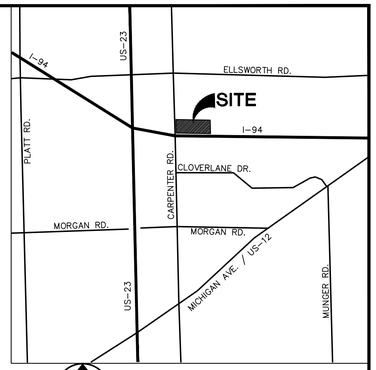
SHAMROCK SELF STORAGE

SECTION 13, T3S, R6E

PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN

PRELIMINARY SITE PLAN



VICINITY MAP
SCALE : NTS

OWNER
DYNASTY ENTERPRISES
4197 CARPENTER ROAD
YPSILANTI, MICHIGAN 48197
CONTACT: MOE KASHAM
(734) 368-4929

APPLICANT
SHAMROCK BUILDERS
9800 WESTPOINT DRIVE, SUITE 200
INDIANAPOLIS, INDIANA 46256
CONTACT: GREG O'HERREN
(317) 590-4713

CONTRACTOR
TBD

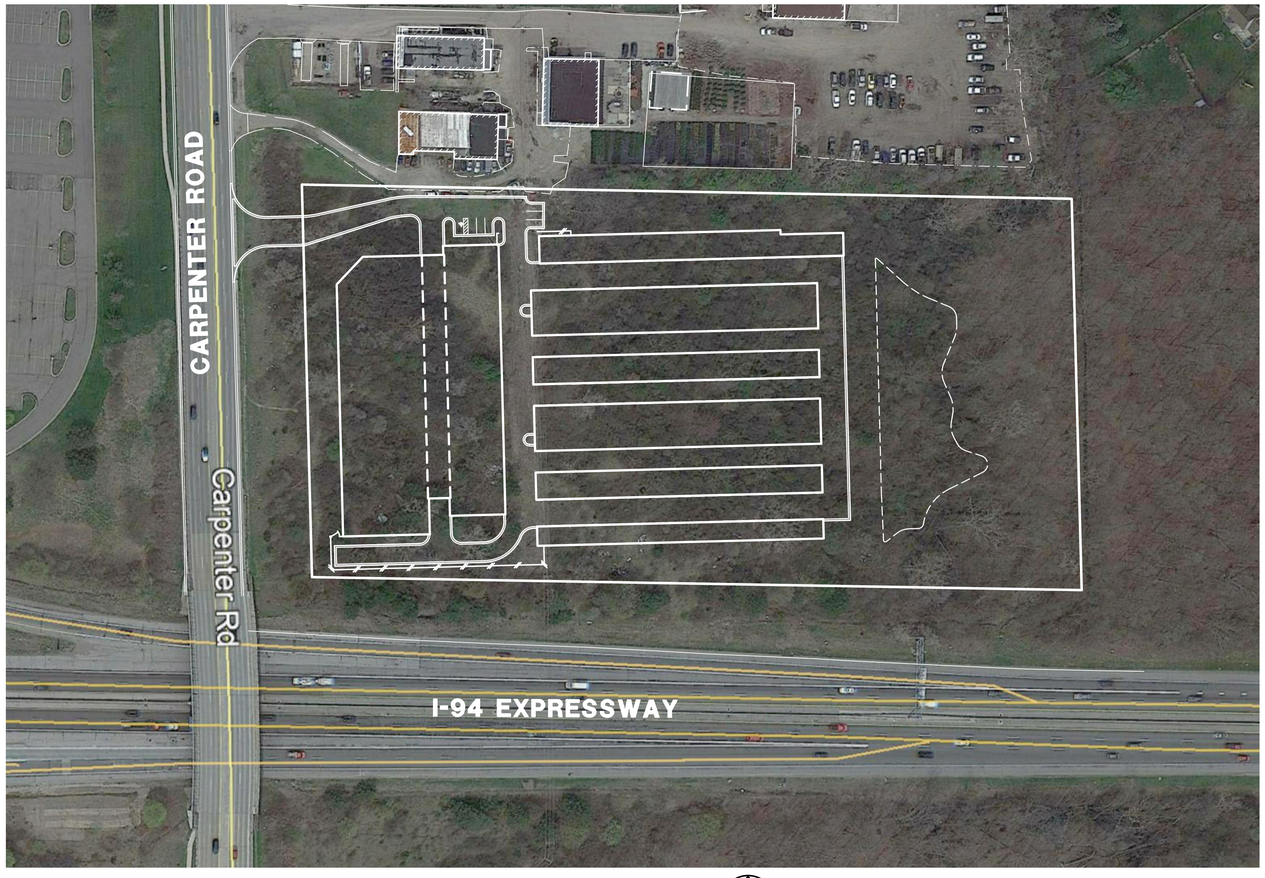
ENGINEER/SURVEYOR/LANDSCAPE ARCH.
MIDWESTERN CONSULTING, LLC
3815 PLAZA DR.
ANN ARBOR, MI 48108
CONTACT: HEATH HARTT, PE
(734) 995-0200

ARCHITECT
GROUNDWORK, LTD
351 WEST DUNDEE ROAD, SUITE A
BUFFALO GROVE, ILLINOIS 60089
CONTACT: DAVID WYTMAR, AIA, LEED AP
(847) 541-4151

SITE DATA

	EXISTING REQUIRED/ PERMITTED	PROPOSED
ZONING	C2	C2
AREA (ac)	1 ac Min.	
GROSS PROVIDED (ac)	8.65	8.65
NET LOT AREA (ac)	8.52	8.52
USE	VACANT	SELF STORAGE FACILITIES
MIN LOT AREA	20,000 SF	8.65 ac
MIN LOT WIDTH	100' MIN	439'
MAXIMUM LOT COVERAGE (GROSS)	25%	15.6%[1]
BUILDING AREA		
BUILDING A		58,004 sf
BUILDING B		9,550 sf
BUILDING C		15,950 sf
BUILDING D		9,570 sf
BUILDING E		15,950 sf
BUILDING F		9,570 sf
BUILDING G		6,380 sf
IMPERVIOUS SURFACE RATIO	N/A	
SETBACKS FRONT (WEST)	35'	36'
SIDE (NORTH & SOUTH)	10' MIN./35' TOTAL	42.8' AND 43.5'
REAR (EAST)	35'	280.8'
BUILDINGS HEIGHT	45'	35'
STORIES	3	2
FLOOR AREA RATIO	80% MAX	49.3%[2]
VEHICULAR PARKING		
GUEST SPACES		7 TOTAL (6 STANDARD, 1 BFV)

[1] Lot coverage is based only on Building A.
[2] Floor area includes all buildings A - G.



SITE MAP
SCALE : NTS

SHEET LIST TABLE

Sheet Number	Sheet Title
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3	TREE LIST
4	EXISTING CONDITIONS
5	REMOVAL PLAN
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7	UTILITY PLAN
8	GRADING PLAN
9	STORMWATER MANAGEMENT PLAN
10	STORMWATER CALCULATIONS A
11	STORMWATER CALCULATIONS B
12	LANDSCAPE PLAN
13	FIRE PROTECTION PLAN
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15	SITE DETAILS
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A-2	PRELIMINARY BUILDING EXTERIOR
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A-4	ELEVATIONS
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PROJECT NARRATIVE
THE PROPOSED DEVELOPMENT, LOCATED AT 4251 CARPENTER ROAD, CONSISTS OF 7 SELF STORAGE BUILDINGS, INCLUDING THE FIRST DRIVE-THRU CLIMATE CONTROLLED SELF STORAGE FACILITY IN WASHTENAW COUNTY. THE DEVELOPMENT WILL BE ACCESSED VIA A PRIVATE ACCESS DRIVE FROM CARPENTER ROAD. THE SITE WILL BE SERVICED BY MUNICIPAL WATER AND A PRIVATE SEPTIC FIELD. ON-SITE STORMWATER MANAGEMENT INCLUDES SURFACE AND UNDERGROUND DETENTION SYSTEMS SIZED TO DETAIN THE 100-YEAR STORM EVENT AND THE SYSTEM WILL OUTLET TO AN EXISTING COUNTY DRAIN. NO DUMPSTER ENCLOSURE IS PROPOSED FOR THE PROJECT AND ALL REFUSE WILL BE CONTAINED WITHIN BLDG A.

PERMIT APPROVALS

PERMITTING AGENCY	DATE APPROVED
WCRC	
SESC, SOM	
SESC, PITTSFIELD TWP	
MDEQ, WATER/SEWER	
GRADING PERMIT, PITTSFIELD TWP	
WASHTENAW COUNTY HEALTH DEPT.	

SHAMROCK SELF STORAGE - CSPA 20-03

SHAMROCK SELF STORAGE

JOB No. **18354**

DATE: 1/6/20
SHEET 1 OF 18

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/16/20
PER MUNICIPAL REVIEW	4/6/20
ARCHITECTURAL UPDATES	4/14/20

CADD:
ENG: HTH
PM: HTH
TECH:
/18354CV1

1

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3815 Plaza Drive Ann Arbor, Michigan 48108
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Land Development • Land Survey • Institutional • Municipal
Wireless Communications • Transportation • Landfill Services

RELEASED FOR:	DATE

STATE OF MICHIGAN
HEATH HARTT
ENGINEER
No. 56247
LICENSED PROFESSIONAL ENGINEER

HEATH HARTT, P.E.
P.E. #56247

M:\Civil3d_Proj\18354\Site Plan\18354CV1.dwg, 4/14/2020 2:58 PM, Heath Hartt, 1 COVER SHEET, MCLLC PDF.pc3
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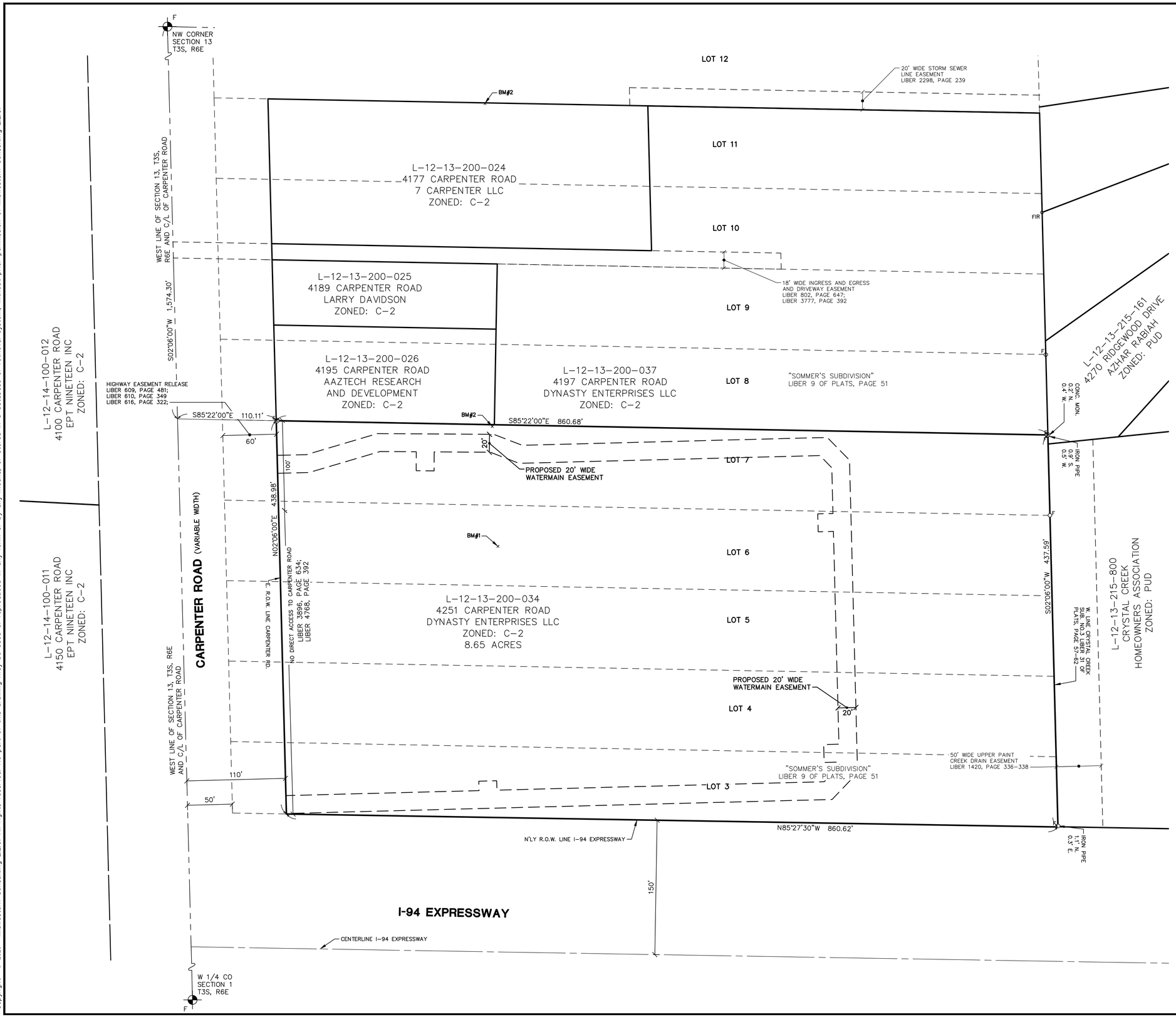

Know what's below. Call before you dig.

SCALE: 1" = 50'

0 50 100 150

LEGEND

	SECTION CORNER
O F	FOUND IRON PIPE
◎ F	FOUND MONUMENT
oFIR	FOUND IRON ROD

BENCHMARKS

BM#1 – SPIKE IN UTILITY POLE ±350' EAST OF CENTERLINE CARPENTER ROAD AND ±300' NORTH OF NORTH R.O.W. LINE I-94.
ELEVATION=837.19 (NAVD 88)

BM#2 – SPIKE IN SOUTH FACE OF UTILITY POLE ±350' EAST OF CENTERLINE CARPENTER ROAD AND ALONG NORTH PROPERTY LINE.
ELEVATION=836.44 (NAVD 88)

BASIS OF BEARING

"SOMMER'S SUBDIVISION", a part of the NW 1/4 of Section 13, T3S, R6E, recorded in Liber 9 of Plats, Page 51, Washtenaw County, Michigan.

LEGAL DESCRIPTION

LEGAL DESCRIPTION OF A 8.65 ACRE PARCEL OF LAND LOCATED IN THE NW 1/4 OF SECTION 13, T3S, R6E, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN

All that part of Lots 3, 4, 5, 6, and 7 of Sommer's Subdivision a part of the Northwest 1/4 of Section 13, Town 3 South, Range 6 East, Pittsfield Township, Washtenaw County, Michigan, as recorded in Liber 9 of Plats, Page 51, Washtenaw County Records, which lies North of a line 150 feet North of (measured at right angles) and parallel to the centerline of Highway I-94, described as: Beginning at a point on the West line of said Section 13, which is N 01°00'45" W 533.17 feet from the West 1/4 corner of said Section 13; thence S 88°34'15" E 1500 feet to a point of ending, excepting therefrom the West 60 feet of said lots.

There shall be no right of direct ingress or egress from Highway I-94 and Carpenter Road to, from and between the lands herein described, except over and across the North 100 feet along said Carpenter Road.

Being more particularly described as:

Commencing at the NW corner of Section 13, T3S, R6E, Pittsfield Township, Washtenaw County, Michigan, thence S 02°06'00" W 1574.30 feet along the West line of said Section 13, the centerline of Carpenter Road (variable width), and the West line of "Sommer's Subdivision", a part of the NW 1/4 of said Section 13, as recorded in Liber 9 of Plats, Page 51, Washtenaw County Records, thence S 85°22'00" E 110.11 feet along the North line of Lot 7, and its extension thereof, of said "Sommer's Subdivision", to the POINT OF BEGINNING.

thence continuing S 85°22'00" E 860.68 feet along said North line of Lot 7 to the East line of said "Sommer's Subdivision";
thence S 02°06'00" W 437.59 feet along the East line of said "Sommer's Subdivision" and the West line of Crystal Creek Subdivision No. 3, as recorded in Liber 31 of Plats, Pages 57–62;
thence N 85°27'30" W 860.62 feet along the Northerly line of I-94 Expressway (150 feet 1/2 width);
thence N 02°06'00" E 438.98 feet along the Easterly right-of-way line of said Carpenter Road to the POINT OF BEGINNING. Being a part of Lots 3, 4, 5, 6, and 7 of said "Sommer's Subdivision" and containing 8.65 acres of land, being subject to easements and restrictions of record, if any.

Also being subject to the following EXCEPTIONS:

–Rights of the public or any governmental unit in any part of subject property taken, deeded, or used for street, road, highway purposes.

–Easement for ingress and egress and driveway, as disclosed by instrument recorded in Liber 802, Page 647, and in Liber 3777, Page 392, Washtenaw County Records.

–Easement Agreement, as recorded in Liber 2298, Page 239, Washtenaw County Records.

–There shall be no right of direct ingress or egress from Highway I-94 and Carpenter Road to, from and between the lands herein described, except over and across the North 100 feet along said Carpenter Road, as recorded in Liber 4768, Page 392, Washtenaw County Records.

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GREG O'HERREN
(317) 590-4713

SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
BOUNDARY SURVEY

2

DATE: 1/6/20
SHEET 2 OF 18
CADD:
ENG: HTH
PM: HTH
TECH:
/18354EX2

JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/16/20
PER MUNICIPAL REVIEW	4/6/20

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TREE INVENTORY

TAG#	DBH	DBH CUMUL	COMMON NAME	GENUS/SPECIES	STEM	SCORE	INV*	HERITAGE	WOOD	REMOVAL
1501	14"	14"	Siberian Elm	Ulmus pumila			X			
1502	19"	19"	Cottonwood	Populus deltoides						
1503	11"	11"	American Elm	Ulmus americana						
1504	9"	9"	Crab Apple	Malus coronaria						X
1505	10"	10"	Black Pine	Pinus nigra						X
1506	10"	10"	Black Pine	Pinus nigra						X
1507	7"	7"	Black Pine	Pinus nigra						X
1508	7"	7"	Black Pine	Pinus nigra						X
1509	8"	8"	Black Pine	Pinus nigra						X
1510	6"	6"	Black Pine	Pinus nigra						X
1511	13"	13"	Honey Locust	Gleditsia triacanthos						X
1512	16"	16"	Black Pine	Pinus nigra						X
1513	10"	10"	Cottonwood	Populus deltoides						X
1514	22"	22"	Cottonwood	Populus deltoides						X
1515	13"	13"	Box Elder	Acer negundo						X
1516	26"	26"	Silver Maple	Acer saccharinum				X		
1517	8"	8"	Red Oak	Quercus rubra						X
1518	8"	11"	Silver Maple	Acer saccharinum	twin					X
1519	9"	9"	White Pine	Pinus strobus						
1520	12"	12"	Silver Maple	Acer saccharinum						
1521	7"	7"	Silver Maple	Acer saccharinum						
1522	7"	7"	White Pine	Pinus strobus						
1523	11"	11"	White Pine	Pinus strobus						
1524	6"	8"	Silver Maple	Acer saccharinum	twin					X
1525	6"	6"	White Pine	Pinus strobus						
1526	12"	12"	Cottonwood	Populus deltoides						
1527	12"	12"	Box Elder	Acer negundo						
1528	14"	14"	White Pine	Pinus strobus						
1529	7"	7"	White Pine	Pinus strobus						
1530	9"	9"	White Pine	Pinus strobus						
1531	7"	7"	White Pine	Pinus strobus						
1532	7"	10"	Box Elder	Acer negundo	twin					
1533	9"	9"	White Pine	Pinus strobus						
1534	8"	8"	Box Elder	Acer negundo						
1535	10"	10"	White Pine	Pinus strobus						
1536	13"	13"	Box Elder	Acer negundo						
1537	10"	10"	White Pine	Pinus strobus						
1538	8"	8"	White Pine	Pinus strobus						
1539	8"	8"	White Pine	Pinus strobus						
1540	9"	9"	American Elm	Ulmus americana						
1541	9"	9"	Cottonwood	Populus deltoides						
1542	8"	8"	Siberian Elm	Ulmus pumila			X			
1543	16"	16"	Cottonwood	Populus deltoides						
1544	11"	11"	Cottonwood	Populus deltoides						
1545	14"	14"	Cottonwood	Populus deltoides						
1546	14"	14"	Cottonwood	Populus deltoides						
1547	12"	12"	Cottonwood	Populus deltoides						
1548	9"	9"	White Pine	Pinus strobus						X
1549	8"	8"	White Pine	Pinus strobus						X
1550	9"	9"	White Pine	Pinus strobus						
1551	12"	12"	Box Elder	Acer negundo						
1552	15"	15"	Box Elder	Acer negundo						
1553	9"	9"	White Pine	Pinus strobus						
1554	9"	9"	White Pine	Pinus strobus						
1555	12"	12"	Box Elder	Acer negundo						
1556	9"	16"	Box Elder	Acer negundo	triple					
1557	8"	8"	Honey Locust	Gleditsia triacanthos						
1558	11"	11"	White Pine	Pinus strobus						
1559	10"	10"	White Pine	Pinus strobus						
1560	11"	11"	Box Elder	Acer negundo						
1561	8"	8"	White Pine	Pinus strobus						
1562	16"	16"	Box Elder	Acer negundo						
1563	8"	8"	Tamarack	Larix laricina						
1564	10"	10"	Tamarack	Larix laricina						
1565	11"	11"	Tamarack	Larix laricina						
1566	8"	8"	Siberian Elm	Ulmus pumila			X			
1567	9"	9"	Siberian Elm	Ulmus pumila			X			
1568	10"	10"	Cottonwood	Populus deltoides					X	
1569	12"	12"	Cottonwood	Populus deltoides					X	
1570	12"	12"	Silver Maple	Acer saccharinum					X	
1571	9"	9"	White Pine	Pinus strobus					X	
1572	13"	13"	Box Elder	Acer negundo					X	
1573	8"	8"	Box Elder	Acer negundo					X	
1574	11"	16"	Box Elder	Acer negundo	twin				X	
1575	7"	7"	Hickory	Carya ovata					X	
1576	8"	8"	Hickory	Carya ovata					X	
1577	21"	21"	White Oak	Quercus alba				X	X	
1578	13"	13"	Red Oak	Quercus rubra					X	
1579	7"	7"	Red Oak	Quercus rubra					X	
1580	9"	9"	Red Oak	Quercus rubra					X	
1581	20"	20"	Hickory	Carya ovata				X	X	
1582	9"	9"	Red Oak	Quercus rubra					X	
1583	22"	22"	Red Oak	Quercus rubra				X	X	
1584	20"	20"	Red Oak	Quercus rubra				X	X	
1585	13"	13"	Hickory	Carya ovata					X	
1586	13"	13"	Box Elder	Acer negundo					X	
1587	19"	19"	Red Oak	Quercus rubra				X	X	
1588	11"	11"	Red Oak	Quercus rubra					X	
1589	14"	14"	Red Oak	Quercus rubra					X	
1590	9"	9"	Box Elder	Acer negundo					X	
1591	7"	7"	Siberian Elm	Ulmus pumila			X		X	
1592	7"	7"	Siberian Elm	Ulmus pumila			X		X	
1593	27"	27"	Cottonwood	Populus deltoides					X	
1594	13"	13"	Siberian Elm	Ulmus pumila			X		X	
1595	12"	12"	Siberian Elm	Ulmus pumila			X		X	
1596	15"	15"	Siberian Elm	Ulmus pumila			X		X	
1597	14"	14"	Red Oak	Quercus rubra					X	
1598	21"	21"	Red Oak	Quercus rubra				X	X	
1599	10"	10"	Siberian Elm	Ulmus pumila			X		X	
1600	8"	8"	Box Elder	Acer negundo					X	
1601	21"	21"	Siberian Elm	Ulmus pumila			X		X	
1602	16"	16"	Siberian Elm	Ulmus pumila			X		X	
1603	15"	15"	Siberian Elm	Ulmus pumila			X		X	
1604	11"	11"	Blue Spruce	Picea pungens					X	
1605	8"	8"	Blue Spruce	Picea pungens					X	
1606	7"	7"	Blue Spruce	Picea pungens					X	
1607	12"	12"	Red Oak	Quercus rubra					X	
1608	22"	22"	Siberian Elm	Ulmus pumila			X		X	
1609	8"	8"	Blue Spruce	Picea pungens					X	
1610	12"	12"	Blue Spruce	Picea pungens					X	

