SURVEY NOTES:

1. TOPOGRAPHIC SURVEY PREPARED BY C. ALLAN BAMFORTH, JR., ENGINEER– SURVEYOR LTD., DATED JUNE 2015 AND AMENDED AUGUST 2015 AND NOVEMBER 2015.
2. THE EXISTENCE, SIZE AND/OR LOCATION OF UTILITIES ARE NOT GUARANTEED BY THIS SURVEY. UTILITIES SHOWN ARE BASED ON ABOVE GROUND STRUCTURES, GIS DATA FROM NASA/WALLOPS, AVAILABLE UTILITY PLANS, AND MISS UTILITY DESIGNER TICKET A520300335 & A530301501. VERIZON LINES WERE NOT MARKED IN THE FIELD, BUT THEIR APPROXIMATE LOCATION WAS PROVIDED ON A SKETCH AND HAVE BEEN SHOWN ON THE DRAWINGS AS "E. UG COMM. (APPROX. LOC.)". THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
3. ELEVATIONS ARE IN FEET AND REFER TO NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 AND WERE ESTABLISHED USING GPS AND LEICA SMARTNET REAL TIME NETWORK, AND CONVENTIONAL EQUIPMENT. UNITS ARE US SURVEY FEET.
4. COORDINATES SHOWN REFER TO VIRGINIA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (NAD 83/2011) AND WERE ESTABLISHED UTILIZING GPS AND LEICA SMARTNET REAL TIME NETWORK, AND CONVENTIONAL EQUIPMENT.
5. TEMPORARY BENCHMARK (TBM) IS A SQUARE CUT ON TOP OF CURB ACROSS FROM FIRE HYDRANT LOCATED NEAR PLAYGROUND, ELEVATION = 35.97 (SHOWN ON SHEET C–003). 1

GENERAL NOTES:

1. PRIOR TO EXCAVATION THE CONTRACTOR SHALL LOCATE ANY AND ALL UNDERGROUND UTILITIES THAT MAY EXIST OR CROSS THROUGH THE AREA OF CONSTRUCTION WHETHER OR NOT THEY ARE SHOWN IN THESE PLANS.
2. THE CONTRACTOR SHALL USE EXTREME CAUTION DURING DEMOLITION AND EXCAVATION. LOCATION OF THE KNOWN EXISTING UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL PHYSICALLY VERIFY THE LOCATION AND ELEVATION OF ALL INDICATED EXISTING UTILITIES TO THE GREATEST EXTENT POSSIBLE PRIOR TO STARTING THE DEMOLITION AND EXCAVATION PROCESS.
2. EXECUTE ALL WORK WITH CARE AS TO PROTECT FROM DAMAGE ADJACENT EXISTING FEATURES TO REMAIN. ANY SUCH DAMAGE SHALL BE REPAIRED OR REPLACED TO MATCH THE ORIGINAL CONDITION AS APPROVED BY THE CONTRACTING OFFICER AT NO ADDITIONAL COST TO THE GOVERNMENT
3. THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES. VERIFY ALL FIELD CONDITIONS, QUANTITIES AND DIMENSIONS PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES SHALL BE PROMPTLY BROUGHT TO ATTENTION OF THE CONTRACTING OFFICER.
4. ALL GRADE TRANSITIONS BETWEEN NEW AND EXISTING GRADE SHALL BE SMOOTH AND GRADUAL WITH NO SHARP OR ABRUPT CHANGES.

UTILITY NOTES:

1. EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND BASED ON AVAILABLE RECORDS, VERBAL INFORMATION AND/OR PHYSICAL FEATURES. PRIOR TO EXCAVATION (AT LEAST 72 HOURS OR THE MORE RESTRICTIVE MINIMUM NOTIFICATION PERIOD), THE CONTRACTOR SHALL CONTACT THE ROIIC/OIIC, PUBLIC WORKS DIVISION, FEAD AND STATION LOCATING SERVICE SUCH AS "DIGSAFE, MISS UTILITY, ETC." TO ALLOW MARKING OF EXISTING BURIED UTILITIES.
2. ALL EXISTING UNDERGROUND UTILITIES IN THE WORK AREA MUST BE POSITIVELY IDENTIFIED BY A THIRD PARTY, INDEPENDENT, PRIVATE UTILITY LOCATING COMPANY, IN ADDITION TO ANY STATION LOCATING SERVICE SUCH AS "DIGSAFE, MISS UTILITY, ETC.", AND COORDINATED WITH THE ROIIC/OIIC, PUBLIC WORKS DIVISION, AND FEAD. ANY MARKINGS MADE DURING THE UTILITY INVESTIGATION MUST BE MAINTAINED THROUGHOUT THE CONTRACT.
3. WHENEVER CONTRACT WORK INVOLVES CHIPPING, SAW CUTTING, OR CORE DRILLING THROUGH CONCRETE, BITUMINOUS ASPHALT OR OTHER IMPERVIOUS SURFACES, THE THIRD PARTY, INDEPENDENT, PRIVATE LOCATING COMPANY SHALL LOCATE UTILITY DEPTH BY USE OF GROUND PENETRATING RADAR (GPR), X–RAY, BORE SCOPE, OR ULTRASOUND PRIOR TO THE START OF DEMOLITION AND CONSTRUCTION. OUTAGES TO ISOLATE UTILITY SYSTEMS MUST BE USED IN CIRCUMSTANCES WHERE UTILITIES ARE UNABLE TO BE POSITIVELY IDENTIFIED. THE USE OF HISTORICAL DRAWINGS DOES NOT ALLEVIATE THE CONTRACTOR FROM MEETING THIS REQUIREMENT.
4. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND ANY DAMAGE TO THE UTILITIES SHALL BE IMMEDIATELY REPAIRED AT THE CONTRACTORS EXPENSE. THE CONTRACTOR SHALL BE REQUIRED AND AGREES TO COMPLY WITH ALL THE PROVISIONS OF THE GOVERNMENT, STATE AND UTILITY FOR UNDERGROUND DAMAGE PREVENTION AND HEREBY AGREES TO HOLD THE GOVERNMENT HARMLESS AGAINST ANY LOSS, DAMAGES AND CLAIMS OF ANY NATURE WHATSOEVER ARISING OUT OF FAILURE TO COMPLY WITH SAID PROVISIONS.

DEMOLITION NOTES: 1

1. REMOVE ALL EXISTING PAVEMENT WITHIN LIMITS OF DEMOLITION. SAWCUT ASPHALT AND CONCRETE PAVEMENT TO FULL DEPTH ALONG STRAIGHT LINE. CONCRETE PAVEMENT SHALL BE REMOVED AT THE NEAREST JOINT LINE BEYOND THE INDICATED SAWCUT LINE UNLESS OTHERWISE NOTED.
2. ALL TREES WITHIN NEW CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OFF OF THE GOVERNMENT PROPERTY.
3. ANY UTILITY LINES GREATER THAN OR EQUAL TO 4 INCHES IN DIAMETER THAT ARE ABANDONED IN PLACE SHALL BE PUMPED FULL OF HYDRAULIC CEMENT GROUT CONFORMING TO THE REQUIREMENTS OF SECTION 218 OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
4. ALL VOIDS, DEPRESSIONS AND EXCAVATIONS RESULTING FROM THE DEMOLITION OF STRUCTURES, UTILITIES OR OTHER DEMOLITION WORKS SHALL BE BACKFILLED AND COMPACTED.

	EXISTING (E.)	NEW
TOP OF CURB OR CONCRETE (TC) ELEVATION ELEVATION OF GUTTER, PAVEMENT OR GROUND	TC 36.68 36.12	
SPOT ELEVATION	+ 38.6	
TOP OF WALL (TW) ELEVATION	+ TW35.12	
BITUMINOUS PAVEMENT		
BUILDING (BLDG.)		
BUSH		
CENTERLINE DITCH/SWALE		
CONCRETE (CONC.)	CONC.	
CONCRETE (CONC.) PAD W/TRANSFORMER	T	
CONTOUR	38	
CURB AND GUTTER		
EDGE OF WOODS		
FLOWER BED (F.B.)	F.B.	
FENCE	x	x
HEDGE		1
GATE		
GRAVEL	GRAVEL	
SIGN		
TOE OF SLOPE (T.O.S.)	T.O.S.	
TOP OF BANK (T.O.B.)	T.O.B.	
TREE		
OVERHEAD (OH.) LINE	E. OH. LINE	
SANITARY (SAN.) SEWER	8" E. SAN.	
STORM (S.) SEWER (12" DIAMETER AND GREATER)	12" E.S.	
STORM (S.) SEWER (LESS THAN 12" DIAMETER)		
UNDERGROUND (UG.) COMMUNICATION (COMM.)	E. UG. COMM.	
UNDERGROUND (UG.) FIBER OPTIC (FO.)	E. UG. FO.	

	EXISTING (E.)	NEW
UNDERGROUND (UG.) CABLE TELEVISION (CATV)	E. UG. CATV	
UNDERGROUND (UG.) ELECTRIC (ELEC.)	E. UG. ELEC.	
WATER (W.) MAIN	8" E. W.	W
FIRE HYDRANT (F.H.)		
HEADWALL (HDWL.)		
LIGHT POLE IN CONCRETE		
MANHOLE (MH.)	MH	
TELEPHONE (TEL.) PEDESTAL (PED.)	TEL. PED.	
UTILITY POLE		
CURB INLET (C.I.)	C.I.	
SANITARY SEWER CLEANOUT	CO.	
CATCH BASIN/GRATE INLET	C.B.	
YARD DRAIN BASIN	1	
STORM MANHOLE		D

LIST OF ABBREVIATIONS:

APPROX	APPROXIMATE
BLDG	BUILDING
BW	BOTTOM OF WALL
BWLK	BRICK WALK
CBH	CONCRETE BENCH
CC	CONCRETE CURB (NO GUTTER PAN)
CLF	CHAIN LINK FENCE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CPT	CONCRETE PICNIC TABLE
CWLK	CONCRETE WALK
DCL	DITCH CENTER LINE
DIP	DUCTILE IRON PIPE
ELV	ELEVATION
EOI	END OF INFORMATION
EOP	EDGE OF PAVEMENT
EX	EXISTING
FF	FINISHED FLOOR
FFE	FINISHED FLOOR ELEVATION
GT	GRATE
INV	INVERT
LF	LINEAR FEET
LOC	LOCATION
MEG	MATCH EXISTING GRADE
N/A	NOT ACCESSIBLE
PR	PER RECORD
PS	PUMP STATION
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
SAN	SANITARY SEWER
SD	STORM DRAIN PIPE
STL	STEEL
TW	TOP OF WALL
TYP	TYPICAL
W	WATER LINE
W/	WITH

SYM	DESCRIPTION	DATE	APPR.
1	GENERAL REVISIONS 01	01/21/16	

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY: HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
WALLOPS ISLAND, VA

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

GENERAL NOTES, LEGEND AND ABBREVIATIONS

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12708255

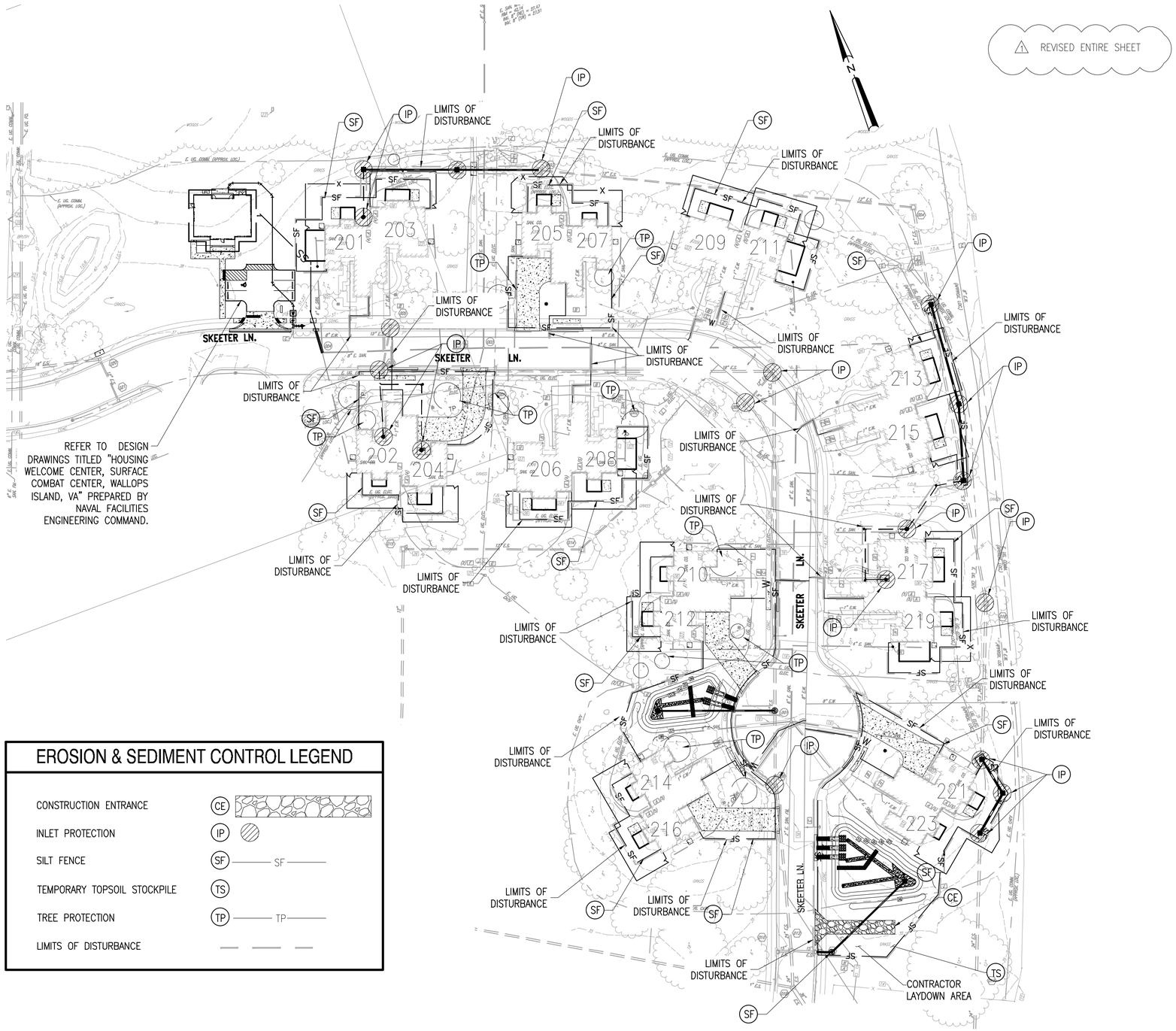
SHEET 3 OF 124

C-001

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLCON\2016_1366573_P1602_DBB_SkeetersLoneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-C-001.dwg LAYOUT NAME: C-001 PLOTTED: Thursday, January 28, 2016 - 10:17pm USER: wesley.a.baker

THE EROSION AND SEDIMENT CONTROL SHOWN ON THIS PLAN IS PRELIMINARY AND IS FOR BIDDING PURPOSES ONLY. THE GOVERNMENT SHALL PROVIDE THE APPROVED EROSION & SEDIMENT CONTROL PLAN FOR CONSTRUCTION.



EROSION & SEDIMENT CONTROL LEGEND

CONSTRUCTION ENTRANCE	CE	
INLET PROTECTION	IP	
SILT FENCE	SF	SF
TEMPORARY TOPSOIL STOCKPILE	TS	
TREE PROTECTION	TP	TP
LIMITS OF DISTURBANCE		

OVERALL SITE AND EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1" = 50'

PLAN NORTH

GRAPHIC SCALE

0 50' 100'

1" = 50'

SHEET NOTES

1. REFER TO SHEET C-001 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES AND LEGEND.

EROSION & SEDIMENT CONTROL GENERAL NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VAC25-840 EROSION AND SEDIMENT CONTROL REGULATIONS.
2. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
3. ALL APPROPRIATE EROSION CONTROL MEASURES SUCH AS, BUT NOT LIMITED TO, TREE PROTECTION, SILT FENCE, CONSTRUCTION ENTRANCE, SEDIMENT TRAPPING FACILITIES, AND INLET PROTOECTION SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND MUST BE REVIEWED AND APPROVED BY THE INSPECTOR BEFORE ANY CLEARING OPERATIONS BEGIN.
4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND LAND DISTURBANCE PERMIT MUST BE MAINTAINED AT THE SITE FOR THE DURATION OF ALL CONSTRUCTION AND LAND-DISTURBING ACTIVITIES.
5. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL APPROVED MEASURES AS SHOWN ON THE DRAWINGS. ANY ADDITIONAL MEASURES DEEMED REQUIRED BY THE PLAN APPROVING AUTHORITY SHALL BECOME PART OF THE EROSION AND SEDIMENT CONTROL PLAN FOR THE PROPERTY. ALL FIELD CHANGES MUST BE APPROVED BY THE PLAN APPROVING AUTHORITY.
6. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
7. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL MEASURES TO PREVENT SOIL FROM ERODING ONTO ADJACENT PROPERTY, STREETS, DRAINAGE SYSTEMS, AND WATERWAYS. ALL DEVICES SHALL BE CLEANED OF MUD, DEBRIS, AND OTHER ERODED MATERIAL DURING THE SITE CLEARING AND DEVELOPMENT. PERFORM INSPECTION OF DEVICES DURING OR IMMEDIATELY FOLLOWING INITIAL INSTALLATION AT LEAST ONCE IN EVERY TWO (2) WEEKS PERIOD AND WITHIN 48 HOURS FOLLOWING ANY RUNOFF PRODUCING STORM EVENT. ALL INSPECTION AND MAINTENANCE ACTIVITIES SHALL BE DOCUMENTED AND AVAILABLE FOR REVIEW AT THE PLAN REVIEWING AUTHORITIES REQUEST.
8. TEMPORARY AND PERMANENT SEEDING OPERATIONS SHALL BE INITIATED WITHIN SEVEN (7) DAYS AFTER REACHING FINAL GRADE OR UPON SUSPENSION OF GRADING OPERATIONS FOR ANTICIPATED DURATION OF GREATER THAN FOURTEEN (14) DAYS OR UPON COMPLETION OF GRADING OPERATIONS FOR A SPECIFIC AREA.
9. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE KEPT IN PLACE FOR THE DURATION OF THE CLEARING AND CONSTRUCTION OPERATIONS AND AT A MAXIMUM FOR THE SPECIFIED TIME FOR EACH MEASURE AS IDENTIFIED IN THE VESC HANDBOOK, OR WHEN FULL STABILIZATION HAS OCCURRED FOR THE ENTIRE SITE. A FINAL INSPECTION BY THE PLAN APPROVING AUTHORITY SHALL DETERMINE WHEN THIS FACT IS ACCOMPLISHED AND ALL TEMPORARY MEASURES AND DEVICES CAN BE REMOVED.
10. THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST AND OTHER AIR POLLUTANTS, INCLUDING BUT NOT LIMITED TO USING WATER OR CHEMICALS, LIMITING THE NUMBER OF VEHICLES ALLOWED ONSITE, MINIMIZING THE OPERATING SPEED OF ALL VEHICLES, ETC. ALSO, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE DAILY SWEEPING SHOULD SEDIMENT ACCUMULATE ON PAVED SURFACES.

REGISTERED LAND DISTURBER

THE CONTRACTOR SELECTED TO COMPLETE THE REGULATED LAND DISTURBING ACTIVITY AS SHOWN ON THESE DRAWINGS IS RESPONSIBLE FOR IMPLEMENTING THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS. PRIOR TO THE COMMENCEMENT OF THIS ACTIVITY, IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL LAW, THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL HOLDING A CERTIFICATE OF COMPETENCE WITH THE COMMONWEALTH OF VIRGINIA AS THE PERSON RESPONSIBLE FOR CARRYING OUT THE APPROVED PLAN, AND PROVIDE THE NAME OF THAT INDIVIDUAL TO THE PLAN APPROVING AUTHORITY.

