

Monitoring Report

TOE OF KATHERINE STREET PENINSULA

Buffalo, NY



2018

Prepared for:



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Prepared by:



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1 INTRODUCTION

1.1 Background

This project was designed to restore and improve shoreline and riparian habitat at the Toe of Katherine Street Peninsula site. Ecological restoration at this site contributes to the Buffalo Area of Concern (AOC) objective to improve approximately 9.8 acres of shoreline, riparian buffer, and upland habitat.

1.1.1 The Project Area and Site Description

The Toe of Katherine Street Peninsula is located on the Buffalo River in the City of Buffalo, Erie County, New York. The site is approximately 100 meters east of the terminus of Katherine Street on the right descending bank of the Buffalo River. The site is bordered to the west by industrially zoned lots and to the north, south and east by the Buffalo River. The site consists of two parcels. One is owned by the city of Buffalo and the other is owned by Premier Towing. The site is surrounded by privately owned industrial property. The City of Buffalo has not actively used the site since prior to 2016. The portion of the site owned by Premier Towing is actively used as a storage area for compost and for equipment. This portion includes buildings.

Prior to project construction, the site was functioning as a poor-performing riparian woodland and river shoreline. The project area vegetation was dominated by Japanese knotweed (*Reynoutria japonica*) with an interrupted overstory of crack willow (*Salix fragilis*) and box elder (*Acer negundo*). The majority of other plants growing at the site were also non-native, invasive species. Compacted soils mixed with non-natural materials appeared to make it difficult for native plant species to establish and thrive.

1.1.2 Habitat Restoration

The goal of the Toe of Katherine Street Peninsula project has been to enhance natural wildlife habitat in order to improve the existing Buffalo River Area of Concern Beneficial Use Impairment. In order to enhance wildlife habitat, Waterkeeper goals have been to reduce invasive plant species, increase native plant species diversity across all terrestrial strata, create habitat features for specific animal groups, and increase connectivity between the Buffalo River and riparian zone.

The final engineering design for this project was completed in January 2017. The project plans are included as [Appendix A](#). The work area was extended to include invasive species treatment in the Premier Towing extension in late 2017. Construction, including invasive species treatments, shoreline enhancements, and plant installation, took place in 2017 to 2018. Waterkeeper may have ordered changes to the design based on field conditions. The plans for the Premier Towing extension and field changes, if any, have not been made available to Gomez and Sullivan Engineers.

At the time of monitoring, planting efforts had been completed in the primary project area. Invasive species treatment had taken place but additional treatments were planned for future dates. Warranty replacement plantings were expected to take place. Waterkeeper reported that additional plantings were planned for the Premier Towing extension area following invasive plant species treatments.

2 ECOLOGICAL AND GENERAL SITE CONDITION DATA COLLECTION METHODS

A complete description of the ecological sampling methods is given in the Quality Assurance Project Plan for the project ([AES & CHA, 2016](#) and [BNW, 2017](#)). Prior to fieldwork, background data was gathered, including digital imagery, ecological information about Buffalo River shoreline communities. Prior to post-construction monitoring, these data were reviewed, as well as the pre-construction Toe of Katherine Street Peninsula existing conditions reports ([AES, n.d.](#) and [BNW, n.d.](#)). Gomez and Sullivan checked for updated digital imagery; however, the publicly available imagery is from 2017 and does not show construction changes. Gomez and Sullivan did not have access to any GPS location data related to monitoring (i.e. photo monitoring points or transect locations).

Pre-construction field monitoring documented current plant and animal species richness and abundance through a rapid conditions assessment, meander searches, and general site photographs. A Community Assessment Form was used to record observations. This form and is given in the Toe of Katherine Street Peninsula Quality Assurance Project Plan, Appendix II ([AES & CHA, 2016](#)). Gomez and Sullivan recreated this form for post-construction monitoring ([Appendix B](#)) and captured descriptive photographs were taken throughout the site ([Appendix C](#)).

3 SUMMARY OF FIELD FINDINGS

Gomez and Sullivan visited the project area on July 17, 2018. Gomez and Sullivan's ecologist walked the entire site gathering observations and completing a community assessment form.

[Appendix B](#) shows the community assessment form that Gomez and Sullivan completed during the site visit. Prior to habitat improvements, the site was not given a community name or Edinger community description ([Edinger, 2014](#)). Following improvements, the site can best be described as a riparian woodland. It includes Riprap/Artificial Shoreline, Unpaved Road/Path, and Brush Cleared Land Edinger community types. The community grade is Poor and is now Low due to poor health of planted shrubs and saplings. These may be replaced by the planting contractor. If replacement plants survive, the community grade will improve. The restoration potential remains Medium.

Land uses still include commercial use, storage, a utility right-of-way, and natural areas. Surrounding land uses have not changed. The parcels adjacent to the project remain in use for industrial storage, railroad tracks, and paved and gravel roads.

[Table 3-1](#) shows plant composition and structure, process, and environment grading factors. Plant richness and plant community structure have improved due to plantings. Habitat improvement efforts included the installation of 1,700 native trees and shrubs composed of twenty-six species. Gomez and Sullivan found that many of the planted trees and shrubs were dead or dying, but some have survived. A staff person from the planting contractor was on site during the monitoring visit, and he was recording which installed plants needed to be replaced. [Figures 3-1](#) and [3-2](#) show examples of planted shrubs and saplings that appeared dead or dying. [Table 3-2](#) lists plant species that were observed at the site.

The shoreline along the Toe of Katherine Street Peninsula is stable, and erosion, classified on [Table 3-1](#) as "Lack of Erosion," improved from Low to High. This is due to regrading of the shoreline and installation tiered habitat logs and stones, which give the shoreline stability while also providing habitat and accessibility to and from the river for native animals. The habitat logs and stones all appeared to be in place and well secured and did not show signs of decay. The shoreline features complimented the emergent plantings that were installed near the site as part of a separate project. [Figure 3-3](#) shows an example of the shoreline. More photographs of the shoreline are included in [Appendix C](#). No erosion was visible at the time of monitoring.

No wetland hydrology was observed at the site before or after habitat improvements. However, the habitat improvement project including regrading of the site. This has allowed for more variation in surface elevations, which may slow the flow of runoff during storm events.

Invasive plant species, particularly Japanese knotweed, were reduced by herbicide treatments, but remained the abundant and dominant throughout the project area. Treated Japanese knotweed showed signs of significant regrowth. Based on Gomez and Sullivan's observations at other natural sights, routine management will be required to keep the knotweed stands from reestablishing.

Canopy strata and dominant plant species did not notably change due to poor plant survivorship, however this is expected to change if the replacement plants establish and spread. Song birds and Canada Geese were present at the site during the monitoring visit. No mammals were observed.

Underlying soils in the project area have not changed. No new topsoil was added to the area.

Table 3-1 Community Assessment Form Site Grading Factors

(Categories from Project QAPP Community Assessment Form, **AES & CHA, 2016**)

Plant Composition (High, Medium, Low)			Plant Structure (High, Medium, Low)			Process (High, Medium, Low)			Environment (High, Medium, Low)		
	Pre	Post		Pre	Post		Pre	Post		Pre	Post
Richness	L	M	Ground	L	M	Growth	L	L	Unstable Berms	H	L
Lack of Ruderals	L	L	Shrub	L	L	Succession	L	L	Point Source	L	L
Conservatives	L	L	Subcanopy	L	L	Lack of Erosion	L	H	Lack of Intrusions	L	L
Lack of Exotics	L	L	Overstory	M	M	Hydrology	M	L	Ice Scour	H/M	L
Lack of Increasers	L	L	Horizontal Pattern	L	M				Ag. Influence	L	L
									Beaver Activity	NA	L
									Log Jams	L ¹	L
									Debris Dumping	H	L/H ²

1. Debris collecting
2. The extension area is actively used for storage or large equipment and construction materials as well as compost/mulch piles.

