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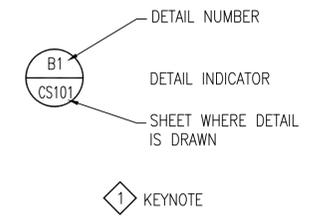
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### SYMBOL LIST

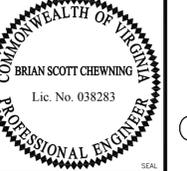
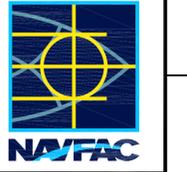
EXISTING		NEW
	BUILDING OUTLINE	
	EDGE OF CONCRETE	
	CONCRETE SIDEWALK	
	CHAIN LINK FENCE	
	CURB WITH GUTTER PAN	
	CURB	
	EDGE OF PAVEMENT	
	PARKING SPACE MARKING	
	BOLLARD	
	AIR CONDITIONING UNIT	
	TEMPORARY BENCHMARK	
	UNDERGROUND GAS LINE	
	GAS METER	
	UNDERGROUND COMMUNICATION LINE	
	TELEPHONE PEDESTAL	
	OVERHEAD ELECTRIC LINE	
	UNDERGROUND ELECTRIC LINE	
	STREET LIGHT POLE	
	2 ARM STREET LIGHT POLE	
	UTILITY POLE	
	ELECTRIC MANHOLE	
	TRANSFORMER	
	ELECTRIC JUNCTION BOX	
	UNIDENTIFIED UNDERGROUND UTILITY	
	GROUNDING SYSTEM	
	WATER LINE	
	UNIDENTIFIED VALVE	
	WATER METER	
	WATER VALVE	
	THRUST BLOCK	
	CAP	
	FIRE HYDRANT	
	FIRE DEPARTMENT CONNECTION	
	POST INDICATOR VALVE	
	MONITORING WELL	
	SANITARY SEWER CLEANOUT	
	OIL/WATER SEPARATOR	
	DIVERTER VALVE PIT	
	SANITARY SEWER MANHOLE	
	UNDERGROUND SANITARY SEWER LINE	
	TRENCH	
	STORM DRAIN MANHOLE	
	DRYWELL	
	UNDERGROUND STORM DRAIN LINE	
	SIGN	



### ABBREVIATIONS

AFFF	AQUEOUS FILM FORMING FOAM
ABBR	ABBREVIATIONS
APPROX	APPROXIMATELY
BC	BUILDING CONNECTION
BLDG	BUILDING
BOS	BOTTOM OF STRUCTURE
C/L	CENTERLINE
CLF	CHAIN LINK FENCE
CO	CLEANOUT
COMM	COMMUNICATION
CONC	CONCRETE
DI	DROP INLET/ DUCTILE IRON
DIP	DUCTILE IRON PIPE
DIA	DIAMETER
DMH	DRAINAGE MANHOLE
DVP	DIVERTER VALVE PIT
DWG	DRAWING
ELEC	ELECTRICAL
ELEV	ELEVATION
EQUIP	EQUIPMENT
EXIST	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOW LINE
G	GAS
GM	GAS METER
GV	GAS VALVE
GR	GROUNDING WIRE
HP	HORSE POWER
INV	INVERT
I/A	INACCESSIBLE
MG	MATCH GRADE
MH	MANHOLE
MISC	MISCELLANEOUS
N/F	NOT FOUND
NTS	NOT TO SCALE
OH	OVERHEAD
OWS	OIL/WATER SEPARATOR
PED	PEDESTAL
PIV	POST INDICATOR VALVE
PP	POWER POLE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SCO	SANITARY CLEANOUT
SD	STORM DRAIN
SMH	SANITARY MANHOLE
SS	SANITARY SEWER
SSV	SANITARY SEWER VALVE
STA	STATION
TBM	TEMPORARY BENCHMARKS
TRANS	TRANSFORMER
TYP	TYPICAL
UC	UNDERGROUND COMMUNICATION
UE	UNDERGROUND ELECTRIC
V	VOLTAGE
W/	WITH
W	WATER
WV	WATER VALVE
WM	WATER METER

NO.	DESCRIPTION	DATE	APPR.
1	FINAL SUBMISSION	5/2/2016	



**the PROTECTION ENGINEERING GROUP**  
 14585 Avon Parkway, Suite 150 703-488-9994  
 Chantilly, Virginia 20151 fax: 703-488-9994  
 www.PEGroup-inc.com

**PENNONI ASSOCIATES INC.**  
 349 Southport Circle, Suite 100  
 Virginia Beach, Virginia 23452  
 T 757.497.7472 F 757.497.0250  
 A/E INF3

APPROVED

FIR. COMMANDER NAFAC

ACTIVITY

SATISFACTORY TO

DES	AT	DRW	RSP	CHK	BSQ
				KPL/IAS	

BRANCH MANAGER

CHIEF ENG/ARCH Mark J. Airaghi, PE

FIRE PROTECTION

DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND  
 HAMPDEN ROADS IPT  
 NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC  
 145 OCEANA - VIRGINIA BEACH, VIRGINIA  
 NAVAL AIR STATION OCEANA  
 VIRGINIA BEACH, VIRGINIA  
**HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS**  
 REFERENCE SHEET - ABBR. & LEGEND - CIVIL

SCALE: NO SCALE

PROJECT NO.: 1372146

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12716237

SHEET 15 OF 170

**C-002**

FILE NAME: N:\PROJECTS\01001501-Hangar 111\DESIGN\BIBUSHA\137146-C-002.dwg LAYOUT NAME: C-002 PLOTTED: Monday, April 25, 2016 - 11:22am USER: PBarfil

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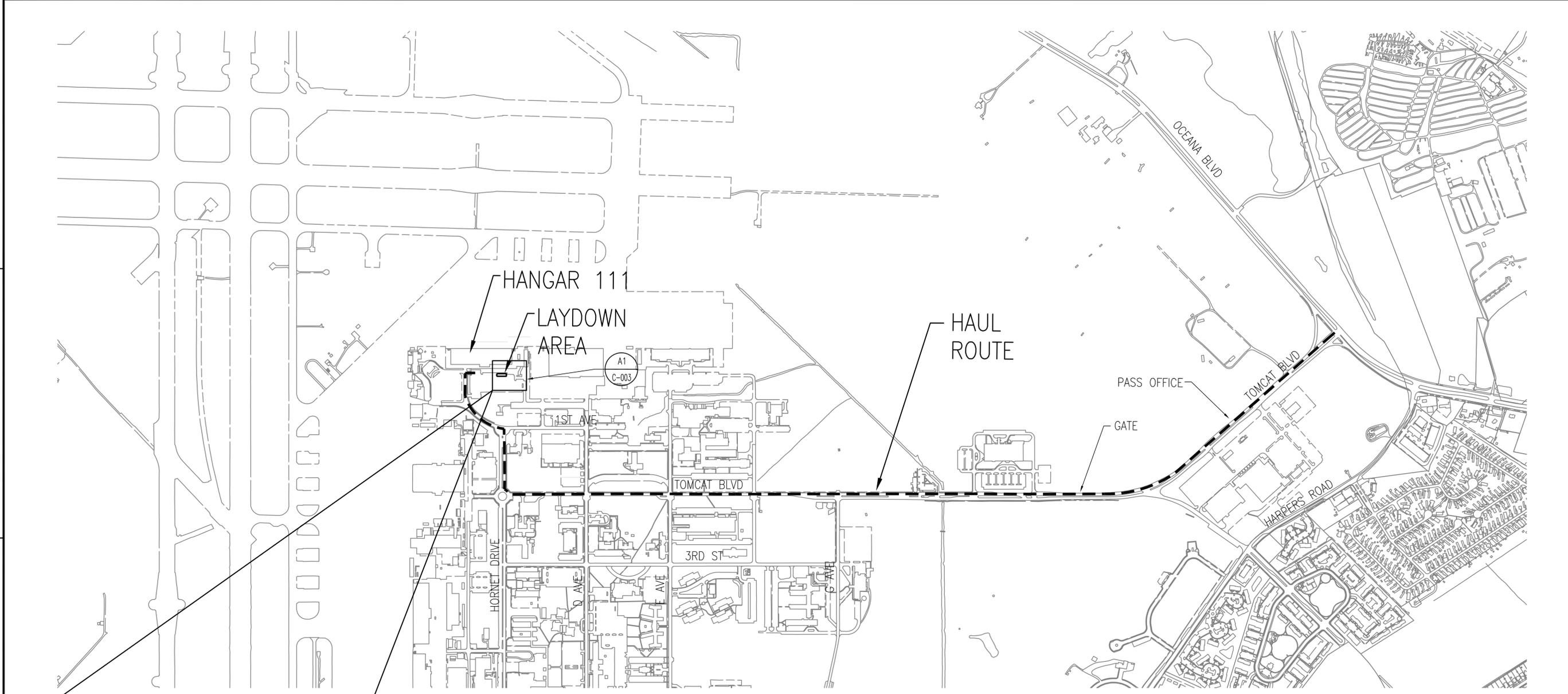
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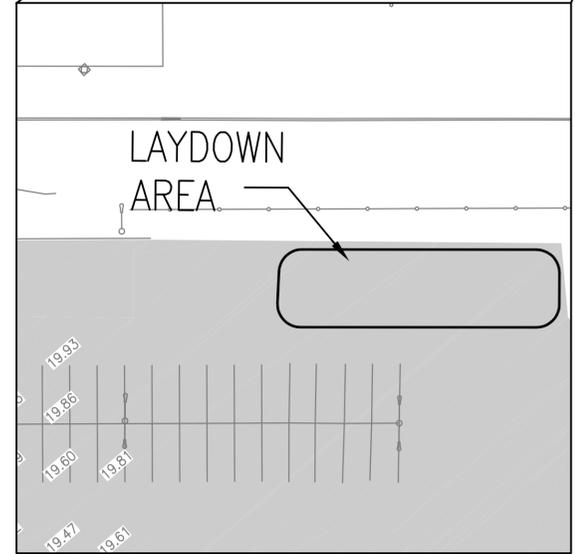
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FILE NAME: N:\PROJECTS\01001501-Hangar 111\DESIGN\918\USIA\137146-C-003.dwg LAYOUT NAME: CS003 PLOTTED: Monday, April 25, 2016 - 11:22am USER: RRC/rl



1 HAUL ROUTE AND LAYDOWN AREA  
SCALE: 1" = 500'



A1 ENLARGED AREA  
SCALE: 1" = 30'

CAUTION: IF THIS PLAN IS A REDUCTION,  
GRAPHIC SCALE MUST BE USED

0 30' 60'  
1" = 30'-0"

0 500' 1000'  
1" = 500'-0"

DATE	5/2/2016
APP'R	
DESCRIPTION	FINAL SUBMISSION
S/N	1




**the PROTECTION ENGINEERING GROUP**  
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Virginia Beach, Virginia 23452  
T 757.497.7472 F 757.497.0250  
A/E INF3

APPROVED

FIR COMMANDER NAVFAC

ACTIVITY

SATISFACTORY TO

DES	AT	DRW	RSP	CHK	BSQ

PM/DM KPL/IAS

BRANCH MANAGER

CHIEF ENG/ARCH Mark J. Airaghi, PE

FIRE PROTECTION

NAVFACILITIES ENGINEERING COMMAND  
DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC  
145 DEAN - VIRGINIA BEACH, VIRGINIA  
NAVAL AIR STATION OCEANA  
VIRGINIA BEACH, VIRGINIA

**HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS**

**HAUL ROUTE AND LAYDOWN AREA**

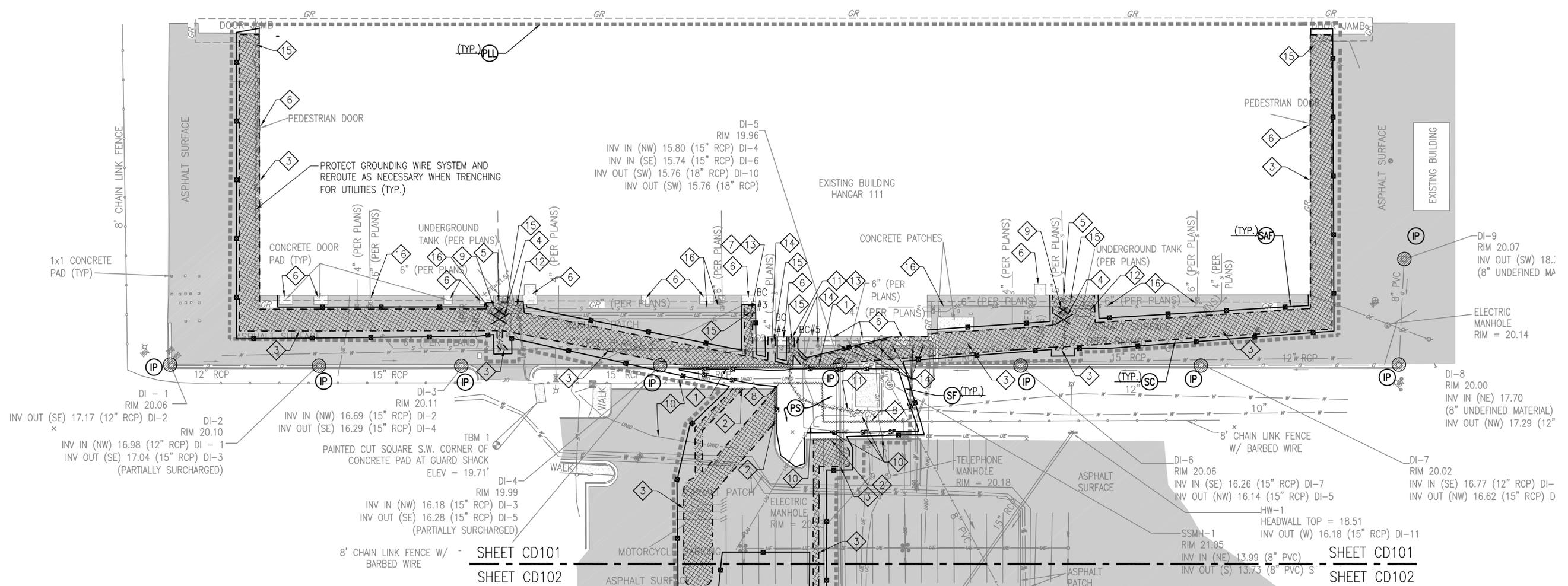
SCALE: AS SHOWN  
PROJECT NO.: 1372146  
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12716238

