# **PROJECT DEVELOPER**

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## **PROJECT CONSULTANTS**

ATWELL, LLC TWO TOWNE SQUARE, SUITE 700



# VILLAGE OF ANN ARBOR

# **ANN ARBOR TOWNSHIP** WASHTENAW COUNTY, MICHIGAN EGLE IMPACT PLANS

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02	
03	
04	
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## **VERTICAL DATUM** ELEVATIONS ARE BASED ON THE NAVD 88 DATUM. **BASIS OF BEARING** STATE PLANE, MICHIGAN SOUTH, NAD 83 BASED UPON GPS OBSERVATIONS ALONG WITH SOLUTIONS PROVIDED BY O.P.U.S.



SHEET INDEX TABLE
COVER SHEET
EXISTING CONDITIONS - OVERALL
PROPOSED CONDITIONS - OVERALL
PROPOSED IMPACTS
PROPOSED MITIGATION
MITIGATION TRANSECTS
MITIGATION DETAILS
MITIGATION NOTES

SHEET NO.

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BOUNDARY LINE EXIST. EASEMENT SECTION LINE BOUNDARY/PROPERTY LINE SECTION CORNER
EXIST. TREE LINE EXIST. FENCE EXIST. 1' CONTOUR EXIST. 5' CONTOUR EXIST. ASPHALT EXIST. GRAVEL EXIST. WATERS EDGE EXIST. SOILS
MATCHLINE
EXIST. BUILDING
EXIST. WETLAND
EXIST. WETLAND BOFFER SOIL BORING / TEST PIT EXIST. TREE EXIST. TREE (TO BE REMOVED) EXIST. WATER MAIN EXIST. SANITARY EXIST. GAS EXIST. STORM EXIST. OVERHEAD ELEC. LINE EXIST. OVERHEAD TELE. LINE EXIST. OVERHEAD TELE. LINE EXIST. CABLE LINE EXIST. CABLE LINE EXIST. CABLE LINE EXIST. CABLE LINE EXIST. CATCH BASIN/INLET EXIST. CATCH BASIN/INLET EXIST. VALVE EXIST. VALVE EXIST. VALVE EXIST. SIGN EXIST. LIGHT POLE EXIST. UTILITY POLE EXIST. UTILITY POLE EXISTING TELEPHONE RISER EXISTING MAILBOX

Issued On:06/20



LEGEND	
	BOUNDARY LINE
	SECTION LINE
	EXIST. SETBACK
	EXIST. TREE LINE EXIST. CURB AND GUTTER
X X ++++++++++++++++++++	EXIST. FENCE EXIST. RAILROAD
	EXIST. GRAVEL EXIST. BUILDING
	EXIST. WATER EDGE
	EXIST. WETLAND BUFFER
······································	EXIST. WATER MAIN
$\longrightarrow $	EXIST. WATER MAIN EXIST. SANITARY
	EXIST. OVERHEAD ELEC. LINE
	EXIST. OVERHEAD TELE. LINE EXIST. CULVERT
	EXIST. CATCH BASIN/INLET EXIST. HYDRANT
©	EXIST. VALVE EXIST. SANITARY SEWER
O O U.P.	EXIST. UNSPECIFIED UTILITY EXIST. UTILITY POLE
	PROP. BUILDING PROP. SETBACK
	PROP. BACK/EDGE CURB PROP. ROAD CENTERLINE
	PROP. PARKING STRIPE PROP. R.O.W. LINE
	PROP. LOT LINE PROP. ROAD CENTERLINE
	PROP. WALK
	PROP. ASPH.
	PROP. WOODCHIP PATH
	PROP. COMPACTED STONE
20003	PROP. WETLAND IMPACT
	PROP. WETLAND MITIGATION AREA
	PR. MINOR CONTOUR PR. MAJOR CONTOUR

Know what's below. Call before you dig. THE LOCATIONS OF EXISTING UNDERGROUNDU UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FULLY RESPONSIBILITY OF THE CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONSTRUCTION SITE SAFETY OF THE WORK, OF PARSONS ENGAGED IN THE WORK, OF PARSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS. COPYRIGHT © 2023 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC NO DIA DIA DIA DIA DIA DIA DIA DIA				
SECTION 16	TOWN 02 SOUTH, RANGE 06 EAST	ANN ARBOR TOWNSHIP	WASHTENAW COUNTY, MICHIGAN	
ROBERTSON BROTHERS VILLAGE OF ANN ARBOR EGLE IMPACT PLANS PROPOSED CONDITIONS - OVERALL				
JANUARY 24TH, 2023     JANUARY 24TH, 2023     JANUARY 24TH, 2023     REVISIONS     SCALE   0     75   150     1"   =     10   75     10   150     1"   =     10   150     11   =     12   150     13   =     14   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     150   =     160   =     17   =     150   =     150   =     150   =     <				

Approved Issued On:06/20/2023 Expires On:06/20/2020



Impact Number	Natural Feature	Natural Feature Type	Impact Type	Culvert/Pipe Type	Culvert/Pipe length (FT)	Permanent Impact Area (SF)	Impact Area (AC)	Permanent Wetland Fill (CY)	Permanent Wetland Cut (CY)	Rip-Rap/Gravel (CY)
1	Wetland 1	Emergent/Scrub-Shrub	Wetland Fill	-	-	1,445.5	0.03	300	_	-
U1	Wetland 1	Emergent/Scrub-Shrub	Utility - Storm	18" RCP	85	-	-	-	-	-
U2	Wetland 1	Emergent/Scrub-Shrub	Utility - Storm	15" RCP	28	-	-	-	_	-
U3	Wetland 1	Emergent/Scrub-Shrub	Utility - Water	12" DI	17	-	-	-	-	-
				Totals	130.00	1,445.50	0.03	300	0	0





LEGEND	
	BOUNDARY LINE EXIST. EASEMENT SECTION LINE BOUNDARY/PROPERTY LINE EXIST. SETBACK EXIST. TREE LINE EXIST. CURB AND GUTTER EXIST. FENCE EXIST. RAILROAD EXIST. GRAVEL
	EXIST. BUILDING
	EXIST. WATER EDGE EXIST. WETLAND BUFFER
	EXIST. WETLAND
	EXIST. WATER MAIN EXIST. SANITARY EXIST. STORM EXIST. OVERHEAD ELEC. LINE EXIST. OVERHEAD TELE. LINE EXIST. OVERHEAD TELE. LINE EXIST. CATCH BASIN/INLET EXIST. CATCH BASIN/INLET EXIST. CATCH BASIN/INLET EXIST. VALVE EXIST. VALVE EXIST. SANITARY SEWER EXIST. UNSPECIFIED UTILITY EXIST. UTILITY POLE PROP. BUILDING PROP. SETBACK PROP. BACK/EDGE CURB PROP. ROAD CENTERLINE PROP. ROAD CENTERLINE PROP. LOT LINE PROP. ROAD CENTERLINE
	PROP. WALK
	PROP. ASPH.
	PROP. WOODCHIP PATH
	PROP. COMPACTED STONE
	PROP. WETLAND IMPACT
	PROP. WETLAND MITIGATION AREA PR. MINOR CONTOUR PR. MAJOR CONTOUR











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	EXIST. BUILDING
	EXIST. WATER EDGE EXIST. WETLAND BUFFER
	EXIST. WETLAND
	PROP. BUILDING PROP. SETBACK PROP. BACK/EDGE CURB PROP. ROAD CENTERLINE PROP. PARKING STRIPE PROP. R.O.W. LINE PROP. LOT LINE PROP. ROAD CENTERLINE
	PROP. WALK
	PROP. ASPH.
	PROP. WOODCHIP PATH
	PROP. COMPACTED STONE
20003	PROP. WETLAND IMPACT
	PROP. WETLAND MITIGATION AREA





![](_page_6_Figure_1.jpeg)

