PROPOSED MEDICAL BUILDING FOR:

1220 WEST AUBURN ROAD

ROCHESTER HILLS, MICHIGAN 48309

OAKLAND COUNTY - MICHIGAN

CITY FILE #07-015, SECTION 28

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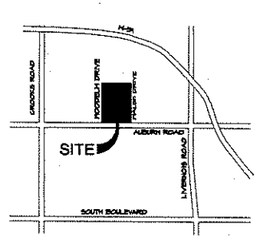


LOCATION MAP
NOT TO SCALE

ARCHITECTURAL, STRUCTURAL, MECHANICAL & ELECTRICAL

GAV ASSOCIATES
ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. & ASSOCIATES, INC.
31471 NORTHWESTERN HIGHWAY, SUITE #2
FARMINGTON HILLS, MICHIGAN 48334
PHONE (248) 985-9101 FAX (248) 985-9105
GAV@GAVASSOCIATES.COM

⚠1 SPA REVISIONS	02/11/08
⚠1 SPA REVISIONS	11/16/07
SITE PLAN APPROVAL	08/28/07

NORTH

LEGAL DESCRIPTION:

BLOCKS 9 AND 10, ALSO LOTS 1 AND 8 BLOCK 87 OF "SUPERVISOR'S REPLAT OF GLIDWELL SUBDIVISION" A SUBDIVISION OF THE S.E. 1/4 OF SECTION 28 T3N, R11E., AVON TOWNSHIP (NOW CITY OF ROCHESTER HILLS), OAKLAND COUNTY, MICHIGAN. RECORDED IN LIBER 52 OF PLATS, PAGE 28, OAKLAND COUNTY RECORDS. CONTINING A NET AREA OF 0.97 ACRES MRE OR LESS.

CDS WATER TREATMENT UNIT MAINTENANCE

1. INSPECT UNITS EVERY 90 DAYS.
2. CLEAN OUT SUMPS AT 75% SUMP CAPACITY.
3. INSPECT UNITS EVERY 30 DAYS DURING RAINFALL SEASON.
4. CLEAN OUT UNIT AT END OF RAINFALL SEASON.
5. PUMP DOWN UNIT ONCE A YEAR.
6. POWER WASH SCREEN ONCE PER YEAR.
7. MAINTAIN ANNUAL RECORDS.
8. INSPECTION TO BE BY A CERTIFIED PROFESSIONAL.

UNDERGROUND DETENTION PIPES MAINTENANCE

1. ANNUALLY INSPECT EACH CELL FROM EACH END.
2. ANNUALLY CLEAN OUT SYSTEM AT DRY WEATHER SEASON.
3. CLEAN SYSTEM WHEN BACK UP OCCURS.
4. ANNUALLY INSPECT OVERFLOW MANHOLE AND CLEAN OUT.
5. INSPECTION BY A CERTIFIED PROFESSIONAL.

UNDERGROUND 100 YEAR STORM DETENTION NEEDED

1. SMALL SITE NO ROOM FOR CONVENTIONAL DETENTION.
2. INSPECTION/MAINTENANCE 36" RISERS PER CELL.
3. ESTABLISH MAINTENANCE AGREEMENT WITH OWNER.
4. PREVENT SEDIMENT FROM ENTERING DETENTION SYSTEM BY USE OF A WATER TREATMENT STRUCTURE, PRIOR TO DETENTION SYSTEM.
5. GROUND AND THE UNDERGROUND WILL BE INSTALLED 2.0 FEET BELOW RIMS OF CATCH BASINS WHICH WILL BE ABOVE GROUND WATER. WILL HAVE NO IMPACT.
6. THE HOLL WILL HAVE LITTLE AFFECT DUE TO LOW AMOUNTS OF WATER ENTERING UNDERDRAINS.
7. IN ORDER TO MEET CITY PLANNING NEEDS, THE SITE CANNOT CHANGE ANY TO REDUCE THE "C" FACTOR.
8. STORM WATER QUALITY WILL BE IMPROVED THRU WATER TREATMENT UNITS AND ALSO SETTLING IN DETENTION PIPES, BEFORE OUTLETTING.
9. THERE WILL BE A 36" RISER AT THE ENDS OF EACH CELL, FOR ENTRY.
10. THE IMPACT OF THE INCREASED IMPERVIOUS SURFACES VERSES THE EXISTING IMPERVIOUS SURFACES HAS A SMALL INCREASE WITH A BETTER STORM WATER MANAGEMENT.

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS, SPECIFICATIONS, AND GENERAL CONDITIONS OF THE CITY OF ROCHESTER HILLS.
2. CONTRACTOR IS RESPONSIBLE TO COORDINATE HIS ACTIVITY WITH DETROIT EDISON, AMERITECH, GAS COMPANIES, AND THE CITY OF ROCHESTER HILLS.
3. ALL ELEVATIONS IN PAVED AREAS ARE TOP OF FINISH PAVEMENT UNLESS OTHERWISE SHOWN.
4. ADD 0.33' TO GUTTER ELEVATION ON PROPOSED DRIVE TO OBTAIN TOP OF CURB ELEVATION.
5. MINIMUM LONGITUDINAL SLOPE ON SWALES IS 0.50%.
6. REFER TO ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS FOR EARTHWORK AND COMPACTION REQUIREMENTS FOR ALL SLABS AND BUILDING FOUNDATIONS.
7. ALL EXISTING STRUCTURES AND BURIED FOUNDATIONS SHOULD BE COMPLETELY REMOVED.
8. ALL EXISTING FILL IS TO BE REMOVED AT THE BUILDING AREA. VIRGIN MATERIAL IS TO BE PROOF-ROLLED. NEW ENGINEERING FILL IS TO BE INSTALLED AS SPECIFIED IN THE GEOTECHNICAL REPORT.

Storm Sewer Notes:

1. All workmanship and materials shall be in accordance with the current standards and specifications of City of Rochester Hills.
2. It shall be the owner's engineer and contractor's responsibility to verify the existence and location of all underground utilities.
3. All sewer trenches under the 45° zone of influence of existing or proposed pavements shall be backfilled with sand compacted to 95% max. unit weight.
4. All storm sewer shall be installed on Class "B" bedding or better.
5. Storm sewer joints shall be tongue and groove premium joints with rubber gaskets unless specified otherwise.

GRADE NOTE

ALL EXISTING CURB SHOTS ARE TOP OF CURB, ALONG AUBURN ROAD, WOODELM DRIVE, AND WALSH DRIVE DEDUCT 0.5 FEET TO OBTAIN FINISH GRADE. ±1.0'

BENCH MARK #1

RAILROAD SPIKE IN POWER POLE LOCATED NORTHWEST CORNER OF AUBURN ROAD AND WOODELM DRIVE ELEV. 835.27 U.S.G.S. DATUM

BENCH MARK #2

ARROW ON TOP OF HYDRANT LOCATED NORTHEAST CORNER OF AUBURN ROAD AND WOODELM DRIVE ELEV. 840.62 U.S.G.S. DATUM

BENCH MARK #3

ARROW ON TOP OF HYDRANT LOCATED NORTHEAST CORNER OF AUBURN ROAD AND WALSH DRIVE ELEV. 846.34 U.S.G.S. DATUM

LEGEND

DS=DOWNSPOUT
CO=CLEANOUT

CDS TECHNOLOGY

REMOVES SEDIMENT, TRASH, AND FREE OIL AND GREASE.

PATENTED SCREENING TECHNOLOGY CAPTURES AND RETAINS 100% OF FLOATABLES, INCLUDING NEUTRALLY BUOYANT AND ALL OTHER MATERIAL GREATER THAN THE SCREEN APERTURE.

OPERATION INDEPENDENT OF FLOW.

PERFORMANCE VERIFIED THROUGH LAB AND FIELD TESTING.

UNOBSTRUCTED MAINTENANCE ACCESS.

NOTE

THE FOLLOWING STRUCTURES WILL BE CONTECH CDS MODEL # PMSU20_15_4 WATER TREATMENT UNITS: CB-1 & CB-7
CDS=CONTINUOUS DEFLECTION SEPARATION TECHNOLOGY.

NOTE

ADA COMPLIANT RAMPS WILL BE INSTALLED ON THE PEDESTRIAN PATH AT THE INTERSECTION WITH WOODELM AND WALSH.

SOUTH 1/4 CORNER SECTION 28 T3N., R11E.

SOUTHEAST CORNER SECTION 28 T3N, R11E.

W. AUBURN ROAD (WIDTH VARIES) (MDOT ROAD)
(ASPHALT PAVED)

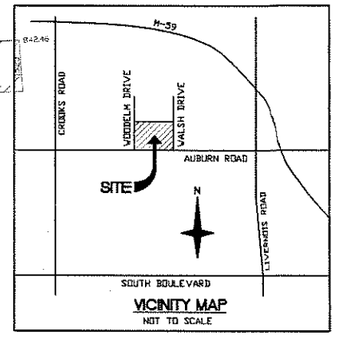
2307.12' TOTAL SEC. COR. TO SEC. COR.

3 WORKING DAYS (EXCLUDING SAT, SUN, AND HOLIDAYS)
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
(TOLL FREE)

LAND ENGINEERING LEGEND

EXISTING	PROPOSED	SYMBOL DESCRIPTION
⊙	●	STORM MANHOLE
⊛	●	STORM CATCH BASIN (YARD)
⊡	■	STORM CATCH BASIN (PAVEMENT)
△	▲	STORM OUTLET/INLET
⊗	⊛	WATER GATE VALVE
⊎	⊎	WATER HYDRANT
	▲	WATER THRUST BLOCK
⊘	⊘	SANITARY SEWER MANHOLE
○	●	SANITARY SEWER CLEAN OUT
✳		LIGHT POLE
		UTILITY POLE
⊕	⊕	PROPERTY CORNER

LINETYPE STYLE	LINETYPE DESCRIPTION
	EXISTING STORM SEWER
	PROPOSED STORM SEWER
	EXISTING WATER MAIN
	PROPOSED WATER MAIN
	EXISTING SANITARY SEWER
	PROPOSED SANITARY SEWER
	EXISTING OVERHEAD WIRES



VICINITY MAP
NOT TO SCALE

2-5-09	PER HRC 1-7-08	EK
11-26-07	PER HRC 10-08-07	DK
DATE	REVISIONS	BY

DRAWN	DK
DESIGNED	
CHECKED BY	EK
APPROVED BY	NK

L.E.S.
LAND ENGINEERING SERVICES, INC.
2201 12 MILE ROAD
WARREN, MICHIGAN 4092
PHONE (586) 582-9800 FAX (586) 582-9866
E-MAIL -- landengineering@comcast.net

Preliminary Grading and Utilities Plan

NOT TO BE USED FOR CONSTRUCTION

1220 W Auburn Road
Rochester Hills, Oakland County, Michigan

CLIENT:			SHT
Farhat Osmen (248)594-8685	540 Pine Valley Way Bloomfield Hills, Michigan		C-1
SCALE: 1"=20'	ISSUE DATE: 7-10-07	JOB NO. 07006	OF C-7

City File #07-015

NORTH

TREE LIST

Consecutive Tree #	Tree Tag #	Tree Size	Botanical Name	Condition	Dripline	Secondary Items	Comments
1	601	12"	Acer saccharinum	Fair	20'		Poor crotch
2	602	17"	Acer saccharinum	Good	17'		
3	603	17"	Picea pungens	Good	15'		
4	604	9"	Acer platanoides	Fair	17'	9,8	Poor crotch
5	605	18"	Pinus sylvestris	Fair	17'		Top missing
6	606	8"	Pinus sylvestris	Fair	10'		Declining
7	607	25"	Ulmus sibirica	Good	28'		
8	608	8"	Salix matsudana "Tortuosa"	Good	15'	multi-stem	
9	609	8"	Ulmus sibirica	Good	13'	4-stem	
10	610	8"	Ulmus sibirica	Good	10'		
11	611	7"	Ulmus sibirica	Good	14'		
12	612	8"	Ulmus sibirica	Good	13'	3-stem	
13	613	11"	Salix spp.	Good	15'		Utility pruned
14	614	7"	Ulmus sibirica	Fair	15'	2-stem	Utility pruned
15	615	8"	Acer negundo	Poor	11'		Split in crotch
16	616	10"	Picea spp.	Fair	10'		Utility pruned
17	617	28"	Robinia pseudoacacia	Fair	24'	20	Rot in crotch

LEGAL DESCRIPTION:

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GENERAL NOTES

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

THIS DRAWING MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY HAS BEEN FURNISHED TO THE SURVEYOR BY THE OWNER.

ALL ELEVATIONS ARE EXISTING ELEVATIONS.

IF GAS MAIN OR ANY UNDERGROUND LINES FOR AMERITECH, DETROIT EDISON, CABLE TELEVISION ARE NOT SHOWN, PLAN MUST BE SUBMITTED TO UTILITY COMPANY FOR ANY FINAL CONSTRUCTION.

ALL CURB GRADES ARE TOP OF CURB AND DEDUCT 0.50 FEET TO ESTABLISH GUTTER GRADE ON AUBURN ROAD, WOODELM DRIVE AND WALSH DRIVE.

