Illinois Environmental Protection Agency

Bureau of Water • 1021 N. Grand Avenue E. • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Division of Water Pollution Control
ANNUAL FACILITY INSPECTION REPORT
for NPDES Permit for Storm Water Discharges from Separate Storm Sewer Systems (MS4)

This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to the Compliance Assurance Section at the above address. Complete each section of this report.

Report Period: From March, 2018 To March, 2019

Permit No. ILR40 0664

MS4 OPERATOR INFORMATION: (As it appears on the current permit)

Name: Village of Tilton Mailing Address 1: 1001 Tilton Road

Mailing Address 2: County: Vermilion

City: Tilton State: IL Zip: 61833 Telephone: 217-477-0800

Contact Person: David Phillips, Mayor Email Address: dphillips@tilton.com
(Person responsible for Annual Report)

Name(s) of governmental entity(ies) in which MS4 is located: (As it appears on the current permit)

Village of Tilton, Illinois

THE FOLLOWING ITEMS MUST BE ADDRESSED.

A. Changes to best management practices (check appropriate BMP change(s) and attach information regarding change(s) to BMP and measurable goals.) (See Attachment A)

1. Public Education and Outreach ☐
2. Public Participation/Involvement ☐
3. Illicit Discharge Detection & Elimination ☐
4. Construction Site Runoff Control ☐
5. Post-Construction Runoff Control ☐
6. Pollution Prevention/Good Housekeeping ☐

B. Attach the status of compliance with permit conditions, an assessment of the appropriateness of your identified best management practices and progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, and your identified measurable goals for each of the minimum control measures. (See Attachment B)

C. Attach results of information collected and analyzed, including monitoring data, if any during the reporting period. (See Attachment C, D, E & F)

D. Attach a summary of the storm water activities you plan to undertake during the next reporting cycle (including an implementation schedule.) (See Attachment H)

E. Attach notice that you are relying on another government entity to satisfy some of your permit obligations (if applicable).

F. Attach a list of construction projects that your entity has paid for during the reporting period. (See Attachment B)

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Owner Signature: Date: MAY 14 2019

Printed Name: David Phillips Title: Mayor

EMAIL COMPLETED FORM TO: epa.ms4annualinsp@illinois.gov

or Mail to: ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL
COMPLIANCE ASSURANCE SECTION #19
1021 NORTH GRAND AVENUE EAST
POST OFFICE BOX 19276
SPRINGFIELD, ILLINOIS 62794-9276

This Agency is authorized to require this information under Section 4 and Title X of the Environmental Protection Act (415 ILCS 5/4, 5/39). Failure to disclose this information may result in: a civil penalty of not to exceed $50,000 for the violation and an additional civil penalty of not to exceed $10,000 for each day during which the violation continues (415 ILCS 5/42) and may also prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

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ATTACHMENT A

NARRATIVE REGARDING TILTON EFFORTS TOWARD COMPLIANCE WITH REQUIREMENTS OF GENERAL NPDES IL R40 FOR MS4

On May 16, 2016 received the Illinois Environmental Protection Agency reissued General National Pollutant Discharge Elimination System (NPDES) ILR40 for the discharge of storm water from Small Municipal Separate Storm Sewer Systems (MS4). The Tilton permit is currently listed active through February 28, 2021. The following is a summary list of items the Village achieved during this report period in addition to information in previous Annual Reports:

- **Updated the Village Storm Water Management website to include additional link to "Pick Up After Your Pet" brochure.**

- **Obtained permission from local car and truck wash facilities to request residents to use local car washes.**

- **Continued updating digital version of the Storm and Sanitary Sewer Base Map system:**
  - **Numbering of sanitary and storm sewer manholes and drainage outfall structures.**
  - **Included new drainage facilities known to be added to the Village.**
  - **Included found drainage facilities within Village & immediately upstream.**
  - **Logged sections of storm sewer cleaned and sections of sanitary sewers smoked.**

- **Continue to monitored and inspected storm water management facilities by conducting visual inspection, photograph condition and documented color, odor, clarity, floating solids, suspended solids, foam, oil sheen or other obvious indicators of storm water pollution at storm sewer outfall structures in Village and Grape Creek Bridges. This was accomplished during dry weather and immediately following snow melt. Prepared photographic inspection reports including suggestions and recommendations.**

- **The Illinois State Map regarding Section 303(d) of the Clean Water Act lists the Vermilion River upstream, through and downstream of Tilton as "Medium" priority for Total Maximum Daily Load (TMDL) cause from polychlorinated biphenyls, mercury and fecal coliform.**

- **Engineer utilized United States EPA Environmental Justice Screen Tools to determine watersheds upstream of Tilton then reviewed upstream MS4 communities Annual Reports when found on websites.**

- **During 2018 and 2019 Engineer visually inspected Grape Creek also Middle Fork and Vermilion River immediately upstream of Tilton and prepared photographic observations included in this report.**

- **During 2018 and 2019 Engineer occasionally visited site of Danville (concrete low head) Dam removal from Vermilion River and prepared photographic observations included in this report.**

- **During 2018 and 2019 Engineer inspected solid waste containment areas along Illinois Route 1 and prepared photographic observations included in this report.**

- **Village Staff utilized vactor truck to clean several storm sewer lines, smoked sanitary sewer pipes to identify cross-connections, utilized new pipe camera system to inspect storm sewer pipe also excavator and dump truck to remove debris obstructing storm sewer discharge. Engineer prepared photographic observations included with this report.**

- **Engineer advertised for, prepared for and was available at public meetings presenting the Village Storm Water Management Plan & Website, Environmental Justice and Best Management Practices. Invited Illinois Environmental Protection Agency, public, Village staff and Trustees. Meeting was to update, train and educate regarding Tilton NPDES MS4.**

- **On several occasions during report period consulting engineer reviewed Village facilities by 1) visual inspections, 2) photography and 3) documentations. Included in this Annual Reporting is the Village equipment wash-down system, salt storage, chemical & fertilizer storage areas, oil & fuel systems, street sweeping and Vactor truck. Engineer provides improvement suggestions and recommendations to Village.**

- **Continued development and progress to access the water quality impacts of Grape Creek flood control projects. Sediment and drainage obstructions are being monitored and occasionally tested. Maintenance operations are implemented to remove and dispose of debris obstructions from stream bank where potential flood impacts exist. Hydraulic capacity of Grape Creek bridges through Tilton are measured calculated and mapped.**

- **During rain event; Engineer inspected IDOT manholes the Village storm sewer is connected and prepared photographic observations included with this report.**

- **Engineer inspected erosion control efforts on IDOT Illinois Route 1 also Village 1rst Avenue, 16th Street, Lane Street and Southgate Drive road construction projects. Photographic observations are included with this report.**

- **Village and Engineer communicated with Illinois Environmental Protection Agency and residents to eliminate illicit discharge.**

- **Engineer prepared preliminary plans, specifications and cost estimate to mitigate erosion, repair drain pipe failures also wrote letters to obtain access permission to maintain drainage facilities. Documentation included in this report.**

- **After inspections; Engineer prepared Tilton MS4 Drainage Improvement Status Map to summarize recommended future improvements. Documentation is included in this report.**

- **Engineer is attending a course of lectures at the University of Illinois called "All Connected: Human Behavior and the Environment in the Vermilion River System" and regularly outreaches to discuss topics with Village staff and public.**

- **Reviewed Village Stormwater Ordinances per requirements of the reissued General Permit. Erosion, Sediment Control and Storm Water ordinance exist. Village officials discuss solid waste dumpster ordinance with Engineer.**

- **Village posts public outreach materials on website and at Village Hall and make copies available for interested public.**

- **Village held community drop-off clean-up at Public Works facility and pick-up for seniors the first weekend in June 2018. Six 30 cubic yard dumpsters of waste were contained.**

ATTACHMENT B

Annual Facility Inspection Report
MS4 PHASE 2 NPDES Permit No. IL400664
Village of Tilton, Illinois
(Reporting Period March 2018/2019)

2018/2019 MS4 PHASE 2 NPDES STORM WATER ACTIVITY SUMMARY

BMP #	BMP	Category	Description	Proposed Activity
A	Public education and outreach	A.1	Distributed paper material	Distributed public education material and made available at Village Hall and posting on Village Storm Water Management website for interested public and also review by regulating agencies.
		A.5	Classroom education materials	Distributed public education and outreach material to interest public.
		A.6	Other Public Education	Public meeting/training held; invited Village Staff, contractors, trustees and public regarding Village MS4 Best Management Practices, discharge outfall monitoring , Environmental Justice and Village Storm Water Management website.
B	Public participation\involvement	B.2	Educational volunteer	Engineer attended "All Connected" Human Behavior and the Environment in the Vermilion River System series of lectures at University of Illinois and engaged in public dialog regarding storm water issues.
		B.7	Other public involvement	Distribution of EPA flyers and Village posts education material and flyers on website. Engineer performed a screen iteration using mapping tools on EPA Environmental Justice website, generated report and is reviewing Annual Reports of listed MS4 communities upstream & immediately downstream of Tilton where available.
C	Illicit discharge detection and elimination	C.1	Sewer map updated	Updated digital storm and sanitary sewer facilities on Village Drainage Map; continued numbering of manholes and drainage outfall structures. Added identified new & found facilities. Plotted hard copy for posting at Village Public Works facility.
		C.3	Detection/Elimination Prioritization Plan	Inspected solid waste containment areas along IL Route 1 and generated photographic observation report of conditions. Communicating to contain loose waste. Village staff used its smoke blower, vactor truck & video camera for sewer inspections. Engineer mapped and reported observations.
		C.7	Visual dry weather screening	Preformed observation/screening of storm sewer outlets along Grape Creek and Vermilion River. Included upstream & downstream of Tilton. Photographic documentation Reported.
		C.10	Illicit Discharge Controls	Continued review of mapping for potential areas to detain and treat water run-off from major fires. Village staff, IL EPA & Engineer communicated to mitigate reported Illicit Discharge of residential sewage. Review of solid waste containment compliance with Village ordinance.
D	Construction site runoff control	D.2	Erosion and Sediment Control BMPs	Implement Village Erosion and Sediment Control Ordinances into construction projects.

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Annual Facility Inspection Report
MS4 PHASE 2 NPDES Permit No. IL400664
Village of Tilton, Illinois
(Reporting Period March 2018/2019)

2018/2019 MS4 PHASE 2 NPDES STORM WATER ACTIVITY SUMMARY- (CONTINUED)

BMP #	BMP	Category	Description	Proposed Activity
		D.7	Other Construction Site Run-off Controls	Reviewed Village Erosion, Sediment Control and Storm Water Ordinance regarding permit requirements. Inspect construction sites for erosion control effectiveness.
E	Post-Construction runoff control	E.4	Pre-Construction Review of BMP Design	Inspection of erosion and sediment control measures are conducted by the Village officials and consulting engineer at pre and post-construction stages of the construction projects within the Village. Engineer takes photographs of erosion conditions during site visits.
		E.6	Post-Construction Inspections	Village and consulting engineer to perform post-construction visual observation of construction sites regarding Storm Water Management BMPs.
		E.7	Other Post-Construction Run-off Controls	Engineer prepared preliminary plans, specifications & estimates to mitigate erosion at several locations.
F	Pollution Prevention/ Good Housekeeping	F.1	Employee Training Program	Continued training for Village public works personnel regarding proper sewer video inspection, smoking & cleaning operations. Village obtained sewer inspection equipment & video camera.
		F.2	Inspection and Maintenance Program	Inspect inlet and outlet drainage facilities within Village during dry & wet weather thence remove debris and address erosion. Continue to sweep streets, separate material and document progress. Video inspect & smoke sewers. Inspection Engineer continues to identify drainage maintenance needs then prepares plans, specifications & cost estimate also communicates implementation and prepares observation documentation for reporting.
		F.3	Municipal Operations Storm Water Control	Perform visual inspection of streams within Village jurisdiction for accumulated debris or erosion.
		F.4	Municipal Operation Waste Disposal	Improve operational plans to separate debris from stream, drainage system and various public works clean-ups into recyclables, landscape waste and garbage. Identify appropriate locations to dispose or recycle materials in manner avoiding storm water pollution.
		F.5	Flood Management/Access Guidelines	Inspect Grape Creek through Village during wet & dry weather to assess, photograph and coordinate removal of debris build-up obstructing or potentially restricting storm sewer discharge, channel and/or bridges. Engineer takes measurements & calculates stream flow capacities & considers in recommending maintenance. General strategy is to regulate storm water flow from upstream of Tilton, remove drainage obstructions from existing storm sewer non-polluting discharges also stream flow through the Village to prevent storm water from mixing with sanitary sewer water during wet weather events which can overwhelm sanitary sewers, pumps and treatment plant.
		F.6	Other Municipal Operation Controls	Inspect, photographed and measured drainage facilities immediately upstream of Village and plotted on digital drainage upgrade map. Made observations and reported the State of Illinois removal of the Danville Dam immediately downstream of Tilton. Communicated hazards to Village officials & public.

ATTACHMENT B

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Village of Tilton, Illinois
(Reporting Period March 2018/2019)

LIST OF ACTUAL 2018/2019 CONSTRUCTION & MAINTENANCE PROJECTS PAID FOR BY TILTON

Project	Item #	Item	Status
1RST AVE, 16TH ST, SOUTHGATE DR, 14TH ST, IL RT 1 & LANE ST	I	ROAD, GRADING, STORM SEWER AND DETENTION BASIN CONSTRUCTION	PAVEMENT FUNCTIONAL, EROSION CONTROL IN PLACE. ESTABLE TURF SPRING 2019
MFT MAINTENANCE	II	PAVEMENT REHABILITATION	IN SURVEYING AND PLANNING STAGE
EAST 1rst STREET CHANNEL CLEARING	III	DEBRIS REMOVAL, GRADING & DRAINAGE MAINTENANCE	PREPARED PLANS, SPECIFICAITONS & ESTIMATE ALSO COMMUNICATE WITH PROPERTY OWNER
ADAMS STREET STORM SEWER	IV	CLEANNING, SMOKING AND CAMERA INSPECTION	SEWER MANHOLES FOUND AND MAPPED, CROSS-CONNECTION IDENTIFIED
HERSCHEL LAKE	V	EXCAVATION, CULVERT REPLACEMENT, DOCK & BOAT ACCESS RELOCATION	DRAINAGE PIPE AND RIP RAP, RESTROOMS RULE SIGNS INSTALLED
CATLIN TILTON ROAD	VI	PAVEMENT REHABILITATION	ESTIMATE THEN SURVEYING & PLANNING PHASE
SOUTHGATE STORM SEWER	VII	DISCHARGE EROSION MITIGATION	PLANS, SPECIFICATIONS & ESTIMATE PREPARED ALSO OBTAINED PROPERTY ACCESS MAINTENANCE PERMISSION
WITY DRAINAGE	VIII	SWALE DEBRI REMOVAL	EXCAVATION BY VILLAGE STAFF
EAST ROSS LANE BRIDGE	IX	DEBRIS REMOVAL OPERATION FROM CATTLE GUARD	CERTIFIEED LETTER SENT TO PROPERTY OWNER
"G" STREET BRIDGE	X	PAVEMENT & BRIDGE JOINT REPLACEMENT	PRELIMINARY PLANS AND ESTIMATE PREPARED LOCATE FUNDING

GLEISNER ENGINEERING

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RE: AUGUST 16, 2018 GRAPE CREEK STORM SEWER OUTFALL & PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Look at erosion along fence line near Grape Creek between Todd's Auto Body and Big R Tilton August 16th, 2018. Engineer prepared plan, specification and estimate to stabilize erosion also communicated with property owners. Review response regarding Pre-Construction Notice then Village staff and/or contractor implement improvements under observation of Engineer.

Storm Structure P1

Look August 16th, 2018 at 36 inch diameter storm sewer discharge located near southeast corner of Big R and southwest of Todd's Auto Body. Plan, specification and estimate prepared by Engineer to reinstall end section and install erosion dissipation material communicated with property owners. Review response regarding Pre-Construction Notice then Village staff and/or contactors implement improvements under observation of Engineer.

Look August 16th, 2018 at dozer grading new detention basin near storm structure P4 at northeast corner of Southgate Drive and 1st Avenue

Storm Structure R8

Look August 16th, 2018 from Washington Street Bridge towards upstream at sediment & vegetation build-up on riprap. Communicate to develop plan and provide notice for Village staff and/or contractor to remove build-up and dispose of at deactivated VOTEC Sewage Treatment Plant Sludge Lagoon.

Storm Structure R9

Look downstream of Keegan Street Bridge August 16th, 2018 towards the north along Grape Creek at erosion control riprap & vegetation along west bank

Storm Structure R12

Look at upstream side of CSX Railroad Bridge over Grape Creek August 16th, 2018. Communicate with railroad authorities to regularly use pool leaf rakes on pole to remove trash and scum from stream and floodplain then dispose of off-site.

Storm Structure R14

Look at upstream side of Grape Creek Bridge at Kingsdale Bridge August 16th, 2018

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RE: SEPTEMBER 1, 2018 GRAPE CREEK STORM SEWER PHOTOGRAPHIC OBSERVATIONS, MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Look southerly September 1st, 2018 at maintenance facility vehicle parking area near new drainage inlet towards Herschel Lake along the east side of Hodge Street south of 14th Street

Structure # Q16

Look southerly at new drainage grate with concrete poured around it south of vehicle maintenance facility along the east side of Hodge Street south of 14th Street. Regularly clear trash and debris from inlet grate.

Look northerly September 1st, 2018 along the east side of Hodge Street south of 14th Street at vehicle maintenance facility drainage

GLEISNER ENGINEERING

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RE: FEBRUARY 4, 2019 GRAPE CREEK STREAM & STORM SEWER OUTFALL PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Look February 4th, 2019 from Kingsdale Street Bridge over Grape Creek towards upstream

Structure R14

Look from upstream towards downstream February 4th, 2019 at Kingsdale Street Bridge over Grape Creek

Look from Kingsdale Avenue Bridge February 4th, 2019 toward downstream at Grape Creek

Structure R13

Look from downstream towards upstream at Kingsdale Avenue Bridge over Grape Creek February 4th, 2019

Structure D1

Look at stormwater discharge from Coachlight Mobile Home Park into Grape Creek February 4th, 2019. Obtain permission to access storm sewer discharge from Coachlight Mobile Home Park. Minimal excavation required around fallen pipe section, reinstall pipe section and place filter fabric and erosion control material per Engineer requirements.

Structure C1

Look February 4th, 2019 at storm water flowing out of discharge into Grape Creek South of Coachlight Drive. During rain event Engineer to use mapping to locate storm & sanitary manholes, open lids and inspect for surcharged lines and ensure storm sewer can discharge at unobstructed capacity.

Structure R12

Look from upstream towards downstream at CSX Railroad Bridge at Grape Creek flowing underneath February 4th, 2019. Communicate and coordinate with CSX Railroad then regularly inspect and safely use pool leaf rake on pole to remove trash & scum from stream and properly dispose of. Determine where solid waste is migrating to stream from and enforce containment.

Structure R11

Look from downstream towards upstream at Grape Creek flowing under box culvert of CSX railroad. Communicate and coordinate regular policing of stream through Village and collect trash and properly dispose of. Safely collect & dispose of solid waste along stream.

Look north February 4th, 2019 at bend along stream approximately 200 feet west of Adams Street at Grape Creek flow. Communicate and coordinate with Engineer to place stone rip rap along bend & maintain stream flow cross-section

Look northerly February 4th, 2019 from Adam Street at delineators installed at storm sewer discharge into Grape Creek

Structure J1

Look February 4th, 2019 southwest at recently cleaned storm sewer discharge on the North End of Adams Street on the south bank of Grape Creek. Spread grass seed immediately and establish vegetation on soil!

Look February 4th, 2019 northeast at restriction in stream approximately 150 ft. upstream of Keegan Street Bridge along northern bank of Grape Creek. Communicate property access with owner and engineer also with utility company to remove tree from overhead power lines. Engineer measure & calculate creek cross section & consider preparing plan, specification and estimate to temporarily remove rip rap, reshape bank to appropriate cross section and reinstall erosion control. Consider impacts on sanitary manhole downstream and provide Notice to Army Corp of Engineers prior to implementation.

Structure 20

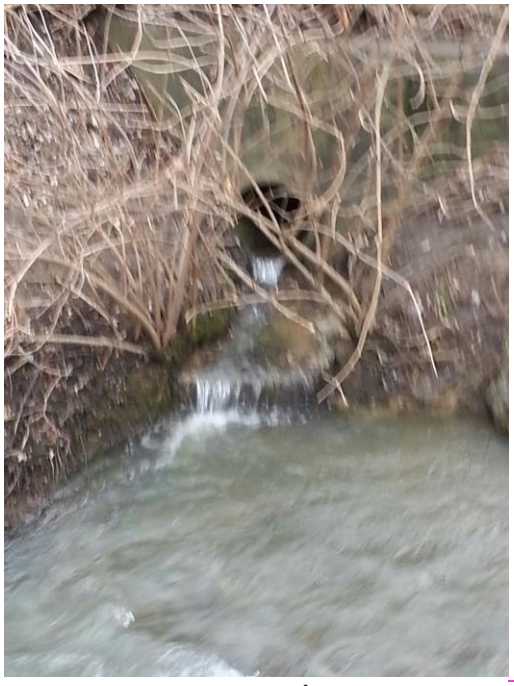
Look February 4th, 2019 from Keegan Street Bridge over Grape Creek toward upstream at flow near sanitary manhole exposed on the west bank. There appears to be debris & tree root cross-section stream restriction approximately 75 feet upstream of bridge. Engineer look into sanitary manhole to determine if sealed sufficient from stream water and provide recommendations.

Look February 4th, 2019 from Keegan Street bridge over Grape Creek toward downstream & northerly at rip rap recently placed along the west bank and bend in stream. Spread appropriate waterway seed along West slope & establish erosion resistant turf that does not restrict flow.

Look February 4th, 2019 towards the northwest at bend on Grape Creek and erosion control concrete place upstream of Jefferson Street pedestrian bridge & downstream of Keegan Street Bridge. Continue to monitor condition.

Look February 4th, 2019 from Jefferson Street pedestrian bridge over Grape Creek towards upstream & westerly at stream flowing around bend where erosion control rip rap was placed

Look February 4th, 2019 from Jefferson Street pedestrian bridge towards downstream & easterly at water flowing through cross-section of Grape Creek after snow melt. Safely saw cut dead tree trunk restricting flow flush with bank and leave root ball in the bank allowing smooth flow and dispose of in a legal manner out of floodplain and stream



Structure H1

Look February 4th, 2019 at storm sewer discharging into Grape Creek approximately 40 feet downstream of Jefferson Street pedestrian bridge southeast corner.

Look from downstream of Jefferson Street pedestrian bridge at cross section of Grape Creek flowing February 4th, 2019
Safely saw cut dead tree trunk restricting flow flush with bank and leave root ball in the bank allowing smooth flow and dispose of in a legal manner out of floodplain and stream.

Structure R8

Look February 4th, 2019 from upstream of Washington Avenue Bridge over Grape Creek flowing through after recent snow melt. Communicate and coordinate with Engineer to prepare maintenance operation notice to excavate and remove debris build-up from concrete bank upstream and northwest of bridge. Coordinate with Illinois EPA & Bureau of Land dispose of and cover excavated material at deactivated VOTEC sewage treatment plant sludge lagoon. Communicate with Engineer to measure quantities, photograph and report operation observations.

Structure G1

Look southeasterly at stormwater discharging into Grape Creek February 4, 2019 at the southwest wingwall of Washington Street Bridge over Grape Creek. Remove fragments of trash from area.

Look from Washington Avenue Bridge February 4th, 2019 towards upstream at flow after recent snow melt. Communicate and coordinate with Engineer to prepare maintenance operation notice to excavate and remove debris build-up from concrete bank upstream and northwest of bridge. Coordinate with Illinois EPA & Bureau of Land dispose of and cover excavated material at deactivated VOTEC sewage treatment plant sludge lagoon. Communicate with Engineer to measure quantities, photograph and report operation observations.

Look February 4th, 2019 from Washington Street Bridge towards downstream easterly at Grape Creek

Structure R7

Look February 4th, 2019 from downstream of Washington Bridge over Grape Creek towards upstream

Structure R6

Look February 4th, 2019 toward downstream at Grape Creek under King Street Bridge

Structure S1

Look southerly February 4th, 2019 at storm water discharging into Grape Creek 150' +/- upstream & westerly of King Street Bridge. Remove and dispose of trash.

Look February 4th, 2019 from King Street Bridge toward upstream & westerly at Grape Creek

Look easterly February 4th, 2019 towards downstream from King Street Bridge at Grape Creek

Look February 4th at solid waste buildup along hedge on top bank at the northwest corner of box culvert at Illinois Route 1 and Grape Creek. Police area and regularly remove litter, identify source of litter and contain.

Structure R4

Look from upstream towards downstream at triple barrel box culvert at Grape Creek under Illinois Route 1. Communicate and coordinate regularly with IDOT to ensure debris build-up is removed & properly disposed of ensuring full capacity drainage.

Structure R4

Look at stormwater discharging from Illinois Route 1 at the wing wall of triple barrel box culvert under Route 1 along Grape Creek on the southwest corner February 4th, 2019

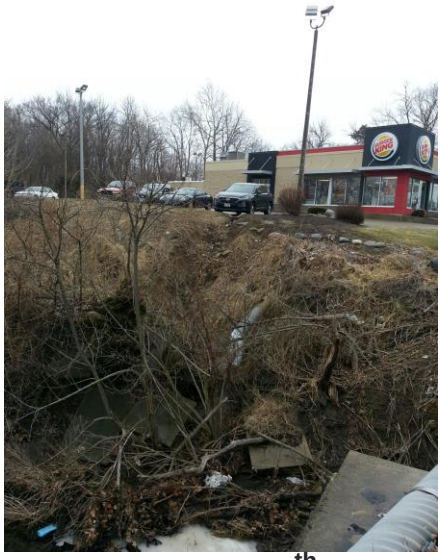
 Structure R4

Look at stormwater discharging at the northwest wing wall of box culverts and Grape Creek at Illinois Route 1

Look February 4th, 2019 at debris build-up just downstream of triple barrel box culvert under IL Route 1 along Grape Creek. Safely remove trash debris & garbage from stream and dispose of properly also enforce containing solid waste at the nearby commercial and retail areas!


Structure R3

Look down & northerly February 4th, 2019 at stormwater discharging at the northeast wing wall triple barrel box culvert under Route 1 along Grape Creek



Look February 4th, 2019 southeasterly at erosion on the south bank potentially creating hazards near northwest corner of Burger King parking lot north of IL Route 1 & south of Grape Creek box culvert. Communicate with property owner and Engineer to safely mitigate condition.

 Structure R3

Look February 4th, 2019 at potentially hazardous erosion near Burger King parking lot southeast corner near triple barrel box Culvert under Illinois Route 1. Engineer left message property owner (reported to be Maruti Seth 217-446-6023 and partner Richard 217-597-2838) regarding condition.

 Structure N1

Look northerly at concrete flared end section and concrete discharge swale also 6in PVC pipe discharging into Grape Creek approximately 35 feet east of the northeast corner of triple barrel box Culvert under Route 1. Communicate and coordinate with Engineer to mitigate erosion under concrete pad.

Structure R3

Look upstream February 4th, 2019 from log jam on the downstream side of triple barrel box culvert under Illinois Route 1 at Grape Creek flowing through the box culvert

Look at Herschel Lake Rules sign posted near boat launch at Park; photo taken February 4th, 2019

Look February 4th, 2019 at No Litter sign, Herschel Lake rules sign and solid waste container near recently installed dock and boat launch


Structure V3

Look at SDR 26 PVC storm sewer discharging into Herschel Lake just to the north of boat launch at park February 4th, 2019. Add to drainage map.


Structure V4

Look February 4th, 2019 at storm sewer inlet collecting water from stone riprap drainage swale used to pipe water under road access to boat launch near Herschel Lake Park. Add to drainage map.


Structure V1

Look at 8-inch diameter SDR 26 storm sewer discharging into Herschel Lake under access road to boat launch areas February 4th, 2019. Add to drainage map.

Structure V2

Look at stone riprap and storm water inlet on the west side of Herschel Lake near park and boat launch access February 4th, 2019. Add to drainage map.

Look February 4th, 2019 at turf establishment along the bank of Herschel Lake near recently constructed Autumn Fields residential living quarters.

Look at No Litter sign and solid waste containers placed near park at Herschel Lake public access, February 4th, 2019

Structure Q4

Look at erosion rut diverting run-off around storm sewer Inlet February 4th, 2019. Consider actual run-off watershed area then grading area and berm with engineered plan for stormwater runoff into stormwater manhole and/or establishing erosion control through swale in a manner that prevents erosion and better manages stormwater.

Look at erosion rut on the north side of Herschel Lake Park February 4th, 2019. Communicate & coordinate with engineer to remediate erosion.

Structure Q3

Look westerly at discharge into Herschel Lake from Hodge Street February 4th, 2019. Communicate and coordinate with Engineer to prepare plan and remediate erosion.

Look easterly at rip-rap placed above filter fabric from restroom facility in park draining down slope towards Herschel Lake February 4th, 2019. Communicate with Engineer to consider safe pedestrian path over rip rap and culvert midway downhill.

Look northerly from the western bank of Herschel Lake, February 4th, 2019

Look southeasterly from west bank of Herschel Lake at dam on the south end of Lake, February 4th, 2019

Structure Q2

Look at trash rack on upstream side of culvert pipe regulating the discharge of Herschel Lake into Grape Creek February 4th, 2019. Regularly and safely remove and dispose of trash from screen.

Structure Q1

Look at water discharging from Herschel Lake onto riprap concrete into Grape Creek February 4th, 2019. Mitigate erosion under discharge pipe outlet.

Structure 37

Look February 4th, 2019 from East Ross Lane Bridge over Grape Creek at status of cattle guard. Engineer sent certified letter to property owner.

