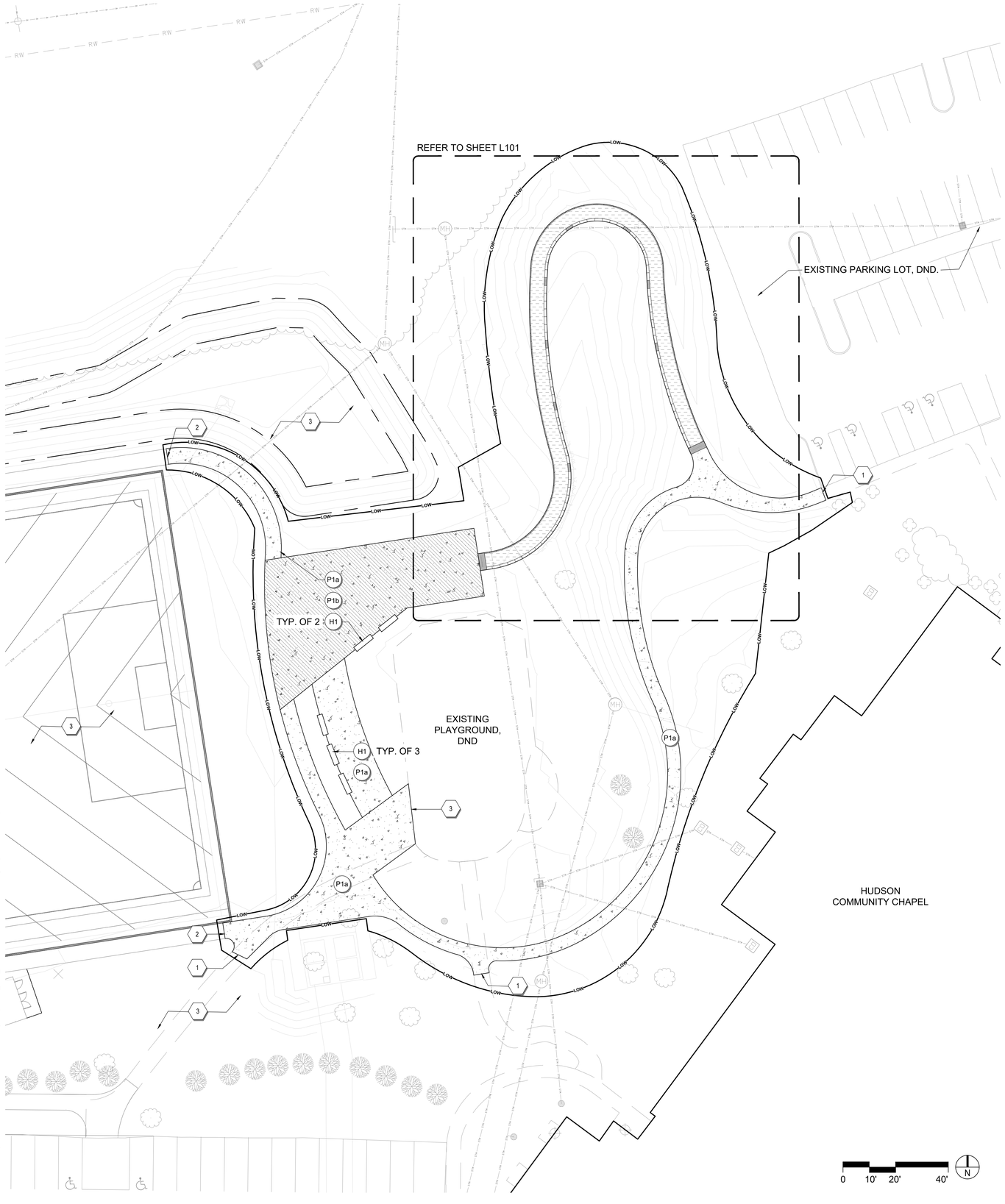

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MATERIALS LEGEND

PAVEMENT

LABEL	ITEM	DETAIL	COMMENTS
P1a	CONCRETE PAVEMENT - TYPE ONE		STANDARD COLOR / BROOM FINISH
P1b	CONCRETE PAVEMENT - TYPE TWO		STANDARD COLOR / BUFF WASH
P2	ASPHALT PAVEMENT		
P3a	GRANITE PAVERS - TYPE ONE		6.5' x 3' x 3"
P3b	GRANITE PAVERS - TYPE TWO		3' x 1' x 3"

CURBS

LABEL	ITEM	DETAIL	COMMENTS
C1	12" WIDE FLUSH CURB		CAST IN PLACE , 12" x 12"
C2	4" WIDE FLUSH CURB		CAST IN PLACE , 4" x 12"

SITE FURNITURE

LABEL	ITEM	DETAIL	MANUFACTURER / BASIS OF DESIGN
H1	BENCH		CLEVELAND QUARRIES, 18" x 24" x 8"

CODED NOTES

1. CONCRETE TO MEET EXISTING EDGE OF PAVEMENT FLUSH
2. CONCRETE TO MEET PROPOSED TRAIL FLUSH
3. CONCRETE PAVING TO MEET EXISTING PLAYGROUND FLUSH

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client / owner
Christ Community Chapel

