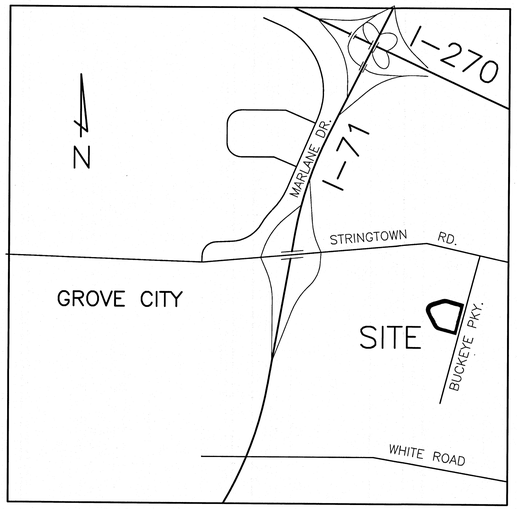
PARKWAY CENTER
DEVELOPMENT PLAN
4145 BUCKEYE PARKWAY
GROVE CITY, OHIO

4145 BUCKEYE PARKWAY DEVELOPMENT PLAN – PROJECT NARRATIVE

CURRENTLY 4145 BUCKEYE IS AN UNDEVELOPED LOT IN FRONT OF WALMART. THIS PROJECT PROPOSES TO BUILD A 97'X76' (7309 S.FT.) SHELL BUILDING FOR UP TO 4 TENANTS. THE NEW SHELL BUILDING WILL HAVE AN EXTERIOR THAT IS CONSISTENT WITH THE NEIGHBORING BUILDINGS IN THE DEVELOPMENT, PRIMARILY BRICK, AND EIFS. THE DEVELOPER HAS ALREADY BEGUN CONVERSATIONS WITH PROSPECTIVE TENANTS WITH PLANS TOWARDS TWO RESTAURANTS AND TWO RETAIL SPACES. THE NEW SPACES WILL PROVIDE MORE SHOPPING AND DINING OPTIONS FOR GROVE CITY AS WELL AS MANY NEW FULL TIME JOBS. THE SITE WILL BE DEVELOPED TO COMPLY WITH ALL CITY AND DEVELOPMENT REQUIREMENTS.



LOCATION MAP

NO SCALE

INDEX OF SHEETS

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SITE DATA:
PARCEL ID: 040–014312–00

OWNER: MULAN LLC
DEVELOPER: TOMMY WANG, PARTNER MULAN LLC

PROPERTY ADDRESS:
4145 BUCKEYE PARKWAY
GROVE CITY, OHIO 43123

MAILING ADDRESS:
12995 STOECREEK DR.
PICKERIGNTON, OHIO 43147

SITE LOT AREA: 0.738 AC.

TOTAL BUILDING AREA: 7309 S.FT.

CURRENT ZONING: C–2 PUD

PROPOSED USED: RETAIL CENTER

TOTAL PARKING SPACES = 52 INCLUDING 3 HANDICAPPED SPACES

DUMPSTER: 18'X11' (INTERIOR SIZE) AND 12" THICK BRICK WALL, DUMPSTER TO BE SCREENED AND LANDSCAPED

MAXIMUM BUILDING HEIGHT = 25'–0"

STORM RETENTION & WATER QUALITY: STORM RETENTION & WATER QUALITY FOR THIS SITE HAS BEEN INCLUDED WITH THE OVERALL STORM DRAINAGE SYSTEM IN THE WALMART STORM SEWER CONVEYANCE SYSTEM FOR THE ENTIRE TRIBUTARY AREA

FLOOD PLAIN NOTE:
THE SITE IS LOCATED IN ZONE X AREAS OUTSIDE THE 500 YEAR FLOODPLAIN, AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FIRM COMMUNITY PANEL NO. 39049C0243 G, DATED AUGUST 2, 1995, CITY OF GROVE CITY, OHIO.

CERTIFICATION:
I HEREBY CERTIFY THAT THIS DRAWING WAS PREPARED FROM AN ACTUAL SURVEY OF THE PREMISES BY ARNOLD SURVEY OF GROVE CITY, AND THAT SAID DRAWING EXHIBITS THE TOPOGRAPHIC FEATURES WITHIN THE LIMITS SPECIFY BY THE OWNER AND/OR HIS AGENT.THE LOCATION OF THE UNDERGROUND UTILITIES SHOW HEREON HAVE BEEN OBTAINED BY FIELD LOCATION AND/OR AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

THIS CERTIFICATION WAS MADE BY ME ON THIS 28 DAY OF JULY, 2015.

STATE OF OHIO
SULIMAN Z. ABDULLAH
E–68017
REGISTERED PROFESSIONAL ENGINEER

Suliman Z. Abdullah

SULIMAN Z. ABDULLAH, OHIO PROFESSIONAL ENGINEER NO. 68017

APPROVAL BY THE CITY OF GROVE CITY SIGNIFIES ONLY CONCURRENCE WITH THE GENERAL PURPOSES AND LOCATION OF THE PROJECT. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF THE ENGINEER PREPARING THE PLAN.

APPROVED FOR THE CITY OF GROVE CITY

CITY ADMINISTRATOR, GROVE CITY, OHIO — DATE

SERVICE DIRECTOR, CITY OF GROVE CITY, OHIO — DATE

REVIEWED FOR THE CITY OF GROVE CITY, OHIO — DATE

JACKSON TOWNSHIP FIRE DEPARTMENT — DATE

RECEIVED
AUG 03 2015
GC PLANNING COMMISSION

PROJECT NAME:

PARKWAY CENTER
4145 BUCKEYE PARKWAY
GROVE CITY, OHIO

STATE OF OHIO
SULIMAN Z. ABDULLAH
E–68017
REGISTERED PROFESSIONAL ENGINEER

PLAN PREPARED BY:

Columbus Engineering Consultants, Inc.
Consulting Engineers

870 Michigan Avenue
Columbus, OH 43215
(614) 228–3500
E–MAIL:cec@ceceng.net

REGISTERED ENGINEER
DATE: 7/28/2015

Suliman Z. Abdullah

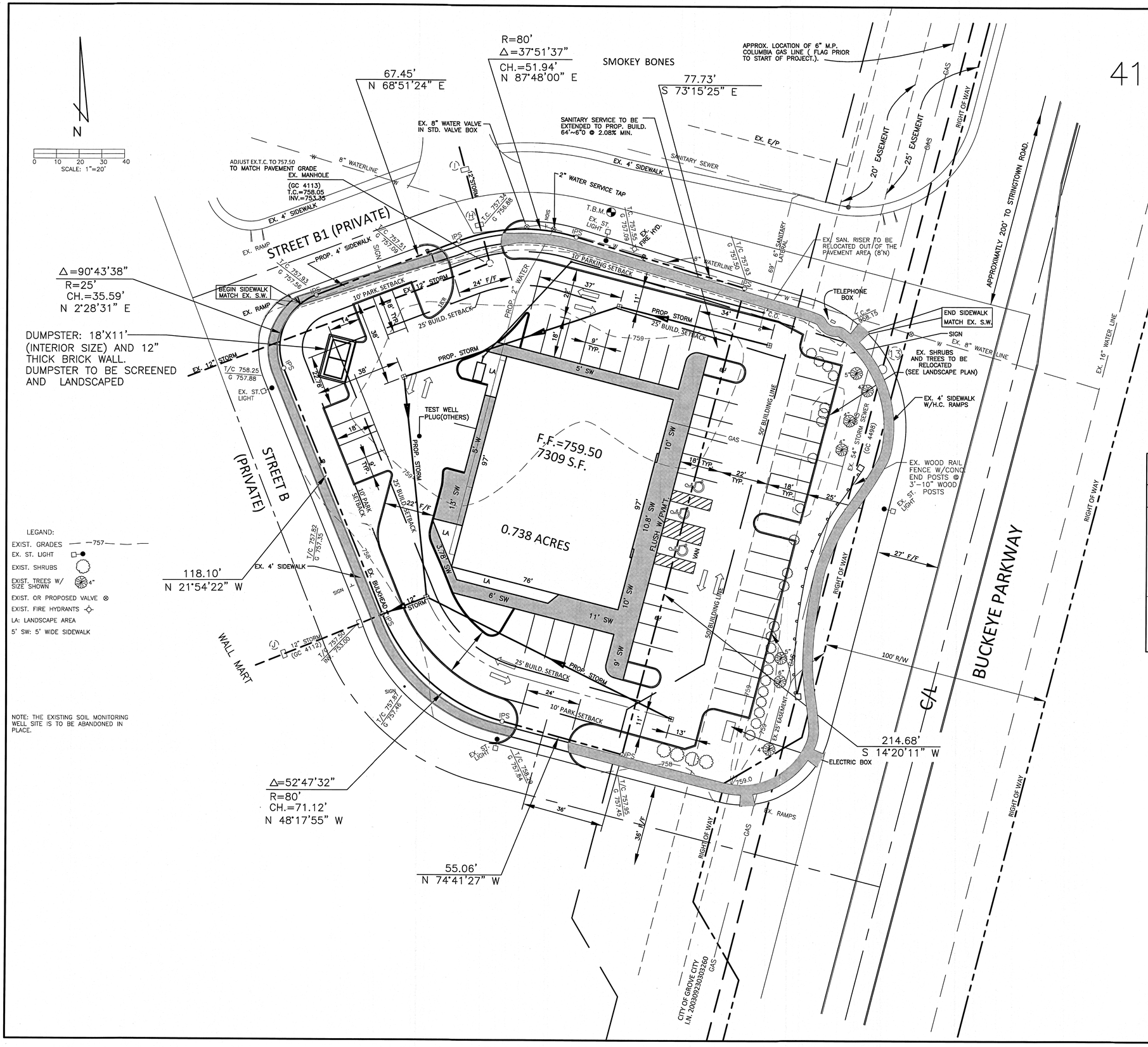
CEC JOB NUMBER:

GROVE CITY PROJECT NO.:

DEVELOPMENT PLAN

SCALE	DATE	DRAWN BY	DWG. NO.
AS SHOWN	7/28/2015	SA	1/5

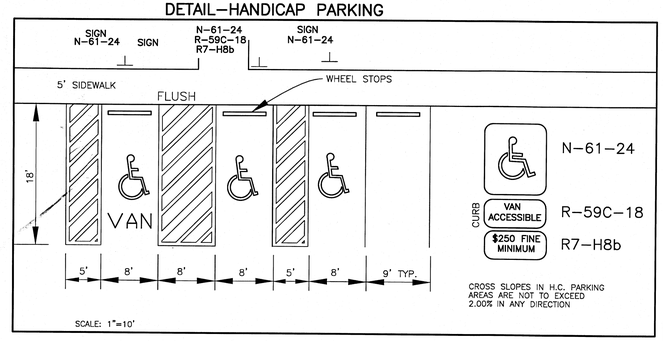
PARKWAY CENTER
4145 BUCKEYE PARKWAY
GROVE CITY, OHIO



LEGAND:
EXIST. GRADES —757—
EX. ST. LIGHT
EXIST. SHRUBS
EXIST. TREES W/ SIZE SHOWN
EXIST. OR PROPOSED VALVE
EXIST. FIRE HYDRANTS
LA: LANDSCAPE AREA
5' SW: 5' WIDE SIDEWALK

NOTE: THE EXISTING SOIL MONITORING WELL SITE IS TO BE ABANDONED IN PLACE.

DETAIL–HANDICAP PARKING



PROJECT NAME:

PARKWAY CENTER
4145 BUCKEYE PARKWAY
GROVE CITY, OHIO

STATE OF OHIO
SULIMAN Z. ABDULLAH
E-68017
REGISTERED PROFESSIONAL ENGINEER

PLAN PREPARED BY:

Columbus Engineering Consultants, Inc.
Consulting Engineers

870 Michigan Avenue
Columbus, OH 43215
(614) 228-3500
E-MAIL:cec@ceceng.net

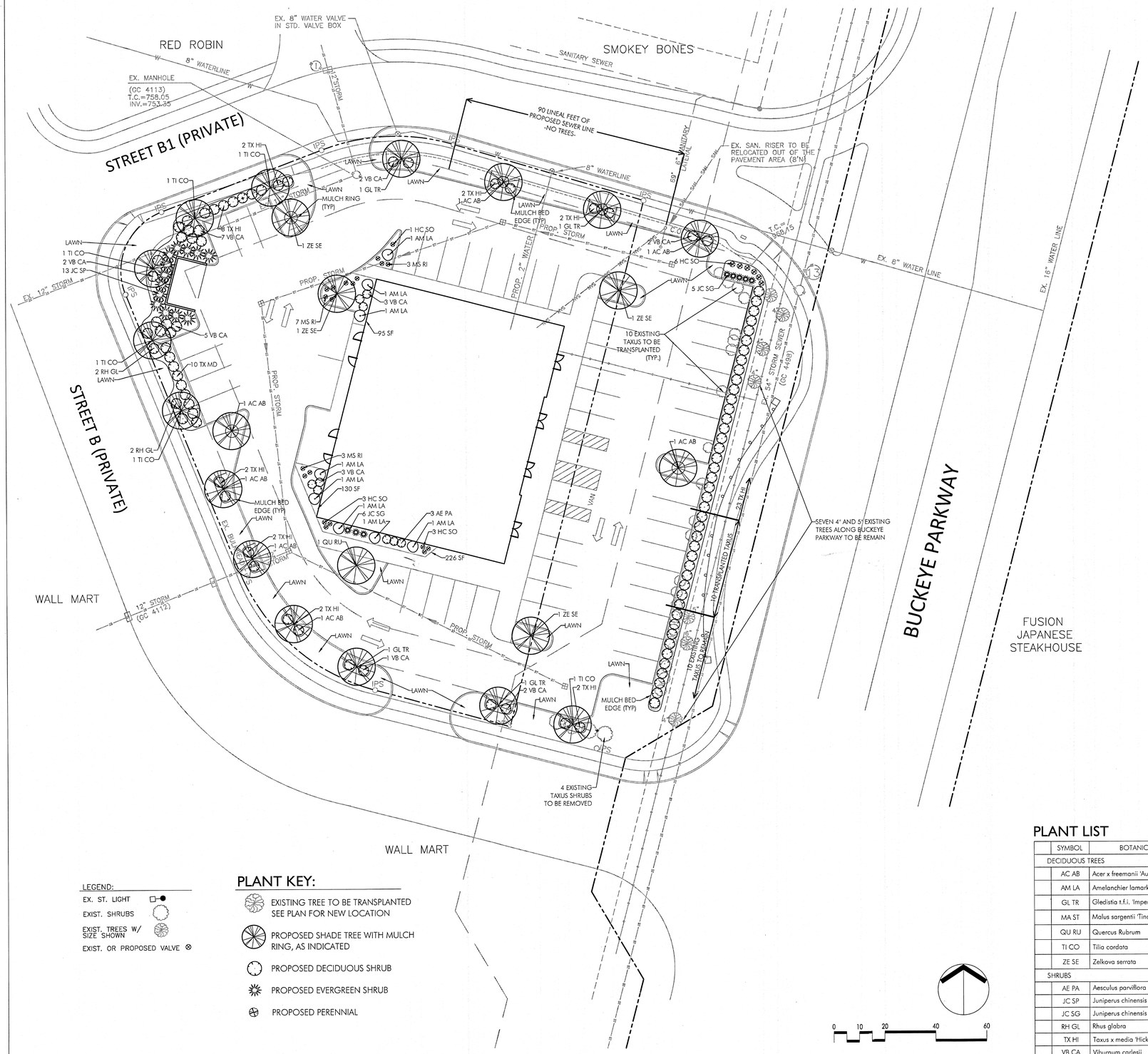
REGISTERED ENGINEER
DATE: 7/24/2015
Suliman Z. Abdullah