TAG#	DBH	DBH CUMUL	COMMON NAME	GENUS/SPECIES	STEM	SCORE	INV*	HERITAGE	WOOD	REMOVAL
1611	11"	11"	Blue Spruce	Picea pungens					X	
1612	10"	10"	Norway Maple	Acer platanoides						
1613	10"	10"	Norway Maple	Acer platanoides						
1614	13"	13"	Black Pine	Pinus nigra						
1615	13"	13"	Black Pine	Pinus nigra						
1616	8"	11"	Black Pine	Pinus nigra	twin					
1617	8"	8"	Black Pine	Pinus nigra						
1618	10"	10"	Black Pine	Pinus nigra						
1619	7"	7"	Black Pine	Pinus nigra						
1620	16"	16"	Black Pine	Pinus nigra						
1621	10"	10"	Black Pine	Pinus nigra						
1622	8"	8"	Black Pine	Pinus nigra						
1623	16"	16"	Black Pine	Pinus nigra						X
1624	14"	14"	Honey Locust	Gleditsia triacanthos						X
1625	17"	17"	Black Pine	Pinus nigra						X
1626	23"	23"	Cottonwood	Populus deltoides						X
1627	19"	19"	Black Pine	Pinus nigra				X		X
1628	14"	14"	Honey Locust	Gleditsia triacanthos						X
1629	18"	18"	Cottonwood	Populus deltoides						X
1630	17"	17"	Black Pine	Pinus nigra						X
1631	13"	13"	Cottonwood	Populus deltoides						X
1632	8"	8"	Black Pine	Pinus nigra						X
1633	8"	8"	Black Pine	Pinus nigra						X
1634	10"	10"	Hickory	Carya ovata						X
1635	11"	11"	Cottonwood	Populus deltoides						X
1636	19"	19"	Siberian Elm	Ulmus pumila			X			X
1637	16"	16"	Silver Maple	Acer saccharinum						X
1638	13"	13"	Silver Maple	Acer saccharinum						X
1639	14"	14"	Siberian Elm	Ulmus pumila			X			X
1640	11"	11"	Box Elder	Acer negundo						X
1641	17"	17"	Box Elder	Acer negundo						X
1701	13"	13"	Black Pine	Pinus nigra						
1702	15"	15"	Black Pine	Pinus nigra						
1703	14"	14"	Box Elder	Acer negundo						
1704	15"	15"	Black Pine	Pinus nigra						
1705	13"	13"	Black Pine	Pinus nigra						
1706	17"	17"	Cottonwood	Populus deltoides					X	
1707	6"	6"	Red Oak	Quercus rubra					X	
1708	9"	9"	Red Oak	Quercus rubra					X	
1709	7"	7"	White Oak	Quercus alba					X	
1710	30"	30"	Cottonwood	Populus deltoides				X	X	
1711	8"	8"	Red Oak	Quercus rubra					X	
1712	38"	38"	Cottonwood	Populus deltoides				X	X	
1713	7"	7"	Red Oak	Quercus rubra					X	
1714	7"	7"	American Elm	Ulmus americana					X	
1715	6"	10"	Common Apple	Malus pumila	triple				X	X
1716	7"	7"	Silver Maple	Acer saccharinum					X	X
1717	11"	11"	American Elm	Ulmus americana					X	X
1718	7"	7"	Black Cherry	Prunus serotina					X	X
1719	6"	6"	Common Apple	Malus pumila					X	X
1720	9"	9"	Silver Maple	Acer saccharinum					X	X
1721	7"	7"	Silver Maple	Acer saccharinum					X	X
1722	6"	6"	Silver Maple	Acer saccharinum					X	X
1723	8"	8"	Red Oak	Quercus rubra					X	X
1724	9"	9"	Silver Maple	Acer saccharinum					X	X
1725	9"	9"	Black Pine	Pinus nigra					X	X
1726	7"	7"	Black Pine	Pinus nigra					X	X
1727	7"	7"	Red Oak	Quercus rubra					X	X
1728	14"	14"	Red Oak	Quercus rubra					X	X
1729	9"	9"	Black Cherry	Prunus serotina					X	X
1730	6"	6"	Silver Maple	Acer saccharinum					X	X
1731	6"	6"	Silver Maple	Acer saccharinum					X	X
1732	13"	13"	American Elm	Ulmus americana					X	X
1733	17"	17"	Black Pine	Pinus nigra					X	X
1734	7"	10"	Silver Maple	Acer saccharinum	twin				X	X
1735	14"	14"	Red Oak	Quercus rubra					X	X
1736	8"	8"	American Elm	Ulmus americana					X	X
1737	7"	7"	American Elm	Ulmus americana					X	X
1738	8"	8"	Silver Maple	Acer saccharinum					X	X
1739	14"	14"	Black Pine	Pinus nigra						
1740	7"	7"	Black Pine	Pinus nigra						X
1741	8"	8"	Silver Maple	Acer saccharinum						X
1742	35"	35"	Cottonwood	Populus deltoides				X		X
1743	6"	6"	Serviceberry	Amelanchier						X
1744	6"	6"	Black Pine	Pinus nigra						X
1745	6"	10"	Serviceberry	Amelanchier	triple					X
1746	6"	6"	American Elm	Ulmus americana						X
1747	8"	8"	Silver Maple	Acer saccharinum						X
1748	6"	6"	Wild Plum	Prunus americana						X
1749	6"	8"	Silver Maple	Acer saccharinum	twin					X
1750	12"	12"	Black Pine	Pinus nigra						X
1751	13"	13"	Silver Maple	Acer saccharinum						X
1752	6"	10"	Serviceberry	Amelanchier	triple					X
1753	7"	7"	Wild Plum	Prunus americana						X
1754	8"	8"	Black Cherry	Prunus serotina						X
1755	9"	9"	Black Pine	Pinus nigra						X
1756	9"	9"	Black Cherry	Prunus serotina						X
1757	7"	7"	Black Cherry	Prunus serotina						X
1758	13"	13"	Silver Maple	Acer saccharinum						X
1759	8"	14"	Box Elder	Acer negundo	triple					X
1760	7"	7"	Black Pine	Pinus nigra						X
1761	7"	14"	Serviceberry	Amelanchier	quad					X
1762	7"	7"	Serviceberry	Amelanchier						X
1763	6"	6"	Black Cherry	Prunus serotina						X
1764	9"	9"	Black Pine	Pinus nigra						X
1765	7"	7"	Black Cherry	Prunus serotina						X
1766	8"	8"	Black Cherry	Prunus serotina						X
1767	18"	18"	Black Pine	Pinus nigra						X
1768	10"	10"	Black Pine	Pinus nigra						X
1769	11"	11"	American Elm	Ulmus americana						X
1770	10"	10"	Black Pine	Pinus nigra						X
1771	11"	11"	Black Pine	Pinus nigra						X
1772	10"	10"	Black Pine	Pinus nigra						X
1773	7"	7"	Black Cherry	Prunus serotina						X
1774	23"	23"	Cottonwood	Populus deltoides						X
1775	6"	6"	Hickory	Carya ovata						X
1776	20"	20"	Red Oak	Quercus rubra				X		X
1777	9"	9"	Hickory	Carya ovata						X
1778	20"	20"	Red Oak	Quercus rubra				X		X
1779	11"	19"	Silver Maple	Acer saccharinum	triple					X
1780	11"	16"	Siberian Elm	Ulmus pumila	twin					X

TAG#	DBH	DBH CUMUL	COMMON NAME	GENUS/SPECIES	STEM	SCORE	INV*	HERITAGE	WOOD	REMOVAL
1781	14"	14"	Black Pine	Pinus nigra						
1782	19"	19"	Black Pine	Pinus nigra		40%		X		
1783	24"	24"	Black Pine	Pinus nigra				X		
1784	11"	11"	Honey Locust	Gleditsia triacanthos						X
1785	9"	9"	Black Pine	Pinus nigra						
1786	11"	11"	Honey Locust	Gleditsia triacanthos						
1787	27"	27"	Siberian Elm	Ulmus pumila			X			X
1788	6"	8"	Siberian Elm	Ulmus pumila	twin		X			
1789	7"	7"	Siberian Elm	Ulmus pumila			X			
1790	9"	9"	Siberian Elm	Ulmus pumila			X			X
1791	12"	12"	Cottonwood	Populus deltoides						X
1792	14"	14"	Siberian Elm	Ulmus pumila			X			X
1793	9"	9"	Siberian Elm	Ulmus pumila			X			X
1794	9"	9"	Siberian Elm	Ulmus pumila			X			X
1795	10"	14"	Siberian Elm	Ulmus pumila	twin		X			X
1796	9"	9"	Cottonwood	Populus deltoides						X
1797	7"	10"	Cottonwood	Populus deltoides	twin					X
1798	8"	8"	Siberian Elm	Ulmus pumila			X			X
1799	12"	12"	White Poplar	Populas alba						X
1800	13"	13"	Siberian Elm	Ulmus pumila			X		X	
1801	20"	20"	Red Oak	Quercus rubra				X	X	
1802	20"	20"	White Oak	Quercus alba		40%		X	X	
1803	6"	6"	American Elm	Ulmus americana					X	
1804	6"	6"	American Elm	Ulmus americana					X	
1805	7"	7"	American Elm	Ulmus americana					X	
1806	22"	22"	Red Oak	Quercus rubra				X	X	
1807	18"	18"	White Oak	Quercus alba				X	X	
1808	8"	8"	Silver Maple	Acer saccharinum					X	
1809	7"	7"	Silver Maple	Acer saccharinum					X	
1810	17"	17"	Cottonwood	Populus deltoides					X	
1811	6"	6"	Silver Maple	Acer saccharinum					X	
1812	8"	8"	Hickory	Carya ovata					X	
1813	9"	9"	White Oak	Quercus alba					X	
1814	6"	6"	Hickory	Carya ovata					X	
1815	6"	6"	American Elm	Ulmus americana					X	
1816	6"	6"	American Elm	Ulmus americana					X	
1817	17"	17"	Cottonwood	Populus deltoides					X	
1818	8"	8"	American Elm	Ulmus americana					X	
1819	7"	7"	American Elm	Ulmus americana					X	
1820	7"	7"	Silver Maple	Acer saccharinum					X	
1821	9"	9"	American Elm	Ulmus americana					X	
1822	10"	10"	Silver Maple	Acer saccharinum					X	
1823	8"	11"	Silver Maple	Acer saccharinum	twin				X	
1824	7"	7"	American Elm	Ulmus americana					X	
1825	15"	21"	Silver Maple	Acer saccharinum	twin				X	
1826	9"	13"	Silver Maple	Acer saccharinum	twin				X	
1827	8"	8"	Silver Maple	Acer saccharinum					X	
1828	17"	17"	American Elm	Ulmus americana					X	
1829	7"	7"	Hickory	Carya ovata					X	
1830	29"	29"	Red Oak	Quercus rubra				X	X	
1831	33"	33"	Red Oak	Quercus rubra				X	X	
1832	6"	6"	Red Oak	Quercus rubra					X	
1833	8"	8"	Hop-Hornbeam	Ostrya virginia				X	X	
1834	6"	6"	Red Oak	Quercus rubra					X	
1835	21"	21"	White Oak	Quercus alba				X	X	
1836	17"	17"	White Oak	Quercus alba				X	X	
1837	14"	14"	White Oak	Quercus alba					X	
1838	17"	17"	Red Oak	Quercus rubra				X	X	
1839	7"	7"	Hickory	Carya ovata					X	
1840	9"	9"	Hickory	Carya ovata					X	
1841	8"	8"	Red Oak	Quercus rubra					X	
1842	6"	6"	Silver Maple	Acer saccharinum					X	
1843	8"	8"	Silver Maple	Acer saccharinum					X	
1844	14"	14"	Red Oak	Quercus rubra					X	
1845	6"	6"	Red Oak	Quercus rubra					X	
1846	16"	16"	Red Oak	Quercus rubra				X	X	
1847	8"	8"	American Elm	Ulmus americana					X	
1848	6"	6"	American Elm	Ulmus americana					X	
1849	6"	6"	Silver Maple	Acer saccharinum					X	
1850	9"	9"	American Elm	Ulmus americana					X	
1851	6"	6"	American Elm	Ulmus americana					X	
1852	7"	7"	Silver Maple	Acer saccharinum					X	
1853	6"	6"	American Elm	Ulmus americana					X	X
1854	9"	9"	American Elm	Ulmus americana					X	
1855	9"	9"	Silver Maple	Acer saccharinum					X	
1856	10"	10"	Red Oak	Quercus rubra					X	
1857	7"	7"	Hickory	Carya ovata					X	
1858	6"	6"	Hickory	Carya ovata					X	
1859	8"	8"	Hickory	Carya ovata					X	
1860	7"	7"	Red Oak	Quercus rubra					X	
1861	10"	10"	Red Oak	Quercus rubra					X	
1862	13"	13"	White Oak	Quercus alba					X	
1863	19"	19"	White Oak	Quercus alba					X	
1864	17"	17"	Red Oak	Quercus rubra				X	X	
1865	7"	7"	Red Oak	Quercus rubra					X	
1866	11"	11"	Hickory	Carya ovata					X	
1867	12"	17"	Hickory	Carya ovata	twin				X	
1868	13"	13"	Hickory	Carya ovata					X	
1869	18"	18"	White Oak	Quercus alba				X	X	
1870	18"	18"	Red Oak	Quercus rubra				X	X	
1871	11"	11"	Red Oak	Quercus rubra					X	
1872	6"	6"	Hickory	Carya ovata					X	
1873	8"	8"	Silver Maple	Acer saccharinum					X	
1874	14"	14"	American Elm	Ulmus americana					X	
1875	24"	24"	Cottonwood	Populus deltoides				X	X	
1876	8"	8"	Hickory	Carya ovata					X	
1877	9"	9"	Red Oak	Quercus rubra					X	
1878	10"	10"	Red Oak	Quercus rubra					X	
1879	10"	10"	American Elm	Ulmus americana					X	
1880	10"	10"	Red Oak	Quercus rubra					X	
1881	8"	8"	Hickory	Carya ovata					X	
1882	10"	10"	Silver Maple	Acer saccharinum					X	
1883	7"	7"	Hickory	Carya ovata					X	
1884	10"	10"	Hickory	Carya ovata					X	
1885	8"	8"	Silver Maple	Acer saccharinum					X	
1886	6"	6"	Red Oak	Quercus rubra					X	
1887	10"	10"	Hickory	Carya ovata					X	
1888	8"	8"	Hickory	Carya ovata					X	
1889	6"	6"	Hickory	Carya ovata					X	
1890	16"	16"	Red Oak	Quercus rubra				X	X	
1891	15"	15"	Hickory	Carya ovata					X	

TAG#	DBH	DBH CUMUL	COMMON NAME	GENUS/SPECIES	STEM	SCORE	INV*	HERITAGE	WOOD	REMOVAL
1892	11"	11"	Hickory	Carya ovata					X	
1893	27"	27"	Red Oak	Quercus rubra		40%		X	X	
1894	6"	6"	Red Oak	Quercus rubra					X	
1895	6"	6"	Red Oak	Quercus rubra					X	
1896	38"	38"	White Oak	Quercus alba				X	X	
1897	7"	7"	American Elm	Ulmus americana					X	
1898	6"	6"	Hickory	Carya ovata					X	
1899	6"	6"	White Oak	Quercus alba					X	
1900	10"	10"	White Oak	Quercus alba					X	
1901	7"	7"	Hickory	Carya ovata					X	
1902	6"	6"	Hickory	Carya ovata					X	
1903	7"	10"	Red Oak	Quercus rubra	twin				X	
1904	6"	6"	Hickory	Carya ovata					X	
1905	8"	8"	Hickory	Carya ovata					X	X
1906	7"	7"	Hickory	Carya ovata					X	
1907	6"	6"	Hickory	Carya ovata					X	
1908	9"	13"	Silver Maple	Acer saccharinum	twin				X	
1909	6"	6"	American Elm	Ulmus americana					X	
1910	10"	10"	Red Oak	Quercus rubra					X	
1911	12"	12"	Silver Maple	Acer saccharinum					X	
1912	7"	7"	Silver Maple	Acer saccharinum					X	
1913	6"	6"	Silver Maple	Acer saccharinum					X	
1914	9"	9"	Silver Maple	Acer saccharinum					X	
1915	7"	7"	American Elm	Ulmus americana					X	
1916	23"	23"	Red Oak	Quercus rubra				X	X	X
1917	6"	6"	Silver Maple	Acer saccharinum					X	X
1918	6"	6"	Silver Maple	Acer saccharinum					X	X
1919	6"	6"	Silver Maple	Acer saccharinum					X	
1920	7"	7"	Silver Maple	Acer saccharinum					X	
1921	13"	13"	Silver Maple	Acer saccharinum					X	x
1922	7"	7"	American Elm	Ulmus americana					X	
1923	9"	9"	Silver Maple	Acer saccharinum					X	x
1924	8"	8"	American Elm	Ulmus americana					X	x
1925	7"	7"	Silver Maple	Acer saccharinum					X	
1926	12"	12"	Silver Maple	Acer saccharinum					X	
1927	8"	8"	Silver Maple	Acer saccharinum					X	
1928	7"	7"	Hickory	Carya ovata					X	
1929	9"	9"	Silver Maple	Acer saccharinum					X	
1930	13"	13"	Red Oak	Quercus rubra					X	
1931	17"	17"	Red Oak	Quercus rubra				X	X	
1932	9"	9"	Hickory	Carya ovata					X	
1933	7"	7"	Silver Maple	Acer saccharinum					X	X
1934	9"	9"	Silver Maple	Acer saccharinum					X	X
1935	8"	8"	Silver Maple	Acer saccharinum					X	
1936	8"	8"	Silver Maple	Acer saccharinum					X	
1937	7"	7"	Silver Maple	Acer saccharinum					X	
1938	8"	11"	Silver Maple	Acer saccharinum	twin				X	
1939	7"	7"	Silver Maple	Acer saccharinum					X	
1940	13"	13"	Red Oak	Quercus rubra					X	
1941	9"	13"	Red Oak	Quercus rubra	twin				X	
1942	7"	7"	Hickory	Carya ovata					X	
1943	10"	10"	Hickory	Carya ovata					X	
1944	10"	10"	Hickory	Carya ovata					X	X
1945	9"	9"	Hickory	Carya ovata					X	
1946	9"	9"	Hickory	Carya ovata					X	
1947	8"	8"	Hickory	Carya ovata					X	
1948	32"	32"	Red Oak	Quercus rubra				X	X	
1949	10"	10"	Red Oak	Quercus rubra					X	
1950	9"	9"	Hickory	Carya ovata					X	
1951	11"	11"	Red Oak	Quercus rubra					X	
1952	23"	23"	Red Oak	Quercus rubra				X	X	
1953	35"	35"	Red Oak	Quercus rubra				X	X	
1954	12"	12"	Hickory	Carya ovata					X	
1955	16"	16"	Hickory	Carya ovata				X	X	
1956	6"	6"	Red Oak	Quercus rubra					X	
1957	9"	9"	Red Oak	Quercus rubra					X	
1958	10"	10"	Hickory	Carya ovata					X	
1959	7"	7"	Hickory	Carya ovata					X	
1960	27"	27"	Cottonwood	Populus deltoides				X	X	
1961	8"	8"	Cottonwood	Populus deltoides					X	
1962	8"	8"	Hickory	Carya ovata					X	
1963	8"	8"	Hickory	Carya ovata					X	
1964	7"	10"	Red Oak	Quercus rubra	twin				X	
1965	7"	7"	Silver Maple	Acer saccharinum					X	
1966	12"	12"	Red Oak	Quercus rubra					X	
1967	7"	7"	Black Cherry	Prunus serotina					X	
1968	8"	8"	Red Oak	Quercus rubra					X	
1969	6"	6"	Silver Maple	Acer saccharinum					X	
1970	13"	13"	Cottonwood	Populus deltoides					X	
1971	11"	11"	Cottonwood	Populus deltoides					X	
1972	10"	10"	American Elm	Ulmus americana					X	
1973	9"	9"	Red Oak	Quercus rubra						
1974	9"	9"	Silver Maple	Acer saccharinum						X
1975	11"	11"	Silver Maple	Acer saccharinum						X
1976	8"	8"	Red Oak	Quercus rubra						X
1977	8"	8"	American Elm	Ulmus americana						
1978	8"	11"	Silver Maple	Acer saccharinum	twin					X
1979	11"	11"	White Pine	Pinus strobus						X
1980	6"	6"	White Pine	Pinus strobus						X
1981	9"	9"	Black Cherry	Prunus serotina						X
1982	7"	7"	Black Cherry	Prunus serotina						X
1983	13"	13"	N. Pin Oak	Quercus palustris						X
1984	7"	7"	Silver Maple	Acer saccharinum						X
1985	8"	8"	American Elm	Ulmus americana						X
1986	11"	11"	Silver Maple	Acer saccharinum						X
1987	7"	7"	Black Cherry	Prunus serotina						X
1988	7"	7"	Silver Maple	Acer saccharinum						X
1989	15"	15"	Red Oak	Quercus rubra					X	X
1990	22"	22"	Red Oak	Quercus rubra				X	X	X
1991	11"	11"	Red Oak	Quercus rubra					X	X
1992	7"	7"	Silver Maple	Acer saccharinum					X	X
1993	6"	6"	Black Cherry	Prunus serotina					X	X
1994	8"	8"	Silver Maple	Acer saccharinum					X	X
1995	8"	8"	Silver Maple	Acer saccharinum					X	X
1996	8"	8"	American Elm	Ulmus americana					X	X
1997	7"	10"	Wild Plum	Prunus americana	twin				X	X
1998	9"	9"	N. Pin Oak	Quercus palustris					X	X
1999	8"	8"	N. Pin Oak	Quercus palustris					X	X
2000	9"	9"	Red Oak	Quercus rubra					X	X

*INV = invasive per the Pittsfield Township Weeds and Invasive Plant List
Bold = Trees within property lines
Italics = Trees outside of property lines

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INDIANAPOLIS, INDIANA 46256
GREG O'HERREN
(317) 590-4713

SHAMROCK SELF STORAGE
PRELIMINARY SITE PLAN
TREE LIST

3

DATE: 1/6/20
SHEET 3 OF 18
CADD:
ENG: HTH
PM: HTH
TECH:
/18354EX1

JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/16/20
PER MUNICIPAL REVIEW	4/6/20

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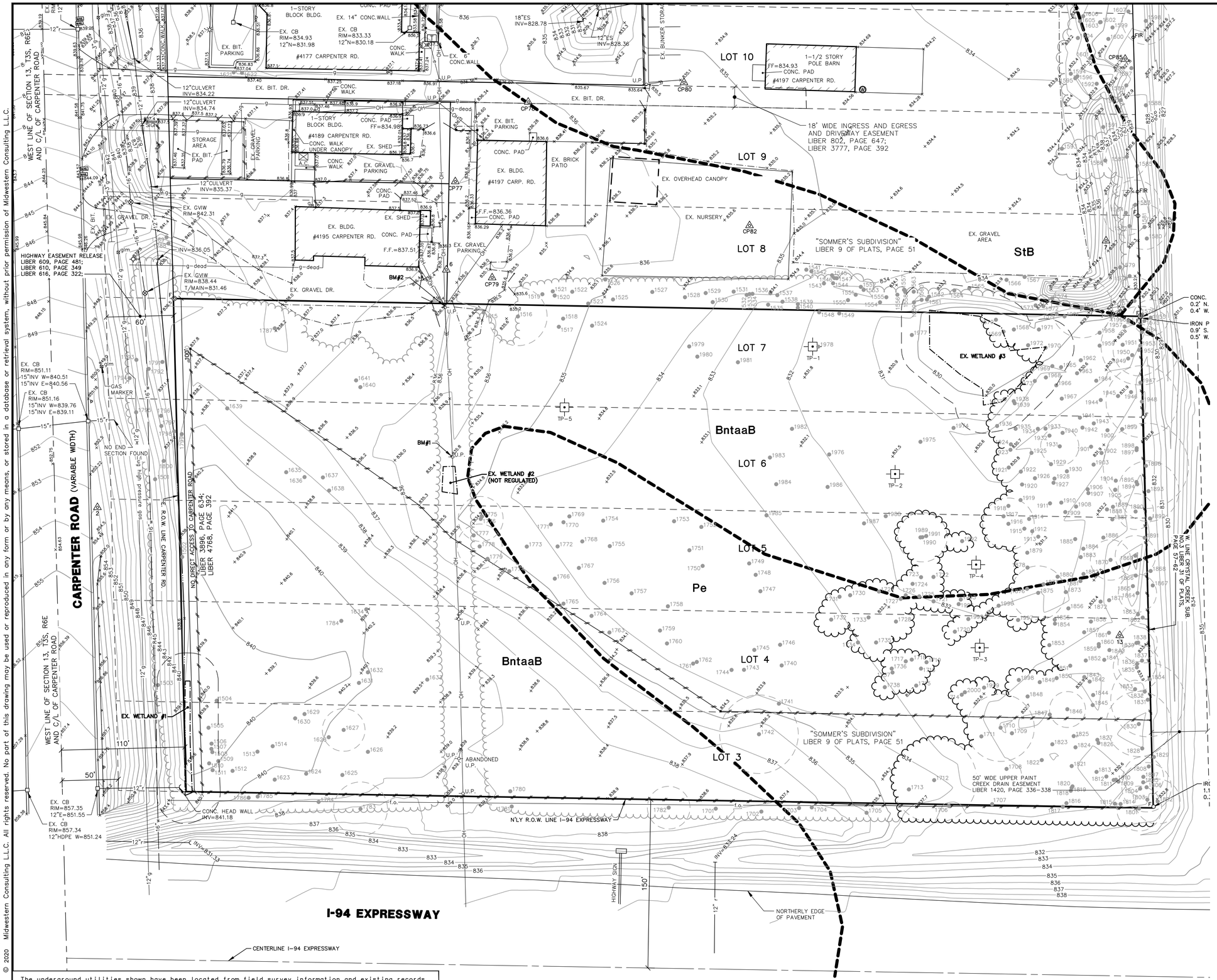

Know what's below. Call before you dig.

NOTE

1. THE BASE SURVEY WAS PREPARED BY MIDWESTERN CONSULTING IN JANUARY 2019. ALL UNDERGROUND UTILITIES AND STRUCTURES HAVE BEEN SHOWN TO A REASONABLE DEGREE OF ACCURACY AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING WORK.
2. WETLAND DELINEATION WAS PERFORMED BY MARX WETLANDS, LLC ON NOVEMBER 27, 2019. TWO EGLE/PITTSFIELD TOWNSHIP REGULATED WETLANDS AND ONE TOWNSHIP REGULATED WETLAND WERE IDENTIFIED ON THE SITE.