SHEET 16 OF 170

**C-003**

DRAWING REVISION: 10 MAY 2014



**1 DEMOLITION, EROSION & SEDIMENT CONTROL PLAN**  
SCALE: 1" = 30'

**EROSION CONTROL SYMBOL LIST**

3.01	SAFETY FENCE		
3.05	SILT FENCE		
3.07	STORM DRAIN INLET PROTECTION		
3.32	PERMANENT SEEDING		

**DEMOLITION SYMBOL LIST**

PROJECT LIMIT LINE	
PAVEMENT SAW-CUT LINE	
PAVEMENT/CONCRETE/CURB/CURB & GUTTER/FENCE DEMOLITION	
STRUCTURE DEMOLITION	

**KEYNOTES**

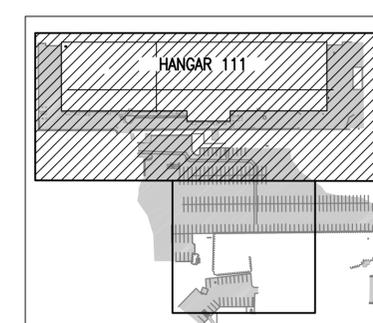
- 1 REMOVE CURB AND GUTTER TO EXTENTS SHOWN.
- 2 REMOVE CURB TO EXTENTS SHOWN.
- 3 SAWCUT AND REMOVE PAVEMENT FOR INSTALLATION OF UTILITY.
- 4 REMOVE OIL/WATER SEPARATOR AND CORRESPONDING PIPES.
- 5 6" SANITARY SEWER LINE, VALVE AND CLEANOUT FROM BUILDING TO REMAIN AND CONNECT TO SSMH. SEE CS101 FOR PROPOSED CONNECTION.
- 6 COORDINATE OPEN TRENCHES, PAVEMENT SAWCUT, UTILITY REMOVAL AND SAFETY FENCE TO ALLOW SAFE PEDESTRIAN AND VEHICULAR ACCESS TO HANGAR.
- 7 REMOVE WATER LINE PIPE FROM BUILDING TO WATER MAIN. SEE FX401 PLANS FOR REMOVAL OF WATER LINE INSIDE BUILDING.
- 8 REMOVE APPROX. 95 L.F. 8' CHAIN-LINK W/ BARBED WIRE FENCE TO ALLOW FOR UTILITY INSTALLATION. MONITOR ABSENCE OF FENCING REMOVAL TO ENSURE SECURITY MEASURES.
- 9 REMOVE PIPE BOLLARDS (6 TOTAL).
- 10 VERIFY UNIDENTIFIED UNDERGROUND UTILITY. REROUTE TO AVOID NEW UTILITIES.
- 11 REMOVE 12" WATER LINE FROM BUILDING TO EXTENTS SHOWN TO ALLOW FOR CONNECTION TO PROPOSED 16" WATER LINE.
- 12 REMOVE 550 GALLON UNDERGROUND TANK. (2 TOTAL)
- 13 LOCATE SHUT OFF VALVES FOR EXISTING WATER TO COORDINATE REMOVAL AND CAPPING OF WATER LINES.
- 14 REMOVE AND RESET BOLLARDS IN CURRENT LOCATION BEFORE COMPLETION OF CONSTRUCTION.
- 15 CONFLICT LOCATION WITH GROUNDING WIRE. PROTECT GROUNDING WIRE SYSTEM AND REROUTE AS NECESSARY.
- 16 PROTECT 6" SANITARY SEWER TO REMAIN.

**NOTES**

1. AS-BUILT PLANS WERE USED TO IDENTIFY THE SIZE AND TYPE OF UTILITY LINES FOUND WITH THE TOPOGRAPHIC AND UNDERGROUND UTILITY SURVEY. AS-BUILT PLANS INCLUDE JOB ORDER NO. 5F4081, AIRCRAFT MAINTENANCE HANGAR, NAVAL AIR STATION, OCEANA, VIRGINIA BEACH, VIRGINIA, DATED MARCH 1986. A MARKED-UP AS BUILT WAS PROVIDED SHOWING THE 18-INCH HIGH PRESSURE LINE FROM THE PUMP HOUSE AS WELL AS A 12-INCH HIGH PRESSURE WATER LINE FROM BUILDING 122. THE AS-BUILT USED IS FROM JOB ORDER NO. 5346164, UTILITY MAPS, NAVAL AIR STATION, OCEANA, VIRGINIA BEACH, VIRGINIA, DATED MAY 1996.



**CALL BEFORE YOU DIG**  
ALWAYS CALL 811 BEFORE YOU DIG IN VIRGINIA  
**CALL 1-800-552-7001**  
SECTION 56-265.17 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST  
VIRGINIA UTILITY PROTECTION SERVICE, INC.



 <b>COMMONWEALTH OF VIRGINIA</b> BRIAN SCOTT CHEWNING Lic. No. 038283 PROFESSIONAL ENGINEER	THE PROTECTION ENGINEERING GROUP 14585 Avon Parkway, Suite 150 Chantilly, Virginia 20151 T 757.497.7472 F 757.497.0250
PENNONI ASSOCIATES INC. 349 Southport Circle, Suite 100 Virginia Beach, Virginia 23452 T 757.497.7472 F 757.497.0250	
APPROVED: _____ PER: COMMANDER NAVFAC _____ ACTIVITY: _____	
SATISFACTORY TO: _____ DES: AT: DRW: RSP: CHK: BSC: _____ IN/DM: KPL/IAS BRANCH MANAGER: _____ CHIEF ENGR/ARCH: Mark J. Araghi, PE FIRE PROTECTION: _____	
NAVAL FACILITIES ENGINEERING COMMAND MID-ATLANTIC REGION - VIRGINIA BEACH, VIRGINIA NAVAL AIR STATION OCEANA <b>HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS</b> DEMOLITION, EROSION & SEDIMENT CONTROL PLAN	
SCALE: 1" = 30' PROJECT NO.: 1372146 CONSTR. CONTR. NO.: _____ NAVFAC DRAWING NO.: 12716239 SHEET 17 OF 170 <b>CD101</b> DRAWING REVISION: 10 MAY 2014	

**EROSION CONTROL SYMBOL LIST**

3.01	SAFETY FENCE			
3.05	SILT FENCE			
3.07	STORM DRAIN INLET PROTECTION			
3.32	PERMANENT SEEDING			

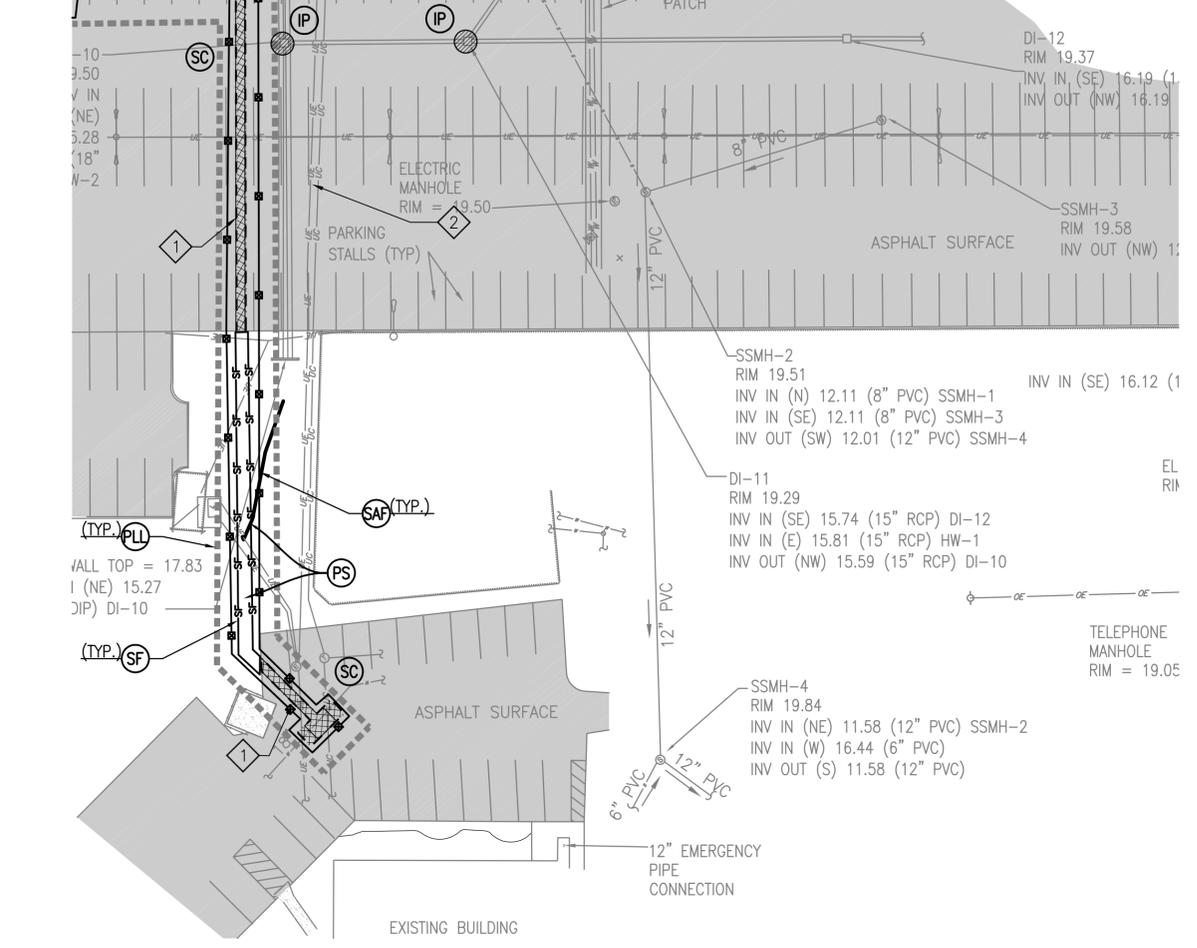
**DEMOLITION SYMBOL LIST**

PROJECT LIMIT LINE	
PAVEMENT SAW-CUT LINE	
PAVEMENT/CONCRETE/CURB/CURB & GUTTER/FENCE DEMOLITION	
STRUCTURE DEMOLITION	

**NOTES**

1. AS-BUILT PLANS WERE USED TO IDENTIFY THE SIZE AND TYPE OF UTILITY LINES FOUND WITH THE TOPOGRAPHIC AND UNDERGROUND UTILITY SURVEY. AS-BUILT PLANS INCLUDE JOB ORDER NO. 5F4081, AIRCRAFT MAINTENANCE HANGAR, NAVAL AIR STATION, OCEANA, VIRGINIA BEACH, VIRGINIA, DATED MARCH 1986. A MARKED-UP AS BUILT WAS PROVIDED SHOWING THE 18-INCH HIGH PRESSURE LINE FROM THE PUMP HOUSE AS WELL AS A 12-INCH HIGH PRESSURE WATER LINE FROM BUILDING 122. THE AS-BUILT USED IS FROM JOB ORDER NO. 5346164, UTILITY MAPS, NAVAL AIR STATION, OCEANA, VIRGINIA BEACH, VIRGINIA, DATED MAY 1996.

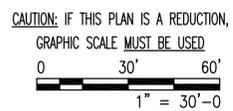
SHEET CD101 SHEET CD102 SHEET CD101 SHEET CD102



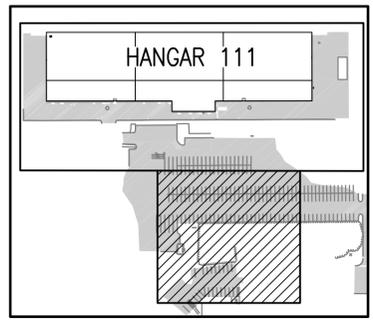
**1 DEMOLITION, EROSION & SEDIMENT CONTROL PLAN**  
SCALE: 1" = 30'

**KEYNOTES**

- SAWCUT AND REMOVE PAVEMENT FOR INSTALLATION OF UTILITY.
- EXISTING UTILITY TO REMAIN. PROTECT DURING CONSTRUCTION.

