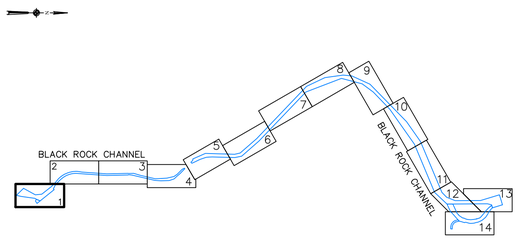

SHEET INDEX
"NOT TO SCALE"

SOUNDING COLOR LEGEND

	DEPTHS 0.1' OR MORE ABOVE PROJECT DEPTH
	DEPTHS AT OR BELOW PROJECT DEPTH
18.0	PROJECT DEPTH

LEGEND OF SYMBOLS

17+00 (NEW), 17+00 (OLD)	CHANNEL STATIONING
⊙ 417	CHANNEL CORNER
◎ H.L.F.	HARBOR LINE CORNER
	FEDERAL CHANNEL
	HARBOR LINE
	SUBMARINE CABLE
C	CAN BUOY
N	NUN BUOY
	LIGHTED BUOY
	FIXED LIGHT
	LIGHT HOUSE
W	LIGHT COLOR WHITE
R	LIGHT COLOR RED
G	LIGHT COLOR GREEN
FL	FLASHING LIGHT
F	FIXED LIGHT
Oc	OCCULTING LIGHT
Iso	EQUAL INTERVAL
AL	ALTERNATING
Q	QUICK (FLASHING)
S	LIGHT CYCLE SECONDS

SITE SPECIFIC NOTES:

1. PROJECT DEPTHS AND SOUNDINGS ARE REFERRED TO LOW WATER DATUM OF 569.2 FEET IGLD 1985.
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   0.5 DEGREE BEAMS 160 DEGREE ARC
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   VELOCITY PROFILER; SONTEK CASTAWAY CTD
   HYPACK SURVEY SOFTWARE
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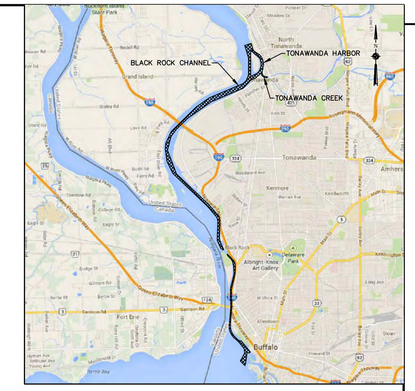

VICINITY MAP
"NOT TO SCALE"

CHANNEL CORNER COORDINATES		
Point	Northing	Easting
498	1051038.13	1065352.37
496	1051821.12	1065286.73
494	1052984.05	1064351.44
491	1053477.59	1064130.19
493	1053221.65	1064623.34
495A	1053307.80	1064730.46
497A	1051627.39	1066084.38
HLA	1051247.41	1066389.99
495	1051051.47	1066104.30
497	1051168.12	1065881.41
505	1050995.15	1065786.18

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

** COPY OF SIGNED ORIGINAL **

Drawn by: KPL
Checked by: ACK
Reviewed by:
Roman H. Figler III PLS
Chief, Survey Section
Approved by:
Edward F. Gawarecki
Date: November 12, 2015
Chief, NY/PA Navigation and Maintenance Section

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK 14207–3199

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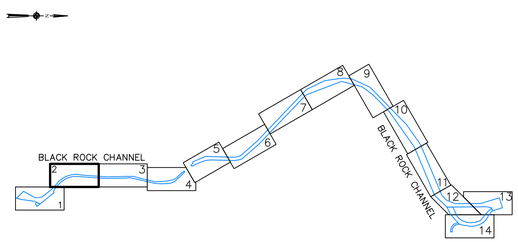
BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–101
Sheet 1 of 14

S:\VH–Black Rock Channel\Channel Maintenance\Drawing Files (Cad)\2015\BRC 2015.dwg



SHEET INDEX
"NOT TO SCALE"

SOUNDING COLOR LEGEND

	DEPTHS 0.1' OR MORE ABOVE PROJECT DEPTH
	DEPTHS AT OR BELOW PROJECT DEPTH
18.0	PROJECT DEPTH

LEGEND OF SYMBOLS

17+00 (NEW), 17+00 (OLD)	CHANNEL STATIONING
⊙ 417	CHANNEL CORNER
◎ H.L.F.	HARBOR LINE CORNER
	FEDERAL CHANNEL
	HARBOR LINE
	SUBMARINE CABLE
C	CAN BUOY
N	NUN BUOY
	LIGHTED BUOY
	FIXED LIGHT
	LIGHT HOUSE
W	LIGHT COLOR WHITE
R	LIGHT COLOR RED
G	LIGHT COLOR GREEN
FL	FLASHING LIGHT
F	FIXED LIGHT
Oc	OCCULTING LIGHT
Iso	EQUAL INTERVAL
AL	ALTERNATING
Q	QUICK (FLASHING)
S	LIGHT CYCLE SECONDS

SITE SPECIFIC NOTES:

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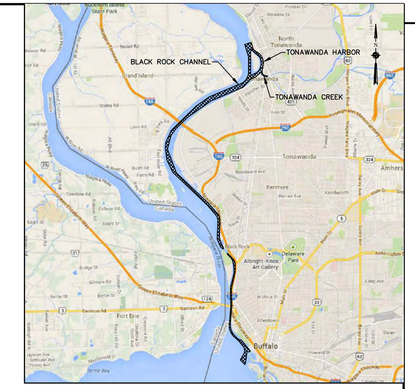
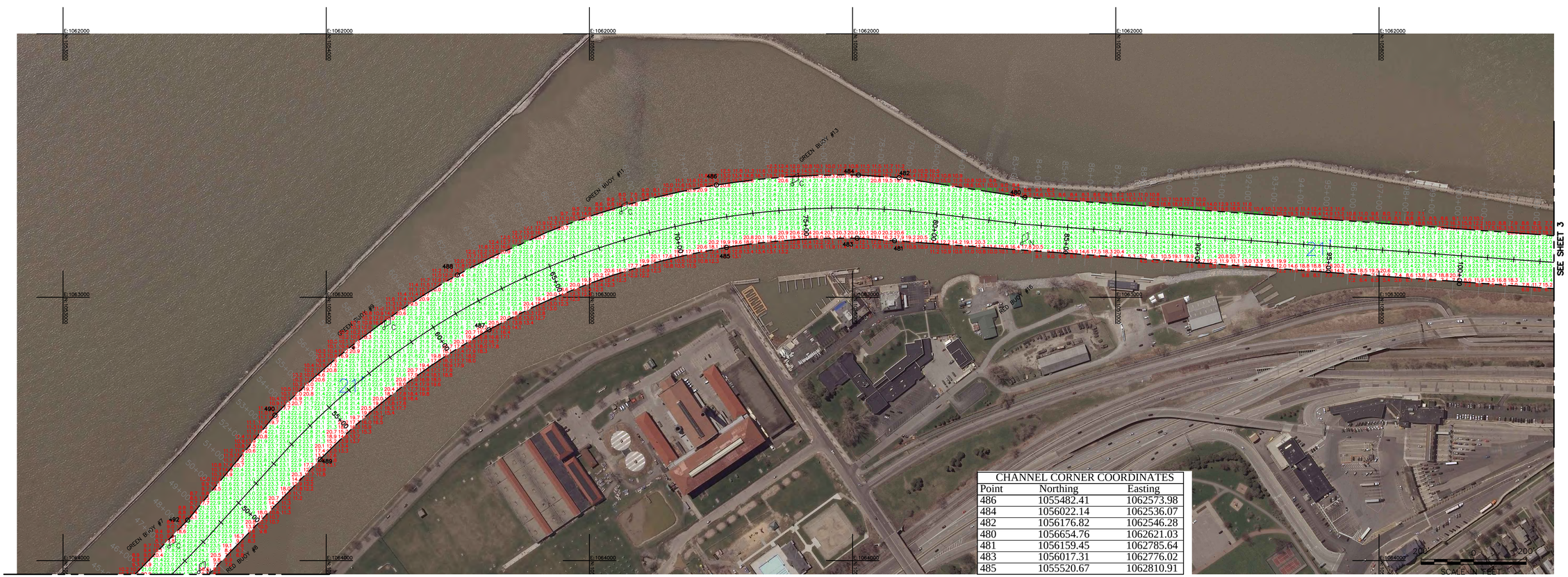


VICINITY MAP
"NOT TO SCALE"



CHANNEL CORNER COORDINATES		
Point	Northing	Easting
486	1055482.41	1062573.98
484	1056022.14	1062536.07
482	1056176.82	1062546.28
480	1056654.76	1062621.03
481	1056159.45	1062785.64
483	1056017.31	1062776.02
485	1055520.67	1062810.91

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

** COPY OF SIGNED ORIGINAL **

Drawn by: KPL
Checked by: ACK
Reviewed by: Roman H. Figler III PLS
Chief, Survey Section
Approved by: Edward F. Gawarecki
Chief, NY/PA Navigation and Maintenance Section
Date: November 12, 2015

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK 14207–3199

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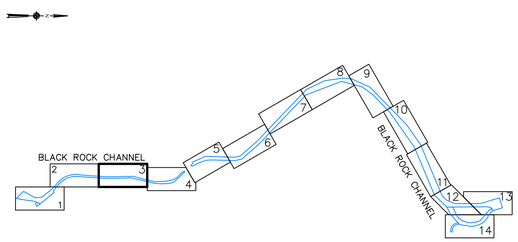
BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–102
Sheet 2 of 14

