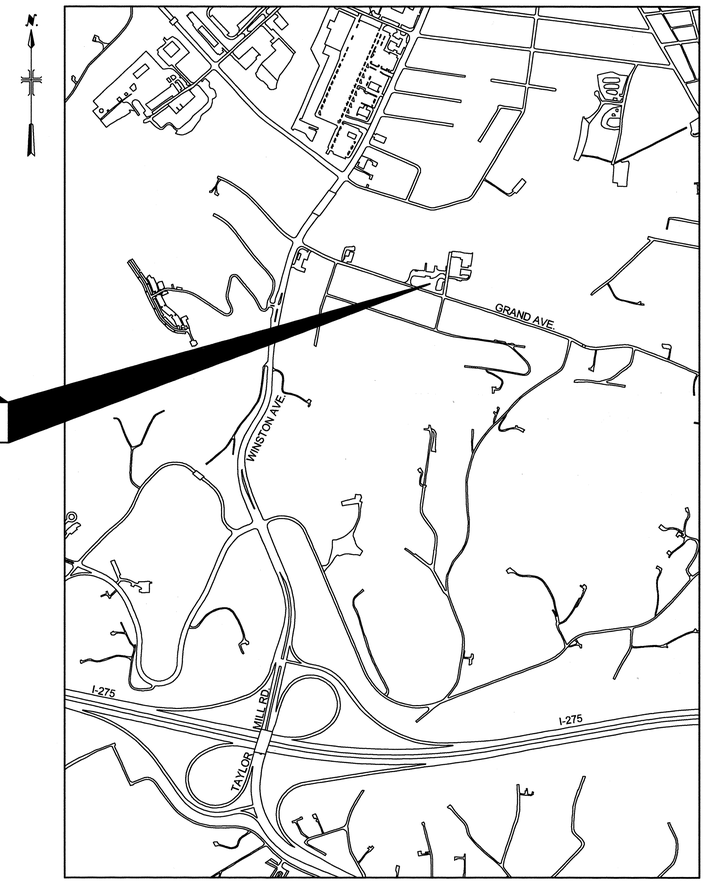
NORTHERN KENTUCKY WATER DISTRICT
KENTON COUNTY, KENTUCKY

TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

DRAWINGS FOR:
NKWD PROJECT NO. 184-457
DOW LOAN NO. DWL 1014

MARCH 2011



VICINITY MAP
NOT TO SCALE

RON LOVAN _____ PRESIDENT/CEO

NORTHERN KENTUCKY WATER DISTRICT BOARD OF COMMISSIONERS

ANDREW COLLINS _____ CHAIRPERSON
DOUG WAGNER _____ VICE CHAIRPERSON
FRED MACKE JR. _____ SECRETARY
JOE KOESTER _____ TREASURER
PAT SOMMERKAMP _____ COMMISSIONER
FRANK JACKSON _____ COMMISSIONER

MALCOLM PIRNIE
8600 GOVERNOR'S HILL DRIVE, SUITE 210
CINCINNATI, OH 45249-1388

JASON D. ABBOTT — STATE OF KENTUCKY — 25937 — LICENSED PROFESSIONAL ENGINEER — 3/18/11

GRW ENGINEERS - ARCHITECTS - PLANNERS
801 CORPORATE DRIVE
LEXINGTON, KY 40503

RYAN C. CARR — STATE OF KENTUCKY — 23455 — LICENSED PROFESSIONAL ENGINEER — 3/18/11

cdpengineers
3250 BLAZER PARKWAY
LEXINGTON, KY 40509

T. MICHELLE HOWLETT — STATE OF KENTUCKY — 19856 — LICENSED PROFESSIONAL ENGINEER — 3/10/11

STRAND ASSOCIATES, INC. ENGINEERS
615 ELSINORE PLACE, SUITE 320
CINCINNATI, OH 40202

CHRISTOPHER S. DENT — STATE OF KENTUCKY — 26087 — LICENSED PROFESSIONAL ENGINEER — 3/18/11

BID SET

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DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

GRW

ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY
JASON M ABBOTT
25937
LICENSED PROFESSIONAL ENGINEER
3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

GENERAL
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SCALE: NO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET G-00-002
CAD REF. NO. G-00-002

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DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY JASON M. ADKINS 25937 LICENSED PROFESSIONAL ENGINEER 3/8/11

REVISIONS			
NO.	BY	DATE	REMARKS

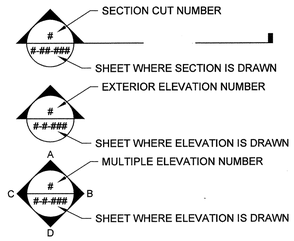
DES JMA
DWN PJW
CKD CMW

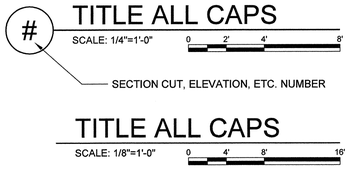
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

GENERAL
INDEX OF DRAWINGS II
SCALE: NO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET G-00-003
CAD REF. NO. G-00-003

TYPICAL SECTION/ ELEVATION TAGS





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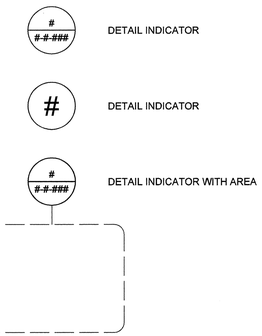
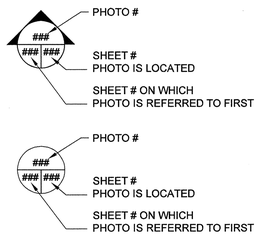


TYPICAL PHOTO TAG



TYPICAL NOTE TAG

SHEET KEYNOTES:

1. KEYNOTES
2.
3.
4.

GENERAL NOTES:

1. GENERAL NOTES
2.
3.
4.

TYPICAL NORTH SYMBOL

MECHANICAL ABBREVIATIONS

AB	ANCHOR BOLT
ABAN.	ABANDONED
AC	ASPHALT CONCRETE PAVEMENT
ADD'L.	ADDITIONAL
ADJ.	ADJUSTABLE
AH	ACCESS HATCH
ALUM.	ALUMINUM
ALT.	ALTERNATE
ARCH	ARCHITECTURE
BF	BLIND FLANGE
BITUM.	BITUMINOUS
BL	BASELINE
BLDG.	BUILDING
BM	BENCH MARK
BM.	BEAM
BOP	BOTTOM OF PIPE
BOT.	BOTTOM
BRG	BEARING
BRP	BUILDING REFERENCE POINT
BW	BACKWASH
BWS	BACKWASH SUPPLY
BWW	BACKWASH WASTE
℄	CENTERLINE
C/C	CENTER TO CENTER
CB	CATCH BASIN
CHEM	CHEMICAL LINE
CHH	COMMUNICATION HANDHOLE
CJ	CONSTRUCTION JOINT
CL.	CLEAR
CMH	COMMUNICATION MANHOLE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL.	COLUMN
CONC.	CONCRETE
CONN	CMU CORNER OF EXT. FACE
CONT.	CONTINUED
CPLG.	COUPLING
CTW	CONTACTOR TO WASTE
CY	CUBIC YARD(S)
CW	COLD WATER (POTABLE)
D	DRAIN
DET.	DETAIL
DIP	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM	DIMENSION
DISCH.	DISCHARGE
DMH	DROP MANHOLE
DN.	DOWN
DTL	DETAIL
DWGS	DRAWINGS
DWL.	DOWELS
EA.	EACH
ECC	ECCENTRIC
EDB	ELECTRICAL DUCT BANK
EF	EACH FACE
EFF.	EFFLUENT
EJ	EXPANSION JOINT
EL.	ELEVATION
ELEC.	ELECTRIC
EMH	ELECTRICAL MANHOLE
EQ.	EQUALIZATION
EW	EACH WAY
EX.	EXISTING
FD	FLOOR DRAIN
FDN	FOUNDATION
FDND	FOUNDATION DRAIN
FF	FAR FACE
FIN.	FINISHED
FIPT	FEMALE IRON PIPE THREAD
FLEX.	FLEXIBLE
FLG.	FLANGE
FLR.	FLOOR
FTG.	FOOTING
FT., '	FEET
GA.	GAGE OR GAUGE
GAC	GRANULAR ACTIVATED CARBON
GALV.	GALVANIZED
GE	GROOVED END JOINT
GRD.	GROUND
GRAT.	GRATING
HB	HOSE BIB
HFCA	HARNESSED FLANGE COUPLING ADAPTER
HORIZ.	HORIZONTAL
HP	HIGH POINT
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN., "	INCHES
INF.	INFLUENT
INV.	INVERT
JST.	JOIST
JT.	JOINT
K	KIP (1000 POUNDS)
KSF	KIPS PER SQUARE FOOT
LG.	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LR	LONG RADIUS
LSH	LEVEL SWITCH HIGH
LSLL	LEVEL SWITCH LOW LOW
MAS	MASONRY
MAX.	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFR.	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN.	MINIMUM
MIPT	MALE IRON PIPE THREAD
MJ	MECHANICAL JOINT
MO	MASONRY OPENING
NC	NORMALLY CLOSED
NF	NEAR FACE
NO	NORMALLY OPEN
NO.	NUMBER
O	OVERFLOW
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG.	OPENING
OPP.	OPPOSITE
PC	POINT OF CURVATURE
PE	PLAIN END
PI	POINT OF INTERSECTION
PL	PLATE OR PROPERTY LINE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
R	RISER
RED.	REDUCER
REINF.	REINFORCEMENT OR REINFORCE
REQ'D.	REQUIRED
RMJ	RESTRAINED JOINT
RM.	ROOM
ROW	RIGHT OF WAY
SHT.	SHEET
SOC	SOCKET
SPA.	SPACING
SR	SHORT RADIUS
SS	STAINLESS STEEL
STD.	STANDARD
STL.	STEEL
STRUC.	STRUCTURAL
T	TREAD
T/	TOP OF
T&B	TOP AND BOTTOM
THK.	THICK
TYP.	TYPICAL
UON	UNLESS OTHERWISE NOTED
USG	UNITED STATES STANDARD GAGE
VERT.	VERTICAL
W/	WITH
WP	WORK POINT
WRF	WATER RECLAMATION FACILITY
WS	WATER STOP
WWF	WELDED WIRE FABRIC

IDENTIFYING LETTERS FOR GROUP OF DRAWINGS

G	- GENERAL
D	- DEMOLITION
C	- CIVIL (SITE)
M	- MECHANICAL
A	- ARCHITECTURAL
S	- STRUCTURAL
H	- HVAC
P	- PLUMBING
FP	- FIRE PROTECTION
I	- INSTRUMENTATION
E	- ELECTRICAL

TMTP AREA LEGEND

AREA IDENTIFIER NUMBER	AREA DESCRIPTION
00	GENERAL SHEETS
01	SITE WORK MODIFICATIONS (GRADING, ROADWAYS, SIDEWALKS, ETC.)
02	SITE UTILITIES (PROCESS PIPING, ELECTRICAL DUCTBANKS, ETC.)
03	EXISTING FLOC. AND SED BASINS
05	GAC FEED PUMP STATION
06	PT / GAC BUILDING
08	FILTER BUILDING
09	CHEMICAL BUILDING
10	TYPICAL DETAILS

DIMENSIONS:

(*)	DENOTES DIMENSIONS TO BE DETERMINED BY MANUFACTURER
(* *)	DENOTES DIMENSIONS TO BE DETERMINED IN FIELD BY CONTRACTOR.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
JASON ADCOCK
23237
LICENSED PROFESSIONAL ENGINEER
3/18/11

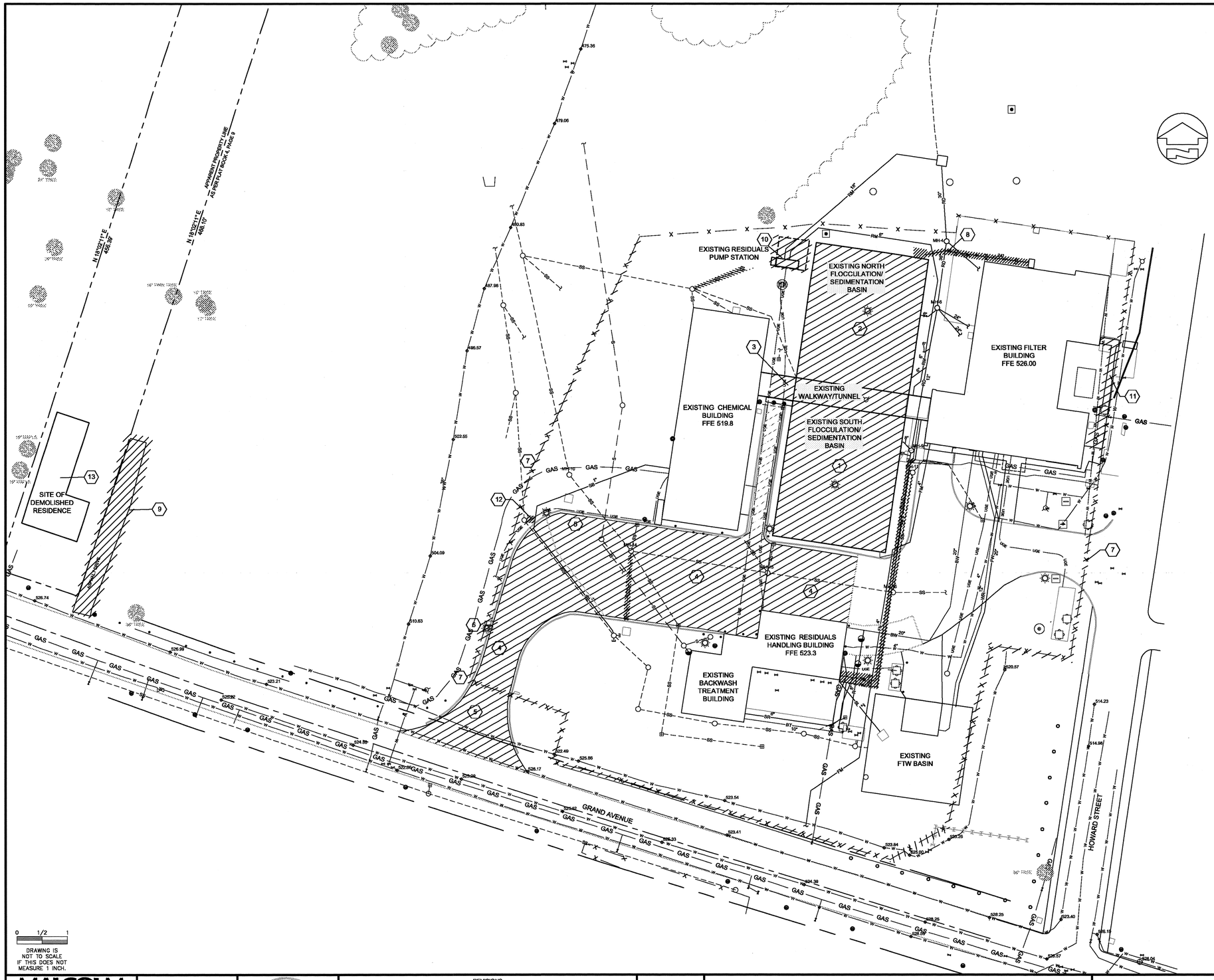
REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

GENERAL
NOTES, SYMBOLS, AND ABBREVIATIONS
SCALE: NO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET G-00-004
CAD REF. NO. G-00-004



SHEET KEYNOTES:

1. DEMOLISH EXISTING SOUTH FLOCCULATION/SEDIMENTATION BASIN AFTER NEW PRELIMINARY TREATMENT BUILDING IS CONSTRUCTED AND OPERATING PROPERLY. SEE SPECIFICATION SECTION 01120.
2. DEMOLISH EXISTING NORTH FLOCCULATION/SEDIMENTATION BASIN AFTER NEW PRELIMINARY TREATMENT BUILDING IS CONSTRUCTED AND OPERATING PROPERLY. SEE SPECIFICATION SECTION 01120.
3. DEMOLISH PORTION OF EXISTING TUNNEL TO PROVIDE ACCESS TO NORTH FLOCCULATION/SEDIMENTATION BASIN AREA. SEE SHEET A-09-101 FOR DETAILS.
4. REMOVE EXISTING CONCRETE AND ASPHALT PAVING.
5. REMOVE EXISTING CURB & GUTTER.
6. REMOVE LIGHTPOLE AND ASSOCIATED WIRING.
7. REMOVE EXISTING CHAIN LINK FENCE INCLUDING ANY GATES AND OPERATORS.
8. REMOVE EXISTING 30" ABOVE GRADE DUCTILE IRON PIPE AND CONCRETE SUPPORTS BETWEEN BASIN AND EDGE OF CLEARWELL. SEE SPECIFICATION SECTION 01120.
9. REMOVE EXISTING PAVEMENT
10. DEMOLISH AND REMOVE EXISTING RESIDUALS PUMPING STATION (NEW FACILITY MUST BE IN PLACE AND OPERATIONAL BEFORE DEMO OF EXIST. RESIDUALS PUMPING STATION) SEE SPECIFICATION SECTION 01120. CORRESPONDING 18"-RM AND 6"-RM TO BE ABANDONED IN PLACE.
11. EXISTING CONCRETE SIDEWALK TO BE DEMOLISHED AND REPLACED IN THIS AREA FOR INSTALLATION OF ELECTRIC CONDUITS. SEE SHEETS E-08-106 & E-08-110.
12. RELOCATE EXISTING AUTO SAMPLER. SEE CHEET C-01-101
13. BUILDINGS HAVE BEEN REMOVED FROM THE WESTERN TWO PROPERTIES OF THE SITE. CONTRACTOR TO VERIFY REMOVAL AND CONDITION OF PLACED FILL.

GENERAL NOTES:

1. NO CONSTRUCTION EQUIPMENT IS ALLOWED ON EXISTING CLEARWELL TOP SLAB.

DEMOLITION AREA

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/9/11

REVISIONS			
NO.	BY	DATE	REMARKS

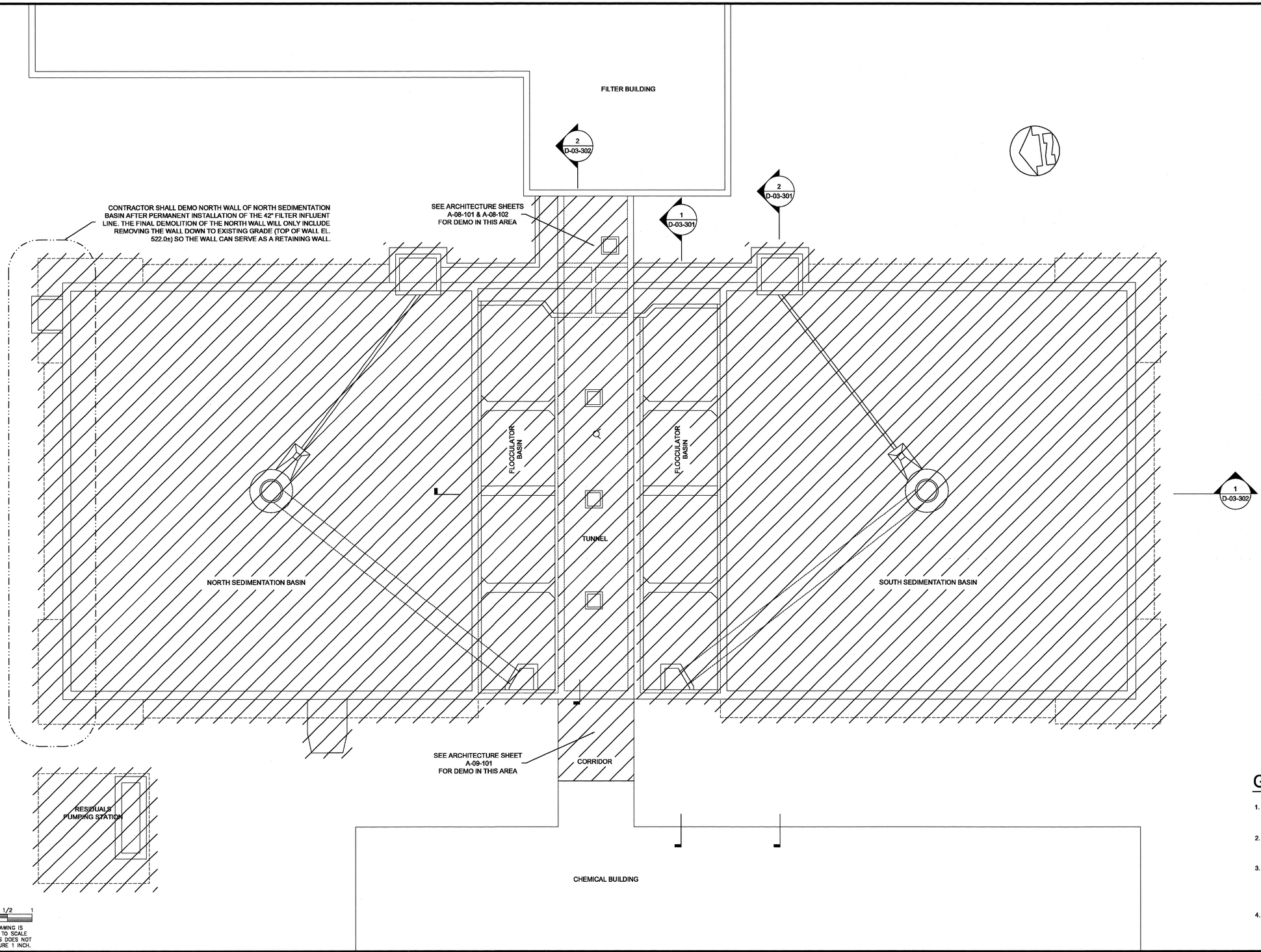
DES RCC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

DEMOLITION
SITE DEMOLITION PLAN

SCALE: 1" = 30'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET D-01-101
CAD REF. NO. 3789-D-01-101



GENERAL NOTES:

1. ALL REMOVAL AND DEMOLITION SHALL BE COORDINATED WITH THE CONSTRUCTION SEQUENCING SCHEDULE. SEE SPECIFICATION SECTION 01120.
2. REMOVE ALL PIPING THAT IS ASSOCIATED WITH THE STRUCTURES UP TO THE RESPECTIVE MANHOLE. PLUG MANHOLE INLET WHERE EXISTING PIPES ARE REMOVED.
3. THE DEMOLITION OF THE EXISTING TUNNEL AND CORRIDORS CONNECTING THE TUNNEL TO ADJACENT BUILDINGS SHALL INCLUDE RELOCATING ALL EXISTING ELECTRICAL CONDUIT, WIRING, LIGHTING, SCADA CABLES, POTABLE WATER PIPING, FIRE SPRINKLER PIPING, AND CHEMICAL FEED PIPING.
4. EQUIPMENT INDICATED TO BE SALVAGED PER SPECIFICATIONS SHALL BE RETURNED TO OWNER. ALL OTHER EQUIPMENT NOT BEING SALVAGED SHALL BE DISPOSED OF BY CONTRACTOR.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/8/11

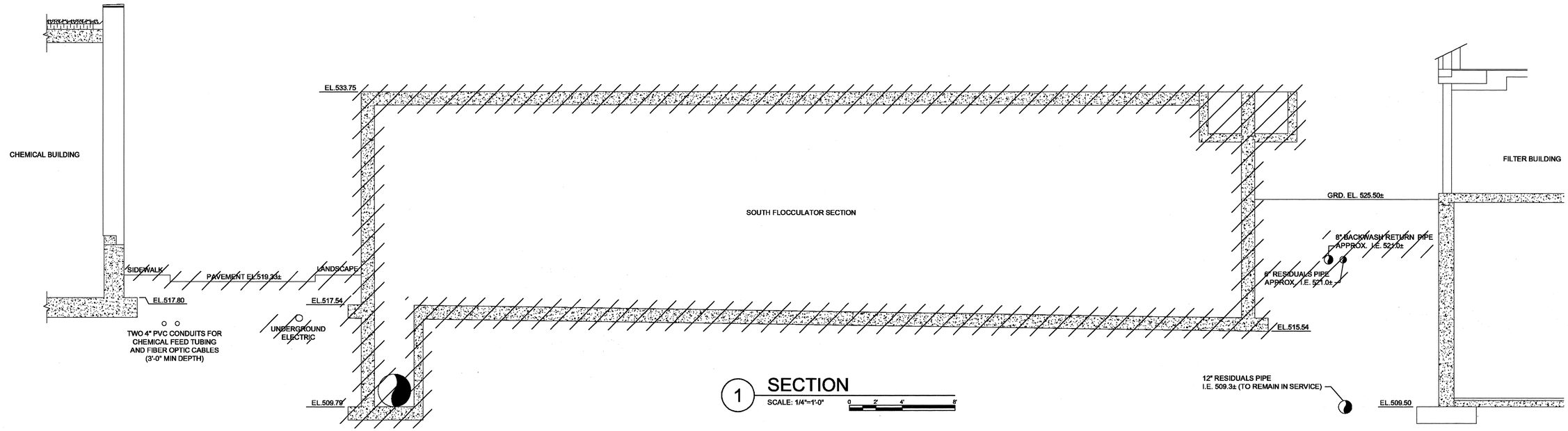
REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

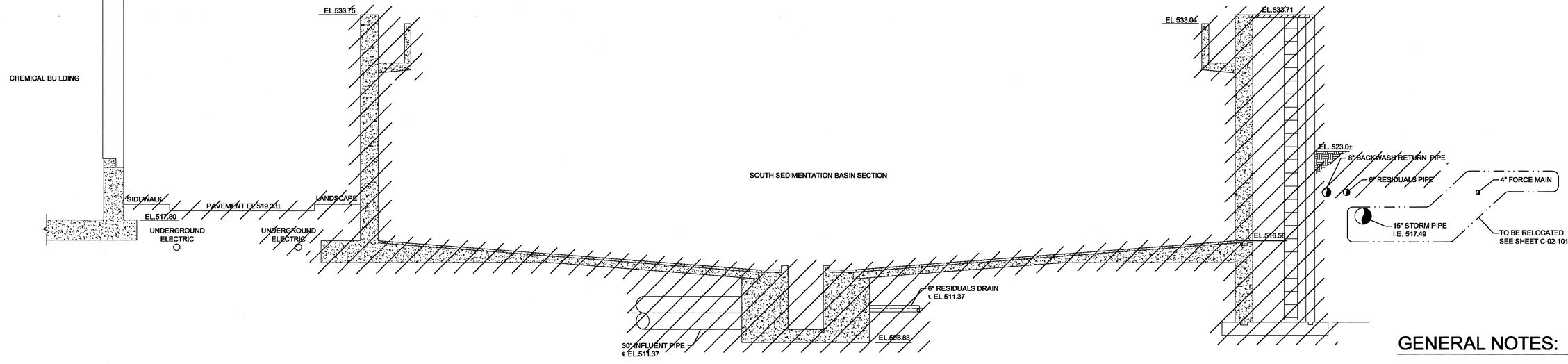
DEMOLITION
EXISTING FLOCCULATION AND SEDIMENTATION DEMO - PLAN
SCALE: 1/8" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET D-03-101
CAD REF. NO. 3789-D-03-101



1 SECTION

SCALE: 1/4"=1'-0" 0 2' 4' 8'



2 SECTION

SCALE: 1/4"=1'-0" 0 2' 4' 8'

0 1/2 1

DRAWING IS
NOT TO SCALE
IF THIS DOES NOT
MEASURE 1 INCH.

GENERAL NOTES:

1. ALL REMOVAL AND DEMOLITION SHALL BE COORDINATED WITH THE CONSTRUCTION SEQUENCING SCHEDULE. SEE SPECIFICATION SECTION 01120.
2. EQUIPMENT REMOVED DUE TO DEMOLITION SHALL BE RETURNED TO OWNER.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/18/11

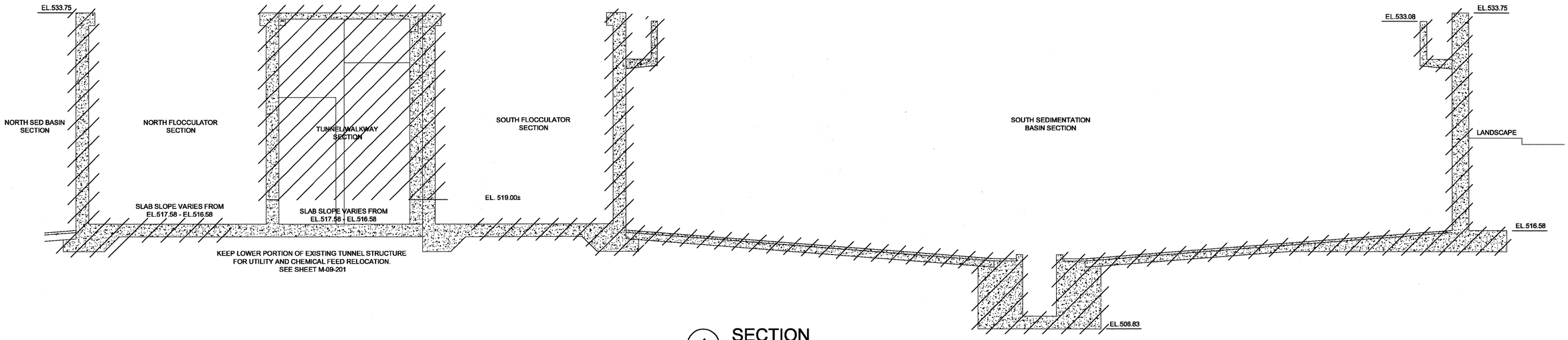
REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

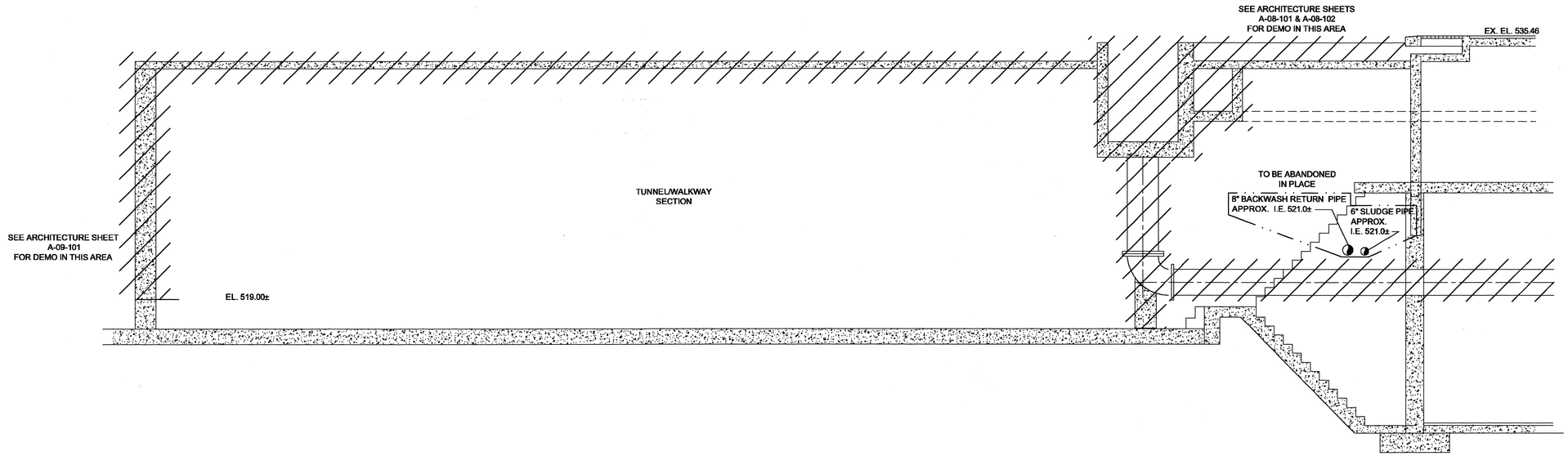
DEMOLITION
EXISTING FLOCCULATION AND SEDIMENTATION DEMO - SECTIONS I
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET D-03-301
CAD REF. NO. 3789-D-03-301



1 SECTION

SCALE: 1/4"=1'-0" 0 2' 4' 8'



2 SECTION

SCALE: 1/4"=1'-0" 0 2' 4' 8'

GENERAL NOTES:

1. ALL REMOVAL AND DEMOLITION SHALL BE COORDINATED WITH THE CONSTRUCTION SEQUENCING SCHEDULE. SPECIFICATION SECTION 01120.
2. THE DEMOLITION OF THE EXISTING TUNNEL AND CORRIDORS CONNECTING THE TUNNEL TO ADJACENT BUILDINGS SHALL INCLUDE ALL EXISTING ELECTRICAL CONDUIT, WIRING, LIGHTING, SCADA, CABLES, POTABLE WATER PIPING, FIRE SPRINKLER PIPING, AND CHEMICAL FEED PIPING.
3. EQUIPMENT REMOVED DUE TO DEMOLITION SHALL BE RETURNED TO OWNER.

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY RYAN C. CARR 23455 LICENSED PROFESSIONAL ENGINEER 3/18/11

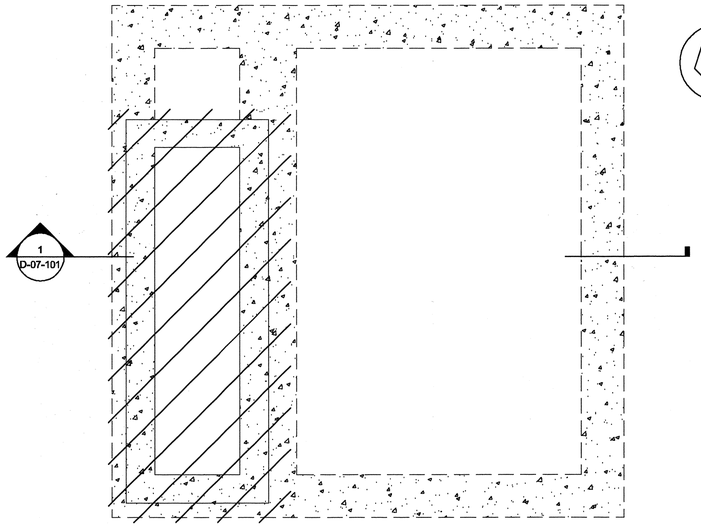
REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

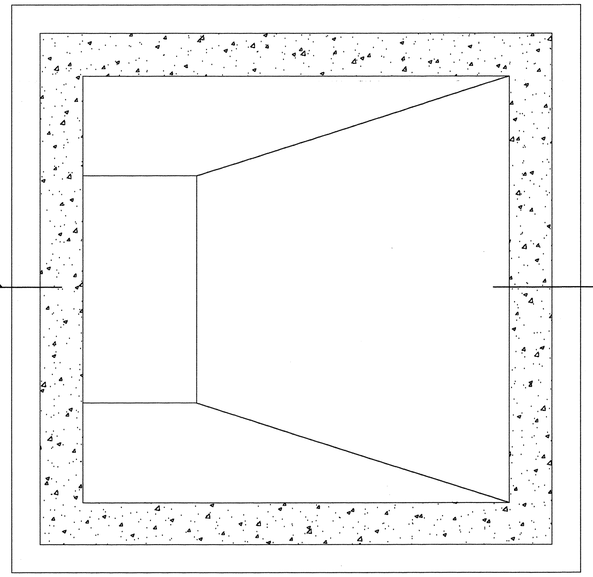
DEMOLITION
EXISTING FLOCCULATION AND SEDIMENTATION DEMO - SECTIONS II
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET D-03-302
CAD REF. NO. 3789-D-03-302



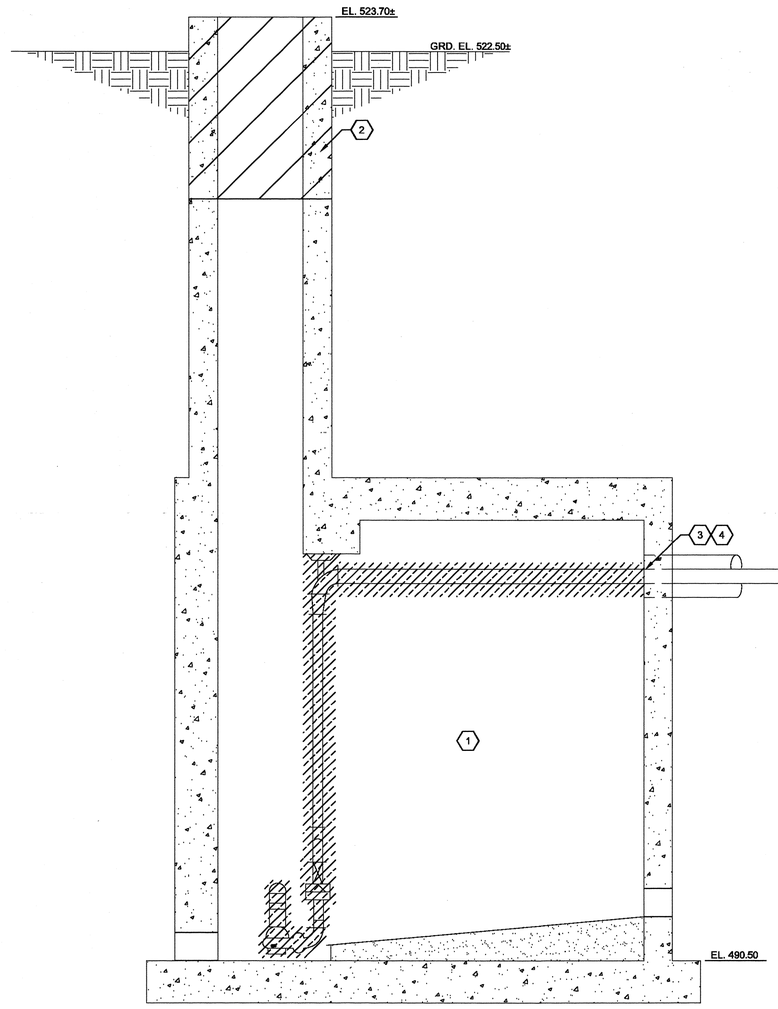
UPPER PLAN

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



UPPER PLAN

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



1 SECTION

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

SHEET KEYNOTES:

1. REMAINING STRUCTURE TO BE BACKFILLED WITH "LIGHT WEIGHT ENGINEERED FILL" AS PER SPECIFICATION SECTION 02223.
2. REMOVE TOP 6'-0" PORTION OF STRUCTURE AND BACKFILL WITH COMPACTED CLAY AND 6" TOPSOIL CAP.
3. GROUT FILL TO PLUG EXISTING 18" RM INFLUENT. CONTRACTOR TO VERIFY I.E.
4. GROUT FILL TO PLUG EXISTING 6" RM EFFLUENT CONTRACTOR TO VERIFY I.E.

GENERAL NOTES:

1. ALL REMOVAL AND DEMOLITION SHALL BE COORDINATED WITH THE CONSTRUCTION SEQUENCING SCHEDULE, SPECIFICATION SECTION 01120.
2. REMOVE EXISTING SUBMERSIBLE PUMPS, PUMP SUPPORTS AND GUIDES (NOT SHOWN) AND EXISTING VALVES.
3. EQUIPMENT INDICATED TO BE SALVAGED PER SPECIFICATIONS SHALL BE RETURNED TO OWNER. ALL OTHER EQUIPMENT NOT BEING SALVAGED SHALL BE DISPOSED BY CONTRACTOR.

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/18/11

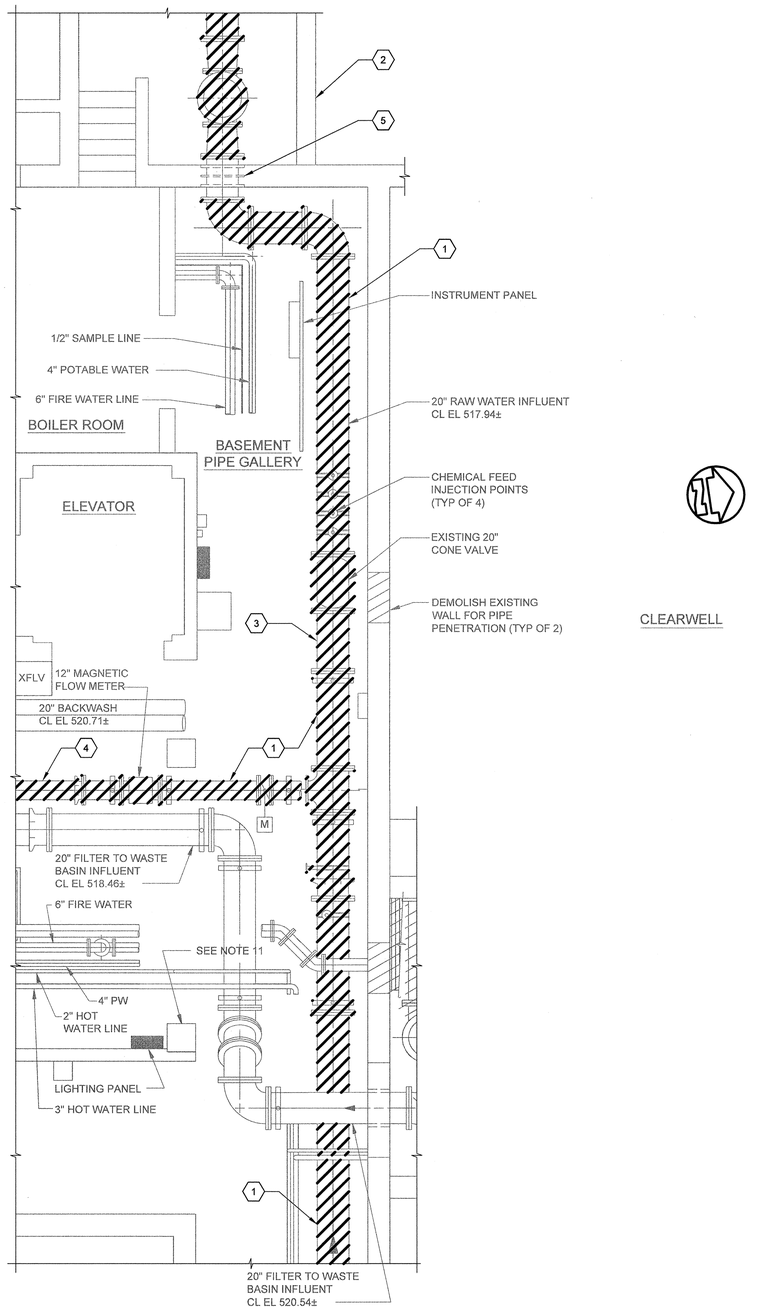
REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

DEMOLITION
RESIDUALS PUMP STATION DEMOLITION - PLANS AND SECTION
SCALE: 3/8" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET D-07-101
CAD REF. NO. 3789-D-07-101



1 FILTER BUILDING PIPE GALLERY PARTIAL PLAN AT EL. 510.46±

SCALE: 1/4"=1'-0"

0 2" 4' 8'

SHEET KEYNOTES:

1. REMOVE EXISTING 20" RAW WATER INFLUENT MAIN, RAW WATER CHEMICAL FEED INJECTION POINTS, EXISTING 20" CONE VALVE, FLOW METER, FITTINGS, BENDS, PIPE SUPPORTS AND ALL APPURTENCES FROM THE EAST WALL OF THE PIPE GALLERY TO THE EXISTING RAPID MIX. REMOVE EXISTING 12" FILTER TO WASTE RETURN PIPE, FLOW METER, VALVE, FITTINGS, BENDS, PIPE SUPPORTS AND ALL APPURTENCES FROM THE SOUTH WALL OF THE PIPE GALLERY TO THE EXISTING 20" RAW WATER INFLUENT.
2. ALL PIPING AND UTILITIES TO BE REMOVED FROM EXISTING TUNNEL AND TUNNEL IS TO BE PARTIALLY DEMOLISHED. SEE TUNNEL DEMOLITION SHEET D-03-302 AND UTILITY RELOCATION SHEET M-09-201.
3. APPROXIMATE LENGTH OF 20" RAW WATER PIPE INCLUDING FITTINGS TO BE REMOVED IS 170 FEET.
4. APPROXIMATE LENGTH OF 12" FILTER TO WASTE RETURN PIPE INCLUDING FITTINGS TO BE REMOVED IS 25 FEET.
5. EXISTING WALL PIPE TO REMAIN.

GENERAL NOTES:

1. REFER TO ELECTRICAL DEMOLITION DRAWING E-08-101 FOR MORE DETAILS ON ELECTRICAL WORK REQUIRED.
2. CUT EXISTING 20" RAW WATER AND 12" FILTER TO WASTE RETURN PIPES 3 FEET FROM THE EAST AND SOUTH WALL. INSTALL PLAIN END BY MECHANICALLY RESTRAINED CAPS TO SEAL PIPE WITHIN PIPE GALLERY.

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY — JASON M. ABBOTT — 25937 — LICENSED PROFESSIONAL ENGINEER — 3/8/11

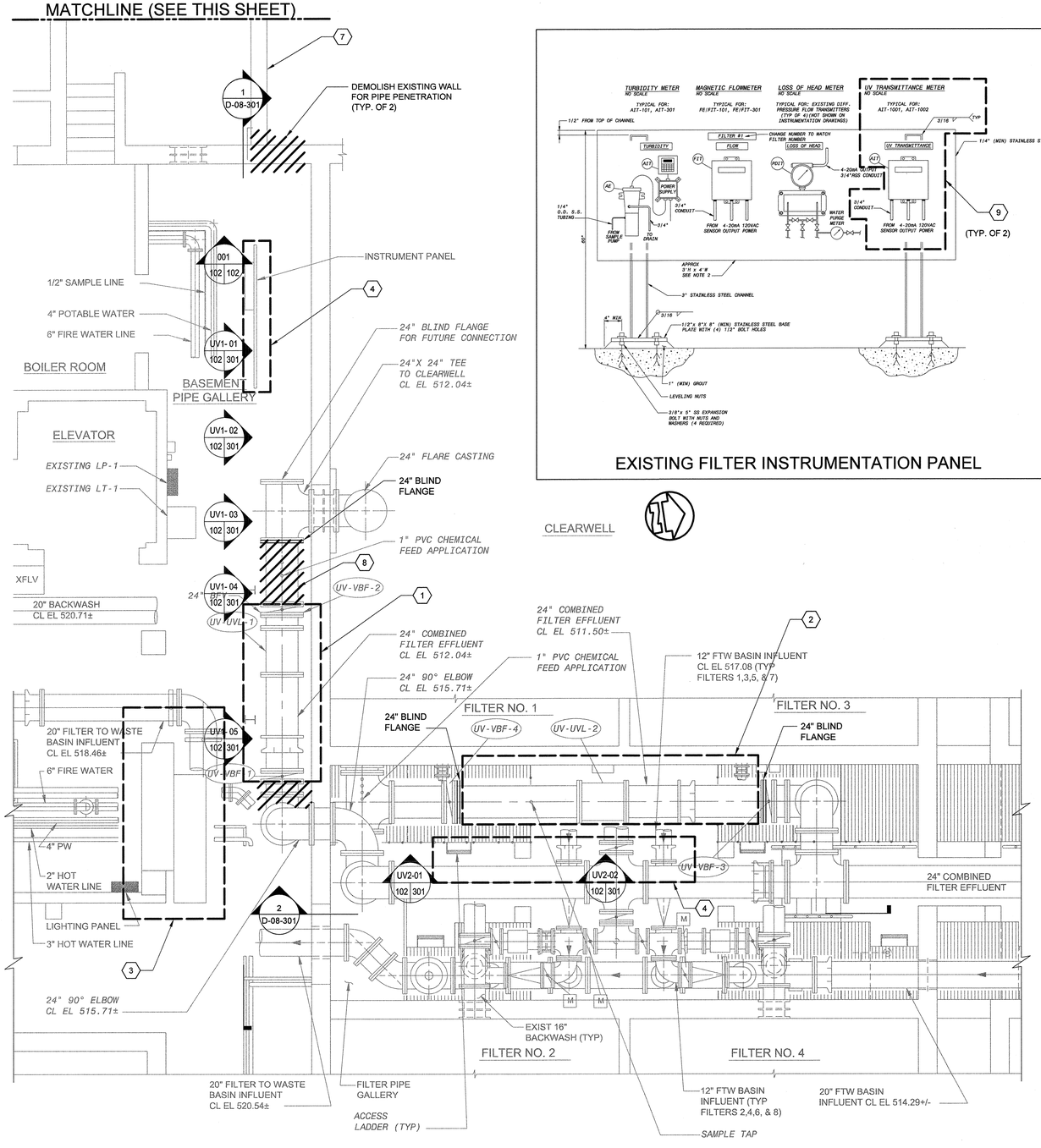
REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

DEMOLITION
FILTER BUILDING PIPE GALLERY PARTIAL PLANS
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET D-08-101
CAD REF. NO. D-08-101



0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

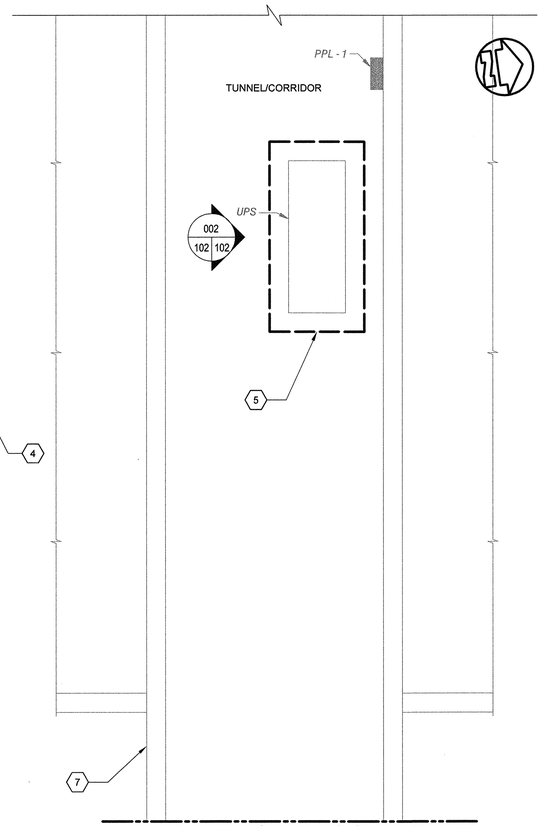
1 FILTER BUILDING PIPE GALLERY PARTIAL PLAN AT EL. 510.46±

SCALE: 1/4"=1'-0"

0 2' 4' 8'

EXISTING FILTER INSTRUMENTATION PANEL

CLEARWELL



MATCHLINE (SEE THIS SHEET)

1 FILTER BUILDING PIPE GALLERY PARTIAL PLAN AT EL. 510.46±

SCALE: 1/4"=1'-0"

0 2' 4' 8'

GENERAL NOTES:

1. REFER TO ELECTRICAL DEMOLITION DRAWING E-08-101 FOR MORE DETAILS ON THE RELOCATION OF UV EQUIPMENT.

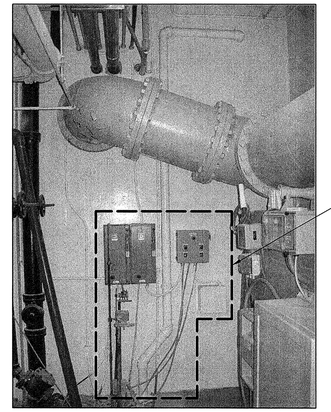


PHOTO 001 / 102 102

N.T.S.

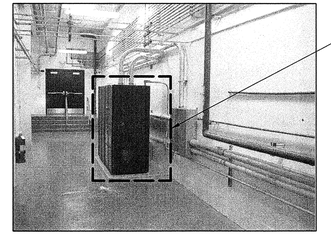


PHOTO 002 / 102 102

N.T.S.

SHEET KEYNOTES:

1. REMOVE AND RELOCATE TWO 24" BUTTERFLY VALVES, ACTUATORS, UV REACTOR NUMBER 1, ALL SAMPLE AND CHEMICAL PIPING, JOINTS, PIPING COUPLES AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE SHEET M-06-305.
2. REMOVE AND RELOCATE UV REACTOR NUMBER 2, ALL SAMPLE AND CHEMICAL PIPING, JOINTS, PIPING COUPLES AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE SHEET M-06-305.
3. REMOVE AND RELOCATE EXISTING UV CONTROL PANELS AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE DRAWING E-06-104 FOR NEW LOCATION OF UV CONTROL PANELS.
4. EXISTING INSTRUMENTATION PANELS SHALL BE REMOVED AND REINSTALLED TO ALLOW INSTALLATION OF PROPOSED PIPING. ALL UV INSTRUMENTATION SHALL BE RELOCATED TO NEW INSTRUMENTATION PANELS WITHIN THE PT/GAC BUILDING AND INSTALLED FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE ELECTRICAL DRAWINGS FOR NEW LOCATION. THE EXISTING TURBIDITY ANALYZERS AND LOSS OF HEAD TRANSMITTERS SHALL REMAIN IN THE PIPE GALLERY.
5. TEMPORARILY RELOCATE UV UPS AS SHOWN ON DRAWING E-08-101. RELOCATE EXISTING UV UPS AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE DRAWING E-06-105 FOR FINAL LOCATION OF UV UPS.
6. RELOCATE EXISTING PANELS, CONDUIT AND ALL APPURTENANCES TO ALLOW FOR PROPOSED PIPE PENETRATIONS. PANELS AND DRAIN LINES SHALL REMAIN IN SERVICE WHILE BEING RELOCATED.
7. ALL PIPING AND UTILITIES TO BE REMOVED FROM EXISTING TUNNEL AND TUNNEL IS TO BE DEMOLISHED. SEE TUNNEL DEMOLITION SHEET D-03-302 AND UTILITY RELOCATION SHEET M-09-201.
8. PROVIDE NEW SPOOL PIECE FOR UV REACTOR NUMBER 1 IN PT/GAC BUILDING.
9. UV TRANSMITTANCE MONITORS FOR UV REACTORS 1 AND 2 SHALL BE RELOCATED WITH THEIR RESPECTIVE UV REACTORS.

