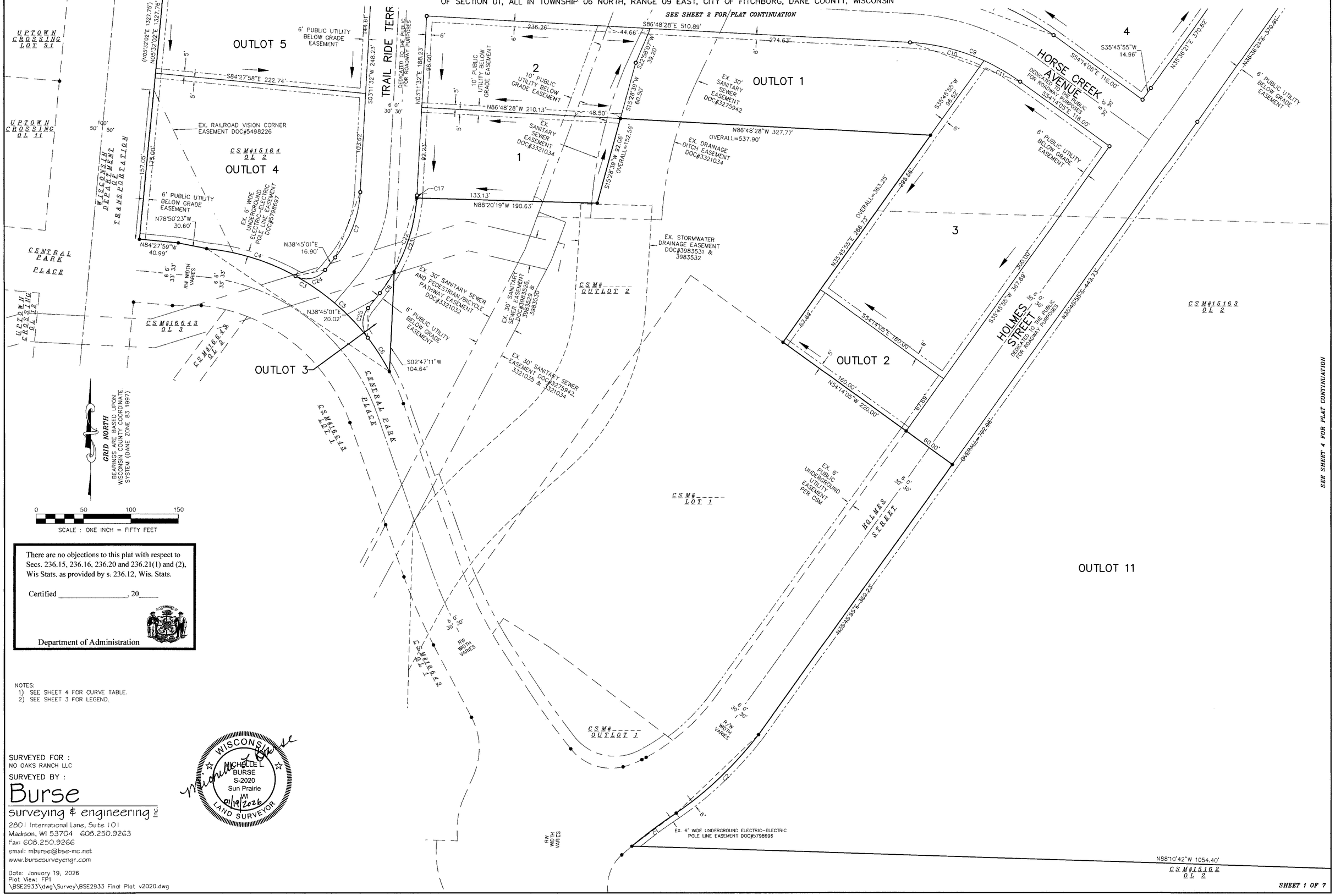
NO OAKS RANCH SUBDIVISION

PART OF OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15163, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 257–261, AS DOCUMENT NUMBER 5498225 AND OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15164, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 262–266, AS DOCUMENT NUMBER 5498226, DANE COUNTY REGISTRY, LOCATED IN ALL QUARTERS OF THE NORTHEAST QUARTER OF SECTION 11 AND THE NORTHWEST AND SOUTHWEST QUARTERS OF THE NORTHWEST QUARTER OF SECTION 12 AND PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 01, ALL IN TOWNSHIP 06 NORTH, RANGE 09 EAST, CITY OF FITCHBURG, DANE COUNTY, WISCONSIN



GRID NORTH
BEARINGS ARE BASED UPON WISCONSIN COUNTY COORDINATE SYSTEM (DANE ZONE 83 1997)

0 50 100 150
SCALE : ONE INCH = FIFTY FEET

There are no objections to this plat with respect to Secs. 236.15, 236.16, 236.20 and 236.21(1) and (2), Wis Stats. as provided by s. 236.12, Wis. Stats.

Certified _____, 20____

Department of Administration

NOTES:
1) SEE SHEET 4 FOR CURVE TABLE.
2) SEE SHEET 3 FOR LEGEND.

SURVEYED FOR :
NO OAKS RANCH LLC

SURVEYED BY :

Burse
surveying & engineering Inc.
2801 International Lane, Suite 101
Madison, WI 53704 608.250.9263
Fax: 608.250.9266
email: mburse@bse-inc.net
www.bursesurveyengr.com

WISCONSIN MICHELLE L. BURSE S-2020 Sun Prairie WI 01/19/2026 LAND SURVEYOR

Date: January 19, 2026
Plot View: FP1
\BSE2933\dwg\Survey\BSE2933 Final Plat v2020.dwg

NOTE
1) SEE SHEET 4 FOR CURVE TABLE.

NO OAKS RANCH SUBDIVISION

PART OF OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15163, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 257–261, AS DOCUMENT NUMBER 5498225 AND OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15164, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 262–266, AS DOCUMENT NUMBER 5498226, DANE COUNTY REGISTRY, LOCATED IN ALL QUARTERS OF THE NORTHEAST QUARTER OF SECTION 11 AND THE NORTHWEST AND SOUTHWEST QUARTERS OF THE NORTHWEST QUARTER OF SECTION 12 AND PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 01, ALL IN TOWNSHIP 06 NORTH, RANGE 09 EAST, CITY OF FITCHBURG, DANE COUNTY, WISCONSIN

SEE SHEET 3 FOR PLAT CONTINUATION

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GRID NORTH
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0 50 100 150
SCALE : ONE INCH = FIFTY FEET

CSM#10702 LOT 1

UPTOWN CROSSING OL 7

CSM#15164 OL 2

UPTOWN CROSSING OL 8

WISCONSIN DEPARTMENT OF TRANSPORTATION

(N05°32'02"E 1327.75')
N05°32'02"E 1327.76'
1452.76'

WETLANDS

OUTLOT 5

OUTLOT 7

OUTLOT 10

OUTLOT 6

OUTLOT 4

OUTLOT 1

4

3

2

6' PUBLIC UTILITY BELOW GRADE EASEMENT

EX. SANITARY SEWER AND DRAINAGE DITCH EASEMENT DOC#3321034

EX. 30' SANITARY SEWER EASEMENT DOC#3275942

EX. SANITARY SEWER EASEMENT DOC#3321034

EX. DRAINAGE DITCH EASEMENT DOC#3321034

NORTH OF THIS POINT IS EX. SANITARY SEWER AND DRAINAGE DITCH EASEMENT DOC#3321034

S62°59'50"W 15.19'
C14 9'
N27°00'10"W 110.00'
S62°59'50"W 90.00'
S77°08'51"W 30.56'
2.27'
N88°42'07"W 77.62'
75.35'
S01°17'53"W 119.75'
C15
N88°42'09"W 129.75'
S00°00'00"E 78.40'
N90°00'00"E 351.63'
C16
N29°07'22"E 144.00'
N28°42'34"E 91.87'
N14°20'51"E 43.12'
N02°24'41"E 60.12'
N01°50'24"E 168.08'
S27°36'46"W 183.56'
128.58'
34.98'
N34°19'21"E 88.49'
24.84'
N54°33'39"W 334.16'
OVERALL=394.38'
308.26'
S41°35'29"W 467.77'
S35°45'55"W 14.96'
S35°45'55"W 96.52'
S54°14'05"E 116.00'
N35°36'21"E 370.82'
N43°36'21"E 370.82'
S54°14'05"E 116.00'
S13°42'43"W 245.33'
S03°11'32"W 102.26'
S86°48'28"E 252.87'
S02°59'07"W 96.00'
N86°48'28"W 45.60'
S03°12'31"W 96.00'
S03°11'32"W 75.07'
S86°48'28"E 570.89'
267.59'
207.49'
95.81'
S86°48'28"E 510.89'
236.26'
44.66'
274.63'
S22°59'07"W 39.20'
S15°28'39"W 60.50'
N86°48'28"W 210.13'
48.50'
S84°27'58"E 222.74'
S03°11'32"W 248.23'
144.61'
N03°11'32"E 188.23'
96.00'
(N05°32'02"E 1327.75')
N05°32'02"E 1327.76'

TRAIL RIDE TERRACE
DEDICATED TO THE PUBLIC FOR ROADWAY PURPOSES

HORSE CREEK AVENUE
DEDICATED TO THE PUBLIC FOR ROADWAY PURPOSES

HOLMES STREET
DEDICATED TO THE PUBLIC FOR ROADWAY PURPOSES

10' PUBLIC UTILITY BELOW GRADE EASEMENT

SURVEYED BY :

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email: mburse@bse-inc.net
www.bursesurveyengr.com

WISCONSIN MICHELLE L. BURSE S-2020 Sun Prairie 01/19/2026 LAND SURVEYOR

Date: January 19, 2026
Plot View: FP2
\BSE2933\dwg\Survey\BSE2933 Final Plat v2020.dwg

SEE SHEET 1 FOR PLAT CONTINUATION

SEE SHEET 5 FOR PLAT CONTINUATION

NO OAKS RANCH SUBDIVISION

PART OF OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15163, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 257–261, AS DOCUMENT NUMBER 5498225 AND OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15164, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 262–266, AS DOCUMENT NUMBER 5498226, DANE COUNTY REGISTRY, LOCATED IN ALL QUARTERS OF THE NORTHEAST QUARTER OF SECTION 11 AND THE NORTHWEST AND SOUTHWEST QUARTERS OF THE NORTHWEST QUARTER OF SECTION 12 AND PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 01, ALL IN TOWNSHIP 06 NORTH, RANGE 09 EAST, CITY OF FITCHBURG, DANE COUNTY, WISCONSIN

NOTE
1) SEE SHEET 4 FOR CURVE TABLE.

LEGEND

- ⊙ 1" IRON PIPE FOUND
- ● 3/4" SOLID IRON ROD FOUND
- ○ 1–1/4" x 24" SOLID IRON RE–ROD SET, wt. 4.30 lbs./ft. ALL OTHER CORNERS MARKED WITH A 3/4" X 18" SOLID IRON RE–ROD, WT. 1.50 lbs./ft.
- → DRAINAGE ARROW
- ( ) INDICATES RECORDED AS

DISTANCES ARE MEASURED TO THE NEAREST HUNDREDTH OF A FOOT. BUILDINGS ARE MEASURED TO THE NEAREST TENTH OF A FOOT.

GRID NORTH
BEARINGS ARE BASED UPON WISCONSIN COUNTY COORDINATE SYSTEM (DANE ZONE 83 1997)

0 50 100 150
SCALE : ONE INCH = FIFTY FEET

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Certified _____, 20____

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WISCONSIN
MICHELLE L. BURSE
S-2020
Sun Prairie WI
01/19/2026
LAND SURVEYOR

FOUND ALUMINUM MONUMENT AT THE NORTH QUARTER CORNER OF SECTION 11–06–09

MON TO MON S88°42'33"E 2666.63' (2666.55')

1333.27'

LANDS

33' 6.6' 33'

LANDS 205.71'

CSM#12398 LOT 1

551.62'

N02°45'43"E 48.88'

53.77'

39.51'

N55°30'17"E 67.54'

WEST CLAYTON ROAD
DEDICATED TO THE PUBLIC FOR ROADWAY PURPOSES

WEST CLAYTON ROAD

40' 7.3' 33'

9.37'

(41.25') N55°28'00"E 41.24'

S88°42'33"E 173.03'

242.06'

S88°42'33"E 1333.36'

363.7

58.53'

S14°37'49"E 25.10'

159.16'

N28°49'49"W 33.73'

EX. SANITARY SEWER EASEMENT DOC#3275942

N04°22'54"W 56.18'

S03°12'05"E 69.99'

S10°00'51"W 68.93'

S16°54'23"W 41.31'

S25°32'24"W 89.75'

S01°17'53"W 307.64'

WISCONSIN DEPARTMENT OF TRANSPORTATION

6' PUBLIC UTILITY BELOW GRADE EASEMENT

CSM#15164 OL 2

CSM#10202 LOT 1

50' 100' 50'

OUTLOT 5

OUTLOT 7

OUTLOT 6

OUTLOT 8

N12°03'03"E 159.98'

S21°26'35"W 110.16'

N29°07'22"E 144.00'

EX. SANITARY SEWER AND DRAINAGE DITCH EASEMENT DOC#3210034

N29°42'34"E 91.87'

S27°39'46"W 16.56'

128.38'

(N05°32'02"E 1327.75') N05°32'02"E 1327.76'

1152.76'

WETLANDS

N88°42'09"W 129.75'

C15

Date: January 19, 2026
Plot View: FP3
\BSE2933\dwg\Survey\BSE2933 Final Plot v2020.dwg

SEE SHEET 2 FOR PLAT CONTINUATION

SEE SHEET 6 FOR PLAT CONTINUATION

NO OAKS RANCH SUBDIVISION

PART OF OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15163, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 257–261, AS DOCUMENT NUMBER 5498225 AND OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15164, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 262–266, AS DOCUMENT NUMBER 5498226, DANE COUNTY REGISTRY, LOCATED IN ALL QUARTERS OF THE NORTHEAST QUARTER OF SECTION 11 AND THE NORTHWEST AND SOUTHWEST QUARTERS OF THE NORTHWEST QUARTER OF SECTION 12 AND PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 01, ALL IN TOWNSHIP 06 NORTH, RANGE 09 EAST, CITY OF FITCHBURG, DANE COUNTY, WISCONSIN

SEE SHEET 5 FOR PLAT CONTINUATION

HOLMES STREET
DEDICATED TO THE PUBLIC FOR ROADWAY PURPOSES

S35°45'55"W 14.96'

N35°36'21"E 370.82'

N35°36'21"E 370.82'

6' PUBLIC UTILITY BELOW GRADE EASEMENT

E 116.00'

CSM#15163
OL 2

OUTLOT 11

SEE SHEET 1 FOR PLAT CONTINUATION

LANDS

S02°44'09"W 2024.22'

LANDS

N88°10'42"W 1054.40'

CSM#15162
OL 2

MON TO MON
S02°44'19"W 2712.24'

FOUND 1-1/4" SOLID IRON ROD AT THE EAST QUARTER OF SECTION 11-06-09

677.92'

N87°47'28"W 321.77'

LANDS

There are no objections to this plat with respect to Secs. 236.15, 236.16, 236.20 and 236.21(1) and (2), Wis Stats. as provided by s. 236.12, Wis. Stats.

Certified _____, 20____

Department of Administration

GRID NORTH
BEARINGS ARE BASED UPON WISCONSIN COUNTY COORDINATE SYSTEM (DANE ZONE 83 1997)

0 50 100 150

SCALE : ONE INCH = FIFTY FEET

Curve Table							
No.	Length	Radius	Delta	Chord Direction	Chord L.	TB IN	TB OUT
C1	58.39'	485.00'	6°53'51"	N53°18'16.4"E	58.35'	N56°45'12"E	N49°51'21"E
C2	120.29'	380.48'	18°06'53"	N46°23'15.7"E	119.79'	N55°26'42"E	N37°19'49"E
C3	241.66'	245.00'	56°30'51"	N56°12'38.1"W	231.98'	N27°57'13"W	N84°28'03"W
C4	98.70'	245.00'	23°04'54"	N72°55'36.6"W	98.03'	N61°23'10"W	N84°28'03"W
C5	100.56'	245.00'	23°31'01"	N49°37'39.4"W	99.85'	N37°52'09"W	N61°23'10"W
C6	42.40'	245.00'	9°54'56"	N32°54'41.0"W	42.35'	N27°57'13"W	N37°52'09"W
C7	74.47'	120.00'	35°33'30"	N20°58'16.3"E	73.28'	N3°11'32"E	N38°45'01"E
C8	27.14'	180.00'	8°38'17"	N34°25'52.8"E	27.11'	N38°45'01"E	N30°06'45"E
C9	125.07'	220.00'	32°34'23"	N70°31'16.8"W	123.39'	N54°14'05"W	N86°48'28"W
C10	80.78'	220.00'	21°02'14"	S76°17'21.3"E	80.32'	S86°48'28"E	S65°46'14"E
C11	44.29'	220.00'	11°32'09"	S60°00'09.6"E	44.22'	S65°46'14"E	S54°14'05"E
C12	159.18'	280.00'	32°34'23"	N70°31'16.8"W	157.05'	N54°14'05"W	N86°48'28"W
C13	31.21'	170.00'	10°31'12"	S08°27'07.5"W	31.17'	S13°42'43"W	S3°11'32"W
C14	84.60'	152.50'	31°47'08"	N78°53'22.9"E	83.52'	S85°13'03"E	N62°59'49"E
C15	65.20'	97.50'	38°18'54"	N46°17'53.0"E	63.99'	N65°27'20"E	N27°08'26"E
C16	90.53'	75.49'	68°42'48"	N34°14'30.4"E	85.20'	N68°35'54"E	N0°06'53"W
C17	2.81'	180.00'	0°53'45"	N03°38'24.0"E	2.81'	N4°05'17"E	N3°11'32"E
C18	47.93'	530.00'	5°10'52"	N33°00'55.6"E	47.91'	N35°36'21"E	N30°25'30"E
C19	269.57'	470.00'	32°51'43"	N19°10'30.1"E	265.89'	N35°36'21"E	N2°44'39"E
C20	221.62'	470.00'	27°01'02"	N16°15'09.7"E	219.58'	N29°45'41"E	N2°44'39"E
C21	47.94'	470.00'	5°50'41"	S32°41'01.1"W	47.92'	S29°45'41"W	S35°36'21"W
C22	111.71'	180.00'	35°33'30"	N20°58'16.3"E	109.93'	N38°45'01"E	N3°11'32"E
C23	81.76'	180.00'	26°01'28"	S17°06'00.6"W	81.06'	S30°06'45"W	S4°05'17"W
C24	34.85'	25.00'	79°51'49"	N78°40'55.7"E	32.09'	S61°23'10"E	N38°45'01"E
C25	33.43'	25.00'	76°37'10"	S00°26'26.0"W	31.00'	S38°45'01"W	S37°52'09"E

Lot Area Table		
Number	Sq. Ft.	Acres
1	18504	0.4248
2	21272	0.4883
3	47935	1.1004
4	166413	3.8203

Outlot Area Table		
Number	Sq. Ft.	Acres
OUTLOT 1	32861	0.7544
OUTLOT 2	10831	0.2486
OUTLOT 3	1778	0.0408
OUTLOT 4	40766	0.9359
OUTLOT 5	619746	14.2274
OUTLOT 6	277023	6.3596
OUTLOT 7	185392	4.2560
OUTLOT 8	76079	1.7465
OUTLOT 9	600	0.0138
OUTLOT 10	100906	2.3165
OUTLOT 11	1841742	42.2806

WISCONSIN
MICHELLE L. BURSE
S-2020
Sun Prairie WI
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\BSE2933\dwg\Survey\BSE2933 Final Plat v2020.dwg

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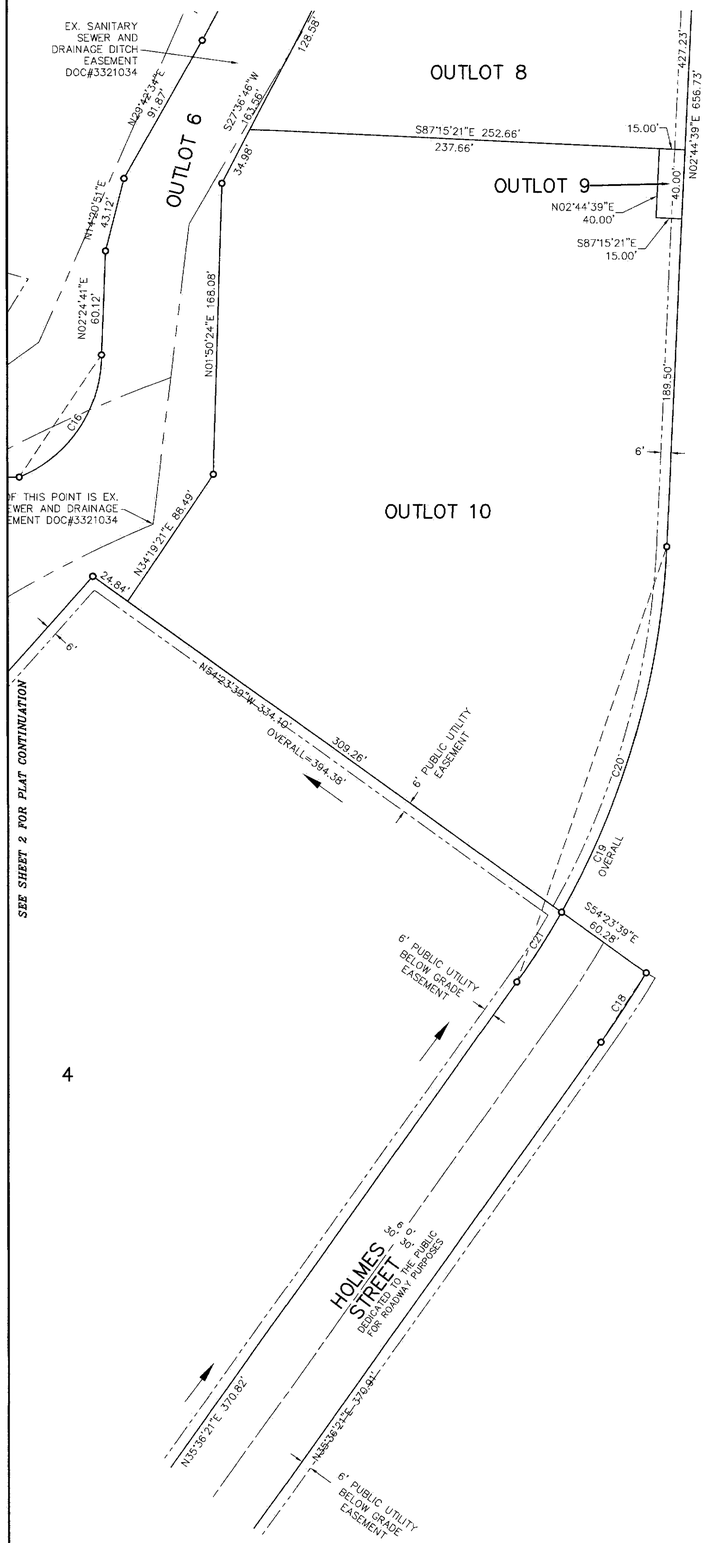
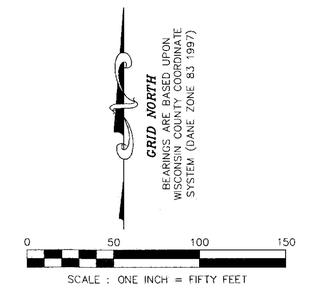
SEE SHEET 6 FOR PLAT CONTINUATION



SEE SHEET 2 FOR PLAT CONTINUATION

4



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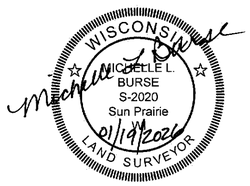

NOTE
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GRID NORTH
BEARINGS ARE BASED UPON WISCONSIN COUNTY COORDINATE SYSTEM (DANE ZONE 83 1997)

0 50 100 150
SCALE : ONE INCH = FIFTY FEET

FOUND ALUMINUM MONUMENT AT THE WEST QUARTER CORNER OF SECTION 01–06–09

2314.20'

MON TO MON
N02°57'23"E 2644.83'

(S87°02'28"E 171.79' CSM#12398)
(2 CH, 132' PER DEED DOC#4947123)
(S87°E 172' ACCESS DANE)
S86°49'40"E 171.96'
131.98'
39.98'

ORIGIN UNKNOWN

S03°10'21"W 68.32'
(S02°57'32"W 68.86' CSM#12398)
(1.04 CH, 68.8' PER DEED DOC#4947123)
(S2°E 68.8' ACCESS DANE)

CSM#12398 OL 1

CSM#12398 OL 1

LANDS

S86°43'28"E 105.33'
(S86°43'28"E 105.33' CSM#12398)
(EAST 664.62' PER DEED DOC#4947123)

(S87°04'E 530.9' ADJOINING DEED DOC#5810236)
S85°28'02"E 519.64'

1–1/2"

N02°57'34"E 330.63'
(NORTH 330.0' DEED DOC#4947123)
(N02°57'32"E)

LANDS

(SOUTH 261.32' DEED DOC#4947123)
S02°56'57"W 261.39'
(N4°15'W 263.2' ADJOINING DEED DOC#5810236)
(AND PER ALEX W. ELY SURVEY MAP NUMBER 2490, 38/12/1957)

LANDS

S88°42'33"E 1333.36'

CSM#12398 OL 1

FOUND BRASS CAP MONUMENT AT THE NORTHEAST CORNER OF SECTION 11–06–09

1.85'
N28°49'49"W 33.73'
58.53'
363.71'
159.16'
S14°37'49"E 25.10'
268.22'
124.05'

EX. SANITARY SEWER EASEMENT DOC#3275942

N04°22'54"W 56.18'
S03°12'05"E 69.99'

MON TO MON
S02°44'19"W 2712.24'

OUTLOT 11

N85°59'38"W 474.92'

MON TO MON
N85°59'27"W 2703.28'

1906.62'

FOUND SURVEY NAIL AT THE NORTH QUARTER OF SECTION 12–06–09

LANDS

SEE SHEET 3 FOR PLAT CONTINUATION

OUTLOT 7

N12°03'03"E 159.98'

OUTLOT 6

S10°00'51"W 68.53'
S16°54'23"W 41.31'
S21°28'55"W 110.36'

6' PUBLIC UTILITY BELOW GRADE EASEMENT

OUTLOT 8

128.58'
S27°36'46"W 163.56'
34.98'
S87°15'21"E 252.66'
237.66'
15.00'
427.23'
N02°44'39"E 656.73'

OUTLOT 10

OUTLOT 9

40.00'
N02°44'39"E 40.00'

S02°44'09"W 2024.22'

SEE SHEET 5 FOR PLAT CONTINUATION

NOTE
1) SEE SHEET 4 FOR CURVE TABLE.

SURVEYED BY :

Burse
surveying & engineering Inc.
2801 International Lane, Suite 101
Madison, WI 53704 608.250.9263
Fax: 608.250.9266
email: mburse@bse-inc.net
www.bursesurveyengr.com

WISCONSIN MICHELLE L. BURSE S-2020 Sun Prairie WI 01/19/2026 LAND SURVEYOR

Date: January 19, 2026
Plot View: FP6
\BSE2933\dwg\Survey\BSE2933 Final Plat v2020.dwg

NO OAKS RANCH SUBDIVISION

PART OF OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15163, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 257–261, AS DOCUMENT NUMBER 5498225 AND OUTLOT 2, CERTIFIED SURVEY MAP NUMBER 15164, AS RECORDED IN VOLUME 107 OF CERTIFIED SURVEY MAPS, ON PAGES 262–266, AS DOCUMENT NUMBER 5498226, DANE COUNTY REGISTRY, LOCATED IN ALL QUARTERS OF THE NORTHEAST QUARTER OF SECTION 11 AND THE NORTHWEST AND SOUTHWEST QUARTERS OF THE NORTHWEST QUARTER OF SECTION 12 AND PART OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 01, ALL IN TOWNSHIP 06 NORTH, RANGE 09 EAST, CITY OF FITCHBURG, DANE COUNTY, WISCONSIN

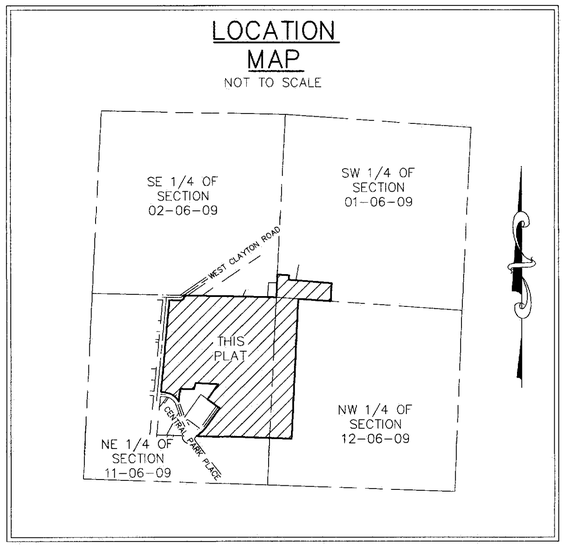
There are no objections to this plat with respect to Secs. 236.15, 236.16, 236.20 and 236.21(1) and (2), Wis Stats. as provided by s. 236.12, Wis. Stats.

Certified _____, 20____

Department of Administration

LOCATION MAP

NOT TO SCALE



SURVEYOR'S CERTIFICATE:

I, Michelle L. Burse, Professional Land Surveyor S–2020, hereby certify; that in full compliance with the provisions of Chapter 236 of the Wisconsin State Statutes and the Land Division Ordinance of the City of Fitchburg and under the direction of NO OAKS RANCH LLC, owners of said lands, I have surveyed, divided and mapped the plat of NO OAKS RANCH, that such plat correctly represents all exterior boundaries and the subdivision of the lands surveyed and that such plat is described as follows:

Part of Outlot 2, Certified Survey Map Number 15163, as recorded in Volume 107 of Certified Survey Maps, on pages 257–261, as Document Number 5498225 and Outlot 2, Certified Survey Map Number 15164, as recorded in Volume 107 of Certified Survey Maps, on pages 262–266, as Document Number 5498226, Dane County Registry, located in all Quarters of the Northeast Quarter of Section 11 and the Northwest and Southwest Quarters of the Northwest Quarter of Section 12 and part of the Southwest Quarter of the Southwest Quarter of Section 01, all in Township 06 North, Range 09 East, City of Fitchburg, Dane County, Wisconsin, more fully described as follows:

Beginning at the Northeast corner of said Section 11; thence North 02 degrees 57 minutes 34 seconds East, 330.63 feet; thence South 86 degrees 49 minutes 40 seconds East, 171.96 feet along a south line of CSM No. 12398, recorded as Document Number 4403037; thence South 03 degrees 10 minutes 21 seconds West, 68.32 feet along a west line of said CSM No. 12398; thence South 86 degrees 43 minutes 28 seconds East, 105.33 feet along a south line of said CSM; thence South 85 degrees 28 minutes 02 seconds East, 519.64 feet; thence South 02 degrees 56 minutes 57 seconds West, 261.39 feet; thence North 85 degrees 59 minutes 38 seconds West, 474.92 feet; thence South 02 degrees 44 minutes 09 seconds West, 2024.22 feet; thence North 87 degrees 47 minutes 28 seconds West, 321.77 feet; thence North 88 degrees 10 minutes 42 seconds West, 1054.40 feet to the east right of way of Central Park Place, also to the south right of way of Holmes Street, also to a point of non–tangential curvature; thence 58.39 feet along the arc of a curve to the right, also along said south right of way, having a radius of 485.00 feet, through a central angle of 06 degrees 53 minutes 51 seconds and a chord bearing North 53 degrees 18 minutes 16.4 seconds East, 58.35 feet to a point of reverse curvature; thence 120.29 feet along the arc of a curve to the left, also along said south right of way, having a radius of 380.48 feet, through a central angle of 18 degrees 06 minutes 53 seconds and a chord bearing North 46 degrees 23 minutes 16 seconds East, 119.79 feet; thence North 35 degrees 45 minutes 55 seconds East along said south right of way, 350.23 feet; thence North 54 degrees 14 minutes 05 seconds West, 220.00 feet; thence North 35 degrees 45 minutes 55 seconds East, 266.73 feet; thence North 86 degrees 48 minutes 28 seconds West, 327.77 feet; thence South 15 degrees 28 minutes 39 seconds West, 92.06 feet; thence North 88 degrees 20 minutes 19 seconds West, 190.63 feet to a point of non–tangential curvature; thence 81.76 feet along the arc of a curve to the right, having a radius of 180.00 feet, through a central angle of 26 degrees 01 minute 28 seconds and a chord bearing South 17 degrees 06 minutes 01 second West, 81.06 feet; thence South 02 degrees 47 minutes 11 seconds West, 104.64 feet to a point of non–tangential curvature, also to the north right of way of Central Park Place; thence 241.66 feet along the arc of a curve to the left, having a radius of 245.00 feet, through a central angle of 56 degrees 30 minutes 51 seconds and a chord bearing North 56 degrees 12 minutes 38 seconds West, 231.98 feet; thence North 78 degrees 50 minutes 23 seconds West along said north right of way, 30.60 feet; thence North 84 degrees 27 minutes 59 seconds West along said north right of way, 40.99 feet to the east line of Wisconsin Department of Transportation right of way; thence North 05 degrees 32 minutes 02 seconds East along said east right of way, 1327.76 feet to the south right of way of West Clayton Road; thence South 88 degrees 42 minutes 33 seconds East along said south right of way, 173.03 feet; thence North 55 degrees 28 minutes 00 seconds East along said south right of way, 41.24 feet; thence North 02 degrees 45 minutes 43 seconds East, 48.88 feet; thence South 88 degrees 42 minutes 33 seconds East, 1333.36 feet to the Point of Beginning.

Dated this 19 day of JANUARY, 2026.

Signed: Michelle L. Burse

Michelle L. Burse, P.L.S. No. 2020.

OWNER'S CERTIFICATE OF DEDICATION

NO OAKS RANCH LLC, as owner, does hereby certify that we caused the land described on this plat to be surveyed, divided, mapped and dedicated as represented on the map hereon. We also certify that this plat is required by s.236.10 or s.236.12 to be submitted to the following for approval or objection:

Department of Administration
Common Council, City of Fitchburg

WITNESS the hands and seals of said owner this _____ day of _____, 202_.

_____
NO OAKS RANCH LLC
Joseph R. Boberschmidt, member

State of Wisconsin)
)ss.
County of Dane)

Personally came before me this _____ day of _____, 202_, the above named Joseph R. Boberschmidt, member of NO OAKS RANCH LLC to me known to be the person who executed the foregoing instrument and acknowledge the same.

_____
Notary Public

My Commission expires : _____

CERTIFICATE OF CITY TREASURER

State of Wisconsin)
)ss.
County of Dane)

I, Kari Miller, being the duly elected, qualified and acting City Treasurer of the City of Fitchburg, do hereby certify that in accordance with the records in my office, there are no unpaid taxes or unpaid special assessments as of this _____ day of _____, 202_, affecting the lands included in the plat of NO OAKS RANCH SUBDIVISION.

_____ _____
Date Kari Miller City Treasurer

CERTIFICATE OF COUNTY TREASURER

State of Wisconsin)
)ss.
County of Dane)

I, Adam Gallagher, being the duly elected, qualified and acting treasurer of the County of Dane, do hereby certify that the records in my office show no unredeemed tax sales and no unpaid taxes or unpaid special assessments as of this _____ day of _____, 202_, affecting the lands included in the plat of NO OAKS RANCH SUBDIVISION.

_____ _____
Date Adam Gallagher, County Treasurer

CERTIFICATE OF CITY CLERK

State of Wisconsin)
)ss.
County of Dane)

"RESOLVED that this plat known as NO OAKS RANCH SUBDIVISION, located in the City of Fitchburg was hereby approved by resolution No. _____, file number _____ adopted on this _____ day of _____, 202_, and further resolved that the conditions of said approval were fulfilled on this _____ day of _____, 202_, and that said resolution further provided for the acceptance of those lands and rights dedicated by said NO OAKS RANCH SUBDIVISION for public use".

_____ _____
Date Tracy Oldenburg, City Clerk

NOTES:

1) UTILITY EASEMENTS. NO POLES OR BURIED CABLES ARE TO BE PLACED SUCH THAT THE INSTALLATION WOULD DISTURB ANY SURVEY STAKE, OR OBSTRUCT VISION ALONG ANY LOT LINE. THE DISTURBANCE OF A SURVEY MONUMENT BY ANYONE IS A VIOLATION OF SECTION 236.32 OF WISCONSIN STATUTES. UTILITY EASEMENTS AS HEREIN SET FORTH ARE FOR THE USE OF PUBLIC BODIES AND PRIVATE PUBLIC UTILITIES HAVING THE RIGHT TO SERVE THE AREA.

2) GIVEN UNDERGROUND INSTALLATION FOR ELECTRIC AND COMMUNICATIONS, THE FINAL GRADE SHALL NOT BE ALTERED BY MORE THAN SIX (6) INCHES WITHOUT WRITTEN CONSENT OF THE UTILITIES INVOLVED.

3) Outlots 1 and 3 6 are to be Dedicated to the Public for Stormwater management, multi–use path, sanitary sewer and environmental corridor.

4) Outlots 2 and 5 are reserved for Private Use.

5) Outlot 4 is Dedicated to the Public for Civic Space.

6) Outlots 5 and 11 are Reserved for Private Use.

7) Outlots 7 and 8 are to be Dedicated to the Public for Park and Environmental Corridor.

8) Outlot 9 is for private use.

9) Outlots 10 to be Dedicated to the Public for Stormwater Management and Environmental Corridor.

10) EXCEPT FOR LIGHT POLES, NO ABOVE GROUND PEDESTALS, TRANSFORMERS OR OTHER SWITCH EQUIPMENT SHALL BE ALLOWED WITHIN STREET RIGHTS–OF–WAY OR ALONG THE FRONT YARDS OF LOTS. SAID ABOVE GROUND STRUCTURES SHALL BE ALLOWED AT REAR YARDS OR WHERE SPECIFICALLY CALLED OUT ON THIS PLAT.

11) THE AREA OF PUBLIC RIGHT OF WAY FOR ROADWAY DEDICATIONS IS 121,851 SQ. FT.

12) LOTS 1–2 ARE ALL DESIGNATED AS T4 LOTS.

13) LOTS 3–4 ARE DESIGNATED AS T5 LOTS.

14) ALL ELECTRIC AND COMMUNICATION SYSTEMS REQUIRING ABOVE–GRADE APURTENANCES, SUCH AS BUT NOT LIMITED TO SUBSTATIONS, PAD–MOUNTED TRANSFORMERS, PAD–MOUNTED SECTIONALIZING SWITCHES AND ABOVE–GRADE PEDESTAL–MOUNTED TERMINAL BOXES, NEED TO BE CONCEALED FROM FRONTAGE VIEW. EXCEPT AS HEREAFTER NOTED, IN T4 ABOVE–GRADE APPURTENANCES MAY NOT BE LOCATED WITHIN 18 FEET OF ANY LOT'S PRINCIPLE AND SECONDARY FRONTAGE LINES. ABOVE–GRADE APPURTENANCES MAY BE LOCATED CLOSER THAN 18 FEET FROM A LOT'S PRINCIPLE AND SECONDARY FRONTAGE LINES WHEN THE LOCATION OF THE BUILDING FACADE IS KNOWN OR RESTRICTED BY DEED, AND IT IS CLOSER THAT 18 FEET FROM THESE FRONTAGE LINES. IN THIS CASE, ABOVE GROUND APPURTENANCES MAY ALSO BE INSTALLED BETWEEN 18 FEET FROM THE LOT'S PRINCIPLE AND SECONDARY FRONTAGE LINE AND THE BUILDING FACADE. IN T3, ABOVE–GRADE APPURTENANCES MAY NOT BE LOCATED WITHIN 25 FEET OF ANY LOT'S PRINCIPLE FRONTAGE LINE NOR WITHIN 17 FEET OF ANY LOT'S SECONDARY FRONTAGE LINE.

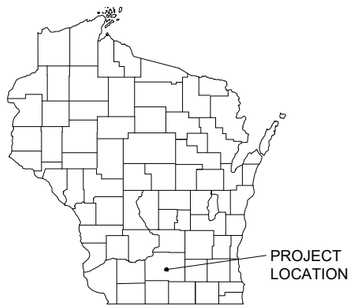
WISCONSIN
MICHELLE L. BURSE
S-2020
Sun Prairie
WI
LAND SURVEYOR

SURVEYED BY :
Burse surveying & engineering Inc.
2801 International Lane, Suite 101
Madison, WI 53704 608.250.9263
Fax: 608.250.9266
email: mburse@bse-inc.net
www.bursesurveyengr.com

Date: January 19, 2026
Plot View: FP7
\BSE2933\dwg\Survey\BSE2933 Final Plat v2020.dwg

NO OAKS RANCH PHASE 1

NO OAKS RANCH, LLC
CITY OF FITCHBURG
DANE COUNTY, WI



SHEET INDEX

LOCATION MAP
NOT TO SCALE

LEGEND

- EXISTING WATER MAIN
- EXISTING WATER MAIN, VALVE & HYDRANT
- EXISTING WATER SERVICE & CURB STOP
- PROPOSED WATER MAIN, VALVE, & HYDRANT
- PROPOSED WATER SERVICE & CURB STOP
- EXISTING SANITARY SEWER & MANHOLE
- PROPOSED SANITARY SEWER & MANHOLE
- EXISTING FORCEMAIN
- EXISTING STORM SEWER & INLET
- PROPOSED STORM SEWER & INLET
- PROPOSED STORM SEWER & MANHOLE
- BURIED ELECTRIC
- BURIED GAS & VALVE
- BURIED CABLE TELEVISION
- BURIED TELEPHONE
- BURIED FIBER OPTICS
- OVERHEAD UTILITY
- RAILROAD TRACKS
- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- EXISTING SIDEWALK
- PROPOSED SIDEWALK
- EXISTING CULVERT PIPE
- PROPOSED CULVERT PIPE
- FENCE LINE
- DRAINAGE ARROW
- SILT FENCE
- RIGHT-OF-WAY
- BASELINE
- PROPERTY LINE
- TREE LINE
- BENCHMARK
- IRON PIPE
- IRON ROD
- CONTROL POINT
- UTILITY POLE & GUY
- SOIL BORING
- LIGHT POLE
- PEDESTAL
- STREET SIGN
- MAILBOX
- FLAGPOLE
- TREE - DECIDUOUS
- TREE - CONIFEROUS
- TREE TO BE REMOVED

GAS:

MADISON GAS AND ELECTRIC
SHAUN ENDRES
133 S. BLAIR STREET P.O. BOX 1231
MADISON, WI 53703-3471
PHONE: 608-213-6708 (CELL)
608-252-1224 (WORK)

ELECTRIC:

MADISON GAS AND ELECTRIC
MARK GAUGER
133 S. BLAIR STREET
P.O. BOX 1231
MADISON, WI 53703-3471
PHONE: 608-213-6708
608-252-1570

TELEPHONE:

AT&T
LISA SUPRENARD
152 DIXON ST.
MADISON, WI 53704
PHONE: 920-202-0652

CITY OF FITCHBURG PUBLIC WORKS:

TIM VOELKER - DIRECTOR OF PUBLIC WORKS
TRACY FOSS - ASST. DIRECTOR OF PUBLIC WORKS
5520 LACY ROAD
FITCHBURG, WI 53711
PHONE: 608-270-4260

CATV:

CHARTER COMMUNICATIONS
ROBERT TENUTA
1320 N. DR. MARTIN LUTHER KING JR. DR.
MILWAUKEE, WI 53212
PHONE: 414-758-5688

TDS:

TELCOM
DAVID O' BRIEN
525 JUNCTION ROAD
MADISON, WI 53717
PHONE: 608-577-9654

DIGGERS HOTLINE
Dial 811 or (800) 242-8511
www.DiggersHotline.com

NOTE:
UTILITY LOCATIONS SHOWN ON PLANS ARE APPROXIMATE AND CONTRACTOR SHALL HAVE APPROPRIATE UTILITY MARK EXACT LOCATIONS PRIOR TO CONSTRUCTION.

		NO.	DATE	REVISION	BY
PROJECT DATE: .	DRAWN BY: Init	.	.	PRELIMINARY	.
	DESIGNED BY: Init	.	.		.
	CHECKED BY: Init	.	.		.

PLOT DATE: 1/19/2026 12:03 PM, G:\22\22630\22630003\CADD_No Oaks Phase 1\Sheets\22630003 G Sheets.dwg

MSA
ENGINEERING | ARCHITECTURE | SURVEYING
FUNDING | PLANNING | ENVIRONMENTAL
1702 Pankratz St Madison, WI 53704
(608) 242-7779 www.msa-ps.com

NO OAKS RANCH PHASE 1
NO OAKS RANCH, LLC
DANE COUNTY, WI

TITLE SHEET

PROJECT NO. 22630002
SHEET 1

GENERAL NOTES

1. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION OF "CITY OF FITCHBURG STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
2. CONTRACTOR SHALL NOTIFY PUBLIC WORKS DEPARTMENT A MINIMUM OF 48 HOURS BEFORE CONNECTING TO EXISTING SEWER AND WATER MAIN, AND BEFORE STARTING ALL PHASES OF WORK.
3. ALL STREET DIMENSIONS (WIDTHS, RADII LENGTH) ARE MEASURED TO THE FACE OF CURB.
4. ALL SANITARY SEWER WITHIN THE RIGHT-OF-WAY SHALL BE SDR-26.
5. LATERALS & WATER SERVICES TO EXTEND 10' BEYOND THE R/W OR EASEMENT, WHICHEVER IS FURTHER FROM CENTERLINE.
6. ANY PERSON WHO INSTALLS A NONCONDUCTIVE SEWER LATERAL MUST INSTALL SCOTCH MARKER BALL MARKERS 1404-XR ABOVE LATERAL, TWO FEET FROM PROPERTY LINE (WITHIN R/W) AND AT EVERY HORIZONTAL BEND. MARKERS SHALL BE PLACED 2.5 TO 3.5 FEET BELOW FINAL SURFACE ELEVATION.
7. ALL CURB RAMPS TO BE VERIFIED BY THE CITY BEFORE PLACEMENT.
8. ALL CURB RAMPS SHALL BE ADA COMPLIANT INCLUDING THE PROVISION OF NEENAH FOUNDRY'S DETECTABLE WARNING PLATES R-4984 NATURAL FINISH.
9. MANHOLE CASTINGS WITHIN PAVEMENT TO BE SET TO ASPHALT BINDER GRADE. NEENAH ADJUSTING RINGS SHALL BE PROVIDED ON ALL MANHOLES PRIOR TO SURFACE PAVING.
10. ALL UTILITY CROSSINGS SHALL BE MADE PRIOR TO PROOF ROLLING, PLACEMENT OF CURB & GUTTER, AND BASE COURSE.
11. ALL STORM SEWER APRON END SECTIONS OVER 12" DIA SHALL HAVE FACTORY INSTALLED PIPE GATE.
12. STORM SEWER STRUCTURES SHALL HAVE CORED, NON-SCORED, SMOOTH-FORMED OPENINGS. IN LIEU OF CORED OPENINGS, STRUCTURES MAY ALSO HAVE FORMED OPENINGS AND/OR BE POURED IN PLACE.
13. RCP STORM SEWER JOINT TIES REQUIRED FOR LAST (2) UPSTREAM AND DOWNSTREAM JOINTS AT APRON END SECTION LOCATIONS ON PIPE OF ANY SIZE.
14. HYDRANT VALVES TO BE LOCATED WITHIN TERRACE.
15. TEMPORARY PLUGS SHALL BE PLACED IN CONNECTING MANHOLES UNTIL CONSTRUCTION IS COMPLETE AND ACCEPTED.
16. ALL UTILITY STUBS (SANITARY, WATER, STORM SEWER) TO BE PLUGGED & MARKED WITH 4" X 4" POST EXTENDING FROM INVERT TO 2' ABOVE GROUND SURFACE. PAINT BLUE FOR WATER, GREEN FOR SANITARY, AND PINK FOR STORM.
17. A MINIMUM OF (2) TYPE III BARRICADES WITH "ROAD CLOSED" SIGNS REQUIRED AND MAINTAINED AT ALL PROPOSED ENTRANCES UNTIL THE STREETS ARE ACCEPTED BY THE CITY.
18. ALL CATCH BASINS ARE 4' DIAMETER UNLESS NOTED OTHERWISE.
19. INLET CASTINGS SHALL BE NEENAH #R-3067-7004 ('DUMP NO WASTE, DRAINS TO LAKE'). FRAME SHALL BE R-3067-2000. THESE ARE A SPECIAL ORDER ITEM THAT THE CONTRACTOR SHOULD ORDER WELL IN ADVANCE TO ENSURE THAT THE CASTINGS CAN BE SUPPLIED AND DELIVERED ON TIME.
20. WATER MAIN MAY ONLY BE DEFLECTED IF SHOWN ON PLANS.
21. SERVICES SHALL BE PLACED AT THE CENTER OF LOTS UNLESS OTHERWISE NOTED. SERVICES VALVES SHALL BE LOCATED IN CENTER OF TERRACE.
22. ALL WATER SERVICES 4" AND LARGER SHALL HAVE A FLUSHING CONNECTION.
23. ALL FLUSHING CONNECTIONS SHALL BE ABANDONED 6.5' BELOW GROUND AT THE MAIN AS DIRECTED BY THE CITY.
24. USE OF SHOT ROCK AND/OR EXCAVATED ROCK FOR TRENCH BACKFILL IS SUBJECT TO APPROVAL BY THE CITY.
25. ALL 4" SANITARY LATERALS SHALL BE INSTALLED AT A 2% SLOPE. SLOPES FOR SANITARY LATERALS GREATER THAN 4" ARE LABELED ON EACH SHEET.
26. MAINTAIN A MINIMUM BURY DEPTH OF 6.5' FOR WATER MAIN AND WATER SERVICES, INCLUDING UNDER INFILTRATION AREAS.
27. STORM STRUCTURES GREATER THAN 6' IN DIAMETER SHALL BE FIELD POURED.
28. ALL TREES WITHIN PUBLIC OUTLOTS NEED TO BE REVIEWED BY CITY PRIOR TO DISTURBANCE. ONLY TREES NOTED BY CITY SHALL BE REMOVED.
29. ALL FENCES IN PUBLIC OUTLOTS SHALL BE REMOVED.

EROSION CONTROL NOTES

1. THE PROJECT HAS BEEN DESIGNED AND MUST BE CONSTRUCTED IN COMPLIANCE WITH ALL OF WDNR GENERAL PERMIT APPLICATION ELIGIBILITY STANDARDS AND CITY OF FITCHBURG/DANE COUNTY REQUIREMENTS.
2. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED AS SPECIFIED IN CURRENT DEPARTMENT OF NATURAL RESOURCES EROSION AND SEDIMENT CONTROL TECHNICAL STANDARDS, CITY OF FITCHBURG/DANE COUNTY STANDARDS, AND SPECIFIC APPROVAL CONDITIONS FROM THE CITY OF FITCHBURG/DANE COUNTY.
3. EROSION CONTROL MEASURES SHOWN ON THE PLAN SHALL BE CONSIDERED MINIMUMS. ADDITIONAL EROSION CONTROL MEASURES REQUESTED BY STATE, COUNTY, AND CITY INSPECTORS AND/OR ENGINEER SHALL BE INSTALLED WITHIN 24 HOURS OF REQUEST.
4. EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAINFALL EVENT EXCEEDING 0.5 INCHES WITHIN 24 HOURS. REPAIR OF EROSION CONTROL MEASURES SHALL OCCUR WITHIN 24 HOURS OF INSPECTION. CONTRACTOR SHALL MAINTAIN AN ON-SITE WRITTEN REPORT OF ALL INSPECTIONS FOR THE DURATION OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING COPIES OF ALL REQUIRED PERMITRACK INSPECTION REPORTS UNTIL THE EROSION CONTROL PERMIT IS CLOSED.
5. EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED UNTIL THE SITE HAS 70% UNIFORM VEGETATION AND UNTIL THE EROSION CONTROL PERMIT IS CLOSED.
6. INSTALL SILT FENCE ON THE DOWNSLOPE SIDE OF STOCKPILES AND PROVIDE TEMPORARY SEEDING ON STOCKPILES WHICH ARE TO REMAIN IN PLACE AND UNDISTURBED FOR MORE THAN 7 DAYS.
7. GRAVEL CONSTRUCTION ENTRANCE PADS SHALL BE INSTALLED AT DESIGNATED CONSTRUCTION ENTRANCES PRIOR TO ANY CONSTRUCTION. ALL CONSTRUCTION TRAFFIC MUST USE GRAVEL CONSTRUCTION ENTRANCES. GRAVEL CONSTRUCTION ENTRANCES SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT.
8. SOIL TRACKED FROM THE SITE TO STREETS SHALL BE REMOVED AT THE END OF EACH WORK DAY OR AS DIRECTED BY THE ENGINEER OR CITY/COUNTY/STATE INSPECTORS.
9. SOIL COMPACTION IN LOT AND OPEN SPACE PERVIOUS AREAS SHALL BE MITIGATED WITH DEEP TILLED AFTER FINAL GRADING.
10. DEEP TILLAGE METHODS SHALL CONFORM TO DANE COUNTY EROSION CONTROL AND STORMWATER MANAGEMENT MANUAL.
11. STORMWATER FACILITY CONSTRUCTION SHALL CONFORM TO WDNR TECHNICAL STANDARD 1004, FOR BIORETENTION.
12. AVOID HEAVY EQUIPMENT ACCESS TO STORMWATER FACILITIES DURING CONSTRUCTION TO AVOID COMPACTION.
13. IF COMPACTION OCCURS IN STORMWATER FACILITIES IT SHALL BE REMEDIATED BY DEEP TILLING SUBSOIL TO A DEPTH OF AT LEAST 24 INCHES. SOIL SMEARING OF INFILTRATION SURFACE SHALL BE REMEDIATED BY RAKING OR ROTOTILLING.
14. NO COMPACTION MITIGATION IS REQUIRED IN ROADWAY OR PATH AREAS OR AREAS TO BE GRADED IN FUTURE PHASES.
15. ALL AREAS THAT SHALL BE PERMANENTLY VEGETATED SHALL BE COVERED WITH 6" TOPSOIL AND STABILIZED USING ONE OF THE FOLLOWING METHODS:
    a. ALL SLOPES STEEPER THAN 4:1 SHALL BE STABILIZIED WITH CLASS I, TYPE B URBAN EROSION MATTING AS APPROVED BY ENGINEER. ALL SLOPES BETWEEN 4:1 AND 5:1 MAY EITHER BE RESTORED WITH CLASS I, TYPE A OR TYPE B URBAN EROSION MATTING.
    b. ON PRIVATE PROPERTY ALL NON-CHANNELIZED SLOPES FLATTER THAN 5:1 (20%) MAY BE STABILIZED WITH MULCH APPLIED AT A RATE OF 3 TONS/ACRE AND CRIMPED IN PLACE OR BY HYDROMULCHING TO EQUIVALENT STANDARD AS APPROVED BY ENGINEER. HYDROMULCHING REQUIRED IN PUBLIC RIGHT OF WAY.
    c. ALL DITCHES AND SWALES CONSTRUCTED TO FINAL GRADES SHALL BE LINED WITH EROSION MAT, CLASS II, TYPE C.
    d. ALL TERRACES NOT DESIGNATED FOR INFILTRATION FLATTER THAN 5:1 (20%) SHALL BE HYDROMULCHED.
16. IMMEDIATELY STABILIZE DISTURBED AREAS THAT WILL BE INACTIVE FOR 14 DAYS OR LONGER BY TEMPORARY SEEDING, MULCHING, OR POLYMER APPLICATION.
17. SEED MIXTURE WisDOT 40 SHALL BE USED TO RESTORE DITCHES WITHIN RIGHT-OF-WAY AND LOT AREAS. TERRACES NOT DESIGNATED FOR INFILTRATION SHALL BE SEEDED WITH CITY OF FITCHBURG TURF GRASS MIX FOR SUNNY TO PARTIAL SHADE AREAS. MIXES SHALL BE APPLIED AT A RATE OF 5 LBS/1,000 SF. SEE LANDSCAPE PLAN ON SHEET 4 FOR ALL OTHER AREAS.
18. FRAMED INLET PROTECTION SHALL BE INSTALLED AS SOON AS INLET CONSTRUCTION IS COMPLETED.
19. IN STORMWATER AND INFILTRATION FACILITIES, ACCUMULATED CONSTRUCTION SEDIMENT MUST BE REMOVED PRIOR TO FINAL SEEDING, GRADING OR PLACEMENT OF SAND STORAGE OR ENGINEERED SOIL LAYERS. IN ADDITION, SILT FENCE SHALL BE INSTALLED UPSLOPE OF THESE AREAS.
20. INSTALL SILT LOGS IN MEDIAN INFILTRATION AREA CURB OPENINGS UNTIL INFILTRATION AREAS ARE ESTABLISHED.

