

An aerial photograph of a rural area with several large lakes. A white circle with an arrow points to a location on Victoria Br, labeled 'PROJECT LOCATION'. Other labeled features include Lake Zumbra, Steiger Lake, Lake Auburn, Lakeview, and roads such as Victoria Br, Arboretum Blvd, and Anger-Mueller Memorial Hwy. A road marker '11' is also visible.

<p style="text-align: center;">EXISTING UTILITIES</p> <p>THE LOCATION OF UNDERGROUND FACILITIES AND/OR STRUCTURES AS SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORD AT THE TIME THE PLANS WERE PREPARED AND ARE NOT GUARANTEED TO BE COMPLETE OR CORRECT. THE SUBSURFACE UTILITY INFORMATION SHOWN IS UTILITY QUALITY LEVEL D, AS DETERMINED USING THE GUIDELINES OF "CJASCE 38-02 STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA." THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITIES 72 HOURS PRIOR TO CONSTRUCTION TO DETERMINE THE EXACT LOCATION OF ALL FACILITIES AND TO PROVIDE ADEQUATE PROTECTION OF SAID UTILITIES DURING THE COURSE OF WORK.</p>
<p style="text-align: center;">CONSTRUCTION NOTE</p> <p>CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO MAINTAIN OPERATION OF EXISTING UTILITIES THROUGHOUT THE DURATION OF THE PROJECT. IN THE EVENT THAT AN INTERRUPTION OF SERVICE IS UNAVOIDABLE IN ORDER TO COMPLETE THE WORK, CONTRACTOR SHALL PROVIDE ADEQUATE NOTIFICATION TO ALL AFFECTED BUSINESSES A MINIMUM OF 3 WORKING DAYS IN ADVANCE OF ANY INTERRUPTION.</p>
<p style="text-align: center;">GOPHER STATE ONE-CALL</p> <p>IT IS THE LAW THAT ANYONE EXCAVATING AT ANY SITE MUST NOTIFY GOPHER STATE ONE CALL (GSOC) SO THAT UNDERGROUND ELECTRIC, NATURAL GAS, TELEPHONE OR OTHER UTILITY LINES CAN BE MARKED ON OR NEAR YOUR PROPERTY BEFORE ANY DIGGING BEGINS. A 48-HOUR NOTICE, NOT INCLUDING WEEKENDS, IS REQUIRED. CALLS CAN BE MADE TO GSOC AT 1-800-252-1166 OR (651)454-0002, MONDAY THROUGH FRIDAY (EXCEPT HOLIDAYS) FROM 7 A.M. TO 5 P.M.</p>

LOCATION MAP

ANOKA

WRIGHT

PROJECT LOCATION

HENNEPIN

MCLEOD

CARVER

SCOTT

SIBLEY

N

NO SCALE

Sheet List Table	
Sheet Number	Sheet Title
01	TITLE SHEET
02	SEQ & NOTES
03	SITE OVERVIEW
04	SOIL BORING LOGS & PLAN
05	EXISTING CONDITIONS & REMOVALS PLAN
06	TREE PROTECTION AND CLEARING & GRUBBING PLAN
07	SITE PLAN
08	TRAILER PARKING GRADING PLAN
09	BOAT LANDING GRADING PLAN
10	DRAINAGE & UTILITIES PLAN
11	STORMWATER MANAGMENT PLAN
12	EROSION & SEDIMENT CONTROL PLAN
13	PLANTING PLAN
14	DETAILED PLANTING PLAN
15	SIGNAGE - STRIPING & SITE FURNITURE PLAN
16	EROSION CONTROL DETAILS - 1
17	CIVIL DETAILS - 1
18	CIVIL DETAILS - 2
19	CIVIL DETAILS - 3
20	CIVIL DETAILS - 4
21	CIVIL DETAILS - 5
22	CIVIL DETAILS - 6
23	LANDSCAPE DETAILS - 1

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION
"STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO MINNESOTA
MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING FIELD MANUAL FOR
TEMPORARY CONTROL ZONE LAYOUTS.

CLIENT
THREE RIVERS PARK DISTRICT
3000 XENIUM LANE NORTH
PLYMOUTH, MN 55441

ENGINEER
EMMONS & OLIVIER RESOURCES, INC.
1919 UNIVERSITY AVE S SUITE 300
ST PAUL MINNESOTA 55104
TELEPHONE: (651) 770-8448
FAX: (651) 770-2552
eorinc.com

6	11/11/2024	DEM	FINAL DESIGN PLANS
5	07/09/2024	DEM	FINAL DESIGN PLANS - INTERNAL REVIEW
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NO	DATE	BY	REVISION



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT
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.

Daniel E. Moising

DANIEL E. MOSSING
DATE: 11/11/2024
LICENSE # 57796

SUBMISSION DATE: 11/11/2024		
DESIGN BY EOR	DRAWN BY DEM	CHECKED BY KDB
EOR PROJECT NO. 1075-0031		



LAKE AUBURN BOAT LAUNCH

LAKETOWN TOWNSHIP, CARVER COUNTY, MINNESOTA

TITLE SHEET
SHEET 01 OF 23 SHEETS

1. VERIFY HORIZONTAL LOCATION AND ELEVATION WHERE A CONNECTION TO EXISTING PAVEMENT, STRUCTURE, PIPE OR OTHER SITE FEATURE IS TO BE MADE. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM THE PLANS.
2. TOPOGRAPHIC SURVEY CONDUCTED NOVEMBER 21, 2019 BY EOR, INC. SURVEYED COMPLETED IN CARVER COUNTY COORDINATES, US FEET AND NAVD88 VERTICAL DATUM.
3. A CONSTRUCTION STAGING PLAN SHALL BE PREPARED AND SUBMITTED BY THE CONTRACTOR FOR REVIEW BY THE PROJECT ENGINEER, AND PARK DISTRICT FOR ANY DELIVERY & TEMPORARY STORAGE OF MATERIALS. CONTRACTOR SHALL ALSO SUBMIT FOR APPROVAL A CONSTRUCTION PHASING AND SCHEDULE OUTLINE. CONTRACTOR SHALL COORDINATE ANY DEWATERING, COFFER DAMS, DIVERSION DAMS, ETC. WITH ENGINEER AND PARK OFFICIALS.
6. ALL CONSTRUCTION WORK SHALL BE COMPLETED WITHIN PARK DISTRICT APPROVED WORKING HOURS.
7. PROPOSED WORK MUST BE IN COMPLIANCE WITH ANY AND ALL MUNICIPAL, COUNTY, STATE AND PARK RULES. CONTRACTOR IS EXPECTED TO OBTAIN ANY REQUIRED PERMITS BEYOND DNR PUBLIC WATERS, MCWD AND CARVER COUNTY PERMITS.
8. CONTRACTOR SHALL COORDINATE AND SCHEDULE A PRECONSTRUCTION MEETING WITH PARK DISTRICT STAFF PRIOR TO ANY MOBILIZATION OF CONSTRUCTION EQUIPMENT OR MATERIAL.
9. REFERENCE TO MN/DOT SPECIFICATIONS SHALL MEAN THE 2020 SPECIFICATIONS FOR CONSTRUCTION.
10. ALWAYS VERIFY BENCHMARK ELEVATIONS BETWEEN TWO BENCHMARKS.

1. ALL VEGETATION REMOVAL INCLUDING CATTAILS, SOD, WINDFALL/DEADFALL, TREES, AND/OR BRUSH REMOVAL SHALL BE CONSIDERED INCIDENTAL TO CLEARING AND GRUBBING. ALL MATERIAL REMOVED AS PART OF THE CLEARING AND GRUBBING SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
2. ALL UNUSED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER.

1. STORM SEWER CONSTRUCTION IS IN ACCORDANCE WITH MNDOT 2501-2511 SPECIFICATIONS.
2. STORM SEWER TYPE AND SIZE SHALL BE AS SPECIFIED IN THE PLANS.
3. STORM SEWER SHALL BE AS SHOWN OR APPROVED EQUAL.
4. PIPE LENGTHS ON THE PLAN DO NOT INCLUDE THE APRON SECTION.
5. UTILITY TRENCHES SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698.78 OR AASHTO T-99) FROM THE PIPE ZONE TO THE GROUND SURFACE.

1. CONTRACTOR SHALL INSPECT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS RELATING TO THE NATURE AND SCOPE OF WORK.
2. CONTRACTOR SHALL VERIFY PLANT LAYOUT AND BRING TO THE ATTENTION OF THE ENGINEER DISCREPANCIES WHICH MAY COMPROMISE THE DESIGN OR INTENT OF THE LAYOUT.
3. CONTRACTOR SHALL ASSURE COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS GOVERNING THE WORK AND MATERIALS SUPPLIED.
4. CONTRACTOR SHALL PROTECT EXISTING ROADS, CURBS/GUTTERS, TRAILS, TREES, UTILITIES AND SITE ELEMENTS DURING CONSTRUCTION OPERATIONS. DAMAGE TO SAME SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL REVIEW THE SITE FOR DEFICIENCIES IN SITE CONDITIONS WHICH MIGHT NEGATIVELY AFFECT PLANT ESTABLISHMENT, SURVIVAL OR WARRANTY. UNDESIRABLE SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BEGINNING OF WORK.
6. CONTRACTOR IS RESPONSIBLE FOR ONGOING MAINTENANCE OF NEWLY INSTALLED MATERIALS THROUGHOUT THE LENGTH OF THE PROJECT. REPAIR OF ACTS OF VANDALISM OR DAMAGE WHICH MAY OCCUR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. EXISTING TREES OR SIGNIFICANT SHRUB MASSINGS FOUND ON SITE SHALL BE PROTECTED AND SAVED UNLESS NOTED TO BE REMOVED OR ARE LOCATED IN AN AREA TO BE GRADED. QUESTIONS REGARDING EXISTING PLANT MATERIAL SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO REMOVAL. CONTRACTOR SHALL WALK THE SITE WITH THE ENGINEER AND PARK DISTRICT PRIOR TO SITE REMOVALS AND GRADING TO DETERMINE EXACT CONSTRUCTION LIMITS.

1. CONTRACTOR TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING ANY CONSTRUCTION BY CALLING GOPHER STATE ONE CALL AT 1-800-252-1166.
2. CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AND TOPOGRAPHIC FEATURES PRIOR TO START OF SITE GRADING. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER OF ANY DISCREPANCIES OR VARIATIONS.
3. ENGINEER SHALL PROVIDE VERTICAL CONTROL BENCHMARK AND CONTRACTOR SHALL PROTECT BENCHMARKS. ADDITIONAL BENCHMARKS WILL BE SET AT CONTRACTORS EXPENSE.
4. ACCEPTANCE OF INSTALLED PERIMETER EROSION CONTROL AND CONSTRUCTION ENTRANCE MUST BE MADE BEFORE BEGINNING SITE GRADING ACTIVITIES. SOME TEMPORARY EROSION CONTROL MEASURES MAY BE INSTALLED AS GRADING OCCURS IN THE SPECIFIC AREA. MAINTAIN EROSION CONTROLS THROUGHOUT THE GRADING PROCESS AND REMOVE UPON APPROVAL OF ENGINEER.
5. CONTRACTOR TO ADHERE TO ALL REQUIREMENTS OF PARK DISTRICT, WATERSHED DISTRICT, STATE PERMITS AND NPDES PERMIT.
6. ALL EXPOSED SOIL AREAS WITHIN 100 FEET OF A WATER OF THE STATE OR ANY STORMWATER CONVEYANCE SYSTEM WHICH IS CONNECTED TO A WATER OF THE STATE MUST BE STABILIZED WITHIN 24 HOURS.
7. ALL CONSTRUCTION ENTRANCES SHALL BE SURFACED WITH CRUSHED ROCK (OR APPROVED EQUAL) ACROSS FULL WIDTH FROM ENTRANCE POINT INTO THE CONSTRUCTION ZONE.
8. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PARK DISTRICT, WATERSHED, AND STATE PERMITS.

