CUMRU FIRE DEPARTMENT

1775 WELSH ROAD
MOHNTON, PA 19540

CONFORMED SET 05/02/2024

SYMBOLS & TAGS LEGEND

TAG	DESCRIPTION
101A	DOOR TAG
CASEWORK SERIES; NUMBER OF SHELVES 3; 402; CABINET DEPTH 24.00; 30.00; 84.00; CABINET WIDTH; CABINET HEIGHT	CASEWORK TAG *AS OUTLINED IN THE ARCHITECTURAL WOODWORK INSTITUTE (AWI) STANDARDS*
1t	SPECIALTY EQUIPMENT TAG
1 A	COLUMN LINE DESIGNATION TAG
REFERENCE 0'-0"	LEVEL ELEVATION TAG
P T	NORTH ARROW TAG T = TRUE NORTH P = PROJECT NORTH
ROOM 101	ROOM NAME & NUMBER TAG
1 A101	SECTION TAG
1 A101	CALLOUT / DETAIL
0'-0"	SPOT ELEVATION TAG
1 DRAWING TITLE DRAWING SCALE	DETAIL / DRAWING TITLE TAG
CLG-12 1'-0" TYPE HEIGHT (A.F.F.)	CEILING TAG
99	PARTITION TAG
?	MATERIAL TAG
1t	WINDOW TAG
12 6 6:12	ROOF SLOPE ANNOTATION
1 A101 0 0 0.0 0 0	ELEVATION TAG
0 ●	SPECIFIC NOTE

KEY TO MATERIALS

CUT-THRU PATTERN	DESCRIPTION
▨	BRICK
▨	CMU MASONRY
▨	CONCRETE
▨	POROUS FILL
▨	EARTH
▨	PLYWOOD
▨	GYPSUM BOARD
▨	RIGID INSULATION
▨	BATT INSULATION
☒	END GRAIN LUMBER
▨	WOOD BLOCK OR SHIM
▨	FINISH WOOD

COMMON ABBREVIATIONS

SYMBOLS
& - AND
@ - AT
⌀ - DIAMETER
◫ - SQUARE

A.
AB - ANCHOR BOLT
ABV - ABOVE
ACOUST - ACOUSTICAL
ACT - ACOUSTIC CEILING TILE
ACU - A/C UNIT
AFF - ABOVE FINISH FLOOR
AHJ - AUTHORITY HAVING JURISDICTION
ALUM - ALUMINUM
AP - ACCESS PANEL
APPROX - APPROXIMATELY
ARCH - ARCHITECTURAL

B.
B.C. - BOTTOM CHORD
BLK - BLOCK
BLDG - BUILDING
BLKG - BLOCKING
BLKHD - BULKHEAD
BM - BEAM
B.O. - BOTTOM OF
BOD - BASIS OF DESIGN
BOT - BOTTOM
B.R. - BULLET RESISTANT
BRNG - BEARING

C.
℄ - CENTER LINE
CFCI - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFOI - CONTRACTOR FURNISHED, OWNER INSTALLED
CFLS - COUNTER FLASHING
CJ - CONTROL JOINT
CL - CLOSET
CLG - CEILING
CMU - CONCRETE MASONRY UNIT
CND - CONDUIT
COL. - COLUMN
COOR - COORDINATE
CONC - CONCRETE
CONSTR - CONSTRUCTION
CONT - CONTINUOUS
C.T. / CT - CERAMIC TILE
CPT - CARPET / CARPET TILE
CTSK - COUNTERSUNK
CU - CUBIC
CU FT - CUBIC FOOT
CU YD - CUBIC YARD
CG - CORNER GUARD

D.
D - DEEP / DEPTH
DEG - DEGREE
DIA - DIAMETER
DIM - DIMENSION
DL - DEAD LOAD
DMPR - DAMPER
DN - DOWN
DR - DOOR
DS - DOWNSPOUT
DTL - DETAIL
DWG - DRAWING

E.
EA - EACH
EH - ELECTRIC HEATER
EIFS - EXTERIOR INSULATON AND FINISHING SYSTEM
ELEC - ELECTRICAL
EL - ELEVATION
ELEV - ELEVATION
ELMA - ELEVATOR MACHINE ROOM
EJ - EXPANSION JOINT
ENT - ENTRANCE, ENTRY
EQ - EQUAL
EST - ESTIMATE
EW - EACH WAY
EXST - EXISTING
EXT - EXTERIOR
EXP - EXPOSED
EXP JT - EXPANSION JOINT

F.
F - FAHRENHEIT
FD - FLOOR DRAIN
F.E. - FIRE EXTINGUISHER
F.E.C. - FIRE EXTINGUISHER CABINET
FF - FINISHED FLOOR
FF EL - FINISHED FLOOR ELEVATION
FG - FINISHED GRADE
FHY - FIRE HYDRANT
FDC - FIRE DEPARTMENT CONNECTION
FIN - FINISH
FIN FL - FINISHED FLOOR
FL - FLOOR
FLEX - FLEXIBLE
FLUOR - FLUORESCENT
FND - FOUNDATION
FPM - FEET PER MINUTE
FRT - FIRE RETARDANT TREATED
FSK - FOIL SCRIM KRAFT
FT - FEET, FOOT
FT - FLOOR TRANSITION
FTG - FOOTING

G.
GA - GAGE, GAUGE
GALV - GALVANIZED
GL - GLASS, GLAZING
GND - GROUND
GRTG - GRATING
GWB - GYPSUM WALL BOARD

H.
H - HEIGHT
HI - HIGH
HC - HANDICAPPED
HD - HEAD
HM - HOLLOW METAL
HORIZ - HORIZONTAL
HR - HOUR
HT - HEIGHT

I.
ID - INSIDE DIAMETER
IN - INCH
INFO - INFORMATION
INSUL - INSULATION

J.
JB - JUNCTION BOX
JM - JAMB
JST - JOIST
JT - JOINT

L.
LG - LONG
LL - LIVE LOAD
LSC - LIFE SAFETY CODE
LTG - LIGHTING

M.
MACH - MACHINE
MAT'L - MATERIAL
MAX - MAXIMUM
MBT - MARBLE THRESHOLD
MECH - MECH
MEP - MECHANICAL / ELECTRICAL / PLUMBING
MFGR - MANUFACTURER
MH - MANHOLE
MIN - MINIMUM
MO - MASONRY OPENING
MSNRY - MASONRY
M.T. - METAL THRESHOLD
MTL - METAL
MTD - MOUNTED

N.
NA - NOT APPLICABLE
NIC - NOT IN CONTRACT
NO - NUMBER
NTS - NOT TO SCALE

O.
O/C - ON CENTER
OD - OUTSIDE DIAMETER
OFIC - OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI - OWNER FURNISHED, OWNER INSTALLED
OPNG - OPENING
OPP - OPPOSITE
OPP HND- OPPOSITE HAND
OV - OVER
OVHD - OVERHEAD

P.
P.LAM - PLASTIC LAMINATE
PLY - PLYWOOD
PLYWD - PLYWOOD
PNLBD - PANELBOARD
PNT/ PT - PAINT
POLYISO - POLYISOCYANURATE
PRESS - PRESSURE
PROJ - PROJECT
PROP - PROPERTY
PSF - POUNDS PER SQUARE FOOT
PSI - POUNDS PER SQUARE INCH
PT - PRESSURE TREATED
PTD - PAINTED
PVC - POLYVINYL CHLORIDE
PVMT - PAVEMENT
PWT - PREFABRICATED WOOD TRUSS

R.
R - RADIUS
RCP - REFLECTED CEILING PLAN
REINF - REINFORCING, REINFORCED
RES - RESINOUS
REQD - REQUIRED
REV - REVISION
RGD - RIGID
RM - ROOM
RO - ROUGH OPENING
RST - REINFORCING STEEL

S.
SB - SMART BOARD
SCD - SEE CIVIL DRAWINGS
SCHED - SCHEDULE
SD - STORM DRAIN
SED - SEE ELECTRICAL DRAWINGS
SECT - SECTION
SF - SQUARE FOOT
SI - SQUARE INCH
SIM - SIMILAR
SLP - SLOPE
SMD - SEE MECHANICAL DRAWINGS
SPCL - SPECIAL
SPEC - SPECIFICATIONS
SPLY - SUPPLY
SQ - SQUARE
SS - STAINLESS STEEL
SSD - SEE STRUCTURAL DRAWINGS
ST - STREET
STD - STANDARD
STL - STEEL
STOR - STORAGE
STRUCT - STRUCTURAL
SURF - SURFACE
SUSP - SUSPENDED
SW - SWITCH
SYS - SYSTEM

T.
T & B - TOP AND BOTTOM
T.B. - TACK BOARD
T.B.D. - TO BE DETERMINED
TD - TRENCH DRAIN
TEMP - TEMPERATURE
THK - THICK
THRES - THRESHOLD
T&G - TONGUE & GROOVE
T0 - TOP OF
TOB - TOP OF BEARING POINT
TOC - TOP OF CONCRETE
TOF - TOP OF FOOTING
TOM - TOP OF MASONRY
TOP - TOP OF PAVEMENT, PARAPET
TOS - TOP OF STEEL
TRTD - TREATED
T.S. - TRANSITION STRIP
TYP - TYPICAL

U.
UGND - UNDERGROUND
UL - UNDERWRITERS LAB
UNO - UNLESS NOTED OTHERWISE
UON - UNLESS OTHERWISE NOTED

V.
VB - VAPOR BARRIER
VCT - VINYL COMPOSITION TILE
VERT - VERTICAL
VIF - VERIFY IN FIELD
VOL - VOLUME

W.
W - WIDE / WIDTH
W/ - WITH
W/0 - WITHOUT
W.B. - WHITEBOARD
WD - WOOD
WR - WATER RESISTANT
WTRPRF - WATERPROOF
WWF - WELDED WIRE FABRIC
WWM - WELDED WIRE MESH

THIS LIST OF ABBREVIATIONS IS A GUIDE TO ABBREVIATIONS WHICH MAY BE USED IN THESE DOCUMENTS. ABBREVIATIONS NOT LISTED MAY ALSO BE USED.

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148.2	GRADING PLAN
148.3	GRADING DETAILS AND PROFILES
148.4	WALL DETAILS
148.5	DRAINAGE & UTILITIES PLAN
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166.1	EROSION & SEDIMENTATION CONTROL NOTES
166.2	EROSION & SEDIMENTATION CONTROL NOTES
166.3	EROSION & SEDIMENTATION CONTROL DETAILS
166.4	EROSION & SEDIMENTATION CONTROL DETAILS
183	POSTCONSTRUCTION STORMWATER MANAGEMENT GRADING PLAN
183.1	POSTCONSTRUCTION STORMWATER MANAGEMENT UTILITY PLAN
183.2	POSTCONSTRUCTION STORMWATER MANAGEMENT NOTES
183.3	POSTCONSTRUCTION STORMWATER MANAGEMENT DETAILS
183.4	POSTCONSTRUCTION STORMWATER MANAGEMENT BASIN #5 DETAILS
183.5	POSTCONSTRUCTION STORMWATER MANAGEMENT BASIN #6 DETAILS
183.6	POSTCONSTRUCTION STORMWATER MANAGEMENT BASIN #6 DETAILS
183.7	POSTCONSTRUCTION STORMWATER MANAGEMENT PROFILES
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A102	DIMENSION PLAN
A103	CONSTRUCTION TYPES
A104	SLAB/MASONRY DIAGRAM
A105	FINISH PLAN
A106	FINISH SCHEDULE & DETAILS
A107	FINISH DETAILS
A108	EQUIPMENT & BLOCKING PLAN
A109	CLERESTORY PLAN
A110	PLAN DETAILS
A111	ENTRY PLAN, ELEVATIONS & DETAILS
A112	EXTERIOR STAIR DETAILS
A113	SITE DETAILS
A114	SIGNAGE DETAILS
A200	BUILDING ELEVATIONS
A300	TRANSVERSE BUILDING SECTIONS
A301	LONGITUDINAL BUILDING SECTIONS
A400	WALL SECTIONS
A401	WALL SECTIONS
A402	WALL SECTIONS
A403	WALL SECTIONS
A404	WALL SECTIONS
A405	TYPICAL FOUNDATION DETAILS
A406	TYPICAL STAIR DETAILS
A407	TYPICAL GUARDRAIL DETAILS
A500	ROOF PLAN
A501	ROOF DETAILS
A502	ROOF DETAILS
A503	ROOF DETAILS
A504	ROOF PENETRATION & LIGHTNING PROTECTION DETAILS
A600	DOOR/WINDOW SCHEDULE & TYPES
A601	EXTERIOR & INTERIOR DOOR DETAILS
A602	EXTERIOR & INTERIOR WINDOW DETAILS
A603	EXTERIOR STOREFRONT ELEVATIONS & DETAILS
A604	EXT. & INT. STOREFRONT ELEVATIONS & DETAILS
A700	TYPICAL EQUIPMENT & CASEWORK DETAILS
A701	ENLARGED PLANS & INT. ELEVATIONS
A702	ENLARGED PLANS & INT. ELEVATIONS
A703	ENLARGED PLANS & INT. ELEVATIONS
A704	ENLARGED PLANS & INT. ELEVATIONS
A705	ENLARGED PLANS & INT. ELEVATIONS
A706	ENLARGED PLANS & INT. ELEVATIONS
A707	ENLARGED PLANS & INT. ELEVATIONS
A708	ENLARGED PLANS & INT. ELEVATIONS
A709	ENLARGED PLANS & INT. ELEVATIONS
A710	ENLARGED PLANS & INT. ELEVATIONS
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S403	SECTIONS
S404	SECTIONS
S405	SECTIONS

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PLUMBING - NEW WORK	
P100	FOUNDATION PLAN - PLUMBING
P101	FIRST FLOOR PLAN - PLUMBING
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P302	PLUMBING DETAILS
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E003	SITE PLAN LIGHTNING PROTECTION NEW WORK
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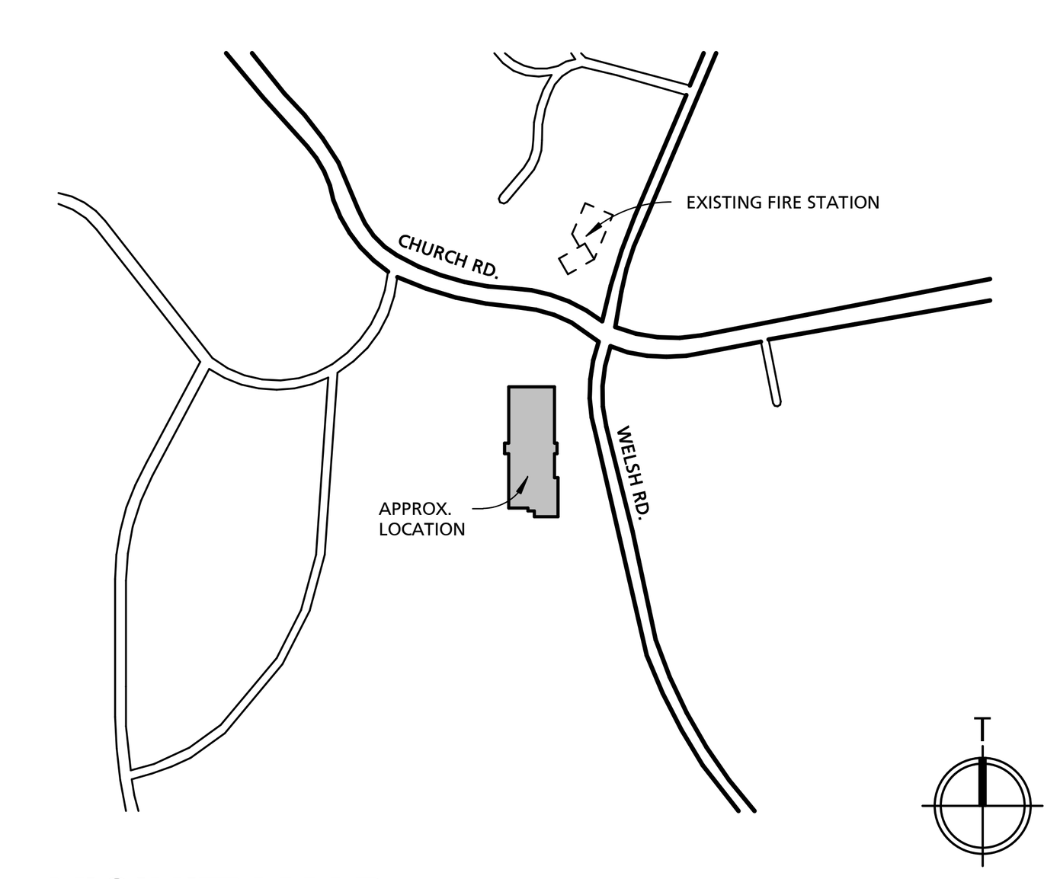
AL-105	TYPICAL DETAILS & DISPLAY DIAGRAM



VICINITY MAP
NOT TO SCALE

CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

THE INTENT OF THE CONSTRUCTION DRAWINGS AND THE CONSTRUCTION SPECIFICATIONS/PROJECT MANUAL IS TO INCLUDE ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK BY THE CONTRACTOR. THE CONSTRUCTION DRAWINGS AND THE CONSTRUCTION SPECIFICATIONS/PROJECT MANUAL ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL; PERFORMANCE BY THE CONTRACTOR SHALL BE REQUIRED ONLY TO THE EXTENT CONSISTENT WITH THE CONSTRUCTION DRAWINGS AND THE CONSTRUCTION SPECIFICATIONS/PROJECT MANUAL AND REASONABLY INFERABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INDICATED/INTENDED RESULTS. IN THE CASE OF INCONSISTENCIES BETWEEN THE CONSTRUCTION DRAWINGS AND THE CONSTRUCTION SPECIFICATIONS/PROJECT MANUAL OR WITHIN EITHER DOCUMENT NOT CLARIFIED BY ADDENDUM, THE BETTER QUALITY OR GREATER QUANTITY OF WORK SHALL BE PROVIDED IN ACCORDANCE WITH THE ARCHITECT'S INTERPRETATION.

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SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA. LICENSE NUMBER: #RA405311 EXPIRATION DATE: 6-30-2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT
1775 WELSH ROAD
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER: 18-036
PROJECT SET: BID SET
DATE ISSUED: 11/30/2023
DRAWING TITLE: COVER SHEET
SHEET NUMBER: G000

11/29/2023 4:23:27 PM

CODE ANALYSIS - SUMMARY

PROJECT	APPLICABLE CODES	BUILDING SIZE
CUMRU TOWNSHIP FIRE DEPARTMENT STATION 42	PENNSLVANIA UNIFORM CONSTRUCTION CODE 2015 INTERNATIONAL BUILDING CODE 2015 INTERNATIONAL MECHANICAL CODE 2015 NATIONAL ELECTRIC CODE 2014 INTERNATIONAL PLUMBING CODE 2015 INTERNATIONAL ENERGY CODE 2015	TOTAL BUILDING: 22,908 GSF SINGLE STORY

PROJECT DESCRIPTION

THE PROJECT PROPOSES A NEW 22, 908 GSF, SINGLE STORY FIRE STATION FOR THE CUMRU FIRE DEPARTMENT. THE NEW FIRE STATION WILL HOUSE A NON-SEPERATED MIXED-USE OF A-3, B, R2, AND S-2, INCLUDED BUT NOT LIMITED TO, ADMINISTRATIVE OFFICE AREA, KITCHEN AND LIVING AREA, A MEETING ROOM, APPARATUS SUPPORT AND STORAGE AREAS, ALONG WITH FIVE DOUBLE DEEP APPARATUS BAYS. THE APPARATUS BAYS ARE FLANKED ON EITHER END WITH TWO MEZZANINE STORAGE PLATFORMS WHOSE PRIMARY FUNCTION IS TO HOLD MECHANICAL HVAC EQUIPMENT. THE BUILDING IS SINGLE STORY, TYPE IIB CONSTRUCTION AND WILL BE COMPLETELY SPRINKLERED.

OCCUPANT LOAD TABLE

OCCUPANT LOAD FACTORS - TABLE 1004.1.2

ROOM NAME	AREA SF	FACTOR (SF/OCCUPANCY)	OCCUPANT LOAD	TOTAL OCCUPANTS
STORAGE USE				
WATCH OFFICE 109	262	50	6	
VESTIBULE 147	116	---		
SHOWER 136	73	---		
SHOWER 137	73	---		
CLEAN ROOM 135	140	---		
TURNOUT GEAR 138	640	---		
DECON 139	313	---		10
APPARATUS BAY 140	8,560	---		
UTILITY 146	181	---		
ELEC. 141	174	---		
SCBA 145	97	---		
TOILET 144	63	---		
ENGINEER 143	80	50	2	
WORKSHOP 142	120	100	2	
STORAGE 141.1	120	---		
MEZZANINE 201	1,108	---		
MEZZANINE 202	931	---		
ASSEMBLY USE				
VESTIBULE 100	151	---		
LOBBY101	663	7 NET	95	
WOMEN 102	187	---		
JAN 102.1	13	---		
MEN 103	166	---		313
JAN 103.1	13	---		
MEETING 104	1,492	7 NET	214	
STOR 104.1	119	500	1	
OFFICE 104.2	134	50	3	
BUSINESS USE		100 GSF (U.N.O)		
OFFICE 105	128			
OFFICE 106	128			
OFFICE 107	128		11	
OFFICE 108	213			
OFFICE 109.1	120			
CHIEF'S OFFICE 110	220			
CONFERENCE 111	194	15 NET	13	
COPY 113	95		3	
OFFICE 114	122			
SHOWER 115	88	---		
MECH 115.1	30	500	1	
SHOWER 116	108	---		
LAUNDRY 117	103	500	1	
ELEC. 118	54	---		58
FITNESS 119	526	50 GROSS	11	
SHOWER 120	81	---		
SHOWER 121	81			
MECH 122	20	500	3	
ST. 129.1	63			
IT 129	98			
CORRIDOR 130	748	---		
CORRIDOR 131	1,742	---		
KITCHEN 133	483	100	5	
DAYROOM 134	453	50	10	
RESIDENTIAL USE	1,464	50 GROSS		15
BUNK 123,124,125,126,127,128	716			
CORRIDOR 130	748	---		
BUILDING TOTAL				396

INTERNATIONAL BUILDING CODE 2015

USE CLASSIFICATIONS - CHAPTER 3

A-3 - ASSEMBLY - MEETING ROOM
B - BUSINESS - FIRE DEPARTMENT ADMINISTRATION
R2 - RESIDENTIAL - DORMITORY
S2 - STORAGE - APPARATUS BAY/ANCILLARY SPACES

CONSTRUCTION TYPE - CH.6

CONSTRUCTION TYPE: IIB FULLY-SPRINKLERED

BUILDING HEIGHT & AREA - CH.5

NON-SEPARATED MIXED OCCUPANCIES (IBC SECTION 508.3)

HEIGHT TABULAR -	STORIES TABULAR -	AREA TABULAR
A-3 - 75'	A-3 - 3	A3 - 38,000
B - 75'	B - 4	B - 76,000
R2 - 75'	R2 - 5	R2 - 64,000
S-2 - 75'	S-2 - 4	S-2 - 104,000
HEIGHT ALLOWED -	STORIES ALLOWED -	AREA ALLOWED
75'	3	45,125 SF (MOST RESTRICTIVE OCCUPANCY, A-3)
HEIGHT ACTUAL -	STORIES ACTUAL -	AREA ACTUAL
31'	1	22,908

FIRE-RES. REQUIREMENTS FOR BLDG. ELEMENTS - TABLE 601

PER TABLE 602 NO FIRE RATING IS REQUIRED FOR ANY BUILDING ELEMENT UNLESS NOTED OTHERWISE.

OPENINGS IN FIRE RATED WALLS

	WALL	DOOR
CORRIDOR PARTITIONS	1/2 HR	20 MIN.

SECTION 505 - MEZZANINES & EQUIPMENT PLATFORMS

505.2.1, EXCEPTION #2 -THE AGGREGATE AREA OF MEZZANINES IN BUILDINGS OF TYPE II CONSTRUCTION SHALL NOT BE GREATER THAN ONE-HALF OF THE FLOOR AREA OF THE ROOM IN BUILDINGS EQUIPPED THROUGHOUT WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM.

MEZZANINE 201 -	1,130 SF
MEZZANINE 202 -	931 SF
AGGREGATE MEZZANINE AREA:	2,061 SF

APPARATUS BAY - 8,563 SF/ 2 = 4,281 SF > 2,601 SF

505.2.3 OPENNESS, EXCEPTIONS #1 - MEZZANINES OR PORTIONS THEREOF ARE NOT REQUIRED TO BE OPEN TO THE ROOM IN WHICH THE MEZZANINES ARE LOCATED, PROIVDED THAT THE OCCUPANT LOAD OF THE AGGREGATE AREA OF THE ENCLOSED SPACE IS NOT GREATER THAN 10.

SECTION 508 - MIXED USE & OCCUPANCY

508.1 - EACH PORTION OF A BUILDING SHALL BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1. WHERE A BUILDING CONTAINS MORE THAN ONE OCCUPANCY GROUP, THE BUILDING OR PORTION THEREOF SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF SECTION 508.2, 508.3, OR 508.4.

508.3 NONSEPARATED OCCUPANCIES -
BUILDINGS OR PORTIONS OF BUILDINGS THAT COMPLY WITH THE PROVISIONS OF THIS SECTION SHALL BE CONSIDERED AS NONSEPARATED OCCUPANCIES.

508.3.3 - SEPARATION. NO SEPARATION IS REQUIRED BETWEEN NONSEPARATED OCCUPANCIES.

EXCEPTION 2, GROUP R-2 SHALL BE SEPARATED FROM OTHER DWELLING OR SLEEPING UNITS FROM OTHER OCCUPANCIES CONTIGUOUS TO THEM IN ACCORDANCE WITH REQUIREMENTS OF SECTION 420.

420.2 SEPARATION WALLS - WALLS SEPARATING DWELLING OR SLEEPING UNITS SHALL BE CONSTRUCTED AS FIRE PARTITIONS IN ACCORDANCE WITH SECTION 708.

SECTION 1004 - OCCUPANT LOAD

ACCESSORY STORAGE AREAS, MECHANICAL, EQUIPMENT ROOMS
-300 GROSS
ASSEMBLY, UNCONSECRATED (TABLES & CHAIRS)
-15 NET
BUSINESS AREAS
-100 GROSS
DORMITORIES
-50 GROSS
EXERCISE ROOMS
-50 GROSS
PARKING GARAGES
-200 GROSS
RESIDENTIAL
-200 GROSS

SECTION 1005.3.2, MEANS OF EGRESS CAPACITY
THE CAPACITY IN INCHES OF MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH COMPONENT BY A MEANS OF EGRESS CAPACITY FACTOR OR .2 INCHES.

SECTION 1007.1.1, EXIT SEPARATION DISTANCE
EXCEPTION 2: WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM, THE SEPARATION DISTANCE SHALL NOT BE LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL OF THE AREA SERVED.

SECTION 1020, CORRIDORS
PER TABLE 1020.1 FIRE RATING IS ONLY REQUIRED FOR ANY CORRIDORS SERVING "R" OCCUPANCY. FIRE RATING SHALL BE 1/2 HOUR. CORRIDORS WITHIN GROUPS B AND S-2 ARE NOT REQUIRED TO BE FIRE RATED.

THE REQUIRED CAPACITY OF CORRIDORS SHALL BE DETERMINED AS SPECIFIED IN SECTION 1005.1 BUT THE MINIMUM WIDTH SHALL NOT BE LESS THAN 44 INCHES.

1020.4 DEADEND CORRIDORS
EXCEPTION #3 - A DEAD-END CORRIDOR SHALL NOT BE LIMITED IN LENGTH WHERE THE LENGTH OF THE DEAD-END CORRIDOR IS LESS THAN 2.5 TIMES THE LEAST WIDTH OF THE DEAD-END CORRIDOR.

EGRESS THROUGH INTERVENING SPACES
EXCEPTION: MEANS OF EGRESS ARE NOT PROHIBITED THROUGH ADJOINING OR INTERVEWING ROOMS OR SPACES IN GROUP S OCCUPANCY WHERE ADJOINING OR INTERVENING ROOMS OR SPACES ARE THE SAME OR A LESSER HAZARD OCCUPANCY GROUP.

OCCUPANCY	COMMON PATH	TRAVEL DISTANCE	DEAD-END CORRIDORS
A-3: ASSEMBLY	20' ALLOW./(N/A) ACTUAL	250' ALLOW./49' ACTUAL	20' ALLOW./(N/A) ACTUAL
B: BUSINESS	100' ALLOW./(N/A) ACTUAL	300' ALLOW./133' ACTUAL	50' ALLOW./14' 3" ACTUAL
R2: RESIDENTIAL	50' ALLOW./(N/A) ACTUAL	300' ALLOW./ 67' 8" ACTUAL	50' ALLOW./14' 3" ACTUAL
S-2: STORAGE	100' ALLOW./(N/A) ACTUAL	400' ALLOW./ 88' 4"	100' ALLOW./13' 10" ACTUAL
UNOCCUPIED MEZ.	100' ALLOW./98' 6" ACTUAL	400' ALLOW./ 148'	100' ALLOW./(N/A) ACTUAL

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SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA.
LICENSE NUMBER: #RA405311
EXPIRATION DATE: 6-30-2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT
1775 WELSH ROAD
MOHNTON, PA 19540

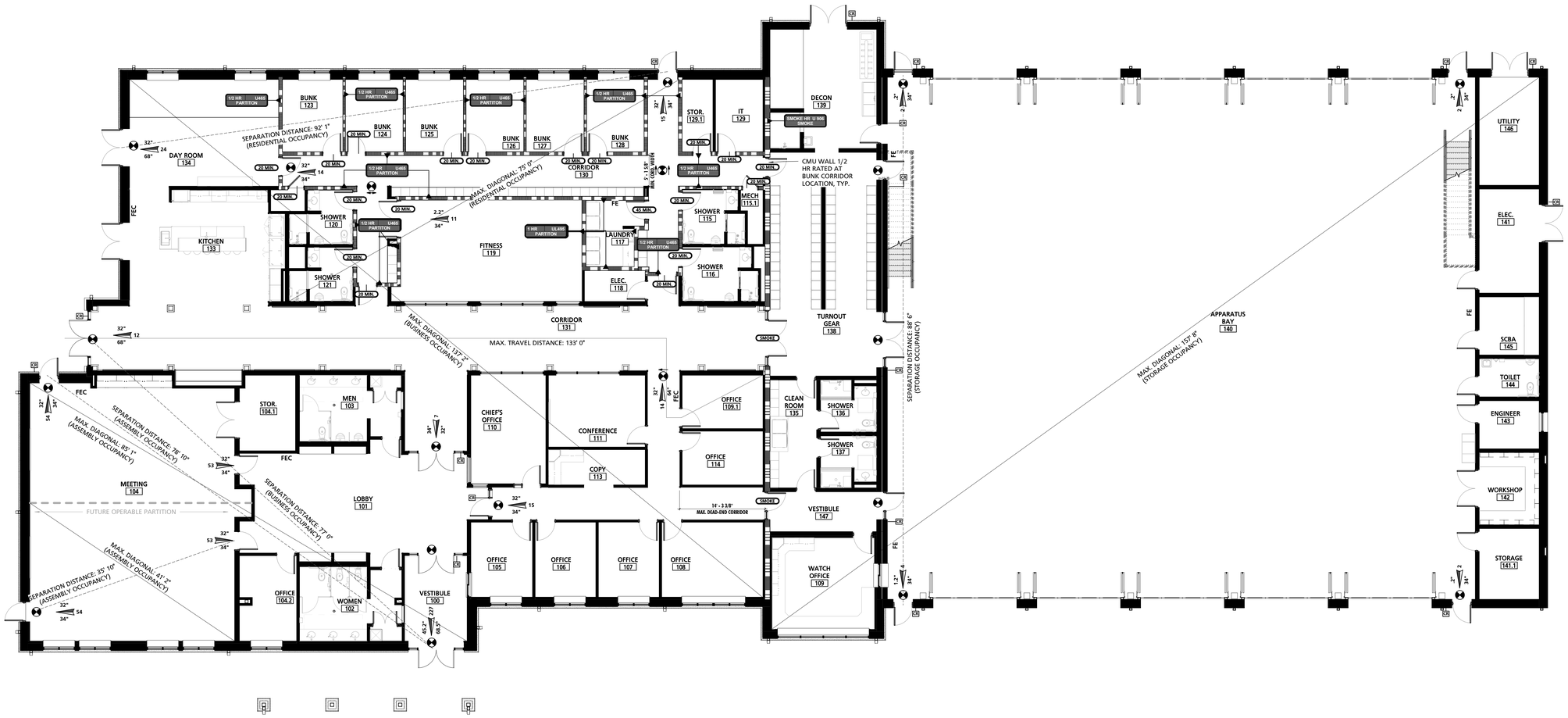
NO.	DESCRIPTION	DATE

PROJECT NUMBER: 18-036
PROJECT SET: BID SET
DATE ISSUED: 11/30/2023

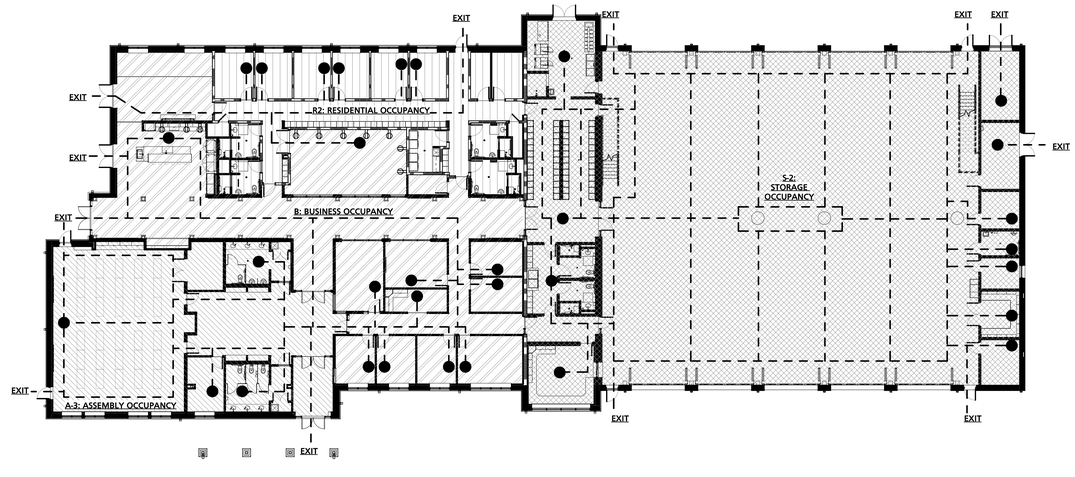
DRAWING TITLE: CODE ANALYSIS

SHEET NUMBER: G001

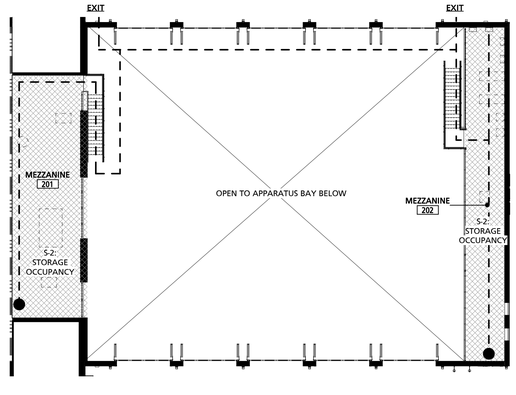
11/29/2023 11:44:28 AM



1 CODE PLAN
1/8" = 1'-0"



2 CODE DIAGRAM
1/16" = 1'-0"



MEZZANINE 201 (UNOCCUPIED):
COMMON PATH: 98' 6"
TRAVEL DISTANCE: 148' 0"

MEZZANINE 202 (UNOCCUPIED):
COMMON PATH: 83' 6"
TRAVEL DISTANCE: 95' 6"

3 MEZZANINE CODE DIAGRAM
1/16" = 1'-0"

A / C / B	A = REQUIRED WIDTH B = ACTUAL WIDTH C = OCCUPANT COUNT
	ILLUMINATED "EXIT" SIGN
	ILLUMINATED "EXIT" SIGN W/ DIRECTION INDICATOR
1 HR UL 496 SMOKE PARTITION	RATED WALL TAG
FEC	RECESSED FIRE EXTINGUISHER & CABINET
FE	FIRE EXTINGUISHER MOUNTED TO WALL
	1 HOUR RATED PARTITION
	1/2 HOUR RATED PARTITION
	0 HOUR SMOKE PARTITION
	SEPARATION DISTANCE
CR	DOOR CARD READER

LEGEND - CODE PLAN LEGEND

GENERAL CODE PLAN NOTES

#	NOTES
1	FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENINGS OR PENETRATIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED AS REQUIRED BY IBC 703.7

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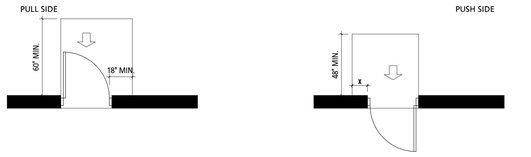
CUMRU FIRE DEPARTMENT
1775 WELSH ROAD
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

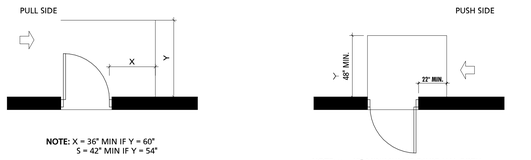
PROJECT NUMBER: 18-036
PROJECT SET: BID SET
DATE ISSUED: 11/30/2023
DRAWING TITLE: CODE PLANS & DIAGRAMS
SHEET NUMBER: G002

11/29/2023 11:44:37 AM



NOTE: x = 12" IF DOOR HAS BOTH A CLOSER AND LATCH.

