UTILITY PLANS
FOR:
ASHLEY MEWS
PART OF THE NE 1/4 OF SECTION 29, T2S, R6E CITY OF ANN ARBOR WASHTENAW COUNTY, MICHIGAN

FOR:
ASHLEY MEWS, L.L.C.
660 PLAZA DRIVE SUITE 2300 DETROIT, MI 48226

ADMINISTRATIVE AMENDMENT TO SITE PLAN

I hereby certify that this site plan has been administratively amended by the Building, Fire, Planning, Public Services, and Solid Waste Departments on May 19, 2000, and is in compliance with Chapter 57 of the Ordinance Code of the City of Ann Arbor, Michigan.

Karen Popek Hart
Karen Popek Hart, AICP
Planning Director

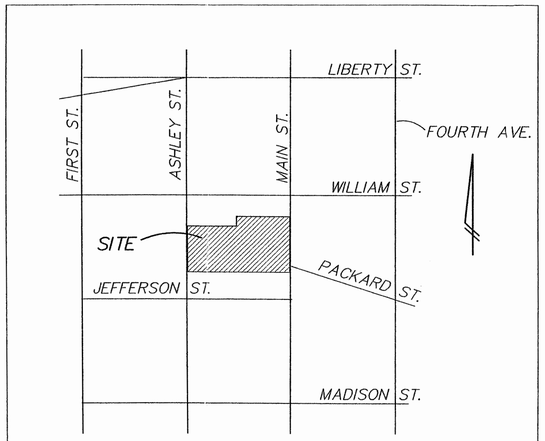
OFFICIAL COPY

ASHLEY MEWS PUD

FILE NO. 9294S3.05

LEGAL DESCRIPTION

Commencing at the Northeast corner of Block 4 South, Range 3 East "ORIGINAL PLAT OF THE VILLAGE (NOW CITY) OF ANN ARBOR", Washtenaw County, Michigan as recorded in Transcripts, Pages 152 and 153, Washtenaw County Records; thence S00°10'30"E 95.67 feet along the East line of said Block 4 and the West line of South Main Street to the POINT OF BEGINNING; thence continuing S00°10'30"E 351.73 feet along said East line and said West line; thence S89°50'00"W 263.06 feet to a point on the West line of said Block 4 and the East line of South Ashley Street; thence N00°16'10"W 297.00 feet along said West line and said East line; thence N89°50'00"E 115.24 feet; thence N00°12'45"W 54.73 feet; thence N89°50'00"E 148.34 feet to the Point of Beginning. Being Lots 4, 5, 6, 11, 12, 13 and 14 and a part of Lots 2, 3, 7, 10 and 15 and a part of a vacated alley all in Block 4 South, Range 3 East of said "ORIGINAL PLAT OF THE VILLAGE (NOW CITY) of Ann Arbor and containing 1.98 acres of land, more or less. Begin subject to easements and restrictions of record, if any.
TOTAL ACRES = 1.98 +/-



VICINITY MAP
(NOT TO SCALE)

SHEET INDEX	SHEET NO.
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WASHTENAW ENGINEERING
CIVIL ENGINEERS • PLANNERS
SURVEYORS • LANDSCAPE ARCHITECTS
P.O. BOX 1128
3250 WEST LIBERTY RD ANN ARBOR, MICHIGAN 48106
TEL. 734-761-8800 FAX. 734-761-9530
washtenaw_engineering@msn.com

REVISION 03-24-00
REVISION 01-18-00
ORIGINAL 11-16-99

ASHLEY MEWS

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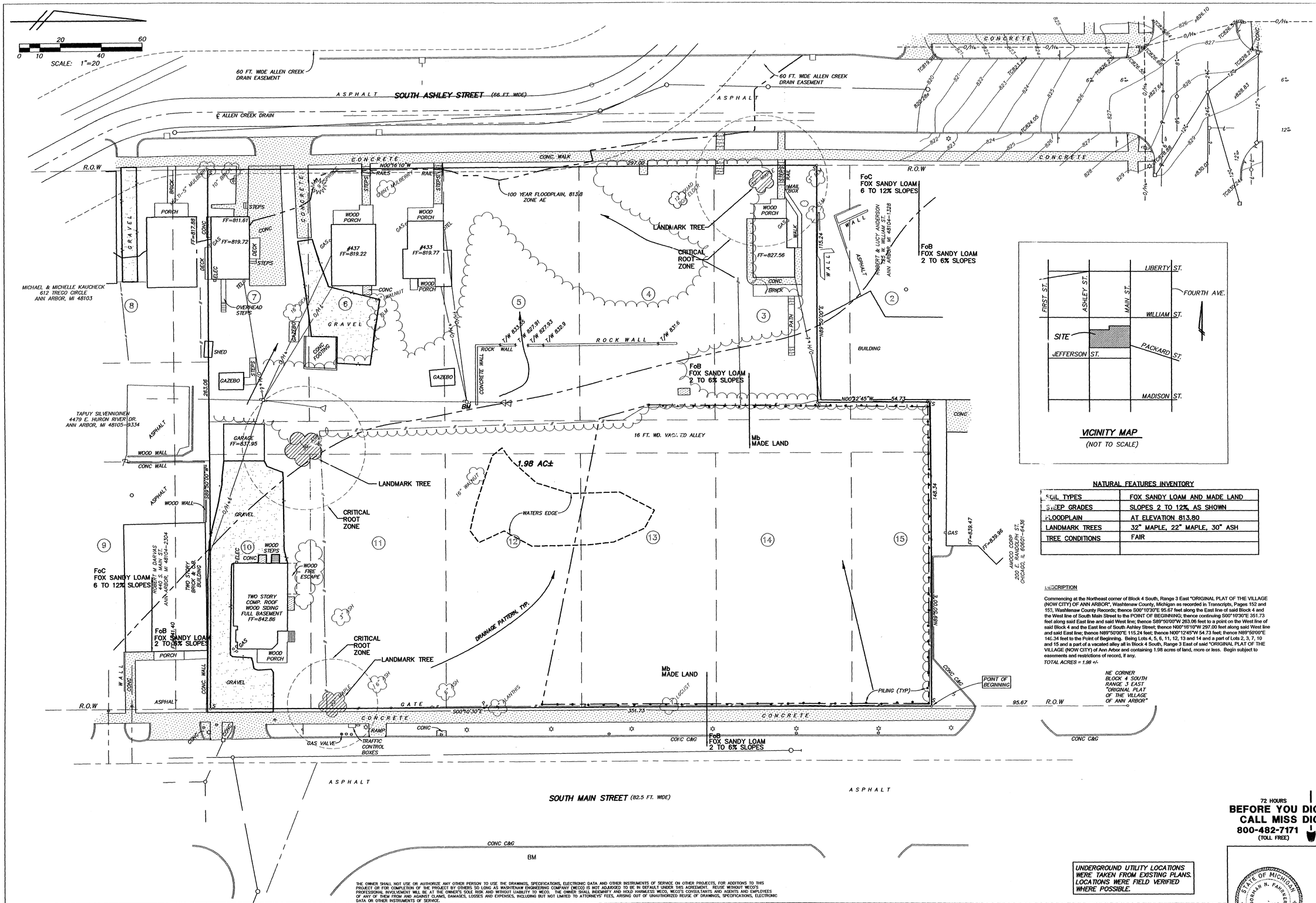

VICINITY MAP
(NOT TO SCALE)

NATURAL FEATURES INVENTORY

SOIL TYPES	FOX SANDY LOAM AND MADE LAND
SLOPE GRADES	SLOPES 2 TO 12% AS SHOWN
FLOODPLAIN	AT ELEVATION 813.80
LANDMARK TREES	32" MAPLE, 22" MAPLE, 30" ASH
TREE CONDITIONS	FAIR

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Commencing at the Northeast corner of Block 4 South, Range 3 East "ORIGINAL PLAT OF THE VILLAGE (NOW CITY) OF ANN ARBOR", Washtenaw County, Michigan as recorded in Transcripts, Pages 152 and 153, Washtenaw County Records; thence S00°10'30"E 95.67 feet along the East line of said Block 4 and the West line of South Main Street to the POINT OF BEGINNING; thence continuing S00°10'30"E 351.73 feet along said East line and said West line; thence S89°50'00"W 263.06 feet to a point on the West line of said Block 4 and the East line of South Ashley Street; thence N00°16'10"W 297.00 feet along said West line and said East line; thence N89°50'00"E 115.24 feet; thence N00°12'45"W 54.73 feet; thence N89°50'00"E 146.34 feet to the Point of Beginning. Being Lots 4, 5, 6, 11, 12, 13 and 14 and a part of Lots 2, 3, 7, 10 and 15 and a part of a vacated alley all in Block 4 South, Range 3 East of said "ORIGINAL PLAT OF THE VILLAGE (NOW CITY) of Ann Arbor and containing 1.98 acres of land, more or less. Begin subject to easements and restrictions of record, if any.

TOTAL ACRES = 1.98 +/-

LEGEND

= LIGHT POLE, = UTILITY POLE, = GUY ANCHOR, = HYDRANT, = POST, = COLUMN, = GATE VALVE, = SIGN, = PILING, = GRAVEL, = FENCE, = CONCRETE, = ASPHALT, = EXISTING STORM, = EXISTING SANITARY, = EXISTING WATER, = EXISTING GAS, = EXISTING ELECTRIC, = EXISTING TELEPHONE, = WATER STOPBOX, = HANDHOLE, TC = TOP OF CURB, TR = TOP OF RAIL

BENCHMARK N. RIM OF STORM MANHOLE ON SOUTH ASHLEY ST. ELEV.=810.11: SPIKE IN EAST SIDE UTILITY POLE NEAR CORNER LOT 5, 6, 11 & 12 ELEV.=836.11: STEAMER VALVE ON HYDRANT EASTERLY OF S. MAIN ST ELEV=842.64.

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SCALE
HORIZONTAL: 1 INCH = 20 FEET

PREPARED BY
NORMAN N. FAHRNER RLS, MICH No. 17620

STATE OF MICHIGAN NORMAN N. FAHRNER No. 17620 REGISTERED LAND SURVEYOR

UNDERGROUND UTILITY LOCATIONS WERE TAKEN FROM EXISTING PLANS. LOCATIONS WERE FIELD VERIFIED WHERE POSSIBLE.

72 HOURS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

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TEL: 734-761-8800 FAX: 734-761-9530
washtenaweng@gmail.com

BOUNDARY & TOPOGRAPHICAL SURVEY

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY • MICHIGAN

DESIGN NNF
DRAWN ACT, DJH, CJC, DSH
CHECK NNF
DATE 10-21-98
DWG NO. \ENG\27463TOP
FIELD BOOK NONE
JOB NO. 27463
SHEET 2 OF 14
FILE NO. 7742

H:\Eng\27463\27463TOP.dwg Tue Mar 21 11:26:40 2000

TEMPORARY SEEDING WITH MULCH BLANKET SHALL BE USED ALONG WEST EDGE OF SITE TO PREVENT SOIL EROSION DUE TO STEEP SLOPES

SCALE: 1"=20

MUD TRACKING SURFACE, SEE SHEET 6 FOR DETAIL

MUD TRACKING SURFACE, SEE SHEET 6 FOR DETAIL.

SOUTH ASHLEY STREET (66 FT. WIDE)

SOUTH MAIN STREET (82.5 FT. WIDE)

PROPOSED 100 YEAR FLOODPLAIN 814.8

100 YEAR FLOODPLAIN, 813.8 ZONE AE

PROPOSED OFFICE BUILDING FF 840.25

PROPOSED RETAINING WALL

POINT OF BEGINNING

BENCHMARK

MICHIGAN UNIFIED KEYING SYSTEM

6	SEEDING WITH MULCH AND/OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGEWAYS WITH LOW VELOCITY EASILY IN SMALL QUANTITIES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL BED
15	PAVING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT – INCREASES RUNOFF VOLUME AND VELOCITY IRREGULAR SURFACE WILL HELP SLOW VELOCITY
16	CURB & GUTTER	KEEPS HIGH VELOCITY RUNOFF ON PAVED AREAS FROM LEAVING PAVED – PAVED SURFACE COLLECTS AND CONDUCTS RUNOFF TO ENCLOSED DRAINAGE SYSTEM OR – PREPARED DRAINAGEWAY
35	STORM SEWER	SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM – PAVED AREAS CAN ACCEPT LARGE CONCENTRATIONS OF RUNOFF CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL-LOCATION USE CATCH BASINS TO COLLECT SEDIMENT
51	RETAINING WALL	REDUCES GRADIENT WHERE SLOPES ARE EXTREMELY STEEP PERMITS RETENTION OF EXISTING VEGETATION, KEEPING SOIL STABLE IN – CRITICAL AREAS MINIMIZES MAINTENANCE
55	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR POLES MAY BE CONSTRUCTED OR PRE PACKAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY

(t) TEMPORARY EROSION CONTROL MEASURE

(P) PERMANENT EROSION CONTROL MEASURE

SILT FENCE

GEOTEXTILE INLET FILTER

INLET FILTER

NOTE:
FOR S.E.C. NOTES & DETAILS, SEE SHEET 6.

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SCALE HORIZONTAL: 1 INCH = 20 FEET

PREPARED BY Robert J. Wanty
ROBERT J. WANTY P.E./MICH NO. 28666

ROBERT J. WANTY ENGINEER No. 28666 STATE OF MICHIGAN REGISTERED PROFESSIONAL ENGINEER

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ANN ARBOR, MICHIGAN 48106
3250 WEST LIBERTY RD.
(TEL.) 734-662-6535
wash1tenaw_engineering@msn.com

EROSION CONTROL PLAN

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY • MICHIGAN

DESIGN DJH | DATE 12-23-98
DRAWN DJH | DWG NO. ENG\27463EROS
CHECK RJW | FIELD BOOK NONE
FILE NO. PROJECT | JOB NO. 27463 | SHEET 3 OF 14

H:\Eng\27463\27463EROS.dwg Tue Mar 21 12:34:37 2000

A RIGHT-OF-WAY PERMIT SIGNED BY THE PETITIONER AND ADJACENT PROPERTY OWNERS WILL BE REQUIRED FOR PROPOSED DRIVE APPROCHES

A RIGHT-OF-WAY PERMIT SIGNED BY THE PETITIONER AND ADJACENT PROPERTY OWNERS WILL BE REQUIRED FOR PROPOSED DRIVE APPROCHES

SCALE: 1"=20

60 FT. WIDE ALLEN CREEK DRAIN EASEMENT

ASPHALT SOUTH ASHLEY STREET (66 FT. WIDE)

E. ALLEN CREEK DRAIN

PROPOSED 100 YEAR FLOODPLAIN 813.8

PROPOSED ADDITIONAL FLOODPLAIN VOLUME

100 YEAR FLOODPLAIN, 817.8 ZONE AE

DRAINAGE FLOW TYP.

PROPOSED RETAINING WALL

PROPOSED OFFICE BUILDING FF 840.25

BUILDING

SOUTH MAIN STREET (82.5 FT. WIDE)

MICHAEL & MICHELLE KAUCHECK
612 TREGO CIRCLE
ANN ARBOR, MI 48103

TAPUY SILVENNOINEN
4479 E. HURON RIVER DR.
ANN ARBOR, MI 48105-9334

ROBERT M DARVAS
400 S. MAIN ST.
ANN ARBOR, MI 48104-2304

ROBERT & LUCY ANDERSON
125 W. WILLIAM ST.
ANN ARBOR, MI 48104-1238

AMOCO CORP
200 E. RANDOLPH ST.
CHICAGO, IL 60601-8436

NE CORNER BLOCK 4 SOUTH RANGE 3 EAST "ORIGINAL PLAT OF THE VILLAGE OF ANN ARBOR"

POINT OF BEGINNING

N89°50'00"E 95.67

S00°10'30"E 351.73

N00°12'45"W 54.73

N89°50'00"E 148.34

NOTES

1. THE PROPOSED GRADING PLAN WILL CAUSE A NET INCREASE IN THE FLOOD PLAIN VOLUME OF APPROXIMATELY 756 CUBIC FEET, 1593 CF OF CUT AND 837 CF OF FILL, OVER THE EXISTING GRADES.
2. A FEMA MAP REVISION WILL BE REQUIRED. SUBMISSION FOR THIS CANNOT OCCUR PRIOR TO SITE GRADING.
3. ALL SIDEWALKS ARE TO BE KEPT & MAINTAINED IN GOOD REPAIR BY THE OWNER OF THE LAND ADJACENT TO AND ABUTTING THE SAME. PRIOR TO THE ISSUANCE OF THE FINAL CERTIFICATE OF OCCUPANCY FOR THIS SITE, ALL EXISTING SIDEWALKS IN NEED OF REPAIR MUST BE REPAIRED IN ACCORDANCE WITH CITY STANDARDS.

FLOOD PLAIN IMPACT

THE PROJECT ENCROACHES ON THE FLOOD PLAIN AT THE SOUTHWEST CORNER OF THE PROJECT. THE ENCROACHMENT IS APPROXIMATELY 14 FEET AT IT'S WIDEST LOCATION WHICH IS LESS THAN 2% OF THE TOTAL WIDTH OF THE FLOOD PLAIN AT THAT LOCATION. USING HEC-RAS SOFTWARE, AN ENCROACHMENT OF THIS SIZE ON A LARGE FLOOD PLAIN WITH LARGE FLOWS IS NOT ACCURATE. THERE WILL NOT BE A CHANGE IN THE FLOOD PLAIN OR FLOOD WAY DUE TO THIS ENCROACHMENT BECAUSE OF THE SMALL SIZE OF THE ENCROACHMENT AND THE FACT THAT WE ARE COMPENSATING FOR LOST FLOOD PLAIN VOLUME IN THE ENCROACHMENT AREA BY REPLACING THE VOLUME THROUGH SITE GRADING NORTH OF THE ENCROACHMENT.

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- ♂ = HYDRANT
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SCALE HORIZONTAL: 1 INCH = 20 FEET

PREPARED BY Robert Wanty
ROBERT J. WANTY P.E., MICH NO. 28666

STATE OF MICHIGAN · ROBERT J. WANTY · ENGINEER · No. 28666 · REGISTERED PROFESSIONAL ENGINEER

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P.O. BOX 1128
ANN ARBOR, MICHIGAN 48106
3250 WEST LIBERTY ROAD, SUITE 100
TEL: 734-761-8800 FAX: 734-761-9530
washtenaw_engineering@msn.com

GRADING PLAN

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY • MICHIGAN

DESIGN DSH | DATE 2-23-98
DRAWN DSH | DWG NO. \ENG\27463GRAD
CHECK RJW | FIELD BOOK NONE
FILE NO. PROJECT | JOB NO. 27463
SHEET 4 OF 14

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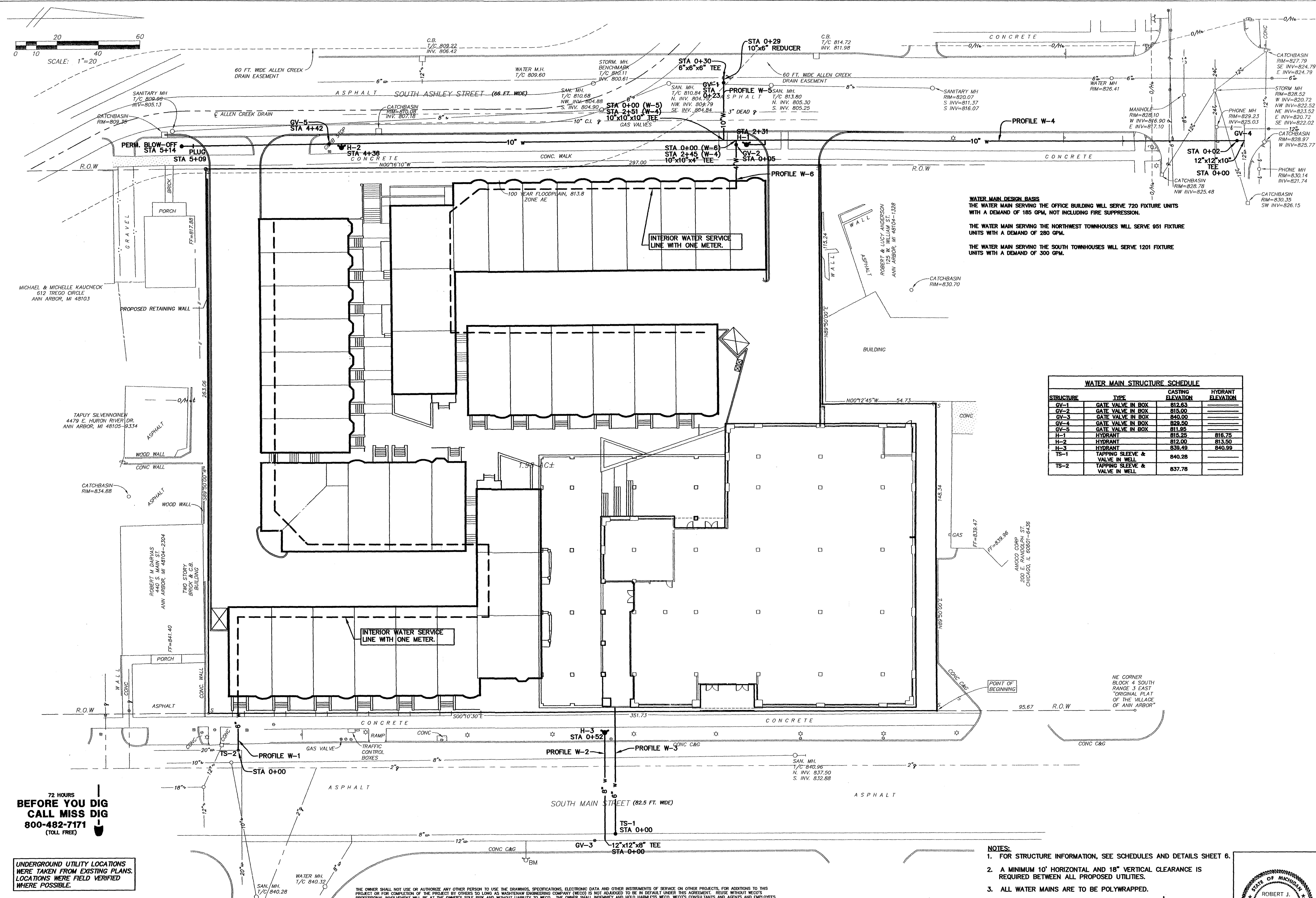
WATER MAIN PLAN



WATER MAIN DESIGN BASIS

THE WATER MAIN SERVING THE OFFICE BUILDING WILL SERVE 720 FIXTURE UNITS WITH A DEMAND OF 185 GPM, NOT INCLUDING FIRE SUPPRESSION.

THE WATER MAIN SERVING THE NORTHWEST TOWNHOUSES WILL SERVE 951 FIXTURE UNITS WITH A DEMAND OF 280 GPM.

THE WATER MAIN SERVING THE SOUTH TOWNHOUSES WILL SERVE 1201 FIXTURE UNITS WITH A DEMAND OF 300 GPM.

