



Plan for the Mitigation and improvement of the overland drainage of Western Clay including Willow Stream and Black Brant drive

2/7/2024

Situation:

Over the past few years the Town of Clay has been experiencing a 20% increase in average annual rainfall. At the same time, overland drainage facilities between State Rt 31 and the Seneca river have been deteriorating due to the natural growth of trees, grasses and shrubbery along key drainage avenues. This has resulted in water routinely backing up into neighborhoods, back yards and basements and causing damage and general dissatisfaction.

Mission:

This plan, as much as possible, hopes to mitigate the situation by restoring the overland drainage facilities to their designed standards and assessing the need to expand those facilities based on documented changes to annual rainfall in the Town of Clay

Execution:

The town Engineer and the Highway superintendent will have the town highway department and associated contractors commence the work outlined in this plan with the goal of keeping overland drainage from spilling out of the designed conveyances and flooding the affected neighborhoods.

Logistics:

Town Highway drainage crews and associated contractors (JJ Lane Co.) will restore the overland drainage according to the attached schedule using heavy equipment, chainsaw, shovels, rakes, and dump trucks as needed.

Leadership and updates:

This draft plan will be published on the town website and updates on its progress will be given by the Town Supervisor or his designee upon request and at regularly scheduled town board meetings until it is completed.

Respectfully Submitted,

Joseph A. Bick, Deputy Supervisor

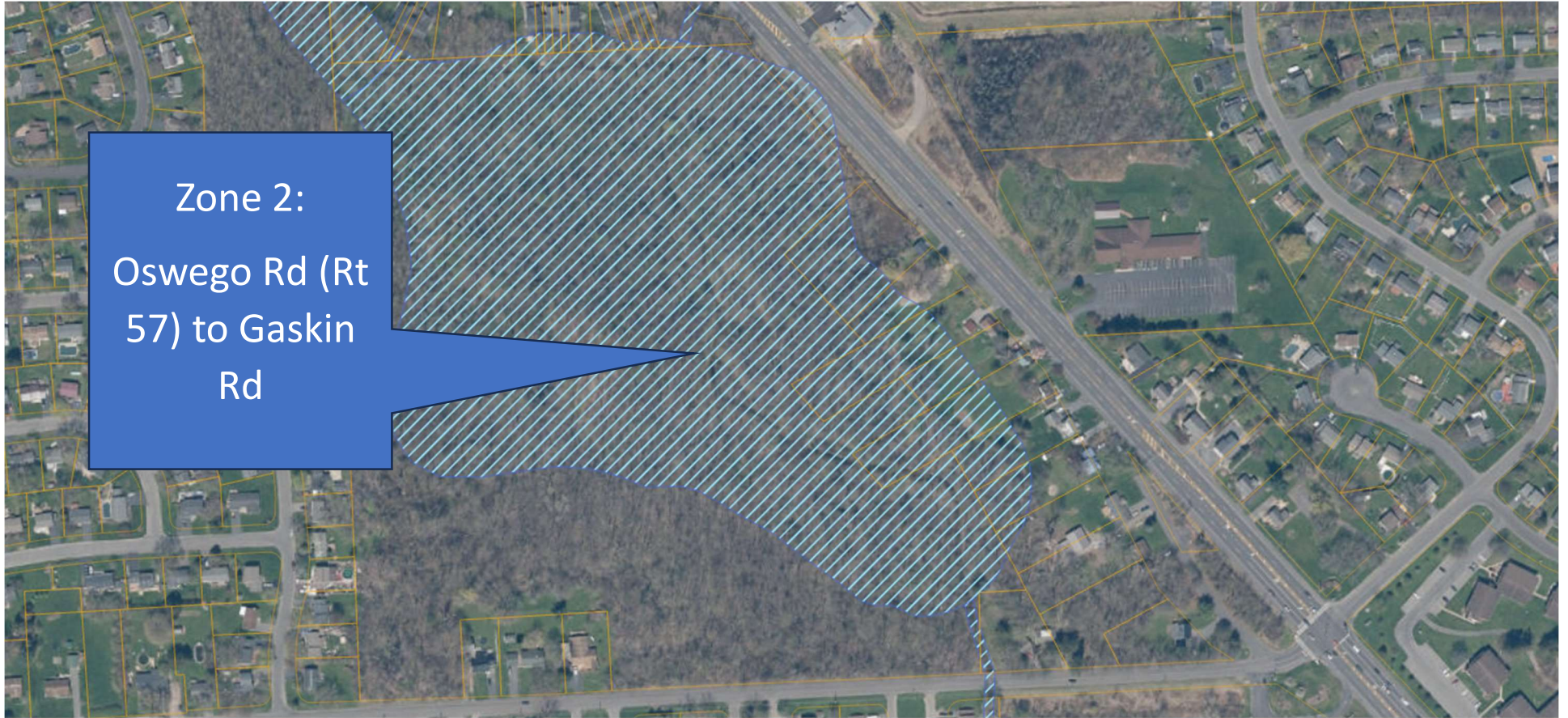
Western Clay (including Willow Stream and Black Brant) Overland Drainage Mitigation Plan