LIST OF STANDARD ABBREVIATIONS

ABUT	ABUTMENT
AEW	APRON ENDWALL
AGG	AGGREGATE
AH	AHEAD
ASPH	ASPHALT OR ASPHALTIC
BAD	BASE AGGREGATE DENSE
BK	BACK
BM	BENCHMARK
CABC	CRUSHED AGGREGATE BASE COURSE
CB	CATCH BASIN
CL or C/L	CENTER LINE
CONC	CONCRETE
CTH	COUNTY TRUNK HIGHWAY
C&G	CURB AND GUTTER
DWY	DRIVEWAY
EL or ELEV	ELEVATION
EBS	EXCAVATION BELOW SUBGRADE
HMA	HOT MIX ASPHALT
INL	INLET
INV	INVERT
LT	LEFT
MH	MANHOLE
MIS	METROPOLITAN INTERCEPTOR SEWER
PAVT	PAVEMENT
PLE	PERMANENT LIMITED EASEMENT
PT	POINT OF TANGENT
PCC	POINT OF COMPOUND CURVATURE
RL or R/L	REFERENCE LINE
R	RADIUS
REQD	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
SE	SUPERELEVATION
SEC	SECTION
SDD	STANDARD DETAIL DRAWING
STH	STATE TRUNK HIGHWAY
STA	STATION
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
S/W	SIDEWALK
TLE	TEMPORARY LIMITED EASEMENT
VERT	VERTICAL
VC	VERTICAL CURVE
VCL	VERTICAL CURVE LENGTH
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY

		NO.	DATE	REVISION	BY
PROJECT DATE: .	DRAWN BY: Init	.	.	PRELIMINARY	.
	DESIGNED BY: Init	.	.		.
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NO OAKS RANCH PHASE 1
NO OAKS RANCH, LLC
DANE COUNTY, WI

GENERAL NOTES

PROJECT NO. 22630002
SHEET 2

PRELIMINARY

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DANE COUNTY, WI

PHASING OVERVIEW

PROJECT NO. 22630002
SHEET 3

PRELIMINARY

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DANE COUNTY, WI

SHEET INDEX

PROJECT NO. 22630002
SHEET 4

LEGEND

- EXISTING MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- SILT FENCE - DETAIL OR TOPSOIL BERM
- SILT SOCK/PERIMETER CONTROL
- CHECK DAM - DETAIL
- EXISTING STORM PIPE
- PROPOSED STORM PIPE
- CONSTRUCTION ENTRANCE - DETAIL
- INLET PROTECTION - DETAIL
- LIMITS OF DISTURBANCE
- 2' EARTHERN BERM

0 60 120

HORSE CREEK AVE

TRAIL RIDE TERRACE

HOLMES STREET

CENTRAL PARK PLACE

FUTURE HORSE CREEK AVE

FUTURE EL CAMINO ROAD

OUTLOT 2

OUTLOT 3

OUTLOT 4

OUTLOT 19

OUTLOT 10

OUTLOT 11

OUTLOT 12

EX. 9' WIDE UNDERGROUND ELECTRIC--ELECTRIC POLE LINE EASEMENT DOC#5798696

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DANE COUNTY, WI

GRADING & EROSION CONTROL

PROJECT NO. 22630002

SHEET 5

LEGEND

- EXISTING MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- SILT FENCE - DETAIL OR TOPSOIL BERM
- SILT SOCK/PERIMETER CONTROL
- CHECK DAM - DETAIL
- EXISTING STORM PIPE
- PROPOSED STORM PIPE
- CONSTRUCTION ENTRANCE - DETAIL
- INLET PROTECTION - DETAIL
- LIMITS OF DISTURBANCE
- 2' EARTHERN BERM

0 60 120

OUTLOT 1
OUTLOT 2
OUTLOT 3
OUTLOT 6
OUTLOT 7
OUTLOT 8
OUTLOT 9
OUTLOT 12
OUTLOT 13
OUTLOT 14
OUTLOT 15
OUTLOT 18
OUTLOT 20

FUTURE ARENA AVE
FUTURE DOUBLE CROSS AVE
FUTURE DEADWOOD TRAIL
FUTURE SWING STREET
FUTURE CINCH AVENUE
TRAIL RIDE TERRACE
HORSE CREEK AVE
HOLMES STREET

PRELIMINARY

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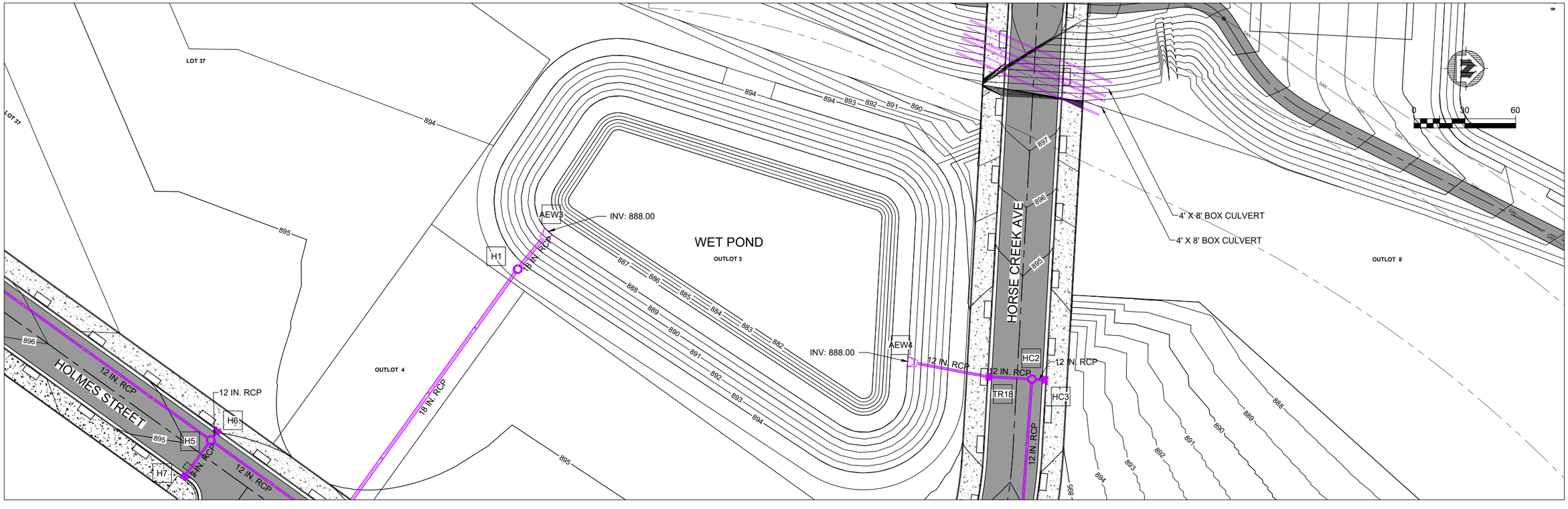
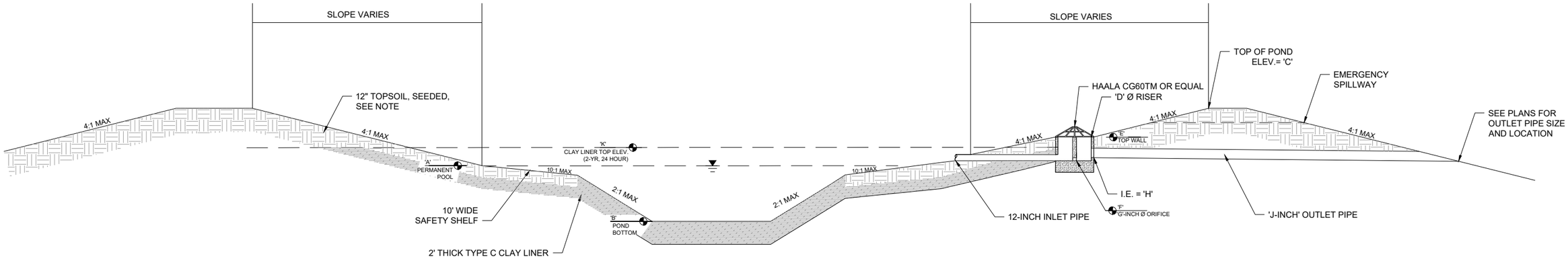
GRADING & EROSION CONTROL

PROJECT NO. 22630002
SHEET 6





3/7 WET POND TYPICAL SECTION

NTS

OUTLET CONTROL STRUCTURE ELEVATIONS

POND	STRUCTURE	NORMAL WATER ELEVATION	POND BOTTOM ELEVATION	TOP OF POND ELEVATION	RISER DIAMETER (IN.)	RIM / TOP OF WALL ELEVATION	ORIFICE ELEVATION	ORIFICE DIAMETER (IN.)	INLET / OUTLET PIPE INVERT	OUTLET PIPE DIAMETER (IN.)	CLAY LINER TOP ELEVATION	EMERGENCY SPILLWAY ELEV.	SPILLWAY LENGTH (FT)
		A	B	C	D	E	F	G	H	J	K		
WET POND	H1	888.00	882.00	894.00	48.0	894.00	888.15	6.0	888.00	18.0	890.00	894.00	30.0

NO.	DATE	REVISION	BY
		PRELIMINARY	

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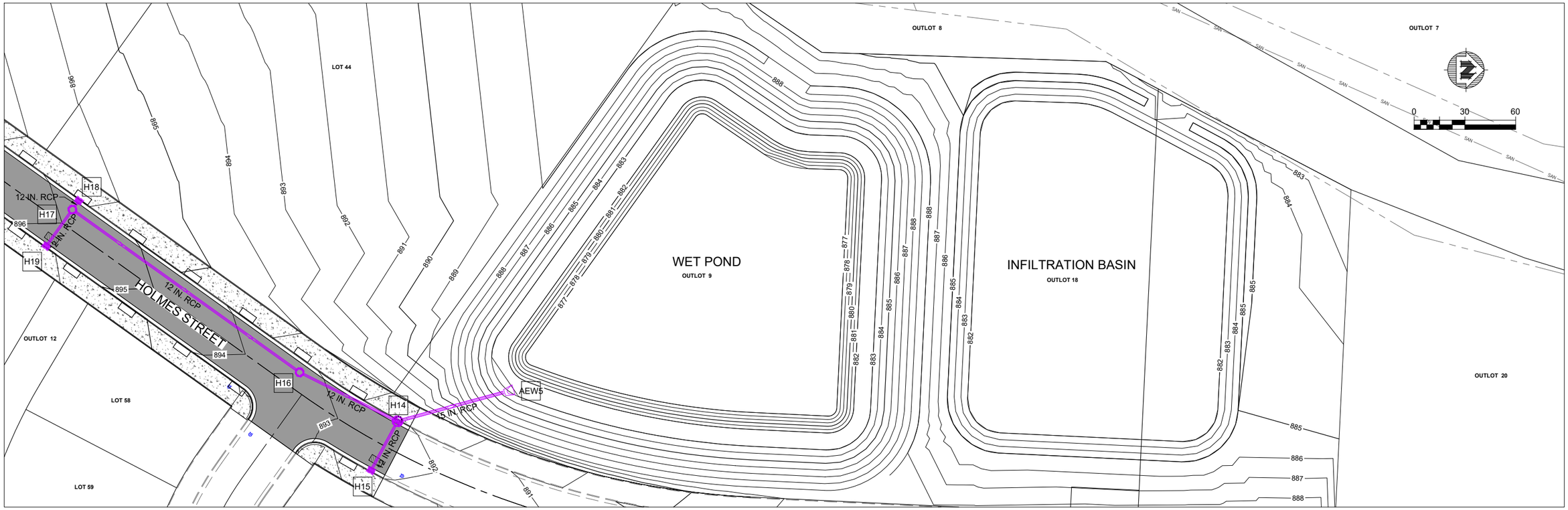
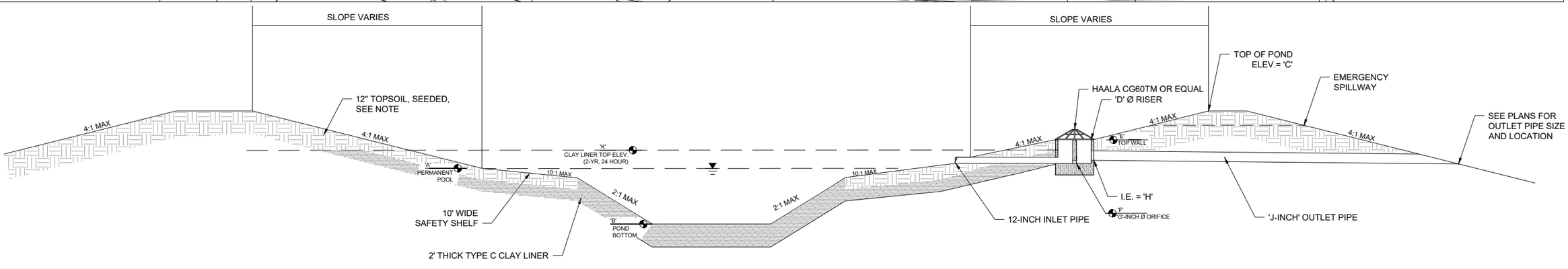
WET POND DETAILS - OUTLOT 3

PROJECT NO. 22630002
SHEET 7





9/8 WET POND TYPICAL SECTION

NTS

OUTLET CONTROL STRUCTURE ELEVATIONS

POND	STRUCTURE	NORMAL WATER ELEVATION	POND BOTTOM ELEVATION	TOP OF POND ELEVATION	RISER DIAMETER (IN.)	RIM / TOP OF WALL ELEVATION	ORIFICE ELEVATION	ORIFICE DIAMETER (IN.)	INLET / OUTLET PIPE INVERT	OUTLET PIPE DIAMETER (IN.)	CLAY LINER TOP ELEVATION	EMERGENCY SPILLWAY ELEV.	SPILLWAY LENGTH (FT)
		A	B	C	D	E	F	G	H	J	K		
WET POND	H14	882.00	877.00	888.00	60.0	892.16	887.58	6.0	883.00	15.0	885.00	888.00	30.0

		NO.	DATE	REVISION	BY
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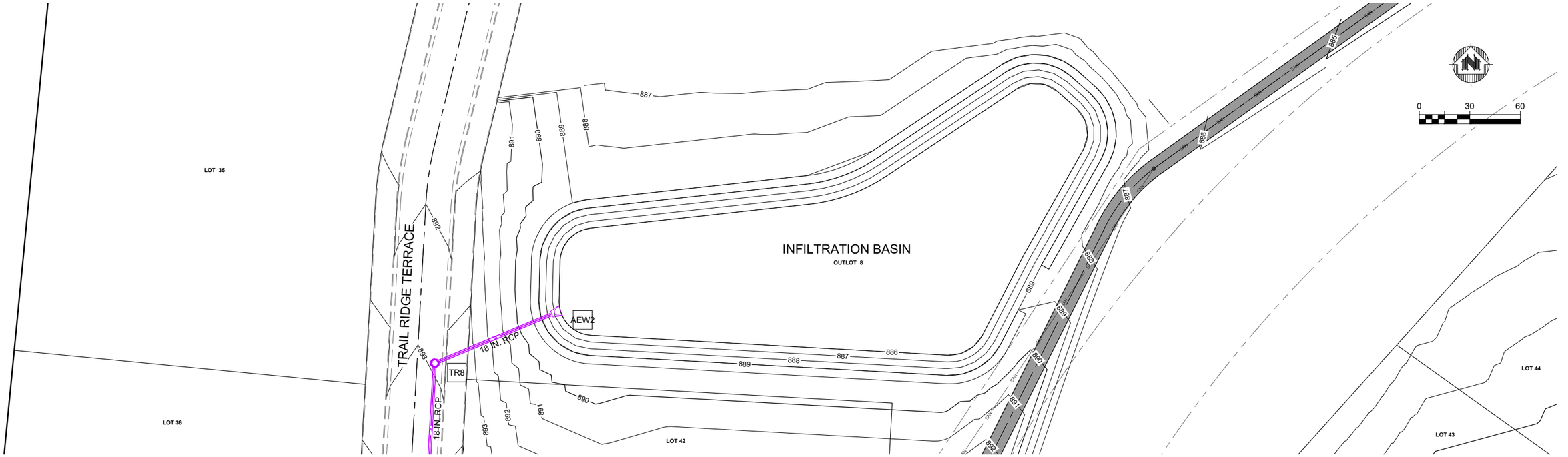
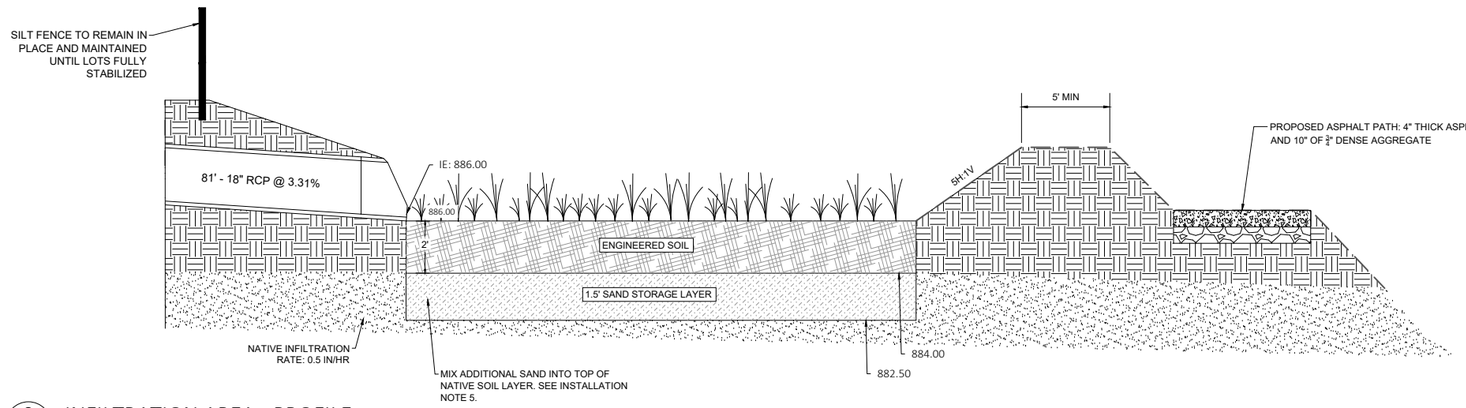
DANE COUNTY, WI

WET POND DETAILS - OUTLOT 9

PROJECT NO. 22630002
SHEET 8





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9

INFILTRATION AREA - PROFILE

INSTALLATION NOTES:

1. ENGINEERED SOIL SHALL CONSIST OF A MIXTURE OF 70 TO 85% SAND AND 15 TO 30% COMPOST. COMPOST SHALL BE CERTIFIED ACCORDING TO WDNR SPECIFICATION S100. ENGINEER SHALL APPROVE MATERIAL SOURCE PRIOR TO INSTALLATION.
2. NATIVE SOIL, SAND STORAGE, AND ENGINEERED SOIL SHALL BE INSPECTED AND APPROVED BY CITY'S GEOTECHNICAL CONSULTANT PRIOR TO PLACEMENT.
3. CONSTRUCTION METHODS SHALL FOLLOW WISCONSIN DNR TECHNICAL STANDARD 1004.
4. ENGINEERED SOIL SHALL BE PRE-MIXED PRIOR TO PLACEMENT AND THE MOISTURE CONTENT SHALL BE LOW TO AVOID COMPACTION AND CLUMPING. THE ENGINEERED SOIL SHALL BE PLACED IN MULTIPLE LIFTS, EACH APPROXIMATELY 12-INCHES IN DEPTH. ENGINEERED SOIL CAN BE CAREFULLY TAPPED WITH A BUCKET OR SIMILAR METHOD TO PROVIDE FIRM SURFACE FOR SEEDING BUT COMPACTION WITH HEAVY EQUIPMENT OR VIBRATING PLATE-STYLE COMPACTORS SHALL NOT BE USED.
5. A MINIMUM OF 3" OF SAND SHALL BE PLACED AT THE NATIVE SAND AND STORAGE LAYER INTERFACE AND VERTICALLY MIXED TO A DEPTH OF 2-4" PRIOR TO PLACEMENT OF SAND STORAGE LAYER.
6. UNDERDRAIN SHALL BE EMBEDDED IN PEA GRAVEL. GRAVEL LAYER SHALL BE 4" THICK ABOVE UNDERDRAIN AND STONE LARGE ENOUGH TO NOT ENTER DRAIN PERFORATIONS. UNDERDRAIN SHALL NOT BE WRAPPED.
7. FINISHED INFILTRATION AREA SURFACE SHALL BE LEVEL WITHIN ±0.1 FEET.
8. CONSTRUCTION METHODS SHALL FOLLOW WISCONSIN DNR TECHNICAL STANDARD 1004.
9. THE BOTTOM OF THE INFILTRATION FACILITY SHALL BE EXCAVATED BELOW THE STORAGE LAYER TO REMOVE CLAY AND SILT SEAMS OR UNTIL SUITABLE NATIVE SOIL TEXTURES AS DETERMINED BY GEOTECHNICAL ENGINEER ARE REACHED.
10. STORAGE LAYER SAND SHALL BE FREE OF FINES.
11. ANY SEDIMENT THAT ACCUMULATES IN THE PERMANENT STORMWATER FACILITIES DURING CONSTRUCTION PRIOR TO PLACEMENT OF THE STORAGE LAYER AND ENGINEERED SOIL SHALL BE REMOVED, IN ADDITION TO AT LEAST 3" OF THE UNDERLYING SOIL TO PREVENT CLOGGING OF THE INFILTRATION SURFACE. AVOID WORK DURING WET PERIODS TO PREVENT SOIL SMEARING OR COMPACTION.
12. IF AT ANY TIME DURING CONSTRUCTION OF THE INFILTRATION AREA, THE CONTRACTOR COMPACTS THE INFILTRATION AREA BEYOND THE ENGINEER'S SPECIFICATION, THE CONTRACTOR SHALL REWORK, REPLACE , AND/OR REPAIR THE INFILTRATION AREA TO THE ENGINEERS APPROVAL.
13. MONITORING WELL TO SLOTTED PVC BE INSTALLED AT LEAST TO THE DEPTH OF THE SAND STORAGE LAYER OR THE BOTTOM 12" OF THE PIPE, WHICHEVER IS GREATER. THE TOP OF THE WELL SHALL EXTEND TO AT LEAST 2' ABOVE THE GROUND SURFACE.
14. BIOFILTRATION AREAS SHALL BE GRADED AS SHOWN AND TEMPORARILY PROTECTED FROM SEDIMENT UNTIL ADJACENT LOTS ARE BUILT OUT AND FULLY STABILIZED. SILT FENCE TO BE INSTALLED AND MAINTAINED UNTIL STABILIZATION OF CONTRIBUTING AREA. .
15. BIOFILTRATION AREA SHALL BE RESTORED WITH CLASS III, TYPE B, COCONUT FIBER MATTING WITH BIODEGRADABLE NETTING AND PLANTED WITH NATIVE PLUGS AS DIRECTED BY CITY.
16. INFILTRATION AREAS SHALL BE WATERED BY THE CONTRACTOR AT LEAST WEEKLY (OR AS NEEDED DEPENDING UPON RAINFALL) FOR THE FIRST THREE MONTHS AND AS-NEEDED SUBSEQUENTLY.
17. VEGETATION THAT HAS FAILED SHALL BE REPLACED, WITH SUBSEQUENT WATERING, AS NEEDED.

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PROJECT DATE: .	DRAWN BY: Init	.	.	PRELIMINARY	.
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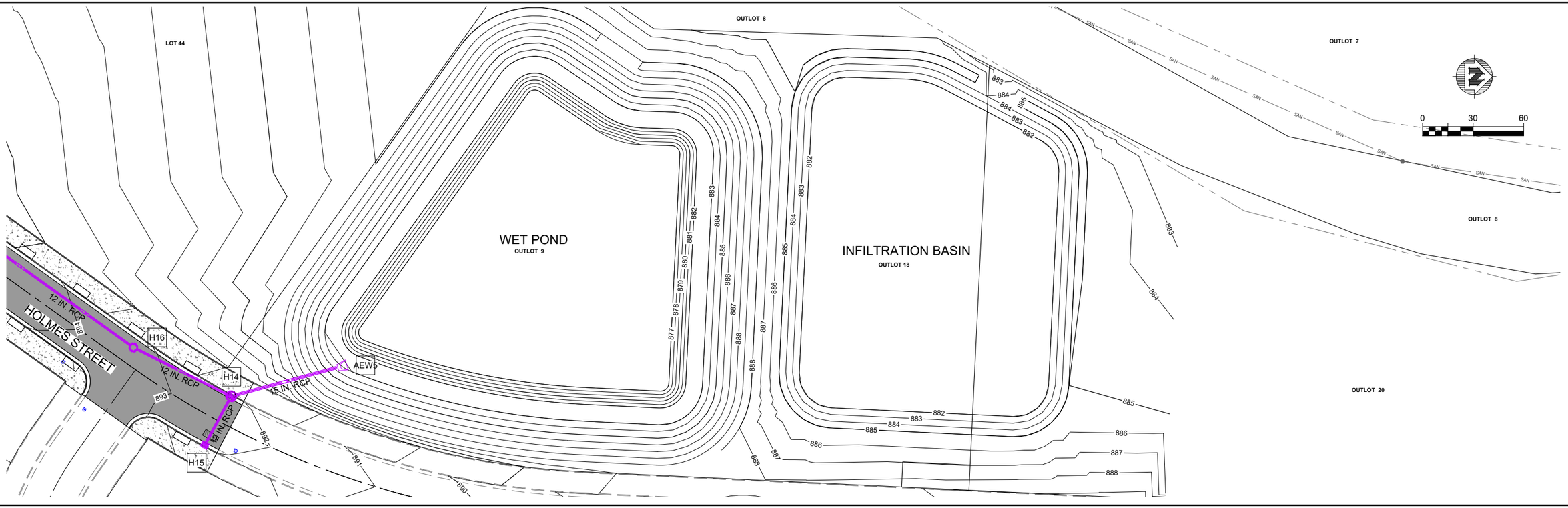
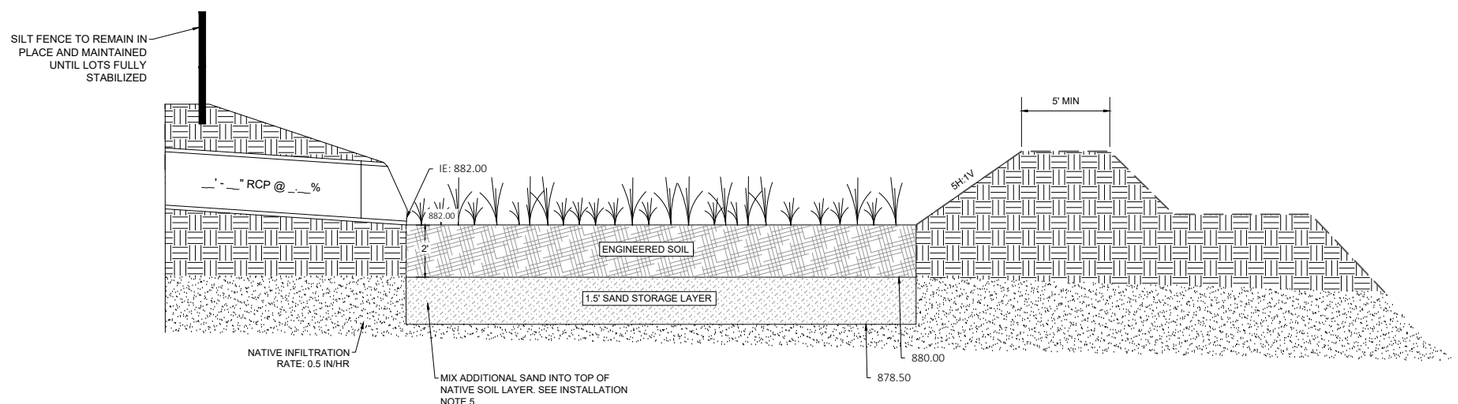
NO OAKS RANCH, LLC
DANE COUNTY, WI

INFILTRATION BASIN DETAILS - OUTLOT 8

PROJECT NO. 22630002
SHEET 9





18
10 INFILTRATION AREA - PROFILE

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NO OAKS RANCH PHASE 1
NO OAKS RANCH, LLC
DANE COUNTY, WI

INFILTRATION BASIN DETAIL - OUTLOT 18

PROJECT NO. 22630002
SHEET 10

LEGEND

- WISDOT SEED MIX #40
- CITY OF FITCHBURG TURF GRASS MIX FOR SUNNY TO PARTIAL SHADE AREAS
- EROSION MAT AND SEED PER CITY OF FITCHBURG STANDARDS
- NATIVE SEED MIX
- TRM: CLASS III TYPE B

0 60 120

HORSE CREEK AVE

TRAIL RIDE TERRACE

CENTRAL PARK PLACE

HOLMES STREET

FUTURE HORSE CREEK AVE

FUTURE EL CAMINO ROAD

OUTLOT 2

OUTLOT 3

OUTLOT 4

OUTLOT 10

OUTLOT 11

OUTLOT 12

OUTLOT 19

36 37 39 40 41 43 45 46 47 48 49 52 53 54 55 58 59 60 61 62 63 64 65 66

EX. 9' WIDE UNDERGROUND ELECTRIC--ELECTRIC POLE LINE EASEMENT DOC#5798696

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NO OAKS RANCH, LLC
DANE COUNTY, WI

RESTORATION

PROJECT NO. 22630002

SHEET 11

LEGEND

- WISDOT SEED MIX #40
- CITY OF FITCHBURG TURF GRASS MIX FOR SUNNY TO PARTIAL SHADE AREAS
- EROSION MAT AND SEED PER CITY OF FITCHBURG STANDARDS
- NATIVE SEED MIX
- TRM: CLASS III TYPE B

0 60 120

OUTLOT 1
OUTLOT 2
OUTLOT 3
OUTLOT 6
OUTLOT 7
OUTLOT 8
OUTLOT 9
OUTLOT 12
OUTLOT 13
OUTLOT 14
OUTLOT 15
OUTLOT 18
OUTLOT 20

FUTURE ARENA AVE
FUTURE DOUBLE CROSS AVE
FUTURE DEADWOOD TRAIL
FUTURE SWING STREET
FUTURE CINCH AVENUE
TRAIL RIDE TERRACE
HORSE CREEK AVE
HOLMES STREET

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DANE COUNTY, WI

RESTORATION

PROJECT NO. 22630002
SHEET 12

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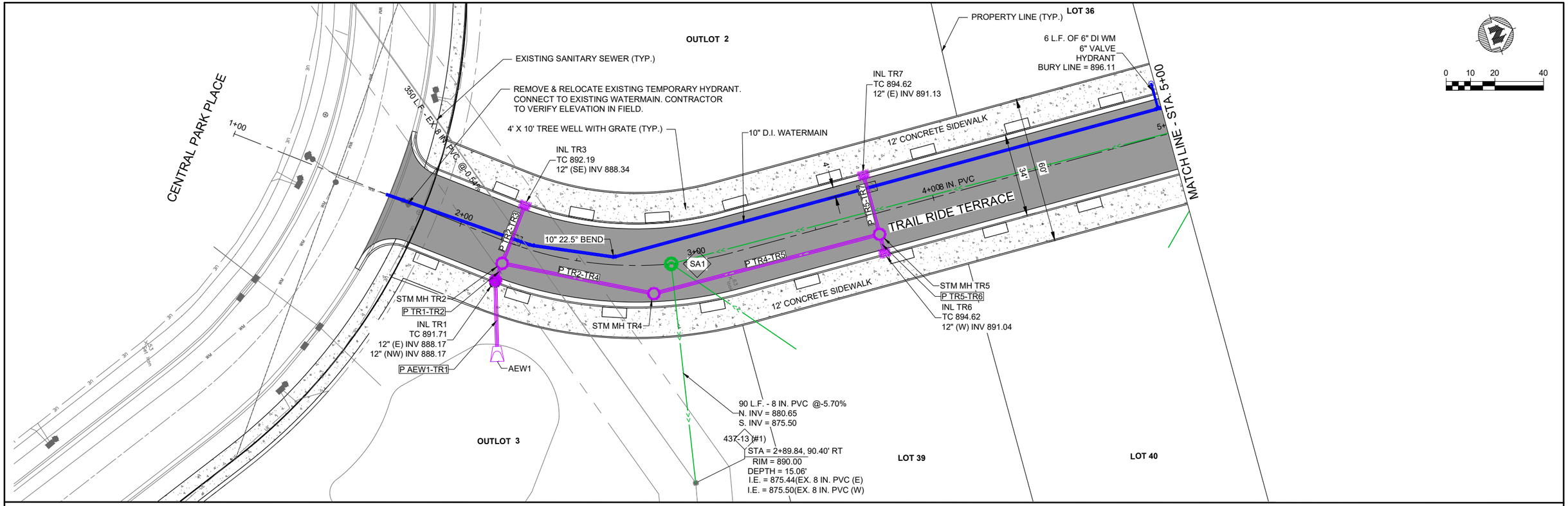
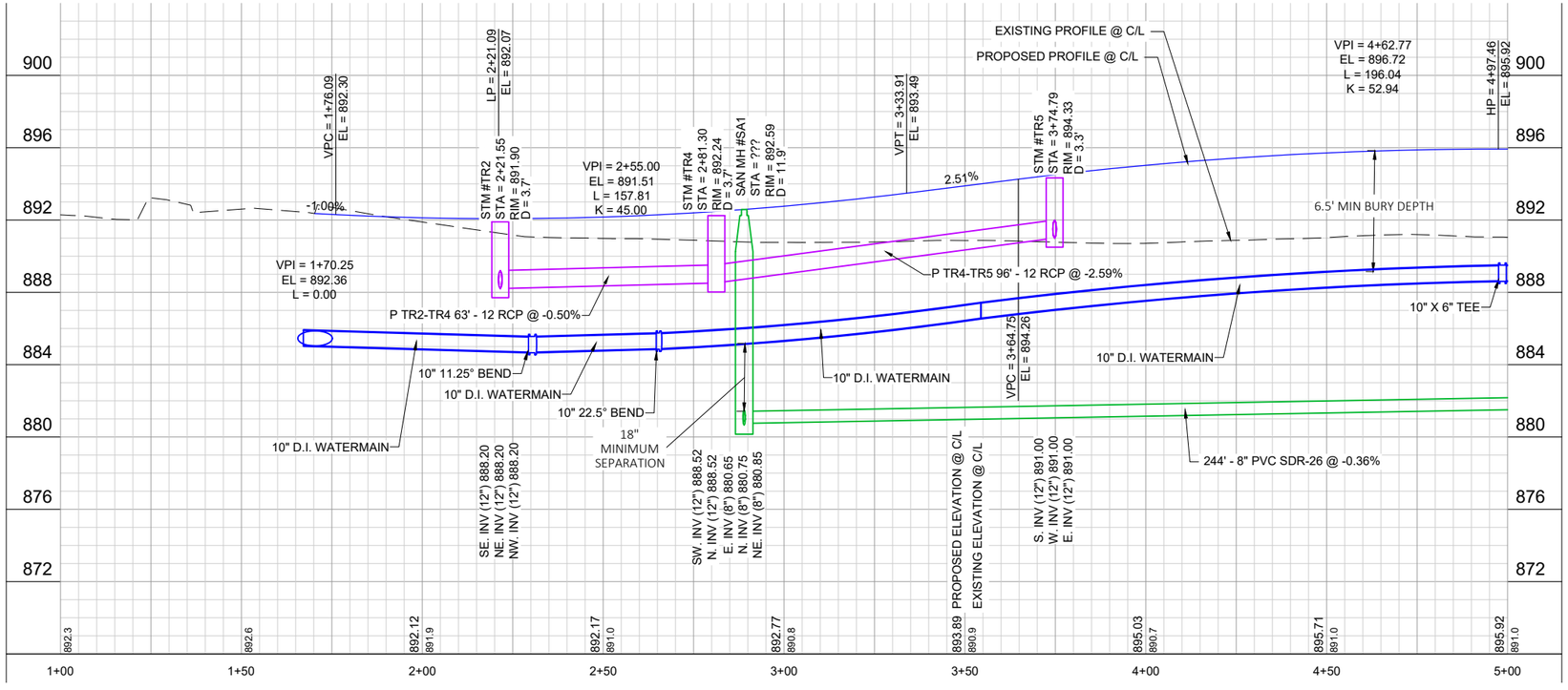
DANE COUNTY, WI

UTILITY OVERVIEW

PROJECT NO. 22630002

SHEET 13





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PLOT DATE: 1/19/2026 12:05 PM, G:\22\22630\22630003\CADD_No Oaks Phase 1\Sheets\22630003 Plan & Profile Sheet - Trail Ride Terrace.dwg

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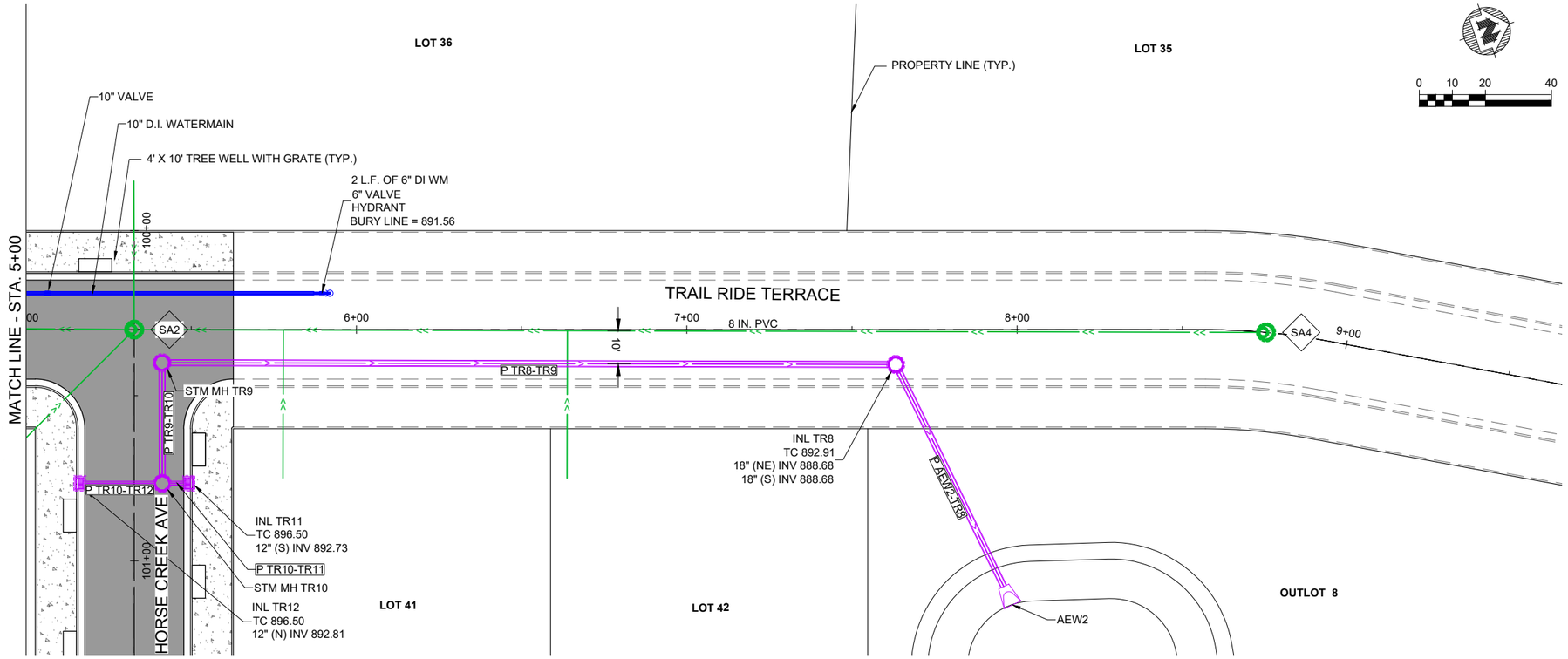
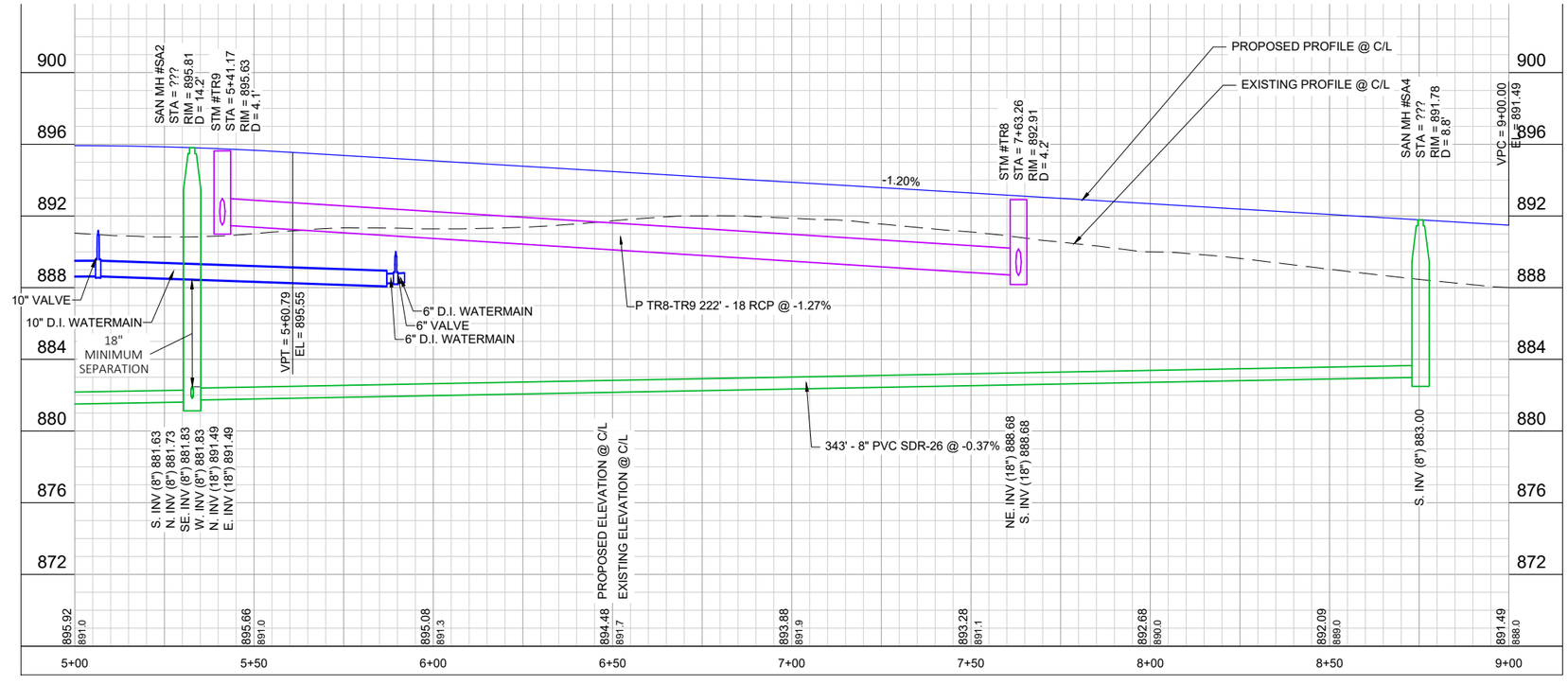
PLAN & PROFILE SHEET - TRAIL RIDE TERRACE

PROJECT NO. 22630002

SHEET 14





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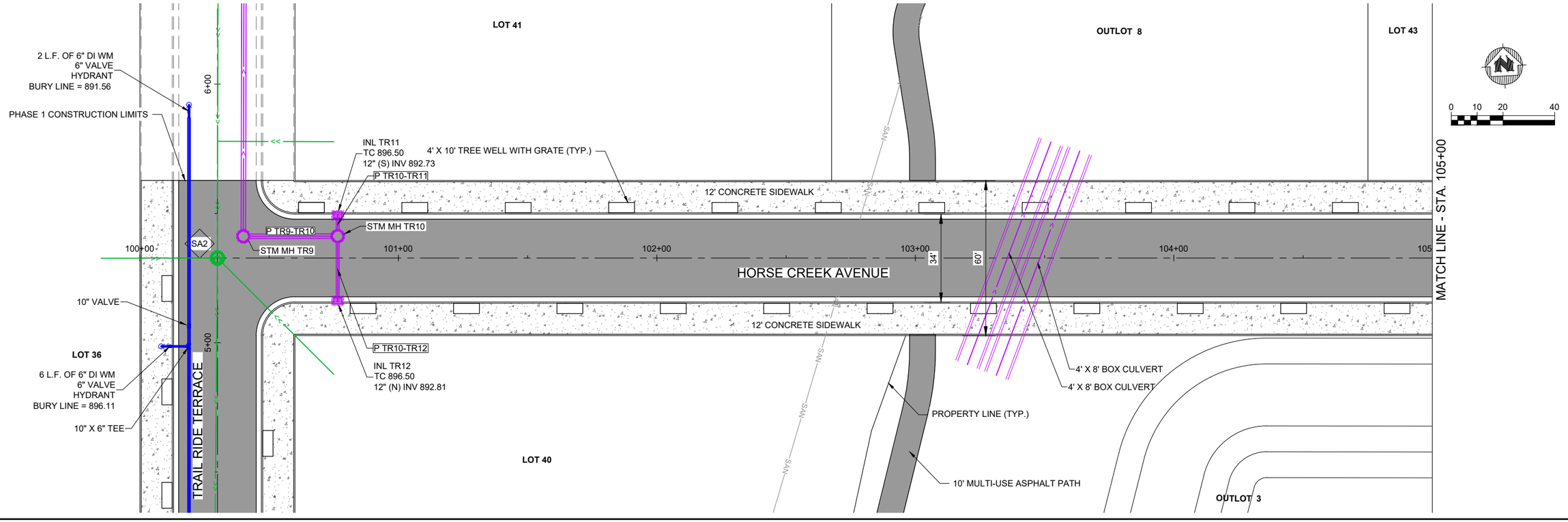
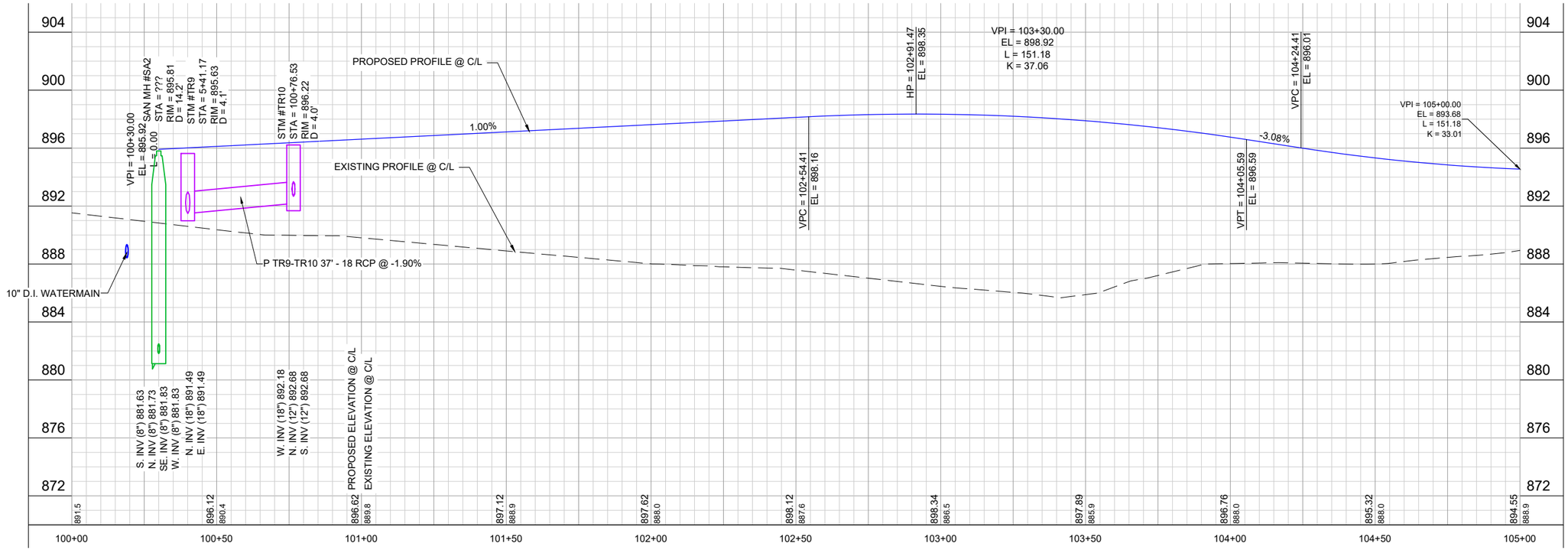
PROJECT NO. 22630002
SHEET 15





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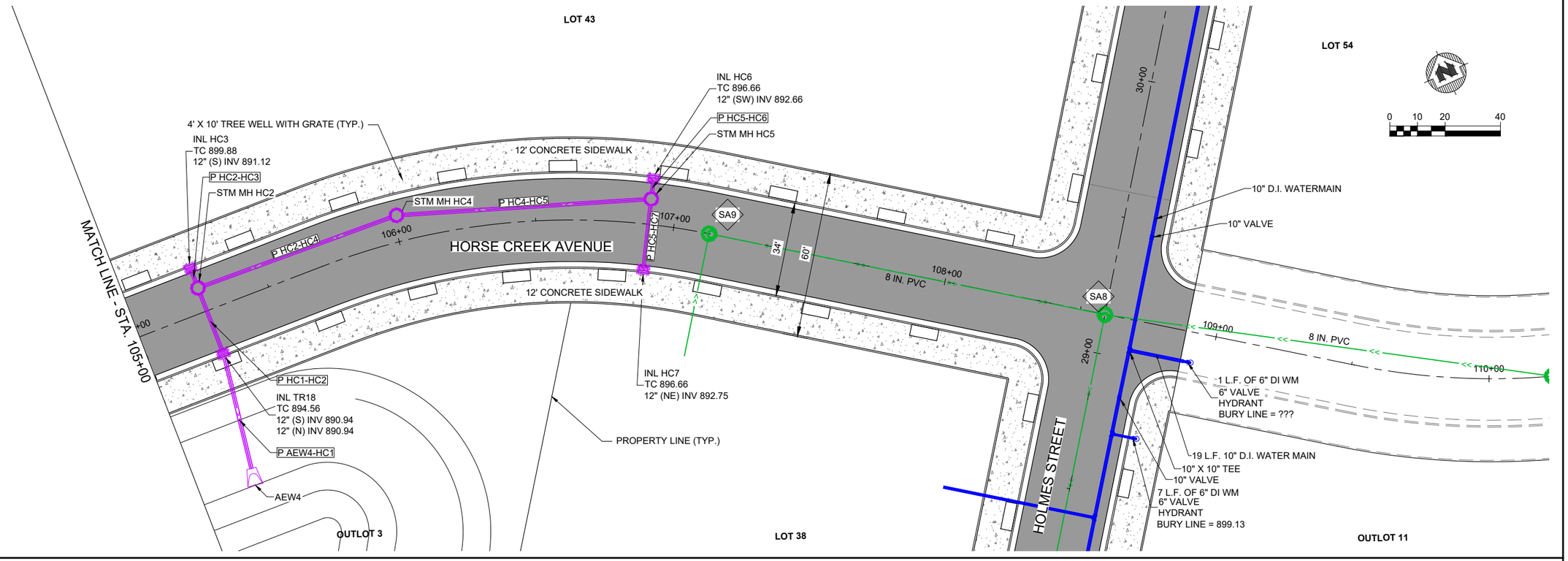
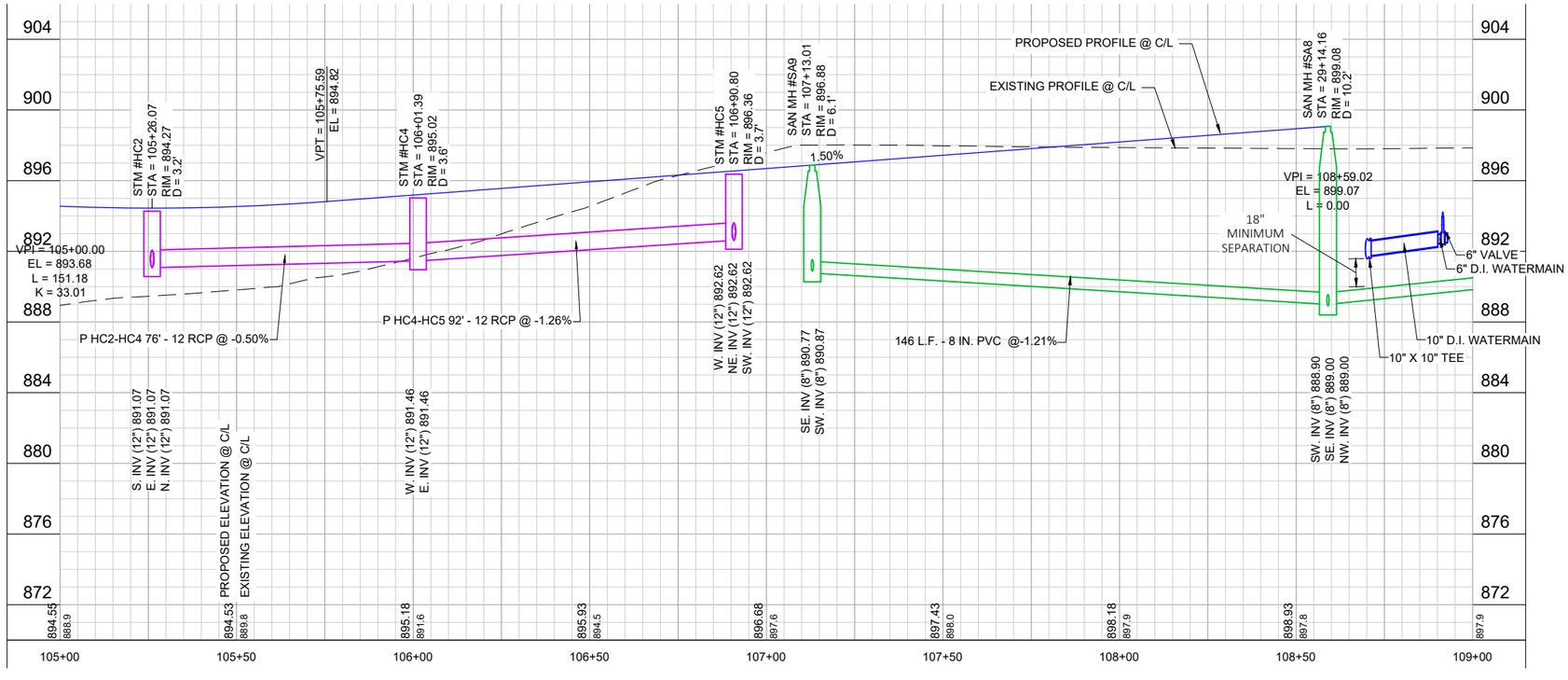
PLAN & PROFILE SHEET - HORSE CREEK AVE