LEGEND

MH_STORM=STORM MANHOLE
MH_SAN=SANITARY MANHOLE
CB=CATCH BASIN
HYD=HYDRANT
GV/W=GATE VALVE AND WELL
PP=POWER POLE
CO=CLEANOUT
BP=BUMPER POST
WSO=WATER SHUT OFF
FF=FINISH FLOOR
GM=GAS METER
EB=ELECTRIC BOX
OH-WIRES=OVERHEAD WIRES
FPOST=FENCE POST
MAILB=MAIL BOX
CONC=CONCRETE
CCUL=CONCRETE CULVERT
ST=STORM
HC=HANDICAP
●=SET 1/2" IRON
○=SET CHISELED "X" IN CONC.
R/W=RIGHT OF WAY

BENCH MARK #1

RAILROAD SPIKE IN POWER POLE LOCATED NORTHWEST CORNER OF AUBURN ROAD AND WOODELM DRIVE ELEV. 835.27 U.S.G.S. DATUM

BENCH MARK #2

ARROW ON TOP OF HYDRANT LOCATED NORTHEAST CORNER OF AUBURN ROAD AND WOODELM DRIVE ELEV. 840.62 U.S.G.S. DATUM

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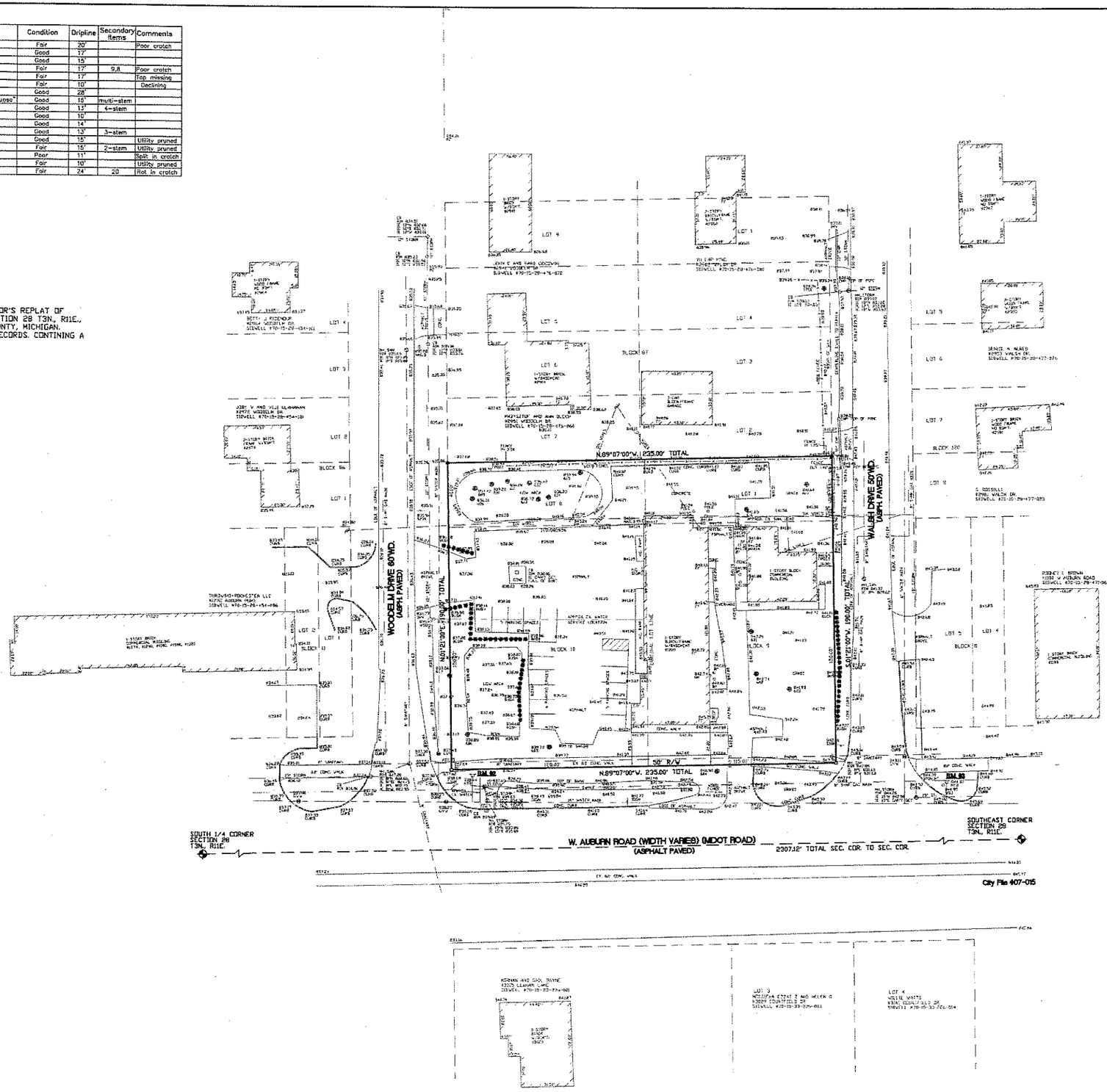

LAND ENGINEERING LEGEND

EXISTING	PROPOSED	SYMBOL DESCRIPTION
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	▲	WATER THRUST BLOCK
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⊙	●	SANITARY SEWER CLEAN OUT
✳		LIGHT POLE
⊂⊃		UTILITY POLE
⊕PI	⊕PI	PROPERTY CORNER

LINETYPE STYLE	LINETYPE DESCRIPTION
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	PROPOSED STORM SEWER
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	EXISTING SANITARY SEWER
	PROPOSED SANITARY SEWER
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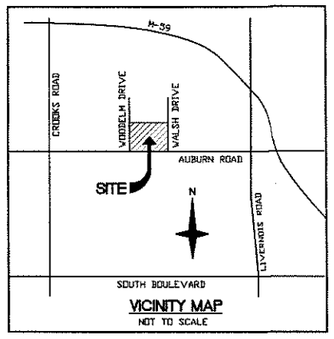


VICINITY MAP
NOT TO SCALE

2-5-08	PER HRC 1-7-08	DK
11-26-07	PER HRC 10-08-07	DK
DATE	REVISIONS	BY

DRAWN	DK
DESIGNED	
CHECKED BY	EK
APPROVED BY	NK

L.E.S.
LAND ENGINEERING SERVICES, INC.
2201 12 MILE ROAD
WARREN, MICHIGAN 48092
PHONE (586) 582-9800 FAX (586) 582-9866
E-MAIL -- landengineering@comcast.net

Complete Topographical and Tree Survey and Demolition Plan
NOT TO BE USED FOR CONSTRUCTION
1220 W Auburn Road
Rochester Hills, Oakland County, Michigan

CLIENT:		SHT
Farhat Osman (248)594-8685	540 Pine Valley Way Bloomfield Hills, Michigan	C-2
SCALE: 1"=30'	ISSUE DATE: 3-19-07	JOB NO. 07006	OF C-7

ORIFICE CALCULATION

A = Qa x 144 /0.62 x SQRT(2g x h)

A =area in sq.in. Qa = allowable flow rate in cfs

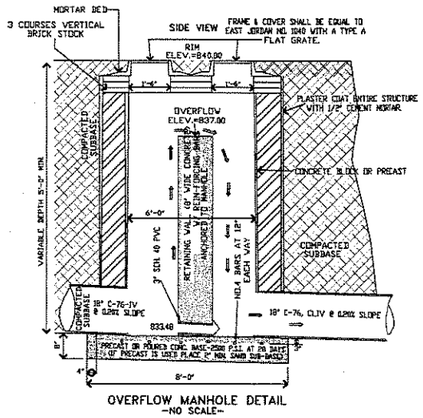
g = 32.2 ft/sec^2 H = head in ft.

Orifice Dia (inches) = 2 x SQRT(A / 3.1416)

Qa=	0.194
h=	1.75
A =	**4.251**
Dia =	**2.33**

DETENTION BASIN CALCULATION (OAKLAND COUNTY)

JOB NAME		ORIFICE OUTLET
JOB #		100 YEAR STORM
LOCATION		
DRAINAGE AREA (Ac)	0.97	
Disch. Rate/ Ac. (Q_a/Ac)	0.20	
C (runoff coef.)	0.90	
Qa	0.194	
Qo (Qa/ (C*A))	0.222	
STORAGE TIME T_{100} =	-25+SQRT(10,312.5/Q_o)	
T_{100} =	190.42	
STORAGE VOLUME PER Ac. **(Vs)**		
Vs_{100}=	(16,500*T)/(T+25) -40*Qo*T	
Vs_{100}=	12893 CF/Ac.imperv.	
TOTAL STORAGE VOLUME REQUIRED **(Vt_{100})**		
Vt_{100}=	Vs*A*C	
Vt_{100}=	**11255** CF	



LAND ENGINEERING LEGEND

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		STORM CATCH BASIN (YARD)
		STORM CATCH BASIN (PAVEMENT)
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LINETYPE STYLE	LINETYPE DESCRIPTION
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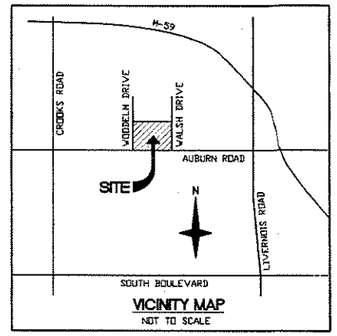
	PROPOSED WATER MAIN
	EXISTING SANITARY SEWER
	PROPOSED SANITARY SEWER
	EXISTING OVERHEAD WIRES



VICINITY MAP
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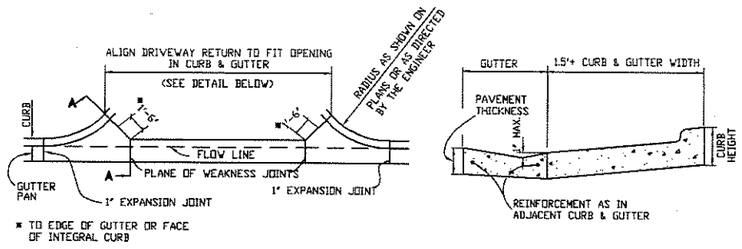
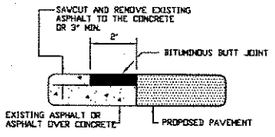


TYPE 'M' MDOT DRIVEWAY DETAIL 11-29E
NOT TO SCALE

2-5-08	PER HRC 1-7-08	DK
11-26-07	PER HRC 10-08-07	DK
DATE	REVISIONS	BY

DRAWN	DK
DESIGNED	
CHECKED BY	EK
APPROVED BY	NK



BUTT JOINT DETAIL
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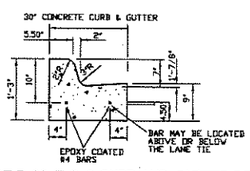

MDOT R-30-E C-2 CURB AND GUTTER DETAIL
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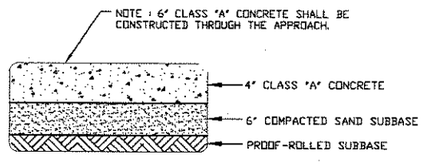

CONCRETE SIDEWALK SECTION
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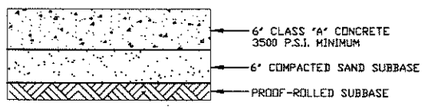

CONCRETE DUMPSTER PAVEMENT SECTION
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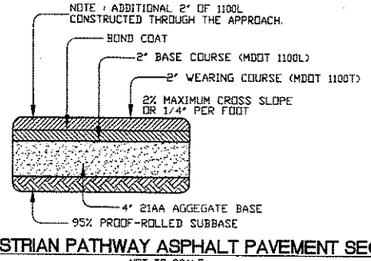

PEDESTRIAN PATHWAY ASPHALT PAVEMENT SECTION
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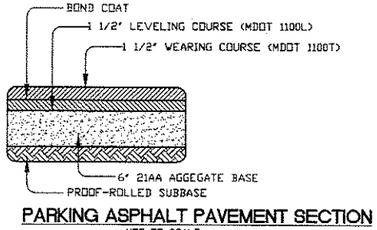

PARKING ASPHALT PAVEMENT SECTION
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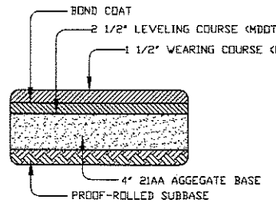


DRIVE ASPHALT PAVEMENT SECTION
NOT TO SCALE

3 WORKING DAYS (EXCLUDING SAT. SUN, AND HOLIDAYS)
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
(TOLL FREE)

L.E.S.
LAND ENGINEERING SERVICES, INC.
2201 12 MILE ROAD
WARREN, MICHIGAN 48092
PHONE (586) 582-9800 FAX (586) 582-9866
E-MAIL – landengineering@comcast.net

Paving and Storm Details

NOT TO BE USED FOR CONSTRUCTION
1220 W Auburn Road
Rochester Hills, Oakland County, Michigan

CLIENT: Farhat Osman	540 Pine Valley Way Bloomfield Hills, Michigan (248)594-8585	SHT
		C-3
SCALE: 1"=10'	ISSUE DATE: 7-10-07	JOB NO. 07006
		OF C-7

PRELIMINARY

THESE PRELIMINARY PLANS ARE ISSUED FOR APPROVAL BY THE LOCAL REVIEWING AGENCY. ONLY FABRICATION DRAWINGS DEVELOPED IN ACCORDANCE WITH THESE APPROVED DRAWINGS ARE SUITABLE FOR CONSTRUCTION. THE LOCAL AGENCY APPROVAL ONLY APPLIES TO MATERIAL SPECIFIED WITHIN THESE PLANS AND SUPPLIED BY CONTECH CONSTRUCTION PRODUCTS, INC. ANY USE OF ALTERNATE MATERIAL MUST BE APPROVED BY THE LOCAL REVIEWING AGENCY

CONTECH® STORMWATER SOLUTIONS INC.

PRELIMINARY
NOT APPROVED FOR
FABRICATION OR CONSTRUCTION

54"Ø UNDERGROUND DETENTION SYSTEM

AUBURN ROAD DEVELOPMENT
ROCHESTER HILLS, MI

NO.	DATE	DESCRIPTION	DRAWN BY	APPROVED BY
3	.	.	.	.
2	.	.	.	.
1	.	.	.	.
0	11/28/07	PRELIMINARY / PROPOSAL DRAWINGS	TE	.

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (4) PAGES.

CUSTOMER _____ DATE _____

INDEX:

P1	COVER SHEET
P2	PRELIMINARY LAYOUT
P3–P4	CONSTRUCTION DETAILS

NOTE:
1. LOCATION OF ALL MANHOLES, STUBS, INLETS, OUTLETS AND OUTLET CONTROL STRUCTURES, TO BE SPECIFIED BY PROJECT ENGINEER OF RECORD PRIOR TO FABRICATION.
2. ALL RECOMMENDED REINFORCING ON THE SYSTEM WILL BE DESIGNED BY MANUFACTURER TO CONFORM TO ASTM A998 AFTER PURCHASE ORDER IS ISSUED.

NOTES:

1) ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER PRIOR TO RELEASING FOR FABRICATION.

2) IN SITUATIONS WHERE A FINE–GRAINED BACKFILL MATERIAL IS USED ADJACENT TO THE PIPE SYSTEM, AND ESPECIALLY IN SITUATIONS INVOLVING HIGH GROUNDWATER TABLES, CONSIDERATION SHOULD BE GIVEN TO THE USE OF GASKETED PIPE JOINTS. THE PIPE JOINTS SHALL BE WRAPPED IN A SUITABLE, 4 OUNCE NON–WOVEN GEOTEXTILE FABRIC TO PREVENT INFILTRATION OF FINES INTO THE PIPE SYSTEM.

3) ALL FITTINGS COMPLY WITH ASTM A998.

