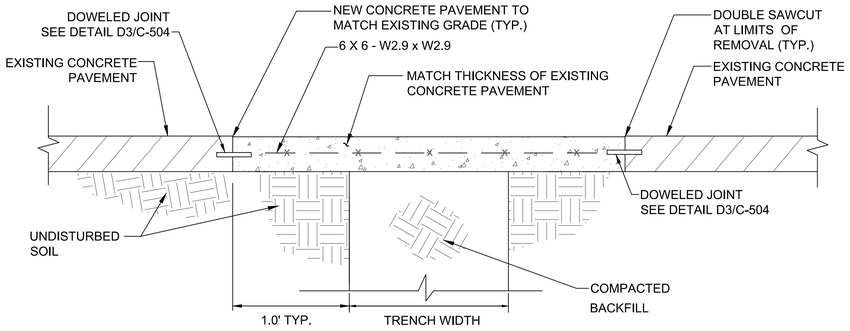
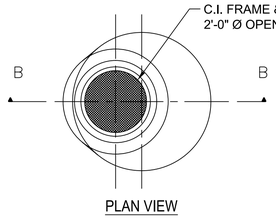
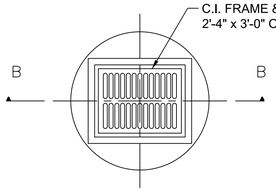
NOTE:
1. CONTRACTOR SHALL CONSIDER THE LOCATION OF THE JOINTS IN THE EXISTING CONCRETE PAVEMENT WHEN CUTTING AND CONSTRUCTING PATCH. REMOVE ALONG AN EXISTING JOINT. PROVIDE DOWELS FOR LOAD TRANSFER AS INDICATED. EMPLOY DOUBLE SAWCUT TO PREVENT DAMAGE TO EDGE OF PAVEMENT TO REMAIN.



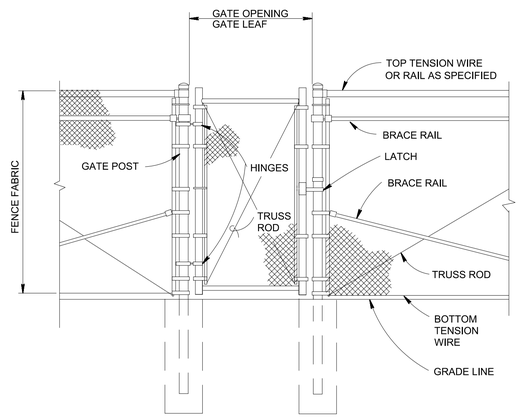
D1 CONCRETE PAVEMENT PATCH
NO SCALE



PLAN VIEW

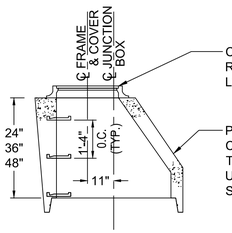


PLAN VIEW

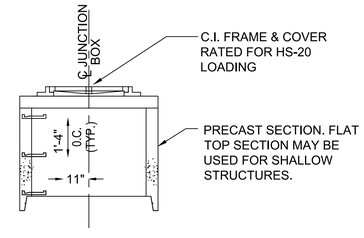


PERSONNEL GATE
TYPE FE-5 FENCE
NO SCALE

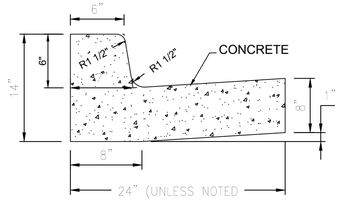
D5 CHAIN-LINK PERSONNEL GATE
NO SCALE

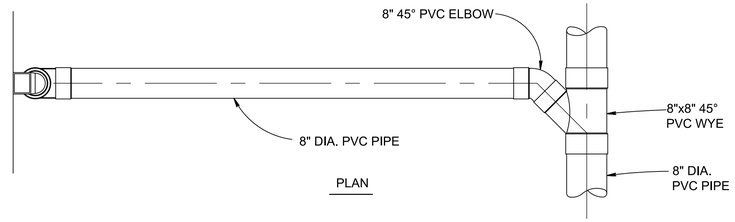


SECTION B-B

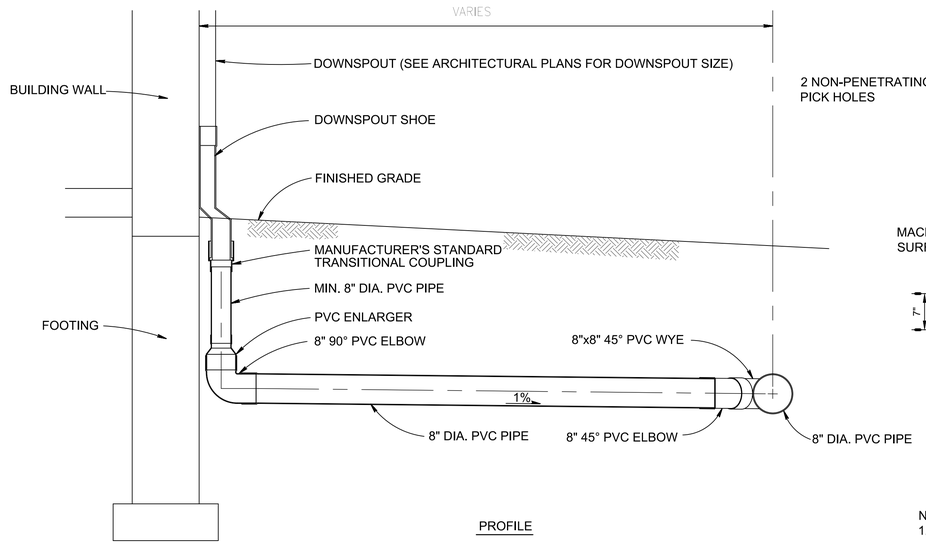


SECTION B-B



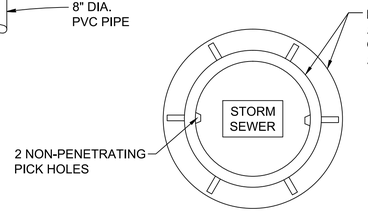


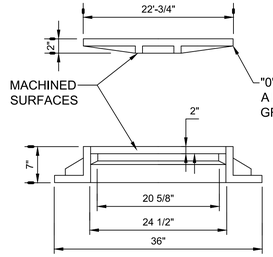
PLAN

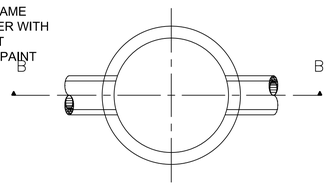


PROFILE

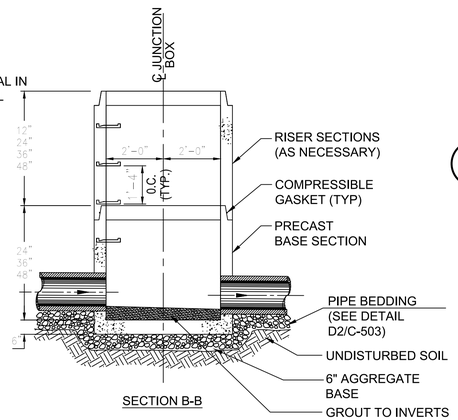
A1 ROOF DRAIN CONNECTION
NO SCALE







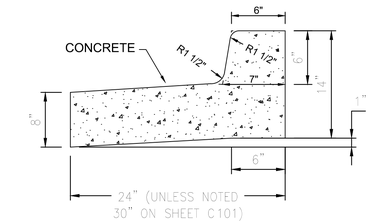
PLAN VIEW



SECTION B-B

NOTE:
1. PRECAST MANHOLE SECTIONS REINFORCING SHALL CONFORM TO ASTM C478.

A3 STORM DRAINAGE MANHOLE
NO SCALE



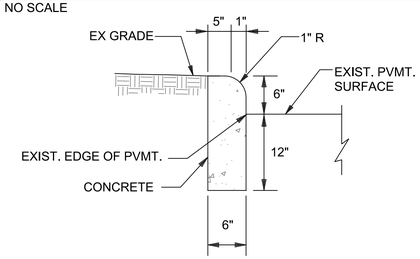
NOTES:

1. CURB AND GUTTER TO BE CONSTRUCTED IN 10 FOOT LENGTHS.

2. 1/2" EXPANSION JOINTS SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 50 FEET, AT THE ENDS AND MID-POINT OF RETURNS, AND AT ANY POINT WHERE THE NEW CURB AND GUTTER ABUTS OTHER CONCRETE STRUCTURES.

3. 5' LONG TRANSITIONS SHALL BE PROVIDED BETWEEN NORMAL GUTTER AND PITCHED GUTTER, UNLESS OTHERWISE NOTED ON THE PAVING PLANS.

B5 CONCRETE CURB & GUTTER
NO SCALE



A5 CONCRETE HEADER CURB
NO SCALE

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

DISTRICT OF COLUMBIA
AIR NATIONAL GUARD

POND
Pond & Company
1256 Hightower Trail, Suite 200
Roswell, Georgia 30350
Phone (770) 587-1340
Fax (678) 336-7214
Job No. 1170002

DESIGNED BY: TLN
DRAWN BY: CDN
CHECKED BY: JAS
SUBMITTED BY: SBR
SIZE: ANSI D
ISSUE DATE: 6 OCTOBER 2017
ANG NO.: AXMTR0040
CONTRACT NO.: W9133L-15-D-0001
FILE NUNBER:
FILE NAME:

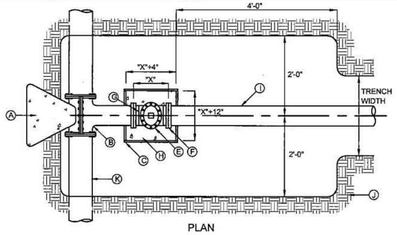
MUNITIONS LOAD CREW
TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

CONSTRUCTION DETAILS

SHEET ID
C-502

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID



GENERAL NOTES:

1. THRUST BLOCKING SHALL EXTEND TO UNDISTURBED EARTH.
2. TAPPING SLEEVE SHALL BE 18" MINIMUM FROM ANY BELL, COUPLING, VALVE OR FITTING.
3. JOINTS AND BOLTS SHALL BE CLEAR OF CONCRETE.
4. INSTALL PERMANENT THRUST BLOCKING UNDER VALVE BEFORE TAP IS MADE. JOINTS AND BOLTS TO BE CLEAR OF CONCRETE.
5. SERVICE LINES 2-INCHES IN DIAMTER AND SMALLER SHALL BE TAPPED CONNECTIONS PER DETAILS W20 OR W21.
6. PIPE SHALL BE BEDDED PER G4 OR G5.

CONSTRUCTION KEY NOTES:

- (A) CONCRETE THRUST BLOCKING, PER DETAIL G9.
- (B) TAPPING SLEEVE
- (C) FORMS
- (D) INSTALL VALVE BOX AND COVER PER DETAILS W5, W6 AND W9.
- (E) RESILIENT SEAT GATE VALVE
- (F) RESTRAINT JOINT VALVE ENDS FOR DUCTILE IRON PIPE
- (G) 2-#5 REBAR HAIRPINS, PAINT UNEMBEDDED PORTION OF BARS WITH 2-COATS OF COAL TAR EPOXY, THEN COVER WITH 2" MINIMUM OF CEMENT MORTAR.
- (H) CONCRETE VALVE SUPPORT, PER DETAIL W9.
- (I) NEW WATER LINE TO BE CONSTRUCTED.
- (J) UNDISTURBED EARTH
- (K) EXISTING WATER MAIN TO BE TAPPED

TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: TAPPING SADDLE AND VALVE

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: W17

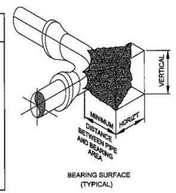
C1 TAPPING SADDLE AND VALVE
NO SCALE

HORIZONTAL THRUST (LBS)
MINIMUM BEARING AREA (SQUARE FEET)

FITTING SIZE	22 1/2 ° BEND		45 °BEND		90 °BEND		TEE OR DEAD END	
	THRUST	AREA	THRUST	AREA	THRUST	AREA	THRUST	AREA
4"	1,450	2	2,800	2	5,200	3	3,700	2
6"	2,900	2	5,800	3	10,700	6	7,600	4
8"	5,100	3	10,100	5	18,600	10	13,200	7
10"	8,300	5	16,500	8	30,400	16	21,500	12
12"	11,900	6	23,400	12	43,300	21	30,600	16
14"	16,100	8	31,800	16	58,700	30	41,500	21
16"	20,900	10	41,200	21	76,000	38	53,800	27

TYPICAL DIMENSIONS

BEARING AREA SQUARE, FEET	HORIZONTAL FEET	VERTICAL FEET	MIN DISTANCE FEET
2	2	1	1
3	2	1,5	1
4	2	2	1
5	2.5	2	1
6	3	2	1.25
7	3.5	2	1.5
8	4	2	1.7
10	5	2	2
16	5.3	3	2.25
21	6.4	3.3	2.75
27	7.2	3.75	3
30	7.5	4	3.5
38	9	4.5	3.5



NOTES:

1. THRUST BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL.
2. MINIMUM VOLUME OF THRUST BLOCK IS 3 CUBIC FEET.
3. THE ABOVE TABLE ARE BASED ON A SOIL HAVING A BEARING CAPACITY OF 2000 PSF. TO DETERMINE THE REQUIRED BEARING AREA FOR OTHER SOILS, MULTIPLY THE BEARING AREA BY THE FOLLOWING FACTORS.

MUCK	0 PSF	NOT ACCEPTABLE
SOFT CLAY	1000 PSF	MULTIPLY BEARING AREA BY 2.0
SAND	2000 PSF	NO ADJUSTMENT
SAND AND GRAVEL	3000 PSF	MULTIPLY BEARING AREA BY 0.66
CEMENTED SAND AND GRAVEL	4000 PSF	MULTIPLY BEARING AREA BY 0.5

4. THE ABOVE TABLE ARE BASED ON A TEST PRESSURE OF 200 PSI. FOR OTHER PRESSURES ADJUST PROPORTIONATELY. BLOCK SIZES SHALL NOT BE REDUCED FOR LOWER PRESSURES.
5. PORTLAND CEMENT CONCRETE SHALL PROVIDE F'c =3,000 PSI @ 28 DAYS.
6. THRUST BLOCKS ARE TO BE USED THROUGHOUT THE PROJECT UNLESS NOTED ON CONTRACT DOCUMENTS OR ENGINEER.

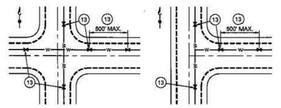
TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: THRUST BLOCKING DETAILS

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

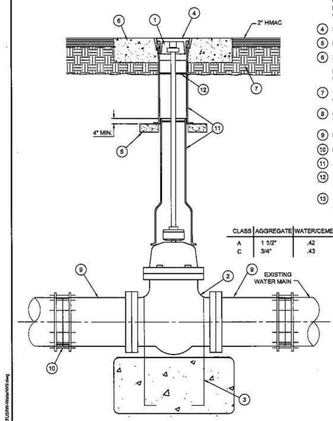
REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: G9

C2 THRUST BLOCKING
NO SCALE



TYPICAL VALVE LOCATIONS AT INTERSECTIONS



GENERAL NOTES:

1. VALVE SHALL BE DUCTILE IRON AND ENDS SHALL BE MECHANICAL TYPE.
2. ALL BURIED VALVES SHALL BE PROVIDED WITH SOLID STEEL OPERATOR WITH 2" SQUARE AWWA NUT. NUT IS TO INDICATE DIRECTION OF ROTATION TO OPEN VALVE.
3. BACKFILL PIPE IN ACCORDANCE WITH G4 OR G5.

KEY NOTES:

1. CLEAN VALVE BOX OF ALL DEBRIS AND SOIL.
2. COAT BURIED PIPE AND VALVE BOX W/COAL TAR EPOXY, VALVE SHALL BE WRAPPED IN POLYETHYLENE PLASTIC. GATE VALVE SHALL BE A RESILIENT SEAT MUELLER A-2361 W/AQUAGRIP SYSTEM OR APPROVED EQUAL.
3. 3000 PSI CONCRETE VALVE SUPPORT (SEE TABLE BELOW) AND (2) #5 REBAR HAIRPINS. PAINT UNEMBEDDED PORTION WITH 2 COATS OF POLYAMIDOAMINE EPOXY (AMERCIN PRIMER COAT 385, OR EQUAL).
4. STANDARD VALVE BOX COVER. SEE DETAIL W5.
5. MINIMUM 2 1/2" CONCRETE OR BRICKS ALL AROUND.
6. 3000 PSI CONCRETE (SEE TABLE BELOW) 6" THICK BY 3' TO 4' IN DIAMETER FOR PAVED AREAS WITH STANDARD BASE COURSE MATERIAL, MAKE FLUSH WITH HMAC. FOR UNPAVED AREAS, MATCH EXISTING GROUND ELEVATION.
7. 12" CEMENT STABILIZED BACKFILL IN PAVED AREAS CONCRETE PAD NOT REQUIRED.
8. CLASS "A" CONCRETE 6" THICK BY 3' IN DIAMETER FLUSH WITH VALVE BOX FOR UNPAVED CONDITIONS.
9. MINIMUM 2 FOOT SPOOL PIECE OF PIPE AS REQUIRED.
10. RESTRAINED JOINT SOLID SLEEVE AS REQUIRED.
11. STANDARD VALVE BOX. SEE DETAIL W5.
12. 1/4" THICK STEEL TRASH RING. OD IS 1/8" SMALLER THAN ID OF VALVE BOX.
13. GATE VALVES WILL BE LOCATED AT INTERSECTIONS AS SHOWN AND SHALL NOT BE MORE THAN 500' APART.

CLASS	AGGREGATE	WATER/CEMENT	MIN CEMENT	FLY ASH	% AIR	WATER	MIN 28-DAY
A	1 1/2"	.42	4.75	20	4±	YES	3000
C	3/4"	.43	5.0	20	6±	YES	3000

TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: GATE VALVE DETAIL

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REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: W9

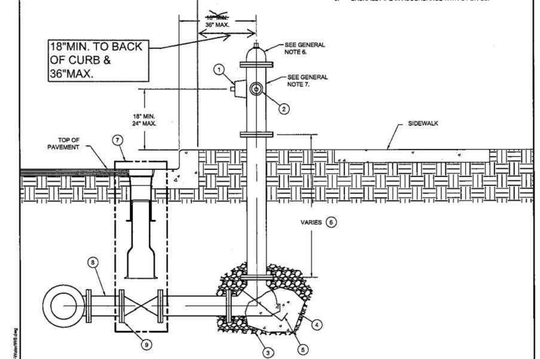
C3 GATE VALVE
NO SCALE

KEY NOTES:

1. PUMPER NOZZLE 4 1/2" TO BE FACING THE TRAVELED WAY, UNLESS OTHERWISE NOTED IN THE PLANS.
2. HOSE NOZZLE 2 1/2".
3. DRAIN PIT 3/8" PEA GRAVEL PLACE TO ABOVE F.H. SHOE TO ALLOW FOR WEEP HOLE DRAINAGE.
4. CONC. THRUST BLOCK, APPROX. 2'x2'x3' TO BE POURED AGAINST UNDISTURBED EARTH, F.H. **WEEP HOLE MUST BE UNOBSTRUCTED** .
5. NO. 5 REBAR HAIRPINS.
6. PROVIDE PROPER HYDRANT DEPTH TO MAINTAIN THE 18" MIN. TO 24" MAX. DISTANCE BETWEEN THE GROUND ELEVATION AND THE 4 1/2" PUMPER NOZZLE.
7. SEE GATE VALVE DETAILWS.
8. ALL PIPING OFF OF MAIN (INCLUDING TEE) SHALL BE RESTRAINED JOINT DUCTILE IRON PIPE. UNLESS OTHERWISE INDICATED, ALL HYDRANT LEADS SHALL BE 6" DIAMETER.
9. UNLESS OTHERWISE DIRECTED ALL ISOLATION VALVES ALONG FIRE HYDRANT RUNS SHALL BE INSTALLED ADJACENT TO TEE .

GENERAL NOTES:

1. ALL FIRE HYDRANTS SHALL BE MUELLER SUPER CENTURION A421 4 1/2" WITH AQUAGRIP SYSTEM OR APPROVED EQUAL.
2. FIRE HYDRANT SHALL BE INSTALLED WITH THE 4 1/2" PUMPER CONNECTION FACING THE STREET.
3. NO OBSTRUCTION SHALL BE PERMITTED WITHIN A 6 FT. RADIUS OF THE FIRE HYDRANT. FIRE HYDRANT **SHALL NOT** BE PLACED IN A WHEEL CHAIR RAMPS, DRIVEWAYS, BETWEEN HOUSES OR IN YARDS AND **SHALL NOT BE MORE THAN 300 FT. APART.**
4. FIRE HYDRANTS SHALL BE INSTALLED AND LOCATED AT THE ENTRY OF THE HOUSING AREAS, INTERSECTIONS AND CUL-DE-SACS.
5. A LICENSED OR CERTIFIED CONTRACTOR SHALL INSTALL THE NEW FIRE HYDRANTS. NO BOLLARDS WILL BE INSTALLED BY THE FIRE HYDRANTS.
6. THE FIRE HYDRANT'S HEAD SHALL BE PAINTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
7. THE FIRE HYDRANT'S BODY SHALL BE PAINTED RED OR AS SPECIFIED BY OWNER.
8. BACKFILL PIPE IN ACCORDANCE WITH G4 OR G5.



TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: FIRE HYDRANT INSTALLATION

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: W8

C4 FIRE HYDRANT
NO SCALE

GENERAL NOTE:

1. SEPARATION DISTANCE SHALL COMPLY WITH TCEQ STANDARD REQUIREMENTS 290.44e.

CONSTRUCTION NOTES:

SEPARATION DISTANCE SHALL BE DETERMINED ACCORDING TO THE FOLLOWING CONDITIONS.

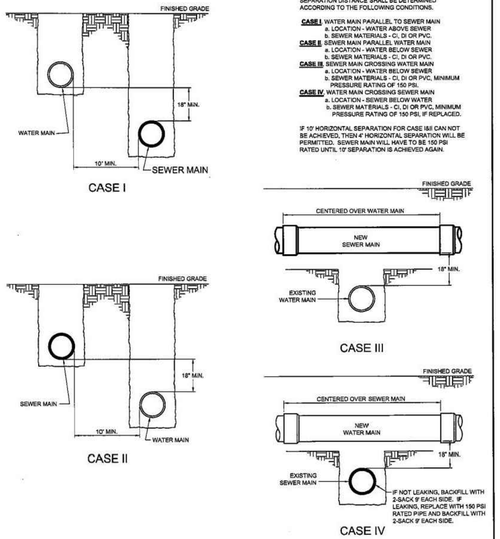
CASE I WATER MAIN PARALLEL TO SEWER MAIN
- a. LOCATION - WATER ABOVE SEWER
- b. SEWER MATERIALS - CI, DI OR PVC.

CASE II SEWER MAIN PARALLEL WATER MAIN
- a. LOCATION - WATER BELOW SEWER
- b. SEWER MATERIALS - CI, DI OR PVC.

CASE III SEWER MAIN CROSSING WATER MAIN
- a. LOCATION - WATER BELOW SEWER
- b. SEWER MATERIALS - CI, DI OR PVC, MINIMUM PRESSURE RATING OF 150 PSI.

CASE IV WATER MAIN CROSSING SEWER MAIN
- a. LOCATION - SEWER BELOW WATER
- b. SEWER MATERIALS - CI, DI OR PVC, MINIMUM PRESSURE RATING OF 150 PSI, IF REPLACED.

IF 10' HORIZONTAL SEPARATION FOR CASE I&II CAN NOT BE ACHIEVED, THEN 4' HORIZONTAL SEPARATION WILL BE PERMITTED. SEWER MAIN WILL HAVE TO BE 150 PSI RATED UNTIL 10' SEPARATION IS ACHIEVED AGAIN.



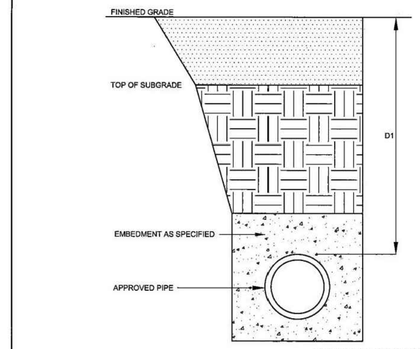
TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: PIPE SEPARATION DETAIL

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: G7

A1 PIPE SEPARATION
NO SCALE



GENERAL NOTES:

1. REFER TO STANDARD DETAIL G5 FOR PAVEMENT REPLACEMENT AND BACKFILL REQUIREMENTS.
2. TRENCH SAFETY SYSTEMS SHALL BE USED WHEN TRENCH DEPTH EXCEEDS 5 FEET OR AT A LESSER DEPTH IF REQUIRED BY OSHA OR MDSHA.

CONSTRUCTION KEY NOTES:

A. STANDARD COVER FOR WATER AND SEWER MAINS SHALL DEPEND ON THE PIPE SIZE AND THE FOLLOWING INSTALLATION CONDITIONS:

CONDITION A - NORMAL WATER LINE INSTALLATION, STREET AND DRAINAGE PROJECTS, WATERLINE RELOCATION, NEW SUBDIVISIONS AND NON-PAVED AREA.

CONDITION B - NORMAL SEWER LINE INSTALLATION, STREET AND DRAINAGE PROJECTS, WATERLINE RELOCATION, NEW SUBDIVISIONS AND NON-PAVED AREA.

AND SHALL BE AS FOLLOWS.

PIPE SIZE	CONDITION	DIMENSION
6", 8"	A	D1 = 4'
6", 8"	B	D1 = 6'
> 8"	A OR B	AS SPECIFIED IN PLANS

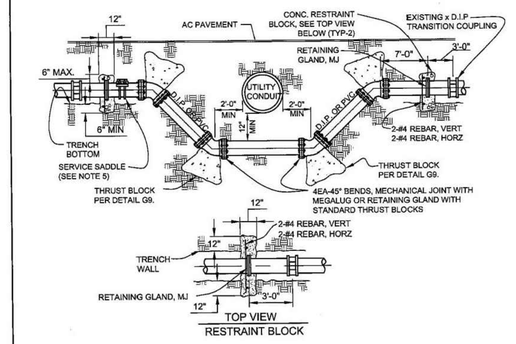
TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: STD COVER FOR WATER AND SEWER

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: G14

A2 PIPE COVER
NO SCALE



GENERAL NOTES:

1. DETAIL ABOVE SHOWS BOTH RESTRAINED JOINT AND THRUST BLOCKING FOR RESTRAINTS. USE OF EITHER RESTRAINED JOINTS OR THRUST BLOCKING WILL BE DETERMINED BASED ON FIELD CONDITIONS.
2. THE RESTRAINT BLOCKS SHALL BE A MINIMUM OF 24" IN HEIGHT AND 12" THICK. THE TOP OF THE BLOCK SHALL BE NO MORE THAN 6" ABOVE TOP OF PIPE.
3. ALL PIPE JOINTS AT 90° BENDS SHALL BE MECHANICAL JOINT WITH MEGALUG OR RETAINING GLAND. FLANGED JOINTS MAY BE USED WHERE CONDITIONS WARRANT.
4. INSTALLATION SHALL BE ENCASED IN A POLYETHYLENE WRAPPER PER AWWA STANDARD C105.
5. SERVICE SADDLE SHALL BE INSTALLED ON THE HIGH POINTS OF THE OFFSET FOR THE INSTALLATION OF AIR/VAC RELEASE VALVE, AS SPECIFIED ON THE PLANS OR BY THE INSPECTOR. SERVICE SADDLE SHALL BE 1" ON 8" AND SMALLER EXISTING MAINS AND 2" ON LARGER EXISTING MAINS.
6. IF BOTTOM CHORD EXCEEDS 18', CONNECT PIPE SECTIONS WITH APPROVED RESTRAINT JOINTS.
7. WHERE POSSIBLE, AND WHERE DIP IS UTILIZED, CONTRACTOR MAY DEFLECT PROPOSED PIPING AT JOINTS TO FACILITATE UTILITY CROSSINGS WITHOUT USING BENDS.
8. MINIMUM SEPARATION BETWEEN EXISTING UTILITY AND PROPOSED WATER MAIN SHALL BE 18" FOR SANITARY SEWER AND STORM DRAINS. FOR ALL SANITARY SEWER AND STORM DRAIN CROSSING, CENTER ONE STICK (MIN. 18' LONG) OF PROPOSED WATERMAIN ON CROSSING.

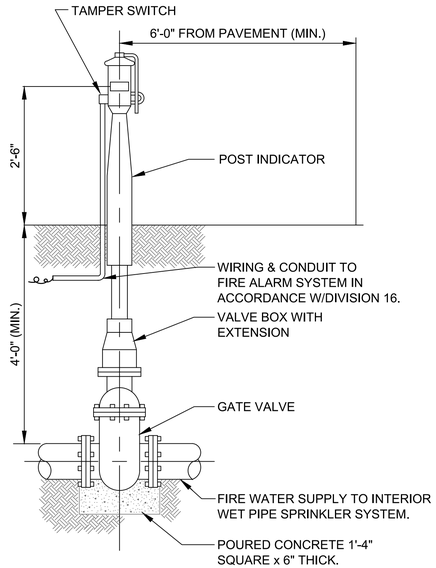
TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: 45° MECHANICAL JOINT UTILITY INVERT

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: W26

A3 UTILITY CROSSING
NO SCALE



A4 POST INDICATOR VALVE
NO SCALE

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

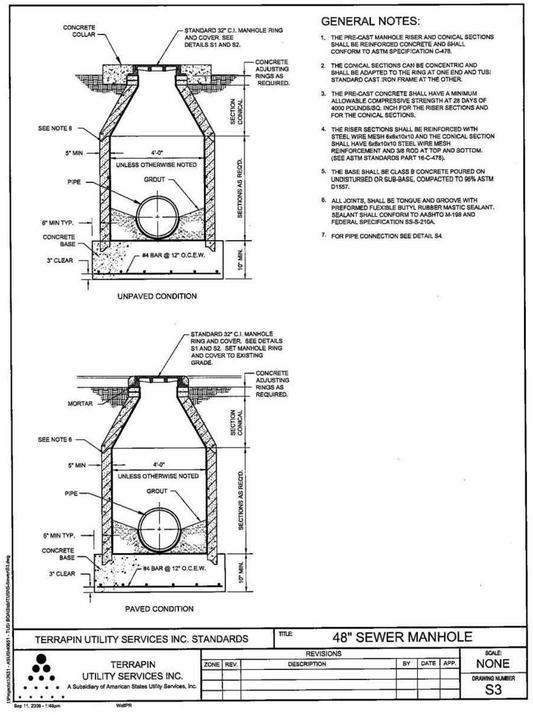
DESIGNED BY: TLN
DRAWN BY: CDM
CHECKED BY: JAS
SUBMITTED BY: SBR
SIZE: ANSI D
ISSUE DATE: 6 OCTOBER 2017
ANG NO.: CONTRACT NO.: W91133L-15-D-0001
FILE NUMBER:
FILE NAME:

DISTRICT OF COLUMBIA
AIR NATIONAL GUARD

POND
Pond & Company
3030 Hospitality Court, Suite 200
Peachtree Corners, GA 30092
Phone (678) 336-2700
Fax (678) 336-2744
JOB NO.: 1170022

MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD
CONSTRUCTION DETAILS

SHEET ID
C-503



GENERAL NOTES:

1. THE PRE-CAST MANHOLE RISER AND CONICAL SECTIONS SHALL BE REINFORCED CONCRETE AND SHALL CONFORM TO ASTM SPECIFICATION C-478.
2. THE CONICAL SECTIONS CAN BE CONCENTRIC AND SHALL BE ADAPTED TO THE RING AT ONE END AND TUS: STANDARD CAST IRON FRAME AT THE OTHER.
3. THE PRE-CAST CONCRETE SHALL HAVE A MINIMUM ALLOWABLE COMPRESSIVE STRENGTH AT 28 DAYS OF 4000 POUNDS/SQ. INCH FOR THE RISER SECTIONS AND FOR THE CONICAL SECTIONS.
4. THE RISER SECTIONS SHALL BE REINFORCED WITH STEEL WIRE MESH 6x6x10x10 AND THE CONICAL SECTION SHALL HAVE 6x6x10x10 STEEL WIRE MESH REINFORCEMENT AND 3/8 ROD AT TOP AND BOTTOM. (SEE ASTM STANDARDS PART 16-C-478).
5. THE BASE SHALL BE CLASS B CONCRETE POURED ON UNDISTURSED OR SUB-BASE, COMPACTED TO 95% ASTM D1557.
6. ALL JOINTS, SHALL BE TONGUE AND GROOVE WITH PREFORMED FLEXIBLE BUTYL RUBBER MASTIC SEALANT. SEALANT SHALL CONFORM TO AASHTO M-198 AND FEDERAL SPECIFICATION SS-S-210A.
7. FOR PIPE CONNECTION SEE DETAIL S4.

TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: 48" SEWER MANHOLE

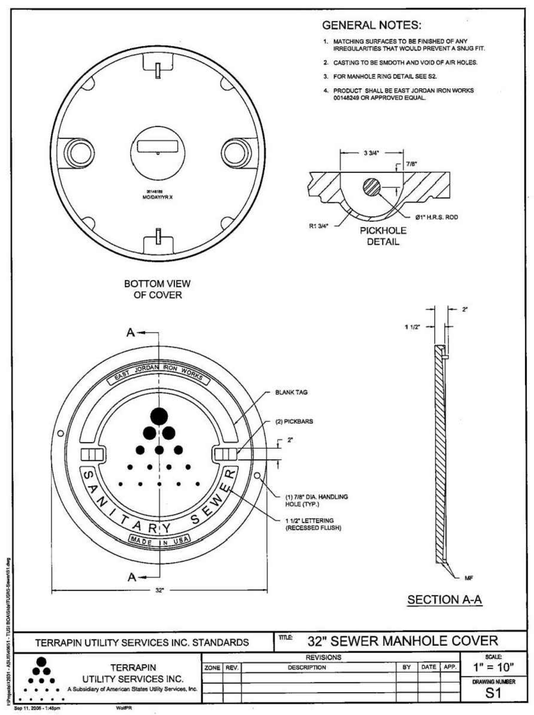
TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: S3

Sep 11, 2008 - 1:46pm WodPR

C1 SANITARY SEWER MANHOLE
NO SCALE



GENERAL NOTES:

1. MATCHING SURFACES TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND VOID OF AIR HOLES.
3. FOR MANHOLE RING DETAIL SEE S2.
4. PRODUCT SHALL BE EAST JORDAN IRON WORKS 00148248 OR APPROVED EQUAL.

TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: 32" SEWER MANHOLE COVER

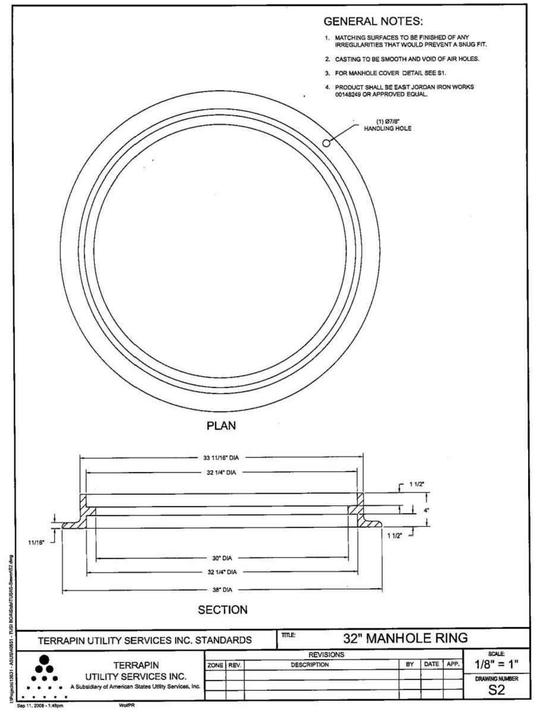
TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: 1" = 10" | DRAWING NUMBER: S1

Sep 11, 2008 - 1:46pm WodPR

C2 MANHOLE COVER
NO SCALE



GENERAL NOTES:

1. MATCHING SURFACES TO BE FINISHED OF ANY IRREGULARITIES THAT WOULD PREVENT A SNUG FIT.
2. CASTING TO BE SMOOTH AND VOID OF AIR HOLES.
3. FOR MANHOLE COVER DETAIL SEE S1.
4. PRODUCT SHALL BE EAST JORDAN IRON WORKS 00148249 OR APPROVED EQUAL.

TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: 32" MANHOLE RING

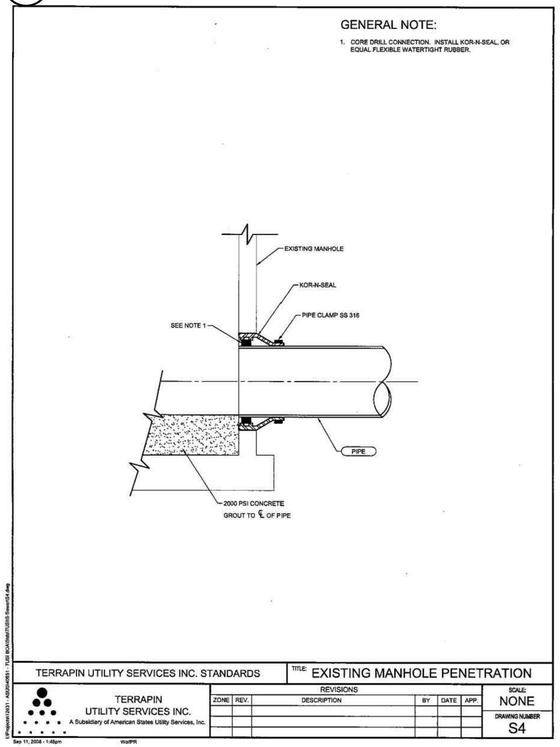
TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: 1/8" = 1" | DRAWING NUMBER: S2

Sep 11, 2008 - 1:46pm WodPR

C3 MANHOLE RING
NO SCALE



TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: EXISTING MANHOLE PENETRATION

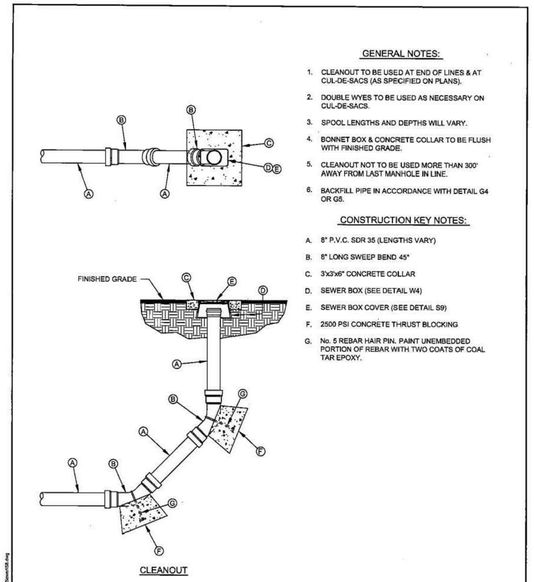
TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: S4

Sep 11, 2008 - 1:46pm WodPR

A1 PIPE PENETRATION @ EXIST. MH
NO SCALE



TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: END OF SEWER LINE CLEANOUT

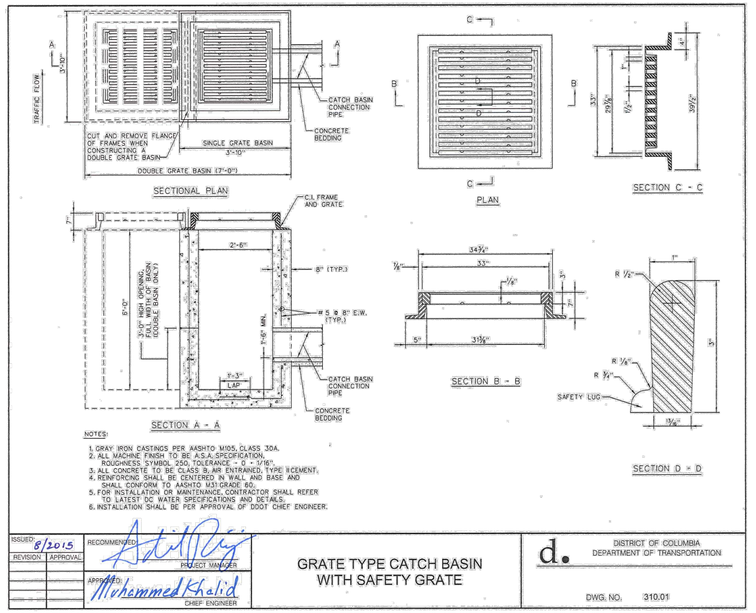
TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE | DRAWING NUMBER: S8

Sep 11, 2008 - 1:46pm WodPR

A2 CLEANOUT
NO SCALE



NOTES:
1. GRAY IRON CASTINGS PER AASHTO M105, CLASS 30A.
2. ALL MACHINE FINISH TO BE A.S.A. SPECIFICATION, ROUGHNESS SYMBOL 250, TOLERANCE + 0 - 1/16".
3. ALL CONCRETE TO BE CLASS B, AIR ENTRAINED, TYPE II CEMENT.
4. REINFORCING SHALL BE CENTERED IN WALL AND BASE AND SHALL CONFORM TO AASHTO M31 GRADE 60.
5. FOR INSTALLATION OR MAINTENANCE, CONTRACTOR SHALL REFER TO LATEST DC WATER SPECIFICATIONS AND DETAILS.
6. INSTALLATION SHALL BE PER APPROVAL OF DDOT CHIEF ENGINEER.

