

LEGEND

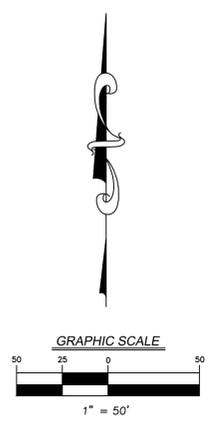
- PROPERTY BOUNDARY
- - - - - EXISTING MAJOR CONTOUR
- - - - - EXISTING MINOR CONTOUR
- ▭ 830 PROPOSED MAJOR CONTOUR
- ▭ 831 PROPOSED MINOR CONTOUR
- TREE PROTECTION FENCE
- PROPOSED STORM STRUCTURE
- (3)PLNT PLANTING COUNT AND SPECIES DESCRIPTION

LANDSCAPE NOTES

1. MULCH TO BE DARK BROWN, FINELY SHREDDED HARDWOOD. INSTALL 3" THICK MINIMUM.
2. ALL DECIDUOUS TREES TO HAVE 8" MINIMUM DIAMETER MULCH RING, UNLESS SHOWN OTHERWISE.
3. ALL EVERGREEN TREES TO HAVE 15" MINIMUM DIAMETER MULCH RING, UNLESS SHOWN OTHERWISE.
4. MULCH BEDS TO EXTEND A MINIMUM OF 12" PAST PLANTINGS AROUND THE BUILDING.
5. ALL PLANTING BEDS TO BE AMENDED WITH 6" OF COMPOST OVER THE ENTIRE BED.
6. ALL PLANTING BEDS TO HAVE SPADED EDGE UNLESS OTHERWISE NOTED.
7. FOR LIST OF PLANT TYPES, SIZES, SPECIFICATIONS, ETC. SEE SHEET L2.0 AND L3.0.
8. FOR LIST OF RECOMMENDED BASIN SEED MIXES, SEE CIVIL ENGINEERING SHEETS.
9. ALL PLANTS, SIZING, SPACING, ETC. TO MEET REQUIREMENTS REFERENCED FROM LANDSCAPING STANDARDS OF THE CITY OF GREENFIELD ZONING ORDINANCE.
10. BUILDING FOOTPRINTS BASED ON OWNER PROVIDED INFORMATION. ENGINEER ASSUMES NO LIABILITY ASSOCIATED WITH CHANGE IN BUILDING FOOTPRINTS. SURVEYOR SHALL CONFIRM WITH OWNER BUILDING FOOTPRINTS PRIOR TO FIELD STAKING.



K. Toschia



PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME
TREES			
	AB CO	ABIES CONCOLOR	WHITE FIR
	AM LJ	AMELANCHIER LAEVIS 'JFS-ARB'	SPRING FLURRY® ALLEGHENY SERVICEBERRY
	AM XA	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY
	CE OC	CELTIS OCCIDENTALIS 'CHICAGOLAND'	CHICAGOLAND HACKBERRY
	CO AL	CORNUS ALTERNIFOLIA	PAGODA DOGWOOD
	CR CI	CRATAEGUS CRUS-GALLI INERMIS	THORNLESS COCKSPUR HAWTHORN
	GY DE	GYMNOCLADUS DIOICUS 'ESPRESSO'	KENTUCKY COFFEETREE
	PI ST	PINUS STROBUS	WHITE PINE
	PI VI	PINUS VIRGINIANA	VIRGINIA PINE
	QU IM	QUERCUS IMBRICARIA	SHINGLE OAK
	QU MA	QUERCUS MACROCARPA	BURR OAK
	TI CH	TILIA CORDATA 'HALKA'	SUMMER SPRITE® LITTLELEAF LINDEN
	TI TS	TILIA TOMENTOSA 'STERLING'	STERLING SILVER LINDEN
SHRUBS			
	AR MA	ARONIA MELANOCARPA 'AUTUMN MAGIC'	AUTUMN MAGIC BLACK CHOKEBERRY
	CO SA	CORNUS SERICEA 'ALLEMAN'S COMPACT'	DWARF RED TWIG DOGWOOD
	HA VL	HAMAMELIS VIRGINIANA 'LITTLE SUZIE'	LITTLE SUZIE WITCH HAZEL
	PH OD	PHYSOCARPUS OPULIFOLIUS 'DONNA MAY'	LITTLE DEVIL™ DWARF NINEBARK
	VI DB	VIBURNUM DENTATUM 'BLUE MUFFIN'	BLUE MUFFIN ARROWWOOD VIBURNUM