MALCOLM PIRNIE

ENGINEERS - ARCHITECTS - PLANNERS

JASON ABBOTT 29937 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY 5/18/11

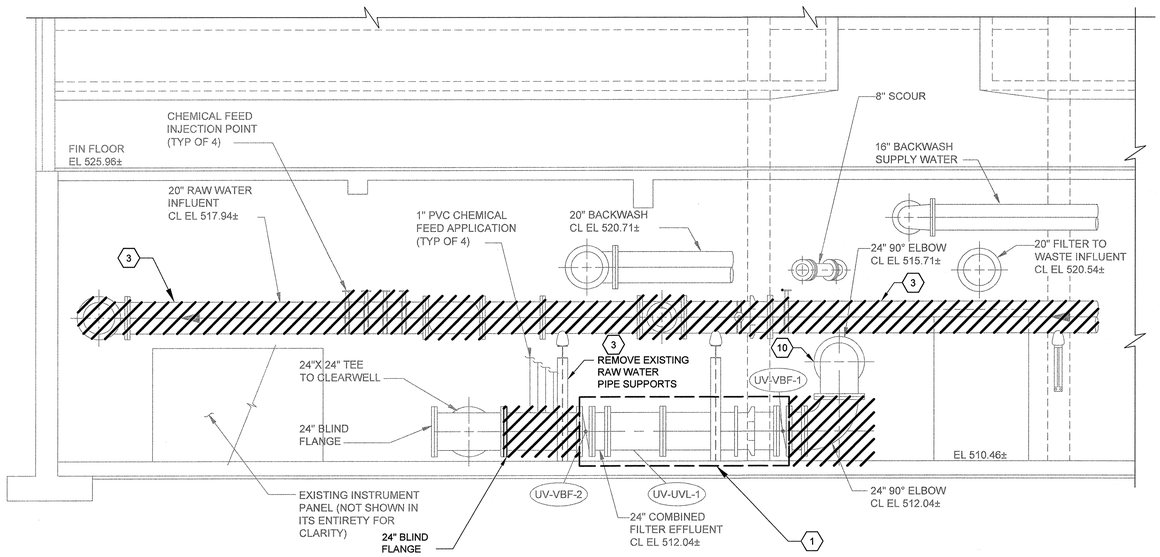
REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

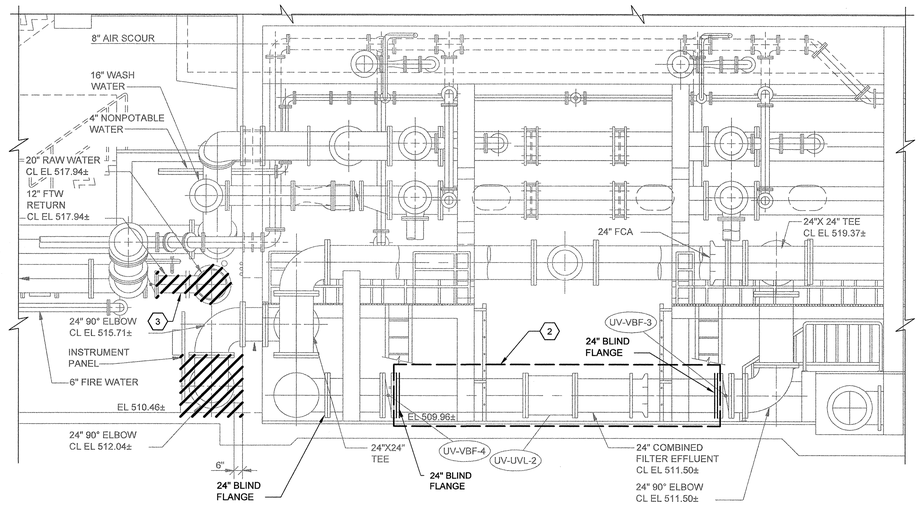
DEMOLITION
FILTER BUILDING PIPE GALLERY PARTIAL PLANS / UV RELOCATION
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET D-08-102
CAD REF. NO. D-08-102



1 FILTER BUILDING PIPE GALLERY DEMOLITION SECTION

SCALE: 1/4"=1'-0"



2 FILTER BUILDING PIPE GALLERY DEMOLITION SECTION

SCALE: 1/4"=1'-0"

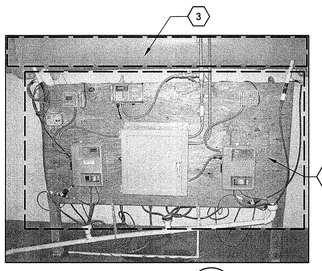


PHOTO UV1-01 (102 | 301)

N.T.S.

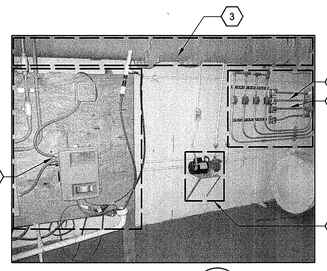


PHOTO UV1-02 (102 | 301)

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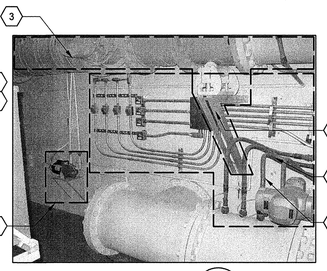

PHOTO UV1-03 (102 | 301)

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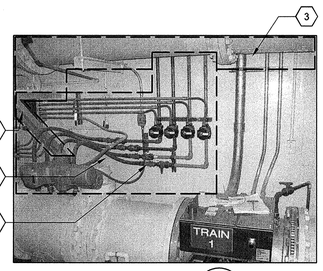

PHOTO UV1-04 (102 | 301)

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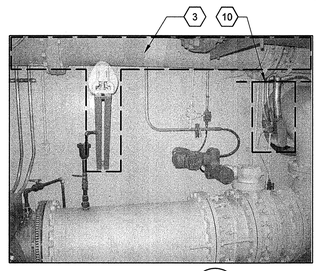

PHOTO UV1-05 (102 | 301)

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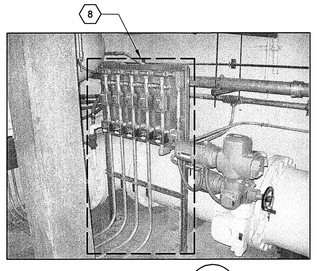

PHOTO UV2-01 (102 | 301)

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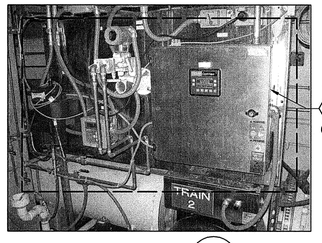

PHOTO UV2-02 (102 | 301)

N.T.S.

SHEET KEYNOTES:

1. REMOVE AND RELOCATE TWO 24" BUTTERFLY VALVES, ACTUATORS, UV REACTOR NUMBER 1, ALL SAMPLE AND CHEMICAL PIPING, JOINTS AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE SHEET M-06-305.
2. REMOVE AND RELOCATE UV REACTOR NUMBER 2, ALL SAMPLE AND CHEMICAL PIPING, JOINTS AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE SHEET M-06-305.
3. REMOVE EXISTING 20" RAW WATER INFLUENT MAIN, CHEMICAL FEED INJECTION POINTS, EXISTING 20" CONE VALVE, FLOW METER, FITTINGS, BENDS, PIPE SUPPORTS AND ALL APPURTENANCES FROM THE EAST WALL OF THE PIPE GALLERY TO THE WEST WALL OF THE PIPE GALLERY. REMOVE EXISTING 12" FILTER TO WASTE RETURN PIPE, FLOW METER, VALVE, FITTINGS, BENDS, PIPE SUPPORTS AND ALL APPURTENANCES FROM THE SOUTH WALL OF THE PIPE GALLERY TO THE EXISTING 20" RAW WATER INFLUENT. SEE SHEET D-08-101.
4. RELOCATE CHEMICAL FEED PIPING, ACTUATORS, VALVES, QUICK CONNECTS, INJECTORS AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL SYSTEM. COORDINATE WITH OWNER. REFER TO SHEET M-08-101, FOR NEW INJECTION LOCATION.
5. ROUTE THE CHEMICAL FEED PIPING FROM THE EXISTING PIPING TO THE APPLICATION TAP AS ACCEPTABLE TO OWNER AND ENGINEER. NOT ALL FEED PIPING IS SHOWN. REFER TO SHEET M-08-101. ALL PIPING SHALL BE LABELED TO INDICATE THE SERVICE AND FEED LOCATION. ALL RELOCATED PIPING SHALL BE NEW.
6. RELOCATE UV TRANSMITTANCE MONITORS, ALL TAPS, CONNECTIONS AND ALL APPURTENANCES FOR COMPLETE OPERATIONAL SYSTEMS. UV TRANSMITTANCE MONITORS FOR BOTH UV REACTORS LOCATED ON THESE PANELS.
7. EXISTING INSTRUMENTATION PANEL SHALL BE REMOVED AND REINSTALLED TO ALLOW INSTALLATION OF PROPOSED PIPING. INSTRUMENTATION SHALL REMAIN IN SERVICE. ADDITIONAL EQUIPMENT LOCATED ON THE BACK OF EXISTING INSTRUMENTATION PANEL.
8. CHEMICAL FEED PIPING AND CONTROLS TO REMAIN IN EXISTING LOCATION.
9. REMOVE EXISTING RAW WATER SAMPLE PUMP AND ALL PIPING. DELIVER SAMPLE PUMP TO OWNER.
10. EXISTING ELECTRICAL CONDUIT SHALL BE RELOCATED PRIOR TO ANY UV REACTORS BEING REMOVED OR THE EXISTING 90° BEND BEING ROTATED.

GENERAL NOTES:

1. RELOCATE ALL PIPING, CONDUIT, PIPE SUPPORTS, EQUIPMENT, INSTRUMENTATION AND ALL APPURTENCES TO ALLOW FOR INSTALLATION OF 24" GAC FEED PS SUPPLY PIPE AS SHOWN ON SHEET M-08-101 AND M-08-301.
2. BASE DRAWING FROM 2006 TAYLOR MILL TREATMENT PLANT UV DISINFECTION PROJECT DESIGNED BY BLACK & VEATCH CORPORATION.
3. CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROTECT EXISTING PIPING, VALVES, EQUIPMENT, INSTRUMENTATION AND OTHER ITEMS DURING CONSTRUCTION ACCEPTABLE TO OWNER AND ENGINEER.
4. EXISTING PIPE SUPPORTS AND OTHER MISCELLANEOUS APPURTENANCES NOT SHOWN. CONTRACTOR SHALL INSPECT EXISTING FACILITIES PRIOR TO SUBMITTING A BID TO DETERMINE ALL CONSTRAINTS THAT MAY AFFECT CONSTRUCTION ACTIVITIES, AND INCLUDE ALL COSTS ASSOCIATED WITH THEM IN ITS BID.
5. REFER TO ELECTRICAL DRAWING E-08-101 FOR MORE DETAILS ON FILTER BUILDING DEMOLITION AND RELOCATION OF UV EQUIPMENT.

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
GRW
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY JASON M ABBOTT 25937 LICENSED PROFESSIONAL ENGINEER 3/16/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

DEMOLITION
FILTER BUILDING PIPE GALLERY SECTIONS
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET D-08-301
CAD REF. NO. D-08-301

LEGEND AND SYMBOLS

EXISTING	PROPOSED		EXISTING	PROPOSED	
℄	℄	PROPERTY LINE			ASPHALT PAVEMENT
ROW	ROW	RIGHT OF WAY			AGGREGATE PAVEMENT
x x	x x	CHAIN-LINK FENCING			FIELD DRIVE
⊗ ⊗	⊗ ⊗	ORNAMENTAL FENCING			CONCRETE SIDEWALK
702	702	CONTOURS			MOW STRIP
		CENTERLINE OF DRAINAGE SWALE			
		STRUCTURE			
○	●	BOLLARD			UNDISTURBED SOIL
℄ ℄	℄ ℄	CENTERLINE			ROCK
	4:1	GRADING SLOPE LINE			SELECT BACKFILL
× 701.50	× 701 . 50	SPOT ELEVATIONS			SUBBASE
		ELEVATION			MUDMAT
		CONNECT TO EXISTING			GENERAL FILL
○ I.P.		IRON PIPE			DUMPED ROCK FILL
△ H&T		HUB AND TACK			CONCRETE
12" ELM	12" ELM	TREE			GRASS
		BUSHES			GROUT
18"XXX	18"XXX	PIPING 18" AND LARGER			EROSION CONTROL BLANKET
12"XXX	12"XXX	PIPING THROUGH 16"			RIP RAP
		PIPE PLUG			DEMOLITION
12"XXX		PIPE DEMOLITION			FIELD FENCING
	□	CHEMICAL FEED MANHOLE			FIELD LINE
○	●	MANHOLE			EXISTING WATER METER
□	■	CATCH BASIN			EXISTING SOIL BORING
YH	YH	YARD HYDRANT			EFFLUENT LINE SOIL BORING
FH	FH	FIRE HYDRANT			PIEZOMETER
⊗	⊕	BURIED VALVE			FDW (FIELD TILE)
ELEC	ELEC	ELECTRICAL LINE (CONCEALED)			CMS (ODOT) SPECIFICATION NUMBER
ELEC	ELEC	ELECTRICAL LINE			PRECAST BUMPER BLOCK
TEL	TEL	TELEPHONE LINE (CONCEALED)			ORNAMENTAL FENCING
TEL	TEL	TELEPHONE LINE			NEW SECURITY FENCING
PP	PP	POWER POLE			SILT FENCING
TP	TP	TELEPHONE POLE			TOPSOIL STRIPPING AREA
LP	LP	LIGHT POLE			ALTERNATE BID BOUNDARY
	FP	FLAG POLE			NEW RETAINING WALL
					DRY HYDRANT
					WATER FOUNTAIN
					INLET PROTECTION

FUTURE

	STRUCTURE
	PLANT ROAD
18"XXX	PIPING 18" AND LARGER
12"XXX	PIPING THRU 16"

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

VALVE DESIGNATIONS

AR	AIR RELEASE VALVE
AV	AIR AND VACUUM VALVE
BV	BALL VALVE
BFP	BACKFLOW PREVENTER ASSEMBLY
BPV	BACK PRESSURE VALVE
BD	BUTTERFLY DAMPER
BFV	BUTTERFLY VALVE
CA	COMBINATION VALVE
CV	CHECK VALVE
CH	BALL CHECK VALVE
CS	CURB STOP
EP	ECCENTRIC PLUG VALVE
FH	FIRE HYDRANT
FV	FLAP VALVE
GA	GATE VALVE
GL	GLOBE VALVE
KG	KNIFE GATE
MV	MUD VALVE
PV	PLUG VALVE
PGV	PRESSURE REGULATING VALVE
PRV	PRESSURE REDUCING VALVE
PR	PRESSURE RELIEF VALVE
RO	ROTAMETER
SV	SOLENOID VALVE
TV	TELESCOPIING VALVE
WH	WALL HYDRANT
YH	YARD HYDRANT

MECHANICAL ABBREVIATIONS

AB	ANCHOR BOLT
ABAN.	ABANDONED
AC	ASPHALT CONCRETE PAVEMENT
ADD'L.	ADDITIONAL
ADJ.	ADJUSTABLE
AH	ACCESS HATCH
ALUM.	ALUMINUM
ALT.	ALTERNATE
ARCH	ARCHITECTURE
BF	BLIND FLANGE
BITUM.	BITUMINOUS
BL	BASELINE
BLDG.	BUILDING
BM	BENCH MARK
BM.	BEAM
BOP	BOTTOM OF PIPE
BOT.	BOTTOM
BRG	BEARING
BRP	BUILDING REFERENCE POINT
BW	BACKWASH
BWS	BACKWASH SUPPLY
BWW	BACKWASH WASTE
℄	CENTERLINE
C/C	CENTER TO CENTER
CB	CATCH BASIN
CHEM	CHEMICAL LINE
CHH	COMMUNICATION HANDHOLE
CJ	CONSTRUCTION JOINT
CL.	CLEAR
CMH	COMMUNICATION MANHOLE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL.	COLUMN
CONC.	CONCRETE
CONN	CMU CORNER OF EXT. FACE
CONT.	CONTINUED
CPLG.	COUPLING
CTW	CONTACTOR TO WASTE
CY	CUBIC YARD(S)
CW	COLD WATER (POTABLE)
D	DRAIN
DET.	DETAIL
DIP	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM	DIMENSION
DISCH.	DISCHARGE
DMH	DROP MANHOLE
DN.	DOWN
DTL	DETAIL
DWGS	DRAWINGS
DWL	DOWELS
EA.	EACH
ECC	ECCENTRIC
EDB	ELECTRICAL DUCT BANK
EF	EACH FACE
EFF.	EFFLUENT
EJ	EXPANSION JOINT
EL.	ELEVATION
ELEC.	ELECTRIC
EMH	ELECTRICAL MANHOLE
EQ.	EQUALIZATION
EW	EACH WAY
EX.	EXISTING
FD	FLOOR DRAIN
FDN	FOUNDATION
FDND	FOUNDATION DRAIN
FF	FAR FACE
FIN.	FINISHED
FIPT	FEMALE IRON PIPE THREAD
FLEX.	FLEXIBLE
FLG.	FLANGE
FLR.	FLOOR
FTG.	FOOTING
FT., '	FEET
GA.	GAGE OR GAUGE
GAC	GRANULAR ACTIVATED CARBON
GALV.	GALVANIZED
GE	GROOVED END JOINT
GRD.	GROUND
GRAT.	GRATING
HB	HOSE BIB
HFCA	HARNESSED FLANGE COUPLING ADAPTER
HORIZ.	HORIZONTAL
HP	HIGH POINT
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN., "	INCHES
INF.	INFLUENT
INV.	INVERT
JST.	JOIST
JT.	JOINT
K	KIP (1000 POUNDS)
KSF	KIPS PER SQUARE FOOT
LG.	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LR	LONG RADIUS
LSH	LEVEL SWITCH HIGH
LSLL	LEVEL SWITCH LOW LOW
MAS	MASONRY
MAX.	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFR.	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN.	MINIMUM
MIPT	MALE IRON PIPE THREAD
MJ	MECHANICAL JOINT
MO	MASONRY OPENING
NC	NORMALLY CLOSED
NF	NEAR FACE
NO	NORMALLY OPEN
NO.	NUMBER
O	OVERFLOW
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG.	OPENING
OPP.	OPPOSITE
PC	POINT OF CURVATURE
PE	PLAIN END
PI	POINT OF INTERSECTION
PL	PLATE OR PROPERTY LINE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
R	RISER
RED.	REDUCER
REINF.	REINFORCEMENT OR REINFORCE
REQ'D.	REQUIRED
RMJ	RESTRAINED JOINT
RM.	ROOM
ROW	RIGHT OF WAY
SHT.	SHEET
SOC	SOCKET
SPA.	SPACING
SR	SHORT RADIUS
SS	STAINLESS STEEL
STD.	STANDARD
STL.	STEEL
STRUC.	STRUCTURAL
T	TREAD
T/	TOP OF
T&B	TOP AND BOTTOM
THK.	THICK
TYP.	TYPICAL
UON	UNLESS OTHERWISE NOTED
USG	UNITED STATES STANDARD GAGE
VERT.	VERTICAL
W/	WITH
WP	WORK POINT
WRF	WATER RECLAMATION FACILITY
WS	WATER STOP
WWF	WELDED WIRE FABRIC

PIPING LEGEND

BW	BACKWASH
BT	BACKWASH TREATMENT INFLUENT
BD	BASIN DRAIN
CFC	CHEMICAL FEED CARRIER PIPE
CFE	CHEMICAL FEED ENCASEMENT
D	DRAIN
FI	FILTER INFLUENT
FW	FILTER TO WASTE
FTWR	FILTER TO WASTE RETURN
FP	FIRE PROTECTION
FBD	FLOCCULATION BASIN DRAIN
BWS	GAC BACKWASH SUPPLY
BWW/VTW	GAC BACKWASH WASTE/VESSEL-TO-WASTE
GBP	GAC BYPASS
GEQOF	GAC EQ BASIN OVERFLOW
GEQR	GAC EQ BASIN RECYCLE
GPSS	GAC FEED PUMP STATION SUPPLY
GPSOF	GAC FEED PUMP STATION OVERFLOW
GS	GAC SUPPLY
GTW	GAC TREATED WATER
GUTW	GAC/UV TREATED WATER
GAS	GAS
GC	GAS CARRIER PIPE
PA	PLANT AIR
PW(<4")	PLANT WATER
PW(>4")	PLANT WATER
W	POTABLE WATER
FO	FILTER OVERFLOW
RW	RAW WATER
R	RECYCLE
RD	RESIDUALS DRAIN
RM	RESIDUALS MAIN
SL	SAMPLE LINE
FM	SANITARY FORCE MAIN
S	SANITARY SEWER
SBWS	SECONDARY GAC BACKWASH SUPPLY
SR	SETTLED RESIDUALS
SD	SLUDGE DRAIN
SB	SODIUM BISULFITE
SS	STORM SEWER
SPD	SUMP PUMP DISCHARGE
TFI	TEMPORARY FILTER INFLUENT
V	VENT
W	WATER

MALCOLM PIRNIE

GRW

ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY JASON M. ABBOTT 25937 LICENSED PROFESSIONAL ENGINEER 5/16/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
NOTES, SYMBOLS, AND ABBREVIATIONS
SCALE: N.T.S.

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-00-001
CAD REF. NO. C-00-001

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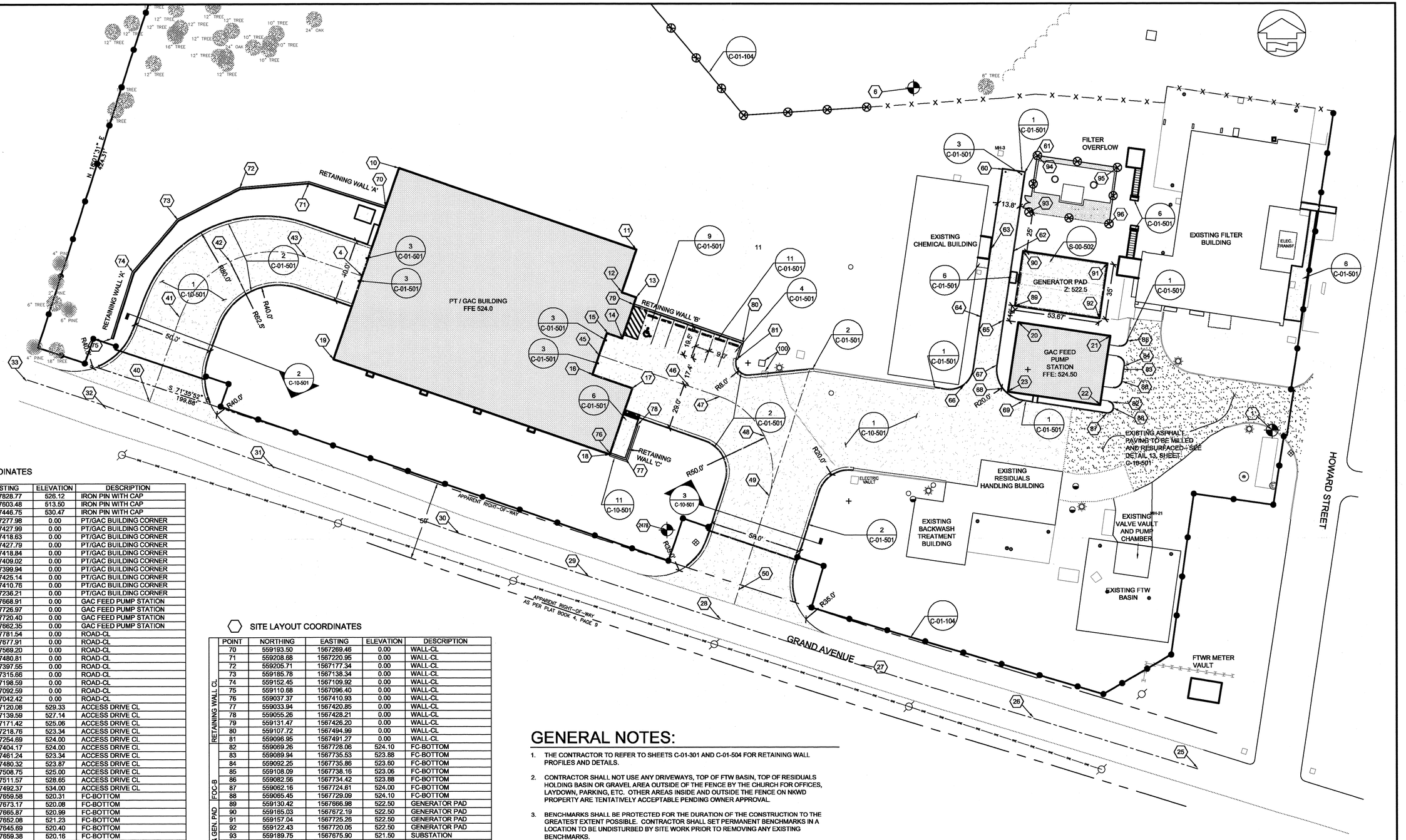


SITE LAYOUT COORDINATES

	POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
BMS	1	559051.43	1567828.77	526.12	IRON PIN WITH CAP
	6	559267.84	1567603.48	513.50	IRON PIN WITH CAP
	2478	558989.11	1567446.75	530.47	IRON PIN WITH CAP
EXTERIOR BLDG CORNERS	10	559218.15	1567277.98	0.00	PT/GAC BUILDING CORNER
	11	559166.36	1567427.99	0.00	PT/GAC BUILDING CORNER
	12	559139.24	1567418.63	0.00	PT/GAC BUILDING CORNER
	13	559136.08	1567427.79	0.00	PT/GAC BUILDING CORNER
	14	559110.17	1567418.84	0.00	PT/GAC BUILDING CORNER
	15	559113.56	1567409.02	0.00	PT/GAC BUILDING CORNER
	16	559087.25	1567399.94	0.00	PT/GAC BUILDING CORNER
	17	559078.54	1567425.14	0.00	PT/GAC BUILDING CORNER
	18	559036.89	1567410.76	0.00	PT/GAC BUILDING CORNER
	19	559097.16	1567236.21	0.00	PT/GAC BUILDING CORNER
	20	559119.98	1567668.91	0.00	GAC FEED PUMP STATION
	21	559111.29	1567726.97	0.00	GAC FEED PUMP STATION
	22	559067.41	1567720.40	0.00	GAC FEED PUMP STATION
	23	559076.10	1567662.35	0.00	GAC FEED PUMP STATION
GRAND AVE. CL	25	558838.07	1567781.54	0.00	ROAD-CL
	26	558870.17	1567677.91	0.00	ROAD-CL
	27	558903.87	1567569.20	0.00	ROAD-CL
	28	558932.40	1567480.81	0.00	ROAD-CL
	29	558959.59	1567397.55	0.00	ROAD-CL
	30	558986.70	1567315.66	0.00	ROAD-CL
	31	559028.38	1567198.59	0.00	ROAD-CL
	32	559066.21	1567092.59	0.00	ROAD-CL
	33	559083.83	1567042.42	0.00	ROAD-CL
ACCESS DRIVE CL	40	559070.31	1567120.08	529.33	ACCESS DRIVE CL
	41	559124.25	1567139.59	527.14	ACCESS DRIVE CL
	42	559159.39	1567171.42	525.06	ACCESS DRIVE CL
	43	559162.07	1567218.76	523.34	ACCESS DRIVE CL
	44	559149.67	1567254.69	524.00	ACCESS DRIVE CL
	45	559099.50	1567404.17	524.00	ACCESS DRIVE CL
	46	559079.80	1567461.24	523.34	ACCESS DRIVE CL
	47	559073.21	1567480.32	523.87	ACCESS DRIVE CL
	48	559048.26	1567508.75	525.00	ACCESS DRIVE CL
	49	559010.53	1567511.57	528.65	ACCESS DRIVE CL
	50	558951.30	1567492.37	534.00	ACCESS DRIVE CL
FACE OF CURB-BOTTOM	60	559216.97	1567659.58	520.31	FC-BOTTOM
	61	559214.51	1567673.17	520.08	FC-BOTTOM
	62	559164.99	1567665.87	520.99	FC-BOTTOM
	63	559166.51	1567652.08	521.23	FC-BOTTOM
	64	559123.50	1567645.69	520.40	FC-BOTTOM
	65	559121.21	1567659.38	520.16	FC-BOTTOM
	66	559080.25	1567634.71	521.27	FC-BOTTOM
	67	559092.89	1567655.19	520.53	FC-BOTTOM
	68	559078.08	1567658.88	520.93	FC-BOTTOM
	69	559070.19	1567671.94	521.55	FC-BOTTOM

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

SITE LAYOUT COORDINATES

	POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
RETAINING WALL CL	70	559193.50	1567269.46	0.00	WALL-CL
	71	559208.68	1567220.95	0.00	WALL-CL
	72	559205.71	1567177.34	0.00	WALL-CL
	73	559185.78	1567138.34	0.00	WALL-CL
	74	559152.45	1567109.92	0.00	WALL-CL
	75	559110.68	1567096.40	0.00	WALL-CL
	76	559037.37	1567410.93	0.00	WALL-CL
	77	559033.94	1567420.85	0.00	WALL-CL
	78	559055.26	1567428.21	0.00	WALL-CL
	79	559131.47	1567426.20	0.00	WALL-CL
	80	559107.72	1567494.99	0.00	WALL-CL
	81	559096.95	1567491.27	0.00	WALL-CL
FCC-B	82	559069.26	1567728.06	524.10	FC-BOTTOM
	83	559089.94	1567735.53	523.88	FC-BOTTOM
	84	559092.25	1567735.86	523.60	FC-BOTTOM
	85	559108.09	1567738.16	523.06	FC-BOTTOM
	86	559082.56	1567734.42	523.88	FC-BOTTOM
	87	559062.16	1567724.61	524.00	FC-BOTTOM
	88	559065.45	1567729.09	524.10	FC-BOTTOM
SUBSTA. & GEN. PAD	89	559130.42	1567666.98	522.50	GENERATOR PAD
	90	559185.03	1567672.19	522.50	GENERATOR PAD
	91	559157.04	1567725.26	522.50	GENERATOR PAD
	92	559122.43	1567720.05	522.50	GENERATOR PAD
	93	559189.75	1567675.90	521.50	SUBSTATION
	94	559225.50	1567681.25	521.50	SUBSTATION
	95	559217.94	1567731.69	521.50	SUBSTATION
	96	559182.20	1567726.34	521.50	SUBSTATION

GENERAL NOTES:

1. THE CONTRACTOR TO REFER TO SHEETS C-01-301 AND C-01-504 FOR RETAINING WALL PROFILES AND DETAILS.
2. CONTRACTOR SHALL NOT USE ANY DRIVEWAYS, TOP OF FTW BASIN, TOP OF RESIDUALS HOLDING BASIN OR GRAVEL AREA OUTSIDE OF THE FENCE BY THE CHURCH FOR OFFICES, LAYDOWN, PARKING, ETC. OTHER AREAS INSIDE AND OUTSIDE THE FENCE ON NKWD PROPERTY ARE TENTATIVELY ACCEPTABLE PENDING OWNER APPROVAL.
3. BENCHMARKS SHALL BE PROTECTED FOR THE DURATION OF THE CONSTRUCTION TO THE GREATEST EXTENT POSSIBLE. CONTRACTOR SHALL SET PERMANENT BENCHMARKS IN A LOCATION TO BE UNDISTURBED BY SITE WORK PRIOR TO REMOVING ANY EXISTING BENCHMARKS.

SHEET KEYNOTES:

100. THE CONTRACTOR SHALL RELOCATE THE EXISTING AUTOSAMPLER AND INCLUDE NEW CONCRETE PAD, SIMILAR TO CONCRETE PAD BEING DEMOLISHED. SEE SHEET S-00-501 FOR DETAIL.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY
ALISON S. CHADWELL
25712
LICENSED PROFESSIONAL ENGINEER
5/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES ASC
DWN ASC
CKD HHH

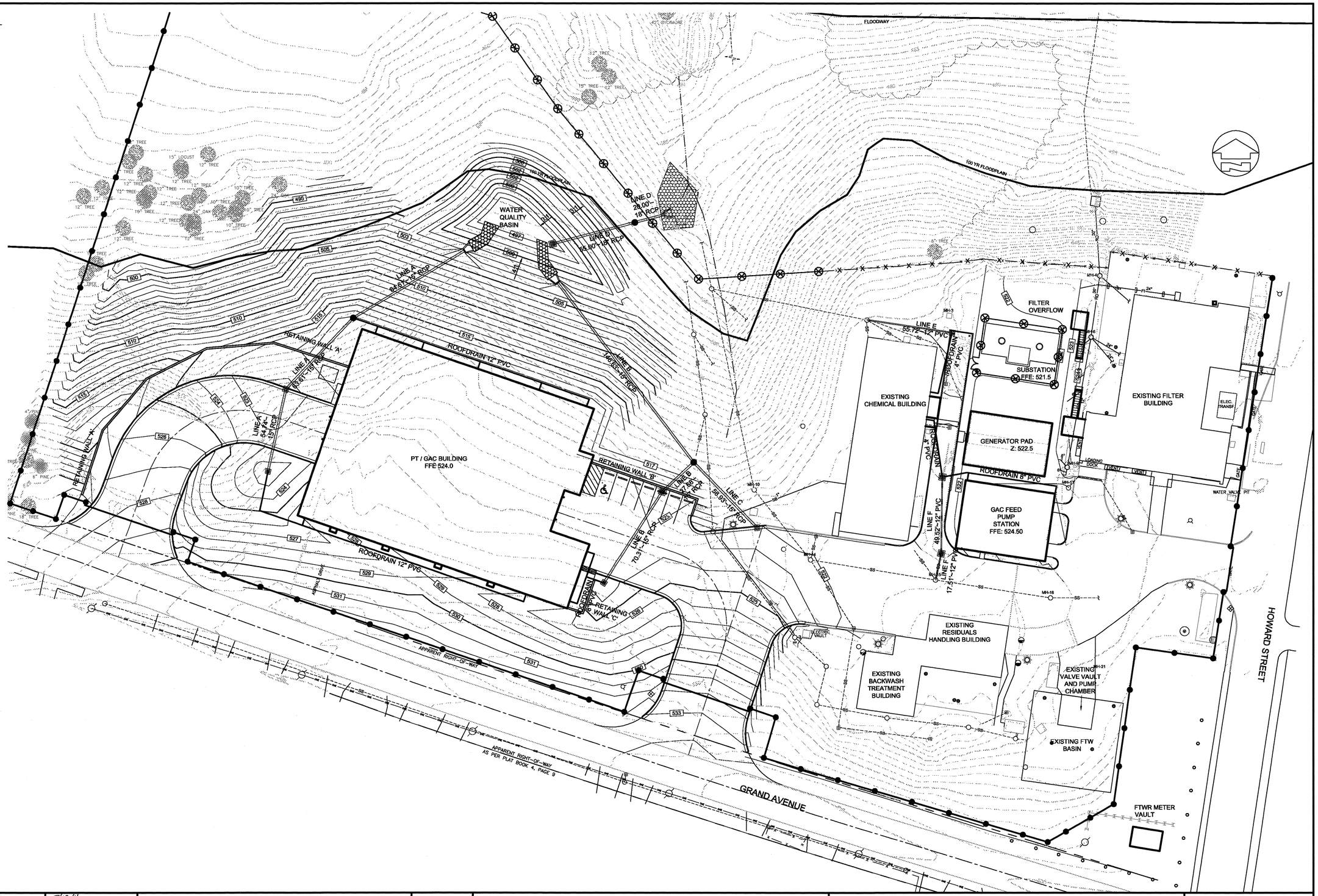
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
SITE LOCATION PLAN
SCALE: 1" = 30'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-101
CAD REF. NO. 3789-C-01-101

GENERAL NOTES:

1. CONTRACTOR TO REFER TO SHEET C-01-101 FOR COORDINATES AND ELEVATIONS THROUGHOUT THE SITE.
2. CONTRACTOR TO REFER TO SHEET C-01-105 AND SPECIFICATION SECTION 02270 FOR EROSION CONTROLS TO BE INSTALLED PRIOR TO LAND DISTURBING ACTIVITIES.
3. SITE PREPARATION WILL REQUIRE REMOVAL OF ALL VEGETATION, SURFACE ORGANIC SOILS, AND ANY OTHER SURFACE DELETERIOUS MATERIALS.
4. THE CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES AND BENCHMARKS. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR ANY DAMAGE ACCORDING TO LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.
5. PROPOSED CONTOUR LINES AND SPOT ELEVATIONS ARE THE RESULT OF AN ENGINEERED GRADING DESIGN AND REFLECT A PLANNED INTENT WITH REGARD TO DRAINAGE AND MOVEMENT OF MATERIALS. SHOULD THE CONTRACTOR HAVE ANY QUESTIONS OF THE INTENT OR ANY PROBLEM WITH THE CONTINUITY OF GRADES, THE ENGINEER SHALL BE CONTACTED IMMEDIATELY.
6. THE CONTRACTOR SHALL CALL KENTUCKY ONE CALL (1-800- 752-6007) 72 HOURS PRIOR TO PROCEEDING WITH ANY EXCAVATION.
7. ALL CUT AND FILL SLOPES SHALL BE 3.5 HORIZONTAL TO 1 VERTICAL OR FLATTER UNLESS OTHERWISE INDICATED ON THE PLANS.
8. POSITIVE DRAINAGE SHALL BE ESTABLISHED AS THE FIRST ORDER OF WORK AND SHALL BE MAINTAINED AT ALL TIMES DURING AND AFTER CONSTRUCTION. SOIL SOFTENED BY PERCHED WATER IN FOUNDATION AND PAVEMENT AREAS MUST BE UNDERCUT AND REPLACED WITH SUITABLE FILL MATERIALS APPROVED BY THE GEOTECHNICAL ENGINEER. GROUNDWATER INFILTRATION INTO EXCAVATIONS SHOULD BE EXPECTED, AND THE WATER SHALL BE REMOVED USING GRAVITY DRAINAGE OR PUMPING.
9. THE STRAND STAMP RELATES TO THE GRADING PLAN ONLY TO THE EXTENT IN ESTABLISHING THE VOLUME REQUIREMENTS FOR THE WATER QUALITY BASIN. THE DESIGN REQUIREMENTS INCLUDING WATER QUALITY BASIN EMBANKMENT FOUNDATION DESIGN IS NOT A COMPONENT OF THE CERTIFICATION.



0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY — ALISON S. CHADWELL — 25712 — LICENSED PROFESSIONAL ENGINEER — 3/18/11

STATE OF KENTUCKY — CHRISTOPHER S. DENT — 26087 — LICENSED PROFESSIONAL ENGINEER — 3/18/11

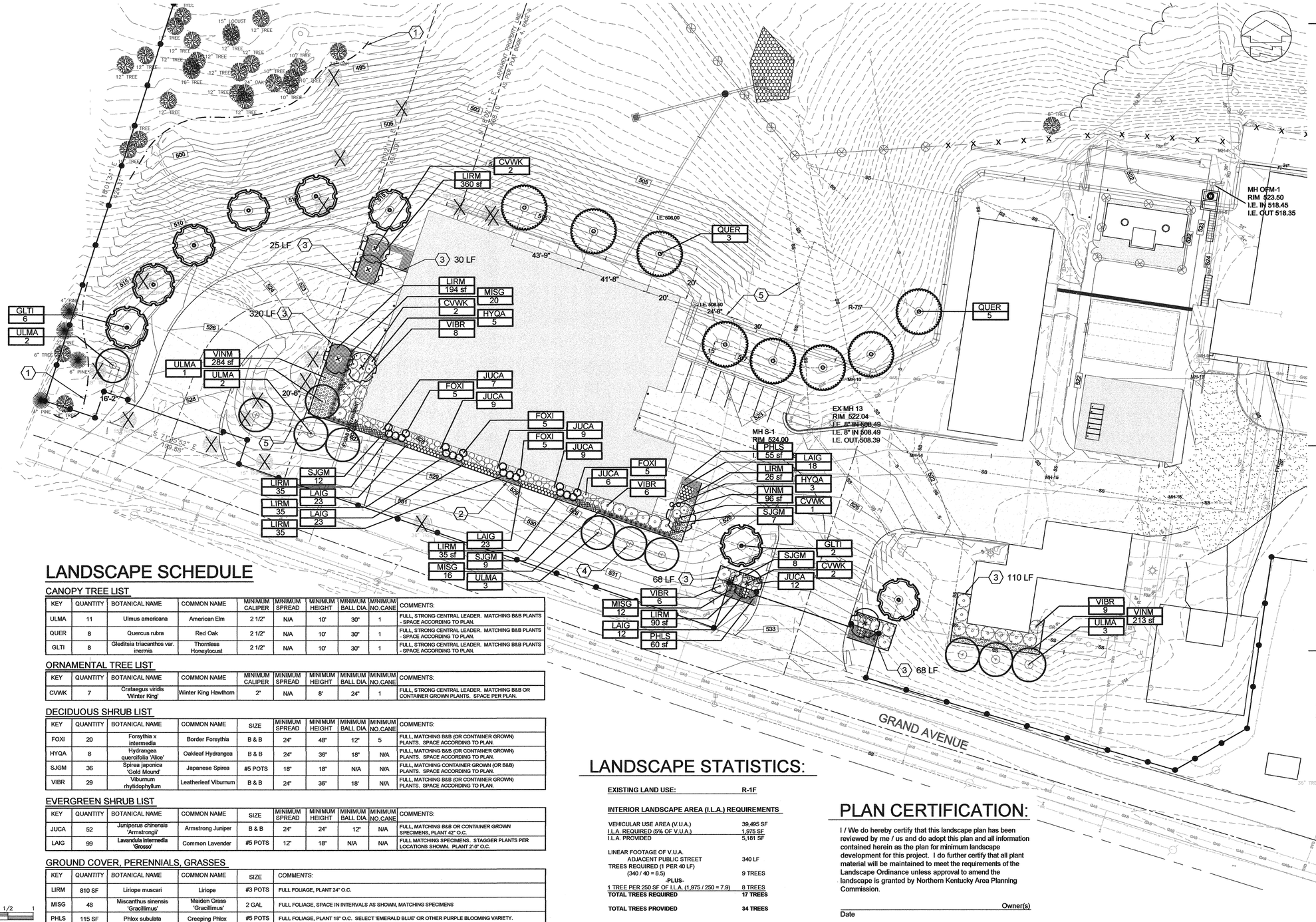
REVISIONS			
NO.	BY	DATE	REMARKS

DES ASC
DWN ASC
CKD HHH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
SITE GRADING PLAN
SCALE: 1" = 30'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-102
CAD REF. NO. 3789-C-01-102



GENERAL NOTES:

1. REVIEW THE LANDSCAPE PLAN WITH THE LANDSCAPE ARCHITECT AND OWNER PRIOR TO STARTING ANY WORK IN THE FIELD.
2. THIS PLAN IS INTENDED TO SATISFY THE MINIMUM LANDSCAPE PLAN REQUIREMENTS PER NORTHERN KENTUCKY AREA PLANNING COMMISSION (NKAPC).
3. THE LOCATION AND SIZE OF ALL TREES TO BE REMOVED HAS BEEN PROVIDED (AS DEPICTED IN THE LEGEND). THE LOCATION AND SIZE OF ALL TREES TO BE PROTECTED / PRESERVED HAS ALSO BEEN PROVIDED.
4. REFER TO THE SITE LOCATION PLAN FOR ALL EXISTING AND PROPOSED BUILDINGS AND STRUCTURES.
5. CONTRACTOR TO REGRADE, SEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK. ALL AREAS NOT SHOWN TO RECEIVE LANDSCAPE PLANTINGS SHALL BE SEEDED PER EROSION AND SEDIMENT CONTROL PLAN REQUIREMENTS. REFER TO EROSION CONTROL PLAN FOR LIMITS OF DISTURBANCE AND TEMPORARY / PERMANENT SEEDING REQUIREMENTS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND AVOIDING ANY AND ALL UNDERGROUND UTILITIES. DAMAGE CAUSED DURING THESE OPERATIONS SHALL BE REPLACED AT NO COST TO THE OWNER.
7. THE QUANTITIES INDICATED ON THE PLANT SCHEDULE ARE AN APPROXIMATION PROVIDED FOR THE BENEFIT OF THE CONTRACTOR AND ARE FOR INFORMATIONAL PURPOSES ONLY. IN THE EVENT OF A DISCREPANCY, THE PLANTING PLAN WILL TAKE PRECEDENCE OVER THE MATERIAL SCHEDULE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN QUANTITY CALCULATIONS AND THE LIABILITY PERTAINING TO THOSE QUANTITIES AND ANY RELATED CONTRACT DOCUMENTS AND/OR PRICE QUOTATIONS.
9. IF ANY CONFLICTS ARISE DURING THE INSTALLATION OF THE PLANT MATERIAL, NOTIFY THE LANDSCAPE ARCHITECT FOR RESOLUTION.

SHEET KEYNOTES:

1. LOCATION OF TREE PROTECTION FENCE IS APPROXIMATE. CONTRACTOR TO INSTALL TREE PROTECTION FENCE AT DRIP EDGE OF THE EXISTING TREES TO REMAIN.
2. LOCATE BED EDGE 12" (MIN.) OUTSIDE OF PROPOSED DRAINAGE SWALE LINE.
3. LANDSCAPE EDGING MATERIAL, TYP. CONTRACTOR TO BASE BIDS & INSTALL LENGTH AS SHOWN (621 TOTAL LINEAR FEET). REFER TO SPECIFICATION FOR ACCEPTABLE MATERIALS AND LIST OF RECOMMENDED MANUFACTURERS.
4. 5'-0" DIAMETER MULCH RING SURROUNDING INDIVIDUAL TREES, TYP.
5. GUIDELINES (AND DIMENSIONS) PROVIDED FOR REFERENCE PURPOSES ONLY AND INTENDED TO ASSIST WITH PLACEMENT OF LANDSCAPE MATERIAL.

LANDSCAPE SCHEDULE

CANOPY TREE LIST

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	MINIMUM CALIPER	MINIMUM SPREAD	MINIMUM HEIGHT	MINIMUM BALL DIA.	MINIMUM NO.CANE	COMMENTS:
ULMA	11	Ulmus americana	American Elm	2 1/2"	N/A	10'	30"	1	FULL, STRONG CENTRAL LEADER. MATCHING B&B PLANTS - SPACE ACCORDING TO PLAN.
QUER	8	Quercus rubra	Red Oak	2 1/2"	N/A	10'	30"	1	FULL, STRONG CENTRAL LEADER. MATCHING B&B PLANTS - SPACE ACCORDING TO PLAN.
GLTI	8	Gleditsia triacanthos var. inermis	Thornless Honeylocust	2 1/2"	N/A	10'	30"	1	FULL, STRONG CENTRAL LEADER. MATCHING B&B PLANTS - SPACE ACCORDING TO PLAN.

ORNAMENTAL TREE LIST

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	MINIMUM CALIPER	MINIMUM SPREAD	MINIMUM HEIGHT	MINIMUM BALL DIA.	MINIMUM NO.CANE	COMMENTS:
CVWK	7	Crataegus viridis 'Winter King'	Winter King Hawthorn	2"	N/A	8'	24"	1	FULL, STRONG CENTRAL LEADER. MATCHING B&B OR CONTAINER GROWN PLANTS. SPACE PER PLAN.

DECIDUOUS SHRUB LIST

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	MINIMUM SPREAD	MINIMUM HEIGHT	MINIMUM BALL DIA.	MINIMUM NO.CANE	COMMENTS:
FOXI	20	Forsythia x intermedia	Border Forsythia	B & B	24"	48"	12"	5	FULL, MATCHING B&B (OR CONTAINER GROWN) PLANTS. SPACE ACCORDING TO PLAN.
HYQA	8	Hydrangea quercifolia 'Alice'	Oakleaf Hydrangea	B & B	24"	36"	18"	N/A	FULL, MATCHING B&B (OR CONTAINER GROWN) PLANTS. SPACE ACCORDING TO PLAN.
SJGM	36	Spirea japonica 'Gold Mound'	Japanese Spirea	#5 POTS	18"	18"	N/A	N/A	FULL, MATCHING CONTAINER GROWN (OR B&B) PLANTS. SPACE ACCORDING TO PLAN.
VIBR	29	Viburnum rhytidophyllum	Leatherleaf Viburnum	B & B	24"	36"	18'	N/A	FULL, MATCHING B&B (OR CONTAINER GROWN) PLANTS. SPACE ACCORDING TO PLAN.

EVERGREEN SHRUB LIST

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	MINIMUM SPREAD	MINIMUM HEIGHT	MINIMUM BALL DIA.	MINIMUM NO.CANE	COMMENTS:
JUCA	52	Juniperus chinensis 'Armstrongii'	Armstrong Juniper	B & B	24"	24"	12"	N/A	FULL, MATCHING B&B OR CONTAINER GROWN SPECIMENS, PLANT 42" O.C.
LAIG	99	Lavandula intermedia 'Grosso'	Common Lavender	#5 POTS	12"	18"	N/A	N/A	FULL MATCHING SPECIMENS. STAGGER PLANTS PER LOCATIONS SHOWN. PLANT 2'-0" O.C.

GROUND COVER, PERENNIALS, GRASSES

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS:
LIRM	810 SF	Liriope muscari	Liriope	#3 POTS	FULL FOLIAGE, PLANT 24" O.C.
MISG	48	Miscanthus sinensis 'Gracillimus'	Maiden Grass 'Gracillimus'	2 GAL	FULL FOLIAGE, SPACE IN INTERVALS AS SHOWN, MATCHING SPECIMENS
PHLS	115 SF	Phlox subulata	Creeping Phlox	#5 POTS	FULL FOLIAGE, PLANT 18" O.C. SELECT 'EMERALD BLUE' OR OTHER PURPLE BLOOMING VARIETY.
VINM	593 SF	Vinca minor	Common Periwinkle	#3 POTS	FULL FOLIAGE, PLANT 15" O.C.

LANDSCAPE STATISTICS:

EXISTING LAND USE: R-1F

INTERIOR LANDSCAPE AREA (I.L.A.) REQUIREMENTS

VEHICULAR USE AREA (V.U.A.)	39,495 SF
I.L.A. REQUIRED (5% OF V.U.A.)	1,975 SF
I.L.A. PROVIDED	5,181 SF
LINEAR FOOTAGE OF V.U.A. ADJACENT PUBLIC STREET	340 LF
TREES REQUIRED (1 PER 40 LF) (340 / 40 = 8.5)	9 TREES
-PLUS-	
1 TREE PER 250 SF OF I.L.A. (1,975 / 250 = 7.9)	8 TREES
TOTAL TREES REQUIRED	**17 TREES**
TOTAL TREES PROVIDED	**34 TREES**

LEGEND:

PLANT ID TAG
QUER 3 — PLANT NAME / QUANTITY

EXISTING TREE TO REMAIN (24" TREE)
EXISTING TREE TO BE REMOVED (24" TREE)
TREE PROTECTION FENCE
LANDSCAPE PLACEMENT GUIDELINES

PLAN CERTIFICATION:

I / We do hereby certify that this landscape plan has been reviewed by me / us and do adopt this plan and all information contained herein as the plan for minimum landscape development for this project. I do further certify that all plant material will be maintained to meet the requirements of the Landscape Ordinance unless approval to amend the landscape is granted by Northern Kentucky Area Planning Commission.