ISSUED: 8/2015	RECOMMENDED:	PROJECT MANAGER
REVISION / APPROVAL	APPROVED: Mohammed Khalid	CHIEF ENGINEER

GRATE TYPE CATCH BASIN WITH SAFETY GRATE

DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION

DWG. NO. 310.01

A4 CATCH BASIN
NO SCALE

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TLN
DRAWN BY: CRM
CHECKED BY: JAS
SUBMITTED BY: SBR
SIZE: ANSI D
FILE NAME:

ISSUE DATE: 6 OCTOBER 2017
ANG NO.: AANT0940
CONTRACT NO.: W9133L-15-D-0001
FILE NUMBER:

DISTRICT OF COLUMBIA
AIR NATIONAL GUARD

POND
Pond & Company
Peachtree Corners, GA 30092
Phone (770) 325-9580
Fax (678) 336-7744
JOB NO. 1170002

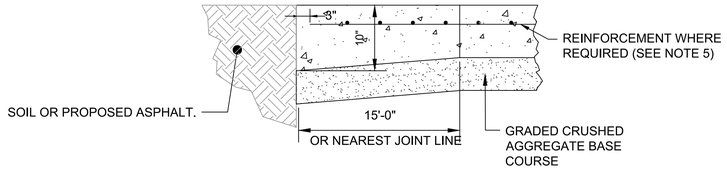
MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

CONSTRUCTION DETAILS

SHEET ID
C-504

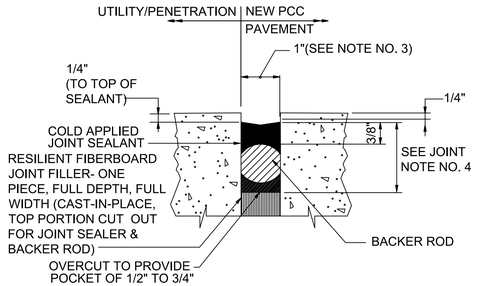
SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID



D1 THINKENED EDGE AT GRASS AND NEW ASPHALT — T

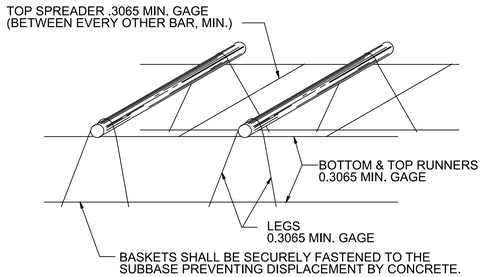
SCALE: N.T.S.



1. SEE JOINT NOTES THIS SHEET.

D3 EXPANSION JOINT SEAL AT PENETRATIONS AND UTILITIES

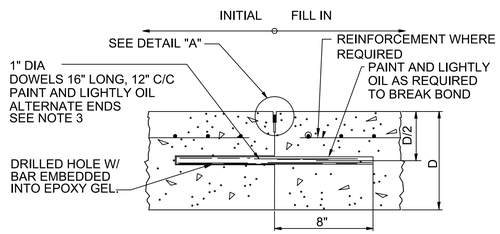
SCALE: N.T.S.



NOTES:

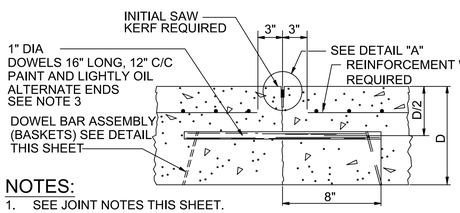
1. WIRE USED IN BASKETS SHALL CONFORM TO ASTM-A82 COLD DRAWN WIRE.
2. DOWEL BAR ATTACHMENT MAY BE FABRICATED BY ARC OR RESISTANCE TYPE WELDING.
3. WIRE FRAME MEMBERS SHALL BE RESISTANCE WELDED EXCEPT FOR SPREADER WIRES WHICH MAY BE ARC WELDED.

TYPICAL DOWEL BAR BASKET



1. SEE JOINT NOTES THIS SHEET.

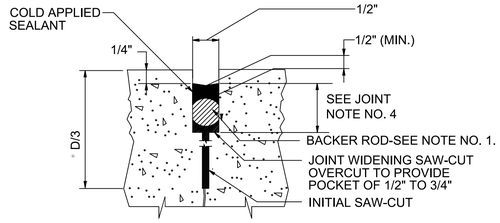
DOWELED LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT DETAIL



NOTES:

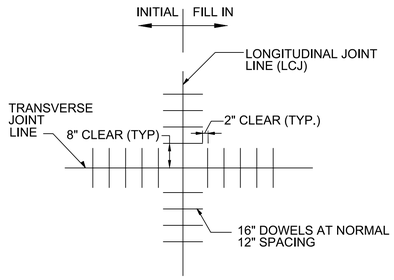
1. SEE JOINT NOTES THIS SHEET.
2. REINFORCING IS REQUIRED AT LOCATIONS IDENTIFIED ON THE PLANS AND FOR ODD SHAPED PANELS, OR PANELS WITH ONE END EXCEEDING THE OTHER BY MORE THAN 25%.
3. TIE BARS SHALL BE OF THE SAME SIZE AND SPACING. DO NOT PAINT ENDS. SEE PLANS FOR LOCATIONS.

D DOWELED CONTRACTION JOINT

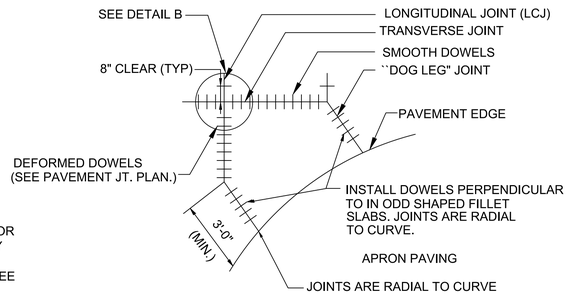


LONGITUDINAL AND TRANSVERSE JOINT SEAL DETAIL

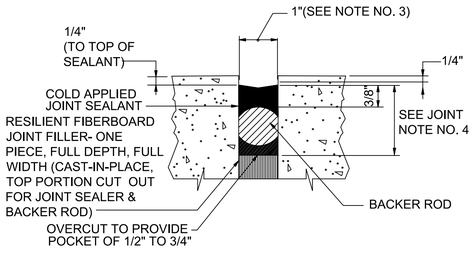
DETAIL "A"



DETAIL FOR DOWEL SPACING AT JOINT CORNERS DETAIL "B"

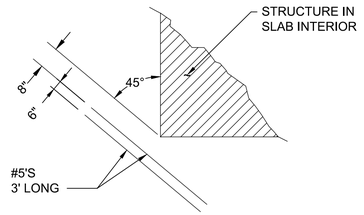


SKEWED DOWEL INSTALLATION



1. SEE JOINT NOTES THIS SHEET.

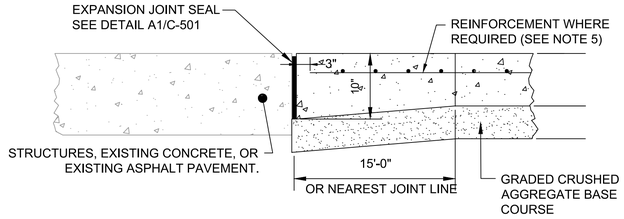
A EXPANSION JOINT SEAL DETAIL



NOTES:

1. PROVIDE REINFORCING WHERE ANY STRUCTURE CORNER IS LOCATED IN PAVEMENT SLAB AND INTERIOR TO PAVEMENT JOINTS.
2. SEE JOINT NOTES THIS SHEET.

CORNER REINFORCING



E THICKENED EDGE EXPANSION JOINT

N.T.S.

JOINT NOTES:

1. LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE SAWED AS INDICATED.
2. FOR ALL JOINTS THE BACKER ROD MATERIAL SHALL BE COMPATIBLE WITH THE COLD POURED SEALANT AND SLIGHTLY OVERSIZED TO PREVENT MOVEMENT DURING THE JOINT SEALANT OPERATION.
3. THE WIDTH OF THE JOINTS SHALL BE CORRECTED FOR 68°F.
4. JOINT CONFIGURATION SHALL MEET JOINT SEAL MANUFACTURER'S SPECIFICATIONS (EXCEPT AS NOTED ON PLANS AND IN SPECIFICATIONS).
5. DOWELS AND TIE BARS FOR CONTRACTION JOINTS SHALL BE CAST IN PLACE
6. SEE TYPICAL SECTIONS FOR PAVEMENT THICKNESSES.
7. IF PAVING OPERATIONS ARE STOPPED FOR MORE THAN ONE-HALF HOUR, A CONSTRUCTION JOINT SHALL BE USED.
8. INSTALL SILICONE JOINT SEALANT IN POURED IN PLACE JOINTS. USE THE MANUFACTURER'S RECOMMENDED SHAPE FACTOR. TYPICALLY T = 1/2 W, WHERE T = THE THICKNESS OF THE MATERIAL, AND W = THE WIDTH OF THE JOINT.

NOTES FOR DOWEL AND TIE BAR HOLE DRILLING AND INSTALLATION:

A. A. DRILLING AND INSTALLATION METHOD SHALL BE CAPABLE OF MAINTAINING DRILL HOLES AND EMBEDDED BARS: (A) PARALLEL TO THE CONCRETE AND, (B) NORMAL TO THE JOINT LINE, WITHIN 1/4" AT THE END OF THE DOWEL OR TIE BAR EXCEPT WHERE SPECIFIED OTHERWISE. DRILL HOLES SHALL BE ACCURATELY LAID OUT SO THAT THE MAXIMUM DEVIATION DOES NOT EXCEED 1". DRILL HOLE DIAMETER TO BE APPROXIMATELY 1/8" CLEAR OF BAR ALL AROUND.

B. AFTER THE DRILLING IS COMPLETE AND PRIOR TO INSTALLATION OF THE DOWEL OR TIE BARS, THE HOLES SHALL BE THOROUGHLY CLEANED TO REMOVE DRILLING DUST, CONCRETE CHIPS, AND ANY MATERIAL DETRIMENTAL TO BONDING.

C. EPOXY GEL SHALL BE APPLIED TO THE DOWEL AND SUFFICIENT GEL INJECTED IN THE BACK OF THE TIE BAR HOLE BY A MECHANICAL MIXING/PUMP DEVICE SO THAT A SLIGHT AMOUNT OF GEL WILL BE FORCED OUT WHEN THE DOWEL OR TIE BAR IS INSERTED AND TAPPED TO THE CORRECT POSITION. IT WILL BE NECESSARY TO TWIST THE BAR BACK AND FORTH SEVERAL TIMES TO ELIMINATE THE AIR ENTRAPPED IN THE HOLE. SMALL WEDGES MAY BE USED TO SUPPORT THE DOWEL OR TIE BAR IN CORRECT ALIGNMENT UNTIL THE GEL HARDENS.

A1 CONCRETE PAVEMENT JOINT DETAILS

NO SCALE

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TLN
DRAWN BY: TLN
CHECKED BY: TLN
SUBMITTED BY: SBR
ISSUE DATE: 6 OCTOBER 2017
ANG NO.: AJXF039040
CONTRACT NO.: W912LA-15-D-0001
FILE NUMBER:
SIZE: ANSI D
FILE NAME:

DISTRICT OF COLUMBIA AIR NATIONAL GUARD

POND
2500 Parkway Lane, Suite 500
Norcross, Georgia 30092
Phone (770) 325-7240
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JOB NO. 1170502

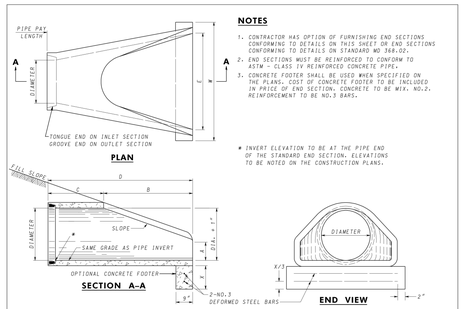
MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

CONSTRUCTION DETAILS

SHEET ID
C-505

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID



NOTES

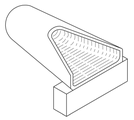
1. CONTRACTOR HAS OPTION OF FURNISHING END SECTIONS CONFORMING TO DETAILS ON THIS SHEET OR END SECTIONS CONFORMING TO DETAILS ON STANDARD NO 368.02.
2. END SECTIONS MUST BE REINFORCED TO CONFORM TO ASTM - CLASS IV REINFORCED CONCRETE PIPE.
3. CONCRETE FOOTER SHALL BE USED WHEN SPECIFIED ON THE PLANS. COST OF CONCRETE FOOTER TO BE INCLUDED IN PRICE OF END SECTION. CONCRETE TO BE MIX. NO.2. REINFORCEMENT TO BE NO.3 BARS.

* INVERT ELEVATION TO BE AT THE PIPE END OF THE STANDARD END SECTION. ELEVATIONS TO BE NOTED ON THE CONSTRUCTION PLANS.

QUANTITIES FOR ESTIMATING PURPOSES ONLY

DIMENSIONS									QUANTITIES	
CONCRETE END SECTION							CONCRETE FOOTER			
DIA.	SLOPE	A	B	C	D	E	W	X	CONC. C.Y.	STEEL LBS.
12"	3:1	4"	2'-0"	4'-05⅜"	6'-05⅜"	2'-0"	3'-0"	12"	0.08	2.01
15"	3:1	6½"	2'-4"	3'-10"	6'-2"	2'-6"	3'-6"	12"	0.10	2.38
18"	3:1	10¼"	2'-2"	4'-0"	6'-2"	3'-0"	4'-0"	12"	0.11	2.76
21"	3:1	9"	3'-0"	3'-11½"	6'-11½"	3'-6"	4'-6"	12"	0.13	3.13
24"	3:1	11"	3'-7"	2'-8"	6'-3"	4'-0"	5'-0"	15"	0.17	3.51
27"	3:1	10½"	4'-1½"	2'-0"	6'-11½"	4'-6"	5'-6"	15"	0.19	3.89
30"	3:1	1'-1"	4'-5"	1'-10"	6'-3"	5'-0"	6'-0"	15"	0.21	4.26
33"	3:1	1'-2"	4'-7"	2'-2"	6'-3"	5'-6"	6'-6"	15"	0.23	4.64
36"	3:1	1'-1½"	5'-3"	3'-1"	8'-4"	6'-0"	7'-3"	15"	0.25	5.20

SEE NOTE 3 ABOVE FOR CONCRETE FOOTER



ISOMETRIC VIEW

SPECIFICATION 305	CATEGORY CODE ITEMS
APPROVED	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

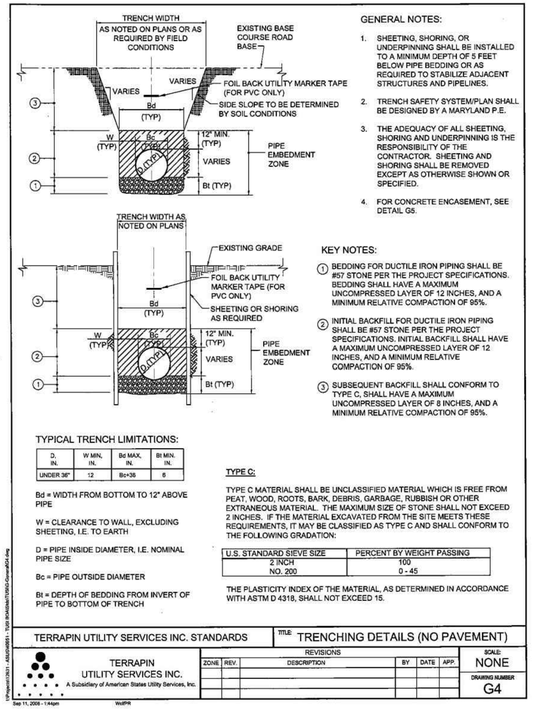
APPROVAL • SHA REVISIONS		APPROVAL • FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	8-28-86	APPROVAL	12-12-86
REVISED	3-15-06	REVISED	4-05-06
REVISED	7-1-09	REVISED	7-27-09
REVISED		REVISED	

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STANDARD CONCRETE END SECTION ROUND CONCRETE PIPE

STANDARD NO. MD 368.01

C1 FLARED END SECTION



GENERAL NOTES:

1. SHEETING, SHORING, OR UNDERPINNING SHALL BE INSTALLED TO A MINIMUM DEPTH OF 5 FEET BELOW PIPE BEDDING OR AS REQUIRED TO STABILIZE ADJACENT STRUCTURES AND PIPELINES.
2. TRENCH SAFETY SYSTEM/PLAN SHALL BE DESIGNED BY A MARYLAND P.E.
3. THE ADEQUACY OF ALL SHEETING, SHORING AND UNDERPINNING IS THE RESPONSIBILITY OF THE CONTRACTOR. SHEETING AND SHORING SHALL BE REMOVED EXCEPT AS OTHERWISE SHOWN OR SPECIFIED.
4. FOR CONCRETE ENCASEMENT, SEE DETAIL G5.

KEY NOTES:

1. BEDDING FOR DUCTILE IRON PIPING SHALL BE #57 STONE PER THE PROJECT SPECIFICATIONS. BEDDING SHALL HAVE A MAXIMUM UNCOMPRESSED LAYER OF 12 INCHES, AND A MINIMUM RELATIVE COMPACTION OF 95%.
2. INITIAL BACKFILL FOR DUCTILE IRON PIPING SHALL BE #57 STONE PER THE PROJECT SPECIFICATIONS. INITIAL BACKFILL SHALL HAVE A MAXIMUM UNCOMPRESSED LAYER OF 12 INCHES, AND A MINIMUM RELATIVE COMPACTION OF 95%.
3. SUBSEQUENT BACKFILL SHALL CONFORM TO TYPE C, SHALL HAVE A MAXIMUM UNCOMPRESSED LAYER OF 8 INCHES, AND A MINIMUM RELATIVE COMPACTION OF 95%.

TYPICAL TRENCH LIMITATIONS:

D, IN.	W MIN, IN.	Bd MAX, IN.	Bt MIN. IN.
UNDER 36"	12	Bc+36	6

Bd = WIDTH FROM BOTTOM TO 12" ABOVE PIPE

W = CLEARANCE TO WALL, EXCLUDING SHEETING, I.E. TO EARTH

D = PIPE INSIDE DIAMETER, I.E. NOMINAL PIPE SIZE

Bc = PIPE OUTSIDE DIAMETER

Bt = DEPTH OF BEDDING FROM INVERT OF PIPE TO BOTTOM OF TRENCH

TYPE C:

TYPE C MATERIAL SHALL BE UNCLASSIFIED MATERIAL WHICH IS FREE FROM PEAT, WOOD, ROOTS, BARK, DEBRIS, GARBAGE, RUBBISH OR OTHER EXTRANEOUS MATERIAL. THE MAXIMUM SIZE OF STONE SHALL NOT EXCEED 2 INCHES. IF THE MATERIAL EXCAVATED FROM THE SITE MEETS THESE REQUIREMENTS, IT MAY BE CLASSIFIED AS TYPE C AND SHALL CONFORM TO THE FOLLOWING GRADATION:

U.S. STANDARD SIEVE SIZE	PERCENT BY WEIGHT PASSING
2 INCH	100
NO. 200	0 - 45

*THE PLASTICITY INDEX OF THE MATERIAL, AS DETERMINED IN ACCORDANCE WITH ASTM D 4318, SHALL NOT EXCEED 15.

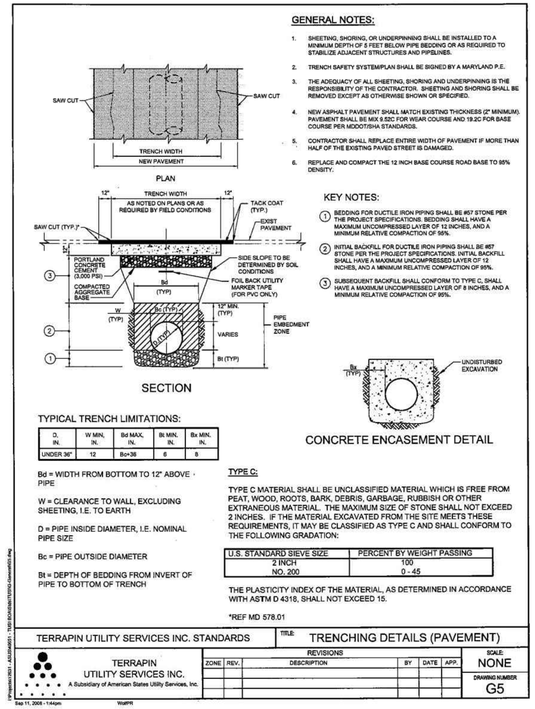
TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: TRENCHING DETAILS (NO PAVEMENT)

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE

DRAWING NUMBER: G4



GENERAL NOTES:

1. SHEETING, SHORING, OR UNDERPINNING SHALL BE INSTALLED TO A MINIMUM DEPTH OF 5 FEET BELOW PIPE BEDDING OR AS REQUIRED TO STABILIZE ADJACENT STRUCTURES AND PIPELINES.
2. TRENCH SAFETY SYSTEM/PLAN SHALL BE SIGNED BY A MARYLAND P.E.
3. THE ADEQUACY OF ALL SHEETING, SHORING AND UNDERPINNING IS THE RESPONSIBILITY OF THE CONTRACTOR. SHEETING AND SHORING SHALL BE REMOVED EXCEPT AS OTHERWISE SHOWN OR SPECIFIED.
4. NEW ASPHALT PAVEMENT SHALL MATCH EXISTING THICKNESS (2" MINIMUM). PAVEMENT SHALL BE MIX 9.5E/ FOR WEAR COURSE AND 19.2C FOR BASE COURSE PER MDOT/SHA STANDARDS.
5. CONTRACTOR SHALL REPLACE ENTIRE WIDTH OF PAVEMENT IF MORE THAN HALF OF THE EXISTING PAVED STREET IS DAMAGED.
6. REPLACE AND COMPACT THE 12 INCH BASE COURSE ROAD BASE TO 95% DENSITY.

