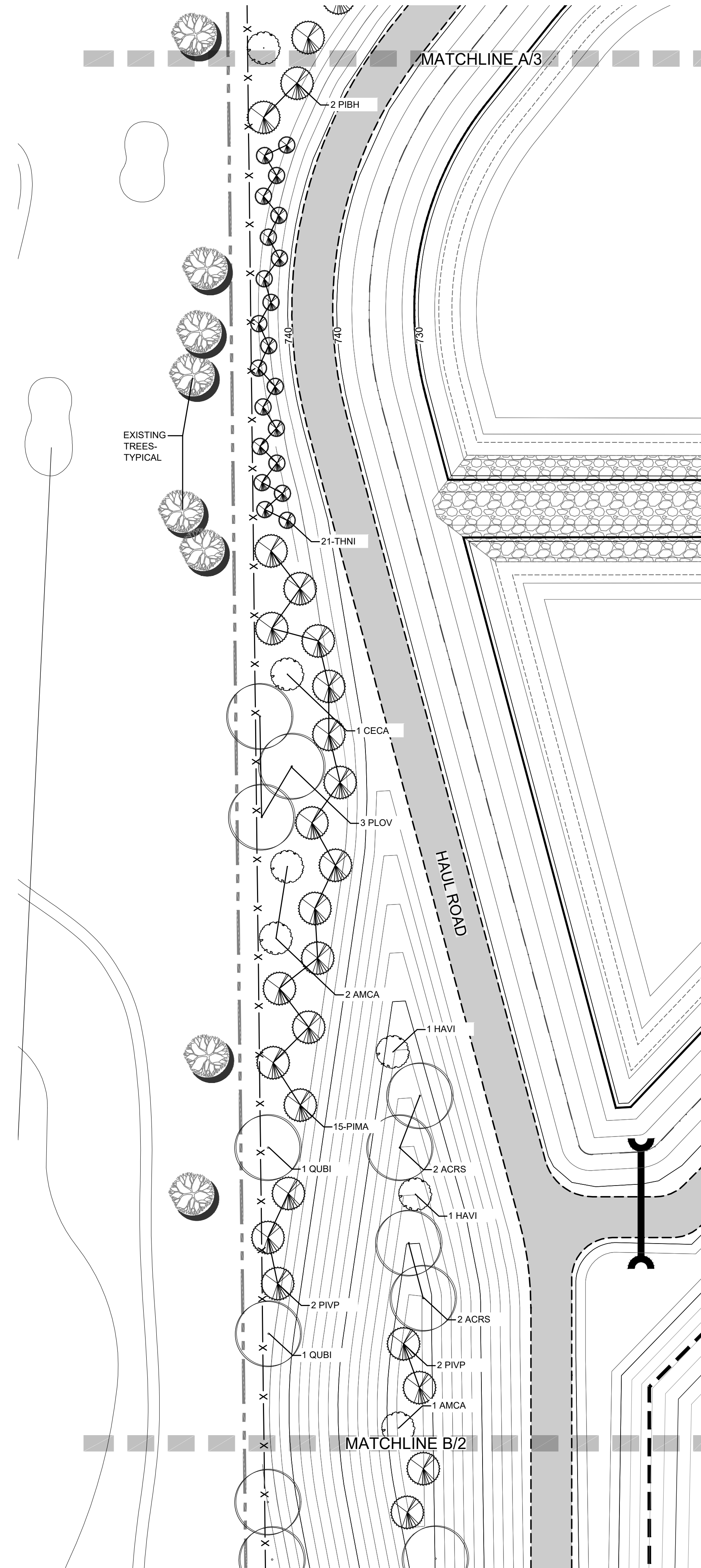




**A** TYPICAL PLANTING PLAN  
2 SCALE: 1" = 40'

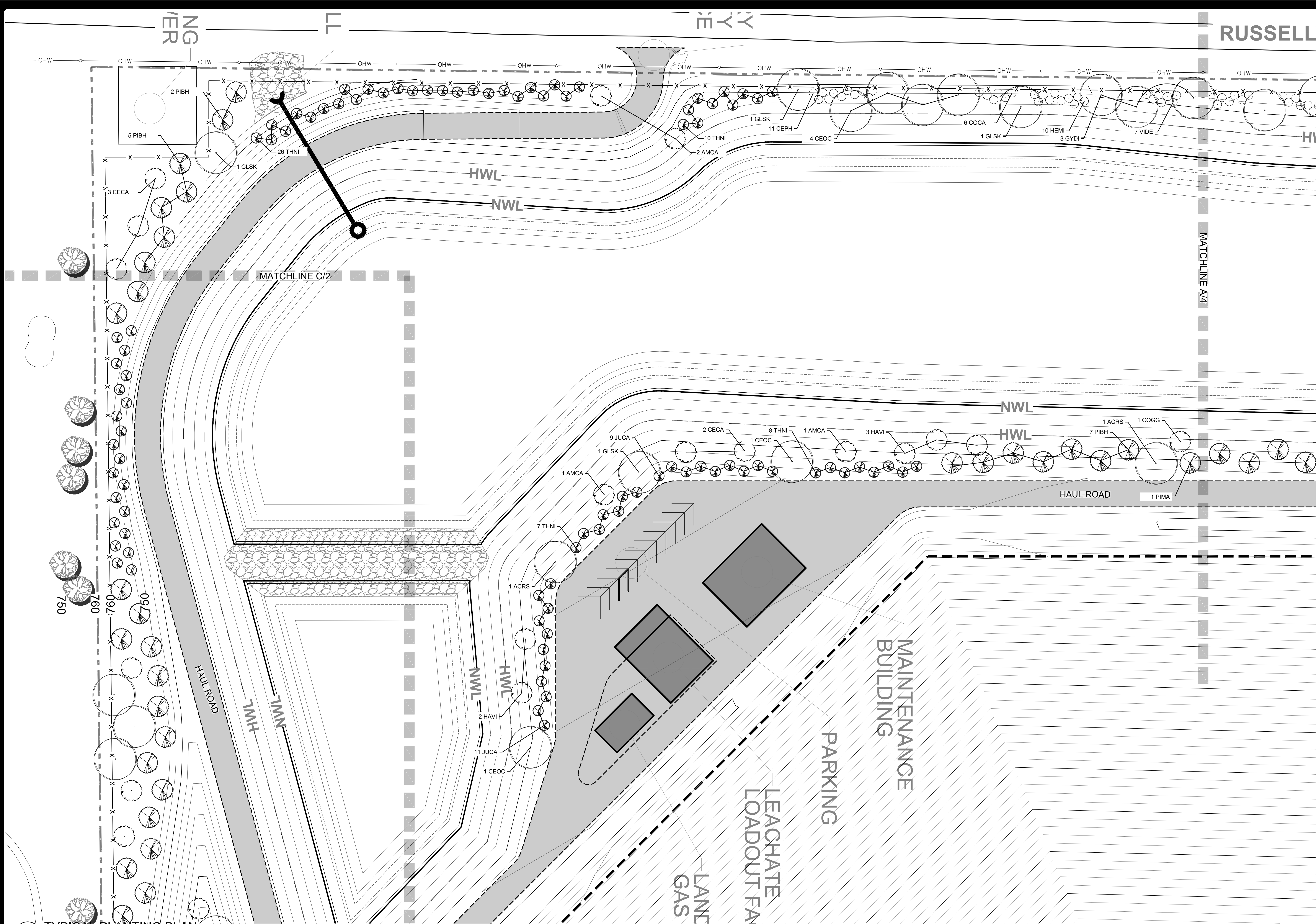


**B** TYPICAL PLANTING PLAN  
2 SCALE: 1" = 40'



**C** TYPICAL PLANTING PLAN  
2 SCALE: 1" = 40'





A  
3 TYPICAL PLANTING PLAN  
SCALE: 1" = 40'

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DATE: 06/10/22  
REVISIONS:  
DRAWN BY: KL

