

**LEGEND**

- LIMIT OF STUDY AREA
- LANDS OUTSIDE OF SECONDARY PLAN INCLUDED IN STUDY

**BENCHMARK**  
 DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88,001m (288,717 FT.)

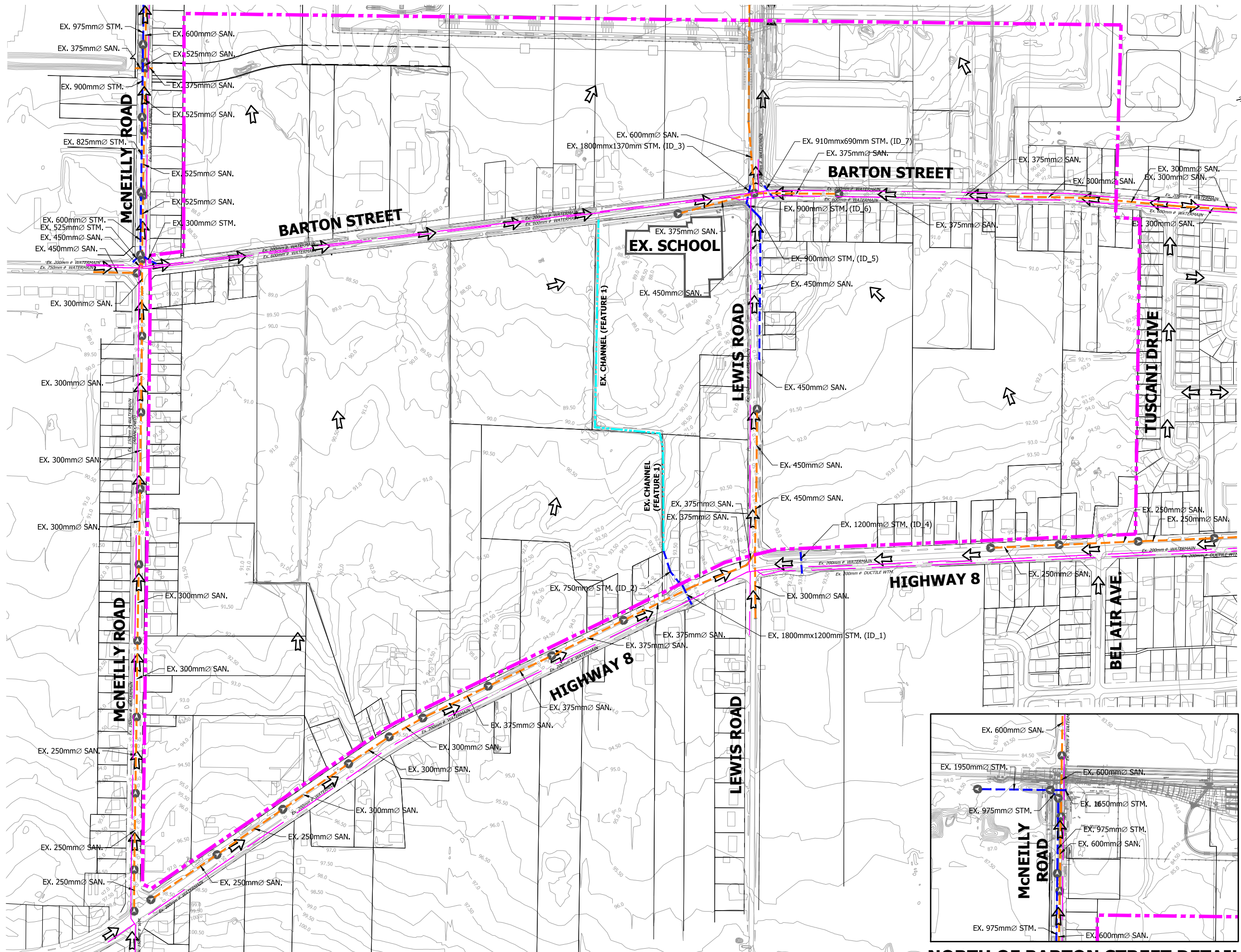


**BRANTHAVEN FRUITLAND**  
 CITY OF HAMILTON

**SITE LOCATION PLAN**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:5000	<b>FIG. 1</b>

P:\PROJECTS\12-062W\BRANTHAVEN-FRUITLAND\WORKING\DRAWINGS\FIGURE\12-062W\_SITE\_LOCATION\_PLAN.DWG



- LEGEND**
- - - LIMIT OF STUDY AREA
  - - - EXISTING STORM SEWER
  - - - EXISTING SANITARY SEWER
  - - - EXISTING WATERMAIN
  - EXISTING CONTOUR AND ELEVATION
  - ⇨ EXISTING MAJOR OVERLAND FLOW

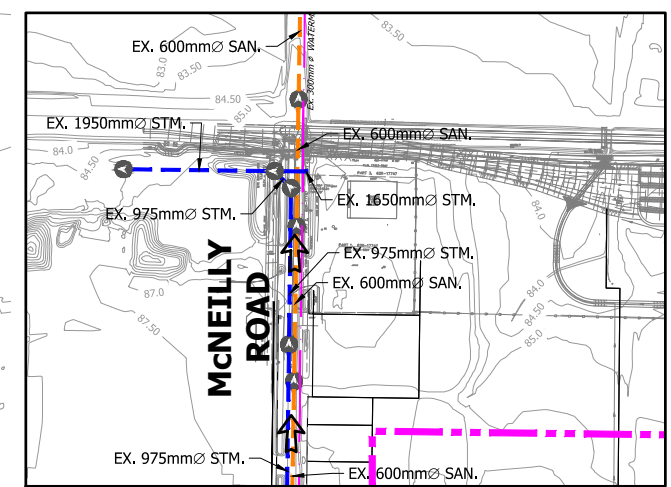
**BENCHMARK**  
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**BRANTHAVEN FRUITLAND**  
 CITY OF HAMILTON

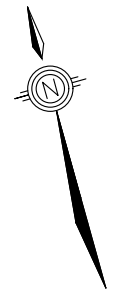
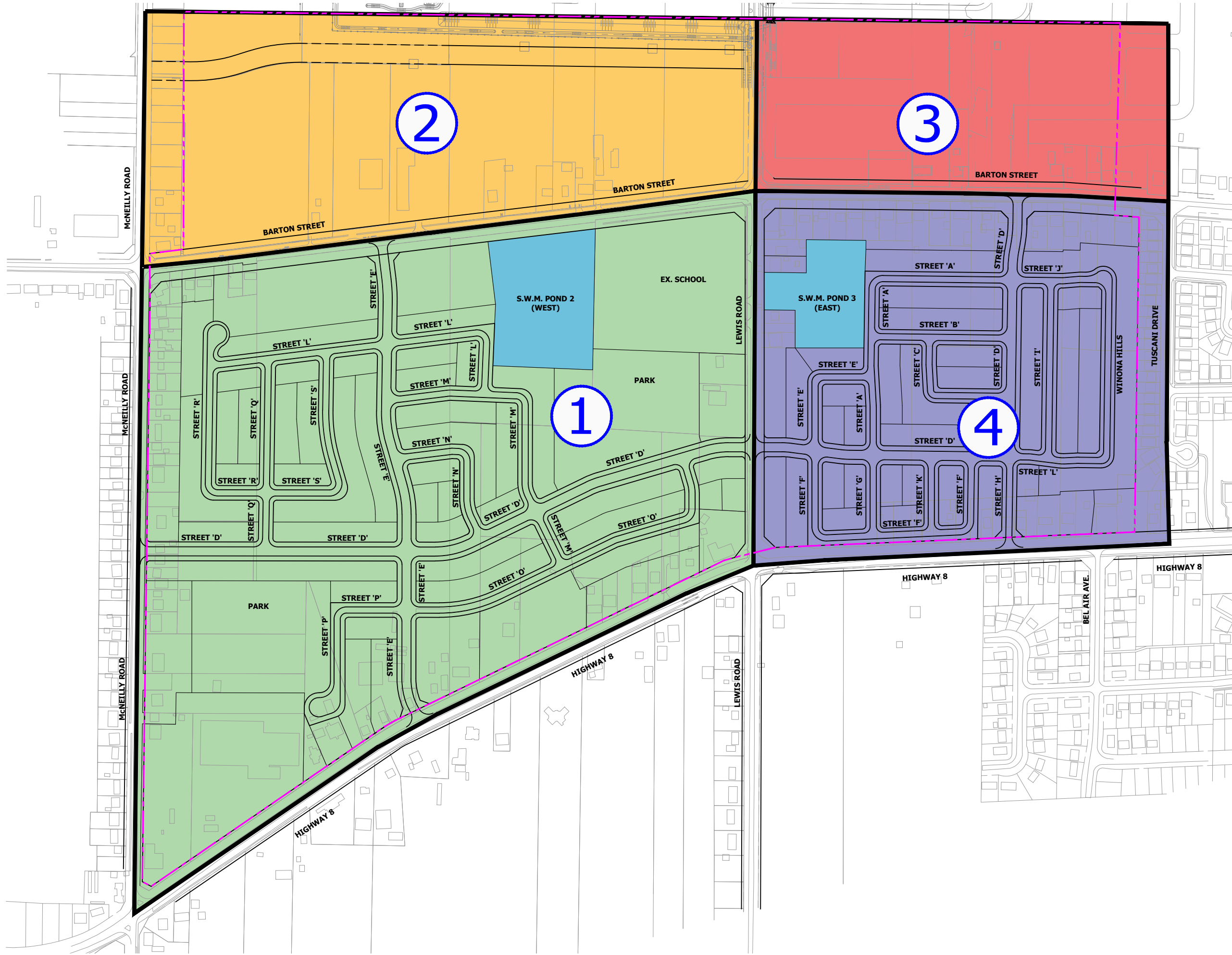
**EXISTING CONDITIONS PLAN**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:5000	<b>FIG. 2</b>



**NORTH OF BARTON STREET DETAIL**

H:\PROJECTS\12-062W (BRANTHAVEN FRUITLAND WINONA) DRAWINGS\SPREADSHEETS\12-062W\_EXISTING CONDITIONS PLAN.DWG



LEGEND

--- LIMIT OF STUDY AREA

**BENCHMARK**  
 DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHWEST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88,001m (288,717 FT.)



**BRANTHAVEN FRUITLAND**  
 CITY OF HAMILTON

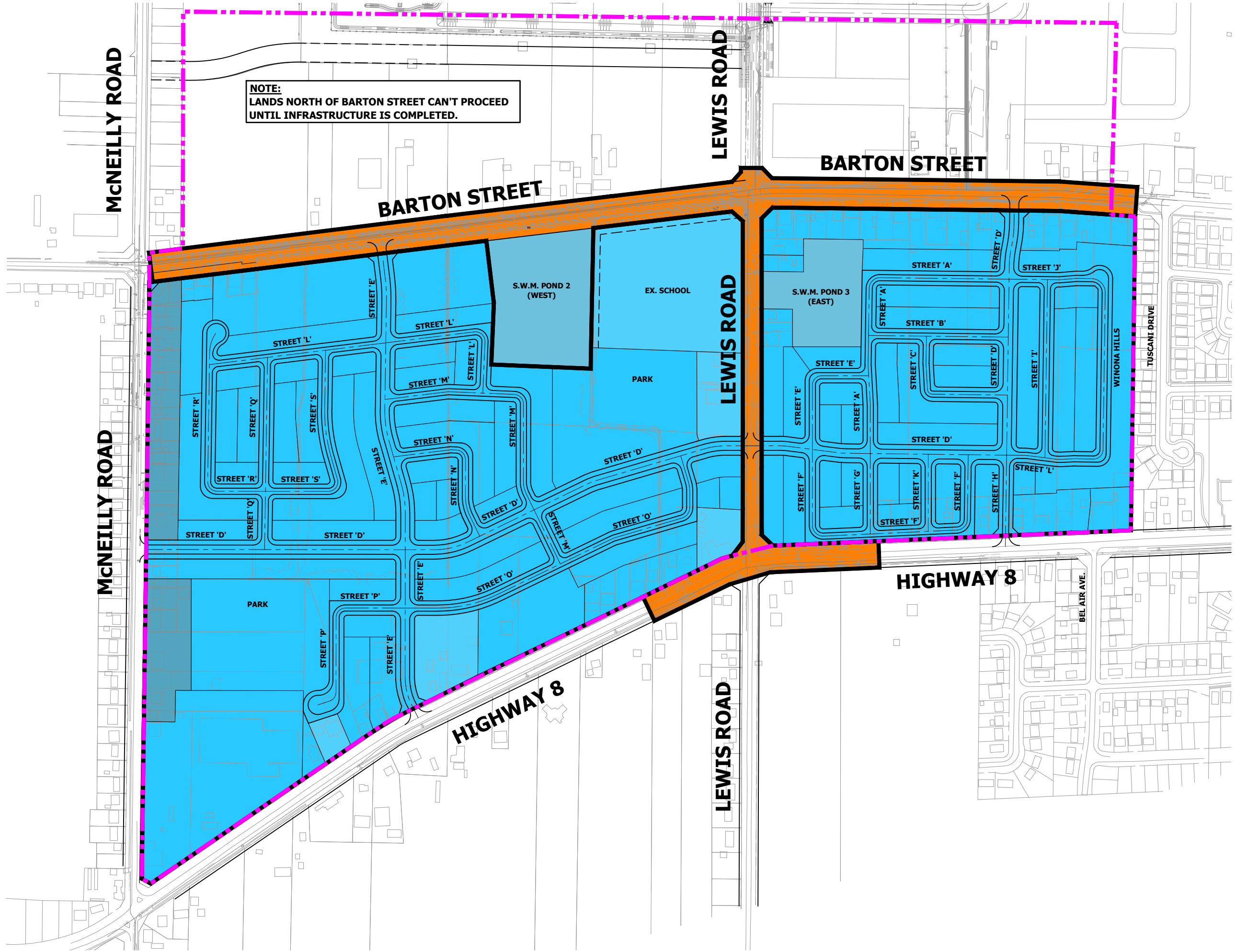
**SUB-AREA PLAN**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:5000	FIG. 3




P:\PROJECTS\12-062W\BRANTHAVEN-FRUITLAND\WORKING\DRAWINGS\FIGURE12-062W-SUB-AREA PLAN.DWG



**NOTE:**  
LANDS NORTH OF BARTON STREET CAN'T PROCEED  
UNTIL INFRASTRUCTURE IS COMPLETED.



**LEGEND**

-  LIMIT OF STUDY AREA
-  PHASE 1  
(CORE SERVICING)
-  PHASE 2  
(DEVELOPMENT LANDS)

**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88,001m (288,717 FT.)

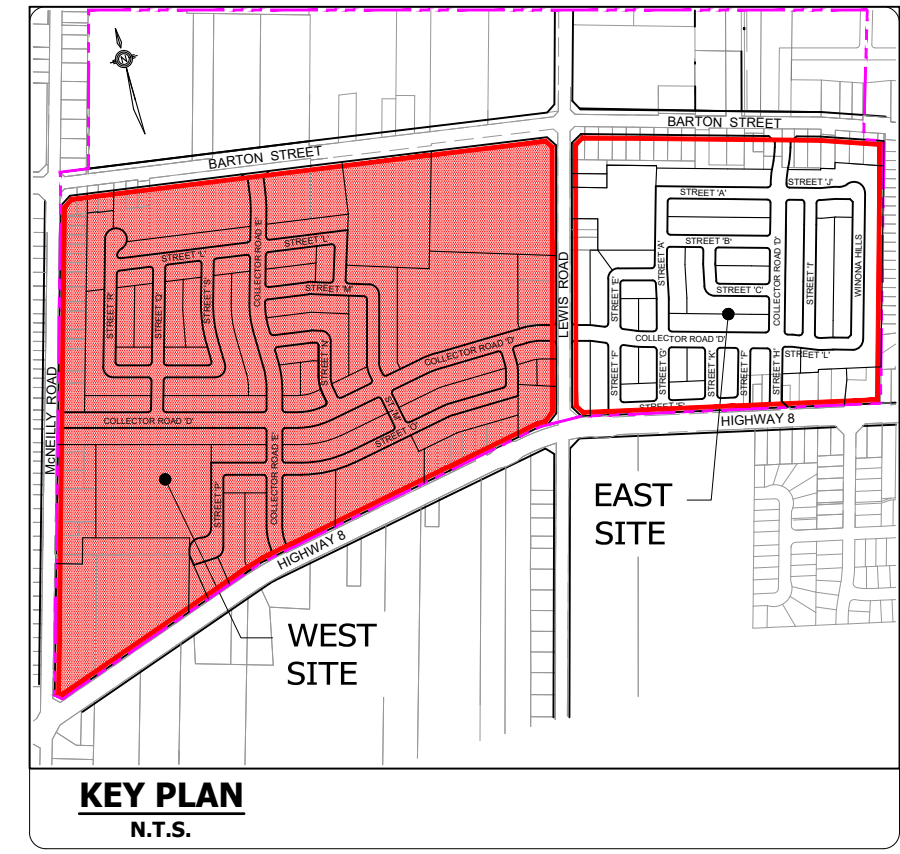
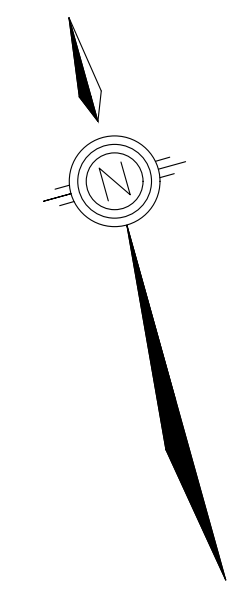
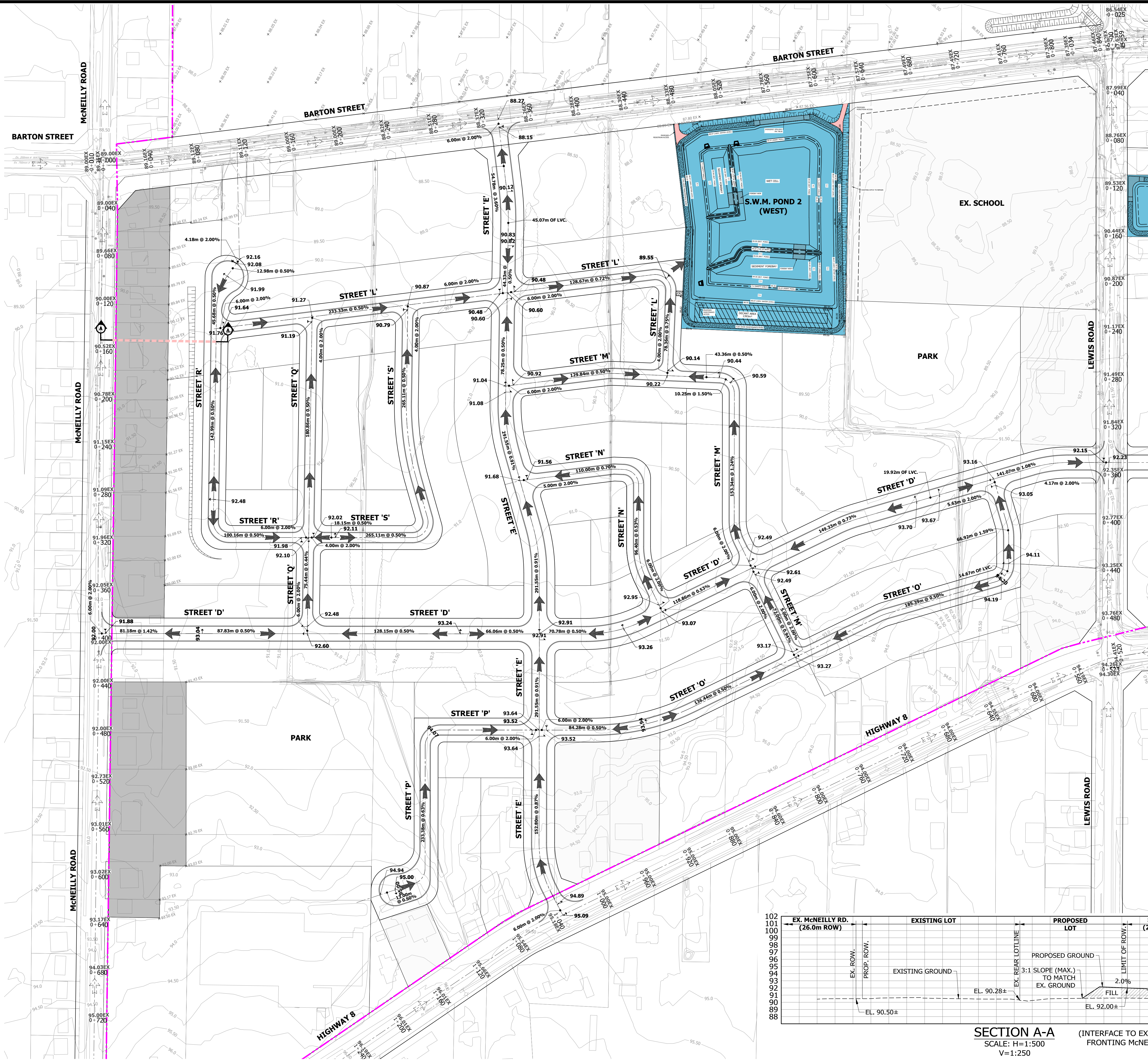


**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**CONCEPTUAL PHASING PLAN**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:5000	<b>FIG. 5</b>

F:\PROJECTS\12-062W BRANTHAVEN FRUITLAND WINONA\DRAWINGS\FIGURES\12-062W\_CONCEPTUAL PHASING PLAN.DWG



- LEGEND**
- LIMIT OF STUDY AREA
  - 92.00 PROPOSED GRADE
  - 92.00 EXISTING GRADE
  - EXISTING CONTOUR & ELEVATION
  - MAJOR OVERLAND FLOW
  - EXISTING MAJOR OVERLAND FLOW

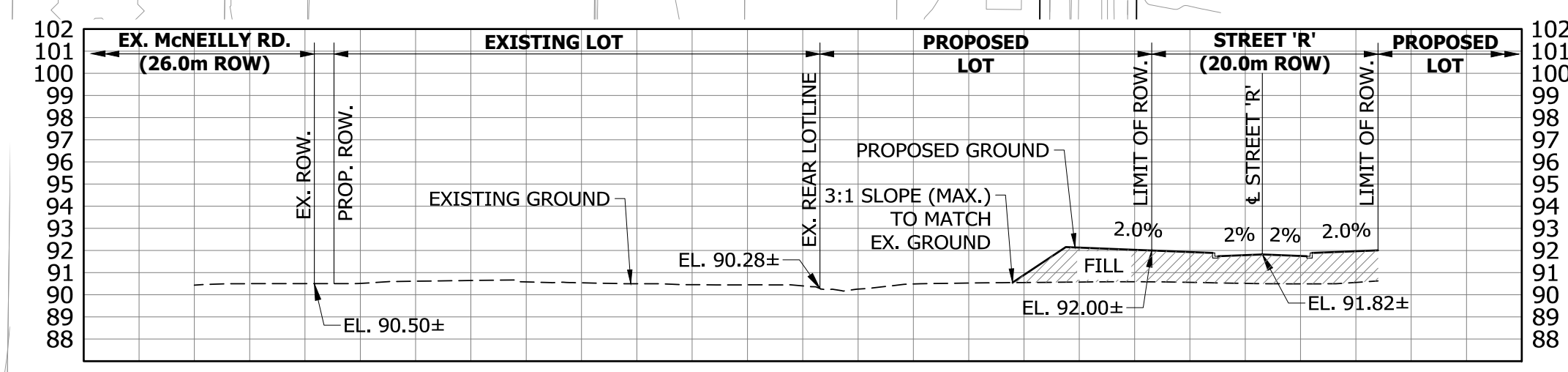
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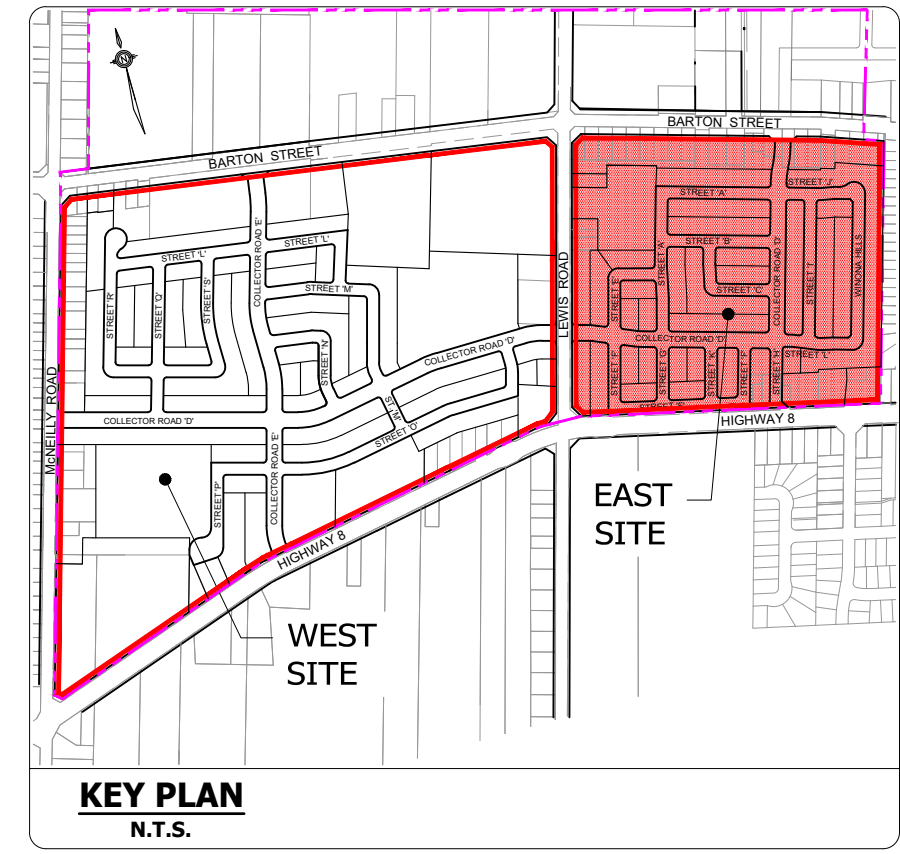
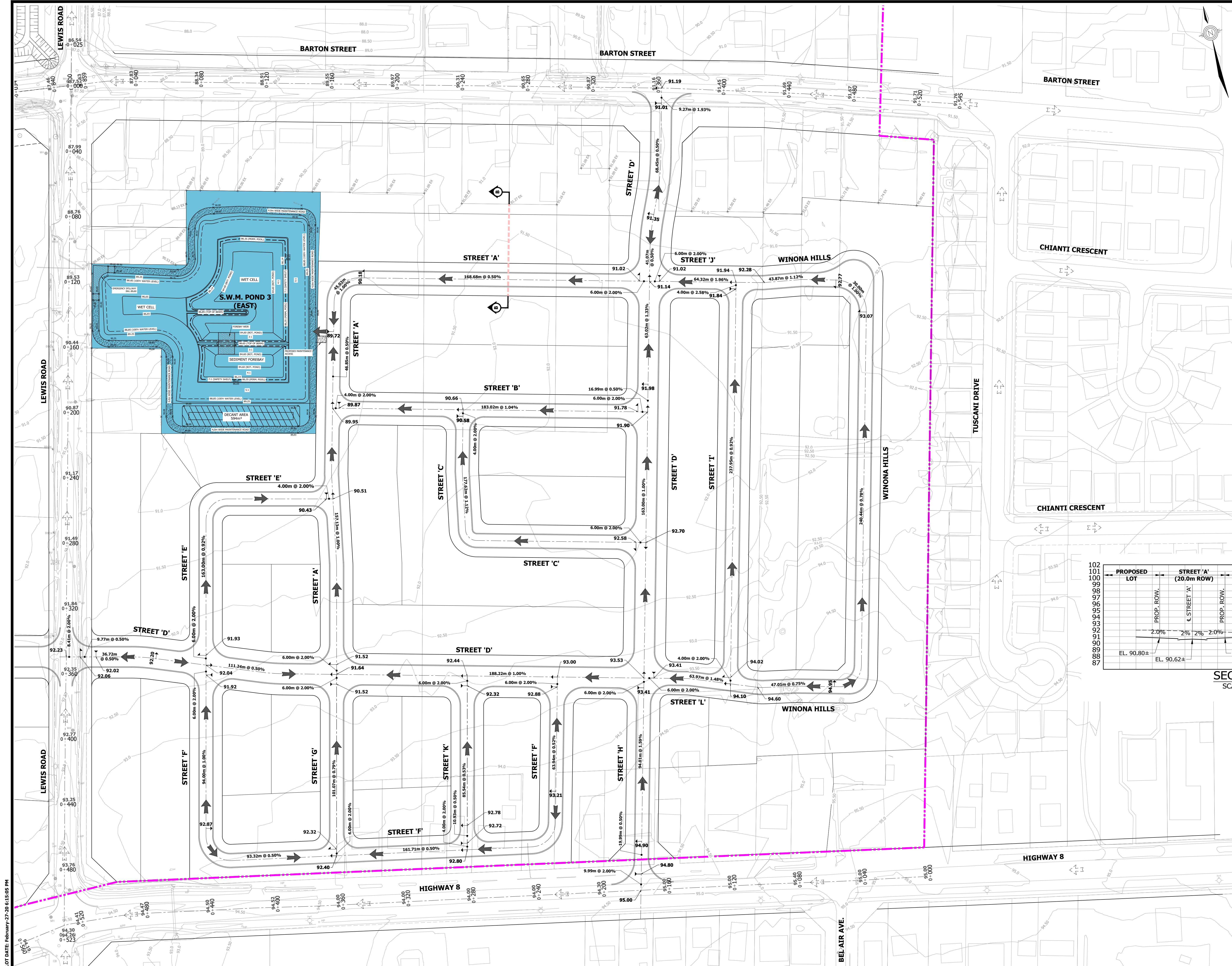


**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

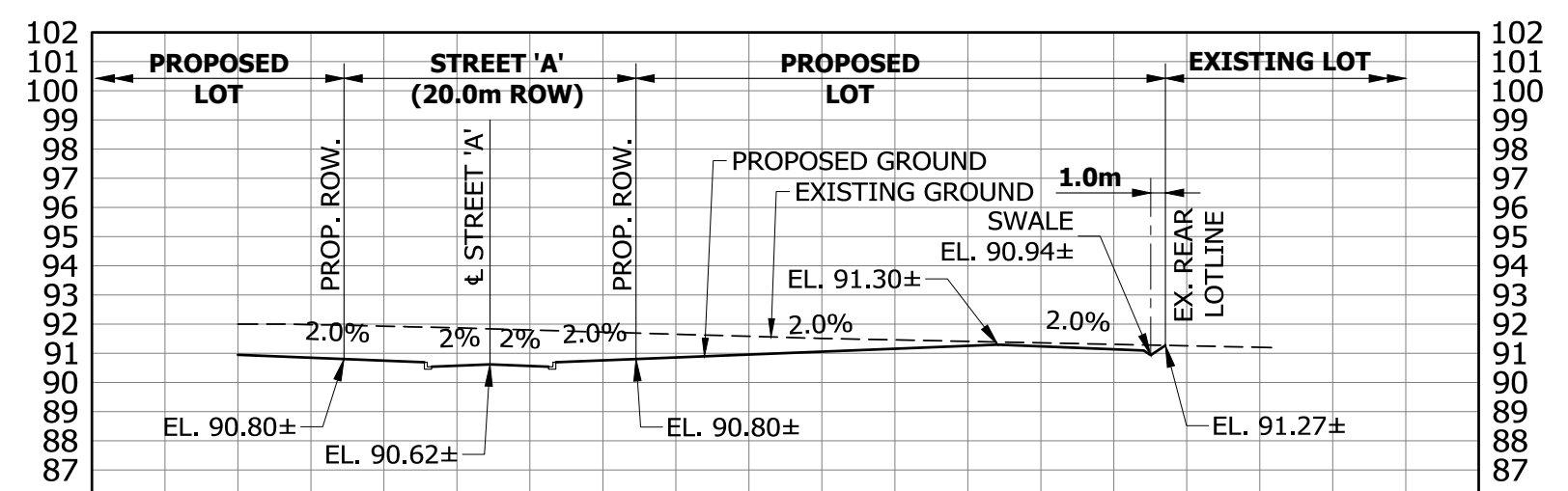
**PRELIMINARY GRADING PLAN - WEST**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	GR-1





- LEGEND**
- LIMIT OF STUDY AREA
  - 92.00 PROPOSED GRADE
  - 92.00 EXISTING GRADE
  - 92.50 EXISTING CONTOUR & ELEVATION
  - ← MAJOR OVERLAND FLOW
  - ↔ EXISTING MAJOR OVERLAND FLOW



**BENCHMARK**  
DEEP BENCHMARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



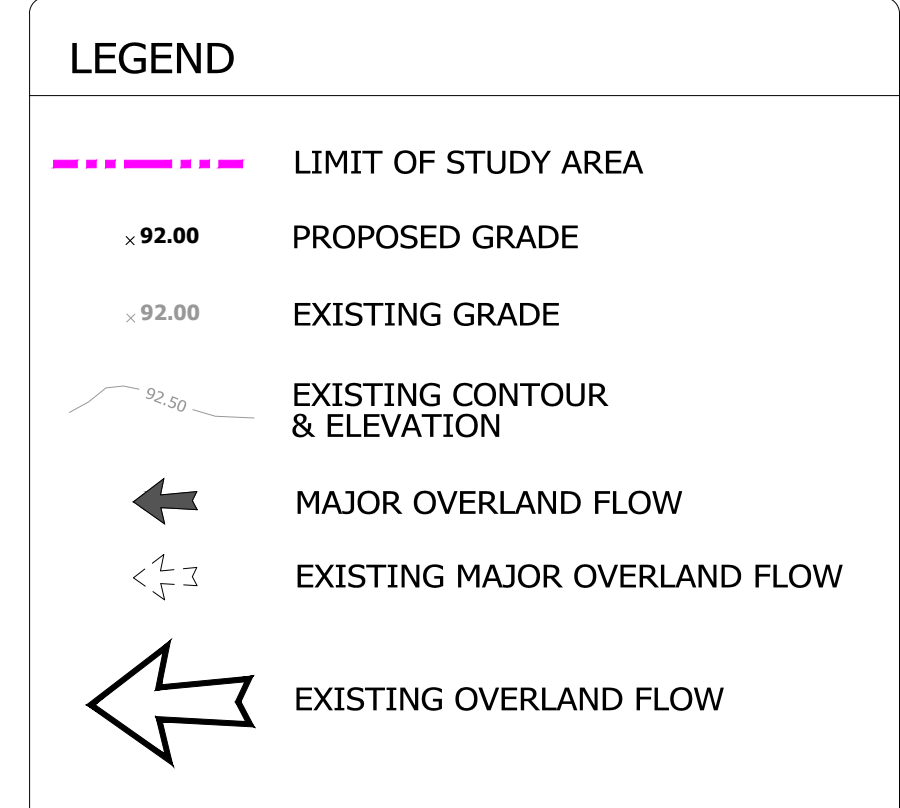
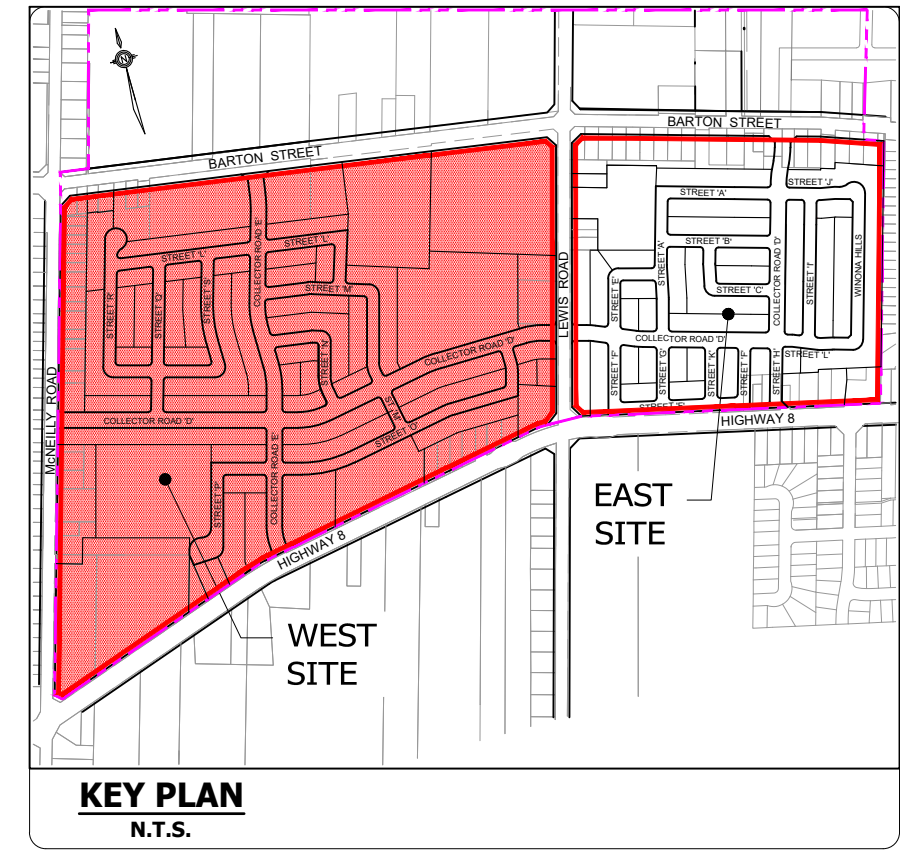
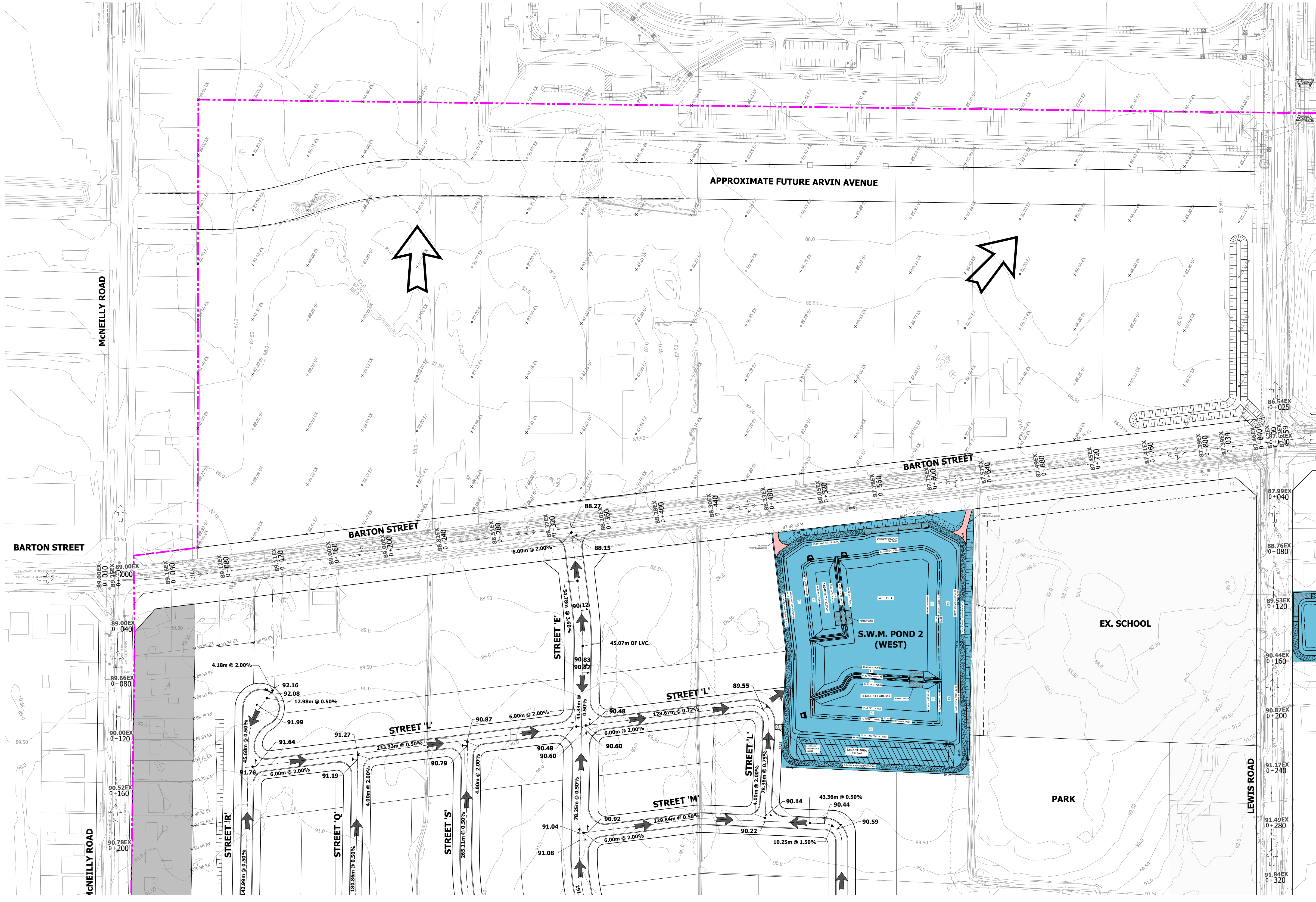
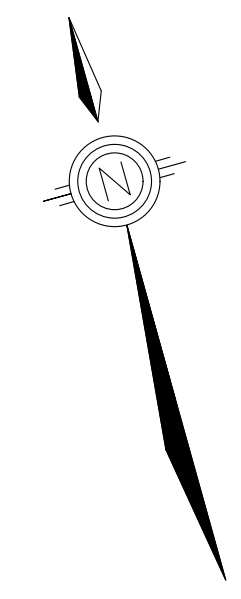
**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY GRADING PLAN - EAST**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1000	GR-2