Table 3-2. Plant species observed at Toe of Katherine Street Peninsula Habitat Improvement Site

Species	Common Name	Abundance Code¹	Native or Non-native
<i>Acer negundo</i>	box elder	R	native
<i>Acer saccharinum</i>	silver maple	M	native
<i>Ailanthus altissima</i>	tree of heaven	M	non-native
<i>Alnus glutinosa</i>	black alder	R	non-native
<i>Anaphalis margaritacea</i>	pearly everlasting	C	native
<i>Artemesia vulgaris</i>	mugwort	C	non-native
<i>Asclepias syriaca</i>	common milkweed	R	native
<i>Brassica sp.</i>	mustard	M	non-native
<i>Cirsium arvense</i>	thistle	R	non-native
<i>Cornus sericea</i>	red osier dogwood	M	non-native
<i>Cucurbita sp.</i>	squash	R	non-native
<i>Echium vulgare</i>	viper's bugloss	M	non-native
<i>Erigeron sp.</i>	fleabane	M	native
<i>Fraxinus sp.</i>	ash	M	native
<i>Hesperis matronalis</i>	dame's rocket	M	non-native
<i>Hibiscus moscheutos</i>	swamp mallow rose	R	native
<i>Hypericum perforatum</i>	St. John's wort	R	non-native
<i>Juglans nigra</i>	black walnut	M	native
<i>Leonurus cardiaca</i>	motherwort	C	non-native
<i>Liriodendron tulipifera</i>	tulip poplar	M	native
<i>Nepeta catari</i>	catnip	C	non-native
<i>Physocarpus opulifolius</i>	ninebark	M	native
<i>Platanus occidentalis</i>	sycamore	M	native
<i>Populus deltoides</i>	cottonwood	M	native
<i>Quercus alba</i>	white oak	M	native
<i>Quercus rubra</i>	red oak	M	native
<i>Reynoutria japonica</i>	Japanese knotweed	C	non-native
<i>Rhus typhina</i>	staghorn sumac	R	native
<i>Rosa palustris</i> or <i>Rosa virginiana</i>	rose	M	native
<i>Rubus occidentalis</i>	raspberry	M	native
<i>Rumex crispus</i>	curly dock	R	non-native
<i>Salix fragilis</i>	crack willow	C	non-native
<i>Tilia americana</i>	basswood	M	native
<i>Toxicodendron radicans</i>	poison ivy	R	native
<i>Verbascum thapsus</i>	common mullein	C	non-native
<i>Verbena hastata</i>	blue vervain	M	native
<i>Verbena urticifolia</i>	white vervain	R	native

1. R = rare, M = moderate, C = common



Figure 3-1. Planted dogwood shrub



Figure 3-2. Dead installed alternate leaved dogwood shrub



Figure 3-3. Shoreline Restoration Area

4 REFERENCES

- Applied Ecological Services & CHA Companies Inc. (2016). Study, Design, and Development of Construction Documents for Ecological Restoration at the Toe of Katherine Street Peninsula, Buffalo, NY: Quality Assurance Project Plan, version 3. Prepared for NOAA Restoration Center – Contractor. Buffalo, NY: Buffalo Niagara Riverkeeper.
- Applied Ecological Services (no date). Existing Condition Report on the Toe of Katherine Street Peninsula. Buffalo, NY: Buffalo Niagara Riverkeeper.
- Buffalo Niagara Waterkeeper. (no date). Toe of Katherine Street Peninsula – Premier Towing Extension Existing Conditions Report – Ecological Assessment. Buffalo, NY: Buffalo Niagara Riverkeeper.
- Buffalo Niagara Waterkeeper. (2017). Study, Design, and Development of Construction Documents for Ecological Restoration at the Toe of Katherine Street Peninsula, Buffalo, NY: Quality Assurance Project Plan. Prepared for NOAA Restoration Center - Contractor. Buffalo, NY: Author.
- Edinger, G.J., Evans, D.J., Gebauer, S., Howard, T.G., Hunt, D.M., & Olivero, A.M. (Eds). (2014). Ecological Communities of New York State. Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. New York Natural Heritage Program, New York State Department of Environmental Conservation: Albany, NY.

APPENDIX A. PROJECT PLANS

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CHIA

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TOE OF KATHERINE
STREET PENINSULA
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PROJECT

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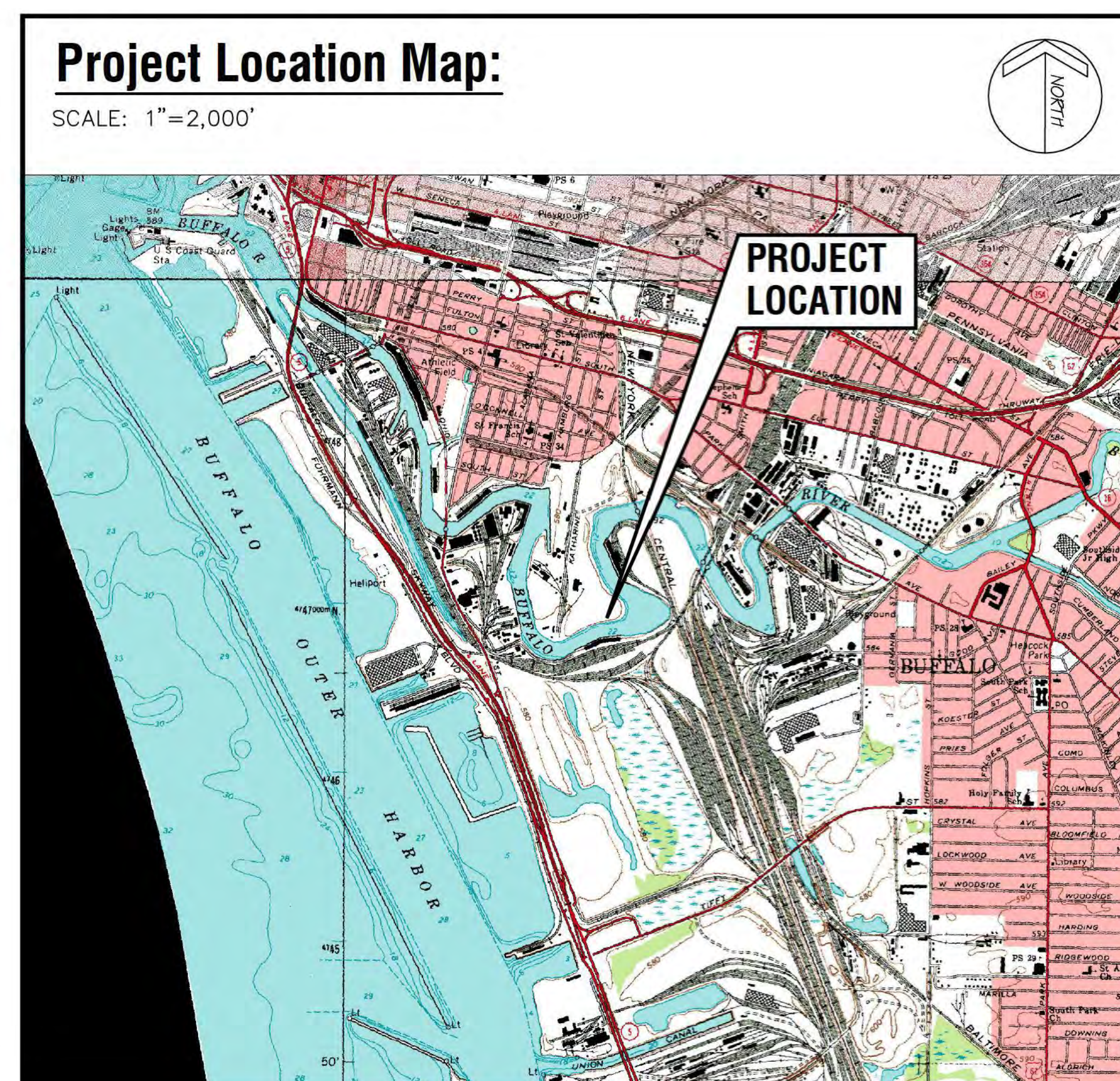
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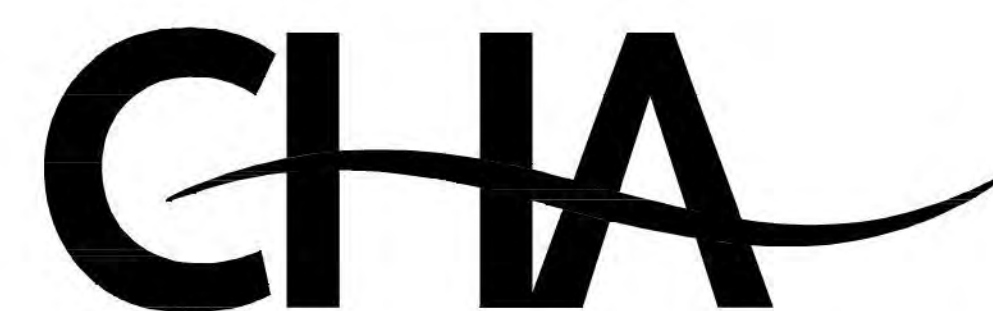
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JANUARY 26, 2017

