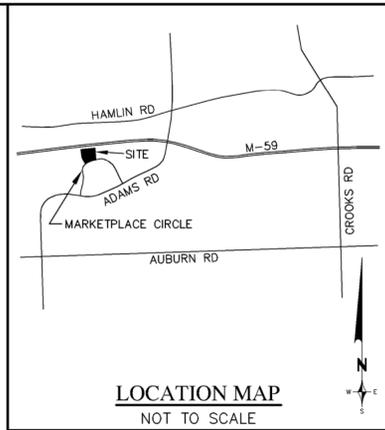


# PRELIMINARY SITE PLAN FOR WOODSPRING SUITES

## ROCHESTER HILLS, MICHIGAN



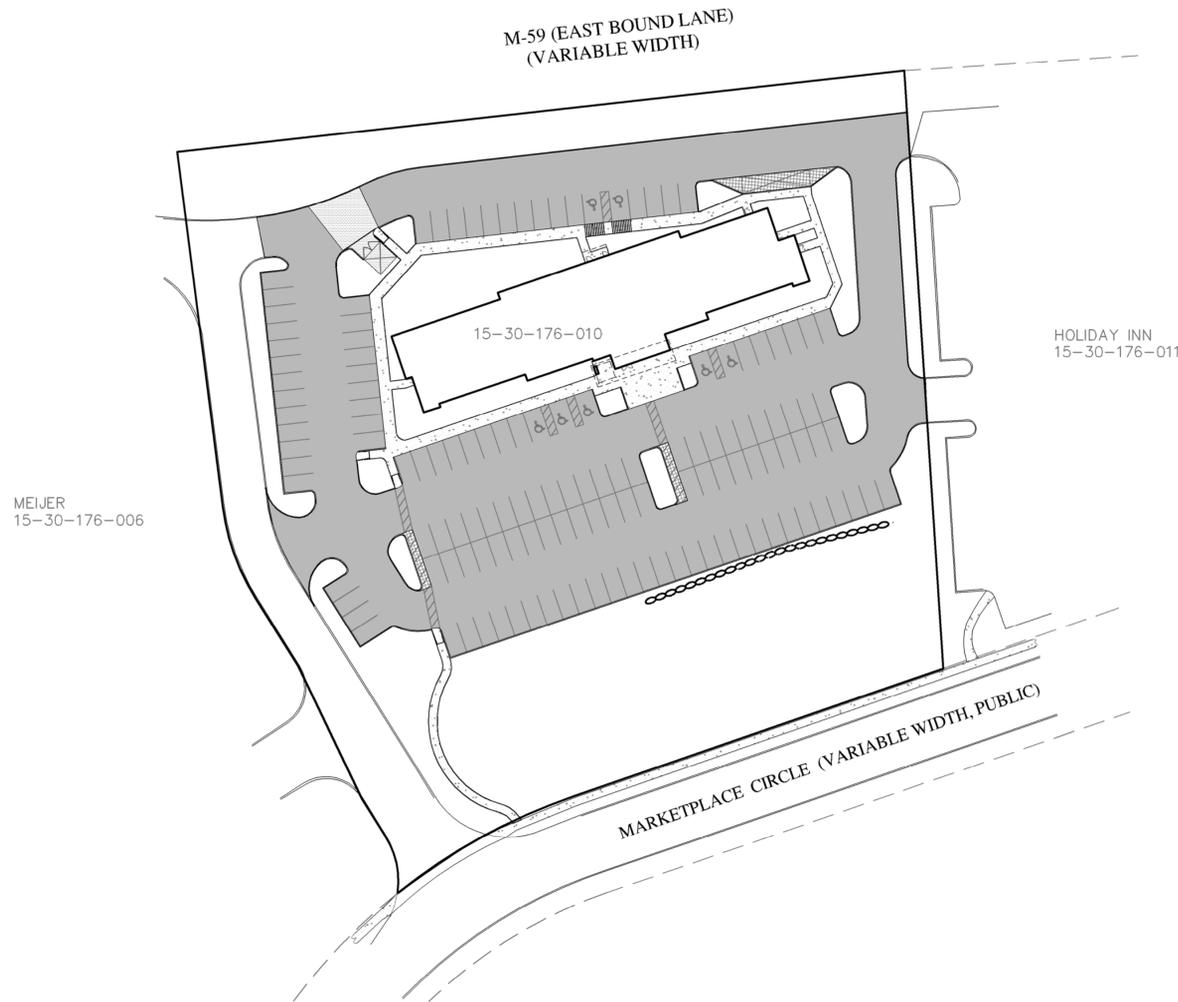
DEVELOPER/APPLICANT:  
WOODSPRINGS DETROIT MI ROCHESTER HILLS LLC  
8621 EAST 21ST STREET NORTH, STE. 250  
WITCHITA, KS 67206  
(734) 564-6723  
CONTACT: JACK KNOWLES

CIVIL ENGINEER/LAND SURVEYOR:  
ZEIMET-WOZNIAK & ASSOCIATES, INC.  
55800 GRAND RIVER, SUITE 100  
NEW HUDSON, MI 48165  
(248) 437-5099  
CONTACT: ANDY WOZNAK

ARCHITECT:  
BRR ARCHITECTURE, INC.  
6700 ANTIOCH PLAZA, SUITE 300  
MERRIAM, KS 66204  
(913) 262-9095  
CONTACT: BRIAN NELSON

LANDSCAPE ARCHITECT:  
KEN WEIKAL LANDSCAPE ARCHITECTURE  
33203 BIDDESTONE LANE  
FARMINGTON HILLS, MI 48334  
(248) 477-3600  
CONTACT: KEN WEIKAL, RLA, ASLA

OWNER:  
MARKETPLACE OF ROCHESTER HILLS PARCEL H LLC  
28470 WEST 13 MILE ROAD, SUITE 220  
FARMINGTON HILLS, MI 48334  
(248) 855-5500  
CONTACT: WILLIAM EISENBERG



**SITE DATA**

PARCEL AREA: 3.64 ACRES  
EXISTING ZONING: CONSENT JUDGEMENT  
JURISDICTION: CITY OF ROCHESTER HILLS, MI  
SITE ADDRESS: BETWEEN 3544 AND 3610 MARKETPLACE CIRCLE  
EXISTING USE: VACANT  
PROPOSED USE: 123 UNIT WOODSPRING SUITES HOTEL

**BUILDING DATA:**

BUILDING AREA: 12,087 S.F.  
TOTAL GROSS BUILDING AREA: 48,104 S.F.  
CONSTRUCTION TYPE: V-A  
BUILDING HEIGHT:  
MAXIMUM BY CODE: 4 STORIES  
PROPOSED HEIGHT: 4 STORIES

BUILDING SETBACKS: **REQUIRED (FT.)** **PROPOSED (FT.)**  
FRONT 30 241.5  
SIDE 10 63.7, 111.5  
REAR 50 71.1

10 FOOT PARKING SETBACK AROUND PERIMETER OF ENTIRE SITE

**PARKING DATA:**

NUMBER OF UNITS: 123 UNITS  
REQUIRED PARKING: 1.1 SPACES/GUEST ROOM x 123 UNITS = 135.3 SPACES  
GUEST PARKING: 130 STANDARD SPACES  
7 BARRIER FREE SPACES  
TOTAL PARKING: 137 SPACES  
PARKING RATIO PROVIDED: 1.1 SPACES/GUEST ROOM

PARKING SHALL BE 90° SPACES AS SHOWN

DIMENSIONS: WIDTH = 10' (11' BARRIER FREE W/5' AISLE)  
DEPTH = 18'  
DRIVES = 24' (26' FIRE LANES)

**GENERAL SITE PLAN NOTES:**

- ALL EXTERIOR LIGHTING SHALL BE SHIELDED AND DIRECTED AWAY FROM ADJACENT PROPERTIES.
- TRANSFORMERS SHALL BE LOCATED ON THE EAST OR NORTH SIDE OF THE BUILDING AND SHALL BE SCREENED USING LANDSCAPING. THE SCREENING SHALL MEET ALL ORDINANCE REQUIREMENTS.
- ASPHALT SURFACING SHALL BE USED FOR ALL PARKING AREAS AND DRIVEWAYS, AND SHALL MEET ALL ORDINANCE REQUIREMENTS.
- ALL BUILDING AND SITE SIGNAGE SHALL BE SUBMITTED FOR REVIEW AT A LATER DATE AND WILL BE IN CONFORMANCE WITH THE CITY OF ROCHESTER HILLS REQUIREMENTS AND A SEPARATE SIGN PERMIT WILL BE OBTAINED FROM THE BUILDING DEPARTMENT.
- BARRIER FREE RAMPS WILL BE PROVIDED AT ALL SIDEWALK APPROACHES AND SHALL HAVE A MAXIMUM 1:12 SLOPE AND MUST BE CONSTRUCTED PER ADA AND MICHIGAN BARRIER FREE STANDARDS.
- TYPICAL PARKING SPACE SIZE IS 10'x18', WITH A MINIMUM 24' WIDE AISLE.
- THE SITE PLAN SHALL BE SUBJECT TO WRITTEN APPROVAL BY THE CITY'S FIRE MARSHAL.
- THE SITE PLAN SHALL BE SUBJECT TO WRITTEN APPROVAL BY THE CITY'S ENGINEER.
- DIMENSIONS FOR PARKING SPACES AND MANEUVERING LANES ARE MEASURED FROM THE FACE OF CURB.
- THERE WILL BE NO INDUSTRIAL WASTE OR PROPANE TANKS LOCATED ON-SITE.
- ACCESS TO PROPOSED CONSTRUCTION SITE SHALL BE PROVIDED AND MAINTAINED FROM MARKETPLACE CIRCLE.

**SHEET INDEX:**

SP-1 COVER SHEET  
T-1 TOPOGRAPHIC SURVEY  
SP-2 DIMENSION AND PAVING PLAN  
SP-3 GRADING AND DRAINAGE PLAN  
SP-4 UTILITY PLAN  
SP-5 SOIL BORINGS

**LANDSCAPING:**

L101 SITE PLANTING PLAN  
L102 PLANT LIST, CALCULATIONS & DETAILS  
L501 SITE IRRIGATION PLAN  
L502 IRRIGATION DETAILS & NOTES

**SITE LIGHTING:**

ES-1 PHOTOMETRIC SITE PLAN

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	11/5/15										
PER CITY REVIEW	12/1/15										

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



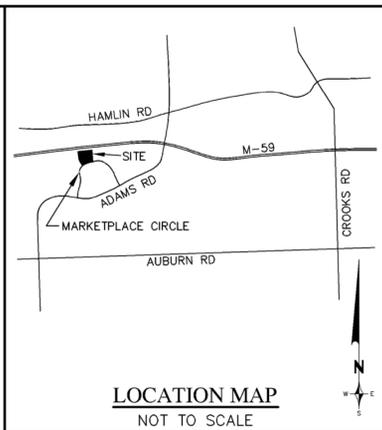
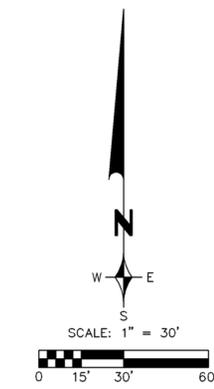
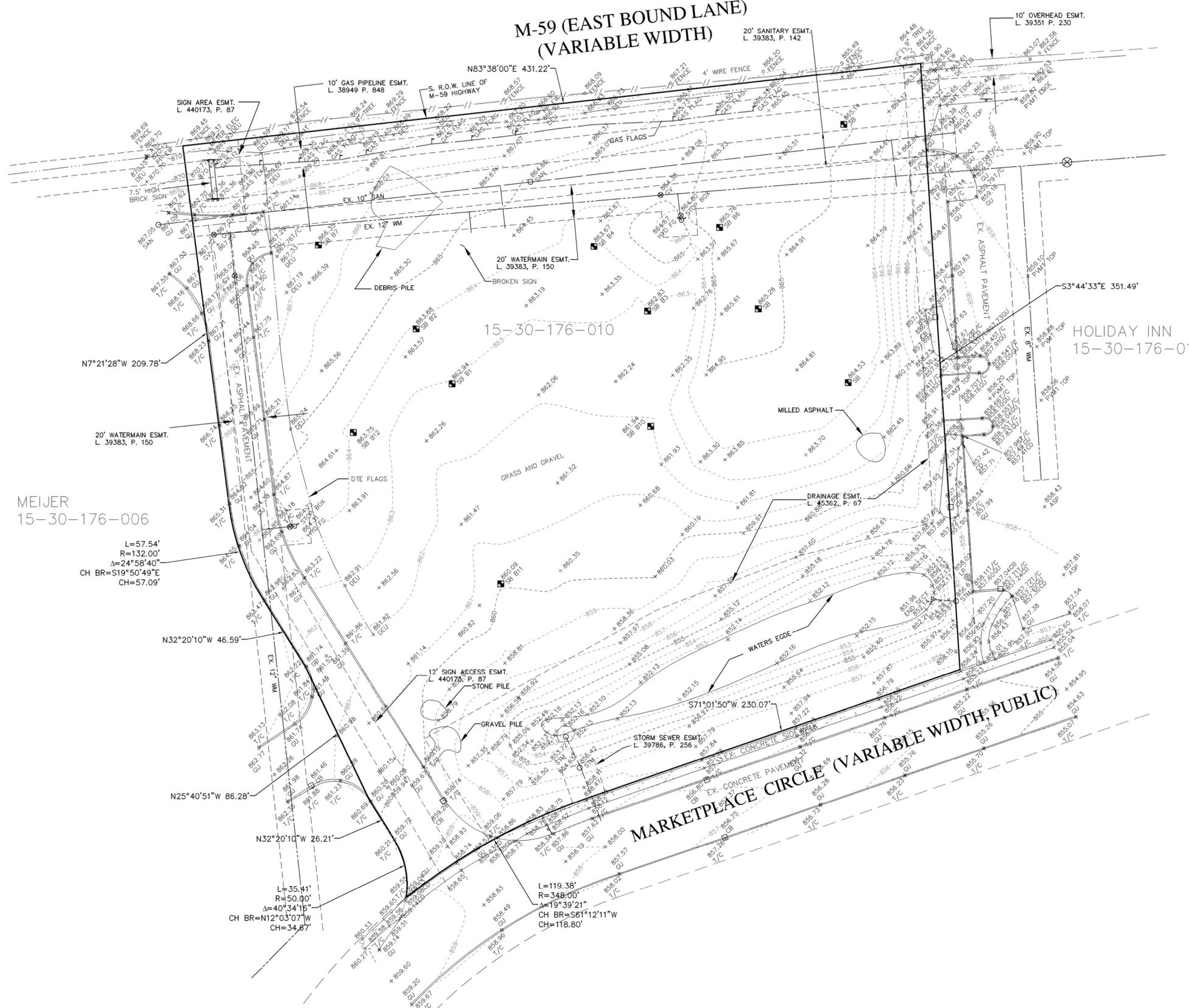
PROJECT SPONSOR:  
WOODSPRINGS DETROIT MI ROCHESTER HILLS LLC  
8621 EAST 21ST STREET NORTH, STE. 250  
WITCHITA, KS 67206 (734) 564-6723

