



STORM SEWER SYSTEM

PID : 121899 Date : 08/20/2025 Project : WAR_LOV_2401

Location : Loveland Ohio

Description :SR48 Sidewalk Reconstruction - 115+55 Outlet

Designer : NES

Rainfall Area: C

Just Full Capacity Frequency (yrs.) : 10

Hydraulic Gradient Frequency (yrs.) : 25

Minimum Pipe Size : 12.00

Tailwater Elevation (ft.): 609.00

JUNCTION		STATION		Δ AREA	Δ CA	BEGIN	RAINFALL		DISCHARGE		PIPE			F/L PIPE	MEAN	JUST FULL	FRICT	HYGR EL.	COVER	COVER	COVER	INLET TYPE
From	To	From	To	Σ AREA (acres)	Σ CA	TIME (min.)	INTENSITY (10 yrs.)	(25 yrs.)	(10 yrs.)	(25 yrs.)	DIAM. (in.)	LENGTH (ft.)	SLOPE (ft./ft.)	IN / OUT (ft.)	VEL (fps.)	CAPACITY (cfs.)	SLOPE (ft./ft.)	IN / OUT (ft.)	IN / OUT (ft.)	MINUS HY GR	MINUS CROWN	MANNING'S 'n'
HW	E37	115+68		16.32	8.98	25.00	3.42	3.94	30.7	35.3	24	21.4	0.1228	608.62	21.25	73.90	0.0324	609.69	612.00	2.31	1.38	HW Half He
	begin	115+55		16.32	8.98									606.00				609.00	610.91			0.015

Even though CDSS allows you to select the half height headwall, the program does not analyze the effects of this inlet condition. Please additionally analyze this segment using Culvert Analysis to determine if the headwater at the inlet is effected by the proposed storm sewer system. The HGL from the SS analysis should be used as the tailwater for the proposed culvert analysis. The existing culvert will also need to be run using the existing downstream channel tailwater to compare the existing and proposed headwaters in the culvert analysis.

REVIEW COMPLETE

PM _____

BRIDGES _____

CONSTRUCT _____

DRAINAGE Tami Brehm, P.E. 10/07/2025

ENVIRON _____

GEOTECH _____

ITS _____

MOT _____

PAVEMENT _____

ROADWAY _____

R/W _____

SURVEY _____

TRAFFIC _____

UTILITIES _____

OTHER _____

OTHER _____



STORM SEWER SYSTEM

PID : 121899 **Date :** 08/20/2025 **Project :** WAR_LOV_2401

Location : Loveland Ohio

Description : SR48 Sidewalk Reconstruction - 119+78 Outlet

Designer : NES

Rainfall Area: C

Just Full Capacity Frequency (yrs.) : 10

Hydraulic Gradient Frequency (yrs.) : 25

Minimum Pipe Size : 12.00

Tailwater Elevation (ft.): 623.15

JUNCTION		STATION	ΔAREA	ΔCA	BEGIN	RAINFALL		DISCHARGE		PIPE			F/L PIPE	MEAN	JUST FULL	FRICT	HYGR EL.	COVER	COVER	COVER	INLET TYPE
From	To	From To	Σ AREA (acres)	Σ CA	TIME (min.)	INTENSITY (10 yrs.) (25 yrs.)	(cfs.) (10 yrs.) (25 yrs.)	(cfs.) (10 yrs.) (25 yrs.)	DIAM. (in.)	LENGTH (ft.)	SLOPE (ft./ft.)	IN / OUT (ft.)	VEL (fps.)	CAPACITY (cfs.)	SLOPE (ft./ft.)	IN / OUT (ft.)	IN / OUT (ft.)	MINUS HY GR	MINUS CROWN	MANNING'S 'n'	
4	3	121+15	0.18	0.07	10.00	5.32	6.00	0.4	0.4	12	12.8	0.0800	625.45	5.67	9.40	0.0002	625.60	628.18	2.58	1.73	CB 3
	begin	121+15	0.18	0.07									624.43				625.06	628.37			0.015
3	28	121+15	0.00	0.00	10.04	5.31	5.86	0.4	0.4	12	133.8	0.0170	624.43	3.27	4.33	0.0002	624.65	628.37	3.72	2.95	MH 3
	final	119+78	0.18	0.07									622.15				623.15	626.65			0.015