A. SEE CONTRACT DOCUMENTS FOR INCLUSIONS, INCLUDING BUT NOT LIMITED TO MEASUREMENT & PAYMENT.

B. ALL QUANTITIES ARE PLAN (P) QUANTITIES.


1. MINNESOTA DEPARTMENT OF NATURAL RESOURCES, PUBLIC WATER WORK.
 - A. CONTRACTOR SHALL ADHERE TO ALL PERMIT REQUIREMENTS AND WILL BE SUBJECTED TO ALL PENALTIES AND FINES FOR NOT ABIDING BY THE PERMIT REQUIREMENTS.
2. MINNESOTA DEPARTMENT OF NATURAL RESOURCES, DEWATERING
 - A. CONTRACTOR SHALL ADHERE TO ALL PERMIT REQUIREMENTS AND WILL BE SUBJECTED TO ALL PENALTIES AND FINES FOR NOT ABIDING BY THE PERMIT REQUIREMENTS.
 - B. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER APPROPRIATION PERMIT.
 - C. CONTRACTOR SHALL PREPARE A DEWATERING PLAN AND IMPLEMENTING EROSION AND SEDIMENT CONTROL MEASURES AS PART OF THE DEWATERING OPERATION.
 - D. ANY COST INCURRED FOR OBTAINING THE PERMIT SHALL BE INCIDENTAL TO DEWATERING.
3. MINNEHAHA CREEK WATERSHED DISTRICT PERMITS
 - A. CONTRACTOR SHALL ADHERE TO ALL PERMIT REQUIREMENTS AND WILL BE SUBJECTED TO ALL PENALTIES AND FINES FOR NOT ABIDING BY THE PERMIT REQUIREMENTS.
4. MINNESOTA POLLUTION CONTROL AGENCY, NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
 - A. CONTRACTOR SHALL ADHERE TO ALL PERMIT REQUIREMENTS AND WILL BE SUBJECTED TO ALL PENALTIES AND FINES FOR NOT ABIDING BY THE PERMIT REQUIREMENTS.

ITEM #	BASE BID ITEM	UNIT	QUANTITY
1	Mobilization	LS	1
2	Clearing	ACRE	1.6
3	Grubbing	ACRE	1.6
4	Remove and Salvage Sign (To be reinstalled by Owner)	EA	3
5	Salvage and Reinstall Boat Launch Pier	EA	1
6	Remove Gravel Parking Area	SY	1840
7	Remove Boat Launch (Concrete)	CY	6
8	Common Excavation (Cut: 8000 CY, Fill: 600 CY)	CY	8000
9	Select Topsoil Borrow (80% Sand, 20% Peat Mix)	CY	160
10	Washed Sand	CY	90
11	Aggregate Base, Class 5 (100% crushed)	TON	1952
12	Aggregate Surfacing - Crushed Limestone	TON	10
13	Concrete Curb & Gutter, Design D412	LF	763
14	Concrete Ribbon Curb	LF	1143
15	6" Concrete Valley Gutter	LF	37
16	Type SP Wearing Course Mixture (2")	TON	420
17	Type SP Non-Wearing Course Mixture (2")	TON	420
18	Sidewalk Concrete - 4"	SF	3098
19	Parking Lot Concrete - 7"	SF	1306
20	Perforated Drain Tile, HDPE 6"	LF	234
21	12" Pipe Sewer HDPE	LF	56
22	Construct Drainage Structure, Storm Sewer Catch Basin	EA	2
23	Sidewalk Trench Drain	EA	2
24	Install HDPE Pipe Cleanout	EA	4
25	Install Rodent Guard	EA	2
26	Install Boat Launch (5'x12' Concrete Planks from MNDNR)	LS	1
27	Random Riprap, Class II	CY	23
28	Perennial - 4" Cont.	EA	2777
29	Clean Root Cutting	LF	590
30	Floatation Silt Curtain	LF	315
31	9" Sediment Control Log Type Wood	LF	510
32	12" Sediment Control Log Type Wood	LF	160
33	Silt Fence, Type MS	LF	1055
34	Rolled Erosion Prevention Category 25 (Biodegradable Natural Fiber Net)	SY	4035
35	Rolled Erosion Prevention Category 35 (Biodegradable Natural Fiber Net)	SY	260
36	GEOCOIR®/DeKoWe® 400 (Biodegradable Natural Netting)	SY	300
37	Seeding	ACRE	0.9
38	Seed, Mixture 33-261 (35 LB/AC) Includes Cover Crop Weight	LB	4
39	Seed, Mixture 35-241 (36.5 LB/AC) Includes Cover Crop Weight	LB	26
40	Seed, Mixture 25-131 (220 LB/AC) Includes Cover Crop Weight	LB	9
41	Striping	LF	1442
42	Bench	EA	1
43	Table	EA	1
44	Sign	LS	1
45	Fish Sticks	EA	5
46	Detectable Warning	LS	1
47	Boulders	EA	25
48	Tree Protection Fence	LF	610
49	Traffic Control	EA	1
50	Wood Mulch	CY	3
51	3rd Party Field Testing	LS	1

ITEM #	ADD ALTERNATE ITEM	UNIT	QUANTITY
A1	Extended Vegetation Establishment - Year 2	LS	1
A2	Extended Vegetation Establishment - Year 3	LS	1



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DANIEL E. MOSSING
DATE: 11/11/2024
LICENSE # 57796

SUBMISSION DATE: 11/11/2024		
DESIGN BY EOR	DRAWN BY DEM	CHECKED BY KDB
EOR PROJECT NO. 1075-0031		

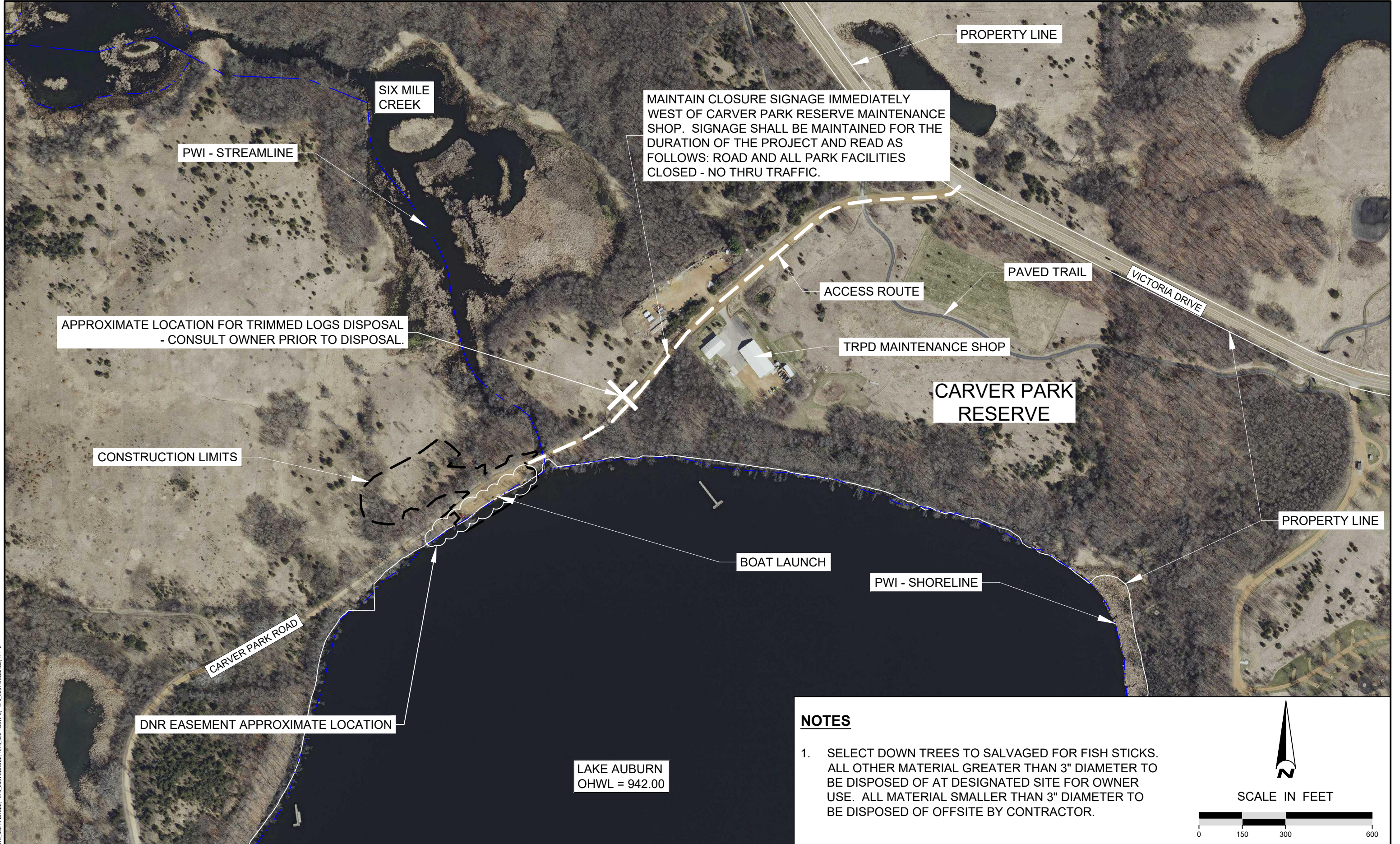


LAKE AUBURN BOAT LAUNCH

LAKETOWN TOWNSHIP, CARVER COUNTY, MINNESOTA

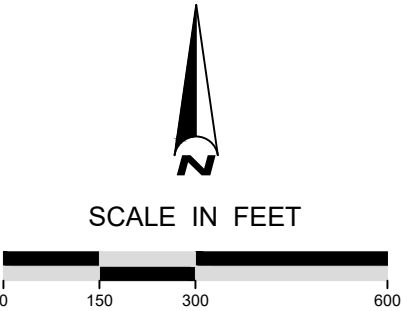
SEQ & NOTES

SHEET 02 OF 23 SHEETS



NOTES

1. SELECT DOWN TREES TO SALVAGED FOR FISH STICKS. ALL OTHER MATERIAL GREATER THAN 3" DIAMETER TO BE DISPOSED OF AT DESIGNATED SITE FOR OWNER USE. ALL MATERIAL SMALLER THAN 3" DIAMETER TO BE DISPOSED OF OFFSITE BY CONTRACTOR.



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Daniel E. Mossing
DANIEL E. MOSSING
DATE: 11/11/2024 LICENSE # 57796

SUBMISSION DATE:
11/11/2024

DESIGN BY: DRAWN BY: CHECKED BY:
EOR DEM KDB

EOR PROJECT NO.
1075-0031

EOR Emmons & Olivier
Resources, Inc.
1919 Univ Ave S #300
St Paul, MN 55104
Tele: 651.770.8448
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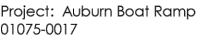


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LAKETOWN TOWNSHIP, CARVER COUNTY,
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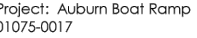
STATE PROJECT NO. --- CITY PROJECT NO. ###

SITE OVERVIEW

SHEET 03 OF 23 SHEETS



Boring Number: SB-1 Date: 11/21/19

[illegible]

Boring Number: SB-3 Date: 11/21/19

Soil Boring Log		Instrument	Units:	Sample no., type, interval
Depth (ft)				
0	Dark brown silty CLAY. Topsoil			
1				
2				
3	Brown silty CLAY (Till)			
	Mottles at 3 ft. (Seasonally high water table)			
4	End of boring			
Drill type: Hand auger Logged by: SEG				

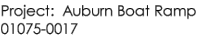


Boring Number: SB-5 Date: 11/21/19

[illegible]