GLEISNER ENGINEERING

217-213-2022
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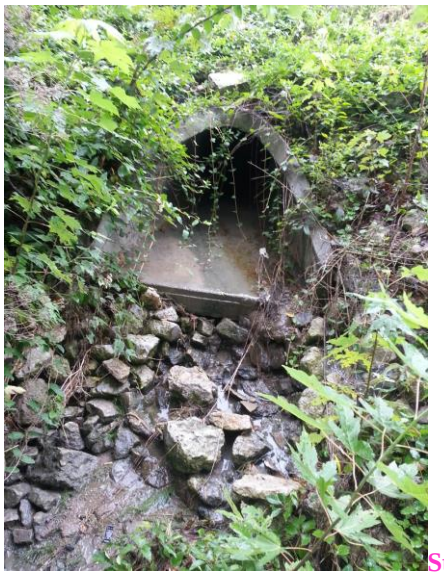
RE: AUGUST 16, 2018 VERMILION RIVER STORM SEWER OUTFALL PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS


Storm Structure U1

Look at storm sewer discharge along north side 14th St. west of Hodge Street; August 16, 2018


Storm Structure A3

Look at storm sewer discharge August 16th 2018 north of I-74 near East 1st Street

GLEISNER ENGINEERING

217-213-2022
josephgleisner@att.net

RE: SEPTEMBER 7, 2018 TILTON STORM SEWER OUTFALL INTO IDOT DRAINAGE SYSTEM TRIBUTARY OF VERMILION RIVER PHOTOGRAPHIC REPORT, MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Look inside IDOT storm manhole east of 13th Street along southwest ramp of I-74 & Illinois Route 1 at water trickling in west pipe from Tilton storm sewer

Look inside IDOT storm manhole east of 13th Street in Tilton along southwest ramp of I-74 and Illinois Route 1 September 7th, 2018 during rain

Look into IDOT storm manhole southeast of 13th Avenue along ramp southwest of Interstate 74 and Illinois Route 1 intersection during rain event September 7, 2018

GLEISNER ENGINEERING

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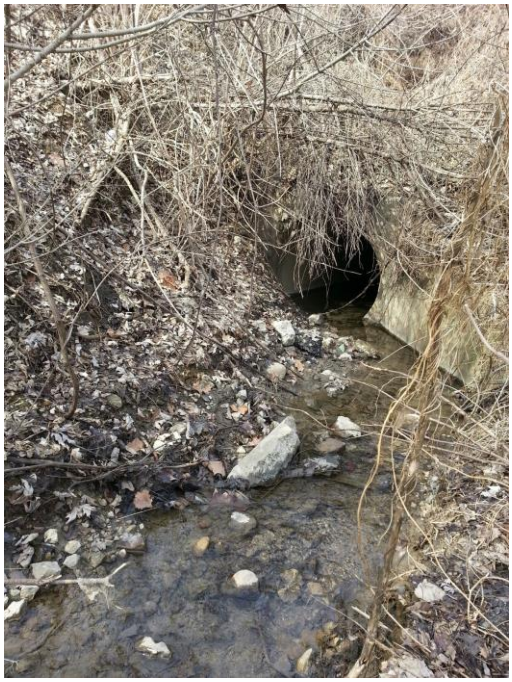
RE: FEBRUARY 22, 2019 VERMILION RIVER STORM SEWER PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Storm Structure A71

Look February 22nd, 2019 southwest at storm water discharge east of North F Street and north of East 4th Street

Storm Structure A60

Look February 22nd, 2019 westerly at discharge east of North 1st Street north of East 3rd Street



Storm Structure A35

Look February 22nd, 2019 northerly at channel flow into storm sewer pipe located at the southeast corner of East 2nd Street and North F Street

GLEISNER ENGINEERING

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RE: FEBRUARY 5, 2019 VERMILION RIVER STORM SEWER OUTFALL PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Storm Structure B1

Look at downstream end of culvert under McVey Avenue; February 5th 2019. Continue to develop plans, specifications & estimates to slip line culvert.

Storm Structure B1

Look February 5th, 2019 into obstruction of culvert probably collapsed under McVeigh Avenue. Engineer prepared preliminary plan and requests Village safely camera inspect.

Storm Structure B3

Look February 5th, 2019 at void erosion at end of concrete swale near IDOT Interstate 74 Right-of-Way. Erosion appears to exist at end of concrete Right-of-Way fenced line. Consider placing riprap to disperse water and prevent erosion and remove tire. Engineer communicated with IDOT regarding condition.

Storm Structure B3

Look February 5th, 2019 at storm sewer discharging onto concrete swale on the north side of Interstate 74 near Tilton ball fields

Look at downstream side of box culvert under Songer Cemetery Road tributary to Vermilion River; February 5, 2019

Look February 5th, 2019 northerly at the upstream side of box culvert under Songer Cemetery Road tributary to Vermillion River

Look February 5th, 2019 at storm sewer discharge at headwall north of deactivated county sewage treatment plant draining into tributary of Vermilion River near Songer Cemetery Road

Look February 5th, 2019 southwest at dumpster on the west side of Vermilion County Animal Shelter. Ensure all Solid Waste is contained and lids are safely closed to prevent waste from migrating to stream.

Look February 5th 2019 at downstream side of field culvert crossing west of Vermilion County Animal Shelter and north of Catlin Tilton Road.

Look northerly at culvert condition west of Vermilion County Animal Shelter and north of Catlin Tilton Road February 5th 2019 County submit property survey and land transfer documentation to Engineer. Consider adding rip rap and turf establishment on soil.

Look February, 5th 2019 at sinkholes west of Vermilion County Animal Shelter site north of Catlin Tilton Road. Communicate and coordinate with IDOT, Village and Engineer to inspect and remediate conditions. County submit property survey and land transfer documentation to Engineer.

GLEISNER ENGINEERING

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RE: OCTOBER 15th & 16th, 2018 WITY RADIO STATION SWALE MAINTANENCE OBSERVATION REPORT FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Gleisner Engineering notified October 15th the Village utilized its staff and equipment to excavate build-up from swale that drains Village and Illinois Department of Transportation storm sewers through WITY Radio Station site. Gleisner made the following observations and notes:

Look north October 15th, 2018 from North 5th Street at drainage swale reported to be excavated of build-up by Village of Tilton. Spread drainage way grass seed on disturbed soil.

Look easterly October 15th, 2018 at corrugated metal culverts at the bend in drainage swale reported to be graded by Village of Tilton Public Works Department staff approximately 100 yards downstream of North 5th Street. Gleisner plotted culvert locations on Tilton Drainage Map. Safely level clods and spread drainage way grass seed on disturbed soil.

Look Westerly October 15th, 2018 toward downstream at culverts near WITY radio tower ditch reportedly graded by Village of Tilton Public Works Department. Gleisner plotted culvert locations on Tilton Drainage Map. Safely level clods and spread drainage way grass seed on disturbed soil.

Look easterly October 15th, 2018 toward downstream side of culverts near WITY radio tower. Plastic culverts reported to be installed Village of Tilton Public Works during ditch swale grading. Gleisner plotted culvert locations on Tilton Drainage Map. Safely level clods and spread drainage way grass seed on disturbed soil.

Look westerly and downstream toward culverts at railroad embankment October 15th, 2018 west of WITY radio tower. Swale reportedly graded by Village of Tilton Public Works Department. Communicate with gas company regarding downed gas line marking post. Safely level clods and spread drainage way grass seed on disturbed soil.

Look easterly at swale excavated by Village Public Works staff October 16th, 2018 at access to field crossing north of North 5th Street and east of WITY radio tower. Safely level clods and spread drainage way grass seed on disturbed soil.

GLEISNER ENGINEERING

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RE: OCTORBER 16 through 18 & NOVERBER 7, 2018 SEWER TRIBUTARY TO GRAPE CREEK MAINTENANCE & INSPECTION OPERATION PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Due to suspected cross-connection and mixing of storm and sanitary sewer water during wet weather the Village preformed the following inspection and maintenance operations while Engineer made the following observations:

Storm Structure E2

Look southwesterly at Village of Tilton Public Works using 2100 vactor truck to clean storm sewer pipe and Inlet drain at alley between Grape Creek and Adam Street on Keegan Street October 16th 2018.

Look at Village tandem Vactor Truck 2100 dumping storm sewer cleaning silt and debris material into Village sludge Lagoon at sanitary sewer treatment plant October 16th, 2018

Storm Structure J1

Look October 17th, 2018 at 18 inch diameter storm sewer on the north end of Adams Street south bank of Grape Creek. Completely obstructed pipe at head wall was opened and storm sewer cleaned with high pressure washer. Concrete flowline exists at outfall. This storm sewer was smoked by Village. Plotted storm sewer locations on Tilton Drainage Map. Storm water now drains continuously from this pipe. Spread waterway grass seed on disturbed soil & establish turf.


Storm Structure J1.1

Look North October 17th, 2018 at Village operation to jet rod storm sewer at recently found storm manhole on Adams Street between Grape Creek and Moore Street


Storm Structure J2

Look southeast at Village cleaning out found storm sewer grate at the northeast corner of Grant and Adams Street. There appears to be tee connection from drain pipe to main storm sewer. Some video inspection performed.

Look close October 18th, 2018 at sewer smoke bomb being used with Village sewer blower. Provide Engineer MSDS sheet for review.

Sanitary Structure 21

Look northwest at Village crew using smoke stick & auxiliary engine fan to blow smoke into sanitary sewer manhole in intersection of Adams and Keegan Street October 18th, 2018. Consider using quality aerial drone camera to inspect during smoke operations. Smoke appeared at storm sewer structure E3 on the East side of Adams between Keegan and West Myers Street.

Storm Structure E4

Look October 18th, 2018 at Village staff using pole camera to inspect for probable cross-connection between sanitary & storm sewer toward the South at the southeast corner of the intersection of Myers and Adams Streets. Isolate and eliminate cross-connection.

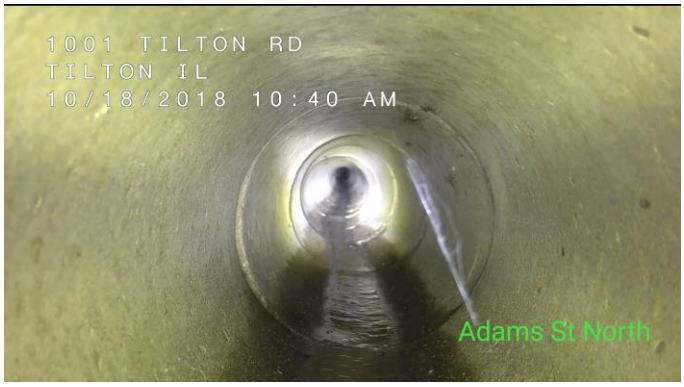
Look downstream in storm manhole E4 at 12" diameter storm pipe.

Look upstream in storm manhole E4 at 12" diameter storm pipe.

Storm Structure E2.1

Look October 18th, 2018 at found manhole (probable cross-connection exists along storm sewer line because smoke came out during sanitary sewer smoke operation). Village crew looking north and south with pull camera into drain pipes. Isolate and eliminate cross-connection between storm and sanitary sewer.

Look downstream of storm manhole E2.1 into 12″ diameter pipe



Look upstream of storm manhole E2.1 into 12″ diameter pipe

Storm Structure E1.1

Look northwest at Village installing pole camera into storm sewer from manhole E1.1 to inspect upstream and downstream of 12” diameter pipe October 18th, 2018.

Look upstream into 12” diameter storm sewer manhole E1.1 at debris clogging pipe. Safely remove drainage blockage.

Storm Structure E1.1

Look downstream into 12” diameter storm sewer manhole E1.l at obstruction. Safely remove debris.

GLEISNER ENGINEERING

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RE: FEBRUARY 19, 2019 PUBLIC WORKS FACILITY INSPECTION PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Look Easterly at Village stockpile area at Public Works garage February 19th, 2019

Look at street sweeping stockpile February 19th, 2019

Look westerly at Village salt storage shed February 19th, 2019

Look East at Village sanitary sewer treatment plant February 19th, 2019

Look at Village fuel dispensers February 2019

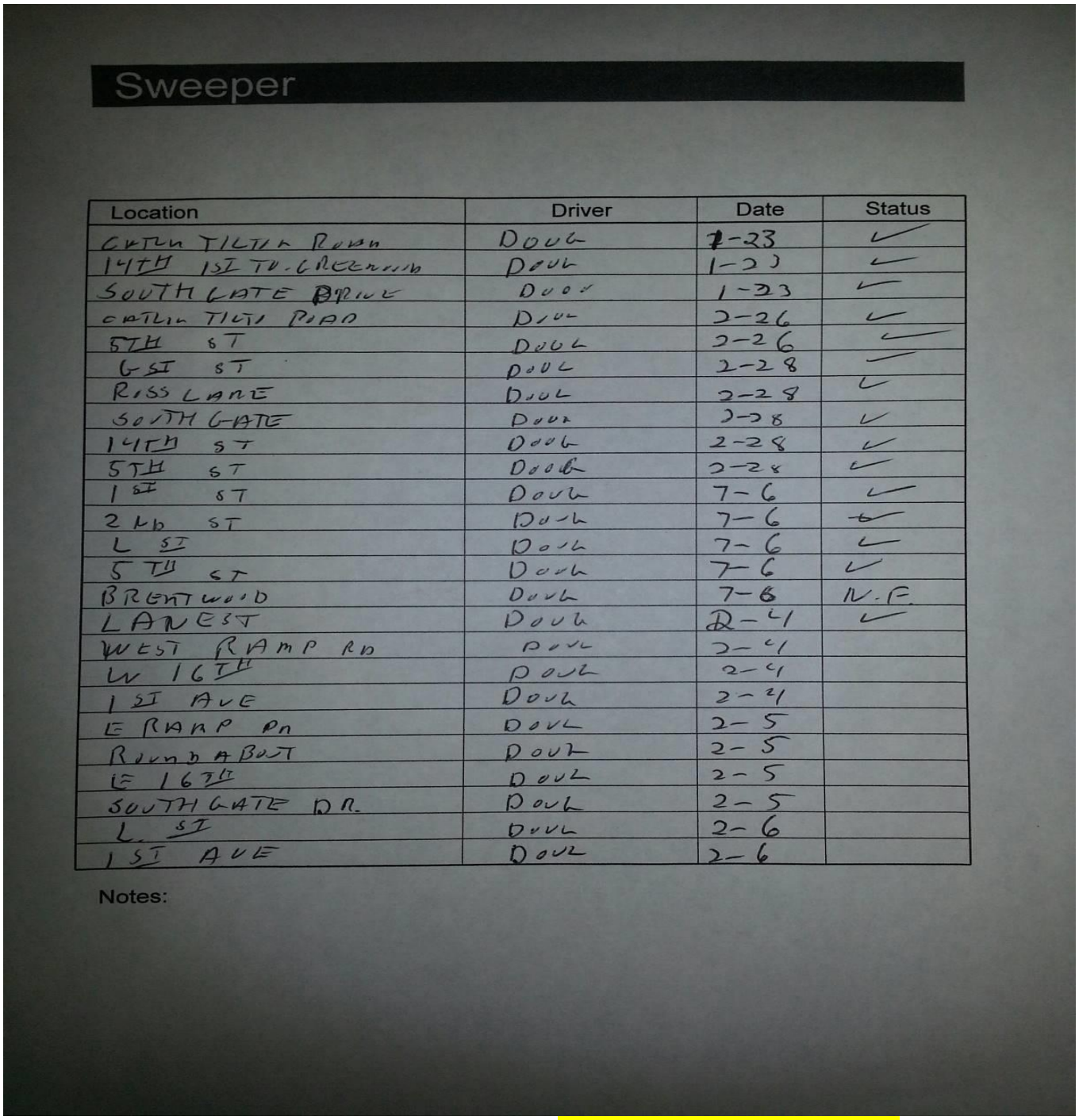
Look at material stockpile area on the West End Village Public Works garage February 19th, 2019

Look at Village chemical and oil containment storage area February 19th 2019

Look at pesticide application and equipment containment barrels in Village Public Works garage February 19th, 2019

Look at Village containment area for recycled oil and fluids February 19th, 2019

Look at Village wash down bay in Public Works Building February 19th, 2019



Sweeper

Location	Driver	Date	Status
CATLIN TILTON ROAD	DOUG	1-23	✓
14TH 1ST TO GREENWOOD	DOUG	1-23	✓
SOUTHGATE DRIVE	DOUG	1-23	✓
CATLIN TILTON ROAD	DOUG	2-26	✓
5TH ST	DOUG	2-26	✓
6ST ST	DOUG	2-28	✓
ROSS LANE	DOUG	2-28	✓
SOUTHGATE	DOUG	2-28	✓
14TH ST	DOUG	2-28	✓
5TH ST	DOUG	2-28	✓
1ST ST	DOUG	7-6	✓
2ND ST	DOUG	7-6	✓
L ST	DOUG	7-6	✓
5TH ST	DOUG	7-6	✓
BRENTWOOD	DOUG	7-6	N.F.
LANE ST	DOUG	2-4	✓
WEST RAMP RD	DOUG	2-4	
W 16TH	DOUG	2-4	
1ST AVE	DOUG	2-4	
E RAMP RD	DOUG	2-5	
ROUNDABOUT	DOUG	2-5	
E 16TH	DOUG	2-5	
SOUTHGATE DR.	DOUG	2-5	
L ST	DOUG	2-6	
1ST AVE	DOUG	2-6	

Notes:

Photograph of Village Street Sweeper Log. Add column for lane miles, hours, hopper loads & calculate cubic yards of street sweepings. See next page for Sweeper Log Sheet

SWEEPER LOG SHEET, VILLAGE OF TILTON, ILLINOIS

LOCATION	DRIVER	DATE	HOURS SWEEPING PAVEMENT SECTION	LANE MILES OF PAVEMENT SECTION	SWEEPER HOPPER LOADS FROM SECTION	CALCULATED DEBRIS IN CUBIC YARD SWEPT
PAGE TOTALS						

GLEISNER ENGINEERING

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RE: FEBRUARY 19, 2019 CONSTRUCTION SITE EROSION CONTROL INSPECTION PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Look north February 19, 2019 along the west side of Illinois Route 1 north of 16th Street at silt trap installed in Inlet. Sidewalk has soil eroded over. Communicate and coordinate with Illinois Department of Transportation to remove mud from pedestrian areas, grade and establish turf to prevent erosion & ensure water does not stand nor ice on sidewalks.

Look February 19th, 2019 at erosion control fence in ditch around inlet at the south east corner of 1st Avenue and 16th Street February 19th, 2019. Strengthen and maintain erosion control devices, final grade and establish turf.

Look at erosion control fence around Inlet on the east side of new roundabout at the intersection of 1st Street and 16th Street February 19th, 2019. Strengthen and maintain erosion control devices, final grade and establish turf.

Look at filter fabric and sand bags placed over inlets at the intersection of L Street and 1st Street near I-74 Bridge overpass reportedly installed by Illinois Department of Transportation to contain lead paint peeling from bridge. Communicate with IDOT to contain and remediate contaminants.

GLEISNER ENGINEERING

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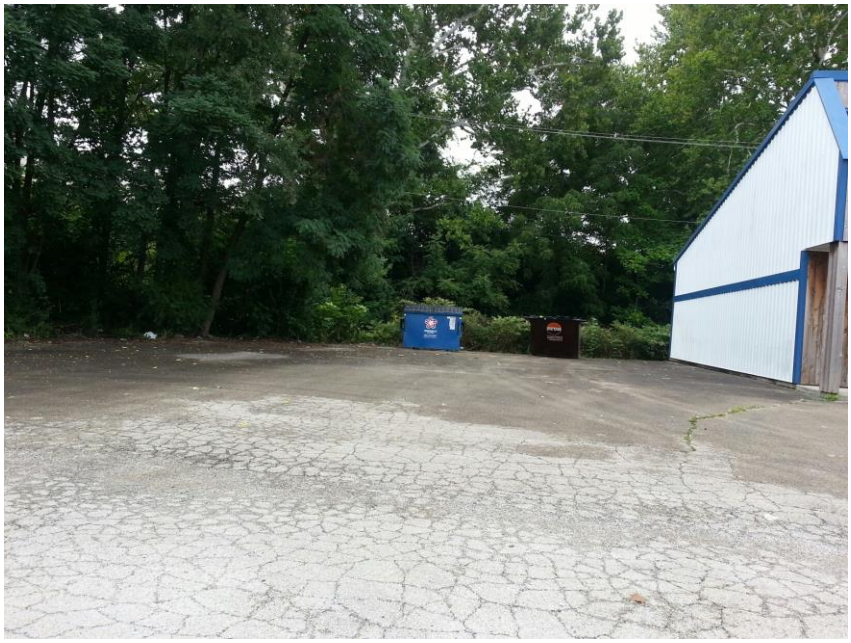
RE: AUGUST 16, 2018 also February 5 & 22, 2019 ILLINOIS ROUTE 1 (Georgetown Road) SOLID WASTE CONTAINER PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Report is intended to be utilized to review condition of solid waste containment areas along Illinois Route 1 with regard to Village ordinance.

Look northeasterly February 4, 2019 at the west side of strip mall facility west of IL Route 1 & north of Grape Creek at solid waste containers with solid waste piled up potentially migrating toward stream. Communicate and coordinate to contain all solid waste and dispose of properly! Ensure lids are closed on dumpsters and containment areas prevent solid waste from migrating to stream.



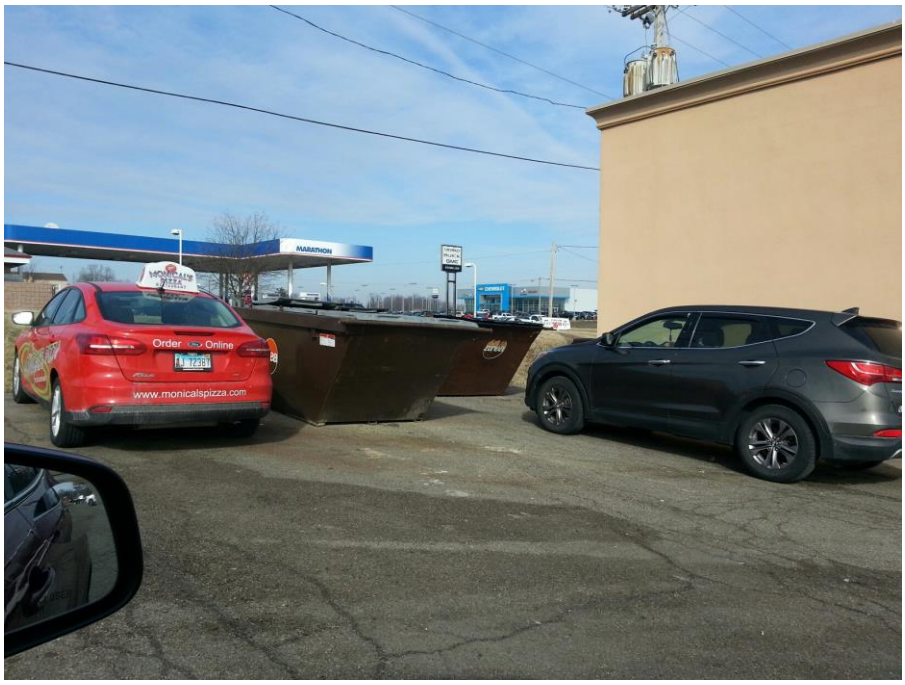
Look August 16th, 2018 at dumpsters with lids closed along Grape Creek east of King Street near commercial buildings. Communicate to ensure grounds are regularly policed to remove loose debris and contain solid waste and properly disposed of.

Look east at solid waste dumpster on the west side of Dollar General February 22nd, 2019. Ensure lids are closed on dumpsters and containment areas prevent solid waste from migrating to stream.

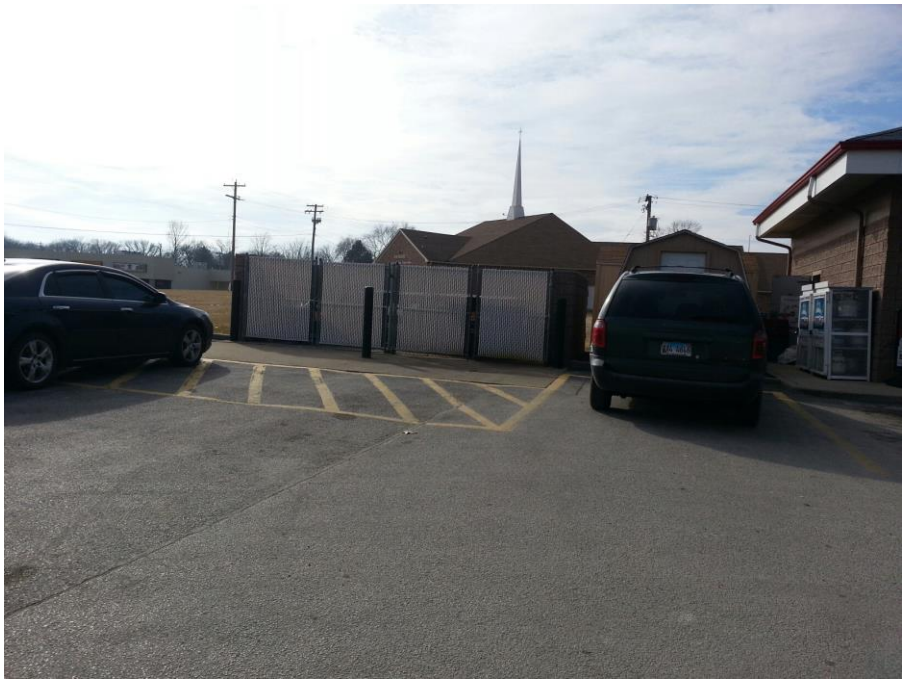
Look east at solid waste containment dumpsters on the west side of Family Dollar; February 22nd, 2019. Ensure lids are closed on dumpsters and containment areas prevent solid waste from migrating to stream.

Look northwest at solid waste containment dumpsters near Mike's Grill and Chill; February 22nd, 2019

Look February 22, 2019 southwest at solid waste and dumpster containment area at the northern side of Casey's General Store



Look northerly at dumpsters outside the south side of Monical's Pizza February 22nd, 2018. Ensure lids are closed on dumpsters and containment areas prevent solid waste from migrating to stream.



Look southwesterly at dumpster solid waste containment area at Circle K Marathon gas station; February 22nd, 2018

Look at dumpsters near Buick Oldsmobile Chevy GMC dealer; February 22nd, 2019. Ensure lids are closed on dumpsters and containment areas prevent solid waste from migrating to stream.

Look southerly at dumpsters on the east side of the East parking lot at Big R; February 22, 2019. Ensure lids are closed on dumpsters and containment areas prevent solid waste from migrating to stream.

Look northeasterly on February 22nd, 2019 at Burger King Solid Waste containment dumpster area

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RE: JUNE 4, 2018 MIDDLE FORK & VERMILION RIVER BETWEEN KICKAPOO STATE PARK & NORTH FORK RIVER PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Two person conoe used for floating rivers to make the following observations:

Look southerly at the upstream side of Kickapoo Park Road over Middle Fork River; June 4th, 2018

Look southerly at Interstate 74 Bridge upstream side over Middle Fork River; June 4th 2019

Look southerly at log jam built up along upstream side of closed Skyline Drive Bridge over the Middle Fork River in Kickapoo State Park; June 4th 2018. Communicate with Engineers of Department of Natural Resources and Illinois Environmental Protections Agency with regard to bridge opening capacity

Look southerly at CSX Railroad Bridge over Middle Fork River; June 4th, 2018

Look southerly at upstream side of US 150 Bridge over Middle Fork River; June 6th, 2018

Look westerly at mouth of Salt Fork River and intersection of Middle Fork Rivers into Vermilion River; June 4th, 2018. More suds appear from Salt Fork River. Review all MS4 Annual Reports upstream along rivers.

Look east at Shangri-La Road bridge over Vermilion River June 4th, 2018

Look at camper trailer wedged into log jam on the south-easterly bank of the Vermilion River between Shangri-La Road and Interstate 74 June 4th, 2018

Look at Indiana license plate on camper wedged in the Bank of river. Report location to authorities.

Look northeasterly at upstream side of Interstate 74 Bridge over the Vermilion River; June 4th, 2018

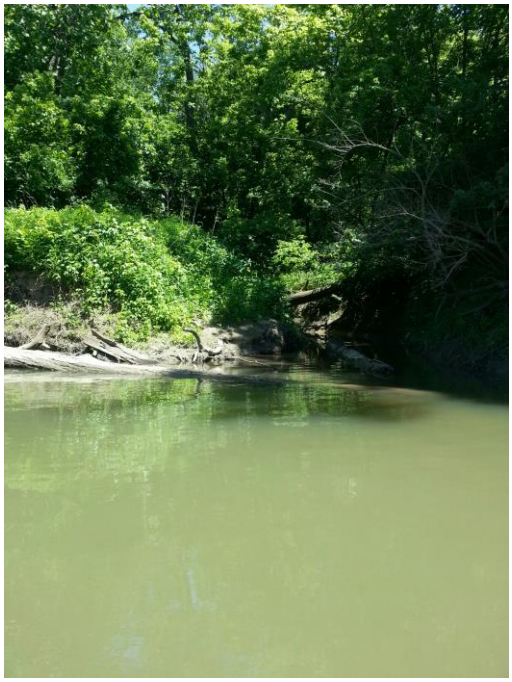
Look northeasterly at upstream side of abandoned bridge piers downstream of Interstate 74 Bridge over Vermilion River; June 4th, 2018

Look at drainage discharge into the Vermilion River from near the abandoned General Motors site June 4th 2018. Discharge tile appears in the ditch. End of pipe appears to be disconnected. Determine pipes purpose.

Look at disconnected end of pipe possible discharging into Vermilion River from drainage swale north end of General Motors abandoned site; June 4th, 2018.

Look easterly toward the upstream side of Tilton Arch Bridge of CSX Railroad over Vermilion River; June 4th, 2018

Look southerly at Tilton sanitary sewage treatment plant discharge flowing steady into the Vermilion River between CSX Railroad Bridge and the North Fork River



Look southerly at swale drainage from Tilton surface storm sewer drains; June 4th, 2018

GLEISNER ENGINEERING

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RE: JULY 15 through DECEMBER 21, 2018 DANVILLE DAM REMOVAL FROM VERMILION RIVER DOWNSTREAM OF TILTON PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Look from downstream west bank of Vermilion River toward upstream at Danville Dam; July 15th, 2018 prior to removal operations

Look westerly July 20th, 2018 from the east bank of Vermilion River along South Street in Danville at equipment that broke Danville Dam concrete on western side

Look July 20th, 2018 from downstream toward upstream at excavation equipment with breaker attachment & broken concrete near fish ladder on west side Danville Dam of Vermilion River

Look at removal status of Danville Dam from Vermilion River August 4th from east downstream bank

Look down from east bank along South Street towards removal status of Danville Dam from Vermilion River August 4th, 2018

Look from downstream towards upstream at Danville Dam removal status August 4th, 2018. Vermilion River has boom stretched across downstream of low head dam.

