

## BURKHARDT SQUARE INDUSTRIAL PARK

The site is located on the east side of Evansville, on the south side of Wedeking Avenue, west of Burkhardt Road, in Knight Township, Vanderburgh County.

A proposed masterplan has been created for the 11.04 acre site. This masterplan calls for office buildings and warehouses to be developed. Currently the developer wants to develop only one of the proposed building sites. This site is 1.55 acres. The overall site is on relatively flat ground with a predominantly pasture cover with a few dirt stockpiles. The ground drains in a southwesterly direction toward a swale leading to the Crawford Brandeis Ditch. The site has no offsite runoff entering onto it.

The storm sewer system (pipes and basin) is sized for complete development conditions as shown on the masterplan. There is currently a lake on site that was built as a borrow pit. The water level on this lake is going to be lowered from the existing 379.00 to a level of 376.00 to allow adequate storage for completed development. Part of the storm sewer pipes are sized to act as a trunk line after future development takes place.

### Storage

The required 25-year storm storage requirement for this building site is 0.17 acre-ft., and 0.24 acre-ft. for the 100-year storm. These volumes are derived from using the following information: Area = 1.27 acres, Tc = 36 min., Cu = 0.18, Cd = 0.85. The existing peak runoff rate for this site equals 0.67 cfs; however, 0.17 cfs will leave the site directly. Therefore, the allowable discharge from the retention basin is lowered to 0.50 cfs. We recommend that an orifice sized for these conditions not be installed because the small opening that would be required would also be prone to clogging.

The required 25-year storm storage requirement for the completed development is 1.65 acre-ft., and 2.29 acre-ft. for the 100-year storm. These volumes are derived from using the following information: Area = 11.04 acres, Tc = 60.8 min., Cu = 0.18, Cd = 0.85. The existing runoff for this site equals 3.60 cfs; however, 0.17 cfs will leave the site directly. Therefore, the allowable discharge from the retention basin is lowered to 3.43 cfs. An 8<sup>3</sup>/<sub>4</sub>" diameter orifice on a 12" pipe would limit the discharge to 3.44 cfs under the design headwater conditions.

The existing top of bank of the lake ranges from 379.66 to 382.02, with a pool elevation of 379.00. We propose to lower the pool elevation and place the outlet pipe at 376.00, and place the emergency spillway at 378.50. The primary spillway will be a 12" RCP with an 8<sup>3</sup>/<sub>4</sub>" orifice. The minimum top of dam elevation shall be 379.50.

<u>Water Elevation</u>	<u>Storage Capacity</u>
376.00	0.00 acre-ft
376.17 Elevation required for 25-year storm event storage for this building site	
376.36 Elevation required for 100-year storm event storage for this building site	
377.00	0.67 acre-ft.

378.00	1.39 acre-ft.
378.34 Elevation required for 25-year storm event storage for overall site	
378.50	1.77 acre-ft.
379.00	2.16 acre-ft.
379.13 Elevation required for 100-year storm event storage for overall site	
379.50	2.66 acre-ft.

All drainage structures (swales, storm sewer pipes, inlets, basin, etc.) shall be located within the dedicated easements which conform to the requirements of the Vanderburgh County Drainage Ordinance, adopted November 28, 1994.

Pipe

It is assumed that later development will add 2.00 acres of developed area into MH#1002 and 2.75 acres into MH#1006. Therefore, structures 1004, 1005, and 1009 have been oversized to act as a trunk line for future development. The outlet pipe shall be a 12" RCP running from the retention basin to the Crawford Brandeis Ditch directly.

Soils

Based on the most recent soil survey of Vanderburgh County, the site contains the following soil types: Evansville silt loam (Ev); Henshaw silt loam (He); McGary silt loam (Mr) and Zipp silty clay (Zp).