S:\VH–Black Rock Channel\Channel Maintenance\Drawing Files (Cad)\2015\BRC 2015.dwg



SHEET INDEX
"NOT TO SCALE"

SOUNDING COLOR LEGEND

	DEPTHS 0.1' OR MORE ABOVE PROJECT DEPTH
	DEPTHS AT OR BELOW PROJECT DEPTH
18.0	PROJECT DEPTH

LEGEND OF SYMBOLS

17+00 (NEW), 17+00 (OLD)	CHANNEL STATIONING
⊙ 417	CHANNEL CORNER
◎ H.L.F.	HARBOR LINE CORNER
	FEDERAL CHANNEL
	HARBOR LINE
	SUBMARINE CABLE
C	CAN BUOY
N	NUN BUOY
	LIGHTED BUOY
	FIXED LIGHT
	LIGHT HOUSE
W	LIGHT COLOR WHITE
R	LIGHT COLOR RED
G	LIGHT COLOR GREEN
FL	FLASHING LIGHT
F	FIXED LIGHT
Oc	OCCULTING LIGHT
Iso	EQUAL INTERVAL
AL	ALTERNATING
Q	QUICK (FLASHING)
S	LIGHT CYCLE SECONDS

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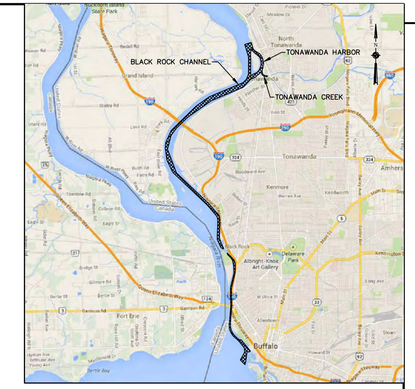

VICINITY MAP
"NOT TO SCALE"

CHANNEL CORNER COORDINATES

Point	Northing	Easting
478	1059641.96	1062837.59
476	1062186.11	1062769.62
474	1062236.62	1062788.28
472	1062866.92	1062771.44
470	1063635.51	1062997.53
471	1062698.98	1062981.61
473	1062340.58	1062935.56
475	1062240.61	1062938.22
477	1062191.43	1062969.55
479	1059637.37	1063037.79

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

** COPY OF SIGNED ORIGINAL **

Drawn by: KPL
Checked by: ACK
Reviewed by: Roman H. Figler III PLS, Chief, Survey Section
Approved by: Edward F. Gawarecki, Chief, NY/PA Navigation and Maintenance Section
Date: November 12, 2015

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U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK 14207–3199

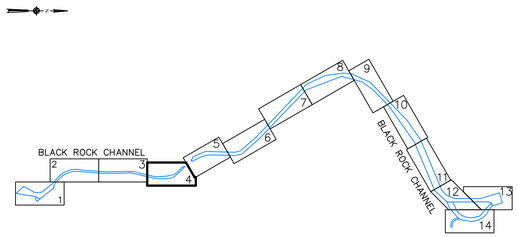
BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY

PROJECT CONDITIONS SOUNDINGS 2015

SCALE: 1"=200'

Sheet reference number
VH–103
Sheet 3 of 14

S:\VH–Black Rock Channel\Channel Maintenance\Drawing Files (Cad)\2015\BRC 2015.dwg



SHEET INDEX
"NOT TO SCALE"

SOUNDING COLOR LEGEND

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	DEPTHS AT OR BELOW PROJECT DEPTH
18.0	PROJECT DEPTH

LEGEND OF SYMBOLS

17+00 (NEW), 17+00 (OLD)	CHANNEL STATIONING
⊙ 417	CHANNEL CORNER
◎ H.L.F.	HARBOR LINE CORNER
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C	CAN BUOY
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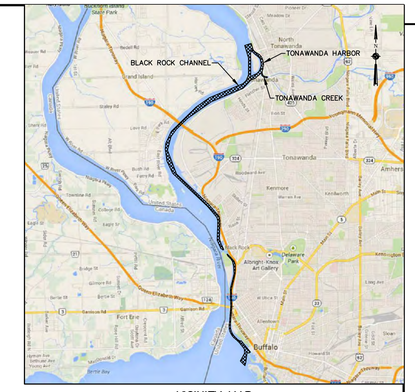
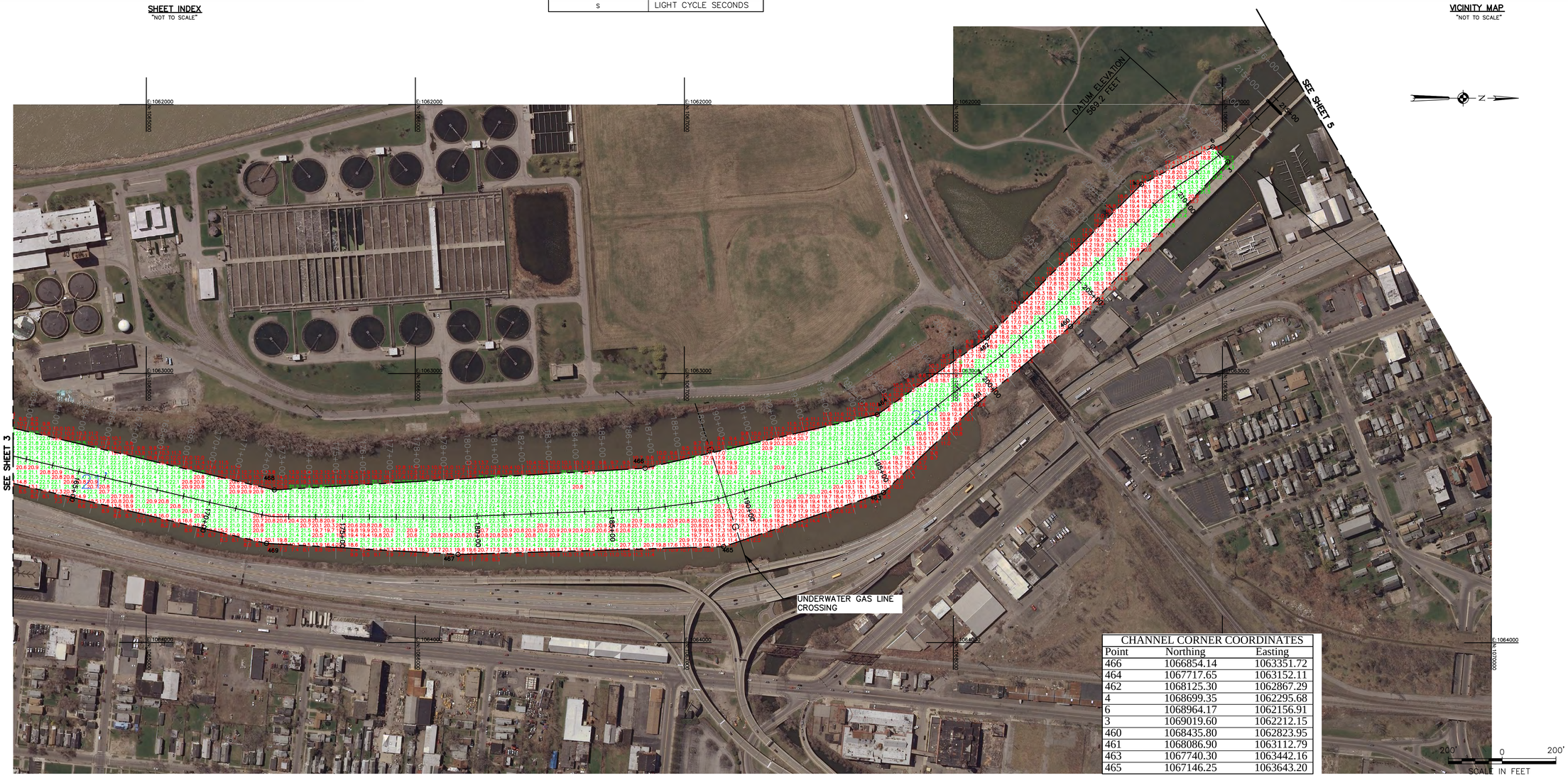


VICINITY MAP
"NOT TO SCALE"



CHANNEL CORNER COORDINATES		
Point	Northing	Easting
466	1066854.14	1063351.72
464	1067717.65	1063152.11
462	1068125.30	1062867.29
4	1068699.35	1062295.68
6	1068964.17	1062156.91
3	1069019.60	1062212.15
460	1068435.80	1062823.95
461	1068086.90	1063112.79
463	1067740.30	1063442.16
465	1067146.25	1063643.20

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

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Drawn by: KPL
Checked by: ACK
Reviewed by: Roman H. Figler III PLS
Chief, Survey Section
Approved by: Edward F. Gawarecki
Chief, NY/PA Navigation and Maintenance Section
Date: November 12, 2015

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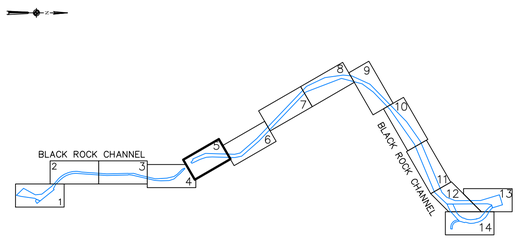
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK 14207–3199

BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–104
Sheet 4 of 14

S:\NY–Black Rock Channel\Channel Maintenance\Drawing Files (Cad)\2015\BRC 2015.dwg



SHEET INDEX
"NOT TO SCALE"

SOUNDING COLOR LEGEND

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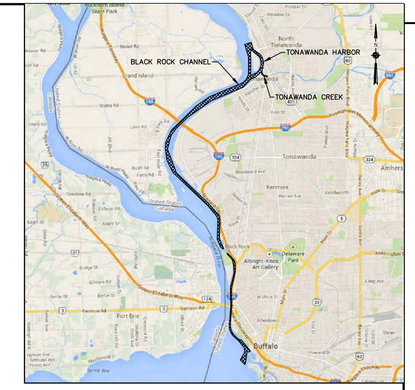

VICINITY MAP
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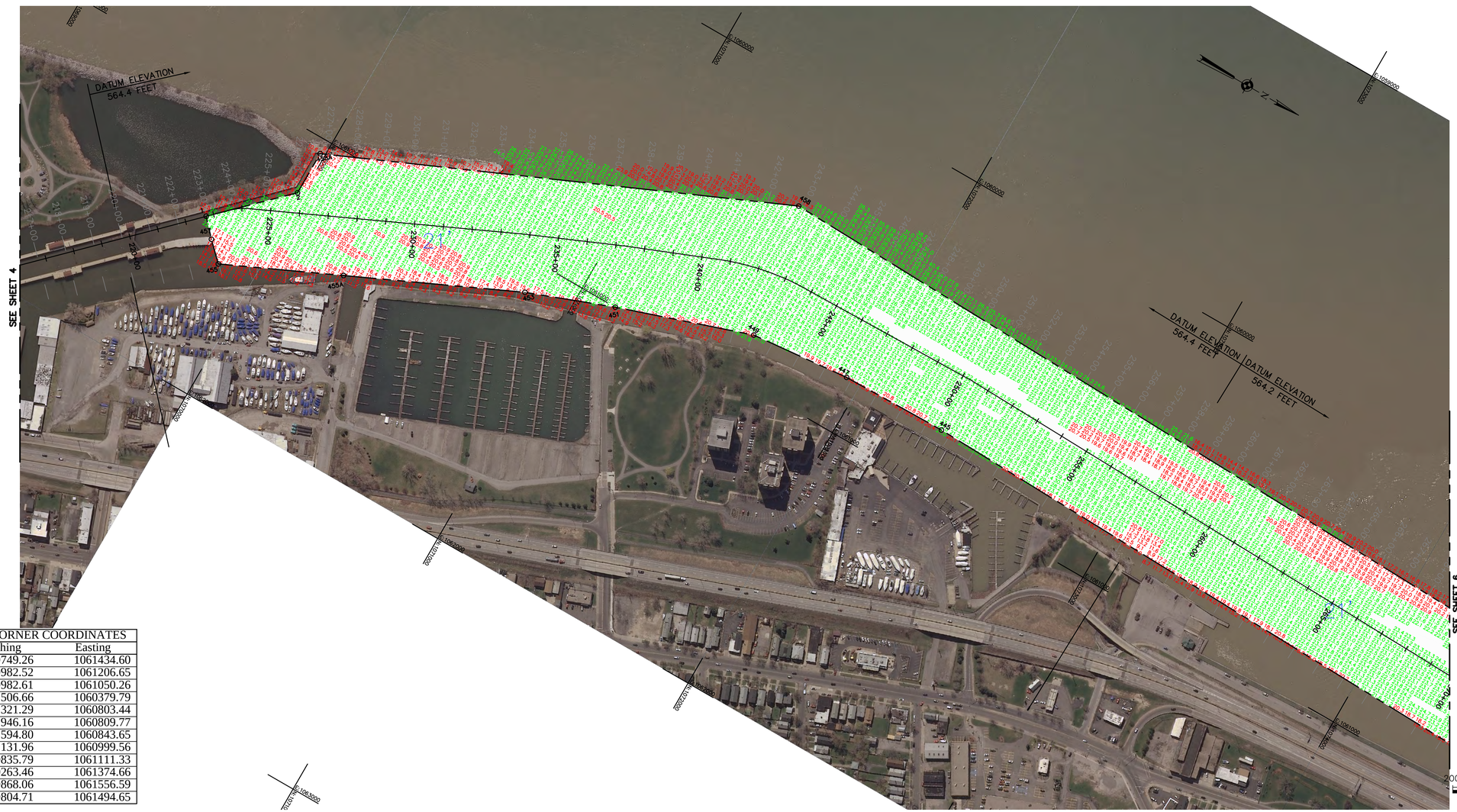

CHANNEL CORNER COORDINATES		
Point	Northing	Easting
1	1069749.26	1061434.60
2	1069982.52	1061206.65
458A	1069982.61	1061050.26
458	1071506.66	1060379.79
445	1072321.29	1060803.44
447	1071946.16	1060809.77
449	1071594.80	1060843.65
451	1071131.96	1060999.56
453	1070835.79	1061111.33
455A	1070263.46	1061374.66
455	1069868.06	1061556.59
457	1069804.71	1061494.65

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

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BUFFALO, NEW YORK 14207–3199

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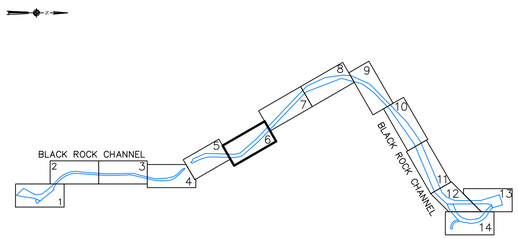
BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–105
Sheet 5 of 14

S:\VH–Black Rock Channel\Channel Maintenance\Drawing Files (Cad)\2015\BRC 2015.dwg



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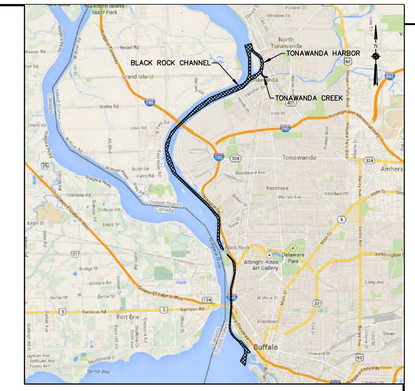
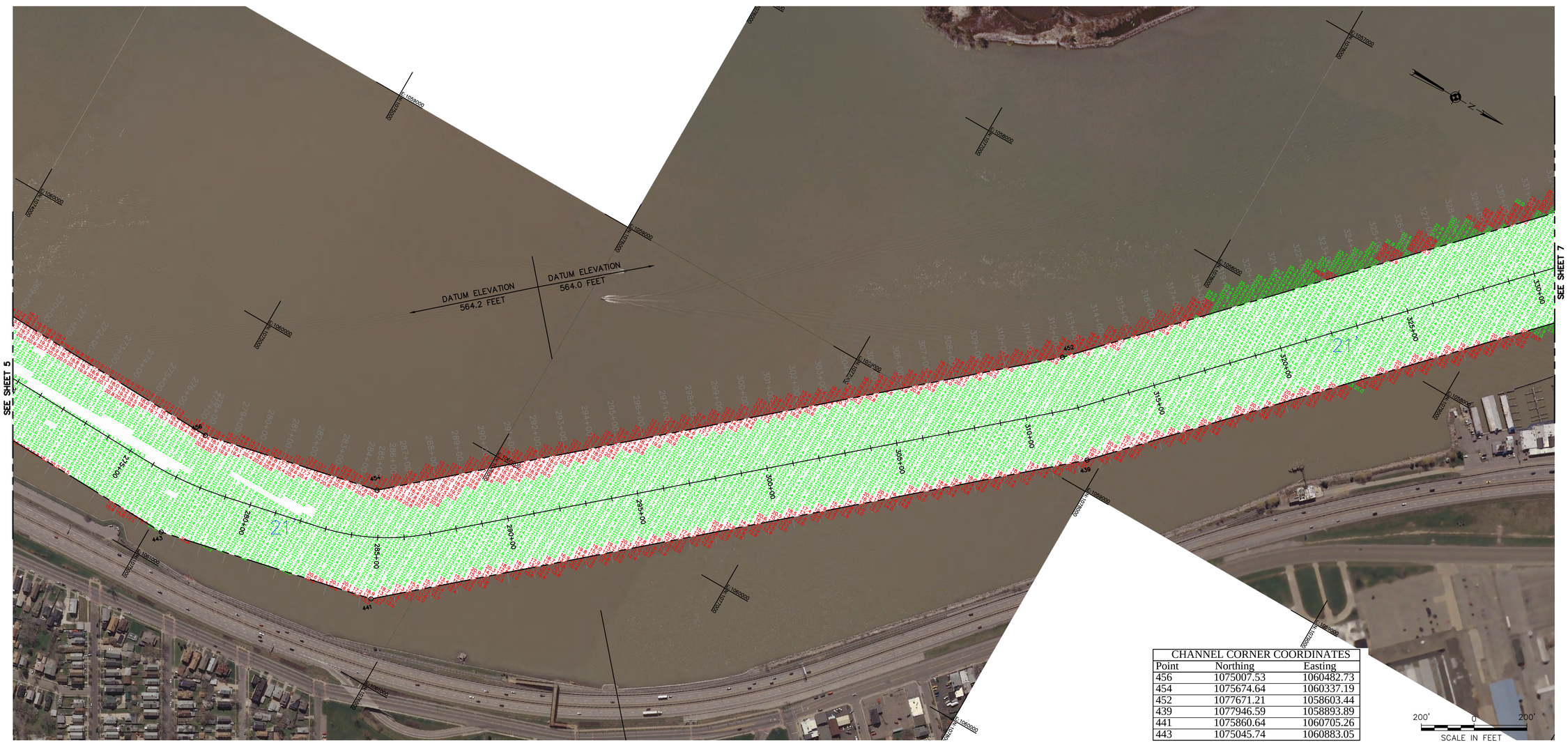