GENERAL REVISIONS 01			
SYM	DESCRIPTION	DATE	APPR
1		01/21/16	---

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FOR COMMANDER NAVFAC

ACTIVITY: HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
WALLOPS ISLAND, VA
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING
OVERALL SITE AND EROSION AND SEDIMENT CONTROL PLAN

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

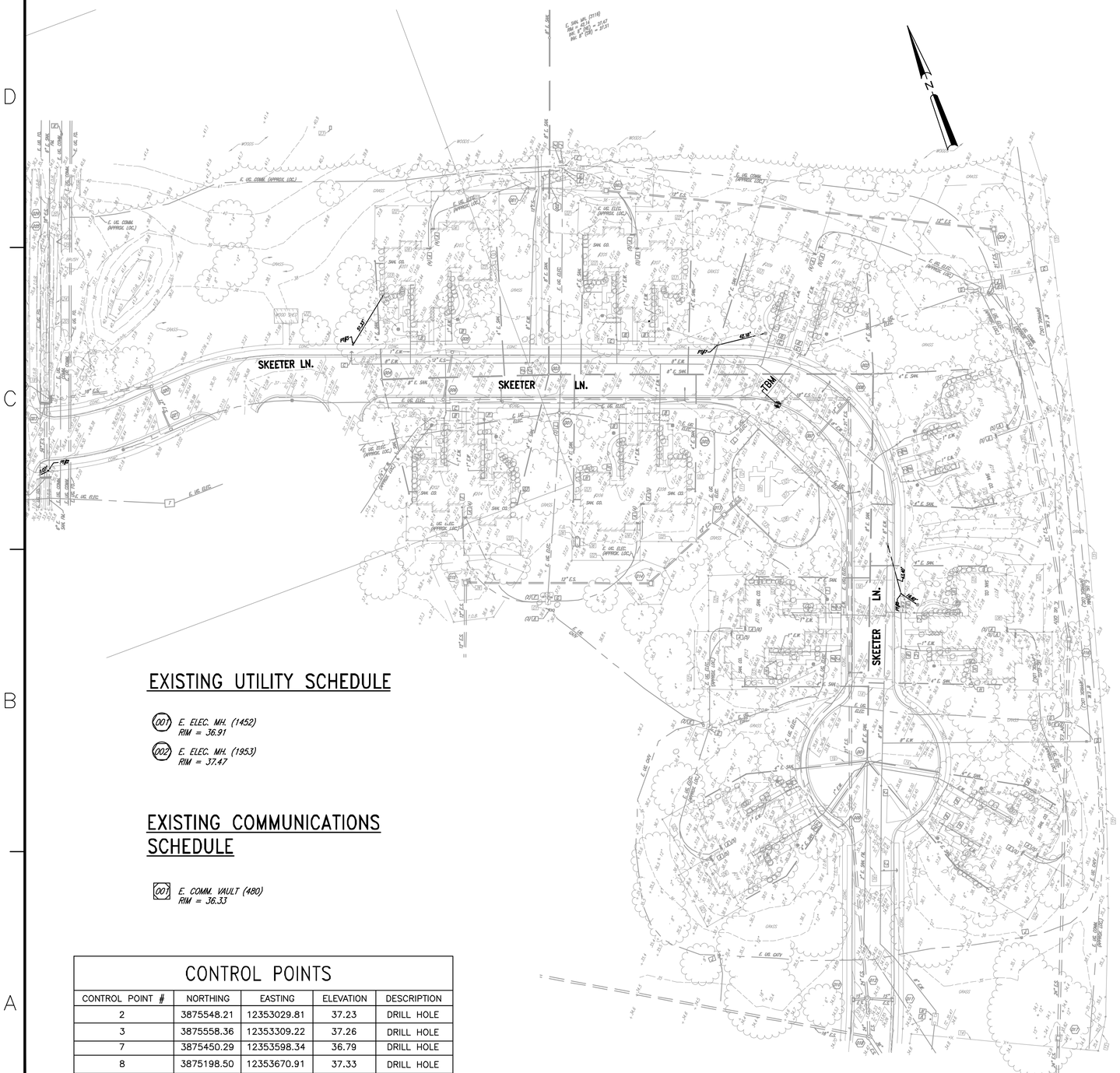
NAVFAC DRAWING NO. 12708256

SHEET 4 OF 124

C-002

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLCDN\2016_1366573_P1602_DBB_SkeeterLaneRenovationAConversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-C-002.dwg LAYOUT NAME: C-002 PLOTTED: Thursday, January 28, 2016 - 10:23pm USER: wesley.abaker



EXISTING UTILITY NOTES

- A CONDUIT
- B WATER METER
- C WATER VALVE
- D WATER VALVE IN CONCRETE
- E VERTICAL PVC PIPE
- F VERTICAL PVC PIPE (BROKEN)
- G CONCRETE PAD W/ TRANSFORMER
- H ROOF DRAIN
- J CABLE TELEVISION PEDESTAL
- K TELEPHONE PEDESTAL
- L CONCRETE UTILITY MARKER
- M SANITARY CLEANOUT IN CONCRETE
- N WATER VAULT W/ METER
- P WATER METER IN CONCRETE

EXISTING SANITARY SCHEDULE

(001) E. SAN. MH. (3637)
RIM = 35.87
INV. 8" (NE) = 31.98; PVC
INV. 4" (E) = 32.08; PVC
INV. 4" (SE) = 32.04; PVC
INV. 2" (S) = 32.40; PVC
INV. 4" (SW) = 32.05; PVC
INV. 4" (NW) = 32.02; PVC

(002) E. SAN. MH. (2719)
RIM = 37.01
INV. 4" (NE) = 30.35; PVC
INV. 4" (SE) = 30.23; PVC
INV. 8" (SW) = 30.21; PVC
INV. 8" (NW) = 30.20; PVC

(003) E. SAN. MH. (1022)
RIM = 36.30
INV. 8" (NE) = 28.40; PVC
INV. 8" (SE) = 28.46; PVC
INV. 8" (NW) = 28.46; PVC
INV. 4" (SW) = 28.59; PVC

(004) E. SAN. MH. (1001)
RIM = 36.30
INV. 4" (NE) = 29.50; PVC
INV. 8" (SE) = 29.20; PVC
INV. 4" (S) = 29.50; PVC

EXISTING SITE NOTES:

- 01 WOOD POST W/ SWITCH
- 02 5' HIGH WOOD FENCE
- 03 AIR CONDITIONING UNIT ON WOOD STAND
- 04 TIMBER BORDER
- 05 GRAVEL
- 06 PAVERS
- 07 4' HIGH PVC PICKET FENCE
- 08 WORKOUT EQUIPMENT
- 09 PLAYGROUND EQUIPMENT
- 10 RUBBER PLAYGROUND MULCH
- 11 BENCH AND PLASTIC COVER
- 12 TRASH CAN
- 13 RAISED CONCRETE EDGING
- 14 6' HIGH WOOD FENCE
- 15 8' HIGH CHAIN LINK FENCE
- 16 ASPHALT PATCH
- 17 4" WIDE WHITE PAINT LINE
- 18 RIP-RAP
- 19 YELLOW DOUBLE PAINT LINE
- 20 POST
- 21 FLOOD LIGHT
- 22 2.5" PVC PIPE
- 23 METAL UTILITY CABINET
- 24 8' CHAIN LINK FENCE W/ 3 STRANDS OF BARBED WIRE
- 25 METAL POST W/ TELEPHONE NETWORK
- 26 HOLE

EXISTING STORM SCHEDULE

(001) PIPE END (2343)
INV. = 35.93; CONC.

(002) PIPE END (2344)
INV. = 35.75; CONC.

(003) E. C.B. IN CONC. (2351)
RIM = 35.43
INV. 12" (SE) = 30.76; CONC.

(004) E. C.B. IN CONC. (2699)
RIM = 34.44
INV. 12" (NW) = 29.95; CONC.
INV. 21" (SW) = 29.82; CONC.

(005) E. C.I. (1205)
RIM = 35.92
INV. 12" (SW) = 30.49; CONC.

(006) E. C.I. (1041)
RIM 35.73
INV. 12" (NE) = 29.99; CONC.
INV. 18" (SE) = 29.96; CONC.

(007) E. C.I. (1945)
RIM = 35.40
INV. 12" (NE) = 29.53; CONC.

(008) E. C.I. (2325)
RIM = 35.27
INV. 18" (NW) = 29.30; CONC.
INV. 12" (SW) = 29.29; CONC.
INV. 21" (SW) = 29.23; CONC.

(009) E. C.B. (3643)
RIM = 35.15
INV. 21" (NE) = 28.40; CONC.
INV. 24" (SW) = 28.35; CONC.

(010) E. C.I. / C.B. (3559)
RIM C.B. = 33.75
INV. 15" (E) = 28.75; PLASTIC

(011) E. C.I. / C.B. (3179)
RIM C.B. = 33.99
INV. 15" (W) = 29.5±; PLASTIC

(012) E. S. MH. (3531)
RIM = 34.16
INV. 24" (NE) = 27.71; CONC.
INV. 15" (E) = 28.41 PLASTIC
INV. 24" (SW) = 27.76; CONC.
INV. 15" (W) = 27.98 PLASTIC

(013) E. C.B. IN CONC. (1970)
RIM = 36.51
INV. 12" (NE) = 32.49; CONC.
INV. 12" (SW) = 32.21; CONC.

(014) E. C.B. IN CONC. (2550)
RIM = 35.34
INV. 12" (NE) = 31.13; CONC.
INV. 12" (NW) = 31.04; CONC.

(015) E. C.B. IN CONC. (1733)
RIM = 35.34
INV. 12" (SE) = 30.30; CONC.
INV. 12" (SW) = 30.24; CONC.

(016) E. C.B. IN CONC. (4233)
RIM = 34.67
INV. 21" (NE) = 28.85; CONC.
INV. 24" (SW) = 28.87; CONC.

(017) E. C.B. IN CONC. (4063)
RIM = 33.82
INV. 24" (NE) = 27.81; CONC.
INV. 24" (SW) = 27.77; CONC.

(018) E. S. MH. (3532)
RIM = 34.43
INV. 24" (NE) = 27.88; CONC.
INV. 36" (SE) = 27.68; CONC.
INV. 18" (NW) = 27.83; CONC.

(019) NOT USED

(020) E. C.I. (152)
RIM. = 36.86
INV. 12" (S) = 33.83; CONC.
INV. 18" (NW) = 33.81; CONC.

(021) E. C.I. (215)
RIM = 36.82
INV. 12" (N) = 33.82; CONC

(022) CONC. HDWL. (296)
INV. 24" = 32.71; CONC.

(023) CONC. HDWL. (364)
INV. 24" = 32.87; CONC.

(024) CONC. HDWL. (366)
INV. 18" = 32.76; CONC.

(025) PIPE END (469)
INV. 18" = 33.54; CONC.

(026) PIPE END (470)
INV. 18" = 33.39; CONC.

EXISTING UTILITY SCHEDULE

(001) E. ELEC. MH. (1452)
RIM = 36.91

(002) E. ELEC. MH. (1953)
RIM = 37.47

EXISTING COMMUNICATIONS SCHEDULE

(007) E. COMM. VAULT (480)
RIM = 36.33

CONTROL POINTS

CONTROL POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
2	3875548.21	12353029.81	37.23	DRILL HOLE
3	3875558.36	12353309.22	37.26	DRILL HOLE
7	3875450.29	12353598.34	36.79	DRILL HOLE
8	3875198.50	12353670.91	37.33	DRILL HOLE

OVERALL EXISTING CONDITION, SURVEY CONTROL AND UTILITY DATA PLAN

SCALE: 1" = 50'

PLAN NORTH

NEW SHEET

GRAPHIC SCALE
0 50' 100'
1" = 50'

#	DESCRIPTION	DATE	APPR.
1	GENERAL REVISIONS 01	01/21/16	---

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
WALLOPS ISLAND, VA

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

OVERALL EXISTING CONDITION, SURVEY CONTROL AND UTILITY DATA PLAN

SCALE: AS SHOWN
EPROJECT NO.: 1366573
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12708373
SHEET 121 OF 124
C-003

DRAWFORM REVISION: 10 MARCH 2009

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EROSION AND SEDIMENT CONTROL MINIMUM STANDARDS:

1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN **SEVEN (7) DAYS** AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN **SEVEN (7) DAYS** TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN **FOURTEEN (14) DAYS**. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE (1) YEAR.

2. SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES.

3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.

4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

   A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE (3) ACRES.
   B. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE (3) ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE (1) YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.

8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME, OR SLOPE DRAIN STRUCTURE.

9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

10. ALL STORM SEWER INLETS THAT ARE MADE OPERATIONAL DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.

13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.

14. ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

   A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
   B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
   C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
   D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
   E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
   F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

17. WHERE CONSTRUCTION VEHICLES ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.

18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DEPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:

   A. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.

   B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
      (1) DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT; <u>OR</u>
      (2) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A 2- YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS. ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A 2-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.

   C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
      (1) IMPROVE THE CHANNELS TO A CONDITION WHERE A 10-YEAR STORM WILL NOT OVERTOP THE BANKS AND A 2-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR
      (2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE 10-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
      (3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PREDEVELOPMENT PEAK RUNOFF RATE FROM A 2-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A 10-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
      (4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENTS, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN-APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.

   D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.

   E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.

   F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE/SHE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.

   G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.

   H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.

   I. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.

   J. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.

   K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL, AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.

EROSION & SEDIMENT CONTROL NARRATIVE

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PROJECT DESCRIPTION:
THIS PROJECT CONSISTS OF CONSTRUCTING ADDITIONS TO EXISTING MULTI-FAMILY NAVY HOUSING UNITS AND VARIOUS OTHER RENOVATIONS TO THE EXISTING INTERIOR AND EXTERIOR OF THESE UNITS. SITE WORK RELATED TO THE ADDITIONS AND RENOVATIONS WILL CONSIST OF NEW WATERLINES SUPPORTING THE NEW FIRE SUPPRESSION SYSTEMS BEING INSTALLED IN THE UNITS, THE RECONFIGURATION OF DRIVEWAYS ON FIVE OF THE HOUSING UNITS, TWO SAND FILTERS TO SATISFY STORMWATER QUALITY REQUIREMENTS, AND NEW STORMWATER PIPING AND STRUCTURES TO ADDRESS EXISTING DRAINAGE ISSUES AND TO PROVIDE ADEQUATE SEPARATION BETWEEN THE BUILDING ADDITIONS AND EXISTING STORM INFRASTRUCTURE. THE TOTAL AREA OF THE SITE IS APPROXIMATELY 7.27 ACRES. LAND DISTURBANCE DUE TO THIS CONSTRUCTION IS 1.48 ACRES. THE EXISTING SITE INCLUDES 2.28 ACRES OF IMPERVIOUS AREA (23%). THE PROPOSED SITE INCLUDES 0.30 ACRES OF NEW IMPERVIOUS AREA THUS BRINGING THE TOTAL IMPERVIOUS AREA OF THE SITE TO 2.66 ACRES (37%). SEDIMENT CONTROL FOR THE PROPOSED CONSTRUCTION ACTIVITIES WILL BE IN ACCORDANCE WITH THE POLICIES AND REQUIREMENTS OF THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK. THIS PLAN PROPOSES EROSION AND SEDIMENT CONTROL IN TWO SEPARATE PHASES. THE FIRST PHASE WILL ESTABLISH THE CONTROLS RELATED TO INITIAL CLEARING AND ROUGH GRADING OPERATIONS. THE SECOND PHASE IS TAILORED TO CONTROL SEDIMENT DURING THE FINAL DEVELOPMENT STAGE.

EXISTING SITE CONDITIONS:
THE EXISTING SITE IS DEVELOPED AND IS COVERED WITH GRASS, TREES, FOUNDATION LANDSCAPING, STREETS, HOUSING UNITS, AND A PLAYGROUND. THE EXISTING SLOPE RANGES FROM 0% TO 10%. GENERALLY, THE EXISTING HOUSING UNITS ARE GRADED SUCH THAT THE FRONTS OF THE HOUSES DRAIN TOWARDS SKEETER LANE THUS BEING COLLECTED IN THE ROAD DRAINAGE SYSTEM AND THE REARS OF THE UNITS DRAIN TO A SEPARATE SWALE AND DRAINAGE INLET COLLECTION SYSTEM. THE STREET DRAINAGE SYSTEM AND DRAINAGE SYSTEM IN THE REARS OF THE UNITS ULTIMATELY MERGE INTO A SINGLE SYSTEM THAT DISCHARGES INTO A REACH LOCATED SOUTHEAST OF THE NEIGHBORHOOD. THE REACH CONNECTS TO LITTLE SIMONEASTON CREEK WHICH ULTIMATELY DISCHARGES TO THE ATLANTIC OCEAN.

ADJACENT PROPERTY:
THE SITE IS BOUNDED TO THE NORTH AND EAST BY UNDEVELOPED FOREST, TO THE WEST BY OPEN ATHLETIC FIELDS, AND TO THE SOUTH BY COASTGUARD MULTI-FAMILY HOUSING. THE POTENTIAL FOR OFFSITE DAMAGES IS NEGLIGIBLE. THERE ARE NO KNOWN OFF SITE ENVIRONMENTALLY SENSITIVE AREAS. THE PERIMETER CONTROL TO BE USED TO PROTECT THE ADJACENT AREAS WILL INCLUDE SILT FENCE. SEE THE EROSION CONTROL PLAN FOR ALL PERIMETER CONTROLS.

OFF-SITE AREAS:
NO OFFSITE BORROW OR DISPOSAL SITES AREA EXPECTED. ANY ADDITIONAL OFFSITE LAND-DISTURBING ACTIVITY ASSOCIATED WITH THIS PROJECT MUST HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN.

SOILS DATA:
THE SUBSURFACE SOILS AT THE SITE CONSIST OF 3 INCHES OF TOPSOIL OVERLYING A LAYER OF COASTAL PLAIN SEDIMENTS. BROWN AND DARK BROWN, MOIST, VERY LOOSE TO LOOSE, SILTY, FINE SAND (SM, SM-SC) EXTENDS TO AN AVERAGE DEPTH OF 0.5 FT TO 1.5 FT. FOR MORE DETAILED INFORMATION REGARDING THE SITE SOILS, PLEASE REFER TO THE GEOTECHNICAL REPORT PREPARED BY NAVFAC DATED MAY 11, 2015.

CRITICAL AREAS:
SPECIAL CARE SHALL BE TAKEN TO PROTECT THE EXISTING TREES AND VEGETATION ON THE SITE.

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SEDIMENT CONTROL PROGRAM:
SEDIMENT CONTROL SHALL BE ACCOMPLISHED THROUGH RAPID STABILIZATION AND BY THE INSTALLATION OF MECHANICAL DEVICES, AS SHOWN ON THE E&S PLAN:

STRUCTURAL PRACTICES:
1. TEMPORARY CONSTRUCTION ENTRANCE WITH WASH RACK (CE) AND SETTLING AREA. THE CONTRACTOR TO SUPPLY WATER SOURCE BY CONNECTING TO EXISTING WATERLINE OR BY PROVIDING A WATER TRUCK/WATER TANK ON-SITE FOR WASHING VEHICLES BEFORE ENTERING THE PUBLIC ROAD.
2. TREE PROTECTION (TP)
3. SILT FENCE (SF)
4. INLET PROTECTION (IP)

VEGETATIVE PRACTICES:
1. TOP SOILING (STOCKPILES) -TOPSOIL WILL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATIONS SHALL BE LOCATED PER THE LOCATION IDENTIFIED ON PLAN SHEET C-002 AND SHALL BE STABILIZED WITH TEMPORARY VEGETATION. SILT FENCES SHALL BE INCLUDED AROUND ALL STOCKPILE AREAS.
2. TEMPORARY SEEDING -ALL DENUDED AREAS THAT WILL BE LEFT DORMANT FOR EXTENDED PERIODS OF TIME PER MINIMUM STANDARD NO. 1 SHALL BE SEEDED WITH FAST GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING. SELECTION OF THE SEED MIXTURE WILL DEPEND ON THE TIME OF THE YEAR IT IS APPLIED.
3. EROSION CONTROL BLANKETS OR MULCH -EROSION CONTROL BLANKETS WILL BE INSTALLED OVER FILL SLOPES WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND SEEDED TO PROTECT THE SLOPES FROM RILL AND GULLY EROSION AND ALLOW THE SEED TO GERMINATE PROPERLY. MULCH (STRAW OR FIBER) WILL BE USED ON RELATIVELY FLAT AREAS AND WILL BE APPLIED AS A SECOND STEP IN THE SEEDING OPERATION.
4. ALL SILTATION CONTROL MEASURES ARE INTENDED TO PREVENT SEDIMENT FROM ENCROACHING INTO ENVIRONMENTALLY SENSITIVE AREAS OR ONTO ADJACENT PROPERTIES AND ROADWAYS. THE DEPARTMENT HAS THE AUTHORITY TO ADD OR DELETE EROSION AND SEDIMENT CONTROLS IN THE FIELD AS SITE CONDITIONS WARRANT. IN ADDITION, NO SEDIMENT TRAPS OR SEDIMENT BASINS MAY BE REMOVED WITHOUT THE PRIOR APPROVAL OF THE INSPECTOR. SEDIMENT CONTROL "MAINTENANCE PROGRAM" DESCRIBED BELOW.
5. OBTAIN INSPECTOR'S APPROVAL PRIOR TO THE REMOVAL OF THE REMAINING MECHANICAL SEDIMENT CONTROLS.

PERMANENT STABILIZATION:
ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING. SEEDING SHALL BE DONE WITH KENTUCKY 31 TALL FESCUE ACCORDING TO STD. & SPEC. 3.32, PERMANENT SEEDING, OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. EROSION CONTROL BLANKETS WILL BE INSTALLED OVER FILL SLOPES WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDED. THIS WILL PROTECT THE SLOPES FROM RILL AND GULLY EROSION AND ALLOW THE SEED TO GERMINATE PROPERLY. MULCH (STRAW OR FIBER) WILL BE USED ON RELATIVELY FLAT AREAS. IN ALL SEEDING OPERATIONS, SEED, FERTILIZER AND LIME WILL BE APPLIED PRIOR TO MULCHING.

STORMWATER MANAGEMENT:
STORMWATER MANAGEMENT IS TO BE HANDLED BY STORM SEWERS THAT WILL COLLECT AND DRAIN THE STORM WATER TO THE EXISTING STORM SYSTEM.

MAINTENANCE PROGRAM:
IN GENERAL ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL EVENT. THE FOLLOWING MEASURES WILL BE CHECKED IN PARTICULAR:
CONSTRUCTION ENTRANCES: INSPECTIONS SHALL BE MADE DAILY FOR ENTRANCE INTEGRITY; REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
SILT FENCE: INSPECTIONS SHALL BE MADE DAILY FOR FENCE INTEGRITY; REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. SEDIMENT IS TO BE REMOVED WHEN DEPOSITS REACH ONE-HALF THE FENCE HEIGHT.
TREE PROTECTION: INSPECTIONS SHALL BE MADE DAILY FOR FENCE INTEGRITY; REQUIRED REPAIR SHALL BE MADE IMMEDIATELY.
PERMANENT SEEDING: SEEDED AREAS SHALL BE CHECKED REGULARLY TO ASSURE A GOOD STAND OF GRASS IS BEING MAINTAINED. AREAS THAT FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION SHALL BE RE-SEEDED AS SOON AS THEY ARE IDENTIFIED.
MULCHING: ALL MULCHED AREAS SHALL BE INSPECTED PERIODICALLY, PARTICULARLY AFTER RAINSTORMS, TO CHECK FOR RILL EROSION; REPAIR AS NEEDED.

PHASING OF LAND DISTURBING ACTIVITIES:
SEDIMENT CONTROL IS PROVIDED THROUGH A TWO-PHASED APPROACH.
PHASE I:
PHASE I OPERATIONS WILL INCLUDE THE CONSTRUCTION NEEDED TO DIVERT MAJOR OFF-SITE CLEAN WATER AND ON-SITE DRAINAGE FLOWS AROUND THE WORK AREA AND CONTROL EROSION AND SILTATION ASSOCIATED WITH INITIAL CLEARING AND GRADING OPERATIONS. AS REQUIRED, PHASE I CONTROLS SHALL BE ESTABLISHED IN A ONE (1) STEP PROCESS:

1. CONTRACTOR TO OBTAIN VPDES PERMIT. CONTRACTOR, RESPONSIBLE LAND DISTURBER AND CONSTRUCTION MANAGER SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE INSPECTOR PRIOR TO STARTING ANY LAND DISTURBING ACTIVITIES. CONTRACTOR SHALL ALSO CONTACT DANIEL STURGIS WITH THE NAVSEA FACILITIES MANAGEMENT DIVISION TO FILE A WORK REQUEST FOR MARKING THE NON-FRANCHISE UTILITIES MANAGED BY THE INSTALLATION. MR. STURGIS MAY BE CONTACTED AT 757-824-7700.

2. INSTALL CONSTRUCTION ENTRANCE (CE) AS SHOWN ON PLAN SHEET C-002. PROVIDE THE CONSTRUCTION ENTRANCE WITH WASH RACK AND ESTABLISH A PROTECTED STAGING AND EQUIPMENT PARKING AREA.

3. INSTALL THE REMAINING MECHANICAL CONTROLS SUCH AS SILT FENCE (SF), INLET PROTECTION (IP) AND TREE PROTECTION (TP) AS SHOWN ON THE PLAN.