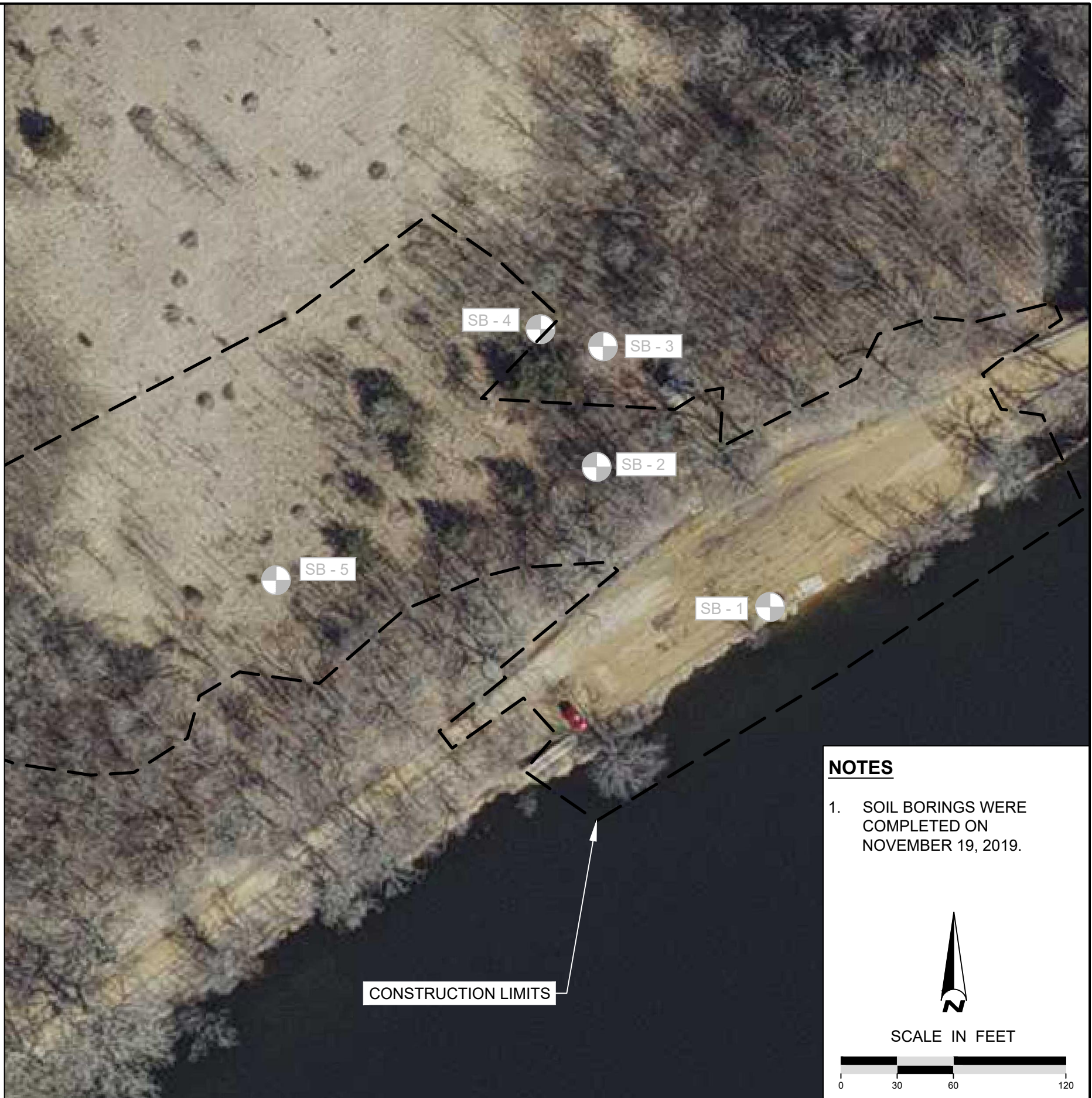
Boring Number: SB-2 Date: 11/21/19

Soil Boring Log		Instrument	Units	Sample no., type, interval
Depth (ft)				
0	Dark brown clay LOAM. Topsoil.			
1				
2	Brown silty CLAY, Some sand. Till.			
3				
4				
	End of boring			
Drill type: Hand auger		Logged by: SEG		



Boring Number: SB-4 Date: 11/21/19

Soil Boring Log		Instrument	Units:	Sample no., type, interval
Depth (ft)				
	Dark brown silty CLAY. Topsoil			
1				
2				
3	Brown silty CLAY (Till)			
	Mottles at 3 ft. (Seasonally high water table)			
4	End of boring			
Drill type: Hand auger Logged by: SEG				

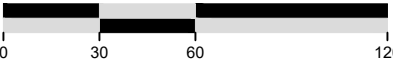


NOTES

1. SOIL BORINGS WERE COMPLETED ON NOVEMBER 19, 2019.



SCALE IN FEET



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Paul Morris

LICENSE # 57796

SUBMISSION DATE:
11/11/2024

DESIGN BY EOR DRAWN BY DEM CHECKED BY KDB

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STATE PROJECT NO. ---

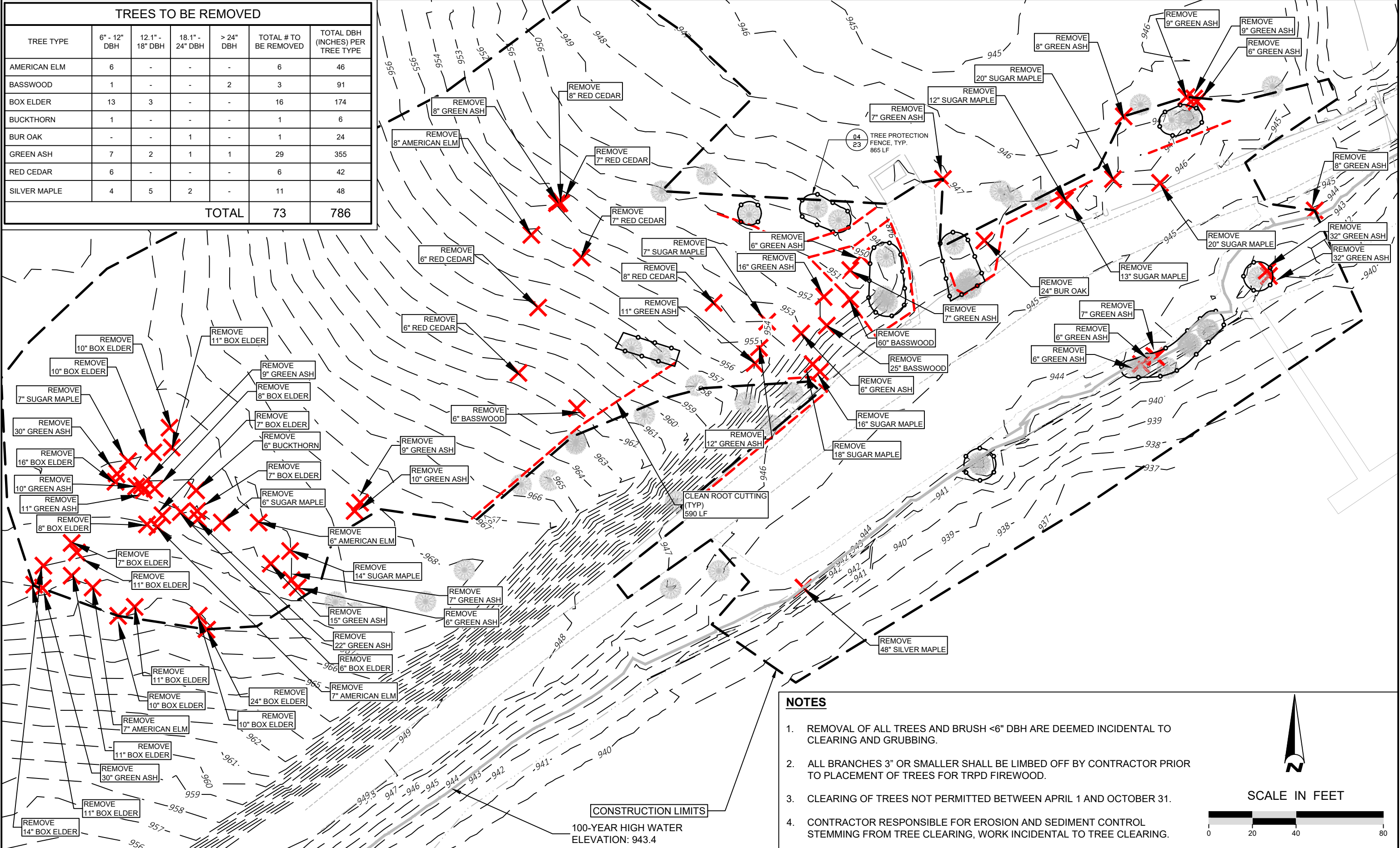
CITY PROJECT NO. ###

SOIL BORING LOGS & PLAN

SHEET 04 OF 23 SHEETS

Plot Date: 11/11/2024
Drawing name: X:\Clients_State\01075_Three Rivers_Park_District\0031_Lake Auburn-Final_Design\09_GMSdwg\1075_0031-CD.dwg
Xrefs: 1075_0031-XBASE2 1075_0031-PBASE2 1075_0031-LBASE2 1075_0031-SURF2 1075_0031-SUBRA S2 TDE 2

TREES TO BE REMOVED						
TREE TYPE	6" - 12" DBH	12.1" - 18" DBH	18.1" - 24" DBH	> 24" DBH	TOTAL # TO BE REMOVED	TOTAL DBH (INCHES) PER TREE TYPE
AMERICAN ELM	6	-	-	-	6	46
BASSWOOD	1	-	-	2	3	91
BOX ELDER	13	3	-	-	16	174
BUCKTHORN	1	-	-	-	1	6
BUR OAK	-	-	1	-	1	24
GREEN ASH	7	2	1	1	29	355
RED CEDAR	6	-	-	-	6	42
SILVER MAPLE	4	5	2	-	11	48
TOTAL					73	786

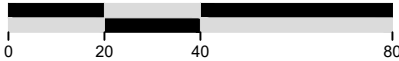


NOTES

- 1. REMOVAL OF ALL TREES AND BRUSH <6" DBH ARE DEEMED INCIDENTAL TO CLEARING AND GRUBBING.
- 2. ALL BRANCHES 3" OR SMALLER SHALL BE LIMBED OFF BY CONTRACTOR PRIOR TO PLACEMENT OF TREES FOR TRPD FIREWOOD.
- 3. CLEARING OF TREES NOT PERMITTED BETWEEN APRIL 1 AND OCTOBER 31.
- 4. CONTRACTOR RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL STEMMING FROM TREE CLEARING, WORK INCIDENTAL TO TREE CLEARING.



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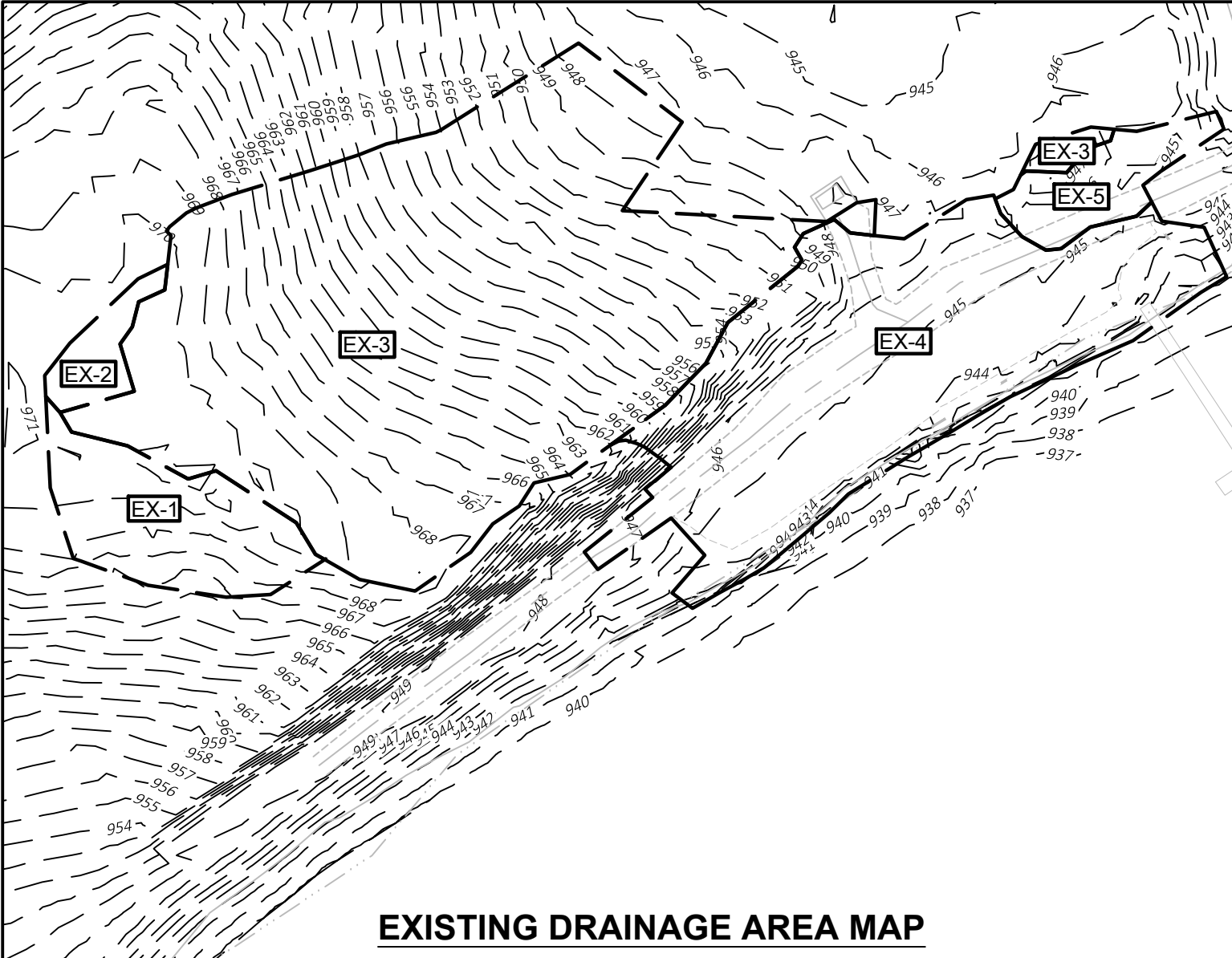


