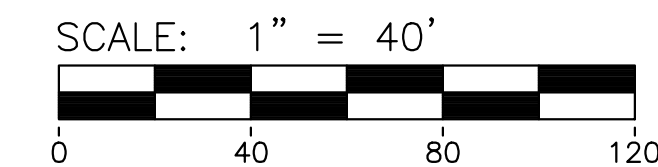
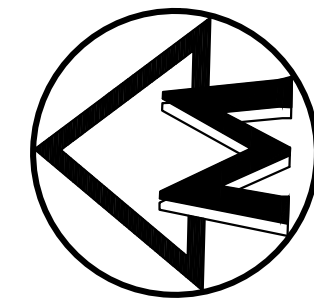
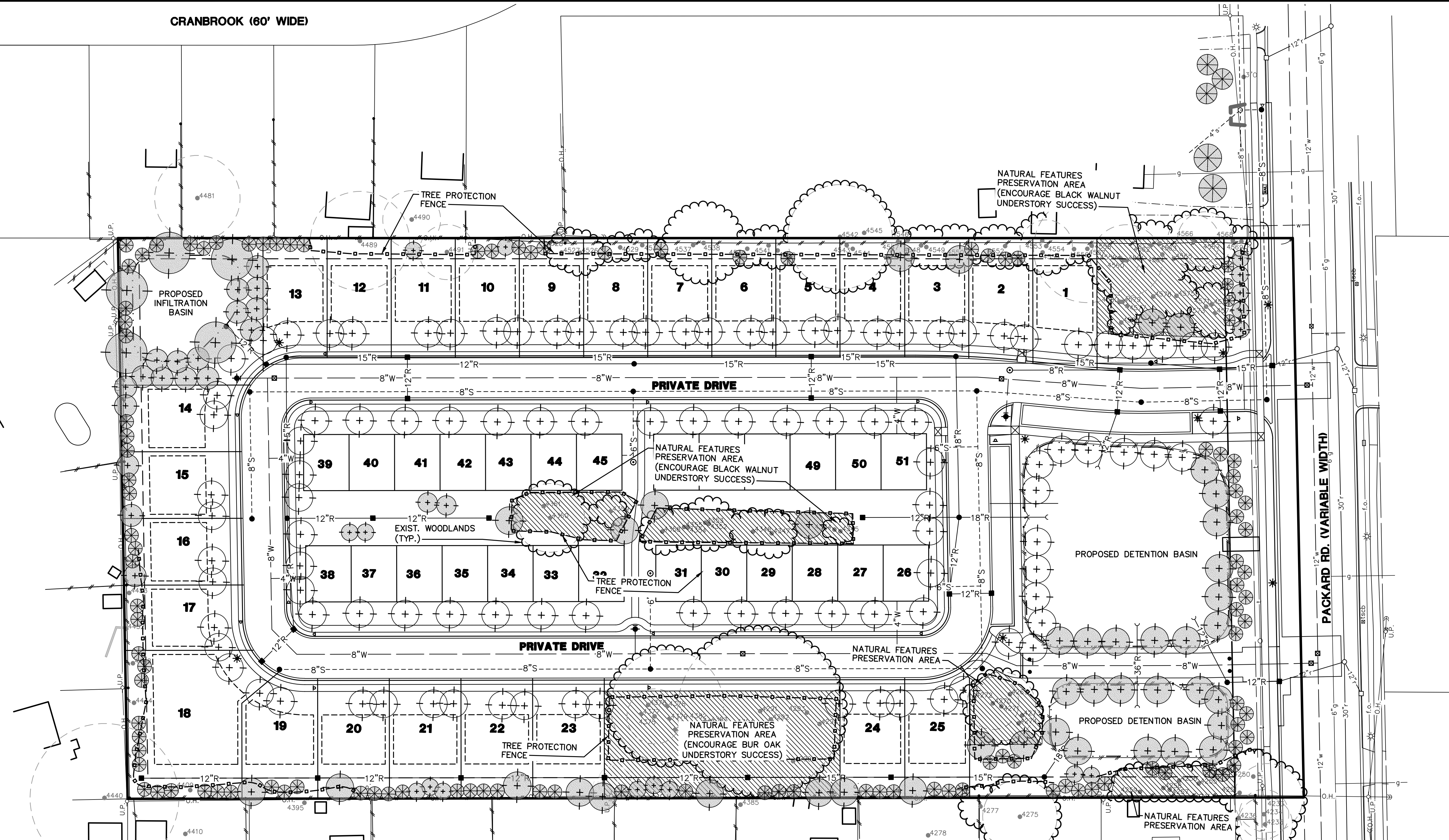