BENCHMARKS

BM#1 – SPIKE IN UTILITY POLE ±350' EAST OF CENTERLINE CARPENTER ROAD AND ±300' NORTH OF NORTH R.O.W. LINE I-94.
ELEVATION=837.19 (NAVD 88)

BM#2 – SPIKE IN SOUTH FACE OF UTILITY POLE ±350' EAST OF CENTERLINE CARPENTER ROAD AND ALONG NORTH PROPERTY LINE.
ELEVATION=836.44 (NAVD 88)

SOILS LEGEND

BASED ON SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN

BntaaB – BLOUNT LOAM, 2 TO 6 PERCENT SLOPES
Pe – PEWAMO CLAY LOAM, 0 TO 2 PERCENT SLOPES
StB – ST. CLAIR CLAY LOAM, 2 TO 6 PERCENT SLOPES

LEGEND

838	EXIST. CONTOUR
×836.2	EXIST. SPOT ELEVATION
U.P.	EXIST. UTILITY POLE
	GUY WIRE
	ELEC. TRANSFORMER
	EXIST. GENERATOR
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
	EXIST. HYDRANT
	EXIST. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
r	EXIST. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	END SECTION
	HEAD WALL
	CULVERT
	C/L OF DITCH
	SIGN
MBX	MAILBOX
t	TELEPHONE RISER
e	ELECTRIC METER
w	WATER METER
g	GAS METER
gm	GAS LINE MARKER
fiber	FIBER OPTIC MARKER
	POST
W	WELL
	FENCE
	GUARDRAIL
	SINGLE TREE
	TREE OR BRUSH LIMIT
	TOWNSHIP REGULATED WOODLAND
	SECTION CORNER
TP-1	TEST PIT LOCATION
F	FOUND IRON PIPE
F	FOUND MONUMENT
FIR	FOUND IRON ROD
	CONTROL PT.
	LIMITS OF DISTURBANCE
	WETLAND
	WETLAND BUFFER
	SOIL BOUNDARY
MdA	SOIL TYPE

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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
EXISTING CONDITIONS

4

DATE: 1/6/20
SHEET 4 OF 18
CADD:
ENG: HTH
PM: HTH
TECH:
/18354EX1

JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/6/20
PER MUNICIPAL REVIEW	4/6/20

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

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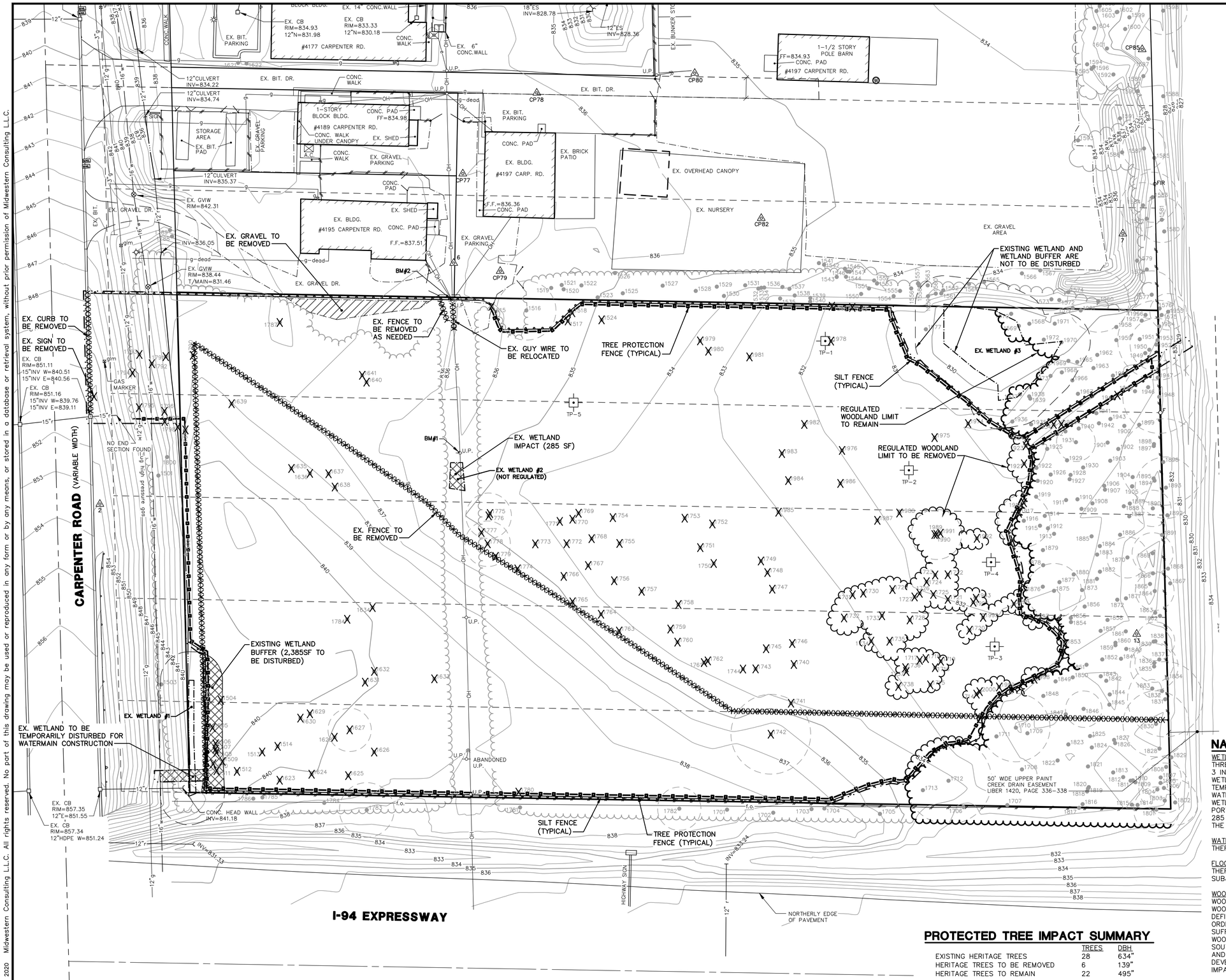
M:\Civil3d_Proj\18354\Site Plan\18354EX1.dwg, 4/6/2020 4:06 PM, Heath Hartt, 4 EXISTING CONDITIONS, MCLLC PDF.pc3



Know what's below. Call before you dig.

SCALE: 1" = 40'

0 40 80 120

LEGEND

838	EXIST. CONTOUR
U.P.	EXIST. UTILITY POLE
	GUY WIRE
	ELEC. TRANSFORMER
	EXIST. AC UNIT
	EXIST. GENERATOR
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
	EXIST. HYDRANT
	EXIST. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
r	EXIST. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	END SECTION
	HEAD WALL
	CULVERT
ds	EXIST. DOWNSPOUT
s	EXIST. SANITARY SEWER
	EXIST. CLEANOUT
	C/L OF DITCH
	SIGN
MAIL	MAILBOX
t	TELEPHONE RISER
e	ELECTRIC METER
w	WATER METER
g	GAS METER
glm	GAS LINE MARKER
fiber	FIBER OPTIC MARKER
	POST
	FENCE
	GUARDRAIL
	SINGLE TREE
	TREE OR BRUSH LIMIT
	TOWNSHIP REGULATED WOODLAND TO BE REMOVED
	TOWNSHIP REGULATED WOODLAND TO BE REMAIN
	TREE PROTECTION FENCE
	SILT FENCE
	LIMITS OF DISTURBANCE
	WETLAND
	WETLAND BUFFER
	GRAVEL TO BE REMOVED
	ITEM TO BE REMOVED
	CURB TO BE REMOVED
X	TREE TO BE REMOVED
	WETLAND/WETLAND BUFFER IMPACT AREA

NATURAL FEATURES IMPACT STATEMENT

WETLANDS
THREE WETLANDS HAVE BEEN IDENTIFIED ON THE PROPERTY. WETLAND 3 IN THE NORTHEAST CORNER OF THE SITE IS TO BE PRESERVED. WETLAND 1 IN THE SOUTHWEST CORNER OF THE SITE WILL BE TEMPORARILY DISTURBED FOR CONSTRUCTION OF THE PROPOSED WATERMAIN. THE WETLAND IS TO BE FULLY RESTORED. 2,385 SF OF WETLAND 1 BUFFER WILL BE DISTURBED. WETLAND 2 IN THE CENTRAL PORTION OF THE SITE WILL BE REMOVED WITH THE DEVELOPMENT. THE 285 SF WETLAND IS OF LOW QUALITY AND IS NOT REGULATED. SEE THE WETLAND DELINEATION REPORT FOR ADDITIONAL INFORMATION.

WATERCOURSES
THERE ARE NO WATERCOURSES LOCATED WITHIN THE SUBJECT PARCEL.

FLOODWAY AND FLOODPLAIN
THERE IS NO FLOODWAY OR 100-YR FLOODPLAIN LOCATED WITHIN THE SUBJECT PARCEL.

WOODLAND AND HERITAGE TREES
WOODLAND AND HERITAGE TREES HAVE BEEN IDENTIFIED ON SITE. THE WOODLAND LIMITS HAVE BEEN IDENTIFIED BASED ON THE WOODLAND DEFINITION IN SECTION 14.08.C IN THE PITTSFIELD TOWNSHIP ZONING ORDINANCE. THE REMAINDER OF THE TREES ON SITE DO NOT HAVE THE SUFFICIENT CANOPY COVER AND DENSITY TO CREATE A CONTIGUOUS WOODLAND. A PORTION OF THE WOODLAND IN THE NORTHEAST AND SOUTHEAST CORNERS OF THE SITE ARE TO BE PRESERVED. HERITAGE AND WOODLAND TREE IMPACTS ARE PROPOSED WITHIN THE DEVELOPMENT, SPECIFICS OF WHICH CAN BE FOUND IN THE TREE IMPACT SUMMARY TABLE AND ON THE TREE LIST ON SHEET 3.

STEEP SLOPES
THERE ARE NO STEEP SLOPES LOCATED WITHIN THE SUBJECT PARCEL.

ENDANGERED SPECIES
ENDANGERED THREATENED OR SPECIAL CONCERN SPECIES ARE NOT KNOWN TO EXIST ON THE SITE.

PROTECTED TREE IMPACT SUMMARY

	TREES	DBH
EXISTING HERITAGE TREES	28	634"
HERITAGE TREES TO BE REMOVED	6	139"
HERITAGE TREES TO REMAIN	22	495"
EXISTING WOODLAND TREES ≥ 6"	193	1716"
WOODLAND TREES TO BE REMOVED	45	396"
WOODLAND TREES TO REMAIN	148	1,320"

*NOTE: ONLY INCLUDES TREES ON THE PROPERTY

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M:\Civil3d_Proj\18354\Site Plan\18354NW1.dwg, 4/6/2020 4:06 PM, Heath Hartt, 5 REMOVAL PLAN, MCLLC PDF.pc3
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SHAMROCK SELF STORAGE

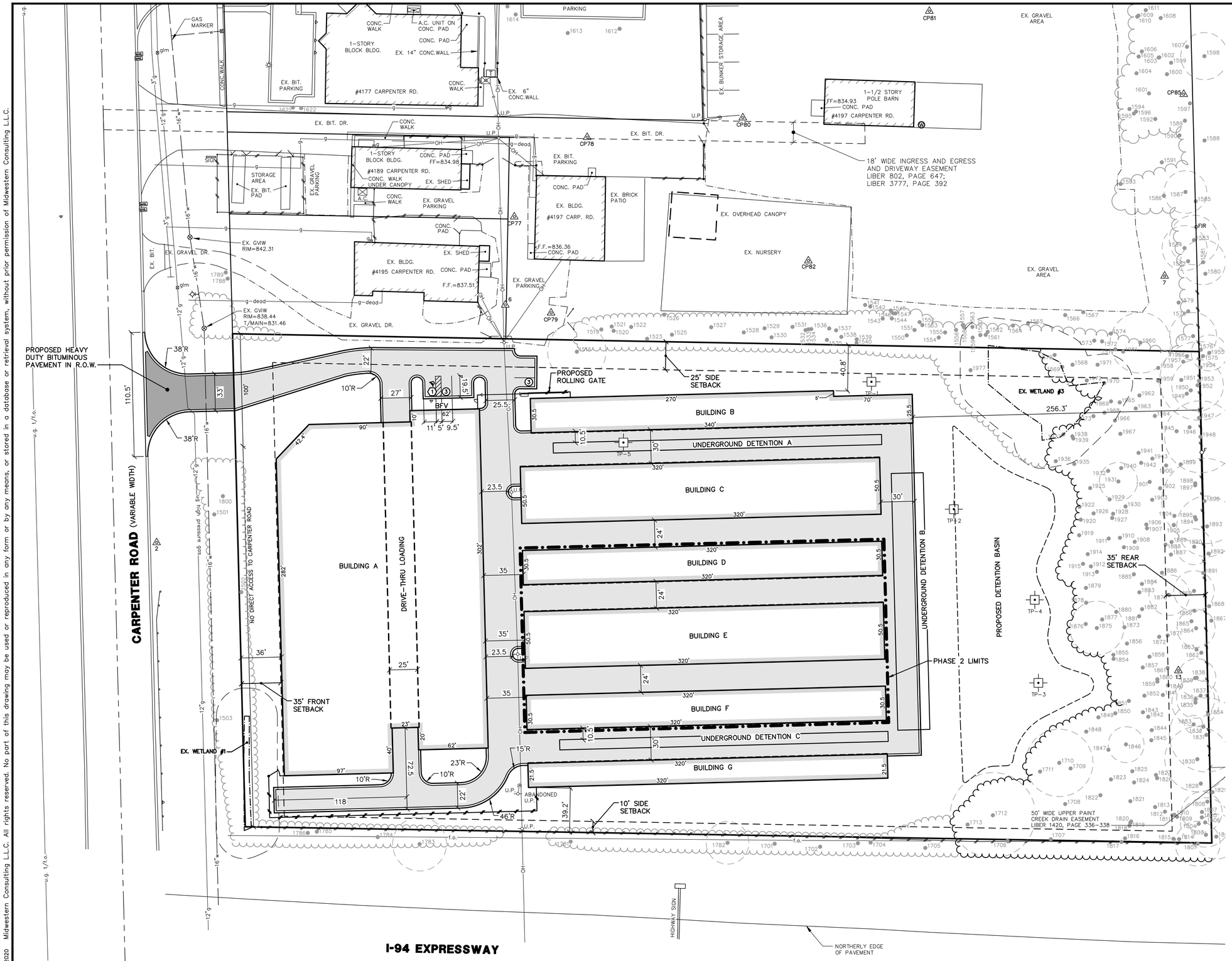
PRELIMINARY SITE PLAN
REMOVAL PLAN

5

DATE: 1/6/20
SHEET 5 OF 18
CADD:
ENG: HTH
PM: HTH
TECH:
/18354NW1

JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/6/20
PER MUNICIPAL REVIEW	4/6/20



SCALE: 1" = 40'

0 40 80 120

811 Know what's below. Call before you dig.

NOTES

1. ALL CURB RADII DIMENSIONS ARE TO BACK OF CURB AND ALL DIMENSIONS ARE TO FACE OF CURB, UNLESS OTHERWISE SPECIFIED.
2. ALL BACK OF CURB RADII IS 5 FEET, UNLESS SPECIFIED OTHERWISE.
3. SEE ARCHITECTURAL DRAWINGS FOR DETAILED BUILDING DIMENSIONS.

LEGEND

- (2) NUMBER OF STANDARD PARKING SPACES IN ROW
- (1) NUMBER OF BARRIER FREE PARKING SPACES IN ROW
- BF BARRIER FREE PARKING SIGN
- BFV VAN ACCESSIBLE BARRIER FREE PARKING SIGN
- PROP. CURB & GUTTER
- PROP. BITUMINOUS PAVEMENT
- PROP. HEAVY DUTY BITUMINOUS PAVEMENT
- SIGN
- PROP. SINGLE LIGHT
- PROP. DOUBLE LIGHT
- FENCE

PHASING PLAN

THE PROJECT IS PROPOSED TO BE A PHASED PROJECT.

PHASE 1 WILL INCLUDE ALL GRADING UTILITIES, STORMWATER DETENTION, PERIMETER CURBING AND PAVEMENT OUTSIDE THE FENCED AREA. ALL TREE MITIGATION PLANTINGS WILL BE COMPLETED IN PHASE 1. TEMPORARY GRAVEL SURFACE WILL BE PLACED WITHIN THE FENCED AREA TO PROVIDE DRAINAGE TO THE STORMWATER SYSTEMS.

PHASE 2 WILL INCLUDE THE CONSTRUCTION OF BUILDINGS D, E & F. PAVING OPERATION WILL BE COMPLETED WITHIN THE FENCED AREA.

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M:\Civil3dLPro\18354\Site Plan\18354SP1.dwg, 4/6/2020 8:20 PM, Heath Hartt, 6 DIMENSIONAL SITE PLAN, MCLLC PDF.pc3
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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
DIMENSIONAL SITE PLAN
AND PHASING PLAN

6

DATE: 1/6/20
SHEET 6 OF 18
CADD:
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PM: HTH
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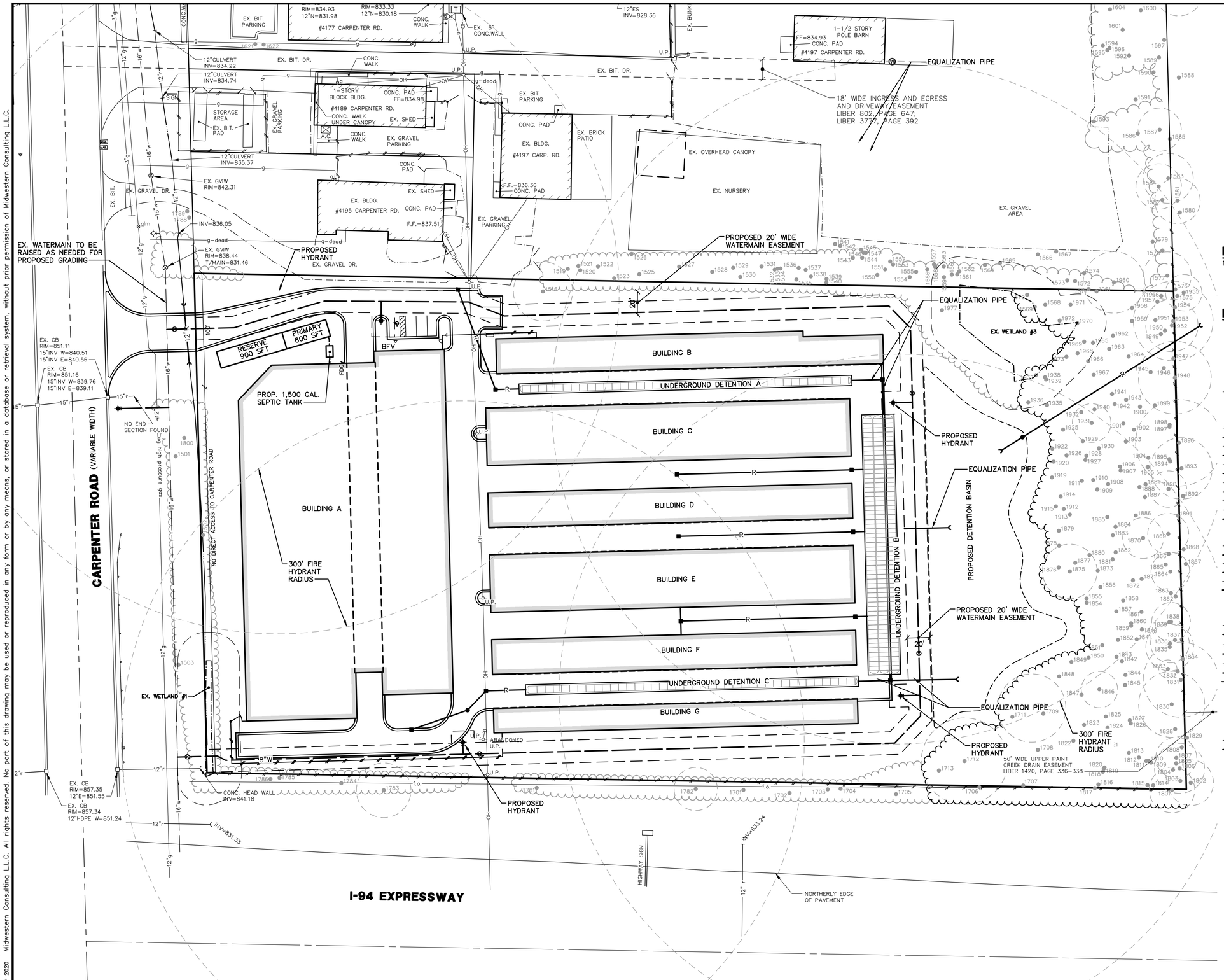
JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/6/20
PER MUNICIPAL REVIEW	4/6/20



SCALE: 1" = 40'

0 40 80 120

811 Know what's below. Call before you dig.

NOTES

1. ALL UTILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH PITTSFIELD TOWNSHIP STANDARD DETAILS AND SPECIFICATIONS UNLESS NOTED OTHERWISE.

LEGEND

U.P.	EXIST. UTILITY POLE
U.P.	EXIST. UTILITY POLE W/ TRANS.
GP	EXIST. GUY POLE
	GUY WIRE
	ELEC. TRANSFORMER
	EXIST. AC UNIT
	EXIST. GENERATOR
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
	PROP. LIGHT POLE
	PROP. BUILDING LIGHT
t	EXIST. TELEPHONE LINE
T	PROP. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
E	PROP. ELECTRIC LINE
g	EXIST. GAS LINE
G	PROP. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
F.O.	PROP. FIBER OPTIC LINE
w	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	PROP. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
	PROP. CURB STOP & BOX
fdc	EXIST. FIRE DEPARTMENT CONNECTION
FDC	PROP. FIRE DEPARTMENT CONNECTION
KB	PROP. KNOXBOX
r	EXIST. STORM SEWER
R	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
	EXIST. BEEHIVE INLET
	PROP. BEEHIVE INLET
RD	PROP. ROOF DRAIN
	END SECTION
	HEAD WALL
	CULVERT
ds	EXIST. DOWNSPOUT
DS	PROP. DOWNSPOUT
s	EXIST. SANITARY SEWER
S	PROP. SANITARY SEWER
	EXIST. CLEANOUT
	PROP. CLEANOUT
t	TELEPHONE RISER
e	ELECTRIC METER
w	WATER METER
scb	SPRINKLER CONTROL BOX
g	GAS METER
glm	GAS LINE MARKER
fiber	FIBER OPTIC MARKER
W	WELL

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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
UTILITY PLAN

7

JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/6/20
PER MUNICIPAL REVIEW	4/6/20

DATE: 1/6/20
SHEET 7 OF 18
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M:\Civil3d_Proj\18354\Site Plan\18354UP1.dwg, 4/6/2020 4:07 PM, Heath Hartt, 7 UTILITY PLAN, MCLLC PDF.pc3
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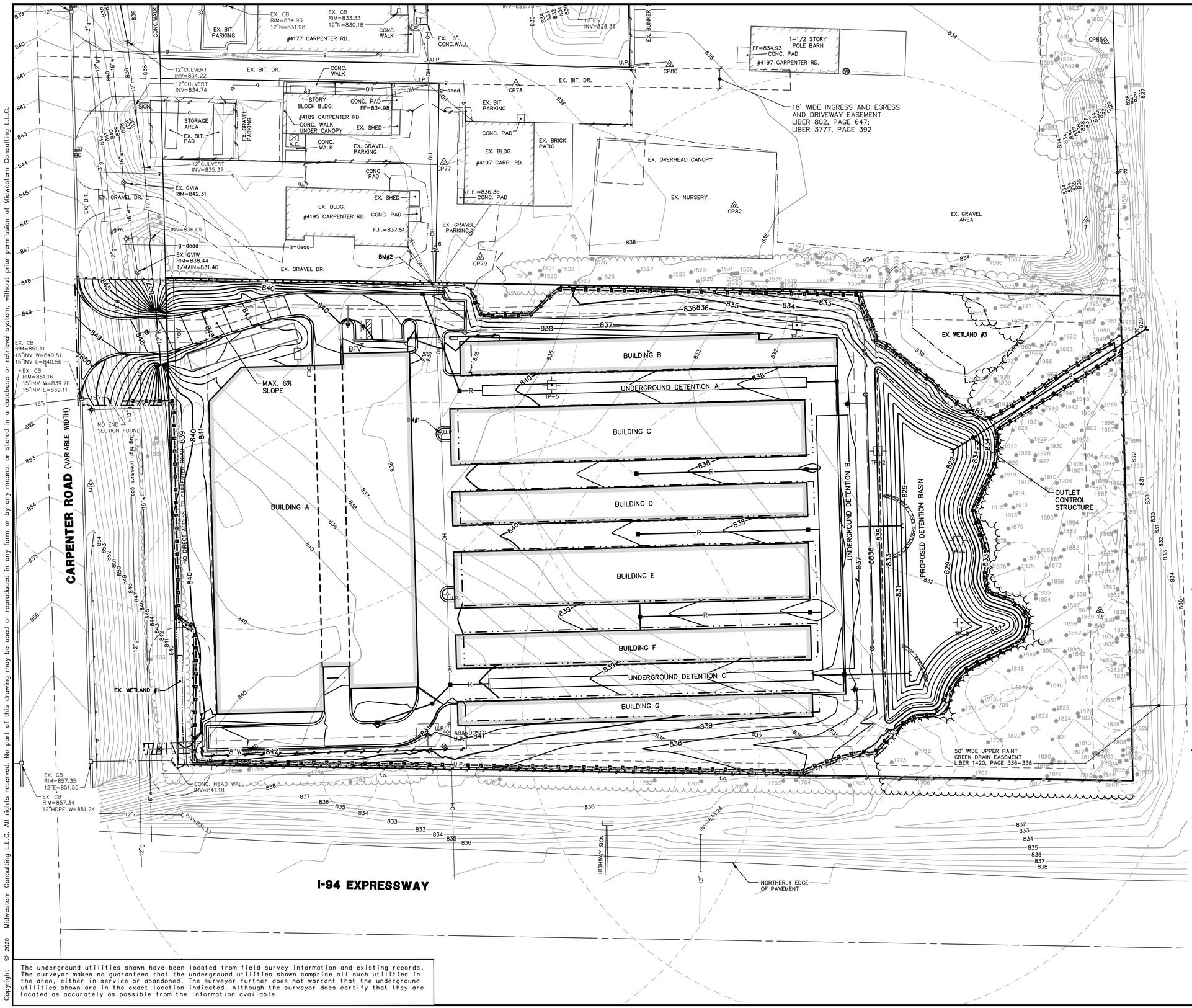