PLOT DATE: February-27-20 6:15:05 PM

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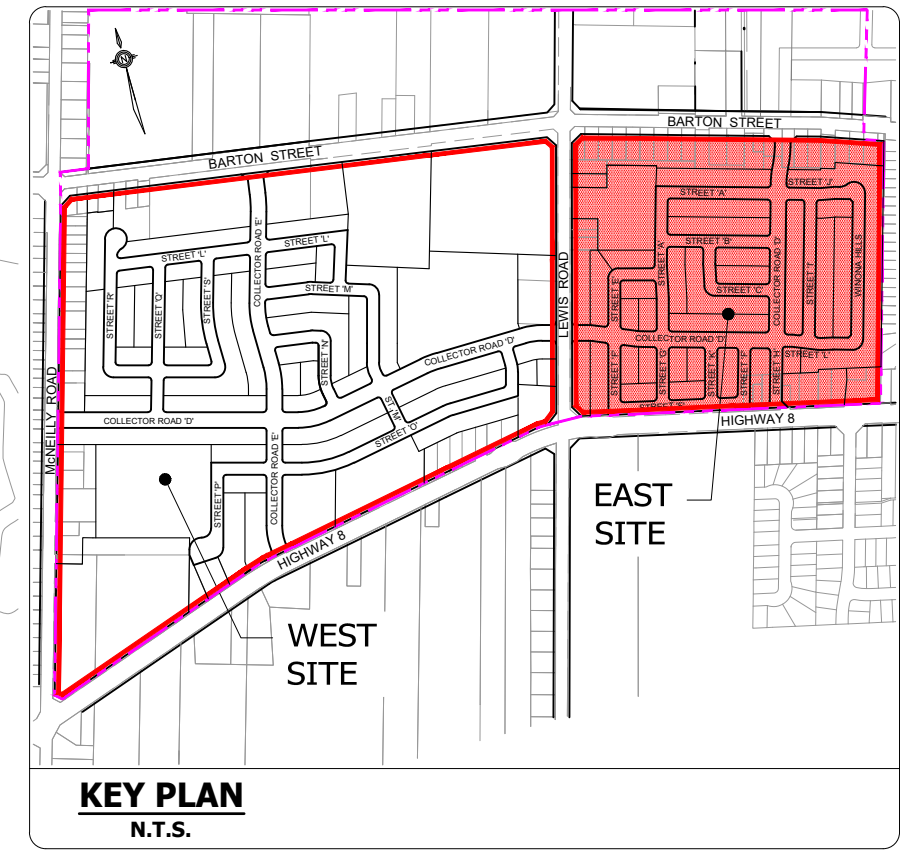
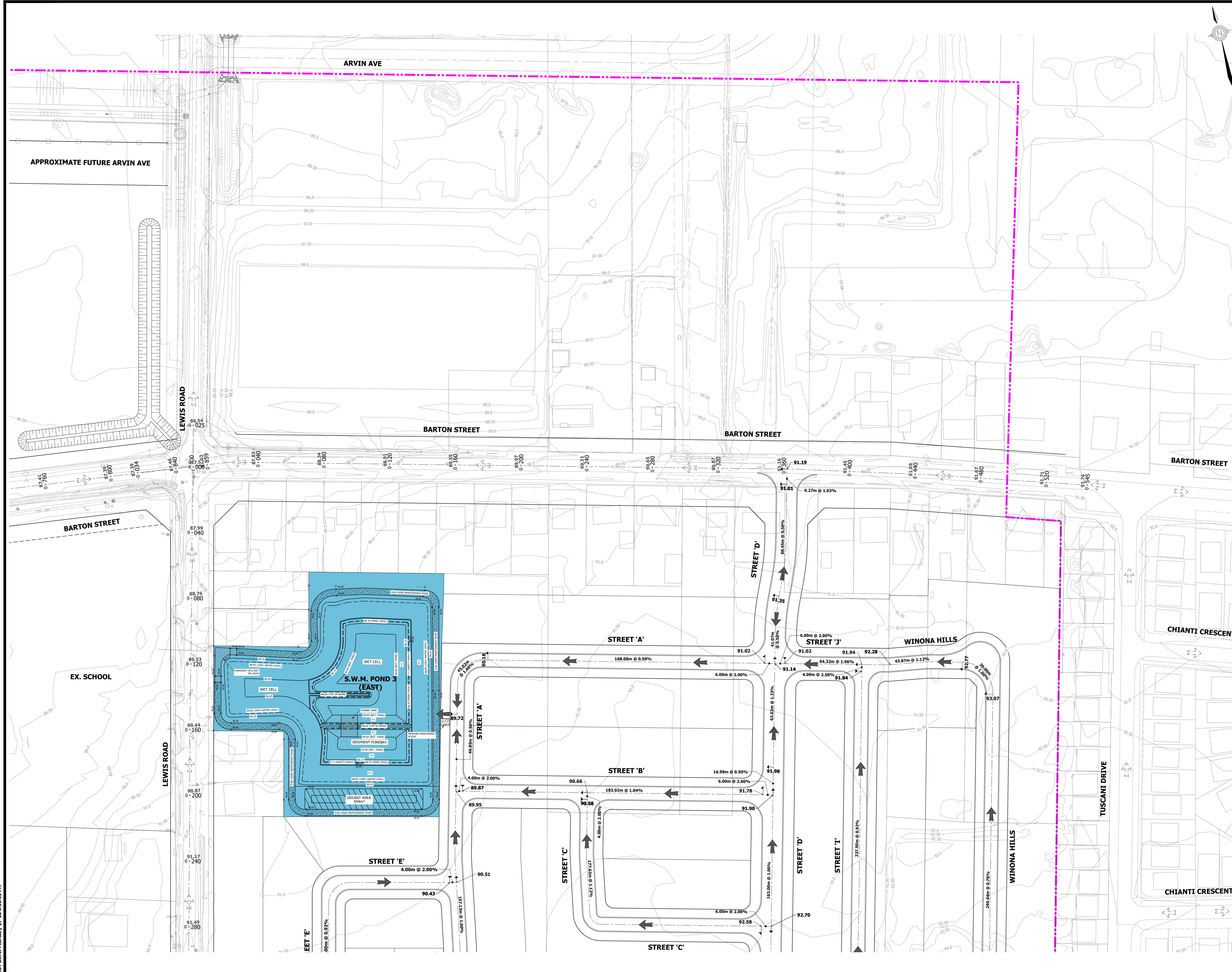
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**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY GRADING PLAN - WEST**  
(NORTH OF BARTON STREET)

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	GR-3



- LEGEND**
- LIMIT OF STUDY AREA
  - 92.00 PROPOSED GRADE
  - 92.00 EXISTING GRADE
  - 92.50 EXISTING CONTOUR & ELEVATION
  - ← MAJOR OVERLAND FLOW
  - ↔ EXISTING MAJOR OVERLAND FLOW

**BENCHMARK**  
 DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



**BRANTHAVEN FRUITLAND  
 CITY OF HAMILTON**

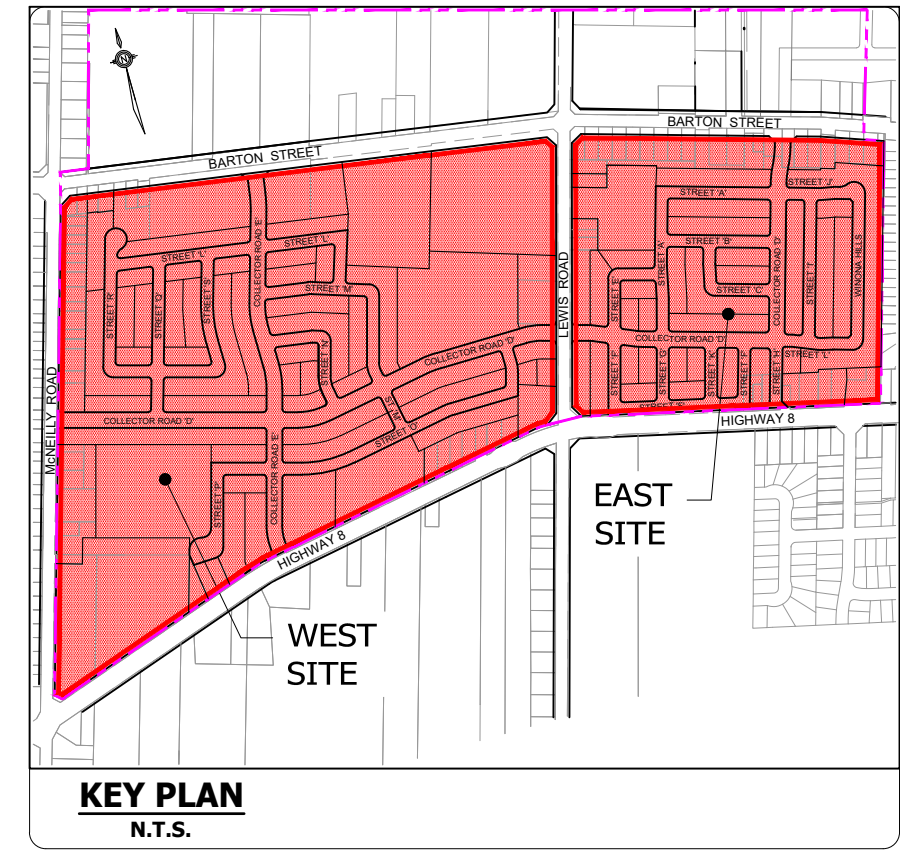
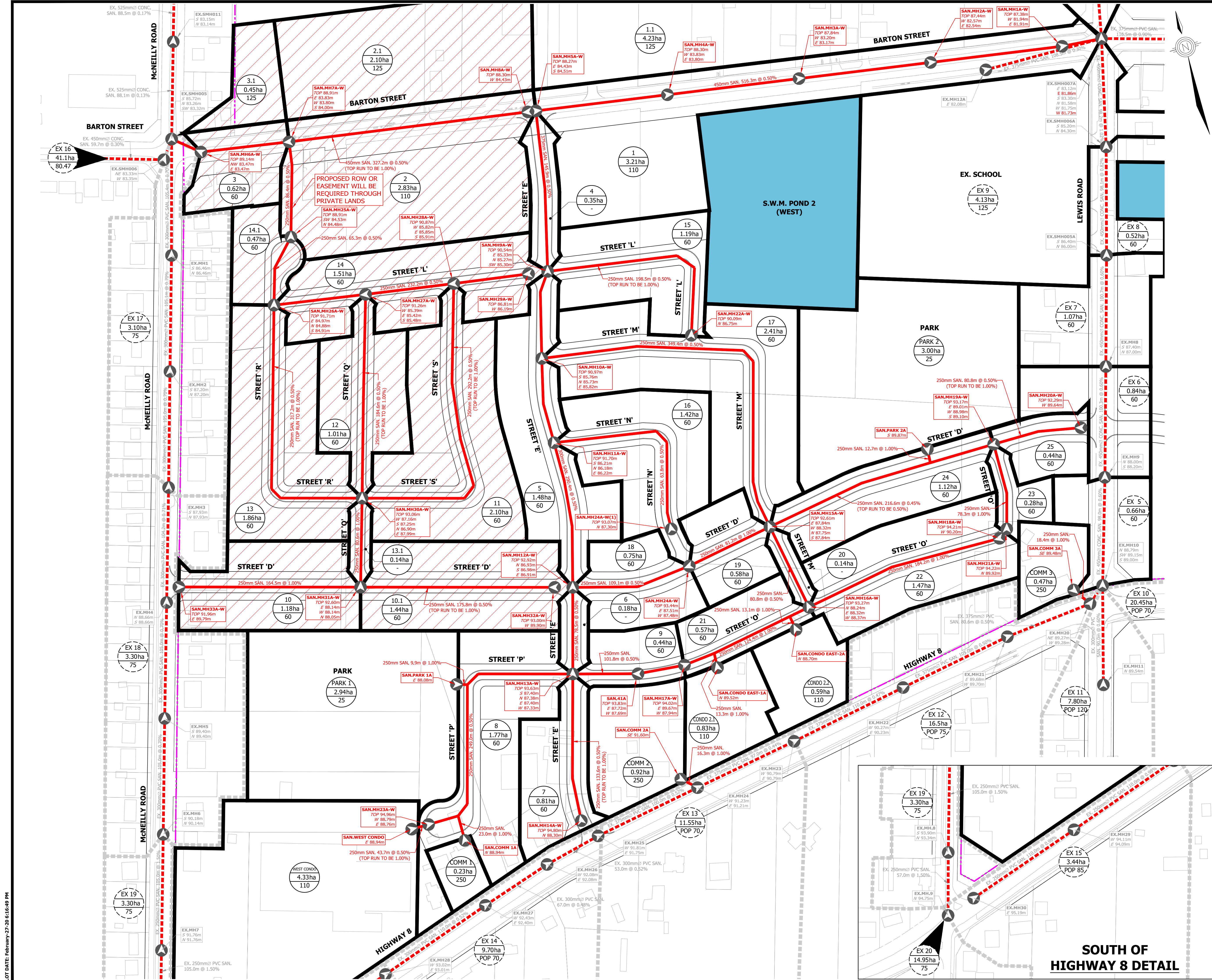
**PRELIMINARY  
 GRADING PLAN - EAST  
 (NORTH OF BARTON STREET)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1000	GR-4

PLOT DATE: February-27-20 6:16:13 PM

F:\PROJECTS\12-062W (BRANTHAVEN FRUITLAND WINONA)\DRAWINGS\GRADING\12-062W\_PRELIMINARY EAST GRD (NORTH OF BARTON STREET).DWG





- LEGEND**
- LIMIT OF STUDY AREA
  - SANITARY DRAINAGE AREA BOUNDARY (TO SMH007A)
  - NON CONTRIBUTING SANITARY DRAINAGE
  - PROPOSED SANITARY SEWER
  - EXISTING SANITARY SEWER
  - AREA I.D.
  - AREA Ha.
  - POPULATION PER Ha.
  - SAN.MH100-W SANITARY MANHOLE ID
  - PROPOSED GROUND ELEVATION
  - PROPOSED SEWER INVERTS

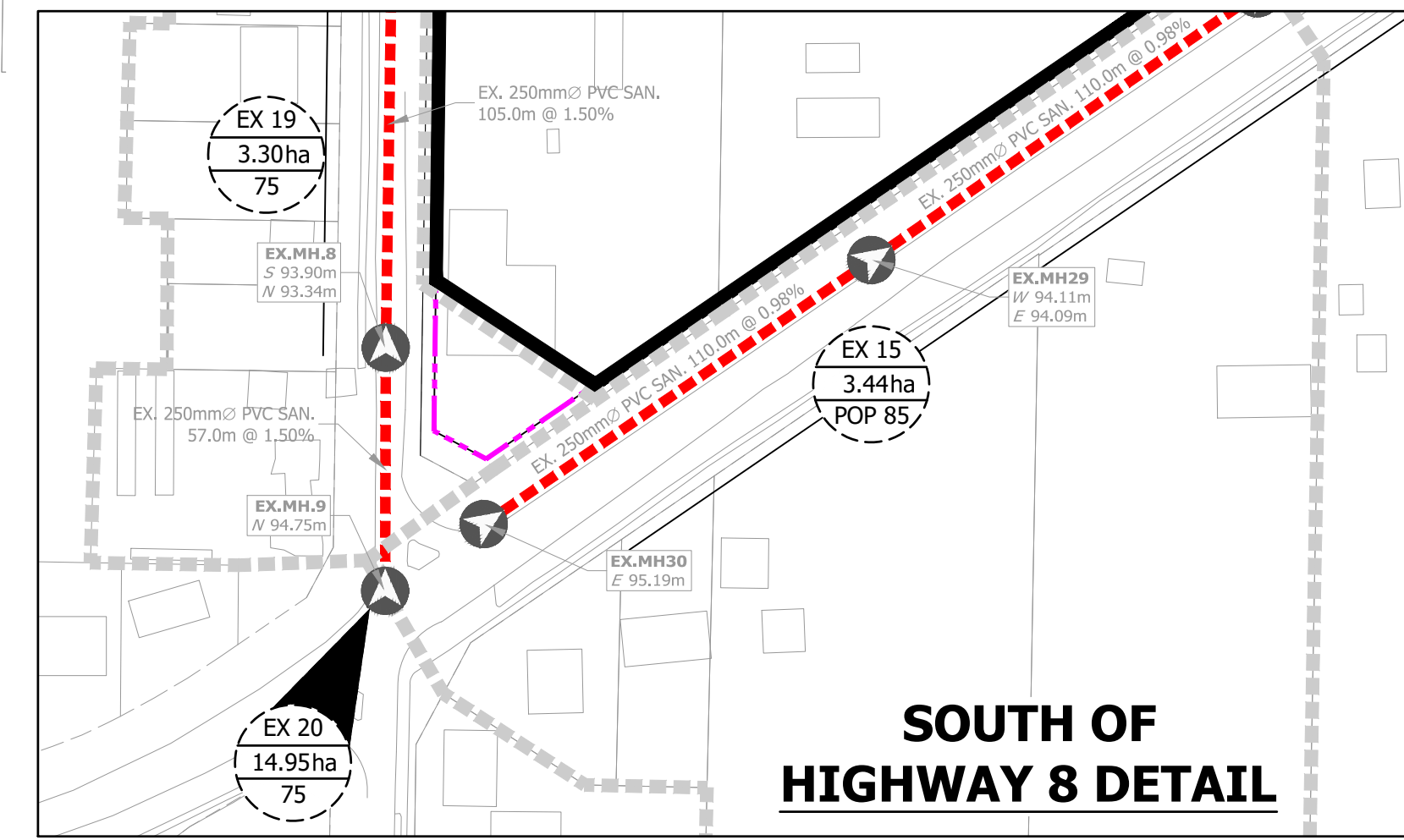
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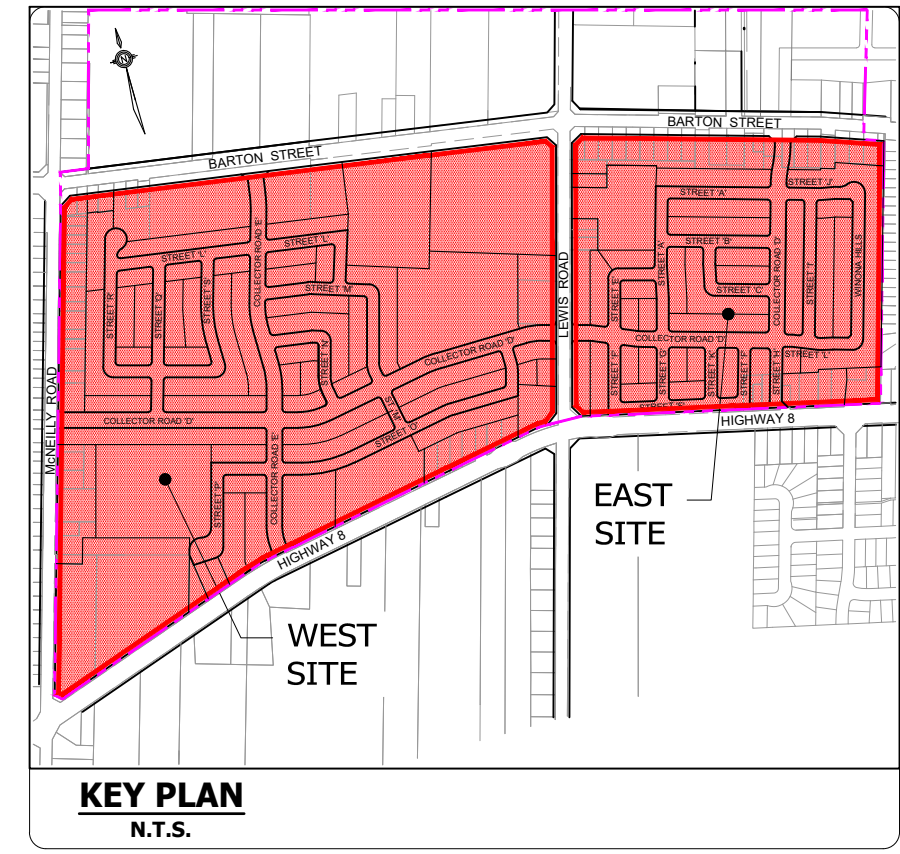
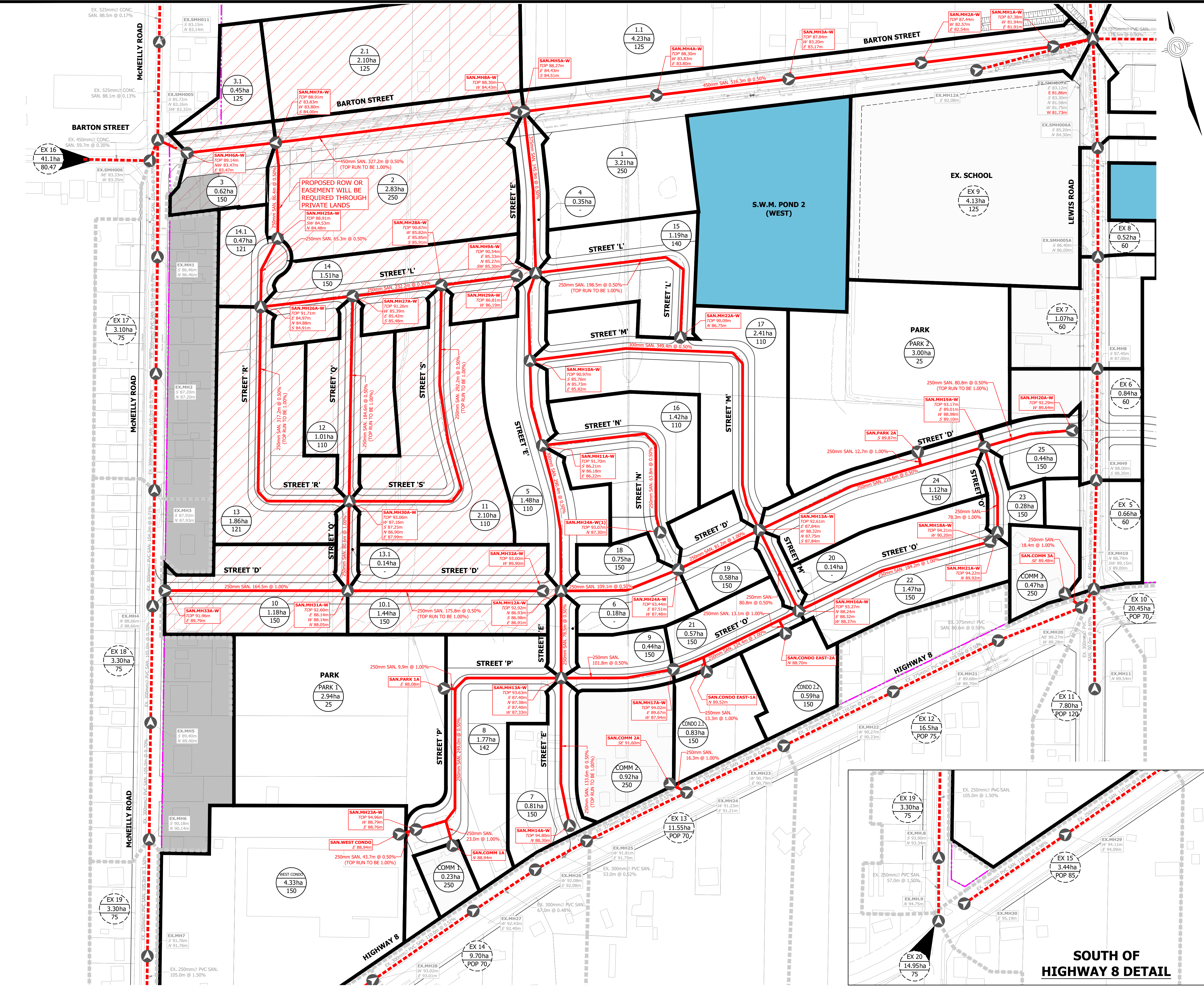
**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY SANITARY DRAINAGE PLAN - WEST (OPTIONS 1)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	SAN-1



PLT DATE: February-27-20 6:17:27 PM



- LEGEND**
- LIMIT OF STUDY AREA
  - SANITARY DRAINAGE AREA BOUNDARY (TO SMH007A)
  - NON CONTRIBUTING SANITARY DRAINAGE
  - PROPOSED SANITARY SEWER
  - EXISTING SANITARY SEWER
  - AREA I.D.
  - AREA Ha.
  - POPULATION PER Ha.
  - SAN.MH15A-W  
TOP 92.61m  
W 87.88m  
N 87.75m  
S 87.84m SANITARY MANHOLE ID
  - PROPOSED GROUND ELEVATION
  - PROPOSED SEWER INVERTS

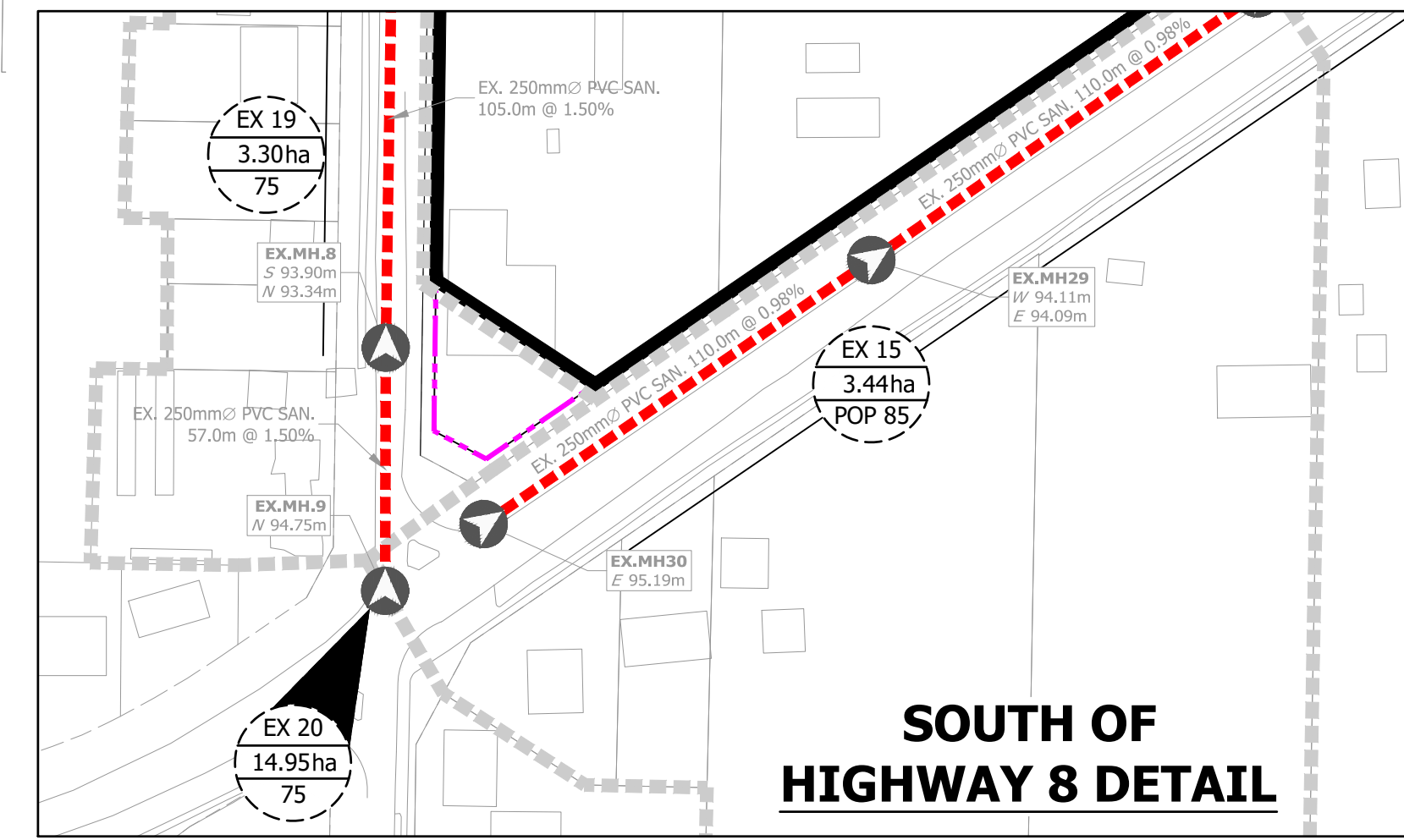
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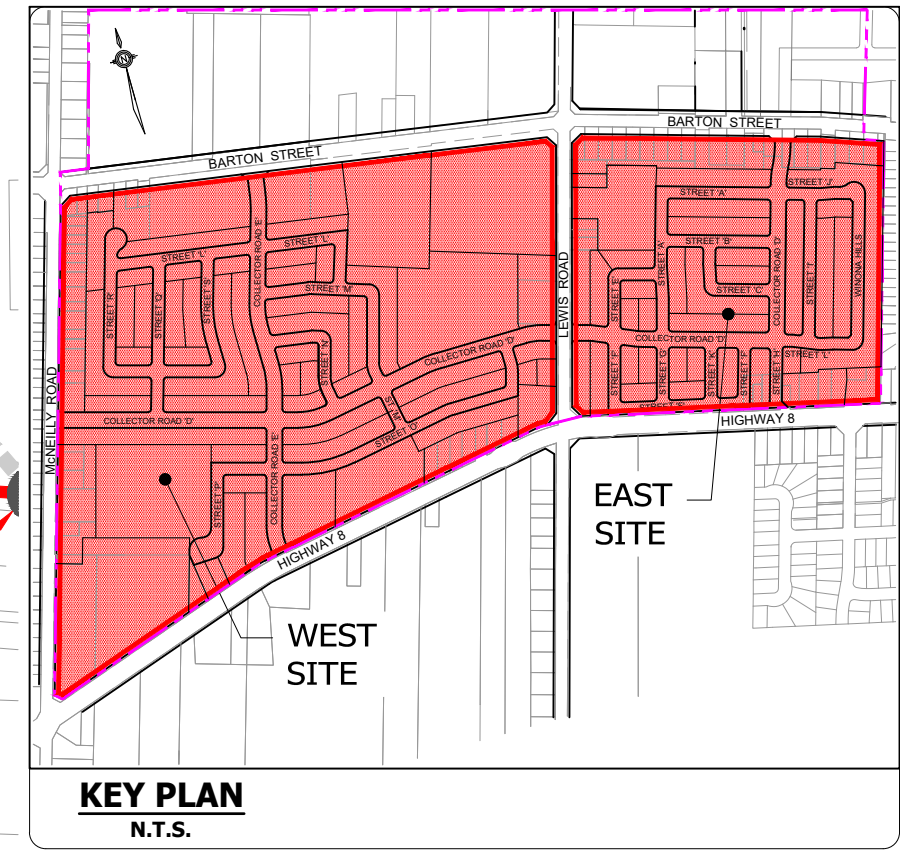
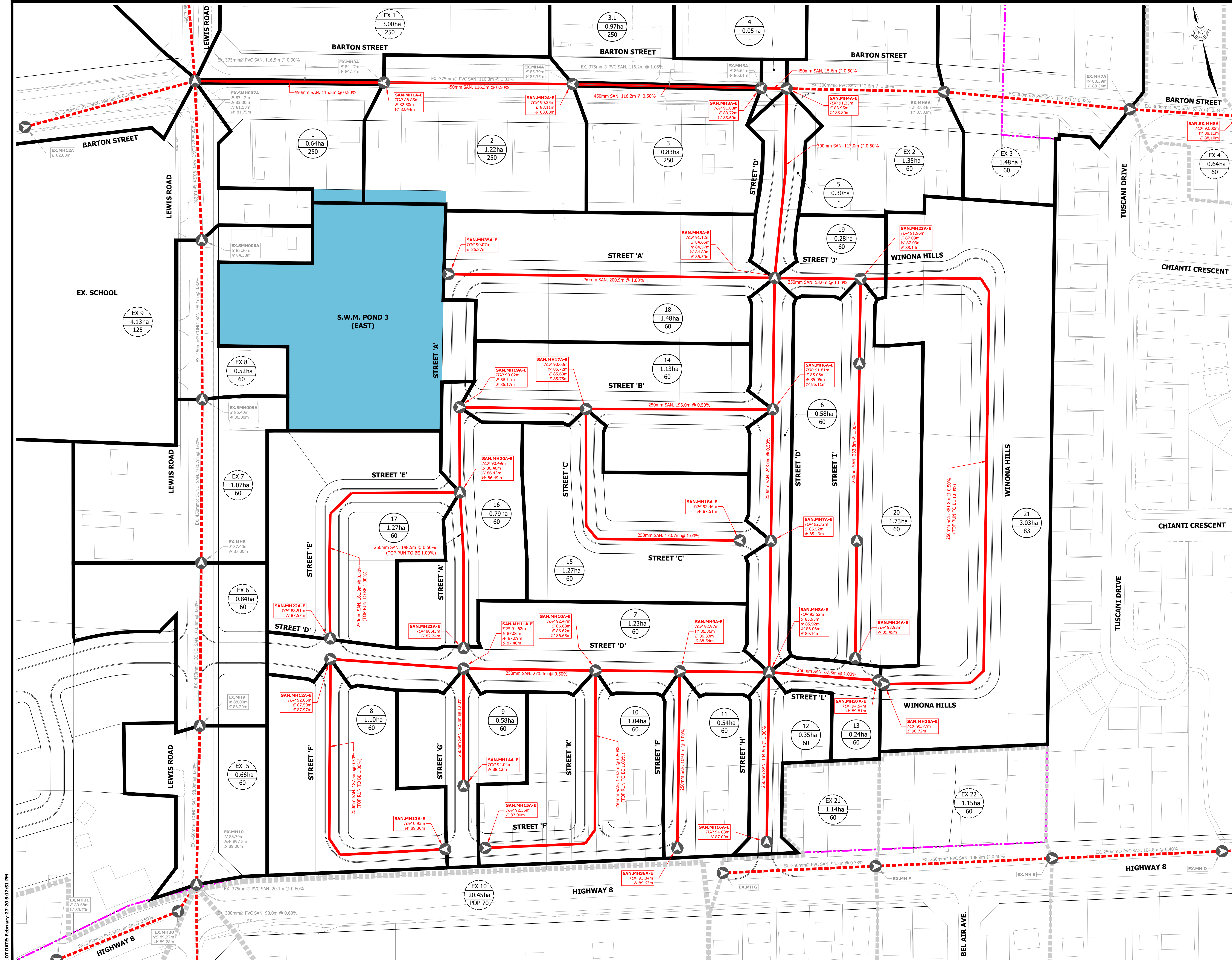
**BRANTHAVEN FRUITLAND  
CITY OF HAMILTON**

**PRELIMINARY SANITARY  
DRAINAGE PLAN - WEST  
(OPTION 2)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	SAN-1A



F:\PROJECTS\12-062W (BRANTHAVEN FRUITLAND WINONA)\DRAWINGS\99-RES\12-062W\_PRELIMINARY WEST SANITARY DRAINAGE PLAN.DWG



- LEGEND**
- LIMIT OF STUDY AREA
  - SANITARY DRAINAGE AREA BOUNDARY (TO SMH007A)
  - NON CONTRIBUTING SANITARY DRAINAGE
  - PROPOSED SANITARY SEWER
  - EXISTING SANITARY SEWER
  - AREA I.D.
  - AREA Ha.
  - POPULATION PER Ha.
  - SAN.MH100-E  
TOP 90.00m  
S 85.00m  
W 86.00m  
E 89.14m SANITARY MANHOLE ID
  - PROPOSED GROUND ELEVATION
  - PROPOSED SEWER INVERTS

