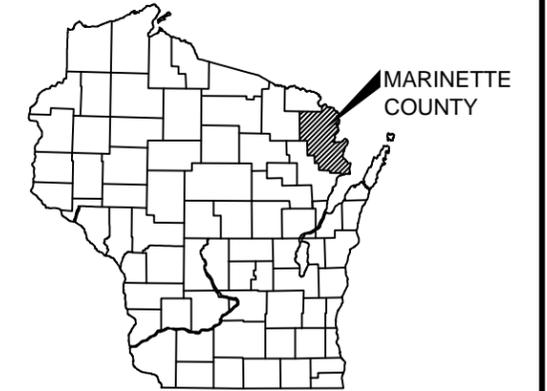


MENEKAUNEE HARBOR IMPROVEMENTS CITY OF MARINETTE MARINETTE, WISCONSIN

JUNE 2014



VICINITY MAP
NTS

DRAWING INDEX	
SHT NO	DESCRIPTION
G1.0	TITLE SHEET
G1.1	LEGEND & ABBREVIATIONS
C1.0	ANTICIPATED DREDGE SPOILS TRUCK ROUTES
C2.0	LOT 24 EXISTING CONDITIONS - NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE
C2.1	LOT 24 LAYOUT - NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE
C2.2	LOT 24 BASE DESIGN - NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE
C2.3	LOT 24 FINAL GRADES - NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE
C2.4	CROSS SECTION
C3.0	EXISTING HARBOR SITE PLAN & CONTOURS
C3.1	HARBOR DREDGING PLAN & INTERMEDIARY CONTOURS
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C4.0	HARBOR CROSS SECTION - 1
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C4.2	HARBOR CROSS SECTION - 3
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C4.4	HARBOR CROSS SECTION - 5
C5.0	TYPICAL CROSS SECTIONS - 1
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C6.0	MISC. SITE DETAILS
S1.0	SHEET PILE WALL PLAN & PROFILE
S1.1	SHEET PILE WALL DETAILS
S2.0	STRUCTURAL DETAILS

NOTE:
THIS PLAN SET WAS PREPARED IN COLOR.
REPRODUCTION BY MEANS OTHER THAN
EQUIVALENT COLOR COPYING MAY CAUSE SOME
DATA TO BE LOST OR MISREPRESENTED.



PROJECT AREA



TITLE SHEET

SHEET NO
G1.0

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DES BY	BOOK NO	NO	DATE	REVISION
G. SHAMBEAU	----			
DR BY	PROJ NO	NO	DATE	REVISION
G. SHAMBEAU	19-0277.33			
CHK BY	DATE	NO	DATE	REVISION
C. GOODWIN	JUNE 2014			

MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



TITLE SHEET

SHEET NO
G1.0

EXISTING LEGEND:

SANITARY SEWER	
WATER MAIN	
STORM SEWER	
UNDERGROUND GAS	
UNDERGROUND ELECTRIC	
UNDERGROUND FIBER OPTIC	
UNDERGROUND TELEPHONE	
UNDERGROUND VIDEO	
OVERHEAD ELECTRIC	
UTILITY POLES: POWER POLES	
TELEPHONE POLE	
LIGHT POLE	
CONTROL POINT	
PEDESTAL / TRANSFORMER	
CURB AND GUTTER	
SIDEWALK	
HARD SURFACED ROADWAY	
NON-SURFACED ROADWAY	
TREE - DECIDUOUS	
TREE - CONIFEROUS	
TREE LINE	
BUSH	
CONTOURS	
DITCH	
FENCE	
RIGHT OF WAY	
PROPERTY LINE	
SECTION LINE	
RETAINING WALL	
WETLAND	
STREET CENTERLINE	
WATER'S EDGE	
SWAMP EDGE	
BENCHMARK	
BUILDING	

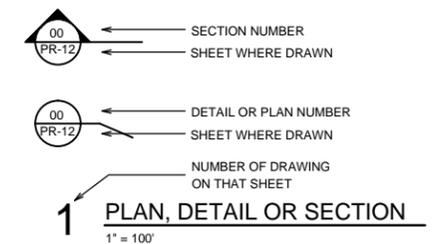
PROPOSED LEGEND:

SANITARY SEWER	
FORCE MAIN	
WATER MAIN	
STORM SEWER	
CURB AND GUTTER	
SIDEWALK	
HARD SURFACE ROADWAY	
NON-SURFACED ROADWAY	
CONTOURS	
FENCE	
BASELINE	
PERMANENT EASEMENT	
TEMPORARY EASEMENT	
SILT FENCE	
EROSION BALES	
EROSION MAT	
EROSION LOG	
SAW CUT	
DITCH	
RETAINING WALL	
POND	
SPOT ELEVATION	
CONSTRUCTION EASEMENT	
UTILITY EASEMENT	
SETBACK	
GUARD RAIL	

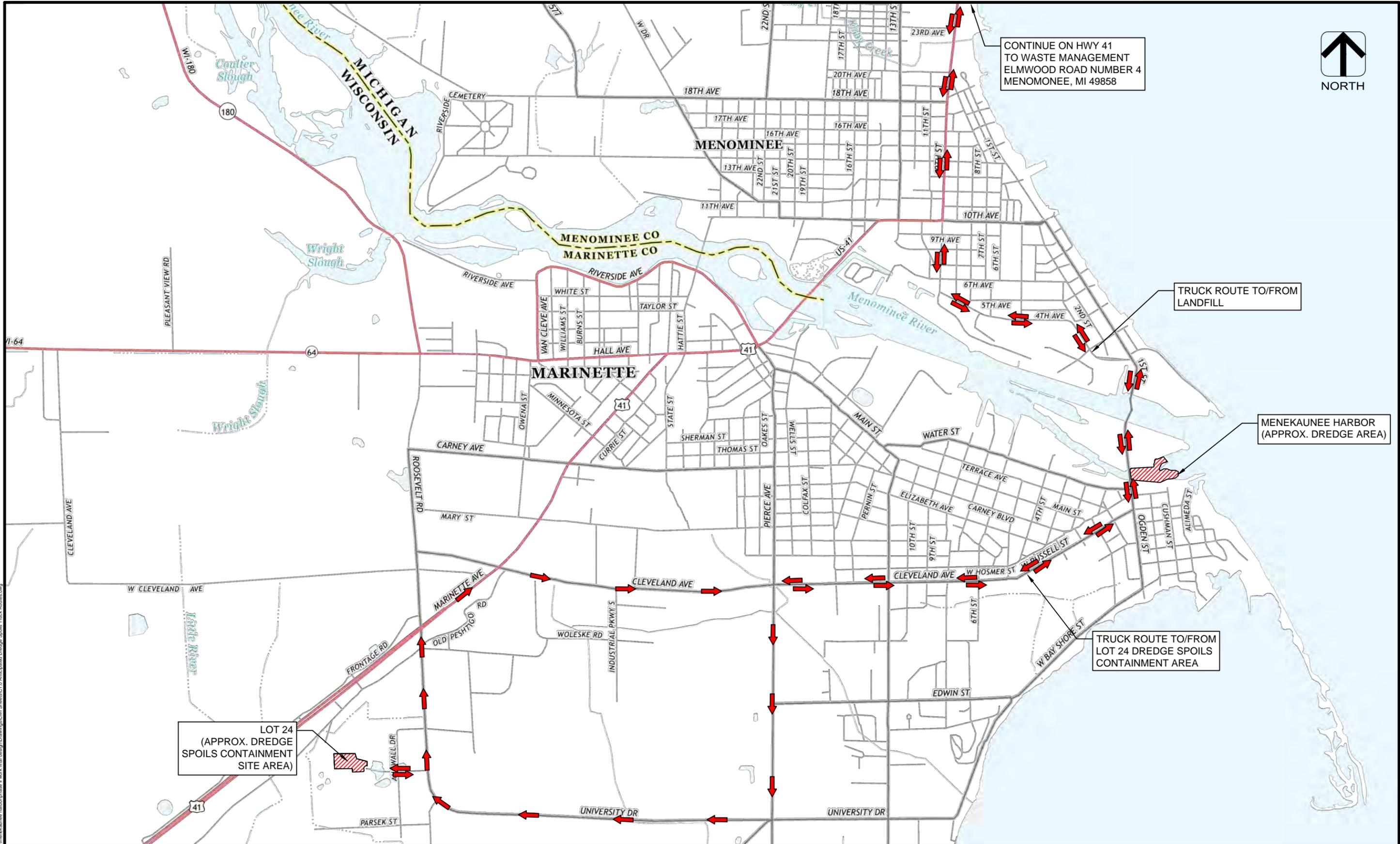
ABBREVIATIONS:

AB	ANCHOR BOLT	DEFL	DEFLECTION	ID	INSIDE DIAMETER	PC	POINT OF CURVE	T&B	TOP & BOTTOM
ABV	ABOVE	DEG / °	DEGREE	IF	INSIDE FACE	PE	PRIVATE ENTRANCE	TC	TOP OF CURB
ADJ	ADJUST	DI	DRINKING FOUNTAIN	IN (")	INCHES	PED	PEDESTAL	TELE	TELEPHONE
AFF	ABOVE FINISHED FLOOR	DI	DUCTILE IRON	INCL	INCLUDE	PERF	PERFORATE	THK	THICKNESS
AL	ALUMINUM	DIA	DIAMETER	INF	INFLUENT	PI	POINT OF INTERSECTION	THRU	THROUGH
ALT	ALTERNATE WITH	DIM	DIMENSION	INL	INLET	PKG	PARKING	TP	TELEPHONE POLE
ALT/	ALTERNATE	DISCH	DISCHARGE	INSUL	INSULATION	P	PLATE	TYP	TYPICAL
APPROX	APPROXIMATE	DN	DOWN	INT	INTERIOR	PL	PLACE	T/	TOP OF
ASPH	ASPHALT	DP	DEPTH	INV	INVERT	PL R	PROPERTY LINE	UG	UNDERGROUND GAS
AUTO	AUTOMATIC	DR	DOOR	IP	IRON PIPE	PP	POWER POLE	UE	UNDERGROUND ELECTRICAL
AVE	AVENUE	DTL	DETAIL	IPS	IRON PIPE SIZE	PSF	POUNDS PER SQUARE FOOT	UNEXC	UNEXCAVATED
@	AT	DW	DRIVEWAY	JT	JOINT	PSI	POUNDS PER SQUARE INCH	UNO	UNLESS NOTED OTHERWISE
B CRS	BASE COURSE	DWG	DRAWING	KGV	KNIFE GATE VALVE	PT	POINT OF TANGENCY	USH	UNITED STATES HIGHWAY
BC	BACK OF CURB	E	EAST	LAB	LABORATORY	PV	PLUG VALVE	UT	UNDERGROUND TELEPHONE
BD	BOARD	EA	EACH	LAV	LAVATORY	PVC	POLYVINYL CHLORIDE	UV	UNDERGROUND VIDEO
BEL	BELOW	EF	EACH FACE	LC	LENGTH OF CURVE	PVMT	PAVEMENT		
BETWN	BETWEEN	EFF	EFFLUENT	LF	LINEAL FEET	PW	POTABLE WATER		
BF	BACK FACE	EJ	EXPANSION JOINT	LG	LENGTH	%	PERCENT	V	VALVE
BFV	BUTTERFLY VALVE	EL	ELEVATION	LOC	LOCATION	QTY	QUANTITY	V&B	VALVE & BOX
BIT	BITUMINOUS	ELB	ELBOW	LP	LIGHT POLE	RD	ROAD	VAR	VARIABLE
BLD	BLIND	ELEC	ELECTRICAL	LR	LONG RADIUS	RCP	REINFORCED CONCRETE PIPE	VER	VERTICAL
BLDG	BUILDING	EQ	EQUAL	LS	LUMP SUM	RD	ROAD	VC	VERTICAL CURVE
BLK	BLOCK	EQUIP	EQUIPMENT	LT	LEFT	RD	ROAD		
BLKG	BLOCKING	ER	END OF RADIUS	EST	ESTIMATE	RD	ROOF DRAIN		
BLVD	BOULEVARD	EW	EACH WAY	EW	ELECTRIC WATER COOLER	RDWY	ROADWAY		
BM	BENCHMARK	EXG	EXISTING	EXH	EXHAUST	RED	REDUCER		
BO	BREAKOFF	EXG	EXISTING	EXP	EXPANSION	REF	REFERENCE		
BRG	BEARING	EXH	EXHAUST	EXT	EXTERIOR	REINF	REINFORCING		
BRK	BRICK	EXP	EXPANSION	FD	FLOOR DRAIN	REM	REMOVE		
BS	BACK OF SIDEWALK	EXT	EXTERIOR	FDN	FOUNDATION	REPL	REPLACE		
BTM	BOTTOM	FD	FLOOR DRAIN	FERT	FERTILIZER	REQD	REQUIRED		
BV	BALL VALVE	FDN	FOUNDATION	FF	FAR FACE	REV	REVISED		
B/	BOTTOM OF	FERT	FERTILIZER	FGL	FIBERGLASS	RM	ROOM		
C&G	CURB AND GUTTER	FF	FAR FACE	FIN	FINISHED	RR	RAILROAD		
CB	CATCH BASIN	FGL	FIBERGLASS	FL	FLOWLINE	RT	RIGHT		
CF	CUBIC FOOT	FIN	FINISHED	FLG	FLANGED	RW	RIGHT OF WAY		
CHKD P	CHECKERED PLATE	FL	FLOWLINE	FLR	FLOOR	N	NORTH		
CI	CAST IRON	FLG	FLANGED	FM	FORCE MAIN	NF	NEAR FACE		
CJ	CONTROL JOINT	FLR	FLOOR	FN	FENCE	NIC	NOT IN CONTRACT		
CL / C	CENTERLINE	FM	FORCE MAIN	FT (')	FOOT	NO	NUMBER		
CHL	CHLORINE	FN	FENCE	FTG	FOOTING	NOM	NOMINAL		
CLG	CEILING	FUT	FUTURE	FUT	FUTURE	NPW	NON-POTABLE WATER		
CLR	CLEAR	G	GAS	G	GAS	NTS	NOT TO SCALE		
CMP	CORRUGATED METAL PIPE	GA	GAGE	GAR	GARAGE	OC	ON CENTER		
CMU	CONCRETE MASONRY UNIT	GAR	GARAGE	GEN	GENERAL	OD	OUTSIDE DIAMETER		
CO	CLEANOUT	GEN	GENERAL	GRD	GRADE, GROUND	OE	OVERHEAD ELECTRIC		
CONC	CONCRETE	GRD	GRADE, GROUND	GV	GATE VALVE	OF	OUTSIDE FACE		
CONN	CONNECTION	GRAV	GRAVEL	GW	GROUNDWATER	OH	OVERHEAD		
CONST	CONSTRUCTION	GW	GROUNDWATER	HB	HOSE BIB	OPG	OPENING		
CONST JT	CONSTRUCTION JOINT	HM	HOLLOW METAL	HORZ	HORIZONTAL	OT	OVERHEAD TELEPHONE		
CONT	CONTINUOUS	HSE	HOUSE	HSE	HOUSE				
CONTR	CONTRACTOR	HT	HEIGHT	HT	HEIGHT				
CONTR JT	CONTRACTION JOINT	HW	HOT WATER	HW	HOT WATER				
COR	CORNER	HWR	HOT WATER RETURN	HWR	HOT WATER RETURN				
CP	CONTROL POINT	HYD	HYDRANT	HYD	HYDRANT				
CPLG	COUPLING								
CRS	COURSE								
CSP	CORRUGATED STEEL PIPE								
CTG	CASTING								
CTH	COUNTY TRUNK HIGHWAY								
CULV	CULVERT								
CV	CHECK VALVE								
CW	COLD WATER								
CY	CUBIC YARD								