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
G-001	TITLE SHEET
G-002	GENERAL NOTES AND LEGEND
C-001	EXISTING CONDITIONS PLAN
C-101	LAYOUT PLAN
C-201	GRADING PLAN
C-301	EROSION & SEDIMENT CONTROL PLAN
C-501	CANOPY PLANTING PLAN
C-502	UNDERSTORY PLANTING PLAN
C-602	SHORELINE STABILIZATION DETAILS
C-603	PLANTING DETAILS



III Winners Circle, PO Box 5269 · Albany, NY 12205-0269
Main: (518) 453-4500 · www.chacompanies.com
CHA Project No: 28406



GENERAL NOTES:

1. THE PLANS SHOW ABOVE GROUND STRUCTURES AND/OR UTILITIES FROM FIELD LOCATION AND RECORD MAPPING, EXACT LOCATION OF WHICH MAY VARY FROM THE LOCATIONS INDICATED. IN PARTICULAR, THE CONTRACTOR IS WARNED THAT THE EXACT OR EVEN APPROXIMATE LOCATION OF SUCH PIPELINES, SUBSURFACE STRUCTURES AND/OR UTILITIES IN THE AREA MAY BE DIFFERENT FROM THAT SHOWN OR MAY NOT BE SHOWN, AND IT SHALL BE HIS RESPONSIBILITY TO PROCEED WITH GREAT CARE IN EXECUTING ANY WORK. 48 HOURS BEFORE YOU DIG, DRILL, OR BLAST, CALL U.F.P.O. 1-(800)-962-7962 TOLL FREE.
2. THE BUFFALO NIAGARA RIVERKEEPER (BNR) REPRESENTATIVE SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED APPROVAL OF THE BNR REPRESENTATIVE.
3. THE CONTRACTOR IS INSTRUCTED TO COOPERATE WITH ANY AND ALL OTHER CONTRACTORS PERFORMING WORK ON THIS JOB SITE DURING THE PERFORMANCE OF THIS CONTRACT.
4. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE BNR REPRESENTATIVE. ANY DAMAGED PROPERTY OR VEGETATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES, ETC. AND SHALL COMPLY WITH ALL REQUIRED PERMITS. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN A PESTICIDE WAIVER FROM THE CITY OF BUFFALO.
6. ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES, STANDARDS, ORDINANCES, RULES, AND REGULATIONS.
7. THE BNR REPRESENTATIVE RESERVES THE RIGHT TO EXAMINE ANY WORK DONE ON THIS PROJECT AT ANY TIME TO DETERMINE THE CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS OF THIS PROJECT, AS INTENDED AND INTERPRETED BY THE BNR REPRESENTATIVE.
8. MISCELLANEOUS WORK NOT SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS SUCH AS PATCHING, BLOCKING, TRIMMING, ETC., SHALL BE PERFORMED AS REQUIRED TO MAKE THE WORK COMPLETE.
9. THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION. ANY MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE BNR REPRESENTATIVE OR OWNER, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE UNDER THE SUPERVISION OF A NEW YORK STATE LICENSED LAND SURVEYOR.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND COORDINATE WORK WITH ALL OTHER CONTRACTS FOR THE SITE.
11. THE CONTRACTOR SHALL:
 - A. VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO COMMENCEMENT OF WORK AND NOTIFY THE BNR REPRESENTATIVE OF ANY DISCREPANCIES.
 - B. EXAMINE THE SITE AND INCLUDE IN HIS WORK THE EFFECT OF ALL EXISTING CONDITIONS ON THE WORK.
 - C. PROVIDE AND INSTALL ALL MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH RECOGNIZED GOOD STANDARD PRACTICE.
 - D. HOLD THE BNR HARMLESS AGAINST ANY AND ALL CLAIMS ARISING FROM WORK DONE BY THE CONTRACTOR ON THE SITE.
14. MAINTAIN ACCESS FOR ALL EXISTING UTILITIES.
15. ANY TEST PITS OR EXPLORATORY EXCAVATIONS SHALL BE BACKFILLED TO EXISTING GRADE AT THE END OF EACH WORK DAY.
16. CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO EXISTING UTILITIES. DAMAGED UTILITIES SHALL BE IMMEDIATELY REPAIRED BY CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
17. THE CONTRACTOR SHALL ONLY ENTER THE SITE FROM ENSIGN STREET AND ON THE ACCESS ROUTE AS NOTED ON THE INSET A-- SITE ACCESS. NO OTHER ACCESS FOR THE PROJECT HAS BEEN OBTAINED.
18. ALL STAGING AND STORAGE SHALL BE ON THE PROJECT SITE. STORAGE OR STAGING ON OTHER SITES SHALL ONLY BE ENTERTAINED BY WRITTEN CONTRACT FROM THE LANDOWNER AND CONTRACTOR. THIS SHALL BE AT NO ADDITIONAL COST TO THE CONTRACT.
19. UNIMPEDED ACCESS TO THE NATIONAL GRID R.O.W. AND ANY OTHER EXISTING UTILITY SHALL BE PROVIDED BY THE CONTRACTOR AT ALL TIMES FOR THE DURATION OF CONSTRUCTION.



INSET A--SITE ACCESS

EXISTING SURVEY LINE TYPES:

CHANGE OF PAVEMENT	----
CONTOUR (MAJOR)	-----580-----
CONTOUR (MINOR)	-----581-----
DITCH CENTERLINE	-----DITCH-----
DITCH EDGE	-----
EASEMENTS	-----
REC. MEAN HIGH WATER MARK	-----HWM-----
PROPERTY BOUNDARY	-----
GREAT LOT LINE	-----
PROPERTY LOT LINE	-----
SLOPE -- TOP/BOTTOM	-----TOP OF SLOPE-----
UNPAVED ROAD	-----
WATER/STREAM	-----
WOOD LINE	-----

UTILITY LINE TYPES:

OVERHEAD WIRES	-----OHW-----
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ABBREVIATIONS:

CONC	CONCRETE
E	EAST
ELEV	ELEVATION
N	NORTH
OHW	OVERHEAD WIRES
S	SOUTH
W	WEST
REC.	RECORD

LEGEND:

△	BASELINE POINT -- (POINT OF INTERSECTION)
▲	BENCHMARK
⊙	DECIDUOUS TREE
→	GUY WIRE
△	HORIZONTAL CONTROL POINT
⊗	POST
○	PROPERTY MARKER (FOUND)
x	SPOT ELEVATION
⊙	STUMP
⊕	UTILITY POLE

PROPOSED LEGEND					
DESCRIPTION	PROPOSED				
TEMPORARY FENCE	-----				
5' OR 10' CONTOUR LINE	-----250-----				
1' OR 2' CONTOUR LINE	-----202-----				
SPOT ELEVATION	x120.5				
DITCH OR SWALE	-----				
EDGE OF STREAM OR RIVER	-----				
COIR LOG	-----CL-----				
GRADING LIMITS	-----				
EDGE OF VEGETATION	-----				
TREES, SHRUBS, BUSHES	XX-3 XX-5				
DETAIL CALLOUT	<table><tr><td>X</td><td>DETAIL IDENTIFICATION NO.</td></tr><tr><td>X-X</td><td>SHEET NO. WHERE DETAIL IS SHOWN</td></tr></table>	X	DETAIL IDENTIFICATION NO.	X-X	SHEET NO. WHERE DETAIL IS SHOWN
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NOTE: SOME FEATURES IN THE LEGEND MAY NOT HAVE BEEN USED					

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1	Issue for Bid	MEH	NJS	1-26-17

GENERAL NOTES AND LEGEND		
Designed By: XXX	Drawn By: XXX	Checked By: NJS
Issue Date: 01/26/17	Project No: 31115	Scale: AS SHOWN