project name
HUDSON CHRIST COMMUNITY CHAPEL

project address
750 W Streetsboro St
Hudson, OH 44236

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revision	date	issued

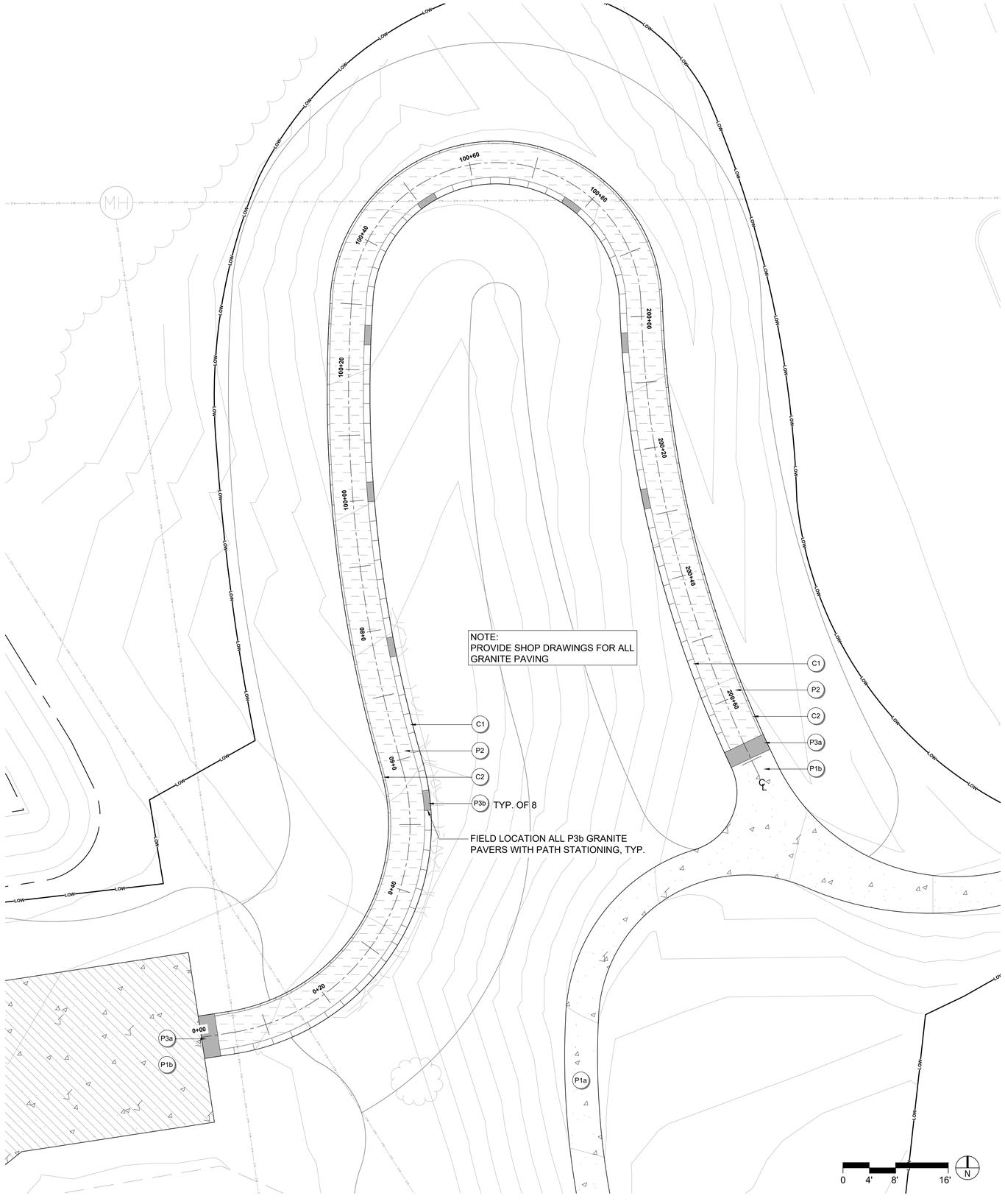
seal

issue date
05.19.2025

project number
e25301

sheet name
MATERIALS PLAN

sheet number
L100



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MATERIALS LEGEND

PAVEMENT

LABEL	ITEM	DETAIL	COMMENTS
P1a	CONCRETE PAVEMENT - TYPE ONE		STANDARD COLOR / BROOM FINISH
P1b	CONCRETE PAVEMENT - TYPE TWO		STANDARD COLOR / BUFF WASH
P2	ASPHALT PAVEMENT		
P3a	GRANITE PAVERS - TYPE ONE		6.5' x 3' x 3"
P3b	GRANITE PAVERS - TYPE TWO		3' x 1' x 3"

CURBS

LABEL	ITEM	DETAIL	COMMENTS
C1	12" WIDE FLUSH CURB		CAST IN PLACE , 12" x 12"
C2	4" WIDE FLUSH CURB		CAST IN PLACE , 4" x 12"

SITE FURNITURE

LABEL	ITEM	DETAIL	MANUFACTURER / BASIS OF DESIGN
H1	BENCH		CLEVELAND QUARRIES, 18" x 24" x 8"
H2	TENT ANCHOR		TBD

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sheet name
MATERIALS PLAN ENLARGEMENT

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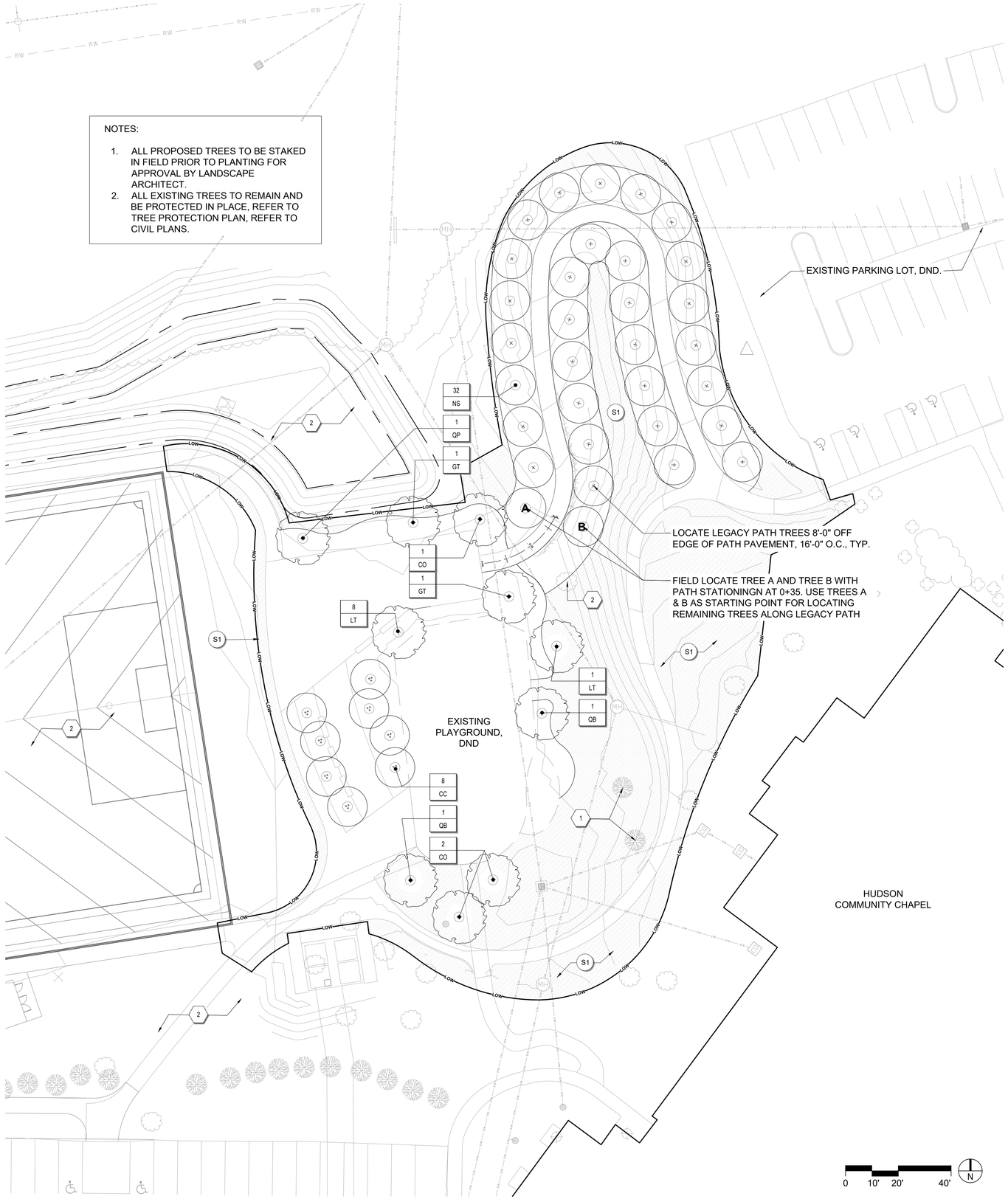
L101



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PLANTING LEGEND

KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING
DECIDUOUS TREES				
AS	*ACER SACCHARUM 'GREEN MOUNTAIN*	GREEN MOUNTAIN SUGAR MAPLE	3" CAL.	PER PLAN
CO	*CELTIS OCCIDENTALIS*	HACKBERRY	3" CAL.	PER PLAN
GT	*GLEDITSIA TRIACANTHOS 'SKYCOLE'*	SKYLINE HONEY LOCUST	3" CAL.	PER PLAN
LT	*LIRIODENDRON TULIPIFERA 'JFS-Oz'*	EMERALD CITY TULIP	3" CAL.	PER PLAN
NS	*NYSSA SYLVATICA*	BLACK GUM	3" CAL.	PER PLAN
QB	*QUERCUS BICOLOR*	SWAMP WHITE OAK	3" CAL.	PER PLAN
QP	*QUERCUS PALUSTRIS*	PIN OAK	3" CAL.	PER PLAN
ORNAMENTAL TREES				
CC	*CERCIS CANADENSIS*	EASTERN REDBUD	6' HT.	PER PLAN