REVISIONS	
NO.	DESCRIPTION

PROJECT NO.: 230291	ORIGINAL ISSUE DATE: 04/25/2025
PROJECT MANAGER: JOR	DESIGNER: JOR
DRAWN BY: PGS	

LANDSCAPE ENLARGEMENT
HAWKS TAIL SUBDIVISION

HANCOCK COUNTY CONSTRUCTION DOCUMENTS INDIANA

1060 N. Capitol Ave.,
Suite 6-301
Indianapolis, IN 46204
317.423.0690 phone
www.v3co.com

DRAWING NO.
L1.1

MATCHLINE - SHEET L1.1



LEGEND

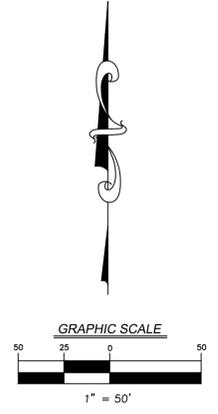
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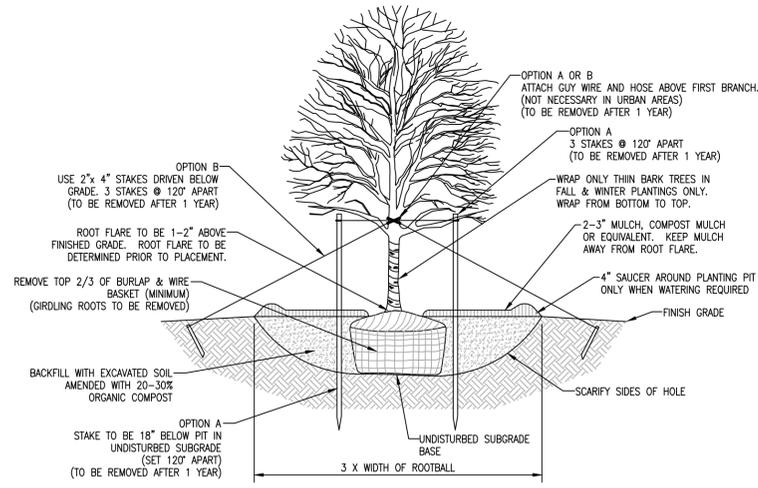
Toschli



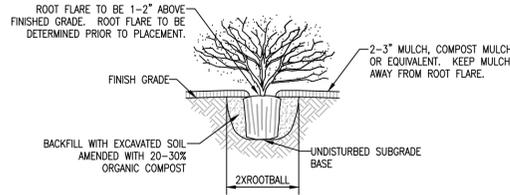
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	GY DE	GYMNOCLADUS DIOICUS 'ESPRESSO'	KENTUCKY COFFEETREE
	PI ST	PINUS STROBUS	WHITE PINE
	PI VI	PINUS VIRGINIANA	VIRGINIA PINE
	QU IM	QUERCUS IMBRICARIA	SHINGLE OAK
	QU MA	QUERCUS MACROCARPA	BURR OAK
	TI CH	TILIA CORDATA 'HALKA'	SUMMER SPRITE® LITTLELEAF LINDEN
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	PH OD	PHYSOCARPUS OPULIFOLIUS 'DONNA MAY'	LITTLE DEVIL™ DWARF NINEBARK
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<p>PROJECT NO.: 230291 PROJECT MANAGER: JOR DESIGNED BY: JOR DRAWN BY: PGS</p>	<p>ORIGINAL ISSUE DATE: 04/25/2025</p>	<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	DESCRIPTION				<p>LANDSCAPE ENLARGEMENT HAWKS TAIL SUBDIVISION HANCOCK COUNTY CONSTRUCTION DOCUMENTS INDIANA</p>
NO.	DATE	DESCRIPTION							
<p>1060 N. Capitol Ave., Suite 6-301 Indianapolis, IN 46204 317.423.0690 phone www.v3co.com</p>									
DRAWING NO.			L1.2						



01 SHADE TREE PLANTING DETAIL
SCALE: NTS



02 SHRUB PLANTING DETAIL
SCALE: NTS

PERMANENT TURF GRASS SEED MIX		
TYPE OF SEED -- GRASSES		
LATIN NAME	COMMON NAME	lbs/ACRE
<i>Festuca arundinacea</i>	Tall Fescue	210
<i>Festuca rubra</i>	Creeping Red Fescue	70
<i>Poa pratensis</i>	Kentucky Bluegrass	35
<i>Poa trivialis</i>	Rough Bluegrass	35
GRASSES lbs PER ACRE		350
TYPE OF SEED -- COVER CROP		
LATIN NAME	COMMON NAME	lbs/ACRE
<i>Avena sativa</i>	Seed Oats	32
<i>Lolium multiflorum</i>	Annual Rye	6
COVER CROP lbs PER ACRE		38

* ANY AREAS DISTURBED DUE TO CONSTRUCTION WILL BE RE-SEEDED WITH TURF GRASS UNLESS NOTED OTHERWISE ON THE PLANS.

03 PERMANENT TURF GRASS SEED MIX
SCALE: NTS

SEEDBED PREPARATION

APPLY LIME TO RAISE THE pH TO THE LEVEL NEEDED FOR SPECIES BEING SEED. APPLY 23 POUNDS OF 12-12-12 ANALYSIS FERTILIZER (OR EQUIVALENT) PER 1000 SQ. FT. (APPROXIMATELY 1000 POUNDS PER ACRE) OR FERTILIZE ACCORDING TO TEST. APPLICATION OF 150 LBS. OF AMMONIUM NITRATE ON AREAS LOW IN ORGANIC MATTER AND FERTILITY WILL GREATLY ENHANCE VEGETATIVE GROWTH.

WORK THE FERTILIZER AND LIME INTO THE SOIL TO A DEPTH OF 2-3 INCHES WITH A HARROW, DISK OR RAKE OPERATED ACROSS THE SLOPE AS MUCH AS POSSIBLE.