Look from downstream towards upstream of Vermilion River at removal status of Danville Dam August 19th, 2018

Look from downstream west bank of Vermilion River at Danville Dam removal status August 19th, 2018

Look August 19th, 2018 toward upstream at probable demolition debris creating hazard under Illinois Route 1 (Memorial Bridge) at Vermilion River

Look August 19th, 2018 from the northern bank of Vermilion River at probable demolition debris creating hazard under (Memorial) Illinois Route 1 Bridge

Look August 19th, 2018 from upstream side near (Memorial) Illinois Route 1 Bridge over Vermillion River towards downstream at concrete debris exposed

Look September 1st, 2018 from west bank of Vermilion River from downstream towards upstream at status of Danville Dam removal

Look toward upstream September 1st, 2018 from downstream of Danville Dam at removal from the Vermilion River status & boom stretched across stream

Look September 23, 2018 from downstream at status of Danville Dam removal from Vermilion River

Look September 23, 2018 under Illinois Route 1 (Memorial) Bridge at probable demolition debris exposed due to lower normal pool elevation from Danville Dam removal

Look September 23, 2018 from north bank of Vermilion River under Illinois Route 1 (Memorial) Bridge at demolition debris creating hazard

Look from north bank of Vermilion River under Illinois Route 1 (Memorial) Bridge towards the south bank at probable demolition debris creating hazard September 23rd, 2018

Look September 23rd, 2018 from west bank of Vermilion River towards downstream at concrete debris in flow line creating hazard under Illinois Route 1 (Memorial) Bridge

Look October 21st, 2018 southerly from the north bank of Vermilion River under Illinois Route 1 Bridge (Memorial) Bridge at concrete and rebar debris in flow line creating hazard. Notice equipment access material appears placed below south pier since previous observation

Look from the South Street bluff down at the status of the removal of Danville Dam on the Vermilion River October 21st, 2018

Look November 4th, 2018 from South Street down at status of Danville dam removal

Look November 4th, 2018 under Illinois Route 1 bridge over Vermilion River. Hazardous debris appears to have been removed since previous observation.

Look westerly from South Street bluff overlooking status of Danville Dam removal from Vermilion River; December 21st, 2018

Look southeasterly from upstream side of Illinois Route 1 Memorial Bridge at flow of Vermilion River December 21st 2018

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RE: FEBRUARY 5 & 22, 2019 GRAPE CREEK UPSTREAM OF TILTON PHOTOGRAPHIC OBSERVATIONS FOR MONITORING OF SMALL MUNICIPAL SEPARATE STORM SEWER (MS4), VILLAGE OF TILTON, ILLINOIS

Look at upstream side of arched culvert under Lyons Road at Grape Creek, February 22nd, 2019

Look southerly at downstream side of arch culvert crossing Lyons Road on Grape Creek, 22nd of February 2019

Look South along Grape Creek from farm field crossing south of West Ross Lane, February 5th 2019

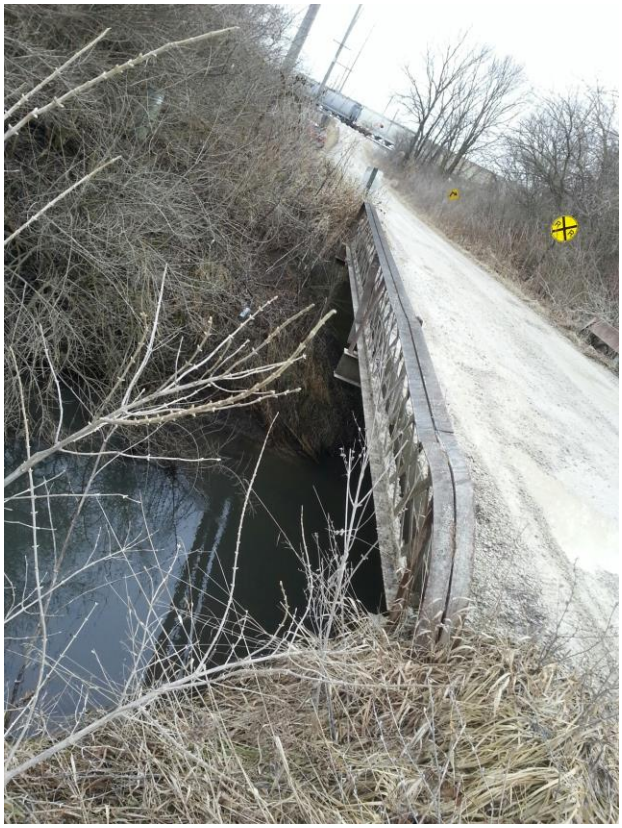
Look at upstream side of steel culvert on Grape Creek under farm field crossing located south of West Ross Lane, February 5th, 2019

Look southerly towards the downstream side of steel culvert farm crossing along Grape Creek, February 5th, 2019

Look north along Grape Creek from farm field crossing west of West Ross Lane, February 5th, 2019

Look at water steadily flowing out of field tile from the southwest field south of Ross Lane, February 5th, 2019

Look southerly toward upstream at Grape Creek from bridge over stream on West End of West Ross Lane, February 5th, 2019



Look at upstream side of bridge over Grape Creek on the west end of West Ross Lane, February 5th, 2019

Look north toward downstream at Grape Creek from bridge over stream on West End of West Ross Lane, February 5th, 2019

Look southerly along drainage swale from farm field and culvert under West End of West Ross Lane East of the Norfolk Southern Railroad, February 5th, 2019. Communicate and coordinate with Township Road commissioner too police area and remove all debris and solid waste; recycle then disposed of properly!

Look southeasterly at farm field tile discharging into Grape Creek between Norfolk Southern Railroad and West End of West Ross Lane, February 5th, 2019

Look northerly toward downstream through the west barrel of culvert under Norfolk Southern Railroad on Grape Creek, February 5th, 2019

Look northerly toward downstream at double barrel culverts under Norfolk Southern Railroad over Grape Creek, February 5th, 2019

Look at western culvert under Norfolk Southern Railroad from upstream side towards south; February 5th, 2019

Look from northern side through culvert under Norfolk Southern Railroad along Grape Creek; February 5th, 2019

Look northerly at hydraulic drop on the upstream side of arch culvert bridge along Norfolk Southern Railroad, February 5th, 2019

Look at downstream side of arch culvert under Norfolk Southern Railroad February 5th, 2019. Remove and recycle metal from stream

Look easterly February 5th, 2019 at storm sewer discharge from Illinois Route 1 north of Spelter Avenue on the west side of Illinois Route 1. Communicate and coordinate with Illinois Department of Transportation to regularly police area, remove solid waste and ensure all Solid Waste is contained and disposed of properly!

Look westerly along swale February 5th, 2019 at trash from IL Route 1 storm sewer and roadway. Communicate and coordinate with Illinois Department of Transportation to regularly police Right-of-Way, remove trash and debris also scout area and ensure garbage dumpsters lids are closed and storage areas contain the solid waste and dispose of properly

Look northerly February 5th, 2019 from 5th Street north of Spelter Avenue at water flowing steady through swale that was excavated by Village forces earlier in the season. Spread waterway grass seed on disturbed soils and ensure vegetation is re-established to prevent erosion.

Look westerly February 5th, 2019 at 2-24" diameter culverts under automotive salvage yard west of Illinois Route 1 and north of Spelter Avenue

Look south February 5th, 2019 at two 24" diameter culverts discharging from under auto salvage yard into Grape Creek

Look westerly February 5th, 2019 at culvert under railroad north-south grade located on west side of WITY radio station site and north of Spelter Avenue

Look westerly February 5th, 2019 towards five culverts at a Grape Creek tributary drainage branch near WITY radio station tower north of Spelter Avenue and west of Illinois Route 1. Spread waterway grass seed on disturbed soil and establish turf.

Look easterly February 5th, 2019 along drainage Swale previously excavated by Village. Three culverts were exposed and mapped. Level clods and spread waterway grass seed on disturbed soil and establish turf.

Look easterly February 5th, 2019 towards upstream at 5 culverts near WITY radio tower north of Spelter Avenue and West of Illinois Route 1. Spread waterway grass seed on disturbed soil and establish turf.

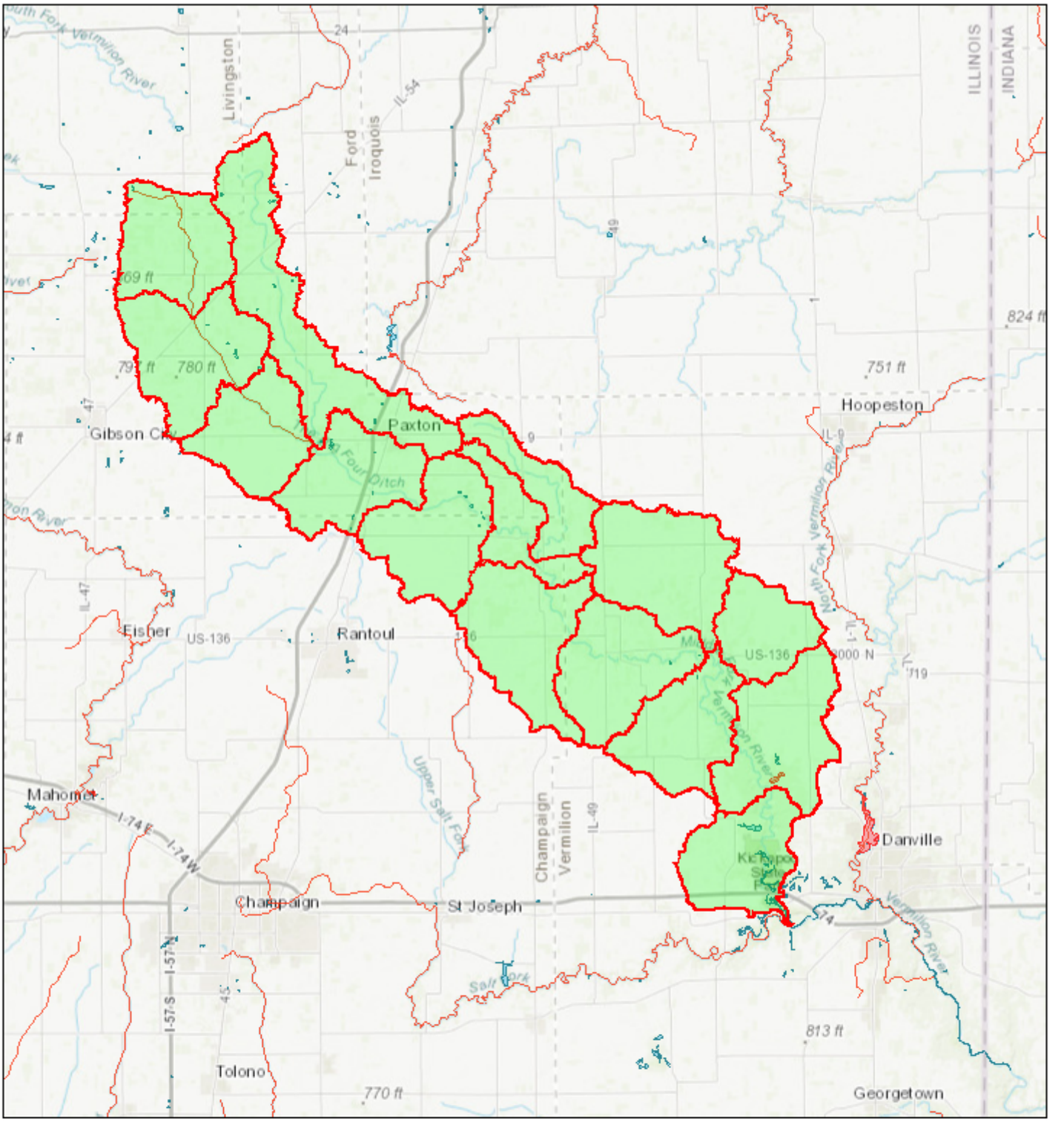
Look south February 5th, 2019 from the top of culvert on West Ross Lane at the north-south branch of Grape Creek

Look northerly February 5th, 2019 at the upstream side of double barrel concrete box culvert of the north south branch of Grape Creek on West Ross Lane

Look southerly February 5th, 2019 at the downstream side of double barrel concrete culvert under West Ross Lane at Grape Creek

Look north February 5th, 2019 from West Ross Lane toward downstream at flow

MIDDLE FORK VERMILION RIVER WATERSHED TOWARD TILTON, IL



June 7, 2018

1:577,791

0 5 10 20 mi

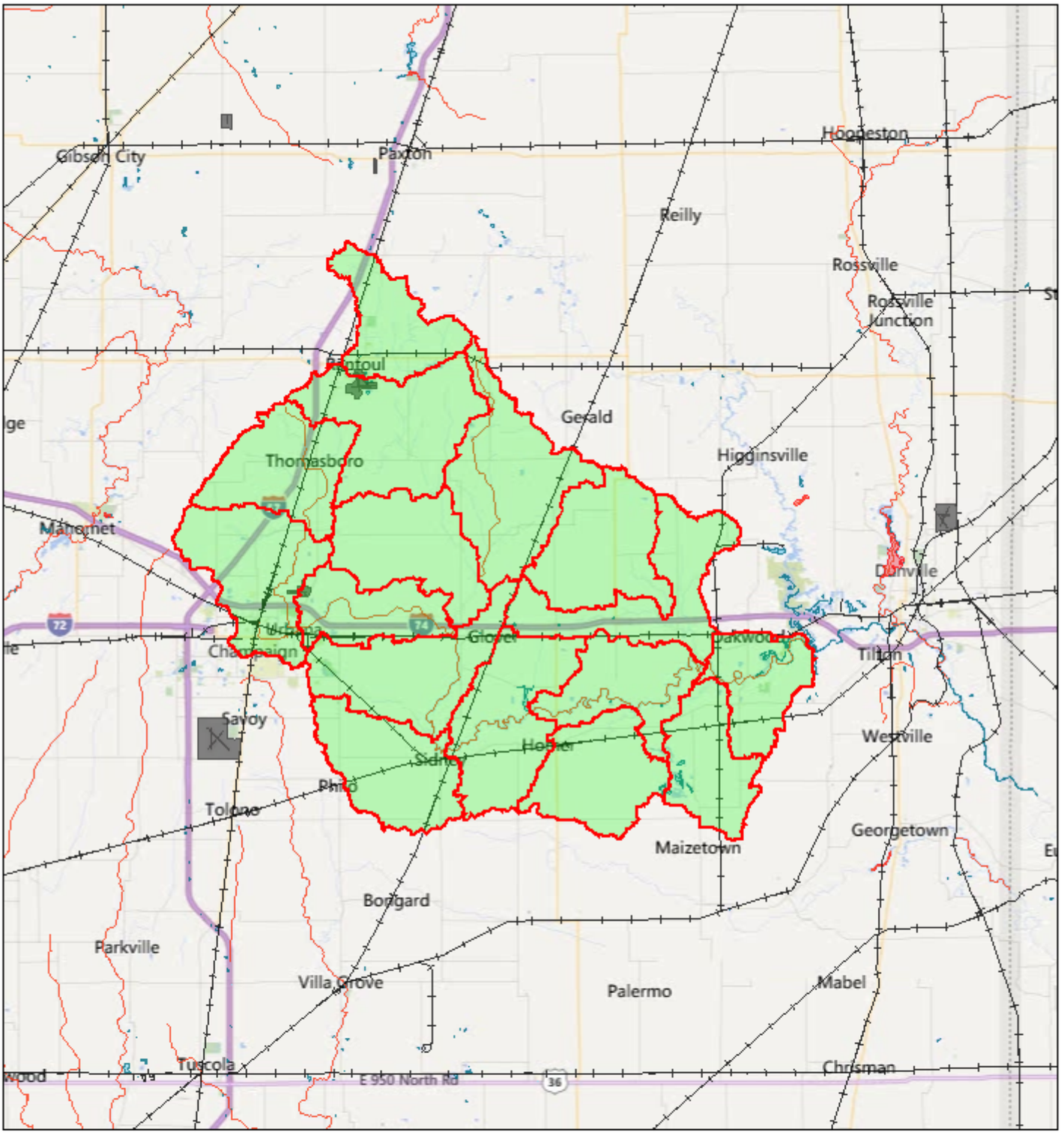
0 5 10 20 km

Project 15
Project 14
Project 13
Project 12
Project 11
Project 10
Project 9
Project 8
Project 7
Project 6
Project 5
Project 4
Project 3
Project 2
Project 1
Water Bodies

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

EJSCREEN 2017

SALT FORK RIVER WATERSHED TOWARD TILTON, IL



June 7, 2018

1:577,791

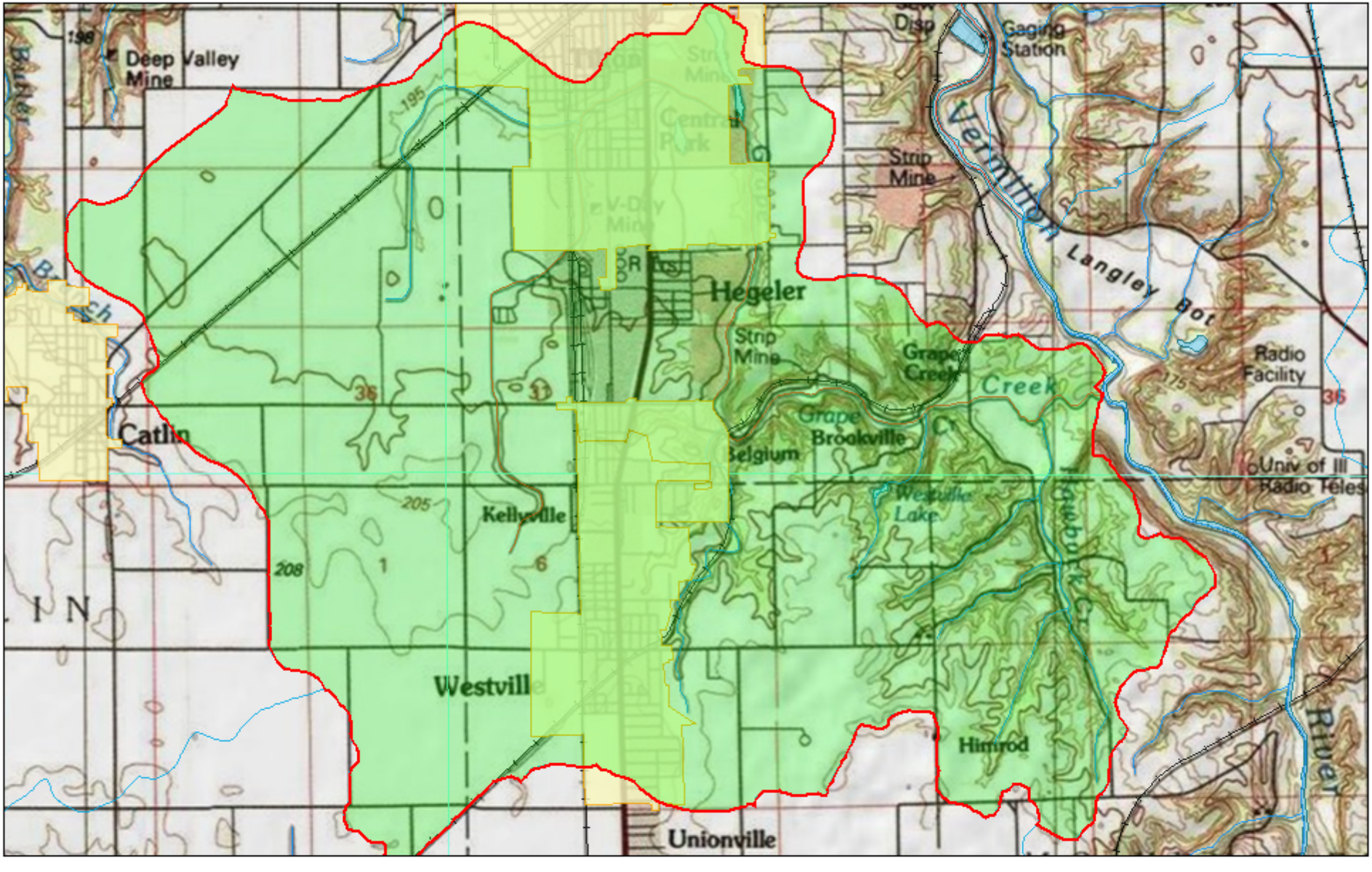
0 5 10 20 mi

0 5 10 20 km

Project 31	Project 24	Project 17
Project 30	Project 23	Project 16
Project 29	Project 22	Airport Polygons
Project 28	Project 21	Railroads
Project 27	Project 20	
Project 26	Project 19	
Project 25	Project 18	Water Bodies

EJSCREEN 2017

MAP OF GRAPE CREEK WATERSHED



October 26, 2018

Project 1

City Boundary

Townships Boundary

Streams

Water Bodies

Watersheds (HUC12)

Railroads

1:72,224

0 0.5 1 2 mi

0 1 2 4 km

EJSCREEN 2018

ATTACHMENT

G

SECTION DIVIDER

GENERAL STORMWATER MANAGEMENT PROGRAM COORESPONDANCE, PLANS, EDUCATION & OUTREACH

Subject:	FW: Complaint about 314 Crestwood in Tilton
From:	Tiffany Jones (TJones@tiltonil.com)
To:	publicworks1884@gmail.com;
Cc:	josephgleisner@att.net;
Date:	Wednesday, June 13, 2018 10:54 AM

Tiffany M. Jones, Treasurer

Village of Tilton

1001 Tilton Road

Tilton, IL 61833

217/477-0800

From: Hirchert, Holly [mailto:Holly.Hirchert@Illinois.gov]
Sent: Friday, June 01, 2018 10:43 AM
To: David Phillips <DPhillips@tiltonil.com>
Cc: Tiffany Jones <TJones@tiltonil.com>
Subject: Complaint about 314 Crestwood in Tilton
Importance: High

Good morning!

I received a phone call this morning from a resident of Tilton who was complaining about sewage coming up out of the ground at 314 Crestwood. The complainant had already spoken with someone at the Village and the Vermilion County Health Department about it. Based on the attached photograph, I believe the residence at that location could have a breach in the service line.

As I explained to the complainant, the Illinois EPA does not regulate private sewage connections. Since the Village of Tilton is a municipal separate storm sewer community, the Village has a responsibility to eliminate illicit discharges.

Please contact me when this issue has been corrected.

Holly Hirchert

Environmental Protection Engineer

Illinois Environmental Protection Agency

Division of Water Pollution Control

2125 South First Street

Champaign, IL 61820

217-278-5800

Attachments

- 20180531_163009.jpg (3.19MB)

Photograph of Illicit Discharge Report to Village, IL EPA and Engineer

(No Subject)

From: Tiffany Jones (TJones@tiltonil.com)

To: Holly.Hirchert@Illinois.gov

Cc: DPhillips@tiltonil.com; josephgleisner@att.net

Date: Tuesday, June 19, 2018 09:09 AM CDT

Holly:

The resident at 314 Crestwood has indicated to us that they fixed the illegal discharge on their property. We are in the process of inspecting it.

Thank you.

Tiffany M. Jones, Treasurer

Village of Tilton

1001 Tilton Road

Tilton, IL 61833

217/477-0800

Drainage Inspection along IDOT I 74 & IL Rt 1 R.O.W. Tilton

Thursday, August 16, 2018 2:38 PM

From: "Joseph Gleisner" <josephgleisner@att.net>

To: "Matthew.Young@illinois.gov" <Matthew.Young@illinois.gov>

Cc: "David Phillips" <dphillips@tiltonil.com>

Bcc: "Tiffany Jones" <tjones@tiltonil.com>

Mr. Matt Young
Resident Engineer
IDOT

Thanks again for the opportunity to discuss ensuring Tilton's storm water drainage system efficiently passes IDOT's Rt.1 and I 74 Right-of-Way. I looked into the manholes in grass area along southwest interchange ramp R.O.W.; several pipes of significant diameter from Tilton appear in these manholes. Flow was not evident today though I intend to inspect these again during future wet weather conditions in hopes of flow verifications.

Also we spoke about erosion at the end of paved concrete swale on the north side of I 74 ROW near Tilton baseball fields. I've attached a link to last years Annual Report Gleisner Engineering prepared and published on the Tilton's Storm Water Management website per the EPA NPDES MS4 permit requirement. On sheet C62 which is also pdf page 71 of 148 is a photograph of the subject erosion.

http://www.tiltonil.com/docs/stormwater/Tilton%202017-2018%20Annual%20Inspection%20Report.pdf

Please review and call me to discuss.

Respectfully Submitted,

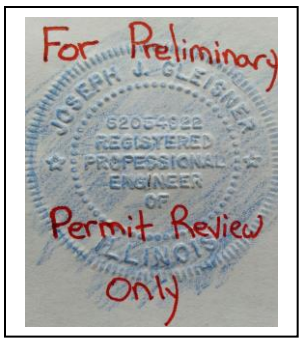
Joseph J. Gleisner, P.E.
Gleisner Engineering
217-213-2022
josephgleisner@att.net

GLEISNER ENGINEERING

217-213-2022
josephgleisner@att.net

OBSERVATION REPORT 1C

PROJECT: SOUTHGATE DRIVE DISCHARGE EROSION STABILIZATION, GRAPE CREEK STORM SEWER OUTFALL, TILTON, IL



REPORT UPDATED: **April 4, 2019**
WEATHER: **late winter / early spring**
WORK FORCE: **1 Engineer**
REPORTED BY: **Joseph J. Gleisner, P.E.**

OBSERVATIONS & DISCUSSIONS

1. **Gleisner photographed site May 16th, 2018**
2. **May 16th, 2018 Gleisner visited Todds Autobody at 4 Southgate Drive regarding access to storm sewer discharge into Grape Creek.**
3. **May 17, 2018 Gleisner calls Todd Cox (217) 213-2100 & obtained verbal permission to access storm sewer discharge through property.**
4. **Gleisner begins preliminary plans, specifications and estimates. This document is intended for estimating; selecting workforce, equipment and material prior to implementing improvement.**
5. **Gleisner spoke with David Wilson (815) 644-4448 at Big R Stores 1625 Georgetown Road and obtained permission to temporarily remove fence mesh, mitigate erosion and replace fence.**
6. **March 4, 2019 Gleisner spoke with Holly Hirchert of the IL EPA, she recommends removal of filter fabric from plan.**
7. **Gleisner reviews Army Corp Nationwide Permit 3 – Maintenace.**
8. **April 2, 2019 Gleisner called North Branch of Louisville District Office of Army Corp of Engineers (502) 315-6685. Greg McKay recommends submitting plan with Application for Department of Army Permit ENG FORM 4345.**

9. **April 3 Gleisner uses website to generate National Wetland Inventory Map of site. It appears the storm sewer outfall is near upstream edge of Palustrine System and/or downstream of Riverine System. Map and information included in report.**
10. **Coordinates for the site are:**

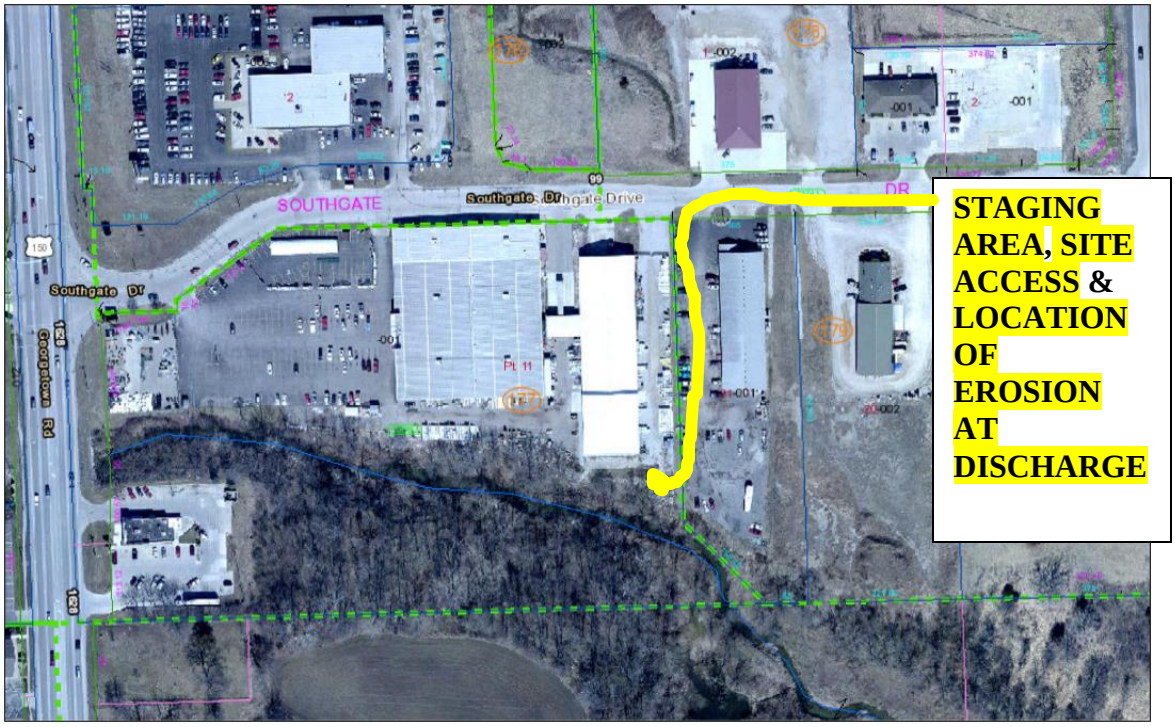
    Latitude N 40.095 Longitude W -87.632
11. **April 4, 2019 Gleisner updated Observation Report 1C and prepares Application Form 4345 and e-mails to Tilton Mayor for review and signatures.**