4) SYSTEM MADE FROM: 54"ø, 2 2/3"x1/2", ALT2, 14ga., CSP.

5) MINIMUM COVER HEIGHT FOR PIPE DESCRIBED IN NOTE #4 IS 12".

6) CONSIDERATIONS FOR CONSTRUCTION EQUIPMENT LOADS MUST BE TAKEN INTO ACCOUNT. SEE DETAIL X, PAGE X.

7) CSP IS SUBJECT TO MANUFACTURERS TOLERANCES.

8) ALL RISERS AND STUBS ARE 2 ⅔" X ½" CORRUGATION AND 16 GAGE, ALT2, UNLESS OTHERWISE NOTED.

9) RISERS TO BE FIELD TRIMMED TO FINAL GRADE, MAY BE FITTED WITH LADDER OR STEPS AS REQUIRED BY ENGINEER OF RECORD. FOR TYPICAL MANHOLE CAP DETAIL SEE 4, PAGE P4.

10) SYSTEM IS DESIGNED FOR H20 OR H25 LOADING.

SPECIFICATION FOR CORRUGATED STEEL PIPE–ALUMINIZED TYPE 2 STEEL:

SCOPE:
THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL:
THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M 274 OR ASTM A 929.

PIPE:
THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M–36 OR ASTM A760. THE PIPE SIZES, GAUGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING & ASSEMBLY:
SHALL BE IN ACCORDANCE WITH NCSPA'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) RECOMMENDATIONS.

INSTALLATION:
SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A 798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE PROJECT ENGINEER.

IT IS ALWAYS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

CONSTRUCTION LOADS:
CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

INSTALLATION SPECIFICATION

PRE–CONSTRUCTION MEETING

PRIOR TO INSTALLATION OF THE DETENTION SYSTEM A PRE–CONSTRUCTION MEETING SHALL BE CONDUCTED. THOSE REQUIRED TO ATTEND ARE THE SUPPLIER OF THE DETENTION SYSTEM, THE GENERAL CONTRACTOR, SUB CONTRACTORS AND THE ENGINEER OF RECORD.

FOUNDATION/BEDDING PREPARATION

PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE AS APPROVED BY ENGINEER OF RECORD. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE 4 INCHES OF A WELL–GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE BEDDING.

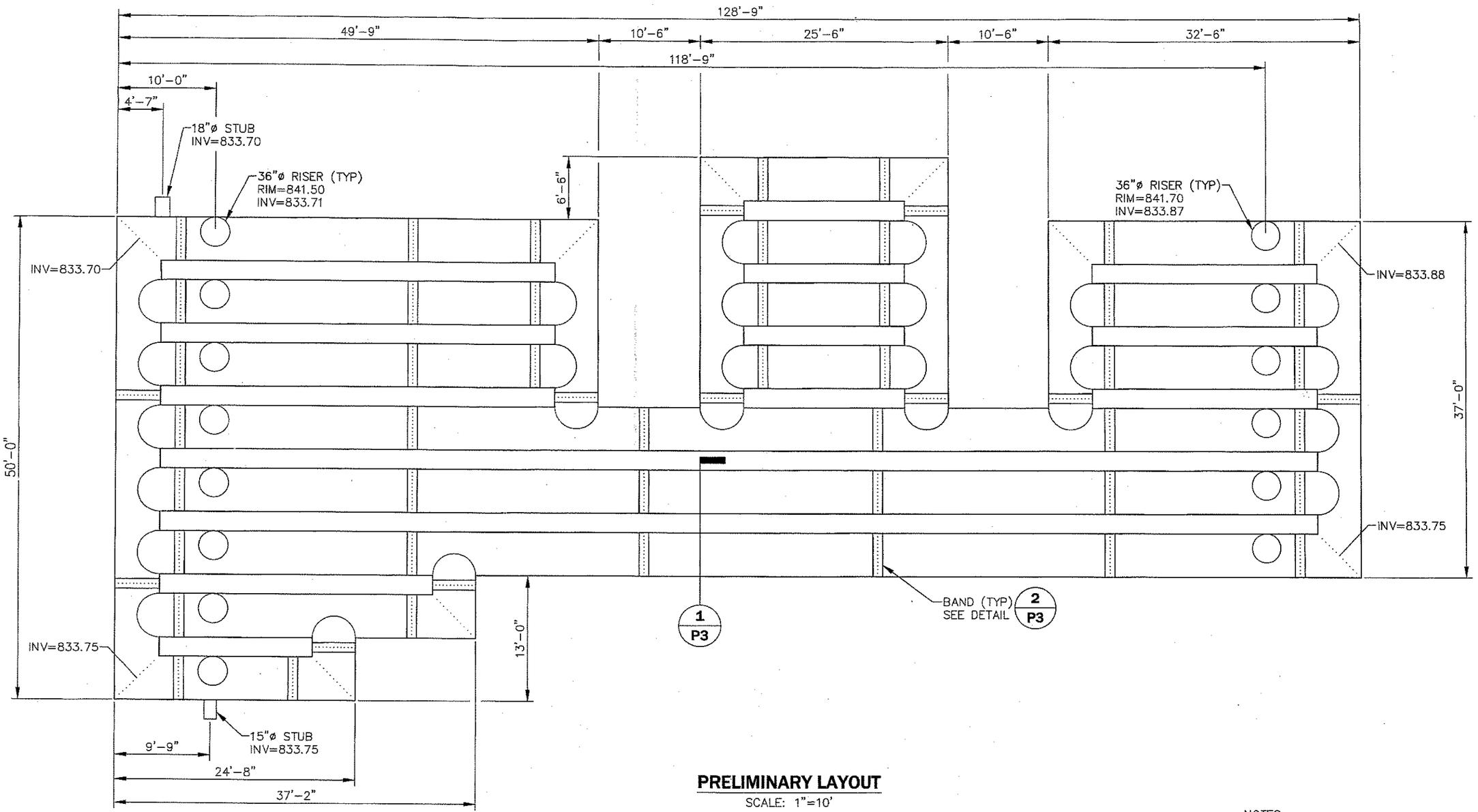
BACKFILL

THE BACKFILL SHALL BE AN A1 OR A3 GRANULAR FILL PER AASHTO M–145, MDOT CLASS II SAND OR A WELL–GRADED GRANULAR FILL AS APPROVED BY THE ENGINEER (SEE INSTALLATION GUIDELINES). THE MATERIAL SHALL BE PLACED IN 8–INCH LOOSE LIFTS AND COMPACTED TO 90% AASHTO T99 STANDARD PROCTORDENSITY. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY TIME DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS AND DIRECTION FROM THE ENGINEER OF RECORD. REFER TO TYPICAL BACKFILL DETAIL WITHIN THIS SET OF PLANS FOR TYPE OF MATERIAL REQUIRED.

MINIMUM COVER

BACKFILL SHALL BE PLACED TO THE PROPER ELEVATION OVER THE SYSTEM AS OUTLINED IN THE PLANS. MINIMUM COVER FOR CONSTRUCTION LOADING NEEDS TO BE DETERMINED BASED ON THE TYPE OF EQUIPMENT THAT IS PLANNED FOR CONSTRUCTION. PROPER COVER FOR CONSTRUCTION EQUIPMENT SHALL BE DETERMINED PRIOR TO THE PRE–CONSTRUCTION MEETING BY THE ENGINEER.



PRELIMINARY LAYOUT

SCALE: 1"=10'

STORAGE VOLUME PROVIDED = 13,564 C.F.

NOTES:
PIPE IS 54", ALT2, 14GA., 2 2/3x1/2, CSP

SPACING BETWEEN PIPES IS 2'-0"

SYSTEM SLOPE IS 0.01%

PRELIMINARY

NOT APPROVED FOR

FABRICATION OR CONSTRUCTION

NO.	DATE	DESCRIPTION	DRAWN BY	APPROVED BY
3	.	.	.	.
2	.	.	.	.
1	.	.	.	.
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NOTE:
1. LOCATION OF ALL MANHOLES, STUBS, INLETS, OUTLETS AND OUTLET CONTROL STRUCTURES, TO BE SPECIFIED BY PROJECT ENGINEER OF RECORD PRIOR TO FABRICATION.
2. ALL RECOMMENDED REINFORCING ON THE SYSTEM WILL BE DESIGNED BY MANUFACTURER TO CONFORM TO ASTM A998 AFTER PURCHASE ORDER IS ISSUED.

TBD = TO BE DETERMINED

CONTECH ID# 29849.01

CONTECH STORMWATER SOLUTIONS INC.
9025 CENTRE POINTE DRIVE, SUITE 400
WEST CHESTER, OHIO 45069
PH: 1.800.338.1122 FAX: 513.645.7399

LES SHEET C-5 OF C-7

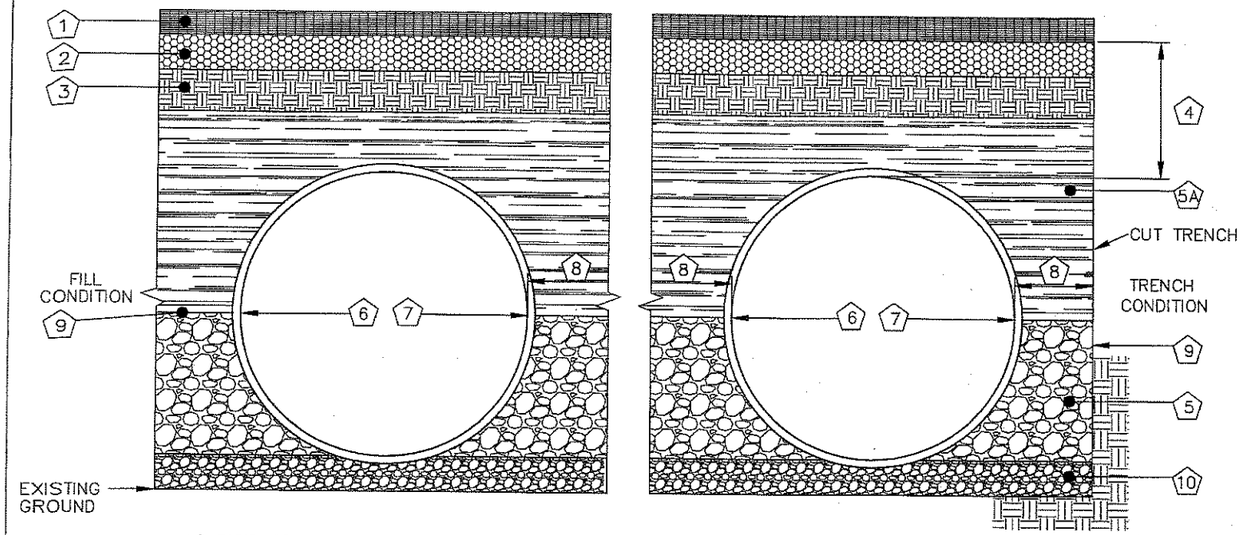
PRELIMINARY LAYOUT

54"Ø UNDERGROUND DETENTION SYSTEM

AUBURN ROAD DEVELOPMENT

ROCHESTER HILLS, MI

SCALE:	AS SHOWN
DRAWN BY:	TE
DATE:	11/28/07
REV. BY:	-
DATE:	11-29-07
SHEET:	P2 OF 4



H20/H25 LIVE LOAD

1.) RIGID OR FLEXIBLE PAVEMENT

2.) GRANULAR ROAD BASE (MDOT 21-AA OR EQUAL)

3.) MDOT CLASS II SAND PLACED IN 8" LIFTS AND COMPACTED TO MIN. 90% STANDARD DENSITY PER AASHTO T-99.

4.) 12" MIN. FOR DIAMETERS THROUGH 96" 18" MIN. FOR DIAMETERS FROM 102" AND UP MEASURED FROM TOP OF RIGID OR BOTT. OF FLEXIBLE PAVEMENT.

5.) CRUSHED STONE ANGULAR FILL SUCH AS #8, #57, MDOT 6A, 2G, 3G, 34G OR APPROVED EQUAL. (COMPACTED TO MIN. 90% STANDARD DENSITY PER AASHTO T-99.

5A.) APPROVED GRANULAR MATERIALS SUCH AASHTO A1, A3, MDOT CLASS II SAND OR AS APPROVED BY ENGINEER, MATERIAL COMPACTED TO MIN. 90% STANDARD DENSITY PER AASHTO T-99.

6.) 12"ø THRU 84"ø 2 2/3" X 1/2" CSP, GAGE PER AASHTO SECTION 12 OR MDOT 2003 STANDARD SPECIFICATION FOR CONSTRUCTION.

7.) 54"ø THRU 144"ø 3" X 1" OR 5" X 1" CSP GAGE PER AASHTO SECTION 12 OR MDOT 2003 STANDARD SPECIFICATIONS FOR CONSTRUCTION

8.) STANDARD SPACING IN TABLE, SPECIAL SPACING IS SUBJECT TO APPROVAL BY CONTECH

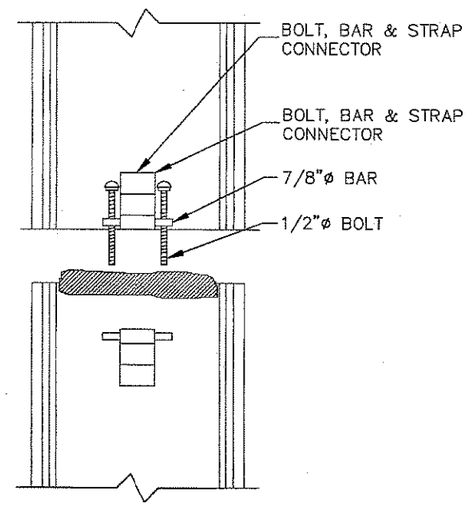
SPACING CHART PER AISI AND NCSPA GUIDELINES	
DIAMETER	REQUIRED SPACING
UP TO 24"	12in.
24"-72"	1/2 PIPE DIA
72" AND UP	36in.

9.) CONTECH C40 4 OUNCE NON-WOVEN GEOTEXTILE AS REQUIRED TO PREVENT SOIL MIGRATION

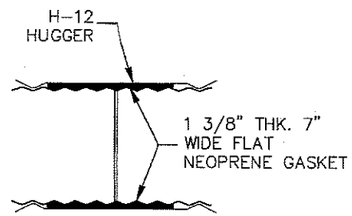
10.) RELATIVELY LOOSE GRANULAR BEDDING, ROUGHLY SHAPED TO FIT BOTTOM OF PIPE, 4" TO 6" IN DEPTH. (#57 OR #8 OR OTHER SUITABLE GRANULAR)

11.) CMP COATING DAMAGED DURING INSTALLATION SHALL BE REPAIRED WITH ZINC RICH PAINT PER ASTM A 760.