LEGEND:



DES BY	G. SHAMBEAU	BOOK NO	----				
DR BY	G. SHAMBEAU	PROJ NO	19-0277.33				
CHK BY	C. GOODWIN	DATE	JUNE 2014	NO	DATE	REVISION	



CONTINUE ON HWY 41
TO WASTE MANAGEMENT
ELMWOOD ROAD NUMBER 4
MENOMONEE, MI 49858



TRUCK ROUTE TO/FROM
LANDFILL

MENEKAUNEE HARBOR
(APPROX. DREDGE AREA)

TRUCK ROUTE TO/FROM
LOT 24 DREDGE SPOILS
CONTAINMENT AREA

LOT 24
(APPROX. DREDGE
SPOILS CONTAINMENT
SITE AREA)

DES BY G. SHAMBEAU	BOOK NO				
DR BY G. SHAMBEAU	PROJ NO 19-0277.33				
CHK BY C. GOODWIN	DATE JUNE 2014	NO	DATE	REVISION	NO

MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN

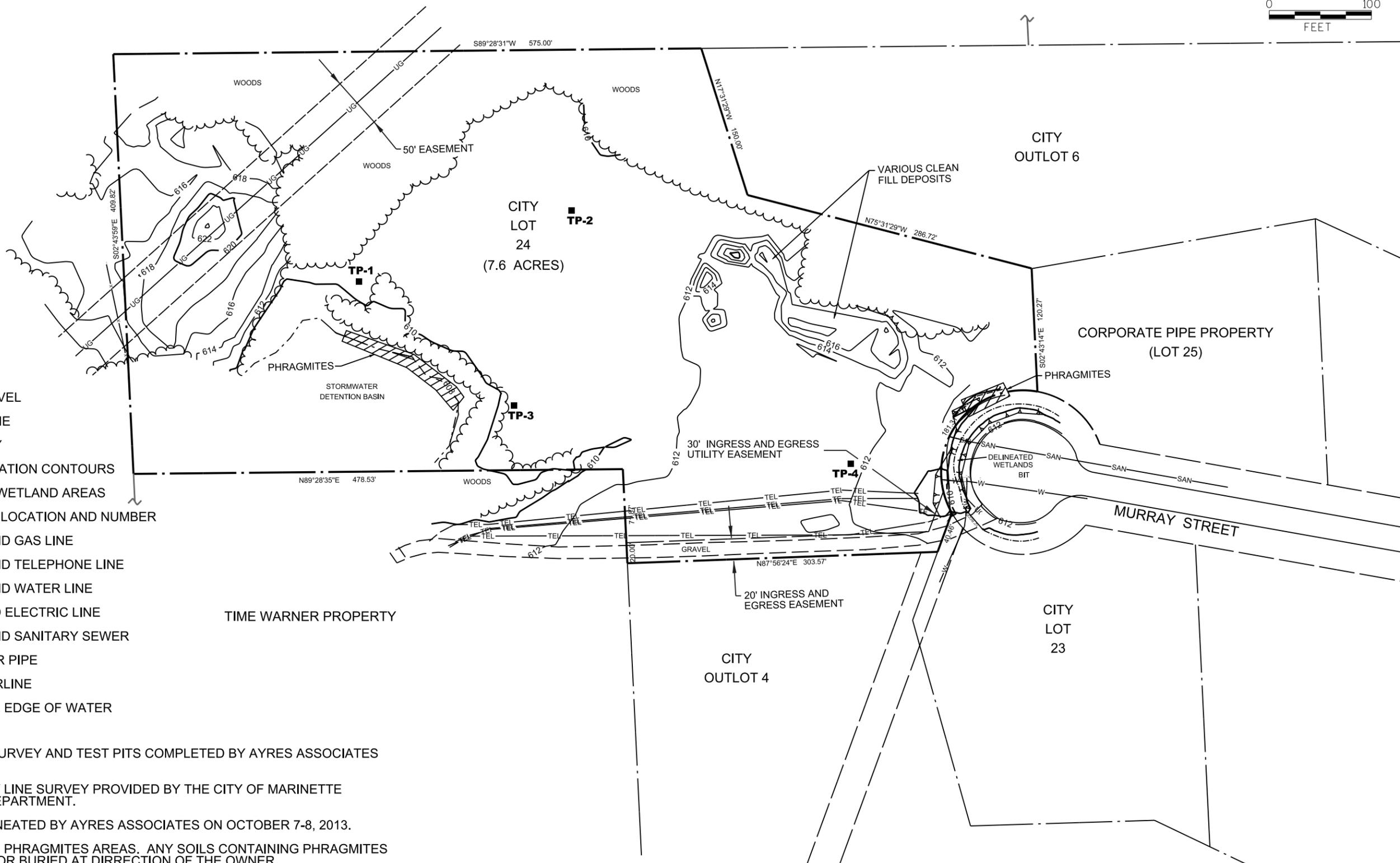


ANTICIPATED DREDGE SPOILS TRUCK ROUTES

SHEET NO
C1.0



NORTH



LEGEND

- TREE LINE
- EDGE OF GRAVEL
- PROPERTY LINE
- RIGHT OF WAY
- 2 - FOOT ELEVATION CONTOURS
- DELINEATED WETLAND AREAS
- SOIL TEST PIT LOCATION AND NUMBER
- UNDERGROUND GAS LINE
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND WATER LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND SANITARY SEWER
- STORM SEWER PIPE
- DITCH CENTERLINE
- APPROXIMATE EDGE OF WATER

NOTES:

1. TOPOGRAPHIC SURVEY AND TEST PITS COMPLETED BY AYRES ASSOCIATES ON 10-13-2013.
2. PLAT/ PROPERTY LINE SURVEY PROVIDED BY THE CITY OF MARINETTE ENGINEERING DEPARTMENT.
3. WETLANDS DELINEATED BY AYRES ASSOCIATES ON OCTOBER 7-8, 2013.
4. DO NOT DISTURB PHRAGMITES AREAS. ANY SOILS CONTAINING PHRAGMITES TO BE TREATED OR BURIED AT DIRRECTION OF THE OWNER.

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DR BY	T. SHUPERT	BOOK NO.		3	March 19, 2014	100% Design Level Plans
CHK BY	D. FREE	JOB NO.	19-0277.36	2	Feb. 18, 2014	60% Design Level Plans
DATE	JUNE 2014	SCALE	AS SHOWN	1	Nov. 15, 2013	30% Design Level Plans
				NO.	DATE	REVISION

MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



LOT 24 EXISTING CONDITIONS
NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE

DRAWING NO.
C2.0



NORTH



CLEARING AND GRUBBING WITHIN CONSTRUCTION LIMITS TO FACILITATE PROJECT

20' STORMWATER MANAGEMENT AREA

LIMITS OF DREDGE MATERIAL CONTAINMENT AREA 3.03 ac

20' PROPERTY LINE SETBACK

CITY OUTLOT 6

CONSTRUCTION LIMITS

CITY LOT 24 (7.6 ACRES)

LOT 24 CONTAINMENT SITE AREA

CORPORATE PIPE PROPERTY (LOT 25)

TOPSOIL STOCKPILE AREA

STORMWATER DETENTION BASIN

LEGEND

- TREE LINE
- EDGE OF GRAVEL
- PROPERTY LINE
- RIGHT OF WAY
- 2 - FOOT ELEVATION CONTOURS
- DELINEATED WETLAND AREAS
- SOIL TEST PIT LOCATION AND NUMBER
- UNDERGROUND GAS LINE
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND WATER LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND SANITARY SEWER
- STORM SEWER PIPE
- DITCH CENTERLINE
- APPROXIMATE EDGE OF WATER
- CONSTRUCTION LIMITS

NOTES:

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TIME WARNER PROPERTY

CITY OUTLOT 4

CITY LOT 23

MURRAY STREET

30' INGRESS AND EGRESS UTILITY EASEMENT

20' INGRESS AND EGRESS EASEMENT

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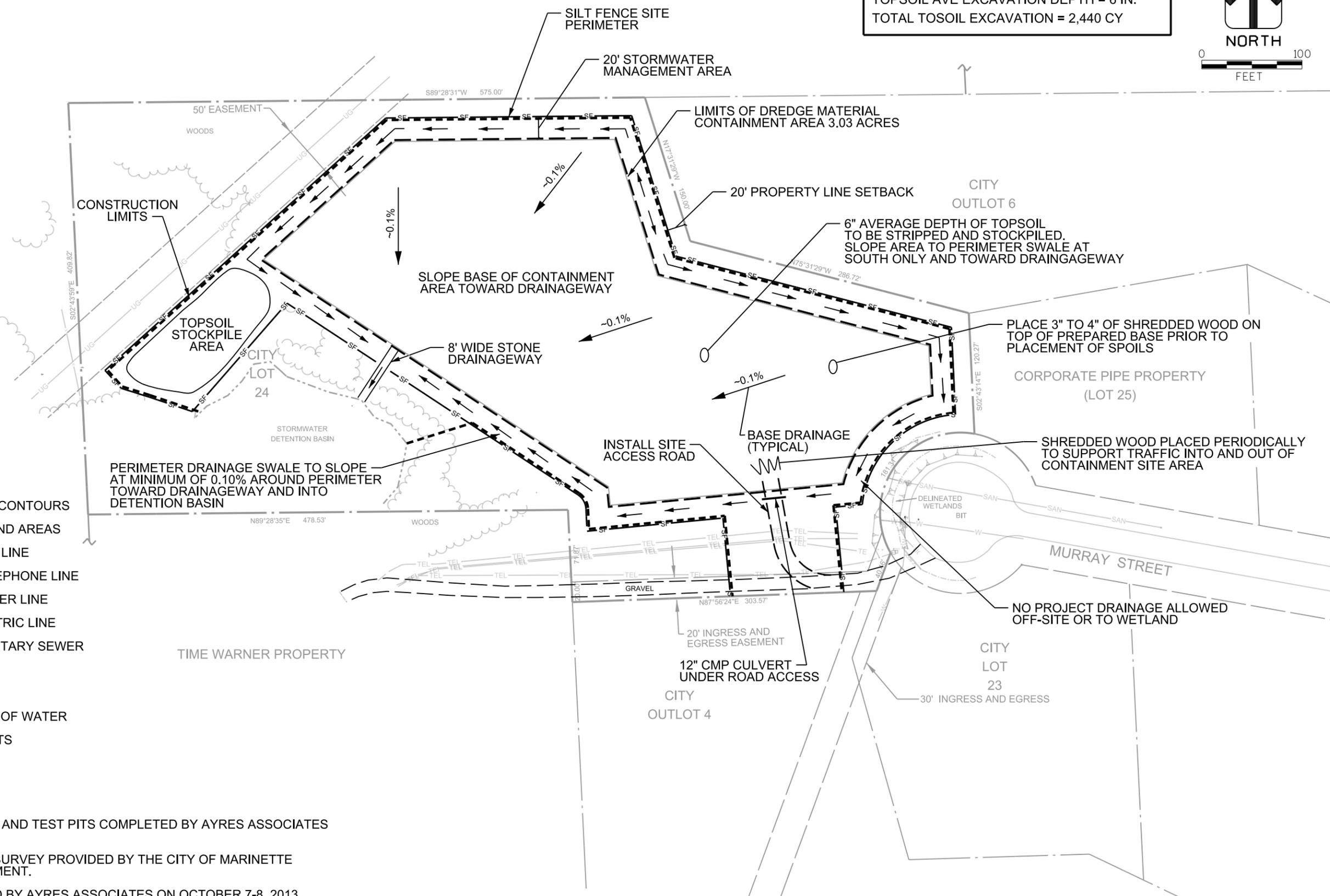
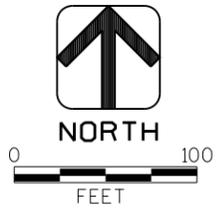
MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