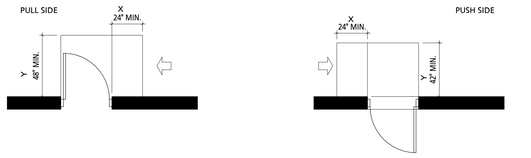
(a)
Front Approaches - Swinging Doors



NOTE: X = 36" MIN IF Y = 60"
S = 42" MIN IF Y = 54"

NOTE: y = 48" MINIMUM IF DOOR HAS BOTH A CLOSER AND LATCH.

(b)
Hinge Side Approaches - Swinging Doors



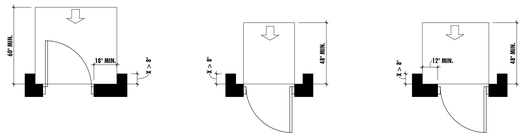
NOTE: y = 54" MINIMUM IF DOOR HAS CLOSER

NOTE: y = 48" MINIMUM IF DOOR HAS CLOSER.

(c)
Latch Side Approaches - Swinging Doors

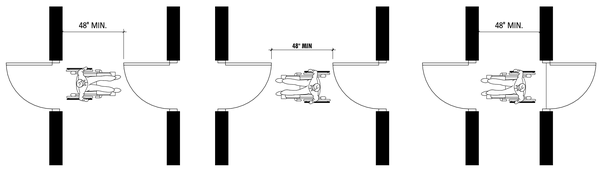
Front Approach | Side Approach | Pocket or Hinge Approach | Stop or Latch Approach

(d)
Doorways without Doors



Pull Side | Push Side | Push Side with Closer and Latch

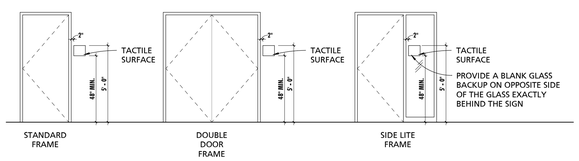
(e)
Recessed Doors and Gates



Two Hinged Doors in Series

DOOR CLEARANCES (TYPICAL)

NOT TO SCALE

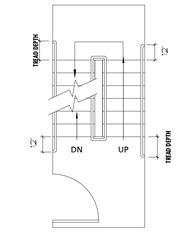


PROVIDE SIGNAGE AT ALL OF THE FOLLOWING LOCATIONS:

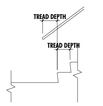
1. ADA COMPLIANT IDENTIFICATION ROOM SIGNAGE WITH REMOVABLE INSERT AT ALL ROOMS OTHER THAN MECHANICAL ROOMS AND TOILET ROOMS. SIGNS SHALL INDICATE ROOM NUMBER AND PROVIDE REMOVABLE INSERT FOR ROOM NAMES.
2. ADA COMPLIANT IDENTIFICATION ROOM SIGNAGE AT MECHANICAL ROOMS AND TOILET ROOMS. SINGLE OCCUPANT TOILET ROOMS SHALL BE IDENTIFIED AS UNI-SEX. SINGLE OCCUPANT TOILET ROOMS WITH CHANGING STATIONS SHALL BE IDENTIFIED AS FAMILY RESTROOMS.
3. ADA COMPLIANT IDENTIFICATION EXIT SIGNAGE AT ALL DOORS LEADING TO RATED EXITS.
4. ADA COMPLIANT IDENTIFICATION FLOOR LEVEL SIGNAGE AT ALL FLOOR LANDINGS OF STAIRS AND RAMPS.
5. ADA COMPLAINT INFORMATIONAL SIGNAGE AT ALL AED STATIONS AND FIRE EXTINGUISHERS.
6. ADA COMPLIANT INFORMATIONAL SIGNAGE INDICATING THE MAXIMUM OCCUPANCY OF ALL ASSEMBLY SPACES.
7. ADA COMPLIANT INFORMATIONAL SIGNAGE SHALL BE PROVIDED AT ALL ELEVATORS.

1 ADA SIGNAGE MOUNTING LOCATIONS

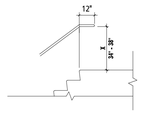
1/4" = 1'-0"



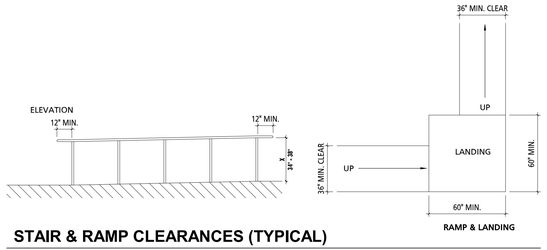
PLAN



EXTENSION AT BOTTOM OF RUN



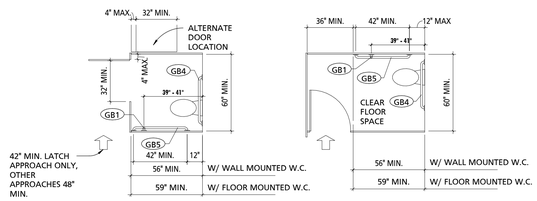
EXTENSION AT TOP OF RUN



RAMP & LANDING

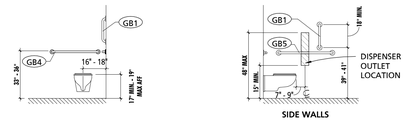
STAIR & RAMP CLEARANCES (TYPICAL)

NOT TO SCALE



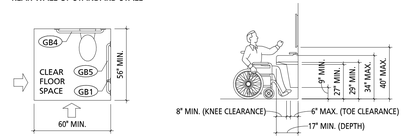
STANDARD STALL

STANDARD STALL (END OF ROW)



REAR WALL OF STANDARD STALL

SIDE WALLS

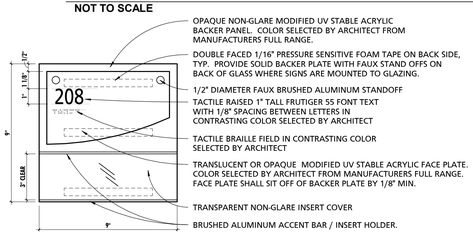


LAVATORY CLEARANCES

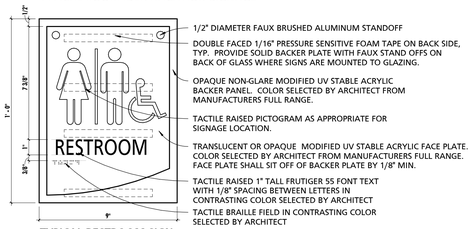
CLEAR FLOOR SPACE AT LAVATORIES

TOILET ROOM CLEARANCES (TYPICAL)

NOT TO SCALE



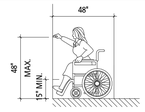
TYPICAL ROOM IDENTIFICATION SIGNAGE



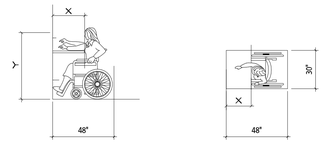
TYPICAL RESTROOM SIGN

2 TYPICAL SIGNAGE DETAILS

3" = 1'-0"

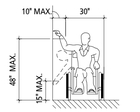


HIGH FORWARD REACH LIMIT (FRONT APPROACH)

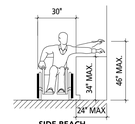


MAXIMUM FORWARD REACH OVER AN OBSTRUCTION

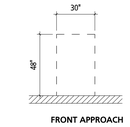
NOTE: WHEN X IS >20 INCHES MAX, Y SHALL BE 48 INCHES MAX
WHEN X IS 20-25 INCHES MAX, Y SHALL BE 44 INCHES MAX



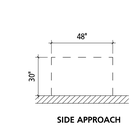
HIGH & LOW SIDE REACH LIMITS



SIDE REACH



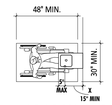
FRONT APPROACH



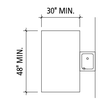
SIDE APPROACH

REACH RANGES & APPROACHES (TYPICAL)

NOT TO SCALE



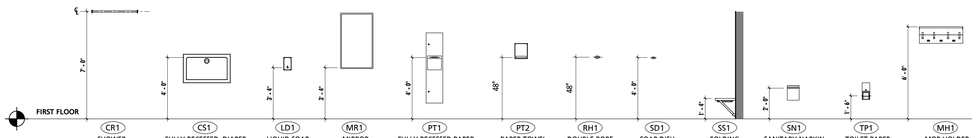
CLEAR FLOOR SPACE



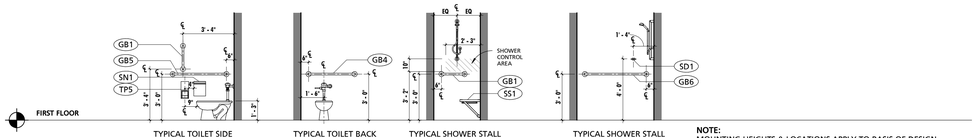
FREE STANDING FOUNTAIN OR COOLER

DRINKING FOUNTAINS (TYPICAL)

NOT TO SCALE



NOTE: ALL CONTROLS SHALL NOT EXTEND ABOVE 48" FOR FRONT APPROACH & 54" FOR SIDE APPROACH. (SEE REACH RANGE DIAGRAMS.)

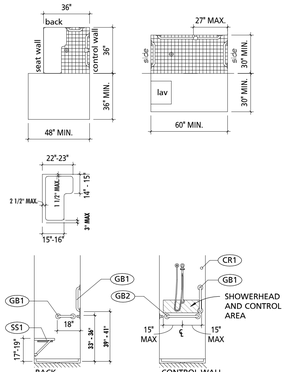


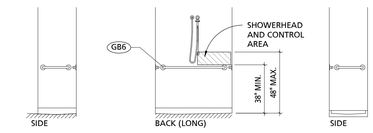
TYPICAL TOILET SIDE WALL ELEVATION | TYPICAL TOILET BACK WALL ELEVATION | TYPICAL SHOWER STALL END WALL ELEVATION | TYPICAL SHOWER STALL BACK WALL ELEVATION

NOTE:
MOUNTING HEIGHTS & LOCATIONS APPLY TO BASIS OF DESIGN EQUIPMENT. IF FINAL SELECTED EQUIPMENT DOES NOT MATCH THE BASIS OF DESIGN, G.C. SHALL COORDINATE FINAL LOCATION OF EQUIPMENT W/ ARCHITECT PRIOR TO INSTALLATION.

TYPICAL TOILET & SHOWER STALL ACCESSORY MOUNTING HEIGHTS & LOCATIONS

NOT TO SCALE

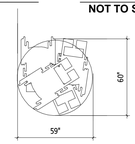




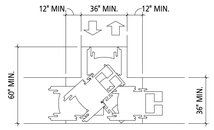
NOTE: SHOWER HEAD AND CONTROL AREA MAY BE ON BACK (LONG) WALL (AS SHOWN) OR ON EITHER SIDE WALL.

SHOWERS (TYPICAL)

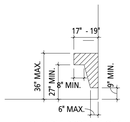
NOT TO SCALE



60 INCH - DIAMETER SPACE



T - SHAPED SPACE FOR 180 DEGREE TURNS



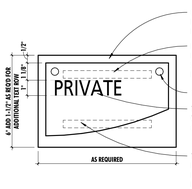
ALLOWABLE PROTRUSIONS INTO WHEELCHAIR SPACE

FLOOR CLEARANCES (TYPICAL)

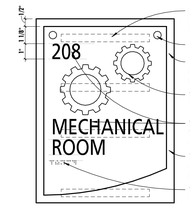
NOT TO SCALE

SCHEDULE - TOILET ROOM ACCESSORIES

MARK	DESCRIPTION	BOD MANUFACTURER	BOD MODEL	COMMENTS
CR1	HEAVY DUTY SHOWER CURTAIN ROD	AMERICAN SPECIALTIES	1214/1200-SHU	<varies>
CS1	RECESSED DIAPER CHANGING STATION	AMERICAN SPECIALTIES	9013	
DTS1	DOUBLE TOWEL RACK W/ TOP SHELF	AMERICAN SPECIALTIES	7311-24	
E7	BLACKOUT ROLLER SHADE	MECHO	SEE SPECIFICATIONS	BY 1a GENERAL PRIME CONTRACTOR
FSS1	ADA FOLDING SHOWER SEAT	AMERICAN SPECIALTIES	8203	
GB1	18" LONG GRAB BAR	AMERICAN SPECIALTIES	3800	
GB2	24" LONG GRAB BAR	AMERICAN SPECIALTIES	3800	
GB4	36" LONG GRAB BAR	AMERICAN SPECIALTIES	3800	
GB5	42" LONG GRAB BAR	AMERICAN SPECIALTIES	3800	
GB6	48" LONG GRAB BAR	AMERICAN SPECIALTIES	3800	
LD1	SOAP DISPENSER	N/A	N/A	OWNER PROVIDED CONTRACTOR INSTALLED
LD2	LAVATORY LIQUID SOAP DISPENSER	N/A	N/A	OWNER PROVIDED CONTRACTOR INSTALLED
MH1	MOP & BROOM HOLDER	BOBRICK	B-239X34	
MR1	CHANNEL FRAME MIRROR - 24" WIDE x 42" TALL	AMERICAN SPECIALTIES	0620-2442	
MR2	CUSTOM CHANNEL FRAME MIRROR - 48" TALL	LANCASTER PAINT & GLASS		VERIFY MAX WIDTH IN FIELD PRIOR TO FABRICATION
PT1	WALL MOUNTED PAPER TOWEL DISPENSER	N/A	N/A	<varies>
RH1	DOUBLE ROBE HOOK	AMERICAN SPECIALTIES	7345	
SDS1	SOAP DISH SHELF	AMERICAN SPECIALTIES	7380-S18	
SN1	SANITARY WASTE RECEPTACLE	N/A	N/A	OWNER PROVIDED CONTRACTOR INSTALLED
TP1	TOILET PAPER DISPENSER	N/A	N/A	OWNER PROVIDED CONTRACTOR INSTALLED



TYPICAL INFORMATIONAL SIGNAGE



TYPICAL UTILITY ROOM / STAIRWAY SIGN

MW STUDIOS
ARCHITECTURE + MASTER PLANNING
10839-D PHILADELPHIA RD
WHITE MARSH, MD 21162
(P) 410-344-1460
(F) 443-403-2460
(E) INFO@MWSARCH.COM
WWW.MWSARCH.COM

SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA.
LICENSE NUMBER: #RA405311
EXPIRATION DATE: 6-30-2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT
1775 WELSH ROAD
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER: 18-036
PROJECT SET: BID SET
DATE ISSUED: 11/30/2023

DRAWING TITLE: TYPICAL ACCESSIBILITY GUIDELINES

SHEET NUMBER: G003

11/29/2023 11:44:37 AM

CUMRU FIRE DEPARTMENT

CUMRU TOWNSHIP, BERKS COUNTY, PENNSYLVANIA
CONTRACT #1A, #15A, #15B & #16A

ATLAS
920 Germantown Pike, Suite 200
Plymouth Meeting, PA. 19462

PROJECT REQUIREMENTS AND NOTES

GENERAL

1. All referenced plans, specifications, codes or other information are to be included as part of the design documents. All contractors, including subcontractors, shall be fully aware of these documents prior to bidding and construction.
2. Any discrepancies found in the design documents shall be brought in writing to the attention of the responsible engineer immediately.
3. No substitutions and/or changes shall be allowed unless requested and approved in writing by the responsible engineer.
4. All work shall be performed in strict accordance with OSHA, Federal, State and local codes and requirements.

CONSTRUCTION

1. All components of construction not specifically called for or detailed on the drawings, but are required, necessary and considered good practice for construction shall be included in the design.
2. All construction shall comply with PennDOT Publication 408, Latest Edition unless specified in the construction document.
3. All construction details shall comply with PennDOT Publication 72, "Standards for Roadway Construction", Series RC 0 to 100, Latest Edition unless detailed in the project plans.
4. All curb, sidewalk and sidewalk ramp construction, if any, must meet the respective accessibility regulations and provisions as established in the American with Disabilities Act U.S.C. (ADAAG)
5. The Berks County Conservation District (BCCD) must be notified prior to any earth disturbance. All required erosion and sediment control measures must be installed and operating prior to any earth disturbance, and maintained per BCCD requirements for the duration of the project. Refer to the Soil Erosion and Sediment Control Notes for additional requirements.
6. Maintenance and protection of traffic during construction shall be in accordance with PennDOT Publication 203, "Work Zone Traffic Control" where applicable.
7. Public access to all roadways, driveways, and sidewalks must be available at all times during construction as is possible.
8. During construction, all obstructions (including, but not limited to, equipment and construction materials) shall be removed by the contractor at the end of each working day to allow a safe sight distance for drivers, cyclists, and pedestrians accessing the roadways, driveways and sidewalks. Trained flagmen or other approved means shall be used to assist drivers, cyclists, and pedestrians safely around any temporary sight obstructions.
9. Fire hydrants and other public safety devices must remain visible, operational and accessible at all times during construction.
10. Slopes shall be graded to a maximum of 3 horizontal to 1 vertical or as safely allowed by the soil conditions.
11. All unsuitable materials and other construction materials shall become the property of the contractor, unless specifically requested by the owner, and to be to be properly disposed off-site as required per the soil erosion and sediment control notes.
12. All excavation to be unclassified.
13. The contractor is fully responsible for adherence to the Preparedness, Prevention and Contingency (PPC) plan as listed in the project plans and specifications.
14. Blasting allowed where necessary due to rock conditions if approved by owner per specifications. Contractor must video inspect all adjacent structures prior to confirm existing conditions prior to blasting. Contractor will be responsible for all collateral damages arising from blasting.
15. Construction materials, equipment, and supplies may not be stored in floodplains and/or wetlands.
16. Excavated material not to be used as trench backfill in R-O-W or under pavement.
17. The removal of debris and accumulated sediment to ensure hydraulic capacity of the stream culverts shall be limited to 50 feet upstream and downstream from the culvert and shall be conducted in accordance with PADEP requirements.
18. Required Bog Turtle avoidance measures for all stream crossings: Avoid in-stream impacts by spanning the waterway or going under it (e.g., via horizontal boring or directional drilling). If in-stream impacts cannot be avoided, carry out in stream work -- including installation of permanent structures (e.g., pipelines, livestock crossings, riprap), or installation, use, and removal of temporary structures (e.g., temporary road crossings) -- between October 1 and March 31.

UTILITIES

1. The contractor is solely responsible for verifying the actual locations by contacting the PA One Call System and the individual utility companies at least three (3) working days prior to any excavation. Additional excavation of test pits may be required for determining the precise location of a buried utility.
2. All existing utility (water, sewer, gas, electric, drainage, etc.) locations and elevations must be verified by the contractor prior to fabrication and construction of replacement of connected utilities.
3. The contractor is solely responsible for the protection of all utilities crossing or adjacent to the construction area per the requirements of the utility owner. Any damaged utilities must be inspected by the utility owner and repaired as necessary per the utility owner's requirements and at the expense of the contractor.
4. Any utilities requiring relocation, either permanent or temporary, shall be completed by the contractor per the requirements and inspection of the utility owner.
5. All required connections from the constructed or replaced utility systems to the existing systems and laterals shall be completed per the requirements of the utility owner. Each connection location, depth, and condition to be verified by contractor and confirmed by the utility owner per PA One Call requirements and exploratory excavation as required.
6. Excavated clean and suitable material, where to be used as backfill, may be temporarily stored adjacent to the trench and must be used by the end of each work day.

SURVEY

1. Horizontal Survey Control Datum is State Plane Coordinates, NAD83, Pennsylvania South Zone.
2. Vertical Survey Control Datum is NAVD88.
3. Local benchmarks are as noted on the plans.
4. Floodplains shown are based on the latest National Flood Insurance Program (NFIP) Flood Insurance Rate Map as published by FEMA.
5. Soil types mapped are as shown on USDA NRCS Web Soil Survey.
6. The plan depicts the survey conditions as existed on or around 1/1/23.
7. All Right-Of-Ways, Easements and Property Lines shown are for information only, based on existing available records. The plans were prepared without benefit of a title report and are not to be used for establishment of ownership boundaries in the field.
8. Owner will provide building exterior, grading and site work construction stakeout. Contractor is responsible for building interior layout.

PERMITS

1. The owner is obtaining or has obtained the following permits for the project:
   A. PHMC #2020-1958-011-A, 07/24/20
   B. Individual National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges Associated with Construction Activities approved by the Pennsylvania Department of Environmental Protection #PAD060047.
2. The contractor shall be responsible for obtaining any and all other required permits and approvals needed for the project.
3. It shall be the contractor's responsibility to be aware of and conform to the requirements of these and any other required permits and approvals.
4. The contractor shall be liable for all penalties for failure to comply with permit requirements, including any sanitary sewer overflows due to construction conditions.
5. The contractor shall be responsible for obtaining all permit extensions as needed for the project duration.
6. The contractor shall be responsible for obtaining approval from the permitting agencies for amending or modifying any permits.
7. All applicable permits must be transferred into the contractor's name prior to any earth disturbance.

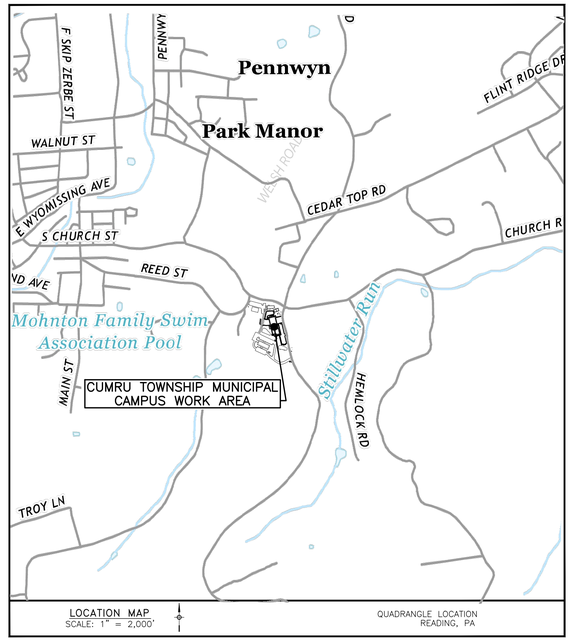
CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

The intent of the construction drawings and the construction specifications/project manual is to include all items necessary for the proper execution and completion of the work by the contractor. The construction drawings and the construction specifications/project manual are complementary, and what is required by one shall be as binding as if required by all; performance by the contractor shall be required only to the extent consistent with the construction drawings and the construction specifications/project manual and reasonably inferable from them as being necessary to produce the indicated/intended results. In the case of inconsistencies between the construction drawings and the construction specifications/project manual or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Civil Engineer interpretation.

Engineer's Certification

I Jeffrey E. Skinner do hereby certify pursuant to the penalties of 18 Pa. C.S.A. Sec. 4904 to the best of my knowledge, information and belief, that the information contained in the accompanying plans, specifications, and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Protection.

DRAWING INDEX



LOCATION MAP
SCALE: 1" = 2,000'

QUADRANGLE LOCATION
READING, PA

SITE LEGEND

PROPERTY LINE		P.S.B.	PROJECT SITE BOUNDARY
EXISTING BUILDING		LOD	LIMIT OF DISTURBANCE
EXISTING CONTOUR	542	PROPOSED BUILDING	
EXISTING STORMWATER PIPE		PROPOSED CONTOUR	542
EXISTING STORMWATER INLET		PROPOSED STORMWATER PIPE	
EXISTING EDGE OF PAVING		PROPOSED STORMWATER INLET	
EXISTING CURB		PROPOSED EDGE OF PAVING	TC = TOP CURB, BC = BOTTOM CURB
EXISTING SIGN		PROPOSED CURB	
EXISTING SANITARY SEWER	S	PROPOSED SIGN	
EXISTING GAS MAIN	G	PROPOSED SANITARY SEWER	S
EXISTING WATER MAIN	W	PROPOSED GAS MAIN	G
EXISTING SANITARY MANHOLE		PROPOSED WATER MAIN	W
GAS CURB STOP		TO BE VERIFIED (BY CONTRACTOR)	TBV
WATER CURB STOP		TO BE REMOVED	TBR
SANITARY CLEAN OUT			
FIRE HYDRANT			
VALVE			
TEST PIT LOCATION			

Pennsylvania One Call System, Inc.

Call Before You Dig in Pennsylvania 1-800-242-1776

State Law Requires
Construction Phase: Three working Days Notice
Design Phase: Ten working Days Notice
Facility Owners: Member of One Call System

SERIAL NO. #20210272169,
SERIAL NO. #20210272189,
SERIAL NO. #20210272250,
SERIAL NO. #20210272251,
SERIAL NO. #20210272292,
SERIAL NO. #20210272341

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04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER NO. 042652-E

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

TITLE SHEET

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: 2057000538
DRAWING #: 100
SHEET #: 1 Of 25

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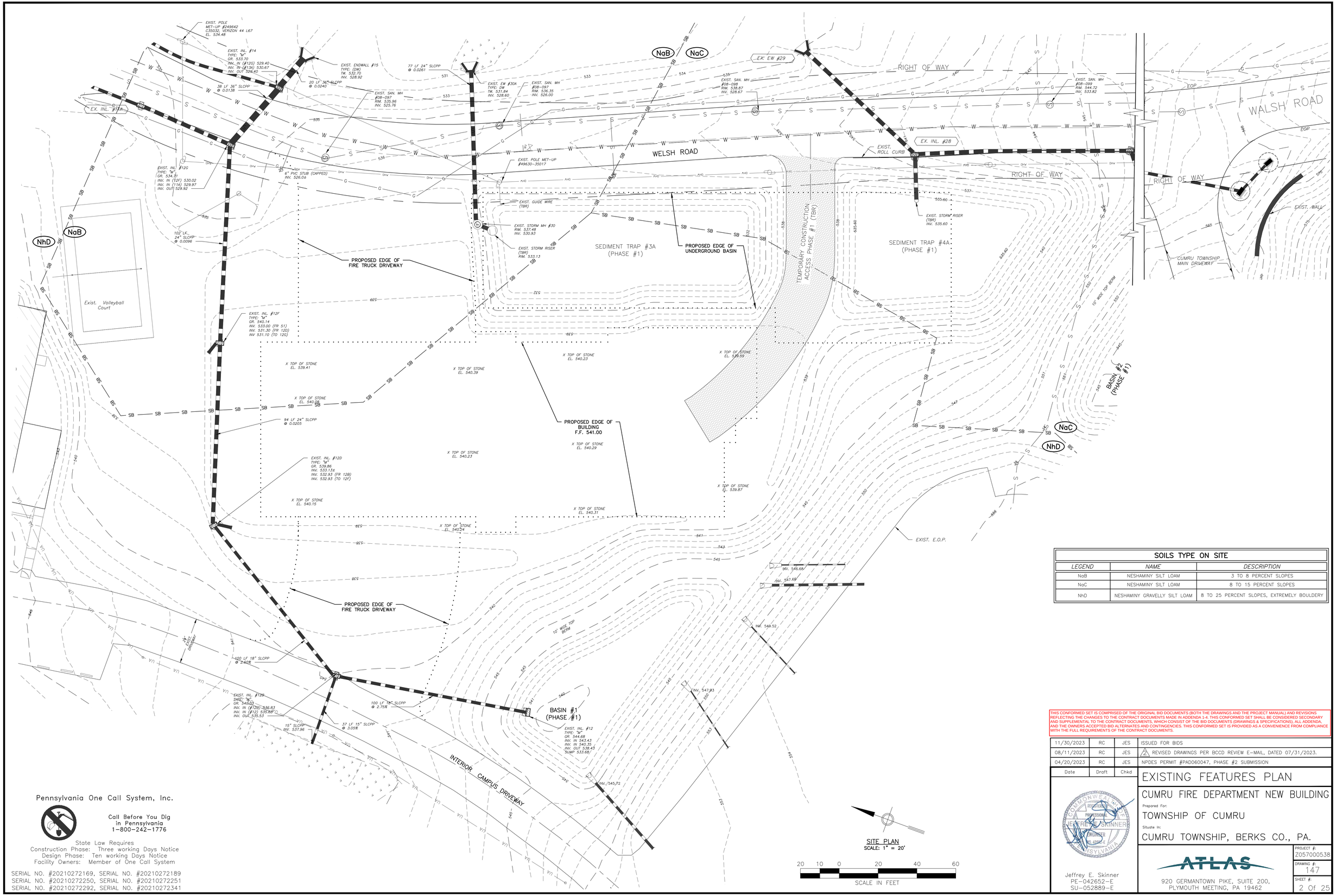

SITE PLAN
SCALE: 1" = 20'

20 10 0 20 40 60
SCALE IN FEET

SOILS TYPE ON SITE		
LEGEND	*NAME*	*DESCRIPTION*
NaB	NESHAMINY SILT LOAM	3 TO 8 PERCENT SLOPES
NaC	NESHAMINY SILT LOAM	8 TO 15 PERCENT SLOPES
NhD	NESHAMINY GRAVELLY SILT LOAM	8 TO 25 PERCENT SLOPES, EXTREMELY BOULDERY

Pennsylvania One Call System, Inc.

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JEFFREY E. SKINNER NO. 042652-E

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

EXISTING FEATURES PLAN

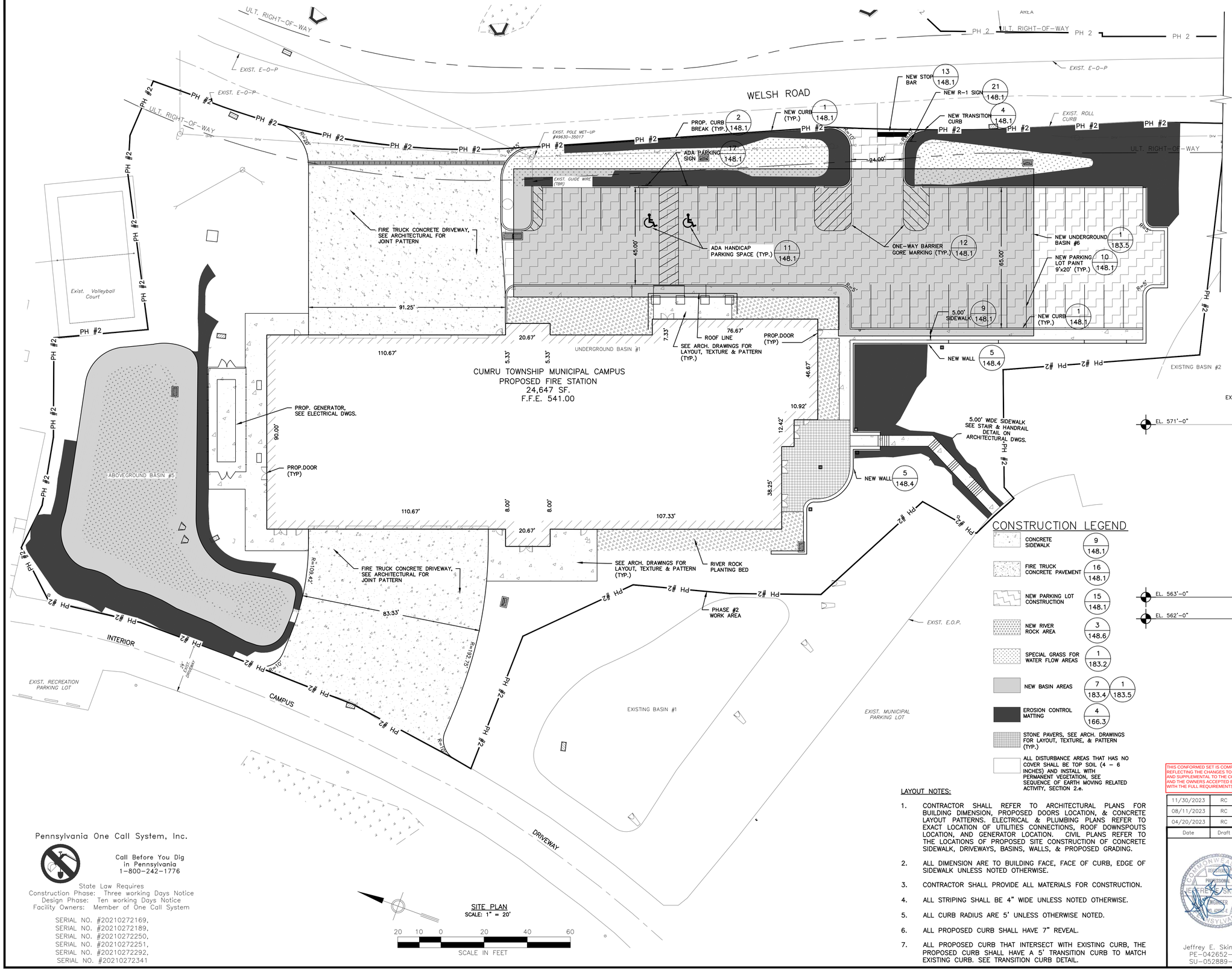
CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

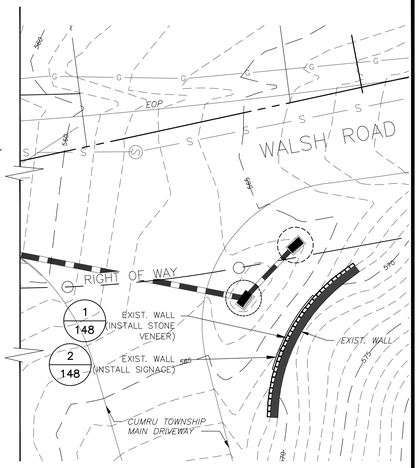
Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

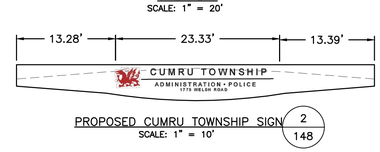
ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 147
SHEET #: 2 Of 25

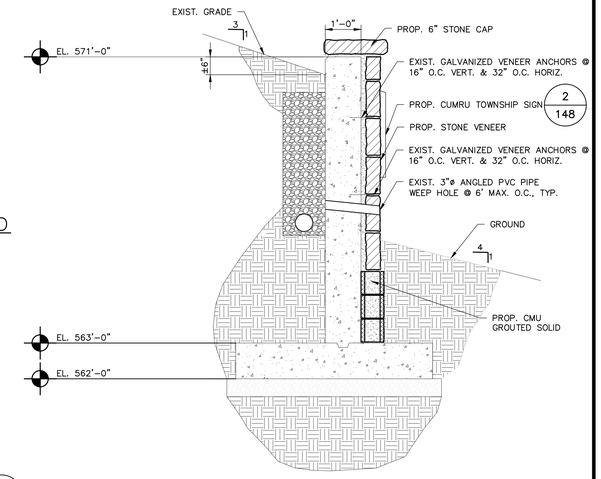


SITE PLAN
SCALE: 1" = 20'





PROPOSED CUMRU TOWNSHIP SIGN 2/148
SCALE: 1" = 10'



SECTION – EXISTING RETAINING WALL 1/148
SCALE: 1/2" = 1'-0"

CONSTRUCTION LEGEND

CONCRETE SIDEWALK	9/148.1
FIRE TRUCK CONCRETE PAVEMENT	16/148.1
NEW PARKING LOT CONSTRUCTION	15/148.1
NEW RIVER ROCK AREA	3/148.6
SPECIAL GRASS FOR WATER FLOW AREAS	1/183.2
NEW BASIN AREAS	7/183.4, 1/183.5
EROSION CONTROL MATTING	4/166.3
STONE PAVERS, SEE ARCH. DRAWINGS FOR LAYOUT, TEXTURE, & PATTERN (TYP.)	
ALL DISTURBANCE AREAS THAT HAS NO COVER SHALL BE TOP SOIL (4 – 6 INCHES) AND INSTALL WITH PERMANENT VEGETATION, SEE SEQUENCE OF EARTH MOVING RELATED ACTIVITY, SECTION 2.e.	

LAYOUT NOTES:

1. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR BUILDING DIMENSION, PROPOSED DOORS LOCATION, & CONCRETE LAYOUT PATTERNS. ELECTRICAL & PLUMBING PLANS REFER TO EXACT LOCATION OF UTILITIES CONNECTIONS, ROOF DOWNSPOUTS LOCATION, AND GENERATOR LOCATION. CIVIL PLANS REFER TO THE LOCATIONS OF PROPOSED SITE CONSTRUCTION OF CONCRETE SIDEWALK, DRIVEWAYS, BASINS, WALLS, & PROPOSED GRADING.
2. ALL DIMENSION ARE TO BUILDING FACE, FACE OF CURB, EDGE OF SIDEWALK UNLESS NOTED OTHERWISE.
3. CONTRACTOR SHALL PROVIDE ALL MATERIALS FOR CONSTRUCTION.
4. ALL STRIPING SHALL BE 4" WIDE UNLESS NOTED OTHERWISE.
5. ALL CURB RADIUS ARE 5' UNLESS OTHERWISE NOTED.
6. ALL PROPOSED CURB SHALL HAVE 7" REVEAL.
7. ALL PROPOSED CURB THAT INTERSECT WITH EXISTING CURB, THE PROPOSED CURB SHALL HAVE A 5' TRANSITION CURB TO MATCH EXISTING CURB. SEE TRANSITION CURB DETAIL.

SITE PLAN
SCALE: 1" = 20'

20 10 0 20 40 60
SCALE IN FEET

Pennsylvania One Call System, Inc.