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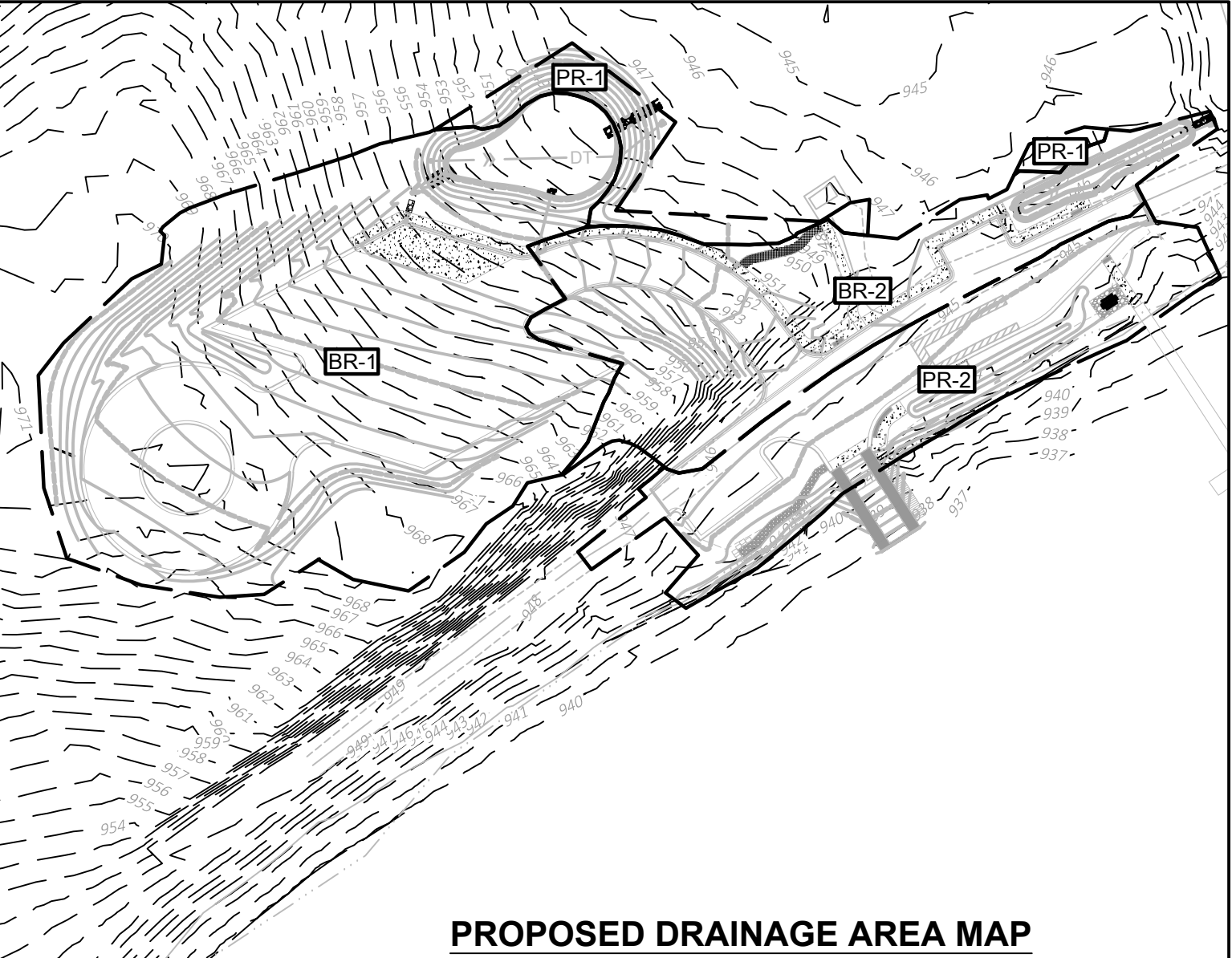
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TREE PROTECTION AND
CLEARING & GRUBBING
PLAN

SHEET 06 OF 23 SHEETS



EXISTING DRAINAGE AREA MAP



PROPOSED DRAINAGE AREA MAP

STORMWATER TABLE

Basin	Drainage Area (SF)	Ex. Impervious (SF)	Pr. Impervious (SF)	New Impervious (SF)	1" Treatment Storage Volume Required (CF)	BMP Actual Storage Volume (CF)	WQ Volume for Filtration (CF)
BR-1	54,546	0	25,812	25,812	2,151	5,378	2,689
BR-2	22,945	4,828	9,957	5,129	427	870	435
PR-1	4,862	204	28	-176	No SWM required	No SWM required	No SWM required
PR-2	18,550	12,731	10,132	-2,599	No SWM required	No SWM required	No SWM required

Existing (sf):

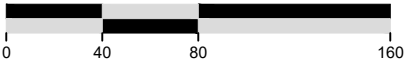
	EX-1	EX-2	EX-3	EX-4	EX-5	Total
Woods (sqft)	6,843	-	28,557	13,076	2,727	51,203
Grassland (sqft)	932	1,922	29,079			31,934
Gravel Road (sqft)	-	-	204	16,667	895	17,766
Paved Parking (sqft)	-	-	-	-	-	-
Total	7,776	1,922	57,840	29,743	3,622	100,903

Proposed (sf):

	BR-1	BR-2	PR-1	PR-2	Total
Woods (sqft)	11,504	12,988	3,410	8,418	36,319
Grassland (sqft)	17,231	-	1,424	-	18,656
Gravel Road (sqft)	-	-	-	650	650
Paved Parking (sqft)	25,812	9,957	28	9,482	45,278
Total	54,546	22,945	4,862	18,550	100,903



SCALE IN FEET



Plot Date: 11/11/2024
Drawn By: Daniel E. Mossing
Checked By: Daniel E. Mossing
Scale: 1"=40'
File Path: C:\Users\Daniel\OneDrive\Documents\Lake Auburn Boat Launch\Stormwater Management Plan\Sheet 11 of 23.dwg
Title: STORMWATER MANAGEMENT PLAN - LAKETOWN TOWNSHIP, CARVER COUNTY, MINNESOTA

6	11/11/2024	DEM	FINAL DESIGN PLANS
5	07/09/2024	DEM	FINAL DESIGN PLANS - INTERNAL REVIEW
4	04/22/2024	DEM	DRAFT 90% PLANS
3	03/10/2023	DEM	DRAFT 60% PLANS
2	12/23/2022	DEM	DRAFT 60% PLANS - CLIENT REVIEW
1	12/05/2022	DEM	DRAFT 60% PLANS - INTERNAL REVIEW
NO	DATE	BY	REVISION



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

Daniel E. Mossing
DANIEL E. MOSSING
DATE: 11/11/2024 LICENSE # 57796

SUBMISSION DATE: 11/11/2024
DESIGN BY: DRAWN BY: CHECKED BY: EOR DEM KDB
EOR PROJECT NO. 1075-0031

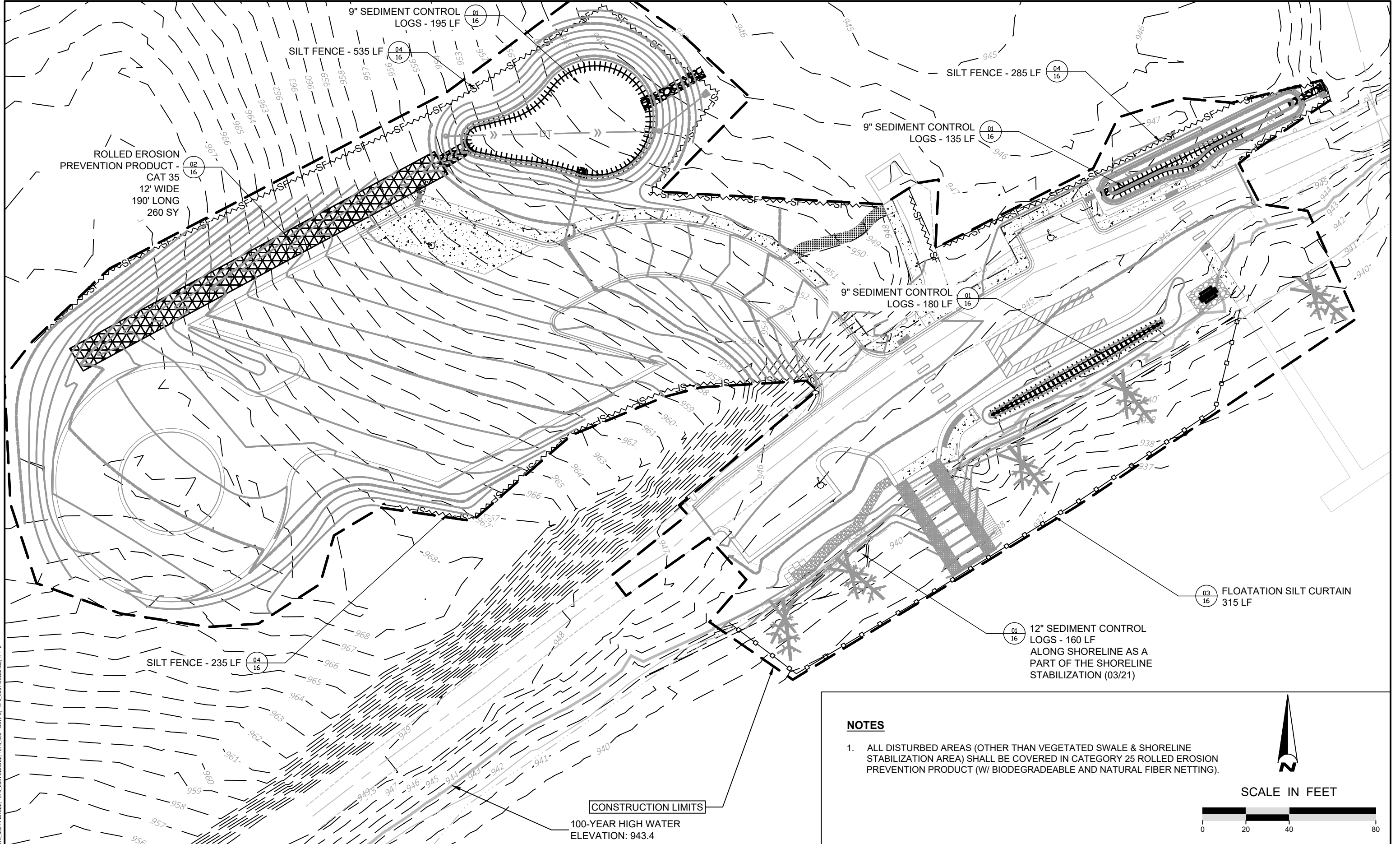


**Emmons & Olivier
Resources, Inc.**
1919 Univ Ave S #300
St Paul, MN 55104
Tele: 651.770.8448
www.eorinc.com



LAKE AUBURN BOAT LAUNCH
LAKETOWN TOWNSHIP, CARVER COUNTY,
MINNESOTA

STATE PROJECT NO. --- CITY PROJECT NO. ###

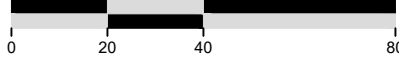


NOTES

1. ALL DISTURBED AREAS (OTHER THAN VEGETATED SWALE & SHORELINE STABILIZATION AREA) SHALL BE COVERED IN CATEGORY 25 ROLLED EROSION PREVENTION PRODUCT (W/ BIODEGRADABLE AND NATURAL FIBER NETTING).



SCALE IN FEET



6	11/11/2024	DEM	FINAL DESIGN PLANS
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NO	DATE	BY	REVISION