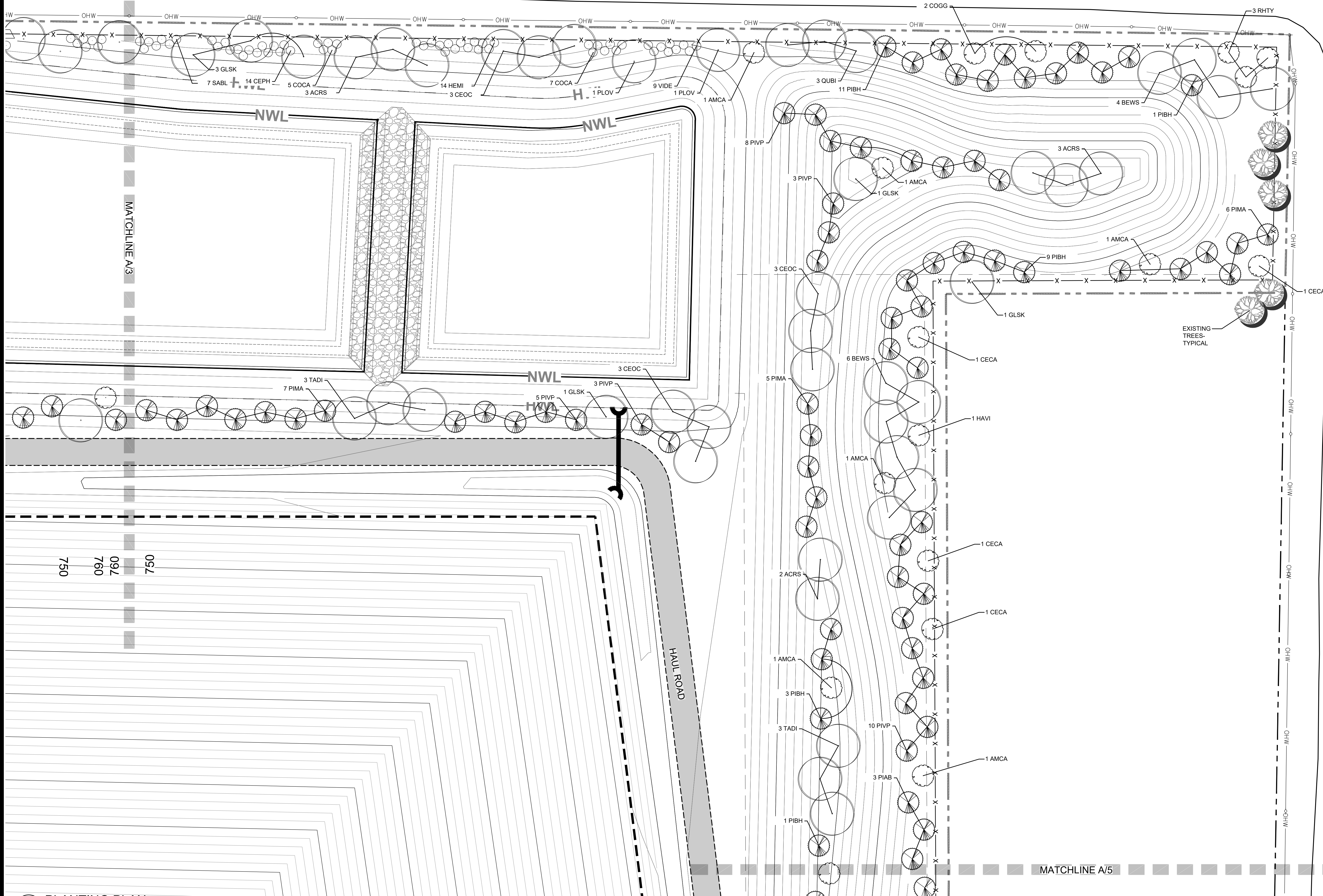
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Site 2 North Expansion

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PLANTING PLAN  
NORTH  
SCALE 1"=40'  
SHEET NUMBER  
3  
OF 6



RUSSELL ROAD



A PLANTING PLAN  
4 SCALE: 1" = 40'