4. CONTACT THE INSPECTOR FOR AN E&S PERIMETER INSPECTION PRIOR TO STARTING THE CLEARING AND GRUBBING OF AREAS.

5. CLEARING AND GRUBBING OR REMOVAL OF EXISTING VEGETATION MUST BE LIMITED WITHIN THE LIMITS OF CLEARING, AS SHOWN ON THE PLAN.

PHASE II:
THE PHASE II SEDIMENT CONTROL MEASURES ARE INTENDED FOR THE FINAL STAGES OF SITE DEVELOPMENT. PHASE I CONTROL MEASURES THAT ARE FOUND TO BE IN CONFLICT SHALL BE REPLACED WITH APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES ONSITE. THE CONTRACTOR AND THE RESPONSIBLE LAND DISTURBER SHALL FOLLOW THE INSPECTOR'S DIRECTION IN PROVIDING ADDITIONAL CONTROL MEASURES NEEDED DURING THE DEVELOPMENT PROCESS, TO ENSURE THAT SEDIMENT IS PREVENTED FROM POLLUTING OFF-SITE AREAS, STREAMS AND/OR PROTECTED ON-SITE AREAS.

THE FOLLOWING SEQUENCE OF CONSTRUCTION IS SUGGESTED:

1. PERFORM DEMOLITION INDICATED ON THE PLANS.

2. INSTALL BUILDING PADS FOR THE BUILDING AND PATIO ADDITIONS AND ROUGH GRADE NEW DRIVEWAYS.

3. INSTALL UTILITIES.

4. INSTALL THE NEW STORM SEWER SYSTEM.

5. CONSTRUCT THE BASE FOR THE NEW DRIVEWAYS AND PERMANENTLY STABILIZE SITE BY SURFACE ROUGHENING FOLLOWED BY PLANTING AND SEEDING.

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6. INSTALL SAND FILTERS, CONCRETE FOR DRIVEWAYS, REPLACEMENT CURB AND GUTTER, AND REPLACEMENT SIDEWALKS.

DEVICES SHOWN ARE TO BE CONSIDERED AS MINIMUM EROSION AND SEDIMENTATION CONTROLS. ADDITIONAL CONTROLS MAY BE NECESSARY DUE TO CONTRACTOR'S PHASING OR OTHER UNANTICIPATED CONDITIONS. THE EROSION AND SEDIMENT CONTROL DEPARTMENT HAS THE RIGHT TO ADD OR REMOVE CONTROLS AS DEEMED NECESSARY IN THE FIELD. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADDITIONAL DEVICES AS NECESSARY IN ORDER TO CONTROL EROSION AND SEDIMENTATION AT NO ADDITIONAL COST TO THE GOVERNMENT. EROSION AND SEDIMENTATION MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION. CONTROLS MAY BE REMOVED AFTER THE AREAS ABOVE THEM HAVE BEEN STABILIZED AND WITH THE APPROVAL OF THE INSPECTOR.

SPECIAL CARE NOTES:
IT IS THE INTENT OF THIS PLAN TO PRECLUDE SEDIMENT POLLUTION FROM LEAVING THE DELINEATED CONSTRUCTION ZONES.

THE CONTRACTOR AND THE RESPONSIBLE LAND DISTURBER SHALL TAKE SPECIAL CARE TO PREVENT CONSTRUCTION DEBRIS AND MUD FROM BEING TRACKED ONTO SURROUNDING ROADS. CONSTRUCTION TRAFFIC SHALL ONLY ENTER AND EXIT THE CONSTRUCTION SITE VIA DESIGNATED LOCATIONS, WHICH HAVE WORKING CONSTRUCTION TRAFFIC WASH RACKS.

THE CONTRACTOR AND RESPONSIBLE LAND DISTURBER SHALL TAKE SPECIAL CARE TO PROTECT THE EXISTING VEGETATION AND STREAMS OUTSIDE OF THE DESIGNATED LIMITS OF WORK SHOWN ON THE PLANS.

EROSION AND SEDIMENT CONTROL GENERAL NOTES:

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 9VAC25-840-40 EROSION AND SEDIMENT CONTROL REGULATIONS.

2. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

3. ALL APPROPRIATE EROSION CONTROL MEASURES SUCH AS, BUT NOT LIMITED TO, TREE PROTECTION, SILT FENCE, CONSTRUCTION ENTRANCE, SEDIMENT TRAPPING FACILITIES, AND INLET PROTOECTION SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND MUST BE REVIEWED AND APPROVED BY THE INSPECTOR BEFORE <u>ANY</u> CLEARING OPERATIONS BEGIN.

4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND LAND DISTURBANCE PERMIT MUST BE MAINTAINED AT THE SITE FOR THE DURATION OF ALL CONSTRUCTION AND LAND-DISTURBING ACTIVITIES.

5. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL APPROVED MEASURES AS SHOWN ON THE DRAWINGS. ANY ADDITIONAL MEASURES DEEMED REQUIRED BY THE PLAN APPROVING AUTHORITY SHALL BECOME PART OF THE EROSION AND SEDIMENT CONTROL PLAN FOR THE PROPERTY. ALL FIELD CHANGES MUST BE APPROVED BY THE PLAN APPROVING AUTHORITY.

6. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

7. THE CONTRACTOR .SHALL CONSTRUCT AND MAINTAIN ALL MEASURES TO PREVENT SOIL FROM ERODING ONTO ADJACENT PROPERTY, STREETS, DRAINAGE SYSTEMS, AND WATERWAYS. ALL DEVICES SHALL BE CLEANED OF MUD, DEBRIS, AND OTHER ERODED MATERIAL DURING THE SITE CLEARING AND DEVELOPMENT. INSPECTION OF DEVICES SHALL BE CONDUCTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS OR AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER. ALL INSPECTION AND MAINTENANCE ACTIVITIES SHALL BE DOCUMENTED AND AVAILABLE FOR REVIEW AT THE PLAN REVIEWING AUTHORITIES REQUEST.

8. TEMPORARY AND PERMANENT SEEDING OPERATIONS SHALL BE INITIATED WITHIN SEVEN (7) DAYS AFTER REACHING FINAL GRADE OR UPON SUSPENSION OF GRADING OPERATIONS FOR ANTICIPATED DURATION OF GREATER THAN FOURTEEN (14) DAYS OR UPON COMPLETION OF GRADING OPERATIONS FOR A SPECIFIC AREA.

9. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE KEPT IN PLACE FOR THE DURATION OF THE CLEARING AND CONSTRUCTION OPERATIONS AND AT A MAXIMUM FOR THE SPECIFIED TIME FOR EACH MEASURE AS IDENTIFIED IN THE VESC HANDBOOK, OR WHEN FULL STABILIZATION HAS OCCURRED FOR THE ENTIRE SITE. A FINAL INSPECTION BY THE PLAN APPROVING AUTHORITY SHALL DETERMINE WHEN THIS FACT IS ACCOMPLISHED AND ALL TEMPORARY MEASURES AND DEVICES CAN BE REMOVED.

10. THE CONTRACTOR SHALL MONITOR AND TAKE PRECAUTIONS TO CONTROL DUST AND OTHER AIR POLLUTANTS, INCLUDING BUT NOT LIMITED TO USING WATER OR CHEMICALS, LIMITING THE NUMBER OF VEHICLES ALLOWED ONSITE, MINIMIZING THE OPERATING SPEED OF ALL VEHICLES, ETC. ALSO, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE DAILY SWEEPING SHOULD SEDIMENT ACCUMULATE ON PAVED SURFACES.

SYM	DESCRIPTION	DATE	APPR
1	GENERAL REVISIONS 01	01/21/16	---

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY
DES BSS DRW BSS CHK
JTL/APK JTL/APK
BRANCH MANAGER
CHIEF ENG/ARCH RLW
FIRE PROTECTION DPS

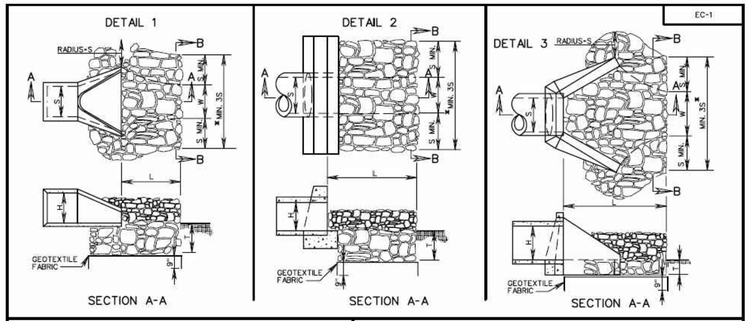
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT NORFOLK NAVAL STATION
SURFACE COMBAT SYSTEM CENTER WALLOPS ISLAND, VA
P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING
EROSION & SEDIMENT CONTROL NOTES

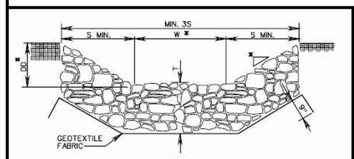
SCALE: AS SHOWN
EPROJECT NO.: 1366573
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12708257
SHEET 5 OF 124
CE501

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\MILCON\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CE501.dwg LAYOUT NAME: CE501 PLOTTED: Thursday, January 28, 2016 - 10:24pm USER: wesley.baker

EC-1





TYPE OF OUTLET PROTECTION MATERIAL		MAXIMUM OUTLET VELOCITY (FOR DESIGN STORM)	MINIMUM "T" (INCHES)
CLASS A1	CLASS A1 DRY RIPRAP	8 fps	18
CLASS I	CLASS I DRY RIPRAP	14 fps	24
CLASS II	CLASS II DRY RIPRAP	19 fps	36

NOTES:

1. FOR MULTIPLE LINE INSTALLATIONS, DIMENSION S IS TO GOVERN THE PROTECTION OUTSIDE THE CHANNEL WIDTH (W).
2. ON ANY INSTALLATION REQUIRING CULVERT OUTLET PROTECTION WHERE NO ENDWALL OR ENDSECTION IS SPECIFIED ON THE PLANS, CONSTRUCTION IS TO BE IN ACCORDANCE WITH DETAIL 2 SHOWN ABOVE.
3. GEOTEXTILE FABRIC TO BE INSTALLED UNDER CLASS A1, I, AND II MATERIALS IN ACCORDANCE WITH THE SPECIFICATIONS.
4. S = DIAMETER OF CIRCULAR CULVERT OR SPAN FOR BOX, ELLIPTICAL OR ARCH CULVERT. H = DIAMETER OF CIRCULAR CULVERT OR RISE/HEIGHT FOR BOX, ELLIPTICAL OR ARCH CULVERT.

* USE TYPICAL SECTION SHOWN ON PLANS FOR SIDE SLOPE, BOTTOM WIDTH AND DEPTH OF CHANNEL OR MATCH EXISTING DITCH OR NATURAL GROUND.

OUTLET PROTECTION MINUMUM LENGTH (L)	
TYPE A INSTALLATION	3H
TYPE B INSTALLATION	5H

SPECIFICATION REFERENCE
204
245
303
414

CULVERT OUTLET PROTECTION

VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS

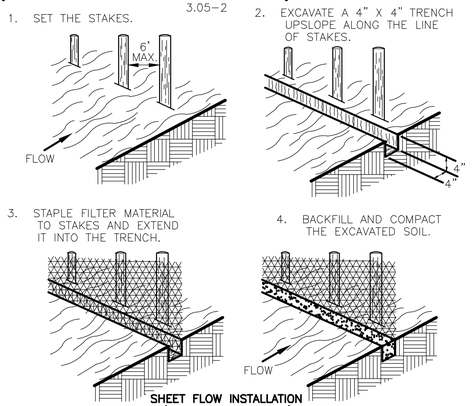
REVISION DATE | SHEET 1 OF 1

113.01

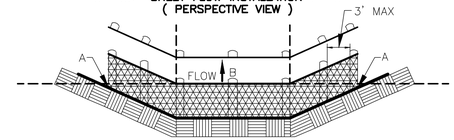
SILT FENCE (WITHOUT WIRE SUPPORT)

SF

3.05-2



SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)



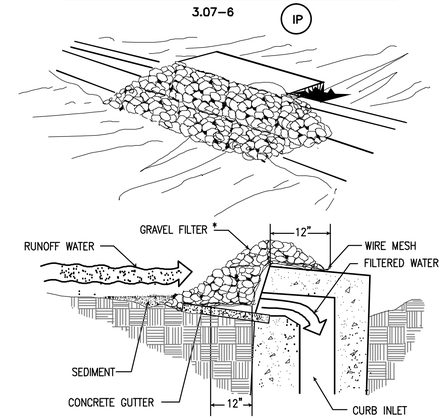
POINTS A SHOULD BE HIGHER THAN POINT B.

DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)

GRAVEL CURB INLET SEDIMENT FILTER

3.07-6

IP



SPECIFIC APPLICATION

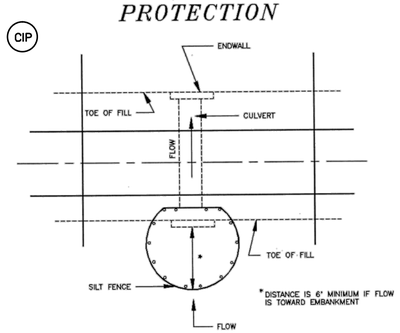
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR 5 COARSE AGGREGATE.

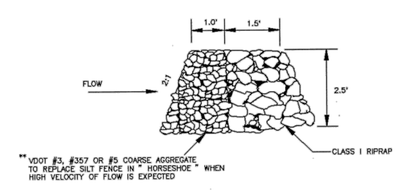
1992 3.08

SILT FENCE CULVERT INLET PROTECTION

CIP



*OPTIONAL STONE COMBINATION***

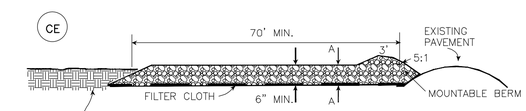


Source: Adapted from VDOT Standard Sheets and Va. DSWC

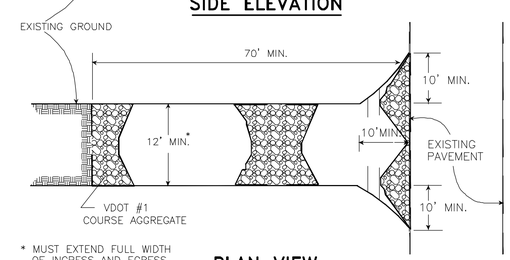
Plate 3.08-1

STONE CONSTRUCTION ENTRANCE

CE

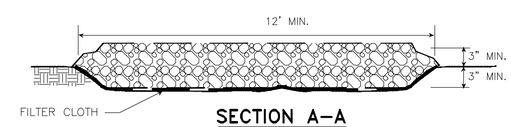


SIDE ELEVATION



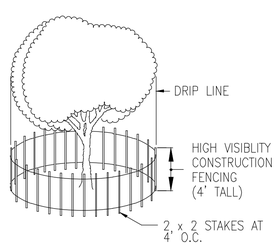
* MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

PLAN VIEW



SECTION A–A

TP



NOTE:
DRIVE STAKES FIRMLY INTO GROUND (12" MIN.).

TREE PROTECTION DETAIL

N.T.S.

SYM	DESCRIPTION	DATE	APPR
1	GENERAL REVISIONS Q1	01/21/16	---

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY: HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
WALLOPS ISLAND, VA
P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING
EROSION & SEDIMENT CONTROL DETAILS

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12708258

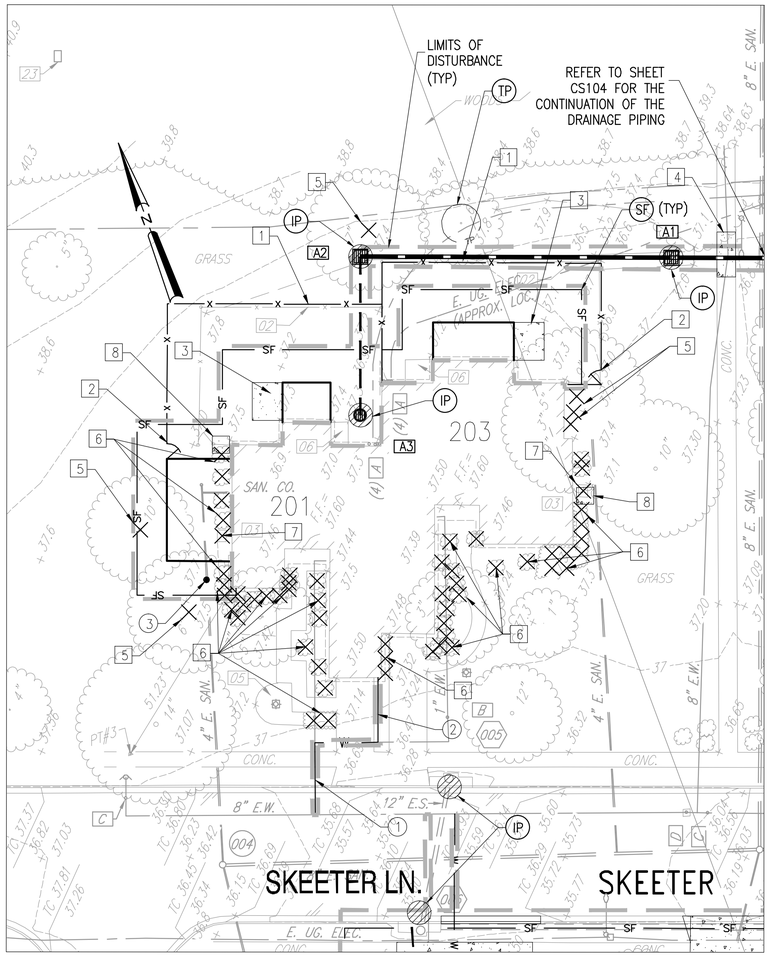
SHEET 6 OF 124

CE502

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLCON\2016_1366573_P1602_DRB_SheetetLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CE502.dwg LAYOUT NAME: CE502 PLOTTED: Thursday, January 28, 2016 - 10:24pm USER: wesley.c.baker

REVISED ENTIRE SHEET



SITE AND UTILITY LAYOUT PLAN - 201 AND 203 SKEETER LANE

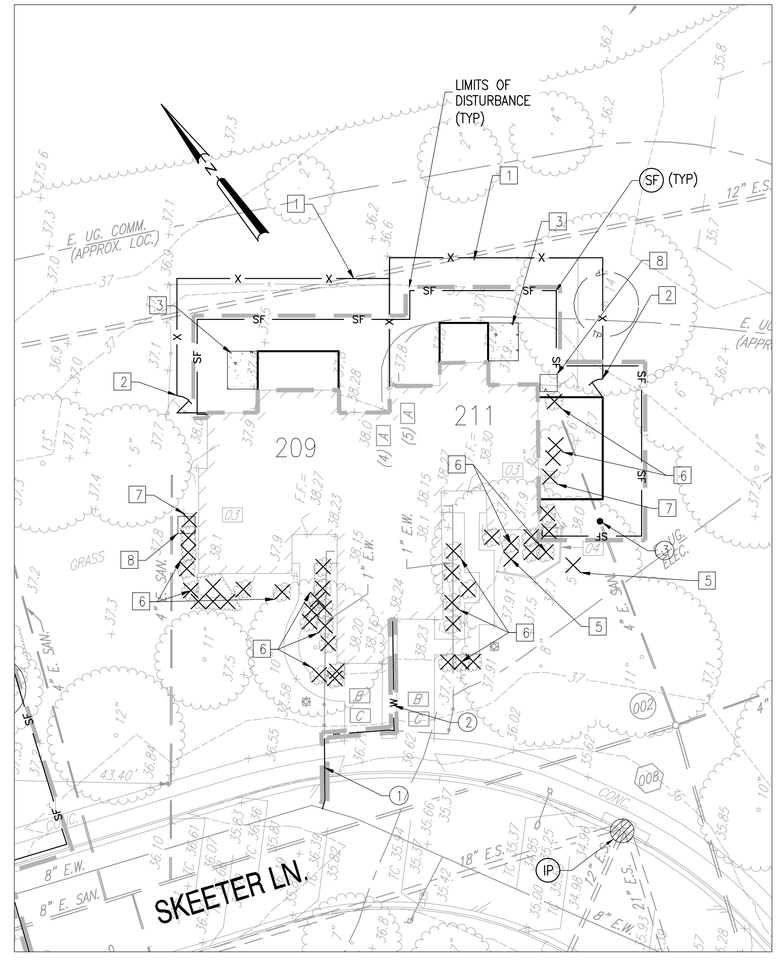
SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

0 20' 40'

1" = 20'



SITE AND UTILITY LAYOUT PLAN - 209 AND 211 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

0 20' 40'

1" = 20'

SHEET NOTES

1. SEE SHEET C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE ELECTRICAL DRAWING SHEETS FOR ELECTRICAL AND TELECOMMUNICATION LAYOUT.

○ UTILITY LAYOUT KEYNOTES

1 REPLACE EXISTING 1" WATER SERVICE LINE WITH 1.5" WATER SERVICE LINE WITHIN THE LIMITS OF DISTURBANCE SHOWN. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

2 EXTEND A 1.5" WATER SERVICE CONNECTION TO THE RESIDENCE AS SHOWN TO SUPPLY THE NEW FIRE SUPPRESSION SYSTEM. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

3 INSTALL NEW SANITARY SEWER CLEANOUT.

☐ SITE LAYOUT KEYNOTES

1 REPLACE EXISTING WOODEN FENCE WITH 6' VINYL PRIVACY FENCE. INSTALL THE NEW FENCING PER THE NEW FENCE LIMITS SHOWN. SEE DETAIL A1, SHEET C-502.