Call Before You Dig in Pennsylvania 1-800-242-1776

State Law Requires
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Jeffrey E. Skinner
PE-042652-E
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CONSTRUCTION PLAN

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
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ATLAS
920 GERMANTOWN PIKE, SUITE 200,
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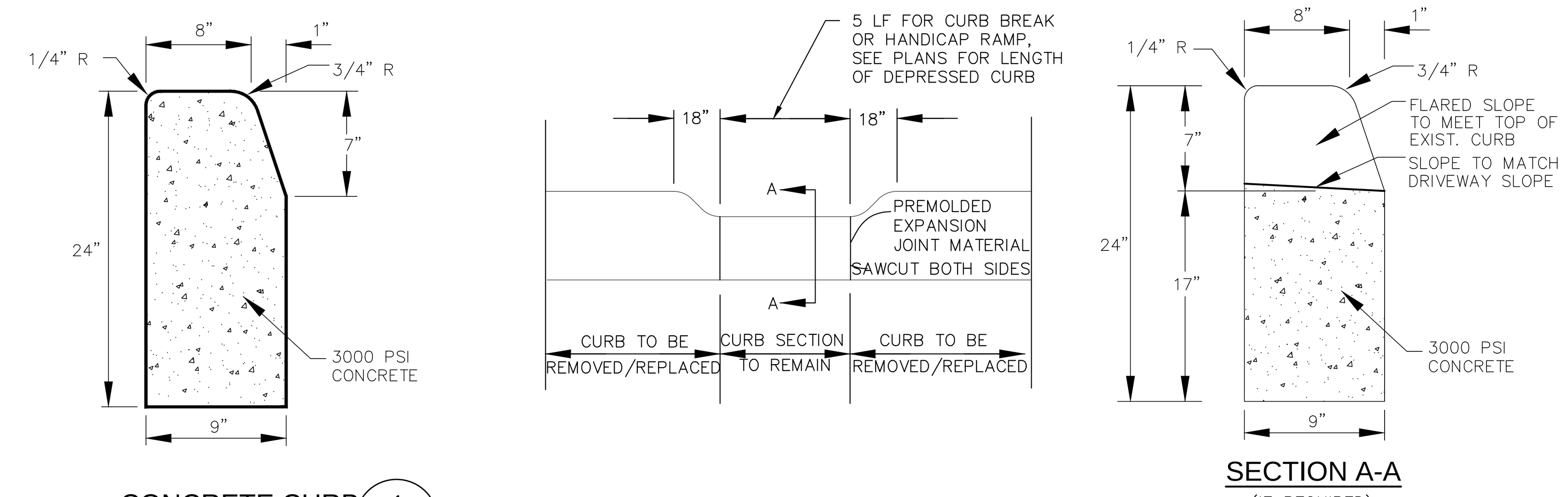
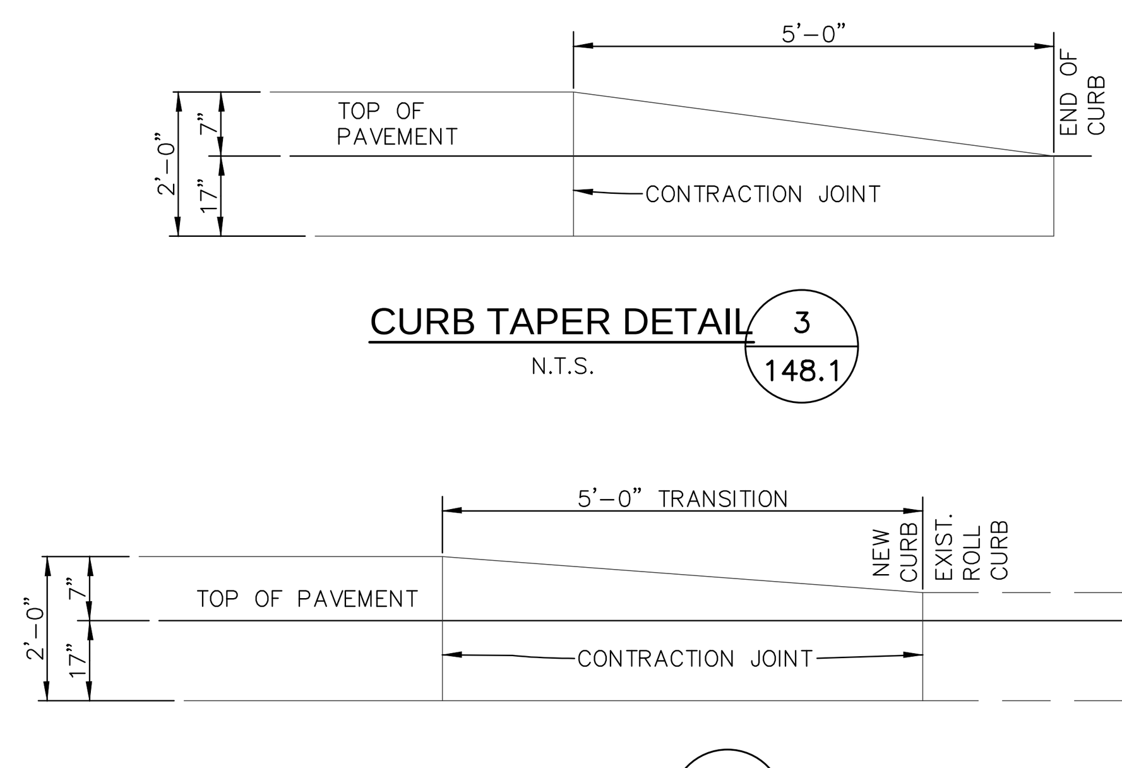


CONCRETE CURB 1/148.1
(IF REQUIRED)
N.T.S.

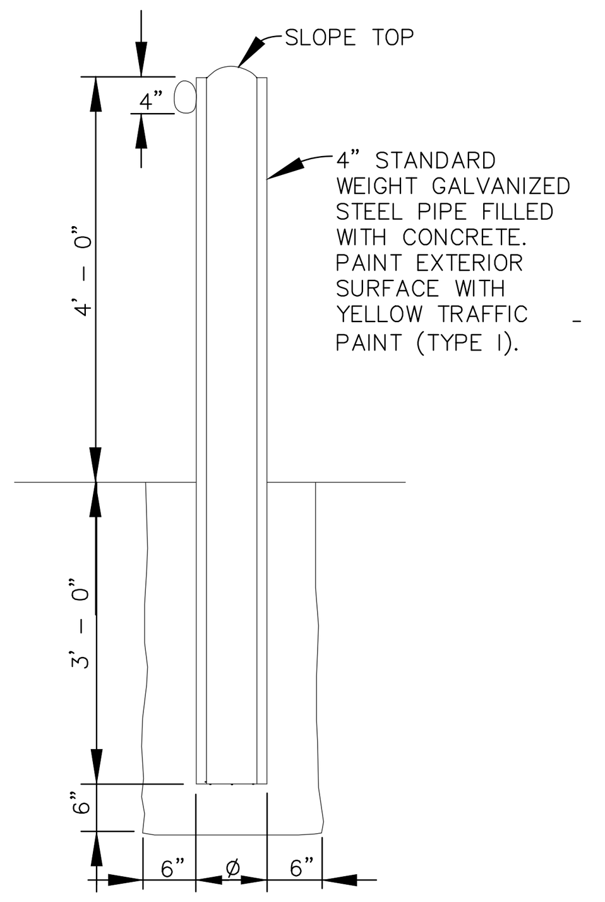
SECTION A-A
(IF REQUIRED)
N.T.S.

DEPRESSED CURB DETAIL 2/148.1



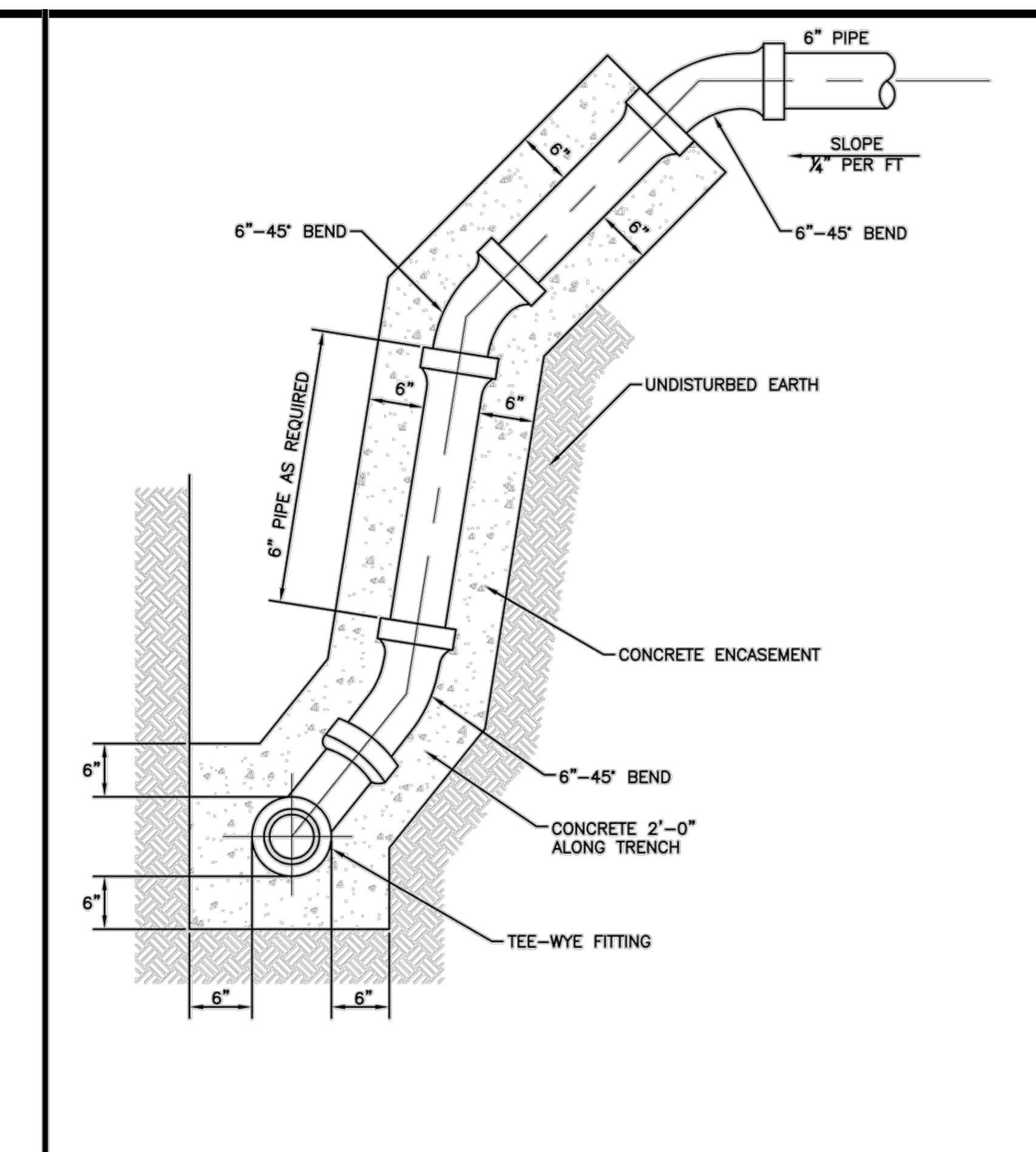
CURB TAPER DETAIL 3/148.1
N.T.S.

TRANSITION CURB DETAIL 4/148.1
N.T.S.

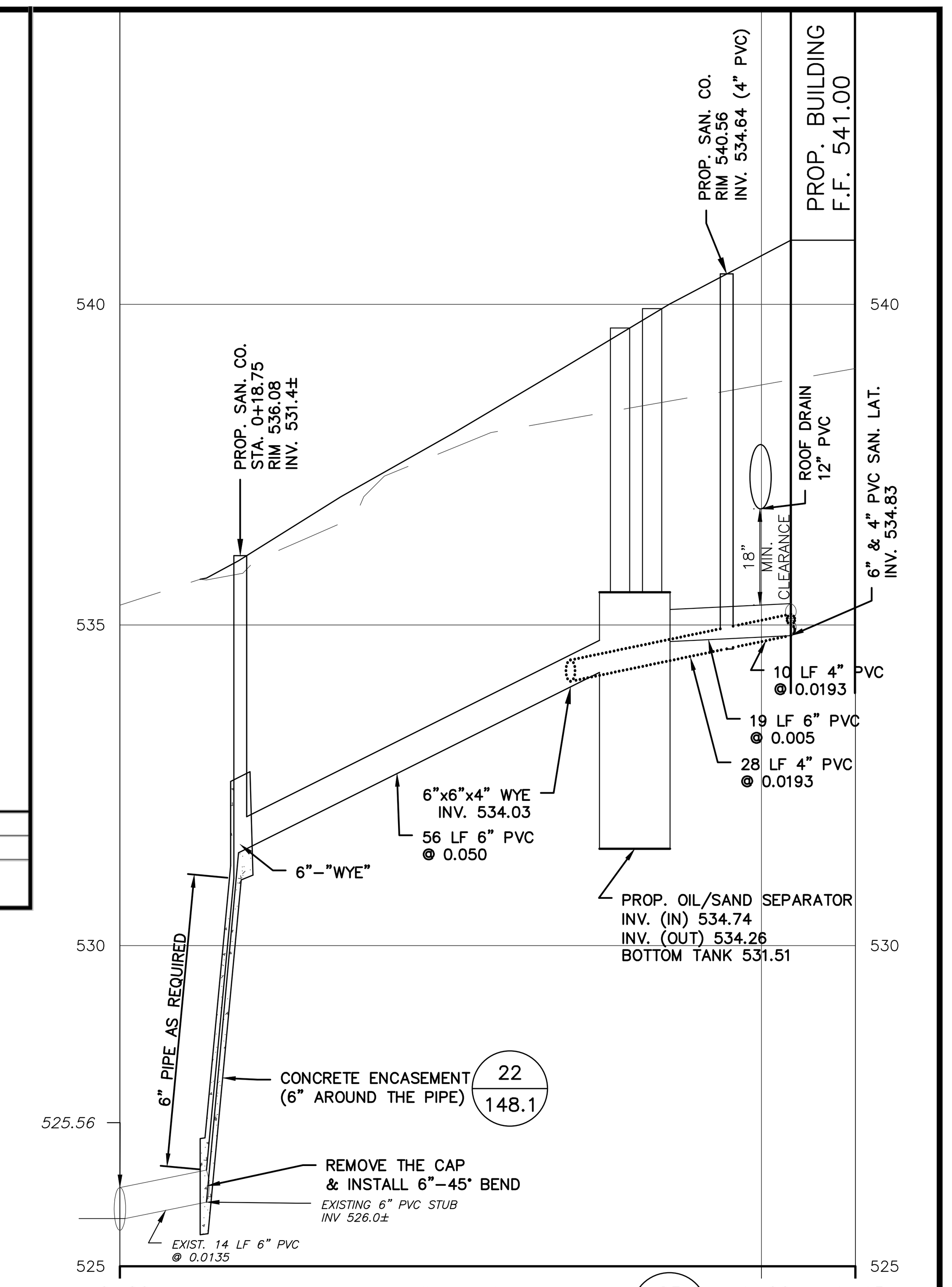


BOLLARDS TO BE PROVIDED AROUND BUILDING AS INDICATED ON THE SITE PLAN.

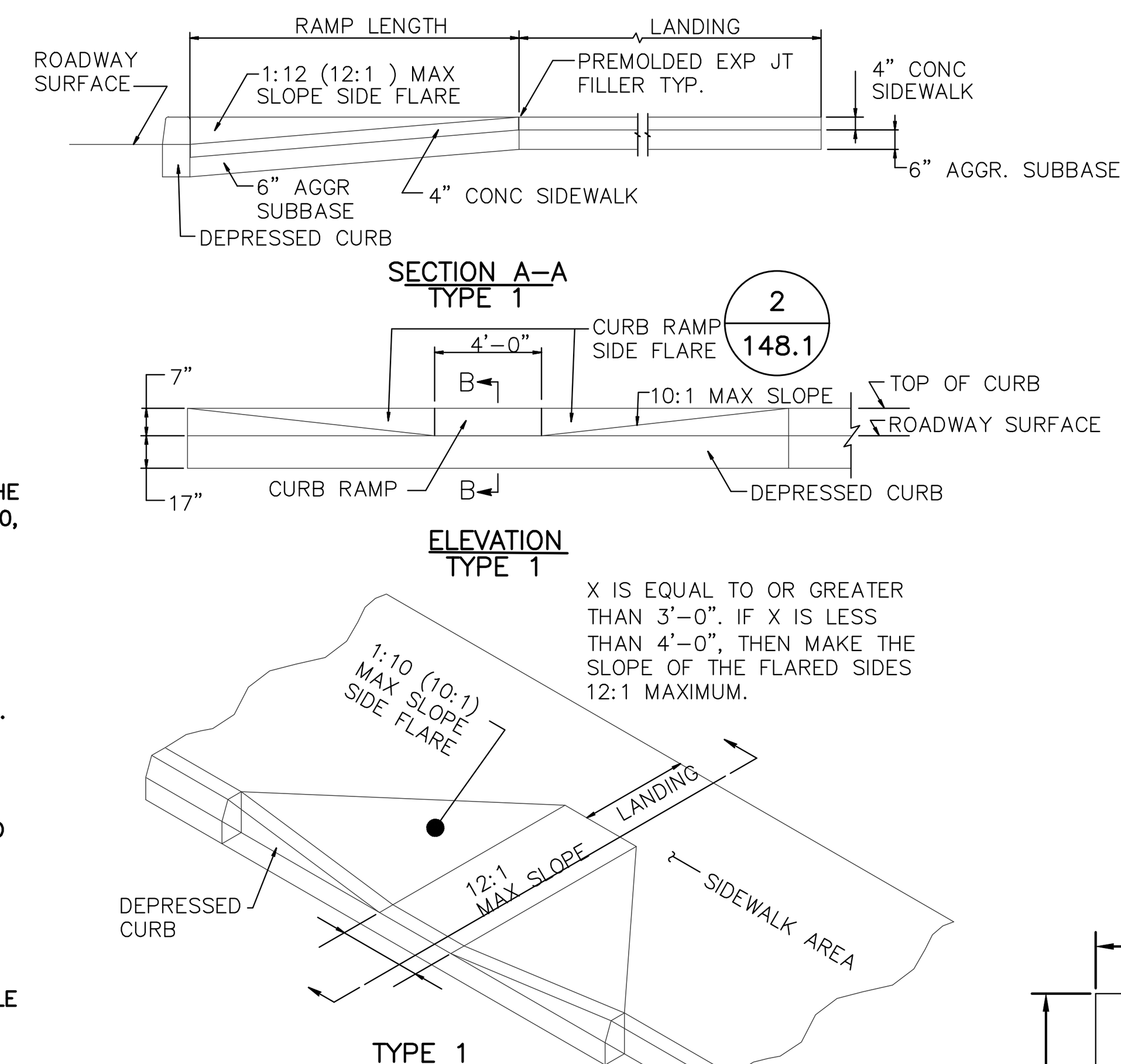
BOLLARD DETAIL 5/148.1
N.T.S.



CUMRU TOWNSHIP		DRAWN: EDC
MARCH 1, 2017	TYPICAL STANDPIPE SINGLE SERVICE CONNECTION 22/148.1	SCALE: NONE
REVISIONS		S022



PROPOSED 4" & 6" SANITARY SEWER LATERAL PROFILE 23/148.1
SCALE V. 1" = 2'
H. 1" = 20'

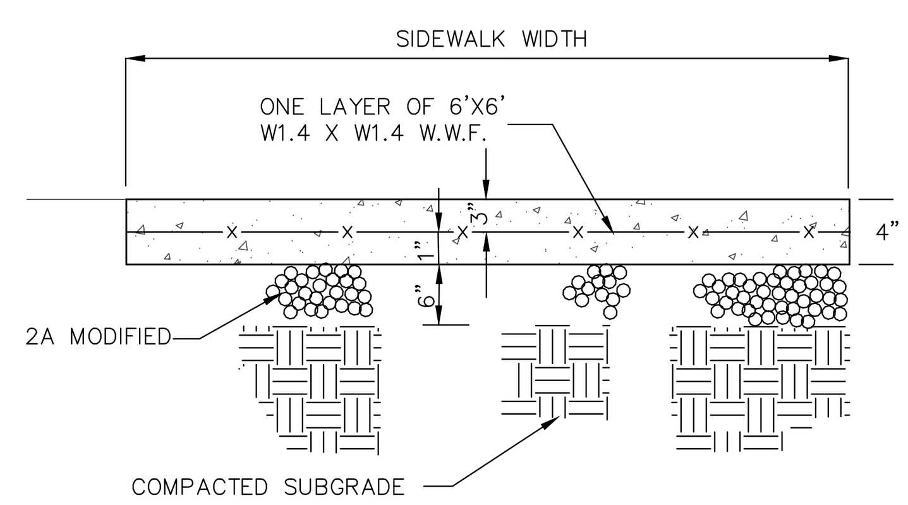


TYPE 1 CURB RAMP NEW CONSTRUCTION 8/148.1

HANDICAP RAMP, TYPE 1

NOTES

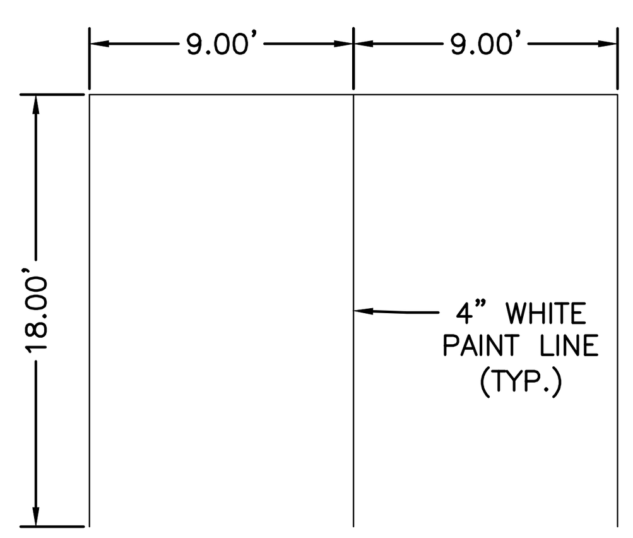
1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PENN DOT PUBLICATION 408/2000, SECTIONS 420, 421, 422, 630 AND 676.
2. PROVIDE EXPANSION JOINT MATERIAL 1/2" THICK WHERE CURB RAMP ADJOINS ANY RIGID PAVEMENT, SIDEWALK OR STRUCTURE WITH THE TOP OF JOINT FILLER FLUSH WITH ADJACENT CONCRETE SURFACE.
3. SEAL JOINTS WITH AN APPROVED SEALING MATERIAL.
4. PROVIDE SLIP RESISTANT TEXTURE ON CURB RAMP BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP. EXTEND TEXTURE THE FULL WIDTH AND LENGTH OF THE CURB RAMP INCLUDING FLARED SIDE RAMPS.
5. MODIFY CONSTRUCTION DETAILS TO ADAPT DIMENSIONS WHERE THE CURB IS LESS THAN THE STANDARD 7" HEIGHT.
6. CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK PITCH.
7. WHENEVER POSSIBLE, CONSTRUCT THE TRANSITION SLOPE FROM THE CURB RAMP AND FLARE SIDES TO ADJOINING SURFACES WITH A GRADUAL CURVE RATHER THAN AN ABRUPT ANGLE.



SIDEWALK NOTES

- NEW CONCRETE WALK TO HAVE 2 1/2" TOWELED EDGES, SCORE JOINTS APPROXIMATELY 5' O.C.
- PROVIDE A 1/2" THICK PREFORMED EXPANSION JOINT W/ 1/2" DEEP SEALANT APPROXIMATELY 50' O.C. OR WHERE WALK CHANGES OR ABUTS A STRUCTURE FLOAT WALKS AND PROVIDE A LIGHT BROOM FINISH

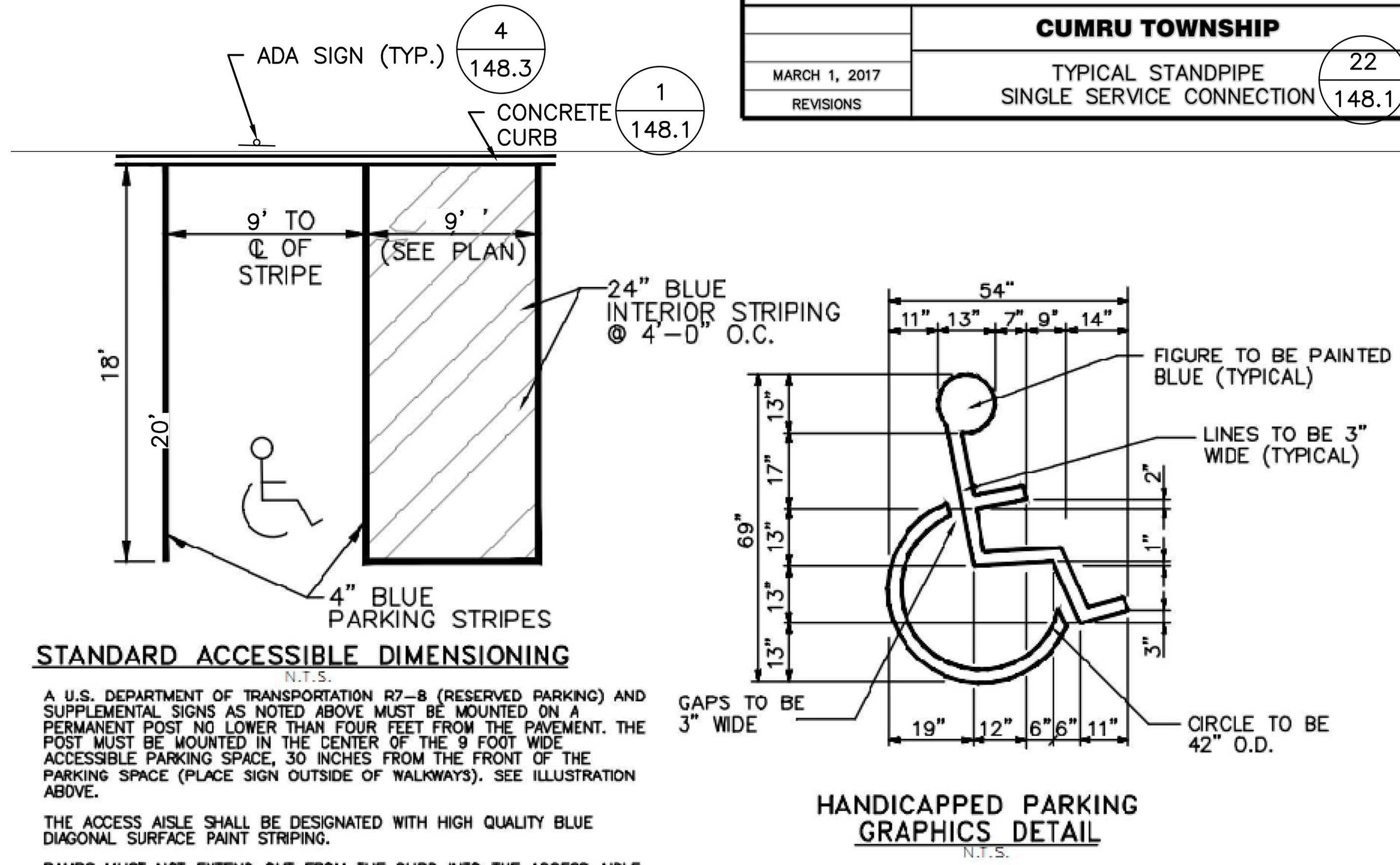
CONCRETE SIDEWALK DETAIL 9/148.1
N.T.S.



PARKING STALL NOTES:

1. PROVIDE 2 COATS OF PAINT ON ALL SITE STRIPING.
2. SEE SITE PLAN FOR ACTUAL STALL LOCATION AND DIMENSIONS.

TYPICAL CAR PARKING STALL DETAIL 10/148.1
N.T.S.



STANDARD ACCESSIBLE DIMENSIONING

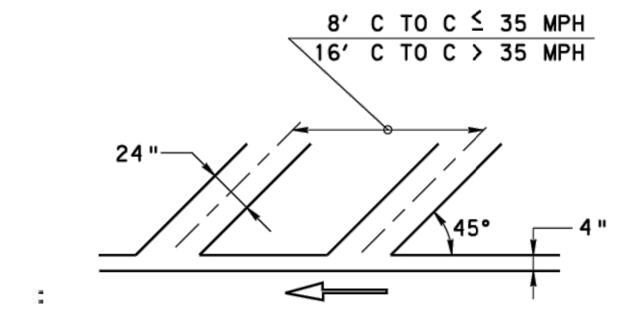
A U.S. DEPARTMENT OF TRANSPORTATION R7-8 (RESERVED PARKING) AND SUPPLEMENTAL SIGNS AS NOTED ABOVE MUST BE MOUNTED ON A PERMANENT POST NO LOWER THAN FOUR FEET FROM THE PAVEMENT. THE POST MUST BE MOUNTED IN THE CENTER OF THE 9 FOOT WIDE ACCESSIBLE PARKING SPACE, 30 INCHES FROM THE FRONT OF THE PARKING SPACE (PLACE SIGN OUTSIDE OF WALKWAYS). SEE ILLUSTRATION ABOVE.

THE ACCESS AISLE SHALL BE DESIGNATED WITH HIGH QUALITY BLUE DIAGONAL SURFACE PAINT STRIPING.

RAMPS MUST NOT EXTEND OUT FROM THE CURB INTO THE ACCESS AISLE OF ANY ACCESS PARKING SPACE.

HANDICAPPED PARKING GRAPHICS DETAIL
N.T.S.

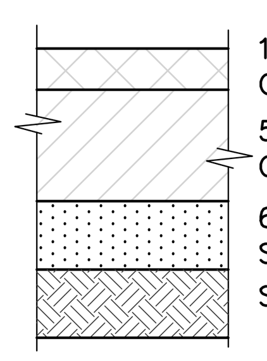
HANDICAP PARKING SPACE DETAIL 11/148.1
N.T.S.



ONE-WAY BARRIER GORE MARKING 12/148.1
N.T.S.

STOP LINE

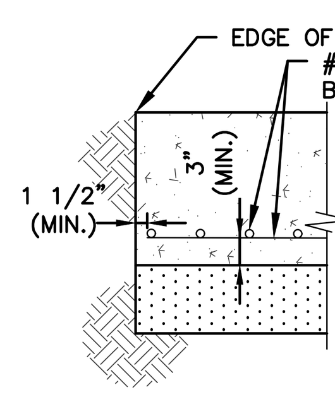
STOP BAR 13/148.1
N.T.S.



ASPHALT PARKING LOT/DRIVEWAY PAVEMENT 15/148.1
N.T.S.

DRIVEWAY & PARKING LOT RECONSTRUCTION NOTES:

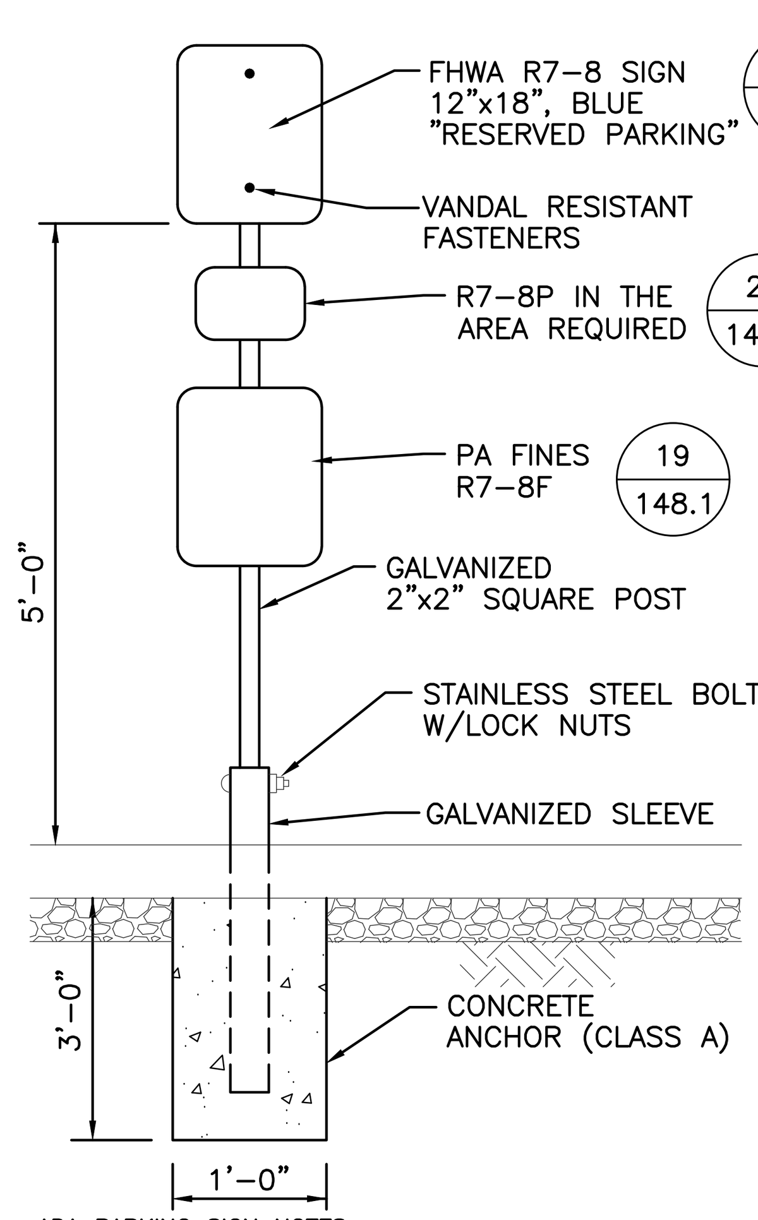
1. 9.5 MM MIX SUPERPAVE ASPHALT MIXTURE DESIGN (WMA), WEARING COURSE, PG. 64S-22, 3 TO 30 MILLION ESALS, DESIGN LEVEL 75 GYRATIONS.
2. 25.0 MM MIX SUPERPAVE ASPHALT MIXTURE DESIGN (WMA), BASE COURSE, PG. 64S-22, 3 TO 30 MILLION ESALS, DESIGN LEVEL 75 GYRATIONS.
3. 2A MODIFIED AGGREGATE SUBBASE, COMPACTED TO 100% OF THE MAXIMUM DRY-WEIGHT DENSITY.
4. SUBGRADE TOPSOIL, LARGE ROCKS, AND OTHER TYPES OF LOW QUALITY, UNSUITABLE SOIL SHALL BE REMOVED AND REPLACED. THE EXPOSED SURFACE SHALL BE COMPACTED WITH SUITABLE EQUIPMENT (MINIMUM 10-TON ROLLER). SUBGRADE COMPACTION SHOULD BE TO A DRY DENSITY OF AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698).
5. 2 RC TO BE INSTALLED BETWEEN TOP OF BASIN #6 STONE AND SUBBASE.
6. EXCAVATE AND REMOVE EXISTING PAVEMENT AND MATERIAL TO REQUIRED ELEVATION. RECOMPACT EXPOSED SUBGRADE. TACK COAT ALL EXPOSED VERTICAL PAVEMENT EDGES.
7. HOT SEAL ALL EDGE JOINTS WITH 12" WIDE PG 64S-22 TO EXISTING PAVEMENTS, CURBS, DRAINAGE AND UTILITY STRUCTURES.



FIRE TRUCK CONCRETE DRIVEWAY 16/148.1
N.T.S.

FIRE TRUCK CONCRETE PAD NOTES:

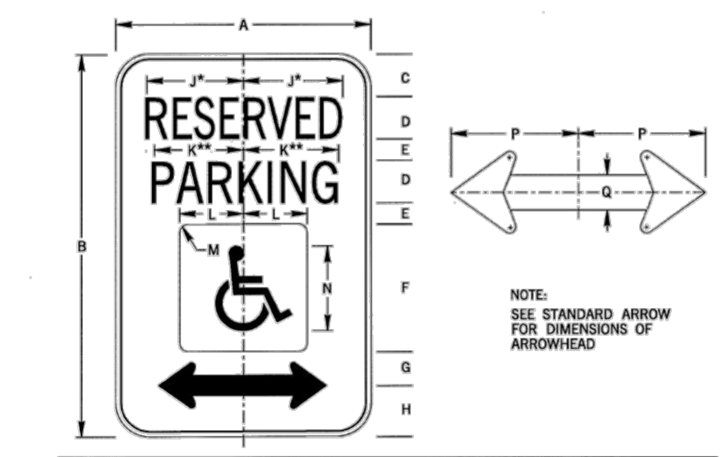
1. 5000 PSI CONCRETE.
2. #4 EPOXY COATED BARS 6" O.C. BOTH DIRECTIONS.
3. FINISHED, PROVIDE A 1/2" THICK EXPANSION JOINTS W/ 1/2" DEEP SEALANT APPROXIMATELY 50' O.C. AND SCORE JOINTS APPROXIMATELY 5' O.C.
4. REGRADE AND COMPACT AS NEEDED TO MEET SUBBASE GRADE AND STABILIZATION REQUIREMENTS OF 100% OF THE MAXIMUM DRY-WEIGHT DENSITY. PROVIDE ADDITIONAL MATERIAL AS NEEDED TO MEET REQUIRED GRADES.



ADA PARKING SIGN NOTES:

1. SIGNS: R7-8A, R7-8, & R7-8P
2. SIGNS: R7-8 & R7-8P

ADA PARKING SIGN 17/148.1
N.T.S.

