

ENCLOSURE 6



**US Army Corps
of Engineers**

Huntington District

Construction Plans

BOLIVER DAM

MAGNOLIA, OH

MAGNOLIA LEVEE PIPE RELINING

5 PART 10-31

JUNE 2011



EPM No. 20.—Where frequent stream crossings are necessary, temporary culverts or bridges shall be provided.



EPM No. 21.—The Contractor shall perform all work in a manner to prevent any interference or disturbance to the safe passage and spawning of game fish.



EPM No. 22.—The Contractor shall maintain all excavations, embankments, stockpiles, roads, plant sites, waste areas, borrow areas, and all other work areas within or without the project boundaries free from dust which would cause a hazard or nuisance to others.



EPM No. 23.—Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment or equal methods shall be provided to control dust.



EPM No. 24.—Except as restricted by the Fire Control Officer, burning shall assure continuous, rapid and complete combustion. To meet this requirement, burning piles shall be kept under constant attendance by heavy equipment and operators who shall stack or push in burning piles from the edges, or shall feed from additional combustibles.



EPM No. 25.—Burn piles and individual pieces of burned material shall not be allowed to smolder.



EPM No. 26.—High heat burning shall be done in burning boxes, portable incinerators, open pits or trenches.



EPM No. 27.—Waste materials shall not be dumped on slopes



EPM No. 28.—The pattern of drilling and the depth, size and loading of holes along the outer edge of benched cuts shall be such as to provide retention ridges of rock to act as a restraint against loss of material down the slope.



EPM No. 28.—The pattern of drilling and the depth, size and loading of holes along the outer edge of benched cuts shall be such as to provide retention ridges of rock to act as a restraint against loss of material down the slope. (See DO for proper procedure.)



EPM No. 29.—Excavation of blasted material shall be conducted in such a manner that operation of excavation equipment does not contribute to loss of material down the slope.



EPM No. 29.—Excavation of blasted material shall be conducted in such a manner that operation of excavation equipment does not contribute to loss of material down the slope. (See D0 for proper procedure.)



EPM No. 39.—Full U-blades shall be used on dozers excavating on slopes



EPM No. 30.—Full U-blades shall be used on dozers excavating on slopes. (See DO for proper procedure.)



EPM No. 31.—In other than solid rock, the tops of excavated slopes shall be rounded off as shown on the contract drawings.



EPM No. 32.—Loose rocks, cobbles and boulders falling outside the finished slopes shall be removed where operations for removal of such material will not deface the landscape.



US Army Corps
of Engineers®
Huntington District

[illegible]

U.S. ARMY CORPS OF ENGINEERS HUNTINGTON DISTRICT HUNTINGTON, WEST VIRGINIA	DESIGNED BY: BNL		DATE: 06/03/2011
	DRAWN BY: BNL	CAD BY: DHW	SOLICITATION NO.:
	SUBMITTED BY:		CONTRACT NO.:
	PLOT SCALE: 2:1		FILE NUMBER:
	SIZE:	FILE NAME:	
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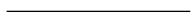
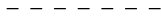
IDY CREEK OF TUSCAWARAS RIVER
 BOLIVAR, OH
 BOLIVAR DAM
 MAGNOLIA LEVEE PIPE RELINING
 GENERAL ENVIRONMENTAL
 PROTECTION MEASURES
 SHEET 1

SHEET
IDENTIFICATION
G1002

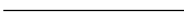
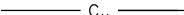
SANITARY

_____	SANITARY SEWER - EXISTING
_____	SANITARY SEWER - PROPOSED
_____ SSFM _____	FORCE MAIN
Ⓢ	SANITARY MANHOLE

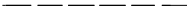
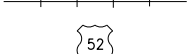
DRAINAGE

	STORM SEWER - EXISTING
	STORM SEWER - PROPOSED
	FORCE MAIN
	DITCH OR SWALE
	SURFACE DRAINAGE FLOW
	CATCH BASIN OR DROP INLET
	STORM MANHOLE
	CULVERT
	CULVERT END
	HEADWALL
	DIRECTION OF FLOW
	PIPE TO BE PLUGGED AND ABANDONED
	PIPE TO BE REMOVED
	MANHOLE OR CULVERT OUTLET STRUCTURE
	RELIEF WELL

UTILITIES

	WATER LINE - EXISTING
	WATER LINE - PROPOSED
	GAS LINE - EXISTING
	GAS LINE - PROPOSED
	FIBER OPTIC EXISTING
	FIBER OPTIC PROPOSED
	CABLE TV - EXISTING
	CABLE TV - PROPOSED/RELOCATED/TO BE RAISED
	ELECTRIC - EXISTING
	ELECTRIC - PROPOSED/RELOCATED/TO BE RAISED
	TELEPHONE/COMMUNICATION - EXISTING
	TELEPHONE/COMMUNICATION - PROPOSED/RELOCATED/TO BE RAISED
	POWER LINE TO BE ABANDONED
	VALVE
	GAS METER
	WATER METER
	ELECTRIC MANHOLE

