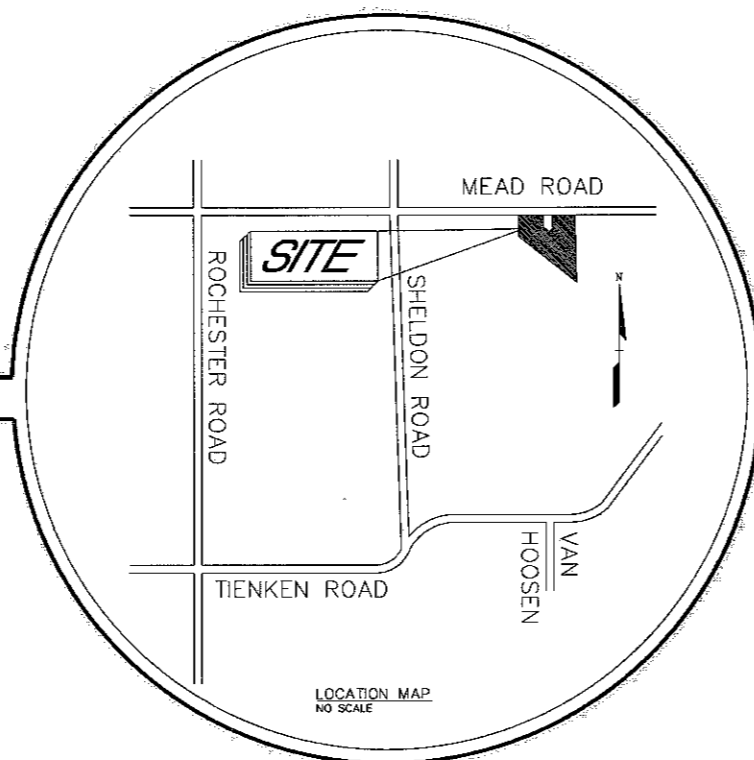


SITE PLAN FOR LEGIONARIES OF CHRIST - WORSHIP CENTER

CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN



GENERAL NOTES:

1. Developer shall comply with soil erosion and sedimentation control measures as required by the Oakland County Drain Commissioner's Office.
2. All signs shall meet the requirements of the City of Rochester Hills Zoning Ordinance.
3. Underground dry utilities shall be extended from existing locations to service this site as required by utility companies.
4. All construction shall be performed in accordance with the current standards and specifications of Oakland County and the City of Rochester Hills.
5. The contractor shall telephone City of Rochester Hills 72 hours before beginning any construction.
6. Three working days prior to any excavation, the Contractor shall telephone MISS DIG (800-482-7171) for the location of underground utilities and shall also notify representatives of other utilities located in the vicinity of the work. It shall be the Contractor's responsibility to verify and/or obtain any information necessary regarding the presence of underground utilities which might affect this job.
7. Contractor shall familiarize himself with the site soil/groundwater conditions of the site.
8. The developer is responsible for resolving any drainage problems on adjacent properties, which are a result of the developer's activities.
9. Contractor to demolish, remove, and dispose of any and all debris off-site.
10. Contractor is responsible for protecting all existing and proposed utilities from damage during all stages of construction.
11. The engineer and applicable agency must approve, prior to construction, any alteration, or variance from these plans.
12. Handicap parking space shall be marked with above grade sign in accordance with current ADA standards.
13. The Engineer shall not be responsible for construction means, methods, techniques, sequences, procedures, safety precautions or programs utilized in connection with the Work, and will not be responsible for the contractor's failure to carry out the work in accordance with the Contract documents.

LEGAL DESCRIPTION

(LEGAL DESCRIPTION SHOWN BELOW FROM PLANS BY CARRIER BURGESS CONSULTANTS, INC., TITLED: RETREAT COVER & PREST'S RESIDENCE, DATED 6/04/03)

REVISED LEGAL DESCRIPTION BY PEA, INC.
(TOTAL PARCEL FOR 15-02-200-007 & 15-02-200-008)

PART OF THE NORTHEAST 1/4 OF SECTION 2, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT THE NORTHEAST CORNER OF SECTION 2; THENCE ALONG THE EAST SECTION LINE AS MONUMENTED SOUTH 03 DEGREES 38 MINUTES 58 SECONDS EAST, 1380.28 FEET TO THE NORTHERLY LINE OF CONSUMERS POWER COMPANY; THENCE ALONG SAID LINE NORTH 53 DEGREES 55 MINUTES 54 SECONDS WEST, 1686.84 FEET; THENCE NORTH 04 DEGREES 34 MINUTES 42 SECONDS WEST, 311.63 FEET TO A POINT ON THE NORTH LINE OF SECTION 2; THENCE ALONG SAID LINE NORTH 87 DEGREES 38 MINUTES 06 SECONDS EAST, 658.62 FEET; THENCE S 04 DEGREES 31 MINUTES 54 SECONDS EAST, 244.76 FEET TO A CONCRETE MONUMENT; THENCE SOUTH 53 DEGREES 55 MINUTES 54 SECONDS EAST, 150.99 FEET TO A CONCRETE MONUMENT; THENCE NORTH 36 DEGREES 01 MINUTES 42 SECONDS EAST, 100.92 FEET TO A CONCRETE MONUMENT; THENCE NORTH 03 DEGREES 39 MINUTES 17 SECONDS WEST, 259.41 ALONG A LINE PASSING THROUGH A CONCRETE MONUMENT 60 FEET SOUTH OF THE SECTION LINE TO A POINT ON THE NORTH LINE OF SECTION 2; THENCE ALONG SAID LINE NORTH 87 DEGREES 38 MINUTE 06 SECONDS EAST, 459.91 FEET TO THE POINT OF BEGINNING, CONTAINING 23.69 ACRES MORE OR LESS.

UTILITY DISCLAIMER



Utilities as shown indicate approximate location of facilities only, as described by the various companies and no guarantee is given either as to the completeness or accuracy thereof. Contractor shall call "MISS DIG" 1-800-482-7171 prior to the start of construction. Electric, gas, phone and television companies should be contacted prior to the commencement of field activities.

SHEET INDEX

1. COVER SHEET
 2. SITE PLAN
 3. WATER MAIN EXTENSION
 4. DETAIL SHEET
 - L1 LANDSCAPE PLAN
 - L2 LANDSCAPE DETAILS
- CITY OF ROCHESTER HILLS - STANDARD DETAIL SHEETS
-WATERMAIN(3 SHEETS)

SITE NOTES

SITE PLAN DATA

1. EXISTING ZONING: RE (RESIDENTIAL ESTATE)
2. PARCEL NO.: 15-02-200-007&008
3. USE:
EXISTING: VACANT
PROPOSED: WORSHIP CENTER
4. BUILDING SETBACKS:
REQUIRED PROVIDED
FRONT = 40 FT. FRONT = 899.3 FT.
SIDE = 15 FT. SIDE = 205.5 FT.
REAR = 35 FT. REAR = 124.2 FT.
5. MAXIMUM BUILDING HEIGHT:
REQUIRED: 35 FT. / 2 STORIES
PROPOSED: SEE ARCHITECTURAL PLANS

PARKING CALCULATION

REQUIRED:

1 SP. PER 3 PERSONS PERMITTED =
MAX. OCCUPANCY = 152
152 / 3 = 51 SPACES

TOTAL REQUIRED = 51 SPACES (INCL. 3 BARRIER FREE SPACE)

PROVIDED:

TOTAL PROVIDED = 53 SPACES (INCL. 3 BARRIER FREE SPACE)

DESIGN / BUILDER



BRIVAR CONSTRUCTION CO.
7258 KENSINGTON RD.
BRIGHTON, MI 48116
(248) 446-8000

BRIVAR
Construction Company



LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD U.S. 23, BRIGHTON, MICHIGAN 48114

http://www.livingstoneng.com PHONE: (810) 225-7100 FAX: (810) 225-7699

**LEGIONARIES OF CHRIST
WORSHIP CENTER**
ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN

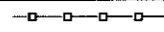
ENGINEER'S SEAL

REVISIONS	DATE	PROJECT No. 10121
PER CITY REVIEW	12/10/10	SHEET 1 OF 6
PER CITY REVIEW	1/21/2011	DATE: SEPTEMBER 1, 2010

SITE PLAN

SOIL EROSION LEGEND

PR. SILT FENCE



BENCHMARK NO. 1

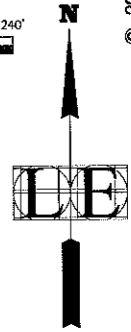
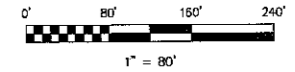
P.K. Nail in E. Face of 40" Oak

Elev. 820.79, U.S.G.S. Datum

BENCHMARK NO. 2

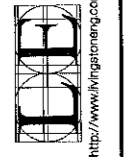
P.K. Nail in W. Face of 27" Red Oak

Elev. 841.85, U.S.G.S. Datum



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LIVINGSTON ENGINEERING
 CIVIL ENGINEERING SURVEYING PLANNING
 3300 S. OGDEN ST. BRIGHTON, MI 48114
 PHONE: (810) 265-7600 FAX: (810) 265-7699
<http://www.livingstoneng.com>



Client:
 River Construction Company

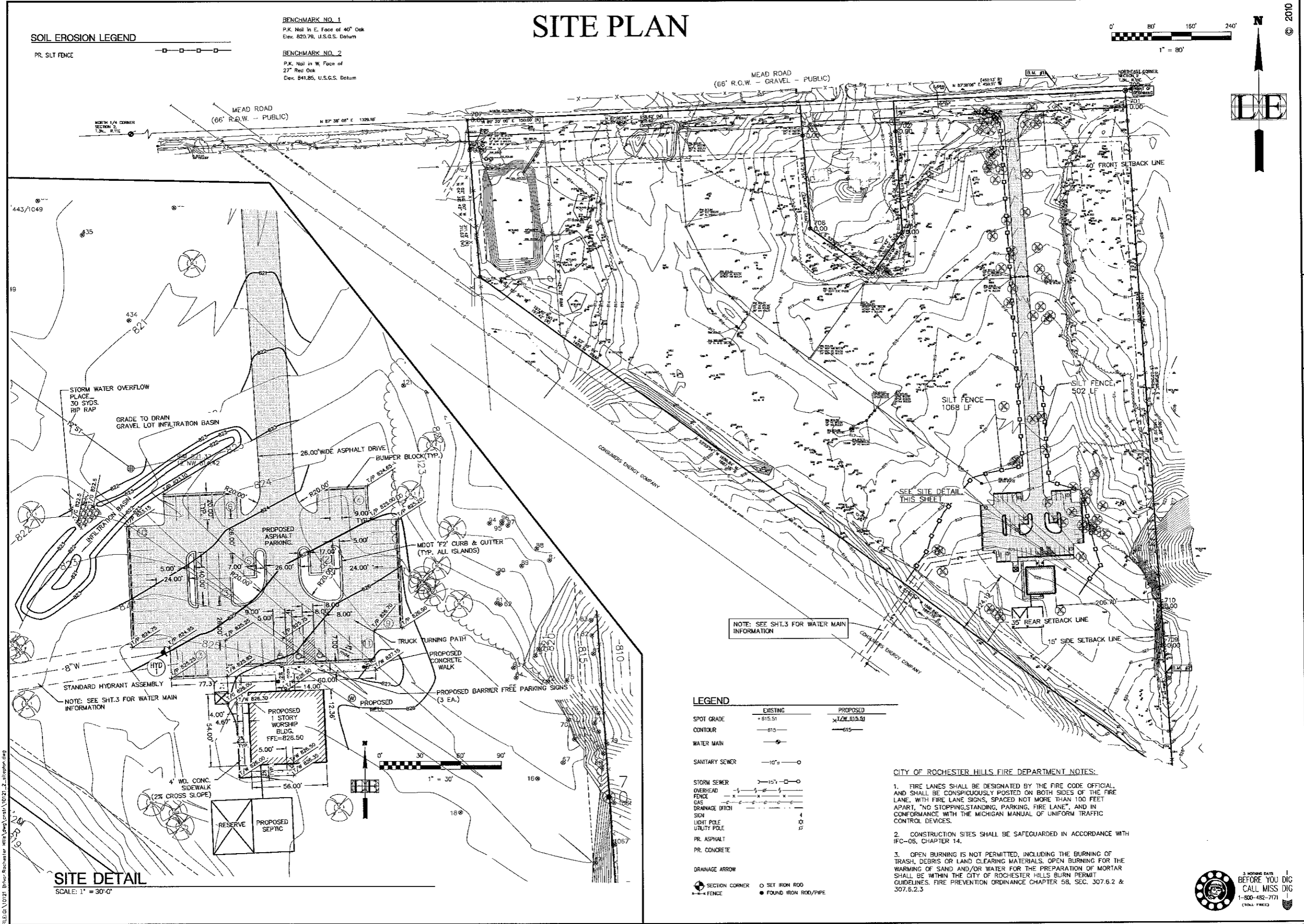
LEGIONARIES OF CHRIST WORSHIP CENTER
 Rochester Hills, Michigan

