Dieter, Gail A (DEC)

From: Brian.Carling@CH2M.com
Sent: Friday, June 05, 2015 11:37 AM
To: Dieter, Gail A (DEC)
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Subject: HCC - Waterloo - Downstream Tech Memo
Attachments: TECHNICAL MEMORANDUM_Downstream Deposit_agency call_6-5-15.pdf; Figure 1 - Sediment Core Verification_mp05292015.pdf; Figure 2 - Design Depth of Sediment Removal.pdf; Figure 3 - Downstream - Comparison of Design Depth and 2015 Post-dredge Bathy Surf.pdf

Hi Gail:

Attached is the HCC - Waterloo - Downstream Tech Memo for discussion on our 3PM call. High level summary:

1) Removal encountered the till in the DS-2 deposit (we shaded the approximate area of till that caused early refusal) and the entire area was excavated to refusal – just a few small blips (within the acceptance criteria) remain and some rock areas remain
2) Estimated removal from design was 1200 cu yds and we removed 1884 cu yds
3) The sewer line and its 20' offset to each side is identified and clearly visible

Thanks

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Sediment Post-Removal Verification Report, Former Hampshire Chemical Corp. Facility Area of Concern A — Sediment Removal Project – Downstream Area Report, Waterloo, New York

PREPARED FOR:	Hampshire Chemical Corp.	New York State Department of Environmental Conservation
PREPARED BY:	CH2M HILL	
DATE:	June 5, 2015	
PROJECT NUMBER:	482750	

This memorandum summarizes the dredging and post-removal verification process that was performed in the Downstream Deposit at the Former Hampshire Chemical Corp. (HCC) site, Area of Concern (AOC) A – Cayuga-Seneca Canal sediment removal project in Waterloo, New York. AOC A is a portion of Cayuga-Seneca Canal (canal), which also is known as the Seneca River and is part of the New York State canal system. The portion of AOC A where corrective measures are being performed is separated into three sediment depositional areas referred to as the North Shore Deposit, the Gorham Street Deposit, and the Downstream Deposit (Figure 1). This Technical Memorandum is focused solely on the dredging and verification process used in the Downstream Deposit.

Dredging Summary

CH2M HILL contracted OpTech (now NRC) of Great River, New York to conduct the AOC A sediment removal project. OpTech subcontracted with the Faust Corporation of St Clair Shores, Michigan to conduct the water side dredging operations while NRC focused its resources on the land side sediment dewatering and waste management operations.

Dredging within the Downstream Deposit was initiated on December 5, 2014 and continued through December 16, 2014 resulting in the removal, dewatering and disposal of approximately 1678 cubic yards of sediment (in-situ measurement). The completion of bulk removal was scheduled for January 2015 but severe weather initiated icing of the canal and that ice remained intact until late March 2015. The bulk removal was completed from April 16, 2015 through April 17, 2015 and resulted in removal of an additional 206 cubic yards of sediment from this area.

Unanticipated shallow refusal occurred in approximately 50 to 70% of the western portion of the Downstream Deposit which is identified as the DSD-2 Dredge Management Unit (DMU). A study of available surficial geology maps indicated that the area could be underlain with glacial material (lacustrine silts and clays or glacial till). A limited coring program was initiated on April 9-10, 2015 with the overall objective of determining if the material causing refusal within the Gorham Street and Downstream DS-2 DMU is soil of glacial origin. Per the project –specific workplan, refusal on till would constitute completion of dredging in these DMUs. Three cores were advanced within the DS-2 DMU with two of the three borings (CSC-08 and -09) encountering glacial till. Most of the till material observed in the Downstream area was low permeability, pale reddish brown, very high plasticity, hard and dense silt and clay that contained clasts throughout the core. The grain size distribution data for the

downstream locations indicate that the percent fines outweigh the sand and gravel classification further supporting the presence of till in the shallow refusal areas.

By contrast, dredging in the northern half of the DSD-2 DMU was successful in achieving the 2-foot removal except in a few small areas where rock debris was encountered. Dredging in the DS-1 DMU, where a one-foot removal was required, successfully achieved the removal objectives with the exception of areas where rock debris was present and where a sewer line crosses below the canal resulting in a 40-foot wide "no dig zone" which was based on a 20-foot offset to each side.