2 INSTALL 4'-WIDE VINYL PRIVACY FENCE GATE

3 8'X10' CONCRETE PATIO – SEE DETAIL B1, SHEET C-502

4 REPLACE EXISTING SIDEWALK – SEE DETAIL A3, SHEET C-501

5 REMOVE TREE

6 REMOVE SHRUBS AND LANDSCAPE EDGING

7 REMOVE HVAC EQUIPMENT AND WOOD STAND (SEE MECHANICAL PLANS)

8 4.5'x4.5' CONCRETE UTILITY PAD – SEE DETAIL D1, SHEET C-503

NEW STORM DRAINAGE STRUCTURE DATA

A1 VDOT STD DI-1
RIM= 38.64
INV. IN = 33.00 (12" RCP)
INV. OUT = 33.00 (12" RCP)

A1 TO A0
72 LF 12" RCP @ 1.04%

A2 VDOT STD DI-1
RIM= 37.30
INV. IN = 33.55 (6" PVC)
INV. OUT = 33.55 (12" RCP)

A2 TO A1
82 LF 12" RCP @ 0.67%

A3 YARD DRAIN BASIN W/ PEDESTRIAN GRATE
RIM = 36.50
INV. OUT = 34.00 (6" PVC)

A3 TO A2
42 LF 6" PVC PIPE @ 1.07%

SYM	DESCRIPTION	DATE	APPR
1	GENERAL REVISIONS 01	01/21/16	---

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY: HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
WALLOPS ISLAND, VA
SURFACE COMBAT SYSTEM CENTER

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

SITE AND UTILITY LAYOUT PLAN
201, 203, 209, AND 211 SKEETER LANE

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12708259

SHEET 7 OF 124

CS101

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\MILCON\2016_1366573_P1602_DRB_SkeetersLaneRenovationsAndConversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS101.dwg LAYOUT NAME: CS101 PLOTTED: Thursday, January 28, 2016 - 10:25pm USER: wesley.a.baker

NEW STORM DRAINAGE STRUCTURE DATA

B0 VDOT STD DI-1
RIM = 37.00
INV. IN = 29.15± (21" RCP)
INV. IN = 30.95 (6" PVC)
INV. OUT = 29.15± (21" STORM PIPE)

B1 TO **B0**
67 LF 21" RCP @ 0.27%

B1 VDOT STD DI-1
RIM = 37.70
INV. IN = 29.43 (21" RCP)
INV. OUT = 29.43 (21" RCP)

B2 VDOT STD DI-1
RIM = 36.90
INV. IN = 29.58± (21" RCP)
INV. OUT = 29.58± (21" RCP)

B2 TO **B1**
91 LF 21" RCP @ 0.27%

C1 STORM CLEANOUT
RIM = 38.05
INV. = 31.41

C1 TO **B0**
23 LF 6" PVC @ 2.00%

C2 YARD DRAIN BASIN
W/ PEDESTRIAN GRATE
RIM = 37.10
INV. IN = 32.35 (6" PVC)
INV. OUT = 32.35 (6" PVC)

C2 TO **C1**
47 LF 6" PVC @ 2.00%

C3 STORM CLEANOUT
RIM = 37.60
INV. = 33.29

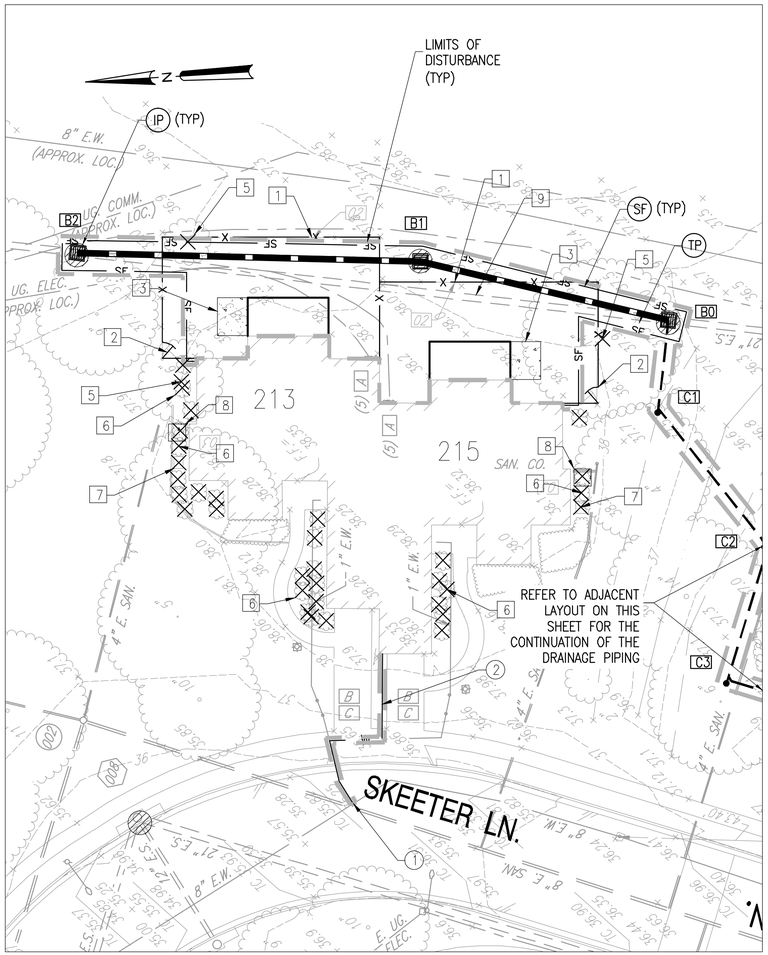
C3 TO **C2**
37 LF 6" PVC @ 2.00%

C4 STORM CLEANOUT
RIM = 37.90
INV. = 34.19

C4 TO **C3**
45 LF 6" PVC @ 2.00%

C5 YARD DRAIN BASIN W/ PEDESTRIAN GRATE
RIM = 37.05
INV. OUT = 34.55 (6" PVC)

C5 TO **C4**
18 LF 6" PVC @ 2.00%

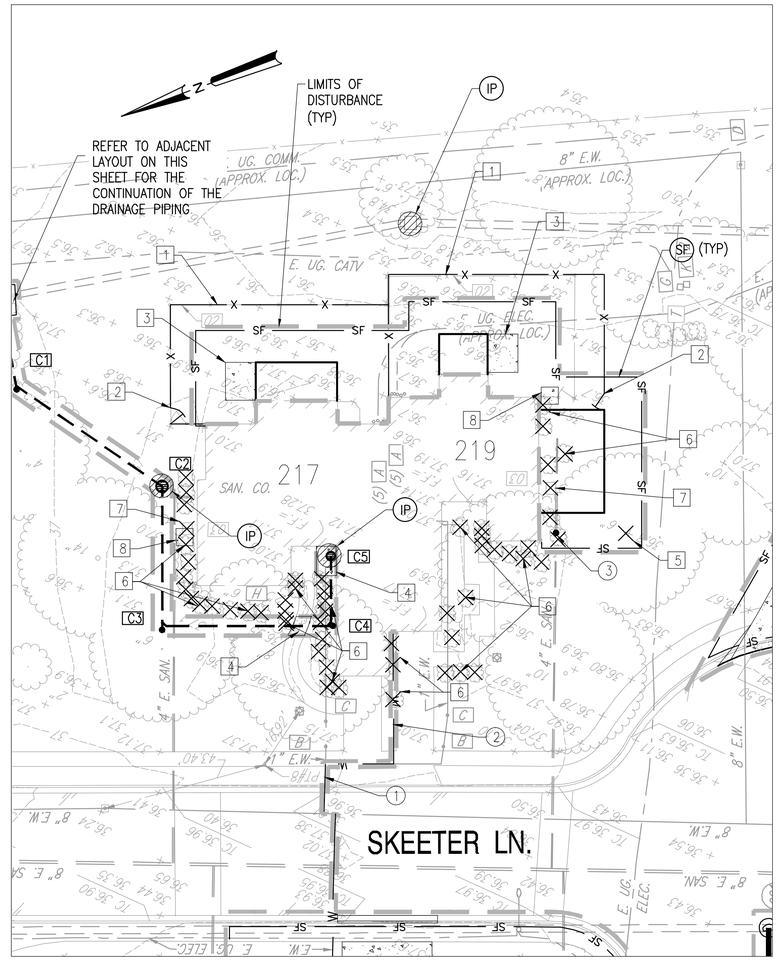


SITE AND UTILITY LAYOUT PLAN - 213 AND 215 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE
0 20' 40'
1" = 20'



SITE AND UTILITY LAYOUT PLAN - 217 AND 219 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE
0 20' 40'
1" = 20'

1 REVISED ENTIRE SHEET

SHEET NOTES

1. SEE SHEET C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE ELECTRICAL DRAWING SHEETS FOR ELECTRICAL AND TELECOMMUNICATION LAYOUT.

○ UTILITY LAYOUT KEYNOTES

1 REPLACE EXISTING 1" WATER SERVICE LINE WITH 1.5" WATER SERVICE LINE WITHIN THE LIMITS OF DISTURBANCE SHOWN. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

2 EXTEND A 1.5" WATER SERVICE CONNECTION TO THE RESIDENCE AS SHOWN TO SUPPLY THE NEW FIRE SUPPRESSION SYSTEM. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

3 INSTALL NEW SANITARY SEWER CLEANOUT.

☐ SITE LAYOUT KEYNOTES

1 REPLACE EXISTING WOODEN FENCE WITH 6' VINYL PRIVACY FENCE. INSTALL THE NEW FENCING PER THE NEW FENCE LIMITS SHOWN. SEE DETAIL A1, SHEET C-502.

2 INSTALL 4'-WIDE VINYL PRIVACY FENCE GATE

3 8'X10' CONCRETE PATIO – SEE DETAIL B1, SHEET C-502

4 REPLACE EXISTING SIDEWALK – SEE DETAIL A3, SHEET C-501

5 REMOVE TREE

6 REMOVE SHRUBS AND LANDSCAPE EDGING

7 REMOVE HVAC EQUIPMENT AND WOOD STAND (SEE MECHANICAL PLANS)

8 4.5'x4.5' CONCRETE UTILITY PAD – SEE DETAIL D1, SHEET C-503

9. REMOVE EXISTING 21" STORM PIPE BETWEEN NEW DRAINAGE STRUCTURES B0 AND B2

SYM	DESCRIPTION	DATE	APPR
1	GENERAL REVISIONS Q1	01/21/16	---

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
WALLOPS ISLAND, VA

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

SITE AND UTILITY LAYOUT PLAN
213, 215, 217, AND 219 SKEETER LANE

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

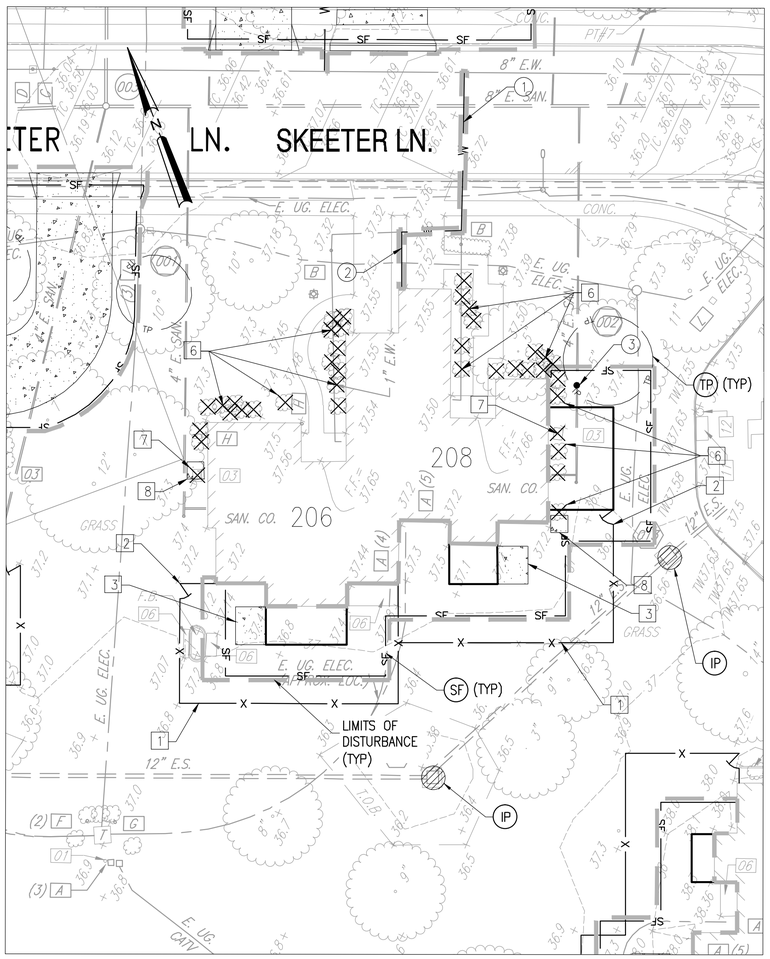
NAVFAC DRAWING NO.
12708260

SHEET 8 OF 124

CS102

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLICON\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS102.dwg LAYOUT NAME: CS102 PLOTTED: Thursday, January 28, 2016 - 10:26pm USER: wesley.a.baker



SITE AND UTILITY LAYOUT PLAN - 206 AND 208 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

1" = 20' 0 20' 40'

REVISED ENTIRE SHEET

SHEET NOTES

1. SEE SHEET C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE ELECTRICAL DRAWING SHEETS FOR ELECTRICAL AND TELECOMMUNICATION LAYOUT.

○ UTILITY LAYOUT KEYNOTES

1 REPLACE EXISTING 1" WATER SERVICE LINE WITH 1.5" WATER SERVICE LINE WITHIN THE LIMITS OF DISTURBANCE SHOWN. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

2 EXTEND A 1.5" WATER SERVICE CONNECTION TO THE RESIDENCE AS SHOWN TO SUPPLY THE NEW FIRE SUPPRESSION SYSTEM. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

3 INSTALL NEW SANITARY SEWER CLEANOUT.

☐ SITE LAYOUT KEYNOTES

1 REPLACE EXISTING WOODEN FENCE WITH 6' VINYL PRIVACY FENCE. INSTALL THE NEW FENCING PER THE NEW FENCE LIMITS SHOWN. SEE DETAIL A1, SHEET C-502.

2 INSTALL 4'-WIDE VINYL PRIVACY FENCE GATE

3 8'X10' CONCRETE PATIO – SEE DETAIL B1, SHEET C-502

4 REPLACE EXISTING SIDEWALK – SEE DETAIL A3, SHEET C-501

5 REMOVE TREE

6 REMOVE SHRUBS AND LANDSCAPE EDGING

7 REMOVE HVAC EQUIPMENT AND WOOD STAND (SEE MECHANICAL PLANS)

8 4.5'x4.5' CONCRETE UTILITY PAD – SEE DETAIL D1, SHEET C-503

SYM	DESCRIPTION	DATE	APPR
1	GENERAL REVISIONS Q1	01/21/16	---

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY: HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
WALLOPS ISLAND, VA
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

SITE AND UTILITY LAYOUT PLAN
206 AND 208 SKEETER LANE

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

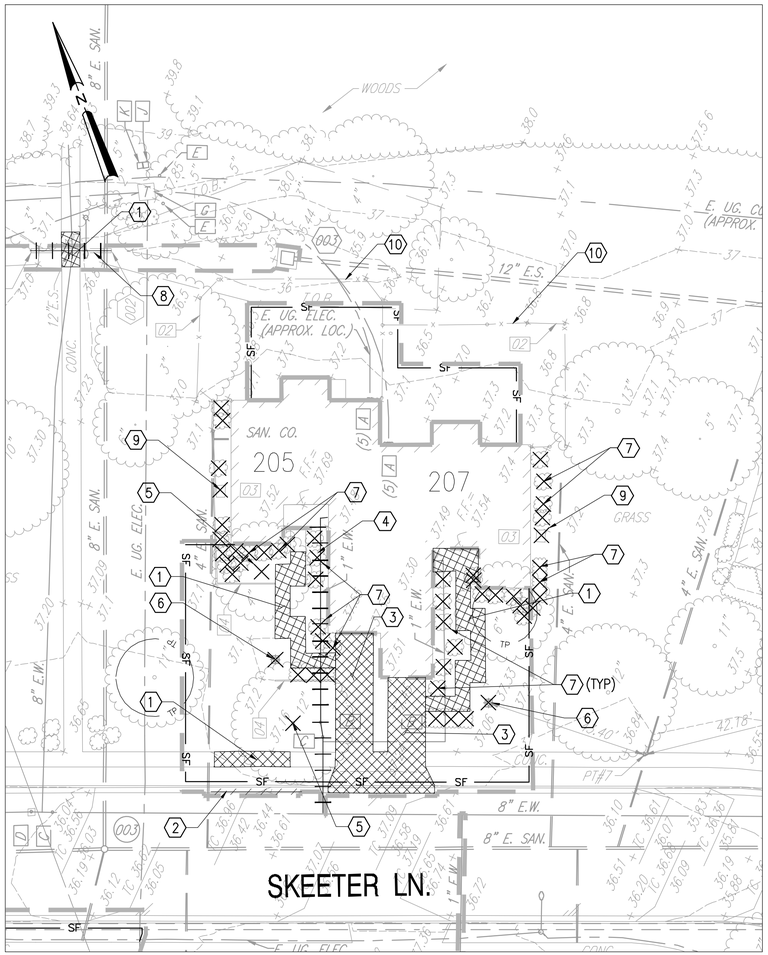
NAVFAC DRAWING NO. 12708261

SHEET 9 OF 124

CS103

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLCDN\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS103.dwg LAYOUT NAME: CS103 PLOTTED: Thursday, January 28, 2016 - 10:27pm USER: wesley.a.baker



DEMOLITION PLAN - 205 AND 207 SKEETER LANE

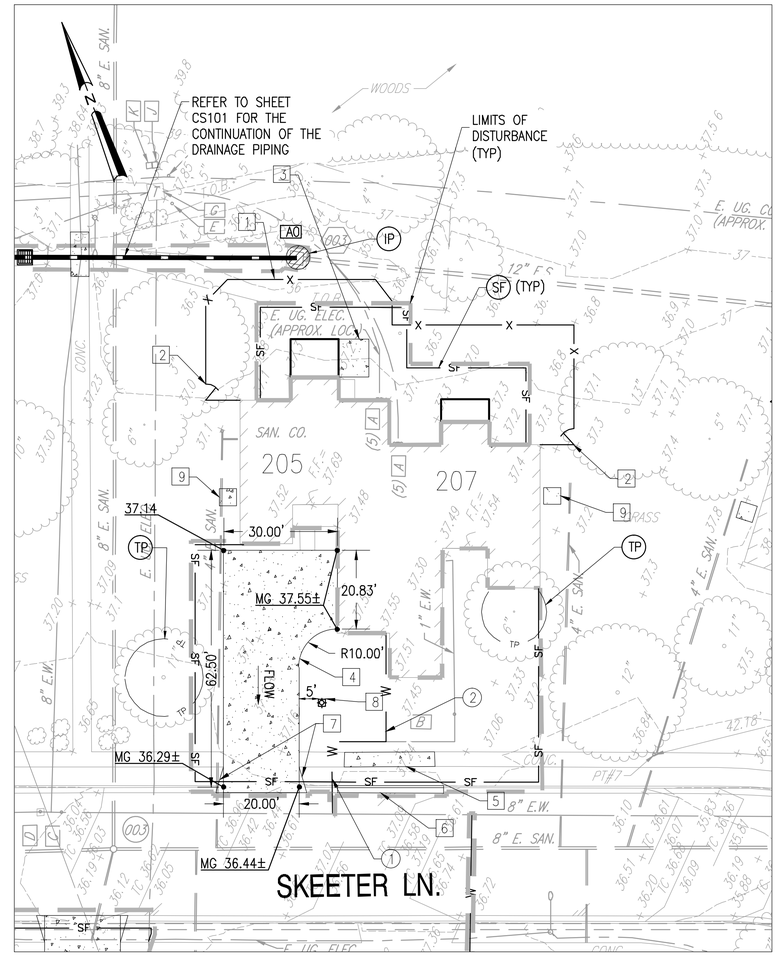
SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

0 20' 40'

1" = 20'



SITE AND UTILITY LAYOUT PLAN - 205 AND 207 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

0 20' 40'

1" = 20'

REVISED ENTIRE SHEET

SHEET NOTES

1. SEE SHEET C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE ELECTRICAL DRAWING SHEETS FOR ELECTRICAL AND TELECOMMUNICATION LAYOUT.

○ UTILITY LAYOUT KEYNOTES

1 REPLACE EXISTING 1" WATER SERVICE LINE WITH 1.5" WATER SERVICE LINE WITHIN THE LIMITS OF DISTURBANCE SHOWN. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

2 EXTEND A 1.5" WATER SERVICE CONNECTION TO THE RESIDENCE AS SHOWN TO SUPPLY THE NEW FIRE SUPPRESSION SYSTEM. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

3 INSTALL NEW SANITARY SEWER CLEANOUT.

□ SITE LAYOUT KEYNOTES

1 REPLACE EXISTING WOODEN FENCE WITH 6' VINYL PRIVACY FENCE. INSTALL THE NEW FENCING PER THE NEW FENCE LIMITS SHOWN. SEE DETAIL A1, SHEET C-502.

