

# Stormwater Management

## Dunkin Liberty Township

*4969 Princeton Road  
Liberty Township, Ohio  
Butler County*

Latitude 39°23'16.54"N Longitude 084°27'16.19"W

**Prepared By:**

**Land Consultants**

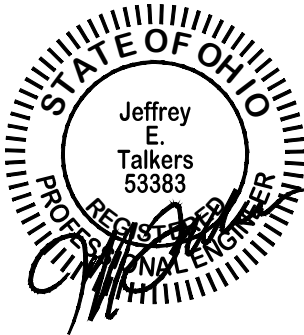
314 Front Street  
Lawrenceburg, Indiana 47025  
(812) 537-2145

*In Association  
With*

**Kara Burkhardt Meineke**

5335 Far Hills Avenue Suite 305  
Kettering, Ohio 45429  
(937) 838-6930

**March, 2021**



3/9/2021

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Jeffrey E. Talkers, P.E. #53383

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Date

**Prepared For:**

**Gilligan Company LLC**  
3805 Edwards Road  
Suite 680  
Cincinnati, Ohio 45209

**Dunkin**  
**4969 Princeton Road**  
**Liberty Township, Ohio**  
**Butler County**

**Aerial Photo**  
***(Prior to proposed additional Development)***



# **Project Summary:**

## **Existing Conditions:**

This subject parcel contains 0.998 acres of land. The existing site is currently vacant and previously undeveloped. There is an existing catch basin located in the southeast corner of the site that captures most of the acreage of the site as the existing contours generally slope in a southeasterly direction. This catch basin is the first in a series of basins that drain thru the adjacent lot to the south and then into a shared detention pond that was designed and constructed as part of Princeton Landings. Princeton Landings is a 4 lot subdivision that includes the subject lot. The detention for the subject lot was accounted for with the construction of the shared detention ponds. The undeveloped lot is completely covered in grass. This undeveloped portion generally drains via sheet flow in a south easterly direction towards the right-of-way of Princeton Glendale Road. Prior to reaching the Right-of-Way the runoff from the site drains into an on-site catch basin as noted previously and then continues in a private system for approximately 189' before it is outletted into an existing detention pond that was designed to handle the runoff from approximately 2.40 acres of the eastern portion of the Princeton Landings Development.

## **Proposed Conditions:**

The existing undeveloped land will be improved by constructing a new Dunkin Restaurant and Drive-Thru and associated asphalt for access drives and parking. Upon completion of the construction the site will contain approximately 0.57 acres of impervious surface while 0.43 acres or 43% will remain as lawn or landscaped areas.

Additional on-site catch basins will be installed to capture the stormwater drainage from the impervious areas as well as from the rooftops. Approximately .09 Acres mostly comprised of green space from a grassed island will runoff the site to the west and into the previously developed portion of Princeton Landings and a small area approximately 0.07 acres located on the west side of the proposed public sidewalk will runoff into the Princeton-Glendale Road right-of-way. The original grading plan for Princeton Landings does allow for and show these areas of the site as direct drainage in the manor being proposed by this development.

## **Analysis Summary:**

The detention pond that was built at part of Princeton Landings was designed to handle the stormwater from the subject lot. The infrastructure to convey the stormwater to the pond was constructed as part of the original construction. The proposed runoff from this site is has been quantified and the existing infrastructure has been proven to have plenty of capacity to convey the runoff of this site to the detention basin. Detailed information follows.

**Storm Sewer Computation Sheet- On-site & Off-Site Storm Sewer**

*Dunkin Liberty Township*

*4969 Princeton Road*

*March 2021*

Job # 134-20

\*this worksheet assumes that the pipe installed is HDPE Smooth interior Pipe n=0.012

