



# Cedar Valley Building B

1413 S. Rochester Rd  
 Building B, Rochester Hills, MI  
 PID # 15-23-152-022

**DESIGNHAUS** EST  
 ARCHITECTURE 1998

301 WALNUT BOULEVARD  
 ROCHESTER, MI 48307  
 T : 2 4 8 . 6 0 1 . 4 4 2 2  
 WWW.DESIGNHAUS.COM  
 INFO@DESIGNHAUS.COM

### STATEMENT OF SELECTED DESIGN PROFESSIONAL

THESE CONSTRUCTION DOCUMENTS WERE PREPARED FOR COMPLIANCE WITH THE MICHIGAN CONSTRUCTION CODES IN EFFECT AT THE TIME OF PERMIT SUBMITTAL. ALL ENGINEERS, CONTRACTORS AND SUPPLIERS INVOLVED WITH THIS PROJECT SHALL COMPLY WITH THE SAME CODES ISSUED AND APPROVED CODE MODIFICATIONS AND/OR MUNICIPAL CONSTRUCTION BOARDS OF APPEALS RULINGS AND WHENEVER REQUIRED SHALL PROVIDE SHOP DRAWINGS AND SUBMITTALS CLEARLY DESCRIBING COMPLIANCE TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FOR REVIEW AND APPROVAL.

REGISTERED DESIGN PROFESSIONAL IN CHARGE:  
 PETER STUHLREYER, A.L.A.  
 MICHIGAN IDENTIFICATION # 44668  
 DESIGNHAUS ARCHITECTURE

### PROJECT TEAM

**OWNER**  
 MICHIGAN INCOME FUND 2, LLC  
 31000 TELEGRAPH ROAD, STE. 145  
 BINGHAM FARMS, MI 48025  
 T: 248.628.5977  
 CONTACT: BRETT RUSSELL

**ARCHITECT**  
 DESIGNHAUS ARCHITECTURE  
 301 WALNUT BLVD.  
 ROCHESTER, MI 48307  
 T: 248.601.4422  
 F: 248.453.3554  
 PROJECT MANAGER: JOE LATOZAS  
 PROJECT ARCHITECT:  
 PETER STUHLREYER, A.L.A.

**CIVIL ENGINEER**  
 NOWAK & FRAUS ENGINEERS  
 45777 WOODWARD AVENUE  
 FOWTAC, MI 48342  
 T: 248.332.7531  
 CONTACT: BRETT BUCHHOLZ

**MFP ENGINEER**  
 ETS ENGINEERING, INC., CONSULTING ENGINEERS  
 418-1/2 S. WASHINGTON BLVD.  
 ROYAL OAK, MI 48067  
 T: 248.744.0360  
 F: C-588.201.8417  
 CONTACT: GREG SAYLES

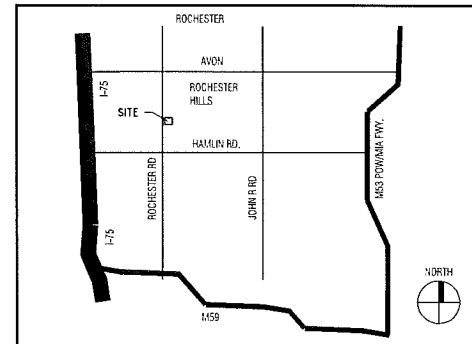
**STRUCTURAL ENGINEER**  
 AE STRUCTURES  
 1112 JOSHUA DRIVE  
 TROY, MICHIGAN 48068  
 T: 248.250.6156  
 CONTACT: MIKE VERISER

**CONTRACTOR**  
 TBD  
 ADDRESS  
 T:  
 F:  
 CONTACT:

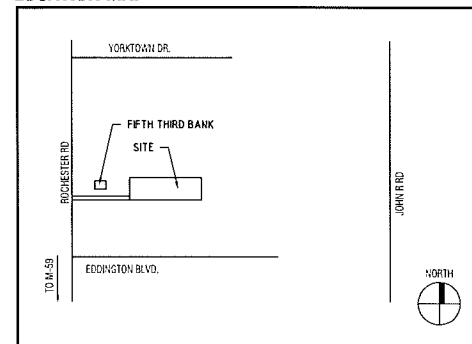
### INDEX OF DRAWINGS

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S306	Sections and Details							
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S401	Sections and Details							
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S404	Sections and Details							
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### VICINITY MAP



### LOCATION MAP



No.	Revision/Issue	Date
	Amendment to Approved Site Plan	8.23.17

**Cedar Valley Building B**  
 1413 S. Rochester Rd  
 Rochester Hills, MI

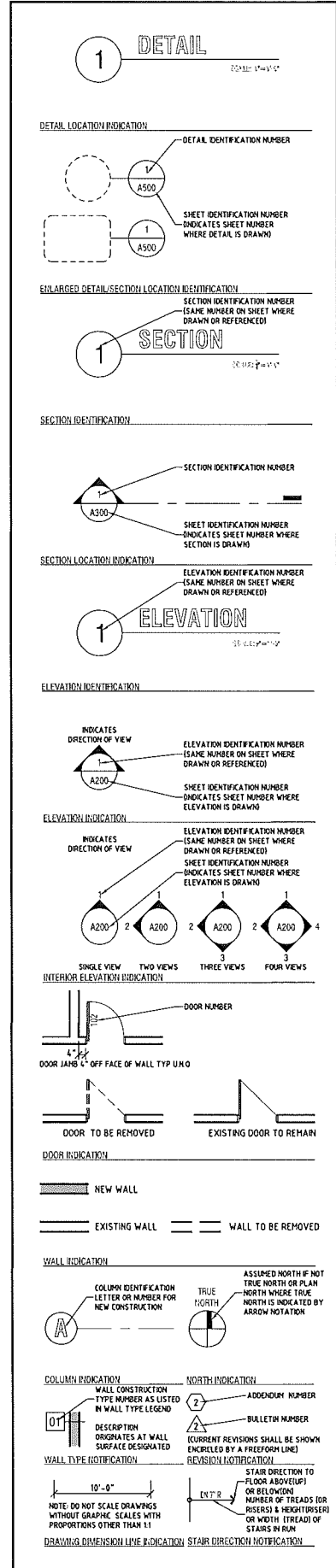
Title Sheet and Index

**G001**  
 #16-018  
 017137

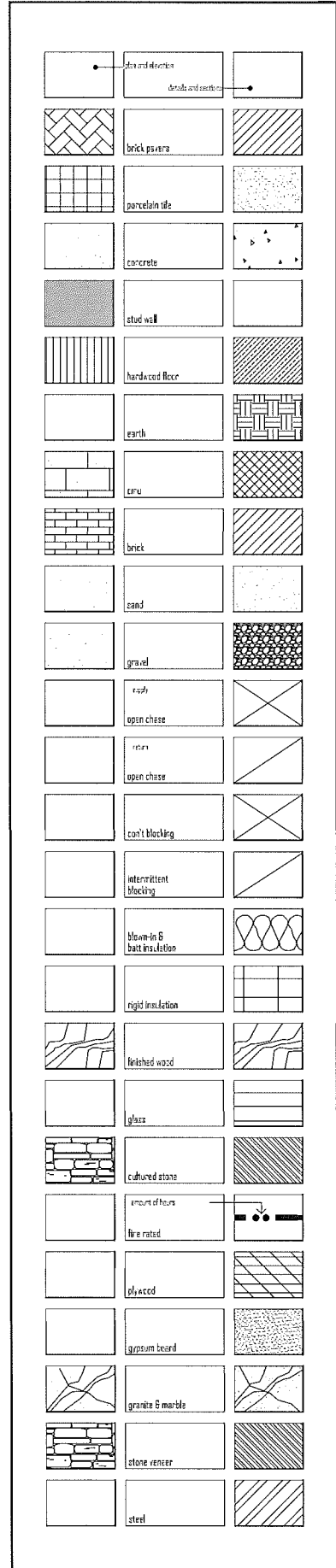
ABBREVIATIONS

Table of abbreviations for architectural symbols, including A (Acoustical), B (Barber), C (Cabinet), D (Damp), E (Elevation), F (Face of concrete), G (Gage), H (Handicap), I (Inches), J (Joist), K (Kilograms), L (Laboratory), M (Magnetic), N (Natural), O (Office), P (Paper), Q (Quarry), R (Radius), S (Sanitary), T (Temperature), U (Unit heater), V (Valve), W (Walls), X (X-ray), Y (Yard), Z (Zirconium).

SYMBOL LEGEND



GRAPHICS LEGEND



GENERAL NOTES

- 1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH APPLICABLE CODES, REGULATIONS AND REQUIREMENTS.
2. DO NOT SCALE DRAWINGS. FIELD VERIFY ALL DIMENSIONS AND JOB CONDITIONS.
3. SHOULD ANY CONDITION ARISE WHERE THE INTENT OF THE DRAWINGS IS IN DOUBT...
4. IN THE CASE WHERE TWO OR MORE DETAILS APPLYING TO THE SAME PART OF THE WORK ARE IN CONFLICT...
5. THE CONTRACTOR AND EACH SUBCONTRACTOR SHALL CAREFULLY EXAMINE THE CONDITIONS AFFECTING HIS WORK BEFORE PROCEEDING...
6. APPROVAL OF SHOP DRAWINGS MEANS APPROVAL OF THE GENERAL METHOD OF FABRICATION ONLY...
7. IF SPECIFICATIONS ARE PROVIDED, SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS...
8. NOT USED.
9. PROVIDE 2A, 108C MINIMUM RATED FIRE EXTINGUISHER TO BE LOCATED WITHIN 75 FEET OF TRAVEL DISTANCE FROM ALL AREAS...
10. PLANS OF SPRINKLER SYSTEM SHALL BE APPROVED BY THE FIRE DEPARTMENT PRIOR TO INSTALLATION OF SYSTEM.
11. PLANS FOR ALL FINED FIRE PROTECTION EQUIPMENT SUCH AS STANDPIPES, SPRINKLER SYSTEMS AND FIRE ALARM SYSTEMS...
12. THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS...
13. NO HAZARDOUS MATERIALS, LIQUIDS OR CHEMICALS SHALL BE STORED OR USED WITHIN THE SUBJECT BUILDING...
14. ALL INTERIOR WALLS AND PARTITIONS SHALL BE DESIGNED AND CONSTRUCTED TO RESIST ALL LOADS...
15. ALL EGRESS EXITS SHALL BE OPENED FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
16. LIGHT, VENTILATION AND SANITATION SHALL COMPLY WITH SECTIONS OF APPLICABLE BUILDING CODES.
17. EGRESS DOORS SHALL HAVE A CLEAR OPENING OF NO LESS THAN 32" WHEN OPEN AND BE OPERABLE BY A SINGLE EFFORT.
18. THE FLOOR INSIDE OR OUTSIDE OF A DOORWAY SHALL BE LEVEL FOR A DISTANCE OF 5'-0" FROM THE DOOR...
19. SWITCHES AND CONTROLS FOR LIGHTS, VENTILATION, FIRE ALARMS, ETC. MUST BE PLACED NO MORE THAN 48" FROM THE FLOOR.
20. A 7'-0" MINIMUM VERTICAL CLEARANCE IS REQUIRED FROM THE FLOOR TO CEILING OR PROTRUDING WALL FIXTURES BY PATH OF EGRESS.
21. PROVIDE FIRE STOPPING AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES.
22. DRAFTSTOPS MUST BE INSTALLED SO THAT THE LONGEST HORIZONTAL DIMENSION DOES NOT EXCEED 100 FEET.

PROJECT INFORMATION

Project information table including Building Area (Basement: 46,550 SQ.FT., First Floor: 22,763 SQ.FT., Second Floor: 22,763 SQ.FT., Total: 92,076 SQ.FT.), Unit Information (Units 1-3, 4-6, 7-9, 10-12), and Occupant Load (Basement: 83, Unit 1: 1, Unit 2: 2, Unit 3: 2).

PROJECT INFORMATION

Project information table including Applicable Construction Codes and Standards, Chapter 4 - Special Detailed Requirements, Chapter 5 - General Building Heights & Uses, Chapter 6 - Types of Construction, Chapter 7 - Fire and Smoke Protection Features, Chapter 8 - Interior Finishes, Chapter 9 - Free Protection System, Chapter 10 - Means of Egress, and Occupant Load.

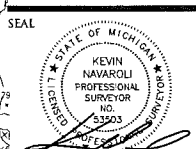
DESIGNHAUS ARCHITECTURE logo and contact information: 301 WALNUT BOULEVARD ROCHESTER, MI 48307. T: 248.601.4422 F: 248.453.5854 WWW.DESIGNHAUS.COM INFO@DESIGNHAUS.COM

Table with 3 columns: No., Revision/Issue, Date. Contains revision information for the project.

Cedar Valley Building B 1413 S. Rochester Rd Rochester Hills, MI

Reference & Code Information table with columns for Required, W.C., L.V., Batteries/Devices, and Other.

GOO2 logo and project identification numbers: #16-018, 017137.



PROJECT  
Cedar Valley Luxury  
Apartments

CLIENT  
Bret Russell, Inc.  
31000 Telegraph Road  
Suite 145  
Bingham Farms, MI 48025

Contact:  
Bret Russell/Matt Johnson  
Phone: (248) 792-5164  
Fax: (248) 792-5165  
Email: mjohanson@russellbuild.com

PROJECT LOCATION  
Part of the Northwest 1/4 of  
Section 23, Town 3 North,  
Range 11 East,  
City of Rochester Hills,  
Oakland County, Michigan

SHEET  
Boundary / Topographic  
Survey



Know what's below  
Call before you dig.

REVISIONS

12-14-16	Site Plan Approval
01-20-17	SPA Revision #1
03-03-17	Final SPA
03-27-17	Engineering Review / Permits
04-19-17	Final SPA #2
05-26-17	Revised per City
08-23-17	Amendment to Approved Site Plan

DRAWN BY:  
J. Nelson

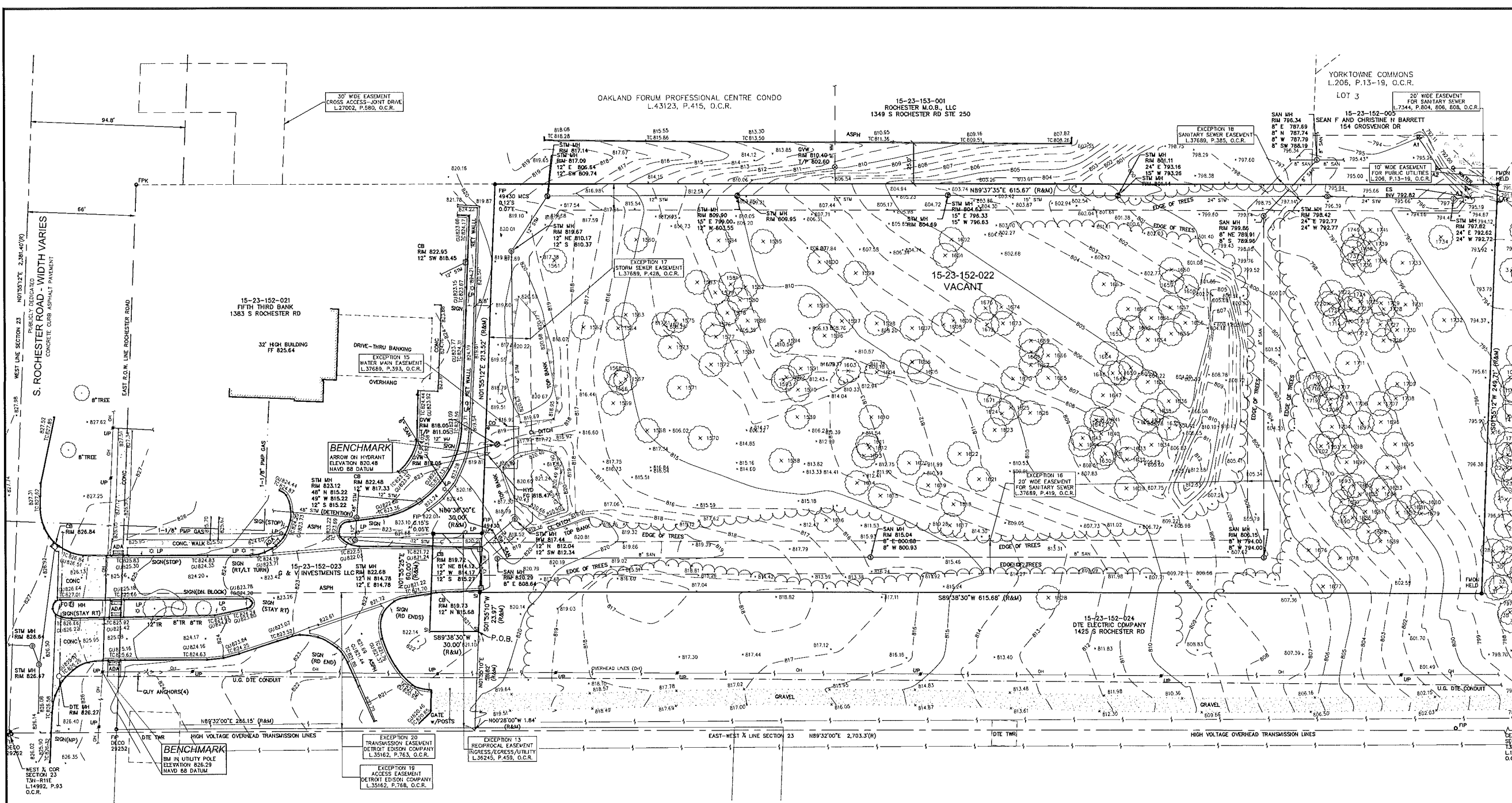
DESIGNED BY:

APPROVED BY:  
K. N. (PS) / B. B. (PM)

DATE:  
11-30-16

SCALE: 1" = 40'

NFE JOB NO. SHEET NO.  
J401 T1



**SITE DATA**

PARCEL 15-23-152-022  
GROSS LAND AREA 155,364 SQUARE FEET OR 3.567 ACRES

NOTE:  
ZONING CLASSIFICATION, BUILDING HEIGHT AND FLOOR SPACE AREA RESTRICTIONS, SETBACK AND PARKING REQUIREMENTS CAN ONLY BE SHOWN ONCE THE CLIENT PROVIDES A ZONING REPORT OR LETTER PURSUANT TO 2016 ALTA/NSPS LAND TITLE SURVEY REQUIREMENTS.

**FLOOD HAZARD NOTE**

THIS PROPERTY IS NOT LOCATED WITHIN THE FLOOD HAZARD AREA INDICATED BY FLOOD INSURANCE RATE MAP (FIRM) NO. 26125C0392F, EFFECTIVE DATE: SEPTEMBER 29, 2006.

**TOPOGRAPHIC SURVEY NOTES**

ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.

UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.

WETLAND FLAGS WERE DELINEATED BY ASTI ENVIRONMENTAL ON SEPTEMBER 16, 2016, FILE NO. 9675-11 AND SAID FLAGS WERE LOCATED BY KNOWAK & FRAUS ENGINEERS ON SEPTEMBER 20, 2016. SAID FLAGS ARE SHOWN HEREON.

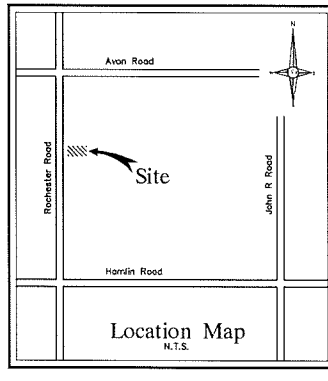
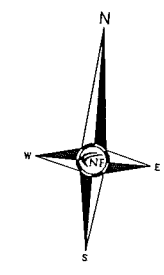
THIS DRAWING PREPARED FROM ALTA/NSPS SURVEY DRAWING PREPARED BY NFE, LAST REVISED 10/6/16.

**LEGAL DESCRIPTION**

THE LAND REFERRED TO IN THIS COMMITMENT IS DESCRIBED AS FOLLOWS: CITY OF ROCHESTER HILLS, COUNTY OF OAKLAND, STATE OF MICHIGAN.

PART OF THE NORTHWEST 1/4 OF SECTION 23, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT WHICH IS NORTH 89 DEGREES 32 MINUTES 00 SECONDS EAST 268.15 FEET ALONG THE EAST-WEST 1/4 LINE OF SECTION 23 AND NORTH 00 DEGREES 29 MINUTES 00 SECONDS WEST 1.84 FEET; AND NORTH 01 DEGREES 55 MINUTES 10 SECONDS EAST 98.82 FEET FROM THE WEST 1/4 CORNER OF SECTION 23, TOWN 3 NORTH, RANGE 11 EAST; THENCE SOUTH 89 DEGREES 38 MINUTES 30 SECONDS WEST 30.00 FEET; THENCE NORTH 01 DEGREES 55 MINUTES 12 SECONDS EAST 60.00 FEET; THENCE NORTH 89 DEGREES 38 MINUTES 30 SECONDS WEST 30.00 FEET; THENCE NORTH 01 DEGREES 55 MINUTES 12 SECONDS EAST 213.52 FEET; THENCE NORTH 89 DEGREES 37 MINUTES 35 SECONDS EAST 615.67 FEET ALONG (IN PART) THE SOUTH LINE OF YORKTOWNE COMMONS SUBDIVISION, AS RECORDED IN LIBER 206, PAGES 13, 14, 15, 16, 17, 18 AND 19 OF PLATS, OAKLAND COUNTY RECORDS; THENCE SOUTH 01 DEGREES 55 MINUTES 12 SECONDS WEST 249.71 FEET ALONG THE WEST LINE OF EDGEMONT WOODS SUBDIVISION, AS RECORDED IN LIBER 287, PAGES 21, 22, 23, 24 AND 25 OF PLATS, OAKLAND COUNTY RECORDS; THENCE SOUTH 69 DEGREES 38 MINUTES 30 SECONDS WEST (SOUTH 85 DEGREES 43 MINUTES 06 SECONDS WEST RECORD) 815.88 FEET; THENCE SOUTH 01 DEGREES 55 MINUTES 10 SECONDS WEST 23.97 FEET TO THE POINT OF BEGINNING.