SCALE: 1" = 40'

0 40 80 120

811 Know what's below. Call before you dig.

LEGEND

838	EXIST. CONTOUR
838	PROP. CONTOUR
×836.2	EXIST. SPOT ELEVATION
36.60×	PROP. SPOT ELEVATION
U.P.	EXIST. UTILITY POLE
U.P.	EXIST. UTILITY POLE W/ TRANS.
	GUY WIRE
	ELEC. TRANSFORMER
	EXIST. AC UNIT
	EXIST. GENERATOR
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
	PROP. LIGHT POLE
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	PROP. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
	PROP. CURB STOP & BOX
P.I.V.	POST INDICATOR VALVE
KB	PROP. KNOXBOX
FDC	PROP. FIRE DEPARTMENT CONNECTION
r	EXIST. STORM SEWER
R	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
	EXIST. BEEHIVE INLET
	PROP. BEEHIVE INLET
RD	PROP. ROOF DRAIN
	END SECTION
	HEAD WALL
	CULVERT
DS	PROP. DOWNSPOUT
s	EXIST. SANITARY SEWER
S	PROP. SANITARY SEWER
	EXIST. CLEANOUT
	PROP. CLEANOUT
	C/L OF DITCH
	DRAINAGE DIRECTION
	SIGN
	SINGLE TREE
	TREE OR BRUSH LIMIT
	FENCE
	SILTFENCE
	LIMITS OF DISTURBANCE
	CONSTRUCTION FENCE
FF	FINISH FLOOR ELEVATION
	WETLAND
	WETLAND BUFFER

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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
GRADING PLAN

8

DATE: 1/6/20
SHEET 8 OF 18
CADD:
ENG: HTH
PM: HTH
TECH:
/18354GP1

JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/27/20
PER MUNICIPAL REVIEW	4/6/20

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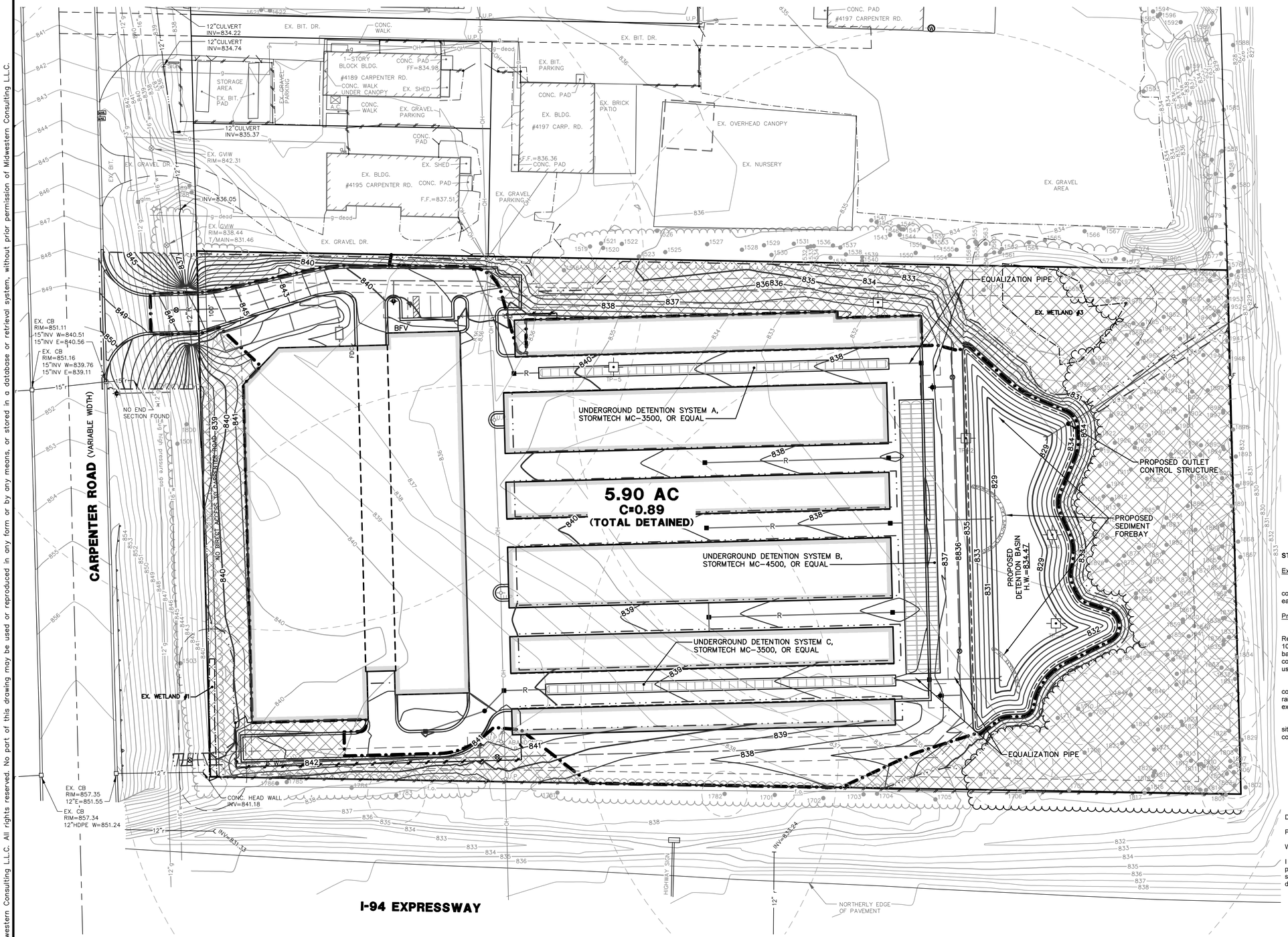

SCALE: 1" = 40'

0 40 80 120

811 Know what's below. Call before you dig.

LEGEND

838	EXIST. CONTOUR
838	PROP. CONTOUR
U.P.	EXIST. UTILITY POLE
	GUY WIRE
	ELEC. TRANSFORMER
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
r	EXIST. STORM SEWER
R	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
R	PROP. ROOF DRAIN
UD	PROP. ROOF DRAIN
	END SECTION
DS	PROP. DOWNSPOUT
	POST
	FENCE
	SINGLE TREE
	TREE OR BRUSH LIMIT
	LIMITS OF DISTURBANCE
	DRAINAGE AREA BOUNDARY
1.90 AC	DRAINAGE AREA IN ACRES
C=0.34	DRAINAGE AREA RUNOFF COEFFICIENT
	ON-SITE DRAINAGE NOT DETAINED

STORM WATER NARRATIVE

Existing Drainage Patterns

The existing site drainage patterns generally flows with gentle slopes to the northeast corner of the site towards an existing wetland. A portion of the property to the southeast and east drains into a county drain east of the property.

Proposed Drainage Patterns

The proposed detention system is designed to meet the Washtenaw County Water Resources Commission (Revised October 17, 2016) requirements for first flush, bank full and 100-year storm events. Detention volume will be provided with two underground detention basins and an above ground detention basin. The storm water runoff from the contributing/developed areas of the property are directed to the detention systems through the use of grass swales and underground storm sewer systems.

The detention system will have discharge controlled to the allowable flows using a control structure with holes at various levels to provide the required detention volumes during rainfall events with varying intensities. The outlet structure has an outlet pipe directed to an existing county drain east of the property.

A portion of the proposed site discharges directly into the existing wetland as the existing site drainage patterns did historically. Additionally, the southeast corner of the site drains to the county drain.

ENGINEER'S CERTIFICATE OF OUTLET

Date: 3/13/2020

Development Name: Shamrock Self Storage

Pittsfield Charter Township, Section 13, T3S, R6E

Washtenaw County, Michigan

I hereby certify that the existing drain is the only reasonable available stormwater outlet for the proposed stormwater management system and that the existing drain has sufficient capacity to serve as an adequate outlet for the proposed system, without detriment to, or diminution of, the drainage service that the existing outlet presently provides.

Signed: Heath Hartt

Registered Professional Engineer

STATE OF MICHIGAN HEATH HARTT ENGINEER No. 56247 LICENSED PROFESSIONAL ENGINEER

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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
STORMWATER MANAGEMENT PLAN

9

DATE: 1/6/20
SHEET 9 OF 18
CADD:
ENG: HTH
PM:
TECH:
/18354DA1

JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/13/20
PER MUNICIPAL REVIEW	4/9/20

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STORAGE VOLUME - UNDERGROUND DETENTION A

Project: Shamrock Self Storage

StormTech — Detention • Retention • Water Quality — A division of ADS

Chamber Model -	MC-3500	
Units -	Imperial	
Number of Chambers -	40	
Number of End Caps -	2	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	829.84	ft
Amount of Stone Above Chambers -	12	in
Amount of Stone Below Chambers -	9	in
Amount of Stone Between Chambers -	9	in

☐ Include Perimeter Stone in Calculations

StormTech MC-3500 Cumulative Storage Volumes

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch, EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
66	0.00	0.00	0.00	0.00	69.60	69.60	7250.38	835.34
65	0.00	0.00	0.00	0.00	69.60	69.60	7180.78	835.26
64	0.00	0.00	0.00	0.00	69.60	69.60	7111.17	835.17
63	0.00	0.00	0.00	0.00	69.60	69.60	7041.57	835.09
62	0.00	0.00	0.00	0.00	69.60	69.60	6971.97	835.01
61	0.00	0.00	0.00	0.00	69.60	69.60	6902.37	834.92
60	0.00	0.00	0.00	0.00	69.60	69.60	6832.77	834.84
59	0.00	0.00	0.00	0.00	69.60	69.60	6763.17	834.76
58	0.00	0.00	0.00	0.00	69.60	69.60	6693.56	834.67
57	0.00	0.00	0.00	0.00	69.60	69.60	6623.96	834.59
56	0.00	0.00	0.00	0.00	69.60	69.60	6554.36	834.51
55	0.00	0.00	0.00	0.00	69.60	69.60	6484.76	834.42
54	0.06	0.00	2.32	0.00	68.67	71.00	6415.16	834.34
53	0.19	0.02	7.76	0.05	66.48	74.29	6344.16	834.26
52	0.29	0.04	11.76	0.08	64.87	76.70	6269.87	834.17
51	0.40	0.05	16.15	0.10	63.10	79.35	6193.17	834.09
50	0.69	0.07	27.49	0.14	58.55	86.17	6113.82	834.01
49	1.03	0.09	41.13	0.18	53.08	94.39	6027.65	833.92
48	1.25	0.11	49.98	0.21	49.52	99.72	5933.26	833.84
47	1.42	0.13	56.89	0.25	46.74	103.89	5833.54	833.76
46	1.57	0.14	62.93	0.29	44.32	107.53	5729.66	833.67
45	1.71	0.16	68.29	0.33	42.16	110.77	5622.13	833.59
44	1.83	0.18	73.14	0.36	40.20	113.70	5511.36	833.51
43	1.94	0.20	77.51	0.40	38.44	116.35	5397.65	833.42
42	2.04	0.22	81.63	0.44	36.77	118.84	5281.31	833.34
41	2.13	0.23	85.39	0.47	35.26	121.12	5162.46	833.26
40	2.22	0.25	88.97	0.50	33.81	123.28	5041.35	833.17
39	2.31	0.27	92.27	0.53	32.48	125.28	4918.06	833.09
38	2.38	0.28	95.39	0.56	31.22	127.17	4792.78	833.01
37	2.46	0.29	98.36	0.59	30.02	128.97	4665.61	832.92
36	2.53	0.31	101.13	0.62	28.90	130.65	4536.64	832.84
35	2.59	0.32	103.75	0.64	27.84	132.24	4405.99	832.76
34	2.66	0.33	106.24	0.67	26.84	133.75	4273.75	832.67
33	2.72	0.35	108.60	0.69	25.88	135.18	4140.00	832.59
32	2.77	0.36	110.85	0.72	24.97	136.54	4004.82	832.51
31	2.82	0.37	112.99	0.74	24.11	137.84	3868.28	832.42
30	2.88	0.38	115.02	0.77	23.29	139.07	3730.44	832.34
29	2.92	0.40	116.97	0.79	22.50	140.26	3591.36	832.26
28	2.97	0.41	118.80	0.82	21.76	141.37	3451.11	832.17
27	3.01	0.42	120.50	0.84	21.07	142.40	3309.74	832.09
26	3.05	0.43	122.13	0.86	20.41	143.40	3167.34	832.01
25	3.09	0.44	123.77	0.88	19.74	144.39	3023.94	831.92
24	3.13	0.45	125.22	0.90	19.15	145.28	2879.55	831.84
23	3.17	0.46	126.63	0.92	18.58	146.13	2734.27	831.76
22	3.20	0.47	127.98	0.94	18.03	146.95	2588.14	831.67
21	3.23	0.48	129.24	0.96	17.52	147.72	2441.19	831.59
20	3.26	0.49	130.46	0.98	17.03	148.46	2293.47	831.51
19	3.29	0.50	131.61	1.00	16.56	149.17	2145.00	831.42
18	3.32	0.51	132.72	1.01	16.11	149.84	1995.84	831.34
17	3.34	0.51	133.76	1.03	15.68	150.48	1846.00	831.26
16	3.37	0.52	134.74	1.04	15.29	151.07	1695.52	831.17
15	3.39	0.53	135.70	1.06	14.90	151.66	1544.45	831.09
14	3.41	0.54	136.58	1.07	14.54	152.19	1392.79	831.01
13	3.44	0.54	137.48	1.09	14.17	152.74	1240.59	830.92
12	3.46	0.55	138.31	1.10	13.84	153.25	1087.85	830.84
11	3.48	0.56	139.15	1.11	13.50	153.76	934.61	830.76
10	3.51	0.59	140.20	1.19	13.04	154.44	780.85	830.67
9	0.00	0.00	0.00	0.00	69.60	69.60	626.41	830.59
8	0.00	0.00	0.00	0.00	69.60	69.60	556.81	830.51
7	0.00	0.00	0.00	0.00	69.60	69.60	487.21	830.42
6	0.00	0.00	0.00	0.00	69.60	69.60	417.61	830.34
5	0.00	0.00	0.00	0.00	69.60	69.60	348.01	830.26
4	0.00	0.00	0.00	0.00	69.60	69.60	278.41	830.17
3	0.00	0.00	0.00	0.00	69.60	69.60	208.80	830.09
2	0.00	0.00	0.00	0.00	69.60	69.60	139.20	830.01
1	0.00	0.00	0.00	0.00	69.60	69.60	69.60	829.92

STORAGE VOLUME - UNDERGROUND DETENTION B

Project: Shamrock Self Storage

StormTech — Detention • Retention • Water Quality — A division of ADS

Chamber Model -	MC-4500	
Units -	Imperial	
Number of Chambers -	165	
Number of End Caps -	6	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	829.00	ft
Amount of Stone Above Chambers -	12	in
Amount of Stone Below Chambers -	9	in

☐ Include Perimeter Stone in Calculations

StormTech MC-4500 Cumulative Storage Volumes

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch, EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
81	0.00	0.00	0.00	0.00	207.86	207.86	27522.87	835.75
80	0.00	0.00	0.00	0.00	207.86	207.86	27315.01	835.67
79	0.00	0.00	0.00	0.00	207.86	207.86	27107.15	835.58
78	0.00	0.00	0.00	0.00	207.86	207.86	26899.30	835.50
77	0.00	0.00	0.00	0.00	207.86	207.86	26691.44	835.42
76	0.00	0.00	0.00	0.00	207.86	207.86	26483.58	835.33
75	0.00	0.00	0.00	0.00	207.86	207.86	26275.73	835.25
74	0.00	0.00	0.00	0.00	207.86	207.86	26067.87	835.17
73	0.00	0.00	0.00	0.00	207.86	207.86	25860.02	835.08
72	0.00	0.00	0.00	0.00	207.86	207.86	25652.16	835.00
71	0.00	0.00	0.00	0.00	207.86	207.86	25444.30	834.92
70	0.00	0.00	0.00	0.00	207.86	207.86	25236.45	834.83
69	0.04	0.01	6.76	0.08	205.12	211.96	25028.59	834.75
68	0.12	0.03	19.16	0.20	200.11	219.47	24816.63	834.67
67	0.16	0.05	27.18	0.31	196.86	224.35	24597.16	834.58
66	0.21	0.07	34.44	0.40	193.92	228.76	24372.81	834.50
65	0.27	0.08	44.28	0.50	189.95	234.72	24144.05	834.42
64	0.45	0.11	74.71	0.63	177.72	253.06	23909.33	834.33
63	0.67	0.13	109.77	0.79	163.63	274.19	23656.27	834.25
62	0.80	0.16	131.84	0.97	154.73	287.54	23382.08	834.17
61	0.91	0.19	149.84	1.13	147.47	298.44	23094.54	834.08
60	1.00	0.22	165.48	1.31	141.14	307.93	22796.10	834.00
59	1.09	0.25	179.41	1.48	135.50	316.39	22488.17	833.92
58	1.16	0.28	191.97	1.65	130.41	324.03	22171.78	833.83
57	1.23	0.30	203.61	1.81	125.69	331.11	21847.74	833.75
56	1.30	0.33	214.45	1.97	121.29	337.70	21516.63	833.67
55	1.36	0.35	224.57	2.13	117.18	343.87	21178.93	833.58
54	1.42	0.38	234.09	2.30	113.30	349.69	20835.06	833.50
53	1.47	0.41	243.10	2.46	109.63	355.19	20485.37	833.42
52	1.53	0.44	251.65	2.65	106.14	360.43	20130.18	833.33
51	1.57	0.47	259.79	2.81	102.81	365.42	19769.74	833.25
50	1.62	0.50	267.53	2.97	99.66	370.16	19404.33	833.17
49	1.67	0.52	274.93	3.12	96.64	374.69	19034.17	833.08
48	1.71	0.54	282.00	3.27	93.75	379.02	18659.48	833.00
47	1.75	0.57	288.76	3.40	90.99	383.16	18280.46	832.92
46	1.79	0.59	295.23	3.53	88.35	387.12	17897.31	832.83
45	1.83	0.61	301.49	3.66	85.80	390.94	17510.19	832.75
44	1.86	0.63	307.47	3.79	83.35	394.61	17119.25	832.67
43	1.90	0.64	313.22	3.86	81.02	398.11	16724.64	832.58
42	1.93	0.68	318.75	4.06	78.73	401.55	16326.53	832.50
41	1.96	0.70	324.07	4.20	76.55	404.82	15924.98	832.42
40	2.00	0.72	329.19	4.33	74.44	407.97	15520.16	832.33
39	2.03	0.74	334.13	4.46	72.42	411.01	15112.19	832.25
38	2.05	0.76	338.87	4.59	70.47	413.93	14701.18	832.17
37	2.08	0.79	343.45	4.71	68.59	416.75	14287.25	832.08
36	2.11	0.80	347.83	4.82	66.80	419.45	13870.50	832.00
35	2.13	0.82	352.08	4.92	65.05	422.06	13451.05	831.92
34	2.16	0.84	356.18	5.03	63.37	424.58	13028.99	831.83
33	2.18	0.85	360.12	5.11	61.77	426.99	12604.41	831.75
32	2.21	0.86	363.91	5.16	60.23	429.30	12177.42	831.67
31	2.23	0.89	367.56	5.34	58.70	431.60	11748.12	831.58
30	2.25	0.90	371.06	5.43	57.26	433.75	11316.52	831.50
29	2.27	0.92	374.44	5.50	55.88	435.82	10882.77	831.42
28	2.29	0.92	377.68	5.52	54.58	437.78	10446.95	831.33
27	2.31	0.94	380.80	5.66	53.27	439.73	10009.17	831.25
26	2.33	0.96	383.78	5.74	52.05	441.57	9569.44	831.17
25	2.34	0.97	386.64	5.81	50.87	443.33	9127.87	831.08
24	2.36	0.98	389.38	5.89	49.75	445.02	8684.55	831.00
23	2.38	0.97	392.01	5.83	48.72	446.56	8239.52	830.92
22	2.39	1.00	394.51	6.02	47.64	448.17	7792.97	830.83
21	2.41	1.01	396.90	6.07	46.67	449.64	7344.79	830.75
20	2.42	1.02	399.18	6.12	45.74	451.04	6895.16	830.67
19	2.43	1.03	401.34	6.18	44.85	452.37	6444.12	830.58
18	2.44	1.04	403.40	6.23	44.00	453.63	5991.75	830.50
17	2.46	1.05	405.34	6.28	43.21	454.83	5538.12	830.42
16	2.47	1.05	407.18	6.32	42.45	455.96	5083.29	830.33
15	2.48	1.05	408.92	6.30	41.77	456.99	4627.32	830.25
14	2.49	1.06	410.56	6.34	41.10	458.00	4170.34	830.17
13	2.50	1.08	412.12	6.45	40.43	459.00	3712.34	830.08
12	2.51	1.08	413.57	6.50	39.83	459.90	3253.34	830.00
11	2.51	1.09	414.93	6.53	39.27	460.73	2793.44	829.92
10	2.53	1.11	416.94	6.64	38.42	462.01	2332.71	829.83
9	0.00	0.00	0.00	0.00	207.86	207.86	1870.71	829.75
8	0.00	0.00	0.00	0.00	207.86	207.86	1662.85	829.67
7	0.00	0.00	0.00	0.00	207.86	207.86	1454.99	829.58
6	0.00	0.00	0.00	0.00	207.86	207.86	1247.14	829.50
5	0.00	0.00	0.00	0.00	207.86	207.86	1039.28	829.42
4	0.00	0.00	0.00	0.00	207.86	207.86	831.42	829.33
3	0.00	0.00	0.00	0.00	207.86	207.86	623.57	829.25
2	0.00	0.00	0.00	0.00	207.86	207.86	415.71	829.17
1	0.00	0.00	0.00	0.00	207.86	207.86	207.86	829.08

STORAGE VOLUME - UNDERGROUND DETENTION C

Project: Shamrock Self Storage

StormTech — Detention • Retention • Water Quality — A division of ADS

Chamber Model -	MC-3500	
Units -	Imperial	
Number of Chambers -	40	
Number of End Caps -	2	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	829.44	ft
Amount of Stone Above Chambers -	12	in
Amount of Stone Below Chambers -	9	in
Amount of Stone Between Chambers -	9	in