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Daniel E. Mossing

DANIEL E. MOSSING
DATE: 11/11/2024 LICENSE # 57796

SUBMISSION DATE:
11/11/2024

DESIGN BY: DRAWN BY: CHECKED BY:
EOR DEM KDB

EOR PROJECT NO.
1075-0031

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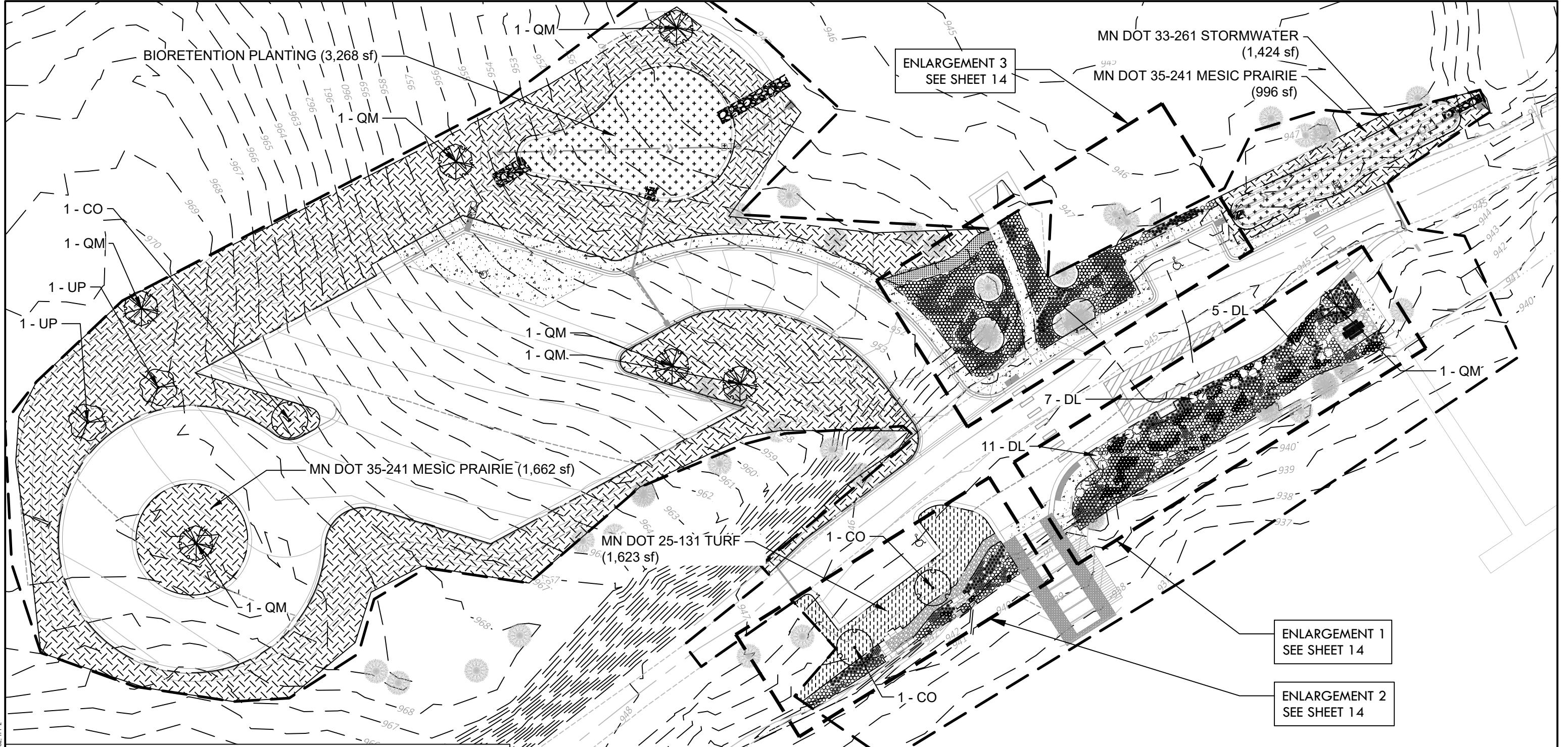


LAKE AUBURN BOAT LAUNCH
LAKETOWN TOWNSHIP, CARVER COUNTY,
MINNESOTA

STATE PROJECT NO. --- CITY PROJECT NO. ###

EROSION & SEDIMENT
CONTROL PLAN

SHEET 12 OF 23 SHEETS



PLANT SCHEDULE (ALL TREES & SHRUBS BY OWNER)

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	QTY
DECIDUOUS TREES					
	CO	Celtis occidentalis / Common Hackberry	10 gal.	Cont.	3
	QM	Quercus macrocarpa / Burr Oak	10 gal.	Cont.	7
	UP	Ulmus americana 'Princeton' / Princeton American Elm	10 gal.	Cont.	2
SHRUBS					
	DL	Diervilla lonicera / Dwarf Bush Honeysuckle	5 gal.	Cont	23

SEEDING AND PLUG SCHEDULE

	MN DOT 33-261 STORMWATER	4,692 sf
	MN DOT 35-241 MESIC PRAIRIE	29,294 sf
	MN DOT 25-131 TURF	1,623 sf

NOTES

1. ALL DISTURBED AREAS SHALL BE COVERED IN CATEGORY 25 ROLLED EROSION PREVENTION PRODUCT (W/ BIODEGRADABLE NETTING AND NATURAL FIBER NETTING).



SCALE IN FEET



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Daniel E. Mossing
DANIEL E. MOSSING
DATE: 11/11/2024 LICENSE # 57796

SUBMISSION DATE: 11/11/2024		
DESIGN BY	DRAWN BY	CHECKED BY
EOR	DEM	KDB
EOR PROJECT NO. 1075-0031		

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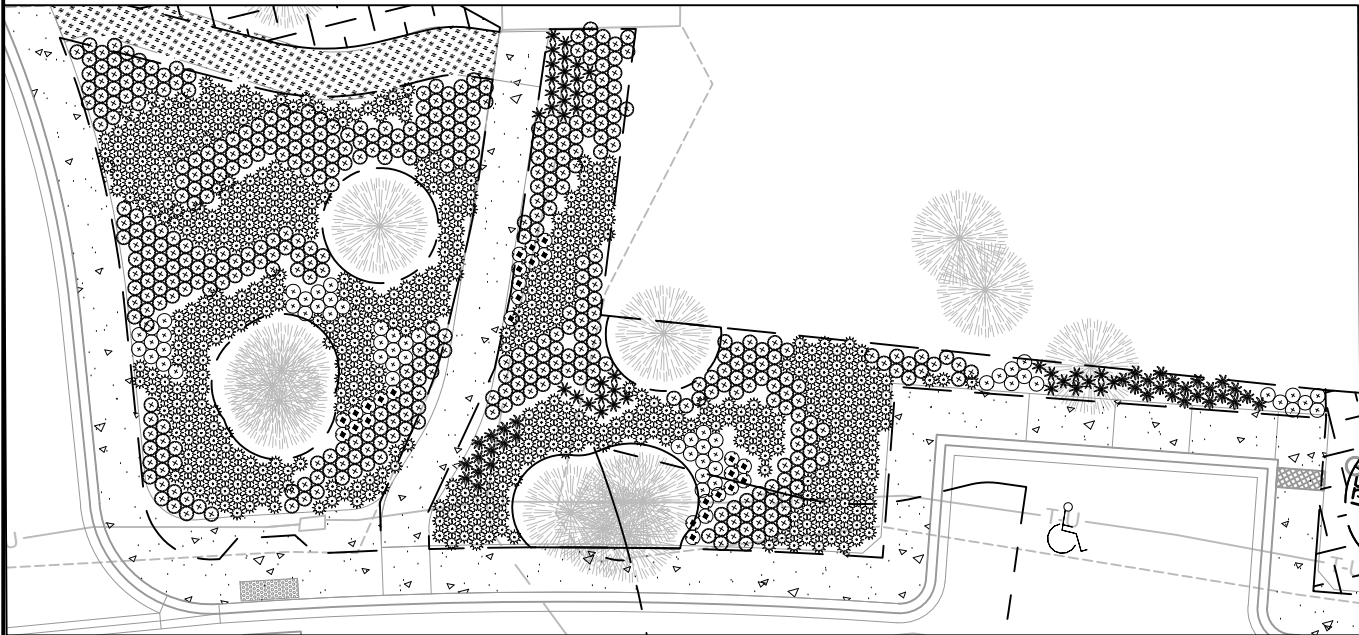
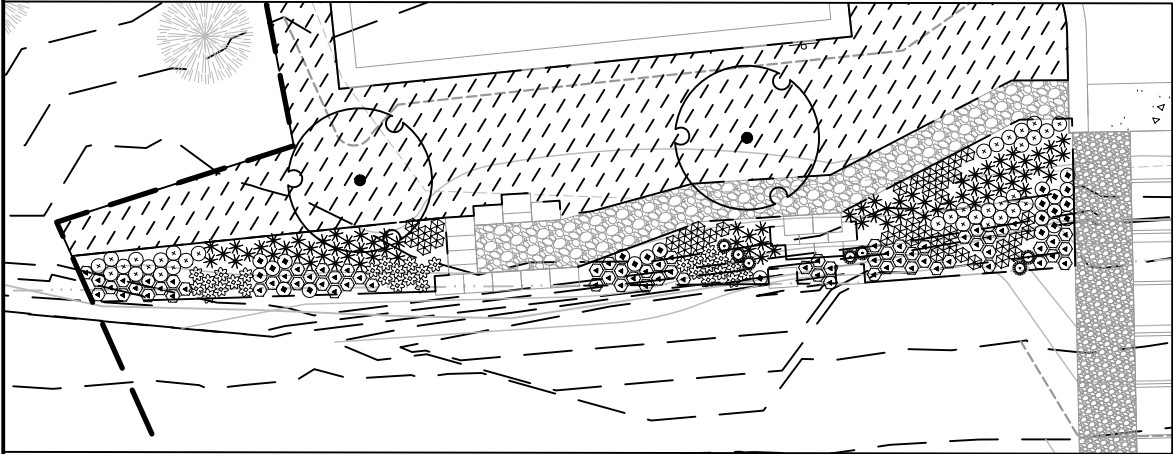
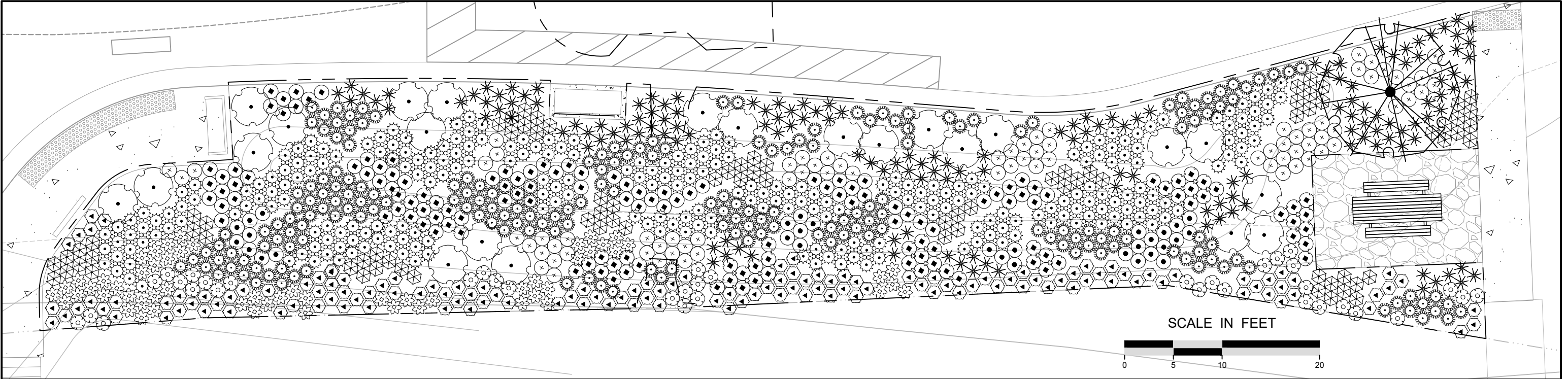
LAKE AUBURN BOAT LAUNCH
LAKETOWN TOWNSHIP, CARVER COUNTY,
MINNESOTA

STATE PROJECT NO. --- CITY PROJECT NO. ###

PLANTING PLAN

SHEET 13 OF 23 SHEETS

Plot Date: 11/11/2024
Drawn By: Daniel E. Mossing
Check By: KDB
Scale: 1"=40'
File: 1075-0031-LABASE2.dwg
Sheet: 13 of 23
Title: LAKE AUBURN BOAT LAUNCH
Project: LAKE AUBURN BOAT LAUNCH
Client: LAKE AUBURN BOAT LAUNCH
Date: 11/11/2024



PLUG_PLANTING_SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	QTY
PERENNIALS					
	AG2	Andropogon gerardii / Big Bluestem	4" Plug		272
	AI2	Asclepias incarnata / Swamp Milkweed	4" Plug		97
	BC3	Bouteloua curtipendula / Side Oats Grama	4" Plug		437
	CB2	Calamagrostis canadensis / Bluejoint Grass	4" Plug		209
	CV2	Carex vulpinoidea / Fox Sedge	4" Plug		213
	JE	Juncus effusus / Soft Rush	4" Plug		87
	LC	Lobelia cardinalis / Cardinal Flower	4" Plug		122
	PV4	Panicum virgatum / Switch Grass	4" Plug		237
	PV3	Physostegia virginiana / Obedient Plant	4" Plug		31
	SL3	Schizachyrium scoparium / Little Bluestem	4" Plug		549
	SA3	Scirpus atrovirens / Dark Green Bulrush	4" Plug		39
	SF	Solidago flexicaulis / Zigzag Goldenrod	4" Plug		38
	SN4	Sorghastrum nutans / Indian Grass	4" Plug		34
	SN3	Symphyotrichum novae-angliae / New England Aster	4" Plug		94
	ZA2	Zizia aurea / Golden Alexander	4" Plug		170

Plot Date: 11/11/2024
Drawn By: Daniel E. Mossing
Checked By: KDB
Scale: 1" = 10' (Main Plan)
Scale: 1" = 20' (Inset Plans)
File Path: S:\Projects\2024\Lake Auburn Boat Launch\Drawings\1075-0031-CD.dwg
Xref: 1075-0031-SubA.dwg, 1075-0031-SubB.dwg, 1075-0031-SubC.dwg, 1075-0031-SubD.dwg, 1075-0031-SubE.dwg, 1075-0031-SubF.dwg, 1075-0031-SubG.dwg, 1075-0031-SubH.dwg, 1075-0031-SubI.dwg, 1075-0031-SubJ.dwg, 1075-0031-SubK.dwg, 1075-0031-SubL.dwg, 1075-0031-SubM.dwg, 1075-0031-SubN.dwg, 1075-0031-SubO.dwg, 1075-0031-SubP.dwg, 1075-0031-SubQ.dwg, 1075-0031-SubR.dwg, 1075-0031-SubS.dwg, 1075-0031-SubT.dwg, 1075-0031-SubU.dwg, 1075-0031-SubV.dwg, 1075-0031-SubW.dwg, 1075-0031-SubX.dwg, 1075-0031-SubY.dwg, 1075-0031-SubZ.dwg