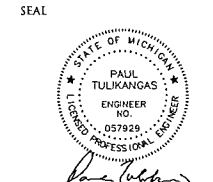


**LEGEND**

□	CATCH BASIN (CB)
□	BEEHIVE CATCH BASIN (CB)
□	STORM MANHOLE (MH)
□	END SECTION (ES)
□	SANITARY MANHOLE (MH)
□	CLEAN OUT (CO)
□	CHIMNEY MANHOLE (MH)
□	GATE VALVE IN WELL (GVW)
□	STOP BOX (SB)
□	HYDRANT (HYD)
□	WATER SHUT OFF (SO)
□	WELL
□	PUMP
□	ELECTRIC MANHOLE (MH)
□	TELEPHONE MANHOLE (MH)
□	UTILITY POLE (UP)
□	GUY WIRE (GW)
□	GUY POLE (GP)
□	LIGHT POLE (LP)
□	PUBLIC PHONE
□	GAS METER (GM)
□	GAS VALVE (GV)
□	GAS MARKER
□	SON
□	POST/BOLLARD (PB)
□	PARKING METER
□	MAIL BOX (MB)
□	ROCK/PAVILION
□	SPRINKLER VALVE (SV)
□	SPRINKLER HEAD (SH)
□	DOWNSPOUT (DS)
□	FOUND IRON/PPE/MONUMENT (FI, PI, PVO)
□	SET IRON/PK/NAL (R, SPA)
□	RECORD MEASUREMENT
□	SURVEYED MEASUREMENT
□	GROUND ELEVATION
□	STORM SEWER (SS)
□	SANITARY SEWER (SAN)
□	WATER MAIN (WATER, WM)
□	GAS MAIN (GAS)
□	OVERHEAD LINES (OH)
□	UNDERGROUND LINES







PROJECT  
 Cedar Valley Luxury  
 Apartments

CLIENT  
 Bret Russell, Inc.  
 31000 Telegraph Road  
 Suite 145  
 Bingham Farms, MI 48025  
 Contact:  
 Bret Russell/Matt Johnson  
 Phone: (248) 792-5164  
 Fax: (248) 792-5165  
 Email: mjohnson@russellbuild.com

PROJECT LOCATION  
 Part of the Northwest 1/4 of  
 Section 23, Town 3 North,  
 Range 11 East,  
 City of Rochester Hills,  
 Oakland County, Michigan

SHEET  
 Overall Site Plan &  
 Emergency Vehicle  
 Maneuvering Plan



REVISIONS

12-14-18	Site Plan Approval
01-20-19	SPA Revision #1
02-06-17	Revisions per F.D.
03-03-17	Final SPA
03-27-17	Engineering Review / Permits
04-19-17	Final SPA #2
05-05-17	Revised per City
05-26-17	Revised per City
08-23-17	Amendment to Approved Site Plan

DRAWN BY:  
 P. Tulikang

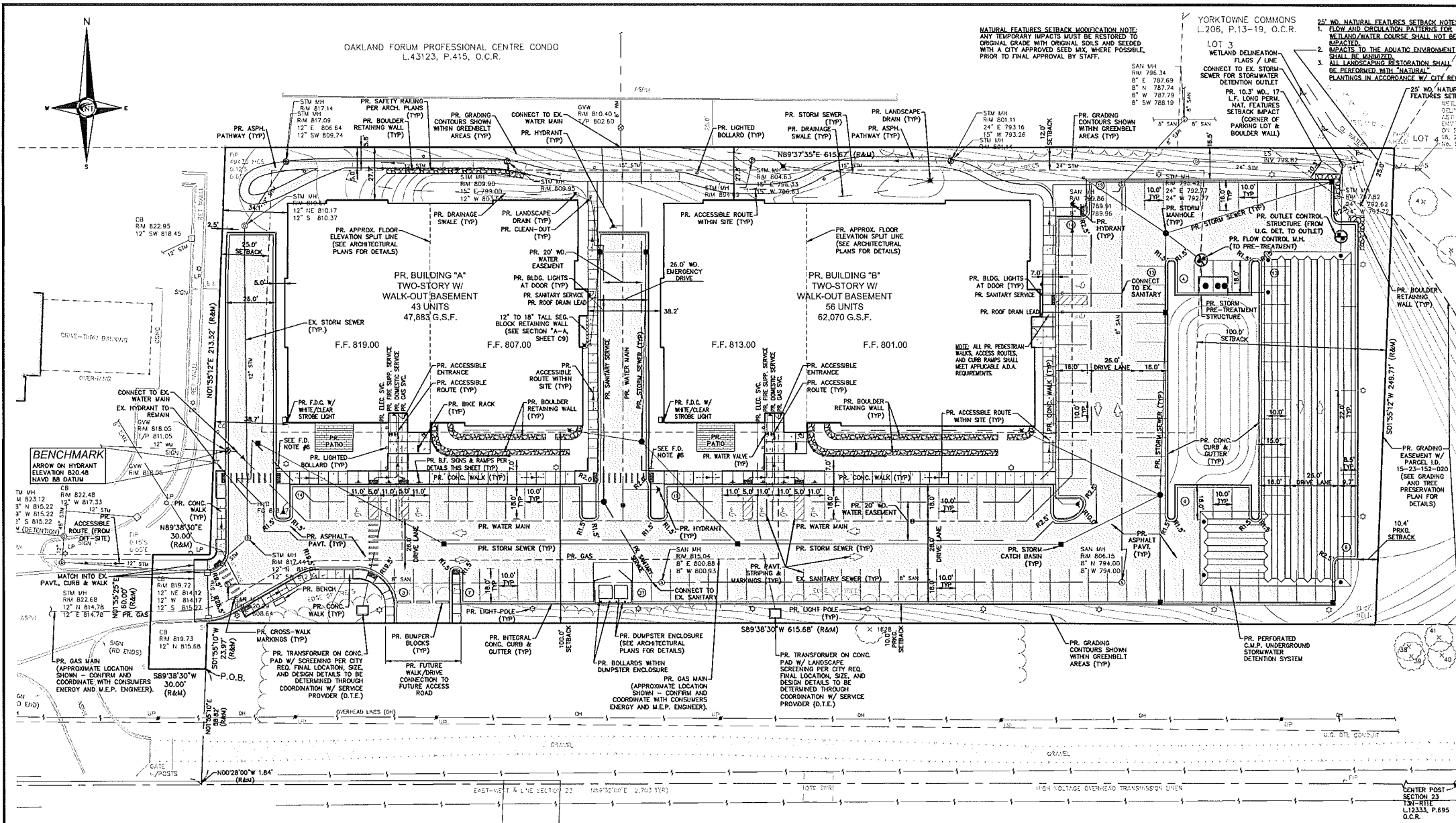
DESIGNED BY:  
 P. Tulikang

APPROVED BY:  
 B. Buchholz

DATE:  
 11-21-16

SCALE: 1" = 30'

NFE JOB NO. SHEET NO.  
 J401 C1



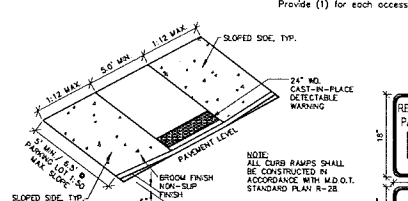
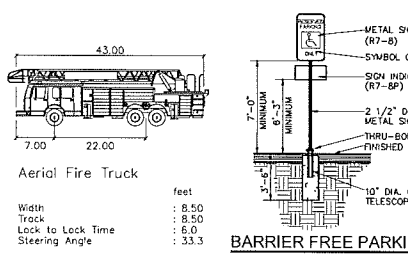
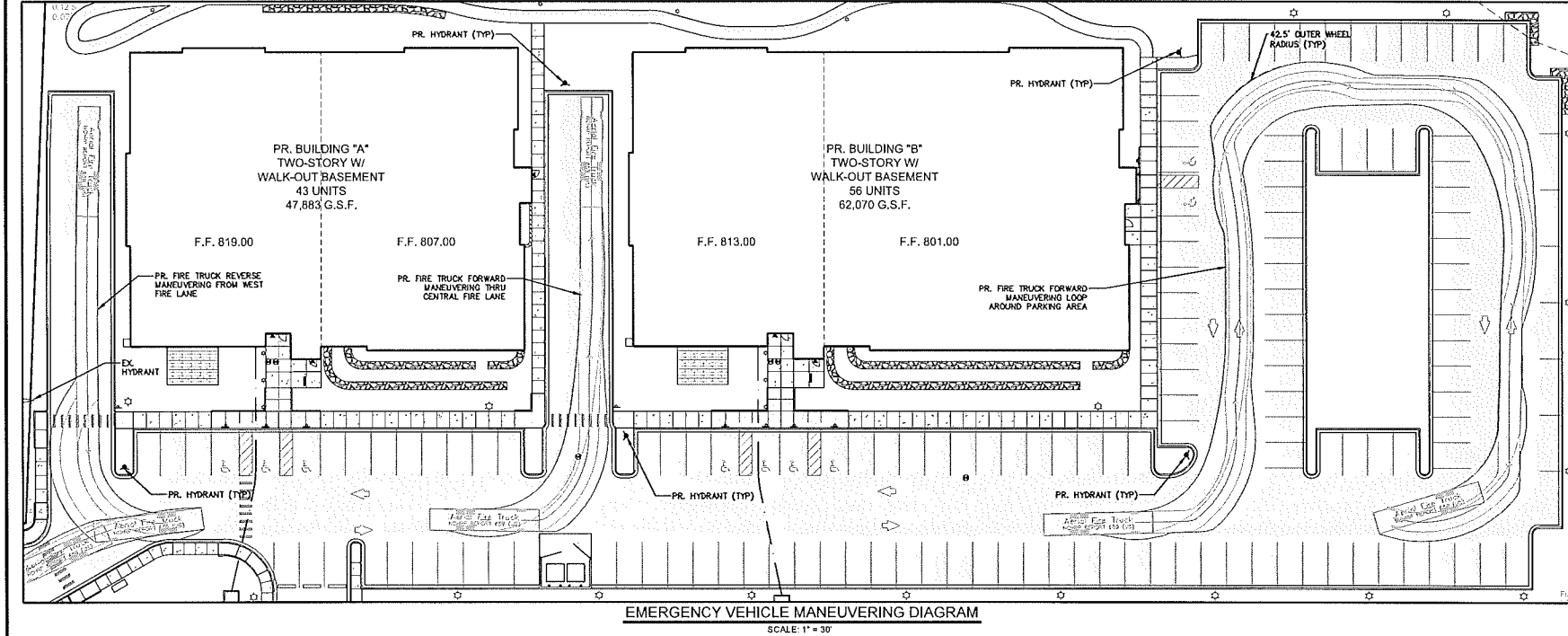
**SITE SUMMARY**  
 SITE ZONING: R4 (SINGLE-FAMILY RESIDENTIAL) W/ FB-2 FLEX BUSINESS OVERLAY  
 EXISTING SITE AREA: 3.567 ACRES (155,364 SQUARE FEET)  
 TAX I.D. NO.: 15-23-152-022  
 APPROXIMATE AREA OF PROJECT (SITE) AREA OF IMPACT: 3.567 ACRES  
 APPROXIMATE AREA OF EARTH DISRUPTION: 3.567 ACRES  
 PROPOSED BUILDING FOOTPRINTS:  
 BUILDING "A" FOOTPRINT AREA = 0.414 ACRES (18,031 S.F.)  
 BUILDING "B" FOOTPRINT AREA = 0.522 ACRES (22,760 S.F.)  
 TOTAL PROPOSED BUILDING FOOTPRINT AREA = 0.936 ACRES (40,791 S.F.)  
 PROPOSED BUILDING CONSTRUCTION TYPE (PER NFPA STANDARDS):  
 TYPE 3B (UNPROTECTED SPRINKLED CONSTRUCTION)

**PARKING CALCULATIONS**  
 PARKING REQUIREMENTS  
 PER CITY ORDINANCE, MULTIFAMILY RESIDENTIAL WITHIN FLEX BUSINESS OVERLAY DISTRICTS REQUIRES 1.5 SPACES PER DWELLING UNIT WITH 2 OR FEWER BEDROOMS  
 TOTAL NUMBER OF UNITS (BOTH BUILDINGS) = 99 UNITS  
 TOTAL REQUIRED PARKING SPACES = 1.5 SPACES/UNIT \* 99 UNITS = 149 SPACES REQUIRED  
 PROPOSED PARKING  
 TOTAL NUMBER OF PROPOSED SPACES = 149 (INCLUDING 9 BARRIER-FREE, VAN ACCESSIBLE SPACES)

**FIRE DEPARTMENT NOTES**  
 1. A KNOX KEY SYSTEM SHALL BE INSTALLED IF REQUIRED BY THE CITY FIRE DEPARTMENT. IF REQUIRED, THE LOCATION SHALL BE REVIEWED AND APPROVED BY THE FIRE CODE OFFICIAL. ORDERING INFORMATION IS AVAILABLE FROM THE KNOX COMPANY AT KNOXBOX.COM  
 2. FIRE LANES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH THE FIRE LANE SIGNS SPACED NOT MORE THAN 100 FEET APART. FIRE LANE SIGNS SHALL READ: "NO STOPPING, STANDING, PARKING, FIRE LANE", AND SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.  
 3. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH FC 2006 CHAPTER 14.  
 4. OPEN BURNING IS NOT PERMITTED, INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS. OPEN BURNING FOR WARMING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES.  
 5. IF FIRE DEPARTMENT CONNECTION IS NOT LOCATED ON THE STREET FRONT OF THE BUILDING, A WHITE/CLEAR STROBE LIGHT SHALL BE TIED INTO THE FIRE ALARM SYSTEM AND INSTALLED OVER THE FIRE DEPARTMENT CONNECTION.  
 6. INSTALL TWO (2) SIGNS AT SOUTH ENDS OF WEST AND CENTRAL FIRE LANES STATING "NO PARKING EMERGENCY VEHICLES ONLY".

**SIGN NOTE**  
 ALL MONUMENT SIGNS AND OTHER SIGNS PROPOSED ON THIS PLAN MUST MEET SECTION 138-B(3) AND CHAPTER 134 OF THE CITY CODE OF ORDINANCES AND BE APPROVED UNDER A SEPARATE PERMIT ISSUED BY THE BUILDING DEPARTMENT.  
**OVERALL SITE PLAN NOTES**  
 1. ALL CURB RADIAL DIMENSIONS SHOWN ARE LABELED TO PROPOSE BACK OF CURB.  
 2. LOCATIONS FOR PROPOSED GAS, ELECTRIC, U.S. COMMUNICATIONS, AND OTHER FRANCHISED UTILITY LINES ARE TO BE COORDINATED WITH SERVICE PROVIDERS DURING FINAL CONSTRUCTION DRAWING PHASE OF PROJECT DESIGN.

**UTILITY NOTE**  
 THE LOCATIONS AND ELEVATIONS OF SOME OF THE EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE SURVEY OR DRAWING WERE OBTAINED FROM WORKING AND UTILITY COMPANY RECORDS AND MAPS. THEREFORE, NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



**ESTIMATED QUANTITIES**  
 STRIPING & SIGNAGE

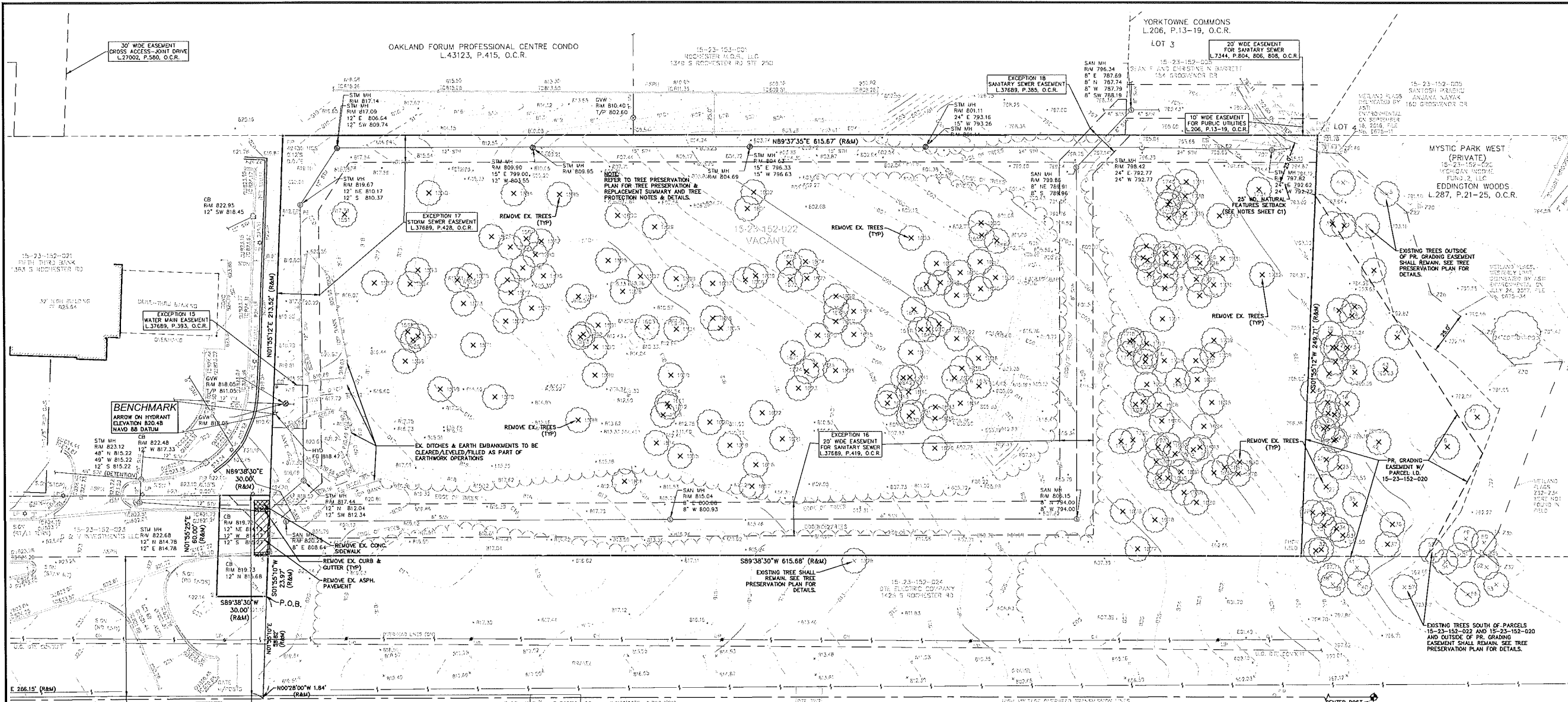
DESCRIPTION	QUANTITY	UNITS
A.D.A. PARKING SIGN & POST	9	EA.
"NO PARKING - EMERGENCY VEHICLES ONLY"	2	EA.
5" x 4" CROSS-WALK MARKING (WHITE)	31	EA.
4" W.D. PAVEMENT MARKING (WHITE)	2,200	L.F.
4" W.D. PAVEMENT MARKING (BLUE)	575	L.F.
A.D.A. ACCESSIBILITY SYMBOL MARKING	9	EA.
DIRECTIONAL ARROW MARKING	8	EA.

**GENERAL PAVING LEGEND**

[Symbol]	PROPOSED CONCRETE PAVEMENT
[Symbol]	PROPOSED CONCRETE SIDEWALK RAMP
[Symbol]	PROPOSED CONCRETE SIDEWALK
[Symbol]	PROPOSED BRICK PAVEMENT PATIO
[Symbol]	PROPOSED BOULDER RETAINING WALLS
[Symbol]	PROPOSED PARKING COUNT

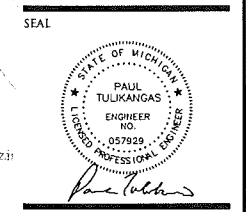
**LEGEND**

[Symbol]	MANHOLE	EXISTING SANITARY SEWER
[Symbol]	HYDRANT	SAN. CLEAN OUT
[Symbol]	GATE VALVE	EXISTING WATER MAIN
[Symbol]	MANHOLE	EXISTING STORM SEWER
[Symbol]	CATCH BASIN	EX. R. Y. CATCH BASIN
[Symbol]	UTILITY POLE	EXISTING BURIED CABLES
[Symbol]	GUY POLE	OVERHEAD LINES
[Symbol]	GUY WIRE	EXISTING GAS MAIN
[Symbol]	MANHOLE	PR. SANITARY SEWER
[Symbol]	HYDRANT	PR. WATER MAIN
[Symbol]	GATE VALVE	PR. STORM SEWER
[Symbol]	MANHOLE	PR. R. Y. CATCH BASIN
[Symbol]	INLET	SAND BACKFILL (95% DENSITY)
[Symbol]	PROPOSED LIGHT POLE	



**NF ENGINEERS**  
 CIVIL ENGINEERS  
 LAND SURVEYORS  
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS  
 4677 WOODWARD AVE.  
 PONTIAC, MI 48342-5032  
 TEL. (248) 332-7931  
 FAX. (248) 332-8257



PROJECT  
 Cedar Valley Luxury Apartments

CLIENT  
 Bret Russell, Inc.  
 31000 Telegraph Road  
 Suite 145  
 Bingham Farms, MI 48025  
 Contact:  
 Bret Russell/Matt Johnson  
 Phone: (248) 792-5164  
 Fax: (248) 792-5165  
 Email: mjohanson@russellbuild.com

PROJECT LOCATION  
 Part of the Northwest 1/4 of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

SHEET  
 Demolition Plan

**ESTIMATED QUANTITIES**  
 NOTE: THE BELOW QUANTITIES ARE FOR REFERENCE PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE TO PERFORM HIS OWN QUANTITY TAKEOFFS & EARTHWORK CALCULATIONS PRIOR TO BIDDING.

DESCRIPTION	QUANTITY	UNITS
REMOVE EX. ASPHALT PAVEMENT	25	S.Y.
REMOVE EX. CONCRETE SIDEWALK	6	S.Y.
REMOVE EX. CURB & GUTTER	18	L.F.
REMOVE EX. TREE	223	EA.

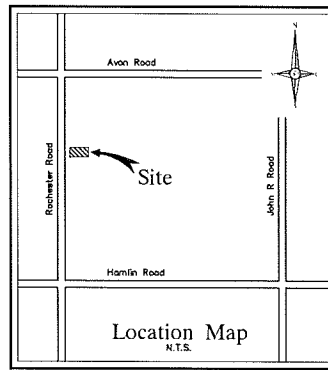
**DEMOLITION LEGEND**

	INDICATES AREAS OF ASPHALT PAVEMENT TO BE REMOVED
	INDICATES AREAS OF CONCRETE PAVEMENT OR SIDEWALK TO BE REMOVED
XXXXXXXXXXXX	INDICATES CURB & GUTTER REMOVAL
X	INDICATES TREE REMOVAL (SEE TREE PRESERVATION PLAN FOR DETAILS)

**LEGEND**

	EXISTING SANITARY SEWER
	SAN. CLEAN OUT
	EXISTING WATER MAIN
	EXISTING STORM SEWER
	EX. R. Y. CATCH BASIN
	EXISTING BURIED CABLES
	OVERHEAD LINES
	LIGHT POLE
	SIGN
	EXISTING GAS MAIN
	PR. SANITARY SEWER
	PR. WATER MAIN
	PR. STORM SEWER
	PR. R. Y. CATCH BASIN
	SAND BACKFILL (95% DENSITY)
	PROPOSED LIGHT POLE

**UTILITY NOTE**  
 THE LOCATIONS AND ELEVATIONS OF SOME OF THE EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE SURVEY DRAWING WERE OBTAINED FROM MUNICIPAL AND UTILITY COMPANY RECORDS AND MAPS. THEREFORE, NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



CITY OF ROCHESTER HILLS  
 PROJECT #16-018

**DEMOLITION NOTES**

DEMOLITION OF SITE IMPROVEMENTS SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE PUBLIC AGENCY HAVING JURISDICTION OVER SAID DEMOLITION.

FOR ANY DEMOLITION WITHIN PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR, AND SECURE, ALL NECESSARY PERMITS AND LICENSES SHALL ARRANGE FOR ALL SITE INSPECTIONS.

SITE DEMOLITION INCLUDES THE COMPLETE REMOVAL OF SITE IMPROVEMENTS AND OFF-SITE DISPOSAL. DEBRIS SHALL BE TRANSPORTED TO AN APPROPRIATE DISPOSAL FACILITY THAT IS LICENSED FOR THAT TYPE OF DEBRIS.

THE CONTRACTOR SHALL COORDINATE TRUCK ROUTES WITH THE MUNICIPALITY PRIOR TO COMMENCEMENT OF SITE DEMOLITION. ALL TRUCKS SHALL BE TARPED OR PROPERLY SECURED TO CONTAIN DEMOLITION DEBRIS PRIOR TO LEAVING SITE.

EXISTING ON-SITE UNDERGROUND UTILITIES AND BUILDING SERVICES HAVE BEEN INDICATED BASED UPON THE BEST AVAILABLE UTILITY RECORDS AND/OR ON-SITE INSPECTION. NO GUARANTEE IS MADE BY THE DESIGN ENGINEER, AS TO THE COMPLETENESS OR ACCURACY OF UTILITY DATA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF UTILITY INFORMATION (THE DESIGN ENGINEER MAKES NO GUARANTEE NOR ASSUMES ANY LIABILITY AS TO THE COMPLETENESS AND/OR ACCURACY OF UTILITY DATA).

PRIOR TO THE REMOVAL OR ABANDONMENT OF ANY EXISTING UNDERGROUND UTILITY OR BUILDING SERVICE LINES CALLED FOR IN THE PLANS OR DISCOVERED DURING EXCAVATION, THE CONTRACTOR MUST DETERMINE IF THE UTILITY LINE OR BUILDING SERVICE IS STILL IN USE. IF THE UTILITY LINE OR BUILDING SERVICE IS STILL IN USE/ACTIVE THE CONTRACTOR MUST TAKE ALL THE NECESSARY STEPS TO GUARANTEE THAT THE UTILITY LINE OR BUILDING SERVICE IS RECONNECTED WITHOUT AN INTERRUPTION IN SERVICE. THE RECONNECTION OF THE UTILITY LINE OR BUILDING SERVICE MUST BE IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF THE APPROPRIATE GOVERNMENTAL AGENCY OR PRIVATE UTILITY COMPANY.