Task	Start date	Days Need	Completion	Adjusted length
Engineering and Highway Cursory Survey with immediate needs planning 100%	11/15/2023	1	11/16/2023	1
Town Board Cursory Survey 100%	12/29/2023	1	1/1/2024	3
Cleaning and Clearing Zone 2 25%	1/8/2024	60	4/1/2024	84
Cleaning and Clearing Zone 3 25%	1/15/2024	45	3/18/2024	63
Cleaning and Clearing Zone 4 100%	1/15/2024	10	1/29/2024	14
Cleaning and Clearing Zone 10%	2/6/2024	60	4/30/2024	84
Engineering reassessment of new overland drainage facilities to ensure they are built to standard (Lowe's retention pond) 0%	2/12/2024	6	2/20/2024	8
Engineering assessment to determine if the overland drainage is adequate to meet the towns needs based on current conditions 0%	2/12/2024	60	5/6/2024	84
Contract with JJ Lane to remediate retention pond in Zone 3 50%	2/12/2024	1	2/13/2024	1
Cleaning and Clearing Zone 5 0%	3/15/2024	60	6/7/2024	84
Engineering assessment to establish drainage requirements for future development based on current/future meteorological conditions 0%	3/15/2024	60	6/7/2024	84



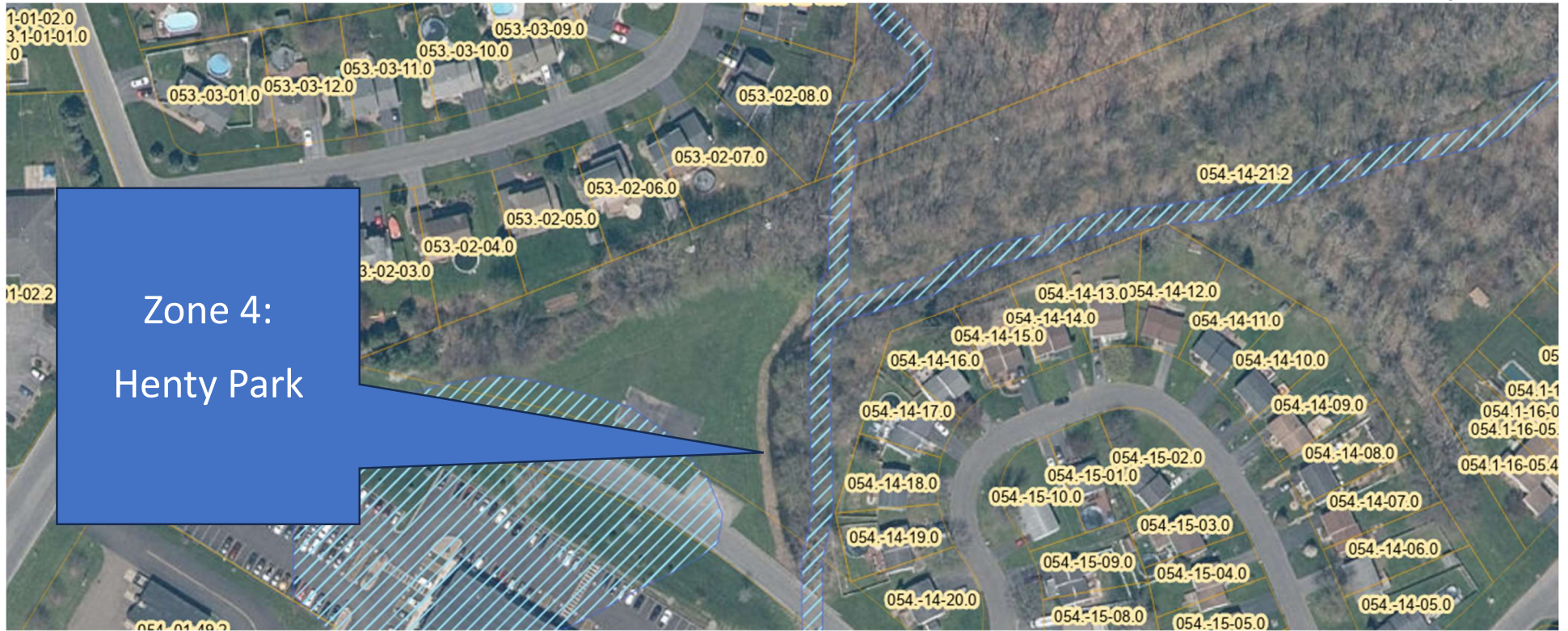


Zone 1:
Gaskin Rd to
the Seneca
River



Zone 2:
Oswego Rd (Rt
57) to Gaskin
Rd







Zone 5:
Henty Park
to Rt 31

Engineering Assessment Based on 11/15/2023 walkthrough of the area and recommendations:

The Willow Stream Dam is located immediately east of Old Route 57 approximately 4,000 feet south of NYS Route 31. This existing dam was constructed to reduce flowrates from the Willow Stream Residential Development. This dam was last improved in 1995 to rehabilitate the embankment to bring it up to NYSDEC Dam Standards. It is recognized as a Class B Dam. Stream flow from the dam site is tributary to a wooded wetland area (NYSDEC-BRE-15) extending from Old Route 57 to Gaskin Road then traversing Madison Village ultimately through County owned property to the Seneca River.

The storage volume of the Dam is approximately 55 acre-feet to an elevation of 376 U.S.G.S. datum. This volume was referenced from a design document prepared in 1995. The area tributary to this Dam is approximately 1.5 square miles with a considerable amount of the area developed. All projects within this watershed have stormwater facilities designed to offset the increase in peak discharge from their respective site to meet calculated values of existing conditions peak discharge.

This approach to development and stormwater control has been taking place within the Town long before the current NYSDEC Phase II Permit regulations were put into effect (2003). There are numerous mitigation measures in place through out the system to offset any increase in peak discharge. The Town of Clay complies with all requirements set forth by the NYSDEC.

Through time several things have changed through out the watercourse. Due to development and naturally occurring cycles of a water course, sediment has been transported to points down stream that have the potential to reduce the conveyance capacity of the natural water courses that serve this system. Vegetation has become overgrown at various locations which also contributes to the hydraulic efficiency of the water courses. The more vegetated the water course the less effectiveness it has to convey water.

Another factor that is adding to the situation are the weather patterns that are changing through time. We are experiencing a greater frequency of more intense storms with greater rainfall amounts. Research and climate data shows an approximate 20% increase in rainfall amounts compared to data collected 20 years ago for the 100-year storm event. The storm water facilities in place were designed to the climate data at the time they were constructed. The practice has always been to attenuate a 100-year storm where proposed design flows for the 100-year storm event would be equal to or less than the calculated peak discharge for conditions prior to the development of the respective parcel. Due to the original basis of design and the changing climate we are finding infrastructure being overburdened.

So What Can We Do

1. The Town should undertake efforts to clean out the overland swales and drainage conveyances throughout the watershed. This effort should include the restoration of water courses that serve this area. The restoration and clean out would begin at the confluence of the Seneca River and extend to the culvert located underneath NYS Route 31. It is important to begin downstream and work your way upstream to ensure that the overland runoff can safely be transported to points down stream after the improvements are made.

The work would include the removal of woody and plant vegetation from the overbanks, excessive sediment would be removed from the main channel, and where necessary, the water

course would be modified to increase its hydraulic efficiency. The more hydraulically efficient the water course is the less increase in water surface elevation is required to move water downstream.

Due to the magnitude of this work the area to be improved should be broken into 5 phases:

Phase 1 – the segment of water course extending from the confluence of the Seneca River to Madison Village.

Phase 2 – the segment of water course extending from the County property line to Gaskin Road.

Phase 3 – the segment of water course extending from Gaskin Road to Route 57.

Phase 4 – excavation of material at the Dam and water course improvements to approximately Willow Stream Section No. 5

Phase 5 - the last segment of the water course from Willow Stream Section No. 5 to NYS Route 31.

If permits are required, it could delay portions of the work. The town has reached out to the USCOE (Army Corp of Engineers) to inquire what permits, if any, may be required and will proceed accordingly as directed. By implementing these improvements, the overland runoff will have a more direct and time saving path to points downstream. This should reduce the water surface elevations along the water course.

2. It is our recommendation that the Town adopt a policy that all new development utilize a basis of design that requires proposed peak flows for all identified storm events (2, 5, 10, 25, 50 & 100-year) to be reduced by 20% from the calculated existing conditions peak discharges. This action should reduce the burden on the downstream facilities they drain into and provide a buffer for the changing weather patterns.

Ronald F. DeTota, II, P.E.

Department Leader

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