#### EMERGENT WETLANDS SEED MIX

Botanical Name     Common Name     Ounces/Acre       Permanent Grasses/Sedges/Rushes:     Bolb oschoenus fluviatilis     River Bulrush     1.00       Carex comosa     Bristly Sedge     2.50       Carex laustris     Common Lake Sedge     0.25       Carex lurida     Bottlebrush Sedge     4.00       Carex stricta     Common Tussock Sedge     1.00       Carex vulpinoidea     Brown Fox Sedge     6.00       Eleocharis palustris     Great Spike Rush     1.00       Juncus effusus     Common Rush     1.00       Leersia oryzoides     Rice Cut Grass     3.00       Schoenoplectus acutus     Hard-stemmed Bulrush     2.60       Schoenoplectus americanus Chairmaker's Rush     3.00     3.00       Schoenoplectus tabernaemc Softstem Bulrush     6.00     0.00       Loiium multiflorum     Annual Rye     100.00     10.00       Loiium multiflorum     Annual Rye     100.00     2.00       Asclepias incarnata     Swamp Milkweed     1.50     2.00       Ascorus americanus     Sweet Flag     0.50     2.00       Asclepi	Emergent Wetland Seed Mix				
Permanent Grasses/Sedges/Rushes:     Bolboschoenus fluviatilis   River Bulrush   1.00     Carex comosa   Bristly Sedge   2.50     Carex lacustris   Common Lake Sedge   0.25     Carex stricta   Common Tussock Sedge   1.00     Carex stricta   Common Tussock Sedge   6.00     Carex stricta   Common Rush Sedge   6.00     Leocharis palustris   Great Spike Rush   1.00     Juncus effusus   Common Rush   1.00     Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus acutus   Hard-stemmed Bulrush   2.50     Schoenoplectus atbernaemc Softstem Bulrush   6.00   Total     Schoenoplectus atbernaemc Softstem Bulrush   31.25 oz/acre     Temporary Cover:   Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00   Total   460.00 oz/acre     Forbs:   Accrus americanus   Swartp Milkweed   1.50     Acisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cephalanthus occidentalis   Buttonbush   6.00 </th <th>Botanical Name</th> <th><u>Common Name</u></th> <th><u>Ounces/Acre</u></th>	Botanical Name	<u>Common Name</u>	<u>Ounces/Acre</u>		
Bolboschoenus fluviatilis   River Bulrush   1.00     Carex comosa   Bristly Sedge   2.50     Carex lacustris   Common Lake Sedge   0.25     Carex lurida   Bottlebrush Sedge   4.00     Carex stricta   Common Tussock Sedge   1.00     Carex stricta   Common Tussock Sedge   6.00     Eleocharis palustris   Great Spike Rush   1.00     Juncus effusus   Common Rush   1.00     Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus americanus   Chairmaker's Rush   3.00     Schoenoplectus americanus   Common Oat   31.25 oz/acre     Temporary Cover:   Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00   Total     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cardinal Flower   0.25   50     Hibiscus spp.   Rosemallow (Various Mix)   4.00     Is virginica   Blue Flag   6.00     Hibiscus spp.   Rosemallow (Various Mix)   4.00     Is virg	Permanent Grasses/Sedg	es/Rushes:			
Carex comosa   Bristly Sedge   2.50     Carex lacustris   Common Lake Sedge   0.25     Carex lurida   Bottlebrush Sedge   1.00     Carex stricta   Common Tussock Sedge   1.00     Carex vulpinoidea   Brown Fox Sedge   6.00     Eleocharis palustris   Great Spike Rush   1.00     Juncus effusus   Common Rush   1.00     Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus acutus   Hard-stemmed Bulrush   2.50     Schoenoplectus anericanus Chaimaker's Rush   3.00     Schoenoplectus tabernaem: Softstem Bulrush   6.00     Varena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   31.25 oz/acre   7044     Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incamata   Swamp Loosestrife   0.50     Decodon verticillatus   Svater plag   6.00     Decodon verticillatus   Sotted Joe-Pye Weed   0.50  <	Bolboschoenus fluviatilis	River Bulrush	1.00		
Carex lacustris   Common Lake Sedge   0.25     Carex lurida   Bottlebrush Sedge   4.00     Carex stricta   Common Tussock Sedge   1.00     Carex vulpinoidea   Brown Fox Sedge   6.00     Eleocharis palustris   Great Spike Rush   1.00     Juncus effusus   Common Rush   1.00     Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus acutus   Hard-stemmed Bulrush   2.50     Schoenoplectus americanus Chairmaker's Rush   3.00     Schoenoplectus tabernaemc Softstem Bulrush   6.00     Schoenoplectus atabernaemc Softstem Bulrush   6.00     Lolium multiflorum   Annual Rye   100.00     Total   31.25 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Alisma spp.   Water Plantain (Various Mix)   2.00     Cephalanthus occidentalis   Buttonbush   6.00     Decodon verticillatus   Swamp Loosestrife   0.50     Eutrochium maculatum   Spotted Joe-Pye Weed   0.50     Hibiscus spp.   Rosemallow (Various Mix)	Carex comosa	Bristly Sedge	2.50		
Carex lurida   Bottlebrush Sedge   4.00     Carex stricta   Common Tussock Sedge   1.00     Carex vulpinoidea   Brown Fox Sedge   6.00     Eleocharis palustris   Great Spike Rush   1.00     Juncus effusus   Common Rush   1.00     Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus acutus   Hard-stemmed Bulrush   2.50     Schoenoplectus americanus Chairmaker's Rush   3.00     Schoenoplectus tabernaemc Softstem Bulrush   6.00     Schoenoplectus atbernaemc Softstem Bulrush   6.00     Schoenoplectus tabernaemc Softstem Bulrush   6.00     Schoenoplectus atbernaemc Softstem Bulrush   6.00     Lolium multiflorum   Annual Rye   100.00     Total   31.25 oz/acre   360.00     Lolium multiflorum   Annual Rye   100.00     Alisma spp.   Water Plantain (Various Mix)   2.00     Alisma spp.   Water Plantain (Various Mix)   2.00     Alisma spp.   Rosemallow (Various Mix)   4.00     Decodon verticillatus   Swamp Loosestrife   0.50     Eutrochium maculatum   Spotted Joe-Pye Weed   0.50<	Carex lacustris	Common Lake Sedge	0.25		
Carex stricta   Common Tussock Sedge   1.00     Carex vulpinoidea   Brown Fox Sedge   6.00     Eleocharis palustris   Great Spike Rush   1.00     Juncus effusus   Common Rush   1.00     Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus auericanus Chaimaker's Rush   3.00     Schoenoplectus americanus Chaimaker's Rush   3.00     Schoenoplectus tabernaemc Softstem Bulrush   6.00     Temporary Cover:   Avena sativa     Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre   Total     Forbs:   Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Loosestrife   0.50     Eutrochium maculatum   Spotted Joe-Pye Weed   0.50     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia cardinalis   Cardinal Flower   0.25 <tr< td=""><td>Carex Iurida</td><td>Bottlebrush Sedge</td><td>4.00</td></tr<>	Carex Iurida	Bottlebrush Sedge	4.00		
Carex vulpinoidea   Brown Fox Sedge   6.00     Eleocharis palustris   Great Spike Rush   1.00     Juncus effusus   Common Rush   1.00     Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus acutus   Hard-stemmed Bulrush   2.50     Schoenoplectus americanus Chairmaker's Rush   3.00     Schoenoplectus tabernaemc Softstem Bulrush   6.00     Temporary Cover:   Total   31.25 oz/acre     Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Decodon verticillatus   Swamp Loosestrife   0.50     Publicscus spp.   Rosemallow (Various Mix)   4.00     Iris virginica   Blue Flag   6.00     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia siphilitica   Great Blue Lobelia   0.25 <	Carex stricta	Common Tussock Sedge	1.00		