Owner(s)

Date

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
cdpengineers
3250 blazer pkwy lexington ky 40509 T 859.264.7500 F 859.264.7501

COMMONWEALTH OF KENTUCKY JASON E. HALE 730 REGISTERED LANDSCAPE ARCHITECT

REVISIONS			
NO.	BY	DATE	REMARKS

DES JEH
DWN JEH
CKD JEH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
LANDSCAPING PLAN
SCALE: 1" = 30'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-103
CAD REF. NO. CDP-C-01-103

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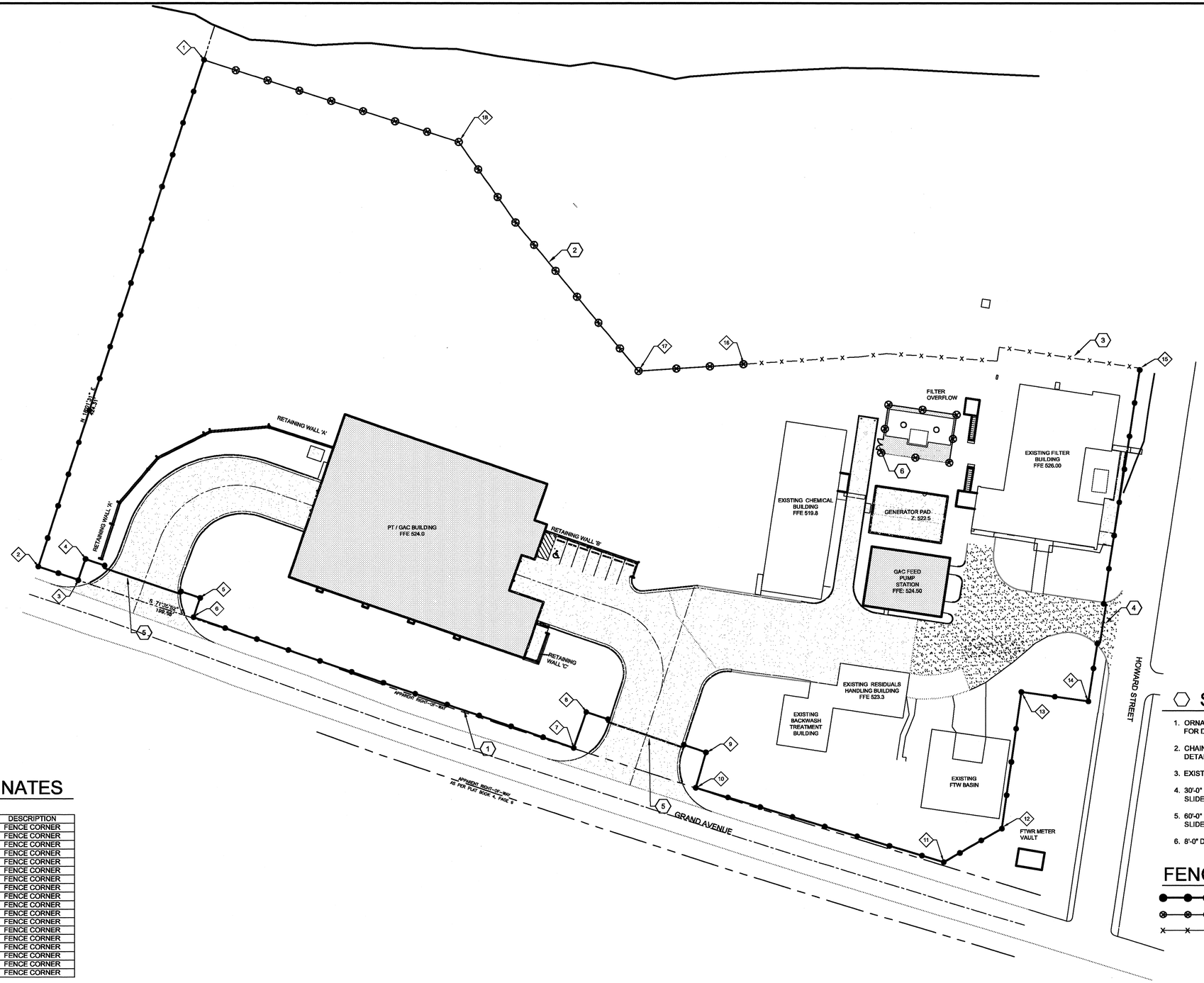


◇ FENCING COORDINATES

POINT	NORTHING	EASTING	DESCRIPTION
1	559482.784	1567172.679	FENCE CORNER
2	559105.018	1567049.571	FENCE CORNER
3	559095.106	1567079.363	FENCE CORNER
4	559110.645	1567084.728	FENCE CORNER
5	559081.743	1567169.931	FENCE CORNER
6	559067.316	1567164.951	FENCE CORNER
7	558969.684	1567447.733	FENCE CORNER
8	558996.452	1567456.975	FENCE CORNER
9	558966.273	1567545.941	FENCE CORNER
10	558939.904	1567538.268	FENCE CORNER
11	558884.824	1567722.162	FENCE CORNER
12	558909.678	1567765.100	FENCE CORNER
13	559011.489	1567779.563	FENCE CORNER
14	559004.414	1567829.367	FENCE CORNER
15	559252.838	1567867.884	FENCE CORNER
16	559255.675	1567573.825	FENCE CORNER
17	559250.629	1567496.806	FENCE CORNER
18	559420.883	1567362.625	FENCE CORNER

◇ SHEET KEYNOTES:

1. ORNAMENTAL FENCE SEE SHEET C-01-501 FOR DETAILS.
2. CHAIN LINK FENCE SEE SHEET C-01-501 FOR DETAILS.
3. EXISTING CHAIN LINK FENCE TO REMAIN.
4. 30'-0" SINGLE CANTILEVER ORNAMENTAL SLIDE GATE W/ELECTRIC OPERATOR.
5. 60'-0" DOUBLE CANTILEVER ORNAMENTAL SLIDE GATE W/ELECTRIC OPERATOR.
6. 8'-0" DOUBLE GATE

FENCING LEGEND

- NEW ORNAMENTAL FENCE
- NEW CHAIN LINK FENCE
- EXISTING CHAIN LINK FENCE TO REMAIN

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/17/11

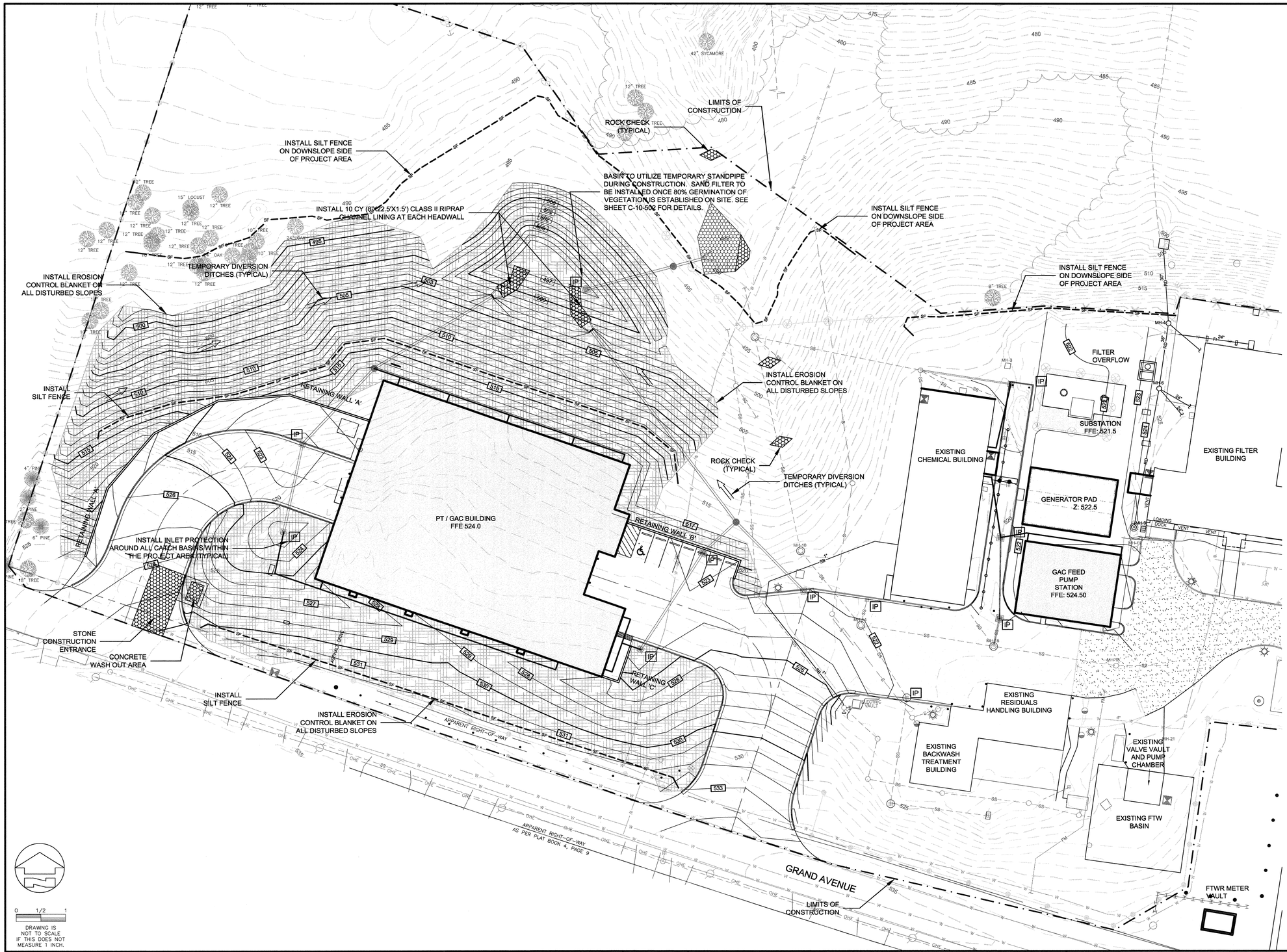
REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
SITE FENCING PLAN
SCALE: 1" = 40'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-104
CAD REF. NO. 3789-C-01-104



SEDIMENT AND EROSION CONTROL NOTES:

IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTROL EROSION FROM THIS SITE DURING ITS PHYSICAL ALTERATION. THE EROSION CONTROL PLAN SEEKS TO PROVIDE SOME DIRECTION IN THE MANNER IN WHICH THE OBJECTIVE TO CONTROL EROSION CAN BE ACCOMPLISHED. IT IS NOT THE INTENT OF ENGINEER TO LIMIT THE CONTRACTOR IN THE MANNER AND TECHNIQUES TO CONTROL EROSION. A RECOMMENDED RESOURCE FOR CONTRACTOR'S WORK IS "STORM WATER MANAGEMENT FOR CONSTRUCTION ACTIVITIES-DEVELOPING POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES" PUBLISHED BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY.

ANY PROPOSED BMP CHANGE SHOULD BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AND NOTED ON THE BEST MANAGEMENT PRACTICES (BMP) PLAN, LOCATED ON SITE AT ALL TIMES DURING CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPMENT OF AND COMPLIANCE WITH A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SUBMITTED AND ACCEPTED BY THE SD1 FOR THIS PROJECT THROUGH ALL STAGES OF CONSTRUCTION.

PRIMARY PERMITEE IS RESPONSIBLE FOR MAINTAINING FILES PER PERMIT REQUIREMENTS.

ALL STRUCTURAL BMP'S SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE CURRENT SD1 STORMWATER MANUAL.

THE FOLLOWING IS A LIST IN SEQUENCE OF CONSTRUCTION ACTIVITIES TO CONTROL SOIL EROSION FOR THE PROJECT.

1) CONTRACTOR SHALL SUBMIT A KENTUCKY DIVISION OF WATER (KYDOW) - NOTICE OF INTENT TO THE KYDOW, UPON SD1'S ACCEPTANCE OF THE CONTRACTOR'S SWPPP.

2) CONTRACTOR SHALL INSTALL STONE CONSTRUCTION ENTRANCE SURFACE WHERE CONSTRUCTION TRAFFIC ENTERS AND EXITS THE SITE. CONSTRUCTION ENTRANCE SHALL BE A MINIMUM 20' WIDE, 40' LONG, WITH 12" MINIMUM THICKNESS, OR AS NOTED ON DRAWING, AND USE NO. 2 STONE WITH GEOTEXTILE FABRIC BELOW THE STONE. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS FREE FROM MUD, DIRT, DEBRIS, AND ROCK. DUST SHALL BE KEPT TO A MINIMUM BY UTILIZING SPRINKLING, CALCIUM CHLORIDE, VEGETATIVE COVER, SPRAY ON ADHESIVES OR OTHER APPROVED METHODS.

3) INSTALL SILT FENCE AS SHOWN ON THE CONSTRUCTION DRAWINGS OR REQUIRED BY CONTRACTOR'S STAGING OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR PLACEMENT OF ANY ADDITIONAL SILT FENCE, AT NO ADDITIONAL COST, TO PROTECT SOIL STOCKPILES AND STAGING AREAS.

4) CLEAR AND GRUB THE SITE AND DISPOSE OF ALL DEBRIS PROPERLY. IF AN AREA THAT HAS BEEN DISTURBED IS TO BE INACTIVE FOR MORE THAN 14 DAYS THE CONTRACTOR SHALL SUPPLY STABILIZATION BY MEANS OF TEMPORARY SEEDING AND MULCHING, SODDING, COVERING OR OTHER EQUIVALENT EROSION CONTROL MEASURES AS SOON AS PRACTICAL. IN NO CASE SHALL AN AREA REMAIN UNTREATED FOR MORE THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED. FOR TEMPORARY SEEDING THE CONTRACTOR SHALL UTILIZE A FAST GROWING SEED OF EITHER OATS, ANNUAL RYE GRASS, WHEAT OR RYE DEPENDING ON TIME OF YEAR.

5) MAINTAIN ALL FILTERS AND TRAPS DURING CONSTRUCTION TO PREVENT ANY BLOCKAGES FROM ACCUMULATED SEDIMENT. AFTER EVERY RAIN IN EXCESS OF HALF AN INCH, SILT CONTROL DEVICES ARE TO BE INSPECTED, CLEANED AND REPAIRED IF NECESSARY. SILT FENCE MUST BE CLEANED IF SILT BUILDUP REACHES 1/3 OF THE SILT FENCE HEIGHT. SILT TRAPS SHALL BE CLEANED WHEN SILT DEPOSITS REACH 1/2 OF TRAP CAPACITY. ADDITIONAL SEEDING OR SILT FENCE MAY BE REQUIRED DURING CONSTRUCTION AS SPECIFIED BY THE OWNER'S REPRESENTATIVE.

6) WHEN DISTURBED AREAS ARE AT FINAL GRADE AND ALL ACTIVITY IN THESE AREAS IS COMPLETE, EROSION CONTROL MATS AND PERMANENT VEGETATION SHALL BE PROVIDED.

7) CONTRACTOR SHALL MAINTAIN ALL TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PHASE OF THIS PROJECT AND REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROLS ONLY WHEN THERE IS 80% COVERAGE OF ESTABLISHED GERMINATED GROUND COVER TO PREVENT FURTHER EROSION. ONCE CONSTRUCTION IS COMPLETE, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT SILT HAS BEEN REMOVED FROM ALL PERMANENT WATER QUALITY FILTERS AND STORM SEWER FACILITIES.

8) UPON COMPLETION OF CONSTRUCTION ACTIVITIES, VEGETATION ESTABLISHED, AND AFTER OWNER'S ACCEPTANCE, CONTRACTOR SHALL SUBMIT KYDOW - NOTICE OF TERMINATION.

MALCOLM PIRNIE

STRAND ASSOCIATES, INC.® ENGINEERS

3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES CJR
DWN CSD
CKD MAW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
EROSION CONTROL PLAN
SCALE: 1" = 30'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-105
CAD REF. NO. STRAND-C-01-105

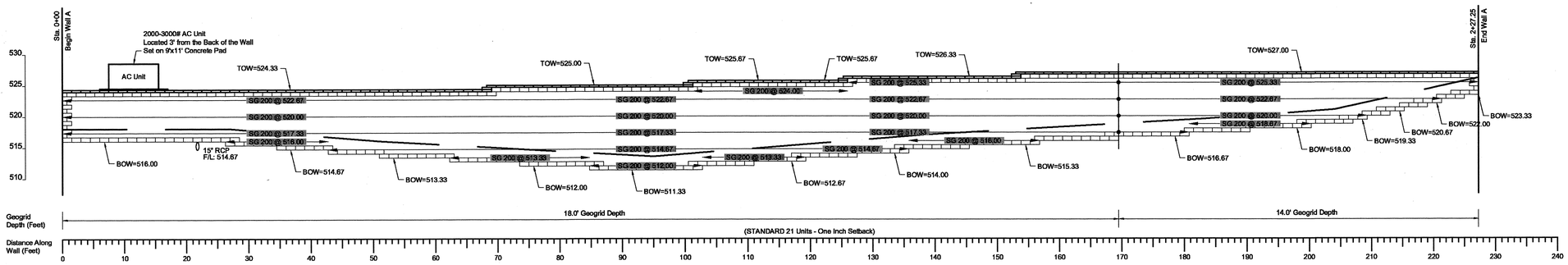
GENERAL NOTES:

1. THE WALL SHALL BE CONSTRUCTED WITH MASONRY BLOCK UNITS USING A 1" SETBACK (1H:8V BATTER).

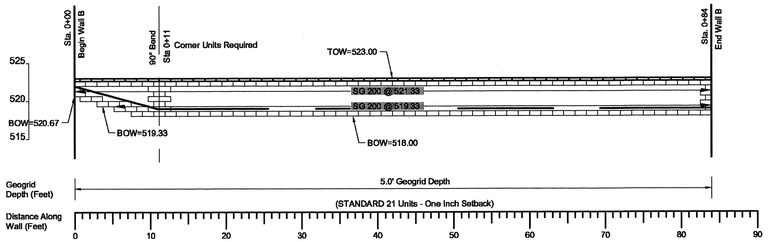
2. THE DESIGN REQUIRES STRATAGRID 200 (OR EQUIVALENT) SOIL REINFORCEMENTS AT THE ELEVATIONS SHOWN.

Legend:

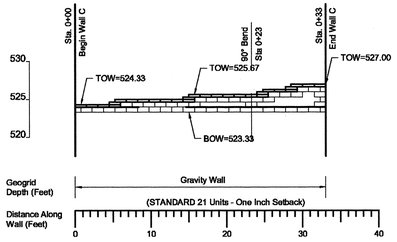
Stratagrid 200 (OR EQ.)



Wall A - Front Face Elevation



Wall B - Front Face Elevation



Wall C - Front Face Elevation

GENERAL NOTES:

1. THE FOLLOWING EFFECTIVE STRENGTH DESIGN PARAMETERS WERE ASSUMED IN THE PREPARATION OF STRUCTURAL CALCULATIONS FOR THE RETAINING WALL SYSTEM:

	Φ	C (PSF)	Γ (PCF)	SOIL TYPE
REINFORCED SOIL	35°	0	120	SELECT GRANULAR BACKFILL
RETAINED SOIL	24°	0	127	OBTAINED FROM SOILS REPORT
FOUNDATION SOIL	24°	0	127	OBTAINED FROM SOILS REPORT

2. THE SYSTEM HAS BEEN EVALUATED FOR INTERNAL STABILITY AND SIMPLE EXTERNAL SLIDING AND OVERTURNING. REFER TO THE DESIGN CALCULATIONS FOR SPECIFIC MINIMUM FACTORS OF SAFETY UTILIZED FOR WALL DESIGN.

3. THE WALLS ARE DESIGNED TO SUPPORT THE FOLLOWING MAXIMUM SURCHARGE LOADINGS:

   LIVE LOAD: 250 PSF
   BACKSLOPE: LEVEL
   SEISMIC - PGA<0.10G

4. THE WALL FOUNDATION SOILS AT EACH WALL LOCATION SHALL BE CAPABLE OF SAFELY SUPPORTING 1700 PSF OR AS INDICATED ON THE WALL ELEVATIONS WITHOUT FAILURE OR EXCESSIVE SETTLEMENT. LOCAL BEARING CAPACITY SHALL BE CONFIRMED BY THE SITE ENGINEER.

5. THE CONTRACTOR SHALL PROVIDE SURFACE AND SUBSURFACE DRAINAGE, GRADING, AND EROSION CONTROL DURING AND AFTER WALL CONSTRUCTION TO AVOID DAMAGE TO THE WALL STRUCTURE.

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY
ALISON S. CHADWELL
25712
LICENSED PROFESSIONAL ENGINEER
3/8/11

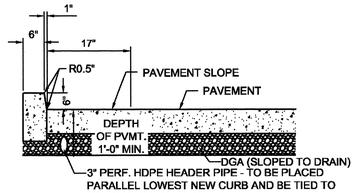
REVISIONS			
NO.	BY	DATE	REMARKS

DES ASC
DWN ASC
CKD

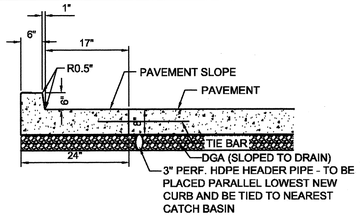
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
RETAINING WALL PROFILES
SCALE: 1" = 50' HORIZONTAL 1" = 5' VERTICAL

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-301
CAD REF. NO. 3789-C-01-301

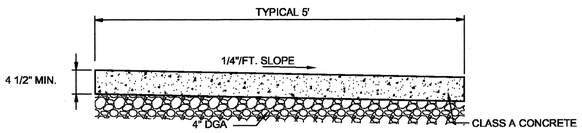


1 C-01-501 STANDARD HEADER CURB
SCALE: NONE



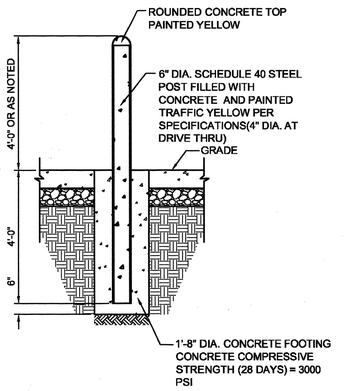
ALL CURBS SHOWING REINFORCING STEEL SHALL BE CAST SEPARATELY FROM THE PAVEMENT AND THE REINFORCEMENT SHALL CONSIST SOLELY OF NO. 4 BARS.

2 C-01-501 STANDARD CURB & GUTTER
SCALE: NONE

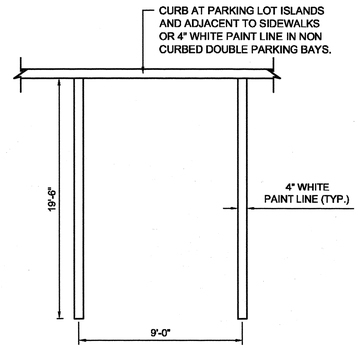


NOTE: ALL SIDEWALK SHALL BE CONSTRUCTED PER CURRENT ADA REGULATIONS. NEW SIDEWALK SHALL BE FITTED WITH TRUNCATED DOMES AT LOCATIONS INDICATED ON PLANS.

6 C-01-501 GENERAL SITE SIDEWALK
SCALE: NONE



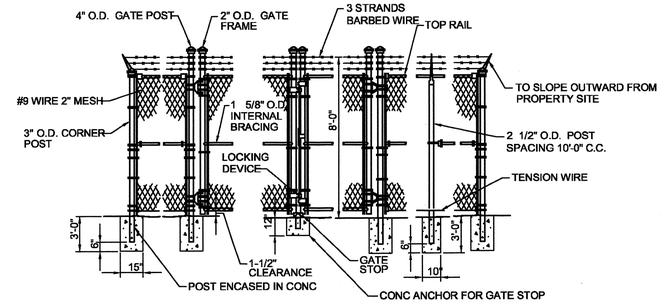
3 C-01-501 BOLLARD DETAIL
SCALE: NONE



NOTE:

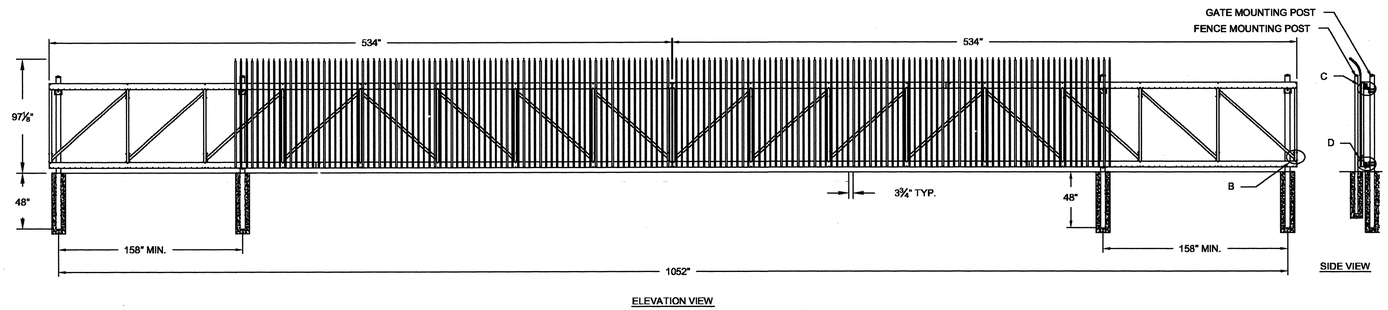
1. PROVIDE 2 COATS OF PAINT ON ALL SURFACES. FIRST COAT TO BE APPLIED UPON COMPLETION OF CONSTRUCTION. SECOND COAT TO BE APPLIED JUST PRIOR TO OWNER OCCUPANCY.
2. SEE SHEET C-01-101 FOR ACTUAL SPACE LOCATION.

4 C-01-501 TYPICAL PARKING SPACE DETAIL
SCALE: NONE



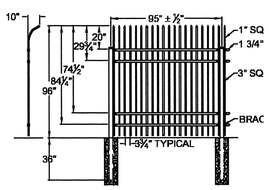
NOTE: FOR GATE SIZES, SEE SITE PLAN

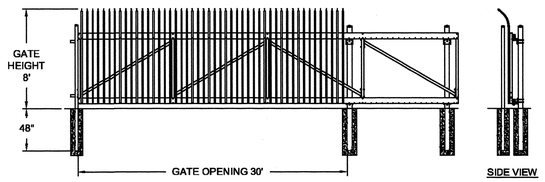
5 C-01-501 CHAIN LINK SECURITY FENCE
SCALE: NONE



ELEVATION VIEW

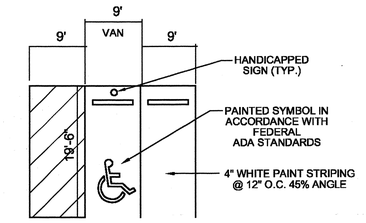
8 C-01-501 DOUBLE CANTILEVER GATE DETAIL
SCALE: NONE



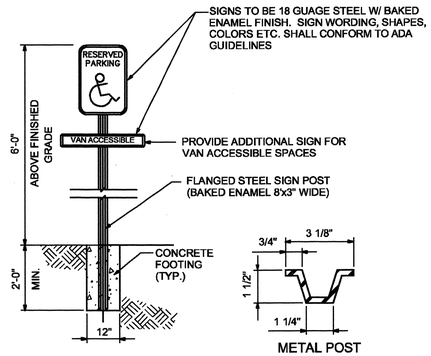


8 C-01-501 SINGLE CANTILEVER GATE DETAIL
SCALE: NONE

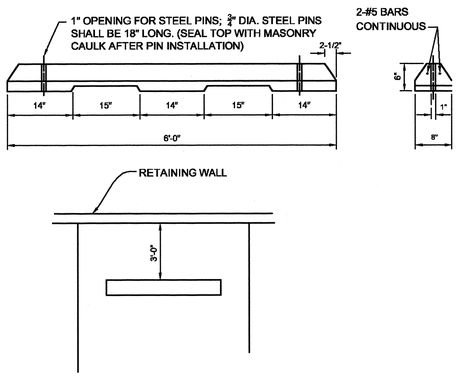
7 C-01-501 ORNAMENTAL SECURITY FENCE
SCALE: NONE



9 C-01-501 HANDICAP PARKING SPACE
SCALE: NONE



10 C-01-501 HANDICAPPED/VAN PARKING SIGN
SCALE: NONE



11 C-01-501 CONCRETE CURB STOP
SCALE: NONE

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
GRW
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
ALISON S. CHADWELL
25712
LICENSED PROFESSIONAL ENGINEER
3/16/11

REVISIONS			
NO.	BY	DATE	REMARKS

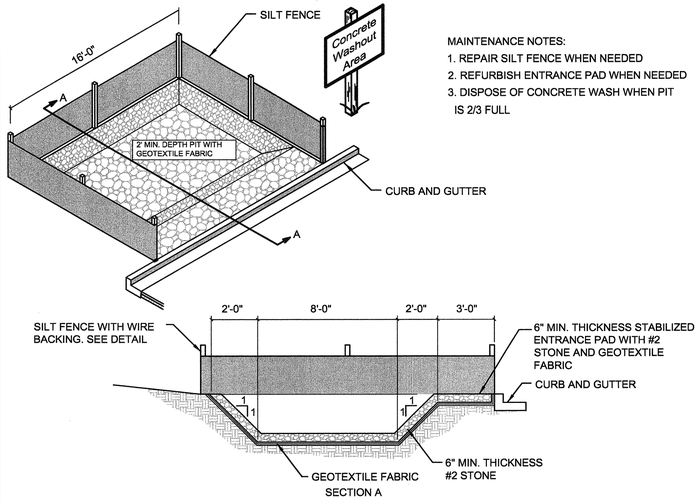
DES ASC
DWN ASC
CKD HHH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

SITE DETAILS

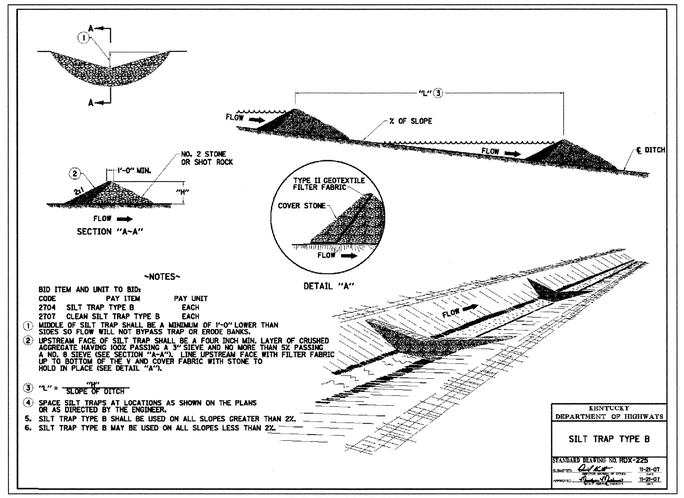
SCALE: AS SHOWN

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-501
CAD REF. NO. 3789-C-01-501



MAINTENANCE NOTES:
1. REPAIR SILT FENCE WHEN NEEDED
2. REFURBISH ENTRANCE PAD WHEN NEEDED
3. DISPOSE OF CONCRETE WASH WHEN PIT IS 2/3 FULL

CONCRETE WASHOUT AREA
N.T.S.



~NOTES~

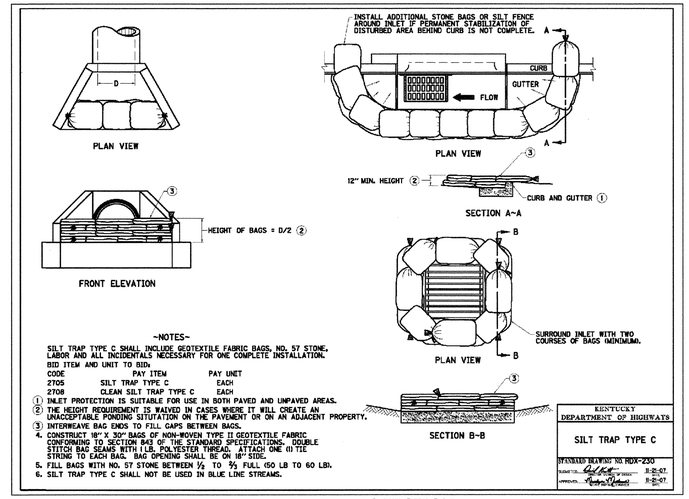
BID ITEM AND UNIT TO BID:

CODE	PAY ITEM	PAY UNIT
2704	SILT TRAP TYPE B	EACH
2707	CLEAN SILT TRAP TYPE B	EACH

① MIDDLE OF SILT TRAP SHALL BE A MINIMUM OF 1'-0" LOWER THAN SIDES SO FLOW WILL NOT BYPASS TRAP OR ERODE BANKS.
② UPSTREAM FACE OF SILT TRAP SHALL BE A FOUR INCH MIN. LAYER OF CRUSHED AGGREGATE HAVING 100% PASSING A 1" SIEVE AND NO MORE THAN 92 PASSING A NO. 8 SIEVE (SEE SECTION "A-A"). LINE UPSTREAM FACE WITH FILTER FABRIC UP TO BOTTOM OF THE V AND COVER FABRIC WITH STONE TO HOLD IN PLACE (SEE DETAIL "A").
③ "L" = "H" / "SLOPE OF DITCH"
④ SPACE SILT TRAPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
5. SILT TRAP TYPE B SHALL BE USED ON ALL SLOPES GREATER THAN 2%.
6. SILT TRAP TYPE B MAY BE USED ON ALL SLOPES LESS THAN 2%.

KENTUCKY DEPARTMENT OF HIGHWAYS
SILT TRAP TYPE B
STANDARD DRAWING NO. RDX-225
SUBMITTED 11-21-07
APPROVED 11-21-07

ROCK CHECK
N.T.S.



~NOTES~

SILT TRAP TYPE C SHALL INCLUDE GEOTEXTILE FABRIC BAGS, NO. 57 STONE, LABOR AND ALL INCIDENTALS NECESSARY FOR ONE COMPLETE INSTALLATION.

BID ITEM AND UNIT TO BID:

CODE	PAY ITEM	PAY UNIT
2705	SILT TRAP TYPE C	EACH
2708	CLEAN SILT TRAP TYPE C	EACH

① INLET PROTECTION IS SUITABLE FOR USE IN BOTH PAVED AND UNPAVED AREAS.
② THE HEIGHT REQUIREMENT IS WAIVED IN CASES WHERE IT WILL CREATE AN UNACCEPTABLE PONDING SITUATION ON THE PAVEMENT OR ON AN ADJACENT PROPERTY.
③ INTERWEAVE BAG ENDS TO FILL GAPS BETWEEN BAGS.
4. CONSTRUCT 18" X 30" BAGS OF NON-WOVEN TYPE II GEOTEXTILE FABRIC CONFORMING TO SECTION 843 OF THE STANDARD SPECIFICATIONS. DOUBLE STITCH BAG SEAMS WITH 1 LB. POLYESTER THREAD. ATTACH ONE (1) TIE STRING TO EACH BAG. BAG OPENING SHALL BE ON 18" SIDE.
5. FILL BAGS WITH NO. 57 STONE BETWEEN ½ TO ⅔ FULL (50 LB TO 60 LB).
6. SILT TRAP TYPE C SHALL NOT BE USED IN BLUE LINE STREAMS.

KENTUCKY DEPARTMENT OF HIGHWAYS
SILT TRAP TYPE C
STANDARD DRAWING NO. RDX-230
SUBMITTED 11-21-07
APPROVED 11-21-07

INLET PROTECTION
N.T.S.

CONSTRUCTION ENTRANCE NOTES:

1. A STABILIZED ENTRANCE PAD OF CRUSHED STONE SHALL BE LOCATED WHERE TRAFFIC WILL ENTER OR EXIT THE CONSTRUCTION SITE ONTO A PUBLIC STREET.

2. INSTALL A CULVERT PIPE ACROSS THE ENTRANCE WHEN NEEDED TO PROVIDE POSITIVE DRAINAGE.

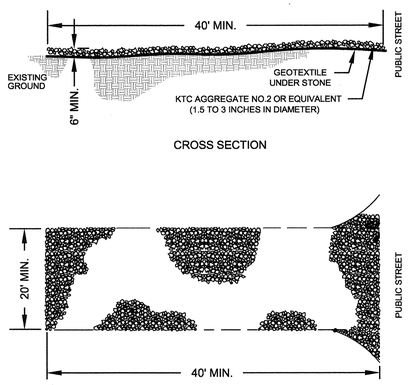
3. GEOTEXTILE FABRIC SHALL BE USED AS A BASE FOR THE CONSTRUCTION ENTRANCE.

4. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS WARRANT AND REPAIR OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.

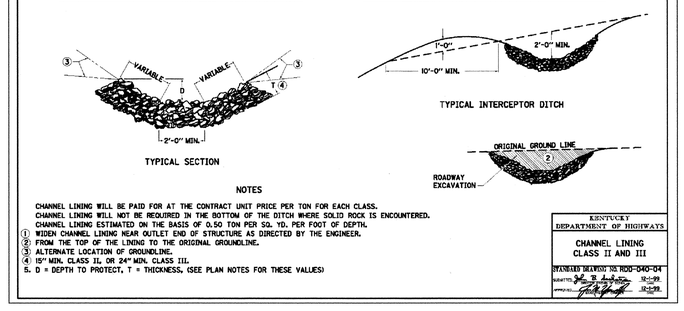
5. ANY SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC STREETS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

6. WHEN APPROPRIATE, WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE IN AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN.

7. REMOVE CONSTRUCTION ENTRANCES AS SOON AS THEY ARE NO LONGER NEEDED TO PROVIDE ACCESS TO THE SITE. BRING THE DISTURBED AREA TO GRADE, AND STABILIZE IT USING APPROPRIATE PERMANENT STABILIZATION METHODS.



CONSTRUCTION ENTRANCE DETAIL
N.T.S.

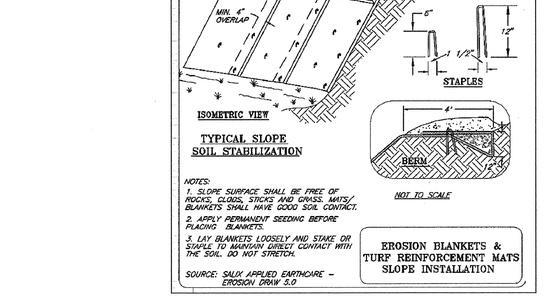


NOTES

CHANNEL LINING WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON FOR EACH CLASS.
CHANNEL LINING WILL NOT BE REQUIRED IN THE BOTTOM OF THE DITCH WHERE SOLID ROCK IS ENCOUNTERED.
CHANNEL LINING ESTIMATED ON THE BASIS OF 0.50 TON PER SQ. YD. PER FOOT OF DEPTH.
① WIDEN CHANNEL LINING NEAR OUTLET END OF STRUCTURE AS DIRECTED BY THE ENGINEER.
② FROM THE TOP OF THE LINING TO THE ORIGINAL GROUNDLINE.
③ ALTERNATE LOCATION OF GROUNDLINE.
④ 15" MIN. CLASS II, OR 24" MIN. CLASS III.
5. D = DEPTH TO PROTECT, T = THICKNESS. (SEE PLAN NOTES FOR THESE VALUES)

KENTUCKY DEPARTMENT OF HIGHWAYS
CHANNEL LINING CLASS II AND III
STANDARD DRAWING NO. RDD-040-04
SUBMITTED 10-09
APPROVED 10-09

RIPRAP CHANNEL LINING
N.T.S.

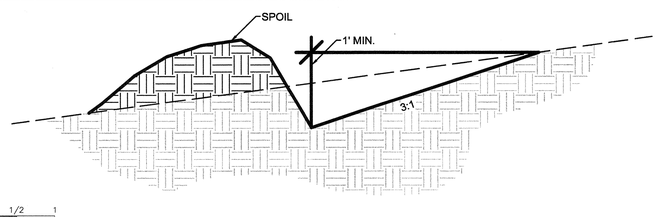


NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

SOURCE: SALIX APPLIED EARTHCARE - EROSION DRAW 5.0

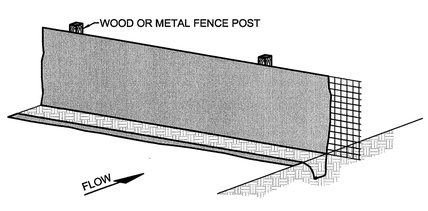
EROSION BLANKETS & TURF REINFORCEMENT MATS SLOPE INSTALLATION

EROSION CONTROL BLANKET DETAIL
N.T.S.



0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

TEMPORARY DIVERSION DITCH
N.T.S.



TEMPORARY SILT FENCE
N.T.S.

NOTES:
1. FENCE POST SHALL BE AT LEAST 5 FEET LONG, AND METAL FENCE SHALL BE AT LEAST 14 GAUGE, 36 INCHES HIGH, AND WITH OPENINGS NO LARGER THAN 6 INCHES X 6 INCHES. GEOTEXTILE FABRIC SHALL BE A MATERIAL RECOMMENDED FOR THIS USE BY THE MANUFACTURER.
2. THE BOTTOM 12 INCHES OF FABRIC SHALL BE BURIED IN A 6 INCH TRENCH CUT INTO THE GROUND TO PREVENT SEDIMENT ESCAPING UNDER THE FENCE. ALL EARTHWORK SHALL BE ON THE UPSTREAM SIDE OF THE FENCE.
3. FENCE POST AND FABRIC WILL BE ACCEPTED BASED ON VISUAL INSPECTION BY THE ENGINEER IN THE FIELD; GEOTEXTILE FABRIC WILL BE ACCEPTED UPON RECEIPT OF A CERTIFICATION FROM THE MANUFACTURER THAT IT IS SUITABLE FOR USE AS SILT FENCE.
4. THE SILT FENCE SHALL BE CONSTRUCTED AT LOCATIONS SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER. THE SILT FENCE SHALL BE ERECTED, BEFORE GRADING IS BEGUN, IN THE AREA TO BE PROTECTED. POSTS SHALL BE INSTALLED 6 TO 10 FEET SPACING (THE CLOSER SPACING SHOULD BE USED IN AREAS WHERE RAPID RUN OFF CAN BE EXPECTED) AND FENCE FABRIC ATTACHED. THE GEOTEXTILE FABRIC SHALL BE ATTACHED TO THE FENCE, ON THE UPSTREAM SIDE, USING STAPLES, HOG-RINGS, OR ANOTHER APPROVED METHOD.
5. DURING THE USEFUL LIFE OF SILT FENCE, IT SHALL BE MAINTAINED BY THE CONTRACTOR, AND SILT ACCUMULATIONS THAT THREATEN DAMAGE TO THE FENCE SHALL BE REMOVED. AFTER THE USEFULNESS OF THE FENCE HAS ENDED IT SHALL BE REMOVED AND DISPOSED OF, THE ACCUMULATED SILT EITHER BE REMOVED OR DRESSED IN PLACE AS DIRECTED, AND THE ENTIRE AREA SEEDED AND PROTECTED.

MALCOLM PIRNIE
STRAND ASSOCIATES, INC. ENGINEERS

3/18/11
COMMONWEALTH OF KENTUCKY CHRISTOPHER S. DENT 26027 PROFESSIONAL ENGINEER

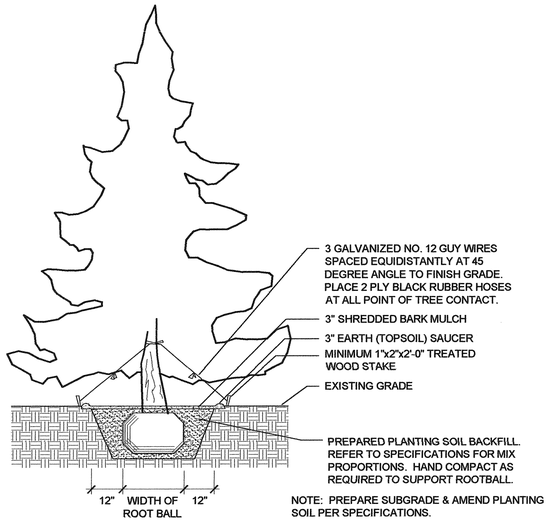
REVISIONS			
NO.	BY	DATE	REMARKS

DES CJR
DWN CSD
CKD MAW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

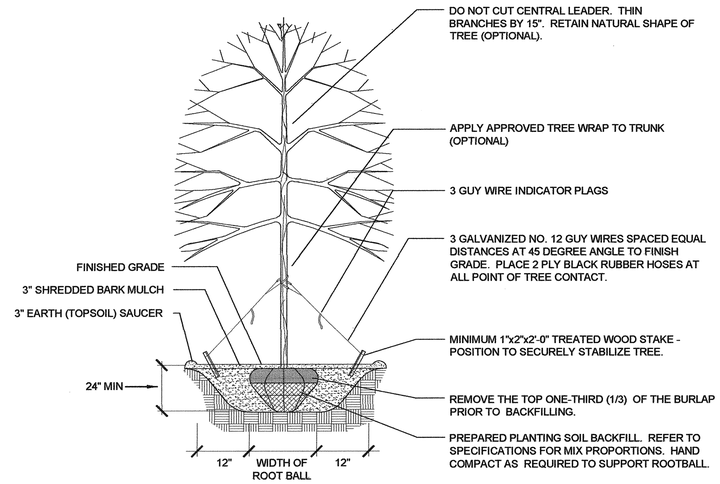
CIVIL
EROSION CONTROL DETAILS
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-502
CAD REF. NO. STRAND-C-01-502



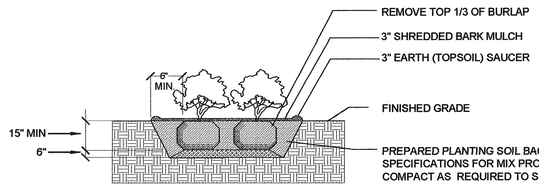
1 C-01-503 **EVERGREEN TREE PLANTING DETAIL**

N.T.S.



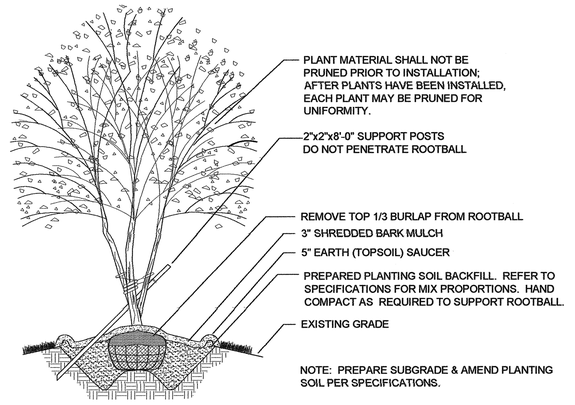
2 C-01-503 **TREE PLANTING DETAIL**

N.T.S.



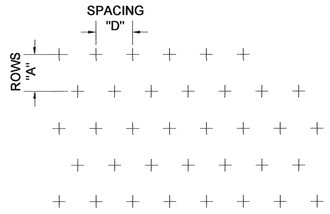
3 C-01-503 **SHRUB PLANTING DETAIL**

N.T.S.



4 C-01-503 **ORNAMENTAL TREE PLANTING DETAIL**

N.T.S.



PLANT SPACING CHART

SPACING "D"	ROW "A"	PLANTS /s.f.
6" o.c.	5.20" o.c.	4.61
8" o.c.	6.93" o.c.	2.60
10" o.c.	8.66" o.c.	1.66
12" o.c.	10.40" o.c.	1.15
15" o.c.	13.00" o.c.	0.73
18" o.c.	15.60" o.c.	0.51
24" o.c.	20.80" o.c.	0.29

5 C-01-503 **GENERAL PLANT SPACING DETAIL**

N.T.S.

GENERAL NOTES:

1. ONLY NURSERY GROWN PLANT MATERIAL SHALL BE USED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE REMOVAL OF ALL BINDING CORDS AND ROPES FROM THE TRUNKS OF ALL TREES AND SHRUBS.
3. ALL PLANT MATERIAL SHALL MEET THE CURRENT MINIMUM STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN AS SPECIFIED IN AMERICAN STANDARD FOR NURSERY STOCK. ALL PLANTING AREAS SHALL BE FILLED AND BACKFILLED WITH CLEAN TOPSOIL FREE OF BUILDING DEBRIS, CRUSHED ROCK, MORTAR MIX, ETC.

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
cdpengineers
3250 blazer pkwy lexington ky 40509 T 859.264.7500 F 859.264.7501

STATE OF KENTUCKY JASON E. HALE 730 REGISTERED LANDSCAPE ARCHITECT 5/18/11

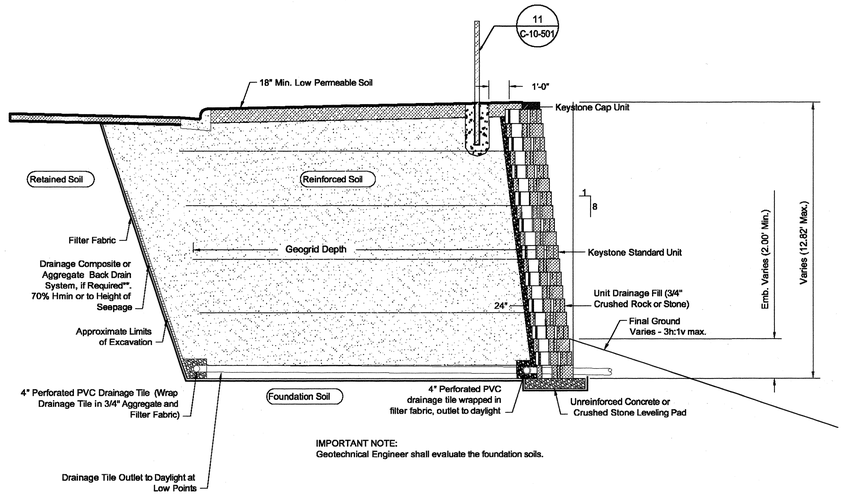
REVISIONS			
NO.	BY	DATE	REMARKS

DES JEH
DWN JEH
CKD JEH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
LANDSCAPING DETAILS AND NOTES
NOT TO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-503
CAD REF. NO. CDP-C-01-503



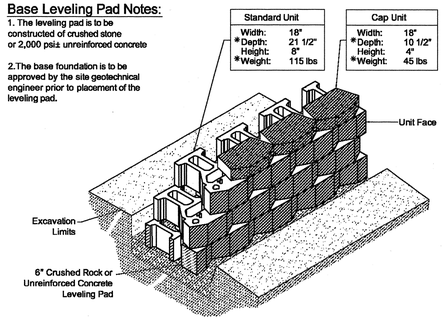
1 TYPICAL WALL 'A' SECTION - STA. 0+95
STANDARD UNIT - ONE INCH MINIMUM SETBACK

Base Leveling Pad Notes:

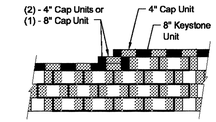
1. The leveling pad is to be constructed of crushed stone or 2,000 psi± unreinforced concrete

2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

	Standard Unit	Cap Unit
Width:	18"	18"
*Depth:	21 1/2"	10 1/2"
Height:	8"	4"
*Weight:	115 lbs	45 lbs

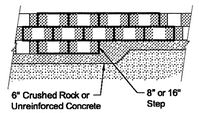


2 STANDARD UNIT/BASE PAD ISOMETRIC SECTION VIEW
DIMENSIONS & WEIGHT MAY VARY BY REGION



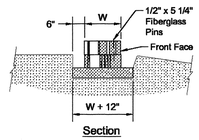
Note:
1. Secure all cap units with Keystone Kapseal or equal.

3 TOP OF WALL STEPS



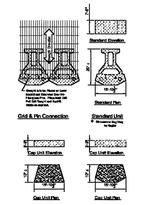
Elevation

Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.



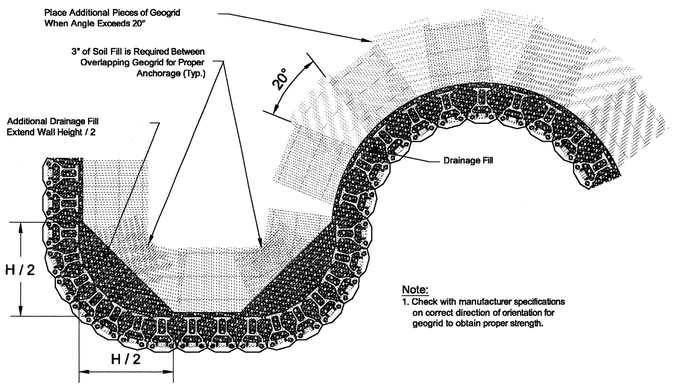
Section

4 LEVELING PAD DETAIL



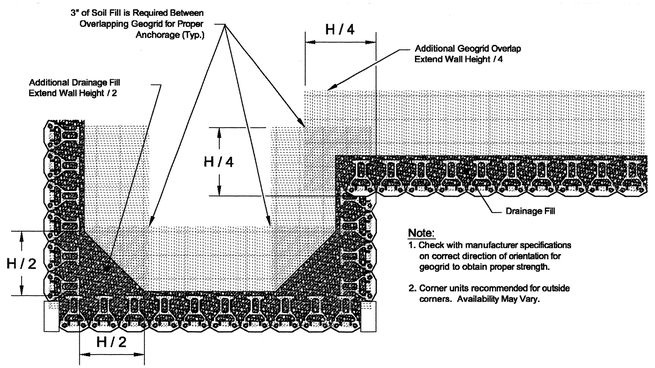
Universal Cap Unit Option | 3-Plane Split Cap Unit Option

5 LEVELING PAD DETAIL



Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

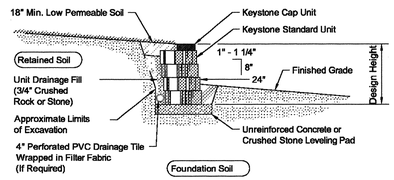
6 GEOGRID INSTALLATION ON CURVES



Note:
1. Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.