2 INSTALL 4'-WIDE VINYL PRIVACY FENCE GATE

3 8'X10' CONCRETE PATIO – SEE DETAIL B1, SHEET C-502

4 20'-WIDE CONCRETE DRIVEWAY – SEE DETAIL A1, SHEET C-501

5 CONCRETE SIDEWALK – SEE DETAIL A3, SHEET C-501

6 CONCRETE CURB AND GUTTER – SEE DETAIL A3, SHEET C-502

7 2'-WIDE TRIANGULAR CONCRETE DRIVEWAY FLARE, TERMINATE FLARE AT EXISTING SIDEWALK

8 NEW LIGHT POST

9 4.5'X4.5' UTILITY PAD – SEE DETAIL D1, SHEET C-503

⬡ DEMOLITION KEYNOTES

1 REMOVE CONCRETE SIDEWALK

2 REMOVE CONCRETE CURB AND GUTTER

3 REMOVE CONCRETE DRIVEWAY

4 REMOVE EXISTING 1" WATER SERVICE LINE AND METER

5 REMOVE TREE

6 REMOVE LIGHT POST (SEE ELECTRICAL SITE PLAN)

7 REMOVE SHRUBS AND LANDSCAPE EDGING

8 REMOVE STORM PIPING

9 REMOVE HVAC EQUIPMENT AND WOOD STAND (SEE MECHANICAL PLANS)

10 REMOVE EXISTING WOODEN FENCE

DEMOLITION LEGEND

× REMOVE TREE AND OTHER SITE FEATURE DEMOLITION

DEMOLITION OF ASPHALT / CONCRETE PAVEMENT, CONCRETE SIDEWALK

DEMOLITION OF CURB / CURB & GUTTER

DEMOLITION OF UTILITY LINES

NEW STORM DRAINAGE STRUCTURE DATA

A0 EXIST. VDOT DI-1
RIM= 35.43
INV. IN = 32.25 (12" RCP)
INV. OUT = 30.76 (EXIST. 12" STORM PIPE)

1	GENERAL REVISIONS Q1	01/21/16		
	DSN	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND NORFOLK NAVAL STATION
WALLOPS ISLAND, VA
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

DEMOLITION, SITE, AND UTILITY LAYOUT PLAN
205 AND 207 SKEETER LANE

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12708262

SHEET 10 OF 124

CS104

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\MILCON\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS104.dwg LAYOUT NAME: CS104 PLOTTED: Thursday, January 28, 2016 - 10:28pm USER: wesley.a.baker

NEW STORM DRAINAGE STRUCTURE DATA

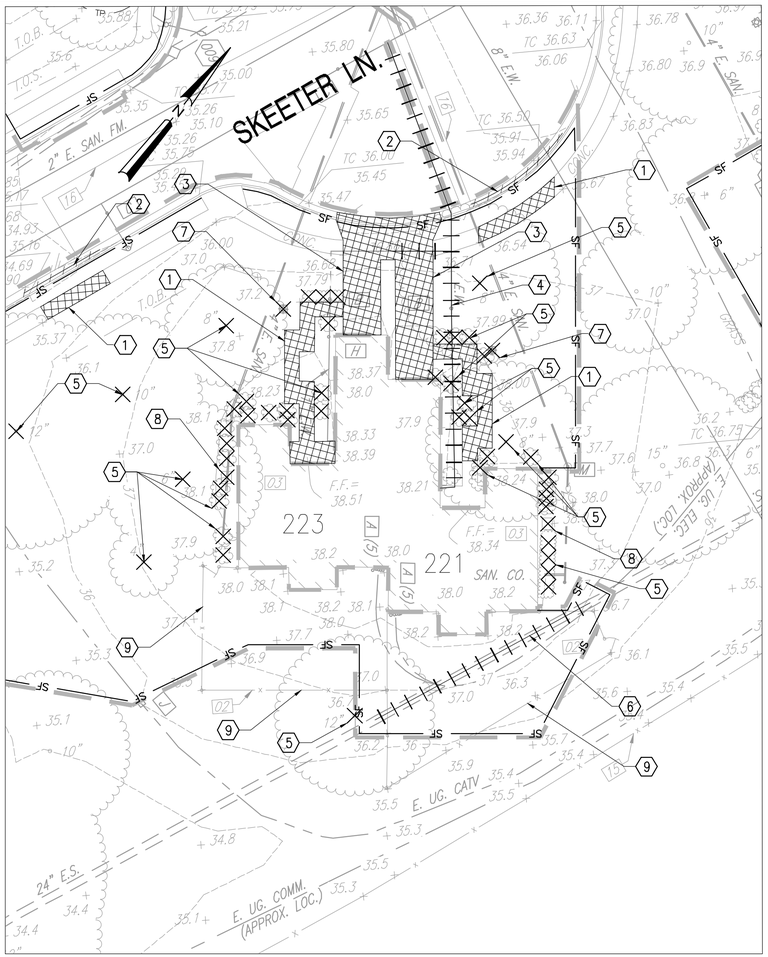
D0 VDOT STD DI-1
RIM= 36.30
INV. IN = 27.66 (24" RCP)
INV. OUT = 27.66 (24" STORM PIPE)

D2 VDOT STD DI-1
RIM= 36.70
INV. IN = 28.05 (24" STORM PIPE)
INV. OUT = 28.05 (24" RCP)

D1 TO D0
40 LF 24" RCP @ 0.52%

D1 VDOT STD DI-1
RIM= 36.00
INV. IN = 27.86 (24" RCP)
INV. OUT = 27.86 (24" RCP)

D2 TO D1
35 LF 24" RCP @ 0.52%

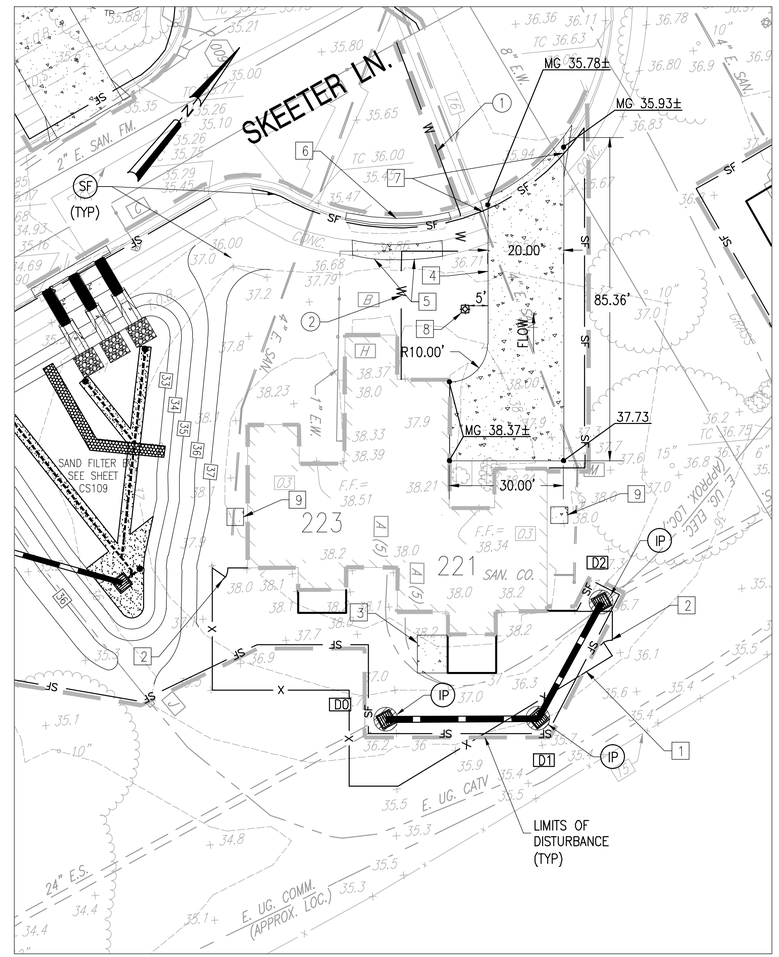


DEMOLITION PLAN - 221 AND 223 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE
0 20' 40'
1" = 20'



SITE AND UTILITY LAYOUT PLAN - 221 AND 223 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE
0 20' 40'
1" = 20'

1 REVISED ENTIRE SHEET

SHEET NOTES

1. SEE SHEET C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE ELECTRICAL DRAWING SHEETS FOR ELECTRICAL AND TELECOMMUNICATION LAYOUT.

UTILITY LAYOUT KEYNOTES

1 REPLACE EXISTING 1" WATER SERVICE LINE WITH 1.5" WATER SERVICE LINE WITHIN THE LIMITS OF DISTURBANCE SHOWN. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

2 EXTEND A 1.5" WATER SERVICE CONNECTION TO THE RESIDENCE AS SHOWN TO SUPPLY THE NEW FIRE SUPPRESSION SYSTEM. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

3 INSTALL NEW SANITARY SEWER CLEANOUT.

SITE LAYOUT KEYNOTES

1 REPLACE EXISTING WOODEN FENCE WITH 6' VINYL PRIVACY FENCE. INSTALL THE NEW FENCING PER THE NEW FENCE LIMITS SHOWN. SEE DETAIL A1, SHEET C-502.

2 INSTALL 4'-WIDE VINYL PRIVACY FENCE GATE

3 8'X10' CONCRETE PATIO – SEE DETAIL B1, SHEET C-502

4 20'-WIDE CONCRETE DRIVEWAY – SEE DETAIL A1, SHEET C-501

5 CONCRETE SIDEWALK – SEE DETAIL A3, SHEET C-501

6 CONCRETE CURB AND GUTTER – SEE DETAIL A3, SHEET C-502

7 2'-WIDE TRIANGULAR CONCRETE DRIVEWAY FLARE, TERMINATE FLARE AT EXISTING SIDEWALK

8 NEW LIGHT POST

9 4.5'X4.5' UTILITY PAD – SEE DETAIL D1, SHEET C-503

DEMOLITION KEYNOTES

1 REMOVE CONCRETE SIDEWALK

2 REMOVE CONCRETE CURB AND GUTTER

3 REMOVE CONCRETE DRIVEWAY

4 REMOVE EXISTING 1" WATER SERVICE LINE AND METER

5 REMOVE TREES AND SHRUBS

6 REMOVE EXISTING 24" STORM PIPE

7 REMOVE LIGHT POST (SEE ELECTRICAL SITE PLAN)

8 REMOVE HVAC EQUIPMENT AND WOOD STAND (SEE MECHANICAL PLANS)

9 REMOVE EXISTING WOODEN FENCE

DEMOLITION LEGEND

× REMOVE TREE AND OTHER SITE FEATURE DEMOLITION

DEMOLITION OF ASPHALT / CONCRETE PAVEMENT, CONCRETE SIDEWALK

DEMOLITION OF CURB / CURB & GUTTER

DEMOLITION OF UTILITY LINES

1	GENERAL REVISIONS Q1				01/21/16		APPR
						DATE	
						DESCRIPTION	
						SYM	

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
WALLOPS ISLAND, VA
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

DEMOLITION, SITE, AND UTILITY LAYOUT PLAN
221 AND 223 SKEETER LANE

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

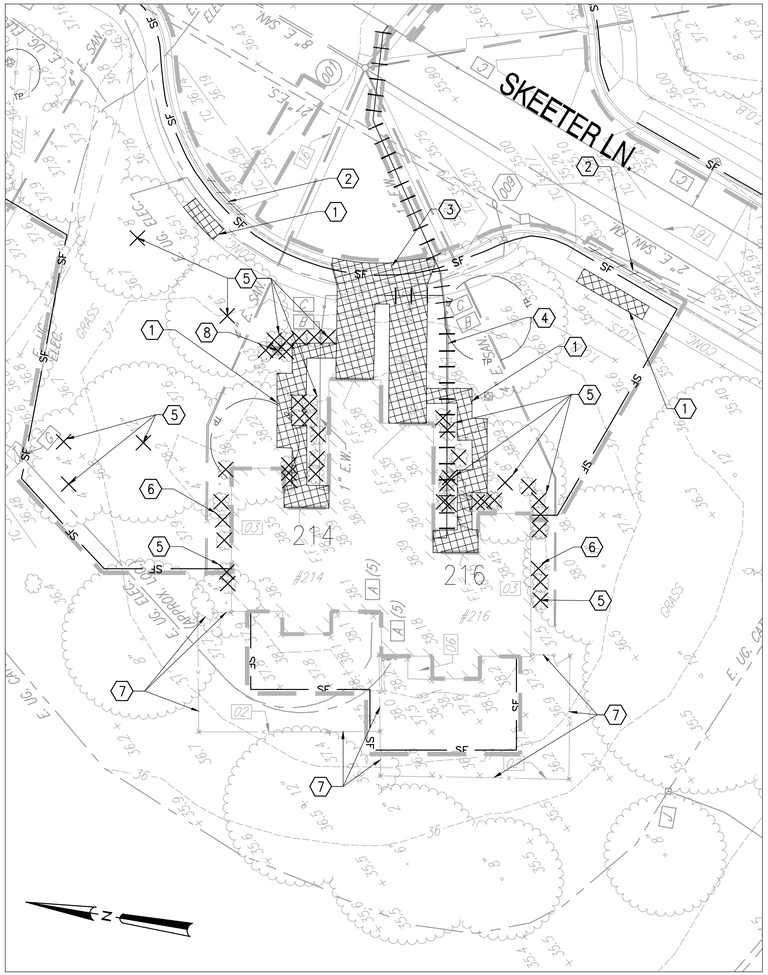
NAVFAC DRAWING NO.
12708263

SHEET 11 OF 124

CS105

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WILCON\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS105.dwg LAYOUT NAME: CS105 PLOTTED: Thursday, January 28, 2016 - 10:29pm USER: wesley.ebaker



DEMOLITION PLAN - 214 AND 216 SKEETER LANE

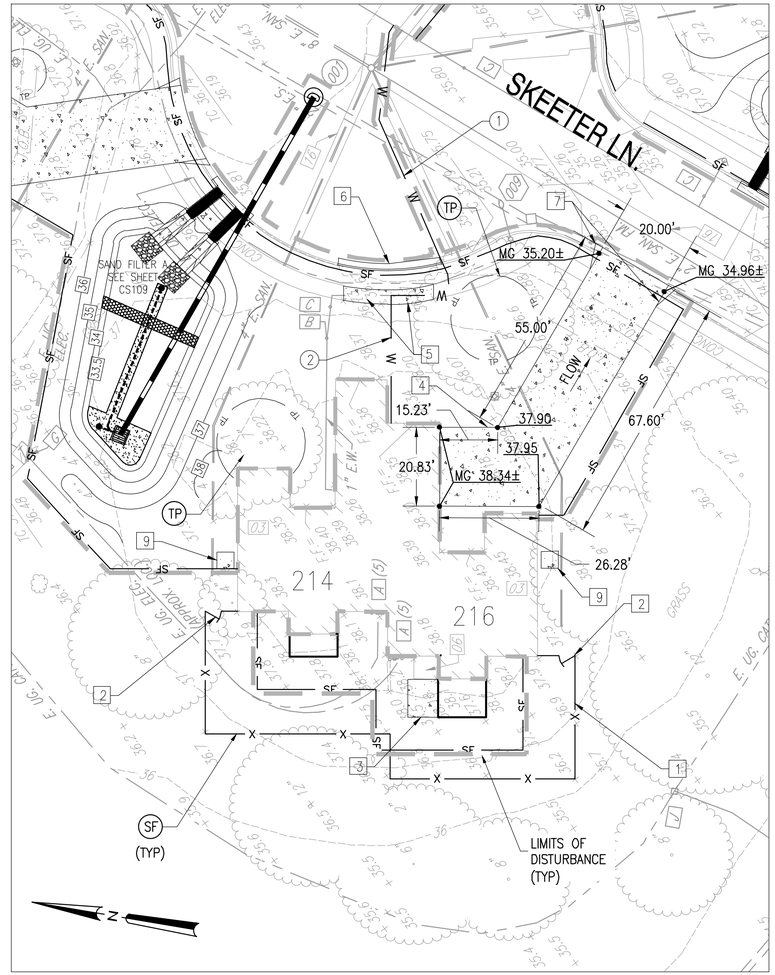
SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

0 20' 40'

1" = 20'



SITE AND UTILITY LAYOUT PLAN - 214 AND 216 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

0 20' 40'

1" = 20'

1 REVISED ENTIRE SHEET

SHEET NOTES

1. SEE SHEET C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE ELECTRICAL DRAWING SHEETS FOR ELECTRICAL AND TELECOMMUNICATION LAYOUT.

○ UTILITY LAYOUT KEYNOTES

1 REPLACE EXISTING 1" WATER SERVICE LINE WITH 1.5" WATER SERVICE LINE WITHIN THE LIMITS OF DISTURBANCE SHOWN. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

2 EXTEND A 1.5" WATER SERVICE CONNECTION TO THE RESIDENCE AS SHOWN TO SUPPLY THE NEW FIRE SUPPRESSION SYSTEM. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

3 INSTALL NEW SANITARY SEWER CLEANOUT.

☐ SITE LAYOUT KEYNOTES

1 REPLACE EXISTING WOODEN FENCE WITH 6' VINYL PRIVACY FENCE. INSTALL THE NEW FENCING PER THE NEW FENCE LIMITS SHOWN. SEE DETAIL A1, SHEET C-502.

2 INSTALL 4'-WIDE VINYL PRIVACY FENCE GATE

3 8'X10' CONCRETE PATIO – SEE DETAIL B1, SHEET C-502

4 20'-WIDE CONCRETE DRIVEWAY – SEE DETAIL A1, SHEET C-501

5 CONCRETE SIDEWALK – SEE DETAIL A3, SHEET C-501

6 CONCRETE CURB AND GUTTER – SEE DETAIL A3, SHEET C-502

7 2'-WIDE TRIANGULAR CONCRETE DRIVEWAY FLARE, TERMINATE FLARE AT EXISTING SIDEWALK

8 NEW LIGHT POST

9 4.5'X4.5' UTILITY PAD – SEE DETAIL D1, SHEET C-503

⬡ DEMOLITION KEYNOTES

1 REMOVE CONCRETE SIDEWALK

2 REMOVE CONCRETE CURB AND GUTTER

3 REMOVE CONCRETE DRIVEWAY

4 REMOVE EXISTING 1" WATER SERVICE LINE AND METER

5 REMOVE TREES, SHRUBS, AND LANDSCAPE EDGING

6 REMOVE HVAC EQUIPMENT AND WOOD STAND (SEE MECHANICAL PLANS)

7 REMOVE EXISTING WOODEN FENCE

8 REMOVE LIGHT POST (SEE ELECTRICAL SITE PLAN)

DEMOLITION LEGEND

× REMOVE TREE AND OTHER SITE FEATURE DEMOLITION

DEMOLITION OF ASPHALT / CONCRETE PAVEMENT, CONCRETE SIDEWALK

DEMOLITION OF CURB / CURB & GUTTER

DEMOLITION OF UTILITY LINES

1	GENERAL REVISIONS Q1				01/21/16		
		SYM	DESCRIPTION		DATE		APPR

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY

HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
WALLOPS ISLAND, VA

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

DEMOLITION, SITE, AND UTILITY LAYOUT PLAN
214 AND 216 SKEETER LANE

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

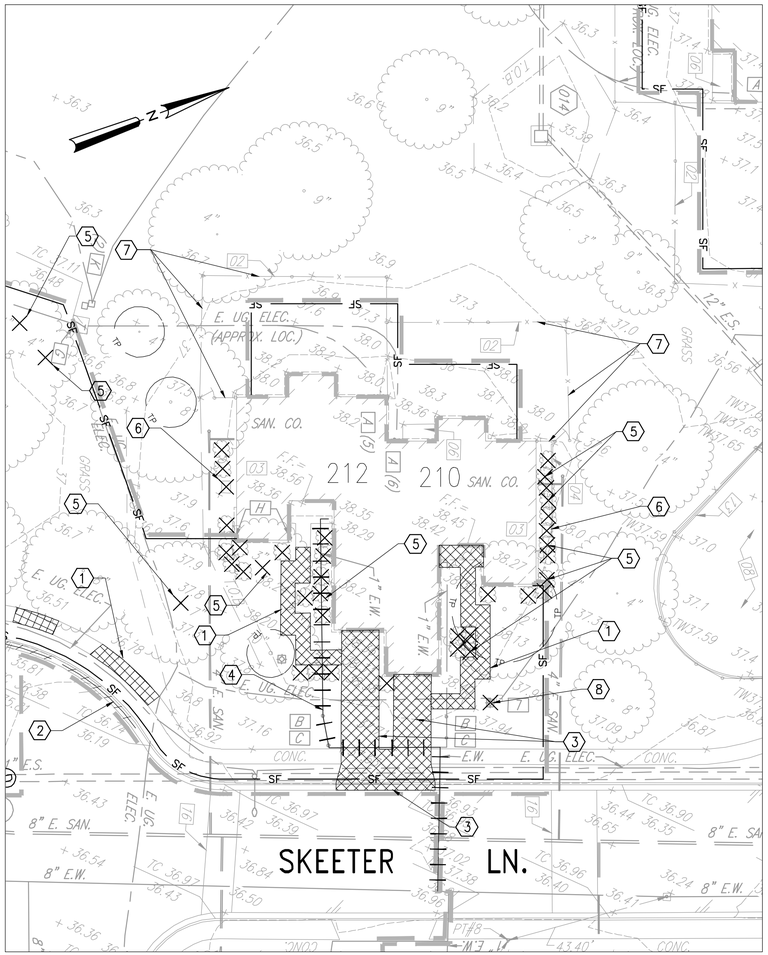
NAVFAC DRAWING NO.
12708264

SHEET 12 OF 124

CS106

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLCDN\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS106.dwg LAYOUT NAME: CS106 PLOTTED: Thursday, January 28, 2016 - 10:30pm USER: wesley.ebaker



DEMOLITION PLAN - 210 AND 212 SKEETER LANE

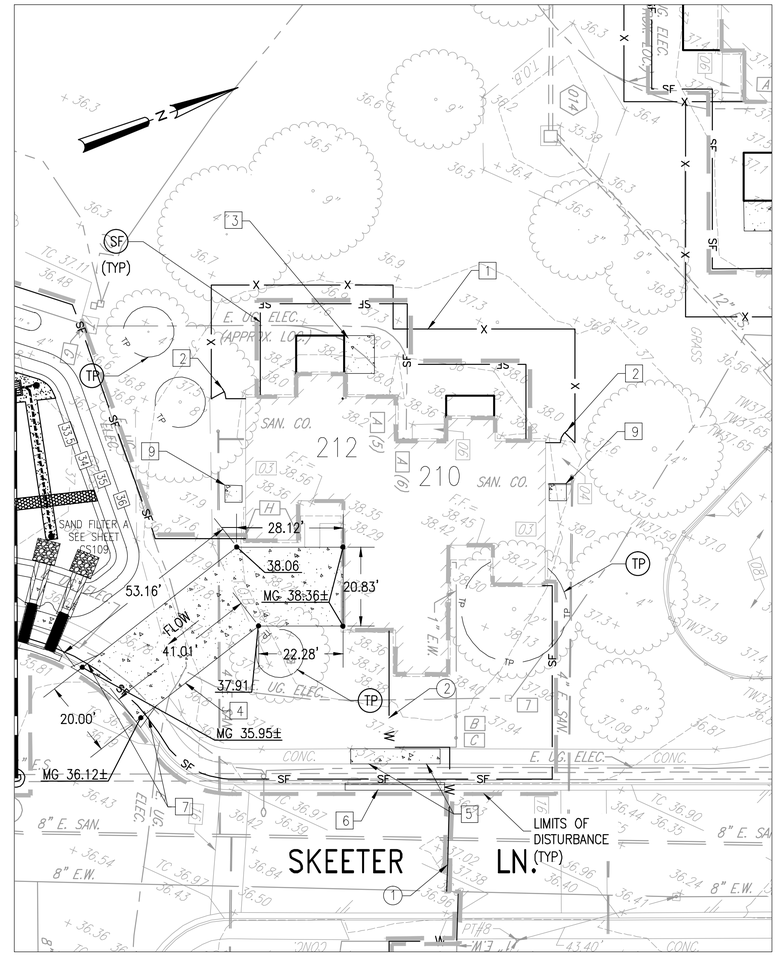
SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

0 20' 40'

1" = 20'



SITE AND UTILITY LAYOUT PLAN - 210 AND 212 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE

0 20' 40'

1" = 20'

△1 REVISED ENTIRE SHEET

SHEET NOTES

1. SEE SHEET C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE ELECTRICAL DRAWING SHEETS FOR ELECTRICAL AND TELECOMMUNICATION LAYOUT.