PROJECT NO. 22630002
SHEET 16





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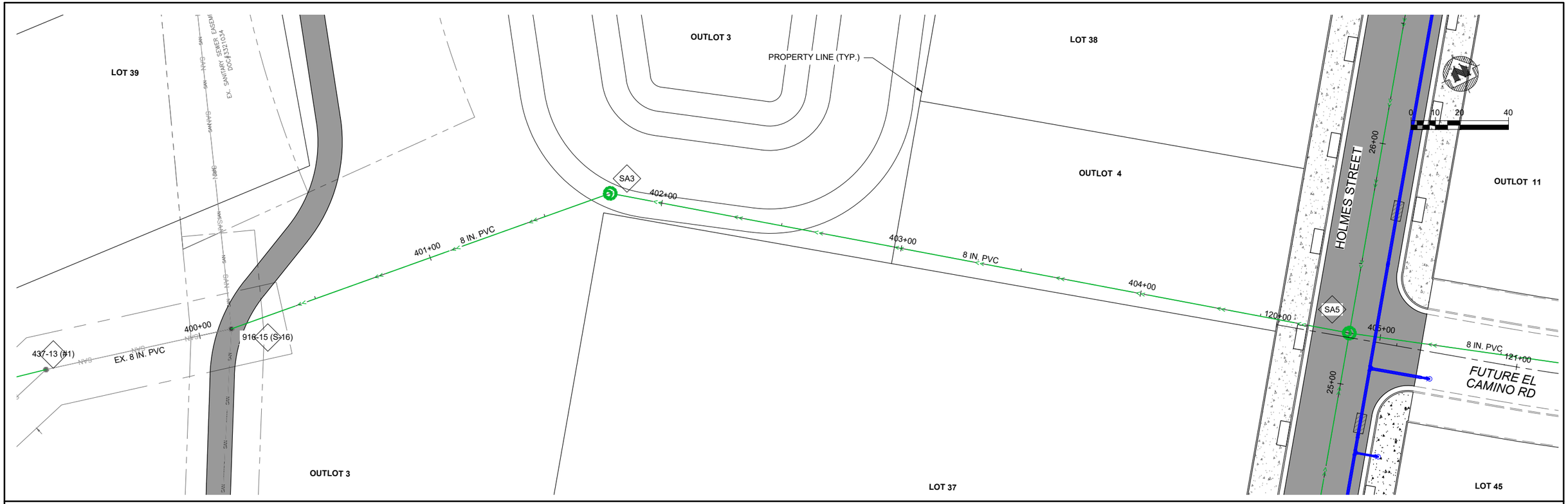
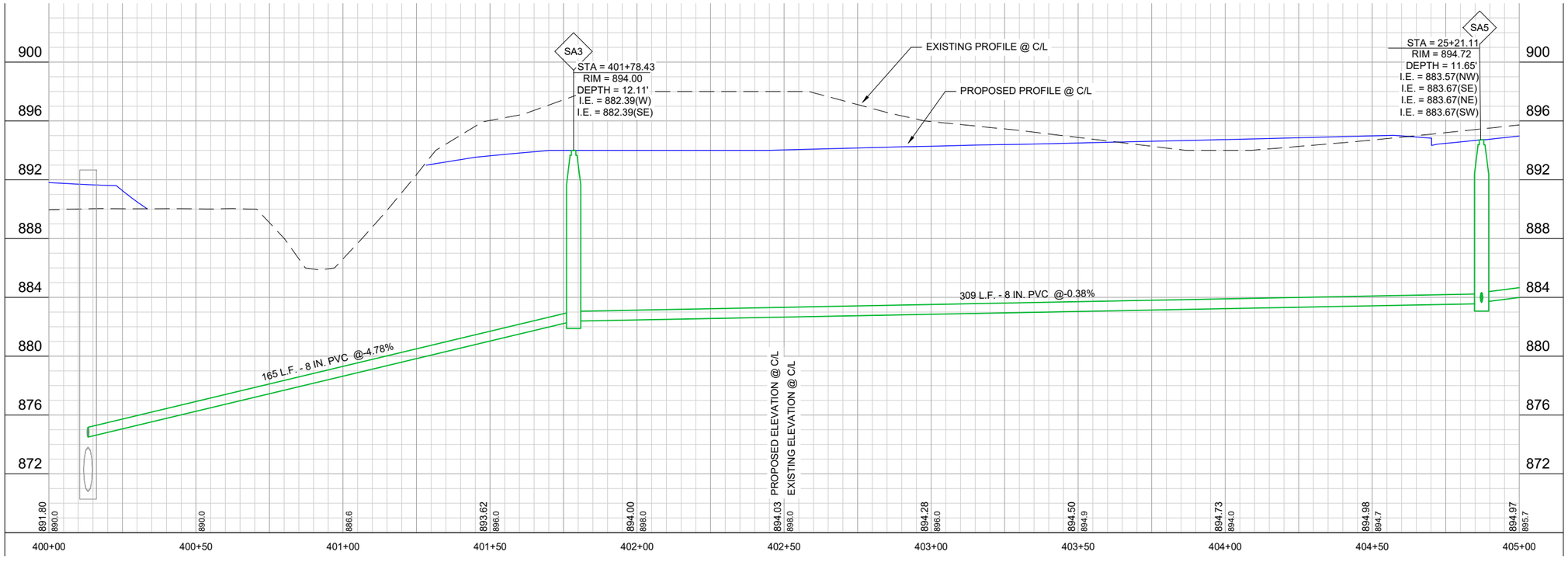
PROJECT NO. 22630002
SHEET 16





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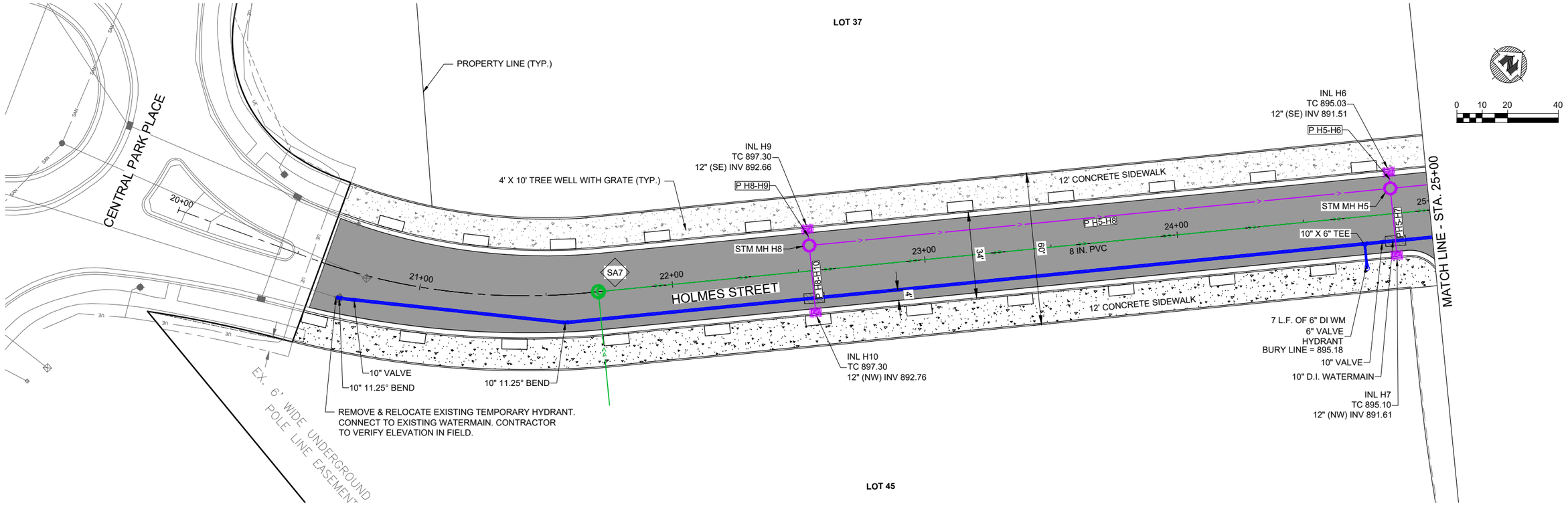
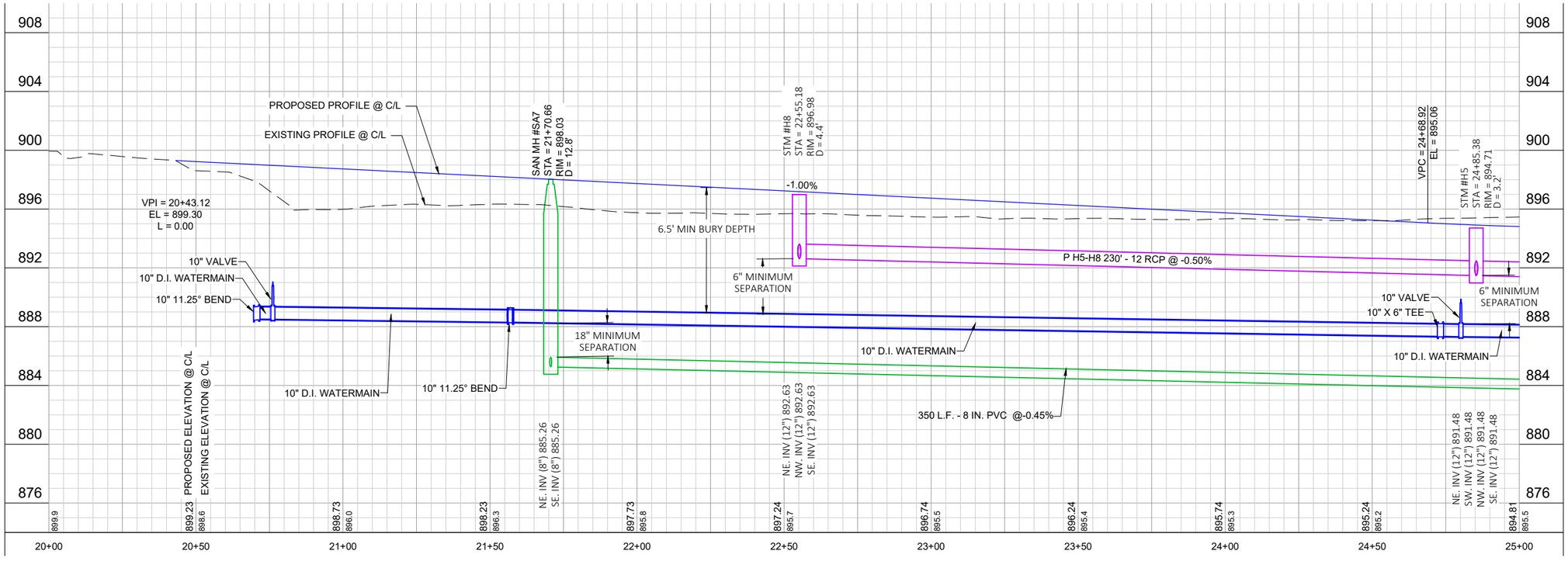
PLAN & PROFILE SHEET - SANITARY CONNECTION B

PROJECT NO. 22630002
SHEET 18





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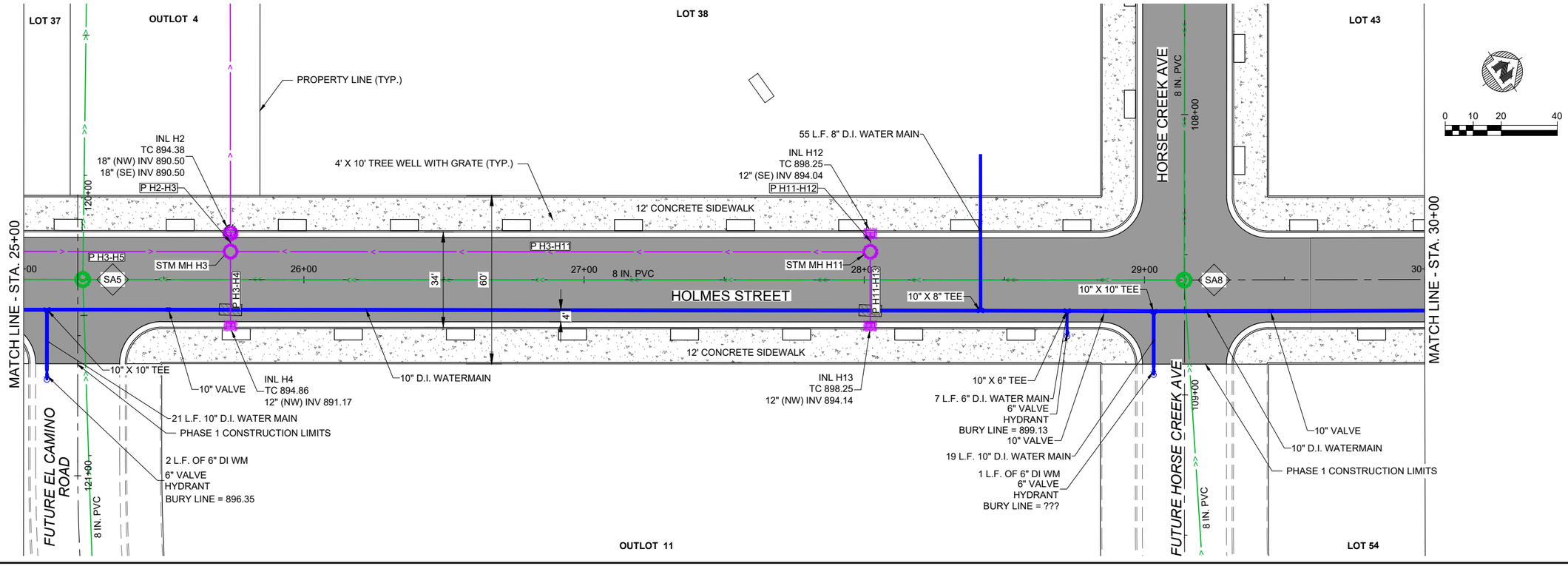
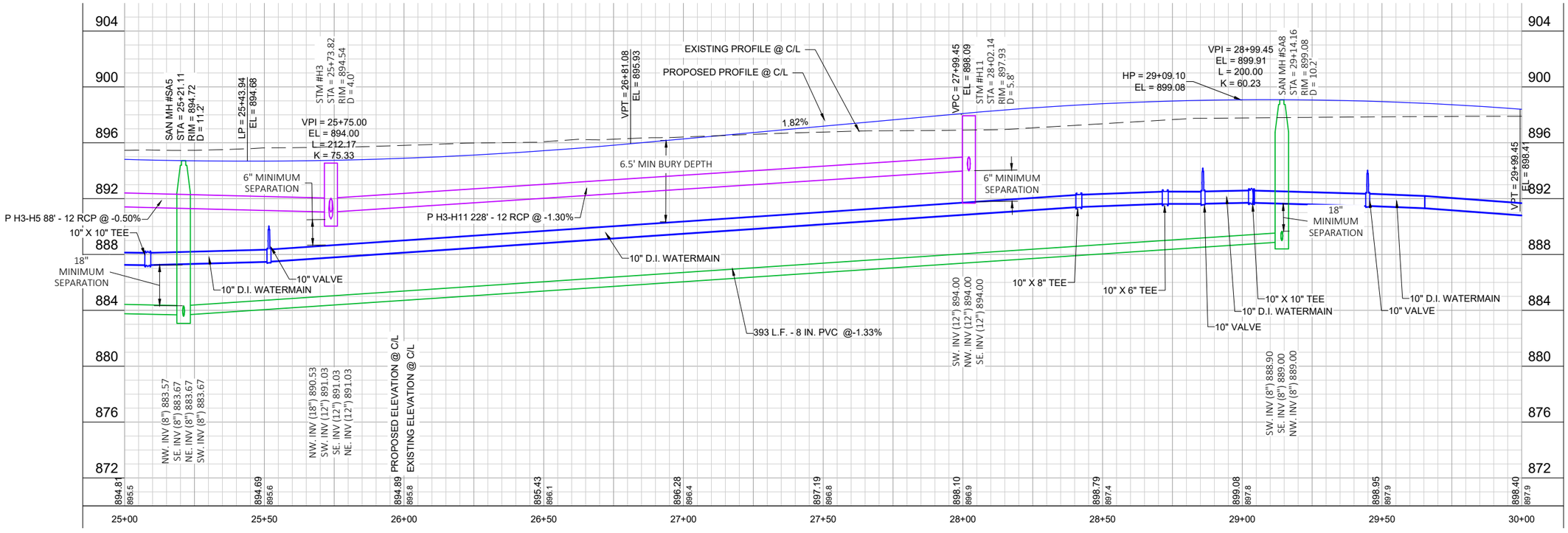
PLAN & PROFILE SHEET - HOLMES ST

PROJECT NO. 22630002
SHEET 19





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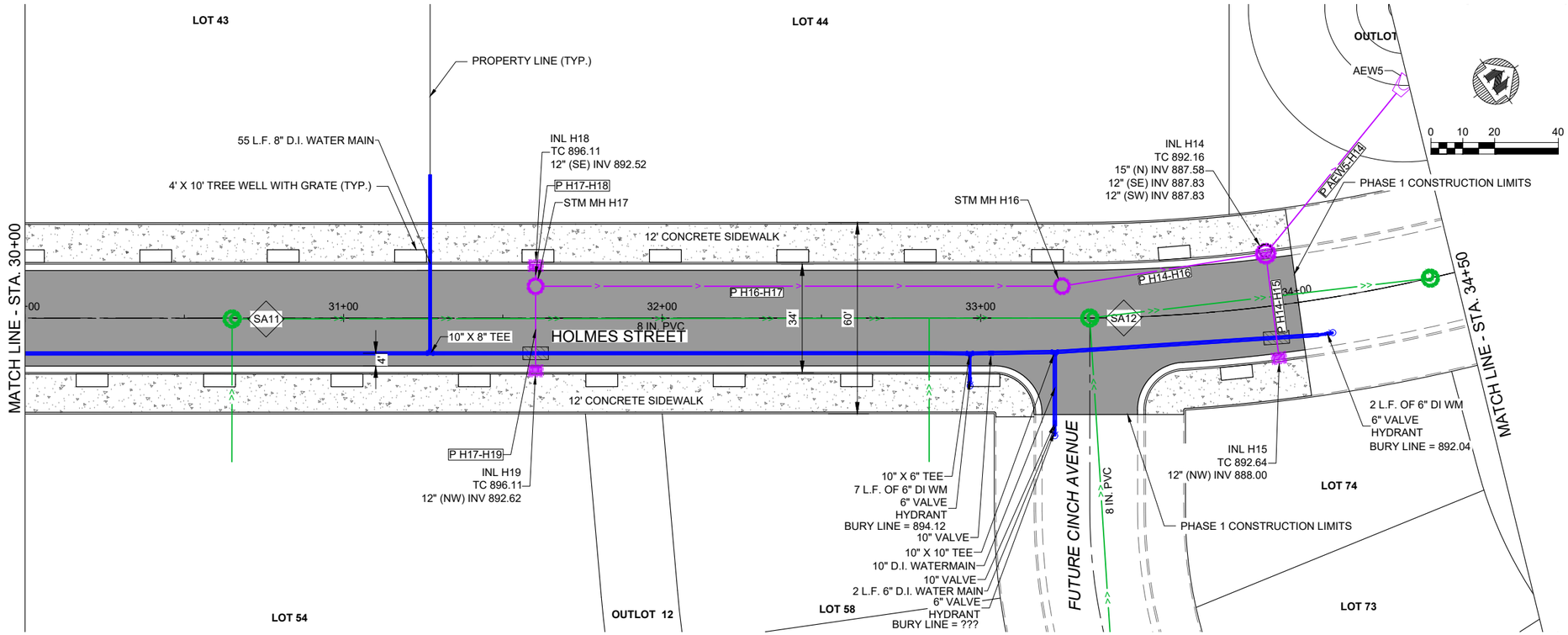
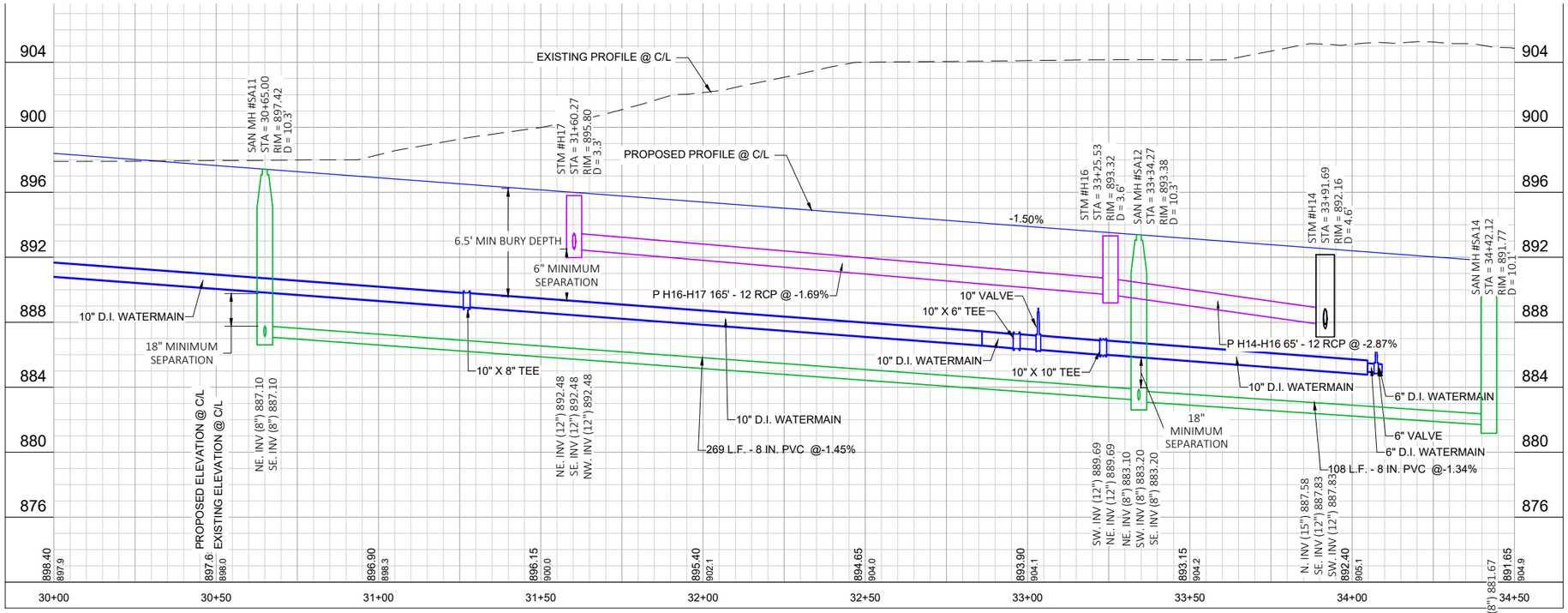
PLAN & PROFILE SHEET - HOLMES ST

PROJECT NO. 22630002
SHEET 20





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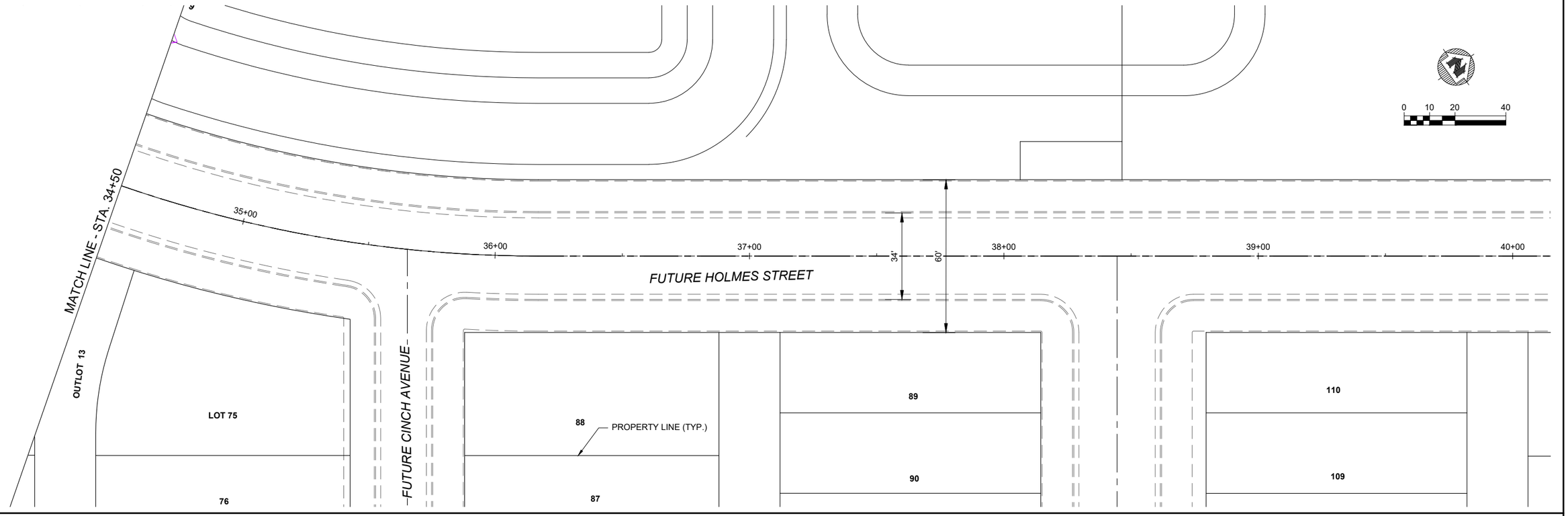
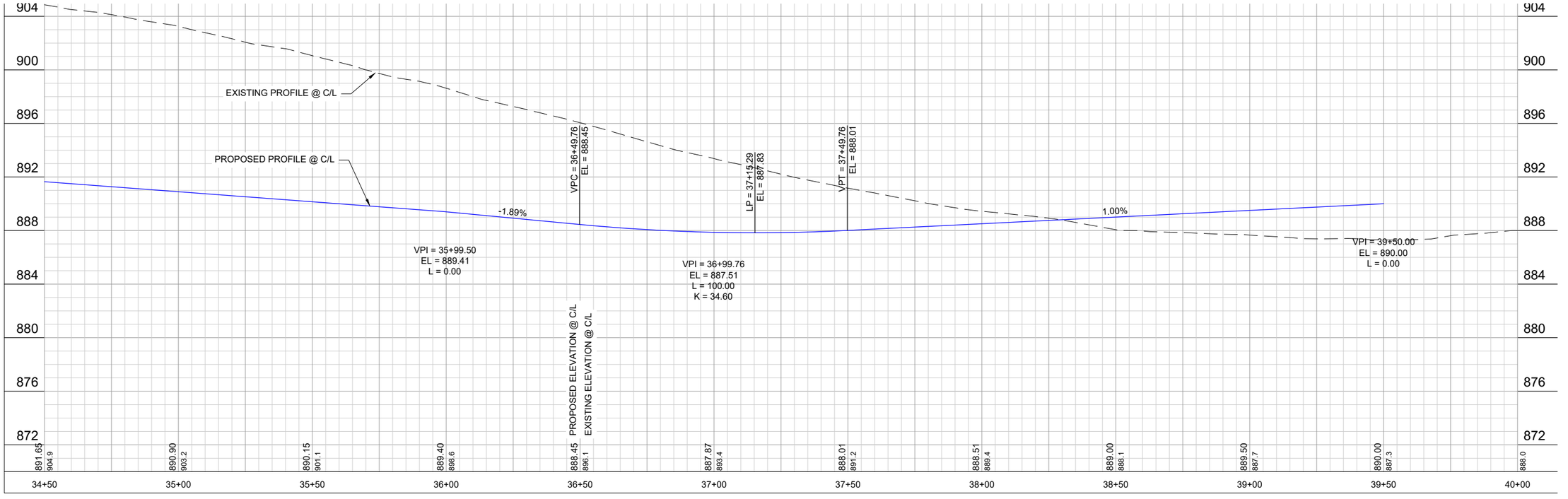
PLAN & PROFILE SHEET - HOLMES ST

PROJECT NO. 22630002
SHEET 21





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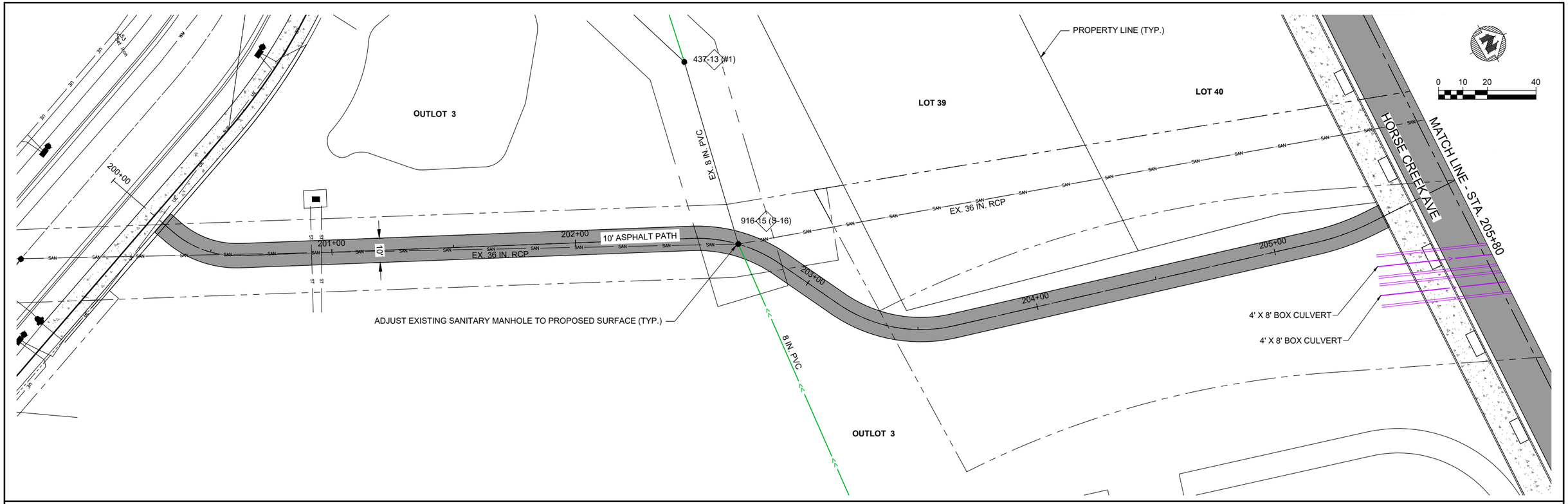
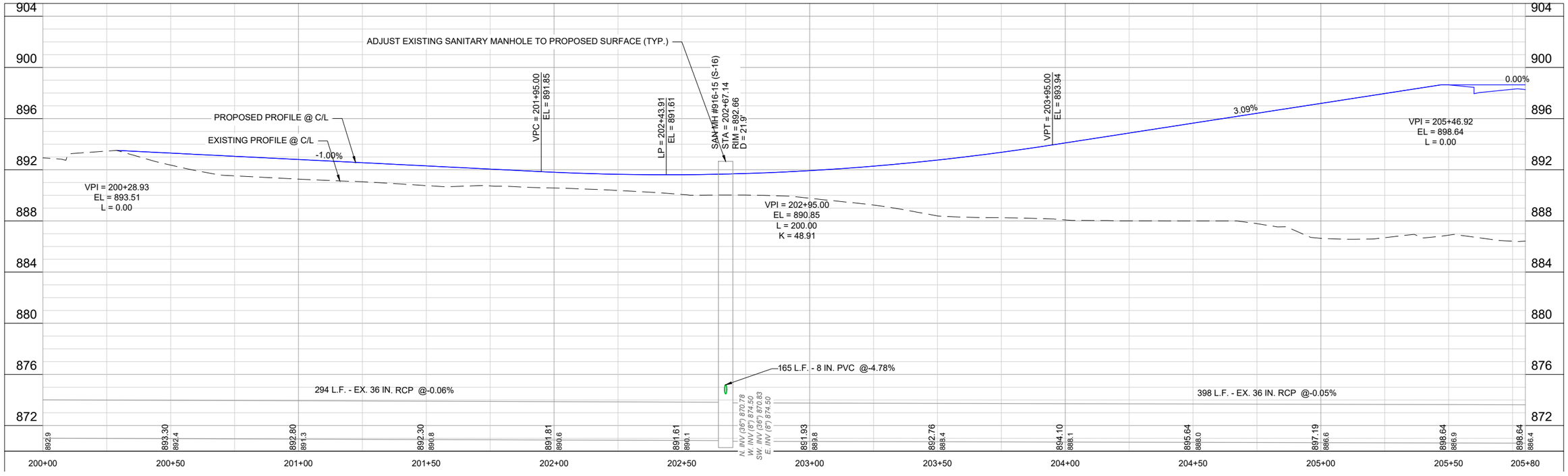
PLAN & PROFILE SHEET - HOLMES ST

PROJECT NO. 22630002
SHEET 22





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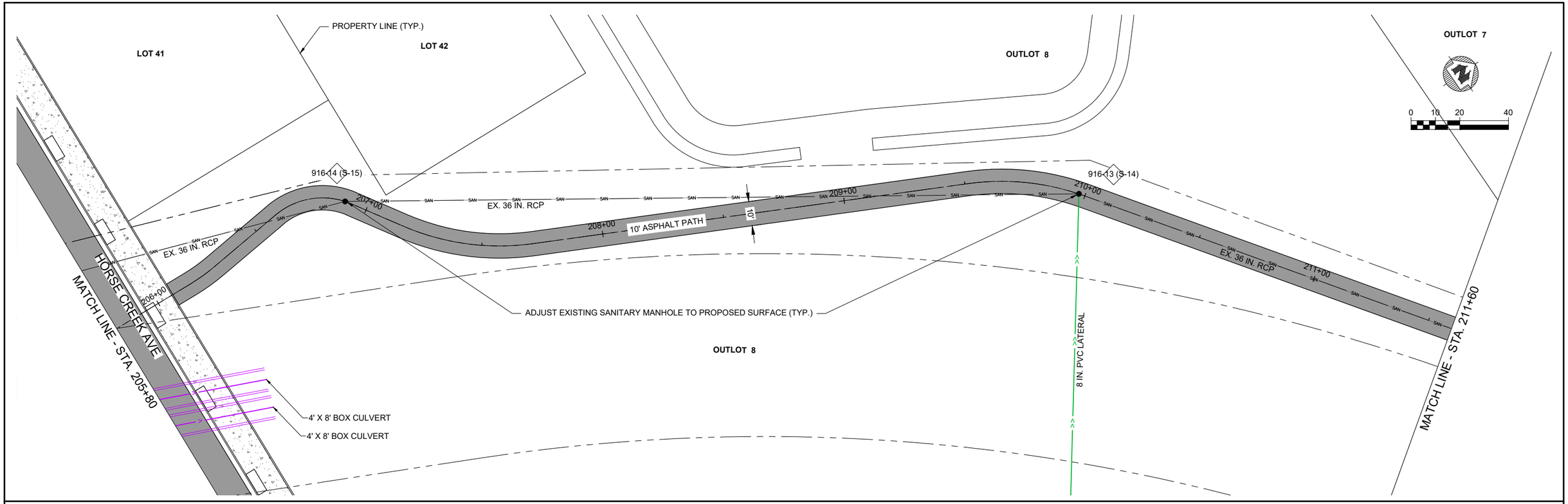
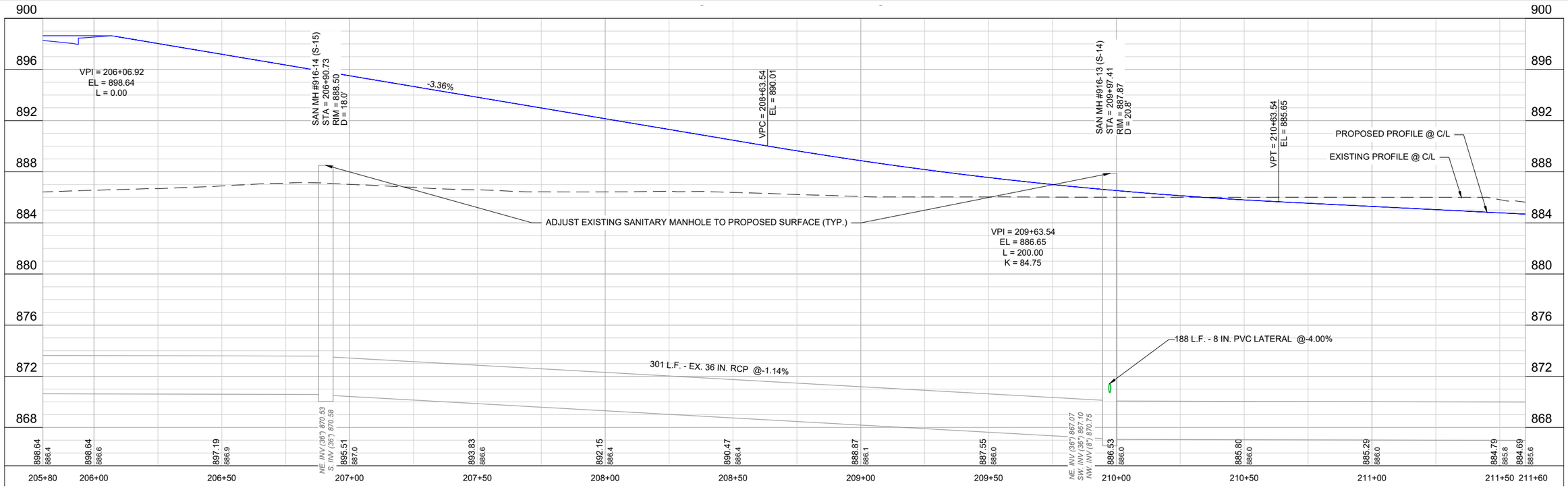
PLAN & PROFILE SHEET - PATH

PROJECT NO. 22630002

SHEET 23





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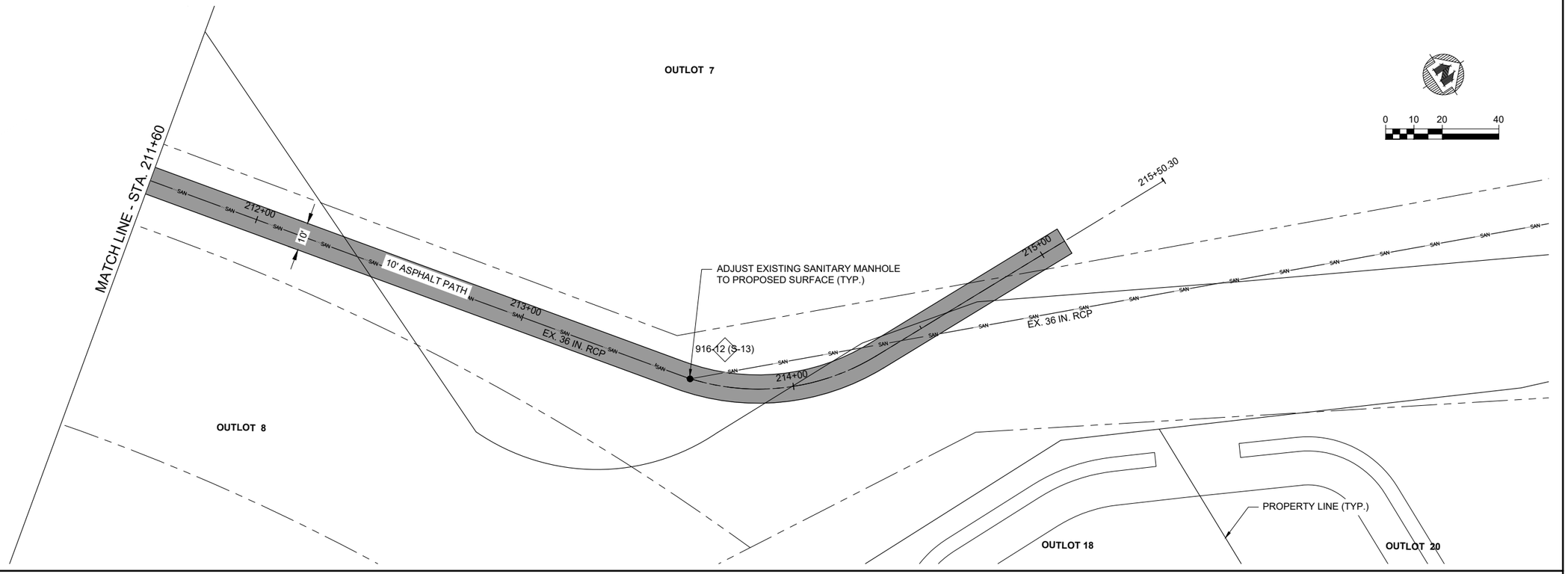
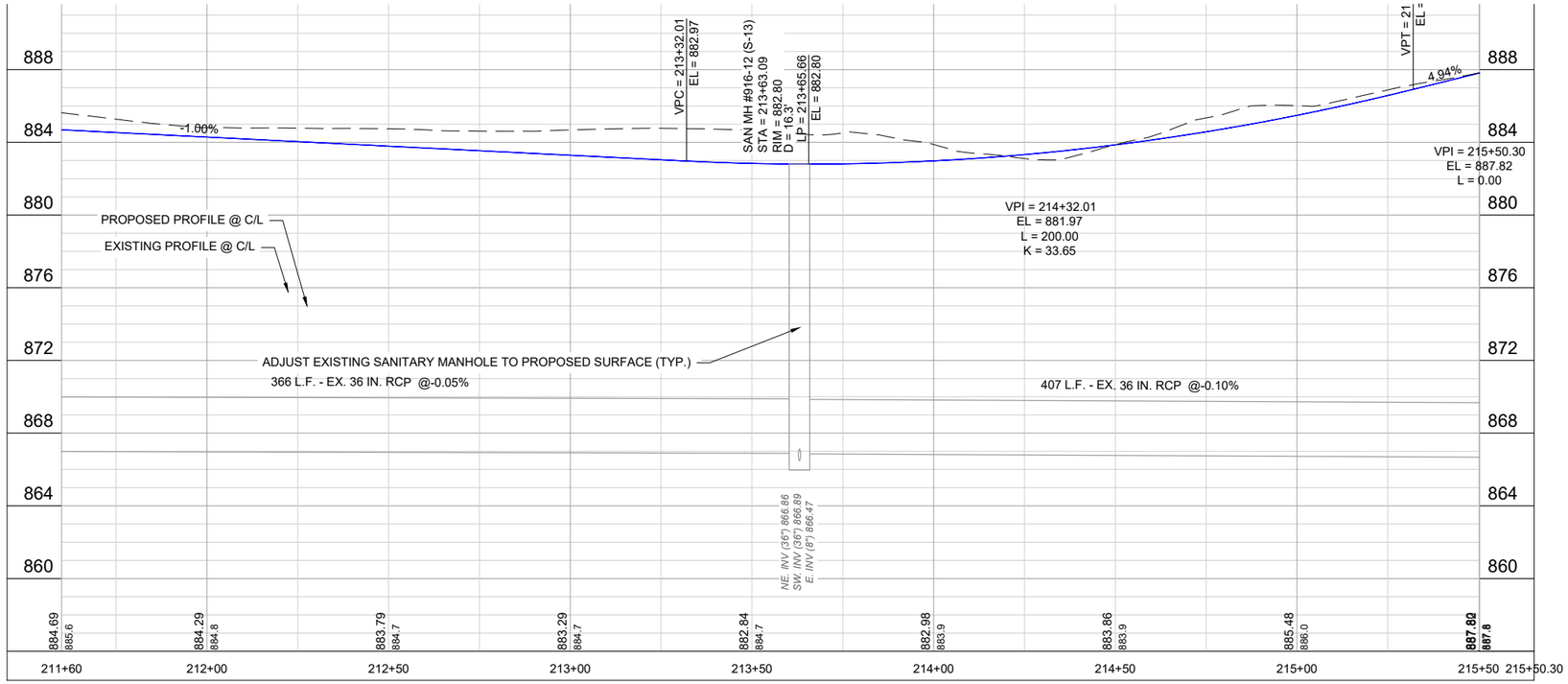
PLAN & PROFILE SHEET - PATH

PROJECT NO. 22630002
SHEET 24





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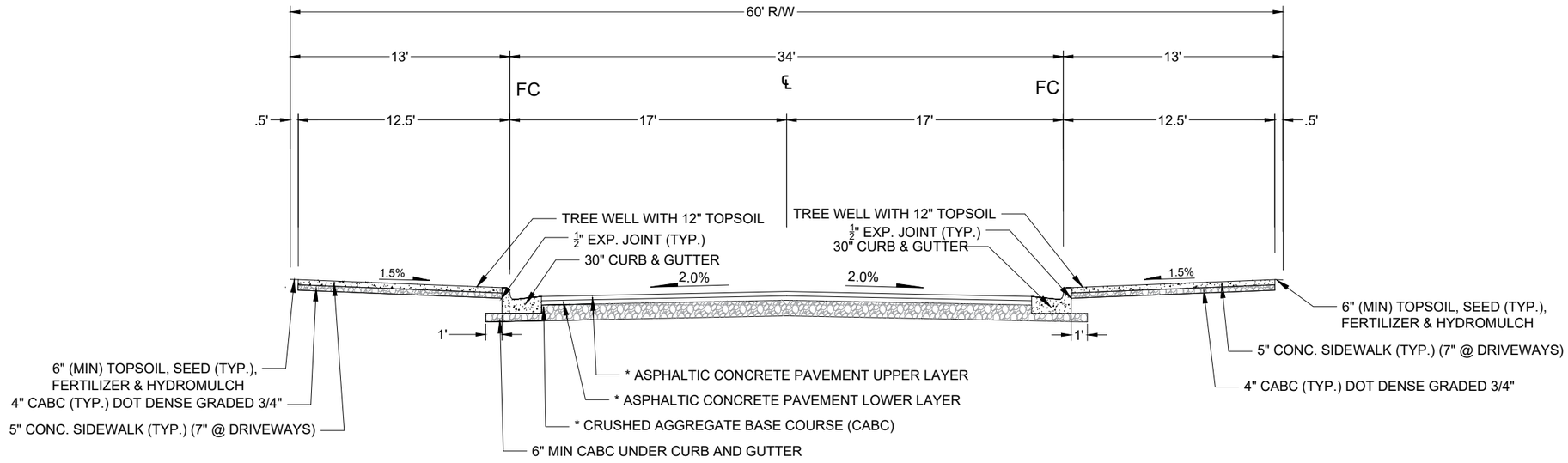
PLAN & PROFILE SHEET - PATH

PROJECT NO. 22630002

SHEET 25

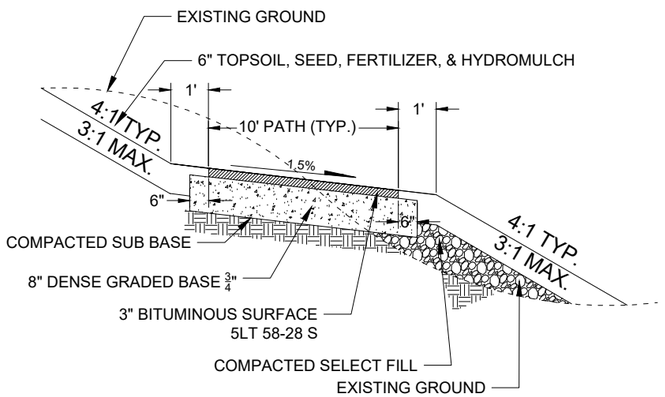


1/10 ST-60-34

TRAIL RIDE TERRACE - STA 1+75.18 TO STA 5+62.76
HORSE CREEK AVE - STA 100+62.00 TO STA 108+25.00
HOLMES ST - STA 20+50.00 TO STA 34+00.00

* City of Fitchburg Minimum New Pavement Design

Type	Crushed Aggregate Base Course		Asphaltic Concrete Pavement				
	Lower Layer Dense 3"	Upper Layer Dense 1 ¼"	Lower Layer		Upper Layer		Asphalt Material
			Type	Thickness	Type	Thickness	
Residential	7"-8"	4"-5"	4LT	2 ¼"	5LT	1 ¾"	PG 58-28
Collector	7"-8"	4"-5"	4LT	2 ¾"	5LT	1 ¾"	PG 58-28
Arterial	7"-8"	4"-5"	MT	3"	MT	2 ¼"	PG 58-28



1/10 MULTI-USE IMPERVIOUS PATH SECTION

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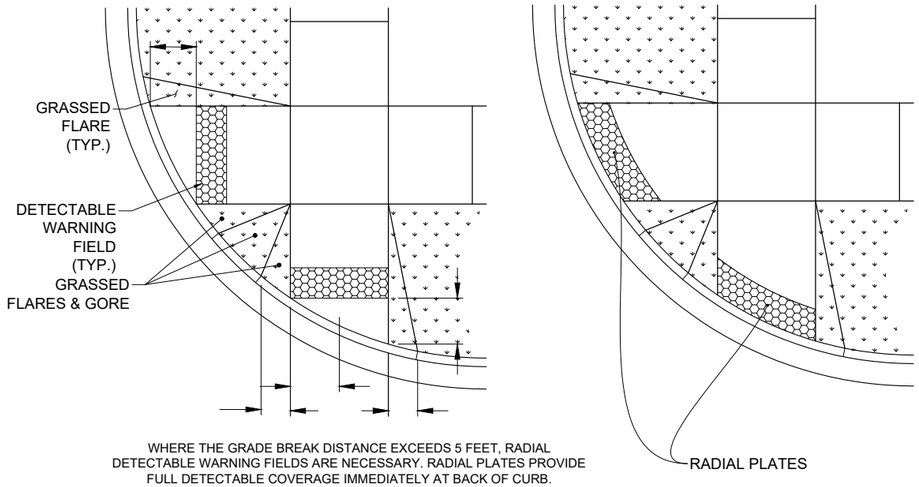
TYPICAL SECTION

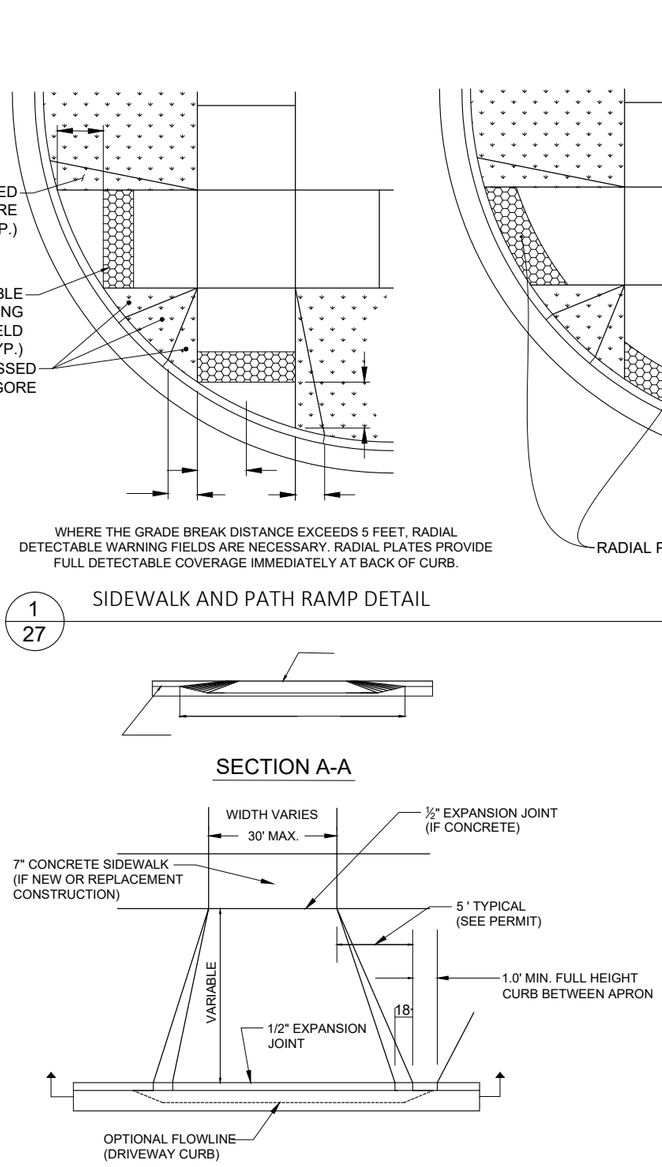
PROJECT NO. 22630002
SHEET 26



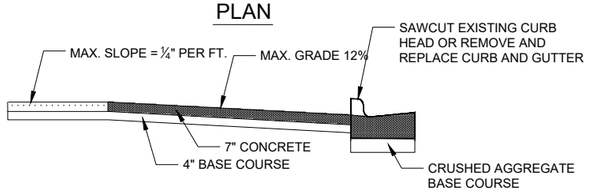
WHERE THE GRADE BREAK DISTANCE EXCEEDS 5 FEET, RADIAL DETECTABLE WARNING FIELDS ARE NECESSARY. RADIAL PLATES PROVIDE FULL DETECTABLE COVERAGE IMMEDIATELY AT BACK OF CURB.

1/27 SIDEWALK AND PATH RAMP DETAIL

SECTION A-A

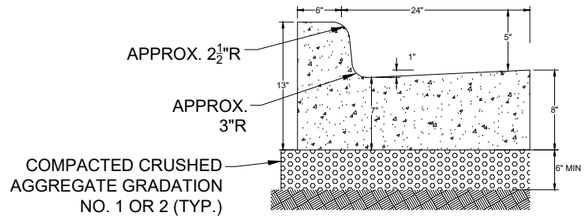


PLAN



PROFILE

2/27 COMMERCIAL DRIVEWAY DETAIL



2/27 30" CONCRETE CURB AND GUTTER

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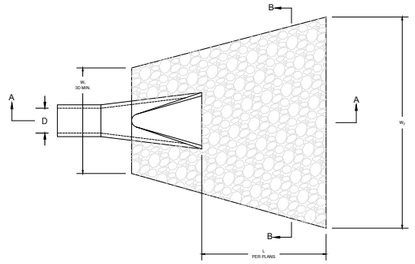
DETAILS

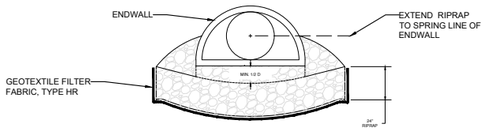
PROJECT NO. 22630002
SHEET 27

1 / 28 OUTLET PROTECTION

PLAN VIEW*



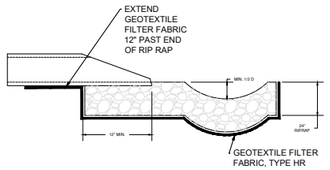
CROSS SECTION B-B



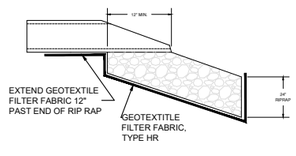
*OUTLET PROTECTION RIPRAP PAD DIMENSIONS DENOTED ON PLAN SHEETS AS W_1 x L x W_2

Pipe Diameter	W_1 x L x W_2
(in)	(ft)
<8	1.5 x 3 x 4
12	3 x 4 x 4
15	3.75 x 6 x 5
18	4.5 x 6 x 5
21	5.25 x 6 x 6
24	6 x 7 x 6
30	7.5 x 7 x 7.5
36	9 x 9 x 9
42	10.5 x 9 x 10

CROSS SECTION A-A



SLOPED/FLAT SWALE DISCHARGE AND FLAT POND DISCHARGE

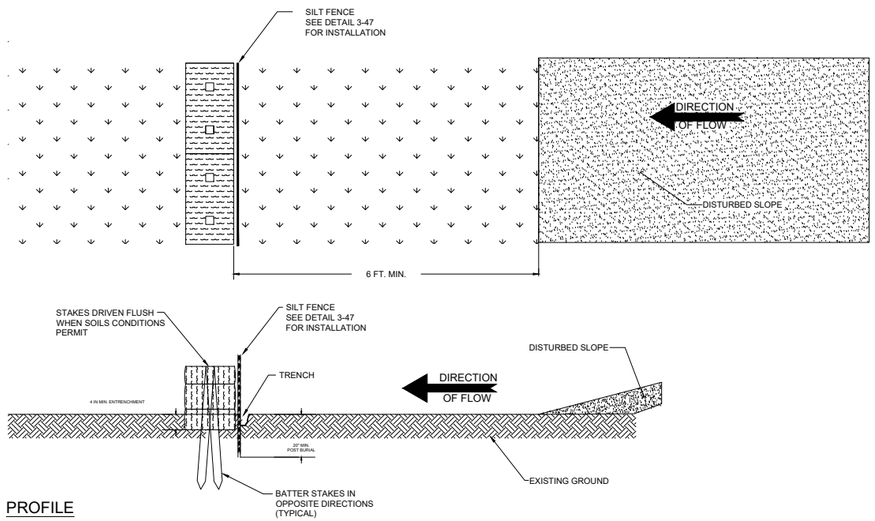


SLOPED POND DISCHARGE

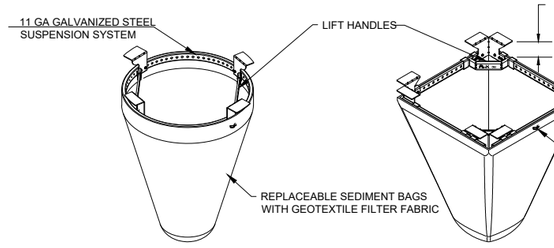
NOTES:

1. RIPRAP SHALL BE WISDOT SMALL RIP RAP FOR PIPES LESS THAN 12- INCHES IN DIAMETER AND WISDOT MEDIUM RIP RAP FOR PIPES GREATER THAN OR EQUAL TO 12-INCHES IN DIAMETER.
2. RIPRAP SHALL BE INSTALLED PER THE REQUIREMENTS OF "STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION" (WISDOT, 2003).
3. RIPRAP SHALL BE SHAPED TO CREATE A STILLING BASIN BASIN DEPTH TO BE 1-FOOT BELOW PIPE INVERT FOR PIPES 30-INCH AND LARGER, 0.5-FOOT FOR SMALLER PIPES.
4. INSTALL END SECTION PER CITY OF FITCHBURG STANDARDS. TWO JOINT TIES ARE REQUIRED FOR LAST (DOWNSTREAM) TWO JOINTS ON ANY PIPE ENDING IN AN APRON ENDWALL.
5. RIPRAP SHALL EXTEND TO TOE OF SLOPE MIN.