SEEDING

SELECT A SEED MIXTURE BASED ON PROJECTED USE OF THE AREA (SEE PERMANENT SEED MIXTURE CHART), WHILE CONSIDERING BEST SEEDING DATES. IF PERMANENT SEEDING IS NOT PERMITTED USE TEMPORARY SEEDING

SALT TOLERANCE OF SEEDINGS ADJACENT TO STREETS AND HIGHWAYS. SEE

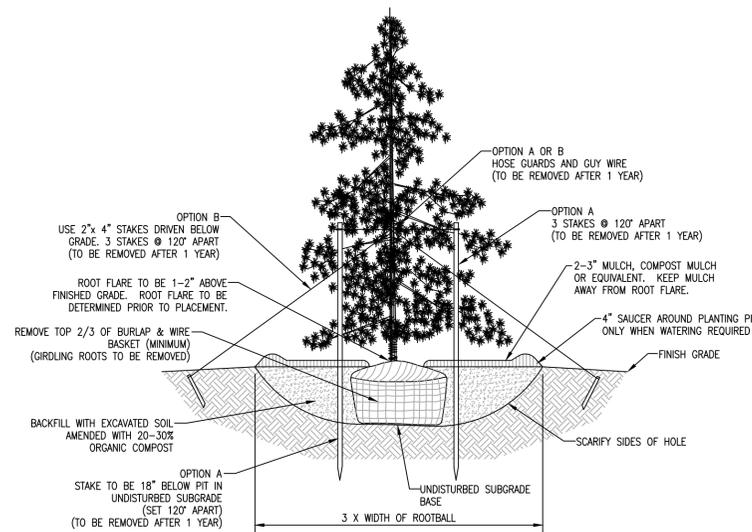
PLANT PROTECTION NOTES

- UNTIL PERMANENT SEEDING CAN BE APPLIED, IF TOLERANCES ARE A PROBLEM, SUCH AS 1. PRIOR TO THE COMMENCEMENT OF GRADING OR CONSTRUCTION, INSTALL HIGHLY VISIBLE (ORANGE) CONSTRUCTION FENCING, OR OTHER APPROVED IDENTIFICATION METHOD, AT LEAST THREE (3) FEET OUTSIDE THE DRIP LINE OF THE TREES OR AS NOTED ON PLAN.
2. AVOID INJURING ROOTS WHEN INSTALLING ANCHORING POSTS FOR FENCING.
3. POST SIGNS CLEARLY IDENTIFYING THE PLANT PROTECTION ZONE.
4. NO TREES MAY BE REMOVED FROM THE TREE PRESERVATION AREA, NOW OR IN THE FUTURE, UNLESS APPROVAL FROM THE CITY OF CARMEL IS GIVEN.

PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CAL	HT
TREES							
	AB CO	4	ABIES CONCOLOR	WHITE FIR	B & B		6' MIN.
	AM LJ	34	AMELANCHIER LAEVIS 'JFS-ARB'	SPRING FLURRY® ALLEGHENY SERVICEBERRY	B & B	1.5" MIN.	
	AM XA	33	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	B & B	1.5" MIN.	
	CE OC	10	CELTIS OCCIDENTALIS 'CHICAGOLAND'	CHICAGOLAND HACKBERRY	B & B	2.5" MIN.	
	CO AL	30	CORNUS ALTERNIFOLIA	PAGODA DOGWOOD	B & B	1.5" MIN.	
	CR CI	30	CRATAEGUS CRUS-GALLI INERMIS	THORNLESS COCKSPUR HAWTHORN	B & B	1.5" MIN.	
	GY DE	11	GYMNOCLADUS DIOICUS 'ESPRESSO'	KENTUCKY COFFEETREE	B & B	2.5" MIN.	
	PI ST	3	PINUS STROBUS	WHITE PINE	B & B		6' MIN.
	PI VI	2	PINUS VIRGINIANA	VIRGINIA PINE	B & B		6' MIN.
	QU IM	16	QUERCUS IMBRICARIA	SHINGLE OAK	B & B	2.5" MIN.	
	QU MA	13	QUERCUS MACROCARPA	BURR OAK	B & B	2.5" MIN.	
	TI CH	28	TILIA CORDATA 'HALKA'	SUMMER SPRITE® LITTLELEAF LINDEN	B & B	1.5" MIN.	
	TI TS	14	TILIA TOMENTOSA 'STERLING'	STERLING SILVER LINDEN	B & B	2.5" MIN.	
SHRUBS							