Verification Summary

On April 22 and 23, 2015, Affiliated Researchers (AR) of East Tawas, Michigan, a subcontractor to CH2M, conducted a post-removal, multibeam bathymetric survey to estimate the remaining sediment within the Downstream Deposit. The post-dredge bathymetric data were compared to the pre-removal data collected prior to the start of removal activities and determined that the bulk sediment removal was effective in removing sediment to the target depths of 2 feet in DSD-2 (except where glacial till was encountered as discussed above). Additionally, the bulk sediment removal effort was effective in removing the soft sediment in the DSD-1 DMU to a depth of 1-foot. The remaining sediment in the areas not impacted by the presence of glacial till have achieved the criteria of <6-inches of soft sediment remaining with the DMU. The pre-removal bathymetric surface is presented on Figure 2 and shows the feet of sediment present before implementation of the removal. The final bathymetric surface for the Downstream Deposit removal area is presented on Figure 3 which presents the amount of sediment remaining after removal; the glacial till area is shaded to indicate its presence and justify why removal depths were not achieved in this area. One additional feature worth noting is a 40-foot wide strip where the removal depth was not achieved; this anomaly is associated with a sanitary sewer that crosses under the canal. As discussed with NYSDEC prior to implementation of the remedy, a 20' offset was applied to each side of this known utility to minimize the potential to impact the sewer line.

Conclusion

The post-verification bathymetric survey indicates that the goals of the Downstream Deposit soft sediment removal have been achieved within both the DS-1 and DS-2 DMUs. The DS-1 dredging was effective at removing one-foot of sediment as proposed in the Workplan and Final Design except in a few very small areas where rock debris was encountered. Despite these minor areas where rock prohibited reaching the desired depth, the removal still meet the acceptance criteria for the DMU. The DS-2 DMU was effective in achieving the goal of soft sediment removal to 2-feet with the exception of where the glacial till was encountered at a more shallow depth closer to the centerline of the canal. Per the approved Workplan and Final Design, refusal on glacial till is an acceptable endpoint and the remainder of the DS-2 DMU has achieved the 2-foot removal depth with the exception of a few very small areas where rock debris was encountered; despite these minor areas where rock prohibited reaching the desired depth, these locations still meet the acceptance criteria for the DMU.