KEY NOTES:

1. BEDDING FOR DUCTILE IRON PIPING SHALL BE #57 STONE PER THE PROJECT SPECIFICATIONS. BEDDING SHALL HAVE A MAXIMUM UNCOMPRESSED LAYER OF 12 INCHES, AND A MINIMUM RELATIVE COMPACTION OF 95%.
2. INITIAL BACKFILL FOR DUCTILE IRON PIPING SHALL BE #57 STONE PER THE PROJECT SPECIFICATIONS. INITIAL BACKFILL SHALL HAVE A MAXIMUM UNCOMPRESSED LAYER OF 12 INCHES, AND A MINIMUM RELATIVE COMPACTION OF 95%.
3. SUBSEQUENT BACKFILL SHALL CONFORM TO TYPE C, SHALL HAVE A MAXIMUM UNCOMPRESSED LAYER OF 8 INCHES, AND A MINIMUM RELATIVE COMPACTION OF 95%.

TYPICAL TRENCH LIMITATIONS:

D, IN.	W MIN, IN.	Bd MAX, IN.	Bt MIN. IN.	Bx MIN. IN.
UNDER 36"	12	Bc+36	6	8

Bd = WIDTH FROM BOTTOM TO 12" ABOVE PIPE

W = CLEARANCE TO WALL, EXCLUDING SHEETING, I.E. TO EARTH

D = PIPE INSIDE DIAMETER, I.E. NOMINAL PIPE SIZE

Bc = PIPE OUTSIDE DIAMETER

Bt = DEPTH OF BEDDING FROM INVERT OF PIPE TO BOTTOM OF TRENCH

TYPE C:

TYPE C MATERIAL SHALL BE UNCLASSIFIED MATERIAL WHICH IS FREE FROM PEAT, WOOD, ROOTS, BARK, DEBRIS, GARBAGE, RUBBISH OR OTHER EXTRANEOUS MATERIAL. THE MAXIMUM SIZE OF STONE SHALL NOT EXCEED 2 INCHES. IF THE MATERIAL EXCAVATED FROM THE SITE MEETS THESE REQUIREMENTS, IT MAY BE CLASSIFIED AS TYPE C AND SHALL CONFORM TO THE FOLLOWING GRADATION:

U.S. STANDARD SIEVE SIZE	PERCENT BY WEIGHT PASSING
2 INCH	100
NO. 200	0 - 45

THE PLASTICITY INDEX OF THE MATERIAL, AS DETERMINED IN ACCORDANCE WITH ASTM D 4318, SHALL NOT EXCEED 15.

*REF MD 578.01

TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: TRENCHING DETAILS (PAVEMENT)

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE

DRAWING NUMBER: G5

TRENCHING TABLES

FILL CLASSIFICATIONS

Material type	Maximum uncompressed layer depth, inches	Minimum relative compaction precent	General application
B	8	95	Structural (select) fill (per ASTM D-1557 modified proctor)
C	8	95	Subsequent pipeline backfill and backfill within 8 feet of structural foundations (per ASTM D-1557 modified proctor)
D	-	-	Structural granular base and slab on grade
F	12	95	Pipe bedding and initial backfill

TYPE B: (SELECT) FILL

Type B material shall be a select granular material free from organic matter and of such size and gradation that the specified compaction can be readily attained. Material shall have a sand equivalent value determined in accordance with ASTM D2419 of not less than 20 and shall conform to the following gradation:

U.S. standard sieve size	Percent by weight passing
3 inch	100
½ inch	70-100
No. 4	40-100
No. 200	5-35

The coefficient of uniformity shall be 3 or greater. The plasticity index of the material, as determined in accordance with ASTM D 4318, shall not exceed 15 and the material shall have a liquid limit less than 40.

The material may be an imported quarry waste, clean natural sand or gravel, select trench excavation or a mixture thereof. The fill material shall be free from roots, grass, other vegetable matter, clay lump, rocks larger than 3 (three) inches in any dimension, or other deleterious materials.

C. TYPE C:

Type C material shall be unclassified material which is free from peat, wood, roots, bark, debris, garbage, rubbish or other extraneous material. The maximum size of stone shall not exceed 2 inches. If the material excavated from the site meets these requirements, it may be classified as Type C and shall conform to the following gradation:

U.S. standard sieve size	Percent by weight passing
2 inch	100
No. 200	0 - 45

The plasticity index of the material, as determined in accordance with ASTM D 4318, shall not exceed 15.

D. TYPE D:

Type D material shall be used for prepared subgrade under slabs and mat-type foundations where indicated on the drawings. Granular base shall meet the following grading requirements as determined in accordance with ASTM D 422:

U.S. standard sieve size	Percent by weight passing (by dry weight)
1 inch	100
¾ inch	85 - 100
No. 4	45 - 95
No. 200	0 - 8

The granular base should have a plasticity index of no greater than 12 when tested in accordance with ASTM D 4318. The coarse aggregate should have a percent of wear, when subjected to the Los Angeles abrasion test (ASTM C 131), of no greater than 50. Granular base should be compacted to at least 95 percent of maximum dry density in accordance with ASTM D 1557.

F. TYPE F:

Type F material shall be Class 1, angular graded crushed stone material per ASTM D-4318 and shall conform to the following gradation:

U.S. standard sieve size	Percent by weight passing
3/8 inch	100
No. 200	0 - 12

TERRAPIN UTILITY SERVICES INC. STANDARDS | TITLE: TRENCHING TABLES

TERRAPIN UTILITY SERVICES INC. A Subsidiary of American States Utility Services, Inc.

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

SCALE: NONE

DRAWING NUMBER: G6

A1 PIPE TRENCHING DETAILS
NO SCALE

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TLN
DRAWN BY: TLN
CHECKED BY: TLN
SUBMITTED BY: SBR
SIZE: ANSI D
ISSUE DATE: 6 OCTOBER 2017
ANG NO.: AJXF038040
CONTRACT NO.: W912DS-17-D-3001
FILE NUMBER:
FILE NAME:

DISTRICT OF COLUMBIA AIR NATIONAL GUARD

POND
3000 Pickett Road, Suite 200
Fairfax, Virginia 22031-4615
Phone (703) 789-0743
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JOB NO. 1170033

MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD
CONSTRUCTION DETAILS

SHEET ID
C-506

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

EROSION AND SEDIMENT CONTROL GENERAL NOTES

MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) REQUIRES THAT THESE NOTES, IN THEIR ENTIRETY, BE INCLUDED ON THE EROSION AND SEDIMENT CONTROL PLAN. IT IS RECOGNIZED THAT EVERY NOTE MAY NOT APPLY TO ALL PROJECTS. THE REQUIREMENT OF ANY INDIVIDUAL NOTE NOT APPLICABLE TO THE SUBJECT PROJECT IS NOT BINDING UPON THE APPLICANT OR THE APPLICANT'S CONTRACTOR.

1. THE CONTRACTOR SHALL NOTIFY MDE AT (410) 537-3510 SEVEN (7) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY MDE, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES AND A REPRESENTATIVE OF MDE.

2. THE CONTRACTOR SHALL NOTIFY MDE IN WRITING AND BY TELEPHONE AT THE FOLLOWING POINTS:
   A. THE REQUIRED PRE-CONSTRUCTION MEETING.
   B. FOLLOWING INSTALLATION OF SEDIMENT CONTROL MEASURES.
   C. DURING THE INSTALLATION OF SEDIMENT BASINS (TO BE CONVERTED INTO PERMANENT STORMWATER MANAGEMENT STRUCTURES) AT THE REQUIRED INSPECTION POINTS (SEE INSPECTION CHECKLIST ON PLAN). NOTIFICATION PRIOR TO COMMENCING CONSTRUCTION OF EACH STEP IS MANDATORY.
   D. PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).
   E. PRIOR TO REMOVAL OF ALL SEDIMENT CONTROL DEVICES.
   F. PRIOR TO FINAL ACCEPTANCE.

3. THE PLAN APPROVAL LETTER, APPROVED EROSION AND SEDIMENT CONTROL PLANS, DAILY LOG BOOKS, AND TEST REPORTS SHALL BE AVAILABLE AT THE SITE FOR INSPECTION BY DULY AUTHORIZED OFFICIALS OF MDE AND THE AGENCY RESPONSIBLE FOR PROJECT.

4. THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE AND SHALL HAVE THEM INSPECTED AND APPROVED BY THE MDE INSPECTOR PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES. MINOR SEDIMENT CONTROL DEVICE LOCATION ADJUSTMENTS MAY BE MADE IN THE FIELD WITH THE APPROVAL OF THE MDE INSPECTOR. THE CONTRACTOR SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM MDE INSPECTOR. THE CONTRACTOR SHALL OBTAIN PRIOR AGENCY AND MDE APPROVAL FOR MODIFICATIONS TO THE SEDIMENT CONTROL PLAN AND / OR SEQUENCE OF CONSTRUCTION.

5. THE MDE INSPECTOR HAS THE OPTION OF REQUIRING ADDITIONAL SAFETY OR SEDIMENT CONTROL MEASURES, IF DEEMED NECESSARY.

6. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.

7. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIMES AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM THE MDE INSPECTOR.

8. EROSION AND SEDIMENT CONTROL FOR UTILITY CONSTRUCTION SHALL BE PROVIDED IN ACCORDANCE WITH APPROVED PLANS. UTILITY CONSTRUCTION SHALL ONLY BE FOR AREAS WITHIN THE DELINEATED LIMIT OF DISTURBANCE. CALL "MISS UTILITY" AT 1-800-257-7777 48 HOURS PRIOR TO THE START OF WORK. WHEN SAME DAY STABILIZATION IS APPROVED:
   A. EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
   B. TRENCHES FOR UTILITY INSTALLATION SHALL BE BACKFILLED, COMPACTED, AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAN CAN BE COMPLETED THE SAME DAY.

9. ALL WATER REMOVED FROM EXCAVATED AREAS SHALL BE PASSED THROUGH AN MDE APPROVED DEWATERING PRACTICE OR PUMPED TO A SEDIMENT TRAP OR BASIN PRIOR TO DISCHARGE TO A FUNCTIONAL STORM DRAIN SYSTEM OR TO STABLE GROUND SURFACE.

10. CONCRETE WASHOUT STRUCTURES SHALL BE USED WHEN CONCRETE TRUCKS, DRUMS, PUMPS, CHUTES, OR OTHER EQUIPMENT IS RINSED OR CLEANED ON-SITE.

11. CONSTRUCTION ACTIVITIES PRODUCING DUST SHALL IMPLEMENT CONTROL MEASURES TO AVOID THE SUSPENSION OF DUST PARTICLES AND / OR PREVENT DUST FROM BLOWING OFF-SITE OR TO AREAS WITHOUT TREATMENT.

12. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
   A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROL, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
   B. SEVEN (7) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

13. VEGETATIVE STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. REFER TO APPROPRIATE SPECIFICATIONS FOR TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING, SODDING, AND GROUND COVERS.

14. WHEN SEEDING, ALL DISTURBED AREAS WITH SLOPES FLATTER THAN 2:1 SHALL BE STABILIZED WITH 4 INCHES OF TOPSOIL, SEED, AND MULCH. ALL DISTURBED AREAS WITH SLOPES 2:1 OR STEEPER SHALL BE STABILIZED WITH MATTING OVER 2 INCHES OF TOPSOIL AND SEED.

15. ALL SEDIMENT BASINS, TRAP EMBANKMENTS AND SLOPES, PERIMETER DIKES, SWALES AND ALL DISTURBED SLOPES STEEPER OR EQUAL TO 3:1 SHALL BE STABILIZED WITH SEED AND ANCHORED STRAW MULCH, SOD, OR OTHER APPROVED STABILIZATION MEASURES, AS SOON AS POSSIBLE BUT NO LATER THAN THREE (3) CALENDAR DAYS AFTER ESTABLISHMENT. ALL AREAS DISTURBED OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM SHALL BE MINIMIZED. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION.

16. PERMANENT SWALES OR OTHER POINTS OF CONCENTRATED WATER FLOW SHALL BE STABILIZED WITH SEED AND AN APPROVED EROSION CONTROL MATTING, SOD, RIP-RAP, OR OTHER APPROVED STABILIZATION MEASURES.

17. FOR STOCKPILE SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), THE CONTRACTOR SHALL APPLY SEED AND ANCHORED STRAW MULCH, SOD, OR OTHER APPROVED STABILIZATION MEASURES TO THE FACE OF THE STOCKPILE WITHIN THREE (3) CALENDAR DAYS OF ACTIVITY HAVING CEASED ON THE RESPECTIVE FACE. FOR SLOPES 3:1 OR FLATTER, THE CONTRACTOR SHALL APPLY STABILIZATION MEASURES TO THE FACE OF THE STOCKPILE WITHIN SEVEN (7) CALENDAR DAYS OF ACTIVITY HAVING CEASED ON THE RESPECTIVE FACE. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION.

18. FOR FINISHED GRADING, THE CONTRACTOR SHALL PROVIDE ADEQUATE GRADIENTS TO PREVENT WATER FROM PONDING FOR MORE THAN TWENTY-FOUR (24) HOURS AFTER THE END OF A RAINFALL EVENT. DRAINAGE COURSES AND SWALE FLOW AREAS MAY TAKE AS LONG AS FORTY-EIGHT (48) HOURS AFTER THE END OF A RAINFALL EVENT TO DRAIN. AREAS DESIGNED TO HAVE STANDING WATER SHALL NOT BE REQUIRED TO MEET THIS REQUIREMENT.

19. WHERE DEEMED APPROPRIATE BY THE ENGINEER OR INSPECTOR, SEDIMENT BASINS AND TRAPS MAY NEED TO BE SURROUNDED WITH AN APPROVED SAFETY FENCE. THE FENCE MUST CONFORM TO LOCAL ORDINANCES AND REGULATIONS. THE DEVELOPER OR OWNER SHALL CHECK WITH LOCAL BUILDING OFFICIALS ON APPLICABLE SAFETY REQUIREMENTS. WHERE SAFETY FENCE IS DEEMED APPROPRIATE AND LOCAL ORDINANCES DO NOT SPECIFY FENCING SIZES AND TYPES, THE FOLLOWING SHALL BE USED AS A MINIMUM STANDARD: THE SAFETY FENCE MUST BE MADE OF WELDED WIRE AND AT LEAST 42 INCHES HIGH, HAVE POSTS SPACED NO FARTHER APART THAN 8 FEET, HAVE MESH OPENINGS NO GREATER THAN 2 INCHES IN WIDTH AND 4 INCHES IN HEIGHT WITH A MINIMUM OF 14 GAUGE WIRE. SAFETY FENCE MUST BE MAINTAINED AND IN GOOD CONDITION AT ALL TIMES.

20. ALL SEDIMENT TRAP DEPTH DIMENSIONS ARE RELATIVE TO THE OUTLET ELEVATION. ALL TRAPS SHALL HAVE A STABLE OUTFALL. ALL TRAPS AND BASINS SHALL HAVE STABLE INFLOW POINTS.

21. SEDIMENT SHALL BE REMOVED AND THE TRAP OR BASIN RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE QUARTER OF THE TOTAL DEPTH OF THE TRAP OR BASIN. TOTAL DEPTH SHALL BE MEASURED FROM THE TRAP OR BASIN BOTTOM TO THE CREST OF THE OUTLET.

22. SEDIMENT REMOVED FROM TRAPS (AND BASINS) SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN, WETLAND OR TREE-SAVE AREA. WHEN PUMPING SEDIMENT LADEN WATER, THE DISCHARGE SHALL BE DIRECTED TO AN MDE APPROVED SEDIMENT TRAPPING DEVICE PRIOR TO RELEASE FROM THE SITE. A SUMP PIT MAY BE USED IF SEDIMENT TRAPS THEMSELVES ARE BEING PUMPED OUT.

23. PRIOR TO REMOVAL OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL STABILIZE AND HAVE ESTABLISHED PERMANENT STABILIZATION FOR ALL CONTRIBUTORY DISTURBED AREAS USING SOD OR AN APPROVED PERMANENT SEED MIXTURE WITH REQUIRED SOIL AMENDMENTS AND AN APPROVED ANCHORED MULCH. WOOD FIBER MULCH MAY ONLY BE USED IN SEEDING SEASON WHERE THE SLOPE DOES NOT EXCEED 10% AND GRADING HAS BEEN DONE TO PROMOTE SHEET FLOW DRAINAGE. AREAS BROUGHT TO FINISHED GRADE DURING THE SEEDING SEASON SHALL BE PERMANENTLY STABILIZED AS SOON AS POSSIBLE, BUT NOT LATER THAN THREE (3) CALENDAR DAYS AFTER ESTABLISHMENT FOR SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND SEVEN (7) CALENDAR DAYS FOR FLATTER SLOPES. WHEN PROPERTY IS BROUGHT TO FINISHED GRADE DURING THE MONTHS OF NOVEMBER THROUGH FEBRUARY, AND PERMANENT STABILIZATION IS FOUND TO BE IMPRACTICAL, TEMPORARY SEED AND ANCHORED STRAW MULCH SHALL BE APPLIED TO DISTURBED AREAS. THE FINAL PERMANENT STABILIZATION OF SUCH PROPERTY SHALL BE APPLIED BY MARCH 15 OR EARLIER IF GROUND AND WEATHER CONDITIONS ALLOW.

24. TEMPORARY SEDIMENT CONTROL DEVICES MAY BE REMOVED, WITH PERMISSION OF MDE INSPECTOR AND AGENCY INSPECTORS, WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING ESTABLISHMENT OF PERMANENT STABILIZATION IN ALL CONTRIBUTORY DRAINAGE AREAS. UPON REMOVAL OF SEDIMENT CONTROL DEVICES, THE AREA DISTURBED BY REMOVAL SHALL BE STABILIZED WITH TOPSOIL SEED, AND MULCH, OR AS SPECIFIED, WITHIN 24 HOURS OF SAID REMOVAL. STORMWATER MANAGEMENT STRUCTURES USED TEMPORARILY FOR SEDIMENT CONTROL SHALL BE CONVERTED TO THE PERMANENT CONFIGURATION WITHIN THIS TIME PERIOD AS WELL.

25. OFF-SITE SPOIL OR BORROW AREAS ON STATE OR FEDERAL PROPERTY SHALL HAVE PRIOR APPROVAL BY MDE AND OTHER APPLICABLE STATE, FEDERAL, AND LOCAL AGENCIES; OTHERWISE APPROVAL SHALL BE GRANTED BY THE LOCAL AUTHORITIES. ALL WASTE AND BORROW AREAS OFF-SITE SHALL BE PROTECTED BY SEDIMENT CONTROL MEASURES AND STABILIZED.

26. SITE INFORMATION:

A. AREA DISTURBED	1.41	ACRES
B. TOTAL CUT	51	C.Y.
C. TOTAL FILL	470	C.Y.
D. OFF-SITE WASTE / BORROW AREA LOCATION	TBD	

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

OWNER'S/DEVELOPER'S CERTIFICATION

OWNER'S / DEVELOPER'S CERTIFICATION

I / We hereby certify that all clearing, grading, construction, and/or development will be done pursuant to this plan and that any responsible personnel involved in the construction project will have a certificate of attendance at a Maryland Department of the Environment approved training program for the control of erosion and sediment before beginning the project. I/We hereby authorize the right of entry for periodic on-site evaluation by appropriate inspection and enforcement authority or the State of Maryland, Department of the Environment.

2017 08 07 — Date

Steve Richards — Owner / Developer Signature

3543 — Card No.

Steve Richards — Printed Name and Title

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I & II INCLUDING SUPPLEMENTS, THE ENVIRONMENT ARTICLE SECTIONS 4-101 THROUGH 116 AND SECTIONS 4-201 AND 215, AND THE CODE OF MARYLAND REGULATIONS (COMAR) 26.17.01 AND COMAR 26.17.02 FOR EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT, RESPECTIVELY.

09/29/2017 — DATE

DESIGNER'S SIGNATURE

MD REGISTRATION NO. 43543

(P.E.) R.L.S., RLA, OR R.A. (CIRCLE ONE)

JAMES ANDREW SWIFT — PRINTED NAME

MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

VICINITY MAP
SCALE: N.T.S.