DATE: 12-16-2010
 1-21-2011

REVISIONS	DATE
REV CITY REVIEW	12-16-2010
REV CITY REVIEW	1-21-2011

Drawn: TEA	Checked: [Signature]	Approved: [Signature]	Date: 12-16-2010
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Job No. 10121	Scale: [Blank]	Wellmark: [Blank]	Northmark: [Blank]
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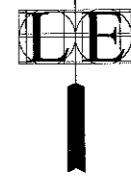
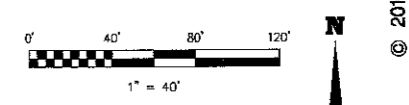
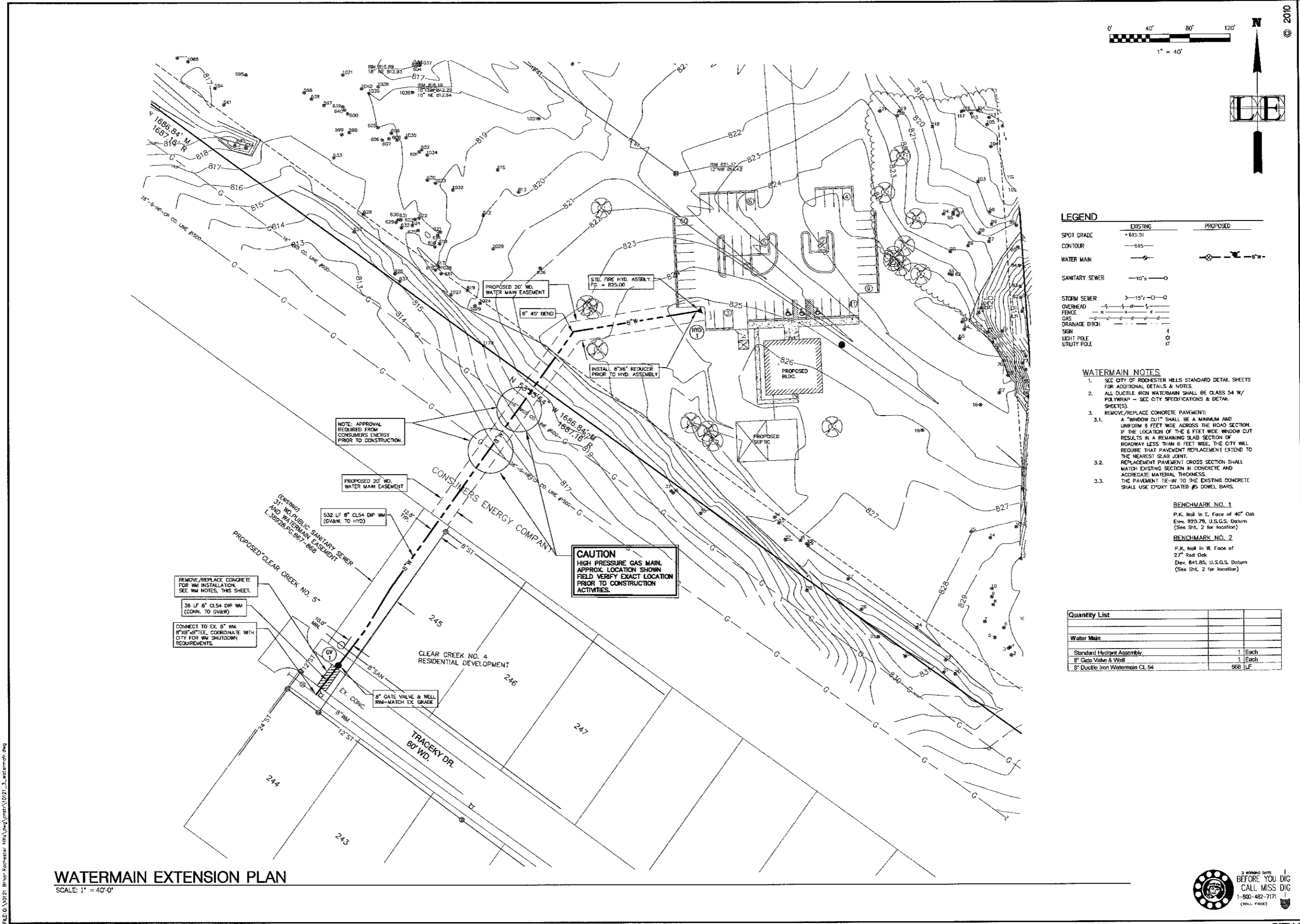
LEGEND

	EXISTING	PROPOSED
SPOT GRADE	+ 615.51	x 126.515.51
CONTOUR	- 615 -	- 615 -
WATER MAIN	—○—	—○—
SANITARY SEWER	—○—	—○—
STORM SEWER	—○—	—○—
OVERHEAD	—x—	—x—
FENCE	—x—	—x—
GAS	—x—	—x—
DRAINAGE DITCH	—x—	—x—
SIGN	—x—	—x—
LIGHT POLE	—x—	—x—
UTILITY POLE	—x—	—x—
PR. ASPHALT	—x—	—x—
PR. CONCRETE	—x—	—x—
DRAINAGE ARROW	—x—	—x—
SECTION CORNER	○	○
FENCE	—x—	—x—
SET IRON ROD	○	○
FOUND IRON ROD/PIPE	●	●

CITY OF ROCHESTER HILLS FIRE DEPARTMENT NOTES:

1. 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 IN CONFORMANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC-06, CHAPTER 14.
3. OPEN BURNING IS NOT PERMITTED, INCLUDING THE BURNING OF TRASH, DEBRIS OR LAND CLEARING MATERIALS. OPEN BURNING FOR THE WARMING OF SAND AND/OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES. FIRE PREVENTION ORDINANCE CHAPTER 58, SEC. 307.6.2 & 307.6.2.3





© 2010

LEGEND

	EXISTING	PROPOSED
SPOT GRADE	+615.51	
CONTOUR	-615-	
WATER MAIN		
SANITARY SEWER		
STORM SEWER		
OVERHEAD FENCE		
GAS		
DRAINAGE DITCH		
SIGN		
LIGHT POLE		
UTILITY POLE		

WATERMAIN NOTES

- SEE CITY OF ROCHESTER HILLS STANDARD DETAIL SHEETS FOR ADDITIONAL DETAILS & NOTES.
- ALL DUCTILE IRON WATERMAIN SHALL BE CLASS 54 W/ POLYWRAP - SEE CITY SPECIFICATIONS & DETAIL SHEET(S).
- REMOVE/REPLACE CONCRETE PAVEMENT:
 - A "WINDOW CUT" SHALL BE A MINIMUM AND UNIFORM 6 FEET WIDE ACROSS THE ROAD SECTION. IF THE LOCATION OF THE 6 FEET WIDE WINDOW CUT RESULTS IN A REMAINING SLAB SECTION OF ROADWAY LESS THAN 6 FEET WIDE, THE CITY WILL REQUIRE THAT PAVEMENT REPLACEMENT EXTEND TO THE NEAREST SLAB JOINT.
 - REPLACEMENT PAVEMENT CROSS SECTION SHALL MATCH EXISTING SECTION IN CONCRETE AND AGGREGATE MATERIAL THICKNESS.
 - THE PAVEMENT TE-IN TO THE EXISTING CONCRETE SHALL USE EPOXY COATED #5 DOVEL BARS.

- BENCHMARK NO. 1**
P.K. 108 in E. Face of 40" Oak
Elev. 820.79, U.S.G.S. Datum
(See Sht. 2 for location)
- BENCHMARK NO. 2**
P.K. 108 in W. Face of
27" Red Oak
Elev. 841.85, U.S.G.S. Datum
(See Sht. 2 for location)

Quantity List

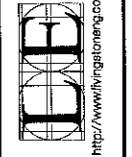
Item	Quantity	Unit
Standard Hydrant Assembly	1	Each
8" Gate Valve & Well	1	Each
8" Ductile Iron Watermain CL 54	568	LF

WATERMAIN EXTENSION PLAN

SCALE: 1" = 40'-0"

FILE: G:\10121_Brher-Rochester_Hills\mg\watermain\10121_3_watermain.dwg

LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OAK US 23, BRIGHTON, MI 48114 FAX: (810) 235-7699
PHONE: (810) 226-7100
http://www.livingstoneng.com

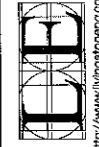


Client:
Biver Construction Company

LEGIONARIES OF CHRIST WORSHIP CENTER
Rochester Hills, Michigan

DATE	12-10-2010
REVISIONS	PER CITY REVIEW 1-21-2011
Drawn: IKA	Checked: [Signature]
Approved: [Signature]	Date: 3-1-2010
Proj. No. 10121	Scale: [Blank]
Vertical: [Blank]	Horizontal: 1" = 40'

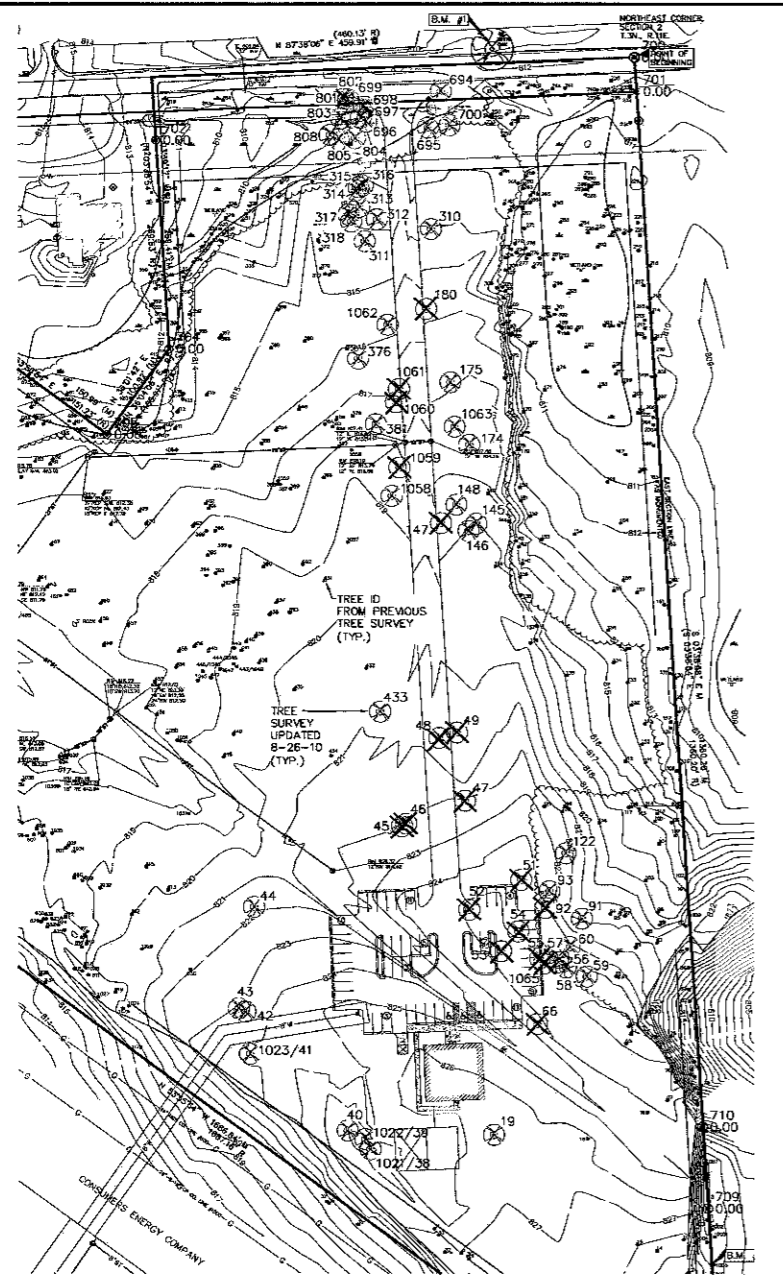




Client:
 Ernie Construction Company

LEGIONARIES OF CHRIST WORSHIP CENTER
 Rochester Hills, Michigan

DETAIL SHEET



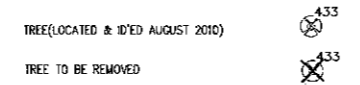
Tag No.	Size (d.b.h.) (in.)	Common Name
44	twin 10", 7"	cottonwood
42	twin 10", 10"	cottonwood
43	8"	cottonwood
1023/41	twin 10", 10"	cottonwood
40	twin 7", 6"	cottonwood
1022/39	13"	cottonwood
1021/38	twin 11", 9"	cottonwood
19	twin 9", 9"	cottonwood
66	10"	cottonwood
58	14"	cottonwood
56	10"	cottonwood
57	12"	cottonwood
*1065	twin 10", 12"	cottonwood
*55	7"	cottonwood
59	twin 12", 6"	cottonwood
50	9"	sycamore
51	triple 6", 6", 6"	box elder
*54	7"	cottonwood
*53	12"	cottonwood
*52	7"	cottonwood
*51	11"	elm
*52	7"	elm
93	7"	elm
122	14"	ash
*47	twin 7", 5"	cottonwood
*45	14"	cottonwood
*45	8"	cottonwood
433	9"	cottonwood
*48	11"	cottonwood
*49	7"	cottonwood (dead)
*147	twin 7", 6"	box elder
145	7"	cottonwood (dead)

Tag No.	Size (d.b.h.) (in.)	Common Name
146	5"	dead tree
148	7 stem, <10"	cottonwood
1058	12"	cottonwood
*1059	triple 15", 9", 8"	cottonwood
174	8"	cottonwood
1063	triple 17", 11", 11"	cottonwood
381	11"	cottonwood
*1060	twin 8", 8"	Russian Olive
*1061	twin 12", 11"	cottonwood
175	8"	basswood
1052	13"	cottonwood
*180	10"	cottonwood
310	9"	cottonwood
700	18"	cottonwood
694	14"	cottonwood
695	12"	box elder
802	8"	cottonwood
801	8"	cottonwood
699	8"	cottonwood (dead)
698	11"	ash
996	8"	ash
997	12"	cottonwood
803	10"	dead tree
808	8"	willow
806	4 stem 22", 17", 11", 8"	willow
804	11"	cottonwood
316	17"	cottonwood
315	13"	cottonwood
314	8"	cottonwood
313	12"	cottonwood
318	twin 12", 5"	cottonwood
317	18"	cottonwood
311	14"	cottonwood
312	9"	cottonwood
376	10"	cottonwood

TREE SURVEY
 SCALE: 1" = 80'-0"

DETAIL SHEET

TREE LEGEND



SOIL EROSION & MAINTENANCE CONTROL NOTES

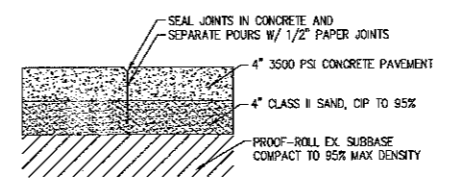
- All soil erosion and sediment control work shall conform to M.D.E.C. current standards and specifications.
- The proposed work shall be carried out in accordance with the approved plans and in compliance with all the requirements of the permit, act 347 of the public act of 1972, and rules promulgated thereunder.
- The contractor shall be held solely responsible for implementing the approved soil erosion control measures. The contractor shall maintain, repair and replace the damaged soil erosion control measures at no additional cost to the owner.
- All soil, miscellaneous debris or other materials spilled, dumped or otherwise deposited on public streets, highways, sidewalk or other public thoroughfares during transit to or from the site shall be removed promptly.
- All soil erosion shall be contained on-site.
- The owner shall cause to have periodic removal of debris and sediment built-up from erosion control measures during construction.
- Any erosion control measures damaged by the contractor's operation shall be replaced the same working day.
- The owner shall obtain or cause his contractor to obtain all required permits, pay all permit fees and post all bonds to each and all governmental agencies having jurisdiction over erosion control measures on this project.
- Until all disturbed areas have been re-established with vegetation, the developer is responsible for inspecting, after each heavy rain, all sediment traps and filters. If inspection indicates that the sediment has accumulated to within 1 or 2 inches of the invert of the outlet pipe, the structure is to be completely cleaned of sediment.
- Filter barriers and Low Point Inlet Filters shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
- Upon completion of each catch basin and inlet, the Contractor shall install the required sediment control device as shown on the plan. All grates shall be wrapped with burlap prior to placement. These measures shall remain until final pavement or final grading is completed. Contractor is responsible for cleaning out structures upon completion of project.
- If the fabric decomposes or becomes ineffective prior to the end of the expected usable life, and the barrier is still required, the fabric shall be replaced promptly.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared, and seeded.
- Filter fencing which sags, falls over or is not staked in, should be promptly repaired or replaced.
- If the fence is sagging or the soil has reached one half the height of the fabric, the soil behind the fabric must be removed.
- See O.C.D.C. Standard Detail Sheet for Soil Erosion Control Details.

ADDITIONAL TREE NOTES:
 1. SEE SHEET L1 FOR TREE PROTECTION/REPLACEMENT NOTES & DETAILS.