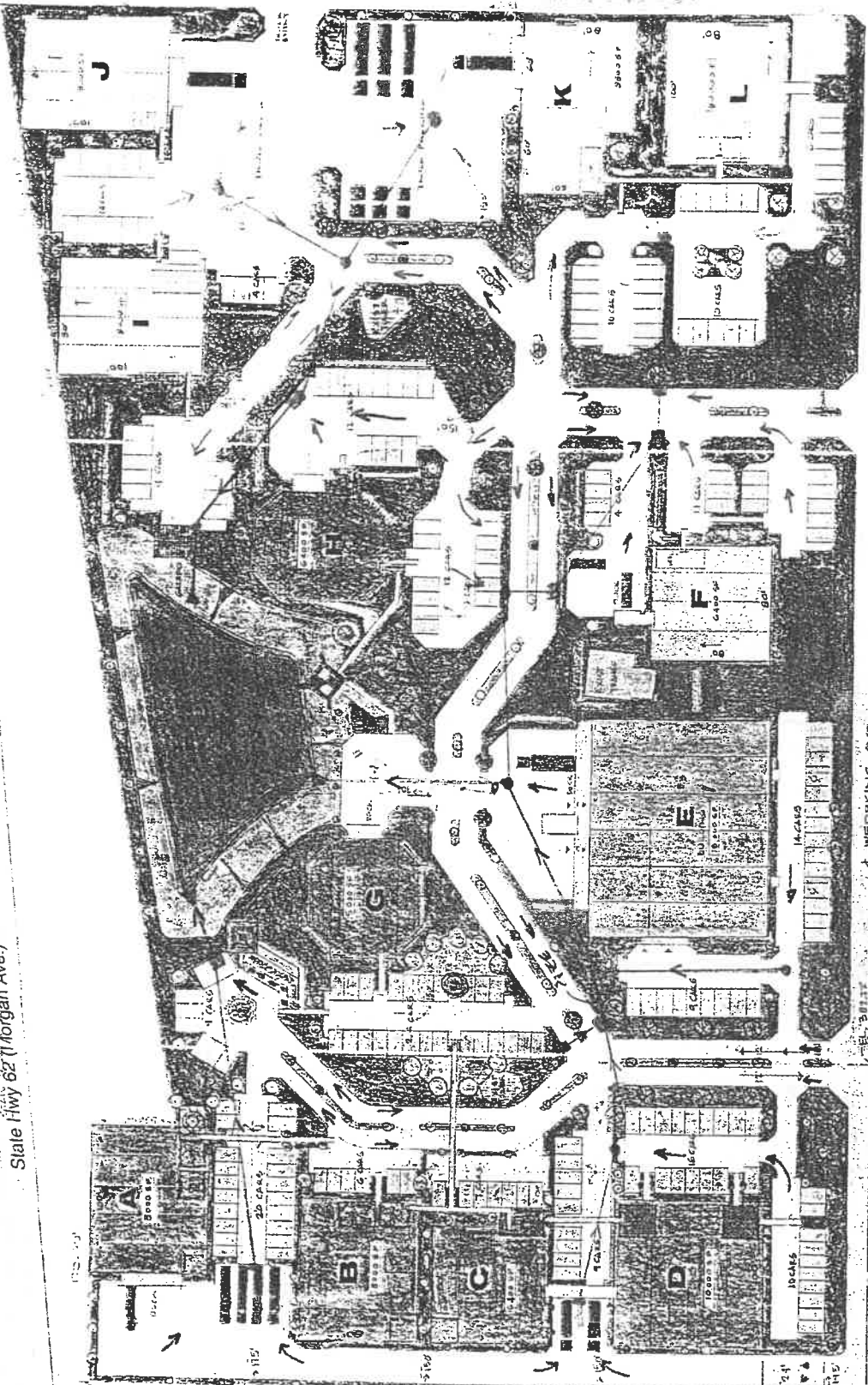
Flood Zone

According to FIRM community - panel number 180256 0050 B, dated March 19, 1982, a portion of the site is located within the designated 100 year flood zone. The 100 year flood elevation is 384 feet, M.S.L. The Flood Protection Grade (F.P.G.) has been determined by the Vanderburgh County Building Commissioner to be 386 feet, M.S.L.

0 3loc 1 1E N/C Jan

Four blocks to Green River Rd.

1/4 Block to State Hwy. 62 (Morgan Ave.)



### Phase 3

#### LEGEND

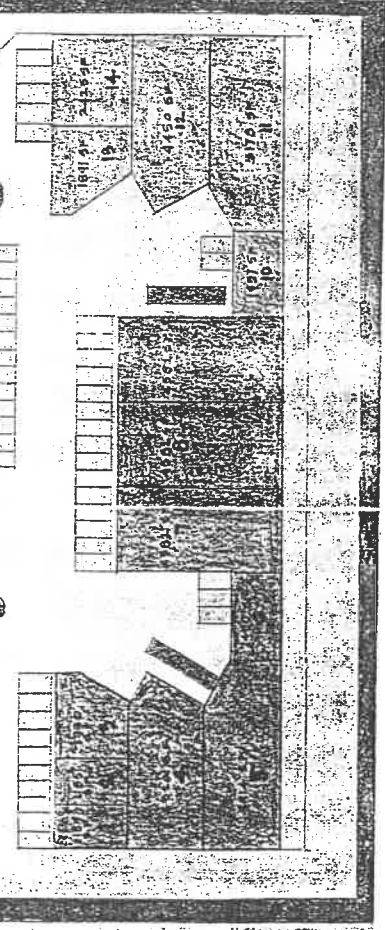
#### BUILDINGS CONSTRUCTED AS NEEDED

- (2) A Office/Warehouse 1 Story - 8,000 Sq. Ft.
- (1) B Office/Warehouse 1 Story - 8,000 Sq. Ft.
- (1) C Office/Warehouse 1 Story - 10,000 Sq. Ft.
- (1) D Office/Warehouse 1 Story - 10,000 Sq. Ft.
- (1) E Office/Warehouse 1 Story - 6,400 Sq. Ft.
- (1) F Office/Warehouse 1 Story - 6,400 Sq. Ft.
- (1) G Lake view
- (1) H Office/Warehouse 1 Story - 5,000 Sq. Ft.
- (1) I Office/Warehouse 1 Story - 6,400 Sq. Ft.
- (1) J Office/Warehouse- Truck Area 1 Story - 8,000 Sq. Ft.
- (1) K Office/Warehouse 1 Story - 8,000 Sq. Ft.
- (1) L Office/Warehouse 1 Story - 8,000 Sq. Ft.



**Burkhardt Square  
Industrial Park**  
6050 Wedeking Avenue  
P.O. BOX 5229  
Evansville, In 47716

Sixteen acres zoned M-2  
New office or warehouse available or will build  
to your specifications. All buildings are of solid  
brick construction with image enhanced  
architecture and landscaping features.