CEC JOB NUMBER:

GROVE CITY PROJECT NO.:

SITE AND UTILITY PLAN

SCALE	DATE	DRAWN BY	DWG. NO.
AS SHOWN	7/13/2015	SA	2/5



LEGEND:

- EX. ST. LIGHT
- EXIST. SHRUBS
- EXIST. TREES W/ SIZE SHOWN
- EXIST. OR PROPOSED VALVE

PLANT KEY:

- EXISTING TREE TO BE TRANSPLANTED SEE PLAN FOR NEW LOCATION
- PROPOSED SHADE TREE WITH MULCH RING, AS INDICATED
- PROPOSED DECIDUOUS SHRUB
- PROPOSED EVERGREEN SHRUB
- PROPOSED PERENNIAL

0 10 20 40 60

2 WORKING DAYS BEFORE YOU DIG
OHIO UTILITIES PROTECTION SERVICE
CALL TOLL FREE 800-362-2764

CITY STANDARD NOTES

1. Contractor shall protect existing vegetation protection areas. No construction access to and activities (including stockpiling or disposal of construction material) in existing vegetation protection areas) is permitted. (1136.05)

2. Service structures, including, but not limited to, propane tanks, trash dumpsters, electrical transformers, air conditioners/cooling towers, heat pumps, utility vaults which extend above grade, and other equipment or elements providing service to a building or site, are to be screened in all zoning districts. A continuous 100% opaque landscape hedge, solid fence, wall, or earthen mound is required to enclose any service structure on all exposed sides. If such structure is frequently moved (i.e.: trash dumpster) a gate or gates shall be permitted on one side. Said gate(s) shall be kept closed to provide full 4-sided screening. Screening shall be one foot (1'- 0") higher than service structure but shall not be required to exceed 8'- 0" in height (6'- 0" height for walls and fences.). If walls or fences are used, supplemental landscaping will be required. Provide 36" height minimum plantings at 5'- 0" maximum spacing around the enclosed portion of the perimeter screen. Curbing and/or bollards are to be installed around any trash disposal or waste collection unit a minimum of 2'- 0" within the screening material to prevent damage to the screening when the container is moved or emptied. Electric and gas service shut-off locations shall be landscaped on the sides only to permit quick identification and access by emergency personnel. (1136.06)

3. Tree Planting Typical. All ropes and burlap, and 50% wire cage of the burlap shall be removed from the trees prior to the City's landscape inspection.

PLAN NOTES

1136.06 (a2): for parking lots exceeding 7,000 square feet or 25 cars; Option A requires a 15' minimum (frontage) parking and/or drive aisle set-back with a continuous 3'-0" height minimum evergreen hedge.

A. East Property line - frontage (Buckeye Parkway) : 215 lineal feet
Existing: Transplant 10 shrubs to new location on site
Provided: 10 transplanted evergreen shrubs, and 32 new evergreen shrubs

B. North, South, and West: Parking spaces that abut setback have been screened.

1136.06 (b3): Rear and Side Yards Adjacent Compatible Use Districts; One 2" caliper large or medium class tree and two 18" height deciduous shrubs are to be planted every 40 lineal feet of property line for all vehicular use areas.

A. North, South, and West Property lines: 580 lineal feet
Required: 15 trees and 30 shrubs
Provided: 15 shade trees and 30 shrubs

1136.06 (d): Interior Vehicular Use Area: Each peninsula, island, aisle end island or planting area to contain at least one tree.
Required: 8 islands = 8 trees
Provided: 8 trees

1136.08 Screening of Service Structures;
Plan complies with dumpster screening requirements

1136.09 (a)(2): Landscape abutting a structure

One tree for every 50 lineal feet of building with a minimum 64 square foot landscaped area containing shrubs, ground covers, ornamentals etc.
Required: 350 lineal feet = 7 trees and 448 square feet of landscaped area
Provided: 7 trees and 451 square feet of landscaped area

Freestanding signage: A minimum 2 foot wide foundation planting around entire perimeter. Plan complies.

PLANT INSTALLATION NOTES

1. Contractor to verify with the owner's representative and utility companies the locations of the existing utilities prior to start. Call Ohio Utilities Protection Services at (800)362-2764. Contractor to repair all damages to existing utilities, curbs, pavements, etc. resulting from landscape installations which occur during the construction of the project.

2. Plant material shall be furnished in the quantities and/or spacing as shown or noted. In case of discrepancies between the plan and the plant list, the plan shall dictate.

3. Contractor shall verify sizes and locations of all site elements and immediately inform the owner's representative of any discrepancy between the drawings and/or specifications and actual conditions. No work shall be done in any area where there is a discrepancy without owner's representative approval.

4. Base information provided by Advanced Civil Design

5. Contractor shall be responsible for all finish grading in the project required to provide a proper seed and planting bed.

6. Contractor shall provide the following soil amendments:
Soil Amendment: 'Com-Til' organic compost (or equal)
7000 State Route 104
South Lockbourne, Ohio 43137
(614) 645-3152

Wetland Soil Mix: Raingarden 531 Soil Mixture
Kurtz Brothers Soil
6279 Houchard Rd, Dublin, OH
(614) 873-2000
See Specifications

Turf & Shrub Bed areas: Spread 3" of 'Com-Til' over new landscape areas and incorporate into the top 8" of the soil by mechanical tiller.

Trees and Shrubs: Mix 30% 'Com-Til' to 70% existing soil from plant pit excavation. If excavated soil is not suitable, supplement with imported topsoil.

7. All plant material to meet or exceed American Standard for Nursery Stock, 1986 edition, as set forth by American Association of Nurserymen.

8. All plant materials subject to inspection prior, during and after installation. Any plant not meeting the requirements will be cause for rejection by the owner's representative. All rejected plants shall be immediately removed and disposed of by the contractor and the replacement material shall be provided.

9. All substitutions and plan changes must be approved by owner's representative prior to any action taken. Trees shall be protected and handled carefully at all times during transport & handling to prevent drying of tree or root ball by winds and to prevent any damage or breakage of the root ball. Bark shall be protected from bruising or abrasion.

10. Water trees immediately after planting and continue to water until final acceptance by owner's representative.

11. Plant locations and beds shall be located by contractor and approved by owner's representative prior to plant installation.

12. Bed line to be 18" from base of plant material unless otherwise indicated on the drawings.

13. All shrub and bed areas to be mulched with two inches (2") depth minimum shredded hardwood mulch. Submit sample to owner for approval.

14. All areas outside of planting beds shall be seeded or sodded as shown on the plans and noted in the technical specifications.

15. Finished turf (sod or seed) to be flush with top of adjacent curb or walk. coordinate with owner's representative in field as required.

16. The contractor shall guarantee all trees, shrubs and ground covers for a period of one (1) year from date of final acceptance. Replace material within seven (7) days of notification of the owner's representative.

