Edge Design Associates, Inc.

pidc Corporate Headquarters and Technical Center

Part of Lot 26 and Lot 27
Runway Plaza Worksenter
Pittsfield Charter Township

ARCHITECT'S PROJECT NUMBER: 19-110
ISSUED: JULY 21, 2015

OWNER/APPLICANT

PIDC Investments, LLC
4788 Runway Boulevard
Ann Arbor, Michigan 48108

phone: 734.930.9292

Project Representative
Wei Wu, Cheif Executive Officer
wwu@pidc.com

ARCHITECT (SITE PLANNER)

Edge Design Associates, Inc.
24 Frank Lloyd Wright Drive
Suite H1800
Ann Arbor, MI 48106

phone: 734.558.2212

Project Representative
Daniel P. Mooney, AIA

dmooney@edgedesignassociates.com

CIVIL ENGINEER/SURVEYOR

Zeimet Wozniak & Associates
55800 Grand River Ave.
New Hudson, MI 48165

Project Representative
Julian Wargo, PE
jwargo@zeimetwozniak.com

LANDSCAPE ARCHITECT

Grissim Metz Andriese Associates
300 E. Cady St.
Northville, MI 48167

Project Representative
Paul Andriese, ASLA
paula@gma-la.com

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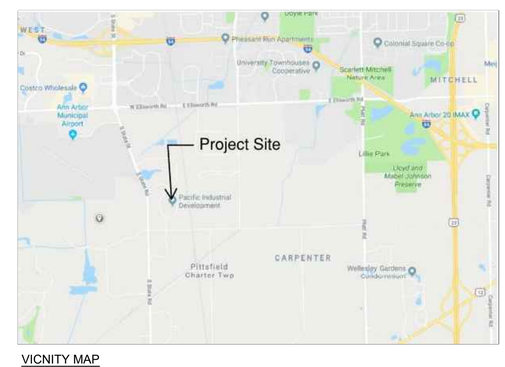
PIDC - BUSINESS NARRATIVE

PIDC is a technology material company headquartered in Pittsfield Township. The company was started in 1992 in Ann Arbor and has experienced significant growth. We currently have 70 employees working in Pittsfield Township which will expand to over 100 with the completion of this new facility. The company now has production facilities in Spartanburg, SC and in Asia and seven sales offices around the globe. PIDC's focus is on functional materials used in the automotive exhaust emission control technology, electronic ceramic technology and chemical catalyst industries. Particularly half of the sales of our products come from exhaust emission control technology materials. We have a strong growing base in this area in terms of both technology and production capabilities.

Our products are used in the manufacturing of catalyst which reduce exhaust emissions from passenger cars, heavy duty trucks, buses, and non–road machinery. Our product lines cover structured alumina, zeolite and rare earth oxide compounds. Those material are essentially used in emission control catalyst. Those catalyst use structured alumina and rare earth compound materials used in gasoline–fueled passenger cars and zeolite is specifically used in NOx reduction catalyst equipped in diesel fueled vehicles.

Automotive exhaust emission control has been receiving major attention in recent years because it has a major impact on the global environment as well as human health. A recent ICCT (International Council on Clean Transport) report has estimated that transport emissions and ozone was a contributing factor to 385,000 premature deaths. PIDC maintains 20% of the global market share of functional material for this industry. We are therefore closely associated to the activity to mitigate the damage by exhaust emission from automotive vehicles and effectively saving 77,000 lives. The reduction of emissions from all sources by deploying our emission control materials has a significant contribution for global climate change.

Our new R & D center in Pittsfield Township will be continuously developing advanced technology to advance our company target by continuously improving our environment. The new center will enable us to double our existing R&D capabilities and expand our research capabilities in fuel cell and battery technology for the transportation industry. The additional 50 highly educated scientists and engineers (PhD) we are planning to hire will make PIDC a global power of innovation in the cleantech market.

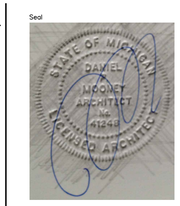


VICNITY MAP
NOT TO SCALE

CSPA 19-08 PIDC Headquarters & Tech Center
Preliminary Site Plan
Received: 2019-05-14

NOT FOR CONSTRUCTION

Seal



Architect

Edge DESIGN ASSOCIATES
Architecture & Interior Design
Planning

24 Frank Lloyd Wright Drive
Suite H1800
Ann Arbor, MI 48106
www.edgedesignassociates.com

Consultant

Project

Innovative Chemistry
Advanced Materials

Pittsfield Charter Township, MI

pidc
Headquarters & Tech. Center

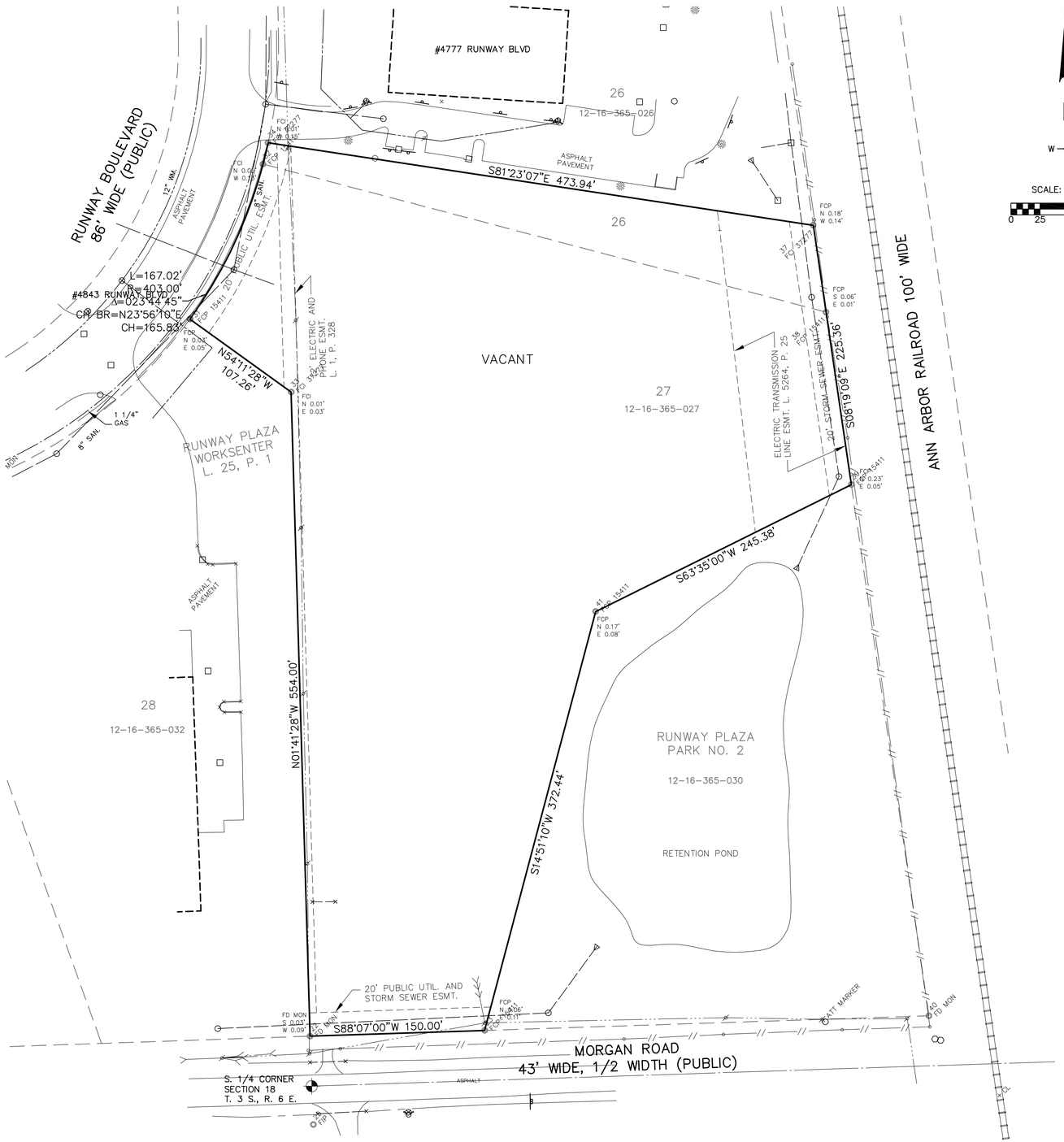
Sheet
Floor Plan

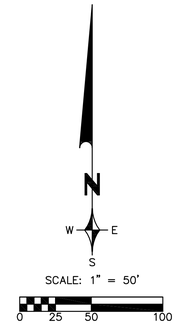
Date Issued

10 May 2019 Preliminary Site Plan Submittal

Project Number
19-110

Sheet No.
A101





CERTIFICATION:

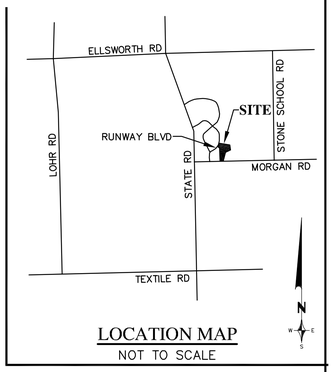
TO: PIDC INVESTMENTS, LLC, A MICHIGAN LIMITED LIABILITY COMPANY, AMERICAN TITLE COMPANY OF WASHTENAW AND STEWART TITLE GUARANTY COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY AMERICAN LAND TITLE ASSOCIATION AND THE NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS, AND INCLUDES ITEMS 1–4, 6(A)(B), 7(A)(B)(C), 8, 9, 10, 11, 13, 14, 16–19, AND 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON NOVEMBER 19, 2018.

RICHARD HOFSESS DATE
PROFESSIONAL SURVEYOR No. 47955
RHOFSESS@ZEIMETWOZNIAK.COM

LEGEND

	BOUNDARY LINE
	PARCEL LINE
	EASEMENTS
∘	FD MON, FCI, FIB
FD MON	FOUND MONUMENT
FCI	FOUND CAPPED IRON
FIB	FOUND IRON BAR
R.O.W.	RIGHT OF WAY
○	MANHOLE
□	CATCH BASIN
	HYDRANT
	UTILITY POLE
	SIGN
	TREE
	SANITARY SEWER
	STORM SEWER
	WATER MAIN
	GAS MAIN
	ELECTRIC CABLE
T/C	TOP OF CURB
GU	GUTTER
+100.00	SPOT ELEVATION
	CONCRETE



LOCATION MAP
NOT TO SCALE

LEGAL DESCRIPTION:

THE LAND REFERRED TO IN THIS COMMITMENT IS DESCRIBED AS FOLLOWS:

LAND IN THE TOWNSHIP OF PITTSFIELD, COUNTY OF WASHTENAW, MICHIGAN, DESCRIBED AS:
LOTS 26 AND 27 OF RUNWAY PLAZA AS RECORDED IN LIBER 25 OF PLATS, PAGE 1 THROUGH 5, WASHTENAW COUNTY RECORDS, EXCEPTING THE FOLLOWING DESCRIBED PARCEL:

PART OF LOT 26, RUNWAY PLAZA WORKSENTER, AS RECORDED IN LIBER 25 OF PLATS, PAGES 1 THROUGH 5, WASHTENAW COUNTY RECORDS, BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTH 1/4 CORNER OF SECTION 16, TOWN 3 SOUTH, RANGE 6 EAST, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN; THENCE NORTH 01°41'28" WEST 597.00 FEET ALONG THE NORTH–SOUTH 1/4 LINE OF SECTION 16 AND THE WEST LINE OF LOT 27, RUNWAY PLAZA WORKSENTER, AS RECORDED IN LIBER 25 OF PLATS, PAGES 1 THROUGH 5, WASHTENAW COUNTY RECORDS; THENCE NORTH 54°11'28" WEST 107.26 FEET ALONG THE SOUTHWESTERLY LINE OF SAID LOT 27; THENCE NORTHEASTERLY 167.02 FEET ALONG THE EASTERLY RIGHT–OF–WAY LINE OF RUNWAY BOULEVARD (86 FEET WIDE) IN THE ARC OF A NON–TANGENTIAL CURVE TO THE LEFT, RADIUS 403.00 FEET, CENTRAL ANGEL 23°44'43", AND CHORD NORTH 23°56'10" EAST 165.82 FEET TO THE POINT OF BEGINNING; THENCE NORTHEASTERLY 91.75 FEET ALONG THE EASTERLY RIGHT–OF–WAY LINE OF RUNWAY BOULEVARD IN THE ARC OF A CIRCULAR CURVE TO THE LEFT, RADIUS 403.00 FEET, CENTRAL ANGLE 13°02'41", AND CHORD NORTH 05°32'28" EAST 91.55 FEET; THENCE NORTH 00°58'51" WEST 58.69 FEET ALONG THE EAST RIGHT–OF–WAY LINE OF RUNWAY BOULEVARD; THENCE SOUTH 86°16'10" EAST 433.51 FEET ALONG THE NORTH LINE OF LOT 26; THENCE SOUTH 08°19'09" EAST 194.64 FEET ALONG THE WEST LINE OF THE ANN ARBOR RAILROAD (100 FEET WIDE) AND THE EAST LINE OF LOT 26; THENCE NORTH 81°23'07" WEST 473.94 FEET TO THE POINT OF BEGINNING, BEING A PART OF LOT 26, RUNWAY PLAZA WORKSENTER, AS RECORDED IN LIBER 25 OF PLATS, PAGES 1 THROUGH 5, WASHTENAW COUNTY RECORDS, AND LOCATED IN THE SOUTH 1/2 OF SECTION 16, TOWN 3 SOUTH, RANGE 6 EAST, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN.

SCHEDULE B - SECTION II EXCEPTIONS:

1. – 7. **NOT MATTERS OF SURVEY.**
8. EASEMENTS, AGREEMENTS AND CONDITIONS AS SHOWN ON RECORDED PLAT. **SHOWN.**
9. EASEMENTS AND ENCROACHMENTS AS SHOWN ON MIDWESTERN CONSULTING SURVEY DATED APRIL 16, 2016, BEING JOB NO. 15273. **NOT PROVIDED.**
10. EASEMENT, AGREEMENT AND CONDITIONS IN FAVOR OF INTERNATIONAL TRANSMISSION COMPANY AS RECORDED IN LIBER 5264, PAGE 25, WASHTENAW COUNTY RECORDS. **SHOWN.**
11. BUILDING AND USE RESTRICTIONS CONTAINED IN INSTRUMENT(S) RECORDED IN LIBER 2111, PAGE 89, WASHTENAW COUNTY RECORDS, BUT OMITTING ANY SUCH COVENANT OR RESTRICTION BASED ON RACE, COLOR, RELIGION, SEX, HANDICAP, FAMILIAL STATUS, OR NATIONAL ORIGIN. THE MORTGAGE POLICY TO BE ISSUED, IF ANY, WILL INSURE AGAINST LOSS OR DAMAGE AS A RESULT OF ANY EXISTING VIOLATIONS OF SAID BUILDING AND USE RESTRICTIONS. **NOTHING TO PLOT.**
12. EASEMENT, AGREEMENT AND CONDITIONS IN FAVOR OF THE DETROIT EDISON COMPANY, AS RECORDED IN LIBER 1 OF GRANTS, PAGE 328, WASHTENAW COUNTY RECORDS. **SHOWN.**
13. NO DIRECT ACCESS TO MORGAN ROAD AS SET FORTH IN THE RECORDED PLAT. **NOTHING TO PLOT.**
14. RESERVATION OF WATER RIGHTS AS SET FORTH IN INSTRUMENTS RECORDED IN LIBER 221, PAGE 111, AND IN LIBER 221, PAGE 500, WASHTENAW COUNTY RECORDS. **NOTHING TO PLOT.**
15. PARCEL I.D. NO. L–12–16–365–027

SURVEY NOTES:

1. THE SURVEYED PROPERTY IS IN A FEDERALLY DESIGNATED FLOOD ZONE X, FIRM MAP No. 26161C0405. EFFECTIVE DATE 4–3–2012. THE ABOVE FLOOD PLAIN DESIGNATION IS FOR INFORMATION ONLY AND IS BASED ON THE FIRM MAP LISTED ABOVE AVAILABLE ELECTRONICALLY FROM FEMA ON THE DATE OF THIS SURVEY. THIS SURVEYOR ASSUMES NO LIABILITY FOR THE CORRECTNESS OF THE CITED MAP(S). IN ADDITION, THE ABOVE STATEMENT DOES NOT REPRESENT THIS SURVEYOR'S OPINION OF THE PROBABILITY OF FLOODING.
2. THE BEARINGS ARE BASED ON THE PLAT OF "RUNWAY PLAZA WORKSENTER" AS RECORDED IN LIBER 25, PAGE 1, WASHTENAW COUNTY RECORDS.
3. UNDERGROUND UTILITIES ARE SHOWN ACCORDING TO VISIBLE SURFACE FEATURES AND AVAILABLE RECORDS.
4. PARCEL CONTAINS 242,359 SQUARE FEET OR 5.56 ACRES OF LAND.
5. AT TIME OF INSPECTION THERE WAS NO OBSERVED EVIDENCE OF CEMETERIES LOCATED ON SUBJECT PROPERTY.
6. THE SITE IS ZONED BD, BUSINESS. SETBACKS: FRONT 25', SIDE 20', REAR 35'. SETBACKS ARE LISTED ACCORDING TO THE ZONING ORDINANCE. SETBACKS ARE SUBJECT TO INTERPRETATION OF FRONT, SIDE AND REAR, VARIANCES AND VARIOUS PLANNING AND SITE PLAN APPROVALS. ONLY THE APPROPRIATE MUNICIPAL AUTHORITY CAN DETERMINE IF THE SURVEYED PROPERTY CONFORMS TO SETBACK REQUIREMENTS. THE SURVEYOR CAN SHOW THE SETBACK LINES ON THE DRAWING ONLY IF A ZONING REPORT IS PROVIDED THAT ILLUSTRATES THE SETBACK LINES.. A MORE DETAILED RESPONSE TO ITEMS 6a AND 6b REQUIRES A COMPLETE ZONING REPORT. NO ZONING REPORT WAS PROVIDED.
7. THERE ARE NO CHANGES IN STREET RIGHT–OF–WAY KNOWN TO THIS SURVEYOR.
8. THERE WAS NO OBSERVED EVIDENCE OF EARTHWORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS IN RECENT MONTHS ON DATE OF FIELD SURVEY.
9. THE PROPERTY HAS DIRECT ACCESS TO RUNWAY BOULEVARD, A PUBLIC STREET.
10. THERE WAS NO OBSERVED EVIDENCE THAT THE SUBJECT SITE IS CURRENTLY BEING USED AS AN ACTIVE SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL ON DATE OF FIELD SURVEY.
11. NO DELINEATED WETLANDS WERE OBSERVED AT THE TIME OF THE LATEST FIELD INSPECTION.

AMERICAN TITLE COMPANY OF WASHTENAW, COMMITMENT NO. 111550, EFFECTIVE DATE: 11–13–2018.

STATE OF MICHIGAN
JULIAN JAY WARGO, JR.
ENGINEER No. 36177
LICENSED PROFESSIONAL ENGINEER

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PRELIMINARY SITE PLAN SUBMITTAL	5/09/19	JJW									

ZEIMET WOZNIAK & ASSOCIATES
Civil Engineers & Land Surveyors
55800 GRAND RIVER AVE., SUITE 100
NEW HUDSON, MICHIGAN 48165
P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

MISS DIG SYSTEM, INC. 1-800-482-7171 — THREE FULL WORKING DAYS BEFORE YOU DIG, CALL THE MISS DIG SYSTEM

PROJECT SPONSOR:
PACIFIC INDUSTRIAL DEVELOPMENT CORP.
4788 RUNWAY BLVD.
ANN ARBOR, MI 48108

ALTA/NSPS LAND TITLE SURVEY
PARCEL 12–16–365–027
PITTSFIELD CHARTER TOWNSHIP – WASHTENAW COUNTY – MICHIGAN

FIELD BOOK 824	DATE 11–26–18	SCALE HOR: 1" = 50' VER: 1" =	
	DESIGNED BY	JOB NO. 18132	
	DRAWN BY PTG	SHEET S–100	

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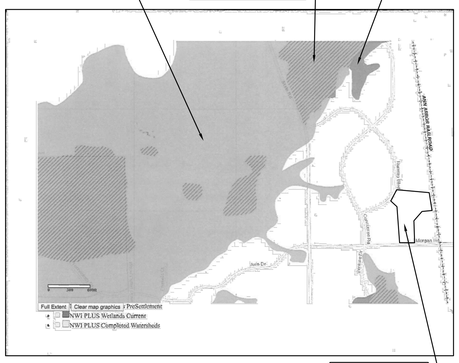
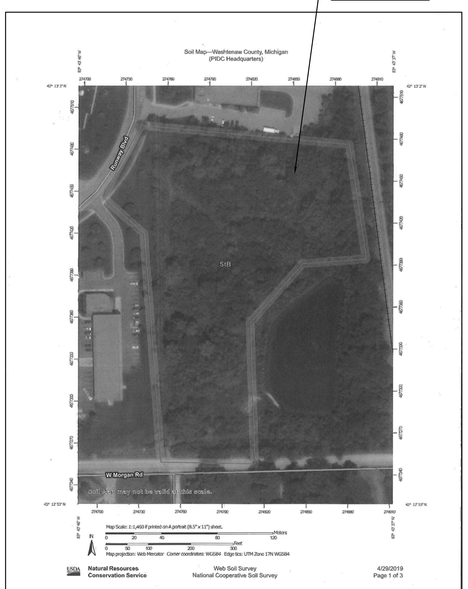
Z:\Projects\18132\DWG\18132 PRELIMINARY SITE PLAN 5-09-2019.dwg, S-100 ALTA, 5/9/2019 12:15:04 PM, JMrcz

NOTE:
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.