2 / 28 REINFORCED SILT FENCE

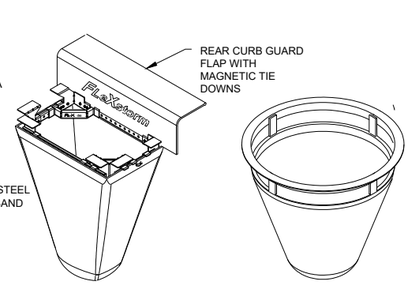


PROFILE



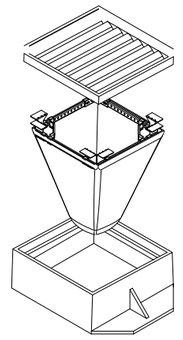
TYPICAL ROUND INLET FILTER

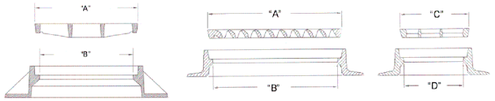
TYPICAL RECTANGULAR INLET FILTER



COMBINATION INLET FILTER FOR CURB HOODS

STAINLESS STEEL ROUND INLET FILTERS for NYLOPLAST CASTINGS CATCH-ITS SPECIFIED W/ FX or FX-S BAGS





GENERAL NOTES

1. INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

INSTALLATION NOTES

1. REMOVE GRATE.
2. DROP FLEXSTORM INLET FILTER ONTO LOAD BEARING LIP OF CASTING OR CONCRETE STRUCTURE.
3. REPLACE GRATE.

1. INDENTIFY YOUR FRAME STYLE AND SIZE

STYLE	FRAME STYLE AND SIZE	Frame P/N:
ROUND	Small Round (up to 20.0" dia grates (A) dim)	62SRD
	Med Round (20.1" - 26.0" dia grates (A) up to 25" dia openings (B))	62MRD
	Large Round (26.1" - 32.0" dia grates (A) up to 30" openings (B))	62LRD
	XL Round (32.1" dia - 39" dia grates (A) up to 37" dia openings (B))	62XLRD
RECT/ SQUARE	Small Rect / Square (up to 16" (B) x 16" (D) openings or 64" perimeter)	62SSQ
	Med Rect / Square (up to 24" (B) x 24" (D) openings or 96" perimeter)	62MSQ
	Large Rect / Square (up to 36" (B) x 24" (D) openings or 120" perimeter)	62LSQ
	XL Rect / Square (side by side 2 pc set to fit up to 48" (B) x 36" (D) openings)	62XLSQ
COMBO INLETS	Small Rect / Square (ref Rect sizing; shipped with Magnetic Curb Flaps)	625CB
	Med Rect / Square (ref Rect sizing; shipped with Magnetic Curb Flaps)	62MCB
	Large Rect / Square (ref Rect sizing; shipped with Magnetic Curb Flaps)	62LCB
	XL Rect / Square (ref Rect sizing; shipped with Magnetic Curb Flaps)	62XLCB
NYLOPLAST	12" diameter Nyloplast castings (Stainless Steel Framing standard)	6212NY
	15" diameter Nyloplast castings (Stainless Steel Framing standard)	6215NY
	18"diameter Nyloplast castings (Stainless Steel Framing standard)	6218NY
	24" diameter Nyloplast castings (Stainless Steel Framing standard)	6224NY
	30" diameter Nyloplast castings (Stainless Steel Framing standard)	6230NY

SPECIFICATIONS FOR STANDARD BAGS BY NOMINAL SIZE

Nominal Bag Size	Solids Storage (CuFt)	Filtered Flow Rate at 50% Max (CFS) FX (Woven)	IL (NonWoven)
Small	1.6	1.2	0.9
Medium	2.1	1.7	1.3
Large	3.8	2.7	1.9
XL	4.2	3.6	2.6

2. SELECT YOUR BAG PART NUMBER

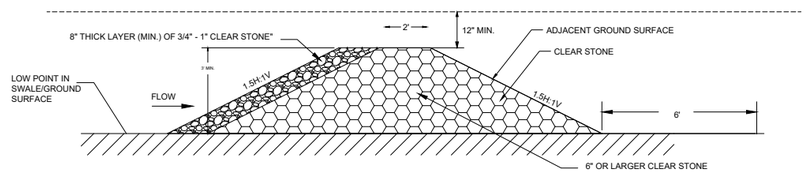
FLEXSTORM FILTER BAGS	(22" depth) STD Bag P/N	(12" depth) Short Bag P/N	Clean Water Flow Rate (GPM/SqFt)	Min A.O.S. (US Sieve)
FX: Standard Woven Bag	FX	FX-S	200	40
IL: IDOT Non-Woven Bag	IL	IL-S	145	70

3. CREATE YOUR FLEXSTORM INLET FILTER PART NUMBER

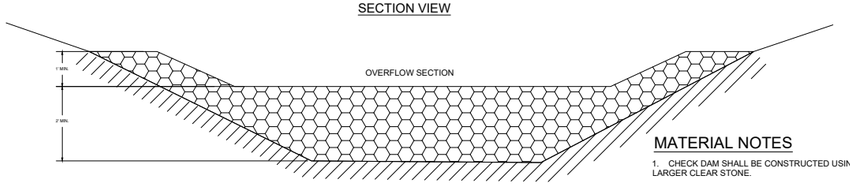
Frame P/N from Step 1. | Filter Bag P/N from Step 2.

3 / 28 INLET PROTECTION, FRAMED (FLEXTORM CATCH-IT)

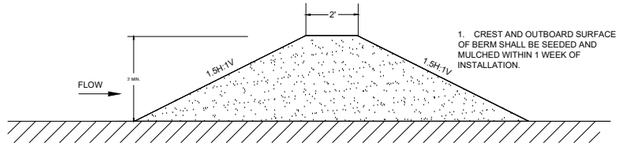
4 / 28 BERM



SECTION VIEW



ELEVATION VIEW



1. CREST AND OUTBOARD SURFACE OF BERM SHALL BE SEEDED AND MULCHED WITHIN 1 WEEK OF INSTALLATION.

MATERIAL NOTES

1. CHECK DAM SHALL BE CONSTRUCTED USING 6" OR LARGER CLEAR STONE.

INSTALLATION NOTES

1. CHECK DAM SHALL BE INSTALLED SUCH THAT ENDS ARE HIGHER THAN THE CENTER CREATING A STABLE OVERFLOW POINT. ENDS SHOULD BE A MINIMUM OF 6" HIGHER THAN THE EXPECTED DESIGN WATER LEVEL.
2. IF CHECK DAM USED ON A TEMPORARY SEDIMENT TRAP, A SUMP AREA WITH A MINIMUM DEPTH OF 3 FEET SHALL BE EXCAVATED UPSTREAM OF CHECK DAM.

5 / 28 ROCK CHECK DAM / STONE WEEPER

		NO.	DATE	REVISION	BY
PROJECT DATE: .	DRAWN BY: Init	.	.	PRELIMINARY	.
	DESIGNED BY: Init	.	.		.
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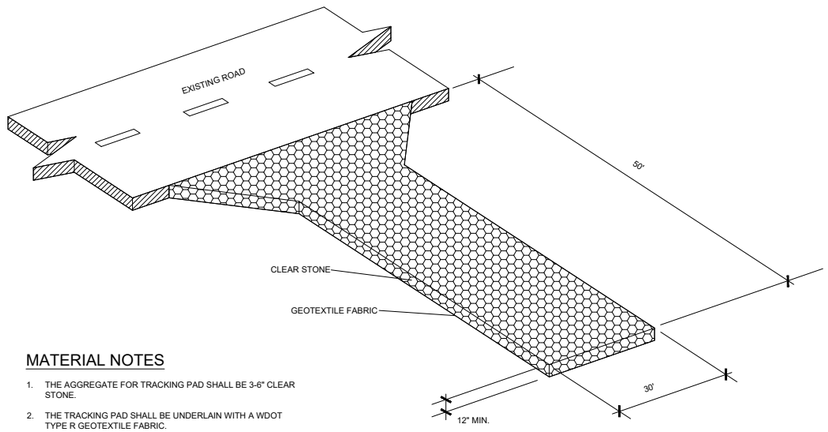
NO OAKS RANCH PHASE 1
NO OAKS RANCH, LLC
DANE COUNTY, WI

DETAILS

PROJECT NO. 22630002
SHEET 28



MATERIAL NOTES

1. THE AGGREGATE FOR TRACKING PAD SHALL BE 3-6" CLEAR STONE.
2. THE TRACKING PAD SHALL BE UNDERLAIN WITH A WDOT TYPE R GEOTEXTILE FABRIC.

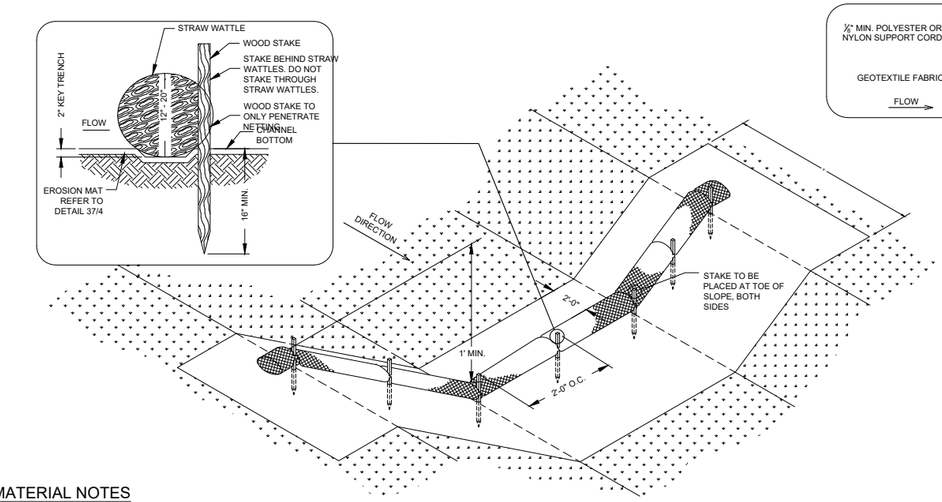
INSTALLATION NOTES

1. INSTALLATION SHALL CONFORM WITH THE REQUIREMENTS OF WDNR CONSERVATION PRACTICE STANDARD 1057.
2. THE TRACKING PAD SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE SITE. STONE TRACKING PAD SHALL BE USED AT ALL POINTS OF CONSTRUCTION EGRESS.
3. DIMENSIONS OF THE TRACKING PAD SHALL BE MINIMUM AS NOTED ON THE FIGURE ABOVE.
4. SURFACE WATER SHALL BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY FROM TRACKING PADS OR CONVEYED UNDER AND AROUND THEM USING CULVERTS OR OTHER PRACTICES.
5. TRACKING PAD SHALL BE REMOVED OR INCORPORATED INTO GRAVEL DRIVEWAY ONLY AFTER CONSTRUCTION IS COMPLETE AND THE SITE HAS BEEN STABILIZED.

INSPECTION & MAINTENANCE NOTES

1. STONE TRACKING PADS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24 HOUR PERIOD.
2. ADDITIONAL AGGREGATE SHALL BE PLACED IF THE TRACKING PAD BECOMES BURIED OR IF SEDIMENT IS NOT BEING REMOVED EFFECTIVELY FROM THE VEHICLE TIRES.
3. A MINIMUM 30-FEET WIDE BY 50-FEET LONG BY 12-INCH THICK PAD SHALL BE MAINTAINED AT ALL TIMES.
4. THE TRACKING PAD PERFORMANCE SHALL BE MAINTAINED BY SCRAPING OR TOP-DRESSING WITH ADDITIONAL AGGREGATE.
5. ANY SEDIMENT TRACKED ONTO A PUBLIC OR PRIVATE ROAD SHOULD BE REMOVED BY STREET CLEANING AT THE END OF EACH WORKING DAY.
6. MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE WITH CONSIDERATION FOR SITE CONDITIONS.

1 / 29 CONSTRUCTION ENTRANCE (TRACKING PAD)



MATERIAL NOTES

1. DITCH CHECKS SHALL BE CONSTRUCTED OF APPROVED MATERIALS LISTED IN WISCONSIN DEPARTMENT OF TRANSPORTATION EROSION CONTROL PRODUCT ACCEPTABILITY LIST (PAL) FOR TEMPORARY DITCH CHECKS.
2. EROSION MAT SHALL BE SELECTED AND INSTALLED PER THE REQUIREMENTS LISTED IN DETAIL D-7.
3. WOOD STAKES SHALL MEET THE FOLLOWING REQUIREMENTS:
   FOR 12" SEDIMENT LOGS: 1⅛" X 1⅛" X 30" AIR OR KILN DRIED HICKORY OR OAK STAKES
   FOR 20" SEDIMENT LOGS: 1⅛" X 1⅛" X 48" AIR OR KILN DRIED HICKORY OR OAK STAKES

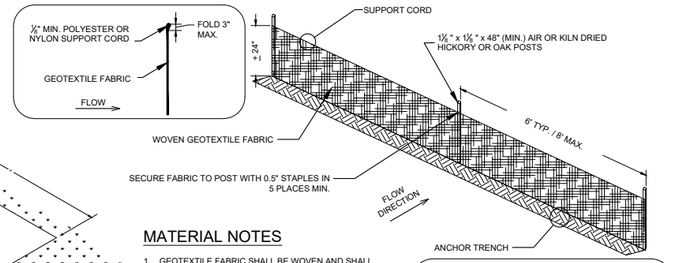
INSTALLATION NOTES

1. INSTALLATION SHALL CONFORM WITH THE REQUIREMENTS OF WDNR CONSERVATION PRACTICE STANDARD 1062.
2. PROPRIETARY DITCH CHECKS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. DITCH CHECK SHALL BE INSTALLED SUCH THAT ENDS ARE HIGHER THAN THE CENTER CREATING A STABLE OVERFLOW POINT. ENDS SHOULD BE A MINIMUM OF 6" HIGHER THAN THE EXPECTED DESIGN WATER LEVEL.
4. DITCH CHECKS SHOULD BE INSTALLED SUCH THAT ADJOINING PROPERTY IS NOT NEGATIVELY IMPACTED.
5. DITCH CHECKS SHOULD BE USED IN CONJUNCTION WITH OTHER PERMANENT RESTORATION PRACTICES.

INSPECTION & MAINTENANCE NOTES

1. DITCH CHECKS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24 HOUR PERIOD.
2. WHEN OBSERVING CONDITIONS OF DITCH CHECKS, PAY SPECIAL CONSIDERATION TO THE PRESENCE OF INDICATORS THAT WATER IS ERODING AROUND THE ENDS, UNDERCUTTING THE DITCH CHECK, OR SIGNIFICANT EROSION IS OCCURRING DOWNSTREAM OF THE DITCH CHECK. THESE ITEMS MAY INDICATE THE NEED FOR CLOSER SPACING ON DITCH CHECKS OR USE OF A DIFFERENT EROSION MAT.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE DITCH CHECK WHEN IT REACHES ½ THE HEIGHT OF THE LOWEST ELEVATION OF THE DITCH CHECK.
4. DITCH CHECKS SHALL BE REMOVED ONCE CHANNEL IS STABILIZED WITH VEGETATION UNLESS PART OF A PERMANENT STORMWATER MANAGEMENT PLAN.
5. MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE WITH CONSIDERATION FOR SITE CONDITIONS.

2 / 29 DITCH CHECK

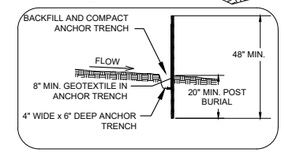


MATERIAL NOTES

1. GEOTEXTILE FABRIC SHALL BE WOVEN AND SHALL CONFORM TO THE MATERIAL REQUIREMENTS LISTED IN SECTION 628 OF THE WISDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, 2003 EDITION.

INSTALLATION NOTES

1. INSTALLATION SHALL CONFORM WITH THE REQUIREMENTS OF WDNR CONSERVATION PRACTICE STANDARD 1056.
2. CONSTRUCT THE SILT FENCE IN AN ARC WITH THE ENDS POINTING UPSLOPE TO AVOID EROSION AROUND THE ENDS OF THE FENCE.
3. FAILURE TO PROPERLY ANCHOR SILT FENCE COULD RESULT IN WATER AND SEDIMENT RELEASE BENEATH THE SILT FENCE. PROPERLY SECURE THE SILT FENCE INTO THE ANCHOR TRENCH.
4. CONSTRUCT THE FENCE FROM A CONTINUOUS ROLL OF GEOTEXTILE TO AVOID JOINTS. WHERE JOINTS ARE NECESSARY, OVERLAP TO THE NEXT POST OR WRAP ADJOINING FABRICS TOGETHER AROUND THE JOINT POST AND TIGHTLY FASTEN.
5. SILT FENCE SHALL NOT BE USED IN AREAS OF CONCENTRATED FLOW.

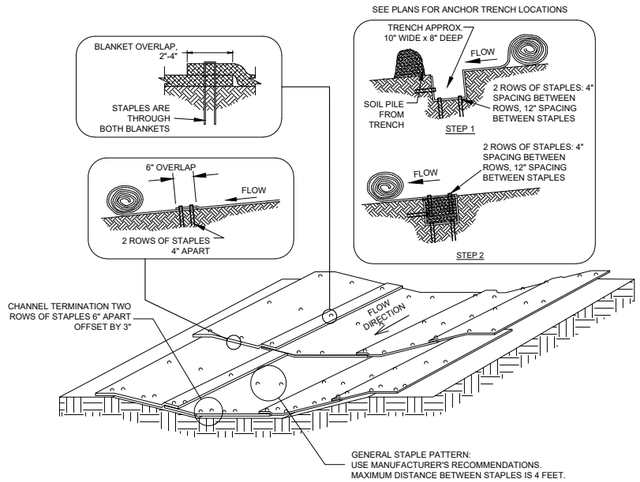


INSPECTION & MAINTENANCE NOTES

1. AT A MINIMUM, PERFORM INSPECTIONS WEEKLY AND WITHIN 24 HOURS OF PRECIPITATION EVENTS PRODUCING 0.5 INCHES OR MORE OF RAINFALL.
2. INSPECT FENCES FOR DAMAGE TO STAKES AND FABRIC, UNDERCUTTING, EXCESSIVE SEDIMENT ACCUMULATION (GREATER THAN ½ OF THE FENCE HEIGHT), AND INDICATIONS OF SCOUR AROUND THE EDGES.
3. REPAIR OR REPLACE SILT FENCE WITHIN 24 HOURS OF IDENTIFYING ANY DEFICIENCIES.

3 / 29 SILT FENCE

ANCHOR TRENCH DETAIL



MATERIAL NOTES

1. ONLY PRODUCTS LISTED IN THE WISCONSIN DEPARTMENT OF TRANSPORTATION EROSION CONTROL PRODUCT ACCEPTABILITY LIST (PAL) ARE ACCEPTABLE FOR USE.
2. BIODEGRADABLE PLASTIC EROSION MAT STAKES REQUIRED.

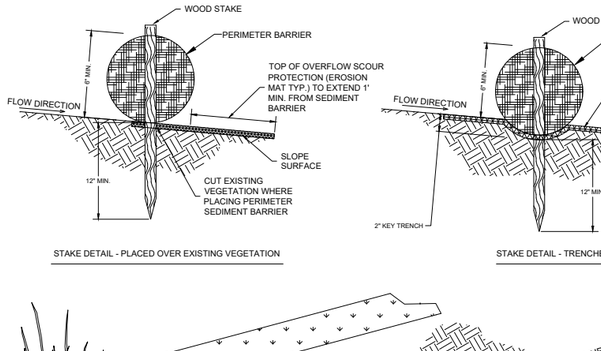
INSTALLATION NOTES

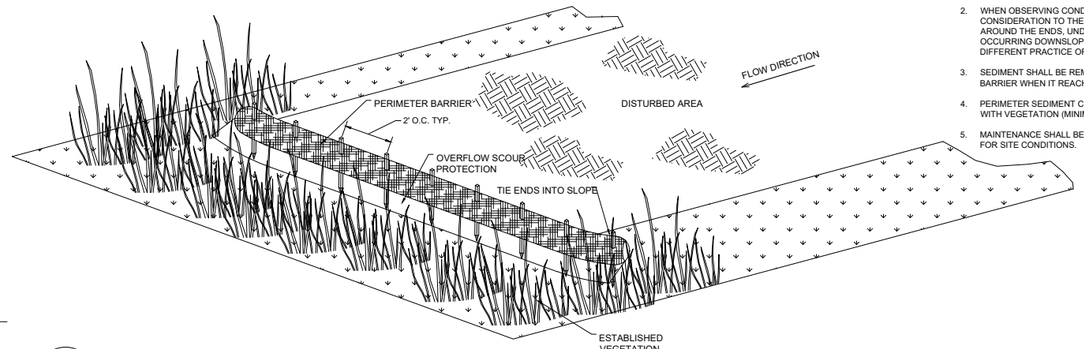
1. EROSION CONTROL REVEGETATIVE MATS (ECRM) SHALL BE INSTALLED AFTER TOPSOIL AND SEED HAVE BEEN PLACED.
2. INSTALLATION OF ECRM SHOULD BE COORDINATED WITH PERMANENT RESTORATION PRACTICES.
3. INSTALLATION SHALL CONFORM WITH WDNR CONSERVATION PRACTICE STANDARD 1053.
4. ALL PRODUCTS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. THIS STANDARD DETAIL IS AN EXAMPLE OF TYPICAL INSTALLATION GUIDANCE.
5. MATS SHALL BE IN FIRM AND CONTINUOUS CONTACT WITH THE SOIL.
6. IF SECTIONS OF ECRM NEED TO BE OVERLAPPED, ENSURE THAT THE OVERLAP IS FACING DOWNSTREAM TO PREVENT WATER FROM FLOWING BENEATH THE ECRM.

INSPECTION & MAINTENANCE NOTES

1. INSTALL ADDITIONAL ANCHORING IN AREAS OF OBSERVED RILLING AND CONCENTRATED FLOW BENEATH THE EROSION MAT. IF RILLING IS SEVERE ENOUGH TO PREVENT VEGETATION ESTABLISHMENT, REMOVE EROSION MAT, REGRADE, COMPACT, RE-SEED, AND REPLACE THE SECTION OF MAT.
2. ALL MAINTENANCE ACTIVITIES SHOULD OCCUR AS SOON AS POSSIBLE WITH CONSIDERATION OF SITE CONDITIONS.
3. STAPLES SHALL BE SPACED NO MORE THAN 4 FEET APART, INSTALLED PER MANUFACTURERS RECOMMENDATIONS, AND BE BIODEGRADABLE.

4 / 29 EROSION CONTROL MAT (CHANNELS)





MATERIAL NOTES

1. PERIMETER SEDIMENT BARRIER SHALL CONSIST OF STRAW WATTLES OR PROPRIETARY MATERIALS.
2. EROSION MAT SHALL BE SELECTED AND INSTALLED PER THE REQUIREMENTS LISTED IN DETAILS.
3. WOOD STAKES SHALL BE AIR OR KILN DRIED HICKORY OR OAK WITH THE FOLLOWING DIMENSIONS:
   3.1. 1½" X 1½" X REQUIRED LENGTH

INSTALLATION NOTES

1. INSTALLATION SHALL CONFORM WITH THE REQUIREMENTS OF APPLICABLE WDNR CONSERVATION PRACTICE STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
2. WHEN JOINTS ARE NECESSARY, OVERLAP AND SECURE TO MINIMIZE POTENTIAL FOR CONCENTRATED FLOW.
3. INSTALL ALL PERIMETER SEDIMENT CONTROL PRACTICES SUCH THAT THE ENDS TIE INTO THE SLOPE TO PREVENT EROSION FROM CONCENTRATED FLOW AROUND THE ENDS.
4. PERIMETER SEDIMENT CONTROL PRACTICES SHOULD BE USED IN CONJUNCTION WITH PERMANENT RESTORATION PRACTICES.

INSPECTION & MAINTENANCE NOTES

1. PERIMETER SEDIMENT CONTROL PRACTICES SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24 HOUR PERIOD.
2. WHEN OBSERVING CONDITIONS OF PERIMETER SEDIMENT CONTROLS, PAY SPECIAL CONSIDERATION TO THE PRESENCE OF INDICATORS THAT WATER IS ERODING AROUND THE ENDS, UNDERCUTTING THE BARRIER, OR SIGNIFICANT EROSION IS OCCURRING DOWNSLOPE. THESE ITEMS MAY INDICATE THE NEED FOR USE OF A DIFFERENT PRACTICE OR INCORRECT INSTALLATION.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND PERIMETER SEDIMENT CONTROL BARRIER WHEN IT REACHES THE HEIGHT OF THE LOWEST ELEVATION.
4. PERIMETER SEDIMENT CONTROLS SHALL BE REMOVED ONCE SITE IS STABILIZED WITH VEGETATION (MINIMUM 70% COVERAGE).
5. MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE WITH CONSIDERATION FOR SITE CONDITIONS.

5 / 29 PERIMETER CONTROL/SLOPE BREAK

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PROJECT DATE: .	DRAWN BY: Init	.	.	PRELIMINARY	.
	DESIGNED BY: Init	.	.		.
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NO OAKS RANCH PHASE 1
NO OAKS RANCH, LLC
DANE COUNTY, WI

DETAILS

PROJECT NO. 22630002
SHEET 29

Phase 1 No Oaks Ranch Stormwater Management Plan

No Oaks Ranch, LLC
Dane County, Wisconsin
January 2026

Prepared by:

MSA Professional Services, Inc
1702 Pankratz Street
Madison, WI 53704
Phone: (608) 242-7779
www.msa-ps.com

Project No. 22630003

No Oaks Ranch Stormwater Management Plan
No Oaks Ranch, LLC

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CHAPTER 1 – INTRODUCTION

1.1 BACKGROUND AND PURPOSE

This report summarizes the performance of the stormwater management system for the development plan for the land north of Central Park Place and Lacy Road in the City of Fitchburg.

No Oaks Ranch will be developed in phases and this report pertains to Phase 1. This phase will cover approximately 29-acres in the City of Fitchburg's Nine Springs Neighborhood. The project proposes a Traditional Neighborhood Development using the City's SmartCode zoning, with a range of densities for residential land uses (**Appendix A**).

The entirety of the development is in the watershed of Nine Springs and will ultimately drain north to Nine Springs Creek. There is an existing greenway through the middle of the site, which will route a majority of the development. There are several maps attached to this memo which identify the project location and existing and proposed drainage conditions for the site in **Appendix A**. The following discussion summarizes important technical aspects of the stormwater management system design.

1.2 STORMWATER PERFORMANCE STANDARDS

This site is subject to the post construction standards of the City of Fitchburg (Chapter 30, Article II) and the Wisconsin DNR (NR 151). Collectively, these standards require:

<u>Peak Discharge Control</u>

- Control post-development peak discharge to pre-development rates for the 1-year and 2-year storm events (Wisconsin Administrative Code, Chapter NR 151).
- Control post-development peak discharge to pre-development rates for the 2-year, 10-year, 100-year events, and safely pass events larger than the 100-year event (Chapter 30, Article II of the City ordinances).
- Control post-development peak discharge to pre-development rates for the 200-year event (Chapter 14 of Dane County ordinances).

<u>Volume Control</u>

- Maintain 90% of the pre-development infiltration (stay-on) volume based on the 1981 average annual rainfall series (Chapter 30, Article II of City ordinances and Wisconsin Administrative Code, Chapter NR151). Caps and exclusions do not apply.

<u>Water Quality Control</u>

- For new development, design practices to retain soil particles greater than five microns on the site (80 percent reduction) resulting from a one-year, 24-hour storm event, according to approved procedures, and assuming no sediment resuspension (Chapter 30, Article II of City ordinances).
- Retain 80% of Total Suspended Solids post-development compared to no controls (Wisconsin Administrative Code, NR151).

CHAPTER 2 – METHODOLOGY

2.1 PEAK DISCHARGE CONTROL

Stormwater peak discharge was evaluated using the HydroCAD 10.20-5c model to show the post-development condition's peak discharge rates meet the pre-development condition's discharge rates. The models use standard Soil Conservation Service (SCS) TR-20 runoff hydrograph and curve number procedures, and TR-55 Time of Concentration (Tc) calculations. As required by the ordinances, rainfall events were simulated with the 24-hour MSE4 distribution and rainfall depths from NOAA Atlas 14. (**Table 1**).

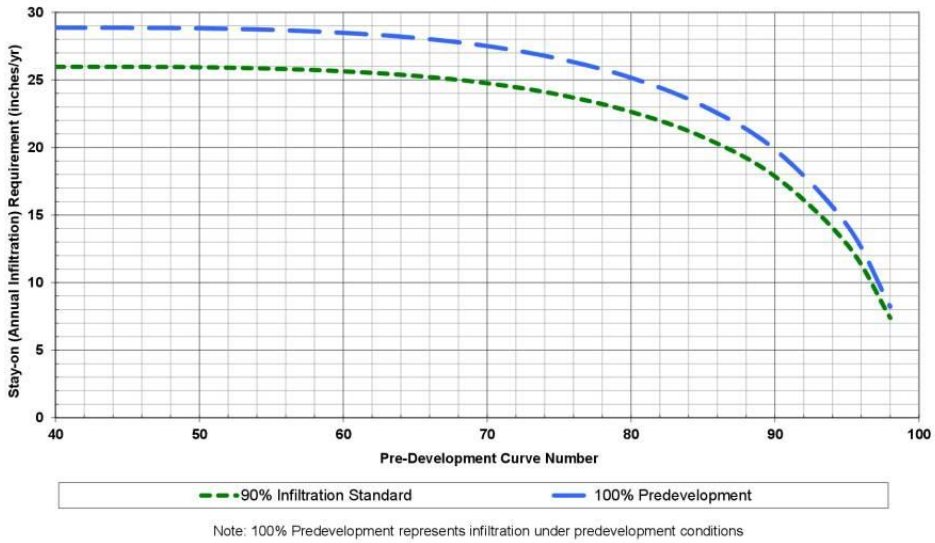
Table 1. Dane County 24-Hour Rainfall Depths

Recurrence Interval and Depth (inches)				
1-year	2-year	10-year	100-year	200-year
2.49	2.84	4.09	6.66	7.53

2.2 VOLUME CONTROL

Two separate methodologies were used for the pre/post-development runoff volume calculations. The target stay-on is dependent upon the predevelopment curve number. Pre-development stay-on depths were determined using the figure below from the Dane County Stormwater Manual. WinSLAMM 10.5.0 was used for the post-development analysis using rainfall data from Madison for March 12, 1981 through December 2, 1981 as specified in Wisconsin Administrative Code Chapter NR 151. The total rainfall during this period was 28.81 inches. Pre-development land use was determined using the maximum pre-development curve numbers specified in the City ordinance.

Figure 1. Pre-Development Target Stay-On Depths for Varying Curve Numbers



Note: 100% Predevelopment represents infiltration under predevelopment conditions

2.3 WATER QUALITY CONTROL

Water quality was analyzed using WinSLAMM 10.5.0 for the 1981 regulatory period to evaluate compliance with the requirement for 80% TSS reduction compared to no controls. The same models developed to evaluate runoff volume were used for this water quality analysis but off-site areas draining through the site were routed through 'Other Devices' with the sediment loading removed.

2.4 POST-DEVELOPMENT LAND USE

The SmartCode zoning defines transect types with different physical characteristics, rather than specific land uses. Transects define a maximum permissible impervious cover, and this report assumes that private lots will be developed to these maximum impervious covers. A typical distribution of roofs, driveways, and other impervious surfaces was assumed for private lots in each transect for input into the stormwater analysis.

Based on a City zoning ordinance amendment, the stormwater analysis assumed the different land cover percentages in **Table 2**. SmartCode also defines required cross sections for different types of streets, including the width of the right-of-way, travel and parking lanes, sidewalks, terraces, and medians (**Table 3**).

Table 2. SmartCode Transect Land Cover

Land Cover	T3	T4	T5	Park	Railroad
Residential Roof	40%	55%	65%		
Residential Driveway	10%	15%	15%		
Landscaped	50%	30%	20%	**65%**	**90%**
Impervious Cover				**35%**	**10%**
Total	100%	100%	100%	100%	

Table 3. SmartCode Street Cross Section Widths (feet)

Land Cover	Rear Alley	ST-60-34	ST-55-28	ST45-22
Sidewalk		26	10	10
Terrace	8		17	
Median				
Parking		14	8	
Drive Lanes	16	20	20	19
Total	24	60	55	45
% Impervious	67%	100%	71%	65%

Some of the impervious areas on site are assumed to be disconnected in the T4 and T3 residential areas. Conservative assumptions for the level of disconnecting of impervious areas were made based on DNR technical guidance for post-construction stormwater modeling. This analysis assumed 50% of the rooftops will be disconnected in T3 and T4 areas. In the higher density, T5 areas, all rooftops are assumed to be directly connected. For all residential areas, all driveways were assumed to be directly connected as they will likely drain directly to a street or alley. Runoff curve numbers for on-site areas under proposed conditions were evaluated using separate sub-catchments for directly connected impervious areas and pervious areas (this latter sub-catchment also includes unconnected impervious areas).

CHAPTER 3 – PRE-DEVELOPMENT CONDITIONS

The proposed site is predominantly agricultural fields and grassland with a smaller patch of woodlands near the northern part of the site. The site is split into two sub-watersheds that drain to the north, eventually draining the Nine Springs Creek. Mapped soils within the property include Hydrologic Soil Group (HSG) B and C, as shown in **Appendix A**.

3.1 SOIL INVESTIGATION FOR INFILTRATION POTENTIAL

A soil report prepared by CGC, Inc was used to evaluate the infiltration potential of the subsoils in the location of the post-development infiltration basin. Subsurface conditions were explored by digging twelve (12) test pits near the bioretention basins. They identified the soils to have an infiltration rate less than or equal to 0.13 in/hr for the top six to ten feet. Below these silty soils there was fine to coarse sand with some silt and little gravel that was assigned in infiltration rate of either 0.5 in/hr or 1.63 in/hr.

All the bioretention basins will be designed to over excavate the native soils that have infiltration rates less than 0.5 in/hr and backfilled with sand to the engineered soil. Boring lots, stormwater evaluation forms, and a location map have been excerpted from the CGC report and are found in **Appendix D**.

3.2 WATERSHEDS

Existing land cover of No Oaks Ranch development is predominantly agricultural fields and grass land with woodlands located on the north side of the site. Table 4 summarizes the pre-development land cover characteristics. Pre-development time of concentrations (Tc) for each watershed were calculated based on TR-55 guidance.

Table 4. Pre-Development Watershed Areas

	Cropland		Woodland		Grassland		Impervious	Total
	HSG B	HSG C	HSG B	HSG C	HSG B	HSG C		
	CN 68	CN 78	CN 55	CN 70	CN 61	CN 71	CN 98	
100	0.747	0.020	-	-	0.104	0.642	0.157	1.670
105	16.067	8.396	0.250	-	1.127	1.342	0.104	27.286
**900	2.466	-	-	-	0.264	-	-	2.730
*GT	3.361	-	-	-	-	-	-	3.361
Total	**22.641**	**8.416**	**0.250**	**-**	**1.482**	**1.997**	**0.261**	**35.048**

** Offsite drainage area included in the stay-on analysis*
*** Offsite drainage area excluded from stay-on analysis*

Watersheds 4, 5, 6, G-T (Green-Tech) are owned by Green-Tech Land Company. They contacted No Oaks Ranch about the need to manage their runoff from two areas that they cannot treat in their stormwater management systems. Watersheds 4, 5, and 6 will meet their infiltration requirement onsite for the proposed development.

Discussions with the City of Fitchburg led to the conclusion that since both developments drain to the north, we can view them as 'one drainage area' so No Oaks would need to over-design their stormwater basins to accommodate the excess runoff from Green-Tech's untreated runoff.

Watershed 0 drains to an existing wet pond and dry pond that treats runoff from a portion of Central Park Place and part of the Lot 1 of CSM 16643. These ponds and the existing land use was included in the pre-development stormwater models. This drainage area is approximately 3.7 acres.

3.3 VOLUME CONTROL – STAY-ON ANALYSIS

The pre-development stay-on was calculated using the pre-development curve numbers per Section 30-35 of the City of Fitchburg ordinances as an input to **Figure 1**. Results of this analysis are summarized in **Table 5** below.

Table 5. Summary of North Drainage Area Pre-Development Infiltration (Stay-On)

Land Use	CN	90% Stay-On Target (in/yr)	Area	Target Stay-On Volume (ac-ft)
Agriculture, HSG B	68	25.0	20.18	42.04
Agriculture, HSG C	78	23.3	8.42	16.35
Woodland, HSG B	55	25.9	0.25	0.54
Woodland, HSG C	70	24.8	-	-
Open, HSG B	61	25.7	1.12	2.40
Open, HSG C	71	24.7	1.98	4.08
Impervious	98	7.5	0.26	0.16
TOTAL		**24.43**	**32.21**	**65.57**

3.4 PEAK DISCHARGE CONTROL

Pre-development conditions shown in **Table 4** were modeled in HydroCAD to develop pre-development peak discharge rate for the 1-, 2-, 10-, 100-, and 200-year 24-hour design storm. **Table 6** summarizes the results of the analysis. Detailed HydroCAD report is included in **Appendix B**.

Table 6. Summary of Pre-Development Peak Discharge Rates (cfs)

Discharge Point	1-year	2-year	10-year	100-year	200-year	Area (acres)
North	8.50	13.23	37.27	104.89	132.38	38.74

CHAPTER 4 – POST-DEVELOPMENT CONDITIONS

4.1 PROPOSED STORMWATER MANAGEMENT SYSTEM

Peak discharge rate control, water quality treatment, and infiltration will be provided for the site through the construction of four (4) new stormwater management ponds and via routing of water through a vegetated swale. These ponds will be established as paired systems, with upstream wet basins intended to provide water quality pre-treatment prior to discharging to downstream infiltration basins. Collectively the ponds will provide peak discharge rate control, volume control through infiltration, and water quality via sedimentation and infiltration.

The system of streets, storm inlets, and storm sewer pipes are necessary to convey stormwater to the proposed stormwater ponds, which has not been designed as of the date of this memo. It is currently assumed that 200-year peak flow will be delivered to the various ponds via storm sewer and overland street conveyance within the street right-of-way.

4.2 VOLUME CONTROL

WinSLAMM was used to calculate the annual runoff volume for the site. In the model, all offsite areas draining to the site were removed. A summary of the stay-on analysis is shown in **Table 7**. Detailed WinSLAMM model outputs are shown in **Appendix C**.

Table 7. Infiltration (Stay-On) Analysis Summary for Average Annual Rainfall

Development Condition	Pre-Development Condition		
	Area	90% Stay-On Target (in)	90% Stay-On Target (ac-ft)
Pre-Development	32.21	24.43	65.57
[1] Post-Development	32.21	25.59	68.69

[1] Proposed stay-on depths from WinSLAMM analysis.

4.3 WATER QUALITY CONTROL

Water quality was analyzed using WinSLAMM 10.5.0 for the 1981 regulatory period to evaluate compliance with the requirement of 80% TSS reduction compared to no controls. Results of the WinSLAMM analysis indicate that the 80% standard is met for all post-development watersheds. In watersheds with where existing land use did not change for the post-development condition an "Other Device" was used within WinSLAMM. This device provided 100% TSS removal efficiency for these areas but did not provide any runoff volume reduction. The program removes these areas from the overall TSS removal efficiency calculations but does not impact the hydraulic calculations. The stormwater management system provides a 90.45% reduction in TSS for the post-development condition compared to no controls. **Table 8** provides the TSS reduction for each of the proposed stormwater basins. Detailed WinSLAMM output is provided in **Appendix C**.

Table 8. Average Annual TSS Reductions by Treatment Device

Treatment Device	TSS Reduction
INF-1	100%
WP-2	86.37%
WP-3	88.52%
INF-3	99.35%
Swale	19.88%

Table 9. Post-Development Site TSS Reduction

Drainage Area	TSS Load Without Controls (lbs)	TSS Load With Controls (lb)	% Reduction	TSS Loading from Undeveloped Areas (lbs)
North	4,840	462	90.45%	970

4.4 PEAK DISCHARGE CONTROL

The stormwater management system controls peak discharge rates to levels less than existing conditions for events ranging from the 1-year 24-hour storm to the 200-year 24-hour storm. **Table 10** summarizes the peak discharge rates of the pre-development, post-development uncontrolled, and post-development detained conditions. Peak stage in the regional facilities for each of the design storms is provided in **Table 11**. Detailed HydroCAD report is included in **Appendix B**.

Table 10. Comparison of Pre-Development vs Post-Development Peak Discharge Rates

Storm Event	Pre-	Uncontrol	Post-
1-year	8.50	50.57	5.84
2-year	13.23	61.38	7.31
10-year	37.27	106.88	14.30
100-year	104.89	202.56	45.80
200-year	132.38	236.05	70.42
Area (ac)	38.74	38.74	

Table 11. Peak Stage in Regional Stormwater Basins

Basin ID	Event					Emergency Overflow Elev.	Top of Basin Elev.
	1-year	2-year	10-year	100-year	200-year		
INF-1	886.19	886.25	886.54	887.15	888.25	887.5	889.0
WP-2	889.30	889.60	889.80	892.00	892.22	893.5	895.0
WP-3	882.67	882.79	883.24	884.17	884.49	887.5	888.5
INF-3	881.64	881.87	882.53	883.40	883.69	882.5	884.0

CHAPTER 5 – MAINTENANCE

Initially, the developer will be responsible for maintenance of stormwater facilities vegetation during the three-year warranty and maintenance periods established with the City in the Developer's Agreement. The City will also own and maintain the distributed biofiltration practices and the regional stormwater facilities in the open public space. The bioretention practices and regional stormwater facilities will be maintained in accordance with City of Fitchburg policies and the following provisions:

- Remediation is required if water is ponded for over 24 hours in infiltration areas
- Snow shall not be stored in regional facilities
- Drawdown devices for infiltration basins shall be opened during winter months.

A draft maintenance agreement for privately maintained stormwater facilities is included in **Appendix E**.

APPENDIX A

Figures

PHASE 1 LAND USE AND WATERSHED MAP

NO OAKS RANCH DEVELOPMENT

CITY OF FITCHBURG
DANE COUNTY, WISCONSIN

LEGEND

Existing Contours

- 10-ft Contour
- 2-ft Contour
- Phase 1 Existing Watersheds

Existing Land Use

- Agriculture
- Commercial
- Communication/Utilities
- Institutional/Governmental
- Open Land
- Recreation
- Residential
- Transportation
- Vacant Subdivided Land
- Water
- Woodlands
- Right of Way
- Farmstead

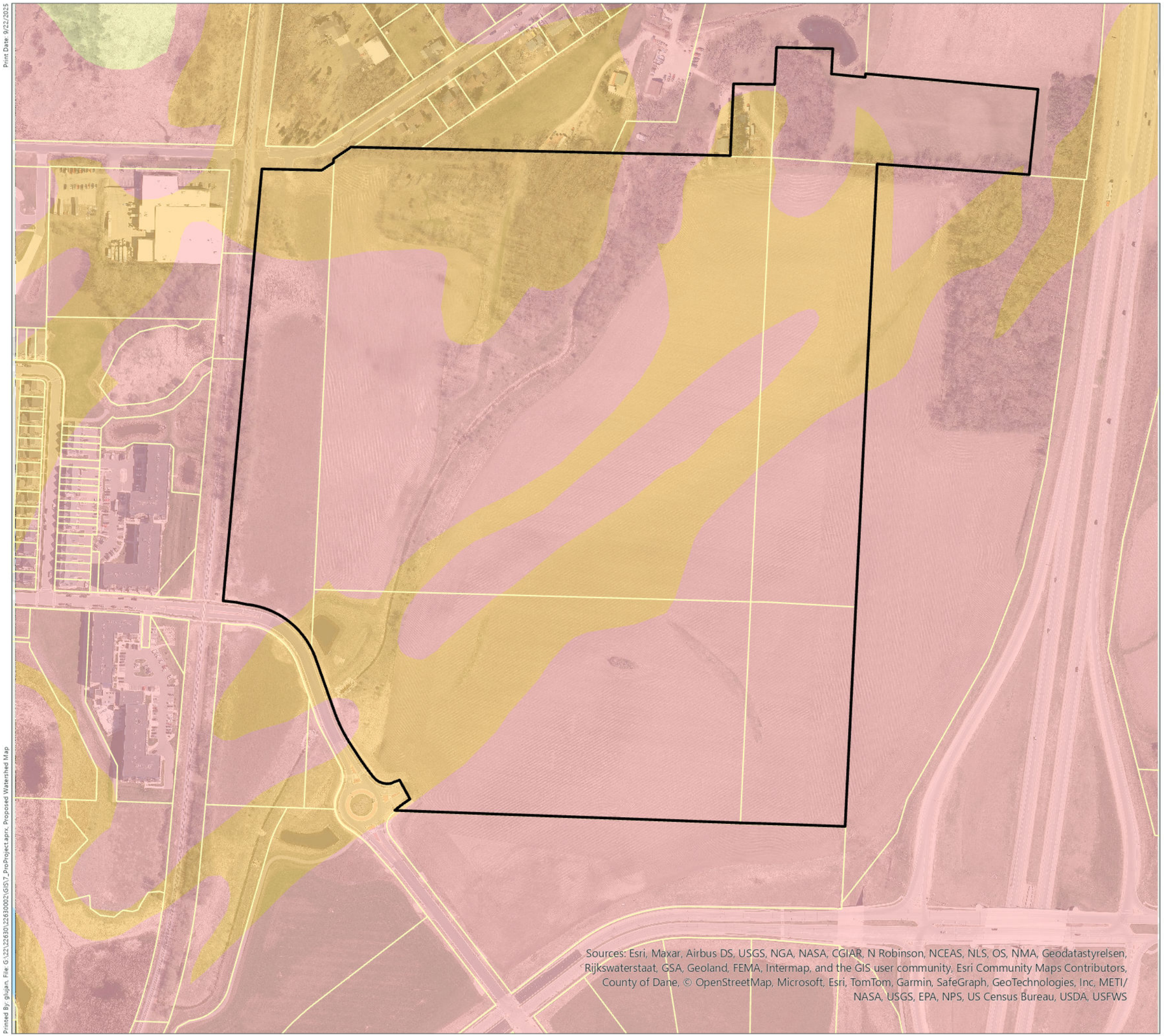
Data Sources:
Aerial: Wisconsin DNR (2022)
Watersheds and Land Use: MSA Preliminary Plat (2025)
Existing Contours: Dane County 2017 LiDAR
Parcels: Wisconsin Parcel Data V10

Spatial Reference:
Name: NAD 1983 (2011) WISCRS Dane (US Feet)
GCS: GCS NAD 1983 (2011)
Datum: NAD 1983 (2011)
Projection: Lambert Conformal Conic
Vertical Datum: NAVD 1988

MSA

0 150 300 Feet

N



Print Date: 9/22/2025

Printed By: gjuljan, File: G:\22\22630\22630002\GIS\7_ProProject.aprx, Proposed Watershed Map

SOILS MAP

NINE SPRINGS DEVELOPMENT
NO OAKS RANCH

CITY OF FITCHBURG
DANE COUNTY, WISCONSIN

LEGEND

- Project Location
- Parcels

Hydrologic Soil Group

- A
- B
- C

Data Sources:
Aerial: Wisconsin DNR (2022)
Watersheds and Land Use: MSA Preliminary Plat (2025)
Soils: USGS Web Soil Survey
Parcels: Wisconsin Parcel Data V10

Spatial Reference:
Name: NAD 1983 (2011) WISCRS Dane (US Feet)
GCS: GCS NAD 1983 (2011)
Datum: NAD 1983 (2011)
Projection: Lambert Conformal Conic
Vertical Datum: NAVD 1988

MSA

0 150 300 Feet

N

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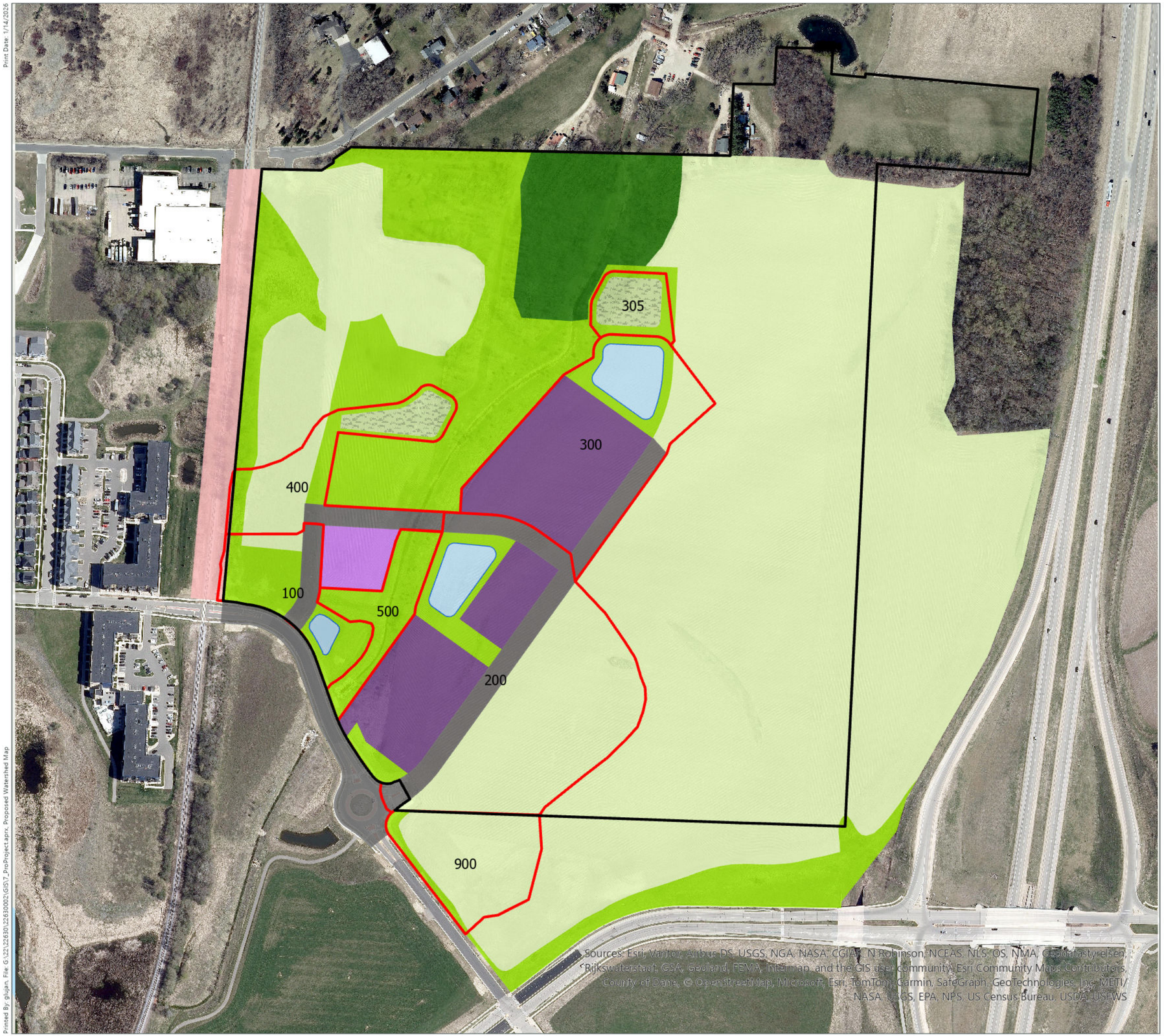

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PHASE 1 LAND USE AND WATERSHED MAP

NO OAKS RANCH DEVELOPMENT

CITY OF FITCHBURG
DANE COUNTY, WISCONSIN

LEGEND

- Project Location
- Phase 1 Watersheds

Land Use

- Alley
- T3
- T4
- T5
- Open
- Woodland
- Residential
- Park
- Agriculture
- Water
- Infiltration
- ST-45-22
- ST-55-28
- ST-60-34
- Transportation
- ROW

Data Sources:
Aerial: Wisconsin DNR (2022)
Watersheds and Land Use: MSA Preliminary Plat (2025)
Existing Contours: Dane County 2017 LiDAR
Parcels: Wisconsin Parcel Data V10

Spatial Reference:
Name: NAD 1983 (2011) WISCRS Dane (US Feet)
GCS: GCS NAD 1983 (2011)
Datum: NAD 1983 (2011)
Projection: Lambert Conformal Conic
Vertical Datum: NAVD 1988

MSA

0 150 300 Feet

N

WETLAND NEEDS TO BE REMOVED FROM WETLAND INVENTORY.

CREATE 12,800 SF INFILTRATION BASIN TO MEET ALL INFILTRATION GOALS OF DEVELOPMENT AREA. (ASSUMED INFILTRATION RATE OF 0.5 IN/HR)

REROUTE BIKE PATH TO THE NORTH AND WEST OF BASIN

NO ONSITE INFILTRATION REQUIRED.

Watershed G-T

2,000 SF BIO BASIN

3,500 SF BIO BASIN

DRAINAGE AREA TO PROPOSED BASIN
12.87 AC
CN 94

EXPAND BASIN FROM 8,700 SF TO 17,900 SF BASIN SIZED FOR 200-YEAR EVENT

ONSITE TREATMENT FOR LOTS 65 AND 66
3.36 AC
CN 94

DRAINAGE AREA TO EXISTING BASIN #2
40.66 AC
CN 94

DRAINAGE AREA TO SOUTHEAST SWALE AND EXISTING BASIN #1
24.72 AC
CN 94

DRAINAGE AREA TO SOUTHWEST SWALE AND EXISTING BASIN #1
23.09 AC
CN 94

LACY ROAD

LOT 3 LOT 2 LOT 4 LOT 5 LOT 6 LOT 7

NINE SPRINGS E

75 UNITS 3 STORY 75 UNDERGROUND STALLS
51 UNITS 3 STORY 51 UNDERGROUND STALLS
59 UNITS 4 STORY 59 UNDERGROUND STALLS
80 UNITS 4 STORY 80 UNDERGROUND STALLS
62 UNITS 4 STORY 62 UNDERGROUND STALLS
58 UNITS 4 STORY 58 UNDERGROUND STALLS
4 UNITS
CLUBHOUSE
POOL
COMMERCIAL 5300 S.F.
GREEN SPACE ONSLAB

S87°51'00"E 22.93'
N27°49'58"E 6.73'
S62°39'10"E 120.42'
S87°51'00"E 60.00'
S62°39'10"E 290.82'
R=N VARIES

CSM #14424 VOL 2

NINE SPRINGS

N
W E
S

GRAPHIC SCALE FEET
0 50 100 200

vierbicher
planners | engineers | advisors
Phone: (800) 261-3898

Stanley Park Place Drainage Exhibit - Option 3

STANLEY PARK PLACE & BALBOA PASS ROADWAY IMPROVEMENTS
CITY OF FITCHBURG
DANE COUNTY, WISCONSIN

REVISIONS			
NO.	DATE	REMARKS	

REVISIONS			
NO.	DATE	REMARKS	

DATE 02/06/2025
DRAFTER NJOH
CHECKED JZAM
PROJECT NO. 210233

EX3

06 Feb 2025 - 3:15p M:\Avante Properties\210233_Stanley Park Place Extension\CADD\210233_Stormwater.dwg by: njoh

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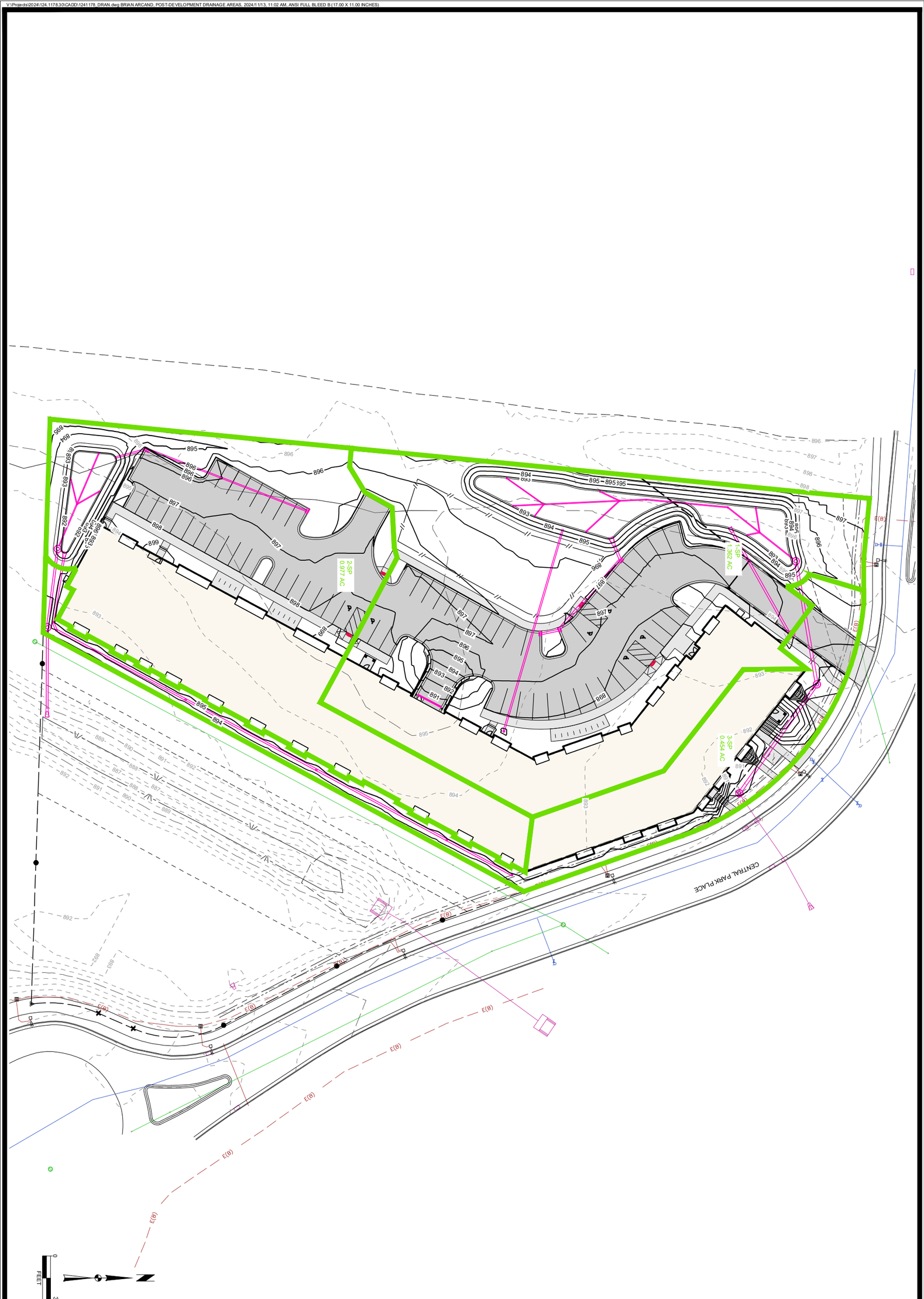


CENTRAL PARK PLACE

POST-DEVELOPMENT DRAINAGE AREAS

FITCHBURG, DANE COUNTY, WISCONSIN

SNYDER & ASSOCIATES, INC.