COVER SHEET  
WOODSPRING SUITES  
ROCHESTER HILLS, MICHIGAN

NOT FOR CONSTRUCTION  
CITY FILE: 15-020 SECTION 30

DATE	11/5/15	SCALE	HOR: 1" = 50' VER: 1" = N/A
DESIGNED BY	SRB	JOB NO.	15154
DRAWN BY	SRB	SHEET	SP-1

# M-59 (EAST BOUND LANE) (VARIABLE WIDTH)



### EXISTING LEGEND

- |  |                       |  |                   |
|--|-----------------------|--|-------------------|
|  | BOUNDARY LINE         |  | MANHOLE           |
|  | PARCEL LINE           |  | CATCH BASIN       |
|  | EASEMENTS             |  | END SECTION       |
|  | FENCE LINE            |  | GATE VALVE        |
|  | ELECTRIC CABLE        |  | HYDRANT           |
|  | GAS MAIN              |  | UTILITY POLE      |
|  | SANITARY SEWER        |  | GUY ANCHOR        |
|  | STORM SEWER           |  | LIGHT POLE        |
|  | WATER MAIN            |  | SIGN              |
|  | CONTOUR MAJOR         |  | TREE              |
|  | CONTOUR MINOR         |  | T/C TOP OF CURB   |
|  | FCI, FPK              |  | GU GUTTER         |
|  | FCI FOUND CAPPED IRON |  | SPOT ELEVATION    |
|  | FPK FOUND 'PK' NAIL   |  | CONCRETE PAVEMENT |

### BENCHMARKS:

- BENCHMARK TIE IN SOUTH SIDE OF POWER POLE AT THE NORTHWEST CORNER OF GRAND TAVERN RESTAURANT ELEV. 859.74
- BENCHMARK TIE IN SOUTH SIDE OF POWER POLE LOCATED ON NORTH SIDE OF SITE ELEV. 868.38
- HYDRANT ARROW LOCATED ON EAST SIDE OF SITE ELEV. 866.95
- HYDRANT ARROW LOCATED ON WEST SIDE OF SITE ELEV. 866.78

### LEGAL DESCRIPTION

THE LAND REFERRED TO IN THIS COMMITMENT IS DESCRIBED AS FOLLOWS:  
 LAND SITUATED IN THE CITY OF ROCHESTER HILLS, COUNTY OF OAKLAND, MICHIGAN, DESCRIBED AS:  
 PART OF THE NORTHWEST QUARTER OF SECTION 30, TOWN 3 NORTH, RANGE 11 EAST, COMMENCING AT THE WEST QUARTER CORNER OF SAID SECTION 30 (AS REMONUMENTED) SAID QUARTER CORNER BEING NORTH 85 DEGREES 49 MINUTES 02 SECONDS EAST 1.93 FEET ALONG THE WESTERLY EXTENSION OF THE EAST AND WEST QUARTER LINE OF SAID SECTION 30 FROM A PROPERTY-CONTROLLING CORNER (FORMERLY DESCRIBED AS THE WEST QUARTER CORNER) OF SAID SECTION 30 AND PROCEEDING ALONG SAID EAST AND WEST QUARTER LINE NORTH 85 DEGREES 49 MINUTES 02 SECONDS EAST 1,526.63 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF MARKETPLACE CIRCLE (VARIABLE WIDTH); THENCE ALONG SAID RIGHT-OF-WAY LINE 332.65 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, RADIUS 348.00 FEET, CENTRAL ANGLE 54 DEGREES 46 MINUTES 06 SECONDS AND A CHORD THAT BEARS NORTH 23 DEGREES 59 MINUTES 27 SECONDS EAST 320.13 FEET TO THE POINT OF BEGINNING; THENCE 35.40 FEET ALONG THE ARC OF A CURVE TO THE LEFT, RADIUS 50.00 FEET, CENTRAL ANGLE 40 DEGREES 34 MINUTES 07 SECONDS AND A CHORD THAT BEARS NORTH 12 DEGREES 03 MINUTES 07 SECONDS WEST 34.67 FEET; THENCE NORTH 32 DEGREES 20 MINUTES 10 SECONDS WEST 26.21 FEET; THENCE NORTH 25 DEGREES 40 MINUTES 51 SECONDS WEST 86.28 FEET; THENCE NORTH 32 DEGREES 20 MINUTES 10 SECONDS WEST 46.59 FEET; THENCE 57.55 FEET ALONG THE ARC OF A CURVE TO THE RIGHT, RADIUS 132.00 FEET, CENTRAL ANGLE 24 DEGREES 58 MINUTES 42 SECONDS AND A CHORD THAT BEARS NORTH 19 DEGREES 50 MINUTES 49 SECONDS WEST 57.09 FEET; THENCE NORTH 07 DEGREES 21 MINUTES 28 SECONDS WEST 209.78 FEET; THENCE ALONG THE SOUTHERLY RIGHT-OF-WAY LINE OF M-59 HIGHWAY NORTH 83 DEGREES 38 MINUTES 00 SECONDS EAST 431.22 FEET; THENCE SOUTH 03 DEGREES 44 MINUTES 33 SECONDS EAST 351.49 FEET TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF MARKETPLACE CIRCLE (VARIABLE WIDTH); THENCE ALONG SAID RIGHT-OF-WAY LINE THE FOLLOWING TWO COURSES: SOUTH 71 DEGREES 01 MINUTES 50 SECONDS WEST 230.07 FEET, AND 119.38 FEET ALONG THE ARC OF A CURVE TO THE LEFT, RADIUS 348.00 FEET, CENTRAL ANGLE 19 DEGREES 39 MINUTES 18 SECONDS AND A CHORD THAT BEARS SOUTH 61 DEGREES 12 MINUTES 11 SECONDS WEST 118.80 FEET TO THE POINT OF BEGINNING.  
 TOGETHER WITH AND SUBJECT TO EASEMENTS AS SET FORTH IN RECIPROCAL EASEMENT AND OPERATION AGREEMENT RECORDED IN LIBER 38003, PAGE 527, AS AMENDED BY FIRST AMENDMENT TO RECIPROCAL EASEMENT AND OPERATION AGREEMENT RECORDED IN LIBER 39684, PAGE 62.  
 ALSO TOGETHER WITH AND SUBJECT TO EASEMENTS AS SET FORTH IN RECIPROCAL EASEMENT AND OPERATION AGREEMENT RECORDED IN LIBER 41012, PAGE 451.  
 ALSO TOGETHER WITH AND SUBJECT TO EASEMENTS AS SET FORTH IN STORM WATER EASEMENT AGREEMENT RECORDED IN LIBER 44017, PAGE 71.  
 ALSO TOGETHER WITH AND SUBJECT TO EASEMENTS AS SET FORTH IN CROSS ACCESS EASEMENT AGREEMENT RECORDED IN LIBER 45362, PAGE 51.  
 ALSO TOGETHER WITH AND SUBJECT TO EASEMENTS AS SET FORTH IN STORM WATER EASEMENT AGREEMENT RECORDED IN LIBER 44738, PAGE 736.  
 63-15-30-176-010

### TREE AND WETLAND NOTE:

THERE ARE NO REGULATED TREES OR WETLANDS LOCATED ON THIS PARCEL.

**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.

REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	11/5/15										
PER CITY REVIEW	12/1/15										

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 Civil Engineers & Land Surveyors  
 5580 GRAND RIVER AVE., SUITE 100  
 NEW HUDSON, MICHIGAN 48165  
 P: (248) 437-5099 F: (248) 437-5222 www.zemetwozniak.com

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 8621 EAST 21ST STREET NORTH, STE. 250  
 WITCHITA, KS 67206 (734) 564-6723

