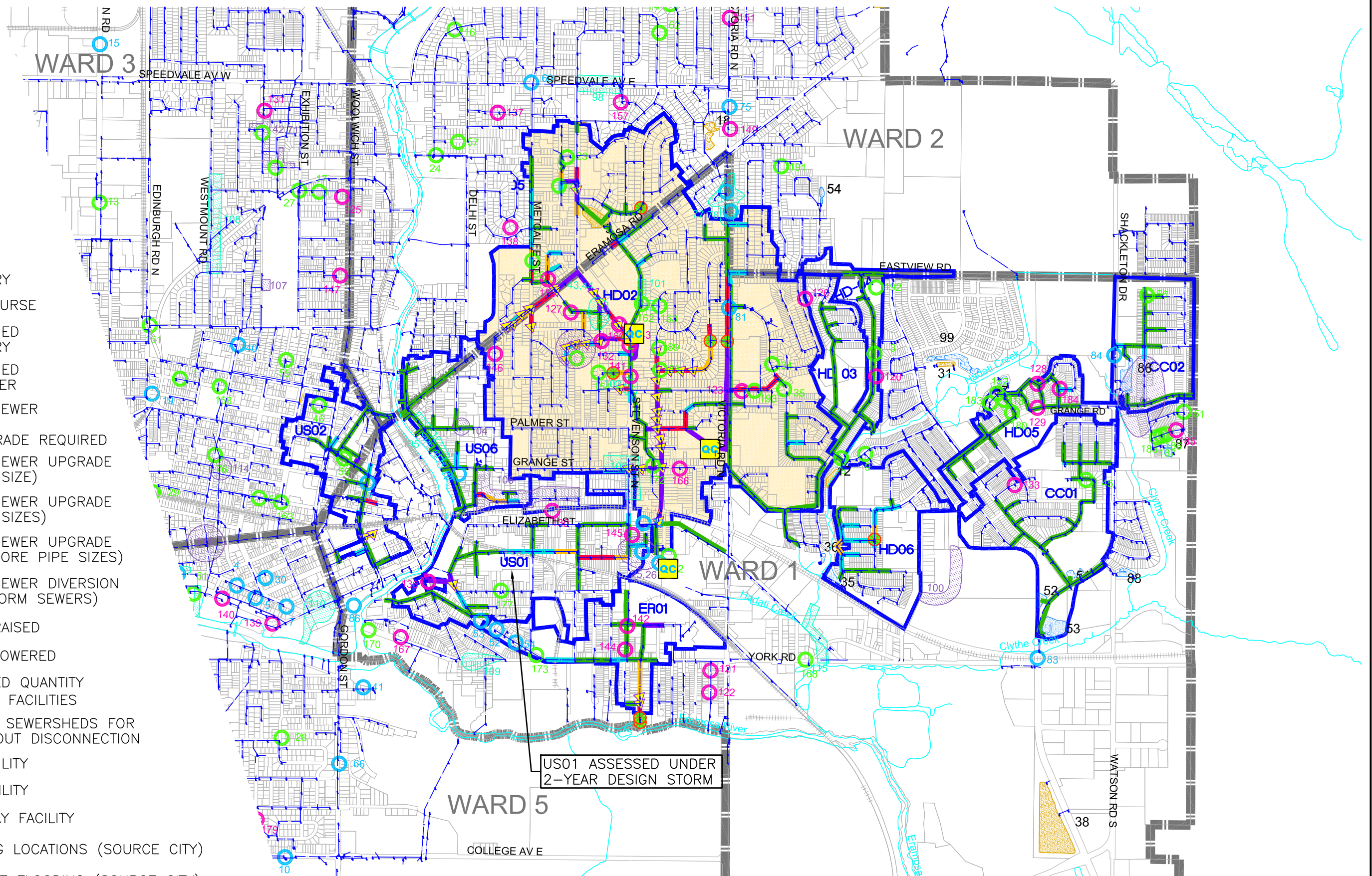


LEGEND:

-  WARD BOUNDARY
-  WATERCOURSE
-  SEWERSHED BOUNDARY
-  SEWERSHED ID NUMBER
-  STORM SEWER
-  NO UPGRADE REQUIRED
-  STORM SEWER UPGRADE (1 PIPE SIZE)
-  STORM SEWER UPGRADE (2 PIPE SIZES)
-  STORM SEWER UPGRADE (3 OR MORE PIPE SIZES)
-  STORM SEWER DIVERSION (NEW STORM SEWERS)
-  INVERT RAISED
-  INVERT LOWERED
-  PROPOSED QUANTITY CONTROL FACILITIES
-  PRIORITY SEWERSHEDS FOR DOWNSPOUT DISCONNECTION
-  DRY FACILITY
-  WET FACILITY
-  GREENWAY FACILITY
-  FLOODING LOCATIONS (SOURCE CITY)
-  BASEMENT FLOODING (SOURCE CITY)
-  SITES NOT FIELD INSPECTED (SOURCE AMEC)
-  SITES FIELD INSPECTED (SOURCE AMEC)



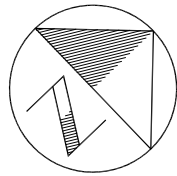
NOTE:
REFER TO TABLE K1 FOR UPGRADE
DETAILS FOR SPECIFIC NETWORKS

STORMWATER MANAGEMENT
MASTER PLAN
CITY OF GUELPH

RECOMMENED UPGRADES TO