Eleocharis palustris   Great Spike Rush   1.00     Juncus effusus   Common Rush   1.00     Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus acutus   Hard-stemmed Bulrush   2.50     Schoenoplectus americanus Chairmaker's Rush   3.00     Schoenoplectus tabemaemc Softstem Bulrush   6.00     Total   31.25 oz/acre     Temporary Cover:   70     Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre   460.00 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cephalanthus occidentalis   Buttonbush   6.00     Decodon verticillatus   Swamp Loosestrife   0.50     Fubiscus spp.   Rosemallow (Various Mix)   4.00     Iris virginica   Blue Flag   6.00     Lobelia siphilitica   Great Blue Lobelia   0.25     Lobelia siphi	Carex vulpinoidea	Brown Fox Sedge	6.00		
Juncus effusus Common Rush 1.00 Leersia oryzoides Rice Cut Grass 3.00 Schoenoplectus acutus Hard-stemmed Bulrush 2.50 Schoenoplectus americanus Chairmaker's Rush 3.00 Schoenoplectus tabernaemc Softstem Bulrush 6.00 Total 31.25 oz/acre Temporary Cover: Avena sativa Common Oat 360.00 Lolium multiflorum Annual Rye 100.00 Total 460.00 oz/acre Forbs: Acorus americanus Sweet Flag 0.50 Alisma spp. Water Plantain (Various Mix) 2.00 Asclepias incarnata Swamp Milkweed 1.50 Cephalanthus occidentalis Buttonbush 6.00 Decodon verticillatus Swamp Loosestrife 0.500 Eutrochium maculatum Spotted Joe-Pye Weed 0.500 Hibiscus spp. Rosemallow (Various Mix) 4.00 Iris virginica Blue Flag 6.00 Lobelia cardinalis Cardinal Flower 0.25 Lobelia siphilitica Great Blue Lobelia 0.25 Lycopus americanus Common Water Horehound 0.25 Mimulus ringens Monkey Flower 1.00 Peltandra virginica Arrow Arum 16.00 Penthorum sedoides Ditch Stonecrop 0.500 Polygonum spp. Pinkweed (Various Mix) 0.500 Pontederia cordata Pickerel Weed 10.000 Sagittaria latifolia Common Arrowhead 2.000 Sagittaria latifolia Common Bur Reed 6.00 Verbena hastata Blue Vervain 1.00 Total	Eleocharis palustris	Great Spike Rush	1.00		
Leersia oryzoides   Rice Cut Grass   3.00     Schoenoplectus acutus   Hard-stemmed Bulrush   2.50     Schoenoplectus americanus Chairmaker's Rush   3.00     Schoenoplectus tabernaemc Softstem Bulrush   6.00     Total   31.25 oz/acre     Temporary Cover:   Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cephalanthus occidentalis   Buttonbush   6.00     Decodon verticillatus   Swamp Loosestrife   0.50     Eutrochium maculatum   Spotted Joe-Pye Weed   0.50     Hibiscus spp.   Rosemallow (Various Mix)   4.00     Iris virginica   Blue Flag   6.00     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia siphilitica   Great Blue Lobelia   0.25     Mimulus ringens   Monkey Flower   1.00 <td>Juncus effusus</td> <td>Common Rush</td> <td>1.00</td>	Juncus effusus	Common Rush	1.00		
Schoenoplectus acutus   Hard-stemmed Bulrush   2.50     Schoenoplectus americanus Chairmaker's Rush   3.00     Schoenoplectus tabernaemc Softstem Bulrush   6.00     Total   31.25 oz/acre     Temporary Cover:   70     Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cephalanthus occidentalis   Buttonbush   6.00     Decodon verticillatus   Swamp Loosestrife   0.50     Libiscus spp.   Rosemallow (Various Mix)   4.00     Iris virginica   Blue Flag   6.00     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia siphilitica   Great Blue Lobelia   0.25     Mimulus ringens   Monkey Flower   1.00     Peltandra virginica   Arrow Arum   16.00     Polygonum spp.   Pinkweed (Var	Leersia oryzoides	Rice Cut Grass	3.00		
Schoenoplectus americanus Chairmaker's Rush   3.00     Schoenoplectus tabernaemc Softstem Bulrush   6.00     Total   31.25 oz/acre     Total   31.25 oz/acre     Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cephalanthus occidentalis   Buttonbush   6.00     Decodon verticillatus   Swamp Loosestrife   0.50     Libiscus spp.   Rosemallow (Various Mix)   4.00     Iris virginica   Blue Flag   6.00     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia siphilitica   Great Blue Lobelia   0.25     Mimulus ringens   Monkey Flower   1.00     Peltandra virginica   Arrow Arum   16.00     Pontederia cordata   Pickerel Weed   10.00     Sagittaria latifolia   Common Arrowhead	Schoenoplectus acutus	Hard-stemmed Bulrush	2.50		
Schoenoplectus tabernaemc Softstem Bulrush   6.00     Total   31.25 oz/acre     Temporary Cover:   Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cephalanthus occidentalis   Buttonbush   6.00     Decodon verticillatus   Swamp Loosestrife   0.50     Eutrochium maculatum   Spotted Joe-Pye Weed   0.50     Hibiscus spp.   Rosemallow (Various Mix)   4.00     Iris virginica   Blue Flag   6.00     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia siphilitica   Great Blue Lobelia   0.25     Mimulus ringens   Monkey Flower   1.00     Peltandra virginica   Arrow Arum   16.00     Penthorum sedoides   Ditch Stonecrop   0.50     Polygonum spp.   Pinkweed (Various Mix)   0.50 <td>Schoenoplectus americanus</td> <td>s Chairmaker's Rush</td> <td>3.00</td>	Schoenoplectus americanus	s Chairmaker's Rush	3.00		
Temporary Cover:   Avena sativa   Common Oat   360.00     Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cephalanthus occidentalis   Buttonbush   6.00     Decodon verticillatus   Swamp Loosestrife   0.50     Eutrochium maculatum   Spotted Joe-Pye Weed   0.50     Hibiscus spp.   Rosemallow (Various Mix)   4.00     Iris virginica   Blue Flag   6.00     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia siphilitica   Great Blue Lobelia   0.25     Mimulus ringens   Monkey Flower   1.00     Peltandra virginica   Arrow Arum   16.00     Penthorum sedoides   Ditch Stonecrop   0.50     Polygonum spp.   Pinkweed (Various Mix)   0.50     Pontederia cordata   Pickerel Weed   10.00     Sparganium eurycarpum	Schoenoplectus tabernaem	cSoftstem Bulrush	6.00		
Temporary Cover:Avena sativaCommon Oat360.00Lolium multiflorumAnnual Rye100.00Total460.00 oz/acreForbs:Acorus americanusSweet Flag0.50Alisma spp.Water Plantain (Various Mix)2.00Asclepias incarnataSwamp Milkweed1.50Cephalanthus occidentalisButtonbush6.00Decodon verticillatusSwamp Loosestrife0.50Eutrochium maculatumSpotted Joe-Pye Weed0.50Hibiscus spp.Rosemallow (Various Mix)4.00Lobelia cardinalisCardinal Flower0.25Lobelia siphiliticaGreat Blue Lobelia0.25Lycopus americanusCommon Water Horehound0.25Mimulus ringensMonkey Flower1.00Penthorum sedoidesDitch Stonecrop0.50Polygonum spp.Pinkweed (Various Mix)0.50Pontederia cordataPickerel Weed10.00Sparganium eurycarpumCommon Arrowhead2.00Sparganium eurycarpumCommon Bur Reed6.00Verbena hastataBlue Vervain1.00		Total	31.25 oz/acre		
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Lolium multiflorum   Annual Rye   100.00     Total   460.00 oz/acre     Forbs:   Acorus americanus   Sweet Flag   0.50     Alisma spp.   Water Plantain (Various Mix)   2.00     Asclepias incarnata   Swamp Milkweed   1.50     Cephalanthus occidentalis   Buttonbush   6.00     Decodon verticillatus   Swamp Loosestrife   0.50     Eutrochium maculatum   Spotted Joe-Pye Weed   0.50     Hibiscus spp.   Rosemallow (Various Mix)   4.00     Iris virginica   Blue Flag   6.00     Lobelia cardinalis   Cardinal Flower   0.25     Lobelia siphilitica   Great Blue Lobelia   0.25     Mimulus ringens   Monkey Flower   1.00     Peltandra virginica   Arrow Arum   16.00     Penthorum sedoides   Ditch Stonecrop   0.50     Polygonum spp.   Pinkweed (Various Mix)   0.50     Pontederia cordata   Pickerel Weed   10.00     Sagittaria latifolia   Common Arrowhead   2.00     Sparganium eurycarpum   Common Bur Reed   6.00     Verbena hastata   Blue Vervai	Avena sativa	Common Oat	360.00		
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Verbena hastata   Blue Vervain   1.00     Total   Mix Total   24.29 lbc/c.crc	Sayıllarla ralifulla	Common Rur Pood	2.00		
Total	Verbena hastata				
Mix Total 24 20 lbs/sero	v 510 511a 11a3lala	Total	1.00		
		Mix Total	34.38 lbs/acre		