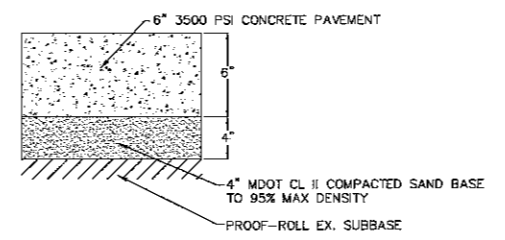
PROPOSED CONSTRUCTION SCHEDULE FOR THE YEAR 2011

ACTIVITY	MAR	APR	MAY	JUN
CLEAR, GRUB, GRADING				
BUILDING CONSTRUCTION				
FINAL GRADING				
PAVING				
SEED & MULCH				

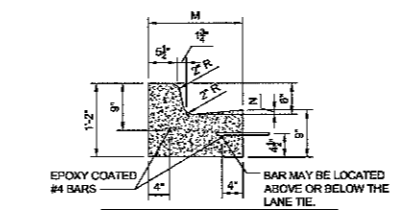
TOTAL DISTURBED AREA = 62,398 SF (1.43 ACRES)



CONCRETE PAVEMENT SECTION
 ** FOR USE IN SIDEWALK AREAS **

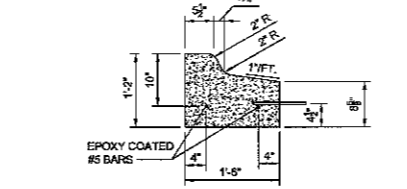


CONCRETE PAVEMENT SECTION
 ** FOR USE IN DUMPSTER AREA **



DETAIL	W	H	FINISH	CONCRETE
1	1'-6"	7"	AS EXPOSED	6000
2	2'-0"	1'-0"	AS EXPOSED	6000
3	2'-0"	1'-0"	AS EXPOSED	6000
4	2'-0"	1'-0"	AS EXPOSED	6000
5	2'-0"	1'-0"	AS EXPOSED	6000

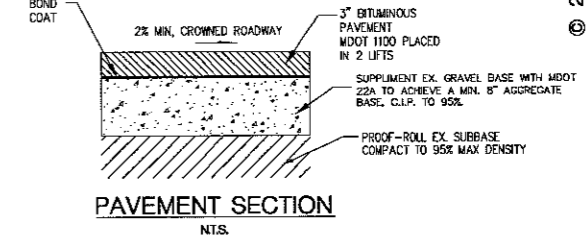
MDOT 'F' CONCRETE CURB DETAIL



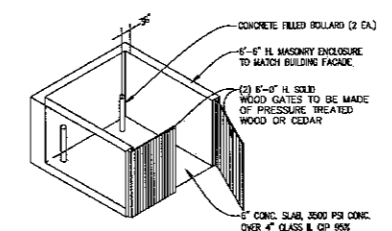
MDOT 'F' CONCRETE CURB REVERSE GUTTER DETAIL

SEQUENCE OF CONSTRUCTION:

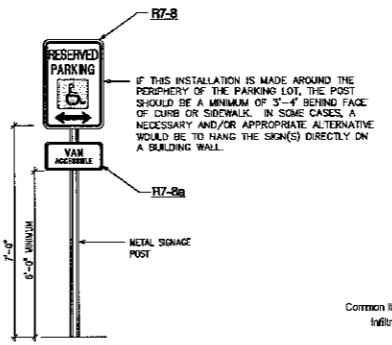
- Install erosion and sediment control measures per plan.
- Rough grade site & store soil.
- Maintain erosion and sediment control measures, as required.
- Finish grade, redistribute topsoil, seed & mulch all disturbed areas.
- Remove all erosion & sediment control measures; seed and mulch all remaining unstabilized areas.



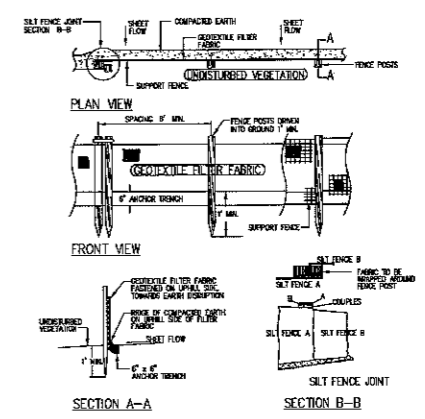
PAVEMENT SECTION
 N.T.S.



DUMPSTER DETAIL
 NOT TO SCALE



BARRIER FREE SIGN
 N.T.S.



**SILT FENCE DETAIL (36\"/>
 NOT TO SCALE**

STORM WATER MANAGEMENT CALCULATIONS
 Project: Worship Center
 Livingston Engineering Project No. 10121
 City of Rochester Hills Methodology

Common Items and Assumptions:
 Infiltration Basin Volume =
 $(0.5712) \times 43,560 \times \text{area} \times \text{developed C}$

- Contributing Area = 0.94 Ac.
- Developed Runoff Coefficient:

	Area (A), Ac.	Coefficient (C)	A x C
Concrete/roof	0.12	0.95	0.11
Gravel	0.46	0.85	0.39
Lawn/Landscaped Area	0.36	0.20	0.07
Totals:	0.94		0.58

- Infiltration Basin Volume =

$V = (0.5712) \times 43,560 \times 0.61 \times 0.94 = 1041 \text{ CF}$

	Elev.	Area(sq)	Vol (cft)	Acc. Vol (cft)
Elev ₀ =	821.0	196		
	822.0	2676	973	973
	822.50	3074	1979	2252
Total:				2252 CF

The following interpolations determine the pond water elevations for the infiltration basin

$\frac{822.5 - 822.0}{2252 - 973} = \frac{x - 822.0}{1041 - 973}$

$x = \text{Elev} = 822.03$

FILE:G:\10121 Bldg-Rochester Hills\dwg\comp\10121_4_sdet01 sheet.dwg

DATE	REVISIONS	Drawn: TEA	Checked:	Approved:	Date: 8-11-2010
12-02-2010					
1-31-2011					

Tree Protection Notes

- See Sheet 3 for Tree Survey and trees to be removed.
- Approved tree protection shall be erected prior to start of construction activities, and shall remain in place until construction is complete. The forestry code shall be notified after tree protection is in place prior to construction activities, including delivery of materials.
- No person may conduct any activity within the drip line of any tree designated to remain, including, but not limited to, clearing, staking, holding materials, construction equipment, or soil disposal within the drip lines.
- Grade changes may not occur within the drip lines of protected trees.
- During construction, no person shall attach any device or wire to any remaining tree.
- All utility service requests must include notification to the contractor that protected trees must be avoided. All handlings shall occur outside of the protective fencing.
- Sees shall be located to avoid the area within the drip lines of protected trees.
- If tree protection cannot be maintained for a tree throughout the construction period, relocation of that tree may be required prior to the issuance of the Certificate of Occupancy.
- Relocated trees located on adjacent property must be protected by construction activities.
- All trees being relocated will be identified by painting, tagging, or some other approved method.

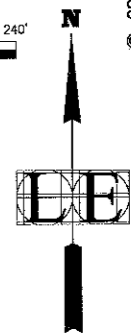
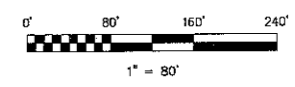
Tree Replacement Notes

- Replacement trees shall comply with the guidelines established in the American Standard for Nursery Stock (ANSI Z-60-01 1990).
- Replacement and/or relocated trees must be staked, fertilized, and mulched, one shall be guaranteed for one (1) year.

Tree Replacement Schedule

Number of trees removed: 17 (see sheet 3 for detailed list)
 Replacement trees required: 17
 Replacement trees provided: (12) 2.5" caliper trees = 17 replacement trees
 Cost Estimate: (12) 2.5" trees @ \$300.00 ea. = \$3,600.00

LANDSCAPE PLAN

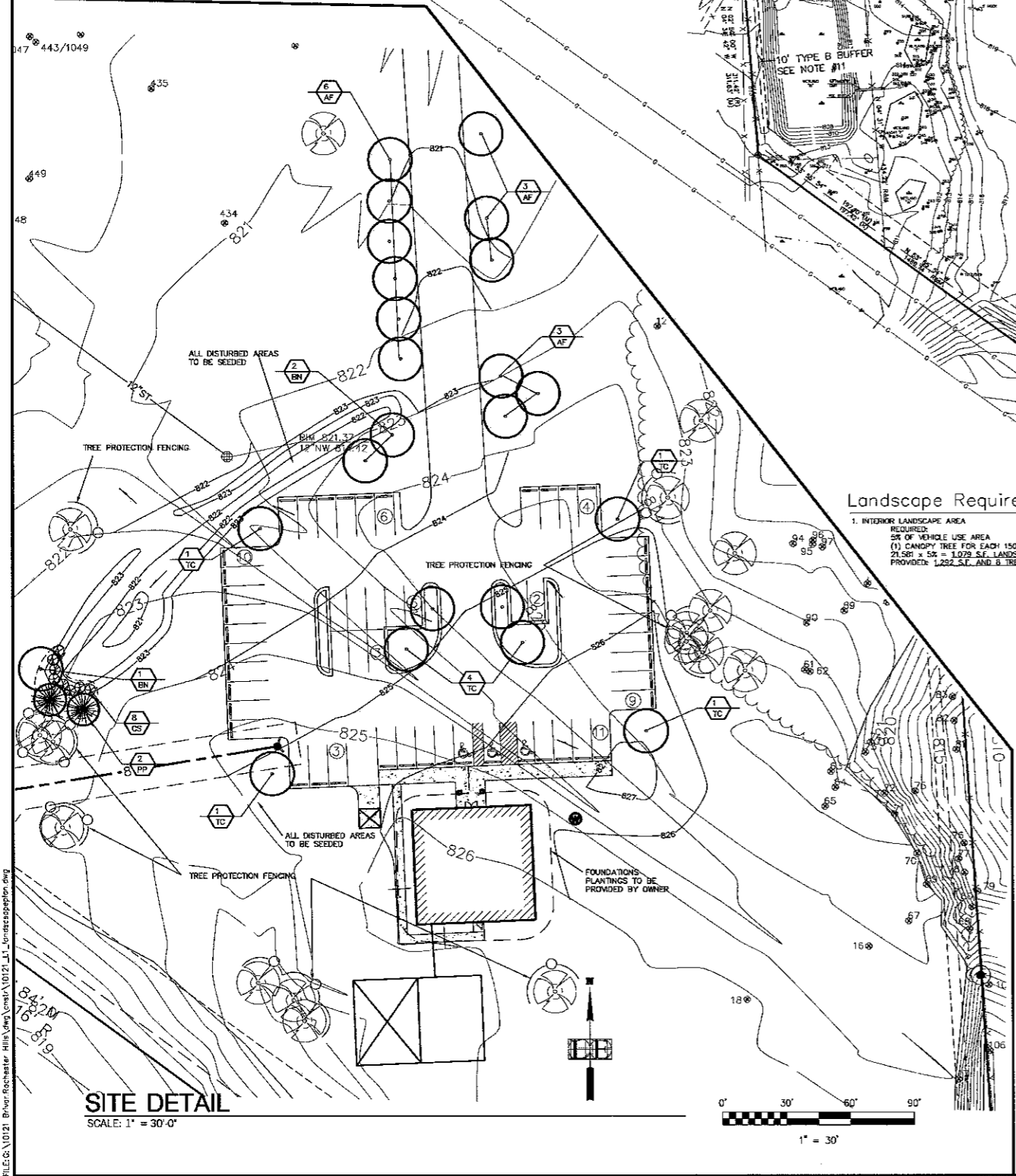


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LIVINGSTON ENGINEERING
 CIVIL ENGINEERING SURVEYING PLANNING
 5300 S. OIL U.S. 23, BRIGHTON, MI 48114
 PHONE: (616) 228-7100
 FAX: (616) 228-7699
 http://www.livingstoneng.com

Client: **Bhaver Construction Company**
 Rochester Hills, Michigan
LEGIONARIES OF CHRIST WORSHIP CENTER
 PRELIMINARY SITE PLAN

DATE	12-10-2010
FOR CITY REVIEW	1-31-2011
FOR CITY REVIEW	
FOR CITY REVIEW	
Drawn: TEA	Checked: [Signature]
Scale: 10/121	Verdict: VARIES
Sheet: [Blank]	Hammer: [Blank]
L1	



Landscape Requirements

- INTERIOR LANDSCAPE AREA REQUIRED: 5% OF VEHICLE USE AREA (1) CANOPY TREE FOR EACH 150 SF. OF INTERIOR LANDSCAPE AREA 21.50' x 5' = 1,075 S.F. LANDSCAPE AREA AND B TREES PROVIDED: 1,252 S.F. AND B TREES

Notes

- Base information was taken from plans provided by Livingston Engineering, Inc.
- The contractor(s) shall verify the location of all underground utilities prior to construction.
- All plant beds are spade edged and to be mulched with shredded bark.
- Plants shall conform to the sizes as shown on the drawings and shall be of sound health. All measurements such as spread, ball size, height, caliper and quality designations shall be in conformance to the latest edition of the American Standards for Nursery Stock.
- All evergreen tree species are to be full, dense plants branched fully to the ground.
- Prune all dead and broken branches from all plants immediately after installation.
- Planting soil mixture shall be prepared on-site by mixing 3 parts topsoil to 1 part existing site soils to 1 part peat, adding 5 lbs. of superphosphate to each cubic yard of the mixture.
- Organic mulch requirements: shade trees, ornamental trees and evergreen trees - 5" of shredded bark; shrubs and shrub beds - 4" of shredded bark; ground cover beds and perennial flowers - mulch with 1" of peat.
- Low seed mix:
 - a. 50 percent creeping red fescue (Festuca rubra variety).
 - b. 30 percent Kentucky blue grass (Poa pratensis).
 - c. 20 percent perennial ryegrass (Lolium perenne).
- See Sheet L2 for landscape details.
- A waiver of the planting requirements is being sought for the perimeter of the property due to the existing vegetation.
- Existing vegetation is being proposed to satisfy the requirements of the buffer surrounding the existing house. A photo demonstrating the existing vegetation has been provided.

CITY OF ROCHESTER HILLS PARKS AND FORESTRY NOTES:
 - 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. 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 THEIR 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 10' 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 PLANTED AT LEAST 15' AWAY FROM THE NEAREST OVERHEAD WIRE. TREES MUST BE PLANTED A MINIMUM OF 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 DETERMINE IF ANY SHAW TREE IS 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.