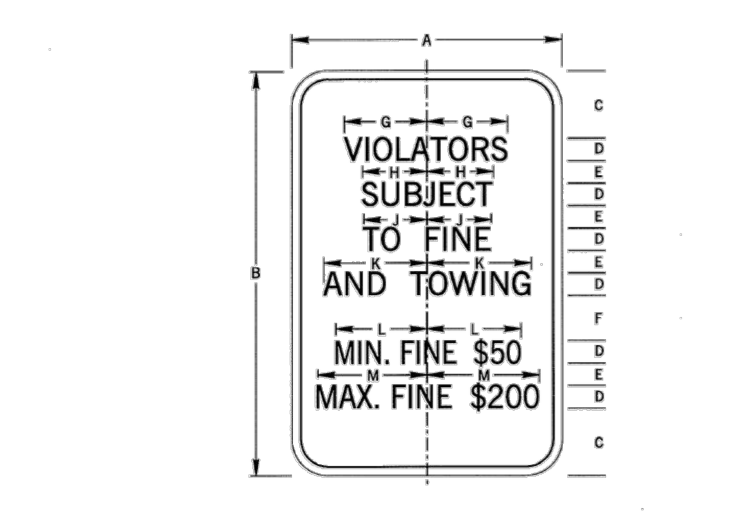


DIMENSIONS - IN															
SIGN SIZE A x B	C	D	E	F	G	H	J	K	L	M	N	P	Q	MAR-GIN	BOR-DER	BLANK STD.
12" x 18"	2	2C	1	6	1.6	2.4	4.9	4.3	3	0.4	4	3.8	0.8	0.4	0.4	B5-1218

* REDUCE SPACING 50%
** REDUCE SPACING 33%

COLOR:
LEGEND, ARROW AND BORDER: GREEN (REFLECTORIZED)
BACKGROUND AND SYMBOL: WHITE (REFLECTORIZED)
SYMBOL BACKGROUND: BLUE (REFLECTORIZED)

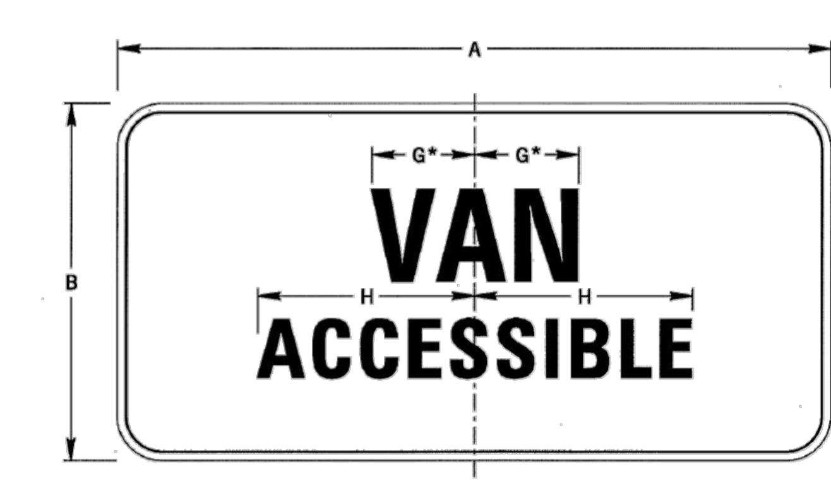
RESERVED PARKING SIGN (R7-8) 18/148.1
N.T.S.



DIMENSIONS - IN													
SIGN SIZE A x B	C	D	E	F	G	H	J	K	L	M	MAR-GIN	BOR-DER	BLANK STD.
12" x 18"	3	1C	1	2	3	2.4	2.3	3.6	4	4.6	0.4	0.4	B5-1218

COLOR:
LEGEND AND BORDER: RED (REFLECTORIZED)
BACKGROUND: WHITE (REFLECTORIZED)

PA FINES SIGN (R7-8F) 19/148.1
N.T.S.

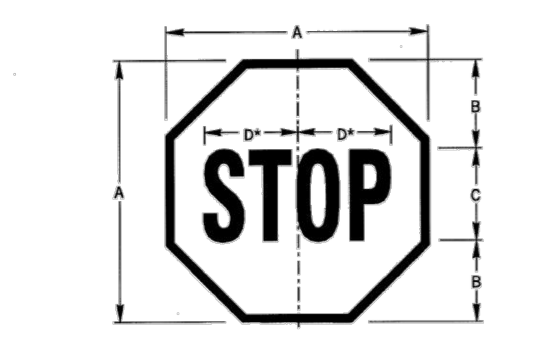


DIMENSIONS - IN									
SIGN SIZE A x B	C	D	E	F	G	H	MAR-GIN	BOR-DER	BLANK STD.
12" x 6"	1.4	1.6D	0.6	1D	2.1	4	0.4	0.4	B5-1206

* INCREASE SPACING 50%

COLOR:
LEGEND AND BORDER: GREEN (REFLECTORIZED)
BACKGROUND: WHITE (REFLECTORIZED)

VAN ACCESSIBLE SIGN (R7-8P) 20/148.1
N.T.S.

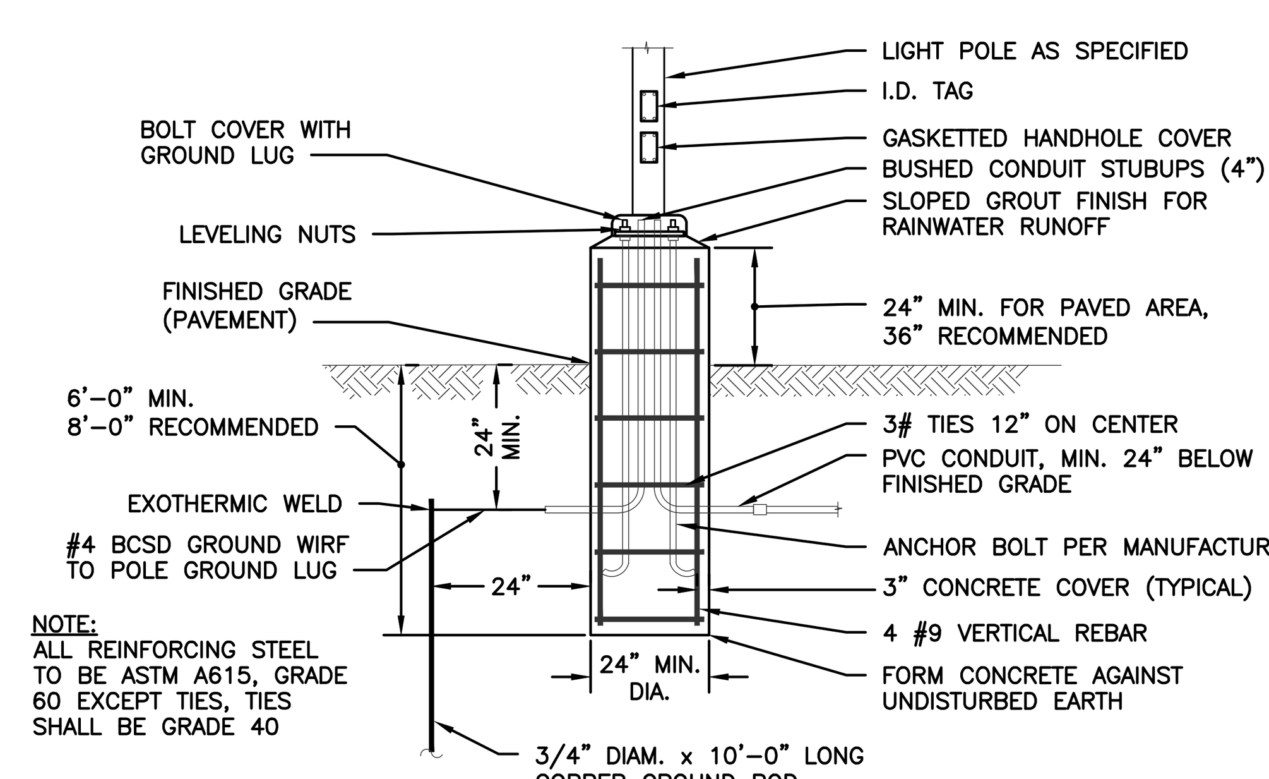


DIMENSIONS - IN					
SIGN SIZE A x A	B	C	D	BOR-DER	BLANK STD.
18" x 18"	6	6C	8	0.4	——
24" x 24"	8	8C	10	0.6	B1-24
30" x 30"	10	10C	12.6	0.8	B1-30
36" x 36"	12	12C	15	0.8	B1-36
48" x 48"	16	16C	20	1.2	B1-48

* REDUCE SPACING 40%

COLOR:
LEGEND AND BORDER: WHITE (REFLECTORIZED)
BACKGROUND: RED (REFLECTORIZED)

STOP SIGN (R1-1) 21/148.1
N.T.S.



NOTE:
ALL REINFORCING STEEL TO BE ASTM A615, GRADE 60 EXCEPT TIES, TIES SHALL BE GRADE 40

POLE LIGHT STANDARD AND FIXTURE DETAIL 24/148.1
N.T.S.

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Date	Draft	Chkd	
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08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

SITE DETAILS & PROFILE

CUMRU FIRE DEPARTMENT NEW BUILDING

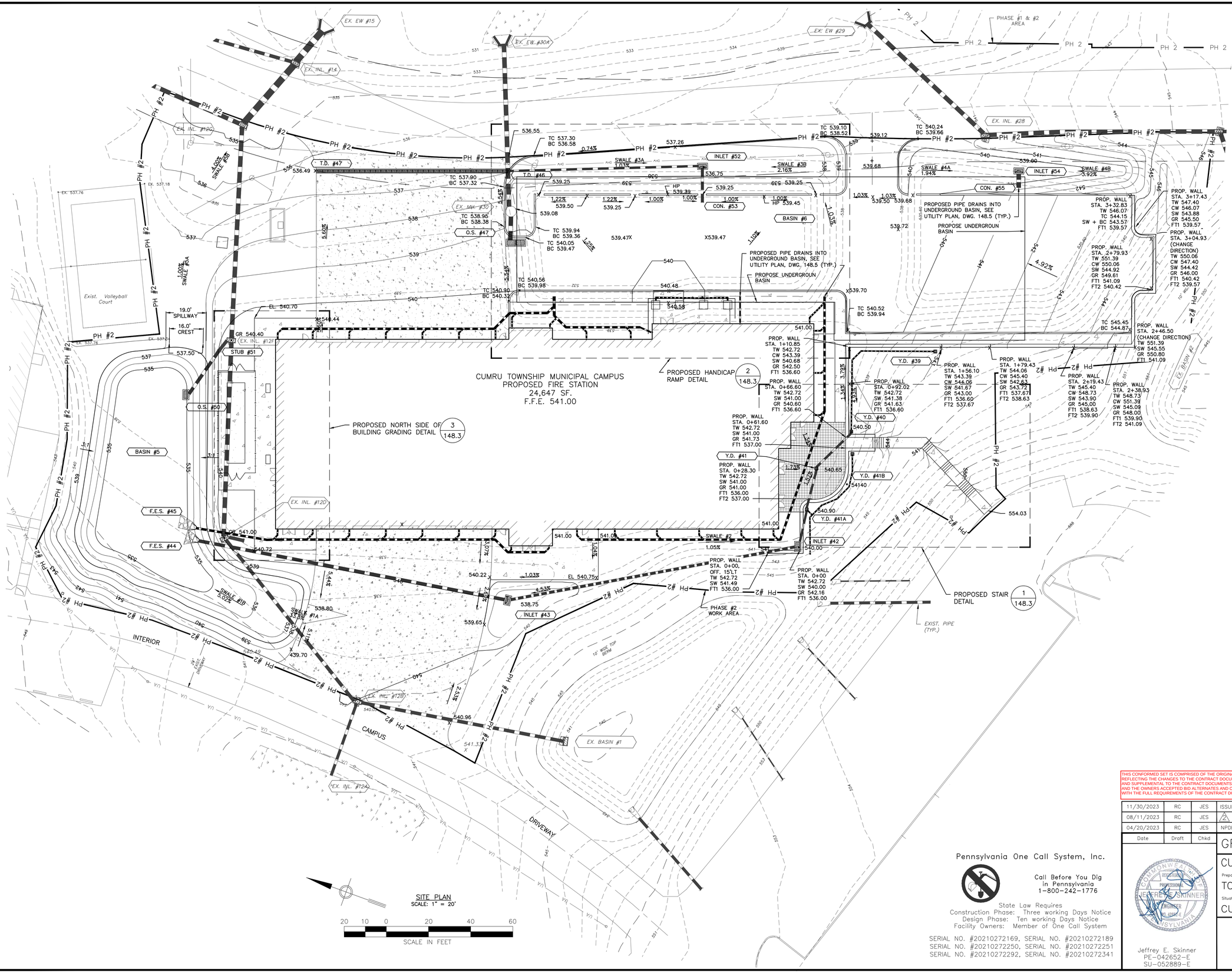
Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 148.1
SHEET #: 4 Of 25



GRADING NOTES:

1. ALL SLOPES SHALL BE NO GREATER THEN 3:1 (HORIZONTAL:VERTICAL) UNLESS NOTED OTHERWISE.
2. AS-BUILT DRAWINGS OF THE NEW UTILITY SERVICES, STORMWATER BMPS, NEW BUILDING LOCATION AND PARKING LOT SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE OWNER UPON COMPLETION OF THE PROJECT.
3. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL REPORT PREPARED BY ATLAS AND ECS MID-ATLANTIC PRIOR TO INITIATION OF ANY EARTHWORK.
4. FILL SHALL NOT CONTAIN BOULDERS OR FRACTURED ROCK OR BROKEN CONCRETE OVER ONE (1) FOOT IN LARGEST DIMENSION OF ANY ORGANIC MATERIAL, TRASH, GARBAGE, OR BROKEN ASPHALT PAVING. FILLS OF MORE THAN (5) FEET DEEP SHALL BE COMPACTED WHILE BEING PLACED BY A METHOD APPROVED BY THE TOWNSHIP ENGINEER.
5. DURING GRADING OPERATIONS, MEASURES NECESSARY FOR DUST CONTROL WILL BE EXERCISED.

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Pennsylvania One Call System, Inc.

Call Before You Dig in Pennsylvania 1-800-242-1776

State Law Requires
Construction Phase: Three working Days Notice
Design Phase: Ten working Days Notice
Facility Owners: Member of One Call System

SERIAL NO. #20210272169, SERIAL NO. #20210272189
SERIAL NO. #20210272250, SERIAL NO. #20210272251
SERIAL NO. #20210272292, SERIAL NO. #20210272341

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER NO. 042652-E

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

GRADING PLAN

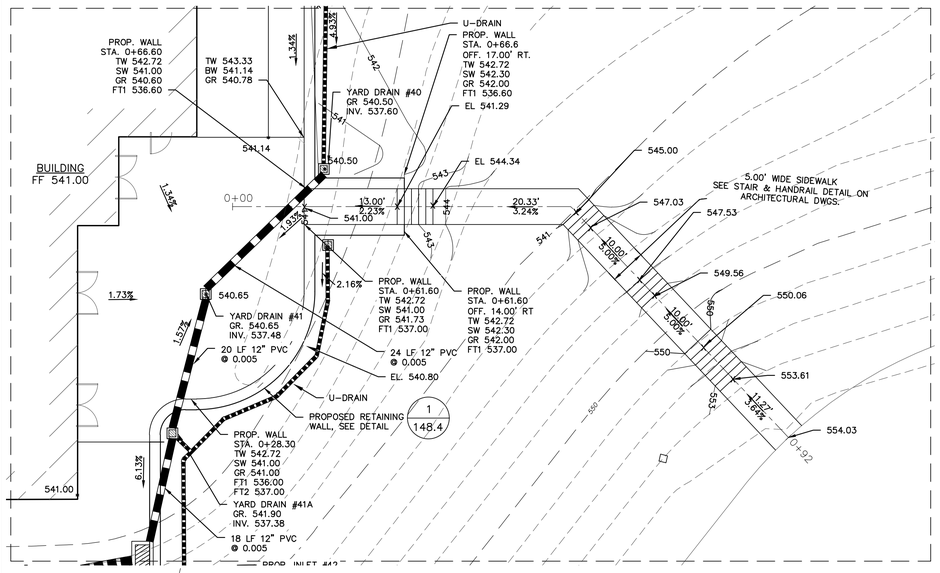
CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 148.2
SHEET #: 5 Of 25



PROPOSED STAIRS PLAN 1 148.3

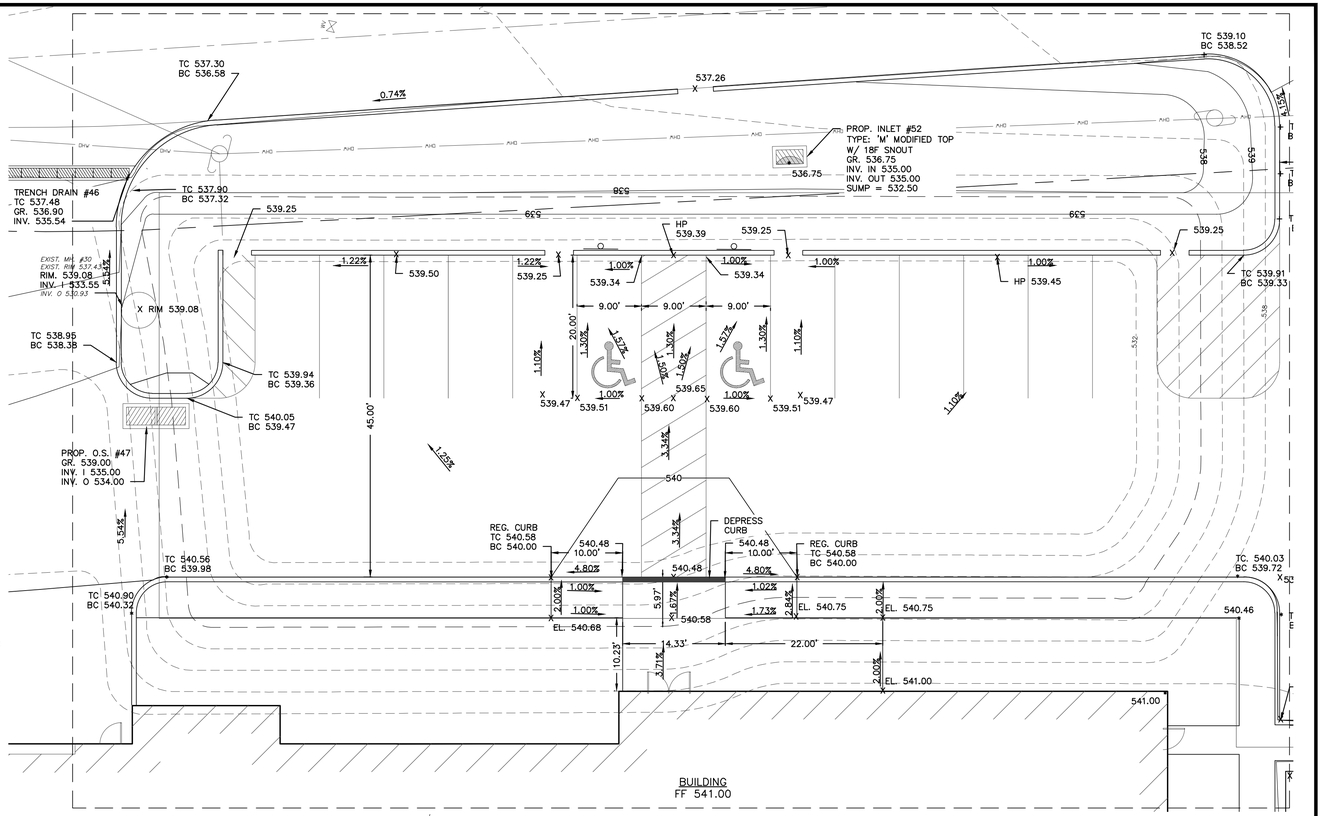
SCALE: 1" = 10'

10 5 0 10 20 30

SCALE IN FEET

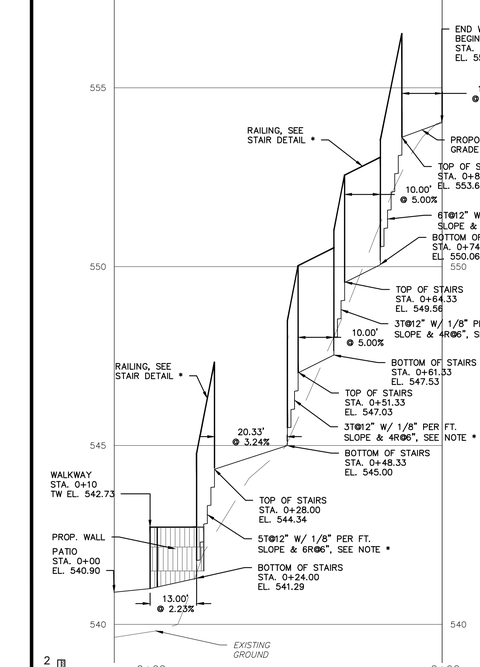
WALL LEGEND

TW = TOP ELEVATION OF WALL
CW = CHANGE OF WALL ELEVATION
BW = BOTTOM ELEVATION OF WALL
GR = PROPOSED GROUND ELEVATION



PROPOSED HANDICAP RAMP DETAIL 2 148.3

SCALE: 1" = 10'



NOTE:
* THE STAIRS DETAIL AND RAILING, SEE ARCHITECT'S DWG.

PROPOSED STAIRS PROFILE 3 148.3

SCALE: V. 1" = 2'
H. 1" = 20'

SCALE

PROPOSED NORTH SIDE OF BUILDING GRADING DETAIL 4 148.3

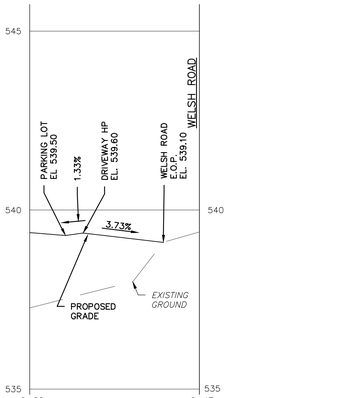
SCALE: 1" = 10'

PROPOSED SANITARY SEWER LATERAL (UNDER BASIN #6) PROFILE 5 148.3

SCALE: V. 1" = 2'
H. 1" = 20'

PROPOSED PARKING LOT ENTRANCE PLAN 6 148.3

SCALE: 1" = 10'



PROPOSED PARKING LOT ENTRANCE PROFILE 7 148.3

SCALE: V. 1" = 2'

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04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

GRADING DETAILS AND PROFILES

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 148.3
SHEET #: 6 Of 25

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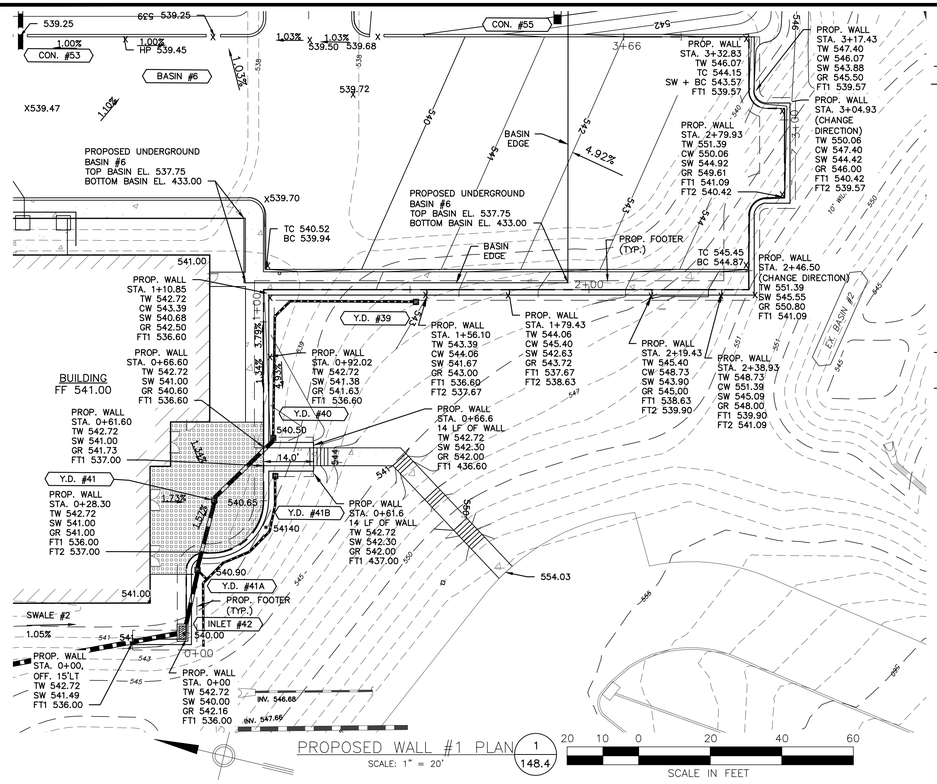
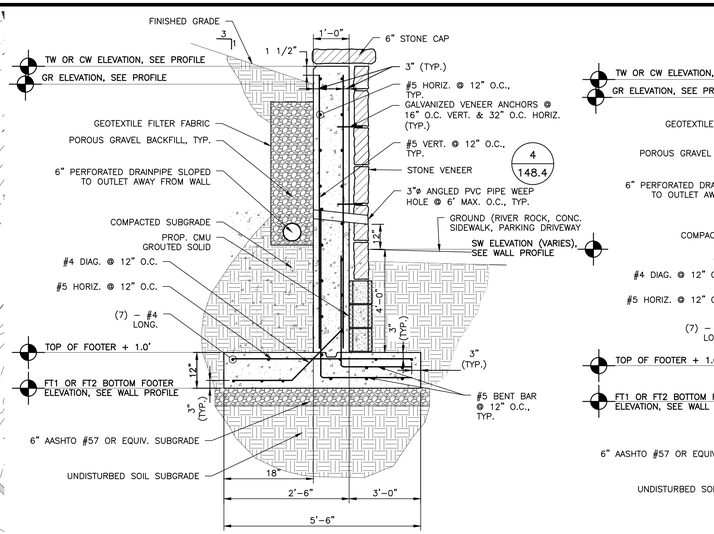
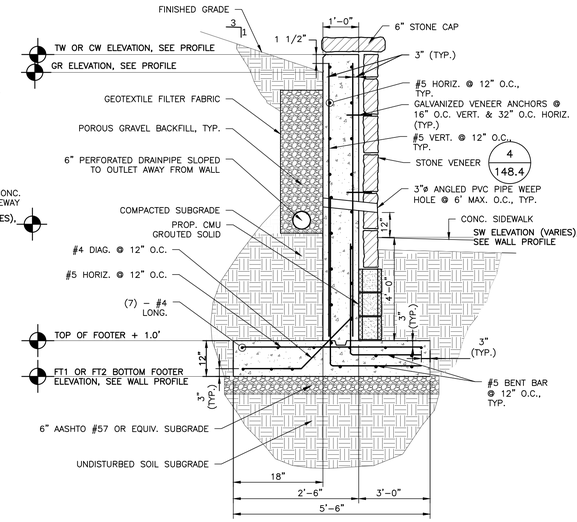
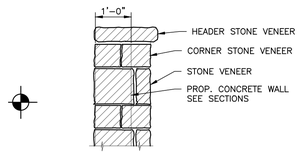




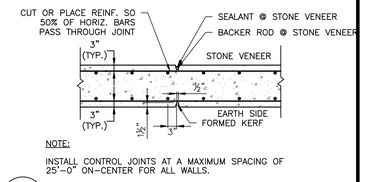
2 148.4 SECTION – NEW RETAINING WALL #1
SCALE: 1/2"=1'-0"



3 148.4 SECTION – NEW RETAINING WALL #2
SCALE: 1/2"=1'-0"



4 148.4 END OF WALL DETAIL
SCALE: 1/2"=1'-0"



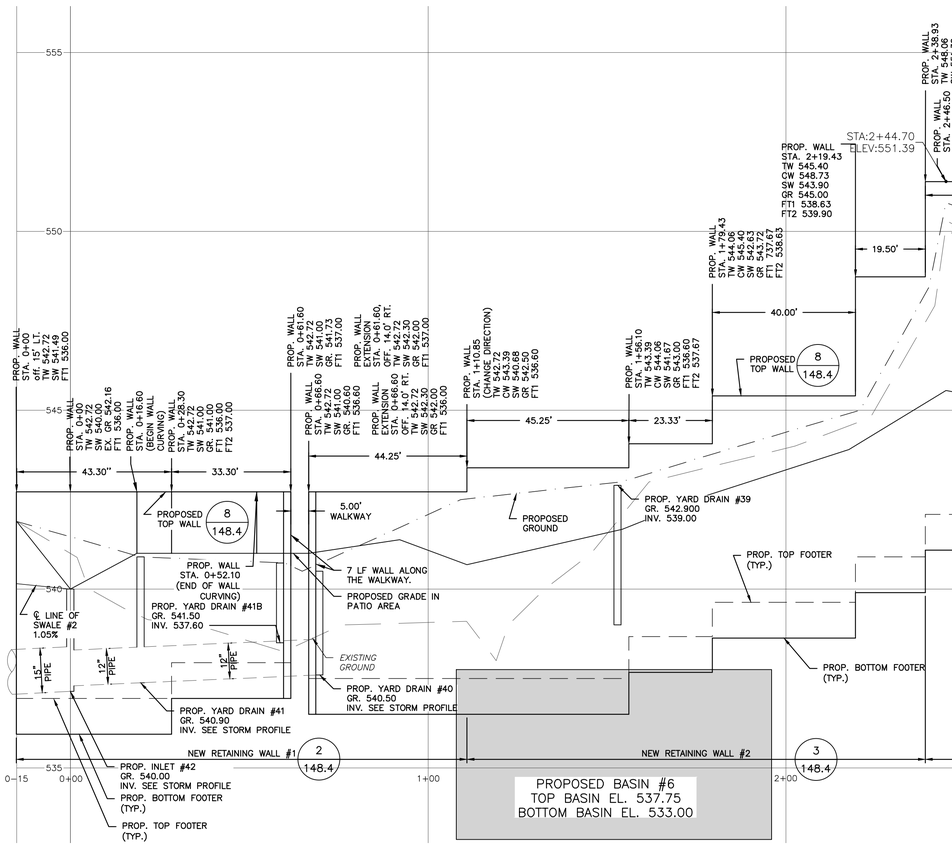
NOTE:
INSTALL CONTROL JOINTS AT A MAXIMUM SPACING OF 25'-0" ON-CENTER FOR ALL WALLS.

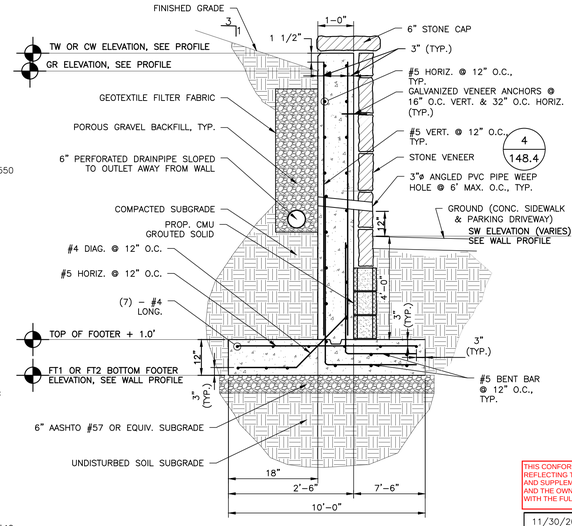
7 148.4 DETAIL – CONTROL JOINTS
SCALE: 1/2"=1'-0"

WALL LEGEND

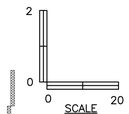
TW = TOP OF WALL ELEVATION
CW = CHANGE IN HEIGHT AT TOP WALL ELEVATION
SW = WALL ELEVATION @ SIDEWALK, DRIVEWAY OR AT INLET
GR = PROPOSED GROUND ELEVATION
FT1 = BOTTOM FOOTER ELEVATION
FT2 = CHANGE IN HEIGHT AT BOTTOM OF FOOTER ELEVATION

1/2" 0 1 2 4 6



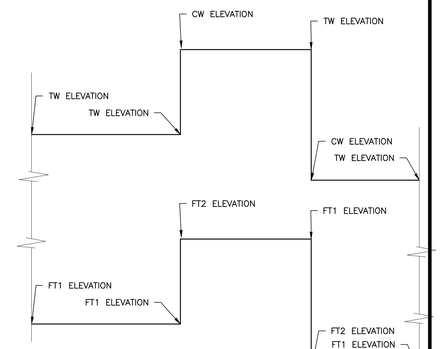


6 148.4 SECTION – NEW RETAINING WALL #3
SCALE: 1/2"=1'-0"



SCALE

PROPOSED WALL #1 PROFILE
SCALE: V. 1" = 2'
H. 1" = 20'
5
148.4



8 148.4 SECTION – WALL ELEVATION LEGEND
SCALE: 1/2"=1'-0"

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Jeffrey E. Skinner
PE-042652-E
SU-052889-E

WALL DETAILS

CUMRU FIRE DEPARTMENT NEW BUILDING

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ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 148.4
SHEET #: 7 Of 25

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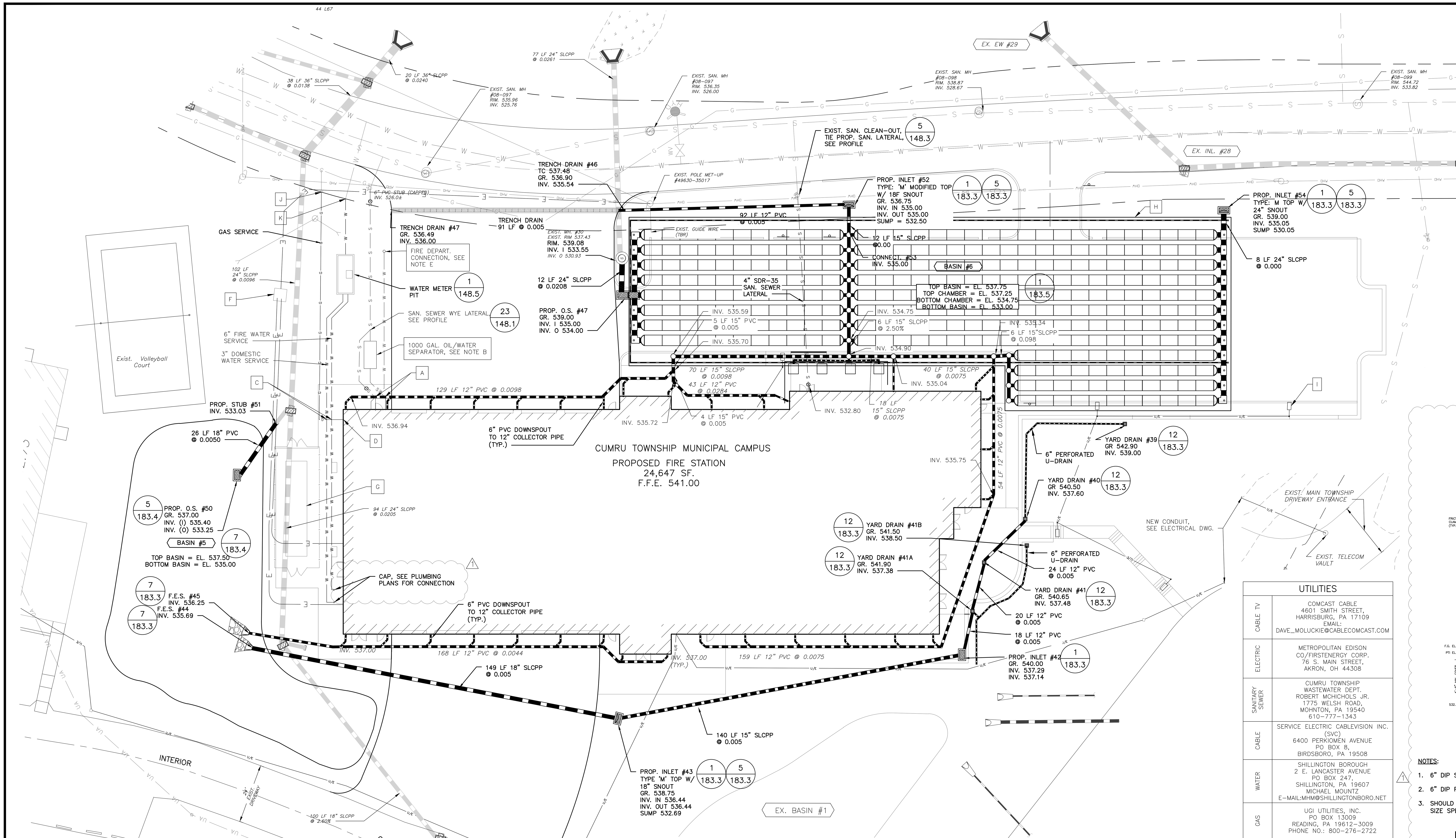


NOTES:

A. 18" MINIMUM DISTANCE BETWEEN SANITARY SEWER LATERALS AND ROOF DRAIN.

B. PROPOSED SANITARY SEWER LAYOUT & PIPE SIZES, SEE PLUMBING DWGS.

C. 18" MINIMUM DISTANCE BETWEEN WATER LATERAL AND GAS LATERAL.

D. PROPOSED GAS LATERAL CONNECTION, SEE PLUMBING DWGS.

E. PROPOSED FIRE DEPARTMENT CONNECTION, SEE PLUMBING DWGS.

F. PROPOSED CONCRETE TRANSFORMER PAD AND CONDUITS, SEE ELECTRICAL DWGS.

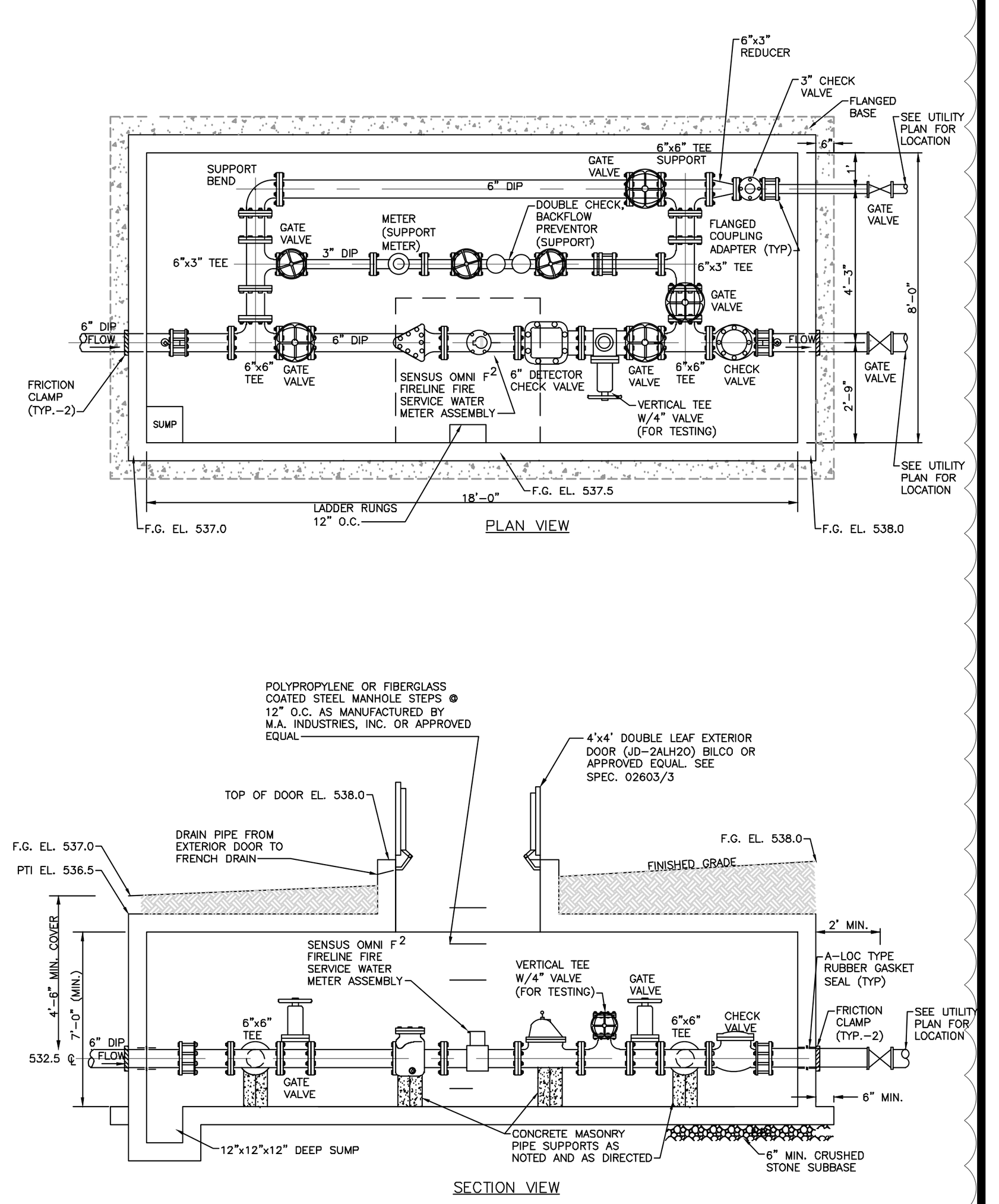
G. PROPOSED GENERATOR & SYSTEMS, SEE ELECTRICAL DWGS.