STANDARD SYMBOLS*	
AT GRADE INLET PROTECTION	AGIP
GABION INLET PROTECTION	GIP
LIMIT OF DISTURBANCE	LOD
ROCK OUTFLOW PROTECTION II	ROPII
STABILIZED CONSTRUCTION ENTRANCE	SCE
SILT FENCE	SF
SILT FENCE ON PAVEMENT	SFOP
TEMPORARY ASPHALT BERM	TAB
ONSITE CONCRETE WASHOUT AREA	CWS
SUMP PIT	SP

*NOTE: DEPICTION OF STANDARD SYMBOLS ON THE PLAN MUST CONSIDER THE FOOTPRINT REQUIRED FOR THE DEVICE.

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. **43543** Expiration Date: 09/29/2019

MARK	DESCRIPTION	DATE	APPR.

DISTRICT OF COLUMBIA
AIR NATIONAL GUARD

POND
3008 Parkway Lane, Suite 200
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JOB NO. 1170032

DESIGNED BY: TLN	ISSUE DATE: 6 OCTOBER 2017
DRAWN BY: TLN	ANG NO.: AJXF039040
CHECKED BY: JAS	CONTRACT NO.: W912LA-14-D-2001
SUBMITTED BY: SBR	FILE NUMBER:
SIZE: ANSI D	FILE NAME:

MUNITIONS LOAD CREW
TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

EROSION AND SEDIMENT CONTROL NOTES

SHEET ID
C-701

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

B-4 STANDARDS AND SPECIFICATIONS

FOR

VEGETATIVE STABILIZATION

DEFINITION

USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE

TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES

ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION; SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING; SEEDING AND MULCHING; TEMPORARY STABILIZATION; AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY

STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS.

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE.

SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT

INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUNDCOVER.
2. IF AN AREA HAS LESS THAN 40 PERCENT GROUNDCOVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUNDCOVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

B-4-1 STANDARDS AND SPECIFICATIONS

FOR

INCREMENTAL STABILIZATION

DEFINITION

ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE

TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES

ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

CRITERIA

A. INCREMENTAL STABILIZATION - CUT SLOPES
   1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.
   2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
      a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
      b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
      c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
      d. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

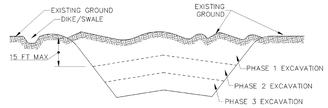

FIGURE B.1: INCREMENTAL STABILIZATION - CUT

B. INCREMENTAL STABILIZATION - FILL SLOPES
   1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES.
   2. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
   3. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
   4. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):
      a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
      b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
      c. PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE.
      d. PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.
      e. PLACE FINAL PHASE FILL, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

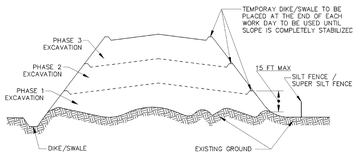

FIGURE B.2: INCREMENTAL STABILIZATION - FILL

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION

THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

A. SOIL PREPARATION
   1. TEMPORARY STABILIZATION
      a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
      b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
      c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
   2. PERMANENT STABILIZATION
      a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
      i. SOIL PH BETWEEN 6.0 AND 7.0.
      ii. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
      iii. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
      iv. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
      v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
      b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
      c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
      d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
      e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING
   1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
   2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
   3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
      a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
      b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
      c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
      d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
   4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
   5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
      a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST BE SIEVED TO DETERMINE THAT IT CONTAINS LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN ONE (1) INCHES IN DIAMETER. DPW WILL INSPECT AT TIME OF ACCEPTANCE AND WILL REJECT IF FOUND NOT MEETING THIS REQUIREMENT. ANY MATERIAL REJECTED FROM THE SIEVE IS TO BE HAULED OFFSITE.
      b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
      c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
   6. TOPSOIL APPLICATION
      a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
      b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. EXCESS TOPSOIL BEYOND THE 4 INCH MINIMUM IS TO BE SPREAD EVENLY ACROSS THE SITE TO AVOID STOCKPILING OFFSITE. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
      c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
   1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
   2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
   3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
   4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
   5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.
   6. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE MARYLAND FERTILIZER ACT OF 2011.
   7. NUTRIENT APPLICATION (NITROGEN, PHOSPHORUS, POTASSIUM) SHALL BE REPORTED TO THE NATURAL RESOURCES PROGRAM MANAGER (DPW, ED) WITHIN 30 DAYS AFTER THE END OF THE FISCAL QUARTER. REPORT SHALL INCLUDE THE SITE NAME/BUILDING NUMBER, ACREAGE/SF OF APPLICATION, CROP (I.E. TURF GRASS), APPLICATION DATE, FERTILIZER TYPE (N-P-K), AND FERTILIZER RATE (LB OR GAL PER ACRE).

MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

FOR EROSION AND SEDIMENT CONTROL ONLY.

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TLN
DRAWN BY: TLN
CHECKED BY: TLN
SUBMITTED BY: SBR
SIZE: ANSI D
ISSUE DATE: 6 OCTOBER 2017
ANG NO.: AJXF038040
CONTRACT NO.: W912HN-14-D-0001
FILE NUMBER:
FILE NAME:

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AIR NATIONAL GUARD

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MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

EROSION AND SEDIMENT CONTROL NOTES

SHEET ID
C-702

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE

TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES

TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

A. SEEDING

1. SPECIFICATIONS
   a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE_TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
   b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
   c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
   d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
   a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
      i. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
      ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
   b. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
      i. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
      ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
   c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
      i. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
      ii. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
      iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
      iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
   a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
   b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
      i. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
      ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
      iii. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
      iv. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
      v. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
2. APPLICATION
   a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
   b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
   c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
   a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
      i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
      ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
      iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA_70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
      iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 7A SEED MIXTURE (FROM TABLE B.1):					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS (INCHES)		
	ANNUAL RYEGRASS (LOLIUM PERENNE SSP. MULTIFLORUM)	40	FEB 15 TO APR 30; AUG 15 TO NOV 30	0.5	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
	BARLEY (HORDEUM VULGARE)	96	FEB 15 TO APR 30; AUG 15 TO NOV 30	1		
	FOXTAIL MILLET (SETARIA ITALICA)	30	MAY 1 TO AUG 14	0.5		
	PEARL MILLET (PENNISETUM GLAUCUM)	20	MAY 1 TO AUG 14	0.5		

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AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

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MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

EROSION AND SEDIMENT CONTROL NOTES

SHEET ID
C-703

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

A. SEED MIXTURES

1. GENERAL USE

a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

b. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA_NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 _ CRITICAL AREA PLANTING.

c. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.

d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 ½ POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY .

2. WILDLIFE HABITAT AND NATIVE GRASS RESTORATION

a. PERMANENT VEGETATIVE COVER (UPLAND) FOR SIDE SLOPES SHALL BE COMPRISED OF DIVERSE NATIVE GRASSES TO ESTABLISH WILDLIFE HABITAT AND FORAGE AREAS. SEED MIX SHALL BE ERNST #181 'NATIVE STEEP SLOPE MIX WITH ANNUAL RYEGRASS' OR EQUIVALENT THAT IS APPROPRIATE FOR THE PLANTING SEASON.

b. PERMANENT VEGETATIVE COVER (UPLAND) FOR RELATIVELY LEVEL AREAS SHALL BE COMPRISED OF DIVERSE NATIVE GRASSES TO ESTABLISH WILDLIFE HABITAT AND FORAGE AREAS. SEED MIX SHALL BE ERNST #721 'MD LOWER MIDLAND UPL MEADOW SEED MIX' OR EQUIVALENT THAT IS APPROPRIATE FOR THE PLANTING SEASON.

c. CONTRACTOR SHALL PREPARE SEED BED FOR ESTABLISHMENT, PLANT, AND STABILIZE NATIVE GRASSES PER SEED SUPPLIER'S RECOMMENDATIONS. PLANT MATERIAL/GRASSES SHALL BE MAINTAINED AND MONITORED FOR WEED GROWTH DURING THE WARRANTY PERIOD AFTER PLANTING.

d. THIS PERMANENT STABILIZATION SHALL BE PERFORMED AND PERMITTED IN ACCORDANCE WITH MDE AND ANY EPA REGULATIONS.

e. NO INVASIVE SPECIES SHALL BE PLANTED.

PERMANENT SEEDING SUMMARY

***(SEE WILDLIFE HABITAT AND NATIVE GRASS RESTORATION ABOVE FOR SPECIES INFORMATION. APPLICATION RATES AND SEEDING DATES SHALL COMPLY WITH MANUFACTURER RECOMMENDATION)**

HARDINESS ZONE (FROM FIGURE B.3): 7A SEED MIXTURE (FROM TABLE B.1):					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P_2O_5	K_2O	
	*	*	*	¼ - ½ IN	45 LB/AC (1 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
	*	*	*	¼ - ½ IN				
	*	*	*	¼ - ½ IN				
	*	*	*	¼ - ½ IN				

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS

a. SOD TO BE EITHER TALL FESCUE OR TALL FESCUE MIX.

b. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

c. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF ¾ INCH, PLUS OR MINUS ¼ INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

d. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.

e. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

f. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

g. IDEAL TIMES FOR SODDING:

CENTRAL MD AND SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, SEPTEMBER 1 TO DECEMBER 31 (HARDINESS ZONE: 6B, 7A, OR 7B)

2. SOD INSTALLATION

a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

b. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

c. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

d. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE

a. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.

b. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

c. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN ⅓ OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

B-4-8 STANDARDS AND SPECIFICATIONS

FOR

STOCKPILE AREA

DEFINITION

A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS.

CONDITIONS WHERE PRACTICE APPLIES

STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

CRITERIA

1. THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.

2. THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME OF MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

3. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.

4. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.

5. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.

6. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.

7. STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY STABILIZATION.

8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

MAINTENANCE

THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES, 30 FEET FOR 3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

H-1 STANDARDS AND SPECIFICATIONS

FOR

MATERIALS

TABLE H.1: GEOTEXTILE FABRICS

		WOVEN SLIT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE (1)					
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
GRAB TENSILE STRENGTH	ASTM D-4632	200 LD	200 LB	370 LB	250 LB	200 LB	200 LB
GRAB TENSILE ELONGATION	ASTM D-4632	15%	10%	15%	15%	50%	50%
TRAPEZOIDAL TEAR STRENGTH	ASTM D-4533	75 LB	75 LB	100 LB	60 LB	80 LB	80 LB
PUNCTURE STRENGTH	ASTM D-6241	450 LB		900 LB		450 LB	
APPARENT OPENING SIZE (2)	ASTM D-4751	U.S. SIEVE 30 (0.59 MM)		U.S. SIEVE 70 (0.21 MM)		U.S. SIEVE 70 (0.21 MM)	
PERMITIVITY	ASTM D-4491	0.05 SEC^{-1}		0.28 SEC^{-1}		1.1 SEC^{-1}	
ULTRAVIOLET RESISTANCE RETAINED AT 500 HOURS	ASTM D-4355	70% STRENGTH		70% STRENGTH		70% STRENGTH	

(1) ALL NUMERIC VALUES EXCEPT APPARENT OPENING SIZE (AOS) REPRESENT MINIMUM AVERAGE ROLL VALUES (MARV). MARV IS CALCULATED AS THE TYPICAL MINUS TWO STANDARD DEVIATIONS. MD IS MACHINE DIRECTION; CD IS CROSS DIRECTION.

(2) VALUES FOR AOS REPRESENT THE AVERAGE MAXIMUM OPENING.

GEOTEXTILES MUST BE EVALUATED BY THE NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPEP) AND CONFORM TO THE VALUES IN TABLE H.1.

THE GEOTEXTILE MUST BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND MUST BE ROT AND MILDEW RESISTANT. THE GEOTEXTILE MUST BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS AND COMPOSED OF A MINIMUM OF 95 PERCENT BY WEIGHT OF POLYOLEFINS OR POLYESTERS, AND FORMED INTO A STABLE NETWORK SO THE FILAMENTS OR YARNS RETAIN THEIR DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES.

WHEN MORE THAN ONE SECTION OF GEOTEXTILE IS NECESSARY, OVERLAP THE SECTIONS BY AT LEAST ONE FOOT. THE GEOTEXTILE MUST BE PULLED TAUT OVER THE APPLIED SURFACE. EQUIPMENT MUST NOT RUN OVER EXPOSED FABRIC. WHEN PLACING RIPRAP ON GEOTEXTILE, DO NOT EXCEED A ONE FOOT DROP HEIGHT.

TABLE H.2: STONE SIZE

TYPE	SIZE RANGE	d50	d100	AASHTO	MIDSIZE WEIGHT (3)
NUMBER 57 (1)	$\frac{3}{8}$ TO 1 $\frac{1}{2}$ IN	$\frac{3}{4}$ IN	1 $\frac{1}{2}$ IN	M-43	N/A
NUMBER 1	2 TO 3 IN	2 $\frac{1}{2}$ IN	3 IN	M-43	N/A
RIPRAP (2) (CLASS 0)	4 TO 7 IN	5 $\frac{1}{2}$ IN	7 IN	N/A	N/A
CLASS I	N/A	9 $\frac{1}{2}$ IN	15 IN	N/A	40 LB
CLASS II	N/A	16 IN	24 IN	N/A	200 LB
CLASS III	N/A	23 IN	34 IN	N/A	600 LB

(1) THIS CLASSIFICATION IS TO BE USED ON THE UPSTREAM FACE OF STONE OUTLETS AND CHECK DAMS.

(2) THIS CLASSIFICATION IS TO BE USED FOR GABIONS.

(3) OPTIMUM GRADATION IS 50 PERCENT OF THE STONE BEING ABOVE AND 50 PERCENT BELOW THE MIDSIZE.

STONE MUST BE COMPOSED OF A WELL GRADED MIXTURE OF STONE SIZED SO THAT FIFTY (50) PERCENT OF THE PIECES BY WEIGHT ARE LARGER THAN THE SIZE DETERMINED BY USING THE CHARTS. A WELL GRADED MIXTURE, AS USED HEREIN, IS DEFINED AS A MIXTURE COMPOSED PRIMARILY OF LARGER STONE SIZES BUT WITH A SUFFICIENT MIXTURE OF OTHER SIZES TO FILL THE SMALLER VOIDS BETWEEN THE STONES. THE DIAMETER OF THE LARGEST STONE IN SUCH A MIXTURE MUST NOT EXCEED THE RESPECTIVE D100 SELECTED FROM TABLE H.2. THE D50 REFERS TO THE MEDIAN DIAMETER OF THE STONE. THIS IS THE SIZE FOR WHICH 50 PERCENT, BY WEIGHT, WILL BE SMALLER AND 50 PERCENT WILL BE LARGER.

NOTE: RECYCLED CONCRETE EQUIVALENT MAY BE SUBSTITUTED FOR ALL STONE CLASSIFICATIONS FOR TEMPORARY CONTROL MEASURES ONLY. CONCRETE BROKEN INTO THE SIZES MEETING THE APPROPRIATE CLASSIFICATION, CONTAINING NO STEEL REINFORCEMENT, AND HAVING A MINIMUM DENSITY OF 150 POUNDS PER CUBIC FOOT MAY BE USED AS AN EQUIVALENT.

TABLE H.4: COMPOST

PARAMETERS (1)	ACCEPTABLE RANGE
pH	5.0 - 8.5
MOISTURE CONTENT	30% - 60%, WET WEIGHT BASIS
ORGANIC MATTER CONTENT	25% - 65%, DRY WEIGHT BASIS
PARTICLE SIZE	% PASSING A SELECTED MESH SIZE, DRY WEIGHT BASIS 3 IN (75 MM), 100% PASSING 1 IN (25 MM), 90 – 100% PASSING 0.75 IN (19 MM), 70 – 100% PASSING 0.25 IN (6.4 MM), 30 – 60% PASSING 0.04 IN (1 MM), 30% MIN. PASSING
PHYSICAL CONTAMINANTS (MANMADE INERTS)	<1% DRY WEIGHT BASIS

ADAPTED FROM AASHTO STANDARDS SPECS FOR COMPOST FILTER SOCKS AND EPA EXAMPLE COMPOST FILTER PARAMETERS.

(1) RECOMMENDED TEST METHODOLOGIES ARE PROVIDED IN TEST METHODS FOR THE EXAMINATION OF COMPOSTING AND COMPOST (TMEC, THE U.S COMPOSTING COUNCIL).

MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

FOR EROSION AND SEDIMENT CONTROL ONLY.

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TLN
DRAWN BY: TLN
CHECKED BY: JAS
SUBMITTED BY: SBR
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ANG NO.: AJXF039040
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DISTRICT OF COLUMBIA
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113th Wing DCANG
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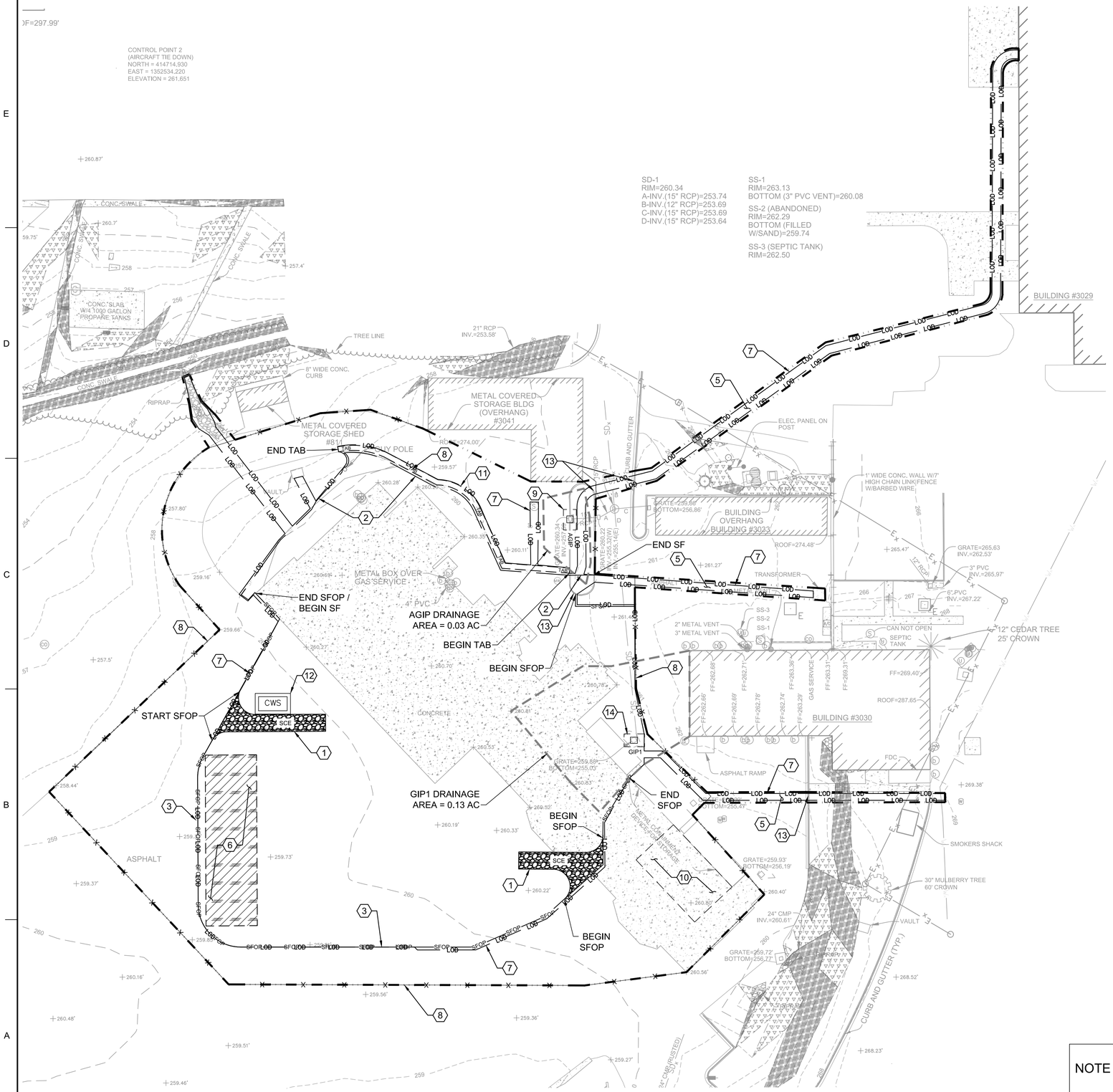
EROSION AND SEDIMENT CONTROL NOTES

SHEET ID
C-704



INITIAL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1'=30'

30 0 30 60

SCALE: 1" = 30'

STANDARD SYMBOLS*	
AT GRADE INLET PROTECTION	AGIP
GABION INLET PROTECTION	GIP
LIMIT OF DISTURBANCE	LOD
STABILIZED CONSTRUCTION ENTRANCE	SCE
SILT FENCE	SF
SILT FENCE ON PAVEMENT	SFOP
TEMPORARY ASPHALT BERM	TAB
ONSITE CONCRETE WASHOUT AREA	CWS

*NOTE: DEPICTION OF STANDARD SYMBOLS ON THE PLAN MUST CONSIDER THE FOOTPRINT REQUIRED FOR THE DEVICE.