Note: Schoenoplectus americanus to be removed from seed mix.

### PLANTING SCHEDULE: WETLAND MITIGATION

Zone	Common Name	mmon Name Scientific name		Number of Shrubs / Pounds of Wetland Seed Mix
				Qty.
Shrub	Winterberry	llex Verticillata	BR	4
	Ninebark	Physocarpus opulifolius	BR	4
	Red Twig Dogwood	Cornus stolonifera	BR	4
	Meadowsweet	Spiraea alba	BR	4
	Nannyberry	Viburnum lentago	BR	4
Total				20
	Wetland Seed Mix		Mix lbs.	1.36
	Annual Rye Cover Cr	rops Seed Mix	Mix lbs.	2.04

Seed: Wetland seed mix available from Ernst Conservation Seeds, Inc. 8884 Mercer Pike, Meadville PA 16335. **Notes:** All shrub vegetation is to be in the form of 24"-36" bare root (BR) or container. All shrubs to be evenly spaced within mitigation area If an exact planting species cannot be found, a suitable replacement will be used based upon approval from consultant and EGLE. Wetland Seeding Rate: 20 lb. per acre, or 1/2 lb. per 1,000 sq. ft.

Cover Crop Seeding Rate: Mix 30 lb. per acre annual rye with wetland seed mix.

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SECTION 16	TOWN 02 SOUTH, RANGE 06 EAST	ANN ARBOR TOWNSHIP	WASHTENAW COUNTY, MICHIGAN	
ROBERTSON BROTHERS	VILLAGE OF ANN ARBOR EGLE IMPACT PLANS			
DATE JAN	IUARY : IUARY : REVI: E 0 N BY: M KED BY: PH #: 18002 CODE: - T NO	24TH,	2023	FILE: 18002264EGLE-05-MITDT.DWG

**Expires On:06/20/202** 

![](_page_6_Figure_10.jpeg)

A TOTAL OF 0.033 ACRES OF STATE AND CITY OF ANN ARBOR REGULATED PALUSTRINE EMERGENT AND SCRUB-SHRUB WETLAND IMPACT AT ONE (1) LOCATION IS PROPOSED FOR CONSTRUCTION OF THE PROJECT. TO COMPENSATE FOR THE PROPOSED IMPACTS AT THE REQUIRED 1.5:1 REPLACEMENT RATIO, CREATION OF A TOTAL OF 0.068 ACRES OF EMERGENT AND SCRUB-SHRUB WETLAND MITIGATION WILL BE PROVIDED TO MEET THE STATE AND CITY OF ANN ARBOR MITIGATION OBLIGATION. THE REQUIRED MITIGATION IS TO BE PROVIDED AT ONE (1) LOCATION ON SITE IDENTIFIED AS MITIGATION AREA.

CREATION OF EMERGENT AND SCRUB SHRUB MITIGATION WETLAND IS BEING PROPOSED AT ONE (1) LOCATION ON SITE IDENTIFIED AS MITIGATION AREA. THE MITIGATION AREA IS TO BE LOCATED IMMEDIATELY ADJACENT TO EXISTING ON-SITE WETLANDS TO PROVIDE FOR INCREASED WETLAND FUNCTIONS AND VALUES WITHIN THESE AREAS. DESCRIPTION OF WETLANDS TO BE IMPACTED

A TOTAL OF APPROXIMATELY 0.033 ACRES OF STATE AND CITY OF ANN ARBOR REGULATED PALUSTRINE EMERGENT AND SCRUB SHRUB WETLAND IMPACT IS PROPOSED FOR CONSTRUCTION OF THE PROJECT. THE WETLANDS ARE GENERALLY ISOLATED ON SITE WITH DISCHARGE VIA A SMALL WATERCOURSE EXTENDING OFFSITE TO THE SOUTH. TYPICAL WETLAND VEGETATION WITHIN THE PROPOSED AREA OF IMPACT INCLUDES: FOWL MANNA GRASS (GLYCERIA STRIATA), REED CANARY GRASS (PHALARIS ARUNDINACEA), SWAMP

AGRIMONY (AGRIMONIA PARVIFLORA), AND SEDGES (CAREX SPP.). SHRUB VEGETATION WITHIN THIS AREAS INCLUDES WILLOWS (SALIX DISCOLOR, S. BEBBIANA, AND S. EXIGUA), BUCKTHORNS, NANNYBERRY (VIBURNUM LENTAGO), AND DOGWOODS (CORNUS FOEMINA AND C. AMOMUM).

DOMINANT UPLAND VEGETATION WITHIN UPLAND AREAS ADJACENT TO THE ON SITE WETLANDS INCLUDE QUEEN ANNE'S LACE (DAUCUS CAROTA), CANADA BLUEGRASS (POA COMPRESSA), ORCHARD GRASS (DACTYLIS GLOMERATA), COMMON MILKWEED (ASCLEPIAS SYRIACA), WHITE CLOVER (TRIFOLIUM REPENS), OX-EYE DAISY (LEUCANTHEMUM VULGARE), RED CLOVER (TRIFOLIUM PRATENSE), AND TIMOTHY GRASS (PHLEUM PRATENSE). SHRUB SPECIES OBSERVED ON-SITE INCLUDE EURASIAN HONEYSUCKLES (LONICERA SPP.), WILLOWS (SALIX SPP.), COMMON BUCKTHORN (RHAMNUS CATHARTICA), GLOSSY BUCKTHORN (FRANGULA ALNUS), MULTI-FLORA ROSE (ROSA MULTIFLORA), AND AUTUMN-OLIVE (ELAEAGNUS UMBELLATA). EXISTING IMPACTED WETLAND FUNCTIONS

THE MAIN FUNCTIONS PROVIDED BY WETLAND SYSTEMS INCLUDE FLOOD STORAGE, FISH AND WILDLIFE HABITAT, GROUNDWATER RECHARGE, WATER QUALITY PROTECTION, STORMWATER STORAGE AND EROSION CONTROL.

WILDLIFE HABITAT IS, AND WAS HISTORICALLY, LIMITED IN THE EXISTING WETLAND. GIVEN ITS RELATIVELY LOW PLANT DIVERSITY AND DOMINANCE BY INVASIVE SPECIES ADDITIONAL FUNCTIONS ARE GENERALLY COMPROMISED. THE SITE MAY PROVIDE HABITAT FOR COMMON WILDLIFE SPECIES KNOWN TO UTILIZE DISTURBED, LOW QUALITY WETLAND HABITAT AND HEDGEROWS WITHIN URBAN AREAS. ABUNDANT SUITABLE HABITAT FOR WILDLIFE SPECIES EXISTS IN THE ADJACENT REMAINING LARGE UPLAND FORESTED TRACKS ADJACENT TO THE WETLAND.

THE EXISTING WETLANDS OFFER LIMITED WILDLIFE USE AND DO NOT REPRESENT A UNIQUE OR RARE ECOSYSTEM THAT IS IN NEED OF PROTECTION. ATWELL CONDUCTED A DESKTOP REVIEW OF THE SPECIES LISTED ON THE USEWS LIST AND MNFI DATABASE. THIS RESEARCH CENTERED ON THE BASIC ECOLOGY OF EACH SPECIES. SPECIFICALLY HABITAT REQUIREMENTS. AS IT MIGHT PERTAIN TO THE PRESENCE OR ABSENCE OF THAT SPECIES WITHIN THE PROJECT AREA. BASED ON THIS REVIEW. IT APPEARS UNLIKELY THAT THE PROPOSED DEVELOPMENT WILL NEGATIVELY IMPACT THESE SPECIES.

THE MAJORITY OF THE IMPACTED WETLAND EXHIBITS SHALLOW STANDING WATER FOR MOST OF THE GROWING SEASON WHICH PROVIDE POLLUTION TREATMENT FUNCTION AS A BIOLOGICAL AND CHEMICAL OXIDATION BASIN.

EXISTING CONDITIONS AT PROPOSED WETLAND MITIGATION AREAS

THE PROPOSED MITIGATION AREA IS GENERALLY OPEN IN NATURE EXHIBITING LIMITED AND/OR LOW QUALITY VEGETATION COVER. THIS AREA SUPPORTS TYPICAL WEEDY AND/OR INVASIVE EXOTIC HERBACEOUS AND WOODY VEGETATION.

EXISTING SOILS WITHIN THE PROPOSED MITIGATION AREA IS FOD: FOX SANDY LOAM, 12 TO 18 PERCENT SLOPES SIMILAR TO THOSE FOUND THROUGHOUT THE SITE. FIELD INVESTIGATION HAS CONFIRMED THAT THESE SOILS ARE GENERALLY HIGHLY COMPACTED AND HIGH IN CLAY CONTENT. THE EXISTING SOILS PRESENT WITHIN THE PROPOSED MITIGATION AREA WILL ENSURE HYDROLOGIC RETENTION WITHIN THE MITIGATION AREAS MINIMIZING INFILTRATION AND PROVIDING SEASONALLY SATURATED AND INUNDATED SOIL CONDITIONS FOR WETLAND DEVELOPMENT.