WATER MAIN STRUCTURE SCHEDULE

STRUCTURE	TYPE	CASTING ELEVATION	HYDRANT ELEVATION
GV-1	GATE VALVE IN BOX	812.63	————
GV-2	GATE VALVE IN BOX	815.00	————
GV-3	GATE VALVE IN BOX	840.00	————
GV-4	GATE VALVE IN BOX	829.50	————
GV-5	GATE VALVE IN BOX	811.95	————
H-1	HYDRANT	815.25	816.75
H-2	HYDRANT	812.00	813.50
H-3	HYDRANT	839.49	840.99
TS-1	TAPPING SLEEVE & VALVE IN WELL	840.28	————
TS-2	TAPPING SLEEVE & VALVE IN WELL	837.78	————

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NOTES:

1. FOR STRUCTURE INFORMATION, SEE SCHEDULES AND DETAILS SHEET 6.
2. A MINIMUM 10' HORIZONTAL AND 18" VERTICAL CLEARANCE IS REQUIRED BETWEEN ALL PROPOSED UTILITIES.
3. ALL WATER MAINS ARE TO BE POLYWRAPPED.

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SCALE
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PREPARED BY ROBERT J. WANTY P.E., MICH NO. 28666

STATE OF MICHIGAN ROBERT J. WANTY ENGINEER No. 28666 REGISTERED PROFESSIONAL ENGINEER

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY * MICHIGAN

DESIGN DSH	DATE 7-2-99
DRAWN DSH	DWG NO. \ENG\27463UTL
CHECK RJW	FIELD BOOK NONE
FILE NO. PROJECT	JOB NO. 27463
	SHEET 5 OF 14

CLIENT ASHLEY MEWS

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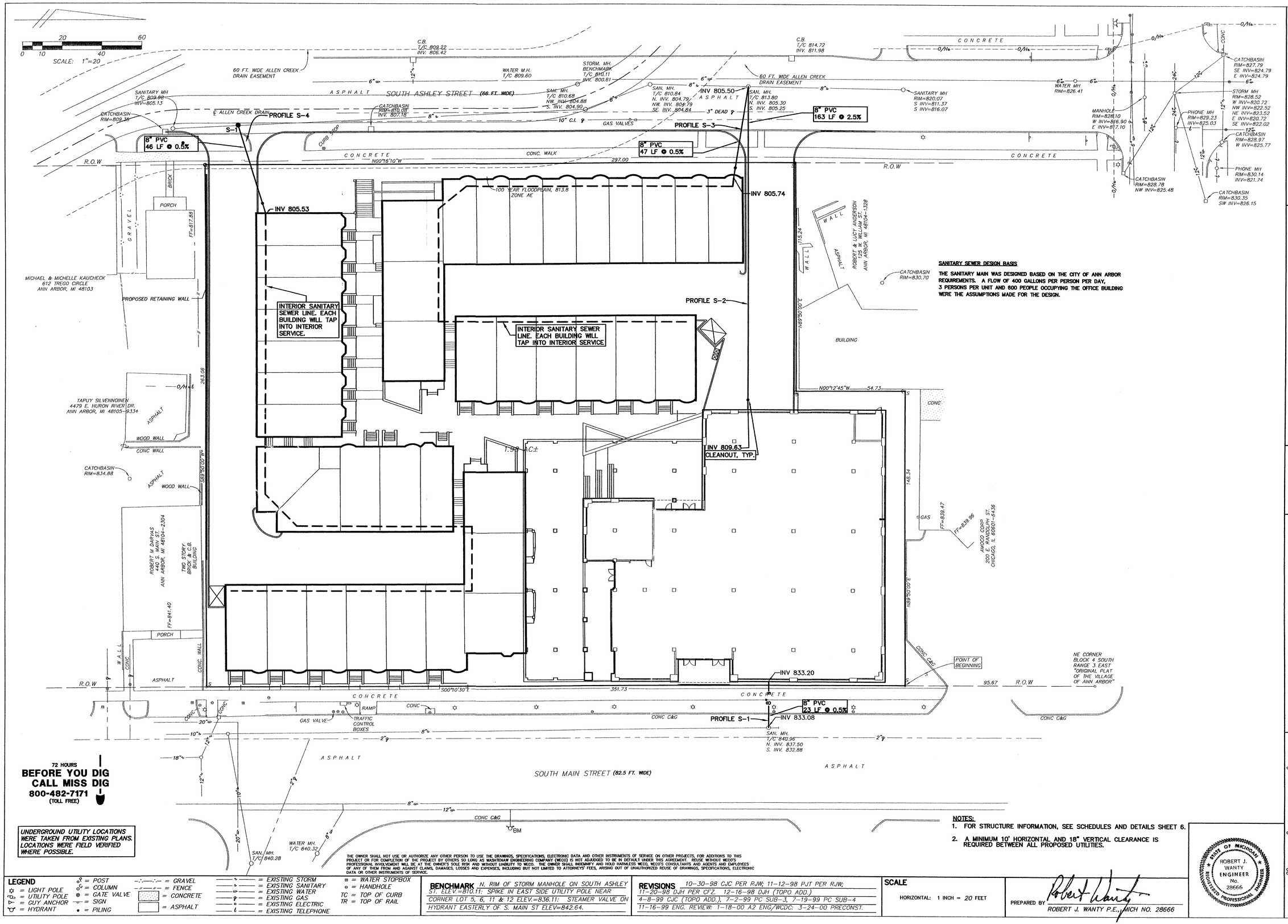

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⊙ = UTILITY POLE	oc = COLUMN	-//-//- = FENCE	= EXISTING SANITARY
⊗ = GATE VALVE	⊗ = GATE VALVE	= CONCRETE	= EXISTING WATER
⊲ = GUY ANCHOR	-o- = SIGN	= ASPHALT	= EXISTING GAS
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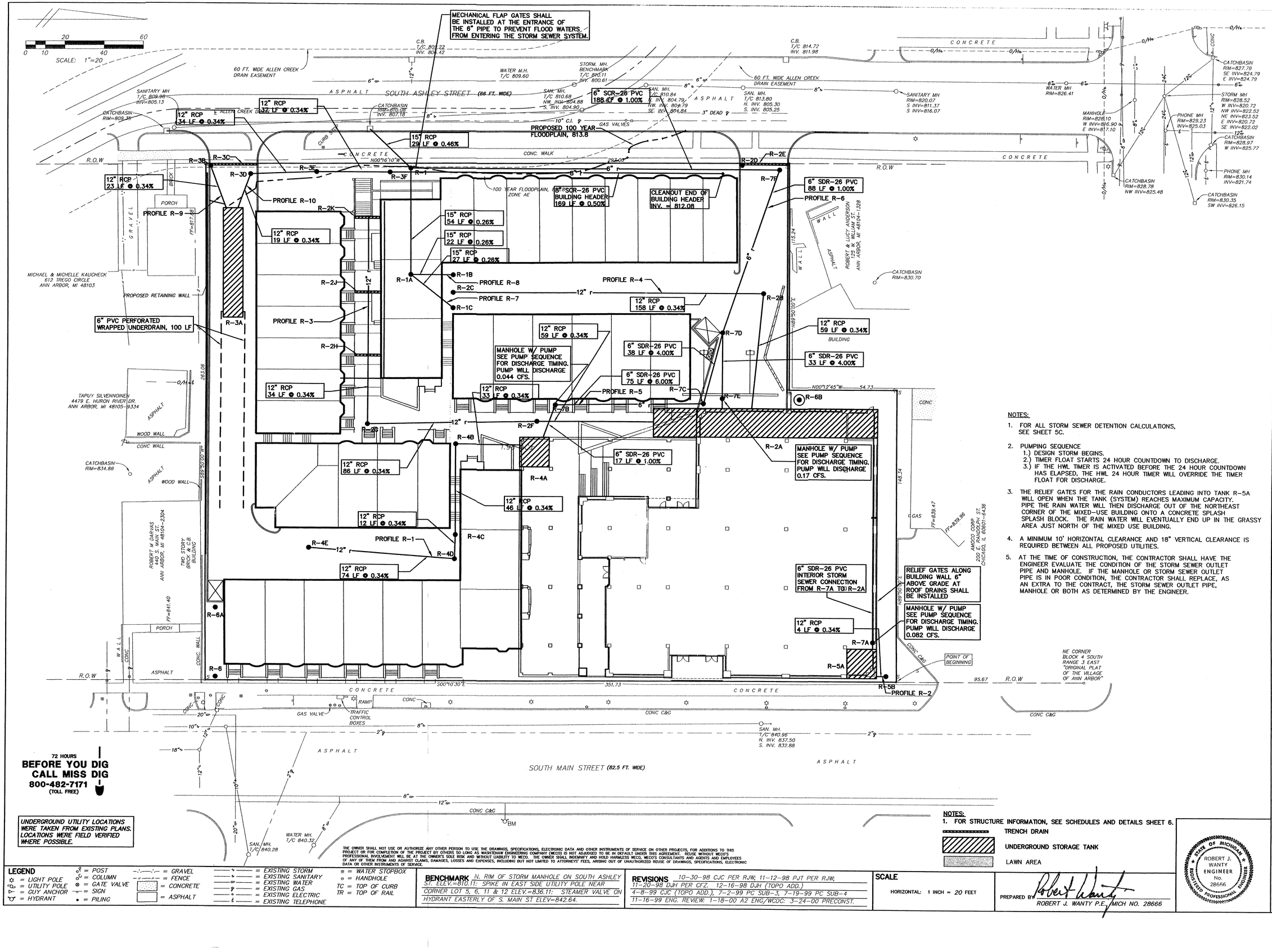
SANITARY SEWER PLAN

CLIENT *ASHLEY MEWS*

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY * MICHIGAN

DESIGN DSH
DRAWN DSH
CHECK RJW
DATE 7-2-99
DWG NO. \ENG\27463U1L
FIELD BOOK NONE
JOB NO. 27463
SHEET 6 OF 14
FILE NO. PROJECT

H:\Eng\27463\27463u1.dwg Tue Mar 21 13:06:09 2000



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UNDERGROUND UTILITY LOCATIONS WERE TAKEN FROM EXISTING PLANS. LOCATIONS WERE FIELD VERIFIED WHERE POSSIBLE.

NOTES:

1. FOR ALL STORM SEWER DETENTION CALCULATIONS, SEE SHEET 5C.
2. PUMPING SEQUENCE
   1.) DESIGN STORM BEGINS.
   2.) TIMER FLOAT STARTS 24 HOUR COUNTDOWN TO DISCHARGE.
   3.) IF THE HWL TIMER IS ACTIVATED BEFORE THE 24 HOUR COUNTDOWN HAS ELAPSED, THE HWL 24 HOUR TIMER WILL OVERRIDE THE TIMER FLOAT FOR DISCHARGE.
3. THE RELIEF GATES FOR THE RAIN CONDUCTORS LEADING INTO TANK R-5A WILL OPEN WHEN THE TANK (SYSTEM) REACHES MAXIMUM CAPACITY. PIPE THE RAIN WATER WILL THEN DISCHARGE OUT OF THE NORTHEAST CORNER OF THE MIXED-USE BUILDING ONTO A CONCRETE SPLASH SPLASH BLOCK. THE RAIN WATER WILL EVENTUALLY END UP IN THE GRASSY AREA JUST NORTH OF THE MIXED USE BUILDING.
4. A MINIMUM 10' HORIZONTAL CLEARANCE AND 18" VERTICAL CLEARANCE IS REQUIRED BETWEEN ALL PROPOSED UTILITIES.
5. AT THE TIME OF CONSTRUCTION, THE CONTRACTOR SHALL HAVE THE ENGINEER EVALUATE THE CONDITION OF THE STORM SEWER OUTLET PIPE AND MANHOLE. IF THE MANHOLE OR STORM SEWER OUTLET PIPE IS IN POOR CONDITION, THE CONTRACTOR SHALL REPLACE, AS AN EXTRA TO THE CONTRACT, THE STORM SEWER OUTLET PIPE, MANHOLE OR BOTH AS DETERMINED BY THE ENGINEER.

NOTES:

1. FOR STRUCTURE INFORMATION, SEE SCHEDULES AND DETAILS SHEET 6.

TRENCH DRAIN
UNDERGROUND STORAGE TANK
LAWN AREA

LEGEND

☆ = LIGHT POLE	⊙ = POST	GRAVEL	EXISTING STORM
⊗ = UTILITY POLE	⊙ = COLUMN	FENCE	EXISTING SANITARY
⊗ = GUY ANCHOR	⊗ = GATE VALVE	CONCRETE	EXISTING WATER
⊗ = HYDRANT	⊡ = SIGN	ASPHALT	EXISTING GAS
	• = PILING		EXISTING ELECTRIC
			EXISTING TELEPHONE

⊞ = WATER STOPBOX
⊙ = HANDHOLE
TC = TOP OF CURB
TR = TOP OF RAIL

BENCHMARK *N. RIM OF STORM MANHOLE ON SOUTH ASHLEY ST. ELEV.=810.11; SPIKE IN EAST SIDE UTILITY POLE NEAR CORNER LOT 5, 6, 11 & 12 ELEV.=836.11; STEAMER VALVE ON HYDRANT EASTERLY OF S. MAIN ST ELEV=842.64.*

REVISIONS *10-30-98 CJC PER RJW; 11-12-98 PJT PER RJW; 11-20-98 DJH PER CFZ, 12-16-98 DJH (TOPO ADD.) 4-8-99 CJC (TOPO ADD.), 7-2-99 PC SUB-3, 7-19-99 PC SUB-4 11-16-99 ENG. REVIEW: 1-18-00 A2 ENG/WCOC; 3-24-00 PRECONST.*

SCALE
HORIZONTAL: 1 INCH = 20 FEET

PREPARED BY *Robert Wanty* ROBERT J. WANTY P.E., MICH NO. 28666

STATE OF MICHIGAN ROBERT J. WANTY ENGINEER No. 28666 REGISTERED PROFESSIONAL ENGINEER

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washtenaw_engineering@msn.com

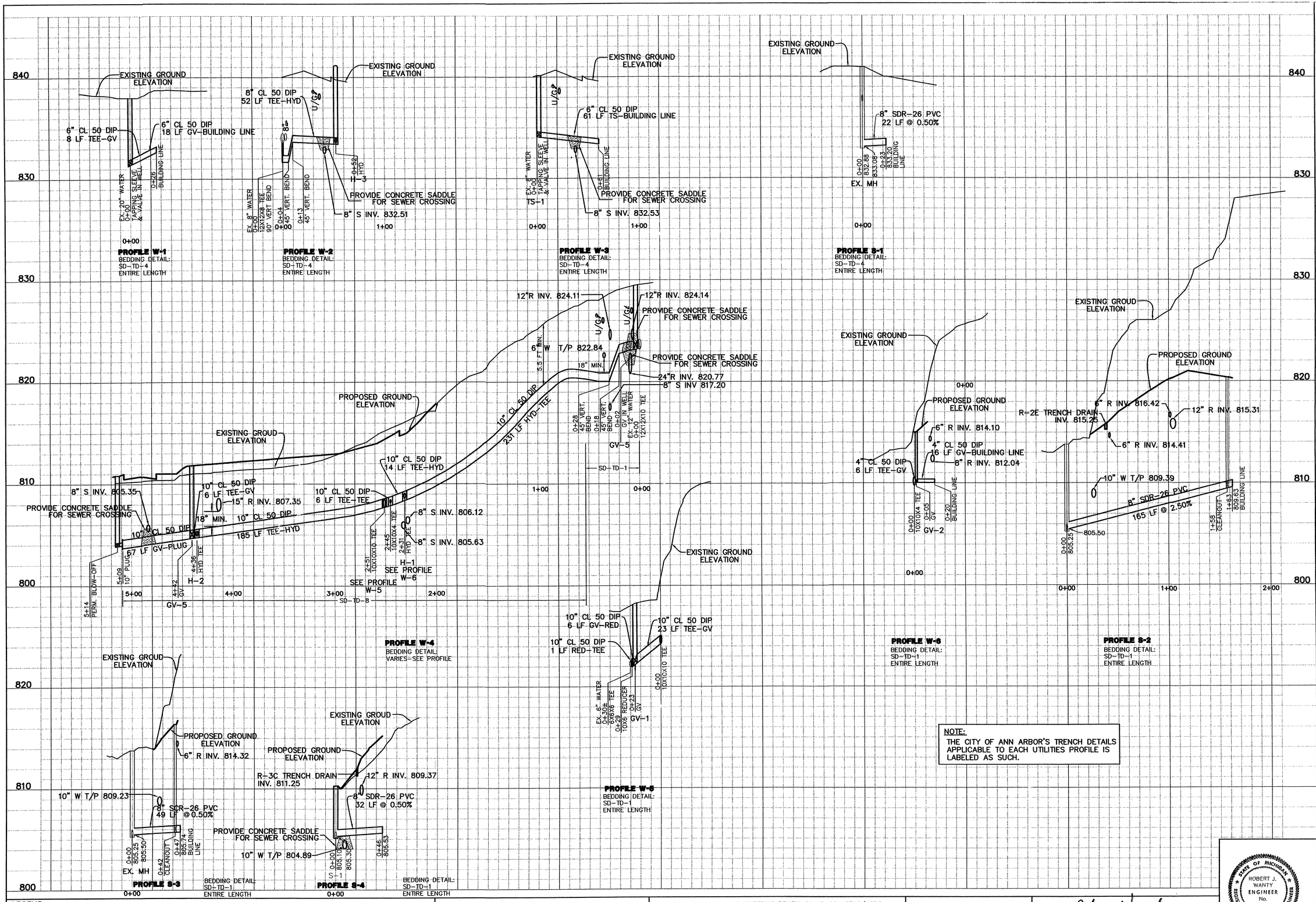
STORM SEWER PLAN

CLIENT *ASHLEY MEWS*

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY • MICHIGAN

DESIGN DSH | DATE 7-2-99
DRAWN DSH | DWG NO. \ENG\27463UTL
CHECK RJW | FIELD BOOK NONE
JOB NO. 27463
SHEET 7 OF 14
FILE NO. PROJECT

H:\Eng\27463\27463utl.dwg Wed Mar 22 15:52:35 2000



NOTE:
THE CITY OF ANN ARBOR'S TRENCH DETAILS APPLICABLE TO EACH UTILITIES PROFILE IS LABELED AS SUCH.

LEGEND

BENCHMARK

REVISIONS 11-16-99 ENGINEERING REVIEW 01-18-00 A2ENG/WCDC
03-24-00 PRE-CONST

SCALE
HORIZONTAL: 1 INCH = 40 FEET
VERTICAL: 1 INCH = 4 FEET

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TELEPHONE 734-761-8800

SANITARY SEWER & WATER MAIN PROFILES

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY MICHIGAN

DESIGN	DSH	DATE	9-30-99
DRAWN	ACT	DWG NO.	PROFILES
CHECK	RJW	FIELD BOOK	NONE
FILE NO.	PROJECT	JOB NO.	27463
		SHEET	8 OF 14

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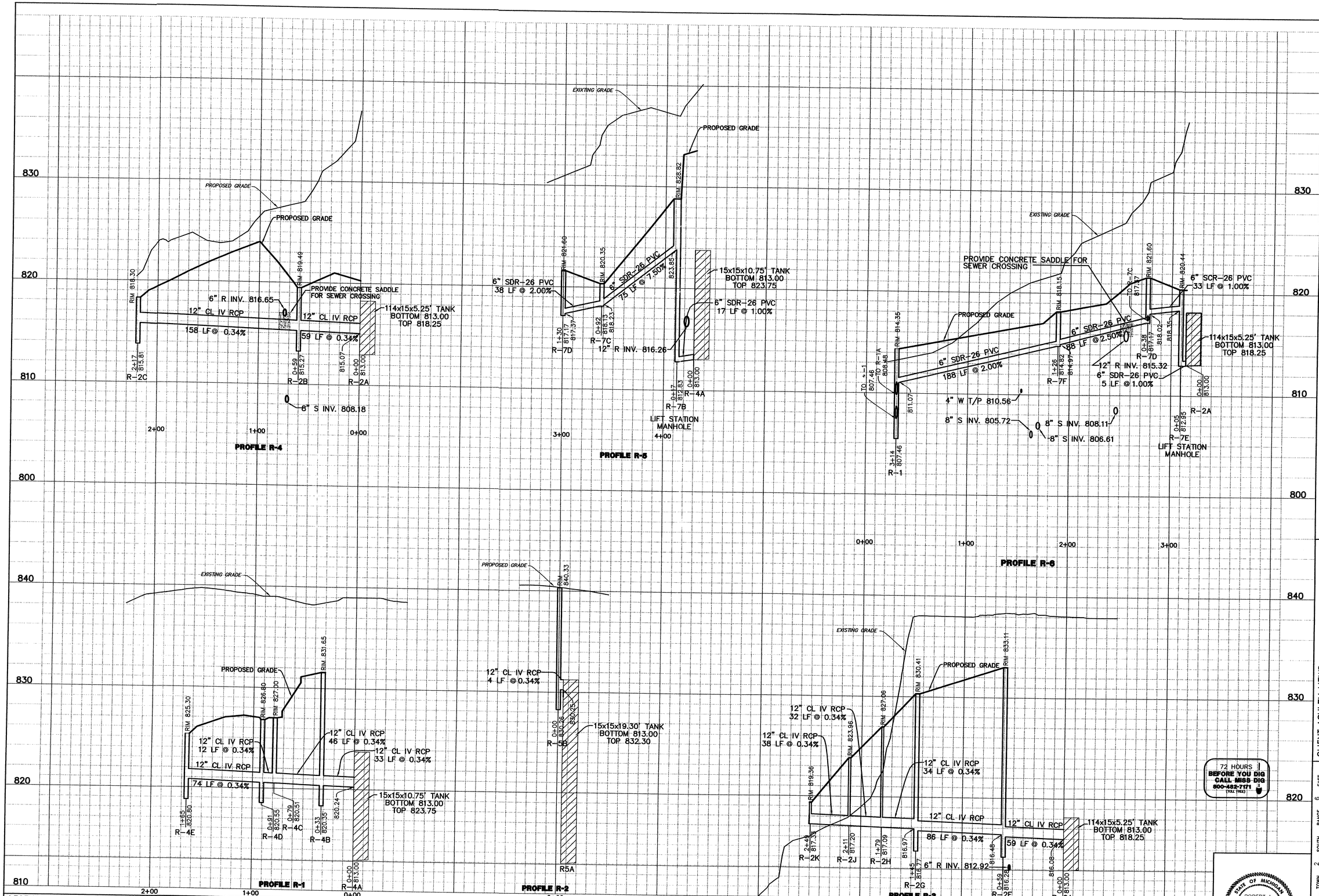

LEGEND

BENCHMARK

REVISIONS 11-16-99 ENGINEERING REVIEW 01-18-00 A2ENG/WCDC
03-24-00 PRECONST.