**BENCHMARK**  
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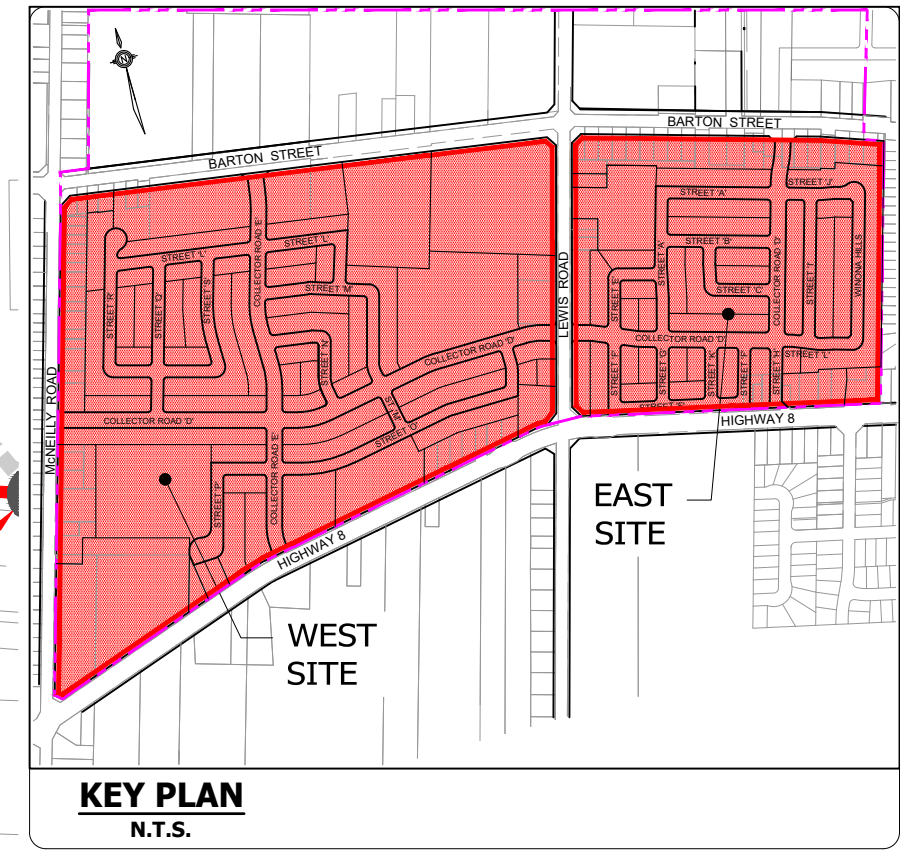
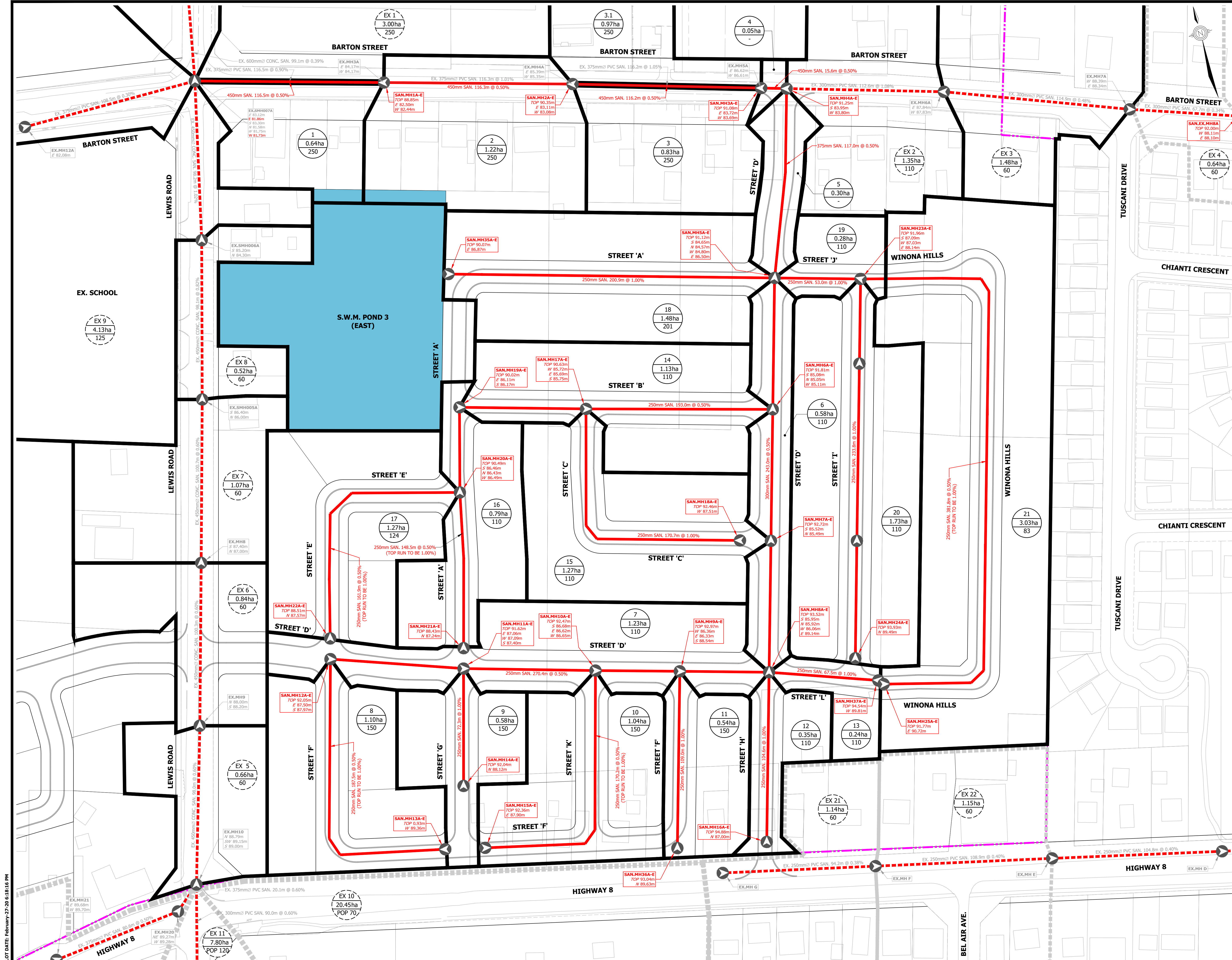
**BRANTHAVEN FRUITLAND  
 CITY OF HAMILTON**

**PRELIMINARY SANITARY  
 DRAINAGE PLAN - EAST  
 (OPTION 1)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1000	SAN-2

PLOT DATE: February-27-20 6:17:51 PM

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- LEGEND**
- LIMIT OF STUDY AREA
  - SANITARY DRAINAGE AREA BOUNDARY (TO SMH007A)
  - NON CONTRIBUTING SANITARY DRAINAGE
  - PROPOSED SANITARY SEWER
  - - - EXISTING SANITARY SEWER
  - AREA I.D.
  - AREA Ha.
  - POPULATION PER Ha.
  - SANITARY MANHOLE ID
  - PROPOSED GROUND ELEVATION
  - PROPOSED SEWER INVERTS

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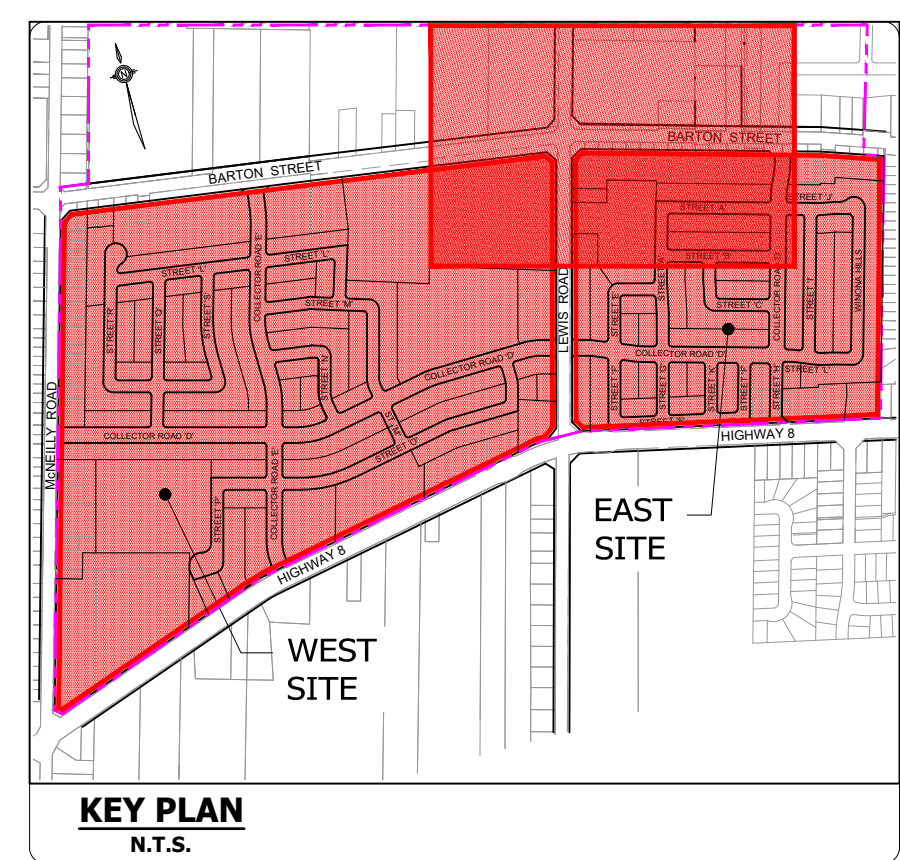
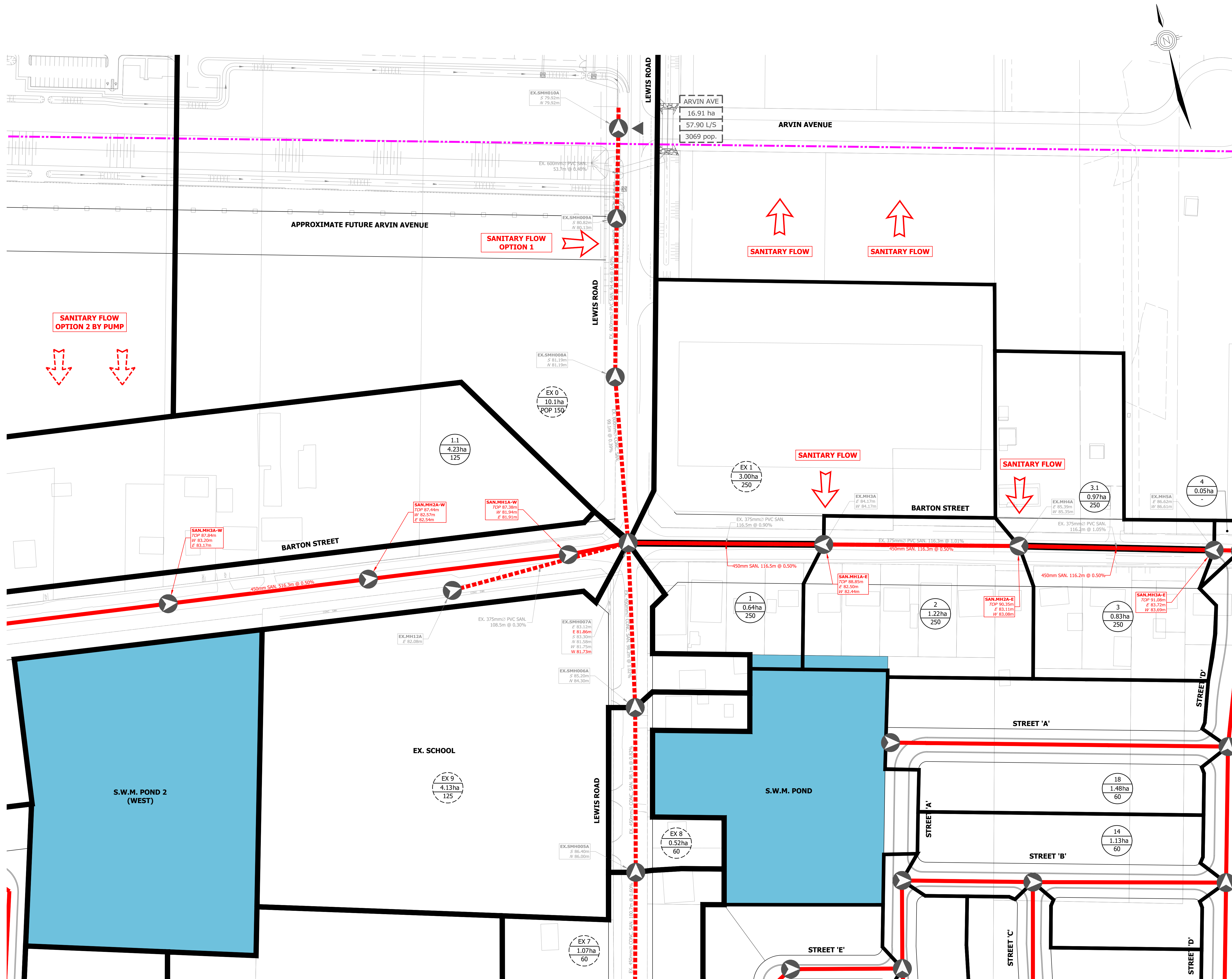
**BRANTHAVEN FRUITLAND  
 CITY OF HAMILTON**

**PRELIMINARY SANITARY  
 DRAINAGE PLAN - EAST  
 (OPTION 2)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1000	SAN-2A

PLOT DATE: February-27-20 6:18:16 PM

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**LEGEND**

- LIMIT OF STUDY AREA
- SANITARY DRAINAGE AREA BOUNDARY (TO SMH007A)
- NON CONTRIBUTING SANITARY DRAINAGE
- ▶ PROPOSED SANITARY SEWER
- - - ▶ EXISTING SANITARY SEWER
- AREA I.D. AREA I.D.
- AREA Ha. AREA Ha.
- POPULATION POPULATION PER Ha.
- FUT. 3 AREA I.D.
- 1.18 AREA
- 20 L/S FLOW
- 98 pop. POLULATION
- SAN.MH1A-W SANITARY MANHOLE ID
- PROPOSED GROUND ELEVATION
- PROPOSED SEWER INVERTS

**BENCHMARK**  
 DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



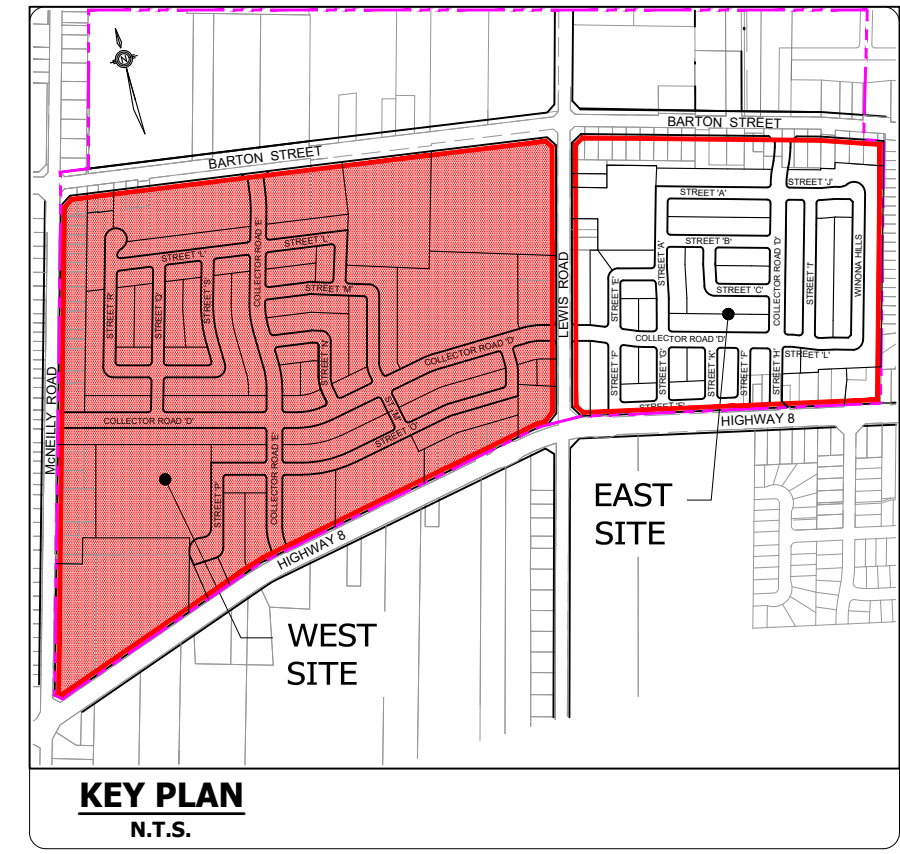
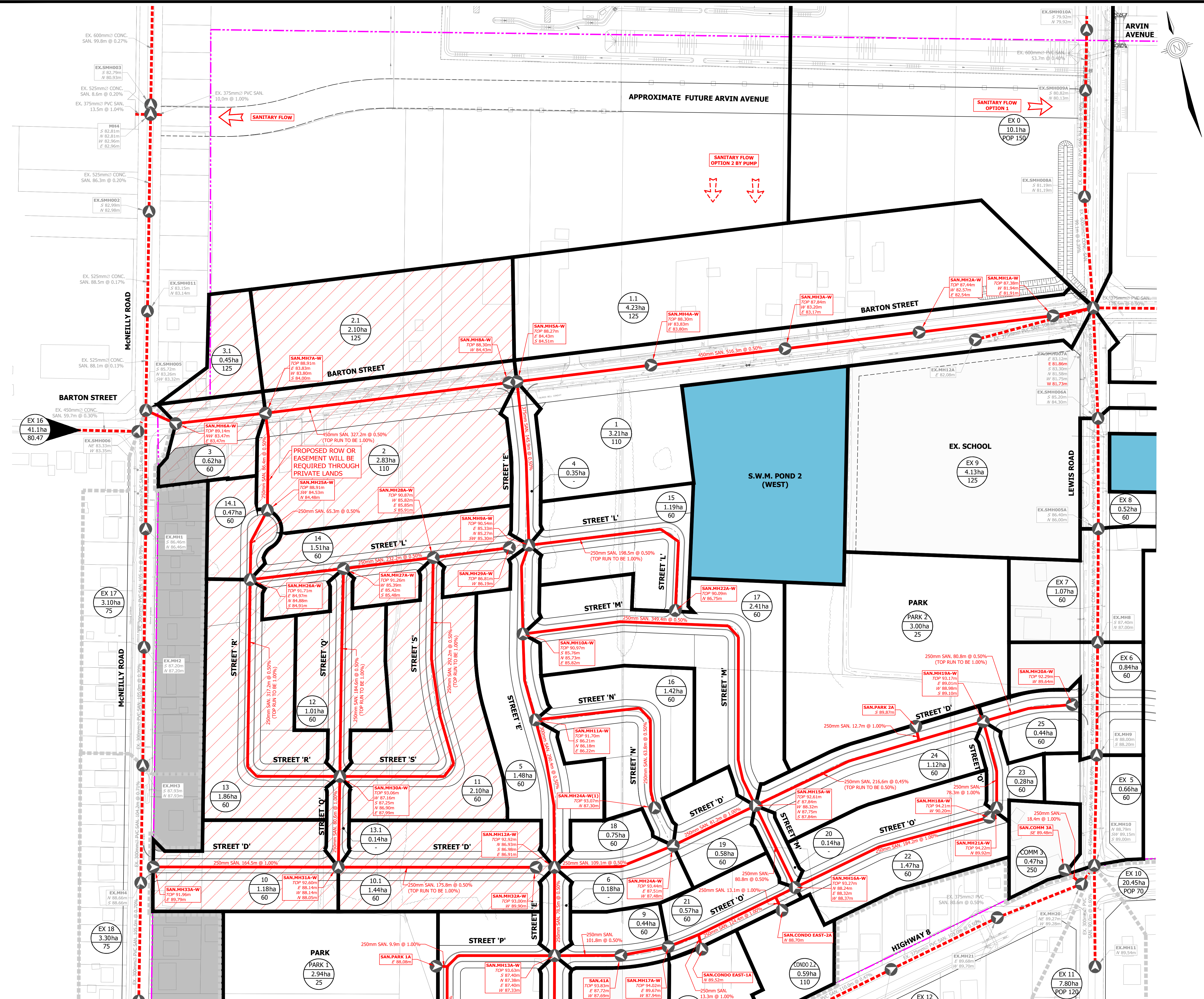
**BRANTHAVEN FRUITLAND  
 CITY OF HAMILTON**

**PRELIMINARY SANITARY  
 DRAINAGE PLAN LEWIS  
 ROAD - NORTH**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1000	SAN-3

PLOT DATE: February-27-20 6:18:48 PM

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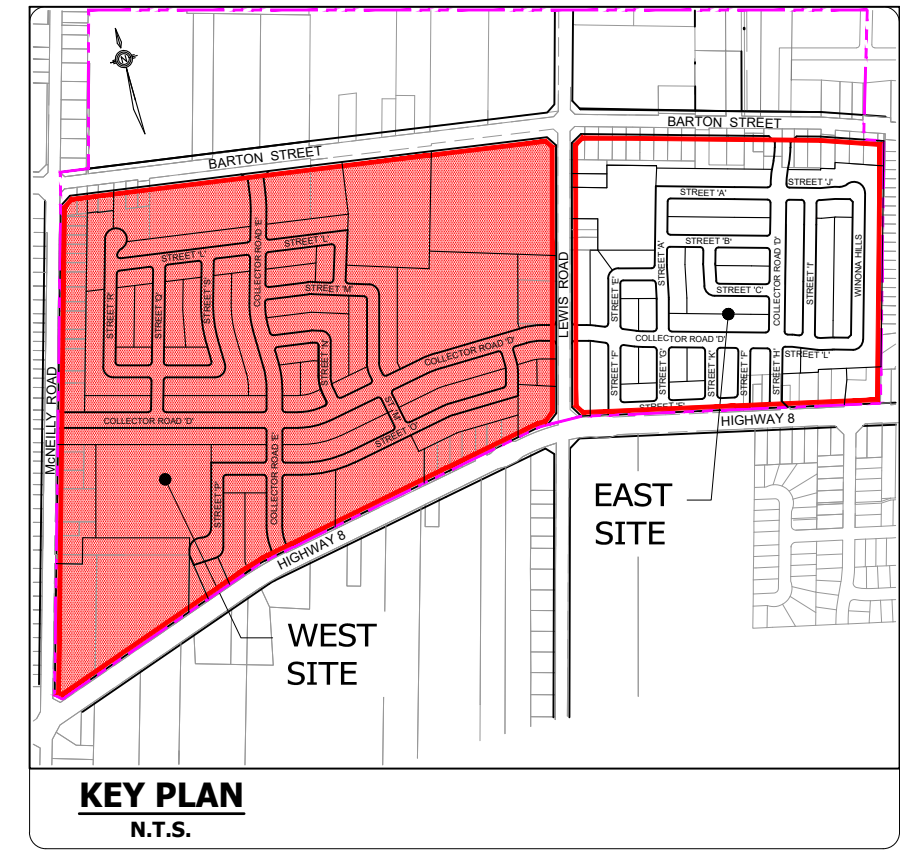
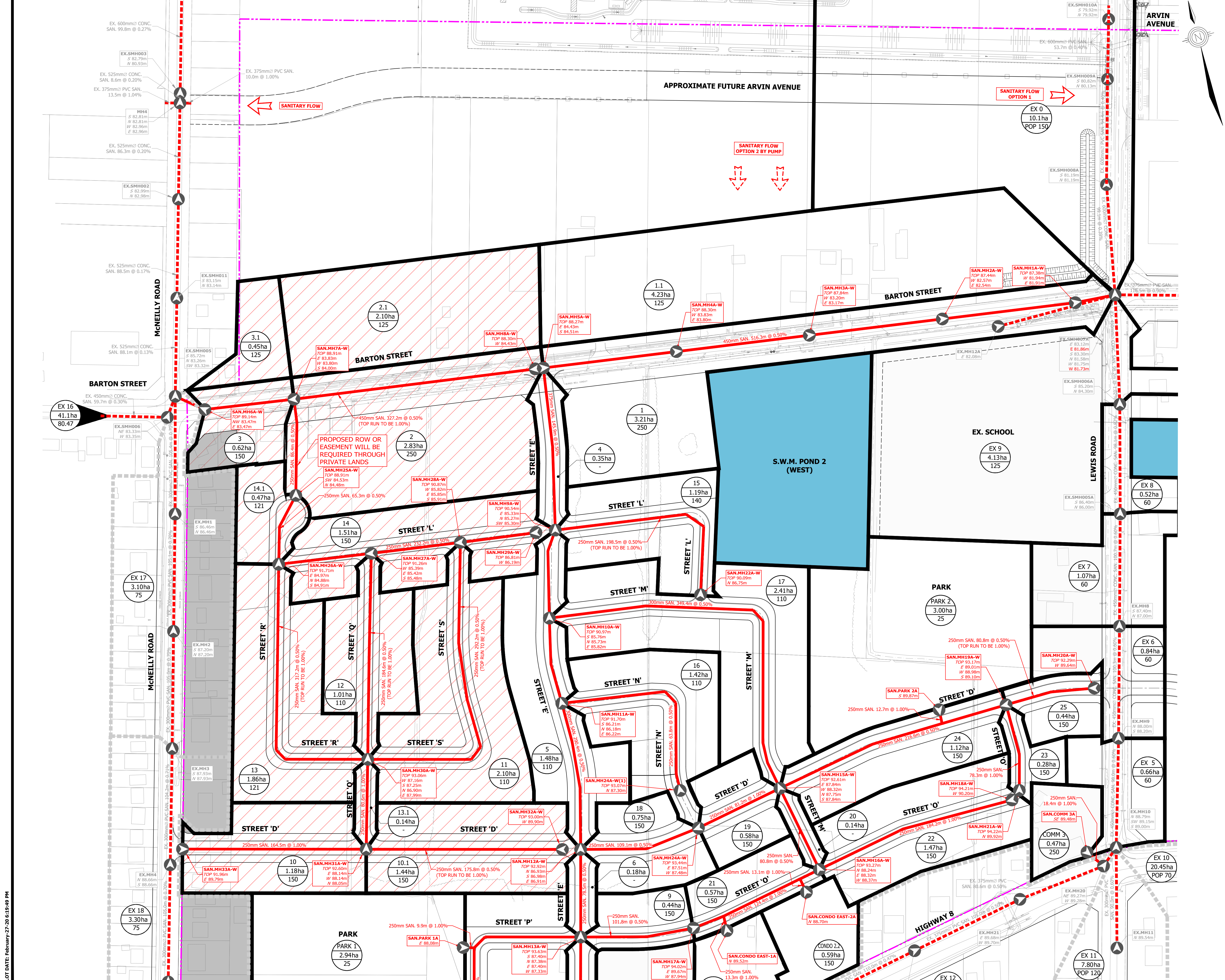
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- LIMIT OF STUDY AREA
  - SANITARY DRAINAGE AREA BOUNDARY (TO SMH007A)
  - NON CONTRIBUTING SANITARY DRAINAGE
  - PROPOSED SANITARY SEWER
  - EXISTING SANITARY SEWER
  - AREA I.D.
  - AREA Ha.
  - POPULATION PER Ha.
  - SAN.MH15A-W SANITARY MANHOLE ID
  - PROPOSED GROUND ELEVATION
  - PROPOSED SEWER INVERTS

**BENCHMARK**  
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**BRANTHAVEN FRUITLAND**  
 CITY OF HAMILTON  
**PRELIMINARY SANITARY DRAINAGE PLAN - WEST (OPTION 2 - NORTH OF BARTON STREET)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	SAN-4



- LEGEND**
- LIMIT OF STUDY AREA
  - SANITARY DRAINAGE AREA BOUNDARY (TO SMH007A)
  - NON CONTRIBUTING SANITARY DRAINAGE
  - PROPOSED SANITARY SEWER
  - EXISTING SANITARY SEWER
  - AREA I.D.
  - AREA Ha.
  - POPULATION PER Ha.
  - SANITARY MANHOLE ID
  - PROPOSED GROUND ELEVATION
  - PROPOSED SEWER INVERTS

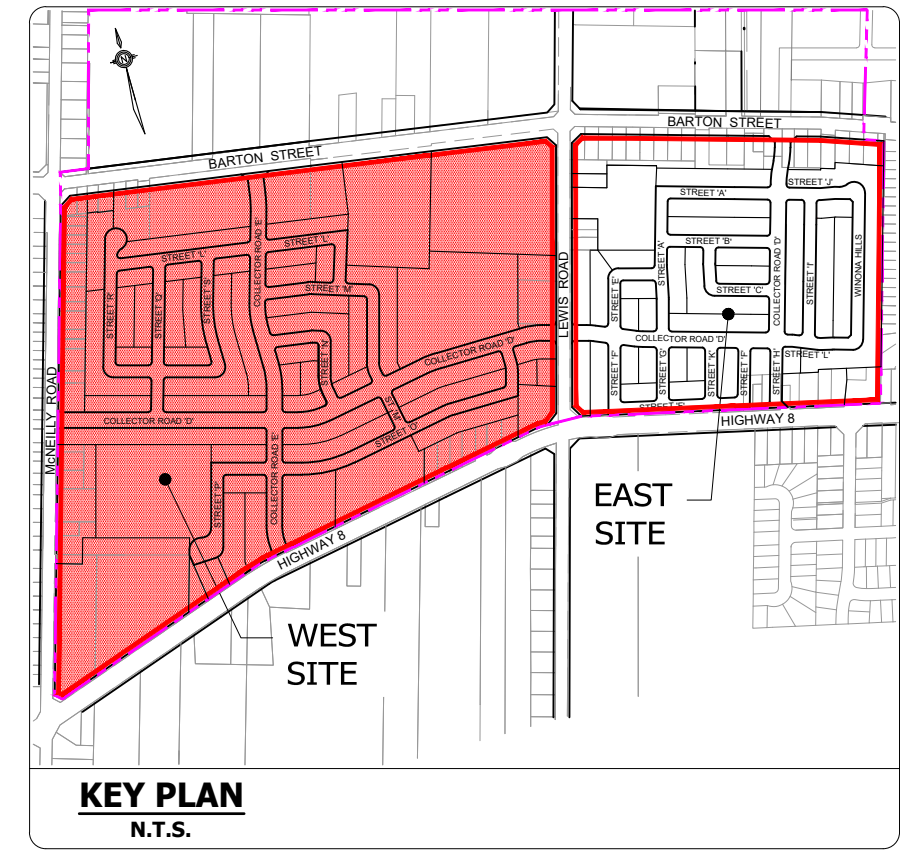
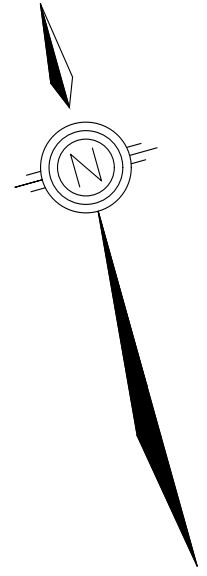
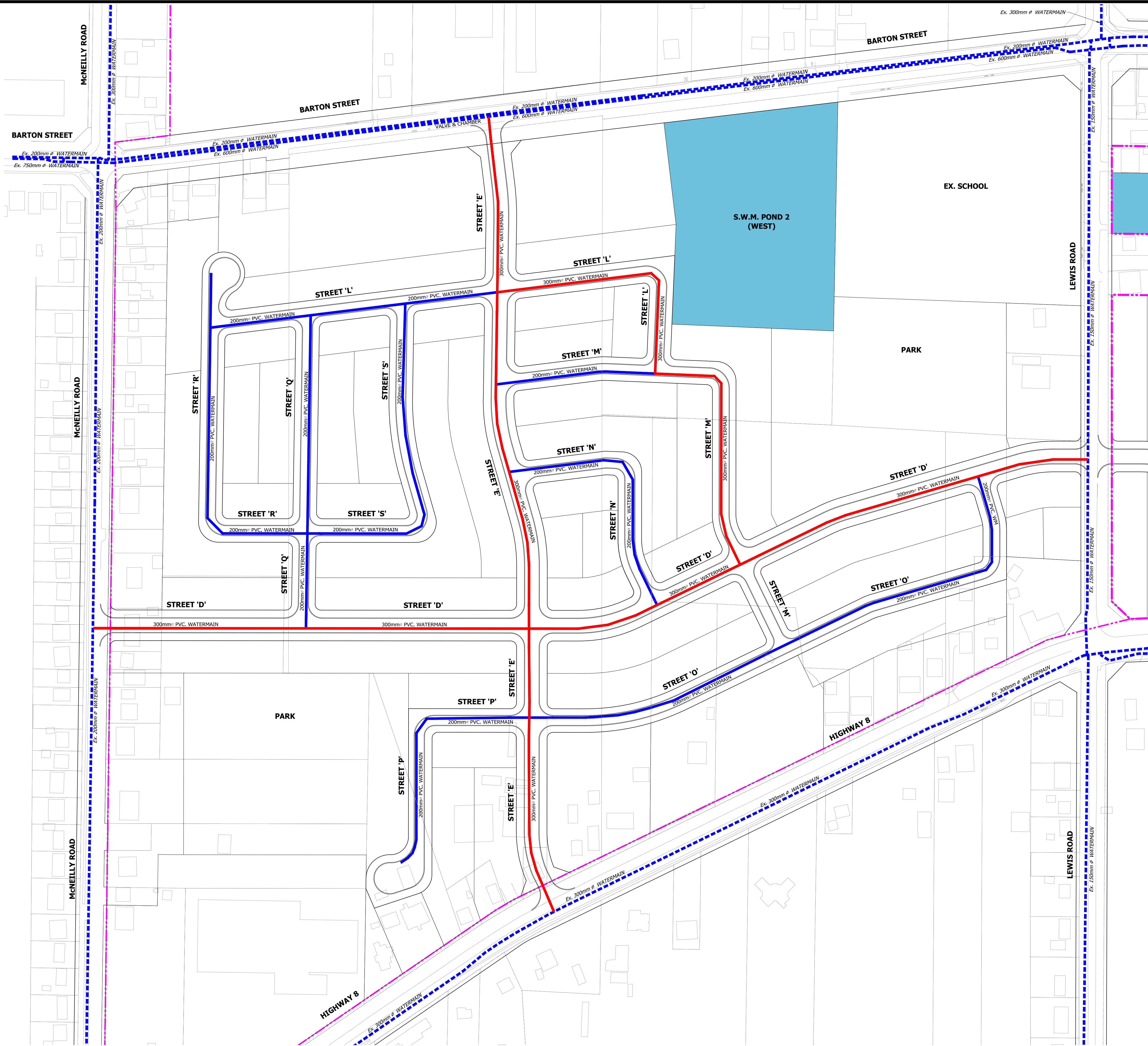
**BENCHMARK**  
DEEP BENCHMARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.00m (288.71 FT.)