#### PROPOSED WETLAND MITIGATION DESIGN

THE MITIGATION AREA IS TO BE LOCATED IMMEDIATELY ADJACENT TO EXISTING ON-SITE WETLANDS TO PROVIDE FOR INCREASED WETLAND FUNCTIONS AND VALUES WITHIN THESE AREAS. THE PROPOSED MITIGATION AREA WILL PROVIDE FOR AN EXPANDED SCRUB-SHRUB COMPONENT ADJACENT TO THE EXISTING WETLANDS IN THIS AREA. THEY MITIGATION AREAS ARE DESIGNED TO PROVIDE SEASONALLY INUNDATED HYDROLOGIC REGIMES THAT WILL SUPPORT A DIVERSITY OF WILDLIFE THROUGH A RANGE OF LIFE STAGES. THE HIGH VEGETATION DIVERSITY RESULTING FROM THE PROPOSED PLANTINGS, SEEDING, AND SALVAGED WETLAND TOPSOIL SEED SOURCE WILL CREATE A FULL RANGE OF HABITAT TYPES FOR WILDLIFE USE. PROXIMITY TO NEARBY WILL COMPLIMENT AND GREATLY EXTEND THIS RANGE OF AVAILABLE HABITATS. THIS WILL INCLUDE NESTING, COVER, RESTING, FEEDING, REARING-OF-YOUNG, AND PERCHING SITES FOR SONGBIRDS, WATERFOWL AND SMALL MAMMALS.

THE PROPOSED MITIGATION WETLAND WILL PROVIDE STORMWATER STORAGE AND EROSION CONTROL FOR THE SURROUNDING DEVELOPED UPLAND AREAS. GRADES WITHIN THE MITIGATION AREAS ARE SHALLOW TO PROVIDE INCREASED RETENTION TIME WITHIN PRIOR TO DISCHARGE INTO THE ADJACENT EXISTING WETLANDS. THE DESIGN OF THE PROPOSED MITIGATION AREA INCLUDES EXCAVATION OF THE EXISTING UPLAND SOILS DOWN TO APPROXIMATELY 6" BELOW THE LEVEL OF EXISTING ADJACENT WETLANDS FOLLOWED BY INSTALLATION OF A SIX INCH (6") LAYER OF HIGH QUALITY WETLAND SOILS SALVAGED FROM PROPOSED IMPACT AREA ON THE SITE. THIS WILL PROVIDE AN OPTIMAL SUBSTRATE FOR DEVELOPMENT OF TARGET WETLAND VEGETATION. SOILS FROM EXISTING WETLAND IMPACT AREA THAT ARE DOMINATED BY INVASIVE VEGETATION SPECIES ARE NOT TO BE USED. ADDITIONAL TOPSOIL WILL SUPPLEMENT THE SALVAGED WETLAND SOILS AND THE AREAS WILL BE SEEDED WITH A NATIVE WETLAND SEED MIX TO INCREASE VEGETATION SPECIES DIVERSITY. **VEGETATION ESTABLISHMENT** 

THE PROPOSED VEGETATION INSTALLATION SCHEDULE IS INCLUDED ON THE MITIGATION GRADING/PLANTING SHEET.

SEED MIXES:

THE SPECIES COMPOSITION FOR THE SEED MIXES ARE INCLUDED ON THE MITIGATION GRADING/PLANTING SHEET. SEED MIXES SHALL INCLUDE THE NOTED SPECIES OR APPROVED EQUIVALENTS ACCEPTABLE NURSERIES INCLUDE:

- CARDNO JF NEW, 517.586.2412
- THE NATIVE PLANT NURSERY 734-677-3260
- MICHIGAN WILDFLOWER FARM 517-647-6010
- ERNST SEED 800-873-3321
- GENESIS NURSERY 815-438-2220

VEGETATION ESTABLISHMENT IS BASED ON PLANTINGS AND THE APPLICATION OF A WETLAND SEED MIX. IN ADDITION, A DORMANT SEED BANK IN SALVAGED WETLAND SOILS IS EXPECTED TO ADD COVERAGE AND DIVERSITY. SHRUBS ARE TO CONSIST OF BARE ROOT WHIPS (OR CONTAINER) VARYING FROM 24 TO 36 INCHES, DEPENDING ON SPECIES AND AVAILABILITY, TO BE PLANTED DORMANT. SHRUBS ARE TO BE PLANTED AT A RATE SPECIFIED PER THE PLANTING PLAN, ALTHOUGH VOLUNTEERS WILL LIKELY ALSO ESTABLISH OVER THE COURSE OF SEVERAL YEARS. SPECIFIED NUMBERS OF SHRUBS ARE TO BE INSTALLED PER THE TARGET AREAS IDENTIFIED IN THE PLANTING SCHEDULE. EXACT LOCATIONS OF EACH PLANTING HAVE NOT BEEN IDENTIFIED ON THE MITIGATION PLANS AS LOCATIONS ARE TO BE DETERMINED IN THE FIELD BY WETLAND CONSULTANT ACCORDING TO HYDROLOGIC CONDITIONS. IMMEDIATELY AFTER PLANTING, THE MITIGATION AREAS ARE TO BE OVERSEEDED WITH THE SPECIFIED WETLAND MIX APPROPRIATE FOR SEASONALLY SATURATED CONDITIONS. INCREASED HYDROLOGICAL RETENTION WITHIN THE MITIGATION WETLAND TO PROVIDE SEASONAL SHALLOW WATER WILL PROVIDE POLLUTION TREATMENT FUNCTION VIA BIOLOGICAL AND CHEMICAL OXIDATION PROCESSES.

HYDROLOGY FOR THE WETLAND MITIGATION AREAS WILL BE PROVIDED VIA A NUMBER OF SOURCES INCLUDING RUNOFF FROM THE SURROUNDING UPLAND WATERSHED, DIRECT PRECIPITATION, AND FROM THE ADJACENT EXISTING WETLANDS. IT IS ANTICIPATED THAT THESE SOURCES WILL PROVIDE HYDROLOGY IN EXCESS OF THAT REQUIRED TO SUPPORT THE MITIGATION WETLANDS AS DESIGNED.

THE DECISION TO PROVIDE THE REQUIRED WETLAND MITIGATION FOR THE PROJECT ON SITE WAS BASED ON A NUMBER OF FACTORS. A MAJOR CONSIDERATION WAS THE CITY OF ANN ARBOR'S DIRECTIVE TO PROVIDE MITIGATION WITHIN THE CITY.

THE SPECIFIC LOCATIONS FOR THE MITIGATION AREA WAS CHOSEN BASED ON CRITERIA FOR SUCCESS OF THE PROPOSED WETLAND AND TO TAKE ADVANTAGE OF THE EXISTING NATURAL AMENITIES ON THE SITE TO EXPAND THE FUNCTIONS AND VALUES ASSOCIATED WITH THE MITIGATION WETLAND. THE MITIGATION SITE IS IMMEDIATELY ADJACENT TO EXISTING WETLAND SYSTEMS. AND WILL BENEFIT FROM THIS PROXIMITY.

#### WETLAND MITIGATION PERFORMANCE STANDARDS

THE MITIGATION WETLANDS WILL BE MONITORED PER THE CRITERIA AND PERFORMANCE STANDARDS SPECIFIED IN THE FINAL PERMIT. STANDARD PERFORMANCE STANDARDS ARE AS FOLLOWS: THE FOLLOWING PERFORMANCE STANDARDS WILL BE USED TO EVALUATE THE MITIGATION WETLAND:

• CONSTRUCTION HAS BEEN COMPLETED IN ACCORDANCE WITH THE EGLE'S AND CITY OF ANN ARBOR APPROVED PLANS AND SPECIFICATIONS INCLUDED IN THE PERMIT AND MITIGATION PLAN. • THE MITIGATION WETLAND IS CHARACTERIZED BY THE PRESENCE OF WATER AT A FREQUENCY AND DURATION SUFFICIENT TO SUPPORT A PREDOMINANCE OF WETLAND VEGETATION AND

THE WETLAND TYPES SPECIFIED AT THE END OF THE MONITORING PERIOD. • A LAYER OF HIGH-QUALITY TOPSOIL, FROM THE A HORIZON OF AN ORGANIC OR LOAMY SURFACE TEXTURE SOIL, IS PLACED (OR EXISTS) OVER THE ENTIRE WETLAND MITIGATION AREA AT A MINIMUM THICKNESS OF SIX (6) INCHES.