○ UTILITY LAYOUT KEYNOTES

1 REPLACE EXISTING 1" WATER SERVICE LINE WITH 1.5" WATER SERVICE LINE WITHIN THE LIMITS OF DISTURBANCE SHOWN. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

2 EXTEND A 1.5" WATER SERVICE CONNECTION TO THE RESIDENCE AS SHOWN TO SUPPLY THE NEW FIRE SUPPRESSION SYSTEM. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

3 INSTALL NEW SANITARY SEWER CLEANOUT.

□ SITE LAYOUT KEYNOTES

1 REPLACE EXISTING WOODEN FENCE WITH 6' VINYL PRIVACY FENCE. INSTALL THE NEW FENCING PER THE NEW FENCE LIMITS SHOWN. SEE DETAIL A1, SHEET C-502.

2 INSTALL 4'-WIDE VINYL PRIVACY FENCE GATE

3 8'X10' CONCRETE PATIO – SEE DETAIL B1, SHEET C-502

4 20'-WIDE CONCRETE DRIVEWAY – SEE DETAIL A1, SHEET C-501

5 CONCRETE SIDEWALK – SEE DETAIL A3, SHEET C-501

6 CONCRETE CURB AND GUTTER – SEE DETAIL A3, SHEET C-502

7 2'-WIDE TRIANGULAR CONCRETE DRIVEWAY FLARE, TERMINATE FLARE AT EXISTING SIDEWALK

8 NEW LIGHT POST

9 4.5'X4.5' UTILITY PAD – SEE DETAIL D1, SHEET C-503

⬡ DEMOLITION KEYNOTES

1 REMOVE CONCRETE SIDEWALK

2 REMOVE CONCRETE CURB AND GUTTER

3 REMOVE CONCRETE DRIVEWAY

4 REMOVE EXISTING 1" WATER SERVICE LINE AND METER

5 REMOVE TREES, SHRUBS, AND LANDSCAPE EDGING

6 REMOVE HVAC EQUIPMENT AND WOODEN STAND (SEE MECHANICAL PLANS)

7 REMOVE EXISTING WOODEN FENCE

8 REMOVE LIGHT POST (SEE ELECTRICAL SITE PLAN)

DEMOLITION LEGEND

× REMOVE TREE AND OTHER SITE FEATURE DEMOLITION

DEMOLITION OF ASPHALT / CONCRETE PAVEMENT, CONCRETE SIDEWALK

DEMOLITION OF CURB / CURB & GUTTER

DEMOLITION OF UTILITY LINES

SYM	DESCRIPTION	DATE	APPR
△1	GENERAL REVISIONS Q1	01/21/16	---

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
WALLOPS ISLAND, VA
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

DEMOLITION, SITE, AND UTILITY LAYOUT PLAN 210 AND 212 SKEETER LANE

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12708265

SHEET 13 OF 124

CS107

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\MILCON\2016_1366573_P1602_JBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS107.dwg LAYOUT NAME: CS107 PLOTTED: Thursday, January 28, 2016 - 10:31pm USER: wesley.ebaker

NEW STORM DRAINAGE STRUCTURE DATA

E0 EXIST. VDOT STD DI-3A
RIM = 36.40
INV. IN = 32.70 (6" PVC)
INV. OUT = 30.70 (12" EXIST. STORM PIPE)

E1 TO E0
13 LF 6" PVC @ 4.54%

E1 WYE-CONNECTION
INV. = 33.29

E2 TO E1
37 LF 6" PVC @ 2.22%

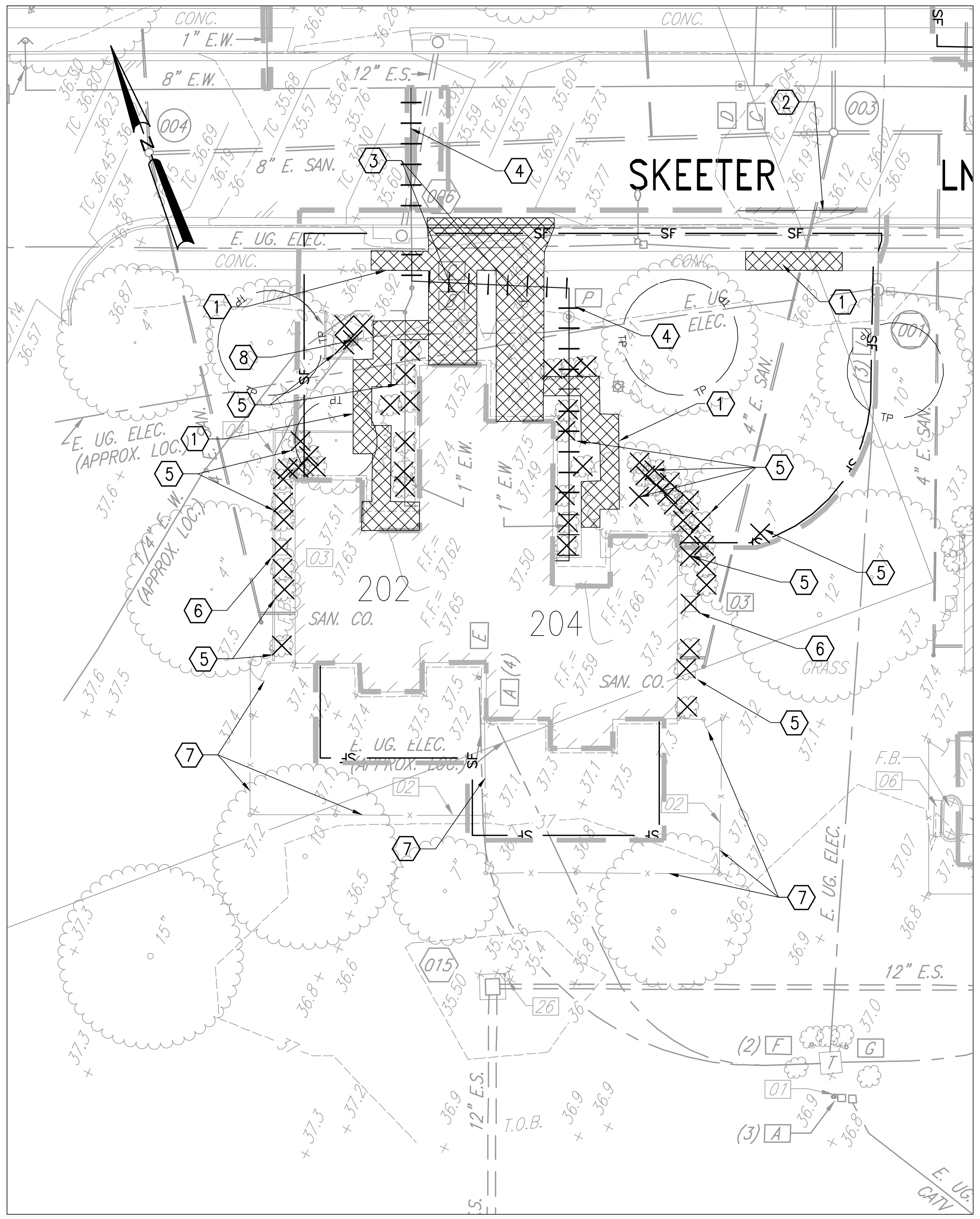
E2 STORM CLEANOUT
RIM = 37.40
INV. = 34.11

E3 YARD DRAIN BASIN W/ PEDESTRIAN GRATE
RIM = 37.90
INV. OUT = 35.40 (6" PVC)

E3 TO E2
58 LF 6" PVC @ 2.22%

E4 YARD DRAIN BASIN W/ PEDESTRIAN GRATE
RIM = 37.90
INV. OUT = 35.40 (6" PVC)

E4 TO E1
46 LF 6" PVC @ 4.58%

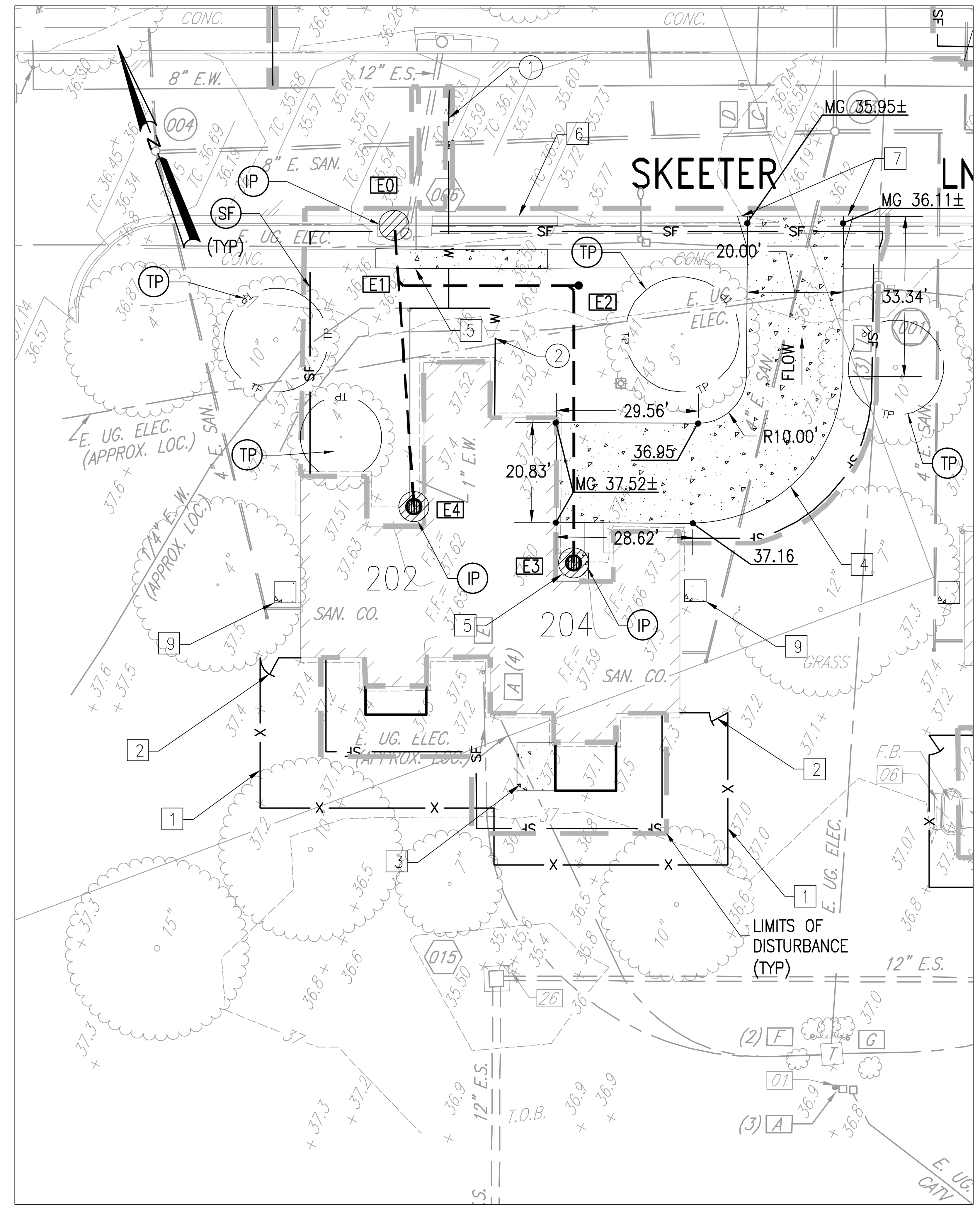


DEMOLITION PLAN - 202 AND 204 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE
0 20' 40'
1" = 20'



SITE AND UTILITY LAYOUT PLAN - 202 AND 204 SKEETER LANE

SCALE: 1" = 20'

PLAN NORTH

GRAPHIC SCALE
0 20' 40'
1" = 20'

REVISED ENTIRE SHEET

SHEET NOTES

1. SEE SHEET C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE ELECTRICAL DRAWING SHEETS FOR ELECTRICAL AND TELECOMMUNICATION LAYOUT.

○ UTILITY LAYOUT KEYNOTES

1 REPLACE EXISTING 1" WATER SERVICE LINE WITH 1.5" WATER SERVICE LINE WITHIN THE LIMITS OF DISTURBANCE SHOWN. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

2 EXTEND A 1.5" WATER SERVICE CONNECTION TO THE RESIDENCE AS SHOWN TO SUPPLY THE NEW FIRE SUPPRESSION SYSTEM. REPLACE ALL PAVEMENT, SIDEWALK, CURB AND GUTTER, AND DRIVEWAYS IMPACTED BY THE SERVICE LINE INSTALLATION.

3 INSTALL NEW SANITARY SEWER CLEANOUT.

□ SITE LAYOUT KEYNOTES

1 REPLACE EXISTING WOODEN FENCE WITH 6' VINYL PRIVACY FENCE. INSTALL THE NEW FENCING PER THE NEW FENCE LIMITS SHOWN. SEE DETAIL A1, SHEET C-502.

2 INSTALL 4'-WIDE VINYL PRIVACY FENCE GATE

3 8'X10' CONCRETE PATIO - SEE DETAIL B1, SHEET C-502

4 20'-WIDE CONCRETE DRIVEWAY - SEE DETAIL A1, SHEET C-501

5 CONCRETE SIDEWALK - SEE DETAIL A3, SHEET C-501

6 CONCRETE CURB AND GUTTER - SEE DETAIL A3, SHEET C-502

7 2'-WIDE TRIANGULAR CONCRETE DRIVEWAY FLARE, TERMINATE FLARE AT EXISTING SIDEWALK

8 NEW LIGHT POST

9 4.5'X4.5' UTILITY PAD - SEE DETAIL D1, SHEET C-503

⬡ DEMOLITION KEYNOTES

1 REMOVE CONCRETE SIDEWALK

2 REMOVE CONCRETE CURB AND GUTTER

3 REMOVE CONCRETE DRIVEWAY

4 REMOVE EXISTING 1" WATER SERVICE LINE AND METER

5 REMOVE TREES, SHRUBS, AND LANDSCAPE EDGING

6 REMOVE HVAC EQUIPMENT AND WOOD STAND (SEE MECHANICAL PLANS)

7 REMOVE EXISTING WOODEN FENCE

8 REMOVE LIGHT POST (SEE ELECTRICAL SITE PLAN)

DEMOLITION LEGEND

Symbol	Description
X	REMOVE TREE AND OTHER SITE FEATURE DEMOLITION
(crosshatch)	DEMOLITION OF ASPHALT / CONCRETE PAVEMENT, CONCRETE SIDEWALK
(hatched line)	DEMOLITION OF CURB / CURB & GUTTER
(ticked line)	DEMOLITION OF UTILITY LINES

SYM	DESCRIPTION	DATE	APPR
1	GENERAL REVISIONS 01	01/21/16	---

NAVFAC

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A/E INFO

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ACTIVITY
HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY
DES BSS DRW BSS CHK
JTL/APK JTL/APK
BRANCH MANAGER BJL
CHIEF ENG/ARCH RLW
FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT NORFOLK NAVAL STATION
SURFACE COMBAT SYSTEM CENTER WALLOPS ISLAND, VA
P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING
DEMOLITION, SITE, AND UTILITY LAYOUT PLAN
202 AND 204 SKEETER LANE

SCALE: AS SHOWN
EPROJECT NO.: 1366573
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12708266
SHEET 14 OF 124
CS108

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\MILCON\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS108.dwg LAYOUT NAME: CS108 PLOTTED: Thursday, January 28, 2016 - 10:32pm USER: wesley.a.baker

NEW STORM DRAINAGE STRUCTURE DATA

F0 VDOT STD MH-1
RIM = 36.20
INV. IN = 28.95 (15" RCP)
INV. IN = 28.55± (21" STORM PIPE)
INV. OUT = 28.55± (21" STORM PIPE)

F1 TO **F0**
103 LF 15" RCP @ 0.53%

F1 FILTER OUTLET STRUCTURE A
RIM = 34.00
INV. IN = 31.50 (6" PERF. PVC PIPE)
INV. OUT = 29.50 (15" RCP PIPE)

G0 EXIST. CURB INLET
RIM = 33.99
INV. IN = 29.55 (15" RCP)
INV. OUT = 29.50 (15" PLASTIC)

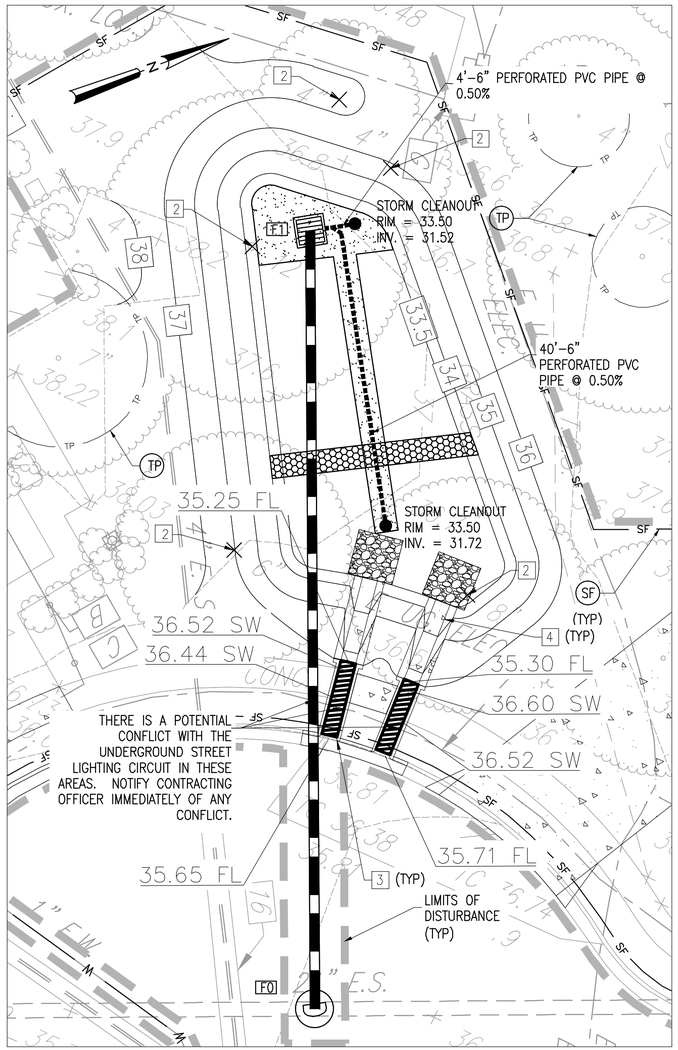
G1 TO **G0**
13 LF 15" RCP @ 0.38%

G1 VDOT STD MH-1
RIM = 34.70
INV. IN = 29.60 (15" RCP)
INV. OUT = 29.60 (15" RCP)

G2 FILTER OUTLET STRUCTURE B
RIM = 33.50
INV. IN = 31.00 (6" PERF. PVC PIPE)
INV. OUT = 29.95 (15" RCP PIPE)

G2 TO **G1**
89 LF 15" RCP @ 0.39%

△1 NEW SHEET

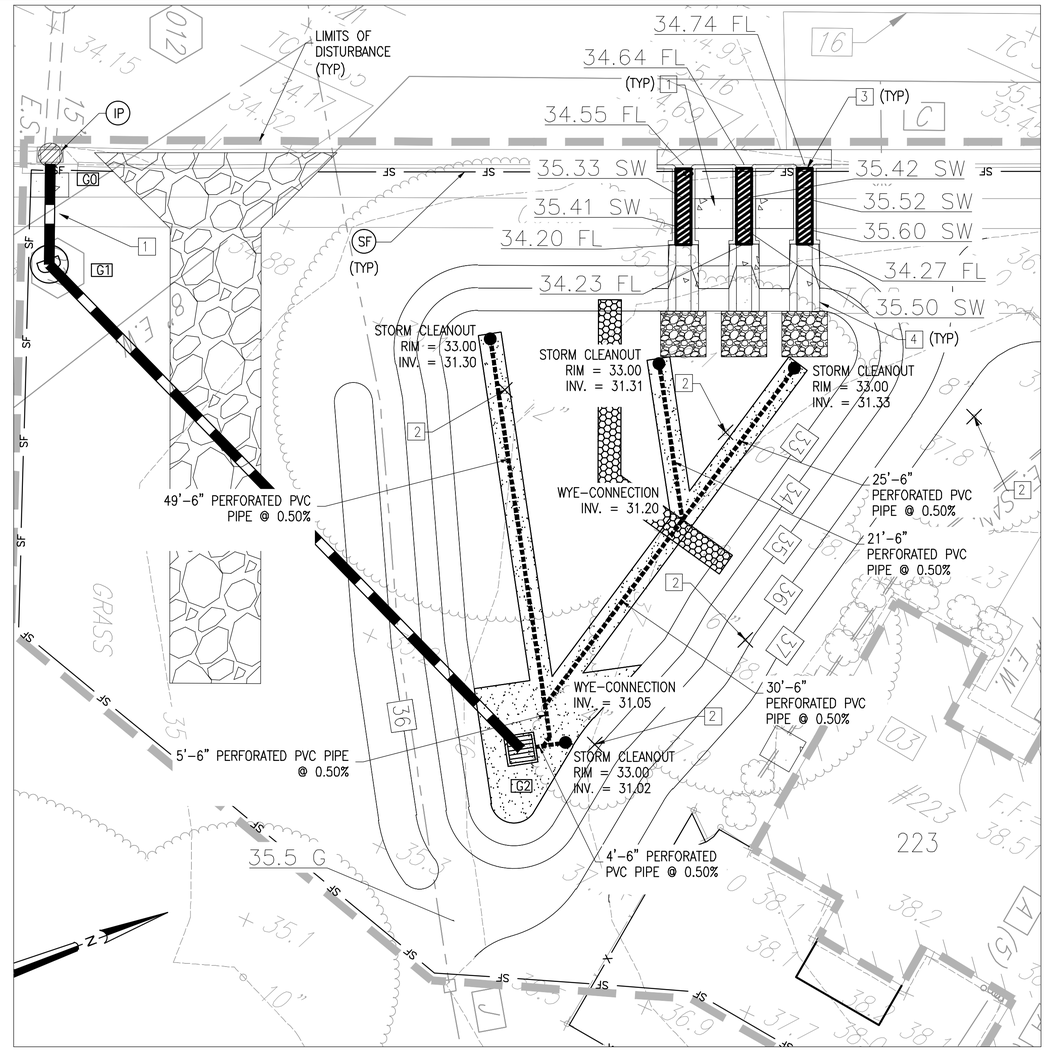


SAND FILTER A

SCALE: 1" = 10'

PLAN NORTH

GRAPHIC SCALE
0 10' 20'
1" = 10'



SAND FILTER B

SCALE: 1" = 10'

PLAN NORTH

GRAPHIC SCALE
0 10' 20'
1" = 10'

SHEET NOTES

1. SEE SHEETS C-001 AND C-003 FOR GENERAL NOTES, SURVEY NOTES, DEMOLITION NOTES, AND LEGEND.
2. SEE SHEET C-002 FOR OVERALL SITE PLAN AND EROSION & SEDIMENT CONTROL LEGEND.
3. SEE SHEETS C-504 AND C-505 FOR SAND FILTER DETAILS.