04 PLANT SCHEDULE
SCALE: NTS



05 EVERGREEN TREE PLANTING DETAIL
SCALE: NTS

1. IN CASE OF DISCREPANCIES BETWEEN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.
2. ALL DECIDUOUS TREES TO HAVE 8" MINIMUM MULCH RING, UNLESS OTHERWISE SHOWN.
3. ALL SHRUB PLANTING AREAS TO BE COVERED WITH 3" LAYER OF SHREDDED HARDWOOD BARK MULCH. ALL GROUND COVER BEDS SHALL BE COVERED WITH 2" SHREDDED HARDWOOD BARK MULCH. MULCH SHALL BE UNIFORM IN TEXTURE AND COLOR AND SHALL BE OBTAINED FROM SAWMILL OR LUMBERING OPERATION. NO UTILITY MULCH OR PROCESSED TREE TRIMMINGS WILL BE ALLOWED. MULCH APPLIED WITHIN BIORETENTION AREAS SHALL BE 2"-3" OF FINISHED (AGED) LEAF COMPOST MULCH.
4. AN APPROVED PRE-EMERGENT HERBICIDE SHALL BE APPLIED IN ALL PLANTING BEDS AT A RATE SPECIFIED BY MANUFACTURER FOR EACH PLANT VARIETY.
5. NO SUBSTITUTIONS OF PLANT MATERIALS WILL BE ALLOWED. IF PLANTS ARE NOT AVAILABLE, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO BID IN WRITING. ALL PLANTS SHALL BE INSPECTED AND TAGGED WITH PROJECT I.D. AT NURSERY OR CONTRACTORS OPERATIONS PRIOR TO MOVING TO JOB SITE. PLANTS MAY BE INSPECTED AND APPROVED OR REJECTED ON THE JOB SITE BY THE LANDSCAPE ARCHITECT.
6. ALL PLANTS SHALL MEET OR EXCEED THE LATEST EDITION OF AMERICAN STANDARDS FOR NURSERY STOCK, AS SET FORTH BY AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI).
7. PLANTS AND ALL OTHER MATERIALS TO BE STORED ON SITE WILL BE PLACED WHERE THEY WILL NOT CONFLICT WITH CONSTRUCTION OPERATIONS AND AS DIRECTED BY THE ARCHITECT.
8. ALL LANDSCAPE PLANTINGS SHALL BE GUARANTEED BY THE LANDSCAPE CONTRACTOR FOR A PERIOD OF ONE YEAR FOLLOWING FINAL INSPECTION BY LANDSCAPE ARCHITECT. AT THE END OF THIS PERIOD, PLANT MATERIAL TERMED DEAD OR UNSATISFACTORY BY THE ARCHITECT SHALL BE REPLACED AT NO ADDITIONAL CHARGE BY THE CONTRACTOR.
9. THE LANDSCAPE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES THAT MAY BE REQUIRED FOR HIS PORTION OF WORK.
10. PEAT MOSS TO BE USED ON PROJECT SHALL BE DOMESTIC OR IMPORTED MATERIAL. CHOCOLATE BROWN IN COLOR AND COMPOSED OF PARTIALLY DECOMPOSED VEGETABLE MATERIAL. PEAT MOSS TO BE MILDLY ACIDIC IN CHARACTER AND SHALL BE APPROVED BY THE ARCHITECT.
11. LANDSCAPE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING PRIOR TO FID DATE OF ANY PLANTS HE/SHE FEELS MAY NOT SURVIVE IN LOCATIONS NOTED ON PLANS.
12. BACKFILL FOR TREE PLANTING SHALL BE 75% APPROVED TOPSOIL AND 25% APPROVED PEAT MOSS. TOP LAYER OF BACKFILL SHALL BE 100% EXISTING TOPSOIL. A 5-10-5 ANALYSIS SLOW RELEASE FERTILIZER SHALL BE INCORPORATED INTO BACKFILL AT APPROVED RATES.
13. TREE STAKING IS NOT REQUIRED AS PART OF INITIAL PLANTING. HOWEVER, STAKING WILL BE REQUIRED TO MAINTAIN ANY TREES WHICH BECOME OUT OF PLUMB.
14. ALL BED EDGES SHALL BE NATURAL SPADE EDGE, 4" IN DEPTH WITH UNIFORM LINES AND CURVES.
15. LANDSCAPE CONTRACTOR IS TO COORDINATE ALL WORK WITH OTHER TRADES TO MINIMIZE RISK OF DAMAGE TO SITE UTILITIES.
16. PRIOR TO THE INSTALLATION OF LANDSCAPING, LANDSCAPE CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE CONSTRUCTION MANAGER, AND ANY OTHER AFFECTED PARTY TO DISCUSS PROPER SEPARATIONS FROM UTILITIES.
17. A MINIMUM OF TEN (10) FOOT HORIZONTAL DISTANCE FROM LATERALS OR ANY OTHER SANITARY OR STORM SEWER FACILITIES (AS MEASURED FROM THE DRIP LINE OF THE MATURE TREE TO THE CENTER OF SEWER FACILITIES) MUST BE MAINTAINED. ANY TREES OR LANDSCAPING PLACED WITHIN EASEMENTS OR RIGHTS-OF-WAY ARE AT RISK OF BEING DAMAGED OR REMOVED WITHOUT THE OBLIGATION OF REPLACEMENT.
18. THE TOE OF SLOPE OF EARTHEN MOUNDING CAN NOT BE PLACED WITHIN TEN (10) FEET HORIZONTAL DISTANCE OF SANITARY SEWER MAINS, LATERALS, OR MANHOLES.
19. RETAINING/DECORATIVE/ENTRANCE WALLS CAN NOT BE PLACED WITHIN TEN (10) FEET HORIZONTAL DISTANCE OF SANITARY SEWER MAINS, LATERALS, OR MANHOLES.

06 LANDSCAPE PLANTING NOTES
SCALE: NTS

PROJECT NO.	PROJECT MANAGER	DESIGNED BY	DRAWN BY	REVISIONS	
				NO.	DATE
230291	JOR	JOR			

LANDSCAPE DETAILS
HAWKS TAIL SUBDIVISION
CONSTRUCTION DOCUMENTS INDIANA
HANCOCK COUNTY

1080 N. Capitol Ave.
Suite 6-301
Indianapolis, IN 46204
317.423.0890 phone
www.v3co.com

DRAWING NO.
L2.0

STORMWATER MANAGEMENT AREAS & LANDSCAPING SPECIFICATIONS

1.1 SITE PREPARATION

When feasible, prior to mass earthwork operations, stake the limits of the proposed stormwater management areas & landscape planting areas and do not allow heavy equipment to run over the soil in these locations. Soil compaction is very critical in the functioning of stormwater management areas.