SCALE
HORIZONTAL: 1 INCH = 40 FEET
VERTICAL: 1 INCH = 4 FEET

PREPARED BY
Robert Wanty
ROBERT J. WANTY P.E. MI No. 28666

STATE OF MICHIGAN
ROBERT J. WANTY
ENGINEER
No. 28666
REGISTERED PROFESSIONAL ENGINEER

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STORM SEWER PROFILES

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY MICHIGAN

DESIGN	DSH
DRAWN	ACT
CHECK	RJW
DATE	9-30-99
DWG NO.	PROFILES
FIELD BOOK	NONE
JOB NO.	27463
SHEET	9 OF 14
FILE NO.	PROJECT

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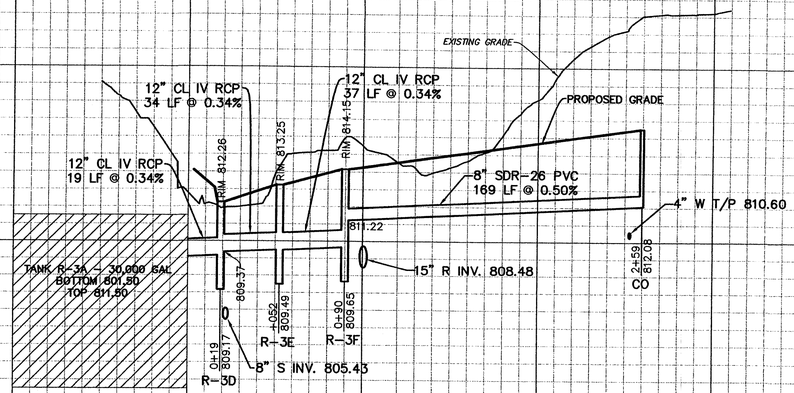
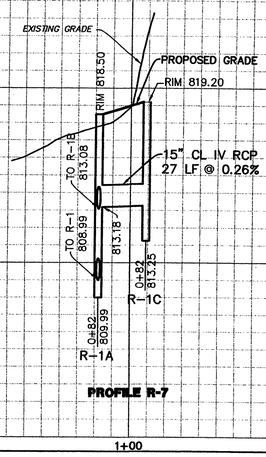


PROFILE R-10



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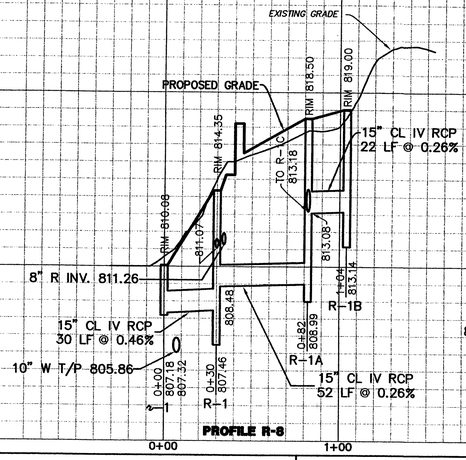

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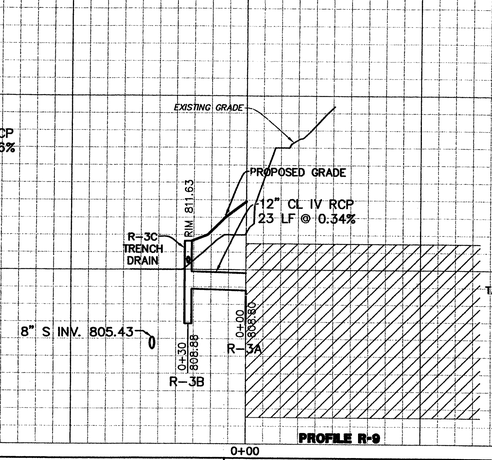

PROFILE R-9

LEGEND

BENCHMARK

REVISIONS 11-16-99 ENGINEERING REVIEW 01-18-00 A2ENG/WCDC
03-24-00 PRECONST

SCALE
HORIZONTAL: 1 INCH = 40 FEET
VERTICAL: 1 INCH = 4 FEET

PREPARED BY ROBERT J. WANTY P.E./MI No. 28666

STATE OF MICHIGAN
ROBERT J. WANTY
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STORM SEWER PROFILES

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY MICHIGAN

DESIGN	DSH	DATE	9-30-99
DRAWN	ACT	DWG NO.	PROFILES
CHECK	RJW	FIELD BOOK	NONE
FILE NO.	PROJECT	JOB NO.	27463
		SHEET	10 OF 14

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STORM WATER DETENTION FACILITIES DESIGN

Undeveloped Site – The Existing Site Conditions
Amount of Acreage Currently Contributing Runoff to the City and WCDC Sewer System:

Buildings/Walks: 0.17 Acres C = 0.90
Gravel: 0.08 Acres C = 0.60
Lawn: 1.73 Acres C = 0.20
Total Area: 1.98 Acres
Weighted $C_{aU} = \frac{(0.17)(0.90) + (0.08)(0.60) + (1.73)(0.20)}{1.98}$

Weighted $C_{aU} = 0.28$

Developed Site – The Proposed Site Conditions
Amount of Acreage Contributing Runoff to the Detention Facilities:

Buildings: 1.19 Acres C = 0.90
Pavement: 0.62 Acres C = 0.90
Lawn: 0.17 Acres C = 0.20
Total Area: 1.98 Acres
Weighted $C_{aD} = \frac{(1.19)(0.90) + (0.62)(0.90) + (0.17)(0.20)}{1.98}$

Weighted $C_{aD} = 0.84$

The required storage volume of water is the greater of the City of Ann Arbor Requirements of a 100 year storm with 0.20 cfs per acre outflow and the Washtenaw County Drain Commission Requirements of a 5 year storm with zero outflow until 13 hours after the storm event.

Washtenaw County Drain Commission Requirements

V_r = Volume of Storage Required
V_r = 1.98 Acres * 43560 sf/acre * 0.84 * 3 inches * 1/12 inches
V_r = 18112.25 cf

City of Ann Arbor Requirements

V_r = Volume of Storage Required = $V_d - V_u$
V_d = Volume of Storage Required based on the Developed Site
V_u = Volume of Storage Required based on the Undeveloped Site

Overall Undeveloped Site:
V_u = Area in square feet * C_{aU} * Rainfall in feet
V_u = 1.98 Acres * 43560 sf/acre * 0.28 * 3.1 inches * 1 ft/12 inches
V_u = 6238.66 cf

Overall Developed Site:
V_d = Area in square feet * C_{aD} * Rainfall in feet
V_d = 1.98 Acres * 43560 sf/acre * 0.84 * 4.3 inches * 1 ft/12 inches
V_d = 25960.89 cf

Overall Volume Required
$V_r = V_d - V_u$
V_r = 25960.89 cf – 6238.66 cf
V_r = 19722.23 cf

Because the Volume Required for the City of Ann Arbor Requirements is greater than that of the Washtenaw County Drain Commissioner, the City of Ann Arbor Requirements will be used for the individual drainage area calculations. Although the allowable outflow of 0.20 cfs per acre will be utilized, the outflow will not occur until 24 hours after the storm event has occurred. This time delay meets with the Washtenaw County Drain Commissioner's requirements.

The total volume required from the individual calculations is 19901.63 cf and the total volume stored from the individual calculations 20623.58.

UNDERGROUND STORAGE TANK R-3A CALCULATIONS

AMOUNT OF ACREAGE CONTRIBUTING RUNOFF TO TANK R-3A

RUNOFF COLLECTION BASINS ARE: R-3F, R-3E, R-3B, R-3C

BUILDINGS: 0.13 ACRES C = 0.90
PAVEMENT: 0.18 ACRES C = 0.90
LAWN: 0.08 ACRES C = 0.20
TOTAL AREA: 0.39 ACRES

WEIGHTED $C_{AD} = \frac{(0.13)(0.90) + (0.18)(0.90) + (0.08)(0.20)}{0.39}$

WEIGHTED C_{AD} =0.76

STORAGE VOLUME REQUIRED:

V_U = (0.39 acres) (43560 SFT/1 ACRE) (0.28) (3.1 INCHES) (1 FT/12 INCHES)

V_U = 1228.83 CFT

V_D = (0.39 ACRES) (43560 SFT/1 ACRE) (0.76) (4.3 INCHES) (1 FT/12 INCHES)

V_D = 4626.51 CFT

V_R = 4626.51 CF – 1228.83 CFT

V_R = 3397.68 CFT

USE AN UNDERGROUND STORAGE TANK

10' X 55.76', 30,000 GALLONS (4010.42 CFT)

BOTTOM OF TANK ELEVATION = 801.50'
TOP OF TANK ELEVATION = 811.50'
HIGH WATER ELEVATION = 809.97'

ALLOWABLE OUTLET RATE = 0.20 CFS/ACRE X A
= 0.20 X 0.39 ACRES
= 0.078 CFS

THE WATER STORED IN THIS TANK WILL NOT ENTER THE CITY OR COUNTY SYSTEM. THIS TANK HAS 2 – 100 TRENCH DRAINS THAT WILL INFILTRATE INTO THE SOIL AT A RATE OF 4 INCHES PER HOUR. THE TRENCH WIDTH AVAILABLE FOR INFILTRATION WILL BE 5 FEET. THE TIME FOR THE TANK TO EMPTY WILL BE

$$\frac{V_R}{4 \text{ INCHES/HOURS X } (1 \text{ FT/12 INCHES}) (5') (100) (2)}$$

= 3488.50/333.33

= 10.47 HOURS

UNDERGROUND STORAGE TANK R-2A CALCULATIONS

AMOUNT OF ACREAGE CONTRIBUTING RUNOFF TO TANK R-2A

RUNOFF COLLECTION BASINS ARE: R-2B, R-2C, R-2F, R-2G, R2-H, R2-J, R2-K

BUILDINGS 0.41 ACRES C = 0.90
PAVEMENT: 0.39 ACRES C = 0.90
LAWN: 0.04 ACRES C = 0.20
TOTAL AREA: 0.84 ACRES

WEIGHTED $C_{AD} = \frac{(0.41)(0.90) + (0.39)(0.90) + (0.04)(0.20)}{0.84}$

WEIGHTED C_{AD} =0.87

STORAGE VOLUME REQUIRED:

V_U = (0.84 acres) (43560 SFT/1 ACRE) (0.28) (3.1 INCHES) (1 FT/12 INCHES)

V_U = 2646.71 CFT

V_D = (0.84 ACRES) (43560 SFT/1 ACRE) (0.87) (4.3 INCHES) (1 FT/12 INCHES)

V_D = 11407.06 CFT

V_R = 11407.06 CFT – 2646.71 CFT

V_R = 8760.35 CFT

USE AN UNDERGROUND STORAGE TANK IN THE GARAGE

114' X 15' X 5.25'; V_S = 8977.50 CFT

BOTTOM OF TANK ELEVATION = 813.00'
TOP OF TANK ELEVATION = 818.25'
HIGH WATER ELEVATION = 818.12'

ALLOWABLE OUTLET RATE = 0.20 CFS/ACRE X A
= 0.20 X 0.84 ACRES
= 0.17 CFS

THE ALLOWABLE OUTLET RATE OF 0.17 CFS WILL BE CONTROLLED BY A PUMP.

UNDERGROUND STORAGE TANK R-4A CALCULATIONS

AMOUNT OF ACREAGE CONTRIBUTING RUNOFF TO TANK R-4A

RUNOFF COLLECTION BASINS ARE: R-4D & R-4E

BUILDINGS: 0.07 ACRES C = 0.90
PAVEMENT: 0.15 ACRES C = 0.90
LAWN: 0.00 ACRES C = 0.20
TOTAL AREA: 0.22 ACRES

WEIGHTED $C_{AD} = \frac{(0.07)(0.90) + (0.15)(0.90)}{0.22}$

WEIGHTED C_{AD} =0.90

STORAGE VOLUME REQUIRED:

V_U = (0.22 ACRES) (43560 SFT/1 ACRE) (0.28) (3.1 INCHES) (1 FT/12 INCHES)

V_U = 693.18 CFT

V_D = (0.22 ACRES) (43560 SFT/1 ACRE) (0.90) (4.3 INCHES) (1 FT/12 INCHES)

V_D = 3090.58 CFT

V_R = 3090.58 CFT – 693.18 CFT

V_R = 2397.40 CFT

USE AN UNDERGROUND STORAGE TANK IN THE GARAGE

15' X 15' X 10.75'; V_S = 2418.75 CFT

BOTTOM OF TANK ELEVATION = 813.00'
TOP OF TANK ELEVATION = 823.75'
HIGH WATER ELEVATION = 823.66'

ALLOWABLE OUTLET RATE = 0.20 CFS/ACRE X A
= 0.20 X 0.22 ACRES
= 0.044 CFS

THE ALLOWABLE OUTLET RATE OF 0.044 CFS WILL BE CONTROLLED BY A PUMP.

UNDERGROUND STORAGE TANK R-5A CALCULATIONS

AMOUNT OF ACREAGE CONTRIBUTING RUNOFF TO TANK R-5A

RUNOFF COLLECTION BASIN: R-5A. R-5B

BUILDINGS: 0.40 ACRES C = 0.90
PAVEMENT: 0.00 ACRES C = 0.90
LAWN: 0.01 ACRES C = 0.20
TOTAL AREA: 0.41 ACRES

WEIGHTED $C_{AD} = \frac{(0.40)(0.90) + (0.01)(0.20)}{0.41}$

WEIGHTED C_{AD} =0.88

STORAGE VOLUME REQUIRED:

V_U = (0.41 acres) (43560 SFT/1 ACRE) (0.28) (3.1 INCHES) (1 FT/12 INCHES)

V_U = 1291.84 CFT

V_D = (0.41 ACRES) (43560 SFT/1 ACRE) (0.88) (4.3 INCHES) (1 FT/12 INCHES)

V_D = 5631.73 CFT

V_R = 5631.73 CFT – 1291.84 CFT

V_R = 4339.89 CFT

USE AN UNDERGROUND STORAGE TANK IN THE GARAGE

15' X 15' X 19.30'; V_S = 4342.50 CFT

BOTTOM OF TANK ELEVATION = 813.00'
TOP OF TANK ELEVATION = 832.30'
HIGH WATER ELEVATION = 832.29'

ALLOWABLE OUTLET RATE = 0.20 CFS/ACRE X A
= 0.20 X 0.41 ACRES
= 0.082 CFS

THE ALLOWABLE OUTLET RATE OF 0.082 CFS WILL BE CONTROLLED BY A PUMP.

OVERSIZED MANHOLE R-2D CALCULATIONS

AMOUNT OF ACREAGE CONTRIBUTING RUNOFF TO R-2D

RUNOFF COLLECTION BASINS ARE: R-2D & R-2E

BUILDINGS: 0.00 ACRES C = 0.90
PAVEMENT: 0.04 ACRES C = 0.90
LAWN: 0.00 ACRES C = 0.20
TOTAL AREA: 0.04 ACRES

WEIGHTED $C_{AD} = \frac{(0.04)(0.90)}{0.04} = 0.90$

STORAGE VOLUME REQUIRED

V_U = (0.04) ACRES) (43560 SFT/1 ACRE) (0.28) (1 FT/12 INCHES) (3.1 INCHES)

V_U = 126.03 CFT

V_D = (0.04 ACRES) (43560 SFT/1 ACRE) (0.90) (4.3 INCHES) (1 FT/12 INCHES)

V_D = 561.92 CFT

V_R = 561.92 – 126.03

V_R = 435.89 CFT

USE AN 8' DIAMETER OVERSIZED MANHOLE, 8.75' DEEP WITH GRAVEL BOTTOM

V_S = 439.60 CFT

BOTTOM OF MANHOLE = 805.20'
RIM ELEVATION OF MANHOLE = 815.95'
HIGH WATER ELEVATION = 813.88'

THE WATER STORED IN THIS TANK WILL NOT ENTER THE CITY OR COUNTY SYSTEM. THIS TANK HAS AN 8' DIAMETER GRAVEL BOTTOM THAT WILL INFILTRATE INTO THE SOIL AT A RATE OF 4 INCHES PER HOUR. THE TIME FOR THE TANK TO EMPTY WILL BE = $\frac{435.89}{4 \text{ INCHES/HR X } 1 \text{ FT/12 INCHES X } 3.14 \text{ X } 4^2}$

$\frac{435.89 \text{ CFT}}{16.75 \text{ HOURS}} = 26.03 \text{ HOURS}$

OVERSIZED MANHOLE R-6 CALCULATIONS

AMOUNT OF ACREAGE CONTRIBUTING RUNOFF TO R-6

RUNOFF COLLECTION BASINS ARE: R-6

BUILDINGS: 0.02 ACRES C = 0.90
PAVEMENT: 0.00 ACRES C = 0.90
LAWN: 0.01 ACRES C = 0.20
TOTAL AREA: 0.03 ACRES

WEIGHTED $C_{AD} = \frac{(0.02)(0.90) + ((0.01)(0.2)}{0.03} = 0.67$

STORAGE VOLUME REQUIRED

V_U = (0.03) ACRES) (43560 SFT/1 ACRE) (0.28) (1 FT/12 INCHES) (3.1 INCHES)

V_U = 94.53 CFT

V_D = (0.03 ACRES) (43560 SFT/1 ACRE) (0.67) (4.3 INCHES (1 FT/12 INCHES)

V_D = 313.74 CFT

V_R = 313.74 – 94.53

V_R = 219.21 CFT

USE AN 7' OVERSIZED MANHOLE, 5.75' DEEP WITH GRAVEL BOTTOM

V_S = 221.29 CFT

BOTTOM OF MANHOLE = 830.70'
RIM ELEVATION OF MANHOLE = 838.45'
HIGH WATER ELEVATION = 836.40'

THE WATER STORED IN THIS TANK WILL NOT ENTER THE CITY OR COUNTY SYSTEM. THIS TANK HAS AN 7' DIAMETER GRAVEL BOTTOM THAT WILL INFILTRATE INTO THE SOIL AT A RATE OF 4 INCHES PER HOUR. THE TIME FOR THE TANK TO EMPTY WILL BE = $\frac{219.21 \text{ CFT}}{4 \text{ INCHES/HR X } 1 \text{ FT/12 INCHES X } 3.14 \text{ X } 3.5^2}$

$\frac{219.21 \text{ CFT}}{12.82 \text{ HOURS}} = 17.10 \text{ HOURS}$

OVERSIZED MANHOLE R-6A CALCULATIONS

AMOUNT OF ACREAGE CONTRIBUTING RUNOFF TO R-6A

RUNOFF COLLECTION BASINS ARE: R-6

BUILDINGS: 0.00 ACRES C = 0.90
PAVEMENT: 0.00 ACRES C = 0.90
LAWN: 0.02ACRES C = 0.20
TOTAL AREA: 0.02 ACRES

WEIGHTED $C_{AD} = \frac{(0.02)(0.20)}{0.02} = 0.20$

STORAGE VOLUME REQUIRED

V_U = (0.02) ACRES) (43560 SFT/1 ACRE) (0.28) (1 FT/12 INCHES) (3.1 INCHES)

V_U = 63.02 CFT

V_D = (0.02 ACRES) (43560 SFT/1 ACRE) (0.20) (4.3 INCHES) (1 FT/12 INCHES)

V_D = 62.44 CFT

BECAUSE V_D IS LESS THAN V_U, LET THE REQUIRED STORAGE VOLUME = 62.44 V_R

USE A 4' DIAMETER MANHOLE, 2' DEEP WITH GRAVEL BOTTOM

V_S = 100.48 CFT

BOTTOM OF MANHOLE = 834.25'
RIM ELEVATION OF MANHOLE = 836.25'
HIGH WATER ELEVATION = 835.49'

THE WATER STORED IN THIS TANK WILL NOT ENTER THE CITY OR COUNTY SYSTEM. THIS TANK HAS AN 4' DIAMETER GRAVEL BOTTOM THAT WILL INFILTRATE INTO THE SOIL AT A RATE OF 4 INCHES PER HOUR. THE TIME FOR THE TANK TO EMPTY WILL BE = $\frac{62.44 \text{ CFT}}{4 \text{ INCHES/HR X } 1 \text{ FT/12 INCHES X } 3.14 \text{ X } 2^2}$

$\frac{62.44 \text{ CFT}}{4.19 \text{ HOURS}} = 14.91 \text{ HOURS}$

OVERSIZED MANHOLE R-6B CALCULATIONS

AMOUNT OF ACREAGE CONTRIBUTING RUNOFF TO R-6B

RUNOFF COLLECTION BASINS ARE: R-6B

BUILDINGS: 0.00 ACRES C = 0.90
PAVEMENT: 0.00 ACRES C = 0.90
LAWN: 0.03 ACRES C = 0.20
TOTAL AREA: 0.03 ACRES

WEIGHTED $C_{AD} = \frac{(0.02 \text{ ACRES})(0.20)}{0.03} = 0.20$

STORAGE VOLUME REQUIRED

V_U = (0.03) ACRES) (43560 SFT/1 ACRE) (0.28) (1 FT/12 INCHES) (3.1 INCHES)

V_U = 94.53 CFT

V_D = (0.03 ACRES) (43560 SFT/1 ACRE) (0.20) (4.3 INCHES) (1 FT/12 INCHES)

V_D = 93.65 CFT

BECAUSE V_D IS LESS THAN V_U, LET THE REQUIRED STORAGE VOLUME = 93.65 = V_R

USE A 6' DIAMETER MANHOLE, 4' DEEP WITH GRAVEL BOTTOM

V_S = 113.04 CFT

BOTTOM OF MANHOLE = 832.45'
RIM ELEVATION OF MANHOLE = 836.45'
HIGH WATER ELEVATION = 835.76'

THE WATER STORED IN THIS TANK WILL NOT ENTER THE CITY OR COUNTY SYSTEM. THIS TANK HAS AN 6' DIAMETER GRAVEL BOTTOM THAT WILL INFILTRATE INTO THE SOIL AT A RATE OF 4 INCHES PER HOUR. THE TIME FOR THE TANK TO EMPTY WILL BE = $\frac{93.65 \text{ CFT}}{4 \text{ INCHES/HR X } 1 \text{ FT/12 INCHES X } 3.14 \text{ X } 3^2}$