WETLANDS' MAP

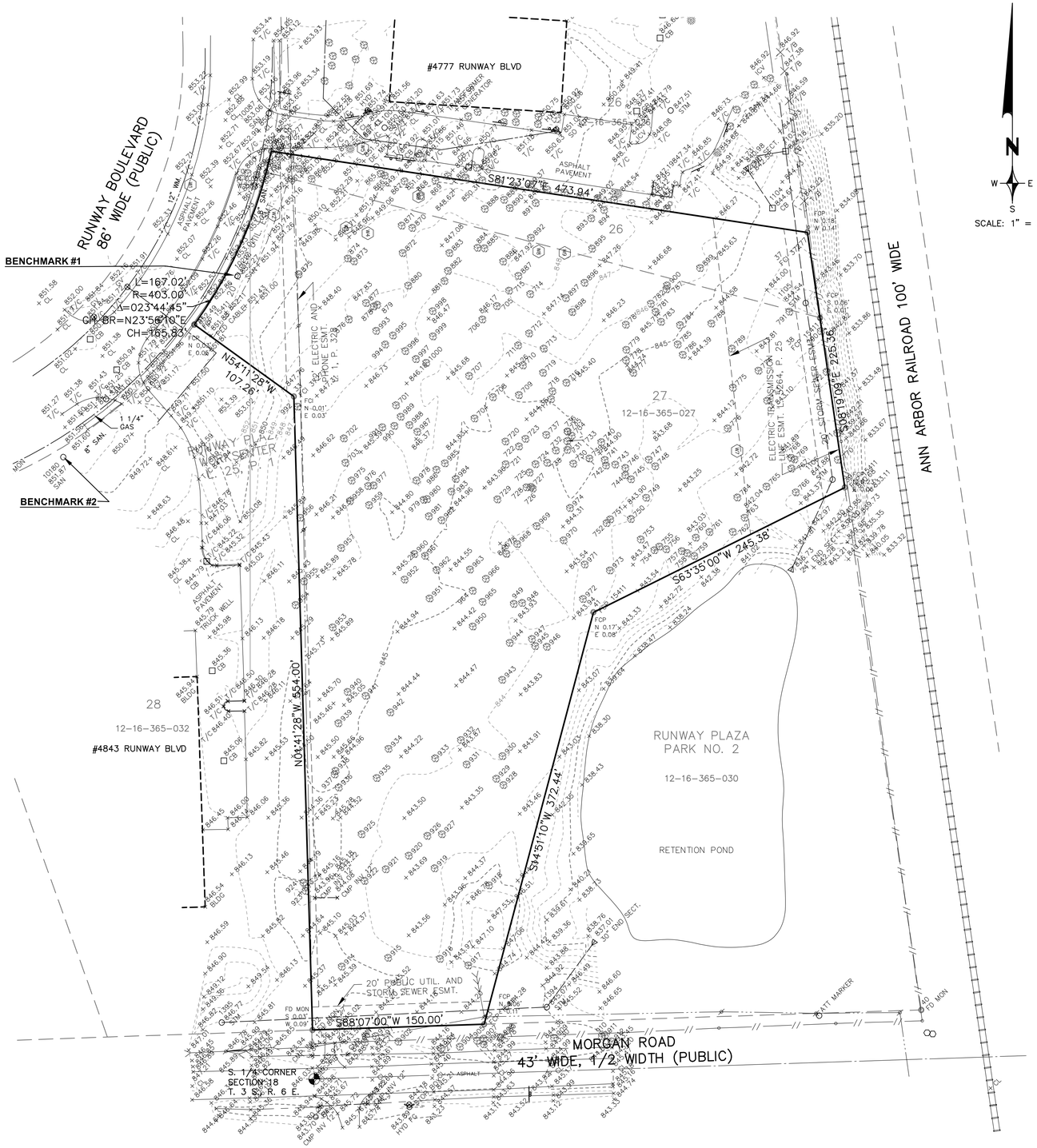


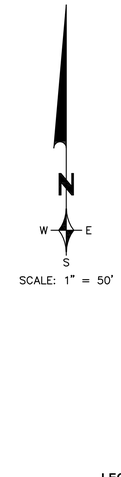
Soil Map—Washtenaw County, Michigan PIDC Headquarters

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
StB	St. Clair clay loam, 2 to 8 percent slopes	6.4	100.0%
Totals for Area of Interest		**6.4**	**100.0%**

SOIL MAP

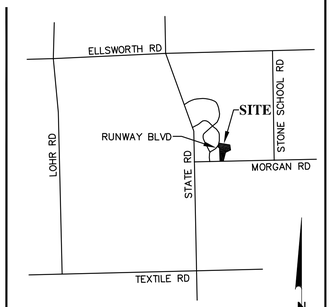




SCALE: 1" = 50'

LEGEND

	BOUNDARY LINE
	PARCEL LINE
	EASEMENTS
	FD MON, FCI, FIB
FD MON	FOUND MONUMENT
FCI	FOUND CAPPED IRON
FIB	FOUND IRON BAR
R.O.W.	RIGHT OF WAY
	MANHOLE
	CATCH BASIN
	HYDRANT
	UTILITY POLE
	SIGN
	TREE
	SANITARY SEWER
	STORM SEWER
	WATER MAIN
	GAS MAIN
	ELECTRIC CABLE
T/C	TOP OF CURB
GU	GUTTER
+100.00	SPOT ELEVATION
	CONCRETE



LOCATION MAP
NOT TO SCALE

BENCHMARKS:

1. SANITARY RIM 852.27 USGS DATUM
2. SANITARY RIM 851.87 USGS DATUM

LEGAL DESCRIPTION:

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LAND IN THE TOWNSHIP OF PITTSFIELD, COUNTY OF WASHTENAW, MICHIGAN, DESCRIBED AS:
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PART OF LOT 26, RUNWAY PLAZA WORKSENTER, AS RECORDED IN LIBER 25 OF PLATS, PAGES 1 THROUGH 5, WASHTENAW COUNTY RECORDS, BEING MORE PARTICULARLY DESCRIBED AS: COMMENCING AT THE SOUTH 1/4 CORNER OF SECTION 16, TOWN 3 SOUTH, RANGE 6 EAST, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN; THENCE NORTH 01°41'28" WEST 597.00 FEET ALONG THE NORTH–SOUTH 1/4 LINE OF SECTION 16 AND THE WEST LINE OF LOT 27, RUNWAY PLAZA WORKSENTER, AS RECORDED IN LIBER 25 OF PLATS, PAGES 1 THROUGH 5, WASHTENAW COUNTY RECORDS; THENCE NORTH 54°11'28" WEST 107.26 FEET ALONG THE SOUTHWESTERLY LINE OF SAID LOT 27; THENCE NORTHEASTERLY 167.02 FEET ALONG THE EASTERLY RIGHT–OF–WAY LINE OF RUNWAY BOULEVARD (86 FEET WIDE) IN THE ARC OF A NON–TANGENTIAL CURVE TO THE LEFT, RADIUS 403.00 FEET, CENTRAL ANGEL 23°44'43", AND CHORD NORTH 23°56'10" EAST 165.82 FEET TO THE POINT OF BEGINNING; THENCE NORTHEASTERLY 91.75 FEET ALONG THE EASTERLY RIGHT–OF–WAY LINE OF RUNWAY BOULEVARD IN THE ARC OF A CIRCULAR CURVE TO THE LEFT, RADIUS 403.00 FEET, CENTRAL ANGLE 13°02'41", AND CHORD NORTH 05°32'28" EAST 91.55 FEET; THENCE NORTH 00°58'51" WEST 58.69 FEET ALONG THE EAST RIGHT–OF–WAY LINE OF RUNWAY BOULEVARD; THENCE SOUTH 86°16'10" EAST 433.51 FEET ALONG THE NORTH LINE OF LOT 26; THENCE SOUTH 08°19'09" EAST 194.64 FEET ALONG THE WEST LINE OF THE ANN ARBOR RAILROAD (100 FEET WIDE) AND THE EAST LINE OF LOT 26; THENCE NORTH 81°23'07" WEST 473.94 FEET TO THE POINT OF BEGINNING, BEING A PART OF LOT 26, RUNWAY PLAZA WORKSENTER, AS RECORDED IN LIBER 25 OF PLATS, PAGES 1 THROUGH 5, WASHTENAW COUNTY RECORDS, AND LOCATED IN THE SOUTH 1/2 OF SECTION 16, TOWN 3 SOUTH, RANGE 6 EAST, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN.

CONTAINING 242,359 SQUARE FEET OR 5.56 ACRES.

UTILITY CONTACTS:

ELECTRICITY	DETROIT EDISON	----------	313.235.5632	DESIGN_MISSDIG@DTEENERGY.COM
LIGHTING	DETROIT PUBLIC LIGHTING	ANN O'ROURKE/URG	568.803.3516	AOROURKE@URGLLC.NET
TELEPHONE	AT&T	LINDA DENNISUK	248.456.8256	LD2154@ATT.COM
GAS	DTE ENERGY GAS CO.	BARBARA SANDERS	313.235.5111	SAUNDERSB@DTEENERGY.COM
CATV	COMCAST	CRAIG PUDAS	248.809.2715	CRAIG_PUDAS@CABLE.COMCAST.COM
WATER & SEWER	PITTSFIELD CHARTER TWP.	B. WEIRICH	734.822.2110	UTILITIES@PITTSFIELD–MI.GOV
FIBER	123.NET, INC.	CHUCK IRVIN	248.228.8223	MISSDIG@123.NET
FIBER	EVERSTREAM	BRIAN KUNTER	616.608.8945	BKUNTER@EVERSTREAM.NET
FIBER	ZAYO BANDWIDTH MIDWEST, LLC	GEORGE HUSS	443.403.2023	GEORGE.HUSS@ZAYO.COM

STRUCTURE TABLE:

ZWA POINT NO.	DESCRIPTION	RIM	PIPE SIZE	DIRECTION	INVERT
1103	CATCH BASIN	844.18	18"	N	839.75
			18"	S	839.75
			12"	W	840.28
1104	CATCH BASIN	844.61	–	–	–
1105	STORM MANHOLE	844.54	18"	N	838.33
			24"	S	837.86
1106	STORM MANHOLE	841.88	24"	N	837.16
			24"	S	837.16
1394	STORM MANHOLE	845.07	30"	W	837.09
			30"	N	837.09
1395	STORM MANHOLE	846.77	30"	W	838.27
			30"	E	838.19
			18"	NW	838.27
10226	SANITARY MANHOLE	852.27	8"	N,S,W	838.56
			8"	E	839.71
10087	SANITARY MANHOLE	853.06	8"	N,S	840.51

STATE OF MICHIGAN
JULIAN JAY WARGO, JR.
ENGINEER NO. 36177
PROFESSIONAL ENGINEER

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PRELIMINARY SITE PLAN SUBMITTAL	5/09/19	JJW									

ZEIMET WOZNIAK & ASSOCIATES
Civil Engineers & Land Surveyors
55800 GRAND RIVER AVE., SUITE 100
NEW HUDSON, MICHIGAN 48165
P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

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ANN ARBOR, MI 48108

BOUNDARY AND TOPOGRAPHIC SURVEY
PIDC HEADQUARTERS & TECH. CENTER
PITTSFIELD CHARTER TOWNSHIP – WASHTENAW COUNTY – MICHIGAN

FIELD BOOK 5572	DATE 11–26–18	SCALE	HOR: 1" = 50' VER: 1" =
	DESIGNED BY	JOB NO.	18132
	DRAWN BY PTG	SHEET	S–101

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Z:\Projects\18132\DWG\18132 PRELIMINARY SITE PLAN 5-09-2019.dwg, S-101 TOPO, 5/9/2019 12:18:42 PM, JMcroz

Eric A. Olson, PLLC
114 1/2 South Saginaw Street
Holly, Michigan 48442
(248) 634-4320
EOlsonSLA@sbcglobal.net

November 27, 2018

Tree #	d.b.h.	Critical Root Zone (ft. radius	Botanical Name	Common Name	Condition	Comments	(R) Not Regulated (p = size, sp = species, c = condition)	Heritage (H)
701	7	7	*Quercus spp.*	Oak (red family)	good			
702	6	6	*Ulmus spp.*	Elm	good			
703	6	6	*Ulmus spp.*	Elm	good			
704	6	6	*Quercus spp.*	Oak (red family)	fair	- Leaning		
705	7	7	*Quercus spp.*	Oak (red family)	good			
706	13	13	*Carya spp.*	Hickory	good			
707	42	42	*Quercus spp.*	Oak (red family)	poor	- HAZARD - Splitting apart	N (c)	
708	7	7	*Ulmus spp.*	Elm	good			
709	14	14	*Populus deltoides*	Cottonwood	good		N (sp)	
710	13	13	*Carya spp.*	Hickory	poor	- Half or more dead	N (c)	
711	9	9	*Quercus spp.*	Oak (red family)	good			
712	6	6	*Tilia americana*	American Linden	good			
713	10	10	*Quercus spp.*	Oak (red family)	good			
714	6	6	*Tilia americana*	American Linden	good			
715	6	6	*Tilia americana*	American Linden	good			
716	8	8	*Quercus spp.*	Oak (red family)	good			
717	9	9	*Populus deltoides*	Cottonwood	good		N (sp)	
718	7	7	*Quercus spp.*	Oak (red family)	good			
719	7	7	*Quercus spp.*	Oak (red family)	good			
720	7	7	*Carya spp.*	Hickory	good			
721	7	7	*Tilia americana*	American Linden	good			
722	6	6	*Tilia americana*	American Linden	good			
723	6	6	*Tilia americana*	American Linden	good			
724	7	7	*Quercus spp.*	Oak (red family)	good			
725	7	7	*Quercus spp.*	Oak (red family)	good			
726	7	7	*Tilia americana*	American Linden	good			
727	6	6	*Quercus spp.*	Oak (red family)	good			
728	8	8	*Tilia americana*	American Linden	good			
729	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
730	9	9	*Tilia americana*	American Linden	good			
731	8	8	*Quercus spp.*	Oak (red family)	good			
732	6	6	*Quercus spp.*	Oak (white family)	good			
733	6	6	*Quercus spp.*	Oak (red family)	good			
734	7	7	*Quercus spp.*	Oak (red family)	good			
735	8 / 6	8 / 6	*Tilia americana*	American Linden	fair	- Poor crotch		
736	6	6	*Quercus spp.*	Oak (red family)	fair	- Leaning		
737	9	9	*Quercus spp.*	Oak (red family)	good			
738	6 / 3	6 / 3	*Tilia americana*	American Linden	fair	- Poor crotch		
739	7	7	*Quercus spp.*	Oak (red family)	good			
740	8	8	*Quercus spp.*	Oak (red family)	good			
741	6	6	*Tilia americana*	American Linden	good			
742	6	6	*Tilia americana*	American Linden	good			
743	7	7	*Quercus spp.*	Oak (red family)	good			
744	7	7	*Tilia americana*	American Linden	good			
745	5	5	*Tilia americana*	American Linden	good		N (s)	

Eric A. Olson, PLLC
114 1/2 South Saginaw Street
Holly, Michigan 48442
(248) 634-4320
EOlsonSLA@sbcglobal.net

November 27, 2018

Tree #	d.b.h.	Critical Root Zone (ft. radius	Botanical Name	Common Name	Condition	Comments	(R) Not Regulated (p = size, sp = species, c = condition)	Heritage (H)
746	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
747	6	6	*Tilia americana*	American Linden	good			
748	6	6	*Tilia americana*	American Linden	good			
749	39	39	*Quercus spp.*	Oak (red family)	fair	- Rot in trunk		H
750	9	9	*Quercus spp.*	Oak (red family)	good			
751	7	7	*Tilia americana*	American Linden	fair	- Leaning		
752	7	7	*Tilia americana*	American Linden	good			
753	7	7	*Quercus spp.*	Oak (white family)	good			
754	6	6	*Ulmus spp.*	Elm	good			
755	5	5	*Ulmus spp.*	Elm	good		N (s)	
756	6	6	*Quercus spp.*	Oak (white family)	good			
757	6	6	*Quercus spp.*	Oak (white family)	good			
758	6	6	*Quercus spp.*	Oak (white family)	good			
759	6	6	*Quercus spp.*	Oak (white family)	good			
760	6	6	*Tilia americana*	American Linden	poor	- Lean greater than 45 degrees	N (c)	
761	7	7	*Quercus spp.*	Oak (red family)	good			
762	6	6	*Ulmus spp.*	Elm	good			
763	20 / 8 / 8 / ...	20 / 8 / 8 / ...	*Tilia americana*	American Linden	poor	- Largest trunk dead	N (c)	
764	6	6	*Tilia americana*	American Linden	good			
765	6	6	*Quercus spp.*	Oak (white family)	good			
766	8	8	*Acer negundo*	Boxelder	poor	- HAZARD - Splitting apart	N (sp,c)	
767	6	6	*Ulmus spp.*	Elm	good			
768	7	7	*Populus deltoides*	Cottonwood	good		N (sp)	
769	10	10	*Populus deltoides*	Cottonwood	good		N (sp)	
770	6	6	*Tilia americana*	American Linden	good			
771	7	7	*Quercus spp.*	Oak (white family)	good			
772	6	6	*Tilia americana*	American Linden	good			
773	38	38	*Quercus spp.*	Oak (white family)	good			H
774	44	44	*Quercus spp.*	Oak (white family)	fair	- Dead/dying branch(es)		H
775	40	40	*Quercus spp.*	Oak (white family)	good			H
776	17	17	*Carya spp.*	Hickory	poor	- Hollow	N (c)	
777	7	7	*Carya spp.*	Hickory	good			
778	5 / 4	5 / 4	*Malus spp.*	Apple/Crabapple	fair	- Contorted crown	N (s)	
779	6	6	*Tilia americana*	American Linden	good			
780	5	5	*Quercus spp.*	Oak (red family)	good		N (s)	
781	8	8	*Quercus spp.*	Oak (red family)	fair	- Rot in trunk		
782	6	6	*Tilia americana*	American Linden	good			
783	6	6	*Tilia americana*	American Linden	fair	- Scarred trunk		
784	7	7	*Quercus spp.*	Oak (red family)	good			
785	6	6	*Tilia americana*	American Linden	good			
786	6	6	*Tilia americana*	American Linden	good			
787	6	6	*Quercus spp.*	Oak (red family)	fair	- Leaning		
788	6	6	*Tilia americana*	American Linden	good			
789	13	13	*Acer saccharum*	Sugar Maple	poor	- Half or more dead	N (c)	
790	6 / 5 / 5	6 / 5 / 5	*Ulmus spp.*	Elm	good			
791	7	7	*Tilia americana*	American Linden	good			

Eric A. Olson, PLLC
114 1/2 South Saginaw Street
Holly, Michigan 48442
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EOlsonSLA@sbcglobal.net

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859	7	7	*Populus deltoides*	Cottonwood	good		N (sp)	
860	4 / 4	4 / 4	*Robinia pseudoacacia*	Black Locust	fair	- Poor crotch	N (s,sp)	
861	7 / 6	7 / 6	*Robinia pseudoacacia*	Black Locust	fair	- Poor crotch	N (sp)	
862	8	8	*Robinia pseudoacacia*	Black Locust	good		N (sp)	
863	17	17	*Carya spp.*	Hickory	poor	- Most of tree removed for utilities	N (c)	
864	19	19	*Carya spp.*	Hickory	good			H
865	8	8	*Robinia pseudoacacia*	Black Locust	good		N (sp)	
866	5	5	*Robinia pseudoacacia*	Black Locust	good		N (s,sp)	
867	16	16	*Carya spp.*	Hickory	good			H
868	19	19	*Carya spp.*	Hickory	good			H
869	7	7	*Robinia pseudoacacia*	Black Locust	good		N (sp)	
870	19	19	*Carya spp.*	Hickory	good			H
871	17	17	*Carya spp.*	Hickory	good			H
872	17	17	*Carya spp.*	Hickory	good			H
873	16	16	*Carya spp.*	Hickory	good			H
874	19	19	*Carya spp.*	Hickory	good			H
875	22	22	*Carya spp.*	Hickory	poor	- Most of tree removed for utilities	N (c)	
876	7	7	*Ulmus spp.*	Elm	good			
877	9	9	*Ulmus americana*	American Elm	good		N (sp)	
878	7	7	*Ulmus spp.*	Elm	good			
879	6	6	*Quercus spp.*	Oak (red family)	good			
880	18	18	*Carya spp.*	Hickory	good			H
881	14	14	*Carya spp.*	Hickory	fair	- Rot in trunk		
882	19	19	*Carya spp.*	Hickory	good			H
883	14	14	*Carya spp.*	Hickory	good			
884	14	14	*Carya spp.*	Hickory	good			
885	17	17	*Carya spp.*	Hickory	good			H
886	13	13	*Carya spp.*	Hickory	fair	- Rot in trunk		
887	20	20	*Carya spp.*	Hickory	good			H
888	25	25	*Quercus spp.*	Oak (white family)	fair	- Dead/dying branch(es)		H
889	12	12	*Carya spp.*	Hickory	poor	- Hollow	N (c)	
890	19	19	*Carya spp.*	Hickory	good			H
891	15	15	*Carya spp.*	Hickory	good			
892	6	6	*Quercus spp.*	Oak (red family)	good			
893	7	7	*Tilia americana*	American Linden	good			
894	7	7	*Quercus spp.*	Oak (red family)	good			
895	27	27	*Carya spp.*	Hickory	good			H
896	22	22	*Carya spp.*	Hickory	good			H
897	14	14	*Carya spp.*	Hickory	good			
898	44	44	*Quercus spp.*	Oak (white family)	good			H
899	43	43	*Quercus spp.*	Oak (white family)	good			H
900	7	7	*Quercus spp.*	Oak (red family)	fair	- Leaning		
901	8	8	*Quercus spp.*	Oak (white family)	fair	- Grown into fence		
902	8	8	*Quercus spp.*	Oak (white family)	good			
903	25	25	*Quercus spp.*	Oak (white family)	good			H
904	12	12	*Quercus spp.*	Oak (red family)	good			