Do not clear vegetation until necessary to help minimize site erosion.

Place tree protection barriers around the drip line of all trees that are to remain. There shall be no storage of materials, heavy equipment or vehicles within the drip line of trees.

1.2 MATERIALS

1.2.1 SUBMITTAL REQUIREMENTS

Contractors shall submit to engineer/landscape architect for review and approval all proposed materials to be used within the stormwater management areas and landscape areas prior to purchase. Submittals include but are not limited to:

- Planting soil composition
Compost/Mulch
River Cobble
Turf Grass Sod and Seed
Plant lists (Woody and herbaceous materials)
Herbicides and Pre-Emergent Herbicides

1.2.2 PLANTING SOIL

The soil shall be a uniform, well blended mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the bio-retention area that may be harmful to plant growth...

- USDA Texture class: sandy loam or loamy sand. Mineral fraction consists of no less than 40% well-graded sand or glass cullet and no greater than 10% clay (dry weight basis)
Organic content: 20% (dry weight basis)
pH: 5.5 - 7.0
Soluble Salts (Salinity): less than 500 mg/kg (500ppm)
Phosphorous: soil p-index should be between 15 and 40
Permeability: Minimum 0.50 inches/hour

Volumetric proportions of the components making up the bio-retention soil mix shall be as follows:

- Sand: 50% by volume
Compost: 20% by volume
Topsoil: 30% by volume

Compost shall be finished (aged), and composted material shall be of plant origin. Compost shall have a C:N ratio <= 25:1.

If the planting soil does not meet the above characteristics, then it shall either be adjusted to meet the criteria or removed and replaced with an acceptable planting soil. See 1.3 Testing Requirements.

Existing topsoil on site may be amended to meet the specifications of the planting soil mix. The existing topsoil shall be tested for organic content, grain size analysis and permeability to identify necessary amendments.

Planting soil shall not be incorporated into the Work until it is approved by the engineer/landscape architect.

1.2.3 MULCH MATERIAL

A mulch layer shall be provided on top of the planting areas, to the depth OF 2-3 inches. The material shall consist of finished (aged) leaf compost mulch, and shall be well mixed and homogenous, uniform in color and free of foreign material and viable plant seeds.

- 90% of material passing 1/2" screen
Organic content: 35- 65% (dry weight basis)
pH: 6.0 - 8.0

1.2.4 TURF GRASS SOD AND SEED

1.2.4.1 TURF GRASS SOD

See plans for locations. Turf grass sod shall be a mixture within the following ranges:

- Kentucky Bluegrass: 50-100%
Fine Fescue: 0-30%
Turf Type or Rhizomatous Tall Fescue: 50-100%

Turf grass sod shall be of good quality, free of weeds, disease and insects and of good color and density. Turf grass sod shall be machine-cut at a minimum uniform soil thickness and grown in central Indiana.

1.2.4.2 TURF GRASS SEED/COVER CROP

See plans for seed mixture(s) and rate(s). No substitutions shall be allowed without approval from the ecological consultant.

Seed shall be clean, delivered in original unopened packages, and bearing an analysis of the contents. Guaranteed 98 percent pure and to have a minimum germination rate of 90 percent; within 1 year of test.

Temporary cover shall be annual rye grass. Under no circumstances shall the site be stabilized with winter rye, grain rye, or winter wheat. These plants produce toxins that inhibit prairie seed germination.

1.2.5 LIVE PLANT MATERIAL

1.2.5.1 TREES & SHRUBS

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.

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.

No bare root material shall be used unless specified on the plans.

Containerized Plant Material: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery.

Plant material and quantities for stormwater management areas and landscape areas shall be taken from the plans. Any plant material substitutions shall require approval from the engineer/landscape architect.

1.2.5.2 LIVE PLANTS

See plans for approved herbaceous plant lists. All native plants must be of wild ecotype. No hybrids, cultivars or substitution may be included without approval from the engineer/landscape architect. Local genotypes are adapted to local soil and climate conditions and shall be used whenever possible.

1.2.6 HERBICIDES AND PRE-EMERGENTS

Herbicide to be used in stormwater management areas consist of glyphosate herbicides approved for use around water, such as Rodeo.

1.3 TESTING REQUIREMENTS

1.3.1 PLANTING SOIL TESTING

Soil tests shall be performed for every 500 cubic yards of planting soil, with the exception of pH and organic content tests, which are required only once per stormwater management BMP.

The planting soil shall be tested and shall meet the following criteria:

- pH range: 5.5 - 7.0
organic matter: 5 - 10% (dry weight basis)
magnesium: minimum 35 lbs/acre
phosphorus (phosphate - P2O5, Bray I): shall not exceed 75 lbs./acre
potassium (potash - K2O): minimum 85 lbs/acre
soluble salts not to exceed 500 ppm

All stormwater management areas shall have a minimum of one test per bioretention basin and a minimum of one soil test per 500 cubic yards. Each test shall consist of both the standard soil test for pH, phosphorus, and potassium and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the top soil was excavated. Should the pH fall out of the acceptable range by no greater than 0.2, it may be modified (higher) with lime or (lower) with iron sulfate plus sulfur.