<u>ENGINEERS PRELIMINARY IMPLEMENTATION OPERATIONS LOGISTICS RECOMMENDATIONS</u>

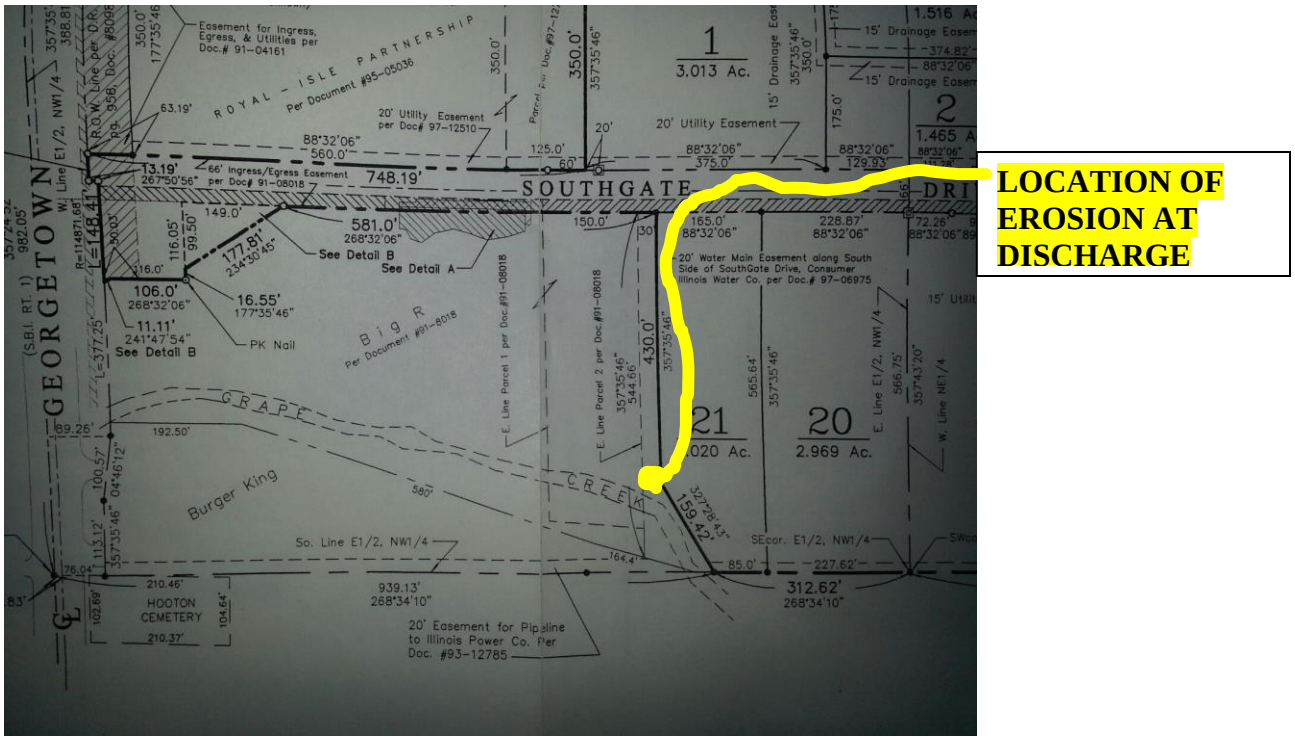
- **Submit Army Corp of Engineers Permit FORM 4345 for Pre-Construction Notice with regard to "Nationwide Permit 3-Maintenance" requesting required permits.**
- **Review Army Corp response and implement under guidance and continued observation of Engineer during low flow dry weather conditions.**
- **Communicate with Big R & Todd's Autobody regarding timing of site access.**
- **Locate and delineate existing probable property monuments, mark site and call JULIE.**
- **Size board then haul form, washed stone and mini-excavator to site.**
- **Remove sufficient chain link fence for access.**
- **Minimal clearing of vegetation for equipment access and dispose of off-site out away from wetland.**
- **Install temporary flexible by-pass pipe watertight.**
- **Press form board temporarily watertight into soil and berm with washed river stone at appropriate position out of wetland.**
- **Carefully un-seize concrete flared end section for re-use.**
- **Place and shape rip rap.**
- **Vibrate pre-mixed slurry concrete / grout with maximum ½ inch aggregate mixture into voids in manner that cement does not leak into stream. Supply mixture per Engieer requirements. Wash concrete truck and excavator bucket off-site.**
- **Allow concrete to cure then remove by-pass pipe, form board & debris and dispose of off-site. Also grass seed site and establish vegetation. Monitor discharge.**

Photograph Northerly at 36” diameter discharge near Grape Creek behind Big R & Todd's Auto Body May 16st, 2018

Photograph southerly at erosion along fence line between Big R & Todd's Auto Body near 36” storm sewer discharge May 16st, 2018



GIS aerial map of site



Portion of Art Wolfinbarger land survey plat of site

Classification code: PFO1A

System **Palustrine (P)** : The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt.
Class **Forested (FO)** : Characterized by woody vegetation that is 6 m tall or taller.
Subclass **Broad-Leaved Deciduous (1)** : Woody angiosperms (trees or shrubs) with relatively wide, flat leaves that are shed during the cold or dry season; e.g., black ash (Fraxinus nigra).
Water Regime **Temporary Flooded (A)** : Surface water is present for brief periods (from a few days to a few weeks) during the growing season, but the water table usually lies well below the ground surface for the most of the season.

Classification code: R5UBH

System Riverine (R) : The Riverine System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.
Subsystem **Unknown Perennial (5)** : This Subsystem designation was created specifically for use when the distinction between lower perennial, upper perennial, and tidal cannot be made from aerial photography and no data is available.
Class **Unconsolidated Bottom (UB)** : Includes all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.
Water Regime **Permanently Flooded (H)** : Water covers the substrate throughout the year in all years.

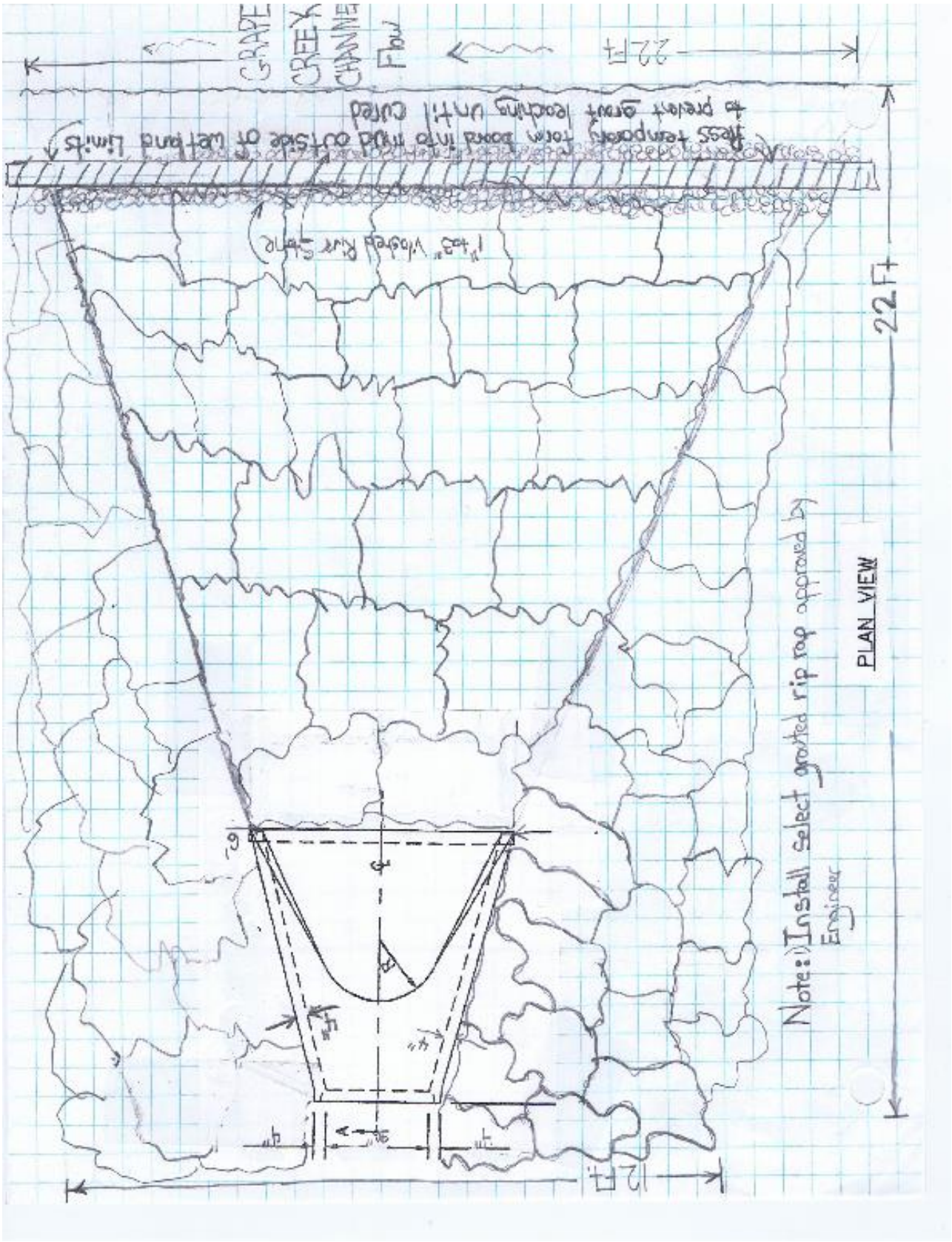
ENGINEERS ESTIMATE OF PROBABLE CONSTRUCTION COSTS

#	ITEM DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED UNIT PRICE	ESTIMATED COST
1	CALL JULIE UNDERGROUND LOCATE	LUMP SUM	1	$ 100.00	$ 100.00
2	SUPPLY ACCESS CONTROL DEVICES & SAFETY	LUMP SUM	1	$ 300.00	$ 300.00
3	TEMPORARILY REMOVE FENCE MESH AND 3 STRAND BARB WIRE. PRESERVE POSTS.	FEET	30	$ 10.00	$ 300.00
4	MOBILIZE EQUIPMENT AND PERSONNEL	LUMP SUM	1	$ 300.00	$ 300.00
5	CUT TREES IN EQUIPMENT ACCESS AREA AT GRADE THEN REMOVE OFF-SITE	LUMP SUM	1	$ 350.00	$ 350.00
6	UNSEIZE EXISTING FLARED END SECTION KEEP IN A CONDITION FOR REUSE	EACH	1	$ 325.00	$ 325.00
7	INSTALL TEMPORARY STORM SEWER BI-PASS	EACH	1	$ 400.00	$ 400.00
8	SET FORM BOARD WATERTIGHT	LUMP SUM	1	$ 300.00	$ 300.00
9	1-3" WASHED RIVER STONE	CUBIC YARDS	3	$ 200.00	$ 600.00
10	REINSTALL REINFORCED CONCRETE FLARED END SECTION	EACH	1	$ 250.00	$ 250.00
11	RIP RAP (RECYCLE CONCRETE 6-18")	CUBIC YARDS	80	$ 50.00	$ 4,000.00
12	CONCRETE MIX (1/2" AGGREGATE MAX)	CUBIC YARDS	18	$ 200.00	$ 3,600.00
	TOTAL ESTIMATE				$ 10,825.00

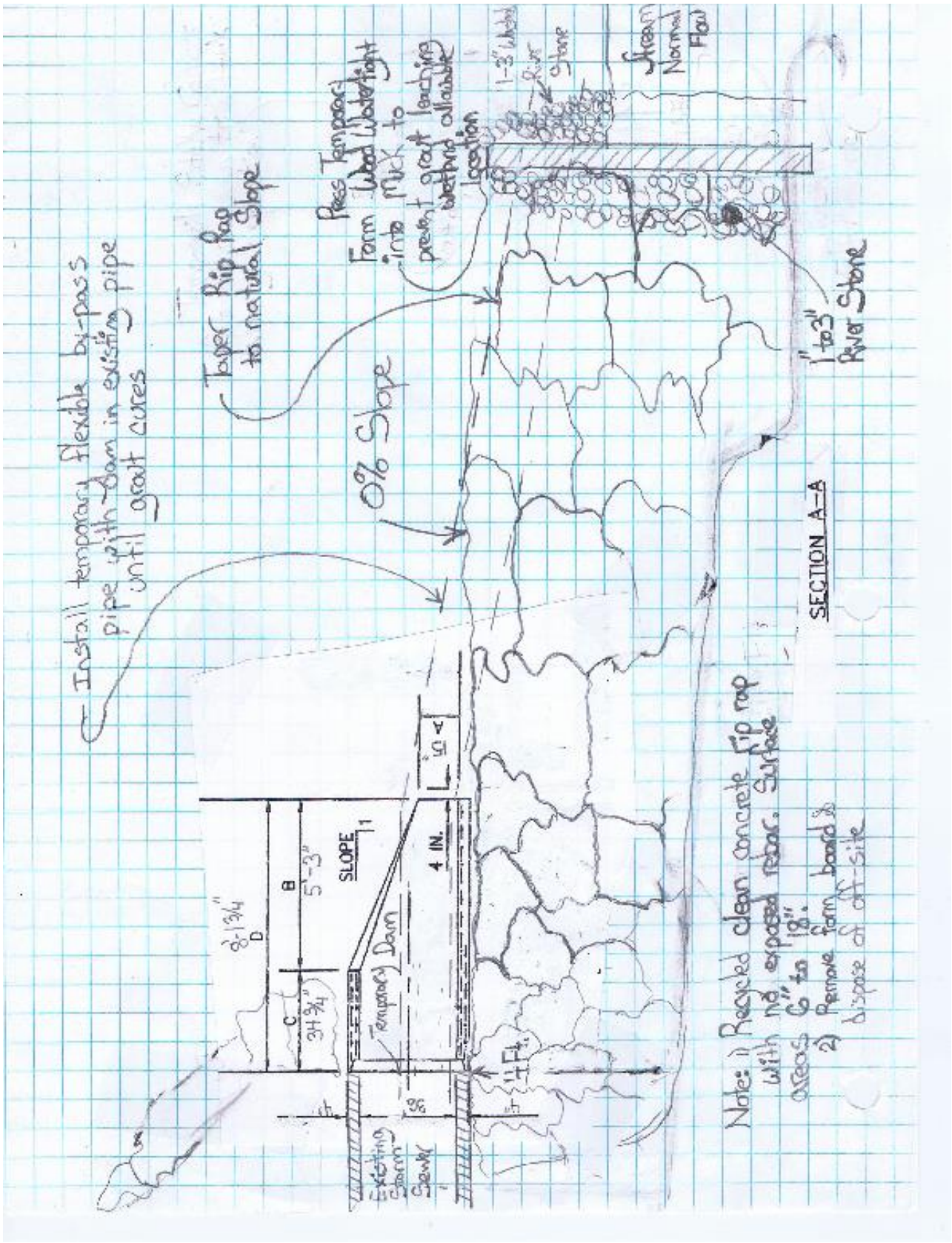
ENGINEERING REQUIRED FOR PLANNING, PERMTTING, GUIDANCE OF IMPLEMENTATION OPERATIONS, COMMUNICATIONS, AND SELECTION OF WORKFORCE SHALL BE PAID TO GLEISNER ENGINEER AT STANDARD FEE SCHEDULE RATE OF TIME AND MATERIAL PLUS 10% OF SUB-CONTRACTOR OR CONSULTANT EXPENSES FOR THIS PROPOSED DESIGN BUILD MAINTENANCE

PRELIMINARY

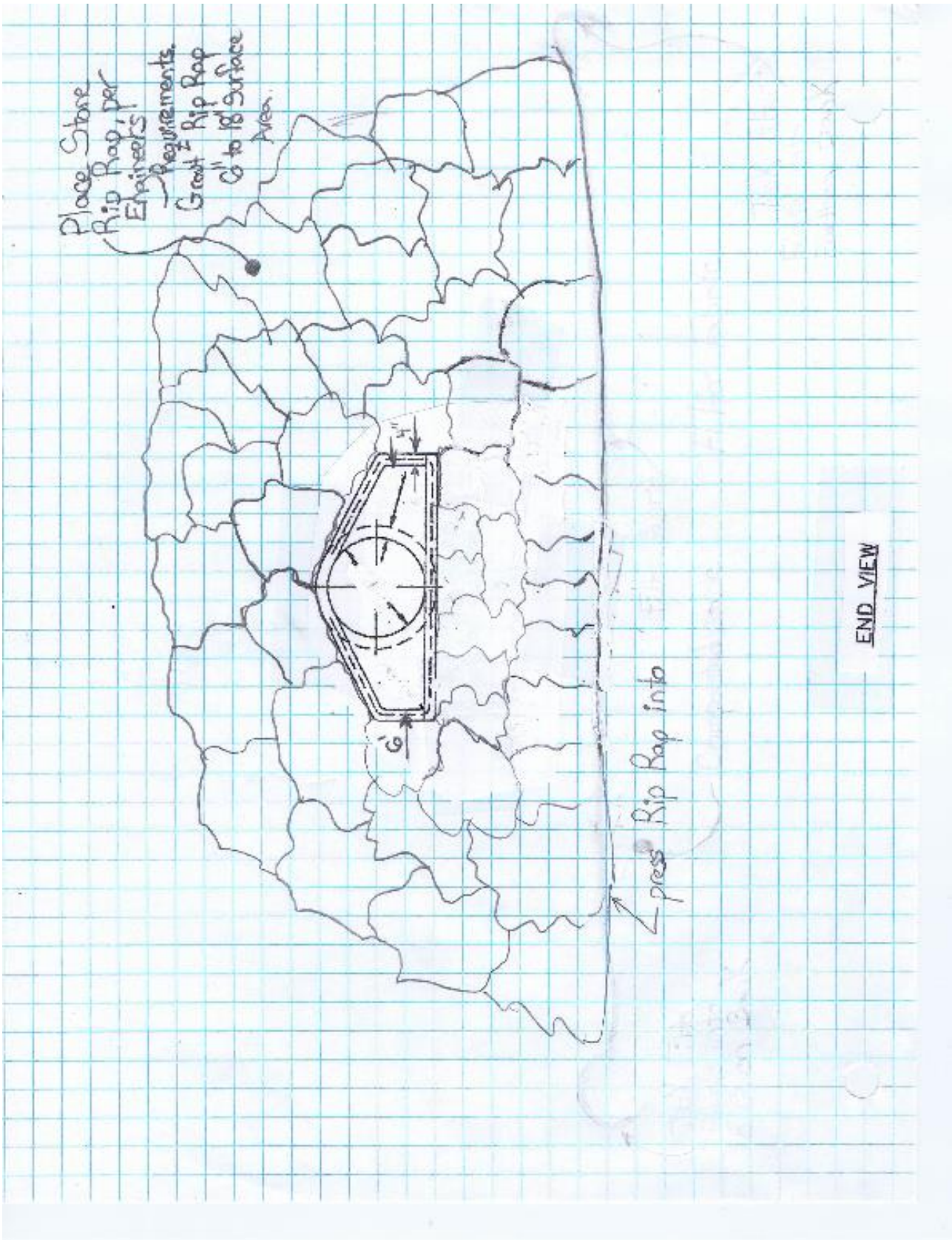
SELECT WORKFORCE SHALL NOTIFY ENGINEER 72 HOUR S PRIOR TO MOBILIZATION TO SITE



PRELIMINARY



PRELIMINARY



PRELIMINARY

GLEISNER ENGINEERING

327 NORTH FLETCHER HILLS DRIVE
DANVILLE, ILLINOIS 61832
217-213-2022
josephgleisner@att.net

February 19, 2019

Wade McKelvey
502 North F
Tilton, IL 61833

RE: REQUEST FOR COMMUNICATION REGARDING DRAINAGE ACCESS NORTH OF EAST 1rst STREET, VILLAGE OF TILTON, VERMILION COUNTY, ILLINOIS

Mr. McKelvey,

Please review attached map, detail and photographs depicting culvert I propose the Village of Tilton install to improve maintenance of drainage through your property.

Maintaining clear drainage through this drainage way is critical to minimizing impacts of flooding in the Tilton area. Access to an existing bar rack on the upstream side of culvert under the railroad spur grade is recommended to allow steady flow of storm water run-off.

I've prepare the attached preliminary plan and detail depicting proposed culvert to allow for regular equipment access to maintain drainage and clear bar rack of debris accumulation.

Thank you for your consideration regarding the situation and please contact me to discuss using the phone number included on the top of this page.

Respectfully Submitted,

Joseph J. Gleisner, P.E.

cc. Mayor David Phillips

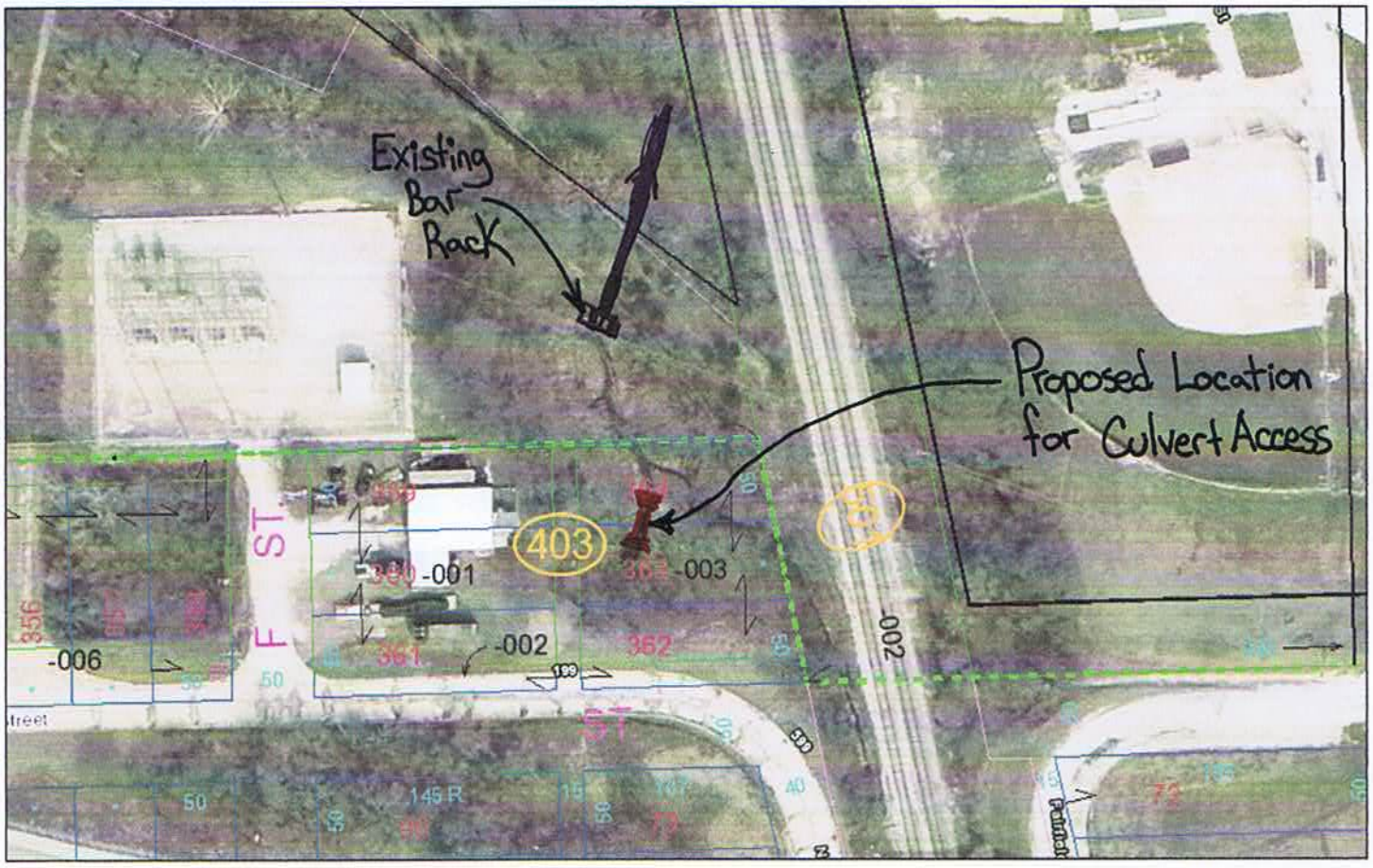
Look at storm sewer discharge August 16th 2018 north of I-74 near 1st Street

Look Southeast at intersection of railroad spurs drain and discharge from East 1st Street near 74 ramps

Look at 42 inch concrete discharge at the northeast corner of East 1st Street Pipe crossing proposed at this location for equipment access.

Look at clogged bar rack on culvert upstream side of railroad spur embankment May 21, 2018

PLAN VIEW



February 18, 2019

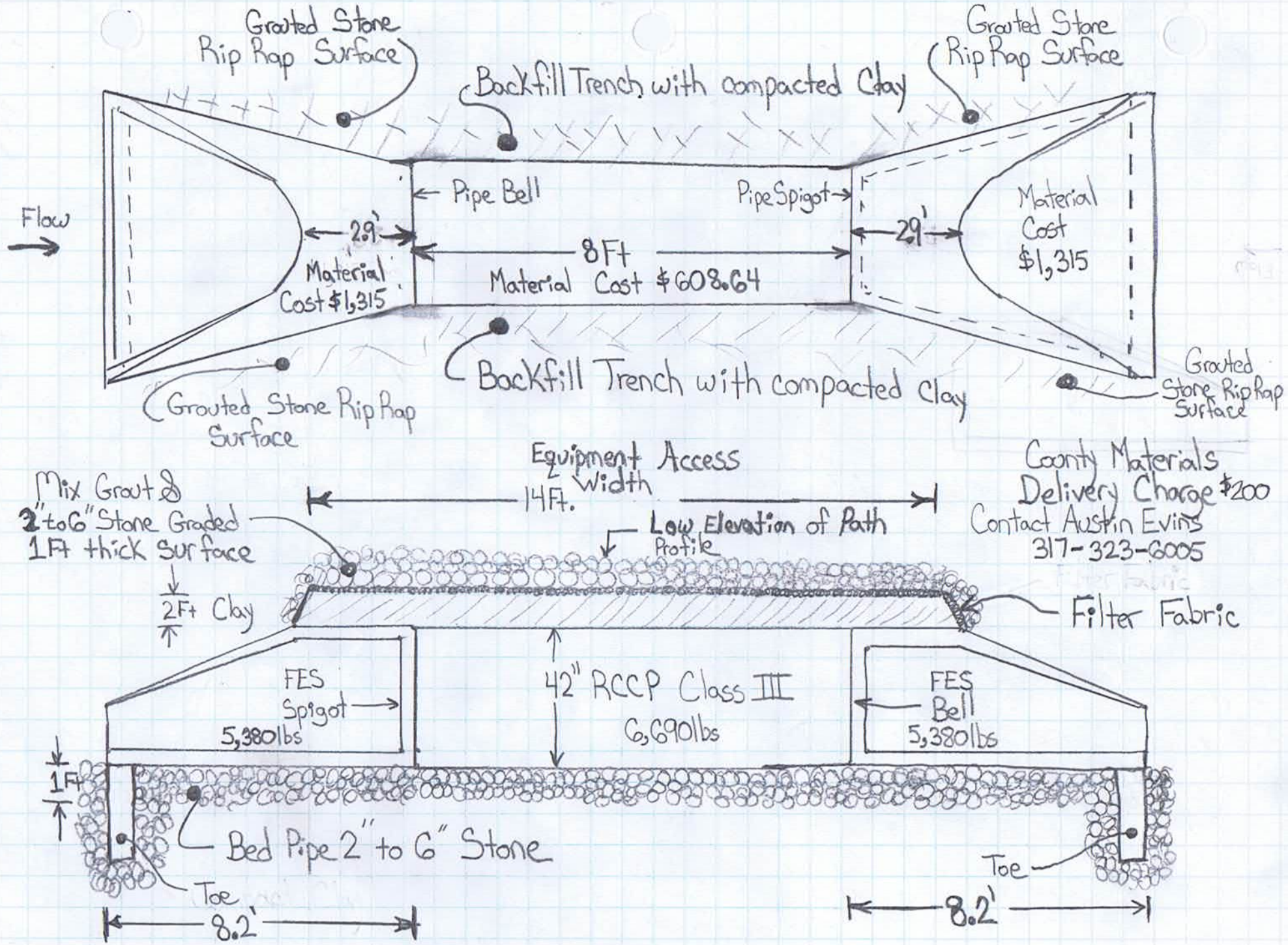
1:1,000

0 45 90 180 ft

0 12.5 25 50 m

Esri, HERE, Garmin, © OpenStreetMap contributors

GLEISNER ENGINEERING


Grouted Stone Rip Rap Surface
Backfill Trench with compacted Clay
Grouted Stone Rip Rap Surface
Pipe Bell
Pipe Spigot
Flow
29'
8 Ft
Material Cost $608.64
29'
Material Cost $1,315
Material Cost $1,315
Backfill Trench with compacted Clay
Grouted Stone Rip Rap Surface
Grouted Stone Rip Rap Surface
Equipment Access Width
14 Ft.
County Materials Delivery Charge $200
Contact Austin Evins
317-323-6005
Mix Grout &
2" to 6" Stone Graded
1 Ft thick surface
Low Elevation of Path Profile
2 Ft Clay
Filter Fabric
FES Spigot
5,380 lbs
42" RCCP Class III
6,690 lbs
FES Bell
5,380 lbs
1 Ft
Bed Pipe 2" to 6" Stone
Toe
Toe
8.2'
8.2'