1 / P3 TYPICAL BACKFILL DETAIL
SCALE: N.T.S.



CONNECTION DETAIL
SINGLE
BOLT, BAR & STRAP



FLAT GASKET

GASKETED SECTION

GENERAL NOTES:

1. REFER TO CONTECH BAND SELECTION GUIDE FOR BAND WIDTH, GAGE, AND FASTENER TYPES.
2. BANDS FOR PIPE-ARCH ARE THE SAME AS FOR EQUIVALENT DIAMETER ROUND PIPE.
3. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   12" THRU 48" 1-PIECE
   54" THRU 96" 2-PIECE
   102" THRU 144" 3-PIECES.
4. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS. ALL ALUMINUM BANDS, BOTH SINGLE AND DOUBLE BB&S, ARE FURNISHED WITH A 14 GAGE ALUMINUM BACK-UP PLATE WELDED TO THE BAND AND THE STRAP.
5. REROLLED ANNULAR END CORRUGATIONS ARE NORMALLY 2-2/3" X 1/2". DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
6. ORDER SHALL DESIGNATE GASKET OPTION.

2 / P3 H-12 HUGGER BAND DETAIL
SCALE: N.T.S.

PRELIMINARY
NOT APPROVED FOR
FABRICATION OR CONSTRUCTION

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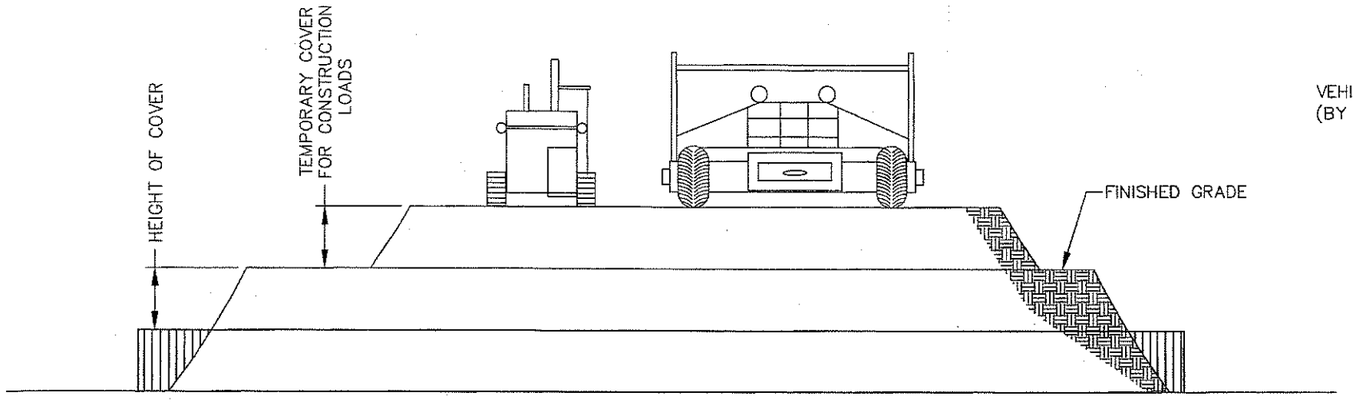
LES SHEET C-6 OF C-7

CONSTRUCTION DETAILS

54"Ø UNDERGROUND DETENTION SYSTEM
AUBURN ROAD DEVELOPMENT
ROCHESTER HILLS, MI

SCALE: AS SHOWN
DRAWN BY: TE
DATE: 11/28/07
REV. BY: -
DATE: 11-29-07
SHEET: P3 OF 4

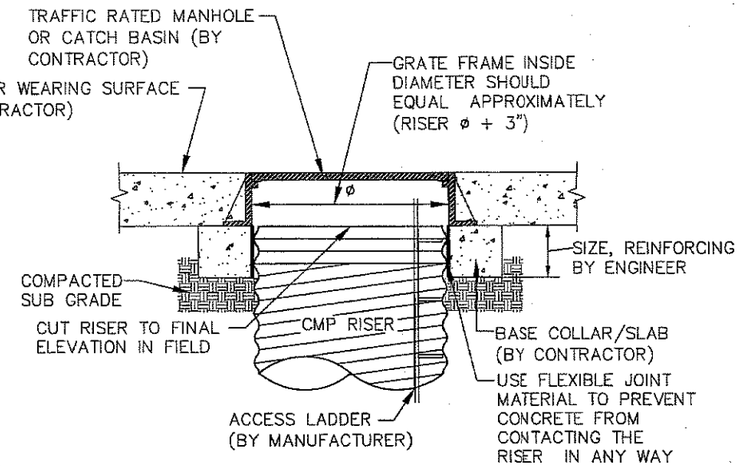


CONSTRUCTION LOADS:
FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

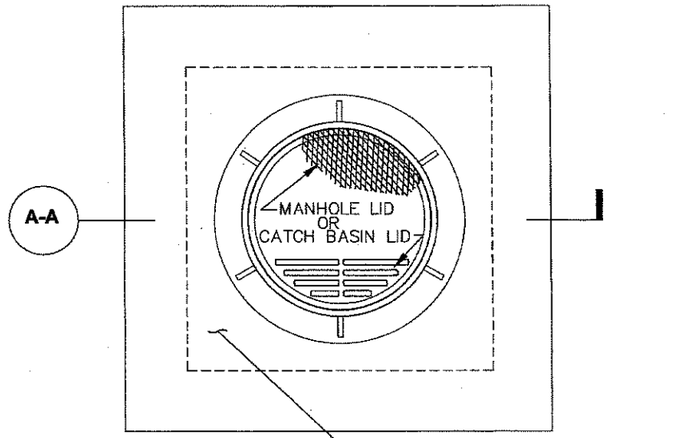
PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18–50	50–75	75–110	110–150
	MINIMUM COVER (FT)			
12–42	2.0	2.5	3.0	3.0
48–72	3.0	3.0	3.5	4.0
78–120	3.0	3.5	4.0	4.0
126–144	3.5	4.0	4.5	4.5

** MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE **MAINTAINED** CONSTRUCTION ROADWAY SURFACE.*

3 / P4 CONSTRUCTION LOADING DIAGRAM
SCALE: N.T.S.



SECTION A-A



NOTES:

1. THE CONCRETE CAP SHALL BE SIZED AND DESIGNED BY OTHERS SO THAT THE LOADS ARE TRANSMITTED TO THE SOIL, AND NOT THE RISER.
2. THE CONCRETE CAP SHALL BE SIZED TO PROVIDE AN ADEQUATE BOTTOM AREA BASED ON THE ALLOWABLE BEARING CAPACITY OF THE SOIL.
3. THE FLEXIBLE JOINT MATERIAL (RECYCLED VINYL OR EQ.) TO BE STIFF ENOUGH SO THAT THE CONCRETE CAN NEVER ENGAGE WITH THE RISER CORRUGATIONS.

4 / P4 MANHOLE CAP DETAIL
SCALE: N.T.S.

PRELIMINARY
NOT APPROVED FOR
FABRICATION OR CONSTRUCTION

NO.	DATE	DESCRIPTION	DRAWN BY	APPROVED BY
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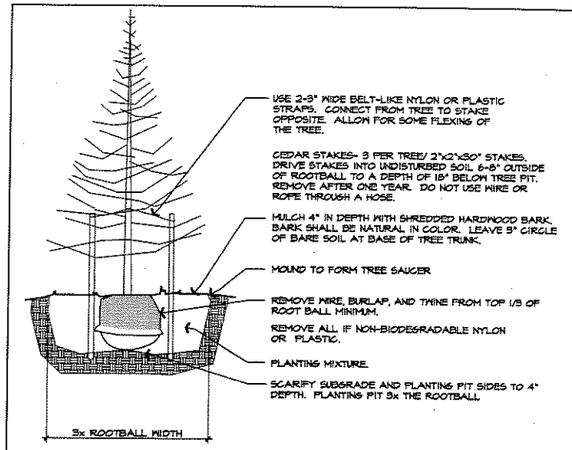
LES SHEET C-7 OF C-7

CONSTRUCTION DETAILS

54"Ø UNDERGROUND DETENTION SYSTEM
AUBURN ROAD DEVELOPMENT
ROCHESTER HILLS, MI

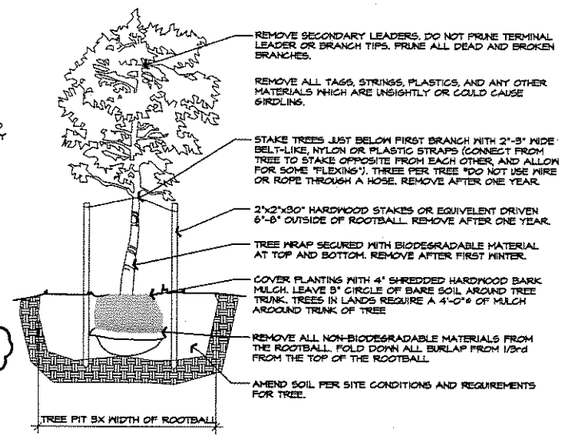
SCALE:	AS SHOWN
DRAWN BY: DATE:	TE 11/28/07
REV. BY: DATE:	- 11-29-07
SHEET:	P4 OF 4



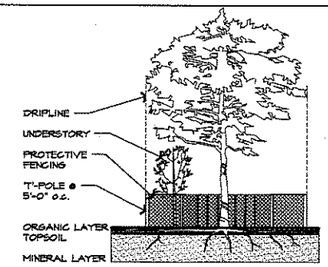
EVERGREEN TREE DETAIL

N.T.S.

NOTES:
1. TREE SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS IT BORE ORISINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE, IF DIRECTED BY LANDSCAPE ARCHITECT.
2. DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES.
3. REMOVE ALL TAGS, STRINGS, PLASTICS, AND AND OTHER MATERIALS THAT ARE UNSIGHTLY AND COULD CAUSE GIRDLING.
4. AMEND SOIL PER SITE CONDITIONS.



ISLAND PLANTER REQ.
ISLAND LANDSCAPE REQUIRED: 630 S.F.
ISLAND LANDSCAPE PROVIDED: 976 S.F.



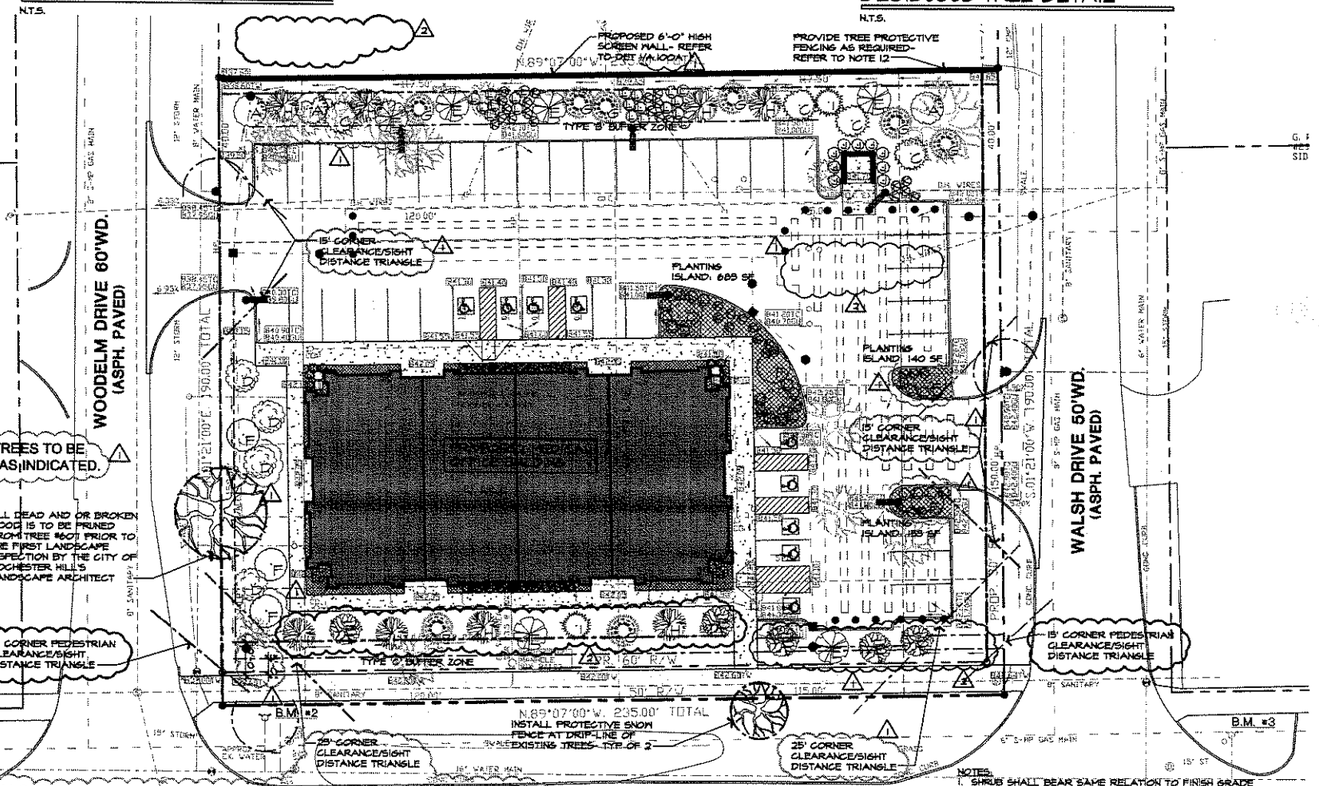
TREE PROTECTION DETAIL

N.T.S.

1. APPROVED TREE PROTECTION SHALL BE ERECTED PRIOR TO START OF CONSTRUCTION ACTIVITIES, AND SHALL REMAIN IN IN PLACE UNTIL CONSTRUCTION IS COMPLETE. THE FORESTRY DIVISION SHALL BE NOTIFIED AFTER TREE PROTECTION IS IN PLACE, PRIOR TO CONSTRUCTION ACTIVATED, INCLUDING DELIVERY OF MATERIALS.
2. NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN; INCLUDING, BUT NOT LIMITED TO, PLACING SOLVENTS, BUILDING MATERIALS, CONSTRUCTION EQUIPMENT, OR SOIL DEPOSITS WITHIN THE DRIPLINES.
3. GRADE CHANGES MAY NOT OCCUR WITHIN THE DRIP LINES OF PROTECTED TREES.
4. DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY REMAINING TREE.
5. ALL UTILITY SERVICE REQUEST MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING.
6. SWALES SHALL BE ROUTED TO AVOID THE AREA WITHIN THE DRIP LINES OF PROTECTED TREES.
7. REGULATED TREES LOCATED ON ADJACENT PROPERTY THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED.