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DATE: 06/10/22  
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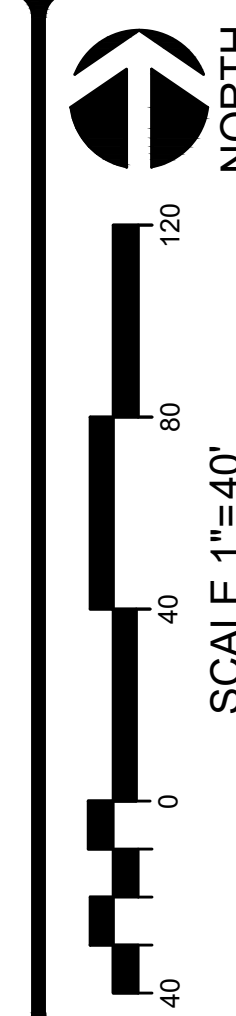
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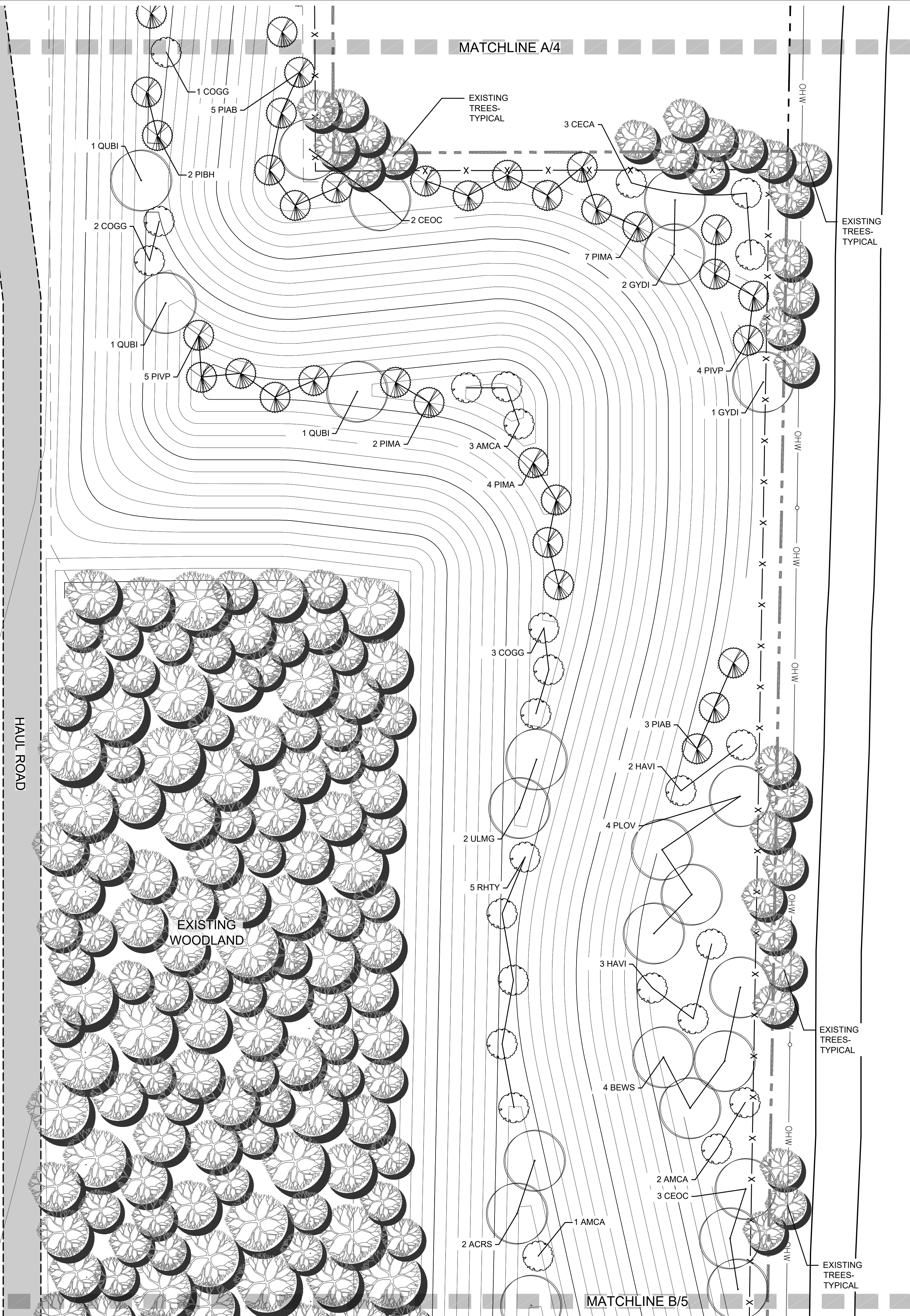