NO	DATE	BY	REVISION
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Daniel E. Mossing
DANIEL E. MOSSING
DATE: 11/11/2024
LICENSE # 57796

SUBMISSION DATE:
11/11/2024

DESIGN BY: DEM
DRAWN BY: DEM
CHECKED BY: KDB

EOR PROJECT NO.
1075-0031

EOR Emmons & Olivier
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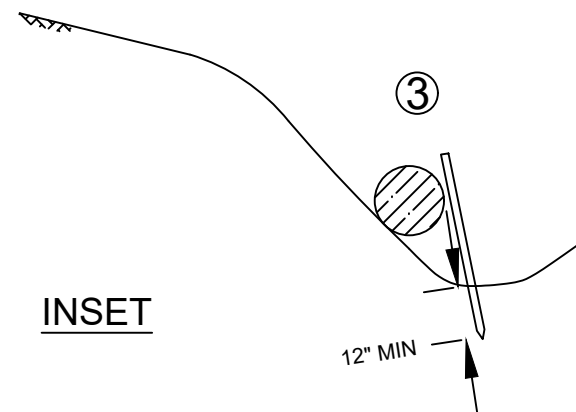


LAKE AUBURN BOAT LAUNCH
LAKETOWN TOWNSHIP, CARVER COUNTY,
MINNESOTA

STATE PROJECT NO. --- CITY PROJECT NO. ###

DETAILED PLANTING
PLAN

SHEET 14 OF 23 SHEETS

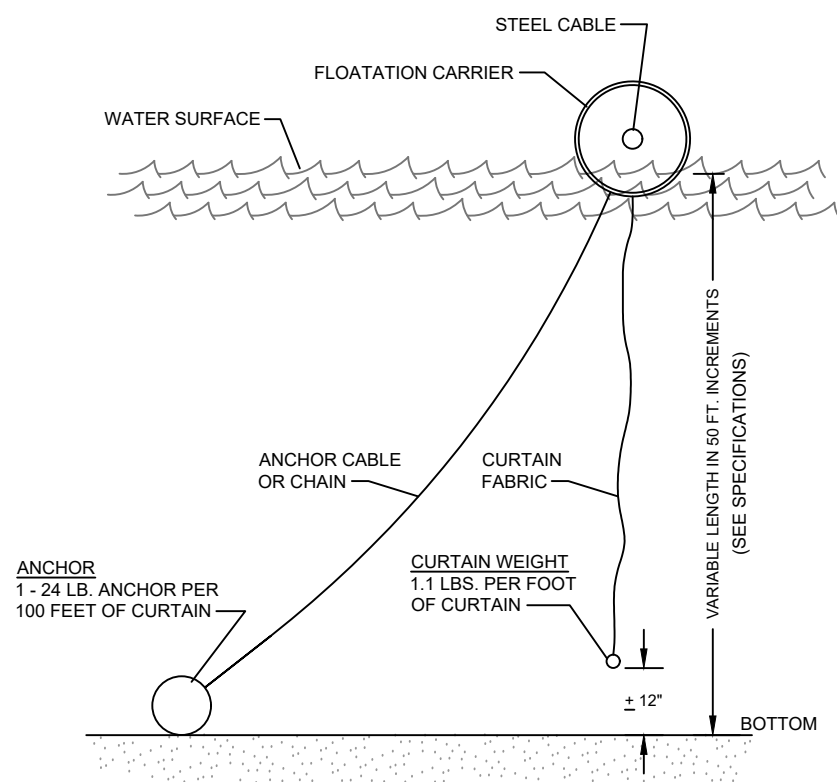


16 NOT TO SCALE

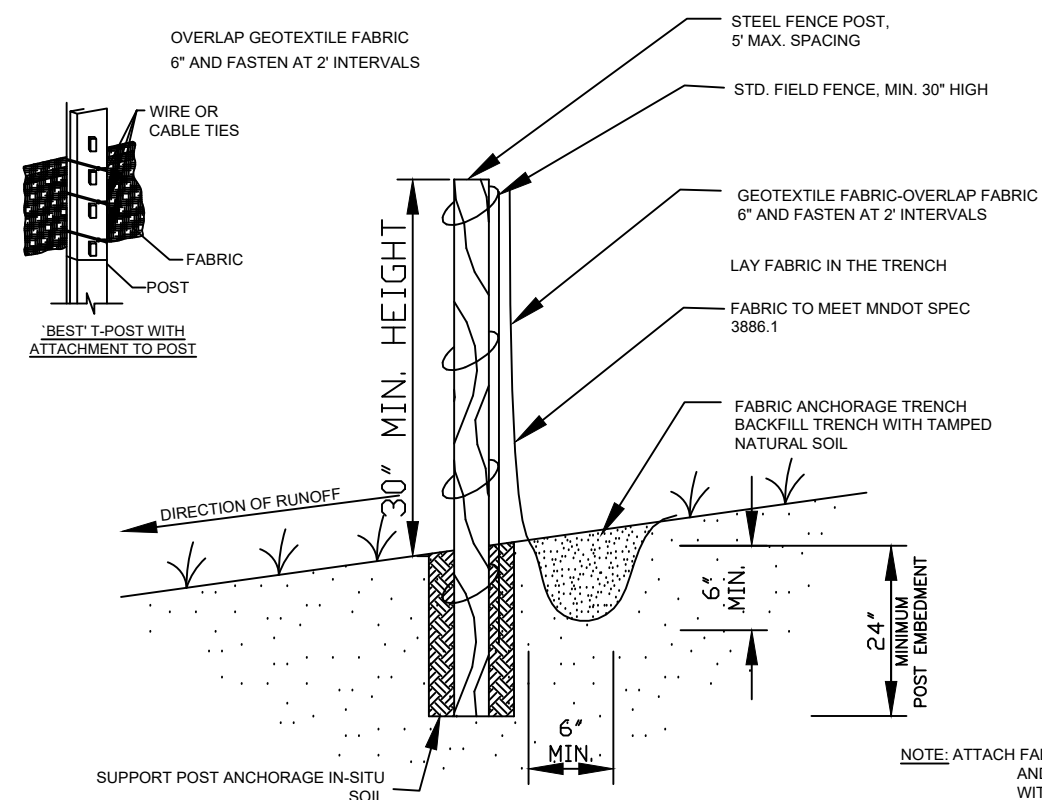
-
- The diagram illustrates the installation of a geotextile reinforcement system for a retaining wall. The main diagram shows a cross-section of a wall with a geotextile fabric installed in layers. A roll of fabric is shown being unrolled, with an arrow indicating the direction of installation. The fabric is secured by an 'Anchor Trench' at the top. The diagram also shows 'Edge Lap' and 'End Splice' details. Below the main diagram are three detailed views of the anchor trench and edge lap/splice connections.
- Anchor Trench Details:**
- ANCHOR TRENCH (12" min. anchor spacing):** Shows a cross-section of the trench with a width of 6" min. and a depth of 6" min. The fabric is embedded in the trench, and the area is filled with 'Compacted Soil Backfill'.
 - EDGE LAP (4'-0" min. anchor spacing):** Shows a cross-section of the edge lap with a width of 2" min.
 - END SPlice (18" min. anchor spacing):** Shows a cross-section of the end splice with a width of 3" min.

16 NOT TO SCALE

- | Max. slope | Min. anchors |
|------------|---------------------|
| ≤ 3:1 | 1.5/yd ² |
| 2:1 | 2/yd ² |
| 1:1 | 2.5/yd ² |



16 NOT TO SCALE



16 NOT TO SCALE

EOR
water
ecology
community

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Three Rivers
PARK DISTRICT

LAKE AUBURN BOAT LAUNCH
LAKETOWN TOWNSHIP, CARVER COUNTY,
MINNESOTA

STATE PROJECT NO. ---	CITY PROJECT NO. ###
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EROSION CONTROL DETAILS - 1

SHEET 16 OF 23 SHEETS



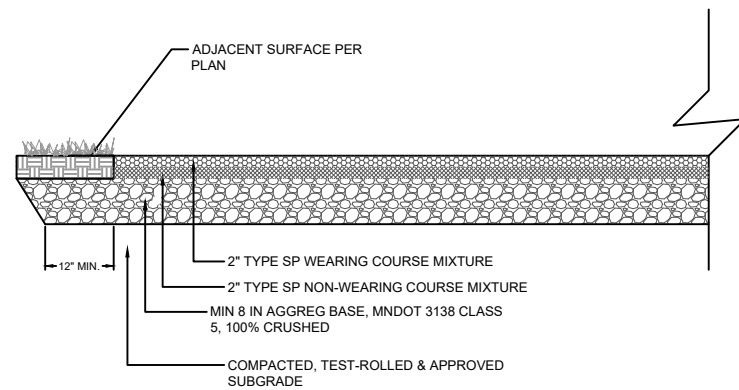
01 CONCRETE PAVEMENT

NOT TO SCALE



NOTES

1. CONTRACTOR SHALL VERIFY THAT THE COMPACTED SUBGRADE BELOW ASPHALT/CONCRETE DOES NOT HAVE TOPSOIL OR ORGANIC MATERIALS



02 ASPHALT PAVEMENT

17) NOT TO SCALE

NOTES

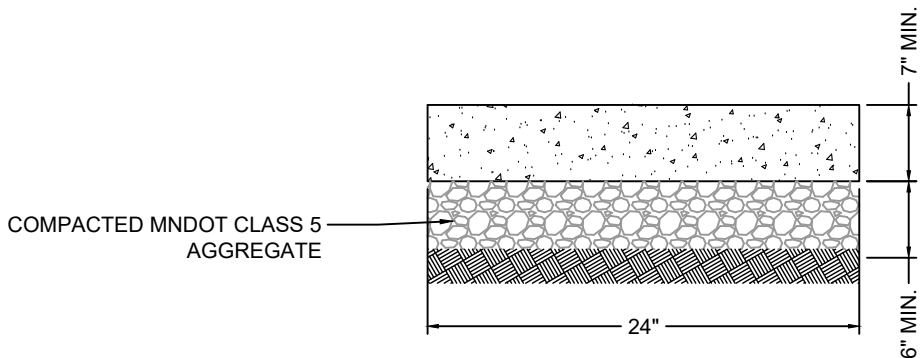
1. CONTRACTOR SHALL VERIFY THAT THE COMPACTED SUBGRADE BELOW ASPHALT/CONCRETE DOES NOT HAVE TOPSOIL OR ORGANIC MATERIALS



D	GUTTER WIDTH W	CONCRETE	
		CU. YDS. PER LIN. FT.	LIN. FT. PER CU. YD.
D412	12"	0.0494	20.2
D418	18"	0.0602	16.6
D424	24"	0.0710	14.1

NOTE:

- USE COMPACTED MNDOT CLASS 5 AGGREGATE AS BASE (6" MIN. DEPTH)



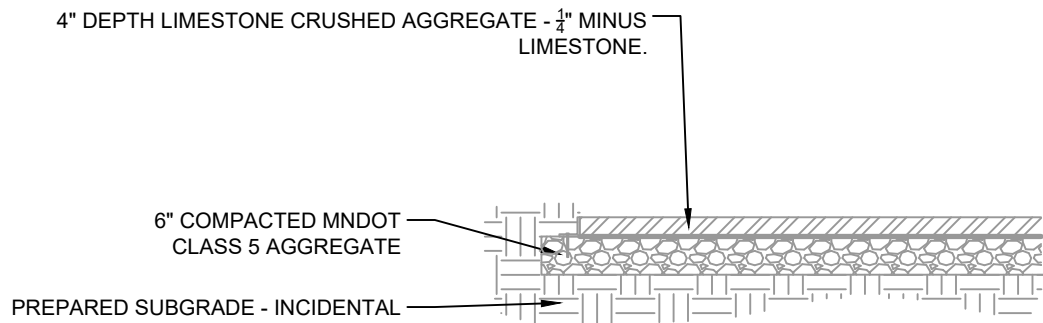
RIBBON CURE

03 D412 CURB AND GUTTER

NOT TO SCALE

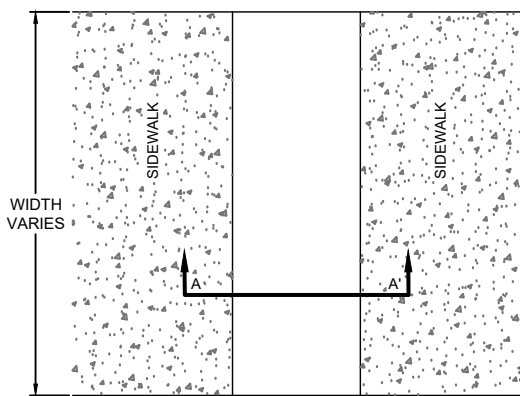


17) NOT TO SCALE

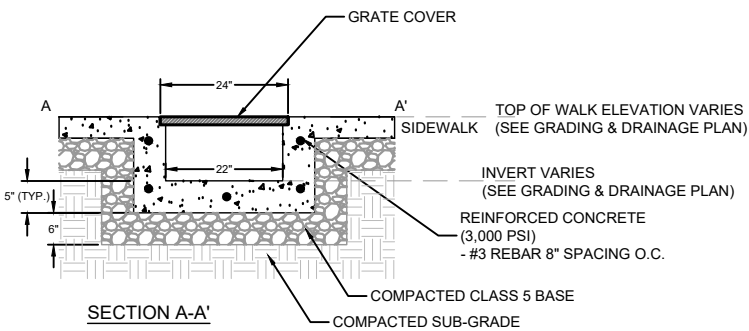


05 AGGREGATE SURFACING

NOT TO SCALE



SECTION A-A



06 SIDEWALK TRENCH DRAIN

17 / NOT TO SCALE

6	11/11/2024	DEM	FINAL DESIGN PLANS
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NO	DATE	BY	REVISION



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THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER
THE LAWS OF THE STATE OF MINNESOTA.

