

WESTERN WATERFRONT HABITAT RESTORATION PROJECT

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EXISTING UTILITY LOCATIONS

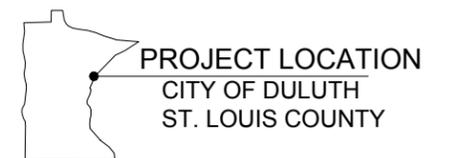
THE CONTRACTOR SHALL VERIFY ALL EXISTING UNDERGROUND UTILITY LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. ALL INPLACE UTILITIES MAY NOT BE SHOWN ON THIS PLAN & THOSE THAT ARE SHOWN, MAY NOT BE SHOWN IN THE EXACT LOCATIONS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLANSET IS UTILITY QUALITY LEVEL "D" AS DEFINED IN ASCE "STANDARD GUIDELINE FOR THE DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

SPECIFICATION REFERENCE

- THE FOLLOWING SPECIFICATIONS SHALL APPLY TO THIS PROJECT:
1. CITY OF DULUTH 2015 STANDARD CONSTRUCTION SPECIFICATIONS.
 2. ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO MN MUTCD, INCLUDING THE CURRENT FIELD MANUAL.

 **GOPHER STATE
ONE CALL**
TWIN CITY AREA: 454.0002
MN. TOLL FREE: 1.800.252.1166



DESIGNED	DRAWN	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
JG	WD	
CHECKED		JEFFREY S. GOETZMAN
JG		DATE 01/08/2016 LIC. NO. 26422



4560 Norway Pines Place
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218.727.8796
tkda.com

WESTERN WATERFRONT HABITAT RESTORATION PROJECT	
DULUTH	MINNESOTA
CLIENT NO.	MSA NO.

TITLE SHEET

PROJECT NO.
15850.001

RECORD NO. SHEET NO.

1

NO.	DATE	BY	DESCRIPTION OF REVISIONS

BASE BID: PERFORM THE FOLLOWING ON 73 ACRES:

1. REMOVE AND CONTROL INVASIVE TREES AND SHRUBS
 - a. COMMON BUCKTHORN
 - b. EURASIAN HONEYSUCKLES
2. REMOVE AND CONTROL MDA NOXIOUS WEEDS
 - a. TANSY
 - b. CANADA THISTLE
 - c. PURPLE LOOSESTRIFE
 - d. WILD PARSNIP
 - e. GARLIC MUSTARD
 - f. JAPANESE KNOTWEED
3. REMOVE AND CONTROL MNDNR INVASIVE SPECIES
 - a. BIRD'S FOOT TREFOIL
 - b. CROWN VETCH
 - c. PERENNIAL SOWTHISTLE
 - d. WHITE AND YELLOW SWEET CLOVER
4. REMOVE AND CONTROL REED CANARY GRASS

ALTERNATE BID #1: PERFORM PRESCRIBED BURN, HERBICIDE TREATMENT, SEEDING ON REED CANARY GRASS AREA SPRING OF 2017

ALTERNATE BID #2: REMOVE AND CONTROL INVASIVE TREES AND SHRUBS, MDA NOXIOUS WEEDS, AND MNDNR INVASIVE SPECIES (NO REED CANARY GRASS) ON ADDITIONAL 42 ACRES

ALTERNATE BID #3: REMOVE AND CONTROL INVASIVE TREES AND SHRUBS, MDA NOXIOUS WEEDS, AND MNDNR INVASIVE SPECIES (NO REED CANARY GRASS) ON ADDITIONAL 10 ACRES

CONSTRUCTION NOTES:

1. CONTRACTOR TO MAKE TRAIL CLOSURE PER PLAN SHEET 11 OF THE PLAN WHEN PERFORMING WORK IMPACTING THE USE OF THE WESTERN WATERFRONT TRAIL. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEMS FOR THE REMOVAL OF INVASIVE SPECIES.
2. REFER TO SPECIAL PROVISIONS AND PLAN SHEETS FOR THE COVER CLASS AND PRESCRIBED TREATMENT OF EACH SPECIES OF INVASIVE.
3. GPS FILES WILL BE MADE AVAILABLE TO THE CONTRACTOR SHOWING BUCKTHORN REMOVAL AREAS.
4. A GIS SHAPE FILE WILL BE MADE AVAILABLE TO THE CONTRACTOR WHICH SHOWS THE PROJECT LIMITS. CONTRACTOR SHALL UTILIZE GPS OR SIMILAR TECHNOLOGY TO REMAIN WITHIN THE WORK LIMITS AT ALL TIMES. CONTRACTOR IS RESPONSIBLE FOR ENSURING THEIR REMOVAL OPERATIONS ARE WITHIN THE BOUNDARY LIMITS OF THE PROJECT.