PLANT LIST

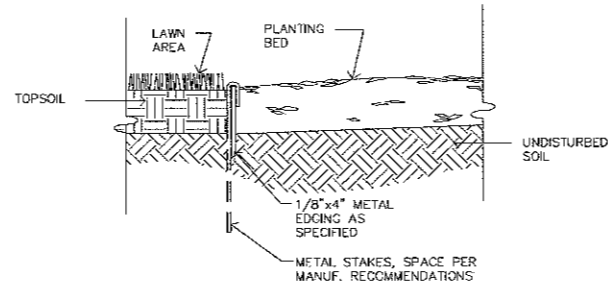
Qty.	Key	Botanical Name	Common Name	Caliper	Size	Height	Spread	Other	Root	Remarks
Trees										
12	AF	Acer x freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"					B&B	Clump
3	BN	Betula nigra	River Birch			8'-10'			B&B	
2	PP	Piceo pungens	Colorado Spruce			8'			B&B	
8	TC	Tilia cordata 'Greenspire'	Greenspire Linden	2.5"					B&B	
Shrubs										
8	CS	Cornus sericea	Red Osier Dogwood			30"			Cont.	

B&B = Balled & Burlapped Cont. = Container Gal. = Gallon O.C. = On Center



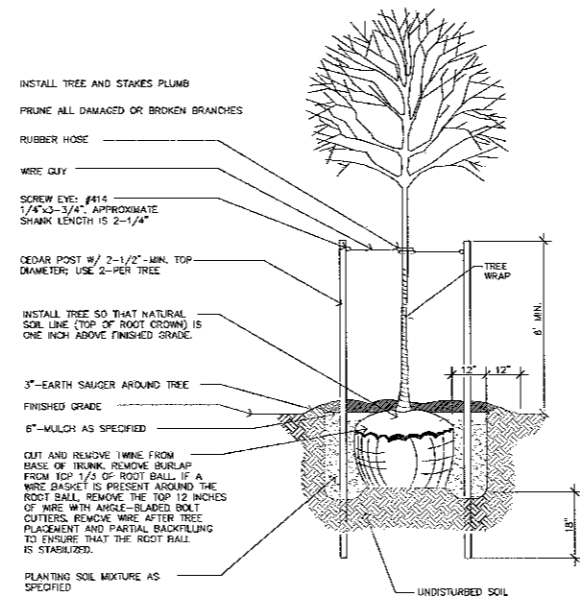
FILE:G:\10121_Bhaver-Rochester_Hills\Area\10121_L1_Landscapeplan.dwg

LANDSCAPE DETAILS



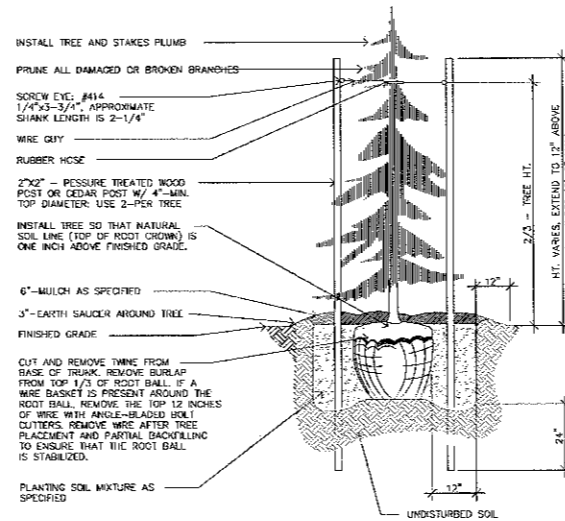
Metal Edging

SCALE: NO SCALE



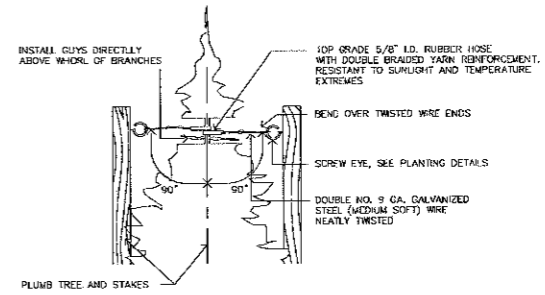
Deciduous Tree Planting/Staking

UNDER 3" IN CALIPER



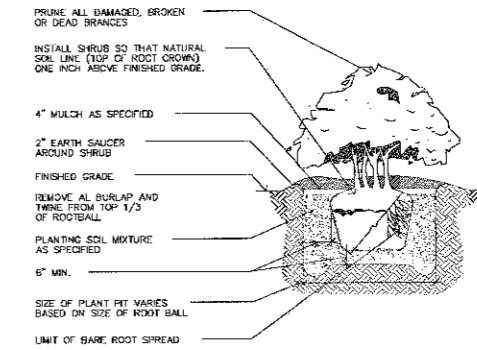
Evergreen Tree Planting/Staking

6" IN HEIGHT AND ABOVE



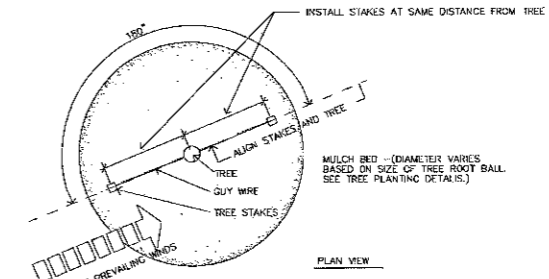
Guy Installation

FOR EVERGREEN AND DECIDUOUS TREES



Shrub Planting

SCALE: NO SCALE

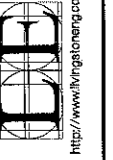


Stake Placement

FOR EVERGREEN AND DECIDUOUS TREES

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LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OGDEN ST. BRIGHTON, MI 48114
PHONE: (810) 226-7100 FAX: (810) 226-7899



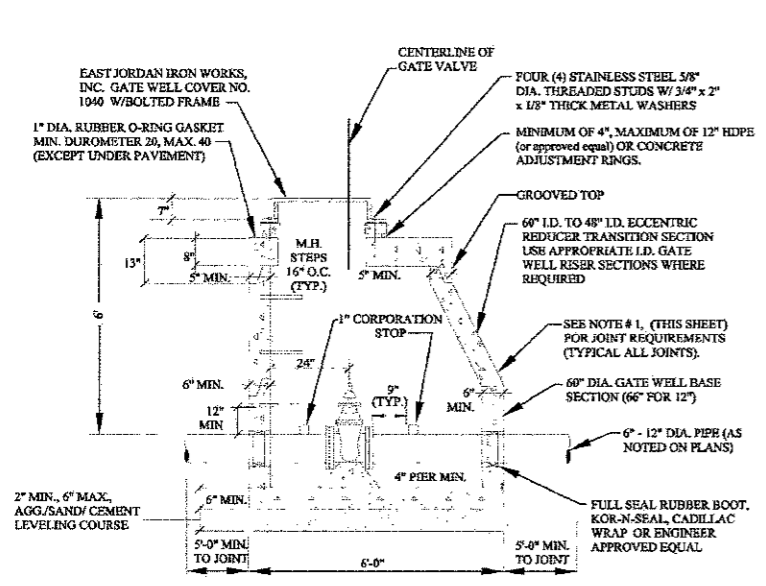
Client
Bever Construction Company
13001 Lakeshore Drive, Suite 104
Livonia, MI 48150

LEGIONARIES OF CHRIST WORSHIP CENTER
Rochester Hills, Michigan

DATE	12-10-2010
REVISIONS	
PER CITY REVIEW	
Drawn: IEA	
Checked: C	
Approved: B	
Date: 8-1-2010	
Job no. 10121	
Scale	
Vertical	
Horizontal	

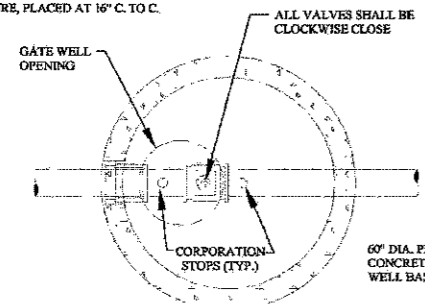


5700 W. Mt. Hope, Suite 100
Lansing, MI 48917
(517) 322-9570

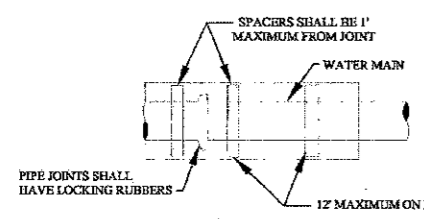


ALL GATE WELLS

MANHOLE STEPS TO BE PLASTIC COATED STEEL MEETING THE REQUIREMENTS IN ASTM D 2146, TYPE II, GRADE 49108. MA. INDUSTRIES P.L. POLYPROPYLENE OR APPROVED EQUAL STEPS TO BE INSTALLED DURING MANHOLE MANUFACTURE, PLACED AT 16\"/>



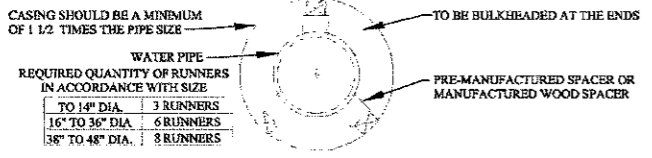
GATE WELL (TYPICAL)



WATER MAIN IN CASING SECTION

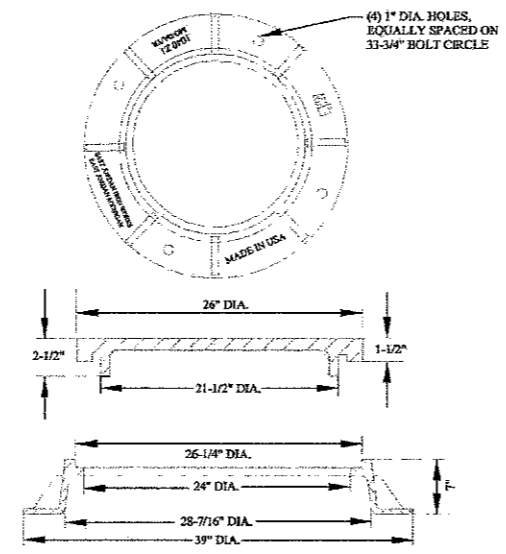
UNLESS OTHERWISE SPECIFIED, MINIMUM CASING PIPE SHALL BE ASTM A-159 GRADE B, WALL THICKNESS AS FOLLOWS:

NOMINAL SIZE	MINIMUM WALL THICKNESS
8\"/>	

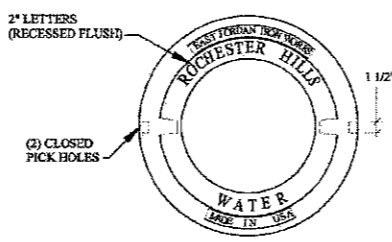


SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING PIPE

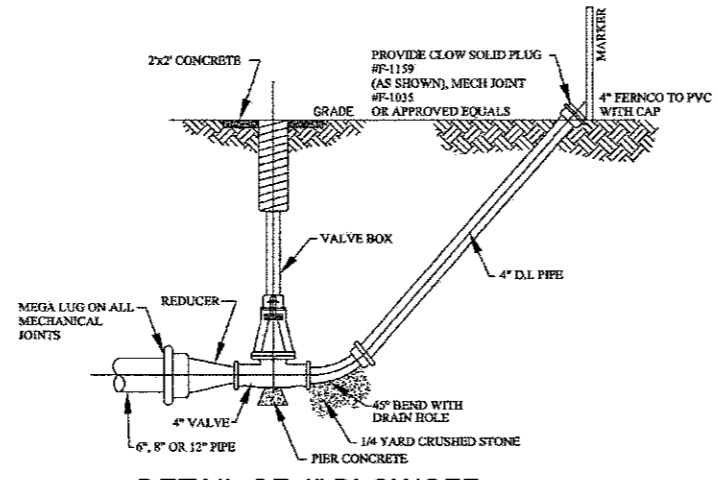
WATER PIPE	REQUIRED QUANTITY OF RUNNERS IN ACCORDANCE WITH SIZE
TO 14\"/>	



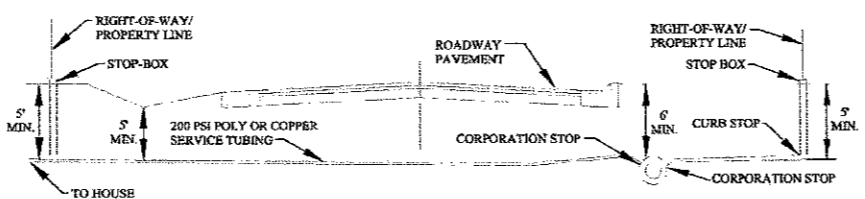
FRAME



LETTERING LAYOUT FOR GATE WELL COVERS

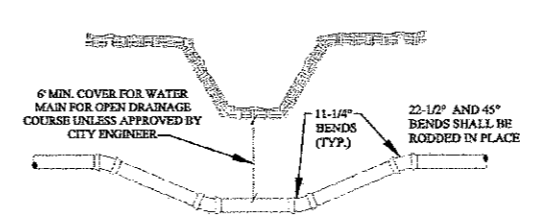


DETAIL OF 4\"/>

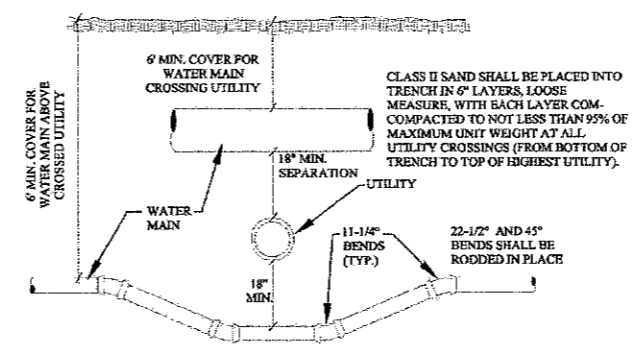


TYPICAL PUBLIC ROAD WATER SERVICE CONNECTION

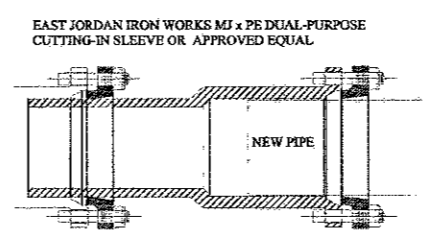
- NOTES:
 1. WATER SERVICE SHUT-OFF TO BE PLACED AT PROPERTY LINE.
 2. LATERAL LOCATION SHALL BE AS REQUESTED BY THE ABUTTING PROPERTY OWNER.
 3. ROCHESTER HILLS DPW PERFORMS SERVICE LEAD TAPS UP TO 2\"/>



