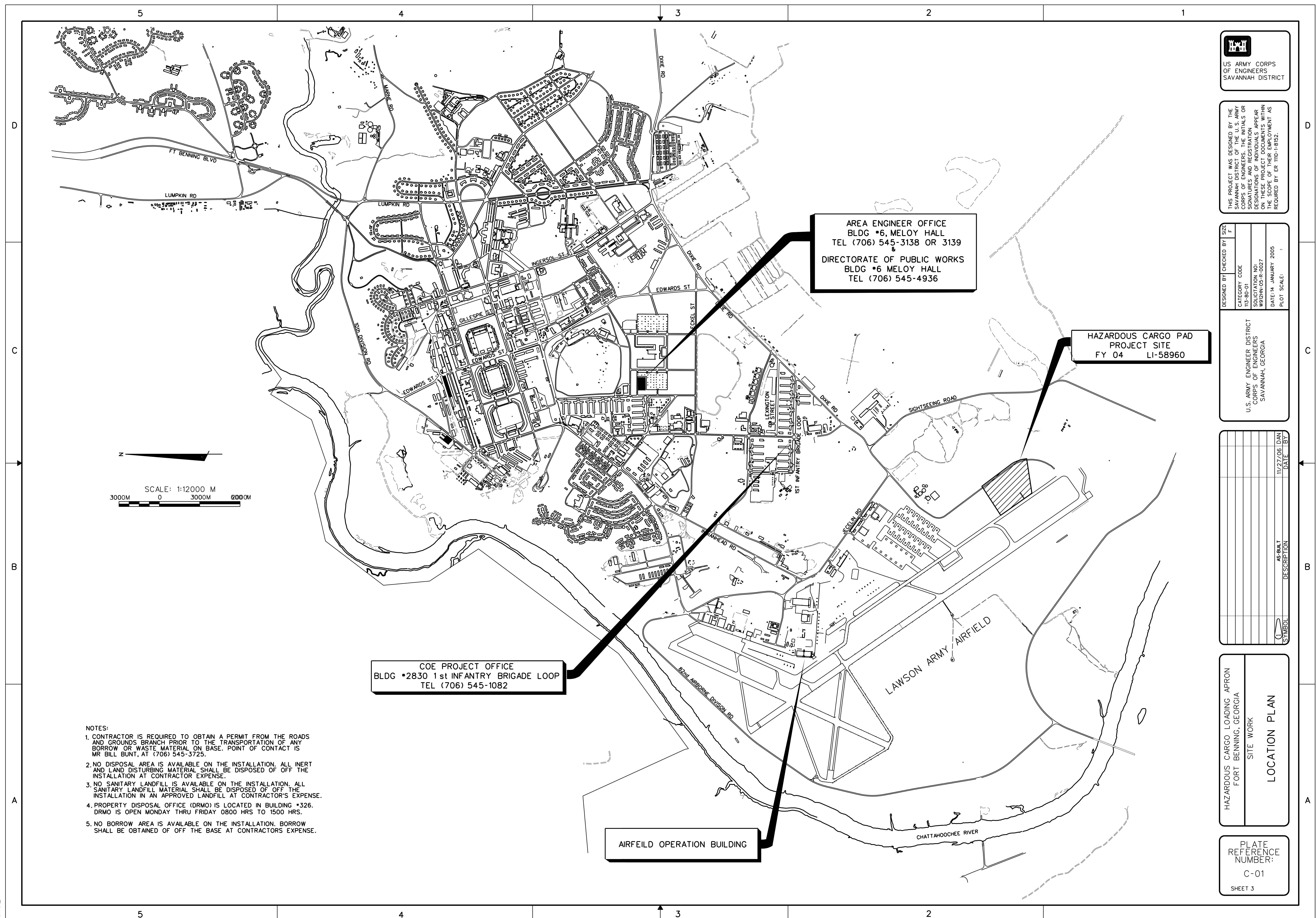




US ARMY CORPS
OF ENGINEERS
SAVANNAH DISTRICT

THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U. S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

DESIGNED BY	CHECKED BY	SIZE
CATEGORY CODE		F
113-80-01		
SOLICITATION NO:		
W912HN-05-R-0027		
DATE: 14 JANUARY 2005		
PLOT SCALE: :		

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

[illegible]

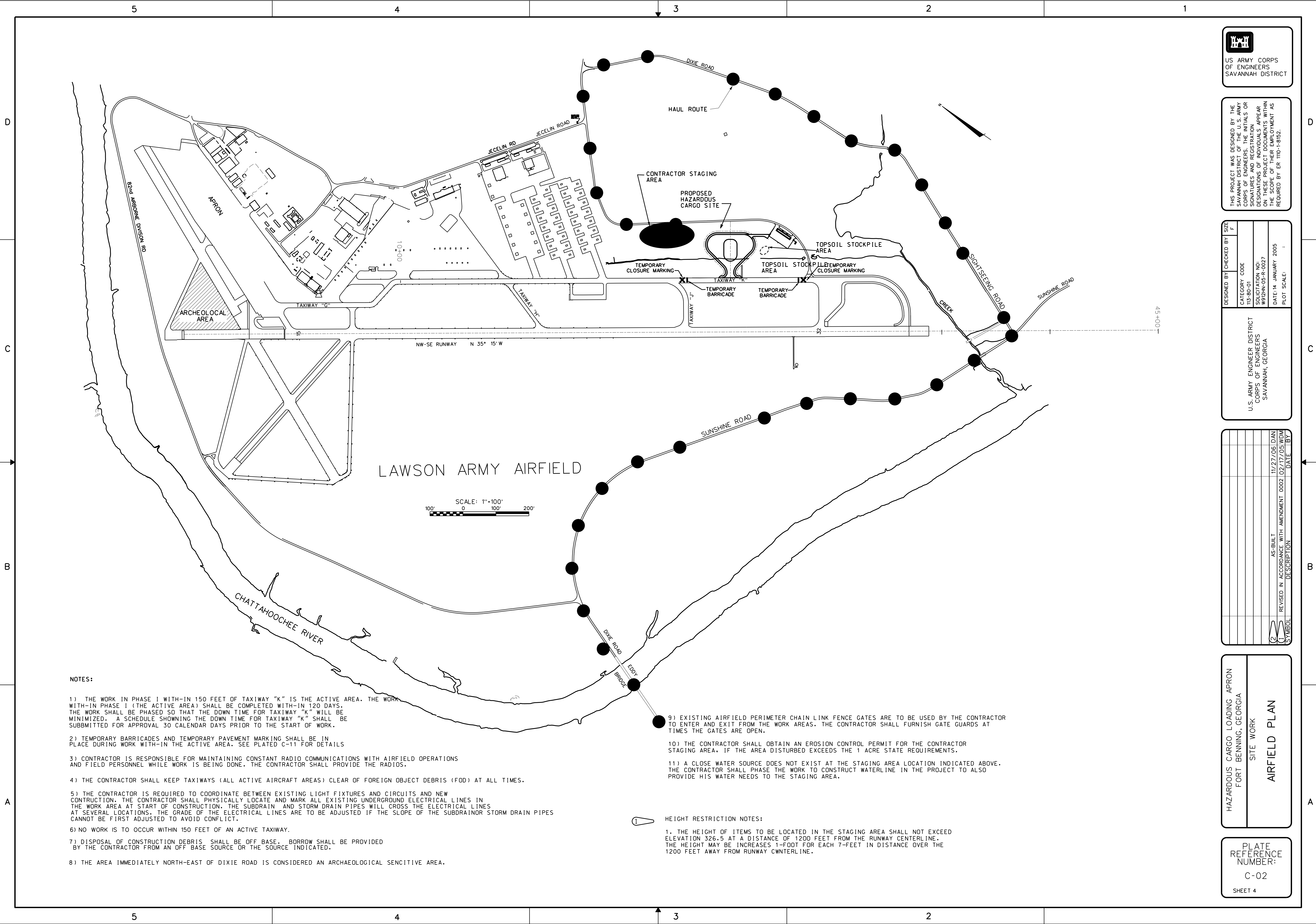
HAZARDOUS CARGO LOADING APRON FORT BENNING, GEORGIA	SITE WORK
LOCATION PLAN	

PLATE
REFERENCE
NUMBER:
C-01
SHEET 3

```

$$$DGNSPEC$$$
$$$SYSTIME$$$
$$$USERNAME$$$

```

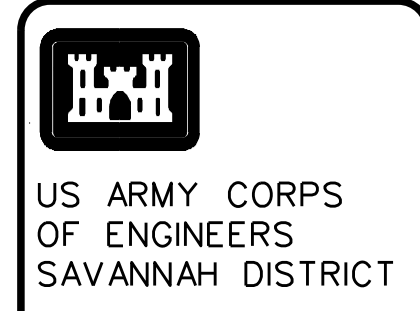


NOTES:

- 1) THE WORK IN PHASE I WITH-IN 150 FEET OF TAXIWAY "K" IS THE ACTIVE AREA. THE WORK WITH-IN PHASE I (THE ACTIVE AREA) SHALL BE COMPLETED WITH-IN 120 DAYS. THE WORK SHALL BE PHASED SO THAT THE DOWN TIME FOR TAXIWAY "K" WILL BE MINIMIZED. A SCHEDULE SHOWING THE DOWN TIME FOR TAXIWAY "K" SHALL BE SUBMITTED FOR APPROVAL 30 CALENDAR DAYS PRIOR TO THE START OF WORK.
- 2) TEMPORARY BARRICADES AND TEMPORARY PAVEMENT MARKING SHALL BE IN PLACE DURING WORK WITH-IN THE ACTIVE AREA. SEE PLATED C-11 FOR DETAILS
- 3) CONTRACTOR IS RESPONSIBLE FOR MAINTAINING CONSTANT RADIO COMMUNICATIONS WITH AIRFIELD OPERATIONS AND FIELD PERSONNEL WHILE WORK IS BEING DONE. THE CONTRACTOR SHALL PROVIDE THE RADIOS.
- 4) THE CONTRACTOR SHALL KEEP TAXIWAYS (ALL ACTIVE AIRCRAFT AREAS) CLEAR OF FOREIGN OBJECT DEBRIS (FOD) AT ALL TIMES.
- 5) THE CONTRACTOR IS REQUIRED TO COORDINATE BETWEEN EXISTING LIGHT FIXTURES AND CIRCUITS AND NEW CONSTRUCTION. THE CONTRACTOR SHALL PHYSICALLY LOCATE AND MARK ALL EXISTING UNDERGROUND ELECTRICAL LINES IN THE WORK AREA AT START OF CONSTRUCTION. THE SUBDRAIN AND STORM DRAIN PIPES WILL CROSS THE ELECTRICAL LINES AT SEVERAL LOCATIONS. THE GRADE OF THE ELECTRICAL LINES ARE TO BE ADJUSTED IF THE SLOPE OF THE SUBDRAINOR STORM DRAIN PIPES CANNOT BE FIRST ADJUSTED TO AVOID CONFLICT.
- 6) NO WORK IS TO OCCUR WITHIN 150 FEET OF AN ACTIVE TAXIWAY.
- 7) DISPOSAL OF CONSTRUCTION DEBRIS SHALL BE OFF BASE. BORROW SHALL BE PROVIDED BY THE CONTRACTOR FROM AN OFF BASE SOURCE OR THE SOURCE INDICATED.
- 8) THE AREA IMMEDIATELY NORTH-EAST OF DIXIE ROAD IS CONSIDERED AN ARCHAEOLOGICAL SENCITIVE AREA.