**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON  
**PRELIMINARY SANITARY DRAINAGE PLAN - WEST (OPTION 2 - NORTH OF BARTON STREET)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	SAN-4A

PLOT DATE: February-27-20 6:20:05 PM



- LEGEND**
- LIMIT OF STUDY AREA
  - PROPOSED 300mm $\phi$  PVC. WATERMAIN
  - PROPOSED 200mm $\phi$  PVC. WATERMAIN
  - - - EXISTING WATERMAIN

**BENCHMARK**  
 DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



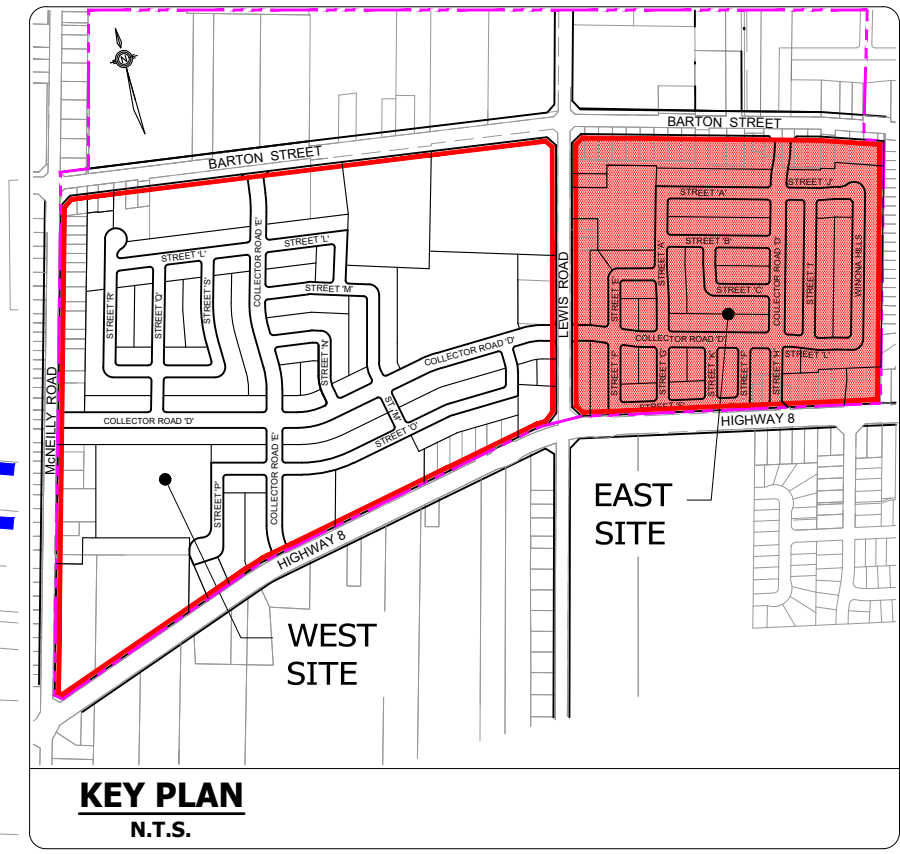
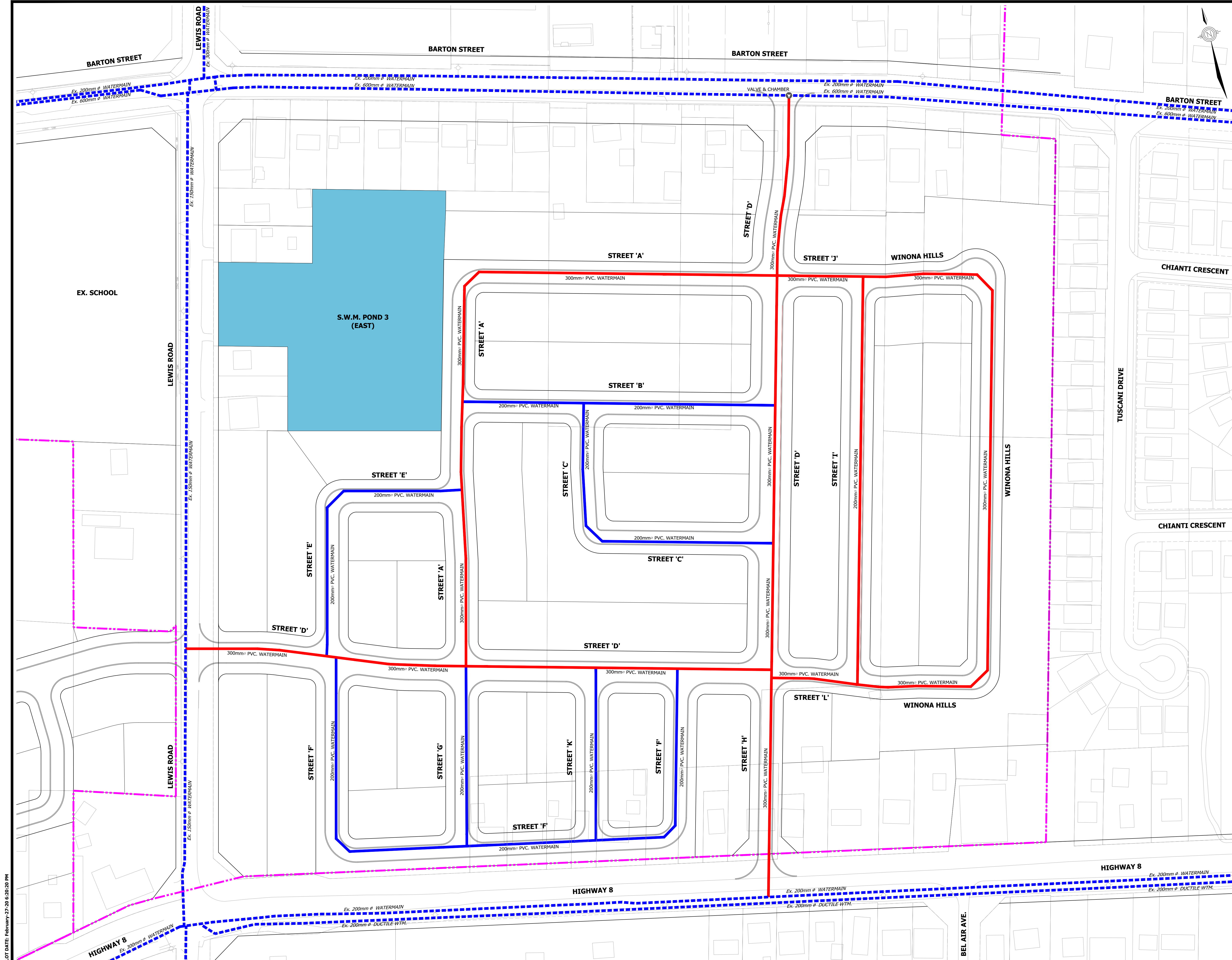
**BRANTHAVEN FRUITLAND**  
 CITY OF HAMILTON

**PRELIMINARY WATER SERVICING PLAN - WEST**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	WM-1

F:\PROJECTS\12-062W (BRANTHAVEN-FRUITLAND WINONA)DRAWINGS\FIGURES\12-062W\_PRELIMINARY WEST WATERMAIN PLANNING





- LEGEND**
- - - LIMIT OF STUDY AREA
  - PROPOSED 300mm $\phi$  PVC WATERMAIN
  - PROPOSED 200mm $\phi$  PVC WATERMAIN
  - - - EXISTING WATERMAIN

**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



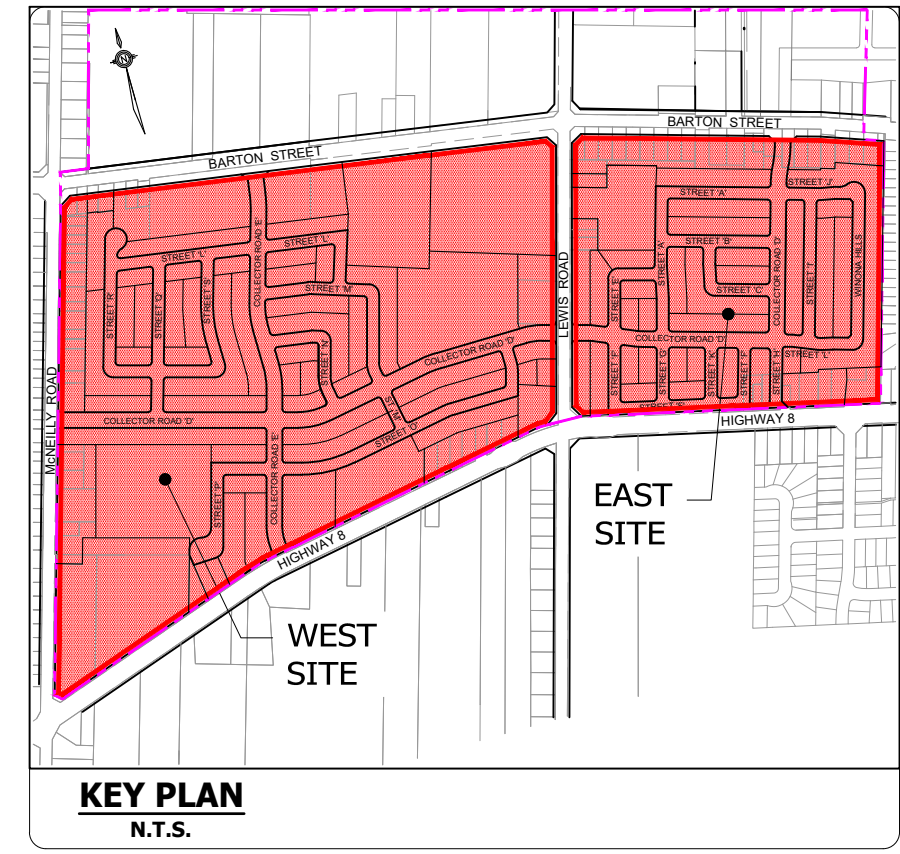
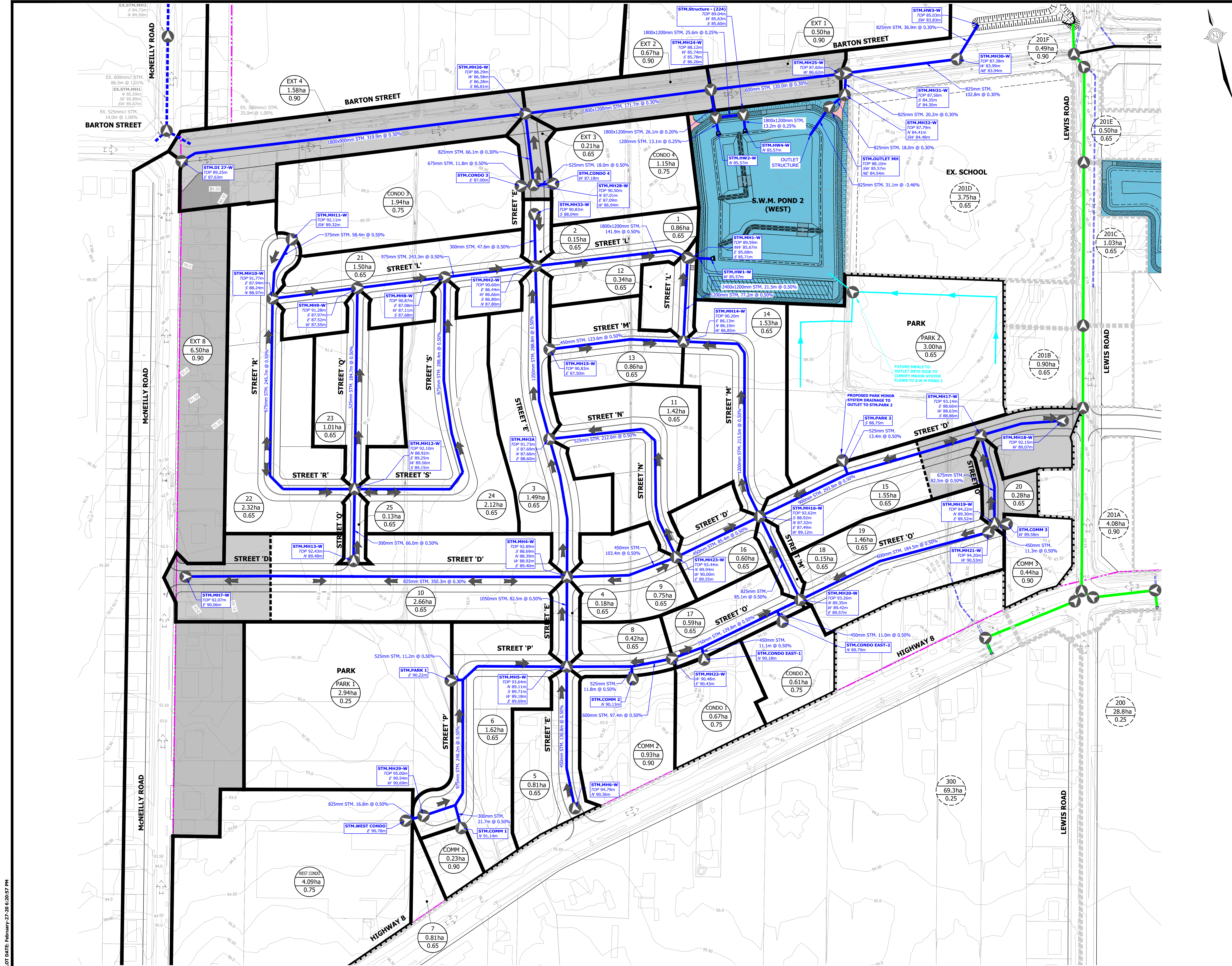
**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY WATER SERVICING PLAN - EAST**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1000	WM-2

PLOT DATE: February-27-20 6:30:20 PM

F:\PROJECTS\12-062W BRANTHAVEN-FRUITLAND WINONA\DRAWINGS\FIGURES\12-062W\_PRELIMINARY EAST WATERMAIN PLAN.DWG



- KEY PLAN**  
N.T.S.
- LEGEND**
- LIMIT OF STUDY AREA
  - STORM DRAINAGE AREA BOUNDARY
  - EXTERNAL STORM DRAINAGE AREA BOUNDARY
  - PROPOSED STORM SEWER
  - - - EXISTING STORM SEWER
  - PROPOSED EXTERNAL CONVEYANCE PIPE (SEE DWG STM-3)
  - - - EXISTING CONTOUR & ELEVATION
  - AREA I.D.
  - AREA Ha
  - RUNOFF COEFFICIENT
  - ← MAJOR OVERLAND FLOW
  - ← EXISTING MAJOR OVERLAND FLOW
  - 100YR CAPTURE
  - STM.MH16-W
  - PROPOSED GROUND ELEVATION
  - PROPOSED SEWER INVERTS
  - FUTURE SWALE

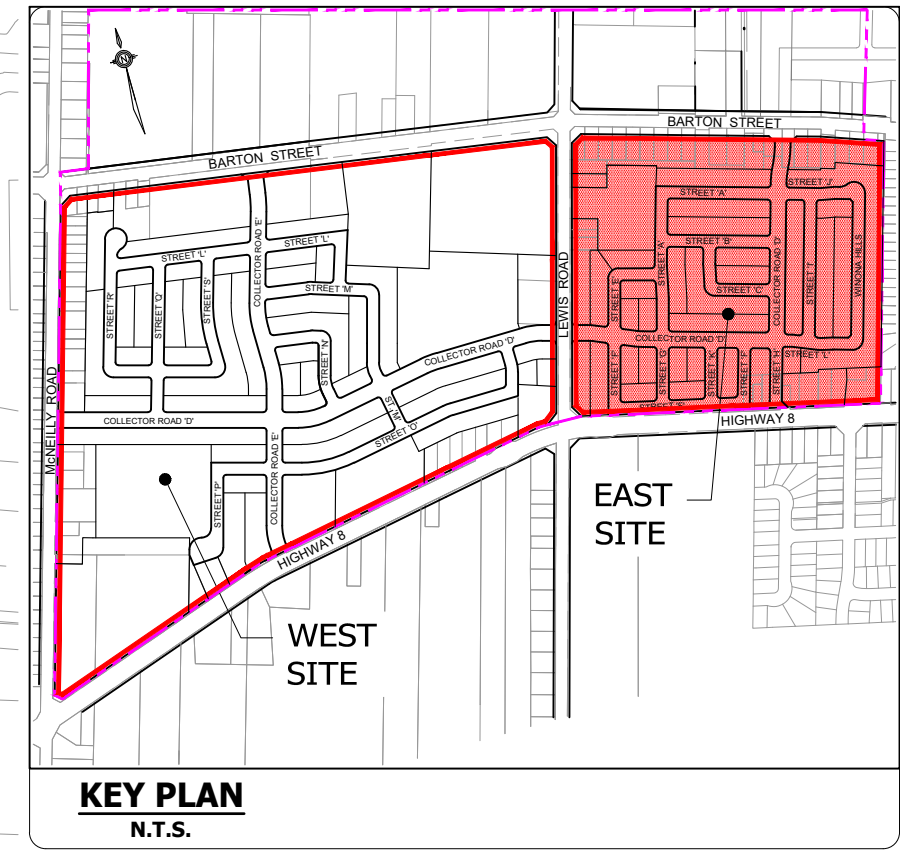
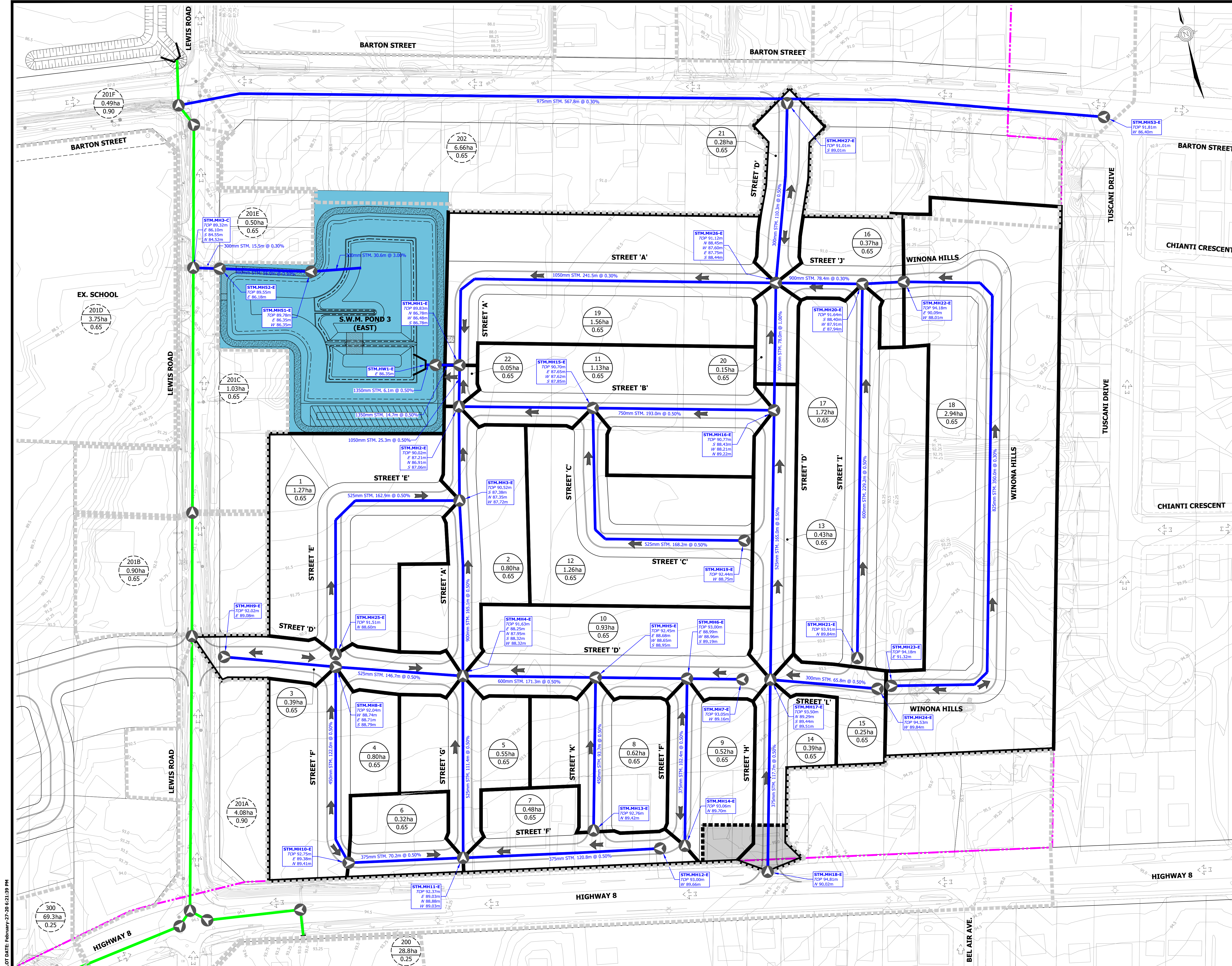
**BENCHMARK**  
DEEP BENCHMARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.00m (288.71 FT.)



**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY STORM DRAINAGE PLAN - WEST**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	STM-1



- LEGEND**
- LIMIT OF STUDY AREA
  - STORM DRAINAGE AREA BOUNDARY
  - EXTERNAL STORM DRAINAGE AREA BOUNDARY
  - PROPOSED STORM SEWER
  - PROPOSED EXTERNAL CONVEYANCE PIPE (SEE DWG STM-3)
  - EXISTING CONTOUR & ELEVATION
  - 41 AREA I.D.
  - 0.26ha AREA Ha.
  - 0.65 RUNOFF COEFFICIENT
  - ← MAJOR OVERLAND FLOW
  - ← EXISTING MAJOR OVERLAND FLOW
  - 100YR CAPTURE
  - STM.MH4-E STORM MANHOLE ID
  - PROPOSED GROUND ELEVATION
  - PROPOSED SEWER INVERTS

**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 Ft.)

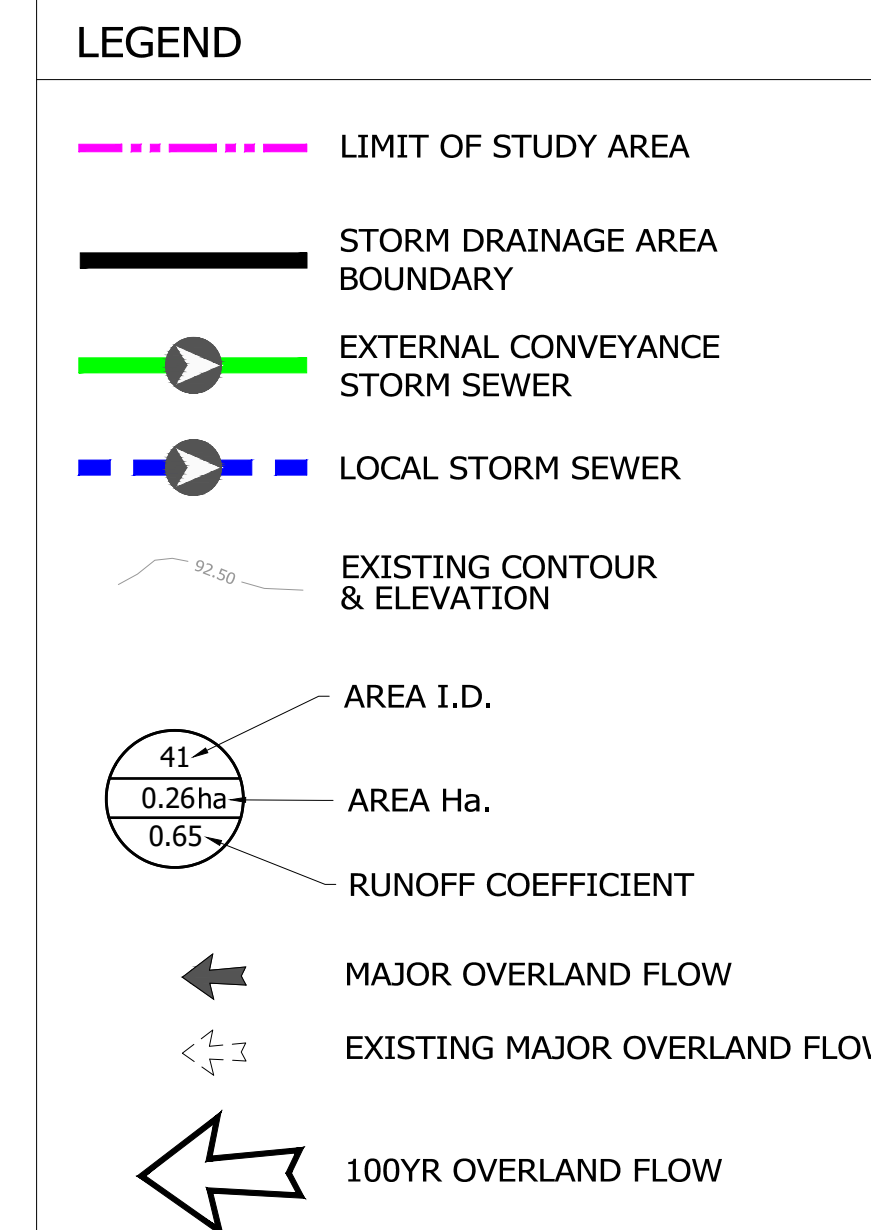
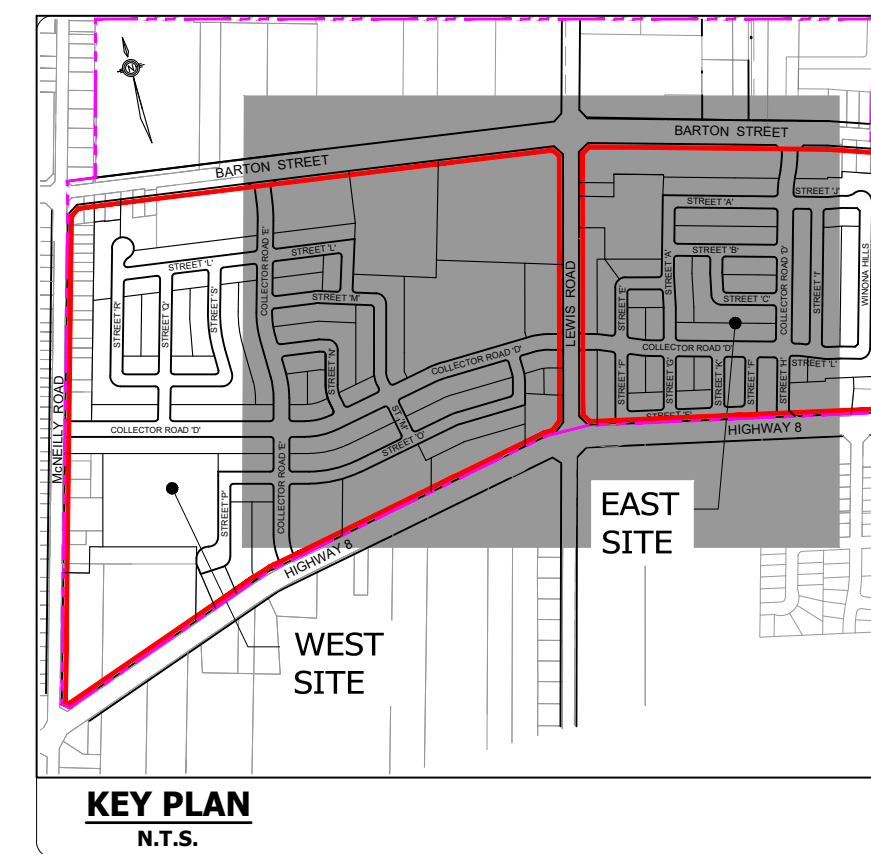
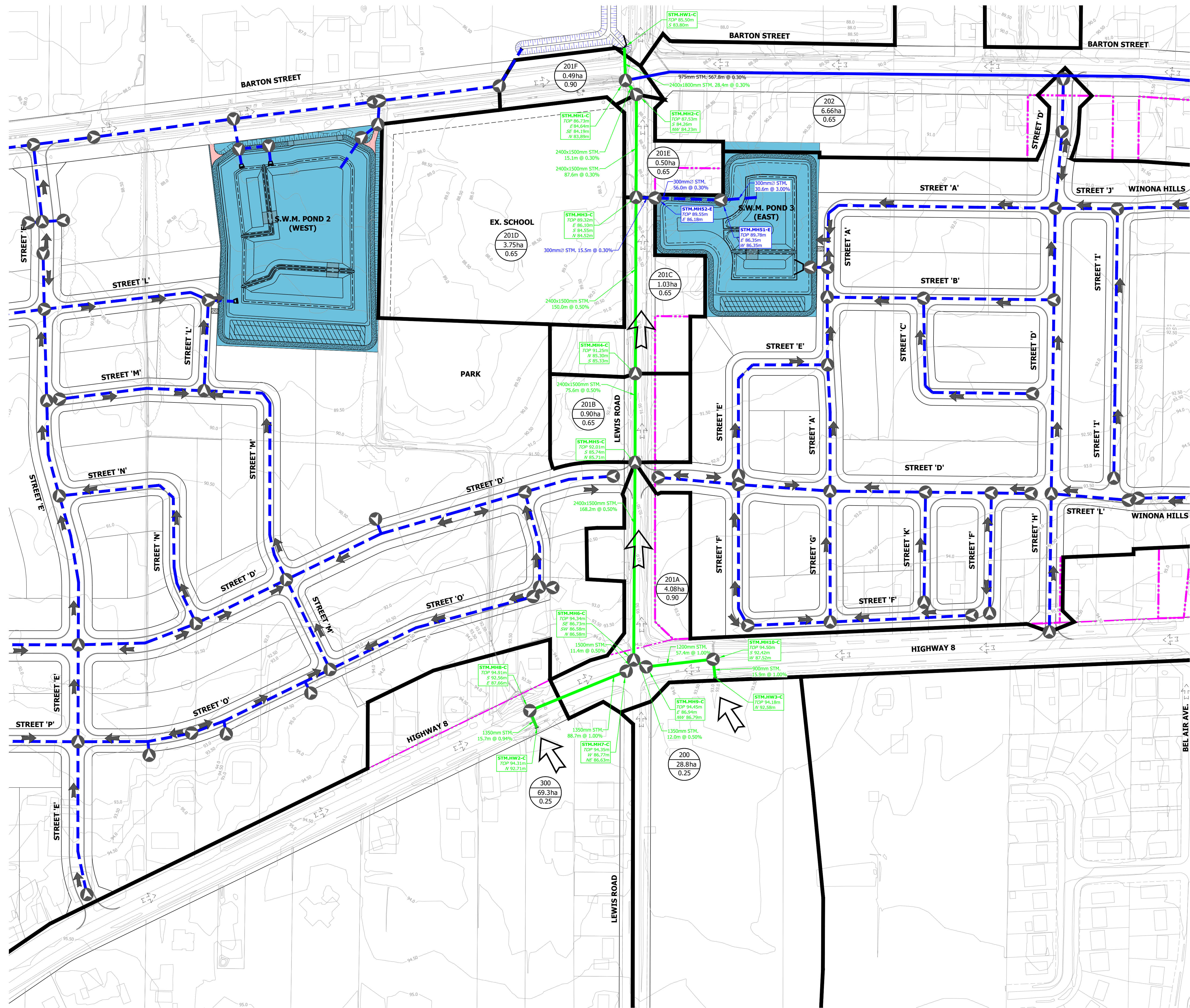


**BRANTHAVEN FRUITLAND CITY OF HAMILTON**

**PRELIMINARY STORM DRAINAGE PLAN - EAST**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1000	STM-2

PLOT DATE: February-27-20 6:21:39 PM



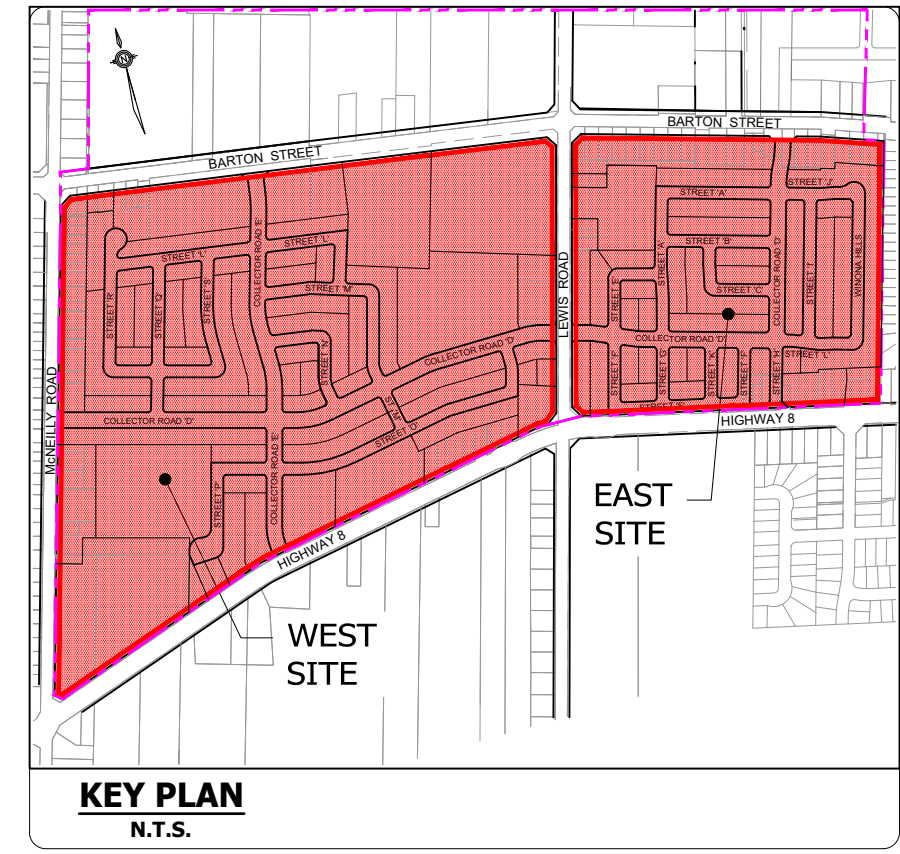
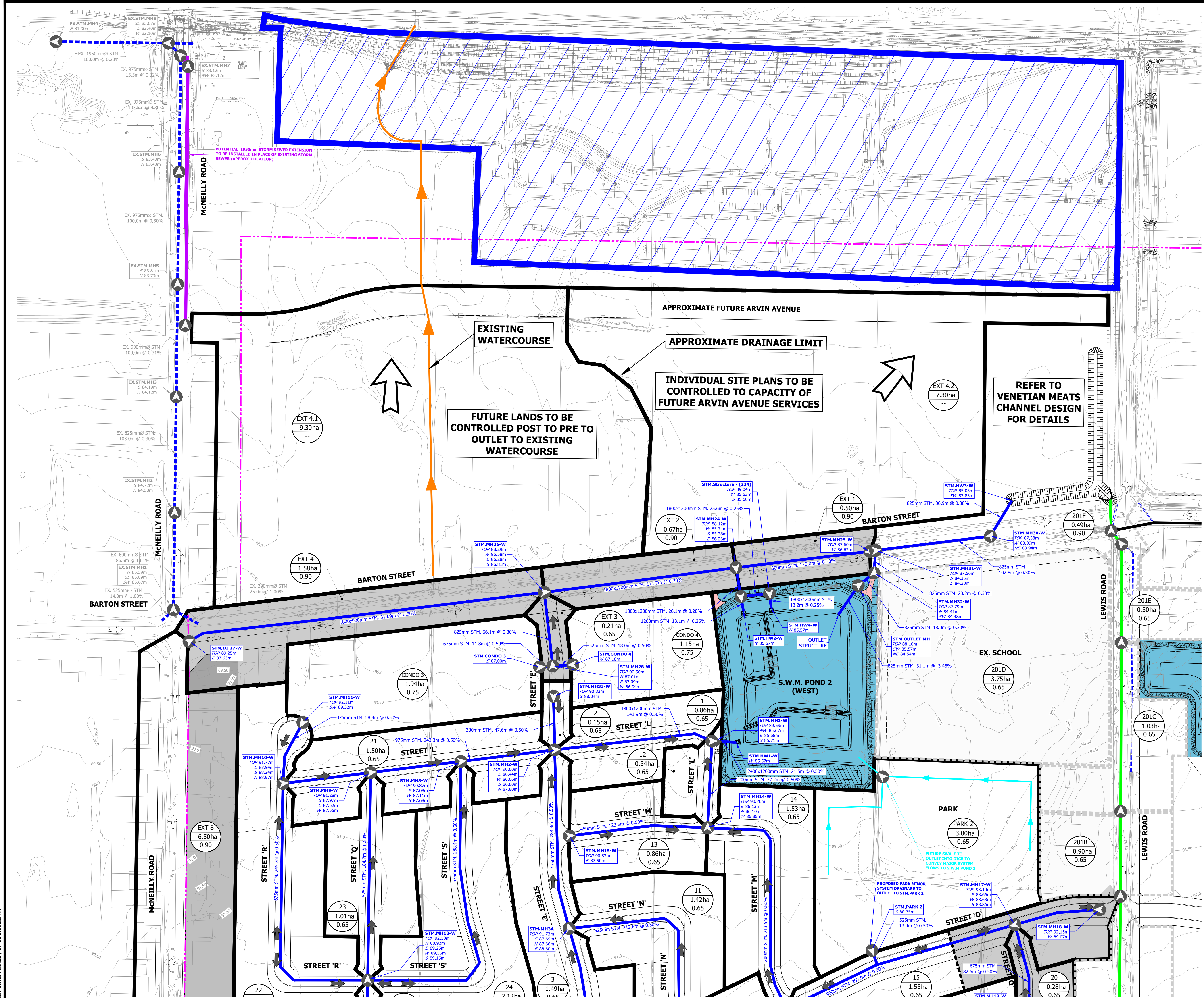
**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY EXTERNAL CONVEYANCE DRAINAGE PLAN (SCENARIO 2a)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	STM-3



- LEGEND**
- LIMIT OF STUDY AREA
  - STORM DRAINAGE AREA BOUNDARY
  - EXTERNAL STORM DRAINAGE AREA BOUNDARY
  - PROPOSED STORM SEWER
  - EXISTING STORM SEWER
  - PROPOSED EXTERNAL CONVEYANCE PIPE (SEE DWG STM-3)
  - POTENTIAL 1950mm STORM SEWER EXTENSION
  - EXISTING CONTOUR & ELEVATION
  - AREA I.D.
  - AREA Ha.
  - RUNOFF COEFFICIENT
  - ← MAJOR OVERLAND FLOW
  - ← EXISTING MAJOR OVERLAND FLOW
  - ← EXISTING OVERLAND FLOW
  - 100YR CAPTURE
  - STM.MH16-W STORM MANHOLE ID
  - TOP 92.62m PROPOSED GROUND ELEVATION
  - S 88.72m PROPOSED SEWER INVERTS
  - METROLINX RAIL YARD
  - EXISTING DRAINAGE DITCH
  - FUTURE SWALE

**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



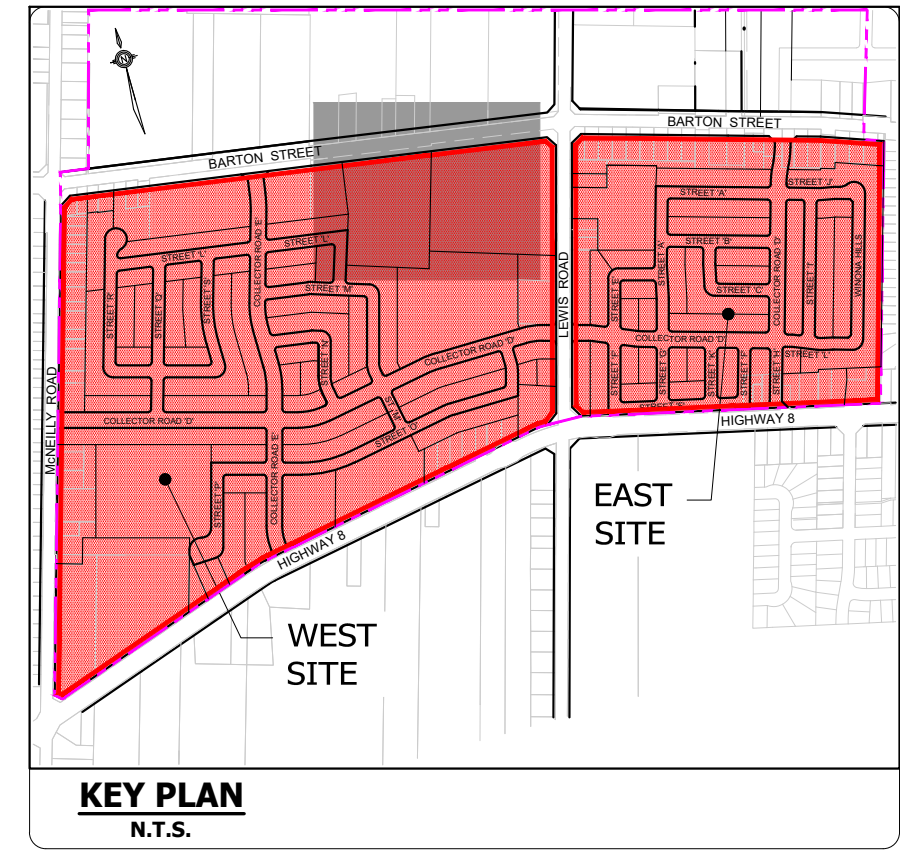
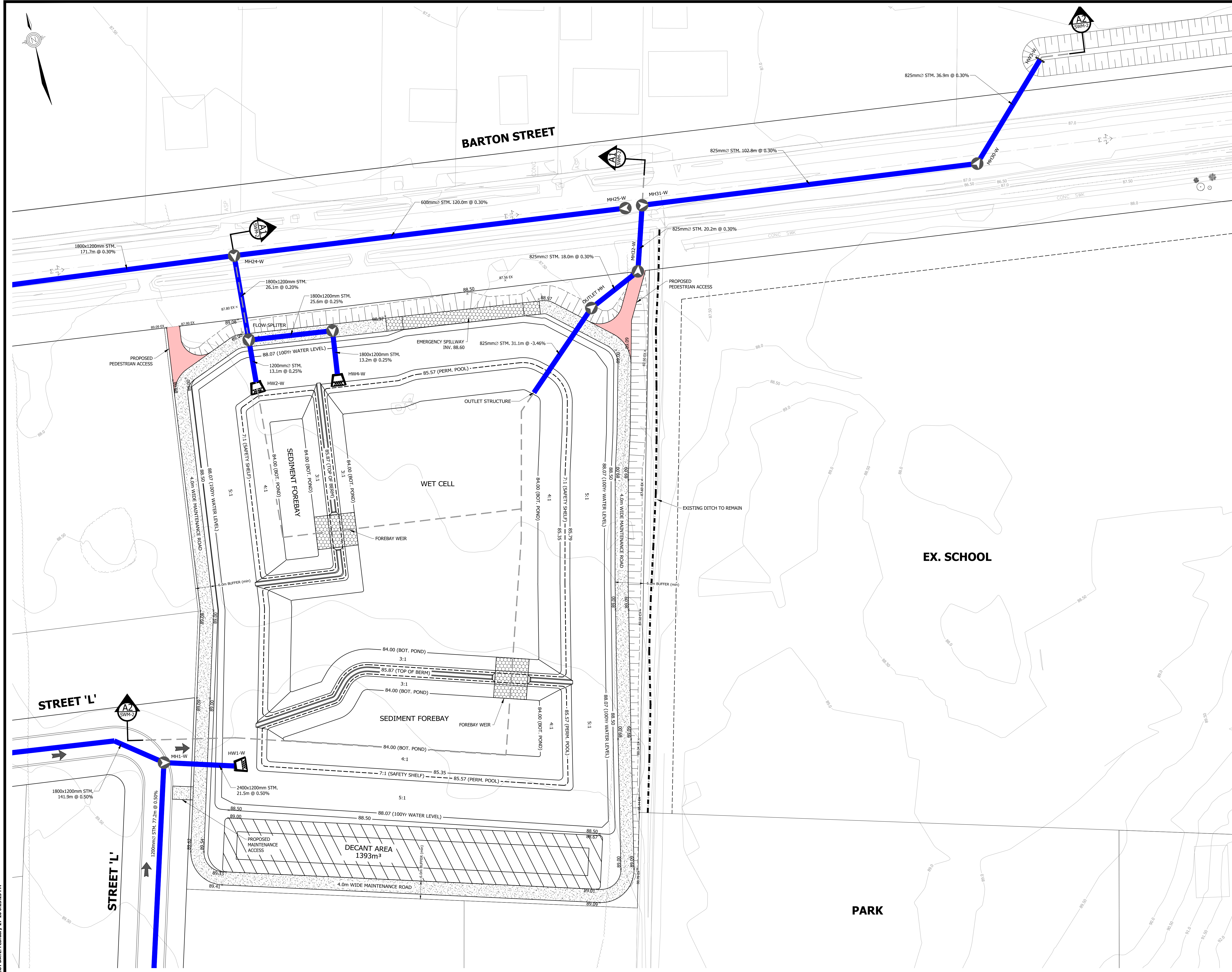
**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY STORM DRAINAGE PLAN - WEST (NORTH OF BARTON STREET)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:1500	STM-4