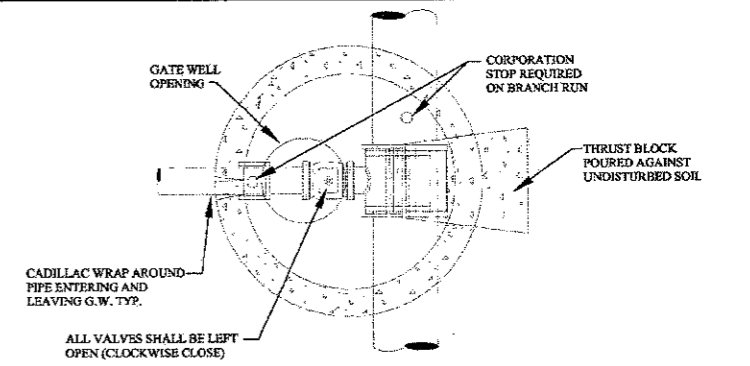
DITCH CROSSING



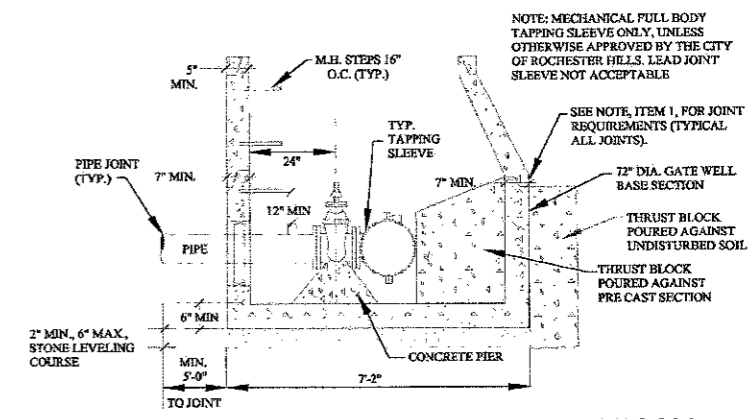
UTILITY CROSSING



BOTTLE SLEEVE

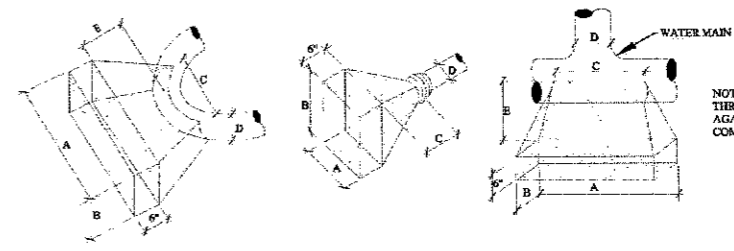


PLAN TAPPING SLEEVE VALVE & WELL (TYPICAL)



TAPPING SLEEVE, VALVE AND WELL (TYPICAL)

- NOTES:
 1. ALL PRECAST CONCRETE GATE WELL SECTIONS SHALL BE MANUFACTURED TO CONFORM WITH A.S.T.M. C478, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, EXCEPT WALL THICKNESS SHALL BE AS SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C 443, STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
 2. CONTRACTOR SHALL INSTALL VALVES, TAPPING SLEEVES AND GATE WELL STRUCTURES IN STRICT COMPLIANCE WITH MEASUREMENTS PROVIDED ON SHEET 16 & 2-10 BETWEEN GATE WELL WALL & CENTERLINE OF OPERATING NUT) TO ALLOW PROPER OPERATION OF VALVE THROUGH GATE WELL OPENING. FAILURE TO DO SO WILL REQUIRE CONTRACTOR TO CORRECT AT HIS EXPENSE.
 3. TAPPING SLEEVES SHALL BE MANUFACTURED BY ROMAC INDUSTRIES; MUELLER; EAST JORDAN; SMITH-BLAIR OR APPROVED EQUAL AND APPROVED BY THE CITY OF ROCHESTER HILLS. FULL BODY SLEEVES MUST BE USED EXCEPT FOR REINFORCED CONCRETE PRESSURE PIPE OR A.C. PIPE.
 4. FOR ALL PIPE USE A 1\"/>



FOR 90° BENDS OR SMALLER					FOR PLUGS				FOR TEES				
D	A	B	C	E MIN.	D	A	B	C MIN.	D	A	B	C	E MIN.
20"	8"	6.5"	3.5"	2.5"	20"	7"	5"	2.5"	20"	6.5"	4.5"	3.5"	3"
16"	6"	4"	2.5"	2"	16"	4-10"	4-10"	2"	16"	4-8"	4-8"	2.5"	2.75"
12"	4"	3"	2"	1.75"	12"	4-4"	3"	1-9"	12"	4"	3"	2.5"	2.5"
10"	3"	3"	2"	1.75"	10"	3"	2"	1-6"	10"	3"	2"	2"	2.25"
8"	3"	2"	2"	1.5"	8"	2-10"	2-6"	1-6"	8"	2-6"	2"	2"	2.25"
6"	2"	1.5"	2"	1.25"	6"	1-6"	1-6"	3"	6"	2"	2"	2"	2.25"

THRUST BLOCK DETAILS



REVISIONS	DATE	APPROVED BY

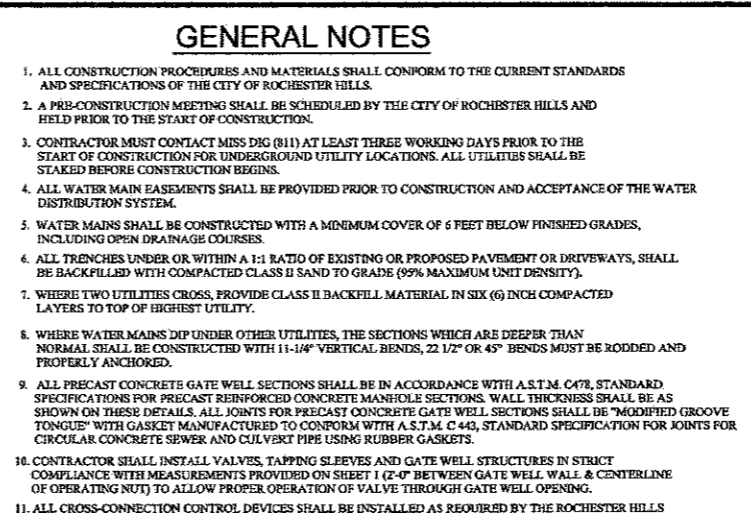
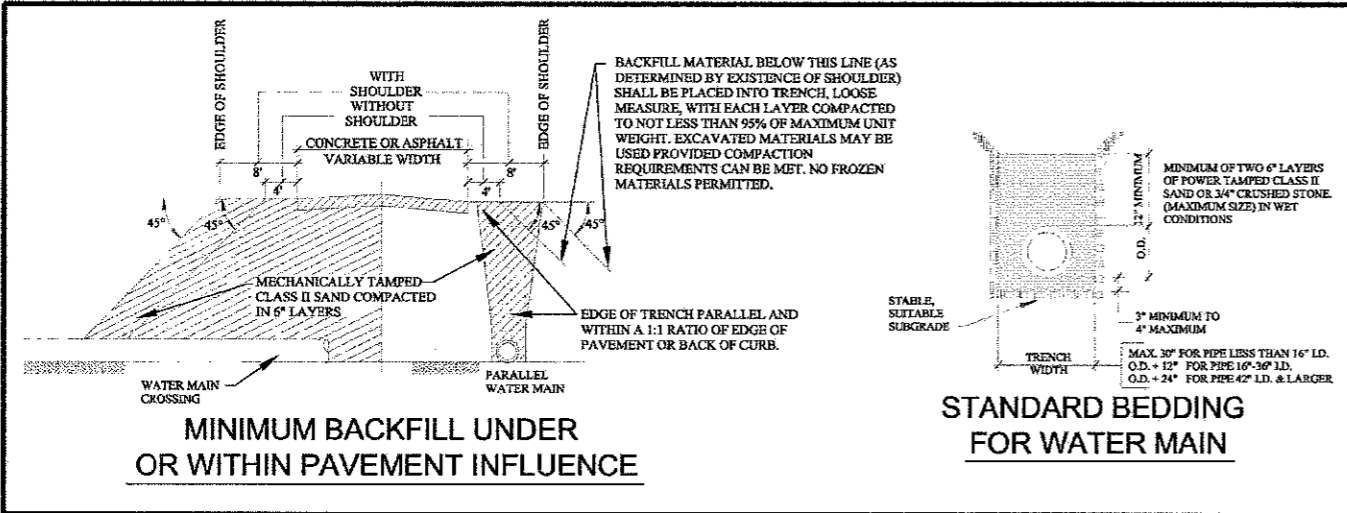
APPROVED BY CITY COUNCIL, DATE: JULY 21, 2008
 PREPARED BY ENGINEERING DIVISION DEPARTMENT OF PUBLIC SERVICES

NOTIFY ROCHESTER HILLS ENGINEERING DEPARTMENT @ 248-841-2510 48 HRS. PRIOR TO START OF CONSTRUCTION

City of Rochester Hills
 1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

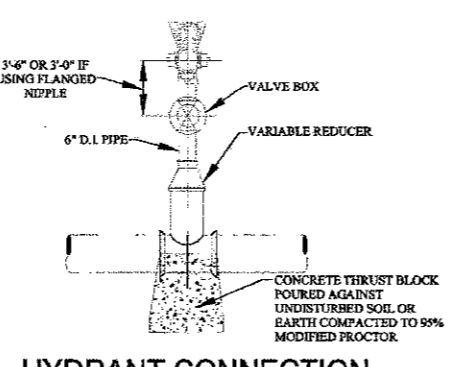
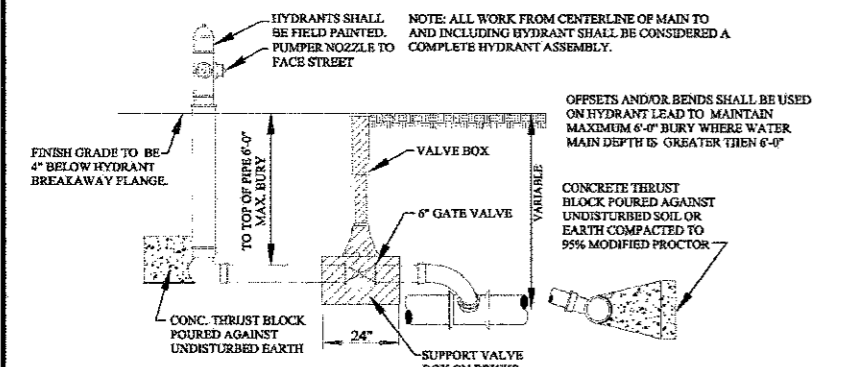
WATER MAIN STANDARD DETAILS

NOT TO SCALE DATE: 7/21/2008
 SHEET 1 OF 2



- ### GENERAL NOTES
- ALL CONSTRUCTION PROCEDURES AND MATERIALS SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ROCHESTER HILLS.
 - A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED BY THE CITY OF ROCHESTER HILLS AND HELD PRIOR TO THE START OF CONSTRUCTION.
 - CONTRACTOR MUST CONTACT MISS DIG (811) AT LEAST THREE WORKING DAYS PRIOR TO THE START OF CONSTRUCTION FOR UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHALL BE STAKED BEFORE CONSTRUCTION BEGINS.
 - ALL WATER MAIN EASEMENTS SHALL BE PROVIDED PRIOR TO CONSTRUCTION AND ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM.
 - WATER MAINS SHALL BE CONSTRUCTED WITH A MINIMUM COVER OF 6 FEET BELOW FINISHED GRADES, INCLUDING OPEN DRAINAGE COURSES.
 - ALL TRENCHES UNDER OR WITHIN A 1:1 RATIO OF EXISTING OR PROPOSED PAVEMENT OR DRIVEWAYS, SHALL BE BACKFILLED WITH COMPACTED CLASS II SAND TO GRADE (95% MAXIMUM UNIT DENSITY).
 - WHERE TWO UTILITIES CROSS, PROVIDE CLASS II BACKFILL MATERIAL IN SIX (6) INCH COMPACTED LAYERS TO TOP OF HIGHEST UTILITY.
 - WHERE WATER MAINS DIP UNDER OTHER UTILITIES, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE CONSTRUCTED WITH 11-1/4" VERTICAL BENDS, 22 1/2" OR 45" BENDS MUST BE RODDED AND PROPERLY ANCHORED.
 - ALL PRECAST CONCRETE GATE WELL SECTIONS SHALL BE IN ACCORDANCE WITH A.S.T.M. C478. STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS. WALL THICKNESS SHALL BE AS SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C 443, STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
 - CONTRACTOR SHALL INSTALL VALVES, TAPPING SLEEVES AND GATE WELL STRUCTURES IN STRICT COMPLIANCE WITH MEASUREMENTS PROVIDED ON SHEET 1 (2'-0" BETWEEN GATE WELL WALL & CENTERLINE OF OPERATING NUT) TO ALLOW PROPER OPERATION OF VALVE THROUGH GATE WELL OPENING.
 - ALL CROSS-CONNECTION CONTROL DEVICES SHALL BE INSTALLED AS REQUIRED BY THE ROCHESTER HILLS PLUMBING INSPECTOR AND IN ACCORDANCE WITH THE STANDARDS OF THE OAKLAND COUNTY DRAIN COMMISSIONER OPERATION AND MAINTENANCE DIVISION AND THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF DRINKING WATER AND RADIOLOGICAL PROTECTION.
 - ALL WATER SERVICE CONNECTIONS TWO (2) INCHES AND SMALLER SHALL BE MADE BY THE CITY OF ROCHESTER HILLS, DEPARTMENT OF PUBLIC SERVICES AFTER WATER MAIN ACCEPTANCE AND APPLICABLE PERMITS ARE OBTAINED.
 - ALL FITTINGS AND BENDS SHOULD BE BLOCKED IN ACCORDANCE WITH THRUST BLOCK DETAILS, UNLESS ALTERNATE THRUST RESTRAINT SYSTEM, AS INDICATED PLANS AND SPECIFICATIONS, IS APPROVED BY THE CITY OF ROCHESTER HILLS DEPARTMENT OF PUBLIC SERVICE.

- ### HYDRANT REQUIREMENTS
- ALL HYDRANTS SHALL BE CONSTRUCTED WITH A SIX (6) INCH COMPANION GATE VALVE IN A THREE (3) PIECE, ADJUSTABLE DUCTILE IRON VALVE BOX, WHICH SHALL INCLUDE A FIVE AND ONE-QUARTER (5-1/4) INCH SCREW SHAFT. VALVE BOXES SHALL BE SERIES 6860 AS MANUFACTURED BY TYLER PIPE OR APPROVED EQUAL.
 - ALL HYDRANTS SHALL BE EAST JORDAN IRON WORKS NO. 5-BR-250 TRAFFIC MODEL, OR AMERICAN FLOW CONTROL MODEL WB-67250. SELF-DRAINING HYDRANTS SHALL NOT BE USED. HYDRANTS SHALL HAVE BREAKAWAY FLANGE.
 - ALL HYDRANTS SHALL BE PAINTED RED ABOVE GROUND AND BLACK BELOW GROUND WITH A FINISH COAT OF GLAMOXTEX 501 ENAMEL, COLOR 314 VERMILION OR APPROVED EQUAL. HYDRANT CAPS SHALL BE PAINTED SAME COLOR AS THE HYDRANT.
 - ALL FIRE HYDRANT JOINTS SHALL BE TOTALLY RESTRAINED BY THE USE OF RESTRAINED JOINT, THRUST BLOCKS ARE ALSO REQUIRED.