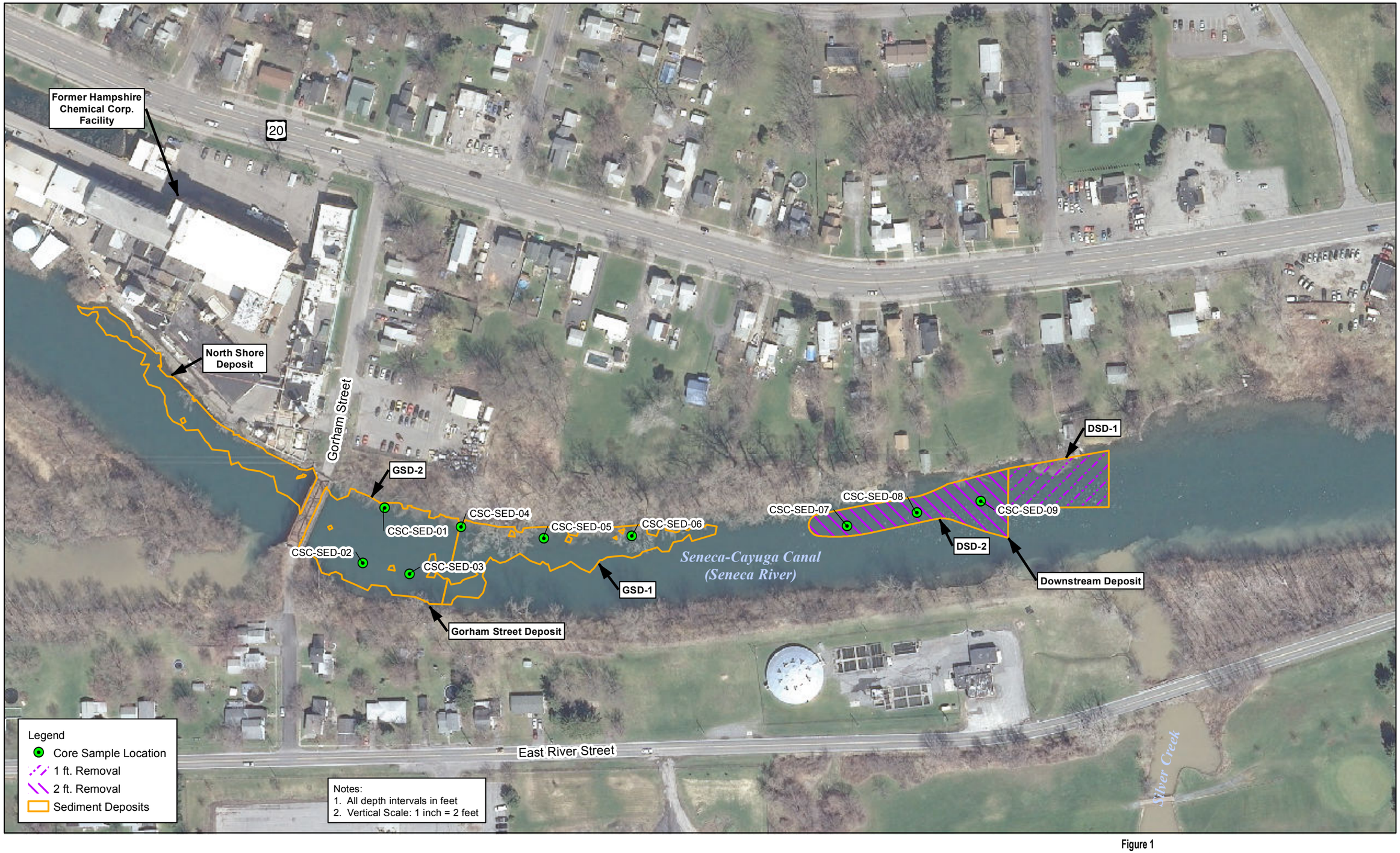

Figure 1
Sediment Core Verification
AOC A Sediment Removal Verification Technical Memorandum
Downstream Deposit
Former Hampshire Chemical Corp. Facility
Waterloo, New York

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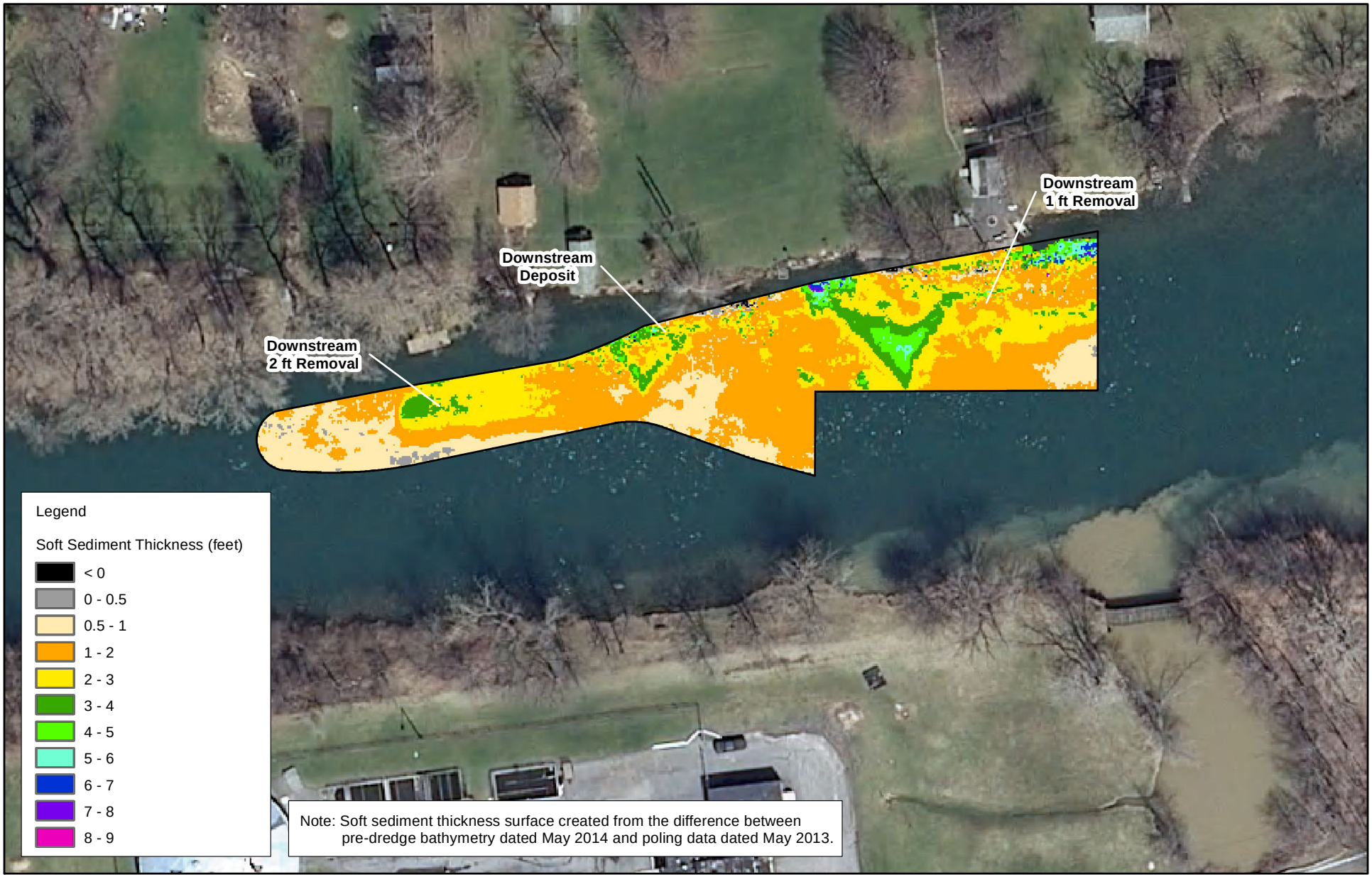