- 9) EXISTING AIRFIELD PERIMETER CHAIN LINK FENCE GATES ARE TO BE USED BY THE CONTRACTOR TO ENTER AND EXIT FROM THE WORK AREAS. THE CONTRACTOR SHALL FURNISH GATE GUARDS AT TIMES THE GATES ARE OPEN.
- 10) THE CONTRACTOR SHALL OBTAIN AN EROSION CONTROL PERMIT FOR THE CONTRACTOR STAGING AREA. IF THE AREA DISTURBED EXCEEDS THE 1 ACRE STATE REQUIREMENTS.
- 11) A CLOSE WATER SOURCE DOES NOT EXIST AT THE STAGING AREA LOCATION INDICATED ABOVE. THE CONTRACTOR SHALL PHASE THE WORK TO CONSTRUCT WATERLINE IN THE PROJECT TO ALSO PROVIDE HIS WATER NEEDS TO THE STAGING AREA.

- HEIGHT RESTRICTION NOTES:
1. THE HEIGHT OF ITEMS TO BE LOCATED IN THE STAGING AREA SHALL NOT EXCEED ELEVATION 326.5 AT A DISTANCE OF 1200 FEET FROM THE RUNWAY CENTERLINE. THE HEIGHT MAY BE INCREASES 1-FOOT FOR EACH 7-FEET IN DISTANCE OVER THE 1200 FEET AWAY FROM RUNWAY CWNTERLINE.



THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

DESIGNED BY	CHECKED BY
SIZE F	
CATEGORY CODE 13-80-01	
SOLICITATION NO: W912HN-05-R-0027	
DATE: 14 JANUARY 2005	
PLOT SCALE:	

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

SYMBOL	DESCRIPTION	DATE	BY
(1)	REVISED IN ACCORDANCE WITH AMENDMENT 0002	02/17/05	WDM
(2)	AS-BUILT	11/27/06	DAN

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA
SITE WORK
AIRFIELD PLAN

PLATE
REFERENCE
NUMBER:
C-02
SHEET 4

5	4	3	2	1		
GENERAL NOTES: EXISTING TOPOGRAPHY AND REMOVAL PLANS 1. TOPOGRAPHY SURVEY WAS ACCOMPLISHED BY SAVANNAH DISTRICT ON 12/2003. 2. COORDINATES SHOWN ARE BASED ON THE GEORGIA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83. ELEVATIONS SHOWN ARE BASED ON MEAN SEA LEVEL (M.S.L.) DATUM 1929. 3. TOPSOIL SHALL BE STRIPPED FROM THE SITE AND STOCKPILED. TOPSOIL SHALL BE SPREAD AND COMPACTED 4" THICK ON ALL GRADED AREAS. 4. CONTOUR INTERVALS ARE 1 FOOT ON EXISTING TOPOGRAPHY AND 1 FOOT ON NEW WORK. 5) CONCRETE PAVEMENT DESIGNATED TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED TO THE NEXT FULL JOINT AT NO COST TO THE GOVERNMENT. ASPHALT PAVEMENT SHALL BE SAW CUT FULL DEPTH PRIOR TO REMOVAL. SEE TOPOGRAPHY & REMOVAL PLANS AND UTILITY PLANS FOR REMOVAL ITEMS. 6) COORDINATE THE LIMITS OF REMOVAL WITH NEW WORK. 7) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF EXISTING UTILITY LOCATIONS AND ELEVATIONS. ANY SIGNIFICANT VARIATION FROM DRAWINGS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTING OFFICER FOR RESOLUTION. ANY UTILITIES ENCOUNTERED DURING PAVEMENT DEMOLITION OR EXCAVATION SHALL BE SUPPORTED IN PLACE. ANY UTILITIES DAMAGED BY THE CONTRACTOR THAT ARE TO REMAIN SHALL BE REPLACED, IN KIND, AT NO COST TO THE GOVERNMENT.		CIVIL ABBREVIATION ASP ASPHALT PAVEMENT CB CATCH BASIN EQ EQUAL FF FINISHED FLOOR FG FINISHED GRADE FFE FINISHED FLOOR ELEVATION FFEL FINISHED FLOOR ELEVATION INV INVERT LO LOW POINT MH MANHOLE PKG PACKAGE PVI POINT OF VERTICAL INTERSECT PVT POINT OF VERTICAL TANGENT PVC POINT OF VERTICAL CURVATURE RD ROAD R/W RIGHT OF WAY TP TOP OF PAVEMENT TRMT TREATMENT.		LEGEND EXISTING NEW STRUCTURE ASPHALT PAVEMENT CONCRETE PAVEMENT CONCRETE SIDEWALK CONCRETE CURB & GUTTER DIRT ROAD ELECTRICAL OUTLET ELECTRICAL LIGHTS ELECTRICAL LINES WATER LINE CHAIN LINK FENCE FIRE HYDRANTS ELECTRICAL BOXES CONTOUR MANHOLE INLET DITCH STORM DRAINAGE LINE STORM DRAINAGE LINE W/ HEADWALL OR FLARED END SECTION UNDERDRAIN LINE (SUBDRAIN) COLLECTOR PIPES UNDERDRAIN LINE (SUBDRAIN) UNDERDRAIN CLEANOUT FINISHED EARTH GRADE TOP OF FIN. PAV'T. GRADE TOP OF SIDEWALK GRADE INVERT ELEV. OF PIPE OR DITCH REMOVAL ITEM SEE PLATES C-04 THRU C-05		US ARMY CORPS OF ENGINEERS SAVANNAH DISTRICT THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-B152. DESIGNED BY: [blank] SIZE: [blank] CATEGORY CODE: 113-B0-01 SOLICITATION NO.: W912HN-05-R-0027 DATE: 14 JANUARY 2005 PLOT SCALE: [blank] U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS SAVANNAH, GEORGIA HAZARDOUS CARGO LOADING APRON FORT BENNING, GEORGIA SITE WORK CIVIL LEGEND AND GENERAL NOTES PLATE REFERENCE NUMBER: C-03 SHEET 5
D						
C						
B						
A						

\$\$\$DGN\$SPEC\$\$\$
\$\$\$SYS\$TIME\$\$\$
\$\$\$USER\$NAME\$\$\$

\$\$\$DGN\$SPEC\$\$\$
\$\$\$SYS\$TIME\$\$\$
\$\$\$USER\$NAME\$\$\$

NPDES REQUIREMENTS:

MAINTENANCE

WATERSHED DELINEATION'S AND PEAK FLOWS
ARE SHOWN ON THE DRAINAGE AREA PLAN.
(SEE PLATE C-3C)

GAR100001 CERTIFICATION:

1. I CERTIFY THAT THE PERMITEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE NATIONAL POLLUTION CONTROL ACT AND THE EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF STORM WATER OUTFALLS AND THAT THE DESIGN OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GP100001. This plan was prepared after a site visit as per GP100001 Part IV, 3rd Paragraph.

ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE
SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL OR SIMILAR TO APPROPRIATE
EPD DISTRICT OFFICE.

NOTICE OF TERMINATION (NOT)

SAMPLING BY THE PERMITTEE (CONTRACTOR) SHALL OCCUR FOR THE FOLLOWING EVENTS:

(A). FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING STREAM, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR MONITORING DURING NORMAL BUSINESS HOURS (MONDAY THRU FRIDAY, 8:00 AM TO 5:00 PM AND SATURDAY 8:00 AM TO 5:00 PM WHEN CONSTRUCTION ACTIVITY IS BEING CONDUCTED BY THE PRIMARY PERMITTEE) SHALL OCCUR AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION.

(B). IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING STREAM, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCHES AND ALLOWS FOR MONITORING DURING NORMAL BUSINESS HOURS THAT OCCURS EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST.

(C). AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPs ARE FOUND TO BE PROPERLY DESIGNED, INSTALLED AND MAINTAINED, NO FURTHER ACTION IS REQUIRED. IF BMPs IN ANY AREA OF THE SITE THAT DRAINAGE TO THE CREEK OR STREAM ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN 2 BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS. IF THE TURBIDITY SAMPLES ARE NOT MAINTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPs ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED.

SITE CONSTRUCTION
POLLUTION NOTES

1. CONSTRUCTION WASTES INCLUDES DEMOLITION RUBBLE, PACKAGING, MATERIALS, SCRAP BUILDING SUPPLIES, ETC. CONTRACTOR SHALL SELECT A DESIGNATED WASTE COLLECTION AREA AND PROVIDE LIDS FOR WASTE CONTAINERS. CONSTRUCTION WASTES SHALL BE REMOVED ON A CONSISTENT SCHEDULE.
2. PESTICIDES SHALL BE STORED IN A DRY, CONFINED AREA. CONTRACTORS SHALL PROVIDE CURBS, DIKES OR BERMS SURROUNDING STORAGE AREAS APPLICATION RATES SHALL BE FOLLOWED STRICTLY.
3. FERTILIZERS AND DETERGENTS APPLICATIONS ARE TO BE LIMITED TO THE MINIMUM NEEDED. CONTRACTOR SHALL NOT DISCHARGE WASH WATER INTO THE STORM WATER SYSTEM.
4. PETROLEUM PRODUCTS INCLUDE OIL, GASOLINE, LUBRICANTS, AND ASPHALTIC SUBSTANCES AND SHALL BE STORED IN COVERED AREAS PROTECTED BY DIKES. CONTRACTOR SHALL HAVE EQUIPMENT TO CONTAIN AND CLEAN UP PETROLEUM SPILL IN FUEL STORAGE AREAS OR MAINTENANCE AND FUELING VEHICLES.
5. SANITARY AND SEPTIC WASTES INCLUDE ON-SITE SANITARY FACILITIES, LOCATION OF THESE FACILITIES SHALL BE OUT OF HIGH FLOW AREAS, REGULAR SERVICING BY A QUALIFIED DOMESTIC WASTE HAULER IS REQUIRED.
6. CONTRACTOR SHALL STORE, AND HANDLE MATERIALS TO PREVENT SPILLS. IF A SPILL OCCURS, CONTACT TO STORM WATER SHALL BE MINIMIZED.
7. PRIOR TO MOBILIZATION, THE CONTRACTOR SHALL SUBMIT PROPOSED LOCATIONS OF ANY POTENTIAL POLLUTANT TO THE ENGINEER FOR APPROVAL.

KEITH DAVID BURR, PE.

GEORGIA
REGISTERED
No. - 014646
PROFESSIONAL
ENGINEER
KEITH D. BURR

DATE _____

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

[illegible]

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA

SITE WORK

ESPCP-GENERAL NPDES
GAR100001 NOTES &
REQUIREMENTS

PLATE
REFERENCE
NUMBER:
C-03A

THE PRIMARY PERMITTEE (CONTRACTOR) WILL PERFORM INSPECTIONS IN ACCORDANCE WITH SECTION IV.D.3.A. INSPECTIONS WILL BE PERFORMED BY QUALIFIED PERSONNEL FROM BEGINNING OF CONSTRUCTION ACTIVITY UNTIL THE NOTICE OF TERMINATION IS RECEIVED BY EPD AND WILL CONSIST OF THE FOLLOWING:

THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.