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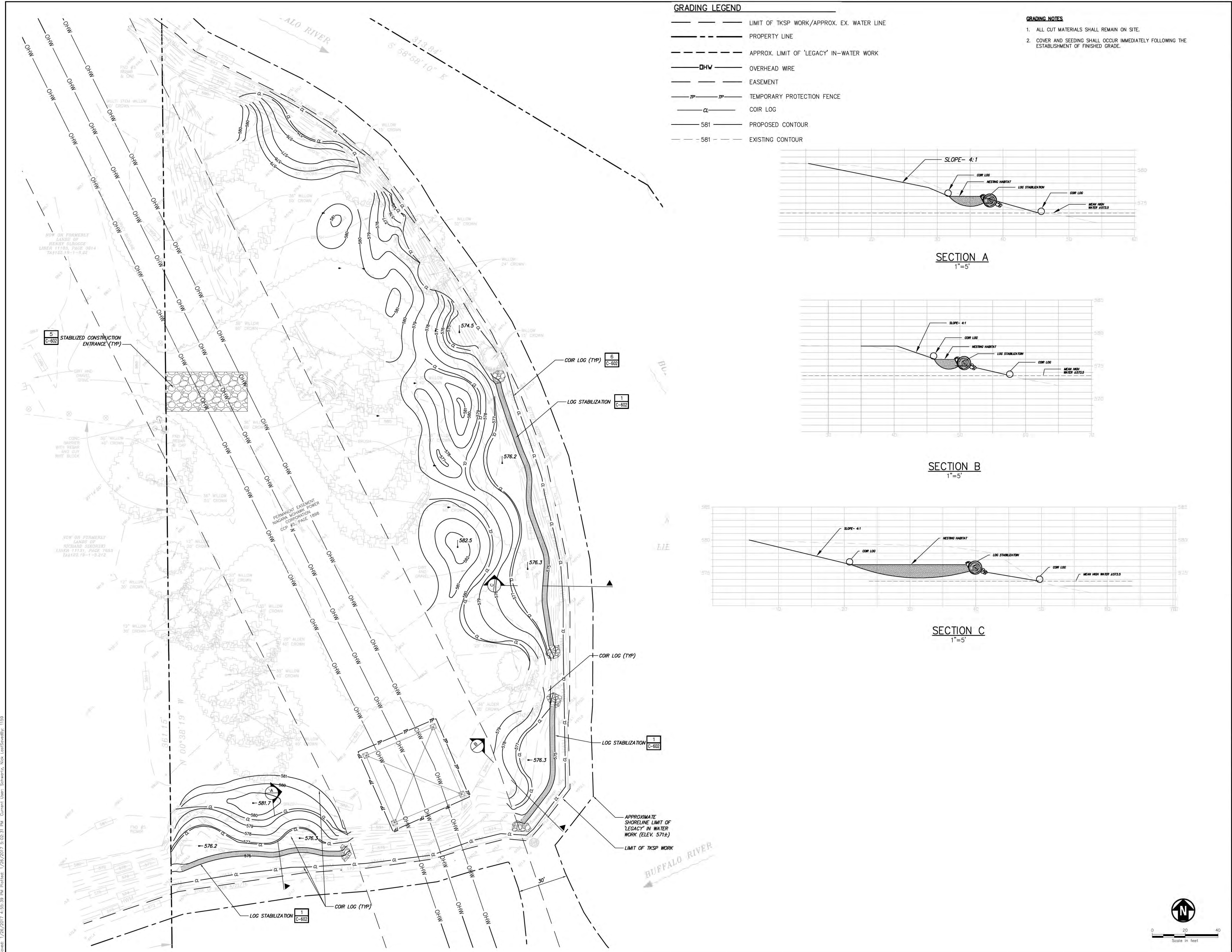
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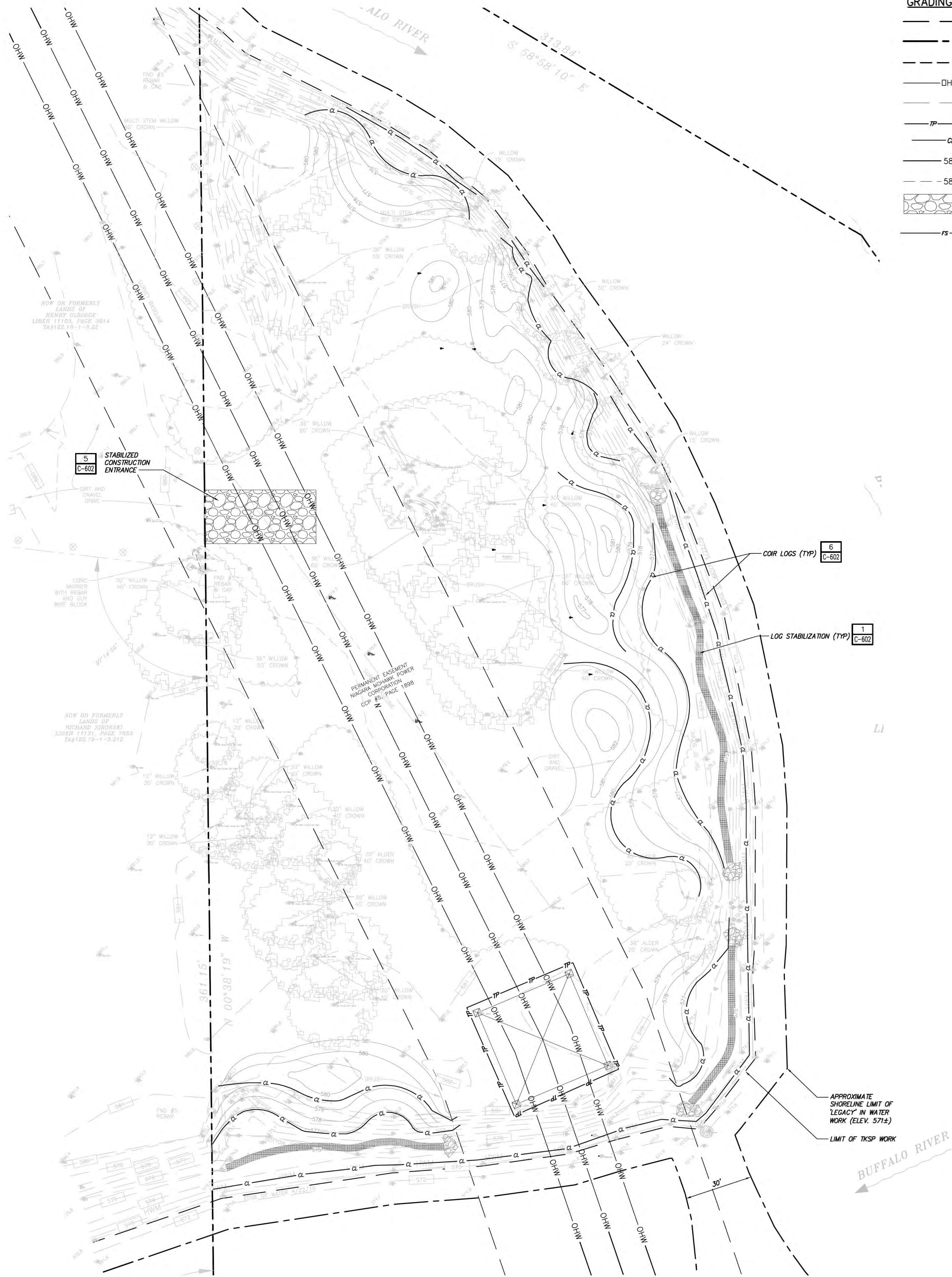
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GRADING LEGEND

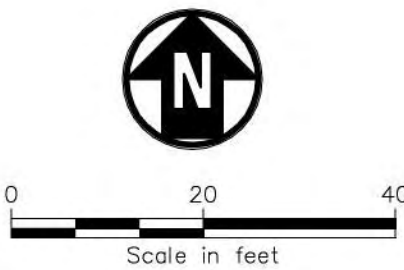
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- — — — — PROPERTY LINE
- — — — — APPROX. LIMIT OF 'LEGACY' IN-WATER WORK
- — — — — OVERHEAD WIRE
- — — — — EASEMENT
- — — — — TEMPORARY PROTECTION FENCE
- — — — — COIR LOG
- — — — — PROPOSED CONTOUR
- — — — — EXISTING CONTOUR
- — — — — STABILIZED CONSTRUCTION ENTRANCE
- — — — — COIR LOGS

EROSION CONTROL NOTES

1. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
2. THE CONTRACTOR SHALL STRICTLY ADHERE TO THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION OPERATIONS.
3. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL PERIMETER EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED. (COIR LOG AND STABILIZED CONSTRUCTION ENTRANCE)
4. SITE DISTURBANCE MAY EXCEED ONE (1) ACRE OF SOIL AND THE CONTRACTOR SHALL FOLLOW THE REQUIREMENTS CONTAINED WITHIN THE APPROVED SWPPP.
5. ALL EXPOSED AREAS SHALL BE SEEDED AND MULCHED AS SPECIFIED WITHIN 7 DAYS OF FINAL GRADING.
6. INACTIVE PORTIONS OF THE SITE ARE TO BE SEEDED AND MULCHED AS SPECIFIED WITHIN 7 DAYS.
7. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) DAYS OR MORE FREQUENTLY IF REQUIRED. ALL MAINTENANCE REQUIRED BY INSPECTION SHALL COMMENCE WITHIN 24 HOURS AND BE COMPLETED WITHIN 48 HOURS OF REPORT.
8. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
9. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
10. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
11. CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
12. CONTRACTOR TO INSTALL AND MAINTAIN SITE HAUL ROAD(S) AS REQUIRED. (HAUL ROAD TO CONSIST OF 6" OF CRUSHED STONE)
13. AT THE END OF EACH WORK DAY DISTURBED SOILS ARE TO BE REGRADED TO DRAIN.
14. THE CONTRACTOR MAY ONLY ACCESS THE SITE FROM ENSIGN STREET AND ON ACCESS ROUTE NOTED ON INSET A. NO OTHER ACCESS HAS BEEN OBTAINED FOR THE PROJECT.