STORM SEWER SYSTEM

PID : 121899 **Date :** 07/02/2025 **Project :** WAR_LOV_2401

Location : Loveland Ohio

Description : SR48 Sidewalk Reconstruction - 122+82 Outlet

Designer : NES

Rainfall Area: C

Just Full Capacity Frequency (yrs.) : 10

Hydraulic Gradient Frequency (yrs.) : 25

Minimum Pipe Size : 12.00

Tailwater Elevation (ft.): 633.00

JUNCTION		STATION	ΔAREA	ΔCA	BEGIN	RAINFALL		DISCHARGE		PIPE			F/L PIPE	MEAN	JUST FULL	FRICT	HYGR EL.	COVER	COVER	COVER	INLET TYPE
From	To	From To	Σ AREA (acres)	Σ CA	TIME (min.)	INTENSITY (10 yrs.) (25 yrs.)	(cfs.) (10 yrs.) (25 yrs.)	DIAM. (in.)	LENGTH (ft.)	SLOPE (ft./ft.)	IN / OUT (ft.)	VEL (fps.)	CAPACITY (cfs.)	SLOPE (ft./ft.)	IN / OUT (ft.)	IN / OUT (ft.)	MINUS HY GR	MINUS CROWN	MANNING'S 'n'		
5	6	122+82	1.03	0.21	15.00	4.47	5.09	0.9	1.0	12	11.6	0.0200	634.43	4.41	4.70	0.0012	634.93	637.44	2.51	2.01	CB 2-2B
	begin	122+82	1.03	0.21									634.20			634.92	637.21			0.015	
6	OUT	122+82	0.07	0.06	15.04	4.47	5.08	1.2	1.4	12	30.8	0.0715	634.20	7.46	8.88	0.0020	634.47	637.20	2.73	2.00	CB 3
	final	122+82	1.10	0.27									632.00			633.00	635.00			0.015	



STORM SEWER SYSTEM

PID : 121899 **Date :** 08/20/2025 **Project :** WAR_LOV_2401

Location : Loveland Ohio

Description : SR48 Sidewalk Reconstruction - 125+17 Outlet

Designer : NES

Rainfall Area: C

Just Full Capacity Frequency (yrs.) : 10

Hydraulic Gradient Frequency (yrs.) : 25

Minimum Pipe Size : 12.00

Tailwater Elevation (ft.): 636.79

JUNCTION From	STATION To	From To	Δ AREA Σ AREA (acres)	Δ CA Σ CA	BEGIN TIME (min.)	RAINFALL		DISCHARGE		PIPE			F/L PIPE IN / OUT (ft.)	MEAN VEL (fps.)	JUST FULL CAPACITY (cfs.)	FRICT SLOPE (ft./ft.)	HYGR EL. IN / OUT (ft.)	COVER IN / OUT (ft.)	COVER MINUS HY GR	COVER MINUS CROWN	INLET TYPE MANNING'S 'n'
						(10 yrs.)	(25 yrs.)	(10 yrs.)	(25 yrs.)	DIAM. (in.)	LENGTH (ft.)	SLOPE (ft./ft.)									
9	8	127+23	0.28	0.09	11.86	4.97	5.51	0.5	0.5	12	207.8	0.0525	657.16	5.09	7.61	0.0003	657.34	660.18	2.85	2.03	CB 3
	begin	125+17	0.28	0.09									646.25				646.90	650.61			0.015
21	8	125+17	2.61	0.52	10.00	5.32	6.00	2.8	3.1	12	37.1	0.0634	648.00	9.07	8.37	0.0103	648.44	653.55	5.11	4.55	MH 3
	begin	125+17	2.88	0.61									645.65				646.53	650.61			0.015
7	8	124+83	0.10	0.03	10.00	5.32	5.94	0.2	0.2	12	37.7	0.0100	646.69	2.06	3.32	0.0000	646.90	649.79	2.89	2.10	CB 3
	begin	125+17	2.98	0.64									646.31				646.90	650.61			0.015
8	OUT	125+17	0.18	0.07	12.54	4.85	5.49	3.5	3.9	18	54.0	0.1792	644.97	13.47	41.45	0.0018	645.29	650.61	5.32	4.14	CB 3
	final	125+17	3.17	0.71									635.29				636.79	640.00			0.015



STORM SEWER SYSTEM

PID : 121899 **Date :** 08/20/2025 **Project :** WAR_LOV_2401

Location : Loveland Ohio

Description : SR48 Sidewalk Reconstruction - Station 128+67 Outlet

Designer : NES

Rainfall Area: C

Just Full Capacity Frequency (yrs.) : 10

Hydraulic Gradient Frequency (yrs.) : 25

Minimum Pipe Size : 12.00

Tailwater Elevation (ft.): 658.50

JUNCTION		STATION	ΔAREA	ΔCA	BEGIN	RAINFALL		DISCHARGE		PIPE			F/L PIPE	MEAN	JUST FULL	FRICT	HYGR EL.	COVER	COVER	COVER	INLET TYPE
From	To	From To	Σ AREA (acres)	Σ CA	TIME (min.)	INTENSITY (10 yrs.)	(25 yrs.)	(10 yrs.)	(25 yrs.)	DIAM. (in.)	LENGTH (ft.)	SLOPE (ft./ft.)	IN / OUT (ft.)	VEL (fps.)	CAPACITY (cfs.)	SLOPE (ft./ft.)	IN / OUT (ft.)	IN / OUT (ft.)	MINUS HY GR	MINUS CROWN	MANNING'S 'n'
10	E60	128+67	3.48	0.74	15.00	4.47	5.09	3.3	3.8	15	28.4	0.0889	660.02	10.60	17.95	0.0045	660.42	664.99	4.57	3.72	CB 3
	begin	128+67	3.48	0.74									657.50				658.52	663.05			0.015