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO SITE DEMOLITION.

\* THE CONTRACTOR SHALL NOTIFY MISS DIG (1-800-482-7171) A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO THE START OF THE SITE DEMOLITION.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH THE DETROIT EDISON COMPANY. REMOVAL OF DETROIT EDISON ELECTRICAL SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF DETROIT EDISON.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH CONSUMERS ENERGY/MICHIGAN. REMOVAL OF CONSUMERS ENERGY/MICHIGAN GAS SERVICES SHALL BE IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF CONSUMERS ENERGY/MICHIGAN.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH AMERITECH. REMOVAL OF AMERITECH COMMUNICATION SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF AMERITECH.

THE CONTRACTOR SHALL COORDINATE THE REMOVAL AND/OR RELOCATION OF EXISTING UTILITY POLES AND BUILDING SERVICES WITH THE APPROPRIATE CABLE MEDIA COMPANY. REMOVAL OF CABLE SERVICES SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND REQUIREMENTS OF THE CABLE COMPANY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF PRIVATE UTILITY COMPANIES AND COORDINATE UTILITY SERVICE SHUT OFF/DISCONNECT, PRIOR TO DEMOLITION OF EXISTING STRUCTURES OR PROPERTIES.

ALL UTILITY METERS SHALL BE REMOVED BY THE APPROPRIATE UTILITY COMPANY.

ANY ON-SITE STORM SEWER FACILITIES LOCATED DURING DEMOLITION SHALL BE REMOVED AND BULK HEADED AT THE PROPERTY LINE IF INDICATED FOR REMOVAL ON THE PLANS.

PRIOR TO BUILDING DEMOLITION, ALL HAZARDOUS MATERIAL SHALL BE REMOVED BY OTHERS. THE DEMOLITION CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER SHOULD ANY SUSPICIOUS MATERIAL BE FOUND.

WATER SERVICES AND/OR STOP-BACK SHALL BE PRESERVED AND BULK HEADED AT THE PROPERTY LINE OR AS DIRECTED BY THE OWNER'S REPRESENTATION.

WHERE EXISTING BUILDINGS PLANNED FOR DEMOLITION FALL WITHIN PROPOSED BUILDING FOOT PRINTS, BASEMENT FLOOR SLABS, FOUNDATION WALLS AND FOOTINGS SHALL BE COMPLETELY REMOVED AND BACK FILLED WITH WOOD CLASS B GRANULAR MATERIAL AND BE MACHINE COMPACTED TO A MINIMUM OF 98% OF MATERIALS MAXIMUM DENSITY.



**REVISIONS**

12-14-16	Site Plan Approval
01-20-17	SPA Revision #1
03-03-17	Final SPA
03-27-17	Engineering Review / Permits
04-19-17	Final SPA #2
05-05-17	Revised per City
05-28-17	Revised per City
08-23-17	Amendment to Approved Site Plan

DRAWN BY:  
 P. Tulikang

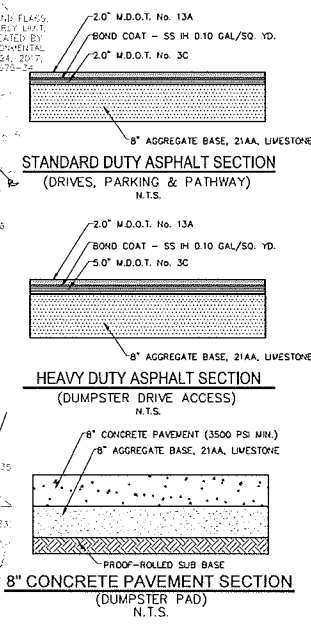
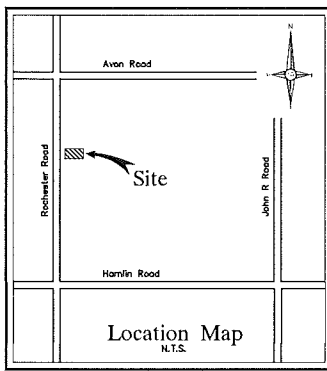
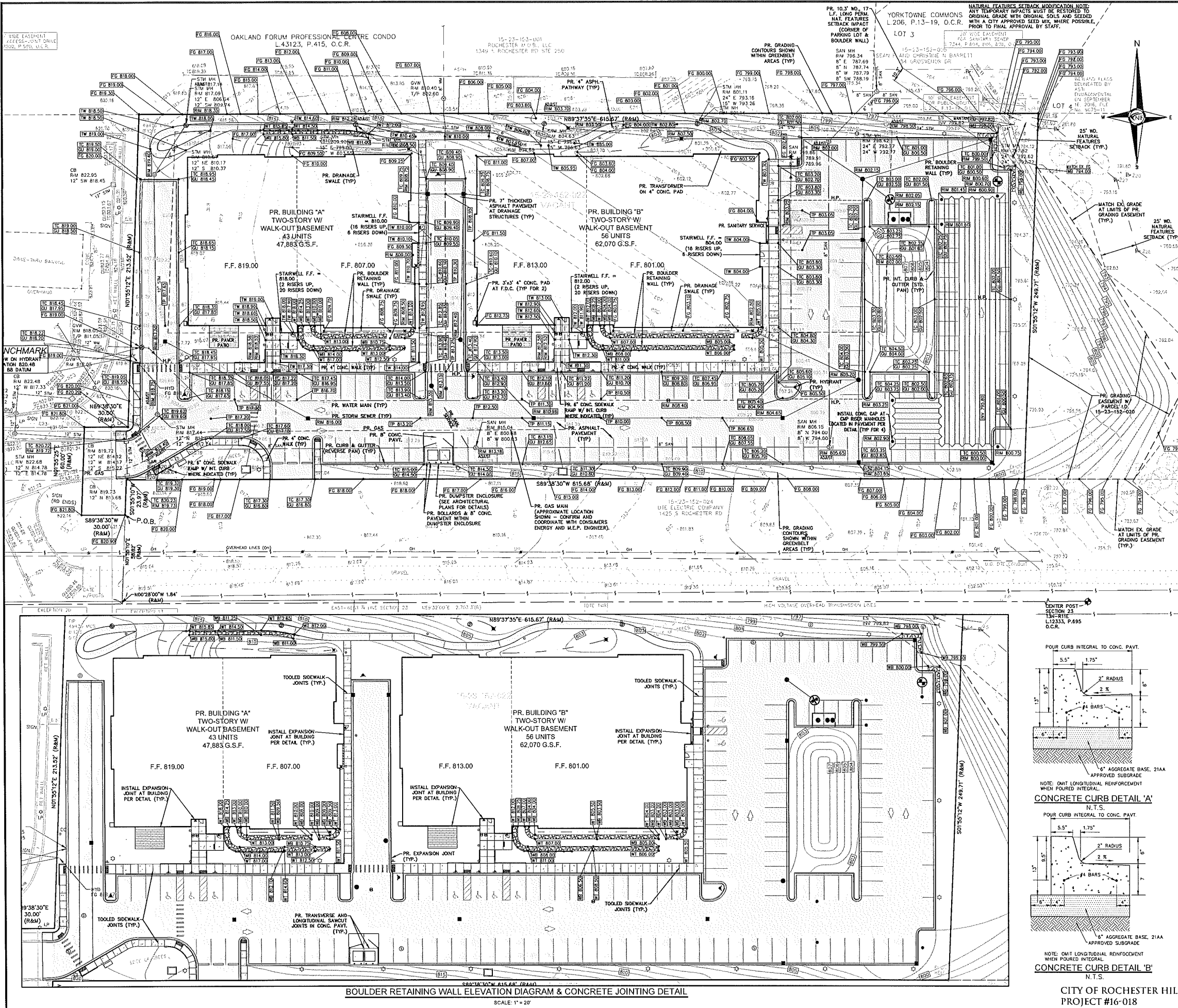
DESIGNED BY:  
 P. Tulikang

APPROVED BY:  
 B. Buchholz

DATE:  
 11-21-16

SCALE: 1" = 30'

NFE JOB NO. SHEET NO.  
 J401 C2



**PAVING LEGEND**

- PROPOSED ASPHALT PAVEMENT
- PROPOSED 6" CONCRETE SIDEWALK RAMP
- PROPOSED 4" CONCRETE SIDEWALK
- PROPOSED BRICK PAVEMENT WALK OR PATIO
- PROPOSED RIP RAP
- PROPOSED BOULDER RETAINING WALL
- PROPOSED SEGMENTAL BLOCK RETAINING WALL
- PR. INTEGRAL CURB & GUTTER, REVERSE PAN
- PR. INTEGRAL CURB & GUTTER, STANDARD PAN
- INDICATES SURFACE DRAINAGE

**LEGEND**

- MANHOLE
- HYDRANT
- MANHOLE CATCH BASIN
- UTILITY POLE
- UTILITY POLE GUY POLE
- UTILITY POLE GUY WIRE
- EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- PR. SANITARY SEWER
- PR. WATER MAIN
- PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- PROPOSED LIGHT POLE
- PR. TOP OF WALL ELEVATION
- PR. TOP OF CURB ELEVATION
- PR. GUTTER ELEVATION
- PR. TOP OF WALK ELEVATION
- PR. TOP OF PAVT. ELEVATION
- FINISH GRADE ELEVATION

**NF ENGINEERS**  
CIVIL ENGINEERS  
LAND SURVEYORS  
LAND PLANNERS

NOWAK & FRAUS ENGINEERS  
4677 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257

SEAL

PROJECT  
Cedar Valley Luxury Apartments

CLIENT  
Bret Russell, Inc.  
31000 Telegraph Road  
Suite 145  
Bingham Farms, MI 48025  
Contact:  
Bret Russell/Matt Johnson  
Phone: (248) 792-5164  
Fax: (248) 792-5165  
Email: mjohanson@russellbuild.com

PROJECT LOCATION  
Part of the Northwest 1/4 of Section 23, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan

SHEET  
Paving & Grading Plan

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

**REVISIONS**

12-14-16	Site Plan Approval
01-20-17	SPA Revision #1
03-03-17	Final SPA
03-27-17	Engineering Review / Permits
04-19-17	Final SPA #2
05-05-17	Revised per City
05-26-17	Revised per City
06-23-17	Amendment to Approved Site Plan

DRAWN BY:  
P. Tulikang

DESIGNED BY:  
P. Tulikang

APPROVED BY:  
B. Buchholz

DATE:  
11-21-16

SCALE: 1" = 30'

NFE JOB NO. SHEET NO.  
J401 C3

CITY OF ROCHESTER HILLS  
PROJECT #16-018



SEAL



PROJECT  
Cedar Valley Luxury  
Apartments

CLIENT  
Bret Russell, Inc.  
31000 Telegraph Road  
Suite 145  
Bingham Farms, MI 48025  
Contact:  
Bret Russell/Matt Johnson  
Phone: (248) 792-5164  
Fax: (248) 792-5165  
Email: mjohanson@russellbuild.com

PROJECT LOCATION  
Part of the Northwest 1/4 of  
Section 23, Town 3 North,  
Range 11 East,  
City of Rochester Hills,  
Oakland County, Michigan

SHEET  
Detail Grading Area Plan



REVISIONS

12-14-18	Site Plan Approval
01-20-17	SPA Revision #1
03-03-17	Final SPA
03-27-17	Engineering Review / Permits
04-19-17	Final SPA #2
05-05-17	Revised per City
05-28-17	Revised per City
08-23-17	Amendment to Approved Site Plan

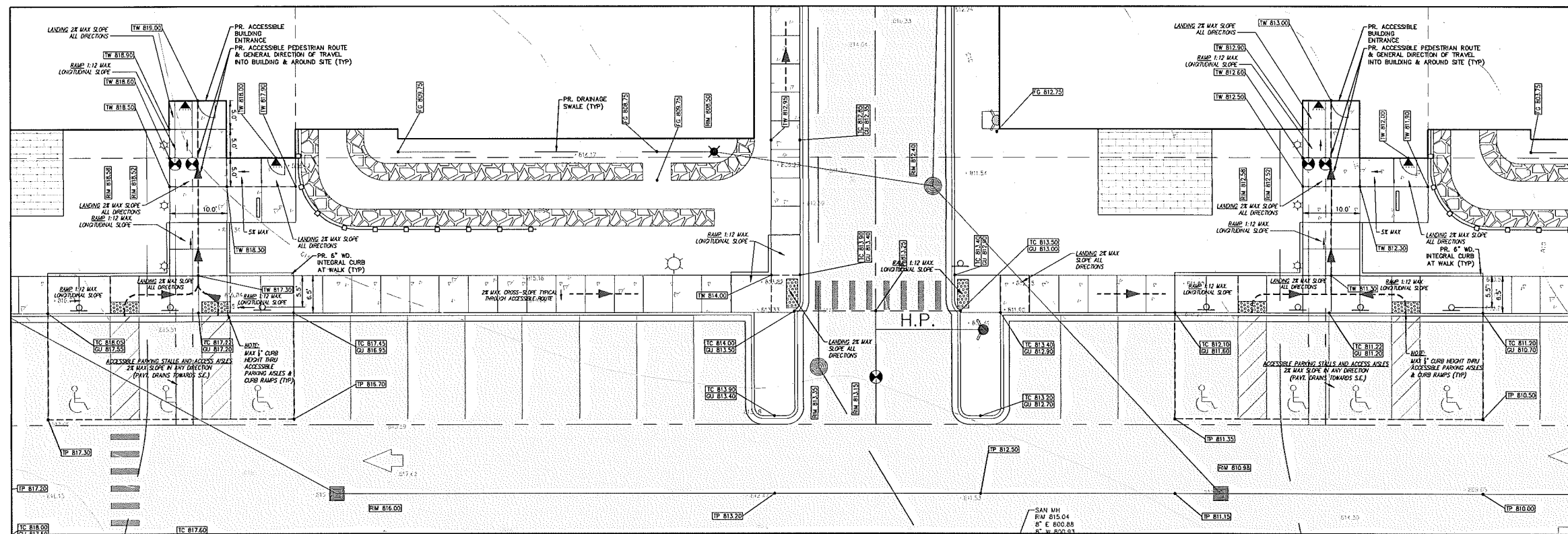
DRAWN BY:  
P. Tulikang  
DESIGNED BY:  
P. Tulikang  
APPROVED BY:  
B. Buchholz

DATE:  
11-21-16

SCALE: 1" = 10'

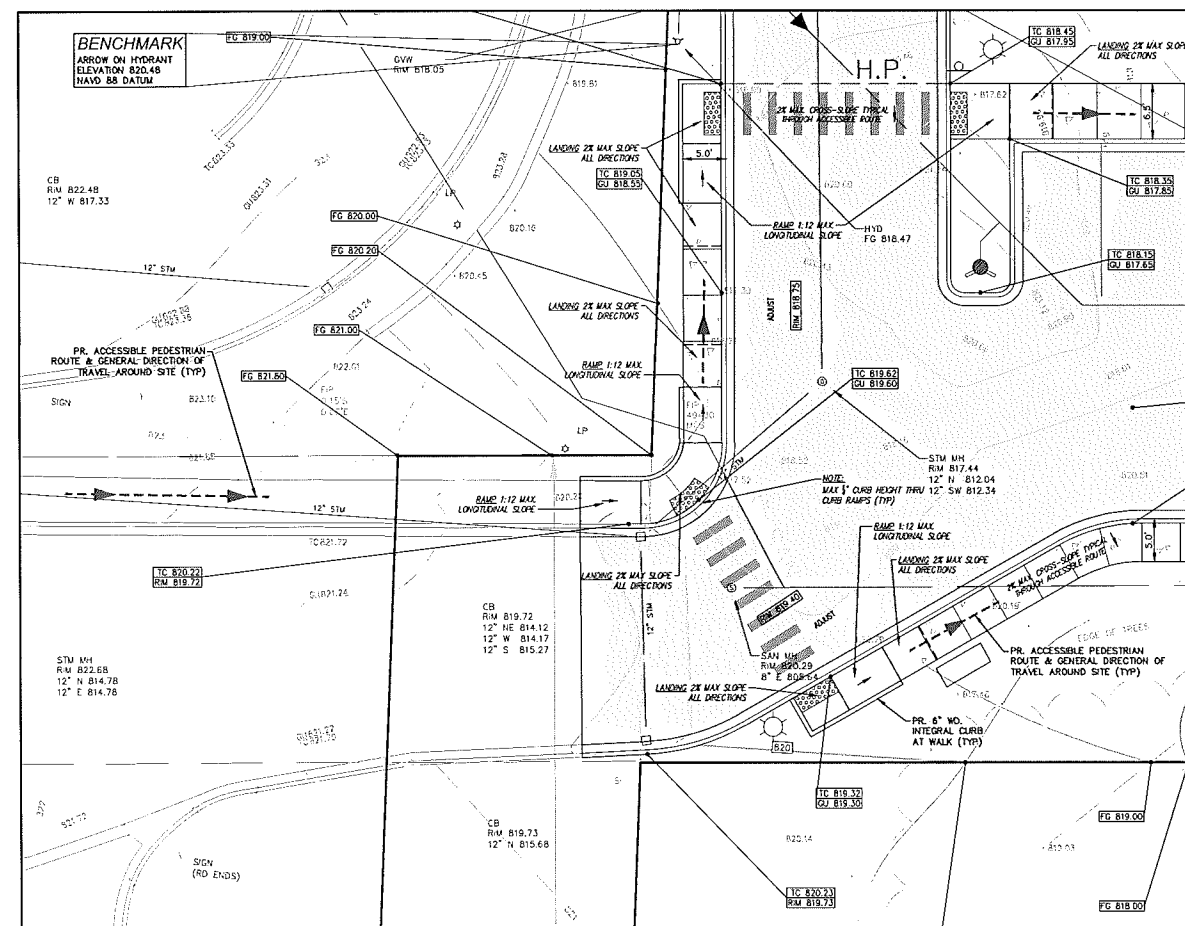
NFE JOB NO. SHEET NO.

J401 C4



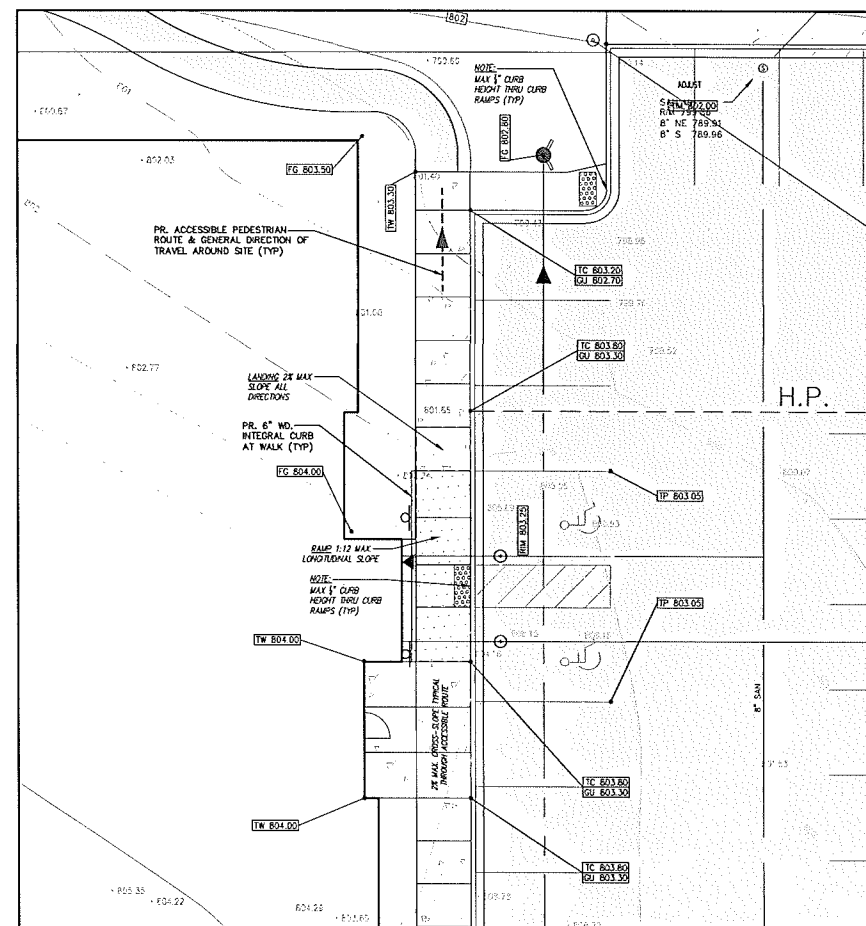
A.D.A. PARKING AREAS & ACCESSIBLE ROUTE BETWEEN BUILDINGS

SCALE: 1" = 10'



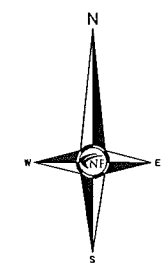
ACCESSIBLE ROUTE FROM OFF-SITE (WEST) & TO SITE AMENITY AREA

SCALE: 1" = 10'



ACCESSIBLE ROUTE FROM EAST BUILDING "B" ENTRANCE AND ACCESS TO PARKING

SCALE: 1" = 10'



UTILITY NOTE  
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LEGEND

MANHOLE	EXISTING SANITARY SEWER
HYDRANT	SAN. CLEAN OUT
MANHOLE CATCH BASIN	EXISTING WATERMAIN
UTILITY POLE GUY POLE	EXISTING STORM SEWER
GUY WIRE	EX. R. Y. CATCH BASIN
SIGN	EXISTING BURIED CABLES
C.O.	OVERHEAD LINES
HYDRANT	EXISTING GAS MAIN
RESET	PR. SANITARY SEWER
C.B.	PR. WATER MAIN
MANHOLE	PR. STORM SEWER
MANHOLE	PR. R. Y. CATCH BASIN
MANHOLE	PROPOSED LIGHT POLE
WT 600.00	PR. TOP OF WALL ELEVATION
TC 600.00	PR. TOP OF CURB ELEVATION
GU 600.00	PR. GUTTER ELEVATION
TW 600.00	PR. TOP OF WALK ELEVATION
TP 600.00	PR. TOP OF FINISH ELEVATION
FG 600.00	FINISH GRADE ELEVATION



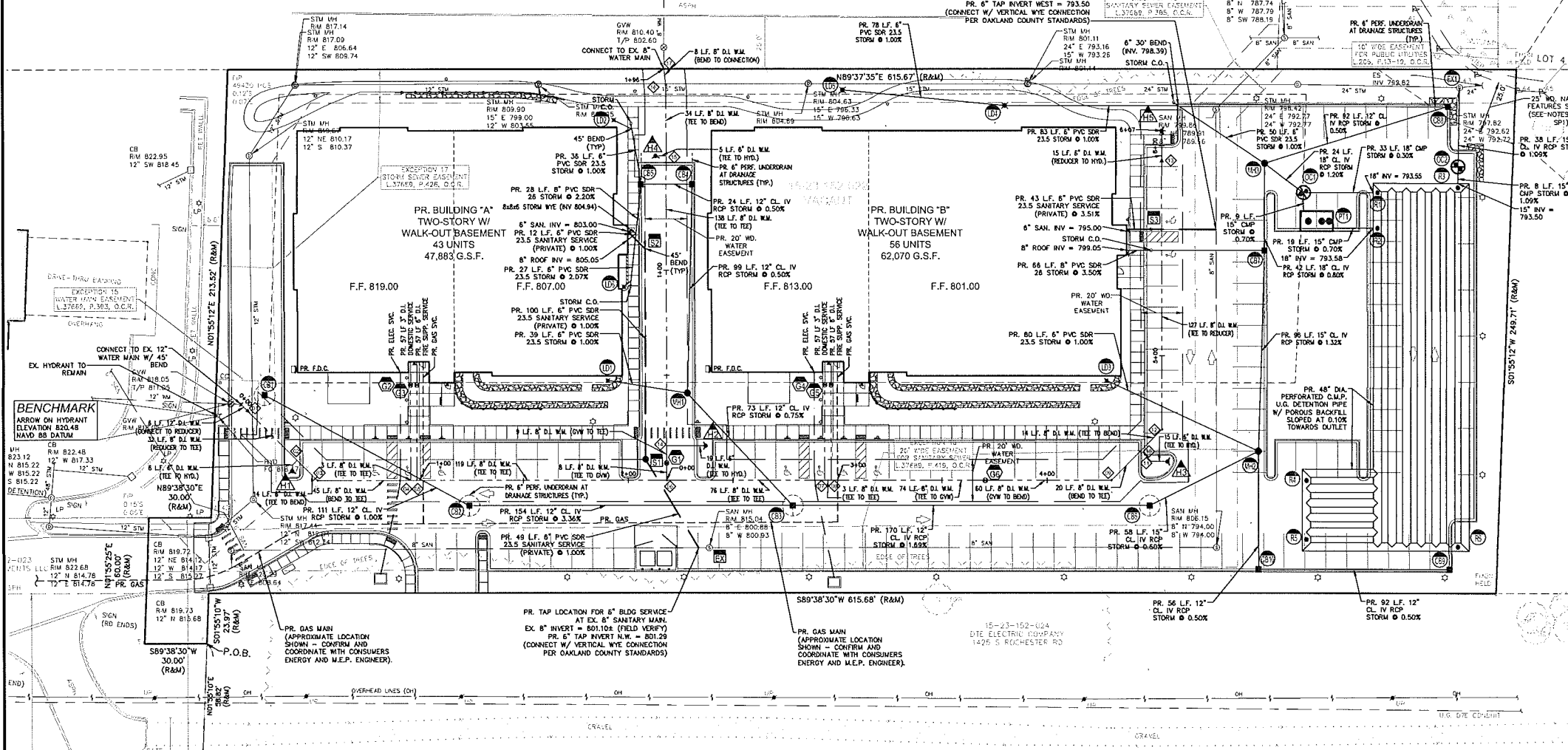
OAKLAND FORUM PROFESSIONAL CENTRE CONDO  
L.43123, P.415, O.C.R.