1.4 INSTALLATION

1.4.1 PLANTING SOIL

Installation of soils must be completed in a manner that will ensure preservation of the infiltrative capacity of the underlying soils. The moisture content of the soil shall be low enough to prevent clumping and compaction during placement.

To prevent compaction within the limits of the basins, only hand laborers, small excavation hoses with wide tracks, light equipment with turf tires, marsh equipment or wide-track loaders may be used. No heavy equipment shall be used within the perimeter of the stormwater management BMP facility before, during, or after the placement of the planting soil.

It is very important to minimize compaction of both the base (in-situ soil) of the stormwater management areas and the required backfill. Re-fracture subgrade soils that have been compacted or smeared by raking, diskling or tilling to a minimum depth of 12 inches. Soil surfaces shall be scarified by manually raking to aerate and reduce soil compaction. Soil shall be placed in 6 inch loose depth lifts. Lifts are performed in order to reduce the possibility of excessive settlement. Soil shall be lightly hand-tamped or compacted with a water-filled landscape roller, to reduce potential for excessive settling. No other mechanical equipment shall be used to compact the planting soil or underlying soils. Lifts may also be watered to encourage natural compaction. Overfill to allow for natural settlement.

Uniformly grade planting soil to achieve a smooth surface, free of irregular surface changes. Do not over-work or excessively compact planting soil. Grade to cross sections, thickness and elevations indicated on plans. Settling of soil by walking on surface and working with hand equipment is acceptable.

1.4.2 TURF GRASS

1.4.2.1 SEQUENCING AND SCHEDULING

Turf grass shall be installed following final grading activities and all other planting installations.

1.4.2.2 SITE PREPARATION

Verify the depth and quality of the topsoil and that the topsoil has been placed according to specifications or exists as a current site condition.

Restore areas if eroded or otherwise disturbed after finish grading and before installation. Proceed with installation only after unsatisfactory conditions have been corrected.

All weeds and grasses shall be dug out by the roots and disposed of off-site.

Rake so all areas drain and are of uniform slope.

Remove all trash and stones exceeding 1/2" in diameter from area to a depth of 2' prior to preparation and installation of sod. Removal of stones and debris shall be done at the time of installation. Repair topsoil disturbed by removal of stones and debris.

1.4.2.3 PLANTING

Turf grass shall be placed on prepared soil that has been watered and is still moist. Turf grass sod shall be laid with tight joints, rolled, and thoroughly watered. River water, where available and allowed by federal, state and local authorities, is suitable for irrigation.

When installation occurs on a sloping surface where erosion may be a problem, turf grass sod shall be laid with staggered joints and secured by pegging.

1.4.3 PERMANENT TURF GRASS SEED

1.4.3.1 SEQUENCING AND SCHEDULING

Perform the seeding work between 1 March and 15 May or between mid-August and 1 October, unless otherwise approved by the Architect/Engineer; and at such times that the seeding will not be damaged by freezing temperatures, rain, or high winds.

1.4.3.2 SITE PREPARATION

Verify the depth and quality of the topsoil and that the topsoil has been placed according to specifications or exists as a current site condition.

Restore areas if eroded or otherwise disturbed after finish grading and before installation. Proceed with installation only after unsatisfactory conditions have been corrected.

All weeds and grasses shall be dug out by the roots and disposed of off-site. Rake topsoil thoroughly by running in two directions at right angles over the entire surface to be planted. Rake so all areas drain and are of uniform slope.

Remove all trash and stones exceeding 1/2" in diameter from area to a depth of 2' prior to preparation and installation of sod. Removal of stones and debris shall be done at the time of installation. Repair topsoil disturbed by removal of stones and debris.

1.4.3.3 PLANTING

Sow grassed areas evenly with a mechanical spreader at the minimum rate as specified on the plans, roll to cover seed and water with fine spray. Wet soil at a rate of approximately 120 gallons per 1,000 square feet. River water, where available and allowed by federal, state and local authorities, is suitable for irrigation.

Method of seeding may be varied at discretion of Contractor on his own responsibility to establish a smooth, uniformly grassed area.

1.4.4 TREES, SHRUBS AND VINES

1.4.4.1 SEQUENCING AND SCHEDULING

Planting Time: Proceed with, and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required.

Planting seasons shall be as follows:

Deciduous Trees: Primary Planting Time March 15th to June 30th, and Secondary Planting Time September 1st to December 1st, unless noted otherwise on drawings.

Shrubs: Primary Planting Time March 15th to June 30th, and Secondary Planting Time September 1st to November 1st, unless noted otherwise on drawings.

If weather conditions within these seasons are not favorable to plant health and establishment at the time of planting (e.g. drought), planting shall be delayed until favorable conditions resume or further actions shall be taken to ensure healthy establishment (e.g. irrigation). It is the responsibility of the contractor to ensure survivability during the warranty period.

1.4.4.2 SITE PREPARATION

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.

- Excavate approximately two times as wide as ball diameter for shrubs and three times as wide for trees.
Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.

1.4.4.3 PLANTING

Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. Remove stem girdling, broken or kinked roots. Remove injured roots by cutting cleanly; do not break. Set stock plumb and in center of planting pit or trench with root flare 1-2 inches above adjacent finish grades. To prevent settling of the root ball, root ball should be placed on undisturbed soil only.