Figure 2
Design Depth of Sediment Removal
AOC A Sediment Removal Verification
Downstream Deposit
Former Hampshire Chemical Corp. Facility
Waterloo, New York

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\\LAKEFRONT\PROJ\GIS\DOW\WATERLOO\REPORTS\2015\MAPFILES\FIGURE 02 - DESIGN DEPTH OF SEDIMENT REMOVAL.MXD JHANSEN1 6/1/2015 5:01:40 PM

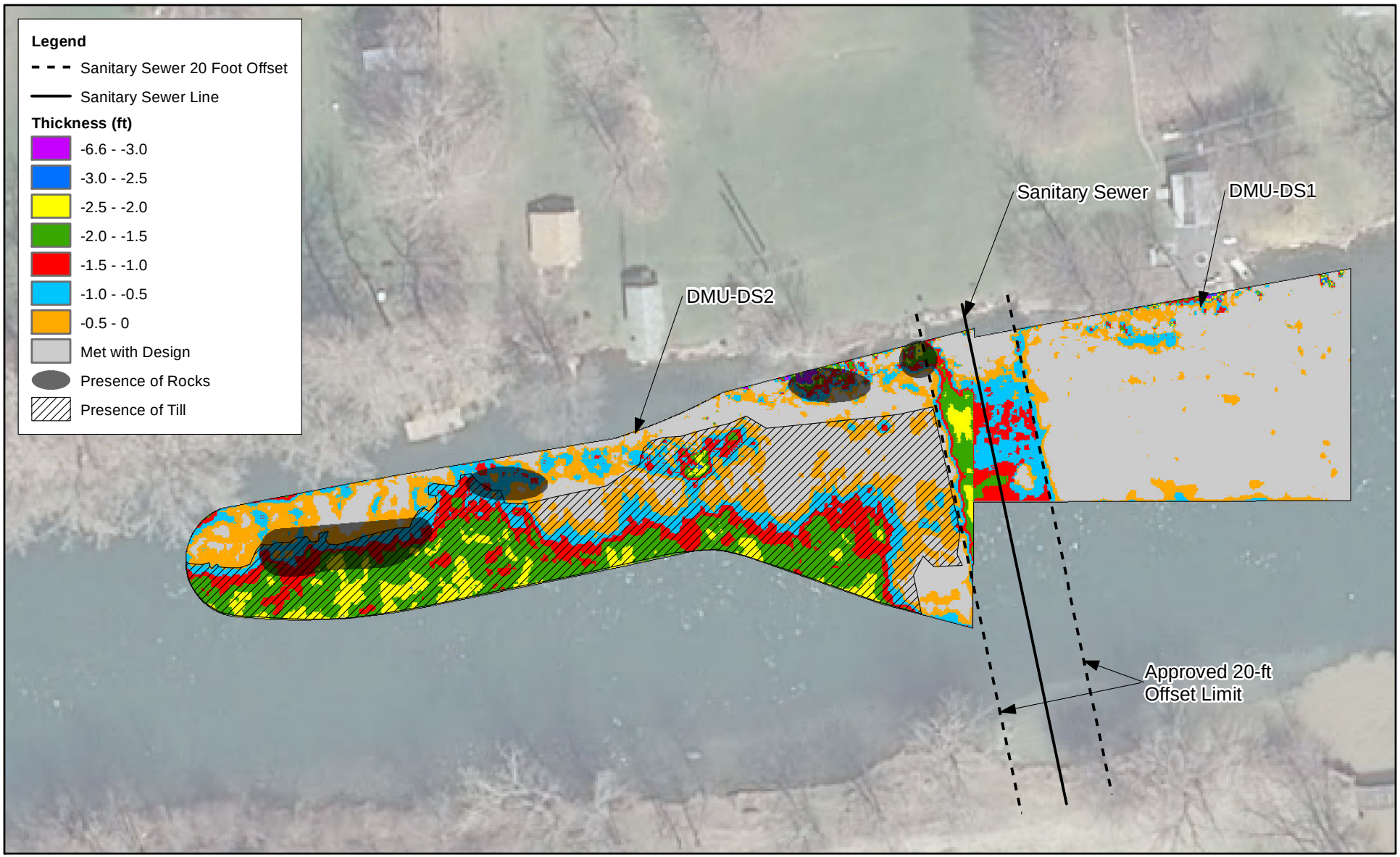

Figure 3

Comparison of Design Depth and 2015
Post-dredge Bathymetric Surface
AOC A Sediment Removal Verification Technical Memorandum
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