ROADS AND RAILWAYS

	CURB
	ROAD
	UNIMPROVED ROAD
	TRAIL
	RAILROAD
	RAILROAD
	US HIGHWAY
	STATE HIGHWAY
	INTERSTATE HIGHWAY
	GUARDRAIL

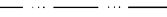
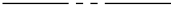
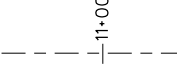
EARTHWORK

	IN SITU ROCK
	EXISTING GROUND
	FINISHED GRADE
	UNIFORM SLOPE DESIGNATION
	STONE SLOPE PROTECTION LIMITS (PLAN)
	CONTAMINATED SOIL

SURVEY SYMBOLS

	IRON PIN AND CAP
	RR SPIKE RAILROAD SPIKE
	HORIZONTAL-HORIZONTAL/VERTICAL CONTROL
	SPOT ELEVATION LOCATOR
	LIGHT ON POWER POLE
	GPS MONUMENT
RAISED 	CONCRETE MONUMENT
	CONTROL POINT
SED 	MONUMENT
	CORE DRILL HOLE UNDRILLED
LOCATED/ 	CORE DRILL HOLE DRILLED

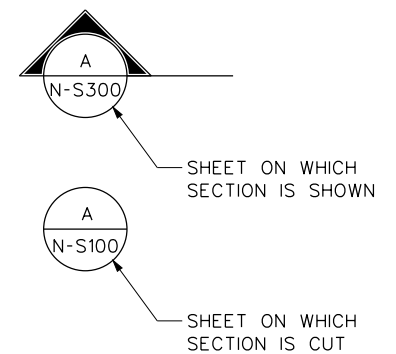
MAPPING

	EDGE OF WATER
	SWAMP
	CORPORATE BOUNDARY LIMITS
	FENCE
	TREELINE
	BRUSH LINE
	TREE / BUSH
	TREE WITH BASE
	TANKS
	POWER POLE
	POST
	MAIL BOX
	TRAFFIC SIGNAL
	TRANSFORMER
	LIGHT POLE
	FIRE HYDRANT
	SIGN POST
	CENTERLINE
	GUY WIRE
	STREET LIGHT
	FLOOD GATE
	TRANSMISSION TOWER
	WOODEN HUB
	PHANTOM LINE
	GROUT
	GRAVEL
	CONCRETE
	CENTERLINE, BASELINE OR AXIS
	RIGHT OF WAY
	CONTRACTOR WORK LIMITS
	GOVERNMENT BOUNDARY
	SILT FENCE
	CONTRACTOR WORK LIMIT COORDINATE
	SEEPAGE BLANKET COORDINATE

ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE	OC	ON CENTER
ACMP	ALUMINIZED CORRUGATED METAL PIPE	OD	OUTSIDE DIAMETER
ALT	ALTERNATE	OF	OUTSIDE FACE
ALUM	ALUMINUM	OP	OVERHEAD POWER
AVE	AVENUE	OPG	OPENING
AWWA	AMERICAN WATER WORKS ASSOC.	OPP	OPPOSITE
@	AT	OZ	OUNCE
B,BOT	BOTTOM	PC	POINT OF CURVATURE
BM	BENCH MARK	PI	POINT OF INTERSECTION
		PL	PLATE OR PROPERTY LINE
C	CHANNEL	POB	POINT OF BEGINNING
CC	CENTER TO CENTER	POE	POINT OF ENDING
CTRS	CENTERS	POT	POINT OF TANGENCY
@	CENTERLINE	PROJ	PROJECTION
CJ	CONSTRUCTION JOINT	PSI	POUNDS PER SQUARE INCH
CL, CLR	CLEAR	PSF	POUNDS PER SQUARE FOOT
CMP	CORRUGATED METAL PIPE	PVC	POLYVINYL CHLORIDE PIPE
COL	COLUMN		
CONC	CONCRETE	QUAN	QUANTITY
CONST	CONSTRUCTION		
CONT	CONTINUOUS	R	RADIUS
CR	COUNTY ROUTE	RCP	REINFORCED CONCRETE PIPE
CRS	CORROSION RESISTANCE STEEL	RD	ROAD
CWL	CONTRACTOR'S WORK LIMITS	REINF	REINFORCING
CY	CUBIC YARD	REQ'D	REQUIRED
		RGC	RIGID GALVANIZED CONDUIT
DCIP	DUCTILE CAST IRON PIPE	RF	ROOF FRAME
DI	DROP INLET	RT	RIGHT
DIA	DIAMETER		
DIM	DIMENSION	S	SOUTH
DWG	DRAWING	SAN	SANITARY
		SAS	SANITARY SEWER
E	EAST	SECT	SECTION
EA	EACH	SF	SQUARE FEET
EF	EACH FACE	SHT	SHEET
EJ	EXPANSION JOINT	SIM	SIMILAR
EJFS	EXPANSION JOINT FILLER STRIP	SPC	SPACES
EL, ELEV	ELEVATION	SQ	SQUARE
ELE	ELECTRICAL	SR	STATE ROUTE
EOR	EDGE OF ROAD	SS	STAINLESS STEEL, SIDE SLOPE
		ST	STORM
EQ	EQUAL	STA	STATION
EW	EACH WAY	STD	STANDARD
EX, EXIST	EXISTING	STIR	STIRRUPS
EXP	EXPANSION	STL	STEEL
		STR	STRAIGHT, STRUCTURAL
FIN	FINISHED	SY	SQUARE YARD
FT	FEET, FOOT	SYM	SYMMETRICAL
GA	GAUGE OR GAGE	T	TOP OR TREAD
GALV	GALVANIZED	TOC	TOP OF CONCRETE, TOP OF CASTING
GRD	GROUND	TOS	TOP OF SLAB
		TOE	TOP OF EXCAVATION
H, HORIZ	HORIZONTAL	TYP	TYPICAL
HEX HD	HEXAGONAL HEAD		
HS	HIGH STRENGTH	UNO	UNLESS NOTED OTHERWISE
		UP	UNDERGROUND POWER
IF	INSIDE FACE		
IJ	ISOLATION JOINT	V, VERT	VERTICAL
INV	INVERT	VAR	VARIES
IP	IRON PIN	VC	VERTICAL CURVE
		VPT	VERTICAL POINT OF TANGENCY
JT	JOINT	VPC	VERTICAL POINT OF CURVATURE
		VPI	VERTICAL POINT OF INTERSECTION

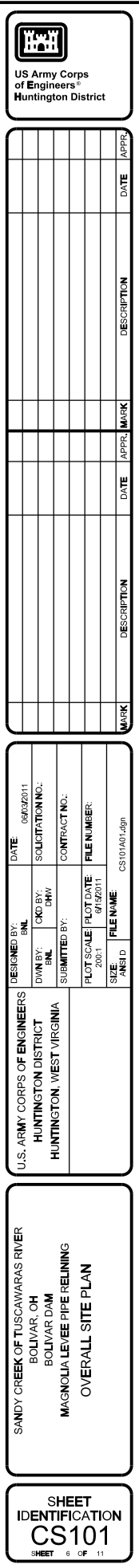
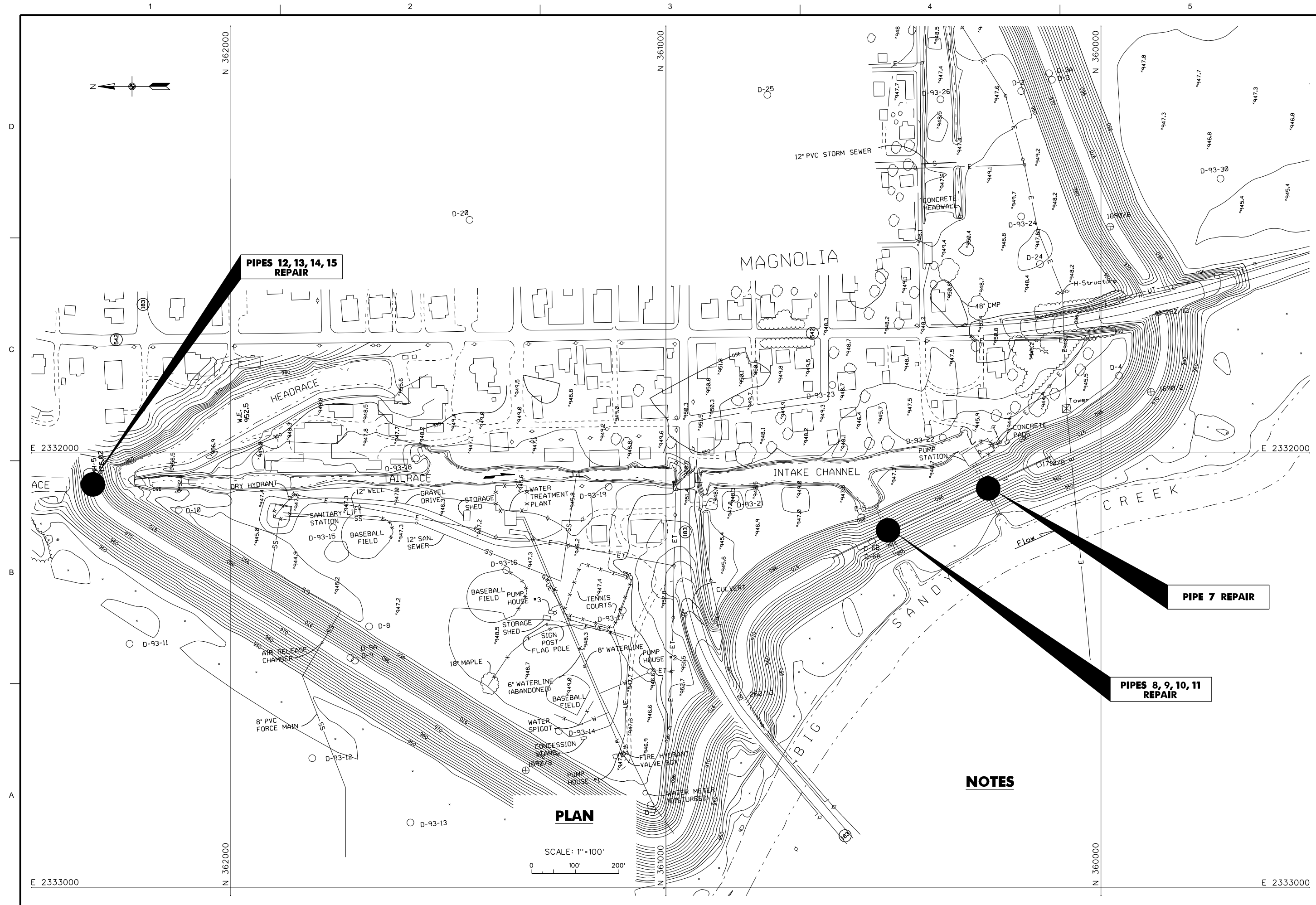
SECTION DESIGNATIONS