5010 VOGES ROAD
MADISON, WISCONSIN 53718
608-838-0444 | www.snyder-associates.com

MARK	REVISION	DATE	BY
	CITY COMMENTS	11-12-24	

Engineer: BCA | Checked By: MLC | Scale: 1" = 30'

Technician: DMS | Date: 10-24-2024 | T-R-S: 6N-9E-11

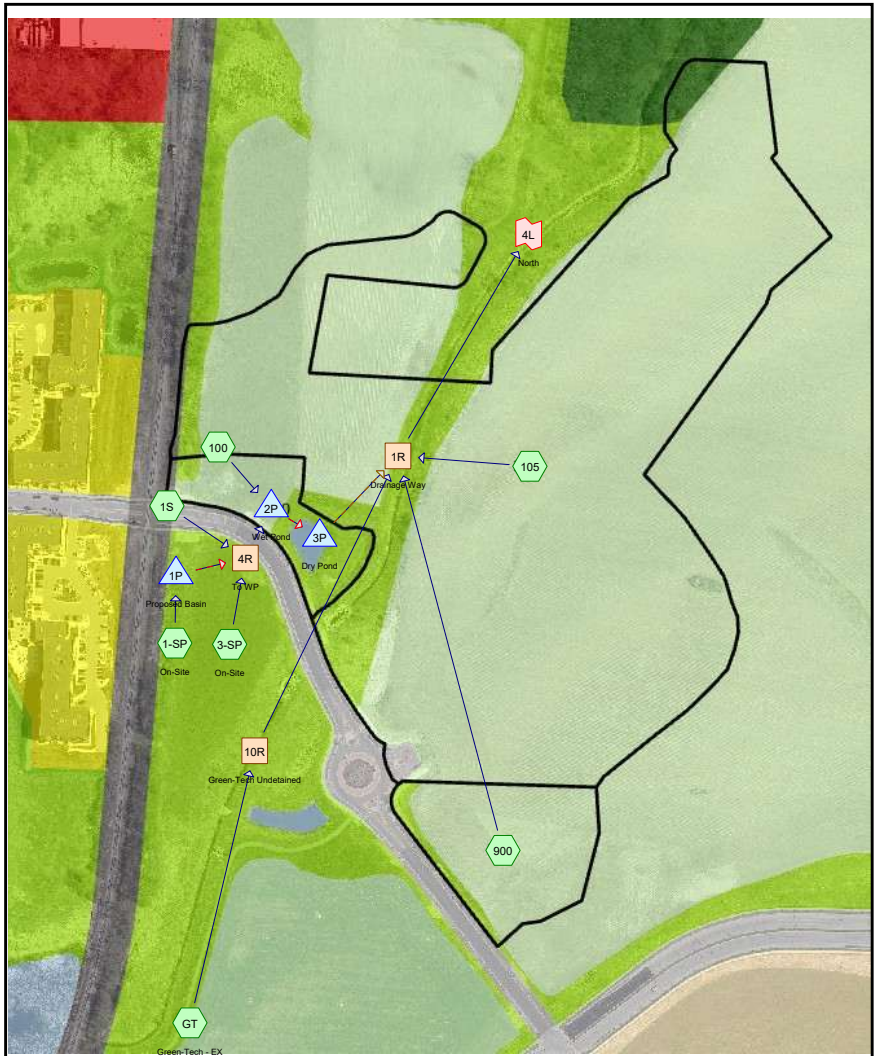
Project No: 124.1178.30 | Sheet APP D

Sheet APP D | Project No: 124.1178.30

APPENDIX B

Detailed HydroCAD Output

EXISTING CONDITIONS



Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	MSE 24-hr	4	Default	24.00	1	2.49	2
2	2-Year	MSE 24-hr	4	Default	24.00	1	2.84	2
3	10-Year	MSE 24-hr	4	Default	24.00	1	4.09	2
4	100-Year	MSE 24-hr	4	Default	24.00	1	6.66	2
5	200-Year	MSE 24-hr	4	Default	24.00	1	7.53	2

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=WQ Runoff=3.31 cfs 0.198 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=1.70"
Tc=6.0 min CN=WQ Runoff=4.70 cfs 0.284 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=1.77"
Tc=6.0 min CN=WQ Runoff=0.82 cfs 0.049 af

Subcatchment 100: Runoff Area=1.670 ac 9.40% Impervious Runoff Depth=0.61"
Tc=8.0 min CN=WQ Runoff=1.19 cfs 0.085 af

Subcatchment 105: Runoff Area=27.286 ac 0.38% Impervious Runoff Depth=0.51"
Flow Length=3,440' Tc=18.7 min CN=WQ Runoff=11.72 cfs 1.154 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=0.37"
Flow Length=400' Tc=38.5 min CN=WQ Runoff=0.50 cfs 0.083 af

Subcatchment GT: Green-Tech - EX Runoff Area=3.361 ac 0.00% Impervious Runoff Depth=0.38"
Flow Length=250' Tc=12.7 min CN=68 Runoff=1.16 cfs 0.107 af

Reach 1R: Drainage Way Avg. Flow Depth=0.44' Max Vel=1.64 fps Inflow=12.45 cfs 1.829 af
n=0.035 L=1,900.0' S=0.0055 '/' Capacity=317.41 cfs Outflow=8.50 cfs 1.828 af

Reach 4R: To WP Inflow=5.51 cfs 0.426 af
Outflow=5.51 cfs 0.426 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.08' Max Vel=0.66 fps Inflow=1.16 cfs 0.107 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=0.57 cfs 0.107 af

Pond 1P: Proposed Basin Peak Elev=893.78' Storage=4,934 cf Inflow=3.31 cfs 0.198 af
Primary=0.85 cfs 0.094 af Secondary=0.00 cfs 0.000 af Outflow=0.85 cfs 0.094 af

Pond 2P: Wet Pond Peak Elev=889.38' Storage=10,831 cf Inflow=6.63 cfs 0.512 af
Primary=1.33 cfs 0.485 af Secondary=0.00 cfs 0.000 af Outflow=1.33 cfs 0.485 af

Pond 3P: Dry Pond Peak Elev=887.69' Storage=2,023 cf Inflow=1.33 cfs 0.485 af
Primary=0.21 cfs 0.265 af Secondary=0.93 cfs 0.220 af Tertiary=0.00 cfs 0.000 af Outflow=1.14 cfs 0.485 af

Link 4L: North Inflow=8.50 cfs 1.828 af
Primary=8.50 cfs 1.828 af

Total Runoff Area = 38.744 ac Runoff Volume = 1.960 af Average Runoff Depth = 0.61"
93.50% Pervious = 36.225 ac 6.50% Impervious = 2.519 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 3.31 cfs @ 12.13 hrs, Volume= 0.198 af, Depth= 1.74"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 4.70 cfs @ 12.13 hrs, Volume= 0.284 af, Depth= 1.70"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 0.82 cfs @ 12.13 hrs, Volume= 0.049 af, Depth= 1.77"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100:

Runoff = 1.19 cfs @ 12.16 hrs, Volume= 0.085 af, Depth= 0.61"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.157	100	Water
*	0.747	68	Cropland, HSG B
*	0.020	78	Cropland, HSG C
*	0.104	61	Grassland, HSG B
*	0.642	71	Grassland, HSG C
	1.670		Weighted Average
	1.513		90.60% Pervious Area
	0.157		9.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 105:

Runoff = 11.72 cfs @ 12.32 hrs, Volume= 1.154 af, Depth= 0.51"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	16.067	68	Cropland, HSG B
*	8.396	78	Cropland, HSG C
*	0.250	55	Woodland, HSG B
*	1.127	61	Grassland, HSG B
*	1.342	71	Grassland, HSG C
*	0.104	98	Impervious
	27.286		Weighted Average
	27.182		99.62% Pervious Area
	0.104		0.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0275	0.38		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
2.4	300	0.0550	2.11		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
7.7	1,500	0.0060	3.24	233.54	**Trap/Vee/Rect Channel Flow, Crop Drainageway** Bot.W=12.00' D=2.00' Z= 12.0 '/' Top.W=60.00' n= 0.040
4.2	1,540	0.0055	6.10	2,048.16	**Trap/Vee/Rect Channel Flow, Drainage Way** Bot.W=100.00' D=3.00' Z= 4.0 '/' Top.W=124.00' n= 0.035
18.7	3,440	Total			

Summary for Subcatchment 900:

Runoff = 0.50 cfs @ 12.66 hrs, Volume= 0.083 af, Depth= 0.37"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	2.466	68	Cropland, HSG B
*	0.264	61	Grassland, HSG B
	2.730		Weighted Average
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0570	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
3.5	300	0.0250	1.42		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
25.0					**Direct Entry, Through Site**
38.5	400	Total			

Summary for Subcatchment GT: Green-Tech - EX

Runoff = 1.16 cfs @ 12.25 hrs, Volume= 0.107 af, Depth= 0.38"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	3.361	68	Untreated runoff from Green-Tech Property
	3.361		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.0200	0.33		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
1.7	150	0.0260	1.45		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
6.0					**Direct Entry, Through Greenway**
12.7	250	Total			

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth > 0.57" for 1-Year event
Inflow = 12.45 cfs @ 12.33 hrs, Volume= 1.829 af
Outflow = 8.50 cfs @ 12.57 hrs, Volume= 1.828 af, Atten= 32%, Lag= 14.8 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.64 fps, Min. Travel Time= 19.3 min
Avg. Velocity = 0.45 fps, Avg. Travel Time= 69.6 min

Peak Storage= 9,825 cf @ 12.57 hrs
Average Depth at Peak Storage= 0.44' , Surface Width= 13.52'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 317.41 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,900.0' Slope= 0.0055 '/'
Inlet Invert= 886.36', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 1.38" for 1-Year event
Inflow = 5.51 cfs @ 12.13 hrs, Volume= 0.426 af
Outflow = 5.51 cfs @ 12.13 hrs, Volume= 0.426 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 0.00% Impervious, Inflow Depth = 0.38" for 1-Year event
Inflow = 1.16 cfs @ 12.25 hrs, Volume= 0.107 af
Outflow = 0.57 cfs @ 12.54 hrs, Volume= 0.107 af, Atten= 51%, Lag= 17.4 min
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.66 fps, Min. Travel Time= 25.3 min
Avg. Velocity = 0.36 fps, Avg. Travel Time= 46.3 min

Peak Storage= 857 cf @ 12.54 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 10.66'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 1.74" for 1-Year event
Inflow = 3.31 cfs @ 12.13 hrs, Volume= 0.198 af
Outflow = 0.85 cfs @ 12.37 hrs, Volume= 0.094 af, Atten= 74%, Lag= 14.5 min
Primary = 0.85 cfs @ 12.37 hrs, Volume= 0.094 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 893.78' @ 12.37 hrs Surf.Area= 5,414 sf Storage= 4,934 cf

Plug-Flow detention time= 238.1 min calculated for 0.094 af (47% of inflow)
Center-of-Mass det. time= 128.9 min (900.1 - 771.3)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.84 cfs @ 12.37 hrs HW=893.77' TW=0.00' (Dynamic Tailwater)
- **3=18" RCP** (Passes 0.84 cfs of 10.43 cfs potential flow)
  - **2=6" Underdrain** (Passes 0.00 cfs of 0.88 cfs potential flow)
    - **1=Exfiltration** (Exfiltration Controls 0.00 cfs)
  - **4=48" Standpipe** (Weir Controls 0.84 cfs @ 0.89 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth = 1.14" for 1-Year event
Inflow = 6.63 cfs @ 12.14 hrs, Volume= 0.512 af
Outflow = 1.33 cfs @ 12.66 hrs, Volume= 0.485 af, Atten= 80%, Lag= 31.3 min
Primary = 1.33 cfs @ 12.66 hrs, Volume= 0.485 af
Routed to Pond 3P : Dry Pond
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 889.38' @ 12.66 hrs Surf.Area= 8,689 sf Storage= 10,831 cf (10,195 cf above start)

Plug-Flow detention time= 284.4 min calculated for 0.470 af (92% of inflow)
Center-of-Mass det. time= 234.1 min (1,036.4 - 802.3)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.32 cfs @ 12.66 hrs HW=889.38' TW=887.51' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.32 cfs of 10.50 cfs potential flow)
  - **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.32 cfs @ 2.97 fps)
  - **3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.09' TW=887.00' (Dynamic Tailwater)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Dry Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth > 1.08" for 1-Year event
Inflow = 1.33 cfs @ 12.66 hrs, Volume= 0.485 af
Outflow = 1.14 cfs @ 13.33 hrs, Volume= 0.485 af, Atten= 14%, Lag= 40.1 min
Primary = 0.21 cfs @ 12.20 hrs, Volume= 0.265 af
Routed to Reach 1R : Drainage Way
Secondary = 0.93 cfs @ 13.33 hrs, Volume= 0.220 af
Routed to Reach 1R : Drainage Way
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 887.69' @ 13.33 hrs Surf.Area= 3,348 sf Storage= 2,023 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 28.0 min (1,064.4 - 1,036.4)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 12.20 hrs HW=887.06' TW=886.53' (Dynamic Tailwater)
↑└**2=Underdrain** (Passes 0.21 cfs of 0.33 cfs potential flow)
↑└**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=0.93 cfs @ 13.33 hrs HW=887.69' TW=886.68' (Dynamic Tailwater)
↑└**3=Culvert** (Barrel Controls 0.93 cfs @ 2.77 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=887.00' TW=886.36' (Dynamic Tailwater)
↑└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth > 0.57" for 1-Year event
Inflow = 8.50 cfs @ 12.57 hrs, Volume= 1.828 af
Primary = 8.50 cfs @ 12.57 hrs, Volume= 1.828 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=WQ Runoff=3.89 cfs 0.233 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=2.00"
Tc=6.0 min CN=WQ Runoff=5.54 cfs 0.334 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=2.08"
Tc=6.0 min CN=WQ Runoff=0.96 cfs 0.057 af

Subcatchment 100: Runoff Area=1.670 ac 9.40% Impervious Runoff Depth=0.80"
Tc=8.0 min CN=WQ Runoff=1.66 cfs 0.111 af

Subcatchment 105: Runoff Area=27.286 ac 0.38% Impervious Runoff Depth=0.69"
Flow Length=3,440' Tc=18.7 min CN=WQ Runoff=16.99 cfs 1.572 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=0.52"
Flow Length=400' Tc=38.5 min CN=WQ Runoff=0.79 cfs 0.119 af

Subcatchment GT: Green-Tech - EX Runoff Area=3.361 ac 0.00% Impervious Runoff Depth=0.55"
Flow Length=250' Tc=12.7 min CN=68 Runoff=1.85 cfs 0.153 af

Reach 1R: Drainage Way Avg. Flow Depth=0.57' Max Vel=1.90 fps Inflow=18.46 cfs 2.448 af
n=0.035 L=1,900.0' S=0.0055 '/' Capacity=317.41 cfs Outflow=13.23 cfs 2.447 af

Reach 4R: To WP Inflow=6.61 cfs 0.521 af
Outflow=6.61 cfs 0.521 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.12' Max Vel=0.81 fps Inflow=1.85 cfs 0.153 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=1.00 cfs 0.153 af

Pond 1P: Proposed Basin Peak Elev=893.83' Storage=5,205 cf Inflow=3.89 cfs 0.233 af
Primary=1.82 cfs 0.129 af Secondary=0.00 cfs 0.000 af Outflow=1.82 cfs 0.129 af

Pond 2P: Wet Pond Peak Elev=889.62' Storage=12,949 cf Inflow=8.24 cfs 0.632 af
Primary=2.03 cfs 0.605 af Secondary=0.00 cfs 0.000 af Outflow=2.03 cfs 0.605 af

Pond 3P: Dry Pond Peak Elev=887.87' Storage=2,652 cf Inflow=2.03 cfs 0.605 af
Primary=0.21 cfs 0.279 af Secondary=1.46 cfs 0.326 af Tertiary=0.00 cfs 0.000 af Outflow=1.67 cfs 0.605 af

Link 4L: North Inflow=13.23 cfs 2.447 af
Primary=13.23 cfs 2.447 af

Total Runoff Area = 38.744 ac Runoff Volume = 2.580 af Average Runoff Depth = 0.80"
93.50% Pervious = 36.225 ac 6.50% Impervious = 2.519 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 3.89 cfs @ 12.13 hrs, Volume= 0.233 af, Depth= 2.05"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 5.54 cfs @ 12.13 hrs, Volume= 0.334 af, Depth= 2.00"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 0.96 cfs @ 12.13 hrs, Volume= 0.057 af, Depth= 2.08"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100:

Runoff = 1.66 cfs @ 12.16 hrs, Volume= 0.111 af, Depth= 0.80"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.157	100	Water
*	0.747	68	Cropland, HSG B
*	0.020	78	Cropland, HSG C
*	0.104	61	Grassland, HSG B
*	0.642	71	Grassland, HSG C
	1.670		Weighted Average
	1.513		90.60% Pervious Area
	0.157		9.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 105:

Runoff = 16.99 cfs @ 12.31 hrs, Volume= 1.572 af, Depth= 0.69"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	16.067	68	Cropland, HSG B
*	8.396	78	Cropland, HSG C
*	0.250	55	Woodland, HSG B
*	1.127	61	Grassland, HSG B
*	1.342	71	Grassland, HSG C
*	0.104	98	Impervious
	27.286		Weighted Average
	27.182		99.62% Pervious Area
	0.104		0.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0275	0.38		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
2.4	300	0.0550	2.11		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
7.7	1,500	0.0060	3.24	233.54	**Trap/Vee/Rect Channel Flow, Crop Drainageway** Bot.W=12.00' D=2.00' Z= 12.0 '/' Top.W=60.00' n= 0.040
4.2	1,540	0.0055	6.10	2,048.16	**Trap/Vee/Rect Channel Flow, Drainage Way** Bot.W=100.00' D=3.00' Z= 4.0 '/' Top.W=124.00' n= 0.035
18.7	3,440	Total			

Summary for Subcatchment 900:

Runoff = 0.79 cfs @ 12.63 hrs, Volume= 0.119 af, Depth= 0.52"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	2.466	68	Cropland, HSG B
*	0.264	61	Grassland, HSG B
	2.730		Weighted Average
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0570	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
3.5	300	0.0250	1.42		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
25.0					**Direct Entry, Through Site**
38.5	400	Total			

Summary for Subcatchment GT: Green-Tech - EX

Runoff = 1.85 cfs @ 12.24 hrs, Volume= 0.153 af, Depth= 0.55"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	3.361	68	Untreated runoff from Green-Tech Property
	3.361		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.0200	0.33		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
1.7	150	0.0260	1.45		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
6.0					**Direct Entry, Through Greenway**
12.7	250	Total			

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth > 0.76" for 2-Year event
Inflow = 18.46 cfs @ 12.32 hrs, Volume= 2.448 af
Outflow = 13.23 cfs @ 12.53 hrs, Volume= 2.447 af, Atten= 28%, Lag= 12.7 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.90 fps, Min. Travel Time= 16.6 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 66.2 min

Peak Storage= 13,200 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.57' , Surface Width= 14.53'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 317.41 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,900.0' Slope= 0.0055 '/'
Inlet Invert= 886.36', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 1.69" for 2-Year event
Inflow = 6.61 cfs @ 12.14 hrs, Volume= 0.521 af
Outflow = 6.61 cfs @ 12.14 hrs, Volume= 0.521 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 0.00% Impervious, Inflow Depth = 0.55" for 2-Year event
Inflow = 1.85 cfs @ 12.24 hrs, Volume= 0.153 af
Outflow = 1.00 cfs @ 12.46 hrs, Volume= 0.153 af, Atten= 46%, Lag= 13.5 min
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 20.5 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 44.6 min

Peak Storage= 1,224 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 10.93'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 2.05" for 2-Year event
Inflow = 3.89 cfs @ 12.13 hrs, Volume= 0.233 af
Outflow = 1.82 cfs @ 12.26 hrs, Volume= 0.129 af, Atten= 53%, Lag= 7.6 min
Primary = 1.82 cfs @ 12.26 hrs, Volume= 0.129 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 893.83' @ 12.26 hrs Surf.Area= 5,489 sf Storage= 5,205 cf

Plug-Flow detention time= 203.9 min calculated for 0.129 af (55% of inflow)
Center-of-Mass det. time= 104.9 min (874.4 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.80 cfs @ 12.26 hrs HW=893.82' TW=0.00' (Dynamic Tailwater)
└**3=18" RCP** (Passes 1.80 cfs of 10.54 cfs potential flow)
└**2=6" Underdrain** (Passes 0.00 cfs of 0.89 cfs potential flow)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)
└**4=48" Standpipe** (Weir Controls 1.80 cfs @ 1.15 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 8.24 cfs @ 12.15 hrs, Volume= 0.632 af
Outflow = 2.03 cfs @ 12.56 hrs, Volume= 0.605 af, Atten= 75%, Lag= 24.8 min
Primary = 2.03 cfs @ 12.56 hrs, Volume= 0.605 af
Routed to Pond 3P : Dry Pond
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 889.62' @ 12.56 hrs Surf.Area= 8,989 sf Storage= 12,949 cf (12,313 cf above start)

Plug-Flow detention time= 249.3 min calculated for 0.590 af (93% of inflow)
Center-of-Mass det. time= 206.6 min (1,005.9 - 799.3)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.03 cfs @ 12.56 hrs HW=889.62' TW=887.66' (Dynamic Tailwater)
└**1=Culvert** (Passes 2.03 cfs of 13.04 cfs potential flow)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 2.03 cfs @ 3.23 fps)
└**3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.09' TW=887.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Dry Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth > 1.35" for 2-Year event
Inflow = 2.03 cfs @ 12.56 hrs, Volume= 0.605 af
Outflow = 1.67 cfs @ 13.10 hrs, Volume= 0.605 af, Atten= 17%, Lag= 32.5 min
Primary = 0.21 cfs @ 12.15 hrs, Volume= 0.279 af
Routed to Reach 1R : Drainage Way
Secondary = 1.46 cfs @ 13.10 hrs, Volume= 0.326 af
Routed to Reach 1R : Drainage Way
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 887.87' @ 13.10 hrs Surf.Area= 3,568 sf Storage= 2,652 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 27.7 min (1,033.6 - 1,005.9)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 12.15 hrs HW=887.07' TW=886.55' (Dynamic Tailwater)
└**2=Underdrain** (Passes 0.21 cfs of 0.33 cfs potential flow)
└**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.46 cfs @ 13.10 hrs HW=887.87' TW=886.78' (Dynamic Tailwater)
└**3=Culvert** (Barrel Controls 1.46 cfs @ 3.10 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=887.00' TW=886.36' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth > 0.76" for 2-Year event
Inflow = 13.23 cfs @ 12.53 hrs, Volume= 2.447 af
Primary = 13.23 cfs @ 12.53 hrs, Volume= 2.447 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=3.20"
Tc=6.0 min CN=WQ Runoff=6.04 cfs 0.363 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=3.13"
Tc=6.0 min CN=WQ Runoff=8.66 cfs 0.523 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=3.23"
Tc=6.0 min CN=WQ Runoff=1.48 cfs 0.089 af

Subcatchment 100: Runoff Area=1.670 ac 9.40% Impervious Runoff Depth=1.59"
Tc=8.0 min CN=WQ Runoff=3.61 cfs 0.221 af

Subcatchment 105: Runoff Area=27.286 ac 0.38% Impervious Runoff Depth=1.47"
Flow Length=3,440' Tc=18.7 min CN=WQ Runoff=39.64 cfs 3.349 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=1.22"
Flow Length=400' Tc=38.5 min CN=WQ Runoff=2.15 cfs 0.278 af

Subcatchment GT: Green-Tech - EX Runoff Area=3.361 ac 0.00% Impervious Runoff Depth=1.26"
Flow Length=250' Tc=12.7 min CN=68 Runoff=4.97 cfs 0.354 af

Reach 1R: Drainage Way Avg. Flow Depth=1.01' Max Vel=2.64 fps Inflow=47.11 cfs 5.045 af
n=0.035 L=1,900.0' S=0.0055 '/' Capacity=317.41 cfs Outflow=37.27 cfs 5.043 af

Reach 4R: To WP Inflow=14.95 cfs 0.871 af
Outflow=14.95 cfs 0.871 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.24' Max Vel=1.28 fps Inflow=4.97 cfs 0.354 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=3.41 cfs 0.354 af

Pond 1P: Proposed Basin Peak Elev=893.95' Storage=5,907 cf Inflow=6.04 cfs 0.363 af
Primary=5.16 cfs 0.259 af Secondary=0.00 cfs 0.000 af Outflow=5.16 cfs 0.259 af

Pond 2P: Wet Pond Peak Elev=890.18' Storage=18,128 cf Inflow=18.50 cfs 1.091 af
Primary=10.84 cfs 1.063 af Secondary=0.00 cfs 0.000 af Outflow=10.84 cfs 1.063 af

Pond 3P: Dry Pond Peak Elev=888.92' Storage=6,986 cf Inflow=10.84 cfs 1.063 af
Primary=0.21 cfs 0.317 af Secondary=3.76 cfs 0.746 af Tertiary=0.00 cfs 0.000 af Outflow=3.97 cfs 1.064 af

Link 4L: North Inflow=37.27 cfs 5.043 af
Primary=37.27 cfs 5.043 af

Total Runoff Area = 38.744 ac Runoff Volume = 5.177 af Average Runoff Depth = 1.60"
93.50% Pervious = 36.225 ac 6.50% Impervious = 2.519 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 6.04 cfs @ 12.13 hrs, Volume= 0.363 af, Depth= 3.20"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 8.66 cfs @ 12.13 hrs, Volume= 0.523 af, Depth= 3.13"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 1.48 cfs @ 12.13 hrs, Volume= 0.089 af, Depth= 3.23"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100:

Runoff = 3.61 cfs @ 12.16 hrs, Volume= 0.221 af, Depth= 1.59"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.157	100	Water
*	0.747	68	Cropland, HSG B
*	0.020	78	Cropland, HSG C
*	0.104	61	Grassland, HSG B
*	0.642	71	Grassland, HSG C
	1.670		Weighted Average
	1.513		90.60% Pervious Area
	0.157		9.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 105:

Runoff = 39.64 cfs @ 12.29 hrs, Volume= 3.349 af, Depth= 1.47"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	16.067	68	Cropland, HSG B
*	8.396	78	Cropland, HSG C
*	0.250	55	Woodland, HSG B
*	1.127	61	Grassland, HSG B
*	1.342	71	Grassland, HSG C
*	0.104	98	Impervious
	27.286		Weighted Average
	27.182		99.62% Pervious Area
	0.104		0.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0275	0.38		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
2.4	300	0.0550	2.11		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
7.7	1,500	0.0060	3.24	233.54	**Trap/Vee/Rect Channel Flow, Crop Drainageway** Bot.W=12.00' D=2.00' Z= 12.0 '/' Top.W=60.00' n= 0.040
4.2	1,540	0.0055	6.10	2,048.16	**Trap/Vee/Rect Channel Flow, Drainage Way** Bot.W=100.00' D=3.00' Z= 4.0 '/' Top.W=124.00' n= 0.035
18.7	3,440	Total			

Summary for Subcatchment 900:

Runoff = 2.15 cfs @ 12.58 hrs, Volume= 0.278 af, Depth= 1.22"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	2.466	68	Cropland, HSG B
*	0.264	61	Grassland, HSG B
	2.730		Weighted Average
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0570	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
3.5	300	0.0250	1.42		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
25.0					**Direct Entry, Through Site**
38.5	400	Total			

Summary for Subcatchment GT: Green-Tech - EX

Runoff = 4.97 cfs @ 12.22 hrs, Volume= 0.354 af, Depth= 1.26"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	3.361	68	Untreated runoff from Green-Tech Property
	3.361		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.0200	0.33		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
1.7	150	0.0260	1.45		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
6.0					**Direct Entry, Through Greenway**
12.7	250	Total			

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth > 1.56" for 10-Year event
Inflow = 47.11 cfs @ 12.31 hrs, Volume= 5.045 af
Outflow = 37.27 cfs @ 12.46 hrs, Volume= 5.043 af, Atten= 21%, Lag= 8.8 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.64 fps, Min. Travel Time= 12.0 min
Avg. Velocity = 0.55 fps, Avg. Travel Time= 57.7 min

Peak Storage= 26,840 cf @ 12.46 hrs
Average Depth at Peak Storage= 1.01' , Surface Width= 18.06'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 317.41 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,900.0' Slope= 0.0055 '/'
Inlet Invert= 886.36', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 2.83" for 10-Year event
Inflow = 14.95 cfs @ 12.14 hrs, Volume= 0.871 af
Outflow = 14.95 cfs @ 12.14 hrs, Volume= 0.871 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 0.00% Impervious, Inflow Depth = 1.26" for 10-Year event
Inflow = 4.97 cfs @ 12.22 hrs, Volume= 0.354 af
Outflow = 3.41 cfs @ 12.35 hrs, Volume= 0.354 af, Atten= 31%, Lag= 7.8 min
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.28 fps, Min. Travel Time= 13.0 min
Avg. Velocity = 0.43 fps, Avg. Travel Time= 39.2 min

Peak Storage= 2,657 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.24' , Surface Width= 11.94'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 3.20" for 10-Year event
Inflow = 6.04 cfs @ 12.13 hrs, Volume= 0.363 af
Outflow = 5.16 cfs @ 12.17 hrs, Volume= 0.259 af, Atten= 15%, Lag= 2.5 min
Primary = 5.16 cfs @ 12.17 hrs, Volume= 0.259 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 893.95' @ 12.17 hrs Surf.Area= 5,682 sf Storage= 5,907 cf

Plug-Flow detention time= 154.2 min calculated for 0.259 af (71% of inflow)
Center-of-Mass det. time= 72.1 min (836.9 - 764.8)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.99 cfs @ 12.17 hrs HW=893.95' TW=0.00' (Dynamic Tailwater)
- **3=18" RCP** (Passes 4.99 cfs of 10.78 cfs potential flow)
  - **2=6" Underdrain** (Passes 0.00 cfs of 0.91 cfs potential flow)
    - **1=Exfiltration** (Exfiltration Controls 0.00 cfs)
  - **4=48" Standpipe** (Weir Controls 4.99 cfs @ 1.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth = 2.44" for 10-Year event
Inflow = 18.50 cfs @ 12.14 hrs, Volume= 1.091 af
Outflow = 10.84 cfs @ 12.26 hrs, Volume= 1.063 af, Atten= 41%, Lag= 7.2 min
Primary = 10.84 cfs @ 12.26 hrs, Volume= 1.063 af
Routed to Pond 3P : Dry Pond
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 890.18' @ 12.26 hrs Surf.Area= 9,685 sf Storage= 18,128 cf (17,492 cf above start)

Plug-Flow detention time= 173.5 min calculated for 1.049 af (96% of inflow)
Center-of-Mass det. time= 146.9 min (939.0 - 792.0)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.35 cfs @ 12.26 hrs HW=890.17' TW=888.11' (Dynamic Tailwater)
- **1=Culvert** (Passes 10.35 cfs of 17.26 cfs potential flow)
  - **2=Sharp-Crested Vee/Trap Weir** (Orifice Controls 4.11 cfs @ 4.21 fps)
  - **3=Standpipe** (Weir Controls 6.24 cfs @ 1.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.09' TW=887.00' (Dynamic Tailwater)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Dry Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth > 2.38" for 10-Year event
Inflow = 10.84 cfs @ 12.26 hrs, Volume= 1.063 af
Outflow = 3.97 cfs @ 12.58 hrs, Volume= 1.064 af, Atten= 63%, Lag= 18.8 min
Primary = 0.21 cfs @ 11.90 hrs, Volume= 0.317 af
Routed to Reach 1R : Drainage Way
Secondary = 3.76 cfs @ 12.58 hrs, Volume= 0.746 af
Routed to Reach 1R : Drainage Way
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 888.92' @ 12.58 hrs Surf.Area= 4,731 sf Storage= 6,986 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 28.2 min (967.1 - 939.0)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 11.90 hrs HW=887.07' TW=886.55' (Dynamic Tailwater)
↑└**2=Underdrain** (Passes 0.21 cfs of 0.32 cfs potential flow)
↑└**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=3.75 cfs @ 12.58 hrs HW=888.91' TW=887.32' (Dynamic Tailwater)
↑└**3=Culvert** (Barrel Controls 3.75 cfs @ 4.78 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=887.00' TW=886.36' (Dynamic Tailwater)
↑└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth > 1.56" for 10-Year event
Inflow = 37.27 cfs @ 12.46 hrs, Volume= 5.043 af
Primary = 37.27 cfs @ 12.46 hrs, Volume= 5.043 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=5.65"
Tc=6.0 min CN=WQ Runoff=10.55 cfs 0.641 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=5.55"
Tc=6.0 min CN=WQ Runoff=15.27 cfs 0.928 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=5.69"
Tc=6.0 min CN=WQ Runoff=2.57 cfs 0.157 af

Subcatchment 100: Runoff Area=1.670 ac 9.40% Impervious Runoff Depth=3.55"
Tc=8.0 min CN=WQ Runoff=8.39 cfs 0.495 af

Subcatchment 105: Runoff Area=27.286 ac 0.38% Impervious Runoff Depth=3.44"
Flow Length=3,440' Tc=18.7 min CN=WQ Runoff=95.63 cfs 7.827 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=3.07"
Flow Length=400' Tc=38.5 min CN=WQ Runoff=5.78 cfs 0.699 af

Subcatchment GT: Green-Tech - EX Runoff Area=3.361 ac 0.00% Impervious Runoff Depth=3.14"
Flow Length=250' Tc=12.7 min CN=68 Runoff=12.92 cfs 0.879 af

Reach 1R: Drainage Way Avg. Flow Depth=1.74' Max Vel=3.56 fps Inflow=126.74 cfs 11.493 af
n=0.035 L=1,900.0' S=0.0055 '/' Capacity=317.41 cfs Outflow=104.89 cfs 11.491 af

Reach 4R: To WP Inflow=26.89 cfs 1.622 af
Outflow=26.89 cfs 1.622 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.46' Max Vel=1.89 fps Inflow=12.92 cfs 0.879 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=10.36 cfs 0.879 af

Pond 1P: Proposed Basin Peak Elev=894.08' Storage=6,626 cf Inflow=10.55 cfs 0.641 af
Primary=9.44 cfs 0.537 af Secondary=0.00 cfs 0.000 af Outflow=9.44 cfs 0.537 af

Pond 2P: Wet Pond Peak Elev=890.69' Storage=23,242 cf Inflow=35.17 cfs 2.116 af
Primary=20.79 cfs 1.727 af Secondary=10.97 cfs 0.361 af Outflow=28.75 cfs 2.088 af

Pond 3P: Dry Pond Peak Elev=890.66' Storage=17,074 cf Inflow=28.75 cfs 2.088 af
Primary=0.21 cfs 0.368 af Secondary=6.16 cfs 1.515 af Tertiary=11.46 cfs 0.206 af Outflow=17.83 cfs 2.088 af

Link 4L: North Inflow=104.89 cfs 11.491 af
Primary=104.89 cfs 11.491 af

Total Runoff Area = 38.744 ac Runoff Volume = 11.625 af Average Runoff Depth = 3.60"
93.50% Pervious = 36.225 ac 6.50% Impervious = 2.519 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 10.55 cfs @ 12.13 hrs, Volume= 0.641 af, Depth= 5.65"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 15.27 cfs @ 12.13 hrs, Volume= 0.928 af, Depth= 5.55"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 2.57 cfs @ 12.13 hrs, Volume= 0.157 af, Depth= 5.69"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100:

Runoff = 8.39 cfs @ 12.15 hrs, Volume= 0.495 af, Depth= 3.55"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.157	100	Water
*	0.747	68	Cropland, HSG B
*	0.020	78	Cropland, HSG C
*	0.104	61	Grassland, HSG B
*	0.642	71	Grassland, HSG C
	1.670		Weighted Average
	1.513		90.60% Pervious Area
	0.157		9.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 105:

Runoff = 95.63 cfs @ 12.28 hrs, Volume= 7.827 af, Depth= 3.44"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	16.067	68	Cropland, HSG B
*	8.396	78	Cropland, HSG C
*	0.250	55	Woodland, HSG B
*	1.127	61	Grassland, HSG B
*	1.342	71	Grassland, HSG C
*	0.104	98	Impervious
	27.286		Weighted Average
	27.182		99.62% Pervious Area
	0.104		0.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0275	0.38		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
2.4	300	0.0550	2.11		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
7.7	1,500	0.0060	3.24	233.54	**Trap/Vee/Rect Channel Flow, Crop Drainageway** Bot.W=12.00' D=2.00' Z= 12.0 '/' Top.W=60.00' n= 0.040
4.2	1,540	0.0055	6.10	2,048.16	**Trap/Vee/Rect Channel Flow, Drainage Way** Bot.W=100.00' D=3.00' Z= 4.0 '/' Top.W=124.00' n= 0.035
18.7	3,440	Total			

Summary for Subcatchment 900:

Runoff = 5.78 cfs @ 12.55 hrs, Volume= 0.699 af, Depth= 3.07"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	2.466	68	Cropland, HSG B
*	0.264	61	Grassland, HSG B
	2.730		Weighted Average
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0570	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
3.5	300	0.0250	1.42		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
25.0					**Direct Entry, Through Site**
38.5	400	Total			

Summary for Subcatchment GT: Green-Tech - EX

Runoff = 12.92 cfs @ 12.21 hrs, Volume= 0.879 af, Depth= 3.14"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	3.361	68	Untreated runoff from Green-Tech Property
	3.361		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.0200	0.33		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
1.7	150	0.0260	1.45		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
6.0					**Direct Entry, Through Greenway**
12.7	250	Total			

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth > 3.56" for 100-Year event
Inflow = 126.74 cfs @ 12.27 hrs, Volume= 11.493 af
Outflow = 104.89 cfs @ 12.40 hrs, Volume= 11.491 af, Atten= 17%, Lag= 7.5 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.56 fps, Min. Travel Time= 8.9 min
Avg. Velocity = 0.66 fps, Avg. Travel Time= 47.9 min

Peak Storage= 55,961 cf @ 12.40 hrs
Average Depth at Peak Storage= 1.74' , Surface Width= 23.90'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 317.41 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,900.0' Slope= 0.0055 '/'
Inlet Invert= 886.36', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 5.26" for 100-Year event
Inflow = 26.89 cfs @ 12.14 hrs, Volume= 1.622 af
Outflow = 26.89 cfs @ 12.14 hrs, Volume= 1.622 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 0.00% Impervious, Inflow Depth = 3.14" for 100-Year event
Inflow = 12.92 cfs @ 12.21 hrs, Volume= 0.879 af
Outflow = 10.36 cfs @ 12.30 hrs, Volume= 0.879 af, Atten= 20%, Lag= 5.3 min
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.89 fps, Min. Travel Time= 8.8 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 32.5 min

Peak Storage= 5,476 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.46' , Surface Width= 13.70'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 5.65" for 100-Year event
Inflow = 10.55 cfs @ 12.13 hrs, Volume= 0.641 af
Outflow = 9.44 cfs @ 12.16 hrs, Volume= 0.537 af, Atten= 10%, Lag= 2.0 min
Primary = 9.44 cfs @ 12.16 hrs, Volume= 0.537 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 894.08' @ 12.16 hrs Surf.Area= 5,876 sf Storage= 6,626 cf

Plug-Flow detention time= 115.1 min calculated for 0.537 af (84% of inflow)
Center-of-Mass det. time= 53.9 min (812.2 - 758.3)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=9.23 cfs @ 12.16 hrs HW=894.07' TW=0.00' (Dynamic Tailwater)
└**3=18" RCP** (Passes 9.23 cfs of 11.02 cfs potential flow)
└**2=6" Underdrain** (Passes 0.00 cfs of 0.92 cfs potential flow)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)
└**4=48" Standpipe** (Weir Controls 9.23 cfs @ 1.99 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth = 4.73" for 100-Year event
Inflow = 35.17 cfs @ 12.14 hrs, Volume= 2.116 af
Outflow = 28.75 cfs @ 12.16 hrs, Volume= 2.088 af, Atten= 18%, Lag= 1.3 min
Primary = 20.79 cfs @ 12.14 hrs, Volume= 1.727 af
Routed to Pond 3P : Dry Pond
Secondary = 10.97 cfs @ 12.22 hrs, Volume= 0.361 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 890.69' @ 12.34 hrs Surf.Area= 10,326 sf Storage= 23,242 cf (22,607 cf above start)

Plug-Flow detention time= 113.5 min calculated for 2.071 af (98% of inflow)
Center-of-Mass det. time= 99.8 min (883.0 - 783.2)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=16.79 cfs @ 12.14 hrs HW=890.49' TW=889.51' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 16.79 cfs @ 4.75 fps)
↑—**2=Sharp-Crested Vee/Trap Weir** (Passes < 4.41 cfs potential flow)
↑—**3=Standpipe** (Passes < 31.03 cfs potential flow)

Secondary OutFlow Max=8.35 cfs @ 12.22 hrs HW=890.59' TW=890.46' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 8.35 cfs @ 1.22 fps)

Summary for Pond 3P: Dry Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth > 4.67" for 100-Year event
Inflow = 28.75 cfs @ 12.16 hrs, Volume= 2.088 af
Outflow = 17.83 cfs @ 12.26 hrs, Volume= 2.088 af, Atten= 38%, Lag= 6.0 min
Primary = 0.21 cfs @ 10.95 hrs, Volume= 0.368 af
Routed to Reach 1R : Drainage Way
Secondary = 6.16 cfs @ 12.27 hrs, Volume= 1.515 af
Routed to Reach 1R : Drainage Way
Tertiary = 11.46 cfs @ 12.26 hrs, Volume= 0.206 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 890.66' @ 12.27 hrs Surf.Area= 6,880 sf Storage= 17,074 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 30.0 min (913.0 - 883.0)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 10.95 hrs HW=887.06' TW=886.53' (Dynamic Tailwater)
↑—**2=Underdrain** (Passes 0.21 cfs of 0.33 cfs potential flow)
↑—**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=6.12 cfs @ 12.27 hrs HW=890.62' TW=887.87' (Dynamic Tailwater)
↑—**3=Culvert** (Barrel Controls 6.12 cfs @ 7.79 fps)

Tertiary OutFlow Max=10.12 cfs @ 12.26 hrs HW=890.63' TW=887.86' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 10.12 cfs @ 1.43 fps)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth = 3.56" for 100-Year event
Inflow = 104.89 cfs @ 12.40 hrs, Volume= 11.491 af
Primary = 104.89 cfs @ 12.40 hrs, Volume= 11.491 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=6.49"
Tc=6.0 min CN=WQ Runoff=12.08 cfs 0.737 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=6.39"
Tc=6.0 min CN=WQ Runoff=17.52 cfs 1.068 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=6.54"
Tc=6.0 min CN=WQ Runoff=2.94 cfs 0.180 af

Subcatchment 100: Runoff Area=1.670 ac 9.40% Impervious Runoff Depth=4.28"
Tc=8.0 min CN=WQ Runoff=10.12 cfs 0.596 af

Subcatchment 105: Runoff Area=27.286 ac 0.38% Impervious Runoff Depth=4.17"
Flow Length=3,440' Tc=18.7 min CN=WQ Runoff=115.99 cfs 9.487 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=3.77"
Flow Length=400' Tc=38.5 min CN=WQ Runoff=7.14 cfs 0.858 af

Subcatchment GT: Green-Tech - EX Runoff Area=3.361 ac 0.00% Impervious Runoff Depth=3.84"
Flow Length=250' Tc=12.7 min CN=68 Runoff=15.86 cfs 1.077 af

Reach 1R: Drainage Way Avg. Flow Depth=1.96' Max Vel=3.80 fps Inflow=154.83 cfs 13.870 af
n=0.035 L=1,900.0' S=0.0055 '/' Capacity=317.41 cfs Outflow=132.38 cfs 13.868 af

Reach 4R: To WP Inflow=30.93 cfs 1.881 af
Outflow=30.93 cfs 1.881 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.53' Max Vel=2.04 fps Inflow=15.86 cfs 1.077 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=12.97 cfs 1.077 af

Pond 1P: Proposed Basin Peak Elev=894.11' Storage=6,845 cf Inflow=12.08 cfs 0.737 af
Primary=10.88 cfs 0.633 af Secondary=0.00 cfs 0.000 af Outflow=10.88 cfs 0.633 af

Pond 2P: Wet Pond Peak Elev=890.84' Storage=24,882 cf Inflow=40.92 cfs 2.477 af
Primary=20.20 cfs 1.898 af Secondary=18.98 cfs 0.550 af Outflow=31.08 cfs 2.448 af

Pond 3P: Dry Pond Peak Elev=890.80' Storage=18,047 cf Inflow=31.08 cfs 2.448 af
Primary=0.21 cfs 0.380 af Secondary=6.31 cfs 1.667 af Tertiary=19.23 cfs 0.401 af Outflow=25.76 cfs 2.448 af

Link 4L: North Inflow=132.38 cfs 13.868 af
Primary=132.38 cfs 13.868 af

Total Runoff Area = 38.744 ac Runoff Volume = 14.002 af Average Runoff Depth = 4.34"
93.50% Pervious = 36.225 ac 6.50% Impervious = 2.519 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 12.08 cfs @ 12.13 hrs, Volume= 0.737 af, Depth= 6.49"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 17.52 cfs @ 12.13 hrs, Volume= 1.068 af, Depth= 6.39"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 2.94 cfs @ 12.13 hrs, Volume= 0.180 af, Depth= 6.54"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100:

Runoff = 10.12 cfs @ 12.15 hrs, Volume= 0.596 af, Depth= 4.28"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.157	100	Water
*	0.747	68	Cropland, HSG B
*	0.020	78	Cropland, HSG C
*	0.104	61	Grassland, HSG B
*	0.642	71	Grassland, HSG C
	1.670		Weighted Average
	1.513		90.60% Pervious Area
	0.157		9.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 105:

Runoff = 115.99 cfs @ 12.28 hrs, Volume= 9.487 af, Depth= 4.17"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	16.067	68	Cropland, HSG B
*	8.396	78	Cropland, HSG C
*	0.250	55	Woodland, HSG B
*	1.127	61	Grassland, HSG B
*	1.342	71	Grassland, HSG C
*	0.104	98	Impervious
	27.286		Weighted Average
	27.182		99.62% Pervious Area
	0.104		0.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.0275	0.38		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
2.4	300	0.0550	2.11		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
7.7	1,500	0.0060	3.24	233.54	**Trap/Vee/Rect Channel Flow, Crop Drainageway** Bot.W=12.00' D=2.00' Z= 12.0 '/' Top.W=60.00' n= 0.040
4.2	1,540	0.0055	6.10	2,048.16	**Trap/Vee/Rect Channel Flow, Drainage Way** Bot.W=100.00' D=3.00' Z= 4.0 '/' Top.W=124.00' n= 0.035
18.7	3,440	Total			

Summary for Subcatchment 900:

Runoff = 7.14 cfs @ 12.55 hrs, Volume= 0.858 af, Depth= 3.77"
Routed to Reach 1R : Drainage Way

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	2.466	68	Cropland, HSG B
*	0.264	61	Grassland, HSG B
	2.730		Weighted Average
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0570	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
3.5	300	0.0250	1.42		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
25.0					**Direct Entry, Through Site**
38.5	400	Total			

Summary for Subcatchment GT: Green-Tech - EX

Runoff = 15.86 cfs @ 12.21 hrs, Volume= 1.077 af, Depth= 3.84"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	3.361	68	Untreated runoff from Green-Tech Property
	3.361		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100	0.0200	0.33		**Sheet Flow,** Cultivated: Residue<=20% n= 0.060 P2= 2.84"
1.7	150	0.0260	1.45		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
6.0					**Direct Entry, Through Greenway**
12.7	250	Total			

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth > 4.30" for 200-Year event
Inflow = 154.83 cfs @ 12.27 hrs, Volume= 13.870 af
Outflow = 132.38 cfs @ 12.38 hrs, Volume= 13.868 af, Atten= 14%, Lag= 6.8 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.80 fps, Min. Travel Time= 8.3 min
Avg. Velocity = 0.69 fps, Avg. Travel Time= 45.6 min

Peak Storage= 66,211 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.96' , Surface Width= 25.64'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 317.41 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,900.0' Slope= 0.0055 '/'
Inlet Invert= 886.36', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 6.10" for 200-Year event
Inflow = 30.93 cfs @ 12.14 hrs, Volume= 1.881 af
Outflow = 30.93 cfs @ 12.14 hrs, Volume= 1.881 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 0.00% Impervious, Inflow Depth = 3.84" for 200-Year event
Inflow = 15.86 cfs @ 12.21 hrs, Volume= 1.077 af
Outflow = 12.97 cfs @ 12.29 hrs, Volume= 1.077 af, Atten= 18%, Lag= 4.9 min
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.04 fps, Min. Travel Time= 8.2 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 31.1 min

Peak Storage= 6,361 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.53' , Surface Width= 14.20'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 6.49" for 200-Year event
Inflow = 12.08 cfs @ 12.13 hrs, Volume= 0.737 af
Outflow = 10.88 cfs @ 12.16 hrs, Volume= 0.633 af, Atten= 10%, Lag= 1.9 min
Primary = 10.88 cfs @ 12.16 hrs, Volume= 0.633 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 894.11' @ 12.16 hrs Surf.Area= 5,935 sf Storage= 6,845 cf

Plug-Flow detention time= 108.4 min calculated for 0.633 af (86% of inflow)
Center-of-Mass det. time= 50.6 min (807.4 - 756.7)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=10.65 cfs @ 12.16 hrs HW=894.11' TW=0.00' (Dynamic Tailwater)
└**3=18" RCP** (Passes 10.65 cfs of 11.09 cfs potential flow)
  └**2=6" Underdrain** (Passes 0.00 cfs of 0.93 cfs potential flow)
    └**1=Exfiltration** (Exfiltration Controls 0.00 cfs)
  └**4=48" Standpipe** (Weir Controls 10.65 cfs @ 2.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth = 5.54" for 200-Year event
Inflow = 40.92 cfs @ 12.14 hrs, Volume= 2.477 af
Outflow = 31.08 cfs @ 12.17 hrs, Volume= 2.448 af, Atten= 24%, Lag= 1.5 min
Primary = 20.20 cfs @ 12.09 hrs, Volume= 1.898 af
Routed to Pond 3P : Dry Pond
Secondary = 18.98 cfs @ 12.20 hrs, Volume= 0.550 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 890.84' @ 12.29 hrs Surf.Area= 10,523 sf Storage= 24,882 cf (24,246 cf above start)

Plug-Flow detention time= 102.7 min calculated for 2.431 af (98% of inflow)
Center-of-Mass det. time= 90.9 min (871.8 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=16.12 cfs @ 12.09 hrs HW=890.44' TW=889.55' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 16.12 cfs @ 4.56 fps)
  └**2=Sharp-Crested Vee/Trap Weir** (Passes < 4.25 cfs potential flow)
  └**3=Standpipe** (Passes < 26.96 cfs potential flow)

Secondary OutFlow Max=7.31 cfs @ 12.20 hrs HW=890.75' TW=890.72' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 7.31 cfs @ 0.72 fps)

Summary for Pond 3P: Dry Pond

Inflow Area = 5.367 ac, 45.00% Impervious, Inflow Depth > 5.47" for 200-Year event
Inflow = 31.08 cfs @ 12.17 hrs, Volume= 2.448 af
Outflow = 25.76 cfs @ 12.22 hrs, Volume= 2.448 af, Atten= 17%, Lag= 3.4 min
Primary = 0.21 cfs @ 10.50 hrs, Volume= 0.380 af
Routed to Reach 1R : Drainage Way
Secondary = 6.31 cfs @ 12.22 hrs, Volume= 1.667 af
Routed to Reach 1R : Drainage Way
Tertiary = 19.23 cfs @ 12.22 hrs, Volume= 0.401 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 890.80' @ 12.22 hrs Surf.Area= 7,063 sf Storage= 18,047 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 28.1 min (899.9 - 871.8)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 10.50 hrs HW=887.05' TW=886.52' (Dynamic Tailwater)
↑—**2=Underdrain** (Passes 0.21 cfs of 0.33 cfs potential flow)
↑—**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=6.20 cfs @ 12.22 hrs HW=890.75' TW=887.93' (Dynamic Tailwater)
↑—**3=Culvert** (Outlet Controls 6.20 cfs @ 7.89 fps)

Tertiary OutFlow Max=17.07 cfs @ 12.22 hrs HW=890.75' TW=887.93' (Dynamic Tailwater)
↑—**4=Broad-Crested Rectangular Weir** (Weir Controls 17.07 cfs @ 1.71 fps)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 6.50% Impervious, Inflow Depth = 4.30" for 200-Year event
Inflow = 132.38 cfs @ 12.38 hrs, Volume= 13.868 af
Primary = 132.38 cfs @ 12.38 hrs, Volume= 13.868 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Events for Link 4L: North

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-Year	8.50	8.50	**0.00**
2-Year	13.23	13.23	0.00
10-Year	37.27	37.27	0.00
100-Year	104.89	104.89	0.00
200-Year	**132.38**	**132.38**	0.00

PROPOSED CONDITIONS

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	MSE 24-hr	4	Default	24.00	1	2.49	2
2	2-Year	MSE 24-hr	4	Default	24.00	1	2.84	2
3	10-Year	MSE 24-hr	4	Default	24.00	1	4.09	2
4	100-Year	MSE 24-hr	4	Default	24.00	1	6.66	2
5	200-Year	MSE 24-hr	4	Default	24.00	1	7.53	2

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=WQ Runoff=3.31 cfs 0.198 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=1.70"
Tc=6.0 min CN=WQ Runoff=4.70 cfs 0.284 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=1.77"
Tc=6.0 min CN=WQ Runoff=0.82 cfs 0.049 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=1.86"
Tc=14.0 min CN=94 Runoff=7.13 cfs 0.521 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=2.32"
Tc=6.0 min CN=WQ Runoff=1.87 cfs 0.117 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=0.29"
Tc=8.0 min CN=65 Runoff=0.48 cfs 0.045 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=2.29"
Tc=6.0 min CN=WQ Runoff=13.44 cfs 0.829 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=0.60"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=5.29 cfs 0.450 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=2.32"
Tc=6.0 min CN=WQ Runoff=10.46 cfs 0.650 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=0.99"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=3.34 cfs 0.257 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=1.60"
Tc=6.0 min CN=WQ Runoff=2.01 cfs 0.137 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=1.15"
Tc=8.0 min CN=WQ Runoff=5.68 cfs 0.390 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=0.38"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=0.41 cfs 0.053 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=0.35"
Tc=10.0 min CN=67 Runoff=0.92 cfs 0.080 af

Reach 1R: Drainage Way Avg. Flow Depth=0.35' Max Vel=1.46 fps Inflow=7.25 cfs 2.717 af
n=0.035 L=1,600.0' S=0.0056 '/' Capacity=320.95 cfs Outflow=5.84 cfs 2.717 af

Reach 4R: To WP Inflow=5.51 cfs 0.426 af
Outflow=5.51 cfs 0.426 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.32' Max Vel=1.53 fps Inflow=7.13 cfs 0.521 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=5.62 cfs 0.521 af

Reach OFF: Inflow=0.92 cfs 0.080 af
Outflow=0.92 cfs 0.080 af

Pond 1P: Proposed Basin Peak Elev=893.78' Storage=4,934 cf Inflow=3.31 cfs 0.198 af
Primary=0.85 cfs 0.094 af Secondary=0.00 cfs 0.000 af Outflow=0.85 cfs 0.094 af