LOT 24 LAYOUT
NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE

DRAWING NO. C2.1

EARTHWORK ESTIMATES
 TOPSOIL AVE EXCAVATION DEPTH = 6 IN.
 TOTAL TOSOIL EXCAVATION = 2,440 CY



- LEGEND**
- TREE LINE
 - EDGE OF GRAVEL
 - PROPERTY LINE
 - RIGHT OF WAY
 - 2 - FOOT ELEVATION CONTOURS
 - DELINEATED WETLAND AREAS
 - UNDERGROUND GAS LINE
 - UNDERGROUND TELEPHONE LINE
 - UNDERGROUND WATER LINE
 - UNDERGROUND ELECTRIC LINE
 - UNDERGROUND SANITARY SEWER
 - STORM SEWER PIPE
 - DITCH CENTERLINE
 - APPROXIMATE EDGE OF WATER
 - CONSTRUCTION LIMITS
 - SILT FENCE

- NOTES:**
1. TOPOGRAPHIC SURVEY AND TEST PITS COMPLETED BY AYRES ASSOCIATES ON 10-13-2013.
 2. PLAT/ PROPERTY LINE SURVEY PROVIDED BY THE CITY OF MARINETTE ENGINEERING DEPARTMENT.
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DR BY	T. SHUPERT	BOOK NO.		3	March 19, 2014	100% Design Level Plans
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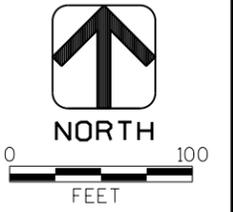
MENKAUNEE HARBOR IMPROVEMENTS
 CITY OF MARINETTE
 MARINETTE, WISCONSIN



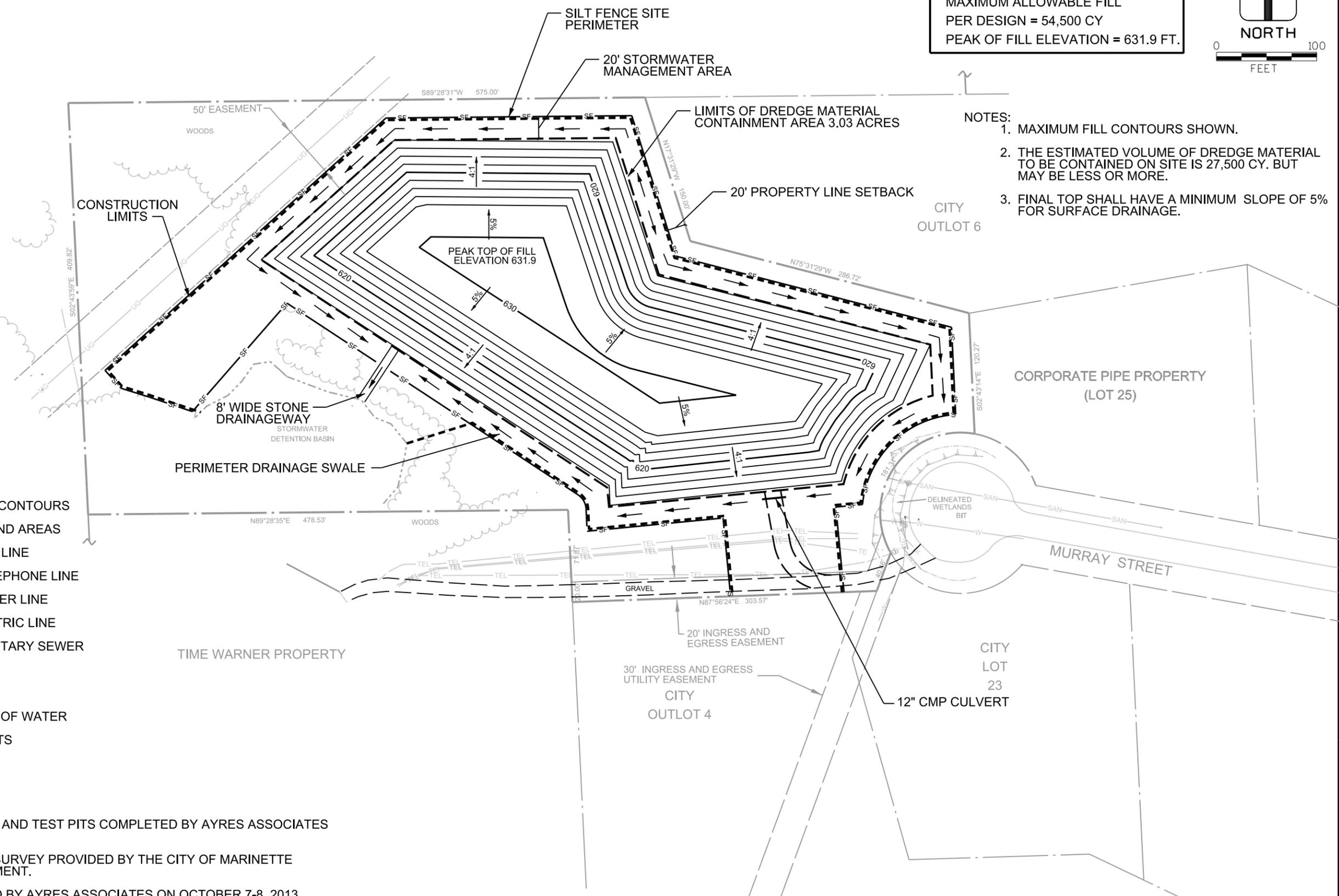
LOT 24 BASE DESIGN
 NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE

DRAWING NO. C2.2

EARTHWORK ESTIMATES
 MAXIMUM ALLOWABLE FILL
 PER DESIGN = 54,500 CY
 PEAK OF FILL ELEVATION = 631.9 FT.



- NOTES:**
1. MAXIMUM FILL CONTOURS SHOWN.
 2. THE ESTIMATED VOLUME OF DREDGE MATERIAL TO BE CONTAINED ON SITE IS 27,500 CY. BUT MAY BE LESS OR MORE.
 3. FINAL TOP SHALL HAVE A MINIMUM SLOPE OF 5% FOR SURFACE DRAINAGE.



LEGEND

- TREE LINE
- EDGE OF GRAVEL
- PROPERTY LINE
- RIGHT OF WAY
- 2 - FOOT ELEVATION CONTOURS
- DELINEATED WETLAND AREAS
- UNDERGROUND GAS LINE
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND WATER LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND SANITARY SEWER
- STORM SEWER PIPE
- DITCH CENTERLINE
- APPROXIMATE EDGE OF WATER
- CONSTRUCTION LIMITS
- SILT FENCE

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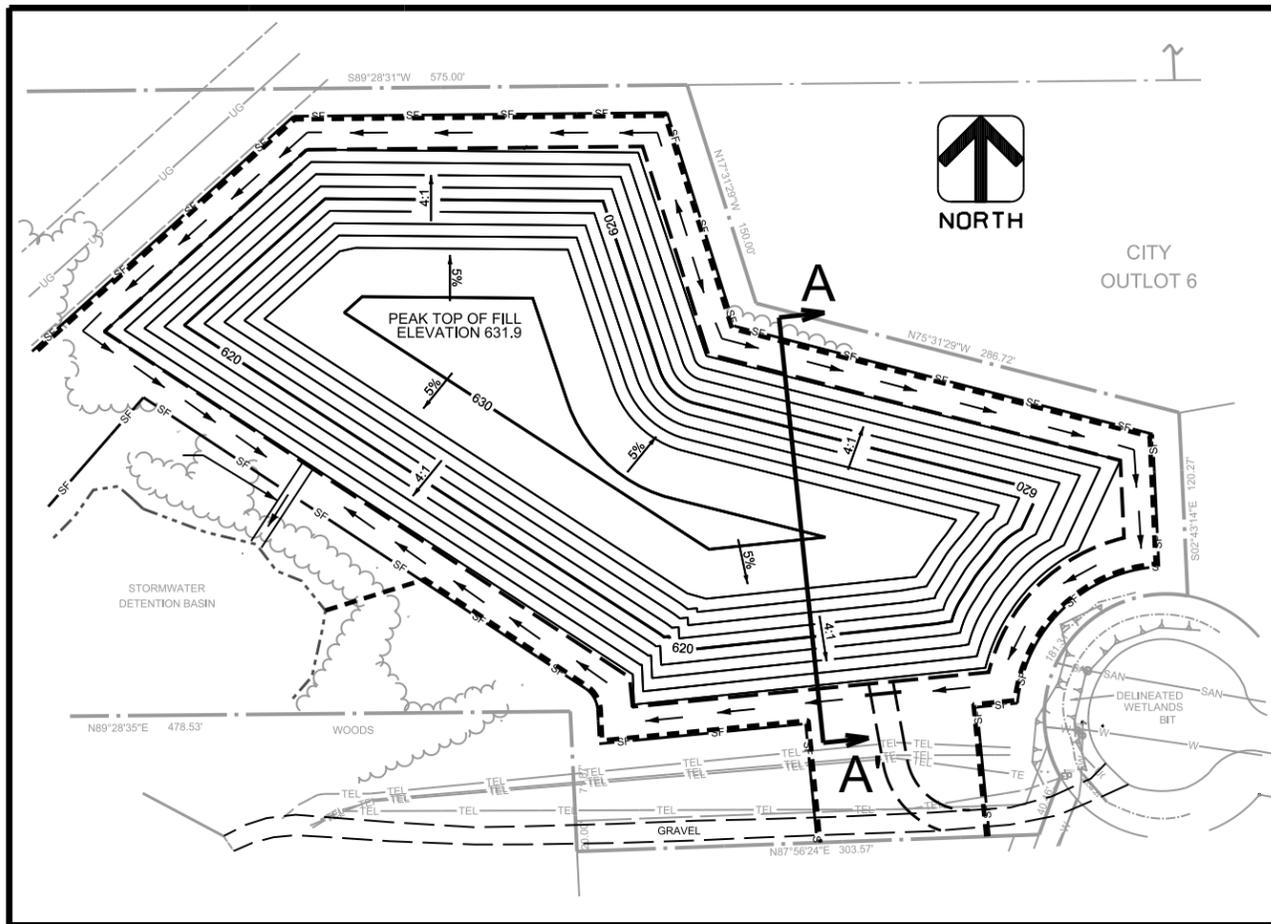
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 CITY OF MARINETTE
 MARINETTE, WISCONSIN

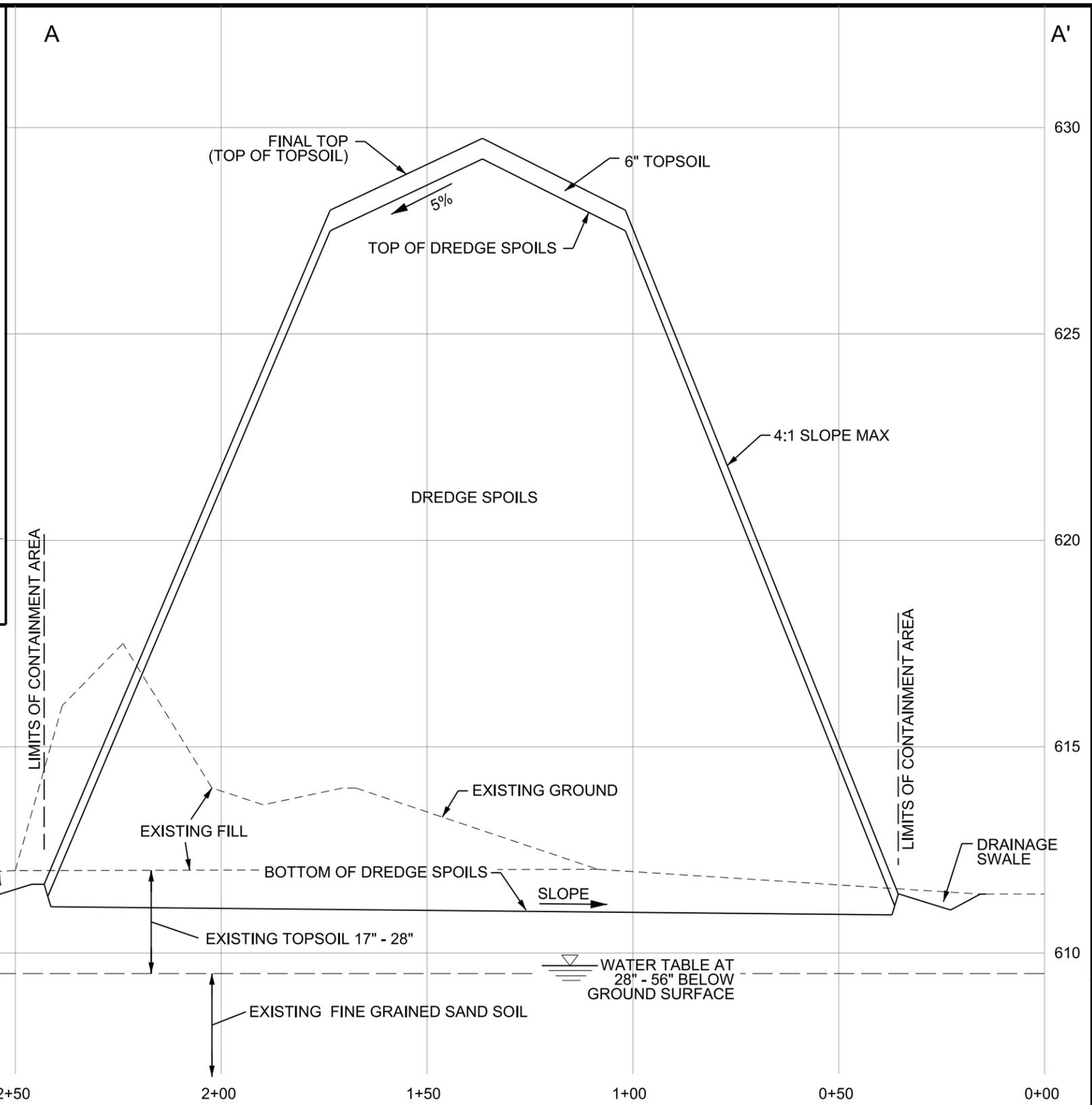


LOT 24 FINAL GRADES
 NAVIGATIONAL DREDGE SPOILS CONTAINMENT SITE

DRAWING NO.
C2.3



SECTION LOCATION
NOT TO SCALE



CROSS SECTION A - A'
LOOKING EAST

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MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