DECIDUOUS TREE DETAIL

N.T.S.



LANDSCAPE SCHEDULE

SYMBOL	KEY	QUAN.	BOTANICAL NAME	COMMON NAME	PLANT SIZE	PLANT COST
BUFFER TREES						
	A	5	ACER GINNALA	AMUR MAPLE	3 1/2" CAL.	@450.00 ea / $1350.00
	B	6	ACER RUBRUM 'OCTOBER GLORY'	'OCTOBER GLORY' RED MAPLE	3 1/2" CAL.	@625.00 ea / $3750.00
	C	4	QUERCUS RUBRA 'NORTHERN RED OAK'	'NORTHERN RED OAK' RED OAK	3 1/2" CAL.	@687.00 ea / $2748.00
	E	9	ACER CAMPESTRE	HEDGE MAPLE	3 1/2" CAL.	@568.00 ea / $4842.00
	G	9	PICEA ABIES	NORWAY SPRUCE	14'-0"	@650.00 ea / $5850.00
	H	9	PICEA GLAUCA	WHITE SPRUCE	14'-0"	@650.00 ea / $5850.00
	I	2	PICEA PUNGENS	BLUE SPRUCE	14'-0"	@675.00 ea / $1350.00
ISLAND DECIDUOUS TREES & SHRUBS						
	D	6	GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEYLOCUST VAR. 'SKYLINE'	3 1/2" CAL.	@685.00 ea / $4110.00
	F	6	PRUNUS SARGENTII	SARGENT CHERRY	2 1/2" CAL.	@500.00 ea / $3000.00
	J	11	THUJA OCCIDENTALIS 'PYRAMIDALIS'	PYRAMIDAL ARBORVITAE	4'-0" TALL B&B	@112.00 ea / $1232.00
	K	56	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR CREEPING JUNIPER	12" TALL B&B	@65.00 ea / $3640.00
	L	51	BUXUS MICROPHYLLA	WINTER GEM BOXWOOD	2'-0" TALL B&B	@55.00 ea / $2805.00
	M	20	JUNIPERUS CHINENSIS 'SEA GREEN'	SEA GREEN COMPACT JUNIPER	3'-0" TALL B&B	@65.00 ea / $1300.00
TOTAL		86				
OTHER LANDSCAPING						
		1,776 SF	MULCH		592 cuft / 22 cu yd	@30.00/yd. / $660.00
		12,371 SF	SOD FOR ALL TURF AREAS (IRRIGATED)		12371 sf / 1375 sy	@2.50/yd / $3450.00
			IRRIGATION MATERIALS		$4800.00	
			IRRIGATION LABOR		$7500.00	TOTAL: $12300.00

NOTES: A MINIMUM OF TWENTY-FOUR (24) INCHES IN HEIGHT OR SPREAD (IF THE PLANTS ARE LOW SPREADING); BALLED AND BURLAPPED.

LANDSCAPING NOTES

1. THE WORK SHALL CONSIST OF PROVIDING ALL NECESSARY MATERIALS, LABOR, EQUIPMENT, TOOLS, AND SUPERVISION REQUIRED FOR THE COMPLETION AS SHOWN ON THE DRAWINGS.
2. THE PLANT MATERIALS SHALL CONFORM TO TYPE STATED ON THE PLANT LIST. SIZES SHALL BE THE MINIMUM STATED ON THE PLANT LIST OR LARGER. ALL MEASUREMENTS TO BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "AMERICAN ASSOCIATION OF NURSERYMEN"
3. THE PLANT MATERIAL SHALL BE NURSERY GROWN AND INSPECTED BY THE OWNER'S REPRESENTATIVE BEFORE PLANTING. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL AT ANY TIME.
4. PLANTS DESIGNATED "B&B" SHALL BE BALLED AND BURLAPPED WITH FIRM BALLS OF EARTH.
5. THE CONTRACTOR IS RESPONSIBLE FOR PLANTING THE MATERIALS AT THE CORRECT GRADES AND SPACING. THE PLANTS SHALL BE ORIENTED AS TO GIVE THE BEST APPEARANCE.
6. WHEN THE PLANT HAS BEEN PROPERLY SET, THE PIT SHALL BE BACKFILLED WITH A TOPSOIL MIXTURE, GRADUALLY FILLING, PATTING, AND SETTLING WITH WATER.
7. ALL PLANT MATERIALS SHALL BE PRUNED AND INJURIES REPAIRED. THE AMOUNT OF PRUNING SHALL BE LIMITED TO THE REMOVAL OF DEAD OR INJURED TWIGS AND TO COMPENSATE FOR THE LOSS OF ROOTS FROM TRANSPLANTING. CUTS SHOULD BE FLUSH, LEAVING NO STUBS. CUTS OVER 3/4" SHALL BE PAINTED WITH TREE PAINT.
8. TOPSOIL SHALL BE FRIABLE, FERTILE TOPSOIL OF CLAYLOAM CHARACTER CONTAINING AT LEAST 5% BUT NOT MORE THAN 20% BY WEIGHT OF ORGANIC MATTER WITH A PH RANGE FROM 6.0 TO 7.0 SOIL SHALL BE FREE FROM CLAY CLUMPS, COARSE SAND, PLANT ROOTS, STICKS AND OTHER FOREIGN MATERIALS.
9. AN AUTOMATIC UNDERGROUND IRRIGATION SYSTEM IS REQUIRED FOR ALL LANDSCAPED AND BERM AREAS.
10. PLANTINGS SHALL BE WELL MAINTAINED INCLUDING ABSENCE OF WEEDS AND REFUSE. ALL GROUND MOUNTED MECHANICAL EQUIPMENT SHALL BE SCREEN ON THREE SIDES WITH LIVING PLANT MATERIAL. MAINTENANCE OF PLANTINGS SHALL BE DONE TO ENSURE A HEALTHY AND NEAT APPEARANCE, FREE OF DISEASE AND ISECT INFESTATIONS AS WELL AS CLEAR OF WEEDS AND DEBRIS. UNHEALTHY OR DEAD PLANT MATERIAL IS TO BE REPLACED WITHIN ONE YEAR FROM COMPLETION AND INSPECTION OF PLANTINGS.
11. FOUR-INCH OVERALL DEPTH OF SHREDDED HARDWOOD BARK OR GROUND COVER OF LOW-GROWING WOODY SHRUBS, DECIDUOUS OR EVERGREEN PLANTS, PERENNIAL PLANTS AND/OR VINES, SUCH AS CRANBERRY, COTONEASTER (COTONEASTER APICULATA), BLUE RUG JUNIPER (JUNIPERUS HORIZANTALIS "WILTONI"), MYRTLE (VINCA MINOR), OR BALTIC IVY (HEDERA HELIX "BALTICA") SHREDDED BARK, WOOD CHIPS, OTHER SIMILAR MULCH OR LANDSCAPING STONES SHALL BE USED IN ALL PLANTING BEDS. DEVIATIONS FROM THIS MUST BE APPROVED BY THE CITY'S PLANNING DEPARTMENT BEFORE INSTALLATION.
12. TREE PROTECTIVE FENCING IS REQUIRED ALONG THE ENTIRE LENGTH OF THE NORTHERN, [illegible] LIMITS OF THIS DEVELOPMENT PER THE CITY OF ROCHESTER HILLS SITE PLAN REVIEW COMMENTS. THE FENCING WILL RUN ALONG THE PROPERTY LINE OR AT THE DRIP LINE OF TREES HANGING OVER THE LIMITS OF THIS DEVELOPMENT.
13. ALL LANDSCAPING MUST BE MAINTAINED FOR A PERIOD OF 2 YEARS FROM THE DATE FOR APPROVAL BY THE CITY OF ROCHESTER HILLS' LANDSCAPE ARCHITECT.
14. ALL TREES PLANTED WITHIN THE TYPE 'C' BUFFER ALONG AUBURN ROAD LIMIT OF THE DEVELOPMENT MUST BE LOCATED A MINIMUM OF 5' FROM HE EDGE OF THE PUBLIC PATHWAY.
15. ALL DEAD AND/OR BROKEN WOOD IS TO BE PRUNED FROM TREE #607 PRIOR TO THE FIRST LANDSCAPE INSPECTION BY THE CITY OF ROCHESTER HILL'S LANDSCAPE ARCHITECT.
16. CONTRACTOR SHALL RESTORE THE TURF, VIA SODDING, TO ANY AREA WITHIN THE RIGHT OF WAYS OF WOODELM, WALSH OR AUBURN ROAD THAT ARE DISTURBED DUE TO THIS DEVELOPMENT.

PLANTING NOTES

1. PRIOR APPROVAL IS REQUIRED TO PLANT ANY TREE OR SHRUB ON THE PUBLIC RIGHT-OF-WAY.
2. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC ROAD.
3. SHADE TREES AND SHRUBS MUST BE PLANTED AT LEAST 5' FROM THE EDGE OF A PUBLIC WALKWAY.
4. EVERGREEN AND ORNAMENTAL TREES MUST BE PLANTED AT LEAST 10' FROM THE EDGE OF THE PUBLIC WALKWAY.
5. 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 THEIR POINT OF INTERSECTION.
6. NO TREES OR SHRUBS MAY BE PLANTED WITHIN THE TRIANGULAR AREA, FORMED AT THE INTERSECTION OF ANY DRIVEWAY WITH A PUBLIC WALKWAY, AREA DISTANCE ALONG EACH LINE OF 15' FROM THEIR POINT OF INTERSECTION.

PLANTING NOTES (CONT'D)

7. ALL TREES AND SHRUBS MUST BE PLANTED AT LEAST 10' FROM ANY FIRE HYDRANT.
8. SHADE AND EVERSREEN TREES MUST BE AT LEAST 15' AWAY FROM THE NEAREST OVERHEAD WIRE.
9. TREES MUST BE PLANTED A MINIMUM OF 5' AWAY FROM AN UNDERSROUND UTILITY, UNLESS THE CITY'S LANDSCAPE ARCHITECT REQUIRES A GREATER DISTANCE.
10. PRIOR TO THE RELEASE OF THE PERFORMANCE BOND, THE CITY OF ROCHESTER HILLS FORESTRY DIVISION NEEDS TO INSPECT ALL TREES, EXISTING AND 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.

PROPOSED LANDSCAPE PLAN

SCALE: 1"=20'-0"

SHRUB DETAIL

NOTES:
1. SHRUBS SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER, IF DIRECTED BY THE LANDSCAPE ARCHITECT.
2. PRUNE ONLY DEAD OR BROKEN BRANCHES.
3. REMOVE ALL TAGS, STRINS, PLASTICS, AND OTHER MATERIALS THAT ARE UNSIGHTLY AND COULD CAUSE GIRDLING.

LANDSCAPE ARCHITECT:
ROBERT BONNER
1887 RIDGE RD.
YPSILANTI, MI 48198
OFFICE: 734.484.2046
FAX: 734.484.0161

ISSUED FOR		DATE
SPA REVISIONS	1	11/16/01
SPA REVISIONS	2	01/24/02

ARCHITECTURAL DESIGN
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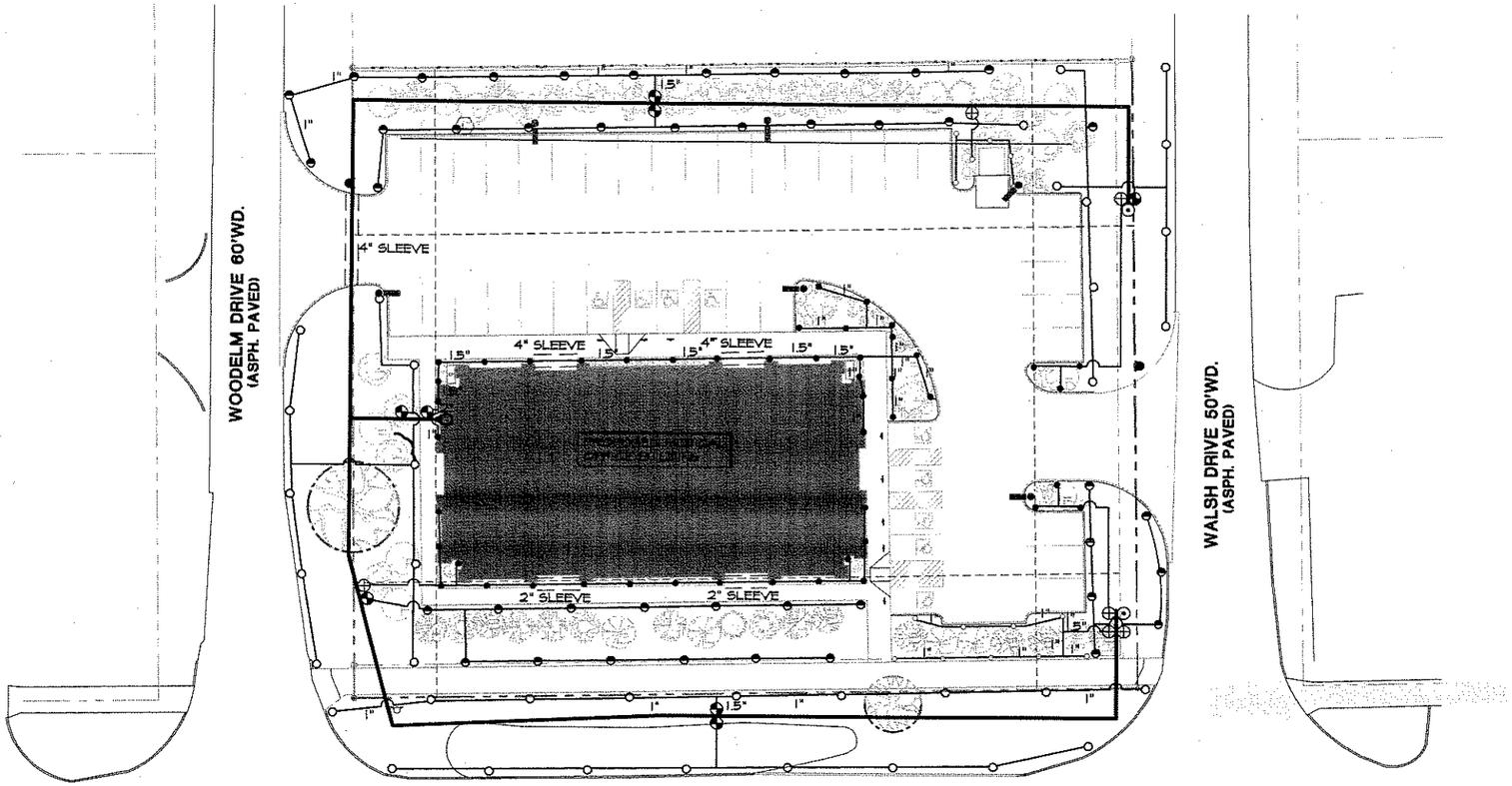
G.A.V. & ASSOCIATES, INC.
31471 NORTHWESTERN HWY., SUITE #2
FARMINGTON HLS, MI. 48334
(248) 855-9101
FAX (248) 855-9105
EMAIL: GAV@GAVASSOCIATES.COM
GAV ASSOCIATES