MEET 5 YEAR CAPACITY
WARD 1 AREA

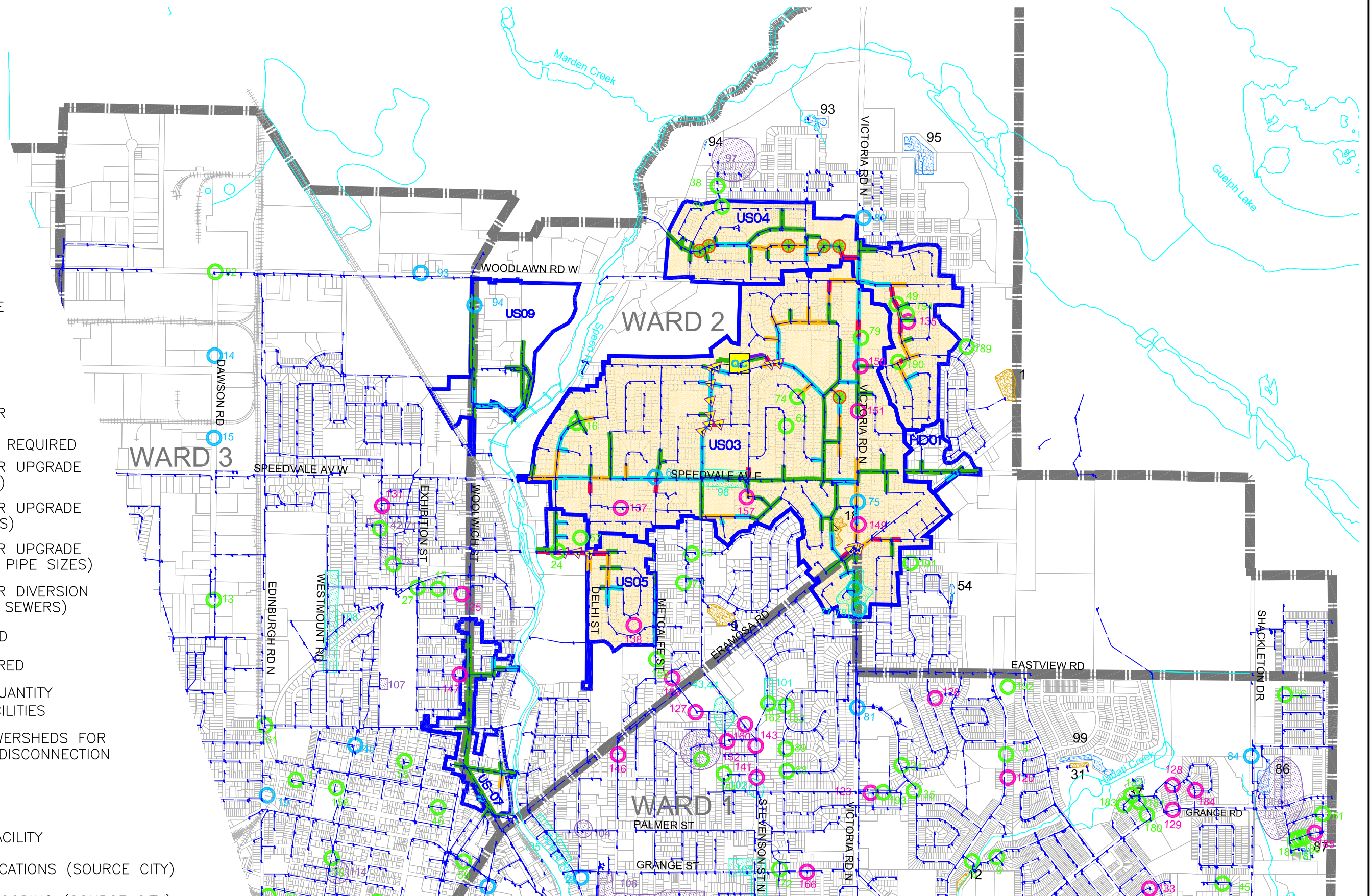


Scale	1:20000
Consultant File No.	108181
Drawing No.	SHEET 11 OF 15



LEGEND:

-  WARD BOUNDARY
-  WATERCOURSE
-  SEWERSHED BOUNDARY
-  SEWERSHED ID NUMBER
-  STORM SEWER
-  NO UPGRADE REQUIRED
-  STORM SEWER UPGRADE (1 PIPE SIZE)
-  STORM SEWER UPGRADE (2 PIPE SIZES)
-  STORM SEWER UPGRADE (3 OR MORE PIPE SIZES)
-  STORM SEWER DIVERSION (NEW STORM SEWERS)
-  INVERT RAISED
-  INVERT LOWERED
-  PROPOSED QUANTITY CONTROL FACILITIES
-  PRIORITY SEWERSHEDS FOR DOWNSPOUT DISCONNECTION
-  3 DRY FACILITY
-  39 WET FACILITY
-  40 GREENWAY FACILITY
-  FLOODING LOCATIONS (SOURCE CITY)
-  BASEMENT FLOODING (SOURCE CITY)
-  SITES NOT FIELD INSPECTED (SOURCE AMEC)
-  SITES FIELD INSPECTED (SOURCE AMEC)