- Use planting soil as specified in 1.4.2 for backfill.
Balled and Burlapped: 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. Where practical remove burlap, rope and wire baskets 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.
Container-Grown: Carefully remove root ball from container without damaging root ball or plant.
Fabric Bag/Grown Stock: Carefully remove root ball from fabric bag without damaging root ball or plant. Do not use planting stock if root ball is cracked or broken before or during planting operation.
Loosen pot-bound roots and remove or cut any circling and girdling roots.
Do not place root ball directly on any underdrain structures. If root ball is larger than soil depth, adjust root ball such that it is adjacent to but not resting on any underdrain structures.
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.
Continue backfilling process. Water again after placing and tamping final layer of soil.
2-3 inches of mulch material (per 1.2.3) to be placed uniformly on top of soil after plant material is installed.

See details on plans for plant installation.

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.

Water all trees and shrubs deeply and thoroughly upon installation and as described in section 1.7.3 to maintain health during the first year of establishment. Stake tree in southwesterly direction. Ties should be loose fitting and allow for natural sway. Remove after one year. Minimize pruning to dead or broken branches.

Place 4" perforated corrugated plastic pipe (CPP) around tree for protection from deer. Cut length to height of tree from root flare to first branch and slice lengthwise. (Not necessary in urban areas) Contractor shall be responsible for replacement of any plant material damaged by wildlife if protective CPP is not installed.

1.4.5 LIVE NATIVE HERBACEOUS PLANTS

1.4.5.1 SEQUENCING AND SCHEDULING

Installation of plugs shall be performed between April 15 and August 15 and thereafter at Contractor's discretion based upon current weather patterns. Contractor shall be responsible to replace any plugs that do not survive as a result of winter heaving.

If native seed is installed with the plugs and has not germinated within the plug planting area, no pre-emergent herbicides shall be applied during the six (6) months prior to installation and for at least one (1) year following installation.

If native seed is NOT installed and will not be installed within the plug planting area, pre-emergent herbicides shall be applied immediately following the plug installation and as needed to control seasonal weeds for at least one (1) year following installation.

1.4.5.2 SITE PREPARATION

Verify that the surrounding uplands have been stabilized.

Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus one (1) inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.

Restore areas if eroded or otherwise disturbed after finish grading and before planting. Verify that the site is clean and free of debris. Proceed with installation only after unsatisfactory conditions have been corrected.

Two weeks (14 days) prior to installation, apply a glyphosate herbicide approved for use around water (Rodeo) to kill existing or remaining lawn grasses and other non-favorable vegetation.

Verify the depth and quality of the topsoil and that the topsoil has been placed according to specifications or exists as a current site condition.

Do not apply any fertilizer.

1.4.5.3 PLANTING

Use an auger or other appropriate tool to excavate planting holes in a staggered pattern per the planting plan. Refer to landscape drawings for specific spacing requirements.

Plant plugs level with final soil grade. Be certain that soil is placed around the roots and firmed into place. Under no circumstances is soil to be mounded up to cover roots that are not planted at the appropriate depth.

1.5 QUALITY OF WORKMANSHIP

1.5.1 PERMANENT TURF GRASS SOD/SEED

All workmanship and finishes shall be first class in all respects, and in accordance with the best practice. The drawings and specifications describe the scope of work but do not show or describe all work or material that may be required for full performance and completion of the contract documents. On the basis of the scope shown herein, Contractor shall furnish and install all parts required for the proper execution and completion of the work. Any item included will require the Contractor to furnish and install all parts needed for a complete installation.

1.5.2 TREES & SHRUBS

All workmanship and finishes shall be first class in all respects, and in accordance with the best practice. The drawings and specifications describe the scope of work but do not show or describe all work or material that may be required for full performance and completion of the contract documents. On the basis of the scope shown herein, Contractor shall furnish and install all parts required for the proper execution and completion of the work. Any item included will require the Contractor to furnish and install all parts needed for a complete installation.

1.5.3 LIVE NATIVE HERBACEOUS PLANTS

All workmanship and finishes shall be first class in all respects, and in accordance with the best practice. The drawings and specifications describe the scope of work but do not show or describe all work or material that may be required for full performance and completion of the contract documents. On the basis of the scope shown herein, Contractor shall furnish and install all parts required for a complete installation.

Installer Qualifications: The submitting bidders shall be, and have been, actively and directly engaged in plug installation for a period of two (2) or more years. Provide proof of five (5) or more successful plug installations.

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

Qualified bidders shall possess specialized equipment for working in and around water, including but not limited to a small boat, hip waders, or flotation life preservers to be worn while working in water.

Certification of Plugs: Require vendor to provide certification of each species and state both botanical and common name.

1.6 GUARANTEE AND WARRANTY

1.6.1 PERMANENT TURF GRASS SOD

All work in this Section shall be guaranteed against any and all defects in workmanship and materials appearing within a period of one (1) year after final completion of all site work and acceptance of the work by the Owner. Contractor shall replace, without additional expense to the Owner, any materials and workmanship that show defects within said period, with finished and new materials.

Evaluate establishment of permanent turf grass sod for percent survivability thirty days prior to the end of the first complete growing season and prior to the release of any maintenance or guarantee obligations. Success Criteria: Survivability must be 95% or greater. Dead material in excess of 5% of all sodded areas shall be replaced by the Contractor prior to the end of the warranty period without additional expense to the Owner.