THE DOWNSTREAM SMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FARTEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.

IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORM WATER OUTFALL CHANNEL(S).

FOUR OUTFALLS (OR RECEIVING WATER) FOR THIS CONSTRUCTION, WILL BE SAMPLED AND ARE INDICATED ON THIS PLAN.

OUTFALLS DISCHARGE INTO LAUNDRY CANAL, TRIBUTARY TO THE CHATTAHOOCHEE RIVER. STORM WATER, IN THE FORM OF SHEET FLOW, WILL NOT BE MONITORED IN ACCORDANCE WITH THE PERMIT.

ALL SAMPLES WILL BE GRAB SAMPLES COLLECTED BY DURING NORMAL BUSINESS HOURS IN ACCORDANCE WITH SECTION IV.D.5. OF THE PERMIT. SAMPLES WILL BE TAKEN AT THE APPROPRIATE FREQUENCY AS STATED IN IV.D.5.D. OF THE PERMIT. LARGE MOUTH, CLEAR GLASS JARS WITH IV.D.5.D. TYPE LABELS WILL BE USED TO COLLECT SAMPLES. THE SAMPLE CONTAINER WILL BE SUCH THAT THE OPENING FACES UPSTREAM ONCE THE SAMPLE JAR/BOTTLE IS FULL AND CAPPED. IT WILL BE TRANSPORTED TO THE LOCATION WHERE THE TURBIDITY TESTING WILL BE CONDUCTED. ALL TURBIDITY TESTS WILL BE CONDUCTED IMMEDIATELY, BUT IN NO CASE, LATER THAN 48 HOURS AFTER THE TIME THE SAMPLE WAS OBTAINED.

ALL TURBIDITY TESTS SHALL BE DONE IN ACCORDANCE WITH 40 CFR PART 136, (EPA METHOD 180.1). TURBIDITY RESULTS WILL BE PROVIDED TO THE GEORGIA ENVIRONMENTAL PROTECTION DIVISION, BY THE 15TH OF THE MONTH.

THE NTU LIMIT VALUES FOR THE STORM WATER OUTFALLS ARE TO BE PROVIDED BY CA, EPD AND WILL BE LOCATED IN APPENDIX B OF THE PERMIT.

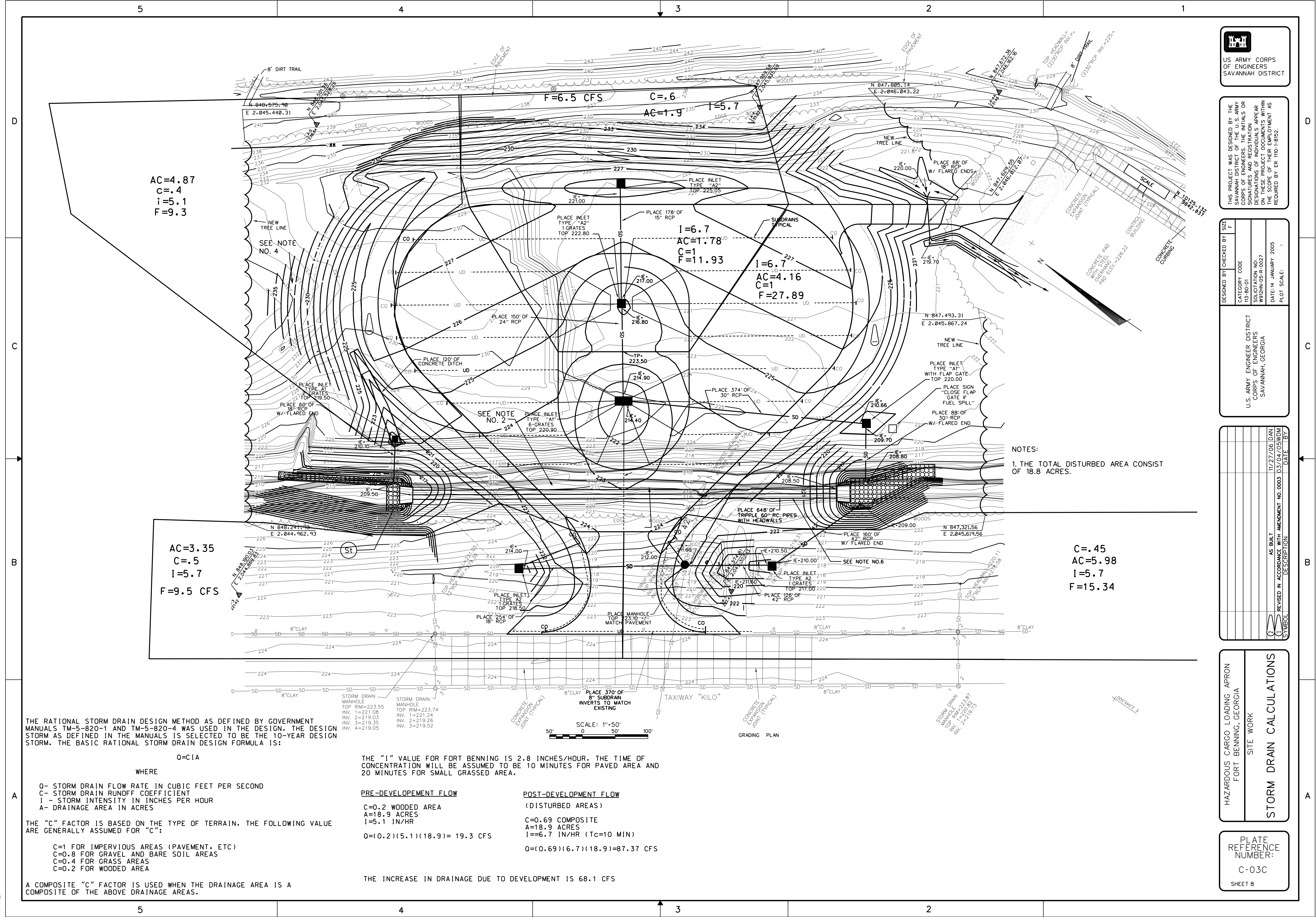
Sample Location	Construction Footprint Area (acres)	Footprint Area (acres)	Drainage (square miles)	Type of Receiving Water	NTU Limit
S-1	19.8		0.03	Warm Water Fishery	50
S-2	12.1		0.19	Warm Water Fishery	50
S-3	4.9		0.01	Warm Water Fishery	75
S-4		1370	2.14	Warm Water Fishery	DETERMINE

BASED ON THE RESULTS OF THE ABOVE INSPECTIONS, THIS PLAN SHALL BE REVISED AS NECESSARY WITHIN 7 DAYS AND THE IMPLEMENTATION OF CHANGES SHALL BE MADE WITHIN 7 DAYS, OF THE INSPECTION.

A REPORT FOR EACH INSPECTION WILL BE MADE IN ACCORDANCE WITH SECTION IV.D.3.A (5) OF THE PERMIT AND SHALL BE RETAINED AT THE SITE.

THE CONTRACTOR MUST PERFORM INSPECTIONS IN ACCORDANCE WITH SECTION IV.D.3. INSPECTIONS WILL BE PERFORMED BY QUALIFIED PERSONNEL FROM BEGINNING OF CONSTRUCTION ACTIVITY UNTIL THE NOTICE OF TERMINATION IS RECEIVED BY EPD.

BASED ON THE RESULTS OF THE ABOVE INSPECTIONS, THIS PLAN SHALL BE REVISED AS NECESSARY WITHIN 7 CALENDAR DAYS AND THE IMPLEMENTATION OF CHANGES SHALL BE MADE WITHIN 7 CALENDAR DAYS FOLLOWING THE INSPECTION.



THE RATIONAL STORM DRAIN DESIGN METHOD AS DEFINED BY GOVERNMENT MANUALS TM-5-820-1 AND TM-5-820-4 WAS USED IN THE DESIGN. THE DESIGN STORM AS DEFINED IN THE MANUALS IS SELECTED TO BE THE 10-YEAR DESIGN STORM. THE BASIC RATIONAL STORM DRAIN DESIGN FORMULA IS:

$$Q=CIA$$

WHERE

- Q- STORM DRAIN FLOW RATE IN CUBIC FEET PER SECOND
- C- STORM DRAIN RUNOFF COEFFICIENT
- I - STORM INTENSITY IN INCHES PER HOUR
- A- DRAINAGE AREA IN ACRES

THE "C" FACTOR IS BASED ON THE TYPE OF TERRAIN. THE FOLLOWING VALUE ARE GENERALLY ASSUMED FOR "C":

- C=1 FOR IMPERVIOUS AREAS (PAVEMENT, ETC)
- C=0.8 FOR GRAVEL AND BARE SOIL AREAS
- C=0.4 FOR GRASS AREAS
- C=0.2 FOR WOODED AREA

A COMPOSITE "C" FACTOR IS USED WHEN THE DRAINAGE AREA IS A COMPOSITE OF THE ABOVE DRAINAGE AREAS.

THE "I" VALUE FOR FORT BENNING IS 2.8 INCHES/HOUR. THE TIME OF CONCENTRATION WILL BE ASSUMED TO BE 10 MINUTES FOR PAVED AREA AND 20 MINUTES FOR SMALL GRASSED AREA.

PRE-DEVELOPEMENT FLOW

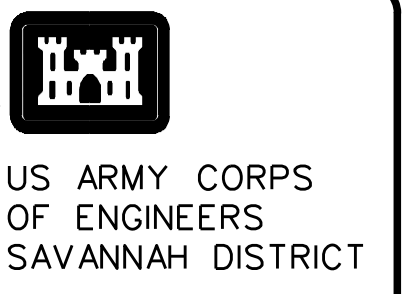
C=0.2 WOODED AREA
 A=18.9 ACRES
 I=5.1 IN/HR
 $Q=(0.2)(5.1)(18.9)=19.3$ CFS

POST-DEVELOPMENT FLOW

(DISTURBED AREAS)
 C=0.69 COMPOSITE
 A=18.9 ACRES
 I=6.7 IN/HR (Tc=10 MIN)
 $Q=(0.69)(6.7)(18.9)=87.37$ CFS

THE INCREASE IN DRAINAGE DUE TO DEVELOPMENT IS 68.1 CFS

NOTES:
 1. THE TOTAL DISTURBED AREA CONSIST OF 18.8 ACRES.



THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

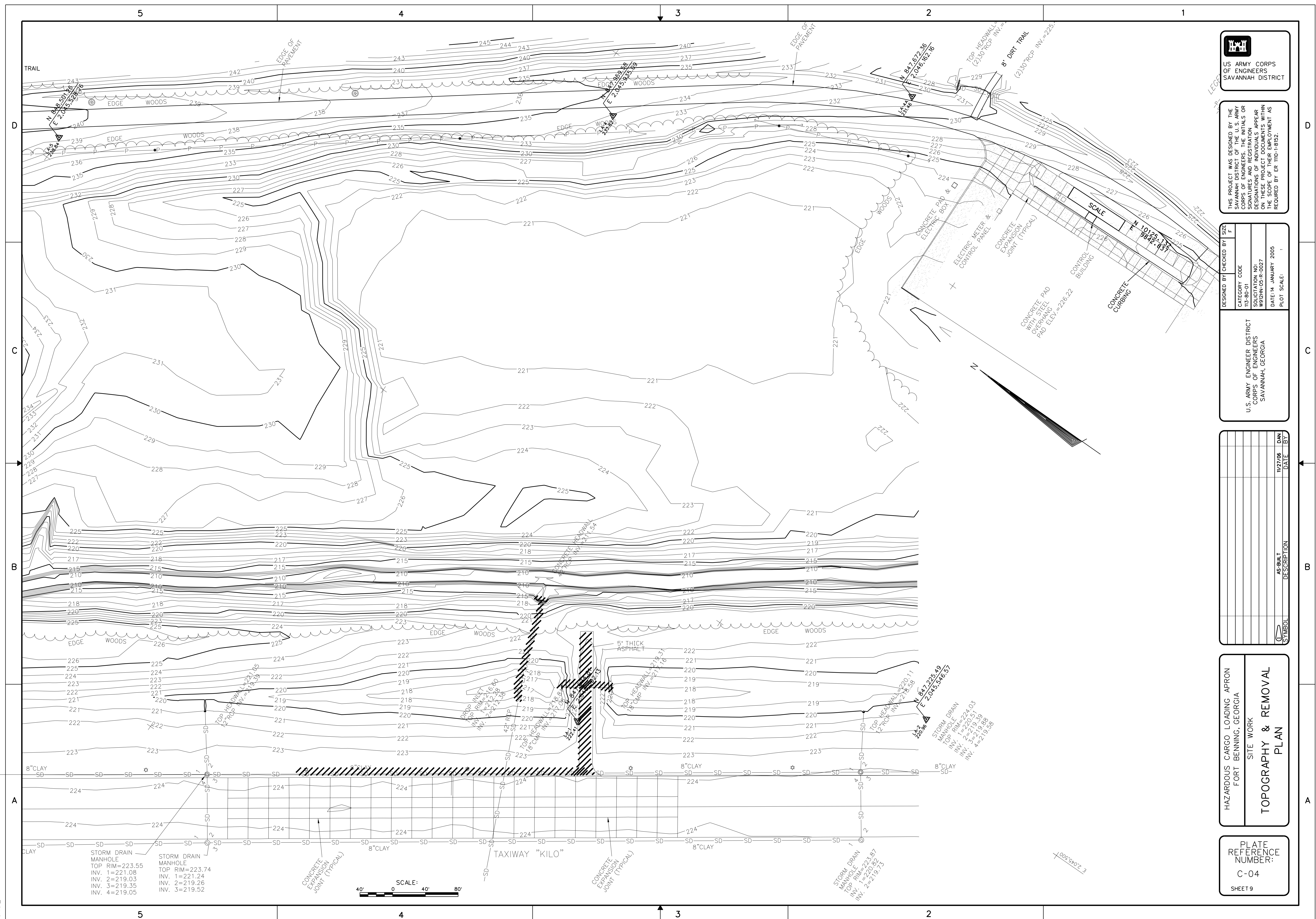
DESIGNED BY	CHECKED BY
DATE	DATE
CATEGORY CODE	13-80-01
SOLICITATION NO.	W92HNM-05-R-0027
DATE	14 JANUARY 2005
PLOT SCALE	

U.S. ARMY ENGINEER DISTRICT
 CORPS OF ENGINEERS
 SAVANNAH, GEORGIA

HAZARDOUS CARGO LOADING APRON	DATE
FORT BENNING, GEORGIA	11/27/06
SITE WORK	DATE
STORM DRAIN CALCULATIONS	DATE
PLATE REFERENCE NUMBER:	03/04/03WDM
C-03C	NO. 0003
SHEET 8	AS BUILT
	REVISED IN ACCORDANCE WITH AMENDMENT
	SYMBOL

HAZARDOUS CARGO LOADING APRON
 FORT BENNING, GEORGIA
 SITE WORK
 STORM DRAIN CALCULATIONS

PLATE REFERENCE NUMBER:
 C-03C
 SHEET 8



US ARMY CORPS
OF ENGINEERS
SAVANNAH DISTRICT

THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U. S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

DESIGNED BY	CHECKED BY	SIZE
		F
CATEGORY CODE		
113-80-01		
SOLICITATION NO:		
W912HN-05-R-0027		
DATE: 14 JANUARY 2005		

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS[illegible]

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA

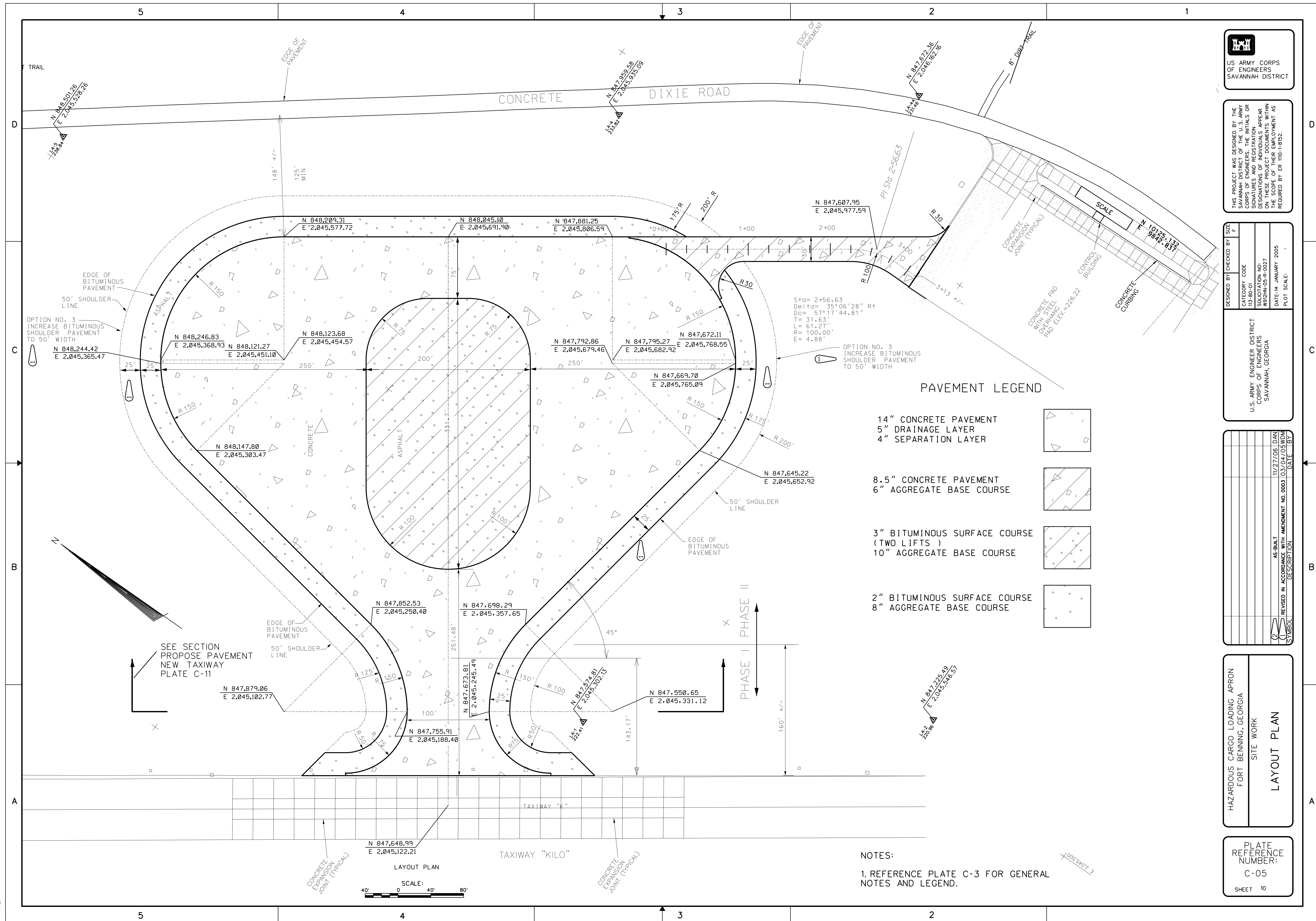
SITE WORK TOPOGRAPHY & REMOVAL PLAN

PLATE
REFERENCE
NUMBER:

SHEET 9

```
$$$DGNSPEC$$$
$$$SYSTIME$$$
$$$USERNAME$$$
```

\$\$\$DGN\$SPEC\$\$\$
\$\$\$SYSTEM\$\$\$
\$\$\$USER\$NAME\$\$\$



US ARMY CORPS
OF ENGINEERS
SAVANNAH DISTRICT

THIS PROJECT WAS DESIGNED BY THE
SAVANNAH DISTRICT OF THE U.S. ARMY
CORPS OF ENGINEERS. THE INITIALS OR
SIGNATURES AND REGISTRATION
DESIGNATIONS OF INDIVIDUALS APPEAR
ON THESE PROJECT DOCUMENTS WITHIN
THE SCOPE OF THEIR EMPLOYMENT AS
REQUIRED BY ER 1110-1-8152.

DESIGNED BY (CHECKED BY)
SIZE
F
CATEGORY CODE
113-80-01
SOLICITATION NO.
W912HN-05-R-0027
DATE: 14 JANUARY 2005
PLOT SCALE:

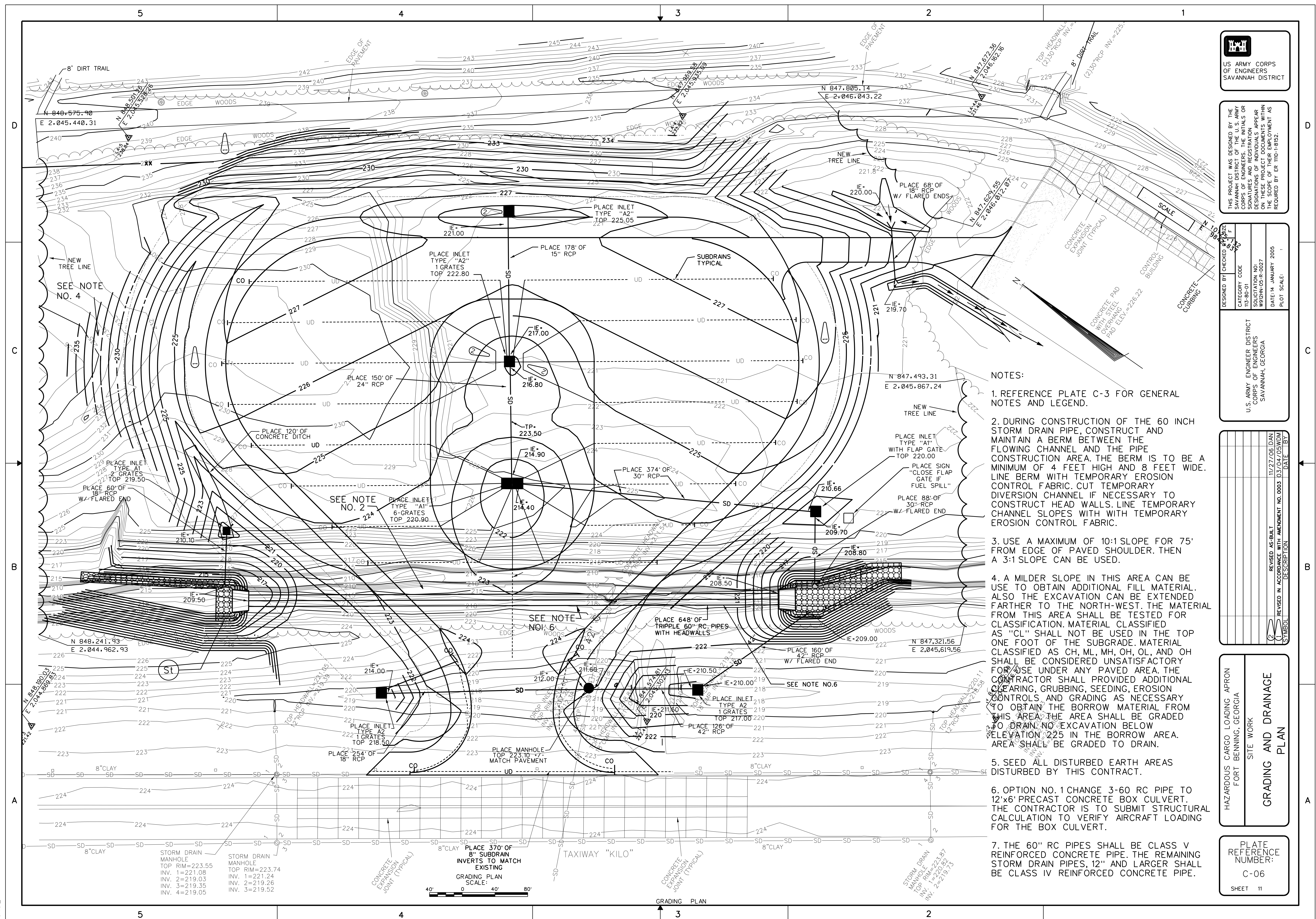
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