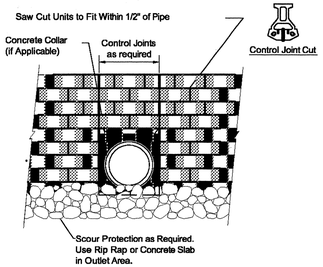
2. Corner units recommended for outside corners. Availability May Vary.

7 GEOGRID INSTALLATION ON CORNERS



8 TYPICAL GRAVITY WALL SECTION
STANDARD UNIT - 1" SETBACK

Note:
1. For pipes larger than 24", a concrete collar may be cast around pipe for ease of construction and appearance.



9 TYPICAL PIPE OUTLET DETAIL

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY ALISON S. CHADWELL 25712 LICENSED PROFESSIONAL ENGINEER 3/18/11

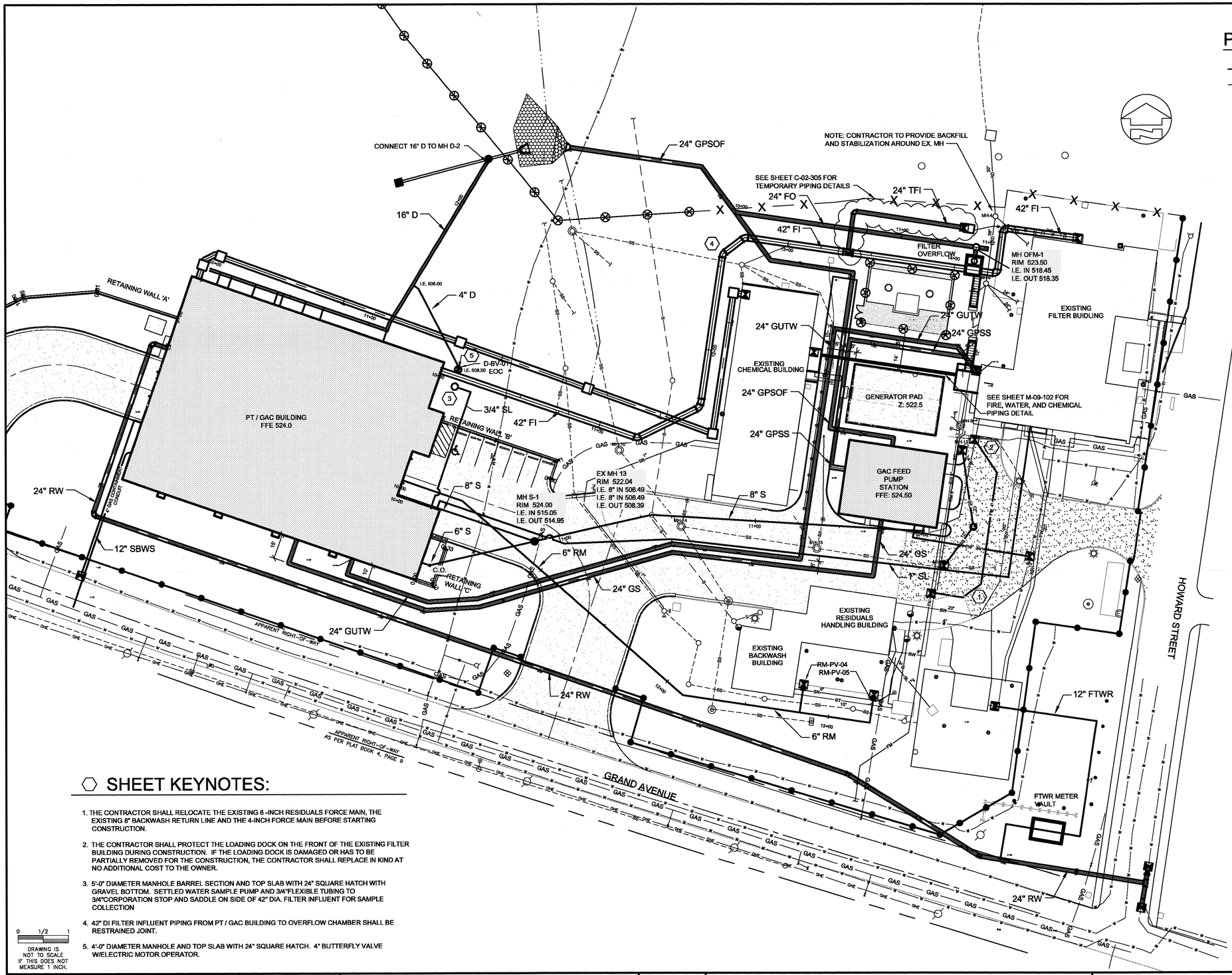
REVISIONS			
NO.	BY	DATE	REMARKS

DES ASC
DWN ASC
CKD HHH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
RETAINING WALL DETAILS
NO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-01-504
CAD REF. NO. 3789-C-01-504



PIPING LEGEND

- NEW PIPING
- EXISTING PIPING
- EXISTING VALVE
- NEW VALVE
- CONNECT TO EXISTING

- BW — BACKWASH
- BT — BACKWASH TREATMENT INFLUENT
- BD — BASIN DRAIN
- CFC — CHEMICAL FEED CARRIER PIPE
- CFT — CHEMICAL FEED TRENCH
- D — DRAIN
- FI — FILTER INFLUENT
- FO — FILTER OVERFLOW
- FW — FILTER TO WASTE
- FTWR — FILTER TO WASTE RETURN
- F — FIRE PROTECTION
- FBD — FLOCCULATION BASIN DRAIN
- BWS — GAC BACKWASH SUPPLY
- BWW/VTW — GAC BACKWASH WASTE/VESSEL-TO-WASTE
- GBP — GAC BYPASS
- GEQOF — GAC EQ BASIN OVERFLOW
- GEQR — GAC EQ BASIN RECYCLE
- GPSS — GAC FEED PUMP STATION SUPPLY
- GPSOF — GAC FEED PUMP STATION OVERFLOW
- GS — GAC SUPPLY
- GTW — GAC TREATED WATER
- GUTW — GAC/UV TREATED WATER
- GAS — GAS
- GC — GAS CARRIER PIPE
- PA — PLANT AIR
- PW(<4") — PLANT WATER
- PW(>4") — PLANT WATER
- W — POTABLE WATER
- RW — RAW WATER
- R — RECYCLE
- RD — RESIDUALS DRAIN
- RM — RESIDUALS MAIN
- SL — SAMPLE LINE
- FM — SANITARY FORCE MAIN
- S — SANITARY SEWER
- SBWS — SECONDARY GAC BACKWASH SUPPLY
- SR — SETTLED RESIDUALS
- SD — SLUDGE DRAIN
- SB — SODIUM BISULFITE
- SS — STORM SEWER
- SPD — SUMP PUMP DISCHARGE
- TFI — TEMPORARY FILTER INFLUENT
- V — VENT
- W — WATER

SHEET KEYNOTES:

1. THE CONTRACTOR SHALL RELOCATE THE EXISTING 6 -INCH RESIDUALS FORCE MAIN, THE EXISTING 8" BACKWASH RETURN LINE AND THE 4-INCH FORCE MAIN BEFORE STARTING CONSTRUCTION.
2. THE CONTRACTOR SHALL PROTECT THE LOADING DOCK ON THE FRONT OF THE EXISTING FILTER BUILDING DURING CONSTRUCTION. IF THE LOADING DOCK IS DAMAGED OR HAS TO BE PARTIALLY REMOVED FOR THE CONSTRUCTION, THE CONTRACTOR SHALL REPLACE IN KIND AT NO ADDITIONAL COST TO THE OWNER.
3. 5'-0" DIAMETER MANHOLE BARREL SECTION AND TOP SLAB WITH 24" SQUARE HATCH WITH GRAVEL BOTTOM. SETTLED WATER SAMPLE PUMP AND 3/4"FLEXIBLE TUBING TO 3/4"CORPORATION STOP AND SADDLE ON SIDE OF 42" DIA. FILTER INFLUENT FOR SAMPLE COLLECTION
4. 42" DI FILTER INFLUENT PIPING FROM PT / GAC BUILDING TO OVERFLOW CHAMBER SHALL BE RESTRAINED JOINT.
5. 4'-0" DIAMETER MANHOLE AND TOP SLAB WITH 24" SQUARE HATCH. 4" BUTTERFLY VALVE W/ELECTRIC MOTOR OPERATOR.

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

GENERAL NOTES:

1. ALL EXISTING YARD PIPING IS BASED ON BOTH A FIELD SURVEY CONDUCTED ON 12/08 BY GRW ENGINEERS AND EXISTING RECORD PLAN DOCUMENTS PROVIDED BY THE OWNER. THE CONTRACTOR SHALL FIELD VERIFY BOTH THE LOCATION AND THE ELEVATIONS OF ANY PIPING THAT IS TO BE DISTURBED AND OR REROUTED DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL FITTINGS NECESSARY TO REROUTE THE EXISTING PIPING.
2. THE CONTRACTOR SHALL PROTECT ALL MANHOLES FROM BEING DAMAGED. IF A MANHOLE IS DAMAGED OR CANNOT BE KEPT IN SERVICE DURING CONSTRUCTION THE CONTRACTOR SHALL REPLACE AND PUT BACK INTO SERVICE AT NO ADDITIONAL COST TO THE OWNER.
3. ALL EXTERIOR DUCTILE IRON PIPE SHALL BE RESTRAINED MECHANICAL JOINT.

MALCOLM PIRNIE
GRW
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY JASON M ABBOTT 25537 LICENSED PROFESSIONAL ENGINEER 3/18/11

STATE OF KENTUCKY RYAN C. CARR 23455 LICENSED PROFESSIONAL ENGINEER 3/18/11

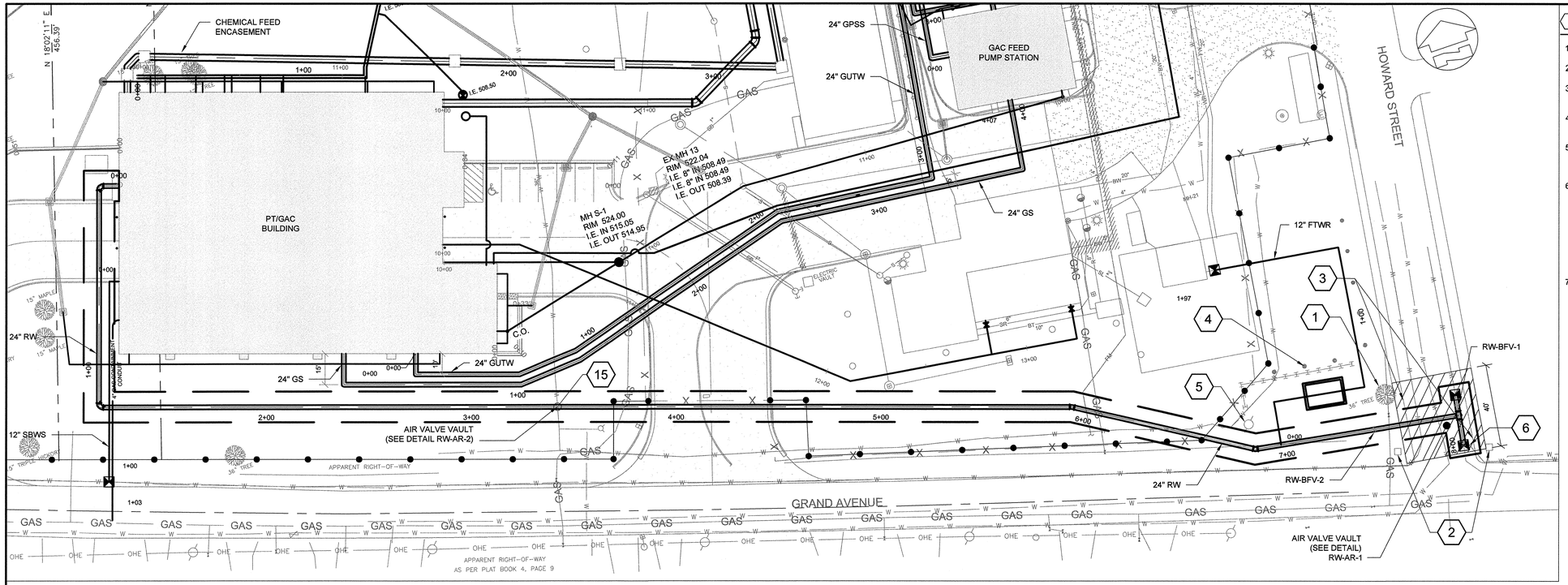
REVISIONS			
NO.	BY	DATE	REMARKS

DES MRC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
SITE PIPING PLAN
SCALE: 1" = 30'

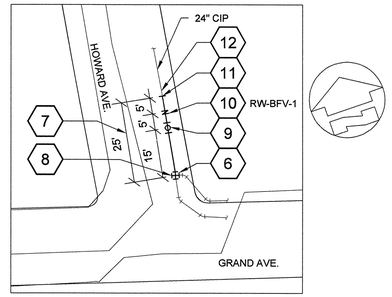
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-101
CAD REF. NO. 3789-C-02-101



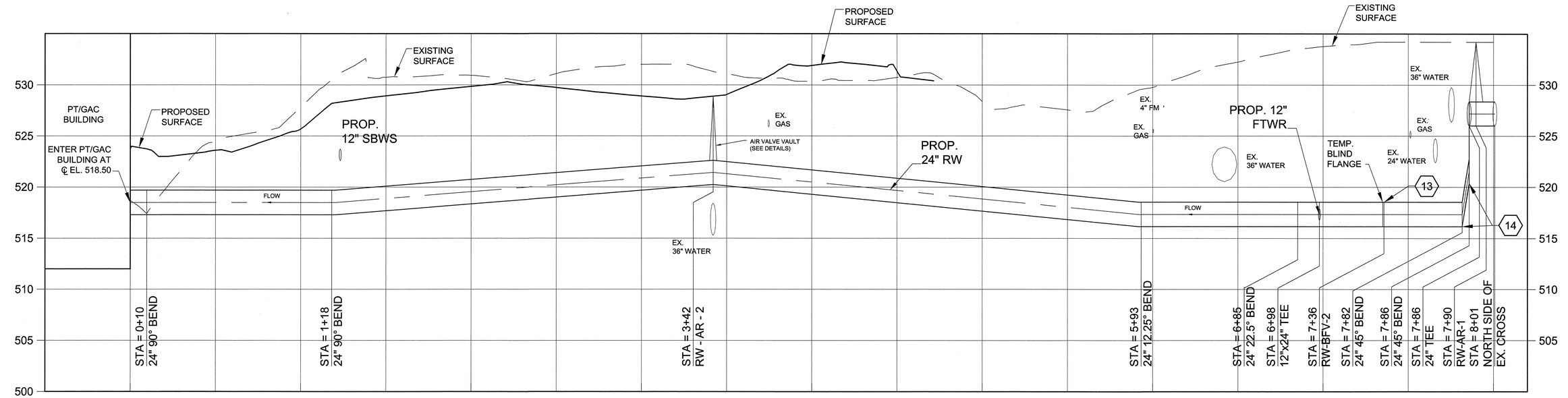
RAW WATER PLAN

SHEET KEYNOTES:

1. REMOVE EXISTING TREE.
2. PROTECT EXISTING PILLARS.
3. REMOVE AND REPLACE SIDEWALKS AND ASPHALT.
4. REMOVE AND REPLACE BOLLARD FENCE , IN KIND.
5. CONTRACTOR TO PAY FOR DUKE ENERGY TO REMOVE AND RELOCATE EXISTING ELECTRICAL POLE
6. PRIOR TO ORDERING MATERIAL CONTRACTOR SHALL DIG TEST PIT AT CROSS TO CONFIRM OUTSIDE DIAMETER OF EXISTING 24" CIP AND CONFIRM WITH MANUFACTURER THAT RESTRAINED JOINT SYSTEM WILL CONNECT TO EXISTING CROSS AND JOINT RESTRAINT COUPLE WILL CONNECT TO PROPOSED 24" DIP AND EXISTING 24" CIP
7. REMOVE APPROXIMATELY 25 LF OF EXISTING 24" CIP AND EXISTING ABANDONED AIR RELEASE VAULT.
8. CONNECT TO NORTH SIDE OF EXISTING CROSS WITH RESTRAINED JOINT SYSTEM.
9. 24" TEE
10. 24" BFV (RW-BFV-1)
11. CONNECT TO EXISTING 24" CIP A MINIMUM OF 5 LF AWAY FROM EXISTING JOINT WITH JOINT RESTRAINT COUPLE.
12. AFTER DEMONSTRATION PERIOD CAP EXISTING 24" CIP AND INSTALL THRUST BLOCK.
13. PROVIDE TEMPORARY BLIND FLANGE WHILE WAITING TO INSTALL PROPOSED RAW WATER BEYOND THIS POINT.
14. VERTICAL THRUST BLOCKING REQUIRED.
15. DIG TEST PIT TO VERIFY DEPTH OF EXISTING 36" WATER MAIN.



ENLARGED CIP TIE-IN CONNECTION



RAW WATER PROFILE

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY — JASON M. ABBOTT — 26937 — LICENSED PROFESSIONAL ENGINEER — 3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

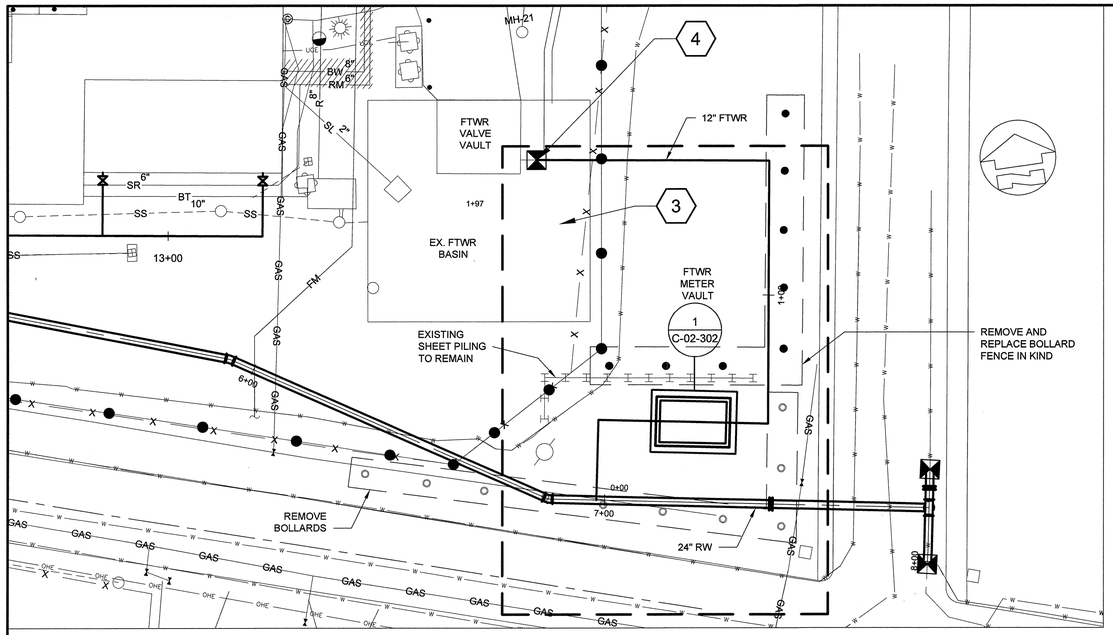
DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

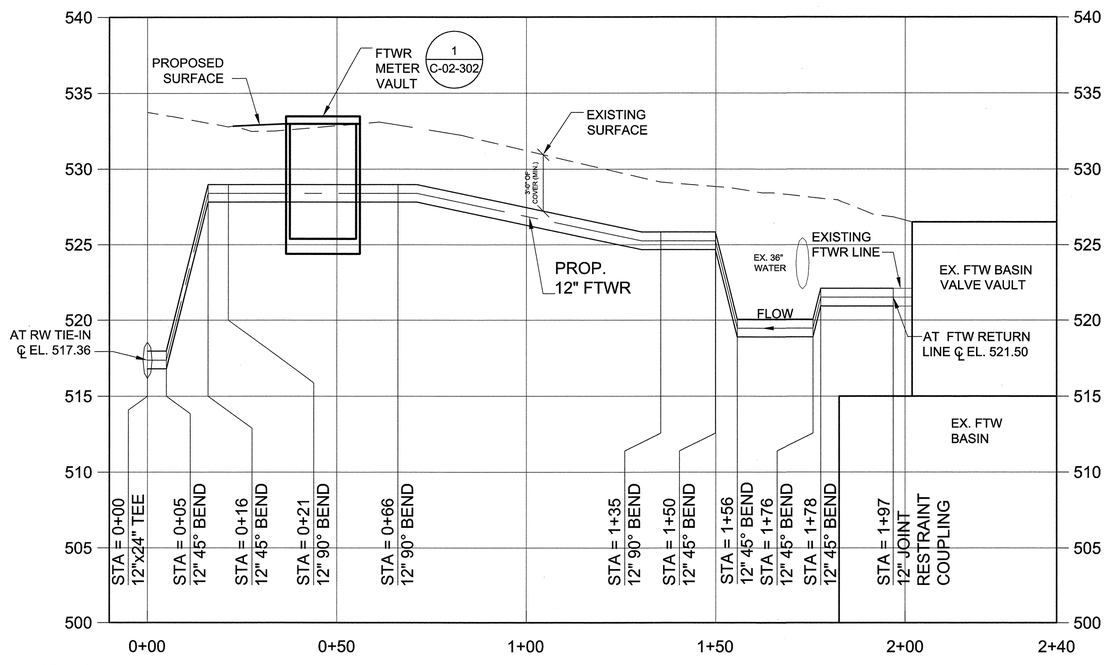
CIVIL
YARD PIPING PROFILES
RAW WATER
SCALE: 1" = 30' HORIZONTAL - 1' = 5' VERTICAL

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-301
CAD REF. NO. C-02-301

User:WELLS Spec:PIRNIE STANDARD File:I:\477501229-CADD\CIVIL\C-02-301.DWG Scale:1:30 SavedDate:3/1/2011 Time:12:48 Plot Date: Wells, Paul; 3/18/2011; 09:37 ; Layout:C-02-301



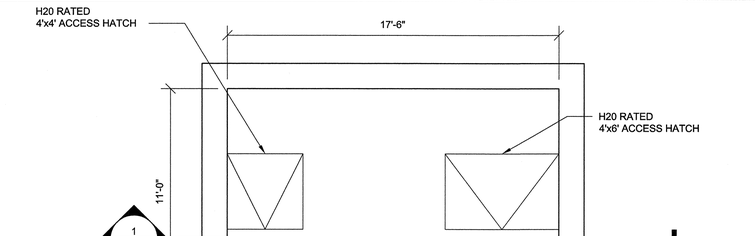
FILTER TO WASTE RETURN PLAN



0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

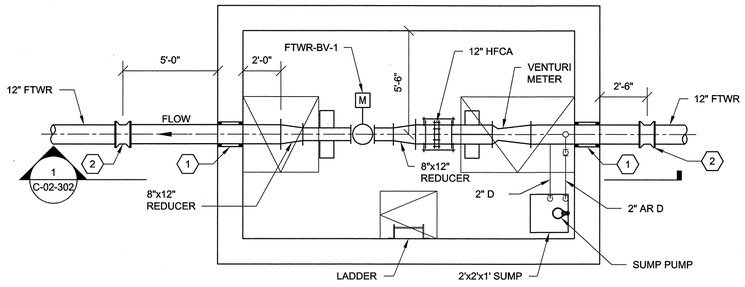
FILTER TO WASTE RETURN PROFILE



FTWR METER VAULT UPPER PLAN

1 SCALE: 1/4"=1'-0"

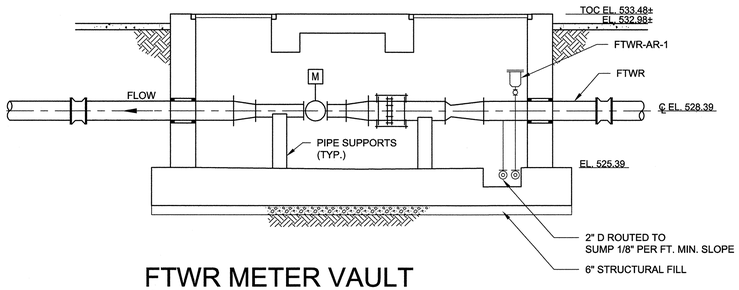
0 2' 4' 8'



FTWR METER VAULT LOWER PLAN

1 SCALE: 1/4"=1'-0"

0 2' 4' 8'



FTWR METER VAULT SECTION

1 SCALE: 1/4"=1'-0"

0 2' 4' 8'

SHEET KEYNOTES:

1. PIPE SLEEVE WITH DUAL MECHANICAL SEALS.
2. RESTRAIN WITH MECHANICAL JOINT RESTRAINTS.
3. NO HEAVY EQUIPMENT SHALL BE ALLOWED ON THE EXISTING FTWR BASIN.
4. TIE ONTO EXISTING 12" FTW RETURN PIPE WITH 12" JOINT RESTRAINT COUPLING. PLUG AND ABANDON EXISTING PIPE IN PLACE.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

JASON M ABBOTT 25537 LICENSED PROFESSIONAL ENGINEER STATE OF KENTUCKY 3/9/11

REVISIONS			
NO.	BY	DATE	REMARKS

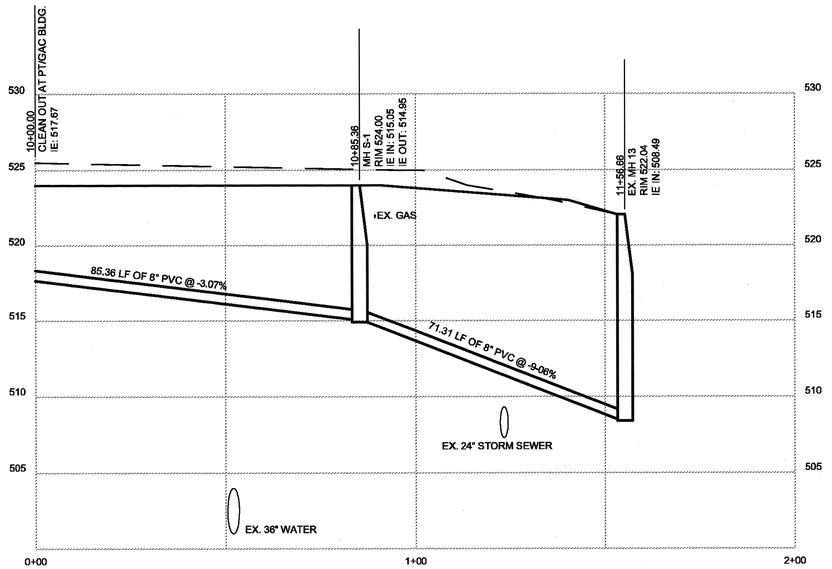
DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES
FILTER TO WASTE RETURN
SCALE: 1" = 20' HORIZONTAL - 1' = 5' VERTICAL

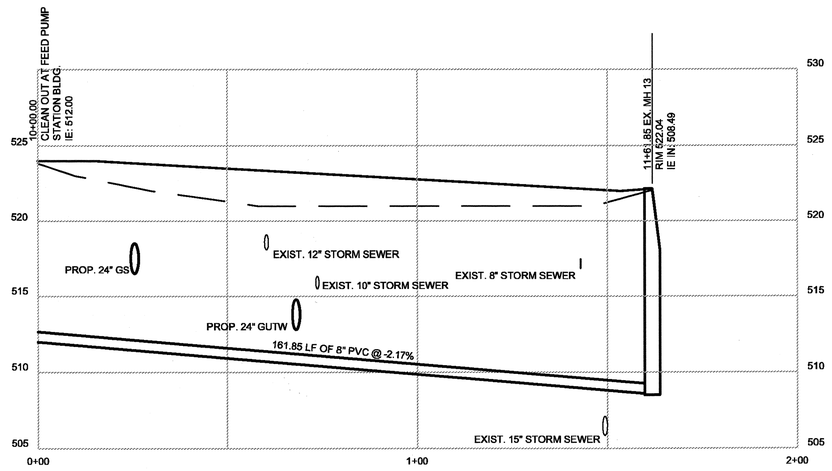
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-302
CAD REF. NO. C-02-302

User:WELLS Spec:PIRNIE STANDARD File:I:\477501\209-CADD\CIVIL\C-02-302.DWG Scale:1:18 SavedDate:3/1/2011 Time:12:47 Plot Date: Wells, Paul, 3/18/2011; 09:36 - Layout:C-02-302



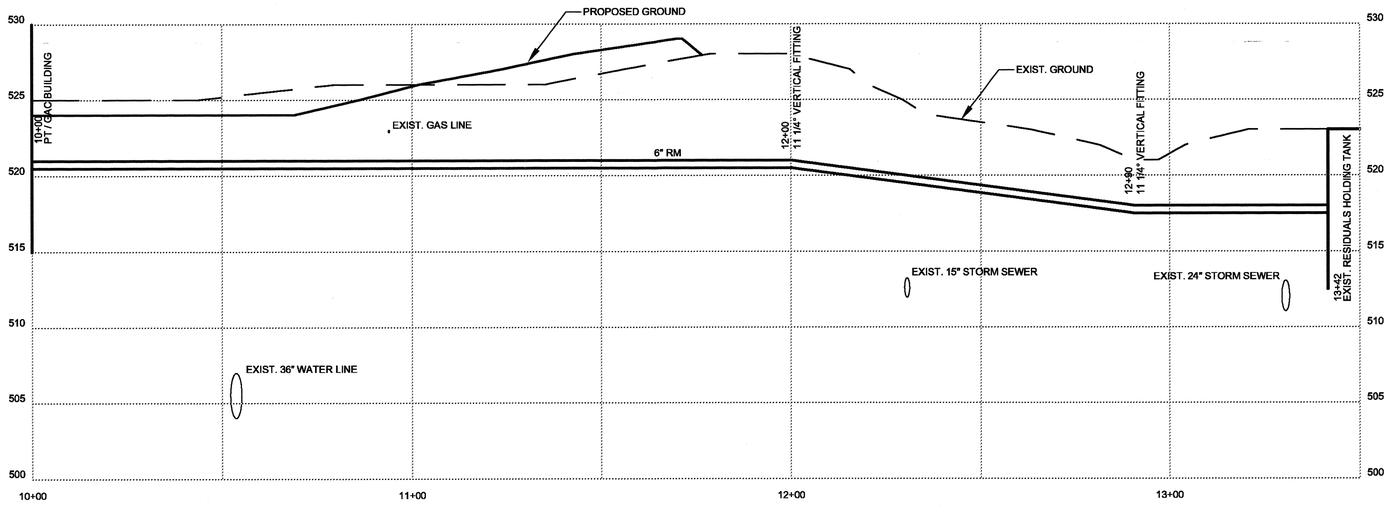
YARD PIPING PROFILE
SANITARY FROM PT/GAC BLDG.

SCALE: 1"=20'-0"



YARD PIPING PROFILE
SANITARY FROM FEED PUMP STATION

SCALE: 1"=20'-0"



YARD PIPING PROFILE
PRETREATMENT RESIDUALS

SCALE: 1"=20'-0"

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
JUSTIN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/10/11

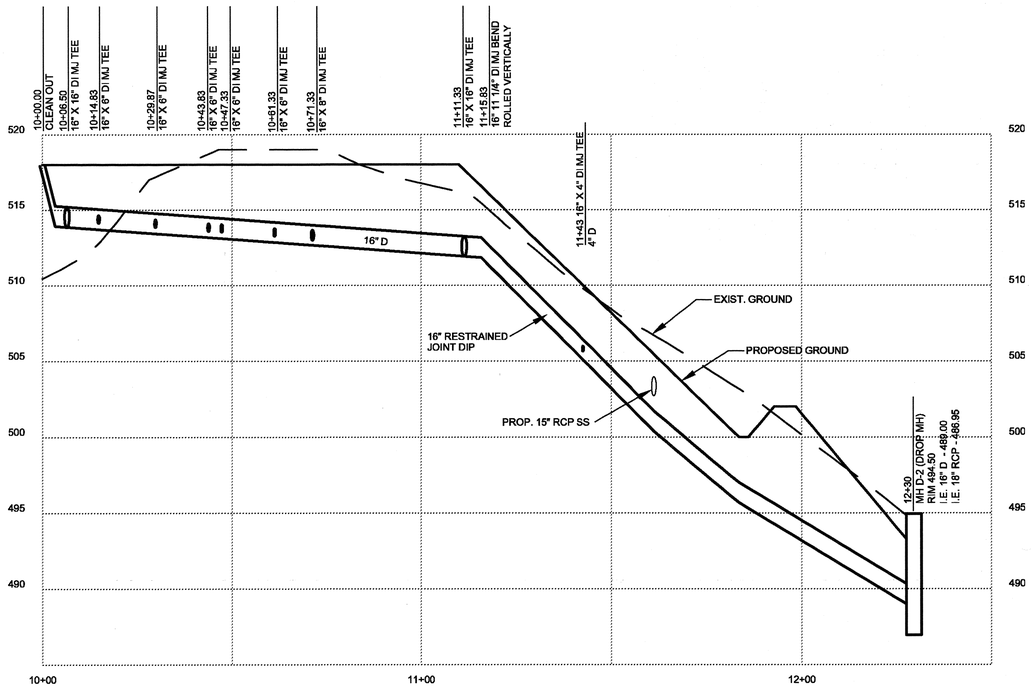
REVISIONS			
NO.	BY	DATE	REMARKS

DES JAB
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES - SANITARY AND PRETREATMENT RESIDUALS
SCALE: 1" = 20'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-303
CAD REF. NO. 3789-C-02-303



YARD PIPING PROFILE
PRETREATMENT DRAIN

SCALE: 1"=20'-0"

0 20' 40'

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
CH2M
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/18/11

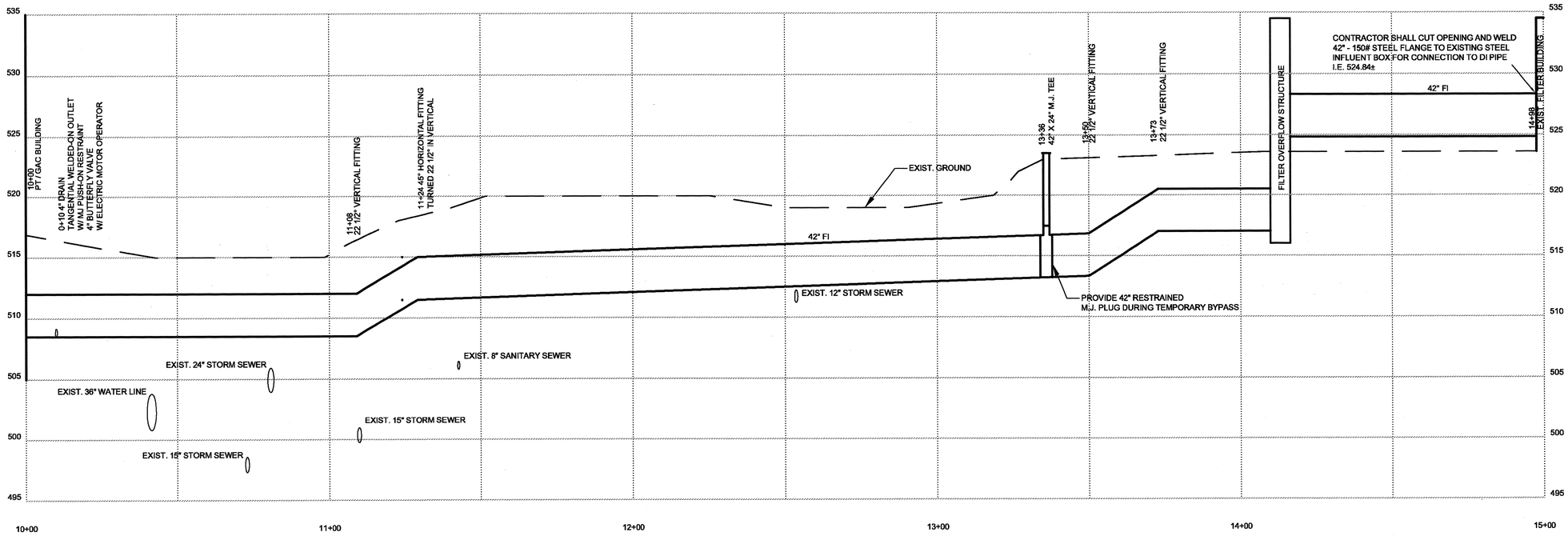
REVISIONS			
NO.	BY	DATE	REMARKS

DES JAB
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES
PRETREATMENT DRAIN
SCALE: 1" = 20'

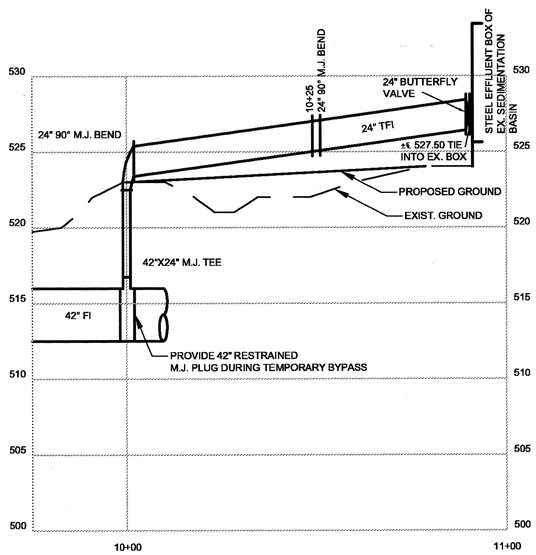
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-304
CAD REF. NO. 3789-C-02-304



YARD PIPING PROFILE
FILTER INFLUENT

SCALE: 1"=20'-0"

0 20' 40'



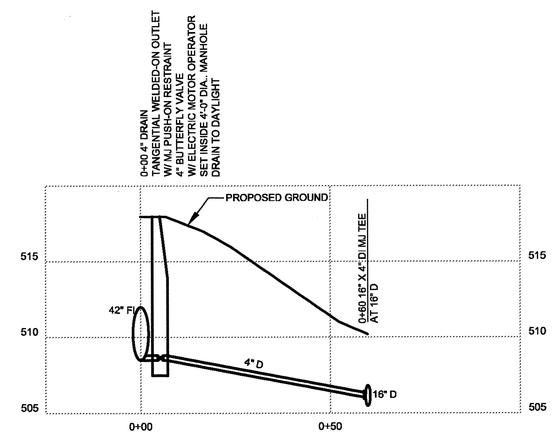
YARD PIPING PROFILE
TEMPORARY FILTER INFLUENT

SCALE: 1"=20'-0"

0 20' 40'

GENERAL NOTES FOR TEMPORARY FILTER INFLUENT PIPING

1. TEMPORARY FILTER INFLUENT PIPING SHALL BE 24" AWWA C-905 C.I. O.D. D.R. 25 PVC
2. PVC TO PVC STRAIGHT BELL CONNECTIONS SHALL HAVE BELL HARNESS CLAMPS SERIES 2500 EBAA IRON, OR APPROVED EQUAL.
3. UNLESS OTHERWISE NOTED, ALL FITTINGS SHALL BE M.J. DUCTILE IRON.
4. PVC TO M.J. DUCTILE IRON CONNECTIONS SHALL HAVE M.J. RETAINER GLANDS SERIES 2000 PV EBAA IRON, OR APPROVED EQUAL.
5. TEMPORARY 24" PIPE SHALL BE INSTALLED ABOVE GROUND IMMEDIATELY ADJACENT TO THE NORTH WALL OF THE NORTH SEDIMENTATION BASIN. PIPE SHALL NOT BE ANCHORED TO THE SEDIMENTATION BASIN WALL. 6'-0" METAL FENCE POSTS SHALL BE HAND DRIVEN MINIMUM 3'-0" TO STABILIZE THE LINE @ 10'-0" INTERVALS.
6. DUE TO THE INSTABILITY OF THE SLOPE TO THE NORTH OF THE SEDIMENTATION BASIN, NO HEAVY EQUIPMENT WILL BE PERMITTED ALONG THE NORTH SLOPE. CONTRACTOR SHALL HAND EXCAVATE A LEVEL BENCH FOR THE TEMPORARY PIPING.
7. CONTRACTOR TO PROVIDE PIPE AND VALVE SUPPORTS AS NEEDED NEAR THE CONNECTION TO EXISTING STEEL EFFLUENT BOX.
8. CONTRACTOR SHALL CUT OPENING AND WELD 24" - 150# STEEL FLANGE TO EXISTING STEEL EFFLUENT BOX AND INSTALL 24" FLANGED BUTTERFLY VALVE. CONNECTION FROM BUTTERFLY VALVE FLANGE TO PVC PIPE SHALL BE ACCOMPLISHED WITH 24" - 125# DUCTILE IRON FLANGE COUPLING ADAPTER W/LOCKING RETAINER GLAND.
9. 24" RESTRAINED M.J. PLUG TO BE INSTALLED ON 42" X 24" TEE AT COMPLETION OF 24" BYPASSING.
10. CONTRACTOR SHALL REMOVE EXISTING WOODEN STAIR ACCESS TO THE STEEL EFFLUENT BOX ADJACENT TO THE NORTH SEDIMENTATION BASIN AND PROVIDE TEMPORARY HANDRAIL AS REQUIRED.



YARD PIPING PROFILE
4" DRAIN FOR FILTER INFLUENT

SCALE: 1"=20'-0"

0 20' 40'

0 1/2 1

DRAWING IS NOT TO SCALE. IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
GRW
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JAB
DWN JAB
CKD RCC

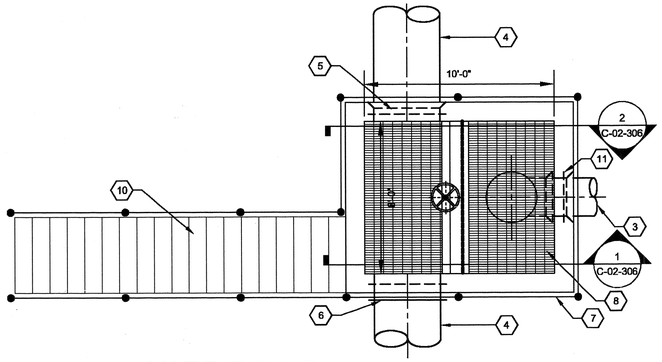
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES
FILTER INFLUENT
SCALE: 1" = 20'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-305
CAD REF. NO. 3789-C-02-305

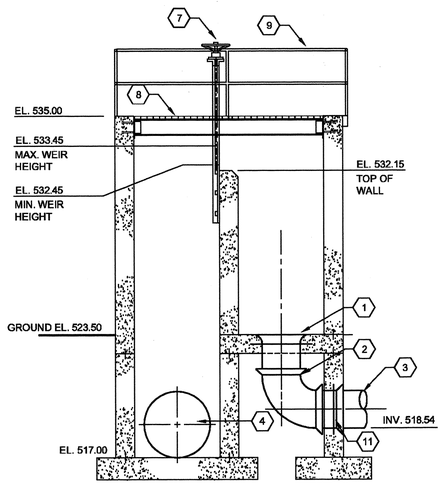
SHEET KEYNOTES:

1. 24" DI FLARE
2. 24" DI 90° MJ BEND
3. 24" DI PIPE
4. 42" DI PIPE
5. 42" DI WALL PIPE, PE X MJ, TAPPED FOR STUDS
6. 42" DI WALL PIPE, PE X FLG
7. 8'-0" X 4'-0" HANDWHEEL OPERATED S.S. WEIR GATE
8. ALUMINUM GRATING
9. ALUMINUM HANDRAIL W/TOEBOARD (SIDE MOUNT)
10. ALUMINUM STAIR
11. 24" DI WALL PIPE, PE X MJ, TAPPED FOR STUDS



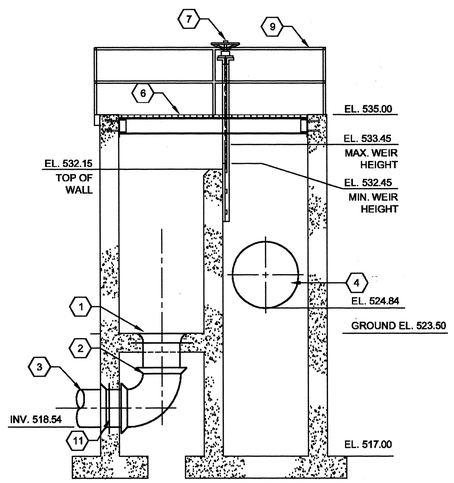
YARD PIPING FILTER OVERFLOW

SCALE: 1/4"=1'-0"



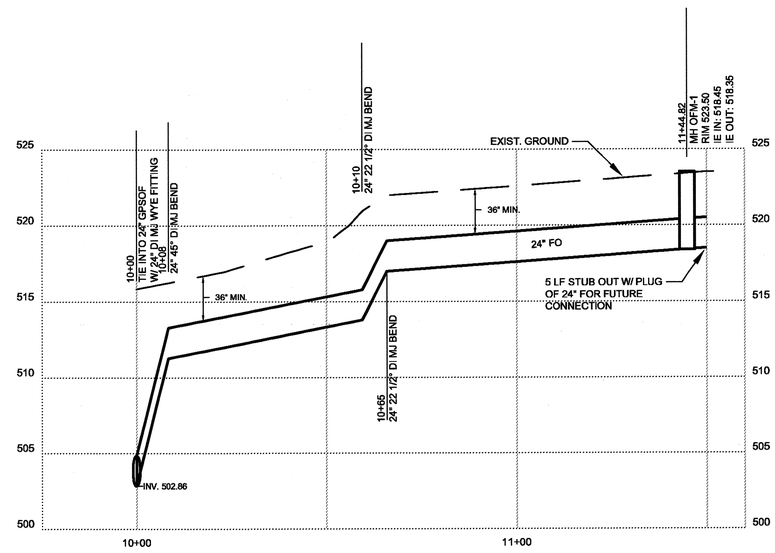
1 SECTION

SCALE: 1/4"=1'-0"



2 SECTION

SCALE: 1/4"=1'-0"



YARD PIPING PROFILE FILTER OVERFLOW

SCALE: 1"=20'-0"

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
TIMOTHY C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/18/11

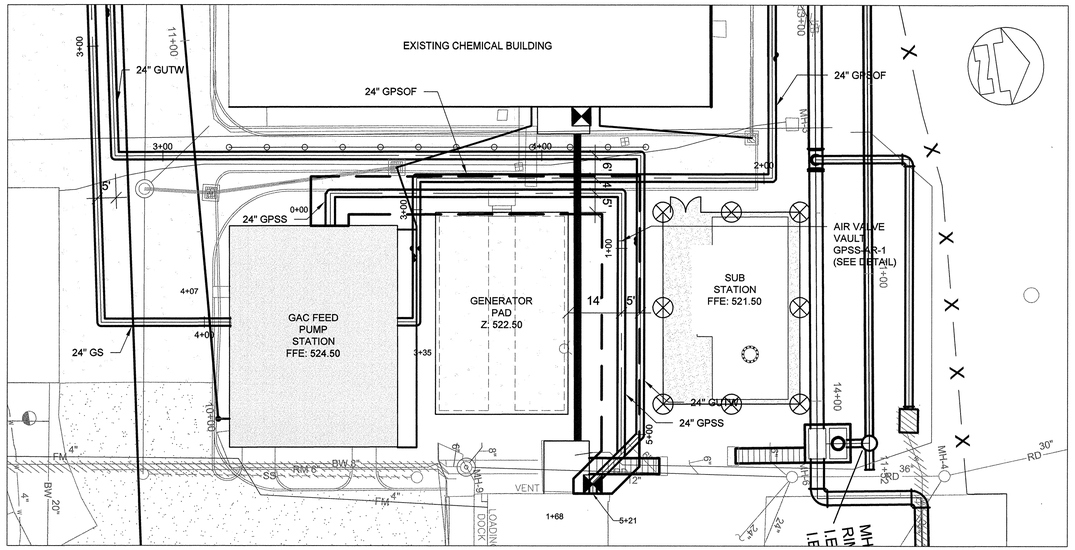
REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC
DWN JAB
CKD RCC

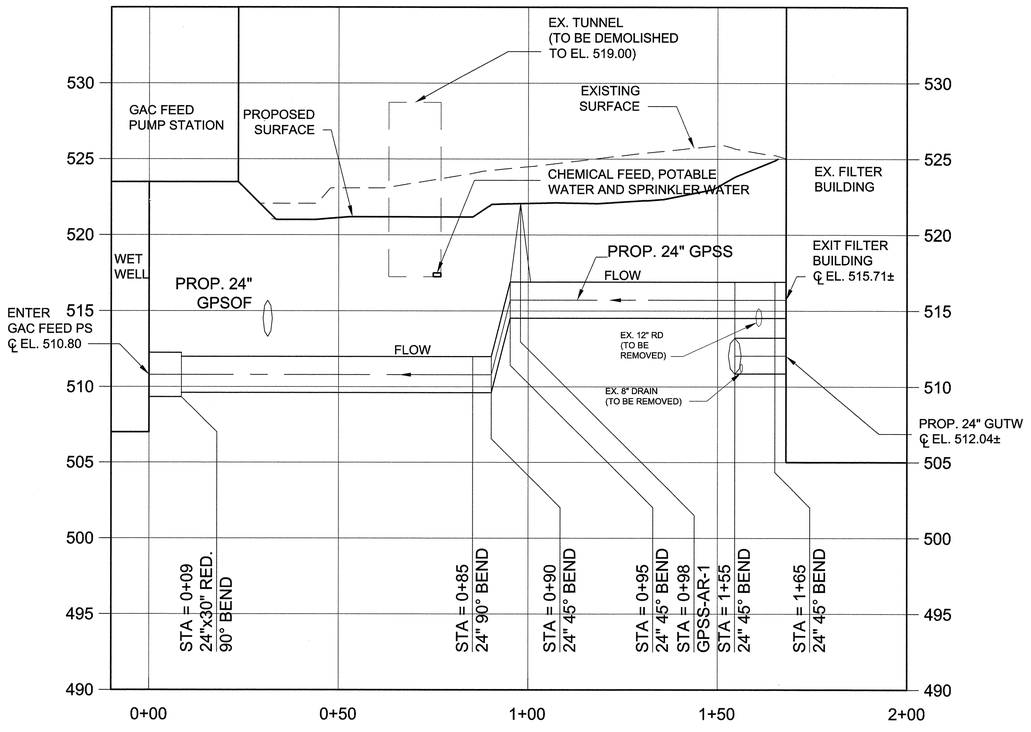
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES FILTER OVERFLOW
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-306
CAD REF. NO. 3789-C-02-306



GAC FEED PUMP STATION SUPPLY PLAN



GAC FEED PUMP STATION SUPPLY PROFILE

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY JASON M. AUSOTT 26937 LICENSED PROFESSIONAL ENGINEER 3/9/11

REVISIONS			
NO.	BY	DATE	REMARKS

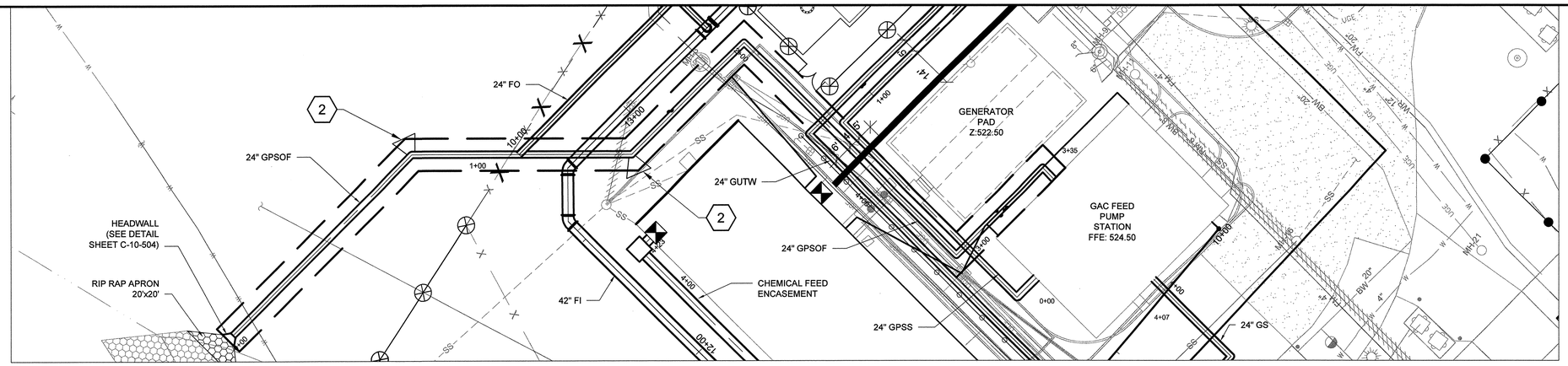
DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

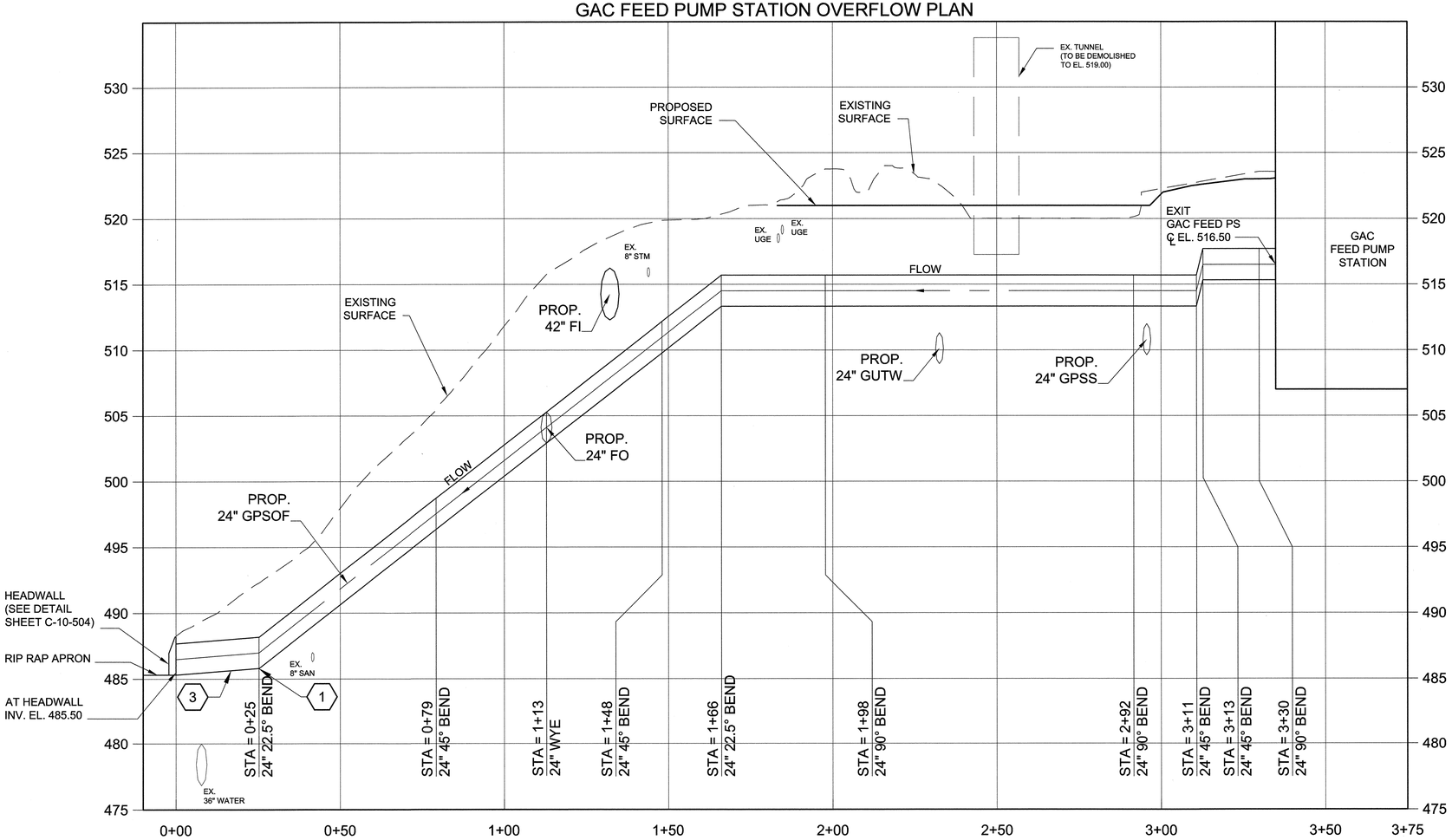
CIVIL
YARD PIPING PROFILES
GAC FEED PUMP STATION SUPPLY
SCALE: 1" = 20' HORIZONTAL - 1' = 5' VERTICAL

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-307
CAD REF. NO. C-02-307

User:WELLS Spec:PIRNIE STANDARD File:I:\477501\229-CADD\CIVIL\C-02-307.DWG Scale:1:18 SavedDate:3/1/2011 Time:12:45 Plot Date: Wells, Paul, 3/18/2011, 09:35 : Layout:C-02-307



GAC FEED PUMP STATION OVERFLOW PLAN



GAC FEED PUMP STATION OVERFLOW PROFILE

SHEET KEYNOTES:

1. INSTALL VERTICAL THRUST BLOCKING.
2. INSTALL HORIZONTAL THRUST BLOCKING.
3. PROVIDE 25 FEET OF 4 PERFORATED SDR-35 PVC DRAIN PIPE IN GEOTEXTILE SOCK WITHIN GRAVEL BACKFILL. PIPE TO DRAIN INTO PROPOSED RIPRAP.