SITE LAYOUT KEYNOTES

1 REPLACE EXISTING SIDEWALK – SEE DETAIL A3, SHEET C-501
2 REMOVE TREE
3 SIDEWALK TRENCH DRAIN – SEE DETAIL B1, SHEET C-503
4 CONCRETE FLUME – SEE DETAIL A1, SHEET C-503

DEMOLITION LEGEND

× REMOVE TREE AND OTHER SITE FEATURE DEMOLITION

1	GENERAL REVISIONS 01	01/21/16	---	---
SYM	DESCRIPTION	DATE	APPR	

NAVFAC

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ACTIVITY
HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY
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BRANCH MANAGER
CHIEF ENG/ARCH RLW
FIRE PROTECTION DPS

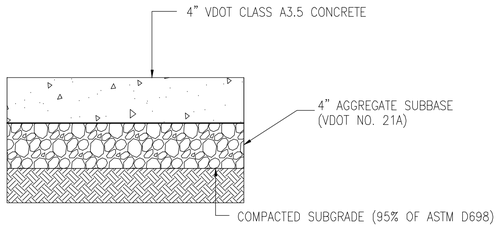
DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND NORFOLK NAVAL STATION
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
WALLOPS ISLAND, VA
P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING
SAND FILTERS A AND B

SCALE: AS SHOWN
EPROJECT NO.: 1366573
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12708374
SHEET 122 OF 124

CS109

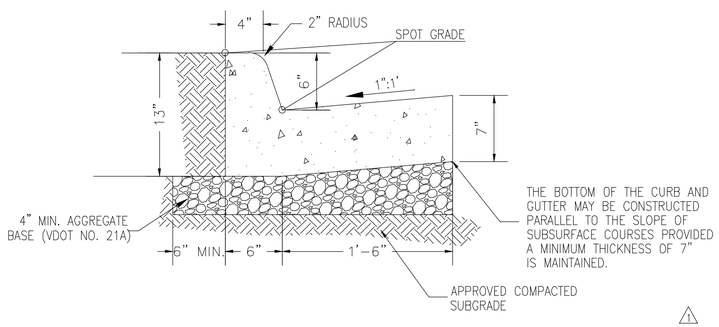
DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLCDN\2016_1366573_P1602_DBB_SheetetLineRenovationNConversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-CS109.dwg LAYOUT NAME: CS109 PLOTTED: Thursday, January 28, 2016 - 10:33pm USER: wesley.ashker



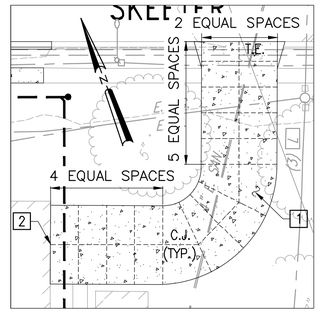
B1 CONCRETE PATIO SECTION

NOT TO SCALE

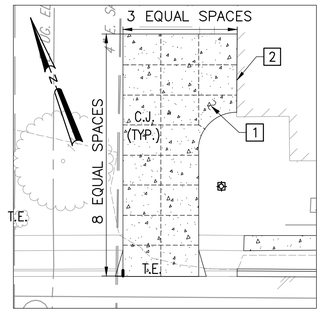


A3 CONCRETE CURB AND GUTTER DETAILS

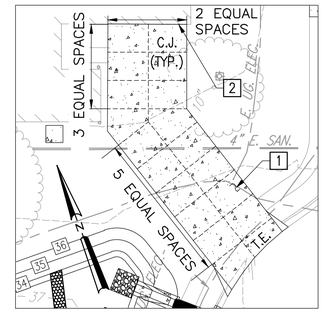
NOT TO SCALE



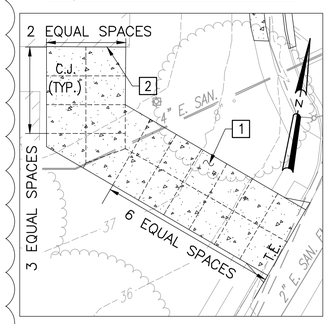
202/204 SKEETER LANE DRIVEWAY



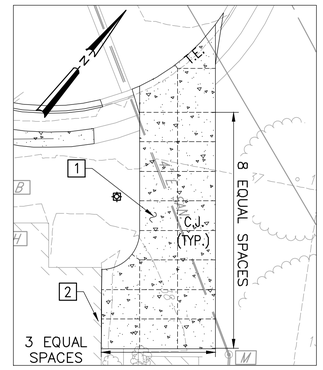
205/207 SKEETER LANE DRIVEWAY



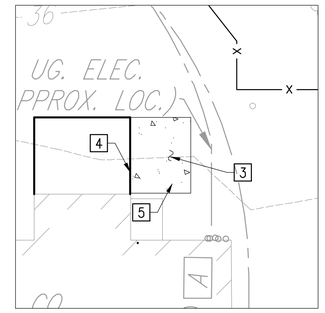
210/212 SKEETER LANE DRIVEWAY



214/216 SKEETER LANE DRIVEWAY



221/223 SKEETER LANE DRIVEWAY



TYPICAL PATIO

B2 CONCRETE PAVEMENT JOINT LAYOUT PLANS

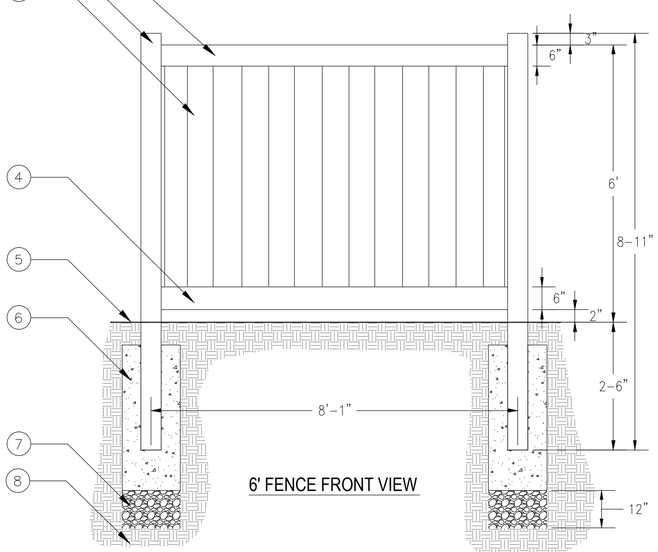
DRIVEWAY DETAILS: 1" = 20', TYPICAL PATIO: 1" = 10'

KEYNOTES

1. CONCRETE DRIVEWAY – SEE DETAIL A1, SHEET C-501 FOR CONCRETE DRIVEWAY SECTION AND DETAIL C1, SHEET C-503 FOR JOINT DETAILS.
2. PROVIDE 3/4" JOINT FILLER AND SEALANT WHERE CONCRETE DRIVEWAY ABUTS CONCRETE PAD, CURBING, AND FACE OF BUILDING/FOUNDATION. SEE EXPANSION JOINT DETAIL C1, SHEET C-503 FOR PLACEMENT OF JOINT FILLER AND SEALANT.
3. CONCRETE PATIO – SEE DETAIL B1, THIS SHEET FOR FOR CONCRETE PATIO SECTION.
4. CONCRETE PATIO EXPANSION JOINT – SEE STRUCTURAL PLANS FOR DETAILS.
5. PROVIDE POSITIVE DRAINAGE AWAY FROM HOUSE

JOINT ABBREVIATIONS

E.J.	EXPANSION JOINT
C.J.	CONTRACTION JOINT
T.E.	THICKENED EDGE



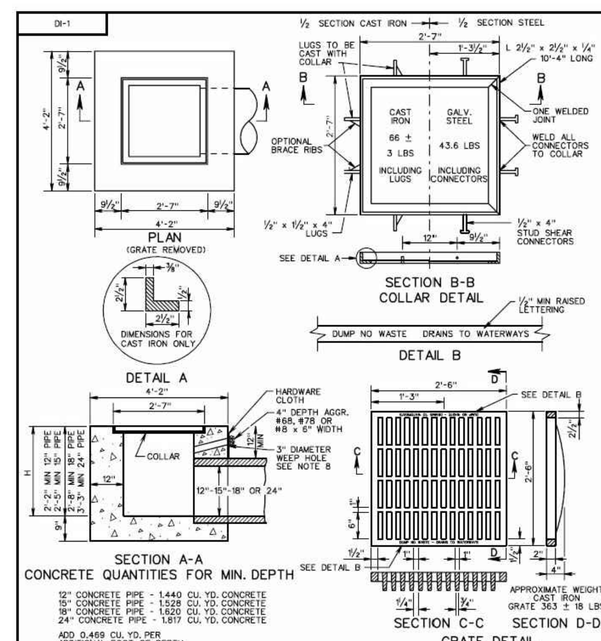
6' FENCE FRONT VIEW

1. POLYVINYL CHLORIDE 2" X 6" TOP RAIL WITH MIN. 0.090" WALL THICKNESS
2. POLYVINYL CHLORIDE 5" X 5" EXTRUDED POT WITH MIN. 0.170" WALL THICKNESS PRE-ROUTED TO RECEIVE RAILS. PROVIDE MATCHING POST CAPS, MOLDED ONE PIECE.
3. POLYVINYL CHLORIDE 7/8" X 7" EXTRUDED FENCE PICKETS WITH MIN. 0.060" WALL THICKNESS. PICKETS ARE FULL PRIVACY WITH 13 PICKETS PER SECTION.
4. POLYVINYL CHLORIDE 2"x6" BOTTOM RAIL WITH MIN. 0.090" WALL THICKNESS
5. FINISH GRADE. SEE CIVIL DRAWINGS.
6. CONCRETE FOOTINGS TO SUPPORT FENCE, POSTS AND GATES.
7. AGGREGATE BASE UNDER FOOTING
8. COMPACTED SUBGRADE

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURE'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. FENCE COLOR TO BE WHITE.
4. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL. SHOP DRAWINGS TO INCLUDE FENCE AND GATE DETAILS INCLUDING FASTENERS.

A1 6' VINYL PRIVACY FENCE

NOT TO SCALE



NOTES

1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS. FOR DEPTH GREATER THAN 10' USE STANDARD DI-1A
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO INLET SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. #4 X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT SETTLEMENT. IN LIEU OF DOWELS A 2"X4" NOTCH MAY BE PROVIDED. SEE STANDARD T-DI-3, 4 FOR ALTERNATE DESIGN.
8. 3" DIAMETER WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH 1/4" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.03", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. CAST IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
10. ANY ALTERNATE METHODS OF ANCHORAGE MEETING THE APPROVAL OF THE ENGINEER MAY BE SUBSTITUTED FOR THE CAST IRON LUGS AS SHOWN HEREON.
11. DUMP NO WASTE DRAINS TO WATERWAY LETTERING IS REQUIRED ON ALL DI-1 GRATES. LOCATION OF LETTERING MAY VARY BY MANUFACTURER.

VDOT ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1	REVISION DATE
104.01	

STANDARD DROP INLET
12" - 24" PIPE: MAXIMUM DEPTH (H) = 10'
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE: 233, 302

1	GENERAL REVISIONS 01	01/21/16	—
	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

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ACTIVITY: HERM ROLLINGS
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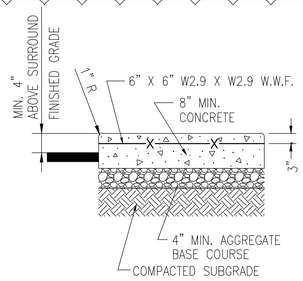
JTL/APK JTL/APK
BRANCH MANAGER BJL
CHIEF ENG/ARCH RLW
FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
HAMPTON ROADS IPT
NORFOLK NAVAL STATION
WALLOPS ISLAND, VA
SURFACE COMBAT SYSTEM CENTER
P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING
CIVIL DETAILS

SCALE: AS SHOWN
EPROJECT NO.: 1366573
CONSTR. CONTR. NO.
NAVFAC DRAWING NO. 12708268
SHEET 16 OF 124
C-502

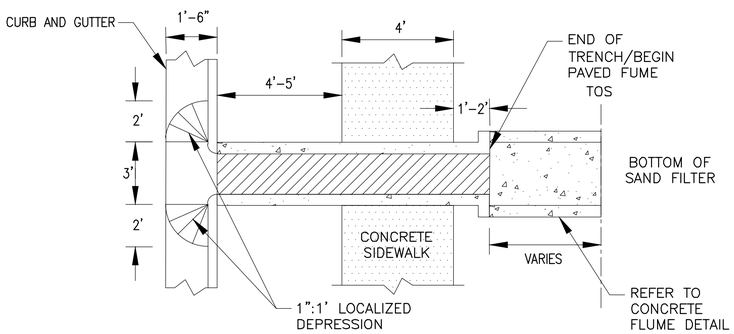
DRAWFORM REVISION: 10 MARCH 2009

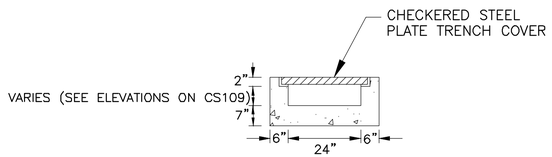
FILE NAME: P:\VA\Wallops Island\MILCON\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-C-502.dwg LAYOUT NAME: C-502 PLOTTED: Thursday, January 28, 2016 - 10:34pm USER: wesley.abaker



D1 CONCRETE UTILITY PAD

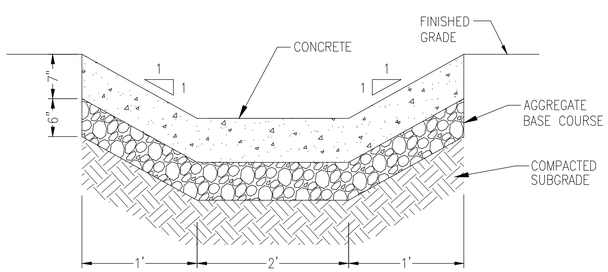
NOT TO SCALE





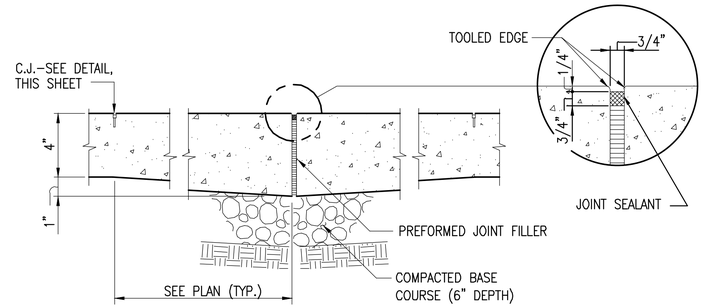
B1 SIDEWALK TRENCH DRAIN

NOT TO SCALE

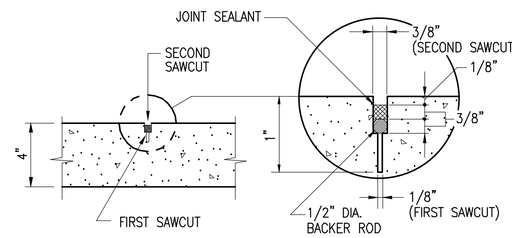


A1 CONCRETE FLUME

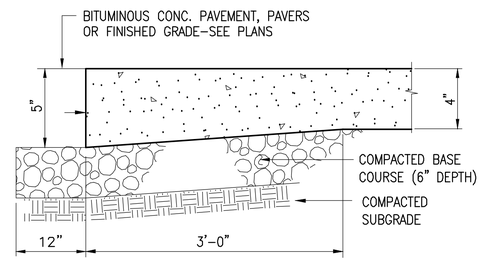
NOT TO SCALE



EXPANSION JOINT (E.J.)



CONTRACTION JOINT (C.J.)



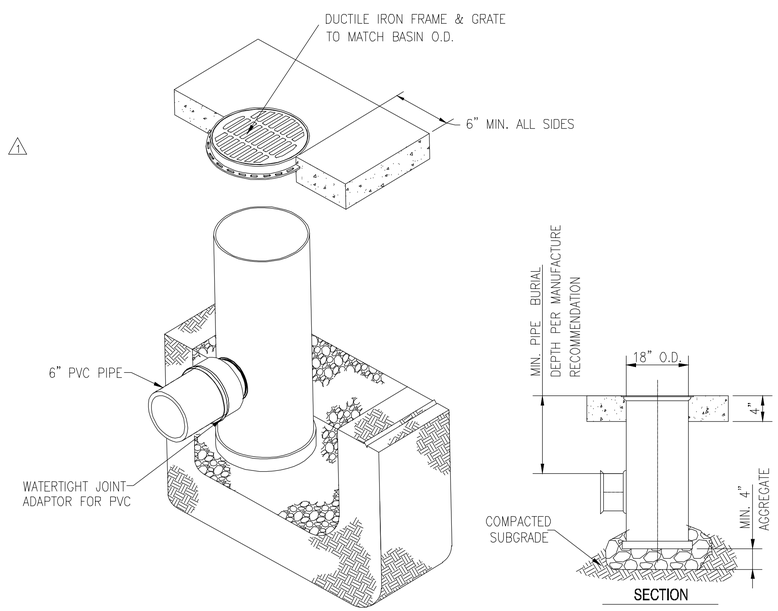
THICKENED EDGE (T.E.)

NOTES

1) FOR CONCRETE DRIVEWAY SECTION, SEE DETAIL A1, SHEET C-501.
2) FOR CONCRETE JOINT LAYOUT, SEE DETAIL B2, SHEET C-502.

C1 CONCRETE JOINT DETAILS

NOT TO SCALE



C2 YARD DRAIN BASIN

NOT TO SCALE

1	GENERAL REVISIONS 01	01/21/16	---	
SYM	DESCRIPTION	DATE	APPR.	

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BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
WALLOPS ISLAND, VA

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

CIVIL DETAILS

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

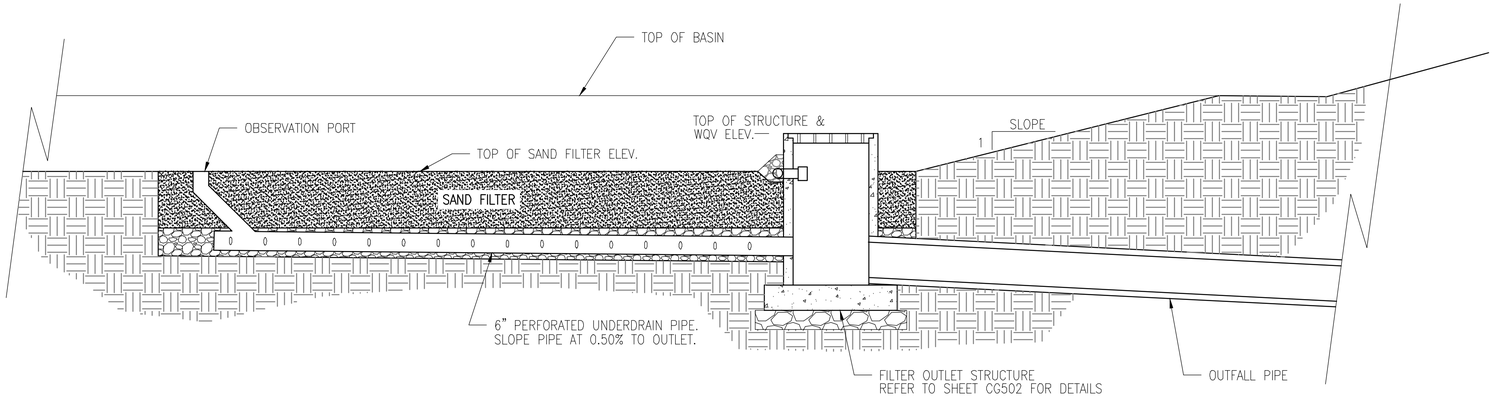
NAVFAC DRAWING NO. 12708269

SHEET 17 OF 124

C-503

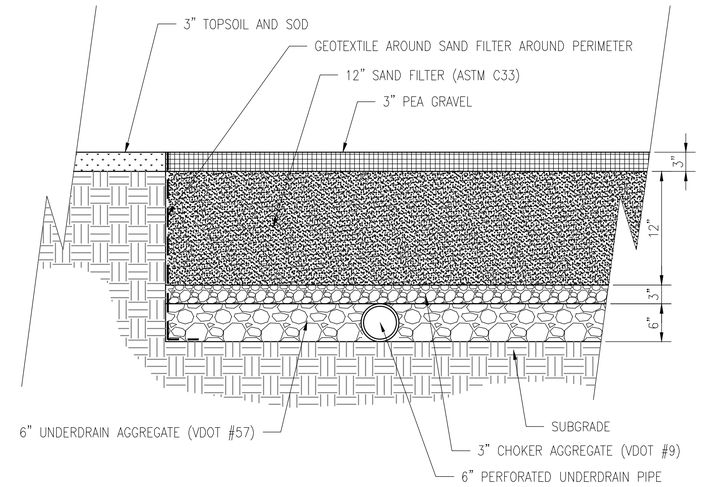
DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WILCON\2016_1366573_P1602_DBB_SkeeterLaneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-C-503.dwg LAYOUT NAME: C-503 PLOTTED: Thursday, January 28, 2016 - 10:35pm USER: westley.abaker