Plot Date: 01/14/2016
Drawing Path: C:\Users\jg\Documents\Projects\TKDA\WFF - Sub\project\CD\SEQ.dwg
User: JG
Project: TKDA Logo Removal

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WESTERN WATERFRONT HABITAT RESTORATION PROJECT	
DULUTH	MINNESOTA
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ESTIMATED QUANTITIES

PROJECT NO. 15850.001	
RECORD NO.	SHEET NO. 2

 Western Waterfront Restoration Area



Plot Date: 01/08/2016
 Drawing Name: P:\Hennepin\Drawings\Official\Projects\TKDA\WVWF - Sals project\CS\g25\Western\1.dwg
 Xrefs: Xref: E:\GIS\TKDA Logo



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WESTERN WATERFRONT HABITAT RESTORATION PROJECT
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CLIENT NO. MSA NO.

BASE BID LOCATIONS

PROJECT NO. 15850.001	
RECORD NO.	SHEET NO. 3

● GPS Located Mature Seed Bearing Common Buckthorn Trees, August - October 2015

Low Buckthorn Density
 Medium Buckthorn Density
 High Buckthorn Density

Restoration Area

GPS data collected by LBG, Inc. and Duluth Invaders, August - October 2015



Plot Date: 01/08/2016
 Drawing Name: P:\Hennepin\Drawings\Official\Projects\TKDA\WWT - Sals project\C3D\Buckthorn_Density.dwg
 Author: JG, EJS, JKS, TKDA Logo Hennepin

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WESTERN WATERFRONT HABITAT RESTORATION PROJECT

DULUTH
MINNESOTA

CLIENT NO. _____ MSA NO. _____

BUCKTHORN DENSITY

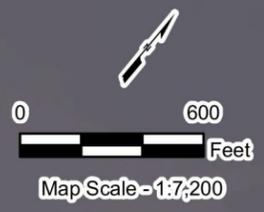
PROJECT NO.
15850.001

RECORD NO.	SHEET NO.
	4

- GPS Located Mature Seed Bearing Common Buckthorn Trees, August - October 2015
- Western Waterfront Restoration Area

COMMON BUCKTHORN BASELINE SURVEY - WEST PORTION NOTES

1. 350 Mature Seed Bearing Female Trees Identified in the west portion.
2. It is assumed that not all species occurrences have been surveyed.
3. Approx. 8 acres of the west portion of the restoration area are infested for a total of approx. 26 acres of common buckthorn infestation.



Source: Esri,

Plot Date: 01/08/2016
 Drawing Name: P:\Hennepin\Drawings\Official\Projects\TKDA\WVWF - Sals project\CSD\Buckthorn_west.dwg
 Author: JG, ES, ST, JG, TKDA Logo Hennepin