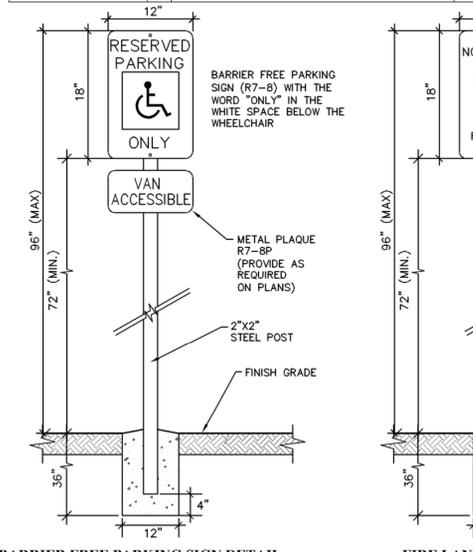
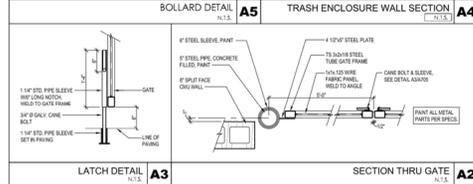
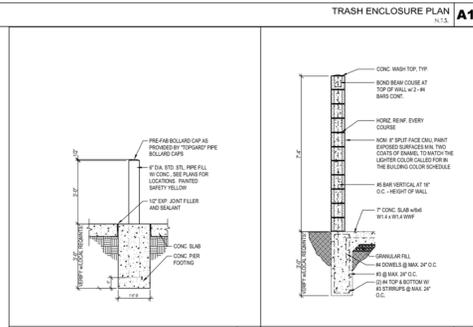
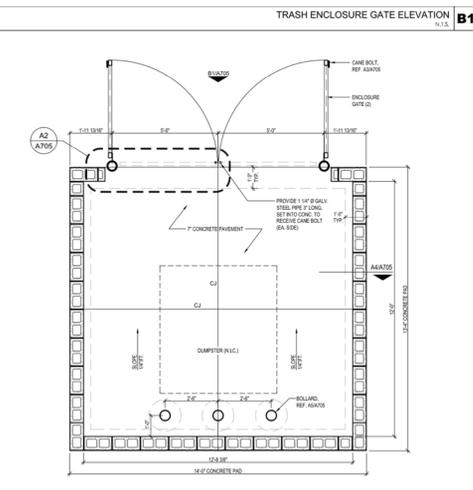
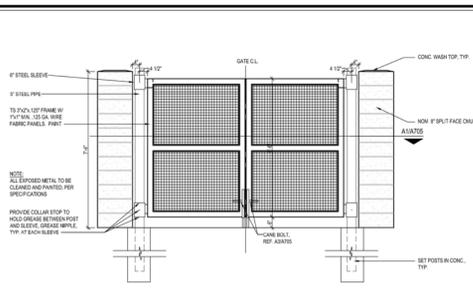
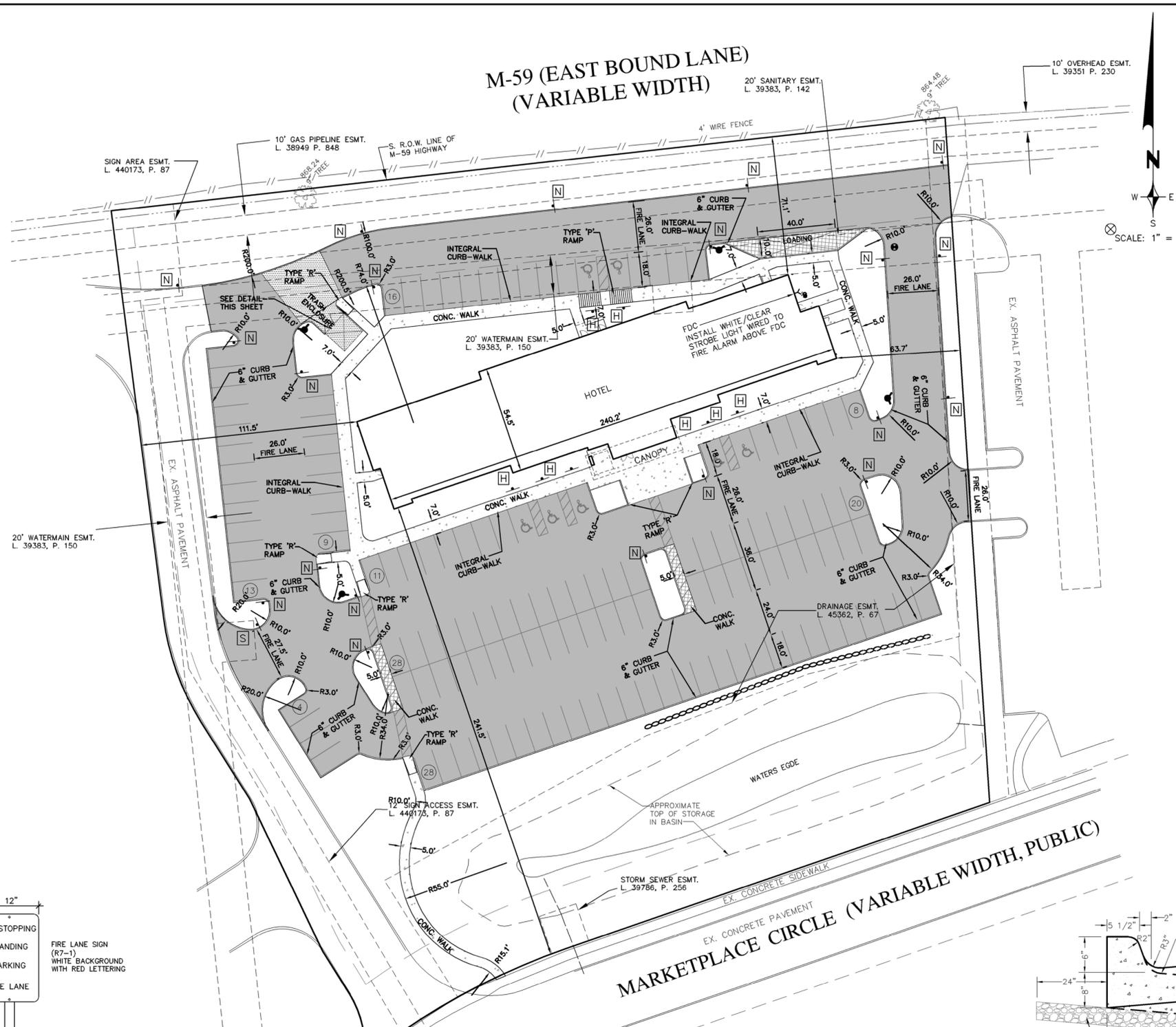
**TOPOGRAPHIC SURVEY**  
**WOODSPRING SUITES**  
 ROCHESTER HILLS, MICHIGAN

NOT FOR CONSTRUCTION  
 CITY FILE: 15-020 SECTION 30

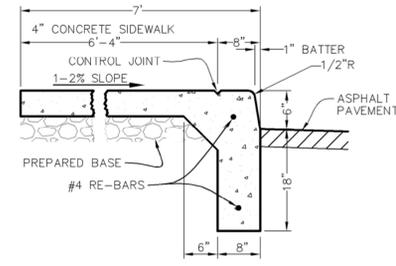
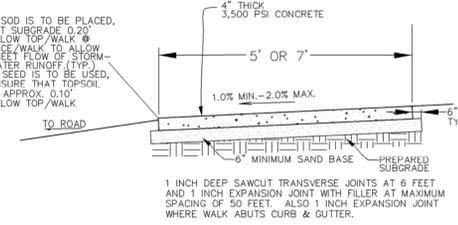
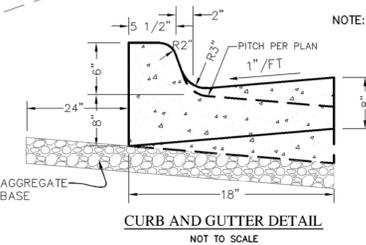
DATE	11/5/15	SCALE	HOR: 1" = 30'
DESIGNED BY	SRB	JOB NO.	15154
DRAWN BY	SRB	SHEET	T-1

# M-59 (EAST BOUND LANE) (VARIABLE WIDTH)

- FIRE DEPARTMENT NOTES:**
- ALL PORTIONS OF A BUILDING ARE REQUIRED TO BE WITHIN 150' OF AN APPROVED FIRE DEPARTMENT ACCESS ROAD. (IFC 503.1.1)
  - FIRE DEPARTMENT ACCESS ROADS ARE REQUIRED TO BE PAVED. (IFC 503.2.3)
  - FIRE DEPARTMENT ACCESS ROADS SHALL HAVE AN UNOBSTRUCTED WIDTH OF NOT LESS THAN 20' AND AN UNOBSTRUCTED VERTICAL CLEARANCE OF NOT LESS THAN 13'-6" (IFC 503.2.1)
  - WHERE A FIRE HYDRANT IS LOCATED ON A FIRE APPARATUS ACCESS ROAD, THE MINIMUM ROAD WIDTH SHALL BE 26'. (IFC D103.1)
  - FIRE LANES SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH FIRE LANE SIGNS NOT MORE THAN 100' APART. FIRE LANE SIGNS SHALL READ "NO STOPPING, STANDING, PARKING, FIRE LANE" AND IN CONFORMANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. (FIRE PREVENTION ORDINANCE CHAPTER 58, SECTION 503)
  - THE NUMBER AND SPACING OF FIRE HYDRANTS IS BASED ON CONSTRUCTION TYPE AND SQUARE FOOTAGE OF THE BUILDING IN ACCORDANCE WITH TABLES B105.1 AND C105.1.
  - WHERE FIRE HYDRANTS ARE SUBJECT TO IMPACT BY A MOTOR VEHICLE, GUARD POSTS SHALL BE PROVIDED. (IFC 508.5.6)
  - A 3' CLEAR SPACE SHALL BE MAINTAINED AROUND FIRE HYDRANTS. (IFC 508.5.5)
  - EXIT DOORS SHALL REMAIN FREE OF OBSTRUCTIONS AT ALL TIMES. PROVIDE GUARD POSTS FOR ALL EXIT DOORS OPENING ONTO DRIVES AND PARKING AREAS. (IFC 1028.3)
  - FIRE DEPARTMENT CONNECTIONS, WHEN REQUIRED, SHALL BE LOCATED VISIBLY ON THE STREET FRONT OF THE BUILDING, WITHIN 50' OF AN APPROVED FIRE DEPARTMENT ACCESS ROAD AND A FIRE HYDRANT SHALL BE LOCATED WITHIN 100' OF THE FDC. (FIRE PREVENTION ORDINANCE CHAPTER 58, SECTION 912.7 & IFC 912.2.1)
  - FIRE DEPARTMENT CONNECTIONS SHALL NOT BE OBSCURED OR OBSTRUCTED BY LANDSCAPING, PARKING OR BY ANY OTHER PERMANENT OR TEMPORARY MATERIALS OR DEVICE. (FIRE PREVENTION ORDINANCE CHAPTER 58-90)
  - CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC CHAPTER 14.
  - 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 CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. CONTACT ROCHESTER HILLS FIRE DEPARTMENT FOR PERMIT INFORMATION. (FIRE PREVENTION ORDINANCE CHAPTER 58, SECTION 307.6.2 & 307.6.2.3)
  - A "KNOX" KEY SYSTEM MAY BE REQUIRED IN A LOCATION APPROVED BY THE FIRE CODE OFFICIAL. ORDERING INFORMATION IS AVAILABLE FROM THE FIRE DEPARTMENT. (IFC 506)
- HYDRANT AND FIRE FLOW REQUIREMENTS:**
- FLOW TEST OF EXISTING HYDRANT AT NORTHEAST CORNER OF SITE RESULTED IN 4,832 GPM @ 20 PSI OR 2,103 GPM @ 64 PSI RESIDUAL.
- REQUIRED FIRE FLOWS (PER TABLES B105.1 AND C105.1):**
- |                             |                             |
|-----------------------------|-----------------------------|
| BUILDING CONSTRUCTION TYPE: | V-A                         |
| BUILDING AREA:              | 48,104 S.F.                 |
| FIRE FLOW REQUIRED:         | 4,000 G.P.M.                |
| HYDRANTS REQUIRED:          | 4 WITH AVG. SPACING OF 350' |
- IFC = INTERNATIONAL FIRE CODE 2006  
FIRE PREVENTION ORDINANCE - CITY OF ROCHESTER HILLS ORDINANCE



- SIGN LEGEND:**
- S** 30"x30" STOP SIGN (R1-1)-1 EACH
  - N** 12"x18" NO STOPPING STANDING OR PARKING FIRE LANE SIGN (R7-1)-20 EACH
  - H** 12"x18" RESERVED PARKING-HANDICAP SIGN (R7-B)-7 EACH
- PAVEMENT LEGEND:**
- CONCRETE DUMPSTER APRON**  
8.0" REINFORCED PC CONCRETE (3500 PSI)  
PREPARED SUBGRADE
  - CONCRETE SIDEWALKS**  
4.0" UNIFORM PC CONCRETE (3500 PSI)  
6.0" MDOT CLASS II SAND
  - THICKENED CONCRETE SIDEWALK (THRU PARKING LOT)/LOADING**  
6.0" UNIFORM PC CONCRETE (3500 PSI)  
8.0" MDOT 21AA (DENSE GRADED) AGGREGATE BASE
  - ON-SITE DRIVES**  
1.5" MDOT HMA 13A 20AA WEARING COURSE  
2.5" MDOT HMA 3C LEVELING COURSE  
8.0" MDOT 21AA (DENSE GRADED) AGGREGATE BASE  
\* AGGREGATE BASE TO EXTEND 2' BEYOND BACK OF CURB



REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
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**DIMENSION AND PAVING PLAN**  
WOODSPRING SUITES  
ROCHESTER HILLS, MICHIGAN

NOT FOR CONSTRUCTION  
CITY FILE: 15-020 SECTION 30

DATE	11/5/15	SCALE	HOR: 1" = 30'
DESIGNED BY	SRB	VER:	1" = N/A
JOB NO.	15154		
DRAWN BY	SRB	SHEET	SP-2



**SANITARY SEWER BASIS OF DESIGN:**  
(USING THE OCWRC SCHEDULE OF UNIT ASSIGNMENT FACTORS)

NO. OF UNITS = 123 UNITS  
 NO. OF REU'S = 0.38 REU/UNIT x 123 UNITS = 46.74 REU  
 NO. OF PEOPLE = 3.5 PEOPLE/REU x 46.74 REU = 163.59 PEOPLE  
 AVG. DAILY FLOW RATE =  $100 \text{ GPCPD} \times 163.59 \text{ PEOPLE} / (7.5 \times 24 \times 3600) = 0.025 \text{ CFS}$   
 PEAKING FACTOR =  $(18 + \sqrt{163.59/1000}) / (4 + \sqrt{163.59/1000}) = 4.00$   
 PEAK DAILY FLOW RATE =  $4.00 \times 100 \text{ GPCPD} \times 163.59 \text{ PEOPLE} / (7.5 \times 24 \times 3600) = 0.101 \text{ CFS}$

THE EXISTING 10" DIA. SANITARY SEWER AT 0.28% (MIN.) SLOPE HAS A CAPACITY OF 1.15 C.F.S.