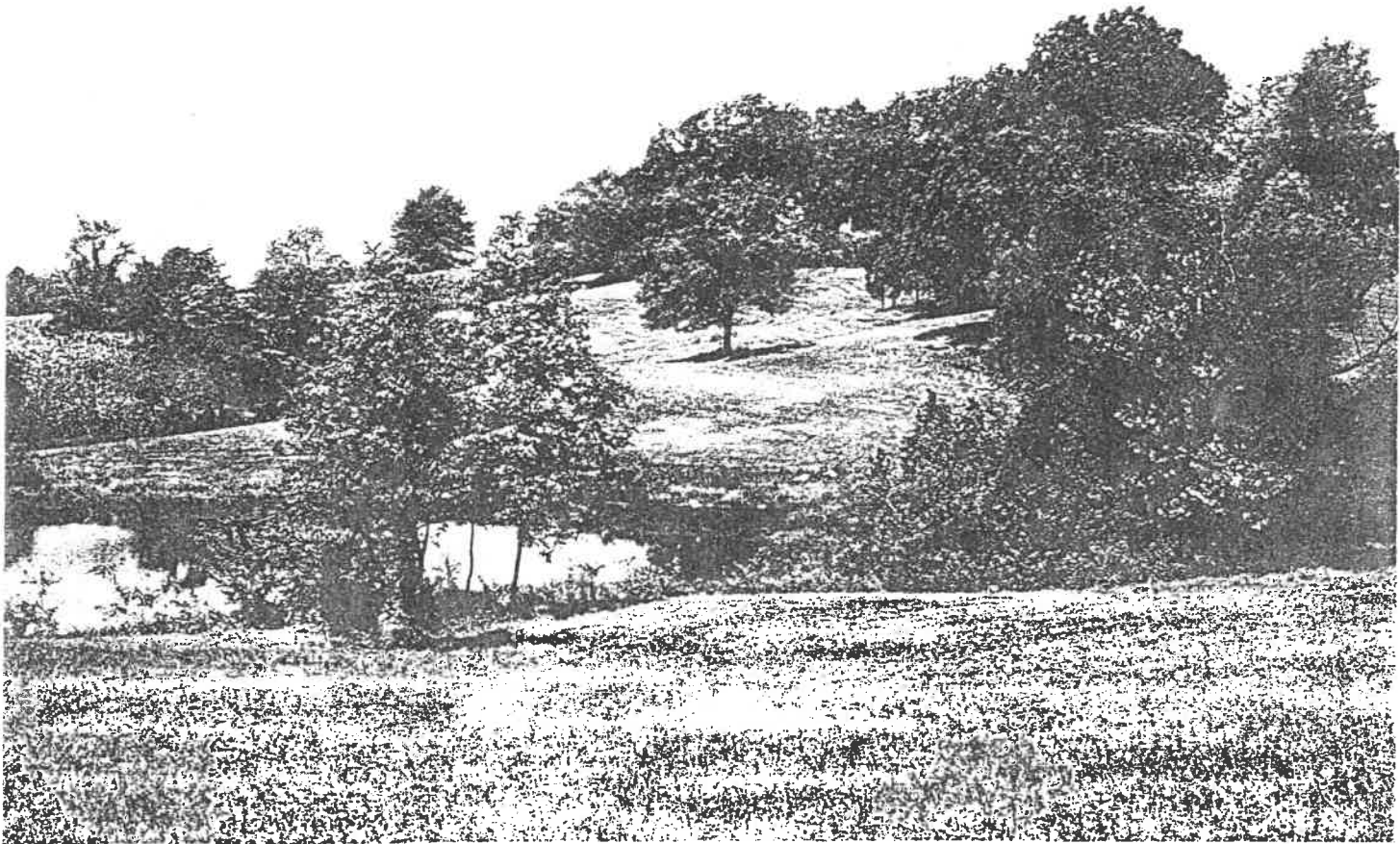


#### Phase 1 & 2 COMPLETE

Contains office,  
distribution,  
and manufacturing  
facilities.