SAND FILTER - BASIN SECTION

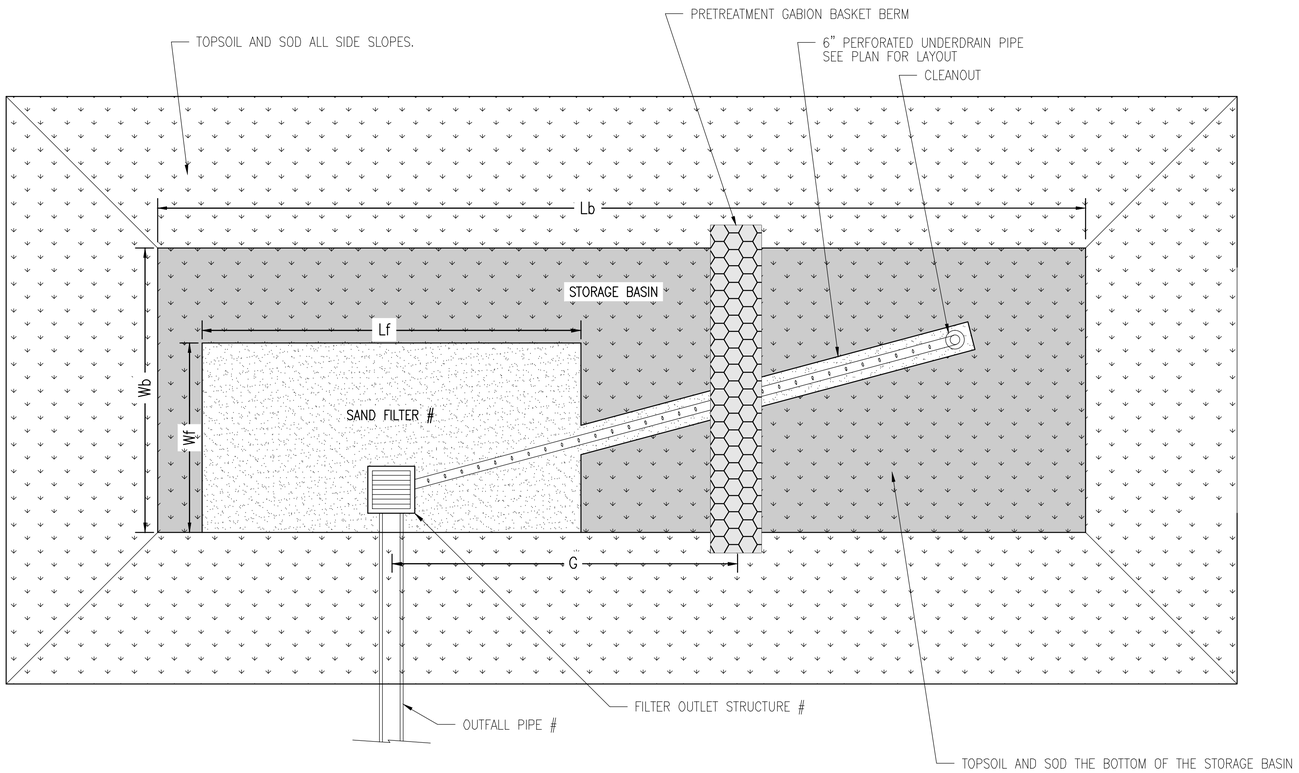
NOT TO SCALE



NOTE: 1. GEOTEXTILE FABRIC FOR SAND FILTER SHALL MEET 2007 VDOT ROAD AND BRIDGE SPECIFICATIONS FOR STABILIZATION FABRICS, SECTION 245.
2. UNDERDRAIN PIPES MUST COMPLY WITH AASHTO M252 AND ASTM F405. UNDERDRAIN PIPES SHALL MEET ASTM F758 (3/8"ø)

SAND FILTER - FILTER SECTION

NOT TO SCALE



SAND FILTER		
FILTER NUMBER (#)	A	B
TYPE	LEVEL 1	LEVEL 1
Lb	SEE PLAN	SEE PLAN
Wb	SEE PLAN	SEE PLAN
Lf	SEE PLAN	SEE PLAN
Wf	SEE PLAN	SEE PLAN
SIDE SLOPE	3H:1V MAX.	3H:1V MAX.
TOP OF PEA GRAVEL ELEV.	33.50'	33.00'
WATER QUALITY ELEV. (WQE)	34.00'	33.50'
TOP OF BASIN ELEV.	36.00'	35.00'
BOT. OF UNDERDRN ELEV.	31.50'	31.00'
SEASONAL HIGH GW ELEV.	26.00'	26.00'
UNDERDRAIN INVT ELEV UP	SEE PLAN	SEE PLAN
DN	SEE PLAN	SEE PLAN

SAND FILTER – HYDROLOGIC INFORMATION		
FILTER NUMBER (#)	A	B
PERVIOUS AREA (AC)	0.18 AC	0.35 AC
IMPERVIOUS AREA (AC)	0.15 AC	0.34 AC
TOTAL DRAINAGE AREA (AC)	0.33 AC	0.69 AC
WATER QUALITY VOLUME (CF)	613 CF	1152 CF
WATER SURFACE ELEV. (FT)		
2	TBD	TBD
10	TBD	TBD
100	TBD	TBD

NOTES:
1. BASIN PLAN SHOWN IS SCHEMATIC. REFER TO CS109 FOR SAND FILTER BASIN ORIENTATION AND LAYOUT AND SITE SPECIFIC GRADING REQUIREMENTS.
2. REFER TO SHEET CG502 FOR STRUCTURE DETAILS AND TABLES.
3. SUBSURFACE BORINGS IN THE VICINITY OF THE INFILTRATION TRENCH INDICATED SEASONAL HIGH GROUNDWATER ELEVATIONS AS SHOWN ON THE SAND FILTER TABLE. GROUNDWATER ELEVATIONS MAY VARY DURING CONSTRUCTION.
4. SEE "SECTION 8: CONSTRUCTION" ON SHEET CG502 FOR SPECIFIC SAND FILTER CONSTRUCTION PHASING REQUIREMENTS.

1 NEW SHEET

SAND FILTER - SCHEMATIC BASIN PLAN

NOT TO SCALE

SYM	DESCRIPTION	DATE	APPR
1	GENERAL REVISIONS 01	01/21/16	---

NAVFAC

SEAL

A/E INFO

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JTL/APK JTL/APK

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WALLOPS ISLAND, VA

P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING

CIVIL DETAILS

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12708375

SHEET 123 OF 124

C-504

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLCDN\2016_1366573_P1602_DBB_Skeeter\Conversion&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-C-504.dwg LAYOUT NAME: C-504 PLOTTED: Thursday, January 28, 2016 - 10:35pm USER: westley.abaker

LONG-TERM MAINTENANCE AND INSPECTION OF STORMWATER MANAGEMENT FACILITIES
THE NAVAL STATION NORFOLK NAVFAC ENVIRONMENTAL COMPLIANCE REPRESENTATIVE WILL BE RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF PROJECT STORMWATER MANAGEMENT FACILITIES.
MAINTENANCE INSPECTIONS SHOULD BE CONDUCTED WITHIN 24 HOURS FOLLOWING A STORM THAT EXCEEDS $\frac{1}{2}$" OF RAINFALL TO EVALUATE THE CONDITION AND PERFORMANCE OF THE FILTERING PRACTICE, INCLUDE CHECKING FOR THE FOLLOWING: • CHECK TO SEE IF SEDIMENT ACCUMULATION IN THE SEDIMENTATION CHAMBER HAS EXCEEDED 6 INCHES. • CHECK TO SEE IF INLETS AND FLOW SPLITTERS ARE CLEAR OF DEBRIS AND ARE OPERATING PROPERLY. • CHECK THE DRY SEDIMENT CHAMBER AND SAND FILTER BED FOR ANY EVIDENCE OF STANDING WATER OR PONDING MORE THAN 48 HOURS AFTER A STORM. • DIG A SMALL TEST PIT IN THE SAND FILTER BED TO DETERMINE WHETHER THE FIRST 3 INCHES OF SAND ARE VISIBLY DISCOLORED AND NEED REPLACEMENT. • INSPECT WHETHER THE CONTRIBUTING AREA TO THE FILTER IS STABLE AND NOT A SOURCE OF SEDIMENT. • CHECK WHETHER THE TURF ON THE FILTER BED AND BUFFER IS MORE THAN 12 INCHES HIGH. • CHECK THE INTEGRITY OF OBSERVATION WELLS AND CLEANOUT PIPES. • CHECK CONCRETE STRUCTURES FOR ANY EVID3ENCE OF SPALLING, JOINT FIALURE, LEAKAGE, CORROSION, ETC. • ENSURE THAT THE FILTER BED IS LEVEL AND REMOVE TRASH AND DEBRIS FROM THE FILTER BED. SAND OR GRAVEL COVERS SHOULD BE RAKED TO A DEPTH OF 3 INCHES. FILTERS WITH A TURF COVER SHOULD HAVE 95% VEGETATIVE COVER.

MAINTENANCE TASKS	FREQUENCY
• MOW GRASS FILTER STRIPS AND PERIMETER TURF.	AT LEAST FOUR TIMES A YEAR
• REMOVE BLOCKAGES AND OBSTRUCTIONS FROM INFLOWS • RELIEVE CLOGGING • STABILIZE CONTRIBUTING DRAINAGE AREA AND SIDE-SLOPES TO PREVENT EROSION	AS NEEDED
• INSPECTION AND CLEANUP	ANNUALLY
• CLEANOUT WET SEDIMENTATION CHAMBERS • REMOVE SEDIMENTS FROM DRY SEDIMENTATION CHAMBER	ONCE EVERY 2 TO 3 YEARS
• REPLACE TOP SAND LAYER • TILL/AERATE SURFACE TO IMPROVE INFILTRATION/GRASS COVER	EVERY 5 YEARS

SAND FILTER INSPECTION AND MAINTENANCE NOTES

SECTION 8: CONSTRUCTION

8.1. CONSTRUCTION SEQUENCE

THE FOLLOWING IS THE TYPICAL CONSTRUCTION SEQUENCE TO PROPERLY INSTALL A STRUCTURAL SAND FILTER. THIS SEQUENCE CAN BE MODIFIED TO REFLECT DIFFERENT FILTER DESIGNS, SITE CONDITIONS, AND THE SIZE, COMPLEXITY AND CONFIGURATION OF THE PROPOSED FILTERING APPLICATION.

STEP 1: USE OF FILTERING PRACTICES AS AN E&S CONTROL. THE FUTURE LOCATION OF A FILTERING PRACTICE MAY BE USED AS THE SITE OF A TEMPORARY SEDIMENT BASIN OR TRAP DURING SITE CONSTRUCTION, AS LONG AS DESIGN ELEVATIONS ARE SET WITH FINAL CLEANOUT AND CONVERSION IN MIND. THE BOTTOM ELEVATION OF THE FILTERING PRACTICE SHOULD BE LOWER THAN THE BOTTOM ELEVATION OF THE TEMPORARY SEDIMENT BASIN. APPROPRIATE PROCEDURES SHOULD BE IMPLEMENTED TO PREVENT DISCHARGE OF TURBID WATERS WHEN THE TEMPORARY BASIN IS CONVERTED TO A FILTERING PRACTICE.

STEP 2: STABILIZE DRAINAGE AREA. FILTERING PRACTICES SHOULD ONLY BE CONSTRUCTED AFTER THE CONTRIBUTING DRAINAGE AREA TO THE FACILITY IS COMPLETELY STABILIZED, SO SEDIMENT FROM THE CDA DOES NOT FLOW INTO AND CLOG THE FILTER. IF THE PROPOSED FILTERING AREA IS USED AS A SEDIMENT TRAP OR BASIN DURING THE CONSTRUCTION PHASE, THE CONSTRUCTION NOTES SHOULD CLEARLY SPECIFY THAT, AFTER SITE CONSTRUCTION IS COMLETE, THE SEDIMENT CONTROL FACILITY WILL BE DEWATERED, DREDGED AND REGRADED TO DESIGN DIMENSIONS FOR THE POST-CONSTRUCTION FILTER.

STEP 3: INSTALL E&S CONTROLS FOR THE FILTERING PRACTICE. STORMWATER SHOULD BE DIVERTED AROUND FILTERING PRACTICES AS THEY ARE BEING CONSTRUCTED. THIS IS USUALLY NOT DIFFICULT TO ACCOMPLISH FOR OFF-LINE FILTERING PRACTICES. IT IS EXTREMELY IMPORTANT TO KEEP RUNOFF AND ERODED SEDIMENTS AWAY FROM THE SAND FILTER THROUGHOUT THE CONSTRUCTION PROCESS. SILT FENCE OR OTHER SEDIMENT CONTROLS SHOULD BE INSTALLED AROUND THE PERIMETER OF THE SAND FILTER, AND EROSION CONTROL FABRIC MAY BE NEEDED DURING CONSTRUCTION ON EXPOSED SIDE-SLOPES WITH GRADIENTS EXCEEDING 4H:1V. EXPOSED SOILS IN THE VICINITY OF THE FILTERING PRACTICE SHOULD BE RAPIDLY STABILIZED BY YDRO-SEED, SOD, MULCH OR OTHER LOCALLY APPROVED METHOD OF SOIL STABILIZATION.

STEP 4: ASSEMBLE CONSTRUCTION MATERIALS ON-SITE, MAKE SURE THEY MEET DESIGN SPECIFICATIONS, AND PREPARE ANY STAGING AREAS.

STEP 5: CLEAR AND STRIP THE PROJECT AREA TO THE DESIRED SUBGRADE.

STEP 6: EXCAVATE/GRADE UNTIL THE APPROPRIATE ELEVATION AND DESIRED CONTOURS ARE ACHIEVED FOR THE BOTTOM AND SIDE SLOPES OF THE FILTERING PRACTICE.

STEP 7: INSTALL THE FILTER STRUCTURE AND CHECK ALL DESIGN ELEVATIONS (CONCRETE VAULTS FOR SURFACE, UNDERGROUND AND PERIMETER SAND FILTERS). UPON COMPLETION OF THE FILTER STRUCTURE SHELL, INLETS AND OUTLETS SHOULD BE TEMPORARILY PLUGGED AND THE STRUCTURE FILLED WITH WATER TO THE BRIM TO DEMONSTRATE WATERTIGHTNESS. MAXIMUM ALLOWABLE LEAKAGE IS 5% OF THE WATER VOLUME IN A 24-HOUR PERIOD. IF THE STRUCTURE FAILS THE TEST, REPAIRS MUST BE PERFORMED TO MAKE THE STRUCTURE WATERTIGHT BEFORE ANY SAND IS PLACED INTO IT.

STEP 8: INSTALL THE GRAVEL, UNDERDRAINS, AND CHOKER LAYER OF THE FILTER.

STEP 9: SPREAD SAND ACROSS THE FILTER BED IN 1 FOOT LIFTS UP TO THE DESIGN ELEVATION. BACKHOES OR OTHER EQUIPMENT CAN DELIVER THE SAND FROM OUTSIDE THE SAND FILTER STRUCTURE. SAND SHOULD BE MANUALLY RAKED. CLEAN WATER IS THEN ADDED UNTIL THE SEDIMENTATION CHAMBER AND FILTER BED ARE COMPLETELY FULL. THE FACILITY IS THEN ALLOWED TO DRAIN, HYDRAULICALLY COMPACTING THE SAND LAYERS. AFTER 48 HOURS OF DRYING, REFILL THE STRUCTURE TO THE FINAL TOP ELEVATION OF THE SAND FILTER BED.

STEP 10: INSTALL THE PERMEABLE FILTER FABRIC OVER THE SAND, ADD A 3-INCH TOPSOIL LAYER AND PEA GRAVEL INLETS, AND IMMEDIATELY SEED WITH THE PERMANENT GRASS SPECIES. THE GRASS SHOULD BE WATERED, AND THE FACILITY SHOULD NOT BE SWITCHED ON-LINE UNTIL A VIGOROUS GRASS COVER HAS BECOME ESTABLISHED.

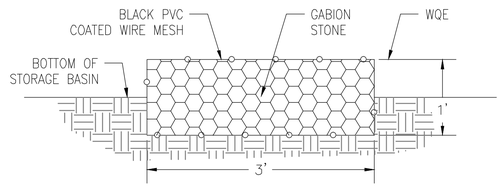
STEP 11: STABILIZE EXPOSED SOILS ON THE PERIMETER OF THE STRUCTURE WITH TEMPORARY SEED MIXTURES APPROPRIATE FOR A BUFFER. ALL AREAS ABOVE THE NORMAL POOL SHOULD BE PERMANENTLY STABILIZED BY HYDROSEEDING OR SEEDING OVER STRAW.

STEP 12: CONDUCT THE FINAL CONSTRUCTION INSPECTION (SEE SECTION 8.2).

FILTER OUTLET STRUCTURE TABLE		
STRUCT. LABEL	F1	G2
TYPE	FILTER OUTLET	FILTER OUTLET
SIZE	SEE DETAIL	SEE DETAIL
MATERIAL	CONCRETE	CONCRETE
TOP ELEV.	34.00'	33.50'
INVERT ELEV.	29.50'	29.95'
OTHER	3" DRAWDOWN MAINT. PIPE. INV. ELEV = 32.35' UNDERDRAIN INV. ELEV. = 31.50'	3" DRAWDOWN MAINT. PIPE. INV. ELEV = 31.85' UNDERDRAIN INV. ELEV. = 31.00'

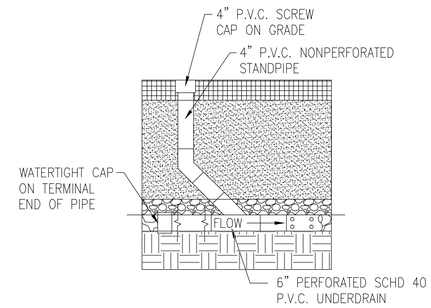
OUTFALL PIPE TABLE		
PIPE LABEL	1	2
TYPE	RCP	RCP
SIZE	15" DIA	15" DIA
INVERT UP	29.50'	29.95'
INVERT DOWN	28.95'	29.60'
LENGTH	103 LF	89 LF
OTHER		

OUTLET PROTECTION - RIPRAP						
OP#	FLOW Qto (CFS)	CHANNEL WIDTH	STONE DIA.	RIPRAP TYPE	RIPRAP DEPTH	APRON LENGTH
OP1	TBD	6'	12"	CLASS AI	18"	6'
OP2	TBD	6'	12"	CLASS AI	18"	6'



PRETREATMENT GABION BASKET BERM

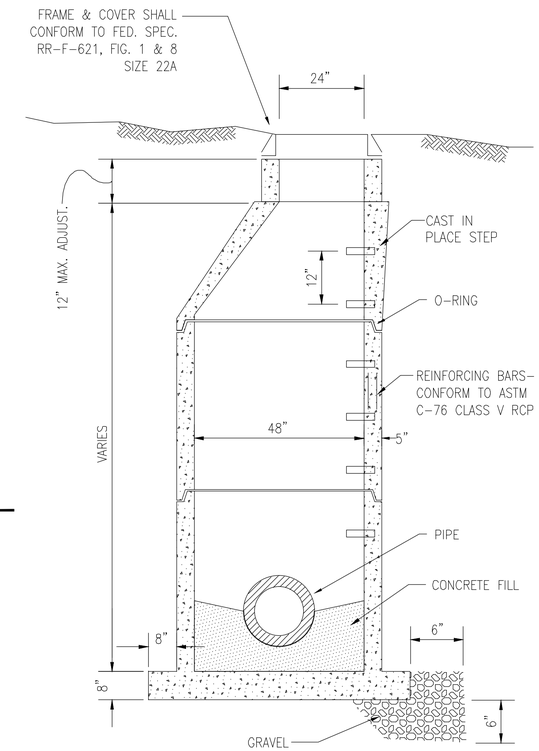
NOT TO SCALE



USE 45° WYE AND FITTING OR EQUIVALENT DIRECTIONAL CLEANOUT TO CONNECT UNDERDRAIN TO STANDPIPE

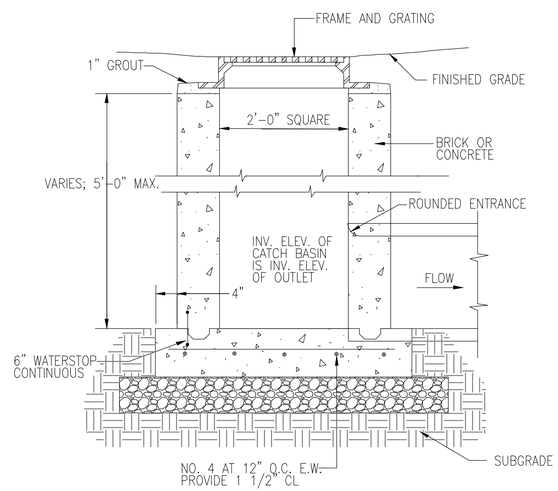
SAND FILTER - CLEANOUT

NOT TO SCALE



PRECAST MANHOLE DETAIL

NOT TO SCALE



CATCH BASIN

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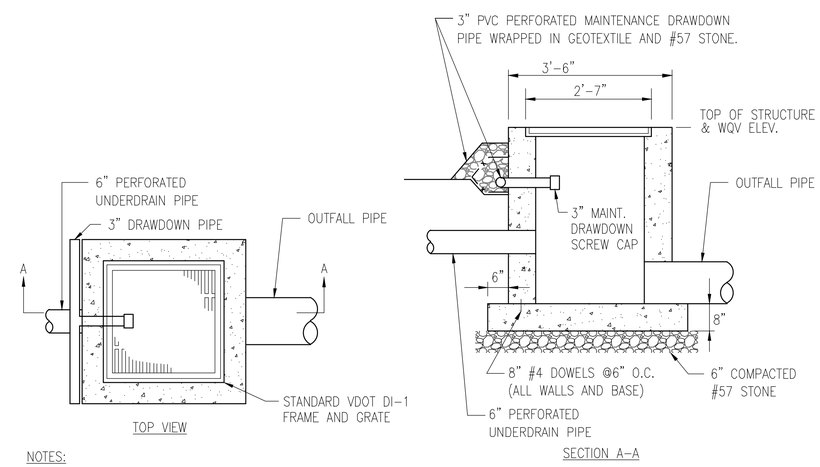

NOTES:

1. 8" CONCRETE WALLS WITH #4 BARS E.W. @ 6" O.C.
2. 3" PVC MAINTENANCE DRAWDOWN PIPE WITH THREADED CLEANOUT PLUG. LOCATE ON SAME SIDE AS UNDERDRAIN PIPE.
3. ALL CONCRETE SHALL BE VDOT CLASS A-3.
4. UNITS MAY BE PRECAST OR CAST IN PLACE.
5. REFER TO PLAN SHEETS FOR ACTUAL PIPE AND STRUCTURE ORIENTATION.

FILTER OUTLET STRUCTURE

NOT TO SCALE

1 NEW SHEET

1	GENERAL REVISIONS 01	01/21/16	---
SYM	DESCRIPTION	DATE	APPR

NAVFAC

SEAL

A/E INFO

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY HERM ROLLINGS

SATISFACTORY TO DATE MM/DD/YY

DES BSS DRW BSS CHK

JTL/APK JTL/APK

BRANCH MANAGER BJL

CHIEF ENG/ARCH RLW

FIRE PROTECTION DPS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
WALLOPS ISLAND, VA
HAMPTON ROADS IPT
SURFACE COMBAT SYSTEM CENTER
P1602 - CONVERSION AND RENOVATION OF MILITARY FAMILY HOUSING
CIVIL DETAILS

SCALE: AS SHOWN

EPROJECT NO.: 1366573

CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 12708376

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C-505

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: P:\VA\Wallops Island\WLCON\2016_1366573_P1602_DBB_SheetletLoneRenovation&Conversion\B_Design\Drawings\Sheet Files\05_Civil\P1602-1366573-C-505.dwg LAYOUT NAME: C-505 PLOTTED: Thursday, January 28, 2016 - 10:35pm USER: wesley.baker