$\frac{93.65 \text{ CFT}}{9.42 \text{ HOURS}} = 9.94 \text{ HOURS}$

Sewer Location From	To	Contribution Area Increment Area	Total Area	Time of Flow "C" Factor	In Section L/V/60	Intensity of Rainfall (in per hr)	Runoff (cfs) Q=CIA	Sewer Design Slope (ft/100)	Dia (in)	Capacity Q(cfs)	Velocity V(ft/s)	Length L (ft)	Flow Time (min)	Inverts Upper End	Lower End	Rim Elev. Upper End	Hydraulic Grade Line Upper End	Lower End
R4E	R4D	0.15	0.15	0.84	15	4.47368	0.564	0.34	12	2.0767	2.6464	74	0.46605	820.80	820.55	825.3	821.91	821.79
R4D	R4C	0.07	0.22	0.84	15.466	4.29225	0.793	0.34	12	2.0767	2.6464	12	0.07558	820.55	820.51	826.8	821.59	821.57
R4C	R4B	0.00	0.22	0.84	15.5416	4.2831	0.792	0.34	12	2.0767	2.6464	46	0.28971	820.51	820.35	827	821.37	821.29
R4B	R4A	0.00	0.22	0.84	15.8313	4.24837	0.785	0.34	12	2.0767	2.6464	33	0.20783	820.35	820.24	831.65	821.09	821.04
R5B	R5A	0.02	0.02	0.84	15	4.34957	0.073	0.34	12	2.0767	2.6464	4	0.02519	830.26	830.25	840.33	831.06	831.05
R3F	R3E	0.17	0.24	0.84	15.8313	4.24837	0.856	0.34	12	2.0767	2.6464	37	0.23302	809.65	809.49	814.15	810.45	810.39
R3E	R3D	0.03	0.27	0.84	16.0644	4.22085	0.957	0.34	12	2.0767	2.6464	34	0.21413	809.49	809.37	813.25	810.19	810.13
R3D	R3A	0.00	0.27	0.84	16.2785	4.19586	0.952	0.34	12	2.0767	2.6464	19	0.11966	809.17	809.10	812.26	809.93	809.90
R3B/C	R3A	0.19	0.19	0.84	15	4.34957	0.694	0.34	12	2.0767	2.6464	23	0.14485	808.88	808.80	811.63	809.64	809.60
R2C	R2B	0.21	0.21	0.84	15	4.34957	0.767	0.34	12	2.0767	2.6464	157	0.98878	815.81	815.27	818.3	816.42	816.17
R2B	R2A	0.10	0.31	0.84	15.9888	4.22973	1.101	0.34	12	2.0767	2.6464	59	0.37158	815.27	815.07	819.49	815.97	815.87
R2K	R2J	0.02	0.02	0.84	15	4.34957	0.073	0.34	12	2.0767	2.6464	38	0.23932	817.33	817.20	819.36	818.08	818.02
R2J	R2H	0.01	0.03	0.84	15.2393	4.31995	0.109	0.34	12	2.0767	2.6464	32	0.20154	817.20	817.09	823.96	817.82	817.77
R2H	R2G	0.01	0.04	0.84	15.4409	4.29531	0.144	0.34	12	2.0767	2.6464	34	0.21413	817.09	816.97	827.06	817.57	817.52
R2G	R2F	0.19	0.23	0.84	15.655	4.26944	0.825	0.34	12	2.0767	2.6464	86	0.54163	816.77	816.48	830.41	817.32	817.18
R2F	R2A	0.31	0.54	0.84	16.1966	4.20538	1.908	0.34	12	2.0767	2.6464	59	0.37158	816.28	816.08	833.11	816.98	816.88

Sewer Location From	To	Contribution Area Increment Area	Total Area	Time of Flow "C" Factor	In Section L/V/60	Intensity of Rainfall (in per hr)	Runoff (cfs) Q=CIA	Sewer Design Slope (ft/100)	Dia (in)	Capacity Q(cfs)	Velocity V(ft/s)	Length L (ft)	Flow Time (min)	Inverts Upper End	Lower End	Hydraulic Grade Elev. Upper End	Rim Elev. Upper End
R1C	R1A	0.24	0.24	0.84	15	7.23684	1.459	0.26	15	3.2927	2.6854	27	0.16758	813.25	813.18		819.2
R1B	R1A	0.24	0.24	0.84	15	7.23684	1.459	0.26	15	3.2927	2.6854	22	0.13654	813.14	813.08		819
R1A	R1	0.00	0.48	0.84	15.1676	7.20507	2.905	0.26	15	3.2927	2.6854	52	0.32274	808.99	808.48		818.5
R1	EX	0.00	0.48	0.84	15.4903	7.14465	2.881	0.26	15	3.2927	2.6854	30	0.18619	807.46	807.38		814.35
OVERFLOW FOR 100 YEAR STORM																	

LEGEND

BENCHMARK

REVISIONS 11–16–99 ENGINEERING REVIEW 01–18–00 A2ENG/WCDC
03–24–00 PRECONST

SCALE HORIZONTAL: 1 INCH = FEET

PREPARED BY ROBERT J. WANTY P.E., MICH NO. 28666

STATE OF MICHIGAN — ROBERT J. WANTY — ENGINEER — No. 28665 — PROFESSIONAL ENGINEER

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CIVIL ENGINEERS * PLANNERS
SURVEYORS * LANDSCAPE ARCHITECTS
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TEL. 734–761–8800 FAX. 734–761–9530
washtenaw_engineering@msn.com

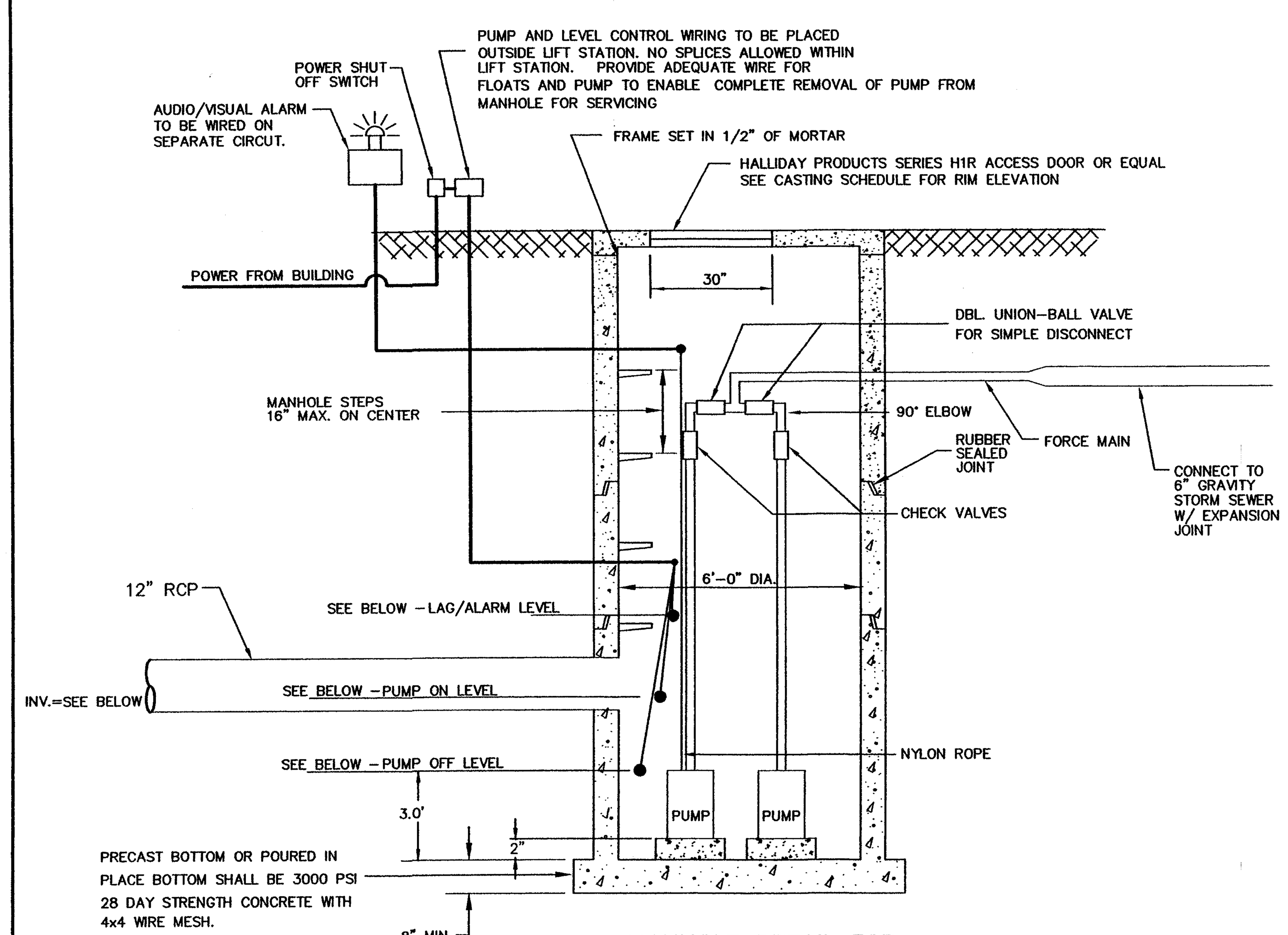
STORM WATER DETENTION CALCULATIONS

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY * MICHIGAN

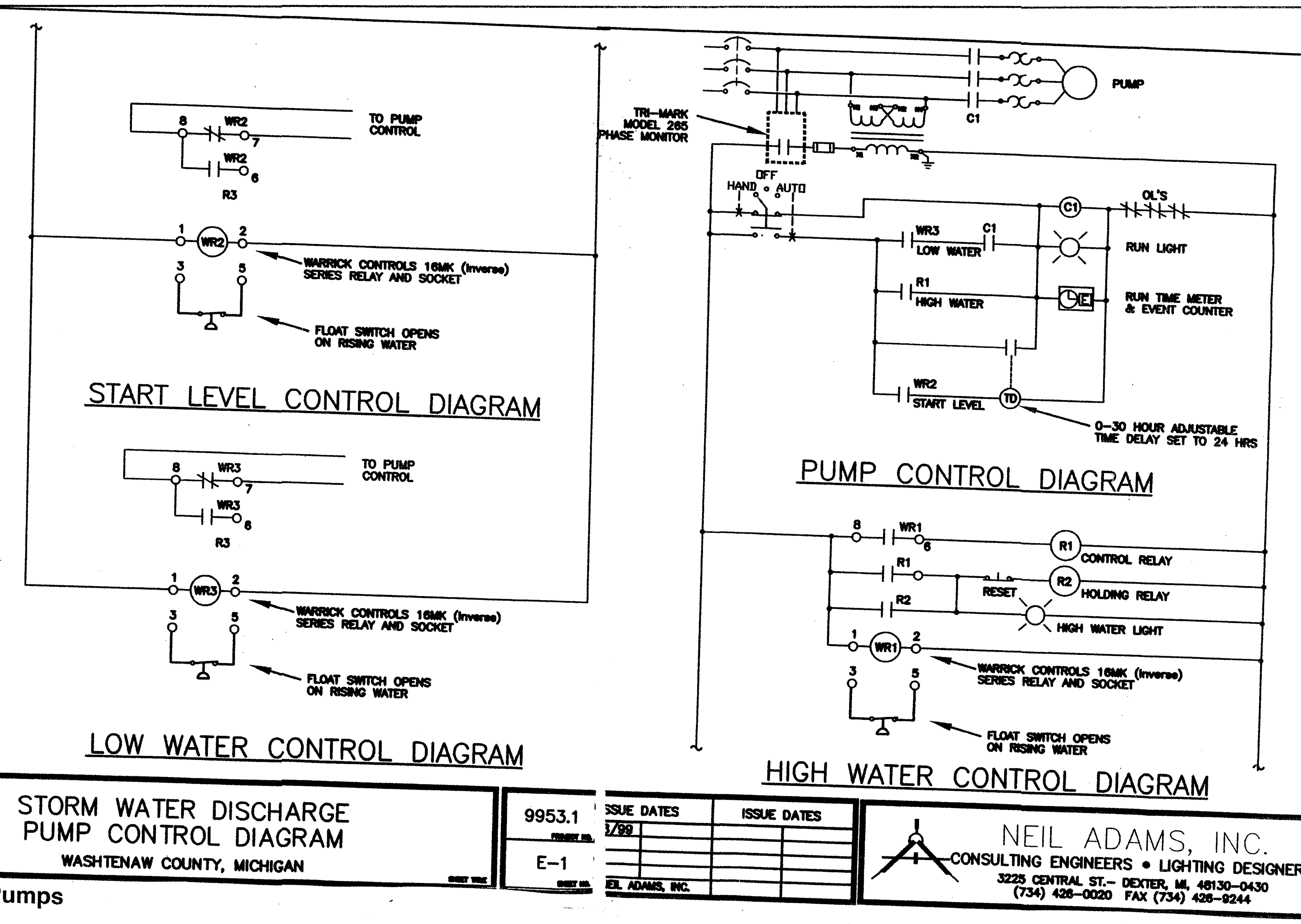
DESIGN DSH
DRAWN ACT
CHECK RJW
DATE 7–19–99
DWG NO. \27463\DETCALS
FIELD BOOK NONE
JOB NO. 27463
FILE NO. PROJECT
SHEET 11 OF 14

H:\Eng\27463\DETCALS.dwg Wed Mar 22 15:58:06 2000



MANHOLE DETAIL FOR LIFT STATION

NOT TO SCALE



LIFT STATION CALCULATIONS
GUERRESO – ASHLEY MEWS

LIFT STATION R-7A

ALLOWABLE DISCHARGE =
0.20 CFS/ACRE = 0.2 CFS/ACRE X 0.41 ACRES = 0.082 CFS = 36.8 GPM

6" FORCE MAIN @ 40 GPM = 0.089 CFS

V = 0.089 CFS / 0.1963 SF = 0.45 FT/S < 2.0 N.A.

4" FORCE MAIN @ 40 GPM = 0.089 CFS

V = 0.089 CFS / 0.0873 SF = 1.02 FT/S < 2.0 N.A.

3" FORCE MAIN @ 40 GPM = 0.089 CFS

V = 0.089 CFS / 0.0491 SF = 1.81 FT/S LOW BUT ACCEPTABLE

MAXIMUM WATER ELEVATION IN TANK = 832.29' DISCHARGE INVERT = 832.39'
MINIMUM PUMP ELEVATION = 812.95' INFLUENT INVERT = 812.95'

STATIC HEAD = 832.29' – 832.39 = 0.10' OR 832.39 – 812.95 = 19.44'

LENGTH OF DISCHARGE LINE = 142'

DYNAMIC HEAD; HEAD LOSS = 54'/100' = 0.77'

PUMPING HEAD = 0.87' OR 20.21'

USE MYERS 3MW, 40 GPM @ 22' OF HEAD, 1 ½ HP, 1750 RPM, 3 PHASE, 60 HZ

LIFT STATION R-7B

ALLOWABLE DISCHARGE =
0.20 CFS/ACRE = 0.2 CFS/ACRE X 0.22 ACRES = 0.044 CFS = 19.75 GPM

3" FORCE MAIN @ 20 GPM = 0.045 CFS

V = 0.045 CFS / 0.0491 SF = 0.92 FT/S < 2.0 N.A.

2" FORCE MAIN @ 42 GPM = 0.045 CFS

V = 0.045 CFS / 0.0218 SF = 2.06 FT/S OK

MAXIMUM WATER ELEVATION IN TANK = 823.66' DISCHARGE INVERT = 823.76'
MINIMUM PUMP ELEVATION = 813.00' INFLUENT INVERT = 812.87'

STATIC HEAD = 823.66' – 823.76 = 0.1' OR 823.76 – 813.00 = 10.76'

LENGTH OF DISCHARGE LINE = 86'

DYNAMIC HEAD 0.9'/100' = 0.77'

PUMPING HEAD = .87' OR 11.63'

USE MYERS SRM4, 20 GPM @ 16' OF HEAD, 4/10 HP, 1650 RPM, 1 PHASE, 60 HZ

LIFT STATION R-7E

ALLOWABLE DISCHARGE =
0.20 CFS/ACRE = 0.2 CFS/ACRE X 1.25 ACRES = 0.25 CFS = 112.21 GPM

4" FORCE MAIN @ 115 GPM = 0.26 CFS

V = 0.26 CFS / 0.0873 SF = 2.93 FT/S OK

6" FORCE MAIN @ 115 GPM = 0.26 CFS

V = 0.26 CFS / 0.1963 SF = 1.32 FT/S < 2.0 N.A.

MAXIMUM WATER ELEVATION IN TANK = 818.12' DISCHARGE INVERT = 818.22'
MINIMUM PUMP ELEVATION = 813.00' INFLUENT INVERT = 813.04'

STATIC HEAD = 0.1' OR 818.22 – 813.00 = 5.22'

LENGTH OF DISCHARGE LINE = 18.5'

DYNAMIC HEAD: 0.75'/100' = 0.14'

PUMPING HEAD = 0.24' OR 5.36'

USE MYERS 4V, 115 GPM @ 9.5' OF HEAD, 1 HP, 1750 RPM, 3 PHASE, 60 HZ

Non-Clog Submersible Pumps Specifications

PUMP MODEL - Pump shall be Myers Model Number 4VX Non-Clog Submersible Pump with 2 vane enclosed impeller. All openings in pump impeller and volute case shall be large enough to pass a 3" diameter sphere. Discharge flange shall be four (4) inch standard. Pump and motor assembly shall be UL listed for Class 1, Group D explosion-proof service.

OPERATING CONDITIONS - Pump shall have a capacity of 115 GPM at a total head of 9.5 feet and shall use a 1 HP motor operating at 1750 RPM.

MOTOR - Pump motor shall be of the sealed submersible type rated 1 HP at 1750 RPM 60 Hertz. Motor shall be for single phase 230 volts ______ or three phase 200 volts X, 230 volts ______, 460 volts ______, or 575 volts ______. Single phase motors shall be of the capacitor start, capacitor run, NEMA L type. Three phase motors shall be NEMA B type.

Stator winding shall be of the open type with Class B insulation good for 130°C (266°F) maximum operating temperature. Winding housing shall be filled with a clean high dielectric oil that lubricates bearings and seals and transfers heat from windings and rotor to outer shell. Air-filled motors which do not have the superior heat dissipating capabilities of oil-filled motors shall not be considered equal.

Motor shall have two heavy duty ball bearings to support pump shaft and take radial and thrust loads and a sleeve guide bushing directly above the lower seal to take radial load and act as flame path for seal chamber. Ball bearings shall be designed for 50,000 hours B-10 life. Stator shall be heat shrunk into motor housing.

A heat sensor thermostat shall be attached to and imbedded in the winding and be connected in series with the motor starter contractor coil to stop motor if temperature of winding is more than 120°C (248°F). Thermostat to reset automatically when motor cools to safe operating temperature. Two heat sensors to be used on 3 phase motors. The common pump, motor shaft shall be of 416 stainless steel.

SEALS - Motor shall be protected by two mechancial seals mounted in tandem with a seal chamber between the seals. Seal chamber shall be oil filled to lubricate seal face and to transmit heat from shaft to outer shell.

Seal face shall be carbon and ceramic and lapped to a flatness of one light band. Lower seal faces shall be ______ carbide (optional).

A double electrode shall be mounted in the seal chamber to detect any water entering the chamber through the lower seal. Water in the chamber shall cause a red light to turn on at the control box. This signal shall not stop motor but shall act as a warning only, indicating service is required.

IMPELLER - The impeller shall be cast ductile iron and of the 2 vane non-clog enclosed type. Vane inlet tips shall be carefully rounded to prevent stringy material from catching in vanes. Pump-out vane shall be used in front and back chamber. Impeller shall be dynamcially balanced. Impeller shall be driven by stainless steel shaft key and impeller held in place with lock screw and washer.

Impeller and motor shall lift off of case as a unit without disturbing discharge piping.

Impeller neck shall run in bronze wear ring that is pressed into volute case.

PUMP CASE - The volute case shall be cast iron and have a flanged center line discharge. Discharge flange shall be 4" standard with bold holes straddling center line. A bronze wear ring shall be pressed into case for guiding impeller neck and to prevent corrosion freeze up. Wear ring shall be held from rotating by locking with stainless steel set screw in end of ring.

PUMP AND MOTOR CASTING - All castings shall be of high tensile cast iron and shall be treated with phosphate and chromate rinse.

All fasteners shall be 302 stainless steel.

BEARING END CAP - Upper motor bearing cap shall be a separate casting for easy mounting and replacement.

POWER CABLES - Power cord and control cord shall be double sealed. The power and control conductor shall be single strand sealed with epoxy potting compound and then clamped in place with rubber seal bushing to seal outer jacket against leakage and to provide for strain pull. Cords shall withstand a pull of 300 pounds to meet U.L. requirements.

Insulation of power and control cords shall be type SOW/SOW-A. Both control and power cords shall have a green carrier ground conductor that attaches to motor frame.

3MW SERIES SINGLE SEAL SEWAGE PUMPS SPECIFICATIONS

SEWAGE PUMPS - Pump(s) shall be F. E. Myers 3MW series sewage pumps selected in accordance with the following design criteria:

Number of Pumps:	2
Primary Design Flow:	40 GPM
Primary Design Head:	22'
Minimum Shut-off Head:	1'
Motor Horsepower:	1 1/2
Motor Speed:	1750 RPM
Electrical:	208V, 3PH, 60Hz

PUMP - The pump shall be capable of running dry without damage to the seals or bearings.

MOTOR - The pump motor shall be of the submersible type rated 1, 1-1/2, 2 or 3 HP as required. Motor shall operate at 1750 RPM and shall be for 208 or 230 volts single phase, or 208, 230, 460, or 575 volts, 3 phase, 60 cycles. Single phase motors shall be of the permanent split capacitor type with no relays or starting switches. Three phase motors shall be squirrel cage induction type. Stator winding shall be of the open type with Class B insulation rated for 130°C maximum operating temperature. The winding housing will be filled with clean dielectric oil to lubricate bearings, seals, and transfer heat from the windings to the outer shell. The motor assembly shall be of the standard frame design and shall be secured in place by four threaded fasteners allowing for easy field servicability.

The motor shall be capable of operating over the full range of the performance curve without overheating the motor and causing any objectionable noise or vibration. The common motor pump shaft shall be of 416 stainless steel and shall be heat shrunk into the die cast motor rotor. The motor shall have two bearings to support the rotor; an upper ball bearing to accommodate radial loads and a lower ball bearing to take thrust and radial loads. Ball bearings shall be designed for a B-10 life of 50,000 hours.

A heat sensor thermostat and overload shall be attached to the top end of the motor windings and shall be wired in series with the windings to stop the motor if the motor winding temperature reaches 130°C (266°F). The overload thermostat shall reset automatically when the motor cools to a safe operating temperature. Three phase motors shall be protected by 3 leg overload relay in control box. Overload shall be of the quick trip ambient compensated type and shall have manual reset button.

POWER CORD - The motor power cord shall be SOW/SOWA. The cable jacket shall be sealed at the motor entrance by means of a rubber compression washer and compression nut. A heat shrink tube filled with epoxy shall seal the outer cable jacket and the individual leads to prevent water from entering the motor housing.

SHAFT SEAL - The motor shall be protected by a rotating mechanical shaft seal. The seal shall have carbon and ceramic seal faces lapped to a tolerance of one light band. Metal parts and springs for seals shall be 300 series stainless steel. Seal faces of tungsten carbide are optional.

PUMP IMPELLER - The pump impeller shall be of the two vane enclosed type. The impeller shall be constructed of A48 Class 30 cast iron. A replaceable Buna-N sealing cup shall effect a seal between the volute and impeller in order to maintain high efficiency and prevent recirculation. The impeller shall be threaded onto the 416 stainless steel pump/motor shaft.

PUMP CASE - The volute case shall be cast iron and have a vertical 3" NPT threaded discharge. It shall have three cast feet that provide stable support and allow proper operation when standing on floor.

PUMP AND MOTOR CASTINGS - All castings shall be of high tensile strength Class 30 gray cast iron. Castings shall be treated with phosphate rinse and painted with a high quality air dry alkyd enamel.

FASTENERS - All exposed fasteners shall be of 300 series stainless steel.