GENERAL NOTES

1. OVERFLOW PIPE TO BE BEDDED ON AND THE TRENCH TO BE BACKFILLED 6" ABOVE THE PIPE WITH CLEAN, FREE-DRAINING GRAVEL FROM THE GAC FEED PUMP STATION TO THE HEADWALL.

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY
JASON M. ABBOTT
25937
LICENSED PROFESSIONAL ENGINEER
5/9/11

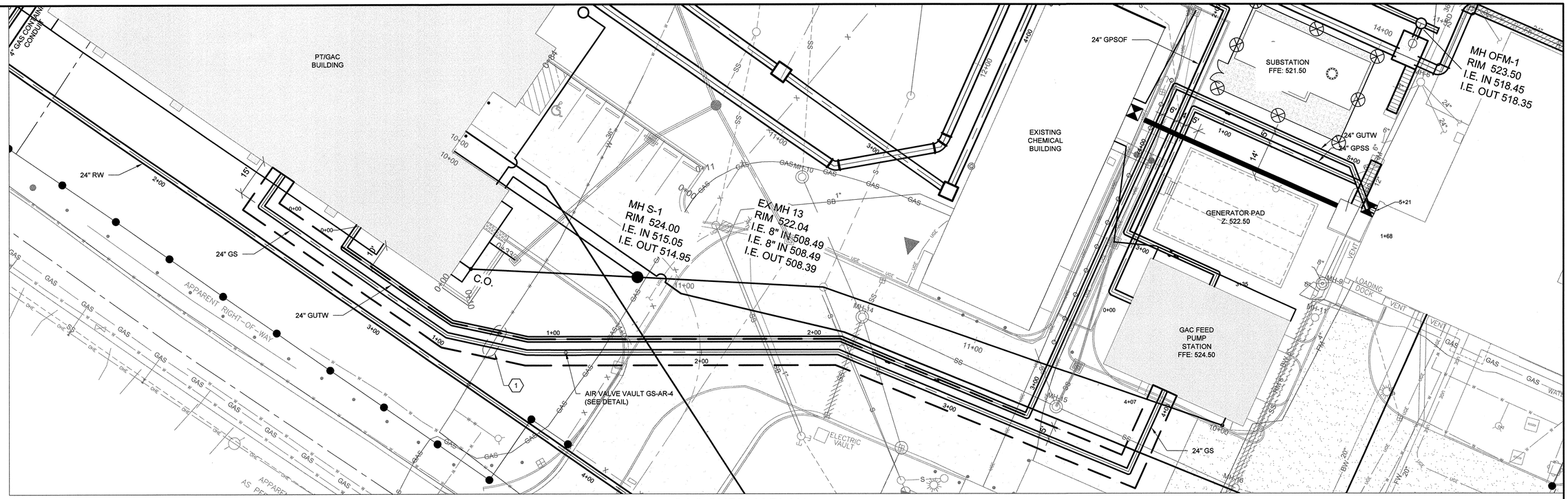
REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

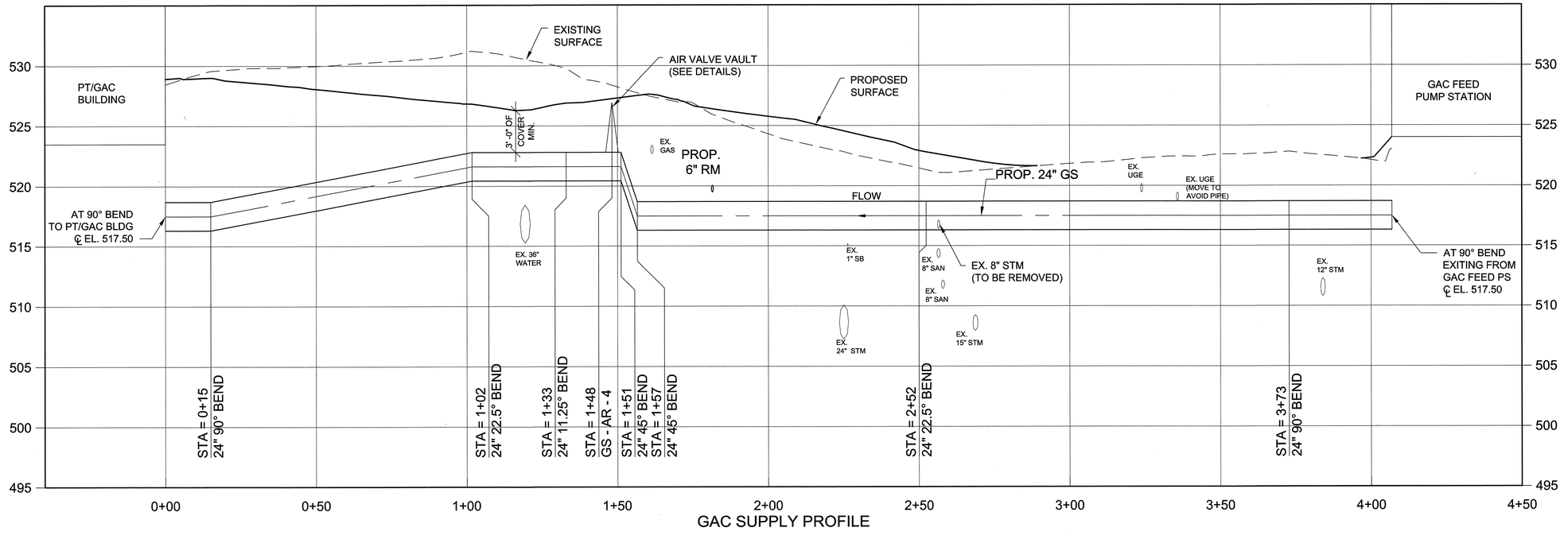
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES
GAC FEED PUMP STATION OVERFLOW
SCALE: 1" = 20' HORIZONTAL - 1" = 5' VERTICAL

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-308
CAD REF. NO. C-02-308



GAC SUPPLY PLAN



GAC SUPPLY PROFILE

SHEET KEYNOTES:

1. DIG TEST PIT TO VERIFY DEPTH OF EXISTING 36" WATER MAIN.

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY JASON M ABBOTT 25937 LICENSED PROFESSIONAL ENGINEER 3/16/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT

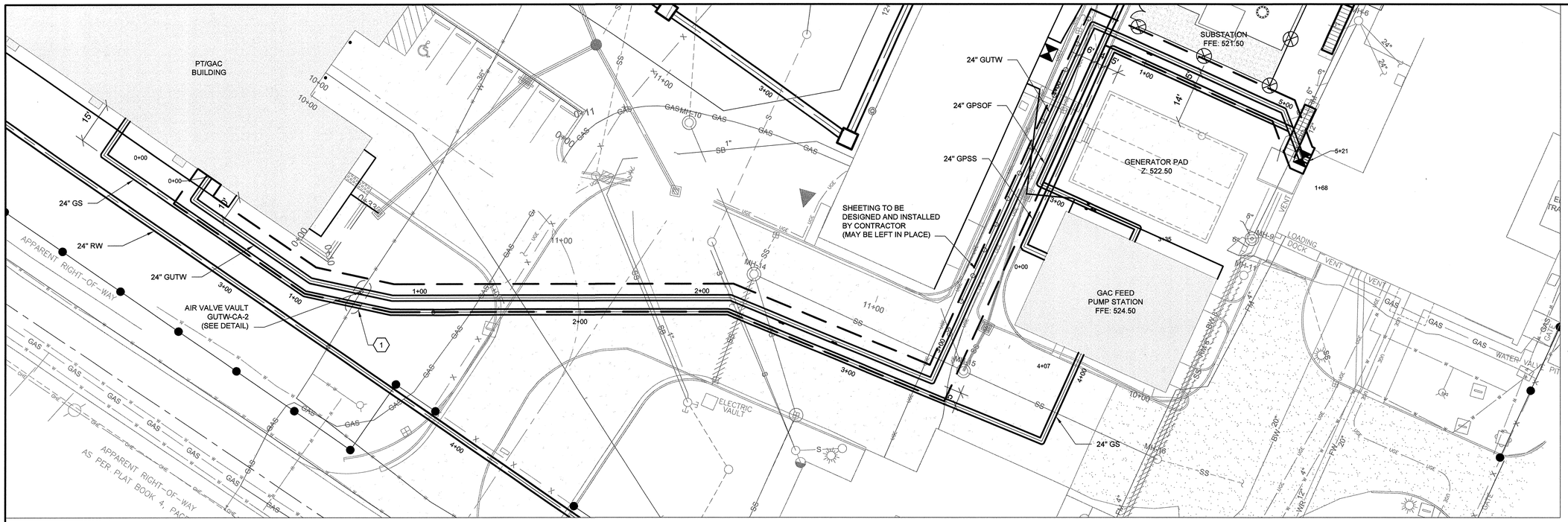
ADVANCED TREATMENT IMPROVEMENTS

CIVIL

YARD PIPING PROFILES GAC SUPPLY

SCALE: 1" = 20' HORIZONTAL - 1' = 5' VERTICAL

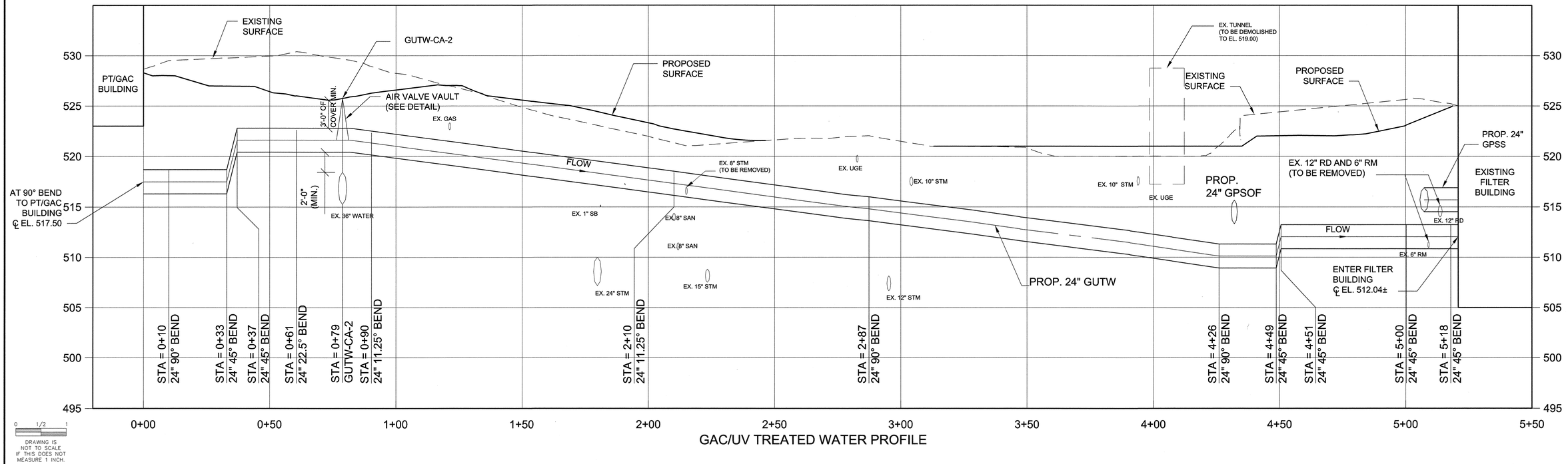
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-309
CAD REF. NO. C-02-309



GAC/UV TREATED WATER PLAN

SHEET KEYNOTES:

1. DIG TEST PIT TO VERIFY DEPTH OF EXISTING 36" WATER MAIN.



GAC/UV TREATED WATER PROFILE

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY JASON M ABBOTT 25937 LICENSED PROFESSIONAL ENGINEER 5/8/11

REVISIONS			
NO.	BY	DATE	REMARKS

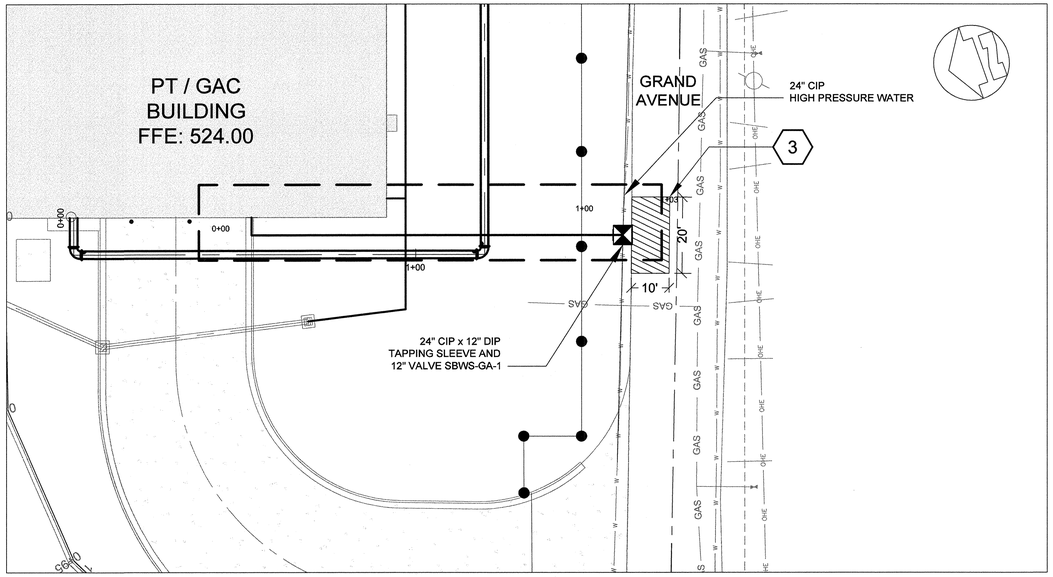
DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

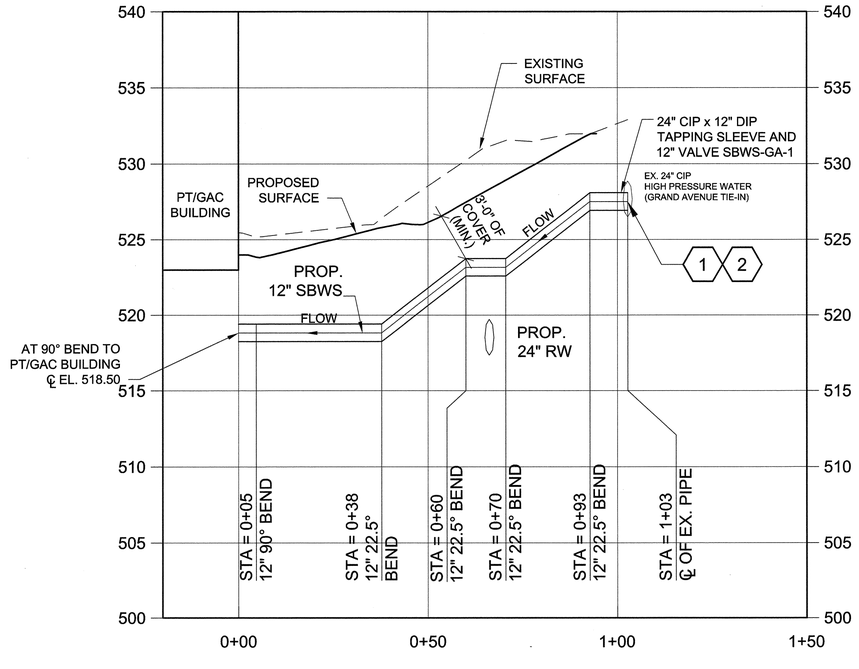
CIVIL
YARD PIPING PROFILES
GAC / UV TREATED WATER
SCALE: 1" = 20' HORIZONTAL - 1' = 5' VERTICAL

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-310
CAD REF. NO. C-02-310

User:WELLS Spec:PIRNIE STANDARD File:I:\477501229-CADD\CIVIL\C-02-310.DWG Scale:1:18 SavedDate:3/1/2011 Time:12:42 Plot Date: Wells, Paul, 3/18/2011, 09:31 - Layout:C-02-310



SECONDARY BACKWASH SUPPLY PLAN



SECONDARY BACKWASH SUPPLY PROFILE

SHEET KEYNOTES:

1. PRIOR TO ORDERING TAPPING SLEEVE CONTRACTOR SHALL DIG TEST PIT TO CONFIRM OUTSIDE DIAMETER AND CLASS OF EXISTING 24" CIP HIGH PRESSURE WATER MAIN AND CONFIRM WITH MANUFACTURER THAT TAPPING TEE WILL CONNECT TO EXISTING 24" CIP WITH A WATERTIGHT SEAL AT 200 PSIG.
2. WET TAP
3. REMOVE AND REPLACE ASPHALT

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
GRW
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY
JASON M ABBOTT
25937
LICENSED PROFESSIONAL ENGINEER
3/18/11

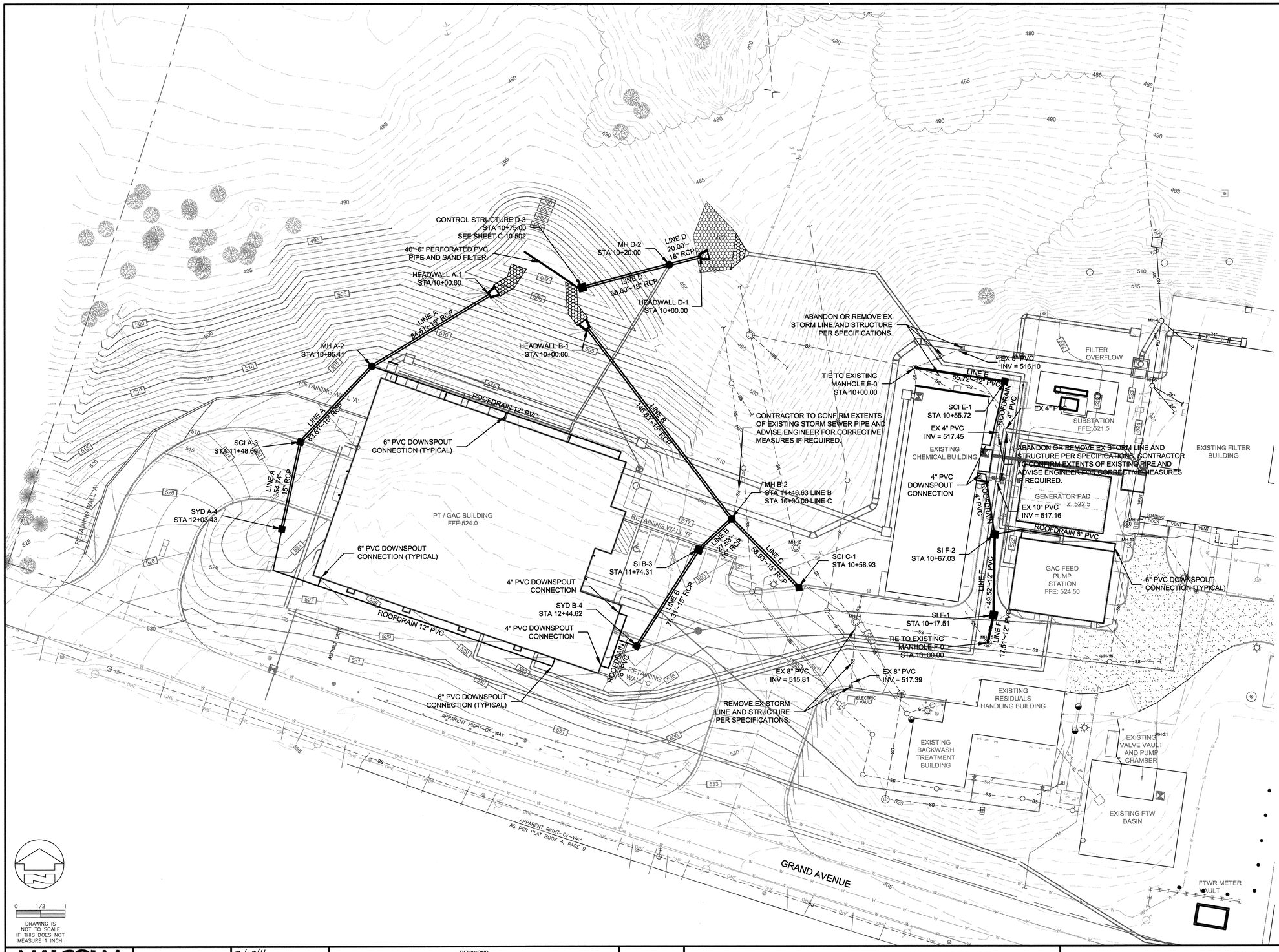
REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES
SECONDARY GAC BACKWASH SUPPLY
SCALE: 1" = 20' HORIZONTAL - 1' = 5' VERTICAL

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-311
CAD REF. NO. C-02-311



STORM SEWER NOTES:

BEFORE PROCEEDING WITH THE WORK, THE CONTRACTOR SHALL CONFER WITH ALL PUBLIC OR PRIVATE COMPANIES, AGENCIES, OR DEPARTMENTS THAT OWN AND OPERATE UTILITIES IN THE VICINITY OF THE CONSTRUCTION.

EXISTING UNDERGROUND UTILITIES AND SERVICES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ACCORDING TO AVAILABLE INFORMATION. THE LOCATIONS SHOWN ARE INTENDED ONLY AS A GUIDE AND CANNOT BE GUARANTEED ACCURATE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR:

A. CONTACTING THE INDIVIDUAL UTILITY OWNERS TEN DAYS PRIOR TO CONSTRUCTION, ADVISING THEM OF THE WORK TO TAKE PLACE.
B. SOLICITING THEIR AID IN LOCATING AND PROTECTING ANY UTILITY WHICH MAY INTERFERE WITH CONSTRUCTION.
C. EXCAVATING AND VERIFYING THE HORIZONTAL AND VERTICAL LOCATION OF EACH UTILITY.
D. DAMAGE TO EXISTING UTILITIES DUE TO CONTRACTOR'S OPERATIONS.

CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE WHEN GAS LINES ARE EXPOSED WHICH CROSS OR LIE WITHIN 6' OF PUBLICLY MAINTAINED STORM AND SANITARY SEWER FACILITIES.

SD1 STANDARDS FOR CONSTRUCTION APPLY TO THE PUBLIC STORM SYSTEM. THE CONTRACTOR SHALL PERFORM ALL TESTING REQUIRED TO MEET THE APPROVAL OF THE SD1 AS PART OF THE LUMP SUM BID.

CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING DRAINAGE STRUCTURES TO MATCH FINISHED GRADE ELEVATIONS AS PART OF THE LUMP SUM BID.

ALL STORM MANHOLES ARE 4' DIAMETER UNLESS OTHERWISE NOTED.

PRIOR TO TESTING, ALL LINES SHALL BE RODDED OUT WITH THE APPROPRIATE TOOLS FOR THE REMOVAL OF ALL DIRT, TRASH, OR DEBRIS.

STORM SEWER PIPING SHALL BE TESTED IN ACCORDANCE WITH SD1 SPECIFICATIONS.

ALL TESTING MUST BE WITNESSED BY THE OWNERS REPRESENTATIVE. THE CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE OF HIS INTENTIONS TO CONDUCT PERFORMANCE TESTING AT LEAST 72 HOURS (3 DAYS) BEFORE ANY SCHEDULED TEST. RESULTS OF EACH TEST MUST BE PROVIDED TO THE OWNER, FOR THEIR RECORDS, AS WELL AS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

DETAILED DESIGN AND CONSTRUCTION OF ALL PRECAST STRUCTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. SD1 STANDARDS (OR OTHERS AS SPECIFIED) SHALL BE FOLLOWED FOR CONSTRUCTION OF ALL PRECAST STRUCTURES. IF PLAN CONFIGURATIONS PREVENT ADHERENCE TO THESE STANDARDS THE PRECASTER SHALL CONTACT THE OWNERS REPRESENTATIVE PRIOR TO FABRICATION OF THE STRUCTURE FOR DESIGN REVISIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, PROVISION FOR GRADE RINGS TO ADJUST MANHOLE LIDS, MINIMUM ALLOWABLE DISTANCES BETWEEN OR ABOVE PIPES AND THE DISTANCE BETWEEN BOTTOM SLABS AND PIPE INVERTS.

COORDINATE REFERENCE TABLE

STRUCTURE	NORTHING	EASTING
A-1	559269.08	156734.74
A-2	559225.41	1567272.27
A-3	559179.18	1567228.59
A-4	559125.65	1567217.15
B-1	559248.54	1567404.24
B-2	559131.57	1567492.64
B-3	559112.69	156772.43
B-4	559053.54	1567434.42
C-1	559089.37	1567533.80
D-1	559292.36	1567473.86
D-2	559287.31	1567454.51
D-3	559273.40	1567401.29
E-1	559215.81	1567660.04
F-1	559072.53	1567653.01
F-2	559122.04	1567653.73

MALCOLM PIRNIE

STRAND ASSOCIATES, INC. ENGINEERS

3/18/11

REVISIONS

NO.	BY	DATE	REMARKS

DES CJR
DWN CSD
CKD MAW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING - STORM SEWERS
SCALE: 1" = 30'

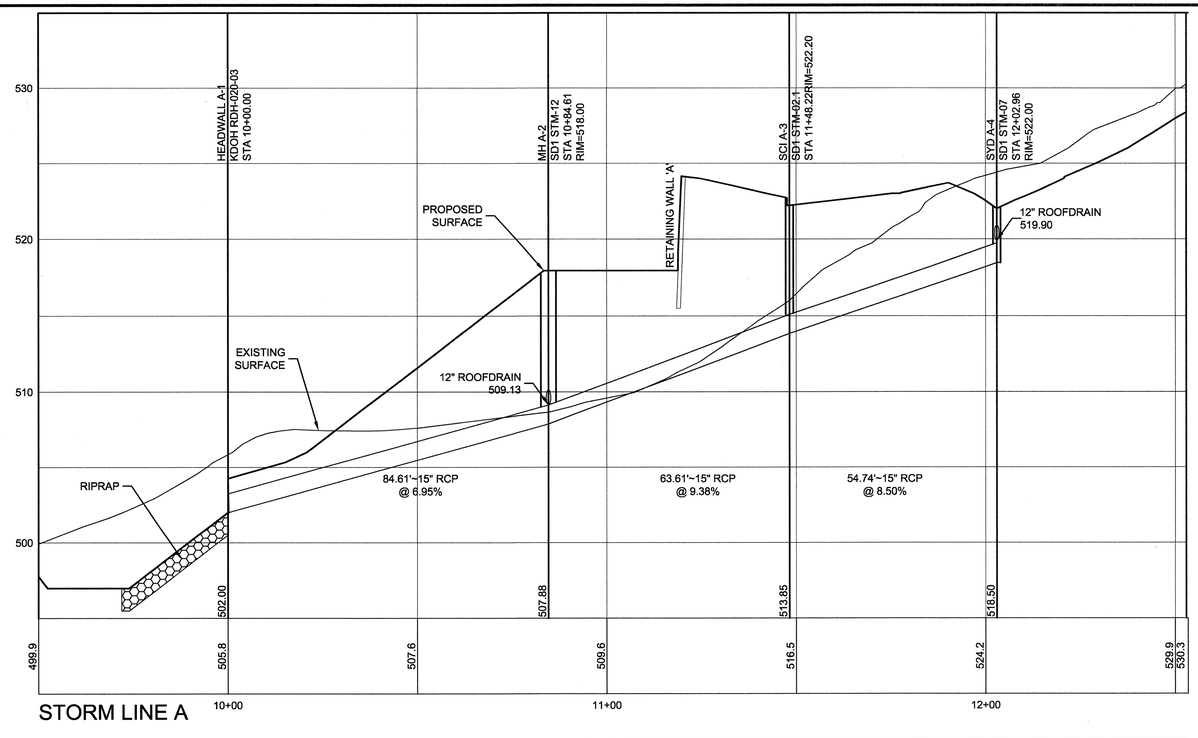
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-312
CAD REF. NO. STRAND-C-02-312

User:CHRISD Spec:PIRNIE STANDARD File:S:\CIN\1500-1599\1547\002\ACAD\STRAND-C-02-312.DWG Scale:1:1 SavedDate:3/11/2011 Time:12:47 Plot Date: Dent, Chris; 3/18/2011, 08:49 | Layout:C-02-312

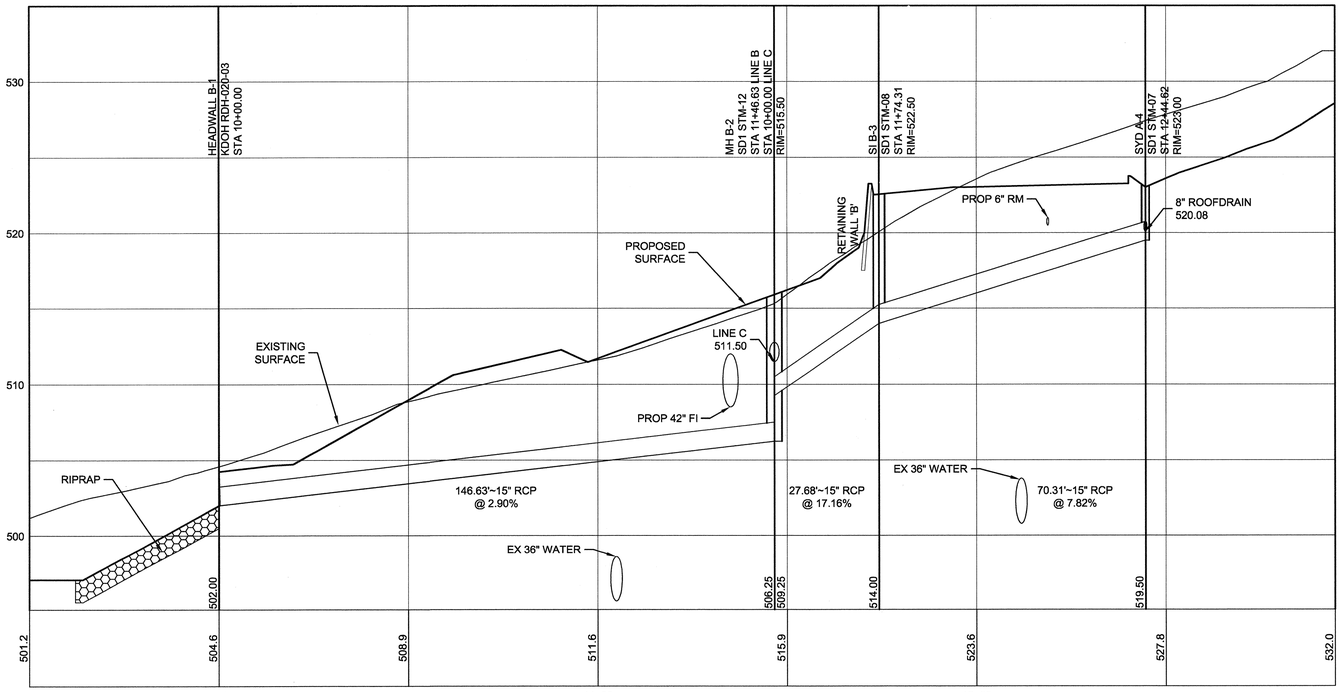
STORM SEWER PROFILE NOTES:

DETAILED DESIGN AND CONSTRUCTION OF ALL PRECAST STRUCTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. SD1 STANDARDS (OR OTHERS AS SPECIFIED) SHALL BE FOLLOWED FOR CONSTRUCTION OF ALL PRECAST STRUCTURES. IF PLAN CONFIGURATIONS PREVENT ADHERENCE TO THESE STANDARDS THE PRECASTER SHALL CONTACT THE OWNERS REPRESENTATIVE PRIOR TO FABRICATION OF THE STRUCTURE FOR DESIGN REVISIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, PROVISION FOR GRADE RINGS TO ADJUST MANHOLE LIDS, MINIMUM ALLOWABLE DISTANCES BETWEEN OR ABOVE PIPES AND THE DISTANCE BETWEEN BOTTOM SLABS AND PIPE INVERTS.

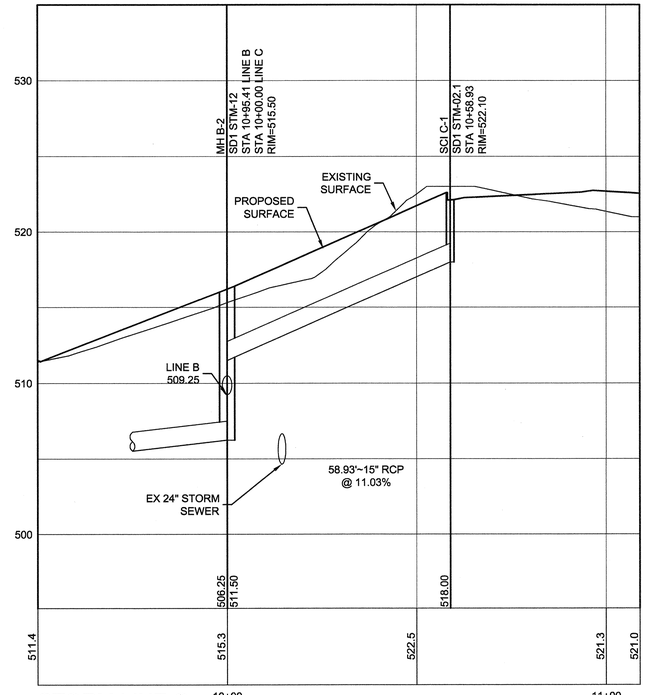
RIM ELEVATIONS ARE PROVIDED TO GUIDE THE CONTRACTOR IN BIDDING AND CONSTRUCTING DRAINAGE STRUCTURES. THE CONTRACTOR SHALL ADJUST RIM ELEVATIONS AS NECESSARY TO PROVIDE APPROPRIATE DRAINAGE. CURB INLET RIM ELEVATIONS IDENTIFY THE ELEVATION AT THE GRATE IN THE VICINITY OF THE CENTER OF THE PIPE CHAMBER. THE TOP PHASE OF ALL CURB INLETS SHALL BE ADJUSTED TO MATCH ADJACENT CURB AND/OR STREET GRADES.



STORM LINE A



STORM LINE B



STORM LINE C

5' SCALE 20'

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

STRAND ASSOCIATES, INC. ENGINEERS

3/18/11

STATE OF KENTUCKY CHRISTOPHER S. DENT 26157 LICENSED PROFESSIONAL ENGINEER

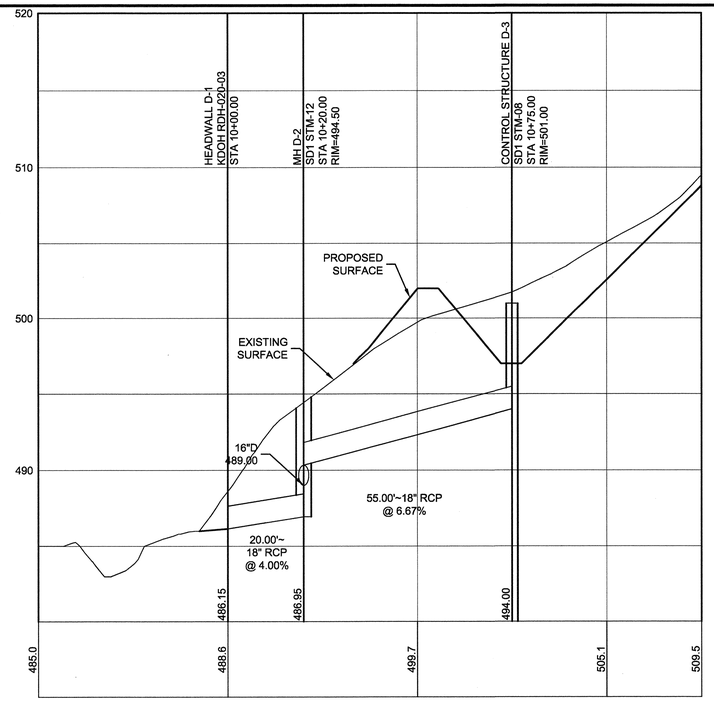
REVISIONS			
NO.	BY	DATE	REMARKS

DES CJR
DWN CSD
CKD MAW

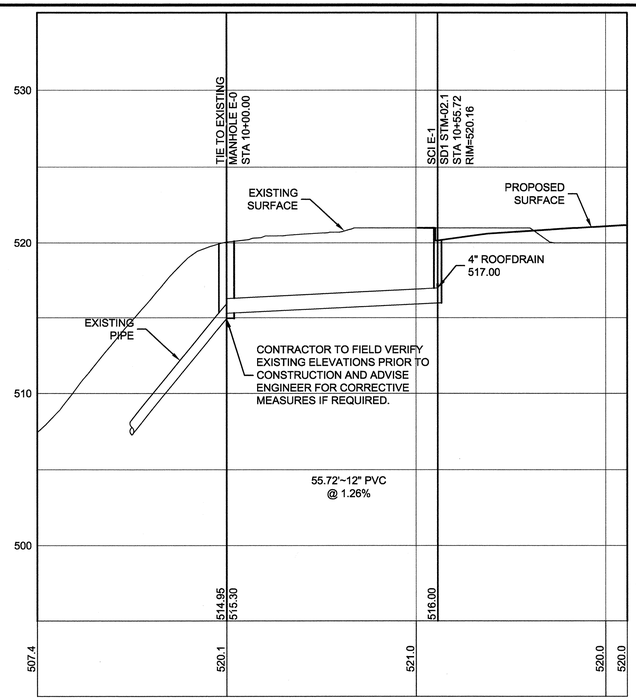
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES - STORM SEWER PROFILES I
SCALE: 1" = 30'

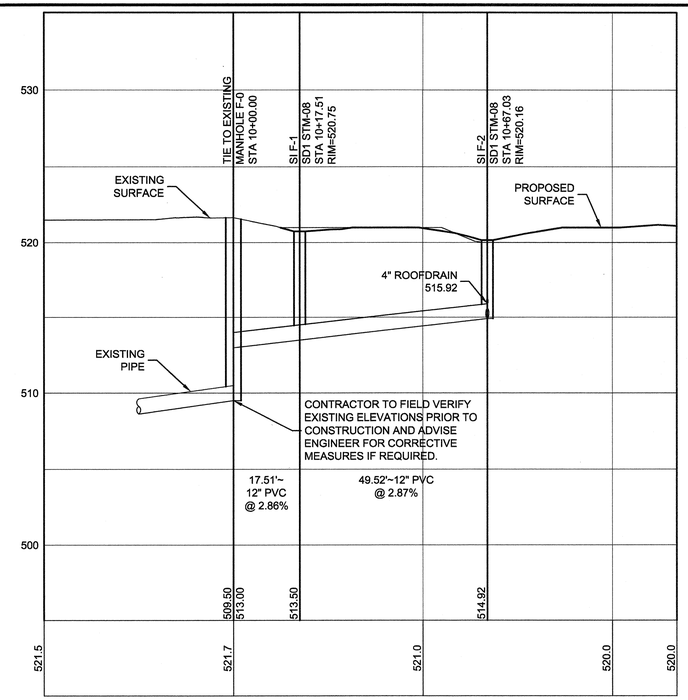
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-313
CAD REF. NO. STRAND-C-02-313



STORM LINE D



STORM LINE E



STORM LINE F

STORM SEWER PROFILE NOTES:

DETAILED DESIGN AND CONSTRUCTION OF ALL PRECAST STRUCTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. SD1 STANDARDS (OR OTHERS AS SPECIFIED) SHALL BE FOLLOWED FOR CONSTRUCTION OF ALL PRECAST STRUCTURES. IF PLAN CONFIGURATIONS PREVENT ADHERENCE TO THESE STANDARDS THE PRECASTER SHALL CONTACT THE OWNERS REPRESENTATIVE PRIOR TO FABRICATION OF THE STRUCTURE FOR DESIGN REVISIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, PROVISION FOR GRADE RINGS TO ADJUST MANHOLE LIDS, MINIMUM ALLOWABLE DISTANCES BETWEEN OR ABOVE PIPES AND THE DISTANCE BETWEEN BOTTOM SLABS AND PIPE INVERTS.

RIM ELEVATIONS ARE PROVIDED TO GUIDE THE CONTRACTOR IN BIDDING AND CONSTRUCTING DRAINAGE STRUCTURES. THE CONTRACTOR SHALL ADJUST RIM ELEVATIONS AS NECESSARY TO PROVIDE APPROPRIATE DRAINAGE. CURB INLET RIM ELEVATIONS IDENTIFY THE ELEVATION AT THE GRATE IN THE VICINITY OF THE CENTER OF THE PIPE CHAMBER. THE TOP PHASE OF ALL CURB INLETS SHALL BE ADJUSTED TO MATCH ADJACENT CURB AND/OR STREET GRADES.

5' SCALE 20'

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

STRAND ASSOCIATES, INC.® ENGINEERS

3/18/11

COMMONWEALTH OF KENTUCKY
CHRISTOPHER J. DENT
26087
LICENSED PROFESSIONAL ENGINEER

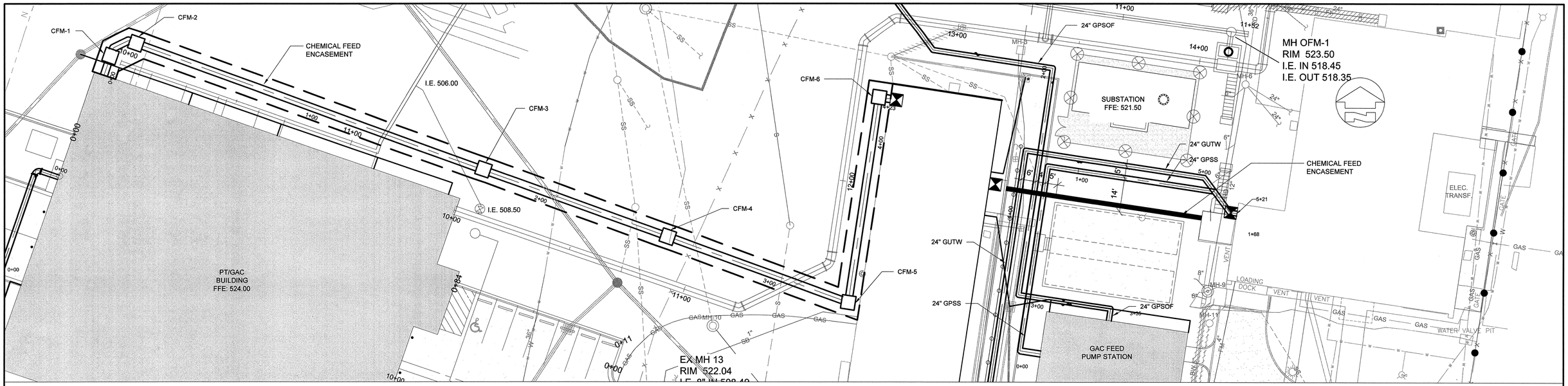
REVISIONS			
NO.	BY	DATE	REMARKS

DES CJR
DWN CSD
CKD MAW

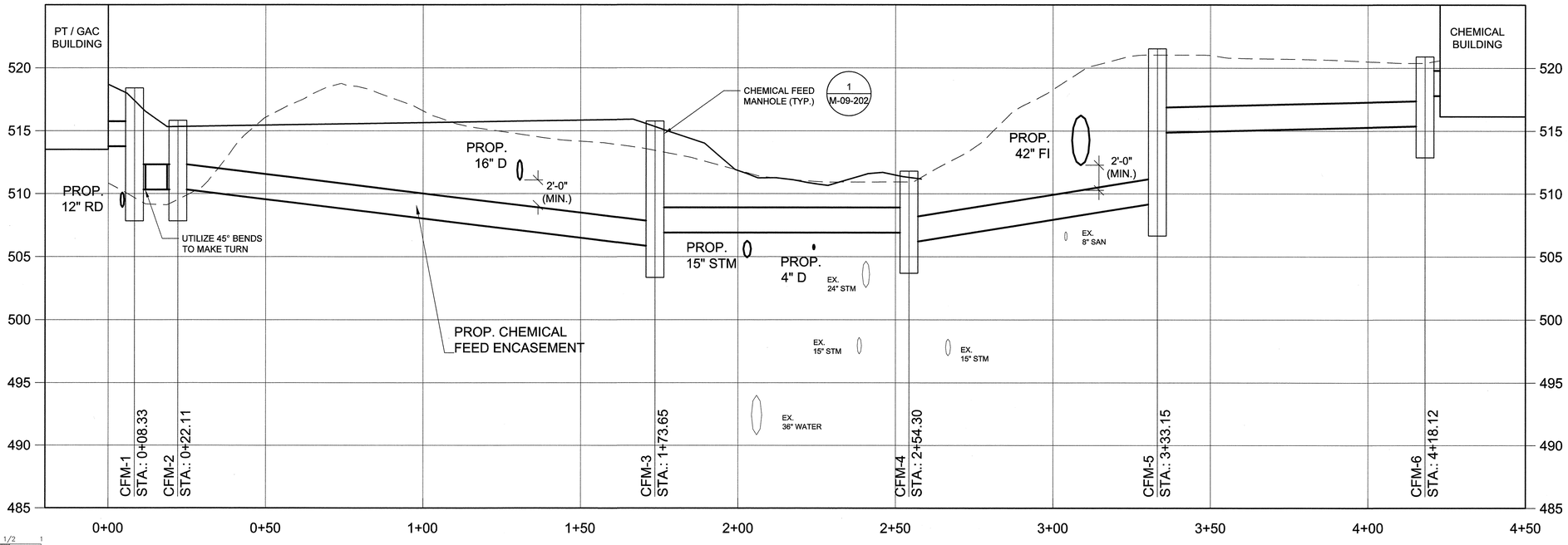
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
YARD PIPING PROFILES - STORM SEWER PROFILES II
SCALE: 1" = 30'

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-314
CAD REF. NO. STRAND-C-02-314



CHEMICAL BUILDING PT / GAC BUILDING CHEMICAL FEED PLAN



CHEMICAL FEED MANHOLE TABLE		
STRUCTURE	NORTHING	EASTING
CFM-1	559224.70	1567284.56
CFM-2	559229.87	1567295.12
CFM-3	559178.35	1567437.64
CFM-4	559150.55	1567513.34
CFM-5	559123.61	1567587.44
CFM-6	559207.66	1567599.96

GENERAL NOTES:

1. INSTALL ALL CHEMICAL FEED CARRIER PIPES BETWEEN MANHOLES TO CONTINUOUSLY DRAIN TO THE DOWN SLOPE MANHOLE.
2. ALL HORIZONTAL AND VERTICAL CHANGES SHALL BE MADE GENTLY TO ALLOW THE CHEMICAL FEED TUBING TO BE INSTALLED.