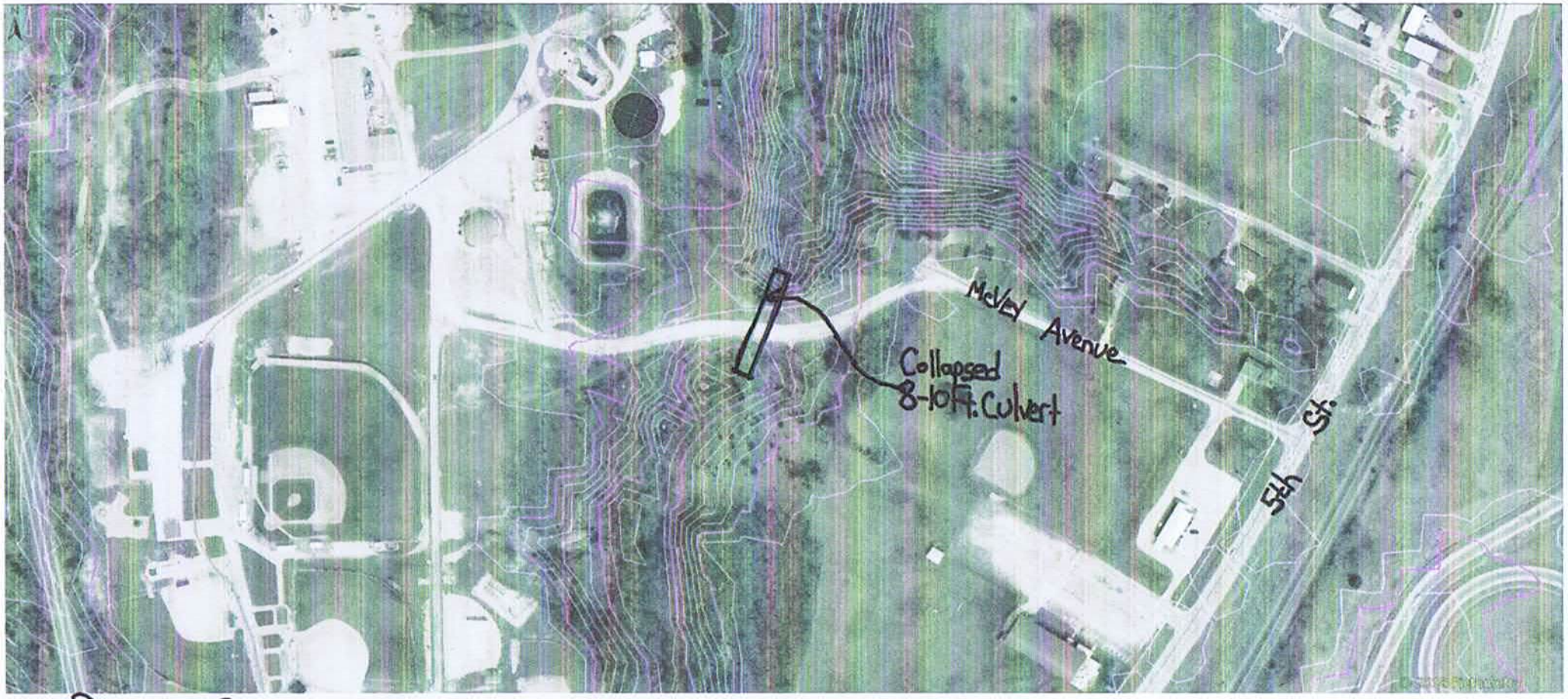
Engineer's Preliminary Opinion of Probable Construction Costs for Installation of Equipment Access Culvert North of East 1rst Street & East of F Street, Tilton, Illinois

1)	Call JULIE	$50
2)	Grade Staking by Engineering	$200
3)	Value of Village Staff, End Loader & Excavator & Truck to install	$1,500
4)	Concrete Flared End Section with Bell (42" Dia.)	$1,315
5)	Concrete Flared End Section with Spigot (42" Dia.)	$1,315
6)	8 Foot Section Class 3 Concrete Pipe (42" Dia.)	$610
7)	8 Cubic Yards of 2" to 6" Stone at $40/cy	$320
8)	Grout and Sac-Crete	$300
9)	Soil for grading profile	$300
10)	Surface restoration	$200
	SUB-TOTAL	$6,110
	10% Contingency	$611
	Engineer's Construction Estimate	$6,800

* Plus per diem Construction Engineering

McVey Ave Culvert Mitigation

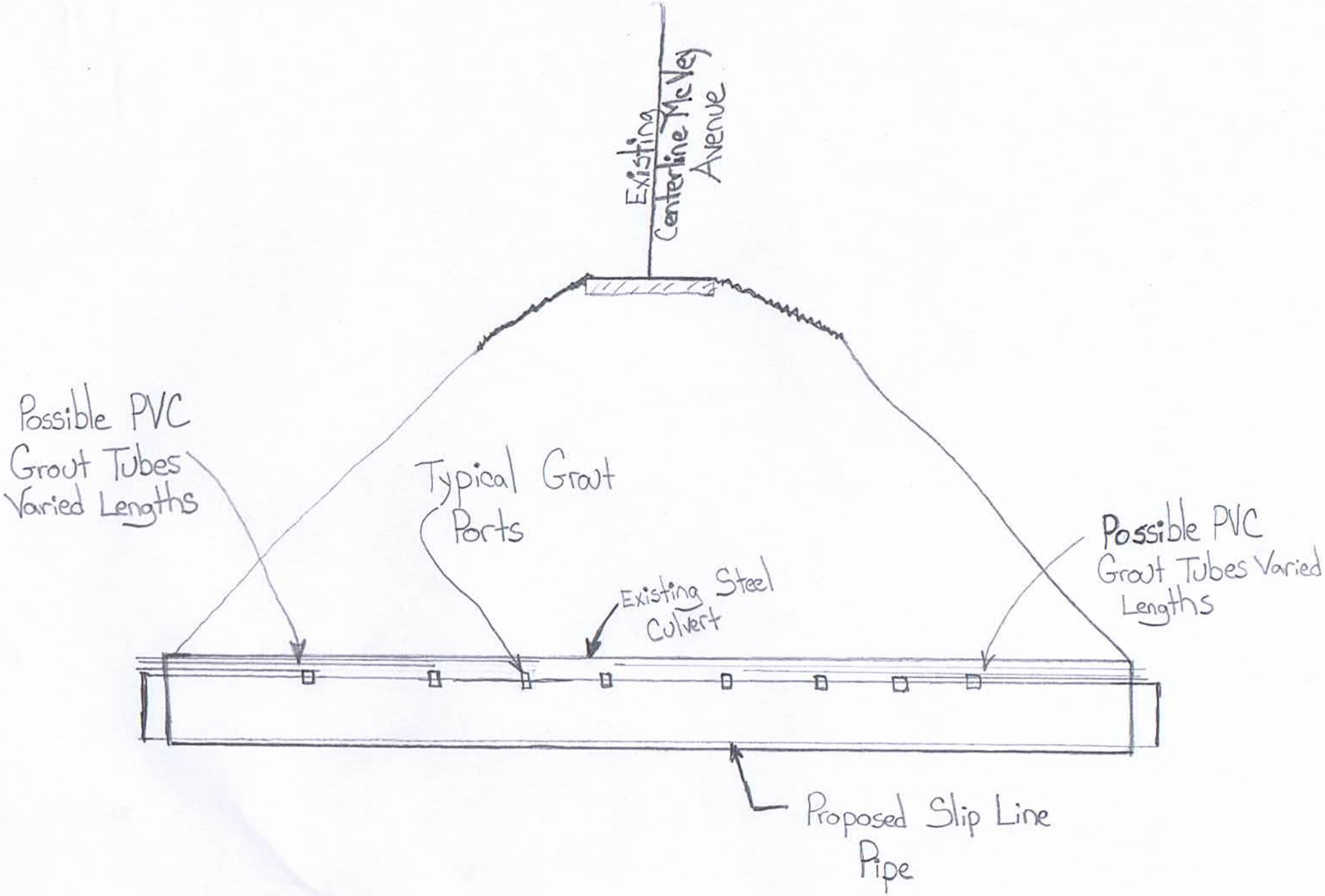
Tilton, IL NPDES MS4



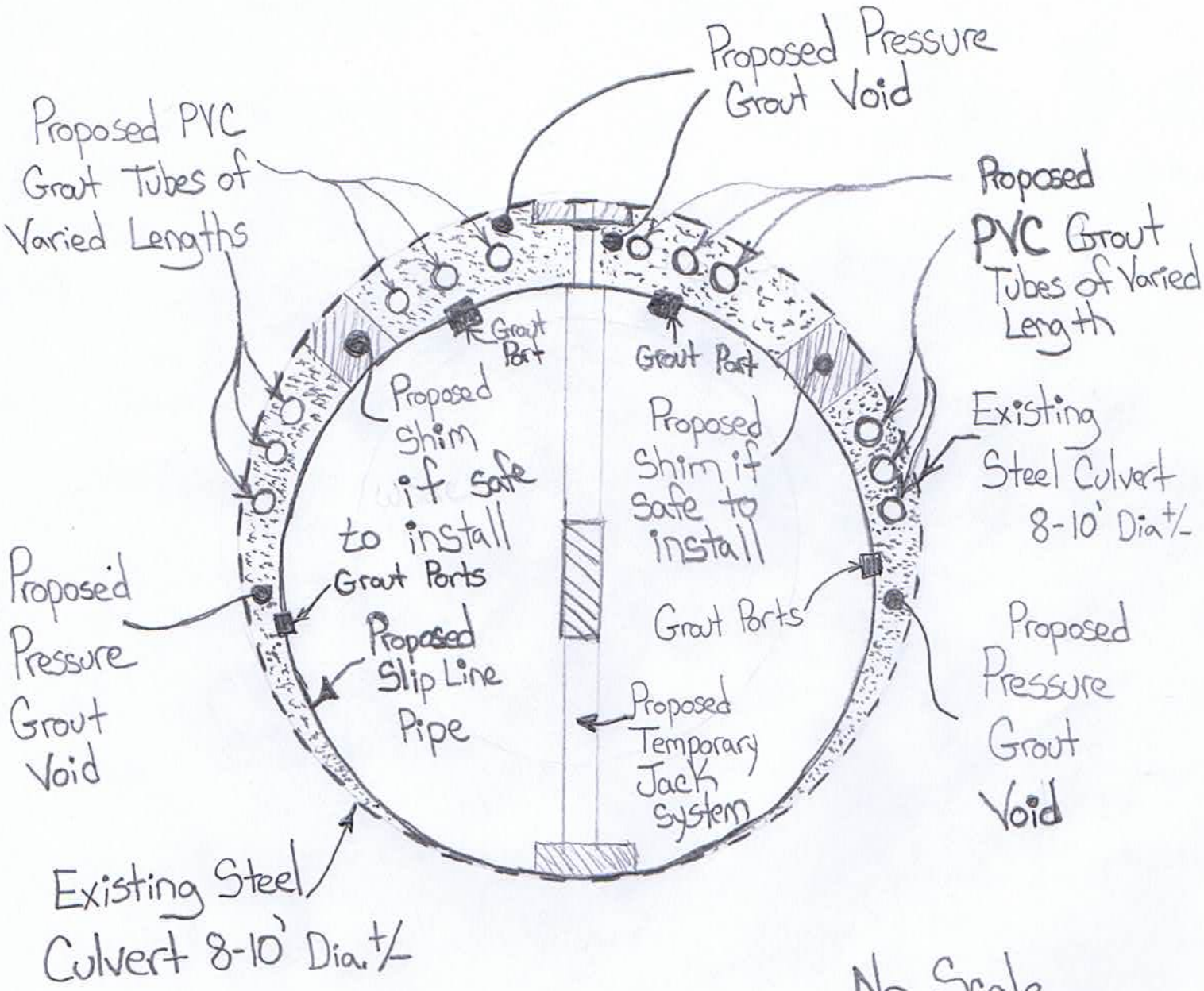
Proposed Preliminary Engineering Plan Order of Operations

1) Safely Camera inside of pipe.
2) If safe engineer measure culvert.
3) Determine feasibility to remove & replace or slip line

03/16/2018



Preliminary (Not for Construction)



No Scale

Preliminary
Note For Construction
3 of 3

GLEISNER ENGINEERING

327 NORTH FLETCHER HILLS DRIVE
DANVILLE, ILLINOIS 61832
217-213-2022
josephgleisner@att.net

February 19, 2019

RICK LOEFFLER
1734 GREENWOOD CEMETERY
DANVILLE, IL, 61832

RE: CATTLE GUARD ACROSS GRAPE CREEK NORTH & UPSTREAM OF EAST ROSS LANE BRIDGE

Mr. Loeffler

I am a Civil Engineer providing drainage inspection services for the Village of Tilton with regard to requirements of Tilton's general drainage permits. There is cable and sheet metal across Grape Creek north of the East Ross Lane Bridge; possible the remnants of a cattle guard. During previous inspections it is noted debris collects from the stream at this location. I'd like the opportunity to speak with you about this condition along your property line. Please review attached photograph.

Thank you for your consideration regarding the situation and please contact me to discuss using the phone number included on the top of this page.

Respectfully Submitted,

Joseph J. Gleisner, P.E.

cc. Mayor David Phillips

View North from East Ross Lane Bridge over Grape Creek at cattle guard covered with debris. On May 21st

CERTIFICATE OF PUBLICATION
IN
The Independent News

PUBLIC INPUT, EDUCATION AND OUTREACH MEETING REGARDING VILLAGE OF TILTON STORM WATER MANAGEMENT PROGRAM

A public meeting is scheduled for Monday; March 4, 2019 at 2:00 pm at the Village Hall, 1001 Tilton Road, Tilton, Illinois 61833.

Topics of Discussion included:

- Status of Tilton's National Pollution Discharge Elimination System Separate Storm Sewer System
- Village Storm Water Management website
- Review Annual Inspection Photographic Documentation
- Review Storm Water Pollution Prevention Management Practices
- Environmental Justice

1402656 02/27

The undersigned, THE NEWS-GAZETTE, INC. by its authorized agent, does hereby certify that said corporation is the publisher of The Independent News and that the same is the weekly secular newspaper of general circulation published in Georgetown, Vermilion County, Illinois, and said newspaper is a newspaper as defined by 715 ILCS 5/5 (1992) and 715 ILCS 10/1 (1992); said publisher further certifies that the annexed notice was published in said newspaper, on the following date(s);

02/27/2019

PUBLIC INPUT, EDUCATION A

Said publisher further certifies that the date of the first paper containing the said notice was on the first date hereinabove set forth and that the date of the last paper continuing the said notice was on the last date hereinabove set forth.

The News-Gazette, Inc.

Publisher of The Independent News

By: Pat Killin

Authorized Agent

Publisher's fee $23.87
Ad # 1402656

PUBLIC INPUT, EDUCATION AND OUTREACH MEETING REGARDING VILLAGE OF TILTON STORM WATER MANAGEMENT PROGRAM

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- **Village Storm Water Management website**
- **Review Annual Inspection Photographic Documentation**
- **Review Storm Water Pollution Prevention Management Practices**
- **Environmental Justice**

Joseph Gleisner attended these weekly courses at the University of Illinois as part of the outreach efforts then provided verbal summary of lectures at Village of Tilton and City of Danville board meetings. General notes included.

All Connected

A publish.illinois.edu site

All Connected: Human Behavior and the Environment in the Vermilion River System

Posted on **January 16, 2019**

This spring 2019 series of lectures is organized in conjunction with an undergraduate class ([ESE 311], titled "Environmental Issues Today) and open to the public. Lectures will take place from 3:30 – 4:50 p.m. in Room 1306, Everitt Lab, 1406 West Green Street in Urbana.

Links to readings on the topics will be posted as they are available. If any talks need to be cancelled or rescheduled information will be posted here as soon as it is received.

Questions? email to rkanter@illinois.edu

–Rob Kanter

January 24 **Speaker:** Eric Freyfogel, Swanlund Chair and Professor of Law Emeritus

Topic: An ethical framework for exploring issues

"Lecture on law philosopy regarding the Vermilion River Watershed"

January 31 **Speaker:** Jim Angel, climate scientist

Topic: Potential impacts of climate change on the system

"Lecture stated it is getting wetter by 10 to 15%, more humid, winter temperatures lower, more frequent flooding & more information available at http://nca2018.globalchange.gov/"

February 7 **Speaker:** Laura Elizabeth Christianson, Department of Crop Sciences

Topic: Water quality and nutrient loss reduction in agriculture

"Lectured on concern of hypoxic zone in Gulf of Mexico. IL due to Nitrogen and Phosporus"

February 14 **Speaker:** Suzanne Smith, Edgewood Farm

Topic: Production agriculture and environmental stewardship

"Lecture considering using cover crops, asked if field tiles restricted in Winter?"

February 21 **Speaker:** Jeremy Tiemann, Associate Aquatic Ecologist, Illinois Natural History Survey

Topic: Reintroduction of two federally-endangered mussels in Illinois

"Lecture on putting Northern Riffleshell & Clubshell mussels in Vermilion River"

February 28 **Speaker:** David Bane, Bane Family Meats

Topic: Diversified livestock farming: Healthy, Humane, and Regenerative

"Lecture on organic farming near the Salt Fork River"

March 28 **Speaker:** Andrew Rehn, Water Resources Engineer, Prairie Rivers Network; Pam and Lan Richart, Eco-Justice Collaborative (?)

Topic: Coal ash as a threat to Middle Fork of the Vermilion

"Lecture on concern of 3.3 million CY coal ashproposed to be capped. Asked if solar could be place on

April 4 **Speaker:** C. Eliana Brown, Stormwater Specialist, Illinois Extension ANR/Illinois-Indiana Sea Grant

Topic: Rethinking stormwater management for healthy rivers

"Lecture on ILs 400 MS4s, 42 million acres lawn, green technology & leaves generate N2"

April 11 **Speaker:** Rob Kanter, School of Earth, Society, and Environment

Topic: Wildlife in the system

"Lecture of photos of wildlife in Boneyard Creek on UofI campus and in Vermilion River"

April 18 **Speaker:** Cindy Shepherd, Central Illinois Outreach Director, Faith in Place

Topic: Environmental activism with a religious foundation

"Lecture on the 33 of 333 faith parners within watershed & environmental efforts"

USE VEHICLE WASH FACILITIES & PREVENT POLLUTION

TILTON TRUCK WASH
301 W 5th St, Tilton, Il 61833
(217) 260-8422

TILTON SUPERWASH
1902 Georgetown Road, Tilton, IL 61833
217) 443-8422

Fundraising Carwash

Keeping pollutants out of our storm drain system protects our local creeks, reservoirs & water resources. Materials swept, blown or washed into the storm drains end up in these open waters where they degrade water quality and harm aquatic life. In general, wastewater discharges to the storm drains is illegal.

Car washes have long been a favorite fundraiser for scout troops, schools and other non-profit groups. They provide a needed service, can be done with little capital investment, and are very visible. Only in the last few years have we all become aware of the environmental impact our car washes can have. Dirty water containing soaps, detergents, and residue from exhaust fumes, gasoline and motor oils are washed off of these cars and flow directly to the nearest storm drain.

All by itself, your car wash may not seem to be contributing that much. But collectively, each of these car washes, done on a regular basis as they are in our communities contributes some very serious pollution. By following the common sense practices included below; you can make a difference in the water quality and health of our communities.

BEST MANAGEMENT PRACTICES:

- **Find a sponsor for your carwash that uses a closed loop washing system—one that recycles its water. Do not hold your carwash at a facility that is not properly equipped. Popular host sites—such as service stations and parking lots do not have the necessary connections to the sanitary sewer.**

- **Ask your local commercial carwash to donate a part of the days proceeds or see if they will allow you to market a special wash ticket.**

- **Hold your carwash at an industrial or commercial site that has a designated equipment/vehicle wash area. This wash pad must be directly connected to the sanitary sewer; the property owner is responsible for all necessary discharge permits.**

- **Rent a mobile washing system that can contain the water on the site and vacuum up any excess water. Although not inexpensive, collecting and rerouting the water is the only way to protect the storm drain system.**

- **Contact your local water sanitation authority on how you can set up an area to drain wash water to the sanitary sewer.**

- **Be creative with new fundraising ideas. Ask neighbors to donate items for a flea market. Ask your Chamber of Commerce if any local merchants would pay to have flyers distributed. See if you can get sponsors to pledge money for a park or creek clean-up!**

BIODREGRADABLE DOES NOT NESSECARILY MEAN SAFE TO THE ENVIRONMENT—THESE PRODUCTS OFTEN DEGRADE FAST, BUT ARE STILL TOXIC TO AQUATIC LIFE!

ATTACHMENT H

Annual Facility Inspection Report
MS4 PHASE 2 NPDES Permit No. IL400664
Village of Tilton, Illinois
(Reporting Period March 2018/2019)

PROPOSED 2019/2020 MS4 PHASE 2 NPDES STORM WATER ACTIVITY SUMMARY

BMP #	BMP	Category	Description	Proposed Activity
A	Public education and outreach	A.1	Distributed paper material	Distribute public education material and make available at Village Hall and post on Village Storm Water Management website for interested public.
		A.5	Classroom education materials	Distribute public education and outreach material to interest public & schools.
		A.6	Other Public Education	Conduct public meeting/training for Village Staff, contractors, trustees, school officials and public regarding Village MS4 Best Management Practices, discharge outfall monitoring, Environmental Justice and Village Erosion Control and Storm Water Ordinances. Continue regular communication with public regarding Pollution prevention and clean-up.
B	Public participation\involvement	B.2	Educational volunteer	Continue to communicate with local and upstream schools to raise awareness on types of green infrastructure and how it benefits in reducing such pollution. Engineer continue to attend All Connected: Human Behavior and the Environment in the Vermilion River System series of lectures at the U of I. Obtain permission to post public education outreach material at Danville Area Community College.
		B.7	Other public involvement	Distribution of EPA flyers and Village intends to post education material and flyers on website. Review Environmental Justice at meetings and continue reach out to adjacent drainage area responsible personnel. Attend public meetings regarding Middle Fork River and coal ash.
C	Illicit discharge detection and elimination	C.1	Sewer map preparation Update	Update digital storm and sanitary sewer facilities of Village on Drainage Map including numbering of manholes and drainage outfall strucrtures also washdown facilities. Print hard copy and post at Village Public Works facility. Village document sewer smoking progress on map & record video inspections for filing. Engineer continue to use EJSCREEN tool and IL EPA urban list to search for and review MS4 Annaul Report where found on website of upstream communities.
		C.3	Detection/Elimination Prioritization Plan	Continue to further inspect of solid waste transportation equipment mobilizing through Village jurisdiction to identify sources of storm water pollution and contain waste. Village smoke and video inspect prioritized sewer areas. Inspect solid waste containers in Village and communicate to contain all waste.
		C.7	Visual dry weather screening	Preform observation/screening/monitoring of storm sewer outlets along Grape Creek and Vermilion River. Include areas within Village also upsteam and immediately downstream.
		C.10	Illicit Discharge Controls	Continue review of mapping for potential areas to detain and treat water run-off from major fires. Report to authorities findings of upstream inspections. Review solid waste container ordinance with regard to what is actually in field.
D	Construction site runoff control	D.2	Erosion and Sediment Control BMPs	Implement Village Erosion and Sediment Control Ordinances into construction projects. Remove sediment build-up along Grape Creek & dispose of.
		D.7	Other Construction Site Run-off Controls	Review Village Erosion, Sediment Control and Storm Water Ordinance. Consider improvements.

ATTACHMENT H

Annual Facility Inspection Report
MS4 PHASE 2 NPDES Permit No. IL400664
Village of Tilton, Illinois
(Reporting Period March 2018/2019)

PROPOSED 2019/2020 MS4 PHASE 2 NPDES STORM WATER ACTIVITY SUMMARY (continued)

BMP #	BMP	Category	Description	Proposed Activity
E	Post-Construction runoff control (continue)	E.4	Pre-Construction Review of BMP Design	Inspection of erosion and sediment control measures are being conducted by the Village officials and consulting engineers at pre and post-construction stages of the construction projects within the Village.
		E.6	Post-Construction Inspections	Village and consulting engineer perform post-construction visual observation of construction sites regarding Storm Water Management BMPs.
		E.7	Other Post-Construction Run-off Controls	Conduct Annual Training for Village Staff & Contractors on low impact design techniques.
F	Pollution Prevention/ Good Housekeeping	F.1	Employee Training Program	Continue training for Village public works personnel regarding proper street sweeping operations, sewer video inspection & location operations and debris disposal also snow and ice control operations. General equipment operations and maintenance.
		F.2	Inspection and Maintenance Program	Inspect inlet and outlet drainage facilities within Village thence remove debris and address erosion. Continue to sweep streets, manage road maintenance material and document progress. Video inspect sewer piping & perform sewer smoking. List of maintenance: 1) Stabilize erosion behind Herschel Lake culvert discharge. Engineer Observe. 2) Video & smoke inspect sewers near Morrision St & Grape Creek. Engineer to open storm and sanitary manhole lid and look for surcharge during rain event. 3) Village and/or contractor implement erosion mitigation at discharge of Southgate Dr storm sewer into Grape Creek. Engineer Observe. Notify Army Corp of Engineers., 4) Video inspect culvert under McVey Ave then improve plans, specification and estimate to implement improvement. Engineer observe. 5) Village and/or contractor implement improvements for access to maintain bar racks near discharge at northwest bend of East 1rst. Engineer observe. 6) Video inspect drain pipes near sink holes that exist west of county animal shelter. Communicate with IDOT. 7) Communicate to prepare plan, specifications and estimates to regularly clear & dispose of debris on cattle guard strung across Grape Creek at East Ross Lane. 8) Communicate with IDOT for clearing vegitation, stabilizing erosion and repairing fence at discharge near baseball fields and I74 9) Prepare plan, specification and estimate to mitigate erosion north of Herschel Dr and east of Hodge Street. 10) Ensure erosion control is maintained on disturbed areas along & ajacent to IL Rt 1. Establish turf. 11) Continue to communicate with Burger King to mitigate erosion on bank of Grape Creek near parking 12) Remove and dispose of sediment from Northwest corner of Washington Street and Grape Creek. 13) Saw cut dead tree stump to grade & remove wood obstructing stream cross-section downstream of of Jefferson Street pedestrian bridge over Grape Creek. 14) Consider planning removal of flow restriction upstream of Keegan Street Bridge. Inspect sanitary manhole prior. 15)Remove trash and scum from streams. 16)Separate storm & sanitary cross-section on Adam St.
		F.3	Municipal Operations Storm Water Control	Perform visual inspection of streams within Village jurisdiction for accumulated debris or erosion.
		F.4	Municipal Operation Waste Disposal	Improve operational plans to separate debris from stream, drainage system and various public works clean-ups into recyclables, landscape waste and garbage. Dispose or recycle materials in manner avoiding storm water pollution. Continue to improve drainage conditions to prevent mixing of storm and sanitary sewers.

ATTACHMENT H

Annual Facility Inspection Report
MS4 PHASE 2 NPDES Permit No. IL400664
Village of Tilton, Illinois
(Reporting Period March 2018/2019)

PROPOSED 2019/2020 MS4 PHASE 2 NPDES STORM WATER ACTIVITY SUMMARY (continued)

BMP #	BMP	Category	Description	Proposed Activity
		F.4		remove debris build-up obstructing or potentially restricting channel and/or bridges. Address erosion along creek allowing water to flow consistently and naturally through Village in manner minimizing flooding potential.
		F.6	Other Municipal Operation Controls	Inspect and estimate capacity of drainage facilities immediately upstream of Village and plot on digital map.