PLOT DATE: February-27-20 6:22:52 PM

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- LEGEND**
- — — — LIMIT OF STUDY AREA
  - PROPOSED STORM SEWER
  - EXISTING CONTOUR & ELEVATION
  - MAJOR OVERLAND FLOW
  - ↙ ↘ EXISTING MAJOR OVERLAND FLOW

**Pond-2 (West)**  
Area = 53.46 ha; IMP%=69%

	SCUBE SWS, 2013 (Outdated)		BSS, 2019	
	Required Volume [m <sup>3</sup> ]	Elevation [m]	Required Volume [m <sup>3</sup> ]	Provided Volume [m <sup>3</sup> ]
Bottom	0	84	0	0
Permanent Pool	10,742	85.57	9,805	17,142
Extended Detention	16,281	86.1	6,270	7,098
100-year water level	67,686	88.07	39,896	40,085
Emergency Spillway	N/A	88.6	N/A	50,809
Top of Pond	N/A	89	N/A	59,266

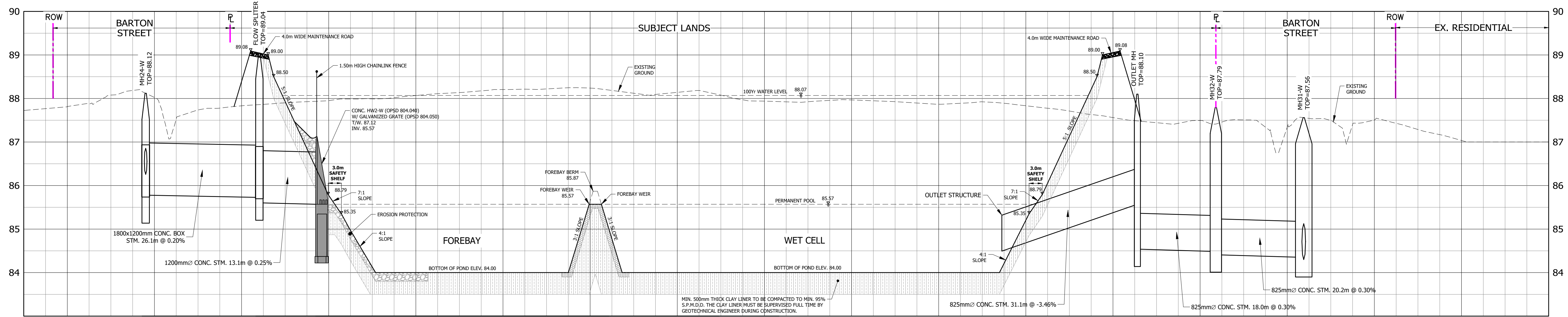
**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

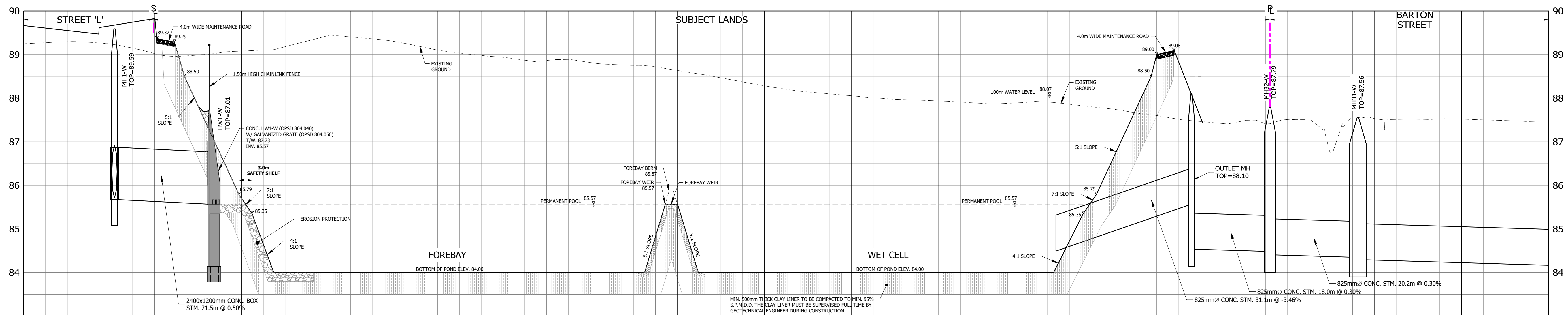
**PRELIMINARY SWM POND 2 PLAN - WEST (SCENARIO 2a)**

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:500	SWM-1



**SECTION A1-A1**

SCALE HOR. 1:500  
VER. 1:50



**SECTION A2-A2**

SCALE HOR. 1:500  
VER. 1:50

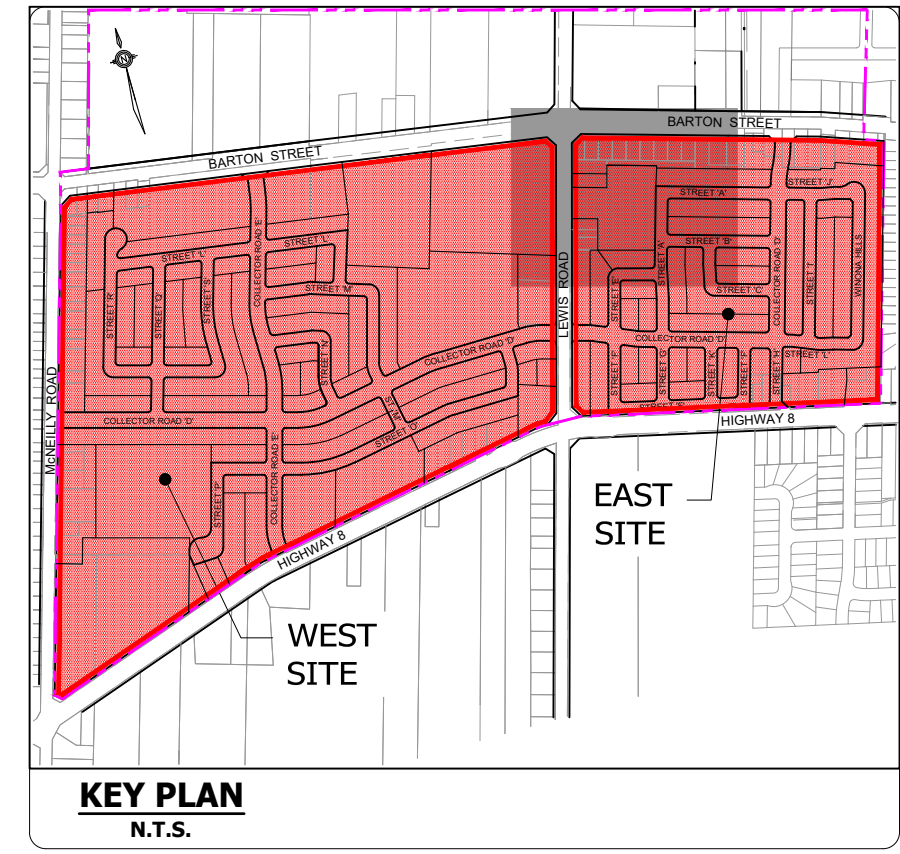
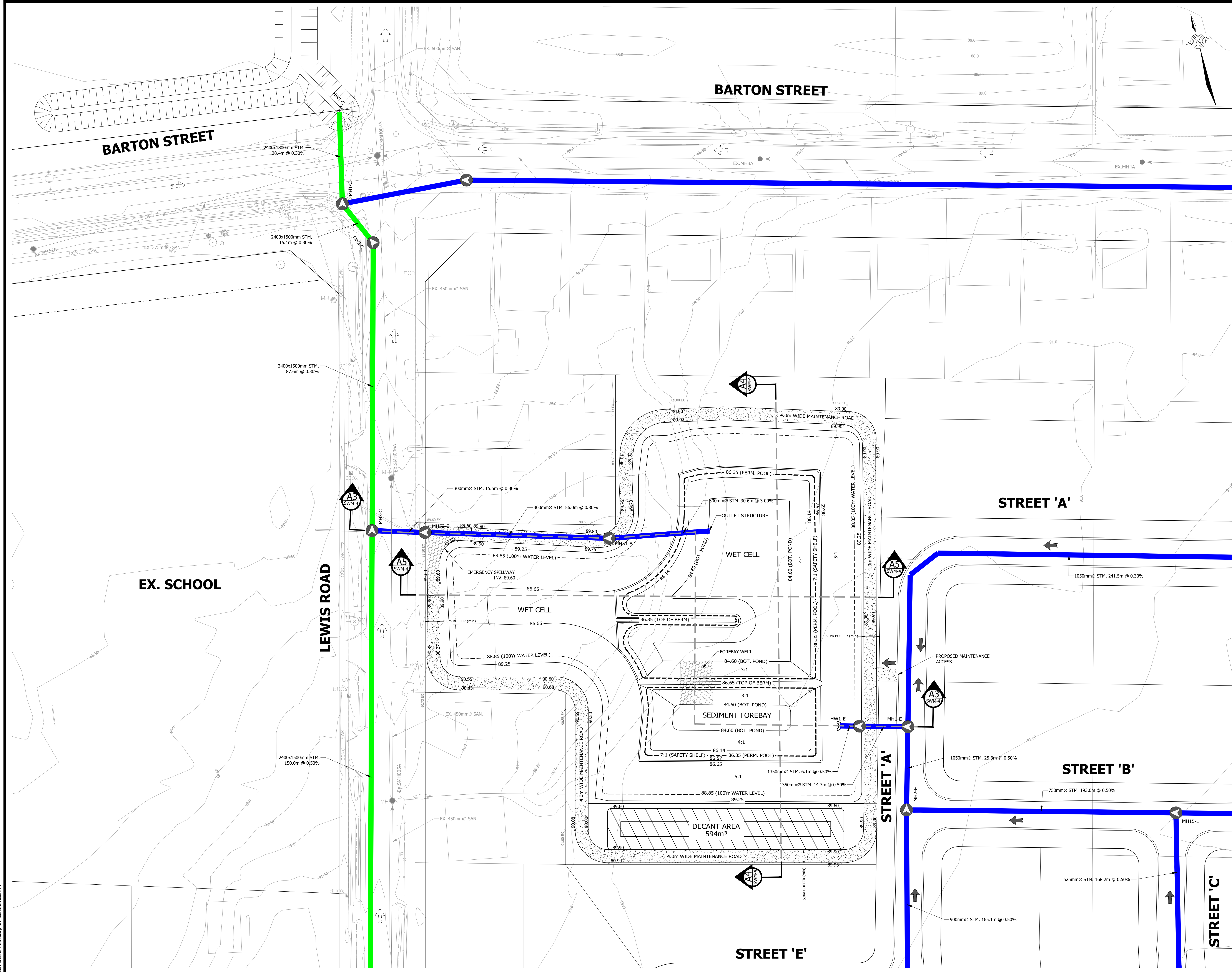
**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY SWM POND SECTIONS - WEST**  
(SCENARIO 2a)

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:500	<b>SWM-2</b>



- LEGEND**
- — — — — LIMIT OF STUDY AREA
  - — — — — PROPOSED STORM SEWER
  - — — — — PROPOSED EXTERNAL CONVEYANCE PIPE (SEE DWG STM-3)
  - — — — — EXISTING CONTOUR & ELEVATION
  - ← MAJOR OVERLAND FLOW
  - ← EXISTING MAJOR OVERLAND FLOW

**Pond-2 (East)**  
Area = 18.56 ha; IMP% = 69%

	SCUBS SWS, 2013 (Outdated)		BSS, 2019	
	Required Volume [m <sup>3</sup> ]	Elevation [m]	Required Volume [m <sup>3</sup> ]	Provided Volume [m <sup>3</sup> ]
Bottom	0	84.6	0	0
Permanent Pool	4,565	86.35	3,387	4,565
Extended Detention	3,787	86.85	2,334	2,394
100-year water level	14,507	88.85	16,273	17,173
Emergency Spillway	N/A	89.60	N/A	24,637
Top of Pond	N/A	89.90	N/A	30,546

**BENCHMARK**  
DEEP BENCHMARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)

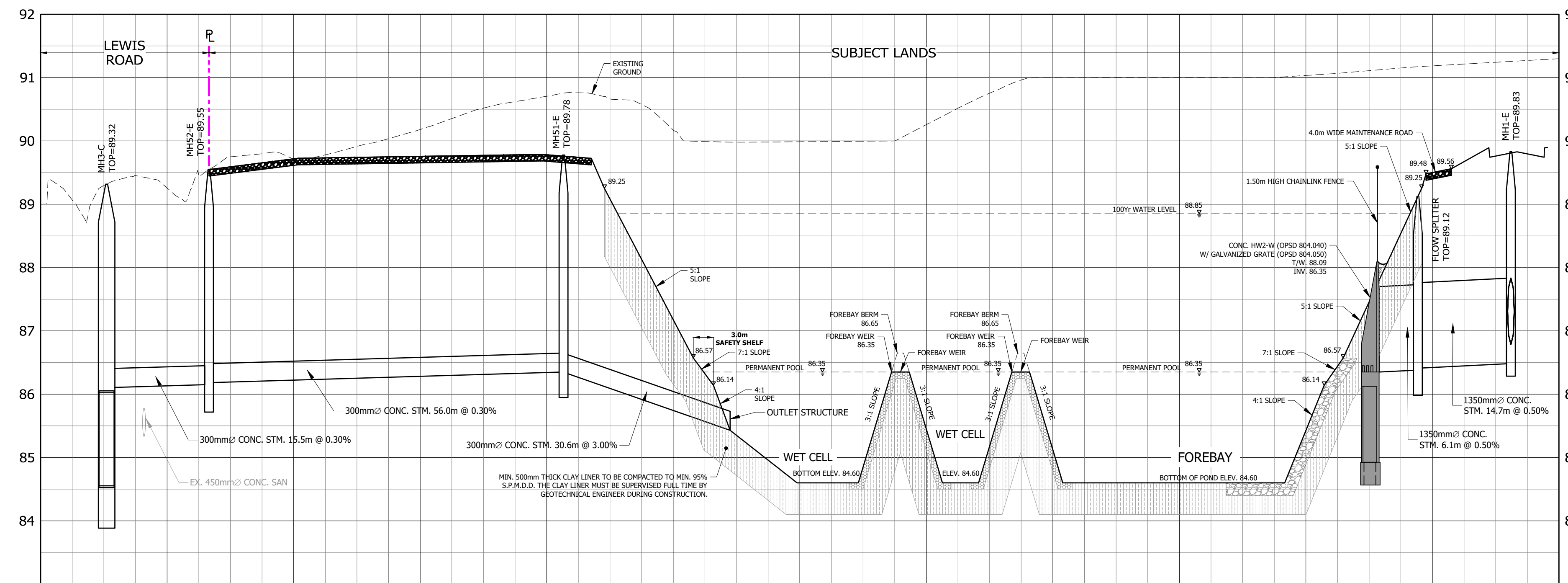


**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY SWM POND PLAN - EAST**

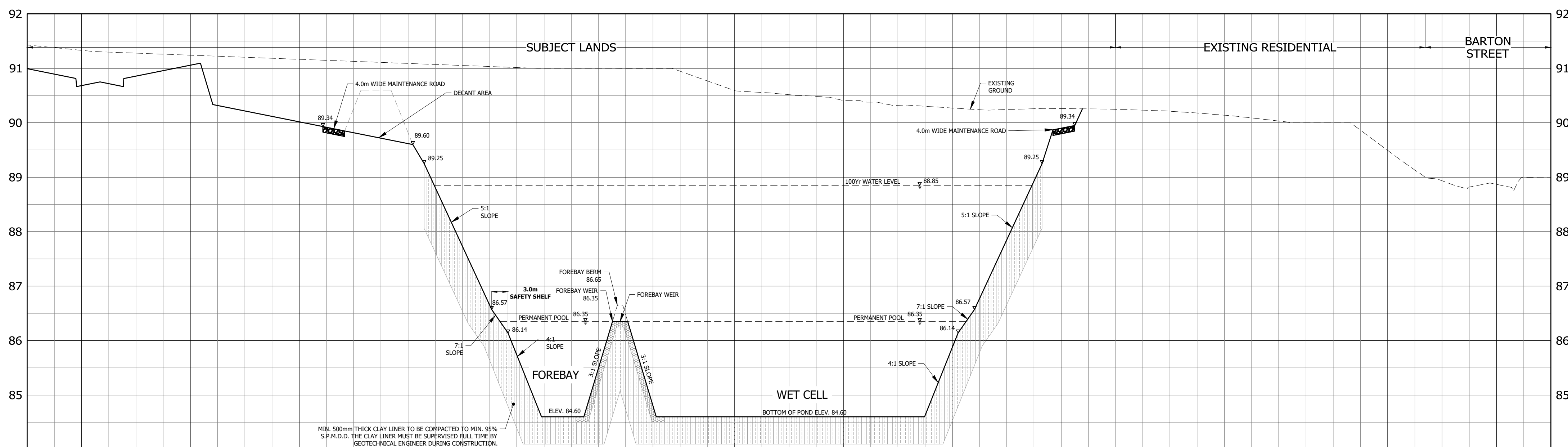
PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:500	SWM-3





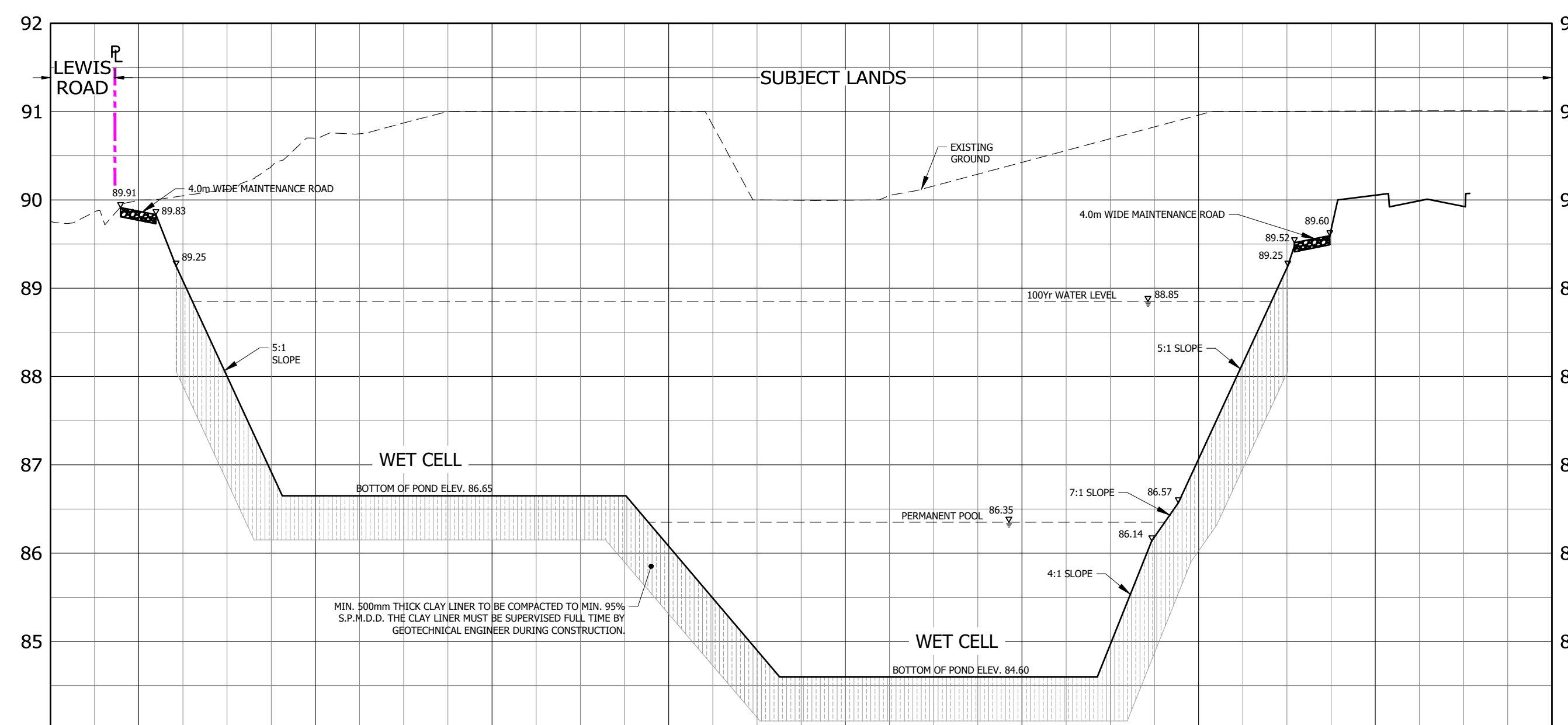
**SECTION A3-A3**

SCALE HOR. 1:500  
VER. 1:50



**SECTION A5-A5**

SCALE HOR. 1:500  
VER. 1:50



**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.8m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)

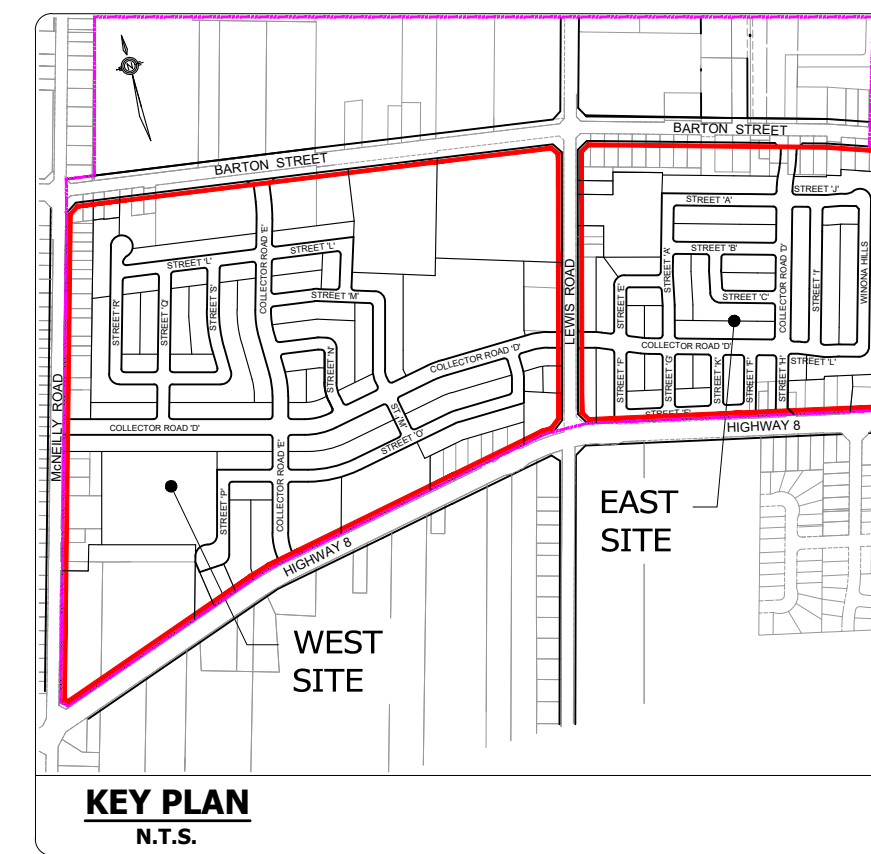
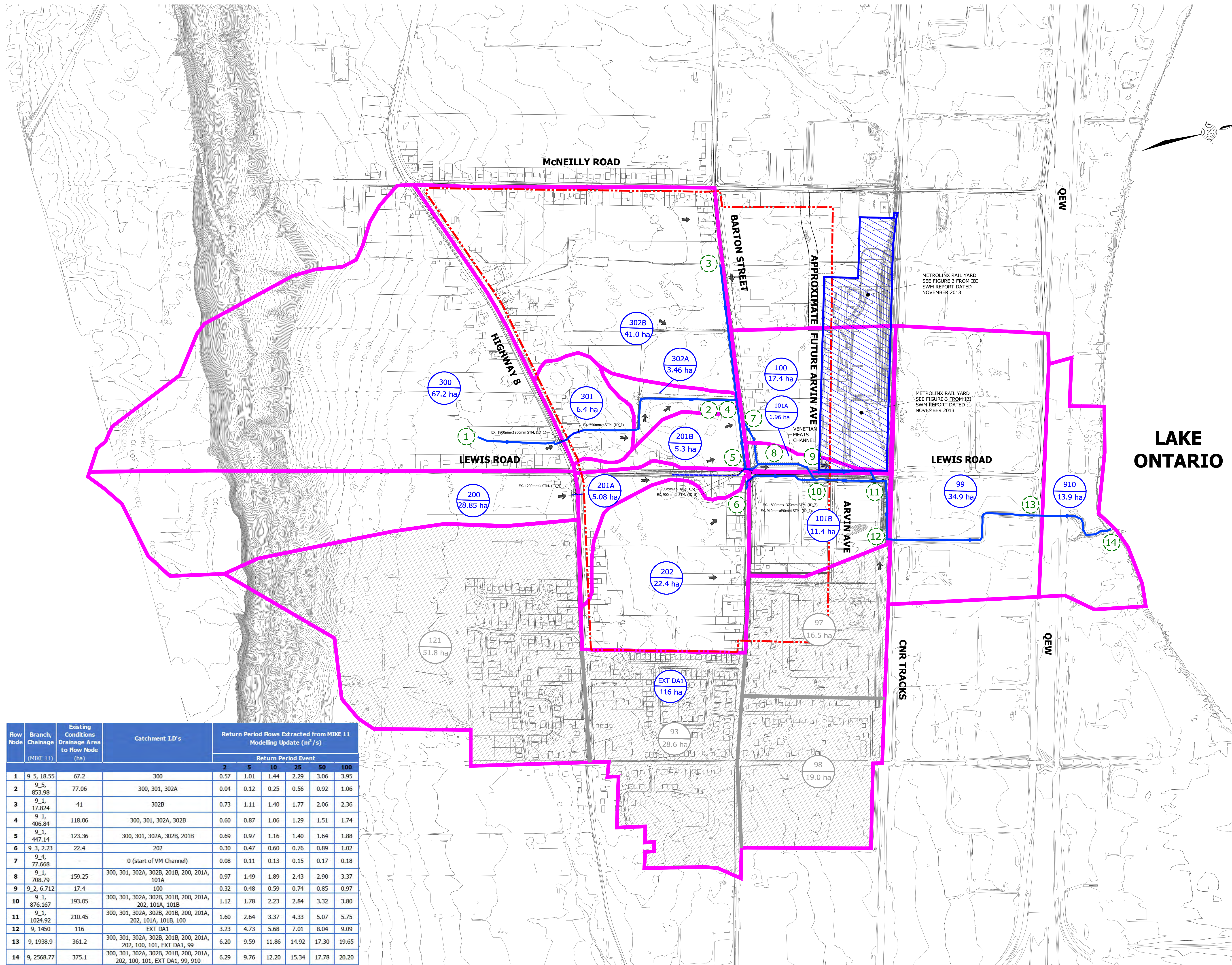


**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY SWM POND**  
SECTIONS - EAST

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:500	<b>SWM-4</b>

F:\PROJECTS\12-062W\BRANTHAVENFRUITLAND\WINONA\DRAWINGS\92\RES1\2-942W\_PRELIMINARY EAST SWM POND SECTIONS.DWG



**LEGEND**

- - - LIMIT OF STUDY AREA
- EXISTING INTERNAL DRAINAGE AREA BOUNDARY
- WATERCOURSE
- EXISTING CONTOUR & ELEVATION
- 101B CATCHMENT I.D.
- 11.4 DRAINAGE AREA (Ha.)
- OVERLAND FLOW
- 6 FLOW NODE
- 97 ORIGINAL SCUBE STUDY CATCHMENT

**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88,001m (288,717 FT.)



**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

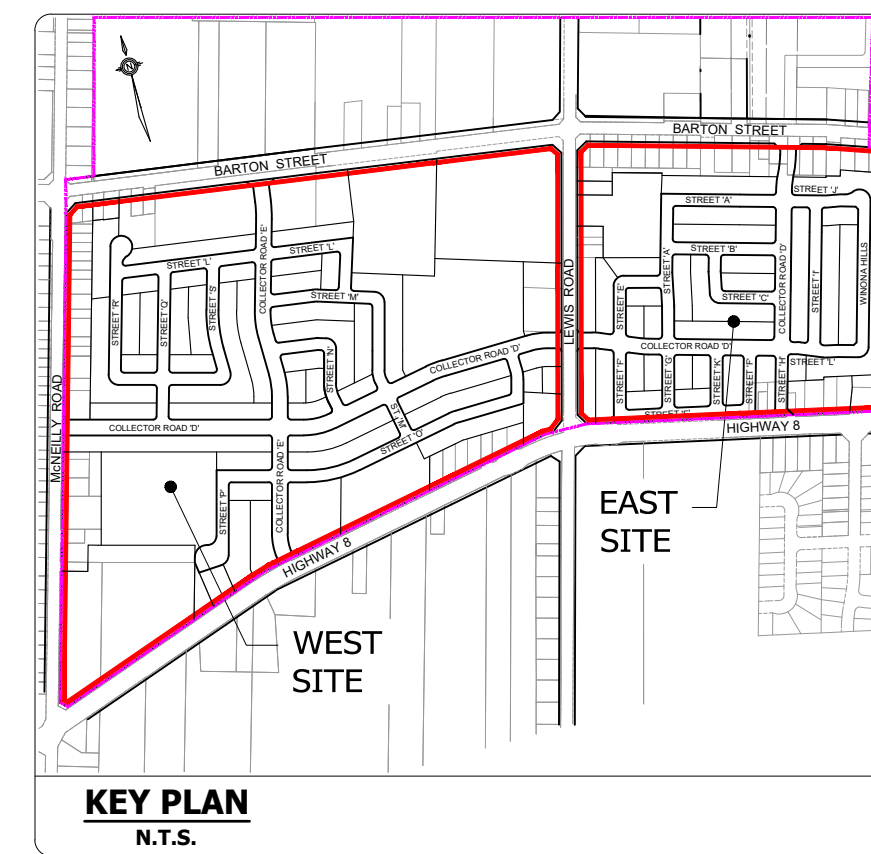
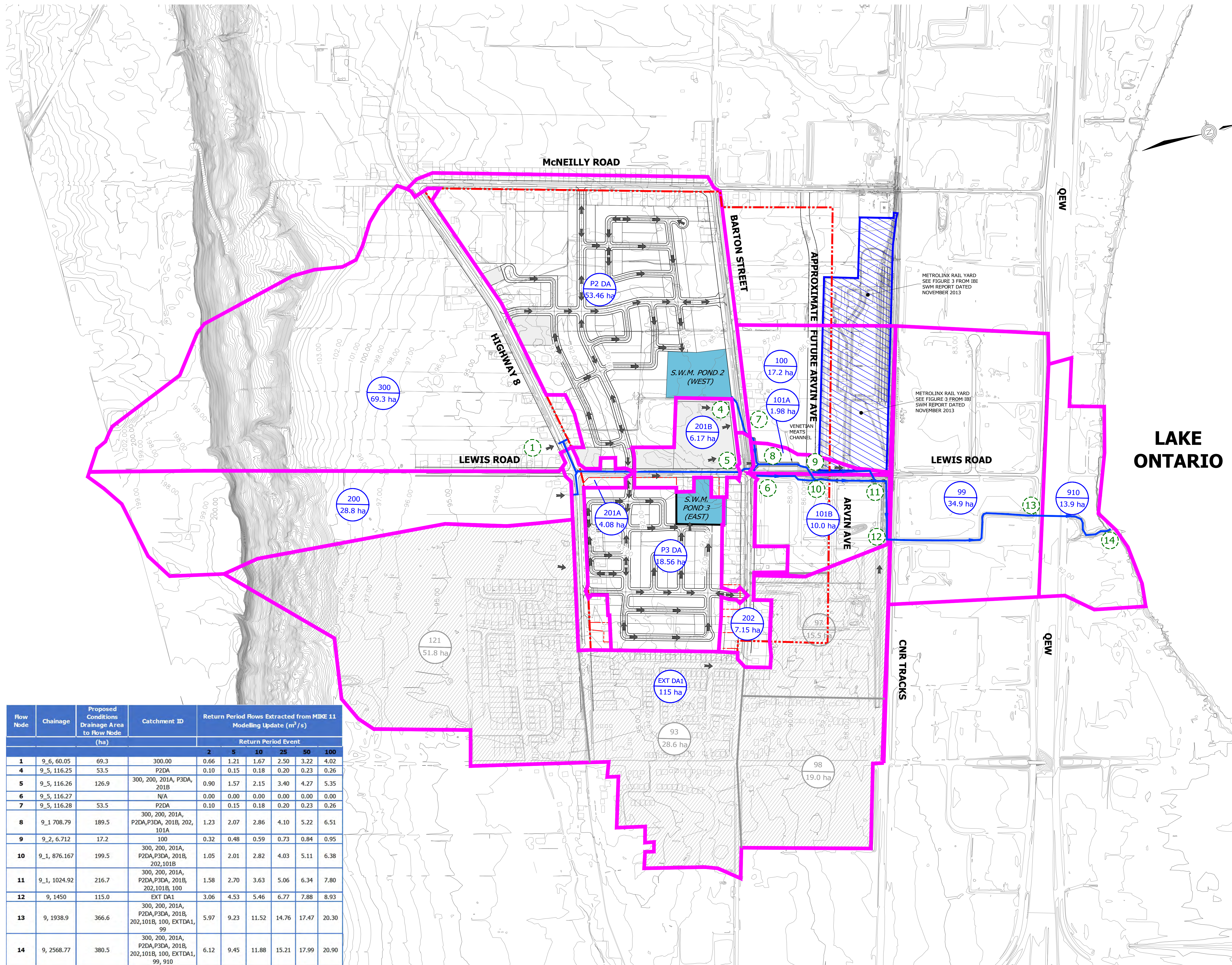
**EXISTING DRAINAGE PLAN**  
(SCENARIO 1)

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:5000	SWM-5

Row Node	Branch, Channage (MIKE 11)	Existing Conditions Drainage Area to Row Node (ha)	Catchment ID's	Return Period Rows Extracted from MIKE 11 Modelling Update (m <sup>3</sup> /s)					
				Return Period Event					
				2	5	10	25	50	100
1	9_5, 18.55	67.2	300	0.57	1.01	1.44	2.29	3.06	3.95
2	9_5, 853.98	77.06	300, 301, 302A	0.04	0.12	0.25	0.56	0.92	1.06
3	9_1, 17.824	41	302B	0.73	1.11	1.40	1.77	2.06	2.36
4	9_1, 406.84	118.06	300, 301, 302A, 302B	0.60	0.87	1.06	1.29	1.51	1.74
5	9_1, 447.14	123.36	300, 301, 302A, 302B, 201B	0.69	0.97	1.16	1.40	1.64	1.88
6	9_3, 2.23	22.4	202	0.30	0.47	0.60	0.76	0.89	1.02
7	9_4, 77.668	-	0 (start of VM Channel)	0.08	0.11	0.13	0.15	0.17	0.18
8	9_1, 708.79	159.25	300, 301, 302A, 302B, 201B, 200, 201A, 101A	0.97	1.49	1.89	2.43	2.90	3.37
9	9_2, 6.712	17.4	100	0.32	0.48	0.59	0.74	0.85	0.97
10	9_1, 876.167	193.05	300, 301, 302A, 302B, 201B, 200, 201A, 202, 101A, 101B	1.12	1.78	2.23	2.84	3.32	3.80
11	9_1, 1024.92	210.45	300, 301, 302A, 302B, 201B, 200, 201A, 202, 101A, 101B, 100	1.60	2.64	3.37	4.33	5.07	5.75
12	9_1, 1450	116	EXT DA1	3.23	4.73	5.68	7.01	8.04	9.09
13	9_1, 1938.9	361.2	300, 301, 302A, 302B, 201B, 200, 201A, 202, 100, 101, EXT DA1, 99	6.20	9.59	11.86	14.92	17.30	19.65
14	9_1, 2568.77	375.1	300, 301, 302A, 302B, 201B, 200, 201A, 202, 100, 101, EXT DA1, 99, 910	6.29	9.76	12.20	15.34	17.78	20.20

PLOT DATE: February-27-20 6:32:25 PM

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**LEGEND**

- - - LIMIT OF STUDY AREA
- PROPOSED INTERNAL DRAINAGE AREA BOUNDARY
- WATERCOURSE
- EXISTING CONTOUR & ELEVATION
- 101B CATCHMENT I.D.
- 11.4 ha DRAINAGE AREA (Ha.)
- OVERLAND FLOW
- 6 FLOW NODE
- 97 ORIGINAL SCUBE STUDY CATCHMENT