☐ Include Perimeter Stone in Calculations

StormTech MC-3500 Cumulative Storage Volumes

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch, EC and Stone (cubic feet)	Cumulative System (cubic feet)	Elevation (feet)
66	0.00	0.00	0.00	0.00	69.60	69.60	7250.38	834.94
65	0.00	0.00	0.00	0.00	69.60	69.60	7180.78	834.86
64	0.00	0.00	0.00	0.00	69.60	69.60	7111.17	834.77
63	0.00	0.00	0.00	0.00	69.60	69.60	7041.57	834.69
62	0.00	0.00	0.00	0.00	69.60	69.60	6971.97	834.61
61	0.00	0.00	0.00	0.00	69.60	69.60	6902.37	834.52
60	0.00	0.00	0.00	0.00	69.60	69.60	6832.77	834.44
59	0.00	0.00	0.00	0.00	69.60	69.60	6763.17	834.36
58	0.00	0.00	0.00	0.00	69.60	69.60	6693.56	834.27
57	0.00	0.00	0.00	0.00	69.60	69.60	6623.96	834.19
56	0.00	0.00	0.00	0.00	69.60	69.60	6554.36	834.11
55	0.00	0.00	0.00	0.00	69.60	69.60	6484.76	834.02
54	0.06	0.00	2.32	0.00	68.67	71.00	6415.16	833.94
53	0.19	0.02	7.76	0.05	66.48	74.29	6344.16	833.86
52	0.29	0.04	11.76	0.08	64.87	76.70	6269.87	833.77
51	0.40	0.05	16.15	0.10	63.10	79.35	6193.17	833.69
50	0.69	0.07	27.49	0.14	58.55	86.17	6113.82	833.61
49	1.03	0.09	41.13	0.18	53.08	94.39	6027.65	833.52
48	1.25	0.11	49.98	0.21	49.52	99.72	5933.26	833.44
47	1.42	0.13	56.89	0.25	46.74	103.89	5833.54	833.36
46	1.57	0.14	62.93	0.29	44.32	107.53	5729.66	833.27
45	1.71	0.16	68.29	0.33	42.16	110.77	5622.13	833.19
44	1.83	0.18	73.14	0.36	40.20	113.70	5511.36	833.11
43	1.94	0.20	77.51	0.40	38.44	116.35	5397.65	833.02
42	2.04	0.22	81.63	0.44	36.77	118.84	5281.31	832.94
41	2.13	0.23	85.39	0.47	35.26	121.12	5162.46	832.86
40	2.22	0.25	88.97	0.50	33.81	123.28	5041.35	832.77
39	2.31	0.27	92.27	0.53	32.48	125.28	4918.06	832.69
38	2.38	0.28	95.39	0.56	31.22	127.17	4792.78	832.61
37	2.46	0.29	98.36	0.59	30.02	128.97	4665.61	832.52
36	2.53	0.31	101.13	0.62	28.90	130.65	4536.64	832.44
35	2.59	0.32	103.75	0.64	27.84	132.24	4405.99	832.36
34	2.66	0.33	106.24	0.67	26.84	133.75	4273.75	832.27
33	2.72	0.35	108.60	0.69	25.88	135.18	4140.00	832.19
32	2.77	0.36	110.85	0.72	24.97	136.54	4004.82	832.11
31	2.82	0.37	112.99	0.74	24.11	137.84	3868.28	832.02
30	2.88	0.38	115.02	0.77	23.29	139.07	3730.44	831.94
29	2.92	0.40	116.97	0.79	22.50	140.26	3591.36	831.86
28	2.97	0.41	118.80	0.82	21.76	141.37	3451.11	831.77
27	3.01	0.42	120.50	0.84	21.07	142.40	3309.74	831.69
26	3.05	0.43	122.13	0.86	20.41	143.40	3167.34	831.61
25	3.09	0.44	123.77	0.88	19.74	144.39	3023.94	831.52
24	3.13	0.45	125.22	0.90	19.15	145.28	2879.55	831.44
23	3.17	0.46	126.63	0.92	18.58	146.13	2734.27	831.36
22	3.20	0.47	127.98	0.94	18.03	146.95	2588.14	831.27
21	3.23	0.48	129.24	0.96	17.52	147.72	2441.19	831.19
20	3.26	0.49	130.46	0.98	17.03	148.46	2293.47	831.11
19	3.29	0.50	131.61	1.00	16.56	149.17	2145.00	831.02
18	3.32	0.51	132.72	1.01	16.11	149.84	1995.84	830.94
17	3.34	0.51	133.76	1.03	15.68	150.48	1846.00	830.86
16	3.37	0.52	134.74	1.04	15.29	151.07	1695.52	830.77
15	3.39	0.53	135.70	1.06	14.90	151.66	1544.45	830.69
14	3.41	0.54	136.58	1.07	14.54	152.19	1392.79	830.61
13	3.44	0.54	137.48	1.09	14.17	152.74	1240.59	830.52
12	3.46	0.55	138.31	1.10	13.84	153.25	1087.85	830.44
11	3.48	0.56	139.15	1.11	13.50	153.76	934.61	830.36
10	3.51	0.59	140.20	1.19	13.04	154.44	780.85	830.27
9	0.00	0.00	0.00	0.00	69.60	69.60	626.41	830.19
8	0.00	0.00	0.00	0.00	69.60	69.60	556.81	830.11
7	0.00	0.00	0.00	0.00	69.60	69.60	487.21	830.02
6	0.00	0.00	0.00	0.00	69.60	69.60	417.61	829.94
5	0.00	0.00	0.00	0.00	69.60	69.60	348.01	829.86
4	0.00	0.00	0.00	0.00	69.60	69.60	278.41	829.77
3	0.00	0.00	0.00	0.00	69.60	69.60	208.80	829.69
2	0.00	0.00	0.00	0.00	69.60	69.60	139.20	829.61
1	0.00	0.00	0.00	0.00	69.60	69.60	69.60	829.52

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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
STORMWATER CALCULATIONS A

10

JOB No. 18354

REVISIONS:

	REV.	DATE
PER MUNICIPAL REVIEW	1	3/16/20
PER MUNICIPAL REVIEW	2	4/6/20

DATE: 1/6/20
SHEET 10 OF 18
CADD:
ENG: HTH
PM: HTH
TECH:
/18354DA1

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DETENTION BASIN CALCULATIONS

W1 - Determining Post-Development Cover Types, Areas, Curve Numbers, and Runoff Coefficients

Rational Method Variables

Cover Type	Soil Type	Area (sft)	Area (ac)	Runoff Coeff. (C)	(C) x (Area)
Building/Pavement		200,123	4.59	0.95	4.36
Grass	D	31,594	0.73	0.45	0.33
Water Surface		25,241	0.58	1.00	0.58
Total		256,958	5.90		5.27
		Weighted C = (Sum(C)x(Area))/(Area Total)=		0.89	

NRCS Variables (Pervious)

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) x (Area)
Grass	D	31,594	0.73	84	0.61
Total		31,594	0.73		0.61
		Weighted CN = (Sum(CN)x(Area))/(Area Total)=		84	

NCRS Variables (Impervious)

Cover Type	Soil Type	Area (sft)	Area (ac)	Curve Number	(CN) x (Area)
Building/Pavement		200,123	4.59	98	4.50
Water Surface		25,241	0.58	98	0.57
Total		225,364	5.17		5.07
		Weighted CN = (Sum(CN)x(Area))/(Area Total)=		98	

W2 - W2 - First Flush Runoff Calculations (V_{ff})

A. V_{ff} = 1" x 1'/12" x 43560 sft/ac x A x C where A= 5.90 and where C= 0.89

V_{ff} = 1" x 1'/12" x 43560 sft/ac x 5.90 x 0.89 = 19,058 cf

W3 - W3 - Pre-Development Bankfull Runoff Calculations ($V_{bf\text{-}pre}$)

A. 2 year / 24 hour storm event: P= 2.35 in
B. Pre-Development CN
(Good Cover Woods, Type D Soils) CN= 84
C. S = (1000 / CN) - 10 S= 1.905 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 1.001 in
E. Total Site Area excluding "Self-Crediting" BMPs 256,958 sft
F. $V_{bf\text{-}pre}$ = Q x (1/12) x Area $V_{bf\text{-}pre}$ = 21,432 cft

W4 - Pervious Cover Post-Development Bankfull Runoff Calculations ($V_{bf\text{-}per\text{-}post}$)

A. 2 year / 24 hour storm event: P= 2.35 in
B. Pervious Cover CN From Worksheet 1 CN= 84
C. S = (1000 / CN) - 10 S= 1.905 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 1.001 in
E. Pervious Cover Area from Worksheet 1 31,594 sft
F. $V_{bf\text{-}per\text{-}post}$ = Q x (1/12) x Area $V_{bf\text{-}per\text{-}post}$ = 2,635 cft

W5 - W5 - Impervious Cover Post-Development Bankfull Runoff Calculations ($V_{bf\text{-}imp\text{-}post}$)

A. 2 year / 24 hour storm event: P= 2.35 in
B. Impervious Cover CN From Worksheet 1 CN= 98
C. S = (1000 / CN) - 10 S= 0.204 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 2.122 in
E. Impervious Cover Area from Worksheet 1 225,364 sft
F. $V_{bf\text{-}imp\text{-}post}$ = Q x (1/12) x Area $V_{bf\text{-}imp\text{-}post}$ = 39,846 cft

W6 - W6 - Pervious Cover Post-Development 100-Year Runoff Calculations ($V_{100\text{-}per\text{-}post}$)

A. 100 year / 24 hour storm event: P= 5.11 in
B. Pervious Cover CN From Worksheet 1 CN= 84
C. S = (1000 / CN) - 10 S= 1.905 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 3.371 in
E. Pervious Cover Area from Worksheet 1 31,594 sft
F. $V_{100\text{-}per\text{-}post}$ = Q x (1/12) x Area $V_{100\text{-}per\text{-}post}$ = 8,876 cft

W7 - W7 - Impervious Cover Post-Development 100-Year Runoff Calculations ($V_{100\text{-}imp\text{-}post}$)

A. 2 year / 24 hour storm event: P= 5.11 in
B. Impervious Cover CN From Worksheet 1 CN= 98
C. S = (1000 / CN) - 10 S= 0.204 in
D. Q = [(P-0.2S)^2] / [P+0.8S] Q= 4.873 in
E. Impervious Cover Area from Worksheet 1 225,364 sft
F. $V_{bf\text{-}imp\text{-}post}$ = Q x (1/12) x Area $V_{bf\text{-}imp\text{-}post}$ = 91,517 cft

W8 - Time of Concentration (Tc-hrs)

A. Assume 45-minute minimum time of concentration Tc= 0.75 hr

W9 - Runoff Summary & On-Site Infiltration Requirement

A. Summary from Previous Worksheets
First Flush Volume (Vff) 19,058 cft
Pre-Development Bankfull Runoff Volume (Vbf-pre) 21,432 cft
Pervious Cover Post-Development Bankfull Volume (Vbf-per-post) 2,635 cft
Impervious Cover Post-Development Bankfull Volume (Vbf-imp-post) 39,846 cft
Total BF Volume (Vbf-post) 42,481 cft
Pervious Cover Post-Development 100-Year Volume (V100-per-post) 8,876 cft
Impervious Cover Post-Development 100-Year Volume (V100-imp-post) 91,517 cft
Total 100-Year Volume (V100) 100,392 cft
B. Determine Onsite Infiltration Requirement
Subtract the Pre-Development Bankfull from the Post-Development Bankfull Volume
Total Post-Development Bankfull Volume (Vbf-post) 42,481 cft
Pre-Development Bankfull Runoff Volume (Vbf-pre) 21,432 cft
Bankfull Volume Difference 21,049 cft
Infiltration Requirement (Vinf) 21,049 cft

W10 - Detention/Retention Requirement

A. Q_p = 238.6 Tc^-0.82 302.08 cfs/(in x sq. mi)
B. Total Site Area excluding "Self-Crediting" BMPs 5.90 ac
C. Q_{100} = $Q_{100\text{-}per}$ + $Q_{100\text{-}imp}$ 8.244 in
(from W6 and W7, respectively)
D. Peak Flow (PF) = Q_p x Q_{100} x Area / 640 22.95 cfs
E. Delta = PF - 0.15 x Area (ac) 22.07 cfs
[0.15 x Area (ac)] *0.88 cfs*
F. V_{det} = Delta / PF x V_{100} 96,522 cft
Required Detention not including infiltration credit or penalty.
Sediment Forebay Volume Required (5% of V100) 5,020 cft

Retention

A. Vret = 2 x V_{100} 200,785 cft

W11 - Determine Applicable BMPs and Associated Volume Credits

Infiltration test pits were excavated and review of the subsurface conditions disclosed clay material. Based on the soils encountered, it was recommended that no infiltration capacity exists and therefore no infiltration testing was performed. This was agreed upon through the WCWRC personnel.

W12 - Natural Features Inventory

There are natural features present on site.
Refer to **Sheet 05** for location and size of natural features.

W13 - Site Summary of Infiltration & Detention

A. Stormwater Management Summary

Min Infiltration Requirement (V_{inf}) 21,049 cft
Designed/Provided Infiltration Volume 0 cft
% Minimum Required Infiltration Provided 0 %
Total Calculated Detention Volume, V_{det} 96,522 cft
Net Required Detention Volume 96,522 cft
(V_{det} - Designed/Provided Infiltration Volume)

B. Detention Volume Increase for sites where the required infiltration volume cannot be achieved.

% Required Infiltration NOT Provided 100.0 %
(100% - % Minimum Required Infiltration Provided)
Net % Penalty (20% x % Required Infiltration NOT Provided) 20.0 %
Total Required Detention Volume, including penalty 115,827 cft
[(100% + Net % Penalty) x Net Required Detention Volume)]

Detention Outlet Calculations

A. Required Detention Volumes (Reduced by 6-hour infiltration)

Storm Event	Req'd Volume	less	Infil. Credit	=	Final Volume
First Flush	19,058 cft	-	0 cft	=	**19,058** cft
Bankfull	42,481 cft	-	0 cft	=	**42,481** cft
100 -year	96,522 cft	-	0 cft	=	**96,522** cft
100-year + Req'd Penalty	115,827 cft	-	0 cft	=	**115,827** cft
Forebay Volume Required (5% of 100-yr)				=	**4,826** cft

B. Detention Volume Provided

Elevation	Volume (cft)	Cum. Volume (cft)
829.0	0	0
830.0	12,471	12,471
831.0	19,258	31,729
832.0	22,117	53,846
833.0	24,089	77,934
834.0	25,576	103,510
834.5	13,086	116,596
	Total Volume =	116,596

Storage Elevation Calculation

First Flush Elevation (Xff)= 831.0 - 830.0 = Xff - 830.0 Xff = 830.34 ft
31,729 - 12,471 19,058 - 12,471

Bankfull Elevation (Xbf)= 832.0 - 831.0 = Xbf - 831.0 Xbf = 831.49 ft
53,846 - 31,729 42,481 - 31,729

100-Year Elevation (X100)= 834.5 - 834.0 = X_{100} - 834.0 X100 = 834.47 ft
116,596 - 103,510 115,827 - 103,510

STORAGE VOLUME PROVIDED

UNDERGROUND BASIN A:

Elevation	Depth (ft)	Volume (cft)	Cum. Volume (cft)
829.0	0	0	0
830.0	1.0	139	139
831.0	1	1,254	1,393
832.0	1	1,775	3,167
833.0	1	1,625	4,793
834.0	1	1,321	6,114
834.5	0.5	441	6,554
		Total Volume =	6,554

UNDERGROUND BASIN B:

Elevation	Depth (ft)	Volume (cft)	Cum. Volume (cft)
829.0	0	0	0
830.0	1.0	3,253	3,253
831.0	1	5,431	8,685
832.0	1	5,186	13,871
833.0	1	4,789	18,659
834.0	1	4,137	22,796
834.5	0.5	1,577	24,373
		Total Volume =	24,373

UNDERGROUND BASIN C:

Elevation	Depth (ft)	Volume (cft)	Cum. Volume (cft)
829.0	0	0	0
830.0	1.0	487	487
831.0	1	1,658	2,145
832.0	1	1,723	3,868
833.0	1	1,530	5,398
834.0	1	1,087	6,485
834.5	0.5	417	6,902
		Total Volume =	6,902

SURFACE DETENTION BASIN:

Elevation	Area (sft)	Depth (ft)	Volume (cft)	Cum. Volume (cft)
829.0	7,502	0	0	0
830.0	9,729	1.0	8,591	8,591
831.0	12,146	1	10,915	19,507
832.0	14,763	1	13,433	32,940
833.0	17,566	1	16,144	49,084
834.0	20,536	1	19,032	68,116
834.5	22,079	0.5	10,651	78,767
			Total Volume =	78,767

The Detention Basin will have a 3-stage outlet. This will consist of a perforated manhole with a series of holes in three (3) tiers. The lower tier of holes will detain the first-flush volume in a timeframe to exceed 24 hours. The middle tier along with the lower tier will detain and drain the bankfull flood volume in a timeframe not-to-exceed 48 hours. The upper tier along with the middle and lower tiers will detain the runoff from the site. The perforated manhole will be surrounded by a stone filter.

First Flush Discharge (24-36 hours for the detention of first flush storm event)

Average Head (H_{ave}) = 2/3 (X_{ff} - X_{bot}) = 2/3 (830.34 - 829) = 0.89 ft
First Flush Max. Flowrate ($Q_{ff\text{-}max}$) = V_{ff} / 24 hrs = 19058cfs / (24 hrs*3600) = 0.221 cfs
Req Area (A_{ff}) = $Q_{ff\text{-}max}$ / 0.62 / sqrt(2*g*H_{ave}) = 0.221/0.62/(2*32.2*0.89)^0.5= 0.047 sft
Orifice Diameter, Proposed = 2.000 in
Orifice Area = 0.0218 sft
Number Required for 24 hr drainage = A_{ff} / Orifice Area= 0.047 sft / 0.0218 sft = 2.16 holes
Number of Holes to Use = 2 holes
Area of (2) - 2 inch Orifice = A_{ff} = 0.044 sft
Actual Flow (Q_{ff}) = 0.62 * A_{ff} * sqrt(2*g*H_{ave}) = 0.62 * 0.044 *sqrt(2*32.2*0.89) = 0.205 cfs
Actual Time (T_{ff}) = V_{ff} / Q_{ff} = 19058 cf / 0.205 cfs / 3600 = 25.87 hr
Therefore Use (2) 2.000 " hole(s) at Elev. = 829.00

Bankfull Discharge (36-48 hours)

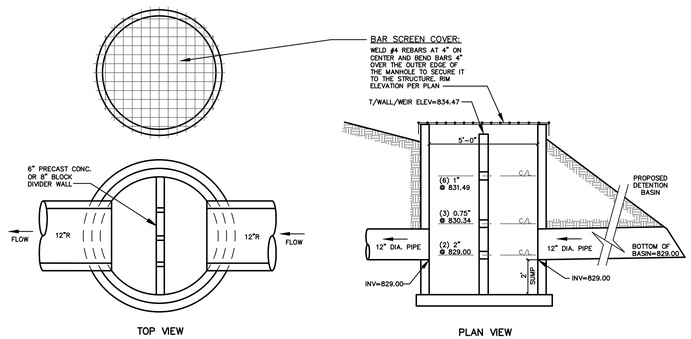
Average Head (H_{ave}) = 2/3 (X_{bf} - X_{bot}) = 2/3 (831.49 - 829) = 1.66 ft
Actual Flow (Q_{bf}) = 0.62 * A_{ff} * sqrt(2 * g * H_{ave}) = 0.62 * 0.0436 * sqrt(2 * 32.2 * 1.66)= 0.28 cfs
Actual Time (T_{bf}) = V_{bf} / Q_{bf} = 42481 cf / 0.279 cfs / 3600 = 42.22 hr
Drawdown Time for Bankfull Volume is between 36 and 48 hours
Assumed Target time for bankfull detention drawdown = 44 hrs
Bankfull storage volume above first flush (V_{rem}) = V_{bf} - V_{ff} = 42481 cf - 19058 cf = 23423 cf
Time to Drain Remaining Storage (T_{rem}) = T_{tot} - T_{ff} = 44 hrs - 25.87 hrs = 18.13 hrs
Average head to first flush holes (H_1) = 2/3 (X_{bf} - X_{ff}) + (X_{ff} - X_{bot}) =
= 2/3 (831.49 - 830.34) + (830.34 - 829) = 2.11 ft
Average Flow through first flush holes (Q_1) = 0.62 * A_{ff} * sqrt(2 * g * H_1) =
= 0.62 * 0.0436 * sqrt(2 * 32.2 * 2.11) = 0.315 cfs
Volume through First Flush Holes (V_1) = Q_1*T_{rem} = 0.315cfs * 18.13hrs * 3600 = 20,567 cf
Volume Remaining (V_2) = V_{rem} - V_1 = 23423 cf - 20567 cf = 2,856 cf
Average flow to drain Volume Remaining (Q_{rem}) =V_2/(T_{rem} * 3600) = 2856 / (18.13 * 3600) = 0.044 cfs
Average Head to Bankfull Holes (H_2) = 2/3 (X_{bf} - X_{ff}) = 2/3 (831.49 - 830.34) = 0.77 ft
Area for Bankfull Holes (A_{bf}) = Qrem / (0.62*sqrt(2*g*H2) = 0.044/(0.62*SQRT(2*32.2*0.77)) = 0.0100 sf
Orifice Diameter, Bankfull Proposed = 0.750 in
Orifice Area = (0.75 / 2 / 12)^2 * 3.1415927 = 0.0031 sft
Number Required for 24 hr drainage = A_{ff} / Orifice Area= 0.01 sft / 0.0031 sft = 3.27 holes
Number of Holes to Use = 3 holes
Area of (3) - 0.75 inch Orific (A_{bf}) = = 0.0092 sft
Therefore Use (3) 0.750 " hole(s) at Elev. = 830.34
Actual Discharge through Bankfull Holes (Q_{bf}) = 0.62 * A_{bf} * sqrt(2*32.2*H_2)
= 0.62 * 0.0092 * SQRT(2*32.2*0.77) = 0.040 cfs
Actual Time to Drain to First Flush Elevation (T_2) = Vrem / (Q_1 + Q_2) = 23423/(0.315+0.04= 18.31 hrs
Actual Time to Drain Bankfull Volume (T_{bf}) = T_{ff} + T_2 = 25.87 hrs + 18.31 hrs = 44.18 hrs

100-year Discharge (0.15 cfs/acre max. allowed)

Max Head to First Flush Holes ($H_{max\text{-}ff}$) = X_{100} - X_{bot}= 834.47 - 829 = 5.47 ft
Max Flow at Lowest Holes ($Q_{max\text{-}ff}$)= 0.62 * A_{ff} * sqrt(2 * g * $H_{max\text{-}ff}$) =
= 0.62 * 0.0436 * sqrt(2 * 32.2 * 5.47) = 0.51 cfs
Max Head to Bankfull Holes ($H_{max\text{-}bf}$) = X_{100} - X_{ff}= 834.47 - 830.34 = 4.13 ft
Max Flow at Bankfull Holes ($Q_{max\text{-}bf}$)= 0.62 * A_{bf} * sqrt(2 * g * $H_{max\text{-}bf}$) =
= 0.62 * 0.0092 * sqrt(2 * 32.2 * 4.13) = 0.09 cfs
Max Head to 100yr Holes ($H_{max\text{-}100}$) = X_{100} - X_{bf} = 834.47 - 831.49 = 2.98 ft
Q_A (Allowable 100-year release rate)= 0.15 cfs/acre = 0.15 cfs * 5.9 ac = 0.88 cfs
Max flow through 100-year holes = $Q_{max\text{-}100}$ = Q_A - Qmax-bf - $Q_{max\text{-}ff}$ =
0.88 cfs - 0.09 cfs -0.507 cfs = 0.284 cfs
Max. Area for Orifices (A_{100}) = Q_{max} / 0.62 / sqrt (2*g*h-100_{max}) 0.033 sft
Orifice Diameter, 100-yr Proposed 1.000 in
Orifice Area 0.005 sft
Number Required for 0.15 cfs/acre drainage 6.07
Number of holes used 6 ea
Area of (6) - 1 inch Holes (A_{100}) 0.033 sft
100-year orifices - Actual Flow ($Q_{max\text{-}100}$) = 0.62 * A_{100} * sqrt (2 * g * H_{max100}) =
= 0.62 * 0.033 * sqrt (2 * 32.2 * 2.98) = 0.280 cfs
Actual Max Release Rate (Q_{max}) = $Q_{max\text{-}100}$+$Q_{max\text{-}bf}$+$Q_{max\text{-}ff}$ = 0.28cfs+0.093cfs+0.507cfs= 0.88 cfs
Therefore Use (6) 1.000 " hole(s) at Elev. = 831.49

100-year Drawdown Time (72-hour max)

Average head to first flush holes with all orifice in use ($H_{ff\text{-}ave}$) = 2/3 (X_{100} - X_{bf}) + (X_{bf} - X_{bot})
= 2/3 (834.47 - 831.49) + (830.34 -829) = 4.48 ft
Average flow through first flush holes to bankfull elevation ($Q_{ff\text{-}ave}$) = 0.62 * A_{ff} * sqrt (2*g*$H_{ff\text{-}ave}$)
= 0.62 * 0.0436 * SQRT(2 * 32.2 * 4.48) = 0.459 cfs
Average head to bankfull holes with all orifice in use ($H_{bf\text{-}ave}$) = 2/3 (X_{100} - X_{bf}) + (X_{bf} - X_{ff})
= 2/3 (834.47 - 831.49) + (831.49 -830.34) = 3.14 ft
Average flow through bankfull holes ($Q_{bf\text{-}ave}$)= 0.62 * A_{bf} * sqrt (2*g*$H_{bf\text{-}ave}$)
= 0.62 * 0.0092 * SQRT(2 * 32.2 * 3.14) = 0.081 cfs
Average head to 100-yr holes ($Q_{100\text{-}ave}$) = 2/3 (X_{100}-X_{bf}) = 2/3 * (834.47 - 831.49) = 1.99 ft
Average flow through 100-yr holes ($Q_{100\text{-}ave}$) = 0.62 * A_{100} * SQRT (2*g* $H_{100\text{-}ave}$)
0.62 * 0.033 * sqrt(2 * 32.2 * 1.99) = 0.230 cfs
Combined drawdown flow ($Q_{100\text{-}bf}$) = $Q_{100\text{-}ave}$ +$Q_{bf\text{-}ave}$ + $Q_{ff\text{-}ave}$ = 0.23 + 0.081 + 0.459 = 0.770 cfs
Volume of Storage above Bankfull Elev (V_{rem}) = V_{100} - V_{bf} = 115827 - 42481 = 73,346 cft
Time to drain Volume between 100yr and bankfull elevations = V_{rem}/$Q_{100\text{-}bf}$/3600
= 73346 cf / 0.77 cfs / 3600 = 26.46 hr
Total 100-year drawdown time = T_{100} = $T_{100\text{-}bf}$ + T_{bf} = 26.46 hrs + 44.18 hrs = 70.64 hr



OUTLET CONTROL STRUCTURE MANHOLE DETAIL

NOT TO SCALE

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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
STORMWATER CALCULATIONS B