PER AS-BUILT PLANS, THE EXIST. 10" SEWER IS SIZED TO ACCOMMODATE AN AVERAGE FLOW = 0.094 CFS AND PEAK FLOW = 0.76 CFS

**EXISTING FLOWS TO 10" SEWER:**

	AVERAGE	PEAK
GRAND TAVERN (FORMALLY CHILI'S):	0.014	0.055
MEIJER/FUTURE RETAIL:	0.030	0.1259
HOLIDAY INN:	0.006	0.024

TOTAL PEAK FLOW TO THE 10" SEWER = 0.3059 CFS

CAPACITY AVAILABLE IN 10" SEWER AFTER CONSTRUCTION OF WOODSPRING SUITES:

$(0.76 - 0.3059) = 0.4541 \text{ CFS}$

THEREFORE, THE EXISTING 10" SEWER HAS SUFFICIENT CAPACITY FOR THIS PROJECT.

THE OVERALL "ADAMS MARKETPLACE" DEVELOPMENT IS PERMITTED TO DISCHARGE 1.54 CFS TO THE ADAMS ROAD SEWER. PER RECORD PLANS, THE TOTAL PEAK DISCHARGE TO DATE IS:

WAL-MART	0.16 CFS
BLDGS. A-G & FLAGSTAR BANK	0.084 CFS
GRAND TAVERN (CHILI'S)	0.055 CFS
MEIJER/FUTURE RETAIL	0.1259 CFS
MEIJER GAS STATION	0.004 CFS
HOLIDAY INN	0.024 CFS
WOODSPRING SUITES	0.101 CFS
	0.5539 CFS

1.54 CFS - 0.5589 CFS = 0.9861 CFS AVAILABLE FOR FUTURE DEVELOPMENT OF THE REMAINDER OF THE SITE INCLUDING THE CRESCENT PARCEL ON THE SOUTH SIDE OF ADAMS ROAD.

**WATERMAIN BASIS OF DESIGN:**

NO. OF UNITS = 123 UNITS  
 NO. OF REU'S = 0.38 REU/UNIT x 123 UNITS = 46.74 REU  
 NO. OF PEOPLE = 3.5 PEOPLE/REU x 46.74 REU = 163.59 PEOPLE  
 AVG. DAILY FLOW =  $100 \text{ GPCPD} \times 163.59 \text{ PEOPLE} / 1,000,000 = 0.016 \text{ MGD}$

PEAK DAILY FLOW =  $4.00 \times 100 \text{ GPCPD} \times 163.59 \text{ PEOPLE} / 1,000,000 = 0.0654 \text{ MGD}$

FLOW TEST OF EXISTING HYDRANT AT NORTHEAST CORNER OF SITE RESULTED IN 4,832 GPM @ 20 PSI OR 2,103 GPM @ 64 PSI RESIDUAL.

REQUIRED FIRE FLOWS (PER TABLES B105.1 AND C105.1):

BUILDING CONSTRUCTION TYPE:	V-A
BUILDING AREA:	48,104 S.F.
FIRE FLOW REQUIRED:	4,000 G.P.M.
HYDRANTS REQUIRED:	4 WITH AVG. SPACING OF 350'

**WATERMAIN NOTES:**

- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THAT WORK.
- ALL HYDRANTS, INCLUDING NOZZLES AND PROJECTIONS SHALL BE 3" MINIMUM FROM EDGE OF SIDEWALK OR 6" MINIMUM FROM BACK OF CURB.
- THE WATERMAIN WILL HAVE A MINIMUM OF 6 FEET OF COVER.
- THE CONTRACTOR SHALL DETERMINE DEGREE OF BEND FOR THE WATERMAIN FITTINGS. PIPE DEFLECTIONS SHALL NOT EXCEED 75% OF THE MANUFACTURER'S MAXIMUM ALLOWABLE DEFLECTION.
- ALL WATERMAIN SHALL BE 8" (MIN.) CEMENT-LINED (DOUBLE THICKNESS) DUCTILE IRON PIPE, CLASS 54 POLYWRAPPED PER CURRENT CITY STANDARD DETAILS CENTERED IN A 20' WIDE EASEMENT.
- A VERTICAL SEPARATION OF 18 INCHES MUST BE MAINTAINED BETWEEN THE WATERMAIN AND SANITARY SEWERS, STORM SEWERS, OR OTHER PROPOSED UTILITIES.
- ALL GATE VALVES SHALL BE RESILIENT WEDGE OR SEATED TYPE GATE VALVE (E.J.L.W. OR U.S. PIPE).
- RESTRAINED RODDED JOINTS SHALL BE USED AT ALL VERTICAL BENDS. THE NUMBER OF RESTRAINED RODDED JOINTS REQUIRED SHALL BE DETERMINED BY THE MANUFACTURER, SUBJECT TO APPROVAL BY THE CITY ENGINEER.
- USE HYDRANT CONNECTION DETAILS PER CURRENT CITY STANDARD DETAIL SHEET.
- WATER SERVICES LESS THAN OR EQUAL TO 2" SDR-9 POLY PIPE OR TYPE 'K' COPPER. THE DEPARTMENT OF PUBLIC WORKS SHALL INSTALL ALL TAPS 2" AND SMALLER AT THE TIME OF BUILDING CONSTRUCTION. WATER SERVICES GREATER THAN 2" SHALL CL. 54 DUCTILE IRON PIPE AND CONNECTION MADE BY CONTRACTOR.
- ALL GATE VALVE WELLS SHALL HAVE EJIW 1040-21 FRAME AND COVER PER CITY STANDARDS.

**SANITARY SEWER NOTES:**

- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THAT WORK.
- ALL SANITARY SEWER BUILDING LEADS WILL BE SOLID WALL PVC SDR 23.5 PIPE.
- ALL SANITARY SEWER MAINS SHALL BE PUBLIC AND 8" PVC TRUSS PIPE CENTERED IN A 20' WIDE EASEMENT.
- SANITARY SEWER DROP CONNECTIONS MUST BE EXTERNAL TYPE.
- THE MINIMUM SLOPE FOR 6" SANITARY BUILDING LEADS IS 1.00%.
- ALL PROPOSED SEWERS SHALL HAVE CHEMICALLY WELDED JOINTS.
- THE CONTRACTOR SHALL HAVE A TELEVISION INSPECTION OF THE EXISTING SANITARY LEAD PERFORMED PRIOR TO CONSTRUCTION TO VERIFY THE CONDITION OF THE EXISTING PIPE. THE CITY INSPECTOR SHALL WITNESS THE SCOPE AND A VIDEO COPY SHALL BE PROVIDED TO THE CITY.
- ALL SANITARY SEWER MANHOLES SHALL HAVE EJIW 1040-A FRAME AND COVER PER CITY STANDARDS.

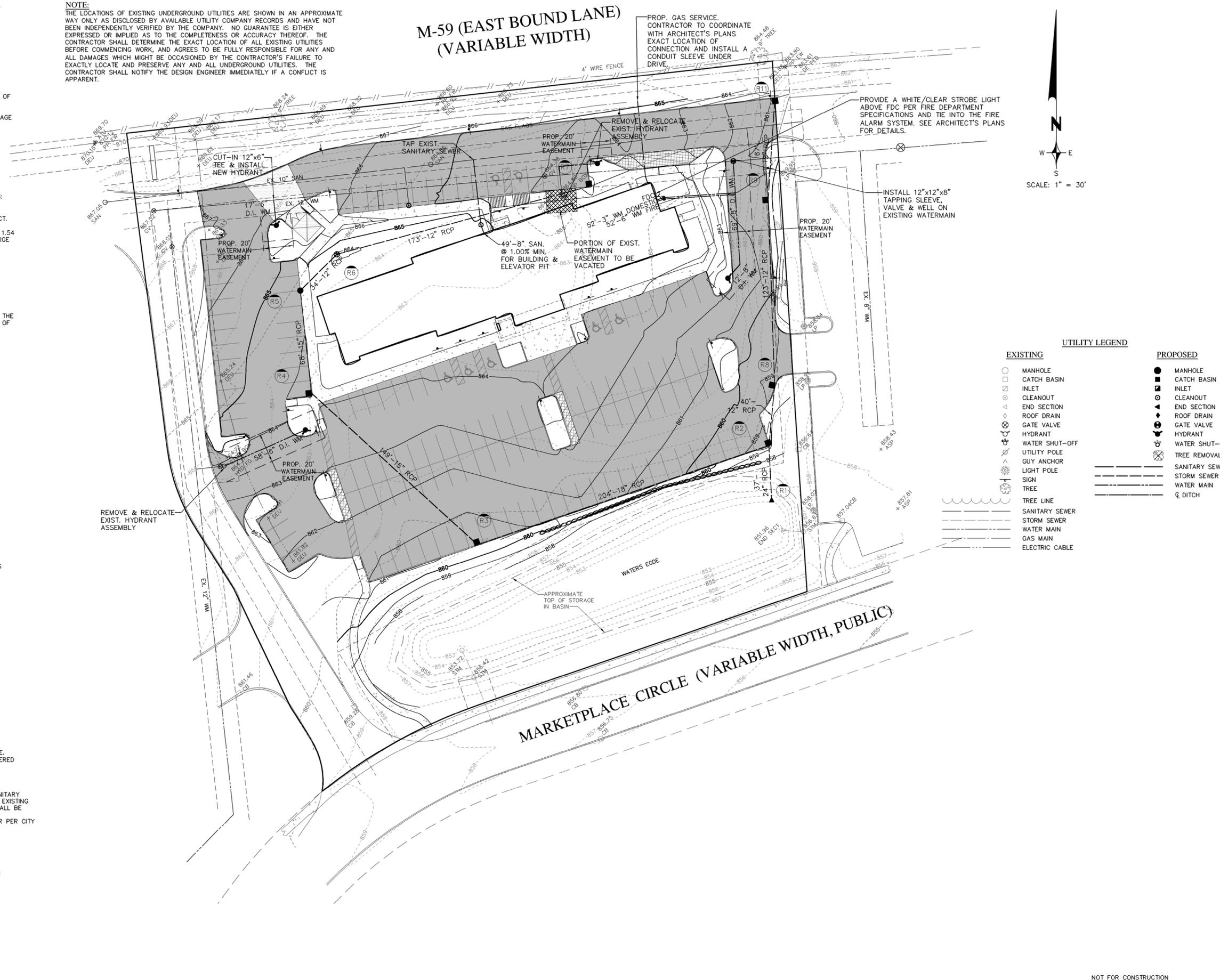
**STORM SEWER NOTES:**

- PROPOSED STRUCTURE COVERS/GRATES SHALL BE PROVIDED AS REQUIRED ON THE CITY OF ROCHESTER HILLS STANDARD DETAIL SHEETS.
- EDGE DRAIN TO BE 20" IN EACH DIRECTION AT 90° ANGLES FROM INLET STRUCTURES LOCATED IN PAVED AREAS.
- STRUCTURAL CALCULATIONS AND SHOP DRAWINGS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER (REGISTERED IN THE STATE OF MICHIGAN) SHALL BE SUBMITTED TO THE CITY FOR REVIEW PRIOR TO CONSTRUCTION OF ALL STORM SEWER STRUCTURES GREATER THAN 6 FEET IN DIAMETER.
- PROPOSED ROOF DRAINS SHALL BE SCHEDULE 40 PVC PIPE WITH CHEMICALLY WELDED JOINTS.
- PROPOSED STORM SEWER PIPE SHALL BE MIN. 12" REINFORCED CONCRETE CLASS IV WITH RUBBER GASKETS AND CLASS B BEDDING.
- A STORMWATER MAINTENANCE AGREEMENT AND EXHIBIT IS REQUIRED TO BE RECORDED PRIOR TO FINAL APPROVAL OF CONSTRUCTION DOCUMENTS.
- CATCH BASINS WITH TRAPED OUTLETS SHALL HAVE A 3' DEEP SUMP AND THE TRAP SHALL BE ADS ENVRHOOD OR APPROVED EQUIVALENT.