VICINITY MAP
"NOT TO SCALE"



CHANNEL CORNER COORDINATES		
Point	Northing	Easting
456	1075007.53	1060482.73
454	1075674.64	1060337.19
452	1077671.21	1058603.44
439	1077946.59	1058893.89
441	1075860.64	1060705.26
443	1075045.74	1060883.05

US Army Corps of Engineers
Buffalo District

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Drawn by: KPL
Checked by: ACK
Reviewed by: Roman H. Figler III PLS
Chief, Survey Section
Approved by: Edward F. Gawarecki
Chief, NY/PA Navigation and Maintenance Section
Date: November 12, 2015

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK 14207–3199

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BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–106
Sheet 6 of 14

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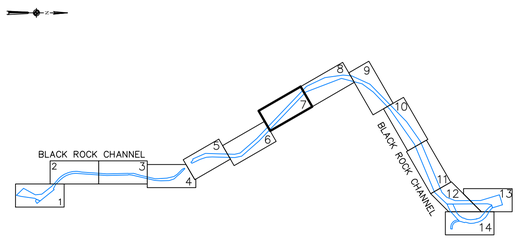

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"NOT TO SCALE"

SOUNDING COLOR LEGEND

	DEPTHS 0.1' OR MORE ABOVE PROJECT DEPTH
	DEPTHS AT OR BELOW PROJECT DEPTH
18.0	PROJECT DEPTH

LEGEND OF SYMBOLS

17+00 (NEW), 17+00 (OLD)	CHANNEL STATIONING
⊙ 417	CHANNEL CORNER
◎ H.L.F.	HARBOR LINE CORNER
	FEDERAL CHANNEL
	HARBOR LINE
	SUBMARINE CABLE
C	CAN BUOY
N	NUN BUOY
	LIGHTED BUOY
	FIXED LIGHT
	LIGHT HOUSE
W	LIGHT COLOR WHITE
R	LIGHT COLOR RED
G	LIGHT COLOR GREEN
FL	FLASHING LIGHT
F	FIXED LIGHT
Oc	OCCULTING LIGHT
Iso	EQUAL INTERVAL
AL	ALTERNATING
Q	QUICK (FLASHING)
S	LIGHT CYCLE SECONDS

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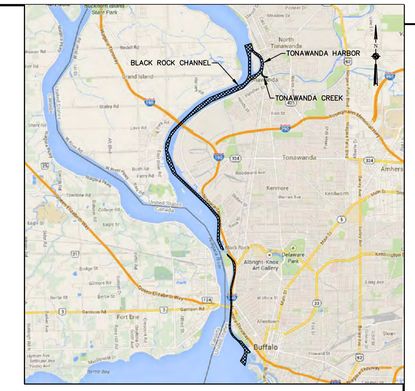

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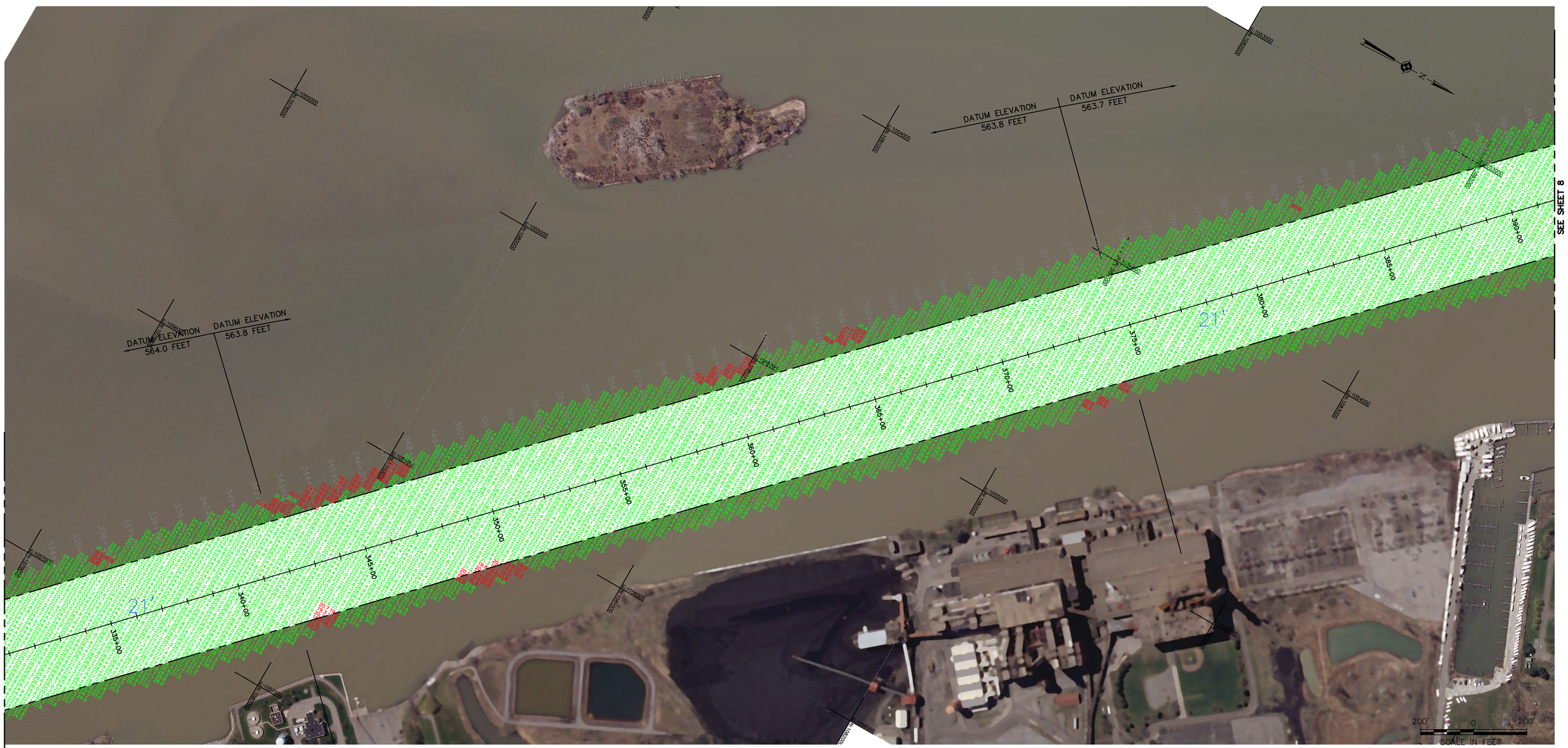

US Army Corps of Engineers
Buffalo District

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Chief, Survey Section
Approved by: Edward F. Gawarecki
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Chief, NY/PA Navigation and Maintenance Section

U.S. ARMY ENGINEER DISTRICT
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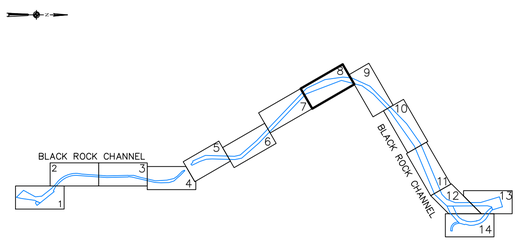
BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–107
Sheet 7 of 14

S:\VH–Black Rock Channel\Channel Maintenance\Drawing Files (Cad)\2015\BRC 2015.dwg



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SOUNDING COLOR LEGEND

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	DEPTHS AT OR BELOW PROJECT DEPTH
18.0	PROJECT DEPTH

LEGEND OF SYMBOLS

17+00 (NEW), 17+00 (OLD)	CHANNEL STATIONING
417	CHANNEL CORNER
H.L.F.	HARBOR LINE CORNER
	FEDERAL CHANNEL
	HARBOR LINE
	SUBMARINE CABLE
C	CAN BUOY
N	NUN BUOY
	LIGHTED BUOY
	FIXED LIGHT
	LIGHT HOUSE
W	LIGHT COLOR WHITE
R	LIGHT COLOR RED
G	LIGHT COLOR GREEN
FL	FLASHING LIGHT
F	FIXED LIGHT
Oc	OCCULTING LIGHT
Iso	EQUAL INTERVAL
AL	ALTERNATING
Q	QUICK (FLASHING)
S	LIGHT CYCLE SECONDS

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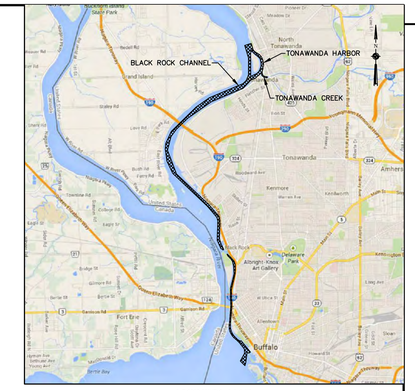