FARHAT OSMAN
540 PINE VALLEY WAY
BLOOMFIELD HILLS, MICHIGAN
(248) 514-6605
CITY FILE #01-015, SECTION 28

PROPOSED MEDICAL BUILDING
1220 WEST AUBURN ROAD
ROCHESTER HILLS, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
CPM	SA	GA

SCALE : 1" = 20'-0"
FILE NAME : 07044A100
JOB #: 07044
SHEET TITLE: PRELIMINARY SITE PLAN
SHEET # L.100



IRRIGATION LEGEND

- HUNTER, PSP SERIES, GEAR DRIVEN ROTOR, W/ MPR NOZZLE
- HUNTER, PSJ SERIES, GEAR DRIVEN ROTOR, W/ MPR NOZZLE
- HUNTER, PRO SERIES, 4" POP UP W/ MPR NOZZLE
- HUNTER, PRO SERIES, 12" POP UP W/ MPR NOZZLE
- HUNTER, QCV, QUICK COUPLING VALVE, 1"
- HUNTER, PGV SERIES, ELECTRIC VALVE, 1"
- HUNTER, PGV SERIES, ELECTRIC VALVE, 1.5"
- HUNTER, ICC-1600-PL, AUTOMATIC CONTROLLER
- HUNTER, MINICLICK, AUTOMATIC RAIN SHUT OFF
- TAP LOCATION, 2"
- FEBCO, 765 SERIES, PRESSURE VACUUM BREAKER, 2"
- PVC MAINLINE, CLASS 200, BE, 18" BURY, SIZE 2"
- POLY LATERAL, 100 PSI, NSF, 12" BURY, TYPICAL SIZES SHOWN
- PVC SLEEVING, CLASS 200, BE, SIZE AS SHOWN

IRRIGATION SPECIFICATIONS

1. ALL WORK IS TO BE IN COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL CODES AND ORDINANCES.
2. ALL UNDERGROUND ELECTRICAL CONNECTIONS ARE TO BE MADE WITH 3-M WIRE CONNECTORS, DBY.
3. ALL AUTO CONTROL VALVES ARE TO BE INSTALLED IN CARSON VALVE BOXES OF APPROPRIATE SIZE.
4. ALL CONTROL WIRING DOWNSTREAM OF THE CONTROLLER IS TO BE 14 AWG, UL APPROVED FOR DIRECT BURY.
5. ALL ROTORS AND SPRAY POP-UPS SHALL BE INSTALLED ON SWING PIPE.
6. ALL QCV SHALL BE INSTALLED ON 3-ELBOW PVC SWING JOINTS.
7. SYSTEM DESIGN BASED UPON 40 GPM @ 60 PSI.
8. ANY CHANGES IN AVAILABILITY OF SUPPLY SHOULD BE NOTED AND MODIFICATIONS TO THE DESIGN SHOULD BE MADE.
9. CONTRACTOR TO VERIFY WATER PRESSURE AND AVAILABILITY PRIOR TO INSTALLATION.
10. ANY IRRIGATION PIPING SHOWN OUTSIDE OF CURBS FOR CLARITY ONLY.
11. 120V. TO CONTROLLER AND COPPER STUB, BY OTHER THAN IRRIGATION CONTRACTOR.
12. THERE WILL BE NO SUBSTITUTIONS OR CHANGES TO THE IRRIGATION DESIGN ALLOWED WITHOUT DIRECT, WRITTEN APPROVAL FROM THE IRRIGATION CONSULTANT.

LATERAL PIPE SIZE CHART FOR POLY

1" ..... 1 - 12 GPM
1.5" ..... 13 - 30 GPM
2" ..... 31 - 50 GPM

Date: 12/7/07
Project Number: 01488394
Designed by: C.P.
Approved by: C.P.

JOHN DEERE LANDSCAPES
650 Stephenson Highway
Troy, Michigan 48083
PH: 248.588.2100
FX: 248.581.1325
www.JohnDeereLandscapes.com
cpiwonski@johndeerelandscapes.com

ISSUED FR	DATE
SPA REVISIONS 1	11/16/07

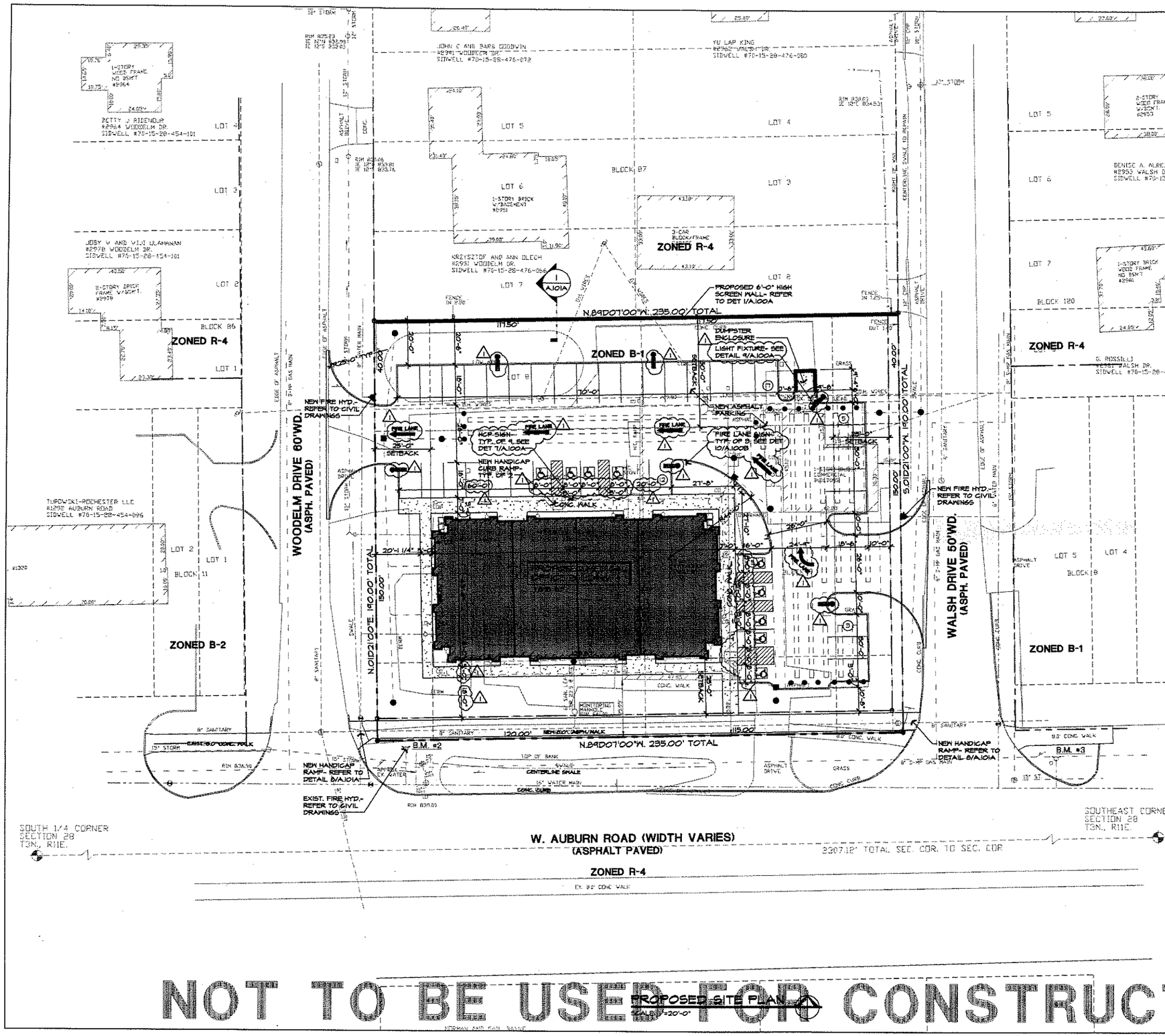
ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
INDUSTRIAL
G.A.V. & ASSOCIATES, INC.
33471 NORTHWESTERN HWY., SUITE #2
FARMINGTON HILLS, MI. 48334
(248) 851-9191
FAX (248) 851-9105
EMAIL: GAV@GAVASSOCIATES.COM
GAV ASSOCIATES

FARHAT OSMAN
340 PINE VALLEY WAY
BLOOMFIELD HILLS, MICHIGAN
(248) 514.2665
CITY FILE #07-015, SECTION 28

PROPOSED MEDICAL BUILDING
1220 WEST AUBURN ROAD
ROCHESTER HILLS, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
GPM	SA	SA

SCALE : 1" = 20'-0"
FILE NAME : 07044L101
JOB #: 07044
SHEET TITLE
IRRIGATION
SITE PLAN
SHEET #
L.101



LOCATION MAP

NOT TO SCALE

LEGAL DESCRIPTION

BLOCKS 9 AND 10, ALSO LOTS 1 AND 8 BLOCK 87 OF "SUPERVISOR'S REPLAT OF GLIDENELL SUBDIVISION" A SUBDIVISION OF THE S.E. 1/4 OF SECTION 28 T3N, R11E., AVON TOWNSHIP (NOW CITY OF ROCHESTER HILLS), OAKLAND COUNTY, MICHIGAN. RECORDED IN LIBER 52 OF PLATS, PAGE 28, OAKLAND COUNTY RECORDS.

PROJECT DATA

ZONING: B-1

TOTAL SITE AREA: 44,648.5 SQ. FT. (1.02 ACRES)

USE GROUP: B
CONSTRUCTION TYPE: VB
BUILDING IS NOT FIRE SUPRESSED

SITE REQUIREMENTS:

MINIMUM LOT WIDTH	
MAXIMUM LOT COVERAGE	
MAXIMUM BUILDING HEIGHT	42'-0" THREE-STORIES
MINIMUM FLOOR AREA	800 SQ. FT.

PARKING:

MEDICAL OFFICE	1/ 150 SF OF USEABLE (80%)
LANDSCAPE REQUIRED	150 SF / 10 SPACES

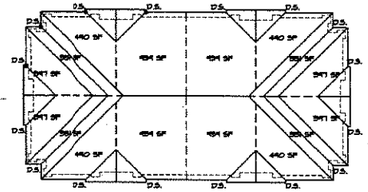
MINIMUM YARD SETBACKS:

FRONT:	25'-0"
SIDE:	25'-0"
REAR:	50'-0"
MAX HEIGHT:	2 STORIES / 30'-0"

SITE DATA	AREA	LOT COVERAGE
BUILDING AREA	7,875 S.F.	17.6%
PAVED AREA	20,824 S.F.	45.7%
LANDSCAPE AREA	16,586.5 S.F.	36.7%
BUILDING HEIGHT	MEAN GABLE HEIGHT = 21'-10"	

PARKING REQUIREMENTS	
MEDICAL OFFICE (REQUIRED)	7,875 x 80% = 6,299 S.F.
PROFESSIONAL OFFICE (REQUIRED)	6,299 S.F. / 150= 42
REQUIRED	42
PROVIDED	42
B.F. REQUIRED	9
B.F. REQUIRED/ PROVIDED	9
ISLAND LANDSCAPE REQUIRED	630 S.F.
ISLAND LANDSCAPE PROVIDED	976 S.F.

DOWNSPOUT COVERAGE AREA



GENERAL NOTES

1. BUILDING SIGNS SHALL BE SUBMITTED IN A SEPARATE PACKAGE/REVIEW CONFORMING TO CITY SIGN ORDINANCE.
2. AUBURN ROAD UNDER JURISDCTION OF MICHIGAN DEPARTMENT OF TRANSPORTATION. A PERMIT FROM MDOT SHALL BE REQUIRED FOR ALL WORK IN THE AUBURN ROAD RIGHT OF WAY.
3. A 'KNOX' KEY SYSTEM MAY BE REQUIRED, IN A LOCATION APPROVED BY THE FIRE CODE OFFICIAL, PREFERRING INFORMATION IS AVAILABLE FROM THE FIRE DEPARTMENT.
4. FIRE LANES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL, AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE WITH FIRE LANE SIGNS, SPACED NOT MORE THAN 100 FEET APART. "NO STOPPING, STANDING, PARKING, FIRE LANE", AND CONFORMANCE WITH MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
5. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14.
6. OPEN BURNING IS NOT PERMITTED INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING MATERIALS. OPEN BURNING FOR MARKING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHING THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES.

PROPOSED SITE PLAN
SCALE: 1"=20'-0"

ISSUED FOR	DATE
SPA REVISIONS 1	11/16/07
SPA REVISIONS 2	01/24/08

ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
INDUSTRIAL
G.A.V. & ASSOCIATES, INC.
31471 NORTHWESTERN HWY., SUITE #2
FARMINGTON HILLS, MI. 48334
(248) 539-1881
FAX (248) 855-5105
EMAIL: GAV@GAVASSOCIATES.COM
GAV ASSOCIATES

FARHAT OSMAN
540 PINE VALLEY WAY
BLOOMFIELD HILLS, MICHIGAN
(248) 394-0603
CITY FILE #07-015, SECTION 28

PROPOSED MEDICAL BUILDING
1220 WEST AUBURN ROAD
ROCHESTER HILLS, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
CPM	SA	SA

SCALE : 1" = 20'-0"

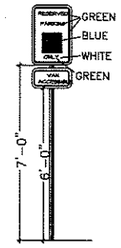
FILE NAME : 07044A100

JOB #: 07044

SHEET TITLE
PRELIMINARY
SITE PLAN

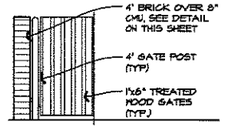
SHEET #
A.100

10 / A.100 FIRE LANE SIGN DETAIL
N.T.S.