**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.

**M-59 (EAST BOUND LANE)  
(VARIABLE WIDTH)**



**UTILITY LEGEND**

EXISTING	PROPOSED
○ MANHOLE	● MANHOLE
□ CATCH BASIN	■ CATCH BASIN
◇ INLET	◻ INLET
○ CLEANOUT	○ CLEANOUT
△ END SECTION	△ END SECTION
○ ROOF DRAIN	○ ROOF DRAIN
⊕ GATE VALVE	⊕ GATE VALVE
⊕ HYDRANT	⊕ HYDRANT
⊕ WATER SHUT-OFF	⊕ WATER SHUT-OFF
○ UTILITY POLE	○ UTILITY POLE
○ GUY ANCHOR	○ GUY ANCHOR
○ LIGHT POLE	○ LIGHT POLE
○ SIGN	○ SIGN
○ TREE	○ TREE REMOVAL
○ TREE LINE	○ SANITARY SEWER
○ SANITARY SEWER	○ STORM SEWER
○ STORM SEWER	○ WATER MAIN
○ WATER MAIN	○ GAS MAIN
○ GAS MAIN	○ ELECTRIC CABLE
○ ELECTRIC CABLE	



REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY	REVISIONS	DATE	BY
PSP SUBMITTAL	11/5/15										
PER CITY REVIEW	12/1/15										

**ZEMET WOZNIAK & ASSOCIATES**  
 Civil Engineers & Land Surveyors  
 5580 GRAND RIVER AVE., SUITE 100  
 NEW HUDSON, MICHIGAN 48165  
 P: (248) 437-5099 F: (248) 437-5222 www.zemetwozniak.com

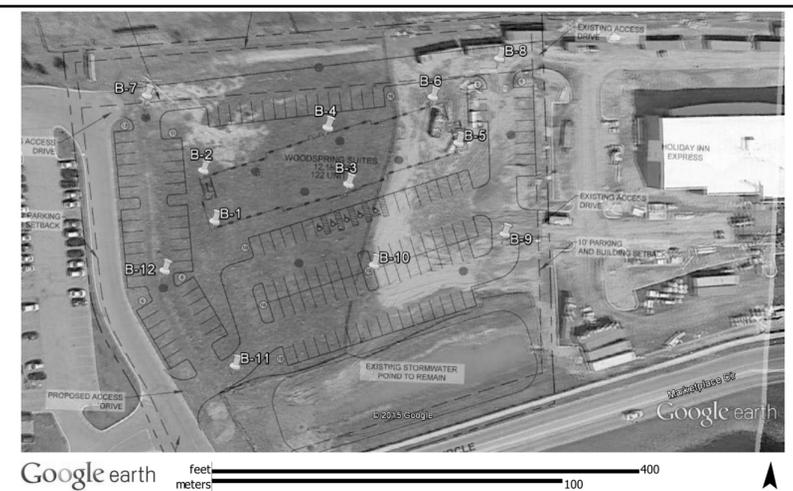
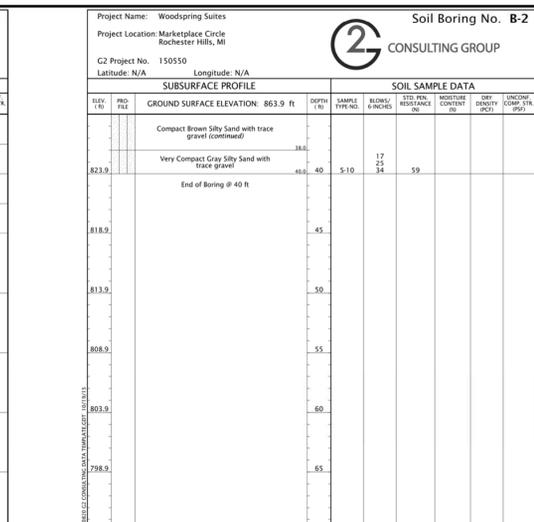
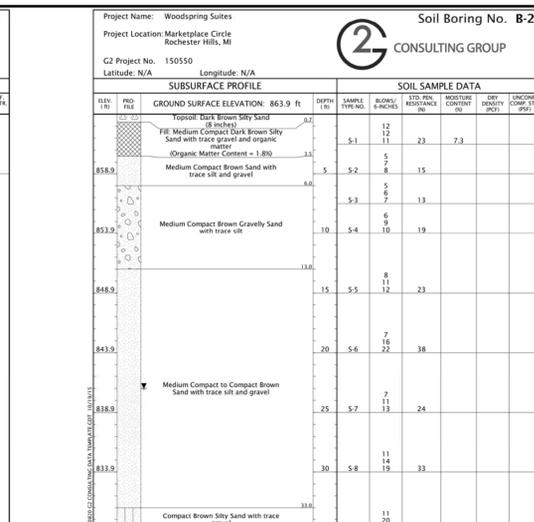
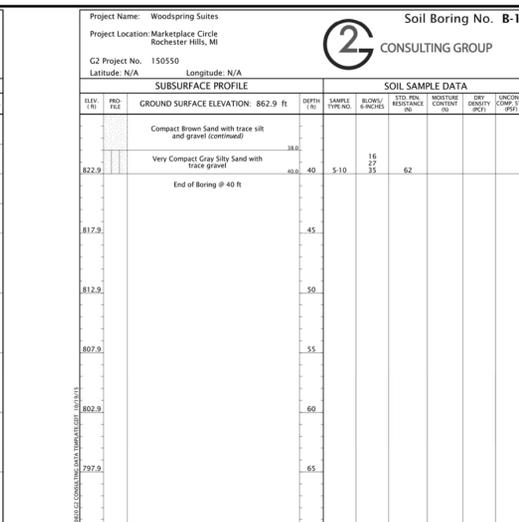
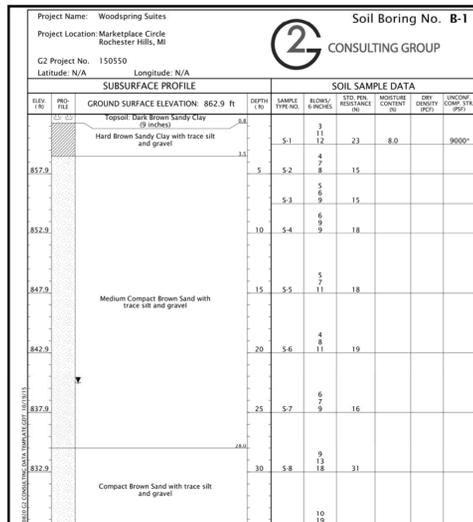
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 THREE FULL WORKING DAYS BEFORE YOU DIG. CALL THE MISS DIG SYSTEM 1-800-482-7171

**PROJECT SPONSOR:**  
 WOODSPRINGS DETROIT MI ROCHESTER HILLS LLC  
 8621 EAST 21ST STREET NORTH, STE. 250  
 WITCHITA, KS 67206 (734) 564-6723

**UTILITY PLAN  
WOODSPRING SUITES**  
 ROCHESTER HILLS, MICHIGAN

NOT FOR CONSTRUCTION  
 CITY FILE: 15-020 SECTION 30

DATE: 11/5/15 SCALE: HOR: 1" = 30' VER: 1" = N/A  
 DESIGNED BY: SRB JOB NO.: 15154  
 DRAWN BY: SRB SHEET: SP-4



Total Depth: 40 ft  
Drilling Date: October 6, 2015  
Inspector: BRAX Drilling  
Contractor: BRAX Drilling  
Driller: A. Rau

Water Level Observation: 22 1/2 feet during and upon completion of drilling  
Notes: Borehole collapsed at 22-1/2 ft after auger removal  
Calibrated Hand Penetrometer

Excavation Backfilling Procedure: Borehole backfilled with auger cuttings

Drilling Method: 3-1/4 inch inside diameter hollow-stem augers

Figure No. 1a

Total Depth: 40 ft  
Drilling Date: October 6, 2015  
Inspector: BRAX Drilling  
Contractor: BRAX Drilling  
Driller: A. Rau

Water Level Observation: 22 1/2 feet during and upon completion of drilling  
Notes: Borehole collapsed at 22-1/2 ft after auger removal  
Calibrated Hand Penetrometer

Excavation Backfilling Procedure: Borehole backfilled with auger cuttings

Drilling Method: 3-1/4 inch inside diameter hollow-stem augers

Figure No. 1b

Total Depth: 40 ft  
Drilling Date: October 6, 2015  
Inspector: BRAX Drilling  
Contractor: BRAX Drilling  
Driller: A. Rau

Water Level Observation: 23 feet during and upon completion of drilling  
Notes: Borehole collapsed at 23 ft after auger removal  
Calibrated Hand Penetrometer

Excavation Backfilling Procedure: Borehole backfilled with auger cuttings

Drilling Method: 3-1/4 inch inside diameter hollow-stem augers

Figure No. 2a

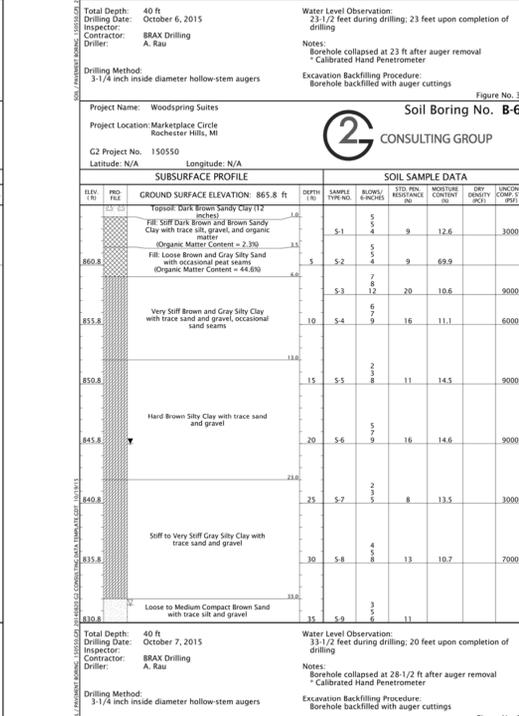
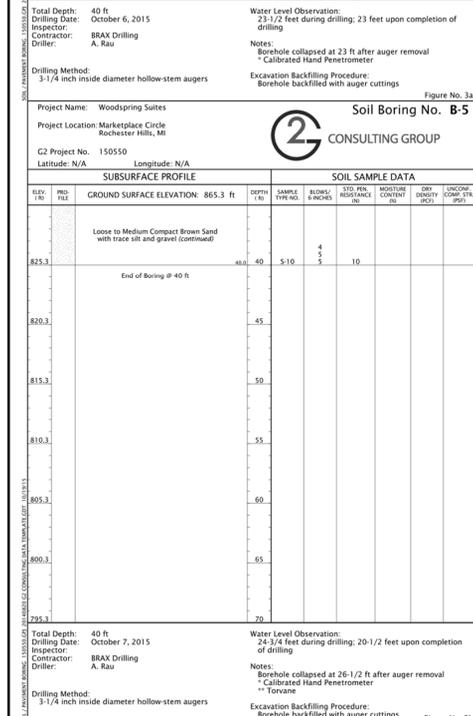
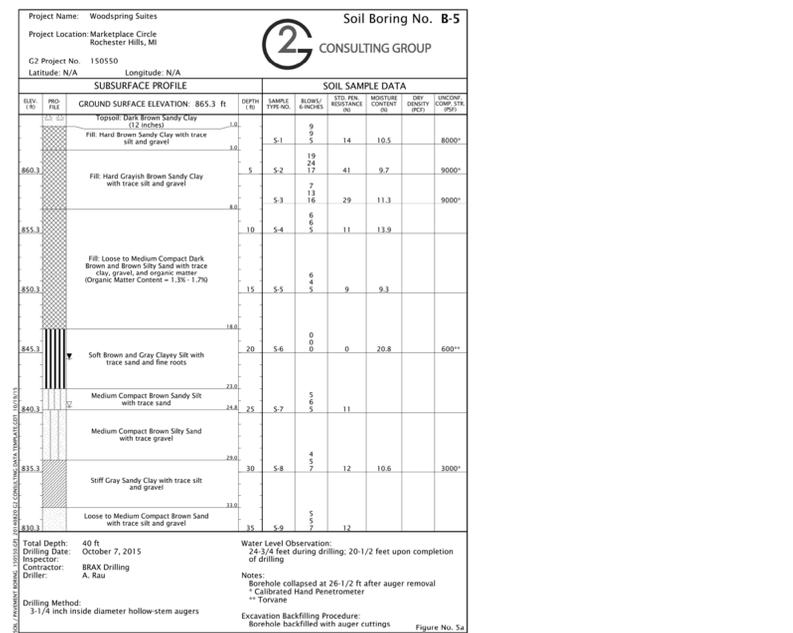
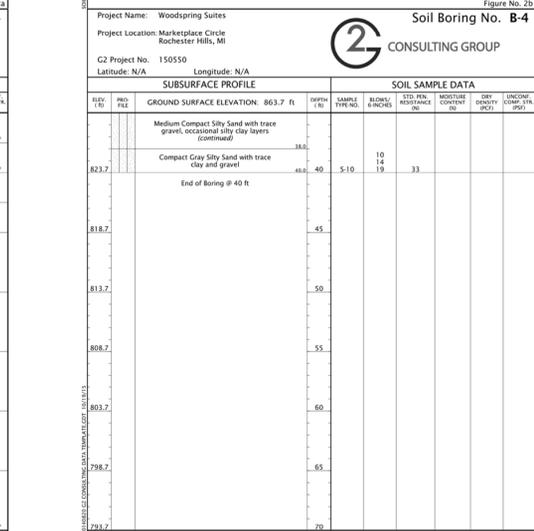
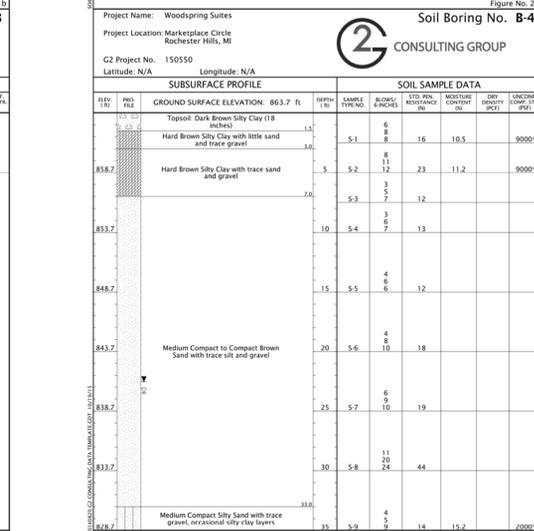
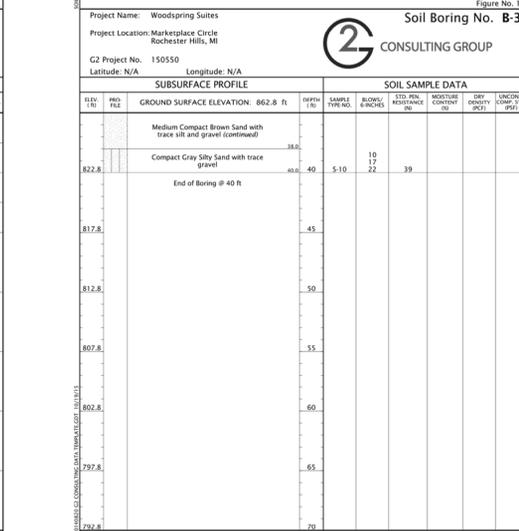
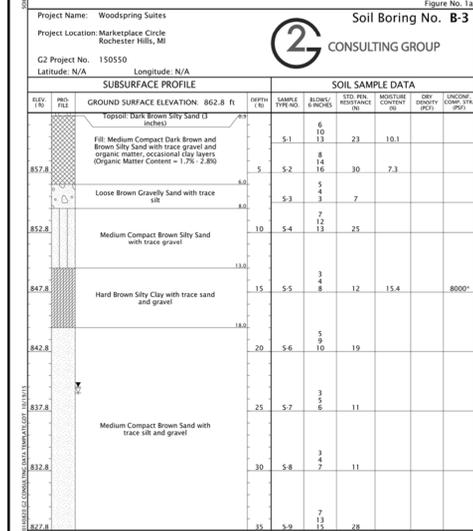
Total Depth: 40 ft  
Drilling Date: October 6, 2015  
Inspector: BRAX Drilling  
Contractor: BRAX Drilling  
Driller: A. Rau