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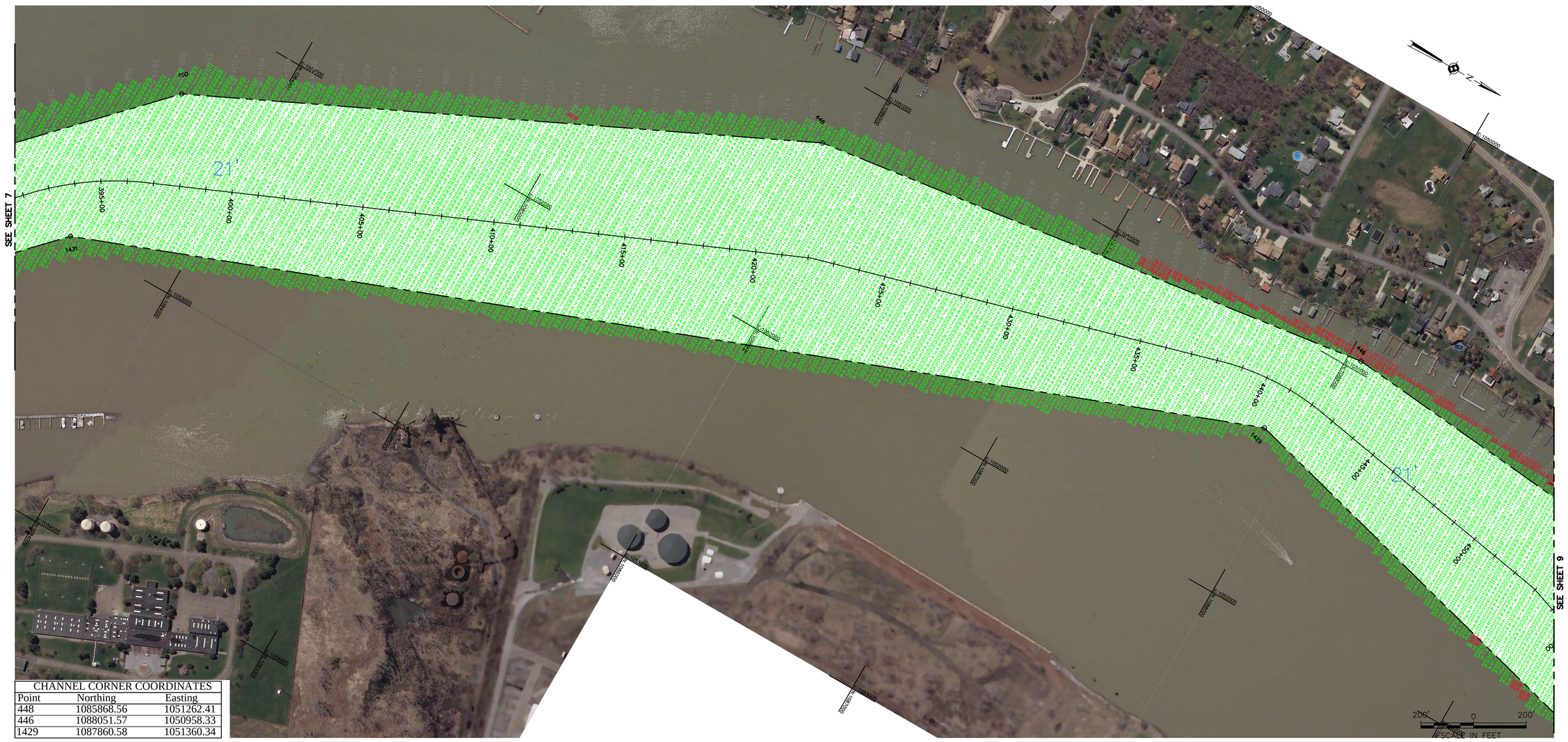

CHANNEL CORNER COORDINATES		
Point	Northing	Easting
448	1085868.56	1051262.41
446	1088051.57	1050958.33
1429	1087860.58	1051360.34

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

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Checked by: ACK
Reviewed by: Roman H. Figler III PLS
Chief, Survey Section
Approved by: Edward F. Gawarecki
Chief, NY/PA Navigation and Maintenance Section
Date: November 12, 2015

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK 14207–3199

BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–108
Sheet 8 of 14

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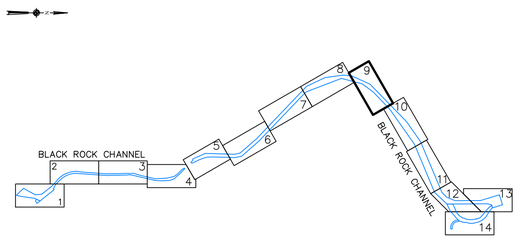
S:\NY–Black Rock Channel\Channel Maintenance\Drawing Files (Cad)\2015\BRC 2015.dwg



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"NOT TO SCALE"

SOUNDING COLOR LEGEND

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	DEPTHS AT OR BELOW PROJECT DEPTH
18.0	PROJECT DEPTH

LEGEND OF SYMBOLS

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◎ H.L.F.	HARBOR LINE CORNER
	FEDERAL CHANNEL
	HARBOR LINE
	SUBMARINE CABLE
C	CAN BUOY
N	NUN BUOY
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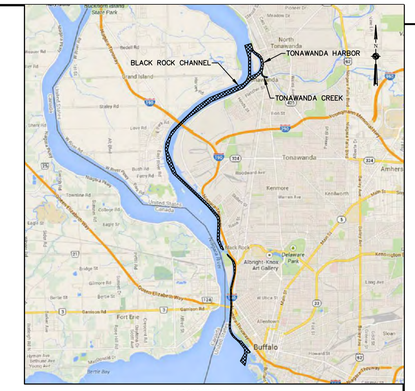

VICINITY MAP
"NOT TO SCALE"

CHANNEL CORNER COORDINATES		
Point	Northing	Easting
444	1089086.57	1051052.32
442	1091296.59	1052050.30
1425	1091686.61	1052999.31
1427	1090346.60	1052006.31

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

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BLACK ROCK CHANNEL &
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PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

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VH–109
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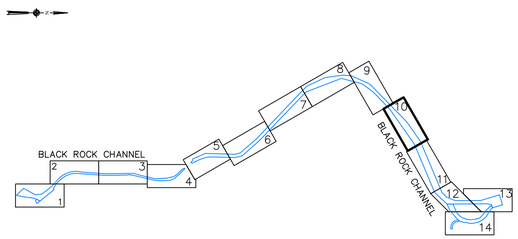

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SOUNDING COLOR LEGEND

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LEGEND OF SYMBOLS

17+00 (NEW), 17+00 (OLD)	CHANNEL STATIONING
⊙ 417	CHANNEL CORNER
◎ H.L.F.	HARBOR LINE CORNER
	FEDERAL CHANNEL
	HARBOR LINE
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C	CAN BUOY
N	NUN BUOY
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	FIXED LIGHT
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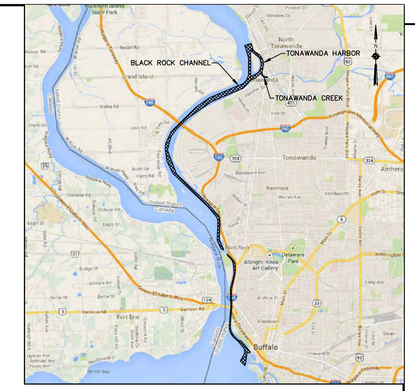