SHEET LEGEND

▨	STOCKPILE
▨	ROCK RIPRAP
▨	TEMPORARY SEEDING
▽	STEEP SLOPES 15-20% (HIGHLY ERODIBLE SOILS)
▨	STEEP SLOPES >20% (HIGHLY ERODIBLE SOILS)
⬚	AGIP & GIP DRAINAGE AREA DELINEATION

SOIL MAP				
	HSG	% OF SITE	K FACTOR	HIGHLY ERODIBLE
UN	D*	100	-0.03	NO

* SEE STORMWATER MANAGEMENT REPORT FOR EXPLANATION OF HSG

MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

FOR EROSION AND SEDIMENT CONTROL ONLY.

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
2. SEE SHEETS C-701 THROUGH C-704 FOR EROSION AND SEDIMENT CONTROL NOTES, SYMBOLS, SPECIFICATIONS, AND STABILIZATION REQUIREMENTS FOR SEEDING AND SODDING.
3. SEE SHEETS C-750 THROUGH C-753 FOR EROSION CONTROL DETAILS.
4. EXACT METES AND BOUNDS FOR NATIONAL GUARD BUREAU AREA HAVE NOT BEEN PROVIDED. LAYOUT HAS BEEN LOCATED AS DESCRIBED BY DCANG TO THE DESIGN TEAM.
5. AT NO TIME IS IT ACCEPTABLE FOR SEDIMENT LADEN RUNOFF TO BE DISCHARGED TO THE UNKNOWN TRIBUTARY TO PISCATAWAY CREEK.
6. ALL RUNOFF MUST BE DISCHARGED IN A NON-EROSIVE MANNER.

SEQUENCE OF CONSTRUCTION: GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY MDE WATER MANAGEMENT ADMINISTRATION (WMA) COMPLIANCE INSPECTOR AT (410) 537-3510 AT LEAST SEVEN (7) DAYS PRIOR TO BEGINNING EARTH DISTURBANCE TO SCHEDULE A PRE-CONSTRUCTION MEETING.
2. THE LIMITS OF DISTURBANCE MUST BE FIELD MARKED PRIOR TO INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION OR OTHER LAND DISTURBING ACTIVITIES.
3. THE CONTRACTOR MUST OBTAIN APPROVAL FROM THE MDE INSPECTOR, CERTIFYING THAT THE LIMITS OF DISTURBANCE ARE CORRECTLY MARKED PRIOR TO COMMENCING DEMOLITION WORK.
4. INSTALL EROSION AND SEDIMENT CONTROL DEVICES AS OUTLINED IN THE PHASED WORK. IN ADDITION TO THE EROSION AND SEDIMENT CONTROL PLANS, CONSTRUCTION PHASING MUST BE COORDINATED WITH THE GENERAL CONSTRUCTION AND SAFETY NOTES SAFETY PHASING PLANS.
5. ALL WORK SHALL BE PERFORMED ACCORDING TO THE APPROVED PHASING PLAN AND SEQUENCE OF CONSTRUCTION.

SEQUENCE OF CONSTRUCTION: INITIAL PHASE

1. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS BEFORE THE START OF CONSTRUCTION.
2. LIMITS OF DISTURBANCE SHALL BE STAKED PRIOR TO INSTALLATION OF EROSION CONTROL DEVICES.
3. WITH THE APPROVAL OF THE WMA INSPECTOR, INSTALL STABILIZED CONSTRUCTION ENTRANCE (SCE), SILT FENCE (SF), SILT FENCE ON PAVEMENT (SFOP), TEMPORARY ASPHALT BERM (TAB) AND AT-GRADE INLET PROTECTION (AGIP) PRIOR TO ANY DISTURBANCE OR DEMOLITION.
4. WITH THE APPROVAL OF THE WMA INSPECTOR, BEGIN DEMOLITION IN ACCORDANCE WITH SHEET C-101. STOCK PILE ALL SOIL IN STOCKPILE AREA.
5. MAINTAIN PERIMETER CONTROLS FROM INTIAL PHASE THROUGHOUT THE GRADING PHASE OF WORK.
6. PROCEED TO FINAL EROSION AND SEDIMENT CONTROL PLAN ON SHEET C-711.

⬡ SHEET KEYNOTES

1. STABILIZED CONSTRUCTION ENTRANCE (SCE) - SEE DETAIL A1/C-750
2. SILT FENCE (SF) - SEE DETAIL A1/C-751
3. SILT FENCE ON PAVEMENT (SFOP) - SEE DETAIL A5/C-750
4. TEMPORARY SEEDING - SEE B-4-4 STANDARD SPECIFICATIONS FOR TEMPORARY STABILIZATION ON SHEET C-703
5. SAME DAY STABILIZE WITH SEED AND MULCH AFTER UTILITY INSTALLATION. SEE B-4-3 STANDARD SPECIFICATIONS FOR SEED AND MULCH ON SHEET C-703. PAVED AREAS DISTURBED BY UTILITY INSTALLATION SHALL BE BACKFILLED AND STABILIZED WITH STONE AT THE END OF THE WORK DAY.
6. STOCKPILE AREA - SEE B-4-8 STANDARD SPECIFICATIONS FOR STOCKPILE AREAS ON SHEET C-704
7. LIMITS OF DISTURBANCE
8. CONSTRUCTION LIMITS
9. AT GRADE INLET PROTECTION - SEE DETAIL A3/C-750
10. CONTRACTOR STAGING AREA
11. TEMPORARY ASPHALT BERM (TAB) - SEE DETAIL A3/C-752
12. ONSITE CONCRETE WASHOUT AREA - SEE DETAIL A3/C-753
13. SAME DAY STABILIZE WITH SEED AND MULCH FOR DEMOLITION AND CONSTRUCTION OF CURB AND GUTTER. SEE B-4-3 STANDARD SPECIFICATIONS FOR SEE AND MULCH ON SHEET C-703.
14. GABION INLET PROTECTION (GIP) - SEE DETAIL A1/C-752

AIR NATIONAL GUARD

Professional Certification.
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland,
License No. 43543
Expiration Date: 05/28/19

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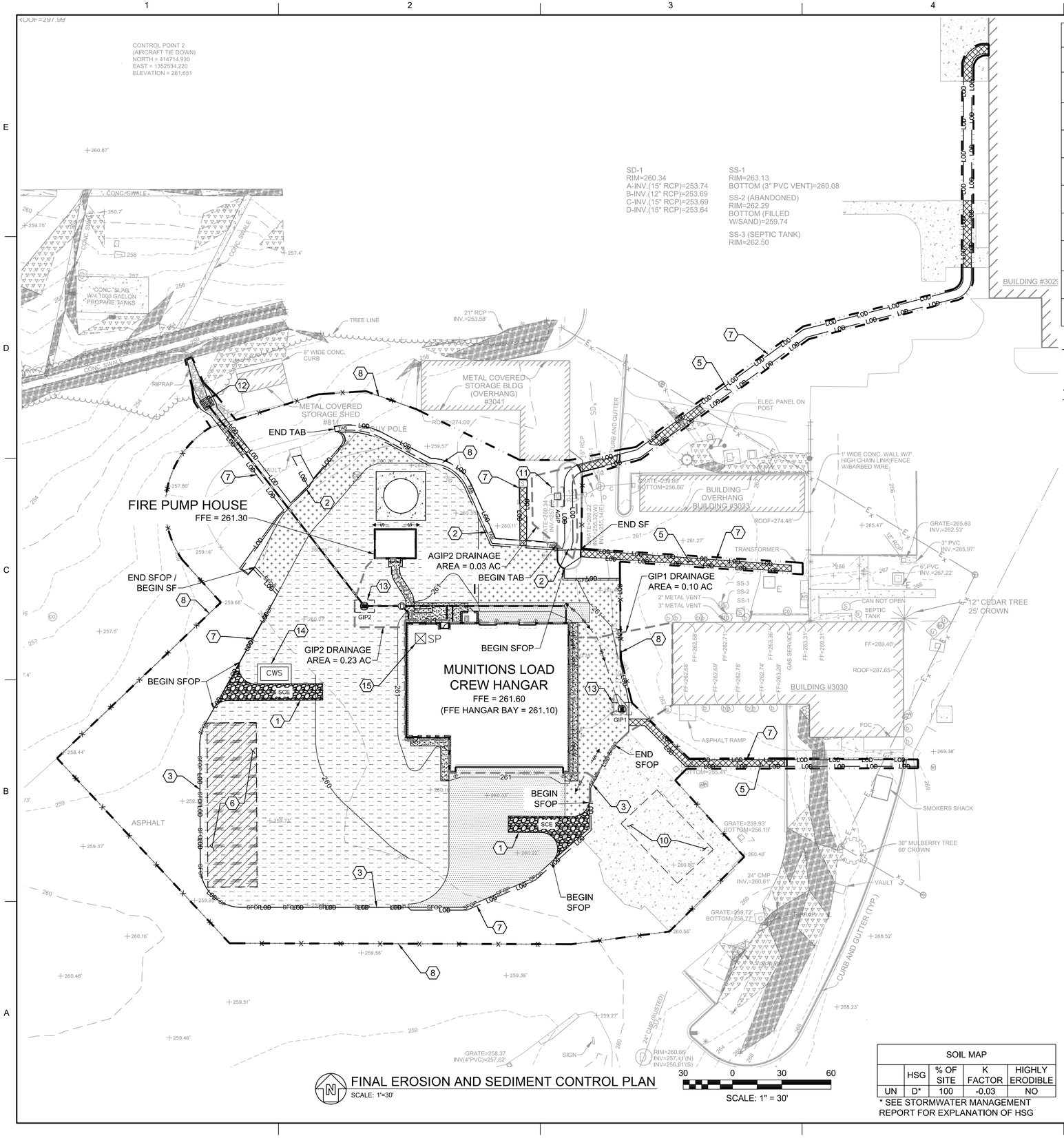
MUNITIONS LOAD CREW
TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

INITIAL EROSION AND SEDIMENT
CONTROL PLAN

SHEET ID
C-710

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID



FINAL EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1"=30'

SCALE: 1" = 30'

SOIL MAP				
	HSG	% OF SITE	K FACTOR	HIGHLY ERODIBLE
UN	D*	100	-0.03	NO

* SEE STORMWATER MANAGEMENT REPORT FOR EXPLANATION OF HSG

STANDARD SYMBOLS*	
AT GRADE INLET PROTECTION	AGIP
GABION INLET PROTECTION	GIP
LIMIT OF DISTURBANCE	LOD
ROCK OUTFLOW PROTECTION II	ROPII
STABILIZED CONSTRUCTION ENTRANCE	SCE
SILT FENCE	SF
SILT FENCE ON PAVEMENT	SFOP
ONSITE CONCRETE WASHOUT AREA	CWS
SUMP PIT	SP
TEMPORARY ASPHALT BERM	TAB

*NOTE: DEPICTION OF STANDARD SYMBOLS ON THE PLAN MUST CONSIDER THE FOOTPRINT REQUIRED FOR THE DEVICE.

SHEET KEYNOTES

1. STABILIZED CONSTRUCTION ENTRANCE (SCE) - SEE DETAIL A1/C-750
2. SILT FENCE (SF) - SEE DETAIL A1/C-751
3. SILT FENCE ON PAVEMENT (SFOP) - SEE DETAIL A5/C-750
4. PERMANENT SEEDING - SEE B-4-5 STANDARD SPECIFICATIONS FOR PERMANENT STABILIZATION ON SHEET C-704
5. SAME DAY STABILIZE WITH SEED AND MULCH AFTER DEMOLITION - SEE B-4-3 STANDARD SPECIFICATIONS FOR SEED AND MULCH ON SHEET C-703. PAVED AREAS DISTURBED BY UTILITY INSTALLATION SHALL BE BACKFILLED AND STABILIZED WITH STONE AT THE END OF THE WORK DAY.
6. STOCKPILE AREA - SEE B-4-8 STANDARDS SPECIFICATIONS FOR STOCKPILE AREA ON SHEET C-704.
7. LIMITS OF DISTURBANCE
8. CONSTRUCTION LIMITS
9. TEMPORARY ASPHALT BERM (TAB) - SEE DETAIL A3/C-752
10. CONTRACTOR STAGING AREA.
11. AT GRADE INLET PROTECTION (AGIP) - SEE DETAIL A3/C-750
12. ROCK OUTLET PROTECTION II (ROPII)- SEE DETAIL A5/C-751
13. GABION INLET PROTECTION (GIP) - SEE DETAIL A1/C-752
14. ONSITE CONCRETE WASHOUT AREA (CWS) - SEE DETAIL A3/C-753
15. SUMP PIT (SEE DETAIL A1/C-753) SHALL BE PROVIDED AS NEEDED FOR DEWATERING EXCAVATION FOR BUILDING FOUNDATION.

SHEET LEGEND

- STOCKPILE
- ROCK RIPRAP
- PERMENANT STABILIZATION
- STEEP SLOPES 15-20% (HIGHLY ERODIBLE SOILS)
- STEEP SLOPES >20% (HIGHLY ERODIBLE SOILS)
- CONCRETE PAVEMENT
- ASPHALT PAVEMENT
- CONCRETE SIDEWALK
- AGIP & GIP DRAINAGE AREA DELINEATION

GENERAL SHEET NOTES

1. SEE SHEET C-001 FOR ADDITIONAL NOTES, LEGEND AND ABBREVIATIONS.
2. SEE SHEETS C-701 THROUGH C-704 FOR EROSION AND SEDIMENT CONTROL NOTES, SYMBOLS, SPECIFICATIONS, AND STABILIZATION REQUIREMENTS FOR SEEDING AND SODDING.
4. SEE SHEETS C-750 THROUGH C-753 FOR EROSION CONTROL DETAILS.
5. SEE SHEET C-710 FOR GENERAL EROSION AND SEDIMENT CONTROL PHASE SEQUENCE OF CONSTRUCTION NOTES.
6. EXACT METES AND BOUNDS FOR NATIONAL GUARD BUREAU AREA HAVE NOT BEEN PROVIDED. LAYOUT HAS BEEN LOCATED AS DESCRIBED BY DCANG TO THE DESIGN TEAM.
7. AT NO TIME IS IT ACCEPTABLE FOR SEDIMENT LADEN RUNOFF TO BE DISCHARGED TO THE UNKNOWN TRIBUTARY TO PISCATAWAY CREEK.
8. ALL RUNOFF MUST BE DISCHARGED IN A NON-EROSIVE MANNER.

SEQUENCE OF CONSTRUCTION: GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY MDE WATER MANAGEMENT ADMINISTRATION (WMA) COMPLIANCE INSPECTOR AT (410) 537-3510 AT LEAST SEVEN (7) DAYS PRIOR TO BEGINNING EARTH DISTURBANCE TO SCHEDULE A PRE-CONSTRUCTION MEETING.
2. THE LIMITS OF DISTURBANCE MUST BE FIELD MARKED PRIOR TO INSTALLATION OF SEDIMENT CONTROL MEASURES, CONSTRUCTION, OR OTHER LAND DISTURBING ACTIVITIES.
3. THE CONTRACTOR MUST OBTAIN APPROVAL FROM THE WATER MANAGEMENT ADMINISTRATION (WMA) INSPECTOR CERTIFYING THAT THE LIMITS OF DISTURBANCE ARE CORRECTLY MARKED AND INSTALLED PRIOR TO COMMENCING WORK.
4. INSTALL EROSION AND SEDIMENT CONTROL DEVICES AS OUTLINED IN THE PHASED WORK IN ADDITION TO THE EROSION AND SEDIMENT CONTROL PLANS. CONSTRUCTION PHASING MUST BE COORDINATED WITH THE GENERAL CONSTRUCTION AND SAFETY NOTES SAFETY PHASING PLANS.
5. MAINTAIN PERIMETER CONTROLS (I.E. SF, SFOP, TAB, AND SCE) FROM INITIAL PHASE THROUGHOUT THE GRADING PHASE OF WORK.
6. ALL WORK SHALL BE PERFORMED ACCORDING TO THEAPPROVED PHASING PLAN AND SEQUENCE OF CONSTRUCTION.

SEQUENCE OF CONSTRUCTION: FINAL PHASE

1. REFER TO SHEET C-710 FOR INITIAL PHASE SEQUENCE OF CONTROL NOTES.
2. CONTINUE TO IMPLEMENT TEMPORARY STABILIZATION MEASURES AS REQUIRED ON SHEETS C-701 THROUGH C-703.
2. ROUGH GRADE SITE AND BUILDING SLAB WHILE MAINTAINING PERIMETER SILT FENCE (SF & SFOP).
3. BEGIN INSTALLING STORM DRAINAGE UTILITIES FROM THE DOWNSTREAM END OF THE SYSTEM TO THE UPSTREAM END OF THE SYSTEM. AS INLETS ARE INSTALLED, PROVIDE INLET PROTECTION AT EACH INLET.
4. CONSTRUCT BUILDING FOUNDATION SYSTEM, PROVIDE DEWATERING WITH SUMP PIT PER DETAIL A1/C-753 AS NECESSARY AND BEGIN CONSTRUCTION OF THE BUILDING.
5. INSTALL UTILITY SYSTEMS FOR BUILDING SERVICE (GAS, WATER, STORM, AND POWER). FOR UTILITY CONSTRUCTION WITHIN AND OUTSIDE AREAS OF DESIGNED CONTROLS, STANDARD EROSION AND SEDIMENT CONTROL NOTE #26, SHEET C-701, WILL BE STRICTLY ENFORCED. ALL UTILITY INSTALLATION OUTSIDE OF GRADING AREAS SHALL BE SAME DAY STABILIZED.
6. FINE GRADE SITE AND INSTALL AGGREGATE BASE, CURBING, AND PAVING. REMOVE SFOP AFTER AGGREGATE BASE IS INSTALLED AND BEFORE PAVING BEGINS.
7. REMOVE CONCRETE WASHOUT AREA UPON COMPLETION OF ALL ON-SITE CONCRETE WORK.
8. IMPLEMENT PERMANENT STABILIZATION OF ALL UNPAVED AREAS. REMOVE TAB AFTER SITE HAS BEEN STABILIZED.
9. REMOVE INLET PROTECTION AFTER UPLAND AREAS HAVE BEEN STABILIZED AND BEFORE PAVING BEGINS.
10. DO NOT REMOVE PERIMETER CONTROLS AND INLET PROTECTION UNTIL SITE HAS BEEN STABILIZED WITH GRASS, AGGREGATE BASE, AND/OR PAVEMENT AND IF APPROVED BY THE WMA INSPECTOR. STABILIZE ANY AREAS DISTURBED BY THE REMOVAL PROCESS.

MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

FOR EROSION AND SEDIMENT CONTROL ONLY.

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

ISSUE DATE: 6 OCTOBER 2017
ANG NO.: 17-SF-0160
CONTRACT NO.: W9133L-15-D-0001
FILE NUMBER:
FILE NAME:

DESIGNED BY: TLN
DRAWN BY: TLN
CHECKED BY: JAS
SUBMITTED BY: SBR
SIZE: ANSI D

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MUNITIONS LOAD CREW
TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

FINAL EROSION AND SEDIMENT CONTROL PLAN

SHEET ID
C-711

SHEET OF

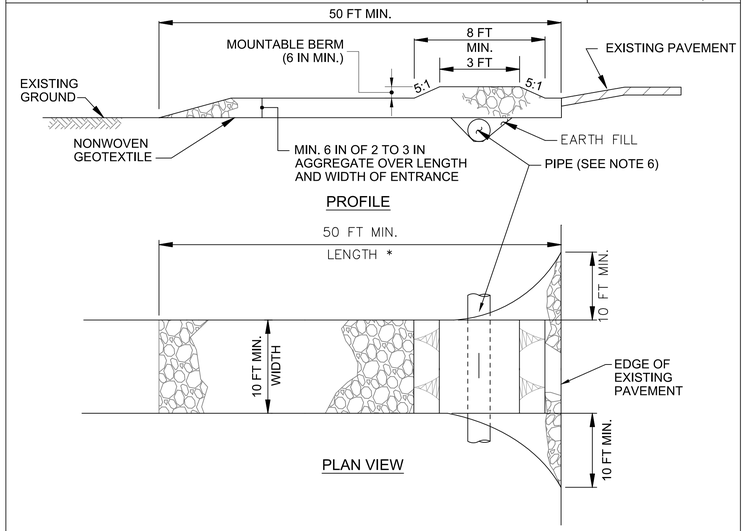
TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

FOR EROSION AND SEDIMENT CONTROL ONLY.