H. THE LENGTH OF THE BASIN EDGE IS NOT SQUARE BETWEEN BASIN #6 AND SWALES #3 & #4. THIS ELEVATION ON BASIN EDGE IS 536.75.

I. PROPOSED LIGHTING AND ELECTRICAL WIRING (TYP.), SEE ARCHITECTURAL DWGS.

J. EXISTING GAS LATERAL CAP, REMOVE THE CAP & TIE INTO GAS LATERAL.

K. EXISTING 6" WATER LATERAL CAP, REMOVE THE CAP & TIE INTO PROP. 6" WATER LATERAL.



NOTES:

1. 6" DIP SUPPLY CONNECTED TO MAIN.
2. 6" DIP FIRE & 3" DIP DOMESTIC STUBS ON BUILDING SIDE CAPPED.
3. SHOULD THE PRECAST'S STANDARD SIZE METER PIT NO MATCH THE MINIMUM SIZE SPECIFIED, THE PRECAST'S STANDARD SIZE PIT CAN BE SUBMITTED FOR REVIEW.

FIRE STATION METER PIT DETAIL 1 / 148.5

N.T.S.

UTILITIES	
CABLE TV	COMCAST CABLE 4601 SMITH STREET, HARRISBURG, PA 17109 EMAIL: DAVE_MOLUCKIE@CABLECOMCAST.COM
ELECTRIC	METROPOLITAN EDISON CO/FIRSTENERGY CORP. 76 S. MAIN STREET, AKRON, OH 44308
SANITARY SEWER	CUMRU TOWNSHIP WASTEWATER DEPT. ROBERT MCHICHOLS JR. 1775 WELSH ROAD, MOHNTON, PA 19540 610-777-1343
CABLE	SERVICE ELECTRIC CABLEVISION INC. (SVC) 6400 PERKIOMEN AVENUE PO BOX 8, BIRDSBORO, PA 19508
WATER	SHILLINGTON BOROUGH 2 E. LANCASTER AVENUE PO BOX 247, SHILLINGTON, PA 19607 MICHAEL MOUNTZ E-MAIL:MHM@SHILLINGTONBORO.NET
GAS	UGI UTILITIES, INC. PO BOX 13009 READING, PA 19612-3009 PHONE NO.: 800-276-2722

LEGEND

PROPOSED LIGHT LOCATION, SEE ARCHITECTURAL DWGS. FOR DETAILS. 24 / 148.1

UTILITY PLAN
SCALE: 1" = 20'

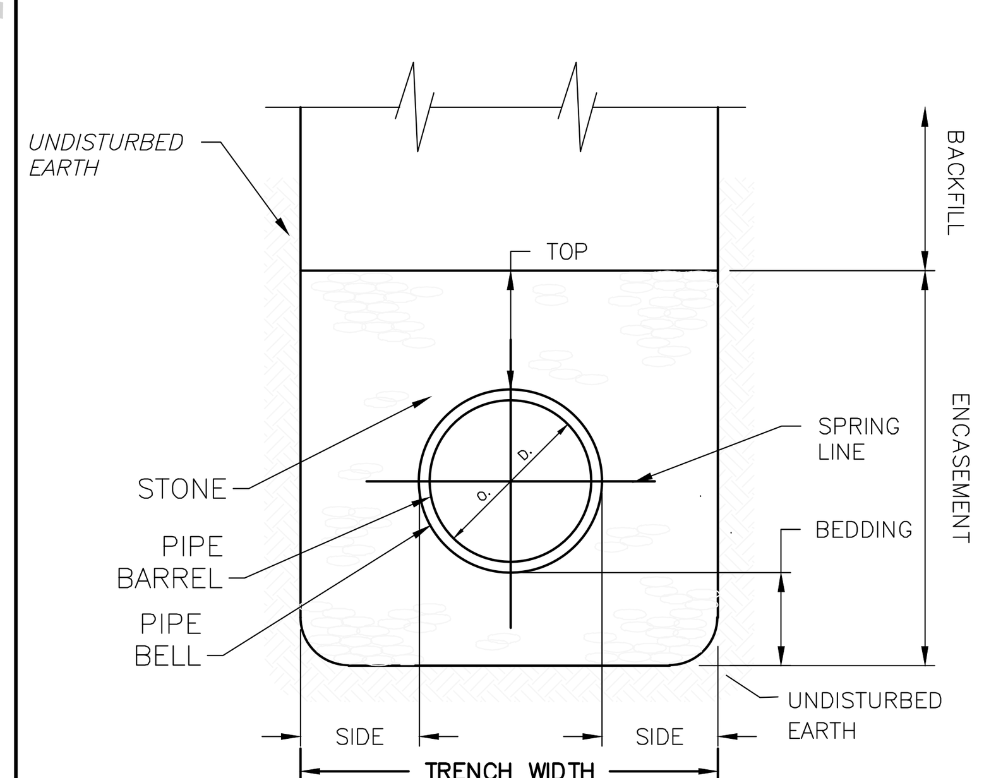
20 10 0 20 40 60
SCALE IN FEET

Pennsylvania One Call System, Inc.

Call Before You Dig in Pennsylvania 1-800-242-1776

State Law Requires
Construction Phase: Three working Days Notice
Design Phase: Ten working Days Notice
Facility Owners: Member of One Call System

SERIAL NO. #20210272169, SERIAL NO. #20210272189
SERIAL NO. #20210272250, SERIAL NO. #20210272251
SERIAL NO. #20210272292, SERIAL NO. #20210272341



PIPE ENCASEMENT & BACKFILL DETAIL 2 / 148.5

NOT TO SCALE

Pipe (2)	Pipe Encasement				Warning Tape	Trench Backfill Material	
	Bedding	Sides	Top	Stone		Pavement	Grass
Water							
DIP (6" Dia. or Greater)	6"	8"	12"	PennDOT #2A	No	PennDOT #2A	Suitable Material
Copper (2" Dia. or Less)	4"	4"	4"	PennDOT #1B	No	PennDOT #2A	Suitable Material
Sanitary Sewer							
PVC	6"	8"	12"	PennDOT #2B	No	PennDOT #2A	Suitable Material
Gas							
HDPE (2" OF less)	6"	6"	6"	AASHTO #10	Yes	PennDOT #2A	Suitable Material
Stormwater (Refer to Stormwater Pipe Installation Procedures)							
SLCPP (12" or Greater)	6"	12"	12"	PennDOT #2A	No	PennDOT #2A	Suitable Material
PVC	6"	6"	6"	PennDOT #2B	No	PennDOT #2A	Suitable Material
Electric							
PVC (2" or Less)	2"	2"	2"	Sand	Yes	PennDOT #2A	Suitable Material

Notes:
1. Pipe encasement material to be 3,000 psi concrete where noted on plan.
2. DIP to be wrapped in plastic prior to concrete encasement.
3. Warning tape to be magnetic and appropiately labeled for utility installed directly below.
4. Warning tape to be installed approximately 12" below final grade.

Date	Draft	Chkd	
08/11/2023	RC	JES	(2) REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
07/21/2023	RC	JES	(1) ADDED WATER METER PIT DETAIL
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

DRAINAGE & UTILITY PLAN

CUMRU FIRE DEPARTMENT NEW BUILDING

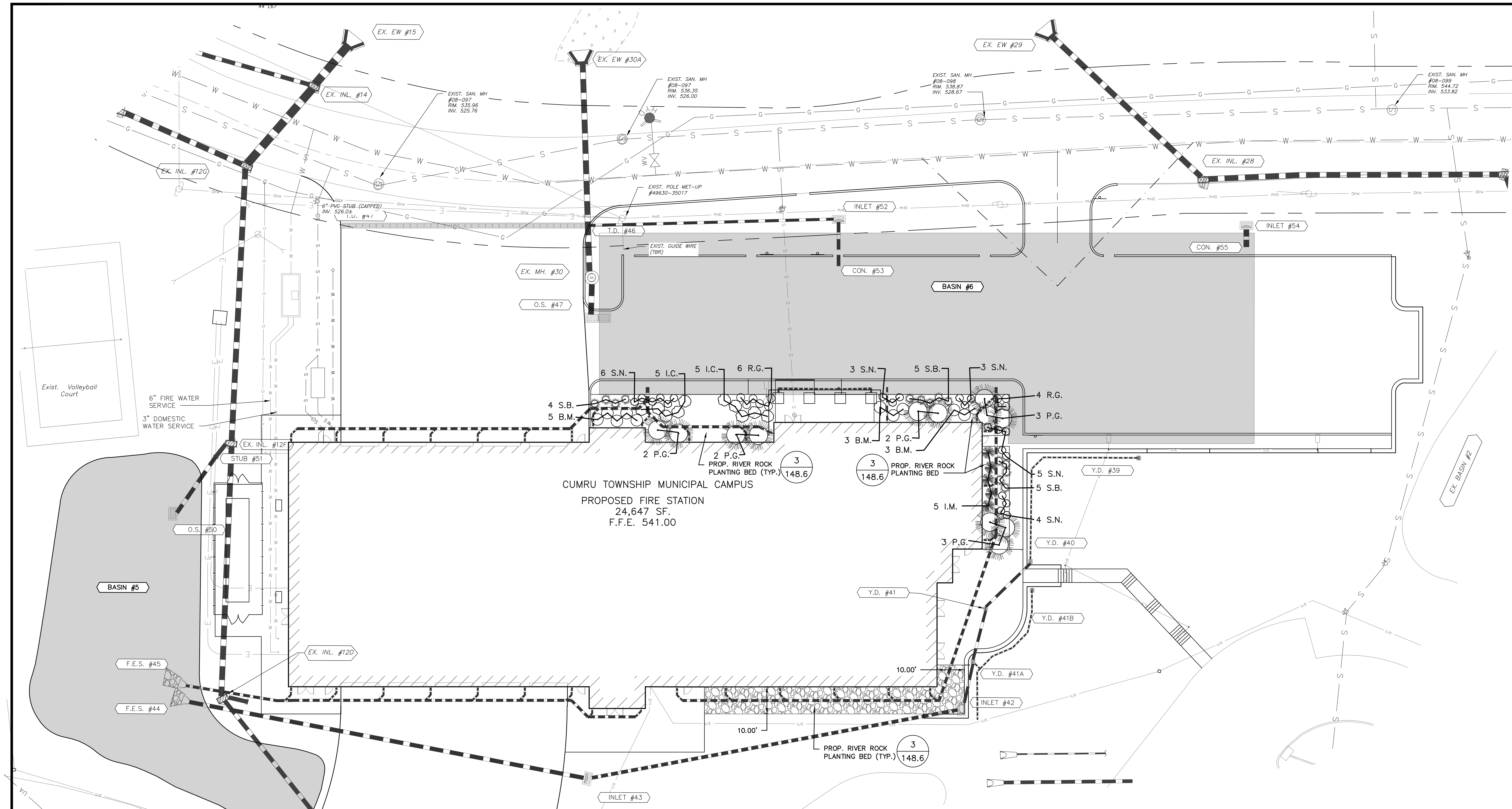
Prepared For:
TOWNSHIP OF CUMRU

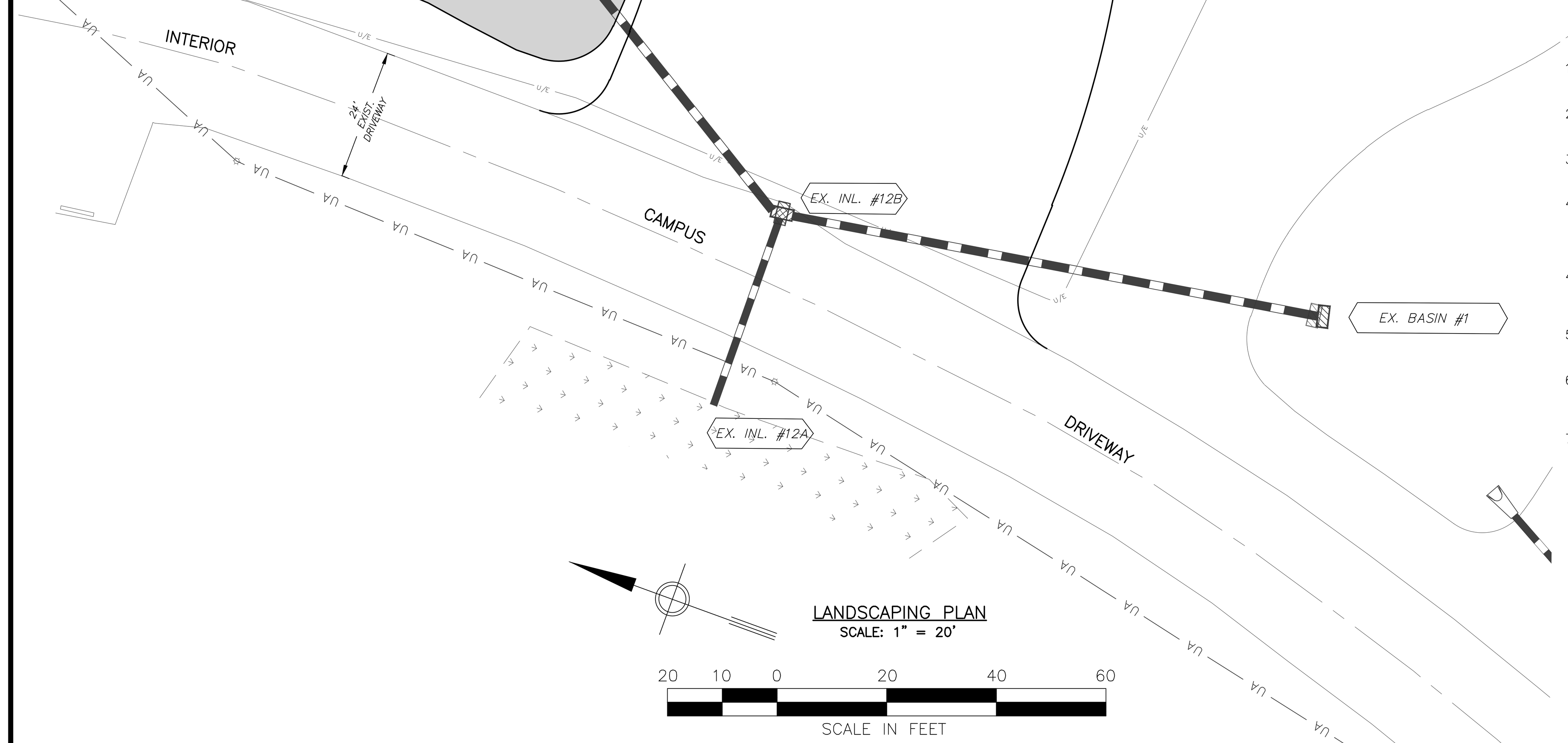
Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

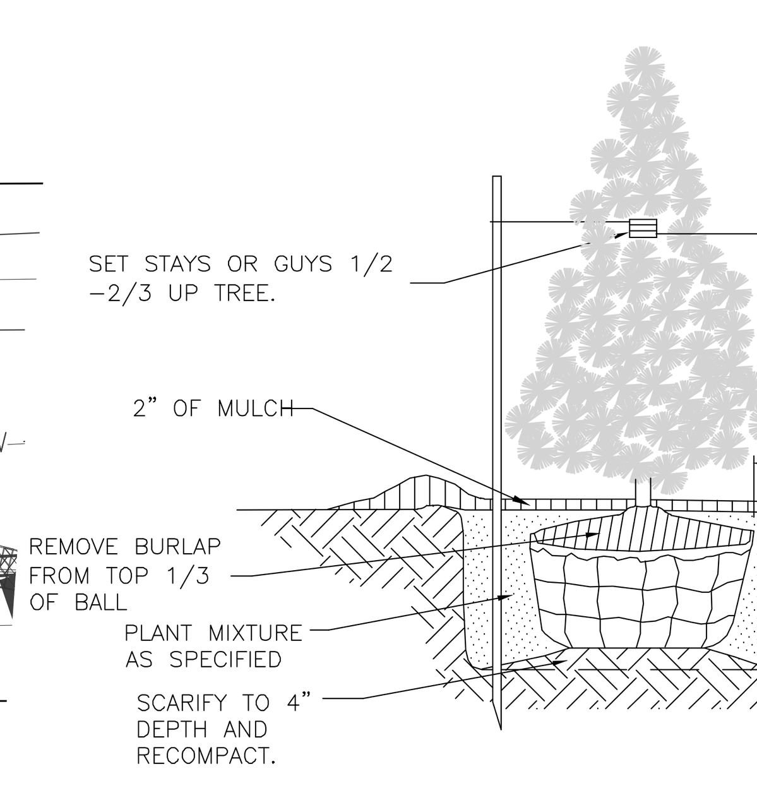
Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200, PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 148.5
SHEET #: 8 Of 25

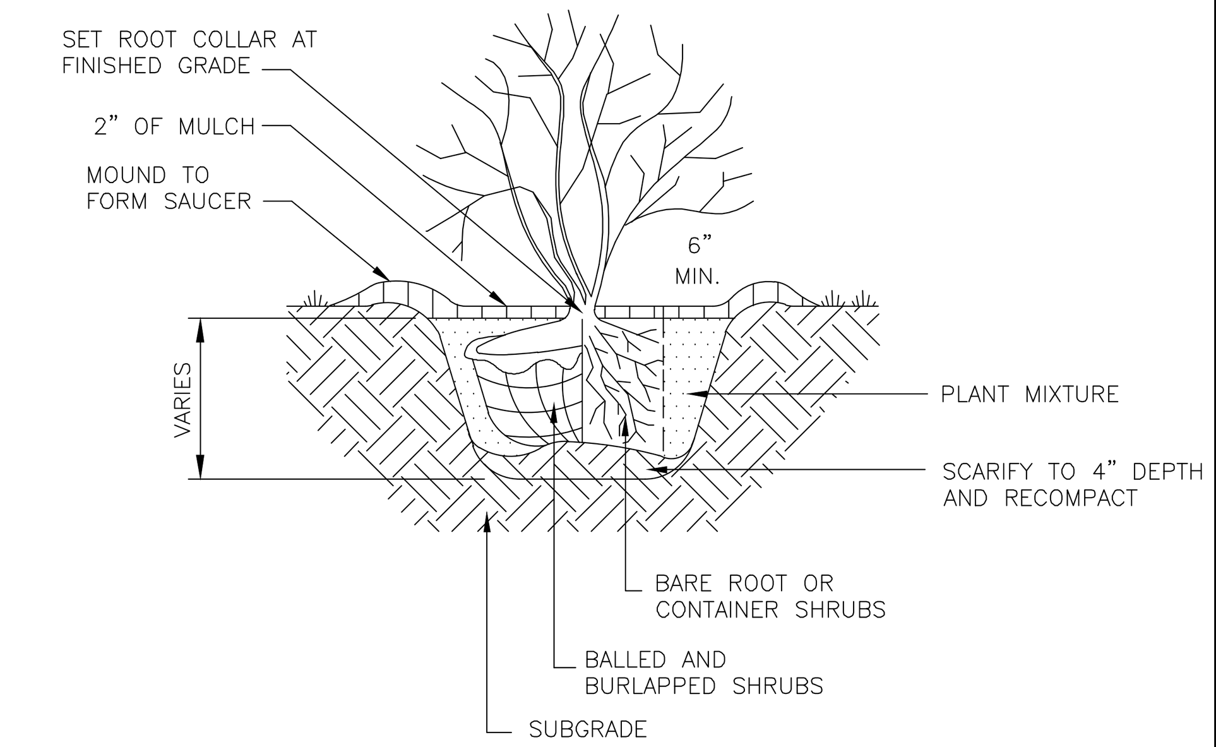




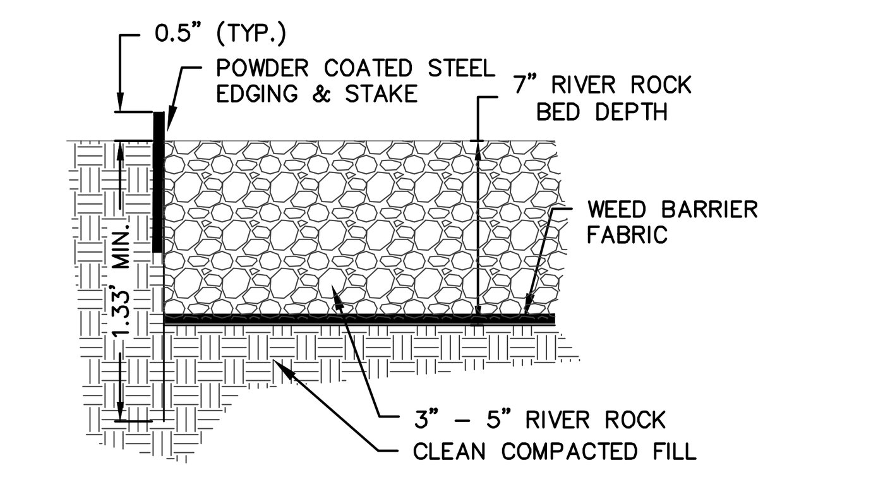


EVERGREEN TREE PLANTING (1 / 148.6)
NOT TO SCALE

NOTES:
DO NOT PRUNE EVERGREENS, EXCEPT TO REMOVE DEAD AND BROKEN BRANCHES.
THIN BRANCHES AND FOLIAGE (NOT ALL BRANCH TIPS) BY 1/3. RETAINING NORMAL PLANT SHAPE (EXCEPT EVERGREEN)
REMOVE BURLAP FROM TOP 1/3 OF BALL, OR WITH CONTAINER PLANTS REMOVE OR SPLIT CONTAINERS AS SPECIFIED.



SHRUB PLANTING – SINGLE (2 / 148.6)
NOT TO SCALE



RIVER ROCK PLANTING BED DETAIL (3 / 148.6)
NOT TO SCALE

LANDSCAPE NOTES

1. THE TREES AND SHRUBS SHALL BE NURSERY GROWN IN A CLIMATE SIMILAR TO THAT OF THE LOCALITY OF THE PROJECT.
2. THE CALIPER OF THE TRUNK, MEASURED AT A HEIGHT OF SIX (6) INCHES ABOVE FINISHED GRADE, SHALL BE A MINIMUM OF TWO (2) INCHES.
3. ALL PLANTING SHALL BE PERFORMED IN CONFORMANCE WITH GOOD NURSERY AND LANDSCAPE PRACTICE INCLUDING PROPER GUYING AND STAKING.
4. REQUIREMENTS FOR THE MEASUREMENTS, BRANCHING, GRADING, QUALITY, BALLING, AND BURLAPPING OF TREES SHALL FOLLOW THE CODE OF STANDARDS RECOMMENDED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. IN THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60, 1–1973, AS AMENDED.
4. LANDSCAPING PLAN SHALL INCLUDE FURNISHING AND INSTALLING MULCHED BEDS AND PLANTS MATERIALS SHOWN ON LANDSCAPING SCHEDULE AND COMPLYING WITH THE LANDSCAPING NOTES AND PLANTING DETAILS.
5. PLANT MATERIAL SHALL COMPLY WITH ANSI Z60.1–1990. PLANT SIZES AND CONTAINER SIZES SHOWN ARE MINIMUM.
6. CONTRACTOR SHALL LABEL AT LEAST ONE (1) PLANT OF EACH VARIETY WITH A SECURED, ATTACHED TAG BEARING THE LEGIBLE DESIGNATION OF BOTANICAL AND COMMON NAME TO HELP CONFIRM PLANT TYPE.
7. SUBSTITUTIONS, ADDITIONS, AND DELETIONS ARE PERMISSIBLE UPON APPROVAL FROM THE LANDSCAPE ARCHITECT AND MUNICIPALITY.
8. LANDSCAPING CONTRACTOR TO WARRANT LANDSCAPE PLANTS FOR A TWENTY–FOUR (24) MONTH PERIOD COMMENCING FIVE (5) DAYS FROM THE DATE OF INSPECTION OF THE PLANT MATERIALS INSTALLATION. CONTRACTOR TO WARRANT ALL PLANTS AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH. ALL PLANTS SHALL BE IN VIGOROUS AND THRIVING CONDITION AT THE END OF THE TWENTY–FOUR (24) MONTH PERIOD. FINAL INSPECTION OF THE SITE FOLLOWING THE TWENTY–FOUR (24) MONTH PERIOD WILL BE MADE AS DETERMINED BY THE TOWNSHIP ENGINEER OR HIS DESIGNEE. PLANTS FOUND TO BE IN POOR HEALTH OR LACKING NORMAL GROWTH HABIT DURING THE TWENTY–FOUR (24) MONTH GUARANTEE PERIOD SHALL BE REPLACED WITH NURSERY–GROWN PLANTS, IN ACCORDANCE WITH THE APPROVED LANDSCAPE PLAN, WITHIN THIRTY (30) DAYS OF BEING NOTIFIED BY THE TOWNSHIP. IF NOTIFICATION IS MADE OUT OF SEASON, REPLACEMENTS SHALL BE MADE DURING THE NEXT PLANTING SEASON. IF THE ORIGINAL PLANTS DECLINE, SUBSTITUTE SPECIES ACCEPTABLE TO THE TOWNSHIP ENGINEER AND SUITABLE FOR THE SITE'S ENVIRONMENTAL CONDITIONS OR PLANTING SCHEME MAY BE USED AND REVISED LANDSCAPE PLAN SHALL BE FILED WITH THE TOWNSHIP ENGINEER AFTER INSTALLATION. ALL REPLACEMENT PLANTS SHALL BE SUBJECT TO A NEW TWENTY–FOUR (24) MONTH GUARANTEE PERIOD AND INSPECTIONS BY THE TOWNSHIP AS PRESCRIBED IN SUBSECTIONS 1 & 2 ABOVE.
9. MULCH IS TO BE SHREDDED BARK. MULCH BED THICKNESS SHALL BE (TWO) 2 INCHES MINIMUM AFTER LIGHT TAMPING, EXCEPT THAT MULCH DEPTH AT ANNUAL FLOWERS SHALL BE 1–1/2". PLACE BED OVER WEED BARRIER MAT OR EQUAL, UNLESS NOTED OTHERWISE.
10. ALL LANDSCAPE PLANTING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH ACCEPTED PRACTICES AS RECOGNIZED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION. PLANTING AND MAINTENANCE OF VEGETATION SHALL INCLUDE, BUT NOT NECESSARILY BE LIMIT TO, PROVISIONS FOR PRUNING, MULCHING, WEEDING, AND WATERING.
11. THE APPLICANT GRUARANTEES THAT ALL REQUIRED LANDSCAPE IMPROVEMENTS SHALL BE MAINTAINED IN A HEALTHY AND SOUND CONDITION, TO OTHERWISE BE REPLACED BY EQUIVALENT IMPROVEMENTS, FOR A PERIOD OF TWENTY–FOUR (24) MONTHS FOLLOWING TOWNSHIP INSPECTION / APPROVAL.
12. GROUND COVER SHRUBS, HERBACEOUS PERENNIALS, BULBS AND ANNUALS SHALL BE SPACED SO THAT 100 PERCENT OF THE BEDS ARE COVERED AFTER 2 YEARS GROWTH.
13. SHRUBS SHALL BE PLANTED BETWEEN SEPTEMBER 1 AND NOVEMBER 15, OR MARCH 1 AND MAY 31.
14. PLACE "DEWITT 15 YEAR WEED BARRIER" WOVE POLYPROPYLENE OR APPROVED EQUAL IN ALL PLANT BEDS AND AT EACH TREE RING.
15. APPLY "SNAP SHOT 2.5 TG" OF APPROVED EQUAL TO ALL PLANT BEDS AND TREE RINGS PER MANUFACTURER'S RECOMMENDATIONS PRIOR TO PLACEMENT OF FINAL PLANT BED/ TREE RING COVER.
16. PLACE PLANT CENTER NO CLOSER THAN 3 FEET FROM EDGE OF RIGHT–OF–WAY.
17. TREES SHALL NOT BE PLANTED WITHIN 10' OF GAS MAINS

NOTE:

THE LANDSCAPING FOR BASIN #5, STEEP SLOPES, AND SWALES, SEE DRAWING POST–CONSTRUCTION STORMWATER MANAGEMENT GRADING PLAN, PAGE 183.

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE/CAL.	ROOT
EVERGREEN SHRUBS					
B.M.	11	BUXUS MICROPHYLLA VAR. JAPONIA 'WINER GEM'	WINTER GEM BOXWOOD	18" HEIGHT MINIMUM	NO. 2 CONTAINER
I.C.	10	ILEX CORNUTA 'CARISSA'	CARISSA HOLLY	18" HEIGHT MINIMUM	NO. 2 CONTAINER
I.M.	5	ILEX X MERSERVEAE 'BLUE PRINCESS'	BLUE PRINCESS HOLLY	24" HEIGHT MINIMUM	NO. 2 CONTAINER
P.G.	12	PICEA GLAUCA 'NORTH STAR'	NORTH STAR DWARF WHITE SPRUCE	3' HEIGHT MINIMUM	B & B
DECIDUOUS SHRUBS					
HERBACEOUS PERENNIALS					
R.G.	10	RUBIACEAE GRADENIA JASMINOIDES RADICANS	CREEPING DWARF GARDENIA	12" HEIGHT MINIMUM	NO. 2 CONTAINER
S.B.	14	SPIRAEA X BUMALDA 'RED DART'	RED DART SPIREA	18" HEIGHT MINIMUM	NO. 2 CONTAINER
S.N.	21	SPIRAEA NIPPONICA 'SNOWMOUNDS'	SNOWMOUNDS SPIREA	18" HEIGHT MINIMUM	NO. 2 CONTAINER

Pennsylvania One Call System, Inc.

Call Before You Dig
in Pennsylvania
1–800–242–1776

State Law Requires
Construction Phase: Three working Days Notice
Design Phase: Ten working Days Notice
Facility Owners: Member of One Call System

SERIAL NO. #20210272169, SERIAL NO. #20210272189
SERIAL NO. #20210272250, SERIAL NO. #20210272251
SERIAL NO. #20210272292, SERIAL NO. #20210272341

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E–MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER NO. 42652-E

Jeffrey E. Skinner
PE–042652–E
SU–052889–E

LANDSCAPING PLAN & DETAILS

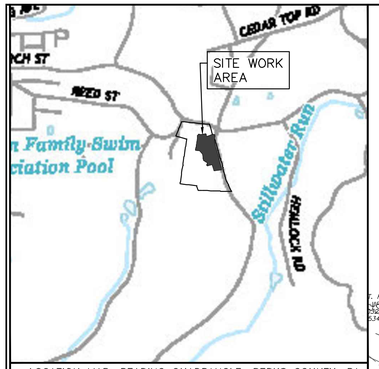
CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 148.6



LOCATION MAP: READING QUADRANGLE, BERKS COUNTY, PA
SCALE: 1"=1,000'

SOILS TYPE ON SITE		
LEGEND	*NAME*	*DESCRIPTION*
NaB	NESHAMING SILT LOAM	3 TO 8 PERCENT SLOPES
NaC	NESHAMING SILT LOAM	8 TO 15 PERCENT SLOPES
NhD	NESHAMING GRAVELLY SILT LOAM	8 TO 25 PERCENT SLOPES, EXTREMELY BOULDERY

THIS AREA WAS APPROVED UNDER PHASE #1 NPDES PERMIT No. PAD060047

P.O.I. #1

P.O.I. #2

WATERSHED TO STILLWATER RUN (ANGELICA CREEK)

P.O.I. #3 (NOT USED FOR PHASE 2)

PROPOSED FIRE STATION
24,647 SF.
F.F.E. 541.00

PHASE #2 = 110,207 SF., 2.53 AC.

PHASE #2 WORK AREA

PHASE #1 CONSTRUCTION ENTRANCE #1 (TBR)

TOP SOIL STOCK PILE 7 166.3

CUMRU TOWNSHIP PUBLIC WORKS FACILITY

PHASE #1 & #2 AREA

PA CHAPTER 93

ANGELICA CREEK
STREAM USE DESCRIPTION: CWF (COLD WATER FISH), MF (MIGRATORY FISH), IT IS NOT A HQ OR EV DESIGNATED WATERSHED.

EROSION & SEDIMENT CONTROL (E&S) LEGEND

- PH #2 — PHASE #2 WORK BOUNDARY
- CONSTRUCTION ENTRANCE — 1 166.3
- SB — SB — SOIL BOUNDARY
- NaC — SOIL TYPE
- CSF — FILTER SOCK — 8 166.3
- INLET PROTECTION — 3 166.3
- RIPRAP — 6 166.4
- EROSION CONTROL MATTING — 4 166.3
- TOP SOIL STOCK PIPE — 7 166.3
- STOCK PILE — 7 166.3
- TEMPORARY SEEDING STABILIZATION — 1 166.1
- FINAL SEEDING STABILIZATION — 1 166.1
- GRASS IN SPECIAL AREAS – SWALE, BASIN BOTTOM — 1 166.1

NOTE:

SEQUENCE OF EARTH MOVING RELATED ACTIVITY 2 166.1

E&S PLAN
SCALE: 1" = 20'

20 10 0 20 40 60
SCALE IN FEET

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JEFFREY E. SKINNER PE 042652

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

EROSION & SEDIMENTATION CONTROL PLAN

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z0570005.38
DRAWING #: 166
SHEET #: 10 Of 25

I. GENERAL

A. The contractor shall assure that the approved erosion and sediment control plan is properly and completely implemented. Before initiating any revisions to the approved erosion and sediment control plan or revisions to other plans which may affect the effectiveness of the approved E&S Control Plan, the operator must receive approval of the revisions from the Berks County Conservation District. 1238 County Welfare Road, Suite 200, Leesport, PA 19533-9710, Telephone number: (610) 372-4657 prior to beginning land disturbance. The contractor shall assure that an erosion and sediment control plan has been prepared, approved by the appropriate conservation district, and is being implemented and maintained for all soil and/or rock spoil and borrow areas, regardless of their locations. It shall be the responsibility of the contractor to implement this plan in the field and meet all state and local regulations pertaining to it. The contractor shall assign this responsibility to a person experienced in sediment and erosion control procedures. Modifications or deviations from this plan will be allowed only if the contractor first obtains written permission from the agencies having jurisdiction. A copy of this plan shall be kept at the project site.