CODED NOTES

1. EXISTING TREE, DND.
2. REFER TO CIVIL PLANS

PLANTING NOTES

1. SECURE PLANT MATERIAL AS SPECIFIED ON PLANS. SUBSTITUTIONS FOR PLANT MATERIALS WILL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE LANDSCAPE ARCHITECT, OWNER'S REPRESENTATIVE AND OWNER.
2. PROVIDE PLANT PHOTOGRAPHS OF EACH PLANT SPECIFIED TO THE LANDSCAPE ARCHITECT FOR COMPLIANCE REVIEW PRIOR TO INSTALLATION.
3. PROTECT PLANT MATERIAL DURING DELIVERY TO PREVENT DAMAGE TO ROOT BALLS, TRUNKS, BRANCHES AND THE DESICCATION OF LEAVES. PROTECT PLANT MATERIAL DURING SHIPPING WITH SHADE CLOTH OR SHIP WITH ENCLOSED TRANSPORT. MAINTAIN PROTECTIONS AND HEALTH OF PLANT MATERIAL STORED ON SITE. HANDLE TREES WITH NYLON STRAPS. NO CHAINS OR CABLES WILL BE ALLOWED. REMOVE UNACCEPTABLE PLANT MATERIAL IMMEDIATELY FROM THE SITE.
4. PLANT MATERIAL DELIVERED TO THE SITE IS SUBJECT TO THE REVIEW OF THE LANDSCAPE ARCHITECT, OWNER'S REPRESENTATIVE AND OWNER BEFORE, DURING AND AFTER INSTALLATION.
5. VERIFY PLANTING PRODUCTS, PLANT MATERIAL, AND PLANT QUANTITIES DELIVERED TO THE SITE MATCH WHAT IS INDICATED ON THE PLANS AND SPECIFICATIONS.
6. CONTRACTOR IS RESPONSIBLE FOR FINAL PLANT QUANTITIES AND COUNTS. PLANS SUPERCEDE NUMBER/QUANTITIES SHOWN. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
7. STAKE TREE LOCATIONS FOR THE LANDSCAPE ARCHITECT'S REVIEW PRIOR TO INSTALLATION. PLANTING PROCEDURES ARE SUBJECT TO THE REVIEW OF THE LANDSCAPE ARCHITECT, OWNER'S REPRESENTATIVE AND OWNER. THE CONTRACTOR SHALL CORRECT ANY DEFICIENCIES FOUND AT NO ADDITIONAL COST TO THE OWNER.
8. REFER TO THE PLANTING DETAILS FOR MINIMUM SIZE AND WIDTH OF PLANTING PITS AND BEDS, GUYING AND STAKING, MULCHING, AND OTHER PLANTING REQUIREMENTS.
9. ROOT BALLS SHALL CONFORM TO THE SIZE STANDARDS SET FORTH IN "AMERICAN STANDARDS FOR NURSERY STOCK".
10. TEST FILL EACH TREE AND PLANTING PIT WITH WATER, PRIOR TO PLANTING TO ASSURE PROPER SOIL PERCOLATION. PITS WHICH DO NOT ADEQUATELY DRAIN SHALL BE FURTHER SCARIFIED ALONG OUTER EDGES AND SIDES OF PIT. DO NOT DISTURB AREA SUPPORTING TREE BALL. REPEAT TEST. ALLOWANCES WILL NOT BE MADE FOR PLANT MATERIAL LOSS DUE TO IMPROPER DRAINAGE.
11. PLANT MATERIALS, INCLUDING RELOCATED PLANT MATERIAL, SHALL BE PLANTED IN A PROFESSIONAL MANNER TYPICAL TO THE INDUSTRY STANDARDS OF THE AREA TO ASSURE COMPLETE SURVIVABILITY OF PLANT MATERIALS AS WELL AS TO PROVIDE AN AESTHETICALLY APPROVED PROJECT.
12. REMOVE PLANTING AND LANDSCAPE DEBRIS FROM THE PROJECT SITE AND SWEEP AND WASH CLEAN PAVED AND FINISHED SURFACES AFFECTED BY THE LANDSCAPE INSTALLATION.
13. PLANTING AREAS SHALL BE WEED FREE PRIOR TO PLANTING INSTALLATION AND MAINTAINED WEED FREE THROUGH FINAL ACCEPTANCE.

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client / owner
Christ Community Chapel

project name
HUDSON CHRIST COMMUNITY CHAPEL

project address
750 W Streetsboro St
Hudson, OH 44236

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revision	date	issued

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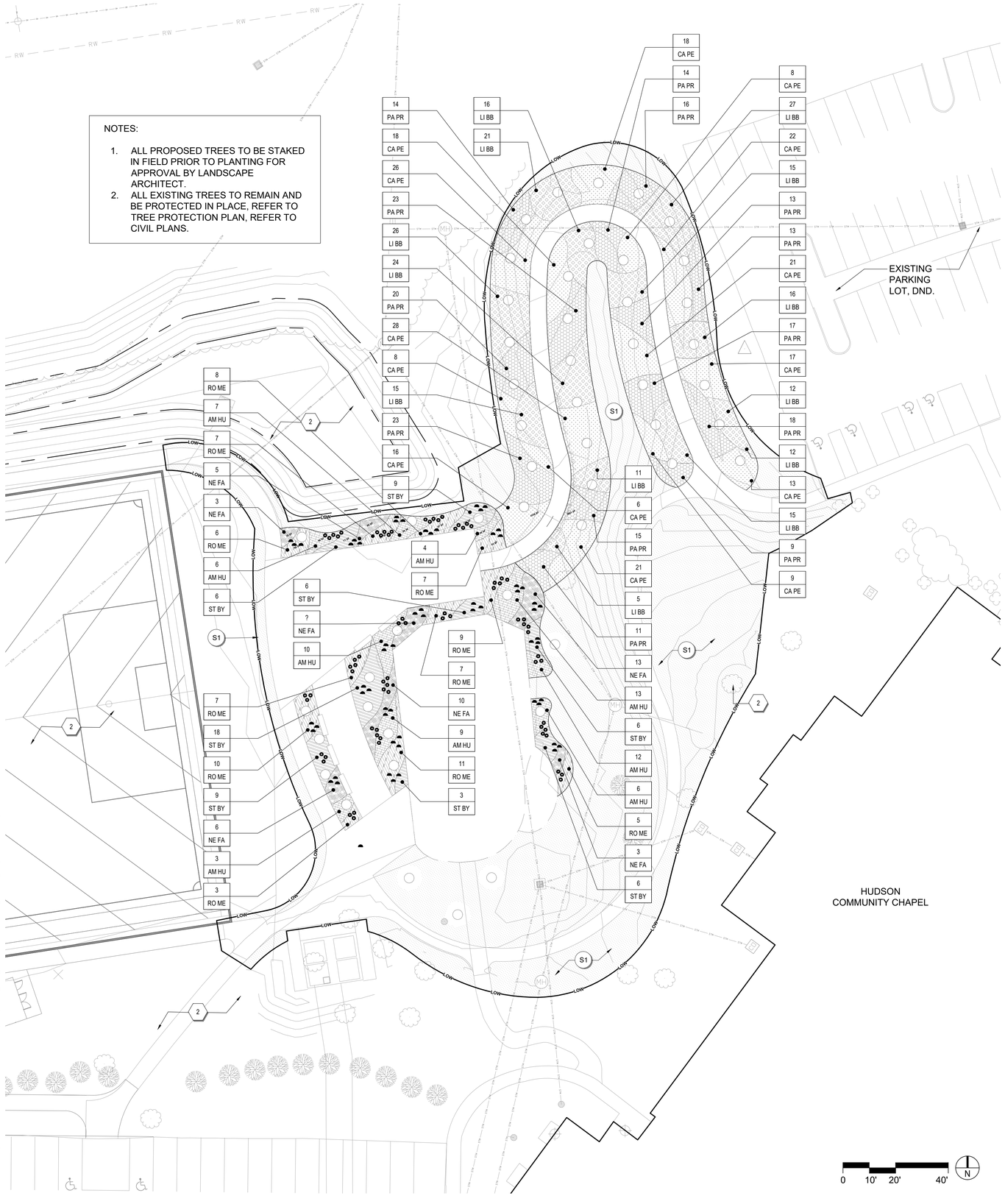
project number
e25301

sheet name
PLANTING PLAN - TREES

sheet number
L400



UNDERSTORY PLANTING LEGEND

KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING
PERENNIALS AND GROUND COVERS				
AM HU	*AMSONIA HUBRICHTII*	THREADLEAF BLUESTAR	#2 GAL.	12" O.C.
CA PE	*CAREX PENSYLVANICA*	PENNSYLVANIA SEDGE	#2 GAL.	12" O.C.
LI BB	*LIRIOPE MUSCARI 'ROYAL PURPLE'*	ROYAL PURPLE LILY TURF	#1 GAL.	12" O.C.
NE FA	*NEPETA FAASSENII*	WALKER'S LOW CATMINT	#2 GAL.	12" O.C.
PA PR	*PACHYSANDRA PROCUMBENS*	ALLEGHENY PACHYSANDRA	16/FLAT	6" O.C.
RO ME	*ROSA MEIGGILI*	ROSA PEACH DRIFT	#3 GAL.	12" O.C.
ST BY	*STACHYS BYZANTIA*	LAMB'S EAR	#2 GAL.	12" O.C.
BULBS				
○	*NARCISSUS THALIA*	WHITE THALIA DAFFODIL	14-16 CM	2 BULBS / SYMBOL
◡	*SCILLA CHIONODOXA*	GLORY OF THE SNOW	14-16 CM	2 BULBS / SYMBOL