CROSS SECTION

DRAWING NO.
C2.4

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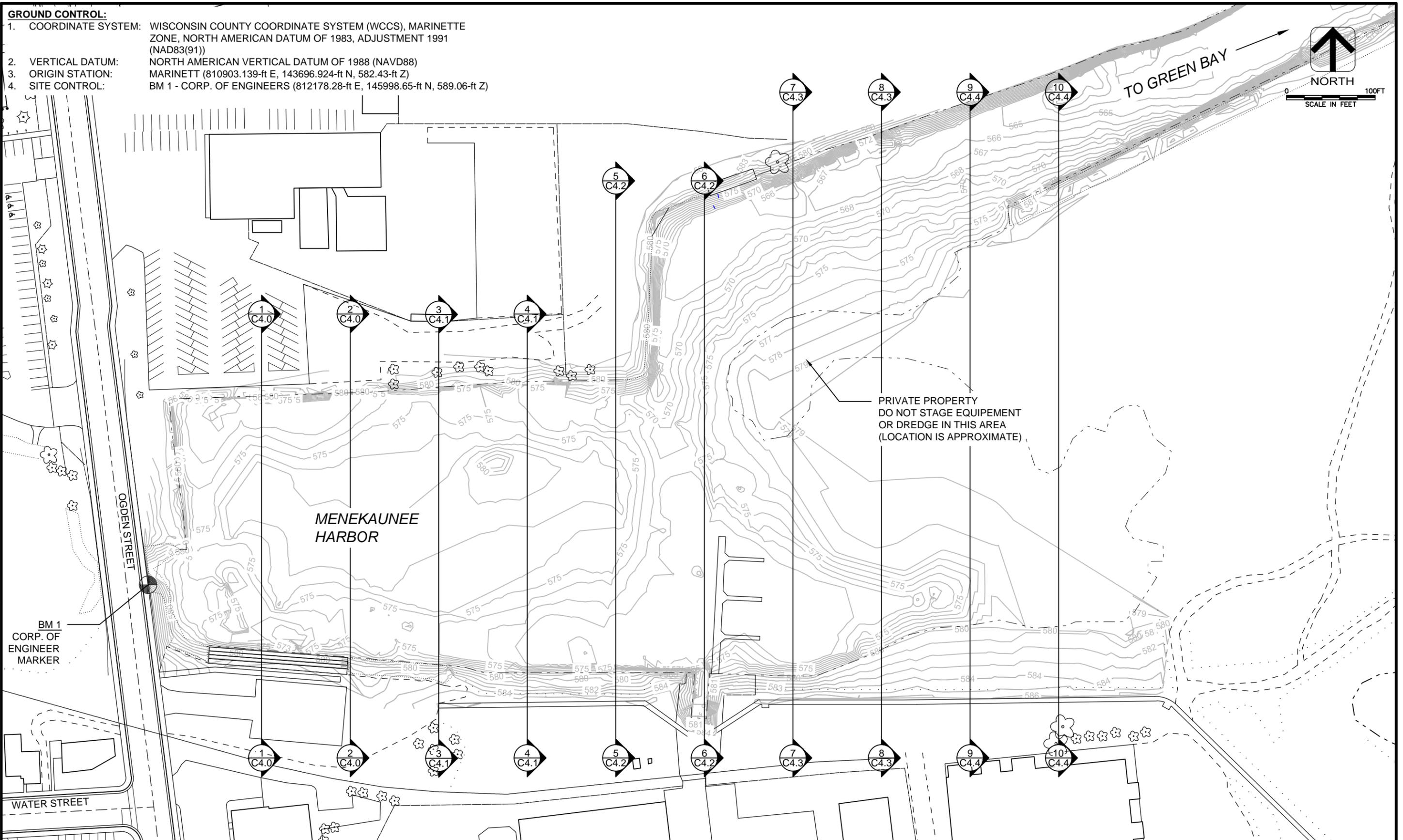
GROUND CONTROL:

1. COORDINATE SYSTEM: WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MARINETTE ZONE, NORTH AMERICAN DATUM OF 1983, ADJUSTMENT 1991 (NAD83(91))
2. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
3. ORIGIN STATION: MARINETT (810903.139-ft E, 143696.924-ft N, 582.43-ft Z)
4. SITE CONTROL: BM 1 - CORP. OF ENGINEERS (812178.28-ft E, 145998.65-ft N, 589.06-ft Z)



NORTH

0 100FT
SCALE IN FEET



BM 1
CORP. OF
ENGINEER
MARKER

DES BY G. SHAMBEAU	BOOK NO
DR BY G. SHAMBEAU	PROJ NO 19-0277.33
CHK BY C. GOODWIN	DATE JUNE 2014

NO	DATE	REVISION	NO	DATE	REVISION

MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



EXISTING HARBOR PLAN & CONTOURS
SHEET NO
C3.0

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NOTES:

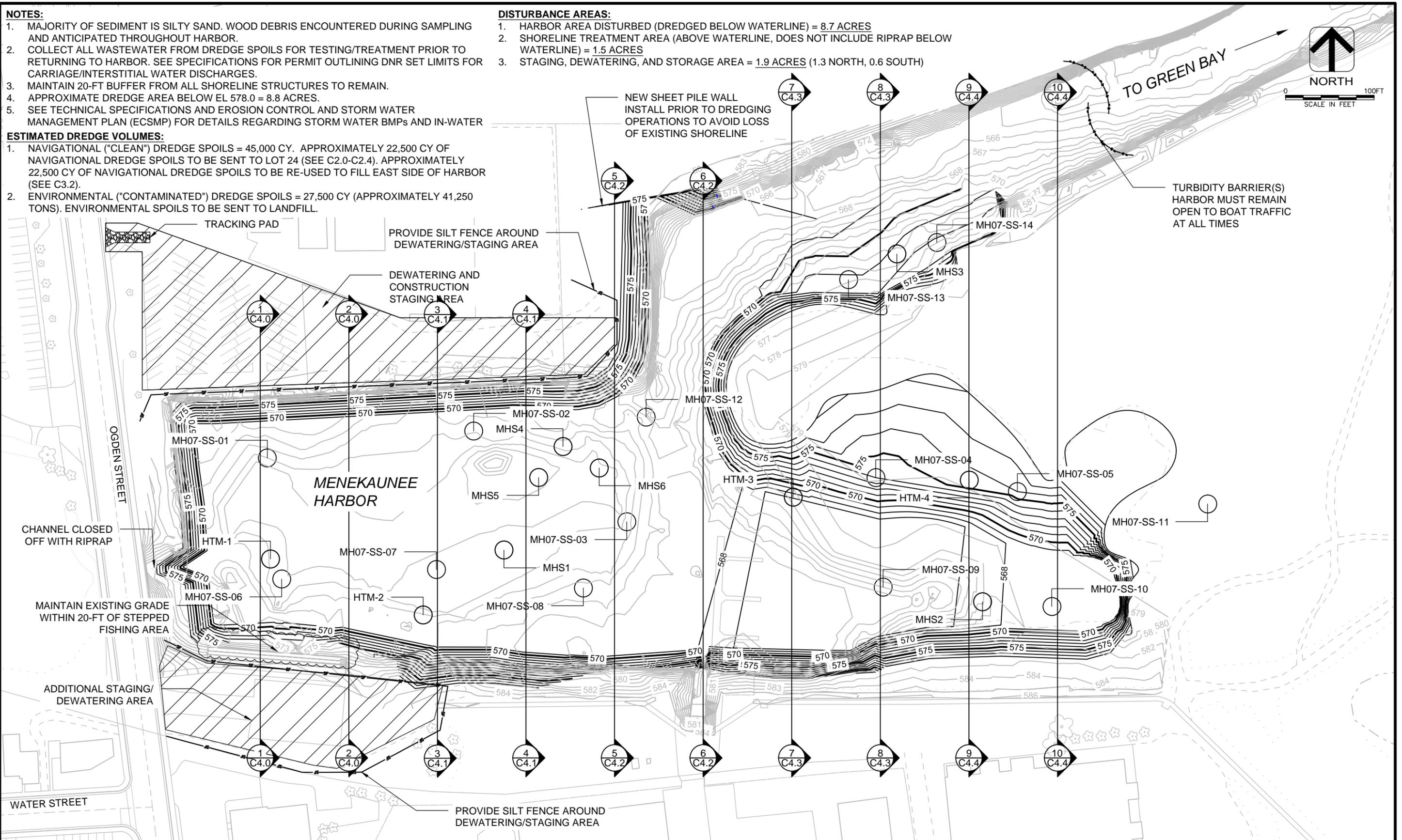
1. MAJORITY OF SEDIMENT IS SILTY SAND. WOOD DEBRIS ENCOUNTERED DURING SAMPLING AND ANTICIPATED THROUGHOUT HARBOR.
2. COLLECT ALL WASTEWATER FROM DREDGE SPOILS FOR TESTING/TREATMENT PRIOR TO RETURNING TO HARBOR. SEE SPECIFICATIONS FOR PERMIT OUTLINING DNR SET LIMITS FOR CARRIAGE/INTERSTITIAL WATER DISCHARGES.
3. MAINTAIN 20-FT BUFFER FROM ALL SHORELINE STRUCTURES TO REMAIN.
4. APPROXIMATE DREDGE AREA BELOW EL 578.0 = 8.8 ACRES.
5. SEE TECHNICAL SPECIFICATIONS AND EROSION CONTROL AND STORM WATER MANAGEMENT PLAN (ECSMP) FOR DETAILS REGARDING STORM WATER BMPs AND IN-WATER

DISTURBANCE AREAS:

1. HARBOR AREA DISTURBED (DREDGED BELOW WATERLINE) = 8.7 ACRES
2. SHORELINE TREATMENT AREA (ABOVE WATERLINE, DOES NOT INCLUDE RIPRAP BELOW WATERLINE) = 1.5 ACRES
3. STAGING, DEWATERING, AND STORAGE AREA = 1.9 ACRES (1.3 NORTH, 0.6 SOUTH)

ESTIMATED DREDGE VOLUMES:

1. NAVIGATIONAL ("CLEAN") DREDGE SPOILS = 45,000 CY. APPROXIMATELY 22,500 CY OF NAVIGATIONAL DREDGE SPOILS TO BE SENT TO LOT 24 (SEE C2.0-C2.4). APPROXIMATELY 22,500 CY OF NAVIGATIONAL DREDGE SPOILS TO BE RE-USED TO FILL EAST SIDE OF HARBOR (SEE C3.2).
2. ENVIRONMENTAL ("CONTAMINATED") DREDGE SPOILS = 27,500 CY (APPROXIMATELY 41,250 TONS). ENVIRONMENTAL SPOILS TO BE SENT TO LANDFILL.



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DR BY	G. SHAMBEAU	PROJ NO	19-0277.33
CHK BY	C. GOODWIN	DATE	JUNE 2014

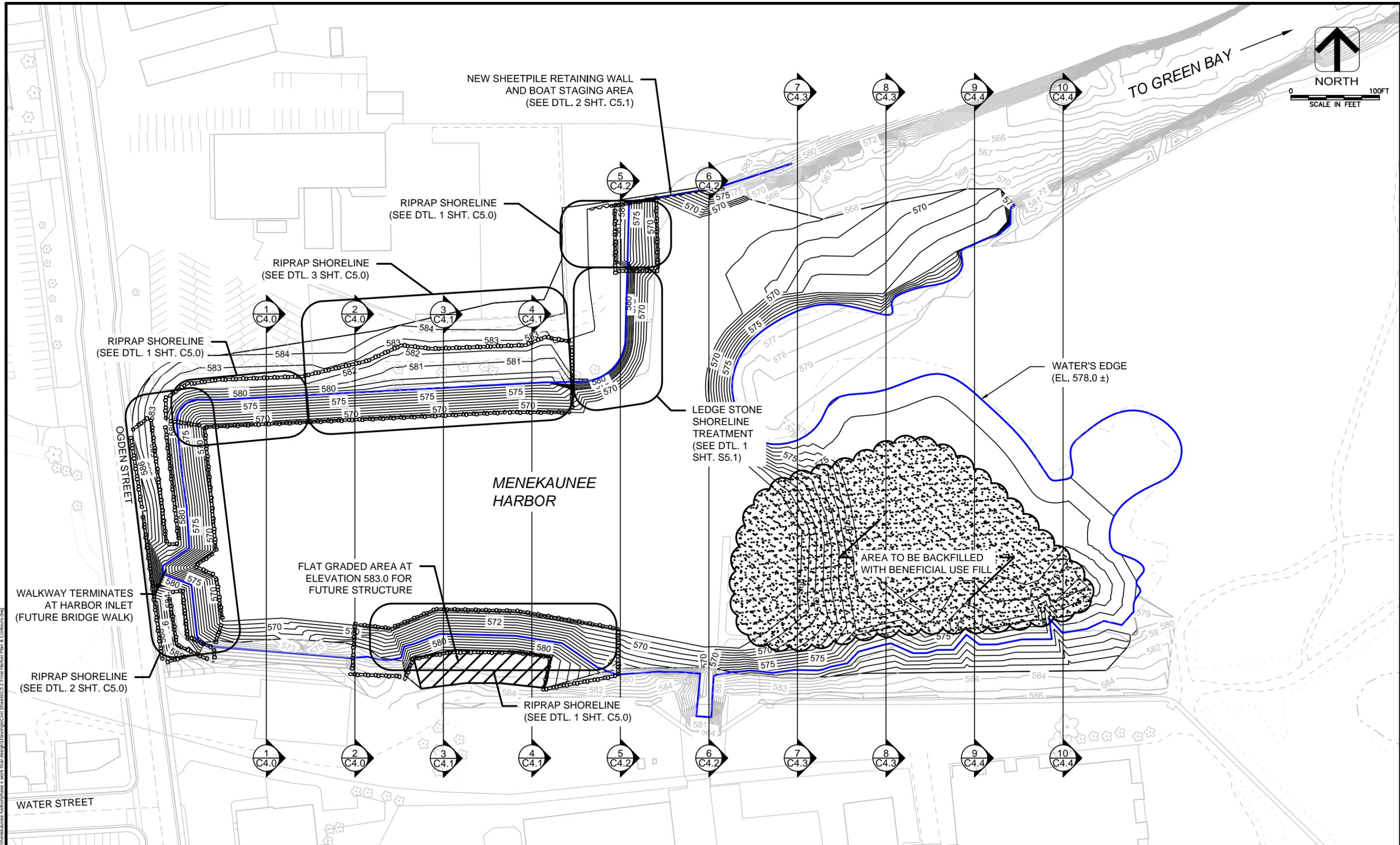
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MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