- ### WATER MAIN MATERIALS NOTES
- TEMPORARY CONNECTIONS, WHICH MAY BE MADE FOR CHLORINATING AND FLUSHING PURPOSES, SHALL INCLUDE A TESTABLE DOUBLE CHECK VALVE BACKFLOW PREVENTER WITH CURRENT CERTIFICATION.
 - CORPORATION STOPS USED FOR INSERTION INTO MAINS SHALL BE FORD TYPE B-44. ALL STOPS SHALL HAVE BRONZE CAST BODIES, KEYS, STEEL WASHERS AND NUTS. INLET THREADS SHALL CONFORM TO THE LATEST VERSION OF AWWA C900.
 - ALL DUCTILE IRON PIPE (D.I.P.) WATER MAIN SHALL BE DESIGNED FOR 150 PSI MINIMUM WORKING PRESSURE.
 - THE DUCTILE IRON PIPE TO BE FURNISHED AND DELIVERED UNDER THIS SPECIFICATION SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C151 (ANSI A21.5), EXCEPT AS OTHERWISE SPECIFIED HEREIN. PIPE SHALL BE DOUBLE CEMENT-LINED AND SEAL COATED WITH AN APPROVED BITUMINOUS SEAL COAT IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
 - DUCTILE IRON PIPE SHALL BE CLASS 54 FOR SIZES THREE (3) INCH THROUGH TWENTY (20) INCHES SIZE. TWENTY-FOUR (24) INCH AND LARGER SHALL BE CLASS 55 DUCTILE IRON PIPE.
 - PIPES TWENTY-FOUR (24) INCHES AND LARGER IN NOMINAL DIAMETER SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C100 FOR DUCTILE IRON WATER PIPE.
 - MECHANICAL JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSI A21.11).
 - FLANGE JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C110 (ANSI A21.10).
 - FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON AND SHALL MEET REQUIREMENTS OF AWWA C110 (ANSI A21.10) OR AWWA C153 (ANSI A21.53). DUCTILE IRON FITTINGS SHALL BE RATED FOR 150 PSI, PIPE SIZES TWENTY-FOUR (24) INCH DIAMETER AND LESS, AND 250 PSI FOR PIPE SIZES OVER TWENTY-FOUR (24) INCH DIAMETER. DUCTILE IRON FLANGE FITTINGS SHALL BE RATED FOR 250 PSI FOR ALL PIPE DIAMETERS.
 - ALL DUCTILE IRON PIPE, FITTINGS AND HYDRANTS SHALL BE ENCASED WITH POLYETHYLENE ENCASEMENT IN ACCORDANCE WITH THE REQUIREMENTS OF A.N.S.I./A.W.W.A. STANDARD SPECIFICATION D1248 AND AWWA C165. POLYETHYLENE TUBE MATERIAL SHALL HAVE A THICKNESS OF .006" (8-MILS). ADHESIVE TAPS SHALL BE A GENERAL PURPOSE ADHESIVE TAPE 2" WIDE AND APPROXIMATELY 10-MILS THICK, SUCH AS SCOTCHCRAP, NO. 36, POLYKID NO. 900, OR TAPECOAT CT.

CITY OF ROCHESTER HILLS WATER SYSTEMS AS-BUILT DRAWING SPECIFICATIONS

IN AREAS WHERE WATER SYSTEMS ARE OPERATED AND MAINTAINED BY THE CITY OF ROCHESTER HILLS DEPARTMENT OF PUBLIC SERVICES, FINAL ACCEPTANCE OF THE WATER SYSTEM MUST BE RENDERED BY THE DEPARTMENT OF PUBLIC SERVICES, BEFORE THE SYSTEM CAN BE USED FOR THE SERVICE INTENDED.

ONE ITEM REQUIRED FOR FINAL ACCEPTANCE SHALL BE THE SUBMISSION OF AS-BUILT DRAWINGS TO THE CITY OF ROCHESTER HILLS, D.P.S., BY THE DESIGN ENGINEER. AS-BUILT DRAWINGS SHALL BE DEFINED AS AND CONTAIN THE FOLLOWING INFORMATION:

- FINAL AS-BUILT DRAWINGS SHALL BE PROVIDED ON THREE (3) MIL. MYLAR, XEROX OR ANY HEAT PROCESS REPRODUCTIONS WILL NOT BE ACCEPTED.
- ALONG WITH THE MYLAR PLAN SET, PROVIDE THREE (3) SETS OF BLUEPRINTS, PRODUCED FROM THE MYLARS AND THE PLANS ON ELECTRONIC MEDIA IN AUTOCAD FORMAT (LATEST VERSION).
- EACH AND EVERY SHEET SHALL BE SEALED BY THE DESIGN ENGINEER, ALONG WITH THE FOLLOWING CERTIFICATION STATEMENT ON THE COVER SHEET:

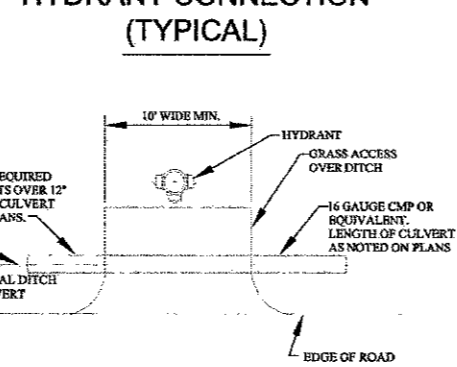
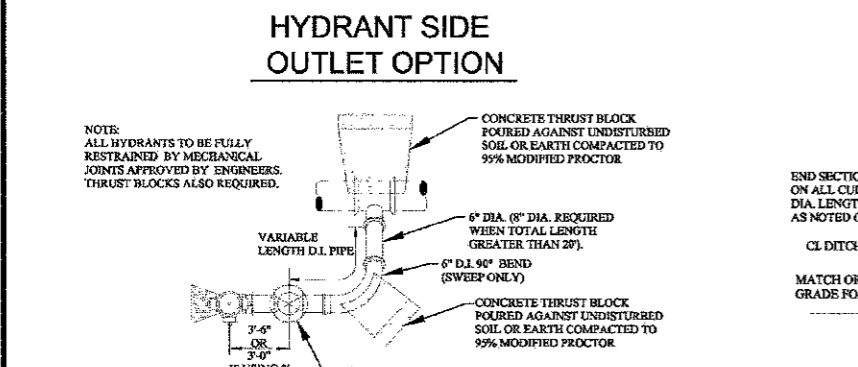
I HEREBY CERTIFY THAT OUR FIRM HAS PREPARED THESE AS-BUILT DRAWINGS OF THE IMPROVEMENTS AS CONSTRUCTED, AND THAT TO THE BEST OF MY KNOWLEDGE THOSE IMPROVEMENTS NOTED AS "AS BUILT" WERE CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS, AND ALSO THAT THE WATER MAIN AND STRUCTURES, AS CONSTRUCTED, ARE WITHIN THE EASEMENT DESCRIPTIONS REQUIRED BY THE CITY OF ROCHESTER HILLS.

(COMPANY NAME)

(ENGINEER'S SIGNATURE)

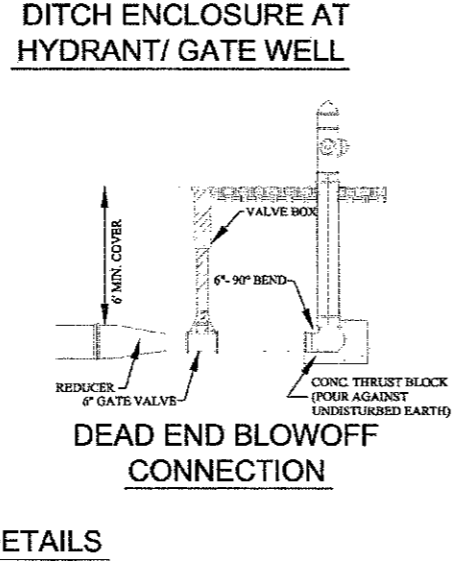
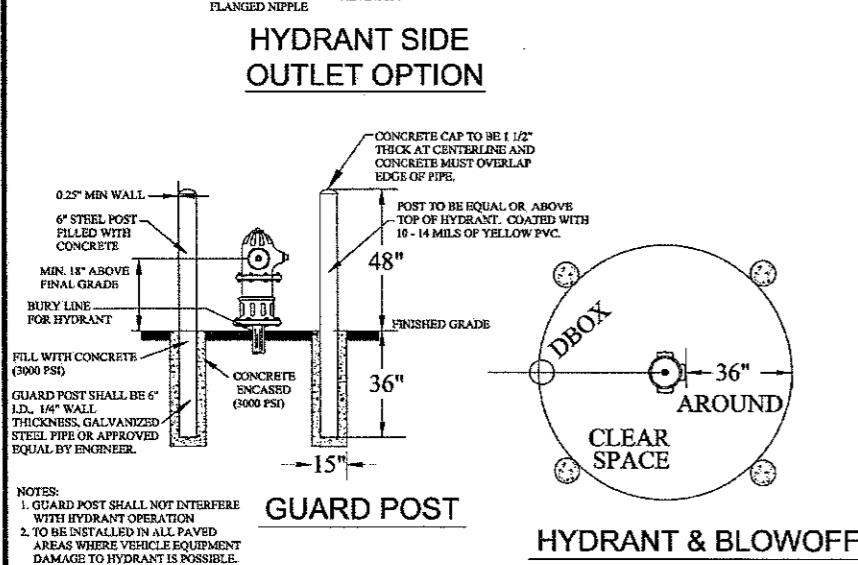
PROFESSIONAL ENGINEER NO. _____

ENGINEER SEAL



VALVE AND SLEEVE NOTES

- GATE VALVES, SIZES THREE (3) INCH THROUGH SIXTEEN (16) INCH AND TAPPING VALVES SHALL MEET THE CITY OF ROCHESTER HILLS STANDARD AS DETAILED WITH NON-RISING STEM. (EAST JORDAN IRON WORKS, AMERICAN FLOW CONTROL, MUELLER)
- ALL IN LINE GATE VALVES EIGHT (8) INCH AND LARGER SHALL BE IN WELLS. SPECIFICATIONS SHALL INCLUDE THE DIRECTION OF OPERATION OF ALL VALVES (CLOCKWISE CLOSURE). VALVE BOX USE TO BE APPROVED BY ENGINEERING DIVISION.
- ALL GATE WELL COVERS SHALL BE CITY OF ROCHESTER HILLS STANDARD AS DETAILED.
- ALL GATE VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN FIVE (5) FEET BELOW GROUND SURFACE SHALL BE PROVIDED WITH AN EXTENSION STEM. THE LENGTH OF THE EXTENSION STEM SHALL REACH WITHIN FIVE (5) FEET FROM THE GROUND SURFACE. WHEN AN EXTENSION STEM IS USED, IT SHALL BE HELD IN PLACE BY AN EXTENSION STEM GUIDE SUITABLY FASTENED TO THE WALL OF THE GATE WELL. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION SYSTEM AND THE METHOD OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- BUTTERFLY VALVES SHALL BE USED FOR VALVES GREATER THAN 16-INCH DIAMETER AND SHALL BE MODEL 2F11 AS MANUFACTURED BY HENRY PRATT COMPANY OR APPROVED EQUAL.
- TAPPING VALVES SHALL BE SERIES "A" AS MANUFACTURED BY EAST JORDAN IRON WORKS OR RESILIENT SEATED GATE VALVES AS APPROVED BY THE CITY OF ROCHESTER HILLS ENGINEERING SERVICES.
- TAPPING SLEEVES SHALL BE MANUFACTURED BY ROMAC INDUSTRIES; MUELLER; EAST JORDAN; SMITH-BLAIR OR APPROVED EQUAL AND APPROVED BY THE CITY OF ROCHESTER HILLS. FULL BODY SLEEVES MUST BE USED EXCEPT FOR REINFORCED CONCRETE PRESSURE PIPE OR A.C. PIPE.



REVISIONS	DATE	APPROVED BY
		CITY COUNCIL, DATE: JULY 21, 2008
		PREPARED BY ENGINEERING DIVISION DEPARTMENT OF PUBLIC SERVICES

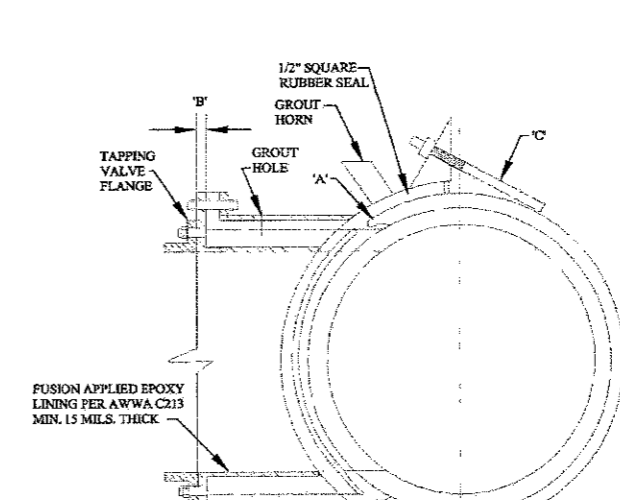
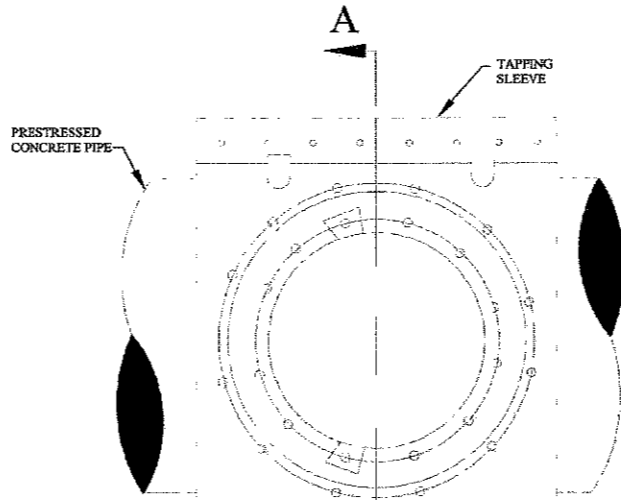
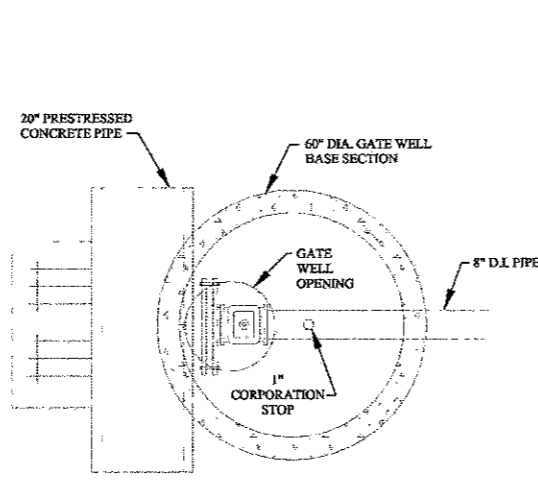
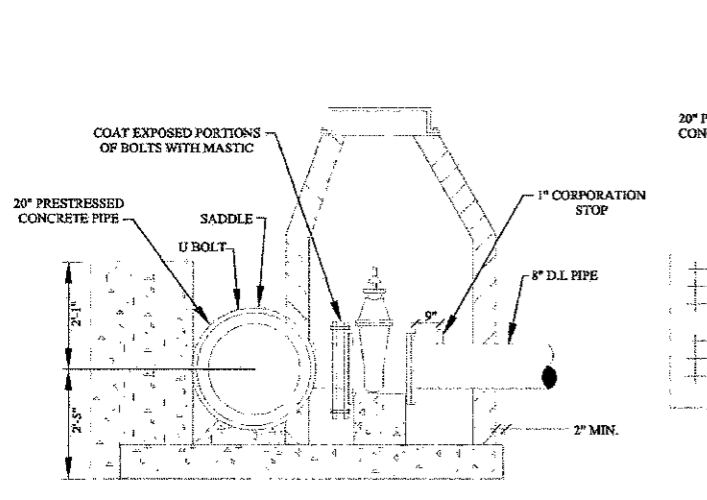
NOTIFY ROCHESTER HILLS ENGINEERING DEPARTMENT @ 248-941-2510 48 HRS. PRIOR TO START OF CONSTRUCTION

