MADISON WATER UTILITY

MADISON, WISCONSIN

CONTRACT NO. 7821, PROJECT NO. 10445

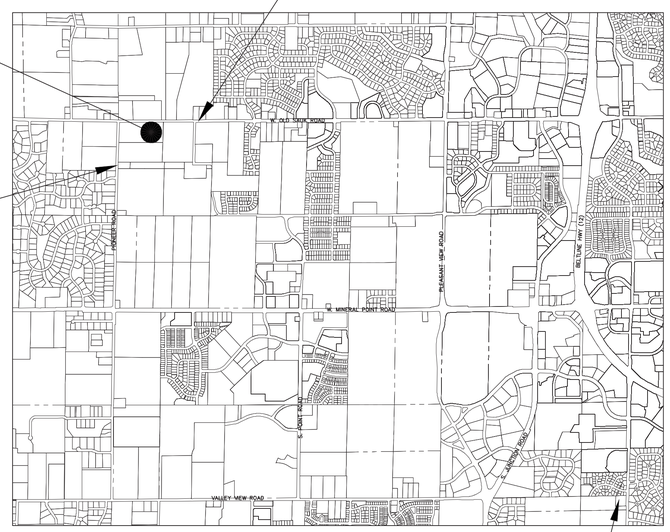
BLACKHAWK WATER TOWER

Madison Water Utility

PROJECT LOCATION:
10451 OLD SAUK ROAD

CONSTRUCTION TRAFFIC TO USE OLD SAUK ROAD (FROM EAST)

NO CONSTRUCTION TRAFFIC ON PIONEER ROAD



VICINITY MAP

NO SCALE

EXISTING ELEVATED TANK 126
910 S. HIGH POINT ROAD.
(SEE SHT. M-6 FOR NEW ALTITUDE VALVE INSTALLATION & OUTLET PIPE MODIFICATIONS)

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EXISTING UTILITIES:

WHERE THE DRAWINGS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATION OF SUCH UTILITIES. THE INFORMATION IS INCLUDED ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. THE UTILITY LOCATIONS WERE DETERMINED FROM THE BEST AVAILABLE RECORDS. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATEVER WITH RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE DRAWINGS REGARDING THE LOCATION OF UNDERGROUND UTILITY FACILITIES OR THE MANNER IN WHICH THEY ARE TO BE REMOVED OR ADJUSTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES. THE CONTRACTOR SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION REGARDING THE LOCATION OF THE UTILITY FACILITIES AND THE WORKING SCHEDULES OF THE UTILITY COMPANIES FOR REMOVING OR ADJUSTING THE FACILITIES.

TO OBTAIN LOCATION OF PARTICIPANT'S UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE

WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

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WISCONSIN
GERALD D. GROTH
E-23728
MADISON
WIS.
PROFESSIONAL ENGINEER

PROJECT MANAGER

BAXTER & WOODMAN
Consulting Engineers
WWW.BAXTERWOODMAN.COM

BAXTER & WOODMAN, INC.
STATE OF WISCONSIN - PROFESSIONAL DESIGN FIRM
LICENSE NO. - 484-011 - EXPIRES 1/31/2018

PROJECT NO.: 150826.40 DATE: 12/27/16

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\40 - CURRENT\150826 COVER.DWG CVR
Plotted: 12/27/2016 1:14 PM By: 421TLB

LEGEND

EXISTING		PROPOSED
	WORK BOUNDARY FENCE	WBF WBF
	SILT FENCE	SF SF
SA SA	SANITARY SEWER OR SERVICE	SA SA
ST ST	STORM SEWER OR SERVICE	ST ST
W	WATER MAIN	W
WS	WATER SERVICE	WS
FM	FORCE MAIN	FM
	MANHOLE	
	CATCH BASIN	
	INLET	
	DRYWELL	
	FLARED END SECTION	
	FIRE HYDRANT	
WV	WATER VALVE W/ BOX AND COVER	WV
	WATER VALVE VAULT	
BB	WATER SERVICE BOX OR CURB STOP	BB
WM	WATER METER	
CO	CLEAN OUT	
SV	SEPTIC VENT	
	TO BE ABANDONED AND/OR REMOVED	
G	GAS LINE	
GV	GAS VALVE W/ BOX AND COVER	
GVV	GAS VALVE VAULT	
GM	GAS METER	GM
GR	GAS RISER	
GAS	GAS SERVICE VALVE	
T	TELEPHONE CABLE	
TD	TELEPHONE DUCT	
TEL	TELEPHONE VAULT	
TR	TELEPHONE RISER	
TV	CABLE TELEVISION (BURIED)	
CTV	CABLE T.V. RISER	
CTV	CABLE T.V. VAULT	
E	UNDERGROUND ELECTRICAL	
EM	ELECTRIC METER	
ET	PAD MOUNTED TRANSFORMER	
EV	ELECTRIC VAULT	
JB	JUNCTION BOX	
	UTILITY POLE w/ GUY ANCHOR	
	UTILITY POLE w/ LIGHT	
	LIGHT STANDARD	
MB	MAIL BOX	
	STREET SIGN	
	RAILROAD SIGNAL	
	TRAFFIC SIGNAL CONTROLLER	
	TRAFFIC SIGNAL POST W/ SIGNAL HEAD	
	HANDHOLE	
12"	DECIDUOUS TREE (W/ TRUNK INCH DIA.)	(HATCHED SHALL BE REMOVED)
16'	CONIFEROUS TREE (W/ HEIGHT)	(HATCHED SHALL BE REMOVED)
	DECIDUOUS BUSH	
	CONIFEROUS BUSH	
	DEFINING EDGE OF BRUSH OR FORESTED AREA	
X X	FENCE	
	GUARD RAIL	
	CULVERT (CMP UNLESS NOTED)	
	DITCH	
	SUMMIT	
	EDGE OF LAKE, RIVER, ETC.	
	MARSH	
Top Toe	TOP OR TOE OF SLOPE	
742	CONTOUR	742
	EASEMENT	
R.O.W.	RIGHT OF WAY (ROW)	PROP. R.O.W.
X R.O.W. X	FENCED RIGHT OF WAY (ROW)	
ROW	RIGHT OF WAY MONUMENT	
P.L.	UNFENCED PROPERTY LINE	
X P.L. X	FENCED PROPERTY LINE	
IP	IRON PIPE (PROPERTY CORNER)	
	CORPORATE LIMITS	
	BASE LINE OR SURVEY LINE	
	CENTER LINE	
625.35 (625.9)(P,C,C)	PROPOSED EL./(EXISTING EL.) (POINT, GUTTER, TOP OF CURB)	
#	SOIL BORING AND NUMBER	#
B.M.	BENCH MARK	
CP	SURVEY CONTROL POINT	

ABBREVIATIONS

CL	CENTERLINE	R	STRUCTURE TO BE RECONSTRUCTED
CONC	PORTLAND CEMENT CONCRETE	A	STRUCTURE TO BE ADJUSTED
BIT	BITUMINOUS PAVEMENT	▲	CENTRAL ANGLE
GR	GRAVEL	D=	DEGREE OF CURVE
CMP	CORRUGATED METAL PIPE	T=	TANGENT LENGTH
FH	FIRE HYDRANT	L=	CURVE LENGTH
CI	CAST IRON	R=	RADIUS OF CURVE
DI	DUCTILE IRON	E=	EXTERNAL DISTANCE
F-F	FACE-TO-FACE	SE=	SUPERELEVATION (FT. PER FT. OF WIDTH)
E-E	EDGE-TO-EDGE		
B-B	BACK-TO-BACK	X=	EXTERNAL DISTANCE OF VERTICAL CURVE
BM	BENCH MARK		
INV EL	INVERT ELEVATION	PC	POINT OF CURVATURE
CL EL	CENTERLINE ELEVATION	PI	POINT OF INTERSECTION
P	POINT	PT	POINT OF TANGENCY
G	GUTTER	POT	POINT ON TANGENCY
C	CURB	PCC	POINT OF COMPOUND CURVATURE
BC	BACK OF CURB	PRC	POINT OF REVERSE CURVATURE
EOP	EDGE OF PAVEMENT	VC	VERTICAL CURVE
PL	PROPERTY LINE	N&W	NAIL AND WASHER
ROW	RIGHT OF WAY	TCE	TEMPORARY CONSTRUCTION EASEMENT
FL	FLOW LINE		
TF	TOP OF FRAME		
TC	TOP OF CURB OR CONCRETE		

BENCHMARKS

B.M.#1 IN POWER POLE IN NORTH PARKWAY OF OLD SAUK RD. JUST N.E. OF MIDDLETON TOWN HALL.

ELEV=1132.82

B.M.#2 IN POWER POLE IN NORTH PARKWAY OF OLD SAUK RD. JUST EAST OF BITUMINOUS DRIVE OF HSE# 7492.

ELEV=1162.96

B.M.#3 IN POWER POLE IN NORTH PARKWAY OF OLD SAUK RD. IN S.W. CORNER OF POPE FARM CONSERVATORY.

ELEV=1137.57

GENERAL NOTES:

1. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH CITY OF MADISON AND STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS PLUS DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS.
2. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORK, IN ACCORDANCE WITH THE EROSION CONTROL NOTES LISTED BELOW.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE OWNER OF ALL EXISTING FACILITIES SO THE UTILITIES AND THEIR APPURTENANCES MAY BE LOCATED AND ADJUSTED, IF NEEDED, PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL COOPERATE WITH ALL UTILITY OWNERS AS PROVIDED FOR IN THE SPECIFICATIONS.
4. CONTRACTOR SHALL PROTECT FROM DAMAGE ALL CONCRETE AND ASPHALT AREAS TO REMAIN.
5. ONLY MADISON WATER UTILITY PERSONNEL ARE ALLOWED TO OPERATE VALVES AND FIRE HYDRANTS. HYDRANTS SHALL NOT BE UTILIZED FOR MISCELLANEOUS WATER USE.
6. CONTRACTOR SHALL CONTACT THE CITY OF MADISON WATER UTILITY 48 HOURS PRIOR TO COMMENCEMENT OF ANY WORK ON THE SITE.
7. EXISTING INFRASTRUCTURE LOCATIONS SHOWN ARE FROM BEST AVAILABLE RECORDS. VERIFY LOCATIONS AND ELEVATIONS OF EXISTING PIPING AND OTHER INFRASTRUCTURE PRIOR TO CONSTRUCTION.
8. PROVIDE MIN. 6' COVER ABOVE ALL WATER LINES.
9. PROPER DRAINAGE SHALL BE MAINTAINED IN THE IMPROVEMENT AREA DURING CONSTRUCTION. THE COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
10. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED. TRAPPED SEDIMENT AND OTHER SOIL AREAS SHALL BE PERMANENTLY STABILIZED.
11. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION AND REPAIR DURING CONSTRUCTION.
12. PROVIDE DUST CONTROL AS NECESSARY.
13. PROVIDE ACCURATE & VERIFIABLE AS-BUILT PLANS UPON COMPLETION.

EROSION CONTROL NOTES:

1. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS AND CITY OF MADISON.
2. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORK, MAINTAINED THROUGHOUT THE WORK, AND REMOVED AS DIRECTED BY THE ENGINEER.
3. SILT FENCE SHALL BE MAINTAINED AT LEAST ON A WEEKLY BASIS AND AFTER RAIN EVENTS OF 1/2-INCH OR GREATER.
4. EROSION BLANKETS SHALL BE PLACED ON RESTORED SLOPES OF 3:1 OR GREATER AND ALONG THE BOTTOM OF ALL DITCHES TO A WIDTH OF 4 FEET. THE COST SHALL BE INCIDENTAL TO THE CONTRACT. LOCATIONS OF THE EROSION BLANKETS WILL BE DETERMINED DURING CONSTRUCTION.
5. TRACKING PADS SHALL BE INSTALLED AT ALL CONSTRUCTION SITE EXIT LOCATIONS.
6. REFER TO THE SPECIFICATIONS AND STANDARD DETAILS FOR MATERIALS AND INSTALLATION METHODS.

BAXTER & WOODMAN
Consulting Engineers

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REVISIONS

NO.	DATE	DESCRIPTION

REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

1" 0 1" 2" 3"
.5"

PLAN SHEET DESIGNATION
COVER
G – GENERAL
H – HAZARDOUS MATERIALS
C – CIVIL
L – LANDSCAPE
S – STRUCTURAL
A – ARCHITECTURAL
I – INSTRUMENTATION
Q – EQUIPMENT
F – FIRE PROTECTION
P – PLUMBING
M – MECHANICAL
E – ELECTRICAL
T – TELECOMMUNICATIONS
R – RESOURCE

PROJECT NO: 150826.40

SCALE: AS NOTED
DRAWING DATE: 12/27/16
DESIGNED BY: GDG
DRAWN BY: TLB
CHECKED BY: GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

LEGEND, ABBREVIATIONS, INDEX, GENERAL NOTES AND BENCHMARK

G-1

I:\BURLINGTON\MADUO\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\40 - CURRENT\150826 TOPO C3D14.DWG LEGEND
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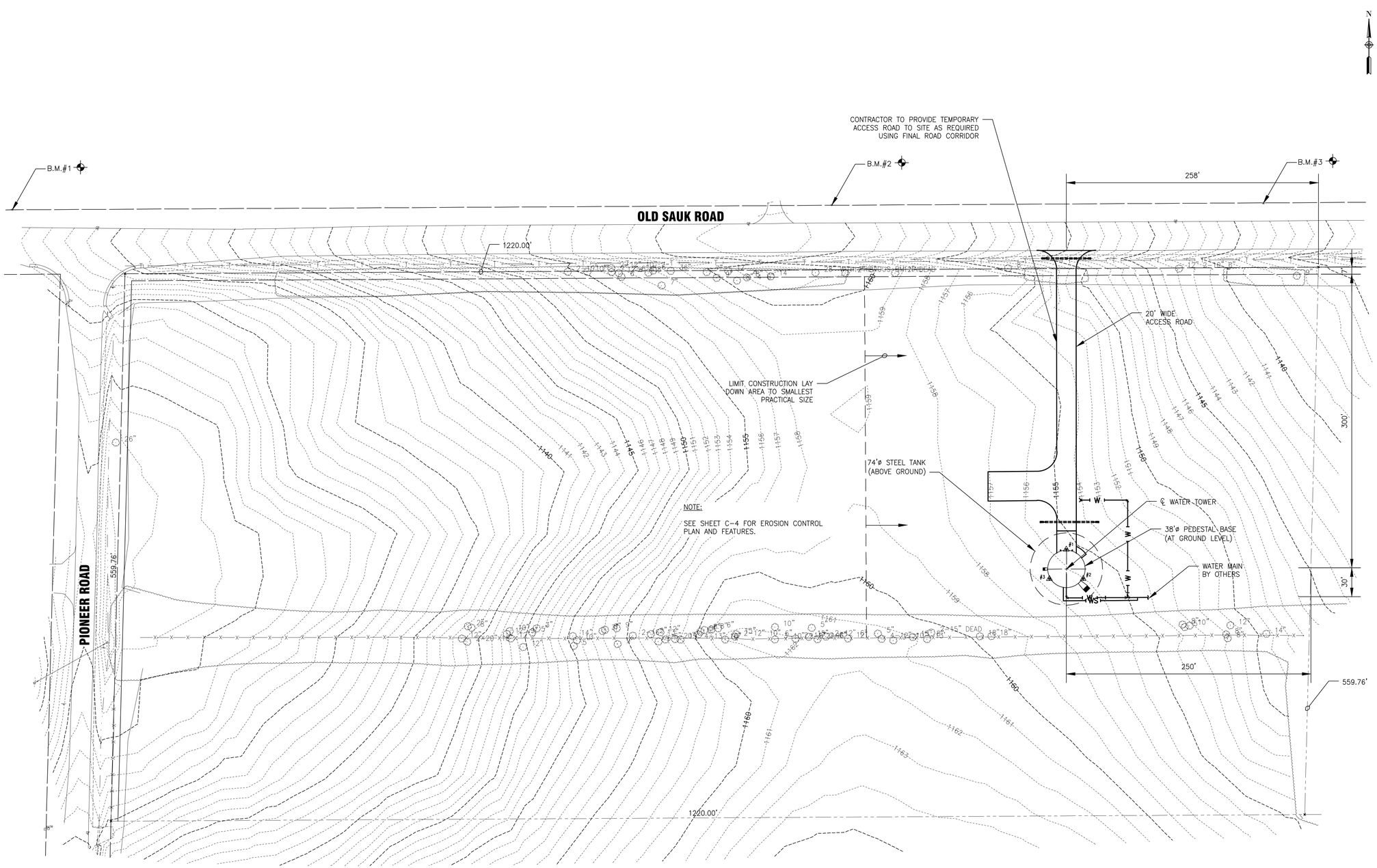