SRM4 SEWAGE PUMP SPECIFICATIONS

SEWAGE PUMPS - Pump(s) shall be F. E. Myers SRM4 series sewage pumps selected in accordance with the following design criteria:

Number of Pumps:	2
Primary Design Flow:	20 GPM
Primary Design Head:	16'
Minimum Shut-off Head:	19'
Motor Horsepower:	4/10
Motor Speed:	1650 RPM
Electrical:	115 Volts, 1 PH, 60 Hz or 230 Volts, 1 PH, 60 Hz

MOTOR - The pump motor shall be of the submersible type rated 4/10 hp at 1650 RPM and shall be for X 115 volts or ______ 230 volts single phase, 60 cycles. Single phase motor shall be of the shaded pole type with no relays or starting switches. Stator winding shall be of the open type with Class A insulation rated for 105º C maximum operating temperature. The winding housing shall be filled with clean dielectric oil to lubricate bearings and seals, and transfer heat from the windings to the outer shell. The motor winding assembly shall be pressed into the stator housing for best alignment and heat transfer.

The motor shall be capable of operating over the full range of the performance curve without overloading the motor and causing any objectionable noise or vibration. The motor shall have two bearings to support the rotor; an upper sleeve bearing to accommodate radial loads and a lower sleeve bearing with thrust pad to take thrust and radial loads.

A heat sensor thermostat and overload shall be attached to the top end of the motor windings and shall be wired in series with the windings to stop the motor if the motor winding temperature reaches 221º F. The overload thermostat shall reset automatically when the motor cools to a safe operating temperature.

POWER CORD - The motor power cord shall be ______ 10 or X 20 feet SJTW/SJTW-A type. The cord shall have a molded compression grommet to insulate electrical connections. The grommet shall thread into the motor housing to provide a positive seal and to prevent leaking of liquid into the motor housing. The sealing grommet shall provide strain relief for the power cord assembly.

OPTIONAL CONTROL SWITCH - The sewage pump shall be controlled by an optional piggy-back float switch. The float switch shall be of the mechanical, non-mercury type and be capable of directly controlling the pump motor without the need for an external control panel.

SHAFT SEAL - The motor shall be protected by a rotating mechanical shaft seal. The seals shall have carbon and ceramic seal faces lapped to a tolerance of one light band. Metal parts and springs for seals shall be 300 series stainless steel.

PUMP IMPELLER - The pump impeller shall be of the recessed type. The impeller shall be constructed of engineered thermoplastic.

MOTOR CASTINGS - The motor housing castings shall be of high tensile strength Class 30 gray cast iron. Castings shall be treated with phosphate and chromate rinse and painted with a high quality air dry alkyd enamel for corrosion protection.

PUMP CASE - The pump case shall be a high efficiency volute design capable of passing 2 inch spherical solids. The pump volute shall be constructed of Class 30 gray cast iron.

FASTENERS - All exposed fasteners shall be of 300 series stainless steel.

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LEGEND

BENCHMARK

REVISIONS 11-16-99 ENGINEERING REVIEW ; 01-18-00 A2ENG/WCDC
03-24-00 PRECONST

SCALE
HORIZONTAL: 1 INCH = 20 FEET

PREPARED BY ROBERT J. WANTY P.E./ MICH NO. 28666

LIFT STATION DETAILS AND CALCULATIONS

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TEL. 734-761-8800 FAX. 734-761-9530

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY • MICHIGAN

DESIGN DSH	DATE 7-2-99
DRAWN DSH	DWG NO. \ENG\27463SCH
CHECK RJW	FIELD BOOK NONE
	JOB NO. 27463
FILE NO. PROJECT	SHEET 12 OF 14

PROPOSED SANITARY SEWER STRUCTURE SCHEDULE

NO.	PROPOSED STRUCTURE	PROPOSED RIM ELEVATION	EXISTING INVERT ELEVATIONS	PROPOSED INVERT ELEVATIONS	PROP. DEPTH	REMARKS
S-1	4' DIA. MH	810.27	8" N=805.10 8" S=805.10	8" E=805.30	5.17	TO BE CONSTRUCTED OVER EXISTING 8" PVC

PROPOSED STORM SEWER STRUCTURE SCHEDULE

NO.	PROP. TYPE	PROP. RIM	PROPOSED INVERT ELEVATIONS	PROP. DEPTH	REMARKS	CASTING
R-1	4' MH	814.35	15" SW 807.46, 15" E 808.48, 6" N 811.07	6.89'	2' SUMP, MECHANICAL FLAP GATES OVER 6" PIPE	EJIW 1040, A SOLID COVER
R-1A	4' MH	818.50	15" W 808.99, 15" N 813.08, 15" NE 813.18	8.51'	2' SUMP	EJIW 1040, A SOLID COVER
R-1B	4' IN	819.00	15" S 813.14	5.86'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-1C	4' IN	819.20	15" SW 813.25	5.95'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-2A	T	N/A	12" W 815.07, 12" S 816.08, 6" W 813.00 6" E 818.12	5.25'	114 X 15 X 5.25', BOTTOM 813.00 W/0.5% SLOPE TO EAST	N/A
R-2B	4' IN	819.49	12" S 815.27, 12" E 815.27	4.22'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-2C	2' IN	818.30	12" N 815.81	2.50'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-2D	8' MH	815.95	N 814.95	1.0'	8.75' EXTRA DEPTH AND 2' SUMP, GRAVEL BOTTOM	EJIW 1040, MI FLAT GRATE
R-2E	TD	VARIES	S 814.95	1.0'		NEENAH R-4995 M GRATED COVER
R-2F	4' CB	833.11	12" S 816.48, 12" N 816.28	15.83'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-2G	4' CB	830.41	12" W 816.97 12" N 816.77	12.64'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-2H	TD	827.06	12" W 817.09, 12" E 817.09	1.0'		NEENAH R-4995 M GRATED COVER
R-2J	TD	823.96	12" W 817.20, 12" E 817.20	1.0'		NEENAH R-4995 M GRATED COVER
R-2K	TD	819.36	12" W 817.33, 12" E 817.33	1.0'		NEENAH R-4995 M GRATED COVER
R-3A	T	N/A	12" NW 809.10, 12" SW 808.80	10.00'	30,000 GAL, 10' X 55.76', 811.50 TOP, 801.50 BOTTOM	N/A
R-3B	4' CB	811.63	N 810.38. 12" NE 808.88	2.25'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-3C	TD	VARIES	S 810.38	1.0'		NEENAH R-4995 M GRATED COVER
R-3D	4' MH	812.26	12" N 809.37 12" SE 809.17	3.09'	2' SUMP	EJIW 1040, N OVAL GRATE
R-3E	4' CB	813.25	12' NW 809.49, 12" S 809.49	3.76'	2' SUMP	EJIW 1040, N OVAL GRATE
R-3F	2' IN	814.15	12" S 809.65 8" N 811.22	4.49'	2' SUMP	EJIW 1040, N OVAL GRATE
R-4A	T	N/A	12" S 820.24, 6" W 813.00	10.75'	15 X 15 X 10.75, BOTTOM 813.00 W/0.5 SLOPE TO EAST	N/A
R-4B	4' MH	831.65	12" N 820.35 12" E 820.35	11.30'	2' SUMP	EJIW 1040, A SOLID COVER
R-4C	4' MH	827.00	12" W 820.51 12" SE 820.51	6.49'	2' SUMP	EJIW 1040, A SOLID COVER
R-4D	4' CB	826.80	12" SW 820.55 12" NW 820.55	5.25'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-4E	2' IN	825.30	12" NE 820.80	4.50'	2' SUMP	EJIW 1040, MI FLAT GRATE
R-5A	T	N/A	12" N 830.25, 6" W 813.00	19.30'	15 X 15 X 19.30, BOTTOM 813.00 W/0.5% SLOPE TO EAST	N/A
R-5B	2' IN	840.33	12" S 830.26	10.07'	2' SUMP	EJIW 1040, N OVAL GRATE
R-6	7' CB	838.45	N/A	7.75'	2' SUMP, GRAVEL BOTTOM	EJIW 1040, N OVAL GRATE
R-6A	4' CB	836.25	N/A	2.00'	GRAVEL BOTTOM	EJIW 1040, N OVAL GRATE
R-6B	7' CB	836.45	N/A	4.00'	GRAVEL BOTTOM	EJIW 1040, N OVAL GRATE
R-7A	6' MH	840.25	6" W 832.39 6" E 812.97	20.51'		EJIW 1040, A SOLID COVER
R-7B	6' MH	828.82	6" E 812.83 6" N 823.85	20.29'		EJIW 1040, A SOLID COVER
R-7C	6' MH	820.35	6" NW 818.13, 6" S 818.23	1.50'		EJIW 1040, A SOLID COVER
R-7D	6' MH	821.60	6" E 818.02, 6" SE 817.37, 6" NW 817.17	2.58'		EJIW 1040, A SOLID COVER
R-7E	6' MH	820.44	6" W 818.35 6" E 812.95	8.21'		EJIW 1040, A SOLID COVER
R-7F	6' MH	818.15	6" E 814.97, 6" S 814.82	2.33'		EJIW 1040, A SOLID COVER

MH: MANHOLE
CB: CATCHBASIN
IN: INLET
TD: TRENCH DRAIN
CH: CHAMBER
T: TANK

CONSTRUCTION SCHEDULE: OFFICE BUILDING

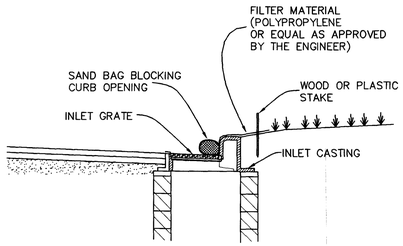
1. INSTALL ALL PERIMETER SOIL EROSION AND SEDIMENTATION CONTROL MEASURES INCLUDING MUD TRACKING SURFACES. MARCH 2000
2. TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE INSTALLED – SEDIMENT BASIN, DIVERSION DITCHES, AND CHECK DAMS IN PARTICULAR – APRIL 2000
3. MONITOR AND MAINTAIN ALL EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION. MARCH 2000 – JULY 2001
4. BEGIN OFFICE BUILDING FOUNDATIONS AND PARKING DECK.–APRIL 2000
5. INSTALL STORM SEWER SYSTEM WITH INLET FILTER CONTROLS PER BRENNAN DEVELOPMENT'S CONTRACT DRAWINGS – STRUCTURE R1, RUN 2F–2A, RUN 2B–2A, RUN 2D–2E, RUN 4B–4A, RUN 5B–5A, R6B, RUN 7,
6. INSTALL WATER MAIN, FIRE HYDRANTS AND SANITARY SEWER.–MAY 2000 PER BRENNAN DEVELOPMENT'S CONTRACT DRAWINGS – 5' WITHIN ALL PROPOSED BUILDINGS
7. BEGIN ERECTION OF OFFICE BUILDING STRUCTURAL STEEL.–JULY 2000
8. BEGIN INSTALLATION OF SOUTH RETAINING WALL – AUGUST 2000
9. BEGIN CONSTRUCTION OF OFFICE BUILDING ENCLOSURE – SEPTEMBER 2000
10. INSTALL SUB–BASE IN AREAS THAT DON'T INTERFERE WITH OFFICE BUILDING FOUNDATION CONSTRUCTION AT ENTRY TO PARKING DECK FROM SOUTH ASHLEY STREET (NORTH ENTRANCE DRIVE) – OCTOBER 2000

CONSTRUCTION SCHEDULE: TOWNHOMES

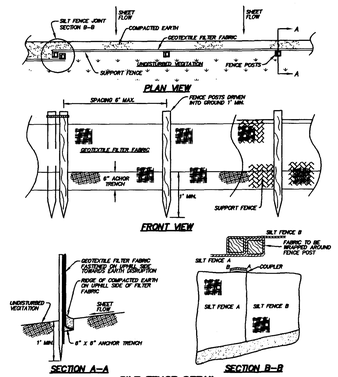
1. MONITOR AND MAINTAIN ALL EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION. SEPTEMBER 2000 – SEPTEMBER 2001
2. INSTALL REMAINDER OF STORM SEWER SYSTEM WITH INLET FILTER CONTROLS AND DETENTION TANK R–3A – OCTOBER 1, 2000
3. INSTALL REMAINDER OF WATER MAIN, FIRE HYDRANTS AND SANITARY SEWER – OCTOBER 1, 2000
4. BEGIN FOUNDATION CONSTRUCTION OF TOWNHOMES – OCTOBER 2000
5. INSTALL CURBING AND REMAINING SUB–BASE IN AREAS TO BE PAVED. –NOVEMBER 2000
6. BEGIN TOWNHOME BUILDING CONSTRUCTION – NOVEMBER 2000
7. LANDSCAPE & SEED ALL DISTURBED AREAS.–MAY 2001
8. AFTER SEEDING IS ESTABLISHED, REMOVE ALL SILT FENCE, REMOVE INLET SEDIMENT FILTERS AND CLEAR SEDIMENTATION FROM DRAINAGE STRUCTURE SUMPS.–SEPTEMBER 2001

SOIL EROSION NOTES:

1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF CHAPTER 63, THE SOIL EROSION AND SEDIMENTATION CONTROL ORDINANCE, CITY OF ANN ARBOR.
2. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR FOR EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES AND WHEN NECESSARY, REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
3. EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF–SITE AREAS OR IN WATERWAYS, WHICH INCLUDE BOTH NATURAL AND MAN–MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
4. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CONSTRUCTION; SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.
5. THE OWNER SHALL OBTAIN OR CAUSE HIS CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS, PAY ALL FEES AND POST ALL BONDS TO EACH AND ALL GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER EROSION CONTROL MEASURES ON THIS PROJECT.
6. THE CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED AND AS DIRECTED ON THIS PLAN. HE SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER CHANGES HAVE BEEN ACCOMPLISHED.
7. POLYPROPYLENE AND SAND BAGS SHALL BE USED OVER ALL CATCH BASINS AND INLETS IN THE CONSTRUCTION AREA.
8. ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR AND/OR BUILDER. ALL MUD, DIRT AND DEBRIS TRACKED OR SPILLED ONTO PAVED SURFACES WITHIN THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR AND/OR BUILDER. ALL MUD, DIRT, DEBRIS TRACKED ONTO EXISTING ROADS THAT ARE NOT REMOVED IMMEDIATELY WILL BE A VIOLATION OF CHAPTER 63, SECTION 5:664(4).
9. ANY SOIL EROSION CONTROL MEASURES DAMAGED BY THEIR CONTRACTOR'S OPERATION SHALL BE REPLACED THE SAME DAY.
10. SOIL TYPE – FOX SANDY LOAM AND MADE LAND.
11. ESTIMATED COST OF THE PERMANENT AND TEMPORARY EROSION CONTROL DEVICES IS $15,000.
12. ESTIMATED CUT AND FILL FOR CONSTRUCTION: 679,185 CF CUT; 6,084 CF FILL; 660,906 CF NET CUT.
13. THE CONTINUED MAINTENANCE OF THE PERMANENT EROSION CONTROL DEVICES WILL BE THE RESPONSIBILITY OF THE CONDO ASSOCIATES ONCE THE CONTRACTOR HAS VACATED THE SITE AND WILL INCLUDE THE FOLLOWING:
    A. INSPECTION AND REMOVAL OF SEDIMENT ACCUMULATION IN THE STORM SEWER SYSTEM AND CATCH BASIN SUMPS. THE INSPECTION SHALL OCCUR ON AN ANNUAL BASIS AND THE REMOVAL OF THE SEDIMENT SHALL OCCUR EVERY 5–10 YEARS AS NEEDED OR WHEN THE SEDIMENT DEPTH IS GREATER THAN ONE FOOT TO MAINTAIN PROPER FUNCTION OF THE CATCH BASIN SUMPS AND UNDERGROUND STORAGE TANKS. THE REMOVAL CAN BE ACCOMPLISHED BY VARIOUS METHODS INCLUDING A VECTOR MACHINE IN THE STREET AREAS.
    B. INSPECTION AND REMOVAL OF FLOATABLES AND DEBRIS IN THE STORM SEWER SYSTEM. CATCH BASIN SUMPS, CATCH BASIN GRATES SHALL BE DONE ON AN ANNUAL BASIS.
    C. CLEANING OF THE STREETS/DRIVES/WALKS SHALL OCCUR ON A SEMIANNUAL BASIS TO REMOVE ANY ACCUMULATED DEBRIS. A TYPICAL STREET/WALK CLEANER CAN BE USED TO PERFORM THIS FUNCTION.
    D. OPERATIONAL INSPECTION OF STORM SEWER PUMPS LOCATED AT THE UNDERGROUND TANKS R–2A, R–4A AND R–5A SHALL OCCUR ON AN ANNUAL BASIS. THIS FUNCTION MUST BE PERFORMED BY A REGISTERED ENGINEER AND AN INSPECTION REPORT MUST BE FILED W/THE W.C.D.C. & CITY OF ANN ARBOR BUILDING DEPARTMENT.
    E. INSPECTION OF STRUCTURAL ELEMENTS, UNDERGROUND STORAGE TANKS, DURING DURING WET WEATHER SHALL OCCUR ON AN ANNUAL BASIS. ANY ADJUSTMENTS OR IMPROVEMENTS, REQUIRED AS DETERMINED BY THE INSPECTION, MUST BE PERFORMED IMMEDIATELY



INLET FILTER



SILT FENCE DETAIL
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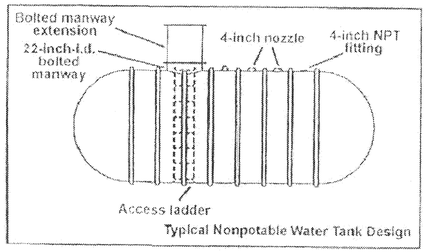
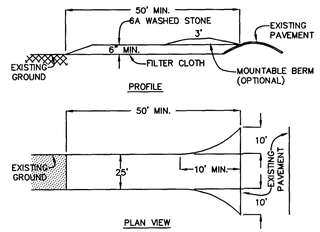


FIBERGLASS TANK DETAIL
NOT TO SCALE



MUD TRACKING SURFACE
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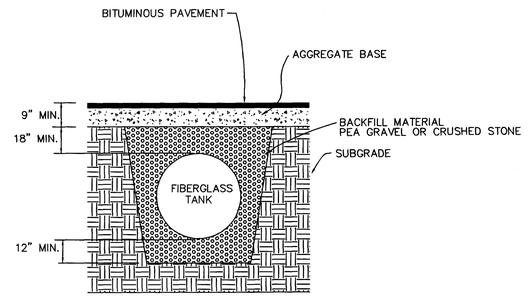


TANK CONSTRUCTION DETAIL
NOT TO SCALE

72 HOURS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

STATE OF MICHIGAN
ROBERT J. WANTY
ENGINEER
No. 28666
REGISTERED PROFESSIONAL ENGINEER

LEGEND

BENCHMARK

REVISIONS 7-2-99 PC SUB-3, 7-19-99 ACT SUB-4
10-28-99 RJK PER RJW; 11-16-99 ENGINEERING REVIEW
3-24-00 PRECONST

SCALE
HORIZONTAL: 1 INCH = 20 FEET

PREPARED BY Robert J. Wanty
ROBERT J. WANTY P.E., MICH NO. 28666

WASHTENAW ENGINEERING
CIVIL ENGINEERS • PLANNERS
SURVEYORS • LANDSCAPE ARCHITECTS
3250 WEST LIBERTY RD. P.O. BOX 1128
ANN ARBOR, MICHIGAN 48106
TEL 734-662-4800 FAX 734-662-2500
washtenaw_engineering@msn.com

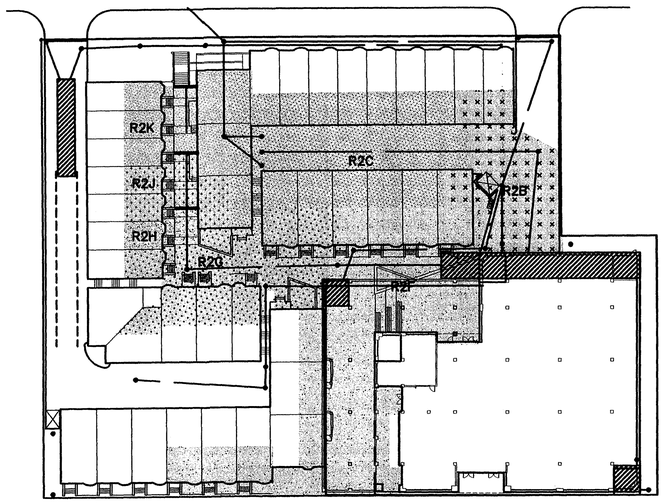
SCHEDULES AND DETAILS

CLIENT ASHLEY MEWS

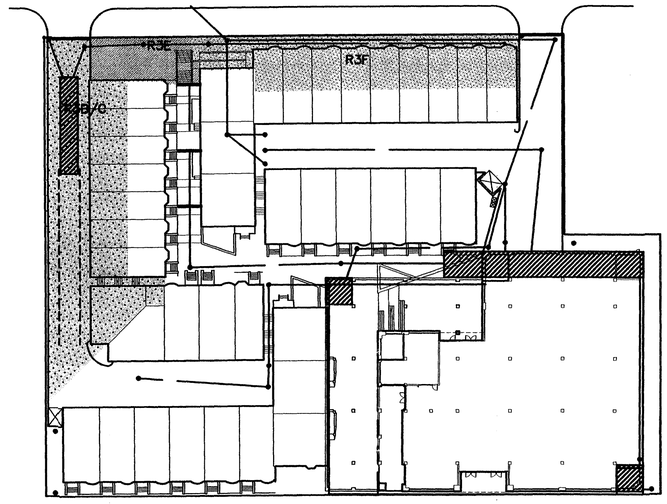
SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY • MICHIGAN

DATE	7-2-99
DESIGN	DSH
DRAWN	DSH
CHECK	RJW
DWG NO.	\ENG\27463SCH
FIELD BOOK	NONE
JOB NO.	27463
SHEET	13 OF 14
FILE NO.	PROJECT

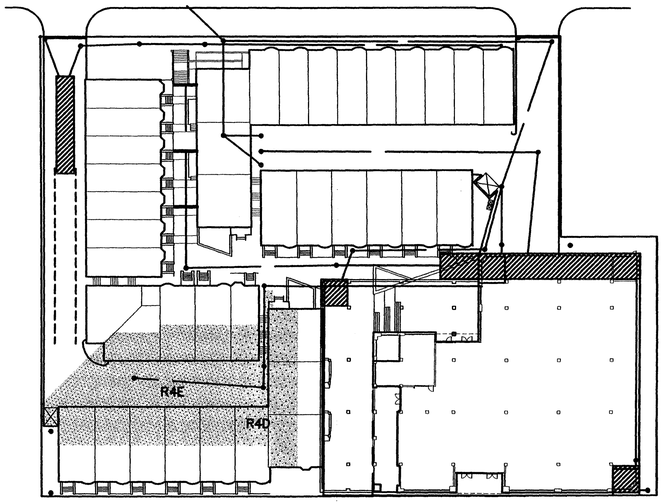
H:\Eng\27463\27463SCH.dwg Thu Apr 27 16:34:49 2000



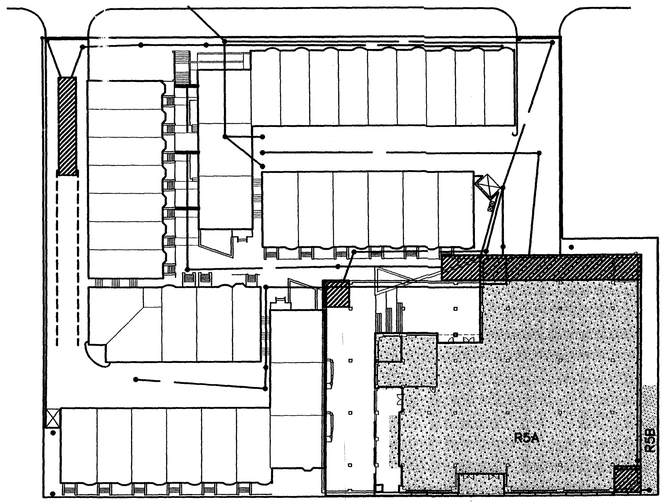
DRAINAGE AREA FOR TANK R-2A



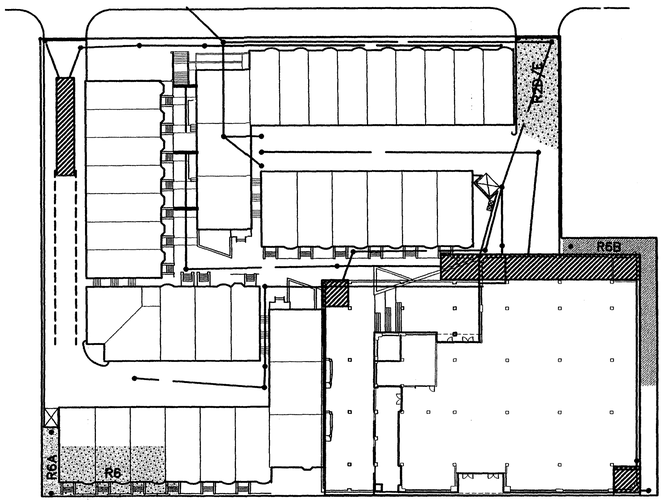
DRAINAGE AREA FOR TANK R-3A



DRAINAGE AREA FOR TANK R-4A



DRAINAGE AREA FOR TANK R-5A



DRAINAGE AREA FOR NON TANK AREAS

LEGEND

- LIGHT POLE
- UTILITY POLE
- GUY ANCHOR
- HYDRANT
- POST
- COLUMN
- GATE VALVE
- SIGN
- PILING
- GRAVEL
- FENCE
- CONCRETE
- ASPHALT
- EXISTING STORM
- EXISTING SANITARY
- EXISTING WATER
- EXISTING GAS
- EXISTING ELECTRIC
- EXISTING TELEPHONE
- WATER STOPBOX
- HANDHOLE
- TC = TOP OF CURB
- TR = TOP OF RAIL

BENCHMARK N. RIM OF STORM MANHOLE ON SOUTH ASHLEY ST. ELEV.=810.11: SPIKE IN EAST SIDE UTILITY POLE NEAR CORNER LOT 5, 6, 11 & 12 ELEV.=836.11: STEAMER VALVE ON HYDRANT EASTERLY OF S. MAIN ST ELEV=842.64.