KEY	DESCRIPTION
SEEDING	
S1	SEEDED LAWN

PLANTING NOTES

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client / owner
Christ Community Chapel

project name
HUDSON CHRIST COMMUNITY CHAPEL

project address
750 W Streetsboro St
Hudson, OH 44236

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05.19.2025

project number
e25301

sheet name
PLANTING PLAN - UNDERSTORY

sheet number
L401

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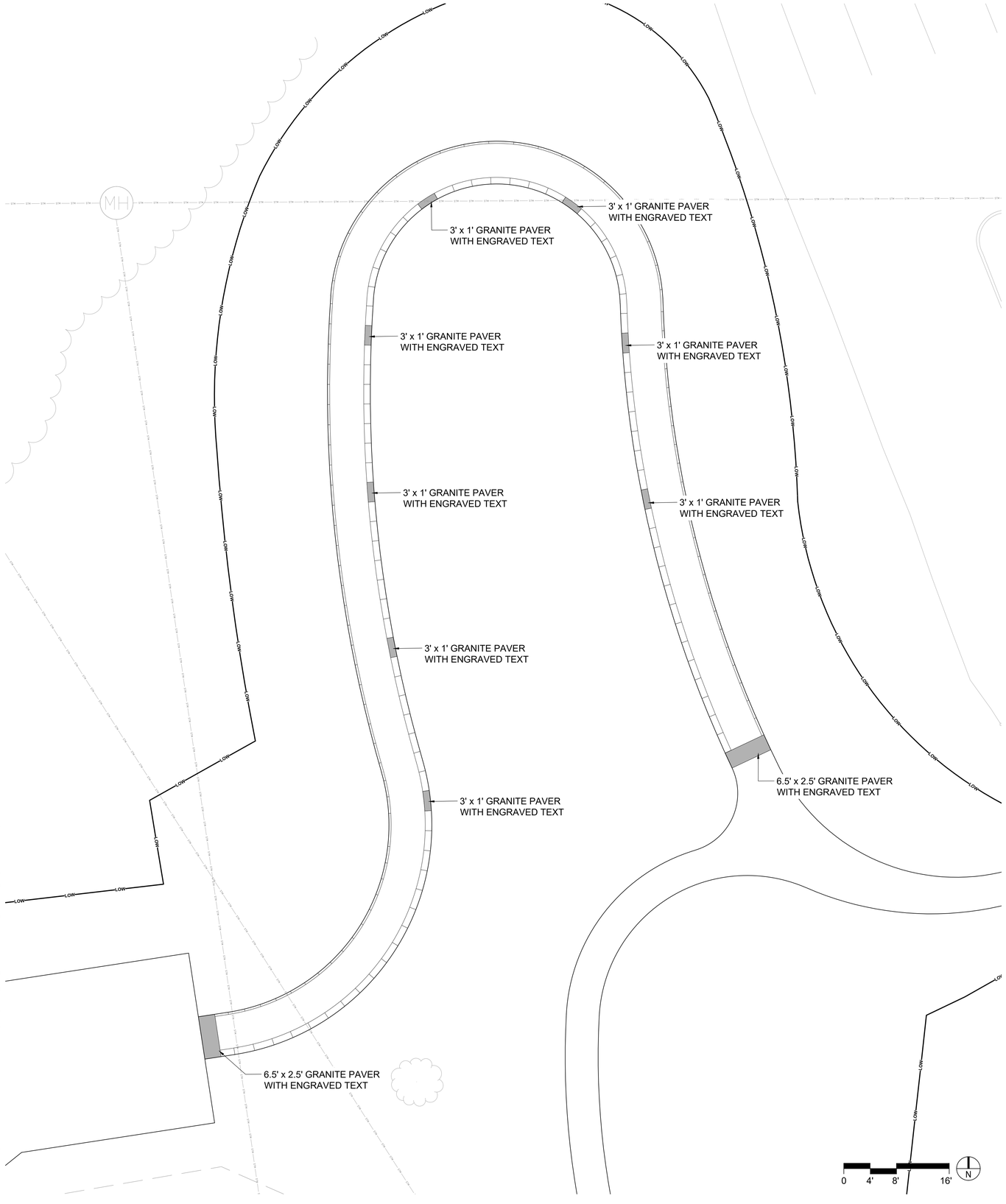

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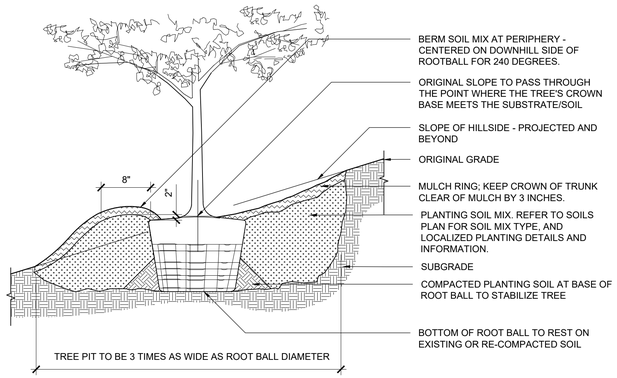
sheet name
SIGN PLAN

sheet number

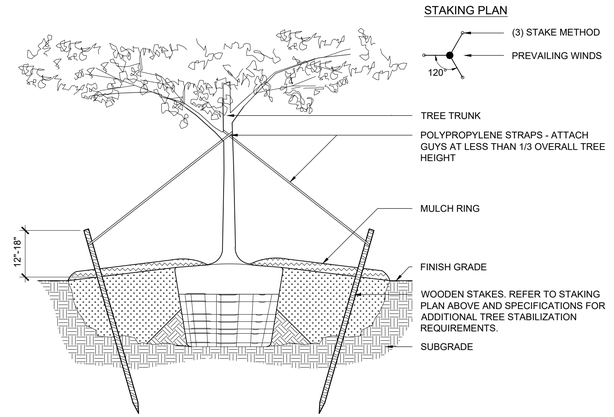
NOTE:
1. REFER TO STANDARD TREE PLANTING DETAILS FOR CROWN AND ROOT BALL OBSERVATIONS AND SPECIFICATIONS.

2. BACKFILL TREE PIT SPECIFIED SOIL MIX. FOOT COMPACT IN 6 INCH LIFTS MAX. WATER TO SETTLE SOIL MIX.

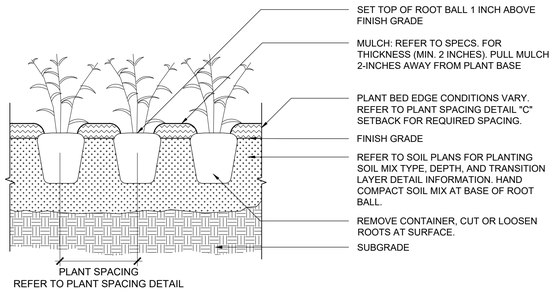
3. STAKE TREES AS PER DETAILS AND SPECIFICATIONS.



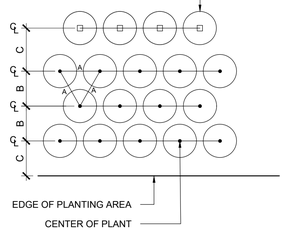
A TREE PLANTING DETAIL ON SLOPE
SCALE: 3/4" = 1'-0"



B TREE STABILIZATION - GUYING
SCALE: 3/4" = 1'-0"



C GRASSES / PERENNIALS / GROUND COVER PLANTINGS
SCALE: 1" = 1'-0"



"C"= 30" SETBACK FOR SHRUBS
18" SETBACK FOR PERENNIALS
12" SETBACK FOR GROUNDCOVER
OR PER PLANTING PLANS

TRIANGULAR SPACING = A	DISTANCE BETWEEN ROW = B	TOTAL AREA (SF) PER PLANT
6"	5"	0.21
8"	7"	0.39
9"	8"	0.50
10"	8 1/2"	0.59
12" (1')	10 1/2"	0.88
15"	13"	1.35
18"	15 1/2"	1.94
21"	18"	2.63
24" (2')	21"	3.50
30"	26"	5.42
36" (3')	31"	7.80
48" (4')	42"	13.84

NOTE:
LAYOUT PLANTS ALONG PERIMETER OF PLANTING BED FIRST, PARALLEL TO AND UNIFORMLY OFFSET FROM EDGE OF BED. FILL OUT INTERIOR OF BED ON UNIFORM GRID AS SHOWN, UNLESS OTHERWISE INDICATED ON THE PLANTING PLANS.