[illegible]

HUNTINGTON DISTRICT		SOLICITATION NO.:	
HUNTINGTON, WEST VIRGINIA		CONTRACT NO.:	
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BNL	DHW	PLOT SCALE:	PLOT DATE:
SUBMITTED BY:		1"=500'	11/1/11
SIZE:	ANSI D	FILE NAME:	
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BOLIVAR, OH
BOLIVAR DAM
MAGNOLIA LEEVE PIPE RELINING
GENERAL LEGEND

**SHEET
IDENTIFICATION
GI004**
SHEET 5 OF 11



[illegible]

- [illegible]

NOTES

1. CONTRACTOR SHALL NOT BLOCK ACCESS ROADS OUTSIDE OF CWL.
2. CWL INCLUDES AREAS ADJACENT TO THE PUMP STATION WHICH ARE BOUND BY CHAIN LINK FENCE AND/OR WALL. CONTRACTOR MAY NOT BLOCK ACCESS TO THIS AREA WHEN OPERATION OF THE PUMP STATION IS REQUIRED. MOVEMENT OF EQUIPMENT AND MATERIAL STORED IN THIS AREA MUST BE PERFORMED AT NO ADDITIONAL COST TO THE GOVERNMENT WHEN DIRECTED BY THE COR.
3. DIMENSIONS MEASURED FROM CENTER OF EXISTING HEAD WALL WHERE APPLICABLE.

PLAN

SCALE: 1"=50'

0 50' 100'

PIPE 7 REPAIR

PIPES 8, 9, 10, 11 REPAIR

INTAKE CHANNEL

PUMP STATION

CULVERT

TENNIS COURTS

8" WATERLINE PUMP HOUSE

SANDY CREEK

Flow

EXISTING HEADWALL

CWL

CWL FOLLOWS TOP OF SLOPE

CWL FOLLOWS TOE OF LEVEE

CWL INCLUDES GATE WELL

FLOOD WALL

CONCRETE PADS

TOWER

UT

H-Structure

48" CMP

EXISTING ROAD PROVIDES ACCESS TO PIPE 7 REPAIR

CWL BOUNDED BY CHAIN LINK FENCE AND WALL. SEE NOTE 2.

ACCESS TO CWL. CWL EXTENDS TEN FEET EITHER DIRECTION FROM THE CENTERLINE OF THE EXISTING ROAD.