Eric A. Olson, PLLC
114 1/2 South Saginaw Street
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951	23	23	*Carya spp.*	Hickory	good			H
952	6	6	*Tilia americana*	American Linden	good			
953	8 / 6	8 / 6	*Salix spp.*	Willow	fair	- Utility pruned	N (sp)	
954	11	11	*Populus deltoides*	Cottonwood	fair	- Utility pruned	N (sp)	
955	11	11	*Picea glauca*	White Spruce	fair	- Utility pruned		
956	11	11	*Picea glauca*	White Spruce	fair	- Utility pruned		
957	21	21	*Carya spp.*	Hickory	good			H
958	7	7	*Ulmus spp.*	Elm	good			
959	8	8	*Ulmus spp.*	Elm	good			
960	6	6	*Tilia americana*	American Linden	fair	- Scarred trunk		
961	6	6	*Juniperus spp.*	Eastern Redcedar	good		N (sp)	
962	8	8	*Tilia americana*	American Linden	good			
963	8	8	*Quercus spp.*	Oak (red family)	good			
964	20	20	*Carya spp.*	Hickory	good			H
965	5	5	*Tilia americana*	American Linden	good		N (s)	
966	7	7	*Quercus spp.*	Oak (white family)	good			
967	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
968	6	6	*Quercus spp.*	Oak (white family)	good			
969	6	6	*Ulmus spp.*	Elm	good			
970	6	6	*Tilia americana*	American Linden	good			
971	18	18	*Carya spp.*	Hickory	fair	- Rot in trunk		H
972	19	19	*Carya spp.*	Hickory	poor	- HAZARD - Leader hanging	N (c)	
973	20	20	*Carya spp.*	Hickory	good			H
974	43	43	*Quercus spp.*	Oak (red family)	poor	- HAZARD - Splitting apart	N (c)	
975	14 / 12	14 / 12	*Populus deltoides*	Cottonwood	fair	- Poor crotch	N (sp)	
976	7	7	*Ulmus spp.*	Elm	good			
977	6	6	*Ulmus spp.*	Elm	good			
978	17	17	*Carya spp.*	Hickory	good			H
979	10	10	*Tilia americana*	American Linden	good			
980	6	6	*Quercus spp.*	Oak (white family)	good			
981	6	6	*Quercus spp.*	Oak (red family)	good			
982	6	6	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
983	5 / 5 / 4	5 / 5 / 4	*Tilia americana*	American Linden	fair	- Poor crotch	N (s)	
984	6	6	*Tilia americana*	American Linden	good			
985	7 / 5	7 / 5	*Quercus spp.*	Oak (red family)	fair	- Poor crotch		
986	6	6	*Quercus spp.*	Oak (red family)	good			
987	6	6	*Quercus spp.*	Oak (red family)	good			
988	8	8	*Quercus spp.*	Oak (red family)	good			
989	8	8	*Quercus spp.*	Oak (red family)	good			
990	6	6	*Quercus spp.*	Oak (white family)	good			
991	10	10	*Quercus spp.*	Oak (red family)	good			
992	12	12	*Picea glauca*	White Spruce	fair	- Utility pruned		
993	7	7	*Quercus spp.*	Oak (red family)	good			
994	6	6	*Quercus spp.*	Oak (red family)	fair	- Leaning		
995	6	6	*Tilia americana*	American Linden	good			
996	6	6	*Quercus spp.*	Oak (red family)	good			

Eric A. Olson, PLLC
114 1/2 South Saginaw Street
Holly, Michigan 48442
(248) 634-4320
EOlsonSLA@sbcglobal.net

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997	7	7	*Quercus spp.*	Oak (red family)	good			
998	6	6	*Quercus spp.*	Oak (red family)	good			
999	20	20	*Quercus spp.*	Oak (red family)	good			H
1000	7	7	*Quercus spp.*	Oak (red family)	good			

STATE OF MICHIGAN
JULIAN JAY WARGO, JR.
ENGINEER No. 36177
LICENSED PROFESSIONAL ENGINEER

Julian J. Wargo, Jr.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PRELIMINARY SITE PLAN SUBMITTAL	5/09/19	JJW									

ZEIMET WOZNIAK & ASSOCIATES
Civil Engineers & Land Surveyors
55800 GRAND RIVER AVE., SUITE 100
NEW HUDSON, MICHIGAN 48165
P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

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TREE LIST
PIDC HEADQUARTERS & TECH. CENTER
PITTSFIELD CHARTER TOWNSHIP – WASHTENAW COUNTY – MICHIGAN

FIELD BOOK NO.	DATE 11-26-18	SCALE HOR: 1" = VER: 1" =	
	DESIGNED BY	JOB NO. 18132	
	DRAWN BY PTG	SHEET S-102	

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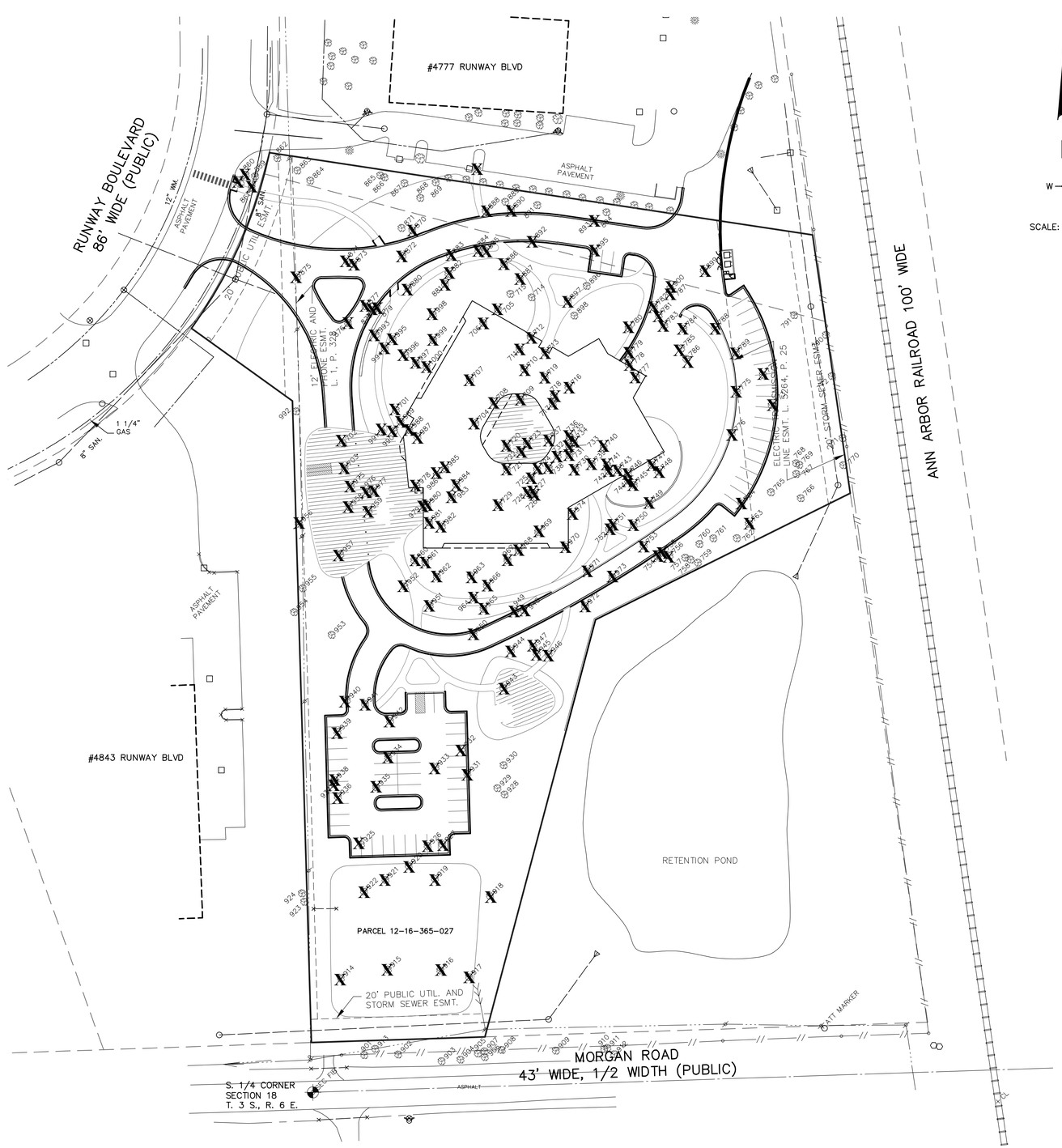
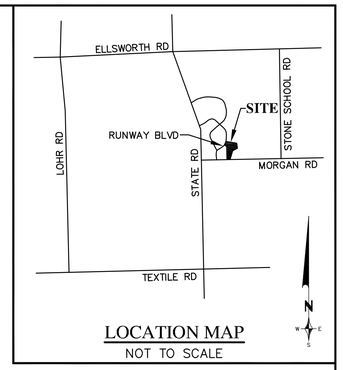
Z:\Projects\18132\DWG\18132 PRELIMINARY SITE PLAN 5-09-2019.dwg, S-102 TREE LIST, 5/9/2019 12:21:04 PM, JMinz

NOTE:
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.



SCALE: 1" = 50'



LOCATION MAP
NOT TO SCALE

LEGEND

X REMOVE TREE

NOTES:

SEE LANDSCAPE PLANS FOR CALCULATIONS AND MITIGATION REQUIREMENTS.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PRELIMINARY SITE PLAN SUBMITTAL	5/09/19	JJW									

ZEIMET WOZNIAK & ASSOCIATES
Civil Engineers & Land Surveyors
55800 GRAND RIVER AVE., SUITE 100
NEW HUDSON, MICHIGAN 48165
P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

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4788 RUNWAY BLVD.
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TREE REMOVAL PLAN
PIDC HEADQUARTERS & TECH. CENTER
PITTSFIELD CHARTER TOWNSHIP – WASHTENAW COUNTY – MICHIGAN

STATE OF MICHIGAN
JULIAN JAY WARGO, JR.
ENGINEER No. 36177
LICENSED PROFESSIONAL ENGINEER

FIELD BOOK 627	DATE 04-10-19	SCALE HOR: 1" = 50' VER: 1" =	
	DESIGNED BY	JOB NO. 18132	
	DRAWN BY PTG	SHEET T-101	

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Z:\Projects\18132\DWG\18132 TREE REMOVAL.dwg, T-101, 5/9/2019 11:43:20 AM, JMroz

Eric A. Olson, PLLC
114 1/2 South Saginaw Street
Holly, Michigan 48442
(248) 634-4320
EOlsonRLA@sbcglobal.net

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Tree #		d.b.h.	Critical Root Zone (ft. radius	Botanical Name	Common Name	Condition	Comments	(N) Not Regulated (s = size, sp = species, c = condition)	Heritage (H)
X	701	7	7	*Quercus spp.*	Oak (red family)	good			
X	702	6	6	*Ulmus spp.*	Elm	good			
X	703	6	6	*Ulmus spp.*	Elm	good			
X	704	6	6	*Quercus spp.*	Oak (red family)	fair	- Leaning		
X	705	7	7	*Quercus spp.*	Oak (red family)	good			
X	706	13	13	*Carya spp.*	Hickory	good			
X	707	42	42	*Quercus spp.*	Oak (red family)	poor	- HAZARD - Splitting apart	N (c)	
X	708	7	7	*Ulmus spp.*	Elm	good			
X	709	14	14	*Populus deltoides*	Cottonwood	good		N (sp)	
X	710	13	13	*Carya spp.*	Hickory	poor	- Half or more dead	N (c)	
X	711	9	9	*Quercus spp.*	Oak (red family)	good			
X	712	6	6	*Tilia americana*	American Linden	good			
X	713	10	10	*Quercus spp.*	Oak (red family)	good			
	714	6	6	*Tilia americana*	American Linden	good			
	715	6	6	*Tilia americana*	American Linden	good			
X	716	8	8	*Quercus spp.*	Oak (red family)	good			
X	717	9	9	*Populus deltoides*	Cottonwood	good		N (sp)	
X	718	7	7	*Quercus spp.*	Oak (red family)	good			
X	719	7	7	*Quercus spp.*	Oak (red family)	good			
X	720	7	7	*Carya spp.*	Hickory	good			
X	721	7	7	*Tilia americana*	American Linden	good			
X	722	6	6	*Tilia americana*	American Linden	good			
X	723	6	6	*Tilia americana*	American Linden	good			
X	724	7	7	*Quercus spp.*	Oak (red family)	good			
X	725	7	7	*Quercus spp.*	Oak (red family)	good			
X	726	7	7	*Tilia americana*	American Linden	good			
X	727	6	6	*Quercus spp.*	Oak (red family)	good			
X	728	8	8	*Tilia americana*	American Linden	good			
X	729	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	730	9	9	*Tilia americana*	American Linden	good			
X	731	8	8	*Quercus spp.*	Oak (red family)	good			
X	732	6	6	*Quercus spp.*	Oak (white family)	good			
X	733	6	6	*Quercus spp.*	Oak (red family)	good			
X	734	7	7	*Quercus spp.*	Oak (red family)	good			
X	735	8 / 6	8 / 6	*Tilia americana*	American Linden	fair	- Poor crotch		
X	736	6	6	*Quercus spp.*	Oak (red family)	fair	- Leaning		
X	737	9	9	*Quercus spp.*	Oak (red family)	good			
X	738	6 / 3	6 / 3	*Tilia americana*	American Linden	fair	- Poor crotch		
X	739	7	7	*Quercus spp.*	Oak (red family)	good			
X	740	8	8	*Quercus spp.*	Oak (red family)	good			
X	741	6	6	*Tilia americana*	American Linden	good			
X	742	6	6	*Tilia americana*	American Linden	good			
X	743	7	7	*Quercus spp.*	Oak (red family)	good			
X	744	7	7	*Tilia americana*	American Linden	good			
X	745	5	5	*Tilia americana*	American Linden	good		N (s)	

1 of 6

Eric A. Olson, PLLC
114 1/2 South Saginaw Street
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X	746	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	747	6	6	*Tilia americana*	American Linden	good			
X	748	6	6	*Tilia americana*	American Linden	good			
X	749	39	39	*Quercus spp.*	Oak (red family)	fair	- Rot in trunk		H
X	750	9	9	*Quercus spp.*	Oak (red family)	good			
X	751	7	7	*Tilia americana*	American Linden	fair	- Leaning		
X	752	7	7	*Tilia americana*	American Linden	good			
X	753	7	7	*Quercus spp.*	Oak (white family)	good			
X	754	6	6	*Ulmus spp.*	Elm	good			
X	755	5	5	*Ulmus spp.*	Elm	good		N (s)	
X	756	6	6	*Quercus spp.*	Oak (white family)	good			
	757	6	6	*Quercus spp.*	Oak (white family)	good			
	758	6	6	*Quercus spp.*	Oak (white family)	good			
	759	6	6	*Quercus spp.*	Oak (white family)	good			
	760	6	6	*Tilia americana*	American Linden	poor	- Lean greater than 45 degrees	N (c)	
	761	7	7	*Quercus spp.*	Oak (red family)	good			
	762	6	6	*Ulmus spp.*	Elm	good			
X	763	20 / 8 / 8 /...	20 / 8 / 8 /...	*Tilia americana*	American Linden	poor	- Largest trunk dead	N (c)	
X	764	6	6	*Tilia americana*	American Linden	good			
	765	6	6	*Quercus spp.*	Oak (white family)	good			
	766	8	8	*Acer negundo*	Boxelder	poor	- HAZARD - Splitting apart	N (sp,c)	
	767	6	6	*Ulmus spp.*	Elm	good			
	768	7	7	*Populus deltoides*	Cottonwood	good		N (sp)	
	769	10	10	*Populus deltoides*	Cottonwood	good		N (sp)	
	770	6	6	*Tilia americana*	American Linden	good			
	771	7	7	*Quercus spp.*	Oak (white family)	good			
	772	6	6	*Tilia americana*	American Linden	good			
X	773	38	38	*Quercus spp.*	Oak (white family)	good			H
X	774	44	44	*Quercus spp.*	Oak (white family)	fair	- Dead/dying branch(es)		H
X	775	40	40	*Quercus spp.*	Oak (white family)	good			H
X	776	17	17	*Carya spp.*	Hickory	poor	- Hollow	N (c)	
X	777	7	7	*Carya spp.*	Hickory	good			
X	778	5 / 4	5 / 4	*Malus spp.*	Apple/Crabapple	fair	- Contorted crown	N (s)	
X	779	6	6	*Tilia americana*	American Linden	good			
X	780	5	5	*Quercus spp.*	Oak (red family)	good		N (s)	
X	781	8	8	*Quercus spp.*	Oak (red family)	fair	- Rot in trunk		
X	782	6	6	*Tilia americana*	American Linden	good			
X	783	6	6	*Tilia americana*	American Linden	fair	- Scarred trunk		
X	784	7	7	*Quercus spp.*	Oak (red family)	good			
X	785	6	6	*Tilia americana*	American Linden	good			
X	786	6	6	*Tilia americana*	American Linden	good			
X	787	6	6	*Quercus spp.*	Oak (red family)	fair	- Leaning		
X	788	6	6	*Tilia americana*	American Linden	good			
X	789	13	13	*Acer saccharum*	Sugar Maple	poor	- Half or more dead	N (c)	
	790	6 / 5 / 5	6 / 5 / 5	*Ulmus spp.*	Elm	good			
	791	7	7	*Tilia americana*	American Linden	good			

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Eric A. Olson, PLLC
114 1/2 South Saginaw Street
Holly, Michigan 48442
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EOlsonRLA@sbcglobal.net
November 27, 2018

Tree #		d.b.h.	Critical Root Zone (ft. radius	Botanical Name	Common Name	Condition	Comments	(N) Not Regulated (s = size, sp = species, c = condition)	Heritage (H)
	859	7	7	*Populus deltoides*	Cottonwood	good		N (sp)	
	860	4 / 4	4 / 4	*Robinia pseudoacacia*	Black Locust	fair	- Poor crotch	N (s,sp)	
	861	7 / 6	7 / 6	*Robinia pseudoacacia*	Black Locust	fair	- Poor crotch	N (sp)	
	862	8	8	*Robinia pseudoacacia*	Black Locust	good		N (sp)	
	863	17	17	*Carya spp.*	Hickory	poor	- Most of tree removed for utilities	N (c)	
	864	19	19	*Carya spp.*	Hickory	good			H
	865	8	8	*Robinia pseudoacacia*	Black Locust	good		N (sp)	
	866	5	5	*Robinia pseudoacacia*	Black Locust	good		N (s,sp)	
	867	16	16	*Carya spp.*	Hickory	good			H
	868	19	19	*Carya spp.*	Hickory	good			H
	869	7	7	*Robinia pseudoacacia*	Black Locust	good		N (sp)	
X	870	19	19	*Carya spp.*	Hickory	good			H
	871	17	17	*Carya spp.*	Hickory	good			H
X	872	17	17	*Carya spp.*	Hickory	good			H
X	873	16	16	*Carya spp.*	Hickory	good			H
X	874	19	19	*Carya spp.*	Hickory	good			H
X	875	22	22	*Carya spp.*	Hickory	poor	- Most of tree removed for utilities	N (c)	
X	876	7	7	*Ulmus spp.*	Elm	good			
X	877	9	9	*Ulmus americana*	American Elm	good		N (sp)	
X	878	7	7	*Ulmus spp.*	Elm	good			
X	879	6	6	*Quercus spp.*	Oak (red family)	good			
X	880	18	18	*Carya spp.*	Hickory	good			H
X	881	14	14	*Carya spp.*	Hickory	fair	- Rot in trunk		
X	882	19	19	*Carya spp.*	Hickory	good			H
X	883	14	14	*Carya spp.*	Hickory	good			
X	884	14	14	*Carya spp.*	Hickory	good			
X	885	17	17	*Carya spp.*	Hickory	good			H
X	886	13	13	*Carya spp.*	Hickory	fair	- Rot in trunk		
X	887	20	20	*Carya spp.*	Hickory	good			H
X	888	25	25	*Quercus spp.*	Oak (white family)	fair	- Dead/dying branch(es)		H
	889	12	12	*Carya spp.*	Hickory	poor	- Hollow	N (c)	
X	890	19	19	*Carya spp.*	Hickory	good			H
	891	15	15	*Carya spp.*	Hickory	good			
X	892	6	6	*Quercus spp.*	Oak (red family)	good			
X	893	7	7	*Tilia americana*	American Linden	good			
	894	7	7	*Quercus spp.*	Oak (red family)	good			
X	895	27	27	*Carya spp.*	Hickory	good			H
	896	22	22	*Carya spp.*	Hickory	good			H
X	897	14	14	*Carya spp.*	Hickory	good			
	898	44	44	*Quercus spp.*	Oak (white family)	good			H
X	899	43	43	*Quercus spp.*	Oak (white family)	good			H
X	900	7	7	*Quercus spp.*	Oak (red family)	fair	- Leaning		
	901	8	8	*Quercus spp.*	Oak (white family)	fair	- Grown into fence		
	902	8	8	*Quercus spp.*	Oak (white family)	good			
	903	25	25	*Quercus spp.*	Oak (white family)	good			H
	904	12	12	*Quercus spp.*	Oak (red family)	good			