Paul M...

LICENSE # 57796

SUBMISSION DATE:
11/11/2024

DESIGN BY DRAWN BY CHECKED BY
EOR DEM KDB

EOR PROJECT NO.
1075-0031



**Emmons & Olivier
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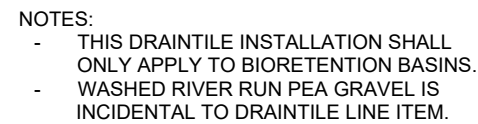
LAKE AUBURN BOAT LAUNCH
LAKETOWN TOWNSHIP, CARVER COUNTY,
MINNESOTA

STATE PROJECT NO. -

CITY PROJECT NO. ###

CIVIL DETAILS - 1

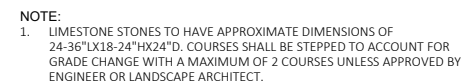
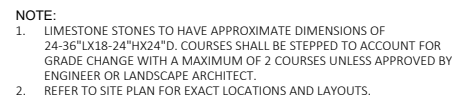
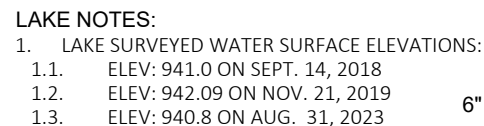
SHEET 17 OF 23 SHEETS



	CIVIL DETAILS - 2
	SHEET 18 OF 23 SHEETS



1. REINFORCED PRECAST CONCRETE PLANKS AND CONNECTORS WILL BE FURNISHED BY THE DNR. MINIMUM 3 WEEK LEAD TIME FOR DNR TO DELIVER PLANKS. HAND TIGHTEN NUTS ON CONNECTOR CLAMP BOLTS .
2. CRUSHED ROCK, 2" - 3" DIA. SHALL BE USED FOR THE RAMP BASE, SHOULDERS, THE SPACE BETWEEN PLANKS, AND, IN THE CASE OF A DOUBLE RAMP, THE AREA BETWEEN THE RAMPS.
3. ROCK AND GEOTEXTILE FABRIC ARE INCIDENTAL TO LINE ITEM



 **GSOC**
GOPHER STATE ONE CALL

 **811**
Know what's below.
Call before you dig.

SUBMISSION DATE: 11/11/2024		
DESIGN BY EOR	DRAWN BY DEM	CHECKED BY KDB
EOR PROJECT NO. 1075-0031		



Three Rivers
PARK DISTRICT

CIVIL DETAILS - 3
SHEET 19 OF 23 SHEETS

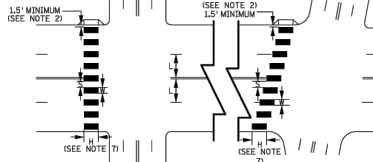


NOT TO SCALE

- NOTES
1. WOOD TO BE SOURCED FROM PLANNED ONSITE TREE REMOVAL FROM OAK, ASH, ELM AND/OR SUGAR MAPLE SPECIMENS.
 2. EACH FISH STICK INSTALLATION TO BE COMPRISED OF 2-3 LOGS.



(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE	ALTERNATE (W) WIDTH OF PAINTED AREA	ALTERNATE (S) WIDTH OF SPACE
9'	2.0'	2.5'	—	—
10'	2.5'	2.5'	2.0'	3.0'
11'	2.5'	3.0'	2.0'	3.5'
12'	3.0'	3.0'	2.5'	3.5'
13'	3.0'	3.5'	—	—



- NOTES:
1. PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
 2. A MINIMUM OF 15.7 FT. CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE, IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
 3. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11 FT. INSIDE LANE.
 4. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
 5. AT SKEWED CROSSROADS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.
 6. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
 7. THE BLOCKS SHALL BE A MINIMUM OF 6' LONG AND AT LEAST AS LONG AS THE TRUNCATED CONES. IF PLACED TRUNCATED CONES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED USE PATH.
 8. THE ALTERNATE (A) AND (S) MAY BE USED WHEN BLOCKS LONGER THAN 6' 0" ARE USED.

PUBLISHED BY OTE: 16 NOV 2021	MODIFIED:
-------------------------------	-----------



DETECTABLE EDGE WITHOUT CURB AND GUTTER



NOT TO SCALE

NOT TO SCALE

David M...

DANIEL E. MOSSING
DATE: 11/11/2024

LICENSE # 57796

SUBMISSION DATE:
11/11/2024

DESIGN BY DRAWN BY CHECKED BY

DESIGNED BY	DRAWN BY	CHECKED BY
EOR	DEM	KDB

EOR PROJECT NO.
1075-0031

1075-0031



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LAKE AUBURN BOAT LAUNCH
LAKETOWN TOWNSHIP, CARVER COUNTY,
MINNESOTA

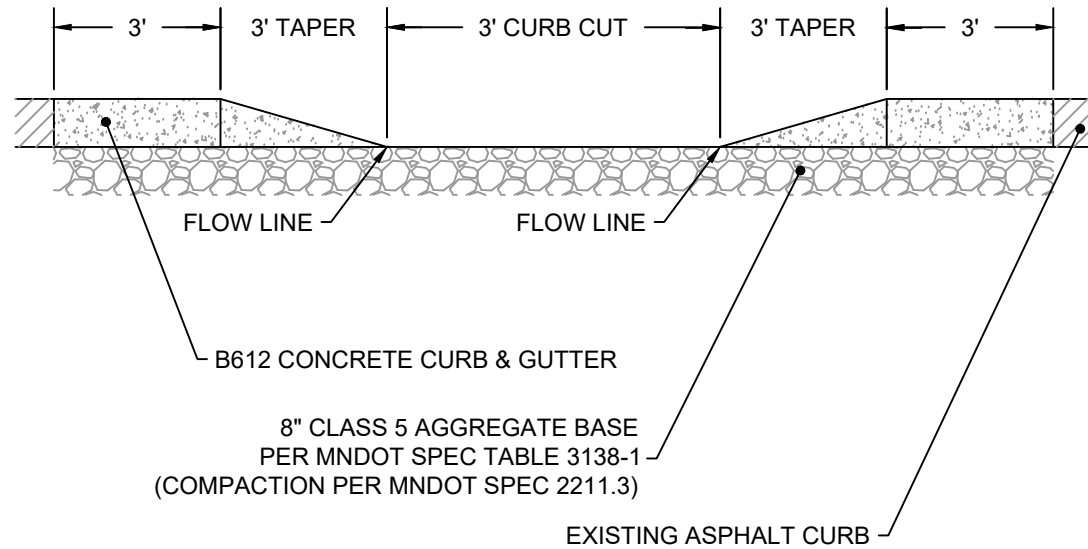
STATE PROJECT NO. ---

CITY PROJECT NO. ###

CIVIL DETAILS - 4

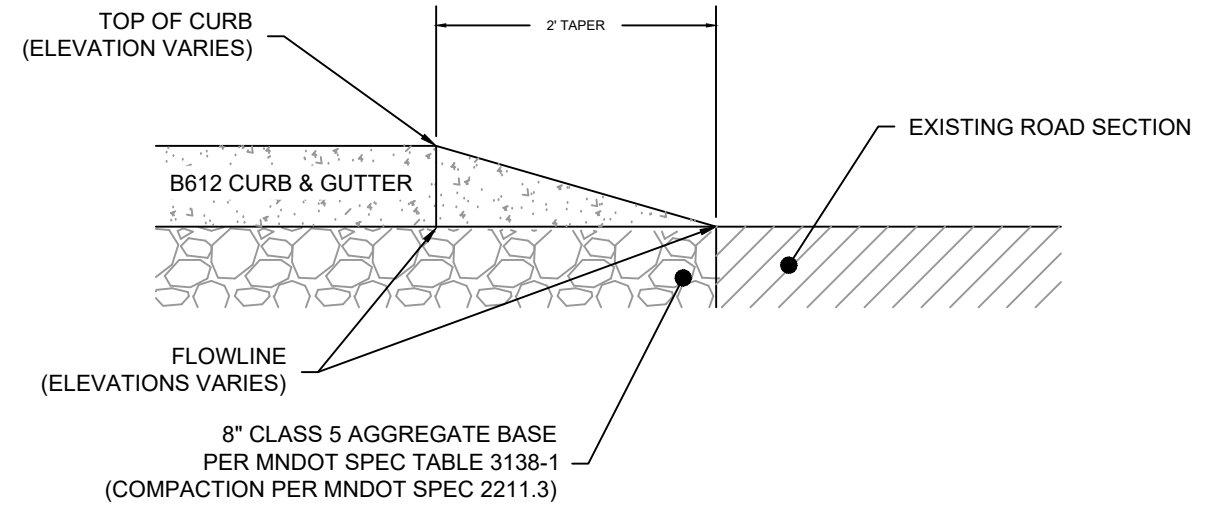
SHEET 20 OF 23 SHEETS

Plot Date: 11/11/2024
Drawing name: X:\Clients_State\01075_Three Rivers_Park_District\0031_Lake Auburn-Final_Desig\009_GMS\dwg\1075_0031-CD.dwg
Drawings: 1075_0031-XBASE2 1075_0031-PRASE2 1075_0031-RASE2 1075_0031-SURF2 1075_0031-SURF2 1075_0031-SURF2 TPE 2
1075_0031-SURF2 TPE 2 1075_0031-SURF2 TPE 2 1075_0031-SURF2 TPE 2 1075_0031-SURF2 TPE 2 1075_0031-SURF2 TPE 2