165ft

70ft

15ft

30ft

50ft

30ft

45ft

60ft

183

ET

N 361000

E 2333000

E 2332500

N 360500

N 360000

E 2332500

E 2333000

D-93-19

D-93-22

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CONCRETE PADS

TOWER

UT

H-Structure

48" CMP

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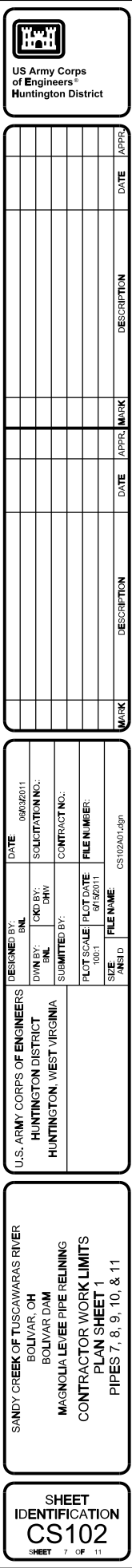
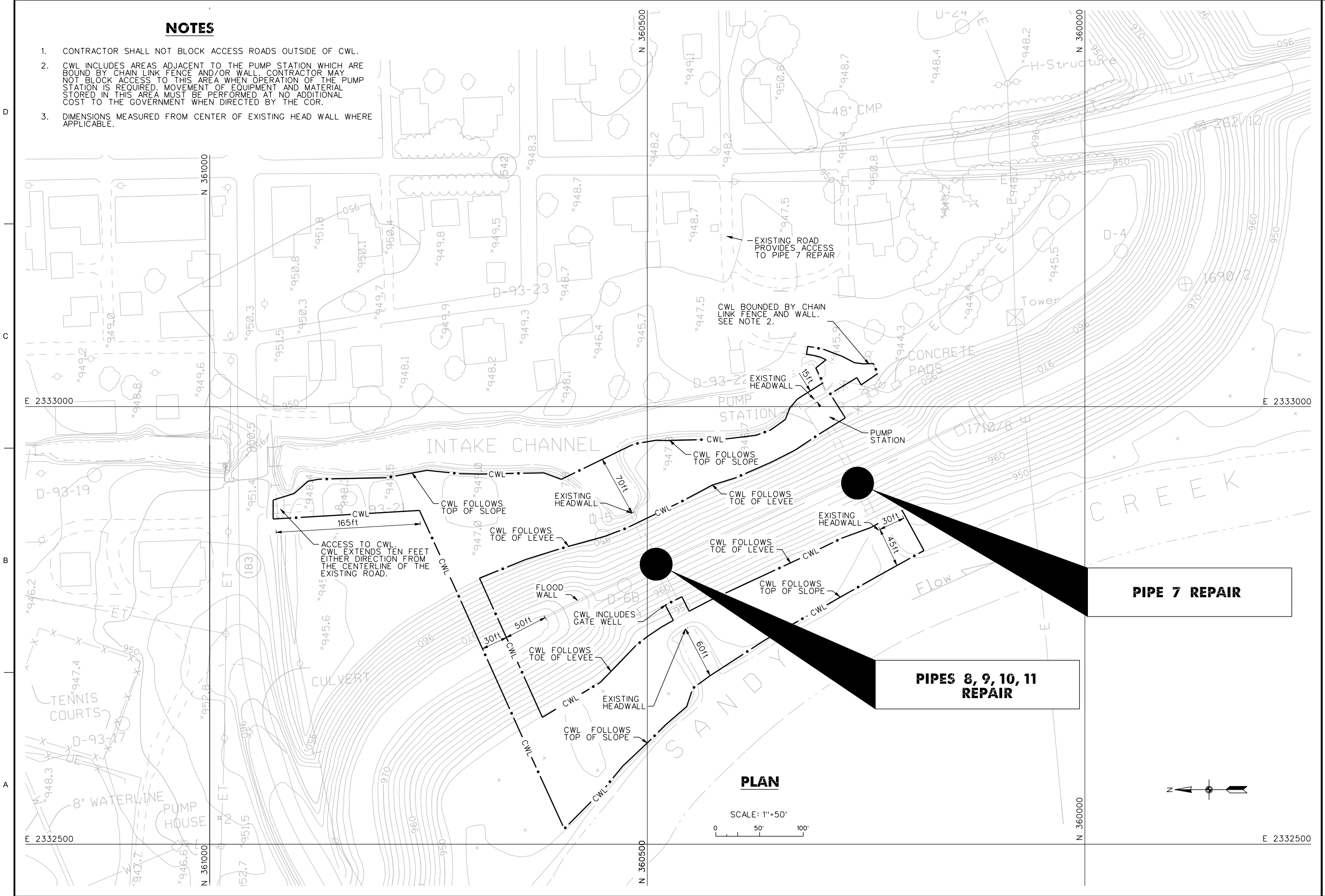
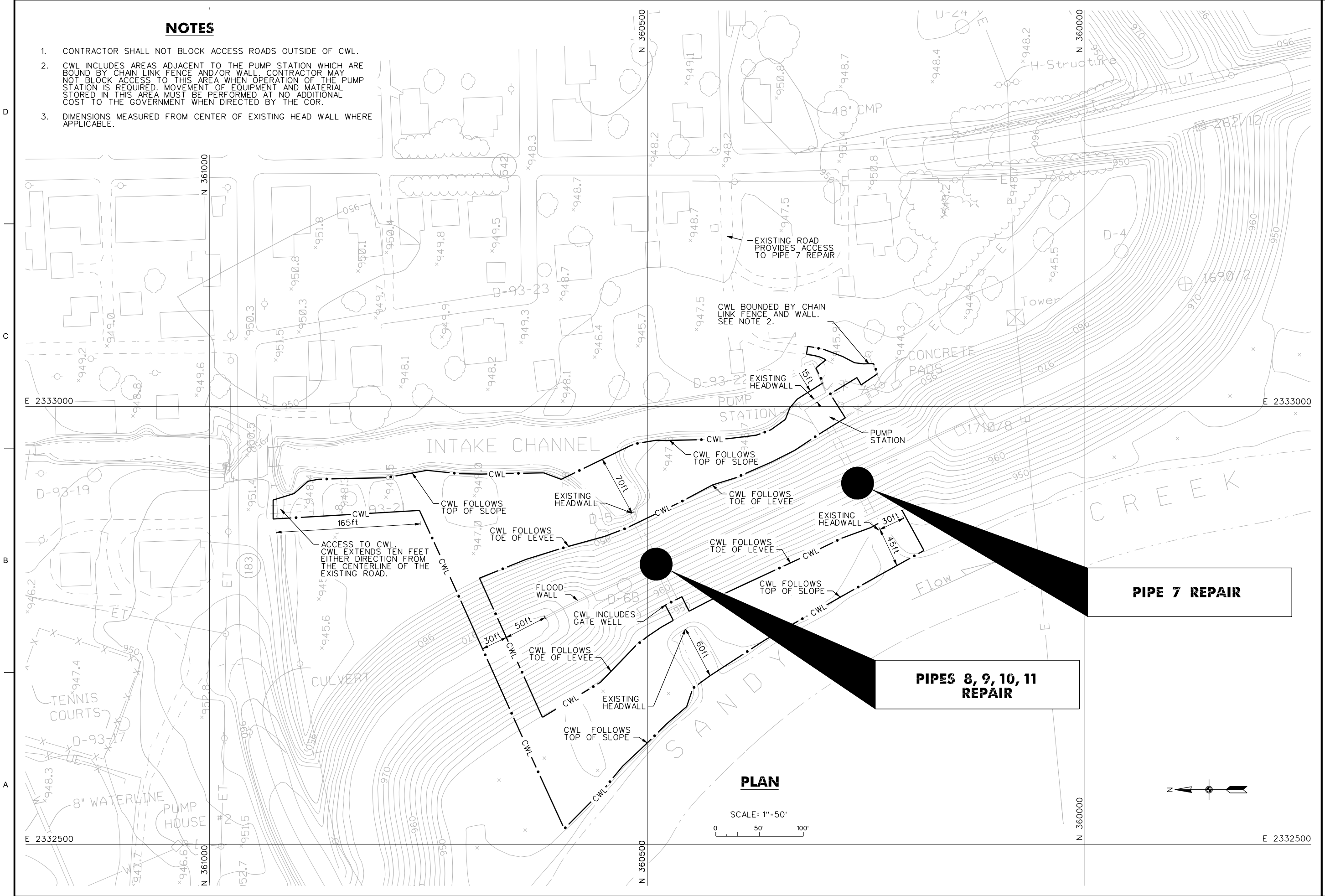
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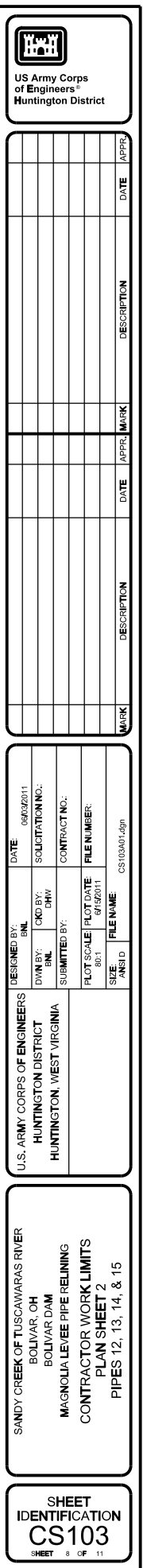
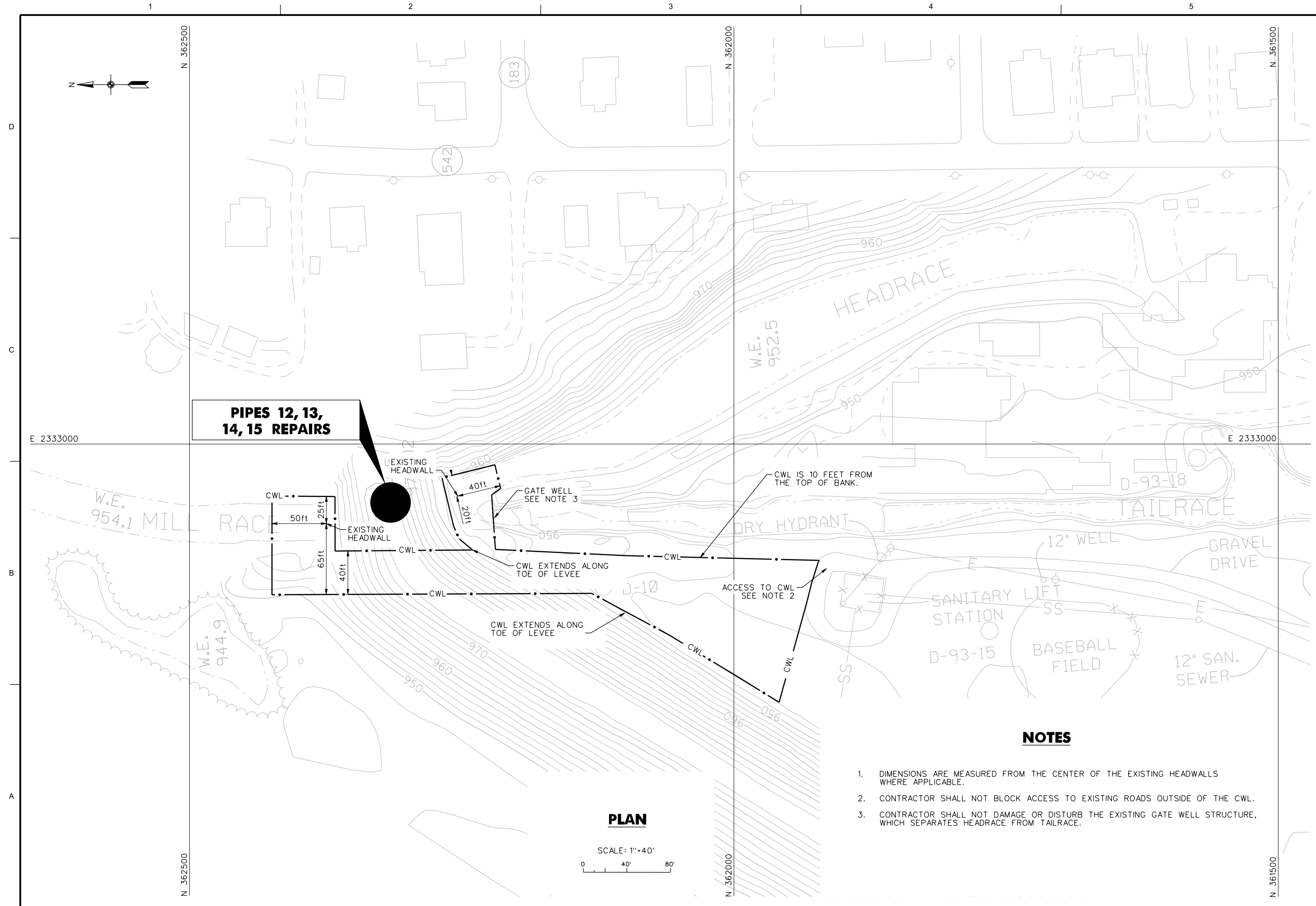