Pond 2P: Wet Pond Peak Elev=889.53' Storage=12,097 cf Inflow=7.74 cfs 0.588 af
Primary=1.73 cfs 0.576 af Secondary=0.00 cfs 0.000 af Outflow=1.73 cfs 0.576 af

Pond 2R: Peak Elev=885.77' Storage=0.034 af Inflow=7.06 cfs 2.494 af
96.0" x 48.0" Box Culvert x 2.00 n=0.013 L=150.0' S=0.0039 '/' Outflow=6.83 cfs 2.494 af

Pond 3P: Dry Pond Peak Elev=887.80' Storage=2,396 cf Inflow=1.73 cfs 0.576 af
Primary=0.21 cfs 0.292 af Secondary=1.24 cfs 0.284 af Tertiary=0.00 cfs 0.000 af Outflow=1.46 cfs 0.576 af

Pond INF-1: Peak Elev=886.19' Storage=5,092 cf Inflow=5.68 cfs 0.390 af
Discarded=0.31 cfs 0.168 af Primary=0.42 cfs 0.224 af Secondary=0.00 cfs 0.000 af Outflow=0.73 cfs 0.391 af

Pond INF-3: Peak Elev=881.64' Storage=18,133 cf Inflow=2.48 cfs 1.023 af
Discarded=0.32 cfs 1.023 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 1.023 af

Pond WP-2: Peak Elev=889.30' Storage=147,263 cf Inflow=16.83 cfs 1.360 af
Primary=0.97 cfs 1.344 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.97 cfs 1.344 af

Pond WP-3: Peak Elev=882.67' Storage=186,244 cf Inflow=12.52 cfs 0.908 af
Primary=0.98 cfs 0.886 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.98 cfs 0.886 af

Link 4L: North Inflow=5.84 cfs 2.717 af
Primary=5.84 cfs 2.717 af

Total Runoff Area = 38.744 ac Runoff Volume = 4.059 af Average Runoff Depth = 1.26"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 3.31 cfs @ 12.13 hrs, Volume= 0.198 af, Depth= 1.74"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 4.70 cfs @ 12.13 hrs, Volume= 0.284 af, Depth= 1.70"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 0.82 cfs @ 12.13 hrs, Volume= 0.049 af, Depth= 1.77"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Green Tech

Runoff = 7.13 cfs @ 12.22 hrs, Volume= 0.521 af, Depth= 1.86"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

Area (ac)	CN	Description
3.361	94	Urban commercial, 85% imp, HSG C
0.504		15.00% Pervious Area
2.857		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
8.0					**Direct Entry, Through Swale**
14.0	0	Total			

Summary for Subcatchment 100-i:

Runoff = 1.87 cfs @ 12.13 hrs, Volume= 0.117 af, Depth= 2.32"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.446	98	
*	0.157	100	
	0.603		Weighted Average
	0.603		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100-p:

Runoff = 0.48 cfs @ 12.19 hrs, Volume= 0.045 af, Depth= 0.29"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	1.822	65	
	1.822		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 200-i:

Runoff = 13.44 cfs @ 12.13 hrs, Volume= 0.829 af, Depth= 2.29"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	3.717	98	
*	0.620	100	
	4.337		Weighted Average
	4.337		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 200-p:

Runoff = 5.29 cfs @ 12.27 hrs, Volume= 0.450 af, Depth= 0.60"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	8.970	74	
	8.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 300-i:

Runoff = 10.46 cfs @ 12.13 hrs, Volume= 0.650 af, Depth= 2.32"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	2.542	98	
*	0.826	100	
	3.368		Weighted Average
	3.368		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 300-p:

Runoff = 3.34 cfs @ 12.26 hrs, Volume= 0.257 af, Depth= 0.99"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	3.119	82	
	3.119		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 305:

Runoff = 2.01 cfs @ 12.13 hrs, Volume= 0.137 af, Depth= 1.60"
Routed to Pond INF-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.628	100	
*	0.398	61	
	1.026		Weighted Average
	0.398		38.79% Pervious Area
	0.628		61.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 400:

Runoff = 5.68 cfs @ 12.15 hrs, Volume= 0.390 af, Depth= 1.15"
Routed to Pond INF-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	0.612	100	
*	2.475	68	
*	0.978	98	
	4.065		Weighted Average
	2.475		60.89% Pervious Area
	1.590		39.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 500:

Runoff = 0.41 cfs @ 12.43 hrs, Volume= 0.053 af, Depth= 0.38"
Routed to Pond 2R :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	1.646	68	
	1.646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
1.3	175	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.8	800	0.0055	4.83	318.78	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=3.00' Z= 4.0 '/' Top.W=34.00' n= 0.035
24.1	1,075	Total			

Summary for Subcatchment 900:

Runoff = 0.92 cfs @ 12.21 hrs, Volume= 0.080 af, Depth= 0.35"
Routed to Reach OFF :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 1-Year Rainfall=2.49"

	Area (ac)	CN	Description
*	2.730	67	
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth > 0.84" for 1-Year event
Inflow = 7.25 cfs @ 12.37 hrs, Volume= 2.717 af
Outflow = 5.84 cfs @ 12.61 hrs, Volume= 2.717 af, Atten= 19%, Lag= 14.0 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.46 fps, Min. Travel Time= 18.3 min
Avg. Velocity = 0.40 fps, Avg. Travel Time= 66.6 min

Peak Storage= 6,417 cf @ 12.61 hrs
Average Depth at Peak Storage= 0.35' , Surface Width= 12.81'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 320.95 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,600.0' Slope= 0.0056 '/'
Inlet Invert= 884.92', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 1.38" for 1-Year event
Inflow = 5.51 cfs @ 12.13 hrs, Volume= 0.426 af
Outflow = 5.51 cfs @ 12.13 hrs, Volume= 0.426 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 85.00% Impervious, Inflow Depth = 1.86" for 1-Year event
Inflow = 7.13 cfs @ 12.22 hrs, Volume= 0.521 af
Outflow = 5.62 cfs @ 12.31 hrs, Volume= 0.521 af, Atten= 21%, Lag= 5.8 min
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.53 fps, Min. Travel Time= 10.9 min
Avg. Velocity = 0.43 fps, Avg. Travel Time= 39.0 min

Peak Storage= 3,667 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 12.60'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Reach OFF:

Inflow Area = 2.730 ac, 0.00% Impervious, Inflow Depth = 0.35" for 1-Year event
Inflow = 0.92 cfs @ 12.21 hrs, Volume= 0.080 af
Outflow = 0.92 cfs @ 12.21 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
Routed to Pond WP-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 1.74" for 1-Year event
Inflow = 3.31 cfs @ 12.13 hrs, Volume= 0.198 af
Outflow = 0.85 cfs @ 12.37 hrs, Volume= 0.094 af, Atten= 74%, Lag= 14.5 min
Primary = 0.85 cfs @ 12.37 hrs, Volume= 0.094 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 893.78' @ 12.37 hrs Surf.Area= 5,414 sf Storage= 4,934 cf

Plug-Flow detention time= 239.4 min calculated for 0.094 af (47% of inflow)
Center-of-Mass det. time= 128.9 min (900.1 - 771.3)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.84 cfs @ 12.37 hrs HW=893.77' TW=0.00' (Dynamic Tailwater)
└─**3=18" RCP** (Passes 0.84 cfs of 10.43 cfs potential flow)
  └─**2=6" Underdrain** (Passes 0.00 cfs of 0.88 cfs potential flow)
    └─**1=Exfiltration** (Exfiltration Controls 0.00 cfs)
  └─**4=48" Standpipe** (Weir Controls 0.84 cfs @ 0.89 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth = 1.15" for 1-Year event
Inflow = 7.74 cfs @ 12.13 hrs, Volume= 0.588 af
Outflow = 1.73 cfs @ 12.58 hrs, Volume= 0.576 af, Atten= 78%, Lag= 27.0 min
Primary = 1.73 cfs @ 12.58 hrs, Volume= 0.576 af
Routed to Pond 3P : Dry Pond
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 889.53' @ 12.58 hrs Surf.Area= 8,870 sf Storage= 12,097 cf (11,462 cf above start)

Plug-Flow detention time= 342.0 min calculated for 0.561 af (96% of inflow)
Center-of-Mass det. time= 305.8 min (1,102.3 - 796.5)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.73 cfs @ 12.58 hrs HW=889.53' TW=887.61' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.73 cfs of 12.06 cfs potential flow)
  └─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.73 cfs @ 3.13 fps)
  └─**3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.09' TW=887.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2R:

Inflow Area = 27.166 ac, 37.01% Impervious, Inflow Depth > 1.10" for 1-Year event
Inflow = 7.06 cfs @ 12.33 hrs, Volume= 2.494 af
Outflow = 6.83 cfs @ 12.37 hrs, Volume= 2.494 af, Atten= 3%, Lag= 2.5 min
Primary = 6.83 cfs @ 12.37 hrs, Volume= 2.494 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 885.77' @ 12.41 hrs Surf.Area= 0.140 ac Storage= 0.034 af

Plug-Flow detention time= 7.6 min calculated for 2.493 af (100% of inflow)
Center-of-Mass det. time= 7.0 min (1,212.4 - 1,205.5)

Volume	Invert	Avail.Storage	Storage Description
#1	885.50'	0.996 af	**10.00'W x 500.00'L x 3.50'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**96.0" W x 48.0" H Box Culvert X 2.00** L= 150.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 885.50' / 884.92' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 32.00 sf

Primary OutFlow Max=6.62 cfs @ 12.37 hrs HW=885.77' TW=885.22' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 6.62 cfs @ 2.06 fps)

Summary for Pond 3P: Dry Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth > 1.13" for 1-Year event
Inflow = 1.73 cfs @ 12.58 hrs, Volume= 0.576 af
Outflow = 1.46 cfs @ 13.15 hrs, Volume= 0.576 af, Atten= 16%, Lag= 34.2 min
Primary = 0.21 cfs @ 12.15 hrs, Volume= 0.292 af
Routed to Pond 2R :
Secondary = 1.24 cfs @ 13.15 hrs, Volume= 0.284 af
Routed to Pond 2R :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 887.80' @ 13.15 hrs Surf.Area= 3,480 sf Storage= 2,396 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 27.1 min (1,129.5 - 1,102.3)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 12.15 hrs HW=887.08' TW=885.67' (Dynamic Tailwater)
└**2=Underdrain** (Passes 0.21 cfs of 0.34 cfs potential flow)
└**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.24 cfs @ 13.15 hrs HW=887.80' TW=885.69' (Dynamic Tailwater)
└**3=Culvert** (Barrel Controls 1.24 cfs @ 2.98 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=887.00' TW=885.50' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond INF-1:

Inflow Area = 4.065 ac, 39.11% Impervious, Inflow Depth = 1.15" for 1-Year event
Inflow = 5.68 cfs @ 12.15 hrs, Volume= 0.390 af
Outflow = 0.73 cfs @ 12.23 hrs, Volume= 0.391 af, Atten= 87%, Lag= 4.8 min
Discarded = 0.31 cfs @ 12.05 hrs, Volume= 0.168 af
Primary = 0.42 cfs @ 12.23 hrs, Volume= 0.224 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Peak Elev= 886.19' @ 12.74 hrs Surf.Area= 27,299 sf Storage= 5,092 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 46.1 min (821.1 - 775.0)

Volume	Invert	Avail.Storage	Storage Description
#1	886.00'	95,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
886.00	26,665	0	0
889.00	36,745	95,115	95,115

Device	Routing	Invert	Outlet Devices
#1	Discarded	886.00'	**0.500 in/hr Native Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#2	Device 4	886.00'	**3.100 in/hr Engineered Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#3	Primary	884.00'	**18.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 884.00' / 883.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 3	884.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	887.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.31 cfs @ 12.05 hrs HW=886.04' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.42 cfs @ 12.23 hrs HW=886.13' TW=885.14' (Dynamic Tailwater)
└**3=Culvert** (Passes 0.42 cfs of 7.73 cfs potential flow)
└**4=Orifice/Grate** (Orifice Controls 0.42 cfs @ 4.79 fps)
└**2=Engineered Soil** (Passes 0.42 cfs of 1.92 cfs potential flow)
└**5=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=886.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond INF-3:

Inflow Area = 7.513 ac, 53.19% Impervious, Inflow Depth > 1.63" for 1-Year event
Inflow = 2.48 cfs @ 12.14 hrs, Volume= 1.023 af
Outflow = 0.32 cfs @ 12.10 hrs, Volume= 1.023 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.32 cfs @ 12.10 hrs, Volume= 1.023 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 881.64' @ 23.73 hrs Surf.Area= 29,075 sf Storage= 18,133 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 537.0 min (1,826.4 - 1,289.3)

Volume	Invert	Avail.Storage	Storage Description
#1	881.00'	94,110 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
881.00	27,355	0	0
884.00	35,385	94,110	94,110

Device	Routing	Invert	Outlet Devices
#1	Discarded	881.00'	**0.500 in/hr Native Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#2	Device 4	881.00'	**3.100 in/hr Engineered Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#3	Primary	879.50'	**24.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 879.50' / 879.00' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#4	Device 3	879.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	882.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	882.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.32 cfs @ 12.10 hrs HW=881.04' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**3=Culvert** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)
    └**2=Engineered Soil** (Passes 0.00 cfs of 1.96 cfs potential flow)
  └**5=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond WP-2:

Inflow Area = 16.037 ac, 27.04% Impervious, Inflow Depth = 1.02" for 1-Year event
Inflow = 16.83 cfs @ 12.14 hrs, Volume= 1.360 af
Outflow = 0.97 cfs @ 14.09 hrs, Volume= 1.344 af, Atten= 94%, Lag= 116.7 min
Primary = 0.97 cfs @ 14.09 hrs, Volume= 1.344 af
  Routed to Pond 2R :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Pond 2R :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.00' Surf.Area= 26,400 sf Storage= 110,568 cf
Peak Elev= 889.30' @ 14.09 hrs Surf.Area= 30,163 sf Storage= 147,263 cf (36,696 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 600.3 min (1,400.0 - 799.6)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	365,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	14,665	0	0
887.00	20,235	87,250	87,250
888.00	26,400	23,318	110,568
894.00	43,800	210,600	321,168
895.00	45,000	44,400	365,568

Device	Routing	Invert	Outlet Devices
#1	Primary	888.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 888.00' / 887.00' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	888.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	891.50'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	891.50'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 891.50' / 890.00' S= 0.0300 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	893.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.97 cfs @ 14.09 hrs HW=889.30' TW=885.65' (Dynamic Tailwater)
1=Culvert (Passes 0.97 cfs of 11.36 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.97 cfs @ 4.93 fps)
3=Standpipe (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' TW=885.50' (Dynamic Tailwater)
4=Culvert (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' TW=885.50' (Dynamic Tailwater)
5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond WP-3:

Inflow Area = 6.487 ac, 51.92% Impervious, Inflow Depth = 1.68" for 1-Year event
Inflow = 12.52 cfs @ 12.14 hrs, Volume= 0.908 af
Outflow = 0.98 cfs @ 13.44 hrs, Volume= 0.886 af, Atten= 92%, Lag= 78.4 min
Primary = 0.98 cfs @ 13.44 hrs, Volume= 0.886 af
Routed to Pond INF-3 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 882.00' Surf.Area= 35,975 sf Storage= 161,385 cf
Peak Elev= 882.67' @ 13.44 hrs Surf.Area= 38,141 sf Storage= 186,244 cf (24,859 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 598.7 min (1,374.9 - 776.1)

Volume	Invert	Avail.Storage	Storage Description
#1	876.00'	463,181 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
876.00	22,595	0	0
881.00	28,970	128,913	128,913
882.00	35,975	32,473	161,385
888.00	55,345	273,960	435,345
888.50	56,000	27,836	463,181

Device	Routing	Invert	Outlet Devices
#1	Primary	882.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 882.00' / 881.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	882.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	886.00'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	885.25'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 885.25' / 884.00' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.98 cfs @ 13.44 hrs HW=882.67' TW=881.21' (Dynamic Tailwater)
1=Culvert (Passes 0.98 cfs of 3.13 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.98 cfs @ 2.80 fps)
3=Standpipe (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
4=Culvert (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth > 0.84" for 1-Year event
Inflow = 5.84 cfs @ 12.61 hrs, Volume= 2.717 af
Primary = 5.84 cfs @ 12.61 hrs, Volume= 2.717 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=WQ Runoff=3.89 cfs 0.233 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=2.00"
Tc=6.0 min CN=WQ Runoff=5.54 cfs 0.334 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=2.08"
Tc=6.0 min CN=WQ Runoff=0.96 cfs 0.057 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=2.20"
Tc=14.0 min CN=94 Runoff=8.34 cfs 0.615 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=2.67"
Tc=6.0 min CN=WQ Runoff=2.14 cfs 0.134 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=0.43"
Tc=8.0 min CN=65 Runoff=0.86 cfs 0.066 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=2.64"
Tc=6.0 min CN=WQ Runoff=15.39 cfs 0.955 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=0.81"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=7.42 cfs 0.604 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=2.67"
Tc=6.0 min CN=WQ Runoff=11.97 cfs 0.748 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=1.25"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=4.27 cfs 0.326 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=1.86"
Tc=6.0 min CN=WQ Runoff=2.36 cfs 0.159 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=1.39"
Tc=8.0 min CN=WQ Runoff=6.99 cfs 0.470 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=0.55"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=0.66 cfs 0.075 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=0.51"
Tc=10.0 min CN=67 Runoff=1.52 cfs 0.115 af

Reach 1R: Drainage Way Avg. Flow Depth=0.40' Max Vel=1.57 fps Inflow=8.86 cfs 3.328 af
n=0.035 L=1,600.0' S=0.0056 '/' Capacity=320.95 cfs Outflow=7.31 cfs 3.328 af

Reach 4R: To WP Inflow=6.61 cfs 0.521 af
Outflow=6.61 cfs 0.521 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.36' Max Vel=1.63 fps Inflow=8.34 cfs 0.615 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=6.69 cfs 0.615 af

Reach OFF: Inflow=1.52 cfs 0.115 af
Outflow=1.52 cfs 0.115 af

Pond 1P: Proposed Basin Peak Elev=893.83' Storage=5,205 cf Inflow=3.89 cfs 0.233 af
Primary=1.82 cfs 0.129 af Secondary=0.00 cfs 0.000 af Outflow=1.82 cfs 0.129 af

Pond 2P: Wet Pond Peak Elev=889.77' Storage=14,325 cf Inflow=9.52 cfs 0.721 af
Primary=2.57 cfs 0.709 af Secondary=0.00 cfs 0.000 af Outflow=2.57 cfs 0.709 af

Pond 2R: Peak Elev=885.81' Storage=0.040 af Inflow=8.75 cfs 3.058 af
96.0" x 48.0" Box Culvert x 2.00 n=0.013 L=150.0' S=0.0039 '/' Outflow=8.44 cfs 3.058 af

Pond 3P: Dry Pond Peak Elev=888.01' Storage=3,137 cf Inflow=2.57 cfs 0.709 af
Primary=0.21 cfs 0.307 af Secondary=1.87 cfs 0.402 af Tertiary=0.00 cfs 0.000 af Outflow=2.08 cfs 0.709 af

Pond INF-1: Peak Elev=886.25' Storage=6,870 cf Inflow=6.99 cfs 0.470 af
Discarded=0.31 cfs 0.201 af Primary=0.43 cfs 0.270 af Secondary=0.00 cfs 0.000 af Outflow=0.74 cfs 0.471 af

Pond INF-3: Peak Elev=881.87' Storage=24,787 cf Inflow=2.97 cfs 1.211 af
Discarded=0.32 cfs 1.211 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 1.211 af

Pond WP-2: Peak Elev=889.60' Storage=156,611 cf Inflow=20.81 cfs 1.675 af
Primary=1.10 cfs 1.659 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1.10 cfs 1.659 af

Pond WP-3: Peak Elev=882.79' Storage=190,817 cf Inflow=14.67 cfs 1.074 af
Primary=1.14 cfs 1.052 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1.14 cfs 1.052 af

Link 4L: North Inflow=7.31 cfs 3.328 af
Primary=7.31 cfs 3.328 af

Total Runoff Area = 38.744 ac Runoff Volume = 4.892 af Average Runoff Depth = 1.52"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 3.89 cfs @ 12.13 hrs, Volume= 0.233 af, Depth= 2.05"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 5.54 cfs @ 12.13 hrs, Volume= 0.334 af, Depth= 2.00"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 0.96 cfs @ 12.13 hrs, Volume= 0.057 af, Depth= 2.08"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Green Tech

Runoff = 8.34 cfs @ 12.22 hrs, Volume= 0.615 af, Depth= 2.20"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

Area (ac)	CN	Description
3.361	94	Urban commercial, 85% imp, HSG C
0.504		15.00% Pervious Area
2.857		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
8.0					**Direct Entry, Through Swale**
14.0	0	Total			

Summary for Subcatchment 100-i:

Runoff = 2.14 cfs @ 12.13 hrs, Volume= 0.134 af, Depth= 2.67"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.446	98	
*	0.157	100	
	0.603		Weighted Average
	0.603		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100-p:

Runoff = 0.86 cfs @ 12.18 hrs, Volume= 0.066 af, Depth= 0.43"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	1.822	65	
	1.822		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 200-i:

Runoff = 15.39 cfs @ 12.13 hrs, Volume= 0.955 af, Depth= 2.64"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	3.717	98	
*	0.620	100	
	4.337		Weighted Average
	4.337		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 200-p:

Runoff = 7.42 cfs @ 12.27 hrs, Volume= 0.604 af, Depth= 0.81"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	8.970	74	
	8.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 300-i:

Runoff = 11.97 cfs @ 12.13 hrs, Volume= 0.748 af, Depth= 2.67"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	2.542	98	
*	0.826	100	
	3.368		Weighted Average
	3.368		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 300-p:

Runoff = 4.27 cfs @ 12.26 hrs, Volume= 0.326 af, Depth= 1.25"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	3.119	82	
	3.119		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 305:

Runoff = 2.36 cfs @ 12.13 hrs, Volume= 0.159 af, Depth= 1.86"
Routed to Pond INF-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.628	100	
*	0.398	61	
	1.026		Weighted Average
	0.398		38.79% Pervious Area
	0.628		61.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 400:

Runoff = 6.99 cfs @ 12.15 hrs, Volume= 0.470 af, Depth= 1.39"
Routed to Pond INF-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	0.612	100	
*	2.475	68	
*	0.978	98	
	4.065		Weighted Average
	2.475		60.89% Pervious Area
	1.590		39.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 500:

Runoff = 0.66 cfs @ 12.41 hrs, Volume= 0.075 af, Depth= 0.55"
Routed to Pond 2R :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	1.646	68	
	1.646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
1.3	175	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.8	800	0.0055	4.83	318.78	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=3.00' Z= 4.0 '/' Top.W=34.00' n= 0.035
24.1	1,075	Total			

Summary for Subcatchment 900:

Runoff = 1.52 cfs @ 12.20 hrs, Volume= 0.115 af, Depth= 0.51"
Routed to Reach OFF :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.84"

	Area (ac)	CN	Description
*	2.730	67	
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth > 1.03" for 2-Year event
Inflow = 8.86 cfs @ 12.38 hrs, Volume= 3.328 af
Outflow = 7.31 cfs @ 12.60 hrs, Volume= 3.328 af, Atten= 17%, Lag= 13.6 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.57 fps, Min. Travel Time= 16.9 min
Avg. Velocity = 0.42 fps, Avg. Travel Time= 63.9 min

Peak Storage= 7,436 cf @ 12.60 hrs
Average Depth at Peak Storage= 0.40' , Surface Width= 13.20'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 320.95 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,600.0' Slope= 0.0056 '/'
Inlet Invert= 884.92', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 1.69" for 2-Year event
Inflow = 6.61 cfs @ 12.14 hrs, Volume= 0.521 af
Outflow = 6.61 cfs @ 12.14 hrs, Volume= 0.521 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 85.00% Impervious, Inflow Depth = 2.20" for 2-Year event
Inflow = 8.34 cfs @ 12.22 hrs, Volume= 0.615 af
Outflow = 6.69 cfs @ 12.31 hrs, Volume= 0.615 af, Atten= 20%, Lag= 5.5 min
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.63 fps, Min. Travel Time= 10.2 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 37.8 min

Peak Storage= 4,107 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.36' , Surface Width= 12.87'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Reach OFF:

Inflow Area = 2.730 ac, 0.00% Impervious, Inflow Depth = 0.51" for 2-Year event
Inflow = 1.52 cfs @ 12.20 hrs, Volume= 0.115 af
Outflow = 1.52 cfs @ 12.20 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min
Routed to Pond WP-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 2.05" for 2-Year event
Inflow = 3.89 cfs @ 12.13 hrs, Volume= 0.233 af
Outflow = 1.82 cfs @ 12.26 hrs, Volume= 0.129 af, Atten= 53%, Lag= 7.6 min
Primary = 1.82 cfs @ 12.26 hrs, Volume= 0.129 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 893.83' @ 12.26 hrs Surf.Area= 5,489 sf Storage= 5,205 cf

Plug-Flow detention time= 204.3 min calculated for 0.129 af (55% of inflow)
Center-of-Mass det. time= 104.9 min (874.4 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.80 cfs @ 12.26 hrs HW=893.82' TW=0.00' (Dynamic Tailwater)
└─**3=18" RCP** (Passes 1.80 cfs of 10.54 cfs potential flow)
  └─**2=6" Underdrain** (Passes 0.00 cfs of 0.89 cfs potential flow)
    └─**1=Exfiltration** (Exfiltration Controls 0.00 cfs)
  └─**4=48" Standpipe** (Weir Controls 1.80 cfs @ 1.15 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth = 1.41" for 2-Year event
Inflow = 9.52 cfs @ 12.14 hrs, Volume= 0.721 af
Outflow = 2.57 cfs @ 12.51 hrs, Volume= 0.709 af, Atten= 73%, Lag= 22.1 min
Primary = 2.57 cfs @ 12.51 hrs, Volume= 0.709 af
Routed to Pond 3P : Dry Pond
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 889.77' @ 12.51 hrs Surf.Area= 9,179 sf Storage= 14,325 cf (13,689 cf above start)

Plug-Flow detention time= 295.8 min calculated for 0.695 af (96% of inflow)
Center-of-Mass det. time= 266.3 min (1,060.5 - 794.2)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.57 cfs @ 12.51 hrs HW=889.77' TW=887.78' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.57 cfs of 14.40 cfs potential flow)
  └─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 2.57 cfs @ 3.38 fps)
  └─**3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.09' TW=887.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2R:

Inflow Area = 27.166 ac, 37.01% Impervious, Inflow Depth > 1.35" for 2-Year event
Inflow = 8.75 cfs @ 12.34 hrs, Volume= 3.058 af
Outflow = 8.44 cfs @ 12.38 hrs, Volume= 3.058 af, Atten= 4%, Lag= 2.3 min
Primary = 8.44 cfs @ 12.38 hrs, Volume= 3.058 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 885.81' @ 12.41 hrs Surf.Area= 0.144 ac Storage= 0.040 af

Plug-Flow detention time= 7.1 min calculated for 3.058 af (100% of inflow)
Center-of-Mass det. time= 6.6 min (1,217.9 - 1,211.4)

Volume	Invert	Avail.Storage	Storage Description
#1	885.50'	0.996 af	**10.00'W x 500.00'L x 3.50'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**96.0" W x 48.0" H Box Culvert X 2.00** L= 150.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 885.50' / 884.92' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 32.00 sf

Primary OutFlow Max=8.18 cfs @ 12.38 hrs HW=885.81' TW=885.27' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 8.18 cfs @ 2.21 fps)

Summary for Pond 3P: Dry Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth > 1.39" for 2-Year event
Inflow = 2.57 cfs @ 12.51 hrs, Volume= 0.709 af
Outflow = 2.08 cfs @ 12.99 hrs, Volume= 0.709 af, Atten= 19%, Lag= 28.9 min
Primary = 0.21 cfs @ 12.05 hrs, Volume= 0.307 af
Routed to Pond 2R :
Secondary = 1.87 cfs @ 12.99 hrs, Volume= 0.402 af
Routed to Pond 2R :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 888.01' @ 12.99 hrs Surf.Area= 3,728 sf Storage= 3,137 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 26.8 min (1,087.3 - 1,060.5)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 12.05 hrs HW=887.06' TW=885.65' (Dynamic Tailwater)
└**2=Underdrain** (Passes 0.21 cfs of 0.34 cfs potential flow)
└**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=1.87 cfs @ 12.99 hrs HW=888.00' TW=885.73' (Dynamic Tailwater)
└**3=Culvert** (Barrel Controls 1.87 cfs @ 3.30 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=887.00' TW=885.50' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond INF-1:

Inflow Area = 4.065 ac, 39.11% Impervious, Inflow Depth = 1.39" for 2-Year event
Inflow = 6.99 cfs @ 12.15 hrs, Volume= 0.470 af
Outflow = 0.74 cfs @ 12.24 hrs, Volume= 0.471 af, Atten= 89%, Lag= 5.2 min
Discarded = 0.31 cfs @ 12.00 hrs, Volume= 0.201 af
Primary = 0.43 cfs @ 12.24 hrs, Volume= 0.270 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Peak Elev= 886.25' @ 13.01 hrs Surf.Area= 27,517 sf Storage= 6,870 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 65.5 min (841.5 - 776.0)

Volume	Invert	Avail.Storage	Storage Description
#1	886.00'	95,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
886.00	26,665	0	0
889.00	36,745	95,115	95,115

Device	Routing	Invert	Outlet Devices
#1	Discarded	886.00'	**0.500 in/hr Native Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#2	Device 4	886.00'	**3.100 in/hr Engineered Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#3	Primary	884.00'	**18.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 884.00' / 883.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 3	884.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	887.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.31 cfs @ 12.00 hrs HW=886.03' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.42 cfs @ 12.24 hrs HW=886.18' TW=885.18' (Dynamic Tailwater)
└**3=Culvert** (Passes 0.42 cfs of 7.77 cfs potential flow)
└**4=Orifice/Grate** (Orifice Controls 0.42 cfs @ 4.81 fps)
└**2=Engineered Soil** (Passes 0.42 cfs of 1.92 cfs potential flow)
└**5=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=886.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond INF-3:

Inflow Area = 7.513 ac, 53.19% Impervious, Inflow Depth > 1.93" for 2-Year event
Inflow = 2.97 cfs @ 12.14 hrs, Volume= 1.211 af
Outflow = 0.32 cfs @ 12.05 hrs, Volume= 1.211 af, Atten= 89%, Lag= 0.0 min
Discarded = 0.32 cfs @ 12.05 hrs, Volume= 1.211 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 881.87' @ 24.71 hrs Surf.Area= 29,681 sf Storage= 24,787 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 734.9 min (1,999.0 - 1,264.2)

Volume	Invert	Avail.Storage	Storage Description
#1	881.00'	94,110 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
881.00	27,355	0	0
884.00	35,385	94,110	94,110

Device	Routing	Invert	Outlet Devices
#1	Discarded	881.00'	**0.500 in/hr Native Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#2	Device 4	881.00'	**3.100 in/hr Engineered Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#3	Primary	879.50'	**24.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 879.50' / 879.00' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#4	Device 3	879.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	882.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	882.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.32 cfs @ 12.05 hrs HW=881.03' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**3=Culvert** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)
    └**2=Engineered Soil** (Passes 0.00 cfs of 1.96 cfs potential flow)
  └**5=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond WP-2:

Inflow Area = 16.037 ac, 27.04% Impervious, Inflow Depth = 1.25" for 2-Year event
Inflow = 20.81 cfs @ 12.15 hrs, Volume= 1.675 af
Outflow = 1.10 cfs @ 14.75 hrs, Volume= 1.659 af, Atten= 95%, Lag= 156.4 min
Primary = 1.10 cfs @ 14.75 hrs, Volume= 1.659 af
  Routed to Pond 2R :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Pond 2R :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.00' Surf.Area= 26,400 sf Storage= 110,568 cf
Peak Elev= 889.60' @ 14.75 hrs Surf.Area= 31,049 sf Storage= 156,611 cf (46,043 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 627.3 min (1,426.5 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	365,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	14,665	0	0
887.00	20,235	87,250	87,250
888.00	26,400	23,318	110,568
894.00	43,800	210,600	321,168
895.00	45,000	44,400	365,568

Device	Routing	Invert	Outlet Devices
#1	Primary	888.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 888.00' / 887.00' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	888.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	891.50'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	891.50'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 891.50' / 890.00' S= 0.0300 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	893.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.10 cfs @ 14.75 hrs HW=889.60' TW=885.65' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.10 cfs of 16.57 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.10 cfs @ 5.60 fps)
  └─**3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' TW=885.50' (Dynamic Tailwater)
└─**4=Culvert** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' TW=885.50' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond WP-3:

Inflow Area = 6.487 ac, 51.92% Impervious, Inflow Depth = 1.99" for 2-Year event
Inflow = 14.67 cfs @ 12.14 hrs, Volume= 1.074 af
Outflow = 1.14 cfs @ 13.45 hrs, Volume= 1.052 af, Atten= 92%, Lag= 78.9 min
Primary = 1.14 cfs @ 13.45 hrs, Volume= 1.052 af
Routed to Pond INF-3 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 882.00' Surf.Area= 35,975 sf Storage= 161,385 cf
Peak Elev= 882.79' @ 13.45 hrs Surf.Area= 38,526 sf Storage= 190,817 cf (29,432 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 568.9 min (1,343.7 - 774.9)

Volume	Invert	Avail.Storage	Storage Description
#1	876.00'	463,181 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
876.00	22,595	0	0
881.00	28,970	128,913	128,913
882.00	35,975	32,473	161,385
888.00	55,345	273,960	435,345
888.50	56,000	27,836	463,181

Device	Routing	Invert	Outlet Devices
#1	Primary	882.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 882.00' / 881.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	882.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	886.00'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	885.25'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500

			Inlet / Outlet Invert= 885.25' / 884.00' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.14 cfs @ 13.45 hrs HW=882.79' TW=881.26' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.14 cfs of 4.21 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.14 cfs @ 3.25 fps)
  └─**3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
└─**4=Culvert** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth > 1.03" for 2-Year event
Inflow = 7.31 cfs @ 12.60 hrs, Volume= 3.328 af
Primary = 7.31 cfs @ 12.60 hrs, Volume= 3.328 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=3.20"
Tc=6.0 min CN=WQ Runoff=6.04 cfs 0.363 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=3.13"
Tc=6.0 min CN=WQ Runoff=8.66 cfs 0.523 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=3.23"
Tc=6.0 min CN=WQ Runoff=1.48 cfs 0.089 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=3.41"
Tc=14.0 min CN=94 Runoff=12.65 cfs 0.956 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=3.92"
Tc=6.0 min CN=WQ Runoff=3.10 cfs 0.197 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=1.08"
Tc=8.0 min CN=65 Runoff=2.70 cfs 0.164 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=3.89"
Tc=6.0 min CN=WQ Runoff=22.30 cfs 1.405 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=1.66"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=16.16 cfs 1.243 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=3.91"
Tc=6.0 min CN=WQ Runoff=17.33 cfs 1.098 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=2.28"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=7.81 cfs 0.593 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=2.84"
Tc=6.0 min CN=WQ Runoff=3.72 cfs 0.243 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=2.31"
Tc=8.0 min CN=WQ Runoff=12.12 cfs 0.783 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=1.26"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=1.77 cfs 0.173 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=1.20"
Tc=10.0 min CN=67 Runoff=4.18 cfs 0.273 af

Reach 1R: Drainage Way Avg. Flow Depth=0.59' Max Vel=1.97 fps Inflow=17.21 cfs 5.713 af
n=0.035 L=1,600.0' S=0.0056 '/' Capacity=320.95 cfs Outflow=14.30 cfs 5.712 af

Reach 4R: To WP Inflow=14.95 cfs 0.871 af
Outflow=14.95 cfs 0.871 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.47' Max Vel=1.90 fps Inflow=12.65 cfs 0.956 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=10.53 cfs 0.956 af

Reach OFF: Inflow=4.18 cfs 0.273 af
Outflow=4.18 cfs 0.273 af

Pond 1P: Proposed Basin Peak Elev=893.95' Storage=5,907 cf Inflow=6.04 cfs 0.363 af
Primary=5.16 cfs 0.259 af Secondary=0.00 cfs 0.000 af Outflow=5.16 cfs 0.259 af

Pond 2P: Wet Pond Peak Elev=890.24' Storage=18,785 cf Inflow=20.62 cfs 1.232 af
Primary=15.06 cfs 1.220 af Secondary=0.00 cfs 0.000 af Outflow=15.06 cfs 1.220 af

Pond 2R: Peak Elev=885.99' Storage=0.068 af Inflow=17.48 cfs 5.253 af
96.0" x 48.0" Box Culvert x 2.00 n=0.013 L=150.0' S=0.0039 '/' Outflow=16.78 cfs 5.253 af

Pond 3P: Dry Pond Peak Elev=889.33' Storage=9,050 cf Inflow=15.06 cfs 1.220 af
Primary=0.21 cfs 0.347 af Secondary=4.45 cfs 0.873 af Tertiary=0.00 cfs 0.000 af Outflow=4.66 cfs 1.220 af

Pond INF-1: Peak Elev=886.54' Storage=14,983 cf Inflow=12.12 cfs 0.783 af
Discarded=0.31 cfs 0.324 af Primary=0.48 cfs 0.460 af Secondary=0.00 cfs 0.000 af Outflow=0.78 cfs 0.784 af

Pond INF-3: Peak Elev=882.53' Storage=45,045 cf Inflow=4.77 cfs 1.906 af
Discarded=0.32 cfs 1.907 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 1.907 af

Pond WP-2: Peak Elev=890.80' Storage=195,874 cf Inflow=36.60 cfs 2.921 af
Primary=1.51 cfs 2.904 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1.51 cfs 2.904 af

Pond WP-3: Peak Elev=883.24' Storage=208,325 cf Inflow=22.58 cfs 1.691 af
Primary=1.60 cfs 1.664 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=1.60 cfs 1.664 af

Link 4L: North Inflow=14.30 cfs 5.712 af
Primary=14.30 cfs 5.712 af

Total Runoff Area = 38.744 ac Runoff Volume = 8.102 af Average Runoff Depth = 2.51"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 6.04 cfs @ 12.13 hrs, Volume= 0.363 af, Depth= 3.20"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 8.66 cfs @ 12.13 hrs, Volume= 0.523 af, Depth= 3.13"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 1.48 cfs @ 12.13 hrs, Volume= 0.089 af, Depth= 3.23"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Green Tech

Runoff = 12.65 cfs @ 12.22 hrs, Volume= 0.956 af, Depth= 3.41"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

Area (ac)	CN	Description
3.361	94	Urban commercial, 85% imp, HSG C
0.504		15.00% Pervious Area
2.857		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
8.0					**Direct Entry, Through Swale**
14.0	0	Total			

Summary for Subcatchment 100-i:

Runoff = 3.10 cfs @ 12.13 hrs, Volume= 0.197 af, Depth= 3.92"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.446	98	
*	0.157	100	
	0.603		Weighted Average
	0.603		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100-p:

Runoff = 2.70 cfs @ 12.16 hrs, Volume= 0.164 af, Depth= 1.08"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	1.822	65	
	1.822		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 200-i:

Runoff = 22.30 cfs @ 12.13 hrs, Volume= 1.405 af, Depth= 3.89"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	3.717	98	
*	0.620	100	
	4.337		Weighted Average
	4.337		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 200-p:

Runoff = 16.16 cfs @ 12.26 hrs, Volume= 1.243 af, Depth= 1.66"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	8.970	74	
	8.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 300-i:

Runoff = 17.33 cfs @ 12.13 hrs, Volume= 1.098 af, Depth= 3.91"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	2.542	98	
*	0.826	100	
	3.368		Weighted Average
	3.368		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 300-p:

Runoff = 7.81 cfs @ 12.25 hrs, Volume= 0.593 af, Depth= 2.28"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	3.119	82	
	3.119		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 305:

Runoff = 3.72 cfs @ 12.13 hrs, Volume= 0.243 af, Depth= 2.84"
Routed to Pond INF-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.628	100	
*	0.398	61	
	1.026		Weighted Average
	0.398		38.79% Pervious Area
	0.628		61.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 400:

Runoff = 12.12 cfs @ 12.15 hrs, Volume= 0.783 af, Depth= 2.31"
Routed to Pond INF-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	0.612	100	
*	2.475	68	
*	0.978	98	
	4.065		Weighted Average
	2.475		60.89% Pervious Area
	1.590		39.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 500:

Runoff = 1.77 cfs @ 12.37 hrs, Volume= 0.173 af, Depth= 1.26"
Routed to Pond 2R :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	1.646	68	
	1.646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
1.3	175	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.8	800	0.0055	4.83	318.78	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=3.00' Z= 4.0 '/' Top.W=34.00' n= 0.035
24.1	1,075	Total			

Summary for Subcatchment 900:

Runoff = 4.18 cfs @ 12.19 hrs, Volume= 0.273 af, Depth= 1.20"
Routed to Reach OFF :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.09"

	Area (ac)	CN	Description
*	2.730	67	
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth > 1.77" for 10-Year event
Inflow = 17.21 cfs @ 12.36 hrs, Volume= 5.713 af
Outflow = 14.30 cfs @ 12.54 hrs, Volume= 5.712 af, Atten= 17%, Lag= 11.0 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.97 fps, Min. Travel Time= 13.5 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 55.9 min

Peak Storage= 11,620 cf @ 12.54 hrs
Average Depth at Peak Storage= 0.59' , Surface Width= 14.70'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 320.95 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,600.0' Slope= 0.0056 '/'
Inlet Invert= 884.92', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 2.83" for 10-Year event
Inflow = 14.95 cfs @ 12.14 hrs, Volume= 0.871 af
Outflow = 14.95 cfs @ 12.14 hrs, Volume= 0.871 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 85.00% Impervious, Inflow Depth = 3.41" for 10-Year event
Inflow = 12.65 cfs @ 12.22 hrs, Volume= 0.956 af
Outflow = 10.53 cfs @ 12.30 hrs, Volume= 0.956 af, Atten= 17%, Lag= 5.0 min
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.90 fps, Min. Travel Time= 8.8 min
Avg. Velocity = 0.49 fps, Avg. Travel Time= 34.3 min

Peak Storage= 5,538 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.47' , Surface Width= 13.73'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Reach OFF:

Inflow Area = 2.730 ac, 0.00% Impervious, Inflow Depth = 1.20" for 10-Year event
Inflow = 4.18 cfs @ 12.19 hrs, Volume= 0.273 af
Outflow = 4.18 cfs @ 12.19 hrs, Volume= 0.273 af, Atten= 0%, Lag= 0.0 min
Routed to Pond WP-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 3.20" for 10-Year event
Inflow = 6.04 cfs @ 12.13 hrs, Volume= 0.363 af
Outflow = 5.16 cfs @ 12.17 hrs, Volume= 0.259 af, Atten= 15%, Lag= 2.5 min
Primary = 5.16 cfs @ 12.17 hrs, Volume= 0.259 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 893.95' @ 12.17 hrs Surf.Area= 5,682 sf Storage= 5,907 cf

Plug-Flow detention time= 153.3 min calculated for 0.259 af (71% of inflow)
Center-of-Mass det. time= 72.1 min (836.9 - 764.8)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.99 cfs @ 12.17 hrs HW=893.95' TW=0.00' (Dynamic Tailwater)
└─**3=18" RCP** (Passes 4.99 cfs of 10.78 cfs potential flow)
  └─**2=6" Underdrain** (Passes 0.00 cfs of 0.91 cfs potential flow)
    └─**1=Exfiltration** (Exfiltration Controls 0.00 cfs)
  └─**4=48" Standpipe** (Weir Controls 4.99 cfs @ 1.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth = 2.41" for 10-Year event
Inflow = 20.62 cfs @ 12.14 hrs, Volume= 1.232 af
Outflow = 15.06 cfs @ 12.22 hrs, Volume= 1.220 af, Atten= 27%, Lag= 4.9 min
Primary = 15.06 cfs @ 12.22 hrs, Volume= 1.220 af
Routed to Pond 3P : Dry Pond
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 890.24' @ 12.22 hrs Surf.Area= 9,769 sf Storage= 18,785 cf (18,149 cf above start)

Plug-Flow detention time= 198.2 min calculated for 1.205 af (98% of inflow)
Center-of-Mass det. time= 182.7 min (971.0 - 788.4)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=13.94 cfs @ 12.22 hrs HW=890.22' TW=888.27' (Dynamic Tailwater)
└─**1=Culvert** (Passes 13.94 cfs of 17.81 cfs potential flow)
  └─**2=Sharp-Crested Vee/Trap Weir** (Orifice Controls 4.28 cfs @ 4.38 fps)
  └─**3=Standpipe** (Weir Controls 9.66 cfs @ 1.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.09' TW=887.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2R:

Inflow Area = 27.166 ac, 37.01% Impervious, Inflow Depth > 2.32" for 10-Year event
Inflow = 17.48 cfs @ 12.32 hrs, Volume= 5.253 af
Outflow = 16.78 cfs @ 12.36 hrs, Volume= 5.253 af, Atten= 4%, Lag= 2.1 min
Primary = 16.78 cfs @ 12.36 hrs, Volume= 5.253 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 885.99' @ 12.41 hrs Surf.Area= 0.161 ac Storage= 0.068 af

Plug-Flow detention time= 6.1 min calculated for 5.253 af (100% of inflow)
Center-of-Mass det. time= 5.8 min (1,270.1 - 1,264.3)

Volume	Invert	Avail.Storage	Storage Description
#1	885.50'	0.996 af	**10.00'W x 500.00'L x 3.50'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**96.0" W x 48.0" H Box Culvert X 2.00** L= 150.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 885.50' / 884.92' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 32.00 sf

Primary OutFlow Max=15.94 cfs @ 12.36 hrs HW=885.98' TW=885.43' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 15.94 cfs @ 2.74 fps)

Summary for Pond 3P: Dry Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth = 2.39" for 10-Year event
Inflow = 15.06 cfs @ 12.22 hrs, Volume= 1.220 af
Outflow = 4.66 cfs @ 12.54 hrs, Volume= 1.220 af, Atten= 69%, Lag= 18.8 min
Primary = 0.21 cfs @ 11.65 hrs, Volume= 0.347 af
Routed to Pond 2R :
Secondary = 4.45 cfs @ 12.54 hrs, Volume= 0.873 af
Routed to Pond 2R :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 889.33' @ 12.54 hrs Surf.Area= 5,217 sf Storage= 9,050 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 28.5 min (999.5 - 971.0)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 11.65 hrs HW=887.06' TW=885.62' (Dynamic Tailwater)
└**2=Underdrain** (Passes 0.21 cfs of 0.34 cfs potential flow)
└**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=4.44 cfs @ 12.54 hrs HW=889.33' TW=885.97' (Dynamic Tailwater)
└**3=Culvert** (Barrel Controls 4.44 cfs @ 5.66 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=887.00' TW=885.50' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond INF-1:

Inflow Area = 4.065 ac, 39.11% Impervious, Inflow Depth = 2.31" for 10-Year event
Inflow = 12.12 cfs @ 12.15 hrs, Volume= 0.783 af
Outflow = 0.78 cfs @ 14.98 hrs, Volume= 0.784 af, Atten= 94%, Lag= 169.6 min
Discarded = 0.31 cfs @ 11.85 hrs, Volume= 0.324 af
Primary = 0.48 cfs @ 14.98 hrs, Volume= 0.460 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Peak Elev= 886.54' @ 13.53 hrs Surf.Area= 28,491 sf Storage= 14,983 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 156.7 min (933.8 - 777.0)

Volume	Invert	Avail.Storage	Storage Description
#1	886.00'	95,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
886.00	26,665	0	0
889.00	36,745	95,115	95,115

Device	Routing	Invert	Outlet Devices
#1	Discarded	886.00'	**0.500 in/hr Native Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#2	Device 4	886.00'	**3.100 in/hr Engineered Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#3	Primary	884.00'	**18.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 884.00' / 883.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 3	884.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	887.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.31 cfs @ 11.85 hrs HW=886.03' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.48 cfs @ 14.98 hrs HW=886.49' TW=885.21' (Dynamic Tailwater)
└**3=Culvert** (Passes 0.48 cfs of 8.80 cfs potential flow)
└**4=Orifice/Grate** (Orifice Controls 0.48 cfs @ 5.45 fps)
└**2=Engineered Soil** (Passes 0.48 cfs of 1.92 cfs potential flow)
└**5=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=886.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond INF-3:

Inflow Area = 7.513 ac, 53.19% Impervious, Inflow Depth > 3.04" for 10-Year event
Inflow = 4.77 cfs @ 12.13 hrs, Volume= 1.906 af
Outflow = 0.32 cfs @ 11.80 hrs, Volume= 1.907 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.32 cfs @ 11.80 hrs, Volume= 1.907 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 882.53' @ 24.29 hrs Surf.Area= 31,455 sf Storage= 45,045 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,334.0 min (2,704.4 - 1,370.4)

Volume	Invert	Avail.Storage	Storage Description
#1	881.00'	94,110 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
881.00	27,355	0	0
884.00	35,385	94,110	94,110

Device	Routing	Invert	Outlet Devices
#1	Discarded	881.00'	**0.500 in/hr Native Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#2	Device 4	881.00'	**3.100 in/hr Engineered Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#3	Primary	879.50'	**24.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 879.50' / 879.00' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#4	Device 3	879.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	882.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	882.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.32 cfs @ 11.80 hrs HW=881.03' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**3=Culvert** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)
    └**2=Engineered Soil** (Passes 0.00 cfs of 1.96 cfs potential flow)
  └**5=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond WP-2:

Inflow Area = 16.037 ac, 27.04% Impervious, Inflow Depth = 2.19" for 10-Year event
Inflow = 36.60 cfs @ 12.15 hrs, Volume= 2.921 af
Outflow = 1.51 cfs @ 15.14 hrs, Volume= 2.904 af, Atten= 96%, Lag= 179.1 min
Primary = 1.51 cfs @ 15.14 hrs, Volume= 2.904 af
  Routed to Pond 2R :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Pond 2R :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.00' Surf.Area= 26,400 sf Storage= 110,568 cf
Peak Elev= 890.80' @ 15.14 hrs Surf.Area= 34,522 sf Storage= 195,874 cf (85,306 cf above start)

Plug-Flow detention time= 2,318.7 min calculated for 0.366 af (13% of inflow)
Center-of-Mass det. time= 755.9 min (1,552.1 - 796.2)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	365,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	14,665	0	0
887.00	20,235	87,250	87,250
888.00	26,400	23,318	110,568
894.00	43,800	210,600	321,168
895.00	45,000	44,400	365,568

Device	Routing	Invert	Outlet Devices
#1	Primary	888.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 888.00' / 887.00' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	888.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	891.50'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	891.50'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 891.50' / 890.00' S= 0.0300 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	893.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.51 cfs @ 15.14 hrs HW=890.80' TW=885.68' (Dynamic Tailwater)
1=Culvert (Passes 1.51 cfs of 39.13 cfs potential flow)
2=Orifice/Grate (Orifice Controls 1.51 cfs @ 7.69 fps)
3=Standpipe (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' TW=885.50' (Dynamic Tailwater)
4=Culvert (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' TW=885.50' (Dynamic Tailwater)
5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond WP-3:

Inflow Area = 6.487 ac, 51.92% Impervious, Inflow Depth = 3.13" for 10-Year event
Inflow = 22.58 cfs @ 12.14 hrs, Volume= 1.691 af
Outflow = 1.60 cfs @ 13.53 hrs, Volume= 1.664 af, Atten= 93%, Lag= 83.4 min
Primary = 1.60 cfs @ 13.53 hrs, Volume= 1.664 af
Routed to Pond INF-3 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 882.00' Surf.Area= 35,975 sf Storage= 161,385 cf
Peak Elev= 883.24' @ 13.53 hrs Surf.Area= 39,966 sf Storage= 208,325 cf (46,940 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 691.0 min (1,461.9 - 770.9)

Volume	Invert	Avail.Storage	Storage Description
#1	876.00'	463,181 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
876.00	22,595	0	0
881.00	28,970	128,913	128,913
882.00	35,975	32,473	161,385
888.00	55,345	273,960	435,345
888.50	56,000	27,836	463,181

Device	Routing	Invert	Outlet Devices
#1	Primary	882.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 882.00' / 881.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	882.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	886.00'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	885.25'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500

			Inlet / Outlet Invert= 885.25' / 884.00' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.60 cfs @ 13.53 hrs HW=883.24' TW=881.45' (Dynamic Tailwater)
1=Culvert (Passes 1.60 cfs of 9.29 cfs potential flow)
2=Orifice/Grate (Orifice Controls 1.60 cfs @ 4.58 fps)
3=Standpipe (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
4=Culvert (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth > 1.77" for 10-Year event
Inflow = 14.30 cfs @ 12.54 hrs, Volume= 5.712 af
Primary = 14.30 cfs @ 12.54 hrs, Volume= 5.712 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=5.65"
Tc=6.0 min CN=WQ Runoff=10.55 cfs 0.641 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=5.55"
Tc=6.0 min CN=WQ Runoff=15.27 cfs 0.928 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=5.69"
Tc=6.0 min CN=WQ Runoff=2.57 cfs 0.157 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=5.95"
Tc=14.0 min CN=94 Runoff=21.37 cfs 1.667 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=WQ Runoff=5.07 cfs 0.326 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=2.84"
Tc=8.0 min CN=65 Runoff=7.55 cfs 0.432 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=6.46"
Tc=6.0 min CN=WQ Runoff=36.46 cfs 2.333 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=3.75"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=36.88 cfs 2.801 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=WQ Runoff=28.33 cfs 1.819 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=4.60"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=15.49 cfs 1.195 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=5.03"
Tc=6.0 min CN=WQ Runoff=6.81 cfs 0.430 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=4.46"
Tc=8.0 min CN=WQ Runoff=23.97 cfs 1.510 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=3.14"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=4.65 cfs 0.430 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=3.04"
Tc=10.0 min CN=67 Runoff=11.07 cfs 0.691 af

Reach 1R: Drainage Way Avg. Flow Depth=1.12' Max Vel=2.83 fps Inflow=49.61 cfs 11.256 af
n=0.035 L=1,600.0' S=0.0056 '/' Capacity=320.95 cfs Outflow=45.80 cfs 11.256 af

Reach 4R: To WP Inflow=26.89 cfs 1.622 af
Outflow=26.89 cfs 1.622 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.64' Max Vel=2.28 fps Inflow=21.37 cfs 1.667 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=18.44 cfs 1.667 af

Reach OFF: Inflow=11.07 cfs 0.691 af
Outflow=11.07 cfs 0.691 af

Pond 1P: Proposed Basin Peak Elev=894.08' Storage=6,626 cf Inflow=10.55 cfs 0.641 af
Primary=9.44 cfs 0.537 af Secondary=0.00 cfs 0.000 af Outflow=9.44 cfs 0.537 af

Pond 2P: Wet Pond Peak Elev=890.79' Storage=24,284 cf Inflow=39.31 cfs 2.379 af
Primary=19.89 cfs 1.880 af Secondary=16.49 cfs 0.487 af Outflow=30.72 cfs 2.367 af

Pond 2R: Peak Elev=886.58' Storage=0.179 af Inflow=51.12 cfs 10.271 af
96.0" x 48.0" Box Culvert x 2.00 n=0.013 L=150.0' S=0.0039 '/' Outflow=49.05 cfs 10.270 af

Pond 3P: Dry Pond Peak Elev=890.73' Storage=17,532 cf Inflow=30.72 cfs 2.367 af
Primary=0.21 cfs 0.400 af Secondary=6.23 cfs 1.640 af Tertiary=15.66 cfs 0.327 af Outflow=22.10 cfs 2.367 af

Pond INF-1: Peak Elev=887.15' Storage=32,773 cf Inflow=23.97 cfs 1.510 af
Discarded=0.31 cfs 0.526 af Primary=1.65 cfs 0.986 af Secondary=0.00 cfs 0.000 af Outflow=1.96 cfs 1.511 af

Pond INF-3: Peak Elev=883.40' Storage=73,483 cf Inflow=8.41 cfs 3.365 af
Discarded=0.32 cfs 2.969 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 2.969 af

Pond WP-2: Peak Elev=892.00' Storage=239,496 cf Inflow=73.25 cfs 5.825 af
Primary=20.18 cfs 5.609 af Secondary=3.00 cfs 0.198 af Tertiary=0.00 cfs 0.000 af Outflow=23.17 cfs 5.806 af

Pond WP-3: Peak Elev=884.17' Storage=247,235 cf Inflow=39.26 cfs 3.014 af
Primary=2.28 cfs 2.935 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=2.28 cfs 2.935 af