D PERENNIAL SPACING, TRIANGULAR LAYOUT
SCALE: 1" = 1'-0"

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project address
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Hudson, OH 44236

consultant 1
Name
Street Address 1
Street Address 2
City, State, Zip Code
p 123 456.7890

consultant 2
Name
Street Address 1
Street Address 2
City, State, Zip Code
p 123 456.7890

consultant 3
Name
Street Address 1
Street Address 2
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sheet name
DETAILS

sheet number
L502

Estimate of Probable Cost

MKSK Studios 2019 Center Street Cleveland, Ohio 44113

Project Name:	Hudson Christ Community Chapel	**Legend**
Location:	Hudson, Ohio	EA - Each
Project #:	e25301	LF - Linear Foot
Date:	5/19/2025	LS - Lump Sum
Prepared by:	MKSK	SF - Square Foot
		SF - Square Foot
	SF Total Project	**42,210**

Item	Description	Total Qty.	Unit	Unit Price ($)	*Total Price*
	New Work				
SOFTSCAPE					
	Lawn Seed	1,834	SY	$0.60	$1,100
	perennials in LEGACY PLAZA beds	2,585	SF	$10.00	$25,850
	6' ornamental tree at LEGACY PLAZA	8	EA	$750.00	$6,000
	3" caliper shade tree at LEGACY PATH	32	EA	$1,000.00	$32,000
	3" Caliper shade trees at LEGACY PLAZA	10	EA	$1,000.00	$10,000
	6" depth Planting Soil for perennial planting beds	185	CY	$50.00	$9,250
	Planting soil for trees at LEGACY PLAZA, 30" depth	21	CY	$50.00	$1,050
	Planting soil for trees at LEGACY PATH, 30" depth	21	CY	$50.00	$1,050
	Shredded hardwood mulch for perennial beds- 2" depth	20	CY	$60.00	$1,200
HARDSCAPE					
	concrete paving -broom finish	4,790	SF	$12.00	$57,480
	concrete paving at LEGACY PLAZA -buff wash	2,980	SF	$15.00	$44,700
	asphalt paving w/ base 3" d X 5' w at LEGACY PATH	152	SY	$65.00	$9,880
	4"x12" CIP curb at LEGACY PATH	268	LF	$40.00	$10,720
	CIP edge 1'width x12"depth x 262 lf at LEGACY PATH	237	LF	$60.00	$14,220
	(2) engraved granite slabs - 6.5'x2.5'x3" at LEGACY PATH		LUMP		$6,750
	(8) granite engraved slabs 1'x3'x3" at LEGACY PATH		LUMP		$4,500
FURNISHINGS					
	(6) Monolithic sandstone seatwalls in Legacy Plaza w base material 18"x2'x8'	5	EA	$2,500.00	$12,500
			Subtotal Construction		**$248,250**
	**Construction Contingency	10%		$24,825	
			GRAND TOTAL		**$273,075**
ADD ALTERNATE ITEMS					
	perennials in LEGACY PATH beds	7,550	SF	$10.00	$75,500
			GRAND TOTAL WITH ALTERNATES		**$348,575**

General Notes

UNIT PRICE VALUES DERIVED FROM RECENT PREVAILING WAGE BID PRICING AND THE DESIGN TEAMS ASSUMPTION OF WORK EFFORT REQUIRED. THE DESIGN TEAM HAS NO CONTROL OVER THE COST OF LABOR, MATERIALS, OR THE CONTRACTORS METHODS OF DETERMINING BID PRICES, OR OVER COMPETITIVE BIDDING OR MARKET CONDITIONS. THEREFORE, THE DESIGN TEAM CANNOT GUARANTEE THAT BIDS OR CONSTRUCTION COST WILL NOT VARY FROM ANY ESTIMATES OF PROBABLE CONSTRUCTION COST PREPARED BY THEM.

SECTION 32 92 00 - TURF AND GRASSES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Seeding.
2. Turf renovation.
3. Erosion Control materials.
4. Maintenance

B. Related Requirements:

1. Section 31 20 19 “Finish Grading” for finish grading preparation.
2. Section 32 91 10 “Standard Processed Topsoil”.
3. Section 32 93 00 "Plants" for trees, shrubs, perennials, ground covers and other plants.

1.02 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Backfill: Soil material or controlled low-strength material used to fill an excavation.

C. Base Mix: Homogenously blended mix of the specified topsoil and the specified sand which is then used for mixing with the specified organic amendment to create various Planting Mixes.

D. Compost: An organic material that has been aerobically composted and stabilized from feedstocks such as green waste (yard debris) or other suitable organic materials

E. Finish Grade: Elevation of finished surface of planting soil.

F. Manufactured Planting Soil Mix: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce a planting soil mix.

G. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

H. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

I. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. Soil preparations vary. See Sections 32 91 00 through 32 91 40 – Planting Prep and Soils for soil preparation and drawing designations for planting soils.

J. Sand: a naturally occurring material that has been processed to remove coarse gravel, silt and clay and sized to meet the specifications.

K. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

L. Subsoil: All soil beneath the topsoil layer of the soil profile and typified by the lack of organic matter and soil organisms.

M. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.03 INFORMATIONAL SUBMITTALS

A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

B. Product Certificates: For fertilizers, from manufacturers.

C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.04 CLOSEOUT SUBMITTALS

A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.

1. Professional Membership: Installer shall be a member in good standing of either the National Association of Landscape Professionals, the Ohio Nursery and Landscape Association or the American Nursery and Landscape Association.

2. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.

3. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the National Association of Landscape Professionals:

   a. Landscape Industry Certified Technician - Exterior.

   b. Landscape Industry Certified Lawn Care Technician.

4. Pesticide Applicator: State licensed, commercial.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

2. Accompany each delivery of bulk materials with appropriate certificates.

1.07 FIELD CONDITIONS

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of planting completion through Substantial Completion.

1. Spring Planting: April 1 to June 1.

2. Fall Planting: August 15 to October 1.
3. Delays in completion of planting operations which extend the planting and/or acceptance of Substantial Completion into the next planting season shall extend the Warranty period accordingly.

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

C. Work notification: Notify the Landscape Architect at least seven working days before installation of lawn materials.

D. Verify location and extent of underground utilities. Protect existing utilities, irrigation, paving and other facilities from damage caused by lawn operations.

E. Perform lawn work only after planting and other work affecting the ground surface has been completed.

F. Restrict traffic from lawn areas until grass is established.

G. Provide necessary hose and watering equipment as required for lawn maintenance.

PART 2 - PRODUCTS

2.01 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Quality, Non-State Certified: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed.

Turfgrass Seed Species: Turf-type tall fescue (90%) and Hybrid bluegrass CV Thermal Blue (10%) with a mean quality ratio of 6.3 or higher according to the National Turfgrass Evaluation Program’s latest trials.

2.02 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: 1 lb./1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

2.03 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

B. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

C. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

2.04 PESTICIDES

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

2.05 EROSION-CONTROL MATERIALS

A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed and replace with new planting soil.

3.02 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydro-mulching overspray.

3.03 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement, mix planting soil and finish grades according to Sections 32 91 00 – through 32 91 10 Planting Preparation specifications.

B. Placing Planting Soil: As required by the specifications and as depicted on the Soils Plan and as detailed.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.04 APPLICATION OF FERTILIZER

A. Fertilizers and conditioners shall be applied at the following rates:

1. Fertilizer – Apply at rates of 1 lb./1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

B. Mixing with planting soil:

1. Fertilizer and conditioners shall be spread over the entire lawn areas at the application rates indicated above.

2. Materials shall be uniformly and thoroughly mixed into the top 4” of topsoil by discing, rototilling, or other approved method.

3.05 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

2. Do not use wet seed or seed that is moldy or otherwise damaged.

3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate of 6 to 8 lb/1000 sq. ft.

C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets and 1:6 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.

E. Protect seeded areas with erosion-control fiber mesh or blankets where indicated on Drawings. Install and anchor according to manufacturer's written instructions.

F. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose thickness over seeded areas. Spread by hand, blower, or other suitable equipment.