11

DATE: 1/6/20
SHEET OF 18
CADD: GLS
ENG: HTH
PM: HTH
TECH: GLS
/18354DA1

REV.	DATE
2	4/6/20

JOB No. 18354

REVISIONS:
PER MUNICIPAL REVIEW
PER MUNICIPAL REVIEW

M:\Civil3d_Proj\18354\Site Plan\18354DA1.dwg, 4/6/2020 4:08 PM, Heath Hartt, 11 STORMWATER CALCULATIONS B, MCLLC PDF.pc3
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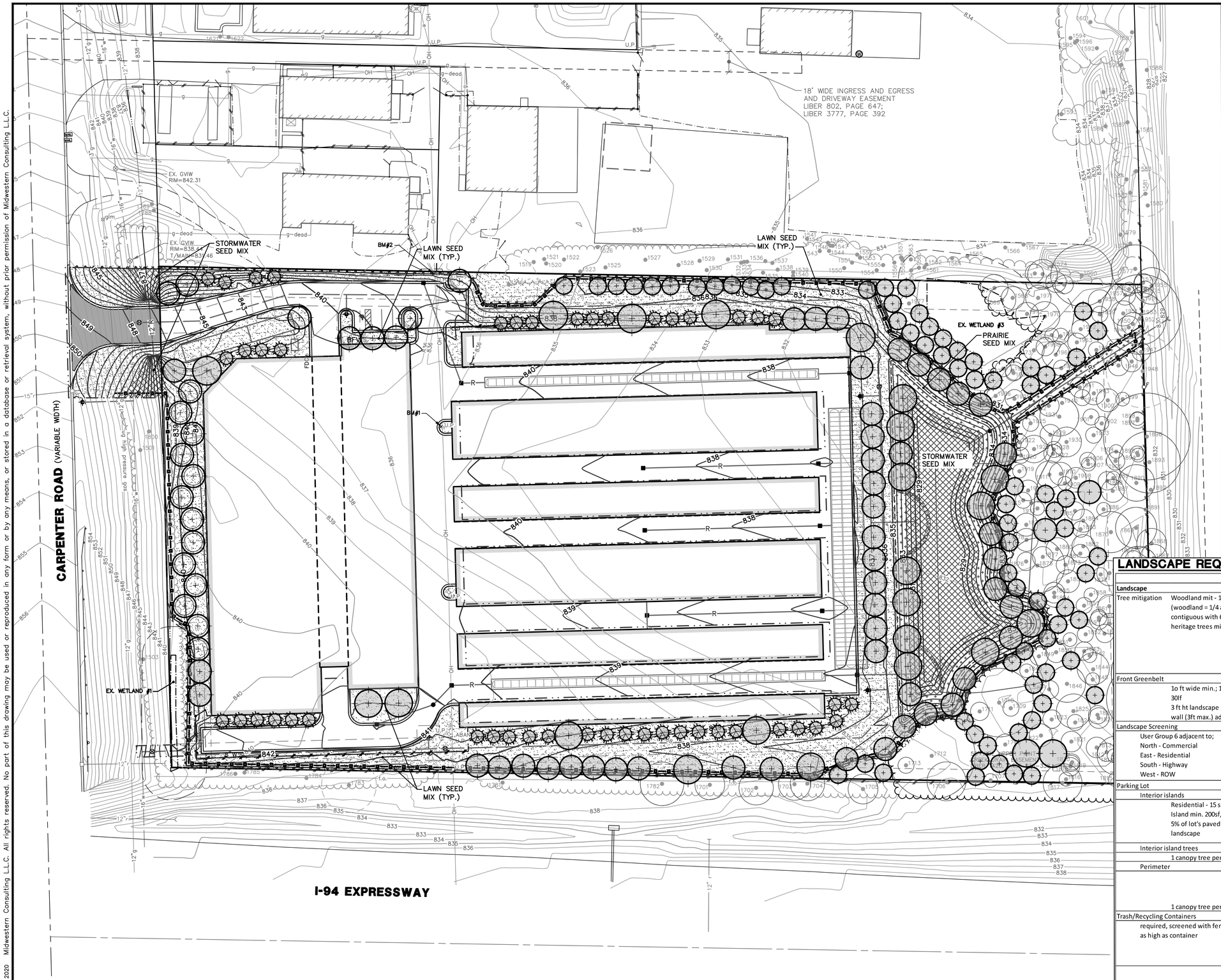

SCALE: 1" = 40'

0 40 80 120

811 Know what's below. Call before you dig.

LANDSCAPE LEGEND

- PROPOSED CANOPY TREE (INTERIOR VUA)
- PROPOSED CANOPY TREE (RIGHT-OF-WAY SCREEN)
- PROPOSED CANOPY TREE (MITIGATION)
- PROPOSED EVERGREEN TREE (MITIGATION)
- EXISTING TREE TO REMAIN
- PROPOSED STORMWATER SEED MIX
- PROPOSED PRAIRIE SEED MIX
- PROPOSED LAWN SEED MIX

LANDSCAPE REQUIREMENTS

		Required	Proposed
Landscape			
Tree mitigation	Woodland mit - 100% DBH, (woodland = 1/4 acre or more contiguous with 6"+ DBH) heritage trees mit - 150%	139" x 1.5 x 1.4 = 292" DBH Heritage mit 396" x 1 x 1.4 = 555" DBH protected mit Total mitigation =847" DBH	190 (536.5") provided on-site (46 Evergreen - 8ft height (3" equivalent), 77 Deciduous -3" cal., 67 Deciduous - 2.5" cal.) Remainder of required mitigation trees to be planted off-site within Pittsfield Township (310.5" / 2.5" = 125 trees x $400 = $50,000)
Front Greenbelt			
	1o ft wide min.; 1 deciduous tree per 30lf 3 ft ht landscape berm, plantings or wall (3ft max.) adj. to parking	439lf / 30lf = 15 trees required	15 trees proposed
Landscape Screening			
	User Group 6 adjacent to; North - Commercial East - Residential South - Highway West - ROW	North - NA East - Screen Alt. 3 South - NA West - NA	East - use of existing wooded area no proposed trees
Parking Lot			
	Interior islands		
	Residential - 15 spaces per row max. Island min. 200sf, 10ft wide min. 5% of lot's paved surface = interior landscape	1,962 sf paved west area x .05 = 99sf required 1139sf paved east area x .05 =57sf required	1,004sf provided - west 115sf provided - east
	Interior island trees		
	1 canopy tree per 8 parking spaces	7 Spaces provided = 1 tree	1 tree provided
	Perimeter		
	1 canopy tree per 40lf	89 lf west/40 = 3 trees required 64lf east / 40 = 2 trees required	5 trees provided
Trash/Recycling Containers			
	required, screened with fence or wall6 ft in ht or as high as container	screening walls required	Not applicable, no dumpster is proposed. Trash containers in drive aisle are anticipated and would not be visible from the right-of-way.
Site Landscaping - min. 20% of site area		376,853sf x 0.2 = 75,371sf min. required	46% provided (pervious surface on site including wetland)
Stormwater management			
	Native landscaping		Native seeding provided

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

M:\Civil3d_Proj\18354\Site Plan\18354LP1.dwg, 4/6/2020 4:08 PM, Heath Hartt, 12 LANDSCAPE PLAN, MCLLC PDF.pc3
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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
LANDSCAPE PLAN

12

DATE: 1/6/20
SHEET 11 OF 18
CADD:
ENG: HTH
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TECH:
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JOB No. 18354

REVISIONS:	REV. DATE
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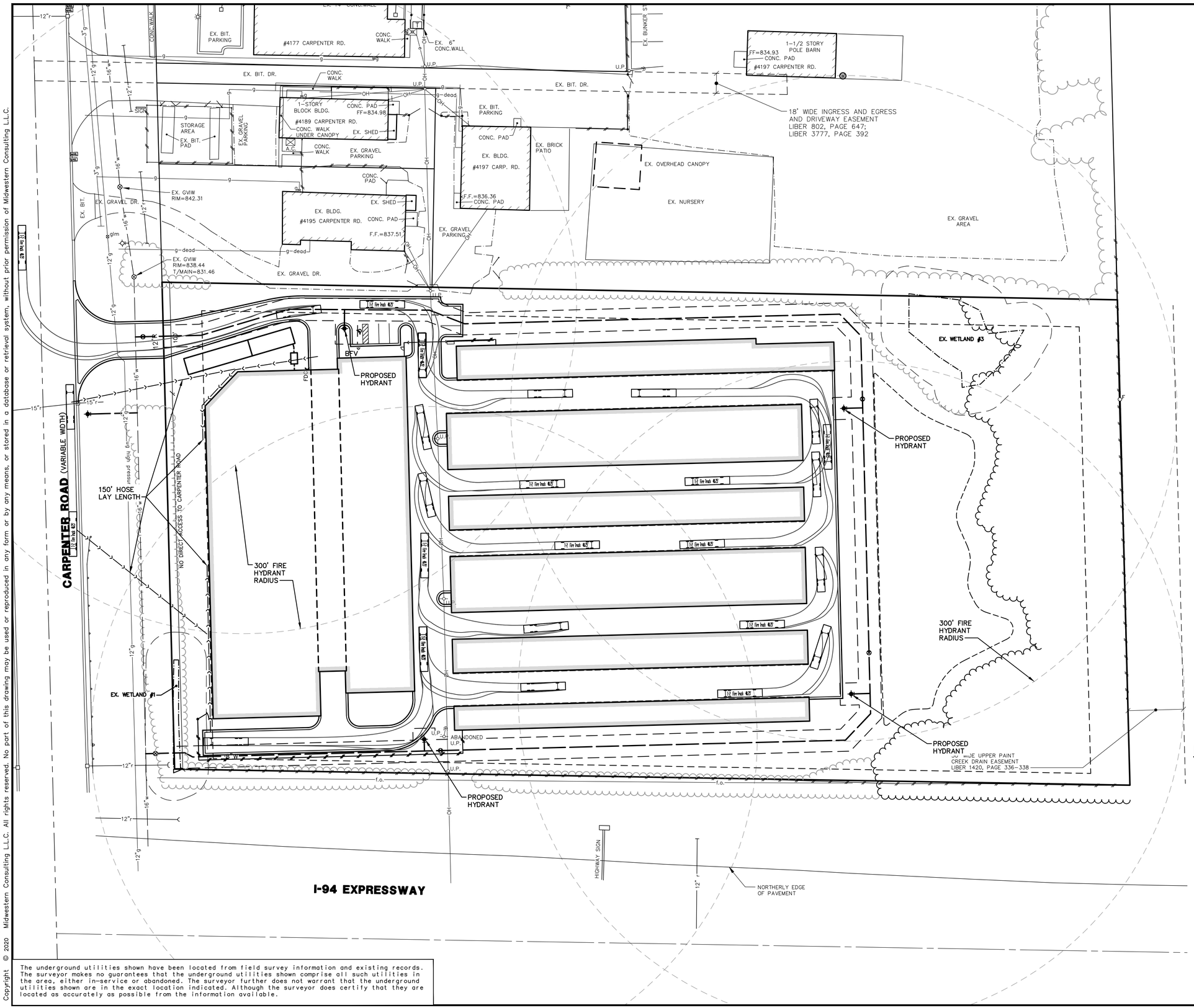
PER MUNICIPAL REVIEW	4/6/20



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SCALE: 1" = 40'

0 40 80 120

811 Know what's below. Call before you dig.

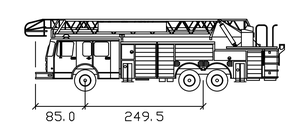
LEGEND

-o- U.P.	EXIST. UTILITY POLE
	GUY WIRE
OH	EXIST. OVERHEAD UTILITY LINE
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	PROP. GATE VALVE IN WELL

FIRE PROTECTION PLAN NOTES

1. HYDRANTS SHALL BE 4" STORZ CONNECTIONS AND (2) 2-1/2" NST CONNECTIONS.

2. CONSTRUCTION SEQUENCING:
   - 2.1. HYDRANTS MUST BE IN SERVICE AND APPROVED DURING CONSTRUCTION.
   - 2.2. HYDRANTS PROVIDING PROTECTION COVERAGE FOR THE BUILDING MUST BE IN SERVICE AND APPROVED BY BOTH ENGINEERING AND FIRE DEPARTMENTS BEFORE THE FIRE DEPARTMENT WILL SUPPORT PERMIT ISSUANCE FOR NEW CONSTRUCTION PHASE AND BEFORE COMBUSTIBLE MATERIALS ARE PLACED ON THE JOB SITE.
   - 2.3. STORAGE AREAS FOR CONSTRUCTION MATERIALS MUST BE APPROVED SO AS NOT TO INTERFERE WITH FIRE/EMERGENCY SITE ACCESS.
   - 2.4. IF SITE ACCESS IS TO BE RESTRICTED DURING CONSTRUCTION, KNOX BOX LOCKS FOR GATES ARE TO BE PROVIDED.



FIRE TRUCK inches

Track : 82.9
Lock to Lock Time: 6.0
Steering Angle : 45.0

PITTSFIELD TOWNSHIP "TOWER 2" TRUCK

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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
FIRE PROTECTION PLAN

13

JOB No. 18354

REVISIONS:	REV. DATE
PER MUNICIPAL REVIEW	3/27/20
PER MUNICIPAL REVIEW	4/6/20

DATE: 1/6/20
SHEET 12 OF 18
CADD:
ENG: HTH
PM: HTH
TECH:
/18354FP1

M:\Civil3d_Proj\18354\Site Plan\18354FP1.dwg, 4/6/2020 4:28 PM, Heath Hartt, 13 FIRE PROTECTION PLAN, MCLLC PDF.pc3
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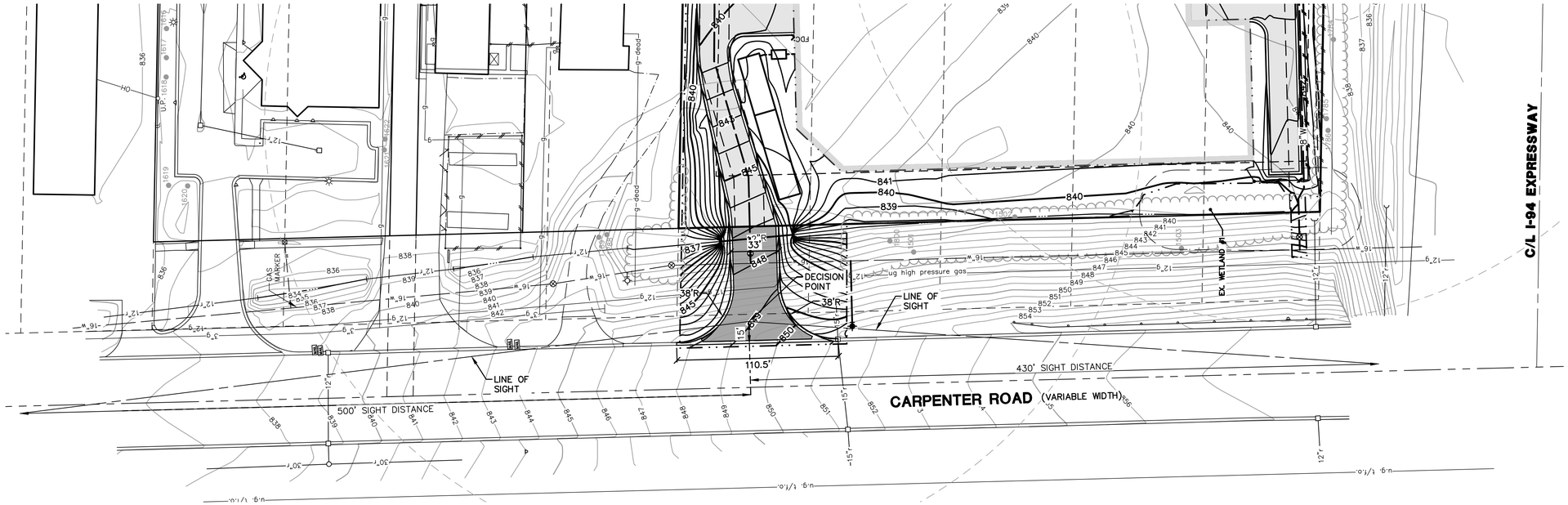
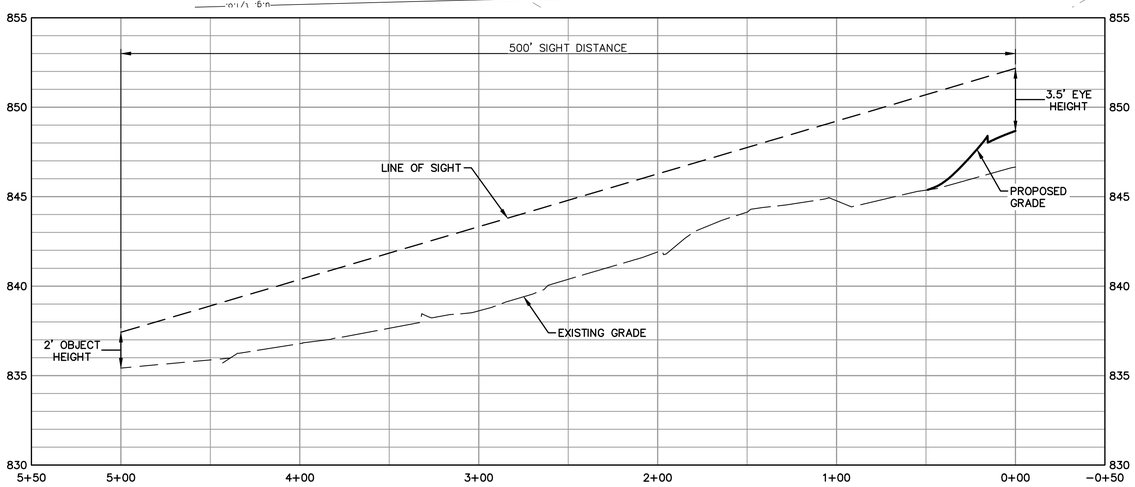
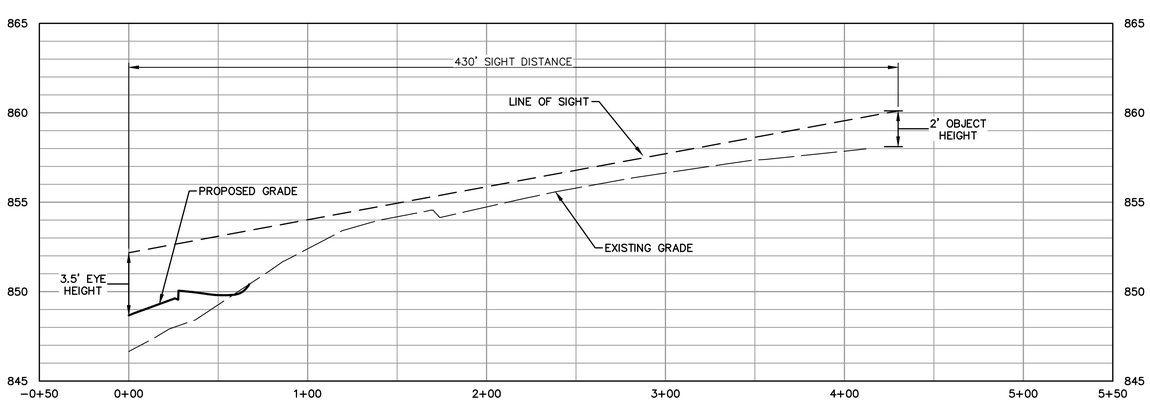


SCALE: 1" = 40'

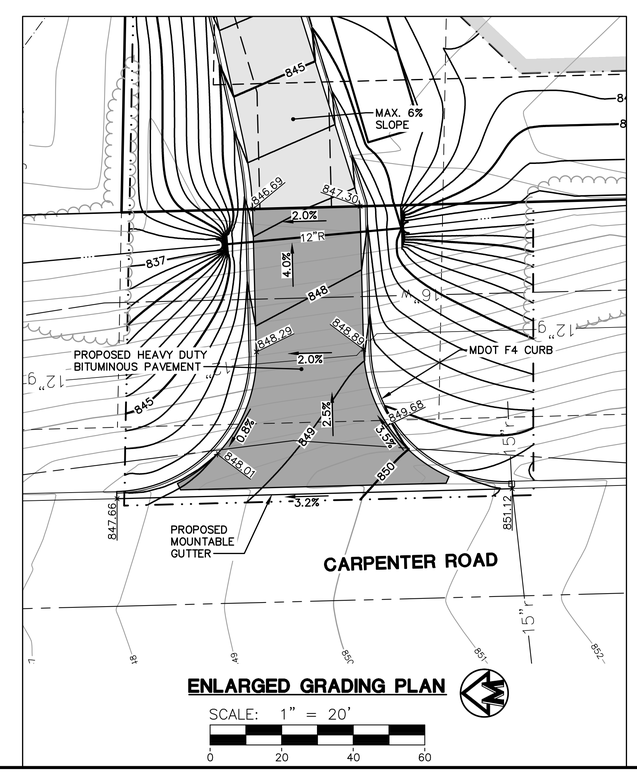
0 40 80 120



Looking North



Looking South



ENLARGED GRADING PLAN

SCALE: 1" = 20'

0 20 40 60

LEGEND

838	EXIST. CONTOUR
838	PROP. CONTOUR
×836.2	EXIST. SPOT ELEVATION
36.60	PROP. SPOT ELEVATION
U.P.	EXIST. UTILITY POLE
U.P.	EXIST. UTILITY POLE W/ TRANS.
	GUY WIRE
	ELEC. TRANSFORMER
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
	PROP. LIGHT POLE
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
W	PROP. WATER MAIN
	EXIST. HYDRANT
	PROP. HYDRANT
	EXIST. GATE VALVE IN BOX
	PROP. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	PROP. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
	PROP. CURB STOP & BOX
r	EXIST. STORM SEWER
R	PROP. STORM SEWER
	EXIST. CATCH BASIN OR INLET
	PROP. CATCH BASIN OR INLET
RD	PROP. ROOF DRAIN
	END SECTION
	HEAD WALL
	CULVERT
ds	EXIST. DOWNSPOUT
ps	PROP. DOWNSPOUT
s	EXIST. SANITARY SEWER
S	PROP. SANITARY SEWER
	EXIST. CLEANOUT
	PROP. CLEANOUT
	C/L OF DITCH
	SIGN
	SINGLE TREE
	TREE OR BRUSH LIMIT
	FENCE
	LIMITS OF DISTURBANCE
	PROP. BITUMINOUS PAVEMENT
	PROP. HEAVY DUTY BITUMINOUS PAVEMENT

NOTES

1. ALL CURB RADII DIMENSIONS ARE TO BACK OF CURB AND ALL DIMENSIONS ARE TO FACE OF CURB, UNLESS OTHERWISE SPECIFIED.
2. ALL SPOT ELEVATIONS ARE TO THE EDGE OF METAL, UNLESS OTHERWISE SPECIFIED.

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SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
DRIVEWAY AND R.O.W. PLAN

14

DATE: 1/6/20
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ENG: HTH
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18354SP2.dwg
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JOB No. 18354

REVISIONS:	REV. DATE
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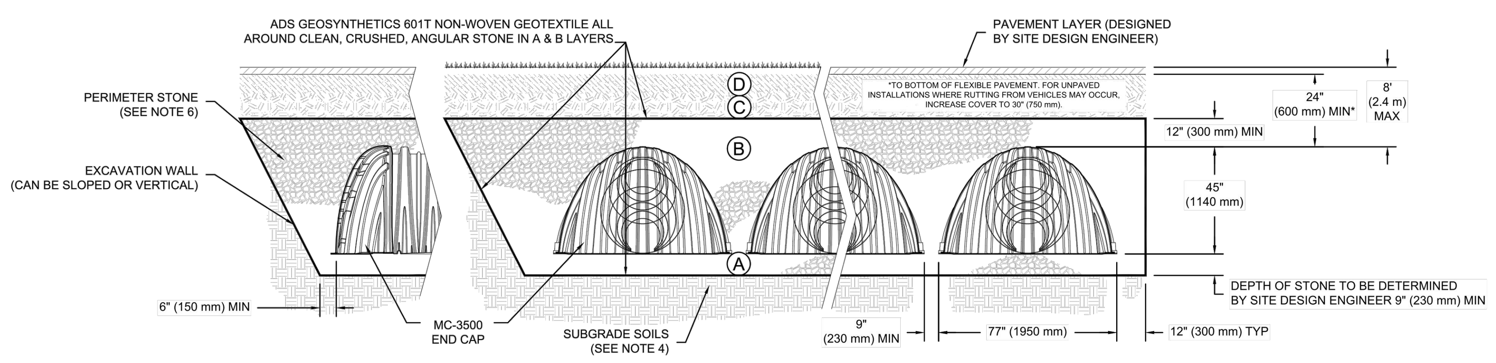
ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2 3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



*FOR COVER DEPTHS GREATER THAN 8.0' (2.4 m) PLEASE CONTACT STORMTECH

NOTES:

1. MC-3500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
   PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

MC-3500 STANDARD CROSS SECTION
DATE: 11/18/14 | DRAWN: JLM | PROJECT #: | CHECKED: JLM

REV	DRW	CHK	DESCRIPTION
01/19/16	JLM	JLM	UPDATE

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860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

ADS® ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

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SHEET 1 OF 1

STORMTECH MC-3500 UNDERGROUND CHAMBERS
NOT TO SCALE

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
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B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
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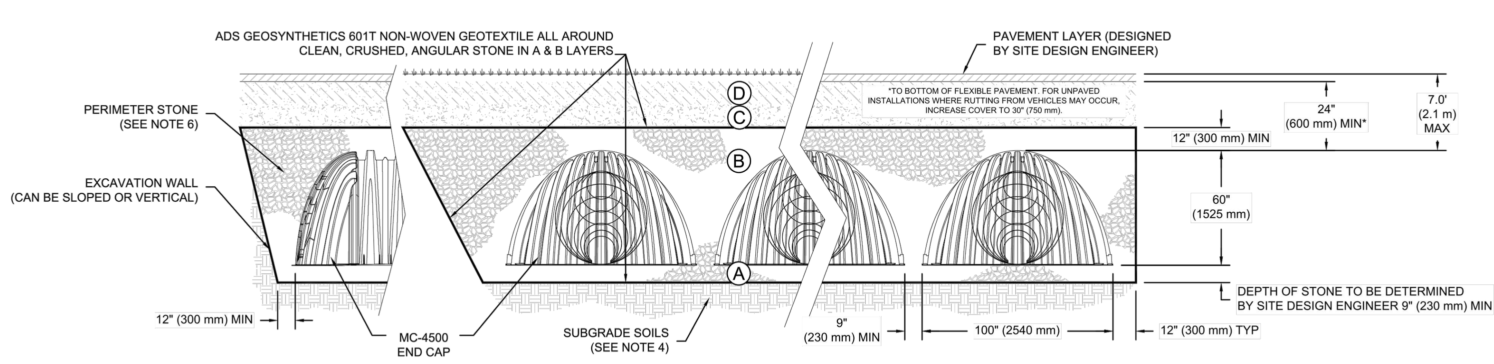