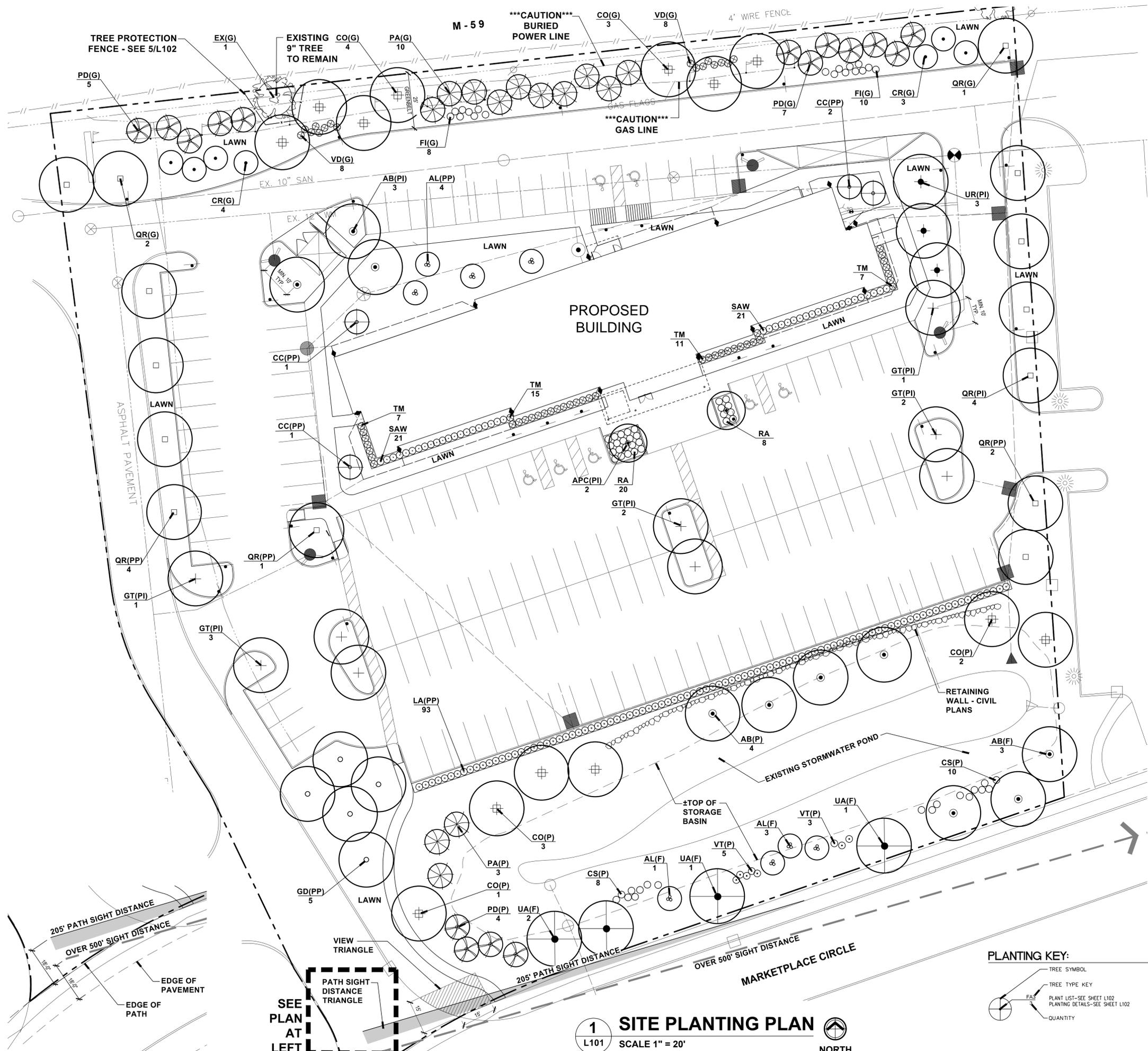
Water Level Observation: 23 feet during and upon completion of drilling  
Notes: Borehole collapsed at 23 ft after auger removal  
Calibrated Hand Penetrometer

Excavation Backfilling Procedure: Borehole backfilled with auger cuttings

Drilling Method: 3-1/4 inch inside diameter hollow-stem augers

Figure No. 2b





**GENERAL PLANTING NOTES:**

- (A) ALL TREES TO HAVE CLAY OR LOAM BALLS, TREES WITH SAND BALLS WILL BE REJECTED.
- (B) ALL SINGLE STEM SHADE TREES TO HAVE STRAIGHT TRUNKS AND SYMMETRICAL CROWNS.
- (C) ALL SINGLE TRUNK SHADE TREES TO HAVE A CENTRAL LEADER, TREES WITH FORKED OR IRREGULAR TRUNKS WILL NOT BE ACCEPTED.
- (D) ALL MULTI-STEM TREES SHALL BE HEAVILY BRANCHED AND HAVE SYMMETRICAL CROWNS, ONE SIDED TREES OR THOSE WITH THIN OR OPEN CROWNS SHALL NOT BE ACCEPTED.
- (E) ALL EVERGREEN TREES SHALL BE HEAVILY BRANCHED AND FULL TO THE GROUND, SYMMETRICAL IN SHAPE AND NOT SHEARED FOR THE LAST FIVE GROWING SEASONS.
- (F) NO MACHINERY IS TO BE USED WITHIN THE DRIPLINE OF EXISTING TREES, HAND GRADE ALL LAWN AREAS WITHIN DRIPLINE OF EXISTING TREES.
- (G) ALL TREE LOCATIONS SHALL BE STAKED BY LANDSCAPE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF THE PLANT MATERIAL.
- (H) IT IS MANDATORY THAT POSITIVE DRAINAGE IS PROVIDED AWAY FROM ALL BUILDINGS, WALKS AND PAVED AREAS.
- (I) ALL PLANTING BEDS SHALL RECEIVE 3" SHREDDED BARK MULCH, SEE SPECIFICATIONS.
- (J) SEE SPECIFICATIONS FOR ADDITIONAL COMMENTS, REQUIREMENTS, PLANTING PROCEDURES AND WARRANTY STANDARDS.
- (K) SOD LAWN AREAS - ALL LAWN AREAS BETWEEN CURBS AND BUILDINGS OR BETWEEN BUILDINGS, DISK SOIL TO 6" DEEP BEFORE TOPSOIL PLACEMENT.

**PLANT MIX**

PLANTING BEDS TO RECEIVE 70% LOAM TOPSOIL, 10% COMPOST, 20% SAND; EXCAVATE PLANT BED, DISPOSE OF SPOILS OFF SITE, INSTALL PLANT MIX. HAND TILL INTO PLACED PLANT MIX:

- (1) 6 CU. FT. BALE CANADIAN PEAT
- (1) 40 LB BAG COMPOSTED POULTRY MANURE "CHICK MAGIC" 5-3-2 WWW.CHICKMAGIC.NET (262)495-6220
- (1) 10 LB BAG SHEMINS 13-13-13 MULTI PURPOSE FERTILIZER

PER 100 SQ FT BED AREA.  
HAND TILL INTO PROVIDED PLANT MIX TO A DEPTH OF 12" MINIMUM

**PLANT BEDS**

ALL PLANT BEDS TO BE FULLY EXCAVATED TO DEPTH SHOWN ON DETAILS AND AREAS SHOWN ON PLANS, AND TO RECEIVE CONTINUOUS PLANT MIX AS SPECIFIED (NOT INDIVIDUAL PLANT HOLES)

**MULCH**

ALONG BUILDING: 1" DIAMETER WASHED AGGREGATE, 3" DEPTH, OVER TYPAR FABRIC (SUBMIT SAMPLE TO OWNER'S REPRESENTATIVE FOR APPROVAL)  
ALL OTHER BEDS: MULCH TO BE DOUBLE SHREDDED HARDWOOD BARK MULCH  
NO GROUND WOOD PALETTE MULCH PERMITTED

**TOPSOIL**

CONTRACTOR TO TILL OR DISK SUBGRADE TO 4" DEPTH AND INSTALL 4" COMPACTED DEPTH TOPSOIL IN ALL LAWN AREAS - FROM ONSITE STOCKPILE OR PROVIDED TO COMPLETE THE PROJECT

**LANDSCAPE EDGING**

ALL LANDSCAPE EDGES ARE SHOVEL OUT

**PLANT SPACING**

FILL BED WITH PLANTS SPECIFIED. KEEP PLANTS AWAY FROM BUILDING 12" MATURE SIZE

**WATERING**

CONTRACTOR RESPONSIBLE FOR HAND WATERING ALL PLANTINGS FROM THE START OF THE WARRANTY PERIOD IF NEEDED.  
PLANTINGS THAT PERISH DUE TO LACK OF WATER DO NOT QUALIFY AS THE ONE REQUIRED REPLACEMENT PLANT AS STATED IN THE SPECIFICATION, AND SHALL BE REPLACED.

CONTRACTOR IS ALSO RESPONSIBLE FOR MONITORING THE WATERING OF ALL NEWLY PLANTED LAWN AREAS FROM THE START OF THE WARRANTY PERIOD. NEWLY PLANTED LAWN AREAS THAT PERISH DUE TO LACK OF WATER DO NOT QUALIFY AS THE REQUIRED REPLACEMENT TO ESTABLISH A HEALTHY FULL DENSE LAWN AS STATED IN THE SPECIFICATION, AND SHALL BE REPLACED.

**LAWNS:**

ALL PROPOSED LAWN AREAS TO BE IRRIGATED SOD.