MH/CB Number	DRAINAGE AREA		C	ACTUAL (10 year storm)				PIPE INFORMATION			CAPACITY	
	INLET AREA(A) acre	SUM AREA(A) acre		tc min	time in pipe min	i in/hr	SYSTEM Q cfs	L ft	s %	D in	(full flow) V fps Q cfs	
Dunkin CB#3 - Exist CB#603	0.09	0.09	0.65	10.00	0.12	5.50	0.32	104	8.75	12	14.54	11.42
CB#1 - CB#2	0.08	0.08	0.65	10.00	0.30	5.50	0.29	127	2.00	12	6.95	5.46
CB#2 - CB#4	0.36	0.44	0.65	10.30	0.08	5.50	1.57	37	2.50	12	7.77	6.10
CB#4 - Exist CB#603	0.15	0.59	0.65	10.38	0.11	5.50	2.11	85	7.16	12	13.15	10.33
CB#603-MH#1	0.16	0.84	0.65	10.49	0.08	5.50	3.00	55	5.98	12	12.02	9.44
UC Medical												
CB#3-CB#2-MH#1	0.26	0.26	0.80									
Princeton Landings												
MH#1-CB#602	0.00	1.10	0.80	10.57	0.13	5.50	4.84	72	3.55	12	9.26	7.27
CB#602-#601	0.25	1.35	0.80	10.70	0.08	5.50	5.94	27	0.56	24	5.84	18.34
CB#601-#HW600	1.05	2.40	0.80	10.77	0.11	5.50	10.56	35	0.49	24	5.46	17.15
0.25 Acres from UC Medical Site and the remainder 0.80 Acres from the Princeton Glendale Road right-of-way, including the 0.07 acres of direct drainage from the subject site.												
Our field work shows this pipe to be 15" but 12" is used for calculations to be conservative and assure there is capacity, since prior plans called for this to be a 12" pipe.												

Pipe informa  
Fieldwork ex  
below.

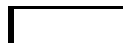
Pipe informa  
Princeton La  
dated April 2

n= 0.012  
n= 0.013

HDPE  
CONC

CB=Catchbasin  
HW=Headwall

MH=Manhole



# Proposed Drainage Map

## Site Contains 0.998 Acres

### (43,477 Sf)

#### Area Summary

**Dunkin'**  
 Site Contains 1.00 Acres  
 0.84 Acres Drains into the storm system  
 0.07 Acres Drains East into the Princeton Glendale ROW  
 0.09 Acres Drains West into Princeton Landings

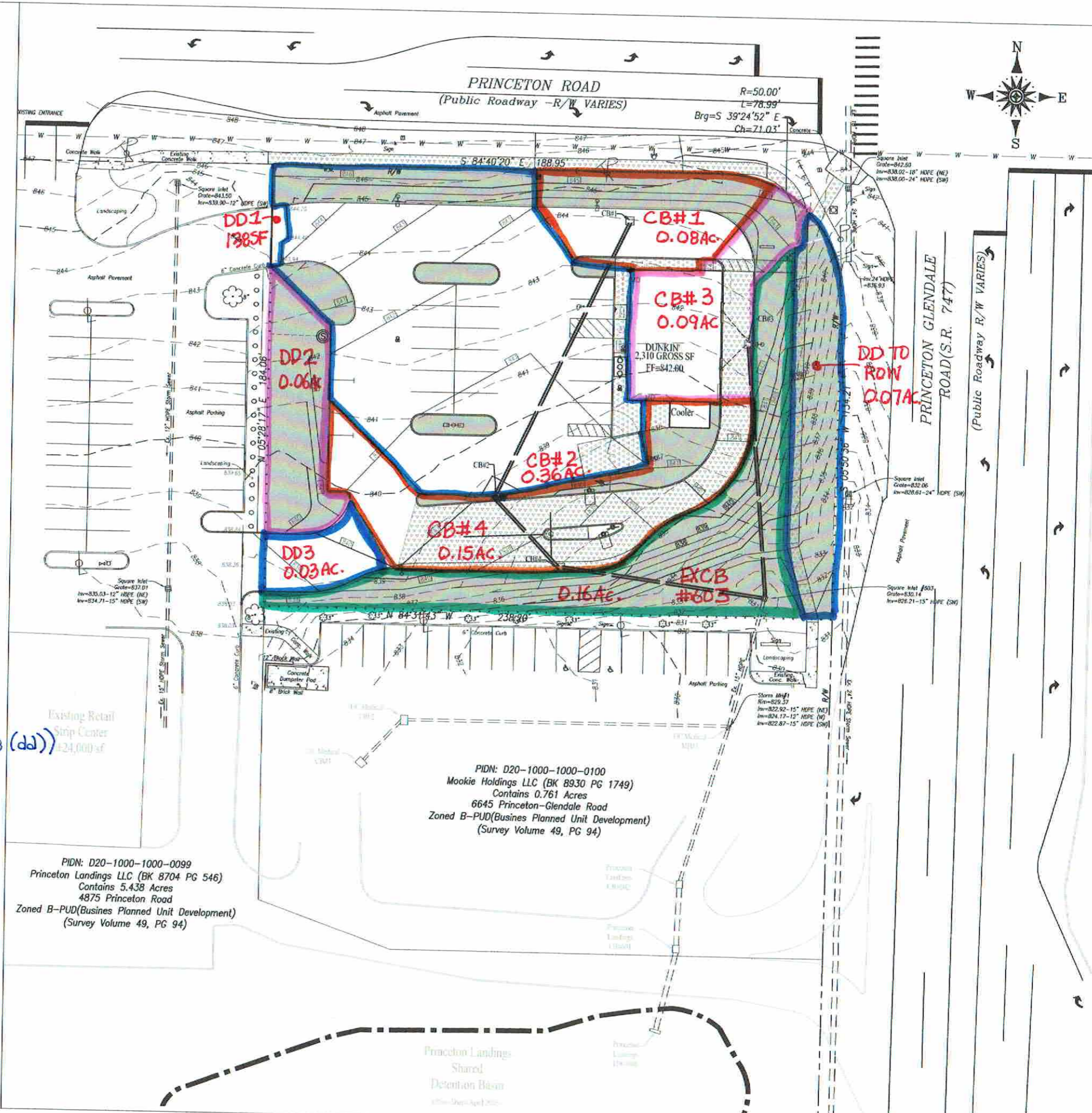
These drainage patterns follow the intent of the grading plan from Princeton Landings which was the Original Development. The grading plan from the archived set of plans are attached for reference.