**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

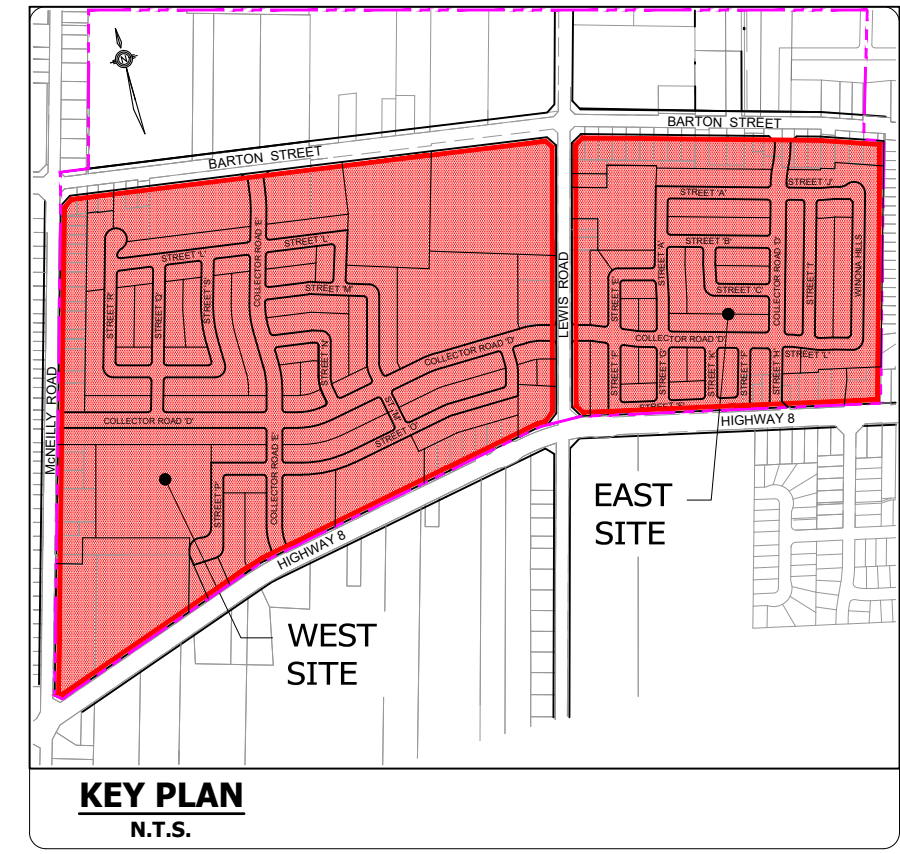
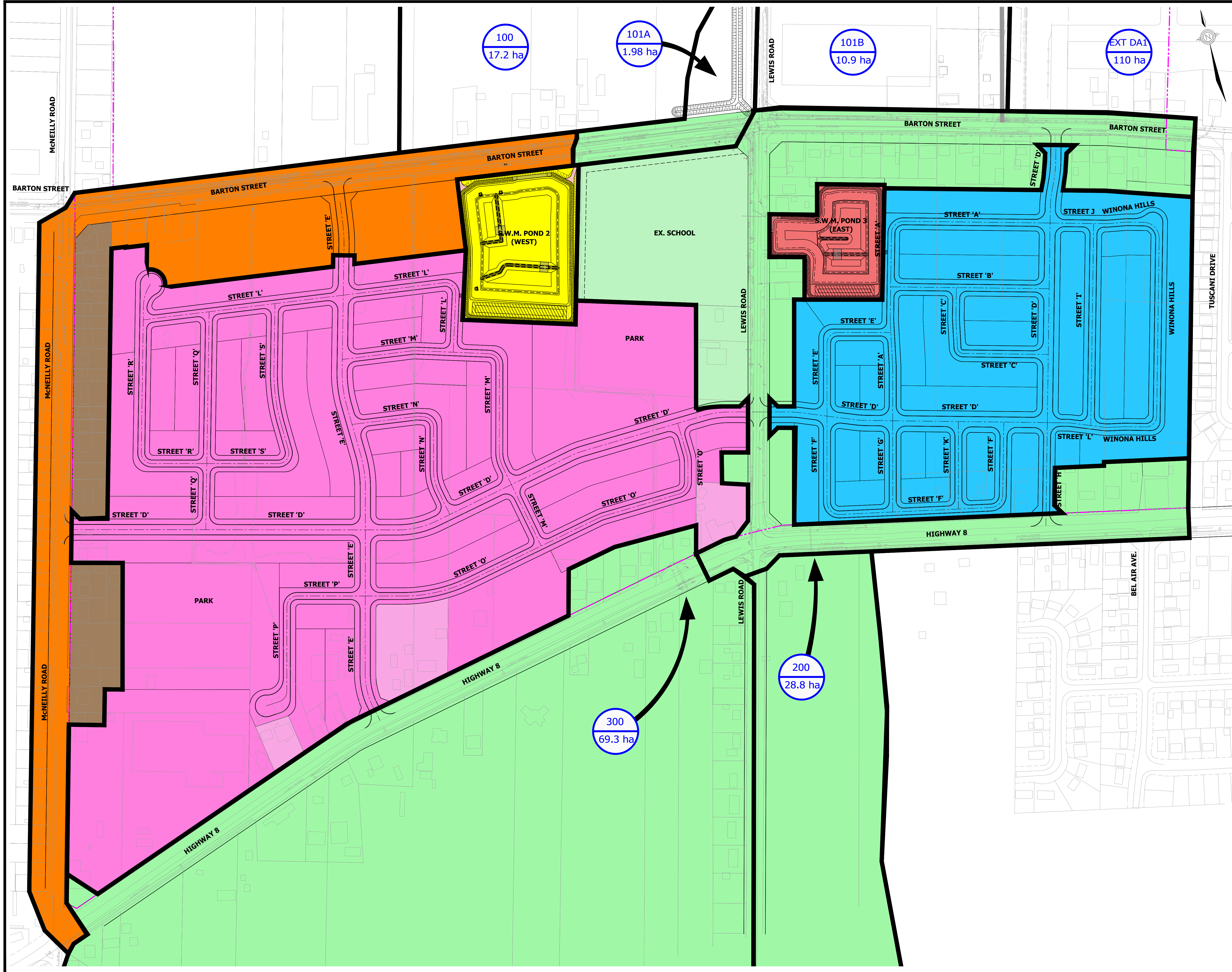
**PROPOSED DRAINAGE PLAN**  
(SCENARIO 2a)

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:5000	SWM-6

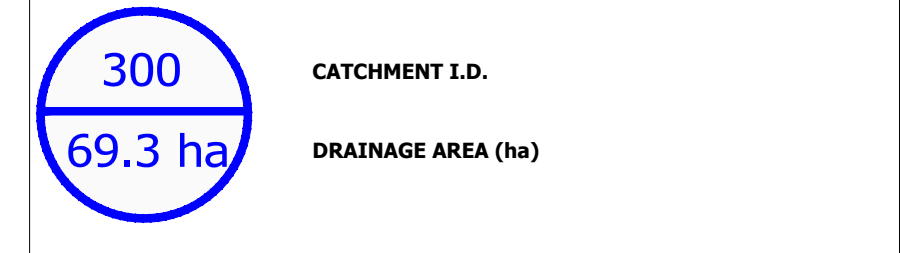
Flow Nbr	Chainage	Proposed Conditions Drainage Area to Flow Node (ha)	Catchment ID	Return Period Flows Extracted from MIKE 11 Modelling Update (m³/s)					
				2	5	10	25	50	100
1	9_6, 60.05	69.3	300.00	0.66	1.21	1.67	2.50	3.22	4.02
4	9_5, 116.25	53.5	P2DA	0.10	0.15	0.18	0.20	0.23	0.26
5	9_5, 116.26	126.9	300, 200, 201A, P3DA, 201B	0.90	1.57	2.15	3.40	4.27	5.35
6	9_5, 116.27	N/A	N/A	0.00	0.00	0.00	0.00	0.00	0.00
7	9_5, 116.28	53.5	P2DA	0.10	0.15	0.18	0.20	0.23	0.26
8	9_1 708.79	189.5	300, 200, 201A, P2DA, P3DA, 201B, 202, 101A	1.23	2.07	2.86	4.10	5.22	6.51
9	9_2, 6.712	17.2	100	0.32	0.48	0.59	0.73	0.84	0.95
10	9_1, 876.167	199.5	300, 200, 201A, P2DA, P3DA, 201B, 202, 101B	1.05	2.01	2.82	4.03	5.11	6.38
11	9_1, 1024.92	216.7	300, 200, 201A, P2DA, P3DA, 201B, 202, 101B, 100	1.58	2.70	3.63	5.06	6.34	7.80
12	9, 1450	115.0	EXT DA1	3.06	4.53	5.46	6.77	7.88	8.93
13	9, 1938.9	366.6	300, 200, 201A, P2DA, P3DA, 201B, 202, 101B, 100, EXTDA1, 99	5.97	9.23	11.52	14.76	17.47	20.30
14	9, 2568.77	380.5	300, 200, 201A, P2DA, P3DA, 201B, 202, 101B, 100, EXTDA1, 99, 910	6.12	9.45	11.88	15.21	17.99	20.90

PLOT DATE: February-27-20 6:25:44 PM

F:\PROJECTS\12-062W (BRANTHAVEN FRUITLAND WINONA)\DRAWINGS\FIGURES\12-062W\_PROPOSED MAJOR DRAINAGE PLAN.DWG



- LEGEND**
- LIMIT OF STUDY AREA
  - POST-DEVELOPMENT DRAINAGE AREA TO WEST POND HW-2 (12.59 ha, 75% Imperviousness)
  - POST-DEVELOPMENT DRAINAGE AREA TO WEST POND HW-1 (37.99 ha, 66% Imperviousness)
  - POST-DEVELOPMENT DRAINAGE AREA TO CHANNEL
  - POST-DEVELOPMENT DRAINAGE AREA TO EAST POND (17.00 ha, Imperviousness 62.7%)
  - WEST POND-2 (2.54 ha, 100% Imperviousness)
  - EAST POND-3 (1.51 ha, 100% Imperviousness)



**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)

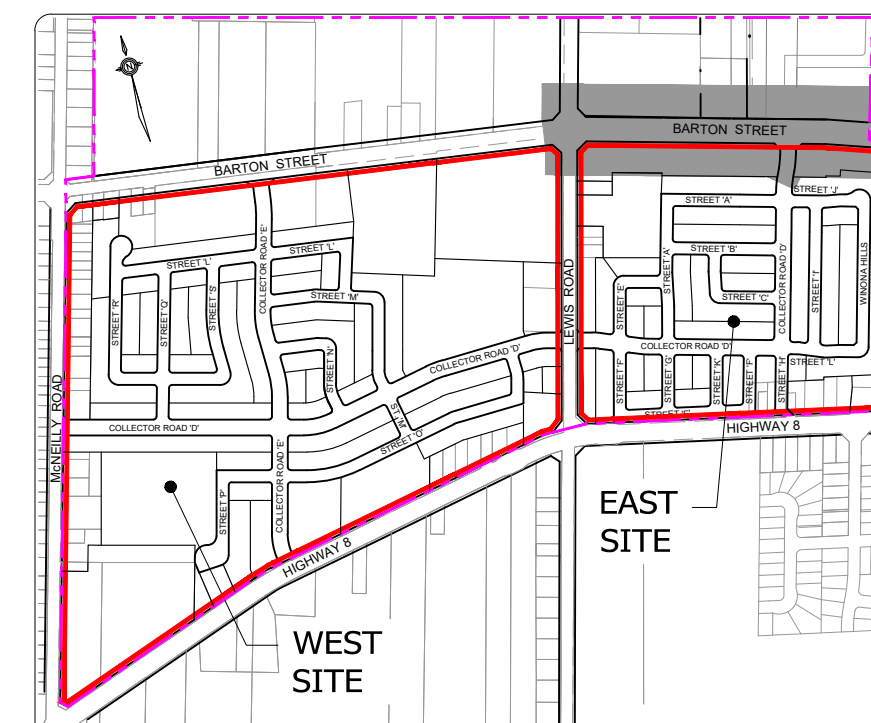
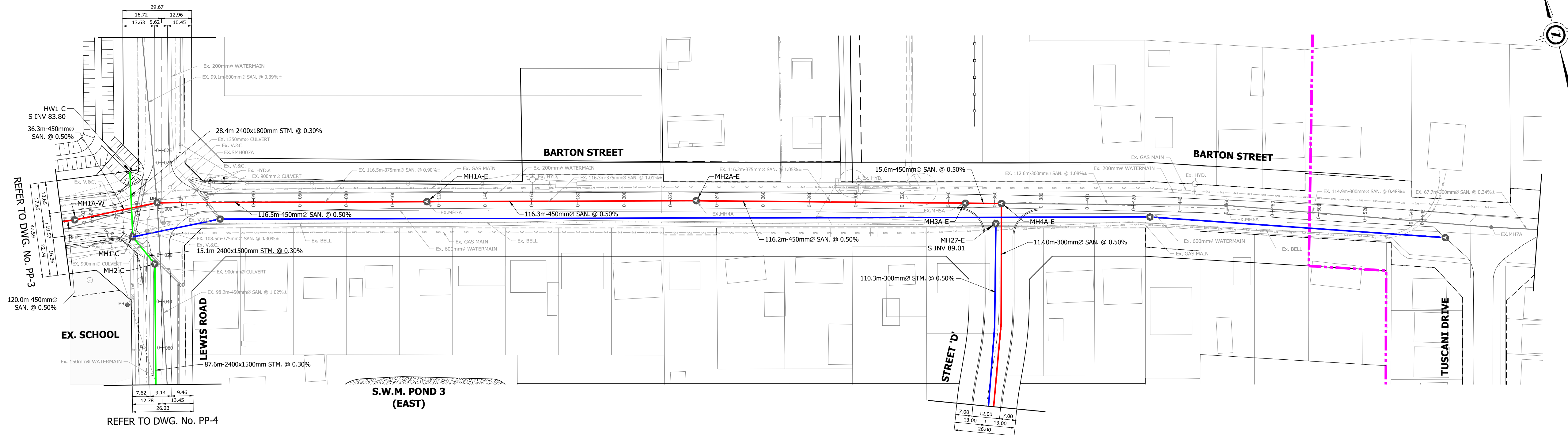


**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**SWM DESIGN OVERVIEW**  
**ULTIMATE CONDITION**

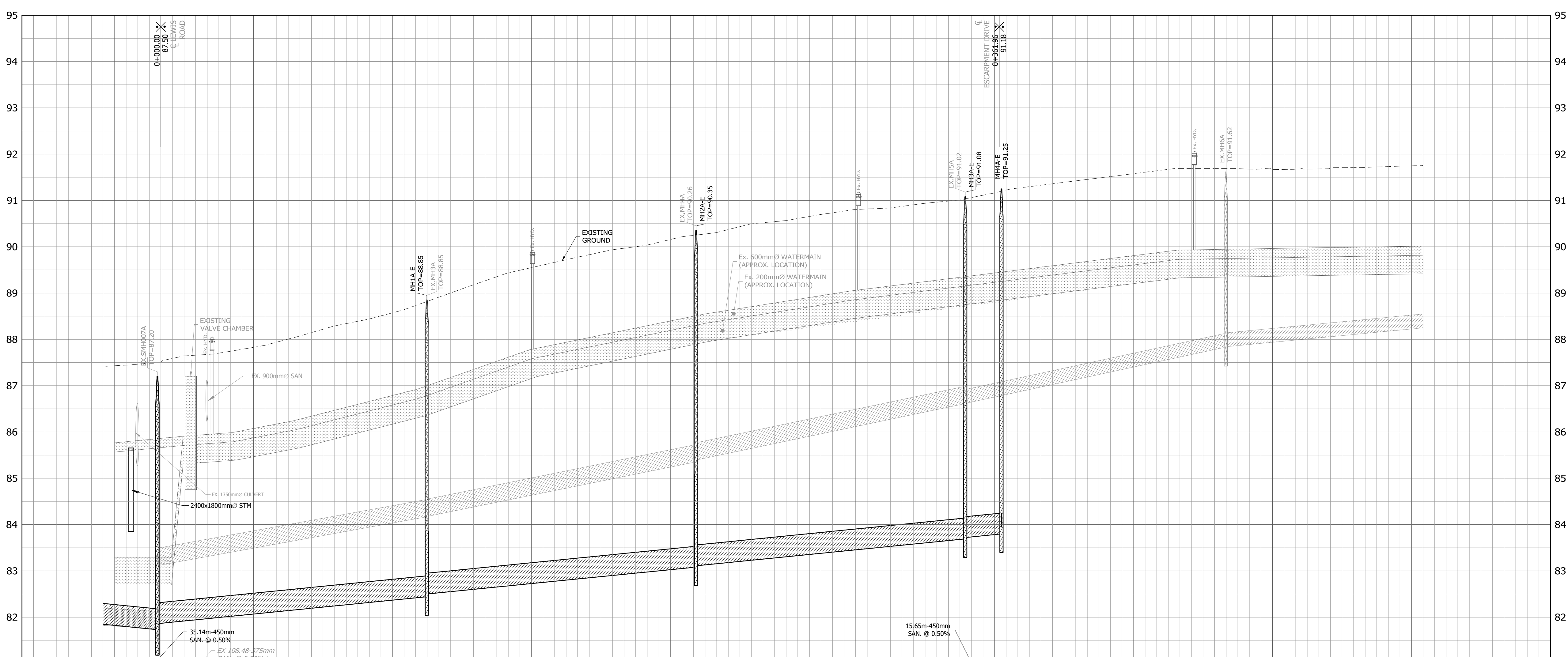
PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	1:2000	SWM-7

F:\PROJECTS\12-062W (BRANTHAVEN FRUITLAND WINONA)\DRAWINGS\FIGURES\12-062W\_SWM DESIGN OVERVIEW.DWG



**KEY PLAN**  
N.T.S.

- LEGEND**
- LIMIT OF STUDY AREA
  - PROPOSED SANITARY SEWER
  - PROPOSED PUBLIC STORM SEWER
  - PROPOSED EXTERNAL CONVEYANCE SEWER
  - EX SANITARY SEWER
  - EX PUBLIC STORM SEWER



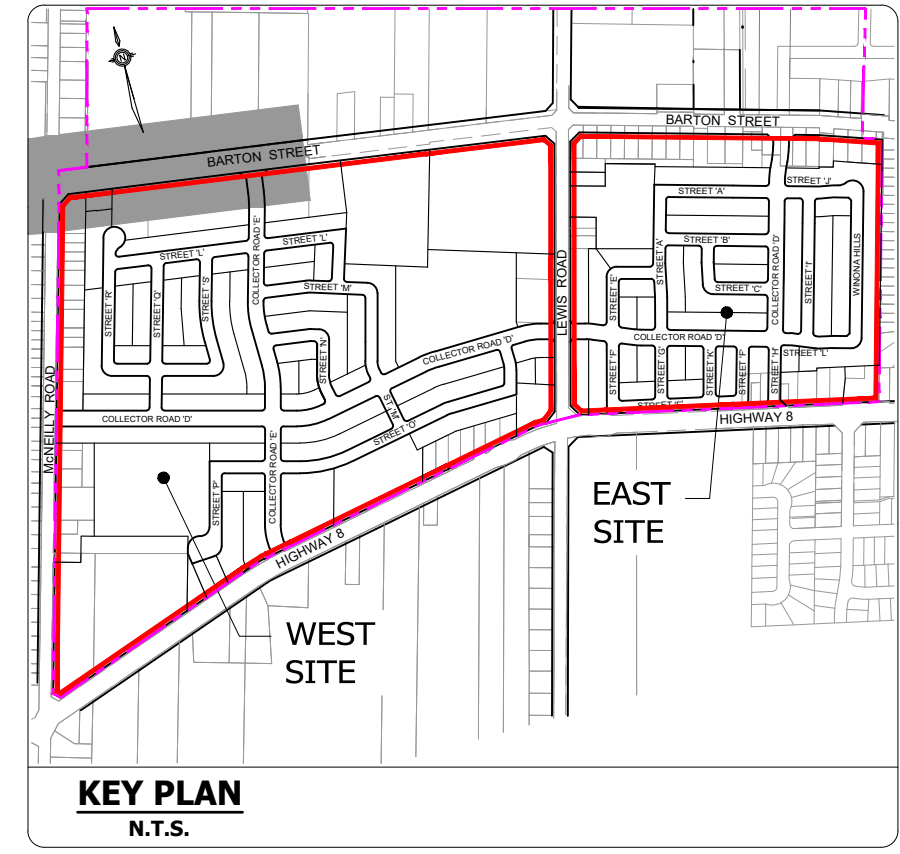
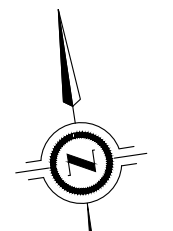
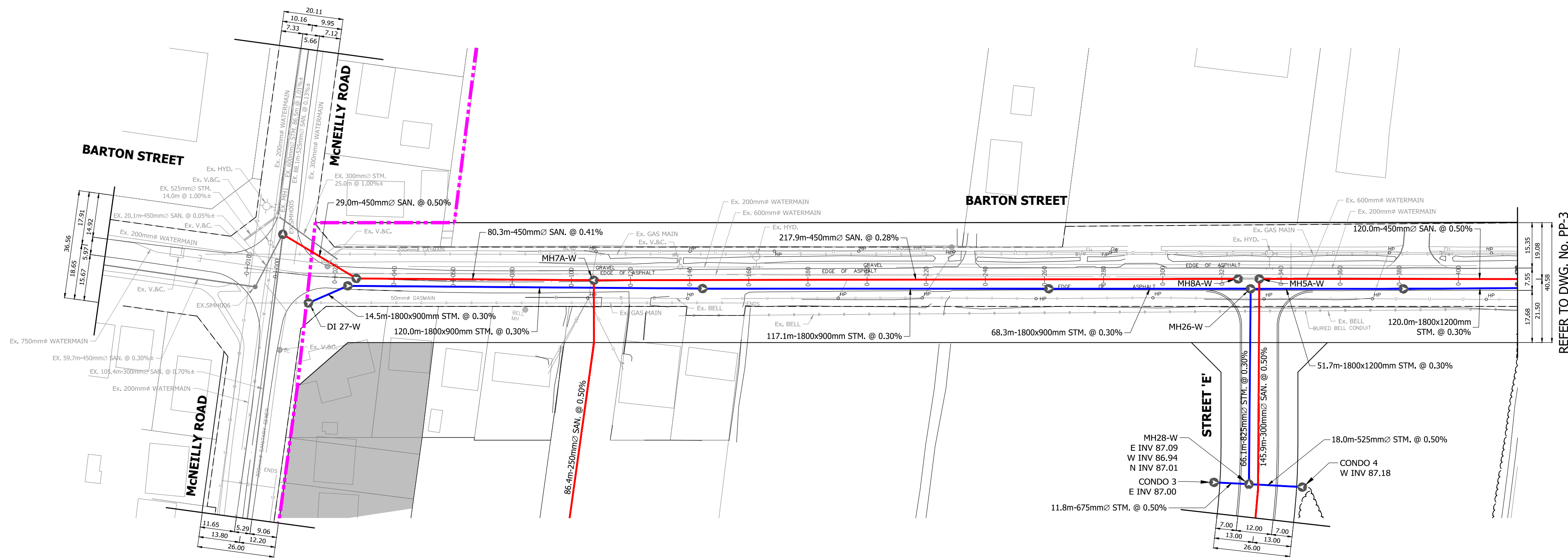
**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (289.717 FT.)



**BRANTHAVEN FRUITLAND**  
**CITY OF HAMILTON**  
**PRELIMINARY BARTON STREET**  
**EAST PLAN & PROFILE**  
FROM STA. -0+020.0m TO STA. 0+540.0m

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	V 1:50 H 1:1000	PP-1

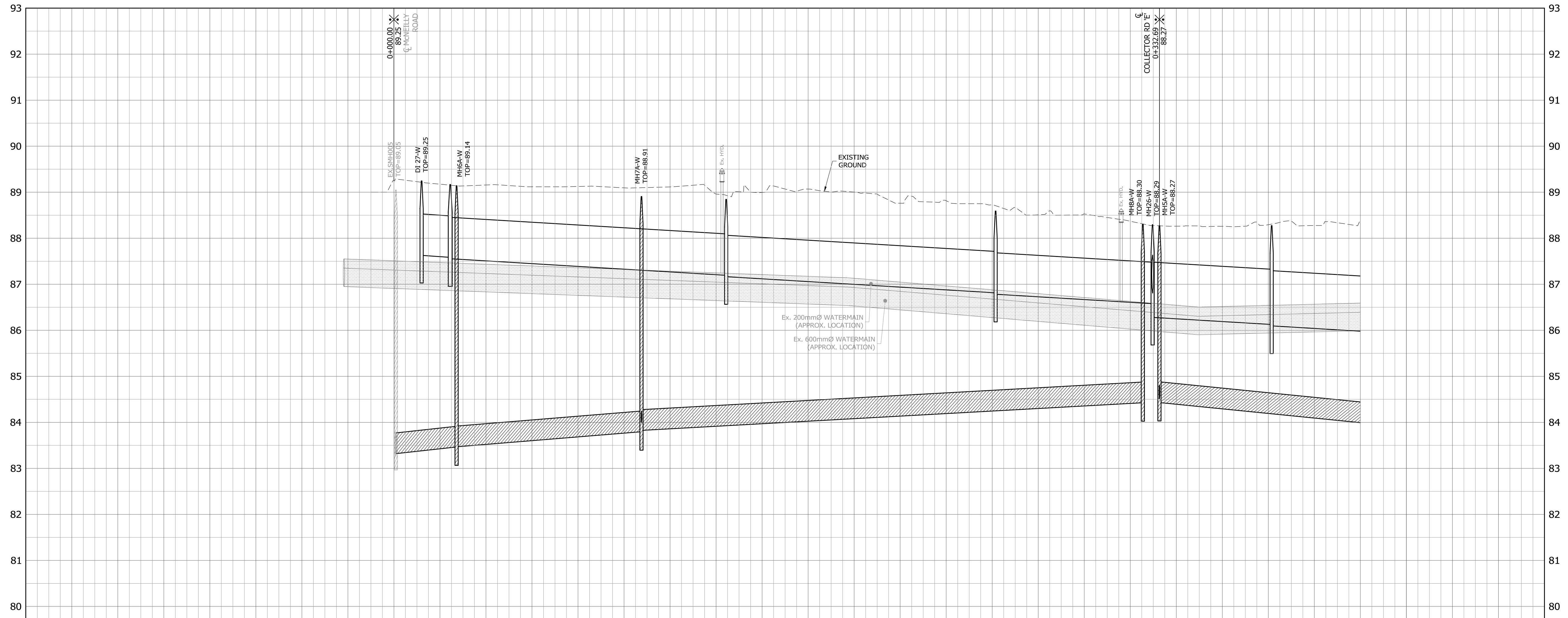
PLOT DATE: February-27-20 6:27:10 PM



**LEGEND**

- LIMIT OF STUDY AREA
- PROPOSED SANITARY SEWER
- PROPOSED PUBLIC STORM SEWER
- PROPOSED EXTERNAL CONVEYANCE SEWER
- EX SANITARY SEWER
- EX PUBLIC STORM SEWER

REFER TO DWG. NO. PP-3



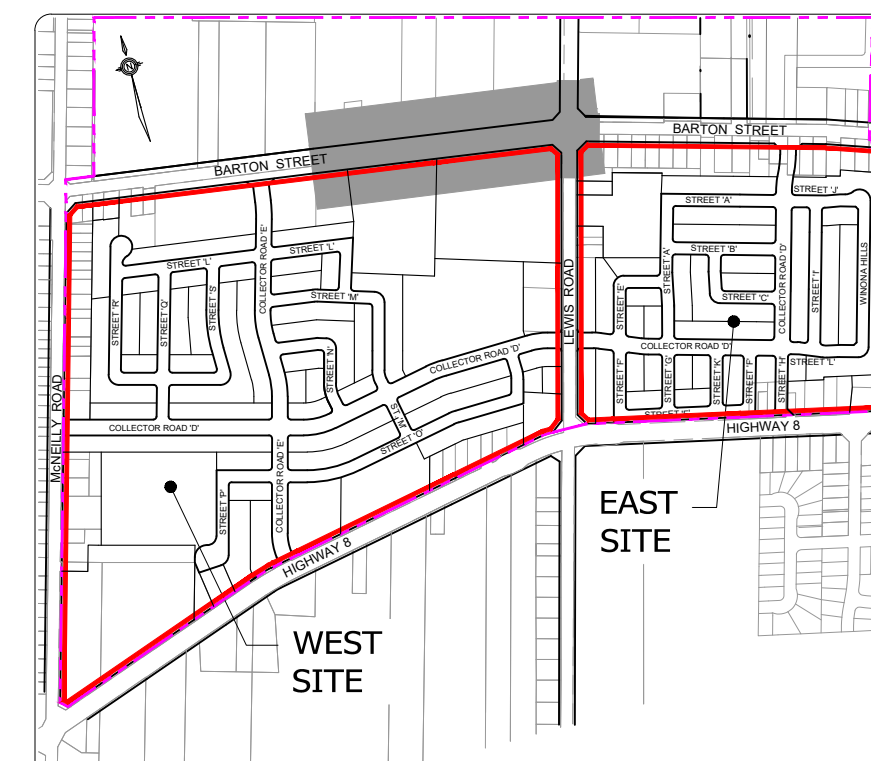
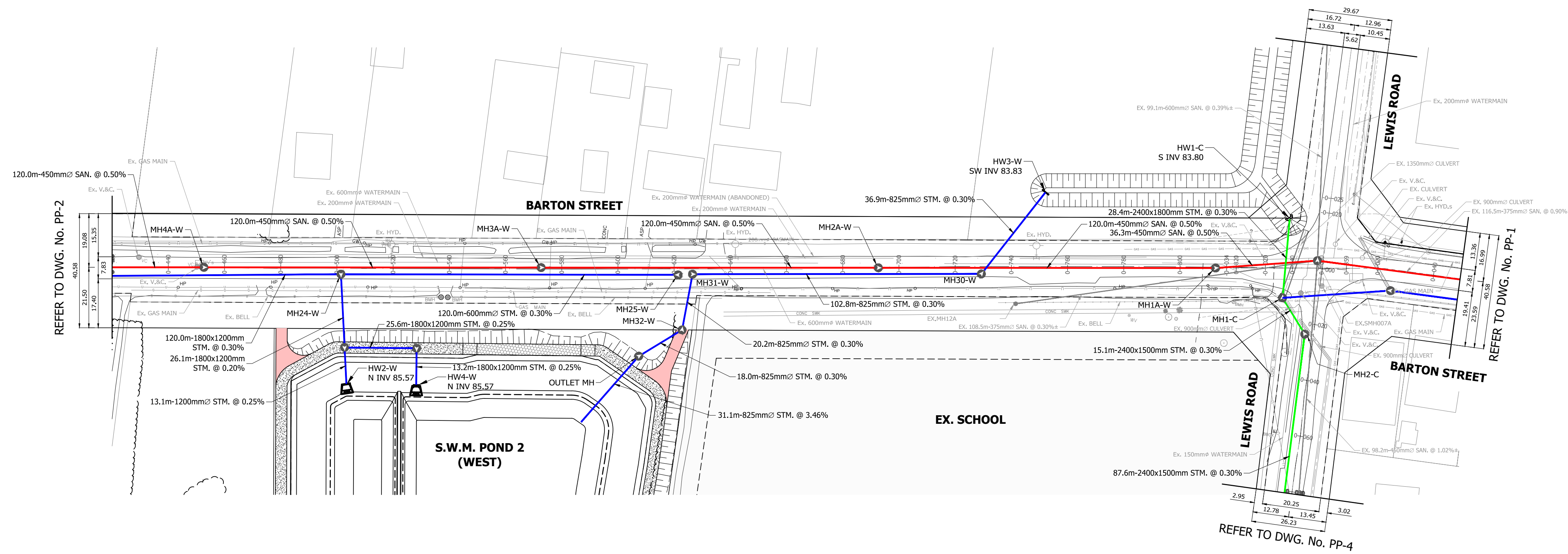
**BENCHMARK**  
 DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



**BRANTHAVEN FRUITLAND**  
**CITY OF HAMILTON**  
**PRELIMINARY BARTON STREET**  
**WEST PLAN & PROFILE 1**  
 FROM STA. 0+000.0m TO STA. 0+420.0m

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	V 1:50 H 1:1000	PP-2

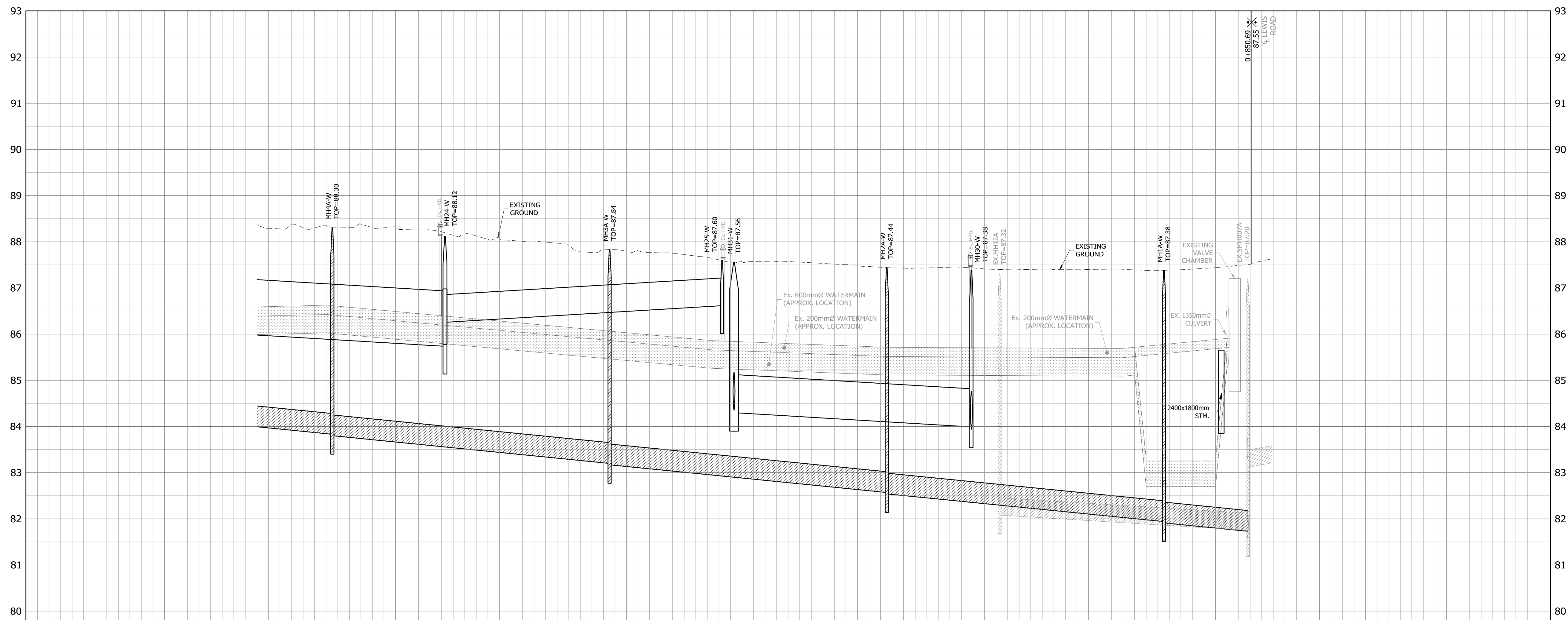
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**KEY PLAN**  
N.T.S.