CHEMICAL BUILDING PT / GAC BUILDING CHEMICAL FEED PROFILE

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY
JASON M ABBOTT
25937
LICENSED PROFESSIONAL ENGINEER
3/9/11

REVISIONS			
NO.	BY	DATE	REMARKS

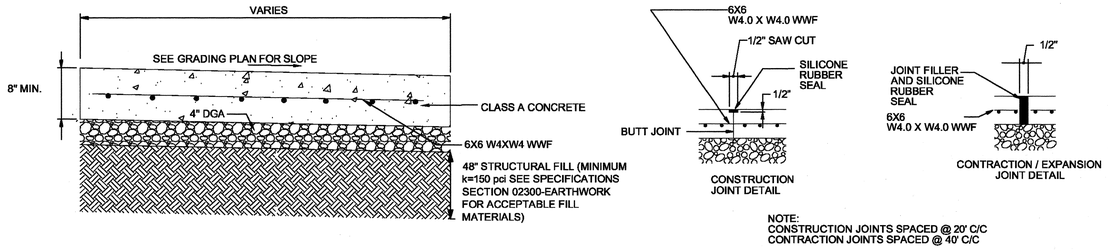
DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

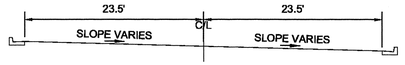
CIVIL
YARD PIPING PROFILES
CHEMICAL FEED
SCALE: 1" = 20' HORIZONTAL - 1' = 5' VERTICAL

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-02-315
CAD REF. NO. C-02-315

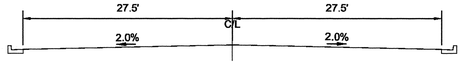
User:WELLS Spec:PIRNIE STANDARD File:I:\477501\209-CADD\CIVIL\C-02-315.DWG Scale:1:18 SavedDate:3/1/2011 Time:12:39 Plot Date: Wells, Paul; 3/18/2011; 09:30 ; Layout:C-02-315



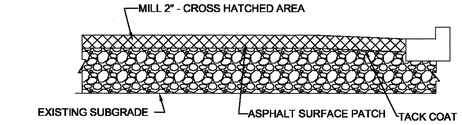
1 HEAVY DUTY CONCRETE PAVEMENT
NOT TO SCALE



2 WEST (EXIT) DRIVE AT PT/GAC BLDG.
NOT TO SCALE

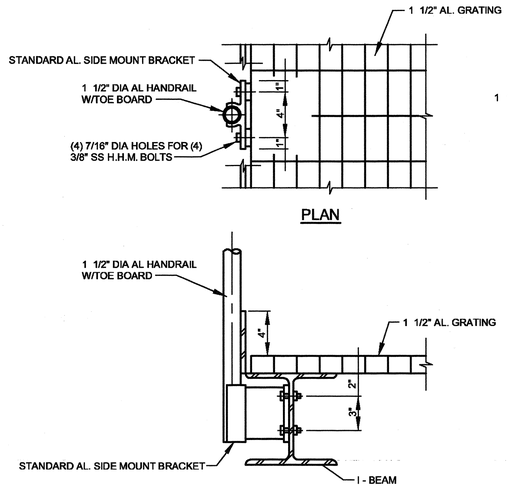


3 EAST ENTRANCE DRIVE
NOT TO SCALE

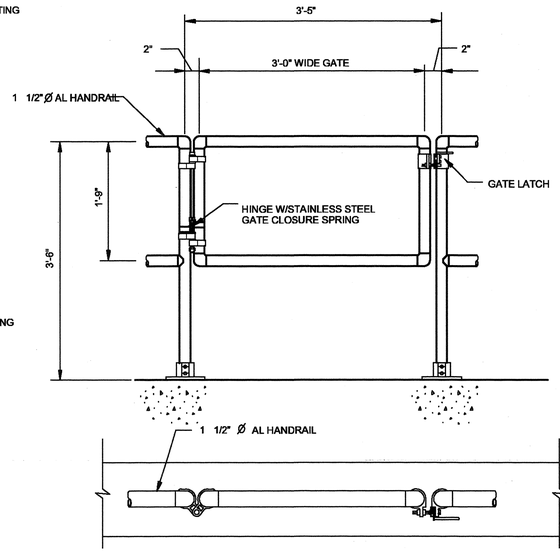


1. MILL DESIGNATED AREA TO A DEPTH OF TWO INCHES USING A SELF PROPELLED ASPHALT PLANNER.
2. BROOM CLEAN AREA.
3. LEVEL LOW AREAS USING HOT PLANT MIX ASPHALT ROLLED AND COMPACTED.
4. APPLY A TACK COAT OF SS-1 OR SS-1h APPLIED AT THE RATE OF 0.05 GALLONS PER SQUARE YARD.
5. INSTALL TWO INCHES (ON AVERAGE) OF HOT PLANT MIX ASPHALT TO MEET KENTUCKY STATE SPECS.
6. ROLL AND COMPACT TO SMOOTH AND EVEN FINISH.

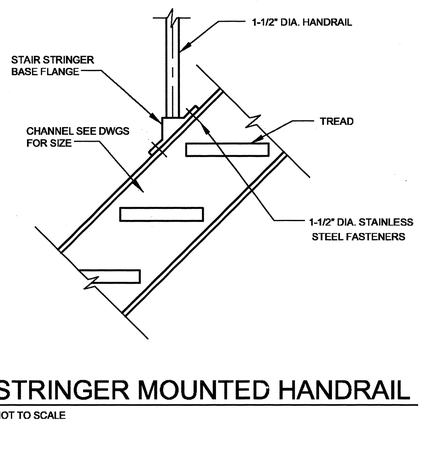
13 ASPHALT-MILLING & RESURFACING
NOT TO SCALE



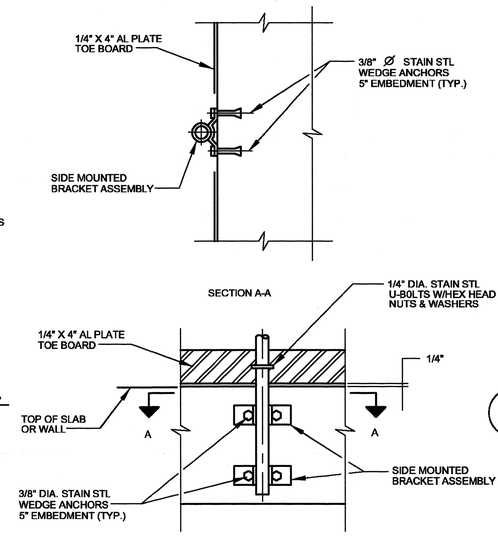
4 TYPICAL HANDRAIL POST SIDE MOUNTED TO I-BEAM
NOT TO SCALE



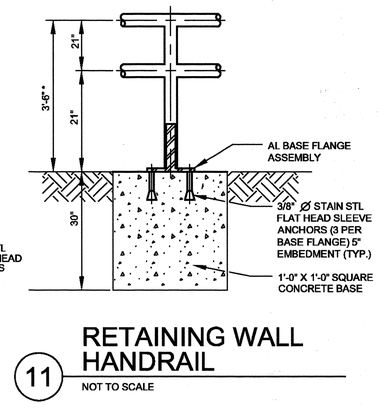
5 ALUMINUM HANDRAIL GATE
NOT TO SCALE



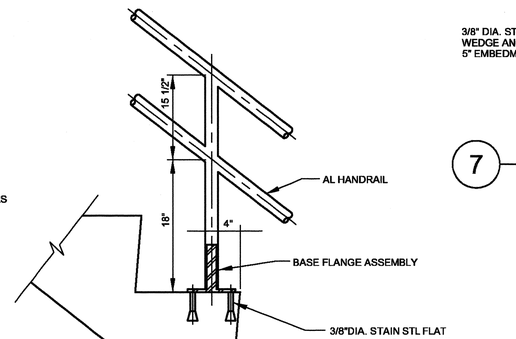
6 STRINGER MOUNTED HANDRAIL
NOT TO SCALE



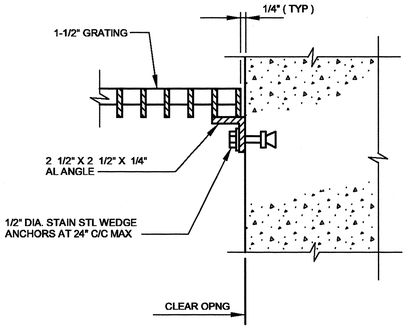
7 SIDE MOUNTING HANDRAIL
NOT TO SCALE



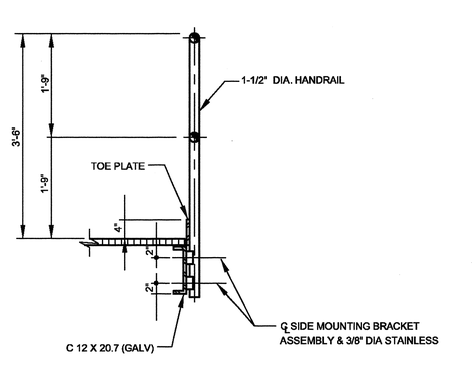
11 RETAINING WALL HANDRAIL
NOT TO SCALE



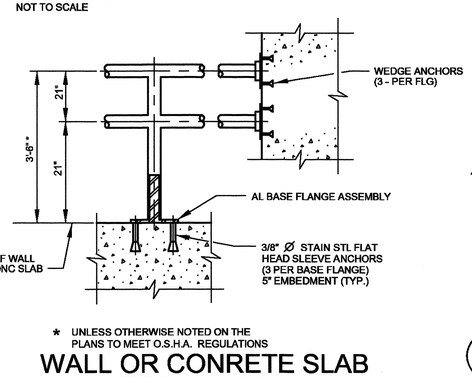
10 STAIRWAY MOUNTING HANDRAIL
NOT TO SCALE



12 SEAT ANGLE DETAIL
NOT TO SCALE



8 CHANNEL MOUNTED HANDRAIL
NOT TO SCALE



* UNLESS OTHERWISE NOTED ON THE PLANS TO MEET O.S.H.A. REGULATIONS

9 WALL OR CONRETE SLAB MOUNTED HANDRAIL
NOT TO SCALE

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY ALISON S. CHADWELL 25712 LICENSED PROFESSIONAL ENGINEER 3/16/11

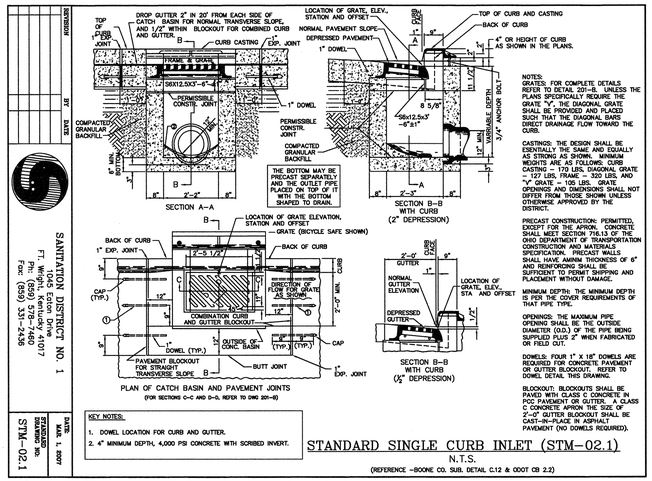
REVISIONS			
NO.	BY	DATE	REMARKS

DES ASC
DWN ASC
CKD HHH

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
TYPICAL SECTIONS, PAVEMENT, AND HANDRAIL DETAILS
NO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-10-501
CAD REF. NO. 3789-C-10-501



NOTES:
GRATES FOR COMPLETE DETAILS REFER TO DETAIL 201-RS. UNLESS THE PLANS SPECIFICALLY REQUIRE THE GRATE "V", THE DIAGONAL GRATE SHALL BE PROVIDED AND PLACED SUCH THAT THE DIAGONAL BARS DIRECT DRAINAGE FLOW TOWARD THE CURB.

CASTINGS: THE DESIGN SHALL BE ESSENTIALLY THE SAME AND EQUALLY AS STRONG AS SHOWN. MINIMUM WEIGHTS ARE AS FOLLOWS: CURB CASTING – 170 LBS., DIAGONAL GRATE – 127 LBS., FRAME – 320 LBS., AND "V" GRATE – 105 LBS. GRATE OPENINGS AND DIMENSIONS SHALL NOT DIFFER FROM THOSE SHOWN UNLESS OTHERWISE APPROVED BY THE DISTRICT.

PRECAST CONSTRUCTION: PERMITTED, EXCEPT FOR THE APRON. CONCRETE SHALL MEET SECTION 716.13 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATION. PRECAST WALLS SHALL HAVE AMINIM THICKNESS OF 6" AND REINFORCING SHALL BE SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.

MINIMUM DEPTH: THE MINIMUM DEPTH IS PER THE COVER REQUIREMENTS OF THAT PIPE TYPE.

OPENINGS: THE MAXIMUM PIPE OPENING SHALL BE THE OUTSIDE DIAMETER (O.D.) OF THE PIPE BEING SUPPLIED PLUS 2" WHEN FABRICATED OR FIELD CUT.

DOWELS: FOUR 1" X 18" DOWELS ARE REQUIRED FOR CONCRETE PAVEMENT OR GUTTER BLOCKOUTS. REFER TO DOWEL DETAIL THIS DRAWING.

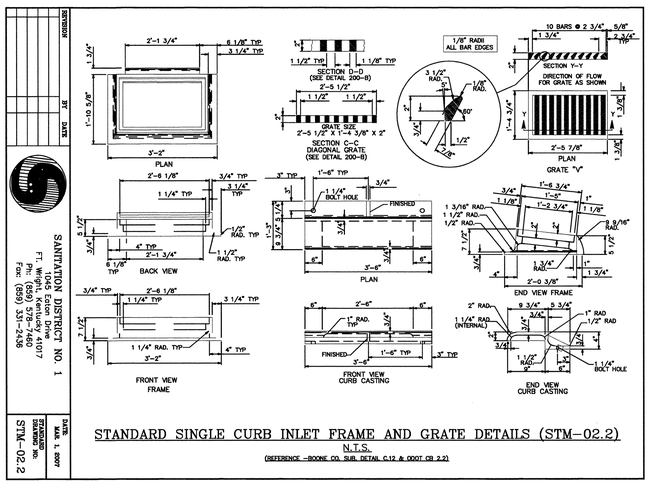
BLOCKOUT: BLOCKOUTS SHALL BE PAVED WITH CLASS C CONCRETE IN PCC PAVEMENT OR GUTTER. A CLASS C CONCRETE APRON THE SIZE OF 2'-0" GUTTER BLOCKOUT SHALL BE CAST-IN-PLACE IN ASPHALT PAVEMENT (NO DOWELS REQUIRED).

KEY NOTES:
1. DOWEL LOCATION FOR CURB AND GUTTER.
2. 4" MINIMUM DEPTH, 4,000 PSI CONCRETE WITH SCRIBED INVERT.

STANDARD SINGLE CURB INLET (STM-02.1)
N.T.S.
(REFERENCE –BOONE CO. SUB. DETAIL C.12 & ODOT CB 2.2)

SANITATION DISTRICT NO. 1
FT. Wright, Kentucky 41017
Ph: (859) 578-7460
Fax: (859) 331-2436

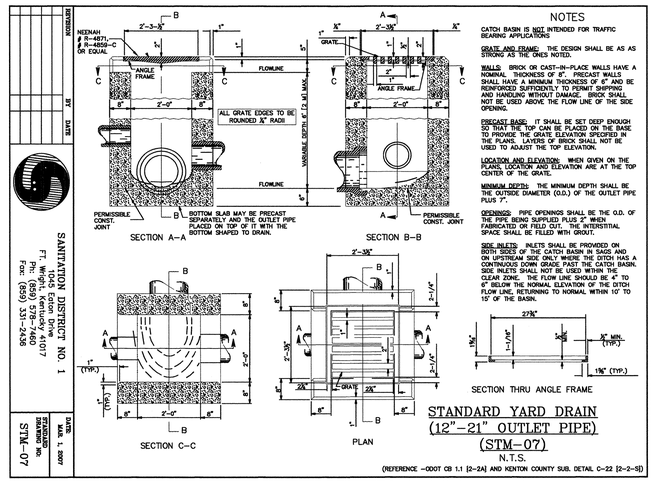
REVISION | BY | DATE
STANDARD DRAWING NO. STM-02.1 | DATE: MAR. 1, 2007



STANDARD SINGLE CURB INLET FRAME AND GRATE DETAILS (STM-02.2)
N.T.S.
(REFERENCE –BOONE CO. SUB. DETAIL C.12 & ODOT CB 2.2)

SANITATION DISTRICT NO. 1
FT. Wright, Kentucky 41017
Ph: (859) 578-7460
Fax: (859) 331-2436

REVISION | BY | DATE
STANDARD DRAWING NO. STM-02.2 | DATE: MAR. 1, 2007



NOTES

CATCH BASIN IS NOT INTENDED FOR TRAFFIC BEARING APPLICATIONS.

GRATE AND FRAME: THE DESIGN SHALL BE AS AS STRONG AS THE ONES NOTED.

WALLS: BRICK OR CAST-IN-PLACE WALLS HAVE A NOMINAL THICKNESS OF 8". PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 6" AND BE REINFORCED SUFFICIENTLY TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE. BRICK SHALL NOT BE USED ABOVE THE FLOW LINE OF THE SIDE OPENING.

PRECAST BASE: IT SHALL BE SET DEEP ENOUGH SO THAT THE TOP CAN BE PLACED ON THE BASE TO PROVIDE THE GRATE ELEVATION SHOWN IN THE PLANS. LAYERS OF BRICK SHALL NOT BE USED TO ADJUST THE TOP ELEVATION.

LOCATION AND ELEVATION: WHEN GIVEN ON THE PLANS, LOCATION AND ELEVATION ARE AT THE TOP CENTER OF THE GRATE.

MINIMUM DEPTH: THE MINIMUM DEPTH SHALL BE THE OUTSIDE DIAMETER (O.D.) OF THE OUTLET PIPE PLUS 7".

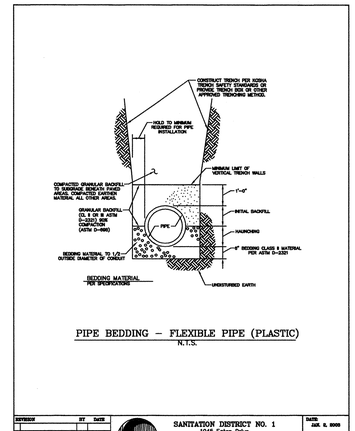
OPENINGS: PIPE OPENINGS SHALL BE THE O.D. OF THE PIPE BEING SUPPLIED PLUS 2" WHEN FABRICATED OR FIELD CUT. THE INTERSTITIAL SPACE SHALL BE FILLED WITH GROUT.

SIDE INLETS: INLETS SHALL BE PROVIDED ON BOTH SIDES OF THE CATCH BASIN IN SAGS AND ON UPHILL SIDE ONLY WHEN IN A CUT WITH A CONTINUOUS GRADE. THE TOP OF SIDE INLETS SHALL NOT BE MORE THAN 24" ABOVE THE CLEAR ZONE. THE FLOW LINE SHOULD BE 4" TO 6" BELOW THE NOMINAL ELEVATION OF THE DITCH FLOW LINE, RETURNING TO NORMAL WITHIN 10' TO 15' OF THE BASIN.

STANDARD YARD DRAIN (12"–21" OUTLET PIPE) (STM-07)
N.T.S.
(REFERENCE –ODOT CB 1.1 [2-2A] AND KENTON COUNTY SUB. DETAIL C-22 [2-2-SI])

SANITATION DISTRICT NO. 1
1045 Eaton Drive
FT. Wright, Kentucky 41017
Ph: (859) 578-7460
Fax: (859) 331-2436

REVISION | BY | DATE
STANDARD DRAWING NO. STM-07 | DATE: MAR. 1, 2007



PIPE BEDDING – FLEXIBLE PIPE (PLASTIC)
N.T.S.

SANITATION DISTRICT NO. 1
1045 Eaton Drive
FT. Wright, Kentucky 41017
Ph: (859) 578-7460
Fax: (859) 331-2436

REVISION | BY | DATE
DATE: JUL. 2, 2003
STANDARD DRAWING NO. 109

– NOTES –

GENERAL: WITH NORMAL SOIL AND SITE CONDITIONS THIS STANDARD PRECAST MANHOLE MAY BE USED FOR ANY REQUIRED MANHOLE DEPTH. SECTIONS OF THE PRECAST MANHOLE SHALL BE FURNISHED AND ASSEMBLED WITH EITHER FLAT SLAB TOP OR CAST IRON MANHOLE FRAME AND COVER AS SHOWN ON THE PLANS, PROVIDED, EITHER WHEN THE UNIT IS CAST OR LATER, TO MEET PROJECT REQUIREMENTS.

TOP AND TRANSITION (OR REDUCER): THIS SECTION SHALL BE A FLAT SLAB UNLESS AN ECCENTRIC CONE IS SPECIFIED.

BASE: MANHOLE IS SHOWN WITH A MONOLITHIC FLOOR AND RISER WHICH MAY BE CAST IN ONE OR TWO OPERATIONS. A PERMISSIBLE ALTERNATE IS TO CAST AND SHIP THE FLOOR AND BARREL SECTIONS AS A UNIT. PROVISIONS FOR INLET AND OUTLET PIPES SHALL BE PROVIDED, EITHER WHEN THE UNIT IS CAST OR LATER, TO MEET PROJECT REQUIREMENTS.

RISER SECTIONS: OPENINGS FOR 18" AND SMALLER INLET PIPES MAY BE EITHER PREFABRICATED, OR CUT IN THE FIELD PROVIDED THE SIDES OF THE PIPE AT THE SPRINGLINE DO NOT PROJECT INTO THE MANHOLE.

CONNECTIONS: CONNECTIONS BETWEEN PRECAST MANHOLE SECTIONS AND PIPES ON SANITARY SEWERS MAY BE SEALED WITH RESILIENT CONNECTORS CONFORMING TO ASTM C 923.

JOINT SEAL: SEAL BETWEEN PRECAST MANHOLE SECTIONS ON SANITARY SEWERS SHALL BE RESILIENT AND FLEXIBLE GASKET JOINTS PER THE DISTRICT'S SPECIFICATIONS.

MATERIALS: MATERIALS FOR BASES AND OTHER PRECAST SECTIONS, INCLUDING REINFORCEMENT NOT SPECIFIED HEREON, SHALL COMPLY WITH THE DISTRICT'S SPECIFICATIONS.

STEPS, FRAMES AND COVERS: SHALL COMPLY WITH THE DISTRICT'S SPECIFICATIONS.

MAXIMUM PIPE SIZES		
BASE I.D.	MIN. "L"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2"	60"
96"	8"	66"
108"	9"	72"

STORM MANHOLE (STM-012)
N.T.S.
(REFERENCE –ODOT MH 1.2, & MH NO. 3)

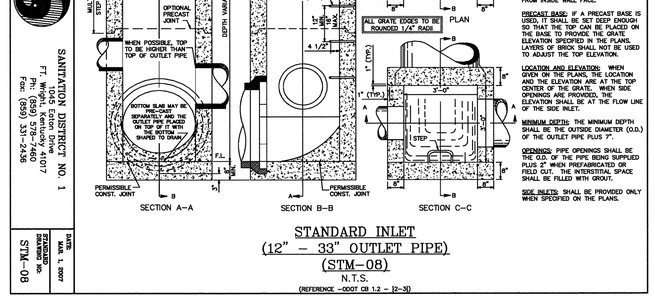
SANITATION DISTRICT NO. 1
FT. Wright, Kentucky 41017
Ph: (859) 578-7460
Fax: (859) 331-2436

REVISION | BY | DATE
STANDARD DRAWING NO. STM-012 | DATE: MAR. 1, 2007

PIPE DIA. OR CONT. DIA.	SHAPE	DIMENSIONS C	E	F	L	W	T	CLASS B CONC. C. Y.	REINF. STEEL LBS.
12"	○	1'-9"	2'-6"	2'-3"	3'-6"	4'-0"	2"	0.58	7
15"	○	2'-0"	2'-9"	2'-5"	3'-9"	4'-0"	2¼"	0.75	
	⬭	1'-9"	3'-0"	2'-6"	3'-6"	4'-9"		0.68	
18"	○	2'-3"	3'-0"	3'-6"	4'-6"	5'-3"	2½"	0.93	8
	⬭	2'-0"	3'-6"	3'-0"	4'-0"	5'-6"		0.89	
21"	○	2'-6"	3'-3"	4'-0"	5'-0"	6'-0"	2¾"	1.14	9
	⬭	2'-3"	3'-0"	3'-6"	4'-6"	6'-0"		1.07	
24"	○	2'-9"	3'-6"	4'-6"	5'-6"	6'-6"	3"	1.35	6
	⬭	2'-6"	4'-0"	4'-0"	5'-0"	6'-9"	3¼"	1.30	9
27"	○	3'-0"	3'-9"	5'-0"	6'-0"	7'-0"		1.57	
	⬭	2'-9"	4'-6"	4'-3"	5'-3"	7'-3"	3½"	1.51	10

NOTES
1. DIMENSIONS AND QUANTITIES ARE BASED ON CONCRETE PIPE AND WILL VARY INSIGNIFICANTLY FOR CORRUGATED METAL PIPE.
2. REINFORCING STEEL : MINIMUM GRADE 40, BARS EVENLY SPACED.
3. 6 - NO. 4 x 1'-0" DOWEL BARS.
4. 2 - NO. 4 x (E DIMENSION MINUS 4").
5. SLOPES SHALL BE WARPED TO FIT HEADWALL WHEN PIPE IS SKEWED AND/OR NORMAL SLOPE VARIES FROM 2:1.
6. VOLUME DISPLACED BY PIPE COMPUTED USING INSIDE DIAMETER OF PIPE.
7. WING ANGLES AND/OR DIMENSIONS MAY BE ALTERED DURING CONSTRUCTION TO ACCOMMODATE FLOW OF WATER.
8. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE. FRONT FACE OF HEADWALL SHALL REMAIN VERTICAL.
9. HEADWALLS ARE FOR CIRCULAR, ARCH, AND HORIZONTAL ELLIPTICAL 12"– 27" EQUIVALENT PIPE SIZES. SEE CURRENT STD. DWG. RDI-D16, FOR NON-CIRCULAR PIPE EQUIVALENT SIZES.

KENTUCKY DEPARTMENT OF HIGHWAYS
SLOPED & FLARED HEADWALLS FOR 12" TO 27" PIPE
STANDARD DRAWING NO. RDH-220-03
DRAWING BY: [illegible] 12-15-93
APPROVED: [illegible] 12-15-93



– NOTES –

GRATES: GRATES SHALL BE NEENAH NO. R-4650-C OR EAST JORDAN NO. 5110 TYPE M2 OR APPROVED EQUALS.

WALLS: BRICK OR CAST-IN-PLACE WALLS SHALL HAVE A NOMINAL THICKNESS OF 8". PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 6" AND BE REINFORCED SUFFICIENTLY TO PERMIT SHIPPING AND HANDLING WITHOUT DAMAGE.

REINFORCEMENT: REINFORCING IN THE TOP IS TO BE #4 BARS SPACED AT 5" CENTER TO CENTER. USE EIGHT BARS.

INLETS OVER 12 FEET IN DEPTH: SHALL BE PRECAST OR CAST-IN-PLACE CONCRETE REINFORCED WITH #4 BARS EACH 12" CENTERS BOTH VERTICALLY AND HORIZONTALLY WITH 2" CLEARANCE FROM INSIDE WALL FACE.

PRECAST BASE: IF A PRECAST BASE IS USED, IT SHALL BE SET DEEP ENOUGH SO THAT THE TOP CAN BE PLACED ON THE BASE TO PROVIDE THE GRATE ELEVATION SPECIFIED IN THE PLANS. LAYERS OF BRICK SHALL NOT BE USED TO ADJUST THE TOP ELEVATION.

LOCATION AND ELEVATION: WHEN GIVEN ON THE PLANS, THE LOCATION AND THE ELEVATION ARE AT THE TOP CENTER OF THE GRATE. WHEN SIDE OPENINGS ARE PROVIDED, THE ELEVATION SHALL BE AT THE FLOW LINE OF THE SIDE INLET.

MINIMUM DEPTH: THE MINIMUM DEPTH SHALL BE THE OUTSIDE DIAMETER (O.D.) OF THE OUTLET PIPE PLUS 7".

OPENINGS: PIPE OPENINGS SHALL BE THE O.D. OF THE PIPE BEING SUPPLIED PLUS 2" WHEN PREFABRICATED OR FIELD CUT. THE INTERSTITIAL SPACE SHALL BE FILLED WITH GROUT.

SIDE INLETS: SHALL BE PROVIDED ONLY WHEN SPECIFIED ON THE PLANS.

STANDARD INLET (12" – 33" OUTLET PIPE) (STM-08)
N.T.S.
(REFERENCE –ODOT CB 1.2 – [2-3])

SANITATION DISTRICT NO. 1
1045 Eaton Drive
FT. Wright, Kentucky 41017
Ph: (859) 578-7460
Fax: (859) 331-2436

REVISION | BY | DATE
STANDARD DRAWING NO. STM-08 | DATE: MAR. 1, 2007

PIPE BEDDING – RIGID PIPE (CONCRETE, STEEL, DUCTILE IRON)
N.T.S.

SANITATION DISTRICT NO. 1
1045 Eaton Drive
FT. Wright, Kentucky 41017
Ph: (859) 578-7460
Fax: (859) 331-2436

REVISION | BY | DATE
DATE: JUL. 2, 2003
STANDARD DRAWING NO. 110

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

CONTROL STRUCTURE D-3 DIMENTIONS SHALL REFERENCE SD1 STANDARD INLET STM-08. THIS REPRESENTATION IS FOR CLARIFICATION OF OPENINGS ONLY.

CONTROL STRUCTURE D-3
N.T.S.

TEMPORARY STANDPIPE & PERMANENT SAND FILTER
N.T.S.

MALCOLM PIRNIE
STRAND ASSOCIATES, INC. ENGINEERS

3/18/11

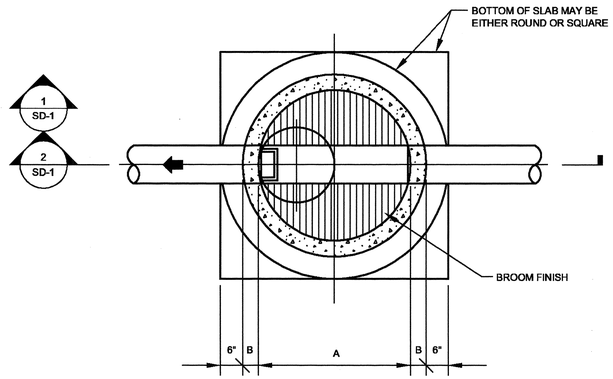
REVISIONS NO.	BY	DATE	REMARKS

DES CJR
DWN CSD
CKD MAW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

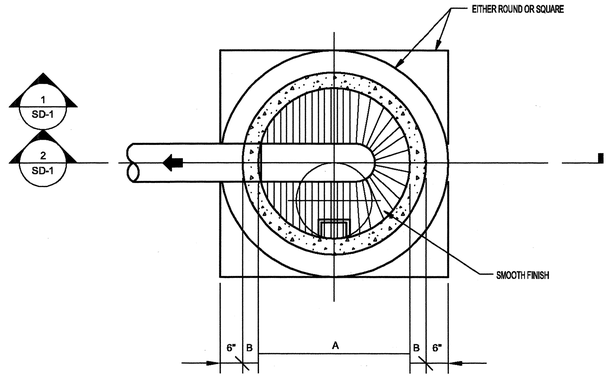
CIVIL
STORM SEWER DETAILS
SCALE: NOT TO SCALE

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-10-502
CAD REF. NO. STRAND-C-10-502



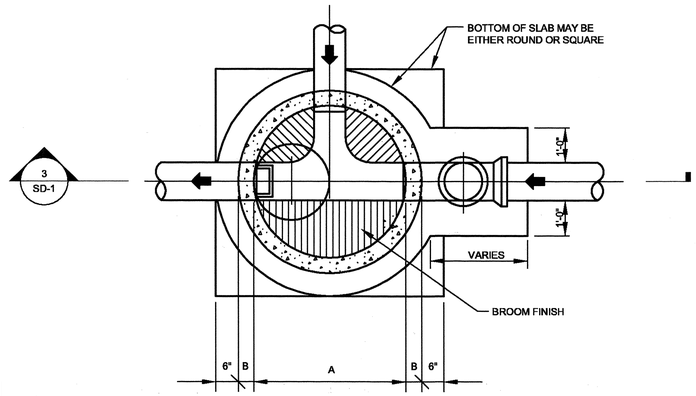
TYPICAL MANHOLE BASE - PLAN

NOT TO SCALE



TYPICAL END OF LINE MANHOLE BASE - PLAN

NOT TO SCALE

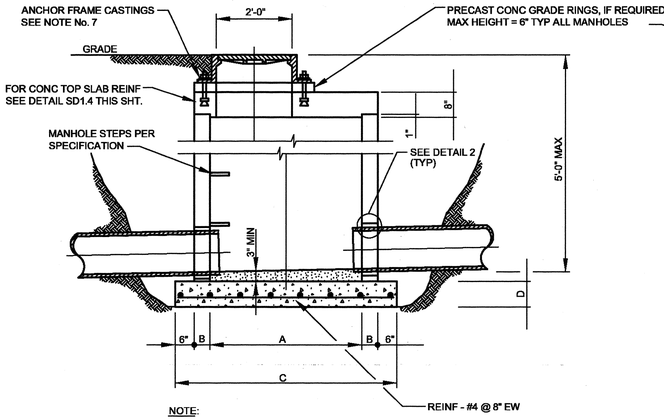


TYPICAL DROP MANHOLE BASE - PLAN

NOT TO SCALE

GENERAL NOTES

1. A MINIMUM FALL OF 0.10' SHALL BE PROVIDED THROUGH THE MANHOLES UNLESS OTHERWISE NOTED.
2. ALL FLOORS OF MANHOLES MUST HAVE SMOOTH FLOAT BRUSH FINISH.
3. WHENEVER POSSIBLE THE ECCENTRIC CONE SHALL BE PLACED PERPENDICULAR TO THE LINE OF THE SEWER TO MINIMIZE FUTURE MEASUREMENT ERRORS ALONG THE SEWER LINE.
4. ALL VISIBLE LEAKS IN MANHOLES OBSERVED DURING CONSTRUCTION 0R INSPECTION SHALL BE CORRECTED EVEN THOUGH INFILTRATION REQUIREMENTS HAVE ALREADY BEEN MET.
5. REINFORCED BASE AND TOP SLABS SHALL BE 3500 P.S.I. CONCRETE.
6. PRECAST CONC BARRELS FOR MANHOLES 12 FEET OR LESS IN DEPTH SHALL CONFORM TO ASTM STANDARD SPECIFICATIONS C-76, TABLE 2 WALL B, WITH A MINIMUM CONCRETE STRENGH OF 4000 P.S.I., TABLE 3 PRECAST CONC BARRELS SHALL BE USED FOR MANHOLES OVER 12 FEET IN DEPTH.
7. MANHOLE FRAME CASTINGS SHALL BE SECURLY ANCHORED TO THE MANHOLE. ANCHORING SHALL BE BY MEANS OF 1/2" DIAMETER STAINLESS STEEL WEDGE ANCHOR. WEDGE ANCHORS SHALL ONLY BE PLACED IN THE CONE SECTION OR FLAT TOP SLAB, WITH ANCHOR ROD PASSING THRU GRADE RING AND FRAME CASTING.



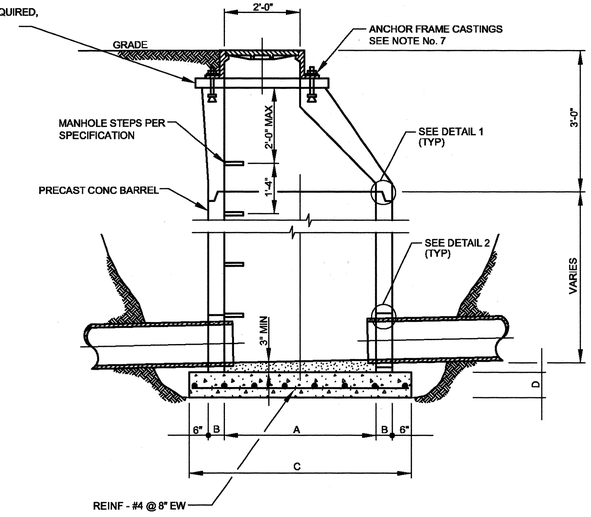
NOTE:

MANHOLE STEPS NOT REQUIRED FOR SHALLOW MANHOLES 4'-0" AND LESS IN DEPTH

SHALLOW MANHOLE

1 SECTION

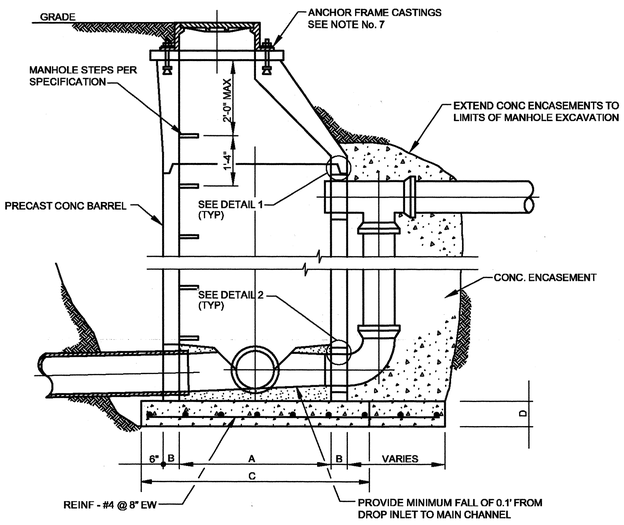
NOT TO SCALE



STANDARD MANHOLE

2 SECTION

NOT TO SCALE



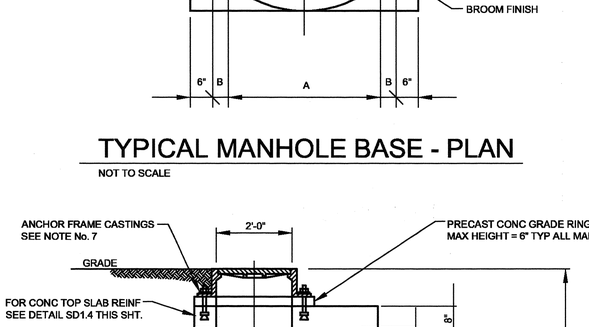
DROP MANHOLE

3 SECTION

NOT TO SCALE

MANHOLE DIMENSIONS SCHEDULE			
INSIDE MH DIA.	A	B	C
4'-0"	4'-0"	5"	5'-10"
5'-0"	5'-0"	6"	7'-0"
6'-0"	6'-0"	7"	8'-2"

INSIDE MH DIA.	D
0' - 10'	6"
10' - 15'	8"
15' - 20'	10"
20' - 25'	12"
25' - 30'	14"

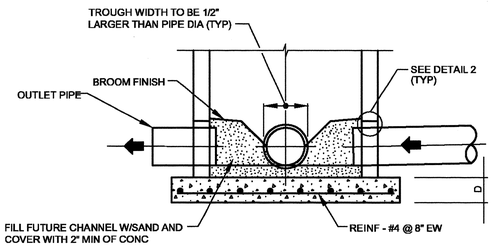


0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

JUNCTION MANHOLE-PLAN

NOT TO SCALE



4 SECTION

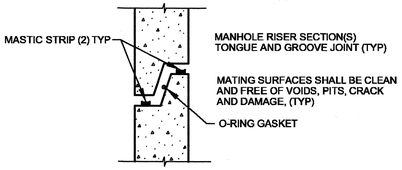
NOT TO SCALE

2 DETAIL

NOT TO SCALE

CONCRETE TOP SLAB

NOT TO SCALE



ALL MANHOLE JOINTS SHALL BE MADE USING A CONTINUOUS MASTIC JOINT SEALING COMPOUND

1 DETAIL

NOT TO SCALE

MALCOLM PIRNIE

ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY — MARK R. CARR — 23455 — LICENSED PROFESSIONAL ENGINEER — 3/10/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES MRC

DWN JAB

CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
DETAILS I

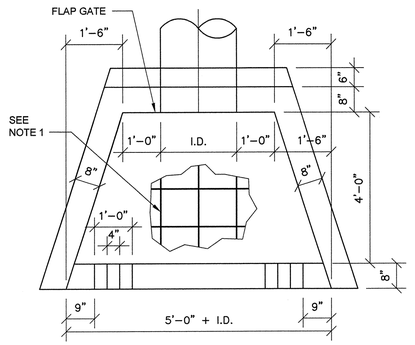
SCALE: N.T.S.

ISSUED STATUS: BID SET

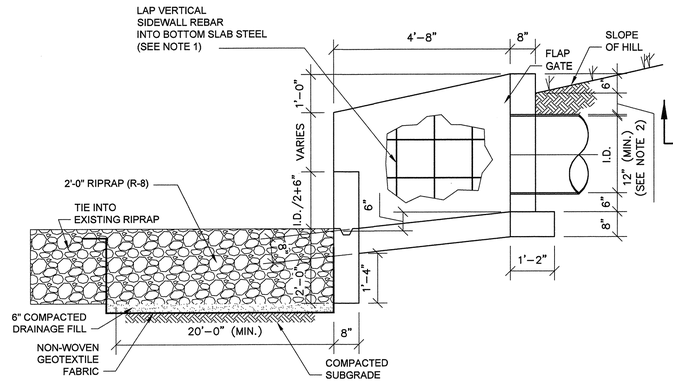
DATE MARCH, 2011

SHEET C-10-503

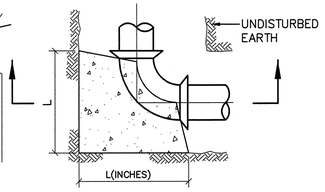
CAD REF. NO. 3789-C-10-503



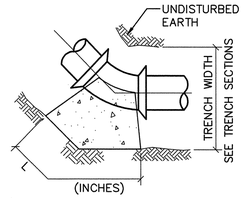
HEADWALL DETAIL – PLAN



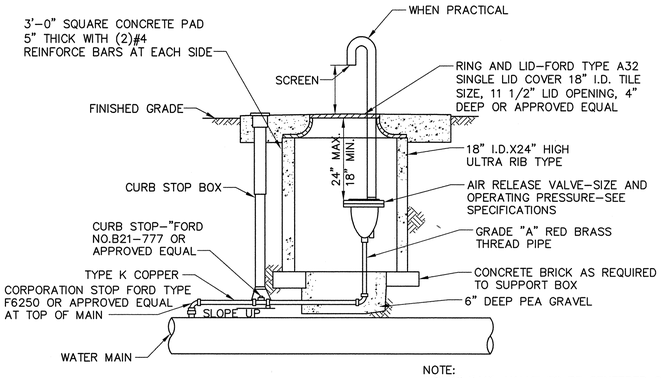
HEADWALL DETAIL – SECTION



PLAN 90° BENDS



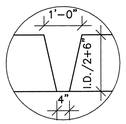
PLAN (BENDS LESS THAN 90°) AND SECTION (VERT. SAG)



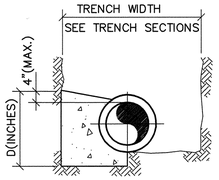
AIR RELEASE VAULT VALVE

NOTE:
AIR RELEASE VALVE TO BE CENTERED OVER WATER MAIN.
AIR RELEASE VALVES LARGER THAN 1" USE: VAULT SIZE 24'X24" LID FORD TYPE MC 24 AND EXTENSION RING EXT 2 OR APPROVED EQUAL.

FOR VALVE VAULTS LOCATED IN THE STREET PROVIDE H20 RATED MANHOLE, FRAME AND LID.



WEIR DETAIL



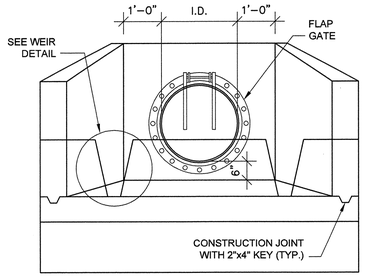
SECTION

SIZE OF RUN	DEGREE OF BEND							
	11 1/4°		22 1/2°		45°		90°	
	L	D	L	D	L	D	L	D
3"	4	3	6	4	10	4	10	4
4"	5	4	9	5	14	5	14	5
6"	8	6	12	7	20	8	18	9
8"	9	8	16	9	24	12	25	11
10"	12	10	20	12	30	15	28	15
12"	14	12	24	14	36	18	32	18
16"	18	16	32	18	36	32	41	26
20"	25	20	30	30	49	36	50	32
24"	27	24	38	34	60	42	58	40

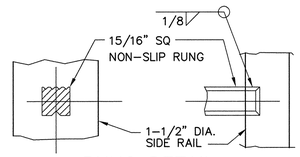
CONC. THRUST BLOCK DETAIL
HORIZ. AND VERT. SAG BENDS
NOT TO SCALE

NOTES:

1. NO. 5 STEEL BARS TO BE USED THROUGHOUT ON 12" CENTERS.
2. HEIGHT OF WALL SHALL BE DETERMINED BY THE AMOUNT OF FILL BEHIND THE PIPE. TOP OF WALL SHALL BE 18" ABOVE TOP O.D. OF PIPE.
3. TOP OF END SILL SHALL BE 6" BELOW CENTERLINE OF PIPE.
4. ALL VERTICAL OR SLOPED EXPOSED SURFACES SHALL HAVE A RUBBED FINISH.
5. ALL EXPOSED FLAT WORK TO HAVE A HAND FLOATED AND BROOMED FINISH.
6. ALL EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
7. ALL STEEL SHALL HAVE A 2" MINIMUM CLEARANCE TO THE CONCRETE FACE ON THE BACKFILL SIDE OF THE WALLS.

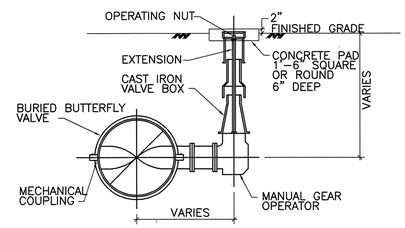


HEADWALL DETAIL – FRONT

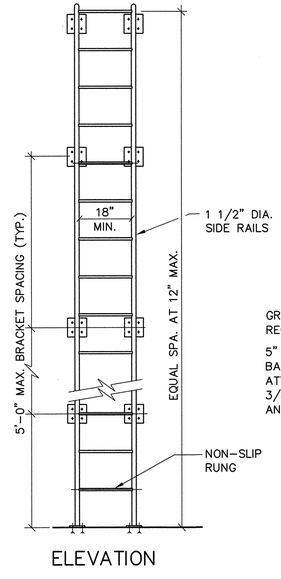


RUNG DETAIL

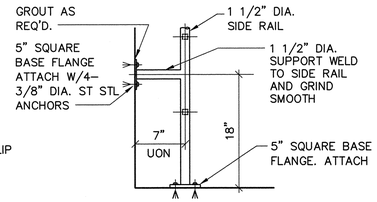
BASE CONNECTION DETAIL



TYPICAL BURIED BUTTERFLY VALVE
N.T.S.



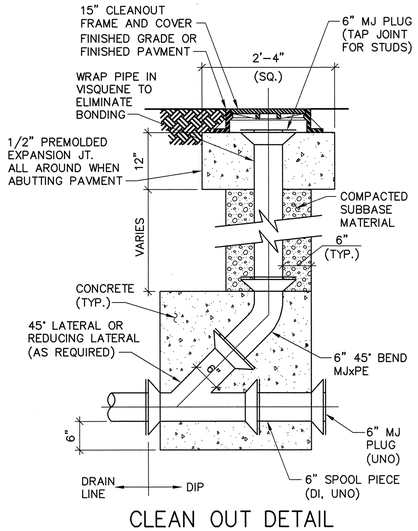
ELEVATION



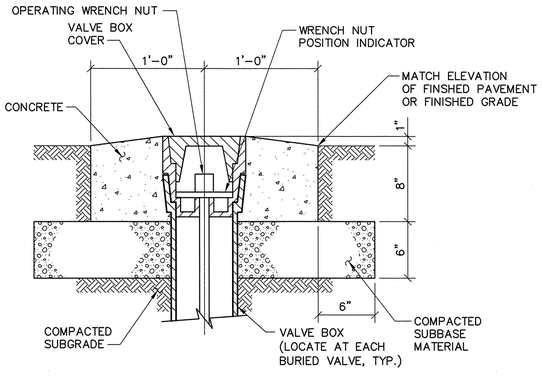
SECTION

ALUMINUM LADDER DETAIL

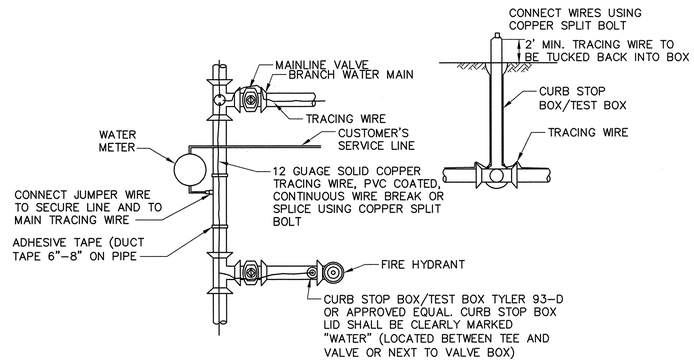
NOTE: 1. REFER TO OTHER SHEETS FOR LADDER LOCATION.
2. ALL MATERIALS TO BE ALUMINUM (UON)



CLEAN OUT DETAIL



VALVE BOX DETAIL



TRACING WIRE INSTALLATION

NOTE: CURB STOP BOX/TEST BOX SHALL NOT BE INSTALLED IN PAVED AREAS.

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY JASON M ABBOTT 26937 LICENSED PROFESSIONAL ENGINEER 3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

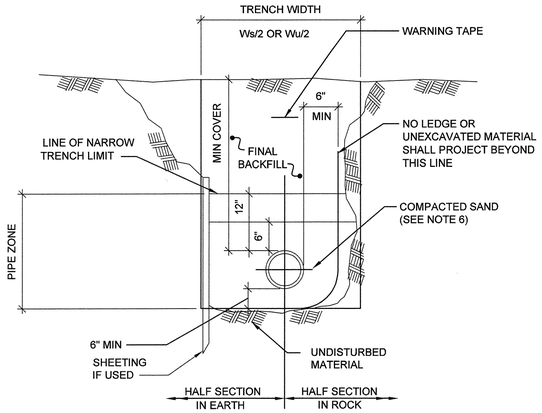
DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
DETAILS II
SCALE: N.T.S.

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-10-504
CAD REF. NO. C-10-504

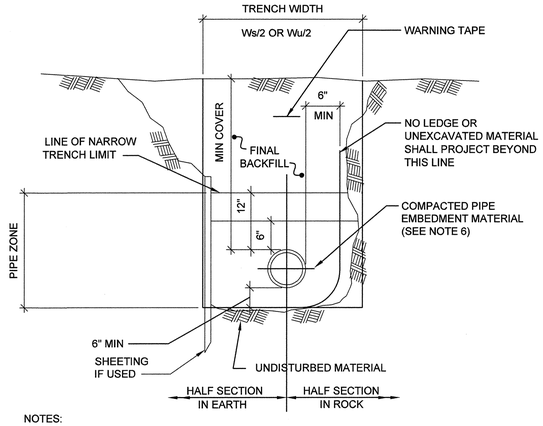
User:WELLS Spec:PIRNIE STANDARD File:I:\477501293-DADD\CIVIL\C-10-504.DWG Scale:1:18 SavedDate:3/1/2011 Time:12:38 Plot Date: Wells, Paul; 3/18/2011; 09:30 - Layout:C-10-504



NOTES:

1. TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH Ws ABOVE THE "LINE OF NARROW TRENCH LIMIT".
2. BELOW THE "LINE OF NARROW TRENCH LIMIT" THE TRENCH SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH Ws.
3. SHEETING IF USED IN ALL CASES SHALL BE LEFT IN PLACE BELOW A LINE 12" ABOVE THE TOP OF THE PIPE. UNLESS OTHERWISE INDICATED OR DIRECTED.
4. "COVER" AT ANY POINT SHALL BE DEFINED AS THE VERTICAL DISTANCE FROM THE UPPER MOST POINT OF THE PIPE TO A LINE WHICH CONNECTS THE SURFACE OF UNDISTURBED GROUND AT EITHER SIDE OF THE TRENCH AND IS AT RIGHT ANGLES TO THE DIRECTION OF THE PIPE.
5. WHERE THE FUTURE EXTENSION OF A PLUGGED PIPE OR A PLUGGED BRANCH WILL ENTAIL ROCK EXCAVATION THE TRENCH EXCAVATION IN ROCK SHALL BE EXTENDED FOR A DISTANCE OF 6'-0" BEYOND THE PLUG.
6. ACCEPTABLE PIPE EMBEDMENT MATERIAL IS DEFINED IN SECTION 02505. SAND TO BE USED FOR PLASTIC AND STEEL PIPES.
7. FOR SHEETED TRENCH Ws = 4/3 D+32" OR 50" WHICHEVER IS GREATER. FOR UNSHEETED TRENCH Wu = 4/3 D+18" OR 36" WHICHEVER IS GREATER.