**UC Medical**  
 Site Contains 0.76 Acres  
 For purposes of analyzing the capacity of the common drainage system which outlets to the shared detention pond, we have assumed the following acreage breakdown. We have also assigned a coefficient of  $c=0.8$

0.26 Acres drains into Manhole #1 from UC site  
 0.25 Acres is added at CB#602  
 0.25 Acres of mostly the access road is added at CB#601

- Areas shaded gray will be green space and landscaped 0.43 Acres (43%)
- Remainder of site will be impervious 0.57 Acres (57%)

$C_w = 0.65$  (Excludes direct drainage (dd))



PLANS PREPARED BY:  
**LAND CONSULTANTS**  
 SBE Certified  
 associate companies and services  
 THE ENGINEERING GROUP  
 THE SURVEY COMPANY  
 LAND DEVELOPMENT CONSULTING  
 COMMUNITY AND ECONOMIC PLANNING

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555 GEST STREET  
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 CINCINNATI, OH 45203  
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NO.	DESCRIPTION	DATE	REVISIONS

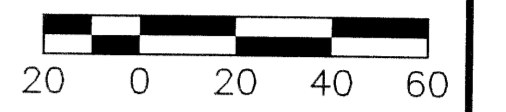
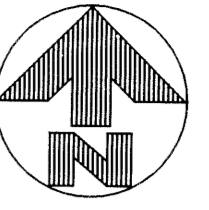
PLANS PREPARED FOR:  
**GILLIGAN COMPANY LLC**  
 3805 Edwards Road  
 Suite 680  
 Cincinnati, Ohio 45209

PROJECT NAME:  
**DUNKIN'**  
 4969 Princeton Road  
 Liberty Township  
 Butler County, Ohio

SHEET TITLE:  
**Drainage Areas PLAN**

LC PROJ. NO. 20-001E	BASE FILE NAME 134-20_CD.dwg
KBM PROJ. NO. 141-20	TAB NAME Drainage Map
DATE 3-08-21	DRAWING NO. DM
SCALE Not to Scale	SHEET 1 of 1

11/13/2021 10:11 AM J:\Projects\2020\134-20 CD.dwg



LEGEND

- DANDY BAG
- SILT FENCE
- FILTER BARRIER
- FLOOD ROUTE
- EROSION CONTROL BLANKET (10' WIDE) ODOT ITEM 671

NOTE: SEE SHEET 1 FOR EROSION CONTROL DETAILS.