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Consulting Engineers

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REVISIONS

NO.	DATE	DESCRIPTION

1" – REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

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PROJECT NO:	150826.40
SCALE:	1" = 50'
DRAWING DATE:	12/27/16
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MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

OVERALL SITE PLAN

C-1

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\40 - CURRENT\150826 TOPO C3D14.DWG OVERALL SITE PLAN
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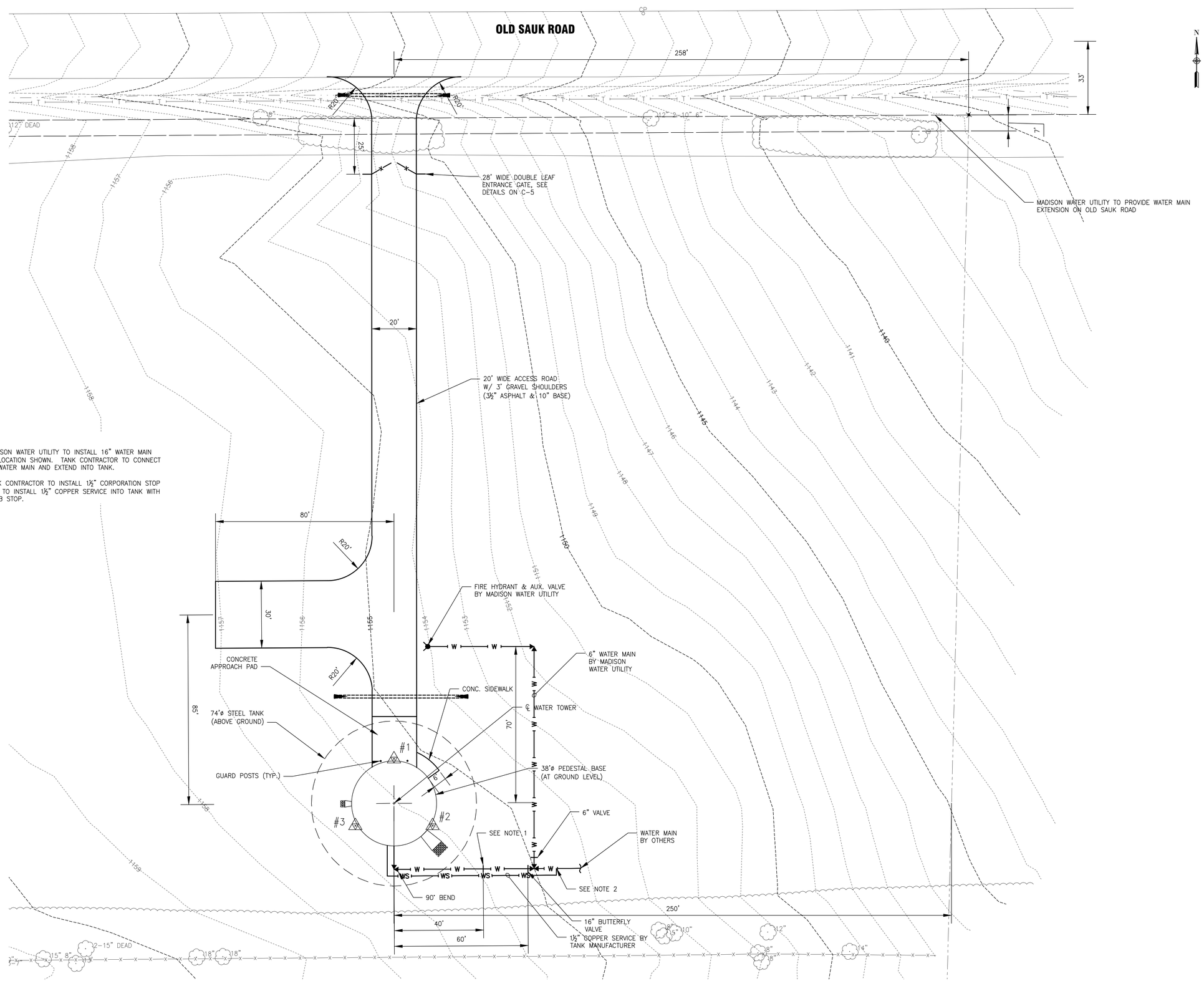

NOTES:

1. MADISON WATER UTILITY TO INSTALL 16" WATER MAIN TO LOCATION SHOWN. TANK CONTRACTOR TO CONNECT TO WATER MAIN AND EXTEND INTO TANK.
2. TANK CONTRACTOR TO INSTALL 1½" CORPORATION STOP AND TO INSTALL 1½" COPPER SERVICE INTO TANK WITH CURB STOP.

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REVISIONS

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1" .5" 0 1" 2" 3"

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PROJECT NO: 150826.40

SCALE: 1" = 20'
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MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

SITE AND UTILITY PLAN

C-2

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\40 - CURRENT\150826 TOPO C3D14.DWG SITE AND UTILITY
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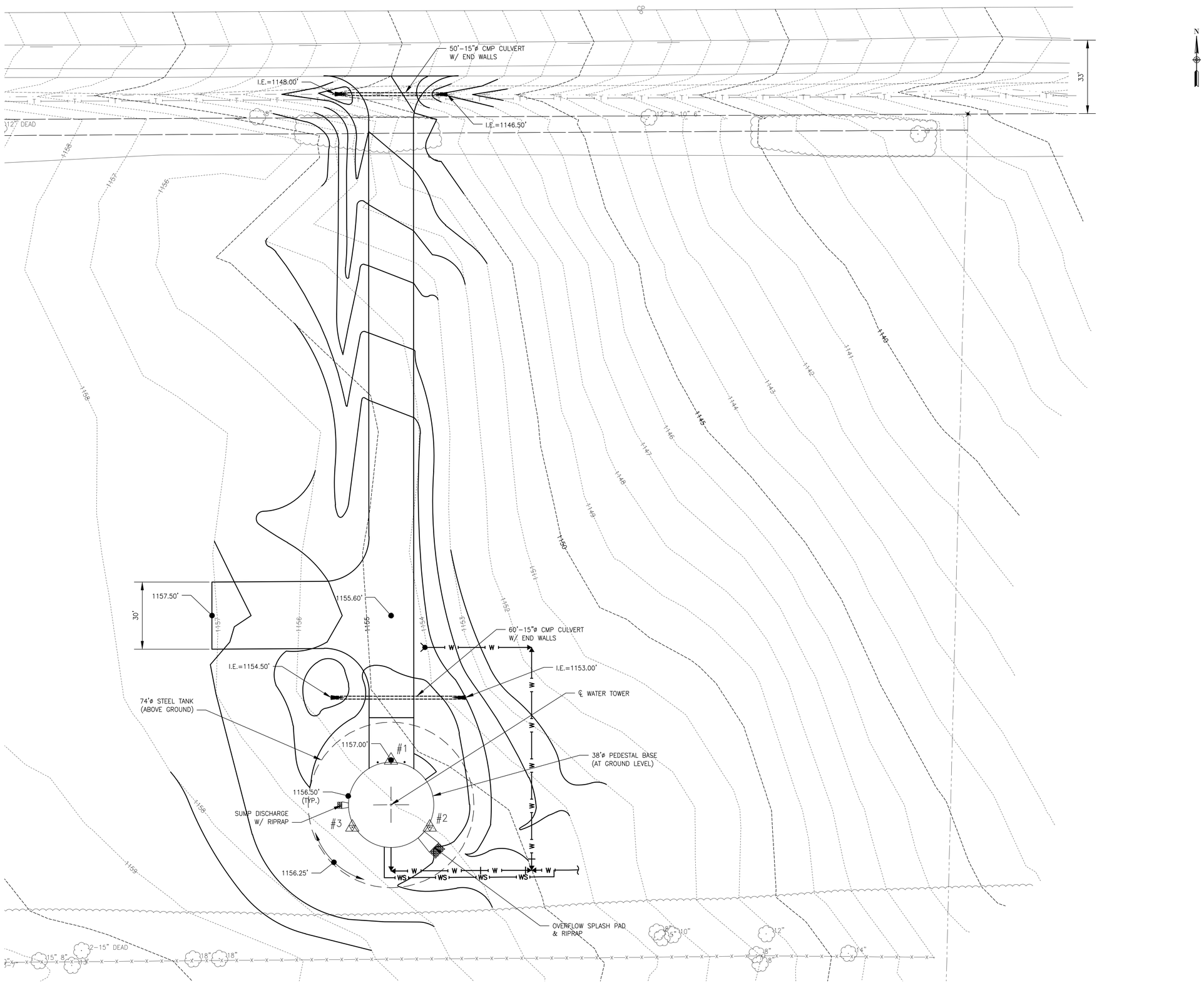

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PROJECT NO:	150826.40
SCALE:	1" = 20'
DRAWING DATE:	12/27/16
DESIGNED BY:	GDG
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MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

GRADING PLAN

C-3

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\40 - CURRENT\150826 TOPO C3D14.DWG GRADING PLAN
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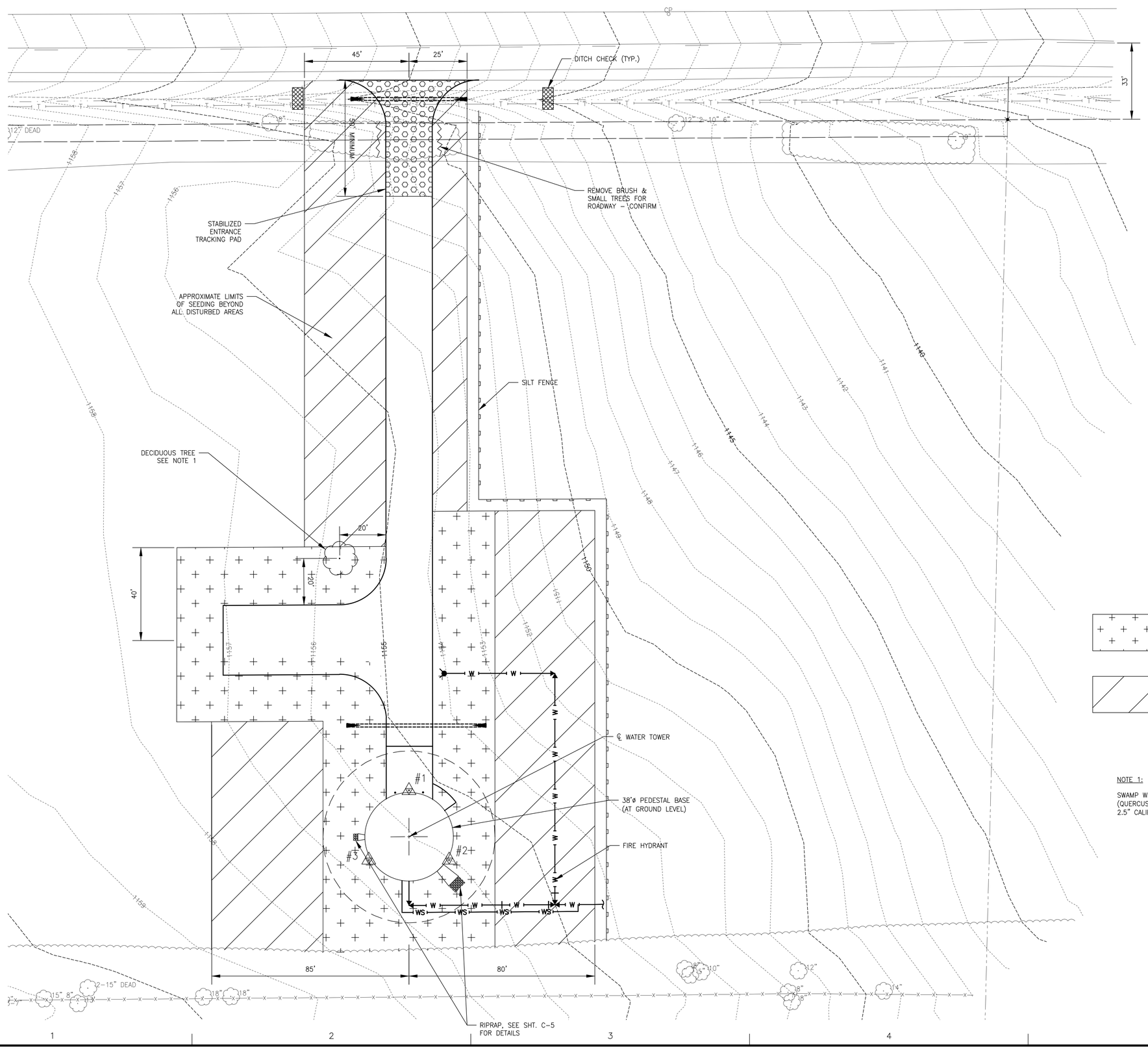

LEGEND

TURF SEED MIX

NATIVE GRASS SEED MIX

NOTE 1:

SWAMP WHITE OAK
(QUERCUS BICOLOR)
2.5" CALIBER BALL AND BURLAP

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REVISIONS

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1" .5" 0 1" 2" 3"

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PROJECT NO:	150826.40
SCALE:	1" = 20'
DRAWING DATE:	12/27/16
DESIGNED BY:	GDG
DRAWN BY:	TLB
CHECKED BY:	GDG

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MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

LANDSCAPE AND EROSION CONTROL PLAN

C-4

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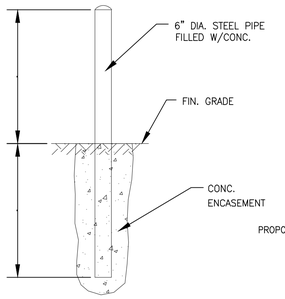
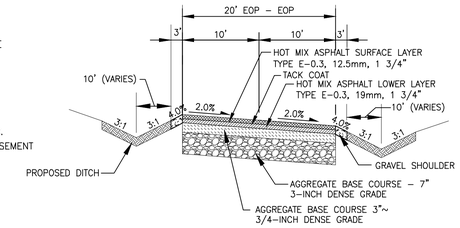


GUARD POST DETAIL

NO SCALE



ACCESS DRIVE TYPICAL SECTION

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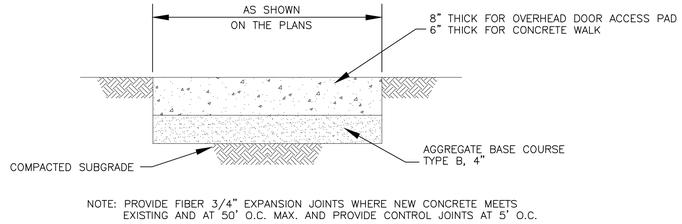
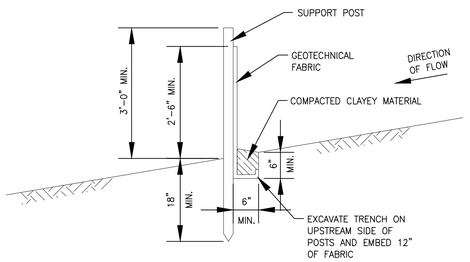


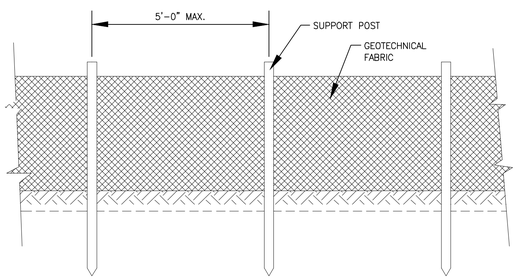
NOTE: PROVIDE FIBER 3/4" EXPANSION JOINTS WHERE NEW CONCRETE MEETS EXISTING AND AT 50' O.C. MAX. AND PROVIDE CONTROL JOINTS AT 5' O.C.

PORTLAND CEMENT CONCRETE (P.C.C.)

NO SCALE



SECTION

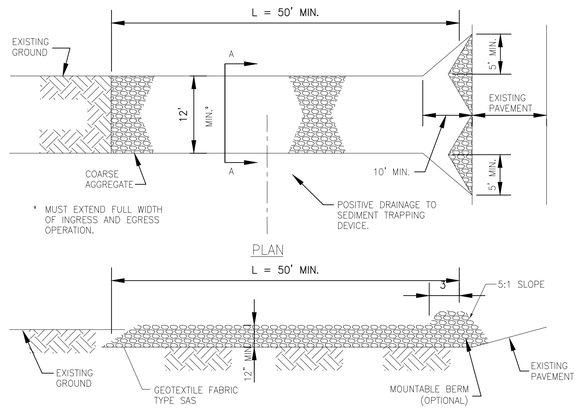


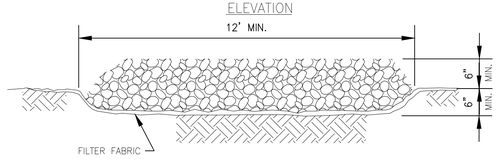
NOTE:
SILT FENCE INSTALLATION SHALL COMPLY WITH AASHTO STANDARD SPECIFICATION 288-00.

ELEVATION

SILT FENCE DETAIL

NO SCALE



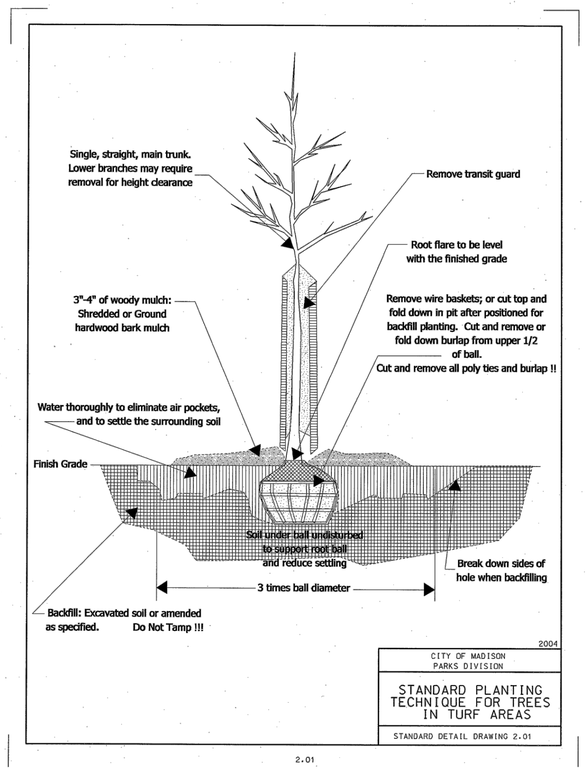


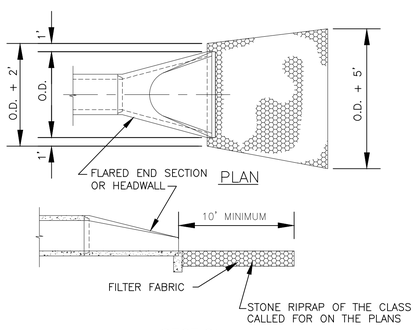
GENERAL NOTES:

1. AGGREGATE SHALL BE 3 TO 6 INCH CLEAR OR WASHED STONE WITH ALL MATERIAL RETAINED ON 3-INCH SIEVE.

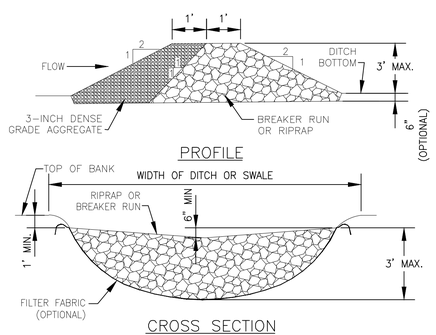
STABILIZED CONSTRUCTION ENTRANCE

SCALE: NONE





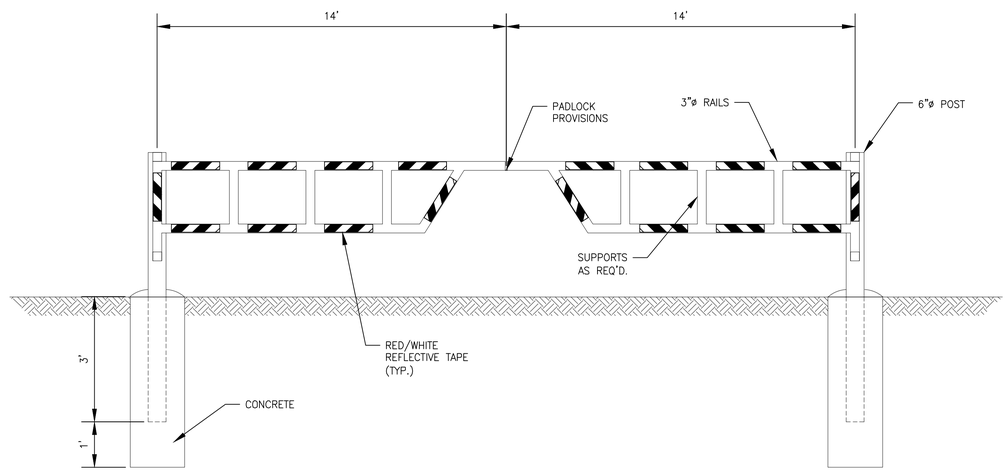
FLARED END SECTION
RIP-RAP DETAIL



1. PROVIDE CLASS I, II, OR IV GEOTEXTILE FILTER FABRIC OVER THE CLEARED AREA BEFORE PLACING THE ROCK.
2. USE WIDOT GRADE 3-INCH DENSE GRADE AGGREGATE.
3. USE WIDOT BREAKER RUN OR RIPRAP.

ROCK CHECK DAM

NO SCALE



PARK ENTRANCE GATE DETAIL

SCALE: NONE

BAXTER & WOODMAN
Consulting Engineers

CONSULTANTS

REVISIONS

NO.	DATE	DESCRIPTION

REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

1" 0 1" 2" 3"

PLAN SHEET DESIGNATION

COVER
G – GENERAL
H – HAZARDOUS MATERIALS
C – CIVIL
L – LANDSCAPE
S – STRUCTURAL
A – ARCHITECTURAL
I – INSTRUMENTATION
Q – EQUIPMENT
F – FIRE PROTECTION
P – PLUMBING
M – MECHANICAL
E – ELECTRICAL
T – TELECOMMUNICATIONS
R – RESOURCE

PROJECT NO:	150826.40
SCALE:	AS NOTED
DRAWING DATE:	12/27/16
DESIGNED BY:	GDG
DRAWN BY:	TLB
CHECKED BY:	GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

SITE DETAILS

C-5

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\40 - CURRENT\150826 TOPO C3D14.DWG DETAILS
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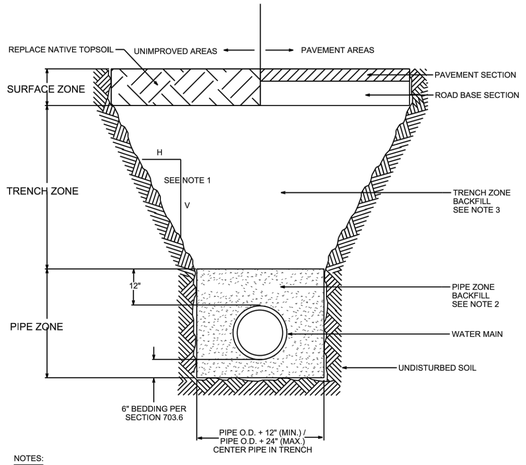
PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.01**

REVISED: 12/2015



NOTES:

1) ALL EXCAVATION SHALL BE IN ACCORDANCE WITH THE WISCONSIN ADMINISTRATIVE CODE FOR "TRENCH EXCAVATION AND TUNNEL CONSTRUCTION" AND ANY ADDITIONAL REQUIREMENTS INCLUDING IN THE CONTRACT DOCUMENTS.

2) BACKFILL OPERATIONS SHALL COMPLY WITH SECTIONS 703.6 AND 202.2(B) OF THE STANDARD SPECIFICATIONS.

3) THE PIPE ZONE BEDDING MATERIAL SHALL CONSIST OF SELECT FILL SAND, LIMESTONE SCREENINGS, CLEAR STONE, OR WASHED GRAVEL.

4) SEE SECTION 703.6.1 FOR BACKFILL/COMPACTION REQUIREMENTS OF BEDDING/COVER MATERIAL IN THE PIPE ZONE.

5) TRENCH ZONE COMPACTION REQUIREMENTS:
   - ALL COMPACTION OPERATIONS SHALL COMPLY WITH SECTION 703.6.3
   - DENSITY REQUIREMENTS:
     1. FROM 2-FEET OVER THE PIPE TO WITHIN 3-FEET OF THE SUBGRADE: A MINIMUM OF 90% OF MAXIMUM DENSITY.
     2. WITHIN 3-FEET OF THE BOTTOM OF SUBGRADE: A MINIMUM OF 95% OF MAXIMUM DENSITY.

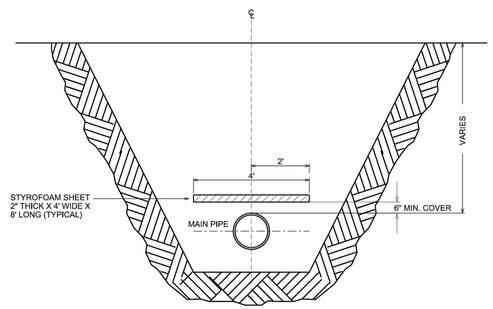
CITY OF MADISON WATER UTILITY	NOT TO SCALE	TYPICAL WATER PIPE TRENCH

City of Madison Standard Specifications for Public Works Construction

PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.03**

REVISED: 12/2015



NOTE: ALL STYROFOAM TO BE 2" THICK HIGH DENSITY POLYSTYRENE BOARD

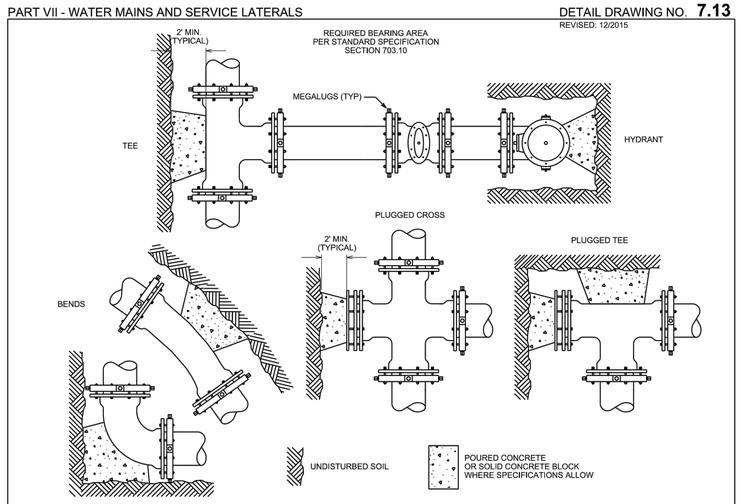
CITY OF MADISON WATER UTILITY	NOT TO SCALE	TYPICAL STYROFOAM INSTALLATION

City of Madison Standard Specifications for Public Works Construction

PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.13**

REVISED: 12/2015



CITY OF MADISON WATER UTILITY	NOT TO SCALE	STANDARD CONCRETE BLOCK THRUST RESTRAINT

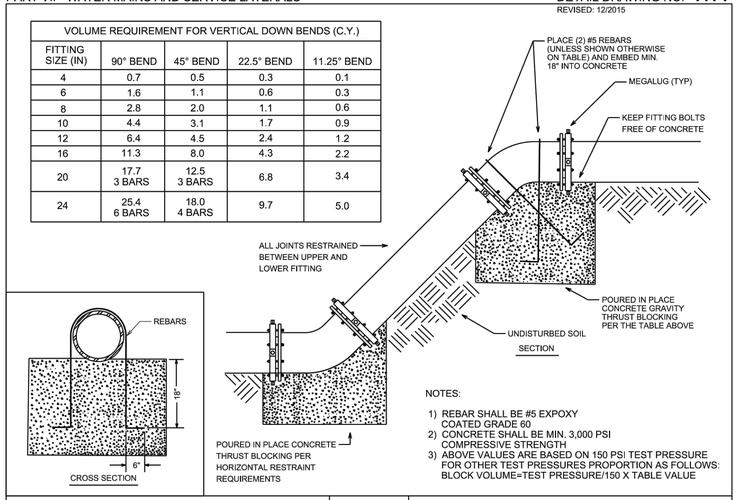
City of Madison Standard Specifications for Public Works Construction

PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.14**

REVISED: 12/2015

VOLUME REQUIREMENT FOR VERTICAL DOWN BENDS (C.Y.)				
FITTING SIZE (IN)	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4	0.7	0.5	0.3	0.1
6	1.6	1.1	0.6	0.3
8	2.8	2.0	1.1	0.6
10	4.4	3.1	1.7	0.9
12	6.4	4.5	2.4	1.2
16	11.3	8.0	4.3	2.2
20	17.7 3 BARS	12.5 3 BARS	6.8	3.4
24	25.4 6 BARS	18.0 4 BARS	9.7	5.0



NOTES:

1) REBAR SHALL BE #5 EXPOXY COATED GRADE 60
2) CONCRETE SHALL BE MIN. 3,000 PSI COMPRESSIVE STRENGTH
3) ABOVE VALUES ARE BASED ON 150 PSI TEST PRESSURE FOR OTHER TEST PRESSURES PROPORTION AS FOLLOWS: BLOCK VOLUME=TEST PRESSURE/150 X TABLE VALUE

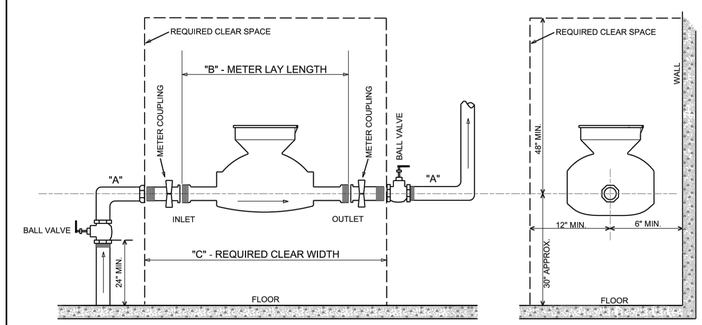
CITY OF MADISON WATER UTILITY	NOT TO SCALE	GRAVITY BLOCK THRUST RESTRAINT FOR VERTICAL BENDS

City of Madison Standard Specifications for Public Works Construction

PART VII - WATER MAINS AND SERVICE LATERALS

DETAIL DRAWING NO. **7.35**

REVISED: 12/2015



"A" - ELECTRICAL BONDING: CONNECT OUTSIDE THE METER COUPLINGS - METER BYPASS PIPING IS NOT PERMITTED

"B" - METER LAY LENGTH (BY METER SIZE): (DOES NOT INCLUDE GASKET OR COUPLING)
⅝" = 7½"
¾" = 9"
1" = 10¾"

"C" - REQUIRED CLEAR WIDTH:
⅝" = 12¼"
¾" = 14"
1" = 16"

CITY OF MADISON WATER UTILITY	NOT TO SCALE	STANDARD 5/8", 3/4", 1" METER INSTALLATION

City of Madison Standard Specifications for Public Works Construction

BAXTER & WOODMAN Consulting Engineers

CONSULTANTS

REVISIONS

NO.	DATE	DESCRIPTION

REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

1" .5" 0 1" 2" 3"

PLAN SHEET DESIGNATION

COVER
G – GENERAL
H – HAZARDOUS MATERIALS
C – CIVIL
L – LANDSCAPE
S – STRUCTURAL
A – ARCHITECTURAL
I – INSTRUMENTATION
Q – EQUIPMENT
F – FIRE PROTECTION
P – PLUMBING
M – MECHANICAL
E – ELECTRICAL
T – TELECOMMUNICATIONS
R – RESOURCE

PROJECT NO: 150826.40

SCALE: AS NOTED
DRAWING DATE: 12/27/16
DESIGNED BY: GDG
DRAWN BY: TLB
CHECKED BY: GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

SITE DETAILS
(CONTINUED)

C-6

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\40 - CURRENT\150826 TOPO C3D14.DWG DETAILS2
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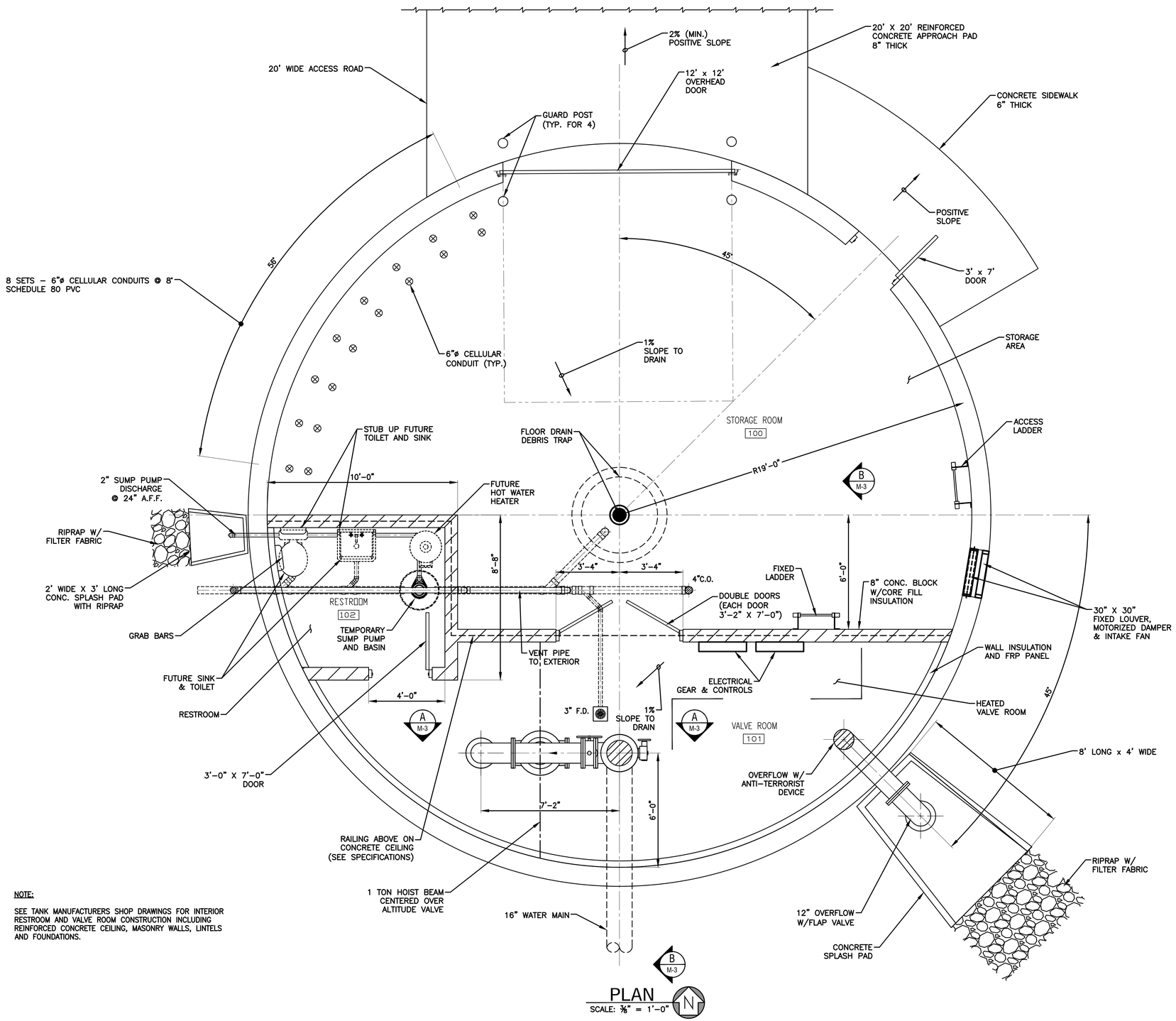

NOTE:

SEE TANK MANUFACTURERS SHOP DRAWINGS FOR INTERIOR RESTROOM AND VALVE ROOM CONSTRUCTION INCLUDING REINFORCED CONCRETE CEILING, MASONRY WALLS, LINTELS AND FOUNDATIONS.

PLAN

SCALE: 3/8" = 1'-0"

BAXTER & WOODMAN
Consulting Engineers

CONSULTANTS

REVISIONS

NO.	DATE	DESCRIPTION

REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

1" .5" 0 1" 2" 3"

PLAN SHEET DESIGNATION

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R – RESOURCE

PROJECT NO: 150826.40

SCALE: AS NOTED
DRAWING DATE:
DESIGNED BY: GDG
DRAWN BY: TLB
CHECKED BY: GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

FLOOR PLAN

M-1

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\BLACKHAWK TOWER\SHEETS\MECHANICAL\M-1 FLOOR PLAN - UDC.DWG M-1 FLOOR PLAN - UDC
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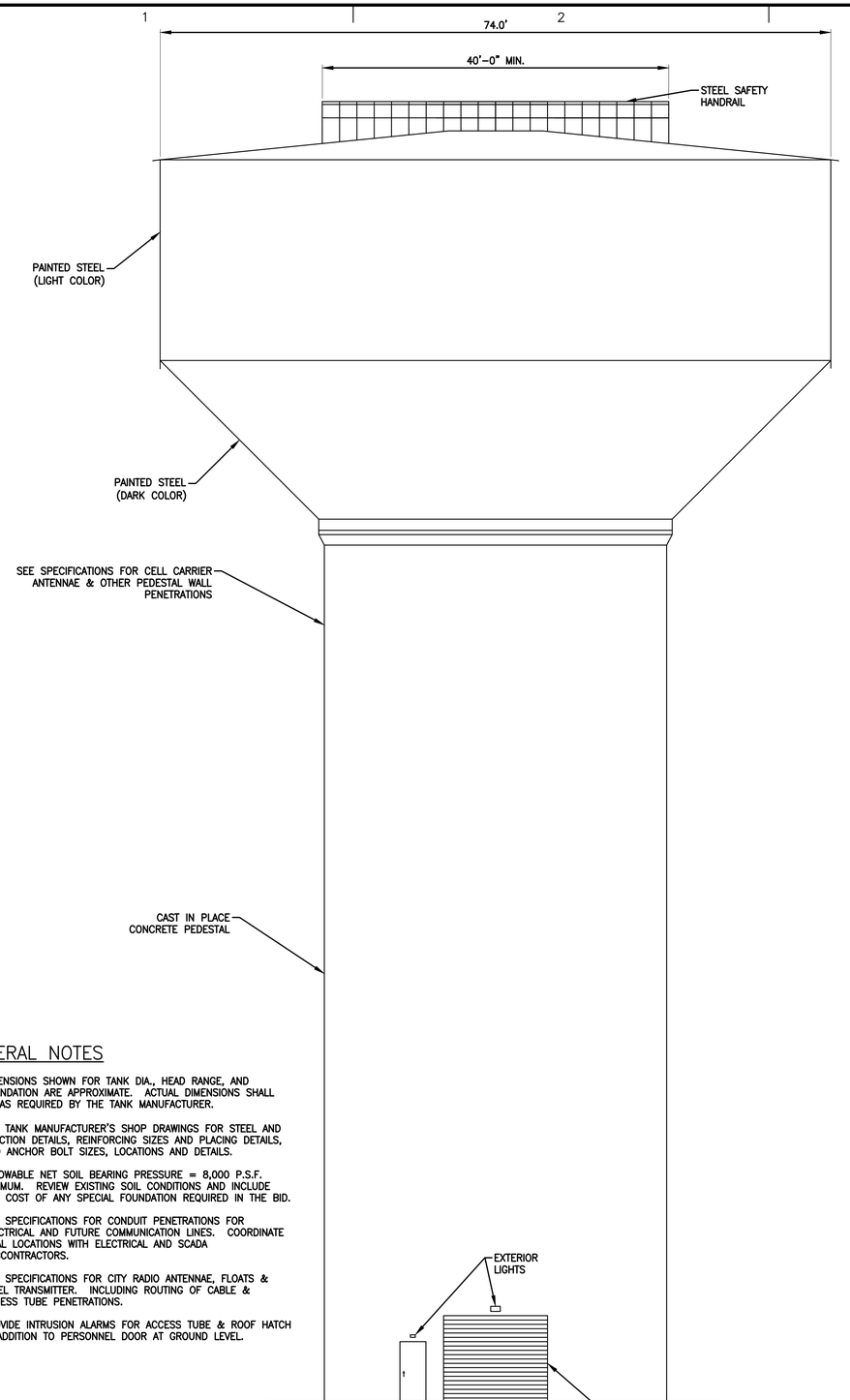
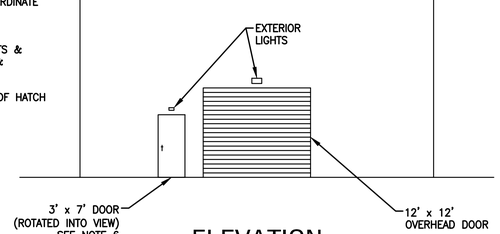
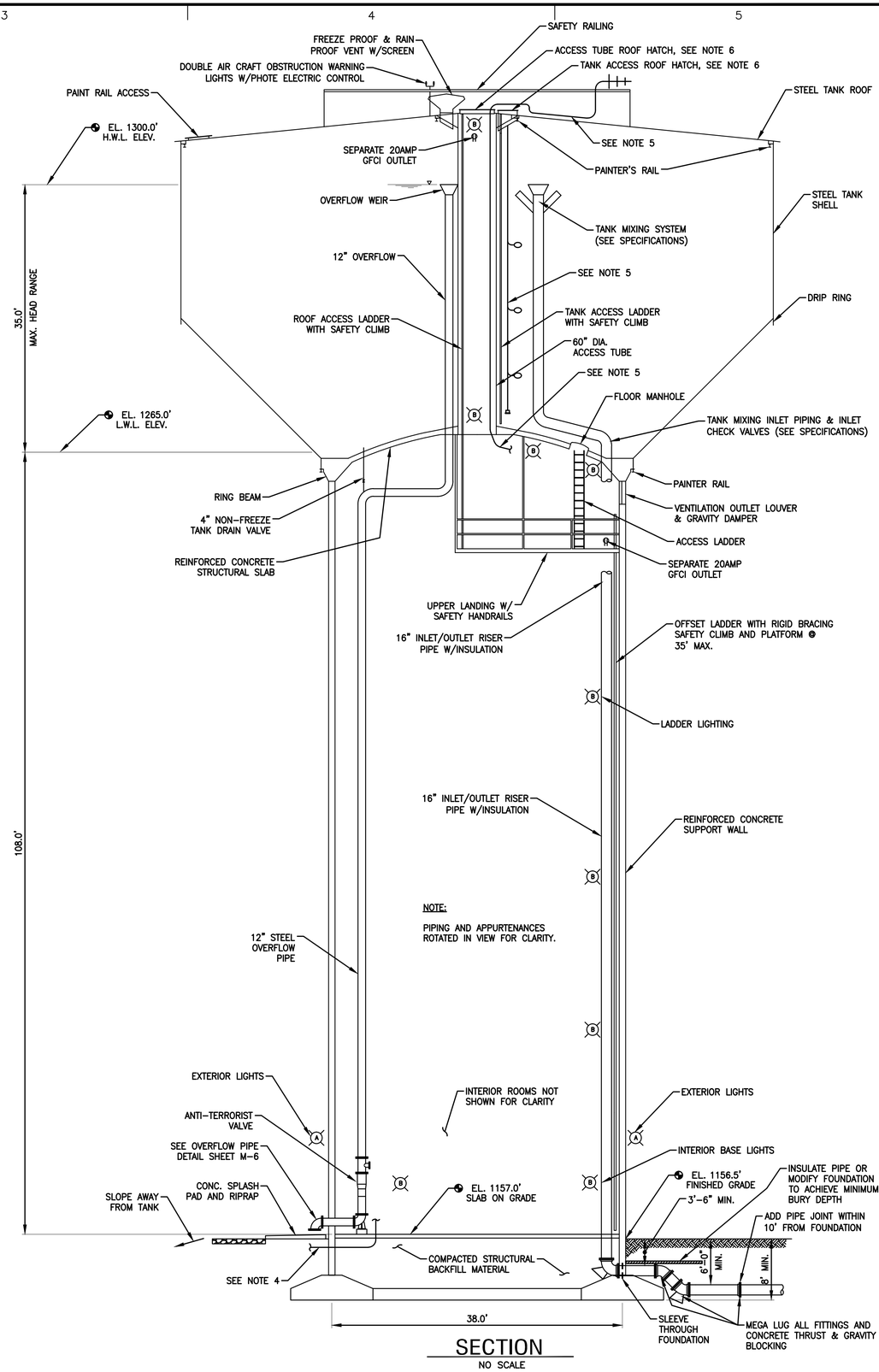