1.6.2 PERMANENT TURF GRASS SEED

All work in this Section shall be guaranteed against any and all defects in workmanship and materials appearing within a period of one (1) year after final completion of all site work and acceptance of the work by the Owner. Contractor shall replace, without additional expense to the Owner, any materials and workmanship that show defects within said period, with finished and new materials.

Evaluate establishment of permanent turf grass seed for percent survivability thirty days prior to the end of the first complete growing season and prior to the release of any maintenance or guarantee obligations. Success Criteria: 75% of seeded area shall be covered with vegetation. 25% of the vegetation shall be permanent matrix, and less than 5% invasive species. 50% of the species within the permanent matrix shall be present.

1.6.3 TREES & SHRUBS

All work in this Section shall be guaranteed against any and all defects in workmanship and materials appearing within a period of one (1) year after final completion of all installation work and acceptance of the work by the Owner. Contractor shall replace, without additional expense to the Owner, any materials and workmanship that show defects within said period, with finished and new materials.

1.6.4 NATIVE HERBACEOUS PLUGS

All work in this Section shall be guaranteed against any and all defects in workmanship and materials appearing within a period of one (1) year after final completion of all installation work and acceptance of the work by the Owner. Contractor shall replace, without additional expense to the Owner, any materials and workmanship that show defects within said period, with finished and new materials.

All plugs shall exhibit vigorous growth and be thoroughly rooted by the end of first complete growing season and prior to the release of any maintenance or guarantee obligations. For installations occurring prior to June 1 the end of the first complete growing season would be in October (or at the first hard freeze) of the installation year. For installations occurring on and after June 1 the end of the first complete growing season would be in October (or at the first hard freeze) of the following year.

Success Criteria: Survivability must be 95% or greater. Dead plant material in excess of 5% of all plugged material shall be replaced by the Contractor prior to the end of the warranty period without additional expense to the Owner.

1.7 MAINTENANCE REQUIREMENTS

1.7.1 PERMANENT TURF GRASS SOD

Initial Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Maintain as required in below.

Begin maintenance of lawns immediately after sod is installed in each area and continue until acceptable lawn is established, but not less than 60 days after date of Substantial Completion. If full maintenance period has not elapsed before the end of planting season, or if lawn is not fully established, continue maintenance during the next planting season.

Maintenance includes watering, fertilizing, weeding, mowing, trimming, replanting, and other operations to provide a uniform, weed free, smooth lawn. Watering: Week 1: In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least four (4) inches. Week 2 and beyond: Water turf grass sod as required to maintain adequate moisture in the upper four (4) inches of soil. Avoid application of too much water - turf grass sod should not be continually saturated.

Mowing: Turf grass sod height shall be maintained between two (2) and six (6) inches or as specified by the Owner. Not more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings.

Maintenance includes watering, fertilizing, weeding, mowing, trimming, replanting, and other operations to provide a uniform, weed free, smooth lawn. Watering: Week 1: In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of at least four (4) inches. Week 2 and beyond: Water turf grass sod as required to maintain adequate moisture in the upper four (4) inches of soil. Avoid application of too much water - turf grass sod should not be continually saturated.

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Mowing: Turf grass sod height shall be maintained between two (2) and six (6) inches or as specified by the Owner. Not more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings.

Table with columns: NO., DATE, DESCRIPTION, REVISIONS

Table with columns: PROJECT NO., PROJECT MANAGER, DESIGNED BY, DRAWN BY

ORIGINAL ISSUE DATE: 04/25/2025

1.7.4 LIVE NATIVE HERBACEOUS PLANTS

Initial Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Maintain as required in below. Begin maintenance immediately after plugs are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.

Maintenance Period for live native herbaceous plants: one year

It is important to monitor the native plug areas for invasive plant species, which must be controlled early. Invasive species can aggressively colonize a site. When they are recognized in the early stages of establishment and removed, invasive species can be successfully managed. Any invasive species should be promptly removed from test site without disturbing the roots of the native plugs that are colonizing.

Weed Control: Throughout the first year, treat any weeds, non-native, or invasive species with glyphosate herbicide approved for use around water (Rodeo) by spot-spraying or other means that minimize incidental herbicide drift. Herbicide application should be conducted on, windless days so that the chemical does not spread or volatilize. Re-seed and/or replant any die-back areas resulting from incidental treatment with herbicide. An Indiana invasive species list may be found here: http://www.invasivespeciesinfo.gov/unitedstates/in.shtml. The following species are deemed particularly detrimental to native plantings. This list is not exhaustive and other invasive species may also require removal or treatment: Cattails (Typha species), Common Reed (Phragmites australis), Purple Loosestrife (Lythrum salicaria), Canada Thistle, Curly Dock, Wild Thistle, Sweet Clover and Queen Anne's Lace.

Do not mow any live native herbaceous plant areas.

1.7.5 TREES & SHRUBS

Initial Maintenance Service: Provide maintenance by skilled employees of landscape Installer. Maintain as required in below. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than maintenance period below.

Maintenance Period for Trees and Shrubs: one year

Prune trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.

Irrigate the plants as necessary to maintain rootball moisture throughout the first growing season. Surrounding soil moisture is not a suitable substitute for rootball moisture evaluation. Use of river water, where available and allowed by federal, state and local authorities, is acceptable for irrigation purposes.

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 or where moved by stormwater flows from large rainfall events.

Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use practices to minimize the use of pesticides and reduce hazards.