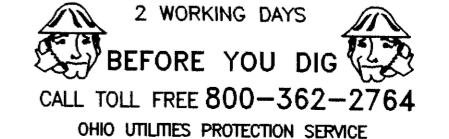
**KLEINGERS & ASSOCIATES**  
ENGINEERS AND SURVEYORS  
6305 Center Road  
Cincinnati, Ohio 45241  
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REVISIONS

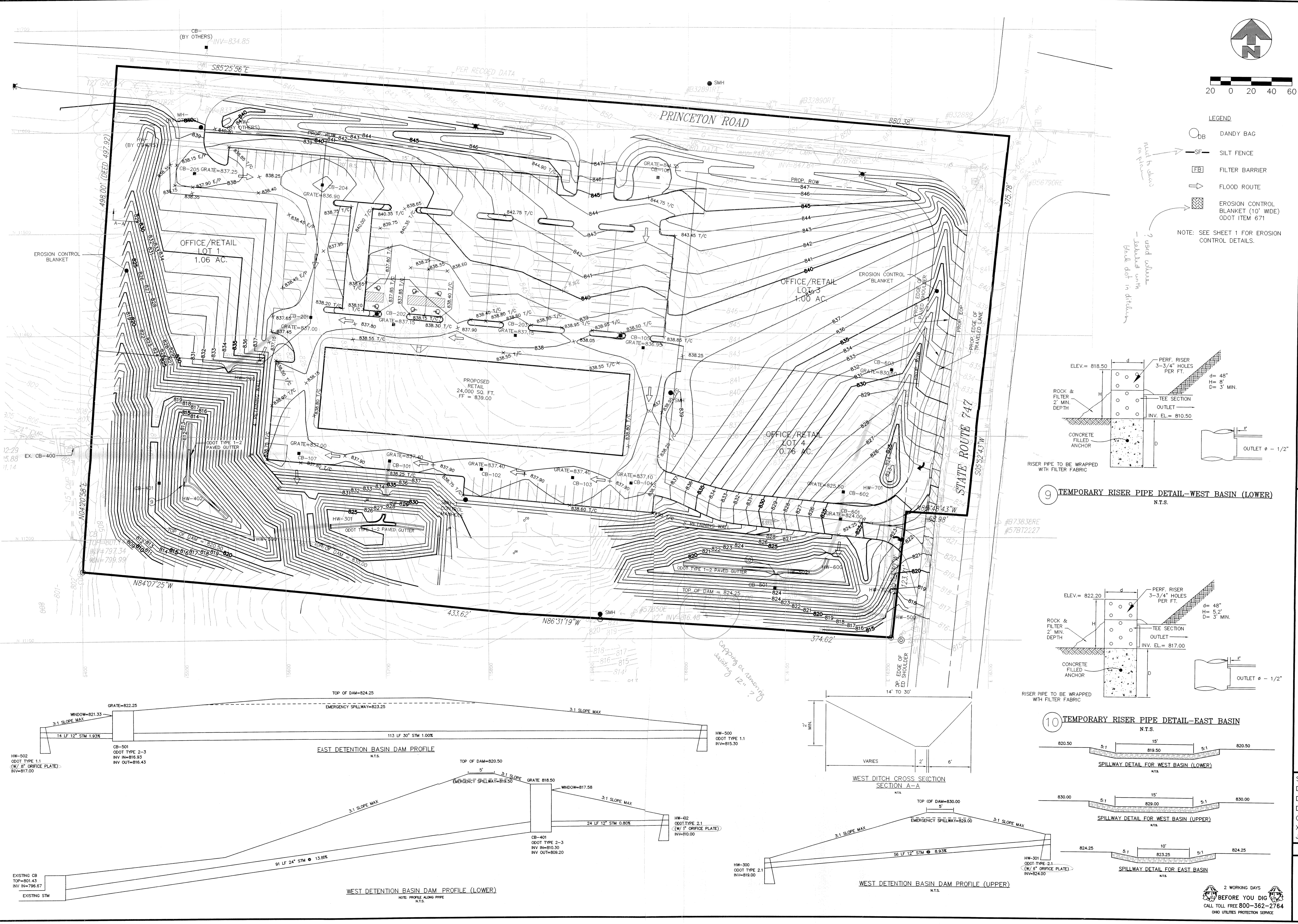
NO.	DATE	DESCRIPTION

**PRINCETON LANDINGS**  
GRADING AND EROSION CONTROL PLAN  
SECTION 1, TOWN 2, RANGE 3  
LIBERTY TOWNSHIP  
BUTLER COUNTY, OHIO

SCALE: 1"=40'  
DATE: APRIL 2005  
DRAWN: MLF/CJL  
DESIGNED: MLF/CJL  
CHECKED:  
XREF:  
JOB NO.: 030617CA005



CALL TOLL FREE 800-362-2764 OHIO UTILITIES PROTECTION SERVICE



9 TEMPORARY RISER PIPE DETAIL—WEST BASIN (LOWER) N.T.S.

10 TEMPORARY RISER PIPE DETAIL—EAST BASIN N.T.S.

SPILLWAY DETAIL FOR WEST BASIN (LOWER) N.T.S.