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

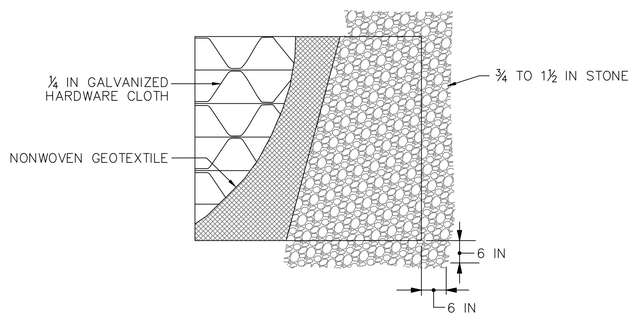
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

A1 STABILIZED CONSTRUCTION ENTRANCE (SCE)
SCALE: NONE

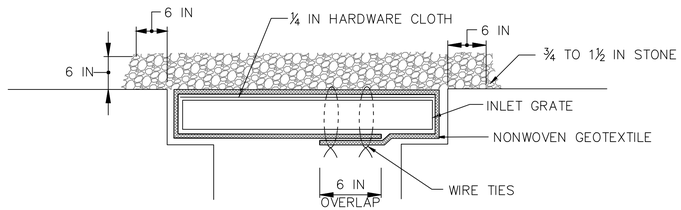
DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



PLAN / CUT AWAY VIEW



CROSS SECTION

CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

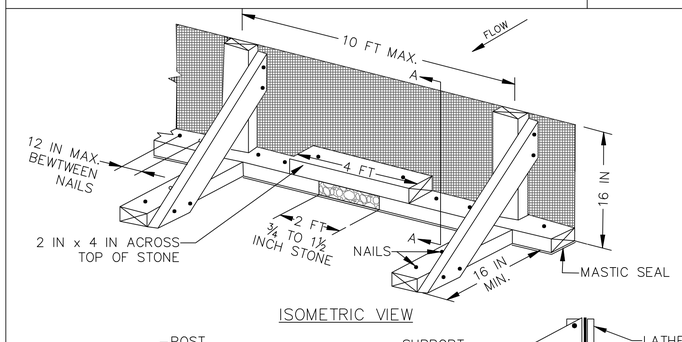
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

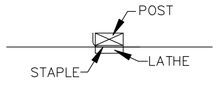
A3 AT-GRADE INLET PROTECTION (AGIP)
SCALE: NONE

DETAIL E-2 SILT FENCE ON PAVEMENT

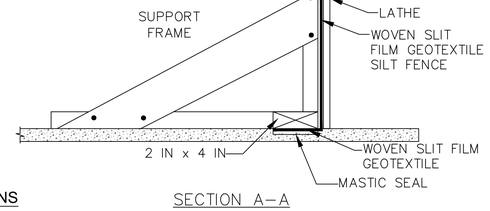
STANDARD SYMBOL: SFOP



ISOMETRIC VIEW



JOINING ADJACENT SECTIONS OF GEOTEXTILE



SECTION A–A

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH X 4 INCH LUMBER.
2. USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
3. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
4. SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
5. PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
6. KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
7. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
8. PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT-LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
9. SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
10. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

A5 SILT FENCE ON PAVEMENT
SCALE: NONE

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

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CONTRACT NO.: W912LA-16-D-0001
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DESIGNED BY: TLN
DRAWN BY: CDM
CHECKED BY: AMA
SUBMITTED BY: SBR
SIZE: ANSI D
FILE NAME:

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MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

EROSION AND SEDIMENT CONTROL DETAILS

SHEET ID
C-750

SHEET OF

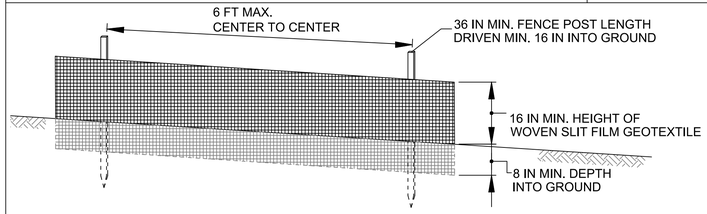
TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

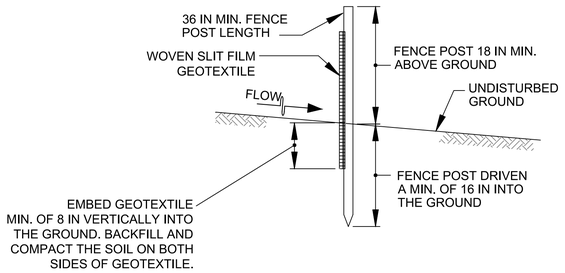
FOR EROSION AND SEDIMENT CONTROL ONLY.

DETAIL E-1 SILT FENCE

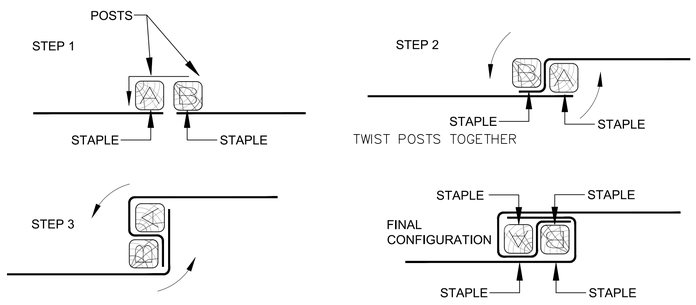
STANDARD SYMBOL: SF



ELEVATION



CROSS SECTION



JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

A1 SILT FENCE (SF)
SCALE: NONE

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅛ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

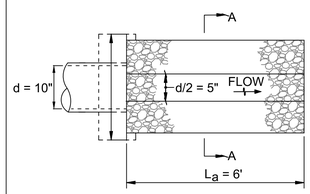
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

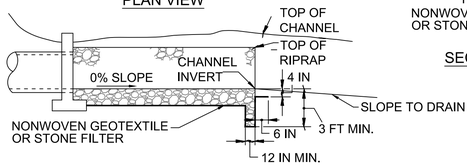
DETAIL D-4-1-B ROCK OUTLET PROTECTION II

STANDARD SYMBOL: ROPII

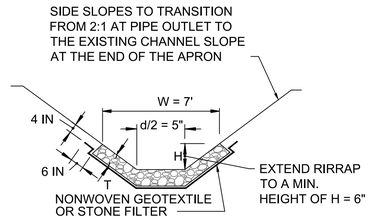
DISCHARGE TO CONFINED CHANNEL SECTION



PLAN VIEW



PROFILE



SECTION A-A

RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

FLOW DATA				
ID	Q10 (CFS)	V10 (FPS)	La (FT)	W (FT)
HW A1	1.4	3.4	6.0	7.0

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

A5 ROCK OUTLET PROTECTION II (ROPII)
SCALE: NONE

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

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AIR NATIONAL GUARD

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MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

EROSION AND SEDIMENT CONTROL DETAILS

SHEET ID
C-751

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

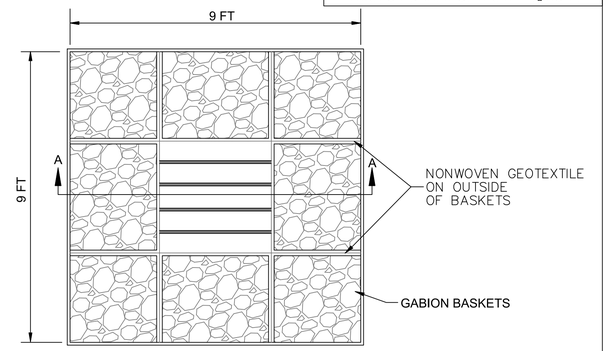
MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

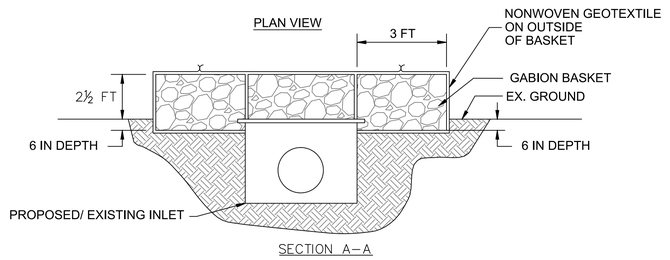
FOR EROSION AND SEDIMENT CONTROL ONLY.

DETAIL E-9-7 GABION INLET PROTECTION

STANDARD SYMBOL: GIP

MAXIMUM DRAINAGE AREA = 1½ ACRE





CONSTRUCTION SPECIFICATIONS

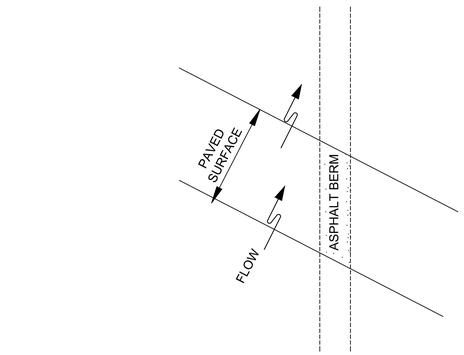
1. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
2. WRAP 3 FEET x 3 FEET GABION BASKETS (LENGTH VARIABLE) WITH NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVERLAPPING AT THE TOP AND FASTEN THE GEOTEXTILE AT THE TOP OF THE BASKET WITH WIRE FASTENERS (HOG RINGS) AT A MAXIMUM OF 1 FOOT INTERVALS ALONG THE SEAM.
3. AVOID TEARING OR DAMAGING GEOTEXTILE.
4. ENTRENCH GABION BASKETS TO A DEPTH OF 6 INCHES.
5. PLACE AND INTERLOCK GABION BASKETS WITH NO GAPS.
6. FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR MESH.
7. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

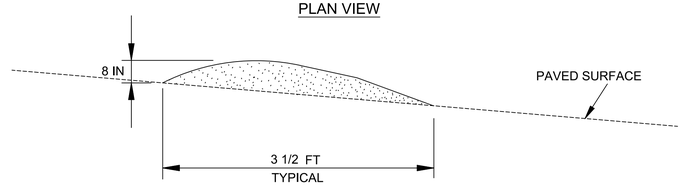
A1 GABION INLET PROTECTION (GIP)
SCALE: NONE

DETAIL C-5 TEMPORARY ASPHALT BERM

STANDARD SYMBOL: TAB



PLAN VIEW



CROSS SECTION

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT BERM ON AN UNINTERRUPTED, CONTINUOUS GRADE.
2. INSTALL BERM TO CONFORM TO CROSS SECTION DIMENSIONS OF A UNIFORM HEIGHT OF 8 INCHES MINIMUM AND APPROXIMATE WIDTH OF 3½ FEET.
3. PROVIDE OUTLET PROTECTION AS REQUIRED ON PLAN.
4. COMPACT ASPHALT BERM.
5. REPAIR DAMAGED ASPHALT. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.
6. UPON REMOVAL OF ASPHALT BERM, RETURN TO ORIGINAL CONDITIONS OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

A3 TEMPORARY ASPHALT BERM (TAB)
SCALE: NONE

AIR NATIONAL GUARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 43543 Expiration Date: 05/28/19

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: TLN
DRAWN BY: TLN
CHECKED BY: JAS
SUBMITTED BY: SBR
SIZE: ANSI D
ISSUE DATE: 6 OCTOBER 2017
ANG NO.: AJXF039040
CONTRACT NO.: W912HZ-18-D-0001
FILE NUMBER:
FILE NAME:

DISTRICT OF COLUMBIA AIR NATIONAL GUARD

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MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

EROSION AND SEDIMENT CONTROL DETAILS

SHEET ID
C-752

SHEET OF

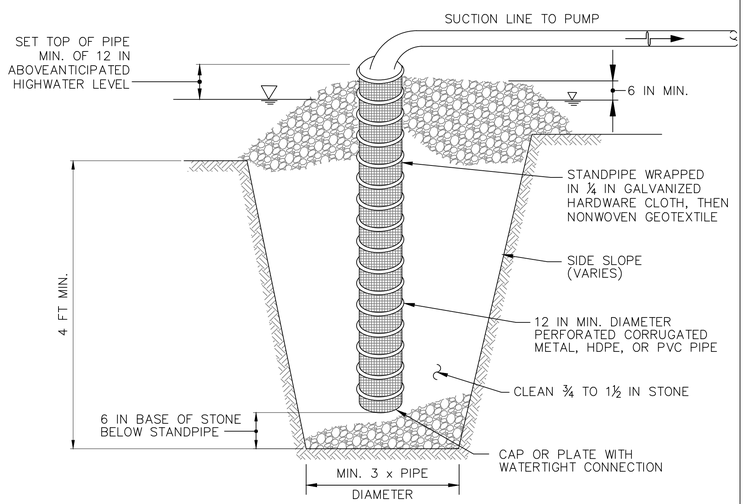
TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

MDE NO. 17-SF-0160
NOTE TO CONTRACTOR: SEDIMENT CONTROL WILL BE STRICTLY ENFORCED

FOR EROSION AND SEDIMENT CONTROL ONLY.

DETAIL F-2 SUMP PIT

STANDARD SYMBOL
SP



ELEVATION

CONSTRUCTION SPECIFICATIONS

1. USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
2. WRAP PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H–1 MATERIALS, OVER THE HARDWARE CLOTH.
3. EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
4. SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
5. BACKFILL PIT AROUND THE PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
6. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
7. A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

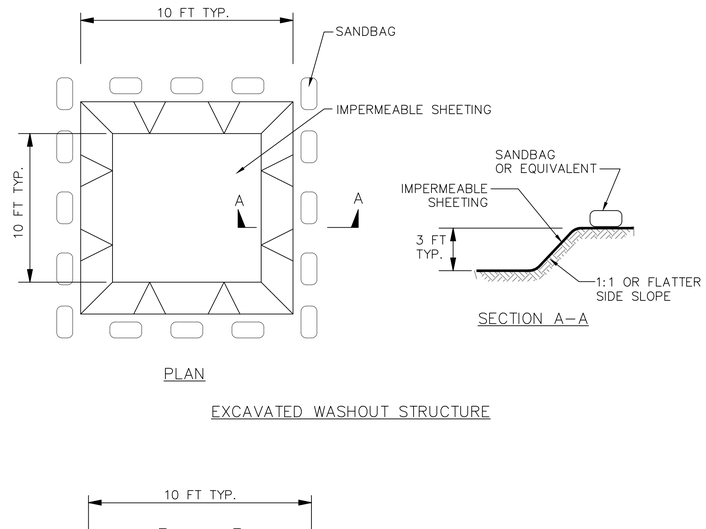
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

A1 SUMP PIT (SP)
SCALE: NONE

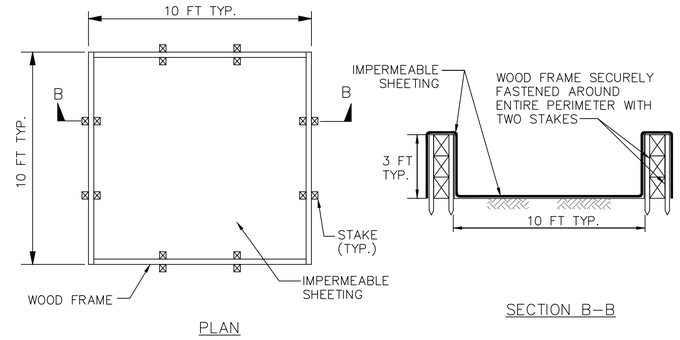
DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL
CWS



PLAN SECTION A–A

EXCAVATED WASHOUT STRUCTURE



PLAN SECTION B–B

WASHOUT STRUCTURE WITH WOOD PLANKS

1 OF 2

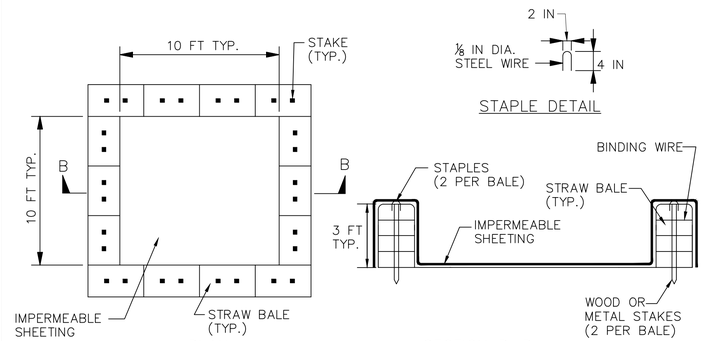
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

A3 ONSITE CONCRET WASHOUT AREA (CWS)
SCALE: NONE

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL
CWS



PLAN SECTION B–B

NOTE: CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

WASHOUT STRUCTURE WITH STRAW BALES

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET–VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AIR NATIONAL GUARD

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MARK	DESCRIPTION	DATE	APPR.

ISSUE DATE: 6 OCTOBER 2017
ANG NO.: AJXF039040
CONTRACT NO.: W912LA-16-D-0001
FILE NUMBER:
DESIGNED BY: TLN
DRAWN BY: TLN
CHECKED BY: JAS
SUBMITTED BY: SBR
SIZE: ANSI D
FILE NAME:

DISTRICT OF COLUMBIA AIR NATIONAL GUARD

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MUNITIONS LOAD CREW TRAINING FACILITY
113th Wing DCANG
Andrews Air Force Base, MD

EROSION AND SEDIMENT CONTROL DETAILS

SHEET ID
C-753

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

SYMBOL DESCRIPTION

COMMUNICATIONS

TV	COAXIAL CATV OUTLET WALL MOUNTED 60" AFF, UIO
	COMMUNICATIONS COMBINATION VOICE/DATA OUTLET (FOUR DATA JACKS) MOUNT 18" AFF, UIO
	COMMUNICATIONS VOICE OUTLET MOUNT 18" AFF, UIO
	COMMUNICATIONS DATA OUTLET, MOUNT 18" AFF, UIO
	COAXIAL CATV OUTLET CEILING MOUNTED
J	WALL MOUNTED JUNCTION BOX FOR VOICE/DATA CONNECTION TO MODULAR WORKSTATION FURNITURE.

WIRING

	CABLE TRAY (SIZE AS INDICATED ON PLAN)

SECURITY

AC	ACCESS CONTROL JUNCTION BOX
CR	CARD READER
EL	ELECTRIC LOCK
GV	GIANT VOICE

ABBREVIATIONS

A OR AMP	AMPERE(S)
AFF	ABOVE FINISHED FLOOR
AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
BLDG	BUILDING
C	CONDUIT
CAT	CATEGORY
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CU	COPPER
D	DEPTH OR DATA
DDC	DIRECT DIGITAL CONTROL FOR HVAC
EC	EMPTY CONDUIT
EF	ENTRANCE FACILITY
EIA/TIA	ELECTRONICS INDUSTRY ALLIANCE/ TELECOMMUNICATIONS INDUSTRY ASSOCIATION
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
FWE	FURNISHED WITH EQUIPMENT
G OR GND	GROUND
GFGI	GOVERNMENT FURNISHED GOVERNMENT INSTALLED
GFI	GROUND FAULT INTERRUPTER
H	HEIGHT
HVAC	HEATING, VENTILATING & AIR CONDITIONING
IDS	INTRUSION DETECTION SYSTEM
IMC	INTERMEDIATE METAL CONDUIT
J OR JB	JUNCTION BOX
K	KILO
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATT
L	LENGTH
LAN	LOCAL AREA NETWORK
MAX	MAXIMUM
MIN	MINIMUM
MM	MULTI-MODE
MT or MTD	MOUNT or MOUNTED
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NTS	NOT TO SCALE
PVC	POLYVINYL CHLORIDE
RMC	RIGID METAL CONDUIT
SA	SURGE ARRESTOR
SM	SINGLE MODE
SPEC	SPECIFICATIONS
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TP	TWISTED PAIR
TYP	TYPICAL
UIO	UNLESS INDICATED OTHERWISE
UL	UNDERWRITERS LABORATORY
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS
VA	VOLT AMPERES
W	WATTS or WIRE or WIDTH

GENERAL NOTES:

1. EQUIPMENT (PIPING, DUCTWORK, MACHINERY, ETC) THAT DOES NOT SERVE EF SHALL NOT BE INSTALLED ABOVE OR IN IT SPACES, NOR SHALL THIS EQUIPMENT PASS THROUGH OR ENTER THE EF.
2. ANY MOTOR, TRANSFORMER OR OTHER ELECTRICAL DEVICE GREATER THAN 5KVA SHALL HAVE A MINIMUM OF 47" SPACE SEPARATION FROM ANY WALL OF EF.
3. CONTRACTOR SHALL CAREFULLY COORDINATE WORK WITH ALL TRADES AND SHALL BE RESPONSIBLE FOR SECURING SPACE REQUIREMENTS FOR TELECOMMUNICATIONS EQUIPMENT, AND CORRECT ROUGH-IN LOCATIONS OF ELECTRICAL CONNECTIONS. CONTRACTOR SHALL ALSO COORDINATE AND DETERMINE WHEN WORK SHALL BE INSTALLED IN ORDER TO AVOID CONFLICTS. ANY REWORK REQUIRED DUE TO FAILURE TO COORDINATE THE TELECOMMUNICATIONS WORK WITH OTHER TRADES SHALL BE AT NO ADDITIONAL COST TO THE GOVERNMENT.
4. VERIFY EXACT HEIGHT OF EACH COUNTER TOP AND BACKSPLASH ON ARCHITECTURAL DETAILS AND/OR CASEWORK SHOP DRAIWNGS AND ADJUST SPECIFIED MOUNTING HEIGHT OF WALL OUTLETS TO LOCATE BOTTOM OF OUTLET BOX 4" ABOVE TOP OF BACKSPLASH; IF NO BACKSPLASH IS USED, LOCATE BOTTOM OF OUTLET BOX 6" ABOVE COUNTERTOP.
5. REFER TO DETAILS AND RISER DIAGRAMS FOR CABLE AND CONDUIT SIZES NOT SHOWN ON PLANS.
6. PROVIDE IS AN INCLUSIVE TERM USED TO DESCRIBE ASPECTS OF THE WORK TO BE ACCOMPLISHED, AND IS HEREBY DEFINED TO REQUIRE CONTRACTOR TO STORE, FURNISH, INSTALL, MOUNT, CONNECT, CONTROL AND POWER EQUIPMENT INDICATED, AS WELL AS ALL APPURTENANCES REQUIRED TO MAKE TELECOMMUNICATIONS SYSTEM OPERATE AS INDICATED WTIHIN THESE DRAWINGS AND SPECIFICATIONS AND TO FULFILL THE SCOPE OF WORK.
7. PROVIDE WELDED WIRE TYPE CABLE TRAY IN ALL AREAS EXCEPT TR'S. PROVIDE LADDER TYPE CABLE TRAY IN TR'S.
8. FLOOR BOXES AND POKE THRU'S SHALL BE SIZED TO NOT EXCEED TELECOMMUNICATION CABLE MINIMUM BEND RADIUS.
9. EMT: COMPLY WITH ANSI C80.3 AND UL 797. ALL EMT SHALL BE FACTORY PAINTED. PROVIDE THE FOLLOWING COLOR FOR EACH SYSTEM:
   1. FIRE ALARM - RED
   2. TELECOMMUNICATIONS - ORANGE
   3. 480/277V POWER - YELLOW
   4. 208/120V POWER - BLUE
   5. SECURITY - PURPLE

AIR NATIONAL GUARD

STATE OF MARYLAND — CHRISTOPHER A. PEARSON — 50902 — PROFESSIONAL ENGINEER — 10/4/2017

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 50902 Expiration Date:05/11/19

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: Designer	ISSUE DATE: 6. OCTOBER 2017
DRAWN BY: Author	ANG NO: ANG19040
CHECKED BY: Checker	CONTRACT NO.: W9133L-15-D-0001
SUBMITTED BY: SBR	FILE NUNBER: XX-X-XXXX
SIZE: ANSI D	FILE NAME:

DISTRICT OF COLUMBIA
AIR NATIONAL GUARD

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Peachtree Corners, GA 30092
Phone (678) 336-7150
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POND NO: 170252

MUNITIONS LOAD CREW
TRAINING FACILITY
113th WING DCANG
JOINT BASE ANDREWS,MD

TELECOM SYMBOLS

SHEET ID
T-001

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

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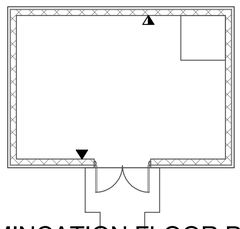


E2 TELECOMMINCATION FLOOR PLAN - FIRE PUMP HOUSE

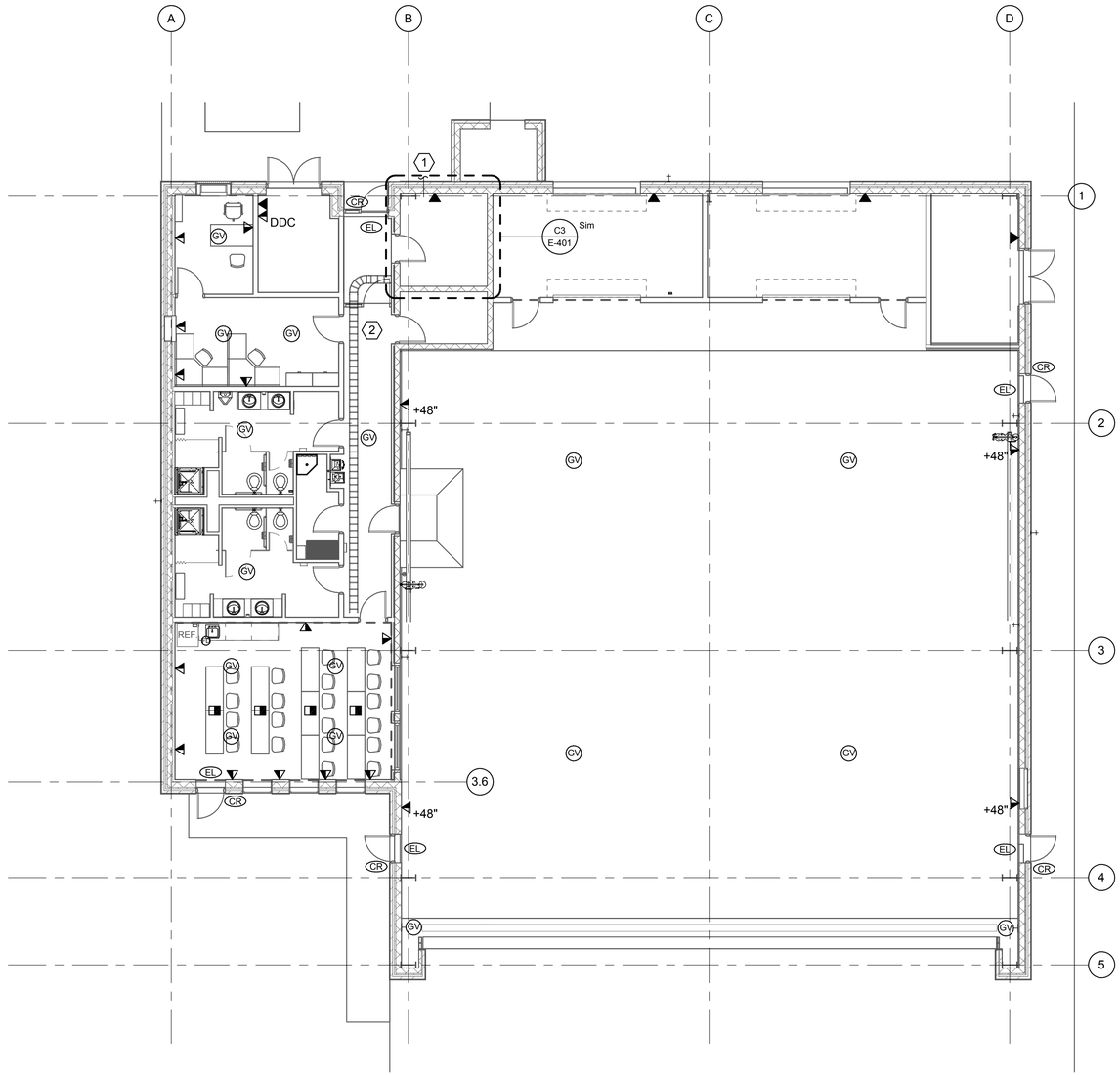
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. SEE SHEET T-001 FOR GENERAL NOTES, ABBREVIATIONS AND TELECOMMUNICATION SYMBOLS.
2. SEE SHEET T-601 FOR TELECOMMUNICATIONS RISER DIAGRAM.
3. THIS PROJECT SHALL PROVIDE DEVICE ROUGH-IN AND PATHWAYS ONLY FOR ACCESS CONTROL SYSTEM. THE ACCESS CONTROL SYSTEM SHALL BE FURNISHED AND INSTALLED UNDER A SEPARATE CONTRACT.

KEY NOTES:

1. PROVIDE A 1 1/2" C FROM THE COMM ROOM UP TO THE ROOF STRUCTURE AND EXIT OUT THE EXTERIOR WALL APPROXIMATELY 4' BELOW THE HANGAR ROOF RIDGE. CONTRACTOR TO COORDINATE THE EXACT HEIGHT OF THE CONDUIT THROUGH THE EXTERIOR WALL WITH CONTRACTING OFFICERS REPRESENTATIVE.
2. 12" WIDE X 4" DEEP BASKE TYPE CABLE TRAY.



A2 TELECOMMINCATION FLOOR PLAN

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

8 0 8 16

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

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 50902 Expiration Date:05/11/19

MARK	DESCRIPTION	DATE	APPR.

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AIR NATIONAL GUARD

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COA NO: 11770032

DESIGNED BY: MAP	ISSUE DATE: 6, OCTOBER 2017
DRAWN BY: MAP, KDS	ANG NO: ANG-17-0040
CHECKED BY: JMS	CONTRACT NO.: W9133L-15-D-0001
SUBMITTED BY: SBR	FILE NUNBER: XX-X-XXXX
SIZE: ANSI D	FILE NAME:

MUNITIONS LOAD CREW
TRAINING FACILITY
113th WING DCANG
JOINT BASE ANDREWS,MD

TELECOM PLAN

SHEET ID
T-101

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

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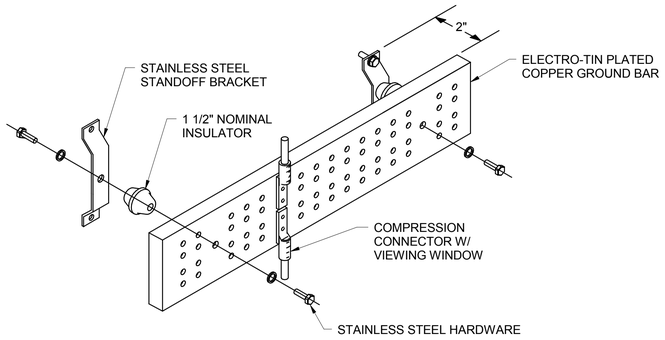
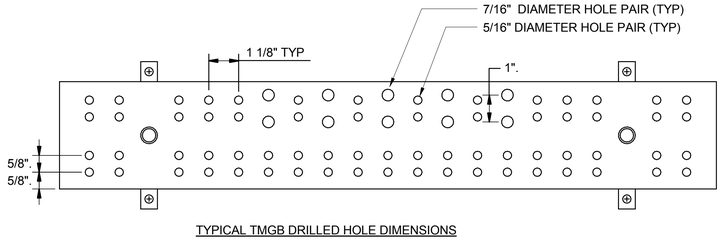
TELECOMMUNICATIONS MAIN GROUND BAR (TMGB) & TELECOMMUNICATIONS GROUND BAR (TGB) SCHEDULE ANSI-J-STD-A-2002					
TYPE	MINIMUM LENGTH	WIDTH	THICKNESS	MINIMUM NUMBER OF PAIRS OF 5/16" DIAMETER HOLES	MINIMUM NUMBER OF PAIRS OF 7/16" DIAMETER HOLES
TMGB	20"	4"	1/4"	24	3

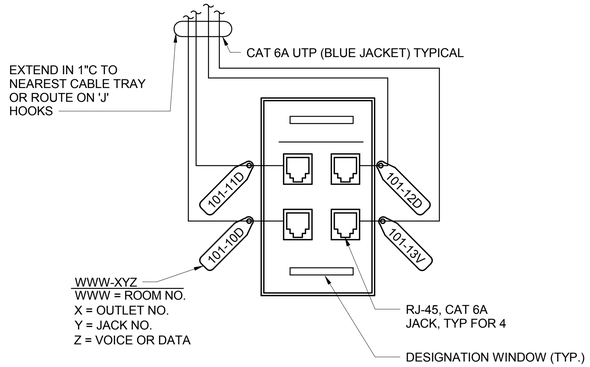




TYPICAL TMGB DRILLED HOLE DIMENSIONS

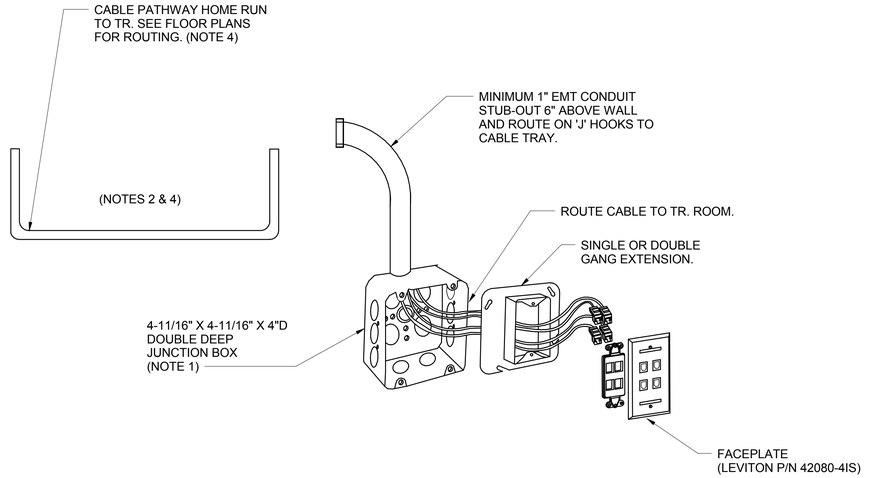
C1 TELECOMMUNICATIONS MAIN GROUND BAR

SCALE: N.T.S.



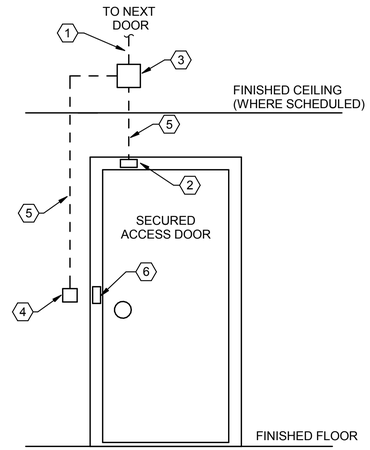
D4 TYPICAL COMMUNICATIONS OUTLET DETAIL

SCALE: N.T.S.



D3 WALL MOUNT COMMUNICATIONS OUTLET DETAIL

SCALE: N.T.S.



A4 SECURITY DETAIL - SINGLE DOOR

SCALE: N.T.S.

KEY NOTES:

1. 3/4"C TO SECURITY PANEL.
2. PROVIDE ROUGH IN FOR BALANCED MAGNETIC SWITCH.
3. PROVIDE ROUGH IN FOR ACCESS CONTROL PANEL.
4. PROVIDE ROUGH IN FOR CARD READER.
5. 3/4"C TYPICAL
6. PROVIDE ROUGH IN FOR ELECTRIC LOCKSET. POWER FROM SECURITY PANEL.

AIR NATIONAL GUARD

STATE OF MARYLAND — RICHARD A. PEARSON — 50902 — PROFESSIONAL ENGINEER — 10/4/2017

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 50902 Expiration Date: 05/11/19

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DESIGNED BY: MAP	ISSUE DATE: 6, OCTOBER 2017
DRAWN BY: MAP	ANG NO.: AANG09040
CHECKED BY: JMS	CONTRACT NO.: W9133L-15-D-0001
SUBMITTED BY: SBR	FILE NUNBER: XX-X-XXXX
SIZE: ANSI D	FILE NAME:

DISTRICT OF COLUMBIA AIR NATIONAL GUARD

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MUNITIONS LOAD CREW TRAINING FACILITY
113th WING DCANG
JOINT BASE ANDREWS,MD

TELECOM DETAILS

SHEET ID
T-501

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

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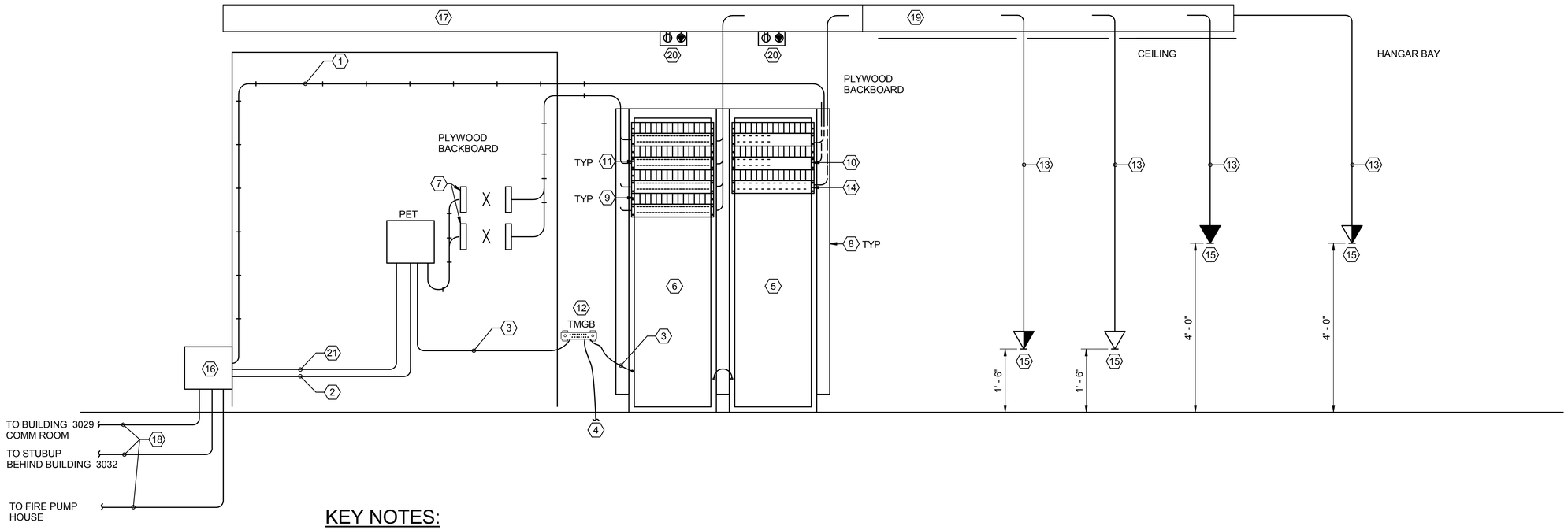

KEY NOTES:

1. PROVIDE NEW 12 STRAND SINGLE MODE AND 12 STRAND MULTI MODE FIBER OPTIC CABLE FROM EXISTING BUILDING 3029 TO COMM ROOM.
2. 50 PAIR COPPER FROM STUB UP BEHIND FORMER BUILDING 3032.
3. #4 INSULATED COPPER GROUND.
4. #4 BARE COPPER GROUND BONDED TO BUILDING GROUND BAR.
5. NEW FIBER EQUIPMENT RACK.
6. NEW VOICE/DATA EQUIPMENT RACK.
7. 50 PAIR 110 TYPE WIRING BLOCKS EQUIPPED WITH WALL MOUNTING STANDOFF LEGS.
8. VERTICAL CABLE MANAGEMENT.
9. HORIZONTAL CABLE MANAGEMENT.
10. FIBER OPTIC PATCH PANEL
11. 48 PORT VOICE/DATA PATCH PANEL
12. 1/4" THICK X 20"L X 4"W TELECOMMUNICATIONS MAIN GROUND BAR. SEE DETAIL C1/T-501.
13. PROVIDE 3/4"C TO CABLE TRAY.
14. FIBER OPTIC CONCENTRATOR
15. COMMUNICATIONS OUTLET (4 DATA CATEGORY 6A, RJ-45 JACK). SEE DETAIL D4/T-501.
16. COMMUNICATIONS PULL BOX. MOUNT TO BUILDING EXTERIOR FOR TRANSITION TO/FROM UNDERGROUND DUCTBANK.
17. 12"W X 4"H LADDER STYLE CABLE TRAY. PROVIDE RUNG SPACING NO GREATER THAN 9".
18. TWO 2 x 4" DUCTBANK FOR COPPER AND FIBER OPTIC SERVICE TO THE BUILDING. SEE ES-101 FOR CONTINUATION.
19. BASKET TYPE CABLE TRAY, MOUNT ABOVE SUSPENDED CEILING.
20. REFER TO DETAIL C3/E-401 FOR RECEPTACLES MOUNTED ON CABLE TRAY.
21. 25 PAIR COPPER TO FIRE PUMP HOUSE. SEE ES-101 FOR CONTINUATION.

C1 TELECOMMUNICATION RISER DIAGRM

SCALE: N.T.S.

STATE OF MARYLAND
RICHARD A. PEARD
50902
PROFESSIONAL ENGINEER
10/4/2017

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 50902 Expiration Date:05/11/19

MARK	DESCRIPTION	DATE	APPR.

DISTRICT OF COLUMBIA
AIR NATIONAL GUARD

BOND
BRUCE W. BOND & ASSOCIATES, INC.
Peachtree Corners, GA 30092
Phone: (770) 729-8780
Fax (770) 339-7744
JOB NO: 1170032

DESIGNED BY: MAP	ISSUE DATE: 6, OCTOBER 2017
DRAWN BY: MAP	ANG NO: ANG-000040
CHECKED BY: JMS	CONTRACT NO.: W9133L-15-D-0001
SUBMITTED BY: SBR	FILE NUMBER: XX-X-XXXX
SIZE: ANSI D	FILE NAME:

MUNITIONS LOAD CREW
TRAINING FACILITY
113th WING DCANG
JOINT BASE ANDREWS,MD

TELECOM RISER DIAGRAM

SHEET ID
T-601

SHEET OF

TYPE B-3 (100%) SUBMITTAL - ISSUED FOR BID

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