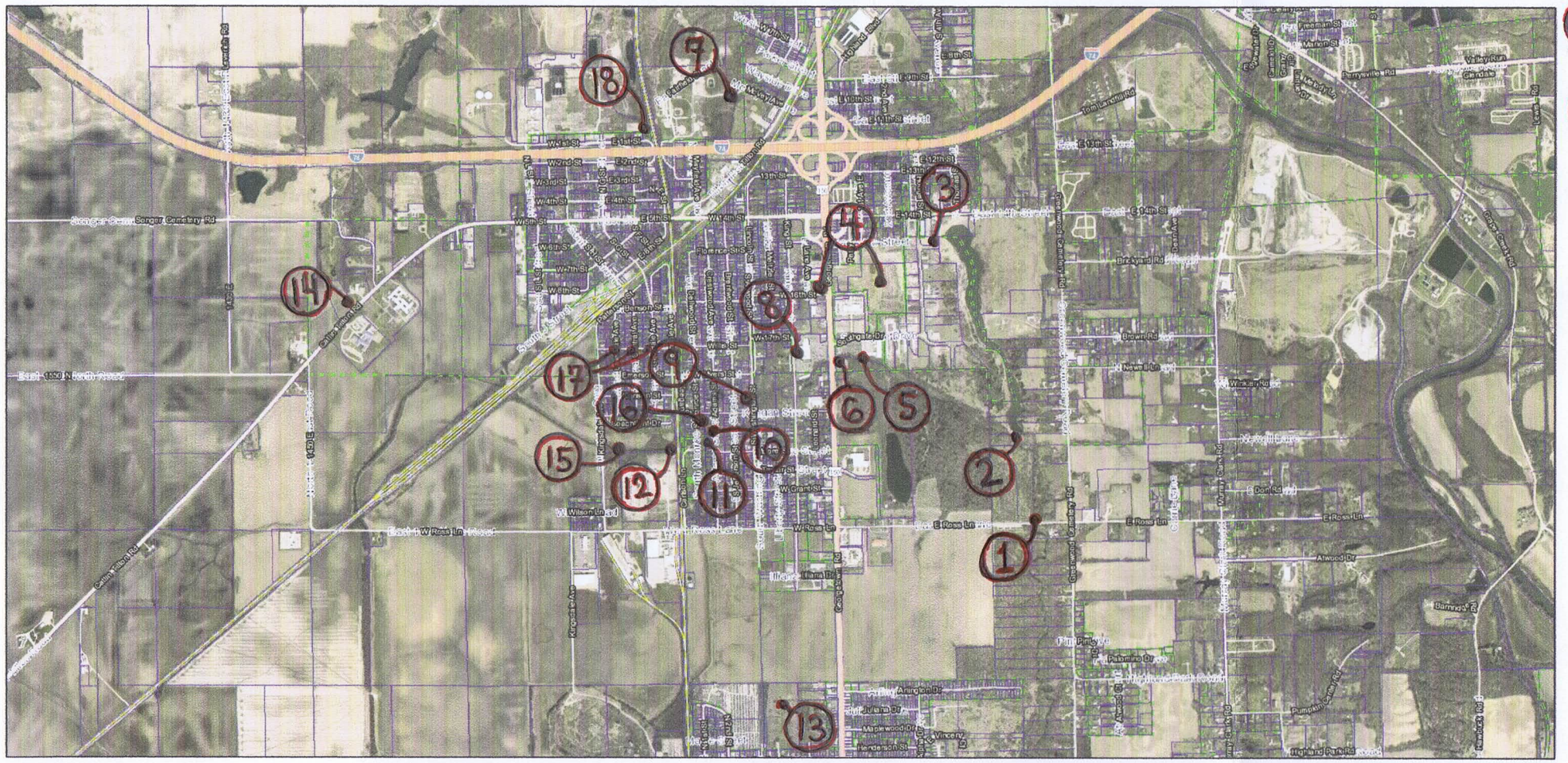
TENTATIVE LIST OF 2019/2020 CONSTRUCTION & MAINTENANCE PROJECTS

Project	Item #	Item	Status
GRAPE CREEK IMPROVEMENTS	I	DEBRIS REMOVAL AND EROSION MITIGATION	PROPOSED FOR 2019 SPRING & SUMMER IMPLEMENTATION
MORRISON STREET STORM SEWER	II	DRAINAGE IMPROVEMENT	STORM INSPECT MANHOLE & SMOKE SANITARY
EAST 1rst STREET CHANNEL CLEARING	III	DEBRIS REMOVAL, GRADING & DRAINAGE MAINTENANCE	CURRENTLY BEING IMPROVED, FURTHER INSPECTIONS & ENGINEERING SUMMER & FALL 2019
McVEY STREET CULVERT	IV	INSPECT & MITIGATE CULVERT CONDITIONS	VIDEO INSPECT, PREPARE PLAN, SPECIFICATION & COST ESTIMATE THEN IMPLEMENT IMPROVEMENT
SOUTHGATE STORM SEWER	V	DISCHARGE EROSION MITIGATION	THEN IMPLEMENT IMPROVEMENT SUMMER FALL 2019
VOTEC TREATMENT PLANT DEACTIVATION SITE GRADING	VI	DEMOLITION & SITE GRADING	ELIMINATE HAZARDS AND GRADE SITE
1rst, LANE, SOUTHGATE STREETS EXCAVATIONS, GRADING & PAVEING	VII	DRAINAGE, GRADING & PAVING	CONTINUE IMPROVEMENTS, MAINTAIN EROSION CONTROL & ESTABLISH TURF
WEST 1rst STREET STORM SEWER	VIII	IMPROVE MAINTENANCE ACCESS	IMPLEMENT IMPROVEMENT & CLEAR DRAINAGE BLOCKAGE
CATLIN TILTON ROAD	IX	PAVEMENT REHABILITATION	FINALIZE PLANS, IDENTIFY FUNDING & IMPLEMENT
"G" STREET & BRIDGES	X	APPROACH PAVEMENT BRIDGE JOINT REPLACEMENT	COORDINATE WITH ENGINEER REGARDING FUNDS FINALIZE IMPROVEMENT PLANS AND IMPLEMENT
5th STREET	XI	ASPHALT MILLING & RESURFACING	IMPLEMENT WINTER / SPRING 2019

PUBLIC OUTREACH/EDUCATION MATERIALS

No.	Title	Published	Publication No.	Remarks
1	"After the Storm: Storm Water Pollution'	USEPA	EPA833-B-03-002	Copy Attached
2	Clean Water - 10 Things You Can Do to Prevent Stormwater Runoff Pollution"	USEPA	-	Copy Attached
3	"Stormwater and the Construction Industries"	USEPA	-	Copy Attached
4	"Make you home the Solution to Stormwater Pollution"	USEPA	EPA883-B-03003	Copy Attached
5	"Water-Efficient Landscaping: Preventing Pollution & Using Resources Wisely"	USEPA	EPA832-F-02-002	Copy Attached
6	"Pick Up After Your Pet"	MARC		Copy Attached

TILTON, IL NPDES MS4 DRAINAGE IMPROVEMENT STATUS MAP



February 15, 2019

Esri, HERE, Garmin, © OpenStreetMap contributors

GLEISNER ENGINEERING FEB. 15, 2019

KEYED NOTE OF PROPOSED TILTON DRAINAGE IMPROVEMENTS

① Send letter to Rick Loeffler regarding coordinating maintenance of cattle guard on north & upstream side of E. Ross Ln Bridge over Grape Creek (1734 Greenwood Cemetery, Danville, IL 61832)

② Stabilize erosion behind discharge outlet pipe from Herschel Lake. (See Photo taken Feb. 4, 2019) Use Village Equipment to transport 10+/- 60pound sac-crete bags to site & stack per Engineers requirements to mitigate condition.

③ Engineer topographic survey area north of Herschel Dr. & east of Hodge St. prepare grading plan, install erosion control, grade stake, strip top soil, grade berm to force storm water into storm manhole, cover disturbed area with topsoil, spread grass seed

④ Ensure turf is established on disturbed area of construction efforts Along & adjacent to IL Rt. 1 between Southgate Drive & Interstate 74. (obtain sewer plan & plot on Map)

⑤ Mitigate erosion at discharge of 36" diameter storm sewer into Grape Creek. (See & Implement Engineers Plan, Specification & cost Estimate Included with Observation Report with Village and/or Contractor)

⑥ Communication with Burger King & Engineer to mitigate hazardous erosion generated by site run-off bank of Grape Creek.

⑦ Safely camera failed culvert under McVey Ave. & then engineer plan to mitigate condition.

⑧ Require grocery store and other buisness to contain and prevent all solid waste from migrating to Grape Creek. (See photos)

⑨ Excavate build-up of sediment from concrete Rip Rap at northwest corner of Washington Ave. Bridge over Grape Creek. (Operation to be similar to observation report shown in 2017 Annual Report)

⑩ Saw cut tree stump to grade & remove wood off-site. Leave roots.

⑪ Consider removing tree from overhead wires, remove rip rap for re-use, excavate to remove stream bank restriction & replace rip rap 150 Feet upstream of Keegan St & Grape Creek Bridge

⑫ Regularly remove trash and scum trapped upstream of CSX Railroad Bridge over Grape Creek.

⑬ Flatten lumped soil spoils then spread grass seed along disturbed soil from swail grading near WITY Radio Station

⑭ Communicate with IDOT to mitigate hazardous sink holes west of animal shelter facility.

⑮ Repair storm sewer discharge from Coachlight Mobile Home Park. (See Feb. 5, 2019 photo)

⑯ Separate storm & sanitary sewer cross connect on Adams Street south of Myers Street.

⑰ Blow smoke into sanitary manholes at four intersections on Morrison Street while Engineer observes & documents.

⑱ Send maps, letters & photographs to Wade McKelvey 502 North F, Tilton, IL 61833 regarding installation of culvert north of East 1rst Street & east of F Street to allow access to maintain drainage. Wade returned call 2/19/19

APPENDIX

SECTION DIVIDER

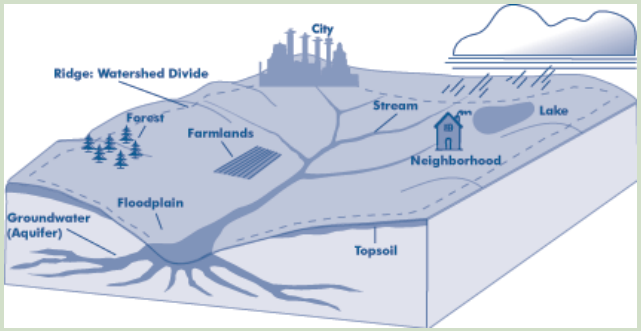
What is a Watershed?

A watershed is an area of land that drains to a common point, such as a nearby creek, stream, river or lake. Every small watershed drains to a larger watershed that eventually flows to the ocean.

Watersheds support a wide variety of plants and wildlife and provide many outdoor recreation opportunities. By protecting the health of our watersheds we can preserve and enhance the quality of life for Kansas City area residents.

What is Stormwater Runoff?
Stormwater is water from rain or melting snow. It flows from rooftops, over paved streets, sidewalks and parking lots, across bare soil, and through lawns and storm drains. As it flows, runoff collects and transports soil, pet waste, salt, pesticides, fertilizer, oil and grease, litter and other pollutants. This water drains directly into nearby creeks, streams and rivers, without receiving treatment at sewage plants.

Polluted stormwater contaminates streams, rivers and lakes. It can kill or damage plants, fish and wildlife, while degrading the quality of our water.



A typical watershed system

For more information, visit www.marc.org/Environment/Water or call 816/474-4240.

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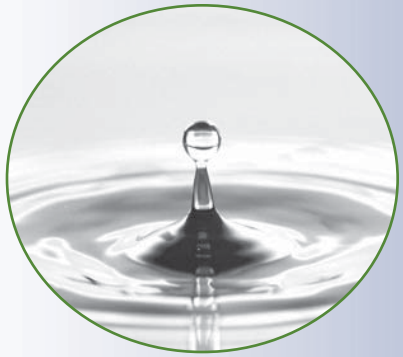
Summer Watershed Tip

Pick Up After Your Pet

If not disposed of properly, pet waste flows directly into waterways, untreated



Clean Water. Healthy Life.

Clean Water. Healthy Life.

Facts About Pet Waste

Every time it rains the potential exists for thousands of pounds of pet waste to wash down storm drains and into streams, rivers and lakes. If not disposed of properly, pet waste flows directly into nearby streams and creeks without being treated at wastewater treatment facilities.

Pet waste can contain bacteria that threaten the health of animals and people, especially children. Pet waste also contains nutrients that encourage excess weed and algae growth. This water then becomes cloudy and green — unattractive for swimming, boating and fishing. Excess nutrients are a major cause of water quality decline.

When pet waste is washed into lakes and streams, the waste decays, using up oxygen and sometimes releasing ammonia. Low oxygen levels and ammonia combined with warm temperatures can kill fish and other aquatic life.

Clean Water.
Healthy Life.

What's the Problem?

A recent USGS study of streams and creeks in the Kansas City region showed that bacteria associated with pet waste was the source of approximately one-quarter of the bacteria in samples collected from local waterways.

When pet waste is disposed of improperly, water quality isn't the only thing that suffers — your health may be at risk, too.

Pets, children playing outside, and adults gardening are most at risk for infection from some of the bacteria and parasites found in pet waste. Diseases that can be transmitted from pet waste include the following:

Salmonellosis: the most common bacterial infection transmitted to humans by other animals. Symptoms include fever, muscle aches, headache, vomiting and diarrhea.

Toxocariasis: roundworms usually transmitted from dogs to humans, often without noticeable symptoms, but may cause vision loss, a rash, fever or cough.

Toxoplasmosis: a parasite carried by cats that can cause birth defects if a woman becomes infected during pregnancy, and can also be a problem for people with depressed immune systems.

Many of our local waterways do not meet state water quality bacteria standards for recreational use. Pet waste is one of the components of non-point source pollution that contributes to our water quality problems, and is one that each of us can help correct.

Pet waste should never enter storm drains and surface water. Many local communities require pet owners to pick up after pets when away from their property, and to pick up waste from their property if it attracts flies and can pose a health risk.

What Can You Do?

Fortunately, there are actions pet owners can take to help keep our water clean:

- Pick up pet waste from your yard. It is not a fertilizer.
- Carry disposable bags while walking your dog to pick up and dispose of waste properly. If you dispose of pet waste in the trash, wrap it carefully to avoid spillage during collection.
- Flush your pet's waste down the toilet, so it can be treated at a sewage treatment plant.
- Bury pet waste in your yard, at least 12 inches deep and cover with at least eight inches of soil to let it decompose slowly. Bury the waste in several different locations and keep it away from vegetable gardens.
- Communities are encouraged to provide pet waste disposal bags at local parks, along trails and in public places where people frequently walk their dogs.

For more information, visit

www.marc.org/Environment/Water or call 816/474-4240.

After the Storm

A Citizen's Guide to Understanding Stormwater

For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

United States Environmental Protection Agency

EPA 833-B-03-002

January 2003

Internet Address (URL) ● HTTP://www.epa.gov
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What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?

Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

Stormwater Pollution Solutions

Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

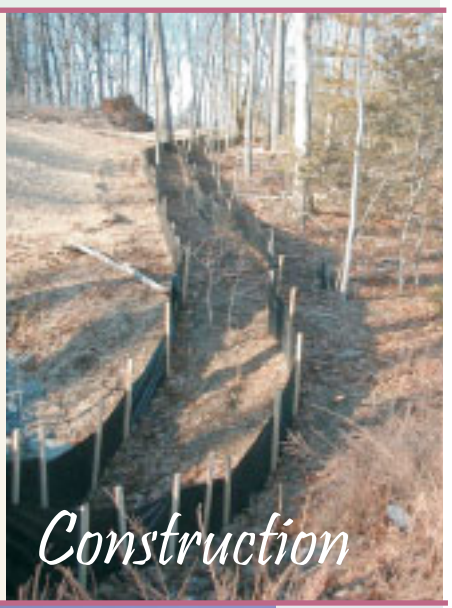
Commercial

Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.



Construction

Agriculture

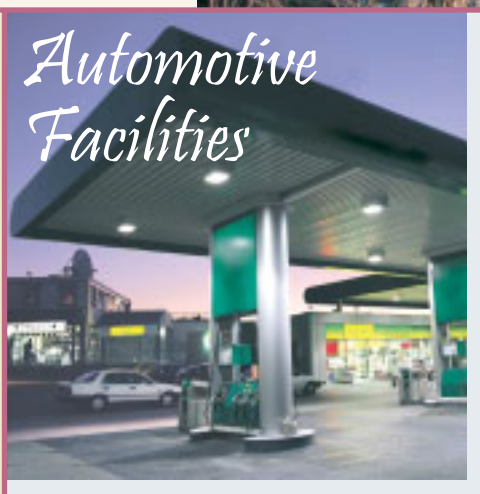
Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.



Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

Clean Water

Everybody's Business

10 Things You Can Do to Prevent Stormwater Runoff Pollution

- Use fertilizers sparingly and sweep up driveways, sidewalks, and gutters
- Never dump anything down storm drains or in streams
- Vegetate bare spots in your yard
- Compost your yard waste
- Use least toxic pesticides, follow labels, and learn how to prevent pest problems
- Direct downspouts away from paved surfaces; consider starting a rain garden
- Take your car to the car wash instead of washing it in the driveway
- Check your car for leaks and recycle your motor oil
- Pick up after your pet
- Have your septic tank pumped and system inspected regularly

EPA United States Environmental Protection Agency

For more information, visit
www.epa.gov/nps or
www.epa.gov/npdes/stormwater

Stormwater and the Construction Industry

Protect Natural Features

Bad

Good

- Minimize clearing.
- Minimize the amount of exposed soil.
- Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.
- Protect streams, stream buffers, wild woodlands, wetlands, or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.

Construction Phasing

Bad

Good

- Sequence construction activities so that the soil is not exposed for long periods of time.
- Schedule or limit grading to small areas.
- Install key sediment control practices before site grading begins.
- Schedule site stabilization activities, such as landscaping, to be completed immediately after the land has been graded to its final contour.

Vegetative Buffers

Bad

Good

- Protect and install vegetative buffers along waterbodies to slow and filter stormwater runoff.
- Maintain buffers by mowing or replanting periodically to ensure their effectiveness.

Silt Fencing

Bad

Good

- Inspect and maintain silt fences after each rainstorm.
- Make sure the bottom of the silt fence is buried in the ground.
- Securely attach the material to the stakes.
- Don't place silt fences in the middle of a waterway or use them as a check dam.
- Make sure stormwater is not flowing around the silt fence.

Maintain your BMPs!

www.epa.gov/npdes/menuofbmps

Site Stabilization

Bad

Good

- Vegetate, mulch, or otherwise stabilize all exposed areas as soon as land alterations have been completed.

Construction Entrances

Bad

Good

- Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.
- Properly size entrance BMPs for all anticipated vehicles.
- Make sure that the construction entrance does not become buried in soil.

Slopes

Bad

Good

- Rough grade or terrace slopes.
- Break up long slopes with sediment barriers, or under drain, or divert stormwater away from slopes.

Dirt Stockpiles

Bad

Good

- Cover or seed all dirt stockpiles.

Storm Drain Inlet Protection

Bad

Good

- Use rock or other appropriate material to cover the storm drain inlet to filter out trash and debris.
- Make sure the rock size is appropriate (usually 1 to 2 inches in diameter).
- If you use inlet filters, maintain them regularly.

Stormwater and the Construction Industry

Planning and Implementing Erosion and Sediment Control Practices

The construction industry is a critical participant in the nation's efforts to protect streams, rivers, lakes, wetlands, and oceans. Through the use of best management practices (BMPs), construction site operators are the key defense against erosion and sedimentation.

As stormwater flows over a construction site, it picks up pollutants like sediment, debris, and chemicals. High volumes of stormwater can also cause stream bank erosion, and destroy downstream aquatic habitat. Preventing soil erosion and sedimentation is an important responsibility at all construction sites.

In addition to the environmental impact, uncontrolled erosion can have a significant financial impact on a construction project. It costs money and time to repair gullies, replace vegetation, clean sediment-clogged storm drains, replace poorly installed BMPs, and mitigate damage to other people's property or to natural resources.

Best Management Practice (BMP)

A BMP is a method used to prevent or control stormwater runoff and the discharge of pollutants, including sediment, into local waterbodies. Silt fences, inlet protection, and site-stabilization techniques are typical BMPs on a construction site.

Operator

An operator is someone who has control over and the ability to modify construction plans and specifications (e.g. owner, general contractor)

or

Someone who has control over the day-to-day operations at a site (e.g., owner, general contractor) that are necessary to ensure compliance with the permit requirements. It is the responsibility of a construction site owner or operator to contain stormwater runoff and prevent erosion during **all** stages of a project.

There may be more than one person at a site who meets these definitions and must apply for permit coverage. (States may have different definitions of the term "operator.")

So what's being done about polluted runoff?

The Clean Water Act includes the National Pollutant Discharge Elimination System (NPDES) permitting program. As of January 2003, 44 states and territories are authorized to issue NPDES stormwater permits. If your state isn't authorized to operate the NPDES stormwater permit program, EPA issues the permits. Permits vary from state to state, so contact your state or EPA for specific information. Your permitting authority has specific information on your state's NPDES stormwater permit program. In general, construction permits require construction operators to do all of the following:

- Develop and implement a stormwater pollution prevention plan
- Submit a permit application or notice of intent (NOI)
- Comply with the permit, including maintaining BMPs and inspecting the site

Under the NPDES program, construction activities that disturb 1 or more acres are required to obtain stormwater permit coverage. States have different names for the plans that construction operators must develop, such as

- Stormwater pollution prevention plan
- Erosion and sediment control plan
- Erosion control and stormwater management plan
- Stormwater management plan
- Water pollution control plan
- Pollution prevention plan

This document uses the term "*Plan*."

I think I need a permit... Where do I start?

All land-disturbing activities, including clearing, grading, and excavation, that disturb **1 or more acres** are required to be covered under a state or EPA-issued NPDES construction stormwater permit **prior to land disturbance**. Permit requirements vary by state. Begin by researching the specific requirements in your state. You might already be subject to local erosion and sediment control requirements, but that doesn't release you from the requirements of the NPDES program at the state or EPA level. Although you must comply with both sets of requirements, in most cases they have been designed to be complementary. Contact your permitting authority to find out exactly what you need to do. A good place to start your search is the Construction Industry Compliance Assistance web site at http://www.envcap.org/cica.

The NPDES permit requirements include small construction activities that are part of a larger common plan of development or sale, such as a single lot within a larger subdivision. For developments with multiple operators, all operators must have permit coverage for their individual parts of the larger development, no matter how large or small each operation happens to be. When there are multiple operators at one site, they're encouraged to develop and share one comprehensive Plan and obtain permit coverage as co-permitees.

The **owner or operator** of the construction site is responsible for complying with the requirements of the permit. Responsibilities include developing a Plan, obtaining permit coverage, implementing BMPs, and stabilizing the site at the end of the construction activity.

Construction sites that discharge unpermitted stormwater are in violation of the Clean Water Act and may be subject to fines of up to $27,500 a day per violation.

Determine your eligibility

All construction activity that disturbs 1 or more acres of land, as well as activity that disturbs less than 1 acre but is part of a larger common plan of development, must obtain permit coverage.

Read and understand your stormwater permit requirements

Get a copy of the permit for construction activities and a permit application (or notice of intent form) from your state or EPA permitting authority.

Develop a Plan

Most states do not require you to submit your Plan. However, you do need to keep the Plan on site. If that's impractical, you may post a notice that tells where the Plan is kept so it can be accessed by the permitting authority and other interested parties.

You'll need to post a copy of your completed application on site. Put it in a place where the public can see it so they'll know your site is covered by an NPDES permit!

Apply for permit coverage

Once you understand your permit requirements and have developed a Plan, you can submit a stormwater permit application (or notice of intent) to your permitting authority. This must be done before beginning any land disturbance on the site. Some states require a few days of lead time, so check with your permitting authority. Once you've submitted the application, you must satisfy the conditions of the permit.

Implement the Plan

Be prepared to implement the BMPs in your Plan before construction begins. Ensure that BMPs are properly maintained, and upgrade and repair them as necessary.

Developing and Implementing a Plan

You must have a Plan that includes erosion and sediment control and pollution prevention BMPs. These Plans require

- Advance planning and training to ensure proper implementation of the BMPs
- Erosion and sediment control BMPs in place until the area is permanently stabilized
- Pollution prevention BMPs to keep the construction site "clean"
- Regular inspection of the construction site to ensure proper installation and maintenance of BMPs

Fortunately, the practices and measures that must be included in your Plan are already part of the standard operating procedures at many construction sites.

Six steps are associated with developing and implementing a stormwater Plan. There's a wealth of information available on developing pollution prevention plans. Please contact your permitting authority for help in finding additional guidance materials, or visit www.epa.gov/npdes/stormwater. A sample construction plan is available at www.epa.gov/npdes/pubs/sample_swppp.pdf.

1. Site Evaluation and Design Development

- **Collect site information**
- **Develop site plan design**
- **Prepare pollution prevention site map**

The first step in preparing a Plan is to define the characteristics of the site and the type of construction that will occur. This involves collecting site information, identifying natural features that should be protected, developing a site plan design, describing the nature of the construction activity, and preparing a pollution prevention site map.

2. Assessment

- **Measure the site area**
- **Determine the drainage areas**
- **Calculate the runoff coefficient**

The next step is assessing the impact the project will have on stormwater runoff. Determine the drainage areas and estimate the runoff amounts and velocities. For more information on calculating the runoff coefficient, go to www.epa.gov/npdes/pubs/chap02_conguide.pdf, page 11.

3. Control Selection and Plan Design

- **Review and incorporate state or local requirements**
- **Select erosion and sediment controls**
- **Select other controls**
- **Select stormwater management controls**
- **Indicate the location of controls on the site map**
- **Prepare an inspection and maintenance plan**
- **Coordinate controls with construction activity**
- **Prepare sequence of major activities**

In the third step you'll actually document your procedures to prevent and control polluted stormwater runoff. You must delineate areas that will not be disturbed, including critical natural areas like streamside areas, floodplains, and trees. You must also identify the measures (or BMPs) you'll use to protect these areas.

Phasing your project to minimize the amount of exposed soil at any given time is a highly effective way to prevent erosion. Erosion control measures designed to prevent soil from being mobilized include diversions to route stormwater away from exposed soils and stabilization with vegetation, mulch, and geotextiles. Sedimentation control measures designed to remove sediment from stormwater or prevent it from leaving the site include silt fences, sediment traps, and diversions.

You'll need to select erosion and sediment controls—including stabilization measures for protecting disturbed areas and structural controls for diverting runoff and removing sediment—that are appropriate for your particular site. The appropriateness of the control measures will depend on several factors, but will be influenced most directly by the site characteristics. Some stabilization measures you might consider are temporary seeding, permanent seeding, and mulching. Structural control measures include earth dikes, silt fences, and sediment traps. No single BMP will meet all of the erosion and sedimentation control needs of a construction site. A combination of BMPs is necessary. For more information on the types of BMPs appropriate for your construction site, see the BMP fact sheet series available at www.epa.gov/npdes/menuofbmps.

Soil erosion control tips...

- Design the site to infiltrate stormwater into the ground and to keep it out of storm drains. Eliminate or minimize the use of stormwater collection and conveyance systems while maximizing the use of stormwater infiltration and bioretention techniques.
- Minimize the amount of exposed soil on site.
  - To the extent possible, plan the project in stages to minimize the amount of area that is bare and subject to erosion. The less soil exposed, the easier and cheaper it will be to control erosion.
  - Vegetate disturbed areas with permanent or temporary seeding immediately upon reaching final grade.
  - Vegetate or cover stockpiles that will not be used immediately.
- Reduce the velocity of stormwater both onto and away from the project area.
  - Interceptors, diversions, vegetated buffers, and check dams are a few of the BMPs that can be used to slow down stormwater as it travels across and away from the project site.
  - Diversion measures can also be used to direct flow away from exposed areas toward stable portions of the site.
  - Silt fences and other types of perimeter filters should never be used to reduce the velocity of runoff.
- Protect defined channels immediately with measures adequate to handle the storm flows expected.
  - Sod, geotextile, natural fiber, riprap, or other stabilization measures should be used to allow the channels to carry water without causing erosion. Use softer measures like geotextile or vegetation where possible to prevent downstream impacts.
- Keep sediment on site.
  - Place aggregate or stone at construction site vehicle exits to accommodate at least two tire revolutions of large construction vehicles. Much of the dirt on the tires will fall off before the vehicle gets to the street.
  - Regular street sweeping at the construction entrance will prevent dirt from entering storm drains. Do not hose paved areas.
  - Sediment traps and basins are temporary structures and should be used in conjunction with other measures to reduce the amount of erosion.
- Maintaining all BMPs is critical to ensure their effectiveness during the life of the project.
  - Regularly remove collected sediment from silt fences, berms, traps, and other BMPs.
  - Ensure that geotextiles and mulch remain in place until vegetation is well established.
  - Maintain fences that protect sensitive areas, silt fences, diversion structures, and other BMPs.

Other BMPs and Activities to Control Polluted Runoff

You'll need to select other controls to address potential pollutant sources on your site. Construction materials, debris, trash, fuel, paint, and stockpiles become pollution sources when it rains. Basic pollution prevention practices can significantly reduce the amount of pollution leaving construction sites. The following are some simple practices that should be included in the Plan and implemented on site:

- Keep potential sources of pollution out of the rain as practicable (e.g., inside a building, covered with plastic or tarps, or sealed tightly in a leak-proof container).
- Clearly identify a protected, lined area for concrete truck washouts. This area should be located away from streams, storm drain inlets, or ditches and should be cleaned out periodically.
- Park, refuel, and maintain vehicles and equipment in one area of the site to minimize the area exposed to possible spills and fuel storage. This area should be well away from streams, storm drain inlets, or ditches. Keep spill kits close by and clean up any spills or leaks immediately, including spills on pavement or earthen surfaces.
- Practice good housekeeping. Keep the construction site free of litter, construction debris, and leaking containers. Keep all waste in one area to minimize cleaning.
- Never hose down paved surfaces to clean dust, debris, or trash. This water could wash directly into storm drains or streams. Sweep up materials and dispose of them in the trash. Never bury trash or debris!
- Dispose of hazardous materials properly.

4. Certification and Notification

- **Certify the Plan**
- **Submit permit application or notice of intent**

Once the Plan has been developed, an authorized representative must sign it. Now is the time to submit the permit application or notice of intent. Your permit might require that the Plan be kept on site, so be sure to keep it available for the staff implementing the Plan.

Erosion and sedimentation control practices are only as good as their installation and maintenance.

5. Implementing and Maintaining a Plan

- **Implement controls**
- **Inspect and maintain controls**
- **Update/change the Plan**
- **Report releases of hazardous materials**

A Plan describes the practices and activities you'll use to prevent stormwater contamination and meet the NPDES permit requirements. Make sure that the Plan is implemented and that the Plan is updated as necessary to reflect changes on the site.

Erosion and sedimentation control practices are only as good as their installation and maintenance. Train the contractors that will install the BMPs and inspect immediately to ensure that the BMPs have been installed correctly.

Regularly inspect the BMPs (especially before and after rain events) and perform any necessary repairs or maintenance immediately. Many BMPs are designed to handle a limited amount of sediment. If not maintained, they'll become ineffective and a source of sediment pollution.

It's also important to keep records of BMP installation, implementation, and maintenance. Keep track of major grading activities that occur on the site, when construction activities cease (temporarily or permanently), and when a site is temporarily or permanently stabilized.

If construction plans change at any time, or if more appropriate BMPs are chosen for the site, update the Plan accordingly.

6. Completing the Project: Final Stabilization and Termination of the Permit

- **Final stabilization**
- **Notice of Termination**
- **Record retention**

Many states and EPA require a Notice of Termination (NOT) or other notification signifying that the construction activity is completed. An NOT is required when

- Final stabilization has been achieved on all portions of the site for which the permittee is responsible.
- Another operator has assumed control over all areas of the site that have not been finally stabilized. That operator would need to submit a new permit application to the permitting authority.
- For residential construction only, temporary stabilization of a lot has been completed prior to transference of ownership to the homeowner, with the homeowner being made aware of the need to perform final stabilization.

Permittees must keep a copy of their permit application and their Plan for at least 3 years following final stabilization. This period may be longer depending on state and local requirements.