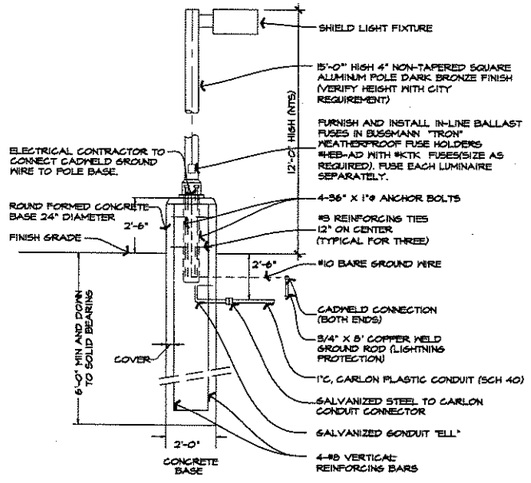


R7-8 (12"x18")

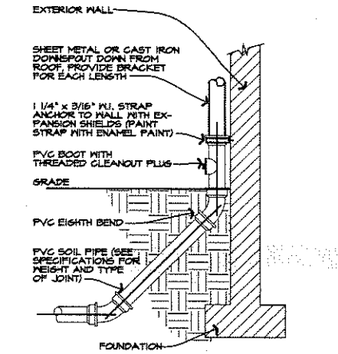
7 / A.100 HC SIGN DETAIL
N.T.S.



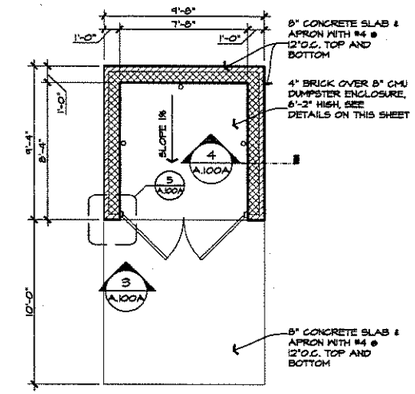
3 / A.100A ELEVATION
SCALE: 1/4" = 1'-0"



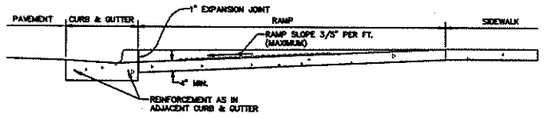
9 / A.100 SIDEWALK RAMP TYPE I
N.T.S.



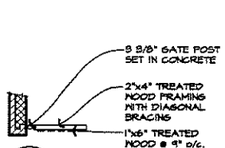
6 / A.100A DOWNSPOUT BOOT DETAIL
N.T.S.



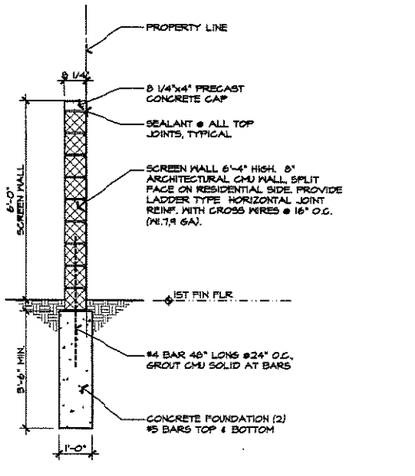
2 / A.100A DUMPSTER ENCLOSURE PLAN
SCALE: 1/4" = 1'-0"



SECTION A-A (TYP. ALL RAMP DETAILS)
(NO SCALE)

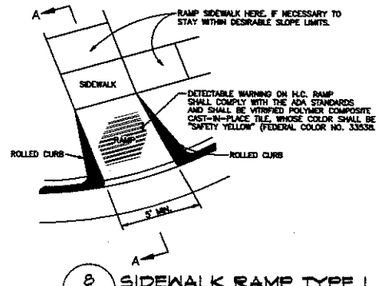


5 / A.100A SECTION
SCALE: 1/4" = 1'-0"



1 / A.100A SCREEN WALL SECTION
SCALE: 1/2" = 1'-0"

APPROACH WALKS OR RAMPED SIDEWALKS SHOULD BE PROVIDED IN ACCORDANCE WITH ADA REQUIREMENTS .



8 / A.100A SIDEWALK RAMP TYPE I
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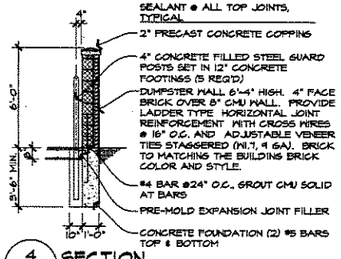

4 / A.100A SECTION
SCALE: 1/4" = 1'-0"

ISSUED FOR	DATE
SPA REVISIONS 3	11/16/07
SPA REVISIONS 2	01/24/08

ARCHITECTURAL DESIGN
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GAY & ASSOCIATES, INC.
31471 NORTHWESTERN HWY., SUITE #2
FARMINGTON HILLS, MI. 48334
(248) 851-9181
FAX (248) 851-9185
EMAIL: GAA@GAYASSOCIATES.COM
GAY ASSOCIATES

FARHAT OSMAN
540 PINE VALLEY WAY
BLOOMFIELD HILLS, MICHIGAN
(248) 594-8503
CITY FILE #07-015, SECTION 28

PROPOSED MEDICAL BUILDING
1220 WEST AUBURN ROAD
ROCHESTER HILLS, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
CPM	GA	GA

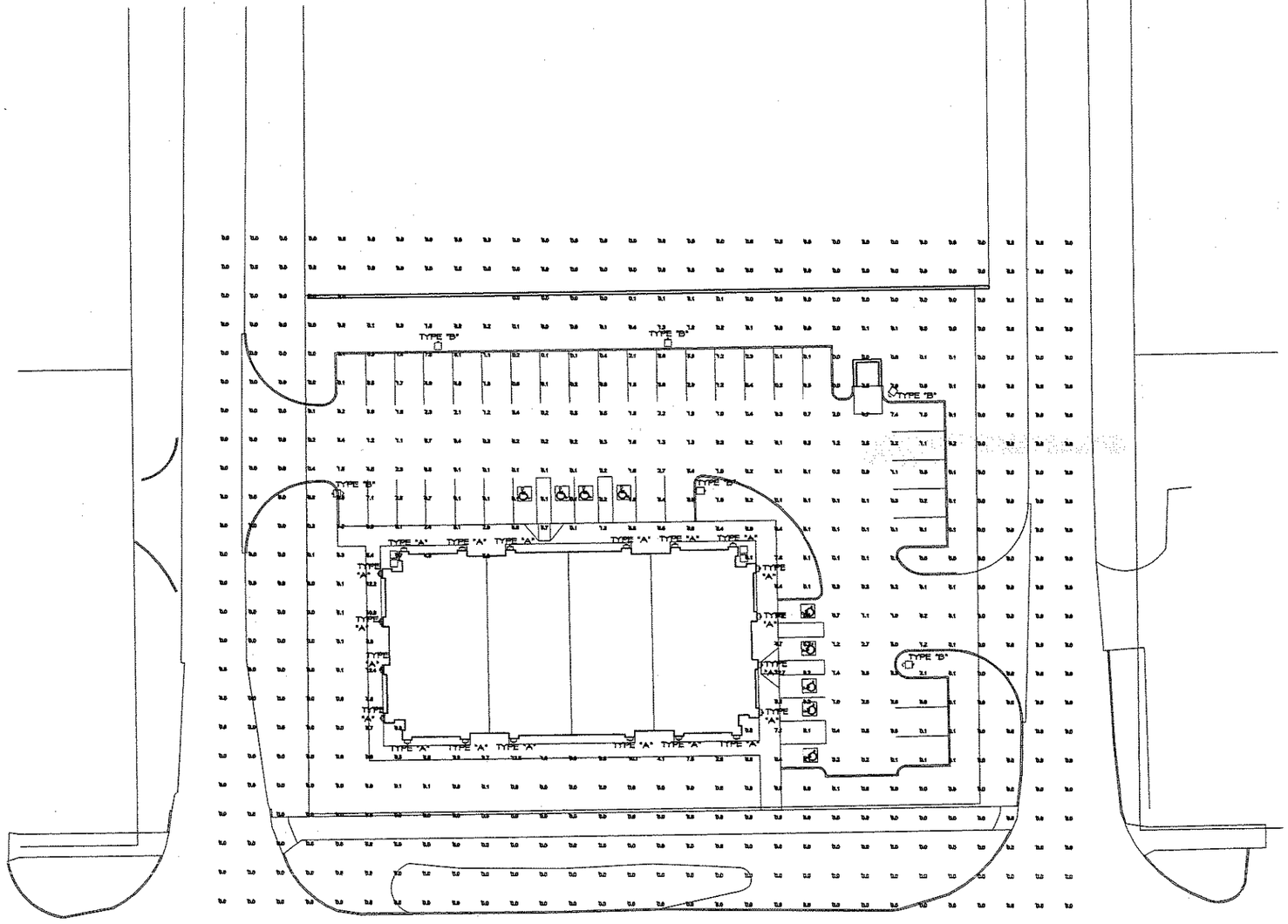
SCALE : 1" = 20'-0"
FILE NAME : 07044A100
JOB #: 07044
SHEET TITLE
PRELIMINARY SITE PLAN
SHEET # 1
A.100A

LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	A	28	WAR 2HEXRT MD	ARCHITECTURAL SCONCE WITH MEDIUM THROW DISTRIBUTION WITH CLEAR, FLAT GLASS LENS.	TWO-42-WATT TRIPLE TUBE COMPACT FLUORESCENT, HORIZONTAL POSITION.	LIT1656.ies	3550	0.91	85
	B	6	KAD 175M R4 HS	DIECAST CUTOFF LUMINAIRE WITH HOUSESIDE SHIELD	ONE 175-WATT CLEAR BT-28 METAL HALIDE, HORIZONTAL POSITION.	5509W01.ies	13500	0.91	215

STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	6.8 fc	12.7 fc	0.9 fc	N/A	N/A



SITE PHOTOMETRIC PLAN
SCALE: 1"=20'-0"

NOT TO BE USED FOR CONSTRUCTION

ISSUED FOR	DATE
SPA REVISIONS	11/16/07

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31471 NORTHWESTERN HWY., SUITE #2
FARMINGTON HLS., MI. 48334
(248) 851-9191
FAX (248) 855-9105
EMAIL: GAV@GAVASSOCIATES.COM

GAV ASSOCIATES

FARHAT OSMAN
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BLOOMFIELD HILLS, MICHIGAN
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CITY FILE #07-015, SECTION 28

PROPOSED MEDICAL BUILDING
1220 WEST AUBURN ROAD
ROCHESTER HILLS, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
CPM	SA	SA

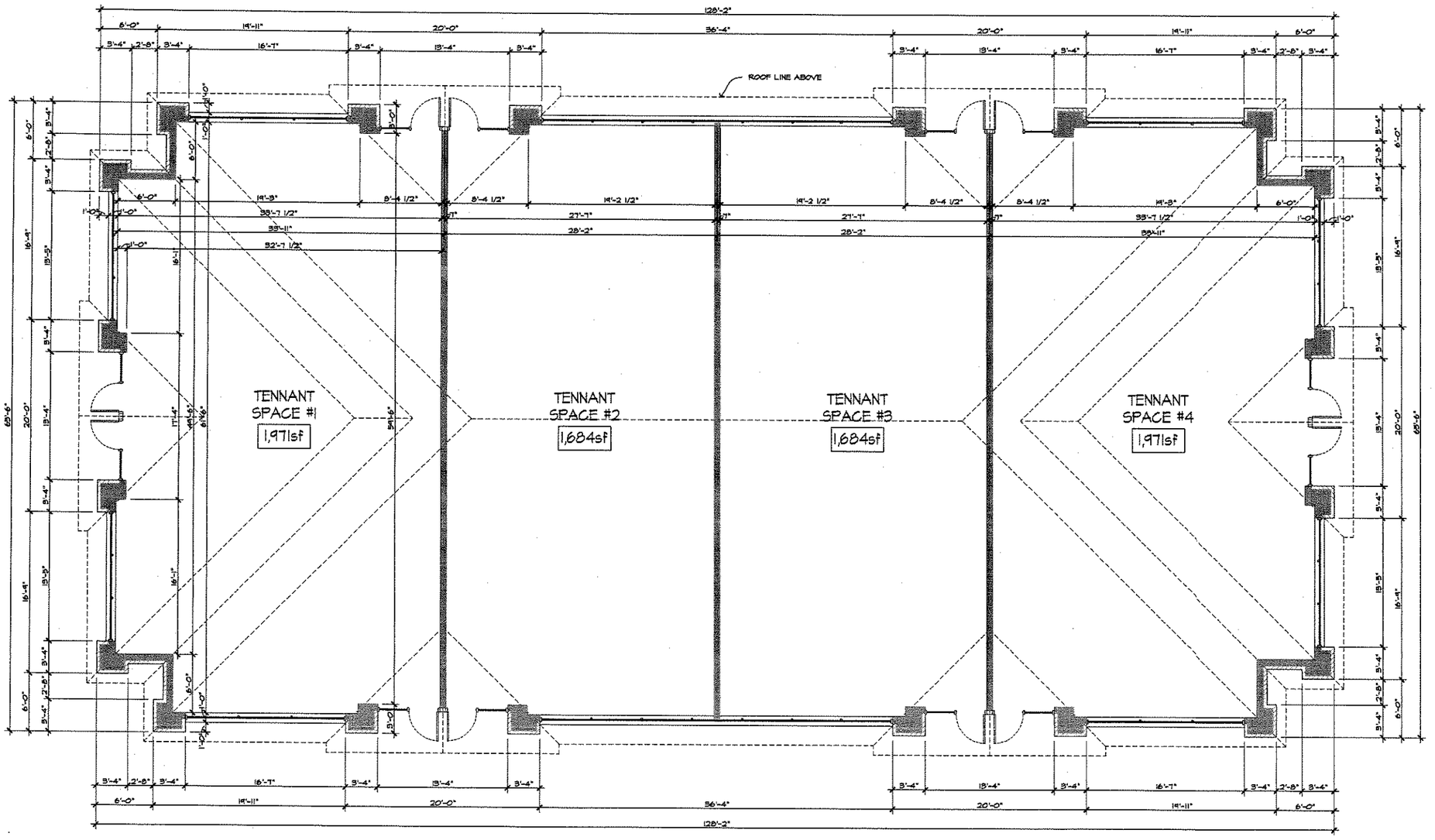
SCALE : 1" = 20'-0"

FILE NAME : 07044A1008

JOB #: 07044

SHEET TITLE
SITE PHOTOMETRIC PLAN

SHEET #
A.100B



WALL TYPES:

EXTERIOR WALLS:
4" BRICK, AIR SPACE, 15# FELT ON 1/2" "DENSGLASS" EXTERIOR SHEATHING ON 2x6 WOOD STUDS @ 16" O.C. WITH 5 1/2" BATT INSULATION (R-19 MINIMUM) WITH FINISHED 1/2" GYPSUM BOARD INTERIOR.