15-23-103-00  
ROCHESTER HILLS, MI  
1245 S. ROCHESTER RD STE 250

YORKTOWNE COMMONS  
L.206, P.13-19, O.C.R.

### STORM SEWER STRUCTURE SCHEDULE

- PR. 5' DIA. FLOW CONTROL MANHOLE W/ WEIR PLATE  
EX. RM 797.82  
EX. 24" INV N. 793.72  
EX. 24" INV S. 782.62  
PR. 15" INV S. 793.00 (TAP)  
PR. 15" INV N. 793.76  
PR. 15" INV S. 793.76  
PR. TOP/WEIR 793.00  
PR. 18" INV E. 793.76
- PR. PRE-TREATMENT STRUCTURE  
VERTICES VY 9000 OR EQUAL  
PR. RM 800.00 (N) 802.15 (W) 802.08 (E)  
PR. 15" INV N. (INLET) 793.70  
PR. 15" INV E. (OUTLET) 793.70
- PR. 5' DIA. OUTLET CONTROL MANHOLE W/ WEIR PLATE  
PR. RM (N) 800.60  
PR. RM (S.E.) 800.70  
PR. 15" INV N. 793.41  
PR. 15" INV E. 793.41  
PR. TOP/WEIR 798.25
- PR. 20" DIA. CUP RISER MANHOLE  
PR. RM 801.45  
PR. 18" INV 793.55  
PR. 18" INV 793.55
- PR. 30" DIA. CUP RISER MANHOLE  
PR. RM 801.60  
PR. 18" INV 793.58
- PR. 30" DIA. CUP RISER MANHOLE  
PR. RM 800.90  
PR. 18" INV 793.50
- PR. 30" DIA. CUP RISER MANHOLE  
PR. RM 803.25  
PR. 18" INV 793.75
- PR. 30" DIA. CUP RISER MANHOLE  
PR. RM 802.90  
PR. 18" INV 793.75
- PR. 30" DIA. CUP RISER MANHOLE  
PR. RM 800.75  
PR. 18" INV 793.68
- PR. 18" DIA. LANDSCAPE DRAIN (HYDROPLAST OR EQUAL)  
"BEE-HIVE" GRATE (PER MANUFACTURER)  
RM 800.50  
PR. 6" INV S.E. 805.00
- PR. 18" DIA. LANDSCAPE DRAIN (HYDROPLAST OR EQUAL)  
"BEE-HIVE" GRATE (PER MANUFACTURER)  
RM 800.50  
PR. 6" INV S.E. 805.00
- PR. 18" DIA. LANDSCAPE DRAIN (HYDROPLAST OR EQUAL)  
"BEE-HIVE" GRATE (PER MANUFACTURER)  
RM 802.50  
PR. 6" INV S.E. 799.00
- PR. 18" DIA. LANDSCAPE DRAIN (HYDROPLAST OR EQUAL)  
"BEE-HIVE" GRATE (PER MANUFACTURER)  
RM 802.50  
PR. 6" INV S.E. 799.00
- PR. 18" DIA. LANDSCAPE DRAIN (HYDROPLAST OR EQUAL)  
"BEE-HIVE" GRATE (PER MANUFACTURER)  
RM 803.50  
PR. 6" INV S.E. 800.00
- PR. 6" DIA. 90° ELBOW LANDSCAPE DRAIN "ATLUM" GRATE (PER MANUFACTURER)  
RM 809.00  
PR. 6" INV N.W. 797.89  
PR. 12" INV N.E. 795.04  
PR. 15" INV S.E. 794.09  
PR. 18" INV S. 794.15



### PROPOSED WATER MAIN FITTINGS SCHEDULE

- 12" TO 8" REDUCER
- 8" TO 6" REDUCER
- 6" TO 4" REDUCER
- 4" TO 3" REDUCER
- 3" TO 2" REDUCER
- 2" TO 1.5" REDUCER
- 1.5" TO 1" REDUCER
- 1" TO 0.75" REDUCER
- 0.75" TO 0.5" REDUCER
- 0.5" TO 0.25" REDUCER
- 0.25" TO 0.125" REDUCER
- 8" 45° BEND
- 6" 45° BEND
- 4" 45° BEND
- 3" 45° BEND
- 2" 45° BEND
- 1.5" 45° BEND
- 1" 45° BEND
- 0.75" 45° BEND
- 0.5" 45° BEND
- 0.25" 45° BEND
- 8" 90° BEND
- 6" 90° BEND
- 4" 90° BEND
- 3" 90° BEND
- 2" 90° BEND
- 1.5" 90° BEND
- 1" 90° BEND
- 0.75" 90° BEND
- 0.5" 90° BEND
- 0.25" 90° BEND

### WATER MAIN STRUCTURE SCHEDULE

- PR. 8" GATE VALVE IN WELL
- PR. RM 813.15
- PR. 1" PIPE 807.65
- PR. 3" DOMESTIC BUILDING SERVICE SHUT-OFF VALVE IN BOX
- PR. RM 818.50
- PR. 1" PIPE 818.08
- PR. 6" FIRE SUPPRESSION SERVICE SHUT-OFF VALVE IN BOX
- PR. RM 818.52
- PR. 1" PIPE 818.02
- PR. 8" GATE VALVE IN WELL
- PR. RM 826.40
- PR. 1" PIPE 802.90
- PR. HYDRANT ASSEMBLY
- PR. F.G. 818.25
- PR. 1" PIPE 812.75
- PR. HYDRANT ASSEMBLY
- PR. F.G. 813.60
- PR. 1" PIPE 808.10
- PR. HYDRANT ASSEMBLY
- PR. F.G. 805.50
- PR. HYDRANT ASSEMBLY
- PR. F.G. 809.60
- PR. 1" PIPE 804.10
- PR. HYDRANT ASSEMBLY
- PR. F.G. 802.60
- PR. 1" PIPE 797.90

### SANITARY SEWER STRUCTURE SCHEDULE

- ADJUST EX. SANITARY MANHOLE
- PR. RM 815.04
- PR. RM 813.18
- EX. 8" INV N. 800.93
- EX. 8" INV S. 800.68
- PR. 6" DIA. SANITARY MANHOLE
- PR. RM 813.35
- PR. 6" INV S.E. 801.78
- PR. 6" DIA. SANITARY CLEAN-OUT
- PR. RM 809.45
- PR. 6" INV S. 802.91
- PR. 6" DIA. SANITARY CLEAN-OUT
- PR. RM 803.25
- PR. 6" INV E/W 794.60

**SANITARY BASIS OF DESIGN**

TOTAL CONTRIBUTORY POPULATION (TOTAL FOR BOTH BUILDINGS)  
ASSUME 3.5 PERSONS PER RESIDENTIAL EQUIVALENT UNIT (REU)  
PER O.C.V.R.C. UNIT FACTOR TABLE  
MULTIPLE FAMILY RESIDENCE: 0.60 REU / 1 RESIDENCE  
PROPOSED NUMBER OF RESIDENCE UNITS (PER BUILDING): 43 UNITS  
PROPOSED NUMBER OF RESIDENCE UNITS (TOTAL): 86 UNITS  
TOTAL REU: 0.60 REU / 1 RESIDENCE UNIT X 86 UNIT = 52 REU  
TOTAL POPULATION: 52 REU X 3.5 PERSONS = 182 PERSONS

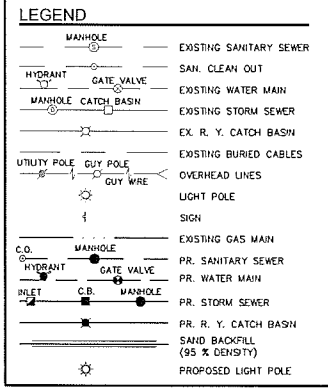
**TOTAL DESIGN POPULATION (TOTAL): 182 PERSONS**

**FLOW CALCULATION**

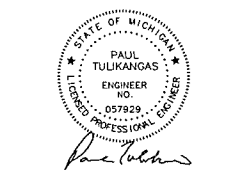
ASSUMED DESIGN CAPACITY: 100 GAL/PERSON/DAY  
AVERAGE FLOW:  $18,200 \text{ GPD} = 0.0282 \text{ CFS}$   
PEAK FLOW (TEN STATES):  $4,145 \times 0.0282 = 0.117 \text{ CFS}$   
CAPACITY OF PROPOSED 6" PVC SANITARY LEAD @ MINIMUM SLOPE OF 1.00% = 0.668 CFS

**UTILITY NOTE**

THE LOCATIONS AND ELEVATIONS OF SOME OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THE SURVEY DRAWING WERE OBTAINED FROM MUNICIPAL AND UTILITY COMPANY RECORDS AND MAPS. THEREFORE, NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



NOWAK & FRAUS ENGINEERS  
4677 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL. (248) 332-7931  
FAX. (248) 332-8257



**PROJECT**  
Cedar Valley Luxury  
Apartments

**CLIENT**  
Bret Russell, Inc.  
31000 Telegraph Road  
Suite 145  
Bingham Farms, MI 48025  
Contact:  
Bret Russell/Matt Johnson  
Phone: (248) 792-5164  
Fax: (248) 792-5165  
Email: mjohanson@russellbuild.com

**PROJECT LOCATION**  
Part of the Northwest 1/4 of  
Section 23, Town 3 North,  
Range 11 East,  
City of Rochester Hills,  
Oakland County, Michigan

**SHEET**  
Utility Plan



**REVISIONS**

12-14-18	Site Plan Approval
01-20-17	SPA Revision #1
03-03-17	Final SPA
03-27-17	Engineering Review / Permits
04-19-17	Final SPA #2
05-05-17	Revised per City
05-26-17	Revised per City
08-23-17	Amendment to Approved Site Plan

**DRAWN BY:**  
P. Tulikangas

**DESIGNED BY:**  
P. Tulikangas

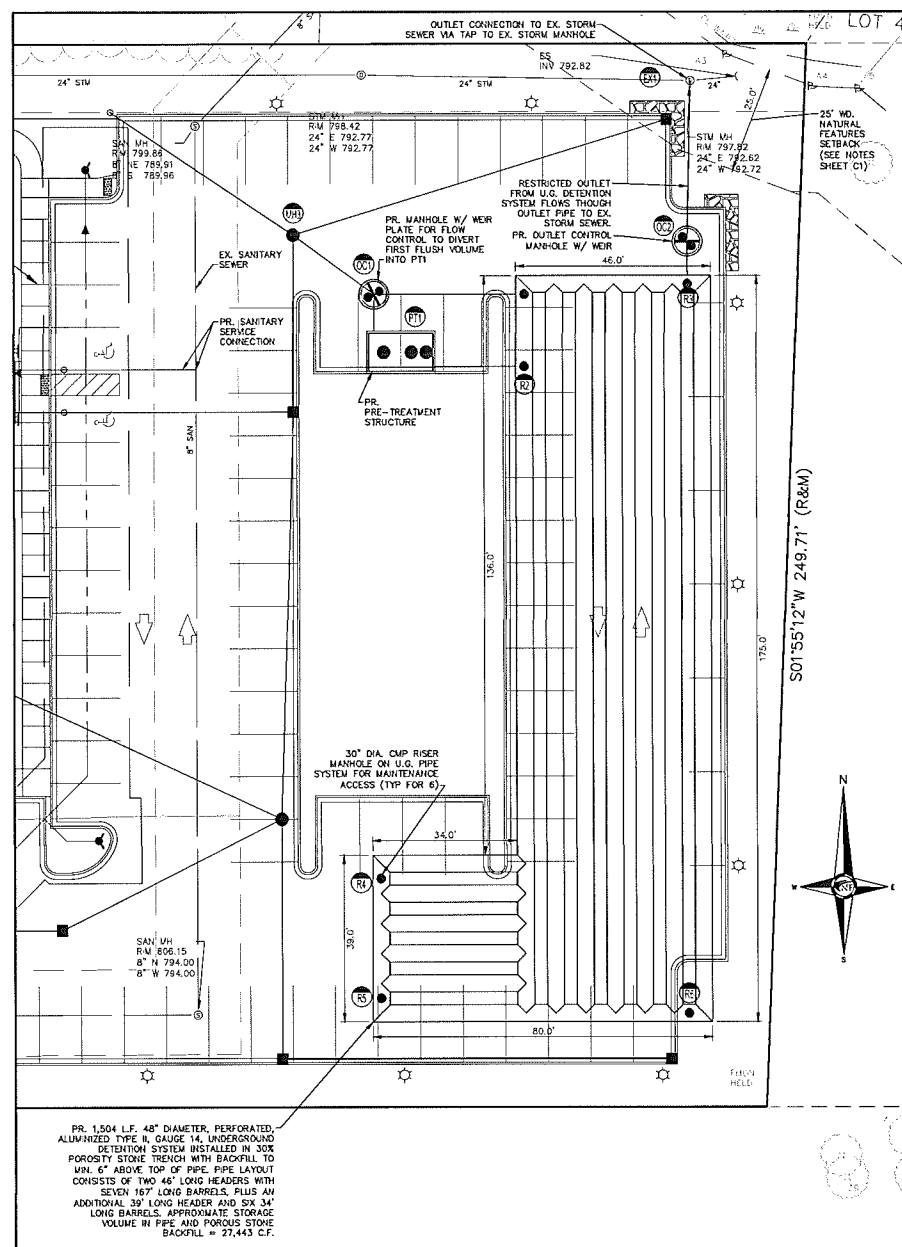
**APPROVED BY:**  
B. Buchholz

**DATE:**  
11-21-16

**SCALE:** 1" = 30'

NFE JOB NO. **J401** SHEET NO. **C5**

CITY OF ROCHESTER HILLS  
PROJECT #16-018



STORMWATER DETENTION PLAN DETAIL  
SCALE: 1" = 20'

STORM DETENTION STRUCTURE SCHEDULE

- EX. STORM MANHOLE EX. RM 797.82 EX. 24" AV. W. 792.72 EX. 24" AV. E. 792.62 PR. 15" INV. S. 793.00 (TAP)
- PR. 6" DIA. PRE-CAST STORM MANHOLE W/ 2" SUWP ELM COVER 1040-A RM 802.15 PR. 6" INV. N.W. 797.89 PR. 12" INV. N.E. 792.04 PR. 18" INV. S.E. 794.05 PR. 18" INV. S. 794.15
- PR. 5" DIA. FLOW CONTROL MANHOLE W/ MER PLATE PR. RM (S.W.) 802.15 PR. RM (N.E.) 802.05 PR. 18" INV. N.W. 793.76 PR. 15" INV. S. 793.41 PR. TOP/MEIR 795.01 PR. 18" INV. E. 793.76
- PR. PRE-TREATMENT STRUCTURE VORTEXIS VV 5000 OR EQUAL PR. RM 802.30 (A) 802.15 (MD) 802.08 (E) PR. RM (S.E.) 800.70 PR. 15" INV. H. (HOLE) 793.70 PR. 15" INV. E. (OUTLET) 793.70
- PR. 5" DIA. OUTLET CONTROL MANHOLE W/ MER PLATE PR. RM (N.W.) 800.80 PR. RM (S.E.) 800.70 PR. 15" INV. S. 793.41 PR. 15" INV. N. 793.41 PR. TOP/MEIR 798.25
- PR. 30" DIA. CUP RISER MANHOLE PR. RM 801.45 PR. 48" INV. 793.55
- PR. 30" DIA. CUP RISER MANHOLE PR. RM 801.60 PR. 48" INV. 793.58
- PR. 30" DIA. CUP RISER MANHOLE PR. RM 800.90 PR. 48" INV. 793.50
- PR. 30" DIA. CUP RISER MANHOLE PR. RM 803.25 PR. 48" INV. 793.75
- PR. 30" DIA. CUP RISER MANHOLE PR. RM 802.90 PR. 48" INV. 793.75
- PR. 30" DIA. CUP RISER MANHOLE PR. RM 800.75 PR. 48" INV. 793.68

PROJECT NO:	J401		
PROJECT NAME:	Cedar Valley		
LOCATION:	Rochester Hills, MI		
DATE:	3/22/2017		
REVISED:	8/18/2017		
C-Permeous 0.300			
C-Imperious 0.950			
SURFACE TYPE TOTAL AREA PERVIOUS AREA IMPVIOUS AREA			
OVERALL SITE	3.567		
Pavement/Curb/Walk/Wells		1.730	0.933
Buildings			
Lawn / Landscape		0.932	
OVERALL TOTALS	3.567	0.632	2.665
Weighted C Factor			
OVERALL SITE		0.186	

DETENTION BASIN DESIGN

Using OGDCE Equations for a 25 Year Storm

Name of Project:	Cedar Valley Luxury Apartments
Location of Project:	Rochester Hills, MI
Contributing Acreage is:	3.567 acres
Runoff Coefficient is:	0.79
Allowable Discharge is:	0.2 cfs/acre
Then Q <sub>1</sub> is:	0.7134 cfs
Then Q <sub>2</sub> is:	0.2532 cfs/(acre x runoff coefficient)
Detention Time T <sub>d</sub> is:	153.46 minutes
Storage Volume V <sub>s</sub> is:	9,538.85 cf/(acre x runoff coefficient)
Total Storage Volume Required V <sub>r</sub> is:	26,879.80 cubic feet
Required Storage in U.G. System	26,879.80 cubic feet
Underground Detention Proposed Pipe Diam	48 inches
Cross-Sectional Area (Pipe)	12.57 square feet
Porous Stone Trench Width	7 feet
Porous Stone Trench Height	4.5 feet
Cross-Sectional Area (Trench)	18.93 square feet
Minimum Stone Posity Area (Trench Storage)	30 percent
Cross-Sectional Area (Stone)	5.68 square feet
Total Storage per Linear Foot (Pipe and Stone)	18.25 square feet
Required Length of 48" Pipe	1473 feet
Provided Length of 48" Pipe	1604 feet
Provided Storage (Pipe and Stone)	27,442.66 cubic feet
PR. STORAGE IN U.G. SYSTEM	27,442.66 cubic feet
TOTAL STORAGE PROVIDED	27,442.66 cubic feet

SOIL PERMEABILITY & INFILTRATION NOTE  
A SOIL INVESTIGATION REPORT PREPARED BY WOODRILL & ASSOCIATES, DATED JANUARY 20TH, 2017, INDICATES THAT THE PRIMARILY CLAY SOILS AT THIS SITE HAVE VERY LOW PERMEABILITIES, WITH AN ESTIMATED COEFFICIENT OF PERMEABILITY OF APPROXIMATELY 0.04 FT. PER DAY. THEREFORE, INFILTRATION HAS NOT BEEN FACTORED INTO THE STORM SEWER DETENTION CALCULATIONS.