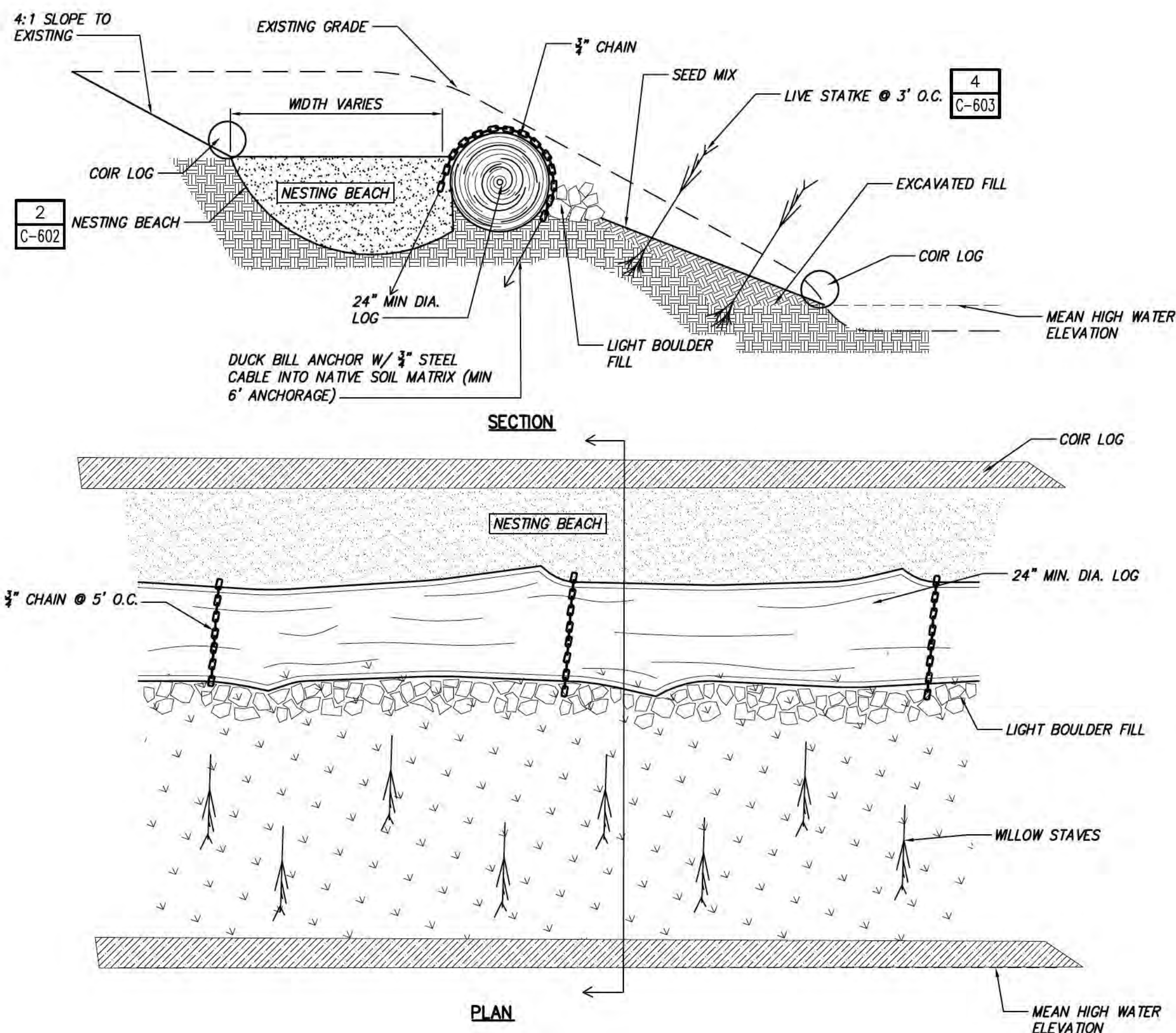


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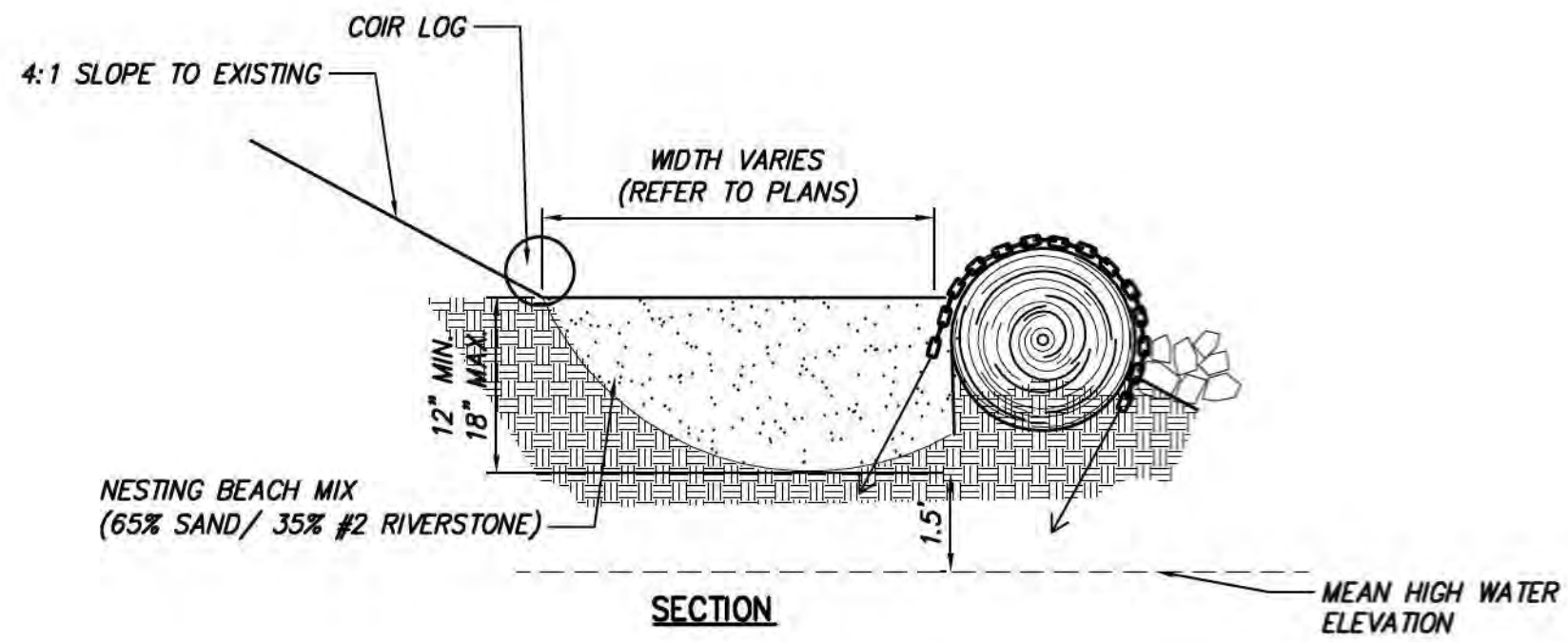