17. Perform cleaning during installation of landscape work and upon completion. Remove from site all excess landscape related material, soil debris and equipment. Repair damage resulting from landscaping operations. Sweep and hose down paved surfaces affected by landscaping operations. Coordinate with owner's representative and other contractors for final cleanup prior to cleaning.

18. Maintenance: The landscape contractor shall maintain the completed landscape and irrigation systems until the date of final acceptance.

a. Mowing - Minimum once per week, except in future expansion areas which will require a minimum of once per three weeks.

b. Trimming - Shrubs, trees, ground covers, perennials, and annuals, minimum two times per year or as required.

c. Fertilizing - Apply fertilizer at a rate equal to 1 lb. of actual nitrogen/1000 s.f. in the spring and fall to all turf and plantings except in future expansion turf areas (where applicable).

d. Bed Edging - Edge all beds by hand, spade at least two times per year and top-mulch with dress wood mulch in fall and spring.

PLANT LIST

	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	COND.	SPACING
DECIDUOUS TREES						
	AC AB	Acer x freemanii 'Autumn Blaze'	Autumn Blaze Maple	2" cal.	B&B	As Shown
	AM LA	Amelanchier lamarckii	Juneberry	2" cal.	B&B	As Shown
	GL TR	Gleditsia t.f.i. 'Imperial'	Imperial Honeylocust	2" cal.	B&B	As Shown
	MA ST	Malus sargentii 'Tina'	Sargent Tina Crabbaple	#15 cont.	B&B	As Shown
	QU RU	Quercus Rubrum	Red Oak	2" cal.	B&B	As Shown
	TI CO	Tilia cordata	Littleleaf Linden	2" cal.	B&B	As Shown
	ZE SE	Zelkova serrata	Japanese Zelkova	2" cal.	B&B	As Shown
SHRUBS						
	AE PA	Aesculus parviflora	Bottlebrush Buckeye	3' hgt.	Cont.	As Shown
	JC SP	Juniperus chinensis 'Spartan'	Spartan Juniper	3' hgt.	Cont.	As Shown
	JC SG	Juniperus chinensis 'Sea Green'	Sea Green Juniper	3' hgt.	Cont.	As Shown
	RH GL	Rhus glabra	Smooth Sumac	3 gal.	Cont.	As Shown
	TX HI	Taxus x media 'Hicksii'	Hicks Yew	3' hgt.	Cont.	As Shown
	VB CA	Viburnum carlesii	Koreanspice Viburnum	3 gal.	Cont.	As Shown
PERENNIALS & ORNAMENTAL GRASSES						
	EC PU	Echinacea purpurea	Purple Coneflower	1 gal.	Cont.	As Shown
	HC SO	Hemerocallus 'Stella de Oro'	Stella de Oro Daylilly	1 gal.	Cont.	As Shown
	MS RI	Miscanthus sinensis 'Rigoletto'	Rigoletto Malden Grass	1 gal.	Cont.	As Shown

PROJECT NAME:

PARKWAY CENTER
4145 BUCKEYE PARKWAY
GROVE CITY, OHIO

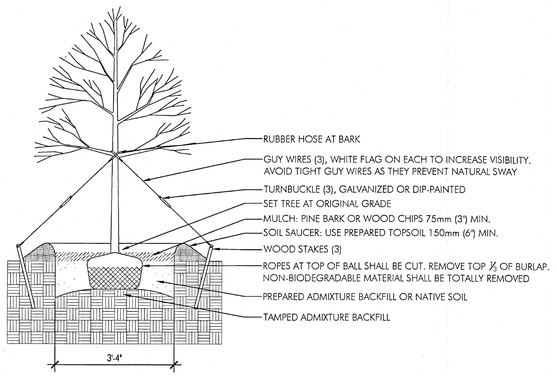
STATE OF OHIO
STEPHEN KOLWICZ
936
REGISTERED LANDSCAPE ARCHITECT

POD design
Columbus
100 Northwoods Blvd, Suite A
Columbus, Ohio 43235
p 614.255.3399
f 614.255.3999
PODdesign.net

REGISTERED LANDSCAPE ARCHITECT
EXPIRATION DATE: 12/31/2016

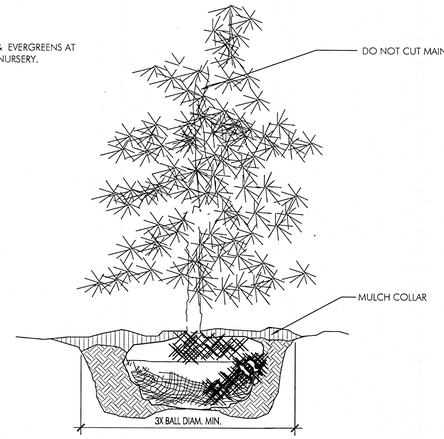
LANDSCAPE DETAILS

SCALE	DATE	DRAWN BY	DWG. NO.
AS SHOWN	07/28/2015	MDL	3/5

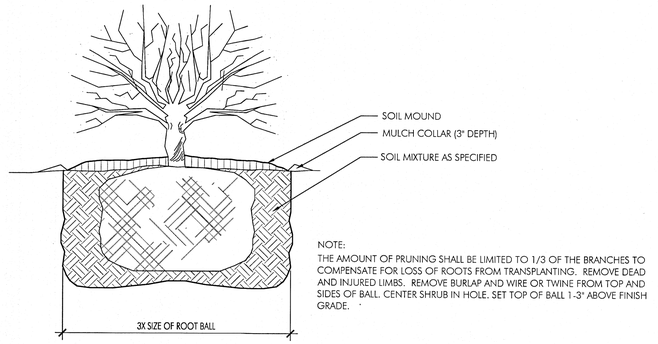


1. Staked Tree
1/2" = 1'-0"

NOTE: PLANT TREES, SHRUBS, & EVERGREENS AT SAME GRADE AS GROWN IN NURSERY.

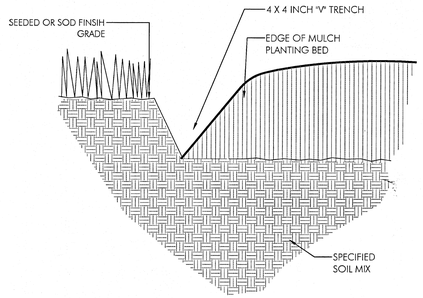


2. Evergreen Planting
N.T.S.

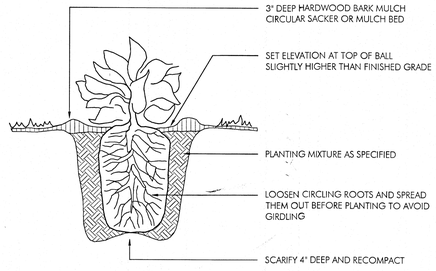


NOTE:
THE AMOUNT OF PRUNING SHALL BE LIMITED TO 1/3 OF THE BRANCHES TO COMPENSATE FOR LOSS OF ROOTS FROM TRANSPLANTING. REMOVE DEAD AND INJURED LIMBS. REMOVE BURLAP AND WIRE OR TWINE FROM TOP AND SIDES OF BALL. CENTER SHRUB IN HOLE. SET TOP OF BALL 1-3" ABOVE FINISH GRADE.

3. Shrub Planting
N.T.S.



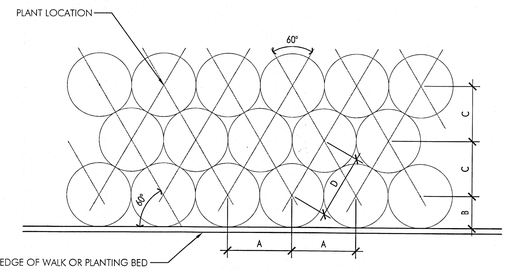
4. Mulch Edge Treatment at Lawn
N.T.S.