OUTLET CALCULATIONS - CITY OF ROCHESTER HILLS (25) YEAR STORM EVENT - U.G. DETENTION SYSTEM

CONTRIBUTING ACREAGE:	3.567 ACRES
Q <sub>1</sub> ALLOWABLE OUTFLOW:	0.713 CFS (0.2 CFS/ACRE)
C RUNOFF COEFFICIENT:	0.790 IMPVIOUSNESS
Q <sub>2</sub> MAXIMUM ALLOWABLE OUTFLOW:	0.253 CFS/(ACRE*MPER)
T <sub>d</sub> STORAGE TIME (100 YEAR):	153.47 MINUTES
V <sub>s</sub> STORAGE VOLUME:	9,538.85 CFS/(ACRE*MPER)
V <sub>r</sub> TOTAL VOLUME:	26,879.80 CUBIC FEET
VOLUME REQUIRED:	26,880 CUBIC FEET
Required Formula:	
Q <sub>1</sub> = (0.15 CFS/Acre)	V <sub>s</sub> = (16,500 x T)(T + 25) - (40 x Q <sub>1</sub> x T)
Q <sub>2</sub> = Q <sub>1</sub> / (Area x C)	V <sub>r</sub> = V <sub>s</sub> x A x C
T <sub>d</sub> = 25 + (10,312.5 / Q <sub>1</sub> ) <sup>0.5</sup>	

Detention Volume Provided in U.G. Detention	27,443.00	Cubic Feet
Total Provided Volume =	27,443.00	Cubic Feet
Z <sub>25</sub> =	798.25	
Z <sub>0</sub> =	793.62	
Z <sub>diff</sub> =	793.41	

DETERMINE STORAGE VOLUME PROVIDED		
Detention Volume Provided in U.G. Detention	27,443.00	Cubic Feet
Total Provided Volume =	27,443.00	Cubic Feet
Z <sub>25</sub> =	798.25	
Z <sub>0</sub> =	793.62	
Z <sub>diff</sub> =	793.41	
FIRST FLUSH CALCULATIONS		
TOTAL SITE ACREAGE:	3.567 ACRES	
RUNOFF COEFFICIENT (C):	0.790 IMPVIOUSNESS	
VOLUME REQUIRED (V <sub>1</sub> ):	6,115 CUBIC FEET	
First Flush Elevation:	794.59	
FORMULA: V <sub>1</sub> = 1.815 x A x C		

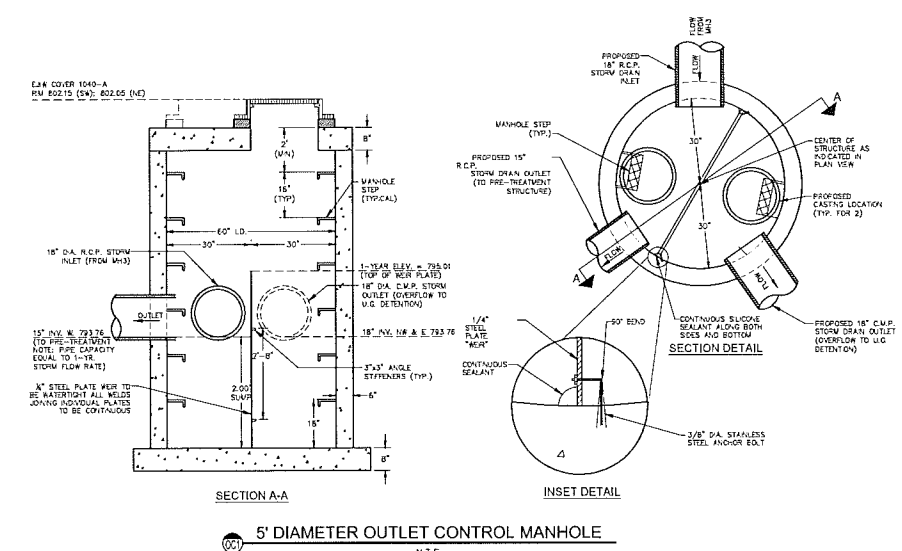
OUTLET CALCULATIONS FOR FIRST FLUSH	
REQUIRED AVE. RELEASE RATE: Q <sub>ave</sub>	0.059 CFS
AVERAGE HEAD, h <sub>(ave)</sub>	0.69 FEET
REQUIRED OUTLET SIZE, A:	0.943 SQUARE FEET
REQUIRED No. OF 1.5" DIA. HOLES:	1.17 HOLES(s)
PROVIDED No. OF 1.5" DIA. HOLES:	1.0 HOLES(s) at outlet
ACTUAL AVE. RELEASE RATE: Q <sub>act</sub> (s)	0.051 CFS
ACTUAL HOLDING TIME: T <sub>H</sub>	28.0 HOURS
Required Formula:	
Q <sub>ave</sub> = V <sub>1</sub> (E) / (E <sub>5</sub> - 400) sec	h <sub>(ave)</sub> = (0.5) x (Z <sub>0</sub> - Z <sub>25</sub> ) + (Z <sub>0</sub> - Z <sub>diff</sub> (s))
A = Q <sub>ave</sub> / (0.62 x (Q <sub>ave</sub> ) <sup>0.5</sup> )	Q <sub>act</sub> (s) = 0.62 x A x (Q <sub>ave</sub> ) <sup>0.5</sup>
T <sub>H</sub> = (V <sub>1</sub> (s) / Q <sub>act</sub> (s))	
*Based on 24 hour release rate	

BANKFULL FLOOD CALCULATIONS	
CONTRIBUTING ACREAGE:	3.567 ACRES
RUNOFF COEFFICIENT (C):	0.790 IMPVIOUSNESS
VOLUME REQUIRED (V <sub>1</sub> ):	14,541 CUBIC FEET
Bank Full Elevation:	795.72
FORMULA: V <sub>1</sub> = 5,180 x A x C	

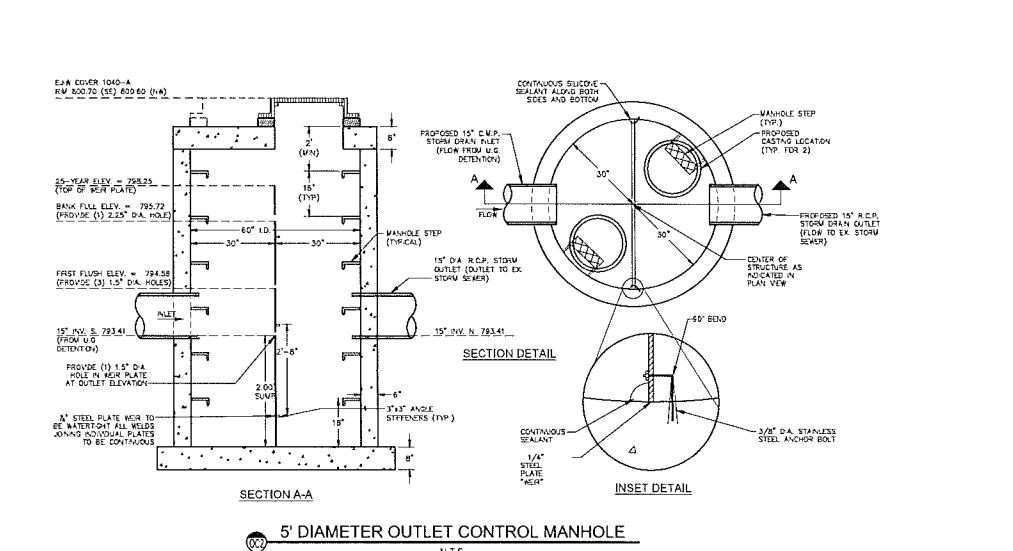
OUTLET CALCULATIONS FOR BANKFULL	
REQUIRED AVE. RELEASE RATE: Q <sub>ave</sub> (ft)	0.218 CFS
AVERAGE HEAD, h <sub>(ave)</sub>	1.74 FEET
REQUIRED OUTLET SIZE, A:	0.0333 SQUARE FEET
REQUIRED No. OF 1.5" DIA. HOLES:	2.71 HOLES(s)
PROVIDED No. OF 1.5" DIA. HOLES:	3.0 HOLES(s) at outlet
ACTUAL AVE. RELEASE RATE: Q <sub>act</sub>	0.242 CFS
ACTUAL HOLDING TIME: T <sub>H</sub>	38.9 HOURS
Required Formula:	
Q <sub>ave</sub> (ft) = (V <sub>1</sub> (ft <sup>3</sup> ) / (V <sub>1</sub> (ft <sup>3</sup> ) / (40-T <sub>H</sub> )) / 3600	h <sub>(ave)</sub> (ft) = (2 <sub>0</sub> -Z <sub>0</sub> ) + (0.5) x (2 <sub>0</sub> -Z <sub>25</sub> ) + (Z <sub>0</sub> -Z <sub>diff</sub> (s))
A = Q <sub>ave</sub> / (0.62 x (Q <sub>ave</sub> ) <sup>0.5</sup> )	Q <sub>act</sub> = 0.62 x A x (Q <sub>ave</sub> ) <sup>0.5</sup>
T <sub>H</sub> = (V <sub>1</sub> (ft <sup>3</sup> ) / Q <sub>act</sub> (ft)) / (3600) + T <sub>F</sub>	
*Based on 40 hour release rate	

OUTLET CALCULATION FOR 25-YEAR FLOOD	
ULTIMATE OUTFLOW, Q	0.713 CFS
25-Year Elevation	798.25
Calculate for First Flush Holes(s) and Bank Full Holes(s) Contribution	
AVERAGE HEAD, h <sub>(ave)</sub>	3.58 FEET
AVERAGE HEAD, h <sub>(ave)</sub> (ft)	2.40 FEET
Q <sub>1</sub> (+s)	0.992 CFS
Extra Holes are Required	
ADJUSTED OUTFLOW: Q <sub>adj</sub>	0.322 CFS
AVERAGE HEAD, h <sub>(ave)</sub>	4.63 FEET
REQUIRED OUTLET SIZE, A	0.03006 SQUARE FEET
REQUIRED No. OF 2.25" DIA. HOLES:	1.089 HOLES(s)
PROVIDED No. OF 2.25" DIA. HOLES:	1.0 HOLES(s) at outlet
ACTUAL OUTLET SIZE, A <sub>act</sub>	0.02760 SQUARE FEET
ACTUAL AVE. RELEASE RATE: Q <sub>act</sub>	0.6671 CFS
Required Formula:	
h <sub>(ave)</sub> (ft) = (2 <sub>0</sub> -Z <sub>0</sub> ) + 0.5(2 <sub>0</sub> -Z <sub>25</sub> ) + (Z <sub>0</sub> -Z <sub>diff</sub> (s))	h <sub>(ave)</sub> (ft) = (2 <sub>0</sub> -Z <sub>0</sub> ) + (0.5)(2 <sub>0</sub> -Z <sub>25</sub> )
Q <sub>1</sub> (+s) = 0.62 x A <sub>1</sub> x (Q <sub>1</sub> (+s)) <sup>0.5</sup> + 0.62 x A <sub>2</sub> x (Q <sub>1</sub> (+s)) <sup>0.5</sup>	Q <sub>act</sub> = 0.62 x A x (Q <sub>ave</sub> ) <sup>0.5</sup>
A = Q <sub>1</sub> / (0.62 x (Q <sub>1</sub> (+s)) <sup>0.5</sup> )	Q <sub>act</sub> = Q <sub>1</sub> - (Q <sub>1</sub> - Q <sub>act</sub> )
A <sub>act</sub> = (No. of Holes x Area of Holes)	h <sub>(ave)</sub> = (2 <sub>0</sub> -Z <sub>0</sub> )
Q <sub>act</sub> = Q <sub>1</sub> (+s) + 0.62 x A <sub>act</sub> x (Q <sub>1</sub> (+s)) <sup>0.5</sup>	

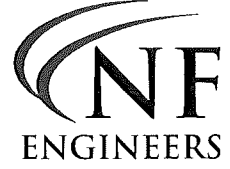
MULTI-STAGE OUTLET CONTROL CALCULATIONS FOR STRUCTURE OC2	
BASED ON 25-YEAR STORM PER C.C.R.C. STANDARDS	
Job No:	J401
Date:	08/23/17
Drawn:	



5' DIAMETER OUTLET CONTROL MANHOLE  
N.T.S.

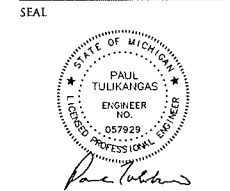


5' DIAMETER OUTLET CONTROL MANHOLE  
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PROJECT LOCATION  
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SHEET  
Storm Water Management  
Plan (1 of 2)



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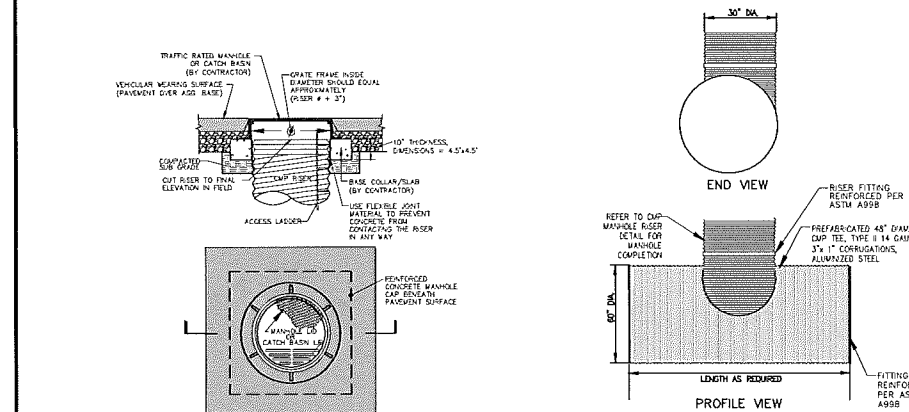
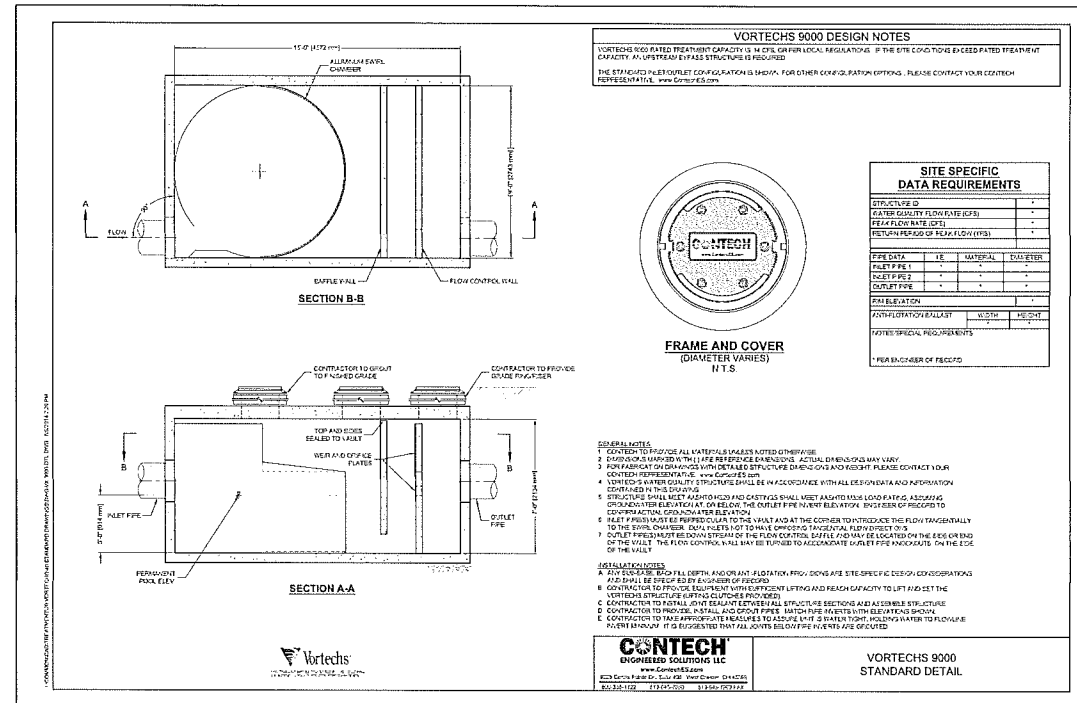
DRAWN BY:  
P. Tulikang  
DESIGNED BY:  
P. Tulikang  
APPROVED BY:  
B. Buchholz  
DATE:  
11-21-16

SCALE: 1" = 20'  
NFE JOB NO. SHEET NO.  
J401 C6A

**PRE-TREATMENT STRUCTURE DESIGN**  
Using OCDC Equations for a 1 Year Storm  
First Flush Calculation for Pre-Treatment Volume

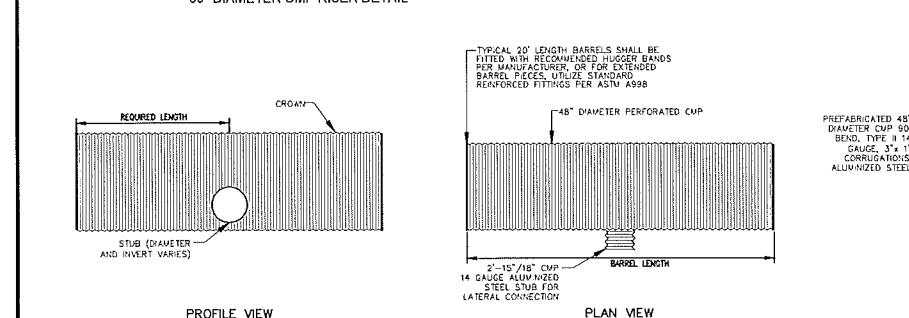
Site Area 3.567 acres  
Overall Runoff Coefficient ("C") 0.79  
Time of Concentration 15 minutes  
1 Year Storm Intensity (7.2/Tc+25) 1.8 in/Hr

Manning's Equation:  $Q = C \times I \times A$   
**Q (1 year storm flow rate) 5.07 cfs**

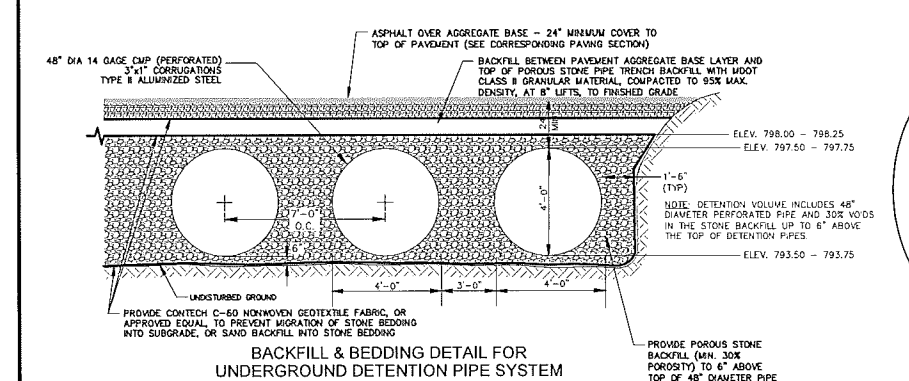


**NOTES**  
1. THE CONCRETE CAP SHALL BE DESIGNED BY OTHERS SO THAT THE LOADS ARE TRANSMITTED TO THE SOIL AND NOT THE RISER.  
2. THE CONCRETE CAP SHALL BE DESIGNED TO PROVIDE AN ADEQUATE BOTTOM AREA BASED ON THE ALLOWABLE BEARING CAPACITY OF THE SOIL.  
3. THE FLEXIBLE JOINT MATERIAL, REINFORCED WITH AN E.G. TO BE SUFFICIENT TO ENSURE THAT THE CONCRETE CAP MOVES TOGETHER WITH THE RISER CONNECTIONS.

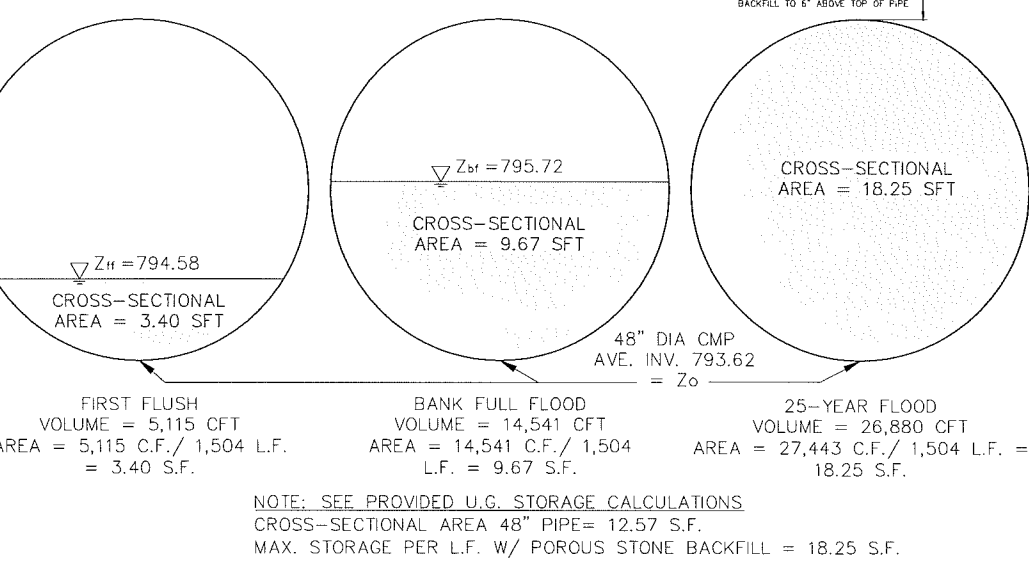
**48" DIA. CMP BARREL W/PREFAB MANHOLE RISER**  
N.T.S. (R1, R2, R3, R4, R5, R6)



**48" DIA. CMP BARREL W/PREFAB WALL STUB**  
N.T.S.



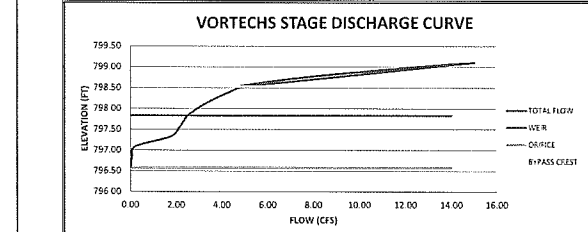
**NOTE:** UNDERGROUND DETENTION PIPES SHALL CONFORM TO AASHTO M36 (ASTM 760) ALUMINUM COATED SHEET CONFORMING TO AASHTO M274.  
**NOTE:** USE OF THE CONTINUOUS WELDED SEAM PROCESS IN THE FABRICATION OF THE UNDERGROUND DETENTION PIPES IS PROHIBITED.  
**NOTE:** PROVIDE CONTECH C-60 NONWOVEN GEOTEXTILE FABRIC AROUND ALL JOINTS.  
**PRIOR TO INSTALLATION OF THE UNDERGROUND DETENTION SYSTEM, ALL PIPE AND HARDWARE SHALL BE IN SOUND CONDITION, WITHOUT DAMAGE TO METAL COATING AND/OR SHAPE, BEFORE BACKFILLING TRENCH PER APPROVAL FROM THE CITY ENGINEER.**



**VORTECHS SYSTEM® FLOW CALCULATIONS**  
CEDAR VALLEY LUXURY APARTMENTS  
ROCHESTER, MI  
MODEL NAME VORTECHS 9000  
SITE DESIGNATION

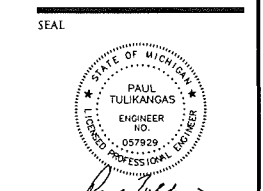
Head (ft)	Elevation (ft)	Orifice Flow (cfs)	Weir Flow (cfs)	Bypass Flow (cfs)	Total Flow (cfs)
0.00	796.58	0.00	0.00	0.00	0.00
0.25	796.53	0.07	0.00	0.00	0.07
0.50	797.08	0.20	0.00	0.00	0.20
0.75	797.33	1.78	0.00	0.00	1.78
1.00	797.58	2.19	0.00	0.00	2.19
1.25	797.83	2.53	0.00	0.00	2.53
1.50	798.08	2.82	0.25	0.00	3.17
1.75	798.33	3.09	0.89	0.00	4.08
2.00	798.58	3.34	1.82	0.20	5.35
2.25	798.83	3.57	2.80	2.74	9.11
2.50	799.08	3.78	3.91	6.77	14.47
1.99	798.53	3.29	1.63	0.00	4.92
2.20	798.78	3.53	2.58	2.06	8.17
2.52	799.11	3.81	4.01	7.18	15.00
1.99	798.53	3.29	1.63	0.00	4.92
1.99	799.12	3.56	4.08	7.39	15.02

Calculated by: P.W.V. 1/26/17



**NF ENGINEERS**  
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LAND SURVEYORS  
LAND PLANNERS

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CITY OF ROCHESTER HILLS  
PROJECT #16-018

OAKLAND FORUM PROFESSIONAL CENTRE CONDO  
L.43123, P.415, O.C.R.

15-23-153-001  
ROCHESTER M.O.B., LLC  
1349 S ROCHESTER RD STE 250

YORKTOWNE COMMONS  
L.206, P.13-19, O.C.R.  
LOT 3

15-23-152-005  
SEAN F AND CHRISTINE N BARRETT  
154 GROSSVECHER DR

15-23-152-005  
SANTOSH PRABHU  
ANJANA THAYAT  
160 GROSSVECHER DR



GENERAL TREE PROTECTION NOTES

- APPROVED TREE PROTECTION SHALL BE ERECTED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES AND SHALL REMAIN IN PLACE UNTIL THE PLACE UNTIL CONSTRUCTION IS COMPLETE.
- ALL UNDERSTORY VEGETATION WITHIN THE LIMITS OF PROTECTIVE FENCING SHALL BE PRESERVED.
- NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN, INCLUDING BUT NOT LIMITED TO, PLACING SOLVENTS, BURNING MATERIALS, CONSTRUCTION EQUIPMENT, OR SOIL DEPOSITS WITHIN THE DRIP LINE.
- WHERE GROUPINGS OF TREES ARE TO REMAIN, TREE FENCING SHALL BE PLACED AT THE LIMITS OF GRADING LINE.
- DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY TREE SCHEDULED TO REMAIN.
- ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRECHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING.
- SWALES SHALL BE ROUTED TO AVOID THE AREA WITHIN THE DRIP LINES OF PROTECTED TREES.
- TREES LOCATED ON ADJACENT PROPERTIES THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED.
- ROOT ZONES OF PROTECTED TREES SHOULD BE SURROUNDED WITH RIGIDLY STAKED FENCING.
- THE PARKING OF IDLE AND BURNING EQUIPMENT SHALL BE PROHIBITED UNDER THE DRIP LINE OF PROTECTED TREES.
- THE STRIPPING OF TOPSOIL FROM AROUND PROTECTED TREES SHALL BE PROHIBITED.
- ALL TREES TO BE REMOVED SHALL BE CUT AWAY FROM TREES TO REMAIN.
- THE GRUBBING OF UNDERSTORY VEGETATION WITHIN CONSTRUCTION AREAS SHOULD BE CLEARED BY CUTTING VEGETATION AT THE GROUND WITH A CHAIN SAW OR MANUALLY WITH A HAND AXE.
- THE CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT PER ORDINANCE GUIDELINES. FOR THE DAMAGE OR REMOVAL OF ANY TREE DESIGNATED TO REMAIN.
- TREES TO BE REMOVED SHALL BE FIELD VERIFIED, EVALUATED AND FLAGGED FOR REMOVAL BY THE LANDSCAPE ARCHITECT OR FORESTER. ONLY AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.