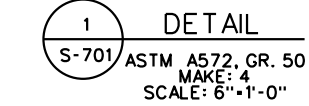
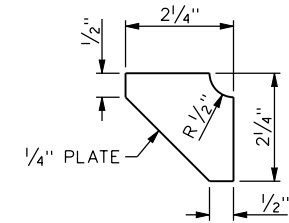
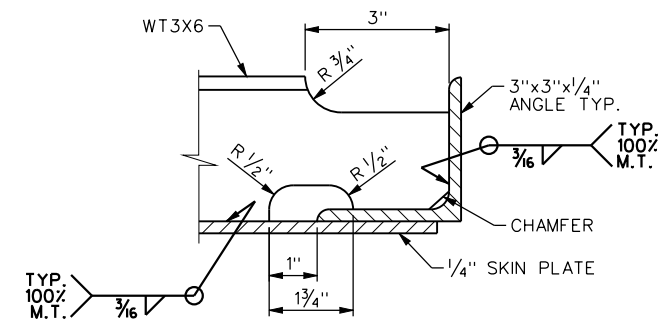
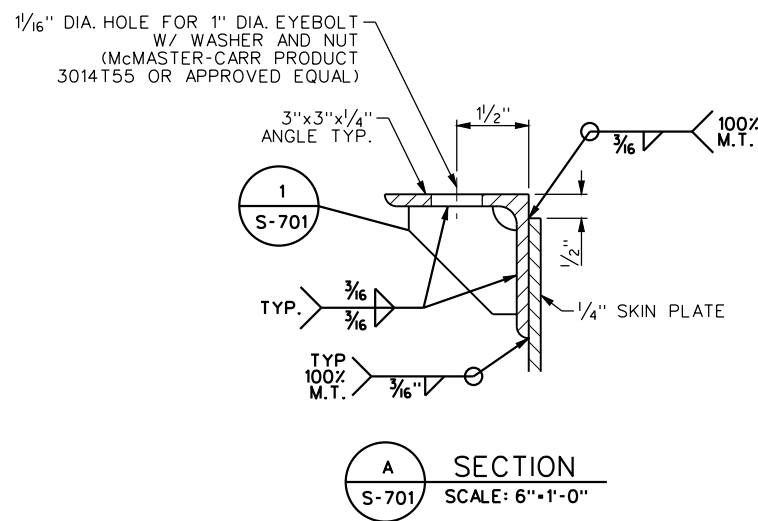
 US Army Corps of Engineers Huntington District		DATE 06/02/2011 SOLICITATION NO.: CONTRACT NO.:	
DESIGNED BY: BNL DWN BY: CMO BY: CHW SUBMITTED BY:		FILE NUMBER: PLOT SCALE: PLOT DATE 6/15/2011 SIZE: 100:1 FILE NAME:	
U.S. ARMY CORPS OF ENGINEERS HUNTINGTON DISTRICT HUNTINGTON, WEST VIRGINIA		CS1020401.dgn	