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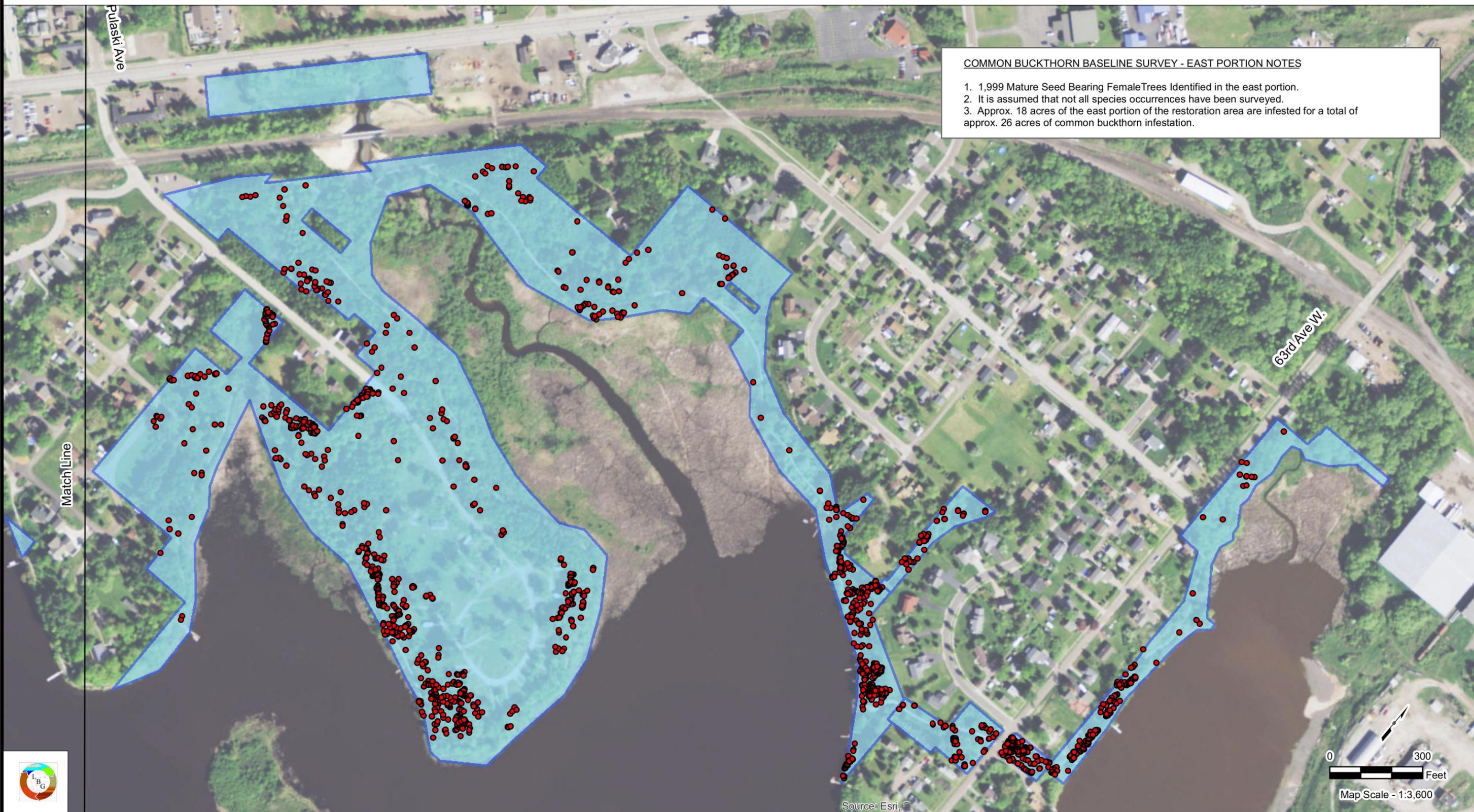
WESTERN WATERFRONT HABITAT RESTORATION PROJECT
 DULUTH MINNESOTA
CLIENT NO. MSA NO.

BUCKTHORN REMOVAL - WEST

PROJECT NO. 15850.001	
RECORD NO.	SHEET NO. 5

● GPS Located Mature Seed Bearing Common Buckthorn Trees, August - October 2015

Western Waterfront Restoration Area



COMMON BUCKTHORN BASELINE SURVEY - EAST PORTION NOTES

- 1,999 Mature Seed Bearing Female Trees Identified in the east portion.
- It is assumed that not all species occurrences have been surveyed.
- Approx. 18 acres of the east portion of the restoration area are infested for a total of approx. 26 acres of common buckthorn infestation.



Plot Date: 01/08/2016
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 Xrefs: Xref: E:\GIS\TKDA Logo.dwg

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WESTERN WATERFRONT HABITAT RESTORATION PROJECT
 DULUTH MINNESOTA

BUCKTHORN REMOVAL - EAST

PROJECT NO. 15850.001
 RECORD NO. SHEET NO. 6

- GPS Located Mature Eurasian Honeysuckle Shrubs, August - October 2015
- Greatest Honeysuckle Infestation
- Western Waterfront Restoration Area

GPS data collected by LBG, Inc, August - October 2015

EURASIAN HONEYSUCKLE BASELINE SURVEY NOTES

1. GPS points represent small populations of honeysuckle with varying degrees of population size and density.
2. It is assumed that not all species occurrences have been surveyed.
3. Approximately 8 Acres of the restoration area are infested with honeysuckle.