**LEGEND**

- LIMIT OF STUDY AREA
- PROPOSED SANITARY SEWER
- PROPOSED PUBLIC STORM SEWER
- PROPOSED EXTERNAL CONVEYANCE SEWER
- EX SANITARY SEWER
- EX PUBLIC STORM SEWER



**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)

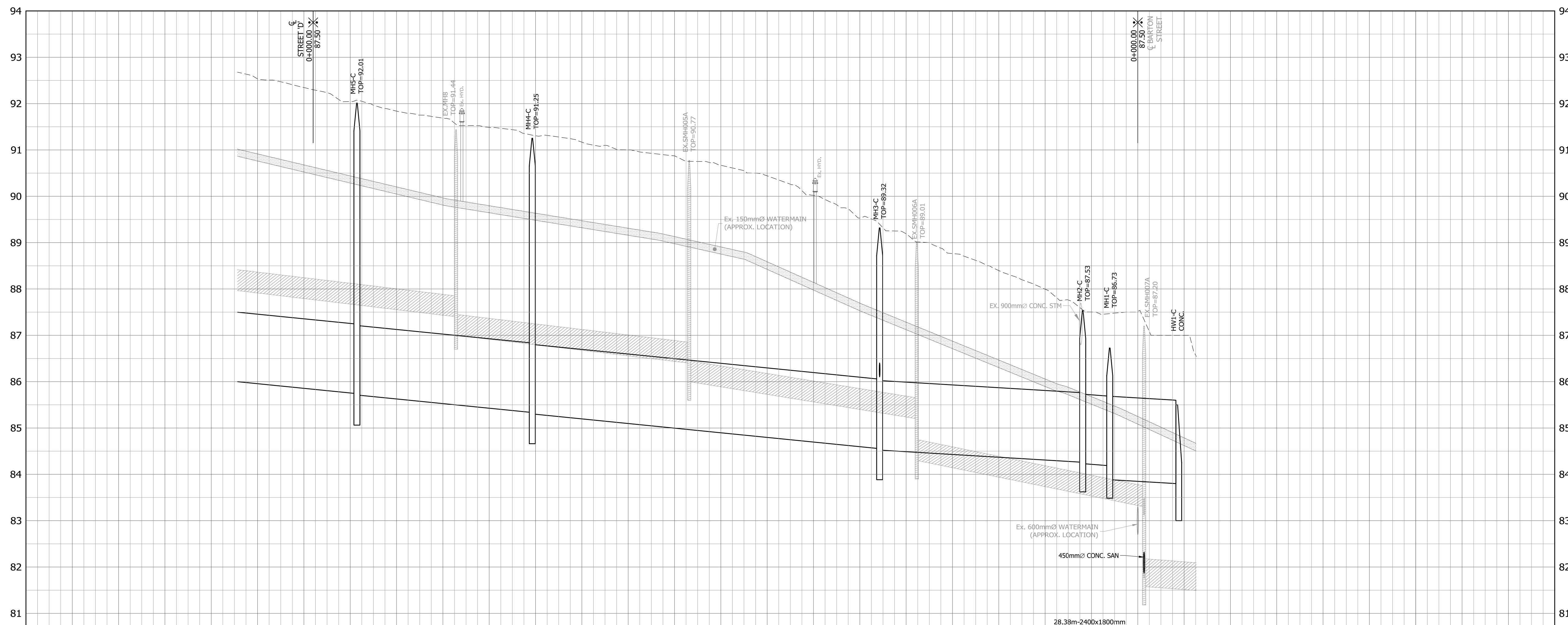
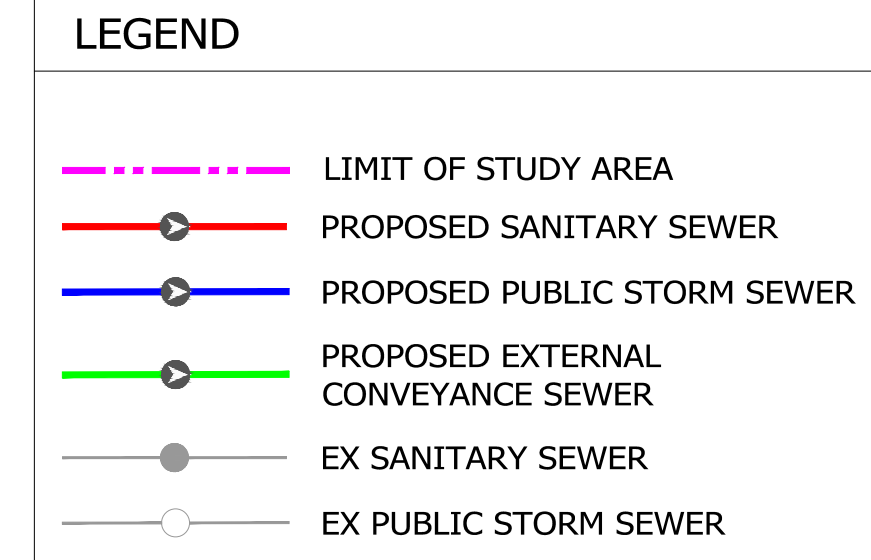
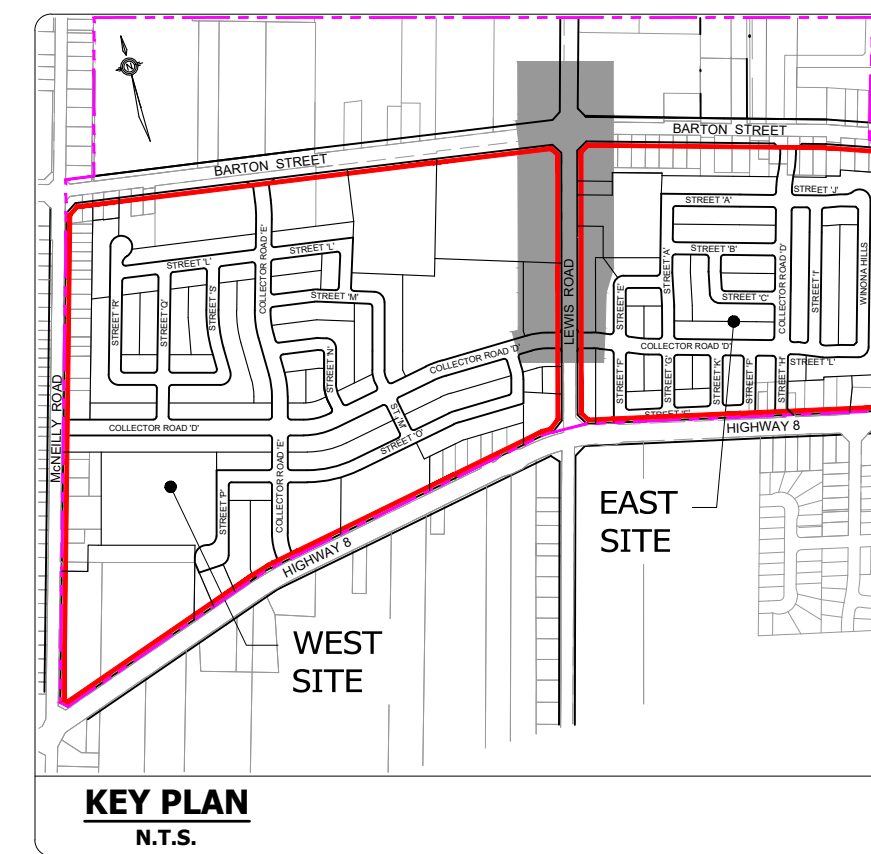
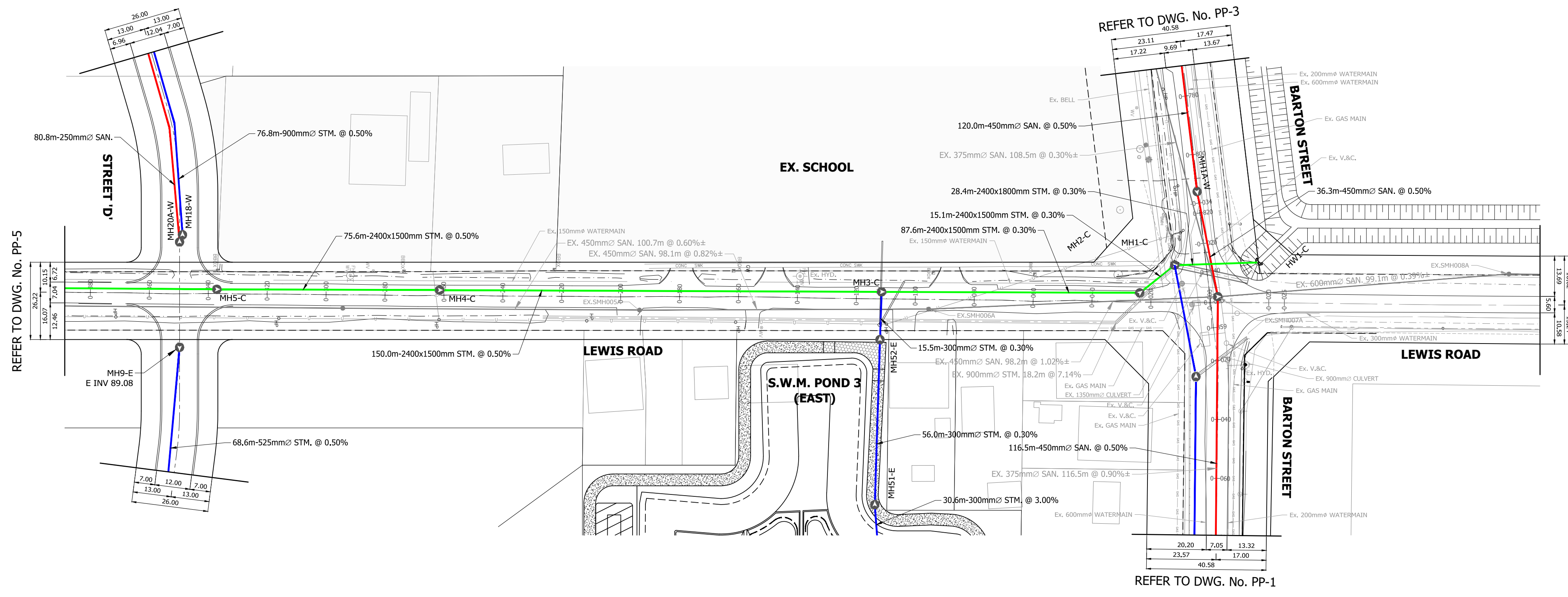


**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY BARTON STREET WEST PLAN & PROFILE 2**  
FROM STA. 0+420.0m TO STA. 0+840.0m

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	V 1:50 H 1:1000	PP-3

PLOT DATE: February-27-20 6:29:26 PM



SANITARY SEWER INVERT	168.17m-2400x1500mm STM. @ 0.50%		75.62m-2400x1500mm STM. @ 0.50%		150.00m-2400x1500mm STM. @ 0.50%		87.62m-2400x1500mm STM. @ 0.30%		SANITARY SEWER INVERT												
STORM SEWER INVERT	EX 100.26m-450mm SAN. @ 0.60%±		EX 100.73m-450mm SAN. @ 0.60%±		EX 98.14m-450mm SAN. @ 0.62%±		EX 98.24m-450mm SAN. @ 1.02%±		STORM SEWER INVERT												
PROPOSED/EXISTING CENTERLINE ELEVATION	92.53	92.35	92.04	91.84	91.69	91.49	91.31	91.17	91.00	90.87	90.67	90.44	90.02	89.53	89.19	88.76	88.40	87.99	87.50	87.52	
CENTERLINE CHAINAGE	0+380	0+360	0+340	0+320	0+300	0+280	0+260	0+240	0+220	0+200	0+180	0+160	0+140	0+120	0+100	0+080	0+060	0+040	0+020	0+000	

**BENCHMARK**  
DEEP BENCHMARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



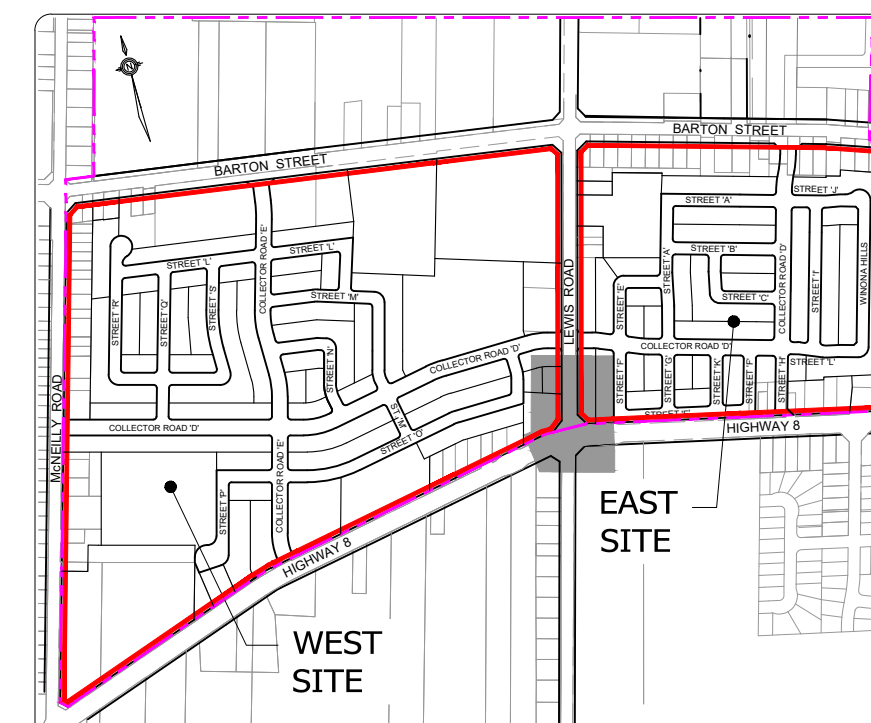
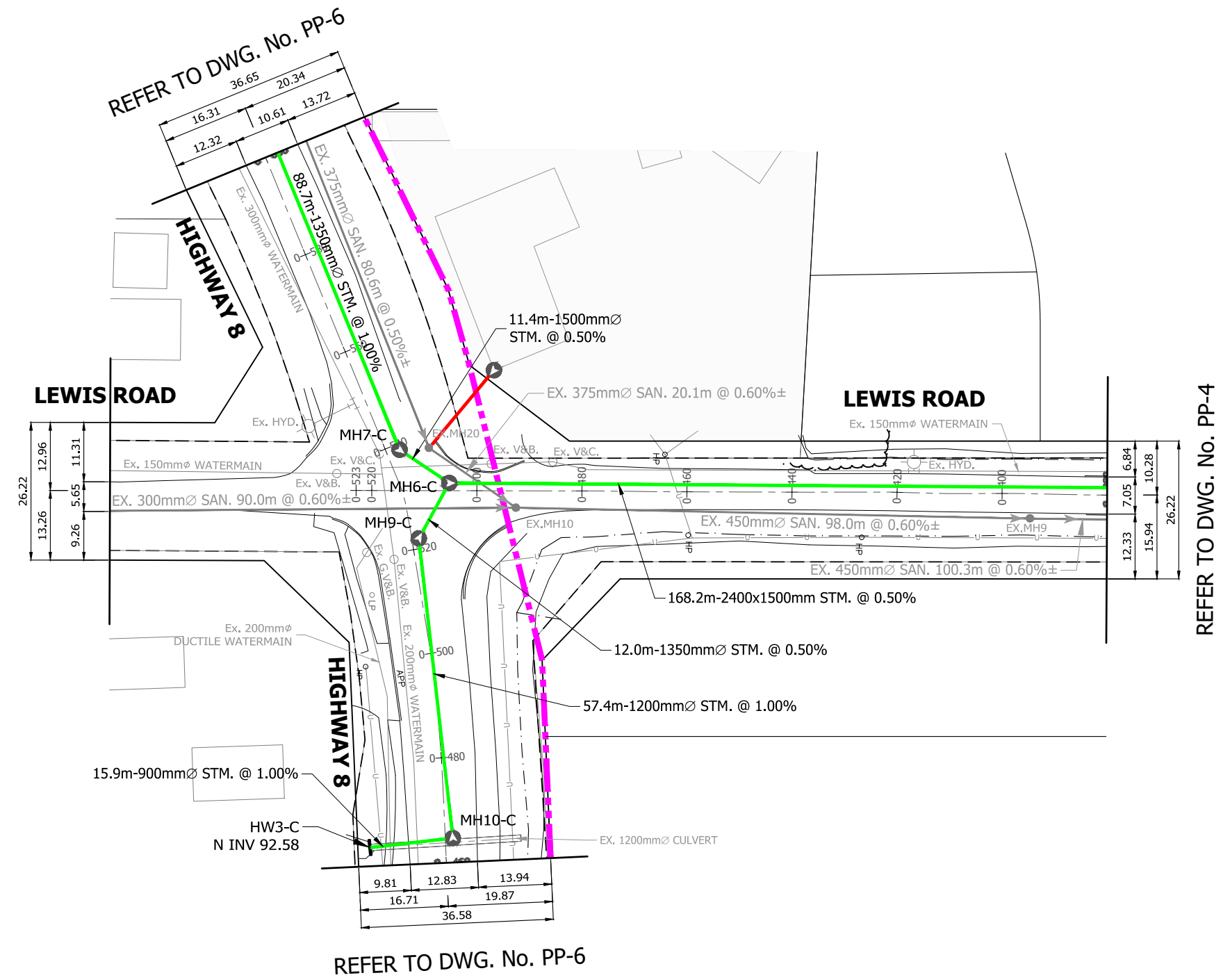
**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY LEWIS ROAD PLAN & PROFILE**  
FROM STA. 0+000.0m TO STA. 0+380.0m

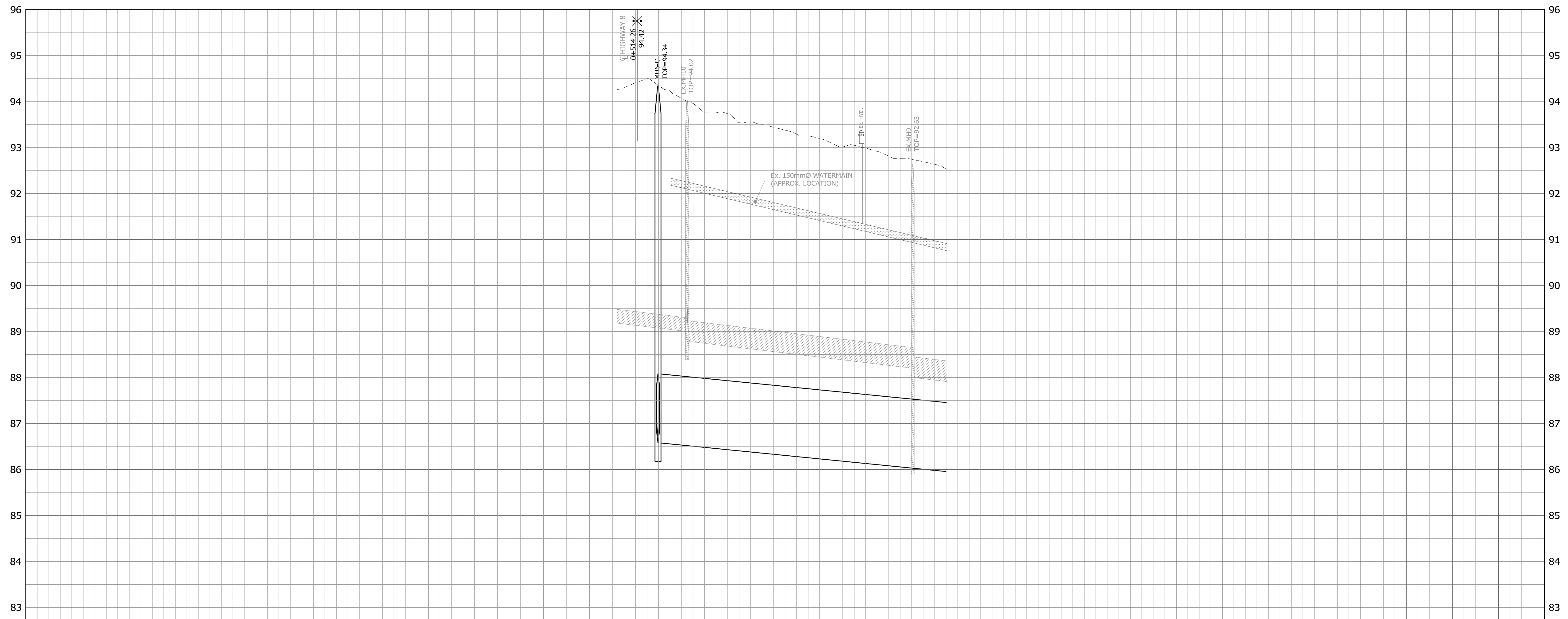
PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	V 1:50 H 1:1000	PP-4

PLOT DATE: February-27-20 6:36:32 PM





- LEGEND**
- LIMIT OF STUDY AREA
  - PROPOSED SANITARY SEWER
  - PROPOSED PUBLIC STORM SEWER
  - PROPOSED EXTERNAL CONVEYANCE SEWER
  - EX SANITARY SEWER
  - EX PUBLIC STORM SEWER



**BENCHMARK**  
DEEP BENCHMARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)

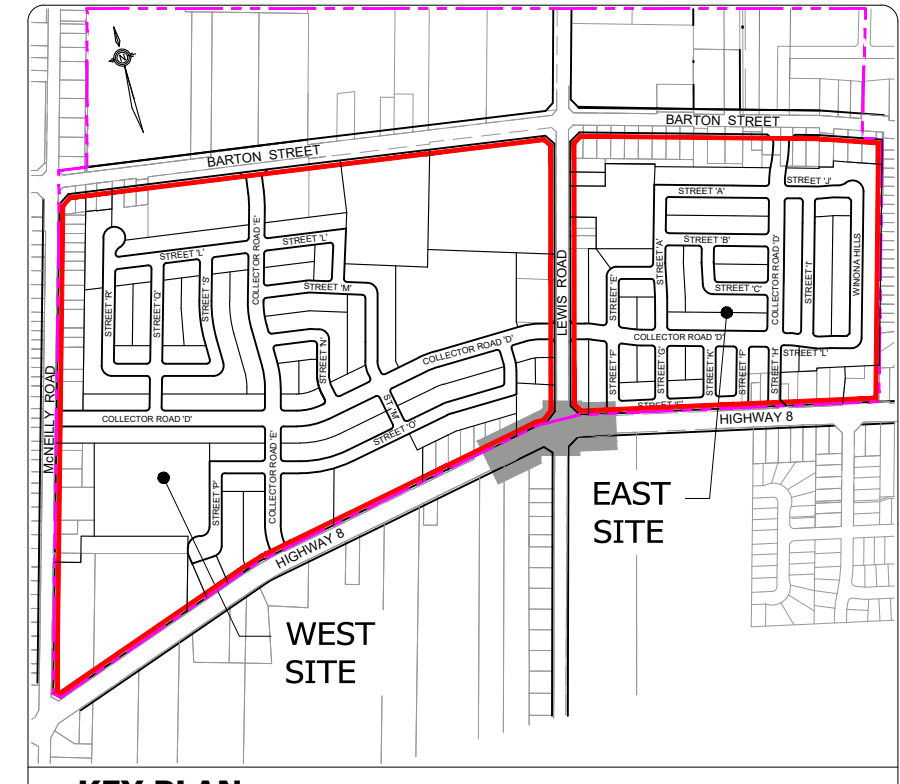
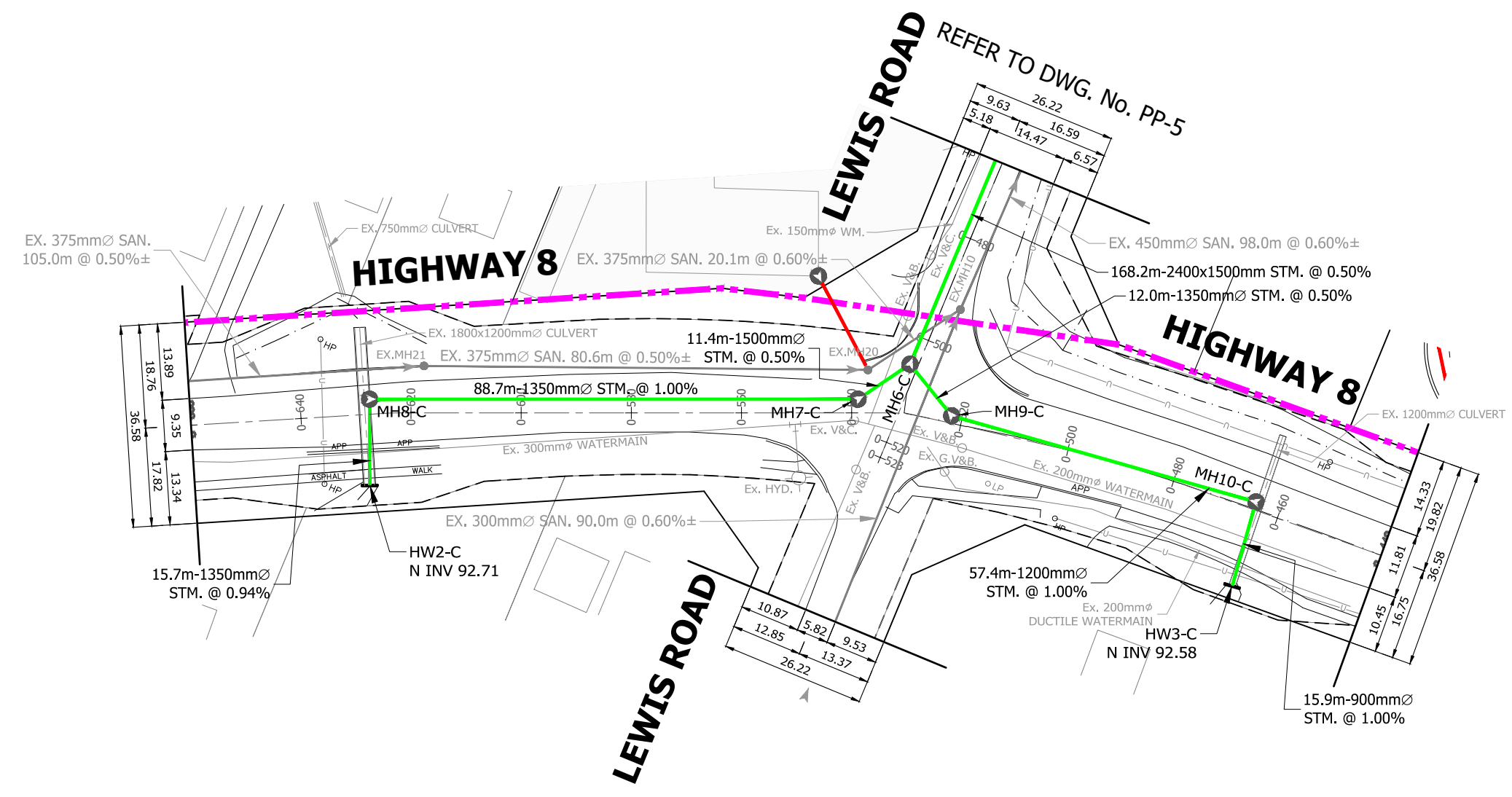


**BRANTHAVEN FRUITLAND  
CITY OF HAMILTON**

**PRELIMINARY LEWIS ROAD  
PLAN & PROFILE**  
FROM STA. 0+380.0m TO STA. 0+540.0m

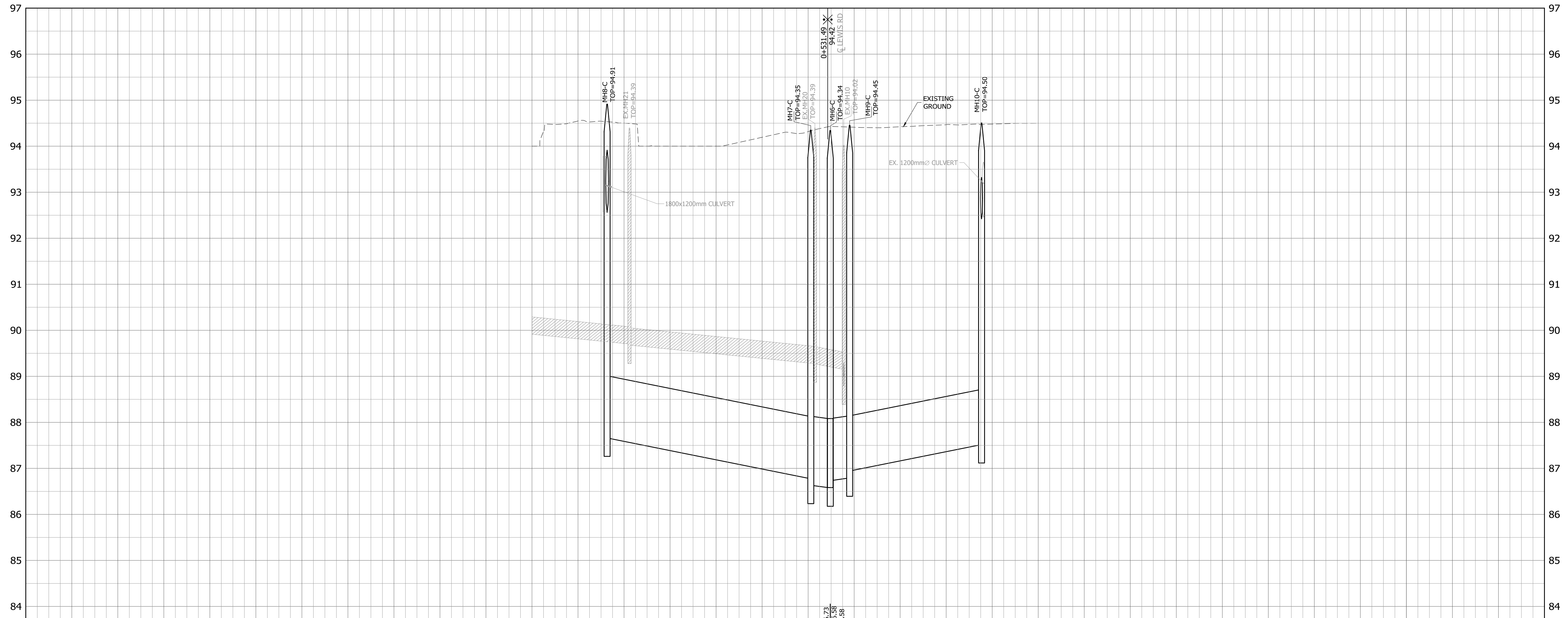
PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	V 1:50 H 1:1000	PP-5

PLOT DATE: February-27-20 6:31:42 PM



**KEY PLAN**  
N.T.S.

- LEGEND**
- LIMIT OF STUDY AREA
  - PROPOSED SANITARY SEWER
  - PROPOSED PUBLIC STORM SEWER
  - PROPOSED EXTERNAL CONVEYANCE SEWER
  - EX SANITARY SEWER
  - EX PUBLIC STORM SEWER



**BENCHMARK**  
DEEP BENCHMARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 28.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)

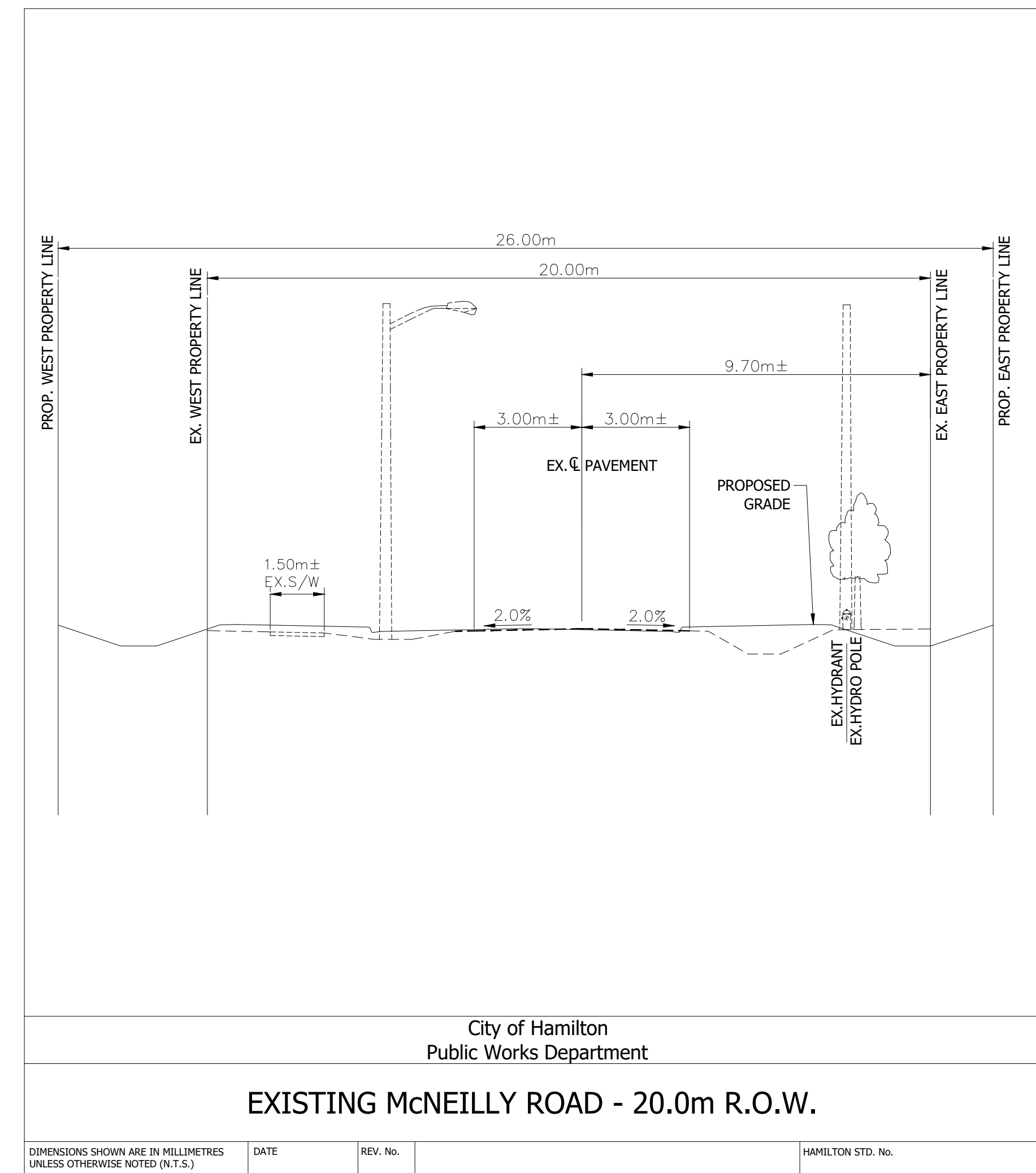
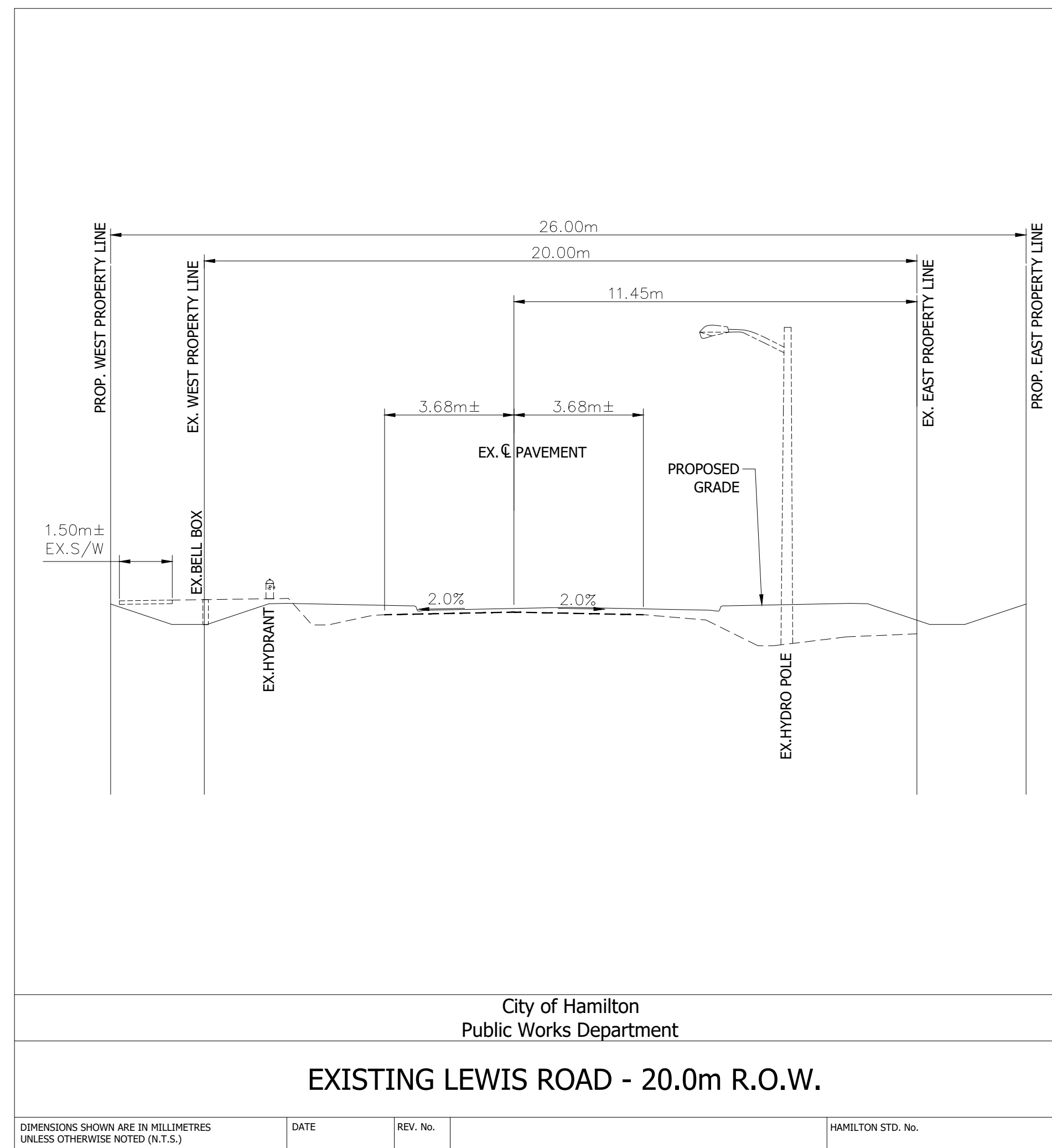
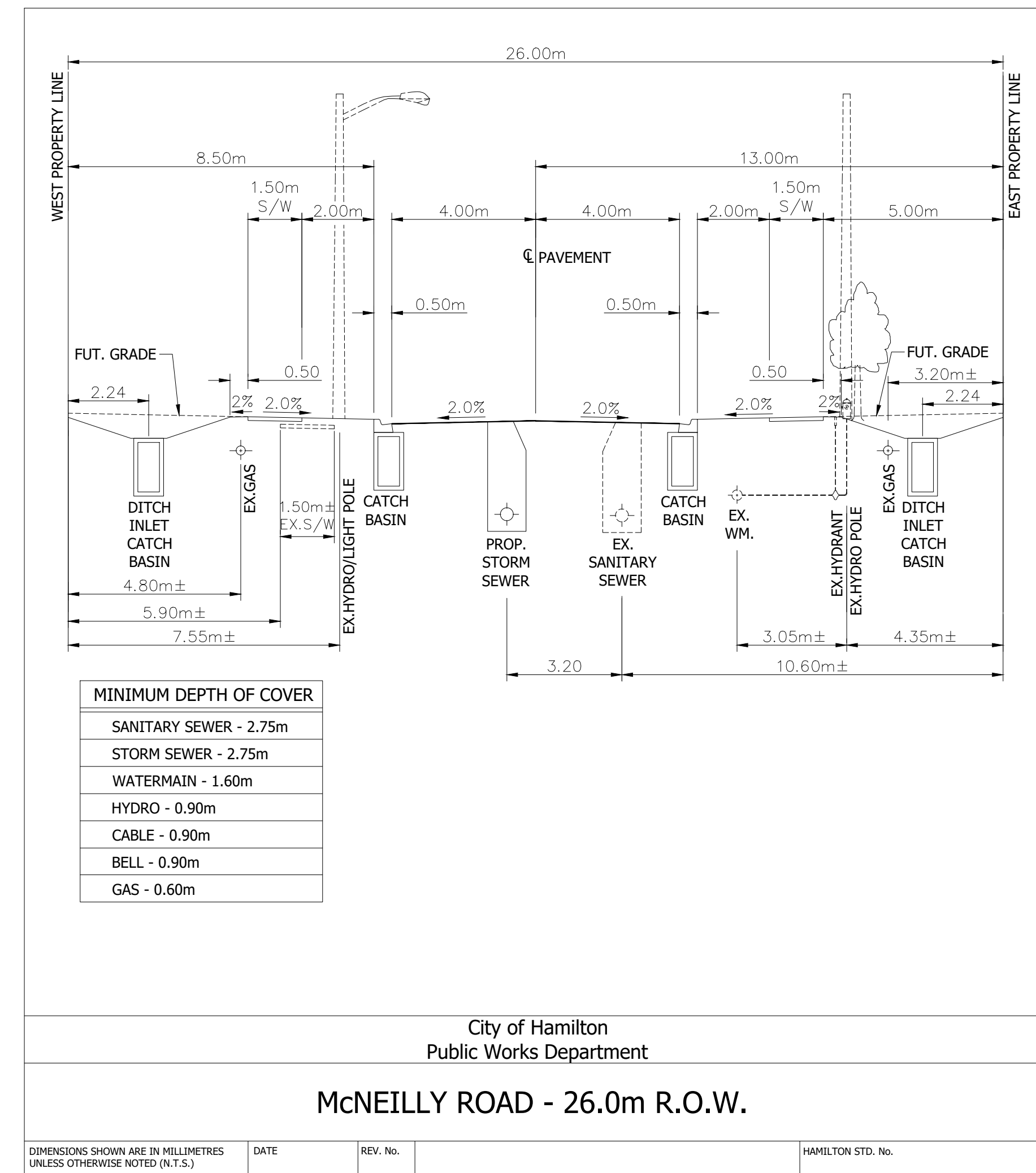
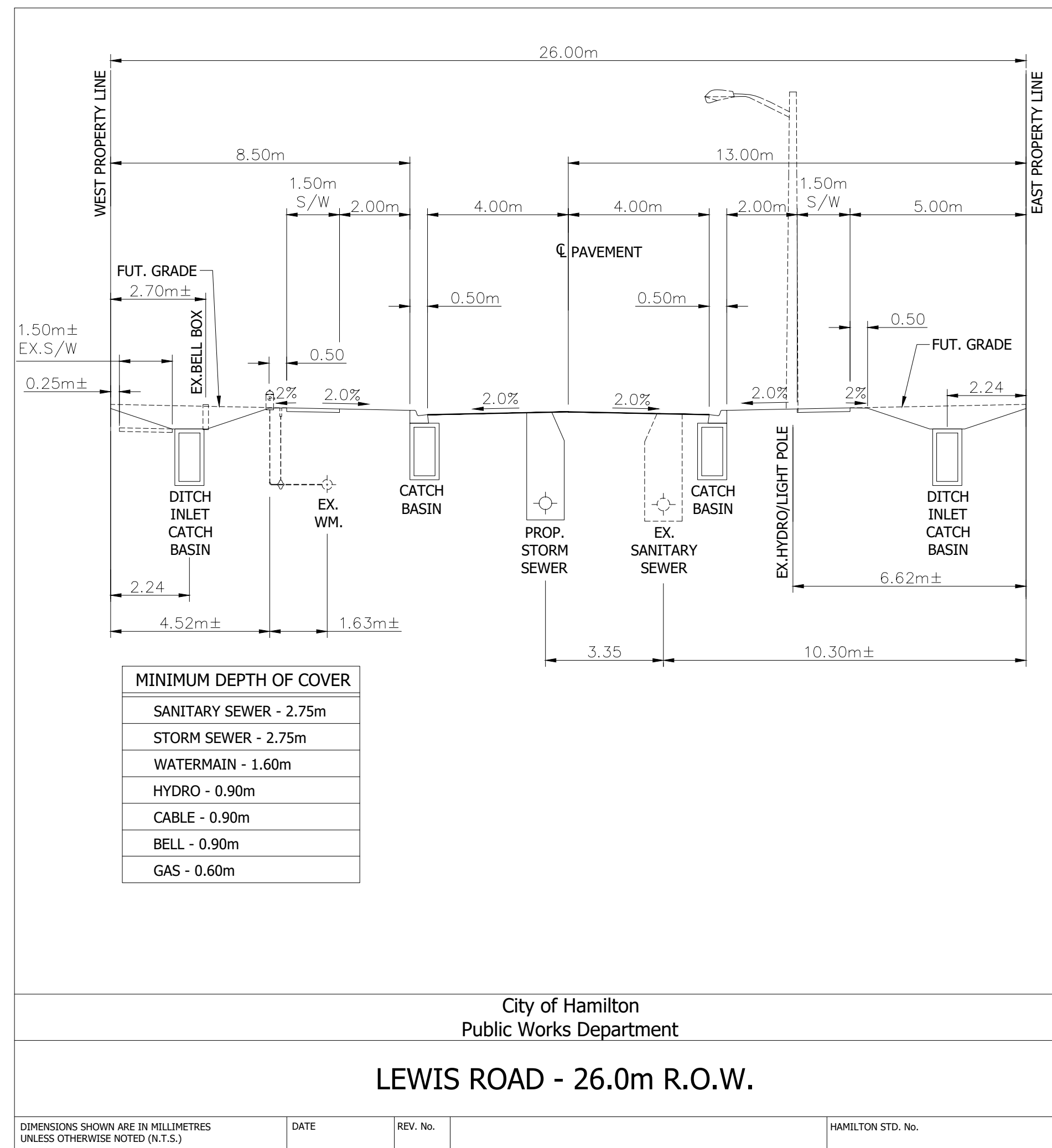


**BRANTHAVEN FRUITLAND**  
**CITY OF HAMILTON**

**PRELIMINARY HIGHWAY 8**  
**PLAN & PROFILE**  
FROM STA. 0+440.0m TO STA. 0+660.0m

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	V 1:50 H 1:1000	PP-6

PLOT DATE: February-27-20 6:32:49 PM



**BENCHMARK**  
DEEP BENCH MARK IN MANHOLE AT WINONA HIGH SCHOOL, ALONG LEWIS ROAD AT BARTON STREET, IN FRONT LAWN 20.3m WEST OF CENTRE LINE OF LEWIS ROAD, 15.5m NORTH OF EAST CORNER OF SCHOOL, 12.2m SOUTHWEST OF CENTRE LINE OF PARKING LOT ENTRANCE, 12.8m SOUTHEAST OF FLAG POLE. ELEVATION 1978 ADJUSTMENT 88.001m (288.717 FT.)