SYMBOL	DESCRIPTION	DATE	BY
	AS-BUILT	11/27/06	DAN
	REVISED IN ACCORDANCE WITH AMENDMENT NO. 0003	03/04/03	WDM

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA
SITE WORK
LAYOUT PLAN

PLATE
REFERENCE
NUMBER:
C-05
SHEET 10

\$\$\$DGN\$SPEC\$\$\$
\$\$\$SYSTEM\$\$\$
\$\$\$USER\$NAME\$\$\$



US ARMY CORPS
OF ENGINEERS
SAVANNAH DISTRICT

THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U. S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

DESIGNED BY	CHECKED BY	DATE	SCALE
		14 JANUARY 2005	
CATEGORY CODE		SOLICITATION NO:	
113-80-01		W912HN-05-R-0027	

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

2	REVISED AS-BUILT	11/27/06	DANI
1	REVISED IN ACCORDANCE WITH AMENDMENT NO. 0003	03/04/05	WDM
1	ISSUED		

HAZARDOUS CARGO LOADING APRON FORT BENNING, GEORGIA	SITE WORK	GRADING AND DRAINAGE PLAN
--	-----------	------------------------------

PLATE
REFERENCE
NUMBER:
C-06
SHEET 11

NOTES:

1. REFERENCE PLATE C-3 FOR GENERAL NOTES AND LEGEND.
2. DURING CONSTRUCTION OF THE 60 INCH STORM DRAIN PIPE, CONSTRUCT AND MAINTAIN A BERM BETWEEN THE FLOWING CHANNEL AND THE PIPE CONSTRUCTION AREA. THE BERM IS TO BE A MINIMUM OF 4 FEET HIGH AND 8 FEET WIDE. LINE BERM WITH TEMPORARY EROSION CONTROL FABRIC. CUT TEMPORARY DIVERSION CHANNEL IF NECESSARY TO CONSTRUCT HEAD WALLS. LINE TEMPORARY CHANNEL SLOPES WITH WITH TEMPORARY EROSION CONTROL FABRIC.
3. USE A MAXIMUM OF 10:1 SLOPE FOR 75' FROM EDGE OF PAVED SHOULDER. THEN A 3:1 SLOPE CAN BE USED.
4. A Milder Slope in this Area can be used to obtain additional fill material. Also the excavation can be extended farther to the north-west. The material from this area shall be tested for classification. Material classified as "CL" shall not be used in the top one foot of the subgrade. Material classified as CH, ML, MH, OH, OL, and OH shall be considered unsatisfactory for use under any paved area. The contractor shall provide additional clearing, grubbing, seeding, erosion controls and grading as necessary to obtain the borrow material from this area. The area shall be graded to drain. No excavation below elevation 225 in the borrow area. Area shall be graded to drain.
5. SEED ALL DISTURBED EARTH AREAS DISTURBED BY THIS CONTRACT.
6. OPTION NO. 1 CHANGE 3-60 RC PIPE TO 12"x6" PRECAST CONCRETE BOX CULVERT. THE CONTRACTOR IS TO SUBMIT STRUCTURAL CALCULATION TO VERIFY AIRCRAFT LOADING FOR THE BOX CULVERT.
7. THE 60" RC PIPES SHALL BE CLASS V REINFORCED CONCRETE PIPE. THE REMAINING STORM DRAIN PIPES, 12" AND LARGER SHALL BE CLASS IV REINFORCED CONCRETE PIPE.

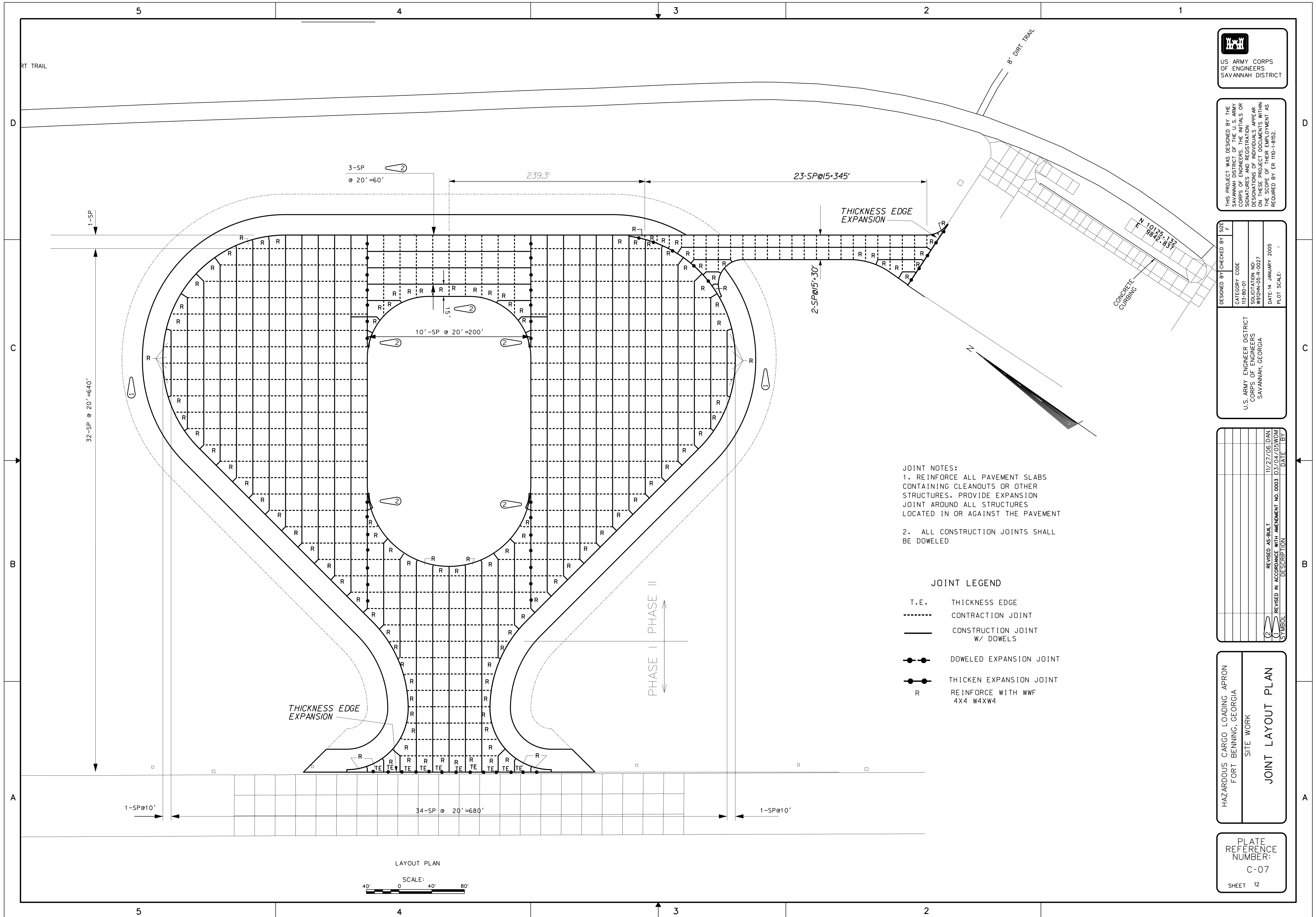
```
$$$DGN$SPEC$$$
$$$SYS$TIME$$$
$$$USER$NAME$$$
```

```

$$$DGN$SPEC$$$
$$$SYSTEM$$$
$$$USERNAME$$$

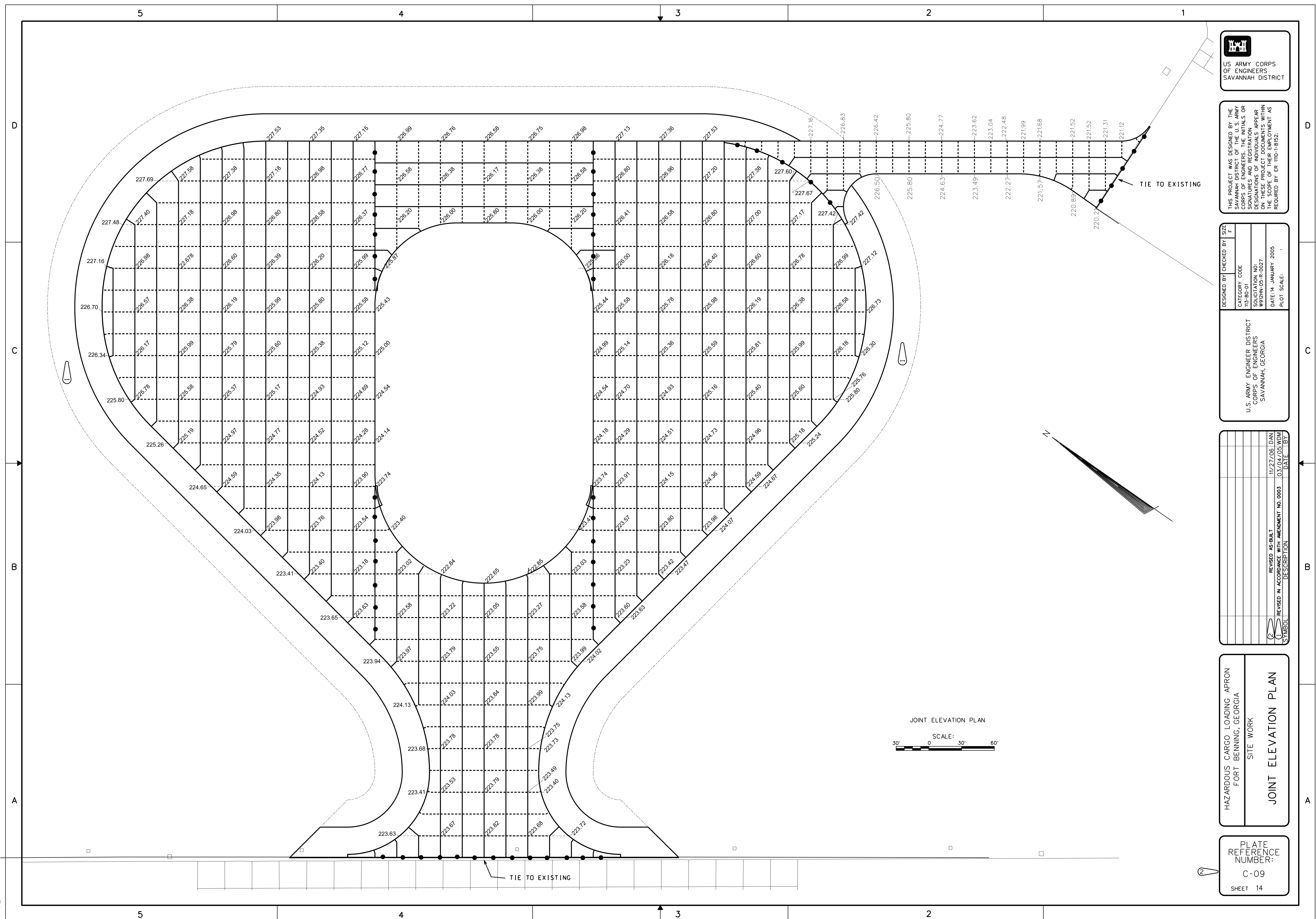
```