GENERAL NOTES

1. DIMENSIONS SHOWN FOR TANK DIA., HEAD RANGE, AND FOUNDATION ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE AS REQUIRED BY THE TANK MANUFACTURER.
2. SEE TANK MANUFACTURER'S SHOP DRAWINGS FOR STEEL AND ERECTION DETAILS, REINFORCING SIZES AND PLACING DETAILS, AND ANCHOR BOLT SIZES, LOCATIONS AND DETAILS.
3. ALLOWABLE NET SOIL BEARING PRESSURE = 8,000 P.S.F. MINIMUM. REVIEW EXISTING SOIL CONDITIONS AND INCLUDE THE COST OF ANY SPECIAL FOUNDATION REQUIRED IN THE BID.
4. SEE SPECIFICATIONS FOR CONDUIT PENETRATIONS FOR ELECTRICAL AND FUTURE COMMUNICATION LINES. COORDINATE FINAL LOCATIONS WITH ELECTRICAL AND SCADA SUBCONTRACTORS.
5. SEE SPECIFICATIONS FOR CITY RADIO ANTENNAE, FLOATS & LEVEL TRANSMITTER. INCLUDING ROUTING OF CABLE & ACCESS TUBE PENETRATIONS.
6. PROVIDE INTRUSION ALARMS FOR ACCESS TUBE & ROOF HATCH IN ADDITION TO PERSONNEL DOOR AT GROUND LEVEL.



ELEVATION
NO SCALE



SECTION
NO SCALE

BAXTER & WOODMAN
Consulting Engineers

CONSULTANTS

REVISIONS

NO.	DATE	DESCRIPTION

REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

3" 2" 1" 0 .5" 1"

PLAN SHEET DESIGNATION

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R – RESOURCE

PROJECT NO: 150826.40

SCALE: AS NOTED
DRAWING DATE:
DESIGNED BY: GDG
DRAWN BY: TLB
CHECKED BY: GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

BUILDING ELEVATION & SECTION

M-2

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\BLACKHAWK TOWER\SHEETS\MECHANICAL\M-2 BUILDING ELEVATION & SECTION
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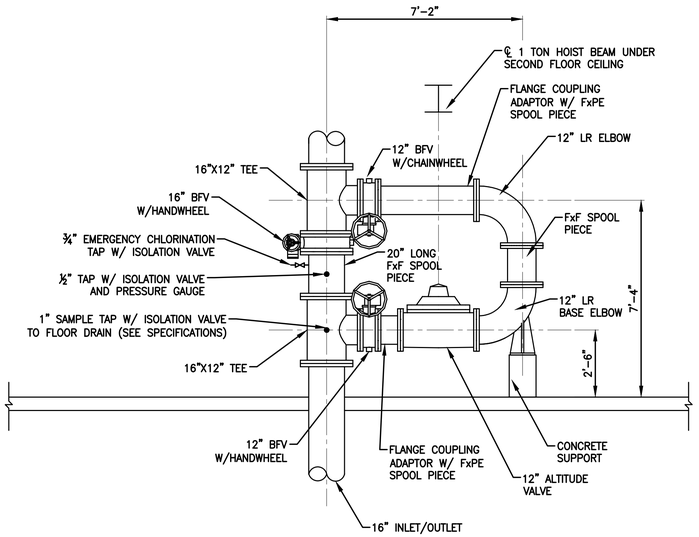
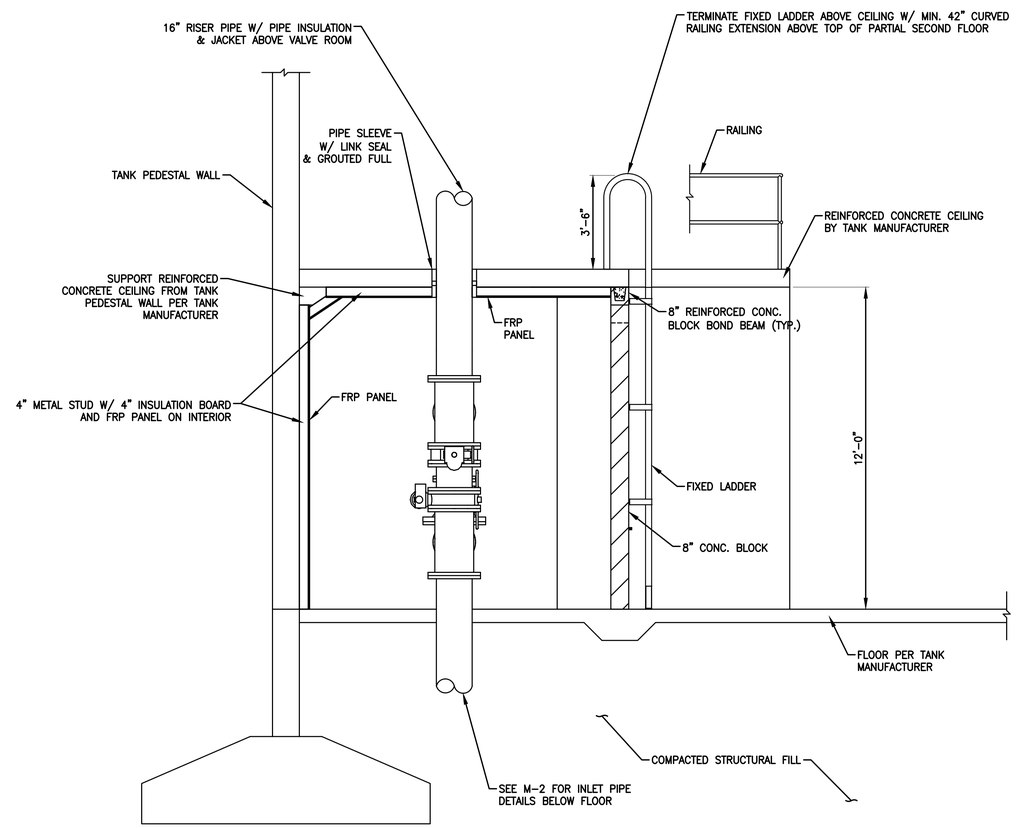


SECTION A M-1
SCALE: ⅜" = 1'-0"



SECTION B M-1
SCALE: ⅜" = 1'-0"

BAXTER & WOODMAN
Consulting Engineers

CONSULTANTS

REVISIONS

NO.	DATE	DESCRIPTION

REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

1" .5" 0 1" 2" 3"

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PROJECT NO: 150826.40

SCALE: AS NOTED
DRAWING DATE:
DESIGNED BY: GDG
DRAWN BY: TLB
CHECKED BY: GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

SECTIONS

M-3

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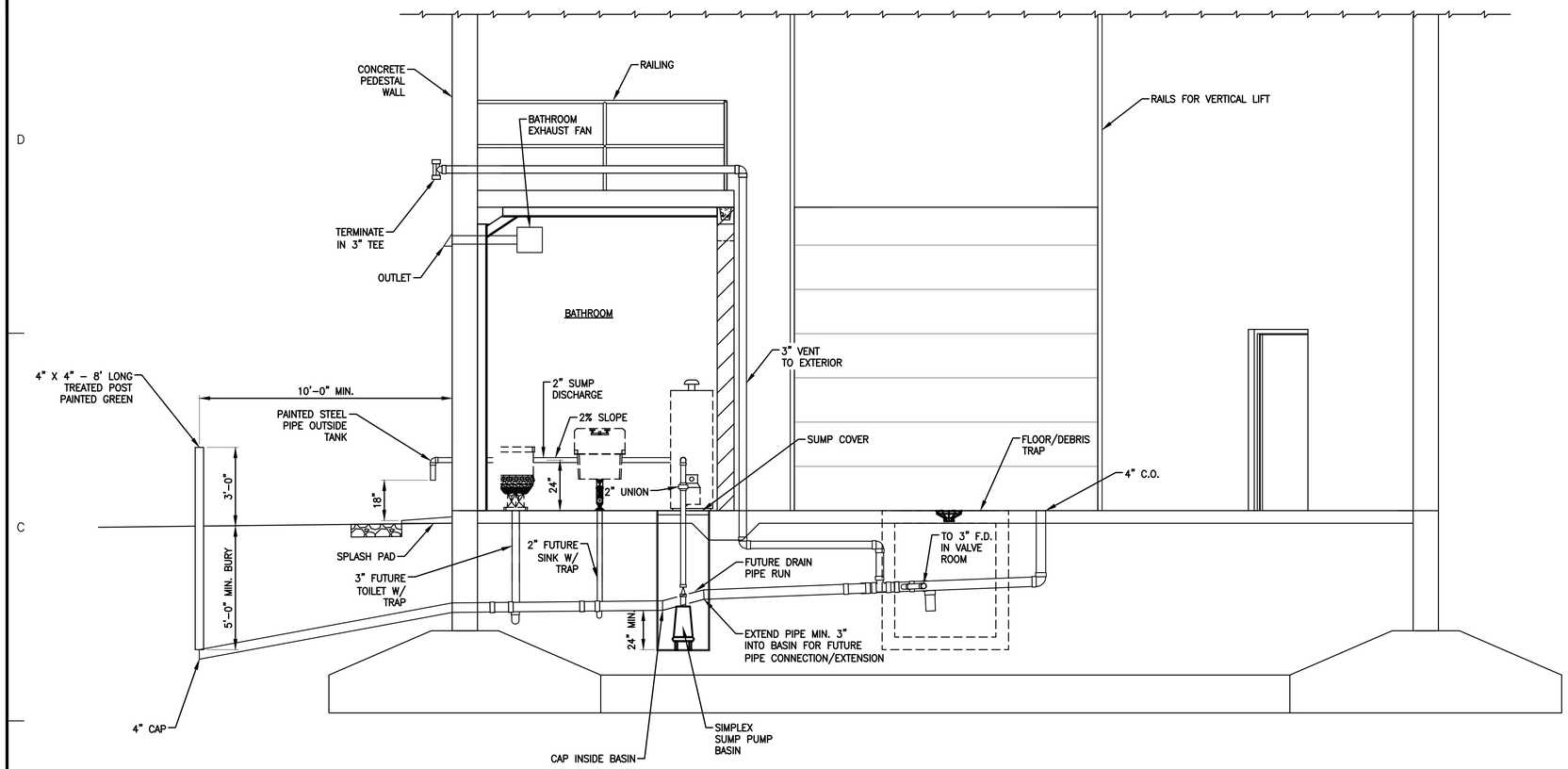

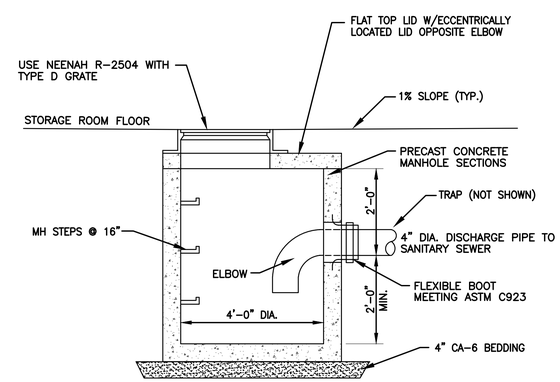

FLOOR DRAIN/DEBRIS TRAP DETAIL

NO SCALE

BAXTER & WOODMAN Consulting Engineers

CONSULTANTS

REVISIONS

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PROJECT NO: 150826.40

SCALE: AS NOTED
DRAWING DATE:
DESIGNED BY: GDG
DRAWN BY: TLB
CHECKED BY: GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