City of Rochester Hills
1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

WATER MAIN STANDARD DETAILS

NOT TO SCALE	DATE: 7/21/2008
SHEET 2 OF 2	



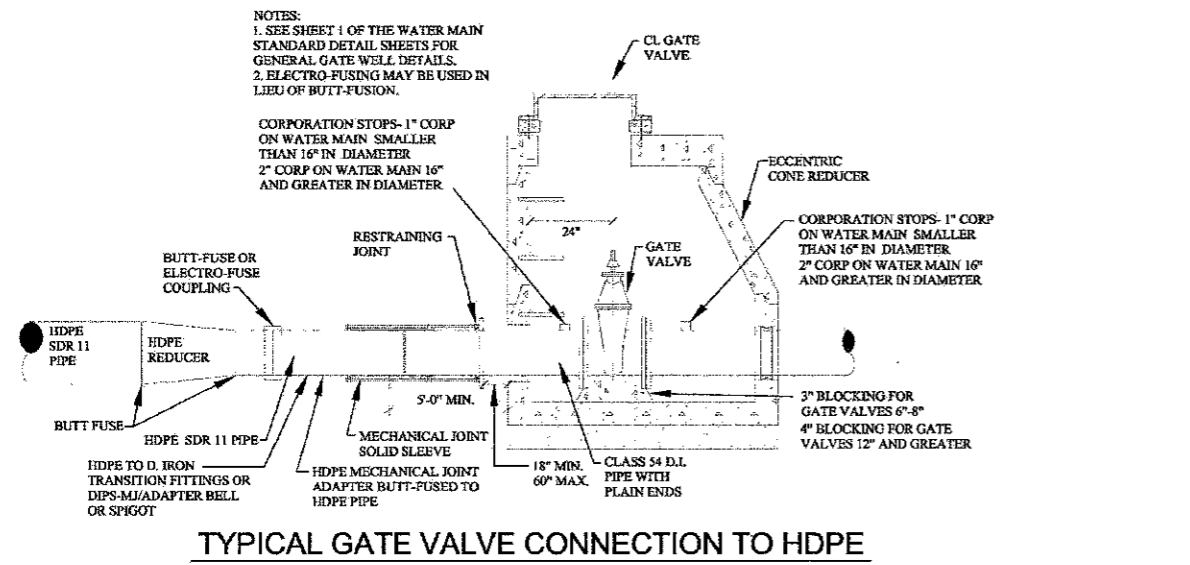


PIPE SIZE X TAP SIZE	A	B	C	D	E
16" X 4"	1/4"	7/8"	6	14-1/16"	24"
16" X 6"	1/4"	1-1/8"	6	14-5/16"	24"
16" X 8"	1/4"	1-1/8"	6	14-5/16"	24"
16" X 10"	1/4"	1-3/8"	7	14-9/16"	28"
16" X 12"	1/4"	1-3/8"	8	14-9/16"	32"
20" X 4"	1/4"	7/8"	6	16-1/2"	24"
20" X 6"	1/4"	1-1/8"	6	16-1/2"	24"
20" X 8"	1/4"	1-1/8"	6	16-1/2"	24"
20" X 10"	1/4"	1-3/8"	7	17"	28"
20" X 12"	1/4"	1-3/8"	8	17"	32"
24" X 4"	1/4"	7/8"	6	18-3/4"	24"
24" X 6"	1/4"	1-1/8"	6	19"	24"
24" X 8"	1/4"	1-1/8"	6	19"	24"
24" X 10"	1/4"	1-3/8"	7	19-1/4"	28"
24" X 12"	1/4"	1-3/8"	8	19-1/4"	32"
30" X 4"	1/4"	7/8"	6	22-1/8"	24"
30" X 6"	1/4"	1-1/8"	6	22-3/8"	24"
30" X 8"	1/4"	1-1/8"	6	22-3/8"	24"
30" X 10"	1/4"	1-3/8"	7	22-5/8"	28"
30" X 12"	1/4"	1-3/8"	8	22-5/8"	32"
36" X 4"	1/4"	7/8"	6	25-1/2"	24"
36" X 6"	1/4"	1-1/8"	6	25-3/4"	24"
36" X 8"	1/4"	1-1/8"	7	25-3/4"	28"
36" X 10"	1/4"	1-3/8"	8	26"	32"
36" X 12"	1/4"	1-3/8"	9	26"	36"
42" X 4"	1/4"	7/8"	6	28-7/8"	24"
42" X 6"	1/4"	1-1/8"	7	29-1/8"	28"
42" X 8"	1/4"	1-1/8"	8	29-1/8"	32"
42" X 10"	3/8"	1-3/8"	9	29-3/8"	36"
42" X 12"	3/8"	1-3/8"	10	29-3/8"	40"
48" X 4"	3/8"	7/8"	7	32-1/4"	28"
48" X 6"	3/8"	1-1/8"	7	32-1/2"	28"
48" X 8"	3/8"	1-1/8"	7	32-1/2"	28"
48" X 10"	3/8"	1-3/8"	7	32-3/4"	28"
48" X 12"	3/8"	1-3/8"	9	32-3/4"	36"

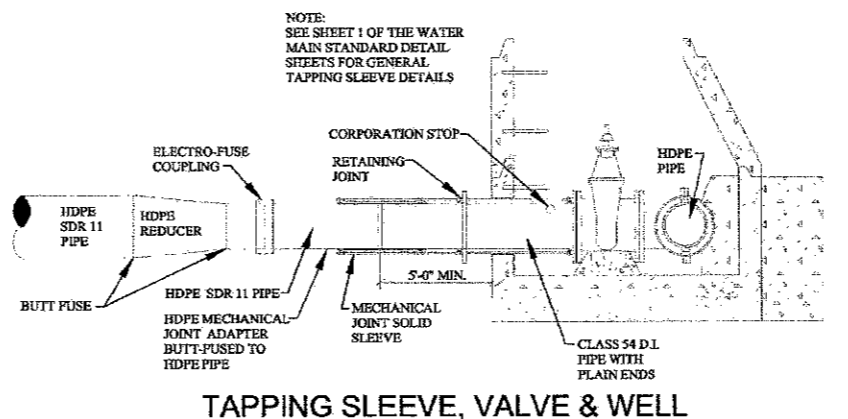
- NOTES:
- 1) THESE DIMENSIONS ARE FOR REFERENCE ONLY.
 - 2) ENTIRE SADDLE, INCLUDING STRAPS, TO BE ENCASED IN PORTLAND CEMENT MORTAR OR CONCRETE TO PROVIDE AT LEAST ONE (1) INCH OF THICKNESS OVER EXTERNAL STEEL SURFACES PRIOR TO BACKFILLING.
 - 3) TAP SADDLES ARE DESIGNED FOR 150 PSI OPERATING PRESSURE.
 - 4) FLANGE DRILLED AND TAPPED IN ACCORDANCE WITH AWWA C207 CLASS D, CENTERING RING CONFORMS TO MSS-SP 60.
 - 5) GROUT SHALL SET A MINIMUM OF TWENTY-FOUR (24) HOURS PRIOR TO PRESSURE TESTING.

20"x 8" CONCRETE PRESSURE TAP VALVE & WELL ASSEMBLY W/ CONCRETE ENCASEMENT

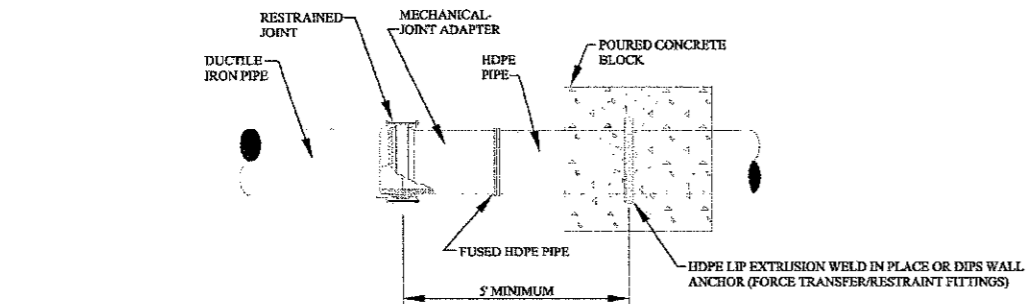
CONCRETE TAPPING SLEEVE DETAILS



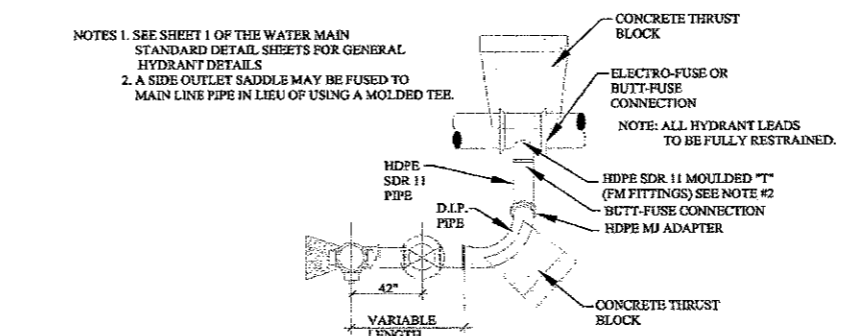
TYPICAL GATE VALVE CONNECTION TO HDPE



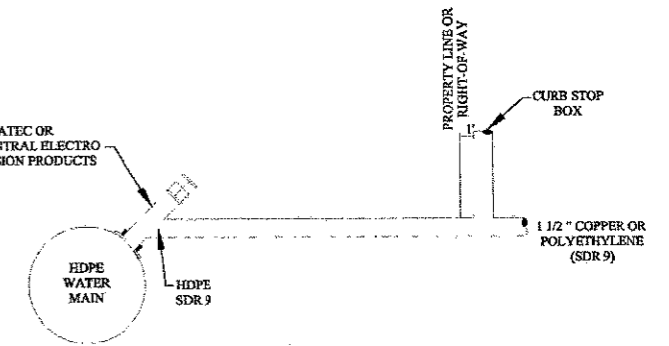
TAPPING SLEEVE, VALVE & WELL



MECHANICAL-JOINT ADAPTER



PLAN HYDRANT SIDE OUTLET



HOUSE LEAD DETAIL HDPE TO COPPER OR POLYETHYLENE (SDR 9)

DETAILS FOR HIGH DENSITY POLYETHYLENE PIPE (HDPE)

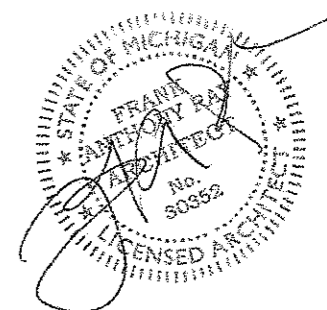
REVISIONS	DATE	APPROVED BY	NOTIFY ROCHESTER HILLS ENGINEERING DEPARTMENT @ 248-841-2510 48 HRS. PRIOR TO START OF CONSTRUCTION
		CITY COUNCIL, DATE: JULY 21, 2008	
		PREPARED BY ENGINEERING DIVISION DEPARTMENT OF PUBLIC SERVICES	

City of Rochester Hills
1000 Rochester Hills Drive, Rochester Hills, Michigan 48309