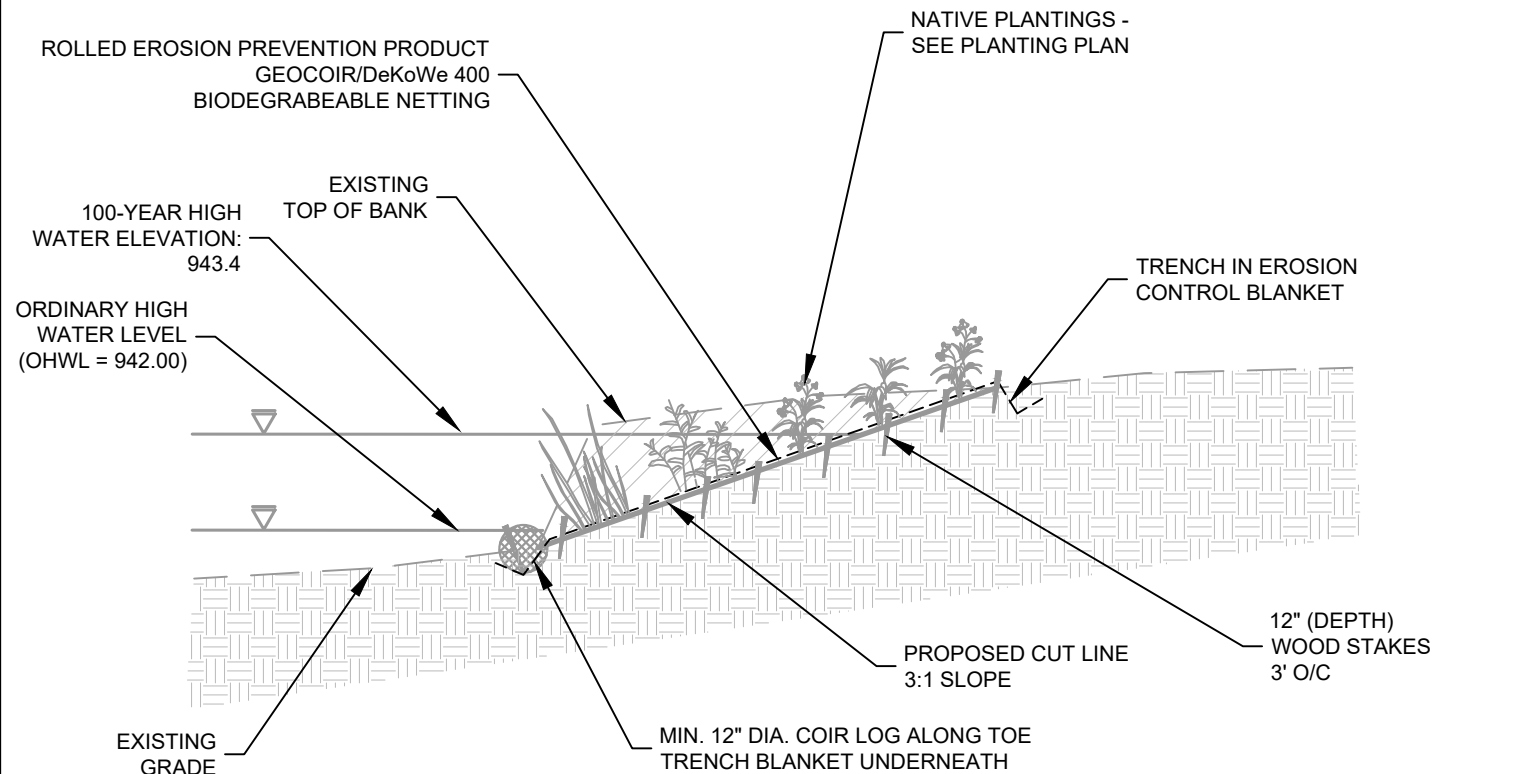


NOTES:
- IF CURB CUT IS LOCATED AT A CORNER, REMOVE TAPER ON ONE SIDE AND CONSTRUCTED FLAT CURB END WITH TAPER ON THE OTHER SIDE

01
22 CURB CUT
NOT TO SCALE



02
22 CONCRETE CURB & GUTTER TAPER (BEAVER TAIL)
NOT TO SCALE



NOTES:
- WOOD STAKES ARE INCIDENTAL TO ROLLED EROSION PREVENTION PRODUCT

03
22 SHORELINE STABILIZATION DETAIL
NOT TO SCALE

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5	07/09/2024	DEM	FINAL DESIGN PLANS - INTERNAL REVIEW
4	04/22/2024	DEM	DRAFT 90% PLANS
3	03/10/2023	DEM	DRAFT 60% PLANS
2	12/23/2022	DEM	DRAFT 60% PLANS - CLIENT REVIEW
1	12/05/2022	DEM	DRAFT 60% PLANS - INTERNAL REVIEW
NO	DATE	BY	REVISION



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

DANIEL E. MOSSING
DATE: 11/11/2024 LICENSE # 57796

SUBMISSION DATE:	11/11/2024
DESIGN BY	EOR
DRAWN BY	DEM
CHECKED BY	KDB
EOR PROJECT NO.	1075-0031

EOR Emmons & Olivier Resources, Inc.
1919 Univ Ave S #300
St Paul, MN 55104
Tele: 651.770.8448
www.eorinc.com

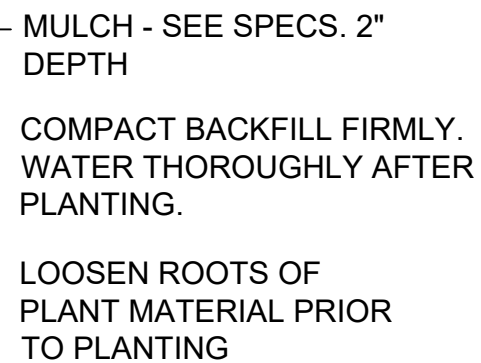


LAKE AUBURN BOAT LAUNCH
LAKETOWN TOWNSHIP, CARVER COUNTY,
MINNESOTA

STATE PROJECT NO. --- CITY PROJECT NO. ###

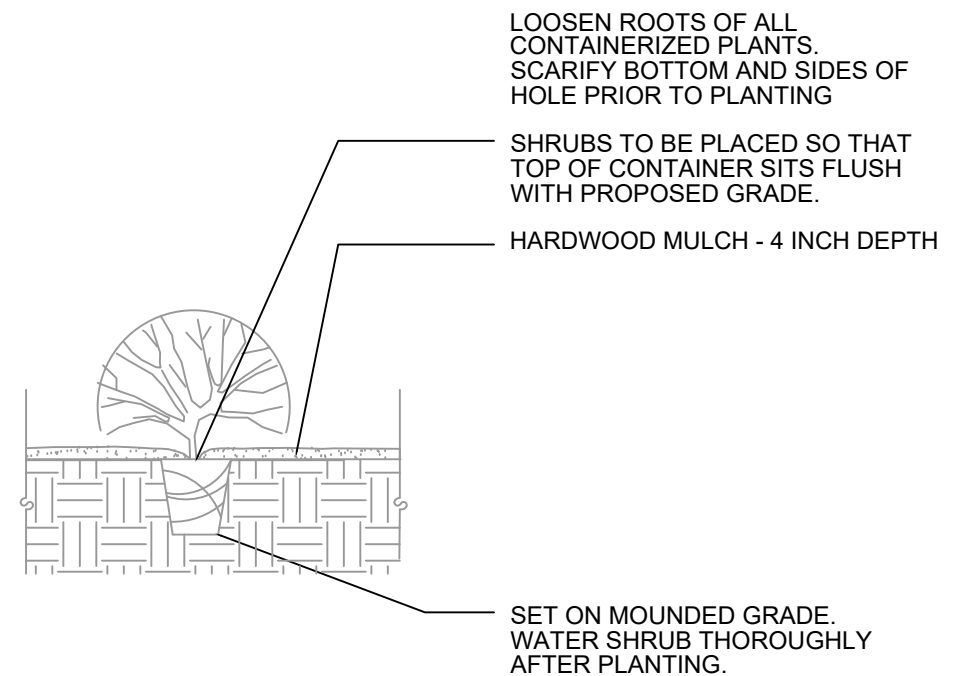
CIVIL DETAILS - 6

SHEET 22 OF 23 SHEETS



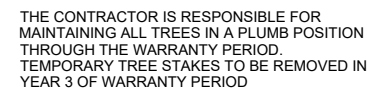
PLUG PLANTING

NOT TO SCALE



SHRUB PLANTING

NOT TO SCALE



PRUNE DAMAGED AND CROSSING
BRANCHES AFTER PLANTING IS COMPLETE.
REMOVE ALL FLAGGING AND LABELING
FROM TREE.

WATER TREE THOROUGHLY DURING PLANTING OPERATIONS. PLACE BACKFILL IN 8-12 INCH LIFTS AND SATURATE SOIL WITH WATER. DO NOT COMPACT MORE THAN NECESSARY TO MAINTAIN PLUMB. CREATE A SHALLOW RING DEPRESSION AROUND TREE TO RETAIN WATER.

PLANTS SHOULD BE AT THE PROPER DEPTH WHEREBY THE BEGINNING TAPER OF THE ROOT FLARE IS AT THE SAME ELEVATION AS THE FINISHED SOIL GRADE. THIS SHOULD BE THE SAME DEPTH AS THE PLANTS WERE GROWN AT IN THE NURSERY.

MULCH- 4 INCH DEEP - SHREDDED HARD OR SOFT WOOD SHALL BE SUBSTANTIALLY FREE OF MOLD, DIRT, SAWDUST, AND FOREIGN MATERIAL AND SHALL NOT BE IN AN ADVANCED STATE OF DECOMPOSITION. THE MATERIAL SHALL PASS A 4 INCH SCREEN AND NOT MORE THAN 20 PERCENT BY MASS OF THE MATERIAL SHALL PASS A .1 INCH SIEVE. MAX. LENGTH OF INDIVIDUAL PIECES NOT TO EXCEED 20 INCHES. NO MULCH TO LAY AGAINST COLLAR.

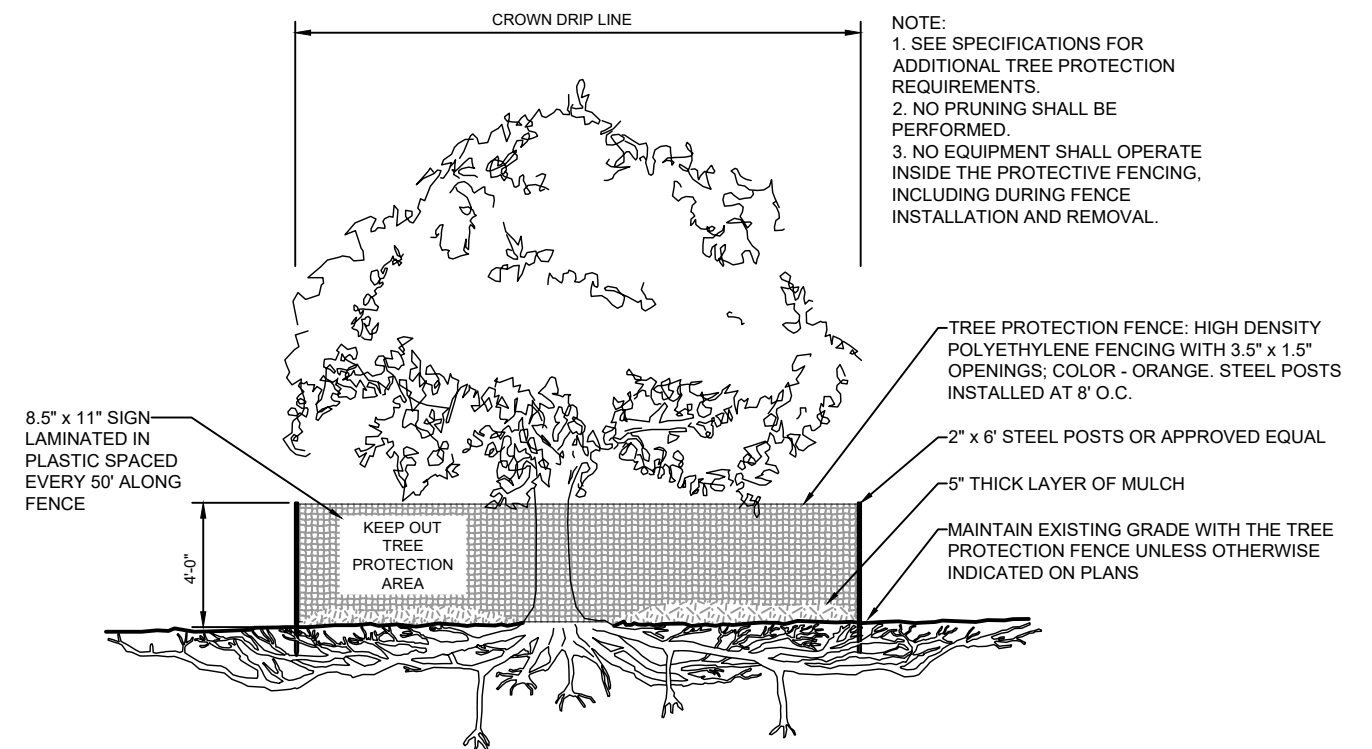
PLANTING SOIL - PER SPEC. 329300.

- SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING

- INSTALL RODENT PROTECTION AND BROWSE PROTECTION ON ALL PLANTED TREES.
- BROWSE PROTECTION: 14 GAGE GALVANIZED STEEL MESH, 1.4 INCH X 4 INCH ATTACHED TO METAL STAKES 48 INCHES HIGH
- RODENT PROTECTION: 3 INCH DIA CORRUGATED LDPE TUBES 24 INCHES HIGH

TREE PLANTING

NOT TO SCALE



NOTE:
1. SEE SPECIFICATIONS FOR
ADDITIONAL TREE PROTECTION
REQUIREMENTS.
2. NO PRUNING SHALL BE
PERFORMED.
3. NO EQUIPMENT SHALL OPERATE
INSIDE THE PROTECTIVE FENCING,
INCLUDING DURING FENCE
INSTALLATION AND REMOVAL.

—TREE PROTECTION FENCE: HIGH DENSITY
POLYETHYLENE FENCING WITH 3.5" x 1.5"
OPENINGS; COLOR - ORANGE. STEEL POSTS
INSTALLED AT 8' O.C.

2" x 6' STEEL POSTS OR APPROVED EQUAL

5" THICK LAYER OF MULCH

MAINTAIN EXISTING GRADE WITH THE TREE PROTECTION FENCE UNLESS OTHERWISE INDICATED ON PLANS

TREE PROTECTION FENCE

NOT TO SCALE

LANDSCAPE DETAILS - 1

SHEET 23 OF 23 SHEETS