1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

2. Bond straw mulch by spraying with asphalt emulsion at a rate of 10 to 13 gal./1000 sq. ft. Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.

3.06 HYDRO-MULCHING

A. Hydroseeding: Mix specified seed, commercial fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with fiber-mulch and manufacturer's recommended non-asphaltic tackifier.

2. Apply slurry cover coat of fiber mulch (hydro-mulching) at a rate of 1000 lbs./acre.

3.07 TURF RENOVATION

A. Renovate existing turf where indicated.

B. Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.

1. Reestablish turf where settlement or washouts occur or where minor regrading is required.

2. Install new planting soil as required.

C. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.

D. Remove topsoil containing foreign materials, such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.

E. Mow, dethatch, core aerate, and rake existing turf.

F. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.

G. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.

H. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.

I. Apply soil amendments and initial fertilizer required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.

1. Soil Amendment(s): Amend soil as per soil test results for specified turf grass soils. See applicable Sections 32 91 00 through 32 91 10 - Planting Prep and Soils for specified soil mix, testing, installation and preparation.

2. Initial Fertilizer: Commercial fertilizer applied according to manufacturer's recommendations.

J. Apply seed and protect with straw mulch as required for new turf.

K. Water newly planted areas and keep moist until new turf is established.

3.08 TURF MAINTENANCE

A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:

1. Seeded Turf: From date of planting completion until final acceptance.

a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

B. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.

2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.

3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

4. Treat infestation of weeds or crabgrass by hand weeding or herbicidal control. Furnish and install weed chemical control as recommended by manufacturer. Herbicidal controls, including renovation before seeding or sodding operations, shall be acceptable to the Landscape Architect.

C. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.

2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

D. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow turf-type tall fescue to a height of 2 to 3 inches.

E. Turf Post-fertilization: Apply commercial fertilizer after initial mowing and when grass is dry.

1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.

2. Fertilizer with a 2:1:2 or 3:1:2 or similar ratio will be acceptable for this application.

3.09 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Landscape Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

C. Conditions: Established turf that is free of dead or dying patches and shows vigorous growth of foliage of normal density, size, and color.

3.10 OBSERVATION AND ACCEPTANCE

A. Beneficial Occupancy: the acknowledgement by the Owner and Landscape Architect that the landscape work defined by plans and specifications is substantially complete. The Landscape Architect shall provide the Contractor with a written punch list indicating items to be corrected or completed by the contractor within a two-week period from the notification:

1. Site review is requested by the Contractor when he/she believes that the landscape installation meets all the requirements of the plans and specifications.

B. Final Acceptance: the date of final acceptance shall be when the Landscape Architect verifies that all the items on the punch list have been completed and / or corrected by the Contractor

3.11 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already germinated weeds and according to manufacturer's written recommendations.

3.12 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout the initial maintenance period and remove after plantings are established.

D. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 32 92 00

SECTION 32 93 00 – PLANTS AND LANDSCAPE ACCESSORIES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Plants include trees, shrubs, groundcovers, and perennials.
2. Tree-watering devices.
3. Maintenance of all specified plants until the beginning of the warranty period.
4. Plant Warranty
5. Maintenance of all specified plants during warranty period.
6. H1: Monolithic Sandstone Bench.

B. Related Requirements:

1. Section 31 22 19 “Finish Grading” for finish grading preparation.
2. Section 32 92 00 "Turf and Grasses" for seeding turf lawn.
3. Section 32 91 10 “Standard Processed Topsoil” for soil prep and installing plant material.

1.02 REFERENCES

A. Federal, State and local laws and regulations governing this Work are hereby incorporated into and made part of this Section. When this Section calls for certain materials, workmanship, or a level of construction that exceeds the level of Federal, State, or local requirements, provisions of this Section take precedence.

B. American Society for Testing and Materials (ASTM).

1. ASTM D 1557- Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

C. American Nursery & Landscape Association (ANLA).

D. American National Standards Institute (ANSI)

1. ANSI Z60.1 – American Standards for Nursery Stock.
2. ANSI A300 Part 6 – Standard Practices for Tree, Shrub and other Woody Plant Management

1.03 DEFINITIONS

A. Acceptance, Acceptable, or Accepted: Acceptance by the Landscape Architect in writing.

B. Backfill: The earth used to replace or the act of replacing earth in an excavation.

C. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with a ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the trunk flare / root crown visible at the surface of the ball as recommended by ANSI Z60.1.

D. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

E. Debris or Deleterious Materials: Elements including, but not limited to, concrete, concrete masonry, wood, excavated rock and rock fragments, rubble, overburden soils, abandoned utility structures, trash, refuse and litter.

F. End of Warranty Final Acceptance: The date when the Landscape Architect accepts that the plants and work in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrently with each other.

G. Finish Grade: Elevation of finished surface of planting soil.

H. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.

I. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

J. Planting Area: Areas to be planted.

K. Plant Spread: Measurement of main body diameter, not measurement from branch tip to branch tip.

L. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. Soil preparations vary. See Sections 32 91 00 through 32 91 10 – Planting Prep and Soils for soil preparation and drawing designations for planting soils.

   1. Planting Soil Mix: A sand/soil/compost material produced off-site by homogeneously blending topsoil and sand with compost to produce the specified planting mix type.

   2. “Planting Soil Mix” and “Planting Soil” are interchangeable terms used throughout this specification.

M. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.

N. Root Flare (root collar, trunk flare, root crown): The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots, the area of transition between the root system and the stem or trunk.

O. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.

P. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

Q. Subsoil: All soil beneath the topsoil layer of the soil profile and typified by the lack of organic matter and soil organisms.

R. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Landscape Architect accepts that all work in these sections is complete, and the Warranty period (aka “Contractor’s Warranty Period”) has begun. This date may be different than the date of substantial completion for the other sections of the project.

S. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.04 COORDINATION

A. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.

1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.05 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.

2. Plant Photographs: Include color photographs, (2) minimum per species, in digital format of each required species and size of plant material as it will be furnished to Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.

3. Tree Selection Approvals:

a. All ornamental and shade trees are to be tagged in the field prior to digging. Tree tagging to be completed by the Contractor in conjunction with the Landscape Architect.

b. Acceptable trees will meet the following health and structure requirements: single dominate leader, branching and root structure appropriate for species, caliper size or height per plan, pest, and disease free, damage free and other ANSI requirements. Acceptable trees will also meet the following aesthetic requirements straight trunk, symmetry, uniformity and fullness of branching, general form, and overall uniformity of all trees of a species. No trees shall be delivered to the site without documentation.

B. Samples for Verification: For each of the following:

1. Organic Mulch: 1-quart volume of each organic mulch required; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer. Include a list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.

B. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:

1. Manufacturer's certified analysis of standard products.

C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

D. Close out submittals: Submit to the Landscape Architect for approval.

1. Plant maintenance data, requirements and recommended maintenance schedules and procedures for the Owner to establish during the Warranty Period.

E. Warranty period site visit record: If the client assumes maintenance responsibilities during the warranty period per the specifications, the Contractor is to submit a written record to the Landscape Architect of his/her observations visits, citing any problems, potential problems, and any recommended corrective actions needed by the client. Refer to Part 3 for Maintenance responsibilities.

1.07 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Meet requirements of applicable laws, codes, and regulations required by authorities having jurisdiction over the Work.
2. Provide for inspections and permits required by federal, state, and local authorities in furnishing, transporting, and installing materials.

B. Installer Qualifications: A qualified landscape installer whose work has resulted in the successful establishment of plants.

1. Professional Membership: Installer shall be a member in good standing of either the National Association of Landscape Professionals or the American Nursery and Landscape Association.
2. Experience: Five years' experience in landscape installation in addition to requirements in Section 01 40 00 "Quality Requirements."
3. Landscape Contractors submitting bids shall be pre-qualified before award of contract. Each reference shall be contacted to verify workmanship and general business practices.
4. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
5. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the National Association of Landscape Professionals:
    a. Landscape Industry Certified Exterior Technician
    b. Landscape Industry Certified Horticulture Technician
6. Pesticide Applicator: State licensed, commercial.

C. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

D. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.

1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure the main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

E. Plant Material Observation: Landscape Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Landscape Architect may also observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and may reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

1. Notify Landscape Architect of sources of planting materials seven days in advance of delivery to site.

F. Plant Quantity Verification: All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities and shall immediately inform the Landscape Architect of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Landscape Architect.