CRANBROOK (60' WIDE)



LEGEND

- TREE OR BRUSH LIMIT
- REGULATED WOODLANDS TO REMAIN
- SINGLE TREE
- LANDMARK TREE CRITICAL ROOT ZONE
- PROPOSED DECIDUOUS STREET TREE
- PROPOSED MITIGATION DECIDUOUS TREE
- PROPOSED MITIGATION EVERGREEN TREE
- NATURAL FEATURES PRESERVATION AREAS



RESPONSIBILITY

- The maintenance of City regulated natural features and the areas identified as Natural Features Preservation Areas on the Natural Features Maintenance Plan will be the responsibility of the developer/owner and/or successor.
- Pre-construction/construction related items within the fifteen (15) foot conflicting land use buffer will be the responsibility of the developer/owner. Post-construction, each lot owner shall be responsible for maintaining the existing trees in the fifteen (15) foot wide landscape buffer and trees identified as "Landmark Trees", "Woodland Trees" or "Mitigation Trees". Owners are prohibited from removing a Landmark, Woodland, or Mitigation tree without approval from the City of Ann Arbor. If trees are removed without City approval/permission, mitigation shall be provided by the Owner/Homeowners Association at the direction of the City.
- The invasive species control within the identified Natural Features Preservation Areas will be the responsibility of the developer/owner and/or in perpetuity with the approved site plan. It will be an iterative process in which management techniques will be modified each year based on the observed site conditions.

PRE-CONSTRUCTION

- Prior to beginning construction on the site, a certified arborist shall perform a site visit to assess the current condition of the regulated natural features as identified on the approved site plan on file with the City of Ann Arbor. Tree Health/Condition Forms shall be prepared for regulated landmark and woodland trees to remain in order to document the health of the trees prior to construction activities on the site. A list of trees that are in poor health (<65 points on the assessment form) shall be prepared to avoid potential replacement for future replacement of trees in poor health after construction. The list and tree health/condition forms shall be submitted to the City of Ann Arbor Planning Department for their records.
- The Master Deed and By Laws established for the Homeowners Association shall include the following:
 - All mitigation trees and landscaping on the approved site plan that die will be required to be replaced by the next growing season in perpetuity, as a continuing obligation of the site plan.
 - Cutting and/or removal of a regulated tree as defined on the approved site plans is subject to an evaluation of health and shall have a health condition of less than 15 per the City of Ann Arbor Tree Health/Condition Factors form.
 - Owners are prohibited from removing a Landmark, Woodland, or Mitigation tree without approval from the City of Ann Arbor. If trees are removed without City approval/permission, mitigation shall be provided by the Owner/Homeowners Association at the direction of the City.
 - Each owner shall be responsible for maintaining the existing trees in the fifteen (15) foot wide landscape buffer and trees identified as "Landmark Trees", "Woodland Trees" or "Mitigation Trees". If any of the trees identified as "Landmark Trees" or "Woodland Trees" are in poor health, or are a risk to public health, safety, and/or welfare, the property owner/Homeowner's Association must receive permission from the City of Ann Arbor to remove the tree. The tree must be evaluated by a certified arborist using the City of Ann Arbor Landmark Tree Health and Condition form and include photographs of the tree to document its condition for City of Ann Arbor staff to review. Mitigation, if required, shall be provided by the Owner/Homeowner's Association at the direction of the City.

TREE PROTECTION AND MAINTENANCE

- Goal: To reduce the impact of construction on and to promote the post-construction health of preserved regulated trees on the site.
- SITE CLEARING:**
- Site contractor to meet with Midwestern Consulting certified arborist on site to review procedures, access/shield road and tree protection measures. It is recommended that site clearing be completed by an arborist/tree company familiar with the process and procedures of tree preservation or under direct supervision of same.
 - Prior to any site clearing or construction activities beginning, install fence and signage around the CRZ (critical root zone) of existing trees to remain.
 - Small trees within in CRZ of regulated natural features to be removed by hand.
 - Proper care is to be taken while clearing the site. Do not felled trees into any protected trees. Any limbs that conflict with the crown of trees to remain should be hand pruned prior to felling.
 - CRZ is off limits to parking, storage of fuel cans, fueling of equipment or any activity not directly involved with caring for the trees health.
 - Determine if pre-construction injections are required at this time and schedule with Arborist.

PRUNING:

- Preserved trees should be pruned to clear crown of disease, weak crossing or dead wood.
- Avoid pruning cuts on limbs larger than 4" diameter, except dead wood.
- Never remove more than 20% of the live foliage.
- Oak trees pruned between March 15th and November 15th will require the application of wound paint to the pruning cut to prevent oak wilt.