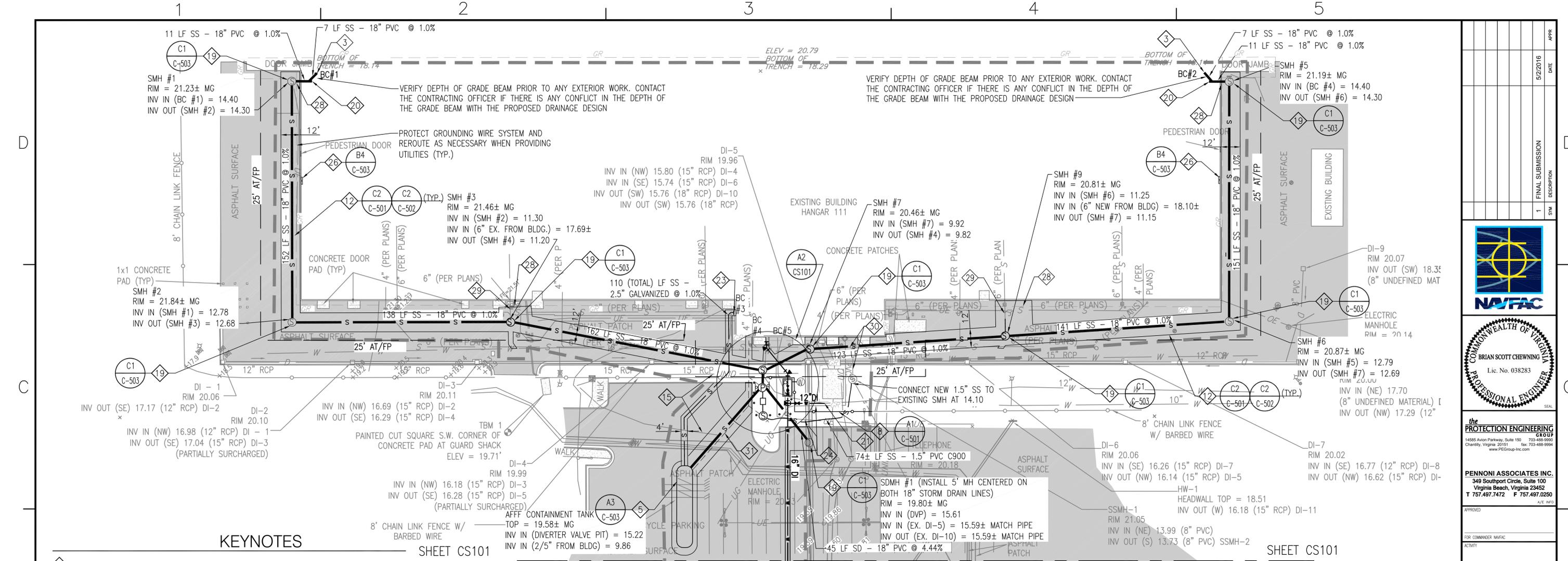


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**CALL 1-800-552-7001**  
SECTION 56-265.17 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST  
VIRGINIA UTILITY PROTECTION SERVICE, INC.



<p><b>the PROTECTION ENGINEERING GROUP</b> 14585 Avon Parkway, Suite 150 Chantilly, Virginia 20151 703-488-9999 / 703-488-9994 / www.PEGroup-inc.com</p>	
<p><b>PENNONI ASSOCIATES INC.</b> 349 Southport Circle, Suite 100 Virginia Beach, Virginia 23452 T 757.497.7472 F 757.497.0250</p>	
<p>APPROVED: _____ FIR COMMANDER NAFAC</p>	
<p>SATISFACTORY TO: _____ DES AT DRW RSP CHK BSC PM/DM KPL/IAS BRANCH MANAGER CHIEF ENG/ARCH Mark J. Airaghi, PE FIRE PROTECTION</p>	
<p>NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC 1450 DEAN - VIRGINIA BEACH, VIRGINIA NAVAL AIR STATION OCEANA HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS DEMOLITION, EROSION &amp; SEDIMENT CONTROL PLAN</p>	
<p>SCALE: 1" = 30' PROJECT NO.: 1372146 CONSTR. CONTR. NO. NAFAC DRAWING NO.: 12716240 SHEET 18 OF 170</p>	
<p><b>CD102</b></p>	

FILE NAME: N:\PROJECTS\HQ\1501-Hangar 111\DESIGN\918\USA\1372146-CD102.dwg LAYOUT NAME: CD102 PLOTTED: Monday, April 25, 2016 - 11:27am USER: RBP/rl



**KEYNOTES**

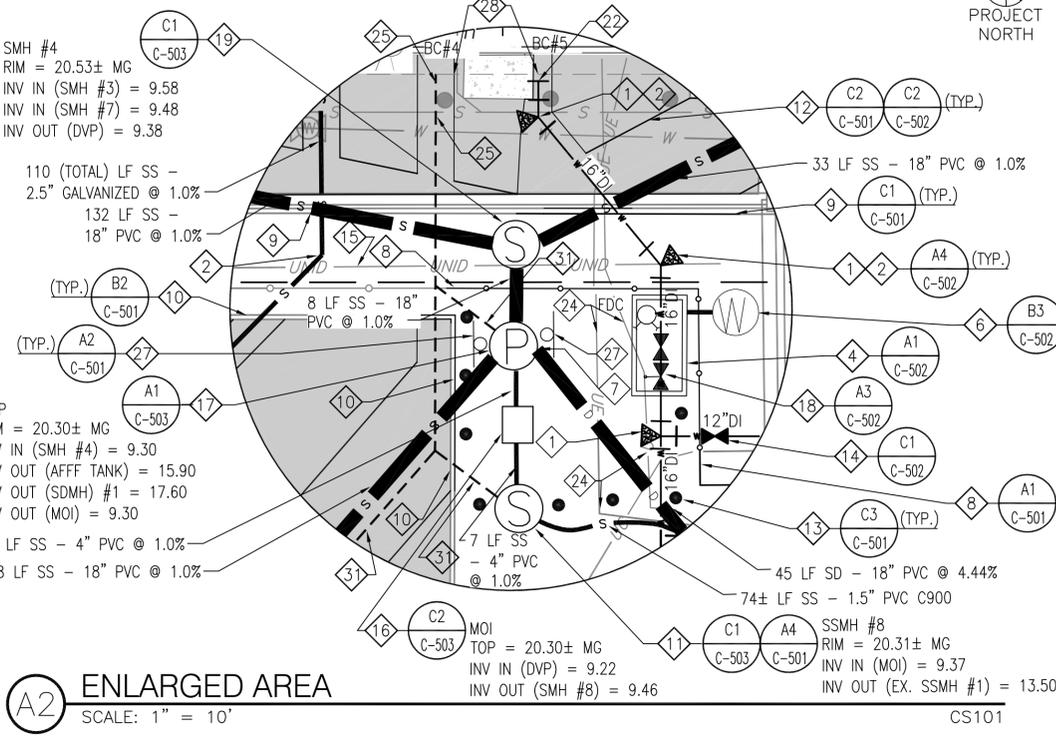
- 1 THRUST BLOCK
- 2 45° BEND
- 3 CONNECT TO TRENCH DRAIN - SEE STRUCTURAL AND PLUMBING SHEETS FOR CONTINUATION INSIDE BUILDING.
- 4 FIRE DEPARTMENT CONNECTION IN PIT. TOP = 20.67
- 5 AFF CONTAINMENT TANK (1-25,000 GALLON TANK)
- 6 DRY WELL
- 7 DUCKBILL CHECK VALVE
- 8 PROVIDE APPROX. 95 L.F. (TOTAL) 8' CHAIN-LINK W/ BARBED WIRE FENCE IMMEDIATELY UPON UTILITY INSTALLATION. MONITOR ABSENCE OF FENCING TO ENSURE SECURITY MEASURES.
- 9 PROVIDE CURB AND GUTTER.
- 10 PROVIDE CURB.
- 11 MANHOLE WITH 3/10 HP, 115 V, SINGLE PHASE SUBMERSIBLE PUMP CAPABLE OF 25 GPM @ 10' TOTAL DYNAMIC HEAD.
- 12 PAVEMENT PATCH/UTILITY TRENCH
- 13 GUARD POST (8 TOTAL)
- 14 CONNECT TO NEW 16" WATER LINE W/ 12" GATE VALVE AND 12" X 16" X 16" TEE AND THRUST BLOCK.
- 15 VERIFY UNDERGROUND UTILITY. REROUTE TO AVOID NEW UTILITIES.
- 16 MANUAL OIL INTERCEPTOR (MOI)
- 17 DIVERTER VALVE PIT (DVP)
- 18 POST INDICATOR VALVE
- 19 MANHOLE
- 20 SANITARY SEWER 45° BEND
- 21 CONNECT TO EXISTING 12" WATER LINE WITH METAL FLANGE COUPLING.
- 22 BUILDING CONNECTION FOR 16" WATER LINE. SEE FX402 FOR CONTINUATION INSIDE BUILDING.
- 23 BUILDING CONNECTION FOR 2.5" SANITARY SEWER. SEE FX403 DETAIL A1 FOR CONTINUATION INSIDE BUILDING.
- 24 VERIFY LOCATION OF UNDERGROUND ELECTRICAL AND GAS UTILITIES. REROUTE TO AVOID NEW UTILITIES.
- 25 3 - 1" PVC CONDUITS FOR POWER AND CONTROLS TO DIVERTER VALVE PIT, AFF CONTAINMENT TANK AND SUBMERSIBLE PUMP. PROVIDE PULL BOXES AT EACH TAP TO 1" PVC CONDUITS.
- 26 CONTROL PANEL IN HANGAR FOR DIVERTER VALVE/CONTAINMENT TANK.
- 27 WARNING SIGN FOR DIVERTER VALVE
- 28 CONFLICT LOCATION WITH GROUNDING WIRE. PROTECT GROUNDING WIRE SYSTEM AND REROUTE AS NECESSARY.
- 29 CONNECT EXISTING 6" SANITARY SEWER LINE TO NEW SSMH.
- 30 EXISTING SANITARY SEWER TO REMAIN AND PROTECT IN PLACE.
- 31 1" PVC CONDUIT FOR POWER AND CONTROLS TO DIVERTER VALVE PIT, AFF CONTAINMENT TANK AND SUBMERSIBLE PUMP.

SHEET CS101

SHEET CS102

**LAYOUT, MATERIALS, GRADING AND DRAINAGE PLAN**

SCALE: 1" = 30'



**ENLARGED AREA**

SCALE: 1" = 10'

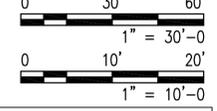
SHEET CS101

SHEET CS102

**NOTES**

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2. COORDINATE FLIGHT LINE FENCE REMOVAL AND INSTALLATION WITH THE CONTRACTING OFFICER PRIOR TO COMMENCING WORK. BREAKS IN THE FENCE ARE NOT PERMITTED DURING OFF WORK HOURS OR WEEKENDS DUE TO SECURITY REASONS.
3. ALL PROPOSED/REPLACED PAVEMENT/CURB/TURF TO MATCH GRADE UNLESS OTHERWISE NOTED.

CAUTION: IF THIS PLAN IS A REDUCTION, GRAPHIC SCALE MUST BE USED

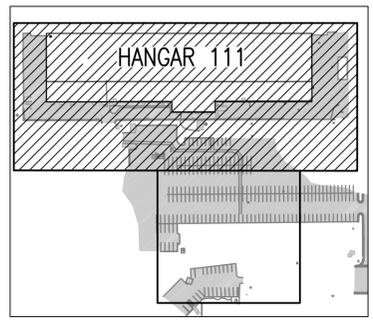


5 LF SD - 3" PVC DRAIN LINE  
TOP = 20.13± MG  
INV OUT (FDC) = 15.75  
INV IN (DRYWELL) = 15.71



**CALL BEFORE YOU DIG**

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**CALL 1-800-552-7001**  
SECTION 56-265.17 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST  
VIRGINIA UTILITY PROTECTION SERVICE, INC.