**BRANTHAVEN FRUITLAND**  
CITY OF HAMILTON

**PRELIMINARY ROAD CROSS-SECTIONS**  
(LEWIS ROAD & McNEILLY ROAD)

PROJECT No.	DATE	SCALE	DWG No.
12-062W	AUG. 2018	N.T.S	ROW-1

F:\PROJECTS\12-062W (BRANTHAVEN-FRUITLAND WINONA)\DRAWINGS\FIGURES\12-062W\_PRELIMINARY ROAD CROSS-SECTIONS.DWG

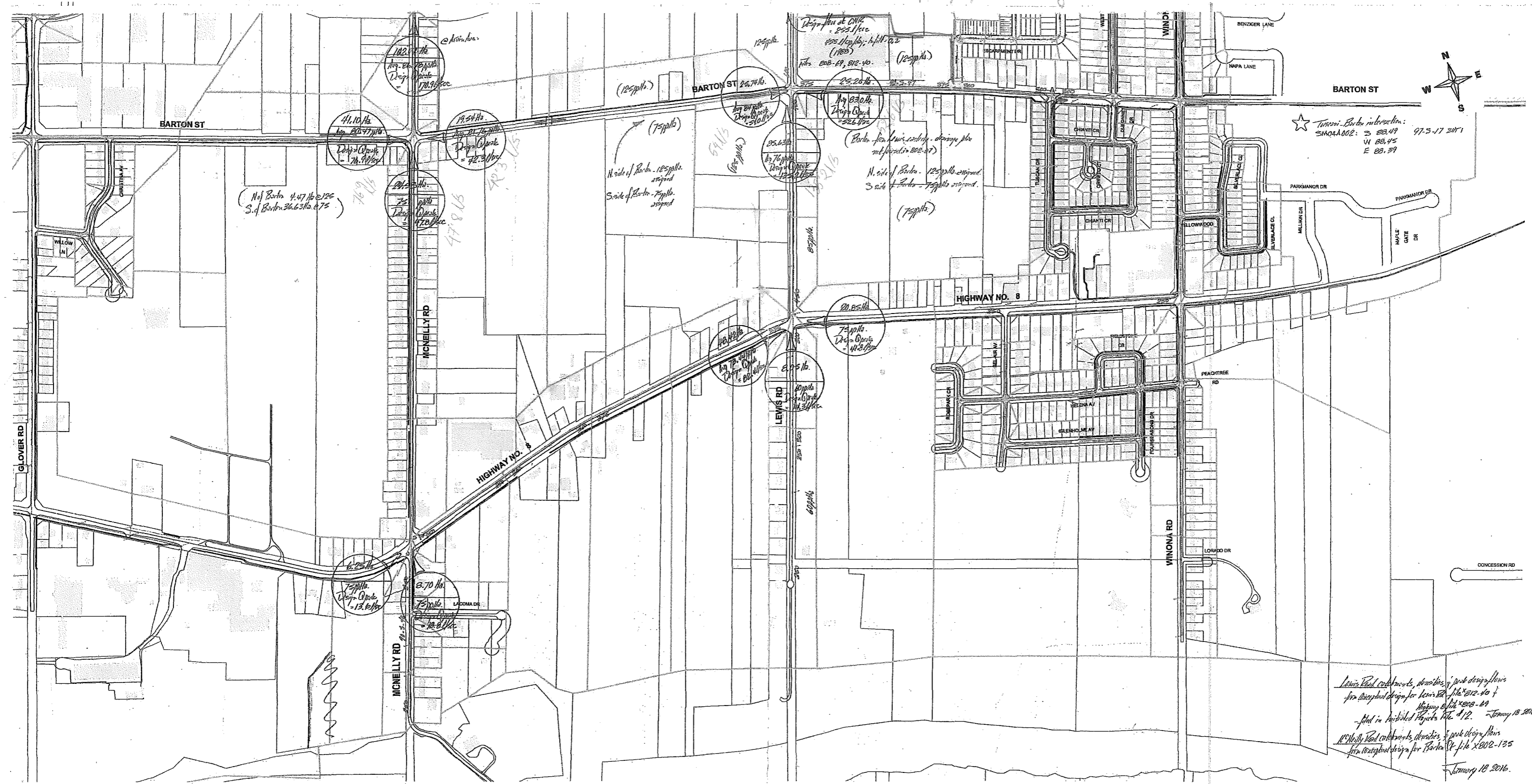
PLOT DATE: February-27-20 6:32:57 PM

ISSUED FOR INTERNAL REVIEW, Dec. 7, 2018

All flows are based on peak dry weather flow + 0.615/ha infiltration.

Barton/McNeilly: 167 lps  
 Barton/Lewis: 241'8 lps  
 Hwy8/McNeilly: 13'6 + 18'8 = 32'4 lps

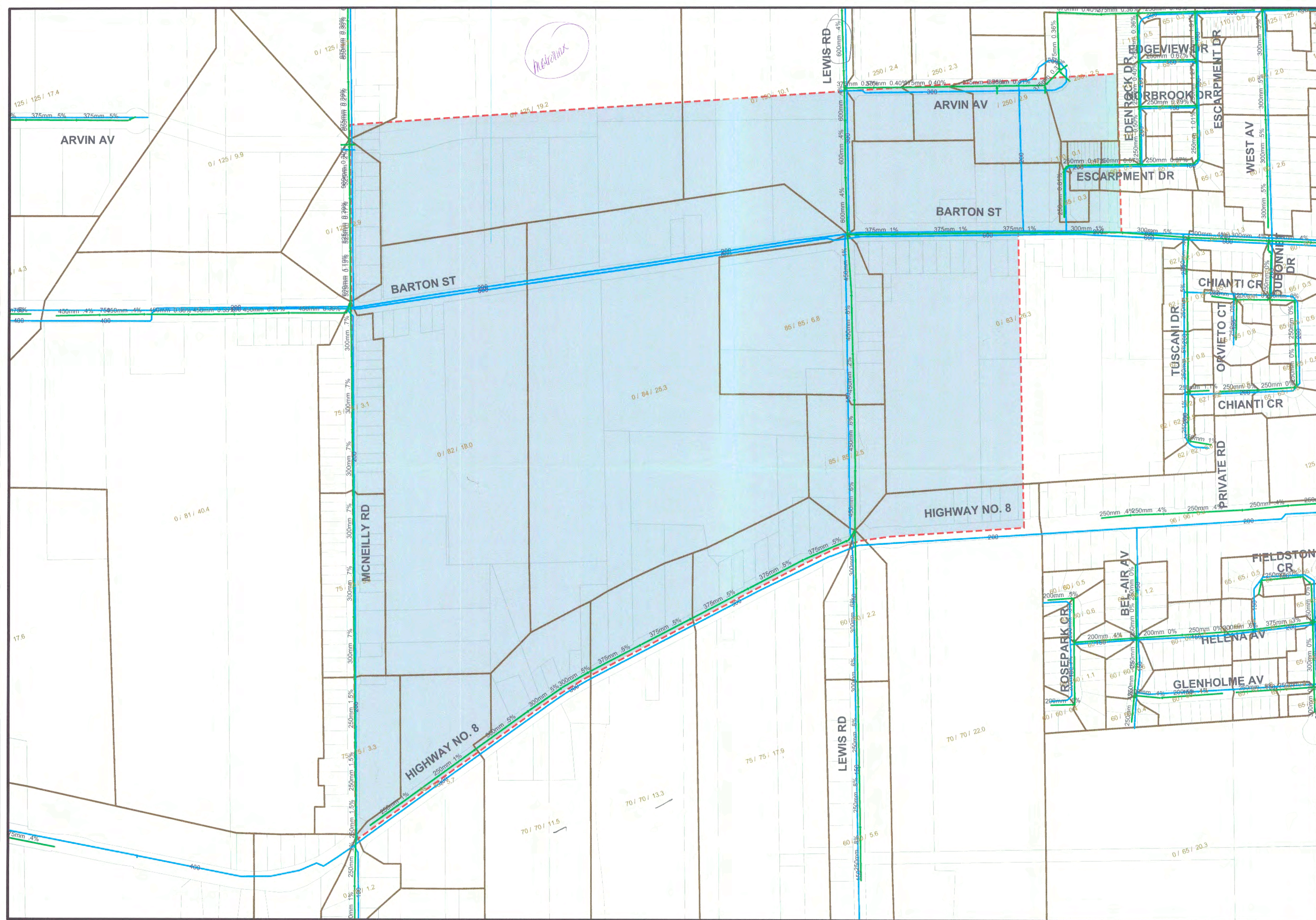
Hwy8/Lewis: 82'4 + 14'3 + 41'2 = 138 lps



Lewis Road catchments, densities & peak design flows for conceptual design for Lewis Rd file # 2012-204 & Highway 8 file # 2008-209  
 filed in Initial Projects File # 12 January 18 2016  
 McNeilly Road catchments, densities & peak design flows for conceptual design for Barton St file # 2002-135  
 January 18 2016

# Sanitary Sewer and Drainage Information

Block 3 Servicing Strategy, Stoney Creek



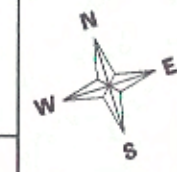
*McNeilly*

- Legend**
- Block 3 Servicing Strategy Area
  - Actual Pop. / Ultimate Pop. / Area (ha)
  - Sanitary Drainage Boundary
  - Sanitary Sewer Data
  - Sanitary Sewer
  - Water Main Data
  - Water Main
  - Property Boundary



**Hamilton**  
PLANNING AND ECONOMIC  
DEVELOPMENT DEPARTMENT

Date:  
**April 8, 2016**

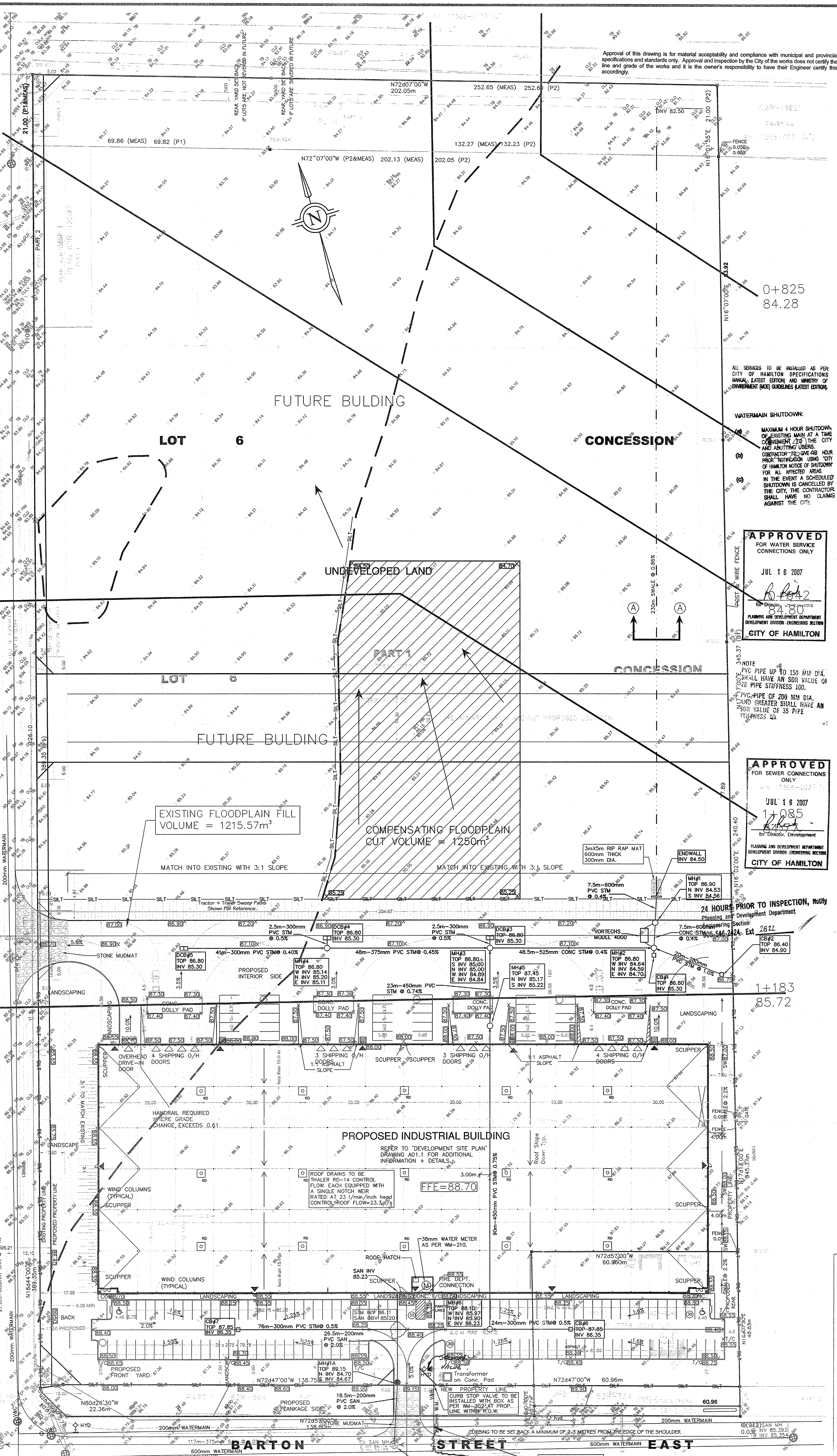


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LEWIS ROAD  
 ROAD  
 LEWIS ROAD

LOT 6  
 LOT 6  
 LOT 6

BARTON STREET EAST



**General Notes:**

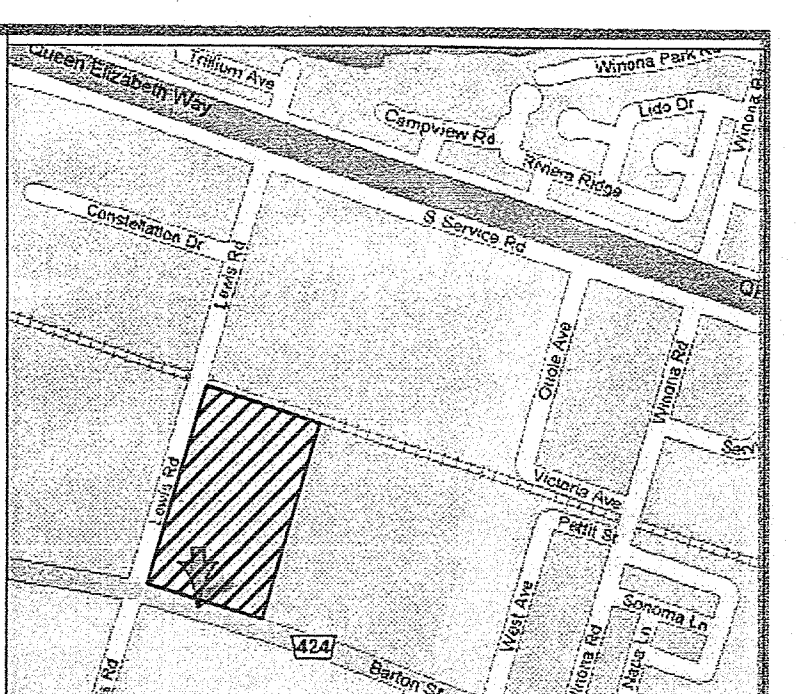
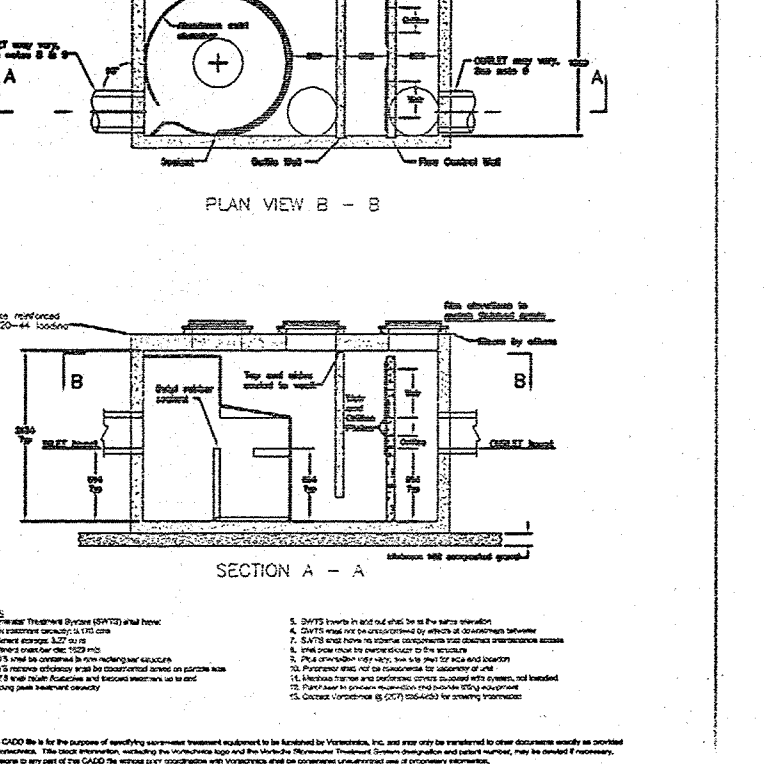
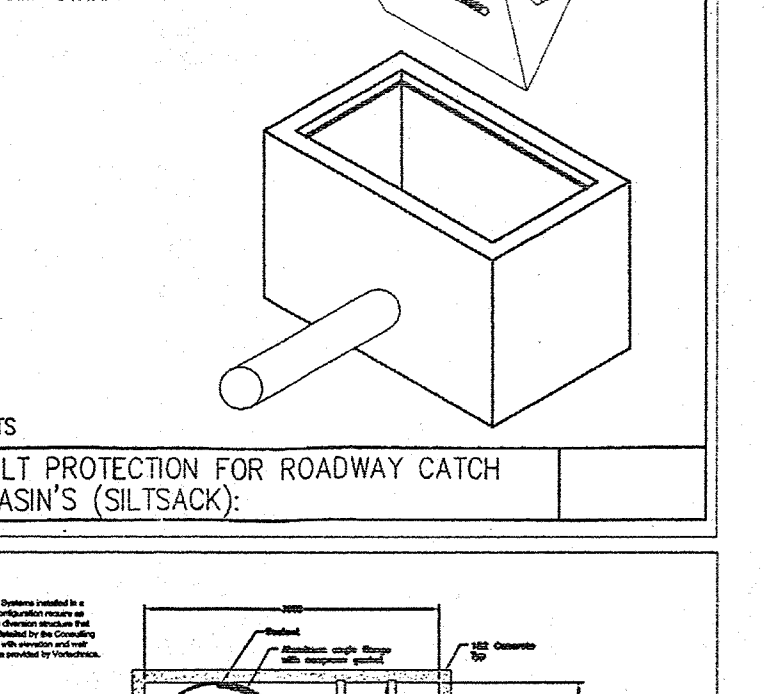
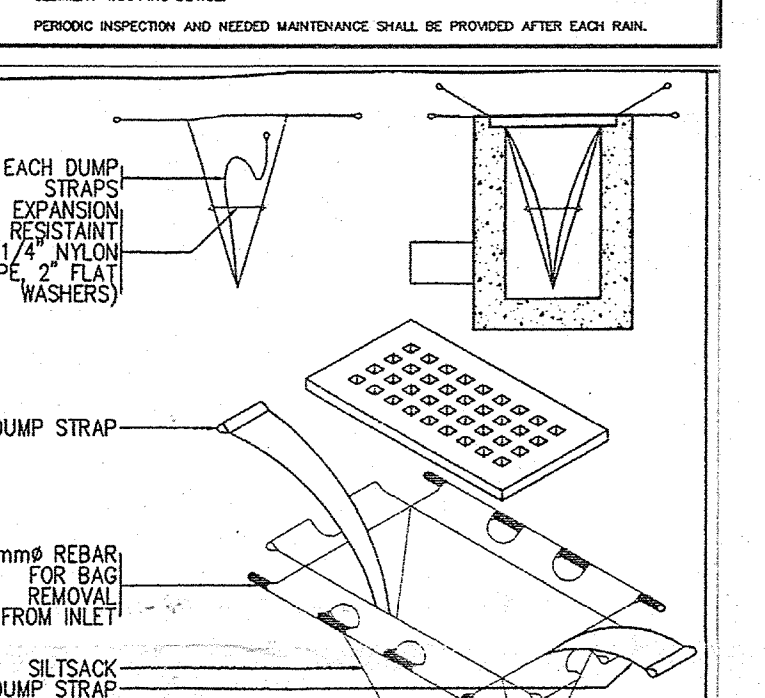
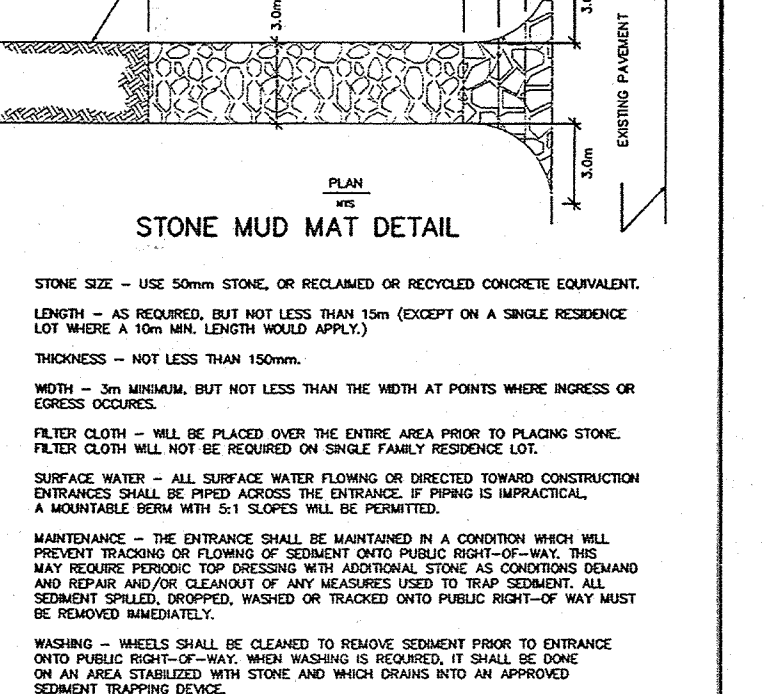
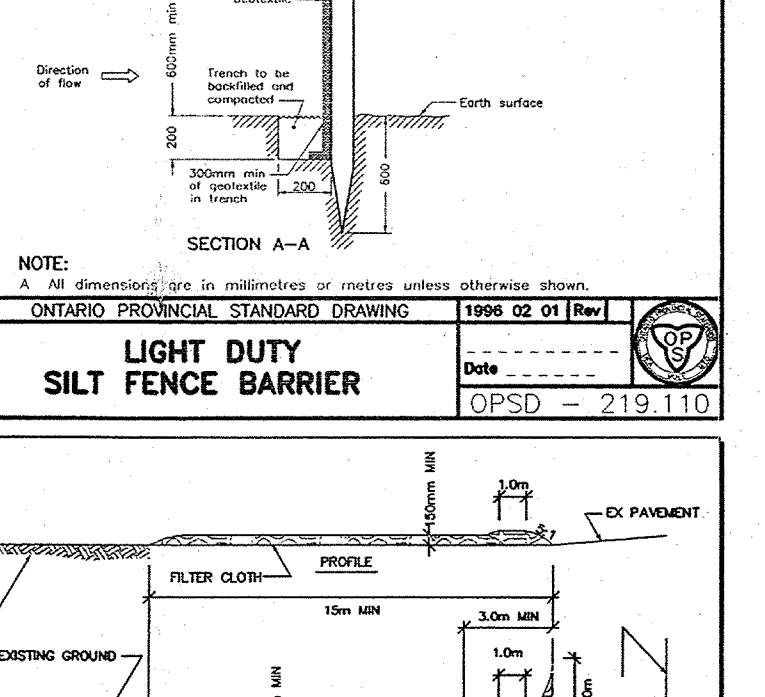
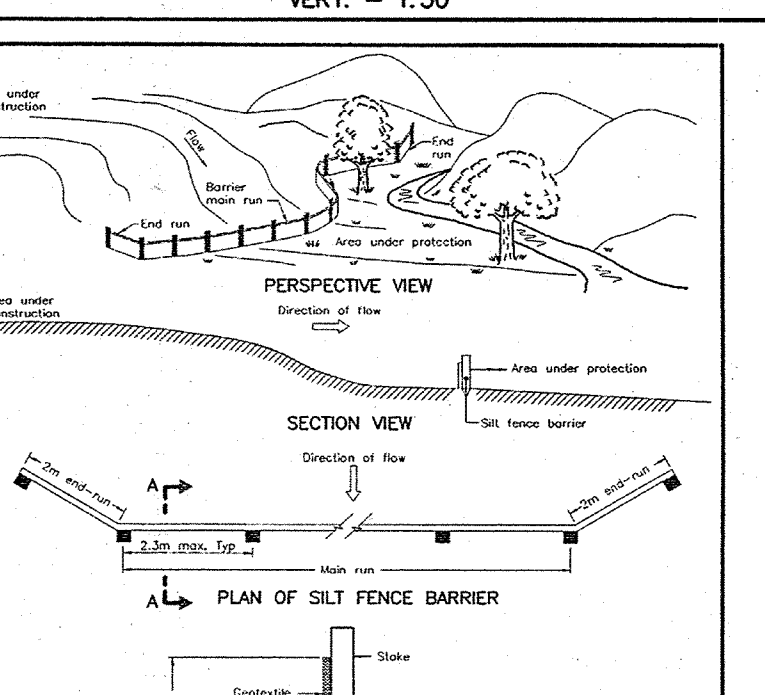
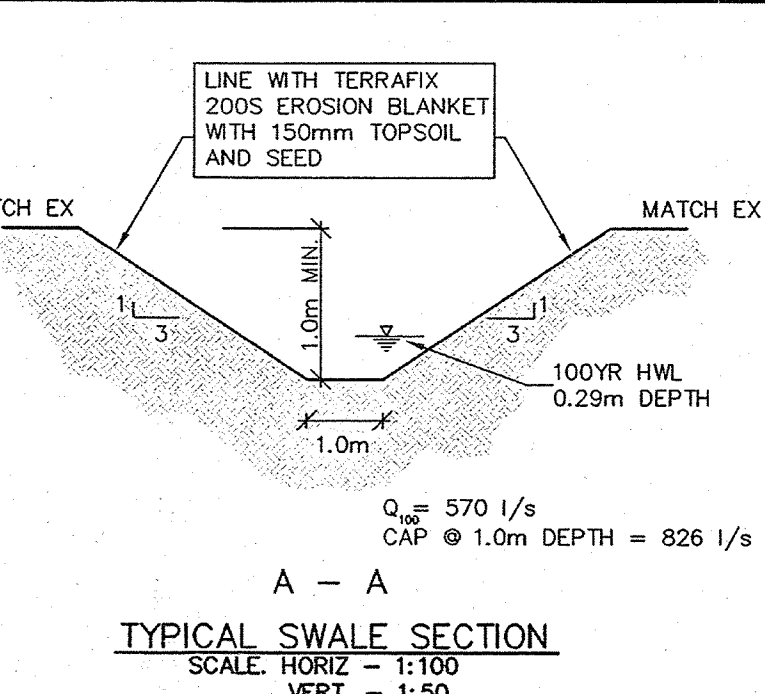
- Water services to be installed as per Region of Hamilton-Western Specifications Manual (latest edition) and Ministry of Environment (MOE) Guidelines (latest edition).
- Minimum horizontal separation between sewer and water services to be 2.5 m. Minimum vertical separation to be 0.1m when a water service passes over a sewer and 0.50m when a water service passes under a sewer. Minimum depth cover over water services to be 1.6m.
- As a fire service is proposed to a building, a backflow preventer may be required in accordance with the Ontario Building Code. If a backflow preventer is required it must be located at the service point of entry to the building.
- Watermain bedding and cover material to be installed as per WM-200.01 (concrete and PVC watermains and services) and WM-200.02 (castle iron watermains and services) with Granular "A" for both bedding and cover.
- "Watermain Shutdown"  
 (a) Maximum 4 hour shutdown of existing main at a time convenient to the City of Hamilton and shutting users.  
 (b) Contractor to give 48 hour prior notification using the "City of Hamilton Notice of Shutdown" for affected areas.  
 (c) In the event a scheduled shutdown is cancelled by the City of Hamilton, the contractor shall have no claims against the City.
- Thrust blocks as per RWS-400 to be installed at all water service elbows, plugs, tees, etc.
- All hydrants are to be installed as per WM-203.01 and/or WM-203.02, as applicable, and are to be complete with a secondary valve.
- PVC watermain material, tracer wire and cathodic protection installation to be as per Regional Standard Form RSR-1600.
- The main fire hydrant valve to be opened left, with clear markings cast in the barrel showing an open left directional indicator arrow, as per former City of Stoney Creek standards.

**Sanitary Sewer:**

- Sanitary sewer services to be installed as per Region of Hamilton-Western Specifications Manual (latest edition) and Ministry of Environment (MOE) Guidelines (latest edition).
- Sanitary maintenance holes to be as per OPSD 701.010, and are to be supplied.
- Sanitary sewers to be installed with a minimum cover of 2.20m at the property line below the final grade or at such higher elevation only as may be necessitated by the elevation of the main sewer. On private property the minimum cover to be no less than 1.2 m.
- All proposed sanitary sewers to be PVC SDR 35 material.
- Sewer bedding, cover and backfill must be as per OPSD 802.010 with Granular "A" for both bedding and cover.

**Storm Sewer:**

- All proposed storm sewers to be PVC SDR 35 material.
- Sewer bedding, cover and backfill must be as per OPSD 802.010 with Granular "A" for both bedding and cover.
- Proposed storm sewers to be constructed as per OPSD 705.010 (single) and OPSD 705.020 (double).



PART OF LOT 6  
 CONCESSION 1  
 CITY OF STONEY CREEK  
 REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH  
 (GEOGRAPHIC TOWNSHIP OF SALTFLAT)  
 BENNETT YOUNG LIMITED  
 PROFESSIONAL LAND SURVEYORS  
 BENCH MARK

ELEVATIONS ARE GEODETIC AND REFERRED TO GEODETIC SURVEY OF CANADA BENCHMARK NO. 750228, HAVING A PUBLISHED ELEVATION OF 88.001 METRES.

**DEVELOPMENT + SITE STATISTICS**

DEVELOPMENT AREA	29,367.4 SM	355,376 SF	7.81 AC
BUILDING AREA / COVERAGE	13,368.1 SM	143,898 SF	47.1 %
TOTAL GROSS FLOOR AREA	13,351.2 SM	143,719 SF	47.0 %
LANDSCAPED & SEEDED AREA	9,423.2 SM	102,517 SF	32.1 %
PAVED VEHICLE ACCESS AREA	5,378.1 SM	57,891 SF	18.0 %

**PAVED AREA OUTSIDE DEVELOPMENT AREA**

DEVELOPMENT AREA	297.4 SM	3,201 SF
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**SECTIONS - BUILDING**

SOUTH-FLANKING SIDE YARD	9.0m MIN.	27.90m
NORTH-INTERIOR SIDE YARD	3.0m MIN.	36.27m
WEST-INTERIOR SIDE YARD	3.0m MIN.	17.00m
EAST-REAR YARD	7.5m MIN.	7.50m

**TOTAL SITE AREA**

TOTAL SITE AREA	88,697.8 sqm	19.94 acres
AREA OF SEWERAGE - NORTH-SOUTH	88,697.8 sqm	22.06 acres
AREA OF ROAD WIDENING	1,586.69 sqm	0.37 acres
NOTE: AREAS TO BE CONFIRMED BY AN ENTRUSTED LAND SURVEYOR.		

**PARKING**

REQUIRED INDUSTRIAL (1 SPACE/100sqm)	134
TYPICAL PARKING SPACE 2.7m x 5.8m	149 SPACES
PVC PARKING SPACE 4.0m x 5.8m	8 SPACES
TOTAL	157 SPACES

**ACCESS DRIVEWAY**

ACCESS DRIVEWAY	6.0m
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**LOADING SPACES**

REQUIRED	PROVIDED
14 SPACES	14 SPACES

**LEGEND**

- CATCHBASIN
- DOUBLE CATCHBASIN
- PROPOSED STORM MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED SANITARY MANHOLE
- VALVE AND BOX
- VALVE AND CHAMBER
- HYDRANT AND VALVE
- PROPOSED ELEVATION
- EXISTING ELEVATION
- EXISTING REGULATORY FLOODLINE (PHILIPS ENGINEERING OCT 2005)
- HEC RAS CROSS-SECTION FLOODPLAIN CROSS SECTION LOCATION
- FLOODPLAIN ELEVATION
- STONE MUDMAT
- SILT FENCE OPSD 219.110

**REVISIONS AND DISTRIBUTION LOG**

Rev.	Date	Notes
1	FEB 28/07	COMPLETED SITE SERVICES, GRADING AND STORMWATER MANAGEMENT DESIGN
2	MAY 23/07	REVISED FOR CITY HCA REVIEW
3	JUNE 15/07	REVISED AS PER CITY COMMENTS

USE OF GIFFELS DESIGN-BUILD INC. AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY GIFFELS ASSOCIATES LIMITED TO ANY PARTY WITH WHOM GIFFELS ASSOCIATES LIMITED HAS NOT ENTERED INTO A CONTRACT.

THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNTIL THE SEAL APPEARING HEREON IS SIGNED AND DATED BY THE ARCHITECT OR ENGINEER.

THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND REPORT DISCREPANCIES TO THE ARCHITECT.

ALL DIMENSIONS ARE GIVEN IN MILLIMETRES UNLESS OTHERWISE INDICATED. DO NOT SCALE DRAWINGS.

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EP 03240A  
 EP 03239A  
 LSP-2537

Project: MULTI-TENANT BUILDING  
 1175 BARTON STREET E  
 CLIENT

STONEY CREEK ONTARIO

Drawing Title: Site Servicing  
 Grading  
 Stormwater Management

Drawn By: Checked By: Date Checked: Project No:  
 N.A.C. N.A.C. 0575

Date Plotted: Jun 18, 2007 - 9:34am Scale: 1:500

Drawing Name: 0575-G1 Revision No.: No.1