1. All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S plan. A copy of the approved drawings must be available at the project site at all times. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.
2. At least 7 days prior to starting any earth disturbance activities, including clearing and grubbing, the owner and/or operator shall invite all contractors, the landowner, appropriate municipal officials, the E&S plan preparer, the PCSM plan preparer, the licensed professional responsible for oversight of critical stages of implementation of the PCSM plan, and a representative from the local conservation district to an on-site preconstruction meeting.
3. At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the Pennsylvania One Call System Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.
4. All earth disturbance activities shall proceed in accordance with the sequence provided on the plan drawings. Deviation from that sequence must be approved in writing from the local conservation district or by the Department prior to implementation.
5. Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots and other objectionable material.
6. Clearing, grubbing, and topsoil stripping shall be limited to those areas described in each stage of the construction sequence. General site clearing, grubbing and topsoil stripping may not commence in any stage or phase of the project until the E&S BMPs specified by the BMP sequence for that stage or phase have been installed and are functioning as described in this E&S plan.
7. At no time shall construction vehicles be allowed to enter areas outside the limit of disturbance boundaries shown on the plan maps. These areas must be clearly marked and fenced off before clearing and grubbing operations begin.
8. Topsoil required for the establishment of vegetation shall be stockpiled at the location(s) shown on the plan maps(s) in the amount necessary to complete the finish grading of all exposed areas that are to be stabilized by vegetation. Each stockpile shall be protected in the manner shown on the plan drawings. Stockpile heights shall not exceed 35 feet. Stockpile slopes shall be 2H:1V or flatter.
9. Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to minimize the potential for erosion and sediment pollution and notify the local conservation district and/or the regional office of the Department.
10. All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 et seq., 271.1, and 287.1 et. seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.
11. All off-site waste and borrow areas must have an E&S plan approved by the local conservation district or the Department fully implemented prior to being activated.
12. The contractor is responsible for ensuring that any material brought on site is clean fill. Form FP-001 must be retained by the property owner for any fill material affected by a spill or release of a regulated substance but qualifying as clean fill due to analytical testing.
13. All pumping of water from any work area shall be done according to the procedure described in this plan, over undisturbed vegetated areas.
14. Vehicles and equipment must enter directly and exit directly through the construction entrance.
15. Until the site is stabilized, all erosion and sediment BMPs shall be maintained properly. Maintenance shall include inspections of all erosion and sediment BMPs after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching and renetting must be performed immediately. If the E&S BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required.
16. The maintenance instruction should specify that inspection be logged on DEP form 3800-FM-BCW027d. This log showing dates that E&S BMPs were inspected as well as any deficiencies found and the date they were corrected shall be maintained on the site and be made available to regulatory agency officials at the time of inspection.
17. Sediment tracked onto any public roadway or sidewalk shall be returned to the construction site by the end of each work day and disposed in the manner described in this plan. In no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer, or surface water.
18. All sediment removed from BMPs shall be disposed of in the manner described on the plan drawings.
19. Areas which are to be topsoiled shall be scarified to a minimum depth of 3 to 5 inches - 6 to 12 inches on compacted soils - prior to placement of topsoil. Areas to be vegetated shall have a minimum 4 inches of topsoil in place prior to seeding and mulching. Fill out slopes shall have a minimum of 2 inches of topsoil.
20. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc. shall be compacted in accordance with local requirements or codes.
21. All earthen fills shall be placed in compacted layers not to exceed 9 inches in thickness.
22. Fill materials shall be free of frozen particles, brush, roots, sod, or other foreign or objectionable materials that would interfere with or prevent construction of satisfactory fills.
23. Frozen materials or soft, mucky, or highly compressible materials shall not be incorporated into fills.
24. Fill shall not be placed on saturated or frozen surfaces.
25. Seeps or springs encountered during construction shall be handled in accordance with the standard and specification for subsurface drain or other approved method.
26. All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated.
27. At stream crossing, a 50-foot buffer shall be maintained. on buffers, clearings, sod disturbances and excavations, equipment traffic should be minimized. Activity such as stacking logs, burning cleared brush, discharging rainwater from trenches, welding pipe sections, refueling and maintaining equipment should be avoided within buffer zones.
28. Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.
29. Permanent stabilization is defined as a minimum uniform, perennial 70% vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding, or other movements.
30. E&S BMPs shall remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by the local conservation district or the Department
31. Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the local conservation district for an inspection prior to removal/conversion of the E&S BMPs.
32. After final site stabilization has been achieved, temporary erosion and sediment BMPs must be removed or converted to permanent post construction stormwater management BMPs. Areas disturbed during removal or conversion of the BMPs shall be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions are to be done only during the germinating season.
33. Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the local conservation district to schedule a final inspection.
34. Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site, or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties being instituted by the Department as defined in Section 602 of the Pennsylvania Clean Streams Law. The Clean Streams Law provides for up to $10,000 per day in civil penalties, up to $10,000 in summary criminal penalties, and up to $25,000 in misdemeanor criminal penalties for each violation.

B. Stockpile

1. All stripped topsoil and excavated earthen material from the project site Shall be properly stockpiled in accordance with the "stockpile control" detail. Material found to be unsuitable for subsequent use or in excess of the quantity required shall be disposed of. The location, method of disposal, and means of transport shall be in accordance with state and local laws.
2. All soil that is to be stockpiled for a period of greater than 10 calendar days shall be temporarily stabilized as described in item iii. "Temporary Stabilization."
3. Stockpile heights must not exceed 35 feet, stockpile slopes must be 2:1 or flatter.
4. Silt fence shall be provided at the base of all stockpiles for additional protection. See "Stockpile Control" detail.

II. EROSION AND SEDIMENT CONTROL MEASURES

A. Rock Construction Entrance

1. A rock construction entrance shall be provided as needed to prevent the tracking or flow of sediment onto roads other than the immediate project site. See "Stabilized Construction Entrance" detail.
2. Rock construction entrance thickness will be constantly maintained to the specified dimensions by adding rock. A stockpile of rock material will be maintained on the site for this purpose. At the end of each construction day, all sediment deposited on public roadways will be removed and returned to the construction site.

B. PRESERVATION OF EXISTING VEGETATION

1. GOOD STANDARDS OF EXISTING VEGETATION ADEQUATE TO CONTROL EROSION SHOULD BE PRESERVED WHEREVER POSSIBLE. REGENERATION OF WOOD PLANTS SHOULD BE ENCOURAGED WHERE ACCEPTABLE. NEW VEGETATION, SOIL TREATMENTS, ETC. SHALL BE DONE AS SPECIFIED ON THE DRAWINGS AND IN THE APPLICABLE SECTIONS OF THE SPECIFICATIONS.

C. COMPOST FILTER SOCK

1. SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.
2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.
3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.
4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
5. COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER AND/OR REPLACED WITHIN 24 HOURS OF INSPECTION.
6. BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER.
7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

D. INLET FILTER BAG

1. INLET FILTER BAGS SHOULD BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. FILTER BAGS SHOULD BE CLEANED AND/OR REPLACED WHEN THE BAG IS HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET.
2. ACCUMULATED SEDIMENT SHOULD BE DISPOSED IN THE APPROVED MANNER. BAGS THAT WILL BE REUSED SHOULD BE RINSED AT A LOCATION WHERE THE RINSE WATER WILL ENTER A SEDIMENT TRAP OR SEDIMENT BASIN.
3. NEEDED REPAIRS SHOULD BE INITIATED IMMEDIATELY AFTER THE INSPECTION.
4. DAMAGED FILTER BAGS SHOULD BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS.
5. AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

E. PUMPED WATER

1. SEDIMENTS FILTER BAG SHALL BE INSTALLED AT PUMP DISCHARGE TO FILTER PUMPED WATER IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. BAG SHALL FILTER PARTICLES LARGER THAN 150 MICRONS AND BE MANUFACTURED FROM NON-WOVEN GEOTEXTILE MATERIAL.
2. A MINIMUM OF ONE CUBIC FOOT OF STORAGE CAPACITY FOR EACH GALLON PER MINUTE OF THE DEWATERING PUMPING RATE SHALL BE PROVIDED TO INSURE STRUCTURE FAILURE WILL NOT OCCUR.

F. PUMPED WATER FILTER BAG:

1. LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

2. A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.
3. BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.
4. NO DOWN SLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.
5. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.
6. THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.
7. FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

G. COMPOST SOCK WASHOUT

1. Concrete washout activities must be conducted in a manner that does not contribute pollutants to surface waters or stormwater runoff.
2. Wherever compost sock washouts are used, a suitable impervious geomembrane should be placed at the location of the washout. Compost socks should be staked in the manner recommended by the manufacturer around perimeter of the geomembrane so as to form a ring with the ends of the sock located at the up slope corner (Figure 3.18). Care should be taken to ensure continuous contact of the sock with the geomembrane at all locations. Where necessary, socks may be stacked and staked so as to form a triangular cross-section.
3. Washout facilities should not be placed within 50 feet of storm drains, open ditches or surface waters. They should be in a convenient location for the trucks, preferably near the place where the concrete is being poured, but far enough from other vehicular traffic to minimize the potential for accidental damage or spills. Wherever possible, they should be located on slopes not exceeding a 2% grade.
4. Part of inspecting and maintaining washout areas is ensuring that adequate signage is provided and in good repair and that the washout area is being used, as opposed to washout in non-designated areas of the site.
5. Remove concrete waste in the washout area, as needed to maintain BMP function (typically when filled to about two-thirds of its capacity). Collect concrete waste and deliver offsite to a designated disposal location.
6. Upon termination of use of the washout site, accumulated solid waste, including concrete waste and any contaminated soils, must be removed from the site to prevent on-site disposal of solid waste. If the wash water is allowed to evaporate and the concrete hardens, it may be recycled

III. TEMPORARY STABILIZATION

A. All areas disturbed by on-site work that will not be constructed immediately shall be temporarily stabilized:

1. Vegetative cover Temporary vegetative cover shall be provided in areas requiring temporary stabilization during construction, as follows:

A. Fertilizer: apply 10-20-20 fertilizer or equivalent at the rate of 150 lbs per acre.

B. Limestone: shall be an agricultural grade lime stone equivalent to 50% Calcium plus Magnesium oxides, and applied at the rate of 1 ton per acre.

C. Seed type shall be as indicated below:

1. Optimum seeding dates are February 15 through May 1 or August 15 through October 15 for the following species:

Species	Pounds Per acre	Optimum seed depth (double for sandy soil)
Annual Ryegrass	40	0.5 inch
Perennial Ryegrass	40	0.5 inch
Oats	86	1.0 inch
Barley	96	1.0 inch

2. Optimum seeding dates are May 1 through August 15 for the following species:

Species	Pounds Per acre	Optimum seed depth (double for sandy soil)
Pearl Millet	20	1.0 inch
Sudan Grass	30	1.0 inch
Millet (German or Hungarian)	30	1.0 inch
Weeping Lovegrass	5	1.0 inch

2. Mulching

A. Mulching shall be provided as required in areas difficult to vegetate, and during Off-season operations. Mulching methods and materials shall conform to the following:

(1) Mulch materials shall be unrotted salt hay, hay or small grain straw applied at the rate of 3 tons per acre. Mulch blowers shall not grind or chop the material.

(2) Mulch shall be spread uniformly by hand or mechanically so that approximately 75% to 95% of the soil surface will be covered.

(3) Mulch anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of slopes and costs.

(a) Peg and twine - drive 8 to 10 inch pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a crises-cross and a square pattern, secure twine around each peg with two or more round turns.

(b) Mulch netting - staple paper, jute, cotton or plastic netting to the soil surface. Use a degradable netting in areas to be mowed.

(c) Liquid mulch binders - may be used to anchor salt hay, hay or straw mulches.

(d) Applications should be heavier at edges were wind catches the mulch, in valleys and at crests of banks. Remainder of area should be uniform in appearance.

(e) Wood-fiber or paper-fiber mulch at the rate of 1,500 pounds per acre may be applied by a hydroseeder. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

3. Other

A. Where excessive soil erosion, tracking, or flowing of sediment is evident or anticipated, a minimum of 4 inches of crushed stone shall be placed within the affected area and maintained until permanent stabilization is provided. Additional stone shall be placed as required until stabilization is achieved. Crushed stone shall conform to AASHTO Designation M43, size No. 2 (2-1/2" to 1-1/2").

B. Upon completion of an earth disturbance activity or any stage or phase of an activity, the operator shall stabilize immediately the disturbed areas to protect from accelerated erosion. During non-germinating periods, mulch must be applied at the specified rates. Disturbed areas which are not at finished grade, and which will be redisturbed within 1 year, may be stabilized in accordance with Temporary Seeding Specifications. Disturbed areas, which are either at finished grade or will not be redisturbed within 1 year, must be stabilized in accordance with Permanent Seeding Specifications.

C. Diversion channels, sedimentation basins, sediment traps, and stockpiles must be stabilized immediately.

D. Mulch with mulch control netting or erosion blankets must be installed on all slopes greater than 3:1.

IV. FINAL SEEDING (1/166.1)

A. GENERAL

1. NO MORE THAN 15,000 SQUARE FEET OF DISTURBED AREA SHALL ACHIEVE FINAL GRADE BEFORE STABILIZATION BY VEGETATIVE COVER WITH SEEDING AND MULCHING.
2. AFTER THE CONSTRUCTION PHASE IS COMPLETE, PERMANENT VEGETATION ON THE AREAS THAT HAVE BEEN DISTURBED SHALL BE REESTABLISHED AS RAPIDLY AS POSSIBLE. IF THE COMPLETION OF THE CONSTRUCTION ACTIVITIES DOES NOT COINCIDE WITH A SEASON IN WHICH PERMANENT VEGETATION CAN BE STARTED, AN INTERIM OR TEMPORARY PROGRAM IS REQUIRED. THIS SHALL INCLUDE SOIL STABILIZATION, MULCHING OR THE ESTABLISHMENT OF FILTER STRIPS. IN ANY CASE, SEDIMENT AND EROSION CONTROLS SHALL BE INSTALLED PROMPTLY AND THEIR MAINTENANCE ASSURED.
4. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM OF 70% UNIFORM PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING OR OTHER MOVEMENTS.
5. AT A MINIMUM, PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED BY PROVIDING THE FOLLOWING:
   a. FERTILIZER: 500 LBS PER ACRE OF 10-20-20, OR EQUIVALENT.
   b. LIMESTONE: SHALL BE AN AGRICULTURAL GRADE LIME STONE EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDES, AND APPLIED AT THE RATE OF 4 TONS PER ACRE.
   c. PERMANENT SEEDING (MINIMUM REQUIREMENTS) SHALL BE AS FOLLOWS:

V. MAINTENANCE

A. Inspection shall be made at frequent intervals and after each storm event to detect any impairment in the ability of the erosion control facilities, installed as part of this plan, to continue to function effectively.

LAWN SEED	% BY WEIGHT	MINIMUM % PURITY	MINIMUM % GERMINATION	MAXIMUM % WEED SEED
Kentucky bluegrass (2 or more varieties - none greater than 25% of total)	50	90	80	.20
Pennfine Perennial Rye Grass	20	95	90	0.15
Pennlawn and Fescue	30	98	85	0.25
Special Areas - swales, diversion channels, and occasional water flow areas.				
Kentucky 31 Tall Fescue	80	98	85	0.25
Pennfine Perennial Rye Grass	20	95	90	.15

B. The approved erosion and sediment control plan and any standard conditions relating to soil erosion and sediment control, issued as part of any permits, shall be available at the immediate site of construction activity at all times.

C. Until the site is stabilized, all erosion and sedimentation controls must be maintained properly. Maintenance must include inspection of all erosion and sedimentation controls after each storm event and on a weekly basis. All preventive and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching and renetting must be performed immediately.

VI. EXCAVATED TRENCH OPEN

"The total length of excavated trench open at any one time should not be greater than the total length of the utility line that can be placed in the trench and back-filled in one working day. No more than 50 lineal feet of open trench should exist when utility line installation ceases at the end of the workday. Soil supplements, seed and much must be applied according to 25 Pa. Code §102.22. (Page 283 of E&S Manual)."

VII. SEQUENCE OF EARTH MOVING RELATED ACTIVITY (2/166.1)

1. Pre-Construction Stage:
   a. Field-marks limits of disturbance and environmentally sensitive areas.
   b. At least 7 days prior to starting any earth disturbance activities (including clear and grubbing), the Owner and/or Operator shall invite all Contractors, the Landowner, appropriate Municipal Officials, the E&S plan prepared, the PCSM plan preparer, and a representative from the Bucks County Conservation District to an on-site reconstruction meeting.
   c. Upon installation or stabilization of all perimeter sediment control BMP's and at least 3 days prior to proceeding with the bulk earth disturbance activities, the permittee of co-permittee shall provide notification to the department or authorized conservation district.
   d. At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the Pennsylvania One Call System Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.
   e. All earth disturbance activities shall proceed in accordance with the sequence provided on the plans. Deviation from the sequence must be approved by the Bucks County Conservation District or by the department prior to implementation. Each step of sequence shall be completed before proceeding to the next step, except where noted.
2. Construction Activity:
   a. Convert the existing 150 feet Rock Construction Access #1 to Rock Construction Access with Wash Rock, where as depicted on the plan.
   b. Install Rock Construction Access #2 with Wash Rock and Concrete Washouts, see drawing.
   c. Access to site's E&S BMPs, see drawings for work areas.
      i. Install Compost Filter Sock as depicted on the plan.
      ii. Install Inlet Protection per plan.
      iii. Install Orange Construction Fence around the basins per plan.
   d. Site Operation for earthwork.
      i. Bring the proposed Building pad grades to the proper elevation. Construction new Building.
      ii. All building materials and wastes must be removed from the site and recycled or disposed of in accordance with the Pennsylvania Department of Environmental Protection's Solid Waste Management Regulations at 25pa. Code §260.1 et seq., §271.1 et seq., and §287.1 et seq. No building material or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.
      iii. Install all building utilities, see "note *" below.
      iv. **Critical Stage**, remove sediment traps by grading the areas to the proposed grade. Sediment trap #3A becomes swale #3A/B and sediment trap #4 and part of basin #6 and sediment trap #4A becomes swale #4A/B and part of basin #6. See dwg. #183 notes on converting sediment traps into basin 6, 183.4 & 183.6.
      v. **Critical Stage**, Construct basin #5 and basin #6. Stabilize basin #5 steep slope with E&S blankets. Additional notes detailing Basin #5 & Basin #6 construction shown on dwgs. 183.4 & 183.6.
      vi. Install stormwater inlets and pipes. Install Inlet Protection on all new inlets and stabilize areas. See "note *" below.
      vii. Construct all swales and stabilize with temporary seeding.
      viii. Construction proposed parking lot wall.
      ix. Final grade site and stabilize with temporary seeding. Construction new sidewalk and proposed walls. Install subbase stone course on parking lot and all driveways. Then install parking lot and driveways with binder course.
   e. Permanent stabilization stage:
      i. Replacement of top soil (4-6 inches) and install all permanent vegetation requirements.
      ii. Permanent seeding and mulch all areas. An area shall be considered to have achieved final stabilization when it has a minimum of 70% uniform perennial vegetative cover or other permanent non-vegetative cover with density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding or other movements. Topsoil shall be replaced to predevelopment depths or to a minimum depth of 6 inches, whichever is greater. It is also recommended that soil tests be performed in order to determine actual lime and fertilizer needs instead of providing a generic application rate.
      iii. Clean binder course of parking lot and all driveway surfaces and install wearing course on all surfaces.
3. Removal/Conversion of temporary sediment pollution controls stage:
   a. Prior to removal of the E&S bmp's, the Berks County Conservation District should be contacted. The district may require a site inspection prior to the conversion or removal of BMP's.
   b. Remove all E&S BMPs when the work area is at a minimum of 70% uniform perennial vegetative cover or trench backfill paving is complete.
   c. Remove all filter sock and other temporary soil erosion and sediment control facilities after all areas have been permanently stabilized. Areas disturbed during removal of the controls must be stabilized immediately. An area shall be considered to have achieved final stabilization when it has a minimum of 70% uniform perennial vegetative cover or other permanent non-vegetative cover with density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding or other movements. Topsoil shall be replaced to predevelopment depths or to a minimum depth of 6 inches, whichever is greater, it is also recommended that soil tests be performed in order to determine actual lime and fertilizer needs instead of providing a generic application rate.
   d. Within 30 days after the completion of earth disturbance activities authorized by this permit, including the permanent stabilization of the site and proper installation of PCSM BMPs in accordance with the approved PCSM Plans, or upon submission if NOT sooner, the permittee shall file with the department or authorized conservation district a statement signed by a licensed professional and by the permittee certifying that work has been performed in accordance with the terms and conditions of the permit and the work approved erosion and sedimentation and post construction stormwater management plans. Completion certificated are needed to ensure that all is performed in accordance with the terms and conditions of the permit and the approved E&S and PCSM Plans.

Note: **Critical Stage**, the design engineer shall be on site.

Note *: "The total length of excavated trench open at any one time should not be greater than the total length of the utility line that can be placed in the trench and back-filled in one working day. No more than 50 lineal feet of open trench should exist when utility line installation ceases at the end of the workday. Soil supplements, seed and much must be applied according to 25 Pa. Code §102.22. (Page 283 of E&S Manual)."

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

EROSION & SEDIMENTATION CONTROL NOTES

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For: TOWNSHIP OF CUMRU

Situate In: CUMRU TOWNSHIP, BERKS CO., PA.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JEFFREY E. SKINNER

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200, PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 166.1
SHEET #: 11 Of 25

PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN NOTES

This plan is part of the NPDES permit application for the discharge of stormwater associated with construction activities and the related Erosion and Sediment Control Plan. It is required to comply with Chapter 101.3(b) of the Rules and Regulations of the Pennsylvania Department of Environmental Protection, and conditions under the NPDES permit.

1. Name of Permittee: Cumru Township
   Name of Co-permittee (contractor): TBD

2. Name of Project: Reed Street Utility Extension

3. Project Location: Mohnton, Berks County, PA

4. List name(s) and telephone number(s) of responsible Cumru Township officials to be contacted in case of emergency (to be confirmed at pre-construction meeting):

Name	Day Phone #	Night Phone #
Bob McNichols	**(610) 777-1343**	

5. List name and telephone number of the following:

   Bucks County emergency management: (Berks) Brian Gottschall (610) 374-4800 x8202
   Nearest fire department station: Cumru Fire Station 2 (610) 777-1343
   Nearest hospital: Reading Hospital Tower Health, (484) 628-8000

6. Notification to the following agencies must be made immediately in the event of a spill of any polluting substances.

   PADEP Regional Office: Southcentral Regional Office (Harrisburg) – (717) -705-4700
   PA Fish and Boat Commission: Harrisburg, PA (717) 705-7800

7. List name and telephone number of any downstream water users, including drinking water supplies, industrial intakes and agricultural uses. It is the permittee's/co-permittees responsibility to immediately contact water users if polluting material is released from the site.

   – _____

8. General Description of Construction Activity.

   Re-grading and realignment of Welsh Road. Replace sanitary and storm sewers along Welsh Road and sanitary from border of Mohnton Borough along Reed Street. Extension of gas an water main from intersection of Main Street and Fairview Ave, to Welsh Road.

   See NPDES permit drawings

9. Material and Waste Inventory

   A. Pesticides and herbicides*
   Name & Quantity (pounds or gallons)
   None

   B. Fertilizer*
   Name & Quantity (pounds or gallons)
   None

   C. Other chemicals, such as paints, detergents, acids for cleaning, solvents, soil additives, concrete curing compounds:*
   Name & Quantity (pounds or gallons)
   Other chemicals will be brought on site if and as needed. It is not anticipated that an inventory of these materials will be stored on site.

   *Any items listed under A, B or C above must have Material Safety Data Sheets (MSDS's) kept on the project premises.

   D. Petroleum based products

Gasoline	_____ gallons
Diesel fuel	_____ gallons
Kerosene	_____ gallons
Lubricating oil	_____ gallons
Asphalts, tars	_____ gallons
Other	_____ gallons

   Note: It is not anticipated that gasoline, diesel fuel, lubricating oils, etc. will be stored onsite. Heavy equipment will typically be serviced periodically by fuel trucks on an as-needed basis. Fueling operations will not performed near any streams, drainage ways or storm sewers, and will only be performed with proper supervision. Any liquid that is stored onsite must be kept within a diked area (lined with an impervious clay, concrete or synthetic membrane), sized to hold 110% of the largest container's capacity.

10. List the types and quantities of absorbent materials used for spill mitigation that are stored on premises. The quantities of absorbent booms, pads and other materials and equipment needed to contain spills and begin cleanup must be kept at the site. List the types and quantities each:

    A selection of absorbent socks, mat pads, barrel top pads, etc., of various sizes will be kept onsite by the contractor.

11. During concrete work, steps shall be taken to assure that no pollution enters waterways. Concrete mixer truck washings shall be deposited onsite into a container specially-designed for the purpose. The container shall be located in a specified area as far upslope on the site as practicable to best prevent migration of materials into streams, drainage ways or storm sewers.

12. Particular attention shall be given to equipment refueling operations. Refueling shall only occur as far upslope on the site as practicable. The location shall be protected by a containment dike and secured from vandalism. Operators shall be familiar with the proper emergency response procedures and contact information in the event of a spill.

13. The site shall be inspected daily for evidence of existing or potential spills or leaks, vandalism, and the condition and quantity of cleanup materials.

14. Material Management Practices.

    The following material management practices shall be used to reduce the risk of spills or other accidental discharge of materials and substances to storm water runoff:

    A. Good Housekeeping:

    The following good housekeeping practices shall be followed onsite during construction:
    - All efforts shall be made to store only enough products onsite as are required to do the job.
    - Materials stored onsite shall be stored in a neat, orderly manner in appropriate containers and, if possible, under a roof or other enclosure.
    - Products shall be kept in their original containers with the original manufacturer's label.
    - Substances shall not be mixed with one another unless recommended by the manufacturer.
    - Whenever possible, all of a product shall be used up before disposing of the container.
    - Manufacturer's recommendations for proper use and disposal shall be strictly followed.
    - The contractor's site superintendent shall perform daily inspections to ensure proper use and disposal of materials onsite.
    - At least once per month, the contractor's safety consultant shall inspect the premises to confirm conformance to all OSHA regulations.

    B. Hazardous Products:

    The practices described below shall be used to reduce the risks associated with hazardous materials:
    - Products shall be kept in their original containers unless they are not resealable.
    - Original labels and material safety data sheets (MSDS's) shall be retained at the jobsite.
    - If surplus materials must be disposed of, manufacturer's or local and State recommended methods for proper offsite disposal shall be followed.

15. Product-Specific Practices

    The following product-specific practices shall be followed onsite:

    A. Petroleum Products:
    All onsite vehicles and equipment shall be monitored daily for leaks and shall receive regular preventive maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly-sealed containers which are clearly labeled. Any asphaltic material used onsite shall only be applied according to the manufacturer's recommendations.

    B. Fertilizers:
    Fertilizers used shall be applied only in the minimum amount recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to stormwater. Storage shall be in a covered shed. The contents of any partially-used bags of fertilizer shall be immediately transferred to a sealable plastic bin to avoid spills.

    C. Chemical/Paints:
    All containers shall be tightly sealed and stored when not in use. Excess paint shall not be disposed of in the storm sewer system, it shall be properly disposed of according to the manufacturer's instructions or per State and local requirements.

    D. Concrete Truck Washout Materials:
    Concrete truck washout materials shall be deposited onsite into a container specifically designed for the purpose. The container shall be located in a specific area as far upslope on the site as practicable to best prevent migration of materials into streams, drainage ways or storm sewers. Once cured and hardened, the concrete shall be removed from the site and properly disposed of.

16. Spill Prevention Practices

    In addition to the good housekeeping and material management practices described above, the following practices shall be followed for spill prevention and cleanup:
    - The manufacturer's recommended methods for spill cleanup shall be clearly posted, and site personnel shall be trained in the proper procedures and the location of the information and cleanup supplies.
    - Materials and the equipment necessary for spill cleanup shall be kept onsite. Equipment and materials shall include, but not limited to:
      Brooms, dust pans, mops, rags, gloves, goggles, absorbent granular material, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
    - All spills shall be cleaned up immediately after discovery.
    - The spill area shall be kept well ventilated and personnel shall wear appropriate protective clothing to prevent contact with a hazardous substance.
    - All spills of toxic or hazardous material, regardless of the size of the spill, shall be reported immediately via text, email or in writing to the Engineer, the Owner, and the appropriate local and State government agencies.
    - The spill prevention plan shall be revised to include measures to prevent any type of spill from recurring, and to confirm how to clean up a spill if there is another one. A description of the spill, what caused it, and the cleanup measures used shall also be included in the written spill report.
    - The contractor's site superintendent responsible for the day-to-day site operations shall be the project's spill prevention and cleanup coordinator. The superintendent shall designate at least three (3) other site personnel, who shall receive spill prevention and cleanup training. The names and cell phone numbers of these responsible spill personnel shall be posted prominently onsite. These individuals shall each be made responsible for a particular phase of spill prevention and cleanup.

17. Site Security
    All materials requiring security shall be kept locked within secure containers stored in a designated secure area.

18. All construction and site activities shall be performed in accordance with the specifications and plans approved by the appropriate governmental authorities. Activities may also be monitored and inspected by the municipal engineer, related agency inspectors, and the municipal water/sewer authorities.

EROSION & SEDIMENT CONTROL (E&SC) PLAN NARRATIVE

E&SC Plan Planning & Design 102.4(b)(4)

The E&SC Plans are separate from the PCSM Plans and are labeled "E&SC Plan" and are the final plans to be used during construction.

Documentation that the E&SC Plans was prepared by a person trained and experienced in E&SC design methods and techniques applicable to the size and scope of the project is provided in ATTACHMENT C.

The temporary erosion control measures provided during construction and restoration activities are designed to minimize soil loss, prevent pollution of Stillwater Run near the municipal campus and the unnamed tributary at the Ashley Run Clean Soils Site, both tributaries to Angelica Creek, in addition to the tributaries to Wyomissing Creek along Reed Street. These controls will also protect adjacent properties, and maximize protection of existing drainage features and vegetation.

The following measures and Best Management Practices (BMP's) shown on the E&SC Plans must be incorporated throughout the project's construction by the contractor:

- Limiting areas of disturbance, and preservation of existing vegetation wherever possible
- Temporary seeding and mulching applied immediately to all disturbed areas
- Proper silt fence and/or filter sock sediment barrier installation and maintenance
- Stabilized construction entrance installation and maintenance
- Restricting construction traffic to the site disturbed areas and stone driveways
- Pumped water filter bag installation and maintenance
- Erosion control matting along stream banks and steep slopes as needed
- Filter bag/stone & block inlet protection installation and maintenance

The above measures, shown throughout the E&SC Plans will:

- Minimize the extent and duration of earth disturbance;
- Maximize protection of existing site drainage features and vegetation;
- Minimize soil compaction; and
- Control/minimize the generation of increased stormwater runoff.

Existing topographic features of the project site and the immediate surrounding area §102.4(b)(5)(i)

The topography of the project site is shown on the drawings, by use of contours at one-foot intervals.

A USGS quadrangle location map is provided in ATTACHMENT D and on the plan cover sheet.

The project drawings incorporate both construction and E&SC information on the E&SC plan to aid the contractor in compliance with E&SC requirements during construction.

Soil Types, depth, slope, locations and limitations §102.4(b)(5)(ii)

The maps of soil types and limits related to the project were identified using the NRCS Web Soil Survey website. The soil survey map pertaining to the project is provided in ATTACHMENT E1 and E2 and soil boundaries are shown on the drawings.

Per the PADEP E&SC Chapter 102 Manual, Appendix E, there are no limitations listed for Urban land, Joanna complex (UpD). Other soils at the site can be used to determine the properties of this urban land. Soil at the project site include Neshaminy Silt Loam (NaB and NaC), Neshaminy gravelly silt loam (NhD) and the site is bordered by Brecknock channery silt loam (BpD). The table below describes the expected limitations for these soils.

Map Unit Symbol	Map Unity Name	Limitations
BpB	Brecknock channery silt loam, 3 to 8 percent slopes	N/A
BpC	Brecknock channery silt loam, 8 to 15 percent slopes	Slope
NaB	Neshaminy silt loam 3 to 8 percent slopes	Slopes
NaC	Neshaminy silt loam 8 to 15 percent slopes	Slopes
NaD	Neshaminy silt loam 15 to 25 percent slopes	Slopes
NhD	Neshaminy gravelly silt loam, 8 to 25 percent slopes, extremely boulder	Slopes, Depth to saturated zone
UpB	Urban land-Joanna complex, 0 to 8 percent slopes	Unknown/Undefined
UpD	Urban land-Joanna complex, 8 to 25 percent slopes	Unknown/Undefined

These limitations can be addressed with proper shoring of bulk excavations and use of trench boxes for linear excavations, the coating of exposed concrete and steel proposed for underground service, and standard pumping of water from excavations.

Preliminary sampling and testing of representative soils is being performed concurrently with the submittal of this application. Once construction starts, further sampling and testing will be performed on the underlying soils. Test results will be presented upon receipt and will be used in determining the proper disposal method for exported fill materials.

Since there are only a few construction-related notes on the plans, it is requested that it be deemed acceptable that the Construction Plans are included in the E&SC and PCSM (Restoration) Plan set. This provides better coordination to the contractor than having two separate plan sets in the field. Every effort has been made to ensure that the plan information shown is complete and legible.

Past, present and proposed land uses and proposed alteration to project site §102.4(b)(5)(iii)

From review of available online historical mapping, the past use(s) for the project sites for the prior fifty years indicate that the uses have been farming, vacant, residential homes, and roadways.

The present land use for the past five years has not changed.

The proposed work during Phase 1 includes along E Fairview Street, Cedar Street, Reed Street, and Church Road will conclude with restoration of the existing residential (paved street) to existing conditions. Proposed work along Welsh Road includes raising the elevation of the road at the conclusion of utility line installation and replacement. Land to the west of Welsh Road will be regraded and a fire station built upon it.

The proposed work during Phase 2 includes the construction of a new fire station with driveways and parking as well as stormwater management features to address the increase in runoff due to the new impervious surfaces connected to features installed in Phase 1.

Volume and rate of runoff from the project site and its upstream watershed area §102.4(b)(5)(iv)

During Phase 1, a decrease in volume and peak rate of runoff from the site can be expected due to work completed during this phase of the project. The work includes removal of several impervious areas (garage, driveway, and pavilion), regrading of fields in front of the township building, and reconstruction of the stormwater management basin. Changes to the existing stormwater management basin will increase retention time in the basin. Regrading to the east of the township building includes installation of a new basin to manage other stormwater flows being directed further south along Welsh Road via road gutter lines that are to be improved.

During Phase 2, an increase in volume and peak rate of runoff can be expected due to work completed. These increases are addressed by PCSM features including an infiltration basin and a dry extended detention basin beneath the parking lot.

Summary of calculations results is in the ATT Js, each labeled for relevant locations.

Location of all surface waters and their classification under Chapter 93 §102.4(b)(5)(v)

During Phase 1, the receiving surface waters, tributaries to Wyomissing Creek and tributaries to Angelica Creek. These waterways are shown and labeled on the drawings. During Phase 2, runoff will only flow to the tributaries to Angelica Creek.

Per PADEP Chapter 93 classification, the designated use of the receiving stream basin, the Wyomissing Creek, is HQ-CWF (High Quality Cold Water Fishes) and MF (Migratory Fishes); it is a HQ designated watershed.

Angelica Creek has a designated use listed as CWF (Cold Water Fishes) and MF (Migratory Fishes); it is not a HQ or EV designated watershed. There is no existing use listed in Chapter 93.

Narrative description of the location and type of perimeter and onsite BMPs §102.4(b)(5)(vi)

The temporary erosion control measures to be provided during construction and restoration activities are designed to minimize soil loss, prevent water pollution of adjacent streams and rivers, protect adjacent properties, and maximize protection of existing drainage features and vegetation. The following E&SC Best Management Practices (BMP's) are incorporated in the design and details of the project:

- Limiting areas of disturbance and preservation of existing vegetation wherever possible.
- Temporary seeding and mulching to be applied immediately to all disturbed areas.
- Silt fence/filter sock sediment barrier
- Benching of slopes
- (Stabilized) Rock construction entrances
- Pumped water filter bags
- Erosion control matting along stream banks and steep slopes
- Filter bag inlet protection

Sequence of BMP installation and removal §102.4(b)(5)(vii)

A general construction sequence for the installation of piping and appurtenances, including installation and removal of temporary E&SC BMPs, is shown on the drawings.

Supporting calculations and measurements §102.4(b)(5)(viii)

Supporting calculations for E&SC measures is included in ATT Q. These include worksheets for compost sock, flare end sections and end walls, swale and channel design, and anti-seep collars. Attachments are labeled for phases to which they correspond.

Supporting calculations for the existing land cover and basins are included in ATT K of the Appendices to the PCSM Narrative. Existing land cover for Phase 2 is the proposed land cover at the conclusion of Phase 1.

Supporting calculations for the proposed new basins are included in ATT L of the PCSM Appendices. Phase 1 includes calculations for permanent basin 1 and 2 as well as temporary sediment basins 3 and 4. Phase 2 includes calculations for removal of temporary sediment traps 3 and 4 and permanent basins 5 and 6.

Plan drawings §102.4(b)(5)(ix)

Drawings describing the proposed earthmoving are included in the application. The limit of disturbance is shown on the drawings. The existing grading will generally be restored at the conclusion of Phase 1. Grading will be adjusted as shown of the plans for Phase 2. E&SC BMP details are included on the drawings.

Maintenance program §102.4(b)(5)(x)

Erosion and sediment control measures included in this plan shall be maintained after construction so that they individually and collectively perform the function for which they were designed.

During the work, the contractor will assign worker(s) experienced in erosion control measures to make inspections and preparing reports weekly and after rainfall events, to determine any maintenance or repair that may be required. Temporary features such as silt fence, inlet protection, and erosion control matting will be inspected and any needed maintenance or repair will be noted. After inspection, the preventative and remedial work needed will be determined and corrected immediately.

Sediment will not be permitted to accumulate to a depth sufficient to limit the effectiveness of the proposed E&S BMP(s). After final site stabilization has been achieved, only then will the temporary erosion and sediment BMP's be removed. Any areas disturbed during removal of the BMP's will be stabilized immediately.

The maintenance of the proposed BMP's is addressed in the notes on the drawings.

An inspection schedule for the proposed BMP's is addressed in the notes on the drawings.

A written report documenting inspections and repairs is specified in the notes on the drawings.

Recycling or disposal of materials §102.4(b)(5)(xi)

Potential construction wastes from a project of this type include: sediment collected in the trench water filtration system, disturbed sediments that may run overland, concrete truck washout materials, wood dunnage from equipment delivery pallets and concrete framework, excess excavated materials, and typical construction debris. All of these wastes will be recycled or disposed of offsite as described in the standard general sediment control notes #A.10 & 11 on the permit plans (Drawing 162): i.e., per the PADEP Solid Waste Management Regulations (document 258-2182-773); no disposal will occur onsite.

Instructions for the proper recycling/offsite disposal of other materials are provided in the notes on the drawings and on the Preparedness, Prevention and Contingency (PPC) Plan which is included on the drawings and in ATT H.