TRENCH SECTION FOR PVC PIPE 18" DIAMETER & SMALLER



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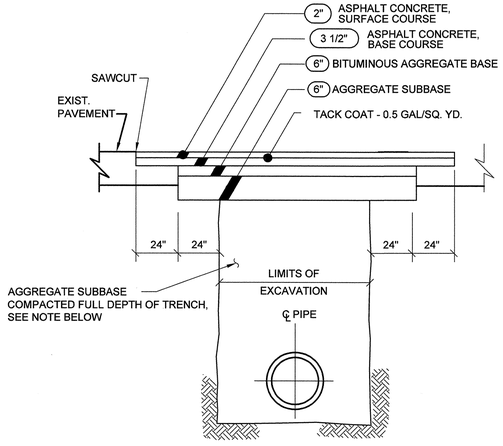
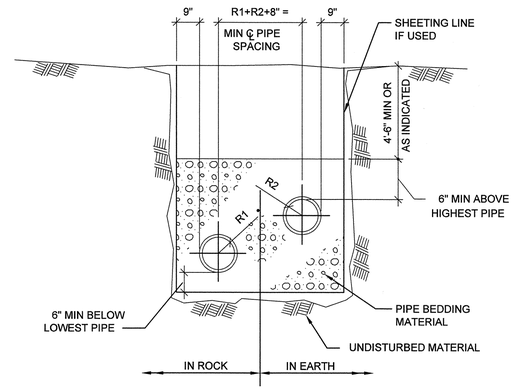
TRENCH SECTION FOR DI PIPE



NOTES:

1. THE AGGREGATE SUBBASE SHALL BE CONSTRUCTED OF AN ACCEPTABLE KENTUCKY DEPARTMENT OF TRANSPORTATION ITEM WITH MAXIMUM PERMISSIBLE SIZE OF 1 INCH. THE MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF MAXIMUM DRY UNIT WEIGHT PER ASTM D698 AT OR NEAR OPTIMUM MOISTURE CONTENT.

BITUMINOUS PAVEMENT REPLACEMENT DETAIL



MULTIPLE PIPE TRENCH SECTION

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY — JASON M. ABBOTT — 25937 — LICENSED PROFESSIONAL ENGINEER — 3/18/11

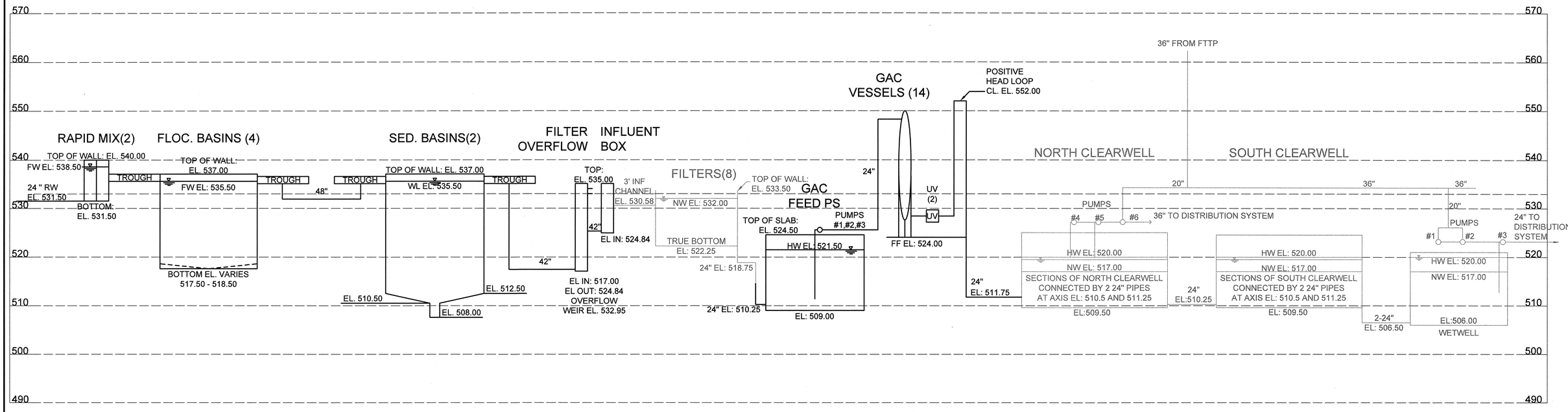
REVISIONS			
NO.	BY	DATE	REMARKS

DES CMW
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

CIVIL
DETAILS III
SCALE: N.T.S.

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET C-10-505
CAD REF. NO. C-10-505



GENERAL NOTES:

- HW EL. = HIGH WATER ELEVATION
- NW EL. = NORMAL WATER ELEVATION
- FW EL. = FREE WATER ELEVATION

HORIZONTAL: NOT TO SCALE
VERTICAL SCALE: 1/2" = 10'-0"

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
JASON M ABBOTT
25537
LICENSED PROFESSIONAL ENGINEER
3/8/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
HYDRAULIC PROFILE
SCALE: N.T.S.

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-00-001
CAD REF. NO. M-00-001

PIPING AND APPURTENANCES LEGEND

- FLANGED JOINT
- MECHANICAL JOINT/RESTRAINED JOINT
- WELDED JOINT
- BELL AND SPIGOT JOINT
- GROOVED OR SHOULDERED END JOINT
- BLIND FLANGE
- MECHANICAL JOINT/ RESTRAINED JOINT PLUG
- FLARE END
- EXPANSION COUPLING
- HARNESSED EXPANSION COUPLING
- FLANGE COUPLING ADAPTER
- HARNESSED FLANGE COUPLING ADAPTER
- FLEXIBLE COUPLING
- HARNESSED FLEXIBLE COUPLING
- MAGNETIC FLOW METER
- INSULATED PIPE
- CONNECT TO EXISTING
- TURN UP
- TURN DOWN
- REDUCER/INCREASER
- RECTANGULAR TO ROUND TRANSITION PIECE
- BLIND FLANGE
- QUICK CONNECT ADAPTER (MALE)
- QUICK CONNECT ADAPTER (FEMALE)
- STRAINER
- UNION
- FLAME ARRESTER
- DRIP TRAP
- SEDIMENT TRAP
- STATIC MIXER
- DOPPLER TYPE FLOW METER
- FLOW ELEMENT/FLOW METER
- TEMPERATURE REGULATING VALVE
- THREE WAY VALVE
- NEEDLE VALVE
- TEMPERATURE GAUGE
- PRESSURE GAUGE
- INLINE PRESSURE GAUGE
- FLOW TOTALIZER

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

- PRESSURE SWITCH
- PRESSURE SWITCH/GAUGE WITH DIAPHRAGM SEAL
- THERMAL SHUTOFF VALVE
- ANTI-SIPHON VALVE
- PULSATION DAMPENER
- THERMAL MASS FLOW METER
- CALIBRATION CHAMBER
- FLEXIBLE HOSE CONNECTION
- RUPTURE DISC
- MOTORIZED OPERATOR
- DIFFERENTIAL PRESSURE GAUGE WITH DIAPHRAGM SEAL
- PRESSURE GAUGE WITH DIAPHRAGM SEAL
- DIFFERENTIAL PRESSURE GAUGE
- PIPE FLOW
- OPEN CHANNEL FLOW
- AIR FLOW
- WATER SURFACE ELEVATION

VALVE LEGEND

AR	AIR RELEASE VALVE
AV	AIR AND VACUUM VALVE
BV	BALL VALVE
BFP	BACKFLOW PREVENTER ASSEMBLY
BPV	BACK PRESSURE VALVE
BD	BUTTERFLY DAMPER
BFV	BUTTERFLY VALVE
CA	COMBINATION VALVE
CV	CHECK VALVE
CH	BALL CHECK VALVE
CS	CURB STOP
EP	ECCENTRIC PLUG VALVE
FH	FIRE HYDRANT
GA	GATE VALVE
GL	GLOBE VALVE
KG	KNIFE GATE
MV	MUD VALVE
PV	PLUG VALVE
PGV	PRESSURE REGULATING VALVE
PRV	PRESSURE REDUCING VALVE
PR	PRESSURE RELIEF VALVE
RO	ROTAMETER
SV	SOLENOID VALVE
TV	TELESCOPIING VALVE
WH	WALL HYDRANT
YH	YARD HYDRANT

MATERIALS LEGEND

EXISTING PROPOSED

- DEMOLITION
- BRICK
- CONCRETE MASONRY UNIT
- STEEL
- GRATING
- CHECKERED PLATE
- UNDISTURBED SOIL
- ROCK
- CONCRETE
- GROUT
- INSULATION
- GLASS
- GENERAL FILL
- SELECT BACKFILL
- SUBBASE
- MUDMAT
- DUMPED ROCK FILL
- RAILING
- ORNAMENTAL RAILING

MECHANICAL ABBREVIATIONS

AB	ANCHOR BOLT
ABAN.	ABANDONED
AC	ASPHALT CONCRETE PAVEMENT
ADD'L.	ADDITIONAL
ADJ.	ADJUSTABLE
AH	ACCESS HATCH
ALUM.	ALUMINUM
ALT.	ALTERNATE
ARCH	ARCHITECTURE
BF	BLIND FLANGE
BITUM.	BITUMINOUS
BL	BASELINE
BLDG.	BUILDING
BM	BENCH MARK
BM.	BEAM
BOP	BOTTOM OF PIPE
BOT.	BOTTOM
BRG	BEARING
BRP	BUILDING REFERENCE POINT
BW	BACKWASH
BWS	BACKWASH SUPPLY
BWW	BACKWASH WASTE
℄	CENTERLINE
C/C	CENTER TO CENTER
CB	CATCH BASIN
CHEM	CHEMICAL LINE
CHH	COMMUNICATION HANDHOLE
CJ	CONSTRUCTION JOINT
CL.	CLEAR
CMH	COMMUNICATION MANHOLE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL.	COLUMN
CONC.	CONCRETE
CONN	CMU CORNER OF EXT. FACE
CONT.	CONTINUED
CPLG.	COUPLING
CTW	CONTACTOR TO WASTE
CY	CUBIC YARD(S)
CW	COLD WATER (POTABLE)
D	DRAIN
DET.	DETAIL
DIP	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM	DIMENSION
DISCH.	DISCHARGE
DMH	DROP MANHOLE
DN.	DOWN
DTL	DETAIL
DWGS	DRAWINGS
DWL	DOWELS
EA.	EACH
ECC	ECCENTRIC
EDB	ELECTRICAL DUCT BANK
EF	EACH FACE
EFF.	EFFLUENT
EJ	EXPANSION JOINT
EL.	ELEVATION
ELEC.	ELECTRIC
EMH	ELECTRICAL MANHOLE
EQ.	EQUALIZATION
EW	EACH WAY
EX.	EXISTING
FD	FLOOR DRAIN
FDN	FOUNDATION
FDND	FOUNDATION DRAIN
FF	FAR FACE
FIN.	FINISHED
FIPT	FEMALE IRON PIPE THREAD
FLEX.	FLEXIBLE
FLG.	FLANGE
FLR.	FLOOR
FTG.	FOOTING
FT., '	FEET
GA.	GAGE OR GAUGE
GAC	GRANULAR ACTIVATED CARBON
GALV.	GALVANIZED
GE	GROOVED END JOINT
GRD.	GROUND
GRAT.	GRATING
HB	HOSE BIB
HFCA	HARNESSED FLANGE COUPLING ADAPTER
HORIZ.	HORIZONTAL
HP	HIGH POINT
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN., "	INCHES
INF.	INFLUENT
INV.	INVERT
JST.	JOIST
JT.	JOINT
K	KIP (1000 POUNDS)
KSF	KIPS PER SQUARE FOOT
LG.	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LR	LONG RADIUS
LSH	LEVEL SWITCH HIGH
LSLL	LEVEL SWITCH LOW LOW
MAS	MASONRY
MAX.	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFR.	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN.	MINIMUM
MIPT	MALE IRON PIPE THREAD
MJ	MECHANICAL JOINT
MO	MASONRY OPENING
NC	NORMALLY CLOSED
NF	NEAR FACE
NO	NORMALLY OPEN
NO.	NUMBER
O	OVERFLOW
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG.	OPENING
OPP.	OPPOSITE
PC	POINT OF CURVATURE
PE	PLAIN END
PI	POINT OF INTERSECTION
PL	PLATE OR PROPERTY LINE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
R	RISER
RED.	REDUCER
REINF.	REINFORCEMENT OR REINFORCE
REQ'D.	REQUIRED
RMJ	RESTRAINED JOINT
RM.	ROOM
ROW	RIGHT OF WAY
SHT.	SHEET
SOC	SOCKET
SPA.	SPACING
SR	SHORT RADIUS
SS	STAINLESS STEEL
STD.	STANDARD
STL.	STEEL
STRUC.	STRUCTURAL
T	TREAD
T/	TOP OF
T&B	TOP AND BOTTOM
THK.	THICK
TYP.	TYPICAL
UON	UNLESS OTHERWISE NOTED
USG	UNITED STATES STANDARD GAGE
VERT.	VERTICAL
W/	WITH
WP	WORK POINT
WRF	WATER RECLAMATION FACILITY
WS	WATER STOP
WWF	WELDED WIRE FABRIC

PIPE SUPPORT LEGEND

- STANCHION SADDLE PIPE SUPPORT
- FLOOR BRACED STANCHION SADDLE PIPE SUPPORT
- WALL BRACED STANCHION SADDLE PIPE SUPPORT
- TRAPEZE PIPE SUPPORT
- CLEVIS HANGER PIPE SUPPORT
- WALL-MOUNTED CLEVIS HANGER PIPE SUPPORT
- CONCRETE PIPE SUPPORT
- WALL BRACKET PIPE SUPPORT
- WALL BRACKET TRAPEZE PIPE SUPPORT
- STACKED RACK PIPE SUPPORT
- BEAM PIPE SUPPORT

SCHEMATIC EQUIPMENT LEGEND

- SUBMERSIBLE PUMP
- CENTRIFUGAL PUMP / CENTRIFUGAL FAN
- PROGRESSING CAVITY PUMP
- METERING PUMP
- SLIDE GATE
- SLUICE GATE

GENERAL NOTES

1. THIS DRAWING SERVES AS A COMPREHENSIVE STANDARD. NOT ALL LEGENDS, SYMBOLS, AND ABBREVIATIONS ITEMS ARE NECESSARILY USED ON THIS PROJECT.
2. IN GENERAL, PIPE SUPPORTS ARE NOT SHOWN.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN FIELD BEFORE AND DURING CONSTRUCTION.

PIPING LEGEND

BW	BACKWASH
BT	BACKWASH TREATMENT INFLUENT
BD	BASIN DRAIN
CFC	CHEMICAL FEED CARRIER PIPE
CFE	CHEMICAL FEED ENCASEMENT
D	DRAIN
FI	FILTER INFLUENT
FW	FILTER TO WASTE
FTWR	FILTER TO WASTE RETURN
FP	FIRE PROTECTION
FBD	FLOCCULATION BASIN DRAIN
BWS	GAC BACKWASH SUPPLY
BWW/VTW	GAC BACKWASH WASTE/VESSEL-TO-WASTE
GBP	GAC BYPASS
GEQOF	GAC EQ BASIN OVERFLOW
GEQR	GAC EQ BASIN RECYCLE
GPSS	GAC FEED PUMP STATION SUPPLY
GPSOF	GAC FEED PUMP STATION OVERFLOW
GS	GAC SUPPLY
GTW	GAC TREATED WATER
GUTW	GAC/UV TREATED WATER
GAS	GAS
GC	GAS CARRIER PIPE
PA	PLANT AIR
PW(<4")	PLANT WATER
PW(>4")	PLANT WATER
W	POTABLE WATER
FO	FILTER OVERFLOW
RW	RAW WATER
R	RECYCLE
RD	RESIDUALS DRAIN
RM	RESIDUALS MAIN
SL	SAMPLE LINE
FM	SANITARY FORCE MAIN
S	SANITARY SEWER
SBWS	SECONDARY GAC BACKWASH SUPPLY
SR	SETTLED RESIDUALS
SD	SLUDGE DRAIN
SB	SODIUM BISULFITE
SS	STORM SEWER
SPD	SUMP PUMP DISCHARGE
TFI	TEMPORARY FILTER INFLUENT
V	VENT
W	WATER

MALCOLM PIRNIE

GRW

ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY JASON M ABBOTT 25937 LICENSED PROFESSIONAL ENGINEER 3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA

DWN PJW

CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

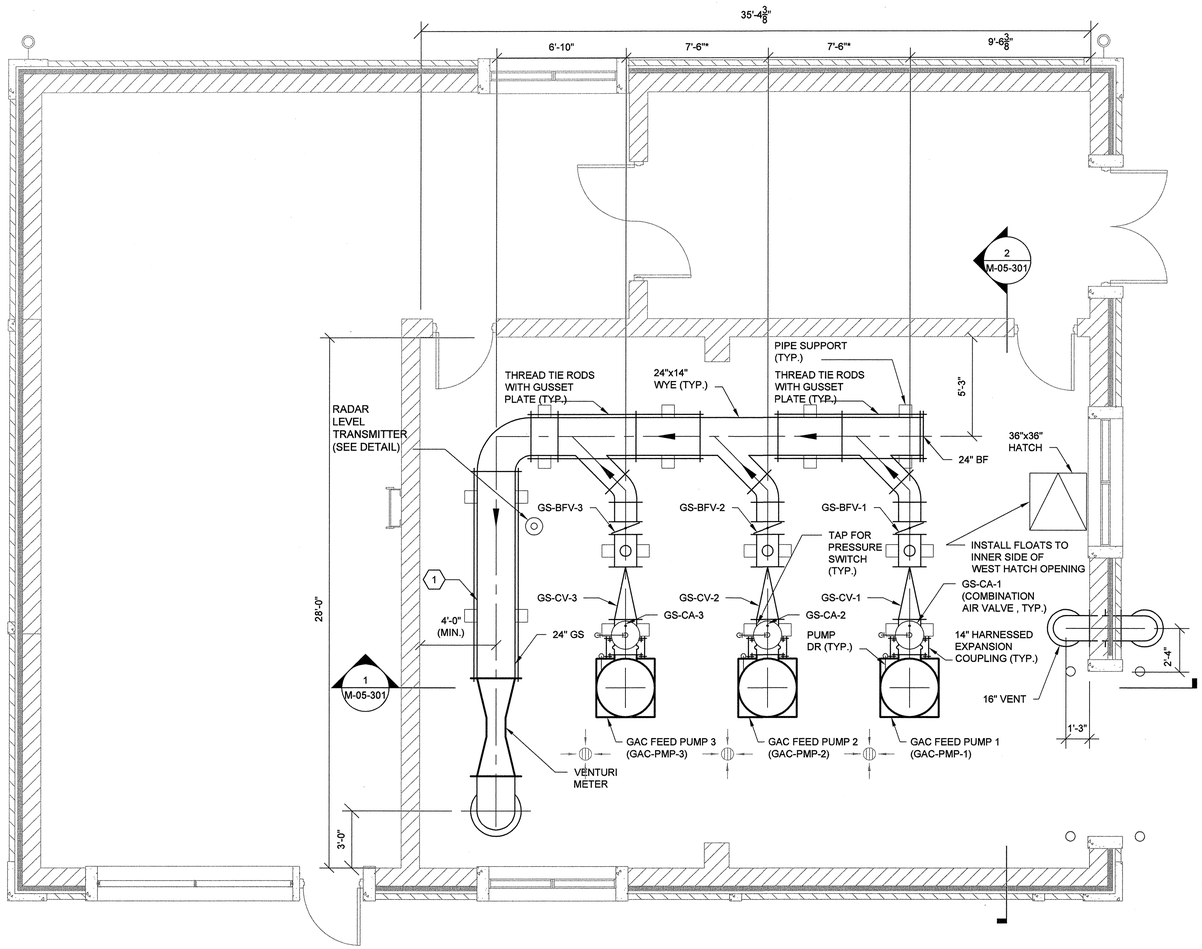
MECHANICAL
NOTES, SYMBOLS, AND ABBREVIATIONS
SCALE: N.T.S.

ISSUED STATUS: BID SET

DATE MARCH, 2011

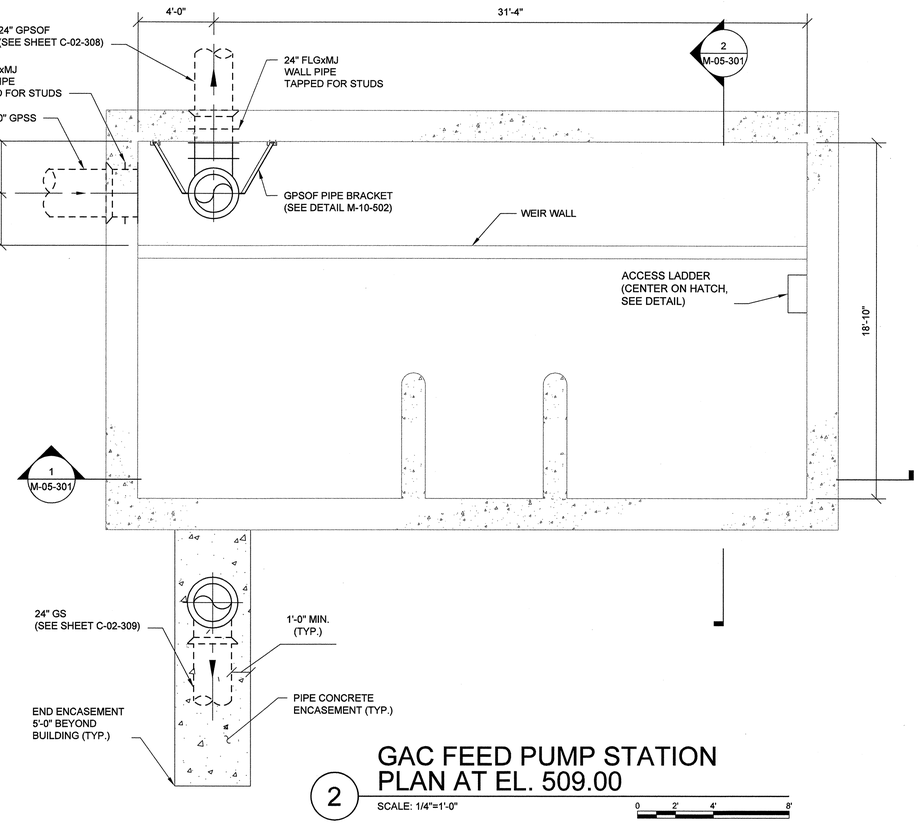
SHEET M-00-002

CAD REF. NO. M-00-002



1 GAC FEED PUMP STATION PLAN AT EL. 524.50

SCALE: 1/4"=1'-0"



2 GAC FEED PUMP STATION PLAN AT EL. 509.00

SCALE: 1/4"=1'-0"

SHEET KEYNOTES:

1. 24" VENTURI FLOW METER REQUIRES A MINIMUM OF 5 PIPE DIAMETERS UPSTREAM NO DOWNSTREAM STRAIGHT PIPE IS REQUIRED.

GENERAL NOTES:

1. DIMENSIONS MARKED WITH AN (*) SHALL BE COORDINATED WITH THE PUMP MANUFACTURER.

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY
JASON M ABBOTT
25037
LICENSED PROFESSIONAL ENGINEER
3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

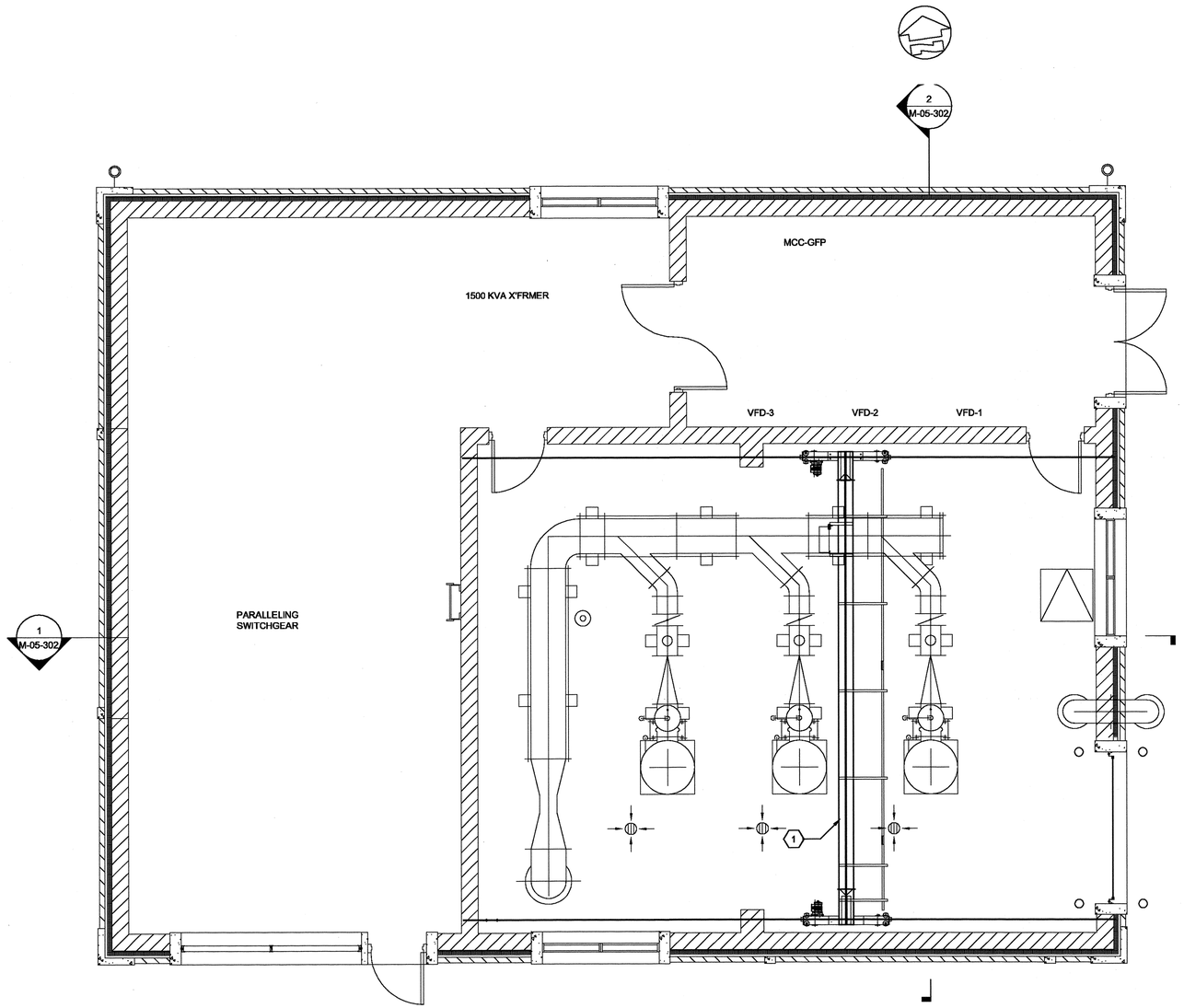
DES JMA
DWN PJW
CKD BAO

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
GAC FEED PUMP STATION
PLANS AT EL. 524.50 AND EL. 509.00
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-05-101
CAD REF. NO. M-05-101

User:WELLS Spec:PIRNIE STANDARD File:G:\477501\209-CADD\MECH-MPFM-05-101.DWG Scale:1:1 SavedDate:3/1/2011 Time:11:49 Plot Date: Wells, Paul: 3/18/2011, 09:52 - Layout:M-05-101



1 GAC FEED PUMP STATION PLAN AT EL. 524.50

SCALE: 1/4"=1'-0"

0 2' 4' 8'

SHEET KEYNOTES:

1. BRIDGECRANE (SEE SHEET S-05-101 FOR DETAILS)

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT

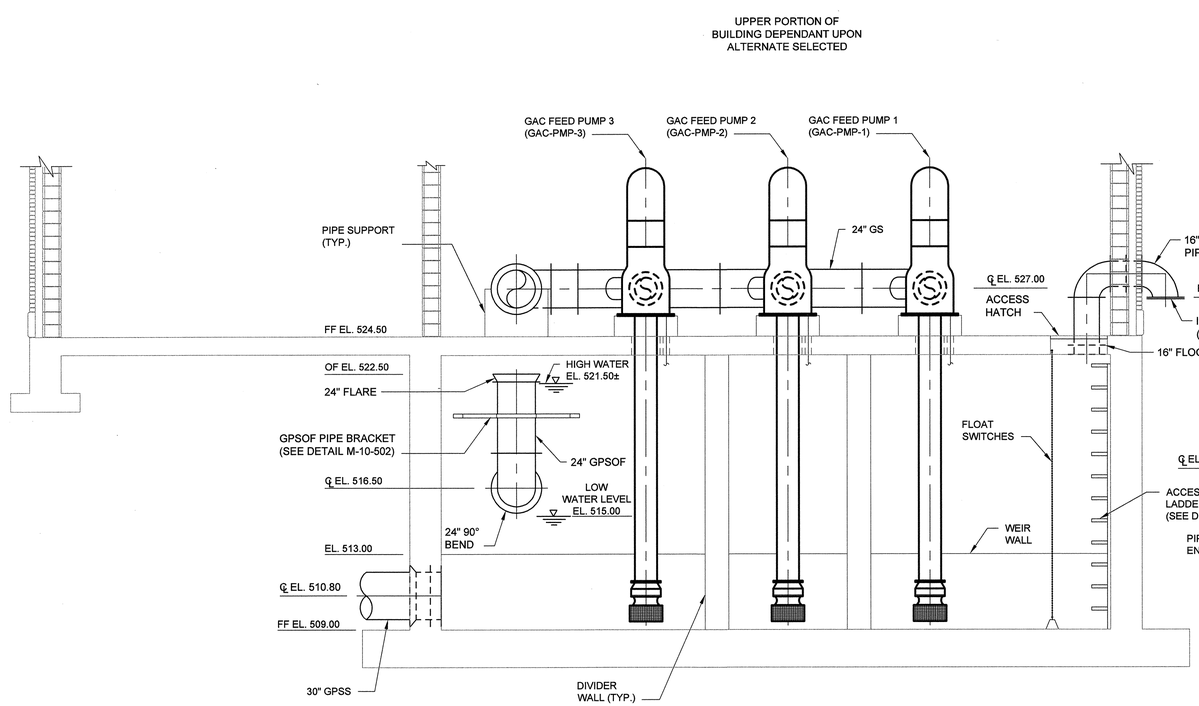
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL

GAC FEED PUMP STATION BRIDGECRANE - PLAN

SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-05-102
CAD REF. NO. 3789-M-05-102



1 GAC FEED PUMP STATION SECTION 1

M-05-101

SCALE: 1/4"=1'-0"

0 2' 4' 8'

2 GAC FEED PUMP STATION SECTION 2

M-05-101

SCALE: 1/4"=1'-0"

0 2' 4' 8'

GENERAL NOTES:

1. DIMENSION MARKED WITH AN (*) SHALL BE COORDINATED WITH THE PUMP MANUFACTURER.

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

GRW

ENGINEERS - ARCHITECTS - PLANNERS

COMMONWEALTH OF KENTUCKY JASON M ABBOTT 25937 LICENSED PROFESSIONAL ENGINEER 3/8/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA

DWN PJW

CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL

GAC FEED PUMP STATION SECTIONS

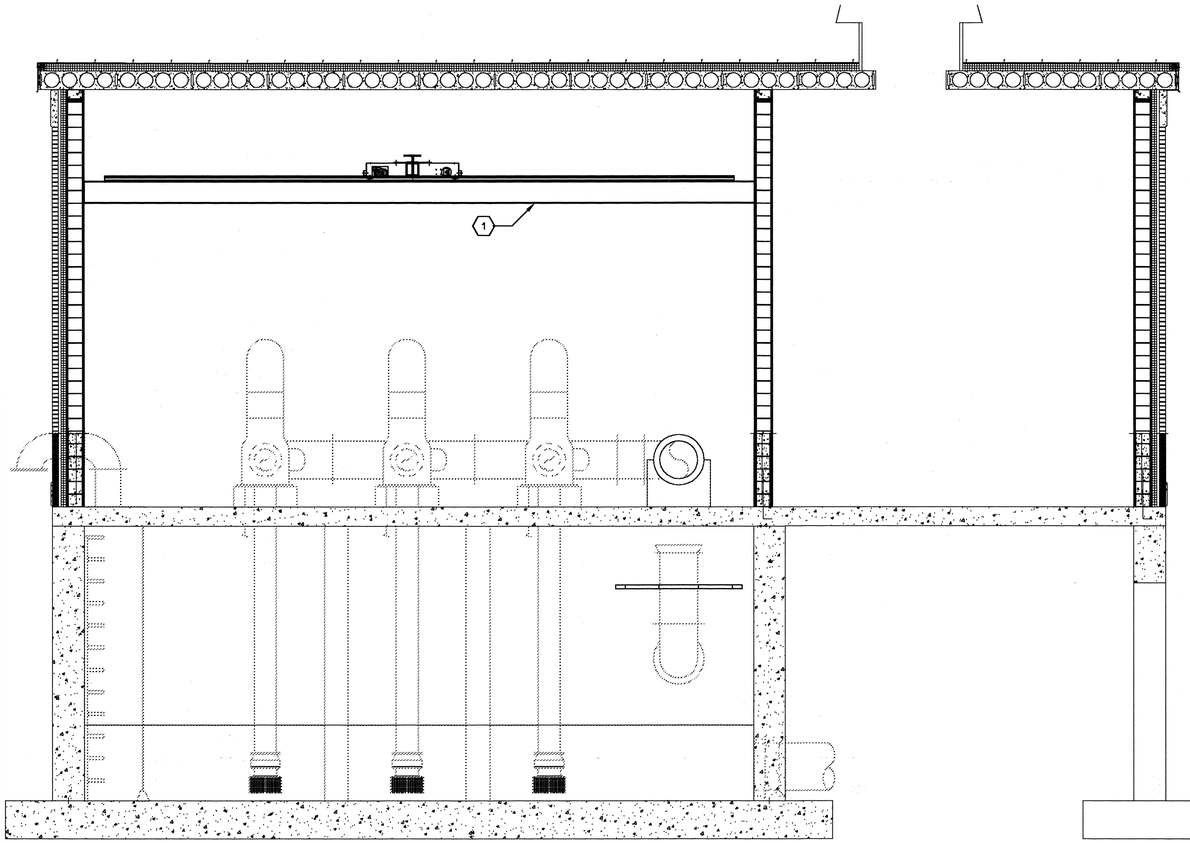
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET

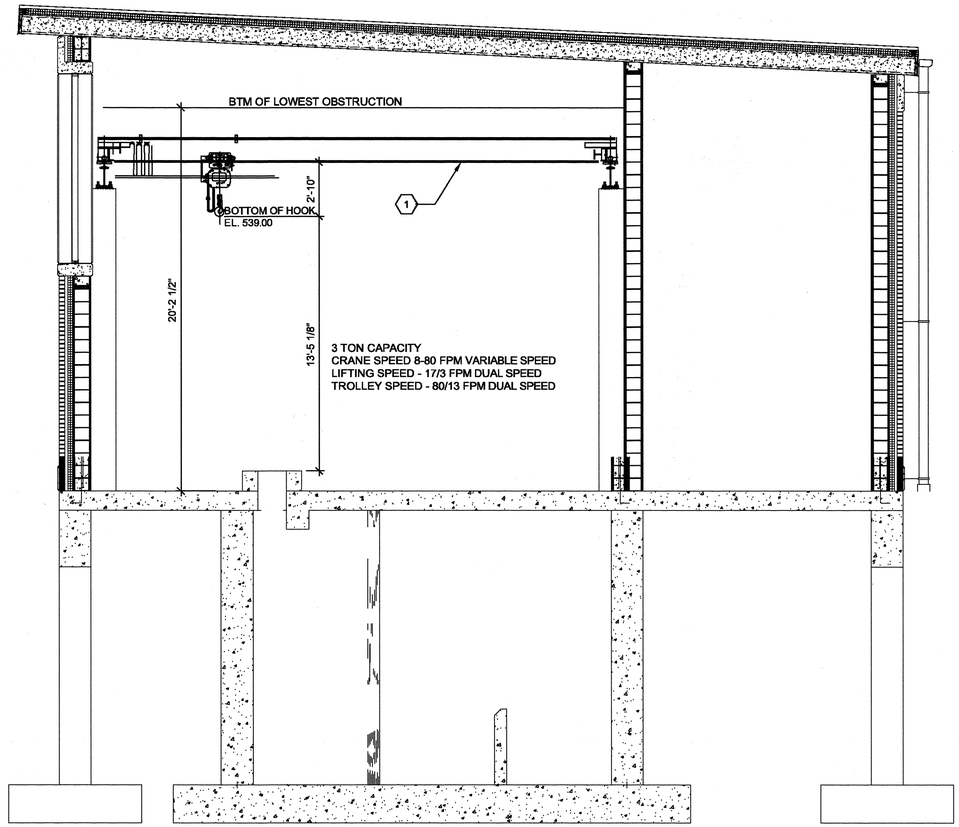
DATE MARCH, 2011

SHEET M-05-301

CAD REF. NO. M-05-301



1 SECTION
SCALE: 1/4"=1'-0"
0 2' 4' 8'



2 SECTION
SCALE: 1/4"=1'-0"
0 2' 4' 8'

GENERAL NOTES:

1. IF THE BRIDGE CRANE ALTERNATE IS SELECTED THE PUMP MANUFACTURER SHALL CONFIRM THE MAXIMUM HOOK HEIGHT ELEVATION IS ADEQUATE FOR INSTALLATION AND REMOVAL OF PUMPS.

⬡ SHEET KEYNOTES:

1. BRIDGECRANE (SEE SHEET S-05-101 FOR DETAILS)

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
5/18/11

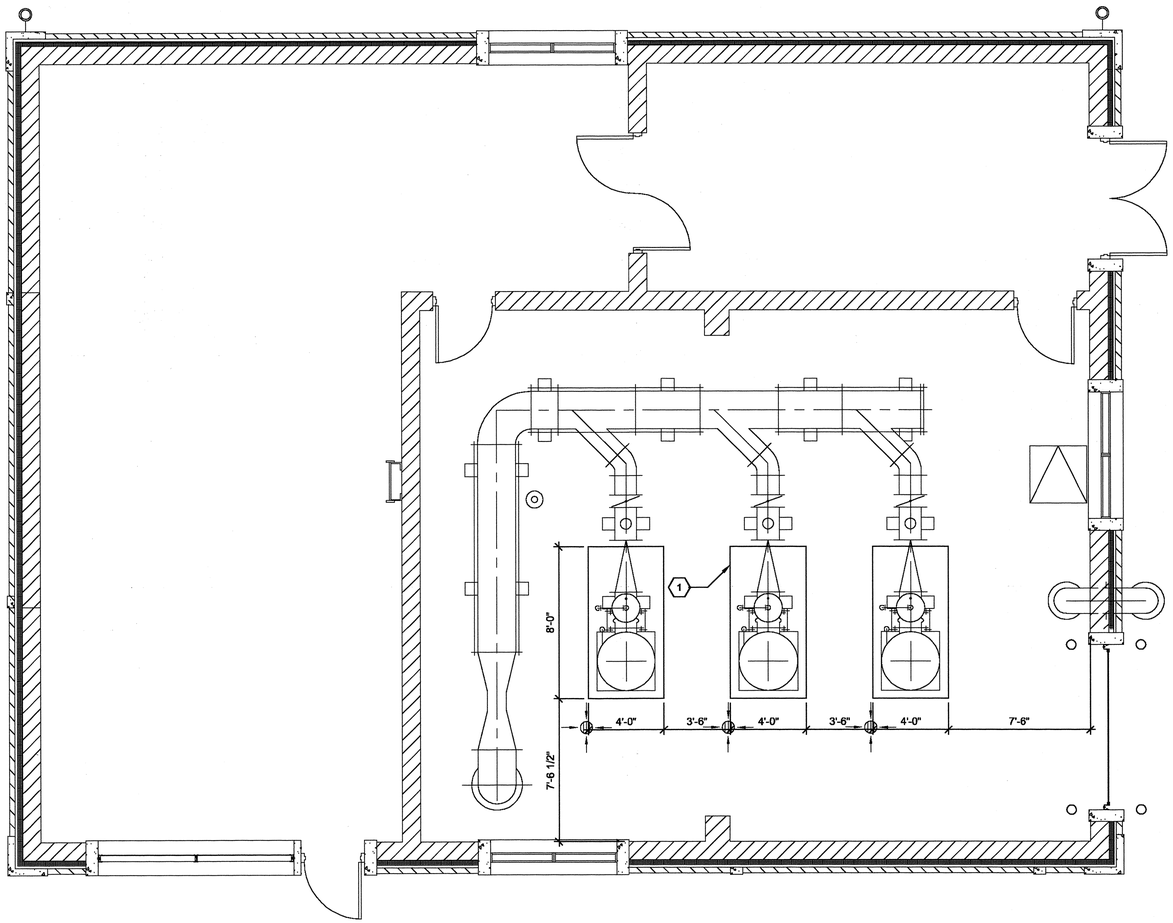
REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
GAC FEED PUMP STATION BRIDGECRANE - SECTIONS
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-05-302
CAD REF. NO. 3789-M-05-302



1 GAC FEED PUMP STATION PLAN AT EL. 524.50

SCALE: 1/4"=1'-0"

0 2' 4' 8'

SHEET KEYNOTES:

1. 4'-0" X 8'-0" OPENINGS FOR REMOVABLE SKYLIGHT (TYP. ABOVE)

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE

CH2M

ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY RYAN C. CARR 23455 LICENSED PROFESSIONAL ENGINEER 5/9/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES RCC

DWN JAB

CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

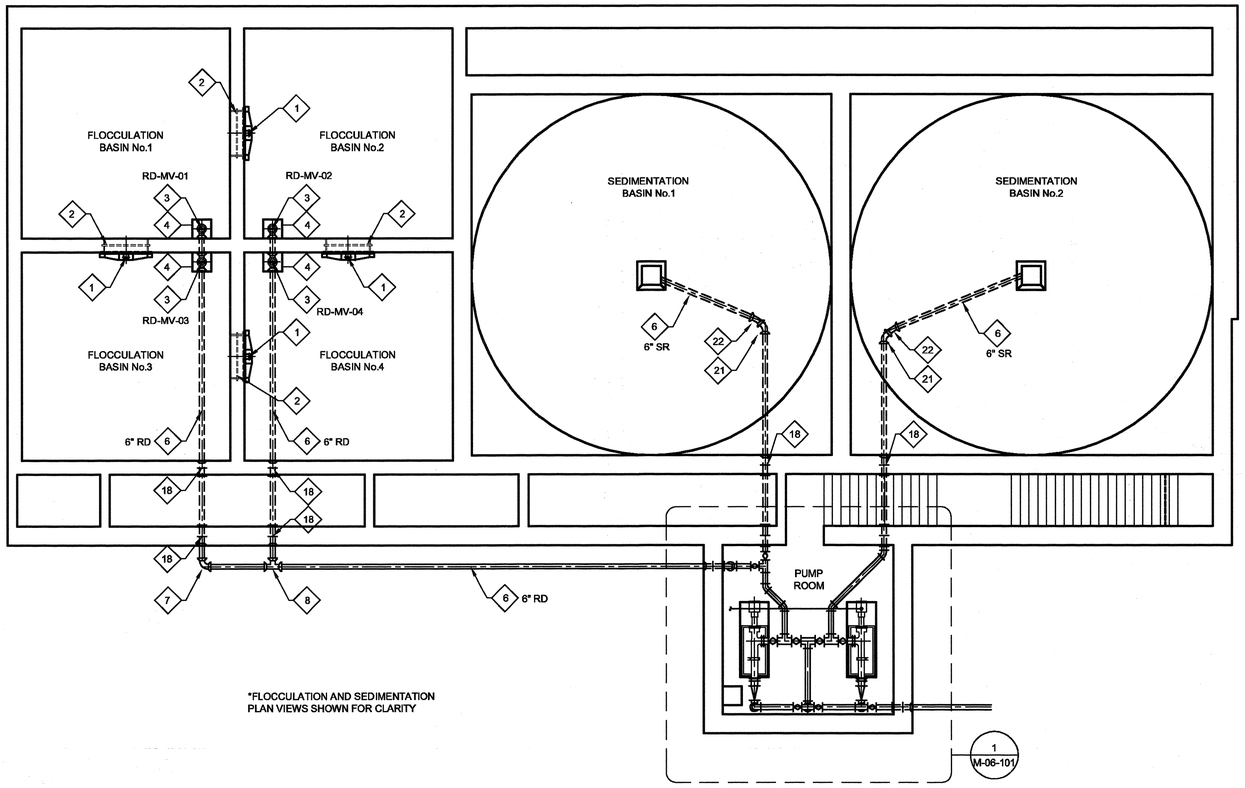
MECHANICAL
GAC FEED PUMP STATION
ALT. BID NO. 1 - SKYLIGHT ACCESS
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET

DATE MARCH, 2011

SHEET M-05-102A

CAD REF. NO. 3789-M-05-102A



*FLOCCULATION AND SEDIMENTATION PLAN VIEWS SHOWN FOR CLARITY

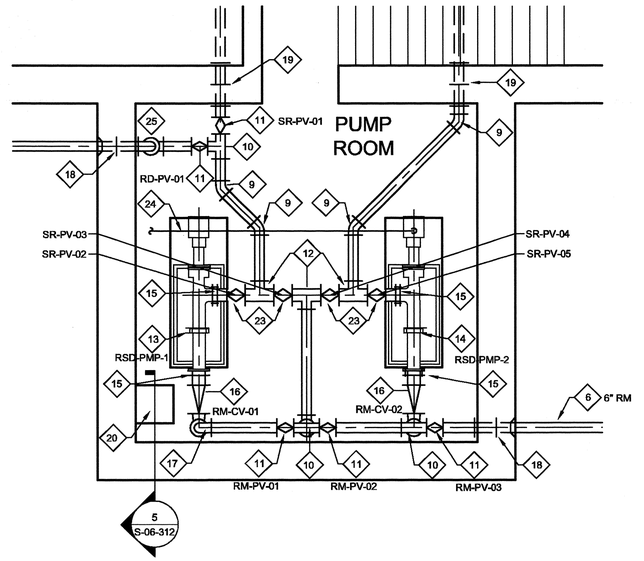
PT / GAC BUILDING PLAN AT EL. 504.00

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

PLAN NORTH

◇ PRELIMINARY TREATMENT KEYNOTES:

1. 4'-6" x 3'-0" SLUICE GATE W/HANDWHEEL OPERATOR
2. WALL THIMBLE
3. 6" MUD VALVE W/HANDWHEEL OPERATOR
4. 2' X 2' SUMP
5. CONCRETE EQUIPMENT PAD (SEE STRUCTURAL DETAIL, S-00-501)
6. 6" DI PIPE
7. 6" DI MJ 90° BEND
8. 6" DI MJ TEE
9. 6" DI 45° BEND
10. 6" DI TEE
11. 6" PLUG VALVE
12. 6" X 8" DI TEE
13. RESIDUALS PUMP No. 1
14. RESIDUALS PUMP No. 2
15. 8" DI FLANGE COUPLING ADAPTER
16. 8" CHECK VALVE
17. 6" DI 90° BEND
18. 6" DI WALL PIPE, FLG X MJ, W/WALL COLLAR, TAPPED FOR STUDS
19. 6" DI WALL PIPE, FLG X FLG, W/WALL COLLAR, TAPPED FOR STUDS
20. SUMP PUMP
21. 6" DI 45° BEND, PE X MJ
22. 6" DI MJ 22 1/2° BEND
23. 8" PLUG VALVE
24. 3/4" POTABLE WATER, SEE SHEET P-06-401 FOR CONTINUATION
25. 6" DI 90° BEND, FLG X FLG.



1 PUMP ROOM ENLARGED PLAN

SCALE: 1/4"=1'-0"

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE / CRW ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY RYAN C. CARR 23455 LICENSED PROFESSIONAL ENGINEER 3/10/11

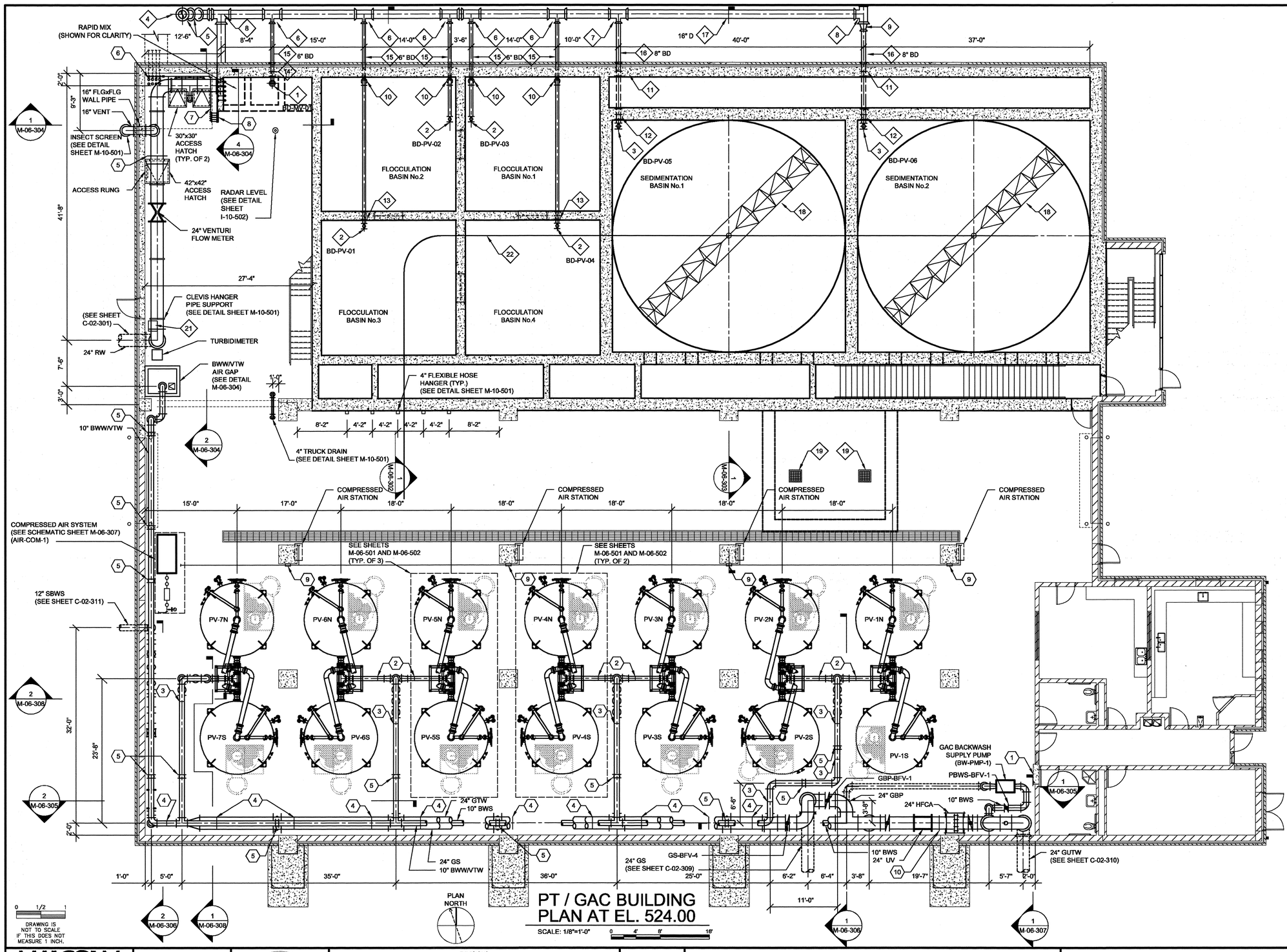
REVISIONS			
NO.	BY	DATE	REMARKS

DES MRC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
PT / GAC BUILDING PLAN AT EL. 504.00
SCALE: 1/8" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-101
CAD REF. NO. 3789-M-06-101



PT / GAC BUILDING PLAN AT EL. 524.00

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

◇ PRELIMINARY TREATMENT KEYNOTES:

1. 6" MUD VALVE W/HANDWHEEL OPERATOR
2. 6" PLUG VALVE W/HANDWHEEL OPERATOR
3. 8" PLUG VALVE W/HANDWHEEL OPERATOR
4. 16" DI CLEANOUT
5. 16" DI MJ 45° BEND
6. 16" X 6" DI MJ TEE
7. 16" X 8" DI MJ TEE
8. 16" DI MJ TEE
9. 16" X 8" DI MJ REDUCER
10. 6" DI 90° BEND
11. 8" DI WALL PIPE, FLG X MJ, W/WALL COLLAR, TAPPED FOR STUDS
12. 8" DI WALL PIPE, FLG X FLG, W/WALL COLLAR, TAPPED FOR STUDS
13. 6" DI WALL PIPE, FLG X FLG, W/WALL COLLAR, TAPPED FOR STUDS
14. 6" DI WALL PIPE FLG X MJ, W/WALL COLLAR, TAPPED FOR STUDS
15. 6" DI PIPE
16. 8" DI PIPE
17. 16" DI PIPE
18. GRAVITY THICKENER
19. 2' X 2' ACCESS HATCH
20. NOT USED
21. RAW WATER SAMPLE PUMP
22. MONORAIL W/2 TON ELECTRIC HOIST (SEE S-06-310 FOR DETAILS) SHOWN FOR CLARITY

⬡ GAC BUILDING KEYNOTES:

1. LOCATE GAC BWS PUMP JIB CRANE AT A CLEARANCE OF 10'. SEE SPECIFICATION 14610 FOR DETAILS. COORDINATE WITH STRUCTURAL DRAWINGS.
2. GENERAL LOCATION OF 8" FABRICATED PIPE RACK SHOWN. SEE DETAIL SHEET S-06-312.
3. GENERAL LOCATION OF 10" FABRICATED PIPE RACK SHOWN.SEE DETAIL SHEET S-06-312.
4. GENERAL LOCATION OF 10"/24"/24"/10" FABRICATED PIPE RACK SHOWN. SEE DETAIL SHEET S-06-312.
5. PROVIDE EXPANSION COUPLINGS AT OR NEAR EXPANSION JOINTS IN BUILDING. GENERAL LOCATIONS SHOWN. SHALL NOT INTERFERE WITH FABRICATED PIPE RACK LOCATIONS.
6. FIELD ROUTE THE FOLLOWING CHEMICAL FEED PIPING FROM THE MAINTENANCE ROOM FLOOR (EL. 524.00) THROUGH THE FLOOR OF THE RAPID MIX ROOM (EL. 537.00):
   - 1" SODIUM HYPOCHLORITE
   - 1" COPPER SULFATE / POWDERED ACTIVATED CARBON
   - 1" CAUSTIC
   - 1" FERRIC SULFATE
   - 1" HYBRID COAGULANT
   - SEE SHEET M-06-304 FOR CHEMICAL FEED PIPING ENCASEMENT THROUGH THE GAC EQ BASIN.
7. FIELD LOCATE AND TIE IN 1" PUSH WATER TO EACH CHEMICAL FEED PIPE PRIOR TO PENETRATING THE FLOOR OF THE RAPID MIX AREA (EL 537.00). SEE PLUMBING DRAWING P-06-602.
8. FIELD ROUTE CHEMICAL FEED PIPES FROM FLOOR OF RAPID MIX AREA TO RAPID MIX BASIN.
9. PROVIDE AIR HOSE RACK BRACKETED TO COLUMN AT EL. 527.00. SEE HOSE RACK DETAIL ON SHEET P-10-501. PROVIDE STAINLESS STEEL SHELF BRACKETED AT COLUMN AT EL. 528.50 IN ACCORDANCE WITH SPECIFICATION 15483.
10. GENERAL LOCATION OF 24"/24" FABRICATED PIPE RACK. SEE DETAIL ON SHEET M-06-305.