CITY TREE PROTECTION NOTES

- TREES PROPOSED TO BE SAVED WILL BE IDENTIFIED WITH CHALK BASE FLUORESCENT ORANGE PAINT, OR RED FLAGGING TAPE.
- TREES TO BE PRESERVED WILL BE PROTECTED WITH 4' HIGH SHOW FENCE WITH METAL POSTS EVERY 5 FEET.
- PROTECTIVE BARRIERS ARE TO BE ERECTED PRIOR TO CLEARING OR GRUBBING ON THE SITE, AND BARRIERS ARE TO REMAIN IN TACT UNTIL APPROVED BY THE CITY TO BE REMOVED, OR WHEN A CERTIFICATE OF OCCUPANCY IS ISSUED.
- NO FILL OR DEBRIS IS ALLOWED WITHIN THE PROTECTED AREA.
- DURING CONSTRUCTION, THE OWNER, DEVELOPER, OR AGENT SHALL NOT CAUSE OR PERMIT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY PROTECTED TREE OR GROUP OF TREES INCLUDING, BUT NOT LIMITED TO, THE STORAGE OF EQUIPMENT, DEBRIS, DIRT, AND EXCAVATED MATERIAL, BUILDING WASTE OR MATERIAL, OR ANY OTHER MATERIAL HARMFUL TO THE LIFE OF A TREE.
- NO DAMAGING ATTACHMENT WIRES (OTHER THAN CABLES FOR TREES), SIGNS, OR PERMITS MAY BE FASTENED TO ANY TREE PROTECTED BY THE ORDINANCE.

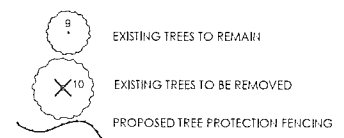
TREE PRESERVATION SUMMARY

TREES ≥ 6" DBH SHALL BE REPLACED AT 1:1

2" CAL. DECIDUOUS = 1 CREDIT  
2.5" CAL. DECIDUOUS = 1.5 CREDIT  
3" CAL. DECIDUOUS = 2 CREDITS  
8" FT. EVERGREEN = 1 CREDIT  
10" FT. EVERGREEN = 2 CREDITS

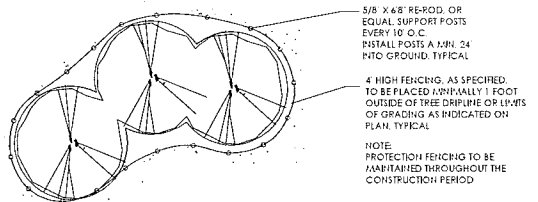
TOTAL TREES SURVEYED:	240
TOTAL DEAD TREES ON-SITE:	0
TOTAL NET REGULATED TREES:	240
TOTAL TREES TO BE SAVED:	17
TOTAL TREES TO BE REMOVED:	223
TOTAL REPLACEMENT CREDITS REQUIRED:	223
TOTAL REPLACEMENT CREDITS PROVIDED:	224 (112 TREES X 2 CREDITS)

TREE PROTECTION LEGEND

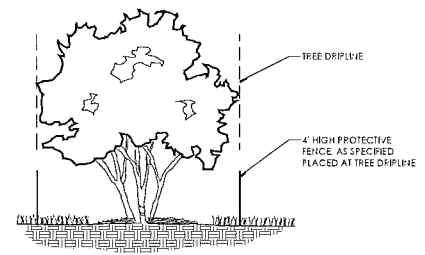


NOTE:  
NO DIGGING, GRADING (CUT OR FILL), TRECHING OR ANY OTHER CONSTRUCTION OPERATION IS PERMITTED WITHIN THE DRIP LINE OF ANY TREE DESIGNATED FOR PRESERVATION.

NOTE:  
SEE SHEET L2, LANDSCAPE PLAN FOR PROPOSED TREE REPLACEMENT LOCATIONS



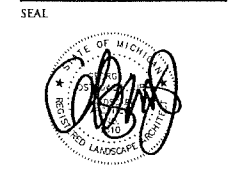
TREE PROTECTION DETAIL-PLAN



TREE PROTECTION DETAIL-SECTION



NOWAK & FRAUS ENGINEERS  
46777 WOODWARD AVE.  
PONTIAC, MI 48342-5032  
TEL (248) 332-7931  
FAX (248) 332-8257



PROJECT  
Cedar Valley Luxury  
Apartments

CLIENT  
Bret Russell, Inc.  
31000 Telegraph Road  
Suite 145  
Bingham Farms, MI 48025  
Contact:  
Bret Russell/Matt Johnson  
Phone: (248) 792-5164  
Fax: (248) 792-5165  
Email: mjohanson@russellbuild.com

PROJECT LOCATION  
Part of the Northwest 1/4 of  
Section 23, Town 3 North,  
Range 11 East,  
City of Rochester Hills,  
Oakland County, Michigan

SHEET  
Tree Preservation Plan



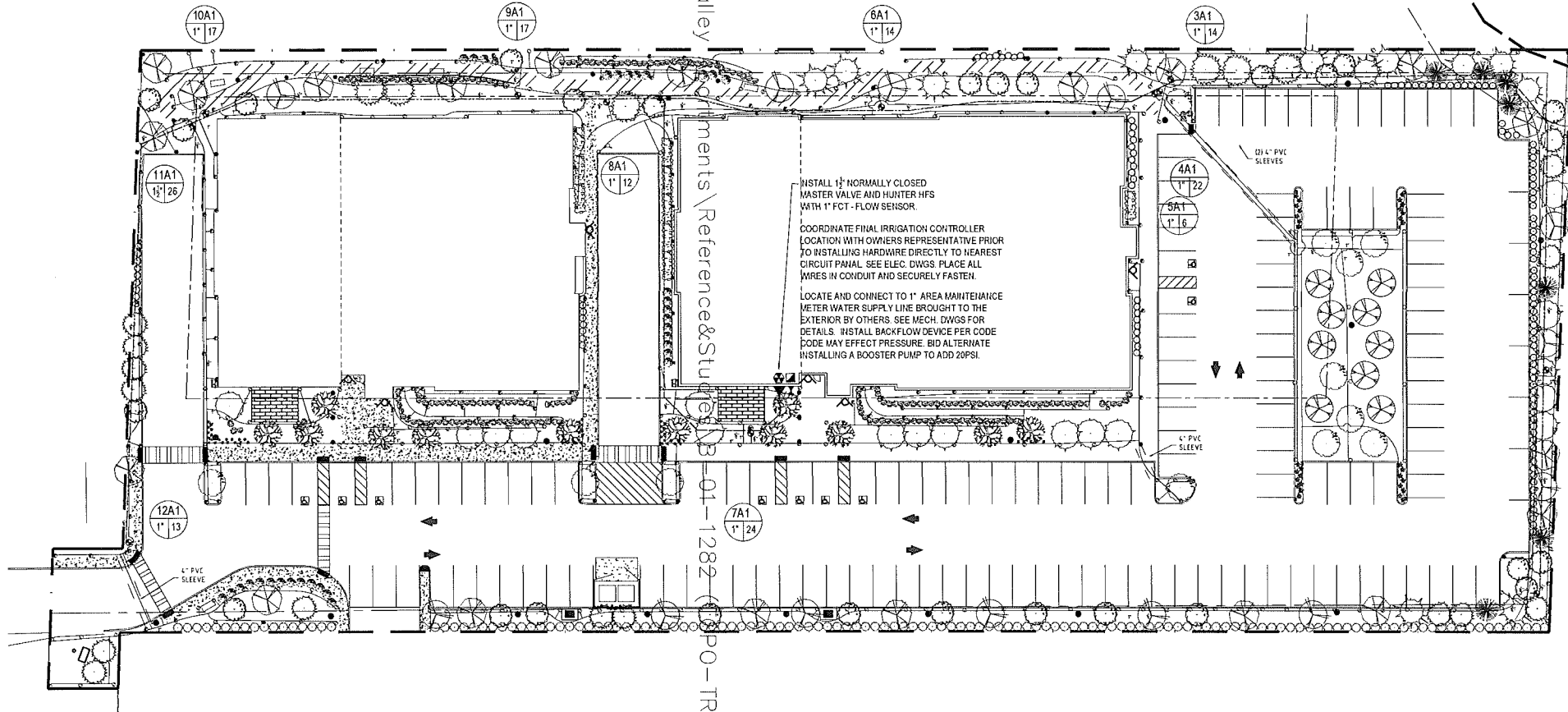
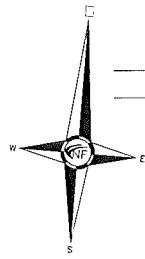
REVISIONS

12-14-16 SPA SUBMITTAL	
01-20-17 SPA REVISION #1	
04-18-17 PERIAL SPA #2	
05-23-17 REVISED SPA	

DRAWN BY:  
G. Ostrowski  
DESIGNED BY:  
G. Ostrowski  
APPROVED BY:  
G. Ostrowski  
DATE:  
12-14-16

SCALE: 1" = 30'  
NFE JOB NO. J401  
SHEET NO. L1

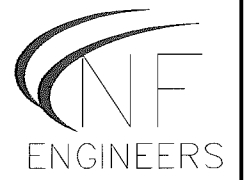
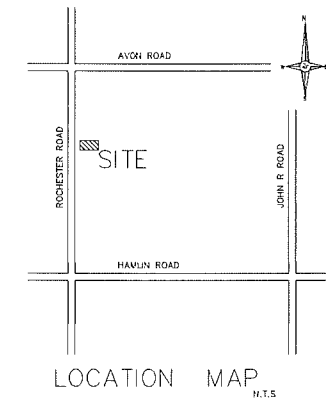




4 - Cedar Valley

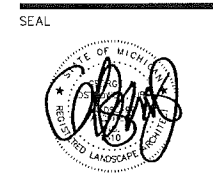
1282 - PO-TRE

INSTALL 1" NORMALLY CLOSED MASTER VALVE AND HUNTER HFS WITH 1" FCT - FLOW SENSOR.  
 COORDINATE FINAL IRRIGATION CONTROLLER LOCATION WITH OWNERS REPRESENTATIVE PRIOR TO INSTALLING HARDWARE DIRECTLY TO NEAREST CIRCUIT PANEL. SEE ELEC. DWGS. PLACE ALL WIRES IN CONDUIT AND SECURELY FASTEN.  
 LOCATE AND CONNECT TO 1" AREA MAINTENANCE METER WATER SUPPLY LINE BROUGHT TO THE EXTERIOR BY OTHERS. SEE MECH. DWGS FOR DETAILS. INSTALL BACKFLOW DEVICE PER CODE. CODE MAY EFFECT PRESSURE. BID ALTERNATE INSTALLING A BOOSTER PUMP TO ADD 20PSI.



civil Engineers  
Land Surveyors  
Land Planners

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Pontiac, MI 48342-5032  
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PROJECT LOCATION  
Part of the Northwest 1/4 of  
Section 23, Town 3 North,  
Range 11 East,  
City of Rochester Hills,  
Oakland County, Michigan

SHEET  
Irrigation Plan



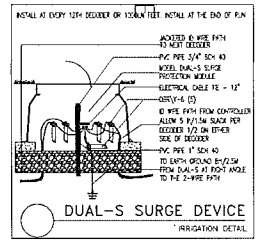
REVISIONS  
12-14-16 SPA SUBMITTAL  
01-20-17 SPA REVISION #1  
08-23-17 Amendment to Approved Site Plan

DRAWN BY:  
AJB  
DESIGNED BY:  
AJB  
APPROVED BY:  
AJB  
DATE:  
12-14-16

SCALE: 1" = 30'  
30 15 0 15 30 45  
NFE JOB NO. sheet no.  
J401 IR-1

PIPE SIZE CHART

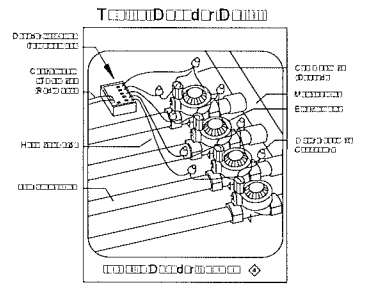
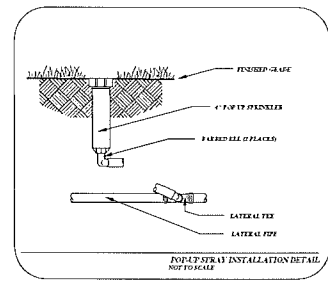
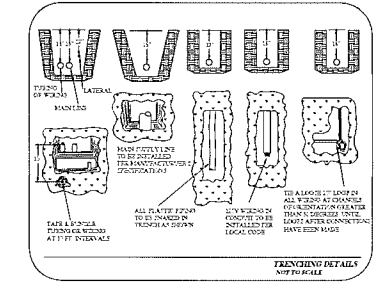
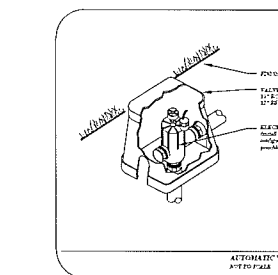
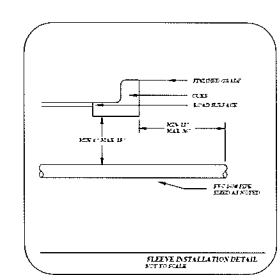
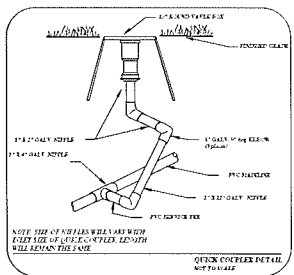
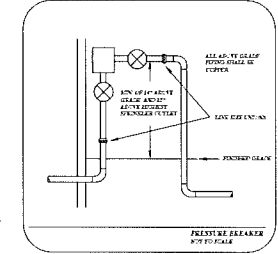
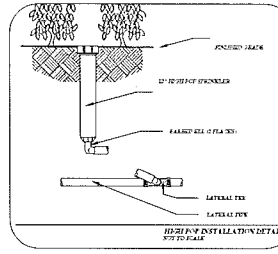
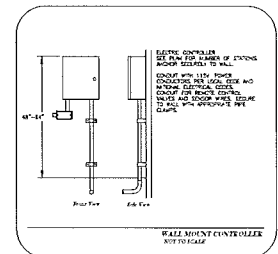
0-12 GPM = 1" DIAMETER POLYETHYLENE PIPE
12-24 GPM = 1 1/2" DIAMETER POLYETHYLENE PIPE
24-30 GPM = 1 1/2" DIAMETER POLYETHYLENE PIPE
30-60 GPM = 2" DIAMETER POLYETHYLENE PIPE



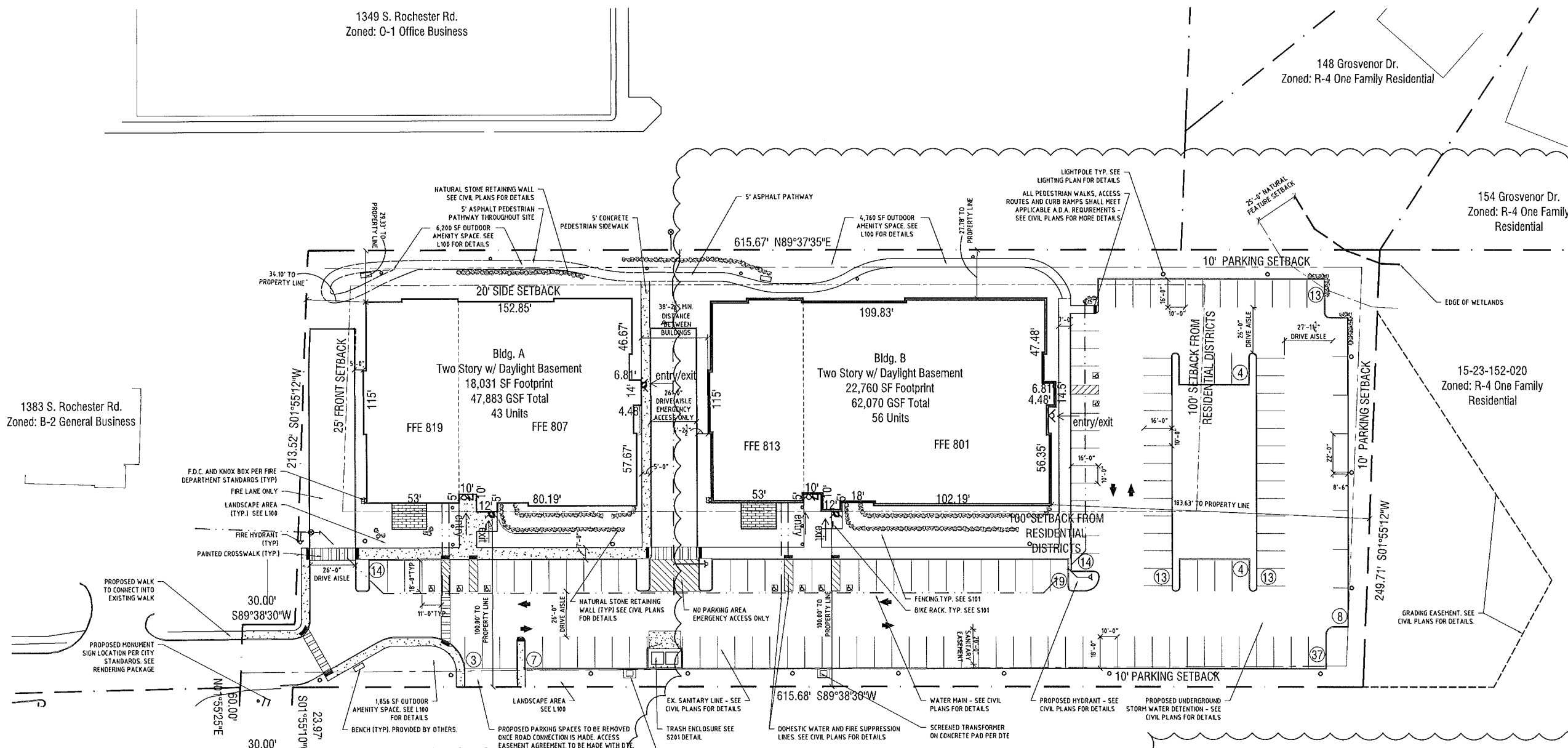
IRRIGATION LEGEND:

Hunter	FIXED SPRAY POP-UP (12") #10 Series #12 Series #15 Series # Strip Series	PROS-12-CV
	▲ FIXED SPRAY POP-UP (4") w/ 2" radius nozzle	PROS-04-CV
	▲ FIXED SPRAY POP-UP (4") w/ MPR nozzle	PROS04-PR504-CV
	○ MP1000 ● MP2000 ○ MP3000 ● MP5530/MPL(RC)15	
⊕	ELECTRIC VALVE W DECODER	ICV-Series
⊙	QUICK COUPLER VALVE	QVC-100
⊠	ELECTRIC CONTROLLER	ICORE-m-DUAL
⊣	PRESSURE VACUUM BREAKER	FEBCO 785P100
⊥	ISOLATION GATE VALVE (LINE SIZE)	
⊗	RAIN SENSOR DEVICE	SOLAR SYNC (wireless)
⊕	POINT OF CONNECTION TO WATER SOURCE	See note this sheet
—	PVC MAINLINE, SDR 26, BE, Size as shown	
—	POLYETHYLENE PIPE, 100#, NSF APPROVED, Size as shown	
—	PVC SLEEVES - SDR 26 - Size as shown	
—	WATER REQUIREMENTS: 27 GPM @ 55 PSI	
	Valve Size	Valve Designation: Controller and Station Number Gallons Per Minute

- NOTES:
- Refer to the specifications for installation details and descriptions, as well as, construction methods which will be accepted.
  - All work shall be in compliance with all local, state, and federal codes and ordinances.
  - All electrical connections shall be made using 3m DBY-6 splice lites.
  - All control wiring downstream of the controller shall be HUNTER ID-WIRE paired communication cable - red approved for direct bury.
  - All clamps shall be stainless steel worm gear type clamps. Pipes 1-1/2" or larger shall be double clamped.
  - Pipe routing is schematic. All heads are to be field adjusted to within 2' to take into consideration any obstruction. Final head placements are subject to the landscape architects approval.
  - All sprinkler heads shall be mounted on 2" elbow poly swing joints as specified.
  - Contractor to verify final controller location with owner's authorized representative prior to installation.
  - All pipe not sized downstream of control valve is 1".
  - All sleeves shall be PVC 160g (see specifications).
  - Irrigation contractor's point of connection to water source shall be as noted on this sheet.
  - Locate and connect to indicated water source. All pipe installed above grade shall be copper type "M".
  - 120v power to the controller locations should be provided others. Coordinate with owner's representative. Hardwire controller directly to nearest circuit panel. Place all wires in conduit per code.
  - Design pressure does not take into account seasonal supply fluctuations. Periods of drought may cause temporary pressure losses to the city water supply resulting in inadequate irrigation system performance. Irrigation design is based on normal weather conditions and typical municipal water supply abilities.
  - Irrigation contractor shall be responsible for determining and maintaining the irrigation schedule during the project construction and throughout the length of the warranty period.
  - The irrigation schedule shall deliver 1" of precipitation per week +/- natural rainfall quantities for 147 95ss.
  - Landscape material shall receive adjusted amounts of precipitation to maintain proper plant health.
  - Landscape and turf grass shall be irrigated separately.
  - Rotors and spray zones may not be combined to operate at the same time.
  - When specified, follow manufacturer's product recommendations concerning proper installation of water flow sensors. Allow proper straight pipe distances before and after flow sensors.