1. In the case of a discrepancy in the plant quantities between the plan drawings and the plant call outs, list or plant schedule, the number of plants or square footage of the planting bed drawn on the plan drawings shall be deemed correct and prevail.

G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Coordination."

1.08 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws if applicable.

B. Bulk Materials:

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.

2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.

3. Accompany each delivery of bulk materials with appropriate certificates.

C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

D. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

E. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

F. Handling Plants:

1. Handle ball and burlap plants by the root ball.

2. Pad trunk and branches where hoisting cables or straps contact.

3. Handle container plants by containers, not by tops, stems or trunks.

4. Do not bind or handle plants with wire or rope.

G. Deliver plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.

2. Do not remove container-grown stock from containers before time of planting.

3. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

1.09 FIELD CONDITIONS

A. Work notification: Notify the Landscape Architect at least seven working days before installation of plant material.

B. All trees must be evaluated and approved by the Landscape Architect prior to planting.

C. Verify location and extent of underground utilities. Protect existing utilities, paving and other facilities from damage caused by landscaping operations.

D. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.

E. Interruption of Existing Services or Utilities: Do not interrupt services or utilities to facilities occupied by the Owner or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated:

1. Do not proceed with interruption of services or utilities without Landscape Architect's written permission.

F. Install plant materials during time periods indicated. Planting operations conducted at other times only at option and full responsibility of Contractor and without additional compensation, except as otherwise acceptable to the Landscape Architect. Do not plant in frozen ground.

G. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from the date of Substantial Completion.

1. Spring Planting: March 1 to June 1.

2. Fall Planting: September 1 to Nov. 15.

H. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.

I. Coordination with Turf Areas: Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.

1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.10 ACCEPTANCE FOR SUBSTANTIAL COMPLETION

A. Substantial Completion Acceptance - Acceptance of the work prior to the start of the warranty period:

1. Once the Contractor completes the installation of all items in this section, the Landscape Architect will observe all work for Substantial Completion Acceptance upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date of the observation.

2. Substantial Completion Acceptance by the Landscape Architect shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.

3. Any plants that are deemed defective as defined under the provisions below shall not be accepted.

B. The Landscape Architect will provide the Contractor with written acknowledgment of the date of Substantial Completion Acceptance and the beginning of the warranty period and plant maintenance period (if plant maintenance is included).

C. Acceptance in Part:

1. The work may be accepted in parts when it is deemed to be in the Owner's best interest to do so, and when permission is given to the Contractor in writing to complete the work in parts.

2. Acceptance and use of such areas by the Owner shall not waive any other provisions of this Contract.

1.11 WARRANTY

A. Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.

1) Inspection Reports and Maintenance Logs per “Closeout Submittals” apply.

b. Structural failures including plantings falling or blowing over.

c. Faulty performance of tree stabilization and tree grates.

d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Periods: From date of Substantial Completion unless noted otherwise.

a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.

b. Ground Covers, Perennials, and Other Plants: 12 months.

3. When the work is accepted in parts, the warranty periods shall extend from each of the partial Substantial Completion Acceptances to the terminal date of the last warranty period. Thus, all warranty periods for each class of plant warranty, shall terminate at one time.

4. Include the following remedial actions as a minimum:

a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.

b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.

c. A limit of one replacement of each plant is required except for losses or replacements due to failure to comply with requirements.

d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

B. End of Warranty Final Acceptance - Acceptance of plants at the end of the warranty period.

1. At the end of the warranty period, the Landscape Architect shall observe all warranted work, upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date for final observation.

2. End of Warranty Final Acceptance will be given only when all the requirements of the work under this specification and in specification sections Planting Soil and Irrigation have been met.

PART 2 - PRODUCTS

2.01 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, sizes, grades, and ball or container sizes and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Growing Practices: Nursery grown in accordance with the best horticultural industry practices.

2. Nomenclature: Plant nomenclature shall meet requirements of ICBN and ICNCP.
3. Climatic Growing Conditions: Grown under climatic conditions (same USDA hardiness zone) of the like those of the project and within 150 miles of the project site for at least two years unless otherwise accepted by Landscape Architect.
4. Container Growth Limitations: Container stock shall have been grown in the containers in which delivered for at least six months, but not over two years.
5. Specimen Quality: Structurally strong, able to stand upright without stakes or guys, exceptionally heavy, symmetrical, tightly knit, so trained or favored in development and appearance as to be superior in form, number or branches, compactness, and symmetry.
6. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots will be rejected.
7. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
8. Pruning: Do not prune, thin, or shape plants before delivery without acceptance by the Landscape Architect.

B. Substitutions: Accepted substitute plants shall be true to species and variety and shall meet requirements of this Section except those plants larger than specified may be used, if accepted in writing by the Landscape Architect. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Landscape Architect, with a proportionate increase in size of roots or balls.
   1. Substitutions will only be accepted for up to 60 days post bid submittal. The contractor is responsible for identifying the availability of materials and inform Landscape Architect of any stock shortages prior to the 60 day post bid submittal deadline.

C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

D. Labeling: Label each plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant.

E. If formal arrangements or consecutive order of plants are indicated on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

F. No tree wrap is to be used.

2.02 SHADE AND FLOWERING TREES

A. Shade Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required.
   1. Provide balled and burlapped or container-grown trees.
   2. Branching Height: One-third to one-half of tree height.
   3. Street Trees: Street trees must be limbed to 8 feet minimum.
   4. Forked Trunks on trees are not acceptable; each tree must have one string central leader.

B. Small Upright and Spreading Trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; stem form as follows:
   1. Stem Form: Single stem.
   2. Multi-Stem: Unless noted otherwise, tree shall have 3 -5 trunks forked at or above root flair collar. The overall height determines size of tree.

3. Provide balled and burlapped trees.
4. Forked Trunks on trees are not acceptable; each tree must have one string central leader.

2.03 SHRUBS

A. Form and Size: Deciduous shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1 for type, shape, and height of shrub.

1. Provide balled and burlapped or container-grown shrubs.

2.04 GROUND COVER / PERENNIAL PLANTS

A. Ground Covers / Perennials: Provide ground cover of species indicated, established and well rooted in pots or similar containers and complying with ANSI Z60.1. Sections 1 and 13 apply.

2.05 FERTILIZERS

A. Refer to Soil Mix specifications test results and Final Grading for soil amendments.

B. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended by manufacturer’s written instructions.

2.06 MULCHES

A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:

1. Type: Shredded hardwood.
2. Size Range: 3-inches maximum, 1/2 inch minimum.
3. Processed: Double.
4. Color: Natural dark brown.

2.07 PESTICIDES

A. General: Pesticide registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.

C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

2.08 TREE-WATERING DEVICES

A. Slow-Release Watering Device: Standard product manufactured for drip irrigation of plants and emptying its water contents over an extended time period; manufactured from UV-light-stabilized nylon-reinforced polyethylene sheet, PVC, or HDPE plastic.

2.09 MISCELLANEOUS PRODUCTS

A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.

B. Burlap: Non-synthetic, biodegradable.

2.10 SOURCE QUALITY CONTROL

A. Advanced Tree Procurement:

1. Within 60 days of award of contract, notify Landscape Architect in writing of the availability or lack thereof the specified plant material.
2. Procure trees and arrange for contract growing as required to ensure that plant material is available in the quantities, sizes, and quality specified at the time of installation.
3. Verify plant branching requirements with Landscape Architect prior to contract growing.
4. Landscape Architect will review advance-procured trees prior to initial purchase at the place of growth.
5. Coordinate and schedule a review by the Landscape Architect of advanced procured plant material at the place of growth prior to delivery to the project site.
6. Review and acceptance of the advance-procured plant material at the place of growth does not preclude rejection at the project site if damage or unacceptable conditions are found that were not detected at the place of growth.
7. Before changes or substitutions can be considered due to unavailability of plant material, the contractor shall submit written evidence that he has advertised for at least a one- month period in a trade journal such as the "Landscape Materials Information Service", with no response, or has undertaken other methods of locating plant material acceptable to the Landscape Architect.