**CITY OF ROCHESTER HILLS FORESTRY DEPARTMENT STATEMENTS**

PRIOR APPROVAL IS REQUIRED TO PLANT ANY TREE OR SHRUB ON THE PUBLIC RIGHT-OF-WAY. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC ROAD. (TREES MUST BE PLANTED AT LEAST 15' FROM CURB OR ROAD EDGE WHERE THE SPEED LIMIT IS MORE THAN 35 MPH.) SHADE TREES AND SHRUBS MUST BE PLANTED AT LEAST 5' FROM THE EDGE OF THE PUBLIC WALKWAY. EVERGREEN AND ORNAMENTAL TREES MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC WALKWAY. NO TREES OR SHRUBS MAY BE PLANTED WITHIN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY STREET RIGHT-OF-WAY LINES AT A DISTANCE ALONG EACH LINE OF 25' FROM THE POINT OF INTERSECTION. NO TREES OR SHRUBS MAY BE PLANTED IN THE TRIANGULAR AREA FORMED AT THE INTERSECTION OF ANY DRIVEWAY WITH A PUBLIC WALKWAY AT A DISTANCE ALONG EACH LINE OF 15' FROM THEIR POINT OF INTERSECTION. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM ANY FIRE HYDRANT, SHADE AND EVERGREEN TREES MUST BE AT LEAST 15' WAY FROM THE NEAREST OVERHEAD WIRE. TREES MUST BE PLANTED A MINIMUM 5' FROM AN UNDERGROUND UTILITY, UNLESS THE CITY'S LANDSCAPE ARCHITECT REQUIRES A GREATER DISTANCE.

PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS FORESTRY DIVISION NEEDS TO INSPECT ALL TREES, EXISTING OR PLANTED, TO IDENTIFY ANY THAT POSE A HAZARD TO THE SAFE USE OF THE PUBLIC RIGHT-OF-WAY. FORESTRY MAY REQUIRE THE DEVELOPER TO REMOVE, AND POSSIBLY REPLACE, ANY SUCH TREES.  
THESE REQUIREMENTS ARE INCORPORATED INTO THE PLAN.

**PLANTING KEY:**

- TREE SYMBOL
- TREE TYPE KEY
- PLANT LIST-SEE SHEET L102
- PLANTING DETAILS-SEE SHEET L102
- QUANTITY

**1 SITE PLANTING PLAN**  
L101 SCALE 1" = 20'



**WOODSPRING SUITES**

**ROCHESTER HILLS, MICHIGAN**

**SHEET**

**SITE PLANTING PLAN**

**PRELIMINARY DATE**

11/05/15 PSP SUBMITTAL  
11/20/15 CITY REVIEW  
12/01/15 CITY REVIEW

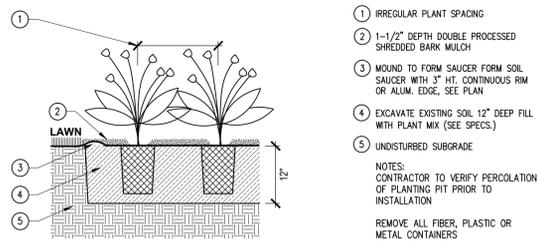
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**REVISION DATE**

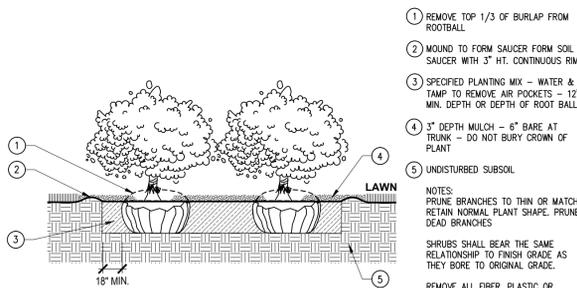
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**L101**

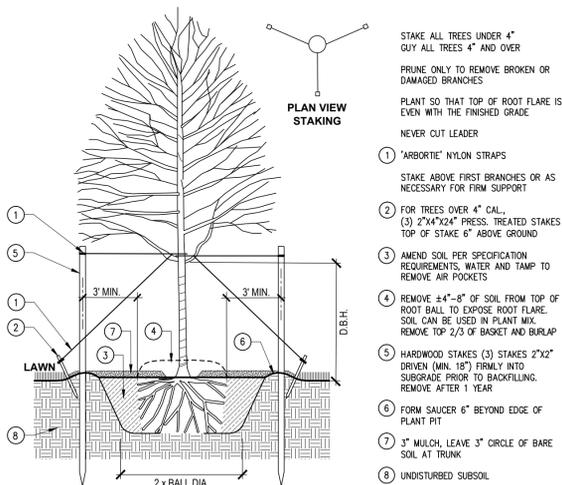
**\* NOT TO BE USED FOR CONSTRUCTION DRAWINGS \***



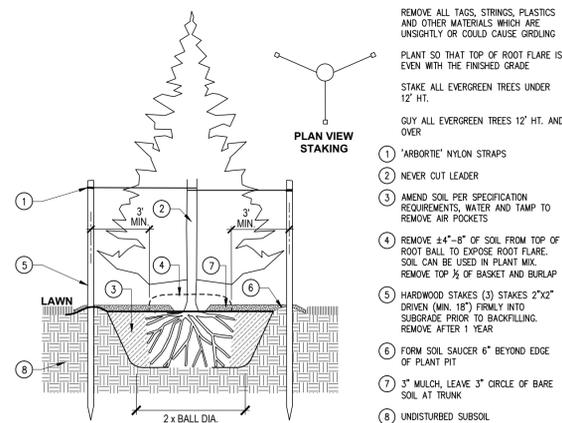
**1 PERENNIAL / GROUND COVER PLANTING DETAIL**  
NOT TO SCALE



**2 SHRUB BED PLANTING DETAIL**  
NOT TO SCALE



**3 DECIDUOUS TREE PLANTING**  
NOT TO SCALE



**4 EVERGREEN TREE PLANTING**  
NOT TO SCALE

**ROCHESTER HILLS NOTES:**

**LANDSCAPE MAINTENANCE**

THE OWNER OF THE PROPERTY SHALL BE RESPONSIBLE FOR ALL MAINTENANCE OF SITE LANDSCAPING, AS FOLLOWS:

- A. LANDSCAPING SHALL BE KEPT IN A NEAT, ORDERLY AND HEALTHY GROWING CONDITION, FREE FROM DEBRIS AND REFUSE.
- B. PRUNING SHALL BE MINIMAL AT THE TIME OF INSTALLATION, ONLY TO REMOVE DEAD OR DISEASED BRANCHES. SUBSEQUENT PRUNING SHALL ASSURE PROPER MATURATION OF PLANTS TO ACHIEVE THEIR APPROVED PURPOSE.
- C. ALL DEAD, DAMAGED, OR DISEASED PLANT MATERIAL SHALL BE REMOVED IMMEDIATELY AND REPLACED WITHIN SIX MONTHS AFTER IT DIES OR IN THE NEXT PLANTING SEASON, WHICHEVER OCCURS FIRST. FOR PURPOSES OF THIS SECTION, THE PLANTING SEASON FOR DECIDUOUS PLANTS SHALL BE BETWEEN MARCH 1 AND JUNE 1 AND FROM OCTOBER 1 UNTIL THE PREPARED SOIL BECOMES FROZEN. THE PLANTING SEASON FOR EVERGREEN PLANTS SHALL BE BETWEEN MARCH 1 AND JUNE 1. PLANT MATERIAL INSTALLED TO REPLACE DEAD OR DISEASED MATERIAL SHALL BE AS CLOSE AS PRACTICAL TO THE SIZE OF THE MATERIAL IT IS INTENDED TO REPLACE. THE CITY MAY NOTIFY PROPERTY OWNERS OF THE NEED TO REPLACE DEAD, DAMAGED, OR DISEASED MATERIAL.
- D. THE APPROVED LANDSCAPE PLAN SHALL BE CONSIDERED A PERMANENT RECORD AND INTEGRAL PART OF THE SITE PLAN APPROVAL. UNLESS OTHERWISE APPROVED IN ACCORDANCE WITH THE FOREMENTIONED PROCEDURES, ANY REVISIONS TO OR REMOVAL OF PLANT MATERIALS, OR NON-COMPLIANCE WITH THE MAINTENANCE REQUIREMENTS OF THIS (SECTION 138-12.109) WILL PLACE THE PARCEL IN NON-CONFORMITY WITH THE APPROVED LANDSCAPE PLAN AND BE A VIOLATION OF THIS ORDINANCE.
- E. IF PROTECTED TREES ARE DAMAGED, A FINE SHALL BE ISSUED ON AN INCH-BY-INCH BASIS AT A MONETARY RATE AS DEFINED BY THE FORESTRY DEPARTMENT.

**PERFORMANCE BOND NOTE:**  
PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS MUST INSPECT ALL LANDSCAPE PLANTINGS.

**ELM SUMMARY:**

The Elms specified are not American elm trees, which we all know have been decimated over the past 100 years in the American landscape, but special hybrids developed to replace the American Elm.

**The Regal Elm** - is a hybrid elm cultivar developed by the University of Wisconsin at Madison and released in 1983. 'Regal' was derived from seeds arising from the crossing of the Dutch hybrid clones of the Siberian elm and European smooth leaved elm (*Ulmus pumila* x *Hoerholmiensis*), sent in 1960 by the De Dorschkamp Research Institute in the Netherlands.

**The Regal elm** casts a honeylocust-like light shade that makes possible the successful culture of turf grass in the vicinity of the tree

**The 'Accolade' Elm** - is a cross of the Japanese elm and Chinese elm, (*Ulmus japonica* x *Ulmus wilsoniana*) - and was developed by the Morton Arboretum in Chicago

It is an elm cultivar derived from an elm hybrid planted at the Morton Arboretum in 1924, which itself originated as seed collected from a tree at the Arnold Arboretum in Massachusetts.

**Accolade Elm** is a cross of Japanese and Chinese species selected for its vase shape, vigorous growth, excellent drought tolerance and good strong yellow fall color. It has excellent disease resistance to both Elm Yellows and to the dreaded Dutch Elm Disease. Mayor Daley of Chicago chose the Accolade Elm to bring elms back to Chicago's Grant Park in 2002.

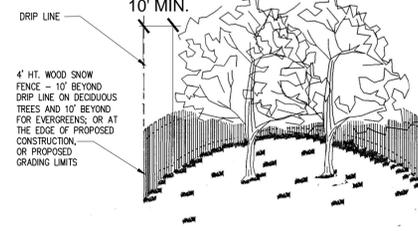
The original tree at the Morton Arboretum is noted for its resemblance to the American Elm (*Ulmus americana*), its upright-arching branches creating the familiar vase-shape. Moreover, in its 80+ years it has survived three epidemics of Dutch Elm Disease there unscathed.

**The Triumph Elm** - is another elm developed at the Morton Arboretum

It is Asian hybrid - a cross between the 'Vanguard Elm' and 'Accolade Elm' (parentage - Japanese, Chinese and Siberian elms)

All three of these elms have been selected for their fast growth and environmental tolerance.

All three of these elms have been specified by our office and are awaiting planting or have been specified and planted in Canton, Novi, Northville, West Bloomfield, Westford, Shelby Township, Grand Blanc, the city of Detroit and projects in Illinois and Ohio.



**5 TREE PROTECTION DETAIL**  
NOT TO SCALE

**PLANT LIST - GREENBELT M-59 (G)**

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	UNIT COST	COST
1	EX	EXISTING TREE TO REMAIN	9" CAL.			
7	CO	Hackberry <i>Celtis occidentalis</i>	3" Cal.	B&B	\$350	\$2,450
3	QR	Northern Red Oak <i>Quercus rubra</i>	3" Cal.	B&B	\$400	\$1,200
7	CR	Cockspur Hawthorn <i>Crataegus crusgalli</i>	2" Cal.	B&B	\$250	\$1,750
10	PA	Norway Spruce <i>Picea Abies</i>	10' Ht.	B&B	\$450	\$4,500
12	PD	Black Hills Spruce <i>Picea g. 'Densata'</i>	10' Ht.	B&B	\$450	\$5,400
18	FI	Forsythia <i>Forsythia x. intermedia</i>	30" Ht.	Cont.	\$48	\$864
16	VD	Arrowood Viburnum <i>Viburnum dentatum</i>	30" Ht.	B&B	\$58	\$928
GREENBELT M-59 COSTS COST:						\$17,092

**PLANT LIST - PARKING LOT INTERIOR (PI)**

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	UNIT COST	TOTALS
3	AB	Autumn Blaze Maple <i>Acer x. fremanii 'Autumn Blaze'</i>	3" Cal.	B&B	\$325	\$975
2	APC	Columnar Norway Maple <i>Acer platanoides columnaris</i>	3" Cal.	B&B	\$350	\$700
9	GT	Thornless Honeylocust <i>Gleditsia 'Skyline'</i>	3" Cal.	B&B	\$350	\$3,150
4	QR	Northern Red Oak <i>Quercus rubra</i>	3" Cal.	B&B	\$400	\$1,600
3	UR	Regal Elm <i>Ulmus carpinifolia 'Regal'</i>	3" Cal.	B&B	\$350	\$1,050
PARKING LOT INTERIOR COST:						\$7,475