 THE MITIGATION WETLAND SHALL BE FREE OF OIL, GREASE, DEBRIS, AND ALL OTHER CONTAMINANTS. THE MEAN PERCENT COVER OF NATIVE WETLAND SPECIES IN THE HERBACEOUS LAYER AT THE END OF THE MONITORING PERIOD IS NOT LESS THAN:

• SIXTY (60) PERCENT FOR EMERGENT WETLAND. • EIGHTY (80) PERCENT FOR FORESTED WETLAND.

EXTENSIVE AREAS OF OPEN WATER AND SUBMERGENT VEGETATION AREAS HAVING NO EMERGENT AND/OR ROOTED FLOATING VEGETATION SHALL NOT EXCEED 20 PERCENT OF THE MITIGATION WETLAND AREA. EXTENSIVE AREAS OF BARE SOIL SHALL NOT EXCEED FIVE PERCENT OF THE MITIGATION WETLAND AREA. FOR THE PURPOSES OF THESE PERFORMANCE STANDARDS, EXTENSIVE REFERS TO AREAS GREATER THAN 0.01 ACRE (436 SQUARE FEET) IN SIZE.

THE TOTAL PERCENT COVER OF WETLAND SPECIES IN EACH PLOT SHALL BE AVERAGED FOR PLOTS TAKEN IN THE SAME WETLAND TYPE TO OBTAIN A MEAN PERCENT COVER VALUE FOR EACH WETLAND TYPE. FOR THE PURPOSES OF THIS STANDARD, TOTAL PERCENT COVER IS THE PERCENT COVER OF THE GROUND SURFACE COVERED BY VEGETATION, BARE SOIL, AND OPEN WATER, WHEN VIEWED FROM ABOVE. TOTAL PERCENT COVER CANNOT EXCEED 100 PERCENT. PLOTS WITHIN IDENTIFIED EXTENSIVE OPEN WATER AND SUBMERGENT AREAS, BARE SOIL AREAS, AND AREAS WITHOUT A PREDOMINANCE OF WETLAND VEGETATION SHALL NOT BE INCLUDED IN THIS AVERAGE. WETLAND SPECIES REFERS TO SPECIES LISTED AS FACULTATIVE AND WETTER (FAC, FACW, OBL) ON THE U.S. ARMY CORPS OF ENGINEER'S "NATIONAL LIST OF VASCULAR PLANT SPECIES THAT OCCUR IN WETLANDS FOR REGION 3.

THE MITIGATION WETLAND SUPPORTS A PREDOMINANCE OF WETLAND VEGETATION (AS DEFINED IN THE EGLE WETLAND IDENTIFICATION MANUAL") IN EACH VEGETATIVE LAYER, REPRESENTED BY A MINIMUM NUMBER OF NATIVE WETLAND SPECIES, AT THE END OF THE MONITORING PERIOD. THE MINIMUM NUMBER OF NATIVE WETLAND SPECIES PER WETLAND TYPE SHALL NOT BE LESS THAN:

• 15 SPECIES WITHIN THE EMERGENT WETLAND. • 15 SPECIES WITHIN THE FORESTED WETLAND.

THE TOTAL NUMBER OF NATIVE WETLAND PLANT SPECIES SHALL BE DETERMINED BY A SUM OF ALL SPECIES IDENTIFIED IN SAMPLE PLOTS OF THE SAME WETLAND TYPE. AT THE END OF THE MONITORING PERIOD, THE MITIGATION WETLAND SUPPORTS A MINIMUM OF:

• THREE HUNDRED (300) INDIVIDUAL SURVIVING, ESTABLISHED, AND FREE-TO-GROW SHRUBS PER ACRE IN THE SCRUB SHRUB WETLAND THAT ARE CLASSIFIED AS NATIVE WETLAND SPECIES AND CONSISTING OF AT LEAST THREE DIFFERENT SPECIES.

PHYSIOGNOMIC CLASSIFICATION OF TREES AND SHRUBS SHALL BE IN ACCORDANCE WITH THE MICHIGAN FLORISTIC QUALITY ASSESSMENT (MICHIGAN DEPARTMENT OF NATURAL RESOURCES, 2001).

• THE MEAN PERCENT COVER OF INVASIVE SPECIES INCLUDING, BUT NOT LIMITED TO, PHRAGMITES AUSTRALIS (COMMON REED), LYTHRUM SALICARIA (PURPLE LOOSESTRIFE), AND PHALARIS ARUNDINACEA (REED CANARY GRASS) SHALL IN COMBINATION BE LIMITED TO NO MORE THAN TEN (10) PERCENT WITHIN EACH WETLAND TYPE. INVASIVE SPECIES SHALL NOT DOMINATE THE VEGETATION IN ANY EXTENSIVE AREA OF THE MITIGATION WETLAND.

IF THE MEAN PERCENT COVER OF INVASIVE SPECIES IS MORE THAN TEN (10) PERCENT WITHIN ANY WETLAND TYPE OR IF THERE ARE EXTENSIVE AREAS OF THE MITIGATION WETLAND IN WHICH AN INVASIVE SPECIES IS ONE OF THE DOMINANT PLANT SPECIES, THE PERMITTEE SHALL SUBMIT AN EVALUATION OF THE PROBLEM TO THE EGLE. IF THE PERMITTEE DETERMINES THAT IT IS

REQUIREMENTS FOR A STANDARD MONITORING PLAN ARE AS FOLLOWS:

OF WETLAND VEGETATION, AND PROVIDE THEIR LOCATION ON A PLAN VIEW.

ORGANIC OR LOAMY SURFACE TEXTURE SOIL, ACROSS THE SITE.

STANDARDS AND WHETHER EACH STANDARD HAS BEEN MET.

WETLAND MITIGATION CONSTRUCTION SCHEDULE

BRUSH AND CLEAR WORK AREA AS NECESSARY.

• STOCKPILE ADJACENT TO EXCAVATION AREAS.

STRIP TOPSOIL FROM MITIGATION AREA FOOTPRINTS.

FOLLOWING IS A GENERAL SEQUENCE OF CONSTRUCTION ACTIVITIES.

• EXCAVATE MITIGATION AREAS TO PROPOSED GRADES PER GRADING PLAN.

NOTIFY THE PERMITTING AGENCY FOR A FINAL INSPECTION WHEN THE PROJECT IS COMPLETED.

PLANT MATERIALS TO BE WATERED AFTER INSTALLATION OF BARE ROOT SHRUBS AND SEEDING

INSTALL WETLAND SEED MIX WITHIN MITIGATION AREAS PER PLANTING PLAN.

RECEIVE FINAL APPROVAL FOR SOIL EROSION CONTROL MEASURES

• INSTALL 6" TOPSOIL/WETLAND SOIL LAYER TO FINISHED GRADES.

PHOTOGRAPHED, AND DIRECTION.

SUBSTANDARD MONITORING DATA.

A COPY OF THE PERMIT.

FINAL GRADING

CONTROL MEASURES.

BEEN COMPLETED.

SEEDING AND PLANT INSTALLATION

INSTALL SHRUBS PER PLANTING PLAN.

PROJECT COMPLETE - NOTIFY EGLE

INADVERTENT INTRUSION, ETC., WILL BE ASSURED.

WATER (EXCEPT AS OTHERWISE ALLOWED IN THIS PERMIT).

LONG TERM PROTECTION

FOLLOWING LANGUAGE:

FINANCIAL ASSURANCES

FAIR, GOOD, EXCELLENT) AND DESCRIBE THE WATER CLARITY IN THE MITIGATION WETLAND.

SUBSEQUENT ANNUAL MONITORING UNTIL FINAL APPROVAL FROM THE EGLE CAN BE GRANTED.

PRIOR TO FINAL WRITTEN APPROVAL OF THE MITIGATION BY THE EGLE, THE PERMITTEE SHALL SUBMIT THE FOLLOWING:

AND THE PROJECTED PERCENT COVER THAT CAN BE ACHIEVED FOR REVIEW BY THE EGLE. BASED ON THIS INFORMATION, THE EGLE MAY APPROVE AN ALTERNATIVE INVASIVE SPECIES STANDARD. ANY ALTERNATIVE INVASIVE SPECIES STANDARD MUST BE APPROVED IN WRITING BY THE EGLE. IF THE MITIGATION WETLAND DOES NOT SATISFACTORILY MEET THESE STANDARDS BY THE END OF THE MONITORING PERIOD, OR IS NOT SATISFACTORILY PROGRESSING DURING THE

MONITORING PERIOD. THE PERMITTEE WILL BE REQUIRED TO TAKE CORRECTIVE ACTIONS.