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	905	6	6	*Tilia americana*	American Linden	good			
	906	19	19	*Quercus spp.*	Oak (white family)	good			H
	907	7	7	*Tilia americana*	American Linden	good			
	908	9	9	*Tilia americana*	American Linden	good			
	909	22	22	*Juglans spp.*	Walnut	good			H
	910	8	8	*Tilia americana*	American Linden	good			
	911	19	19	*Quercus spp.*	Oak (white family)	good			H
	912	13	13	*Acer saccharum*	Sugar Maple	good			
	913	6	6	*Quercus spp.*	Oak (white family)	fair	- Utility pruned		
X	914	37	37	*Quercus spp.*	Oak (white family)	fair	- Dead/dying branch(es)		H
X	915	49	49	*Salix spp.*	Willow	fair	- Dead/dying branch(es)	N (sp)	
X	916	6	6	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	917	10	10	*Populus deltoides*	Cottonwood	good		N (sp)	
X	918	6	6	*Salix spp.*	Willow	good		N (sp)	
X	919	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	920	6	6	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	921	8	8	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	922	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
	923	9	9	*Populus deltoides*	Cottonwood	fair	- Utility pruned	N (sp)	
	924	9	9	*Populus deltoides*	Cottonwood	fair	- Utility pruned	N (sp)	
X	925	7	7	*Quercus spp.*	Oak (white family)	good			
X	926	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	927	8	8	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
	928	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
	929	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
	930	7	7	*Tilia americana*	American Linden	good			
X	931	8	8	*Ulmus americana*	American Elm	good		N (sp)	
X	932	8	8	*Ulmus spp.*	Elm	good			
X	933	22	22	*Carya spp.*	Hickory	good			H
X	934	12 / 8 / 7	12 / 8 / 7	*Quercus spp.*	Oak (red family)	fair	- Poor crotch		
X	935	7 / 7 /...	7 / 7 /...	*Tilia americana*	American Linden	fair	- Poor crotch		
X	936	17	17	*Carya spp.*	Hickory	good			H
X	937	17	17	*Carya spp.*	Hickory	good			H
X	938	14	14	*Carya spp.*	Hickory	good			
X	939	14 / 10	14 / 10	*Populus deltoides*	Cottonwood	fair	- Poor crotch	N (sp)	
X	940	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	941	19	19	*Carya spp.*	Hickory	good			H
X	942	15	15	*Carya spp.*	Hickory	good			
X	943	25	25	*Carya spp.*	Hickory	fair	- Dead/dying branch(es)		H
X	944	9	9	*Populus deltoides*	Cottonwood	good		N (sp)	
X	945	10	10	*Populus deltoides*	Cottonwood	good		N (sp)	
X	946	8	8	*Populus deltoides*	Cottonwood	good		N (sp)	
X	947	6	6	*Populus deltoides*	Cottonwood	good		N (sp)	
X	948	11	11	*Quercus spp.*	Oak (red family)	good			
X	949	9	9	*Quercus spp.*	Oak (white family)	good			
X	950	6 / 5	6 / 5	*Ulmus spp.*	Elm	fair	- Poor crotch		

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X	951	23	23	*Carya spp.*	Hickory	good			H
X	952	6	6	*Tilia americana*	American Linden	good			
	953	8 / 6	8 / 6	*Salix spp.*	Willow	fair	- Utility pruned	N (sp)	
	954	11	11	*Populus deltoides*	Cottonwood	fair	- Utility pruned	N (sp)	
	955	11	11	*Picea glauca*	White Spruce	fair	- Utility pruned		
X	956	11	11	*Picea glauca*	White Spruce	fair	- Utility pruned		
X	957	21	21	*Carya spp.*	Hickory	good			H
X	958	7	7	*Ulmus spp.*	Elm	good			
X	959	8	8	*Ulmus spp.*	Elm	good			
X	960	6	6	*Tilia americana*	American Linden	fair	- Scarred trunk		
X	961	6	6	*Juniperus spp.*	Eastern Redcedar	good		N (sp)	
X	962	8	8	*Tilia americana*	American Linden	good			
X	963	8	8	*Quercus spp.*	Oak (red family)	good			
X	964	20	20	*Carya spp.*	Hickory	good			H
X	965	5	5	*Tilia americana*	American Linden	good		N (s)	
X	966	7	7	*Quercus spp.*	Oak (white family)	good			
X	967	7	7	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	968	6	6	*Quercus spp.*	Oak (white family)	good			
X	969	6	6	*Ulmus spp.*	Elm	good			
X	970	6	6	*Tilia americana*	American Linden	good			
X	971	18	18	*Carya spp.*	Hickory	fair	- Rot in trunk		H
X	972	19	19	*Carya spp.*	Hickory	poor	- HAZARD - Leader hanging	N (c)	
X	973	20	20	*Carya spp.*	Hickory	good			H
X	974	43	43	*Quercus spp.*	Oak (red family)	poor	- HAZARD - Splitting apart	N (c)	
X	975	14 / 12	14 / 12	*Populus deltoides*	Cottonwood	fair	- Poor crotch	N (sp)	
X	976	7	7	*Ulmus spp.*	Elm	good			
X	977	6	6	*Ulmus spp.*	Elm	good			
X	978	17	17	*Carya spp.*	Hickory	good			H
X	979	10	10	*Tilia americana*	American Linden	good			
X	980	6	6	*Quercus spp.*	Oak (white family)	good			
X	981	6	6	*Quercus spp.*	Oak (red family)	good			
X	982	6	6	*Fraxinus spp.*	Ash	poor	- Signs of Emerald Ash Borer	N (sp,c)	
X	983	5 / 5 / 4	5 / 5 / 4	*Tilia americana*	American Linden	fair	- Poor crotch	N (s)	
X	984	6	6	*Tilia americana*	American Linden	good			
X	985	7 / 5	7 / 5	*Quercus spp.*	Oak (red family)	fair	- Poor crotch		
X	986	6	6	*Quercus spp.*	Oak (red family)	good			
X	987	6	6	*Quercus spp.*	Oak (red family)	good			
X	988	8	8	*Quercus spp.*	Oak (red family)	good			
X	989	8	8	*Quercus spp.*	Oak (red family)	good			
X	990	6	6	*Quercus spp.*	Oak (white family)	good			
X	991	10	10	*Quercus spp.*	Oak (red family)	good			
	992	12	12	*Picea glauca*	White Spruce	fair	- Utility pruned		
X	993	7	7	*Quercus spp.*	Oak (red family)	good			
X	994	6	6	*Quercus spp.*	Oak (red family)	fair	- Leaning		
X	995	6	6	*Tilia americana*	American Linden	good			
X	996	6	6	*Quercus spp.*	Oak (red family)	good			

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X	997	7	7	*Quercus spp.*	Oak (red family)	good			
X	998	6	6	*Quercus spp.*	Oak (red family)	good			
X	999	20	20	*Quercus spp.*	Oak (red family)	good			H
X	1000	7	7	*Quercus spp.*	Oak (red family)	good			

LEGEND

X REMOVE TREE

NOTES:

SEE LANDSCAPE PLANS FOR CALCULATIONS AND MITIGATION REQUIREMENTS.

6 of 6

STATE OF MICHIGAN · JULIAN JAY WARGO, JR. · ENGINEER No. 36177 · LICENSED PROFESSIONAL ENGINEER

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PRELIMINARY SITE PLAN SUBMITTAL	5/09/19	JJW									

ZEIMET WOZNIAK & ASSOCIATES
Civil Engineers & Land Surveyors
55800 GRAND RIVER AVE., SUITE 100
NEW HUDSON, MICHIGAN 48165
P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

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4788 RUNWAY BLVD.
ANN ARBOR, MI 48108

TREE REMOVAL LIST
PIDC HEADQUARTERS & TECH. CENTER

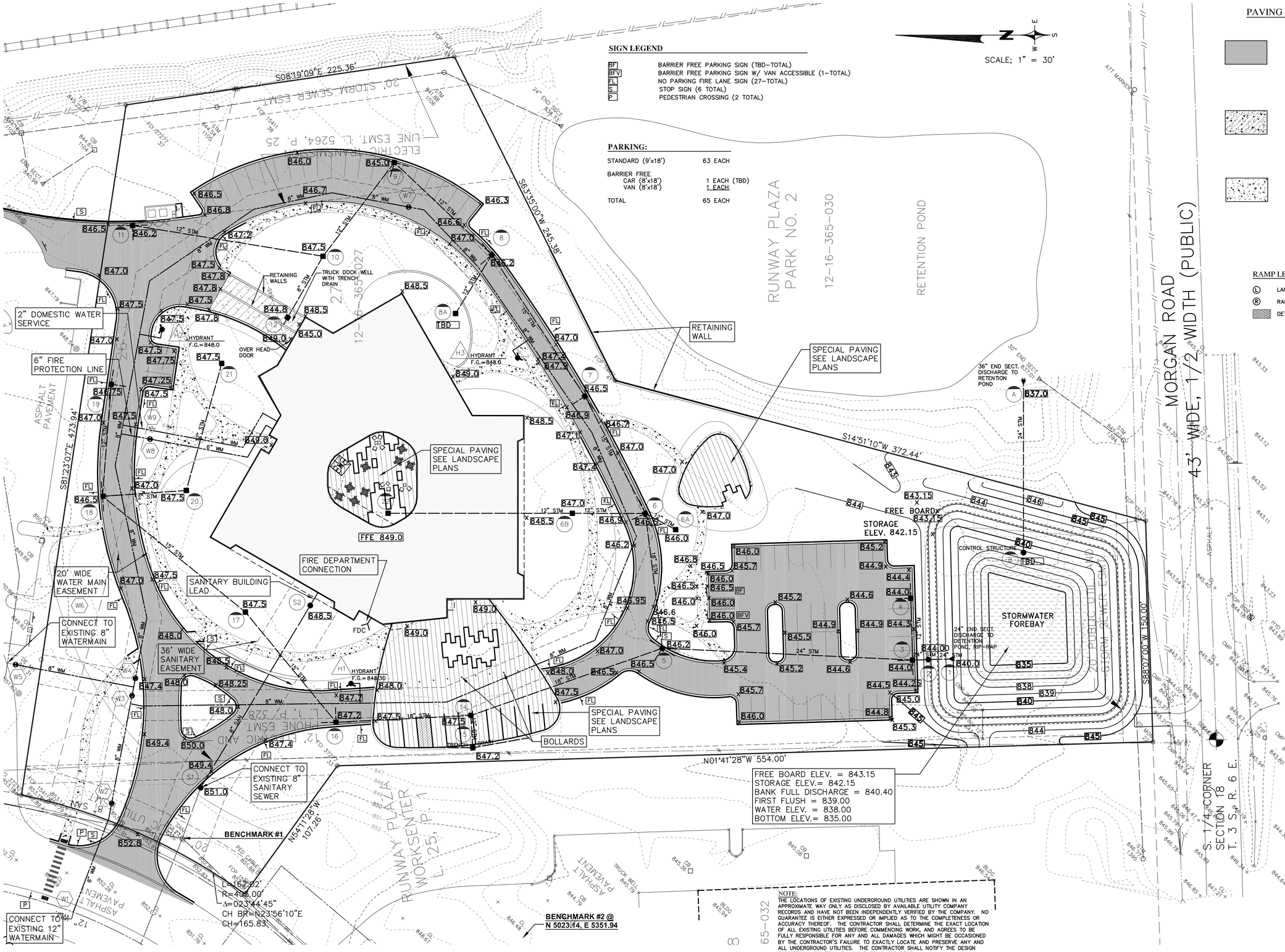
PITTSFIELD CHARTER TOWNSHIP – WASHTENAW COUNTY – MICHIGAN

FIELD BOOK 627

DATE 5-09-19 | SCALE HOR: 1" = VER: 1" =
DESIGNED BY | JOB NO. 18132
DRAWN BY PTG | SHEET T-102

© COPYRIGHT 2019

Z:\Projects\18132\DWG\18132 TREE REMOVAL.dwg, T-102, 5/9/2019 11:44:21 AM, JMroz



SIGN LEGEND

BF	BARRIER FREE PARKING SIGN (TBD-TOTAL)
BFV	BARRIER FREE PARKING SIGN W/ VAN ACCESSIBLE (1-TOTAL)
FL	NO PARKING FIRE LANE SIGN (27-TOTAL)
S	STOP SIGN (6 TOTAL)
P	PEDESTRIAN CROSSING (2 TOTAL)

PARKING:

STANDARD (9'x18')	63 EACH
BARRIER FREE	
CAR (8'x18')	1 EACH (TBD)
VAN (8'x18')	1 EACH
TOTAL	65 EACH

PAVING DETAILS AND SPECIFICATIONS:

ASPHALT DRIVE

2.0" BITUMINOUS MIX MDOT 13A W.C. ON
2.0" BITUMINOUS MIX MDOT 3C L.C. ON
8.0" MDOT 21AA AGGREGATE BASE (DENSE GRADED) C.I.P.
(USE SS-1H BOND COAT BETWEEN LIFTS AT 0.10 S.Y./GAL.)
PREPARED SUBGRADE *

CONCRETE TRUCK WELL

7.0" REINFORCED MDOT P1 P.C. CONCRETE (4,000 PSI @ 28 DAYS)
6.0" MDOT 21AA AGGREGATE BASE (DENSE GRADED) C.I.P.
PREPARED SUBGRADE *

SIDEWALK

4.0" UNIFORM MDOT P1 P.C. CONCRETE (4,000 PSI @ 28 DAYS)
4.0" MDOT CL II SAND BASE C.I.P.
PREPARED SUBGRADE *

*NOTE: PREPARE SUBGRADE IN ACCORDANCE WITH RECOMMENDATIONS OF OWNERS' GEOTECHNICAL ENGINEER.

RAMP LEGEND:

- (L) LANDING
- (R) RAMP (AS PER ADA)
- DETECTABLE WARNING

LEGEND EXISTING

- MANHOLE
- CATCH BASIN
- INLET
- CLEANOUT
- END SECTION
- ROOF DRAIN
- GATE VALVE
- HYDRANT
- WATER SHUT-OFF
- UTILITY POLE
- GUY ANCHOR
- LIGHT POLE
- SIGN
- TREE
- TREE LINE
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- GAS MAIN
- ELECTRIC CABLE
- CONTOUR MAJOR
- CONTOUR MINOR
- +100.00 SPOT ELEVATION

LEGEND PROPOSED

- MANHOLE
- CATCH BASIN
- INLET
- CLEANOUT
- END SECTION
- ROOF DRAIN
- GATE VALVE
- HYDRANT
- WATER SHUT-OFF
- TREE REMOVAL
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- ℄ DITCH
- CONTOUR MAJOR
- CONTOUR MINOR
- PROPOSED CONTOURS
- 99.0 PROPOSED GRADE
- # STORM SEWER STRUCTURE
- S# SANITARY SEWER STRUCTURE
- H# FIRE HYDRANT
- W# WATER MAIN GATE VALVES & MORE.

NOTE:
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

JULIAN JAY WARGO, JR. ENGINEER NO. 36177 STATE OF MICHIGAN PROFESSIONAL ENGINEER

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
REVISION	4/28/19	JJW									
PRELIMINARY SITE PLAN SUBMITTAL	5/09/19	JJW									

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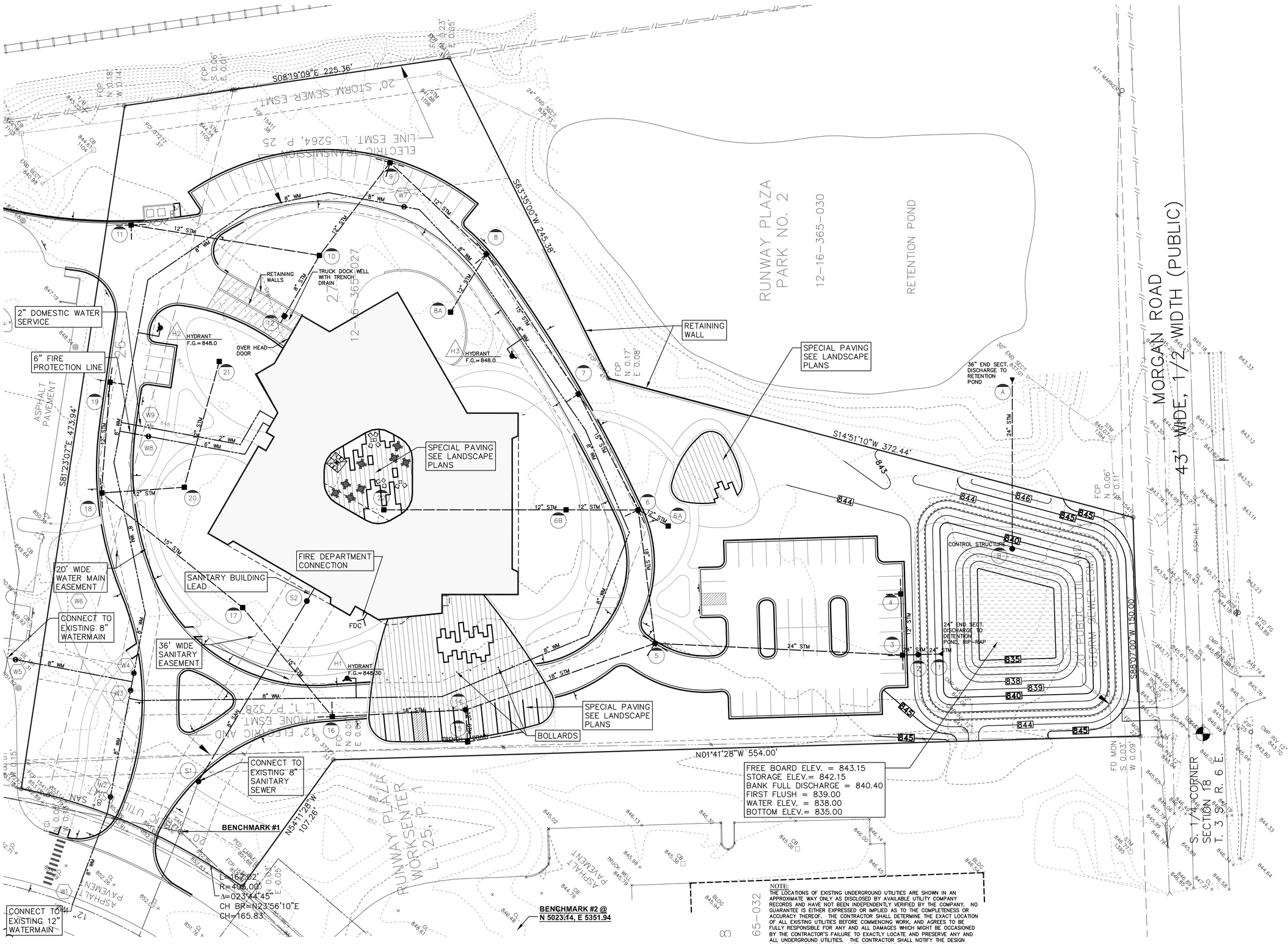
PAVING AND DRAINAGE PLAN
PIDC HEADQUARTERS & TECH. CENTER
PITTSFIELD CHARTER TOWNSHIP – WASHTENAW COUNTY – MICHIGAN

FIELD BOOK 5277	DATE 2-13-19	SCALE	HOR: 1" = 30' VER: 1" = N/A
	DESIGNED BY JJW	JOB NO.	18132
	DRAWN BY	SHEET	C-100

Z:\Projects\18132\DWG\18132 PRELIMINARY SITE PLAN 5-09-2019.dwg, C-100 PAVING AND DRAINAGE PLAN, 5/9/2019 3:21:07 PM, JMroz

D:\CDR\WIJITE 2010



LEGEND EXISTING

- MANHOLE
- CATCH BASIN
- INLET
- CLEANOUT
- END SECTION
- ROOF DRAIN
- GATE VALVE
- HYDRANT
- WATER SHUT-OFF
- UTILITY POLE
- GUY ANCHOR
- LIGHT POLE
- SIGN
- TREE
- TREE LINE
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- GAS MAIN
- ELECTRIC CABLE
- CONTOUR MAJOR
- CONTOUR MINOR
- +100.00 SPOT ELEVATION

LEGEND PROPOSED

- MANHOLE
- CATCH BASIN
- INLET
- CLEANOUT
- END SECTION
- ROOF DRAIN
- GATE VALVE
- HYDRANT
- WATER SHUT-OFF
- TREE REMOVAL
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- ℄ DITCH
- CONTOUR MAJOR
- CONTOUR MINOR
- PROPOSED CONTOURS
- 99.0 PROPOSED GRADE
- # STORM SEWER STRUCTURE
- S# SANITARY SEWER STRUCTURE
- H# FIRE HYDRANT
- W# WATER MAIN GATE VALVES & MORE.