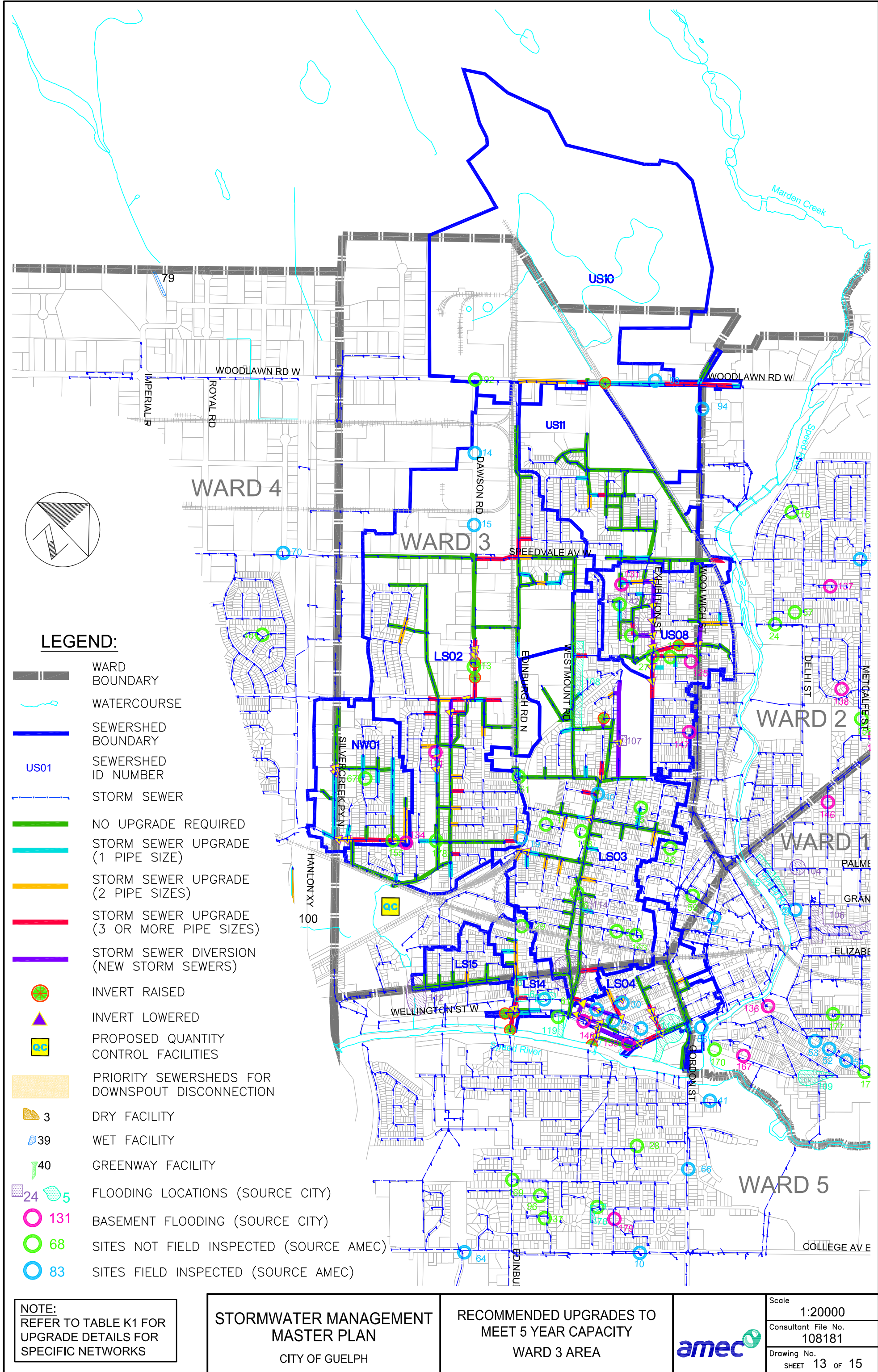
NOTE:
REFER TO TABLE K1 FOR UPGRADE
DETAILS FOR SPECIFIC NETWORKS

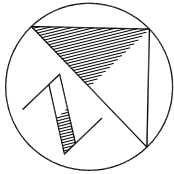
**STORMWATER MANAGEMENT
MASTER PLAN**
CITY OF GUELPH

**RECOMMENED UPGRADES TO
MEET 5 YEAR CAPACITY**
WARD 2 AREA



Scale	1:20000
Consultant File No.	108181
Drawing No.	SHEET 12 OF 15





LEGEND:

- WARD BOUNDARY
- WATERCOURSE
- SEWERSHED BOUNDARY
- SEWERSHED ID NUMBER
- STORM SEWER
- NO UPGRADE REQUIRED
- STORM SEWER UPGRADE (1 PIPE SIZE)
- STORM SEWER UPGRADE (2 PIPE SIZES)
- STORM SEWER UPGRADE (3 OR MORE PIPE SIZES)
- STORM SEWER DIVERSION (NEW STORM SEWERS)
- INVERT RAISED
- INVERT LOWERED
- PROPOSED QUANTITY CONTROL FACILITIES
- PRIORITY SEWERSHEDS FOR DOWNSPOUT DISCONNECTION
- 3 DRY FACILITY
- 39 WET FACILITY
- 40 GREENWAY FACILITY
- 24 5 FLOODING LOCATIONS (SOURCE CITY)
- 131 BASEMENT FLOODING (SOURCE CITY)
- 68 SITES NOT FIELD INSPECTED (SOURCE AMEC)
- 83 SITES FIELD INSPECTED (SOURCE AMEC)

NOTE:
REFER TO TABLE K1 FOR
UPGRADE DETAILS FOR
SPECIFIC NETWORKS

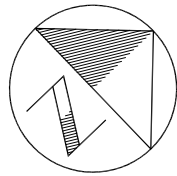
STORMWATER MANAGEMENT
MASTER PLAN

CITY OF GUELPH

RECOMMENDED UPGRADES TO
MEET 5 YEAR CAPACITY
WARD 4 AREA



Scale
1:20000
Consultant File No.
108181
Drawing No.
SHEET 14 OF 15



LEGEND:

- | | |
|--|---|
| | WARD BOUNDARY |
| | SEWERSHED BOUNDARY |
| | SEWERSHED ID NUMBER |
| | STORM SEWER |
| | NO UPGRADE REQUIRED |
| | STORM SEWER UPGRADE (1 PIPE SIZE) |
| | STORM SEWER UPGRADE (2 PIPE SIZES) |
| | STORM SEWER UPGRADE (3 OR MORE PIPE SIZES) |
| | STORM SEWER DIVERSION (NEW STORM SEWERS) |
| | INVERT RAISED |
| | INVERT LOWERED |
| | PROPOSED QUANTITY CONTROL FACILITIES |
| | PROPOSED FLOW TARGET LOCATION |
| | PRIORITY SEWERSHEDS FOR DOWNSPOUT DISCONNECTION |
| | DRY FACILITY |
| | WET FACILITY |
| | GREENWAY FACILITY |
| | FLOODING LOCATIONS (SOURCE CITY) |
| | BASEMENT FLOODING (SOURCE CITY) |
| | SITES NOT FIELD INSPECTED (SOURCE AMEC) |
| | SITES FIELD INSPECTED (SOURCE AMEC) |

NOTE:
REFER TO TABLE K1 FOR UPGRADE
DETAILS FOR SPECIFIC NETWORKS

**STORMWATER MANAGEMENT
MASTER PLAN**
CITY OF GUELPH

**RECOMMENED UPGRADES TO
MEET 5 YEAR CAPACITY**
WARD 5 & 6 AREA



Scale	1:20000
Consultant File No.	108181
Drawing No.	SHEET 15 OF 15

Table K1: Drainage System Upgrade Notes			
Ward Area	Network	Note	Note
1	ER-01	1	Diversion of flow from industrial area into larger trunk (1050) assumed
	HD-02	1	Disconnect 975 through Zehrs plaza from proposed diversion sewer on Eramosa - allow diversion to take everything, 975 just for plaza, Shirley and Lane streets. Opportunity for "superpipe" storage?
		2	Horizontal Elliptical pipe applied for proposed Eramosa/Stevenson Diversion to reduce water levels and avoid backwater towards Skov - grades very shallow
		3	Eliminate 975 through private property at Lane/Erin as part of Eramosa/Stevenson Diversion - new 1200 to direct flow into new diversion
		4	Disconnect sewer at Lane and Bennet - divert all upstream flow along Bennet, so Lane is only for local drainage and then whatever is in 975 (plaza plus Shirley)
		5	Proposed quantity control facility in green meadows park - would attenuate peak flows sufficiently to avoid any upgrades in existing trunk (parallell trunk on William Street still required)
		6	Redirect/divert flow from HD02-064 south on Ottawa and disconnect at Meyer Drive - addresses known flooding spot.
		7	Complete disconnection at William St and Cassino Ave - keep everything in proposed diversion sewer on William
		8	Re-grade and upsize sewer at Normandy and existing 1650 trunk to serve as a flow relief from 1650 into new proposed diversion on William Street
		9	Disconnect at Franchetto and existing 1650 trunk - keep everything in proposed diversion sewer on William
		10	Disconnect on Victoria just south of Eastview - keep branches separate to avoid surcharging larger branch
		11	Disconnect at Brunswick/Victoria - keep everything on Victoria given problems with pipes on Vancouver
		12	Parallel relief sewer along Victoria - two connection points to existing trunk sewer to eliminate surcharge in existing trunk and avoid having to upsize that pipe
		13	Disconnect at Victoria and DelMar - everything should stay on Victoria given capacity issues to the west
		14	Proposed storage facility at Franchetto park to control flow through proposed parallel diversion on Victoria - would likely work with swale alongside soccer field rather than pond, as storage requirements are relatively low
		15	Divert most of HD02-038 (Palmer Street) at Louisa or Jane Street and direct down towards Grange street - existing 450 outlet can't handle that much, need to upsize on Grange anyway
		16	Grange upgrade includes a diversion towards proposed William Street diversion - eliminates 1650 downstream on private property, everything in single proposed diversion on William Street
		17	Upgrade culvert/sewer crossing at CNR in order to handle estimated flow
		18	Just size one pipe to convey flow from CNR to Elizabeth street - abandon existing 825, flow splitter required at edge of property
	US-01	1	Assumed disconnection of Woods site redevelopment (along Speed River) from trunk sewer - outlet directly to river
		2	On site SWM/BMPs for intensification lands (old woods factories along rail) to control to pre-development type levels
		3	Storm sewer disconnection at Arthur/Manitoba streets
		4	Proposed relocation of US01 outlet to Neeve Street to accommodate Woods site redevelopment, opportunity for grading modifications
2	US-02	1	Connect flow through parking lot off of Chapel lane into 600 rather than 1050 to avoid sucharging (and replacing) 1050. Assumes that City has an easment over this pipe and can re-do it easily
	US-03	1	450 orifice control at Eramosa/Victoria to control inflows to 600 branch