DEMISING WALLS:
5/8" GYPSUM BOARD ON BOTH SIDES OF 2x6 WOOD STUDS @ 16" O.C. EXTENDED TO UNDERSIDE OF ROOF CHORD. SEAL AIRTIGHT.

PROPOSED FLOOR PLAN
SCALE: 3/16" = 1'-0"

NOT TO BE USED FOR CONSTRUCTION

ISSUED FOR	DATE

ARCHITECTURAL DESIGN
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COMMERCIAL
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G.A.V. & ASSOCIATES, INC.
31471 NORTHWESTERN HWY., SUITE #2
FARMINGTON HILLS, MI. 48334
(248) 851-9181
FAX (248) 96-9105
EMAIL: GAV@GAVASSOCIATES.COM

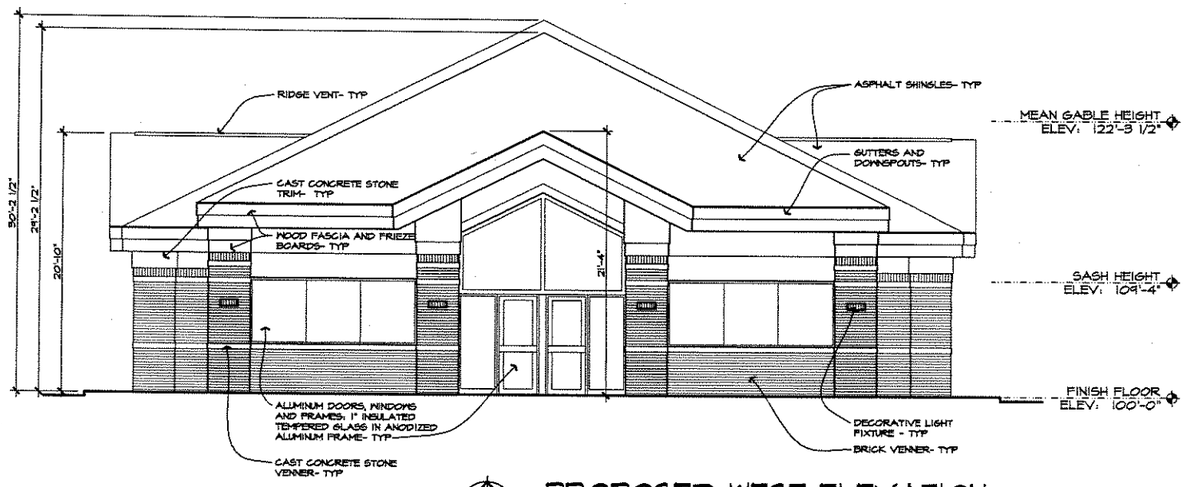
GAV ASSOCIATES

FARHAT OSMAN
540 PINE VALLEY WAY
BLOOMFIELD HILLS, MICHIGAN
(248) 314-0663
CITY FILE #07-015, SECTION 26

PROPOSED MEDICAL BUILDING
1220 WEST AUBURN ROAD
ROCHESTER HILLS, MICHIGAN

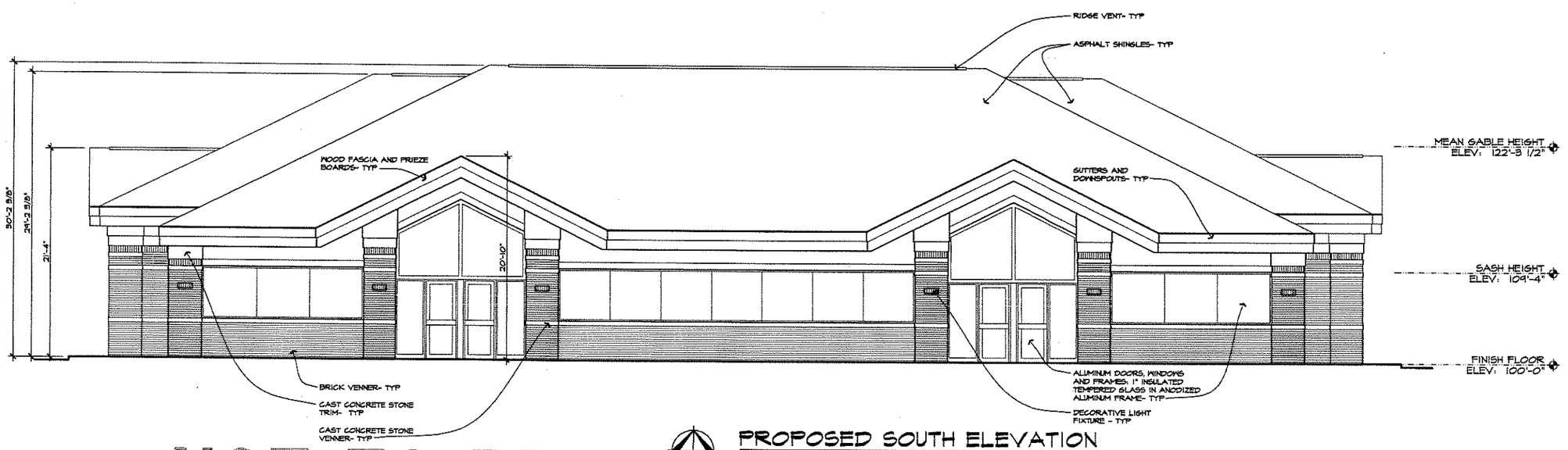
DRAWN:	DESIGNED:	CHECKED:
CPM	GA	GA

SCALE : 3/16" = 1'-0"
FILE NAME : 07049A101
JOB #: 07049
SHEET TITLE
PRELIMINARY FLOOR PLAN
SHEET #
A.101



PROPOSED WEST ELEVATION

SCALE: 3/16"=1'-0"



PROPOSED SOUTH ELEVATION

SCALE: 3/16"=1'-0"

ELEVATION NOTE LEGEND

1. CULTURED STONE:
   MANUF.: "ROCKCAST" (OR EQUAL)
   COLOR: WHEATSTONE
   TEXTURE: SLATE
2. BRICK VENEER:
   MANUF.: "BRICKTECH ARCHITECTURAL" (OR EQUAL)
   COLOR: #64
3. PRECAST CONCRETE:
   MANUF.: "ROCKCAST" (OR EQUAL)
   COLOR: LIGHT GREY
4. E.I.F.S.:
   MANUF.: "NAI" (OR EQUAL)
   COLOR: SANDSTORM
   TEXTURE: FINE MEDIUM
5. GLAZING:
   MANUF.: "MINCO WINDOW CO." (OR EQUAL)
   COLOR: LIGHT BRONZE ANODIZED WITH DARK BRONZE FRAME
6. SHINGLES:
   MANUF.: "CELOTEX" (OR EQUAL)
   COLOR: DARK BROWN
7. TRIM:
   MANUF.: "QUALITY ALUMINUM PRODUCTS, INC" (OR EQUAL)
   COLOR: SAND CASTLE

ISSUED FOR	DATE
SPA REVISIONS 1	11/16/07

ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. & ASSOCIATES, INC.
31471 NORTHWESTERN HWY., SUITE #2
FARMINGTON HILLS, MI. 48334
(248) 855-8181
FAX (248) 855-2105
EMAIL: GAV@GAVASSOCIATES.COM

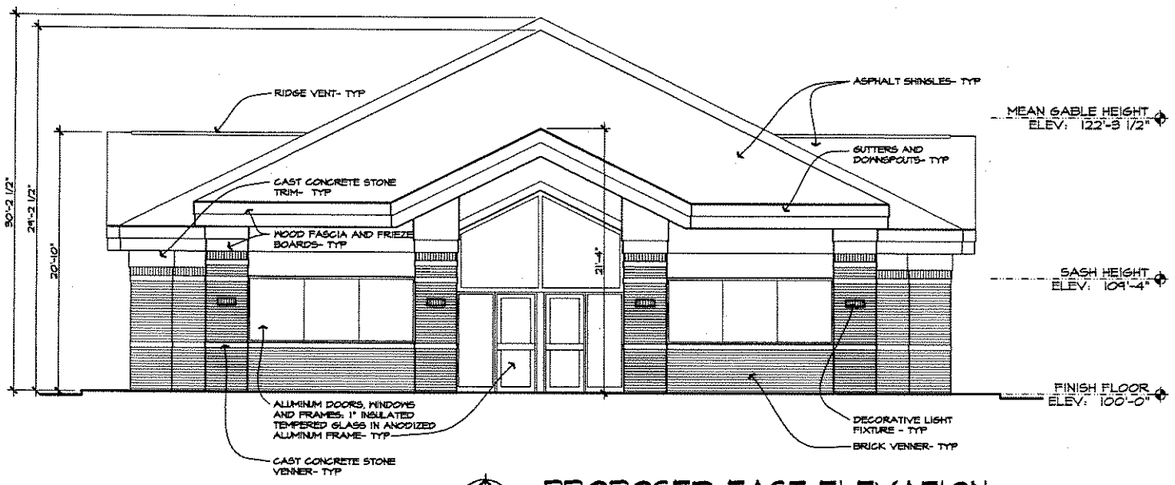
GA ASSOCIATES

FARHAT OSMAN
540 PINE VALLEY WAY
BLOOMFIELD HILLS, MICHIGAN
(248) 644.8665
CITY FILE #07-015, SECTION 28

PROPOSED MEDICAL BUILDING
1220 WEST AUBURN ROAD
ROCHESTER HILLS, MICHIGAN

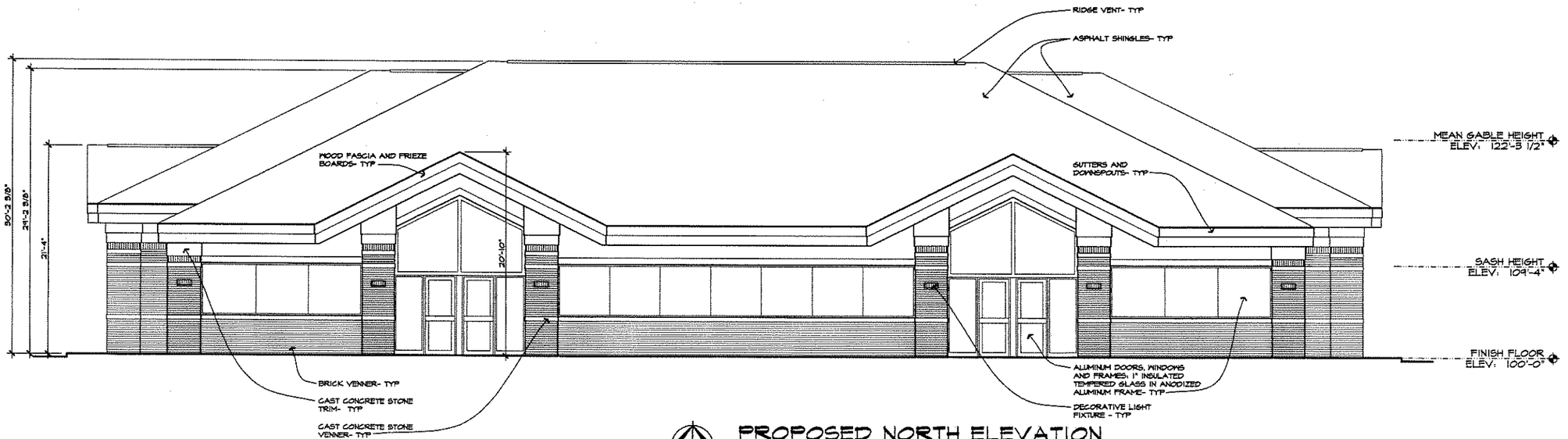
DRAWN:	DESIGNED:	CHECKED:
CPM	GA	GA

SCALE : 3/8" = 1'-0"
FILE NAME : 07044A102
JOB #: 07049
SHEET TITLE: PRELIMINARY ELEVATIONS
SHEET #: A.102



PROPOSED EAST ELEVATION

SCALE: 3/16"=1'-0"



PROPOSED NORTH ELEVATION

SCALE: 3/16"=1'-0"

ELEVATION NOTE LEGEND

1. CULTURED STONE:
   MANUF: "ROCKCAST" (OR EQUAL)
   COLOR: WHEATSTONE
   TEXTURE: SLATE
2. BRICK VENEER:
   MANUF: "BRICKTECH ARCHITECTURAL" (OR EQUAL)
   COLOR: #64
3. PRECAST CONCRETE:
   MANUF: "ROCKCAST" (OR EQUAL)
   COLOR: LIGHT GREY
4. E.I.F.S.:
   MANUF: "NAI" (OR EQUAL)
   COLOR: SANDSTORM
   TEXTURE: FINE MEDIUM
5. GLAZING:
   MANUF: "MINCO WINDOW CO." (OR EQUAL)
   COLOR: LIGHT BRONZE ANODIZED WITH DARK BRONZE FRAME
6. SHINGLES:
   MANUF: "CELOTEX" (OR EQUAL)
   COLOR: DARK BROWN
7. TRIM:
   MANUF: "QUALITY ALUMINUM PRODUCTS, INC" (OR EQUAL)
   COLOR: SAND CASTLE

ISSUED FOR	DATE
SPA REVISIONS 1	11/16/07

ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. & ASSOCIATES, INC.
31471 NORTHWESTERN HWY., SUITE #2
FARMINGTON HILLS, MI. 48334
(248) 855-9101
FAX (248) 855-9105
EMAIL: GAV@GAVASSOCIATES.COM

GAV ASSOCIATES

FARHAT OSMAN
340 PINE VALLEY WAY
BLOOMFIELD HILLS, MICHIGAN
(248) 594.8693
CITY FILE #07-015, SECTION 26

PROPOSED MEDICAL BUILDING
1220 WEST AUBURN ROAD
ROCHESTER HILLS, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
GPM	GA	GA

SCALE : 3/8" = 1'-0"
FILE NAME : 07049A103
JOB #: 07049
SHEET TITLE
PRELIMINARY
ELEVATIONS
SHEET #
A.103