REVISIONS 10-30-98 CJC PER RJW; 11-12-98 PJT PER RJW; 11-20-98 DJH PER CFZ. 12-16-98 DJH (TOPO ADD.) 4-8-99 CJC (TOPO ADD.), 7-2-99 PC SUB-3, 7-19-99 PC SUB-4 11-16-99 ENG REVIEW: 01-18-00 A2ENG/WCDC: 03-24-00 PRECONST

SCALE

HORIZONTAL: 1 INCH = 40 FEET

PREPARED BY Robert Wanty
ROBERT J. WANTY P.E., MICH No. 28666

UNDERGROUND UTILITY LOCATIONS WERE TAKEN FROM EXISTING PLANS. LOCATIONS WERE FIELD VERIFIED WHERE POSSIBLE.

72 HOURS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

STATE OF MICHIGAN
ROBERT J. WANTY
ENGINEER
No. 28666
REGISTERED PROFESSIONAL ENGINEER

WASHTENAW ENGINEERING
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3250 WEST LIBERTY RD ANN ARBOR, MICHIGAN 48106
TEL: 734-662-6800 FAX: 734-662-9350
washtenaw_engineering@msn.com

DRAINAGE MAPS

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY • MICHIGAN

DESIGN DSH
DRAWN DSH, DJH
CHECK RJW
DATE 10-21-98
DWG NO. \ENG\27463-D
FIELD BOOK NONE
JOB NO. 27463
FILE NO. PROJECT
SHEET 14 OF 14

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TEMPORARY SEEDING WITH MULCH BLANKET SHALL BE USED ALONG WEST EDGE OF SITE TO PREVENT SOIL EROSION DUE TO STEEP SLOPES

Maintain Traveled way with 2" Crushed Limestone

Construction Entrance

Construction Trailer

Provide swale to divert water to basin

Place silt fence around perimeter of all Piles of soil 5' or greater

Dirt Pile

Install Sediment / Infiltration Basin 80' x 35' x 5' deep. Place ODOT #2 on Bottom of Basin 2.5' deep

Check dams shall be installed every 25'.

Diversion Ditch, 2' wide bottom, See attached Detail

MUD TRACKING SURFACE, SEE SHEET 6 FOR DETAIL

PROPOSED 100 YEAR FLOODPLAIN 814.9

PROPOSED RETAINING WALL

PROPOSED OFFICE BUILDING FF 840.25

SOUTH ASHLEY STREET (60 FT. WIDE)

SOUTH MAIN STREET (82.5 FT. WIDE)

UNDERGROUND UTILITY LOCATIONS WERE TAKEN FROM EXISTING PLANS. LOCATIONS WERE FIELD VERIFIED WHERE POSSIBLE.

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MICHIGAN UNIFIED KEYING SYSTEM

6	SEEDING WITH MULCH AND/OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGEWAYS WITH LOW VELOCITY EASILY IN SMALL QUANTITIES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL BED
15	PAVING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT – INCREASES RUNOFF VOLUME AND VELOCITY IRREGULAR SURFACE WILL HELP SLOW VELOCITY
16	CURB & GUTTER	KEEPS HIGH VELOCITY RUNOFF ON PAVED AREAS FROM LEAVING PAVED – PAVED SURFACE COLLECTS AND CONDUCTS RUNOFF TO ENCLOSED DRAINAGE SYSTEM OR – PREPARED DRAINAGEWAY
35	STORM SEWER	SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM – PAVED AREAS CAN ACCEPT LARGE CONCENTRATIONS OF RUNOFF CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL – LOCATION USE CATCH BASINS TO COLLECT SEDIMENT
51	RETAINING WALL	REDUCES GRADIENT WHERE SLOPES ARE EXTREMELY STEEP PERMITS RETENTION OF EXISTING VEGETATION, KEEPING SOIL STABLE IN – CRITICAL AREAS MINIMIZES MAINTENANCE
55	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR POLES MAY BE CONSTRUCTED OR PRE PACKAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY

(t) TEMPORARY EROSION CONTROL MEASURE
(P) PERMANENT EROSION CONTROL MEASURE
------ SILT FENCE
GEOTEXTILE INLET FILTER
INLET FILTER

NOTE:
FOR S.E.C. NOTES & DETAILS, SEE SHEET 6.

CHECK DAMS

PLAN VIEW

L = DISTANCE BETWEEN CHECK DAMS, SUCH THAT POINTS A AND B ARE AT EQUAL ELEVATIONS

CROSS-SECTION

COARSE AGGREGATE OR SAND BAGS MAY BE USED

SECTION A–A

NOTE: CHECK DAMS GREATER THAN TWO FEET IN DEPTH MAY SERIOUSLY IMPACT THE FLOW CHARACTERISTICS OF THE DITCH.

SECTION B–B

OAKLAND COUNTY DRAIN COMMISSIONER
EROSION AND SEDIMENTATION CONTROL DETAILS

CHECK DAMS

GEORGE W. KUHN
OAKLAND COUNTY DRAIN COMMISSIONER

Effective 1/01/90 | DETAIL E - 3 | SHEET 1 OF 2

LEGEND

- ☼ = LIGHT POLE
- ⌀ = UTILITY POLE
- ▷ = GUY ANCHOR
- ♂ = HYDRANT
- ○ = POST
- ○ = COLUMN
- ⊗ = GATE VALVE
- ⊶ = SIGN
- • = PILING
- = GRAVEL
- = FENCE
- = CONCRETE
- = ASPHALT
- = EXISTING STORM
- = EXISTING SANITARY
- = EXISTING WATER
- = EXISTING GAS
- = EXISTING ELECTRIC
- = EXISTING TELEPHONE
- WV = WATER STOPBOX
- ⊙ = HANDHOLE
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SCALE HORIZONTAL: 1 INCH = 20 FEET

PREPARED BY Robert Wanty
ROBERT J. WANTY P.E. MICH NO. 28666

STATE OF MICHIGAN · ROBERT J. WANTY · ENGINEER · No. 28666 · REGISTERED PROF. ENGINEER

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TEL. 734-761-8800 FAX. 734-761-9530
washtenaw-engineering.com

EROSION CONTROL PLAN
Ammendments

CLIENT ASHLEY MEWS

SECTION 29 TOWN 2 SOUTH RANGE 6 EAST
CITY OF ANN ARBOR
WASHTENAW COUNTY • MICHIGAN

DESIGN DJH | DATE 12-23-98
DRAWN DJH | DWG NO. ENG 27463EROS
CHECK RJW | FIELD BOOK NONE
JOB NO. 27463
FILE NO. PROJECT

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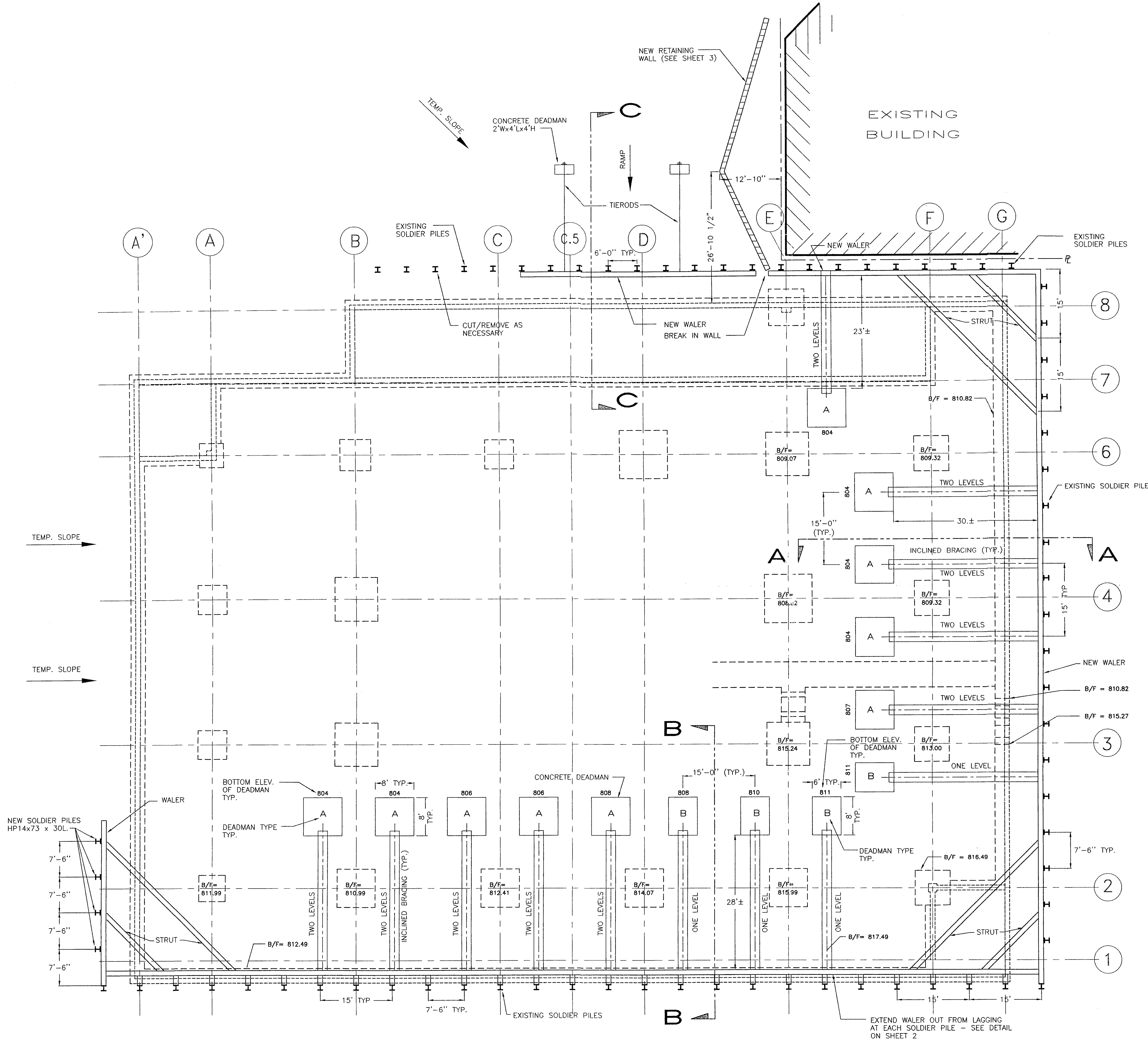


NOTES

1. All soldiers piles are existing, except for those new pile shown at the southeast corner of the building.

2. Existing walers, struts and rakers should be removed to install new bracing. Existing deadman which conflicts with the new bracing or foundations should also be removed and backfilled with compacted sand fill.

3. All walers, struts and rakers shall consist of an HP14x73 pile section (Section Modulus = 107 in3 per lineal foot) as noted, or approved equivalent.

4. The new solider piles may be installed by driving or drilling methods. If drilling methods are used, the annular space should be backfilled with a concrete (f'c=3,000 psi) to the bottom of the excavation and then with sand to the ground surface.

5. Existing lagging should be left in-place where practical. New lagging should be installed on front face of the existing soldier piles. Care should be taken not to allow sand soils to run from the face of the excavation during installation of new lagging. Any voids behind the lagging shall be filled with soil or lean concrete.

6. All new wood lagging shall be a nominal 3 inches in thickness and consist of mixed hardwood materials except for the west wall. Lagging for the west wall shall consist of pressure treated southern yellow pine.

7. All waler miscellaneous plates, angles, channels, and other structural shapes shall conform to ASTM A 36. Bolts shall conform to ASTM A-325. Threaded tierods should be ASTM A-615 (GRADE 75).

8. Welding electrodes shall conform to the requirements of AWS A5.1, Class E70 or approved equal.

9. All welding shall conform to AWS D1.1 Code for Welding in Building Construction.

10. All dimensions shown are approximate. The layout for the struts, rakers and deadmen should conform to the project plans so as provide the least interference with the new construction as possible. Verify location of the existing utilities or other potential obstructions before installing piling or performing excavation.

soil and materials engineers, inc.

BAY CITY · KALAMAZOO · LANSING · PLYMOUTH · TOLEDO

Revision Record
DATE: 11-12-99 DESCRIPTION: FOR CONSTRUCTION

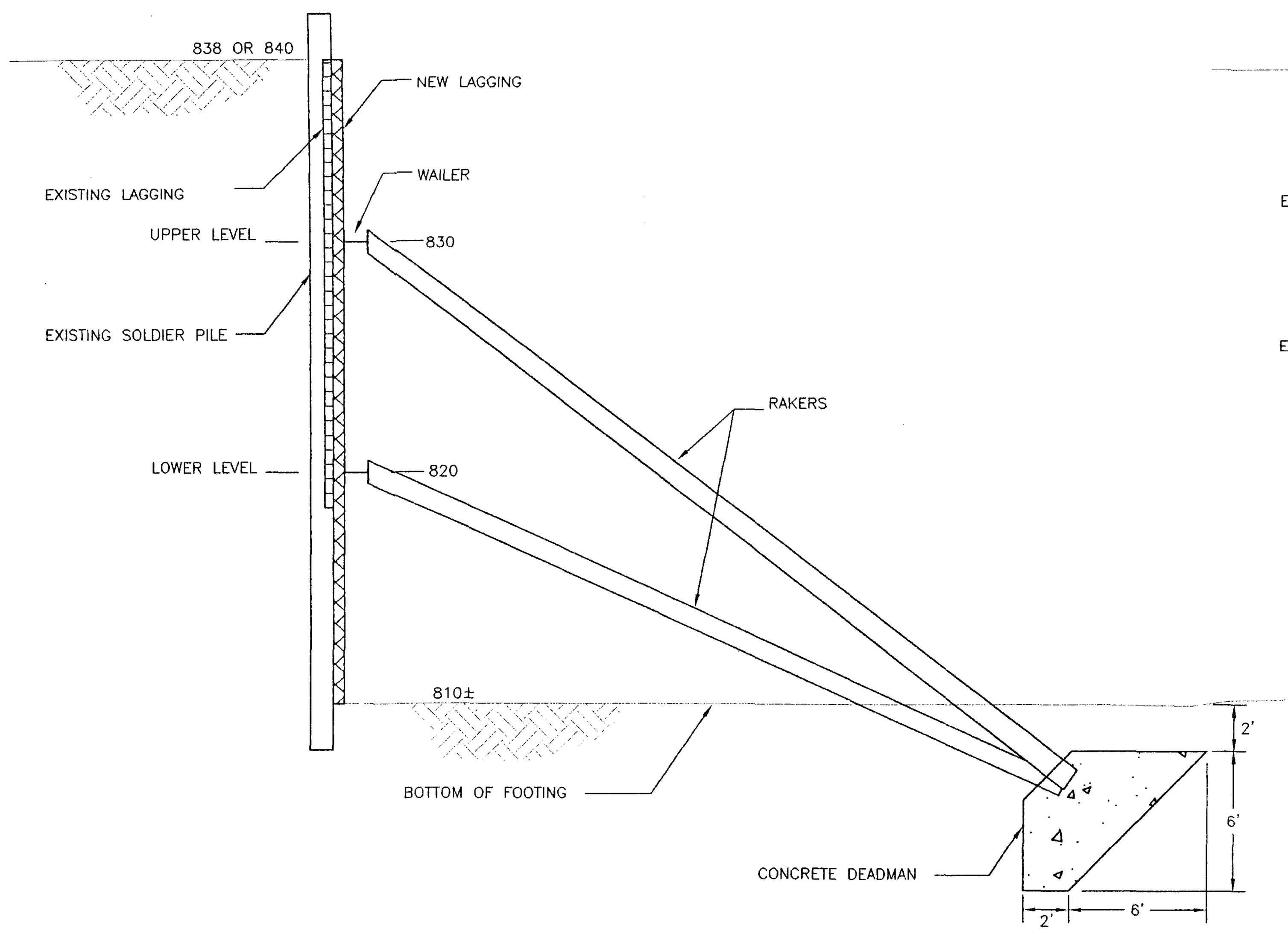
Drawing Record
DATE DRAWN: 10-13-99
SCALE: 1" = 10'
DRAFTER: ARR
CHECKED BY: THB
DATE: 10-13-99

Sheet Title
SHEETING AND BRACING PLAN

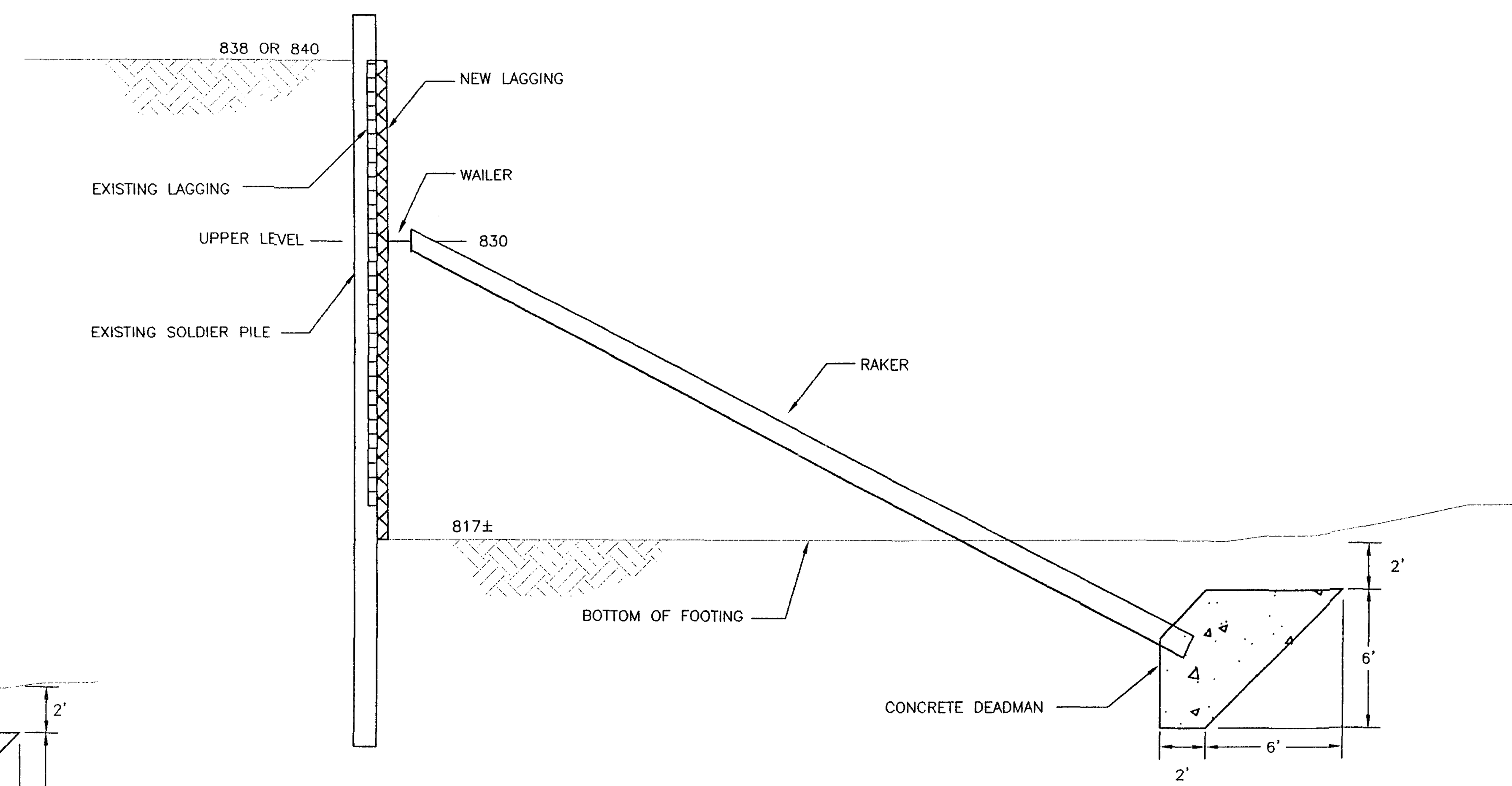
Project Title
ASHLEY MEWS
ANN ARBOR, MICHIGAN