SOIL SURVEY OF

# Vanderburgh County, Indiana

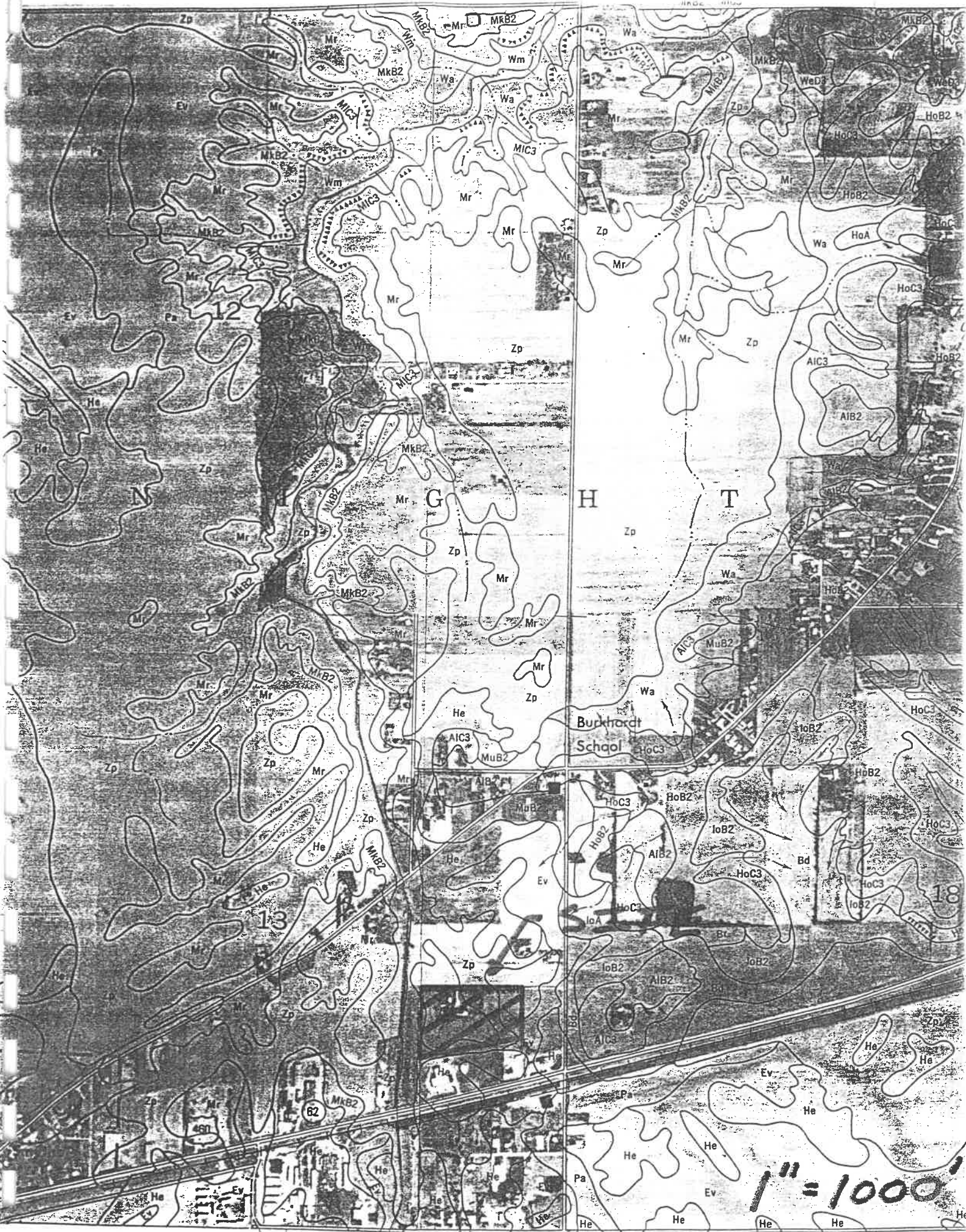


United States Department of Agriculture  
Soil Conservation Service

In cooperation with

Purdue University Agricultural  
Experiment Station





GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and that of the soil series to which the mapping unit belongs. Other information is given in tables as follows:

Acreage and extent, table 1, page 11.  
 Predicted yields, table 2, page 40.  
 Tree and shrub groups, table 3, page 50.

Wildlife, table 4, page 52.  
 Recreation, table 5, page 54.  
 Engineering, tables 6, 7, and 8, pages 58, 60, and 66.

Map symbol	Mapping unit	Described on page	Capability unit		Tree and shrub group
			Symbol	Page	Number
AlB2	Alford silt loam, 2 to 6 percent slopes, eroded-----	11	IIe-3	41	III
AlC2	Alford silt loam, 6 to 12 percent slopes, eroded-----	11	IIIe-3	43	III
AlC3	Alford silt loam, 6 to 12 percent slopes, severely eroded--	12	IVe-3	45	III
AlD3	Alford silt loam, 12 to 18 percent slopes, severely eroded-----	12	VIe-1	46	III
Ba	Bartle silt loam-----	15	IIw-3	42	II
Bd	Birds silt loam-----	16	IIIw-10	44	I
Bo	Bonnie silt loam-----	16	IIIw-10	44	I
Br	Borrow pits-----	16	VIIe-3	46	IV
Ev	Evansville silt loam-----	17	IIw-1	41	I
Gn	Ginat silt loam-----	17	IIIw-12	45	I
Gu	Gullied land-----	17	VIIe-4	47	IV
He	Henshaw silt loam-----	19	IIw-2	42	II
HoA	Hosmer silt loam, 0 to 2 percent slopes-----	20	IIw-5	43	II
HoB2	Hosmer silt loam, 2 to 6 percent slopes, eroded-----	20	IIe-7	41	II
HoB3	Hosmer silt loam, 2 to 6 percent slopes, severely eroded---	20	IIIe-7	43	II
HoC2	Hosmer silt loam, 6 to 12 percent slopes, eroded-----	20	IIIe-7	43	II
HoC3	Hosmer silt loam, 6 to 12 percent slopes, severely eroded--	21	IVe-7	45	II
HoD3	Hosmer silt loam, 12 to 18 percent slopes, severely eroded-----	21	VIe-1	46	II
Ht	Huntington silty clay loam-----	22	I-2	41	III
Hu	Huntington fine sandy loam, sandy variant-----	22	I-2	41	III
IoA	Iona silt loam, 0 to 2 percent slopes-----	23	I-1	41	III
IoB2	Iona silt loam, 2 to 6 percent slopes, eroded-----	23	IIe-3	41	III
Iv	Iva silt loam-----	23	IIw-2	42	II
Ln	Lindside silty clay loam-----	24	I-2	41	III
Ma	Made land-----	24	VIIe-3	46	IV
MkB2	Markland silt loam, 2 to 6 percent slopes, eroded-----	24	IIIe-11	43	II
MkC2	Markland silt loam, 6 to 18 percent slopes, eroded-----	24	IVe-11	45	II
MlC3	Markland silty clay loam, 6 to 18 percent slopes, severely eroded-----	25	VIe-1	46	II
Mr	McGary silt loam-----	26	IIIw-6	44	II
MuA	Muren silt loam, 0 to 2 percent slopes-----	27	I-1	41	III
MuB2	Muren silt loam, 2 to 6 percent slopes, eroded-----	27	IIe-3	41	III
Nw	Newark silty clay loam-----	28	IIw-7	43	I
Pa	Patton silty clay loam-----	28	IIw-1	41	I
PrB	Princeton fine sandy loam, 2 to 6 percent slopes-----	28	IIe-11	41	III
Ra	Ragsdale silt loam-----	29	IIw-1	41	I
Rh	Rahm silty clay loam-----	29	IIw-7	43	I
Rs	Reesville silt loam-----	30	IIw-2	42	II
ScA	Sciotoville silt loam, 0 to 2 percent slopes-----	30	IIw-5	43	II
ScB2	Sciotoville silt loam, 2 to 6 percent slopes, eroded-----	31	IIe-7	41	II
St	Stendal silt loam-----	31	IIw-7	43	I
UnB2	Uniontown silt loam, 2 to 6 percent slopes, eroded-----	32	IIe-3	41	III
Wa	Wakeland silt loam-----	32	IIw-7	43	I
Wb	Weinbach silt loam-----	33	IIw-3	42	II
WeD2	Wellston silt loam, 12 to 18 percent slopes, eroded-----	34	IVe-3	45	III
WeD3	Wellston silt loam, 12 to 18 percent slopes, severely eroded-----	34	VIe-1	46	III
WeE2	Wellston silt loam, 18 to 25 percent slopes, eroded-----	34	VIe-1	46	III