HARBOR DREDGING PLAN & INTERMEDIARY CONTOURS

SHEET NO
C3.1



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G. SHAMBEAU	19-0277.33						
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FINAL HARBOR PLAN & CONTOURS

SHEET NO
C3.2

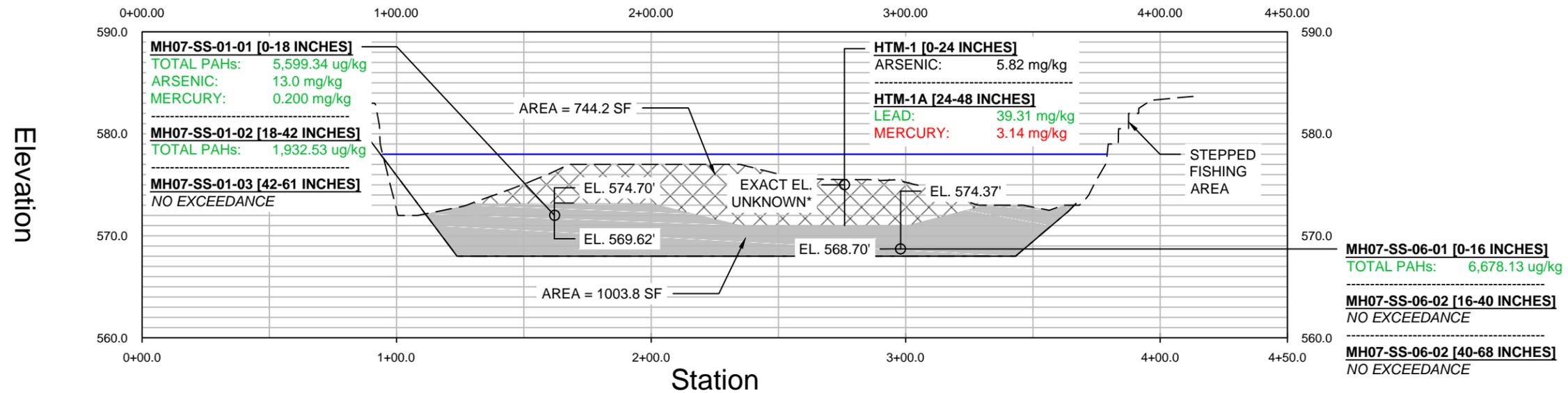
LEGEND:

- ENVIRONMENTAL DREDGE SPOILS (TO LANDFILL)
- NAVIGATIONAL DREDGE SPOILS (TO LOT 24/BENEFICIAL RE-USE)
- BENEFICIAL USE FILL
- EXISTING GRADE LINE
- DREDGE GRADE LINE
- FINAL GRADE LINE

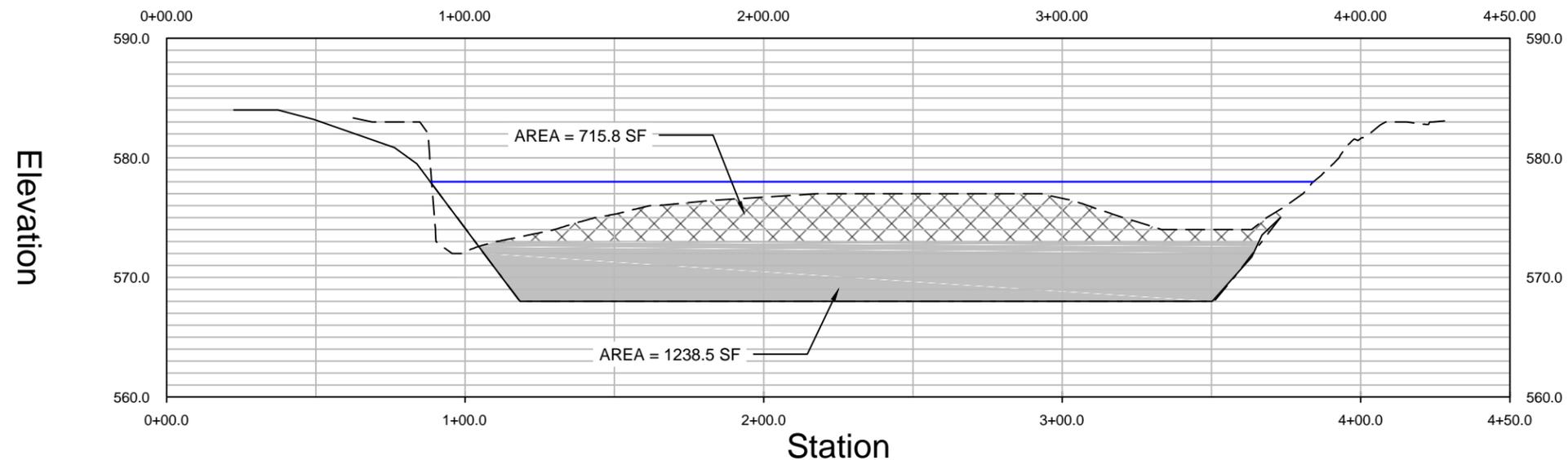
NOTES:

1. BORING LOCATIONS NOT LOCATED DIRECTLY ON CROSS SECTION LOCATION. INCONSISTENCIES IN GRADE LINES TOP OR BOTTOM OF SAMPLE MAY BE DUE TO LATERAL OFFSETS. SEE SHEET C2.1 FOR EXACT LOCATION OF SAMPLES.
2. GREEN TEXT INDICATES TEC EXCEEDENCE.
3. BLUE TEXT INDICATES TEC & MEC EXCEEDENCE.
4. RED TEXT INDICATES TEC, MEC, & PEC EXCEEDENCE.
5. * EXACT ELEVATIONS NOT RECORDED. ASSUMED AT TOP OF SILT AS SURVEYED NOVEMBER 2011 BY AYRES ASSOCIATES.
6. MAJORITY OF SEDIMENT IS SILTY SAND. WOOD DEBRIS ENCOUNTERED DURING SAMPLING AND ANTICIPATED THROUGHOUT HARBOR.
7. HARBOR WATER LEVEL ELEVATION SHOWN AT TIME OF SURVEY (EL. 578.0). DURING HIGH LAKE LEVEL CYCLE, HARBOR ELEVATION MAY REACH EL. 582.5.

Profile View of Cross-Section 1



Profile View of Cross-Section 2



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HARBOR CROSS SECTIONS - 1

SHEET NO
C4.0

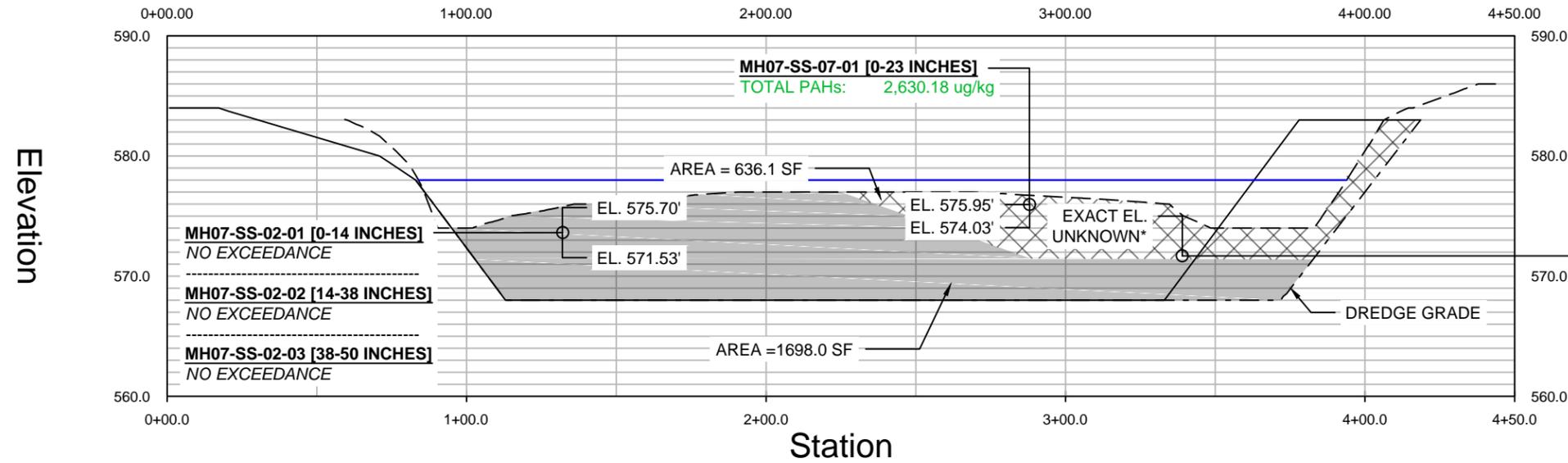
LEGEND:

- ENVIRONMENTAL DREDGE SPOILS
- NAVIGATIONAL DREDGE SPOILS
- BENEFICIAL USE FILL
- EXISTING GRADE LINE
- DREDGE GRADE LINE
- FINAL GRADE LINE

NOTES:

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Profile View of Cross-Section 3



HTM-2 [0-24 INCHES]
 MERCURY: 1.78 mg/kg

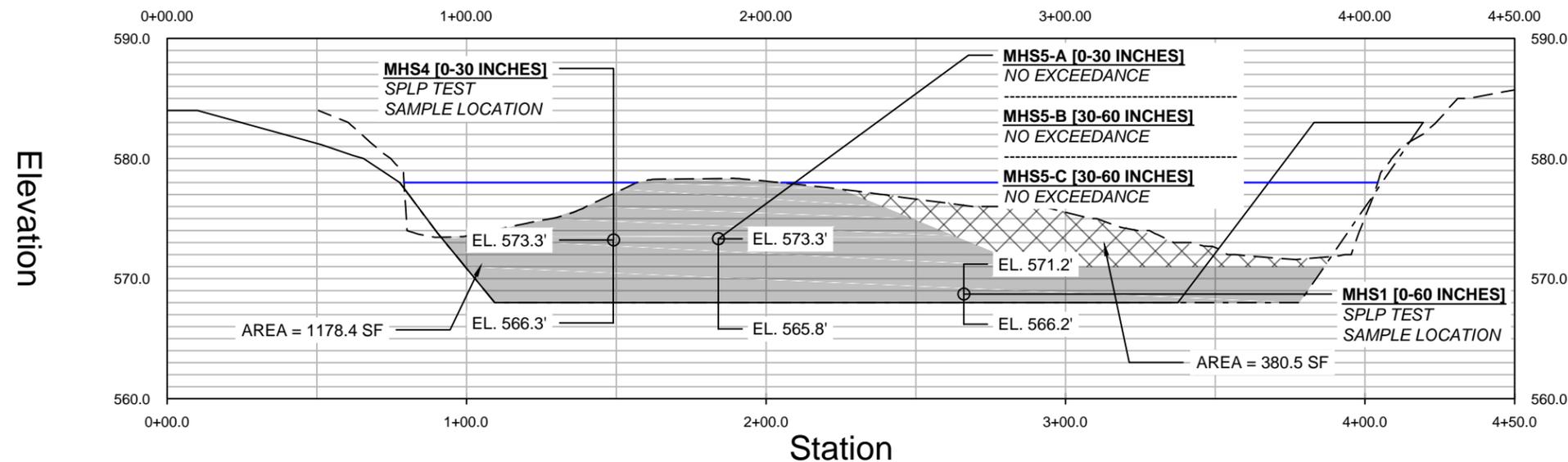
HTM-2A [24-48 INCHES]
 COPPER: 37.16 mg/kg
 LEAD: 79.96 mg/kg
 NICKEL: 23.2 mg/kg
 ZINC: 146.0 mg/kg
 MERCURY: 3.00 mg/kg

HTM-2A [24-31.9 INCHES]
 ARSENIC: 13.58 mg/kg

HTM-2B [31.9-39.8 INCHES]
 ARSENIC: 5.26 mg/kg

HTM-2C [39.8 INCHES]
 ARSENIC: 7.12 mg/kg

Profile View of Cross-Section 4



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HARBOR CROSS SECTIONS - 2

SHEET NO
C4.1

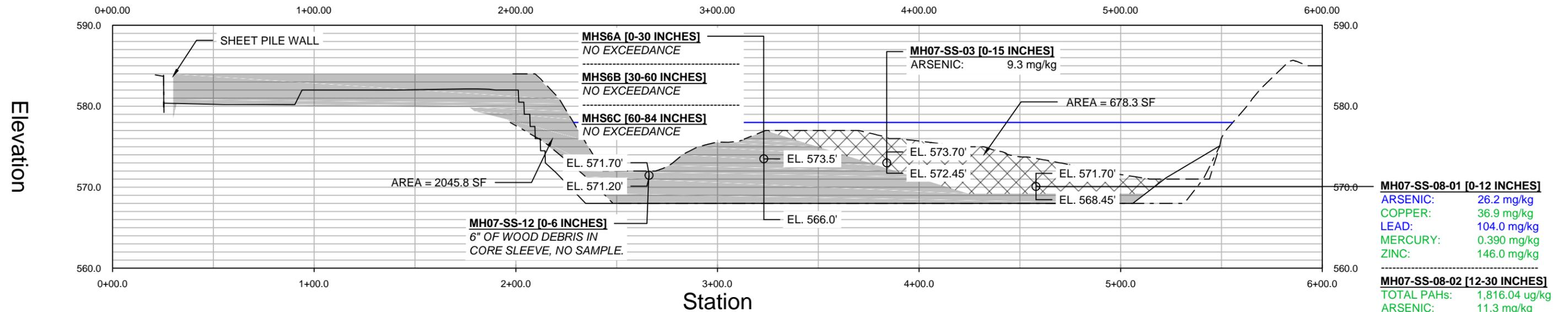
LEGEND:

-  - ENVIRONMENTAL DREDGE SPOILS
-  - NAVIGATIONAL DREDGE SPOILS
-  - BENEFICIAL USE FILL
-  - EXISTING GRADE LINE
-  - DREDGE GRADE LINE
-  - FINAL GRADE LINE

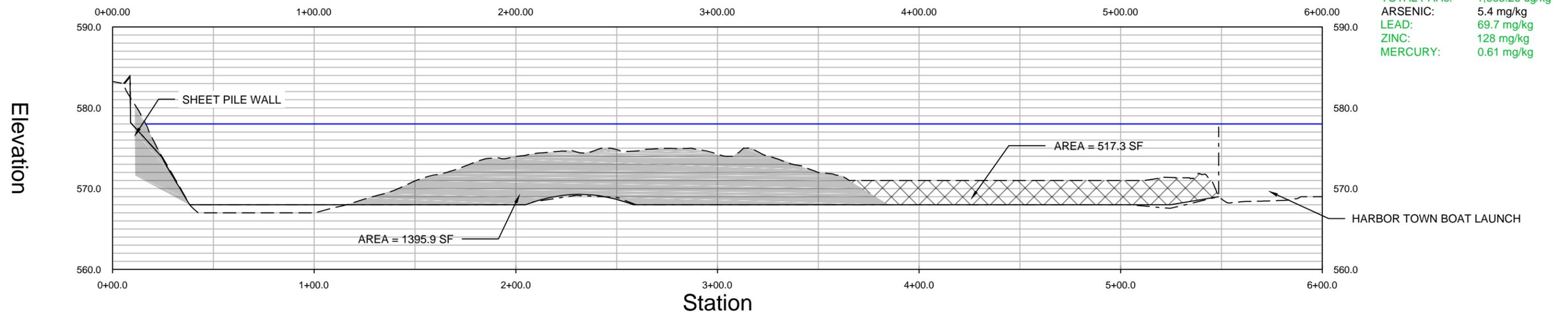
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7. HARBOR WATER LEVEL ELEVATION SHOWN AT TIME OF SURVEY (EL. 578.0). DURING HIGH LAKE LEVEL CYCLE, HARBOR ELEVATION MAY REACH EL. 582.5.

Profile View of Cross-Section 5



Profile View of Cross-Section 6



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HARBOR CROSS SECTIONS - 3

SHEET NO
C4.2

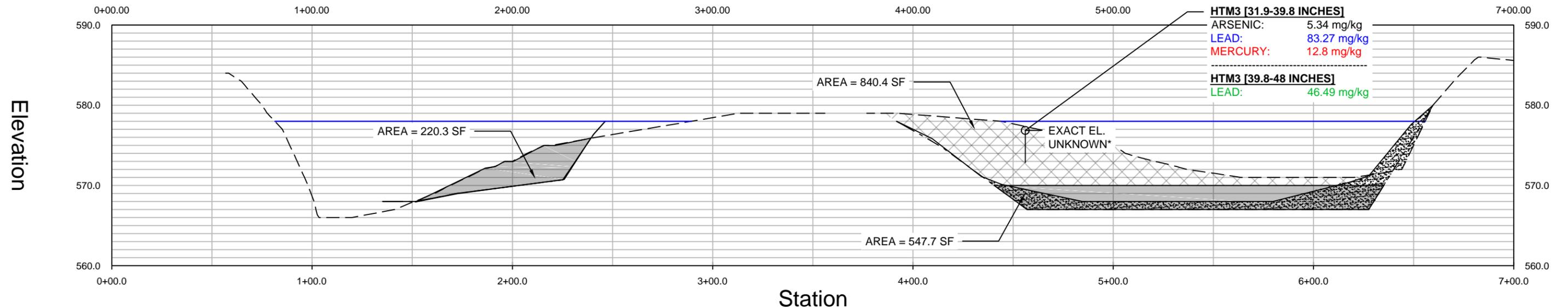
LEGEND:

-  - ENVIRONMENTAL DREDGE SPOILS
-  - NAVIGATIONAL DREDGE SPOILS
-  - BENEFICIAL USE FILL
-  - EXISTING GRADE LINE
-  - DREDGE GRADE LINE
-  - FINAL GRADE LINE

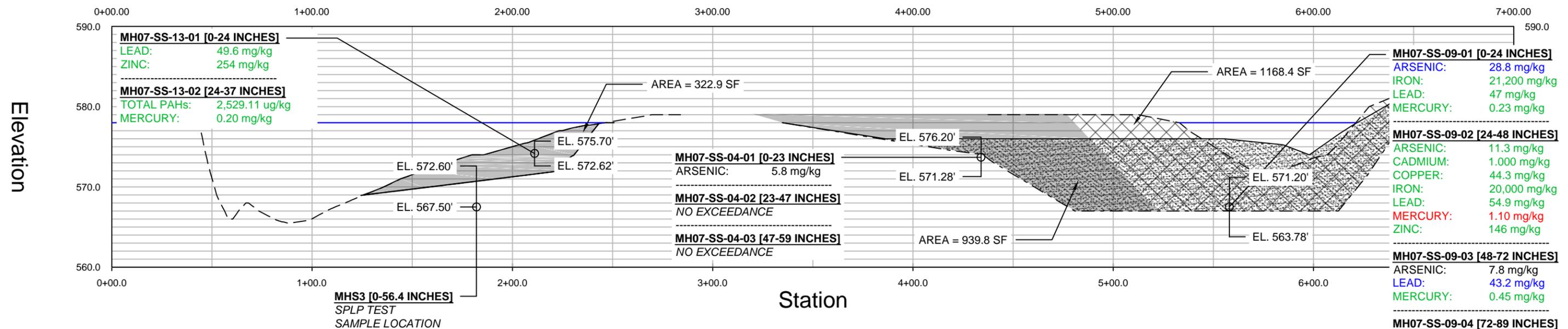
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Profile View of Cross-Section 7



Profile View of Cross-Section 8



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CITY OF MARINETTE
MARINETTE, WISCONSIN



HARBOR CROSS SECTIONS - 4

SHEET NO
C4.3

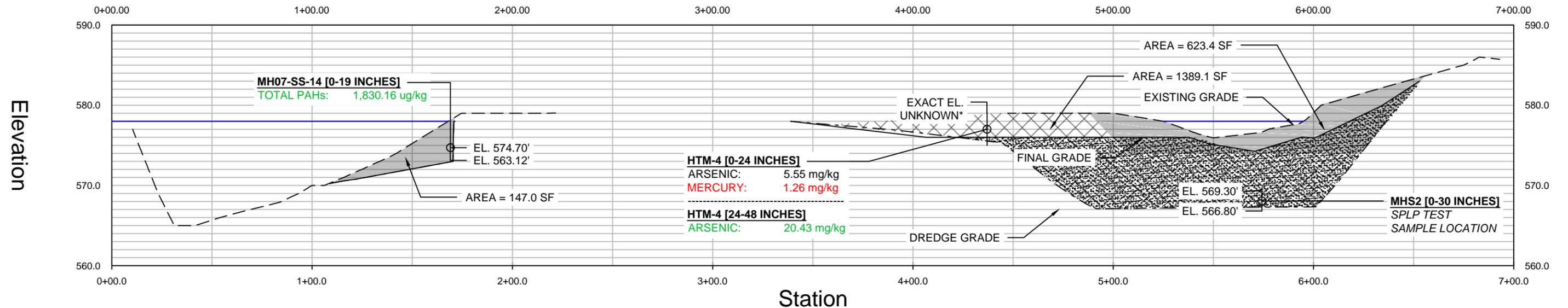
LEGEND:

-  - ENVIRONMENTAL DREDGE SPOILS
-  - NAVIGATIONAL DREDGE SPOILS
-  - BENEFICIAL USE FILL
-  - EXISTING GRADE LINE
-  - DREDGE GRADE LINE
-  - FINAL GRADE LINE

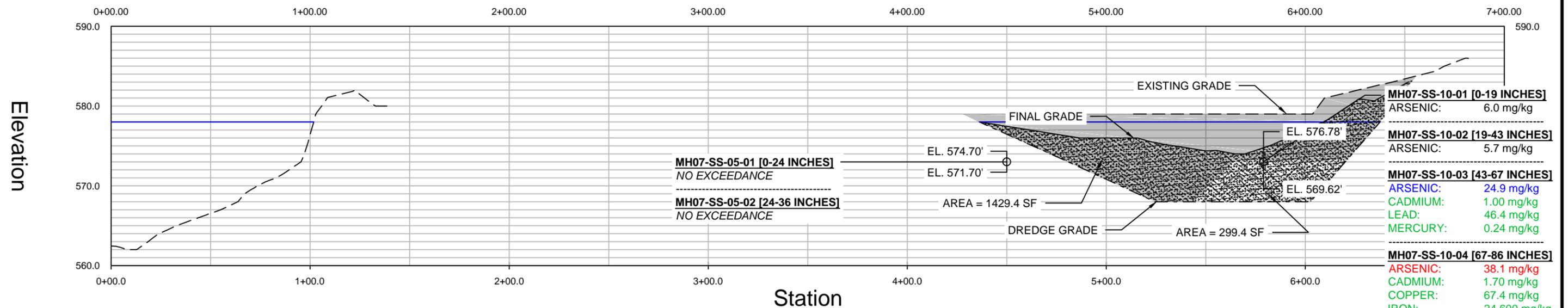
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Profile View of Cross-Section 9



Profile View of Cross-Section 10



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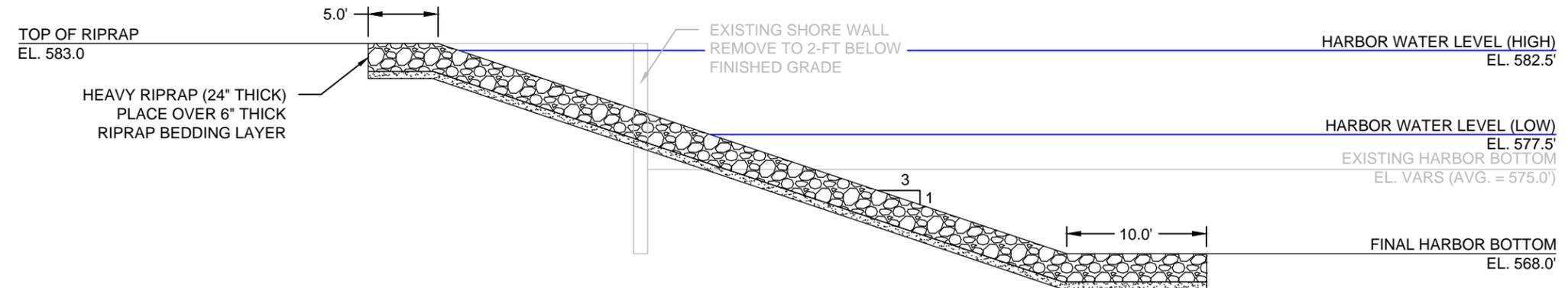
DES BY	BOOK NO	NO	DATE	REVISION	NO	DATE	REVISION
G. SHAMBEAU	----						
DR BY	PROJ NO						
G. SHAMBEAU	19-0277.33						
CHK BY	DATE						
C. GOODWIN	JUNE 2014						

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 CITY OF MARINETTE
 MARINETTE, WISCONSIN