WETLAND MITIGATION MONITORING PLAN

LOCATIONS OF VEGETATIVE SAMPLING TRANSECTS ARE INCLUDED ON THE MITIGATION GRADING/PLANTING SHEET.

SUFFICIENTLY EVALUATE EACH WETLAND TYPE, THEY MUST BE APPROVED IN ADVANCE IN WRITING BY THE EGLE.

INFEASIBLE TO REDUCE THE COVER OF INVASIVE SPECIES TO MEET THE ABOVE PERFORMANCE STANDARD, THE PERMITTEE MUST SUBMIT AN ASSESSMENT OF THE PROBLEM, A CONTROL PLAN,

THE PERMITTEE SHALL MONITOR THE WETLAND MITIGATION FOR THE PERIOD SPECIFIED IN THE FINAL PERMIT (TYPICALLY 5 YEARS) FOLLOWING GRADING, PLANTING, AND INTRODUCTION OF HYDROLOGY. A MONITORING REPORT, WHICH COMPILES AND SUMMARIZES ALL DATA COLLECTED DURING THE MONITORING PERIOD, SHALL BE SUBMITTED ANNUALLY BY THE PERMITTEE. MONITORING REPORTS SHALL COVER THE PERIOD OF JANUARY 1 THROUGH DECEMBER 31 AND BE SUBMITTED TO THE EGLE PRIOR TO JANUARY 31 OF THE FOLLOWING YEAR. THE PERMITTEE SHALL CONDUCT THE FOLLOWING ACTIVITIES AND PROVIDE THE INFORMATION COLLECTED IN THE MONITORING REPORTS:

• MEASURE INUNDATION AND SATURATION AT ALL STAFF GAUGES, MONITORING WELLS, AND OTHER STATIONARY POINTS MONTHLY DURING THE GROWING SEASON. HYDROLOGY DATA SHALL BE MEASURED AT A SUFFICIENT NUMBER OF POINTS SAMPLED AT A SUFFICIENT FREQUENCY TO ACCURATELY DEPICT THE WATER REGIME OF EACH WETLAND TYPE. SAMPLE VEGETATION IN PLOTS LOCATED ALONG TRANSECTS SHOWN IN THE MITIGATION PLAN ONCE BETWEEN JULY 15 AND AUGUST 31. WOODY VEGETATION MAY BE SAMPLED EARLIER IN THE GROWING SEASON TO ALLOW FOR ACCURATE COUNTS. THE NUMBER OF SAMPLE PLOTS NECESSARY WITHIN EACH WETLAND TYPE SHALL BE DETERMINED BY USE OF A SPECIES-AREA CURVE OR OTHER APPROACH APPROVED BY THE EGLE. THE MINIMUM NUMBER OF SAMPLE PLOTS FOR EACH WETLAND TYPE SHALL BE NO FEWER THAN FIVE (5). SAMPLE PLOTS SHALL BE LOCATED ON THE SAMPLE TRANSECT AT EVENLY SPACED INTERVALS OR BY ANOTHER APPROACH ACCEPTABLE TO THE EGLE. IF ADDITIONAL OR ALTERNATIVE SAMPLE TRANSECTS ARE NEEDED TO

THE HERBACEOUS LAYER (ALL NON-WOODY PLANTS AND WOODY PLANTS LESS THAN 3.2 FEET IN HEIGHT) SHALL BE SAMPLED USING A 3.28 FOOT BY 3.28 FOOT (ONE SQUARE METER) SAMPLE PLOT. THE TREE LAYER SHALL BE SAMPLED USING A 30 FOOT RADIUS SAMPLE PLOT. THE DATA RECORDED FOR EACH HERBACEOUS LAYER SAMPLE PLOT SHALL INCLUDE A LIST OF ALL LIVING PLANT SPECIES, AND AN ESTIMATE OF PERCENT COVER IN FIVE (5) PERCENT INTERVALS FOR EACH SPECIES, BARE SOIL AREAS, AND OPEN WATER AREAS RELATIVE TO THE TOTAL AREA OF THE PLOT.

THE NUMBER AND SPECIES OF SURVIVING, ESTABLISHED, AND FREE-TO-GROW TREES SHALL BE RECORDED FOR EACH 30 FOOT RADIUS PLOT. PROVIDE PLOT DATA AND A LIST OF ALL THE PLANT SPECIES IDENTIFIED IN THE PLOTS AND OTHERWISE OBSERVED DURING MONITORING. DATA FOR EACH PLANT SPECIES MUST INCLUDE COMMON NAME, SCIENTIFIC NAME, WETLAND INDICATOR CATEGORY FROM THE U.S. ARMY CORPS OF ENGINEERS 2012 NATIONAL WETLAND PLANT LIST FOR MICHIGAN (LICHVAR, R.W. 2012), PHYSIOGNOMIC CLASSIFICATION, AND WHETHER THE SPECIES IS CONSIDERED NATIVE ACCORDING TO THE MICHIGAN FLORISTIC QUALITY ASSESSMENT (MICHIGAN DEPARTMENT OF NATURAL RESOURCES, 2001). NOMENCLATURE SHALL FOLLOW IN THE FLORA OF NORTH AMERICA. WHICH CAN BE FOUND AT WWW.FNA.ORG.

THE LOCATIONS OF SAMPLE TRANSECTS AND PLOTS SHALL BE IDENTIFIED IN THE MONITORING REPORT ON A PLAN VIEW SHOWING THE LOCATION OF WETLAND TYPES. EACH TRANSECT AND SAMPLE PLOT SHALL BE PERMANENTLY AND VISIBLY STAKED AT A FREQUENCY SUFFICIENT TO LOCATE THE TRANSECT AND SAMPLE PLOTS IN THE FIELD.

DELINEATE ANY EXTENSIVE (GREATER THAN 0.01-ACRE IN SIZE) OPEN WATER AREAS, BARE SOIL AREAS, AREAS DOMINATED BY INVASIVE SPECIES, AND AREAS WITHOUT A PREDOMINANCE

• DOCUMENT ANY SIGHTINGS OR EVIDENCE OF WADING BIRDS, SONGBIRDS, WATERFOWL, AMPHIBIANS, REPTILES, AND OTHER ANIMAL USE (LODGES, NESTS, TRACKS, SCAT, ETC.) WITHIN THE WETLAND NOTED DURING MONITORING. NOTE THE NUMBER. TYPE. DATE. AND HOUR OF THE SIGHTINGS AND EVIDENCE. • INSPECT THE SITE, DURING ALL MONITORING VISITS AND INSPECTIONS, FOR OIL, GREASE, MAN-MADE DEBRIS, AND ALL OTHER CONTAMINANTS AND REPORT FINDINGS. RATE (E.G., POOR,

 PROVIDE ANNUAL PHOTOGRAPHIC DOCUMENTATION OF THE DEVELOPMENT OF THE MITIGATION WETLAND DURING VEGETATION SAMPLING FROM PERMANENT PHOTO STATIONS LOCATED WITHIN THE MITIGATION WETLAND. AT A MINIMUM, PHOTO STATIONS SHALL BE LOCATED AT BOTH ENDS OF EACH TRANSECT. PHOTOS MUST BE LABELED WITH THE LOCATION, DATE

• PROVIDE ONE-TIME PHOTOGRAPHIC DOCUMENTATION DURING CONSTRUCTION OF THE PLACEMENT OF AT LEAST SIX (6) INCHES OF HIGH QUALITY SOIL, FROM THE A HORIZON OF AN

PROVIDE A WRITTEN SUMMARY OF DATA FROM PREVIOUS MONITORING PERIODS AND A DISCUSSION OF CHANGES OR TRENDS BASED ON ALL MONITORING RESULTS. THIS SUMMARY SHALL INCLUDE A CALCULATION OF THE ACRES OF EACH WETLAND TYPE ESTABLISHED, A PLAN VIEW DRAWING DEPICTING EACH ECOLOGICAL TYPE, AND IDENTIFICATION OF ALL PERFORMANCE

• PROVIDE A WRITTEN SUMMARY OF ALL THE PROBLEM AREAS THAT HAVE BEEN IDENTIFIED AND POTENTIAL CORRECTIVE MEASURES TO ADDRESS THEM. A QUALIFIED INDIVIDUAL ABLE TO IDENTIFY PLANTS TO GENUS AND SPECIES MUST CONDUCT THE WETLAND MONITORING. THE EGLE RESERVES THE RIGHT TO REJECT REPORTS WITH

THE EGLE WILL DETERMINE IF THE PERFORMANCE STANDARDS HAVE BEEN MET. IF THE PERFORMANCE STANDARDS HAVE NOT BEEN MET, THE EGLE MAY REQUIRE CORRECTIVE ACTIONS AND

A WRITTEN STATEMENT THAT THE MITIGATION IS COMPLETE AND REQUEST FOR FINAL APPROVAL OF THE MITIGATION.