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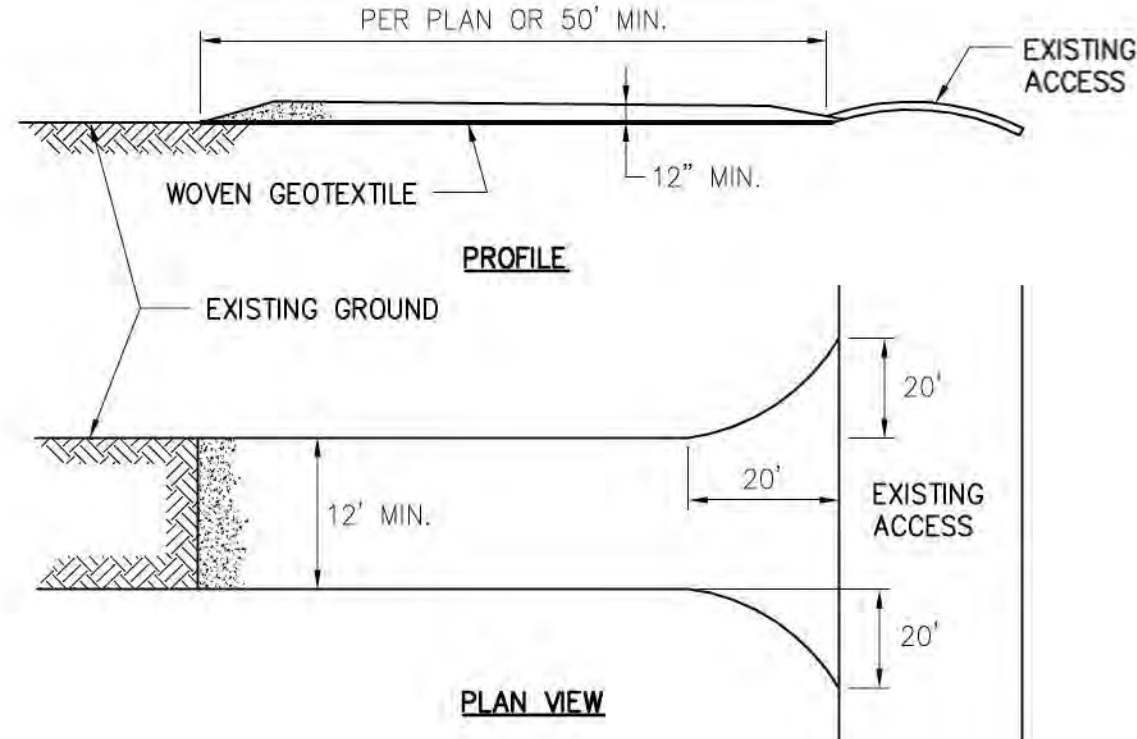
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Issue Date: 01/26/17	Project No: 31115	Scale: AS SHOWN



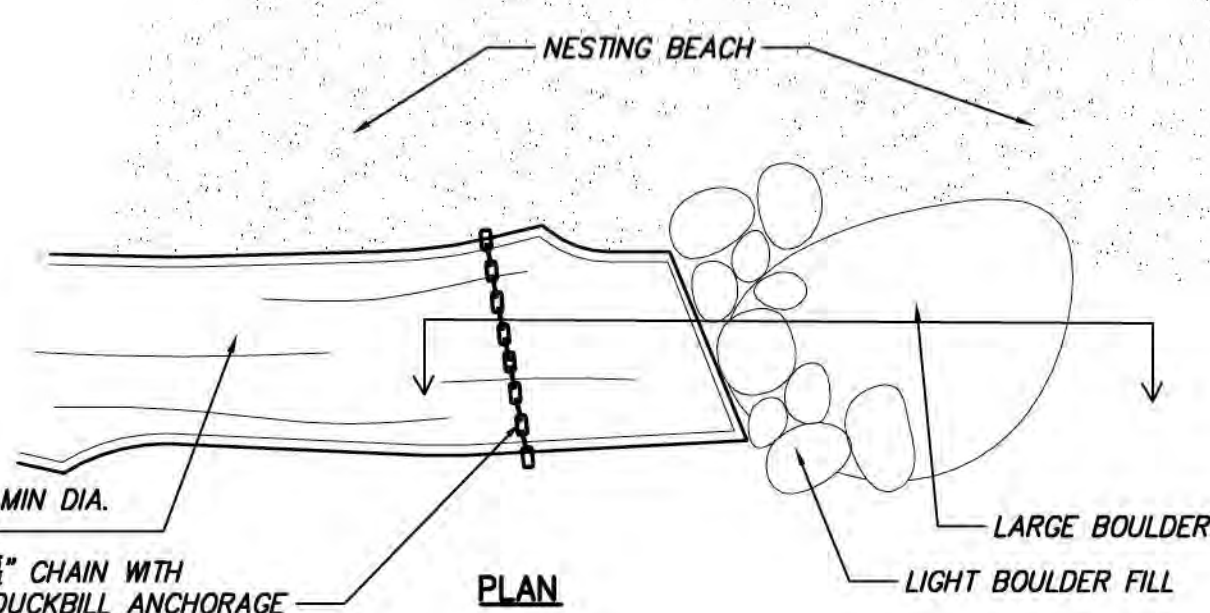
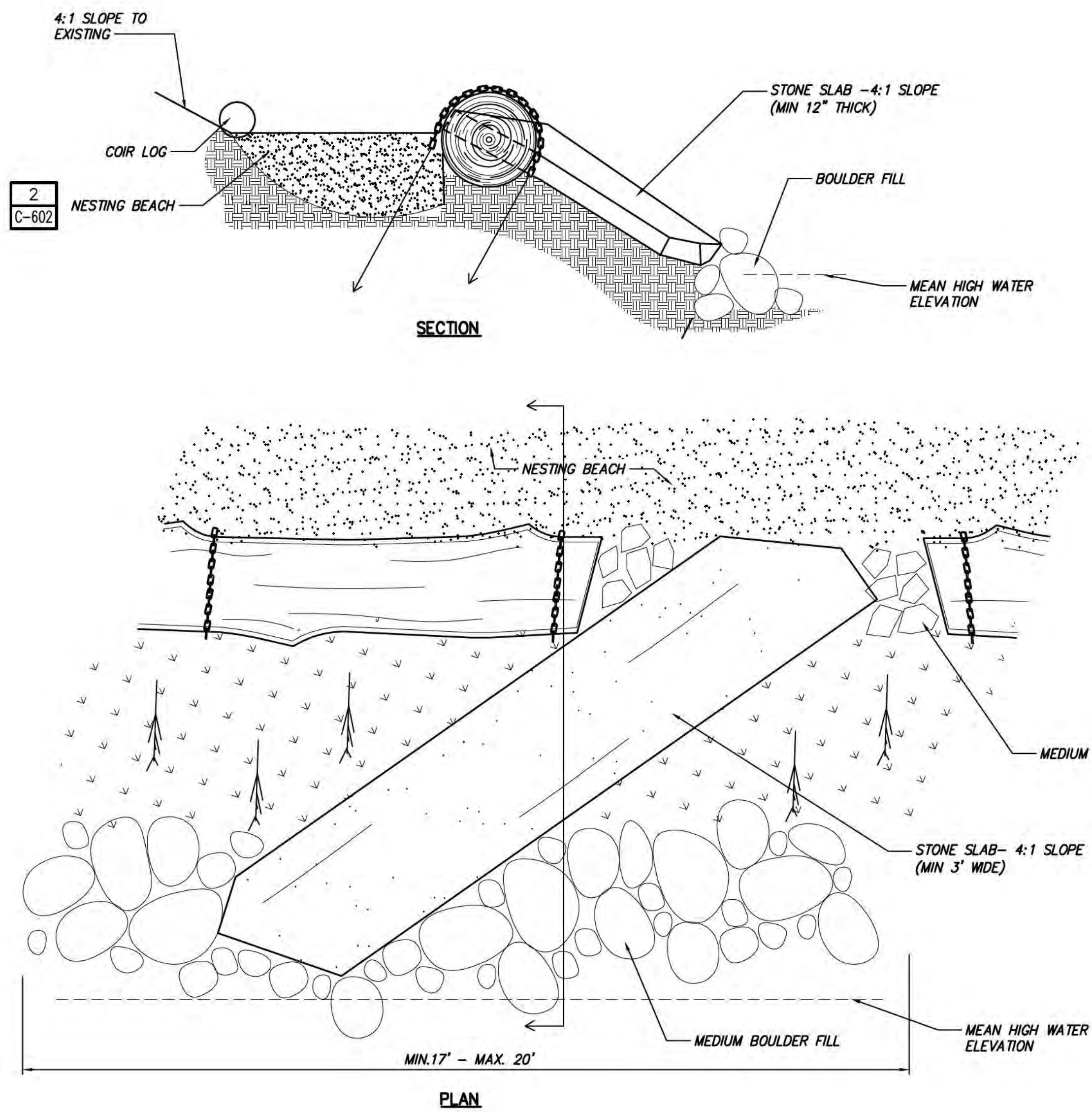
1 LOG STABILIZATION & TURTLE NESTING BEACH
NOT TO SCALE