SANITARY SEWER FLOW DATA:

A NEW BUILDING TO BE USED FOR LABORATORIES FOR TESTING AND RESEARCH:

OFFICES 15,380 SF
RESEARCH 12,475 SF
WAREHOUSE 6,350 SF

REU=(15,380 SF X 0.40 REU/1000 SF) + (12,475 X 0.40 REU/1000 SF) + (6,350 SF X 0.10 REU/1000 SF) = 11.78 REU

NO. OF PEOPLE = 3.2 PEOPLE / REU X 11.78 = 37.7 PEOPLE

AVG. DAILY FLOW = 37.7 PEOPLE X 100 GPPPD = 3770 GPD
= 3770 / (24 X 3600 X 7.5) = 0.0058 CFS

PEAK FACTOR = 4

MAX. DAILY FLOW = 4 X 3770 = 1508 GPD
= 4 X 0.0058 = 0.0233 CFS

NOTE:
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

JULIAN JAY WARGO, JR. ENGINEER NO. 36177 — STATE OF MICHIGAN — REGISTERED PROFESSIONAL ENGINEER

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
REVISION	4/28/19	JJW									
PRELIMINARY SITE PLAN SUBMITTAL	5/09/19	JJW									

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Civil Engineers & Land Surveyors
55800 GRAND RIVER AVE., SUITE 100
NEW HUDSON, MICHIGAN 48165
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UTILITY PLAN
PIDC HEADQUARTERS & TECH. CENTER
PITTSFIELD CHARTER TOWNSHIP – WASHTENAW COUNTY – MICHIGAN

FIELD BOOK 82	DATE 2-13-19	SCALE	HOR: 1" = 30' VER: 1" = N/A
	DESIGNED BY JJW	JOB NO.	18132
	DRAWN BY	SHEET	C-101

Z:\Projects\18132\DWG\18132 PRELIMINARY SITE PLAN 5-09-2019.dwg, C-101 UTILITY PLAN, 5/9/2019 3:22:34 PM, JMccz

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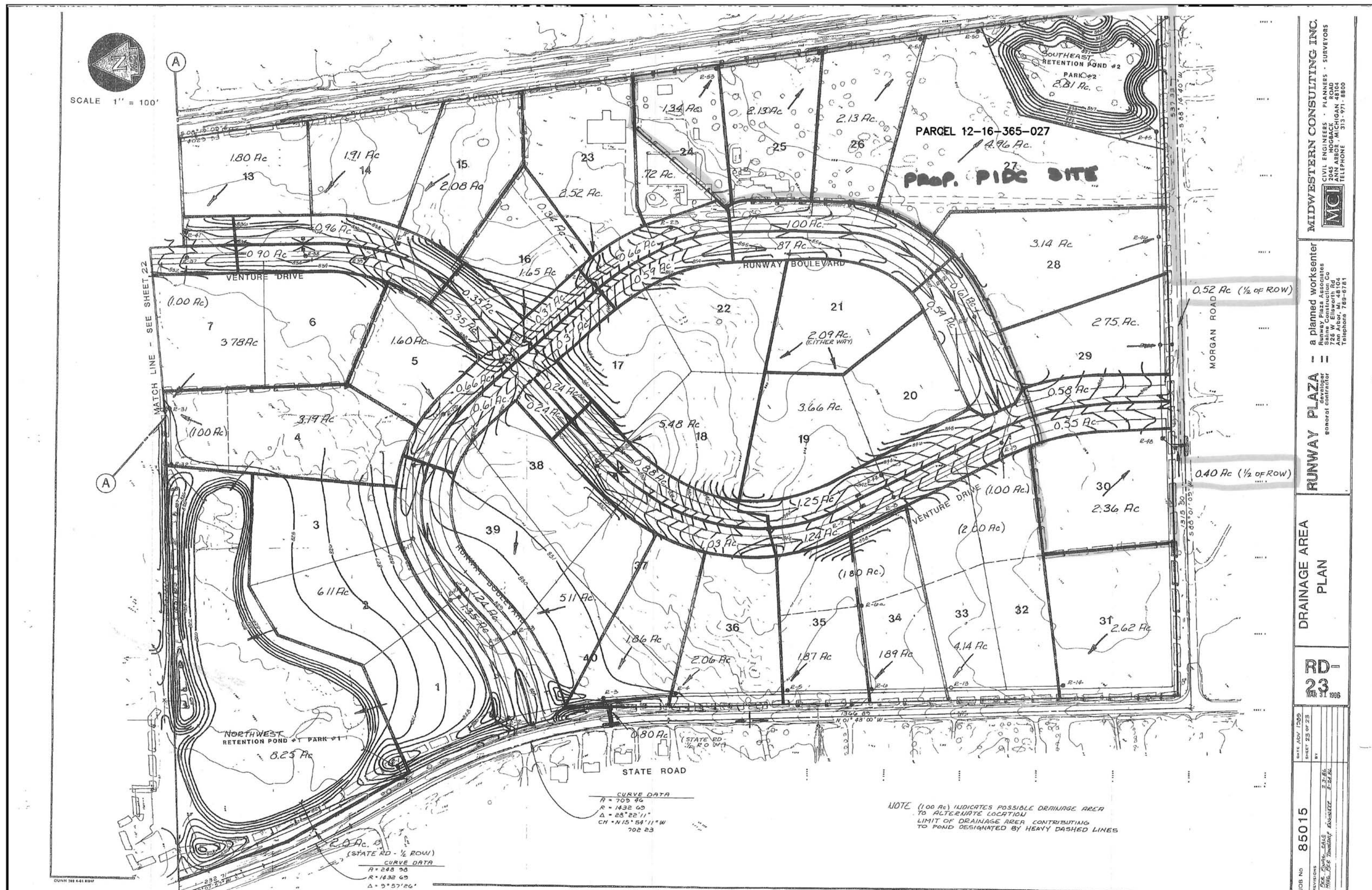
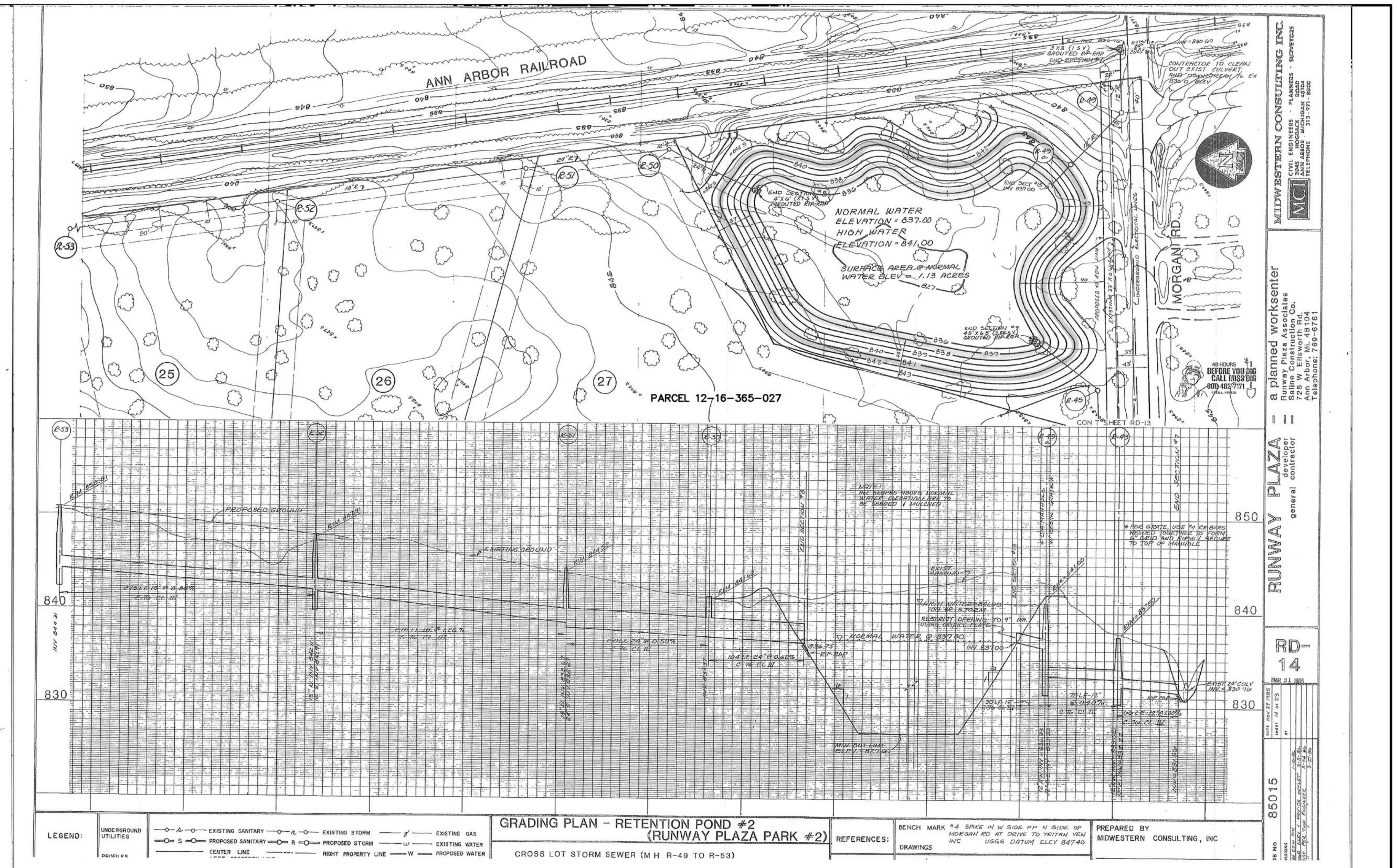




THREE STAGE OUTLET DESIGN CALCULATIONS.

A. FIRST FLUSH STORAGE

REQUIRED VOLUME = 1815 X 5.56 X 0.74 = 7,477 CF

BY INTERPOLATION, A VOLUME OF 8,100 CF IS STORED AT ELEV. 839.00

B. BANKFULL STORAGE

REQUIRED VOLUME = 5160 X 5.56 X 0.74=21,230 CF

BY INTERPOLATION, A VOLUME OF 23,353 CF IS STORED AT ELEV. 840.40

C. STANDPIPE DESIGN

Qff = 7477 / 86400 = 0.087 CFS

Hff = 839.00 - 838.00=1.00

A = 0.087/ [0.62 X 92 X 32.2 X 1.0)^ 0.50] = 0.0175 SF

A 1" DIA HOLE HAS AN AREA OF 0.0055 SF

USE 0.0175 / 0.0055 = 3.2 OPENINGS ...... USE (3) 1" OPENINGS AT ELEV. 838.00

Qbf = 21,230 / 144000 = 0.147 CFS

Q @ 839.00 = (3 X 0.0055) X 0.62 X [2 X 32.2 X (840.4 - 838.00)] ^ 0.50 = 0.127 CFS

QR = 0.147 - 0.127 = 0.020 CFS

A= 0.020 / [0.62 X [2 X 32.2 X (840.40 - 839.00)] ^ 0.50 = 0.0034 SF

A 1/2" DIA HOLE HAS AN AREA OF 0.0014 SF

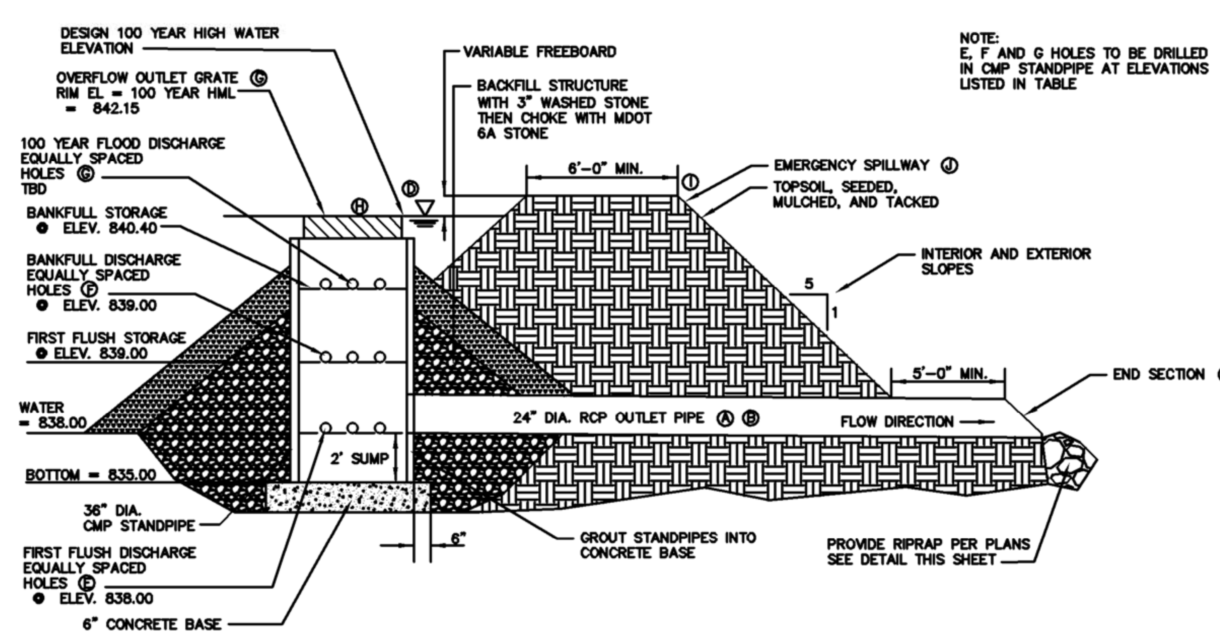
USE 0.0034 / 0.0014 = 2.5 OPENINGS ...... USE (2) 1/2" OPENINGS AT ELEV. 839.00

D. OUTLET PIPE DESIGN

Q10 = 5.56 X 0.74 X (170 / 15 + 233) =18.26 CFS

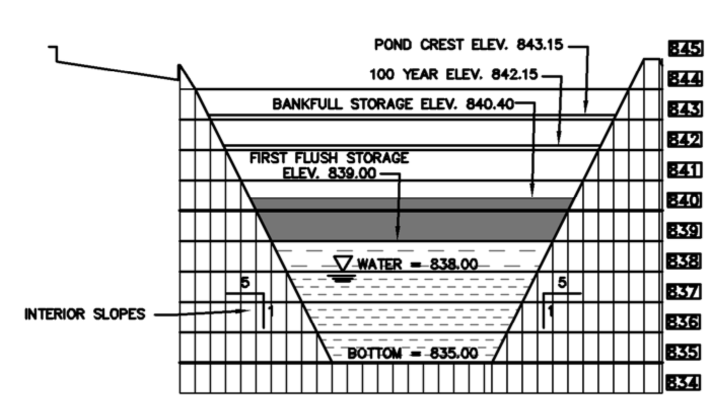
FROM MANNING TABLE, SELECT A 24" DIA. CONCRETE PIPE WITH A SLOPE 0.68% (V = 5.9 FPS)

DETENTION OUTLET STRUCTURE



DETENTION OUTLET SCHEDULE

OUTLET PIPE LENGTH	OUTLET PIPE SLOPE	END SECTION INVERT	100-YEAR HWL	FIRST FLUSH DISCHARGE INV/ORIFICE SIZE	BANKFULL DISCHARGE INV/ORIFICE SIZE	100 YEAR FLOOD DISCHARGE INV/ORIFICE SIZE	TOP OF STAND PIPE ELEVATION	POND CREST ELEVATION	EMERGENCY SPILLWAY ELEVATION
Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	Ⓘ	Ⓙ
TBD	TBD	837.00	842.15	(3) 1" HOLES @ 838.00	(2) 1/2" HOLES @ 839.00		842.15	843.15	842.15



DETENTION POND
NORTH-SOUTH SECTION
N.T.S.

STORMWATER POND STORAGE ANALYSIS (4-30-2019)

A. STORAGE DEDICATED IN EXISTING REGIONAL DETENTION POND

PER 1986 STANDARDS (WHEN SUBDIVISION WAS DEVELOPED):

AREA = 5.56 AC
C = 0.75 FOR INDUSTRIAL PROJECTS
Qa = 0.20 CFS/AC

DETERMINE STORAGE REQUIRED FOR 100-YR STORM:
Qa = 0.20 CFS/AC X 5.56 AC = 1.11 CFS
Qo = 1.11 / (5.56 X 0.75) = 0.267 CFS/AC-IMP
T100 = -25 + (10,312.5 / 0.267) *0.50 = 171.5 MINS
Vs = 16,500 X 171.5 / (171.5 + 25) - 40 X 0.267 X 171.5 = 12,569.1 CF/AC-IMP
Vt = 12,569.1 X 5.56 X 0.75 = 52,413 CF

B. STORAGE REQUIRED IN EXSITNG DETENTION POND

PER CURRENT WCDC STANDARDS FROM WORKSHEETS W1 TO W13:

Vr = 95,982 CF

C. DEFICIT TO BE STORED ON SITE

Vd = 95,982 - 52,413 = **43,569 CF**

D. AVAILABE STORAGE ON SITE

ELEV.	AREA (SF)	AVE. AREA (SF)	DEPTH (FT)	VOLUME (CF)	CUM. VOLUME (CF)
838	7020				
		12420	5.0	62100	62100
843	17820				

BY INTERPOLATION, A VOLUME OF **47,733 CF IS STORED AT ELEV. 842.15**. THE ADDITIONAL VOLUME ALLOWS FOR CONSTRUCTION TOLERANCES WHEN GRADING THE POND.

THE FREEBOARD SHALL BE SET AT 12" ABOVE THE STORAGE: 842.15 + 1.0 = 843.15.

NOTE THAT THE POND WILL HAVE 3-FEET OF PERMANAENT WATER BELOW ELEV. 838 TO ACT AS A SEDIMENT FOREBAY.

18132.STORAGE IN ONSITE POND

RUNWAY PLAZA SUB'N STORMWATER POND ANALYSIS (4-30-2019)

A. REQUIRED STORAGE IN POND IN PARK NO. 2 IN 1986

PER 1986 STANDARDS (WHEN SUBDIVISION WAS DEVELOPED):

DRAINAGE AREA = 23.70 AC (PER RECORD PLANS)
C = 0.75 FOR INDUSTRIAL PROJECTS
Qa = 0.20 CFS/AC

DETERMINE STORAGE REQUIRED FOR 100-YR STORM:
Qa = 0.20 CFS/AC X 23.70 AC = 4.74 CFS
Qo = 4.74 / (23.70 X 0.75) = 0.267 CFS/AC-IMP
T100 = -25 + (10,312.5 / 0.267) *0.50 = 171.5 MINS
Vs = 16,500 X 171.5 / (171.5 + 25) - 40 X 0.267 X 171.5 = 12,569.1 CF/AC-IMP
Vt = 12,569.1 X 23.70 X 0.75 = **223,417 CF**

B. AVAILABE STORAGE IN POND IN PARK N0. 2 IN 2019

ELEV.	AREA (SF)	AVE. AREA (SF)	DEPTH (FT)	VOLUME (CF)
842 - FREEBOARD				
841- STORAGE	76880			
		63440	4.0	**253,760 CF**
837 – WATER	50000			
827 - BOTTOM				

CONCLUSION: THE EXSITNG POND ADEQUATELY CONFORMS TO THE ORIGINAL DESIGN INTENT.