GUIDE TO MAPPING UNITS--Continued

Map symbol	Mapping unit	Described on page	Capability unit		Tree and shrub group
			Symbol	Page	Number
WeF	Wellston silt loam, 25 to 50 percent slopes-----	34	VIIe-1	46	III
WhA	Wheeling loam, 0 to 2 percent slopes-----	35	I-1	41	III
WhB2	Wheeling loam, 2 to 6 percent slopes, eroded-----	35	IIe-3	41	III
Wm	Wilbur silt loam-----	36	I-2	41	III
Wo	Woodmere silty clay loam-----	36	I-2	41	III
ZaC2	Zanesville silt loam, 6 to 12 percent slopes, eroded-----	37	IIIe-7	43	II
ZaC3	Zanesville silt loam, 6 to 12 percent slopes, severely eroded-----	37	IVe-7	45	II
ZaD2	Zanesville silt loam, 12 to 18 percent slopes, eroded-----	38	IVe-7	45	II
ZaD3	Zanesville silt loam, 12 to 18 percent slopes, severely eroded-----	38	VIe-1	46	II
Zp	Zipp silty clay-----	38	IIIw-2	44	I

TABLE 807

## RAINFALL INTENSITY-DURATION-FREQUENCY TABLE FOR EVANSVILLE

STORM DURATION		INTENSITY IN INCHES PER HOUR				
		STORM RETURN PERIOD IN YEARS				
		5	10	25	50	100
5	MIN	6.063	6.625	7.208	7.936	8.469
10	MIN	4.863	5.380	5.925	6.616	7.126
15	MIN	4.029	4.515	5.033	5.697	6.194
30	MIN	2.837	3.226	3.646	4.194	4.608
60	MIN	1.549	1.819	2.078	2.412	2.663
2.0	HRS	1.053	1.230	1.400	1.620	1.785
3.0	HRS	0.774	0.899	1.019	1.175	1.291
4.0	HRS	0.632	0.736	0.836	0.965	1.062
5.0	HRS	0.524	0.606	0.684	0.785	0.861
6.0	HRS	0.453	0.522	0.589	0.676	0.741
7.0	HRS	0.399	0.459	0.516	0.591	0.647
8.0	HRS	0.358	0.412	0.463	0.530	0.581
9.0	HRS	0.323	0.370	0.415	0.472	0.516
10	HRS	0.297	0.339	0.379	0.431	0.470
11	HRS	0.276	0.314	0.351	0.399	0.435
12	HRS	0.259	0.296	0.331	0.376	0.410
13	HRS	0.245	0.280	0.314	0.357	0.390
14	HRS	0.233	0.267	0.299	0.341	0.372
15	HRS	0.220	0.252	0.281	0.320	0.349
16	HRS	0.209	0.238	0.266	0.302	0.329
17	HRS	0.198	0.225	0.251	0.284	0.310



TABLE 803  
UNDEVELOPED RUNOFF COEFFICIENTS ( $C_u$ )

SURFACE TYPE:

WOODLAND, TURFED MEADOWS  
ROUGH PASTURE, FALLOW BRUSH:

SLOPE:	
Less than 2%	C = 0.12
2% to 5%	C = 0.24
5+% to 10%	C = 0.36
Over 10%	C = 0.48

CULTIVATED FIELDS:

Less than 2%	C = 0.20
2% to 5%	C = 0.35
5+% to 10%	C = 0.50
Over 10%	C = 0.65

TABLE 804  
DEVELOPED RUNOFF COEFFICIENTS ( $C_d$ )

SURFACE TYPE:

PAVEMENT, ROOFTOP  
OTHER IMPERVIOUS SURFACES:

Less than 2%	C = 0.92
2% to 5%	C = 0.94
5+% to 10%	C = 0.96
Over 10%	C = 0.98

LAWNS WITH TURF:

Less than 2%	C = 0.15
2% to 5%	C = 0.25
5+% to 10%	C = 0.40
Over 10%	C = 0.55

ALL WATER SURFACES  
BASINS, PONDS & LAKES:

C = 1.00

$$\begin{aligned} \text{Total Acreage} &= 3.08 \text{ Ac.} + 0.37 \text{ Ac.} + 2.00 \text{ Ac.} + 4.26 \text{ Ac.} + 1.33 \text{ Ac.} \\ &= 11.04 \text{ Acres} \qquad \text{Water} = 0.73 \text{ acres} \end{aligned}$$