PLUMBING DRAIN SCHEMATIC

M-4

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\BLACKHAWK TOWER\SHEETS\MECHANICAL\M-4 PLUMBING DRAIN SCHEMATIC
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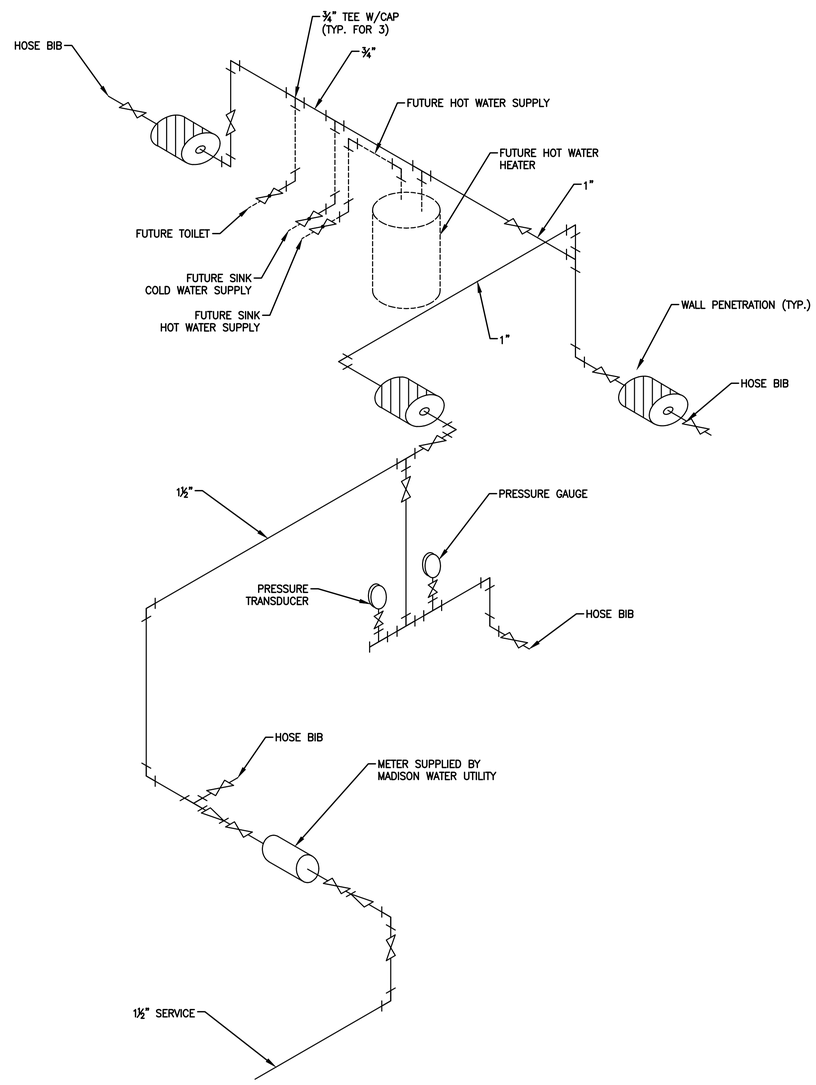
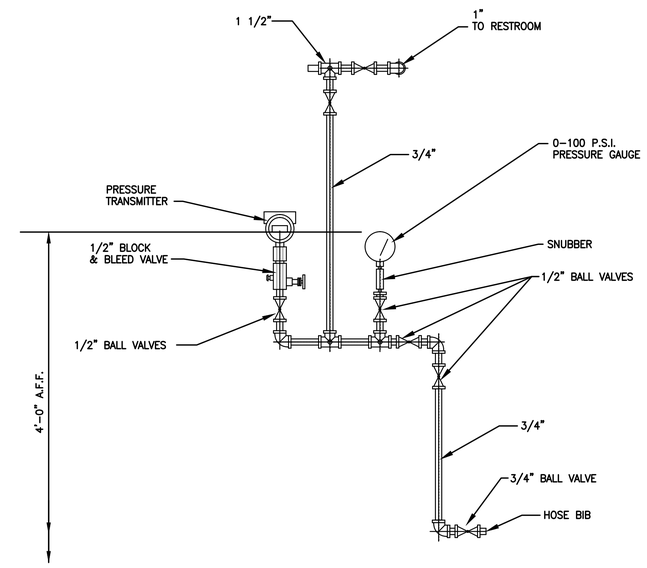


WATER SUPPLY SCHEMATIC

NO SCALE



PRESSURE TRANSMITTER PIPING DETAIL

NO SCALE

BAXTER & WOODMAN
Consulting Engineers

CONSULTANTS

REVISIONS

NO.	DATE	DESCRIPTION

REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

1" .5" 0 1" 2" 3"

PLAN SHEET DESIGNATION

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R – RESOURCE

PROJECT NO: 150826.40

SCALE: AS NOTED
DRAWING DATE:
DESIGNED BY: GDG
DRAWN BY: TLB
CHECKED BY: GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

WATER SUPPLY SCHEMATIC

M-5

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\BLACKHAWK TOWER\SHEETS\MECHANICAL\M-5 WATER SUPPLY SCHEMATIC
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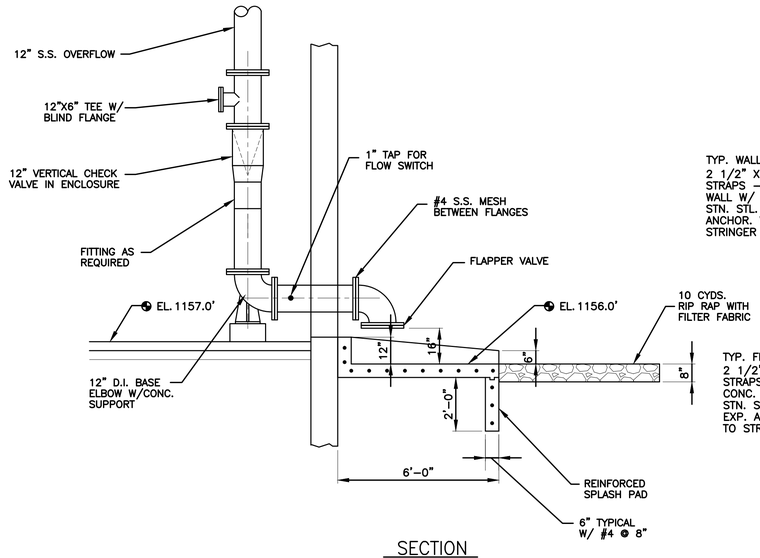
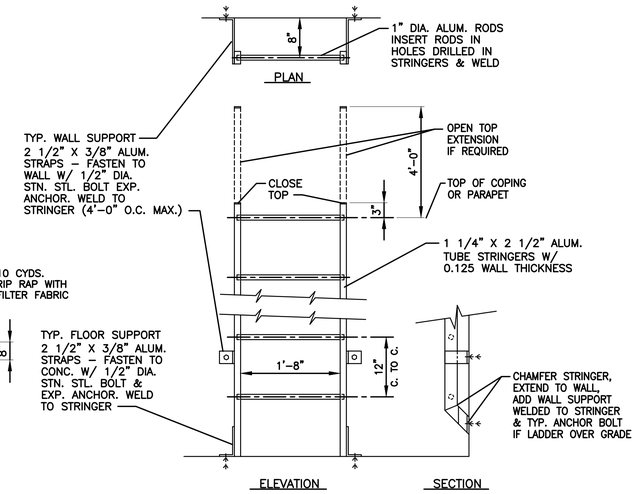
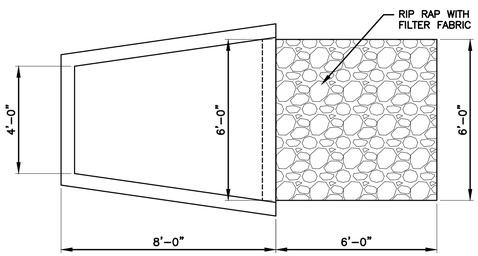


SECTION



ALUMINUM LADDER DETAIL

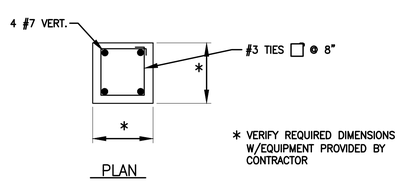
NO SCALE



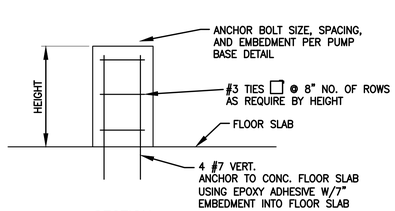
PLAN VIEW (SPLASH PAD)

BLACKHAWK WATER TOWER OVERFLOW PIPE DETAIL

SCALE: 3/8"=1'-0"



PLAN

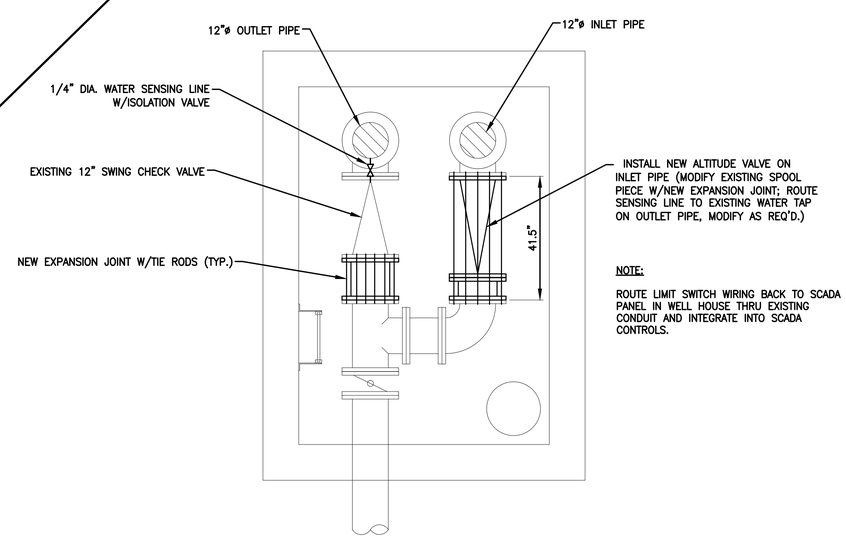


SECTION

PEDESTAL EQUIPMENT BASE DETAIL

(BASE HEIGHT MORE THAN 8")

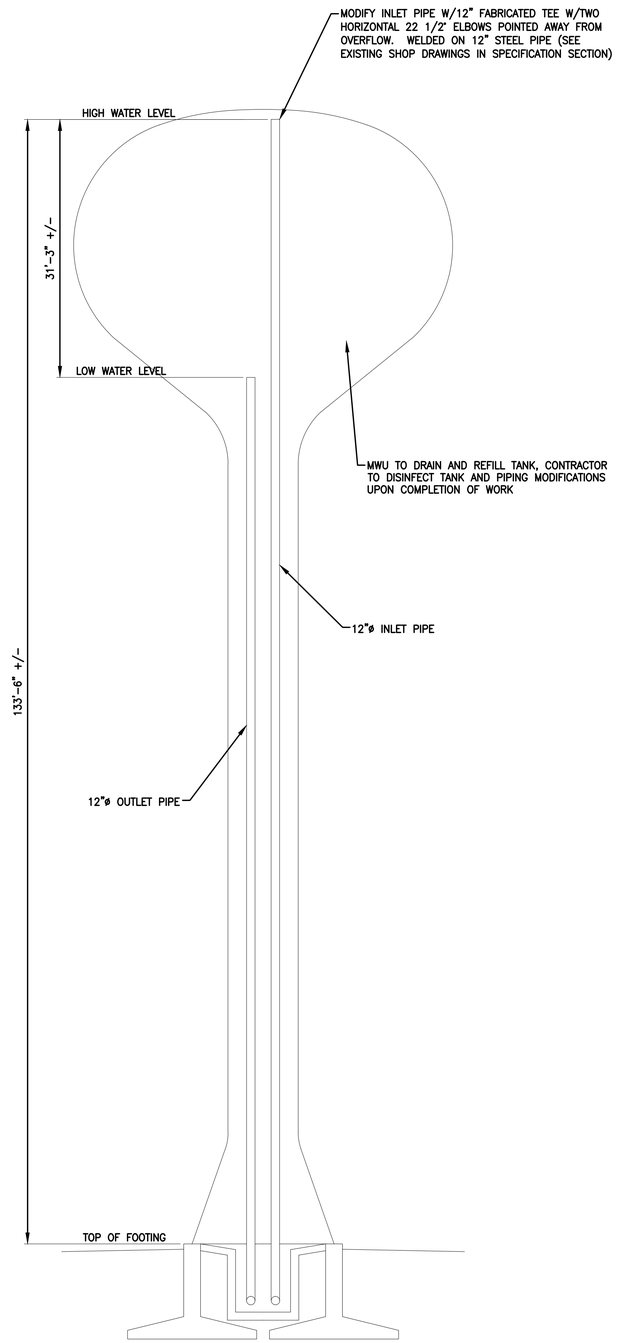
NO SCALE



ALTITUDE VALVE INSTALLATION

EXISTING VALVE VAULT PLAN - ELEV. TANK 126

SCALE: ½" = 1'-0"



OUTLET PIPE MODIFICATIONS

250,000 GALLON ELEVATED TANK - ELEV. TANK 126

NO SCALE

BAXTER & WOODMAN Consulting Engineers

CONSULTANTS

REVISIONS

NO.	DATE	DESCRIPTION

REFER TO EQUIPMENT MANUFACTURER'S SHOP DRAWING

1" .5" 0 1" 2" 3"

PLAN SHEET DESIGNATION

COVER
G – GENERAL
H – HAZARDOUS MATERIALS
C – CIVIL
L – LANDSCAPE
S – STRUCTURAL
A – ARCHITECTURAL
I – INSTRUMENTATION
Q – EQUIPMENT
F – FIRE PROTECTION
P – PLUMBING
M – MECHANICAL
E – ELECTRICAL
T – TELECOMMUNICATIONS
R – RESOURCE

PROJECT NO: 150826.40

SCALE: AS NOTED
DRAWING DATE:
DESIGNED BY: GDG
DRAWN BY: TLB
CHECKED BY: GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