STORM SEWER SYSTEM

PID : 121899 **Date :** 08/20/2025 **Project :** WAR_LOV_2401

Location : Loveland Ohio

Description : SR48 Sidewalk Reconstruction - Station 130+45 Outlet

Designer : NES

Rainfall Area: C

Just Full Capacity Frequency (yrs.) : 10

Hydraulic Gradient Frequency (yrs.) : 25

Minimum Pipe Size : 12.00

Tailwater Elevation (ft.): 653.43

JUNCTION		STATION	ΔAREA	ΔCA	BEGIN	RAINFALL		DISCHARGE		PIPE			F/L PIPE	MEAN	JUST FULL	FRICT	HYGR EL.	COVER	COVER	COVER	INLET TYPE
From	To	From To	Σ AREA (acres)	Σ CA	TIME (min.)	INTENSITY (10 yrs.) (25 yrs.)	(cfs.) (10 yrs.) (25 yrs.)	DIAM. (in.)	LENGTH (ft.)	SLOPE (ft./ft.)	IN / OUT (ft.)	VEL (fps.)	CAPACITY (cfs.)	SLOPE (ft./ft.)	IN / OUT (ft.)	IN / OUT (ft.)	MINUS HY GR	MINUS CROWN	MANNING'S 'n'		
12	11	131+41	0.26	0.08	10.00	5.32	5.90	0.4	0.5	12	98.7	0.0150	666.93	3.18	4.07	0.0002	667.16	670.18	3.01	2.25	CB 3
	begin	130+45	0.26	0.08									665.45			666.09	668.41			0.015	
11	OUT	130+45	0.22	0.07	10.52	5.22	5.87	0.8	0.8	12	70.6	0.1680	664.29	8.87	13.62	0.0008	664.46	668.41	3.95	3.12	CB 3
	final	130+45	0.47	0.14									652.43			653.43	656.00			0.015	



INLET SPACING DESIGN

PID : 121899 **Date :** 08/20/2025 **Project :** WAR-LOV-2401

Location : Loveland Ohio

Description : Sidewalk Reconstruction of Sidewalk on SR 48

Designer : NES

Rainfall Area: C

Storm Frequency (yr.) : 5

Total Allow. Spread (ft.) : 4.00

Allowable Depth (ft.) 0.42

STATION	C.B. Type	GUTTER LENGTH (ft.)	RUNOFF COEF	AREA (acres)	CONC. TIME (min.)	GUTTER TIME (min.)	TIME USED (min.)	LONG. SLOPE (ft./ft.)	GUTT. SLOPE (ft./ft.)	PAVT. SLOPE (ft./ft.)	GUTT. WIDTH (ft.)	LOCAL DEPRESS. (ft.)	RAIN FALL (in./hrs.)	INTERCPTD FLOW (cfs.)	BYPASS FLOW (cfs.)	TOTAL FLOW (cfs.)	DEPTH FLOW (ft.)	PAVT. SPREAD (ft.)
132+00	Begin																	
131+41	CB-3	59.00	0.35	0.26	8.37	0.39	10.00	0.0256	0.0833	0.0200	2.00	0.0000	4.82	0.44	0.00	0.44	0.148	1.78
130+44	CB-3	97.00	0.90	0.03	10.00	1.01	11.01	0.0180	0.0833	0.0200	2.00	0.0000	4.63	0.12	0.00	0.12	0.099	1.18
128+67	CB-3	177.00	0.90	0.06	10.00	1.52	11.52	0.0190	0.0833	0.0200	2.00	0.0000	4.54	0.24	0.00	0.24	0.126	1.51
127+23	CB-3	144.00	0.90	0.05	10.00	1.05	11.05	0.0330	0.0833	0.0200	2.00	0.0000	4.62	0.21	0.00	0.21	0.107	1.28
125+17	CB-3	206.00	0.38	0.18	10.00	1.19	11.19	0.0460	0.0833	0.0200	2.00	0.0000	4.59	0.31	0.00	0.31	0.117	1.40
122+82	CB-3	235.00	0.90	0.07	10.00	1.29	11.29	0.0560	0.0833	0.2000	2.00	0.0000	4.58	0.29	0.00	0.29	0.109	1.31
121+14	CB-3	168.00	0.90	0.05	10.00	1.02	11.02	0.0537	0.0833	0.0200	2.00	0.0000	4.63	0.21	0.00	0.21	0.097	1.17

Since curb is being added from approximately STA 103+00 to STA 106+00, inlet spacing calculations are needed.