### Runoff Coefficient

<u>Developed</u> (assume: 20% coverage)	<u>Un-developed</u>
Impervious $> 2\% \Rightarrow C = 0.92$	Rough Pasture $< 2\% \Rightarrow C = 0.12$
Lawns $< 2\% \Rightarrow C = 0.15$	Water $C = 1.00$
Water $C = 1.00$	

### Weighted C

$$\text{- Un-developed} = \frac{(10.31 \text{ acres} (0.12) + 0.73 \text{ acres} (1.00))}{11.04 \text{ acres}} = 0.18$$

$$\text{- Developed} = \frac{(9.28 \text{ acres} (0.92) + 1.03 \text{ acres} (0.15) + 0.73 \text{ acres} (1.00))}{11.04 \text{ acres}} = 0.85$$

### Time of Concentration

$$t_c = K (L N S^{-1.5})^{0.467} \quad \text{Kerby Equation}$$

$$K = 0.83 \quad N = 0.40 \quad L = 1118' \quad \text{Fall} = 2.3' \quad \text{slope} = 0.0021$$

$$t_c = 0.83 (1118' (0.40) (0.0021)^{-1.5})^{0.467} = 60.8 \text{ min.}$$

$$i_p = 1.811$$

### Flowrate

$$\text{Undeveloped} \Rightarrow Q_{10} = C_i A = 0.18 (1.811 \text{ in/hr}) (11.04 \text{ acres}) = 3.60 \text{ cfs}$$

Wedeking Avenue

Burkhardt Square Industrial Park  
Wedeking Investments, L.P.  
Site

Retention Basin  
Pool Elevation = 376.00  
Overflow Elevation = 378.50  
Minimum Top of Bank = 379.50

Existing Top of Bank  
3/6

Discharge Pipe and Emergency Overflow Swale



SCALE 1' = 110'



Crawford Brandeis Ditch  
Flowline = 373.5







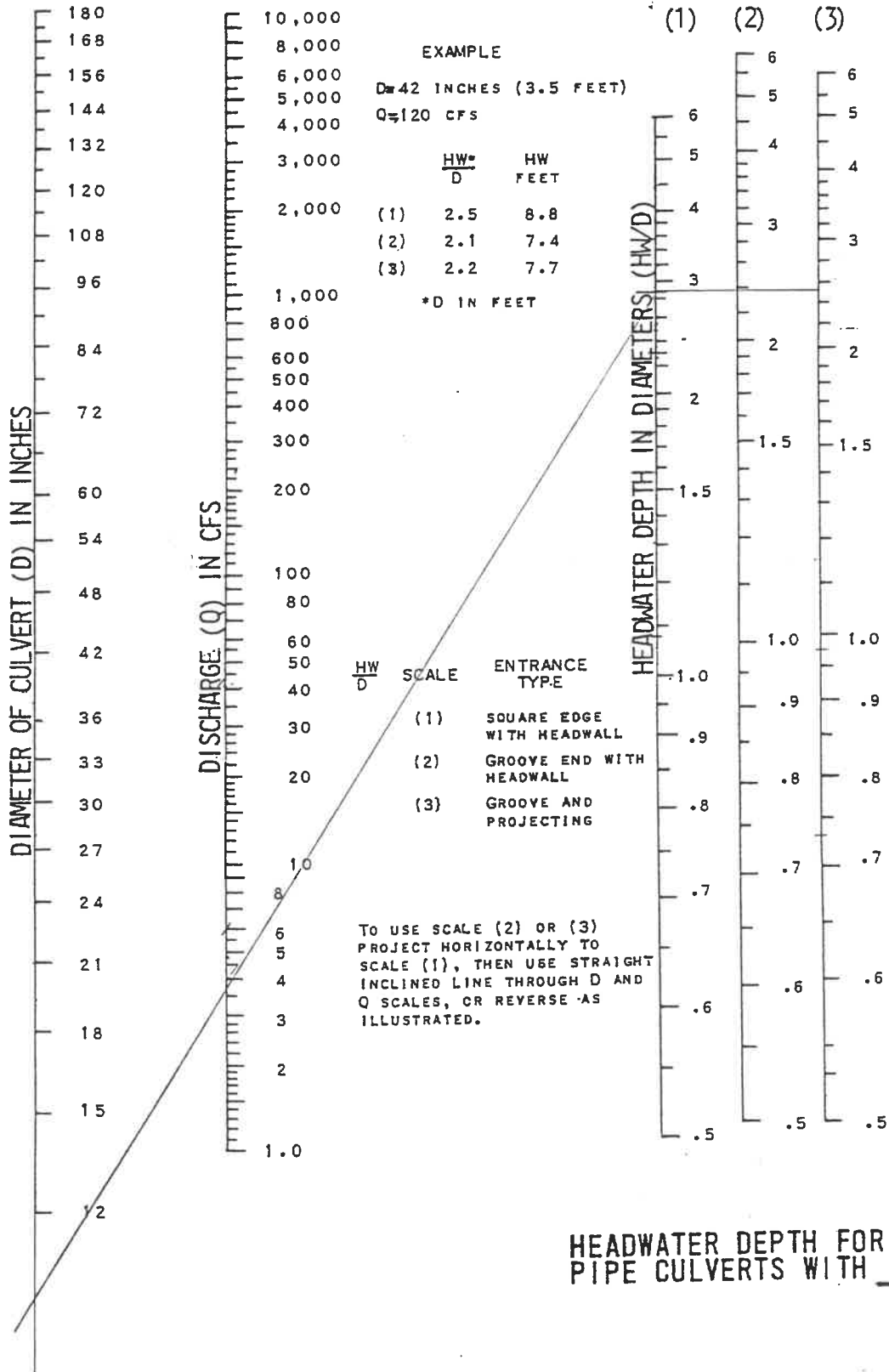


FIG. 7-430.01 F

## Orifice Design Calculation

Q = Flowrate (cfs)