Link 4L: North Inflow=45.80 cfs 11.256 af
Primary=45.80 cfs 11.256 af

Total Runoff Area = 38.744 ac Runoff Volume = 15.359 af Average Runoff Depth = 4.76"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 10.55 cfs @ 12.13 hrs, Volume= 0.641 af, Depth= 5.65"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 15.27 cfs @ 12.13 hrs, Volume= 0.928 af, Depth= 5.55"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 2.57 cfs @ 12.13 hrs, Volume= 0.157 af, Depth= 5.69"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Green Tech

Runoff = 21.37 cfs @ 12.21 hrs, Volume= 1.667 af, Depth= 5.95"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

Area (ac)	CN	Description
3.361	94	Urban commercial, 85% imp, HSG C
0.504		15.00% Pervious Area
2.857		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
8.0					**Direct Entry, Through Swale**
14.0	0	Total			

Summary for Subcatchment 100-i:

Runoff = 5.07 cfs @ 12.13 hrs, Volume= 0.326 af, Depth= 6.48"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.446	98	
*	0.157	100	
	0.603		Weighted Average
	0.603		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100-p:

Runoff = 7.55 cfs @ 12.16 hrs, Volume= 0.432 af, Depth= 2.84"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	1.822	65	
	1.822		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 200-i:

Runoff = 36.46 cfs @ 12.13 hrs, Volume= 2.333 af, Depth= 6.46"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	3.717	98	
*	0.620	100	
	4.337		Weighted Average
	4.337		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 200-p:

Runoff = 36.88 cfs @ 12.25 hrs, Volume= 2.801 af, Depth= 3.75"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	8.970	74	
	8.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 300-i:

Runoff = 28.33 cfs @ 12.13 hrs, Volume= 1.819 af, Depth= 6.48"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	2.542	98	
*	0.826	100	
	3.368		Weighted Average
	3.368		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 300-p:

Runoff = 15.49 cfs @ 12.25 hrs, Volume= 1.195 af, Depth= 4.60"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	3.119	82	
	3.119		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 305:

Runoff = 6.81 cfs @ 12.13 hrs, Volume= 0.430 af, Depth= 5.03"
Routed to Pond INF-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.628	100	
*	0.398	61	
	1.026		Weighted Average
	0.398		38.79% Pervious Area
	0.628		61.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 400:

Runoff = 23.97 cfs @ 12.15 hrs, Volume= 1.510 af, Depth= 4.46"
Routed to Pond INF-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	0.612	100	
*	2.475	68	
*	0.978	98	
	4.065		Weighted Average
	2.475		60.89% Pervious Area
	1.590		39.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 500:

Runoff = 4.65 cfs @ 12.36 hrs, Volume= 0.430 af, Depth= 3.14"
Routed to Pond 2R :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	1.646	68	
	1.646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
1.3	175	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.8	800	0.0055	4.83	318.78	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=3.00' Z= 4.0 '/' Top.W=34.00' n= 0.035
24.1	1,075	Total			

Summary for Subcatchment 900:

Runoff = 11.07 cfs @ 12.18 hrs, Volume= 0.691 af, Depth= 3.04"
Routed to Reach OFF :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=6.66"

	Area (ac)	CN	Description
*	2.730	67	
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth = 3.49" for 100-Year event
Inflow = 49.61 cfs @ 12.46 hrs, Volume= 11.256 af
Outflow = 45.80 cfs @ 12.58 hrs, Volume= 11.256 af, Atten= 8%, Lag= 7.4 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.83 fps, Min. Travel Time= 9.4 min
Avg. Velocity = 0.55 fps, Avg. Travel Time= 48.5 min

Peak Storage= 25,914 cf @ 12.58 hrs
Average Depth at Peak Storage= 1.12' , Surface Width= 18.95'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 320.95 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,600.0' Slope= 0.0056 '/'
Inlet Invert= 884.92', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 5.26" for 100-Year event
Inflow = 26.89 cfs @ 12.14 hrs, Volume= 1.622 af
Outflow = 26.89 cfs @ 12.14 hrs, Volume= 1.622 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 85.00% Impervious, Inflow Depth = 5.95" for 100-Year event
Inflow = 21.37 cfs @ 12.21 hrs, Volume= 1.667 af
Outflow = 18.44 cfs @ 12.29 hrs, Volume= 1.667 af, Atten= 14%, Lag= 4.4 min
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.28 fps, Min. Travel Time= 7.3 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 29.6 min

Peak Storage= 8,065 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.64' , Surface Width= 15.13'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Reach OFF:

Inflow Area = 2.730 ac, 0.00% Impervious, Inflow Depth = 3.04" for 100-Year event
Inflow = 11.07 cfs @ 12.18 hrs, Volume= 0.691 af
Outflow = 11.07 cfs @ 12.18 hrs, Volume= 0.691 af, Atten= 0%, Lag= 0.0 min
Routed to Pond WP-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 5.65" for 100-Year event
Inflow = 10.55 cfs @ 12.13 hrs, Volume= 0.641 af
Outflow = 9.44 cfs @ 12.16 hrs, Volume= 0.537 af, Atten= 10%, Lag= 2.0 min
Primary = 9.44 cfs @ 12.16 hrs, Volume= 0.537 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 894.08' @ 12.16 hrs Surf.Area= 5,876 sf Storage= 6,626 cf

Plug-Flow detention time= 116.7 min calculated for 0.537 af (84% of inflow)
Center-of-Mass det. time= 53.9 min (812.2 - 758.3)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=9.23 cfs @ 12.16 hrs HW=894.07' TW=0.00' (Dynamic Tailwater)
└─**3=18" RCP** (Passes 9.23 cfs of 11.02 cfs potential flow)
  └─**2=6" Underdrain** (Passes 0.00 cfs of 0.92 cfs potential flow)
    └─**1=Exfiltration** (Exfiltration Controls 0.00 cfs)
  └─**4=48" Standpipe** (Weir Controls 9.23 cfs @ 1.99 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth = 4.66" for 100-Year event
Inflow = 39.31 cfs @ 12.14 hrs, Volume= 2.379 af
Outflow = 30.72 cfs @ 12.16 hrs, Volume= 2.367 af, Atten= 22%, Lag= 1.5 min
Primary = 19.89 cfs @ 12.10 hrs, Volume= 1.880 af
Routed to Pond 3P : Dry Pond
Secondary = 16.49 cfs @ 12.20 hrs, Volume= 0.487 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 890.79' @ 12.30 hrs Surf.Area= 10,452 sf Storage= 24,284 cf (23,648 cf above start)

Plug-Flow detention time= 126.1 min calculated for 2.351 af (99% of inflow)
Center-of-Mass det. time= 118.5 min (899.3 - 780.8)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=17.14 cfs @ 12.10 hrs HW=890.44' TW=889.43' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 17.14 cfs @ 4.85 fps)
  └─**2=Sharp-Crested Vee/Trap Weir** (Passes < 4.40 cfs potential flow)
  └─**3=Standpipe** (Passes < 26.90 cfs potential flow)

Secondary OutFlow Max=8.87 cfs @ 12.20 hrs HW=890.70' TW=890.63' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 8.87 cfs @ 0.98 fps)

Summary for Pond 2R:

Inflow Area = 27.166 ac, 37.01% Impervious, Inflow Depth = 4.54" for 100-Year event
Inflow = 51.12 cfs @ 12.41 hrs, Volume= 10.271 af
Outflow = 49.05 cfs @ 12.46 hrs, Volume= 10.270 af, Atten= 4%, Lag= 2.6 min
Primary = 49.05 cfs @ 12.46 hrs, Volume= 10.270 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 886.58' @ 12.53 hrs Surf.Area= 0.217 ac Storage= 0.179 af

Plug-Flow detention time= 4.8 min calculated for 10.266 af (100% of inflow)
Center-of-Mass det. time= 4.7 min (1,167.4 - 1,162.8)

Volume	Invert	Avail.Storage	Storage Description
#1	885.50'	0.996 af	**10.00'W x 500.00'L x 3.50'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**96.0" W x 48.0" H Box Culvert X 2.00** L= 150.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 885.50' / 884.92' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 32.00 sf

Primary OutFlow Max=46.69 cfs @ 12.46 hrs HW=886.56' TW=885.98' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 46.69 cfs @ 3.66 fps)

Summary for Pond 3P: Dry Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth = 4.64" for 100-Year event
Inflow = 30.72 cfs @ 12.16 hrs, Volume= 2.367 af
Outflow = 22.10 cfs @ 12.25 hrs, Volume= 2.367 af, Atten= 28%, Lag= 4.9 min
Primary = 0.21 cfs @ 10.40 hrs, Volume= 0.400 af
Routed to Pond 2R :
Secondary = 6.23 cfs @ 12.25 hrs, Volume= 1.640 af
Routed to Pond 2R :
Tertiary = 15.66 cfs @ 12.25 hrs, Volume= 0.327 af
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 890.73' @ 12.25 hrs Surf.Area= 6,967 sf Storage= 17,532 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 28.5 min (927.8 - 899.3)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 10.40 hrs HW=887.05' TW=885.60' (Dynamic Tailwater)
└**2=Underdrain** (Passes 0.21 cfs of 0.34 cfs potential flow)
└**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=6.23 cfs @ 12.25 hrs HW=890.72' TW=886.33' (Dynamic Tailwater)
└**3=Culvert** (Barrel Controls 6.23 cfs @ 7.93 fps)

Tertiary OutFlow Max=15.39 cfs @ 12.25 hrs HW=890.72' TW=886.33' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 15.39 cfs @ 1.64 fps)

Summary for Pond INF-1:

Inflow Area = 4.065 ac, 39.11% Impervious, Inflow Depth = 4.46" for 100-Year event
Inflow = 23.97 cfs @ 12.15 hrs, Volume= 1.510 af
Outflow = 1.96 cfs @ 13.25 hrs, Volume= 1.511 af, Atten= 92%, Lag= 65.8 min
Discarded = 0.31 cfs @ 11.30 hrs, Volume= 0.526 af
Primary = 1.65 cfs @ 13.25 hrs, Volume= 0.986 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Peak Elev= 887.15' @ 13.22 hrs Surf.Area= 30,516 sf Storage= 32,773 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 295.7 min (1,070.6 - 774.9)

Volume	Invert	Avail.Storage	Storage Description
#1	886.00'	95,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
886.00	26,665	0	0
889.00	36,745	95,115	95,115

Device	Routing	Invert	Outlet Devices
#1	Discarded	886.00'	**0.500 in/hr Native Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#2	Device 4	886.00'	**3.100 in/hr Engineered Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#3	Primary	884.00'	**18.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 884.00' / 883.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 3	884.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	887.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.31 cfs @ 11.30 hrs HW=886.03' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=1.65 cfs @ 13.25 hrs HW=887.15' TW=885.70' (Dynamic Tailwater)
└**3=Culvert** (Passes 1.65 cfs of 9.35 cfs potential flow)
└**4=Orifice/Grate** (Orifice Controls 0.51 cfs @ 5.79 fps)
└**2=Engineered Soil** (Passes 0.51 cfs of 1.92 cfs potential flow)
└**5=Standpipe** (Weir Controls 1.15 cfs @ 1.25 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=886.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond INF-3:

Inflow Area = 7.513 ac, 53.19% Impervious, Inflow Depth > 5.37" for 100-Year event
Inflow = 8.41 cfs @ 12.13 hrs, Volume= 3.365 af
Outflow = 0.32 cfs @ 10.90 hrs, Volume= 2.969 af, Atten= 96%, Lag= 0.0 min
Discarded = 0.32 cfs @ 10.90 hrs, Volume= 2.969 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 883.40' @ 25.43 hrs Surf.Area= 33,789 sf Storage= 73,483 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,772.7 min (3,798.5 - 2,025.9)

Volume	Invert	Avail.Storage	Storage Description
#1	881.00'	94,110 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
881.00	27,355	0	0
884.00	35,385	94,110	94,110

Device	Routing	Invert	Outlet Devices
#1	Discarded	881.00'	**0.500 in/hr Native Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#2	Device 4	881.00'	**3.100 in/hr Engineered Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#3	Primary	879.50'	**24.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 879.50' / 879.00' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#4	Device 3	879.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	882.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	882.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.32 cfs @ 10.90 hrs HW=881.03' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**3=Culvert** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)
    └**2=Engineered Soil** (Passes 0.00 cfs of 1.96 cfs potential flow)
  └**5=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond WP-2:

Inflow Area = 16.037 ac, 27.04% Impervious, Inflow Depth = 4.36" for 100-Year event
Inflow = 73.25 cfs @ 12.16 hrs, Volume= 5.825 af
Outflow = 23.17 cfs @ 12.54 hrs, Volume= 5.806 af, Atten= 68%, Lag= 23.1 min
Primary = 20.18 cfs @ 12.54 hrs, Volume= 5.609 af
  Routed to Pond 2R :
Secondary = 3.00 cfs @ 12.54 hrs, Volume= 0.198 af
  Routed to Pond 2R :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.00' Surf.Area= 26,400 sf Storage= 110,568 cf
Peak Elev= 892.00' @ 12.54 hrs Surf.Area= 38,010 sf Storage= 239,496 cf (128,929 cf above start)

Plug-Flow detention time= 1,161.1 min calculated for 3.268 af (56% of inflow)
Center-of-Mass det. time= 601.2 min (1,390.7 - 789.5)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	365,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	14,665	0	0
887.00	20,235	87,250	87,250
888.00	26,400	23,318	110,568
894.00	43,800	210,600	321,168
895.00	45,000	44,400	365,568

Device	Routing	Invert	Outlet Devices
#1	Primary	888.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 888.00' / 887.00' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	888.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	891.50'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	891.50'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 891.50' / 890.00' S= 0.0300 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	893.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=20.13 cfs @ 12.54 hrs HW=892.00' TW=886.57' (Dynamic Tailwater)
└─**1=Culvert** (Passes 20.13 cfs of 53.84 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.83 cfs @ 9.33 fps)
  └─**3=Standpipe** (Weir Controls 18.30 cfs @ 2.32 fps)

Secondary OutFlow Max=2.99 cfs @ 12.54 hrs HW=892.00' TW=886.57' (Dynamic Tailwater)
└─**4=Culvert** (Inlet Controls 2.99 cfs @ 2.41 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' TW=885.50' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond WP-3:

Inflow Area = 6.487 ac, 51.92% Impervious, Inflow Depth = 5.58" for 100-Year event
Inflow = 39.26 cfs @ 12.14 hrs, Volume= 3.014 af
Outflow = 2.28 cfs @ 13.62 hrs, Volume= 2.935 af, Atten= 94%, Lag= 89.0 min
Primary = 2.28 cfs @ 13.62 hrs, Volume= 2.935 af
Routed to Pond INF-3 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 882.00' Surf.Area= 35,975 sf Storage= 161,385 cf
Peak Elev= 884.17' @ 13.62 hrs Surf.Area= 42,994 sf Storage= 247,235 cf (85,850 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 1,448.5 min (2,213.3 - 764.8)

Volume	Invert	Avail.Storage	Storage Description
#1	876.00'	463,181 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
876.00	22,595	0	0
881.00	28,970	128,913	128,913
882.00	35,975	32,473	161,385
888.00	55,345	273,960	435,345
888.50	56,000	27,836	463,181

Device	Routing	Invert	Outlet Devices
#1	Primary	882.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 882.00' / 881.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	882.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	886.00'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	885.25'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500

Inlet / Outlet Invert= 885.25' / 884.00' S= 0.0250 '/' Cc= 0.900
n= 0.013, Flow Area= 3.14 sf
#5 Tertiary 887.50' **30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.28 cfs @ 13.62 hrs HW=884.17' TW=881.87' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.28 cfs of 23.73 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.28 cfs @ 6.53 fps)
  └─**3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
└─**4=Culvert** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth = 3.49" for 100-Year event
Inflow = 45.80 cfs @ 12.58 hrs, Volume= 11.256 af
Primary = 45.80 cfs @ 12.58 hrs, Volume= 11.256 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=6.49"
Tc=6.0 min CN=WQ Runoff=12.08 cfs 0.737 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=6.39"
Tc=6.0 min CN=WQ Runoff=17.52 cfs 1.068 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=6.54"
Tc=6.0 min CN=WQ Runoff=2.94 cfs 0.180 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=6.81"
Tc=14.0 min CN=94 Runoff=24.30 cfs 1.909 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=7.35"
Tc=6.0 min CN=WQ Runoff=5.74 cfs 0.369 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=3.52"
Tc=8.0 min CN=65 Runoff=9.37 cfs 0.534 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=7.32"
Tc=6.0 min CN=WQ Runoff=41.25 cfs 2.647 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=4.51"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=44.27 cfs 3.369 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=7.35"
Tc=6.0 min CN=WQ Runoff=32.04 cfs 2.063 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=5.41"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=18.12 cfs 1.407 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=5.81"
Tc=6.0 min CN=WQ Runoff=7.90 cfs 0.497 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=5.23"
Tc=8.0 min CN=WQ Runoff=28.18 cfs 1.771 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=3.84"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=5.72 cfs 0.527 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=3.73"
Tc=10.0 min CN=67 Runoff=13.62 cfs 0.850 af

Reach 1R: Drainage Way Avg. Flow Depth=1.41' Max Vel=3.20 fps Inflow=78.49 cfs 13.276 af
n=0.035 L=1,600.0' S=0.0056 '/' Capacity=320.95 cfs Outflow=70.42 cfs 13.276 af

Reach 4R: To WP Inflow=30.93 cfs 1.881 af
Outflow=30.93 cfs 1.881 af

Reach 10R: Green-Tech Undetained Avg. Flow Depth=0.69' Max Vel=2.38 fps Inflow=24.30 cfs 1.909 af
n=0.030 L=1,000.0' S=0.0050 '/' Capacity=354.61 cfs Outflow=21.12 cfs 1.909 af

Reach OFF: Inflow=13.62 cfs 0.850 af
Outflow=13.62 cfs 0.850 af

Pond 1P: Proposed Basin Peak Elev=894.11' Storage=6,845 cf Inflow=12.08 cfs 0.737 af
Primary=10.88 cfs 0.633 af Secondary=0.00 cfs 0.000 af Outflow=10.88 cfs 0.633 af

Pond 2P: Wet Pond Peak Elev=890.95' Storage=25,971 cf Inflow=45.80 cfs 2.784 af
Primary=19.23 cfs 2.074 af Secondary=22.88 cfs 0.698 af Outflow=35.22 cfs 2.772 af

Pond 2R: Peak Elev=886.93' Storage=0.261 af Inflow=81.43 cfs 12.056 af
96.0" x 48.0" Box Culvert x 2.00 n=0.013 L=150.0' S=0.0039 '/' Outflow=76.55 cfs 12.055 af

Pond 3P: Dry Pond Peak Elev=890.87' Storage=18,562 cf Inflow=35.22 cfs 2.772 af
Primary=0.21 cfs 0.413 af Secondary=6.39 cfs 1.815 af Tertiary=25.71 cfs 0.544 af Outflow=32.31 cfs 2.773 af

Pond INF-1: Peak Elev=887.25' Storage=36,068 cf Inflow=28.18 cfs 1.771 af
Discarded=0.31 cfs 0.551 af Primary=3.05 cfs 1.221 af Secondary=0.00 cfs 0.000 af Outflow=3.36 cfs 1.772 af

Pond INF-3: Peak Elev=883.69' Storage=83,267 cf Inflow=9.65 cfs 3.764 af
Discarded=0.32 cfs 2.983 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 2.983 af

Pond WP-2: Peak Elev=892.22' Storage=247,853 cf Inflow=86.28 cfs 6.866 af
Primary=33.36 cfs 6.511 af Secondary=5.90 cfs 0.336 af Tertiary=0.00 cfs 0.000 af Outflow=39.26 cfs 6.847 af

Pond WP-3: Peak Elev=884.49' Storage=260,896 cf Inflow=44.95 cfs 3.470 af
Primary=2.47 cfs 3.267 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=2.47 cfs 3.267 af

Link 4L: North Inflow=70.42 cfs 13.276 af
Primary=70.42 cfs 13.276 af

Total Runoff Area = 38.744 ac Runoff Volume = 17.928 af Average Runoff Depth = 5.55"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Summary for Subcatchment 1-SP: On-Site

Runoff = 12.08 cfs @ 12.13 hrs, Volume= 0.737 af, Depth= 6.49"
Routed to Pond 1P : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.303	98	Roof
*	0.380	98	Parking
*	0.066	98	Sidewalk
*	0.088	100	Bioretention Basin Bottom
	0.525	80	>75% Grass cover, Good, HSG D
	1.362		Weighted Average
	0.525		38.55% Pervious Area
	0.837		61.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S:

Runoff = 17.52 cfs @ 12.13 hrs, Volume= 1.068 af, Depth= 6.39"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.751	98	Pavement
*	0.239	98	Sidewalk
*	0.796	78	Greenspace
*	0.219	100	Water
	2.005		Weighted Average
	0.796		39.70% Pervious Area
	1.209		60.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3-SP: On-Site

Runoff = 2.94 cfs @ 12.13 hrs, Volume= 0.180 af, Depth= 6.54"
Routed to Reach 4R : To WP

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.174	98	Roof
*	0.025	98	Parking
*	0.013	98	Sidewalk
	0.118	80	>75% Grass cover, Good, HSG D
	0.330		Weighted Average
	0.118		35.76% Pervious Area
	0.212		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Green Tech

Runoff = 24.30 cfs @ 12.21 hrs, Volume= 1.909 af, Depth= 6.81"
Routed to Reach 10R : Green-Tech Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
	3.361	94	Urban commercial, 85% imp, HSG C
	0.504		15.00% Pervious Area
	2.857		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
8.0					**Direct Entry, Through Swale**
14.0	0	Total			

Summary for Subcatchment 100-i:

Runoff = 5.74 cfs @ 12.13 hrs, Volume= 0.369 af, Depth= 7.35"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.446	98	
*	0.157	100	
	0.603		Weighted Average
	0.603		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 100-p:

Runoff = 9.37 cfs @ 12.15 hrs, Volume= 0.534 af, Depth= 3.52"
Routed to Pond 2P : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	1.822	65	
	1.822		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 200-i:

Runoff = 41.25 cfs @ 12.13 hrs, Volume= 2.647 af, Depth= 7.32"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	3.717	98	
*	0.620	100	
	4.337		Weighted Average
	4.337		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 200-p:

Runoff = 44.27 cfs @ 12.25 hrs, Volume= 3.369 af, Depth= 4.51"
Routed to Pond WP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	8.970	74	
	8.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 300-i:

Runoff = 32.04 cfs @ 12.13 hrs, Volume= 2.063 af, Depth= 7.35"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	2.542	98	
*	0.826	100	
	3.368		Weighted Average
	3.368		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 300-p:

Runoff = 18.12 cfs @ 12.25 hrs, Volume= 1.407 af, Depth= 5.41"
Routed to Pond WP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	3.119	82	
	3.119		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
6.0					**Direct Entry, Storm Sewer**
16.4	100	Total			

Summary for Subcatchment 305:

Runoff = 7.90 cfs @ 12.13 hrs, Volume= 0.497 af, Depth= 5.81"
Routed to Pond INF-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.628	100	
*	0.398	61	
	1.026		Weighted Average
	0.398		38.79% Pervious Area
	0.628		61.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 400:

Runoff = 28.18 cfs @ 12.15 hrs, Volume= 1.771 af, Depth= 5.23"
Routed to Pond INF-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	0.612	100	
*	2.475	68	
*	0.978	98	
	4.065		Weighted Average
	2.475		60.89% Pervious Area
	1.590		39.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0					**Direct Entry,**

Summary for Subcatchment 500:

Runoff = 5.72 cfs @ 12.35 hrs, Volume= 0.527 af, Depth= 3.84"
Routed to Pond 2R :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	1.646	68	
	1.646		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
1.3	175	0.0210	2.17		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.8	800	0.0055	4.83	318.78	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=3.00' Z= 4.0 '/' Top.W=34.00' n= 0.035
24.1	1,075	Total			

Summary for Subcatchment 900:

Runoff = 13.62 cfs @ 12.18 hrs, Volume= 0.850 af, Depth= 3.73"
Routed to Reach OFF :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 200-Year Rainfall=7.53"

	Area (ac)	CN	Description
*	2.730	67	
	2.730		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Reach 1R: Drainage Way

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth = 4.11" for 200-Year event
Inflow = 78.49 cfs @ 12.39 hrs, Volume= 13.276 af
Outflow = 70.42 cfs @ 12.52 hrs, Volume= 13.276 af, Atten= 10%, Lag= 7.2 min
Routed to Link 4L : North

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.20 fps, Min. Travel Time= 8.3 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 47.3 min

Peak Storage= 35,140 cf @ 12.52 hrs
Average Depth at Peak Storage= 1.41' , Surface Width= 21.25'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 320.95 cfs

10.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,600.0' Slope= 0.0056 '/'
Inlet Invert= 884.92', Outlet Invert= 876.00'

‡

Summary for Reach 4R: To WP

Inflow Area = 3.697 ac, 61.08% Impervious, Inflow Depth = 6.10" for 200-Year event
Inflow = 30.93 cfs @ 12.14 hrs, Volume= 1.881 af
Outflow = 30.93 cfs @ 12.14 hrs, Volume= 1.881 af, Atten= 0%, Lag= 0.0 min
Routed to Pond 2P : Wet Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Reach 10R: Green-Tech Undetained

Inflow Area = 3.361 ac, 85.00% Impervious, Inflow Depth = 6.81" for 200-Year event
Inflow = 24.30 cfs @ 12.21 hrs, Volume= 1.909 af
Outflow = 21.12 cfs @ 12.28 hrs, Volume= 1.909 af, Atten= 13%, Lag= 4.2 min
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.38 fps, Min. Travel Time= 7.0 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 28.5 min

Peak Storage= 8,845 cf @ 12.28 hrs
Average Depth at Peak Storage= 0.69' , Surface Width= 15.54'
Bank-Full Depth= 3.00' Flow Area= 66.0 sf, Capacity= 354.61 cfs

10.00' x 3.00' deep channel, n= 0.030
Side Slope Z-value= 4.0 '/' Top Width= 34.00'
Length= 1,000.0' Slope= 0.0050 '/'
Inlet Invert= 891.00', Outlet Invert= 886.00'

‡

Summary for Reach OFF:

Inflow Area = 2.730 ac, 0.00% Impervious, Inflow Depth = 3.73" for 200-Year event
Inflow = 13.62 cfs @ 12.18 hrs, Volume= 0.850 af
Outflow = 13.62 cfs @ 12.18 hrs, Volume= 0.850 af, Atten= 0%, Lag= 0.0 min
Routed to Pond WP-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Proposed Basin

Inflow Area = 1.362 ac, 61.45% Impervious, Inflow Depth = 6.49" for 200-Year event
Inflow = 12.08 cfs @ 12.13 hrs, Volume= 0.737 af
Outflow = 10.88 cfs @ 12.16 hrs, Volume= 0.633 af, Atten= 10%, Lag= 1.9 min
Primary = 10.88 cfs @ 12.16 hrs, Volume= 0.633 af
Routed to Reach 4R : To WP
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 4R : To WP

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 894.11' @ 12.16 hrs Surf.Area= 5,935 sf Storage= 6,845 cf

Plug-Flow detention time= 107.5 min calculated for 0.633 af (86% of inflow)
Center-of-Mass det. time= 50.6 min (807.4 - 756.7)

Volume	Invert	Avail.Storage	Storage Description
#1	892.70'	19,158 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
892.70	3,800	490.0	0	0	3,800
893.70	5,300	510.0	4,529	4,529	5,468
894.70	6,900	530.0	6,082	10,612	7,203
895.70	8,500	540.0	7,686	18,298	8,209
895.80	8,700	550.0	860	19,158	9,078

Device	Routing	Invert	Outlet Devices
#1	Device 2	892.70'	**3.600 in/hr Exfiltration over Surface area from 891.69' - 891.71'** Excluded Surface area = 0 sf
#2	Device 3	890.20'	**6.0" Round 6" Underdrain** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 890.20' / 890.20' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	890.20'	**18.0" Round 18" RCP** L= 175.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 890.20' / 889.73' S= 0.0027 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	893.70'	**48.0" Horiz. 48" Standpipe** C= 0.600 Limited to weir flow at low heads
#5	Secondary	895.70'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=10.65 cfs @ 12.16 hrs HW=894.11' TW=0.00' (Dynamic Tailwater)
└─**3=18" RCP** (Passes 10.65 cfs of 11.09 cfs potential flow)
  └─**2=6" Underdrain** (Passes 0.00 cfs of 0.93 cfs potential flow)
    └─**1=Exfiltration** (Exfiltration Controls 0.00 cfs)
  └─**4=48" Standpipe** (Weir Controls 10.65 cfs @ 2.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=892.70' TW=0.00' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Wet Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth = 5.46" for 200-Year event
Inflow = 45.80 cfs @ 12.14 hrs, Volume= 2.784 af
Outflow = 35.22 cfs @ 12.16 hrs, Volume= 2.772 af, Atten= 23%, Lag= 1.1 min
Primary = 19.23 cfs @ 12.05 hrs, Volume= 2.074 af
Routed to Pond 3P : Dry Pond
Secondary = 22.88 cfs @ 12.19 hrs, Volume= 0.698 af
Routed to Pond 3P : Dry Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.09' Surf.Area= 7,114 sf Storage= 635 cf
Peak Elev= 890.95' @ 12.26 hrs Surf.Area= 10,653 sf Storage= 25,971 cf (25,336 cf above start)

Plug-Flow detention time= 113.1 min calculated for 2.757 af (99% of inflow)
Center-of-Mass det. time= 106.7 min (885.6 - 778.8)

Volume	Invert	Avail.Storage	Storage Description
#1	888.00'	38,984 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
888.00	7,005	0	0
889.00	8,211	7,608	7,608
890.00	9,464	8,838	16,446
891.00	10,719	10,092	26,537
892.00	14,175	12,447	38,984

Device	Routing	Invert	Outlet Devices
#1	Primary	887.97'	**18.0" Round Culvert X 2.00** L= 46.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.97' / 887.80' S= 0.0037 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	888.09'	**30.0 deg x 1.91' rise Sharp-Crested Vee/Trap Weir** Cv= 2.61 (C= 3.26)
#3	Device 1	890.00'	**96.0" x 72.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	890.23'	**17.0' long + 5.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=15.85 cfs @ 12.05 hrs HW=890.39' TW=889.52' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 15.85 cfs @ 4.49 fps)
  └─**2=Sharp-Crested Vee/Trap Weir** (Passes < 4.14 cfs potential flow)
  └─**3=Standpipe** (Passes < 22.01 cfs potential flow)

Secondary OutFlow Max=12.79 cfs @ 12.19 hrs HW=890.86' TW=890.80' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 12.79 cfs @ 1.01 fps)

Summary for Pond 2R:

Inflow Area = 27.166 ac, 37.01% Impervious, Inflow Depth = 5.33" for 200-Year event
Inflow = 81.43 cfs @ 12.36 hrs, Volume= 12.056 af
Outflow = 76.55 cfs @ 12.39 hrs, Volume= 12.055 af, Atten= 6%, Lag= 1.8 min
Primary = 76.55 cfs @ 12.39 hrs, Volume= 12.055 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 886.93' @ 12.46 hrs Surf.Area= 0.251 ac Storage= 0.261 af

Plug-Flow detention time= 4.6 min calculated for 12.050 af (100% of inflow)
Center-of-Mass det. time= 4.4 min (1,121.6 - 1,117.2)

Volume	Invert	Avail.Storage	Storage Description
#1	885.50'	0.996 af	**10.00'W x 500.00'L x 3.50'H Prismatoid Z=4.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	885.50'	**96.0" W x 48.0" H Box Culvert X 2.00** L= 150.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 885.50' / 884.92' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 32.00 sf

Primary OutFlow Max=70.37 cfs @ 12.39 hrs HW=886.89' TW=886.22' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 70.37 cfs @ 4.21 fps)

Summary for Pond 3P: Dry Pond

Inflow Area = 6.122 ac, 46.73% Impervious, Inflow Depth = 5.43" for 200-Year event
Inflow = 35.22 cfs @ 12.16 hrs, Volume= 2.772 af
Outflow = 32.31 cfs @ 12.21 hrs, Volume= 2.773 af, Atten= 8%, Lag= 3.2 min
Primary = 0.21 cfs @ 9.95 hrs, Volume= 0.413 af
Routed to Pond 2R :
Secondary = 6.39 cfs @ 12.21 hrs, Volume= 1.815 af
Routed to Pond 2R :
Tertiary = 25.71 cfs @ 12.21 hrs, Volume= 0.544 af
Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 890.87' @ 12.21 hrs Surf.Area= 7,158 sf Storage= 18,562 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 26.7 min (912.3 - 885.6)

Volume	Invert	Avail.Storage	Storage Description
#1	887.00'	27,761 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
887.00	2,514	0	0
888.00	3,722	3,118	3,118
889.00	4,824	4,273	7,391
890.00	6,013	5,419	12,810
891.00	7,324	6,669	19,478
892.00	9,242	8,283	27,761

Device	Routing	Invert	Outlet Devices
#1	Device 2	887.00'	**3.600 in/hr Exfiltration - Engineered Soil over Surface area from 886.99' - 887.01'** Excluded Surface area = 0 sf
#2	Primary	886.00'	**6.0" Round Underdrain** L= 130.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 886.00' / 886.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Secondary	887.10'	**12.0" Round Culvert** L= 45.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 887.10' / 886.88' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#4	Tertiary	890.30'	**20.0' long + 5.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.21 cfs @ 9.95 hrs HW=887.05' TW=885.60' (Dynamic Tailwater)
└**2=Underdrain** (Passes 0.21 cfs of 0.34 cfs potential flow)
└**1=Exfiltration - Engineered Soil** (Exfiltration Controls 0.21 cfs)

Secondary OutFlow Max=6.36 cfs @ 12.21 hrs HW=890.84' TW=886.43' (Dynamic Tailwater)
└**3=Culvert** (Barrel Controls 6.36 cfs @ 8.10 fps)

Tertiary OutFlow Max=23.88 cfs @ 12.21 hrs HW=890.85' TW=886.43' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 23.88 cfs @ 1.92 fps)

Summary for Pond INF-1:

Inflow Area = 4.065 ac, 39.11% Impervious, Inflow Depth = 5.23" for 200-Year event
Inflow = 28.18 cfs @ 12.15 hrs, Volume= 1.771 af
Outflow = 3.36 cfs @ 12.73 hrs, Volume= 1.772 af, Atten= 88%, Lag= 34.6 min
Discarded = 0.31 cfs @ 11.15 hrs, Volume= 0.551 af
Primary = 3.05 cfs @ 12.73 hrs, Volume= 1.221 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Peak Elev= 887.25' @ 12.70 hrs Surf.Area= 30,877 sf Storage= 36,068 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 273.1 min (1,047.1 - 773.9)

Volume	Invert	Avail.Storage	Storage Description
#1	886.00'	95,115 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
886.00	26,665	0	0
889.00	36,745	95,115	95,115

Device	Routing	Invert	Outlet Devices
#1	Discarded	886.00'	**0.500 in/hr Native Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#2	Device 4	886.00'	**3.100 in/hr Engineered Soil over Surface area from 885.99' - 886.01'** Excluded Surface area = 0 sf
#3	Primary	884.00'	**18.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 884.00' / 883.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 3	884.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	887.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.31 cfs @ 11.15 hrs HW=886.03' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=3.06 cfs @ 12.73 hrs HW=887.25' TW=886.17' (Dynamic Tailwater)
└**3=Culvert** (Passes 3.06 cfs of 8.08 cfs potential flow)
└**4=Orifice/Grate** (Orifice Controls 0.44 cfs @ 5.00 fps)
└**2=Engineered Soil** (Passes 0.44 cfs of 1.92 cfs potential flow)
└**5=Standpipe** (Weir Controls 2.62 cfs @ 1.65 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=886.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond INF-3:

Inflow Area = 7.513 ac, 53.19% Impervious, Inflow Depth > 6.01" for 200-Year event
Inflow = 9.65 cfs @ 12.13 hrs, Volume= 3.764 af
Outflow = 0.32 cfs @ 10.50 hrs, Volume= 2.983 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.32 cfs @ 10.50 hrs, Volume= 2.983 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Peak Elev= 883.69' @ 25.99 hrs Surf.Area= 34,555 sf Storage= 83,267 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,641.5 min (3,783.4 - 2,141.9)

Volume	Invert	Avail.Storage	Storage Description
#1	881.00'	94,110 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
881.00	27,355	0	0
884.00	35,385	94,110	94,110

Device	Routing	Invert	Outlet Devices
#1	Discarded	881.00'	**0.500 in/hr Native Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#2	Device 4	881.00'	**3.100 in/hr Engineered Soil over Surface area from 880.99' - 881.01'** Excluded Surface area = 0 sf
#3	Primary	879.50'	**24.0" Round Culvert** L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 879.50' / 879.00' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#4	Device 3	879.50'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	882.00'	**24.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#6	Secondary	882.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.32 cfs @ 10.50 hrs HW=881.03' (Free Discharge)
└**1=Native Soil** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**3=Culvert** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)
    └**2=Engineered Soil** (Passes 0.00 cfs of 1.96 cfs potential flow)
  └**5=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=881.00' TW=884.92' (Dynamic Tailwater)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond WP-2:

Inflow Area = 16.037 ac, 27.04% Impervious, Inflow Depth = 5.14" for 200-Year event
Inflow = 86.28 cfs @ 12.16 hrs, Volume= 6.866 af
Outflow = 39.26 cfs @ 12.43 hrs, Volume= 6.847 af, Atten= 54%, Lag= 16.4 min
Primary = 33.36 cfs @ 12.43 hrs, Volume= 6.511 af
  Routed to Pond 2R :
Secondary = 5.90 cfs @ 12.43 hrs, Volume= 0.336 af
  Routed to Pond 2R :
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Pond 2R :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 888.00' Surf.Area= 26,400 sf Storage= 110,568 cf
Peak Elev= 892.22' @ 12.43 hrs Surf.Area= 38,642 sf Storage= 247,853 cf (137,286 cf above start)

Plug-Flow detention time= 951.2 min calculated for 4.309 af (63% of inflow)
Center-of-Mass det. time= 527.7 min (1,315.1 - 787.5)

Volume	Invert	Avail.Storage	Storage Description
#1	882.00'	365,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.00	14,665	0	0
887.00	20,235	87,250	87,250
888.00	26,400	23,318	110,568
894.00	43,800	210,600	321,168
895.00	45,000	44,400	365,568

Device	Routing	Invert	Outlet Devices
#1	Primary	888.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 888.00' / 887.00' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	888.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	891.50'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	891.50'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 891.50' / 890.00' S= 0.0300 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	893.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=33.17 cfs @ 12.43 hrs HW=892.22' TW=886.92' (Dynamic Tailwater)
└─**1=Culvert** (Passes 33.17 cfs of 56.12 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 1.88 cfs @ 9.59 fps)
  └─**3=Standpipe** (Weir Controls 31.29 cfs @ 2.77 fps)

Secondary OutFlow Max=5.86 cfs @ 12.43 hrs HW=892.22' TW=886.92' (Dynamic Tailwater)
└─**4=Culvert** (Inlet Controls 5.86 cfs @ 2.89 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=888.00' TW=885.50' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond WP-3:

Inflow Area = 6.487 ac, 51.92% Impervious, Inflow Depth = 6.42" for 200-Year event
Inflow = 44.95 cfs @ 12.14 hrs, Volume= 3.470 af
Outflow = 2.47 cfs @ 13.66 hrs, Volume= 3.267 af, Atten= 95%, Lag= 91.0 min
Primary = 2.47 cfs @ 13.66 hrs, Volume= 3.267 af
Routed to Pond INF-3 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : Drainage Way

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs
Starting Elev= 882.00' Surf.Area= 35,975 sf Storage= 161,385 cf
Peak Elev= 884.49' @ 13.66 hrs Surf.Area= 44,008 sf Storage= 260,896 cf (99,511 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 1,590.6 min (2,353.8 - 763.2)

Volume	Invert	Avail.Storage	Storage Description
#1	876.00'	463,181 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
876.00	22,595	0	0
881.00	28,970	128,913	128,913
882.00	35,975	32,473	161,385
888.00	55,345	273,960	435,345
888.50	56,000	27,836	463,181

Device	Routing	Invert	Outlet Devices
#1	Primary	882.00'	**36.0" Round Culvert** L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 882.00' / 881.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 7.07 sf
#2	Device 1	882.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	886.00'	**60.0" Horiz. Standpipe** C= 0.600 Limited to weir flow at low heads
#4	Secondary	885.25'	**24.0" Round Culvert X 2.00** L= 50.0' RCP, end-section conforming to fill, Ke= 0.500

			Inlet / Outlet Invert= 885.25' / 884.00' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#5	Tertiary	887.50'	**30.0' long + 4.0 '/' SideZ x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.47 cfs @ 13.66 hrs HW=884.49' TW=882.02' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.47 cfs of 29.22 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 2.47 cfs @ 7.07 fps)
  └─**3=Standpipe** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
└─**4=Culvert** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.00' TW=884.92' (Dynamic Tailwater)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 4L: North

Inflow Area = 38.744 ac, 40.37% Impervious, Inflow Depth = 4.11" for 200-Year event
Inflow = 70.42 cfs @ 12.52 hrs, Volume= 13.276 af
Primary = 70.42 cfs @ 12.52 hrs, Volume= 13.276 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.05 hrs

Events for Reach 1R: Drainage Way

Event	Inflow (cfs)	Outflow (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	7.25	5.84	885.27	6,417
2-Year	8.86	7.31	885.32	7,436
10-Year	17.21	14.30	885.51	11,620
100-Year	49.61	45.80	886.04	25,914
200-Year	**78.49**	**70.42**	**886.33**	**35,140**

Events for Pond 2R:

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
1-Year	7.06	6.83	885.77	0.034
2-Year	8.75	8.44	885.81	0.040
10-Year	17.48	16.78	885.99	0.068
100-Year	51.12	49.05	886.58	0.179
200-Year	**81.43**	**76.55**	**886.93**	**0.261**

Events for Pond INF-1:

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	5.68	0.73	**0.31**	0.42	**0.00**	886.19	5,092
2-Year	6.99	0.74	0.31	0.43	0.00	886.25	6,870
10-Year	12.12	0.78	0.31	0.48	0.00	886.54	14,983
100-Year	23.97	1.96	0.31	1.65	0.00	887.15	32,773
200-Year	**28.18**	**3.36**	0.31	**3.05**	0.00	**887.25**	**36,068**

Events for Pond INF-3:

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	2.48	**0.32**	**0.32**	**0.00**	**0.00**	881.64	18,133
2-Year	2.97	0.32	0.32	0.00	0.00	881.87	24,787
10-Year	4.77	0.32	0.32	0.00	0.00	882.53	45,045
100-Year	8.41	0.32	0.32	0.00	0.00	883.40	73,483
200-Year	**9.65**	0.32	0.32	0.00	0.00	**883.69**	**83,267**

Events for Pond WP-2:

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	16.83	0.97	0.97	0.00	**0.00**	889.30	147,263
2-Year	20.81	1.10	1.10	0.00	0.00	889.60	156,611
10-Year	36.60	1.51	1.51	0.00	0.00	890.80	195,874
100-Year	73.25	23.17	20.18	3.00	0.00	892.00	239,496
200-Year	**86.28**	**39.26**	**33.36**	**5.90**	0.00	**892.22**	**247,853**

Events for Pond WP-3:

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Tertiary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-Year	12.52	0.98	0.98	**0.00**	**0.00**	882.67	186,244
2-Year	14.67	1.14	1.14	0.00	0.00	882.79	190,817
10-Year	22.58	1.60	1.60	0.00	0.00	883.24	208,325
100-Year	39.26	2.28	2.28	0.00	0.00	884.17	247,235
200-Year	**44.95**	**2.47**	**2.47**	0.00	0.00	**884.49**	**260,896**

Events for Link 4L: North

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-Year	5.84	5.84	**0.00**
2-Year	7.31	7.31	0.00
10-Year	14.30	14.30	0.00
100-Year	45.80	45.80	0.00
200-Year	**70.42**	**70.42**	0.00

UNDETAINED CONDITIONS

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=WQ Runoff=3.31 cfs 0.198 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=1.70"
Tc=6.0 min CN=WQ Runoff=4.70 cfs 0.284 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=1.77"
Tc=6.0 min CN=WQ Runoff=0.82 cfs 0.049 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=1.86"
Tc=14.0 min CN=94 Runoff=7.13 cfs 0.521 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=2.32"
Tc=6.0 min CN=WQ Runoff=1.87 cfs 0.117 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=0.29"
Tc=8.0 min CN=65 Runoff=0.48 cfs 0.045 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=2.29"
Tc=6.0 min CN=WQ Runoff=13.44 cfs 0.829 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=0.60"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=5.29 cfs 0.450 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=2.32"
Tc=6.0 min CN=WQ Runoff=10.46 cfs 0.650 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=0.99"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=3.34 cfs 0.257 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=1.60"
Tc=6.0 min CN=WQ Runoff=2.01 cfs 0.137 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=1.15"
Tc=8.0 min CN=WQ Runoff=5.68 cfs 0.390 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=0.38"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=0.41 cfs 0.053 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=0.35"
Tc=10.0 min CN=67 Runoff=0.92 cfs 0.080 af

Reach 1R: Drainage Way Inflow=53.83 cfs 4.059 af
Outflow=53.83 cfs 4.059 af

Reach 4R: To WP Inflow=8.82 cfs 0.530 af
Outflow=8.82 cfs 0.530 af

Reach 10R: Green-Tech Undetained Inflow=7.13 cfs 0.521 af
Outflow=7.13 cfs 0.521 af

Reach OFF: Inflow=0.92 cfs 0.080 af
Outflow=0.92 cfs 0.080 af

Link 4L: North Inflow=53.83 cfs 4.059 af
Primary=53.83 cfs 4.059 af

Total Runoff Area = 38.744 ac Runoff Volume = 4.059 af Average Runoff Depth = 1.26"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=WQ Runoff=3.89 cfs 0.233 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=2.00"
Tc=6.0 min CN=WQ Runoff=5.54 cfs 0.334 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=2.08"
Tc=6.0 min CN=WQ Runoff=0.96 cfs 0.057 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=2.20"
Tc=14.0 min CN=94 Runoff=8.34 cfs 0.615 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=2.67"
Tc=6.0 min CN=WQ Runoff=2.14 cfs 0.134 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=0.43"
Tc=8.0 min CN=65 Runoff=0.86 cfs 0.066 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=2.64"
Tc=6.0 min CN=WQ Runoff=15.39 cfs 0.955 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=0.81"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=7.42 cfs 0.604 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=2.67"
Tc=6.0 min CN=WQ Runoff=11.97 cfs 0.748 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=1.25"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=4.27 cfs 0.326 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=1.86"
Tc=6.0 min CN=WQ Runoff=2.36 cfs 0.159 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=1.39"
Tc=8.0 min CN=WQ Runoff=6.99 cfs 0.470 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=0.55"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=0.66 cfs 0.075 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=0.51"
Tc=10.0 min CN=67 Runoff=1.52 cfs 0.115 af

Reach 1R: Drainage Way Inflow=64.94 cfs 4.892 af
Outflow=64.94 cfs 4.892 af

Reach 4R: To WP Inflow=10.39 cfs 0.625 af
Outflow=10.39 cfs 0.625 af

Reach 10R: Green-Tech Undetained Inflow=8.34 cfs 0.615 af
Outflow=8.34 cfs 0.615 af

Reach OFF: Inflow=1.52 cfs 0.115 af
Outflow=1.52 cfs 0.115 af

Link 4L: North Inflow=64.94 cfs 4.892 af
Primary=64.94 cfs 4.892 af

Total Runoff Area = 38.744 ac Runoff Volume = 4.892 af Average Runoff Depth = 1.52"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=3.20"
Tc=6.0 min CN=WQ Runoff=6.04 cfs 0.363 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=3.13"
Tc=6.0 min CN=WQ Runoff=8.66 cfs 0.523 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=3.23"
Tc=6.0 min CN=WQ Runoff=1.48 cfs 0.089 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=3.41"
Tc=14.0 min CN=94 Runoff=12.65 cfs 0.956 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=3.92"
Tc=6.0 min CN=WQ Runoff=3.10 cfs 0.197 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=1.08"
Tc=8.0 min CN=65 Runoff=2.70 cfs 0.164 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=3.89"
Tc=6.0 min CN=WQ Runoff=22.30 cfs 1.405 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=1.66"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=16.16 cfs 1.243 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=3.91"
Tc=6.0 min CN=WQ Runoff=17.33 cfs 1.098 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=2.28"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=7.81 cfs 0.593 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=2.84"
Tc=6.0 min CN=WQ Runoff=3.72 cfs 0.243 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=2.31"
Tc=8.0 min CN=WQ Runoff=12.12 cfs 0.783 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=1.26"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=1.77 cfs 0.173 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=1.20"
Tc=10.0 min CN=67 Runoff=4.18 cfs 0.273 af

Reach 1R: Drainage Way Inflow=107.71 cfs 8.102 af
Outflow=107.71 cfs 8.102 af

Reach 4R: To WP Inflow=16.17 cfs 0.975 af
Outflow=16.17 cfs 0.975 af

Reach 10R: Green-Tech Undetained Inflow=12.65 cfs 0.956 af
Outflow=12.65 cfs 0.956 af

Reach OFF: Inflow=4.18 cfs 0.273 af
Outflow=4.18 cfs 0.273 af

Link 4L: North Inflow=107.71 cfs 8.102 af
Primary=107.71 cfs 8.102 af

Total Runoff Area = 38.744 ac Runoff Volume = 8.102 af Average Runoff Depth = 2.51"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=5.65"
Tc=6.0 min CN=WQ Runoff=10.55 cfs 0.641 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=5.55"
Tc=6.0 min CN=WQ Runoff=15.27 cfs 0.928 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=5.69"
Tc=6.0 min CN=WQ Runoff=2.57 cfs 0.157 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=5.95"
Tc=14.0 min CN=94 Runoff=21.37 cfs 1.667 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=WQ Runoff=5.07 cfs 0.326 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=2.84"
Tc=8.0 min CN=65 Runoff=7.55 cfs 0.432 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=6.46"
Tc=6.0 min CN=WQ Runoff=36.46 cfs 2.333 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=3.75"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=36.88 cfs 2.801 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=6.48"
Tc=6.0 min CN=WQ Runoff=28.33 cfs 1.819 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=4.60"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=15.49 cfs 1.195 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=5.03"
Tc=6.0 min CN=WQ Runoff=6.81 cfs 0.430 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=4.46"
Tc=8.0 min CN=WQ Runoff=23.97 cfs 1.510 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=3.14"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=4.65 cfs 0.430 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=3.04"
Tc=10.0 min CN=67 Runoff=11.07 cfs 0.691 af

Reach 1R: Drainage Way Inflow=203.34 cfs 15.359 af
Outflow=203.34 cfs 15.359 af

Reach 4R: To WP Inflow=28.39 cfs 1.726 af
Outflow=28.39 cfs 1.726 af

Reach 10R: Green-Tech Undetained Inflow=21.37 cfs 1.667 af
Outflow=21.37 cfs 1.667 af

Reach OFF: Inflow=11.07 cfs 0.691 af
Outflow=11.07 cfs 0.691 af

Link 4L: North Inflow=203.34 cfs 15.359 af
Primary=203.34 cfs 15.359 af

Total Runoff Area = 38.744 ac Runoff Volume = 15.359 af Average Runoff Depth = 4.76"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

Time span=0.00-120.00 hrs, dt=0.05 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-SP: On-Site Runoff Area=1.362 ac 61.45% Impervious Runoff Depth=6.49"
Tc=6.0 min CN=WQ Runoff=12.08 cfs 0.737 af

Subcatchment 1S: Runoff Area=2.005 ac 60.30% Impervious Runoff Depth=6.39"
Tc=6.0 min CN=WQ Runoff=17.52 cfs 1.068 af

Subcatchment 3-SP: On-Site Runoff Area=0.330 ac 64.24% Impervious Runoff Depth=6.54"
Tc=6.0 min CN=WQ Runoff=2.94 cfs 0.180 af

Subcatchment 14S: Green Tech Runoff Area=3.361 ac 85.00% Impervious Runoff Depth=6.81"
Tc=14.0 min CN=94 Runoff=24.30 cfs 1.909 af

Subcatchment 100-i: Runoff Area=0.603 ac 100.00% Impervious Runoff Depth=7.35"
Tc=6.0 min CN=WQ Runoff=5.74 cfs 0.369 af

Subcatchment 100-p: Runoff Area=1.822 ac 0.00% Impervious Runoff Depth=3.52"
Tc=8.0 min CN=65 Runoff=9.37 cfs 0.534 af

Subcatchment 200-i: Runoff Area=4.337 ac 100.00% Impervious Runoff Depth=7.32"
Tc=6.0 min CN=WQ Runoff=41.25 cfs 2.647 af

Subcatchment 200-p: Runoff Area=8.970 ac 0.00% Impervious Runoff Depth=4.51"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=74 Runoff=44.27 cfs 3.369 af

Subcatchment 300-i: Runoff Area=3.368 ac 100.00% Impervious Runoff Depth=7.35"
Tc=6.0 min CN=WQ Runoff=32.04 cfs 2.063 af

Subcatchment 300-p: Runoff Area=3.119 ac 0.00% Impervious Runoff Depth=5.41"
Flow Length=100' Slope=0.0200 '/' Tc=16.4 min CN=82 Runoff=18.12 cfs 1.407 af

Subcatchment 305: Runoff Area=1.026 ac 61.21% Impervious Runoff Depth=5.81"
Tc=6.0 min CN=WQ Runoff=7.90 cfs 0.497 af

Subcatchment 400: Runoff Area=4.065 ac 39.11% Impervious Runoff Depth=5.23"
Tc=8.0 min CN=WQ Runoff=28.18 cfs 1.771 af

Subcatchment 500: Runoff Area=1.646 ac 0.00% Impervious Runoff Depth=3.84"
Flow Length=1,075' Tc=24.1 min CN=68 Runoff=5.72 cfs 0.527 af

Subcatchment 900: Runoff Area=2.730 ac 0.00% Impervious Runoff Depth=3.73"
Tc=10.0 min CN=67 Runoff=13.62 cfs 0.850 af

Reach 1R: Drainage Way Inflow=236.85 cfs 17.928 af
Outflow=236.85 cfs 17.928 af

Reach 4R: To WP Inflow=32.55 cfs 1.985 af
Outflow=32.55 cfs 1.985 af

Reach 10R: Green-Tech Undetained Inflow=24.30 cfs 1.909 af
Outflow=24.30 cfs 1.909 af

Reach OFF: Inflow=13.62 cfs 0.850 af
Outflow=13.62 cfs 0.850 af

Link 4L: North Inflow=236.85 cfs 17.928 af
Primary=236.85 cfs 17.928 af

Total Runoff Area = 38.744 ac Runoff Volume = 17.928 af Average Runoff Depth = 5.55"
59.63% Pervious = 23.103 ac 40.37% Impervious = 15.641 ac

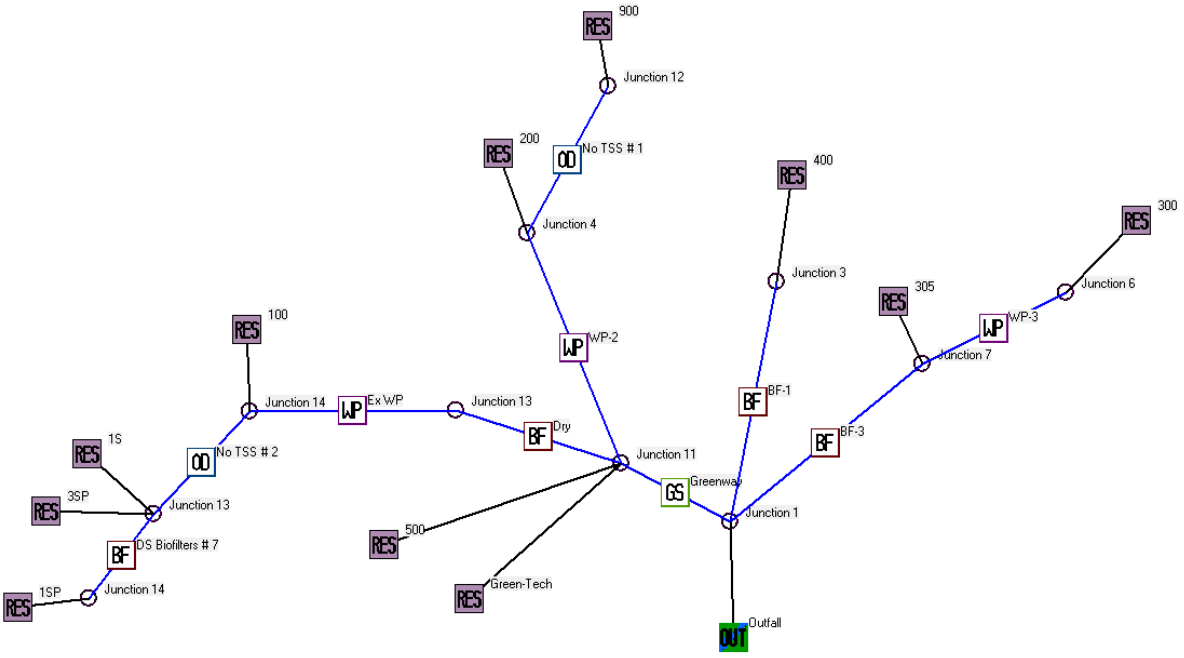
Events for Link 4L: North

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
1-Year	53.83	53.83	**0.00**
2-Year	64.94	64.94	0.00
10-Year	107.71	107.71	0.00
100-Year	203.34	203.34	0.00
200-Year	**236.85**	**236.85**	0.00