SANDY CREEK OF TUSCUMAWARAS RIVER BOLIVAR, OH BOLIVAR DAM MAGNOQUA LEVEE PIPE RELINING CONTRACTOR WORK LIMITS PLAN SHEET 1 PIPES 7, 8, 9, 10, & 11	
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SHEET IDENTIFICATION CS102	
SHEET 7 OF 11	

[illegible][illegible][illegible][illegible][illegible]





- GENERAL NOTES:
1. CONTRACTOR SHALL PROVIDE A TOTAL OF THREE (3) BULKHEADS. QUANTITIES SHOWN ARE FOR ONE (1) BULKHEAD.
 2. ALL MATERIAL SHALL MEET THE REQUIREMENTS OF ASTM A572, GR. 50.
 3. ALL WELDS SHALL BE MADE USING E70XX ELECTRODES.
 4. ALL THREE (3) BULKHEADS SHALL BE PAINTED PER SPECIFICATIONS SECTION 09 97 02.
 5. FRACTURE CRITICAL MEMBERS (DENOTED F.C.M.) - ALL MATERIAL FOR F.C.M. SHALL HAVE A MINIMUM AVERAGE CHARPY V-NOTCH (CVN) FRACTURE TOUGHNESS VALUE OF 25 FT-LB WHEN TESTED AT 40 DEGREES F. NO INDIVIDUAL CVN VALUE SHALL BE LESS THAN 20 FT-LB. TESTING SHALL BE IN ACCORDANCE WITH ASTM A673.

[illegible]

U.S. ARMY CORPS OF ENGINEERS		DESIGNED BY:	DATE
HUNTINGTON DISTRICT		CLC	
HUNTINGTON, WEST VIRGINIA		DRAWN BY:	SOLUTION NO.:
		JJK	FILE
		SUBMITTED BY:	CONTRACT NO.:
		PLOT SCALE:	FILE NUMBER:
		SIZE:	FILE NAME:
			frame.dgn

**SANDY CREEK OF TUSCAMARAS RIVER
BOLIVAR, OH
BOLIVAR DAM
MAGNOLIA LEVEE PIPE RELINING
BULKHEAD DETAILS**

**SHEET
IDENTIFICATION
S-701**
SHEET 10 OF 10