Cd = Discharge coefficient

g = Gravity (ft/sec<sup>2</sup>)

h = Height of water above the centerline of the orifice (ft)

d = Diameter of orifice (ft)

A = Area of orifice (ft<sup>2</sup>)

$$Q = C_d * A * (2 * g * h)^{.5}$$

$$Q = 3.44$$

$$C_d = 0.80$$

$$g = 32.20$$

$$h = 2.00$$

$$d = 0.73$$

$$A = 0.42$$

VANDERBURGH COUNTY DRAINAGE BOARD  
FORM 800

PROJECT: Burkhardt Square DETENTION FACILITY DESIGN RETURN PERIOD: 25 YRS  
Industrial Park - Phase 1  
DESIGNER: MORLEY & ASSOC. 286-4 RELEASE RATE RETURN PERIOD: 10 YRS

WATERSHED AREA: 1.27 ACRES  
TIME OF CONCENTRATION (UNDEVELOPED WATERSHED): 36 MINUTES  
RAINFALL INTENSITY (Iu): 2.94 INCHES/HR  
UNDEVELOPED RUNOFF COEFFICIENT (Cu): 0.18  
UNDEVELOPED RUNOFF RATE (O = Cu\*Iu\*A): 0.67 CFS  
DEVELOPED RUNOFF COEFFICIENT (Cd): 0.85

STORM DURATION Td (HRS)	RAINFALL INTENSITY Id (INCH/HR)	INFLOW RATE I(Td) (Cd*Id*A) (CFS)	OUTFLOW RATE O (Cu*Iu*A) (CFS)	STORAGE RATE I(Td)-O (CFS)	REQUIRED STORAGE Td)-O)*Td/12 (ACRE-FT)
0.08	7.208	7.78	0.50	7.28	0.051
0.17	5.925	6.40	0.50	5.90	0.082
0.25	5.033	5.43	0.50	4.93	0.103
0.33	4.571	4.93	0.50	4.43	0.123
0.42	4.108	4.43	0.50	3.93	0.137
0.50	3.646	3.94	0.50	3.44	0.143
0.58	3.385	3.65	0.50	3.15	0.153
0.67	3.123	3.37	0.50	2.87	0.160
0.75	2.862	3.09	0.50	2.59	0.162
0.83	2.601	2.81	0.50	2.31	0.160
0.92	2.339	2.53	0.50	2.03	0.155
1.00	2.078	2.24	0.50	1.74	0.145
1.25	1.909	2.06	0.50	1.56	0.163
1.50	1.739	1.88	0.50	1.38	0.172
1.75	1.570	1.69	0.50	1.19	0.174
2.00	1.400	1.51	0.50	1.01	0.169
2.50	1.210	1.31	0.50	0.81	0.168
3.00	1.019	1.10	0.50	0.60	0.150
4.00	0.836	0.90	0.50	0.40	0.134

PEAK STORAGE (ACRE/FT):	0.17
PEAK STORAGE (CUBIC FT):	7,587

VANDERBURGH COUNTY DRAINAGE BOARD  
FORM 800

PROJECT: Burkhardt Square      DETENTION FACILITY DESIGN RETURN PERIOD: 100 YRS  
Industrial Park - Phase 1  
DESIGNER: MORLEY & ASSOC.      286-4      RELEASE RATE RETURN PERIOD: 10 YRS

WATERSHED AREA: 1.27 ACRES  
TIME OF CONCENTRATION (UNDEVELOPED WATERSHED): 36 MINUTES  
RAINFALL INTENSITY (Iu): 2.94 INCHES/HR  
UNDEVELOPED RUNOFF COEFFICIENT (Cu): 0.18  
UNDEVELOPED RUNOFF RATE (O = Cu\*Iu\*A): 0.67 CFS  
DEVELOPED RUNOFF COEFFICIENT (Cd): 0.85

STORM DURATION Td (HRS)	RAINFALL INTENSITY Id (INCH/HR)	INFLOW RATE I(Td) (Cd*Id*A) (CFS)	OUTFLOW RATE O (Cu*Iu*A) (CFS)	STORAGE RATE I(Td)-O (CFS)	REQUIRED STORAGE Td-O)*Td/12 (ACRE-FT)
0.08	8.469	9.14	0.50	8.64	0.060
0.17	7.126	7.69	0.50	7.19	0.100
0.25	6.194	6.69	0.50	6.19	0.129
0.33	5.665	6.12	0.50	5.62	0.156
0.42	5.137	5.55	0.50	5.05	0.175
0.50	4.608	4.97	0.50	4.47	0.186
0.58	4.284	4.62	0.50	4.12	0.200
0.67	3.960	4.27	0.50	3.77	0.210
0.75	3.636	3.92	0.50	3.42	0.214
0.83	3.311	3.57	0.50	3.07	0.214
0.92	2.987	3.22	0.50	2.72	0.208
1.00	2.663	2.87	0.50	2.37	0.198
1.25	2.444	2.64	0.50	2.14	0.223
1.50	2.224	2.40	0.50	1.90	0.238
1.75	2.005	2.16	0.50	1.66	0.243
2.00	1.785	1.93	0.50	1.43	0.238
2.50	1.538	1.66	0.50	1.16	0.242
3.00	1.291	1.39	0.50	0.89	0.223
4.00	1.062	1.15	0.50	0.65	0.215