\$\$\$DGN\$SPEC\$\$\$
\$\$\$SYS\$TIME\$\$\$
\$\$\$USER\$NAME\$\$\$



\$\$\$DGN\$SPEC\$\$\$
\$\$\$SYS\$TIME\$\$\$
\$\$\$USER\$NAME\$\$\$





US ARMY CORPS
OF ENGINEERS
SAVANNAH DISTRICT

THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U. S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

DESIGNED BY	CHECKED BY	SIZE
CATEGORY CODE		F
113-80-01		
SOLICITATION NO:		
W912HN-05-R-0027		
DATE:14 JANUARY 2005		

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS[illegible]HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA

SITE WORK

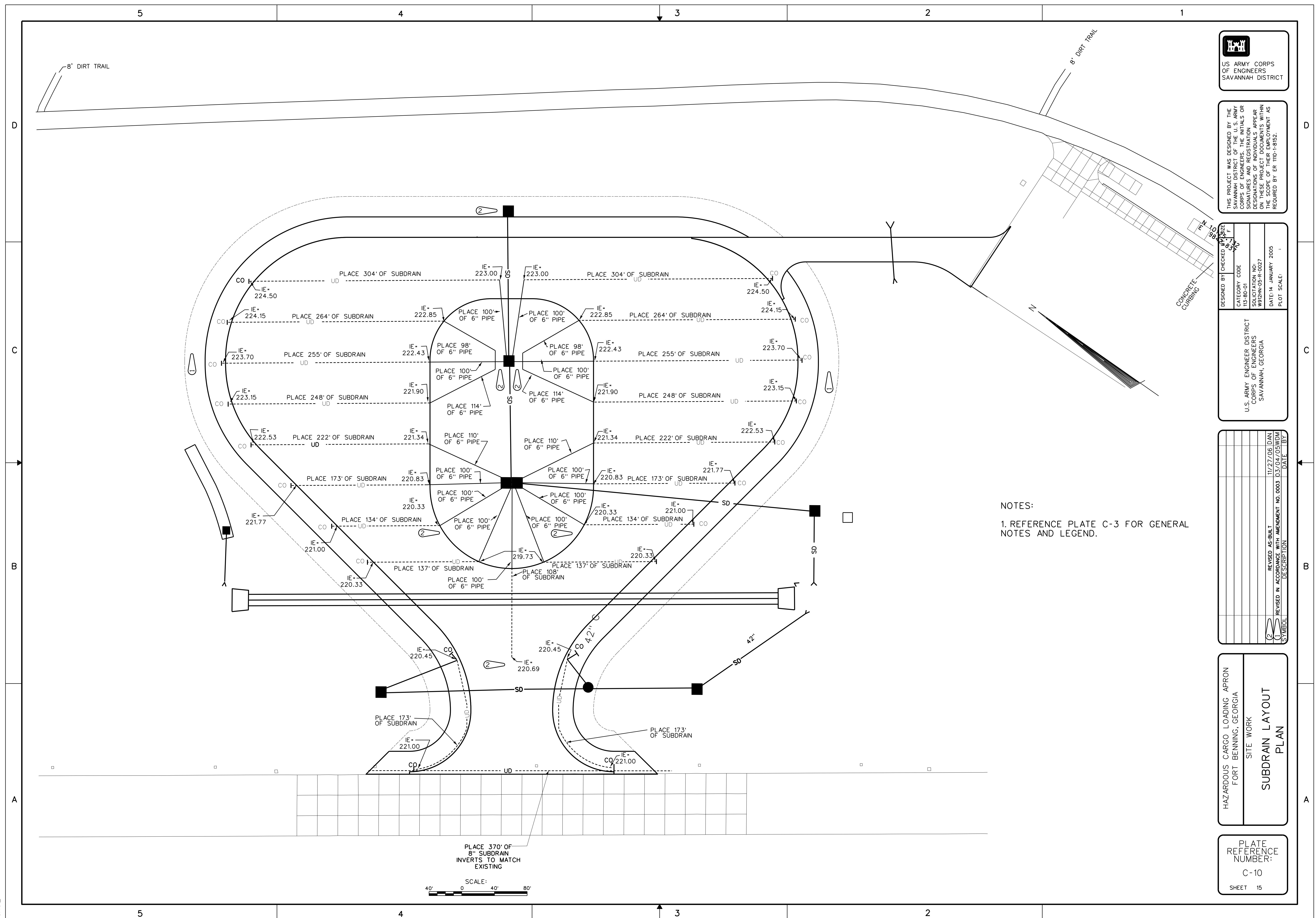
JOINT ELEVATION PLAN

PLATE
REFERENCE
NUMBER:

C-09

SHEET 14

```
$$$DGN$SPEC$$$  
$$$SYSTEM$$$  
$$$USERNAME$$$
```



US ARMY CORPS
OF ENGINEERS
SAVANNAH DISTRICT

THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U. S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

DESIGNED BY	CHECKED BY	DATE
		14 JANUARY 2005
CATEGORY CODE		
113-80-01		
SOLICITATION NO:		
W912HN-05-R-0027		

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS

2	REVISED AS-BUILT	11/27/06 DAN
1	REVISED IN ACCORDANCE WITH AMENDMENT NO. 0003	03/04/06 WDM

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA

SITE WORK

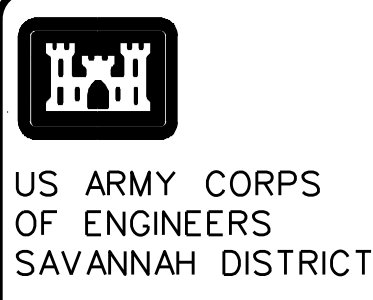
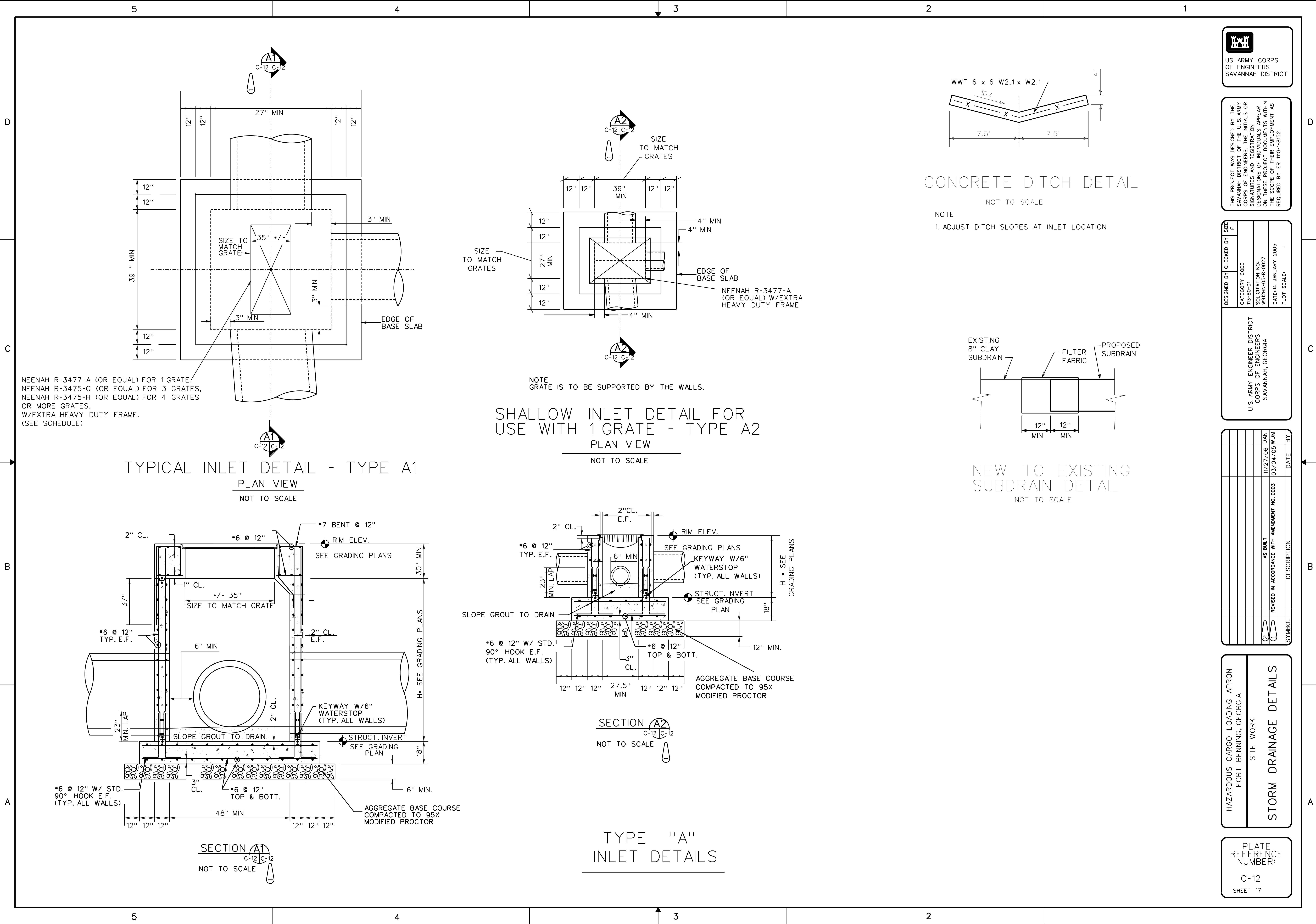
SUBDRAIN LAYOUT
PLAN

PLATE
REFERENCE
NUMBER:

C-10

SHEET 15

```
$$$DGNSPEC$$$
$$$SYSTIME$$$
$$$USERNAME$$$
```

THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

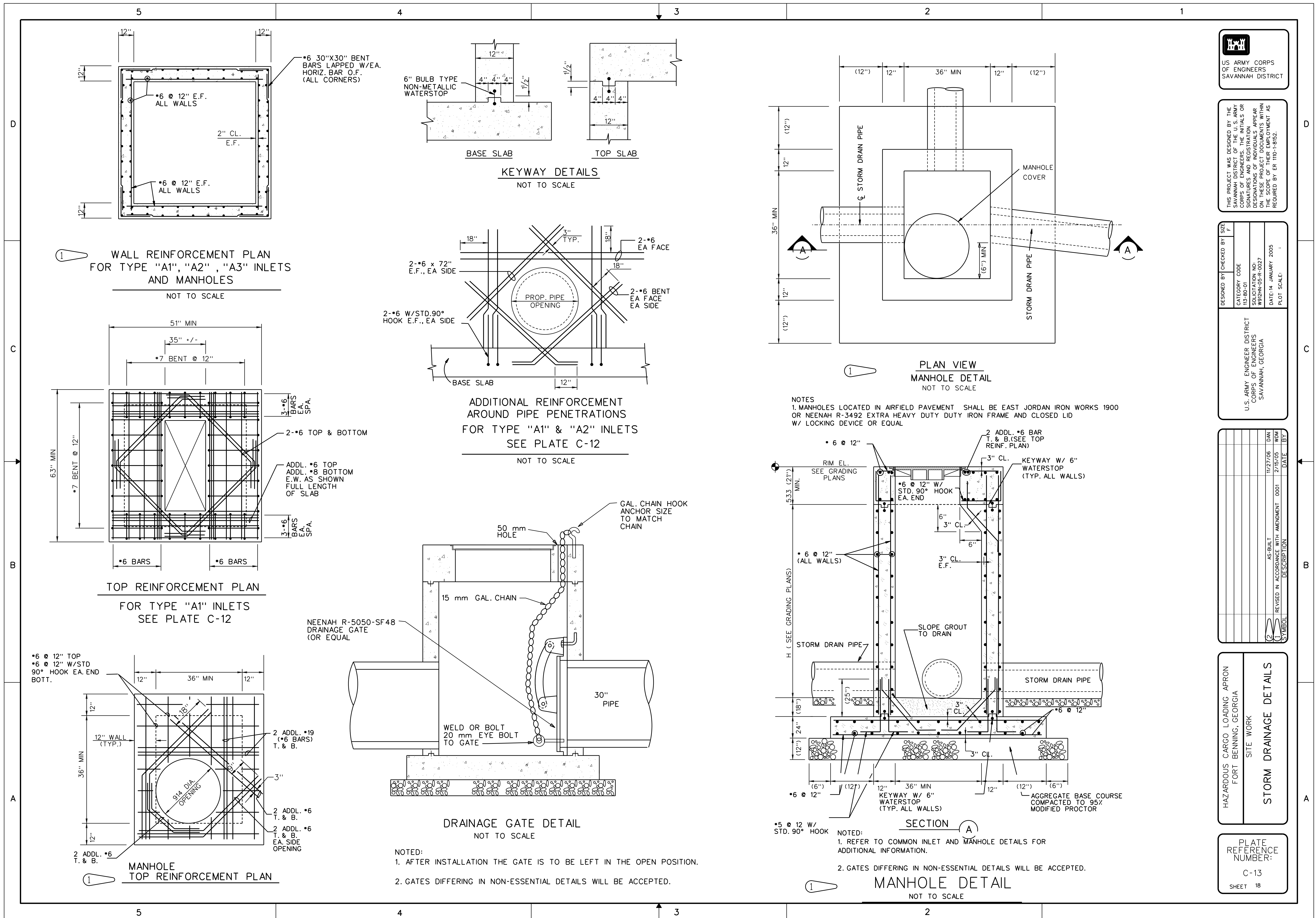
DESIGNED BY (CHECKED BY)	SIZE	F
CATEGORY CODE	113-80-01	
SOLICITATION NO.	W92HN-05-R-0027	
DATE	14 JANUARY 2005	
PLOT SCALE:		

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

SYMBOL	DESCRIPTION	DATE	BY
1	AS-BUILT	11/27/06	DAN
2	REVISED IN ACCORDANCE WITH AMENDMENT NO. 0003	03/04/05	WDM

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA
SITE WORK
STORM DRAINAGE DETAILS

PLATE REFERENCE NUMBER:
C-12
SHEET 17



THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-H-8152.

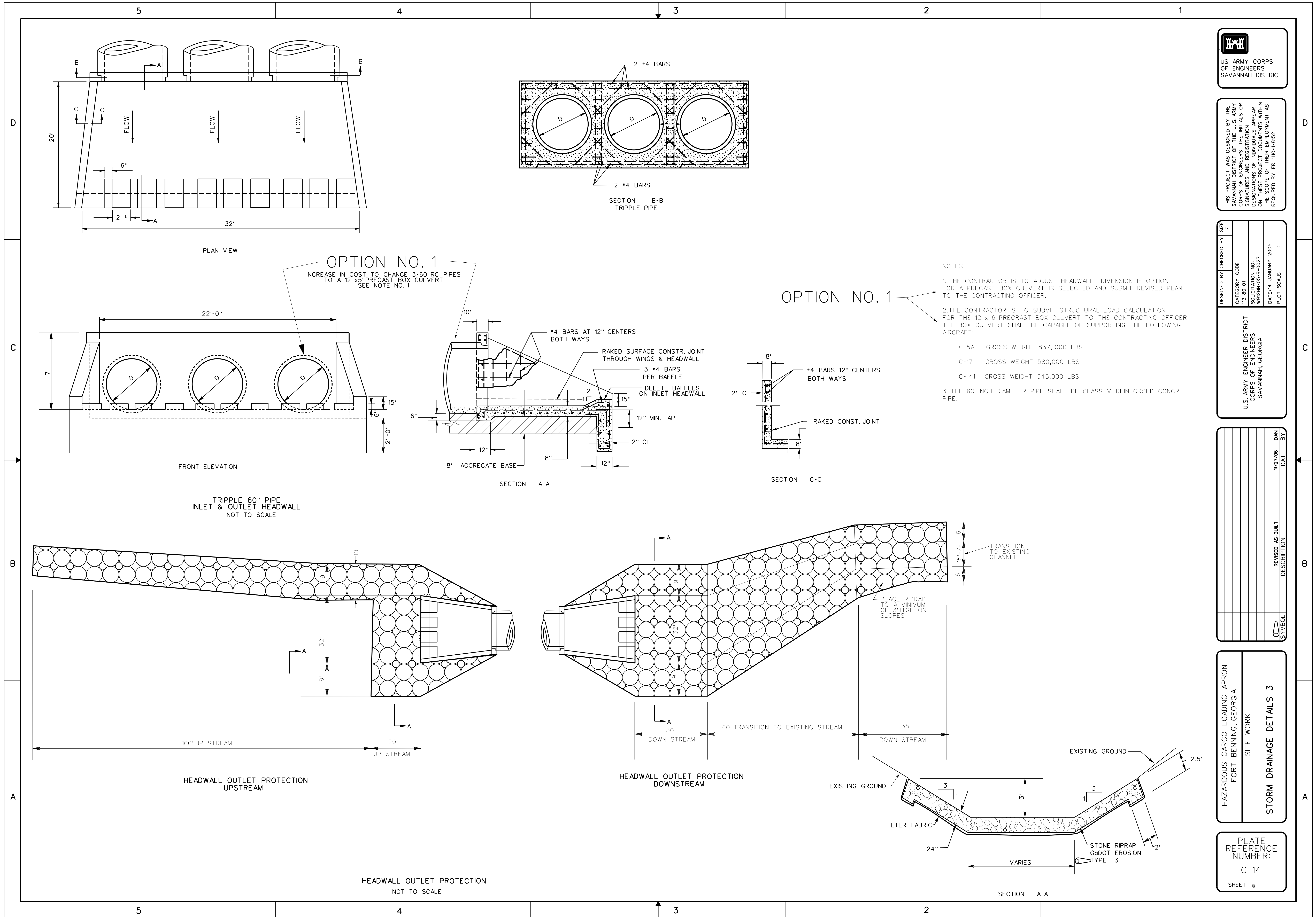
DESIGNED BY (CHECKED BY) SIZE F
CATEGORY CODE 13-80-01
SOLICITATION NO. W92HN-05-R-0027
DATE: 14 JANUARY 2005
PLOT SCALE: 1"

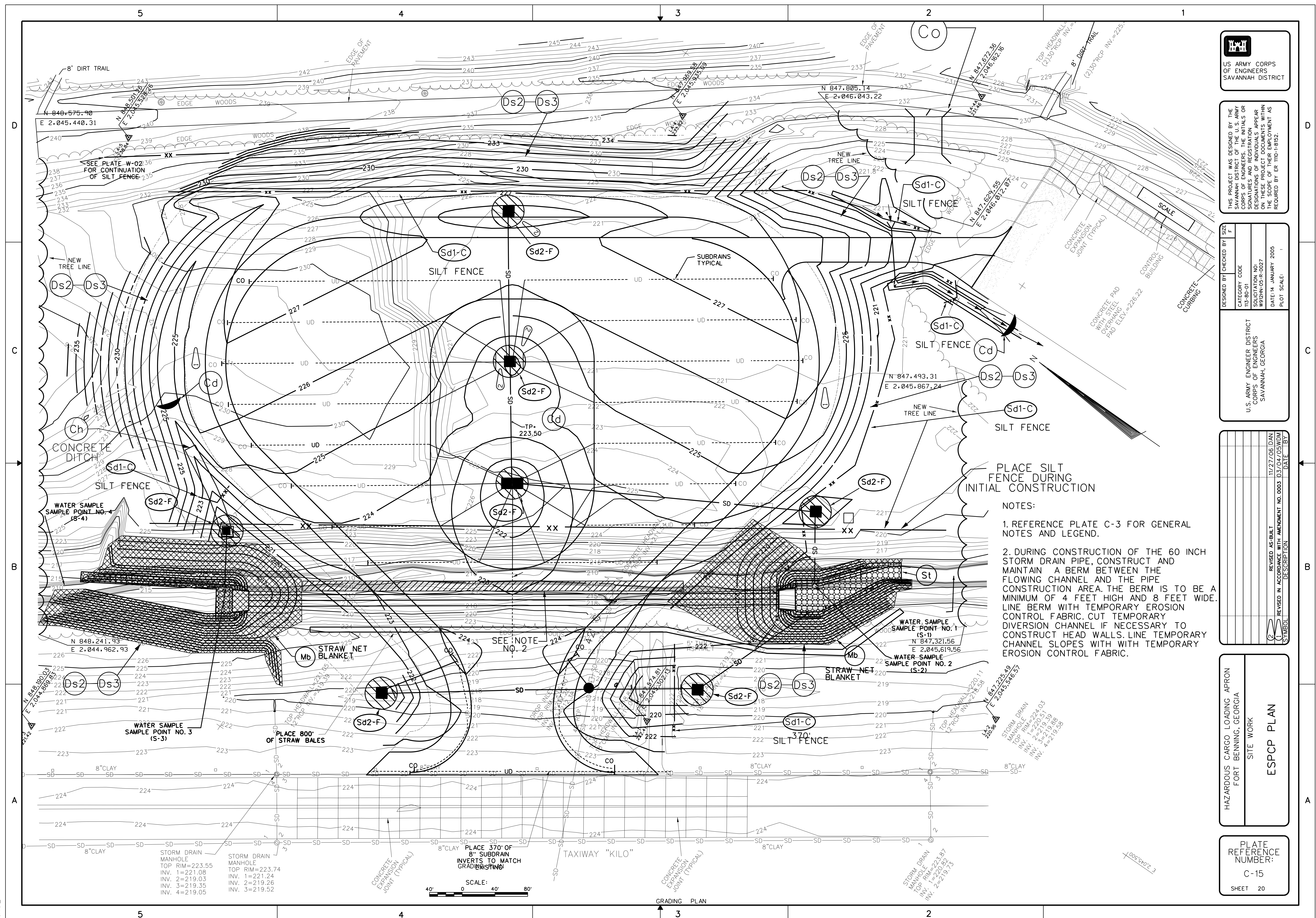
U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

SYMBOL	DESCRIPTION	DATE	BY
1	AS-BUILT	11/27/06	DAN
2	REVISED IN ACCORDANCE WITH AMENDMENT 0001	2/15/05	WDM

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA
SITE WORK
STORM DRAINAGE DETAILS

PLATE
REFERENCE
NUMBER:
C-13
SHEET 18





US ARMY CORPS
OF ENGINEERS
SAVANNAH DISTRICT

THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U. S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152.