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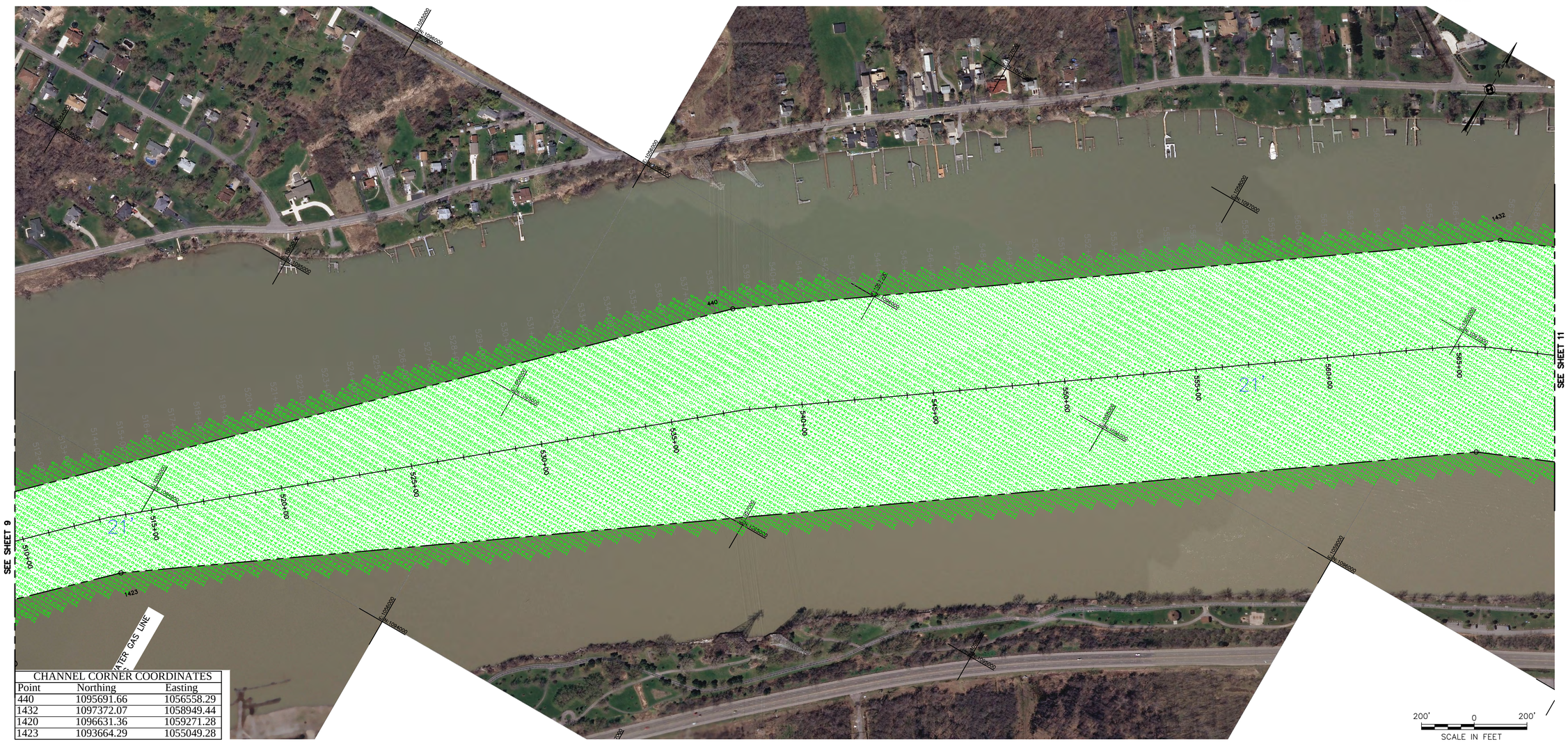

CHANNEL CORNER COORDINATES		
Point	Northing	Easting
440	1095691.66	1056558.29
1432	1097372.07	1058949.44
1420	1096631.36	1059271.28
1423	1093664.29	1055049.28

US Army Corps of Engineers
Buffalo District

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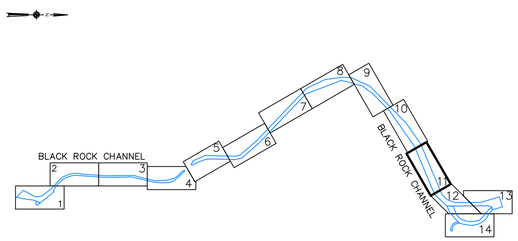

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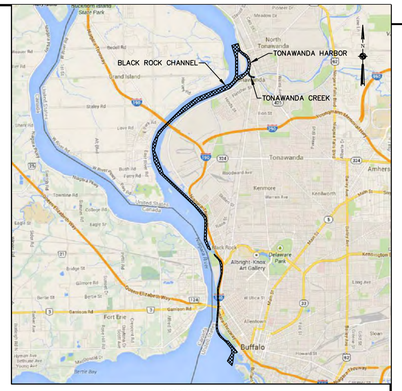

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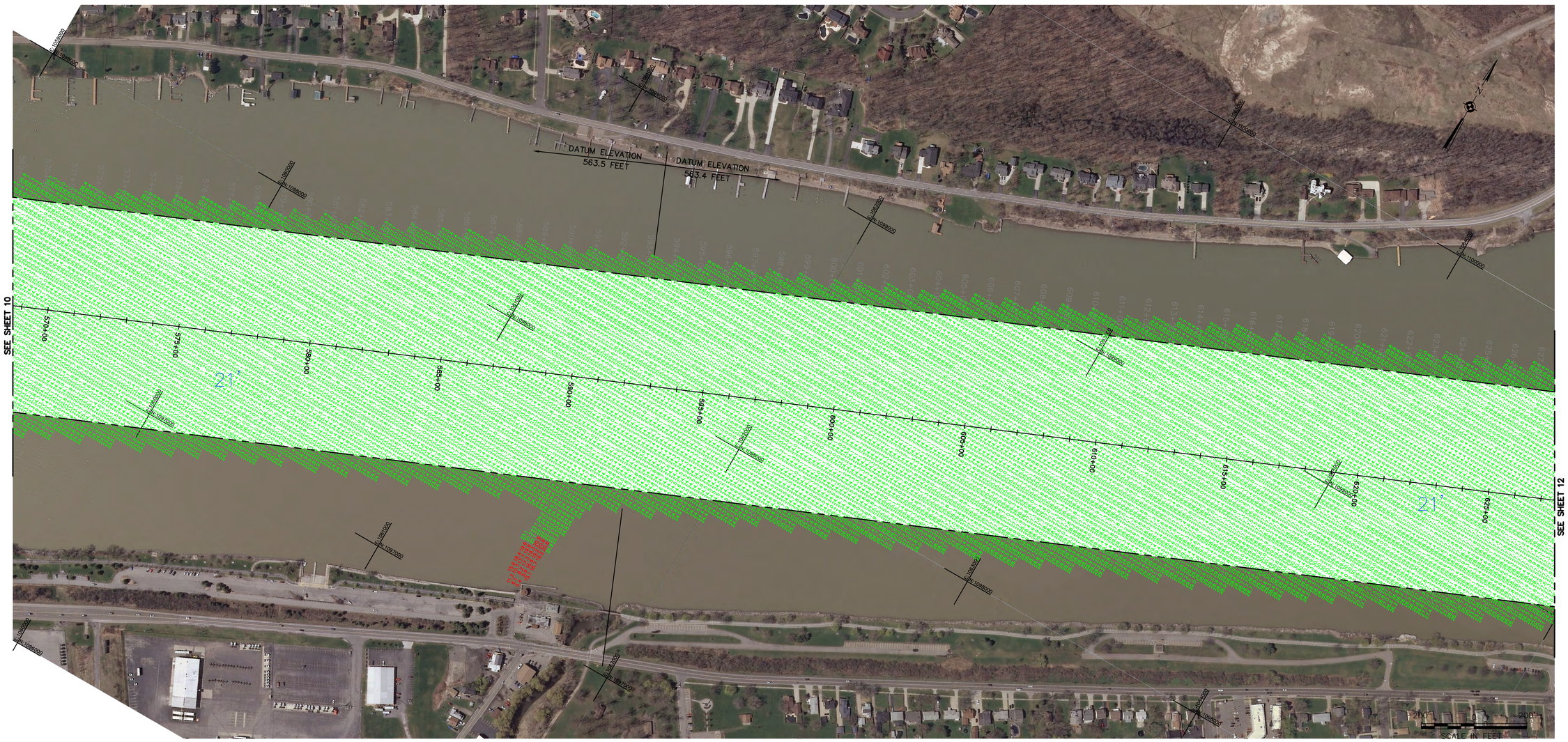

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Date: November 12, 2015

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U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK 14207–3199

BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–111
Sheet 11 of 14

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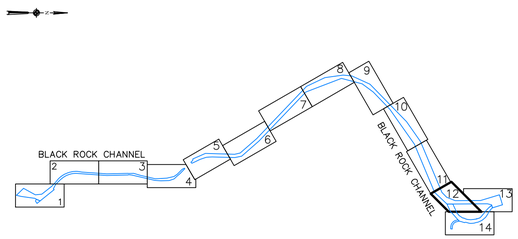

SHEET INDEX
"NOT TO SCALE"

SOUNDING COLOR LEGEND

	DEPTHS 0.1' OR MORE ABOVE PROJECT DEPTH
	DEPTHS AT OR BELOW PROJECT DEPTH
18.0	PROJECT DEPTH

LEGEND OF SYMBOLS

17+00 (NEW), 17+00 (OLD)	CHANNEL STATIONING
⊙ 417	CHANNEL CORNER
◎ H.L.F.	HARBOR LINE CORNER
	FEDERAL CHANNEL
	HARBOR LINE
	SUBMARINE CABLE
C	CAN BUOY
N	NUN BUOY
	LIGHTED BUOY
	FIXED LIGHT
	LIGHT HOUSE
W	LIGHT COLOR WHITE
R	LIGHT COLOR RED
G	LIGHT COLOR GREEN
FL	FLASHING LIGHT
F	FIXED LIGHT
Oc	OCCULTING LIGHT
Iso	EQUAL INTERVAL
AL	ALTERNATING
Q	QUICK (FLASHING)
S	LIGHT CYCLE SECONDS

SITE SPECIFIC NOTES:

1. PROJECT DEPTHS AND SOUNDINGS ARE REFERRED TO LOW WATER DATUM OF 569.2 FEET IGLD 1985.
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   SONAR HEAD: 200 KHZ, SEABAT 7125 MULTIBEAM
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6. THE BACKGROUND IMAGERY SHOWN WAS ACQUIRED FROM THE NEW YORK STATE GIS CLEARINGHOUSE.
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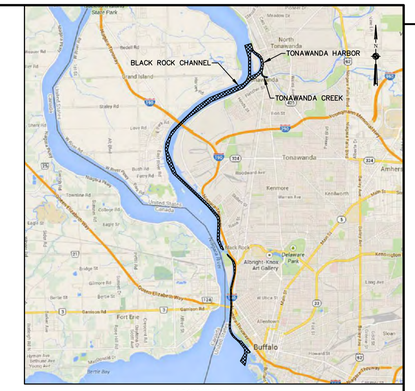
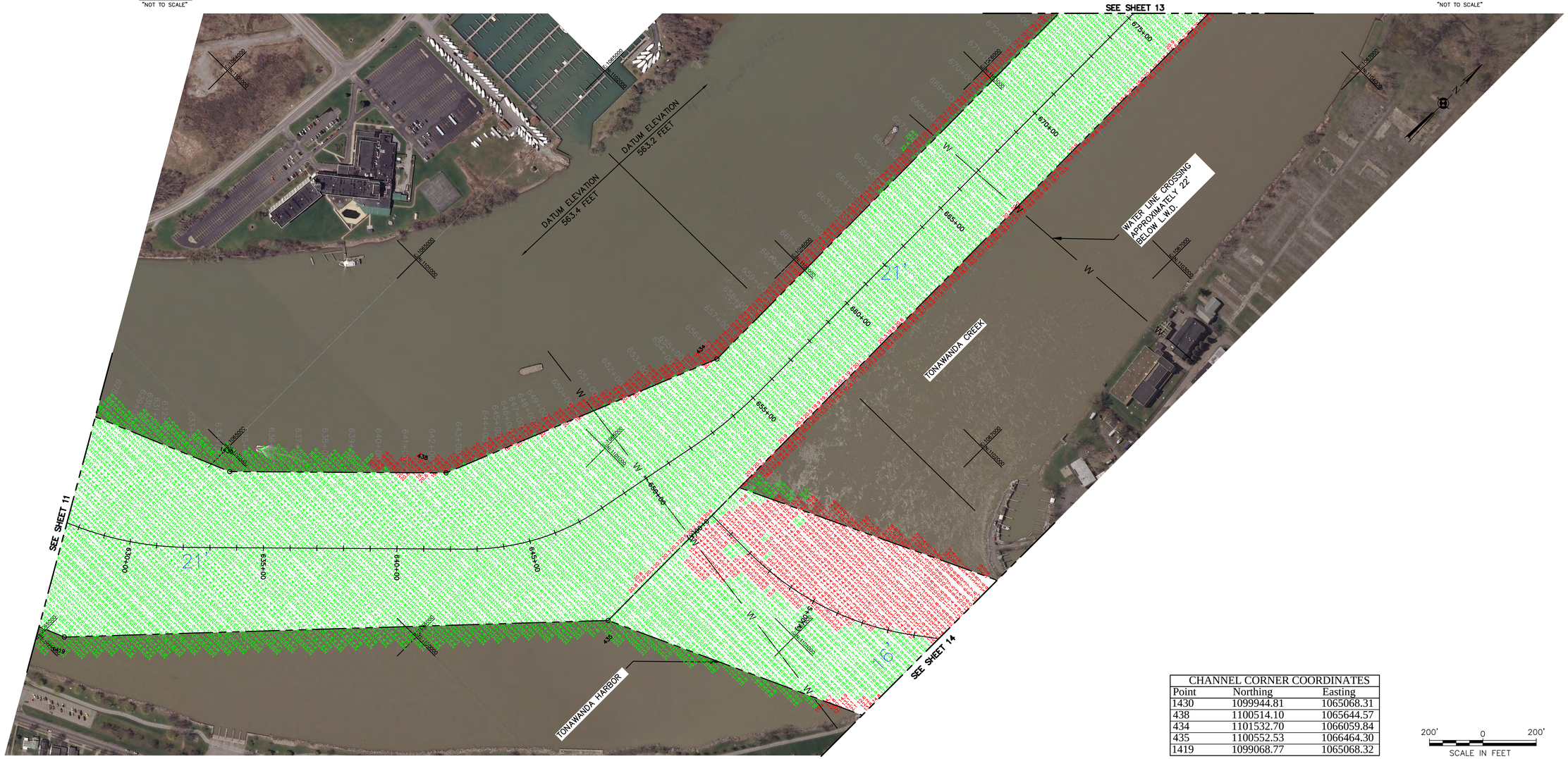


VICINITY MAP
"NOT TO SCALE"



CHANNEL CORNER COORDINATES		
Point	Northing	Easting
1430	1099944.81	1065068.31
438	1100514.10	1065644.57
434	1101532.70	1066059.84
435	1100552.53	1066464.30
1419	1099068.77	1065068.32

200' 0 200'
SCALE IN FEET

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

** COPY OF SIGNED ORIGINAL **

Drawn by: KPL
Checked by: ACK
Reviewed by: Roman H. Figler III PLS
Chief, Survey Section
Approved by: Edward F. Gawarecki
Chief, NY/PA Navigation and Maintenance Section
Date: November 12, 2015

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK 14207–3199

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BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–112
Sheet 12 of 14

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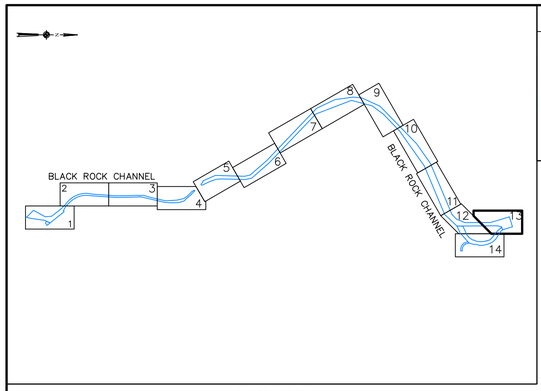

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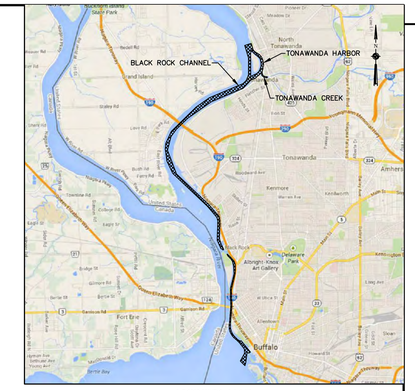

VICINITY MAP
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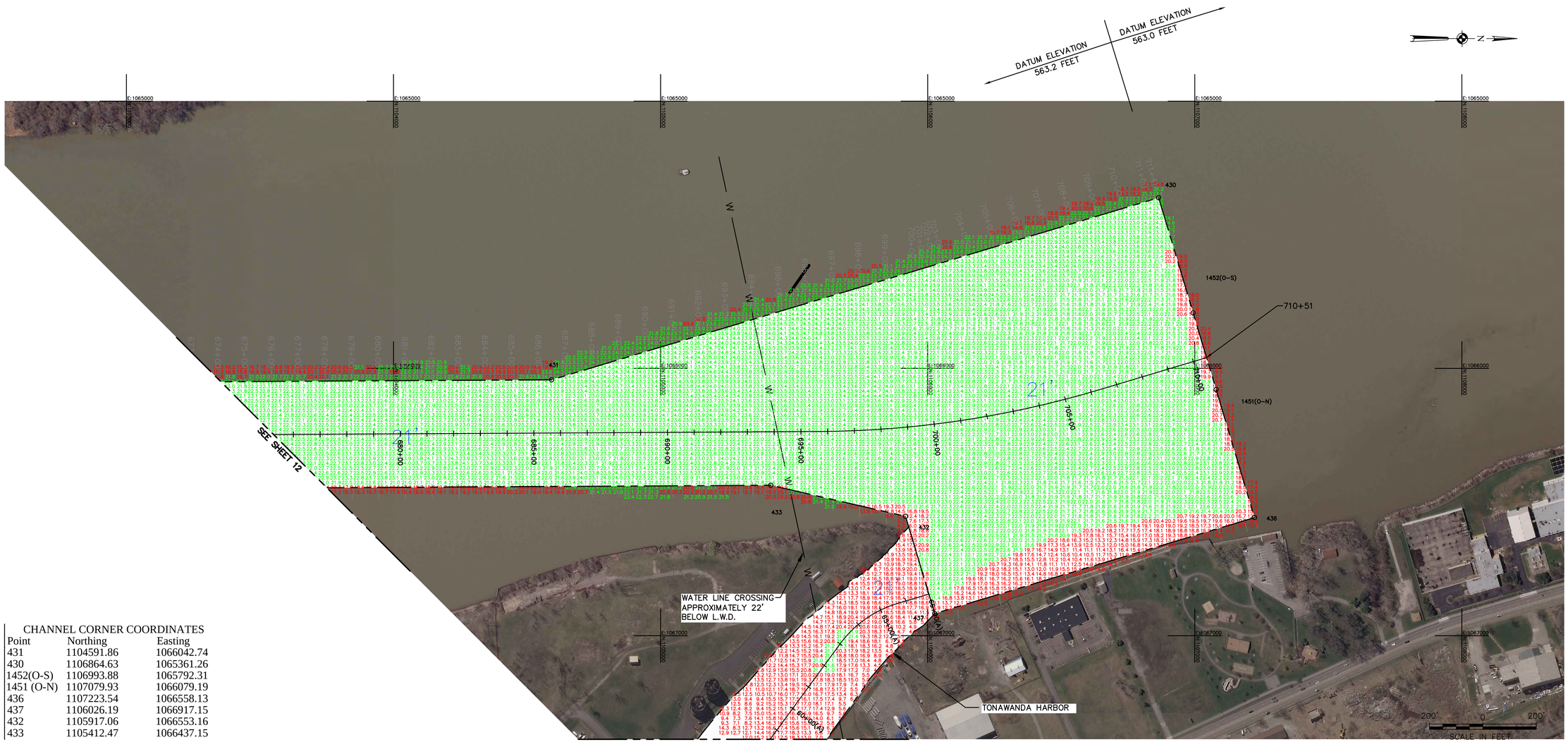