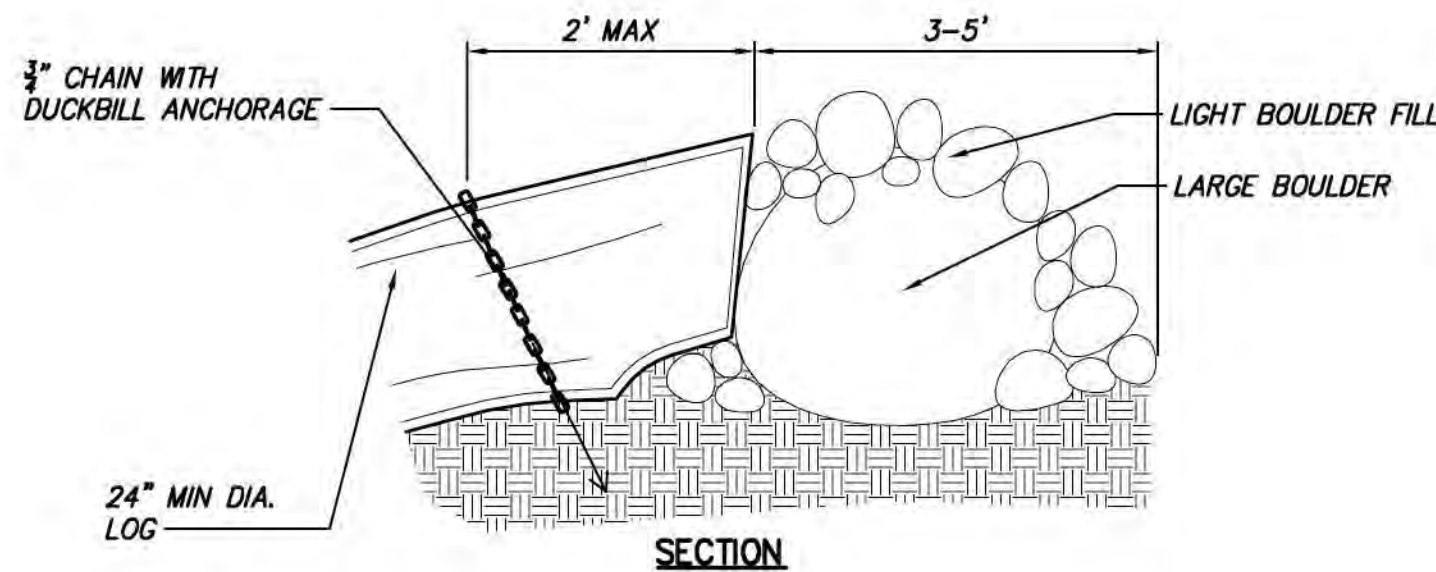
2 TURTLE NESTING BEACH
NOT TO SCALE



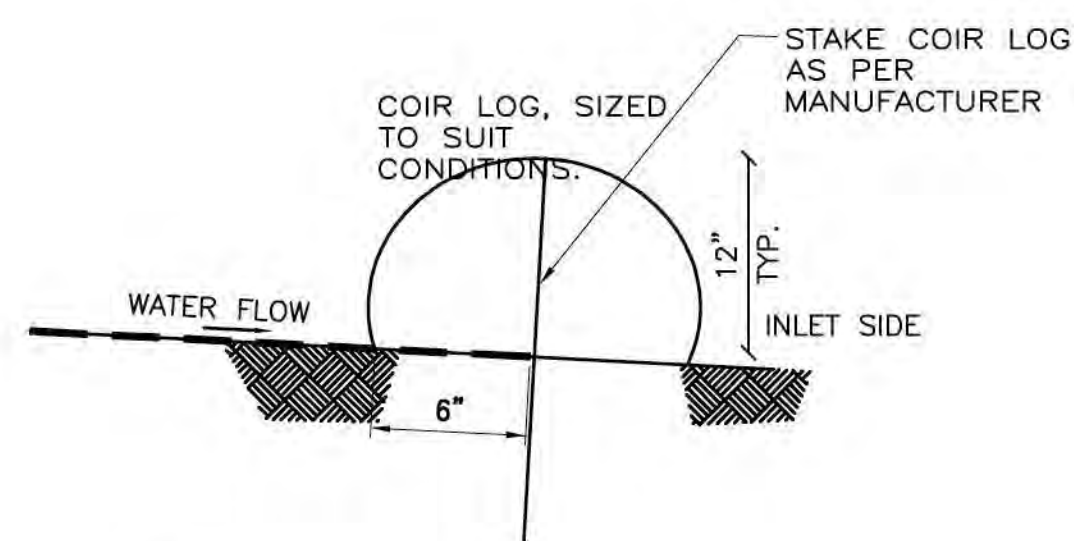
3 BOULDER FILL PROTECTION & BASKING ROCK
NOT TO SCALE



5 STABILIZED CONSTRUCTION ENTRANCE
SCALE: N.T.S.



4 LOG TO BOULDER FILL STABILIZATION TRANSITION
NOT TO SCALE

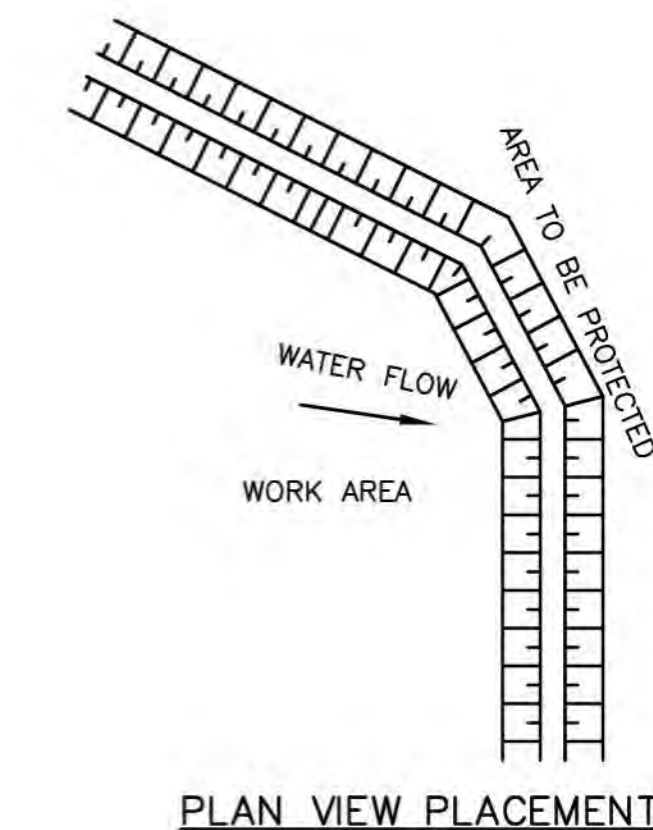
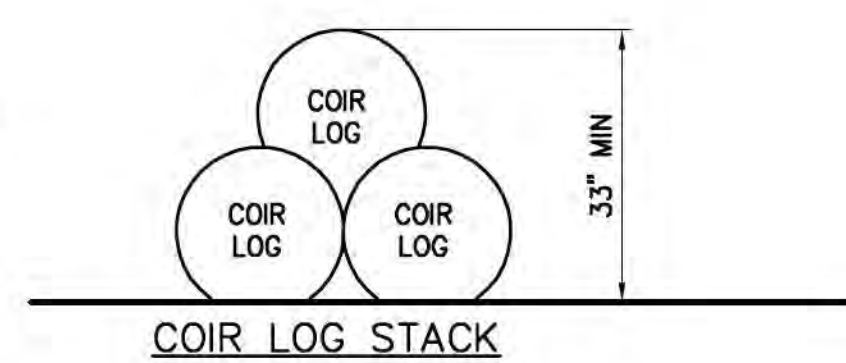


7 TEMPORARY PROTECTION FENCE
SCALE: N.T.S.

NOTES:

1. ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS.
2. ALL COIR LOGS SHALL BE 12" DIAMETER UNLESS INDICATED OTHERWISE.
3. THE CONTRACTOR SHALL MAINTAIN THE COIR LOG BERM IN A FUNCTIONAL CONDITION AT ALL TIMES AND IT SHALL BE ROUTINELY INSPECTED.
4. WHERE THE BERM REQUIRES REPAIR, IT WILL BE ROUTINELY REPAIRED BY CONTRACTOR.
5. THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE BERM WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE BERM, OR AS DIRECTED BY THE REPRESENTATIVE.
6. THE COIR LOG BERM WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE BNR REPRESENTATIVE.
7. INSTALL PERPENDICULAR TO FLOW.