DATE	5/2/2016
DESCRIPTION	FINAL SUBMISSION
APPR	
<p><b>the PROTECTION ENGINEERING</b> 14555 Avon Parkway, Suite 150 Chantilly, Virginia 20151 www.PEGroup-nc.com</p>	
<p><b>PENNONI ASSOCIATES INC.</b> 349 Southport Circle, Suite 100 Virginia Beach, Virginia 23452 T 757.497.7472 F 757.497.0250</p>	
<p>APPROVED</p> <p>FOR COMMANDER NAVFAC</p> <p>ACTIVITY</p> <p>SATISFACTORY TO</p> <p>DES AT DRW RSP CHK BSC</p> <p>IN/DM KPL/IAS</p> <p>BRANCH MANAGER</p> <p>CHIEF ENG/ARCH Mark J. Airaghi, PE</p> <p>FIRE PROTECTION</p> <p>NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC HAMPSON ROADS IPT NAVAL AIR STATION OCEANA VIRGINIA BEACH, VIRGINIA</p> <p><b>HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS</b></p> <p>LAYOUT, MATERIALS, GRADING AND DRAINAGE PLAN</p> <p>SCALE: 1" = 30'</p> <p>EPROJCT NO.: 1372146</p> <p>CONSTR. CONTR. NO.</p> <p>NAVFAC DRAWING NO. 12716241</p> <p>SHEET 19 OF 170</p> <p><b>CS101</b></p> <p>DRAWING REVISION: 10 MAY 2014</p>	

FILE NAME: N:\PROJECTS\0800\1501-Hangar 111\DESIGN\_PUB\1372146-CS101.dwg LAYOUT NAME: CS101 PLOTTED: Monday, April 25, 2016 - 11:26am USER: RPerini

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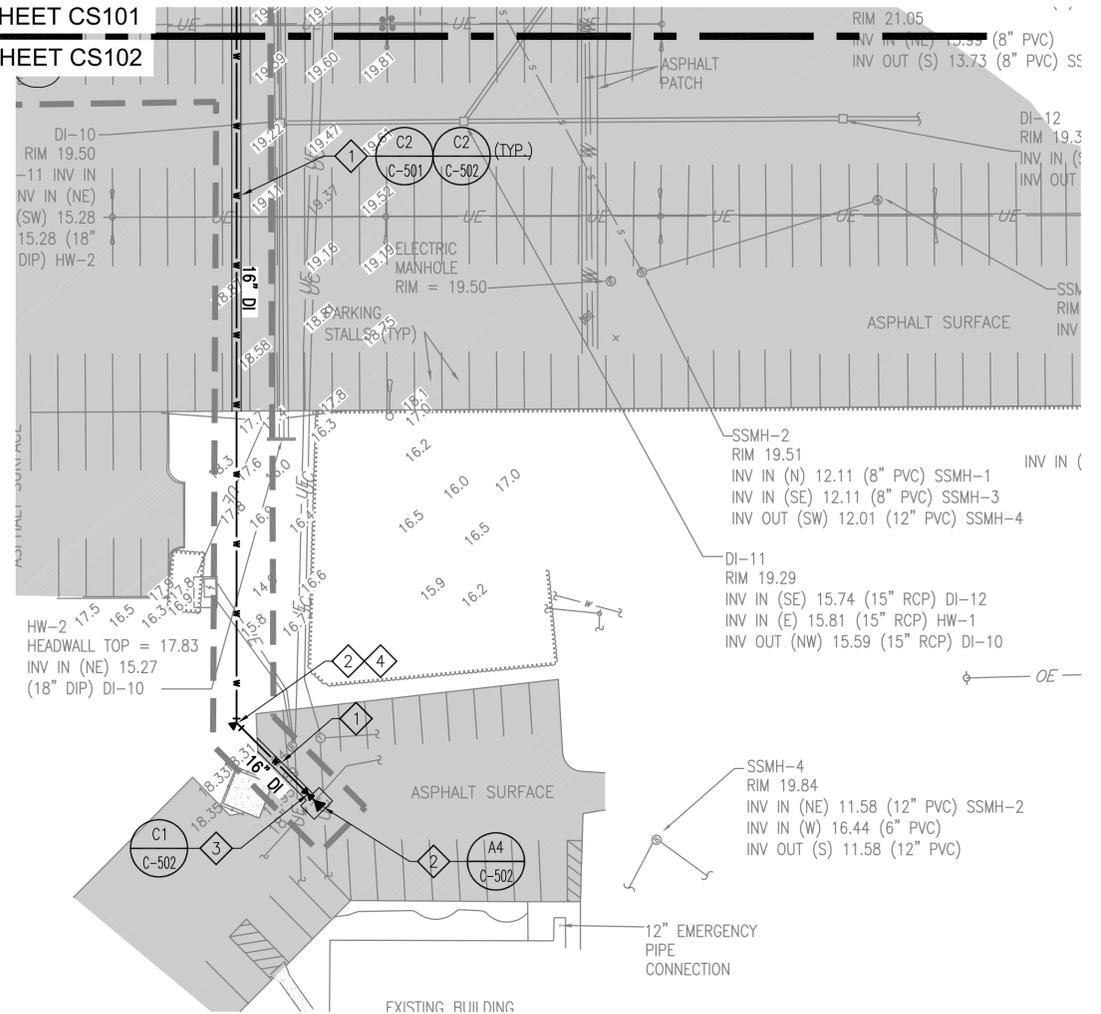
### NOTES

- AS-BUILT PLANS WERE USED TO IDENTIFY THE SIZE AND TYPE OF UTILITY LINES FOUND WITH THE TOPOGRAPHIC AND UNDERGROUND UTILITY SURVEY. AS-BUILT PLANS INCLUDE JOB ORDER NO. 5F4081, AIRCRAFT MAINTENANCE HANGAR, NAVAL AIR STATION, OCEANA, VIRGINIA BEACH, VIRGINIA, DATED MARCH 1986. A MARKED-UP AS BUILT WAS PROVIDED SHOWING THE 18-INCH HIGH PRESSURE LINE FROM THE PUMP HOUSE AS WELL AS A 12-INCH HIGH PRESSURE WATER LINE FROM BUILDING 122. THE AS-BUILT USED IS FROM JOB ORDER NO. 5346164, UTILITY MAPS, NAVAL AIR STATION, OCEANA, VIRGINIA BEACH, VIRGINIA, DATED MAY 1996.
- ALL PROPOSED/REPLACED PAVEMENT/CURB/TURF TO MATCH GRADE UNLESS OTHERWISE NOTED.

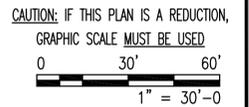
### KEYNOTES

- ① PAVEMENT PATCH/UTILITY TRENCH
- ② THRUST BLOCK
- ③ 16" TAPPING SLEEVE AND VALVE
- ④ 16" 45° BEND

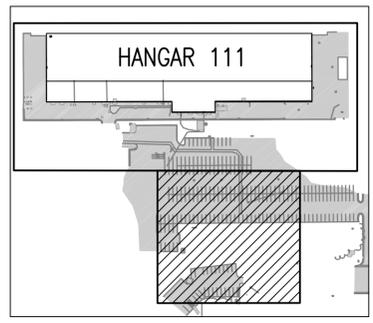
SHEET CS101  
SHEET CS102



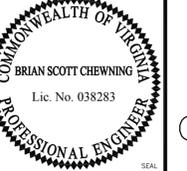
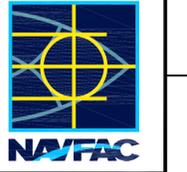
1 LAYOUT, MATERIALS, GRADING AND DRAINAGE PLAN  
SCALE: 1" = 30'



**CALL BEFORE YOU DIG**  
ALWAYS CALL 811 BEFORE YOU DIG IN VIRGINIA  
**CALL 1-800-552-7001**  
SECTION 56-265.17 REQUIRES THREE WORKING DAYS  
NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST  
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DATE	5/2/2016
DESCRIPTION	FINAL SUBMISSION
DATE	
DESCRIPTION	
DATE	
DESCRIPTION	



**the PROTECTION ENGINEERING**  
14585 Avon Parkway, Suite 150  
Chantilly, Virginia 20151  
703-488-9999  
www.PEGGroup-inc.com

**PENNONI ASSOCIATES INC.**  
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Virginia Beach, Virginia 23452  
T 757.497.7472 F 757.497.0250

APPROVED					
FIR COMMANDER NAVFAC					
ACTIVITY					
SATISFACTORY TO					
DES	AT	DRW	RSP	CHK	BSO
PA/DM	KPL/IAS				
BRANCH MANAGER					
CHIEF ENGR/ARCH	Mark J. Airaghi, PE				
FIRE PROTECTION					

DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC  
145 DEBNA - VIRGINIA BEACH, VIRGINIA  
HAMPDEN ROAD BPT  
NAVAL AIR STATION OCEANA  
VIRGINIA BEACH, VIRGINIA  
**HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS**  
LAYOUT, MATERIALS, GRADING AND DRAINAGE PLAN

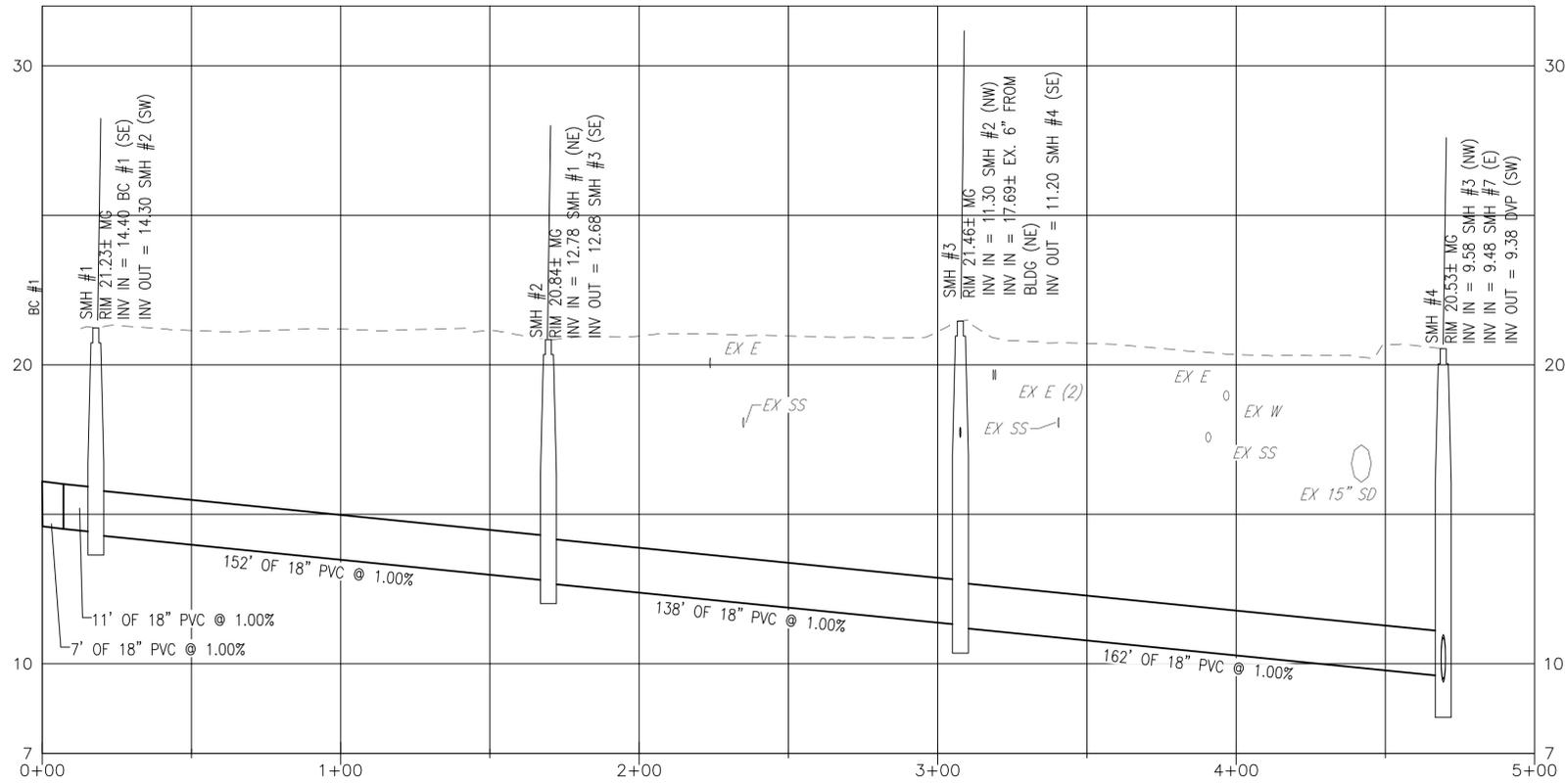
SCALE:	1" = 30'
EPROJECT NO.:	1372146
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12716242
SHEET	20 OF 170

**CS102**

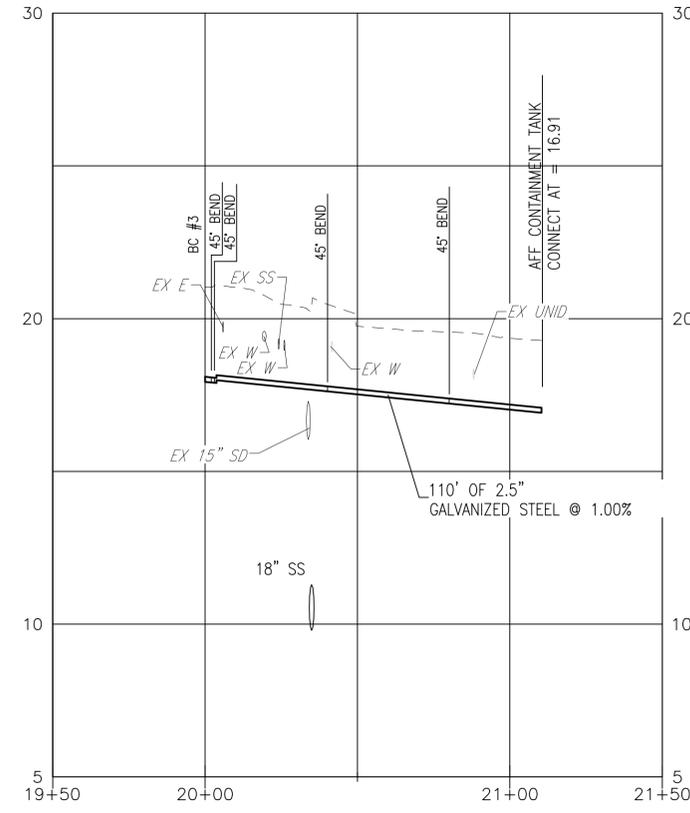
DRAWING REVISION: 10 MAY 2014

FILE NAME: N:\PROJECTS\CH001501-Hangar 111\DESIGN\BIBLISHA\137146-CS102.dwg LAYOUT NAME: CS102 PLOTTED: Monday, April 25, 2016 - 11:26am USER: RParthi