CHANNEL CORNER COORDINATES

Point	Northing	Easting
431	1104591.86	1066042.74
430	1106864.63	1065361.26
1452(O-S)	1106993.88	1065792.31
1451 (O-N)	1107079.93	1066079.19
436	1107223.54	1066558.13
437	1106026.19	1066917.15
432	1105917.06	1066553.16
433	1105412.47	1066437.15

US Army Corps of Engineers
Buffalo District

Original sheet size = ANSI D

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BLACK ROCK CHANNEL &
TONAWANDA HARBOR, NY
PROJECT CONDITIONS SOUNDINGS 2015
SCALE: 1"=200'

Sheet reference number
VH–113
Sheet 13 of 14

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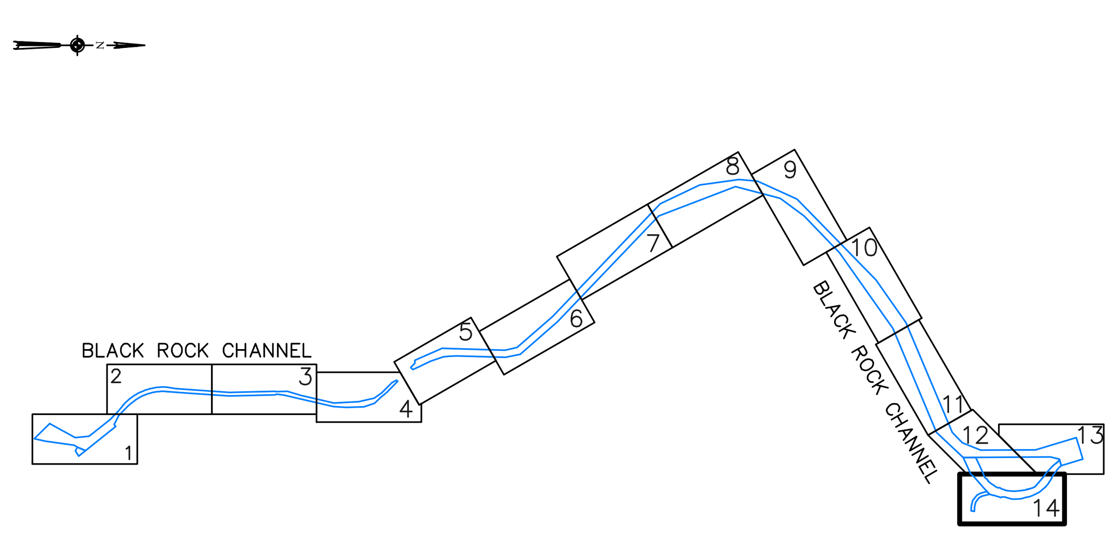

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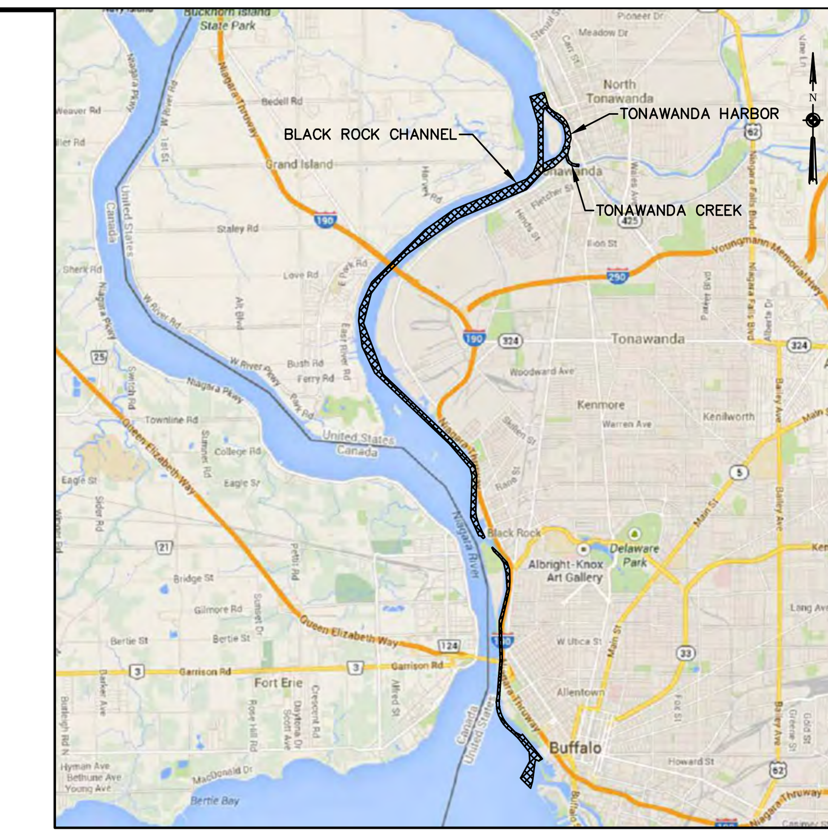

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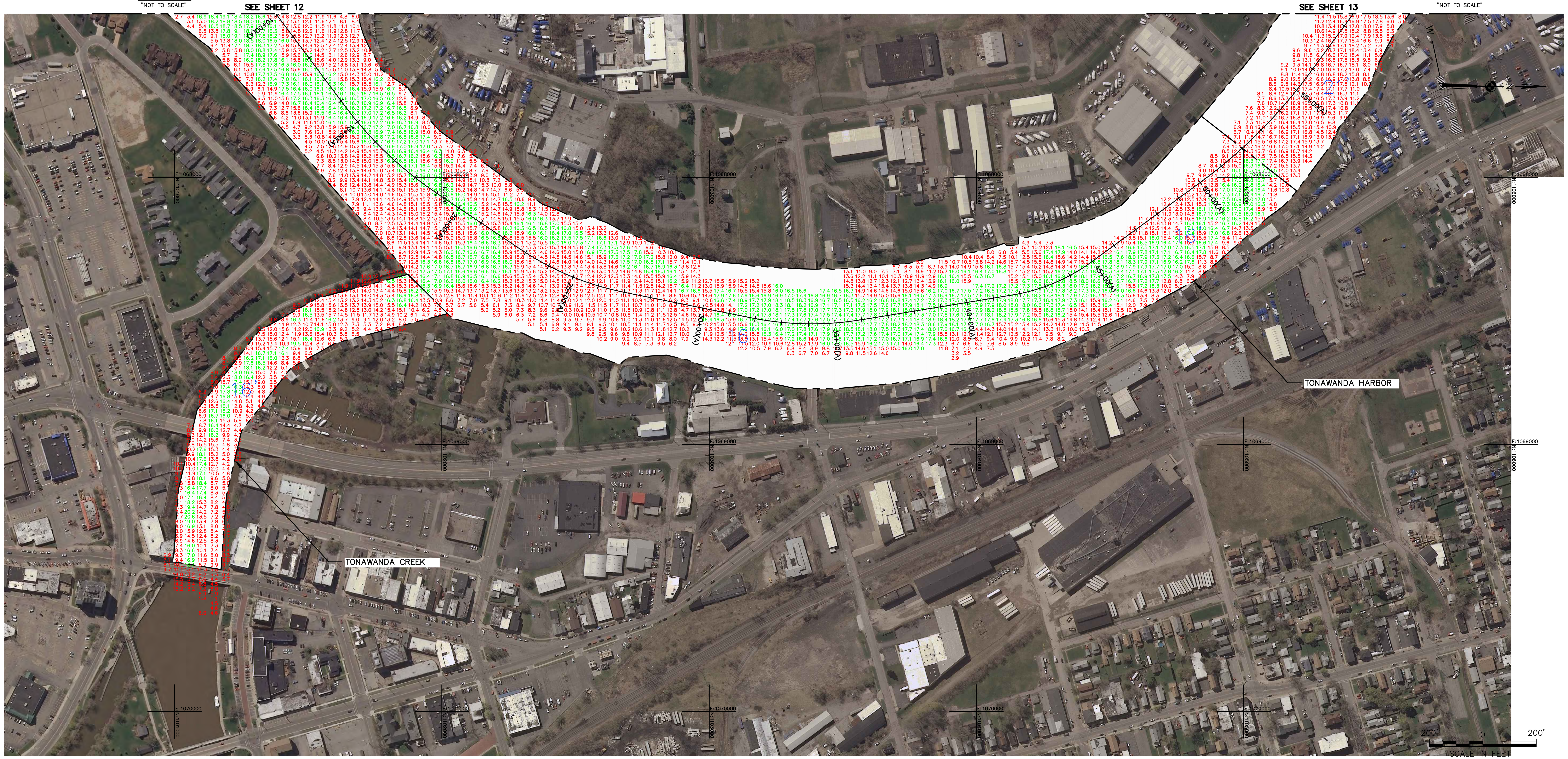

US Army Corps of Engineers Buffalo District

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BLACK ROCK CHANNEL & TONAWANDA HARBOR, NY

PROJECT CONDITIONS SOUNDINGS 2015

SCALE: 1"=200'

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