Project Record
JOB: PG 34452
FILE: H:34452-01
PLOT DATE: 10-15-99

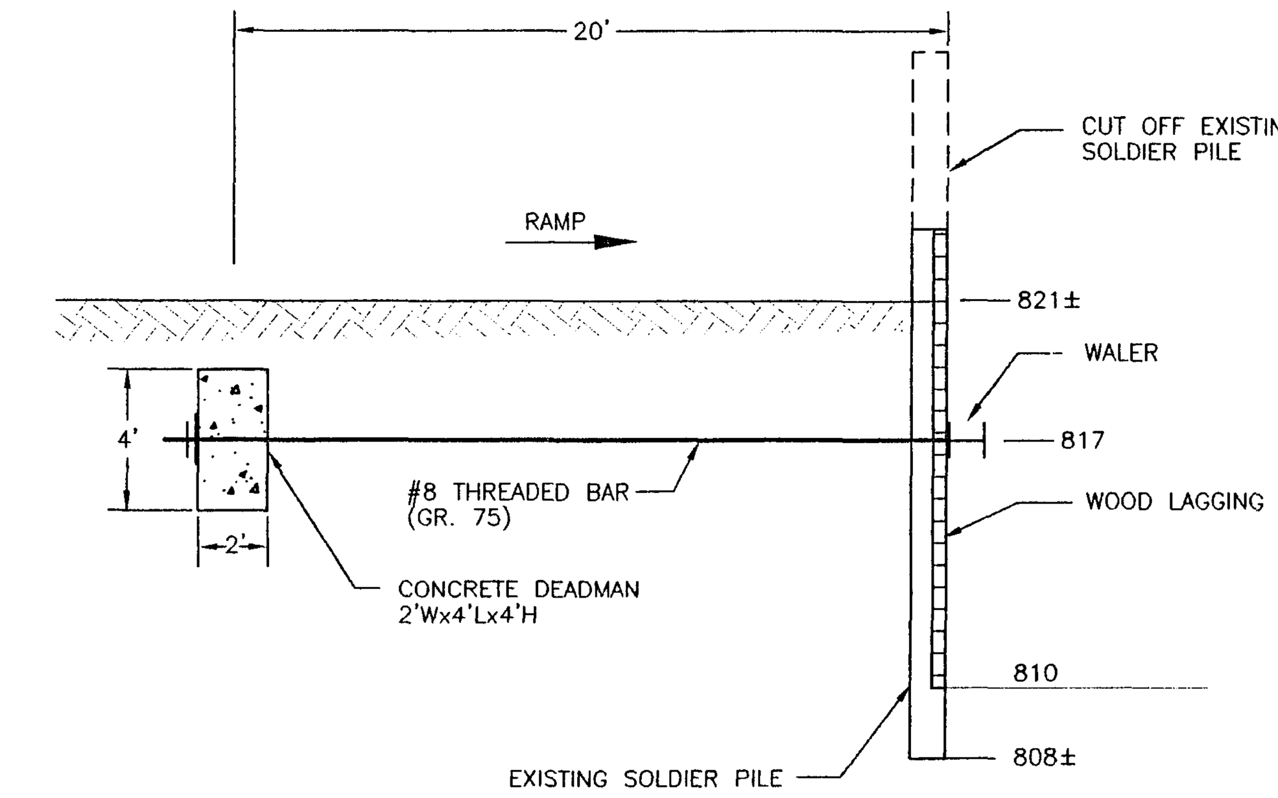
Sheet No.
1
3



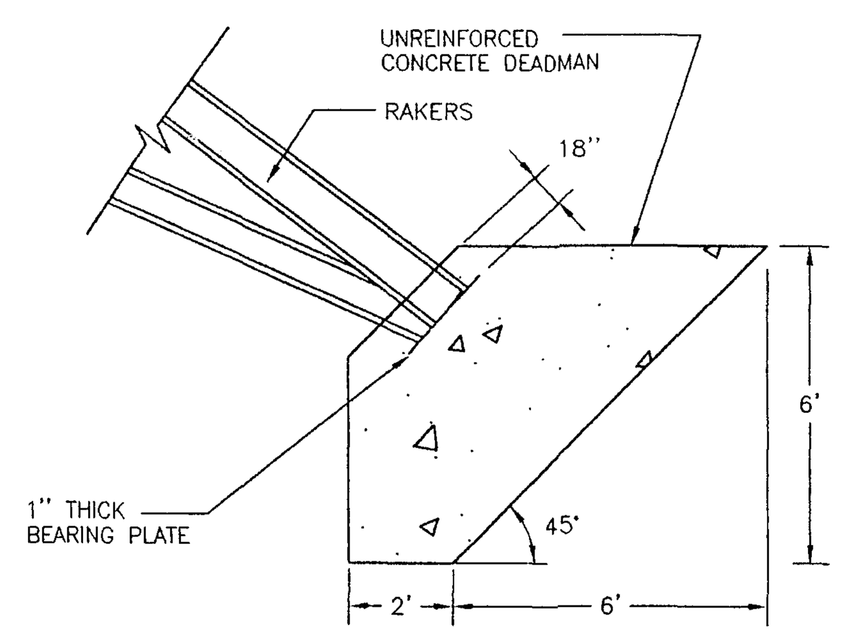
SECTION A – A
(TWO LEVELS OF BRACING)



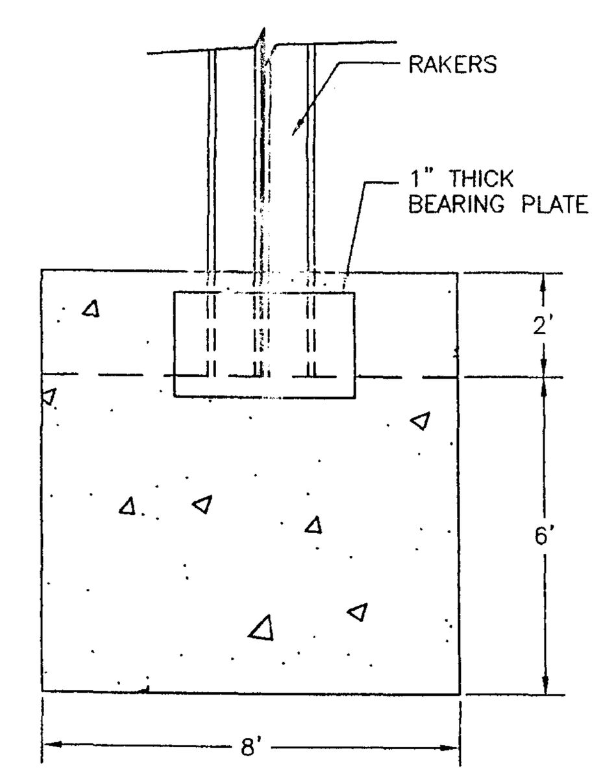
SECTION B – B
(ONE LEVEL OF BRACING)



SECTION C – C

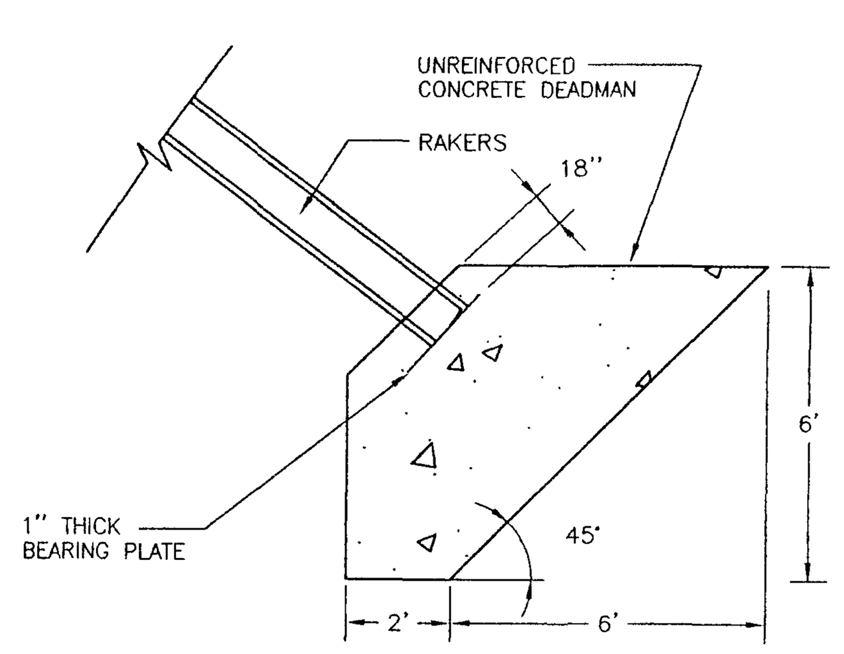


SIDE VIEW

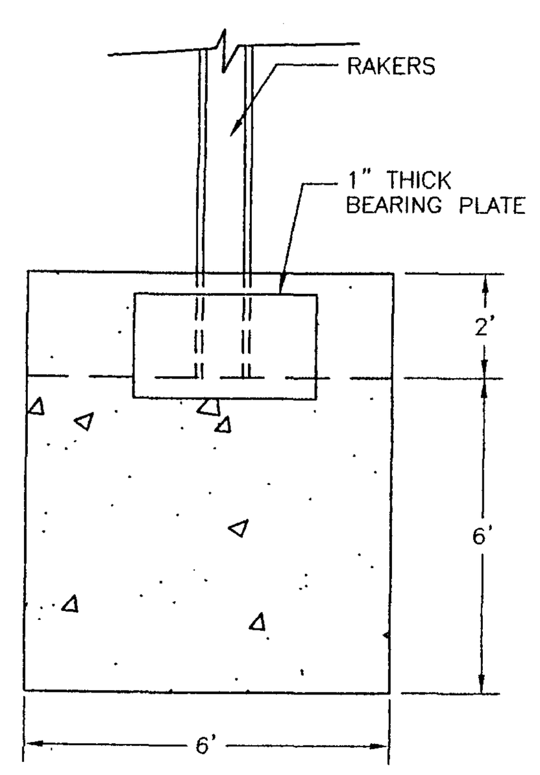


TOP VIEW

TWO LEVELS OF BRACING
TYPE A DEADMAN

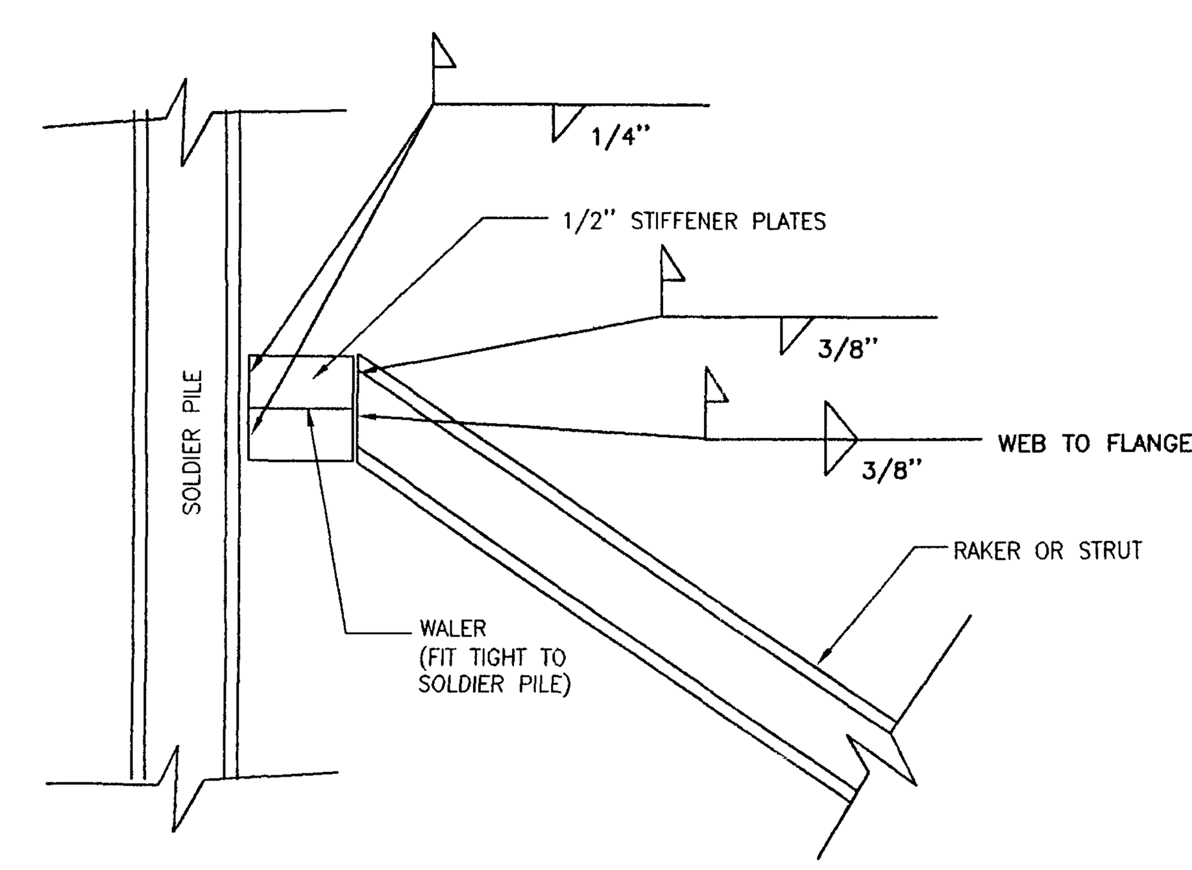


SIDE VIEW

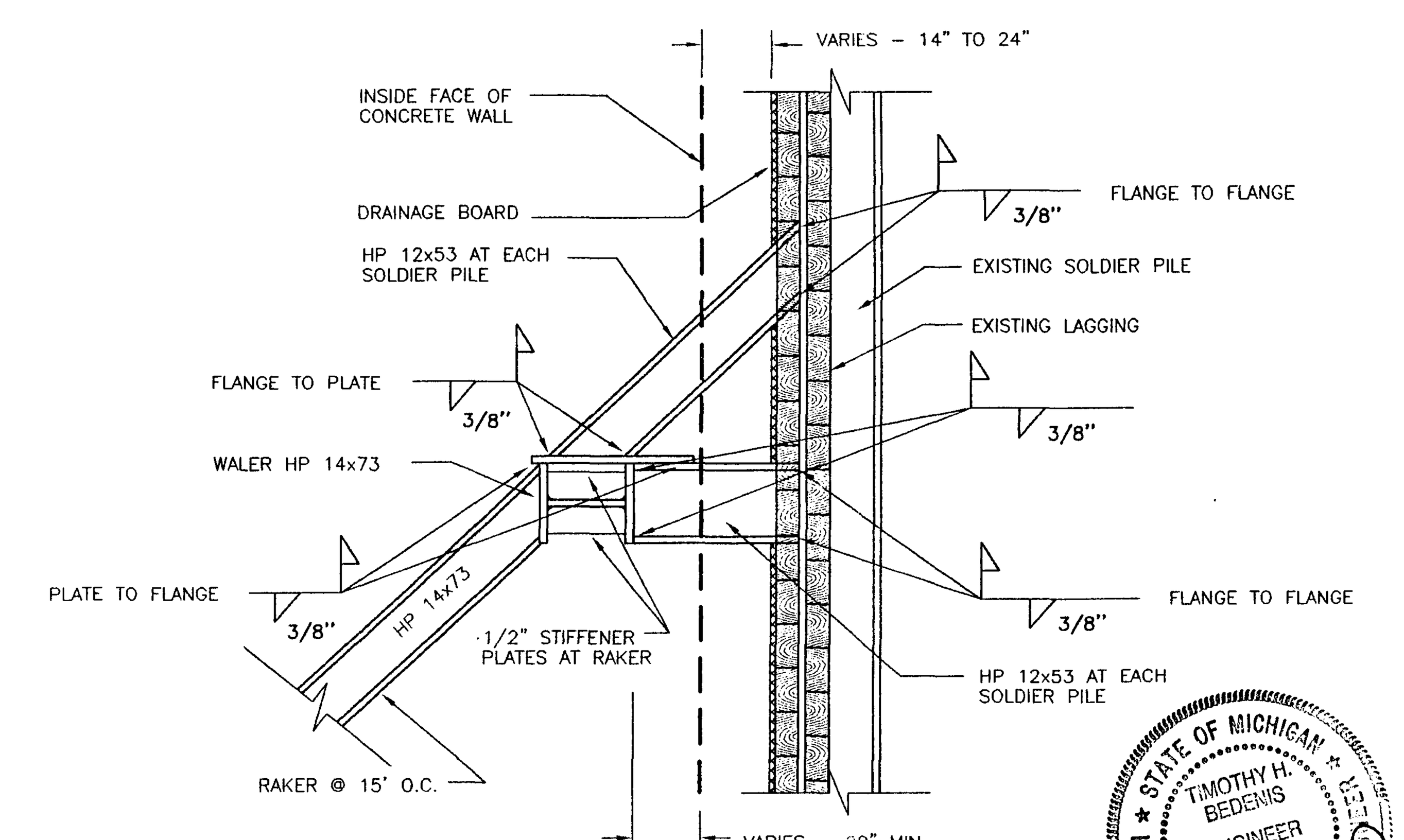


TOP VIEW

ONE LEVEL OF BRACING
TYPE B DEADMAN



TYPICAL WALER/RAKER CONNECTION
(SIDE VIEW)



WALER EXTENSION – EAST SIDE
(SIDE VIEW)

STATE OF MICHIGAN
TIMOTHY H. BEDENIS
ENGINEER
No. 32012
LICENSED PROFESSIONAL ENGINEER

soil and materials engineers, inc.

BAY CITY · KALAMAZOO · LANSING · PLYMOUTH · TOLEDO

Revision Record	
DATE: 11-12-99	DESCRIPTION: FOR CONSTRUCTION

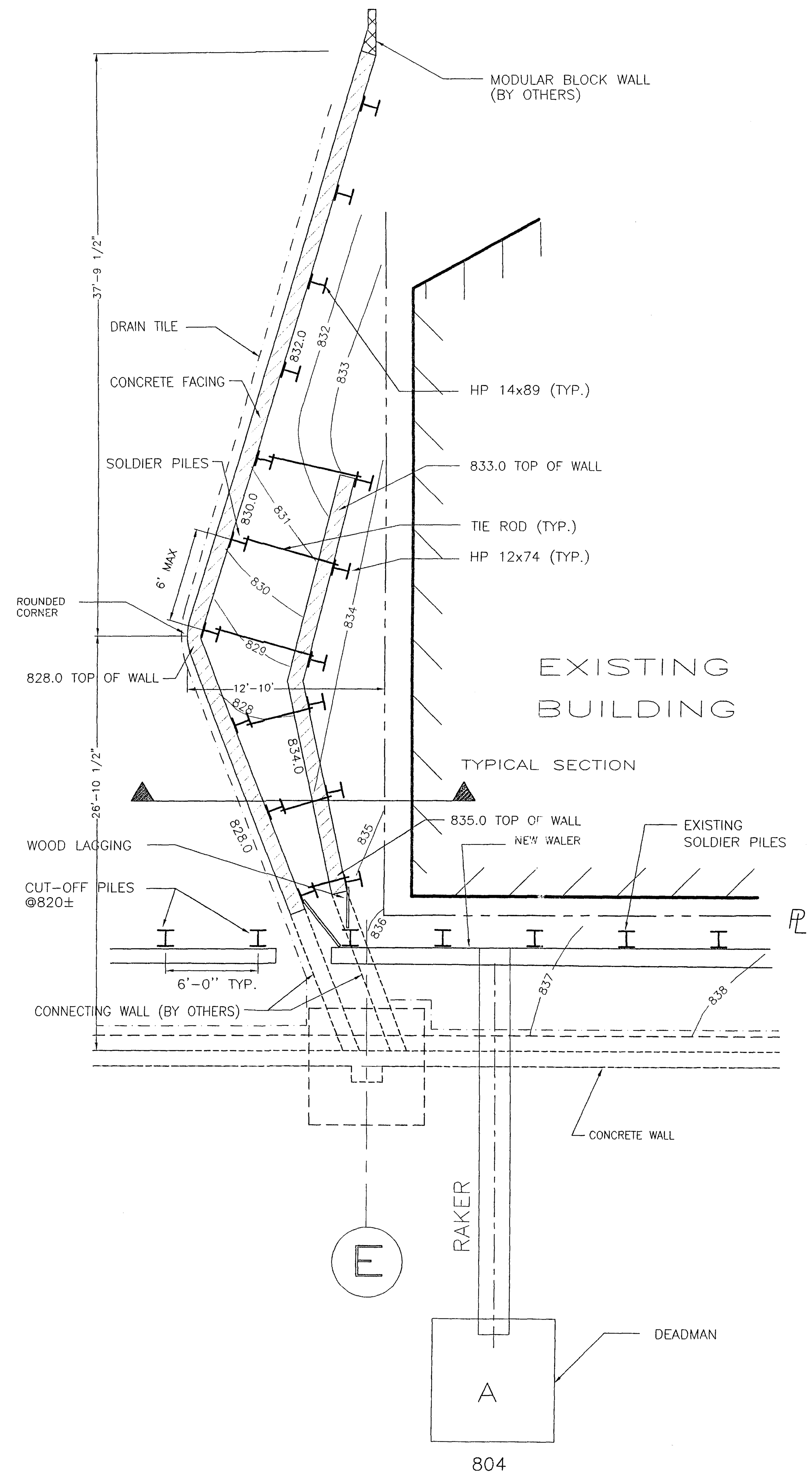
Drawing Record	
DATE DRAWN	10-15-99
SCALE:	NTS
DRAFTER:	ARR
CHECKED BY:	THB
DATE:	10-15-99