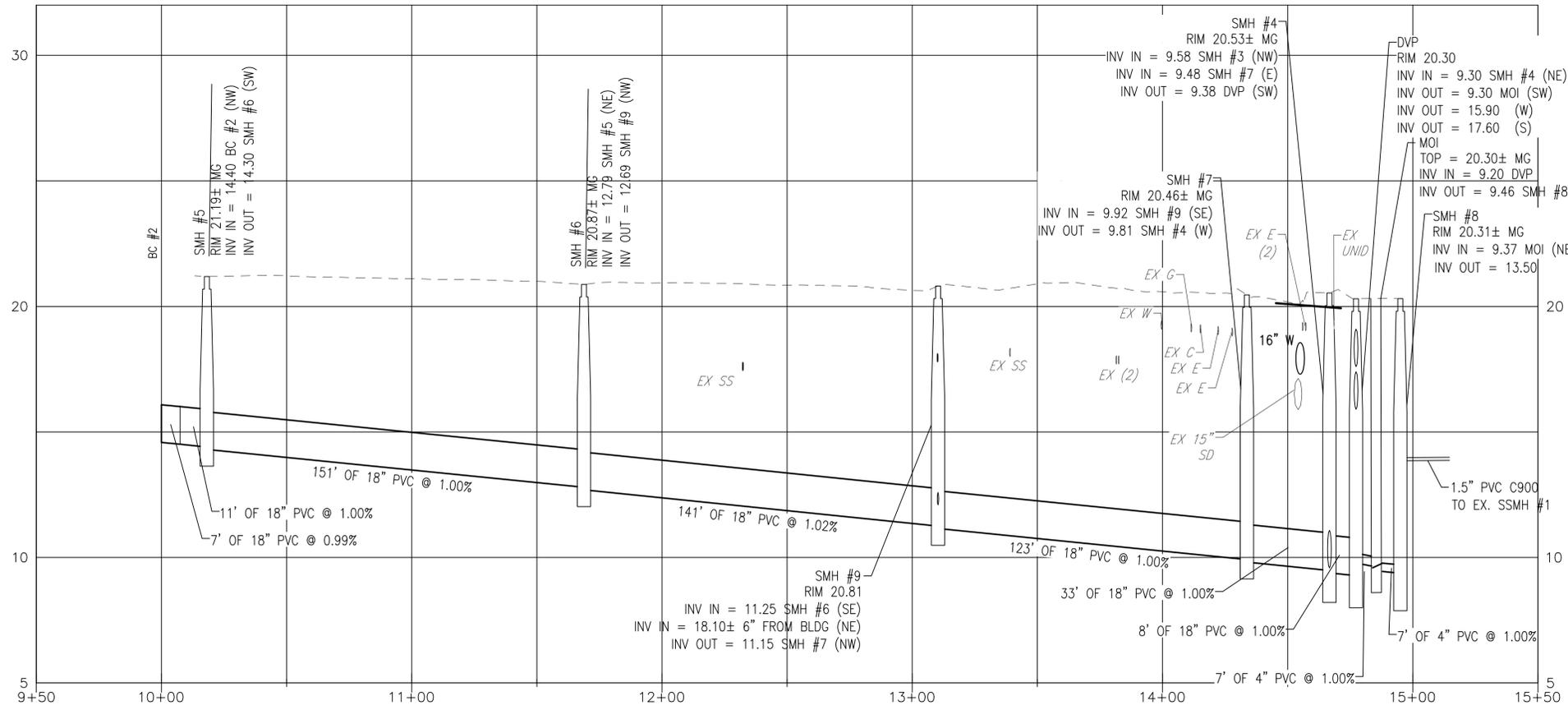




**C1 WEST SIDE SANITARY SEWER PROFILE**  
SCALE: HORIZ: 1" = 30' VERT: 1" = 3'



**C4 2.5" SANITARY SEWER PROFILE**  
SCALE: HORIZ: 1" = 30' VERT: 1" = 3'



**A1 EAST SIDE SANITARY SEWER PROFILE**  
SCALE: HORIZ: 1" = 30' VERT: 1" = 3'

CAUTION: IF THIS PLAN IS A REDUCTION,  
GRAPHIC SCALE MUST BE USED.

0 3' 6'  
1" = 3'-0"

0 30' 60'  
1" = 30'-0"

DATE	5/2/2016
DESCRIPTION	FINAL SUBMISSION
APPR	
SM	1

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Chantilly, Virginia 20151

**PENNONI ASSOCIATES INC.**  
349 Southport Circle, Suite 100  
Virginia Beach, Virginia 23452

APPROVED: \_\_\_\_\_  
FIR COMMANDER NAVFAC

SATISFACTORY TO: \_\_\_\_\_

DES: \_\_\_\_\_ AT: \_\_\_\_\_ DRAW: \_\_\_\_\_ RSP: \_\_\_\_\_ CHK: \_\_\_\_\_ BSO: \_\_\_\_\_

BRANCH MANAGER: \_\_\_\_\_  
CHIEF ENG/ARCH: Mark J. Airaghi, PE

NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC  
HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS  
PROFILES - CIVIL

SCALE: AS SHOWN  
PROJECT NO.: 1372146  
CONSTR. CONTR. NO.: \_\_\_\_\_  
NAVFAC DRAWING NO.: 12716244  
SHEET 22 OF 170  
CU102  
DRAWN/REVISED: 10 MAY 2014

FILE NAME: N:\PROJECTS\01001501-Hangar 111\DESIGN\BIBUSIA\1372146-CU102.dwg LAYOUT NAME: CU102 PLOTTED: Monday, April 25, 2016 - 11:26am USER: RBrill

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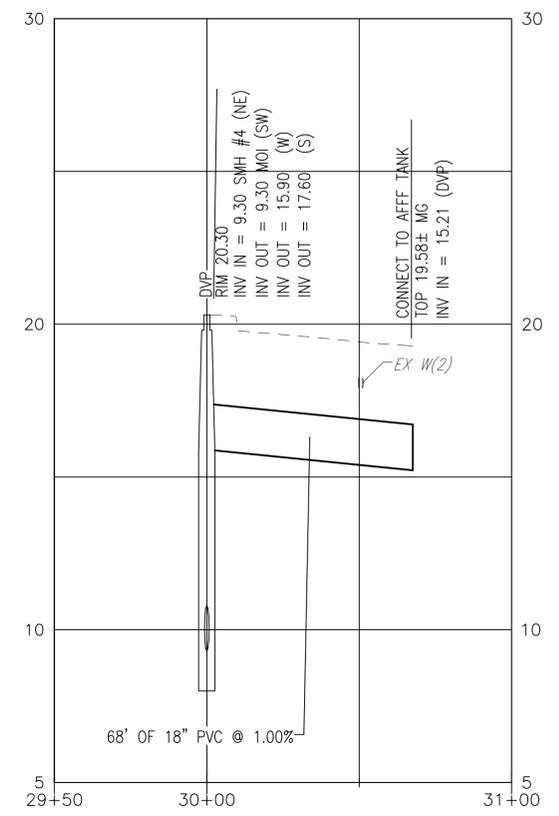
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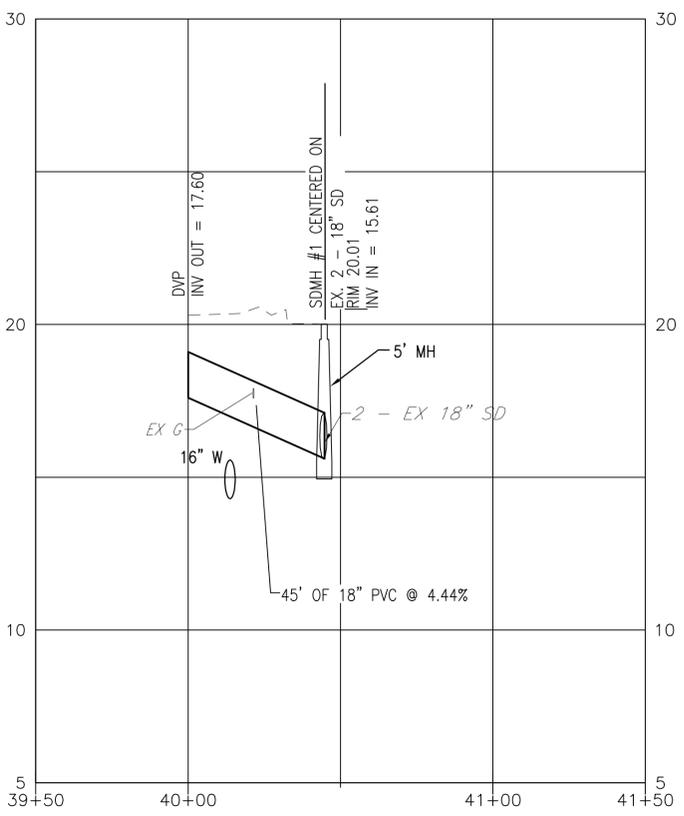
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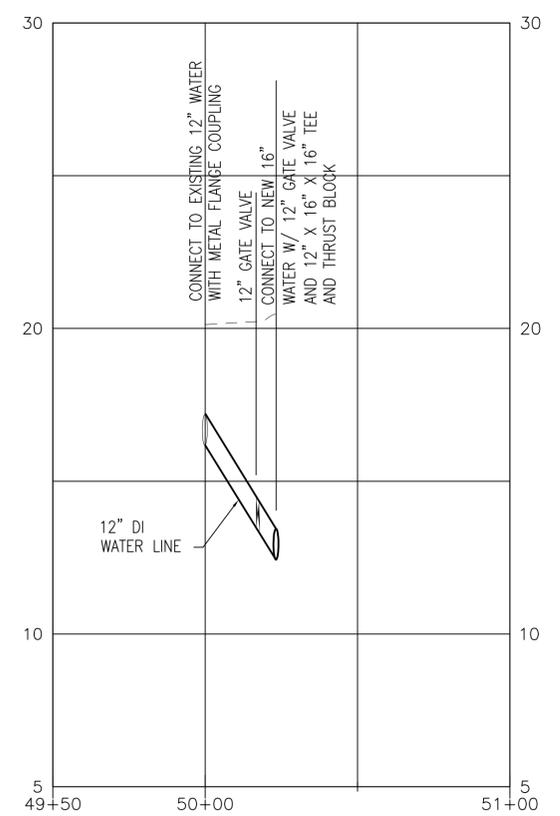
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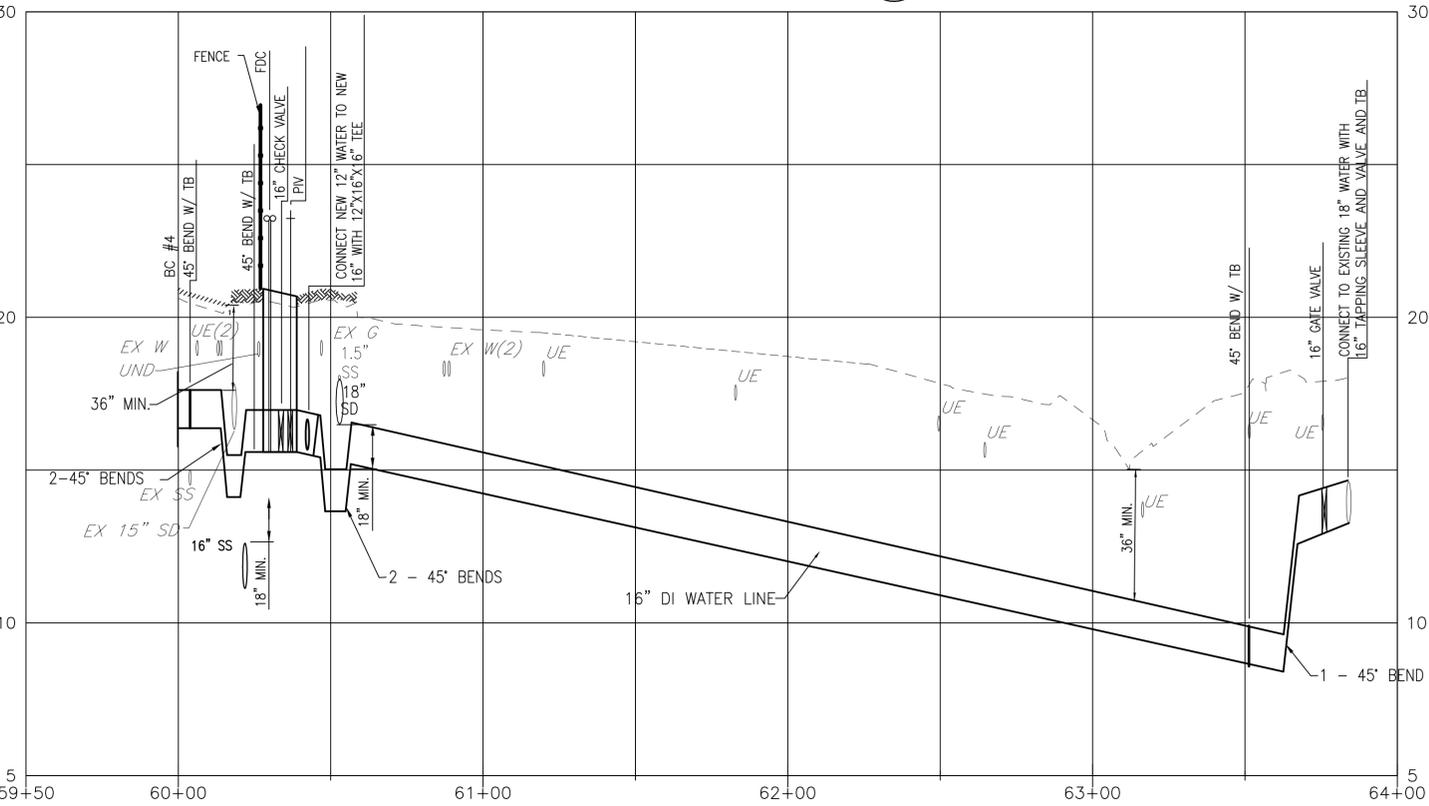
**C1** DIVERTER VALVE PIT TO AFFF TANK PROFILE (SS)  
 SCALE: HORIZ: 1" = 30' VERT: 1" = 3' CU101