*FOR COVER DEPTHS GREATER THAN 7.0' (2.1 m) PLEASE CONTACT STORMTECH

NOTES:

1. MC-4500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
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MC-4500 STANDARD CROSS SECTION
DATE: 11/18/14 | DRAWN: JLM | PROJECT #: | CHECKED: JLM

REV	DRW	CHK	DESCRIPTION

StormTech® Detention·Retention·Water Quality
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

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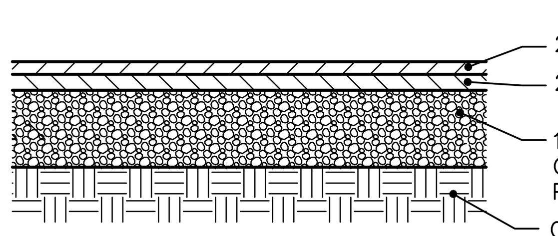
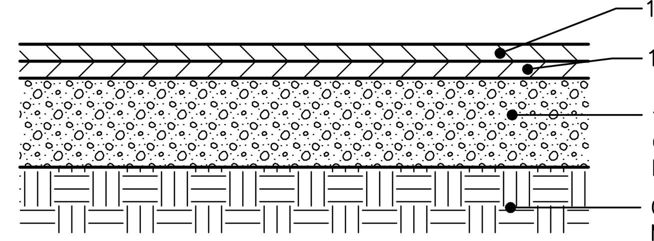
SHEET 1 OF 1

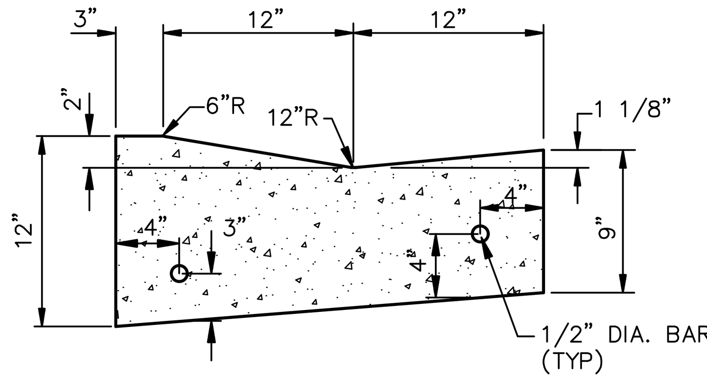
STORMTECH MC-4500 UNDERGROUND CHAMBERS
NOT TO SCALE



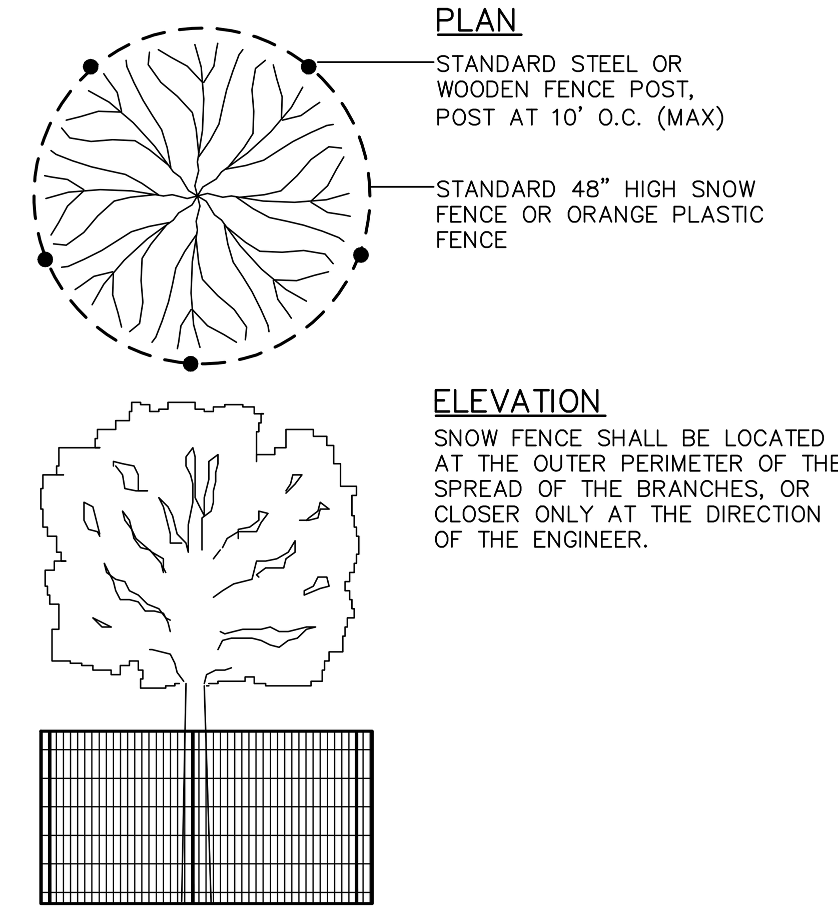
HEAVY DUTY BIT. PAVEMENT DETAIL
FOR USE IN R.O.W.
NO SCALE



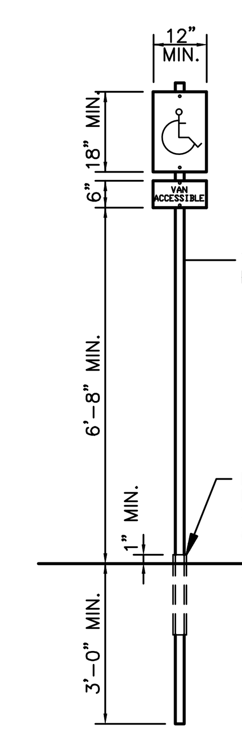
TYPICAL PAVEMENT DETAIL
NOT TO SCALE



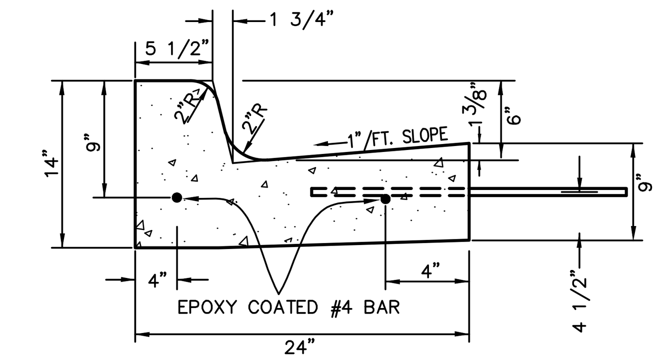
MOUNTABLE CONCRETE CURB AND GUTTER
NOT TO SCALE



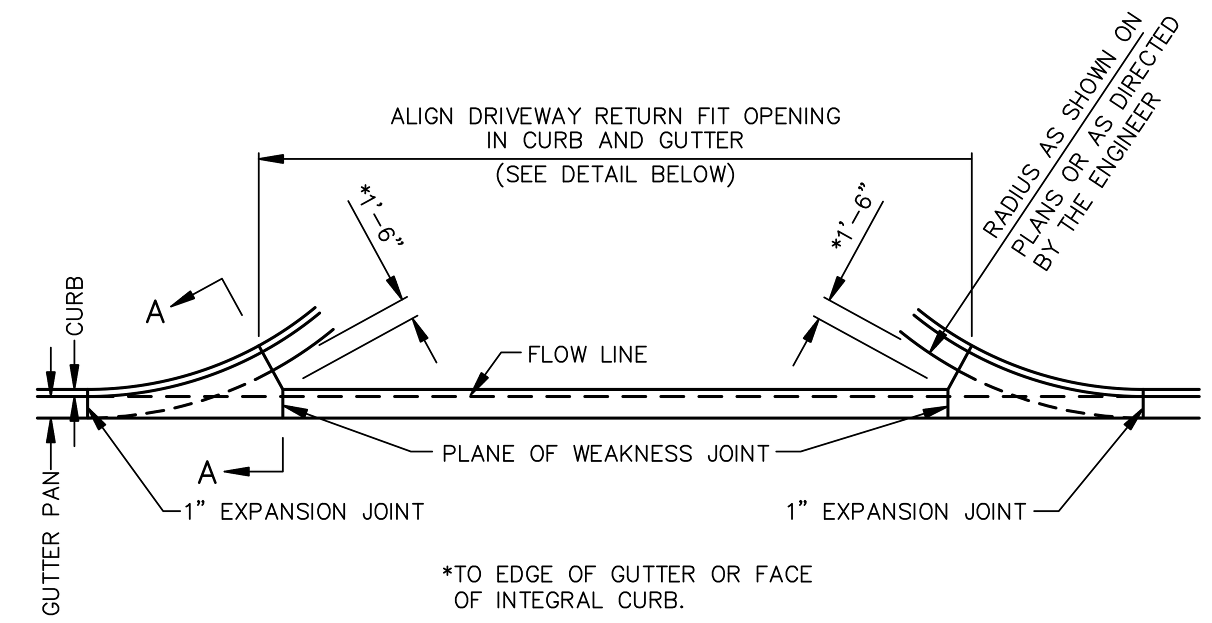
TREE PROTECTION DETAIL
NOT TO SCALE



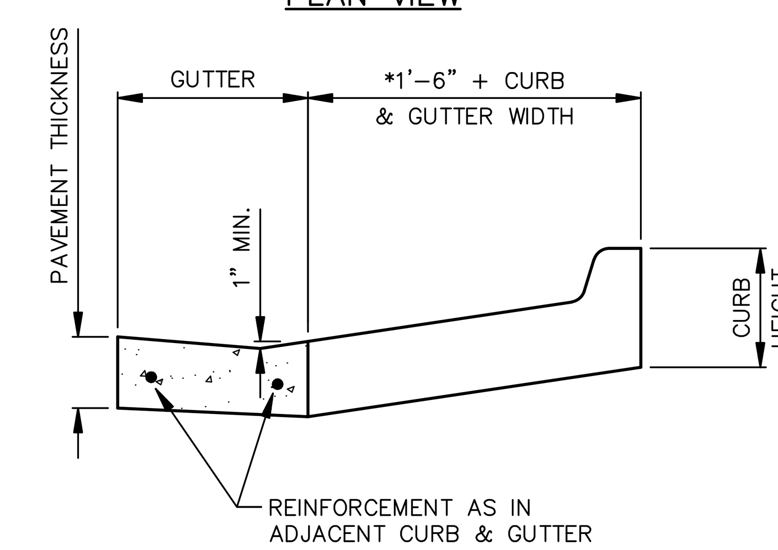
HANDICAP PARKING SIGNS
NO SCALE



MDOT F4 BARRIER CURB AND GUTTER
NO SCALE

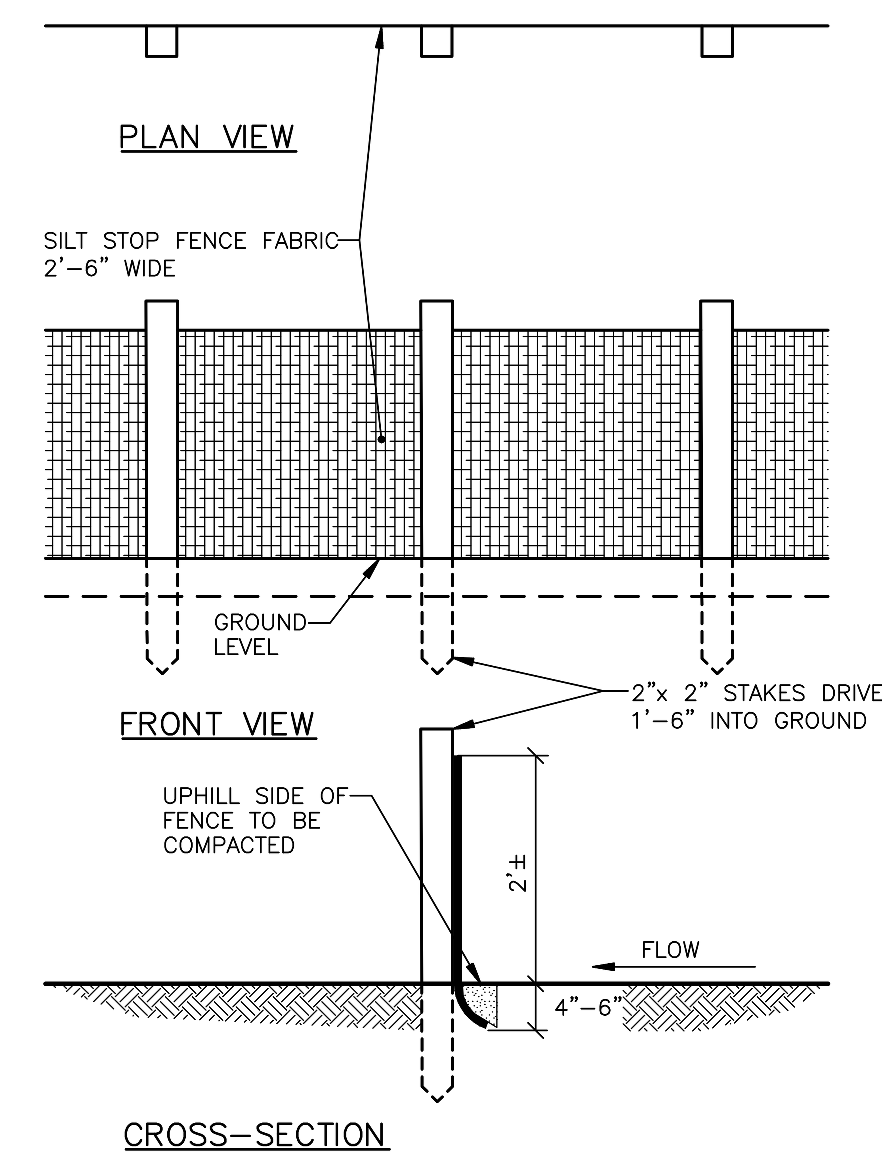


PLAN VIEW



SECTION A–A

CONCRETE DRIVEWAY OPENING - DETAIL M
NO SCALE



SILT FENCE DETAIL
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SHAMROCK SELF STORAGE
PRELIMINARY SITE PLAN
SITE DETAILS

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Materials Testing Consultants

LOG OF TEST PIT

Project No.: 191584
Test Pit No.: TP-1
Sheet: 1 of 1

Project: 4251 Carpenter Road
Client: Shamrock Builders
Location: Pittsfield Township, Michigan
Drill Type: Excavator
Crew Chief: Field Eng.: RW Rev. By: RW
Coordinates:
Elevation: 832 ft Datum: Approximated from plan contours
Notes:
Plugging Record: Backfilled test pit iwth excavated soil.

Date Begin: 11/15/19 Date End: 11/15/19

Tooling	Type	Dia.	Groundwater, ft.	
Excavator	Bucket	2'	During	None
			End	NA
			Seepage	
			Date	Depth, ft.

Depth Excavated: 7.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
831.5	0.5					12" Clayey Topsoil				Roots encountered to 1'
831.0	1.0					1.0				
830.5	1.5				CL	Brown lean CLAY; mostly clayey fines, few fine sand, moist	3.0			
830.0	2.0									
829.5	2.5									
829.0	3.0					3.0				
828.5	3.5				CL	Gray lean CLAY with sand; mostly clayey fines, little fine sand, moist	4.5+			
828.0	4.0									
827.5	4.5									
827.0	5.0									
826.5	5.5									
826.0	6.0									
825.5	6.5									
825.0	7.0									
824.5	7.5					7.5				
						End of Test Pit				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

Materials Testing Consultants

LOG OF TEST PIT

Project No.: 191584
Test Pit No.: TP-2
Sheet: 1 of 1

Project: 4251 Carpenter Road
Client: Shamrock Builders
Location: Pittsfield Township, Michigan
Drill Type: Excavator
Crew Chief: Field Eng.: RW Rev. By: RW
Coordinates:
Elevation: 832 ft Datum: Approximated from plan contours
Notes:
Plugging Record: Backfilled test pit iwth excavated soil.

Date Begin: 11/15/19 Date End: 11/15/19

Tooling	Type	Dia.	Groundwater, ft.	
Excavator	Bucket	2'	During	None
			End	NA
			Seepage	
			Date	Depth, ft.

Depth Excavated: 7.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
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831.0	1.0					1.0	3.5			
830.5	1.5				CL	Brown lean CLAY with sand; mostly clayey fines, little fine sand, moist				
830.0	2.0									
829.5	2.5									
829.0	3.0									
828.5	3.5						4.5+			
828.0	4.0					Grades gray				
827.5	4.5									
827.0	5.0									
826.5	5.5									
826.0	6.0									
825.5	6.5									
825.0	7.0									
824.5	7.5					7.5				
						End of Test Pit				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

Materials Testing Consultants

LOG OF TEST PIT

Project No.: 191584
Test Pit No.: TP-3
Sheet: 1 of 1

Project: 4251 Carpenter Road
Client: Shamrock Builders
Location: Pittsfield Township, Michigan
Drill Type: Excavator
Crew Chief: Field Eng.: RW Rev. By: RW
Coordinates:
Elevation: 833 ft Datum: Approximated from plan contours
Notes:
Plugging Record: Backfilled test pit iwth excavated soil.

Date Begin: 11/15/19 Date End: 11/15/19

Tooling	Type	Dia.	Groundwater, ft.	
Excavator	Bucket	2'	During	None
			End	NA
			Seepage	
			Date	Depth, ft.

Depth Excavated: 7.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
832.5	0.5					16" Clayey Topsoil				Roots encountered to 2.5'
832.0	1.0									
831.5	1.5					1.3				
831.0	2.0				SC	Brown clayey SAND; mostly medium to fine sand, some clayey fines, moist				
830.5	2.5					2.5				
830.0	3.0				CL	Gray lean CLAY with sand; mostly clayey fines, little fine sand, moist	4.5+			
829.5	3.5									
829.0	4.0									
828.5	4.5									
828.0	5.0									
827.5	5.5									
827.0	6.0									
826.5	6.5									
826.0	7.0									
825.5	7.5					7.5				
						End of Test Pit				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

N

LEGEND

⊙ TEST PIT (TYP)

NOTE: AERIAL IMAGE FROM GOOGLE EARTH

TITLE: LOCATION PLAN		PROJECT: 4251 CARPENTER RD TEST PIT OBSERVATION	
SCALE: NTS	DATE: 11/22/2019	PROJECT NO.: 191584	Materials Testing Consultants, INC.
FIG. NO.: 1	DR. BY: JS	REV. BY: RW	

Materials Testing Consultants

LOG OF TEST PIT

Project No.: 191584
Test Pit No.: TP-4
Sheet: 1 of 1

Project: 4251 Carpenter Road
Client: Shamrock Builders
Location: Pittsfield Township, Michigan
Drill Type: Excavator
Crew Chief: Field Eng.: RW Rev. By: RW
Coordinates:
Elevation: 832 ft Datum: Approximated from plan contours
Notes:
Plugging Record: Backfilled test pit iwth excavated soil.

Date Begin: 11/15/19 Date End: 11/15/19

Tooling	Type	Dia.	Groundwater, ft.	
Excavator	Bucket	2'	During	None
			End	NA
			Seepage	
			Date	Depth, ft.

Depth Excavated: 7.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
831.5	0.5					10" Clayey Topsoil				Roots encountered to 0.8'
831.0	1.0					0.8				
830.5	1.5				CL	Brown sandy lean CLAY; mostly clayey fines, some fine sand, moist	3.0			
830.0	2.0									
829.5	2.5									
829.0	3.0					3.0				
828.5	3.5				CL	Gray lean CLAY with sand; mostly clayey fines, little fine sand, moist	4.5+			
828.0	4.0									
827.5	4.5									
827.0	5.0									
826.5	5.5									
826.0	6.0									
825.5	6.5									
825.0	7.0									
824.5	7.5					7.5				
						End of Test Pit				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

Materials Testing Consultants

LOG OF TEST PIT

Project No.: 191584
Test Pit No.: TP-5
Sheet: 1 of 1

Project: 4251 Carpenter Road
Client: Shamrock Builders
Location: Pittsfield Township, Michigan
Drill Type: Excavator
Crew Chief: Field Eng.: RW Rev. By: RW
Coordinates:
Elevation: 832 ft Datum: Approximated from plan contours
Notes:
Plugging Record: Backfilled test pit iwth excavated soil.

Date Begin: 11/15/19 Date End: 11/15/19

Tooling	Type	Dia.	Groundwater, ft.	
Excavator	Bucket	2'	During	None
			End	NA
			Seepage	
			Date	Depth, ft.

Depth Excavated: 7.5 ft.

Component Percentages: Trace < 5%, Few 5-10%, Little 15-25%, Some 30-45%, Mostly 50-100% QP = Calibrated Penetrometer (tons/sq. ft.)

Elev. FT.	Depth FT.	Sample Number	Recov. FT.	Dyn. Cone Eq. "N": ASTM STP 399	*USCS Group Symbol	*DESCRIPTION	QP tsf	MST %	DD pcf	REMARKS
831.5	0.5					12" Clayey Topsoil				Roots encountered to 1'
831.0	1.0					1.0				
830.5	1.5				SC	Brown clayey SAND; mostly fine sand, some clayey fines, moist				
830.0	2.0					2.0				
829.5	2.5				CL	Gray lean CLAY with sand; mostly clayey fines, little fine sand, moist	4.5+			
829.0	3.0									
828.5	3.5									
828.0	4.0									
827.5	4.5									
827.0	5.0									
826.5	5.5									
826.0	6.0									
825.5	6.5									
825.0	7.0									
824.5	7.5					7.5				
						End of Test Pit				

* Visual estimate following ASTM D 2488 unless laboratory testing has been performed. Stratification changes are approximated between samples.