4843 Kitterly NW  
Comstock Park, Michigan 49321  
Tel. (248) 789-0330  
email: abornes@liquidassets.org  
www.liquidassets.org



**PARKING SUMMARY**

Regulation	Required	Provided
Parking	1.5 Spaces per unit 99 units x 1.5 = 149 Spaces Required	149 Parking Spots including (9) Handicap Accessible

**NOTES**

Mechanical units to be roof top mounted and screened

Lighting and photometric information provided on lighting plans

All signs to meet Section 138-8.603 and Chapter 134 of City Code of Ordinances and be approved by Building Department

F.D.C and Knox Box per Rochester Hills Fire Department standards

**BUILDING INFORMATION**

Building	Building A	Building B
Building Size	18,031 SF Footprint (47,883 GSF)	22,760 SF Footprint (62,070 GSF)
Studio Units	8 Units	8 Units
One Bedroom Units	7 Units	9 Units
Two Bedroom Units	19 Units	33 Units
Three Bedroom Units	9 Units	6 Units
Total Unit Counts	43 Total Units	56 Total Units
Total Units on Site	99 Total Units	

**ZONING SCHEDULE OF REGULATIONS**

Regulation	Required for R-4	Provided
Setbacks	Front: 25' Sides: 10' each/20' total Rear: 35' 100' from Residential	Front: 34.10' Sides: 100'/27.78'/29.33' Rear: 223.59'
Building Height	Maximum: 2 stories/30'	27.92' (2 Stories w/ walkout basement)
Coverage	Maximum: 30%	40,807 SF Total Footprint: 26.27%
Density	No max. w/FB overlay	27.75 Units per Acre

**SITE DATA**

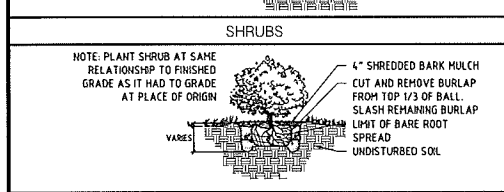
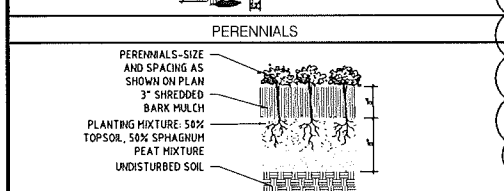
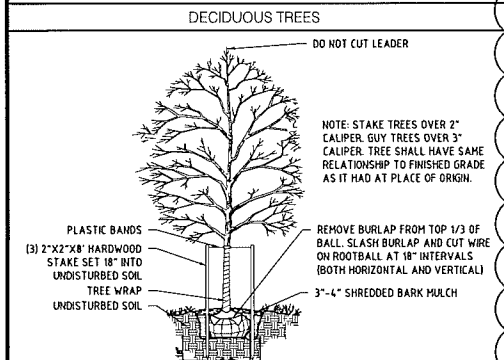
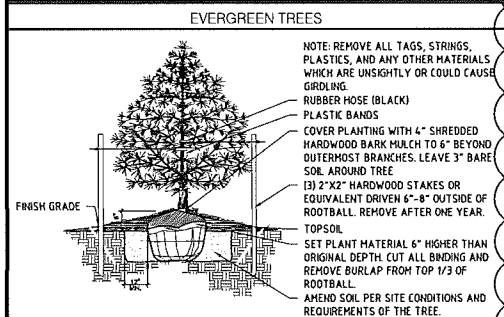
Regulation	Information
Parcel I.D.	# 15-23-152-022
Address	1401 & 1413 S. Rochester Road
Zoning	R-4 Single Family Residential with FB-2 Overlay
Parcel Area	(155,364 Sq.Ft.) 3.567 Acres

**Cedar Valley Building B**  
1413 S. Rochester Rd  
Rochester Hills, MI  
PID # 15-23-152-022

Architectural Site Plan

**S100** #16-018 017137

**PLANTING DETAILS**

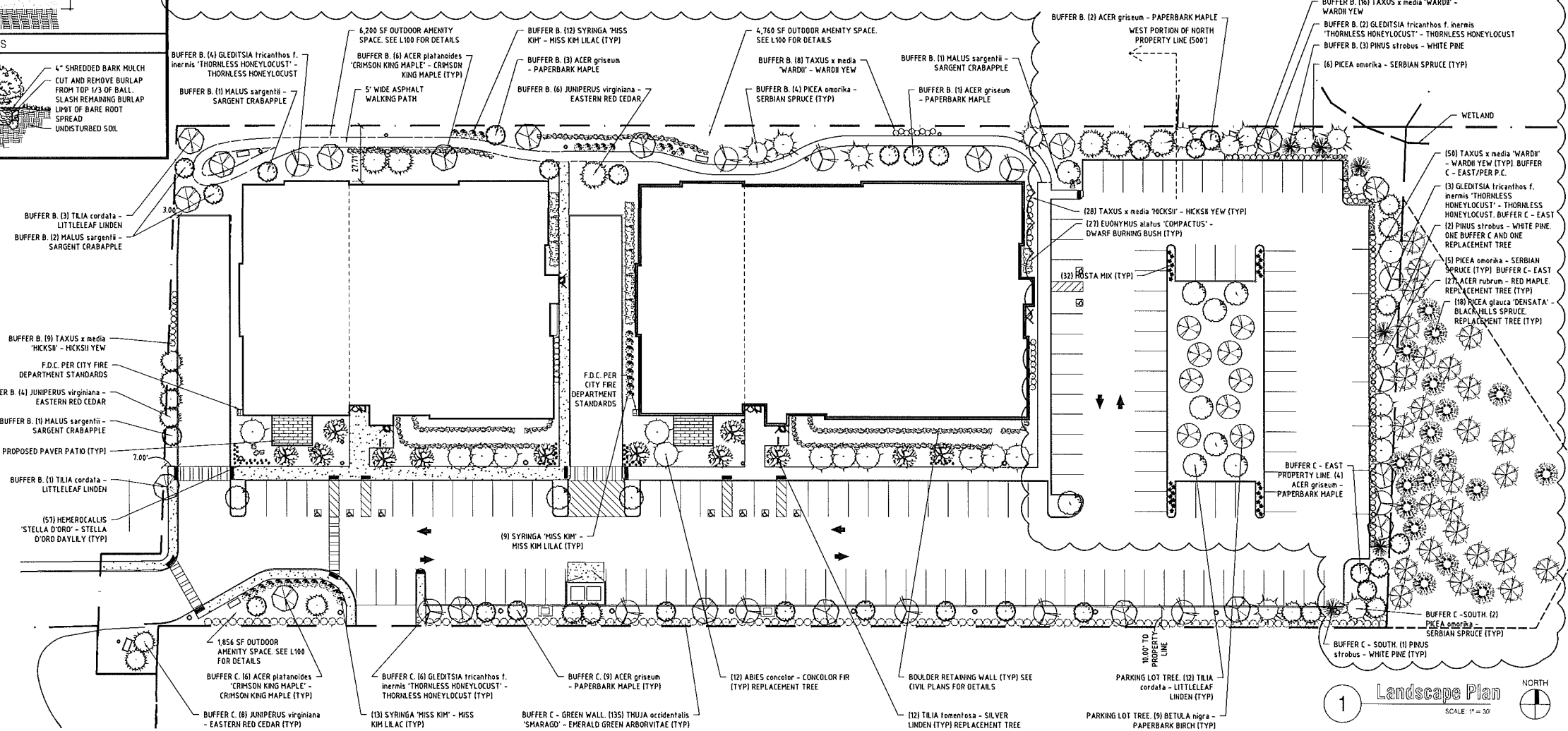


**PLANT SCHEDULE**

#	BOTANICAL NAME / COMMON NAME	SIZE/ROOT	REQUIRED PER CODE	UNIT/TOTAL COST
<b>BUFFER B - WEST (214')</b>				
4	JUNIPERUS virginiana / EASTERN RED CEDAR	10' B&B	4/4 EVERGREEN	\$350/\$1,400
3	MALUS sargentii / SARGENT CRABAPPLE	5 GAL	3/3 ORNAMENTAL	\$200/\$600
9	TAXUS x media 'HICKSII' / HICKSII YEW	30-34\" B&B	9/9 SHRUBS	\$100/\$900
4	TILIA cordata / LITTLELEAF LINDEN	3\" CAL	4/4 DECIDUOUS	\$325/\$1,300
TOTAL BUFFER B WEST PLANTS: \$4,200				
<b>BUFFER B - WEST PORTION OF NORTH PROPERTY LINE (500')</b>				
6	ACER platanoides 'CRIMSON KING MAPLE' / CRIMSON KING MAPLE	3\" CAL	6/10 DECIDUOUS	\$325/\$1,950
4	GLEDTISIA tricanthos inermis 'THORNLESS HONEYLOCUST'	3\" CAL	4/10 DECIDUOUS	\$325/\$1,300
4	ACER griseum 'PAPERBARK MAPLE' - PAPERBARK MAPLE	3\" CAL	4/8 ORNAMENTAL	\$325/\$1,300
4	MALUS sargentii / SARGENT CRABAPPLE	12 GAL	4/8 ORNAMENTAL	\$200/\$800
4	PICEA omorika/SERBIAN SPRUCE	10\" B&B	4/10 EVERGREEN	\$350/\$1,400
6	JUNIPERUS virginiana / EASTERN RED CEDAR	10\" B&B	6/10 EVERGREEN	\$350/\$2,100
8	TAXUS x media 'WARDII' / WARDII YEW	12-15\" B&B	8/20 SHRUBS	\$100/\$800
12	SYRINGA 'MISS KIM' / MISS KIM LILAC	5 GAL	12/20 SHRUBS	\$100/\$1,200
TOTAL BUFFER B WEST OF NORTH PL: \$10,850				
<b>BUFFER B - EAST PORTION OF NORTH PROPERTY LINE (116')</b>				
2	GLEDTISIA tricanthos inermis 'THORNLESS HONEYLOCUST'	3\" CAL	4/4 DECIDUOUS	\$325/\$650
2	ACER griseum 'PAPERBARK MAPLE' - PAPERBARK MAPLE	3\" CAL	2/2 ORNAMENTAL	\$325/\$650
3	PINUS strobus/WHITE PINE	10\" B&B	3/4 EVERGREEN	\$350/\$1,050
16	TAXUS x media 'WARDII' / WARDII YEW	12-15\" B&B	6/6 SHRUBS	\$100/\$1,600
6	PICEA omorika/SERBIAN SPRUCE	10\" B&B	6/6 SHRUBS	\$350/\$2,100
TOTAL BUFFER B EAST OF NORTH PL: \$6,050				
<b>BUFFER C - SOUTH PROPERTY LINE (616')</b>				
6	ACER platanoides 'CRIMSON KING MAPLE' / CRIMSON KING MAPLE	3\" CAL	6/12 DECIDUOUS	\$325/\$1,950
6	GLEDTISIA tricanthos inermis 'THORNLESS HONEYLOCUST'	3\" CAL	6/12 DECIDUOUS	\$325/\$1,950
9	ACER griseum 'PAPERBARK MAPLE' - PAPERBARK MAPLE	3\" CAL	9/9 ORNAMENTAL	\$325/\$2,925
2	PICEA omorika/SERBIAN SPRUCE	10\" B&B	2/2 EVERGREEN	\$350/\$700
8	JUNIPERUS virginiana / EASTERN RED CEDAR	10\" B&B	8/8 SHRUBS	\$350/\$2,800
1	PINUS strobus/WHITE PINE	10\" B&B	1/1 EVERGREEN	\$350/\$350
135	THUJA occidentalis 'SMARAGD' - EMERALD GREEN ARBORVITAE	8\" B&B	GREEN WALL	\$300/\$40,500
13	SYRINGA 'MISS KIM' / MISS KIM LILAC	5 GAL	5 GAL	\$100/\$1,300
TOTAL BUFFER C SOUTH PROPERTY LINE: \$51,775				

**PLANT SCHEDULE (CONT)**

#	BOTANICAL NAME / COMMON NAME	SIZE/ROOT	REQUIRED PER CODE	UNIT/TOTAL COST
<b>REPLACEMENT TREES</b>				
12	TILIA tomentosa/SILVER LINDEN	3\" CAL	223 REQUIRED TO BE REPLACED	(\$205.50/\$45,827)
15	ABIES concolor/WHITE FIR	10\" B&B	101 REPLACEMENT TREES ON SITE	\$205.50/\$20,756
1	PINUS strobus/WHITE PINE	10\" B&B	DEFICIENT REPLACEMENTS: 11	(\$205.50/\$2,261)
27	ACER rubrum/RED MAPLE	3\" CAL		
16	PICEA glauca 'DENSATA'/BLACK HILLS SPRUCE	10\" B&B		
TOTAL REPLACEMENT TREES ON SITE: \$20,756				
REPLACEMENT TREE NOTE: 10\" EVERGREENS AND 3\" CAL. DECIDUOUS MAY BE COUNTED AS TWO REPLACEMENT TREES EACH. 11 DEFICIENT TREES TO BE PAID INTO TREE FUND.				
<b>PARKING LOT TREES</b>				
12	TILIA cordata/ LITTLELEAF LINDEN	3\" CAL		\$325/\$3,900
9	BETULA nigra / PAPERBARK BIRCH	3\" CAL		\$325/\$2,925
5% OF PARKING LOT = 1 DECIDUOUS PER 150 SF				
5% = 3.27 SF/150 = 21 TREES REQUIRED AND PROVIDED				
TOTAL PARKING LOT TREES: \$6,825				
<b>ADDITIONAL PLANTS ON SITE</b>				
57	HEMEROCALLIS 'STELLA D'ORO' / STELLA D'ORO DAYLILY	1 GAL		\$50/\$2,850
9	SYRINGA 'MISS KIM' / MISS KIM LILAC	5 GAL		\$100/\$900
28	TAXUS x media 'WARDII' / WARDII YEW	12-15\" B&B		\$100/\$2,800
27	EUONYMUS alatus 'COMPACTUS' / DWARF BURNING BUSH	12-15\" B&B		\$100/\$2,700
32	HOSTA VARIETY MIX	1-3 GAL		\$50/\$1,600
TOTAL ADDITIONAL PLANTS: \$10,850				
<b>BUFFER C - EAST PROPERTY LINE (250')</b>				
4	PICEA omorika/SERBIAN SPRUCE	10\" B&B	4/10 EVERGREEN	\$350/\$1,400
3	GLEDTISIA tricanthos inermis 'THORNLESS HONEYLOCUST'	3\" CAL	3/5 DECIDUOUS	\$325/\$975
1	PINUS strobus/WHITE PINE	10\" B&B	1/10 EVERGREEN	\$350/\$350
2	ACER platanoides 'CRIMSON KING MAPLE' / CRIMSON KING MAPLE	3\" CAL	2/5 DECIDUOUS	\$325/\$650
5	ABIES concolor/WHITE FIR	10\" B&B	5/10 EVERGREEN	\$350/\$1,750
4	ACER griseum 'PAPERBARK MAPLE' - PAPERBARK MAPLE	3\" CAL	4/4 ORNAMENTAL	\$325/\$1,300
55	TAXUS x media 'WARDII' / WARDII YEW	12-15\" B&B	55/15 SHRUBS	\$100/\$5,500
TOTAL BUFFER C - EAST PROPERTY LINE: \$11,925				
<b>BUFFER REQUIREMENTS:</b>				
BUFFER B: 10' WIDTH + 2 DECIDUOUS + 1.5 ORNAMENTAL + 2 EVERGREEN + 4 SHRUBS PER 100'				
BUFFER C: 8' GREEN WALL + 2 DECIDUOUS + 1.5 ORNAMENTAL PER 100' OR 20' + 2 DECIDUOUS + 1.5 ORNAMENTAL + 4 EVERGREEN + 6 SHRUBS PER 100'				
STORMWATER: 6' WIDTH + 1.5 DECIDUOUS + 1 EVERGREEN + 4 SHRUBS PER 100'				
OUTDOOR AMENITY SPACE REQUIRED: 2% OF GROSS LAND AREA = 3,071 SF. PROVIDED OUTDOOR AMENITY SPACE: 12,816 SF				
ANY TEMPORARY IMPACTS TO BE RESTORED TO ORIGINAL GRADE WITH ORIGINAL SOILS AND SEEDED WITH A CITY APPROVED SEED MIX, WHERE POSSIBLE, PRIOR TO FINAL APPROVAL BY STAFF.				



**DESIGNHAUS** EST 1998  
ARCHITECTURE

301 WALNUT BOULEVARD  
ROCHESTER, MI 48307

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INFO@DESIGNHAUS.COM

No.	Revision/Issue	Date
	Amendment to Approved Site Plan	8.23.17

**Cedar Valley Building B**  
1413 S. Rochester Rd  
Rochester Hills, MI

Landscape Plan

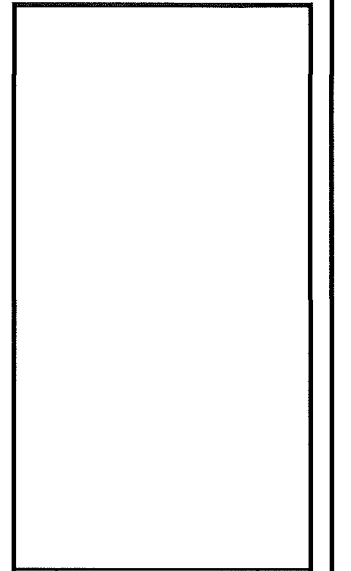
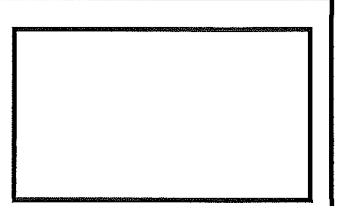
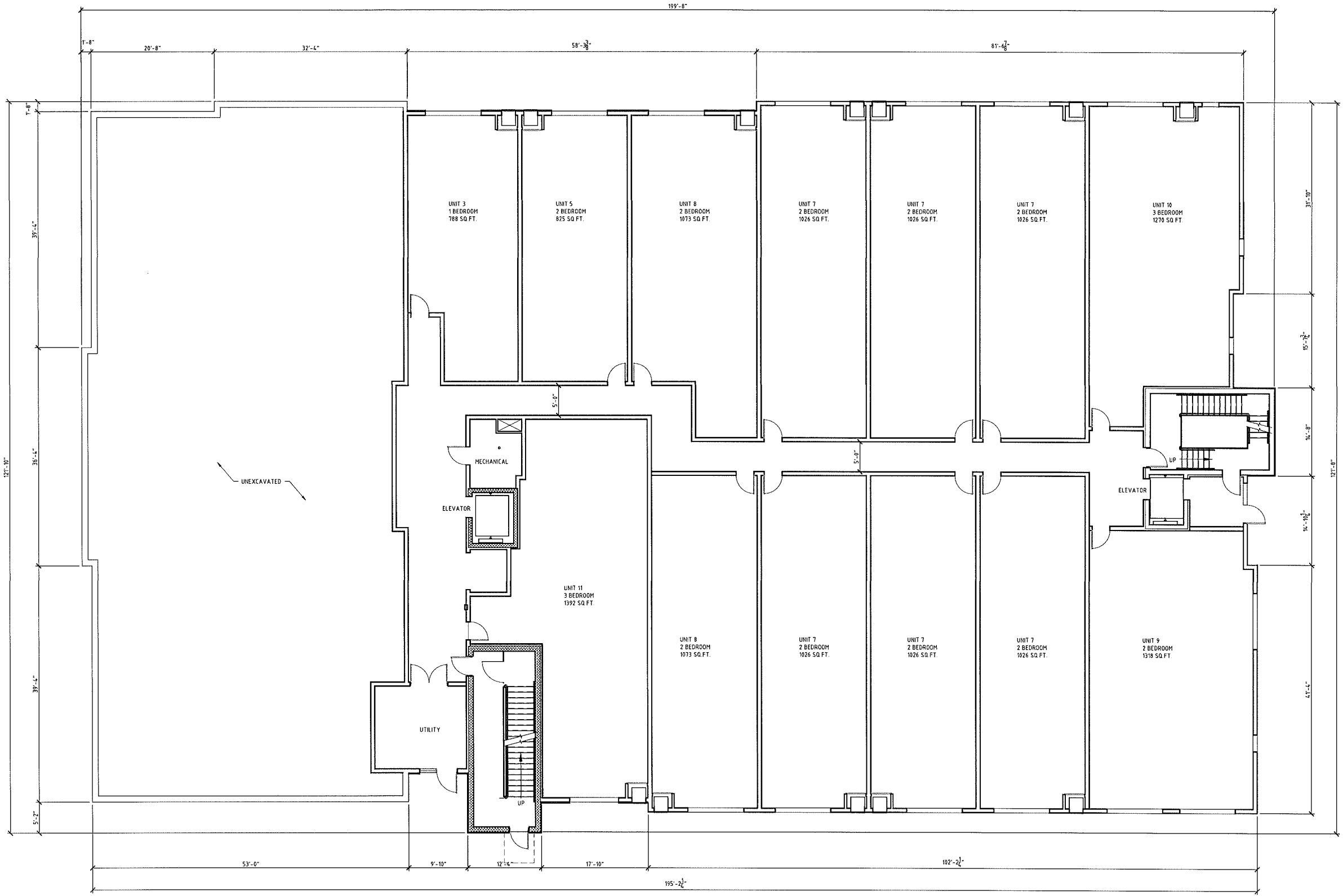
**L100**  
#16-018  
071737

L100 Landscape Plan.dwg

8/23/2017

Francisco

1 Landscape Plan SCALE: 1" = 30'



No.	Revision/Issue	Date
	Amendment to Approved Site Plan	8/23/17

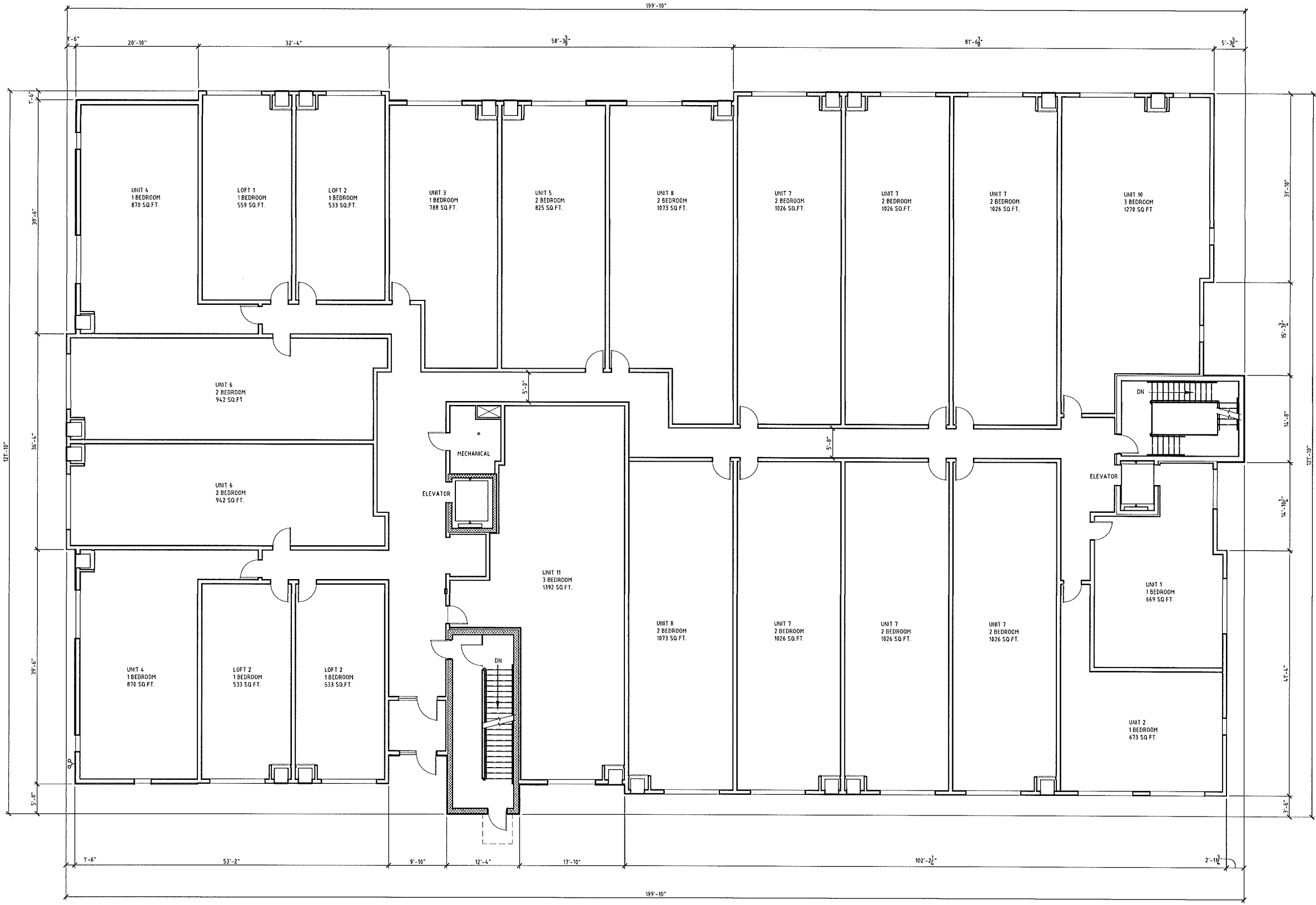
**Cedar Valley Building B**  
1413 S. Rochester Rd  
Rochester Hills, MI

Garden Level Floor Plan

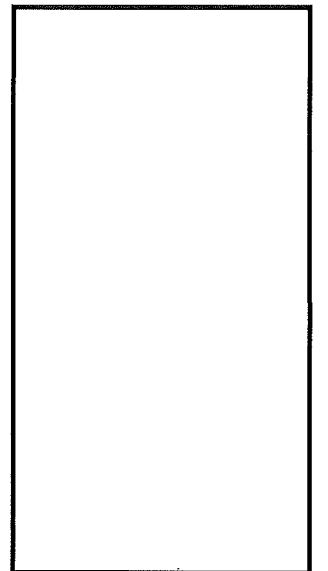
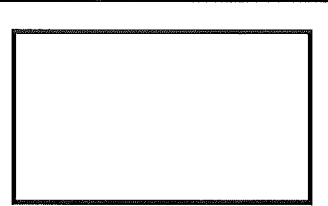
**A100** #16-018 017137