GENERAL NOTES:

1. GENERAL PIPE SUPPORT LOCATIONS ARE PROVIDED FOR FABRICATED PIPE RACKS ONLY. ALL PIPE HANGERS AND SUPPORTS ARE NOT SHOWN. CONTRACTOR SHALL PROVIDE ALL HANGERS AND SUPPORTS IN ACCORDANCE WITH SPECIFICATION 15055.

MALCOLM PIRNIE / CH2M HILL — ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY — JASON M ABBOTT — 25537 — LICENSED PROFESSIONAL ENGINEER — 3/15/11

STATE OF KENTUCKY — KEVIN C. CARR — 23455 — LICENSED PROFESSIONAL ENGINEER — 3/15/11

REVISIONS			
NO.	BY	DATE	REMARKS

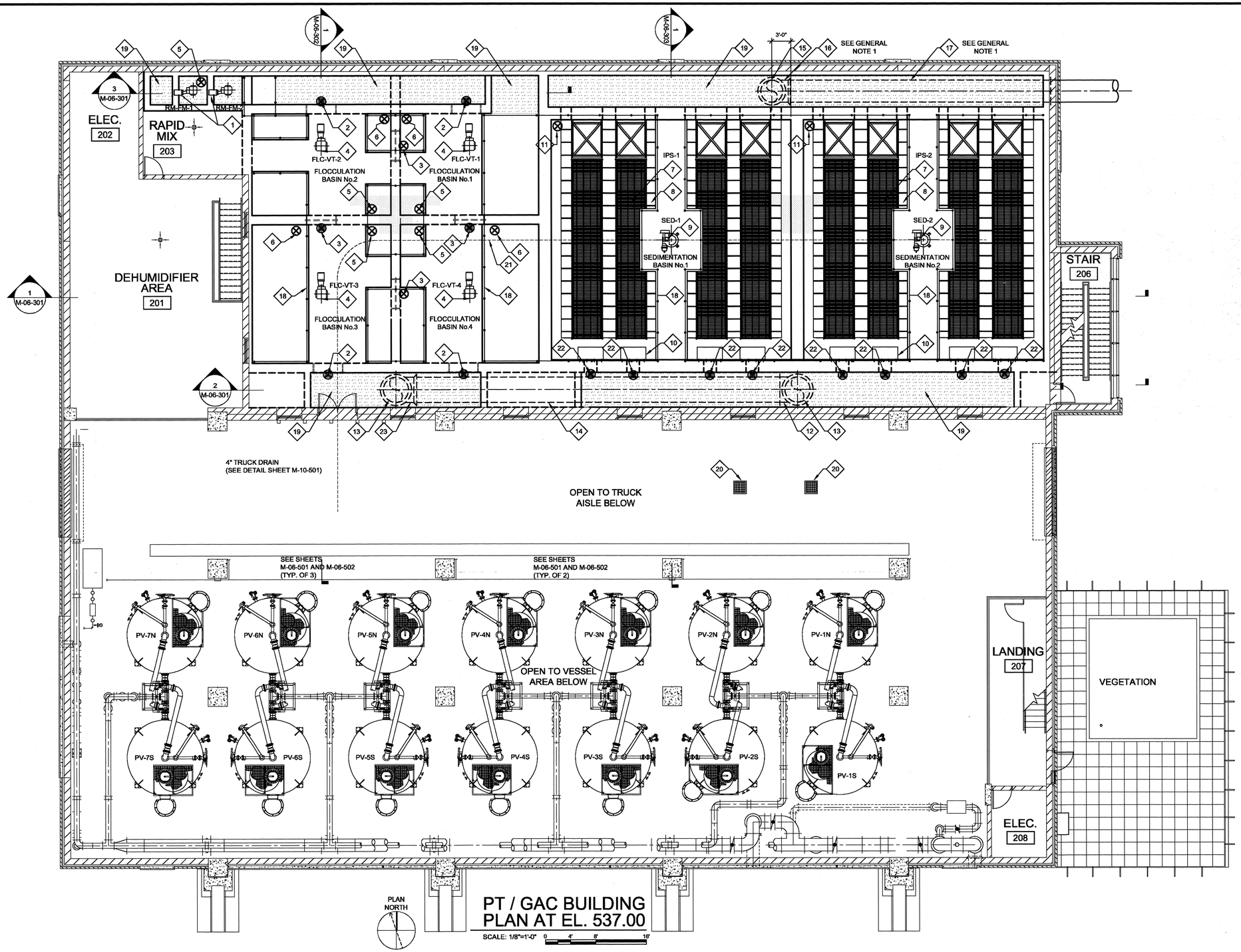
DES MRC/JHC
DWN JAB/PJW
CKD RCC/CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
PT / GAC BUILDING PLAN AT EL. 524.00
SCALE: 1/8" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-102
CAD REF. NO. 3789-M-06-102

User:JBOND Spec:PIRNE STANDARD File:I:\3789-NKWD TAYLOR MILLWORK\NO DRAWINGS\DESIGN DRAWINGS\MECH-GRW\3789-M-06-102.DWG Scale:1:48 SaveDate:3/7/2011, Time:10:50 Plot Date: Bond, Jeff, 3/10/2011, 09:37 - Layout:M-06-102



◇ PRELIMINARY TREATMENT KEYNOTES:

1. RAPID MIX DRIVE
2. 4'-6" X 3'-0" SLIDE GATE W/HANDWHEEL OPERATOR
3. 4'-6" X 3'-0" SLUICE GATE W/HANDWHEEL OPERATOR
4. FLOCCULATOR DRIVE
5. 6" MUD VALVE W/HANDWHEEL OPERATOR
6. 6" PLUG VALVE W/HANDWHEEL OPERATOR
7. PLATE SETTLER CARTRIDGE (TYP.)
8. EFFLUENT TROUGH (TYP.)
9. THICKENER DRIVE
10. INLET DIFFUSER (TYP.)
11. 8" PLUG VALVE W/HANDWHEEL OPERATOR
12. 48" DI 90° BEND
13. 48" DI FLARE
14. 48" DI PIPE
15. 42" DI FLARE W/COLLAR X PE
16. 42" DI MJ 90° BEND
17. 42" DI RESTRAINED MJ PIPE
18. FRP HANDRAIL W/TOEBOARD (TYP.) SEE SHEET M-10-503
19. FRP PANELS (TYP.)
20. 2'-0" X 2'-0" ACCESS HATCH
21. MONORAIL W/2 TON ELECTRIC HOIST (SEE S-06-310 FOR DETAILS), SHOWN FOR CLARITY
22. 15" X 24" SLIDE GATE W/HANDWHEEL OPERATOR
23. 48" DI MJ 90° BEND

GENERAL NOTES:

1. REMOVE FOOTING PROJECTION AT RESTRAINED MECHANICAL JOINTS AS REQUIRED
2. INTENDED MODE OF OPERATION FOR THE FLOCCULATION BASINS SHALL BE TO OPERATE THE FOUR (4) BASINS IN SERIES WITH FLOW FROM FLOC BASIN No.1 - No. 2 - No. 3 - No. 4.

PLAN NORTH

PT / GAC BUILDING PLAN AT EL. 537.00

SCALE: 1/8"=1'-0" 0 4' 8' 16'

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY JASON M ABBOTT 25937 LICENSED PROFESSIONAL ENGINEER 3/18/11

STATE OF KENTUCKY RYAN C. CARR 23455 LICENSED PROFESSIONAL ENGINEER 3/18/11

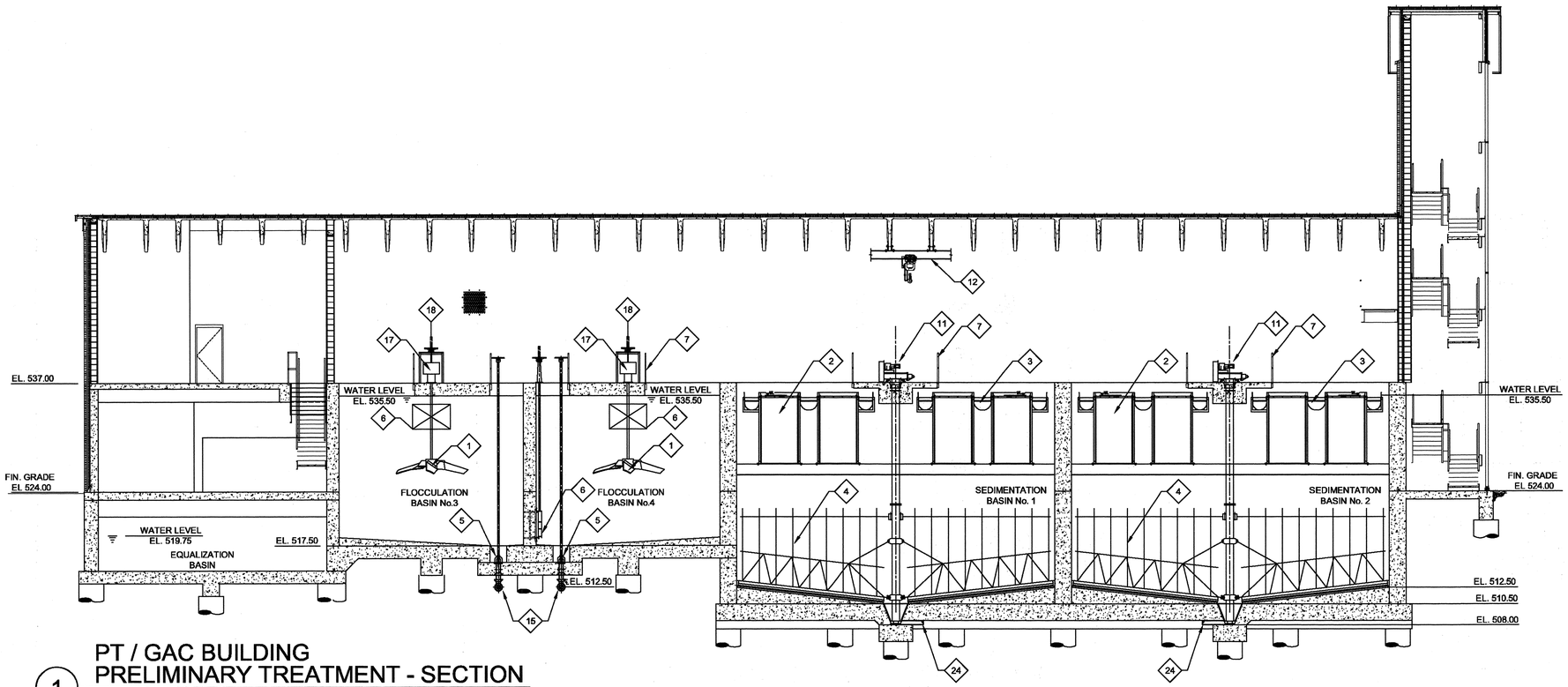
REVISIONS			
NO.	BY	DATE	REMARKS

DES MRC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
PT / GAC BUILDING PLAN AT EL. 537.00
SCALE: 1/8" = 1'-0"

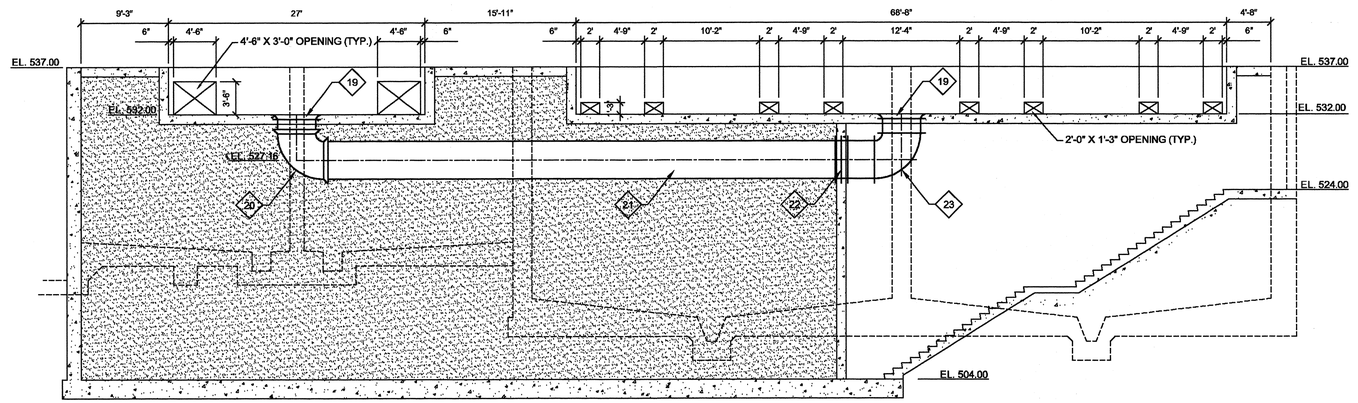
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-103
CAD REF. NO. 3789-M-06-103



PT / GAC BUILDING
PRELIMINARY TREATMENT - SECTION

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

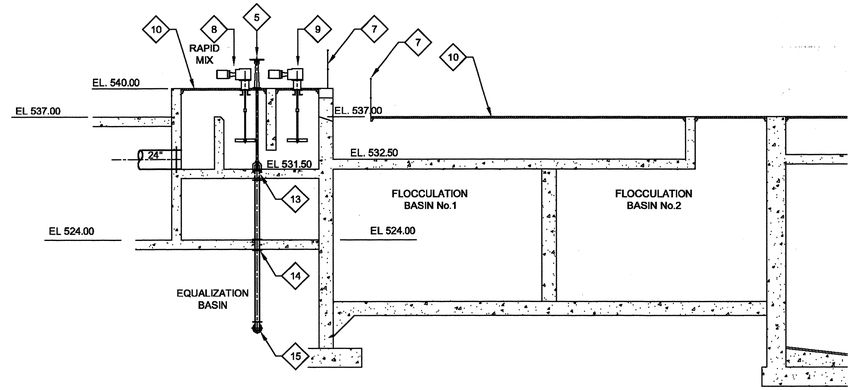
0 4' 8' 16'



PT / GAC BUILDING
TROUGHS - SECTION

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

0 4' 8' 16'



PT / GAC BUILDING
RAPID MIX - SECTION

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

0 4' 8' 16'

◇ PRELIMINARY TREATMENT KEYNOTES:

1. FLOCCULATOR
2. PLATE SETTLER CARTRIDGE (TYP.)
3. EFFLUENT TROUGH (TYP.)
4. GRAVITY THICKENER
5. 6" MUD VALVE W/HANDWHEEL OPERATOR
6. 4'-6" X 3'-0" SLUICE GATE W/HANDWHEEL OPERATOR
7. FRP HANDRAIL W/TOEBOARD (TYP.) SEE SHEET M-10-504
8. RAPID MIXER No. 1
9. RAPID MIXER No. 2
10. FRP PANEL (TYP.)
11. THICKENER DRIVE (TYP.)
12. MONORAIL W/2 TON ELECTRIC HOIST (SEE S-06-310 FOR DETAILS)
13. 6" FLOOR PIPE W/COLLAR, PE X FLG
14. 6" FLOOR PIPE W COLLAR, FLG X FLG
15. 6" DI RESTRAINED 90° BEND
16. 6" WALL PIPE W/COLLAR, FLG X MJ
17. FLOCCULATOR DRIVE
18. 4'-6" X 3'-0" SLIDE GATE W/HANDWHEEL OPERATOR (BEYOND)
19. 48" DI FLARE W/COLLAR XPE
20. 48" DI RESTRAINED MJ 90° BEND
21. 48" DI RESTRAINED MJ PIPE
22. 48" DI RESTRAINED WALL PIPE W/COLLAR, MJ X FLG
23. 48" DI 90° BEND
24. 6" DI PIPE

GENERAL NOTES:

1. PLATE SETTLER CARTRIDGE SUPPORT SYSTEM AS REQUIRED BY THE MANUFACTURER

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
CH2M HILL
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
CARR
23455
LICENSED PROFESSIONAL ENGINEER
5/18/11

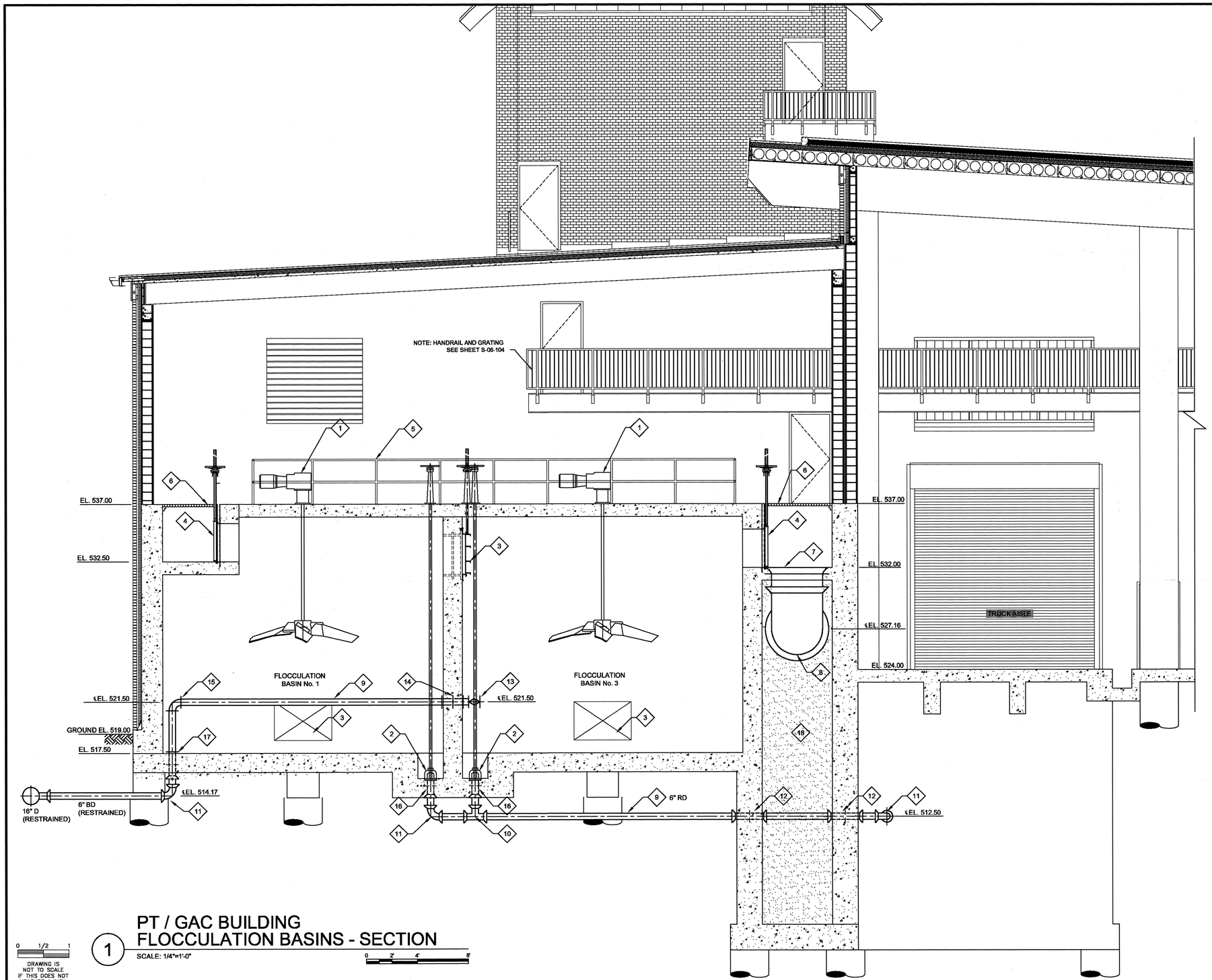
REVISIONS			
NO.	BY	DATE	REMARKS

DES MRC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
PT / GAC BUILDING SECTIONS I
SCALE: 1/8" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-301
CAD REF. NO. 3789-M-06-301



PT / GAC BUILDING
FLOCCULATION BASINS - SECTION

1 SCALE: 1/4"=1'-0"

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

0 2' 4' 8'

◇ PRELIMINARY TREATMENT KEYNOTES:

1. FLOCCULATOR DRIVE (TYP.)
2. 6" MUD VALVE W/HANDWHEEL OPERATOR
3. 4'-6" x 3'-0" SLUICE GATE W/HANDWHEEL OPERATOR
4. 4'-6" x 3'-0" SLIDE GATE W/HANDWHEEL OPERATOR
5. FRP HANDRAIL W/TOEBOARD (TYP.) SEE SHEET M-10-504
6. FRP PANEL (TYP.)
7. 48" DI FLARE W/ COLLAR X PE
8. 48" DI RESTRAINED MJ 90° BEND
9. 6" DI RESTRAINED PIPE
10. 6" DI RESTRAINED MJ TEE
11. 6" DI RESTRAINED MJ 90° BEND
12. 6" DI RESTRAINED WALL PIPE W/COLLAR MJ X MJ
13. 6" PLUG VALVE
14. 6" WALL PIPE W/COLLAR FLG X FLG
15. 6" DI 90° BEND
16. 6" FLOOR PIPE W/ COLLAR PE X MJ
17. 6" FLOOR PIPE W/COLLAR FLG X MJ
18. COMPACTED SAND FILL - SEE SHEET S-06-309

MALCOLM PIRNIE
CH2M HILL
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
RYAN C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/8/11

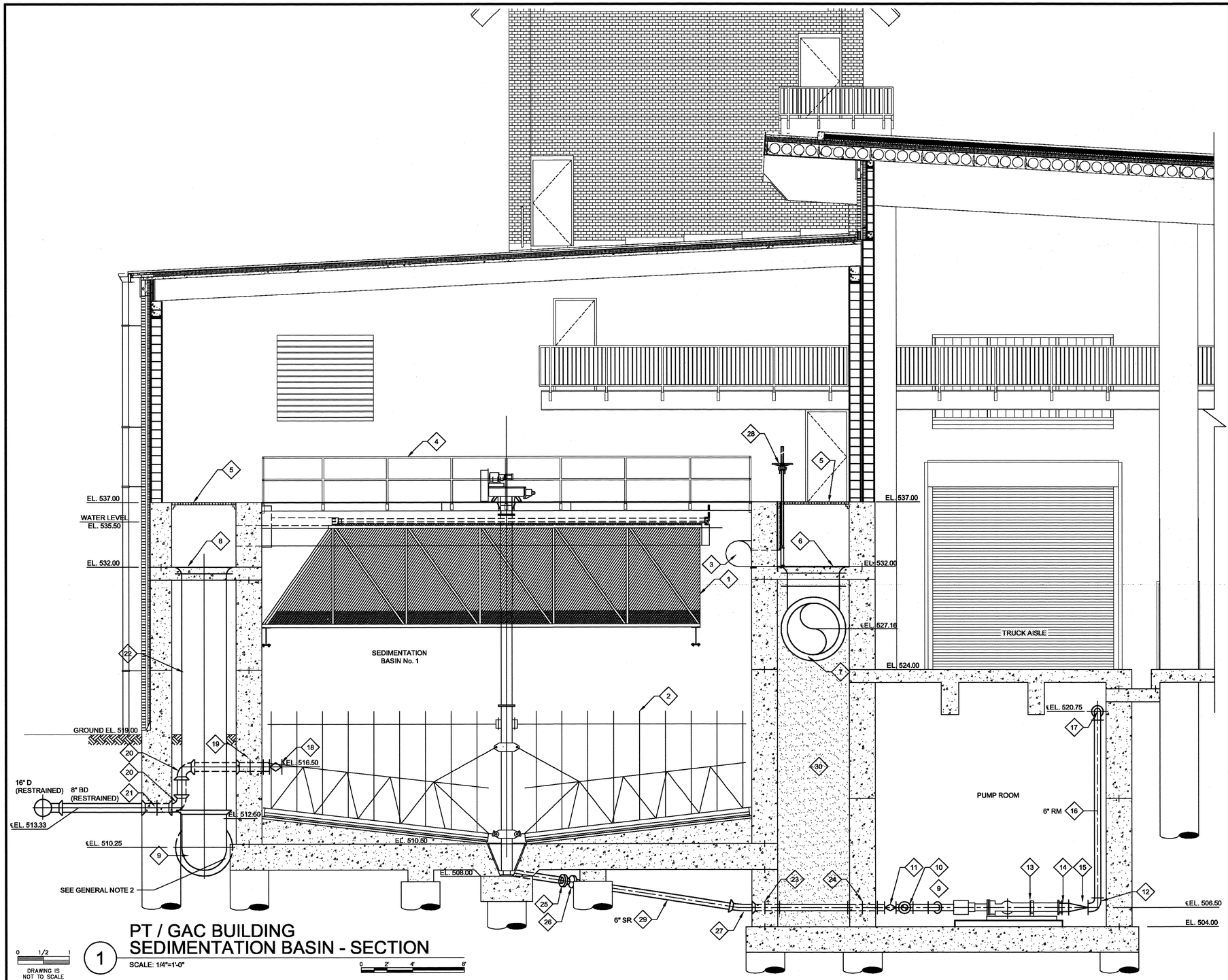
REVISIONS			
NO.	BY	DATE	REMARKS

DES MRC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
PT / GAC BUILDING SECTIONS II
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-302
CAD REF. NO. 3789-M-06-302



PT / GAC BUILDING
SEDIMENTATION BASIN - SECTION

1 SCALE: 1/4"=1'-0"

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

0 2' 4' 8'

◇ PRELIMINARY TREATMENT KEYNOTES:

1. PLATE SETTLER CARTRIDGE (TYP.)
2. GRAVITY THICKENER
3. INLET DIFFUSER
4. FRP HANDRAIL W/TOEBOARD (TYP.) SEE SHEET M-10-504
5. FRP PANEL (TYP.)
6. 48" DI FLARE W/ COLLAR X PE
7. 48" DI. 90° BEND
8. 42" DI FLARE W/COLLAR X FLG.
9. 42" DI RESTRAINED MJ 90° BEND
10. 6" DI TEE
11. 6" PLUG VALVE
12. 6" X 8" REDUCING DI 90° BEND
13. RESIDUALS PUMP
14. 8" FLANGE COUPLING ADAPTER
15. 8" CHECK VALVE
16. 6" DI PIPE
17. 6" DI 90° BEND
18. 8" PLUG VALVE (FOREGROUND)
19. 8" WALL PIPE W/COLLAR FLG X MJ TAPPED FOR STUDS (FOREGROUND)
20. 8" DI RESTRAINED MJ 90° BEND (FOREGROUND)
21. 8" WALL PIPE W/COLLAR MJ X MJ TAPPED FOR STUDS (FOREGROUND)
22. 42" DI RESTRAINED MJ PIPE
23. 6" WALL PIPE W/COLLAR MJ X FLG TAPPED FOR STUDS
24. 6" WALL PIPE W/COLLAR FLG X FLG TAPPED FOR STUDS
25. 6" DI RESTRAINED MJ 22 1/2° BEND
26. 6" DI RESTRAINED 45° BEND, MJ X PE
27. 6" DI RESTRAINED 11 1/4° BEND, MJ X PE
28. 2'-0" X 1'-3" SLIDE GATE W/HANDWHEEL OPERATOR
29. 6" DI RESTRAINED PIPE
30. COMPACTED SAND FILL - SEE SHEET S-06-309

GENERAL NOTES:

1. PLATE SETTLER CARTRIDGE SUPPORT SYSTEM AS REQUIRED BY THE MANUFACTURER.
2. REMOVE FOOTING PROJECTION AT RESTRAINED MECHANICAL JOINTS AS REQUIRED.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
MARY C. CARR
23455
LICENSED PROFESSIONAL ENGINEER
3/10/11

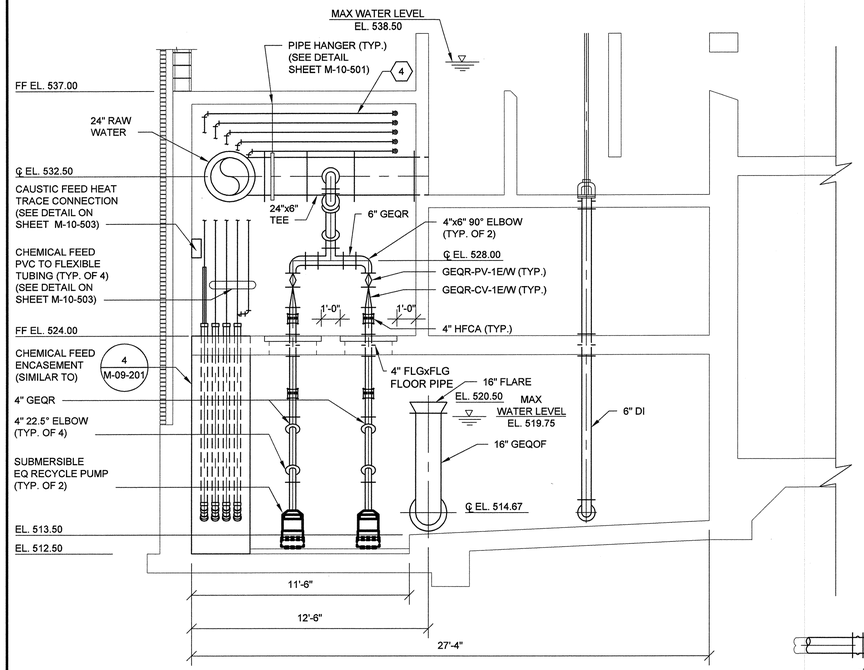
REVISIONS			
NO.	BY	DATE	REMARKS

DES MRC
DWN JAB
CKD RCC

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
PT / GAC BUILDING
SECTIONS III
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-303
CAD REF. NO. 3789-M-06-303

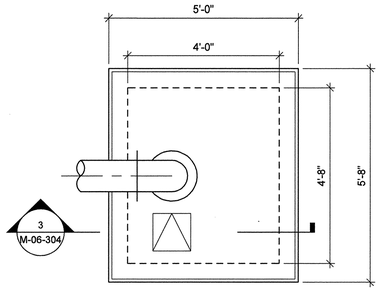


1 PT / GAC BUILDING EQ BASIN - SECTION

SCALE: 1/4"=1'-0"

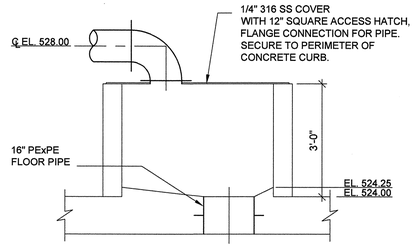
4 RAPID MIX CHEMICAL FEED - SECTION

SCALE: 1/4"=1'-0"



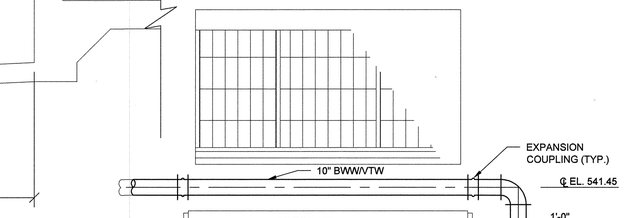
1 BWW/VTW AIR GAP - PLAN

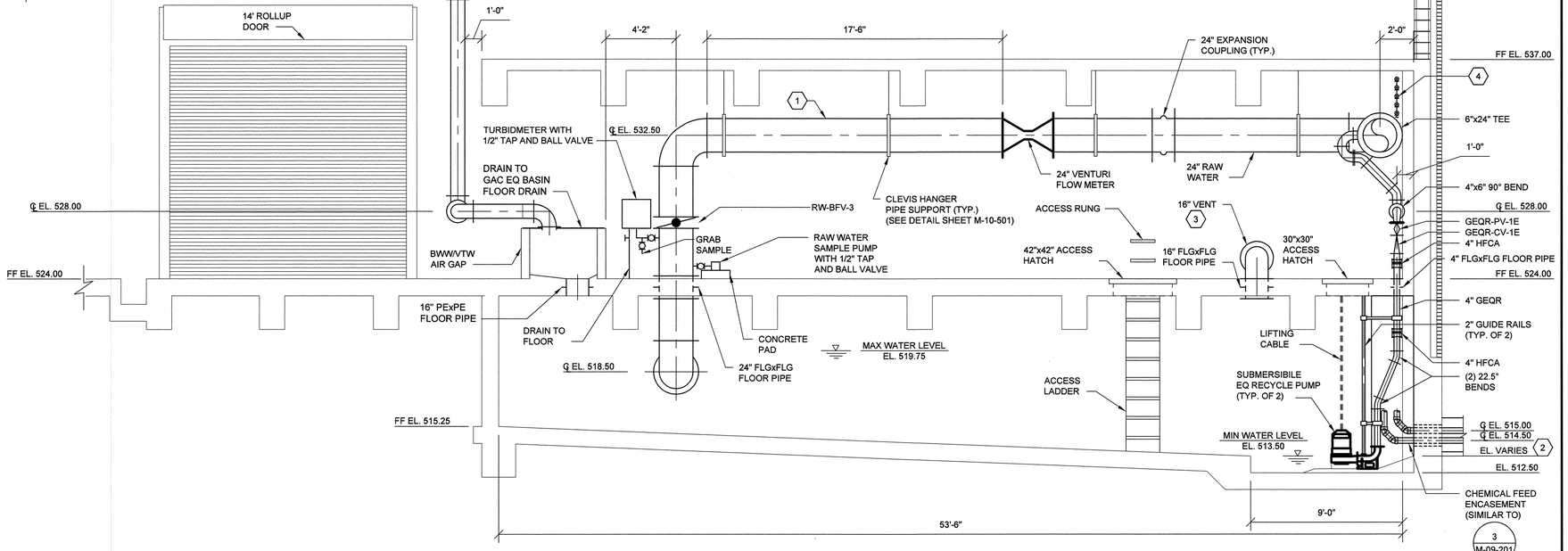
NOT TO SCALE



3 BWW/VTW AIR GAP - SECTION

NOT TO SCALE





2 PT / GAC BUILDING EQ BASIN - SECTION

SCALE: 1/4"=1'-0"

SHEET KEYNOTES:

1. 24" VENTURI FLOW METER REQUIRES A MINIMUM OF 5 PIPE DIAMETERS UPSTREAM. NO DOWNSTREAM STRAIGHT PIPE IS REQUIRED.
2. CENTERLINE ELEVATION TO BE VERIFIED BY EQUIPMENT MANUFACTURER.
3. PROVIDE 16" VENT WITH MINIMUM OF 2'-0" CLEARANCE TO OUTSIDE GRADE. PROVIDE INSECT SCREEN ON OUTLET PER DETAIL ON SHEET M-10-501.
4. FIELD ROUTE THE FOLLOWING CHEMICAL FEED PIPING FROM THE MAINTENANCE ROOM FLOOR (EL. 524.00) THROUGH THE FLOOR OF THE RAPID MIX ROOM (EL. 537.00):
   - 1" SODIUM HYPOCHLORITE
   - 1" COPPER SULFATE / POWDERED ACTIVATED CARBON
   - 1" CAUSTIC
   - 1" FERRIC SULFATE
   - 1" HYBRID COAGULANT

   CONNECT 1" PUSH WATER TO CHEMICAL FEED (SEE SHEET P-06-602). SEE THIS SHEET FOR CHEMICAL FEED PIPING AT THE RAPID MIX, WITH 1" COUPLE AND BALL VALVE.
5. FIELD ROUTE CHEMICAL FEED PIPES FROM FLOOR OF RAPID MIX AREA TO RAPID MIX BASIN.
6. MOUNT DIFFUSERS WITH 316 STAINLESS STEEL ANCHORS AND BRACKETS. MOUNT DIFFUSER AT 45 DEGREE ANGLE AWAY FROM WALL OF RAPID MIX BASIN IN THE DIRECTION OF FLOW.

GENERAL NOTES:

1. ALL PIPE HANGERS AND SUPPORTS ARE NOT SHOWN. GENERAL LOCATIONS ARE SHOWN ONLY FOR 24" RAW WATER LINE. CONTRACTOR SHALL PROVIDE ALL HANGERS AND SUPPORTS IN ACCORDANCE WITH SPECIFICATION 15055.

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
JASON M ABBOTT
25937
LICENSED PROFESSIONAL ENGINEER
5/16/11

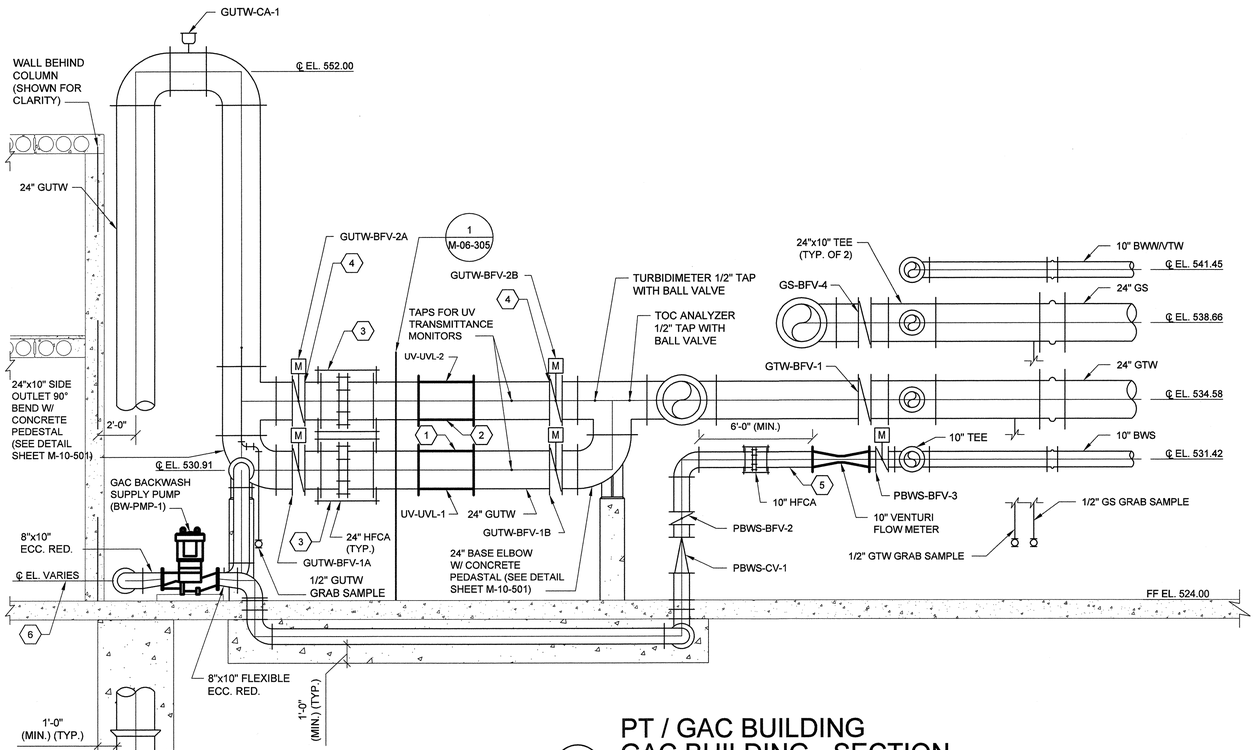
REVISIONS			
NO.	BY	DATE	REMARKS

DES JMA
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
PT / GAC BUILDING EQ BASIN SECTIONS
SCALE: 1/4" = 1'-0"

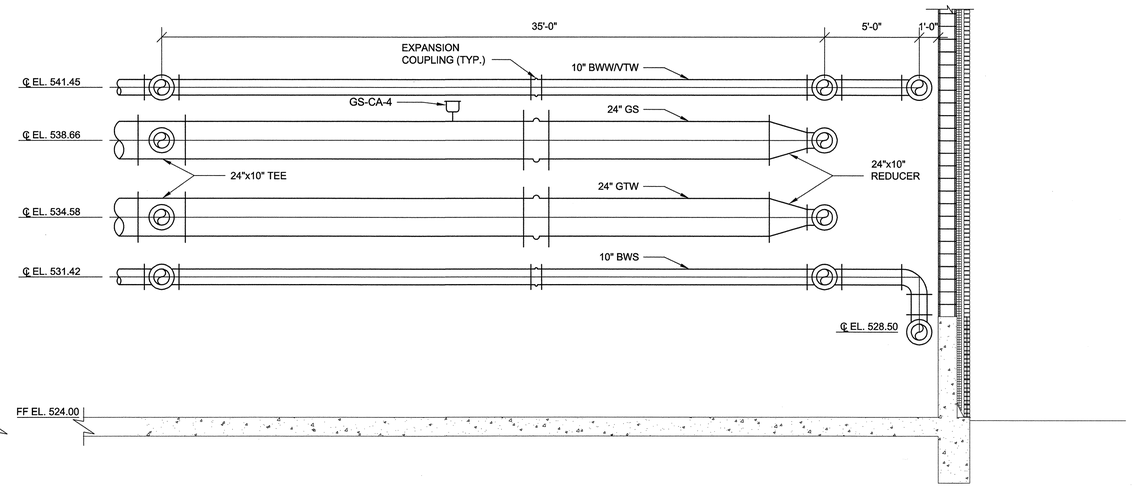
ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-304
CAD REF. NO. M-06-304



1 PT / GAC BUILDING GAC BUILDING - SECTION

SCALE: 1/4"=1'-0"

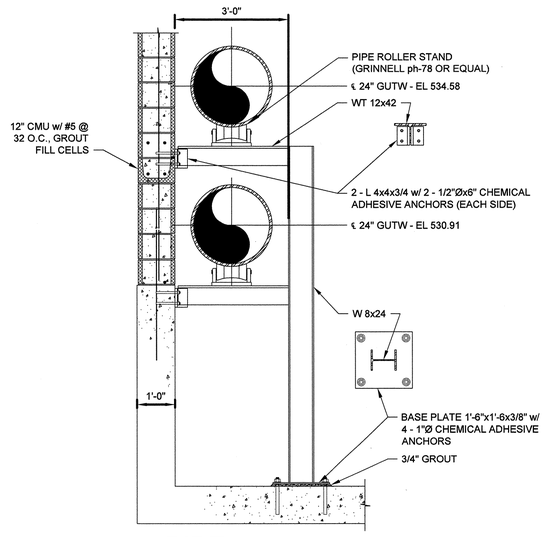
0 2' 4' 8'



2 PT / GAC BUILDING GAC BUILDING - SECTION

SCALE: 1/4"=1'-0"

0 2' 4' 8'



1 PIPE SUPPORT DETAIL

SCALE: 1/2"=1'-0"

0 1' 2' 4'

⬡ SHEET KEYNOTES:

1. RELOCATE TWO 24" BUTTERFLY VALVES, ACTUATORS, UV REACTOR NUMBER 1, PIPING, JOINTS, COUPLING AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE SHEET D-08-102. PIPING WILL NEED TO BE MODIFIED TO FIT NEW LOCATION.
2. RELOCATE UV REACTOR NUMBER 2, PIPING, JOINTS, COUPLING AND ALL APPURTENANCES FOR A COMPLETE OPERATIONAL UV SYSTEM. SEE SHEET D-08-102. PIPING WILL NEED TO BE MODIFIED TO FIT NEW LOCATION.
3. EXISTING COUPLINGS RELOCATED WITH UV SYSTEMS.
4. PROVIDE SPOOL PIECE BETWEEN GUTW-BFV-2A AND GUTW-BFV-2B UNTIL UV-UVL-2 AND ASSOCIATED PIPING ARE INSTALLED. DELIVER SPOOL PIECE TO OWNER ONCE UV-UVL-2 IS INSTALLED.
5. 10" VENTURI FLOW METER REQUIRES A MINIMUM OF 7 PIPE DIAMETERS UPSTREAM. NO DOWNSTREAM STRAIGHT PIPE IS REQUIRED.
6. CENTERLINE ELEVATION TO BE VERIFIED BY EQUIPMENT MANUFACTURER.

GENERAL NOTES:

1. ALL PIPE HANGERS AND SUPPORTS ARE NOT SHOWN. CONTRACTOR SHALL PROVIDE ALL HANGERS AND SUPPORTS IN ACCORDANCE WITH SPECIFICATION 15055.
2. PROVIDE EXPANSION COUPLINGS AT OR NEAR EXPANSION JOINTS IN BUILDING. GENERAL LOCATIONS SHOWN. SHALL NOT INTERFERE WITH FABRICATED PIPE RACK LOCATIONS.

0 1/2 1

DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY JASON M ABBOTT 25937 LICENSED PROFESSIONAL ENGINEER 3/15/11

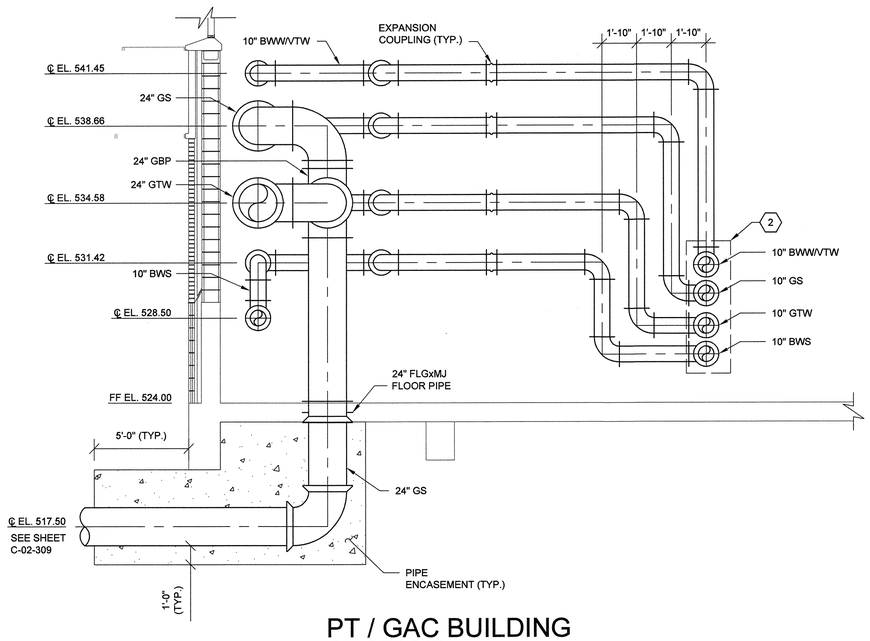
REVISIONS			
NO.	BY	DATE	REMARKS

DES JHC
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

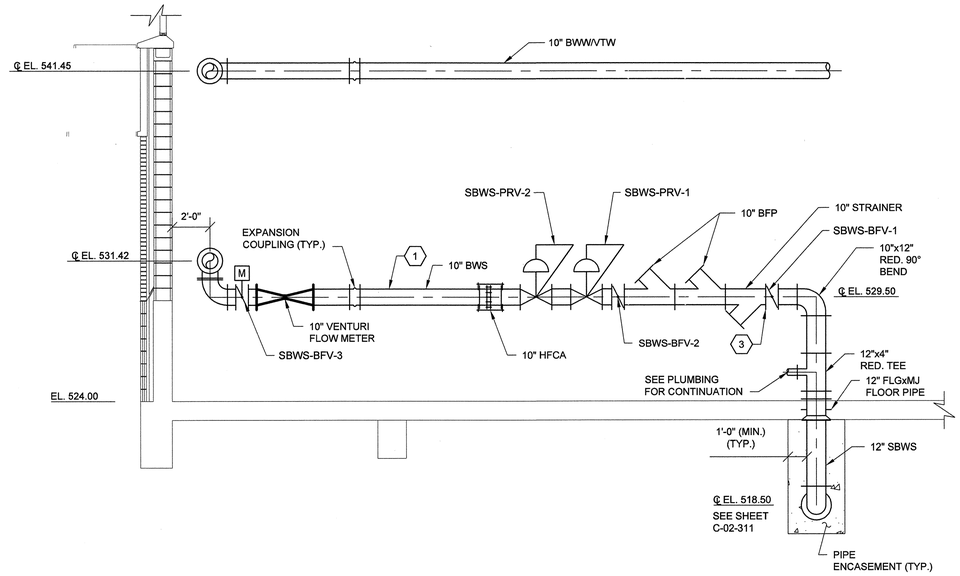
MECHANICAL
PT / GAC BUILDING GAC SECTIONS I
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-305
CAD REF. NO. M-06-305



1 PT / GAC BUILDING SECTION

SCALE: 1/4"=1'-0"



2 PT / GAC BUILDING SECTION

SCALE: 1/4"=1'-0"

TABLE 1:
APPROXIMATE 10" CENTERLINE ELEVATIONS ⟨2⟩

CENTERLINE ELEVATION	OPTION 1 (CALGON PRESSURE VESSEL)	OPTION 2 (SIEMENS PRESSURE VESSEL)
BWW/VTW	531.27	532.13
GS	529.76	530.29
GTW	528.06	528.25
BWS	526.55	526.21

⟨⟩ SHEET KEYNOTES:

1. 10" VENTURI FLOW METER REQUIRES A MINIMUM OF 9 PIPE DIAMETERS UPSTREAM. NO DOWNSTREAM STRAIGHT PIPE IS REQUIRED.
2. CENTERLINE ELEVATIONS OF 10" LINES SHALL BE VERIFIED AND COORDINATED WITH SELECTED GAC PRESSURE VESSEL MANUFACTURER.
3. INSTALL TEMPORARY 10" BLIND FLANGE ON VALVE SO THAT PLUMBING CONNECTION CAN BE UTILIZED PRIOR TO THE 10" SBWS BEING PLACED IN SERVICE.

GENERAL NOTES:

1. ALL PIPE HANGERS AND SUPPORTS ARE NOT SHOWN. CONTRACTOR SHALL PROVIDE ALL HANGERS AND SUPPORTS IN ACCORDANCE WITH SPECIFICATION 15055.
2. PROVIDE EXPANSION COUPLINGS AT OR NEAR EXPANSION JOINTS IN BUILDING. GENERAL LOCATIONS SHOWN. SHALL NOT INTERFERE WITH FABRICATED PIPE RACK LOCATIONS.

0 1/2 1
DRAWING IS NOT TO SCALE IF THIS DOES NOT MEASURE 1 INCH.

MALCOLM PIRNIE
GRW
ENGINEERS - ARCHITECTS - PLANNERS

STATE OF KENTUCKY
JASON M ABBOTT
29937
LICENSED PROFESSIONAL ENGINEER
3/18/11

REVISIONS			
NO.	BY	DATE	REMARKS

DES JHC
DWN PJW
CKD CMW

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT IMPROVEMENTS

MECHANICAL
PT / GAC BUILDING GAC SECTIONS II
SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET
DATE MARCH, 2011
SHEET M-06-306
CAD REF. NO. M-06-306