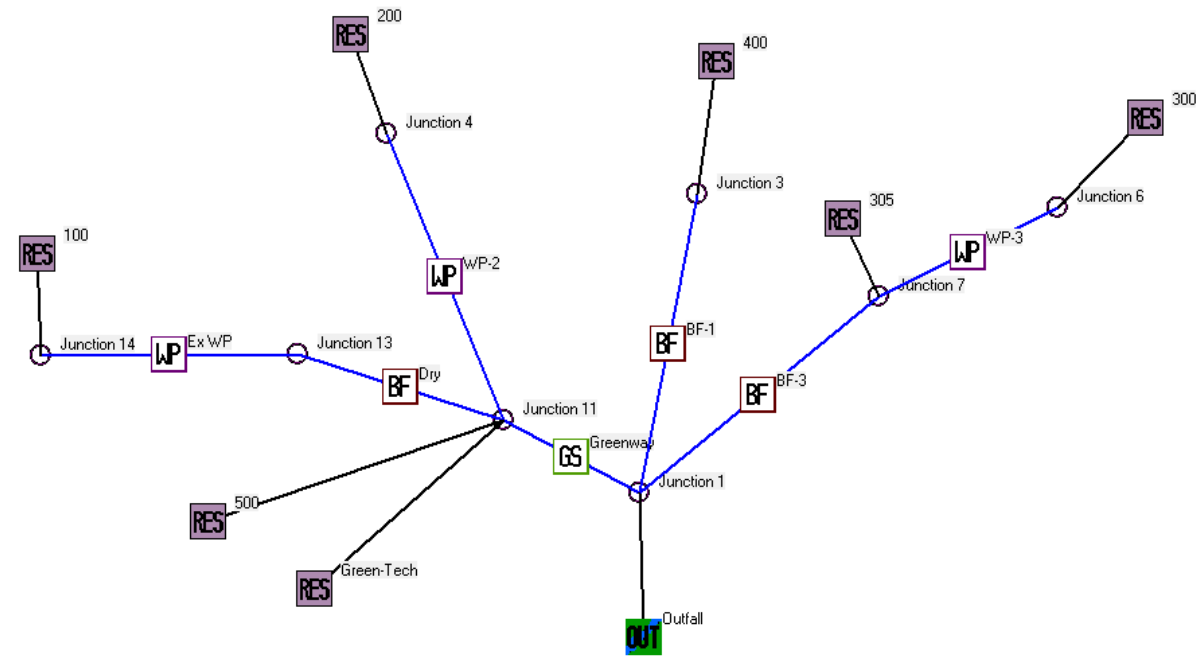
APPENDIX C

Detailed WinSLAMM Output

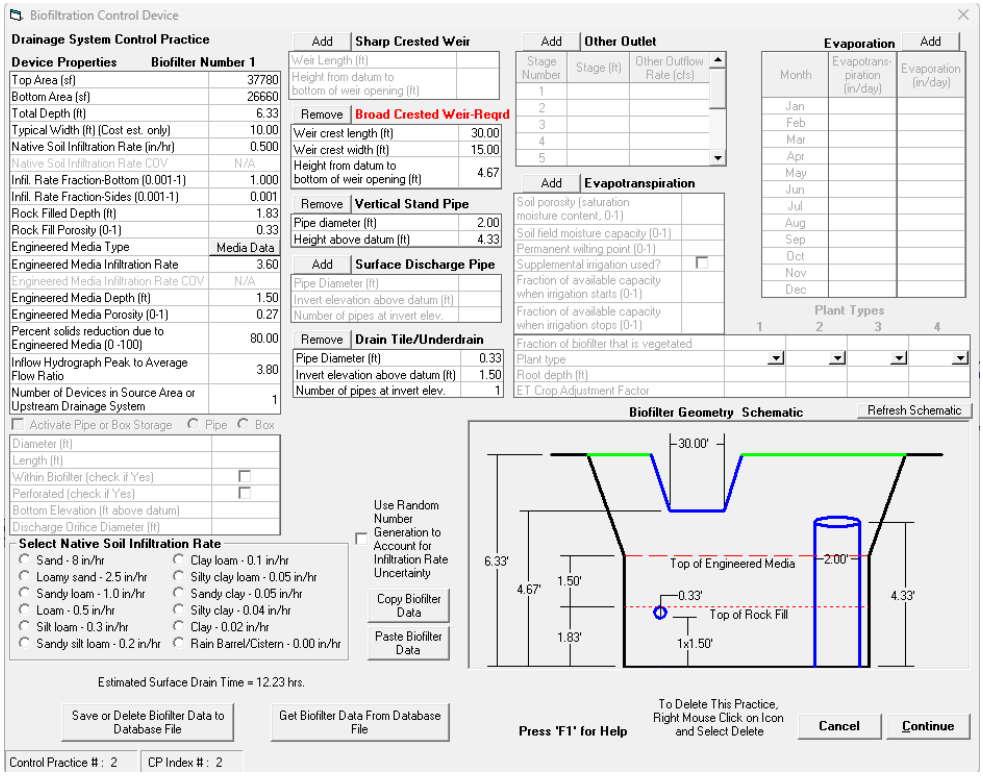
Proposed Conditions - WinSLAMM Total Suspended Solids Model Diagram



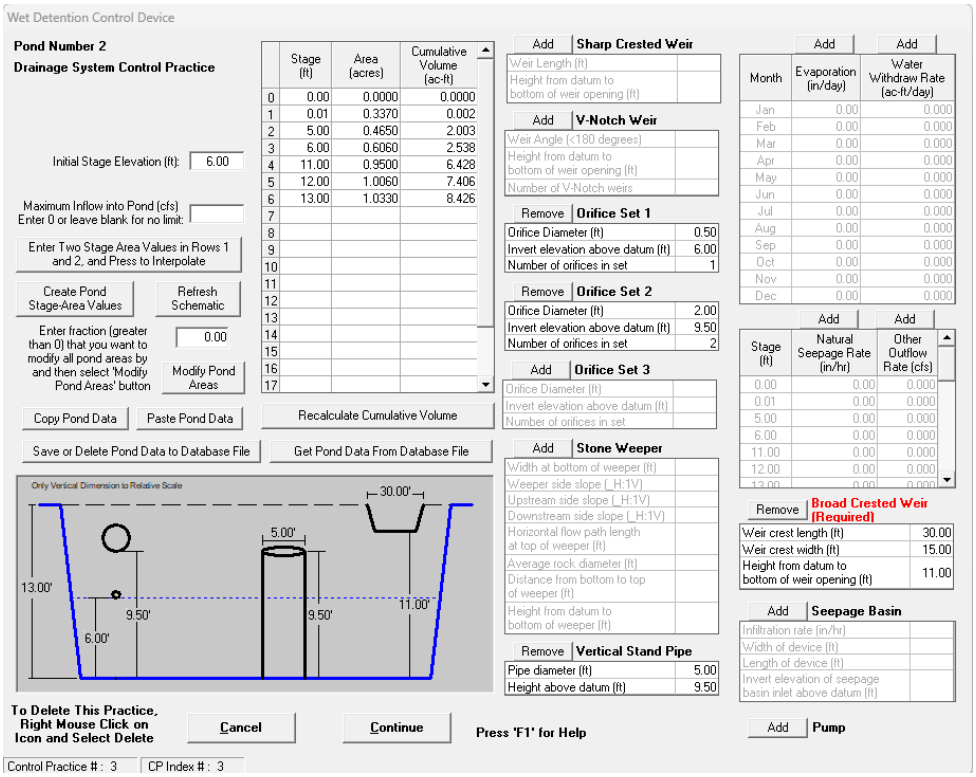
Proposed Conditions - WinSLAMM Infiltration Model Diagram



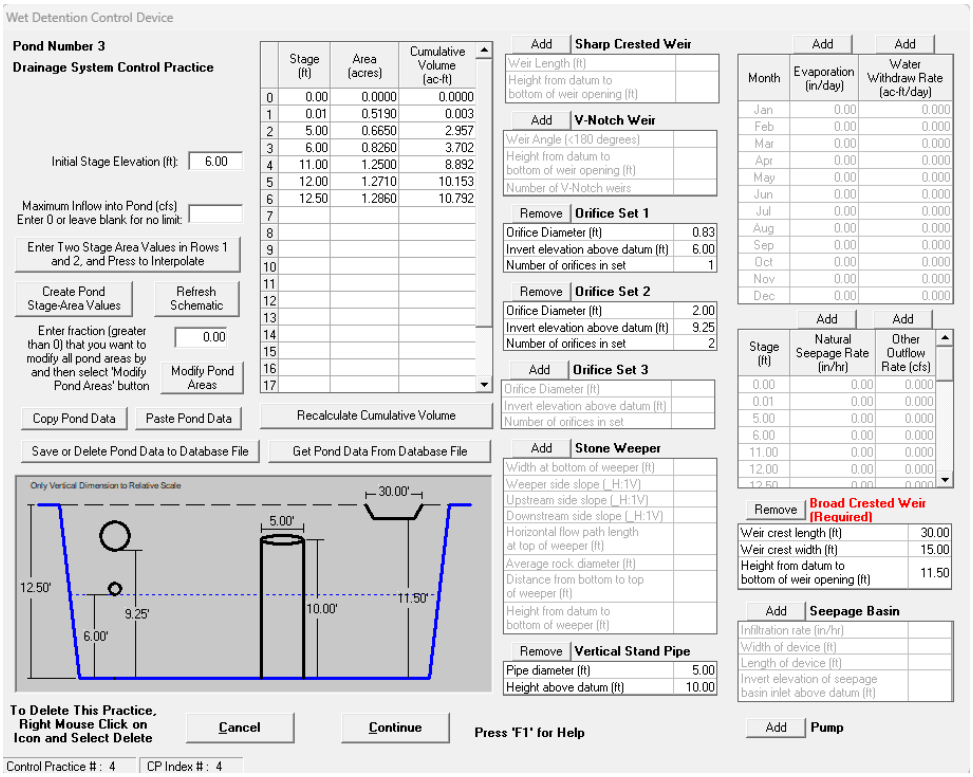
BF-1 WinSLAMM Input Data



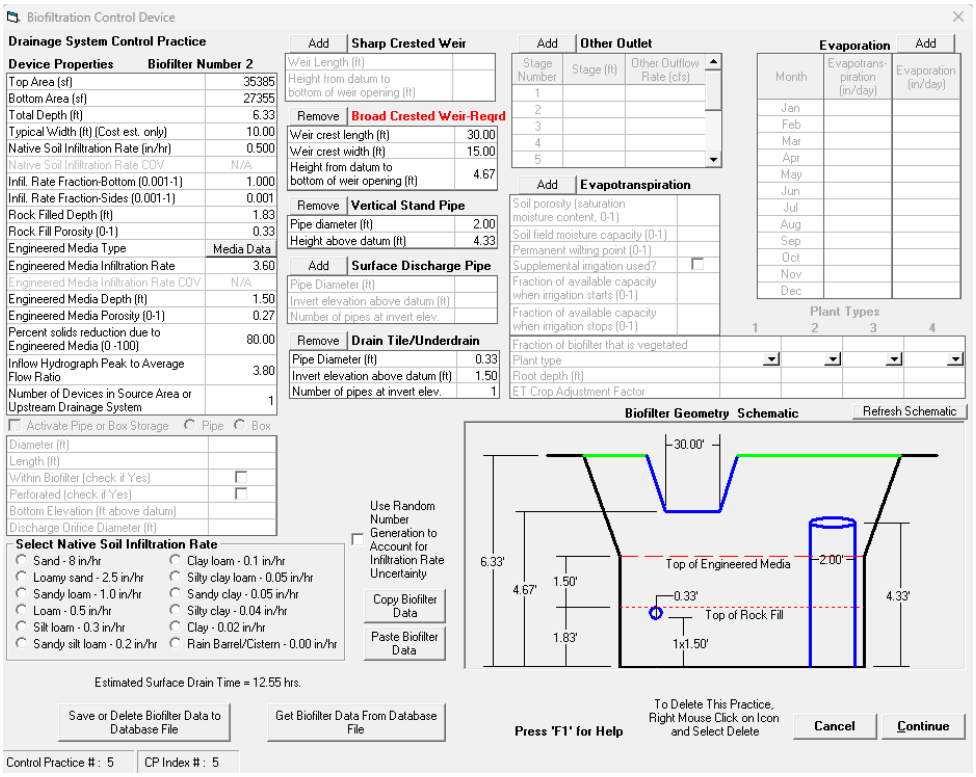
WP-2 WinSLAMM Input Data



WP-3 WinSLAMM Input Data



BF-3 WinSLAMM Input Data



Grass Swale WinSLAMM Input Data

Grass Swales

Drainage System Control Practice **Grass Swale Nu**

Grass Swale Data	
Total Drainage Area (ac)	27.165
Fraction of Drainage Area Served by Swales (0-1)	1.00
Swale Density (ft/ac)	9.08
Total Swale Length (ft)	555
Average Swale Length to Outlet (ft)	555
Typical Bottom Width (ft)	10.0
Typical Swale Side Slope (__ ft H : 1 ft V)	4.0
Typical Longitudinal Slope (ft/ft, V/H)	0.005
Swale Retardance Factor	B
Typical Grass Height (in)	12
Swale Dynamic Infiltration Rate (in/hr)	0.150
Typical Swale Depth (ft) for Cost Analysis (Optional)	0.0

☑ Use Total Swale Length Instead of Swale Density for Infiltration Calculations

TSS Proposed Conditions – WinSLAMM Summary Output Data

File Name:
G:\22\22630\22630003\Calculations\Stormwater\WinSLAMM\Nine Springs_TSS_Phase 1.mdb

Outfall Output Summary

	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of All Land Uses without Controls	1.260E+06		0.28	61.51 (1)	4840 (1)	
Outfall Total with Controls	545142	56.73 %	0.12	13.58	462.1	90.45 %
Current File Output: Annualized Total After Outfall Controls	546639	Years in Model Run:	1.00		463.4	

(1) Values reduced to remove off-site loadings due to setting Other Control Device Concentration Reduction values to 1.

Print Output Summary to .csv File
Print Output Summary to Text File
Print Output Summary to Printer

Total Area Modeled (ac): 38.743

A biofilter will clog. Review biofilter control practice summary tab to determine which biofilter it is.

Total Control Practice Costs

Capital Cost	N/A
Land Cost	N/A
Annual Maintenance Cost	N/A
Present Value of All Costs	N/A
Annualized Value of All Costs	N/A

Perform Outfall Flow Duration Curve Calculations

Receiving Water Impacts Due To Stormwater Runoff

(CWP Impervious Cover Model)

	Calculated Rv	Approximate Urban Stream Classification
Without Controls	0.28	Poor
With Controls	0.12	Good

TSS Proposed Conditions – Control Practice Summary

Data File: G:\22\22630\22630003\Calculations\Stormwater\WinSLAMM\Nine Springs_TSS_Phase 1.mdb
Rain File: WisReg - Madison WI 1981.RAN
Date: 01-14-26 Time: 9:23:01 AM
Site Description:

Col. #:	2	3	4	5	6	7	8	9
Control Practice No.	Control Practice Type	Control Practice Name or Location	Total Inflow Volume (cf)	Total Outflow Volume (cf)	Percent Volume Reduction	Total Influent Load (lbs)	Total Effluent Load (lbs)	Percent Load Reduction
1	Biofilter	BF-1	112551	0	100.0	432.0	0	100.0
2	Wet Detention Pond	WP-2	461702	462858	-0.250	2168	295.4	86.37
3	Wet Detention Pond	WP-3	333411	334326	-0.274	1199	137.7	88.52
4	Biofilter	BF-3	402501	6820	98.31	173.1	1.123	99.35
5	Grass Swales	Greenway	696185	538321	22.68	575.4	461.0	19.88
6	Biofilter	Dry	248276	201904	18.68	102.6	44.42	56.71
7	Wet Detention Pond	Ex WP	248591	248276	0.1267	474.4	102.6	78.37
8	Other Device	No TSS # 1	17136	17136	0	38.94	0	100.0
9	Other Device	No TSS # 2	184069	184069	0	931.0	0	100.0
10	Biofilter	DS Biofilters # 7	72266	67804	6.174	364.5	68.83	81.12

Infiltration Proposed Conditions – WinSLAMM Annual 'Stay-On' Summary

Runoff Volume (cf) | Part. Solids Yield (lbs)

Data File: G:\22\22630\22630003\Calculations\Stormwater\WinSLAMM\Nine Springs_Infiltration_Phase 1.mdb
Rain File: WisReg - Madison WI 1981.RAN
Date: 01-14-26 Time: 9:32:12 AM
Site Description:

Runoff Volume Total (cf) at the Outfall

Rain Number	Start Date	Rain Total (in)	Outfall Total (cf)	Rv	Total Losses (in.)	Calculated CN*	Event Peak Flow (cfs)
Minimum:		0.00	0	0.000	0.01	73.1	0.000
Maximum:		2.59	72609	0.240	1.97	99.8	1.529
Average:		0.26	3489	0.038	0.23	80.5	0.668
Total:		28.81	380254		25.59		

* Note: NRCS does not recommend using CN method for rains < 0.5 in.
See 'PreDevelopment Areas and CN' Help for more info.

Data file name: G:\22\22630\22630003\Calculations\Stormwater\WinSLAMM\Nine Springs_TSS_Phase 1.mdb
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/01/81 Study period ending date: 12/31/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 01-14-2026 Time: 09:25:13
Site information:

LU# 1 - Residential: 500 Total area (ac): 1.646
  45 - Large Landscaped Areas 1: 1.646 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Residential: 200 Total area (ac): 13.307
  1 - Roofs 1: 1.477 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  2 - Roofs 2: 1.477 ac. Pitched Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  25 - Driveways 1: 0.743 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  31 - Sidewalks 1: 0.430 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  37 - Streets 1: 1.067 ac. Smooth Street Length = 0.2589 mi Street Width = 34.00058 ft Street Edges = 2
    Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  45 - Large Landscaped Areas 1: 1.501 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

57 - Undeveloped Areas 1: 5.992 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.620 ac. Source Area PSD File:

LU# 3 - Residential: 100 Total area (ac): 2.425
25 - Driveways 1: 0.089 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.103 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.254 ac. Smooth Street Length = 0.0616 mi Street Width = 34.01786 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 1.628 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
57 - Undeveloped Areas 1: 0.194 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.157 ac. Source Area PSD File:

LU# 4 - Residential: 400 Total area (ac): 4.065
1 - Roofs 1: 0.255 ac. Pitched Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
2 - Roofs 2: 0.255 ac. Pitched Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.256 ac. Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.134 ac. Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.333 ac. Smooth Street Length = 0.0808 mi Street Width = 34.00062 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 1.135 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
57 - Undeveloped Areas 1: 1.085 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.612 ac. Source Area PSD File:

LU# 5 - Residential: 300 Total area (ac): 6.487
1 - Roofs 1: 1.530 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
2 - Roofs 2: 1.530 ac. Pitched Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.508 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.145 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
37 - Streets 1: 0.359 ac. Smooth Street Length = 0.0871 mi Street Width = 34.00402 ft Street Edges = 2
Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area

PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1: 1.029 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     57 - Undeveloped Areas 1: 0.560 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas: 0.826 ac.   Source Area PSD File:

LU# 6 - Residential: 305   Total area (ac): 1.026
     45 - Large Landscaped Areas 1: 0.398 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas: 0.628 ac.   Source Area PSD File:

LU# 7 - Residential: Green-Tech   Total area (ac): 3.360
     1 - Roofs 1: 1.344 ac.   Pitched   Disconnected   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     2 - Roofs 2: 1.344 ac.   Pitched   Disconnected   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1: 0.336 ac.   Disconnected   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1: 0.336 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 8 - Residential: 900   Total area (ac): 2.730
     45 - Large Landscaped Areas 1: 0.264 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     57 - Undeveloped Areas 1: 2.466 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 9 - Residential: 1S   Total area (ac): 2.005
     31 - Sidewalks 1: 0.239 ac.   Connected   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     37 - Streets 1: 0.751 ac.   Smooth   Street Length = 0.1822 mi   Street Width = 34.00521 ft   Street Edges = 2
            Default St. Dirt Accum.   Annual Winter Load = 2500 lbs   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1: 0.796 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas: 0.219 ac.   Source Area PSD File:

LU# 10 - Residential: 3SP   Total area (ac): 0.330
     1 - Roofs 1: 0.174 ac.   Pitched   Disconnected   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     13 - Paved Parking 1: 0.025 ac.   Connected   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     31 - Sidewalks 1: 0.013 ac.   Connected   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1: 0.118 ac.   Normal Clayey   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 11 - Residential: 1SP   Total area (ac): 1.362

1 - Roofs 1: 0.303 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
13 - Paved Parking 1: 0.380 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.066 ac. Disconnected Normal Clayey Medium/High Density No Alleys Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 0.525 ac. Normal Clayey Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.088 ac. Source Area PSD File:

Control Practice 1: Biofilter CP# 1 (DS) - BF-1
1. Top area (square feet) = 37780
2. Bottom aea (square feet) = 26660
3. Depth (ft): 6.33
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1.83
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 30
2. Weir crest width (ft): 15
3. Height of datum to bottom of weir opening: 4.67
Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 2
2. Stand pipe height above datum (ft): 4.33
Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.33
2. Invert elevation above datum (ft): 1.5
3. Number of underdrain outlets: 1

Control Practice 2: Wet Detention Pond CP# 1 (DS) - WP-2
Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 6
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered

```
       Outlet Characteristics:
            Outlet type:  Orifice 1
                  1.  Orifice diameter (ft):   0.5
                  2.  Number of orifices:   1
                  3.  Invert elevation above datum (ft):   6
            Outlet type:  Broad Crested Weir
                  1.  Weir crest length (ft):   30
                  2.  Weir crest width (ft):   15
                  3.  Height from datum to bottom of weir opening:   11
            Outlet type:  Vertical Stand Pipe
                  1.  Stand pipe diameter (ft):   5
                  2.  Stand pipe height above datum (ft):   9.5
       Pond stage and surface area
                 Entry       Stage     Pond Area   Natural Seepage   Other Outflow
                 Number      (ft)      (acres)              (in/hr)
(cfs)
                    0           0.00        0.0000            0.00
  0.00
                    1           0.01        0.3370            0.00
  0.00
                    2           5.00        0.4650            0.00
  0.00
                    3           6.00        0.6060            0.00
  0.00
                    4           11.00        0.9500            0.00
   0.00
                    5           12.00        1.0060            0.00
   0.00

    Control Practice 3:  Wet Detention Pond CP# 2 (DS) - WP-3
       Particle Size Distribution file name:  Not needed - calculated by program
       Initial stage elevation (ft):   6
       Peak to Average Flow Ratio:   3.8
       Maximum flow allowed into pond (cfs):  No maximum value entered
       Outlet Characteristics:
            Outlet type:  Orifice 1
                  1.  Orifice diameter (ft):   0.67
                  2.  Number of orifices:   1
                  3.  Invert elevation above datum (ft):   6
            Outlet type:  Broad Crested Weir
                  1.  Weir crest length (ft):   30
                  2.  Weir crest width (ft):   15
                  3.  Height from datum to bottom of weir opening:   11.5
            Outlet type:  Vertical Stand Pipe
                  1.  Stand pipe diameter (ft):   5
                  2.  Stand pipe height above datum (ft):   10
       Pond stage and surface area
                 Entry       Stage     Pond Area   Natural Seepage   Other Outflow
                 Number      (ft)      (acres)              (in/hr)
(cfs)
```

```
                0           0.00        0.0000            0.00
0.00
                1           0.01        0.5190            0.00
0.00
                2           5.00        0.6650            0.00
0.00
                3           6.00        0.8260            0.00
0.00
                4           11.00        1.2500            0.00
 0.00
                5           12.00        1.2710            0.00
 0.00

  Control Practice 4:  Biofilter CP# 2 (DS) - BF-3
     1.  Top area (square feet) =  35385
     2.  Bottom aea (square feet) =  27355
     3.  Depth (ft):   6.33
     4.  Biofilter width (ft) - for Cost Purposes Only:   10
     5.  Infiltration rate (in/hr) =  0.5
     6.  Random infiltration rate generation?  No
     7.  Infiltration rate fraction (side):   0.001
     8.  Infiltration rate fraction (bottom):   1
     9.  Depth of biofilter that is rock filled (ft) 1.83
     10.  Porosity of rock filled volume =  0.33
     11.  Engineered soil infiltration rate:   3.6
     12.  Engineered soil depth (ft) =  1.5
     13.  Engineered soil porosity =  0.27
     14. Percent solids reduction due to flow through engineered soil =  80
     15. Biofilter peak to average flow ratio =  3.8
     16. Number of biofiltration control devices =  1
     17. Particle size distribution file:  Not needed - calculated by program
     18. Initial water surface elevation (ft):   0
          Soil Data                          Soil Type Fraction in Eng. Soil
         User-Defined Media Type                  1.000
          Biofilter Outlet/Discharge Characteristics:
         Outlet type:  Broad Crested Weir
                 1.  Weir crest length (ft):   30
                 2.  Weir crest width (ft):   15
                 3.  Height of datum to bottom of weir opening:   4.83
         Outlet type:  Vertical Stand Pipe
                 1.  Stand pipe diameter (ft):   3
                 2.  Stand pipe height above datum (ft):   4.33
         Outlet type:  Drain Tile/Underdrain
                 1.  Underdrain outlet diameter (ft):   0.33
                 2.  Invert elevation above datum (ft):   1.5
                 3.  Number of underdrain outlets:   1

  Control Practice 5:  Grass Swale CP# 1 (DS) - Greenway
     Total drainage area (acres)= 27.165
     Fraction of drainage area served by swales (ac) = 1.00
```

Swale density (ft/ac) = 9.08
Total swale length (ft) = 555
Average swale length to outlet (ft)= 555
Typical bottom width (ft) = 10.0
Typical swale side slope (_H:1V) = 4.0
Typical longitudinal slope (ft.H/ft.V) = 0.005
Swale retardance factor: B
Typical grass height (in) = 12.0
Swale dynamic infiltration rate (in/hr)= 0.150
Typical swale depth (ft) for cost analysis (optional) = 0.0
Particle size distribution file name: Not needed - calculated by program
Use total swale length instead of swale density for infiltration calculations: True

Control Practice 6: Biofilter CP# 3 (DS) - Dry
1. Top area (square feet) = 9242
2. Bottom aea (square feet) = 2514
3. Depth (ft): 7
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.05
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20
2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 5
Outlet type: Surface Discharge Pipe
1. Surface discharge pipe outlet diameter (ft): 1
2. Pipe invert elevation above datum (ft): 2.1
3. Number of surface pipe outlets: 1
Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 1
3. Number of underdrain outlets: 1

Control Practice 7: Wet Detention Pond CP# 3 (DS) - Ex WP

Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 6.09
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered
Outlet Characteristics:
Outlet type: V - notch weir
1. Weir angle (degrees): 30
2. Weir height from invert: 0
3. Invert elevation above datum (ft): 6.09
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20
2. Weir crest width (ft): 30
3. Height from datum to bottom of weir opening: 8.5
Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0424	0.00	0.00
2	1.00	0.0510	0.00	0.00
3	2.00	0.0604	0.00	0.00
4	3.00	0.0705	0.00	0.00
5	4.00	0.0813	0.00	0.00
6	5.00	0.0930	0.00	0.00
7	6.00	0.1610	0.00	0.00
8	7.00	0.1880	0.00	0.00
9	8.00	0.2170	0.00	0.00
10	9.00	0.2460	0.00	0.00
11	10.00	0.3250	0.00	0.00

Control Practice 8: Other Device CP# 1 (DS) - No TSS # 1
Fraction of drainage area served by device (ac) = 1.00
Particulate Concentration reduction fraction = 1.00
Filterable Concentration reduction fraction = 1.00
Runoff volume reduction fraction = 0

Control Practice 9: Other Device CP# 2 (DS) - No TSS # 2
Fraction of drainage area served by device (ac) = 1.00

Particulate Concentration reduction fraction = 1.00
Filterable Concentration reduction fraction = 1.00
Runoff volume reduction fraction = 0

Control Practice 10: Biofilter CP# 4 (DS) - DS Biofilters # 7
1. Top area (square feet) = 8700
2. Bottom aea (square feet) = 3800
3. Depth (ft): 5.6
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.02
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0.5
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 10
2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 5.5

Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 4
2. Stand pipe height above datum (ft): 3.5

Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 0
3. Number of underdrain outlets: 1

Data file name: G:\22\22630\22630003\Calculations\Stormwater\WinSLAMM\Nine Springs_Infiltration_Phase 1.mdb
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/01/81 Study period ending date: 12/31/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 01-14-2026 Time: 09:27:25
Site information:

LU# 1 - Residential: 500 Total area (ac): 1.646
  45 - Large Landscaped Areas 1: 1.646 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Residential: 200 Total area (ac): 13.307
  1 - Roofs 1: 1.477 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  2 - Roofs 2: 1.477 ac. Pitched Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  25 - Driveways 1: 0.743 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  31 - Sidewalks 1: 0.430 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  37 - Streets 1: 1.067 ac. Smooth Street Length = 0.2589 mi Street Width = 34.00058 ft Street Edges = 2
    Default St. Dirt Accum. Annual Winter Load = 2500 lbs Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  45 - Large Landscaped Areas 1: 1.501 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

```
     57 - Undeveloped Areas 1:  5.992 ac.    Normal Silty    Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas:  0.620 ac.    Source Area PSD File:

LU# 3 - Residential:  100     Total area (ac):  2.355
     25 - Driveways 1:  0.089 ac.    Connected    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     31 - Sidewalks 1:  0.103 ac.    Connected    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     37 - Streets 1:  0.254 ac.    Smooth    Street Length = 0.0616 mi    Street
Width = 34.01786 ft     Street Edges = 2
            Default St. Dirt Accum.    Annual Winter Load = 2500 lbs    Source Area
PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1:  1.558 ac.    Normal Silty    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz
     57 - Undeveloped Areas 1:  0.194 ac.    Normal Silty    Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas:  0.157 ac.    Source Area PSD File:

LU# 4 - Residential:  400     Total area (ac):  4.029
     1 - Roofs 1:  0.255 ac.    Pitched    Disconnected    Normal Silty    Source
Area PSD File: C:\WinSLAMM Files\NURP.cpz
     2 - Roofs 2:  0.255 ac.    Pitched    Disconnected    Normal Silty    Source
Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.256 ac.    Disconnected    Normal Silty    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz
     31 - Sidewalks 1:  0.134 ac.    Disconnected    Normal Silty    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz
     37 - Streets 1:  0.333 ac.    Smooth    Street Length = 0.0808 mi    Street
Width = 34.00062 ft     Street Edges = 2
            Default St. Dirt Accum.    Annual Winter Load = 2500 lbs    Source Area
PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1:  1.099 ac.    Normal Silty    Source Area PSD
File: C:\WinSLAMM Files\NURP.cpz
     57 - Undeveloped Areas 1:  1.085 ac.    Normal Silty    Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas:  0.612 ac.    Source Area PSD File:

LU# 5 - Residential:  300     Total area (ac):  6.487
     1 - Roofs 1:  1.530 ac.    Pitched    Connected    Source Area PSD File:
C:\WinSLAMM Files\NURP.cpz
     2 - Roofs 2:  1.530 ac.    Pitched    Disconnected    Normal Silty    Source
Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1:  0.508 ac.    Connected    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     31 - Sidewalks 1:  0.145 ac.    Connected    Source Area PSD File: C:\WinSLAMM
Files\NURP.cpz
     37 - Streets 1:  0.359 ac.    Smooth    Street Length = 0.0871 mi    Street
Width = 34.00402 ft     Street Edges = 2
            Default St. Dirt Accum.    Annual Winter Load = 2500 lbs    Source Area
```

PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1: 1.029 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     57 - Undeveloped Areas 1: 0.560 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas: 0.826 ac.   Source Area PSD File:

LU# 6 - Residential: 305   Total area (ac): 1.026
     45 - Large Landscaped Areas 1: 0.398 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     70 - Water Body Areas: 0.628 ac.   Source Area PSD File:

LU# 7 - Residential: Green-Tech   Total area (ac): 3.360
     1 - Roofs 1: 1.344 ac.   Pitched   Disconnected   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     2 - Roofs 2: 1.344 ac.   Pitched   Disconnected   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     25 - Driveways 1: 0.336 ac.   Disconnected   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
     45 - Large Landscaped Areas 1: 0.336 ac.   Normal Silty   Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - BF-1
1. Top area (square feet) = 37780
2. Bottom aea (square feet) = 26660
3. Depth (ft): 6.33
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1.83
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 30
2. Weir crest width (ft): 15
3. Height of datum to bottom of weir opening: 4.67
Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 2
2. Stand pipe height above datum (ft): 4.33

Outlet type: Drain Tile/Underdrain

1. Underdrain outlet diameter (ft): 0.33
2. Invert elevation above datum (ft): 1.5
3. Number of underdrain outlets: 1

Control Practice 2: Wet Detention Pond CP# 1 (DS) - WP-2

Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 6
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered
Outlet Characteristics:

Outlet type: Orifice 1

1. Orifice diameter (ft): 0.5
2. Number of orifices: 1
3. Invert elevation above datum (ft): 6

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 30
2. Weir crest width (ft): 15
3. Height from datum to bottom of weir opening: 11

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 5
2. Stand pipe height above datum (ft): 9.5

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.3370	0.00	0.00
2	5.00	0.4650	0.00	0.00
3	6.00	0.6060	0.00	0.00
4	11.00	0.9500	0.00	0.00
5	12.00	1.0060	0.00	0.00

Control Practice 3: Wet Detention Pond CP# 2 (DS) - WP-3

Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 6
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered
Outlet Characteristics:

Outlet type: Orifice 1

1. Orifice diameter (ft): 0.67
2. Number of orifices: 1

3. Invert elevation above datum (ft): 6
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 30
2. Weir crest width (ft): 15
3. Height from datum to bottom of weir opening: 11.5
Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 5
2. Stand pipe height above datum (ft): 10
Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.5190	0.00	0.00
2	5.00	0.6650	0.00	0.00
3	6.00	0.8260	0.00	0.00
4	11.00	1.2500	0.00	0.00
5	12.00	1.2710	0.00	0.00

Control Practice 4: Biofilter CP# 2 (DS) - BF-3
1. Top area (square feet) = 35385
2. Bottom aea (square feet) = 27355
3. Depth (ft): 6.33
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1.83
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0
Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000
Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 30
2. Weir crest width (ft): 15

3. Height of datum to bottom of weir opening: 4.83
Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 3
2. Stand pipe height above datum (ft): 4.33
Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.33
2. Invert elevation above datum (ft): 1.5
3. Number of underdrain outlets: 1

Control Practice 5: Grass Swale CP# 1 (DS) - Greenway
Total drainage area (acres)= 20.668
Fraction of drainage area served by swales (ac) = 1.00
Swale density (ft/ac) = 9.08
Total swale length (ft) = 555
Average swale length to outlet (ft)= 555
Typical bottom width (ft) = 10.0
Typical swale side slope (_H:1V) = 4.0
Typical longitudinal slope (ft.H/ft.V) = 0.005
Swale retardance factor: B
Typical grass height (in) = 12.0
Swale dynamic infiltration rate (in/hr)= 0.150
Typical swale depth (ft) for cost analysis (optional) = 0.0
Particle size distribution file name: Not needed - calculated by program
Use total swale length instead of swale density for infiltration calculations: True

Control Practice 6: Biofilter CP# 3 (DS) - Dry
1. Top area (square feet) = 9242
2. Bottom aea (square feet) = 2514
3. Depth (ft): 7
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.05
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0
Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000
Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20

2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 5

Outlet type: Surface Discharge Pipe
1. Surface discharge pipe outlet diameter (ft): 1
2. Pipe invert elevation above datum (ft): 2.1
3. Number of surface pipe outlets: 1

Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 1
3. Number of underdrain outlets: 1

Control Practice 7: Wet Detention Pond CP# 3 (DS) - Ex WP
Particle Size Distribution file name: Not needed - calculated by program
Initial stage elevation (ft): 6.09
Peak to Average Flow Ratio: 3.8
Maximum flow allowed into pond (cfs): No maximum value entered
Outlet Characteristics:

Outlet type: V - notch weir
1. Weir angle (degrees): 30
2. Weir height from invert: 0
3. Invert elevation above datum (ft): 6.09

Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20
2. Weir crest width (ft): 30
3. Height from datum to bottom of weir opening: 8.5

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0424	0.00	0.00
2	1.00	0.0510	0.00	0.00
3	2.00	0.0604	0.00	0.00
4	3.00	0.0705	0.00	0.00
5	4.00	0.0813	0.00	0.00
6	5.00	0.0930	0.00	0.00
7	6.00	0.1610	0.00	0.00
8	7.00	0.1880	0.00	0.00
9	8.00	0.2170	0.00	0.00
10	9.00	0.2460	0.00	

0.00

	11	10.00	0.3250	0.00

0.00

APPENDIX D

Geotechnical Report

Print Date: 10/28/2025

Printed By: gluja, File: G:\22\22630\22630002\GIS\7_ProProject.aprx, Proposed Watershed Map

Test Pit Location Map

NINE SPRINGS DEVELOPMENT
NO OAKS RANCH

CITY OF FITCHBURG
DANE COUNTY, WISCONSIN

LEGEND

Project Location

TestPits

Data Sources:
Aerial: Wisconsin DNR (2022)
Watersheds and Land Use: MSA Preliminary Plat (2025)
Existing Contours: Dane County 2017 LiDAR
Parcels: Wisconsin Parcel Data V10

Spatial Reference:
Name: NAD 1983 (2011) WISCRS Dane (US Feet)
GCS: GCS NAD 1983 (2011)
Datum: NAD 1983 (2011)
Projection: Lambert Conformal Conic
Vertical Datum: NAVD 1988

MSA

0 150 300 Feet

N

Division of Industry Services
P.O. Box 2658
Madison, Wisconsin 53701

Attachment 2:

SOIL AND SITE EVALUATION - STORM

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent of slope, scale or dimensions, north arrow, and BM referenced to nearest road

Please print all information

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]

County: Dane

Parcel I.D.: 225/0609-111-8000-0

Reviewed by:

Date:

Property Owner: No Oaks Ranch, LLC

Property Location: Govt. Lot NE ¼ NE ¼ S 11 T 6 N R 9 E

Property Owner's Mail Address: PO Box 888

Lot #:

Block#:

Subd. Name or CSM #:

City: Longmont | State: CO | Zip Code: 80502-0888 | Phone Number:

[X] City [ ] Village [ ] Town: Fitchburg

Nearest Road: W Clayton Rd

Drainage area: _____ [ ] sq ft [ ] acres

Test site suitable for (check all that apply): [ ] Site not suitable;

[ ] Bioretention; [ ] Subsurface Disperal System;

[ ] Reuse; [ ] Irrigation; [ ] Other _____

Hydraulic Application Test Method

[X] Morphological Evaluation

[ ] Double Ring Infiltrometer

[ ] Other: (specify) _____

Soil Moisture

Date of soil borings: _____

USDA-NRCS WETS Value:

[ ] Dry = 1;

[ ] Normal = 2;

[ ] Wet = 3.

TP-1 #OBS. [X] Pit [ ] Boring Ground surface elevation 887.5 ft. Elevation of limiting factor 886.4 ft. (Redox) 874.5 ft. (Water) 873.0 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-13	10YR 3/3	none	SiL	2mgr	mfr	gs	<5		0.13
2	13-60	10YR 7/1	m2d 10YR 5/6	CL	2msbk	mfi	gs	<5		0.03
3	60-96	10YR 6/4	c2d 10YR 5/6	SiL	3cabk	mfi	gs	<5		0.13
4	96-174	10YR 6/4	none	GRSL	0sg	ml	cs	15-25		0.50

Comments: Water seepage (apparent groundwater/temporary mounding of water on bedrock) was noted at depths of approximately 14, 14 and 13 ft during, upon completion, and about 3 hours 25 minutes after the completion of excavating, respectively. Redox in Horizons 2 and 3 indicates the level of past saturation at a shallower depth, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit terminated at a depth of about 14.5 ft due to refusal on flat surface of hard/competent bedrock.

TP-2 #OBS. [X] Pit [ ] Boring Ground surface elevation 886.8 ft. Elevation of limiting factor 885.6 ft. (Redox) 874.3 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-14	10YR 4/2	none	SiL	2mgr	mvfr	gs	<5		0.13
2	14-120	2.5Y 6/1	c2d 10YR 5/8	SiCL	2msbk	mfi	gs	<5		0.04
3	120-150	10YR 6/4	none	GRSL	0sg	ml	cs	15-25		0.50

Comments: Water seepage was not noted during, upon completion, or about 3 hours 50 minutes after the completion of excavating. Redox in Horizon 2 indicates the level of past saturation, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit terminated at a depth of about 12.5 ft due to refusal on flat surface of hard/competent bedrock.

Name (Please Print): Tim F. Gassenheimer | Signature | Credential Number: SP-011900004

Address: 129 Milky Way, Madison, WI 53718 | Date Evaluation Conducted: December 2, 2025 | Telephone Number: (608) 288-4100

TP-3 #OBS. [X] Pit [ ] Boring Ground surface elevation 886.1 ft. Elevation of limiting factor 884.8 ft. (Redox) 875.6 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-16	10YR 3/2	none	SiL	1mgr	mvfr	gw	<5		0.13
2	16-48	10YR 6/1	c2d 10YR 4/6	CL	0m	mvfi	gs	<5		0.03
3	48-84	2.5Y 6/1	c2d 10YR 5/6	SiL	2mabk	mfr	gw	<10		0.13
4	84-126	10YR 6/3	none	GRSL	1msbk	mvfr	gs	20-30		0.50
5	126-144	*Bedrock*								

Comments: Water seepage was not noted during, upon completion, or about 2 hours 20 minutes after the completion of excavating. Redox in Horizons 2 and 3 indicates the level of past saturation, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit offset about 10 ft southwest of staked location due to marked sewer line.
Test pit terminated at a depth of about 12 ft due to refusal on hard/competent bedrock.

TP-4 #OBS. [X] Pit [ ] Boring Ground surface elevation 886.7 ft. Elevation of limiting factor 885.4 ft. (Redox) 875.7 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-16	10YR 3/2	none	SiL	2mgr	mfr	gw	<5		0.13
2	16-66	2.5Y 6/1	c2d 10YR 5/8	SiCL	0m	mvfi	gs	<5		0.04
3	66-96	10YR 5/3	c2f 10YR 6/1	SiL	1mabk	mvfr	gs	<5		0.13
4	96-132	10YR 6/4, 6/3	none	GRLS	0sg	ml	cs	15-25		1.63

Comments: Water seepage was not noted during, upon completion, or about 2 hours 45 minutes after the completion of excavating. Redox in Horizons 2 and 3 indicates the level of past saturation, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit terminated at a depth of about 11 ft due to refusal on flat surface of hard/competent bedrock.

TP-5 #OBS. [X] Pit [ ] Boring Ground surface elevation 887.7 ft. Elevation of limiting factor 886.8 ft. (Redox) 875.7 ft. (Water) 873.2 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-11	10YR 3/2	none	SiL	2mgr	mfr	gs	<5		0.13
2	11-72	10YR 6/1	c2d 10YR 5/6	SiCL	2msbk	mfi	gs	<5		0.04
3	72-174	10YR 6/4	none	GRSL	0sg	ml	cs	16(1)	25(1)	0.50

Comments: Water seepage (apparent groundwater/temporary mounding of water on bedrock) was noted at depths of approximately 14, 14 and 12 ft during, upon completion, and about 3 hours 5 minutes after the completion of excavating, respectively. Redox in Horizon 2 indicates the level of past saturation at a shallower depth, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
(1) Based on a sample taken at about 7 ft below grade.
Test pit terminated at a depth of about 14.5 ft due to refusal on flat surface of hard/competent bedrock.

TP-6 #OBS. [X] Pit [ ] Boring Ground surface elevation 884.9 ft. Elevation of limiting factor 880.9 ft. (Redox) 876.9 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-18	10YR 3/4	none	SiL	2mgr	mvfr	gs	<5		0.13
2	18-48	10YR 5/4	none	SiCL	2msbk	mvfi	gs	<5		0.04
3	48-90	10YR 7/1	c2d 10YR 4/6	SiL	3cabk	mfi	gs	<5		0.13
4	90-96	10YR 6/4	none	GRLS	0sg	ml	gs	20-30		1.63

Comments: Water seepage was not noted during or upon completion of excavating. Redox in Horizon 3 indicates the level of past saturation, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit terminated at a depth of about 8 ft due to refusal on hard/competent bedrock.

TP-7 #OBS. [X] Pit [ ] Boring Ground surface elevation 887.1 ft. Elevation of limiting factor 884.7 ft. (Redox) 876.1 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-10	10YR 4/2	none	SiL	1mabk	mfr	gs	<5		0.13
2	10-28	10YR 4/6, 5/3	none	SiL	1msbk	mvfr	gs	<5		0.13
3	28-72	10YR 5/4	m1f 10YR 6/1	SiCL	0m	mvfi	gs	<5		0.04
4	72-96	10YR 6/4	none	SiL	2mabk	mfr	gs	<5		0.13
5	96-132	10YR 6/4	none	GRLS	0sg	ml	gs	15[(1)]	20[(1)]	1.63

Comments: Water seepage was not noted during, upon completion, or about 1 hour 15 minutes after the completion of excavating. Redox in Horizon 3 indicates the level of past saturation, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
[(1)] Based on a sample taken at about 10 ft below grade.
Test pit terminated at a depth of about 11 ft due to refusal on hard/competent bedrock.

TP-8 #OBS. [X] Pit [ ] Boring Ground surface elevation 888.3 ft. Elevation of limiting factor 887.4 ft. (Redox) 876.3 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-11	10YR 4/3	none	SiL	2mabk	mfr	gs	<5		0.13
2	11-60	10YR 5/3	c2f 10YR 6/1	SiCL	2msbk	mfi	gs	<5		0.04
3	60-84	10YR 6/3	c3f 7.5YR 6/4	SiL	2csbk	mfr	gs	<10		0.13
4	84-144	10YR 6/4	none	GRLS	0sg	ml	gs	20-30		1.63
5	144-156	*Bedrock*								

Comments: Water seepage was not noted during, upon completion, or about 1 hour 50 minutes after the completion of excavating. Redox in Horizons 2 and 3 indicates the level of past saturation, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit terminated at a depth of about 13 ft due to refusal on hard/competent bedrock.

TP-9 #OBS. [X] Pit [ ] Boring Ground surface elevation 885.2 ft. Elevation of limiting factor 884.0 ft. (Redox) 873.2 ft. (Bedrock)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-14	10YR 3/2	none	SiL	2mgr	mfr	gs	<5		0.13
2	14-32	10YR 5/4	m1f 10YR 6/1	SiL	1msbk	mvfr	gs	<5		0.13
3	32-72	10YR 7/1	c2d 10YR 5/6, 4/4	SiCL	0m	mvfi	gs	<5		0.04
4	72-102	10YR 7/1	c2d 7.5YR 5/6	SiL	2cabk	mfr	gw	<5		0.13
5	102-144	10YR 6/3	none	GRLS	0sg	ml	gs	20-30		1.63

Comments: Water seepage was not noted during, upon completion, or about 1 hour 30 minutes after the completion of excavating. Redox in Horizons 2, 3 and 4 indicates the level of past saturation, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit terminated at a depth of about 12 ft due to refusal on hard/competent bedrock.

Division of Industry Services
P.O. Box 2658
Madison, Wisconsin 53701

Attachment 2:

SOIL AND SITE EVALUATION - STORM

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent of slope, scale or dimensions, north arrow, and BM referenced to nearest road

Please print all information

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]

County: Dane

Parcel I.D.: 225/0609-013-9220-1

Reviewed by:

Date:

Property Owner: No Oaks Ranch, LLC

Property Location: Govt. Lot SW ¼ SW ¼ S 1 T 6 N R 9 E

Property Owner's Mail Address: PO Box 888

Lot # | Block# | Subd. Name or CSM #

City: Longmont | State: CO | Zip Code: 80502-0888 | Phone Number

[X] City [ ] Village [ ] Town: Fitchburg

Nearest Road: W Clayton Rd

Drainage area _____ [ ] sq ft [ ] acres

Test site suitable for (check all that apply): [ ] Site not suitable;
[ ] Bioretention; [ ] Subsurface Disperal System;
[ ] Reuse; [ ] Irrigation; [ ] Other _____

Hydraulic Application Test Method:
[X] Morphological Evaluation
[ ] Double Ring Infiltrometer
[ ] Other: (specify) _____

Soil Moisture
Date of soil borings: _____
USDA-NRCS WETS Value:
[ ] Dry = 1;
[ ] Normal = 2;
[ ] Wet = 3.

TP-10 #OBS. [X] Pit [ ] Boring Ground surface elevation 866.5 ft. Elevation of limiting factor 865.6 ft. (Color) 860.0 ft. (Water)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-10	10YR 3/2	none	SiL (fill)	1fsbk	mvfr	gs	<10		0.13
2	10-50	GLEY 1 5G 5/1, 2.5Y 3/1	none	SiCL, SiL (fill)	variable		gs	<10		0.04-0.13
3	50-84	2.5Y 6/1	c2d 2.5Y 5/4	SiL	2mabk	mfr	n/a	<5		0.13

Comments: Water seepage (apparent groundwater) was noted at depths of approximately 6.5 ft during and upon completion of excavating. Gley dominant color and redox in Horizons 2 and 3 indicate the level of past saturation at a shallower depth, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit terminated at a depth of about 7 ft due to the presence of apparent groundwater.

TP-11 #OBS. [X] Pit [ ] Boring Ground surface elevation 866.6 ft. Elevation of limiting factor 865.2 ft. (Color) 856.6 ft. (Water)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-17	10YR 3/1	none	SiL	2mgr	mfr	gs	<5		0.13
2	17-25	GLEY 1 10Y 6/1	f2d 10YR 5/6	SiCL	2msbk	mfi	gs	<5		0.04
3	25-48	GLEY 1 5GY 5/1	none	SiL	3csbk	mfi	gs	<5		0.13
4	48-96	GLEY 1 10Y 6/1	f2d 10YR 5/6	SiCL	2msbk	mfi	gs	<5		0.04
5	96-120	10YR 6/4	none	GRSL	1fsbk	mvfr	n/a	20-30		0.50

Comments: Water seepage (apparent groundwater) was noted at depths of approximately 10 ft during and upon completion of excavating. Gley dominant color and redox in Horizon 2, 3 and 4 indicate the level of past saturation at a shallower depth, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit offset about 5 ft southwest after hitting (probably abandoned, unmarked) copper wires at staked location at a depth of about 3.5 ft.
Test pit terminated at a depth of about 10 ft due to the presence of apparent groundwater.

Name (Please Print): Tim F. Gassenheimer | Signature | Credential Number: SP-011900004

Address: 129 Milky Way, Madison, WI 53718 | Date Evaluation Conducted: December 2, 2025 | Telephone Number: (608) 288-4100

TP-12 #OBS. [X] Pit [ ] Boring Ground surface elevation 870.3 ft. Elevation of limiting factor 869.7 ft. (Redox) 862.3 ft. (Water)

Horizon	Approx. Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines (P200)	Hydraulic App Rate Inches/Hr
1	0-8	10YR 3/1	none	SiL	2mgr	mvfr	gs	<5		0.13
2	8-38	GLEY 1 10Y 6/1	f1d 2.5Y 6/4	SiCL	3msbk	mvfi	gw	<5		0.04
3	38-66	GLEY 1 7/N	c2d 2.5Y 6/4	SiL	3cabk	mfi	gw	<5		0.13
4	66-78	10YR 6/3	c2d 10YR 6/1	L	1fsbk	mvfr	gs	5-15		0.24
5	78-132	10YR 6/4	none	GRSL	1msbk	mvfr	n/a	20-30		0.50

Comments: Water seepage (apparent groundwater) was noted at depths of approximately 11, 11 and 8 ft during, upon completion, and about 30 minutes after the completion of excavating, respectively. Gley dominant color and redox in Horizons 2, 3 and 4 indicate the level of past saturation at a shallower depth, which may be a result of periodically infiltrating surface water that may become retained in the lower-permeability soils for prolonged periods of time, or seasonally high groundwater.
Test pit terminated at a depth of about 11 ft due to the presence of apparent groundwater.

APPENDIX E

Long-Term Maintenance Agreement

Final Plat Boundary
Metes and Bounds Description

Part of Outlot 2, Certified Survey Map Number 15163, as recorded in Volume 107 of Certified Survey Maps, on pages 257-261, as Document Number 5498225 and Outlot 2, Certified Survey Map Number 15164, as recorded in Volume 107 of Certified Survey Maps, on pages 262-266, as Document Number 5498226, Dane County Registry, located in all Quarters of the Northeast Quarter of Section 11 and the Northwest and Southwest Quarters of the Northwest Quarter of Section 12 and part of the Southwest Quarter of the Southwest Quarter of Section 01, all in Township 06 North, Range 09 East, City of Fitchburg, Dane County, Wisconsin, more fully described as follows, more fully described as follows:

Beginning at the Northeast corner of said Section 11; thence North 02 degrees 57 minutes 34 seconds East, 330.63 feet; thence South 86 degrees 49 minutes 40 seconds East, 171.96 feet along a south line of CSM No. 12398, recorded as Document No. 4400307; thence South 03 degrees 10 minutes 21 seconds West, 68.32 feet along a west line of CSM No. 12398; thence South 86 degrees 43 minutes 28 seconds East, 105.33 feet along a south line of said CSM; thence South 85 degrees 28 minutes 02 seconds East, 519.64 feet; thence South 02 degrees 56 minutes 57 seconds West, 261.39 feet; thence North 85 degrees 59 minutes 38 seconds West, 474.92 feet; thence South 02 degrees 44 minutes 09 seconds West, 2024.22 feet; thence North 87 degrees 47 minutes 28 seconds West, 321.77 feet; thence North 88 degrees 10 minutes 42 seconds West, 1054.40 feet to the east right of way of Central Park Place, also to the south right of way of Holmes Street, also to a point of non-tangential curvature; thence 58.39 feet along the arc of a curve to the right, also along said south right of way, having a radius of 485.00 feet, through a central angle of 06 degrees 53 minutes 51 seconds and a chord bearing North 53 degrees 18 minutes 16.4 seconds East, 58.35 feet to a point of reverse curvature; thence 120.29 feet along the arc of a curve to the left, also along said south right of way, having a radius of 380.48 feet, through a central angle of 18 degrees 06 minutes 53 seconds and a chord bearing North 46 degrees 23 minutes 16 seconds East, 119.79 feet; thence North 35 degrees 45 minutes 55 seconds East along said south right of way, 350.23 feet; thence North 54 degrees 14 minutes 05 seconds West, 220.00 feet; thence North 35 degrees 45 minutes 55 seconds East, 266.73 feet; thence North 86 degrees 48 minutes 28 seconds West, 327.77 feet; thence South 15 degrees 28 minutes 39 seconds West, 92.06 feet; thence North 88 degrees 20 minutes 19 seconds West, 190.63 feet to a point of non-tangential curvature; thence 81.76 feet along the arc of a curve to the right, having a radius of 180.00 feet, through a central angle of 26 degrees 01 minute 28 seconds and a chord bearing South 17 degrees 06 minutes 01 second West, 81.06 feet; thence South 02 degrees 47 minutes 11 seconds West, 104.64 feet to a point of non-tangential curvature, also to the north right of way of Central Park Place; thence 241.66 feet along the arc of a curve to the left, having a radius of 245.00 feet, through a central angle of 56 degrees 30 minutes 51 seconds and a chord bearing North 56 degrees 12 minutes 38 seconds West, 231.98 feet; thence North 78 degrees 50 minutes 23 seconds West along said north right of way, 30.60 feet; thence North 84 degrees 27 minutes 59 seconds West along said north right of way, 40.99 feet to the east line of Wisconsin Department of Transportation right

of way; thence North 05 degrees 32 minutes 02 seconds East along said east right of way, 1327.76 feet to the south right of way of West Clayton Road; thence South 88 degrees 42 minutes 33 seconds East along said south right of way, 173.03 feet; thence North 55 degrees 28 minutes 00 seconds East along said south right of way, 41.24 feet; thence North 02 degrees 45 minutes 43 seconds East, 48.88 feet; thence South 88 degrees 42 minutes 33 seconds East, 1333.36 feet to the Point of Beginning.

Bearings are based upon the Wisconsin County Coordinate System – Dane Zone

Prepared By:
Burse Surveying and Engineering, Inc.
2801 International Lane, Suite 101
Madison WI, 53704

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