DESIGNED BY	CHECKED BY	SIZE
CATEGORY CODE		F
113-80-01		
SOLICITATION NO:		
W912HN-05-R-0027		
DATE: 14 JANUARY 2005		
PLOT SCALE: :		

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

2	REVISED AS-BUILT	11/27/06	DAN
1	REVISED IN ACCORDANCE WITH AMENDMENT NO. 0003	03/04/05	WDM
1	ISSUED		

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA

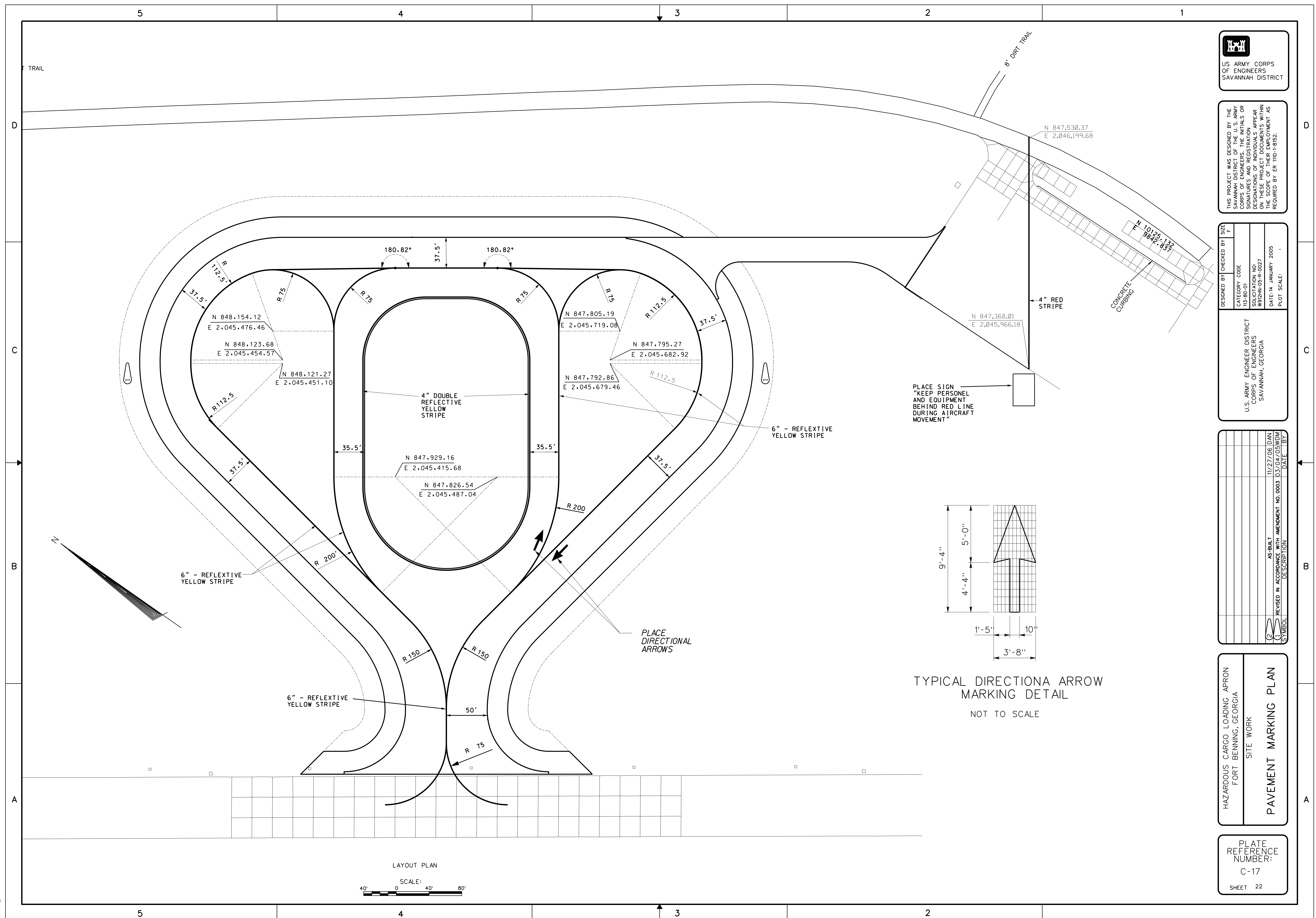
SITE WORK

ESPCP PLAN

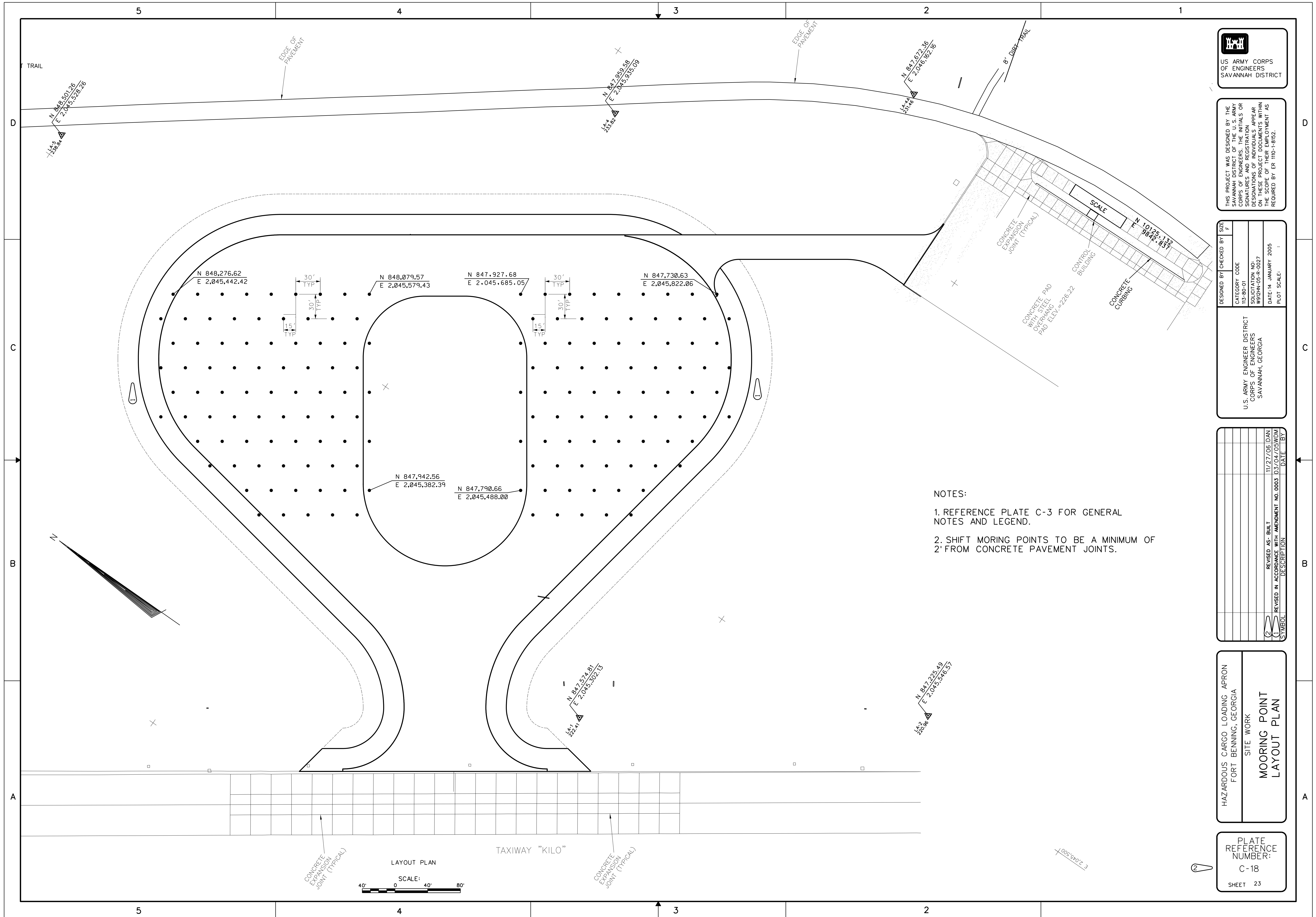
PLATE
REFERENCE
NUMBER:
C-15

```
$DGN$SPEC$$$
$SYSTEM$$$
$USERNAME$$$
```

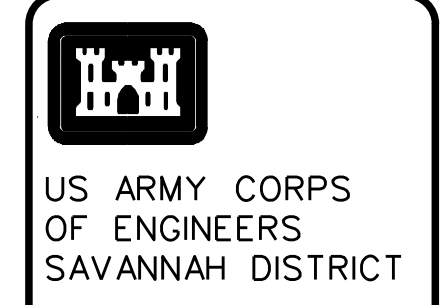
```
$$$DGN$SPEC$$$  
$$$SYSTEM$$$  
$$$USERNAME$$$
```

\$\$\$DGN\$SPEC\$\$\$
\$\$\$SYSTEM\$\$\$
\$\$\$USER\$NAME\$\$\$



- NOTES:
1. REFERENCE PLATE C-3 FOR GENERAL NOTES AND LEGEND.
 2. SHIFT MORING POINTS TO BE A MINIMUM OF 2' FROM CONCRETE PAVEMENT JOINTS.



THIS PROJECT WAS DESIGNED BY THE SAVANNAH DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-18152.

DESIGNED BY (CHECKED BY)	SIZE
	F
CATEGORY CODE	
113-80-01	
SOLICITATION NO.	
W912HN-05-R-0027	
DATE: 14 JANUARY 2005	
PLOT SCALE:	

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

SYMBOL	DATE	BY
(1)	11/27/06	DAN
(2)	03/04/05	WDM
REVISED AS - BUILT	NO. 0003	
REVISED IN ACCORDANCE WITH AMENDMENT		

HAZARDOUS CARGO LOADING APRON
FORT BENNING, GEORGIA
SITE WORK
MOORING POINT
LAYOUT PLAN

PLATE
REFERENCE
NUMBER:
C-18
SHEET 23

\$\$\$DGN\$SPEC\$\$\$
\$\$\$SYSTEM\$\$\$
\$\$\$USER\$NAME\$\$\$