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GREG O'HERREN
(317) 590-4713

SHAMROCK SELF STORAGE

PRELIMINARY SITE PLAN
TEST PITS

16

DATE: 1/6/20
SHEET 15 OF 18
CADD:
ENG.: HTH
PM: HTH
TECH:
/18354EX1

JOB No. 18354
REVISIONS:

REV.	DATE

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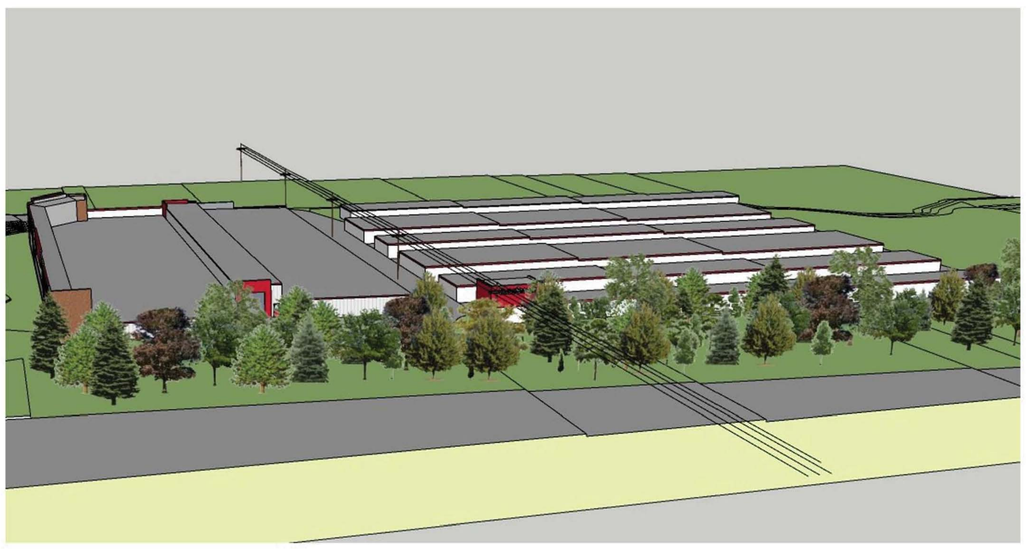
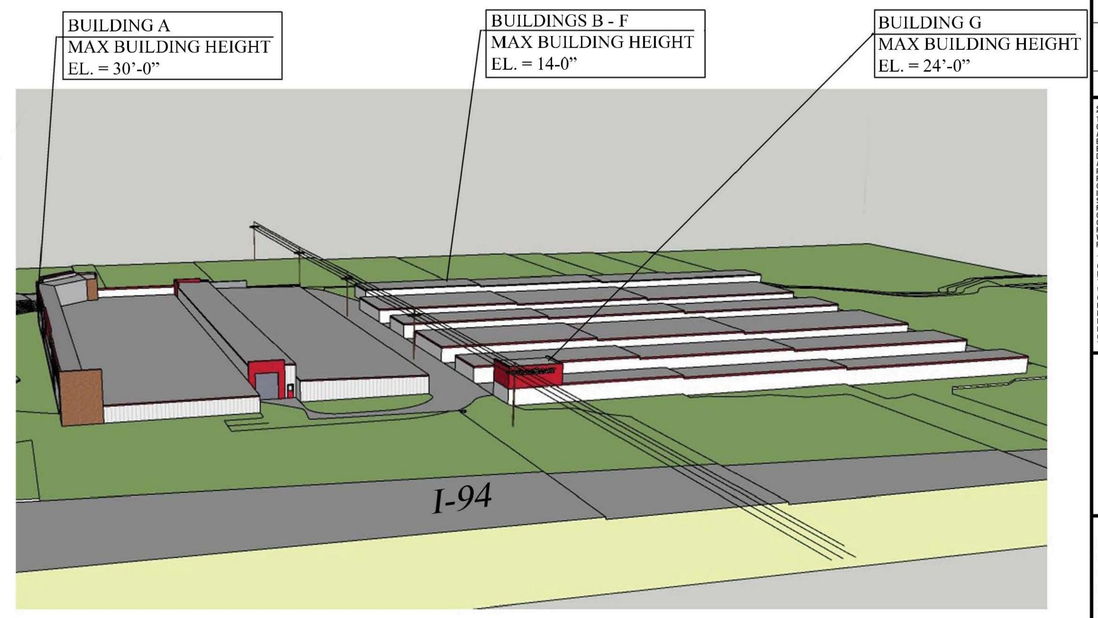
4251 CARPENTER ROAD, YPSILANTI, MI

SHAMROCK BUILDERS INC.
9800 WESTPOINT DRIVE, SUITE 200
INDIANAPOLIS, IN 46256

SCALE	AS NOTED
DRAWN BY	S.JD
CHK'D BY	DMW
FILE NAME	**PRELIMINARY BUILDING EXTERIOR**
DATE	01/07/20
JOB NO.	CC14
SHEET NO.	A-1



SITE BUILDING OVERVIEW
(EXISTING TREE CONFIGURATION IS APPROXIMATE
AND SHOWN FOR GENERAL REFERENCE ONLY)



SITE BUILDING OVERVIEW

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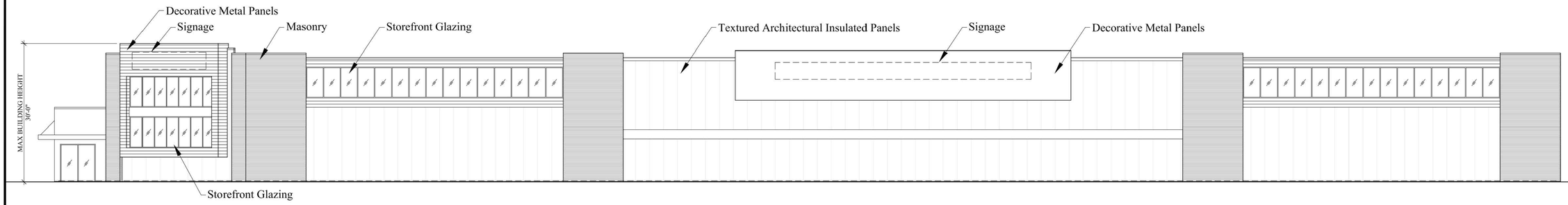
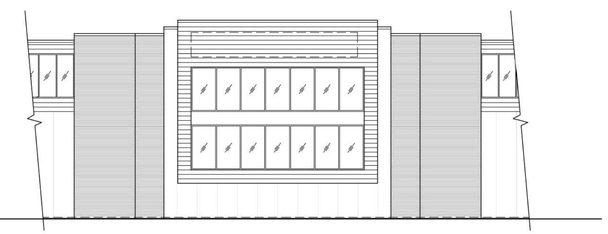
SHAMROCK BUILDERS INC.
9800 WESTPOINT DRIVE, SUITE 200
INDIANAPOLIS, IN 46256

DRAWN BY: SJD	SCALE: AS NOTED
CHK'D BY: DMW	**PRELIMINARY BUILDING EXTERIOR**
	FILE NAME:
DATE: 04/04/20	JOB NO.: CC14
SHEET NO.: A-2	

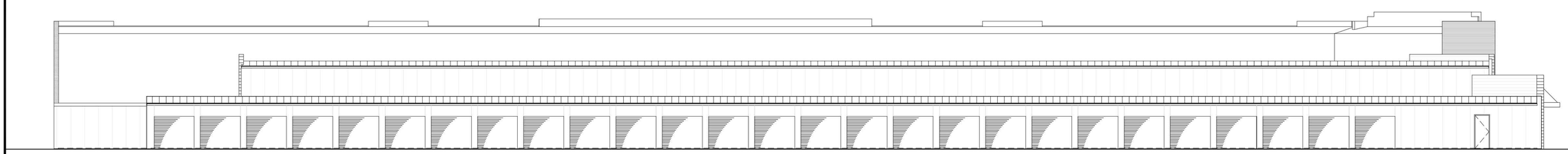


1 WEST ELEVATION - BUILDING A
Scale: 10 Feet

2 NORTH ELEVATION - BUILDING A
Scale: 10 Feet



3 NORTHWEST ELEVATION - BUILDING A
Scale: 10 Feet



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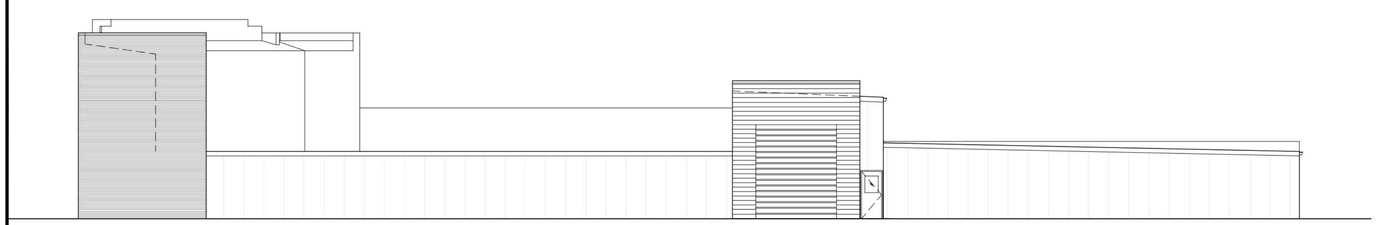
Scale: 10 Feet



5 SOUTH ELEVATION - BUILDING A
Scale: 10 Feet

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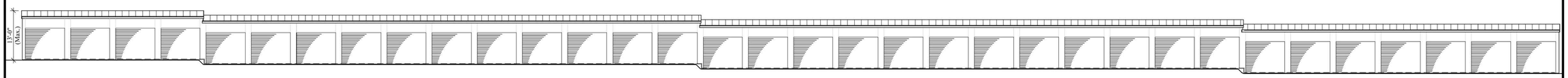
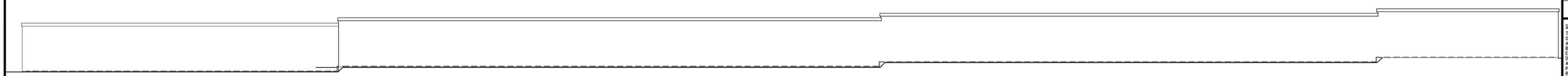
DRAWN BY	SJD
CHK'D BY	DMW
DATE	01/07/20
JOB NO.	CC14
FILE NAME	

PROPOSED BUILDING ELEVATIONS

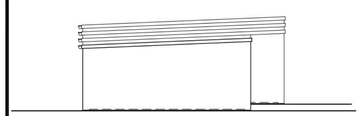
SHEET NO.
A-3



1 SOUTH ELEVATION - BUILDING B
Scale: 10 Feet

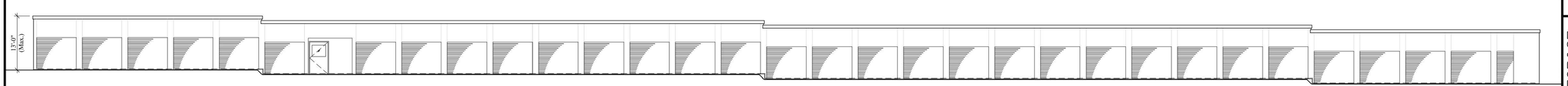


2 NORTH ELEVATION - BUILDING B
Scale: 10 Feet



3 EAST ELEVATION - BUILDING B
Scale: 10 Feet

4 WEST ELEVATION - BUILDING B
Scale: 10 Feet



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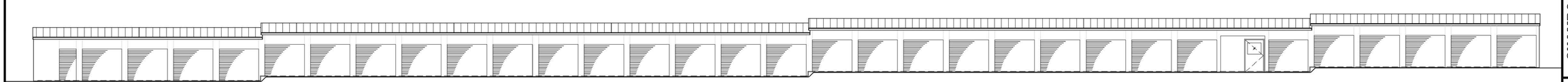
Scale: 10 Feet



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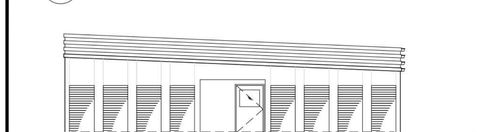
Scale: 10 Feet



7 EAST ELEVATION - BUILDING C
Scale: 10 Feet

8 WEST ELEVATION - BUILDING C
Scale: 10 Feet

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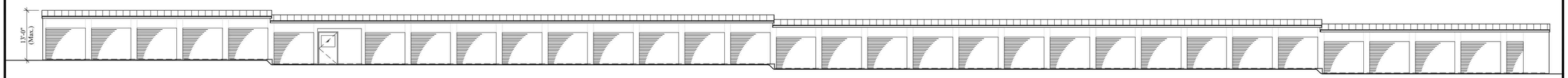
INDIANAPOLIS, IN 46256

DRAWN BY: SJD	SCALE: AS NOTED
CHK'D BY: DMW	FILE NAME:
DATE: 01/07/20	JOB NO.: CC14

PROPOSED BUILDING ELEVATIONS

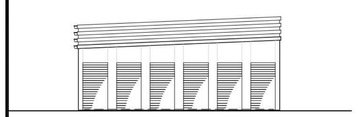
SHEET NO.

A-4



1 SOUTH ELEVATION - BUILDING D
Scale: 10 Feet

2 NORTH ELEVATION - BUILDING D
Scale: 10 Feet



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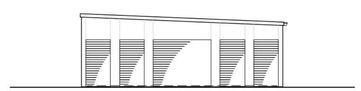
Scale: 10 Feet



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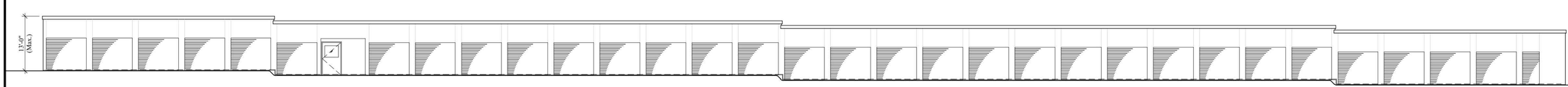
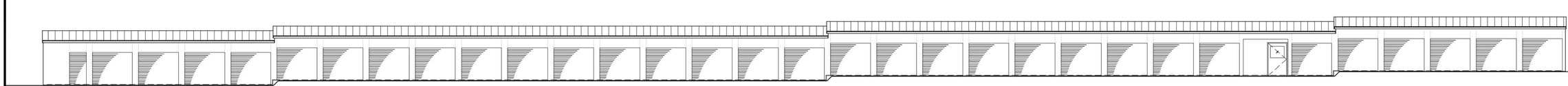
Scale: 10 Feet



5 SOUTH ELEVATION - BUILDING E
Scale: 10 Feet



6 NORTH ELEVATION - BUILDING E
Scale: 10 Feet

7 EAST ELEVATION - BUILDING E
Scale: 10 Feet

8 WEST ELEVATION - BUILDING E
Scale: 10 Feet

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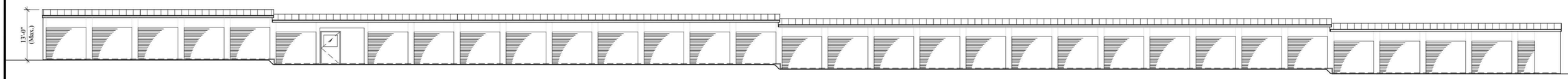
SHAMROCK BUILDERS, INC.
9800 WESTPOINT DRIVE, SUITE 200
INDIANAPOLIS, IN 46256

SCALE	AS NOTED
DRAWN BY	SJD
CHK'D BY	DMW
DATE	01/07/20
JOB NO.	CC14
FILE NAME	

PROPOSED BUILDING ELEVATIONS

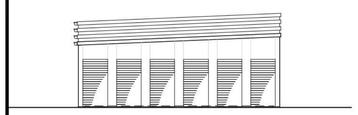
SHEET NO.

A-5

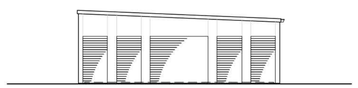


1 SOUTH ELEVATION - BUILDING F
Scale: 10 Feet

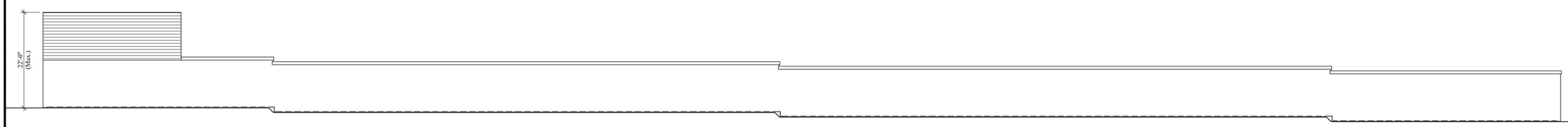
2 NORTH ELEVATION - BUILDING F
Scale: 10 Feet



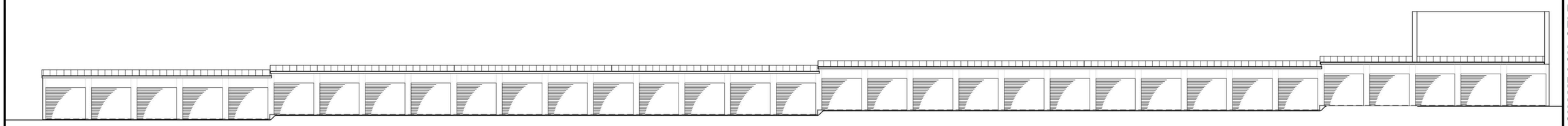
3 EAST ELEVATION - BUILDING F
Scale: 10 Feet



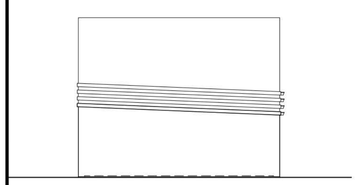
4 WEST ELEVATION - BUILDING F
Scale: 10 Feet



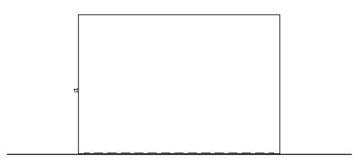
5 SOUTH ELEVATION - BUILDING G
Scale: 10 Feet



6 NORTH ELEVATION - BUILDING G
Scale: 10 Feet



7 EAST ELEVATION - BUILDING G
Scale: 10 Feet



8 WEST ELEVATION - BUILDING G
Scale: 10 Feet

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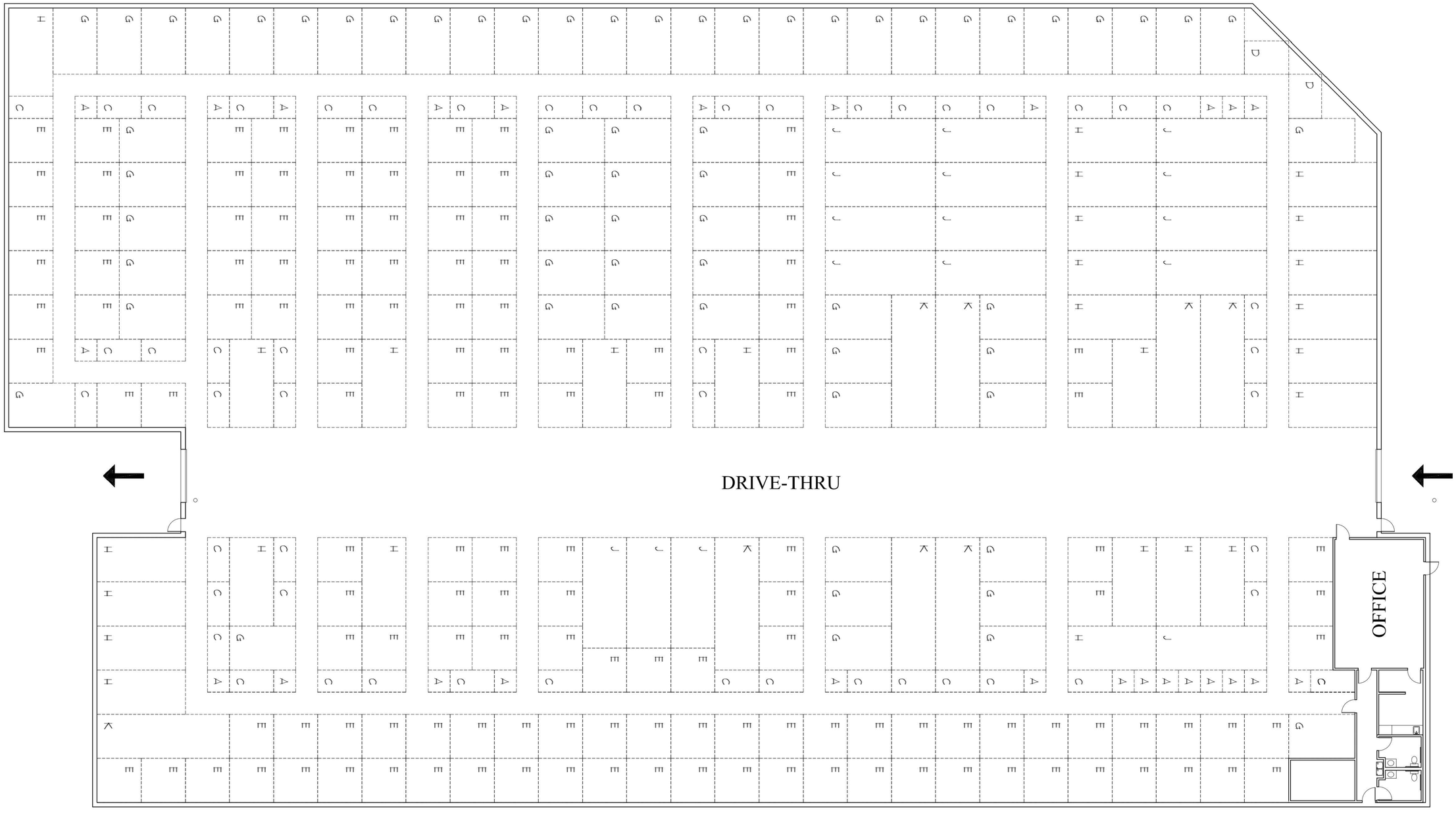
SHAMROCK BUILDERS INC.
9800 WESTPOINT DRIVE, SUITE 200
INDIANAPOLIS, IN 46256

DRAWN BY SJD	SCALE AS NOTED	**PROPOSED BUILDING ELEVATIONS**
CHKD BY DMW		FILE NAME
DATE 01/07/20		JOB NO. CC14

SHEET NO.

A-6



1 FLOOR PLAN - BUILDING A
Scale: 10 Feet

N

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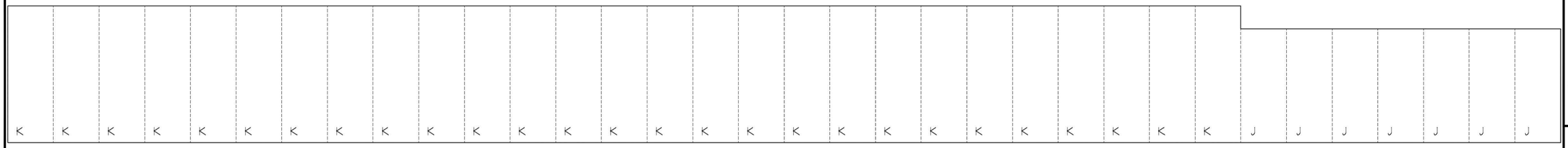
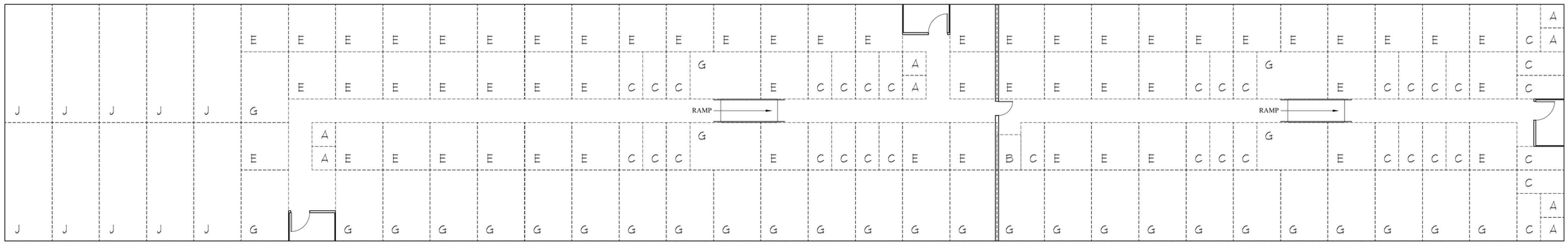
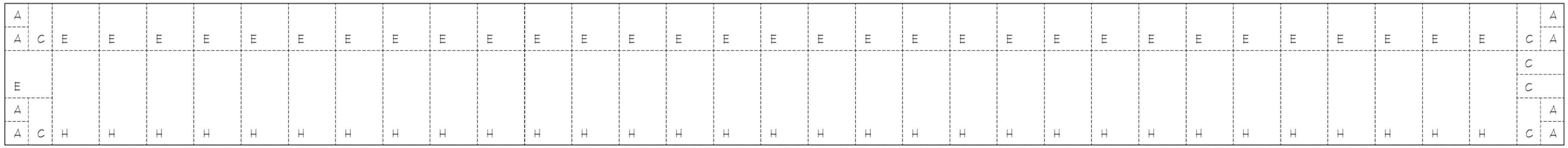
SCALE	AS NOTED
DRAWN BY	SJD
CHK'D BY	DMW
DATE	01/07/20
FILE NAME	**FLOOR PLANS**
JOB NO.	CC14
SHEET NO.	A-7



1 FLOOR PLAN BUILDING B
Scale: 10 Feet



2 FLOOR PLAN BUILDING C
Scale: 10 Feet



3 FLOOR PLAN BUILDING D
Scale: 10 Feet

STORAGE UNIT SCHEDULE

TAG	SIZE (NOM)	AREA
A	5' x 5'	25 SF (Nom.)
B	5' x 7.5'	37.5 SF (Nom.)
C	5' x 10'	50 SF (Nom.)
D	7.5' x 10'	75 SF (Nom.)
E	10' x 10'	100 SF (Nom.)
G	10' x 15'	150 SF (Nom.)
H	10' x 20'	200 SF (Nom.)
J	10' x 25'	250 SF (Nom.)
K	10' x 30'	300 SF (Nom.)

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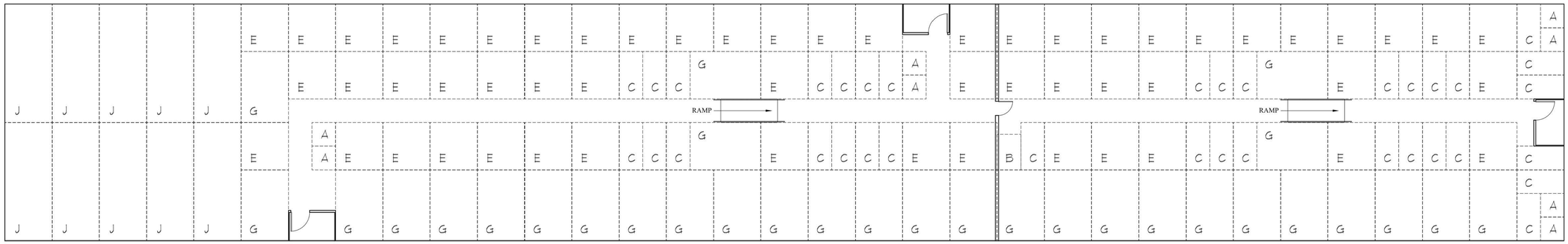
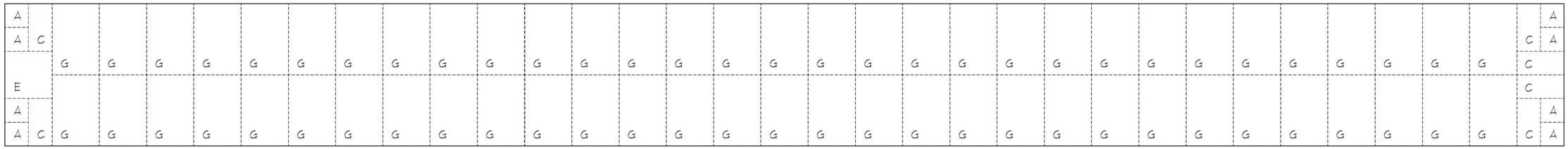
SCALE: AS NOTED
FLOOR PLANS
DRAWN BY: SJD
CHK'D BY: DMW
FILE NAME:
DATE: 01/07/20
JOB NO. CC14
SHEET NO. A-8



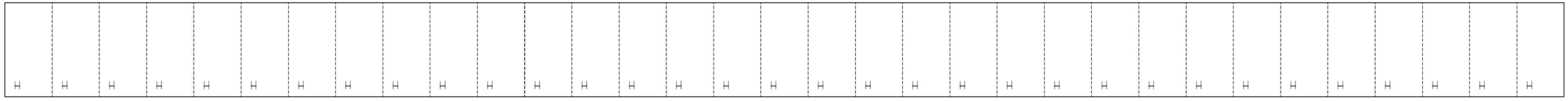
1 FLOOR PLAN BUILDING E
Scale: 10 Feet

N



2 FLOOR PLAN BUILDING F
Scale: 10 Feet

N



3 FLOOR PLAN BUILDING G
Scale: 10 Feet

N

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SCALE	AS NOTED
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DATE	01/07/20
FILE NAME	FLOOR PLANS
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SHEET NO.	A-9