SPILLWAY DETAIL FOR WEST BASIN (UPPER) N.T.S.

SPILLWAY DETAIL FOR EAST BASIN N.T.S.

EAST DETENTION BASIN DAM PROFILE N.T.S.

WEST DETENTION BASIN DAM PROFILE (LOWER) N.T.S.

WEST DETENTION BASIN DAM PROFILE (UPPER) N.T.S.

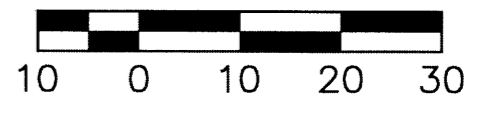
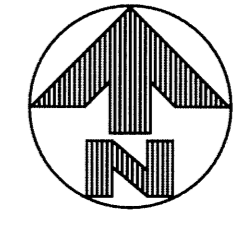
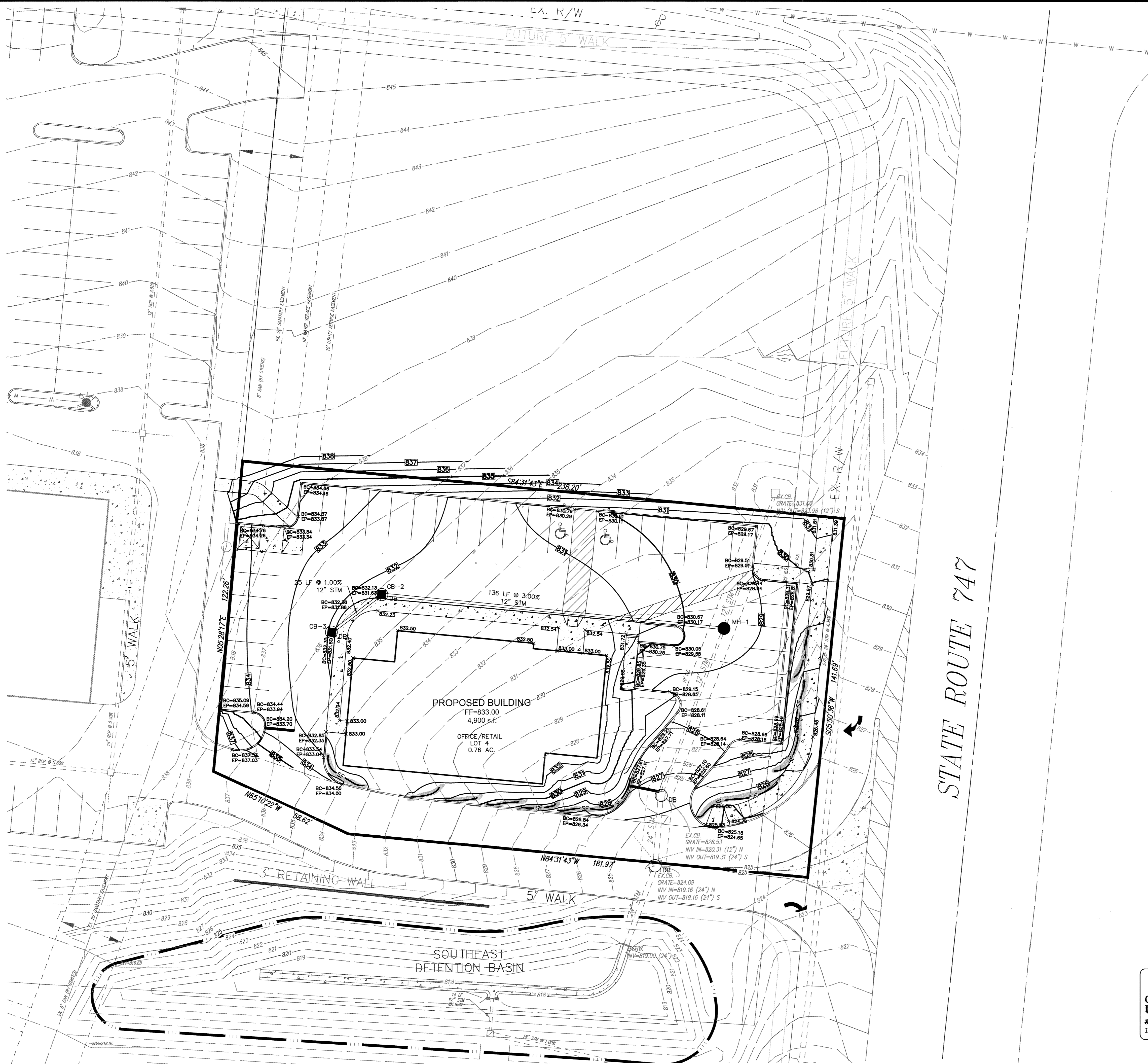
WEST DITCH CROSS SECTION SECTION A-A N.T.S.