B. Plant Material Review and Tagging:

1. Trees will be reviewed, photographed, and tagged using irremovable tags by the Contractor in conjunction with the Landscape Architect at the place of growth prior to delivery to the project site.
2. At the Landscape Architect’s discretion, shrubs may or may not be reviewed, photographed, and tagged at the place of growth.
3. Tagging of plant material at the place of growth does not preclude rejection of at the project site if damage or unacceptable conditions are found that were not detected at the place of growth or in submitted photographs.

2.11 MONOLITHIC SANDSTONE BENCH

A. Fabricator/Supplier:

Cleveland Quarries
850 West River Road
Vermillion, OH 44089
Ph.: (440) 963-4008 website: www.clevelandquarries.com.

B. Material: Berea Sandstone.

C. Finish/color: Sawn top and bottom and all four sides, Color: Buff.

D. Source Limitation: Obtain each Berea Sandstone block from a single source with resources to provide materials and products of consistent quality in appearance and physical properties.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance.
3. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
4. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
5. Uniformly moisten excessively dry soil that is not workable, or which is dusty.

B. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Landscape Architect and replace with new planting soil.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.

B. Use every possible precaution to prevent excessive compaction of planting area soil within or adjacent to the areas of Work.

C. Do not store materials or equipment or operate or park vehicles under the drip line of existing or newly planted trees. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

D. Lay out plants at locations directed by Landscape Architect. Stake locations of individual trees and shrubs and outline areas for multiple plantings.

E. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

F. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

3.03 PLANTING AREA ESTABLISHMENT

A. General: Prepare planting area for soil placement and mix planting soil according to the requirements of Planting Soil Mixes.

B. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.04 EXCAVATION FOR TREES AND SHRUBS

A. Planting Pits and Trenches: Excavate circular planting pits.

1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that the root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.

2. Excavate approximately three times as wide as ball diameter for balled and burlapped stock.
3. Do not excavate deeper than the depth of the root ball, measured from the root flare to the bottom of the root ball.
4. If the area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
5. Maintain angles of repose of adjacent materials to ensure stability. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
6. Maintain supervision of excavations during working hours.
7. Keep excavations covered or otherwise protected after working hours.

B. Backfill Soil: Subsoil and topsoil removed from excavations may **not** be used as backfill soil unless otherwise indicated.

C. Obstructions: Notify Landscape Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.

1. Hardpan Layer: Drill 6-inch-diameter holes, 24 inches apart, into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material.

D. Test fill each tree and planting pit with water, prior to planting to assure proper soil percolation. Pits which do not adequately drain shall be further scarified along outer edges and sides of pit. Do not disturb area supporting tree ball. Repeat test.

1. Notify Landscape Architect and Owner should 2nd fill test fail for additional input and corrective action.
2. No allowances shall be made for plant material loss due to improper drainage or if the contractor fails to perform fill test. Contractor shall replace lost plant material with same size and species at no additional cost to the owner.

E. Drainage: Notify Landscape Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.

F. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

3.05 TREE, SHRUB, AND PERENNIAL PLANTING

A. General: Install plant material in accordance with detailed drawings and recommendations of ANLA.

B. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.

C. Root Pruning:

1. If stem girdling roots are encountered at root ball sides, notify the Landscape Architect for field review.
2. Upon Landscape Architect’s acceptance, remove stem girdling roots and kinked roots by cutting cleanly; do not break. Cut roots on 4 sides of root ball 90 degrees to root ball.

D. Root Ball Scarification:

1. After removing plant from container, scarify side of root ball to prevent root-bound condition.
2. Loosen root ball soil surface to depth of 1/8 inch to 1/4 inch without damaging roots or breaking root ball.

E. Balled and Burlapped Stock: Set each plant plumb in center of planting bed or trench with root flare 2 inches above adjacent finish grades.

1. Backfill: Imported planting soil mix.
2. After placing some backfill around root ball to stabilize plant, carefully cut and remove upper 1/3 burlap (ANSI A300 – Part 6), rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
4. Continue the backfilling process. Water again after placing and tamping the final layer of soil.

F. Container-Grown Stock and Perennials in Containers: Set each plant plumb and in center of planting bed or trench.

1. Container Stock greater than 1 gallon container, place root flare 1 inch above finish grade.
2. Perennials or plant stock in 1 gallon and less containers, place top of root ball 1 inch or less above finish grade.
3. Backfill: Imported planting soil mix.
4. Carefully remove root ball from container without damaging root ball or plant.
5. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
6. Continue backfilling process. Water again after placing and tamping final layer of soil.

G. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.06 TREE AND SHRUB PRUNING

A. Remove only dead, dying, or broken branches. Do not prune for shape.

B. Prune, thin, and shape trees and as directed by Landscape Architect.

C. Prune, thin, and shape trees and shrubs according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Landscape Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.

D. Do not apply pruning paint to wounds.

3.07 GROUNDCOVER PLANTING

A. Set out and space ground cover as indicated on Drawings in even rows with triangular spacing.

B. Use imported planting soil mix for backfill.

C. Dig holes large enough to allow spreading of roots.

D. For rooted cutting plants supplied in flats, plant each in a manner that minimally disturbs the root system but to a depth not less than two nodes.

E. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.

F. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

G. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.08 PLANTING AREA MULCHING

A. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Trees and Treelike Shrubs in Turf Areas: Apply organic mulch ring of 2-inch average thickness, with 18-inch radius around trunks or stems. Do not place mulch within 3 inches of trunks or stems.
2. Organic Mulch in Planting Areas: Apply 2-inch average thickness of organic mulch extending 12 inches beyond edge of individual planting pit or trench and over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

3.09 EDGING INSTALLATION

A. Shovel-Cut Edging: Separate mulched areas from turf areas with a 45-degree, 4- to 6-inch-deep, shovel-cut edge.

3.10 INSTALLING SLOW-RELEASE WATERING DEVICE

A. Provide one device for each tree.

B. Place device on top of the mulch at base of tree stem and fill with water according to manufacturer's written instructions.

3.11 PLANT MAINTENANCE

A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting, and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.

B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices, when possible, to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

3.12 PESTICIDE APPLICATION

A. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.13 REPAIR AND REPLACEMENT

A. General: Repair or replace existing or new trees and other plants that are damaged by construction operations, in a manner approved by Landscape Architect.

1. Submit details of proposed pruning and repairs.
2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.
3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Landscape Architect.

B. Remove and replace trees that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Landscape Architect determines are incapable of restoring to normal growth pattern.

1. Provide new trees of the same size as those being replaced for each tree
2. Species of Replacement Trees: Same species being replaced.

3.14 CLEANING AND PROTECTION

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

C. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

D. After installation and before Substantial Completion, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

E. At the time of Substantial Completion, verify that tree-watering devices are in good working order and leave them in place. Replace improperly functioning devices.

3.15 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE

A. During the project work period and prior to Substantial Completion Acceptance, the Contractor shall maintain all plants.

B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds and grass.

3.16 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and decide if the work is substantially complete.

1. Notification shall be at least 7 days prior to the date the contractor is requesting the review.

B. The date of substantial completion of the planting shall be the date when the Landscape Architect accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

C. The Plant Warranty period begins at date of written notification of substantial completion from the Landscape Architect. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.

3.17 MAINTENANCE DURING THE WARRANTY PERIOD (by Client / others)

A. After Substantial Completion Acceptance, the Contractor shall make sufficient site visits to observe the Owner’s maintenance and become aware of problems with the maintenance in time to request changes, until the date of End of Warranty Final Acceptance.

1. Notify the Landscape Architect in writing if maintenance, including watering, is not sufficient to maintain plants in a healthy condition. Such notification must be made in a timely period so that the Landscape Architect may take corrective action.

    a. The notification must define the maintenance needs and describe any corrective action required.

2. If the Contractor fails to visit the site and or notify, in writing, the Landscape Architect of maintenance needs, lack of maintenance shall not be used as grounds for voiding or modifying the provisions of the warranty.

3.18 END OF WARRANTY FINAL ACCEPTANCE / MAINTENANCE OBSERVATION

A. At the end of the Warranty and Maintenance period the Landscape Architect shall observe the work and establish that all provisions of the contract are complete, and the work is satisfactory.

1. If the work is satisfactory, the maintenance period will end on the date of the final observation.

2. If the work is deemed unsatisfactory, the maintenance period will continue at no additional expense to the Owner until the work has been completed, observed, and approved by the Landscape Architect.

B. FAILURE TO PASS OBSERVATION: If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owners Representative.

END OF SECTION 32 93 00