PLANTING PLAN

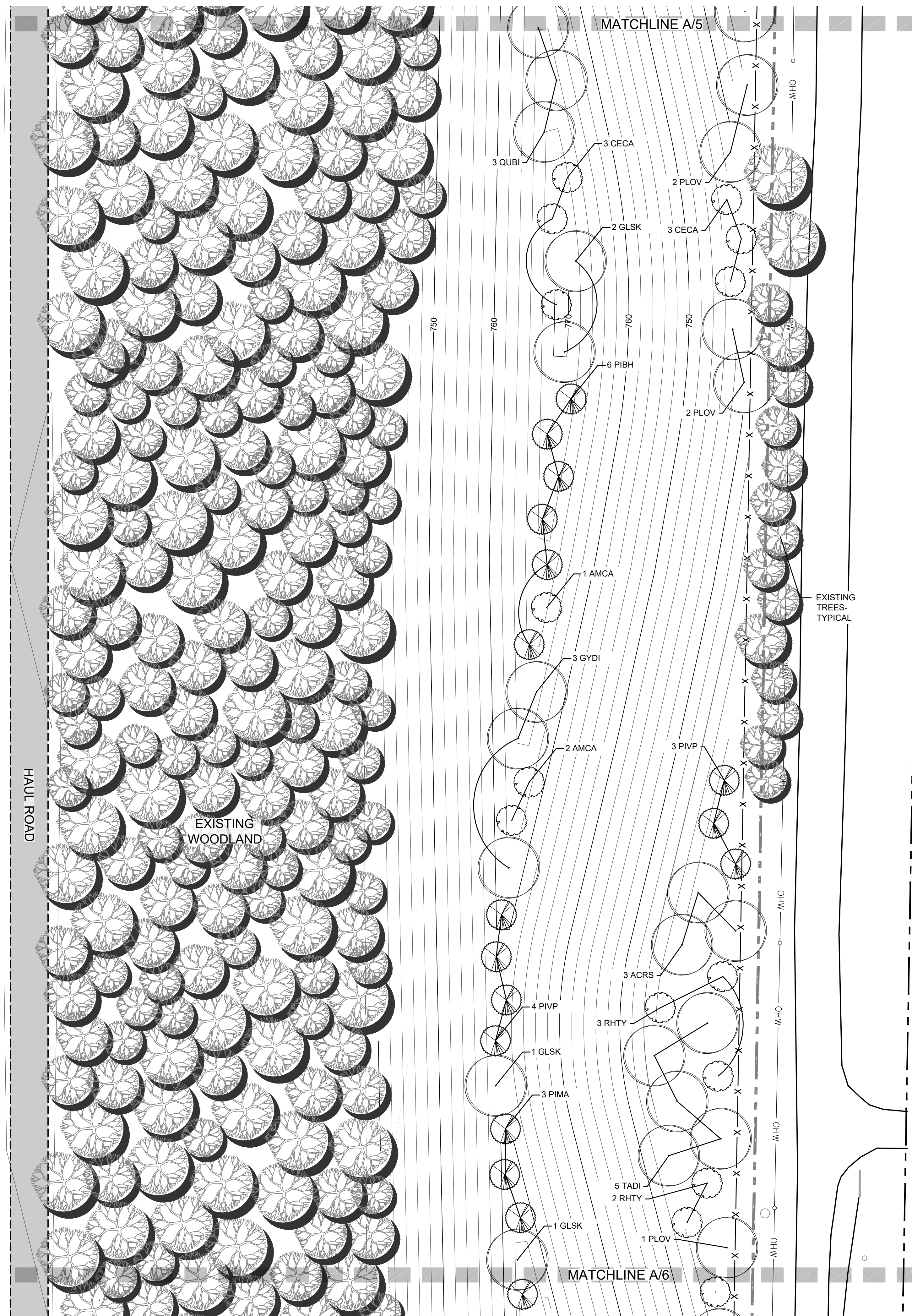


SHEET NUMBER  
4  
OF 6





**A** PLANTING PLAN  
5 SCALE: 1" = 40'



**B** PLANTING PLAN  
5 SCALE: 1" = 40'

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DATE: 06/10/22

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PLANTING PLAN

5

OF 6

SCALE 1"=40'