DETAILS

M-6

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\BLACKHAWK TOWER\SHEETS\MECHANICAL\M-6 DETAILS.DWG M-6 DETAILS
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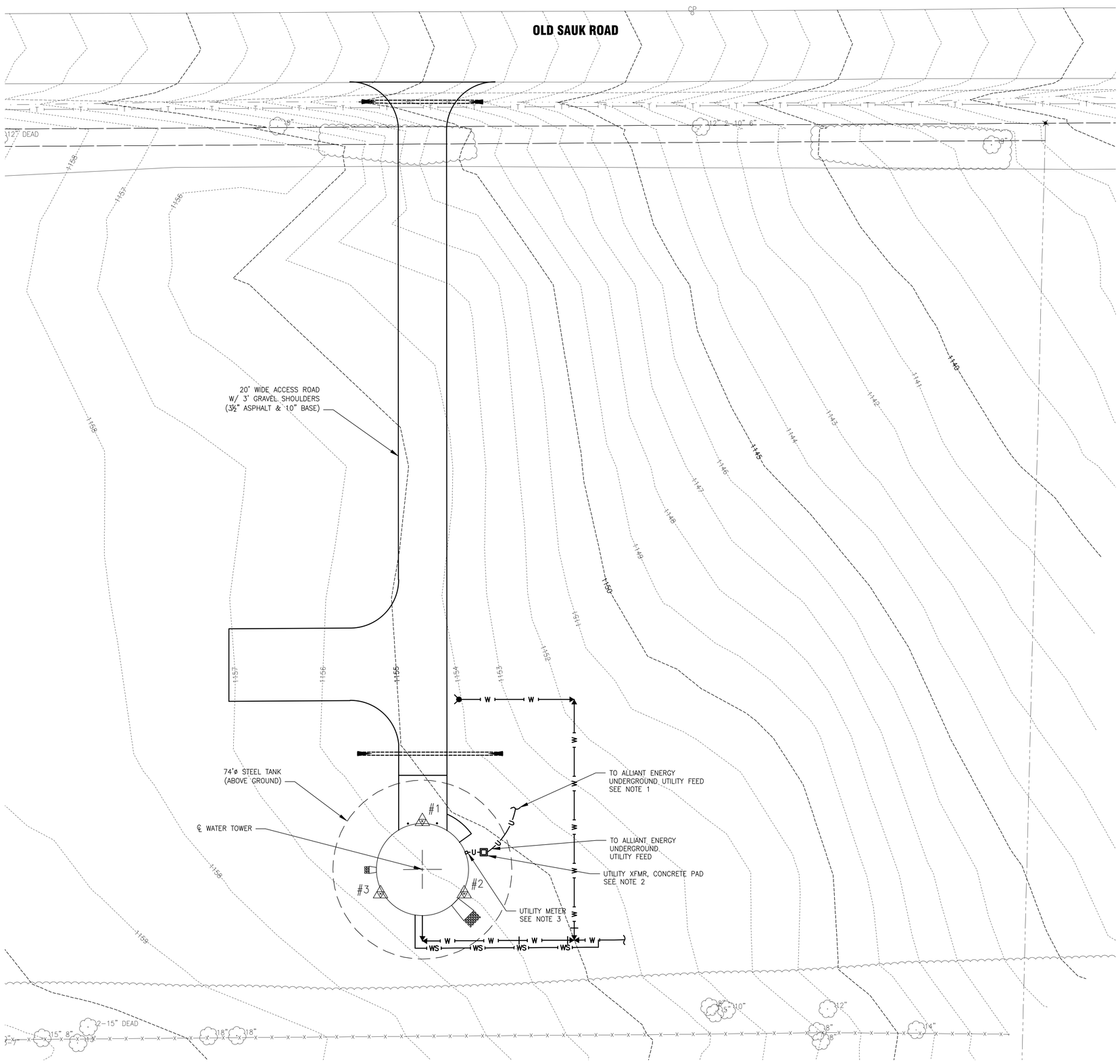

NOTES:

1. ALLIANT ENERGY TO DETERMINE FINAL LOCATION OF UNDERGROUND UTILITY FEED. INSTALLATION FROM OLD SAUK ROAD TO TRANSFORMER BY ALLIANT ENERGY.
2. ALLIANT TO PROVIDE UTILITY TRANSFORMER. TANK CONTRACTOR TO INSTALL PER ALLIANT ENERGY STANDARDS ON CONCRETE PAD, PROVIDED BY TANK CONTRACTOR.
3. TANK CONTRACTOR TO INSTALL UTILITY METER PROVIDED BY ALLIANT ENERGY BESIDE TANK. PROVIDE METER STAND AS REQUIRED BY ALLIANT ENERGY STANDARDS. ROUTE CONDUITS AND WIRING FROM TRANSFORMER TO UTILITY METER AND INTO LIGHTING PANEL (LP).
4. SEE SHEET E-2 AND M-2 FOR ADDITIONAL EXTERIOR DETAILS.

BAXTER & WOODMAN
Consulting Engineers

CONSULTANTS

REVISIONS

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R – RESOURCE

PROJECT NO:	150826.40
SCALE:	1" = 20'
DRAWING DATE:	12/27/16
DESIGNED BY:	PVT
DRAWN BY:	TLB
CHECKED BY:	GDG

CLIENT

MADISON WATER UTILITY
MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

ELECTRICAL SITE PLAN

E-1

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\40 - CURRENT\150826 TOPO C3D14.DWG ELECTRICAL SITE PLAN
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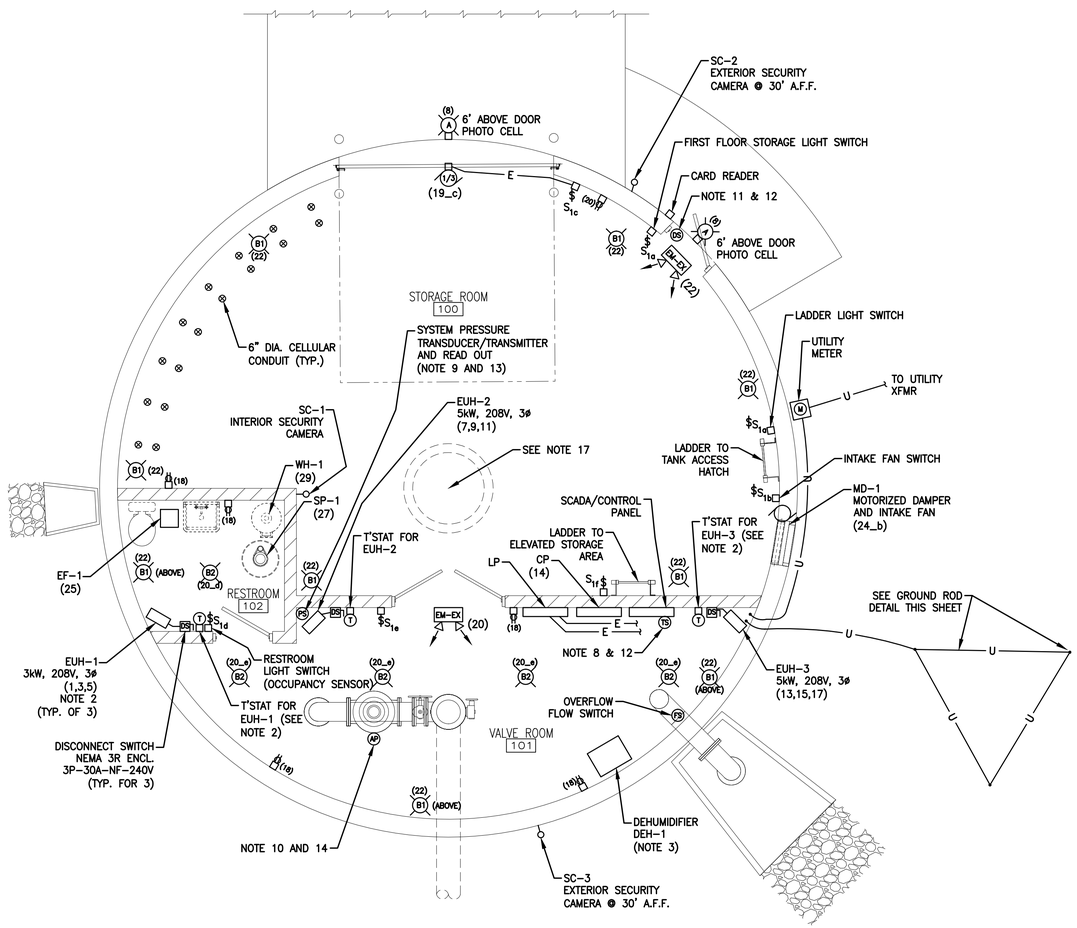
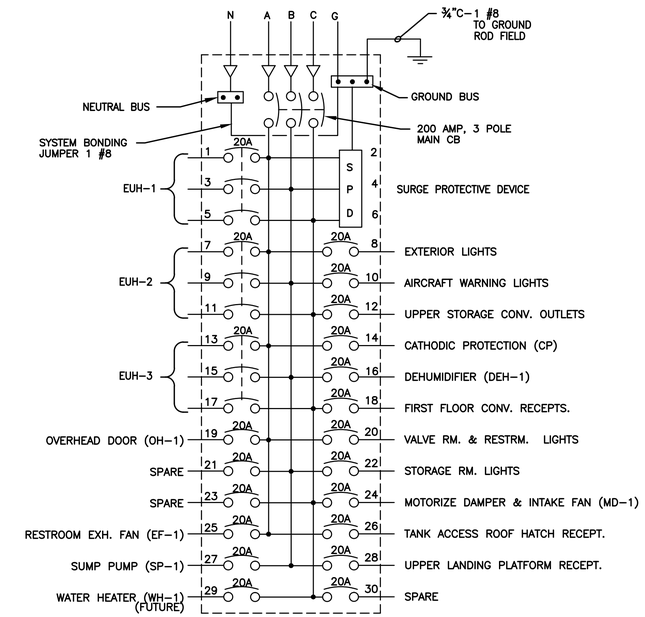
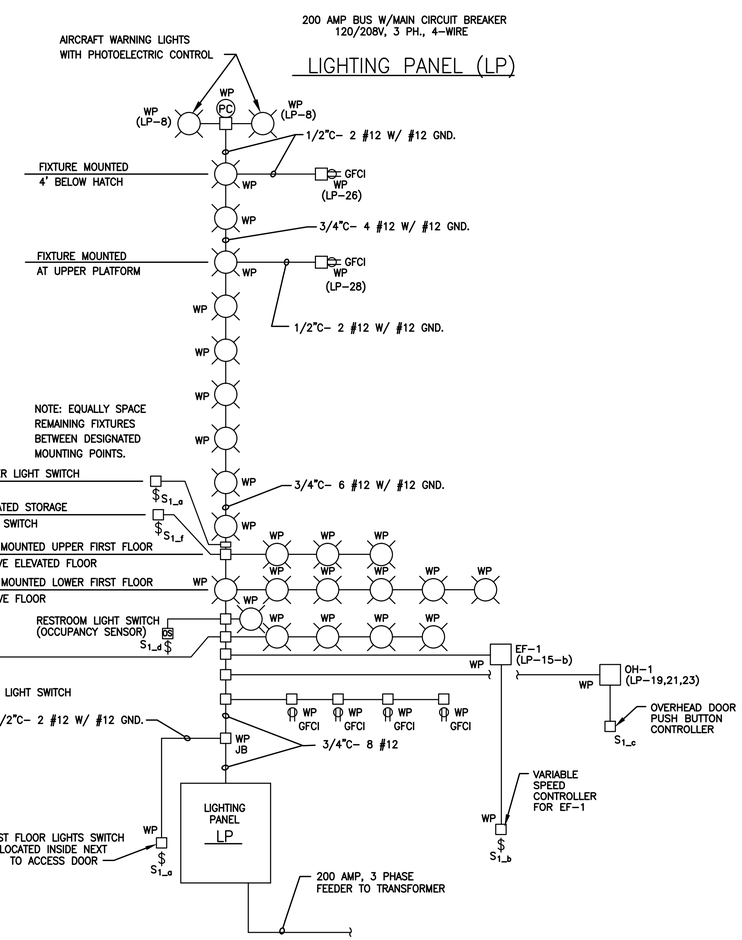


ELECTRICAL PLAN

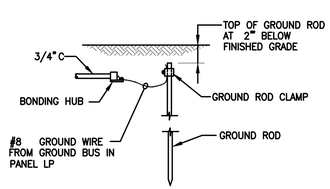
SCALE: ¼" = 1'-0"





LIGHTING PANEL (LP)

ELECTRICAL/LIGHTING SCHEMATIC



GROUND ROD DETAIL

NO SCALE

NOTES:

1. CONTROL PANEL PULL-BOX, 18"x18"x6" HINGED COVER, NEMA 3R.
2. PROVIDE ½" CONDUIT WITH (1) THERMOSTATIC CONTROL CABLE BETWEEN THERMOSTATS AND ELECTRIC UNIT HEATERS INDICATED.
3. VERIFY EXACT LOCATION IN FIELD PRIOR TO INSTALLATION.
4. PROVIDE A MINIMUM 4 INCH WALL OFFSETS FOR ALL ELECTRICAL OUTLETS & FIXTURES DUE TO INSULATION IN HEATED VALVE ROOM AND RESTROOM.
5. RESERVED.
6. MOUNT ALL RECEPTACLES AT FIRST FLOOR AT 3'-0" A.F.F.
7. ALL JUNCTION BOXES, LIGHTS, ETC. IN TOWER TO BE WP.
8. ROOM LOW TEMPERATURE SENSOR AT CONTROL PANEL.
9. PRESSURE TRANSDUCER
10. ALTITUDE POSITION INDICATOR.
11. DOOR SWITCH BY SCADA CONTRACTOR.
12. ½" C.- 2 #14 TO CONTROL PANEL PULL-BOX.
13. 2/C SHLD. CA. IN 1" C. TO CONTROL PANEL PULL-BOX.
14. ½" C.- 4 #14 TO CONTROL PANEL PULL-BOX.
15. LIGHT SWITCH WIRE & CONDUITS NOT SHOWN FOR CLARITY. ALL WIRING TO MEET LATEST NEC ELECTRIC CODE & LOCAL ELEC. CODE.
16. POWER AND CONTROL WIRING NOT SHOWN FOR CLARITY.
17. SEE SHEET M-2 FOR CITY RADIO ANTENNAE, FLOATS, LEVEL TRANSMITTER, LADDER LIGHTS, OBSTRUCTION LIGHTS, AND TANK HATCH INTRUSION ALARMS.