PEAK STORAGE (ACRE/FT):	0.24
PEAK STORAGE (CUBIC FT):	10.570

VANDERBURGH COUNTY DRAINAGE BOARD  
FORM 800

PROJECT: Burkhardt Square      DETENTION FACILITY DESIGN RETURN PERIOD:      25 YRS  
Industrial Park - Overall  
DESIGNER: MORLEY & ASSOC.      286-4      RELEASE RATE RETURN PERIOD:      10 YRS

WATERSHED AREA:      11.04 ACRES  
TIME OF CONCENTRATION (UNDEVELOPED WATERSHED):      60.8 MINUTES  
RAINFALL INTENSITY (I<sub>u</sub>):      1.811 INCHES/HR  
UNDEVELOPED RUNOFF COEFFICIENT (C<sub>u</sub>):      0.18  
UNDEVELOPED RUNOFF RATE (O = C<sub>u</sub>\*I<sub>u</sub>\*A):      3.60 CFS  
DEVELOPED RUNOFF COEFFICIENT (C<sub>d</sub>):      0.85

STORM DURATION T <sub>d</sub> (HRS)	RAINFALL INTENSITY I <sub>d</sub> (INCH/HR)	INFLOW RATE I(T <sub>d</sub> ) (C <sub>d</sub> *I <sub>d</sub> *A) (CFS)	OUTFLOW RATE O (C <sub>u</sub> *I <sub>u</sub> *A) (CFS)	STORAGE RATE I(T <sub>d</sub> )-O (CFS)	REQUIRED STORAGE T <sub>d</sub> (I-T <sub>d</sub> )*T <sub>d</sub> /12 (ACRE-FT)
0.08	7.208	67.64	3.43	64.21	0.446
0.17	5.925	55.60	3.43	52.17	0.725
0.25	5.033	47.23	3.43	43.80	0.912
0.33	4.571	42.89	3.43	39.46	1.096
0.42	4.108	38.55	3.43	35.12	1.220
0.50	3.646	34.21	3.43	30.78	1.283
0.58	3.385	31.76	3.43	28.33	1.377
0.67	3.123	29.31	3.43	25.88	1.438
0.75	2.862	26.86	3.43	23.43	1.464
0.83	2.601	24.40	3.43	20.97	1.457
0.92	2.339	21.95	3.43	18.52	1.415
1.00	2.078	19.50	3.43	16.07	1.339
1.25	1.909	17.91	3.43	14.48	1.508
1.50	1.739	16.32	3.43	12.89	1.611
1.75	1.570	14.73	3.43	11.30	1.648
2.00	1.400	13.14	3.43	9.71	1.618
2.50	1.210	11.35	3.43	7.92	1.650
3.00	1.019	9.56	3.43	6.13	1.533
4.00	0.836	7.85	3.43	4.42	1.472

PEAK STORAGE (ACRE/FT):      1.65  
PEAK STORAGE (CUBIC FT):      71.874



VANDEBURGH COUNTY DRAINAGE BOARD  
FORM 800

PROJECT: Burkhardt Square DETENTION FACILITY DESIGN RETURN PERIOD: 100 YRS  
Industrial Park - Overall  
DESIGNER: MORLEY & ASSOC. 286-4 RELEASE RATE RETURN PERIOD: 10 YRS

WATERSHED AREA: 11.04 ACRES  
TIME OF CONCENTRATION (UNDEVELOPED WATERSHED): 60.8 MINUTES  
RAINFALL INTENSITY (Iu): 1.811 INCHES/HR  
UNDEVELOPED RUNOFF COEFFICIENT (Cu): 0.18  
UNDEVELOPED RUNOFF RATE (O = Cu\*Iu\*A): 3.60 CFS  
DEVELOPED RUNOFF COEFFICIENT (Cd): 0.85

STORM DURATION Td (HRS)	RAINFALL INTENSITY Id (INCH/HR)	INFLOW RATE I(Td) (Cd*Iu*A) (CFS)	OUTFLOW RATE O (Cu*Iu*A) (CFS)	STORAGE RATE I(Td)-O (CFS)	REQUIRED STORAGE Td(O)*Td/12 (ACRE-FT)
0.08	8.469	79.47	3.43	76.04	0.528
0.17	7.126	66.87	3.43	63.44	0.881
0.25	6.194	58.12	3.43	54.69	1.139
0.33	5.665	53.16	3.43	49.73	1.381
0.42	5.137	48.20	3.43	44.77	1.555
0.50	4.608	43.24	3.43	39.81	1.659
0.58	4.284	40.20	3.43	36.77	1.787
0.67	3.960	37.16	3.43	33.73	1.874
0.75	3.636	34.12	3.43	30.69	1.918
0.83	3.311	31.07	3.43	27.64	1.920
0.92	2.987	28.03	3.43	24.60	1.879
1.00	2.663	24.99	3.43	21.56	1.797
1.25	2.444	22.93	3.43	19.50	2.031
1.50	2.224	20.87	3.43	17.44	2.180
1.75	2.005	18.81	3.43	15.38	2.243
2.00	1.785	16.75	3.43	13.32	2.220
2.50	1.538	14.43	3.43	11.00	2.292
3.00	1.291	12.11	3.43	8.68	2.171
4.00	1.062	9.97	3.43	6.54	2.179

PEAK STORAGE (ACRE/FT): 2.29  
PEAK STORAGE (CUBIC FT): 99,849