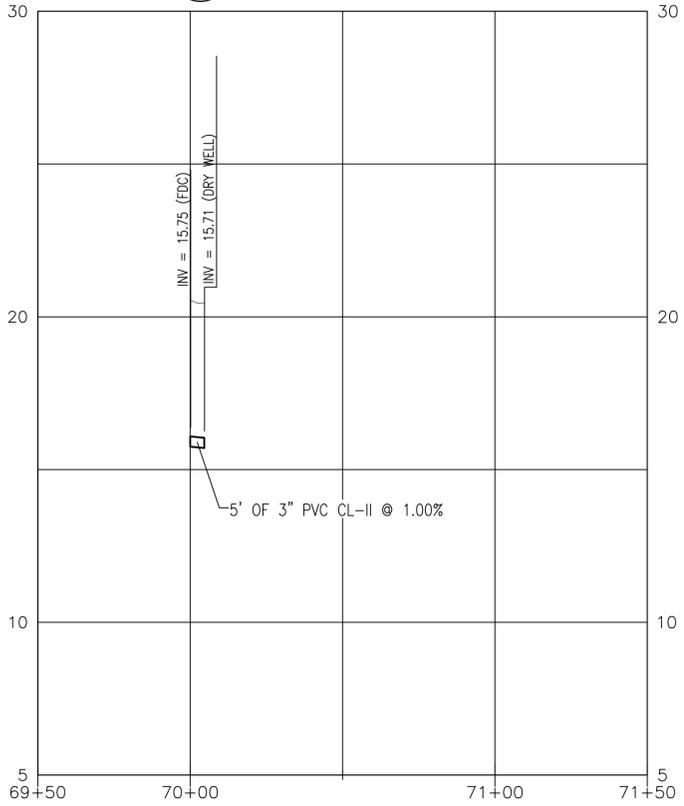
**C2** DIVERTER VALVE PIT TO SDM#1 (SD)  
 SCALE: HORIZ: 1" = 30' VERT: 1" = 3' CU101



**C4** 12" WATER CONNECTION PROFILE (W)  
 SCALE: HORIZ: 1" = 30' VERT: 1" = 3' CU101



**A1** 16" PROFILE (W)  
 SCALE: HORIZ: 1" = 30' VERT: 1" = 3' CU101



**A4** FDC TO DRYWELL (SD)  
 SCALE: HORIZ: 1" = 30' VERT: 1" = 3' CU101

CAUTION: IF THIS PLAN IS A REDUCTION,  
 GRAPHIC SCALE MUST BE USED

0 3' 6'  
 1" = 3'-0"

0 30' 60'  
 1" = 30'-0"

DATE	5/2/2016
DESCRIPTION	FINAL SUBMISSION
DATE	5/2/2016
DESCRIPTION	1 SW

COMMONWEALTH OF VIRGINIA  
 BRIAN SCOTT CHEWNING  
 Lic. No. 038283  
 PROFESSIONAL ENGINEER

the PROTECTION ENGINEERING GROUP  
 14585 Avon Parkway, Suite 150  
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APPROVED

FIR COMMANDER NAVFAC

SATISFACTORY TO

DES	AT	DRW	RSP	CHK	BSO

BRANCH MANAGER KPL/IAS

CHIEF ENG/ARCH Mark J. Airaghi, PE

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND  
 MID-ATLANTIC REGION  
 VIRGINIA BEACH, VIRGINIA

NAVAL AIR STATION OCEANA  
 HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS

PROFILES - CIVIL

SCALE: AS SHOWN

PROJECT NO.: 1372146

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12716245

SHEET 23 OF 170

**CU103**

DRAWING REVISION: 10 MAY 2014

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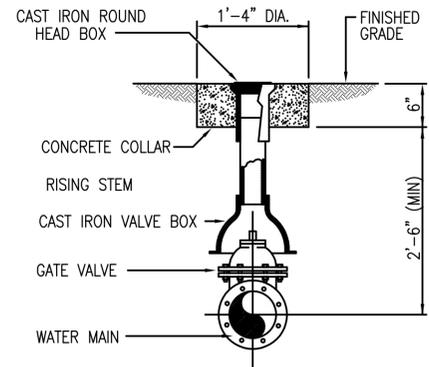
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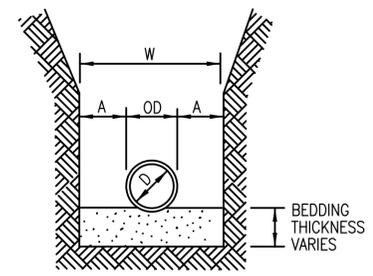
FILE NAME: N:\PROJECTS\CH001501-Hangar 111\DESIGN\BIBUSIA\1372146-CU103.dwg LAYOUT NAME: CU103 PLOTTED: Monday, April 25, 2016 - 11:27am USER: RBarill





**C1** DETAIL - VALVE  
NOT TO SCALE

CS101  
CS102

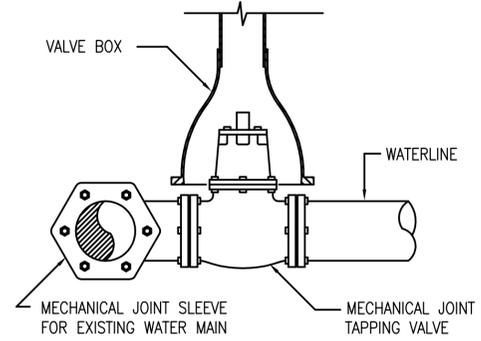


**C2** TRENCH FOR NON-PLASTIC PIPE  
NOT TO SCALE

CS101  
CS102

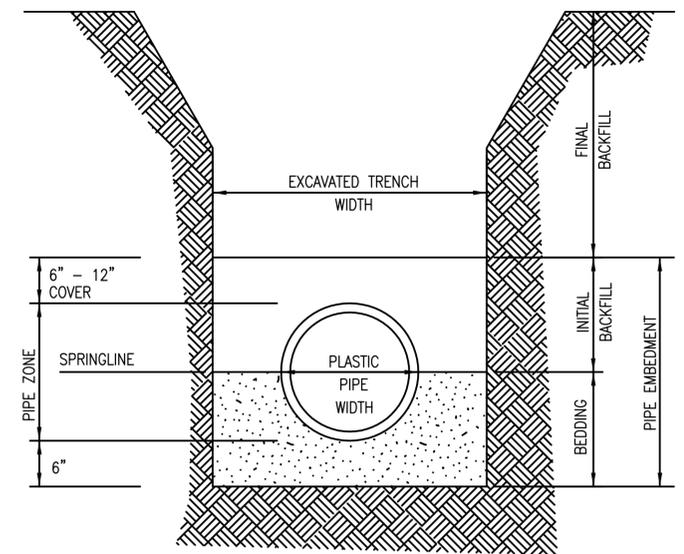
PIPE DIA "D"	MAXIMUM "A"
12"	8"
16"	10"

NOTE: PROVIDE BEDDING IN ACCORDANCE WITH THE SPECIFICATIONS.



**C3** DETAIL - TAPPING SLEEVE  
NOT TO SCALE

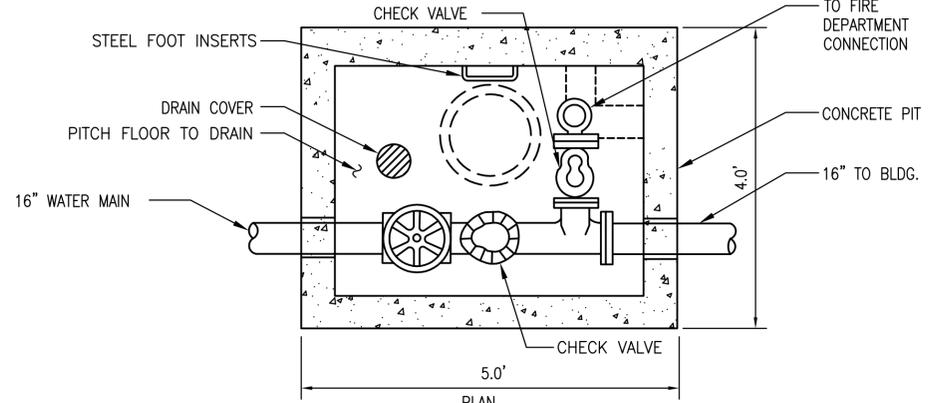
CS102



**C4** TRENCH FOR PLASTIC PIPE  
NOT TO SCALE

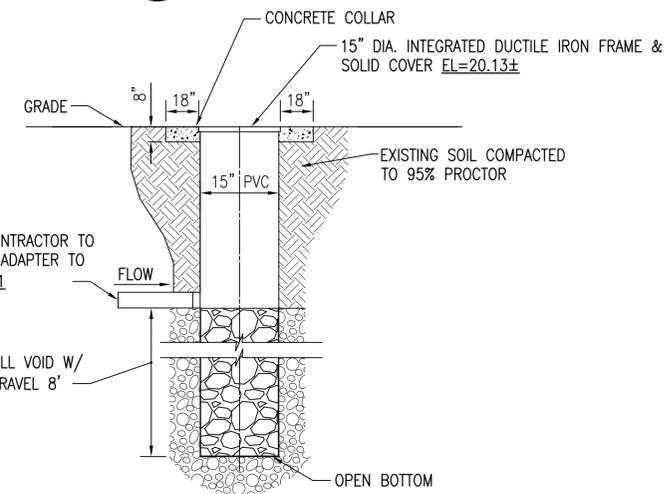
CS101  
CS102

NOTE: PROVIDE BEDDING IN ACCORDANCE WITH THE SPECIFICATIONS.



**A1** FIRE DEPARTMENT CONNECTION PIT  
NOT TO SCALE

CS101

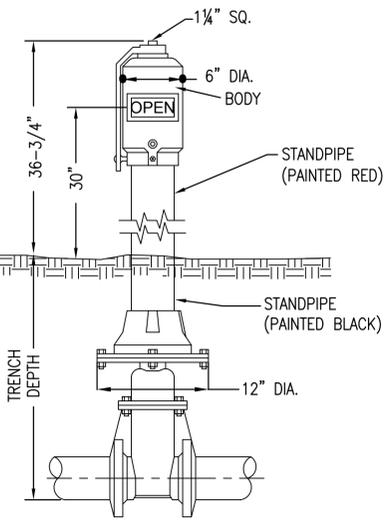


**B3** DRY WELL DETAIL  
NOT TO SCALE

CS101

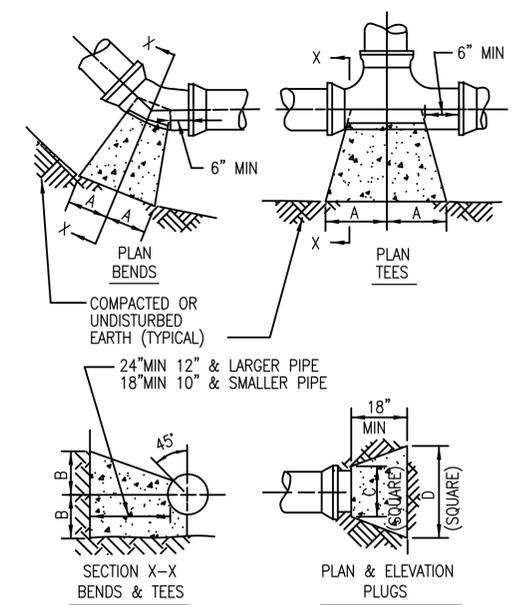
**FIELD ADJUSTMENT INSTRUCTIONS**

1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
2. CUT THE REQUIRED LENGTH OFF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH STANDPIPE GROUND LINE MARK.
3. CUT THE 1" SQ. EXTENSION AT A DISTANCE OF 9" ABOVE THE TOP OF THE STANDPIPE.
4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
5. REATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
6. LOCK AND KEY VALVE PER THE FIRE DEPARTMENT.