5. Perennial Planting
N.T.S.

SPACING	A	B	C	D
12"	12"	6"	10"	12"
18"	18"	8"	15"	18"
24"	24"	10"	20"	24"
36"	36"	18"	31"	36"
48"	48"	21"	41"	48"

A= SPACING
B= SP/2
C= SP/1.2
D= SPACING



6. Perennial Spacing
N.T.S.

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STATE OF OHIO
STEPHEN ROLWICZ
938
REGISTERED LANDSCAPE ARCHITECT

POD design
Columbus
100 Northwoods Blvd, Suite A
Columbus, Ohio 43235
p 614.255.3399
f 614.255.3999

PODdesign.net

REGISTERED LANDSCAPE ARCHITECT
EXPIRATION DATE: 12/31/2016

LANDSCAPE DETAILS

SCALE	DATE	DRAWN BY	DWG. NO.
AS SHOWN	07/28/2015	MDL	4/5

SECTION 32 93 00 - PLANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Plants.
2. Planting soils.
3. Tree stabilization.

B. Related Sections:

1.3 DEFINITIONS

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

B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with ball size not less than [sizes indicated] [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 root flare visible at the surface of the ball as recommended by ANSI Z60.1.

C. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and placed, unbroken, in a container. Ball size is not less than [sizes indicated] [diameter and depth recommended by ANSI Z60.1 for type and size of plant required].

D. Bare-Root Stock: Plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than minimum root spread according to ANSI Z60.1 for type and size of plant required.

E. 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.

F. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.

G. Fabric Bag-Grown Stock: Healthy, vigorous, well-rooted plants established and grown in-ground in a porous fabric bag with well-established root system reaching sides of fabric bag. Fabric bag size is not less than diameter, depth, and volume required by ANSI Z60.1 for type and size of plant.

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

I. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

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

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

L. Planting Area: Areas to be planted.

M. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

N. 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.

O. Root Flare: Also called "trunk flare." 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.

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

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

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

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.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated, including soils.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
2. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to the Project.

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

1. Trees and Shrubs: Three samples of each variety and size delivered to the site for review. Maintain approved samples on-site as a standard for comparison.
2. Mulch: 1-pint (0.5-liter) 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.
3. Accessories: Manufacturer's standard size, to verify color selected.

C. Qualification Data: For qualified landscape Installer. Include 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.

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

1. Manufacturer's certified analysis of standard products.
2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.

E. Material Test Reports: For standardized ASTM D 5268 topsoil, existing native surface topsoil, existing in-place surface soil, and imported or manufactured topsoil].

F. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before start of required maintenance periods.

G. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

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

1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: Three years' experience in landscape installation in addition to requirements in Division 01 Section "Quality Requirements."
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:

a. Certified Landscape Technician - Exterior, with installation specialty area(s), designated CLT-Exterior.
b. Certified Landscape Technician - Interior, designated CLT-Interior.
c. Certified Ornamental Landscape Professional, designated COLP.

5. Pesticide Applicator: State licensed, commercial.

B. Soil-Testing Laboratory Qualifications: An independent or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

C. Soil Analysis: For each unamended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil.

1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
2. The soil-testing laboratory shall oversee soil sampling; with depth, location, and number of samples to be taken per instructions from Architect. A minimum of three representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
3. Report suitability of tested soil for plant growth.

a. Based upon the test results, state recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft. (92.9 sq. m) or volume per cu. yd. (0.76 cu. m) for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.

b. Report presence of problem salts, minerals, or heavy metals, including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.

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

E. 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 main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches (150 mm) above the root flare for trees up to 4-inch (100-mm) caliper size, and 12 inches (300 mm) above the root flare for larger sizes.
2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

F. Plant Material Observation: 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. Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.

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

G. Preinstallation Conference: Conduct conference at Project site.

1.6 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 conformance 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 fertilizers[, lime,] and soil amendments 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. Handle planting stock by root ball.

E. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F (16 to 18 deg C) until planting.

F. 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. Heel-in bare-root stock. Soak roots that are in dry condition in water for two hours. Reject dried-out plants.
2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
3. Do not remove container-grown stock from containers before time of planting.
4. 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.

1.7 PROJECT CONDITIONS

A. 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.

B. Interruption of Existing Services or Utilities: Do not interrupt services or utilities to facilities occupied by 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. Notify Owner no fewer than two days in advance of proposed interruption of each service or utility.
2. Do not proceed with interruption of services or utilities without Owner's written permission.

C. 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.

D. 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.

1.8 WARRANTY

A. Special 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, or incidents that are beyond Contractor's control.
b. Structural failures including plantings falling or blowing over.
c. Faulty performance of tree stabilization and edgings.

2. Warranty Periods from Date of Substantial Completion:

a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.

3. 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 will be 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.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Schedule or Plant Legend shown 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. 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 (19 mm) in diameter; or with stem girdling roots will be rejected.
2. 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.

B. 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 Architect, with a proportionate increase in size of roots or balls.

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

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

2.2 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8

B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or granular texture, with a pH range of 3.4 to 4.8.

C. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture, with a pH range of 6 to 7.5, and having a water-absorbing capacity of 1100 to 2000 percent.

D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.

E. 'Com-Til' organic compost, 7000 State Route 104 South Lockbourne, Ohio 43137 (614) 645-3152 or Clean, well composted dairy cow manure to be approved by owner's representative.

2.3 FERTILIZERS

A. Fertilizer:

1. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 10 percent phosphoric acid.
2. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
3. 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.
4. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium .

2.4 PLANTING SOILS

A. ASTM D 5268, pH range of 5.5 to 7, a minimum of 4 percent organic material content; free of stones 1" or larger in any dimension and other extraneous materials harmful to plant growth.

1. Topsoil Source: Reuse surface soil stockpiled on-site and supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Verify suitability of stockpiled surface soil to produce topsoil.
2. Topsoil Source: Amend existing in-place surface soil to produce topsoil. Verify suitability of surface soil to produce topsoil. Surface soil may be supplemented with imported or manufactured topsoil from off-site sources.

2.5 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 (76 mm) maximum, 1/2 inch (13 mm) minimum.
3. Color: Natural.

B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch (25-mm) sieve; soluble salt content of 2 to 5 deciemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60 percent of dry weight.

2.6 PESTICIDES

A. General: Pesticide registered and approved by 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 Non-Selective): 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 Non-Selective): Effective for controlling weed growth that has already germinated.

2.7 TREE STABILIZATION MATERIALS

A. Root-Ball Stabilization Materials:

1. Upright Stakes and Horizontal Hold-Down: Rough-sawn, sound, new hardwood or softwood, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal (38-by-38-mm actual) by length indicated; stakes pointed at one end.
2. Wood Screws: ASME B18.6.1.
3. Proprietary Root-Ball Stabilization Devices: Proprietary at- or below-grade stabilization systems to secure each new planting by root ball; sized per manufacturer's written recommendations unless otherwise indicated.

a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1) Border Concepts, Inc.; Tomahawk Tree Stabilizers.
2) Foresight Products, LLC; Duckbill Rootball Fixing System.
3) Tree Staple, Inc.; Tree Staples.

2.8 MISCELLANEOUS PRODUCTS

A. Burlap: Non-synthetic, biodegradable.

B. Planter Drainage Gravel: Washed, sound crushed stone or gravel complying with ASTM D 448 for Size No. 8.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.

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. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
4. Uniformly moisten excessively dry soil that is not workable and which is too 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 by Architect and replace with new planting soil.