18132.RUNWAYPLAZAPOND

STATE OF MICHIGAN
JULIAN JAY WARGO, JR.
ENGINEER
NO. 36177
LICENSED PROFESSIONAL ENGINEER

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
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STORM WATER MANAGEMENT
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DATE 05-09-19 | SCALE HOR: 1" = VER: 1" =
DESIGNED BY JJW | JOB NO. 18132
DRAWN BY | SHEET C-102

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

A. Total Site Area = 242359 sf or 5.56 ac
Total Site Area Excluding "Self-Crediting" BMPs = 5.56 ac

B. Rational Method Variables:

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coefficient (c)	C x A
Lawn	D	117,409	2.70	0.50	1.35
Roof	D	36,000	0.83	0.95	0.79
Pavement	D	80,950	1.86	0.95	1.77
Pond	D	8,000	0.18	1.00	0.18
			-		-
			-		-
			-		-
		242,359	5.56		4.08

Total - ∑(CN)(Area) = 4.08
Area Total - ∑ac or ∑sf = 5.56
Weighted C - ∑(C)(Area)/∑ac or ∑sf = 0.73

Weighted Runoff Coefficient C = 4.08 / 5.56 = **0.73**

C. NRCS Variables:

Pervious Cover Type	Soil Type	Area (ft²)	Area (ac)	Curve Number	(CN)(Area)
Lawn	D	117,409	2.70	80	215.63
			-		-
			-		-
			-		-
			-		-
			-		-
			-		-
		117,409	2.70		215.63

Total - ∑(CN)(Area) = 215.63
Area Total - ∑ac or ∑sf = 2.70
Pervious Weighted CN - ∑(C)(Area)/∑ac or ∑sf = 80.00

Weighted Pervious Curve Number CN = 215.63 / 2.70 = **80**

Impervious Cover Type	Soil Type	Area (ft²)	Area (ac)	Curve Number	(CN)(Area)
Roof	D	36,000	0.83	98	80.99
Pavement	D	80,950	1.86	98	182.12
Pond	D	8,000	0.18	98	18.00
			-		-
			-		-
			-		-
			-		-
		124,950	2.87		281.11

Total - ∑(CN)(Area) = 281.11
Area Total - ∑ac or ∑sf = 2.87
Impervious Weighted CN - ∑(C)(Area)/∑ac or ∑sf = 98.00

Weighted Impervious Curve Number CN = 281.11 / 2.87 = **98**

W2 Standard Method Runoff Volume Calculations

First Flush Runoff Calculations (V_{ff})
A. V_{ff} = (1")(1'/12") x (43560ft²/1ac)x A x C= 43560/12 x 5.56 x 0.73 Vff = **14,817 cf**

V_{ff} = (1") x (1'/12") x (43 A 5.56 C 0.73 3630

W3 Pre-Development Bankfull Calculations

A. 2 year / 24 hour storm event: P = 2.35 in
B. Pre-Development Curve Number (CN): CN = 79
C. S = (1000 / CN) - 10 S = 2.66 in
D. Q = (P-0.2S)^2 / (P + 0.8S) Q = 0.739 in
E. Total Site Area (sf) excluding "Self Crediting BMPs Area = 242,194 sf
F. $V_{bf\text{-}pre}$ = Q x(1/12) x Area Vbf-pre = **14,907 cf**

P
CN **(1000 / CN)** 12.6582
S
P-0.2S 1.81835 **P-.02S²** 3.30641 **0.8S** 2.12658 **P+08S** 4.47658
Q x 1/12 0.06155

W4 Pervious Cover Post-Development Bankfull Runoff Calculations

A. 2 year / 24 hour storm event: P = 2.35 in
B. Pre-Development Curve Number (CN): CN = 80
C. S = (1000 / CN) - 10 S = 2.50 in
D. Q = (P-0.2S)^2 / (P + 0.8S) Q = 0.79 in
E. Pervious Cover Area Area = 117,409 sf
F. $V_{bf\text{-}per\text{-}post}$ = Q x(1/12) x Area Vbf-per-post = **7,698 cf**

P
CN **(1000 / CN)** 12.5
S
P-0.2S 1.85 **P-.02S²** 3.4225 **0.8S** 2 **P+08S** 4.35
Q x 1/12 0.06557

W5 Impervious Cover Post-Development Bankfull Runoff Calculations

A. 2 year / 24 hour storm event: P = 2.35 in
B. Pre-Development Curve Number (CN): CN = 98
C. S = (1000 / CN) - 10 S = 0.20 in
D. Q = (P-0.2S)^2 / (P + 0.8S) Q = 2.12 in
E. Impervious Cover Area Area = 124,950 sf
F. $V_{bf\text{-}imp\text{-}post}$ = Q x(1/12) x Area Vbf-imp-post = **22,092 cf**

P
CN **(1000 / CN)** 10.2041
S
P-0.2S 2.30918 **P-.02S²** 5.33233 **0.8S** 0.16327 **P+08S** 2.51327
Q x 1/12 0.17681

W6 Pervious Cover Post-Development 100-Year Storm Runoff Calculations

A. 2 year / 24 hour storm event: P = 5.11 in
B. Pervious Cover Curve Number (CN): CN = 80
C. S = (1000 / CN) - 10 S = 2.50 in
D. Q100-per = (P-0.2S)^2 / (P + 0.8S) Q100-per = 2.99 in
E. Pervious Cover Area Area = 117,409 sf
F. $V_{100\text{-}per\text{-}post}$ = Q x(1/12) x Area V100-per-post = **29245 cf**

P
CN **(1000 / CN)** 12.5
S
P-0.2S 4.61 **P-.02S²** 21.2521 **0.8S** 2 **P+08S** 7.11
Q x 1/12 0.24909

W7 Impervious Cover Post-Development 100-Year Storm Runoff Calculations

A. 2 year / 24 hour storm event: P = 5.11 in
B. Impervious Cover Curve Number (CN): CN = 98
C. S = (1000 / CN) - 10 S = 0.20 in
D. Q100-imp = (P-0.2S)^2 / (P + 0.8S) Q100-imp = 4.87 in
E. Impervious Cover CN Area Area = 124,950 sf
F. $V_{100\text{-}imp\text{-}post}$ = Q x(1/12) x Area V100-per-post = **50,740 cf**

P
CN **(1000 / CN)** 10.2041
S
P-0.2S 5.06918 **P-.02S²** 25.6966 **0.8S** 0.16327 **P+08S** 5.27327
Q x 1/12 0.40608

W 8 Determine Time of Concentration for Applicable Flow Type

Flow Type	K	Change in Elevation	Length (L)	Slope % (S)	S^0.5	V=K x S^0.5	Tc	V x 3600
Sheet	0.48	8.0	610	1.31	1.15	0.55	0.31	1,978.90
							0.31	

Total Time of Concentration Tc = **0.31 hrs**

W 9 Runoff Summary & Onsite Infiltration Requirement

A. Runoff Summary:

First Flush Volume = Vff = **14,817 cf**
Predevelopment Bankfull Runoff Volume = Vbf-pre = 14,907 cf
Pervious Cover Postdevelopment Bankfull Volume = Vbf-per-post = 7,698 cf
Impervious Cover Postdevelopment Bankfull Volume = Vbf-imp-post = 22,092 cf
Total Bankfull Volume = 7,698 + 22,092 Vbf-post = **29,790 cf**
Pervious Cover Postdevelopment 100-Yr Volume = V100-per-post = 29,245 cf
Impervious Cover Postdevelopment 100-Yr Volume = V100-imp-post = 50,740 cf

Total 100-Yr Volume = 29,245 + 50,740 V100 = **79,985 cf**

B. Determine Onsite Infiltration Requirement:

Total Postdevelopment Bankfull Volume Vbf = 29,790 cf
Predevelopment Bankfull Runoff Volume Vbf-pre = 14,907 cf
Bankfull Volume Difference = 29,790 - 14,907 Vdif = **14,883 cf**

Greater of First Flush Volume and Bankfull Volume Difference Vinf = **14,883 cf**

W 10 Detention / Retention Requirement

Detention

A. Qp = 238.6 Tc^-0.82 = 238.6 x 0.31 ^-0.82 = Qp = 626.28 in-mi^2
B. Total Site Area (ac) Excluding Self-Crediting BMPs A = 5.56
C. Q100 = Q100-per + Q100-imp = 2.99 + 4.87 Q100 = 7.86 in
D. Peak Flow (PF) = (Qp x Q100 x Area) / 640 =
626.2784993 x x 5.56 / 640 =
PF = 42.78 cfs
E. Δ = PF (cfs) - 0.15 Area (ac) = -0.15 x 5.56 Δ = 41.94 cfs
F. Vdet = (Δ / PF) x V100 - Vinf = Vdet = **63,543 cf**

Retention

A. Vret = 2(V100) = 2 x 63,543 = Vret = **127,086 cf**

W 11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (sf)	Storage Volume (cf)	Ave Design Infiltration Rate (in/hr)	Infiltration Volume During Storm (cf)	Total Volume Reduction (cf)
Porous Pavement w/Infiltration Bed					
Infiltration Bed					
Subsurface Infiltration Bed					
Infiltration Trench					
Rain Garden / Bioretention					
Dry Well					
Bioswale					
Vegetated Filter Strip					
Green Roof					

Total Volume Reduction Credit by Proposed Structural BMPs 0 cf
Runoff Volume Infiltration Requirement (Vinf) 14,882.81 cf
After Runoff Volume Credit = 0 cf

W 12 Natural Features Inventory

Existing Natural Resources	Mapped	Area (ac)	Protected Area (ac)
Waterbodies			
Floodplains			
Riparian Areas			
Wetlands			
Woodlands			
Natural Drainage Areas			
Steep Slopes, 15-25%			
Steep Slopes, >25%			
Special Habitat Areas			
Other			

W 13 Stormwater Management Summary

Total Required 100-yr Volume (Unadjusted) = 79,985 cf

Total Infiltration Provided = 0 cf
Total = 79,985 cf
Penalty for Lack of Infiltration = x 1.20
Grand Total = 95,982 cf

I= 175/T+25 C= 0.7 T= 15.0 MIN. SHEET 1 OF 1 3/11/2019

PROJECT: PIDC JOB NO. 18132 COMMUNITY: PITTSFIELD COUNTY: WASHTENAW

FROM MH INPUT	TO MH	INCRE-MENT ACRES (A)	C	EQUIV. AREA 100% ACRES CA	TOTAL AREA 100% ACRES SUM CA	T TIME (MIN.)	I (IN PER HOUR)	Q=CIA C.F.S. FLOW	CAPAC-ITY OF SEWER (C.F.S.)	DIAM. OF PIPE (IN.)	LENGTH OF LINE (FT.)	SLOPE OF PIPE (%)	SLOPE OF HG (%)	VEL. FLOW FULL (FT./SEC.)	TIME OF FLOW (MIN.)	H.G./ELEV. UPPER END	GROUND ELEVATION UPPER END	GROUND ELEVATION LOWER END	INVERT ELEVATION UPPER END	INVERT ELEVATION LOWER END	
13	12	0.02	0.7	0.01	0.01	15.0	4.38	0.04	1.1	8	11	0.75		3.0	0.1	847.50	844.80	844.80	841.59	841.51	+2.70
12	10	0.02	0.7	0.01	0.02	15.1	4.36	0.09	2.4	12	35	0.44		3.0	0.2		844.80	847.50	841.41	841.36	
10	9	0.32	0.7	0.22	0.24	15.3	4.34	1.04	2.4	12	80	0.44		3.0	0.4		849.50	845.00	841.26	840.91	
9	8	0.33	0.7	0.23	0.47	15.7	4.30	2.02	2.4	12	93	0.44		3.0	0.5		845.00	846.20	840.71	840.30	
8	7	0.53	0.7	0.37	0.84	16.2	4.25	3.56	3.8	15	115	0.32		3.0	0.6		846.20	846.00	840.20	839.83	
7	6	0.22	0.7	0.15	0.99	16.8	4.19	4.14	4.2	15	84	0.40		3.3	0.4		846.40	847.50	839.73	839.39	
6	5	0.39	0.7	0.27	1.26	17.2	4.14	5.23	5.5	18	110	0.26		3.0	0.6		847.50	846.20	839.29	839.00	
5	3	2.44	0.7	1.71	2.97	17.8	4.09	12.14	14.0	24	175	0.38		4.4	0.7		846.20	844.60	838.80	838.13	
3	2	0.71	0.7	0.50	3.47	18.5	4.02	14.00	14.0	24	35	0.38		4.4	0.1	845.55	844.80	ES	838.13	838.00	+1.55
						18.6															

STATE OF MICHIGAN
JULIAN JAY WARGO, JR.
ENGINEER
No. 36177
LICENSED PROFESSIONAL ENGINEER
Julian J. Wargo. Jr.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
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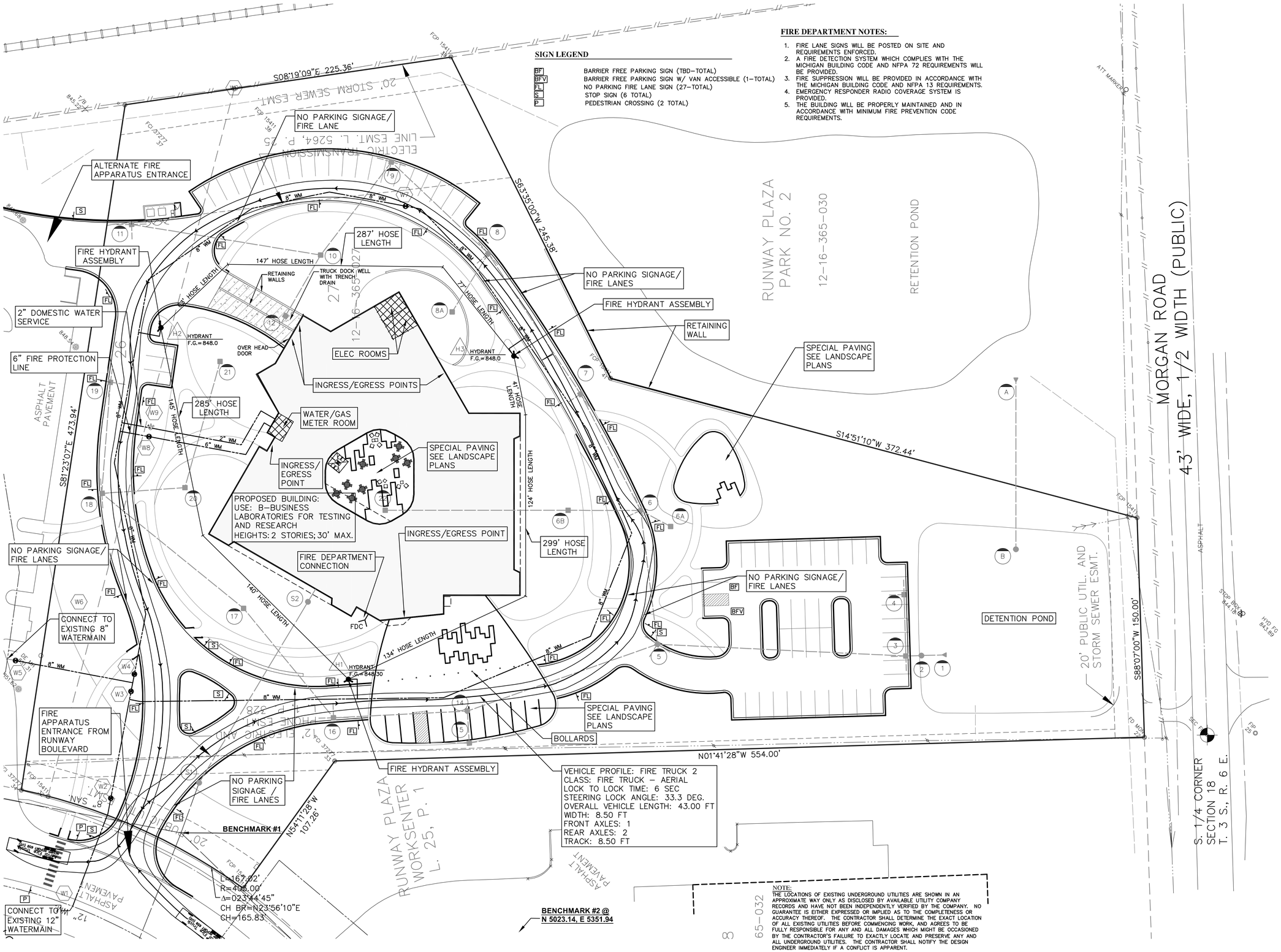
Z:\Projects\18132\DWG\18132 STORM WATER MANAGEMENT.dwg, C-103 STORM WATER, 5/9/2019 11:40:47 AM, JMroz



SIGN LEGEND

- BF — BARRIER FREE PARKING SIGN (TBD-TOTAL)
- BFV — BARRIER FREE PARKING SIGN W/ VAN ACCESSIBLE (1-TOTAL)
- FL — NO PARKING FIRE LANE SIGN (27-TOTAL)
- S — STOP SIGN (6 TOTAL)
- P — PEDESTRIAN CROSSING (2 TOTAL)

FIRE DEPARTMENT NOTES:

1. FIRE LANE SIGNS WILL BE POSTED ON SITE AND REQUIREMENTS ENFORCED.
2. A FIRE DETECTION SYSTEM WHICH COMPLIES WITH THE MICHIGAN BUILDING CODE AND NFPA 72 REQUIREMENTS WILL BE PROVIDED.
3. FIRE SUPPRESSION WILL BE PROVIDED IN ACCORDANCE WITH THE MICHIGAN BUILDING CODE AND NFPA 13 REQUIREMENTS.
4. EMERGENCY RESPONDER RADIO COVERAGE SYSTEM IS PROVIDED.
5. THE BUILDING WILL BE PROPERLY MAINTAINED AND IN ACCORDANCE WITH MINIMUM FIRE PREVENTION CODE REQUIREMENTS.

LEGEND EXISTING

- MANHOLE
- CATCH BASIN
- INLET
- CLEANOUT
- END SECTION
- ROOF DRAIN
- GATE VALVE
- HYDRANT
- WATER SHUT-OFF
- UTILITY POLE
- GUY ANCHOR
- LIGHT POLE
- SIGN
- TREE
- TREE LINE
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- GAS MAIN
- ELECTRIC CABLE
- CONTOUR MAJOR
- CONTOUR MINOR
- +100.00 SPOT ELEVATION

LEGEND PROPOSED

- MANHOLE
- CATCH BASIN
- INLET
- CLEANOUT
- END SECTION
- ROOF DRAIN
- GATE VALVE
- HYDRANT
- WATER SHUT-OFF
- TREE REMOVAL
- SANITARY SEWER
- STORM SEWER
- WATER MAIN
- ℄ DITCH
- CONTOUR MAJOR
- CONTOUR MINOR
- PROPOSED CONTOURS
- 99.0 PROPOSED GRADE
- # STORM SEWER STRUCTURE
- S# SANITARY SEWER STRUCTURE
- H# FIRE HYDRANT
- W# WATER MAIN GATE VALVES & MORE.