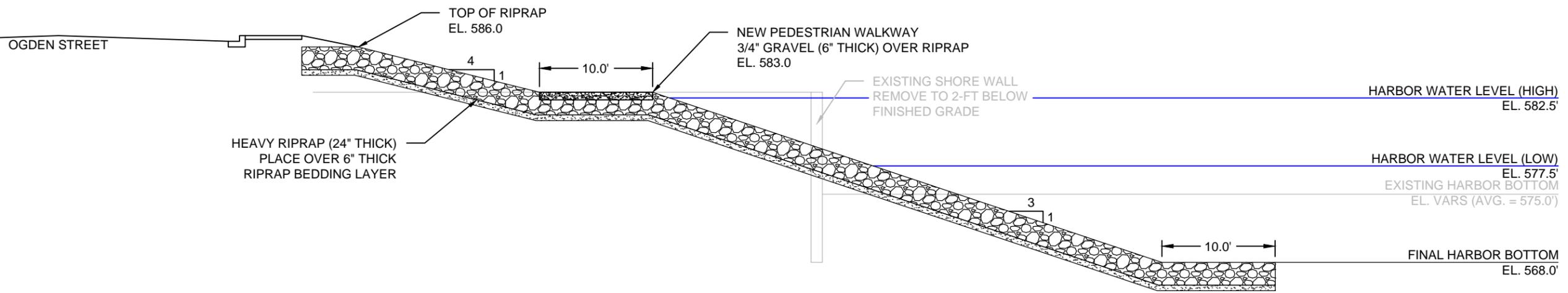


HARBOR CROSS SECTIONS - 5

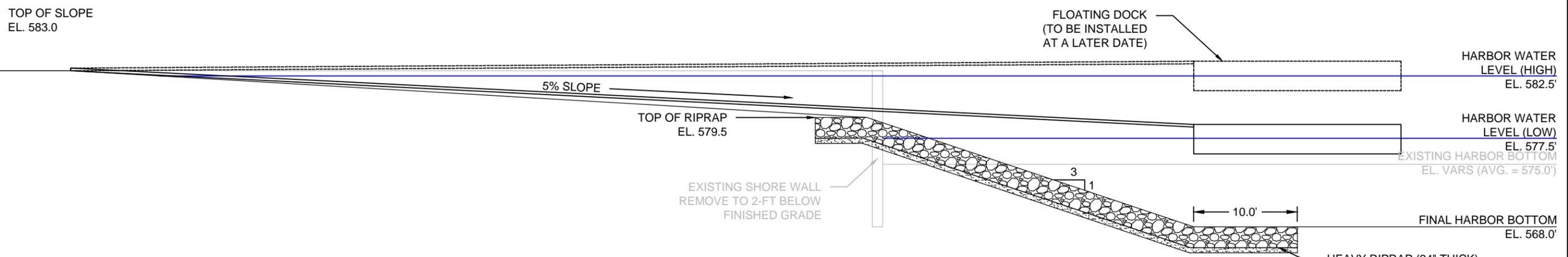
SHEET NO
C4.4



1 TYPICAL SECTION THRU RIPRAP SHORELINE
1" = 10'



2 TYPICAL SECTION THRU RIPRAP SHORELINE (ALONG OGDEN STREET)
1" = 10'



3 TYPICAL SECTION THRU RIPRAP SHORELINE (AT FLOATING DOCK)
1" = 10'

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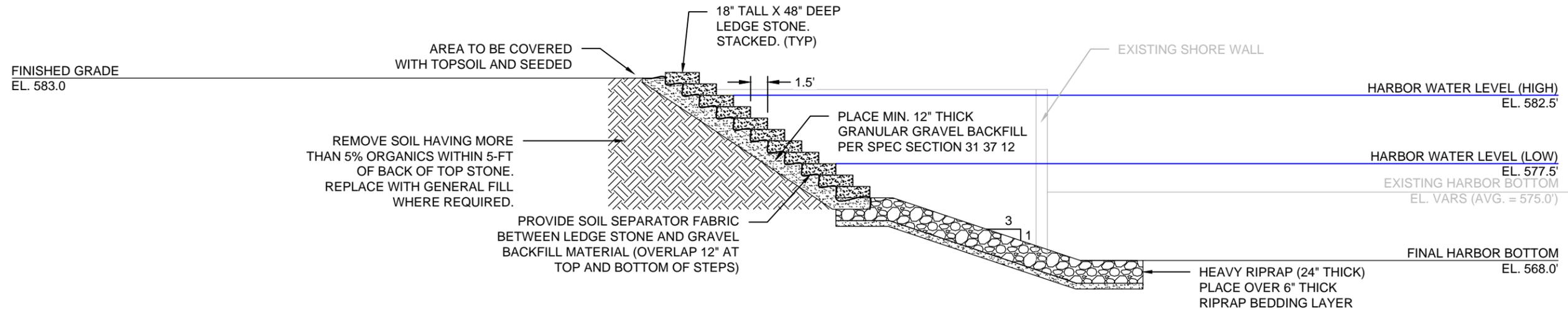
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MARINETTE, WISCONSIN

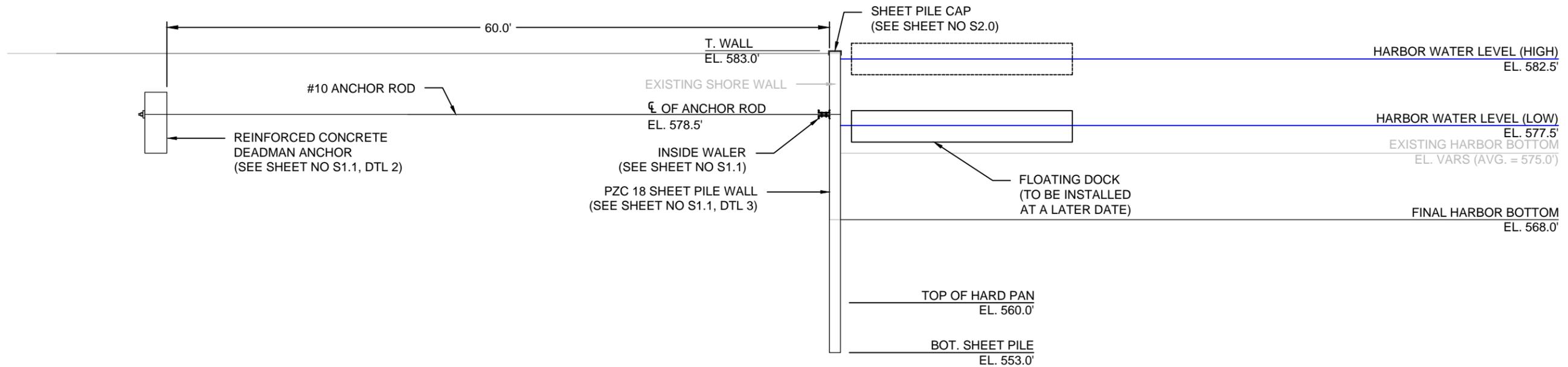


TYPICAL CROSS SECTIONS - 1

SHEET NO
C5.0



1 TYPICAL CROSS SECTION THRU LEDGE STONE SHORELINE
 1" = 10'



2 TYPICAL SECTION THRU SHEET PILE WALL
 1" = 10'

GENERAL NOTES:

- OVER-EXCAVATE ALL ENCOUNTERED VERY LOOSE SOILS (N<5 BPF) FROM WITHIN 3-FT OF THE BEARING ELEVATION AND 10-FT OF THE WALL SIDE OF THE CONCRETE DEADMAN ANCHOR.
- REMOVE SOILS HAVING MORE THAN 5% ORGANICS FROM WITHIN 5-FT OF THE BEARING ELEVATION OF THE DEADMAN ANCHOR.

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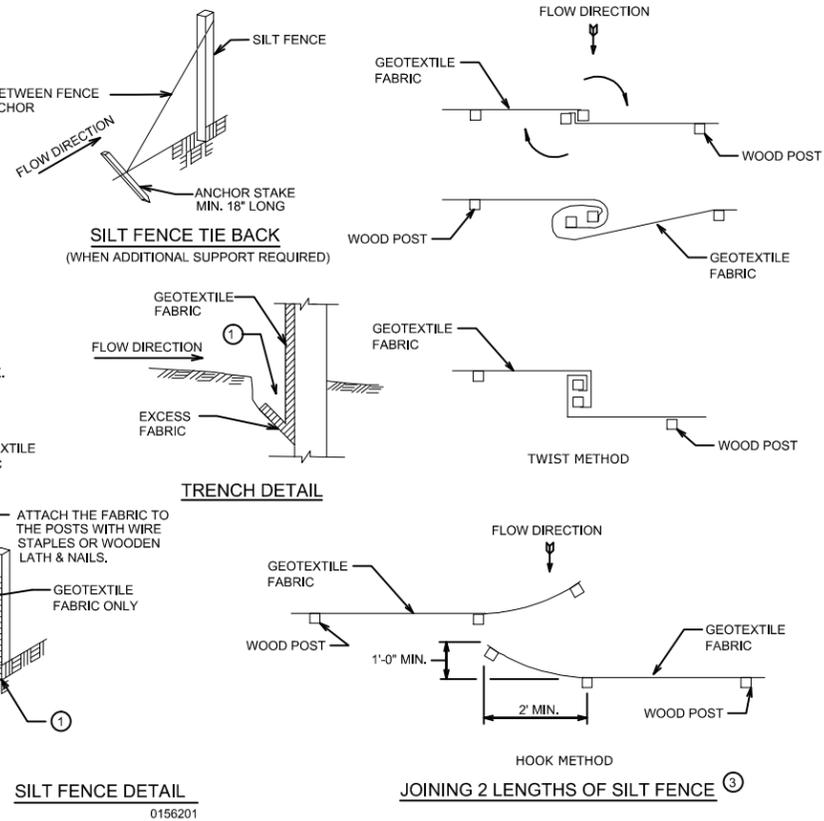


TYPICAL CROSS SECTIONS - 2

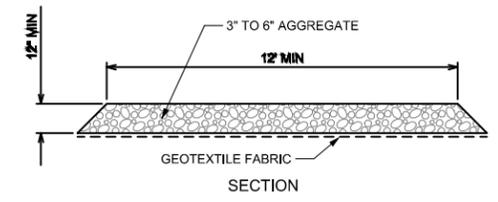
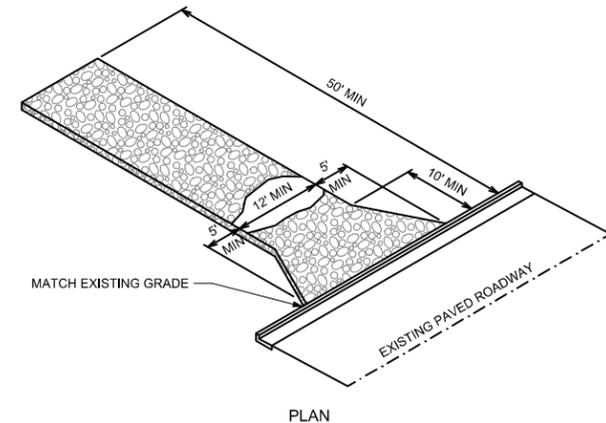
SHEET NO
C5.1

GENERAL NOTES:

- ① TRENCH SHALL BE A MIN OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD THE MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ② WOOD POSTS SHALL BE A MIN SIZE OF 1 1/8" x 1 1/8" OAK OR HICKORY.
- ③ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY, USE ONE OF THE FOLLOWING TWO METHODS:
 - A. TWIST METHOD -- OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES.
 - B. HOOK METHOD -- HOOK THE END OF EACH SILT FENCE LENGTH.



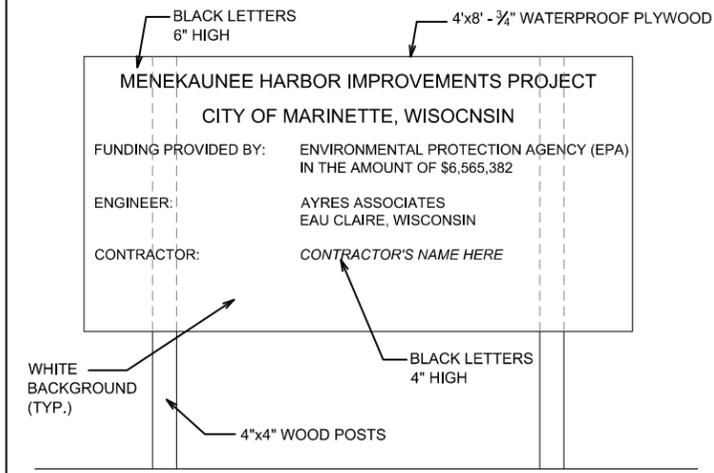
1 SILT FENCE DETAIL
0156201



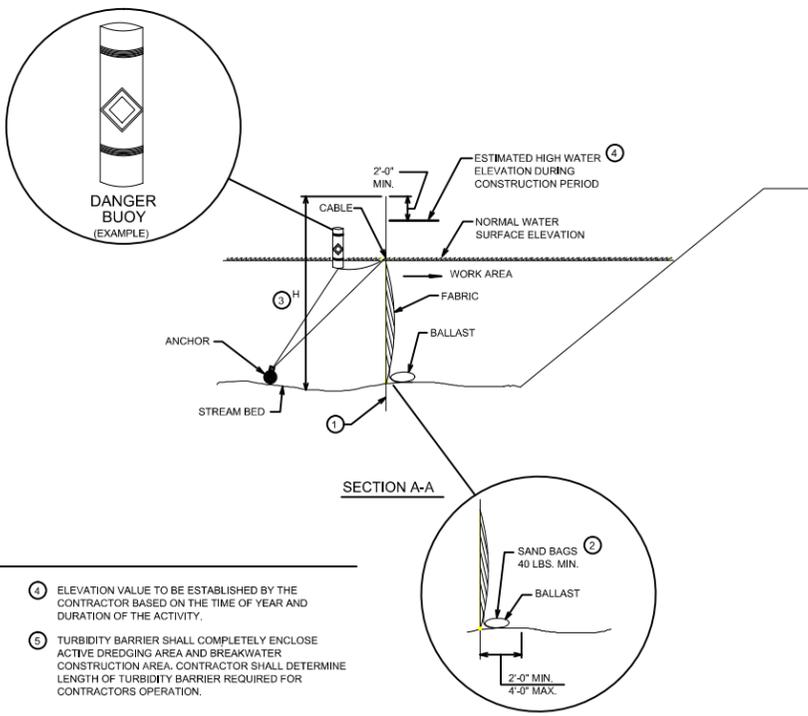
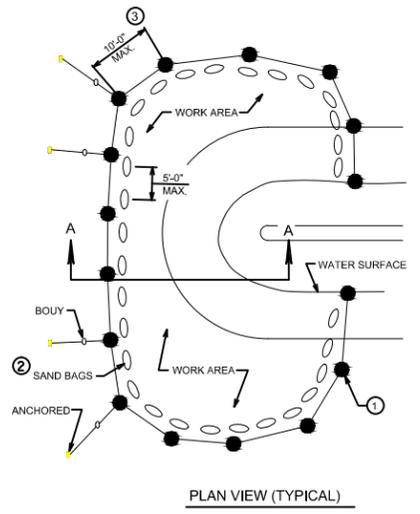
2 STONE TRACKING PAD
0156201

NOTES:

1. ALL PAINT SHALL BE EXTERIOR GRADE ENAMEL IN COLOR INDICATED.
2. SIGN SHOULD INCLUDE GREAT LAKES RESTORATION INITIATIVE LOGO (GLRI) IN LOWER RIGHT HAND CORNER OF SIGN. GLRI LOGO TO BE PROVIDED TO CONTRACTOR BY EPA.
3. FINAL SIGN DETAILS AND INFORMATION TO BE COORDINATED WITH OWNER.



4 PROJECT INFORMATION SIGN



NOTES:

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8'-0" POST SPACING MAY NEED TO BE DECREASED.
- ④ ELEVATION VALUE TO BE ESTABLISHED BY THE CONTRACTOR BASED ON THE TIME OF YEAR AND DURATION OF THE ACTIVITY.
- ⑤ TURBIDITY BARRIER SHALL COMPLETELY ENCLOSE ACTIVE DREDGING AREA AND BREAKWATER CONSTRUCTION AREA. CONTRACTOR SHALL DETERMINE LENGTH OF TURBIDITY BARRIER REQUIRED FOR CONTRACTORS OPERATION.