3.2 PREPARATION

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

B. 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.

C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.

D. 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.

3.3 PLANTING AREA ESTABLISHMENT

A. Loosen subgrade of planting areas to a minimum depth of 6 inches (150 mm. Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Apply fertilizer directly to subgrade before loosening.
2. Thoroughly blend planting soil off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.

a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
b. Mix lime with dry soil before mixing fertilizer.

3. Spread planting soil to a depth of 6 inches (150 mm) but not less than required to meet finish grades after natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

a. Spread approximately one-half the thickness of planting soil over loosened subgrade. Mix thoroughly into top 2 inches (50 mm) of subgrade. Spread remainder of planting soil.

B. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

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

3.4 EXCAVATION FOR TREES AND SHRUBS

A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are not acceptable. 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 root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.

1. Excavate approximately three times as wide as ball diameter for balled and burlapped stock.
2. Excavate at least 12 inches (300 mm) wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
3. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
4. If 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 required angles of repose of adjacent materials as shown on the Drawings. 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 when unattended by Installer's personnel.
8. If drain tile is shown on Drawings or required under planting areas, excavate to top of porous backfill over tile.

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

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

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

3.5 TREE, SHRUB, AND VINE PLANTING

A. Before 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.

B. Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

C. Set balled and burlapped stock plumb and in center of planting pit or trench with root flare 1 inch (25 mm) above adjacent finish grades.

1. Use planting soil for backfill.
2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, 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. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside the root ball about 1 inch (25 mm) from root tips; do not place tablets in bottom of the hole.
5. Continue backfilling process. Water again after placing and tamping final layer of soil.

D. Set container-grown stock plumb and in center of planting pit or trench with root flare 1 inch (25 mm) above adjacent finish grades.

1. Use planting soil for backfill.
2. Carefully remove root ball from container without damaging root ball or plant.
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. Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended in soil reports from soil-testing laboratory. Place tablets beside the root ball about 1 inch (25 mm) from root tips; do not place tablets in bottom of the hole.
5. Continue backfilling process. Water again after placing and tamping final layer of soil.

E. 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.

3.6 MECHANIZED TREE SPADE PLANTING

A. Trees may be planted with an approved mechanized tree spade at the designated locations. Do not use tree spade to move trees larger than the maximum size allowed for a similar field-grown, balled-and-burlapped root-ball diameter according to ANSI Z60.1, or larger than the manufacturer's maximum size recommendation for the tree spade being used, whichever is smaller.

B. When extracting the tree, center the trunk within the tree spade and move tree with a solid ball of earth.

C. Cut exposed roots cleanly during transplanting operations.

D. Use the same tree spade to excavate the planting hole as was used to extract and transport the tree.

E. Plant trees as shown on Drawings, following procedures in "Tree, Shrub, and Vine Planting" Article.

F. Where possible, orient the tree in the same direction as in its original location.

3.7 TREE, SHRUB, AND VINE PRUNING

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

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

C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by 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.

3.8 TREE STABILIZATION

A. Root-Ball Stabilization: Install at- or below-grade stabilization system to secure each new planting by the root ball unless otherwise indicated.

1. Wood Hold-Down Method: Place vertical stakes against side of root ball and drive them into subsoil; place horizontal wood hold-down stake across top of root ball and screw at each end to one of the vertical stakes.

a. Install stakes of length required to penetrate at least 18 inches (450 mm) below bottom of backfilled excavation. Saw stakes off at horizontal stake.
b. Install screws through horizontal hold-down and penetrating at least 1 inch (25 mm) into stakes. Predrill holes if necessary to prevent splitting wood.
c. Install second set of stakes on other side of root trunk for larger trees as indicated.

2. Proprietary Root-Ball Stabilization Device: Install root-ball stabilization system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.

3.9 PLANTING IN PLANTERS

A. Place a layer of drainage gravel at least 4 inches (100 mm) thick in bottom of planter. Cover bottom with filter fabric and wrap filter fabric 4 inches (100 mm) up on all sides. Duct tape along the entire top edge of the filter fabric, to secure the filter fabric against the sides during the soil-filling process.

B. Fill planter with planting soil. Place soil in lightly compacted layers to an elevation of 1-1/2 inches (38 mm) below top of planter, allowing natural settlement.

3.10 GROUND COVER AND PLANT PLANTING

A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated in even rows with triangular spacing.

B. Use planting soil 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 will minimally disturb 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.

3.11 PLANTING AREA MULCHING

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

1. Trees and Tree-like Shrubs in Turf Areas: Apply organic mulch ring of 2-inch (50-mm) average thickness, with 24-inch (600-mm) radius around tree trunks and 12-inch (300-mm) radius around shrub trunks. Do not place mulch within 6 inches (150 mm) of trunks or stems.
2. Organic Mulch in Planting Areas: Apply 2-inch (50-mm) average thickness of organic mulch extending 12 inches (300 mm) 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 6 inches (150 mm) of trunks or stems.

3.12 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. Spray or treat as required to keep trees and shrubs free of insects and disease. Until substantial completion decided by owner's representative, then becomes responsibility of owner.

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 whenever possible to minimize the use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

3.13 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents in accordance with 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. Pre-Emergent Herbicides (Selective and Non-Selective): Apply to tree, shrub, and ground-cover areas in accordance with manufacturer's written recommendations. Do not apply to seeded areas.

C. Post-Emergent Herbicides (Selective and Non-Selective): Apply only as necessary to treat already-germinated weeds and in accordance with manufacturer's written recommendations.

3.14 CLEANUP AND PROTECTION

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition.

B. 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.

C. 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.

3.15 DISPOSAL

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

END OF SECTION 32 93 00

PROJECT NAME:

PARKWAY CENTER
4145 BUCKEYE PARKWAY
GROVE CITY, OHIO

STATE OF OHIO
STEPHEN
KOLWICZ
936
REGISTERED
LANDSCAPE ARCHITECT

PODdesign

Columbus
100 Northwoods Blvd, Suite A
Columbus, Ohio 43235
p 614.255.3399
f 614.255.3999

PODdesign.net

REGISTERED LANDSCAPE ARCHITECT
EXPIRATION DATE: 12/31/2016

LANDSCAPE SPECIFICATIONS

SCALE	DATE	DRAWN BY	DWG. NO.
AS SHOWN	07/28/2015	MDL	5/5

1/A1 FRONT VIEW

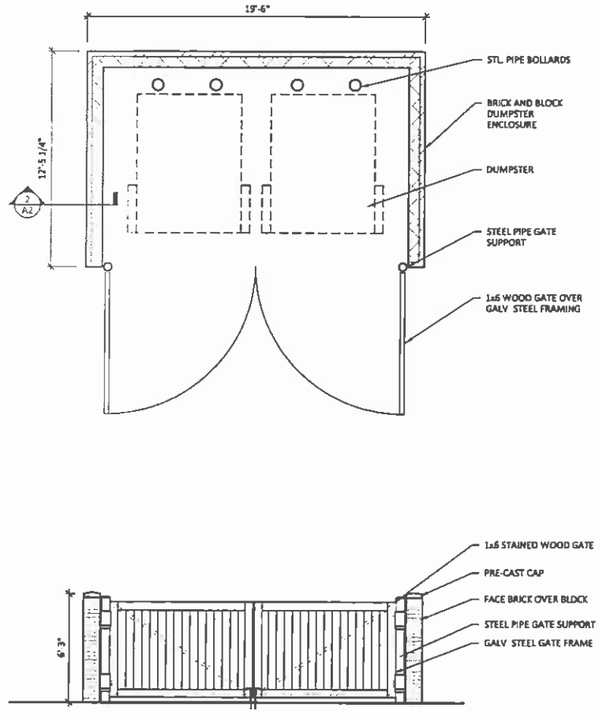
2/A1 REAR VIEW

RECEIVED
AUG 0 3 2015
GC PLANNING COMMISSION

r e d
architecture · planning
855 grandview ave
suite 295
columbus, ohio 43215
tel: 614.487.8770
fax: 614.487.8777

