Post-Construction Water Quality Design

Draft

Project Name: Crocker Road Detention Basin **Date:** 5/5/06

Drainage Area and Runoff Information

Type of Land Use	Drainage Area (Ac.)	Runoff Coefficients	Water Quality Volume (C.F.)
Industrial and Commercial	204.19	0.80	444,634 C.F.
High Density Residential (>15 dwellings/acre)	38.89	0.50	52,928 C.F.
Medium Density Residential (4-15 dwellings/acre)		0.40	
Low Density Residential (<4 dwellings/acre)	36.25	0.30	29,601 C.F.
Parks, Agriculture or Open Space	2.55	0.20	1,388 C.F.
Total Drainage Area =	281.88		**528,551 C.F.**
Weighted Runoff Coefficient =	0.69		

Water Quality Volume is determined using $WQ_V = 0.75 \times C \times A/12$ per Ohio EPA Phase 2 requirements.

Detention Pond Information

	Elevation	Area, S.F.	Volume (C.F.)	Volume Sum (C.F.)
	646.00	0	0	0
	647.00	0	0	0
	648.00	0	0	0
	649.00	0	0	0
	650.00	0	0	0
	651.00	0	0	0
	652.00	0	0	0
BOTTOM	652.50	109,253	27,170	27,170
	653.00	138,554	61,950	89,120
	654.00	167,028	152,789	241,909
	655.00	191,510	179,268	421,177
	656.00	210,693	201,101	622,277
	657.00	225,164	217,928	840,206
	658.00	230,791	227,977	1,068,183
	659.00	236,400	233,595	1,301,778
	660.00	241,939	239,169	1,540,948
TB	661.00	247,920	244,929	1,785,877

Water Quality Specifications

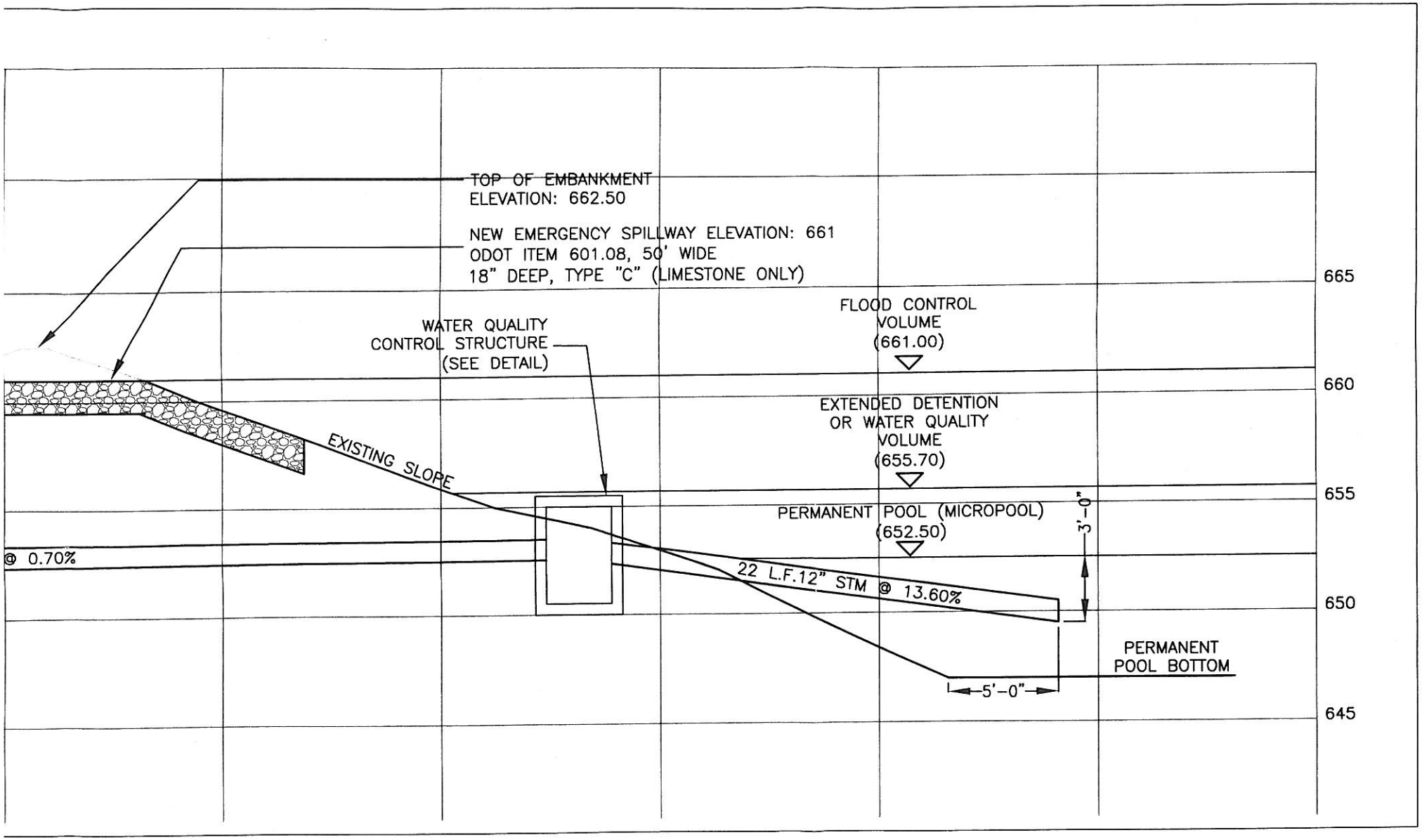
Type of Pond: DETENTION — Specify Retention or Detention

Required Drawdown Time, hrs.: 48

Water Quality Volume:	528,551 C.F.
48 hr. Drawdown Volume:	528,551 C.F.
Normal Water Elevation:	652.50
Surface Area at Normal Water Elevation:	109,253 S.F.
Water Quality Elevation:	655.70
Surface Area at Water Quality Elevation:	204,938 S.F.
Volume at Water Quality Elevation:	537,950 C.F
Allowable Water Quality Discharge Rate:	3.06 C.F.S.
Diameter of Water Quality Orifice:	**9 1/2** inches at ELEV. **652.50**

An additional 20% of WQv **must be added to the basin** for sediment storage.

Total Volume Provided in Modified Basin	1,785,877 C.F.
Total Required Detention Basin Volume Per Zwick Associates Inc. Report Dated August 29, 2005	1,062,998 C.F.
Required Water Quality Volume (including 20% for sediment storage)	634,262 C.F.
Excess Volume	88,618 C.F.



NTION BASIN PROFILE

SCALE: 1/4"=1'-0"