**1** Second Story Floor Plan  
 SCALE 1/8" = 1'



No.	Revision/Issue	Date
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	Amendment to Approved Site Plan	8/23/17

**Cedar Valley Building B**  
 1413 S. Rochester Rd  
 Rochester Hills, MI

**Second Story Floor Plan**

**A102** #16-018 01/13/17

A102 Third Story Floor Plan.dwg

8/23/2017

DHWS-60

Code	MFG/Contact	Specifications	REMARKS
P-1	MFG: Atlas Contact: Kevin Bush Number: 1-734-249-0869 Web: atlas.com	Type: Vertical Metal Panel Series: Metafor Color: Dove Grey	Charcoal Grey Trim
P-2	MFG: Allura Contact: Corporate Number: 1-844-425-5872 Web: allurausa.com	Type: Fiber Cement Board Color: Cedar	
S-1	MFG: Boral Contact: Corporate Number: 1-800-255-1727 Web: boralmedica.com	Type: Cultured Stone Color: Dressed Field Stone, Aspen	
P-1	MFG: Benjamin Moore Contact: Corporate Number: 1-855-724-6802 Web: benjaminmoore.com	Type: Paint Color: Graphite	Exterior Areas

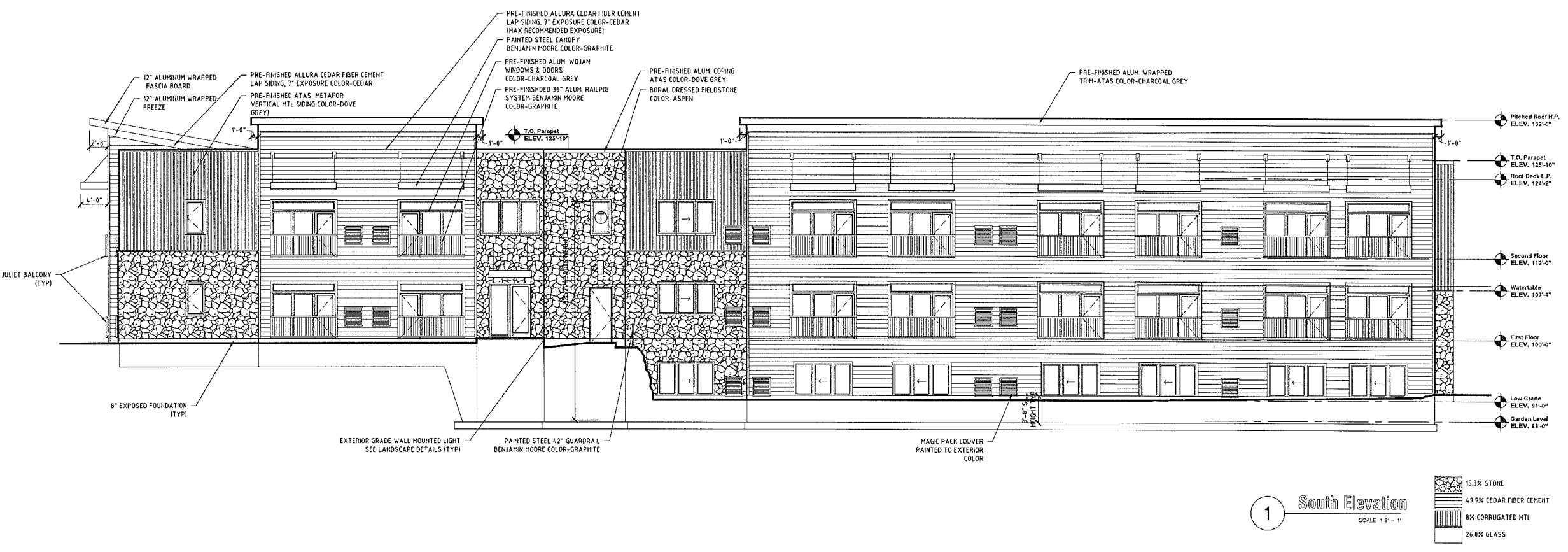
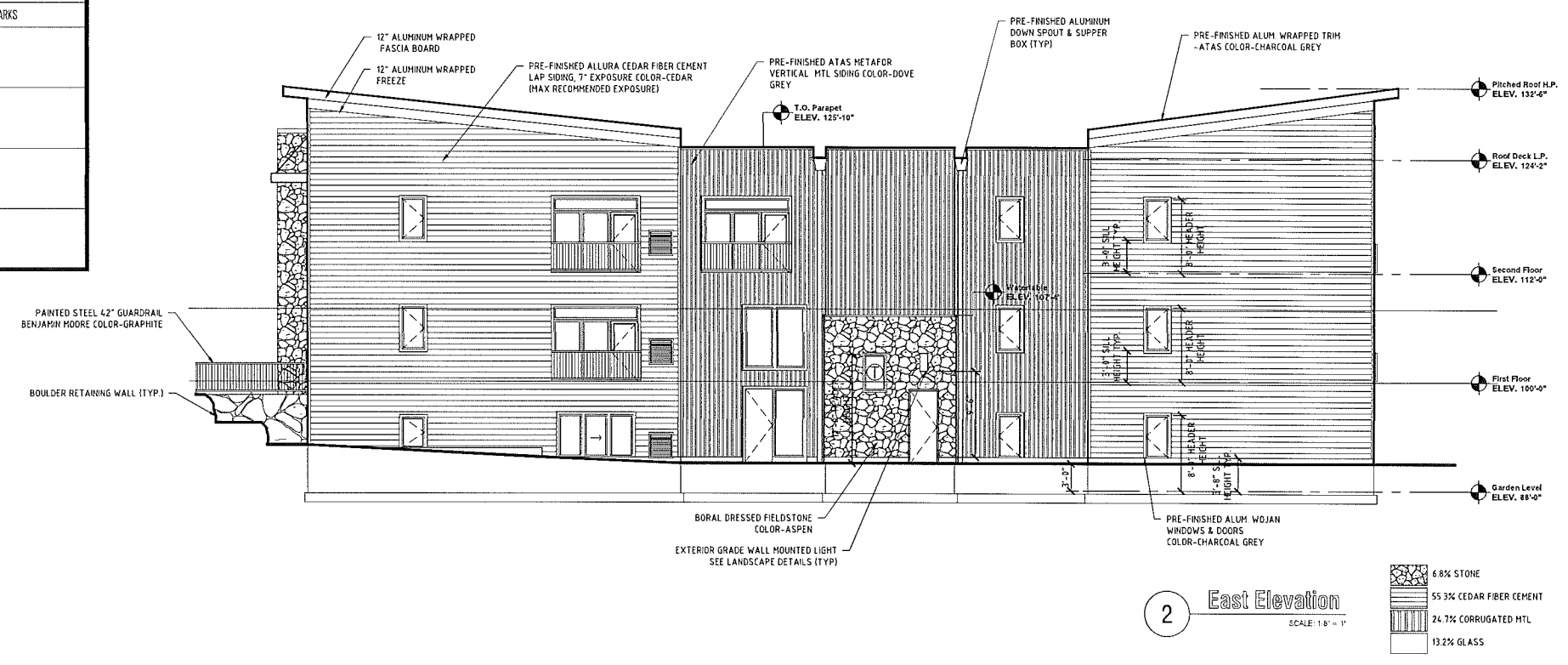
**Building Materials**

- BORAL DRESSED FIELDSTONE COLOR-ASPEN
- ALLURA FIBER CEMENT BOARD COLOR-CEDAR
- ATAS METAFOR VERTICAL MTL SIDING COLOR-CHARCOAL GREY
- ATAS ALUMINUM TRIM COLOR-CHARCOAL GREY
- TEMPERED GLASS

NOTE: ALL PATIO DOORS AND ALUMINUM ENTRY DOORS TO BE TEMPERED

**Building Materials %'s (Total)**

- 16.6% STONE
- 45.7% CEDAR FIBER CEMENT
- 16.2% CORRUGATED MTL
- 21.5% GLASS








No.	Revision/Issue	Date
	Amendment to Approved Site Plan	8/23/17
<b>Cedar Valley Building B</b> 1413 S. Rochester Rd Rochester Hills, MI		
<b>Elevations</b>		
<b>A200</b>	#16-018	01/13/17





A200 Elevations.dwg

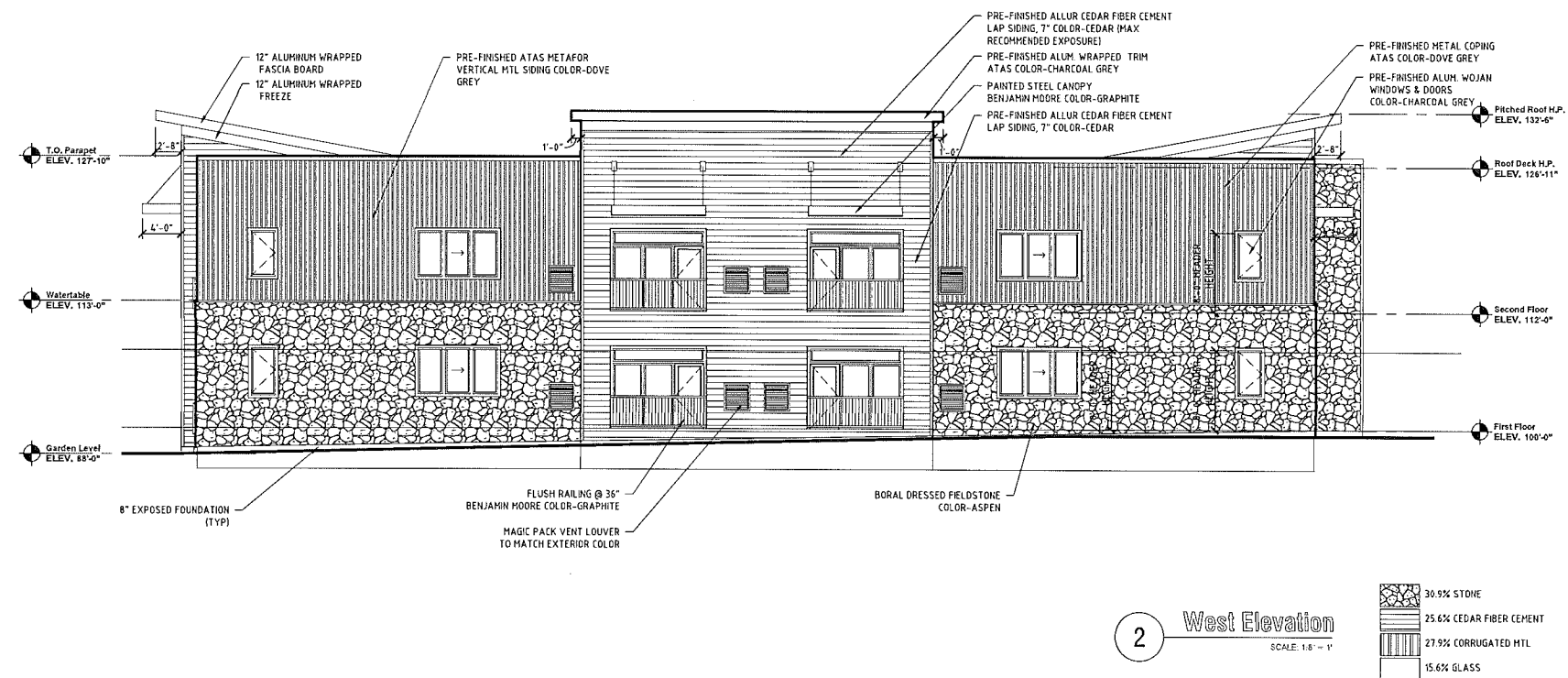
8/23/2017

Intern - D

Code	MFG/Contact	Specifications	REMARKS
P-1	MGF: Contact: Number: Web: Atlas Kevin Bush 1-734-249-0869 atlas.com	Type: Vertical Metal Panel Series: Color: Metafor Dove Grey	Charcoal Grey Trim
P-2	MGF: Contact: Number: Web: Albura Corporate 1-844-425-5872 alburacom.com	Type: Fiber Cement Board Color: Cedar	
S-1	MGF: Contact: Number: Web: Boral Corporate 1-800-255-1727 boralamerica.com	Type: Cultured Stone Color: Dressed Field Stone, Aspen	
P-1	MGF: Contact: Number: Web: Benjamin Moore Corporate 1-855-724-6802 benjaminmoore.com	Type: Paint Color: Graphite	Exterior Areas

Building Materials	
	BORAL DRESSED FIELDSTONE COLOR-ASPEN
	ALLUR FIBER CEMENT BOARD COLOR-CEDAR
	ATAS METAFOR VERTICAL MTL SIDING COLOR-CHARCOAL GREY
	ATAS ALUMINUM TRIM COLOR-CHARCOAL GREY
	TEMPERED GLASS
NOTE: ALL PATIO DOORS AND ALUMINUM ENTRY DOORS TO BE TEMPERED	

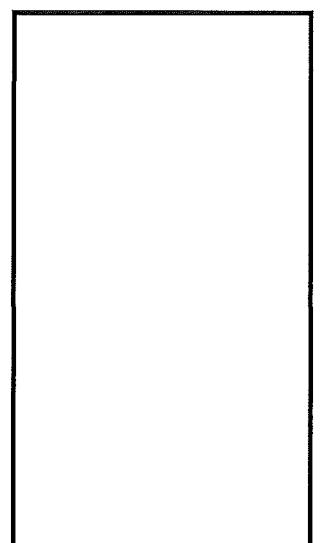
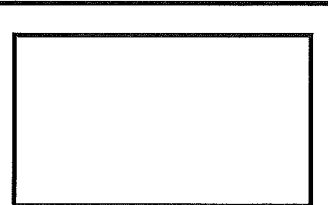
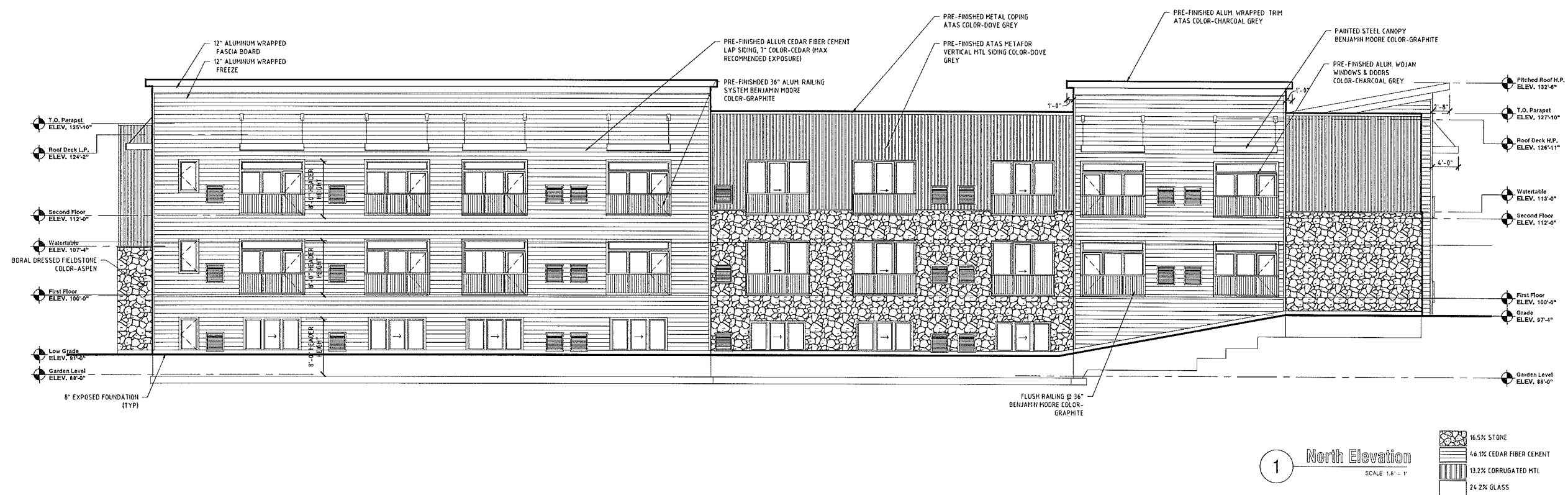
Building Materials %s (Total)	
	16.6% STONE
	45.7% CEDAR FIBER CEMENT
	16.2% CORRUGATED MTL
	21.5% GLASS



A201 Elevations.dwg

8/23/2017

Intern - D



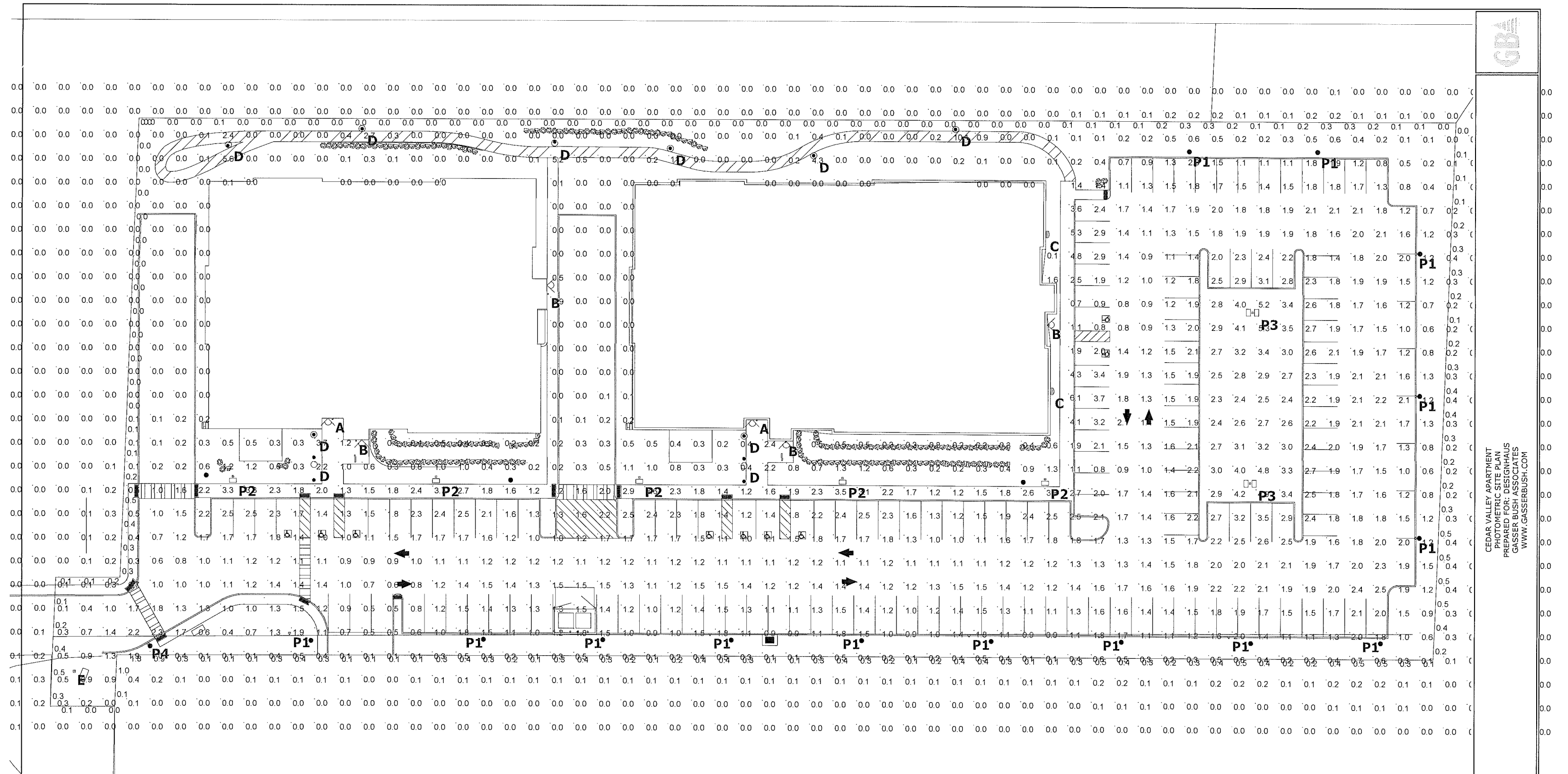
No.	Revision/Issue	Date

**Cedar Valley Building B**  
1413 S. Rochester Rd  
Rochester Hills, MI

Elevations

<b>A201</b>	#16-018	07/13/17
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CEDAR VALLEY APARTMENT  
 PHOTOMETRIC SITE PLAN  
 PREPARED FOR: DESIGNHAUS  
 GASSER BUSH ASSOCIATES  
 WWW.GASSERBUSH.COM

**GENERAL NOTE**  
 1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.  
 2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.  
 3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: GRADE.

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

Plan View  
 Scale: 1" = 20'



Statistics							
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
OVERALL SITE	+	0.6 fc	11.4 fc	0.0 fc	N/A	N/A	0.1:1
PARKING AREA	X	1.7 fc	6.1 fc	0.1 fc	61.0:1	17.0:1	0.3:1
PROPERTY LINE	+	0.2 fc	1.8 fc	0.0 fc	N/A	N/A	0.1:1

Luminaire Schedule												
Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens per Lamp	LLF	Wattage	New Column
⌘	A	2	VISA LIGHTING	CV1903 L40K-L	DIAG. WALL MOUNT RECTANGULAR 24" VERTICAL 4000K, 1100 lumens	LED	1	CV1903-L35K-L.ies	1147	0.9	12.3	7'-0"
○	B	4	Lithonia Lighting	LDN6-40/10 LOEAR L55	6IN LDN, 4000K, 1000LM, 80CRI, CLEAR, SEMI-SPECULAR REFLECTOR	LED	1	LDN6-40_10_LOEAR_L55.ies	1654	0.9	12.75	10'-0"
⌘	C	2	Lithonia Lighting	DSXW1 LED 20C 1000 40K TFFH HVOLT	DSXW1 LED WITH (2) 10 LED LIGHT FIGURES, TYPE TFFH OPTIC, 4000K, @ 1000lm.	LED	1	DSXW1_LED_20C_1000_40K_TFFH_HVOLT.ies	7711	0.9	73.2	10'-0"
○	D	10	BEGA Lighting	99857	BEGA LED system bollard - luminaire head with unshielded light with safety guard - 180°	LED	1	99857 (1).ies	850	0.88	29	4'-0"
⌘	E	1	Lithonia Lighting	OFL1 LED P2 40K HVOLT	FLOOD WITH 4 COBs, 4000K	LED	1	OFL1_LED_P2_40K_HVOLT.ies	Absolute	0.9	49.06	grade
⌘	P1	14	Lithonia Lighting	DSX0 LED P1 40K TFFH HVOLT HS	DSX0 LED P1 40K TFFH HVOLT with houseside shield	LED	1	DSX0_LED_P1_40K_TFFH_HVOLT_HS.ies	3678	0.9	36	15'-0"
⌘	P2	5	Lithonia Lighting	DSX0 LED P3 40K T3H HVOLT	DSX0 LED P3 40K T3H HVOLT	LED	1	DSX0_LED_P3_40K_T3H_HVOLT.ies	8205	0.9	71	15'-0"
⌘	P3	2	Lithonia Lighting	DSX0 LED P5 40K T5W HVOLT	DSX0 LED P5 40K T5W HVOLT	LED	1	DSX0_LED_P5_40K_T5W_HVOLT.ies	12047	0.9	178	15'-0"
⌘	P4	1	Lithonia Lighting	DSX0 LED P2 40K T2H HVOLT HS	DSX0 LED P2 40K T2H HVOLT with houseside shield	LED	1	DSX0_LED_P2_40K_T2H_HVOLT_HS.ies	4912	0.9	49	15'-0"

Designer  
 LH/AAM  
 Date  
 1/20/2017  
 rev: 9/13/2017  
 Scale  
 Not to Scale  
 Drawing No.  
 #17-67226-V3  
 1 of 1