 "AS-BUILT" PLANS AND SPECIFICATIONS SIGNED AND SEALED BY A REGISTERED SURVEYOR OR LICENSED ENGINEER. A SURVEYED BOUNDARY OF THE ESTABLISHED WETLAND WITHIN THE MITIGATION AREA, INCLUDING THE TOTAL ACREAGE OF THE MITIGATION WETLAND AND THE ACREAGE OF EACH TYPE OF WETLAND CREATED. THE WETLAND BOUNDARY SHALL BE FLAGGED AND NUMBERED IN THE FIELD TO ALLOW EASY IDENTIFICATION BY EGLE FIELD STAFF. COMPLETE ALL MONITORING REQUIREMENTS INCLUDING THE SUBMITTAL OF ALL REQUIRED MONITORING REPORTS.

CONSTRUCTION OF THE MITIGATION AREA WILL BEGIN ONCE THE FINAL EGLE PERMIT IS ISSUED, CONCURRENT OR PRIOR TO UNDERTAKING PERMITTED IMPACTS. IT IS ANTICIPATED THAT THE DEVELOPMENT PROJECT AND ASSOCIATED MITIGATION WILL BE COMPLETED BY LATE FALL OF 2023 OR SPRING OF 2024. SEEDING STABILIZATION OF ADJACENT UPLAND SLOPES WILL BE UNDERTAKEN IMMEDIATELY AFTER CONSTRUCTION IS COMPLETED AND INSTALLATION OF WETLAND SEED AND PLANTINGS WILL BE UNDERTAKEN IN FALL OF 2023 OR SPRING OF 2024. THE

NOTIFY THE EGLE'S DISTRICT OFFICE, IN WRITING AND WITHIN 20 DAYS OF COMPLETION OF EACH OF THE FOLLOWING ITEMS:

INSTALL ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE APPROVED PLAN AND PERMIT CONDITIONS.

OVER EXCAVATE AS NECESSARY (6" BELOW PROPOSED GRADES) TO ALLOW FOR PLACEMENT OF 6" TOPSOIL/WETLAND SOIL LAYER.

ESTABLISH HYDROLOGY WITHIN BASINS OVER FIRST GROWING SEASON IN PREPARATION FOR FALL VEGETATION PLANTING

 SEED ADJACENT UPLAND AREAS WITH SOIL EROSION CONTROL SEED MIX TO STABILIZE DISTURBED SOIL SURFACE. • THE ASSIGNED STORMWATER OPERATOR WILL INSPECT ENTIRE PROJECT AREA AT LEAST WEEKLY AND AFTER EVERY SIGNIFICANT STORM EVENT TO EVALUATE THE EFFECTIVENESS OF THE

• PER PLAN MAINTAIN ALL TEMPORARY AND PERMANENT CONTROL MEASURES DAILY AND AS NEEDED BASED ON-SITE INSPECTIONS. • COMPLETE PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS

REMOVE ALL TEMPORARY CONTROL MEASURES AFTER PERMANENT SOIL EROSION CONTROL MEASURES ARE IN PLACE AND THE AREA IS STABILIZED.

THE MITIGATION AREAS ARE LOCATED ON THE VILLAGE OF ANN ARBOR PROPERTY AND PERMANENT ACCESS TO THESE AREAS WILL BE PROVIDED THROUGH THIS PROPERTY. A CONSERVATION EASEMENT IN THE FORM IDENTICAL TO THAT PROVIDED BY THE EGLE WILL BE ESTABLISHED OVER THE MITIGATION WETLANDS PER FINAL PERMIT CONDITIONS. CONTROL OF INVASIVE SPECIES WITHIN THE MITIGATION AREA WILL BE UNDERTAKEN AS REQUIRED PER THE FINAL PERMIT. LONG TERM STEWARDSHIP WITH REGARD TO MAINTAINING THE AREA FREE OF TRASH AND

THE CONSERVATION EASEMENT BOUNDARY SHALL BE DEMARCATED BY THE PLACEMENT OF SIGNS ALONG THE PERIMETER. THE SIGNS SHALL BE PLACED AT AN ADEQUATE FREQUENCY (AT 50' INTERVAL) VISIBILITY, AND HEIGHT FOR VIEWING, MADE OF A SUITABLE MATERIAL TO WITHSTAND CLIMATIC CONDITIONS, AND SHOULD BE REPLACED AS NEEDED. THE SIGNS SHALL INCLUDE THE

NO CONSTRUCTION OR PLACEMENT OF STRUCTURES ALLOWED.

WETLAND CONSERVATION EASEMENT

NO MOWING, CUTTING, FILLING DREDGING OR

APPLICATION OF CHEMICALS ALLOWED

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

EXCEPT AS OTHERWISE PROVIDED BY THIS PERMIT OR APPROVED IN WRITING BY THE EGLE, THE FOLLOWING ACTIVITIES ARE PROHIBITED IN PERPETUITY WITHIN THE MITIGATION AREA: ALTERATION OF TOPOGRAPHY, CREATION OF PATHS, TRAILS, OR ROADS; PLACEMENT OF FILL, DREDGING, OR EXCAVATION; DRAINAGE OF SURFACE OR GROUNDWATER; CONSTRUCTION OR PLACEMENT OF ANY STRUCTURE; PLOWING, TILLING, OR CULTIVATING THE SOILS OR VEGETATION; CUTTING, REMOVAL, OR ALTERATION OF VEGETATION; INCLUDING THE PLANTING OF NON-NATIVE PLANT SPECIES; CONSTRUCTION OF UNAUTHORIZED UTILITY OR PETROLEUM LINES; STORAGE OR DISPOSAL OF GARBAGE, TRASH, DEBRIS, ABANDONED EQUIPMENT; ACCUMULATION OF MACHINERY OR OTHER WASTE MATERIALS; USE OR STORAGE OF OFF-ROAD VEHICLES; PLACEMENT OF BILLBOARDS OR SIGNS; OR THE USE OF THE WETLAND FOR THE DISCHARGE OF STORM

THE PERMITTEE WILL PROVIDE A SURETY BOND OR LETTER OF CREDIT TO THE EGLE IN A FORM IDENTICAL TO THE FINANCIAL ASSURANCE MODELS ON THE EGLE'S WEB SITE AT WWW.MICHIGAN.GOV/WETLANDS IN THE AMOUNT SPECIFIED PER THE FINAL PERMIT TO ENSURE THAT THE REPLACEMENT WETLAND IS CONSTRUCTED, THE CONSERVATION EASEMENT IS RECORDED, MONITORING IS COMPLETED, AND CORRECTIVE ACTIONS ARE PERFORMED AS REQUIRED TO COMPLY WITH THE MITIGATION REQUIREMENTS AND CONDITIONS OF THIS PERMIT. A FINANCIAL ASSURANCE DOCUMENT WILL BE PROVIDED AND ACCEPTED BY THE EGLE PRIOR TO SIGNATURE OF THIS PERMIT BY THE EGLE.

Know what's below. Know what's below. Call before you dig. The locations of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities. NOTICE: Construction site safety is the sole responsibility of the contractor; neither the owner nor the engineer shall be expected to assume any responsibility of safety of the work, of persons engaged in the work, of any nearby structures, or of any other persons.							
REPRODUCION SHAIL BE MADE MIHORI THE DELLA TWO TOWNE SQUARE, SUITE 700 248.447.2000 248.447.2000							
SECTION 16	TOWN 02 SOUTH, RANGE 06 EAST	ANN ARBOR TOWNSHIP	WASHTENAW COUNTY, MICHIGAN				
ROBERTSON BROTHERS	VILLAGE OF ANN ARBOR EGLE IMPACT PLANS	MITIGATION NOTES					
DATE JAN	DATE JANUARY 24TH, 2023						
	REVISIONS						
DRAV CHEC	DRAWN BY: MB CHECKED BY: BS						
P.M.: JOB FILE	P.M.: PH JOB #: 18002264 FILE CODE: —						
SHEE	SHEET NO. 08 EGLE WRP03788						

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