WATER MAIN SPECIAL DETAILS

NOT TO SCALE	DATE: 7/21/2008
SHEET 1 OF 1	



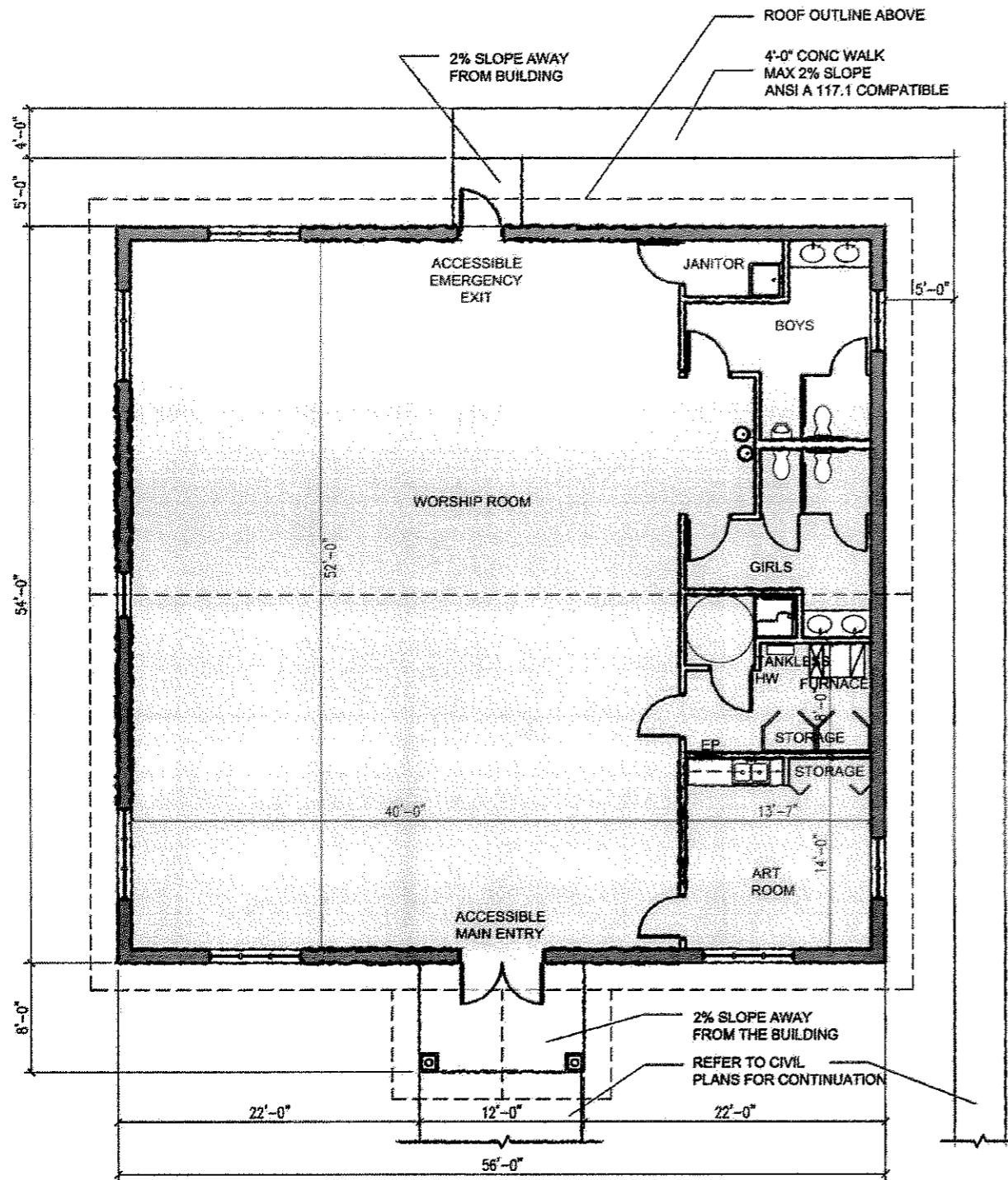


3D View

Predesign Study

Project No. 210000.01 January 20, 2011





Building Code Summary - Michigan Building Code 2006

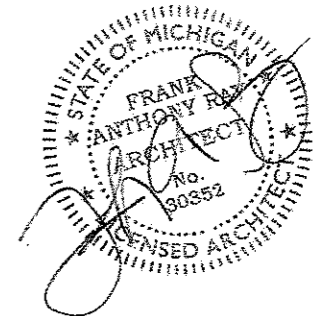
Legionaries of Christ Worship Center

Rochester Hills City Reviews, File # 96-008

Sidwell # 15-02-200-008

NSA Project #: 210000.01

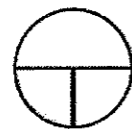
1. Construction Type - 5B.
2. Use Group - A3.
3. Height and Area allowed - 40 feet height allowed and area allowed is 6000 sf per Table 503. Actual height is approximately 25'-30' and area is 56'x54' = 3024 sf.
4. Occupant load - (MBC-2006, section 1004.1.1) we are Assembly, un-concentrated load (tables and chairs) and are 15 sf net. The Worship Room is 40'x52'=2080 sf / 15= 139 people. The Art Room is 14'x14'=196sf/15= 13 people. Occupant load is 152 people. Two exits are provided.
5. The structure, based on Use Group, Construction Type and Area will not have an automatic fire suppression system.

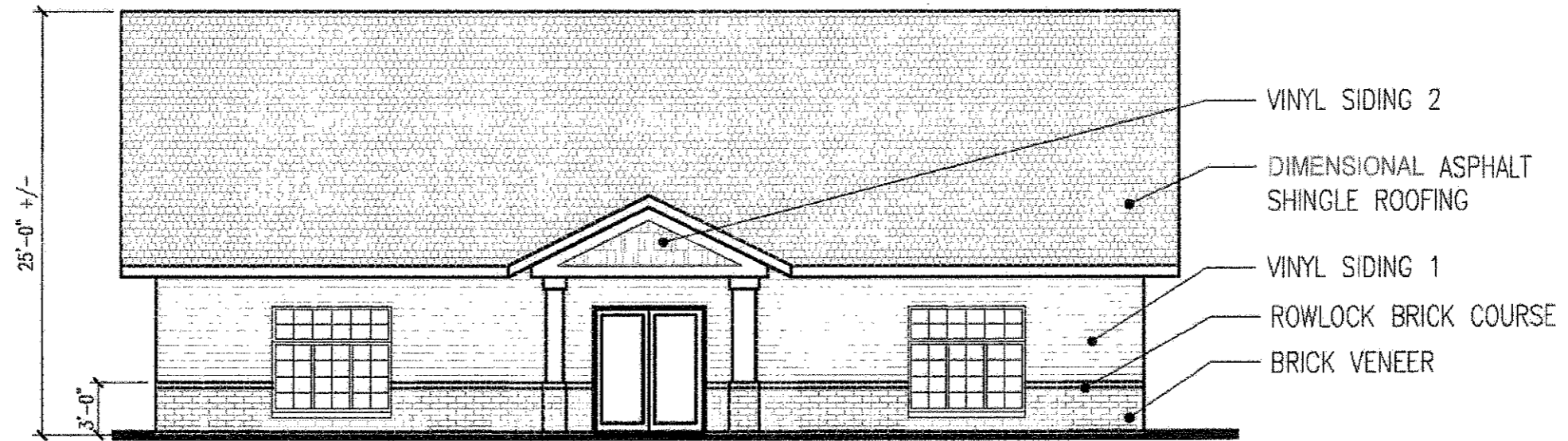


Floor Plan

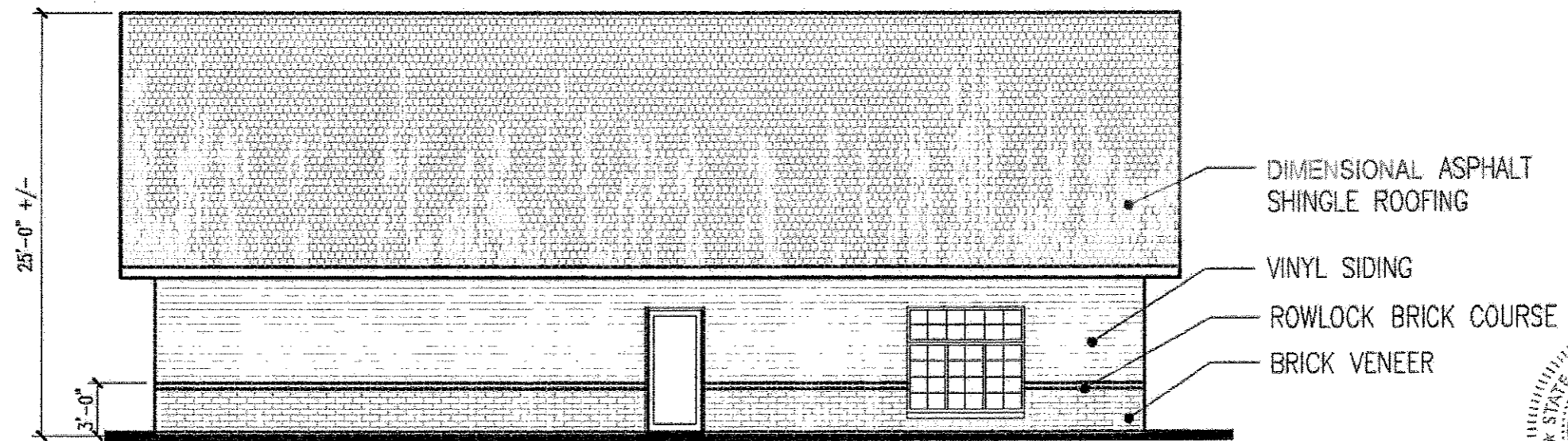
Predesign Study

Project No. 210000.01 January 20, 2011



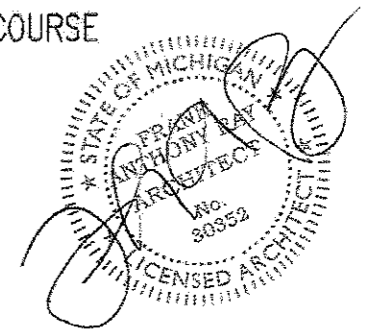


NORTH ELEVATION



SOUTH ELEVATION

Refer to 3D View
for basic Color Scheme



Elevations



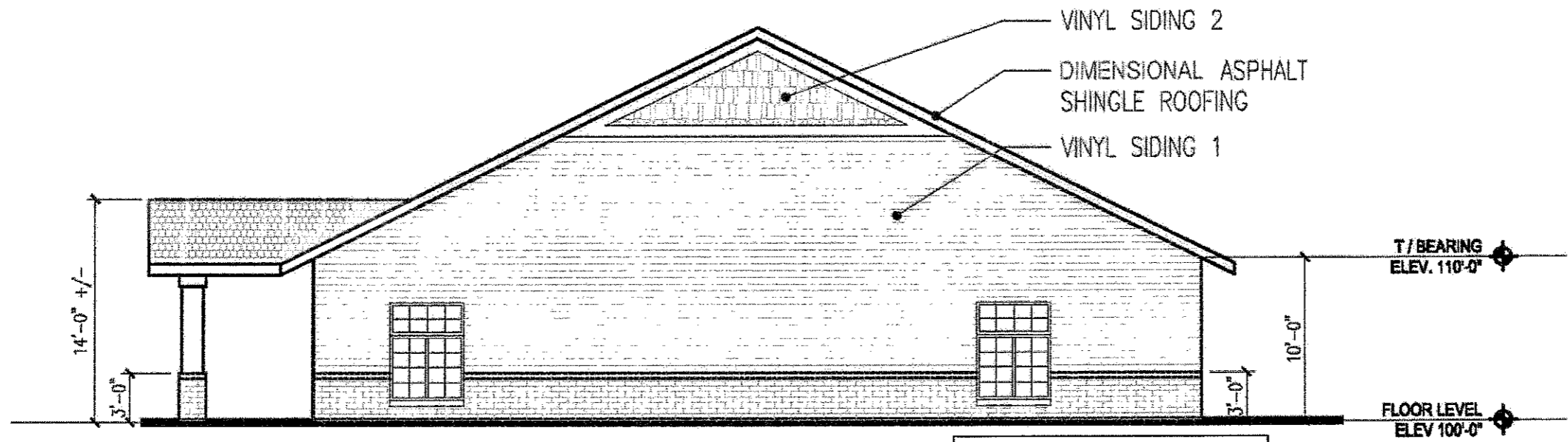
Predesign Study

Project No. 210000.01 January 20, 2011



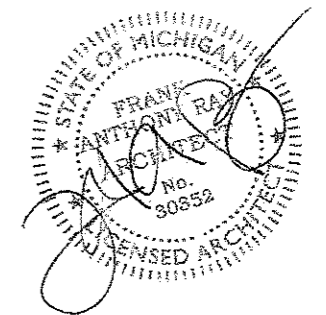


EAST ELEVATION



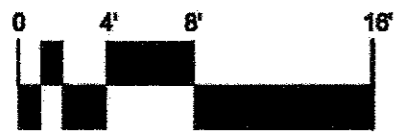
WEST ELEVATION

Refer to 3D View
for basic Color Scheme

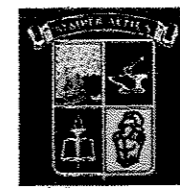


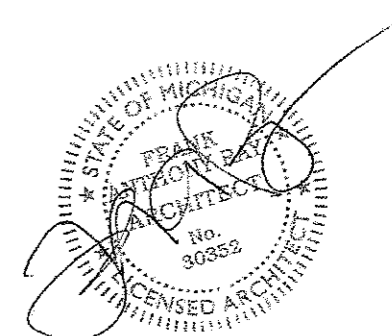
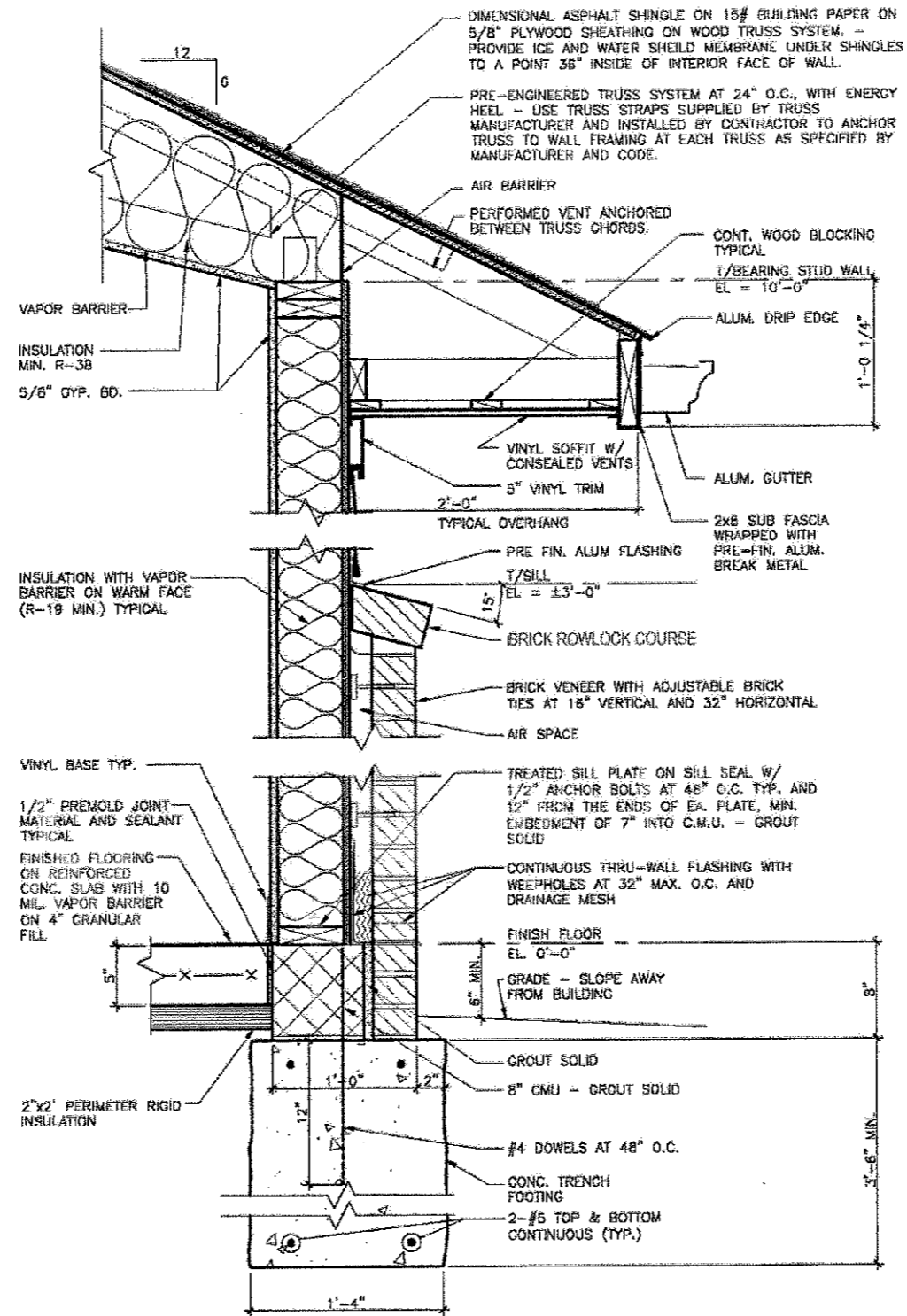
Elevations

Predesign Study



Project No. 210000.01 January 20, 2011





Wall Section

Not To Scale

Predesign Study

Project No. 210000.01 January 20, 2011