CONSTRUCTION:

- Prior to any site clearing or construction activities beginning, tree protection fence shall be installed around all existing trees to remain at the limits of the CRZ or as depicted on the soil erosion control plan and natural features maintenance plan.
- Grading, roads, walkways, underground utility lines, irrigation lines, and all other aspects of soil disturbance shall be minimized to the fullest extent that sound design and public safety will allow.
- Excavated spoils from basements and other needed grading should not be spread on the site in the areas of natural features preservation. Very careful handling of trees near the building envelope should be undertaken to the fullest extent possible.
- No materials, equipment, spoils or waste water (especially concrete trucks or tools) may be dumped, parked or stored within the CRZ fencing.
- If additional pruning is required during construction this must be completed by an Arborist and not construction personnel.
- Any herbicides or pesticides placed near the trees to be preserved will need to be approved by the Arborist prior to application.
- If construction is required within the CRZ, roots need to be properly pruned by the Arborist prior to equipment damaging the root system. Roots can be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife or other approved root pruning tools.
- A watering program needs to be implemented for the preserved trees. Typically one inch of water per week. A tensiometer may be needed within the CRZ to monitor moisture during the construction process.

MULCH TO BE ADDED TO A DEPTH OF 4 INCHES WITHIN THE CRZ TO HELP WITH MOISTURE RETENTION AND SOIL COMPACTION AFTER MOVING AND TREATMENT OF INVASIVE SPECIES PER THE INVASIVE SPECIES CONTROL PLAN BELOW. MULCH SHOULD NOT TOUCH OR BE PILED ON TRUNK.

POST-CONSTRUCTION:

- During the establishment period for the installed deciduous mitigation trees (3 years or longer as to be determined by certified arborist):
 - Burlap screening or wrapping shall be installed on the southwest and windward sides from late autumn to early spring.
 - Trees shall be watered in spring and autumn and during dry conditions at a frequency determined by certified arborist.
 - Mulching around trees shall be maintained at a depth of 2 to 3 inches.
 - Mulch should not touch or be piled on trunk.
- The Homeowners Association shall work with landscape contractor/certified arborist to locate healthy, vigorously growing Oak and Black Walnut understory trees. Selective thinning of other understory trees shall be proposed as necessary to nurture these trees to become future canopy. Encouraging success of these trees offer the following benefits:
 - These are established trees on site that do not have to be transplanted, increasing likelihood of success of the trees.
 - These are truly native genotype as distinct from what planted trees would be, and would include *Quercus macrocarpa* (Burr Oak) and *Juglans nigra* (Black Walnut).
 - By focusing on existing desired understory trees, we encourage faster growth rates, since these trees are established and have extensive root systems.
- The Homeowners Association shall work with a restoration contractor with approval from certified arborist to establish a tree maintenance program for the regulated natural features and proposed mitigation trees on the development site beyond the 3 year establishment period. The program shall at a minimum include:
 - A water program for the establishment of newly planted mitigation trees for a minimum of two growing seasons.
 - A fertilization program for the proposed mitigation trees.
 - Any mitigation trees and landscaping on the approved site plan that dies shall be replaced by the next growing season in perpetuity, as a continuing obligation of the site plan.
- The developer/owner shall provide the City with a written report by December 31st of each year detailing the progress made in the maintenance plan during construction and first growing season. The Homeowners Association shall provide the City with an annual written report by December 31st of each year detailing the progress made in the natural features maintenance plan that year for the remainder of the three year establishment period. A copy of the long term maintenance program shall be provided to the City. Documentation of the natural features maintenance activities during construction and post-construction growing seasons, if applicable, shall be provided to the City before the first Final Certificate of Occupancy is released.

INVASIVE SPECIES CONTROL:

- Goal: To reduce instances of invasive species (woody and herbaceous) currently on site and limit the spread of new seed to create room for desirable native species.
- Natural features maintenance/restoration contractor, with a certified herbicide applicator on staff, shall work with arborist and landscape architect to prepare an invasive species control schedule to be approved by certified arborist. A copy of the invasive species control plan shall be submitted to the City.
 - Control of woody invasive plants (including but not limited to: honeysuckle, buckthorn, and privet) and aggressive non-invasive species (including but not limited to: boxelder) within the natural features preservation areas and undisturbed portions of the fifteen (15) foot conflicting land use buffer such that these woody species do not make up more than 20% of the total coverage of the natural preservation areas.
 - Plants will be cut and treated through the application of a solution containing 22-28% active ingredient (glyphosate) which is to be painted onto the cut surface. Refuse is to be removed and legally disposed of off-site.
 - Following initial site clearing, further cutting and treatment of invasive species shall be performed as needed. Annual application of solution containing 22-28% active ingredient (glyphosate) shall be painted onto cut surface of individual plants as needed. This process can be performed during dormant winter months.
 - Control of herbaceous invasive species within the natural features preservation areas, including but not limited to: Dame's rocket, Garlic mustard, Narrowleaf bittercress, Tawny daylily, Bedstraw, Ground ivy, Oriental bitterweed, Greater celandine, Orchard grass, Bindweed, Queen Anne's Lace, Chinese yam, Motherwort, Common velvet grass, Canada thistle, Herb bennet, Yellow toadflax, Lady's thumb, Jetbeard, Burdock, and Myrtle to reduce coverage of invasive species, reduce establishment of invasive species seed, and encourage establishment of native herbaceous groundcover over a minimum of 75% of the natural features preservation areas.
 - Herbaceous invasive species will be controlled through a combination of techniques as identified by restoration contractor on an annual basis. Techniques may include mowing, herbicide application, hand pulling, and/or prescribed burn.
 - During the first management season, vegetation shall be mowed to a maximum height of 3" following the initial removal of woody species from the site.
 - Following the initial mow, a mowing schedule shall be implemented on a regular basis to limit re-growth and prevent seed set.
 - Herbaceous invasive species with persistent underground root systems (including but not limited to: Myrtle, Canada thistle, Yellow toadflax) shall be treated with foliar herbicide spraying a solution containing triclopyr, or other restoration contractor recommended herbicide.
 - The effectiveness of this method shall be periodically monitored and the treatment schedule shall be modified as appropriate to achieve desired results during the first two years of management.
 - During the third year of management, or as determined by restoration contractor based upon status of invasive species control success, using local genotypes, native herbaceous species seed shall be sowed into the natural features preservation areas. Species list is provided on the Natural Features Maintenance Plan.

4. The developer/owner shall provide the City with an annual written report by December 31st of each year detailing the progress made in the invasive species control plan that year and recommended treatment techniques and schedule for the following year.

- The Homeowners Association shall work with a certified arborist and restoration contractor to develop a long-term invasive species control program for the natural features preservation areas on the site. The program shall at a minimum include:
 - Site assessment every year to identify invasive species becoming established on the site.
 - Development of invasive species control methods and timelines specific to each type of invasive species to be controlled.
 - Identification of protection measures necessary to minimize impact of invasive species control on regulated natural features within the natural features preservation areas.

RESTORATION HERBACEOUS SEED MIX

Scientific Name	Common Name
Allium cernuum	Nodding Wild Onion
Andropogon scoparius	Little Bluestem Grass
Anemone virginiana	Thimbleweed
Aquilegia canadensis	Wild Columbine
Aster cordifolius	Heart Leaved Aster
Aster laevis	Smooth Aster
Aster oolentangensis	Prairie Heart Leaved Aster
Aster sagittifolius	Arrow Leaved Aster
Desmodium canadense	Shock Tick Trefoil
Eupatorium rugosum	White Snakeroot
Monarda fistulosa	Wild Bergamot
Panicum virgatum	Switch Grass
Penstemon digitalis	Yellow Beard Tongue
Ratibida pinnata	Foxglove
Rudbeckia hirta	Black Eyed Susan
Scrophularia marilandica	Late Figwort
Senecio obovatus	Round Leaved Ragwort
Silphium terebinthinaceum	Prairie Dock
Solidago caesia	Blue Stemmed Goldenrod
Solidago juncea	Early Goldenrod
Solidago rigida	Stiff Goldenrod
Thalictrum dioicum	Early Meadow Rue
Tridacenta ohioensis	Common Spiderwort
Veronicastrum virginicum	Culver's Root
Zizia aurea	Golden Alexanders

Seed should be sowed at 3 ounce per 1,000 square feet of bare area in natural features preservation areas or as directed by seed supplier and approved by City of Ann Arbor Natural Areas Preservation staff

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2857 PACKARD ROAD
 PLANNED UNIT DEVELOPMENT
 NATURAL FEATURES MAINTENANCE PLAN

28

JOB NO.	16070
DATE:	8/25/19
SHEET	OF 27
REV. DATE	05/17/19
REV. DATE	06/14/19
REV. DATE	06/26/19
REV. DATE	07/10/19
REV. DATE	10/02/2019