Source: Esri,



Plot Date: 01/08/2016
 Drawing name: P:\Hennepin\Office\Projects\TKDA\WWT - Sals project\CSD\Honeysuckle.dwg
 Xrefs: TKDA Logo Hennepin

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HONEYSUCKLE REMOVAL

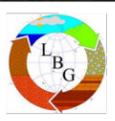
PROJECT NO. 15850.001	
RECORD NO.	SHEET NO. 7

- Tansy (*Tanacetum vulgare*)
- Canada Thistle (*Cirsium arvense*)
- Purple Loosestrife (*Lythrum salicaria*)
- Wild Parsnip (*Pastinaca sativa*)
- Garlic Mustard (*Alliaria petiolata*)
- Japanese Knotweed (*Polygonum cuspidatum*)
- Western Waterfront Restoration Area

GPS data collected by LBG, Inc, August - October 2015

MDA NOXIOUS WEEDS BASELINE SURVEY NOTES

1. GPS data points represent visual observations of species occurrences with varying degrees of population size and densities.
2. It is assumed that not all species occurrences have been surveyed.
3. Tansy was observed to have an average cover class of 5 - 25% over approx. 3.75 acres.
4. Canada thistle was observed to have an average cover class of 5 - 25% over approx. 4 acres.
5. Purple loosestrife was observed to have an average cover class of 5 - 25% over approx. 4,500 square feet.
6. Wild parsnip was observed to have an average cover class of 5 - 25% over approx. 500 square feet.
7. Garlic mustard was only observed in one location comprising several small occurrences.
8. Japanese knotweed was only observed in one location comprising an area of approx. 100 square feet.



Map Scale = 1:10,800

Source: Esri,

Plot Date: 01/08/2016
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 Author: TKDA Hennepin

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WESTERN WATERFRONT HABITAT RESTORATION PROJECT

DULUTH MINNESOTA

CLIENT NO. MSA NO.

MDA NOXIOUS WEED REMOVAL

PROJECT NO. 15850.001

RECORD NO. SHEET NO. 8

- Greatest Reed Canary Grass Infestations
- Western Waterfront Restoration Area

REED CANARY GRASS BASELINE SURVEY NOTES

1. Two large infestations of reed canary grass occur within the restoration area. Some other populations occur but are not included in this Restoration Plan.
2. Approximately 5 Acres Infested by reed canary grass.



Plot Date: 01/08/2016
 Drawing name: P:\Hennepin\Office\Projects\TKDA\WWT - Sals project\CSD\Reed Canary.dwg
 Xrefs: TKDA Hennepin

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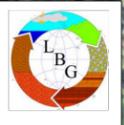
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WESTERN WATERFRONT HABITAT RESTORATION PROJECT
 DULUTH MINNESOTA
CLIENT NO. MSA NO.

REED CANARY GRASS REMOVAL

<small>PROJECT NO.</small>	
15850.001	
<small>RECORD NO.</small>	<small>SHEET NO.</small>
	9

- 73 Acre Restoration Area (City of Duluth Property)
- Additional 42 Acre Restoration Area (Add Alt. 2)
- Additional 10 Acre Restoration Area (Add. Alt. 3)



Plot Date: 01/08/2016
 Drawing Name: P:\Hennepin\Drawings\Official\Projects\TKDA\WWT - Sub\project\CD\g25\Western011.dwg
 Author: JG, ESISTING, TKDA, Logo Hennepin

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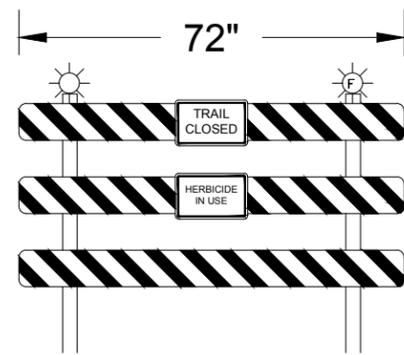