3 TURBIDITY BARRIER DETAIL
N.T.S. 0156203

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**MENEKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN**



MISC. SITE DETAILS

SHEET NO
C6.0



N: 146506.88
E: 812806.57

CONCRETE ANCHOR WALL 150.0'

N: 146506.88
E: 812806.57

18 - #10 ANCHOR RODS
@ 8'-4" SPACING O.C.

GRAVEL PARKING LOT

N: 146422.80
E: 812668.62

NEW PZC18 SHEET PILE WALL
WITH INSIDE WALER
(SEE SHEET NO. S1.1 FOR DETAILS)

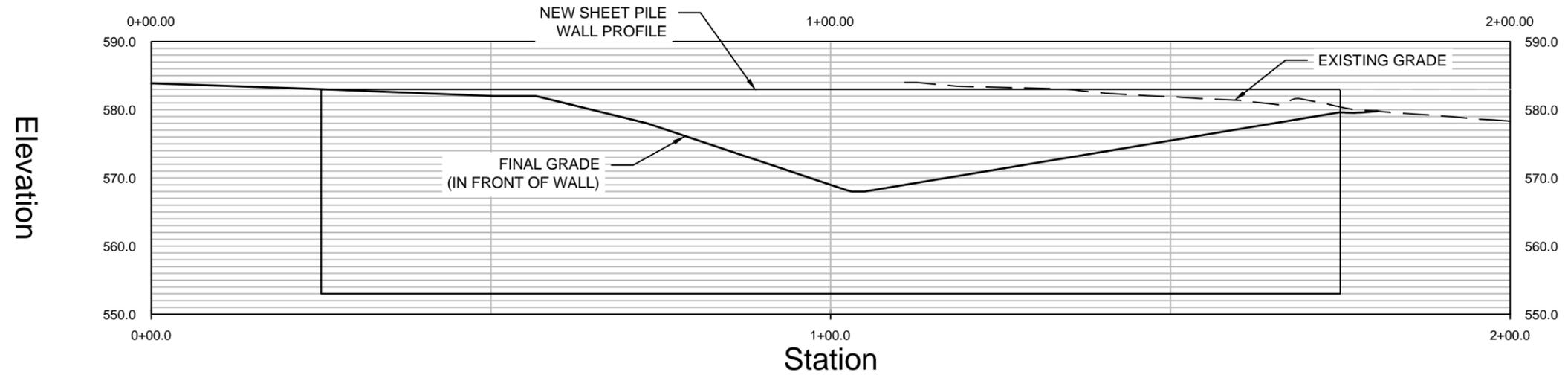
OVERLAP EXISTING
SHORELINE TREATMENT
FOR CONTINUOUS WALL

N: 146447.71
E: 812816.53

MENKAUNEE
HARBOR

TO GREEN BAY

Profile View of Sheet Pile Wall



SCALE IN FEET

DES BY G. SHAMBEAU	BOOK NO				
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MENKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN

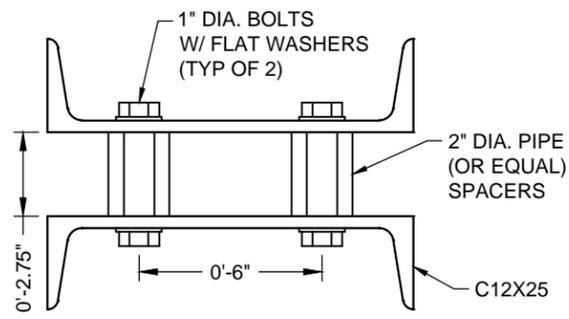


SHEET PILE WALL PLAN & PROFILE

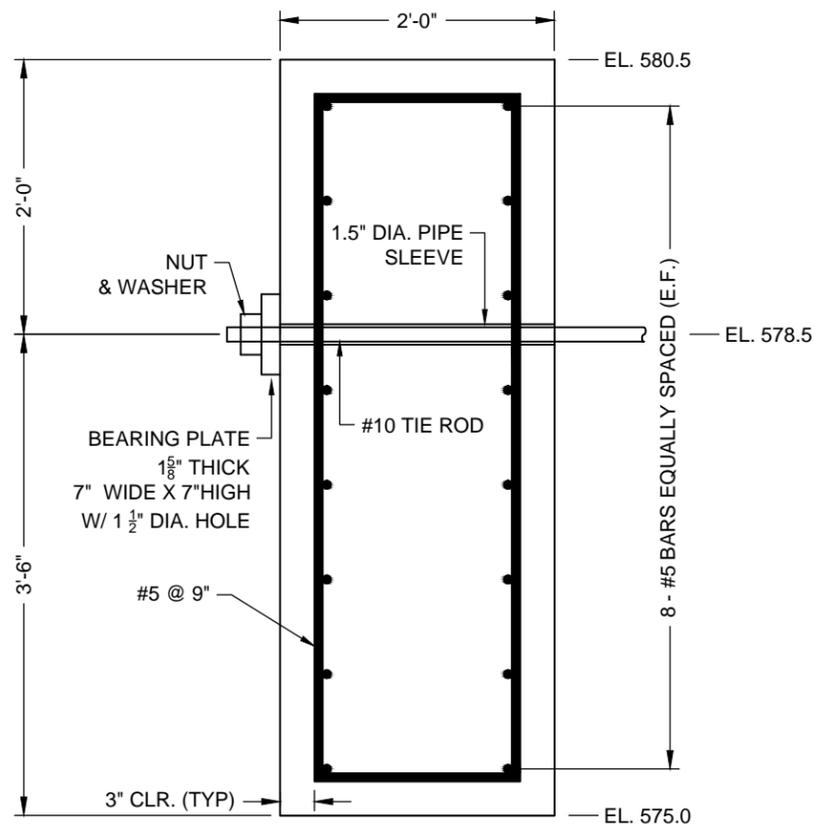
SHEET NO
S1.0

GENERAL NOTES:

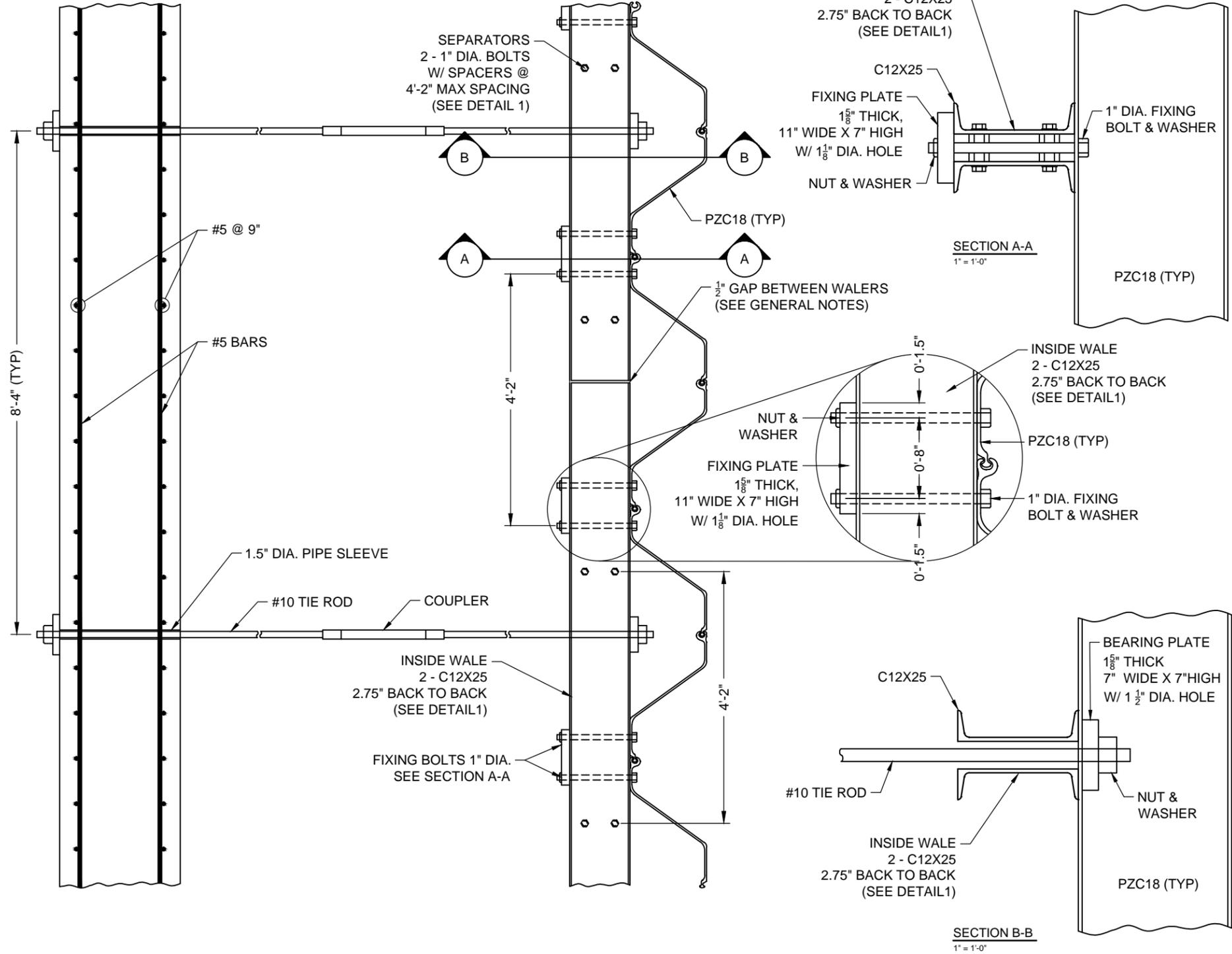
1. GAP BETWEEN WALERS TO BE LOCATED HALF WAY BETWEEN ADJACENT TIE RODS.
2. EACH WALER SECTION SHALL SPAN A MINIMUM OF TWO TIE RODS (MINIMUM LENGTH = 16'-8").



1 SEPARATOR DETAIL
2' = 1'-0"



2 SECTION THRU CONCRETE DEADMAN ANCHOR
3/4" = 1'-0"



3 TYPICAL SECTION THRU SHEET PILE WALL
1/2" = 1'-0"

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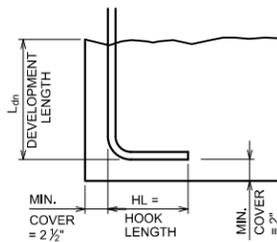
MENKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



SHEET PILE WALL DETAILS

SHEET NO
S1.1

BAR SIZE GRADE 60	$f'_c = 4000$ psi	
	L_{dn}	HL
#3	6"	6"
#4	7"	8"
#5	9"	10"
#6	10"	1'-0"
#7	1'-0"	1'-2"
#8	1'-2"	1'-4"
#9	1'-3"	1'-8"
#10	1'-5"	1'-10"
#11	1'-7"	2'-0"



COMPLYING WITH MINIMUM COVER REQUIREMENTS OF ACI 318 12.5 OTHERWISE L_{dn} MUST BE RE-CALCULATED

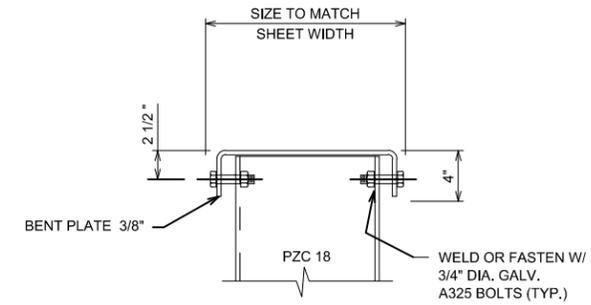
1 TYPICAL 90 DEGREE HOOK FOR REBAR
0512002

MINIMUM DEVELOPMENT AND SPLICE LENGTHS				
$f'_c = 4000$ psi clear spacing $\geq 2d_b$ & clear cover $\geq d_b$				
Bar Size Grade 60	Minimum Straight Tension Development Length, l_d		Minimum Lap Splice For Center To Center Bar Spacing	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	1'-7"	1'-3"	2'-0"	1'-7"
#4	2'-1"	1'-7"	2'-8"	2'-1"
#5	2'-7"	2'-0"	3'-5"	2'-7"
#6	3'-1"	2'-5"	4'-1"	3'-1"
#7	4'-6"	3'-6"	5'-11"	4'-6"
#8	5'-2"	4'-0"	6'-9"	5'-2"
#9	5'-10"	4'-6"	7'-7"	5'-10"
#10	6'-7"	5'-1"	8'-6"	6'-7"
#11	7'-3"	5'-7"	9'-5"	7'-3"

NOTES:

- TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
- EXCEPT AS OTHERWISE INDICATED ON THE DRAWINGS, LAP SPLICE LENGTH AND TENSION DEVELOPMENT l_d SHALL BE NO LESS THAN (NO MINUS TOLERANCE) SHOWN ABOVE.
- LAP SPLICES SHALL NOT BE MADE AT POINTS OF MAXIMUM STRESS AS DETERMINED BY THE ENGINEER.
- WHERE BARS OF DIFFERENT SIZE ARE LAP SPICED, SPLICE LENGTH SHALL BE THE SPLICE LENGTH OF THE LARGER BAR.
- ALL SPLICES SHALL BE CONTACT SPLICES AND WIRED TOGETHER.

2 MINIMUM DEVELOPEMENT & SPLICE LENGTH FOR REBARS
0512001



3 SECTION THRU SHEET PILE CAP

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DES BY	BOOK NO	NO	DATE	REVISION	NO	DATE	REVISION
G. SHAMBEAU						
DR BY	PROJ NO						
G. SHAMBEAU	19-0277.33						
CHK BY	DATE						
C. GOODWIN	JUNE 2014						

MENKAUNEE HARBOR IMPROVEMENTS
CITY OF MARINETTE
MARINETTE, WISCONSIN



STRUCTURAL DETAILS

SHEET NO
S2.0