Sheet Title
SECTIONS AND DETAILS

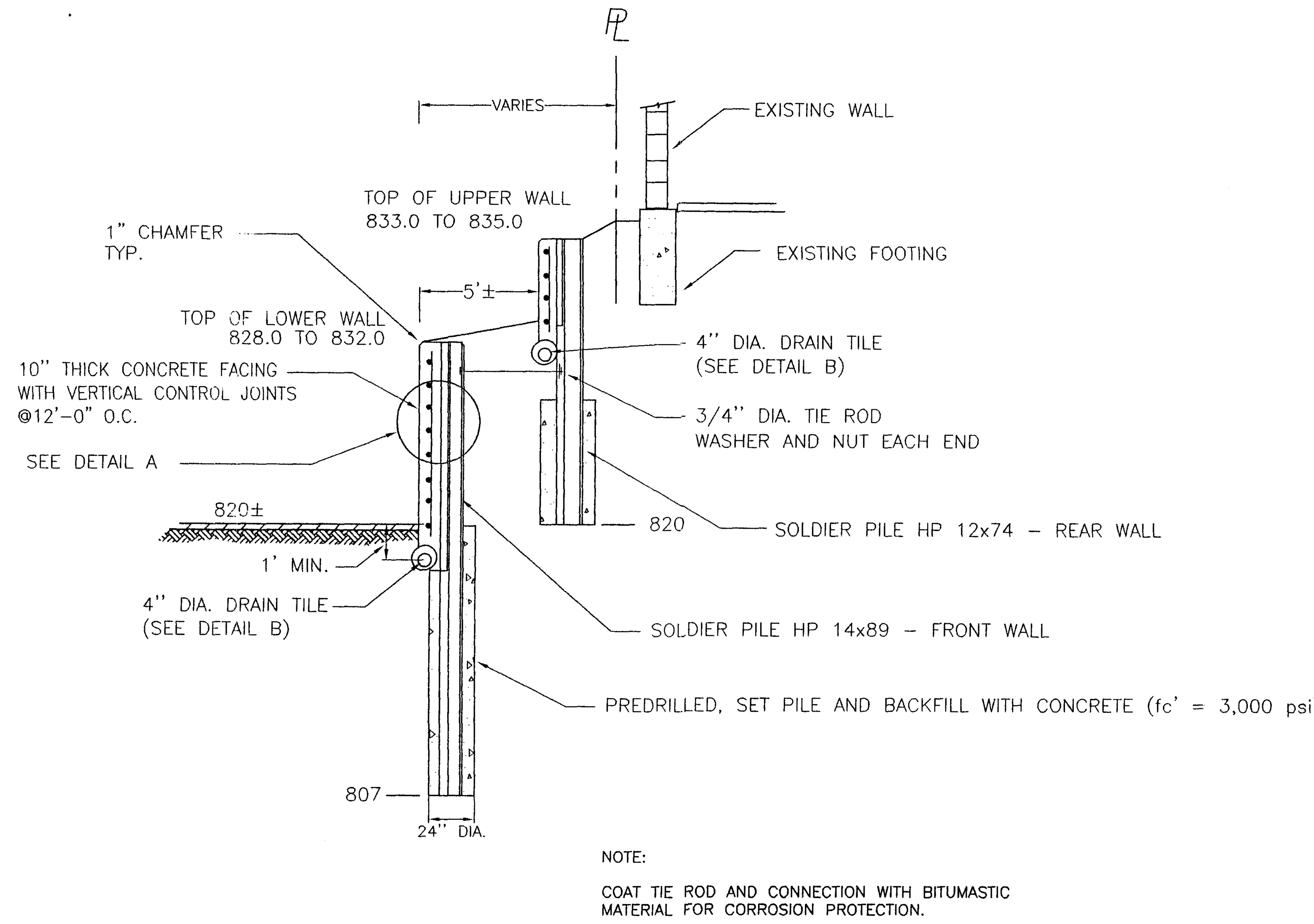
Project Title
ASHLEY MEWS
ANN ARBOR, MICHIGAN

Project Record
JOB: PG 34452
FILE#: 34452-02
PLOT DATE: 10-15-99

Sheet No.
2

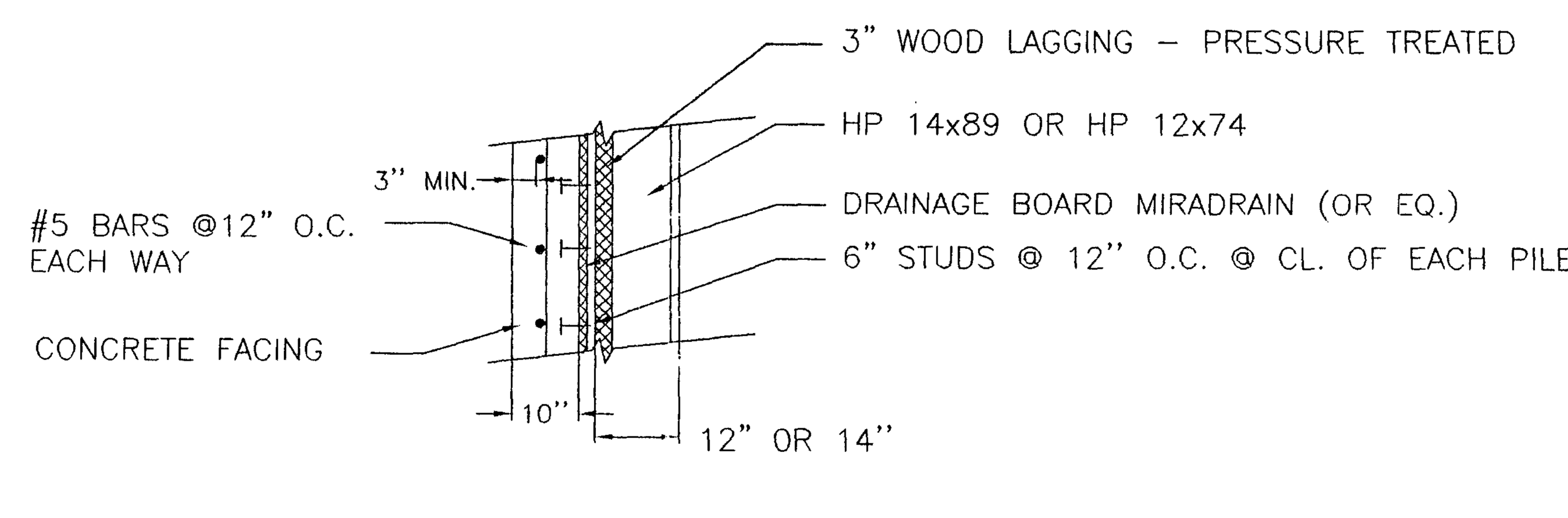


WEST RETAINING WALL PLAN
SCALE: 1" = 5'

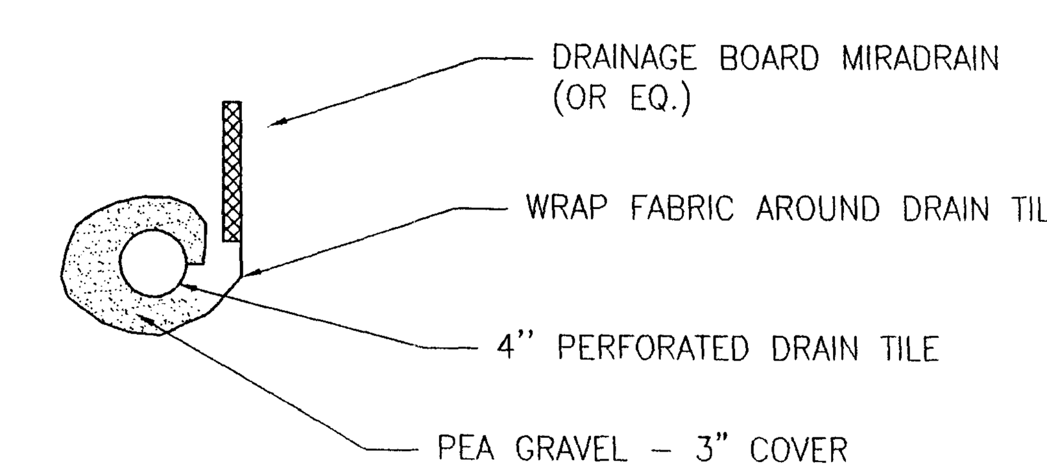


NOTE:
COAT TIE ROD AND CONNECTION WITH BITUMASTIC MATERIAL FOR CORROSION PROTECTION.

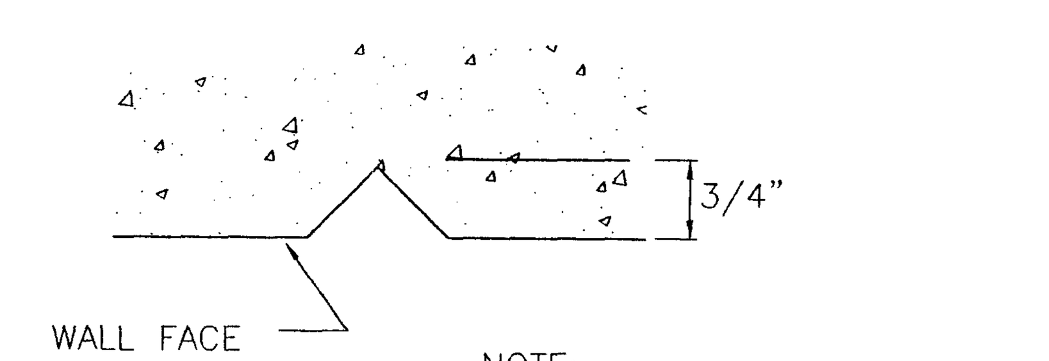
TYPICAL SECTION
N.T.S.



DETAIL A
N.T.S.



DETAIL B
N.T.S.



NOTE:
CONTROL JOINTS AT 12'-0" O.C.

CONTROL JOINT DETAIL
N.T.S.

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Revision Record

DATE:	DESCRIPTION:
11-08-99	FOR REVIEW
11-12-99	FOR CONSTRUCTION

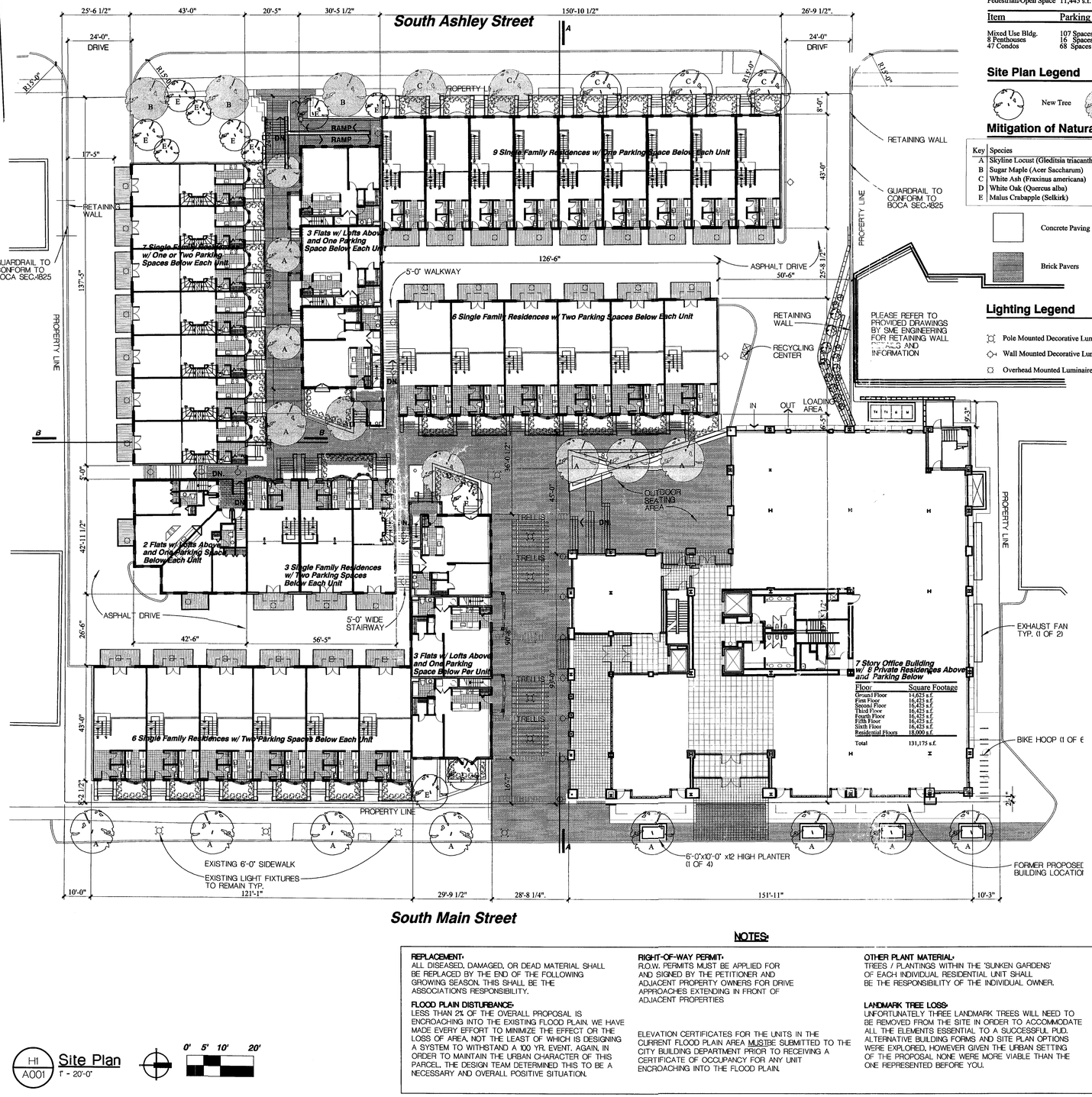
Drawing Record
DATE DRAWN: 11-5-99
SCALE: AS NOTED
DRAFTER: ARR
CHECKED BY: THB
DATE: 11-5-99

Sheet Title
WEST RETAINING WALL PLAN AND DETAILS

Project Title
ASHLEY MEWS
ANN ARBOR, MICHIGAN

Project Record
JOB: PG 34452
FILE: H:34452-03
PLOT DATE: 11-5-99

Sheet No.
3



H1 A001 Site Plan 1" = 20'-0"

0' 5' 10' 20'

Ashley Mews
Site Usage and Parking Provided

Item	Footprint
Site	86,224.5 s.f.
Mixed Use Bldg.	14,625 s.f.
Townhouses	31,164 s.f.
Driveway/Misc.	28,990.5 s.f.
Pedestrian/Open Space	11,445 s.f.

Item	Parking Provided
Mixed Use Bldg.	107 Spaces
8 Penthouses	16 Spaces
47 Condos	68 Spaces

Site Plan Legend

New Tree — Replacement Tree Required

Mitigation of Natural Features : Landmark Trees

Key	Species	#	Caliper	Root Type	Total Diameter
A	Skyline Locust (Gleditsia triacanthos)	16	3"-3 1/2"	Balled & Burlapped	104" - 111"
B	Sugar Maple (Acer Saccharum)	3	3"-3 1/2"	Balled & Burlapped	
C	White Ash (Fraxinus americana)	5	3"-3 1/2"	Balled & Burlapped	
D	White Oak (Quercus alba)	1	3"-3 1/2"	Balled & Burlapped	
E	Malus Crabapple (Selkirk)	11	2"-2 1/2"	Balled & Burlapped	

Concrete Paving

Brick Pavers

Landmark Tree	#	Diameter	Total Diameter
Maple	1	22"	84"
Maple	1	32"	
Ash	1	30"	

Replacement Diameter Required by Chapter 575:127.1.d.i.
50% x 84" = 42" min replacement tree combination
50% x 22" (Maple) = 11" min replacement tree
50% x 32" (Maple)= 16" min replacement tree
50% x 30" (Ash)= 15" min replacement tree

Lighting Legend

Pole Mounted Decorative Luminaire, 10'-0" high

Wall Mounted Decorative Luminaire, 10'-0" high

Overhead Mounted Luminaire, height varies

Comparison Chart

	Existing		Proposed		
Zoning	C2A	R4C/D	P.U.D.		
Gross Lot Area	21,129 s.f.	42,637 s.f.	86,224.5 s.f.		
Maximum Usable Floor Area	400% (600%) w/ premium	N/A	Townhouses: 31,836 s.f. coverage; 89,020 s.f. total	Mixed Use Component: 14,625 s.f. (First Floor ONLY); 131,175 s.f. (TOTAL)	
			255% (CALCULATED)		
Minimum Lot Area Per Dwelling	N/A	580 s.f.	1540 s.f. /unit (86,224.5 sf./ 56 units)		
Minimum Usable Open Space	N/A	40%	12.5% (10,773 s.f./86,224.5 s.f.)		
Setback: Front Main St.	0	25 ft.	6'-0" Min. (10'-0" TYPICAL)	5'-0" Max.	
Setback: Front Ashley St.	0	25 ft.	8'-0" Min.	125'-0" Min.	
Setback: Side North			26'-0" Min. 46'-6" Max.	10'-0" Min.	
Setback: Side South			10'-2" Min. 46'-6" Max.	10'-0" Min.	
Setback: Side (Least One)	N/A	10 ft.	N/A	N/A	
Setback: Side (Total of Two)	N/A	30 ft.	N/A	N/A	
Parking Required	N/A	1.5 /Unit	1.48 Space/Unit average	Residences: 2.6 Space/Unit	Office: 1 Space/838 s.f.
Maximum Height	N/A	N/A	32' Estimated	115'-4" Estimated	

Project Description

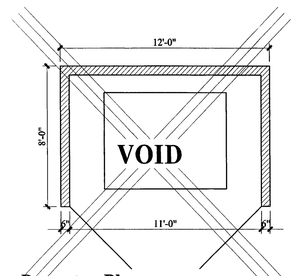
ASHLEY MEWS PLANNED UNIT DEVELOPMENT HAS BEEN DESIGNED TO ENHANCE THE URBAN CHARACTER OF SOUTH MAIN STREET AND SERVE AS A LINK TO THE ADJACENT OLD WEST SIDE NEIGHBORHOOD.

THE THREE MAJOR COMPONENTS OF ASHLEY MEWS ARE:

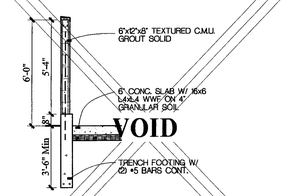
- MIXED USE COMPONENT
-- AS PROPOSED, THE MIXED USE COMPONENT HAS GROUND FLOOR RETAIL SPACES WITH LARGE STOREFRONT WINDOWS. THE FIRST THROUGH SIXTH FLOORS ARE DESIGNED AS OFFICE SPACE WITH VIEWS TO THE SURROUNDING CITY. THE SEVENTH AND EIGHTH FLOORS ARE RESIDENTIAL UNITS WITH BALCONIES SET BACK FROM THE (OFFICE) BUILDING FACADE. GREAT CARE HAS BEEN TAKEN TO SYNTHESIZE THE MIXED USE COMPONENT INTO THE URBAN FABRIC.

- BROWNSTONE RESIDENTIAL COMPONENT
-- THE 'NEIGHBORHOOD' CONSISTS OF 48 RESIDENTIAL UNITS RANGING FROM ONE-STORY ACCESSIBLE FLATS TO THREE-STORY TOWN - HOMES. THE INTENT WAS TO CREATE AN URBAN LIVING ENVIRONMENT WHILE STILL RETAINING THE SCALE OF THE OLD WEST SIDE.

- PEDESTRIAN LINK COMPONENT
-- THE 'MEWS' SERVES AS A PEDESTRIAN LINK BETWEEN BUSY MAIN STREET AND THE MORE SUBDUED ASHLEY STREET. RICH IN TEXTURE THE MEWS HAS PEDESTRIAN PATHS, AN OUTDOOR SEATING AREA, AND BRICK PAVING ALL TO CREATE A PLEASING AND SAFE ENVIRONMENT IN WHICH TO WORK AND LIVE.



Dumpster Plan
Scale: 1/4"=1'-0"



Dumpster Wall Section
Scale: 1/4"=1'-0"

Community Analysis

PLEASE SEE THE 8-1/2"x11" BOUND PETITION FOR A COMPLETE ANALYSIS

Natural Features Analysis

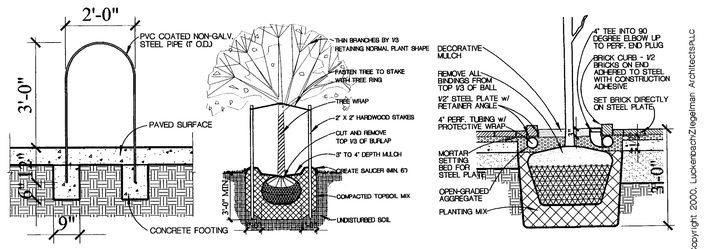
THE NATURAL FEATURES OF THE 198 ACRE SITE ARE RELATIVELY FEW AS THE PROPERTIES HAVE BEEN NEGLECTED FOR SOME TIME.

THERE IS A SIGNIFICANT SLOPE ON THE SITE FALLING EAST TO WEST 27 FEET. IT IS THE INTENTION OF THE ARCHITECTS TO MAINTAIN AND ENHANCE THIS FEATURE BY MAKING A FOCUS OF THE MEWS' WEST OF SOUTH ASHLEY.

THERE ARE THREE LANDMARK TREES ON THE UNDEVELOPED SITE ALL OF WHICH ARE IN FAIR CONDITION. PLEASE SEE TOPOGRAPHIC SURVEY FOR LOCATIONS.

THE EXTENT OF THE PROPOSED P.U.D. WILL CAUSE THE REMOVAL OF THE THREE TREES DUE TO THEIR PROXIMITY TO THE CONSTRUCTION SITE AND THEIR SLIM CHANCE OF SURVIVAL. THE MEWS, WHILE PRIMARILY HARDSCAPE, WILL HAVE TREES PLANTED AT REGULAR INTERVALS TO FURTHER ENHANCE THE RICH URBAN TEXTURE.

Typical Planting Details



Bicycle Hoop
Scale: 1/2"=1'-0"

NOTES:

REPLACEMENT:
ALL DISEASED, DAMAGED, OR DEAD MATERIAL SHALL BE REPLACED BY THE END OF THE FOLLOWING GROWING SEASON. THIS SHALL BE THE ASSOCIATION'S RESPONSIBILITY.

FLOOD PLAIN DISTURBANCE:
LESS THAN 2% OF THE OVERALL PROPOSAL IS ENCROACHING INTO THE EXISTING FLOOD PLAIN. WE HAVE MADE EVERY EFFORT TO MINIMIZE THE EFFECT OR THE LOSS OF AREA, NOT THE LEAST OF WHICH IS DESIGNING A SYSTEM TO WITHSTAND A 100 YR. EVENT, AGAIN, IN ORDER TO MAINTAIN THE URBAN CHARACTER OF THIS PARCEL. THE DESIGN TEAM DETERMINED THIS TO BE A NECESSARY AND OVERALL POSITIVE SITUATION.

RIGHT-OF-WAY PERMIT:
R.O.W. PERMITS MUST BE APPLIED FOR AND SIGNED BY THE PETITIONER AND ADJACENT PROPERTY OWNERS FOR DRIVE APPROACHES EXTENDING IN FRONT OF ADJACENT PROPERTIES

ELEVATION CERTIFICATES FOR THE UNITS IN THE CURRENT FLOOD PLAIN AREA MUST BE SUBMITTED TO THE CITY BUILDING DEPARTMENT PRIOR TO RECEIVING A CERTIFICATE OF OCCUPANCY FOR ANY UNIT ENCROACHING INTO THE FLOOD PLAIN.

OTHER PLANT MATERIAL:
TREES / PLANTINGS WITHIN THE 'SUNKEN GARDENS' OF EACH INDIVIDUAL RESIDENTIAL UNIT SHALL BE THE RESPONSIBILITY OF THE INDIVIDUAL OWNER.

LANDMARK TREE LOSS:
UNFORTUNATELY THREE LANDMARK TREES WILL NEED TO BE REMOVED FROM THE SITE IN ORDER TO ACCOMMODATE ALL THE ELEMENTS ESSENTIAL TO A SUCCESSFUL PUD. ALTERNATIVE BUILDING FORMS AND SITE PLAN OPTIONS WERE EXPLORED, HOWEVER GIVEN THE URBAN SETTING OF THE PROPOSAL NONE WERE MORE VIABLE THAN THE ONE REPRESENTED BEFORE YOU.

Seal

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Consultant

Project
Ashley Mews
Ann Arbor, Michigan

Sheet
Site Plan

Revisions
4-10-00

Drawn By
EBH

Approved By
CL

Date Issued
3-31-00
4-10-00

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