Preconstruction Checklist

- A site description, including
  - Nature of the activity
  - Intended sequence of major construction activities
  - Total area of the site
  - Existing soil type and rainfall runoff data
  - A site map with:
    - Drainage patterns
    - Approximate slopes after major grading
    - Area of soil disturbance
    - Outline of areas which will not be disturbed
    - Location of major structural and nonstructural soil erosion controls
    - Areas where stabilization practices are expected to occur
    - Surface waters
    - Stormwater discharge locations
  - Name of the receiving water(s)
- A description of controls:
  - Erosion and sediment controls, including
    - Stabilization practices for all areas disturbed by construction
    - Structural practices for all drainage/discharge locations
  - Stormwater management controls, including
    - Measures used to control pollutants occurring in stormwater discharges after construction activities are complete
    - Velocity dissipation devices to provide nonerosive flow conditions from the discharge point along the length of any outfall channel
  - Other controls, including
    - Waste disposal practices that prevent discharge of solid materials
    - Measures to minimize offset tracking of sediments by construction vehicles
    - Measures to ensure compliance with state or local waste disposal, sanitary sewer, or septic system regulations
  - Description of the timing during the construction when measures will be implemented
- State or local requirements incorporated into the Plan
- Inspection and maintenance procedures for control measures identified in the Plan
- Contractor certification and Plan certification

Implementation Checklist

- Maintain records of construction activities, including
  - Dates when major grading activities occur
  - Dates when construction activities temporarily cease on the site or a portion of the site
  - Dates when construction activities permanently cease on the site or a portion of the site
  - Dates when stabilization measures are completed on the site
- Prepare inspection reports summarizing
  - Name of person conducting BMP inspections
  - Qualifications of person conducting BMP inspections
  - BMPs/areas inspected
  - Observed conditions
  - Necessary changes to the Plan
- Report releases of reportable quantities of oil or hazardous materials
  - Notify the National Response Center at 800-424-8802 immediately
  - Report releases to your permitting authority immediately, or as specified in your permit. You must also provide a written report within 14 days.
  - Modify the Plan to include
    - The date of release
    - Circumstances leading to the release
    - Steps taken to prevent reoccurrence of the release
- Modify Plan as necessary
  - Incorporate requests of the permitting authority to bring the Plan into compliance
  - Address changes in design, construction operation, or maintenance that affect the potential for discharge of pollutants

An ounce of prevention is worth a pound of cure! It's far more efficient and cost-effective to prevent pollution than it is to try to correct problems later. Installing and maintaining simple BMPs and pollution prevention techniques on site can greatly reduce the potential for stormwater pollution and can also save you money!

Visit www.epa.gov/npdes/stormwater for more information.

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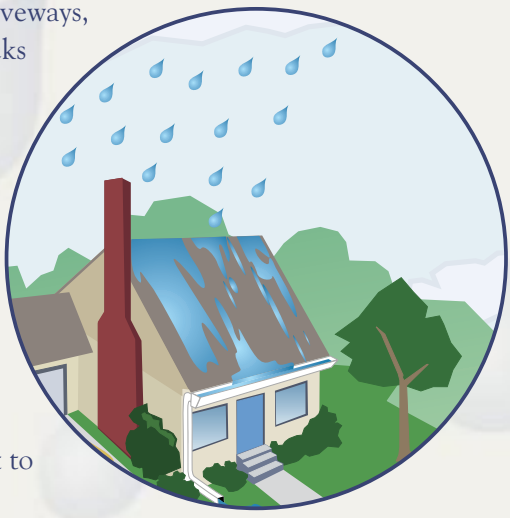
THE YEAR OF CLEAN WATER
Celebration & Recommitment

As stormwater flows over driveways, lawns, and sidewalks, it picks up debris, chemicals, dirt, and other pollutants. Stormwater can flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water. Polluted runoff is the nation's greatest threat to clean water.



By practicing healthy household habits, homeowners can keep common pollutants like pesticides, pet waste, grass clippings, and automotive fluids off the ground and out of stormwater. Adopt these healthy household habits and help protect lakes, streams, rivers, wetlands, and coastal waters. Remember to share the habits with your neighbors!

Healthy Household Habits for Clean Water

Vehicle and Garage

- Use a commercial car wash or wash your car on a lawn or other unpaved surface to **minimize** the amount of dirty, soapy water flowing into the storm drain and eventually into your local waterbody.

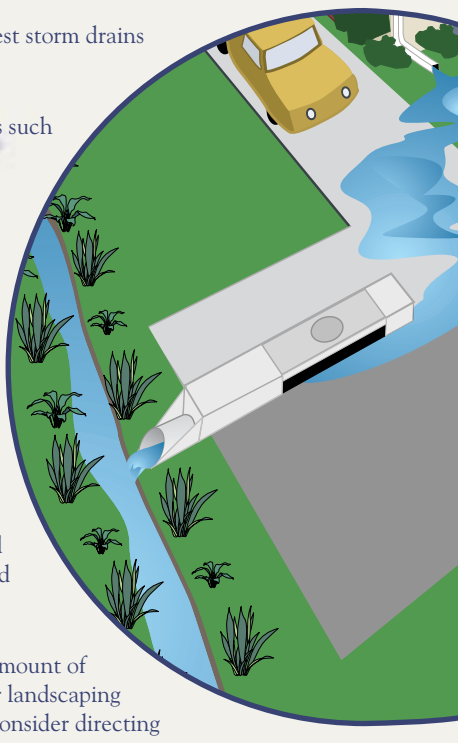
- Check your car, boat, motorcycle, and other machinery and equipment for leaks and spills. Make repairs as soon as possible. Clean up **spilled fluids** with an absorbent material like kitty litter or sand, and don't rinse the spills into a nearby storm drain. Remember to properly dispose of the absorbent material.
- **Recycle** used oil and other automotive fluids at participating service stations. Don't dump these chemicals down the storm drain or dispose of them in your trash.

Lawn and Garden

- Use pesticides and fertilizers **sparingly**. When use is necessary, use these chemicals in the recommended amounts. Avoid application if the forecast calls for rain; otherwise, chemicals will be washed into your local stream.
- Select **native** plants and grasses that are drought- and pest-resistant. Native plants require less water, fertilizer, and pesticides.
- **Sweep up** yard debris, rather than hosing down areas. Compost or recycle yard waste when possible.
- Don't overwater your lawn. Water during the **cool** times of the day, and don't let water run off into the storm drain.
- Cover piles of dirt and mulch being used in landscaping projects to prevent these pollutants from blowing or washing off your yard and into local waterbodies. **Vegetate** bare spots in your yard to prevent soil erosion.

Home Repair and Improvement

- Before beginning an outdoor project, locate the nearest storm drains and **protect** them from debris and other materials.
- **Sweep up** and properly dispose of construction debris such as concrete and mortar.
- Use hazardous substances like paints, solvents, and cleaners in the **smallest amounts possible**, and follow the directions on the label. Clean up spills **immediately**, and dispose of the waste safely. Store substances properly to avoid leaks and spills.
- Purchase and use **nontoxic**, **biodegradable**, **recycled**, and **recyclable** products whenever possible.
- **Clean** paint brushes in a sink, not outdoors. Filter and reuse paint thinner when using oil-based paints. Properly dispose of excess paints through a household hazardous waste collection program, or donate unused paint to local organizations.



- **Reduce** the amount of paved area and increase the amount of vegetated area in your yard. Use native plants in your landscaping to reduce the need for watering during dry periods. Consider directing downspouts away from paved surfaces onto lawns and other measures to increase infiltration and reduce polluted runoff.

Pet Care

- When walking your pet, remember to **pick up** the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Swimming Pool and Spa

- **Drain** your swimming pool only when a test kit does not detect chlorine levels.
- Whenever possible, drain your pool or spa into the **sanitary** sewer system.
- Properly store pool and spa chemicals to **prevent** leaks and spills, preferably in a covered area to avoid exposure to stormwater.

Septic System Use and Maintenance

- Have your septic system **inspected** by a professional at least every 3 years, and have the septic tank **pumped** as necessary (usually every 3 to 5 years).
- Care for the septic system drainfield by **not** driving or parking vehicles on it. Plant only grass over and near the drainfield to avoid damage from roots.
- Flush responsibly. Flushing household chemicals like paint, pesticides, oil, and antifreeze can **destroy** the biological treatment taking place in the system. Other items, such as diapers, paper towels, and cat litter, can **clog** the septic system and potentially damage components.

Storm drains connect to waterbodies!

EPA United States Environmental Protection Agency
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THE YEAR OF CLEAN WATER
Celebration & Recommitment

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WHEN IT RAINS IT DRAINS

Remember: Only rain down the drain!

For more information, visit
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or

Make your home

The SOLUTION TO STORMWATER POLLUTION!

A homeowner's guide to healthy habits for clean water

EPA United States Environmental Protection Agency

Water-Efficient Landscaping:

Preventing Pollution & Using Resources Wisely

A Message from the Administrator

Christine Todd Whitman

I believe water is the biggest environmental issue we face in the 21st Century in terms of both quality and quantity. In the 30 years since its passage, the Clean Water Act has dramatically increased the number of waterways that are once again safe for fishing and swimming. Despite this great progress in reducing water pollution, many of the nation's waters still do not meet water quality goals. I challenge you to join with me to finish the business of restoring and protecting our nation's waters for present and future generations.

United States Environmental Protection Agency
Office of Water (4204M)
EPA832-F-02-002
September 2002
www.epa.gov/owm/water-efficiency/index.htm

Contents

What is Water-efficient Landscaping?

Water, many agree, is our most precious natural resource; without it, life ceases. Yet judging by our water use and consumption practices, many of us in the United States seem to take it for granted. A typical household uses approximately 260 gallons of water per day. "Water conscious" individuals often install high-efficiency shower heads and toilets and wash only full loads of clothes and dishes to reduce consumption. But in the summer, the amount of water used outdoors by a household can exceed the amount used for all other purposes in the entire year. This is especially true in hot, dry climates.

Gardening and lawn care account for the majority of this seasonal increase, but other outdoor activities, such as washing cars and filling swimming pools, also contribute. According to the U.S. Geological Survey, of the 26 billion gallons of water consumed daily in the United States[1], approximately 7.8 billion gallons, or 30 percent[2], is devoted to outdoor uses. The majority of this is used for landscaping. In fact, it is estimated that the typical suburban lawn consumes 10,000 gallons of water above and beyond rainwater each year (Vickers, p 140).

Many mistakenly believe that stunning gardens and beautiful lawns are only possible through extensive watering, fertilization, and pesticide application. As this booklet will demonstrate, eye-catching gardens and landscapes that save water, prevent pollution, and protect the environment are, in fact, easily achieved by employing water-efficient landscaping. Water-efficient landscaping produces attractive landscapes because it utilizes designs and plants suited to local conditions.

This booklet describes the benefits of water-efficient landscaping. It includes several examples of successful projects and programs, as well as contacts, references, and a short bibliography. For specific information about how to best apply water-efficient landscaping principles to your geographical area, consult with your county extension service and local garden and nursery centers. Local governments and water utilities also possess a wealth of information and suggestions for using water more efficiently in all aspects of your life, including landscaping.

Xeriscape garden at Denver Water

1 W.B. Solley, R.R. Pierce, and H.A. Perlman. 1998. *Estimated Use of Water in the United States in 1995* (USGS Circular 1200). USGS. Reston, VA. p.27.

2 Amy Vickers. 2001. *Handbook of Water Use and Conservation*. WaterPlow Press. Amherst, MA. p. 140.

Xeriscaped front yard in Colorado Springs

Many terms and schools of thought have been used to describe approaches to water-efficient landscaping. Some examples include "water-wise," "water-smart," "low-water," and "natural landscaping." While each of these terms varies in philosophy and approach, they are all based on the same principles and are commonly used interchangeably. One of the first conceptual approaches developed to formalize these principles is known as "Xeriscape[3] landscaping." Xeriscape landscaping is defined as "quality landscaping that conserves water and protects the environment." The word "Xeriscape" was coined and copyrighted by Denver Water Department in 1981 to help make water conserving landscaping an easily recognized concept. The word is a combination of the Greek word "*xeros*," which means "dry," and "landscape."

The seven principles upon which Xeriscape landscaping is based are:

- Proper planning and design
- Soil analysis and improvement
- Appropriate plant selection
- Practical turf areas
- Efficient irrigation
- Use of mulches
- Appropriate maintenance

The eight fundamentals of water-wise landscaping, below, illustrate the similarities in the underlaying concepts and principles of Xeriscape landscaping and other water-efficient approaches.

- Group plants according to their water needs.
- Use native and low-water-use plants.
- Limit turf areas to those needed for practical uses.
- Use efficient irrigation systems.
- Schedule irrigation wisely.
- Make sure soil is healthy.
- Remember to mulch.
- Provide regular maintenance.

In short, plan and maintain your landscape with these principles of water efficiency in mind and it will continue to conserve water and be attractive.

3 Denver Water welcomes the use of the term Xeriscape in books, articles, and speeches promoting water conserving landscape. EPA is using this term with permission from Denver Water. For permission to use "Xeriscape" in your publications, call Denver Water at 303 628-6330.

Why Use Water-efficient Landscaping?

Proper landscaping techniques not only create beautiful landscapes, but also benefit the environment and save water. In addition, attractive, water-efficient, low-maintenance landscapes can increase home values.

Water-efficient landscaping offers many economic and environmental benefits, including:

- Lower water bills from reduced water use.
- Conservation of natural resources and preservation of habitat for plants and wildlife such as fish and waterfowl.
- Decreased energy use (and air pollution associated with its generation) because less pumping and treatment of water is required.
- Reduced home or office heating and cooling costs through the careful placement of trees and plants.
- Reduced runoff of stormwater and irrigation water that carries top soils, fertilizers, and pesticides into lakes, rivers, and streams.
- Fewer yard trimmings to be managed or landfilled.
- Reduced landscaping labor and maintenance costs.
- Extended life for water resources infrastructure (e.g., reservoirs, treatment plants, groundwater aquifers), thus reduced taxpayer costs.

Meadow Sage (Salvia pratensis) *is the background for New Mexico Evening Primrose* (Oenothera berlandieri 'siskiyou')

How is Water-efficient Landscaping Applied?

Landscaping that conserves water and protects the environment is not limited to arid landscapes with only rocks and cacti. Through careful planning, landscapes can be designed to be both pleasing to the senses and kind to the environment. One simple approach to achieving this is applying and adopting the basic principles of water-efficient landscaping to suit your climatic region. The seven principles of Xeriscape landscaping are used below to describe these basic concepts in greater detail.

Dragon's Blood Sedum (Sedum spurium) *under Honeylocust Trees* (Gleditsia triaconthos)

Proper planning and design

Developing a landscape plan is the first and most important step in creating a water-efficient landscape. Your plan should take into account the regional and microclimatic conditions of the site, existing vegetation, topography, intended uses of the property, and most importantly, the grouping of plants by their water needs. Also consider the plants' sun or shade requirements and preferred soil conditions. A well-thought-out landscape plan can serve as your roadmap in creating beautiful, water-efficient landscapes and allow you to continually improve your landscape over time.

Soil analysis and improvements

Because soils vary from site to site, test your soil before beginning your landscape improvements. Your county extension service can analyze the pH levels; nutrient levels (e.g., nitrogen, phosphorus, potassium); and the sand, silt, clay, and organic matter content of your soil. It can also suggest ways to improve your soil's ability to support plants and retain water (e.g., through aeration or the addition of soil amendments or fertilizers).

Appropriate plant selection

Your landscape design should take into account your local climate as well as soil conditions. Focus on preserving as many existing trees and shrubs as possible because established plants usually require less water and maintenance. Choose plants native to your region. Native plants, once established, require very little to no additional water beyond normal rainfall. Also, because they are adapted to local soils and climatic conditions, native plants commonly do not require the addition of fertilizers and are more resistant to pests and disease.

When selecting plants, avoid those labeled "hard to establish," "susceptible to disease," or "needs frequent attention," as these types of plants frequently require large amounts of supplemental water, fertilizers, and pesticides. Be careful when selecting non-indigenous species as some of them may become invasive. An invasive plant might be a water guzzler and will surely choke out native species. Your state or county extension service or local nursery can help you select appropriate plants for your area.

The key to successful planting and transplanting is getting the roots to grow into the surrounding soil as quickly as possible. Knowing when and where to plant is crucial to speeding the establishment of new plants. The best time to plant will vary from species to species. Some plants will thrive when planted in a dormant or inactive state. Others succeed when planted during the season when root generation is highest and sufficient moisture is available to support new growth (generally, spring is the best season, but check plant tags or consult with your local nursery for specific species).

Wine Cup (Callirhoe involucrata) *and Sunset Hyssop* (Agastache rupestris) *in the Denver Water Xeriscape Garden*

Practical turf areas

How and where turf is placed in the landscape can significantly reduce the amount of irrigation water needed to support the landscape. Lawns require a large amount of supplemental water and generally greater maintenance than other vegetation. Use turf where it aesthetically highlights the house or buildings and where it has practical function, such as in play or recreation areas. Grouping turf areas can increase watering efficiency and significantly reduce evaporative and runoff losses. Select a type of grass that can withstand drought periods and become dormant during hot, dry seasons. Reducing or eliminating turf areas altogether further reduces water use.

Efficient irrigation

Efficient irrigation is a very important part of using water efficiently outdoors, and applies in any landscape—whether Xeriscape or conventional. For this reason, an entire section of this booklet addresses efficient irrigation; it can be found on page 6.

Use of mulches

Mulches aid in greater retention of water by minimizing evaporation, reducing weed growth, moderating soil temperatures, and preventing erosion. Organic mulches also improve the condition of your soil as they decompose. Mulches are typically composed of wood bark chips, wood grindings, pine straws, nut shells, small gravel, or shredded landscape clippings. Avoid using rock mulches in sunny areas or around non-arid climate plants, as they radiate large amounts of heat and promote water loss that can lead to scorching. Too much mulch can restrict water flow to plant roots and should be avoided.

Appropriate maintenance

Water and fertilize plants only as needed. Too much water promotes weak growth and increases pruning and mowing requirements. Like any landscape, a water-efficient yard will require regular pruning, weeding, fertilization, pest control, and irrigation. As your water-efficient landscape matures, however, it will require less maintenance and less water. Cutting turf grass only when it reaches two to three inches promotes deeper root growth and a more drought-resistant lawn. As a rule of thumb, mow your turf grass before it requires more than one inch to be removed. The proper cutting height varies, however, with the type of grass, so you should contact your county extension service or local nursery to find out the ideal cutting height for your lawn. Avoid shearing plants or giving them high nitrogen fertilizers during dry periods because these practices encourage water-demanding new growth.

Water-efficient Landscape Irrigation Methods

With common watering practices, a large portion of the water applied to lawns and gardens is not absorbed by the plants. It is lost through evaporation, runoff, or being pushed beyond the root zone because it is applied too quickly or in excess of the plants' needs. The goal of efficient irrigation is to reduce these losses by applying only as much water as is needed to keep your plants healthy. This goal is applicable whether you have a Xeriscape or a conventional landscape.

To promote the strong root growth that supports a plant during drought, water deeply and only when the plant needs water. For clay soils, watering less deeply and more often is recommended. Irrigating with consideration to soil type, the condition of your plants, the season, and weather conditions—rather than on a fixed schedule—significantly increases your watering efficiency. Grouping plants according to similar water needs also makes watering easier and more efficient.

Purple Fountain Grass (Pennisetum setaceum "Rubrum") *and Marigolds* (Calendula officinalis) *in planter bed*

Irrigating lawns, gardens, and landscapes can be accomplished either manually or with an automatic irrigation system. Manual watering with a hand-held hose tends to be the most water-efficient method. According to the AWWA Research Foundation's outdoor end use study, households that manually water with a hose typically use 33 percent less water outdoors than the average household. The study also showed that households with in-ground sprinkler systems used 35 percent more water, those with automatic timers used 47 percent more water, and those with drip irrigation systems used 16 percent more water than households without these types of systems. These results show that in-ground sprinkler and drip irrigation systems must be operated properly to be water-efficient.

You can use a hand-held hose or a sprinkler for manual irrigation. To reduce water losses from evaporation and wind, avoid sprinklers that produce a fine mist or spray high into the air. Soaker hoses can also be very efficient and effective when used properly. Use a hand-held soil moisture probe to determine when irrigation is needed.

To make automatic irrigation systems more efficient, install system controllers such as rain sensors that prevent sprinkler systems from turning on during and immediately after rainfall, or soil moisture sensors that activate sprinklers only when soil moisture levels drop below preprogrammed levels. You can also use a weather-

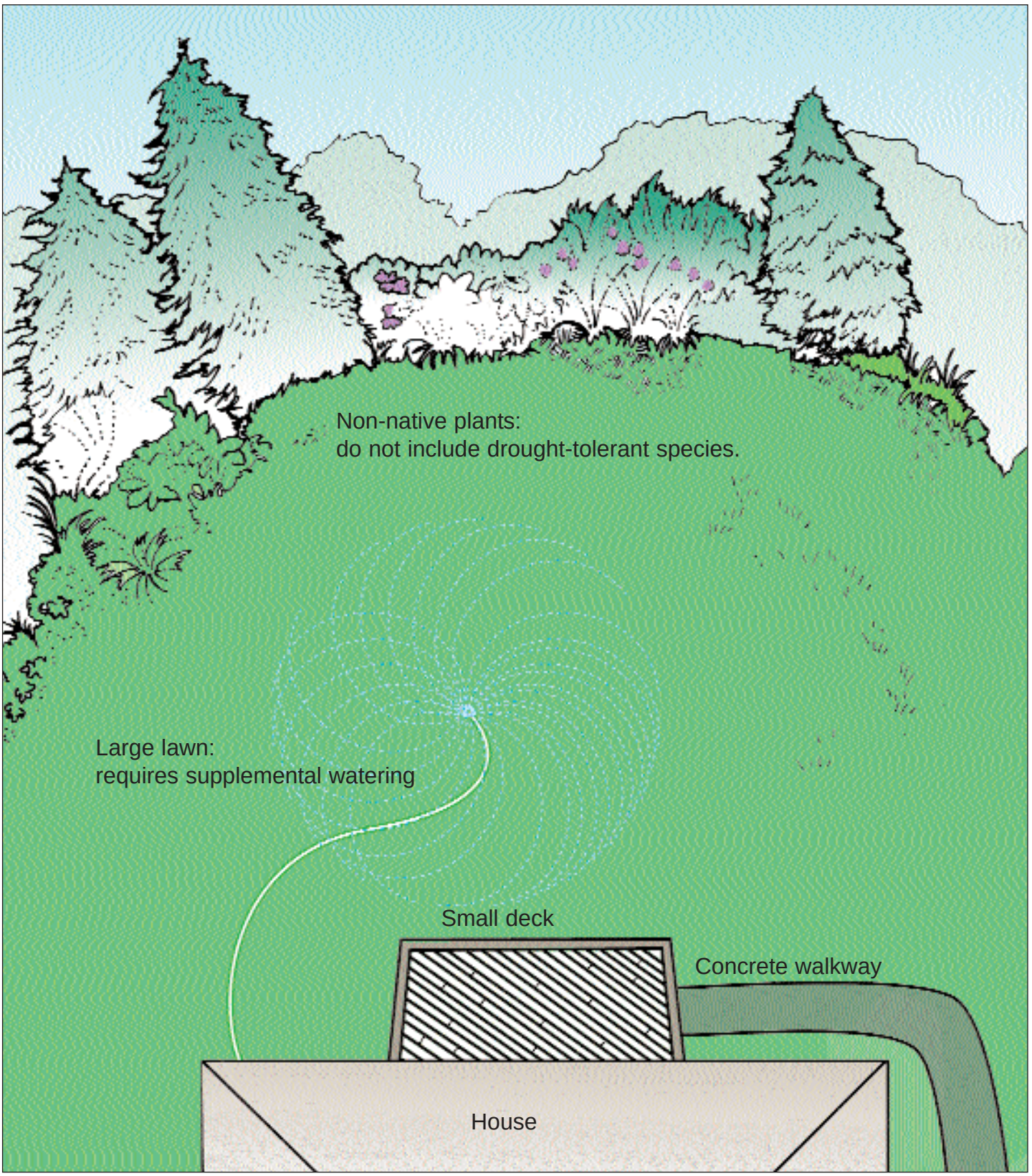
driven programming system. Drip-type irrigation systems are considered the most efficient of the automated irrigation methods because they deliver water directly to the plants' roots. It is also important to revise your watering schedule as the seasons change. Over-watering is most common during the fall when summer irrigation schedules have not been adjusted to the cooler temperatures.

To further reduce your water consumption, consider using alternative sources of irrigation water, such as gray water, reclaimed water, and collected rainwater. According to the AWWA Research Foundation, homes with access to alternative sources of irrigation reduce their water bills by as much as 25 percent.[4] Graywater is untreated household waste water from bathroom sinks, showers, bathtubs, and clothes washing machines. Graywater systems pipe this used water to a storage tank for later outdoor watering use. State and local graywater laws and policies vary, so you should investigate what qualifies as gray water and if any limitations or restrictions apply. Reclaimed water is waste water that has been treated to levels suitable for nonpotable uses. Check with local water officials to determine if it is available in your area. Collected rainwater is rainwater collected in cisterns, barrels, or storage tanks. Commercial rooftop collection systems are available, but simply diverting your downspout into a covered barrel is an easy, low-cost approach. When collecting rainwater, cover all collection vessels to prevent animals and children from entering and to prevent mosquito breeding. Some states might have laws which do not allow collection of rainwater, so be sure to check with your state's water resource agency before implementing a rainwater collection system.

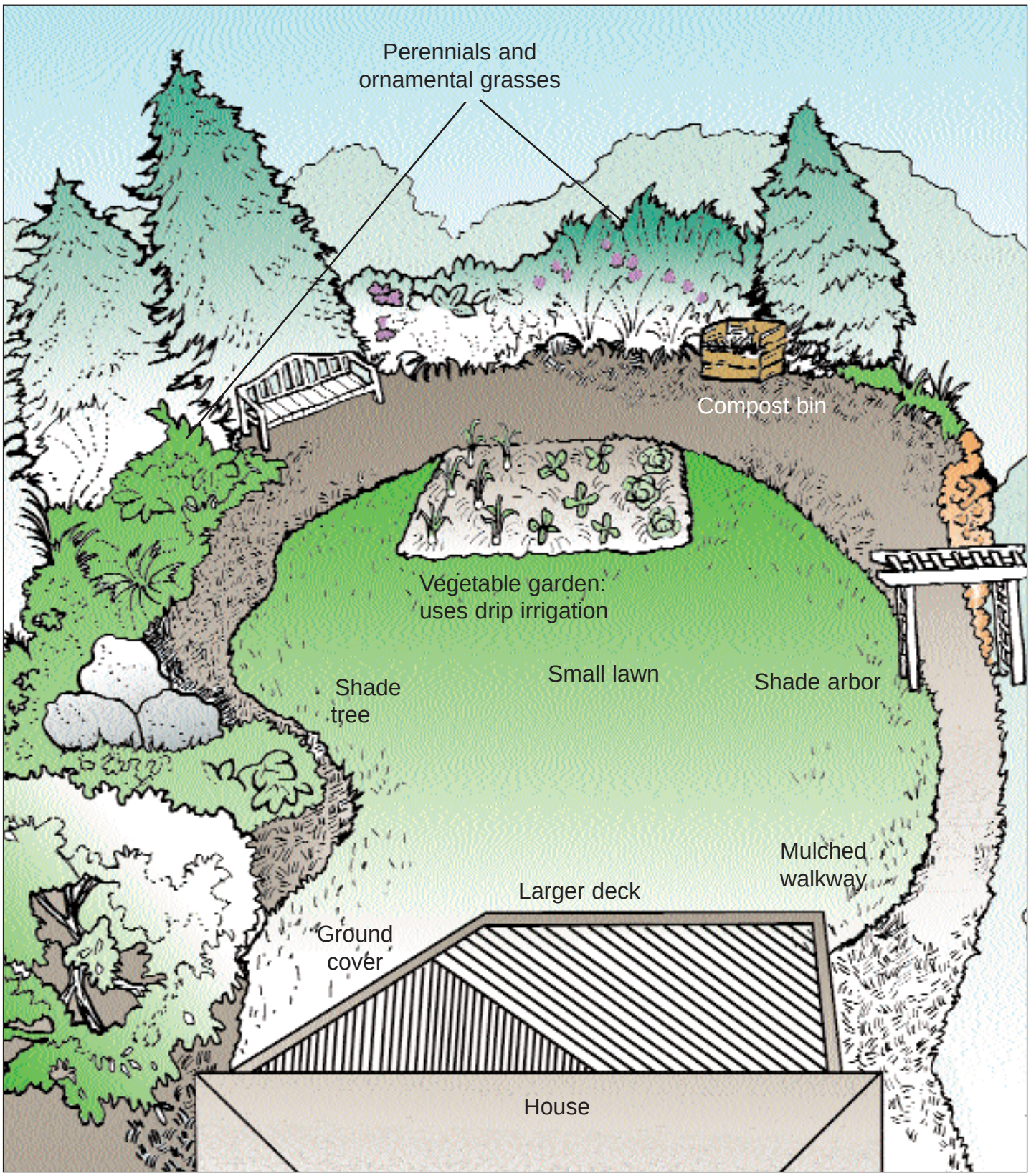
Red Valerian (Centranthus ruber)

4 AWWA Research Foundation. 1999. *Residential End Uses of Water*. <www.waterwiser.org>

Non-xeriscaping



Xeriscaping



Examples of Successful Water-efficient Landscaping Projects

Water-efficient landscaping techniques can be used by individuals, companies, state, tribal, and local governments, and businesses to physically enhance their properties, reduce long-term maintenance costs, and create environmentally conscious landscapes. The following examples illustrate how water-efficient landscapes can be used in various situations.

Oriental Poppies (Paparer orientale)

Homeowner–public/private partnership

- The South Florida Water Management District, the Florida Nurserymen and Growers Association, the Florida Irrigation Society, and local businesses worked together to produce a television video called "Plant It Smart with Xeriscape." The video shows how a typical Florida residential yard can be retrofitted with Xeriscape landscaping to save energy, time, and money. The showcase yard (selected from 70 applicants) had a history of heavy water use—more than 90,000 gallons per month. After the retrofit, the yard's aesthetic value was enhanced; plus it now uses 75 percent less water and relies on yard trimmings for mulch and compost.
- The Southwest Florida Water Management District (SWFWMD), the City of St. Petersburg, and Pinellas County, Florida, produced a video called "Xeriscape It!" It shows a landscape being installed using the seven Xeriscape principles. The SWFWMD also funded several Xeriscape demonstration sites and maintains a Xeriscape demonstration garden at its Brooksville, Florida, headquarters. The garden features a variety of native and non-native plants and is available for public viewing, along with a landscape plant identification guide.
- Residents of Glendale, Arizona, can receive a $100 cash rebate for installing or converting more than half of their landscapable area to non-grass vegetation. The Glendale Water Conservation Office conducts an inspection of the converted lawn to ensure compliance with rebate requirements and then issues a rebate check to the homeowner. The purpose of the Landscape Rebate Program is to permanently reduce the amount of water used to irrigate grass throughout Glendale.