BAXTER & WOODMAN
Consulting Engineers

CONSULTANTS

REVISIONS

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MADISON, WISCONSIN

CONTRACT NO. 7821
PROJECT NO. 10445

BLACKHAWK WATER TOWER

SHEET TITLE

ELECTRICAL PLAN

E-2

I:\BURLINGTON\MADUD\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\BLACKHAWK TOWER\SHEETS\ELECTRICAL\E-2 ELECTRICAL PLAN.DWG
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SITE, BUILDING & STRUCTURE PLAN SYMBOLS

- POWER POLE
- OH — OVERHEAD CABLE
- CF — CONDUIT CONCEALED IN BACKFILLED AREA
- UC — DIRECT BURIAL CABLE
- U — UNDERGROUND CONDUIT
- F — CONDUIT CONCEALED IN FLOOR SLAB
- C — CONDUIT CONCEALED IN CEILING SLAB
- W — CONDUIT CONCEALED IN WALL
- AC — CONDUIT CONCEALED ABOVE SUSPENDED CEILING
- CS — CONDUIT CONCEALED BELOW FLOOR SLAB
- CC — CONDUIT CONCEALED ABOVE ROOF/CEILING SLAB
- AG — CONDUIT CONCEALED ABOVE GYPSUM BOARD CEILING
- E — EXPOSED CONDUIT
- EW — EXPOSED CONDUIT ON WALL
- EC — EXPOSED CONDUIT ON CEILING
- EP — EXPOSED CONDUIT BELOW PLATFORM
- FLEXIBLE CONDUIT
- FLEXIBLE CABLE OR CORD
- DOT INDICATES CHANGE IN CONDUIT ELEVATION OR CONNECTION TO FLEXIBLE CONDUIT
- 2"C– 5#12 — INDICATES CONDUIT SIZE AND NO. & SIZE OF CONDUCTORS
- C1–12 — INDICATES CONDUIT TYPE & NO. SEE CONDUIT SCHEDULE
- EXISTING CONDUITS (* SAME DESIGNATIONS AS PROPOSED)
- EXISTING CONDUITS TO BE REMOVED (* SAME DESIGNATIONS AS PROPOSED)

NOTE: UNDESIGNATED CONDUITS = 1/2"C – 2#12

- (14) — LED LIGHT FIXTURE – ( )= CKT. NO. SEE LIGHTING FIXTURE SCHEDULE
- (14) — FLOOD LIGHT FIXTURE – ( )= CKT. NO. SEE LIGHTING FIXTURE SCHEDULE
- (2) — LED LIGHT FIXTURE – ( )= CKT. NO. SEE LIGHTING FIXTURE SCHEDULE
- EX– (1) — EXIT LIGHT – ( )= CKT. NO. SEE LIGHTING FIXTURE SCHEDULE
- EMERGENCY LIGHT – ( )= CKT. NO. SEE LIGHTING FIXTURE SCHEDULE
- EMERGENCY LIGHT REMOTE LIGHT HEAD SEE LIGHTING FIXTURE SCHEDULE
- (6) S — MOTOR – APPROXIMATE HORSE POWER INDICATED ( ) = CIRCUIT NO. WHEN INDICATED
- MV — MOTORIZED VALVE OPERATOR
- EX — EXISTING INCANDESCENT LIGHT FIXTURE
- EX — EXISTING FLUORESCENT LIGHT FIXTURE
- EX — EXISTING MOTOR
- EX — EXISTING INCANDESCENT LIGHT FIXTURE TO BE REMOVED
- EX — EXISTING FLUORESCENT LIGHT FIXTURE TO BE REMOVED
- EX — EXISTING MOTOR TO BE REMOVED

- DS — SAFETY DISCONNECT SWITCH
- M — MANUAL MOTOR STARTER
- DRUM REVERSING SWITCH
- OUTLET BOX OR JUNCTION BOX
- 5.0 KW OR 5.0 KW — ELECTRIC UNIT HEATER APPROX. SIZE INDICATED
- EWH — ELECTRIC WATER HEATER
- EWC — ELECTRIC WATER COOLER
- PC — PHOTOCELL
- T — THERMOSTAT
- H — HUMIDISTAT
- A — AQUASTAT
- FS — FLOAT SWITCH
- PS — PRESSURE SWITCH
- LS — LIMIT SWITCH
- S — SOLENOID
- XXXX 201 — INSTRUMENTATION/CONTROL DEVICE (XXXX – SEE TABLE BELOW)

X X X X

- F = FLOW
- L = LEVEL
- P = PRESSURE
- T = TEMPERATURE
- K = TIME
- Z = POSITION

- C = CONTROLLER
- I = INDICATOR
- R = RECORDER
- T = TRANSMITTER
- Q = QUANTITY (TOTALIZE)
- V = VALVE

- E = PRIMARY ELEMENT
- S = SWITCH
- V = VALVE

- 24" (1) — 120V DUPLEX RECEPTACLE – ( )= CKT. NO. 24" = MOUNTING HEIGHT ABOVE FLOOR
- 120V SINGLE RECEPTACLE
- C — 120V CLOCK RECEPTACLE
- 20A — 240V, 20A, SINGLE RECEPTACLE
- 240V, DUPLEX RECEPTACLE
- 480V, 3 PHASE RECEPTACLE
- S1_a — SINGLE POLE TOGGLE SWITCH, "a" INDICATE CONTROL CKT.
- S2 — DOUBLE POLE TOGGLE SWITCH
- S3 — THREE-WAY TOGGLE SWITCH
- S4 — FOUR-WAY TOGGLE SWITCH
- JB — JUNCTION BOX
- WP — INDICATES WEATHERPROOF DEVICE
- XP — INDICATES EXPLOSIONPROOF DEVICE
- EX — INDICATES EXISTING DEVICE
- H/S — FIRE ALARM HORN/STROBE
- SD — SMOKE DETECTOR (HD = HEAT DETECTOR)
- FB — FIRE ALARM BELL
- ALARM HORN
- COMMUNICATIONS SPEAKER
- T — TELEPHONE JACK
- "UP–STOP–DOWN" PUSHBUTTON STATION
- "ON–OFF" SELECTOR SWITCH W/ SPRING RETURN TO CENTER POSITION
- MOMENTARY CONTACT "START–STOP" PUSHBUTTON STATION
- MAINTAINED CONTACT "START–STOP" PUSHBUTTON STATION
- MOMENTARY CONTACT "START–STOP" PUSHBUTTON STATION W/ HASP HOLD ON STOP
- "STOP–HOLD" PUSHBUTTON STATION W/ HASP HOLD

CONTROL SCHEMATIC SYMBOLS

- TRANSFORMER
- FUSE
- MS — OVRLDS — MOTOR STARTER COIL W/ OVERLOADS
- RTM — RUNNING TIME METER
- G — INDICATING LIGHT
- R — PUSH TO TEST TYPE INDICATING LIGHT

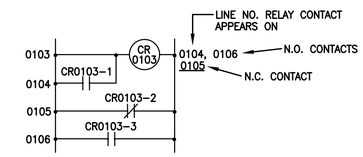
INDICATING LIGHT COLOR DESIGNATIONS:

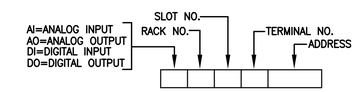
A – AMBER	O – ORANGE	Y – YELLOW
B – BLUE	P – PURPLE	FL – FLUORESENT
C – CLEAR	R – RED	NE – NEON
G – GREEN	W – WHITE	OP – OPALESCENT

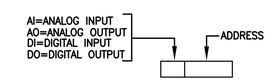
- CR — CONTROL RELAY
- PR — POWER RELAY
- TDR — TIME DELAY RELAY
- AR — ALTERNATING RELAY
- LR — LATCHING RELAY

- PUSHBUTTON – NORMALLY OPEN MOMENTARY CONTACT
- PUSHBUTTON – NORMALLY CLOSED MOMENTARY CONTACT
- MAINTAINED CONTACT TYPE PUSHBUTTON
- MULTI–POSITION SELECTOR SWITCH
- LIMIT SWITCH – NORMALLY OPEN
- LIMIT SWITCH – NORMALLY CLOSED
- SINGLE POLE DOUBLE THROW LIMIT SWITCH
- LIQUID LEVEL – NORMALLY OPEN
- LIQUID LEVEL – NORMALLY CLOSED
- PRESSURE SWITCH – NORMALLY OPEN
- PRESSURE SWITCH – NORMALLY CLOSED
- TEMPERATURE ACTUATED SWITCH – NORMALLY OPEN
- TEMPERATURE ACTUATED SWITCH – NORMALLY CLOSED

- FLOW ACTUATED SWITCH – NORMALLY OPEN
- FLOW ACTUATED SWITCH – NORMALLY CLOSED
- NORMALLY OPEN TIMER CONTACT – DELAY CLOSE WHEN COIL IS ENERGIZED
- NORMALLY CLOSED TIMER CONTACT – DELAY OPEN WHEN COIL IS ENERGIZED
- NORMALLY OPEN TIMER CONTACT – INSTANT CLOSE WHEN COIL IS ENERGIZED – DELAY OPEN WHEN COIL IS DE–ENERGIZED
- NORMALLY CLOSED TIMER CONTACT – INSTANT OPEN WHEN COIL IS ENERGIZED – DELAY CLOSE WHEN COIL IS DE–ENERGIZED
- NORMALLY OPEN CONTACT (RELAY, MOTOR STARTER, OVERLOAD, ETC.)
- NORMALLY CLOSED CONTACT (RELAY, MOTOR STARTER, OVERLOAD, ETC.)







ABBREVIATIONS

A OR AMP.	AMPERE			PB	PUSHBUTTON
ACK.	ACKNOWLEDGE	FSBL	FUSIBLE	PLC	PROGRAMMABLE LOGIC CONTROLLER
A.F.F.	ABOVE FINISHED FLOOR	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	PNL	PANEL
ANN	ANNUNCIATOR	GND	GROUND	PPM	PARTS PER MILLION
ANT.	ANTENNA	H.O.A.	HAND–OFF–AUTO SELECTOR SWITCH	PR	PROBE
AUTO	AUTOMATIC	HP	HORSE POWER	PS	PRESSURE SWITCH
AUX	AUXILIARY	HWL or H.W.L.	HIGH WATER LEVEL	PSI	POUNDS PER SQUARE INCH
BAT.	BATTERY	ISR	INTRINSICALLY SAFE RELAY	PT	PRESSURE TRANSDUCER
BLDG.	BUILDING	JB or J. BOX	JUNCTION BOX	PVC	POLYVINYL CHLORIDE
BRKR.	BREAKER	KW	KILOWATT	R.A.S.	RETURN ACTIVATED SLUDGE
C	CONDUIT	KWH	KILOWATT HOUR	RM	ROOM
CA	CABLE	KVA	KILOVOLT–AMPERE	RTM	RUNNING TIME METER
CAP	CAPACITOR	LGT	LIGHT	SH.	SHEET
CB	CIRCUIT BREAKER	LP	LIGHTING PANEL	SHD	SHIELDED
CCT. or CKT.	CIRCUIT	LT	LEVEL TRANSDUCER	SIL	SILENCE
CH	CHANNEL	LTG	LIGHTING	SOL	SOLENOID
COM.	COMMON	LTS	LIGHTS	SPDT	SINGLE POLE DOUBLE THROW
COND.	CONDUCTOR	LV	LOW VOLTAGE	SW	SWITCH
CONT.	CONTROL	LWL or L.W.L.	LOW WATER LEVEL	SWGR	SWITCHGEAR
CPU	CENTRAL PROCESSING UNIT	MA	MILIAMPERE	TDR	TIME DELAY RELAY
CS	SIGNAL CONDUIT	MAN	MANUAL	TM	TIMER
CSR	CURRENT SENSING RELAY	MCC	MOTOR CONTROL CENTER	TYP.	TYPICAL
CT	CURRENT TRANSFORMER	MDR	MOISTURE DETECTION RELAY	V	VOLT
C1	SINGLE PHASE CONDUIT	MFR	MANUFACTURER	VAC	VOLTS ALTERNATING CURRENT
C3	THREE PHASE CONDUIT	MGD	MILLION GALLONS PER DAY	W.A.S.	WASTE ACTIVATED SLUDGE
D.E.	DUAL ELEMENT	N	NEUTRAL	WHM	WATT–HOUR METER
DET	DETECTOR	N.C.	NORMALLY CLOSED	WM	WATT METER
DISC.	DISCONNECT	N.I.C.	NOT IN CONTRACT	WP	WEATHERPROOF
D.O.	DISSOLVED OXYGEN	NO.	NUMBER	X	CLOSE
DPDT	DOUBLE POLE DOUBLE THROW	N.O.	NORMALLY OPEN	XFMR	TRANSFORMER
ENCL.	ENCLOSURE	O	OPEN	XMTR	TRANSMITTER
EX. or EXIST.	EXISTING	OLS	OVERLOADS	2P	TWO POLE
FU	FUSE			3P	THREE POLE

MOTOR CONTROL CENTER SYMBOLS

- OR OR — CIRCUIT BREAKER
- MULTI–POSITION SELECTOR SWITCH
- L–O–R "LOCAL–OFF–REMOTE"
- H – A "HAND–AUTO"
- H–O–A "HAND–OFF–AUTO"
- ON–O–R "ON–OFF–REMOTE"
- ON–O–I "ON–OFF–INTERMITTENT"
- F–R "FORWARD–REVERSE"
- PUSHBUTTON
- HAND RESET
- INDICATING (PILOT) LIGHT
- GND DET — GROUND DETECTOR SYSTEM
- RTM — RUNNING TIME METER
- TIMER
- V — VOLTMETER
- AM — AMMETER
- ALARM HORN
- 100 KW — EMERGENCY GENERATOR 100KW DESIGNATES SIZE
- LP — LIGHTING PANEL
- DS — DISCONNECT SWITCH (30A. UNLESS OTHERWISE NOTED)
- ? — MOTOR – APPROX. H.P. INDICATED
- NON–FUSIBLE DISCONNECT
- FUSIBLE DISCONNECT
- CIRCUIT BREAKER WITH SHUNT TRIP
- THERMAL OVERLOAD RELAY
- 1 — MAGNETIC STARTER (1=NEMA SIZE)
- TRANSFORMER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- FUSE
- 3–PHASE SURGE PROTECTOR

LIGHTING FIXTURE SCHEDULE

- A — SHAT–R–SHIELD INCOPLAS LED HYBRID ADJUSTABLE WALL PACK: CAT. NO. 045–11Y–50–SVP–FR–VL–P–00–WC–01 OR EQUAL. 5,000 LUMENS, 45W, 5,000K, FROSTED POLY. LENS, 120–277V WITH PHOTO CELL.
- B — SEE SPECIFICATION SECTION 33 16 19.33 FOR LADDER, OBSTRUCTION, AND PLATFORM LIGHTS.
- B1 — SHAT–R–SHIELD INCOPLAS LED HYBRID ADJUSTABLE WALL PACK: CAT. NO. 090–11Y–50–SVP–FR–VL–A–00–WC–01 OR EQUAL. 10,000 LUMENS, 90W, 5,000K, FROSTED POLY. LENS, 120–277V.
- B2 — LITHONIA DMW2 LED WET LOCATION RATED 2FT PENDANT MOUNT LINEAR FIXTURE: CAT. NO. DMW2–L24–400LM–PFL–DM–MVOLT–GZ1–40K–80CRI OR EQUAL. 4,000 LUMENS, 40W, 40K, FROSTED POLY DIFFUSER, MED. DISTRIBUTION, 120–277V. ON OCCUPANCY SENSOR WHERE NOTED ON DRAWING.
- EM–EX — QUANTUM EXIT/UNIT COMBO. LHQM LED W/ TWIN LED WP REMOTE HEAD, DUAL VOLTAGE (120/277V), 90 MINUTES MINIMUM Ni–CAD BATTERY BACKUP.

NOTE:

1. PROVIDE ALL POWER AND CONTROL WIRING FOR INSTRUMENTATION NOTED IN SPECIFICATION SECTIONS AND ON DRAWINGS.

BAXTER & WOODMAN Consulting Engineers

CONSULTANTS

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MADISON, WISCONSIN

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BLACKHAWK WATER TOWER

SHEET TITLE

ELECTRICAL SYMBOL LIST

E-3

I:\BURLINGTON\MADUO\150826-BLACKHAWK TOWER\CADD\DRAWINGS\DWG\BLACKHAWK TOWER\SHEETS\ELECTRICAL\E-3 ELECTRICAL SYMBOL LIST.DWG
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