6 COIR LOG DETAIL
SCALE: N.T.S.



TYPICAL BERM FOR MINIMAL GRADES SHOWN. FOR STEEPER GRADES, I.E. 2:1 SLOPES INCREASE BERM SIZE AS DETERMINED ON SITE BY REPRESENTATIVE.

No.	Submitted / Revision	App'd. By	Date
1	Issue for Bid	MEH NJS	1-26-17



APPENDIX B. DATASHEET USED FOR FIELD DATA COLLECTION

Katherine Street Peninsula, Buffalo, Erie County, NY

Date and Time of Survey: 7/17/18, 12 pm
 Weather: SUNNY, SCATTERED CLOUDS, 82°F
 Field Crew: E. REDDING
 Access: LAND, TURN PREMIER TOWING EXTENSION
 Community Name: RIPARIAN WOODLANDS
 Community Description (Edinger): ~ RIPRAP/ARTIFICIAL SHORE, UNPAVED ROAD/PATH, BRUSHY CLEARED LAND
 Community Grade: LOW (due to poor health of shrubs and saplings - may be replaced per warranty)
 Restoration Potential: MEDIUM

Plant Composition (H,M,L)		Plant Structure (H,M,L)		Process (H,M,L)		Environment (H,M,L)	
Richness	M	Ground	M	Growth	L	Unstable Berms	L
Lack of Ruderals	L	Shrub (may be higher if replanting occurs)	L	Succession	L	Point Source	L
Conservatives	L	Subcanopy	L	Lack of Erosion	H	Lack of Intrusions	L
Lack of Exotics	L	Overstory	M	Hydrology	L	Ice Scour	L
Lack of Increasers	L	Horizontal Pattern	M			Ag. Influence	L
						Beaver Activity	L
						Log Jams	L
						Debris Dumping	L/H

Aquatic Feature Elements (bank conditions/riffle pool structure): Bank appears stable due to recent coir and tree log installation as well as protective stone benching
 Community Significance: Long shoreline with access for native animals to riparian woodland
 Surrounding Land Use Codes: BD, PR, Railroad, GR
 Surrounding Land Use Descriptions: Industrial storage, railroad tracks, paved and gravel roads
 Management Considerations: Invasive species, shoreline should be checked seasonally
 Follow-up Survey Notes:

Note that extension area is actively used for industrial storage and compost/mulch piles

Invasive Plant Species (Rare, Moderate, Common)							
<i>Lythrum salicaria</i>	/	<i>Cynanchum louiseae</i>	/	<i>Centaurea stoebe</i>	/	<i>Lonicera sp.</i>	/
<i>Phragmites australis</i>	/	<i>Cynanchum rossicum</i>	/	<i>Cirsium arvense</i>	R	<i>Rhamnus cathartica</i>	/
<i>Phalaris australis</i>	/	<i>Reynoutria japonica</i>	C	<i>Lonicera japonica</i>	/	<i>Hesperis matronalis</i>	M
<i>Alliaria petiolate</i>	R	<i>Microstegium vimineum</i>	/	<i>Persicaria perfoliata</i>	/	<i>Leonurus cardiaca</i>	/
motherwort thistle	C R	<i>Artemisia vulgaris</i>	R	<i>Heracleum mantegazzianum</i>	/	<i>Dispacus fullonum</i>	/

Invasive species notes: Majority of site is dominated by *Reynoutria japonica* (Japanese knotweed). Remaining herbaceous plants are almost all non-native.

Is Site 60%+ Native? NO

Canopy Strata & Dominant Species (% of area covered by the stratum)												
Strata	Cover Class Cove							Species 1	Species 2	Species 3		
6-Canopy	1	2	3	4	5	6	7	<i>Salix</i>	<i>Acer negundo</i>			
5-Subcanopy	1	2	3	4	5	6	7					
4-Shrub/Sapling	1	2	3	4	5	6	7					
3-Herbaceous	1	2	3	4	5	6	7	<i>Reynoutria jap</i>				
2-Bryo/Lichen	1	2	3	4	5	6	7					
1-Bare Ground	1	2	3	4	5	6	7					

1=<1%, 2=1-5%, 3=6-25%, 4=26-50%, 5=51-75%, 6=76-95%, 7=96-100%

KATHERINE ST. PENINSULA FIELD NOTES CONTINUED.

COMMUNITY DESCRIPTION/NOTES

TKGP is a post-industrial landscape with a large unvegetated access road and mulched areas. Knotweed has been chemically treated across the site, but remains the dominant understory plant. (The adjacent parcel (outside of site) has a dense knotweed understory.) Dominant canopy tree is willow - Identified as crack willow in pre-restoration existing conditions Report.

Shrubs have been installed at approximately 2' OC, but they are not healthy. Many have few leaves. These should be replaced by the planting contractor.

No mammals observed during site visit. Song birds present under forest canopy. Robins, Canada geese

SURROUNDING LAND USE

actively used areas mixed with abandoned land.
MANY weeds and sources for invasive plant species (compost, mulch piles)

APPENDIX C. MONITORING PHOTOGRAPHS

Plantings



Plantings



Shoreline Restoration Area



National Grid tower



Shoreline Restoration Area



Shoreline Restoration Area with Basking Rocks



Shoreline Restoration Area



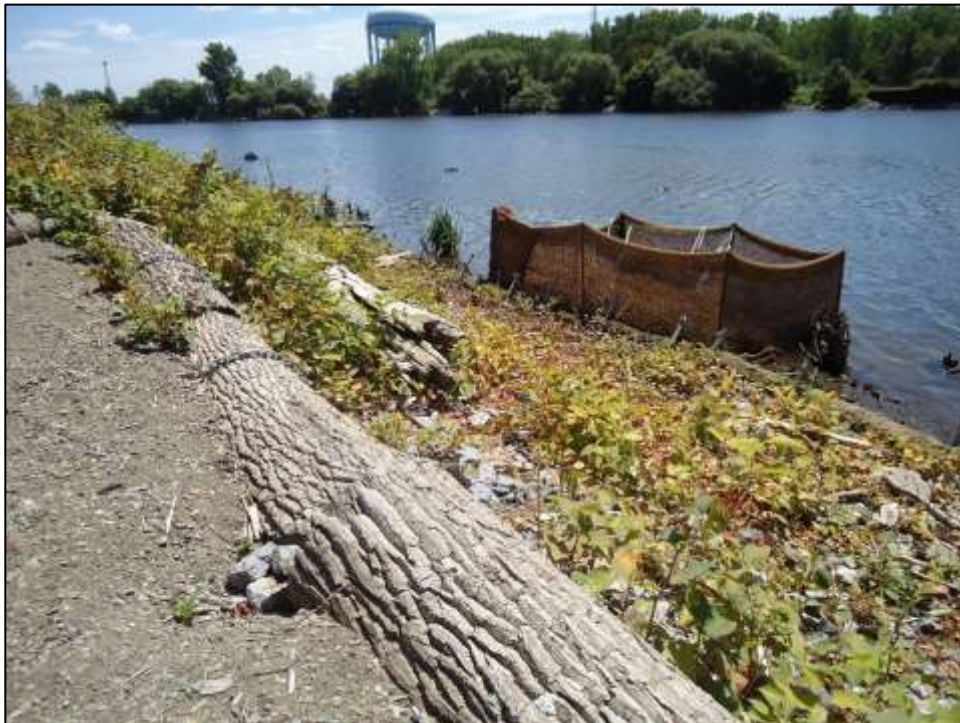
Shoreline Restoration Area



Shoreline Restoration Area



Shoreline Restoration Area



Shoreline Restoration Area



Shoreline Restoration Area



Shoreline Restoration Area



Understory plantings



Understory regrowth dominated by invasive species



Understory plantings



Dense stand of non-native catnip growing in the forest understory



Treated knotweed in the Premier Towing Extension Area



Treated knotweed in the Premier Towing Extension Area



Premier Towing Extension Area



Premier Towing Extension Area



Knotweed and storage in the Premier Towing Extension Area



Knotweed in the Premier Towing Extension Area



Compost piles in the Premier Towing Extension Area



Storage in the Premier Towing Extension Area