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WESTERN WATERFRONT HABITAT RESTORATION PROJECT	
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BID ALTERNATE ADDITIONAL TREATMENT AREAS
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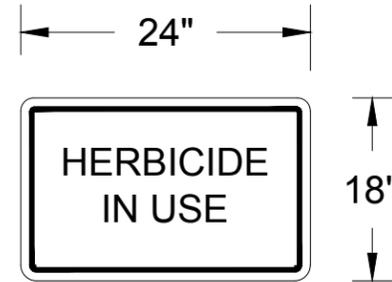
PROJECT NO.	15850.001
RECORD NO.	SHEET NO.
	10



TYPE III BARRICADE

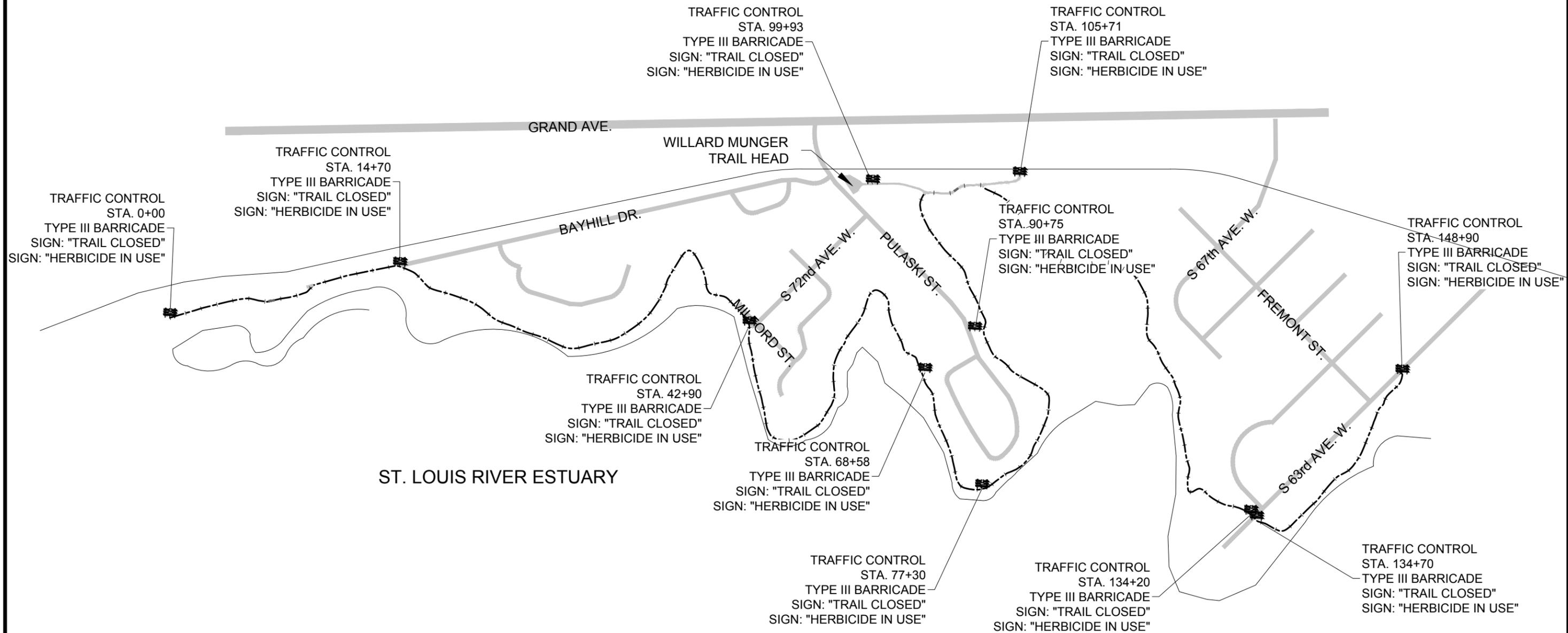


TYPE R9-9a



TYPE R9-9a

1 TRAFFIC CONTROL SIGNS
11



ST. LOUIS RIVER ESTUARY

Plot Date: 01/08/2016
 Drawing Name: P:\Hennepin\Official\Projects\TKDA\WVFT - Sulo project\GIS\TRAFFIC CONTROL.dwg
 Author: TKDA Logo Hennepin

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WESTERN WATERFRONT HABITAT RESTORATION PROJECT
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TRAIL CLOSURE PLAN AND DETAILS

PROJECT NO. 15850.001	SHEET NO. 11
RECORD NO.	