0 40 80 120

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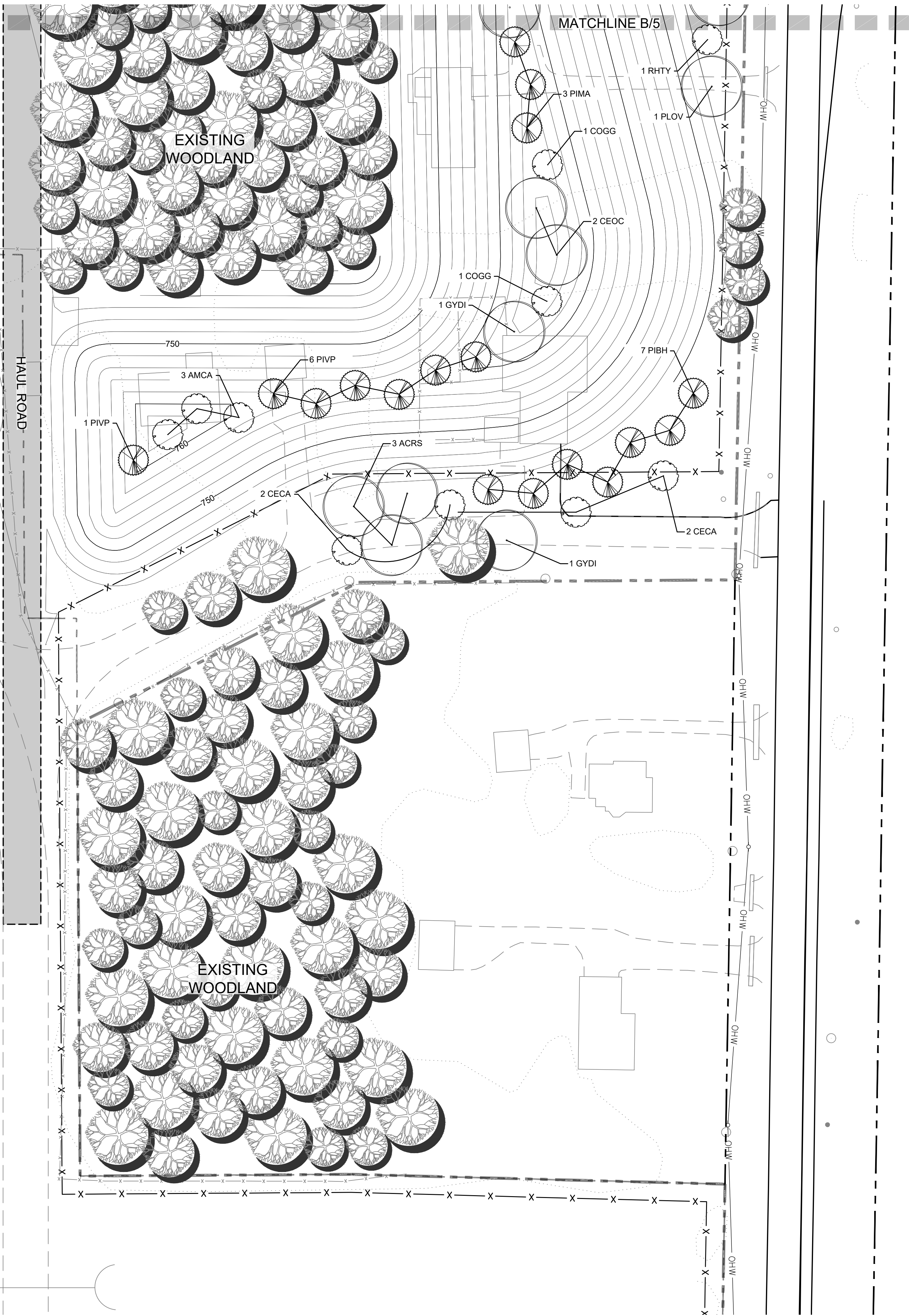
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**A** PLANTING PLAN  
**6** SCALE: 1" = 40'

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PLANTING PLAN