NOTES:
MAINTAIN FIRE TRUCK ACCESS TO ENTIRE SITE AT ALL TIME

37.92
7.08 22.50

Ladder 3	feet
Width	: 6.91
Track	: 6.91
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

VEHICLE PROFILE: FIRE TRUCK 2
CLASS: FIRE TRUCK – AERIAL
LOCK TO LOCK TIME: 6 SEC
STEERING LOCK ANGLE: 33.3 DEG.
OVERALL VEHICLE LENGTH: 43.00 FT
WIDTH: 8.50 FT
FRONT AXLES: 1
REAR AXLES: 2
TRACK: 8.50 FT

NOTE:
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

STATE OF MICHIGAN — JULIAN JAY WARGO, JR. — ENGINEER No. 36177 — LICENSED PROFESSIONAL ENGINEER

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PRELIMINARY SITE PLAN SUBMITTAL	5/09/19	JJW									

ZEIMET WOZNIAK & ASSOCIATES
Civil Engineers & Land Surveyors
55800 GRAND RIVER AVE., SUITE 100
NEW HUDSON, MICHIGAN 48165
P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

MISS DIG SYSTEM, INC. — THREE FULL WORKING DAYS BEFORE YOU DIG, CALL THE MISS DIG SYSTEM 1-800-482-7171

PROJECT SPONSOR:
PACIFIC INDUSTRIAL DEVELOPMENT CORP.
4788 RUNWAY BLVD.
ANN ARBOR, MI 48108

FIRE ACCESS PLAN
PIDC HEADQUARTES & TECH. CENTER
PITTSFIELD CHARTER TOWNSHIP – WASHTENAW COUNTY – MICHIGAN

FIELD BOOK 527	DATE 5-09-19	SCALE	HOR: 1" = 30' VER: 1" = N/A
	DESIGNED BY JJW	JOB NO.	18132
	DRAWN BY	SHEET	C-104

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Z:\Projects\18132\DWG\18132 FIRE ACCESS PLAN.dwg, C-104 FIRE ACCESS PLAN, 5/9/2019 3:56:24 PM, JMcroz

Trees Required per Ordinance:

WOODLAND TREES
464" D.B.H. REMOVED
464" D.B.H. REQUIRED

HERITAGE TREES
463" D.B.H. REMOVED
695" D.B.H. REQUIRED

TOTAL REQUIRED CALIPER INCHES OF MITIGATED TREES = 1,159"

PARKING LOT TREES
(1) TREE PER (8) PARKING SPACES
42 SPACES / 8 = (6) TREES AT 2½" CAL. REQUIRED = 15"

PARKING LOT PERIMETER TREES
(1) TREE PER 40 L.F. OF PARKING LOT PERIMETER
471 L.F. / 40 L.F. = (12) TREES AT 2½" CAL. REQUIRED = 30"

TOTAL CALIPER INCHES OF TREES REQUIRED = 1,204"

Trees Provided:

(123) TOTAL SHADE TREES
(41) AT 3½" CAL. = 143.5"
(41) AT 3" CAL. = 123"
(41) AT 2½" CAL. = 102.5"
TOTAL = 369"

(84) TOTAL UNDERSTORY TREES
(28) AT 12' HT. (6IM. 3½" CAL.) = 98"
(28) AT 10' HT. (6IM. 3" CAL.) = 84"
(28) AT 8' HT. (6IM. 2½" CAL.) = 70"
TOTAL = 126"

(14) TOTAL SPECIMEN EVERGREEN TREES
(4) AT 12' HT. (6IM. 3½" CAL.) = 14"
(5) AT 10' HT. (6IM. 3" CAL.) = 15"
(5) AT 8' HT. (6IM. 2½" CAL.) = 12.5"
TOTAL = 42"

TOTAL CALIPER INCHES OF TREES PROVIDED ON-SITE = 663"

Note:

IN LIEU OF PROVIDING THE DEFICIT CALIPER INCHES OF REPLACEMENT TREES (1,204"-663" = 541"), THE FOLLOWING IS PROPOSED -

WOODLAND RESTORATION
TOTAL PROPERTY ACRES - 5.36
WOODLAND RESTORATION ACRES WITH TREES AND MEADOW LAWN - 1.80 (32% OF TOTAL SITE AREA)

OFF-SITE ENHANCEMENTS
ADDITIONAL ENHANCEMENTS AROUND EXISTING SUBDIVISION RETENTION POND FOR COMMUNITY USE SHALL INCLUDE -

1. 6' WIDE AGGREGATE WALKING PATH - 1,200 LF
2. SYNTHETIC WOOD DECK
3. UNDERSTORY TREES - 104" CALIPER INCHES (OFF-SITE)
4. (6) BENCHES

TOTAL CALIPER INCHES OF TREES PROVIDED ON-SITE AND OFF-SITE = "767"

Legend:

- EXISTING TREE TO REMAIN
- SODDED LAWN
- MEADOW LAWN (PART OF WOODLAND RESTORATION)
- EXISTING AND PROPOSED UTILITIES, REFER TO CIVIL DRAWINGS

Note Key:

1. SPECIAL PAVING
2. CONCRETE SIDEWALK, TYP.
3. PEDESTRIAN CROSSWALK (PAVEMENT MARKINGS AND SIGNS)
4. BARRIER FREE RAMP
5. VISITOR PARKING - (2) BARRIER FREE SPACES, (8) STANDARD SPACES
6. 6' HT. MASONRY DUMPSTER ENCLOSURE WITH GATES
7. MECHANICAL EQUIPMENT WITH STONE MULCH
8. 10' HT. ARCHITECTURAL SCREEN WALL (TO MATCH BUILDING)
9. SYNTHETIC WOOD DECK
10. 6' WIDE AGGREGATE WALKING PATH
11. PRECAST CONCRETE BLOCK RETAINING WALL (4' HT. MAX)
12. PRECAST CONCRETE BLOCK STEPS
13. DECORATIVE BOLLARDS
14. DETENTION POND - REFER TO CIVIL DRAWINGS
15. EXISTING CONCRETE SIDEWALK TO REMAIN
16. SEEDED LAWN RESTORATION BY OTHERS
17. BENCH
18. LOW CONCRETE ARCHITECTURAL WALL

General Notes:

1. ALL SODDED LAWN AND PLANT BEDS TO BE IRRIGATED, MEADOW LAWN NOT TO BE IRRIGATED.
2. PROPOSED PLANT INSTALLATION TO BE FALL 2020.
3. ALL PLANTINGS TO HAVE ONE YEAR MAINTENANCE/WARRANTY PERIOD. ANY DEAD/DYING MATERIAL SHALL BE REPLACED DURING THE MAINTENANCE/WARRANTY PERIOD.
4. ALL PLANT BEDS TO RECEIVE 4" DEPTH SHREDDED BARK MULCH.

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

0' 15' 30' 60'
SCALE: 1"=30'
NORTH

Seal

STATE OF MICHIGAN
PAUL R. ANDRIESE
LANDSCAPE ARCHITECT
No. 1013
REGISTERED LANDSCAPE ARCHITECT

Architect
Edge DESIGN ASSOCIATES
Architecture & Interior Design
Planning
24 Frank Lloyd Wright Drive
Suite H1800
Ann Arbor, MI 48106
www.edgedesignassociates.com

Consultant
GRISSIM METZ ASSOCIATES ANDRIESE
Landscape Architecture
300 East Cady Street
Northville, MI 48167
Ph: 248-347-7010
Fax: 248-347-7005
Email: mailbox@gma-la.com

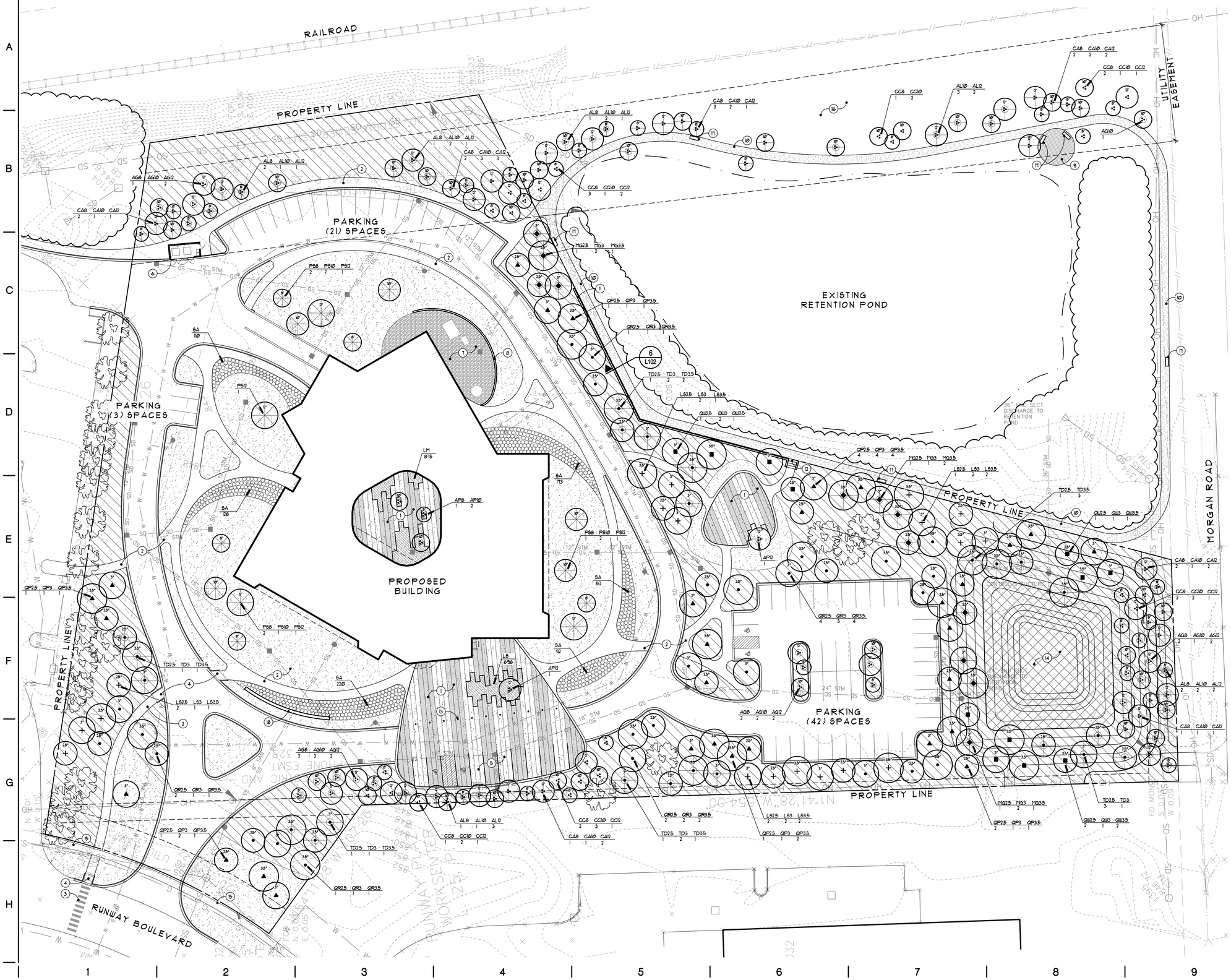
Project
Innovative Chemistry
Advanced Materials
Headquarters & Tech. Center
Pittsfield Charter Township, MI

Sheet
Rendered Landscape Plan

Date Issued	
05.10.19	Site Plan Approval

Project Number
19-110

Sheet No.
L101a



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TOTAL PROPERTY ACRES = 3.56
WOODLAND RESTORATION ACRES WITH TREES AND MEADOW LAWN - 1.10 (32% OF TOTAL SITE AREA)

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4. (6) BENCHES

TOTAL CALIPER INCHES OF TREES PROVIDED ON-SITE AND OFF-SITE = 767"

Legend:

- EXISTING TREE TO REMAIN
- EXISTING TREE LINE
- SODDED LAWN
- MEADOW LAWN (PART OF WOODLAND RESTORATION)
- EMERGENT WETLAND SEED MIX
- SD / SS / W — EXISTING AND PROPOSED UTILITIES, REFER TO CIVIL DRAWINGS

Note Key:

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Suite H1800
Ann Arbor, MI 48106
www.edgedesignassociates.com

Consultant
GRISSIM METZ ANDRIESE ASSOCIATES
Landscape Architecture
311 East Cady Street
Northville, MI 48167
Ph: 248-347-7010
Fax: 248-347-7005
Email: mailbox@gma-la.com

Project
Innovative Chemistry Advanced Materials
Headquarters & Tech. Center
Pittsfield Charter Township, MI

Sheet
Landscape Plan

Date Issued

05.10.19	Site Plan Approval

Project Number
19-110

Sheet No.
L101

Plant List

Canopy Trees

CODE	QTY.	DESCRIPTION	SIZE	COMMENTS
MG2.5	3	Metasequoia glyptostroboides Dawn Redwood	2.5" cal	B&B
MG3	5	Metasequoia glyptostroboides Dawn Redwood	3" cal	B&B
MG3.5	4	Metasequoia glyptostroboides Dawn Redwood	3.5" cal	B&B
LS2.5	6	Liquidambar styraciflua Sweetgum	2.5" cal	B&B
LS3	7	Liquidambar styraciflua Sweetgum	3" cal	B&B
LS3.5	6	Liquidambar styraciflua Sweetgum	3.5" cal	B&B
QR2.5	10	Quercus rubra Red Oak	2.5" cal	B&B
QR3	8	Quercus rubra Red Oak	3" cal	B&B
QR3.5	9	Quercus rubra Red Oak	3.5" cal	B&B
QP2.5	10	Quercus palustris Pin Oak	2.5" cal	B&B
QP3	10	Quercus palustris Pin Oak	3" cal	B&B
QP3.5	10	Quercus palustris Pin Oak	3.5" cal	B&B
QW2.5	4	Quercus bicolor Swamp White Oak	2.5" cal	B&B
QW3	4	Quercus bicolor Swamp White Oak	2.5" cal	B&B
QW3.5	4	Quercus bicolor Swamp White Oak	3.5" cal	B&B
TD2.5	8	Taxodium distichum Baldcypress	2.5" cal	B&B
TD3	7	Taxodium distichum Baldcypress	3" cal	B&B
TD3.5	8	Taxodium distichum Baldcypress	3.5" cal	B&B

Understory Trees

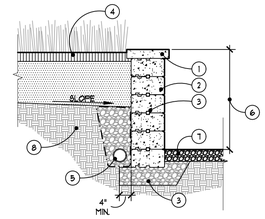
CODE	QTY.	DESCRIPTION	SIZE	COMMENTS
AP8	1	Acer palmatum 'Sango Kaku' Coral Bark Maple	8' ht.	B&B
AP10	2	Acer palmatum 'Sango Kaku' Coral Bark Maple	10' ht.	B&B
AP12	2	Acer palmatum 'Sango Kaku' Coral Bark Maple	12' ht.	B&B
AG8	7	Amelanchier grandiflora 'Robin Hill' Robin Hill Serviceberry	8' ht.	B&B
AG10	7	Amelanchier grandiflora 'Robin Hill' Robin Hill Serviceberry	10' ht.	B&B
AG12	8	Amelanchier grandiflora 'Robin Hill' Robin Hill Serviceberry	12' ht.	B&B
AL8	7	Amelanchier laevis Allegheny Serviceberry	8' ht.	B&B
AL10	11	Amelanchier laevis Allegheny Serviceberry	10' ht.	B&B
AL12	10	Amelanchier laevis Allegheny Serviceberry	12' ht.	B&B
CC8	11	Cercis canadensis Eastern Redbud	8' ht.	B&B
CC10	11	Cercis canadensis Eastern Redbud	10' ht.	B&B
CC12	6	Cercis canadensis Eastern Redbud	12' ht.	B&B
CA8	13	Cornus alternifolia Pagoda Dogwood	8' ht.	B&B
CA10	11	Cornus alternifolia Pagoda Dogwood	10' ht.	B&B
CA12	12	Cornus alternifolia Pagoda Dogwood	12' ht.	B&B

Evergreen Trees

CODE	QTY.	DESCRIPTION	SIZE	COMMENTS
PS8	5	Pinus sylvestris Scotch Pine	8' ht.	B&B, specimen
PS10	5	Pinus sylvestris Scotch Pine	10' ht.	B&B, specimen
PS12	4	Pinus sylvestris Scotch Pine	12' ht.	B&B, specimen

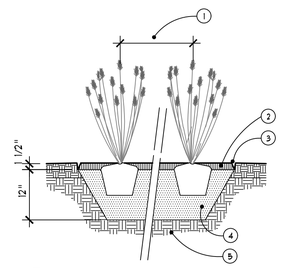
Shrubs, Groundcover, Vines and Perennials

CODE	QTY.	DESCRIPTION	SIZE	COMMENTS
LM	875	Liriope muscari 'Silvery Sunproof' 'Silvery Sunproof' Lily-turf	1 gal.	plant 12" o.c.
LS	696	Liriope spicata Creeping Lily-turf	1 gal.	plant 12" o.c.
SA	806	Sesleria autumnalis Autumn Moor Grass	3 gal.	plant 30" o.c.



1. MODULAR PRECAST CAP UNIT SECURED TO UNIT BELOW WITH CONCRETE ADHESIVE
2. MODULAR PRECAST WALL UNIT. SECURE EACH ROW WITH CONCRETE ADHESIVE. SET ROWS VERTICALLY WITH NO BATTER SETBACK
3. 6" MIN. 21AA CRUSHED AGGREGATE BASE, COMPACT TO 95% MOD. PROCTOR
4. ADJACENT MEADOW ON 4" TOPSOIL
5. 4" DIA. PERFORATED DRAINTILE IN 6AA BACKFILL. WRAP IN NON-WOVEN CLOTH FILTER FABRIC. TIE TO STORM SYSTEM - REFER TO PLAN
6. GRADE VARIES FROM 0" TO 4' HT ALONG WALL - REFER TO GRADING PLAN
7. AGGREGATE PATHWAY
8. COMPACTED SUBGRADE TO 95% MODIFIED PROCTOR BENEATH WALL BASE, 85% BENEATH LANDSCAPE

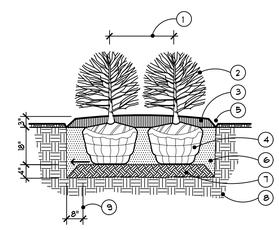
6 / L101 Planter Retaining Wall Section
SCALE: 1/2" = 1'-0"



CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION

1. SEE PLANT LIST FOR SPACING
2. 1-1/2" DEPTH DOUBLE PROCESSED SHREDDED BARK MULCH
3. ALUMINUM EDGING
4. EXCAVATE EXISTING SOIL 12" DEEP FILL WITH PLANT MIX (SEE SPECS.)
5. UNDISTURBED SUBGRADE

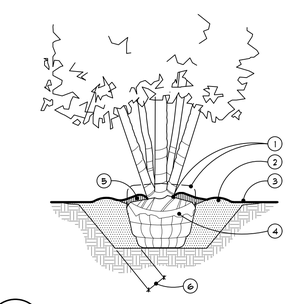
5 / - Ornamental Grass Planting Detail
NOT TO SCALE



CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.

1. SEE PLAN FOR SPACING
2. SHRUB PLANTS
3. SHREDDED BARK MULCH 4" DEPTH TYPICAL
4. CUT AND REMOVE TOP TWO WIRE BASKET RINGS AND REMOVE BURLAP & CUT TWINE FROM TOP 1/3 OF BALL
5. SHOVEL CUT EDGE OR STEEL EDGE, SEE PLAN
6. EXCAVATE EXISTING SOIL 18" DEEP, FILL WITH PLANT MIX (SEE SPECS.)
7. 4" SCARIFY AND RECOMPACT
8. UNDISTURBED SUBGRADE
9. 8" MIN. BETWEEN ROOTBALL AND EDGE OF PLANT
10. PIT PITCH SUBGRADE TO DRAIN

4 / - Typical Shrub Planting Detail
NOT TO SCALE



NOTES:

CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION

5 TRUNK MINIMUM TREE

TREES 14' HT AND LARGER TO BE GUYED (3 PER TREE.) REFER TO TYPICAL TREE PLANTING DETAIL FOR GUYING NOTES

1. AREA OF "RAPID TAPER" (REMOVE ALL SOILS ABOVE THIS LINE AND SET TREE TO THIS FINISH GRADE)
2. TREE PIT, 2X BALL DIAMETER. BACKFILL WITH EXCAVATED, NATIVE SOIL. PULVERIZE SOIL PRIOR TO BACKFILL TO 1" OR SMALLER. ELIMINATE ALL VOIDS. PROVIDE SOIL SAUCER RING AROUND TREE PIT
3. FINISH GRADE WITH LAWN SLOPED AWAY FROM TREE
4. REMOVE BURLAP BACK TO 6" BELOW GRADE, CUT WIRE BASKET
5. 4" DEPTH SHREDDED BARK MULCH. DO NOT FILL MULCH UP AROUND TRUNK.
6. 12" MINIMUM BETWEEN ROOT BALL AND EDGE OF PLANT PIT

3 / - Multi-Stem Tree Planting Detail
NOT TO SCALE

NOTES:

STAKE TREES 8' HEIGHT AND UNDER, 2 PER TREE

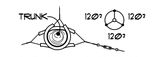
GUY TREES OVER 8' HEIGHT, 3 PER TREE

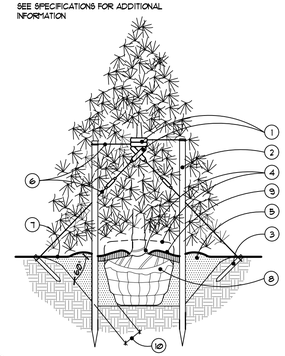
CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION

SET STAKES VERTICAL AND EVENLY SPACED

STAYS OR GUYS TO BE SET ABOVE FIRST BRANCH

SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION





1. 3/4" DIA. BLACK RUBBER HOSE AROUND GUY CABLE.
2. 6' LONG 2" x 2" HARDWOOD STAKES. STAKES TO EXTEND 18" BELOW TREE PIT IN UNDISTURBED SOIL
3. 2' LONG, 2X4 HARDWOOD STAKE WITH POINTED END
4. AREA OF "RAPID TAPER" (REMOVE ALL SOILS ABOVE THIS LINE AND SET TREE TO THIS FINISH GRADE)
5. TREE PIT, 2X BALL DIAMETER. BACKFILL WITH EXCAVATED, NATIVE SOIL AND FERTILIZER PER SPECS. PULVERIZE SOIL PRIOR TO BACKFILL TO 1" OR SMALLER. ELIMINATE ALL VOIDS. PROVIDE SOIL SAUCER RING AROUND TREE PIT
6. STAKING AND GUY CABLE - NEW GALV. STEEL WIRE FREE OF KINKS OR BENDS. USE #11 GA. FOR 4" CALIPER TREE AND UNDER, OR #13 GA. FOR TREES OVER 4" CALIPER
7. FINISH GRADE WITH LAWN SLOPED AWAY FROM TREE
8. REMOVE BURLAP BACK TO 6" BELOW GRADE, CUT WIRE BASKET
9. 3" DEPTH SHREDDED BARK MULCH. MULCH SHALL NOT COVER TREE TAPER
10. 12" MINIMUM BETWEEN ROOT BALL AND EDGE OF PLANT PIT AND CUT PIT SIDES @ 60° ANGLE

2 / - Evergreen Tree Planting Detail
NOT TO SCALE

NOTES:

STAKE TREES 4" CALIPER AND UNDER, 2 PER TREE

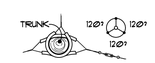
GUY TREES OVER 4" CALIPER, 3 PER TREE

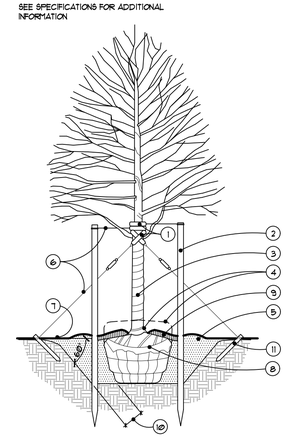
CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION

SET STAKES VERTICAL AND EVENLY SPACED

STAYS OR GUYS TO BE SET ABOVE FIRST BRANCH

SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION





1. 3/4" DIA. BLACK RUBBER HOSE AROUND GUY CABLE.
2. 6' LONG 2" x 2" HARDWOOD STAKES. STAKES TO EXTEND 18" BELOW TREE PIT IN UNDISTURBED SOIL
3. TREE WRAP - REMOVE AFTER FIRST YEAR
4. AREA OF "RAPID TAPER" (REMOVE ALL SOILS ABOVE THIS LINE AND SET TREE TO THIS FINISH GRADE)
5. TREE PIT, 2X BALL DIAMETER. BACKFILL WITH EXCAVATED, NATIVE SOIL AND FERTILIZER PER SPECS. PULVERIZE SOIL PRIOR TO BACKFILL TO 1" OR SMALLER. ELIMINATE ALL VOIDS. PROVIDE SOIL SAUCER RING AROUND TREE PIT
6. STAKING AND GUY FABRIC - ARBOR TIE OR APPROVED EQUAL
7. FINISH GRADE WITH LAWN SLOPED AWAY FROM TREE
8. CUT AND REMOVE TOP TWO WIRE BASTKET RINGS AND REMOVE BURLAP BACK TO 6" MINIMUM BELOW GRADE
9. 3" DEPTH SHREDDED BARK MULCH. MULCH SHALL NOT COVER TREE TAPER.
10. 12" MINIMUM BETWEEN ROOT BALL AND EDGE OF PLANT PIT AND CUT PIT SIDES @ APPROX. 60° ANGLE
11. 2' LONG, 2X4 HARDWOOD STAKE WITH POINTED END

1 / - Typical Deciduous Tree Planting Detail
NOT TO SCALE

Seal

STATE OF MICHIGAN
PAUL R. ANDRIESE
LANDSCAPE ARCHITECT
No. 1013
REGISTERED LANDSCAPE ARCHITECT

Architect

Edge DESIGN ASSOCIATES
Architecture & Interior Design
Planning

24 Frank Lloyd Wright Drive
Suite H1800
Ann Arbor, MI 48106

www.edgedesignassociates.com

Consultant

GRISSIM METZ ANDRIESE ASSOCIATES
Landscape Architecture

300 East Cady Street
Northville, MI 48167

Ph: 248-347-7010
Fax: 248-347-7005
Email: mailbox@gma-la.com

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Landscape Details & Plant List

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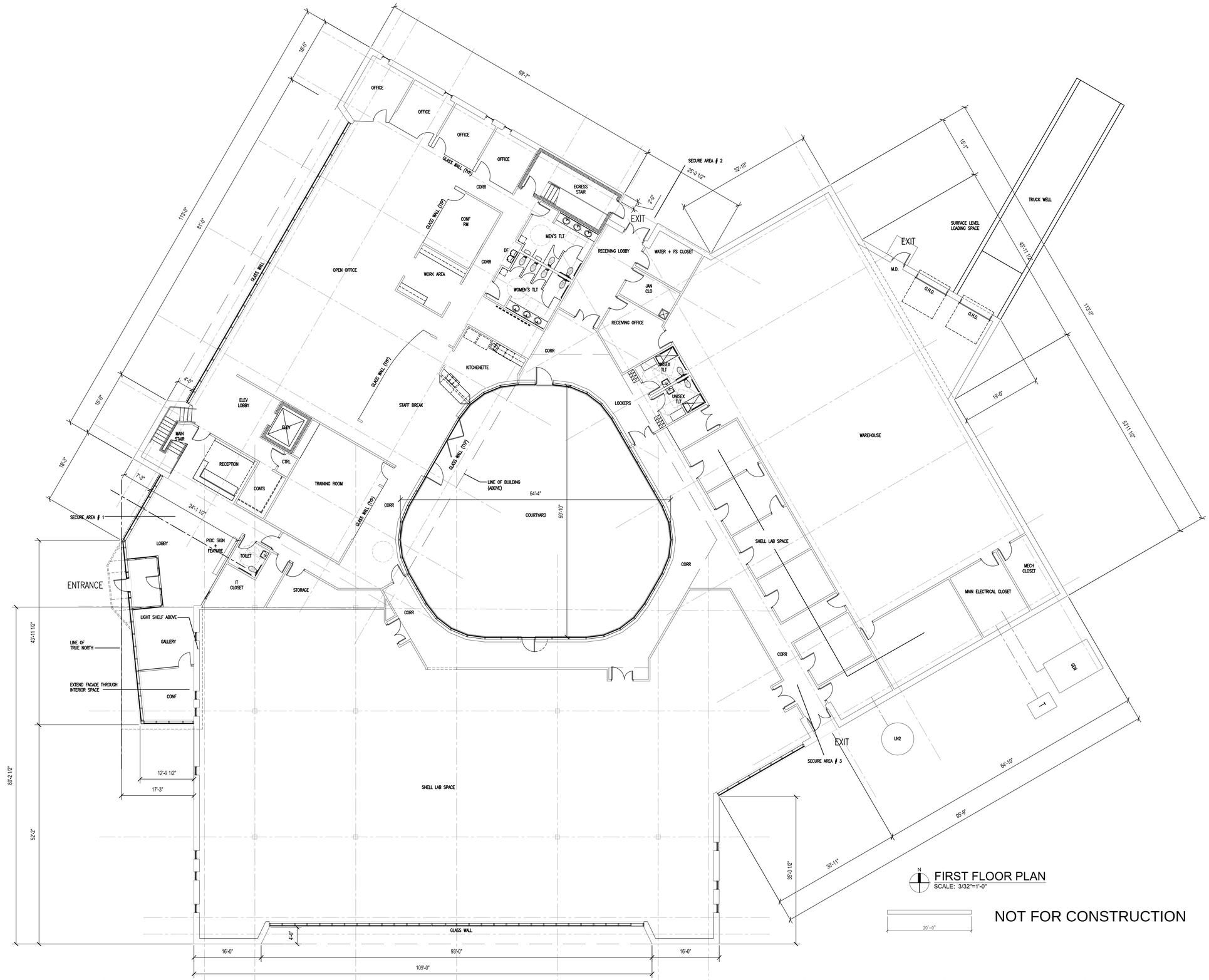

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Edge DESIGN ASSOCIATES
Architecture & Interior Design
Planning

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Suite H1800
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SECOND FLOOR PLAN

SCALE: 3/32"=1'-0"

20'-0"

NOT FOR CONSTRUCTION

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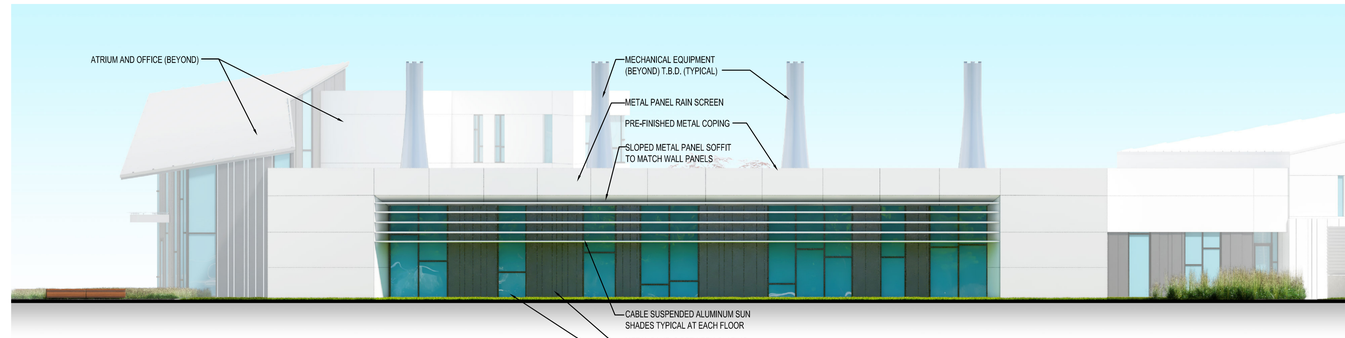
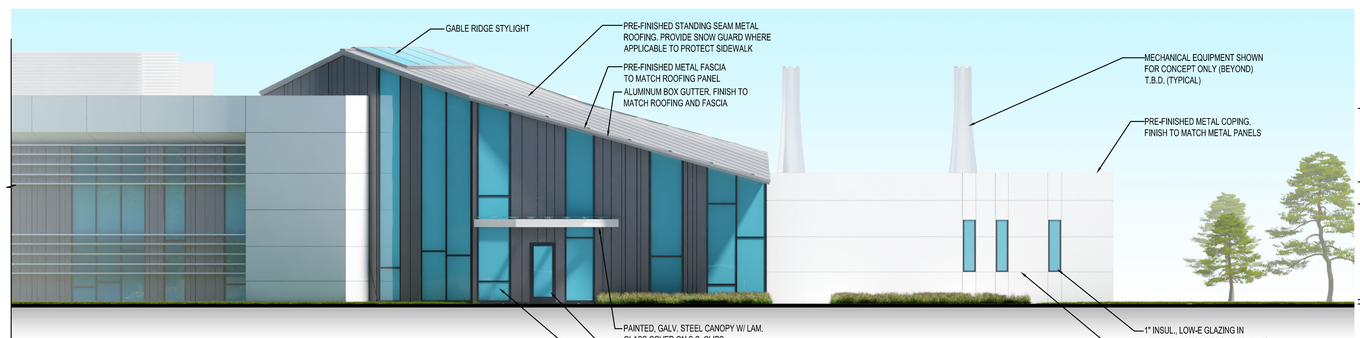
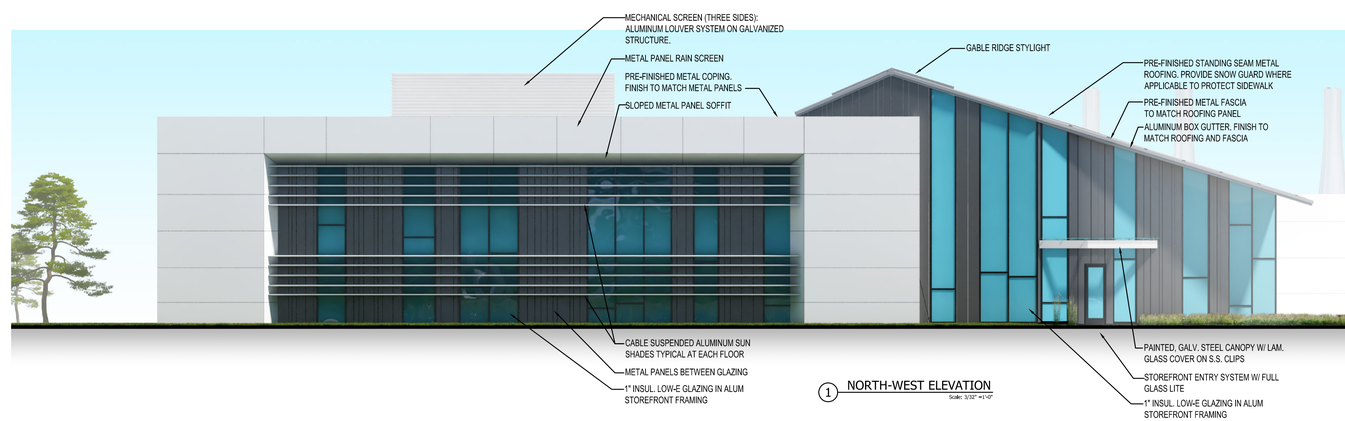


3 SOUTH ELEVATION
Scale: 3/32" = 1'-0"



2 WEST ELEVATION
Scale: 3/32" = 1'-0"



1 NORTH-WEST ELEVATION
Scale: 3/32" = 1'-0"

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Architecture & Interior Design
Planning

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Ann Arbor, MI 48106
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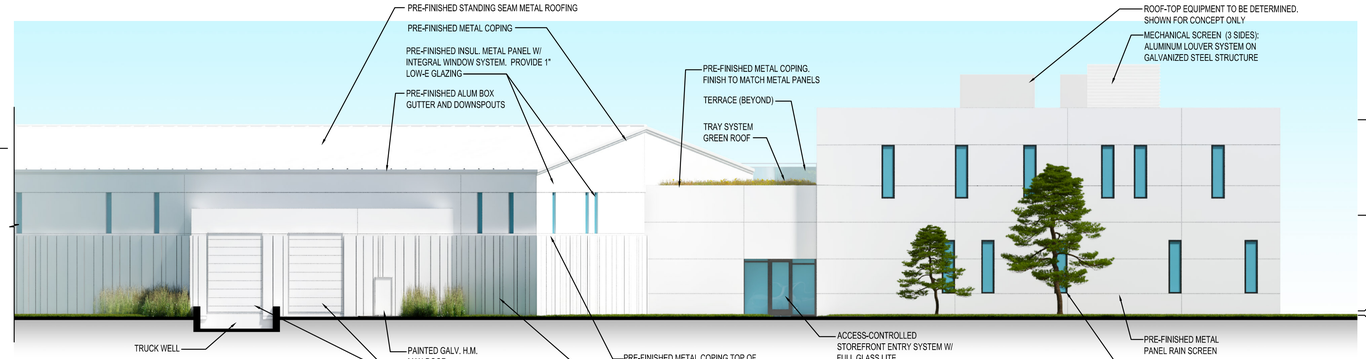
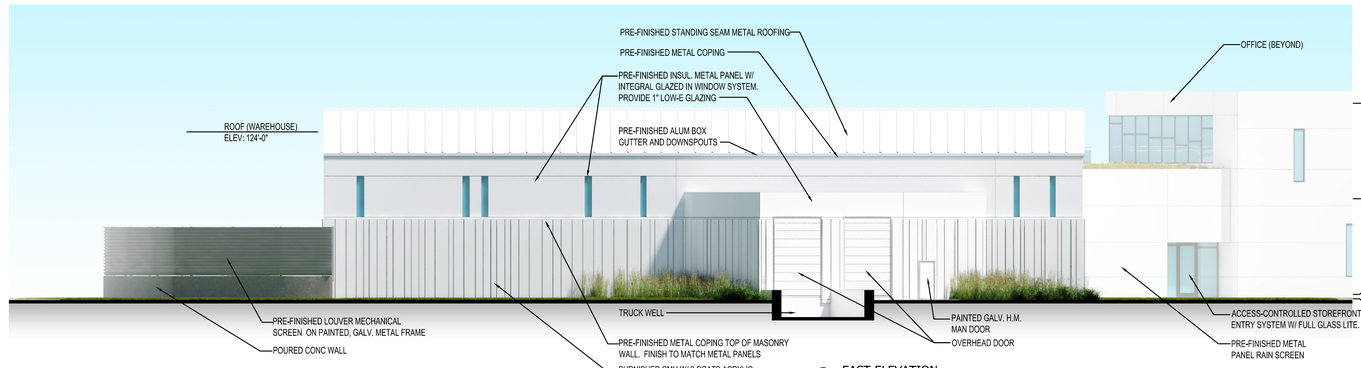
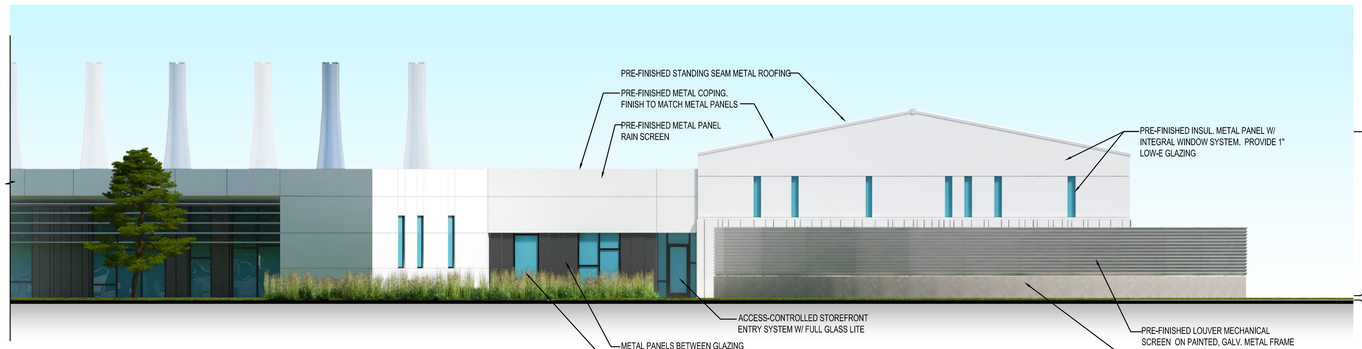


3 NORTH-EAST ELEVATION
Scale: 3/32" =1'-0"



2 EAST ELEVATION
Scale: 3/32" =1'-0"



1 SOUTH-EAST ELEVATION
Scale: 3/32" =1'-0"

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Architecture & Interior Design
Planning

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Ann Arbor, MI 48106
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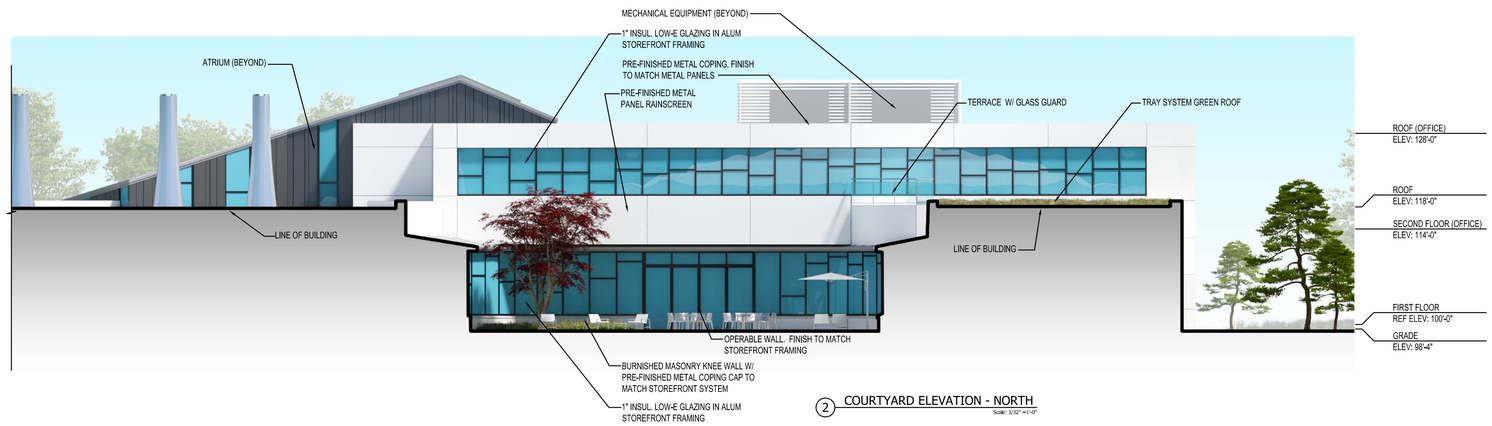
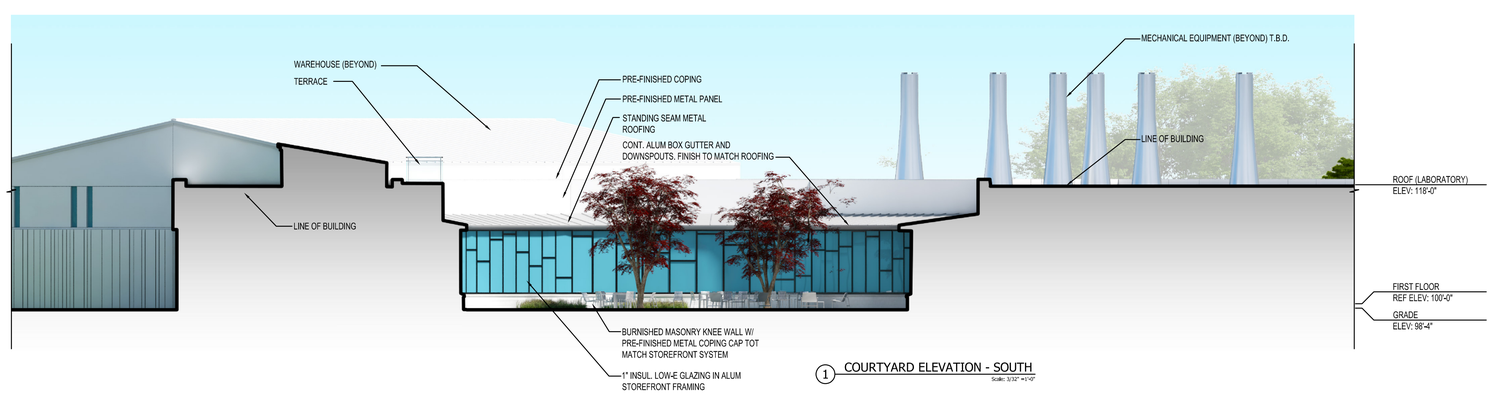


2 COURTYARD ELEVATION - NORTH
Scale: 3/32" =1'-0"



1 COURTYARD ELEVATION - SOUTH
Scale: 3/32" =1'-0"

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