Geologic formations/soil conditions that may have the potential to cause pollution §102.4(b)(5)(xii)

There are no known naturally-occurring geologic or other soil conditions that are anticipated to have the potential to cause pollution; measures to avoid, minimize or mitigate them are not applicable.

Potential thermal impacts to surface waters §102.4(b)(5)(xiii)

During the project, the thermal impacts of stormwater will be avoided, minimized, and mitigated by pumping water from the trenches through a filter bag and into a grassy area allowing time for water to cool before any may possibly run off into surface waters.

The post-construction thermal impacts of stormwater runoff from the project site will be avoided, minimized, and mitigated by restoring most disturbed areas to the cover conditions (or better) that existed prior to construction. For areas that were changed and not restored, the revitalized storm swales along the sites of Welsh Road will slow the first flush and allow for some to be retained and infiltrated or runoff to cool before entering waters of the Commonwealth.

E&S Plan designed and implemented to be consistent with PCSM Plan §102.4(b)(5)(xiv)

The proposed PCSM structural BMP stormwater management basins are shown on the E&SC Plan Maps. These areas are protected during construction as suggested in their implementation guidelines to prevent sediment from entering the system before they have been fully stabilized and to avoid compaction by construction equipment. Drainage area and ground cover calculations show that there is no expected increase in runoff peak rate. A summary of the results of the calculations are included to support this in the PCSM Spreadsheets.

There are no existing or proposed riparian buffers within the project site. Therefore the requirement that riparian buffers are shown outside limits of disturbance is not applicable. A wetland delineation was performed. Wetlands are located outside the project site and are labeled on the drawings.

Existing/proposed riparian forest buffers §102.4(b)(5)(xv)

The project site does not discharges to a High Quality or Exceptional Value watershed. The site and disturbance area is within 150 feet of a perennial or intermittent river, stream, or creek, lake, pond or reservoir, however, the project consists primarily of road maintenance activities during Phase 1. Therefore, the project meets the requirements for granting of a waiver listed in the following section(s) of Chapter 102.14:

- 102.14(a)(1)(v) Road maintenance activities so long as any existing riparian buffer is undisturbed to the extent practicable.

During Phase 2 the following waiver applies:

- 102.14(a)(1)(i) A project site located greater than 150 feet (45.7 meters) from a river, stream, creek, lake, pond or reservoir.

There are wetlands present to the east of the site, per review of the NWI mapping online, and these wetlands are shown on the project plans. These areas are not forested and are outside the limit of disturbance.

Antidegradation Analysis

The project site drains to an MS4. This MS4 drains to a wetland as shown on the plans. Wetlands are designated as EV if they meet the definition listed in 105.17(1)(i-v). Given the wide definition in the PA Code and the lack of knowledge of other wetlands in the area which may affect the classification of wetlands adjacent to the site and cost prohibitive nature to classify them, it is unclear if these wetlands meet the criteria for definition as EV, therefore the Antidegradation Analysis Module 3 is included. ABACT BMPs are proposed for use.

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

COMMONWEALTH OF PENNSYLVANIA — JEFFREY E. SKINNER — PROFESSIONAL ENGINEER — REGISTERED

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

EROSION & SEDIMENTATION CONTROL NOTES

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:

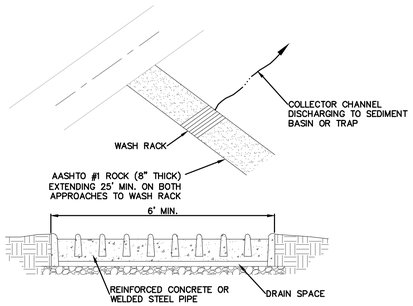
TOWNSHIP OF CUMRU

Situate In:

CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 166.2
SHEET #: 12 Of 25



NOTES:

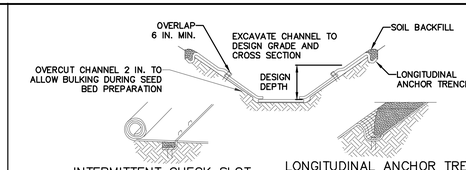
WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS.

WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.

A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.

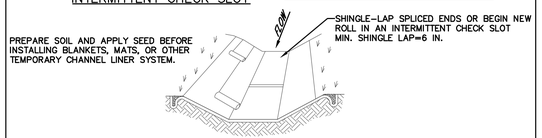
MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL #3-2
ROCK CONSTRUCTION ACCESS WITH WASH RACK
NOT TO SCALE
1 166.3

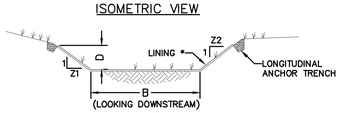


INTERMITTENT CHECK SLOT

LONGITUDINAL ANCHOR TRENCH



ISOMETRIC VIEW



CHANNEL CROSS-SECTION

* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
SWALE 1A	6 LF	1	1	7	3	3	R-5
SWALE 1B	40 LF	1	1	7	3	3	GRASS-LEGUME
SWALE 2	94 LF	1	1	7	3	3	GRASS-LEGUME
SWALE 3A	91 LF	1	1	7	3	3	GRASS-LEGUME
SWALE 3B	58 LF	1	1	7	3	3	GRASS-LEGUME
SWALE 4A	52 LF	1	1	7	3	3	GRASS-LEGUME
SWALE 4B	50 LF	1	1	7	3	3	GRASS-LEGUME
SWALE 5A	49 LF	2.5	1.26	10.04	3	3	GRASS-LEGUME
SWALE 5B	56 LF	2.5	1	8.5	3	3	GRASS-LEGUME

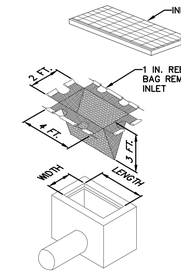
NOTES:

ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

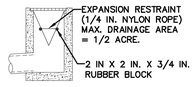
CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

STANDARD CONSTRUCTION DETAIL #6-1
VEGETATED CHANNEL
NOT TO SCALE
2 166.3



ISOMETRIC VIEW



INSTALLATION DETAIL

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

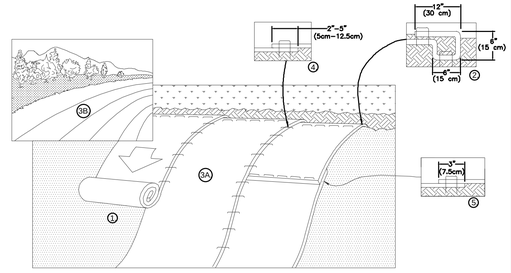
ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

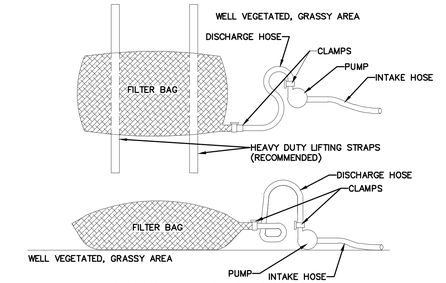
DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

FILTER BAG INLET PROTECTION
N.T.S.
3 166.3



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED(TM) MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH. NOTE: *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

EROSION CONTROL MATTING
N.T.S.
4 166.3



LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME ½ FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

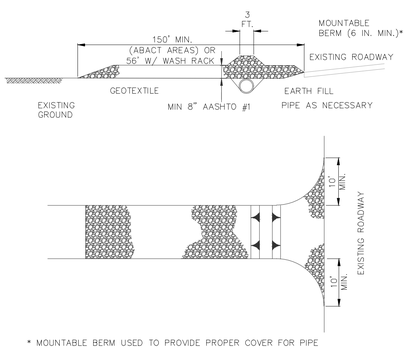
NO DOWN SLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR ½ THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

STANDARD CONSTRUCTION DETAIL
PUMPED WATER FILTER BAG
N.T.S.
5 166.3



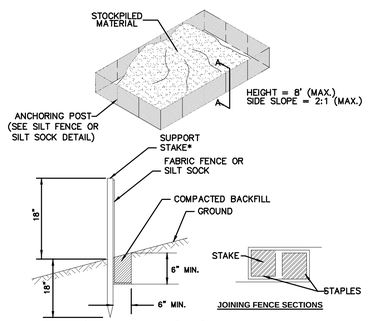
* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 150 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL
ROCK CONSTRUCTION ENTRANCE
N.T.S.
6 166.3



* Stakes spaced @ 8' maximum. Use 2" x 2" wood or equivalent steel stakes.

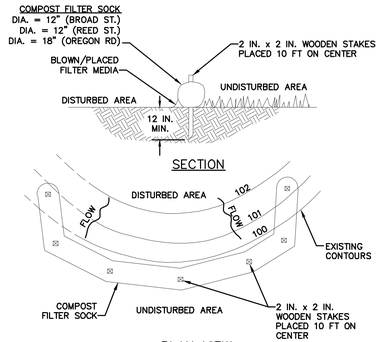
Filter Fabric Fence must be placed at level existing grade. Both ends of the barrier must be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.

Sediment must be removed when accumulations reach 1/2 the above ground height of the fence.

Any section of Filter Fabric Fence which has been undermined or topped must be immediately replaced with a Rock Filter Outlet. See Standard Construction Detail #18.

INSTALL SILT FENCE OR SILT SOCK DOWN SLOPE OF ALL STOCKPILE AREAS.

TOPSOIL & CLEAN SPOILS STOCKPILE CONTROL
N.T.S.
7 166.3



PLAN VIEW

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (FIGURE 4.1). MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON FIGURE 4.2. STAKES MAY BE INSTALLED IMMEDIATELY DOWN SLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.

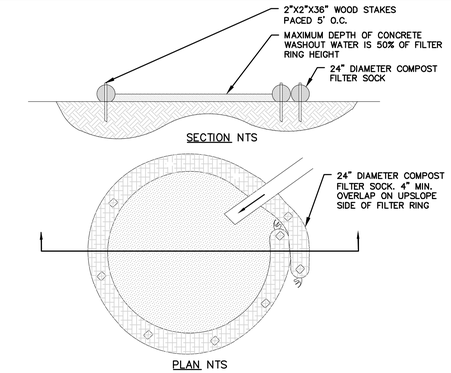
ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

STANDARD CONSTRUCTION DETAIL
COMPOST FILTER SOCK
N.T.S.
8 166.3



NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE
2. 18" DIAMETER FILTER SOCK MAY BE STAKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.

A SUITABLE IMPERVIOUS GROMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.

TYPICAL COMPOST SOCK WASHOUT INSTALLATION
N.T.S.
10 166.3

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04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER 042652 PENNSYLVANIA

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

EROSION & SEDIMENTATION CONTROL DETAILS

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: 2057000538
DRAWING #: 166.3
SHEET #: 13 Of 25

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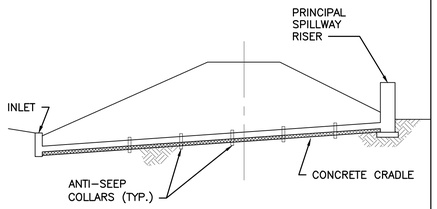
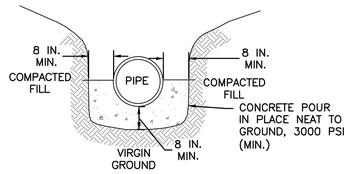


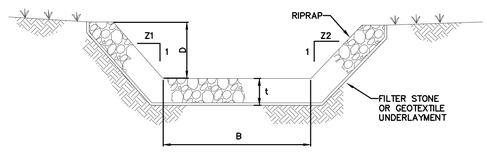
EMBANKMENT ALONG PRINCIPAL SPILLWAY



CROSS SECTION AT OUTLET BARREL

NOTES:
A CONCRETE CRADLE MAY BE USED IN CONJUNCTION WITH ANTI-SEEP COLLARS AND/OR FILTER DIAPHRAGM.
ANTI-SEEP COLLAR NUMBER, SIZE AND SPACING SHALL BE AS SHOWN ELSEWHERE IN PLAN.

STANDARD CONSTRUCTION DETAIL #7-17
CONCRETE CRADLE FOR BASIN OR TRAP OUTLET BARREL
NOT TO SCALE
1 / 166.4



(LOOKING DOWNSTREAM)
CHANNEL CROSS-SECTION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	RIPRAP GRADATION (R-_)	RIPRAP DEPTH t (IN)	UNDERLAYMENT	UNDER-LAYMENT THICKNESS
SWALE 1A	6.0 LF	1	1	3	3	R-5	24	NA	NA
FES 44	3.0'	4.5	1	3	3	R-4	18	NA	NA
FES 45	3.0'	3	0.5	3	3	R-4	18	NA	NA

NOTES:

FILTER STONE UNDERLAYMENT FOR BED SLOPES ≥ 0.10 FT/FT (10 %) SHALL BE USED.

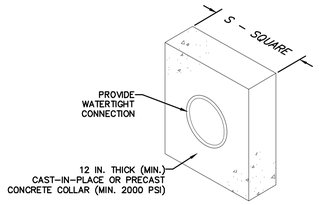
CHANNEL DIMENSIONS ARE FOR THE COMPLETED CHANNEL AFTER ROCK PLACEMENT. CHANNEL MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE VOLUME OF ROCK PLACED WITHIN THE CHANNEL WHILE PROVIDING THE SPECIFIED FINISHED DIMENSIONS.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.

DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

THE MINIMUM ROCK THICKNESS (t) SHALL BE 1.5 TIMES THE MAX ROCK SIZE.

RIPRAP CHANNEL
(SCD 6-3)
N.T.S.
2 / 166.4



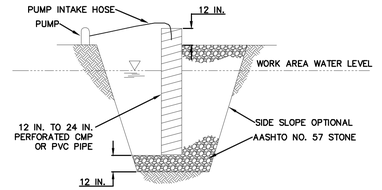
BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
#6	24	48	2	5	10

NOTES:

ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.

COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

CONCRETE ANTI-SEEP COLLAR FOR
PERM. BASINS OR TRAPS (SCD 7-16)
N.T.S.
3 / 166.4



LOCATE SUMP AT LOW POINT IN WORK AREA AND OUTSIDE OF CONSTRUCTION ACTIVITY. WHEREVER RUNOFF FROM A WORK AREA FLOWS DIRECTLY TO THE SUMP AREA, A FILTER BAG SHALL BE ATTACHED AT THE DISCHARGE POINT UNLESS PUMPING TO A SEDIMENT BASIN OR SEDIMENT TRAP.

MINIMUM DIAMETER OF PIT BOTTOM SHALL BE 24" LARGER THAN PIPE DIAMETER. MINIMUM DEPTH OF PIT SHALL BE 24" BELOW WATER LEVEL IN WORK AREA (INCLUDING THE AASHTO #57 STONE). 12" TO 24" PERFORATED CMP OR PVC PIPE SHALL BE SET ON 12" OF CLEAN AASHTO # 57 STONE.

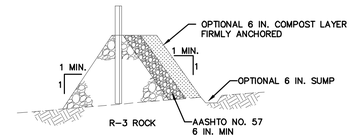
VOID SPACE AROUND PIPE SHALL BE FILLED WITH AASHTO # 57 STONE. PIPE TO EXTEND 12" MIN. ABOVE TOP OF STONE AND/OR WATER BEING PUMPED FROM WORK AREA.

SET PUMP INTAKE INSIDE STANDPIPE.

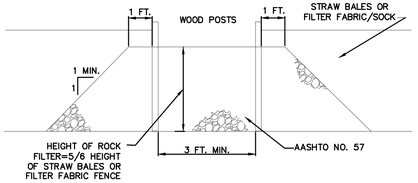
DISCHARGE FROM PUMP SHALL BE TO A STABLE AREA BELOW DISTURBANCES FROM THE WORK ZONE.

SUMP MAY BE USED IN CONJUNCTION WITH FILTER BAG WHERE ADDITIONAL FILTERING IS NEEDED.

STANDARD WATER DETAIL
SUMP PIT
N.T.S.
4 / 166.4



OUTLET CROSS-SECTION



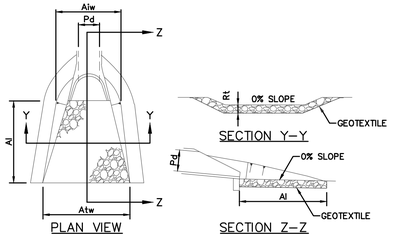
UP-SLOPE FACE

NOTES:

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

STANDARD CONSTRUCTION DETAIL #4-6
ROCK FILTER OUTLET
NOT TO SCALE
5 / 166.4



OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE R-_	RIPRAP THICK. Rt (IN)	APRON LENGTH Ai (FT)	APRON INITIAL WIDTH Aiw (FT)	APRON TERMINAL WIDTH Atw (FT)
44	18	R-4	18	7	4.5	8
45	12	R-4	18	9	3	9

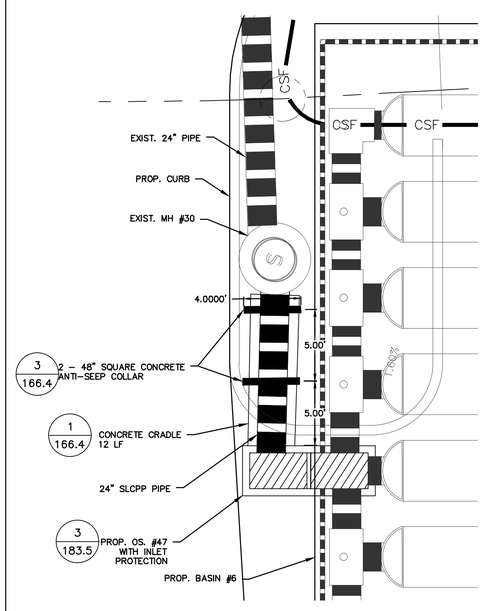
2 / 166.4
2 / 166.4

NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

RIPRAP APRON AT PIPE OUTLET W/ FLARED
(SCD 9-1)
N.T.S.
6 / 166.4



CONCRETE ANTI-SEEP COLLAR & CONCRETE CRADLE
SCALE: 1" = 5'
5 2.5 0 5 10 15
SCALE IN FEET
7 / 166.4

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04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

EROSION & SEDIMENTATION CONTROL DETAILS

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

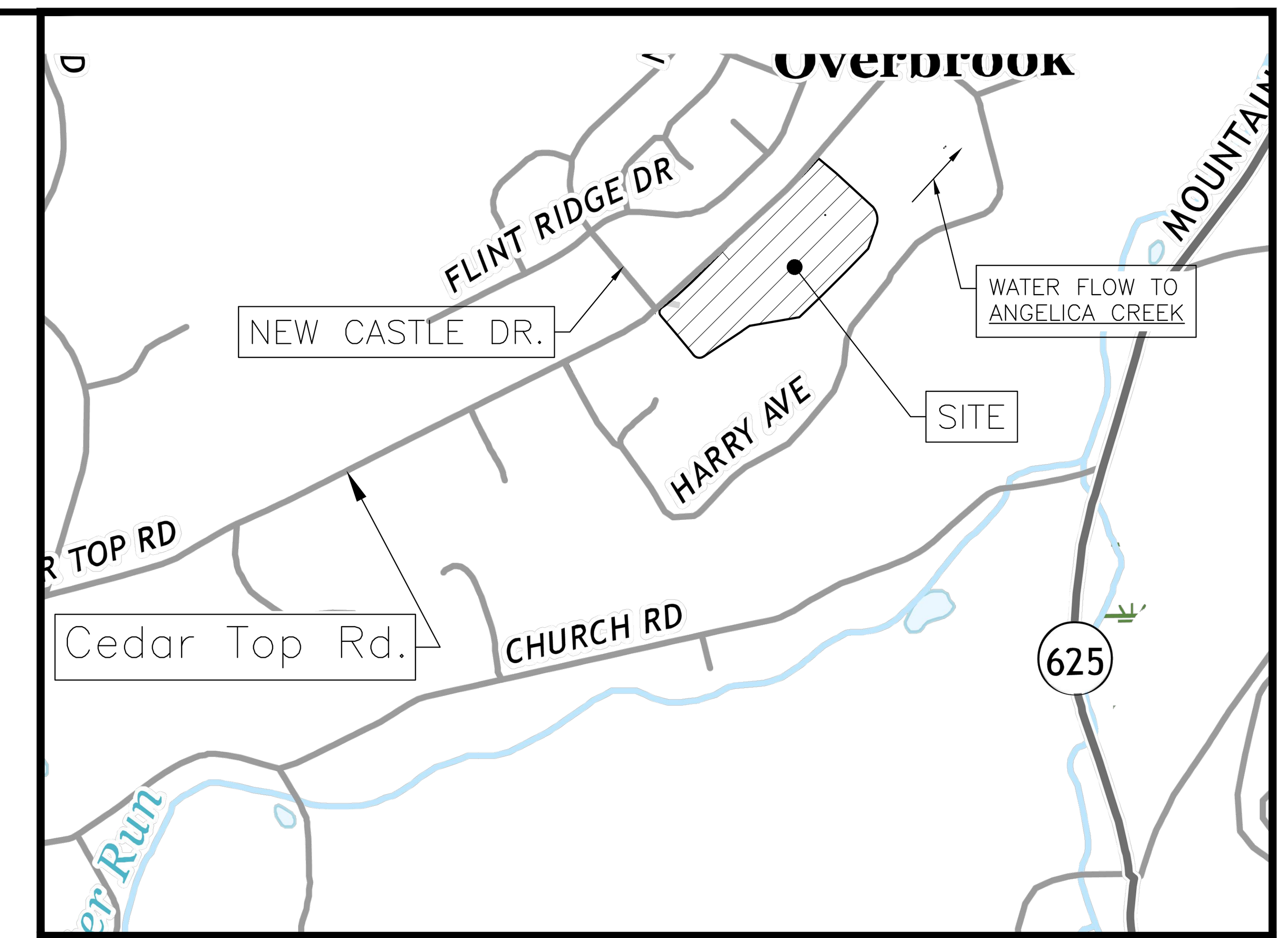
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER PE 042652

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 166.4
SHEET #: 14 Of 25

NOTE: CONTOURS DEPICT EVENTUAL FINAL GRADES, NOT CONTRACT FINAL GRADES.



LOCATION MAP

SCALE: 1" = 800'

NOTES:

1. PROVIDE & INSTALL 18" COMPOST FILTER SOCK (CSF) AT BOTTOM OF SLOPE OF ALL ACTIVE FILL AREAS AS REQUIRED BY BCCD & NPDES PERMIT.
2. MAINTAIN, REPAIR, AND REPLACE CONSTRUCTION ENTRANCE AS REQUIRED BY BCCD & NPDES PERMIT.
3. STREET SWEEP ANY MATERIAL TRACKED ON TO PAVEMENT AS REQUIRED BY BCCD & NPDES PERMIT.
4. FINISH GRADE SLOPE FILL AREA TO 3:1 MAX. SLOPE.
5. STABILIZED & SEED ALL DISTURBED SOIL AT COMPLETION AS REQUIRED BY BCCD & NPDES PERMIT.

Pennsylvania One Call System, Inc.

Call Before You Dig
in Pennsylvania
1-800-242-1776

State Law Requires
Construction Phase: Three working Days Notice
Design Phase: Ten working Days Notice
Facility Owners: Member of One Call System

SERIAL NO. #20210681616

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50 25 0 50 100 150

SCALE IN FEET

NO.	REVISIONS	DATE	ENGR.	DATE	ISSUED FOR
2	FILL AREA STATUS	01/23/24	JES		
1	GENERAL REVISION	3/11/21	JES	3/12/21	ISSUE FOR BIDS

ATLAS

920 Germantown Pike, Suite 200 Plymouth Meeting, PA 19462

DESIGN ENGR. GTA	APPROVED	
DRAWN BY RC		
PROJECT ENGR. JES	APPROVED	
PROJECT MGR. JES		
CHECKED BY JES	DATE 08/31/20	

SEAL: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER NO. 42652-E

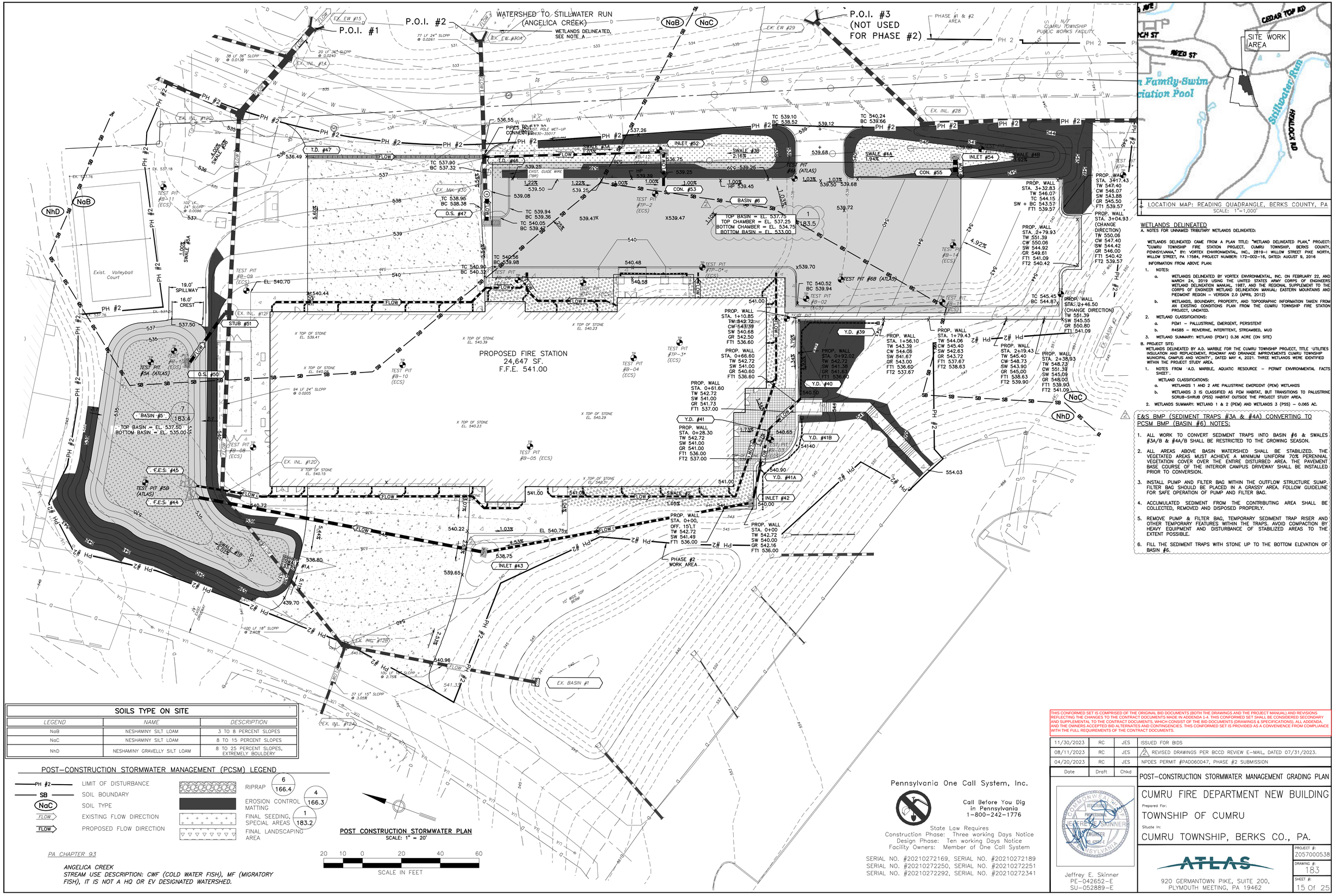
REGISTERED PROFESSIONAL ENGINEER

CUMRU TOWNSHIP
BERKS COUNTY, PENNSYLVANIA

UTILITIES INSTALLATION AND REPLACEMENT, ROADWAY AND DRAINAGE IMPROVEMENTS
CUMRU TOWNSHIP MUNICIPAL CAMPUS AND VICINITY

CONSTRUCTION PLAN
FILL GRADING AND STABILIZATION
CUMRU TOWNSHIP SPOILS STOCKPILE LOCATION

SCALE	AS NOTES
PROJECT NO.	Z057000415
DRAWING NO.	166.5
SHEET	OF



SOILS TYPE ON SITE

LEGEND	NAME	DESCRIPTION
NaB	NESHAMINY SILT LOAM	3 TO 8 PERCENT SLOPES
NaC	NESHAMINY SILT LOAM	8 TO 15 PERCENT SLOPES
NhD	NESHAMINY GRAVELLY SILT LOAM	8 TO 25 PERCENT SLOPES, EXTREMELY BOULDERY

POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) LEGEND

- PH #2 — LIMIT OF DISTURBANCE
- SB — SOIL BOUNDARY
- NaC — SOIL TYPE
- FLOW — EXISTING FLOW DIRECTION
- FLOW — PROPOSED FLOW DIRECTION
- RIPRAP (6 / 166.4)
- EROSION CONTROL MATTING (4 / 166.3)
- FINAL SEEDING, SPECIAL AREAS (1 / 183.2)
- FINAL LANDSCAPING AREA

PA CHAPTER 93

ANGELICA CREEK
STREAM USE DESCRIPTION: CWF (COLD WATER FISH), MF (MIGRATORY FISH), IT IS NOT A HQ OR EV DESIGNATED WATERSHED.

POST CONSTRUCTION STORMWATER PLAN
SCALE: 1" = 20'

20 10 0 20 40 60
SCALE IN FEET

WETLANDS DELINEATED

A. NOTES FOR UNNAMED TRIBUTARY WETLANDS DELINEATED:

WETLANDS DELINEATED CAME FROM A PLAN TITLE: "WETLAND DELINEATED PLAN," PROJECT: "CUMRU TOWNSHIP FIRE STATION PROJECT, CUMRU TOWNSHIP, BERKS COUNTY, PENNSYLVANIA," BY: VORTEX ENVIRONMENTAL, INC., 2819-I WILLOW STREET PIKE NORTH, WILLOW STREET, PA 17584, PROJECT NUMBER: 172-002-16, DATED: AUGUST 9, 2016

INFORMATION FROM ABOVE PLAN:

1. NOTES:
   a. WETLANDS DELINEATED BY VORTEX ENVIRONMENTAL, INC. ON FEBRUARY 22, AND MARCH 24, 2019 USING THE UNITED STATES ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, 1987, AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEER WETLAND DELINEATION MANUAL: EASTERN MOUNTAINS AND PIEDMONT REGION – VERSION 2.0 (APRIL 2012)
   b. WETLANDS, BOUNDARY, PROPERTY, AND TOPOGRAPHIC INFORMATION TAKEN FROM AN EXISTING CONDITIONS PLAN FROM THE CUMRU TOWNSHIP FIRE STATION PROJECT, UNDATED.
2. WETLAND CLASSIFICATIONS:
   a. PEM1 – PALLUSTRINE, EMERGENT, PERSISTENT
   b. R4SB5 – RIVERINE, INTERTITENT, STREAMBED, MUD
3. WETLAND SUMMARY: WETLAND (PEM1) 0.36 ACRE (ON SITE)

B. PROJECT SITE:
WETLANDS DELINEATED BY A.D. MARBLE FOR THE CUMRU TOWNSHIP PROJECT, TITLE 'UTILITIES INSULATION AND REPLACEMENT, ROADWAY AND DRAINAGE IMPROVEMENTS CUMRU TOWNSHIP MUNICIPAL CAMPUS AND VICINITY", DATED MAY 4, 2021. THREE WETLANDS WERE IDENTIFIED WITHIN THE PROJECT STUDY AREA.

1. NOTES FROM 'A.D. MARBLE, AQUATIC RESOURCE – PERMIT ENVIRONMENTAL FACTS SHEET',
   WETLAND CLASSIFICATIONS:
   a. WETLANDS 1 AND 2 ARE PALUSTRINE EMERGENT (PEM) WETLANDS
   b. WETLANDS 3 IS CLASSIFIED AS PEM HABITAT, BUT TRANSITIONS TO PALUSTRINE SCRUB-SHRUB (PSS) HABITAT OUTSIDE THE PROJECT STUDY AREA.
2. WETLANDS SUMMARY: WETLAND 1 & 2 (PEM) AND WETLANDS 3 (PSS) – 0.065 AC.

E&S BMP (SEDIMENT TRAPS #3A & #4A) CONVERTING TO PCSM BMP (BASIN #6) NOTES:

1. ALL WORK TO CONVERT SEDIMENT TRAPS INTO BASIN #6 & SWALES #3A/B & #4A/B SHALL BE RESTRICTED TO THE GROWING SEASON.
2. ALL AREAS ABOVE BASIN WATERSHED SHALL BE STABILIZED. THE VEGETATED AREAS MUST ACHIEVE A MINIMUM UNIFORM 70% PERENNIAL VEGETATION COVER OVER THE ENTIRE DISTURBED AREA. THE PAVEMENT BASE COURSE OF THE INTERIOR CAMPUS DRIVEWAY SHALL BE INSTALLED PRIOR TO CONVERSION.
3. INSTALL PUMP AND FILTER BAG WITHIN THE OUTFLOW STRUCTURE SUMP. FILTER BAG SHOULD BE PLACED IN A GRASSY AREA. FOLLOW GUIDELINE FOR SAFE OPERATION OF PUMP AND FILTER BAG.
4. ACCUMULATED SEDIMENT FROM THE CONTRIBUTING AREA SHALL BE COLLECTED, REMOVED AND DISPOSED PROPERLY.
5. REMOVE PUMP & FILTER BAG, TEMPORARY SEDIMENT TRAP RISER AND OTHER TEMPORARY FEATURES WITHIN THE TRAPS. AVOID COMPACTION BY HEAVY EQUIPMENT AND DISTURBANCE OF STABILIZED AREAS TO THE EXTENT POSSIBLE.
6. FILL THE SEDIMENT TRAPS WITH STONE UP TO THE BOTTOM ELEVATION OF BASIN #6.

Pennsylvania One Call System, Inc.
Call Before You Dig in Pennsylvania 1-800-242-1776
State Law Requires
Construction Phase: Three working Days Notice
Design Phase: Ten working Days Notice
Facility Owners: Member of One Call System

SERIAL NO. #20210272169, SERIAL NO. #20210272189
SERIAL NO. #20210272250, SERIAL NO. #20210272251
SERIAL NO. #20210272292, SERIAL NO. #20210272341

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — JEFFREY E. SKINNER — ENGINEER — PE 042652

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

POST-CONSTRUCTION STORMWATER MANAGEMENT GRADING PLAN

CUMRU FIRE DEPARTMENT NEW BUILDING

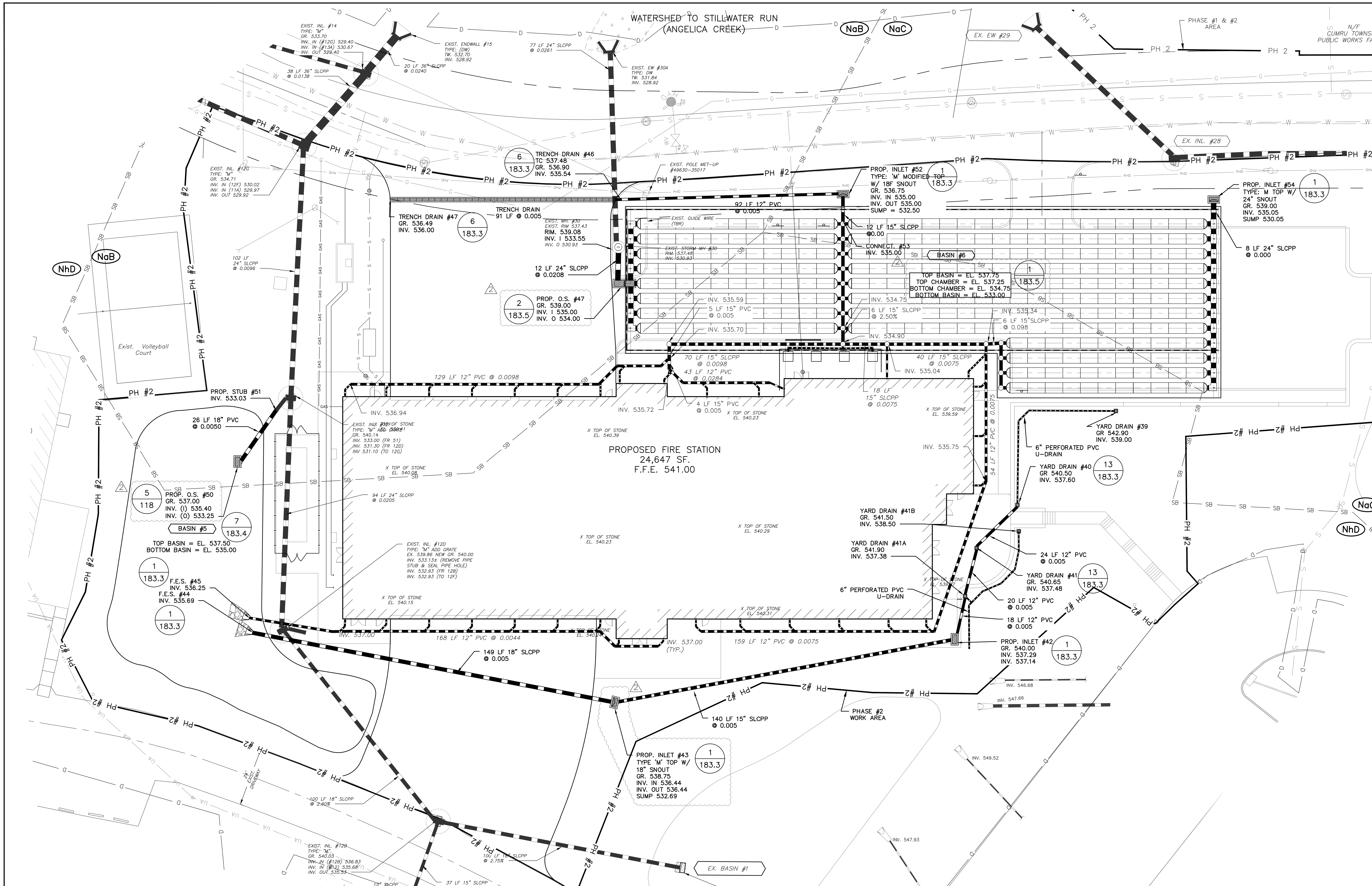
Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 183
SHEET #: 15 Of 25

S:\ST\FILESERVER\Projects\Cumru\Z057000415 - Reed\FIRE STATION\DWG\FIRE STATION-PCSM.dwg, 11/29/2023 2:49:52 PM, AutoCAD PDF (General Documentation).pc3



LONG-TERM OPERATION AND MAINTENANCE NOTES:

1/183.1

1. ALL BASIN STRUCTURES EXPECTED TO RECEIVE AND/OR TRAP DEBRIS AND SEDIMENT SHALL BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT ACCUMULATION AT LEAST FOUR TIMES PER YEAR (QUARTERLY) AS WELL AS AFTER EVERY STORM GREATER THAN 1 INCH. REMOVE SEDIMENT FROM SUMP PITS IN INLETS AT LEAST ONCE PER YEAR.
   - A. STRUCTURES INCLUDE BASIN BOTTOMS, TRASH RACKS, OUTLET STRUCTURES, RIPRAP OR GABION STRUCTURES, SNOUTS, AND INLETS.
   - B. BASIN 5 SHALL ADDITIONALLY BE CHECKED FOR SCOURING AS ABOVE
     - i. IF SCOURING IS APPARENT AT INLETS TO BASIN, CHECK RIPRAP. REPLACE AS NECESSARY OR EXPAND TO SLOW INFLOW. REPAIR UNDERCUT AND ERODED AREAS AT OUTLET STRUCTURES.
     - ii. FOR SCOURING ALONG SIDES OF BASIN, PLANT ADDITIONAL NATIVE VEGETATION WITH EROSION CONTROL MATTING UNTIL RESTABILIZED. INSTALL GEOCELL/HONEYCOMB EROSION CONTROL MATTING IN AREAS THAT CONTINUE TO SCOUR POST VEGETATION.
     - iii. INSPECT OUTLET STRUCTURES FOR CONCRETE FAILURE AND PATCH CRACKS.
   - C. RECORD AND MAINTAIN INSPECTION LOGS USING PA DEP FORM #3800-FM-BCW0531A
2. SEDIMENT REMOVAL SHALL BE CONDUCTED WHEN BASIN 5 IS COMPLETELY DRY. SEDIMENT SHALL BE DISPOSED OF PROPERLY AND ONCE SEDIMENT IS REMOVED, DISTURBED AREAS MUST BE IMMEDIATELY STABILIZED AND REVEGETATED. RESTORE AREAS TO ORIGINAL CROSS SECTION.