		2	Proposed storage facility at Waverly and Stevenson - intended to reduce magnitude of sewer upgrades for a substantial length of trunk sewer (Stevenson/Speedvale) and address flooding issues
		3	375 orifice control at Knightswood and Speedvale to restrict flow into top branch of parallel pipes
	US-05	1	Relief sewers a possible alternative along Pleasant Road given the depth of the sewers
3	LS-02	1	300 orifice restriction at Speedvale and Edinburgh to restrict flow down edinburgh
		2	Lower size of connection between parallel systems on Willow road from a 1350 to a 900 - otherwise surcharging results in the two 1200s downstream
		3	Disconnect 300 between trunk 1500 off of Alma (private property) and smaller local sewer on Alma
		4	Lower low flow restriction/brick wall at drew and alma to 0.6 m from 0.9 m
	LS-03	1	Disconnect from old Pond Creek culvert off of Kathleen, divert flow from Kathleen and Torrance into diversion sewer
	LS-04	1	Uncertainty with regard to grades on Wellington and connection to recent Gordon St work - analysis approximate (no as-builts)
		2	Still remaining surcharge at Wellington and Gordon with upgrades - in order to make use of elevated 825 outlet, also given uncertainty in analysis given grades (Note 1)
		3	Diversion of flow along Bristol and Raymond - can't upgrade existing outlet (private property), diversion to Wellington not possible given grades
		4	Raise invert of outlet by dam in order to eliminate tailwater impacts - could potentially also shorten sewer length and add surface channel to keep grades higher
	LS-14	1	Raising up outlet above approximate edge of river to avoid backwater - could potentially look at shorter sewer and surface channel in park area as well to keep grades higher
	US-08	1	Should completely block off connection between Networks US08 and US11 via old 450 sewer on private property (Speedvale just west of Exhibition)
		2	Seal up and abandon old sewer on private property off of stanley street as part of the proposed diversion along Stanley to Exhibition
		3	Seal up and abandon section of sewer on Barton street due to diversion along Exhibition
		4	Orifice restrictor at Rail Line and Woolwich to restrict flows into existing 1050 on rail line and divert bulk of flow towards proposed diversion on Earl Street
		5	Consider parallel pipes in some locations given shallow depths (such as Exhibition)
	US-10	1	Replacing old CSP pipe with concrete - improves conveyance
	US-11	1	Should completely block off connection between Networks US08 and US11 via old 450 sewer on private property (Speedvale just west of Exhibition)
		2	Replace 900 CSP on Speedvale with concrete - improved conveyance.
5	LS-05	1	Ensure that peak flows from U of G lands are controlled under 5-year storm to approximately 5 cms to avoid surcharging downstream storm sewer - may already be the case if on-site SWM.
		2	Proposed underground storage in Oak st Park to save the capacity in trunk - sewer goes through private lands so would be difficult to upgrade, easier to store upstream
		3	Intentionally not upsizing storm sewers along Stone rd (Edinburgh-Hanlon) - assume on-site SWM, should restrict high flows from commercial area
		4	Proposed surface quantity storage on piece of City owned land at Hanlon and Stone Rd - avoid need for upgrades downstream, reduce surcharging in trunk
		5	Disconnect sewer systems at Dovercliffe and College (remove the 300)
		6	Disconnect systems at College and Conroy (300 onto conroy - keep it on college)
	LS-09	1	Diversions on both Moore and Caledonia to avoid draining into sewers on private property
		2	Proposed diversion along Talbot Street and Forest Street - disconnect from sewer on Dean Avenue to allow for greater outlet capacity for drainage areas to the west
		3	Modify sewer connections at Forest and Maple Streets
	LS-16	1	Diversion at Cedar and Water St - divert flow to the west to existing trunk
		2	Intentionally not upsizing first segment of storm sewer on Municipal Street - provide quantity control for plazas at Edinburgh/Municipal
		3	Disconnect at Municipal st and 300 "trunk" - divert everything to the west, then add an additional pipe to allow some into 1050 and the rest diverted down Denver Rd
	LS-17	1	Proposed trunk sewer diversion along James St and Mary St to handle diverted flow from LS09. Orifice restrictor at James St/Forest Hill Drive to limit flow towards existing sewer on private property