WEST DETENTION BASIN DAM PROFILE (UPPER) N.T.S.

WEST DETENTION BASIN DAM PROFILE (UPPER) N.T.S.

WEST DETENTION BASIN DAM PROFILE (UPPER) N.T.S.

WEST DETENTION BASIN DAM PROFILE (UPPER) N.T.S.

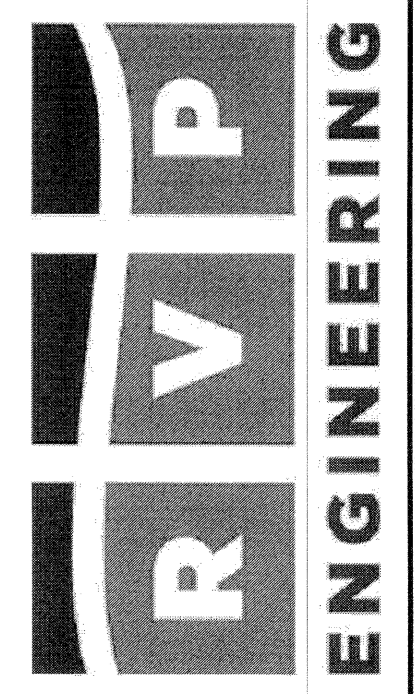
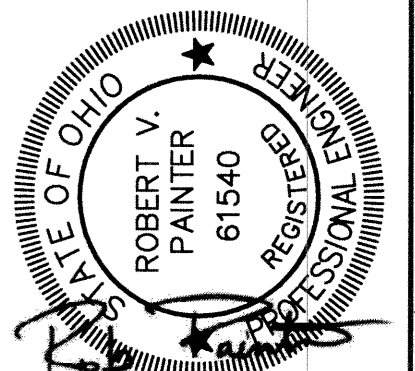


EROSION CONTROL LEGEND

- SF — SILT FENCE
- CD CHECK DAM
- DB DANDY BAG

*? need drainage map - curbside aprons most of site going to existing cb in main access drive if cannot handle, oversteps down along front only ? and drains from hill building ? need construction drive ? concrete wash out area*

**NOTE:** UNDERGROUND UTILITIES ARE PLOTTED FROM A COMPILATION OF AVAILABLE RECORD INFORMATION AND SURFACE INDICATIONS OF UNDERGROUND STRUCTURES AND MAY NOT BE INCLUSIVE OF PRECISE LOCATIONS AND THE EXISTENCE OR NON EXISTENCE OF UNDERGROUND UTILITIES CANNOT BE VERIFIED. PLEASE NOTIFY THE OHIO UTILITY PROTECTION SERVICE AT 1-800-362-2764 BEFORE ANY PERIOD OF EXCAVATION OR CONSTRUCTION ACTIVITY.



REVISIONS

NO.	DATE	DESCRIPTION

**GRADING PLAN**  
**UC MEDICAL CENTER**  
 PRINCETON ROAD AT S.R. 747  
 LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

SCALE: 1"=20'  
 DATE: JULY 16, 2014  
 DRAWN: SAD  
 DESIGNED: SAD  
 CHECKED: RVP  
 XREF:  
 JOB NO.: 13060