**A3** POST INDICATOR VALVE ASSEMBLY  
NOT TO SCALE

C-501  
C-502



SIZE	1/4 BENDS		8 BENDS		16 BENDS		STEEPS		PLUGS	
	A	B	A	B	A	B	A	B	C	D
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

**A4** THRUST BLOCK  
NOT TO SCALE

CS101  
CS102

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**COMMONWEALTH OF VIRGINIA**  
BRIAN SCOTT CHEWNING  
Lic. No. 038283  
PROFESSIONAL ENGINEER

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ACTIVITY

SATISFACTORY TO

DES AT DRW RSP CHK BSO

PA/DM KPL/IAS

BRANCH MANAGER

CHIEF ENG/ARCH Mark J. Araghi, PE

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND  
MID-ATLANTIC REGION - VIRGINIA BEACH, VIRGINIA

NAVAL AIR STATION OCEANA  
HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS

DETAILS - CIVIL

SCALE: NO SCALE

PROJECT NO.: 1372146

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12716247

SHEET 25 OF 170

**C-502**

DRAWING REVISION: 10 MAY 2014

FILE NAME: N:\PROJECTS\0400\1501-Hangar 111\DESIGN\BIBUSIA\137146-C-502.dwg LAYOUT NAME: C-502 PLOTTED: Monday, April 25, 2016 - 11:30am USER: BParilli

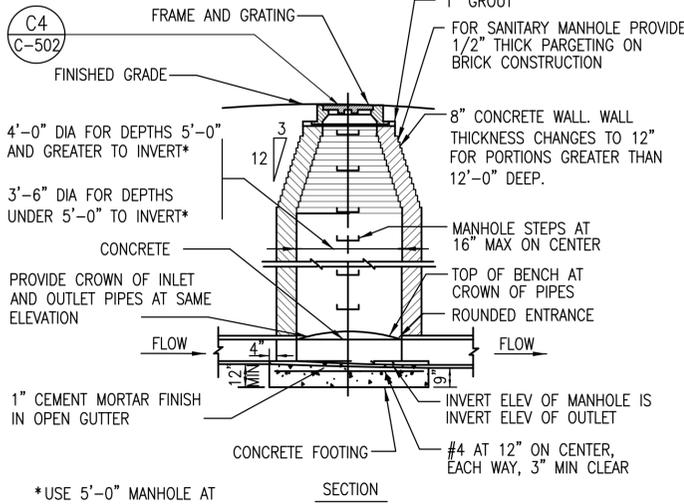
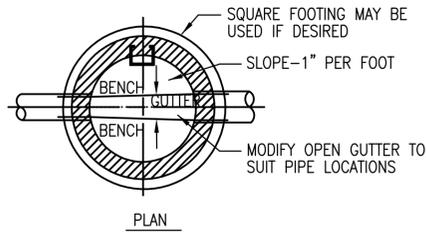
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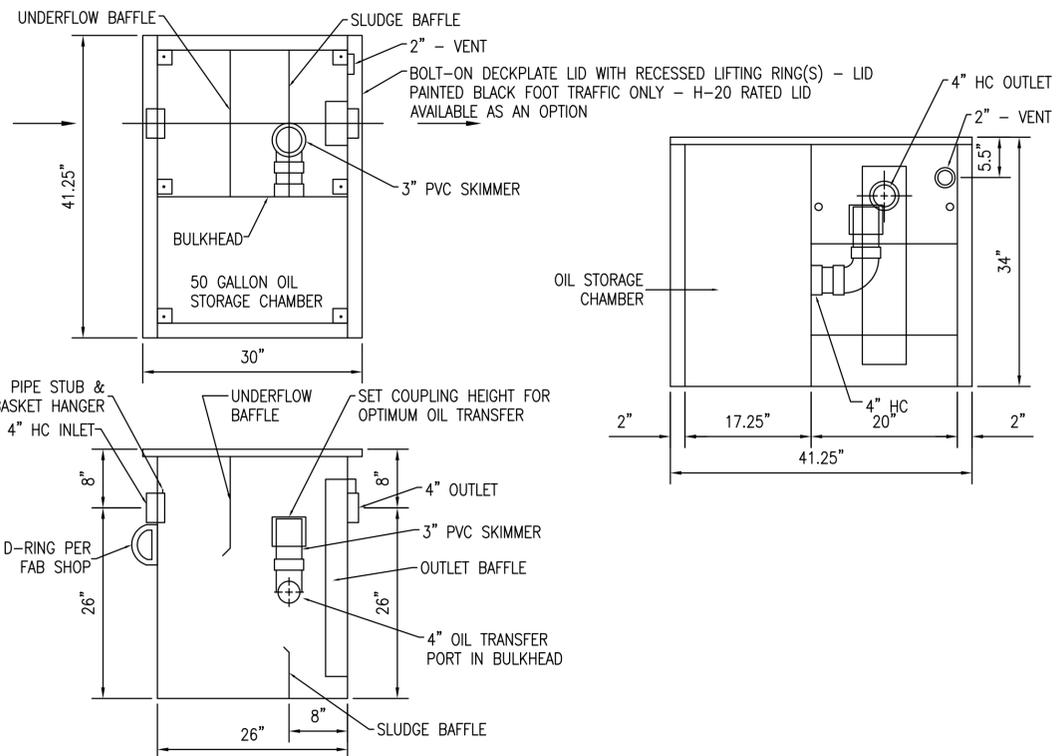
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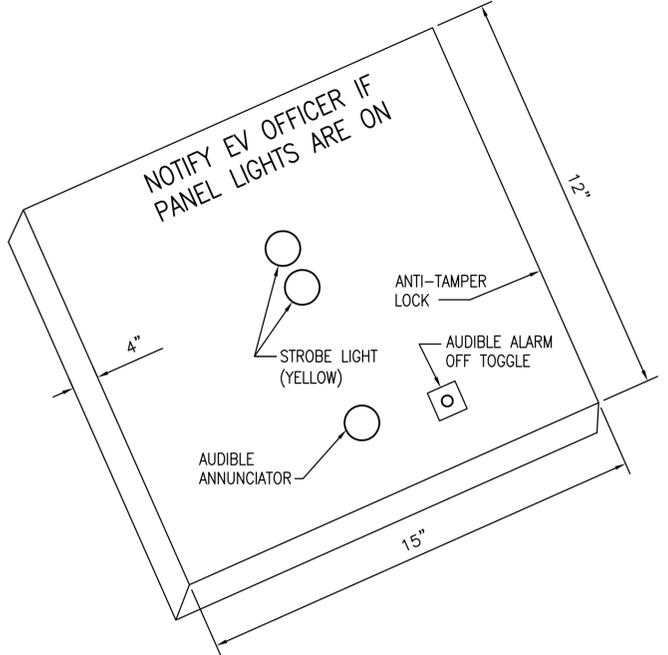
**C1 MANHOLE**  
NOT TO SCALE

CS101  
C-501



**C2 MANUAL OIL INTERCEPTOR (MOI)**  
NOT TO SCALE

CS101



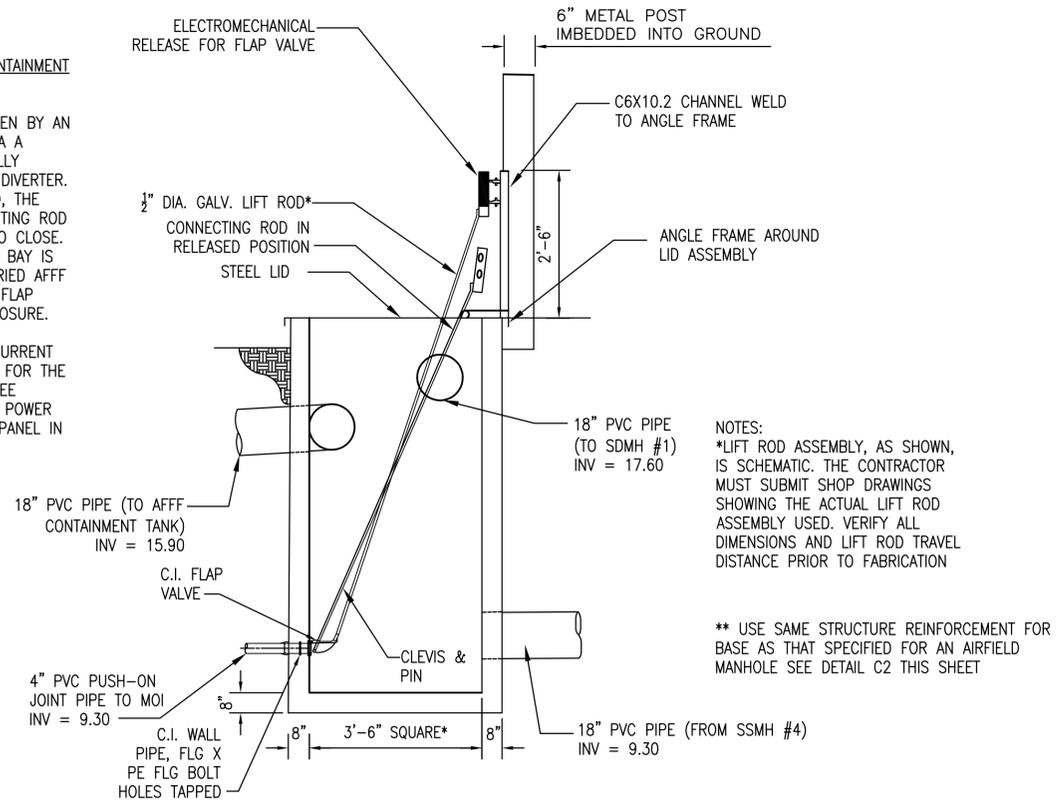
- NOTE:
- INCLUDE A 24 HOUR BATTERY BACKUP SYSTEM IN DIVERTER PANEL.
  - TOP STROBE LIGHT INDICATES WHEN POWER TO THE ELECTROMECHANICAL FLAP HAS BEEN CUT.
  - TOP STROBE LIGHT REMAINS ILLUMINATED UNTIL POWER IS RESTORED TO THE ELECTROMECHANICAL FLAP.
  - BOTTOM STROBE LIGHT INDICATES WHEN THE AFF TANK CAPACITY LEVEL EXCEEDS 5%.
  - BOTTOM STROBE LIGHT REMAINS ILLUMINATED UNTIL AFF TANK LEVELS RETURN TO NORMAL.
  - DIVERTER PANEL PROVIDES 12 VOLT, 2 AMP DIRECT CURRENT POWER TO ELECTROMECHANICAL FLAP IN DIVERTER VALVE PIT. POWER WILL DISENGAGE WHEN AFF SYSTEM IS DEPLOYED.
  - DIVERTER PANEL PROVIDES A CONNECTION TO AFF TANK FLOAT TO REGISTER WHEN THE CAPACITY LEVEL EXCEEDS 5%.
  - PROVIDE 0.8" LETTERING ON PANEL, ALL CAPITAL LETTERS AND BLACK IN COLOR.
  - PANEL AUDIBLE ANNUNCIATOR MUST SOUND WHEN EITHER STROBE LIGHT IS FLASHING.
  - PROVIDE PANEL CABINET, STAINLESS STEEL AND TAN IN COLOR.

**B4 DIVERTER / CONTAINMENT TANK PANEL**  
NOT TO SCALE

CS101

**TRENCH DRAINAGE/DISCHARGE CONTAINMENT SYSTEM NOTES:**

1. THE FLAP VALVE IS HELD OPEN BY AN ELECTROMECHANICAL LOCK VIA A CONNECTING ROD. ELECTRICALLY CONNECT THE LOCK TO THE DIVERTER. IF AFF SYSTEM IS ACTIVATED, THE LOCK RELEASES THE CONNECTING ROD ALLOWING THE FLAP VALVE TO CLOSE. DRAINAGE FROM THE HANGAR BAY IS THEN COLLECTED IN THE BURIED AFF TANK. MANUALLY RESET THE FLAP VALVE AFTER EACH VALVE CLOSURE.
2. A 12 VOLT, 2 AMP DIRECT CURRENT POWER SUPPLY IS REQUIRED FOR THE ELECTROMECHANICAL LOCK. SEE ELECTRICAL PLANS. CONNECT POWER SUPPLY TO DIVERTER VALVE PANEL IN HANGAR BAY.

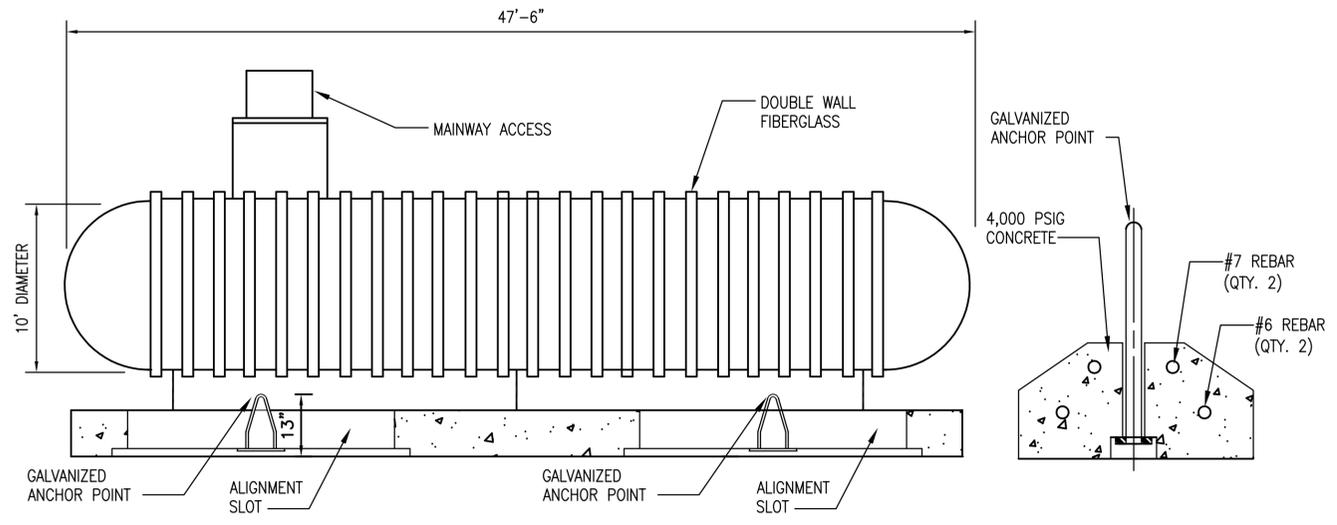


NOTES:  
\*LIFT ROD ASSEMBLY, AS SHOWN, IS SCHEMATIC. THE CONTRACTOR MUST SUBMIT SHOP DRAWINGS SHOWING THE ACTUAL LIFT ROD ASSEMBLY USED. VERIFY ALL DIMENSIONS AND LIFT ROD TRAVEL DISTANCE PRIOR TO FABRICATION

\*\* USE SAME STRUCTURE REINFORCEMENT FOR BASE AS THAT SPECIFIED FOR AN AIRFIELD MANHOLE SEE DETAIL C2 THIS SHEET

**A1 DIVERTER VALVE PIT**  
NOT TO SCALE

CS101



FINAL TANK ANCHORING/FOUNDATION DESIGN TO BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. THE DESIGN SHOWN IS FOR BIDDING PURPOSES ONLY. CONTRACTOR MUST SUBMIT SHOP DRAWINGS OF THE DESIGN PRIOR TO INSTALLATION.