State government

- Although perceived as a water-rich state, Florida became the first to enact a statewide Xeriscape law. Florida's legislature recognized that its growing population and vulnerable environment necessitated legal safeguards for its water resources. The Xeriscape law requires Florida's Departments of Management Ser-

vices and Transportation to use Xeriscape landscaping on all new public properties and to develop a 5-year program to phase in Xeriscape on properties constructed before July 1992. All local governments must also consider requiring the use of Xeriscape and offering incentives to install Xeriscaping.

- Texas also developed legislation requiring Xeriscape landscaping on new construction projects on state property beginning on or after January 1994. Additional legislation, enacted in 1995, requires the Department of Transportation to use Xeriscape practices in the construction and maintenance of roadside parks. All municipalities may consider enacting ordinances requiring Xeriscape to conserve water.

City government

In Las Vegas, Nevada, homeowners can receive up to $1,000 for converting their lawn to Xeriscape, while commercial landowners can receive up to a $50,000 credit on their water bill. The city and several other surrounding communities hope these eye-catching figures will help Las Vegas meet its goal of saving 25 percent of the water it would otherwise have used by the year 2010; to date, it has saved 17 percent. Local officials plan to reach the target with the assistance of incentive programs encouraging Xeriscape, a city ordinance limiting turf to no more than 50 percent of new landscapes, grassroots information programs, and a landscape awards program specifically for Xeriscaped properties. Preliminary results of a five-year study show that residents who converted a portion of their lawns to Xeriscape reduced total water consumption by an average of 33 percent. The xeric vegetation required less than a quarter of the water typically used and one-third the maintenance (both in labor and expenditures) compared to traditional turf.

Yellow Ice Plant (Delosperma nubigenum) *close-up*

Developers

Howard Hughes Properties (HHP), a developer and manager of more than 25,000 acres of residential, commercial, and office development property, has enthusiastically used drought tolerant landscaping on all of its properties since 1990. Most of the company's properties are located in Las Vegas, one of the country's fastest growing metropolitan areas. To conserve resources, the city and county have implemented regulations requiring developers to employ certain Xeriscape principles in new projects. Specifically, a limited percentage of grass can be used on projects, and it must be kept away from streets. As the area's first large-scale developer to recognize the need and value in incorporating drought tolerant landscaping in parks, streetscapes, and open spaces, HHP uses native and desert-adaptive plants that survive and thrive in the Las Vegas climate with minimal to moderate amounts of water.

Drip system irrigation controllers are linked to weather stations that monitor the evapotranspiration rate. This allows HHP to determine the correct amount of water to be applied to plants at any given time. HHP tests the irrigation systems regularly and adds appropriate soil amendments to promote healthy plant growth. The maintenance program also includes pest management, the use of mulching mowers, and the use of rock mulch top dressing on all non-turf planting areas. These measures combine to ensure a beautiful, healthy, and responsible landscape.

Public/private partnerships

Even the most water-conscious homeowners in Southern California are over-watering by 50 to 70 gallons per day. The excess water washes away fertilizers and pesticides, which pollute natural waterways. The quantity of water wasted (and the dollars that pay for it) are even more substantial for large-scale commercial properties and developments.

An innovative partnership in Orange County links landscape water management, green material management, and non-point source pollution prevention goals into one program—the Landscape Performance Certification Program. This program emphasizes efficient landscape irrigation and features a "landscape irrigation budget" based on a property's landscape area, type, and the daily weather. The Municipal Water District monitors actual water use through a system of 12,000 dedicated water meters installed by participating landscape managers.

Participants, including landscapers, property managers, and homeowner associations, can compare the actual cost of water used on their property with the calculated budget. Those staying within budget are awarded certification, a proven marketing tool. This new voluntary program is implemented by the Municipal Water District with input from the California Landscape Contractors' Association, the Orange County Integrated Management Department, the Metropolitan Water District of Southern California, and local nurseries and has the support of 32 retailing water suppliers. The program is already credited with increasing the use of arid-climate shrubs and landscaping to accommodate drip irrigation, and has resulted in cost savings to water customers.

Miscanthus sinensis (Miscanthus grass, also called Maiden grass) *variety with leaves turning yellow for fall.*

For More Information

The following list of organizations can provide more information on water-efficient landscaping. This is not meant to be an exhaustive list, rather it is intended to help you locate local information sources and possible technical assistance.

Turkish Speedwell (Veronica liwanensis) *in background and tulips in foreground.*

Water Management Districts or Utilities

Your local water management district often can provide information on water conservation, including water efficient landscaping practices. Your city, town, or county water management district can be found in the Blue Pages section of your local phone book or through your city, town, or county's Web site if it has one. If you do not know your city, town, or county's Web site, check for a link on your state's Web site. URLs for state Web sites typically follow this format: <www.state.(two letter state abbreviation).us>.

State/County Extension Services

Your state or county extension service is also an excellent source of information. Many extension services provide free publications and advice on home landscaping issues including tips on plant selection and soil improvement. Some also offer a soil analysis service for a nominal fee. Your county extension service can be found in the Blue Pages section of your local phone book under the county government section or through your county's Web site if it has one. The U.S. Department of Agriculture's Cooperative State Research, Education, and Extension Service (www.reeusda.gov/statepartners/usa.htm) provides an online directory of land-grant universities which can help you locate your state extension service. Government Guide (www.governmentguide.com) is yet another online resource that might prove helpful in locating state or local agencies.

Organizations

The following is a partial list of organizations located across the United States that provide helpful information on water-efficient landscaping.

American Water Works Association (AWWA)
6666 West Quincy Avenue
Denver, CO 80235
Telephone: 303 794-7711
and
1401 New York Avenue, NW, Suite 640
Washington, DC 20005
Telephone: 202 628-8303
Web: <www.awwa.org>

Arizona Municipal Water Users Association (AMWUA)
Web: <www.amwua.org/program-xeriscape.htm>

BASIN
City of Boulder Environmental Affairs
P.O. Box 791
Boulder, CO 80306
Phone: 303 441-1964
E-mail: basin@bcn.boulder.co. us
Web: <bcn.boulder.co.us/basin/local/seven.html>

Denver Water
1600 West 12th Avenue
Denver, CO 80204
Phone: 303 628-6000
Fax: 303 628-6199
TDDY: 303 534-4116
Office of Water Conservation hotline:
303 628-6343
E-mail: jane.earle@denverwater.org
Web: <www.water.denver.co.gov/conservation/conservframe.html>

New Mexico Water Conservation Program/Water Conservation Clearinghouse
P. O. Box 25102
Santa Fe, NM 87504
Phone: 800 WATER-NM
E-mail: waternm@ose.state.nm.us
Fax: 505 827-3813
Web: <www.ose.state.nm.us/water-info/conservation/index.html>

Project WET - Water Education for Teachers
201 Culbertson Hall
Montana State University
Bozeman, MT 59717
Phone: 406 994-5392
Web: <www.montana.edu/wwwwet>

Rocky Mountain Institute
1739 Snowmass Creek Road
Snowmass, CO 81654-9199
Phone: 970 927-3851
Web: <www.rmi.org>

Southern Nevada Water Authority
1001 S. Valley View Boulevard, Mailstop #440
Las Vegas, NV 89153
Phone: 702 258-3930
Web: <www.snwa.com>

Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 34604-6899
Phone: 352 796-7211 or 800 423-1476 (Florida only)
Web: <www.swfwmd.state.fl.us/watercon/xeris/swfxeris.html>

Sustainable Sources Green Building Program: Sustainable Building Source Book
E-mail: info@greenbuilder.com
Web: <www.greenbuilder.com/sourcebook/xeriscape.html>

Water Conservation Garden – San Diego County
12122 Cuyamaca College Drive West
El Cajon, CA 92019
Phone: 619 660-0614
Fax: 619 660-1687
E-mail: info@thegarden.org
Web: <www.thegarden.org/garden/xeriscape/index.html> and <www.sdcwa.org/manage/conservation-xeriscape.phtml>\

WaterWiser: The Water Efficiency Clearing House
(Operated by AWWA in cooperation with the U.S. Bureau of Reclamation)
6666 West Quincy Avenue
Denver, CO 80235
Phone: 800 559-9855
Fax: 303 794-6303
E-mail: bewiser@waterwiser.org
Web: <www.waterwiser.org>

Xeriscape Colorado!, Inc.
P.O. Box 40202
Denver, CO 80204-0202
Web: <www.xeriscape.org>

Resources

The following is a partial list of publications on resource efficient landscaping. For even more information, particularly on plants suited to your locale, consult your local library, county extension service, nursery, garden clubs, or water utility.

Ball, Ken and American Water Works Association Water Conservation Committee. *Xeriscape Programs for Water Utilities*. Denver: American Water Works Association, 1990.

Bennett, Jennifer. *Dry-Land Gardening: A Xeriscaping Guide for Dry-Summer, Cold-Winter Climates*. Buffalo: Firefly, 1998.

Bennett, Richard E. and Michael S. Hazinski. *Water-Efficient Landscape Guidelines*. Denver: American Water Works Association, 1993.

Brenzel, Kathleen N., ed. *Western Garden Book*, 2001 Edition. Menlo Park: Sunset Publishing Corporation, 2001.

City of Aurora, Colorado Utilities Department. *Landscaping for Water Conservation: Xeriscape!* Aurora: Colorado Utilities Department, 1989.

Johnson, Eric and Scott Millard. *The Low-Water Flower Gardener: 270 Unthirsty Plants for Color, Including Perennials, Ground Covers, Grasses & Shrubs*. Tucson: Ironwood Press, 1993.

Knopf, James M. *The Xeriscape Flower Gardener*. Boulder: Johnson Books, 1991.

Knopf, James M., ed. *Waterwise Landscaping with Trees, Shrubs, and Vines: A Xeriscape Guide for the Rocky Mountain Region, California, and the Desert Southwest*. Boulder: Chamisa Books, 1999.

Knox, Kim, ed. *Landscaping for Water Conservation: Xeriscape*. Denver: City of Aurora and Denver Water, 1989.

Nellis, David W. *Seashore Plants of South Florida and the Caribbean: A Guide to Identification and Propagation of Xeriscape Plants*. Sarasota: Pineapple Press, Inc., 1994.

Perry, Bob. *Landscape Plants for Western Regions: An Illustrated Guide to Plants for Water Conservation*. Claremont: Land Design Publishing, 1992.

Phillips, Judith. *Natural by Design: Beauty and Balance in Southwest Gardens*. Santa Fe: Museum of New Mexico Press, 1995.

Phillips, Judith. *Plants for Natural Gardens: Southwestern Native & Adaptive Trees, Shrubs, Wildflowers & Grasses*. Santa Fe: Museum of New Mexico Press, 1995.

Robinette, Gary O. *Water Conservation in Landscape Design and Maintenance*. New York: Nostrand Reinhold, 1984.

Rumary, Mark. *The Dry Garden*. New York: Sterling Publishing Co., Inc., 1995.

Springer, Lauren. *The Undaunted Garden: Planting for Weather-Resilient Beauty*. Golden: Fulcrum Publishing, 1994.

Springer, Lauren. *Waterwise Gardening*. New York: Prentice Hall Gardening, 1994.

Stephens, Tom, Doug Welsh, and Connie Ellefson. *Xeriscape Gardening, Water Conservation for the American Landscape*. New York: Macmillan Publishing, 1992.

Sunset Books, eds. *Waterwise Gardening: Beautiful Gardens with Less Water*. Menlo Park: Lane Publishing Company, 1989.

Vickers, Amy. *Handbook of Water Use and Conservation*. Amherst, MA: WaterPlow Press, 2001.

Weinstein, Gayle. *Xeriscape Handbook : A How-To Guide to Natural, Resource-Wise Gardening*. Golden: Fulcrum Publishing, 1998.

Williams, Sara. *Creating the Prairie Xeriscape*. Saskatchewan: University Extension Press, 1997.

Winger, David, ed. *Xeriscape Plant Guide: 100 Water-Wise Plants for Gardens and Landscapes*. Golden: Fulcrum Publishing, 1998.

Winger, David, ed. *Xeriscape Color Guide*. Golden: Fulcrum Publishing, 1998.

Winger, David, ed. *Evidence of Care: The Xeriscape Maintenance Journal, 2002, Vol. 1*, Colorado WaterWise Council, 2001.

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Illustrations by Linda Cook.

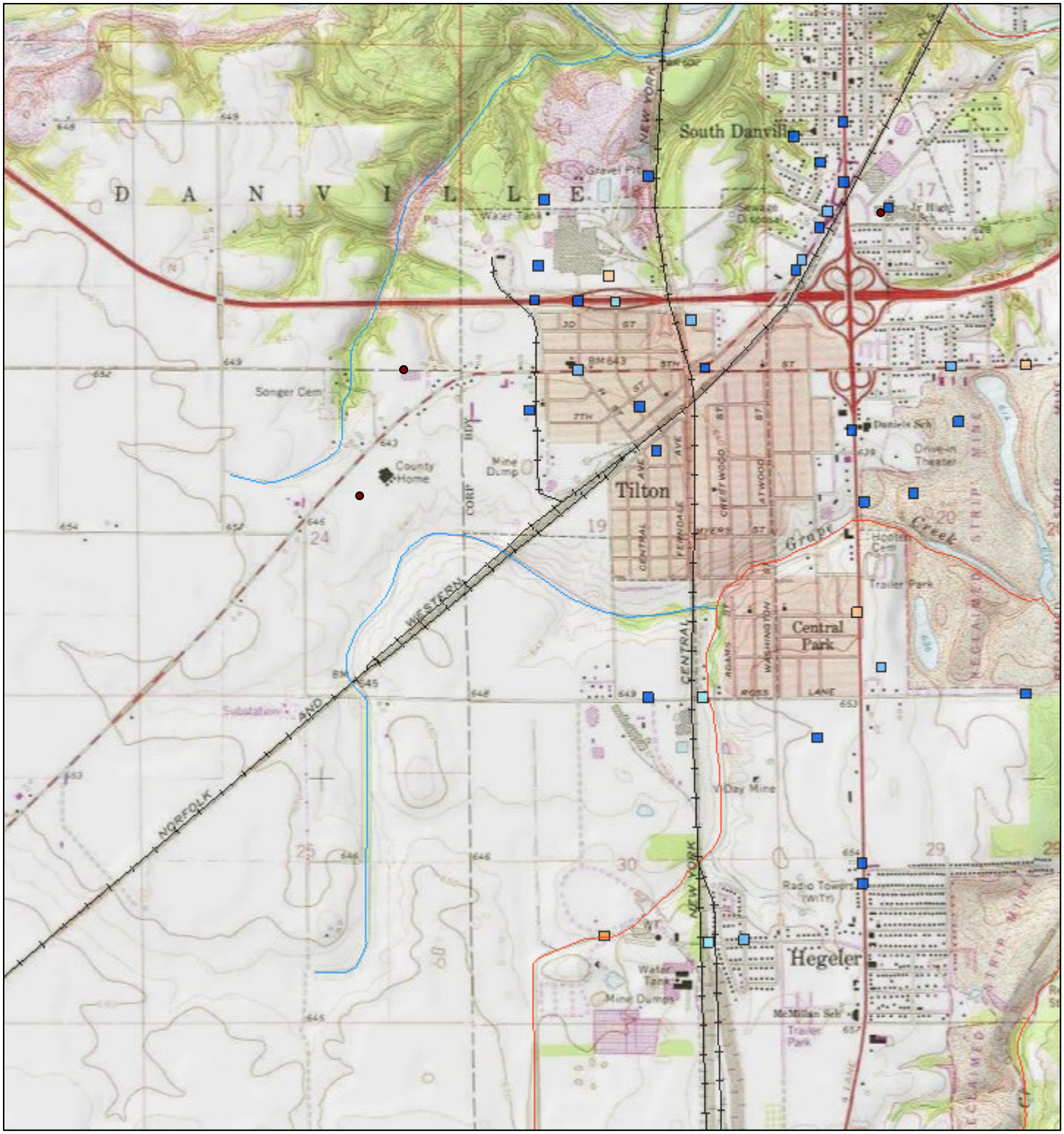
For copies of this publication contact:
EPA Water Resources Center (RC-4100)
U.S. Environmental Protection Agency
Ariel Rios Building, 1200 Pennsylvania Avenue, NW.
Washington, DC 20460

For more information regarding water efficiency, please contact:
Water Efficiency Program (4204M)
U.S. Environmental Protection Agency
Ariel Rios Building, 1200 Pennsylvania Avenue, NW.
Washington, DC 20460
<www.epa.gov/OWM/water-efficiency/index.htm>

United States
Environmental Protection Agency (4204M)
Washington, DC 20460

Printed on paper that contains at least 50 percent postconsumer fiber.

EJSCREEN MAP OF TILTON



March 6, 2019

1:36,112

0 0.3 0.6 1.2 mi

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- pschool
- Streams
- Railroads
- Superfund
- Toxic releases
- Water dischargers
- Air pollution
- Brownfields

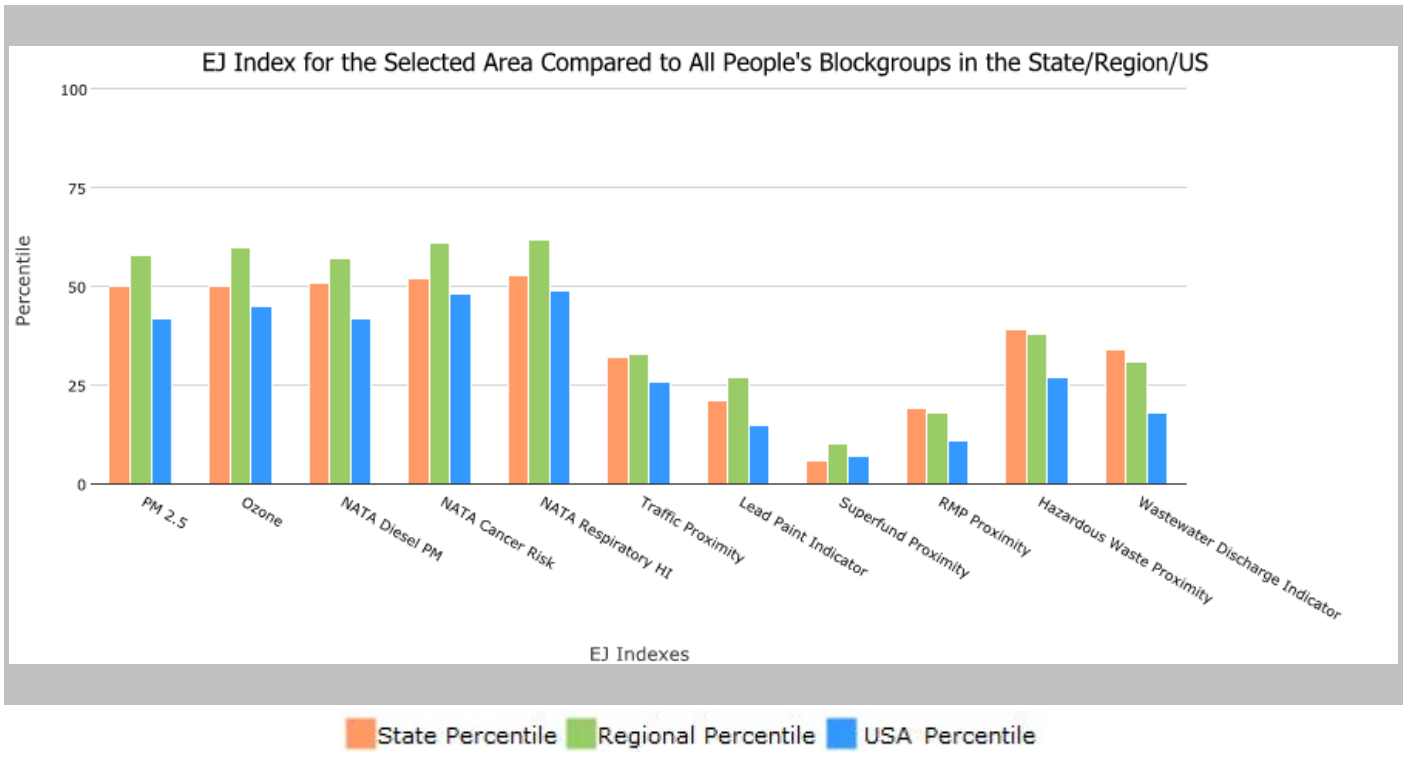
EJSCREEN Report (Version 2018)

City: Tilton village, ILLINOIS, EPA Region 5

Approximate Population: 2,526

Input Area (sq. miles): 3.24

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	50	58	42
EJ Index for Ozone	50	60	45
EJ Index for NATA* Diesel PM	51	57	42
EJ Index for NATA* Air Toxics Cancer Risk	52	61	48
EJ Index for NATA* Respiratory Hazard Index	53	62	49
EJ Index for Traffic Proximity and Volume	32	33	26
EJ Index for Lead Paint Indicator	21	27	15
EJ Index for Superfund Proximity	6	10	7
EJ Index for RMP Proximity	19	18	11
EJ Index for Hazardous Waste Proximity	39	38	27
EJ Index for Wastewater Discharge Indicator	34	31	18



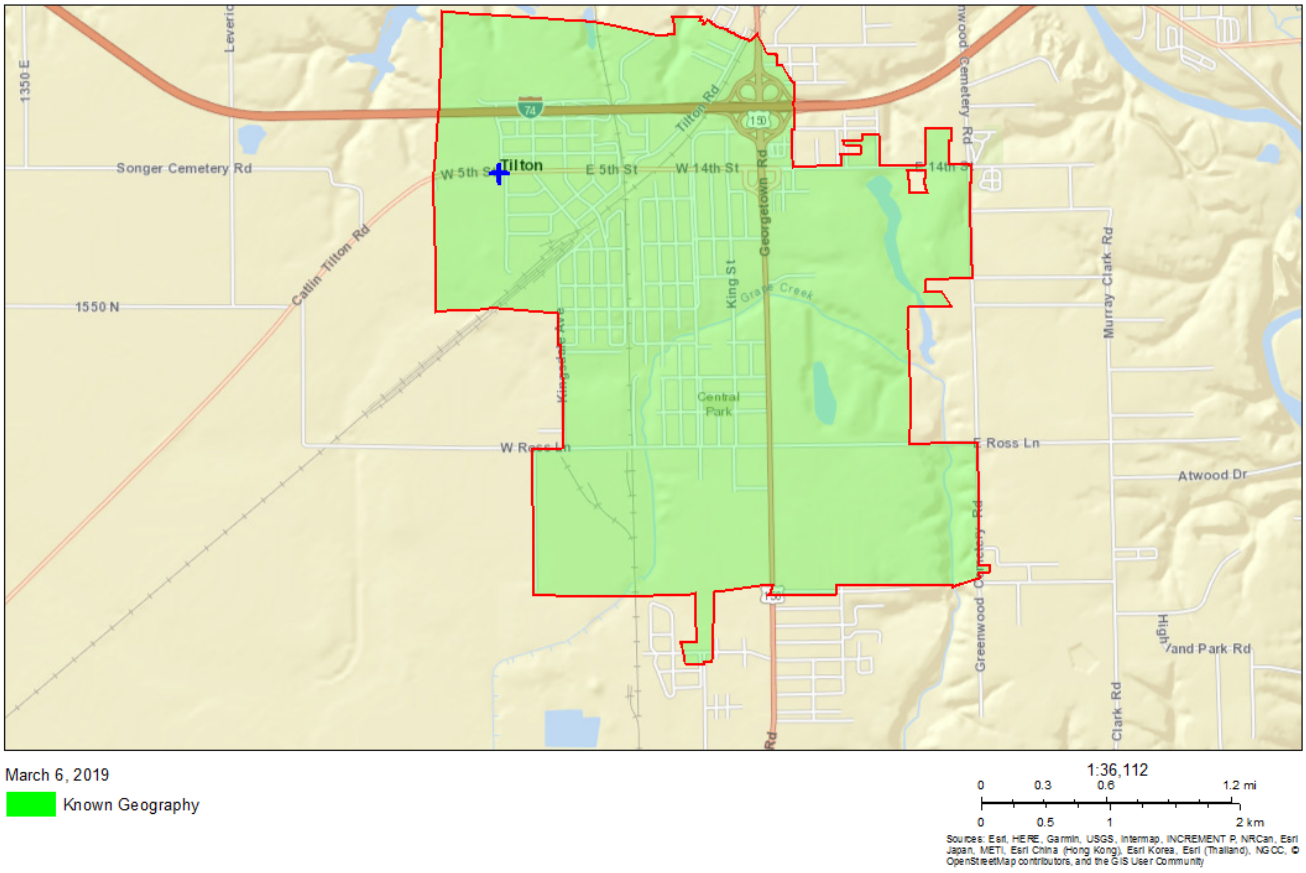
This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report (Version 2018)

City: Tilton village, ILLINOIS, EPA Region 5

Approximate Population: 2,526

Input Area (sq. miles): 3.24



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJSCREEN Report (Version 2018)

City: Tilton village, ILLINOIS, EPA Region 5

Approximate Population: 2,526

Input Area (sq. miles): 3.24

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	11.2	12.1	15	10.8	52	9.53	81
Ozone (ppb)	42.5	43.3	25	42.6	39	42.5	50
NATA* Diesel PM (µg/m^3)	0.578	1.28	19	0.932	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	29	36	16	34	<50th	40	<50th
NATA* Respiratory Hazard Index	0.97	1.9	14	1.7	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	290	510	68	370	73	600	69
Lead Paint Indicator (% Pre-1960 Housing)	0.59	0.41	66	0.38	74	0.29	81
Superfund Proximity (site count/km distance)	0.5	0.091	97	0.12	95	0.12	95
RMP Proximity (facility count/km distance)	1.8	1.1	80	0.81	86	0.72	88
Hazardous Waste Proximity (facility count/km distance)	0.91	2.1	44	1.5	58	4.3	62
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0012	0.44	45	4.2	58	30	69
Demographic Indicators							
Demographic Index	24%	34%	44	28%	55	36%	38
Minority Population	10%	38%	24	25%	42	38%	23
Low Income Population	36%	31%	64	32%	64	34%	59
Linguistically Isolated Population	0%	5%	44	2%	59	4%	45
Population With Less Than High School Education	12%	12%	62	10%	67	13%	57
Population Under 5 years of age	3%	6%	20	6%	20	6%	20
Population over 64 years of age	25%	14%	91	15%	90	14%	90

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN ACS Summary Report

Location: City: Tilton village
Ring (buffer): 0-mile radius
Description:

Summary of ACS Estimates	2012 - 2016
Population	2,526
Population Density (per sq. mile)	786
Minority Population	260
% Minority	10%
Households	1,187
Housing Units	1,277
Housing Units Built Before 1950	510
Per Capita Income	22,731
Land Area (sq. miles) (Source: SF1)	3.21
% Land Area	99%
Water Area (sq. miles) (Source: SF1)	0.03
% Water Area	1%

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	2,526	100%	291
Population Reporting One Race	2,485	98%	637
White	2,457	97%	289
Black	21	1%	255
American Indian	0	0%	11
Asian	0	0%	36
Pacific Islander	0	0%	11
Some Other Race	7	0%	35
Population Reporting Two or More Races	42	2%	89
Total Hispanic Population	193	8%	219
Total Non-Hispanic Population	2,334		
White Alone	2,267	90%	256
Black Alone	21	1%	255
American Indian Alone	0	0%	11
Non-Hispanic Asian Alone	0	0%	36
Pacific Islander Alone	0	0%	11
Other Race Alone	7	0%	35
Two or More Races Alone	40	2%	39
Population by Sex			
Male	1,158	46%	179
Female	1,368	54%	192
Population by Age			
Age 0-4	79	3%	77
Age 0-17	529	21%	151
Age 18+	1,998	79%	211
Age 65+	631	25%	112

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS) 2012 - 2016 .

EJSCREEN ACS Summary Report

Location: City: Tilton village
Ring (buffer): 0-mile radius
Description:

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	1,884	100%	183
Less than 9th Grade	58	3%	56
9th - 12th Grade, No Diploma	163	9%	81
High School Graduate	971	52%	128
Some College, No Degree	564	30%	105
Associate Degree	211	11%	77
Bachelor's Degree or more	128	7%	44
Population Age 5+ Years by Ability to Speak English			
Total	2,447	100%	256
Speak only English	2,278	93%	241
Non-English at Home[1+2+3+4]	170	7%	143
[1]Speak English "very well"	88	4%	46
[2]Speak English "well"	76	3%	136
[3]Speak English "not well"	6	0%	21
[4]Speak English "not at all"	0	0%	11
[3+4]Speak English "less than well"	6	0%	21
[2+3+4]Speak English "less than very well"	82	3%	138
Linguistically Isolated Households*			
Total	6	100%	21
Speak Spanish	6	100%	18
Speak Other Indo-European Languages	0	0%	11
Speak Asian-Pacific Island Languages	0	0%	11
Speak Other Languages	0	0%	11
Households by Household Income			
Household Income Base	1,187	100%	103
< $15,000	138	12%	105
$15,000 - $25,000	172	14%	65
$25,000 - $50,000	382	32%	107
$50,000 - $75,000	293	25%	64
$75,000 +	202	17%	76
Occupied Housing Units by Tenure			
Total	1,187	100%	103
Owner Occupied	946	80%	91
Renter Occupied	241	20%	99
Employed Population Age 16+ Years			
Total	2,066	100%	222
In Labor Force	1,126	54%	190
Civilian Unemployed in Labor Force	121	6%	64
Not In Labor Force	940	46%	142

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: City: Tilton village
Ring (buffer): 0-mile radius
Description:

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	2,447	100%	256
English	N/A	N/A	N/A
Spanish	N/A	N/A	N/A
French	N/A	N/A	N/A
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	N/A	N/A	N/A
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	N/A	N/A	N/A
Chinese	N/A	N/A	N/A
Japanese	N/A	N/A	N/A
Korean	N/A	N/A	N/A
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	N/A	N/A	N/A
Other Asian	N/A	N/A	N/A
Tagalog	N/A	N/A	N/A
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	N/A	N/A	N/A
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	N/A	N/A	N/A
Total Non-English	N/A	N/A	N/A

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS) 2012 - 2016.
*Population by Language Spoken at Home is available at the census tract summary level and up.