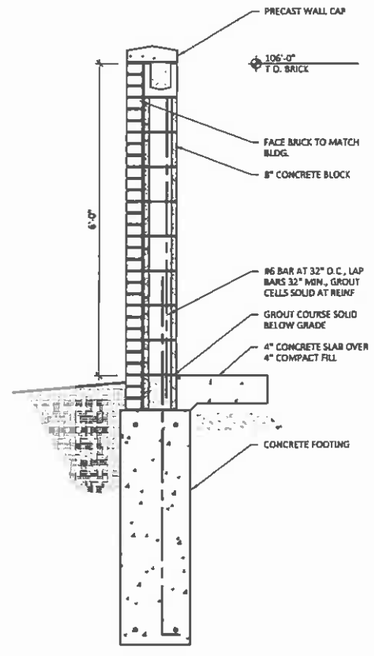
4145 BUCKEYE PARKWAY - TENANT SPACE
SCHEMATIC DESIGN
GROVE CITY, OH 43123

A1
August 03, 2015



1 A2 DUMPSTER PLAN AND ELEVATION

1/4" = 1'-0"



2 A2 DUMPSTER WALL SECTION

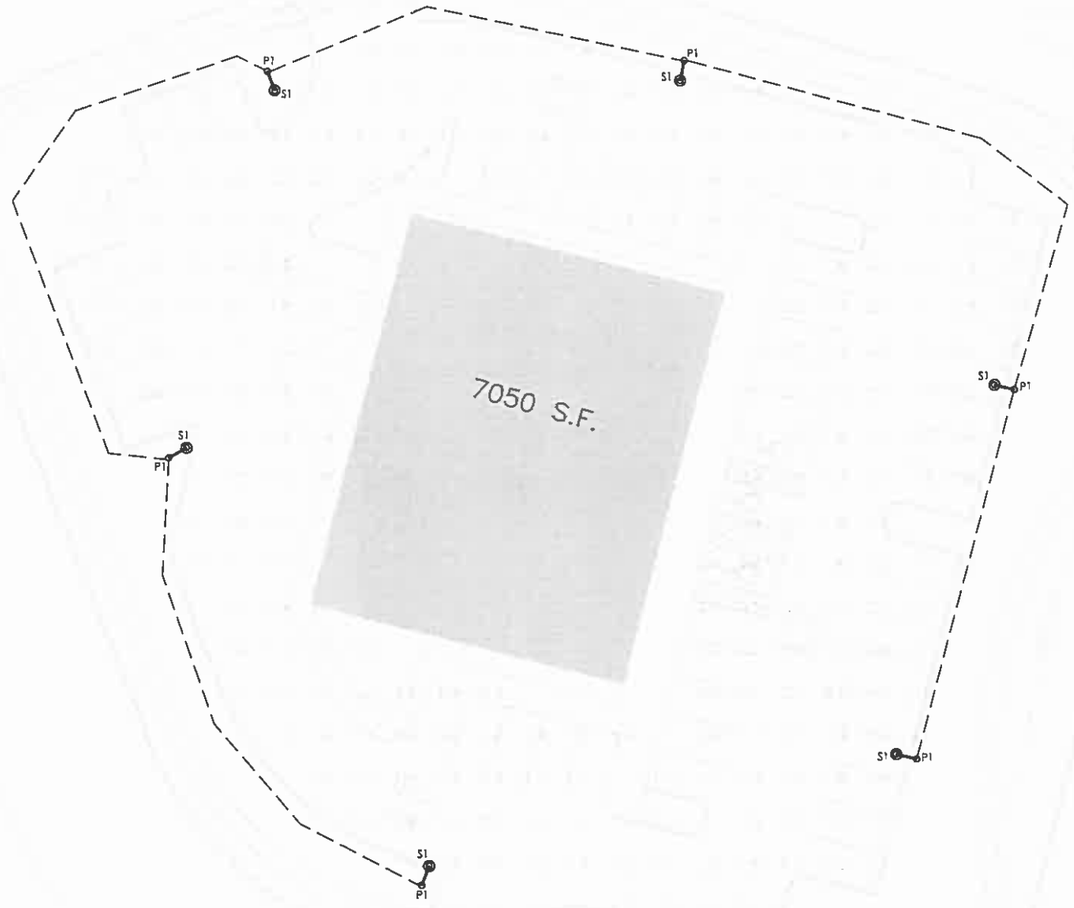
3/4" = 1'-0"

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	HOUSING / MOUNTING	LAMP TYPE	BALLAST / DRIVER	COMMENTS	VOLTS	INPUT WATTS
S1	SITE LIGHT	BEACON	MROS-26-60NB-13G-3K-13-UNV-3RNW-BBT	POLE	LED ENGINE	N/A	-	120	136
P1	SITE LIGHT POLE	VALMONT	300A300	POLE	-	N/A	-	-	-

LUMINAIRE CALCULATIONS

LABEL	CALC TYPE	UNITS	Average	Max.	Min.	Avg/Min	Max/Min.
CalcPts	ILLUMINANCE	Fc	1.56	2.5	0.3	5.2	8.33



1 SITE PLAN - ELECTRICAL
1/16" = 1'-0"

CALCULATIONS PROVIDED BY MANUFACTURES LIGHTING REP

7/15/2015 8:11 AM

red architecture + planning
855 grandview ave.
suite 255
columbus, ohio 43215
tel: 614.487.8770
fax: 614.487.8777

MARK HEADLEE
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NEW MULTI-TENTANT SPACE
4145 BUCKEYE PARKWAY
GROVE CITY, OH 43123

PROJECT NUMBER
LIN001

ISSUE	DATE
SITE DEVELOPMENT	AUG 03, 2015

SITE PLAN ELECTRICAL

SHEET:
ES-1

Housing & LED Thermal Management: The drivers shall be located in the top cast housing and shall be accessible without tools by hinging the lower shade assembly. The driver and all electrical components shall be on a tray. The lower shade shall be made from a one-piece aluminum spinning. The LED bezel assembly shall be attached to a one piece aluminum heat sink to provide direct-heat exchange between the LED light engine and the cool outdoor air. The Housing is designed for LED thermal management without the use of metallic screens, cages, or fans. The top casting shall be able to be pendent mounted in place with a stainless steel safety pin and then permanently held in place with four stainless steel bolts.

Bezel optical system: Each Beacon luminaire is supplied with an Optical one piece cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel. The cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system. A two-piece die cut silicone and polycarbonate foam gasket ensures a weather-proof seal around each individual LED and allows the luminaire to be rated for high-pressure hose down applications.

The optical cartridge is secured to the aluminum heat sink with fasteners to ensure thermal conductivity. The optics are held in place without the use of adhesives and the complete assembly is gasketed for high pressure hose down cleaning. The cartridge assembly is available in various lighting distributions using TIR designed Acrylic optical lenses over each LED.

Printed Circuit Board (PCB): Aluminum thermal clad board with 0.062" thick aluminum base layer "high temperature" HT-06503 or equivalent (subject to change) dielectric (0.003" thick, thermal conductivity of 2.2 W/MK, UL RTI of 140°C) 0.0014" thick copper circuit layer Circuit layer designed with copper pours to minimize thermal impedance across dielectric. Board shall be supplied with QPAD-3 fiberglass reinforced thermal pad 0.005" thick thermal conductivity of 2.0 W/Mk. Continuous use temperature of 180°C UL94 V-0. Board will be mounted to the heat sink using 12 #4-40 screws to ensure contact with thermal pad and heat sink. Use of thermal grease will not be allowed.