**A3 AFF TANK - 25,000 GALLON**  
NOT TO SCALE

CS101

FILE NAME: N:\PROJECTS\CH001\1501-Hangar 111\DESIGN\BIBLISH\1372146-C-503.dwg LAYOUT NAME: C-503 PLOTTED: Monday, April 25, 2016 - 11:27 am USER: RParilli

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SYN	1
<p><b>the PROTECTION ENGINEERING</b> 14585 Avion Parkway, Suite 150 Chantilly, Virginia 20151 703-488-9999 www.PEGroup-nc.com</p>	
<p><b>PENNONI ASSOCIATES INC.</b> 349 Southport Circle, Suite 100 Virginia Beach, Virginia 23452 T 757.497.7472 F 757.497.0250</p>	
<p>APPROVED</p> <p>FOR COMMANDER NAVFAC</p> <p>ACTIVITY</p> <p>SATISFACTORY TO</p> <p>DES AT DRW RSP CHK BSO</p> <p>PA/DM KPL/IAS</p> <p>BRANCH MANAGER</p> <p>CHIEF ENG/ARCH Mark J. Airaghi, PE</p> <p>FIRE PROTECTION</p> <p>NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC 145 DEAN - VIRGINIA BEACH, VIRGINIA</p> <p>NAVAL AIR STATION OCEANA HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS</p> <p>DETAILS - CIVIL</p> <p>SCALE: NO SCALE</p> <p>PROJECT NO.: 1372146</p> <p>CONSTR. CONTR. NO.</p> <p>NAVFAC DRAWING NO. 12716248</p> <p>SHEET 26 OF 170</p> <p><b>C-503</b></p> <p>DRAWING REVISION: 10 MAY 2014</p>	



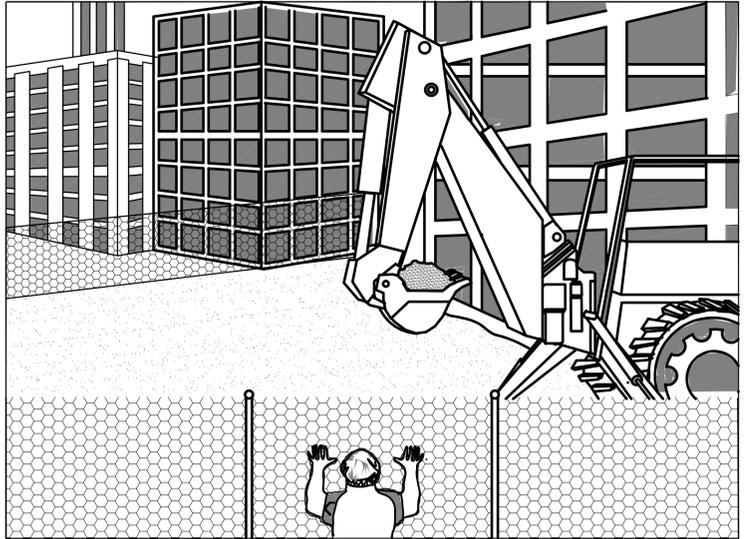
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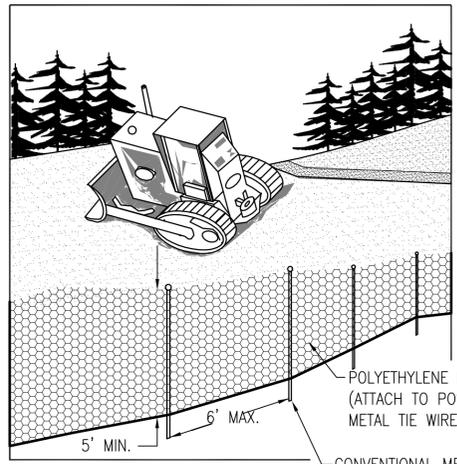
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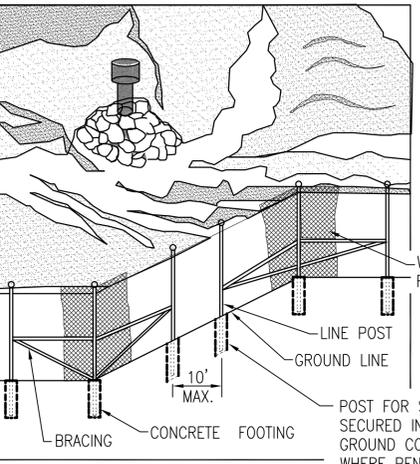
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PERSPECTIVE VIEW



PERSPECTIVE VIEW PLASTIC FENCE



PERSPECTIVE VIEW METAL FENCE

**B1 SAFETY FENCE**  
NOT TO SCALE

SAF

CD101  
CD102

TABLE 3.32-E  
(REVISED JUNE 2003)  
PERMANENT SEEDING SPECIFICATIONS FOR ALL COASTAL PLAIN AREA

SEED <sup>1</sup>		
LAND USE	SPECIES	APPLICATION RATES
MINIMUM CARE LAWN (COMMERCIAL OR RESIDENTIAL)	TALL FESCUE <sup>1</sup>	175-200 LBS.
	OR BERMUDA GRASS <sup>1</sup>	75 LBS.
HIGH-MAINTENANCE LAWN	TALL FESCUE <sup>1</sup>	200-250 LBS.
	OR BERMUDA GRASS <sup>1</sup> (SEED)	40 LBS. (UNHULLED)
	OR BERMUDA GRASS <sup>1</sup> (BY OTHER VEGETATIVE ESTABLISHMENT METHOD, SEE STD. & SPEC. 3.34)	30 LBS. (HULLED)
GENERAL SLOPE (3:1 OR LESS)	TALL FESCUE <sup>1</sup>	128 LBS.
	RED TOP GRASS OR CREEPING RED FESCUE	2 LBS.
	SEASONAL NURSE CROP <sup>2</sup>	20 LBS.
	TOTAL:	150 LBS.
LOW-MAINTENANCE SLOPE (STEEPER THAN 3:1)	TALL FESCUE <sup>1</sup>	93-108 LBS.
	BERMUDA GRASS (SEED) <sup>1</sup>	0-15 LBS.
	RED TOP GRASS OR CREEPING RED FESCUE	2 LBS.
	SEASONAL NURSE CROP <sup>2</sup>	20 LBS.
	SERICEA LESPEDEZA <sup>3</sup>	20 LBS.
	TOTAL:	150 LBS.

1- WHEN SELECTING VARIETIES OF TURFGRASS, USE THE VIRGINIA CROP IMPROVEMENT ASSOCIATION (VCIA) RECOMMENDED TURFGRASS VARIETY LIST. QUALITY SEED WILL BEAR A LABEL INDICATING THAT THEY ARE APPROVED BY VCIA. A CURRENT TURFGRASS VARIETY LIST IS AVAILABLE AT THE LOCAL COUNTY EXTENSION OFFICE OR THROUGH VCIA AT 804-746-4884 OR AT [HTTP://SUDAN.CSES.VT.EDU/TURF/TURF/PUBLICATIONS/PUBLICATIONS2.HTML](http://sudan.cses.vt.edu/turf/turf/publications/publications2.html).

2- USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:

FEBRUARY, MARCH - APRIL	ANNUAL RYE
MAY 1 ST, - AUGUST	FOXTAIL RYE
SEPTEMBER, OCTOBER-NOVEMBER 15TH	ANNUAL RYE
NOVEMBER 16TH-JANUARY	WINTER RYE

3- MAY THROUGH OCTOBER, USE HULLED SEED. ALL OTHER SEEDING PERIODS, USE UNHULLED SEED. IF WEEPING LOVEGRASS IS USED, INCLUDE IN ANY SLOPE OR LOW MAINTENANCE MIXTURE DURING WARMER SEEDING PERIODS, INCREASE TO 30-40 LBS.

FERTILIZER & LIME

- APPLY 10-20-10 FERTILIZER AT A RATE OF 1000 LBS./ACRE (OR 12 LBS./1,000 SQ. FT.)
- APPLY PULVERIZED AGRICULTURAL LIMESTONE AT A RATE OF 2 TONS/ACRE (OR 90 LBS./1,000 SQ. FT.)

NOTE:

1. A SOIL TEST IS NECESSARY TO DETERMINE THE ACTUAL AMOUNT OF LIME REQUIRED TO ADJUST THE SOIL PH OF THE SITE.
2. INCORPORATE THE LIME AND FERTILIZER INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR BY OTHER MEANS.
3. WHEN APPLYING SLOWLY AVAILABLE NITROGEN, USE RATES AVAILABLE IN EROSION & SEDIMENT CONTROL TECHNICAL BULLETIN #4 2003 NUTRIENT MANAGEMENT FOR DEVELOPMENT SITES AT [HTTP://WWW.DCR.STATE.VA.US/SW/E&S.HTM#PUBS](http://www.dcr.state.va.us/sw/e&s.htm#pubs)

MULCHING

MULCH ALL PERMANENT SEEDING IMMEDIATELY UPON COMPLETION OF SEED APPLICATION ACCORDING TO MULCHING, STD. & SPEC. 3.35 OF THE VESC HANDBOOK.

MAINTENANCE OF NEW SEEDINGS

IN GENERAL, A STAND OF VEGETATION CANNOT BE DETERMINED TO BE FULLY ESTABLISHED UNTIL IT HAS BEEN MAINTAINED FOR ONE FULL YEAR AFTER PLANTING. SUPPLY NEW SEEDINGS WITH ADEQUATE MOISTURE, ESPECIALLY LATE IN THE SEASON, IN ABNORMALLY HOT OR DRY WEATHER, OR ON ADVERSE SITES. INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEEDINGS WITHIN THE SAME SEASON, IF POSSIBLE.

SEEDBED PREPARATION

TEST SOIL TO DETERMINE LIME AND FERTILIZER NEEDS. PERFORM SOIL TESTS BY THE COOPERATIVE EXTENSION SERVICE SOIL TESTING LABORATORY AT VPI&SU OR BY A REPUTABLE COMMERCIAL LABORATORY. ADD SOIL CONDITIONERS AND AMENDMENTS TO THE SOIL AS REQUIRED IN PERMANENT SEEDING, STD. & SPEC. 3.32 OF THE VESC HANDBOOK, TO PROVIDE A GOOD GROWTH MEDIUM FOR THE PLANTS.

**A4 PERMANENT SEEDING SPECIFICATION**  
NOT TO SCALE

PS

CD101  
CD102

DATE	5/2/2016
DESCRIPTION	FINAL SUBMISSION
SW	1
<p><b>the PROTECTION ENGINEERING</b> 14585 Avon Parkway, Suite 150 Chantilly, Virginia 20151 703-488-9999 www.PEGroup-inc.com</p>	
<p><b>PENNONI ASSOCIATES INC.</b> 349 Southport Circle, Suite 100 Virginia Beach, Virginia 23452 T 757.497.7472 F 757.497.0250</p>	
APPROVED	
FIR. COMMANDER	NAVFAC
ACTIVITY	
SATISFACTORY TO	
DES	AT
DRW	RSP
CHK	BSO
FM/DM	KPL/IAS
BRANCH MANAGER	
CHIEF ENGR/ARCH	Mark J. Airaghi, PE
FIRE PROTECTION	
NAVAL FACILITIES ENGINEERING COMMAND	MID-ATLANTIC
NAVAL FACILITIES ENGINEERING COMMAND	MID-ATLANTIC
NAVAL AIR STATION OCEANA	VIRGINIA BEACH, VIRGINIA
<b>HANGAR 111 FIRE PROTECTION AND STRUCTURAL REPAIRS</b>	
<b>DETAILS - CIVIL</b>	
SCALE:	NO SCALE
EPROJCT NO.:	1372146
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12716250
SHEET	28 OF 170
<b>C-505</b>	
<small>DRAWING REVISION: 10 MAY 2014</small>	

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