**PLANT LIST - PARKING LOT PERIMETER (PP)**

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	UNIT COST	TOTALS
5	GD	Kentucky Coffee Tree <i>Gymnocladus dioicus</i>	3" Cal.	B&B	\$350	\$1,750
7	QR	Northern Red Oak <i>Quercus rubra</i>	3" Cal.	B&B	\$400	\$2,800
4	AL	Servicberry <i>Amelanchier laevis</i>	6' Ht. multi stem	B&B	\$250	\$1,000
4	CC	Eastern Redbud <i>Cercis canadensis</i>	8' Ht.	B&B	\$250	\$1,000
93	LA	Amur Privet <i>Ligustrum amurense</i>	30" Ht. Full	B&B	\$50	\$4,650
PARKING LOT PERIMETER COST:						\$11,200

**PLANT LIST - R.O.W. FRONTAGE (F)**

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	UNIT COST	TOTALS
3	AB	Autumn Blaze Maple <i>Acer x. fremanii 'Autumn Blaze'</i>	3" Cal.	B&B	\$325	\$975
4	UA	Accolade Elm <i>Ulmus parviflora 'Morton'</i>	3" Cal.	B&B	\$350	\$1,400
4	AL	Servicberry <i>Amelanchier laevis</i>	6' Ht. multi stem	B&B	\$250	\$1,000
R.O.W. FRONTAGE COST:						\$3,375

**PLANT LIST - STORMWATER POND (P)**

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	UNIT COST	TOTALS
4	AB	Autumn Blaze Maple <i>Acer x. fremanii 'Autumn Blaze'</i>	3" Cal.	B&B	\$325	\$1,300
6	CO	Hackberry <i>Celtis occidentalis</i>	3" Cal.	B&B	\$350	\$2,100
3	PA	Norway Spruce <i>Picea Abies</i>	10' Ht.	B&B	\$450	\$1,350
4	PD	Black Hills Spruce <i>Picea g. 'Densata'</i>	10' Ht.	B&B	\$450	\$1,800
18	CS	Red-Osier Dogwood <i>Cornus sericea</i>	30" Ht.	Cont.	\$45	\$810
8	VT	American Cranberry Bush <i>Viburnum trilobum</i>	30" Ht.	B&B	\$58	\$464
STORMWATER POND COST:						\$7,824

**PLANT LIST - SITE**

QUAN.	KEY	COMMON/ BOTANICAL NAME	SIZE	SPEC.	UNIT COST	TOTALS
28	RA	Gro-Low Fragrant Sumac <i>Rhus aromatica 'Gro-Low'</i>	24" Spr.	B&B	\$38	\$1,064
42	SAW	Anthony Waterer Spirea <i>Spirea 'Anthony Watereri'</i>	24" Spr.	B&B	\$38	\$1,596
41	TM	Dense Yew <i>Taxus x. m. 'Densiformis'</i>	30" Ht.	B&B	\$58	\$2,378
SITE COST:						\$5,038
1	Lump	Site Irrigation (All lawn and planting areas)				\$16,000
TOTAL PROJECT COST:						\$68,004

**LANDSCAPE REQUIREMENTS**

**GREENBELT BUFFER / M-59 (G)**  
BUFFER TYPE "D" ~ 430 LN. FT.  
DECIDUOUS TREES REQUIRED: 11 TREES  
(2.5 / 100 LN. FT.)  
DECIDUOUS TREES PROVIDED: 11 TREES  
  
ORNAMENTAL TREES REQUIRED: 7 TREES  
(1.5 / 100 LN. FT.)  
ORNAMENTAL TREES PROVIDED: 7 TREES  
  
EVERGREEN TREES REQUIRED: 22 TREES  
(5 / 100 LN. FT.)  
EVERGREEN TREES PROVIDED: 22 TREES  
  
SHRUBS REQUIRED: 34 SHRUBS  
(8 / 100 LN. FT.)  
SHRUBS PROVIDED: 34 SHRUBS

**PARKING LOT TREES (PI) & (PP)**  
**INTERIOR (PI)**  
94,610 S.F. VEHICLE USE AREA  
94,610 S.F. X .05 = 3,100  
3,100 / 150 = 21 TREES  
SHADE TREES REQUIRED: 21 TREES  
SHADE TREES PROVIDED: 21 TREES  
  
**PERIMETER (PP) (280 LN. FT.)**  
(1 / 25 LN. FT.)  
DECIDUOUS TREES REQUIRED: 12 TREES  
DECIDUOUS TREES PROVIDED: 12 TREES  
  
(1 / 35 LN. FT.)  
ORNAMENTAL TREES REQUIRED: 8 TREES  
ORNAMENTAL TREES PROVIDED: 8 TREES

**CONTINUOUS SHRUB HEDGE**  
(280 / 36" O.C.)  
SHRUBS REQUIRED: 93 SHRUBS  
SHRUBS PROVIDED: 93 SHRUBS

**RIGHT-OF-WAY FRONTAGE (F)**  
230 LN. FT.  
DECIDUOUS TREES REQUIRED: 7 TREES  
(1 / 35 LN. FT.)  
DECIDUOUS TREES PROVIDED: 7 TREES  
  
ORNAMENTAL TREES REQUIRED: 4 TREES  
(1 / 60 LN. FT.)  
ORNAMENTAL TREES PROVIDED: 4 TREES

**STORMWATER POND (P)**  
640 LN. FT. PERIMETER  
DECIDUOUS TREES REQUIRED: 10 TREES  
(1.5 / 100 LN. FT.)  
DECIDUOUS TREES PROVIDED: 10 TREES  
  
EVERGREEN TREES REQ.: 7 TREES  
(1 / 100 LN. FT.)  
EVERGREEN TREES PROVIDED: 7 TREES  
  
SHRUBS REQ.: 26 SHRUBS  
(4 / 100 LN. FT.)  
SHRUBS PROVIDED: 26 SHRUBS



**WOODSPRING SUITES**  
ROCHESTER HILLS, MICHIGAN

**SHEET**  
PLANT LIST, CALCULATIONS & DETAILS

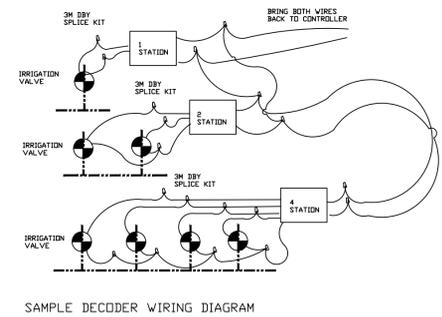
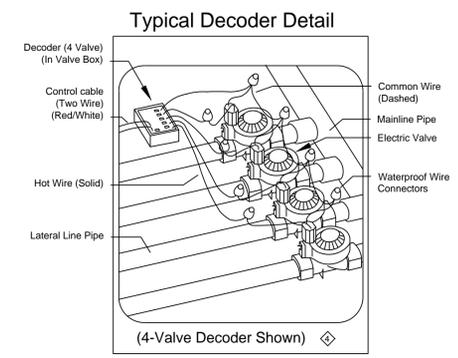
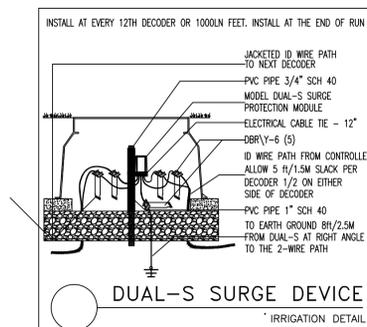
**PRELIMINARY DATE**  
11/05/15 PSP SUBMITTAL  
11/20/15 CITY REVIEW  
12/01/15 CITY REVIEW

**ISSUE DATE**  
**REVISION DATE**

**SHEET NUMBER**

**\* NOT TO BE USED FOR CONSTRUCTION DRAWINGS \***





**IRRIGATION LEGEND:**

**WATER REQUIREMENTS: 24 GPM @ 55 PSI**  
(CONTRACTOR TO VERIFY PSI AVAILABLE ON SITE PRIOR TO SYSTEM INSTALLTION)

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-PRS04-CV
	MP1000 ● MP2000 ○ MP3000 ● MPSS530/MPLC(RC)15	ICV-Series
	ELECTRIC VALVE W DECODER	QVC-100
	QUICK COUPLER VALVE	ICORE-m-DUAL
	ELECTRIC CONTROLLER	FEBCO 765P100
	PRESSURE VACUUM BREAKER	SOLAR SYNC (wireless)
	ISOLATION GATE VALVE (LINE SIZE)	See note this sheet
	RAIN SENSOR DEVICE	
	POINT OF CONNECTION TO WATER SOURCE	
	PVC MAINLINE, SDR 26, BE, Size as shown	
	POLYETHYLENE PIPE, 100#, NSF APPROVED, Size as shown	
	PVC SLEEVES - SDR 26 - Size as shown	

**VALVE DESIGNATION:**

Controller and Station Number  
Valve Size  
Gallons Per Minute

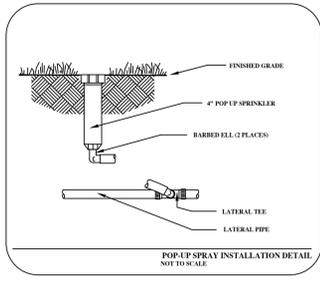
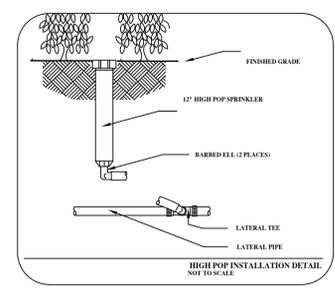
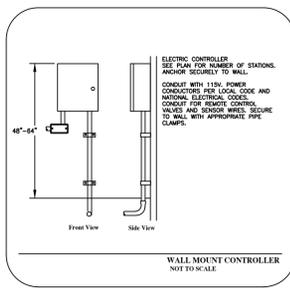
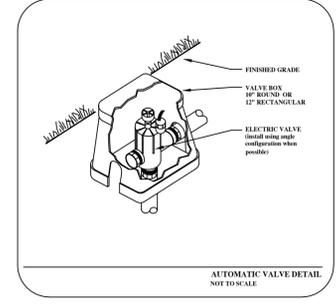
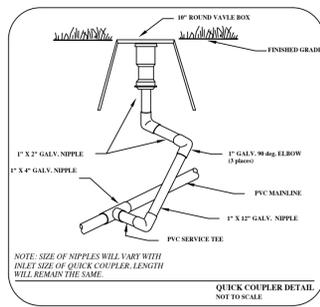
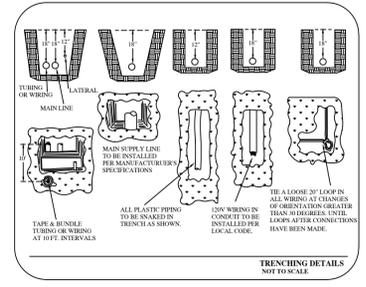
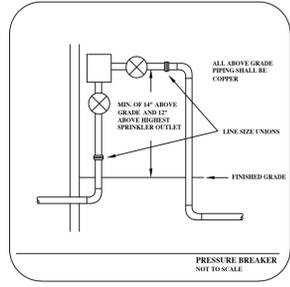
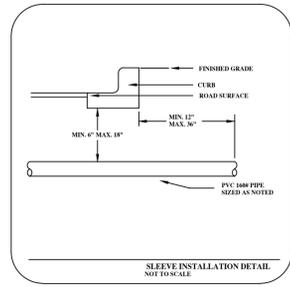
**PIPE SIZE CHART**

0-12 GPM = 1" DIAMETER POLYETHYLENE PIPE  
12-24 GPM = 1 1/4" DIAMETER POLYETHYLENE PIPE  
24-30 GPM = 1 1/2" DIAMETER POLYETHYLENE PIPE  
30-60 GPM = 2" DIAMETER POLYETHYLENE PIPE

- 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 kits.
  - 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 160# (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 turf grass.
  - 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.

**ROCHESTER HILLS NOTES:**

- IRRIGATION NOTES:**
- A. ALL LANDSCAPE AREAS TO BE IRRIGATED
- B. IRRIGATION WATERING SHALL ONLY OCCUR BETWEEN THE HOURS OF 12:00 AM AND 5:00 AM



**LIQUID ASSETS**  
IRRIIGATION DESIGN & WATER MANAGEMENT

4843 Kittery NW  
Comstock Park, Michigan 49321  
Tel. (248) 789-0330 (616) 745-5779  
email: abarnes@lqdassets.org  
www.lqdassets.org

**\* NOT TO BE USED FOR CONSTRUCTION DRAWINGS\***



**WOODSPRING SUITES**

**ROCHESTER HILLS, MICHIGAN**

**SHEET**

**IRRIGATION DETAILS & NOTES**

**PRELIMINARY DATE**

11/05/15 PSP SUBMITTAL  
11/20/15 CITY REVIEW  
12/01/15 CITY REVIEW

**ISSUE DATE**

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**SHEET NUMBER**

**L502**