LifeShield™ Circuit: Thermal circuit shall protect the luminaire from excessive temperature by interfacing with its 0-10V dimmable drivers to reduce drive current as necessary. The factory-preset temperature limits shall be designed to ensure maximum hours of operation to assure L70 rated lumen maintenance. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range in recognition of the effect of reduced current on the internal temperature and longevity of the LEDs and other components.
A luminaire equipped with the device may be reliably operated in any ambient temperature up to 55°C (131°F).

The thermal circuit will allow higher maximum Wattages than would be permissible on an unregulated luminaire (if some variation in light output is permissible), without risk of premature LED failure.

Operation shall be smooth and undetectable to the eye. Thermal circuit shall directly measure the temperature at the LED solder point.

Thermal circuit shall consist of surface mounted components mounted on the LED engine (printed circuit board). For maximum simplicity and reliability, the device shall have no dedicated enclosure, circuit board, wiring harness, gaskets, or hardware. Device shall have no moving parts, and shall operate entirely at low voltage (NEC Class 2). The device shall be located in an area of the luminaire that is protected from the elements.

Thermal circuit shall be designed to "fail on", allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers.

Device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.). The device will effectively control the solder point temperature as needed; otherwise it will allow the other control device(s) to function unimpeded.

Electrical. Luminaires are equipped with an LED driver that accepts 100V through 277V, 50 Hz to 60 Hz (UNIV), or a driver that accepts 347V or 480V input. Power factor is .92 at full load. All electrical components are rated at 50,000 hours at full load and 40°C ambient conditions per MIL-217F Notice 2. Optional 0 to 10 volt dimming drivers are available upon request. All driver components supplied are Component-to -component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600VAC at 50°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher.

Surge Protector: The on-board surge protector shall be a UL recognized component for the United States and Canada and have a surge current rating of 20,000 Amps using the industry standard 8/20 pSec wave. The LSP shall have a clamping voltage of 825V and surge rating of 540J. The case shall be a high-temperature, flame resistant plastic enclosure.

Fasteners: All fasteners shall be stainless steel. When tamper resistant fasteners are required, spanner HD (snake eye) style shall be provided (special tool required, consult factory).

Color Rendering Index (CRI): Luminaire shall have a minimum CRI of 67 at 5000K.

Operating **Environment:** Shall be able to operate normally in ambient temperatures from -40°C to 40°C

Finish: Finish shall be a Beacote V polyester powder-coat electro-statically applied and thermocured. Beacote V finish shall consist of a five stage iron phosphate chemical pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder coat finish. The finish shall meet the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pound.

Agency Certification: The luminaire shall bear a CSA label and be marked suitable for wet locations.

Warranty: Beacon luminaires feature a 5 year limited warranty. Beacon LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED drivers are covered by a 5 year limited warranty. PIR sensors carry a 5 year limited warranty from the sensor manufacturer. See Warranty Information on www.beaconproducts.com complete details and exclusions.

Power/Lumens & Distrubutions

Engine	Wattage	Delivered Lumens (varies by optic)	Delivered LPW	TM21 Calculated % Lumen Maint. at 100,000 hrs
24NB	27	2752-3014	105-115	96.19%
24NB	55	5138-5500	93-100	96.19%
36NB	80	6935-8215	93-103	94.87%
48NB	110	10240-10950	93-103	92.73%
60NB	136	12800-13700	93-103	85.79%

TM21 is the framework for taking LM-80 data and making useful LED lifetime projections. Reported and Calculated Lifetimes shown are based on hours at the time of this printing. For current Reported and Calculated hours please contact factory or Beacon's web-site.

CCT (COLOR TEMP) Lumen Output Multipliers	CRI (Color Rendering)
5000K = 1.0	min 67 CRI
4000K = .92	min 70 CRI
3000K = .75	min 80 CRI

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Due to our continued efforts to improve our products, product specifications are subject to change without notice.

BEACON
design . performance . technology
www.beaconproducts.com

Type:
Project Name:
Notes:

rev. 02.04.2015

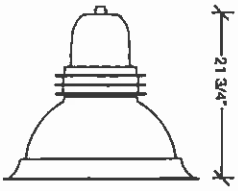
URBAN (LED)

Urban LED Luminaires

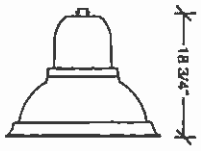
	A	B	C	D	E	F	G	H	I
Sample	CAP-21	36NB-80	4K	T2	UNV	PEC	GENIXX	3RNW	BBT
Ordering		/	/	/	/	/	/	/	/

DETAILS

CAP - Round Shade

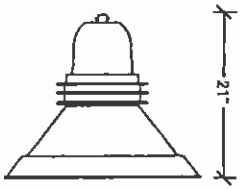


26" - CAP
Shown with optional 3RNW rings
EPA: 1.39 ft²
40 lbs



21" - CAP
EPA: 1.04 ft²
35 lbs

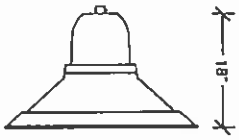
MRDS - Deep Shade



26" - MRDS
Shown with optional 3RNW rings
EPA: 1.25 ft²
40 lbs

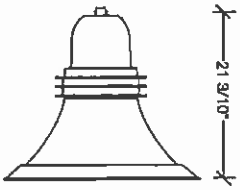
21" - MRDS
EPA: 1.00 ft²
35 lbs

MRSS - Shallow Shade



26" - MRSS
EPA: 1.17 ft²
40 lbs

MAR - Curved Shade



26" - MAR
Shown with optional 3RNW rings
EPA: 1.25 ft²
40 lbs

21" - MAR
EPA: 1.00 ft²
35 lbs

A. MODEL

CAP-21	21" Capitol
MRDS-21	21" Miramar deep shade
MAR-21	21" Maritas
CAP-26	26" Capitol
MRSS-26	26" Miramar shallow shade
MRDS-26	26" Miramar deep shade
MAR-26	26" Maritas

B. ENGINE-WATTS

24NB-27	27 Watts - LED array
24NB-55	55 Watts - LED array
36NB-80	80 Watts - LED array
48NB-110	110 Watts - LED array[3]
60NB-136	136 Watts - LED array[3]

3 = 26" Urban only

C. CCT - COLOR TEMP

3K	3000K
4K	4000K
5K	5000K (std.)

D. OPTICS

T2	type II
T3	type III
T4	type IV
T5R	type V, rectangular
T5QM	type V, square medium
T5W	type V, round wide

E. VOLTAGE

UNV	120-277V
347	347V
480	480V

F. ELECTRICAL OPTIONS

PEC	photocell, button
2PF	dual power feed [1,2]

G. CONTROL OPTIONS

GENI-XX	Energeni [3]

H. STYLE OPTIONS

NRNW	no rings
3RNW	three cast rings

I. COLOR

BBT	basic black textured
BMT	black matte textured
WHT	white textured
MBT	metallic bronze textured
BZT	bronze textured
DBT	dark bronze textured
GYS	gray smooth
DPS	dark platinum smooth
GNT	green textured
MST	metallic silver textured
MTT	metallic titanium textured
OWI	old world iron
RAL	_____

[1] not available on 24NB-27

[2] not available @ 347V or 480V input

[3] When ordering Energeni, specify the routine setting code (example GENI-04). See Energeni brochure and instructions for setting table and options. Not available with sensor options.