   NOTE: IF SEDIMENT IS FOUND IN BASIN 6, SEE NOTE 4.B. BELOW FOR REMEDIAL STEPS.
3. MOWING AND/OR TRIMMING OF VEGETATION SHALL BE PERFORMED AS NECESSARY TO SUSTAIN THE SYSTEM WITH ALL DEBRIS REMOVED FROM THE BASIN 5, SWALE 3, AND SWALE 4.
   - A. VEGETATED AREAS SHALL BE INSPECTED ANNUALLY FOR EROSION, AND UNWANTED GROWTH OF EXOTIC/INVASIVE SPECIES SHALL BE REMOVED.
   - B. VEGETATIVE COVER SHALL BE MAINTAINED AT A MINIMUM OF 95%. COVER VEGETATION SHALL BE REESTABILSHED AS NECESSARY TO MAINTAIN THIS COVER REQUIREMENT.
   - C. AVOID EXCESSIVE COMPACTION OF BASIN 5. VEHICLES SHALL NOT BE PARKED OR DRIVEN IN THE BASIN.
4. STORMWATER MANAGEMENT FEATURES SHALL DEWATER 72 HOURS. IF FEATURES FAIL TO DEWATER NOTIFY ENGINEER AND PERFORM THE FOLLOWING.
   - A. IF BASIN 5 FAILS TO DEWATER, ASSESS COMPACTION AND SEDIMENTATION. SCARFIY SOILS TO PROMOTE INFILTRATION OR REPLACE AMENDED SOILS IN BOTTOM OF BASIN. TEST INFILTRATION RATES.
   - B. IF BASIN 6 FAILS TO DEWATER (WATER ELEVATION BELOW BOTTOM OF CHAMBERS), ASSESS STONE MEDIA AND STORM CHAMBERS.
     - i. VERIFY OUTFLOW IS FREE OF SEDIMENT. CLEAN OUT UNDERDRAIN PERFORATED PIPING AND INSPECT CHAMBERS VIA CLEANOUTS. IF SEDIMENT EXISTS, CHECK GEOTEXTILE WRAP FOR TEARS (DURING CONSTRUCTION) AND/OR INLETS FOR PROPER PRETREATMENT FUNCTION.
     - ii. CHECK ROOF DRAIN FILTER SCREENS FOR DEBRIS AND CLEAN/REPLACE AS NECESSARY.
     - iii. DRAIN VIA PUMPING DURING DRY WEATHER. IF SLOW DRAINAGE PERSISTS, CONSIDER REPLACEMENT.

SOILS TYPE ON SITE

LEGEND	NAME	DESCRIPTION
NaB	NESHAMINY SILT LOAM	3 TO 8 PERCENT SLOPES
NaC	NESHAMINY SILT LOAM	8 TO 15 PERCENT SLOPES
NhD	NESHAMINY GRAVELLY SILT LOAM	8 TO 25 PERCENT SLOPES, EXTREMELY BOULDERY

POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) LEGEND

- PH #2 — LIMIT OF DISTURBANCE
- SB — SOIL BOUNDARY
- NaC — SOIL TYPE

POST CONSTRUCTION STORMWATER UTILITY PLAN

SCALE: 1" = 20'

20 10 0 20 40 60

SCALE IN FEET

PA CHAPTER 93

ANGELICA CREEK
STREAM USE DESCRIPTION: CWF (COLD WATER FISH), MF (MIGRATORY FISH), IT IS NOT A HQ OR EV DESIGNATED WATERSHED.

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER NO. 42652-E

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

POST CONSTRUCTION STORMWATER MANAGEMENT UTILITY PLAN

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 183.1

PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN NOTES

This plan is part of the NPDES permit application for the discharge of stormwater associated with construction activities and the related Erosion and Sediment Control Plan. It is required to comply with Chapter 101.3(b) of the Rules and Regulations of the Pennsylvania Department of Environmental Protection, and conditions under the NPDES permit.

1. Name of Permittee: Cumru Township
   Name of Co-permittee (contractor): TBD
2. Name of Project: Reed Street Utility Extension
3. Project Location: Mohnton, Berks County, PA
4. List name(s) and telephone number(s) of responsible Cumru Township officials to be contacted in case of emergency (to be confirmed at pre-construction meeting):

Name	Day Phone #	Night Phone #
Bob McNichols	**(610) 777-1343**	

5. List name and telephone number of the following:
   - Berks County emergency management: (Berks) Brian Gottschall – (610) 374-4800 x8202
   - Nearest fire department station: Cumru Fire Chief (610) 777-1343
   - Nearest hospital: Reading Hospital (484) 628-8000
6. Notification to the following agencies must be made immediately in the event of a spill of any polluting substances.
   - PADEP Regional Office: Southcentral Regional Office (Harrisburg) – (717) 705-4700
   - PA Fish and Boat Commission: Harrisburg, PA (717) 705-7800
7. List name and telephone number of any downstream water users, including drinking water supplies, industrial intakes and agricultural uses.
   It is the permittee's/co-permittees responsibility to immediately contact water users if polluting material is released from the site.
   – ______________________
   ____
8. General Description of Construction Activity.
   Re-grading and realignment of Welsh Road. Replace sanitary and storm sewers along Welsh Road and sanitary from border of Mohnton Borough along Reed Street. Extension of gas an water main from intersection of Main Street and Fairview Ave. to Welsh Road.
   See NPDES permit drawings
9. Material and Waste Inventory
   A. Pesticides and herbicides*
   Name & Quantity (pounds or gallons)
   None
   B. Fertilizer*
   Name & Quantity (pounds or gallons)
   None
   C. Other chemicals, such as paints, detergents, acids for cleaning, solvents, soil additives, concrete curing compounds:*
   Name & Quantity (pounds or gallons)
   Other chemicals will be brought on site if and as needed. It is not anticipated that an inventory of these materials will be stored on site.
   *Any items listed under A, B or C above must have Material Safety Data Sheets (MSDS's) kept on the project premises.
   D. Petroleum based products
   - Gasoline ________ gallons
   - Diesel fuel ________ gallons
   - Kerosene ________ gallons
   - Lubricating oil ________ gallons
   - Asphalts, tars ________ gallons
   - Other ________ gallons

   Note: It is not anticipated that gasoline, diesel fuel, lubricating oils, etc. will be stored onsite. Heavy equipment will typically be serviced periodically by fuel trucks on an as-needed basis. Fueling operations will not performed near any streams, drainageways or storm sewers, and will only be performed with proper supervision. Any liquid that is stored onsite must be kept within a diked area (lined with an impervious clay, concrete or synthetic membrane), sized to hold 110% of the largest container's capacity.
10. List the types and quantities of absorbent materials used for spill mitigation that are stored on premises. The quantities of absorbent booms, pads and other materials and equipment needed to contain spills and begin cleanup must be kept at the site. List the types and quantities each:
    A selection of absorbent socks, mat pads, barrel top pads, etc., of various sizes will be kept onsite by the contractor.
11. During concrete work, steps shall be taken to assure that no pollution enters waterways. Concrete mixer truck washings shall be deposited onsite into a container specially-designed for the purpose. The container shall be located in a specified area as far upslope on the site as practicable to best prevent migration of materials into streams, drainage ways or storm sewers.
12. Particular attention shall be given to equipment refueling operations. Refueling shall only occur as far upslope on the site as practicable. The location shall be protected by a containment dike and secured from vandalism. Operators shall be familiar with the proper emergency response procedures and contact information in the event of a spill.
13. The site shall be inspected daily for evidence of existing or potential spills or leaks, vandalism, and the condition and quantity of cleanup materials.
14. Material Management Practices.
    The following material management practices shall be used to reduce the risk of spills or other accidental discharge of materials and substances to storm water runoff:
    A. Good Housekeeping:
    The following good housekeeping practices shall be followed onsite during construction:
    - All efforts shall be made to store only enough products onsite as are required to do the job.
    - Materials stored onsite shall be stored in a neat, orderly manner in appropriate containers and, if possible, under a roof or other enclosure.
    - Products shall be kept in their original containers with the original manufacturer's label.
    - Substances shall not be mixed with one another unless recommended by the manufacturer.
    - Whenever possible, all of a product shall be used up before disposing of the container.
    - Manufacturer's recommendations for proper use and disposal shall be strictly followed.
    - The contractor's site superintendent shall perform daily inspections to ensure proper use and disposal of materials onsite.
    - At least once per month, the contractor's safety consultant shall inspect the premises to confirm conformance to all OSHA regulations.

    B. Hazardous Products:
    The practices described below shall be used to reduce the risks associated with hazardous materials:
    - Products shall be kept in their original containers unless they are not resealable.
    - Original labels and material safety data sheets (MSDS's) shall be retained at the jobsite.
    - If surplus materials must be disposed of, manufacturer's or local and State recommended methods for proper offsite disposal shall be followed.
15. Product-Specific Practices
    The following product-specific practices shall be followed onsite:
    A. Petroleum Products:
    All onsite vehicles and equipment shall be monitored daily for leaks and shall receive regular preventive maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly-sealed containers which are clearly labeled. Any asphaltic material used onsite shall only be applied according to the manufacturer's recommendations.
    B. Fertilizers:
    Fertilizers used shall be applied only in the minimum amount recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to stormwater. Storage shall be in a covered shed. The contents of any partially-used bags of fertilizer shall be immediately transferred to a sealable plastic bin to avoid spills.
    C. Chemical/Paints:
    All containers shall be tightly sealed and stored when not in use. Excess paint shall not be disposed of in the storm sewer system, it shall be properly disposed of according to the manufacturer's instructions or per State and local requirements.
    D. Concrete Truck Washout Materials:
    Concrete truck washout materials shall be deposited onsite into a container specifically designed for the purpose. The container shall be located in a specific area as far upslope on the site as practicable to best prevent migration of materials into streams, drainage ways or storm sewers. Once cured and hardened, the concrete shall be removed from the site and properly disposed of.
16. Spill Prevention Practices
    In addition to the good housekeeping and material management practices described above, the following practices shall be followed for spill prevention and cleanup:
    - The manufacturer's recommended methods for spill cleanup shall be clearly posted, and site personnel shall be trained in the proper procedures and the location of the information and cleanup supplies.
    - Materials and the equipment necessary for spill cleanup shall be kept onsite. Equipment and materials shall include, but not limited to:
      Brooms, dust pans, mops, rags, gloves, goggles, absorbent granular material, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
    - All spills shall be cleaned up immediately after discovery.
    - The spill area shall be kept well ventilated and personnel shall wear appropriate protective clothing to prevent contact with a hazardous substance.
    - All spills of toxic or hazardous material, regardless of the size of the spill, shall be reported immediately via text, email or in writing to the Engineer, the Owner, and the appropriate local and State government agencies.
    - The spill prevention plan shall be revised to include measures to prevent any type of spill from recurring, and to confirm how to clean up a spill if there is another one. A description of the spill, what caused it, and the cleanup measures used shall also be included in the written spill report.
    - The contractor's site superintendent responsible for the day-to-day site operations shall be the project's spill prevention and cleanup coordinator. The superintendent shall designate at least three (3) other site personnel, who shall receive spill prevention and cleanup training. The names and cell phone numbers of these responsible spill personnel shall be posted prominently onsite. These individuals shall each be made responsible for a particular phase of spill prevention and cleanup.
17. Site Security
    All materials requiring security shall be kept locked within secure containers stored in a designated secure area.
18. All construction and site activities shall be performed in accordance with the specifications and plans approved by the appropriate governmental authorities. Activities may also be monitored and inspected by the municipal engineer, related agency inspectors, and the municipal water/sewer authorities.

POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN NARRATIVE

General PCSM planning and design §102.8(b)

The Post Construction Stormwater Management Plans for the project are labeled as "Post Construction Stormwater Management Plans" and are the final site construction plans.

This construction and restoration project proposes no change of use, no land subdivision and no land development, as the utilities will be underground within the existing road right-of-way. There are no new buildings as part of Phase 1, although construction is in consideration of a proposed fire station to be constructed in Phase 2. The client is the municipality. County planning/zoning consistency letter is applicable but not provided and is contingent on this permits approval.

Documentation that the PCSM Plan was prepared by a person trained and experienced in PCSM design methods and techniques applicable to the size and scope of the project is provided in ATTACHMENT G.

Phase 1 of the project includes plans to revitalize storm swales along Welsh Road, enlarge and rehabilitate stormwater management basins on the Township Campus, and regrade parts of the township campus in preparation for the new fire station to be constructed in a later phase. No new impervious areas are proposed with Phase 1 of the project. Revitalization of the stormwater drainage channels along Welsh Road will aid in the quality of the stormwater that drains to the municipal separate stormwater collection system to which the swale drains. Enlargement and rehabilitation of the stormwater management basins will prevent an increase in the rate of stormwater runoff. Revitalization will lessen peak flows, as will the regrading of the field in preparation for the proposed fire station to be constructed during Phase 2. This preserves stream channels and water quality for receiving waterways as sediment will have more time to settle out of runoff.

New impervious areas are proposed with Phase 2 of the project. New stormwater sources providing an increase in stormwater runoff volume include the aforementioned fire station building, the fire station driveways, and the fire station parking lot. New stormwater management basins will prevent a large increase in the rate of stormwater runoff and lessen peak flows. Due to low infiltration rates in the area, a managed release concept (MRC) is proposed to manage the increase in volume for part of the site. One basin will employ infiltration. This preserves stream channels and water quality for receiving waterways as sediment will have more time to settle out of runoff.

No new impervious areas are proposed with Phase 1 of the project. Only impervious areas are those that are to be restored as part of the utilities install and replacement.

Existing vegetation is protected by maintaining the smallest possible limit of disturbance. Existing drainage features are to be utilized and revitalized as part of the project, specifically the drainage swale along Welsh Road between the township building driveway and the location of the future fire station driveway and the stormwater management basin located to the north of the township building within the township campus. During Phase 2, temporary sediment basins 3 and 4 will be replaced with an underground infiltration gallery, Basin 6, which will be designed as a MRC.

No wooded areas need to be cleared, as the areas are already open fields. Areas to be regraded include along Welsh Road to raise the low point and to realign a section where a building is to be removed, and within the township campus to prepare of the new foundation for the proposed fire station. Clearing and grading has been further minimized by replacing the sanitary sewer in place within the road right-of-way and placing the new water line within the existing right-of-way.

The limits of disturbance are shown on the drawings. Construction equipment paths are also provided. Construction equipment will not be allowed to travel on surfaces that have been newly restored with native vegetation and ground cover, thereby minimizing soil compaction.

Existing topographic features of the project site and the immediate surrounding area §102.8(f)(1)

The topography of the project site is shown on the site drawings, by use of contours at one foot intervals.

A USGS quadrangle map is provided on the drawings.

The types of ground cover are labeled on the drawings.

Types, depth, slope, locations and limitations of the soils and geologic formations §102.8(f)(2)

The maps of soil types and limits related to the project were identified using the NRCS Web Soil Survey website. The soil survey map pertaining to the project is provided in ATTACHMENT E, attached to the E&SC Narrative, and is shown on the drawings. Per the PADEP E&SC Chapter 102 Manual, Appendix E, soil use limitations and their resolutions provided.

Soil borings were completed within the township campus. The results of those borings are included in ATTACHMENT P. Infiltration tests were completed by ECS in 2018 and additional tests by Atlas in 2023.

There are no apparent, naturally occurring geologic formations or soil conditions having the potential to cause pollution during typical construction earth-disturbance activities.

Characteristics of the project site, including the past, present and proposed land uses and the proposed alteration to the project site §102.8(f)(3)

The limit of disturbance is shown on the drawings. The limit of disturbance is the NPDES permit boundary.

The total area of disturbance for the project is approximately 17.36 acres of which 16.83 acres will be disturbed. Phase 2 consists of changes to 2.53 acres within the disturbance area from Phase 1. Continued disturbance in other permitted areas is expected.

The existing topography and ground cover will be restored as closely as possible to pre-disturbance conditions in street areas outside of the section of Welsh Road that, as noted on the plan, will be regraded to an elevation three feet higher during Phase 1. Phase 2 includes changes to topography to the township campus to accommodate the new fire station, parking lot, and stormwater management basins.

There are proposed plan to construct a fire station within the bounds of the project area during Phase 2. Plans contained in Phase 1 are made with this in mind, most notably, the regrading of Welsh Road to prevent damage to the fire trucks entering and exiting the station.

There is one new proposed post construction stormwater management best management practices in Phase 1 of the project. Phase 2 introduces two new PCSM BMPS, an infiltration basin, installed between the new fire station and the recreation center, and an infiltration gallery (stormwater detention basin), installed beneath the parking lot of the new fire station.

Net change in volume and rate of stormwater §102.8(f)(4)

The Design storms used for the calculations are listed in the Existing and Proposed Stormwater Runoff TR-20 Analysis Output via HydroCAD for Phases 1 and 2 (ATTACHMENT K and L) as well as the TR-20 Analysis Input Parameter Summary for Phase 1 (ATTACHMENT I).

The pre- and post-construction hydrology runoff rate and volume are identified for each drainage area of the entire project site in the TR-20 Analysis Output for Existing and Proposed conditions via HydroCAD for Phases 1 and 2 (ATTACHMENT K and L) and TR-20 Analysis Output Comparisons for Phase 1 (ATTACHMENT J).

The net change in runoff rate and volume are identified for each drainage area of the entire project site in the Existing and Proposed Stormwater Runoff TR-20 Analysis Outputs via HydroCAD for Phases 1 and 2 (ATTACHMENT K and L).

The summary table in the NOI is consistent with the calculations provided (ATTACHMENT I through L).

Documentation summarizing the alternative approach's design criteria for rate, volume, and water quality are not applicable. An alternative approach was not utilized.

Receiving surface waters §102.8(f)(5)

Existing streams, wetlands, floodways, and watercourses, as applicable, are shown and labeled on the drawings.

The designated use of the receiving stream basin, the Wyomissing Creek and Angelica Creek, per the PADEP Chapter 93 classification, is HQ-CWF (High Quality – Cold Water Fishes), MF (Migratory Fishes) and CWF, MF respectively. There is no existing use listed.

The west side of the project site is located within a high quality (HQ) watershed, Wyomissing Creek. A boundary line has been drawn on the plans. All actions on the west side can be classified as restoration.

There are no hydric soils listed per the NRCS Web Soil Survey though. NaB and NaC – both Neshaminy silt loams of different slopes have hydric elements to them. There are wetlands to the east of the project site, per the NWI website, and a wetlands investigation was conducted. Wetlands are delineated on the plans. They are located outside the limit of disturbance.

Written Description of the PCSM BMPs §102.8(f)(6)

There is one new proposed permanent post-construction stormwater management best management practices, a stormwater detention basin, during Phase 1. Phase 2 introduces two new permanent PCSM BMPs, an infiltration basin and a stormwater detention basin. The basins are visible and labeled on the plans. Details for the basins, including the outlet structures and profiles including key elevations and features of the outlets, are present on the plans. Existing permanent PCSM BMPs are also labeled on the plans including details for the retrofit of the existing basin.

Specifications for final stabilization are shown on the plans. Final stabilization is considered 70% vegetative cover or better. There is one new permanent PCSM BMPs and one existing PCSM BMP shown on the plans. Details for the changes to the existing PCSM BMP and for the new PCSM BMP are included on the plans.

BMPs include the use of a proprietary technology, the Snout and StormKeeper arches. Manufacturer specifications for install and requirements for proper function are on the plans.

Sequence of PCSM BMP implementation or installation §102.8(f)(7)

There are permanent PCSM BMPs, Basin #1 and Basin #2 during Phase 1, and Basin #5 and Basin #6 during Phase 2. As required, a complete and site specific sequence of BMP installations is shown on the drawings. A sequence of construction are included for the proposed changes to the existing permanent PCSM BMPs Basin #1 and for the install of new Basin #2 during Phase 1 and Basin #5 during Phase 2. Basins #3 and #4 are temporary installs during Phase 1 and will be replaced by underground stormwater storage facilities, Basin #6, during construction of the proposed fire station in Phase 2.

There is a new permanent PCSM BMPs so the requirement that the sequence for the individual BMP installation is shown on the plans is applicable. Sequence for the modification of the permanent PCSM BMPs is shown on the plans.

There is a new permanent PCSM BMPs so the requirement that critical stages when a licensed professional oversee the installation of the BMPs are shown on the drawings is applicable. Critical stages when a licensed professional oversee the modification of the existing permanent PCSM BMPs are shown on the plans.

Supporting calculations §102.8(f)(8)

Worksheets were not used to design a PCSM BMP. They are therefore not applicable or included.

Worksheets were not used to design permanent PCSM BMPs therefore the requirement that figures contained on the worksheets are consistent with the Application are not applicable and are not provided.

Calculations for all drainage areas and Points of Interest (POI) are contained in ATTACHMENTs (J-L) in the appropriate Phase appendices to the PCSM Narrative.

TR-20 stormwater methodology was used for runoff rate calculations in compliance with 102.8(g)(2)(i-iii) and 102.8(g)(3)(i-ii). TR-55 stormwater methodology was used for runoff volume in 102.8(g)(2)(i-iii) and 102.8(g)(3)(i-ii). Demonstration that rate, volume, and water quality requirements were met is given in TR-20 Analysis Output Comparisons (ATTACHMENT J). As the stormwater management best management practices are not infiltration based, dewatering time analysis is not applicable or included.

The routing analysis to demonstrate peak control for the required storms is contained within the Proposed Stormwater Runoff TR-20 Analysis Output (ATTACHMENT J) for Phase 1, and is demonstrated in the calculations for both Phases in the HydroCAD models (ATTACHMENT L). These results are summarized in the PA DEP PCSM Spreadsheets.

Plan drawings §102.8(f)(9)

A map of tributary areas in Phase 1 is shown on the Drainage Area Map (ATTACHMENT O) and a Drainage Area Map in the plan set for Phase 2. Drainage areas for Phase 1 are broken down by land use category in TR-20 Analysis Input Parameter Summary (ATTACHMENT I).

The existing stormwater discharge points will be retained and are shown on the drawings. Points of interest correspond to stormwater discharge points.

The PCSM Plan is consistent with the E&SC Plan in relation to proposed contours, improvements, soils, wetlands, floodways, streams, and discharge locations.

Construction details for the native planting, vegetative restoration and stabilization are provided on the drawings.

Post Construction Stormwater Management Best Management Practices dimensions and elevations of the BMPs are consistent with the calculations and site soil testing.

Long-term operation and maintenance schedule §102.8(f)(10)

Long-term operation and maintenance schedule including inspection, repair, and replacement for the proposed PCSM BMPs are shown on the drawings.

Stormwater management basin Long-term operation, maintenance, and inspection:
- Inspect inlet and outlet structure seasonally and after every major storm event
  - o Repair/replace any damaged or non-functioning snout
- Remove and dispose of any debris and accumulated sediment in inlets or on basin bottoms
- In case of standing water, verify soil compaction and replace substrate or clean underdrain via cleanout.
- After every runoff event, check for scouring.
  - o If scouring apparent at inlets to basin, check riprap and replace or expand to slow inflow. Repair undercut and eroded areas at outlet structures.
  - o For scouring along around sides of basin, plant additional native vegetation with erosion control matting until re-stabilized. Install geocell/honeycomb erosion control matting in areas that continue to scour after adding vegetation.
- Inspect outlet structure for concrete failure after every runoff event. Patch cracks.

Native Planting Long-term operation, maintenance, and inspection:
- Seasonal mowing
- Yearly inspection and re-seeding

Recycling or disposal of materials §102.8(f)(11)

Anticipated construction wastes will be soil rock, earth materials, concrete, asphalt pavement and other materials normally associated with heavy utility construction. Typical construction equipment wastes are listed on the Preparedness, Prevention and Contingency (PPC) Plan.

Instructions to the contractor for the proper offsite disposal of exported fill materials per PADEP's "Management of Fill" document 258-2182-773 are provided in the notes on the drawings.

Instructions to the contractor for the proper recycling/offsite disposal of other materials are provided in the notes on the drawings and on the Preparedness, Prevention and Contingency (PPC) Plan.

Geologic formations or soil conditions §102.8(f)(12)

There are no known geologic or other soil conditions that have the potential to cause pollution during construction.

Instructions for proper handling and/or disposal of excess construction materials or materials that could cause pollution are provided in the notes on the drawings and on the Preparedness, Prevention and Contingency (PPC) Plan.

No typical details are required or provided, other than the written instructions for proper recycling/disposal of materials which could cause pollution.

There are no anticipated specific materials, other than construction materials, that might cause pollution. Construction materials will typically be located within the limit of disturbance area as shown on the drawings.

Potential thermal impacts §102.8(f)(13)

There are no new potential thermal impacts post construction during Phase 1

In Phase 2, new potential thermal impacts are present post-construction due to an increase in impervious ground cover. Thermal impacts of stormwater runoff from the project site are avoided, minimized, and mitigated by the use of low slope pipes to slow flows, grassy swales to assist with cooling, detention and infiltration in basins, and slow discharge to reduce potential for thermal load transmission.

Riparian forest buffer management plan §102.8(f)(14)

A riparian forest buffer management plan is not required as this project meets criterion for exceptions in accordance with 102.14(d); a riparian buffer is not shown on the drawings.

Phase 1 of the project meets the requirements for granting of a waiver listed in the following sections of Chapter 102.14 subsection (d):

102.14(d)(1)(v) Work along Welsh Road includes road maintenance activities, plans are in place to maintain existing riparian buffer as undisturbed to the extent practicable. This is done by not extending the limit of disturbance into the riparian buffer.

102.14(d)(1)(vi) Majority of the work consists of maintenance of existing pipelines and utilities beneath the road. Plans are in place to avoid disturbing existing riparian buffer the extent practicable by not extending the limit of disturbance into the existing riparian buffers.

102.14(d)(2)(i) – The project addresses periodic sanitary sewer overflows into the Angelica Creek from a manhole in Woodcrest Ave on Point of Connection Interceptor 8 to the Reading Treatment Plant, to meet a Federal Consent Order. This will strive to abate the threat to public health and safety caused by the overflows.

102.14(f)(2)(i) – Construction along Reed street includes replacement of two existing culvert structures.

Phase 2 of the project meets the following waiver requirements:

102.14(d)(1)(i) A project site located greater than 150 feet (45.7 meters) from a river, stream, creek, lake, pond or reservoir.

A waiver may also be optionally granted by DEP under the following heading:

102.14(d)(2)(v) Redevelopment projects which may include brownfields or use of other vacant land and property within a developed area for further construction or development.

The drainage basin is listed as impaired by siltation, total suspended solids, and turbidity. There is no TMDL status of the receiving stream, (unnamed tributary to) Angelica Creek, listed on the eMap PA website.

No buffer offsets are required. A checklist for functional equivalency is not required.

FINAL SEEDING (1 / 183.2)

A. GENERAL
1. NO MORE THAN 15,000 SQUARE FEET OF DISTURBED AREA SHALL ACHIEVE FINAL GRADE BEFORE STABILIZATION BY VEGETATIVE COVER WITH SEEDING AND MULCHING.
2. AFTER THE CONSTRUCTION PHASE IS COMPLETE, PERMANENT VEGETATION ON THE AREAS THAT HAVE BEEN DISTURBED SHALL BE REESTABLISHED AS RAPIDLY AS POSSIBLE. IF THE COMPLETION OF THE CONSTRUCTION ACTIVITIES DOES NOT COINCIDE WITH A SEASON IN WHICH PERMANENT VEGETATION CAN BE STARTED, AN INTERIM OR TEMPORARY PROGRAM IS REQUIRED. THIS SHALL INCLUDE SOIL STABILIZATION, MULCHING OR THE ESTABLISHMENT OF FILTER STRIPS. IN ANY CASE, SEDIMENT AND EROSION CONTROLS SHALL BE INSTALLED PROMPTLY AND THEIR MAINTENANCE ASSURED.
3. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM OF 70% UNIFORM PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING OR OTHER MOVEMENTS.
4. AT A MINIMUM, PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED BY PROVIDING THE FOLLOWING:
   a. FERTILIZER: 500 LBS PER ACRE OF 10-20-20, OR EQUIVALENT.
   b. LIMESTONE: SHALL BE AN AGRICULTURAL GRADE LIME STONE EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDES, AND APPLIED AT THE RATE OF 4 TONS PER ACRE.
   c. PERMANENT SEEDING (MINIMUM REQUIREMENTS) SHALL BE AS FOLLOWS:

LAWN SEED	% BY WEIGHT	MINIMUM % PURITY	MINIMUM % GERMINATION	MAXIMUM % WEED SEED
Kentucky bluegrass (2 or more varieties – none greater than 25% of total)	50	90	80	.20
Pennfine Perennal Rye Grass	20	95	90	0.15
Pennlawn and Fescue	30	98	85	0.25
Special Areas – swales, diversion channels, and occasional water flow areas.				
Kentuck 31 Tall Fescue	80	98	85	0.25
Pennfine Perennial Rye Grass	20	95	90	.15

B. MAINTENANCE
1. INSPECTION SHALL BE MADE AT FREQUENT INTERVALS AND AFTER EACH STORM EVENT TO DETECT ANY IMPAIRMENT IN THE ABILITY OF THE EROSION CONTROL FACILITIES, INSTALLED AS PART OF THIS PLAN, TO CONTINUE TO FUNCTION EFFECTIVELY.
2. THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND ANY STANDARD CONDITIONS RELATING TO SOIL EROSION AND SEDIMENT CONTROL, ISSUED AS PART OF ANY PERMITS, SHALL BE AVAILABLE AT THE IMMEDIATE SITE OF CONSTRUCTION ACTIVITY AT ALL TIMES.
3. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTION OF ALL EROSION AND SEDIMENTATION CONTROLS AFTER EACH STORM EVENT AND ON A WEEKLY BASIS. ALL PREVENTIVE AND REMEDIAL MAINTENANCE WORK,INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY.

LONG-TERM OPERATION AND MAINTENANCE NOTES: SEE DWG. 183.1 (1 / 183.1)

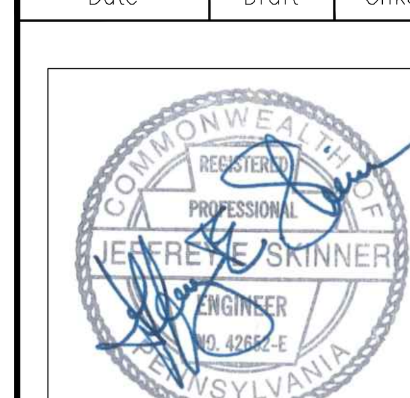
SEQUENCE OF EARTH MOVING RELATED ACTIVITY (2 / 183.2)

1. Pre-Construction Stage:
   a. Field-marks limits of disturbance and environmentally sensitive areas.
   b. At least 7 days prior to starting any earth disturbance activities (including clear and grubbing), the Owner and/or Operator shall invite all Contractors, the Landowner, appropriate Municipal Officials, the E&S plan prepared, the PCSM plan preparer, and a representative from the Bucks County Conservation District to an on-site reconstruction meeting.
   c. Upon installation or stabilization of all perimeter sediment control BMP's and at least 3 days prior to proceeding with the bulk earth disturbance activities, the permittee of co-permittee shall provide notification to the department or authorized conservation district.
   d. At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the Pennsylvania One Call System Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.
   e. All earth disturbance activities shall proceed in accordance with the sequence provided on the plans. Deviation from the sequence must be approved by the Bucks County Conservation District or by the department prior to implementation. Each step of sequence shall be completed before proceeding to the next step, except where noted.
2. Construction Activity:
   a. Convert the existing 150 feet Rock Construction Access #1 to Rock Construction Access with Wash Rock, where as depicted on the plan.
   b. Install Rock Construction Access #2 with Wash Rack and Concrete Washouts, see drawing.
   c. Access to site's E&S BMPs, see drawings for work areas.
      i Install Compost Filter Sock as depicted on the plan.
      ii. Install Inlet Protection per plan.
      iii. Install Orange Construction Fence around the basins per plan.
   d. Site Operation for earthwork.
      i. Bring the proposed Building pad grades to the proper elevation. Construction new Building.
      ii. All building materials and wastes must be removed from the site and recycled or disposed of in accordance with the Pennsylvania Department of Environmental Protection's Solid Waste Management Regulations at 25pa. Code §260.1 et seq., §271.1 et seq., and §287.1 et seq. No building material or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.
      iii. Install all building utilities, see "note *" below.
      iv. **Critical Stage**, remove sediment traps by grading the areas to the proposed grade. Sediment trap #3A becomes swale #3A/B and part of basin #6 and sediment trap #4A becomes swale #4A/B and part of basin #6. See dwg. #183 notes on converting sediment traps into basin 6,
      v. **Critical Stage.** Construct basin #5 and basin #6. Stabilize basin #5 steep slope with E&S blankets. Additional notes detailing Basin #5 & Basin #6 construction shown on dwgs. 183.4 & 183.6.
      vi. Install stormwater inlets and pipes. Install Inlet Protection on all new inlets and stabilize areas. See "note *" below.
      vii. Construct all swales and stabilize with temporary seeding.
      viii. Construction proposed parking lot wall.
      ix. Final grade site and stabilize with temporary seeding. Construction new sidewalk and proposed walls. Install subbase stone course on parking lot and all driveways. Then install parking lot and driveways with binder course.
   e. Permanent stabilization stage:
      i. Replacement of top soil (4-6 inches) and install all permanent vegetation requirements.
      ii. Permanent seeding and mulch all areas. An area shall be considered to have achieved final stabilization when it has a minimum of 70% uniform perennial vegetative cover or other permanent non-vegetative cover with density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding or other movements. Topsoil shall be replaced to predevelopment depths or to a minimum depth of 6 inches, whichever is greater. It is also recommended that soil tests be performed in order to determine actual lime and fertilizer needs instead of providing a generic application rate.
      iii. Clean binder course of parking lot and all driveway surfaces and install wearing course on all surfaces.
3. Removal/Conversion of temporary sediment pollution controls stage:
   a. Prior to removal of the E&S bmp's, the Berks County Conservation District should be contacted. The district may require a site inspection prior to the conversion or removal of BMP's.
   b. Remove all E&S BMPs when the work area is at a minimum of 70% uniform perennial vegetative cover or trench backfill paving is complete.
   c. Remove all filter sock and other temporary soil erosion and sediment control facilities after all areas have been permanently stabilized. Areas disturbed during removal of the controls must be stabilized immediately. An area shall be considered to have achieved final stabilization when it has a minimum of 70% uniform perennial vegetative cover or other permanent non-vegetative cover with density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding or other movements. Topsoil shall be replaced to predevelopment depths or to a minimum depth of 6 inches, whichever is greater. It is also recommended that soil tests be performed in order to determine actual lime and fertilizer needs instead of providing a generic application rate.
   d. Within 30 days after the completion of earth disturbance activities authorized by this permit, including the permanent stabilization of the site and proper installation of PCSM BMPs in accordance with the approved PCSM Plans, or upon submission if NOT sooner, the permittee shall file with the department or authorized conservation district a statement signed by a licensed professional and by the permittee certifying that work has been performed in accordance with the terms and conditions of the permit and the work approved erosion and sedimentation and post construction stormwater management plans. Completion certificated are needed to ensure that all is performed in accordance with the terms and conditions of the permit and the approved E&S and PCSM Plans.

Note: **Critical Stage**, the design engineer shall be on site.

Note *: "The total length of excavated trench open at any one time should not be greater than the total length of the utility line that can be placed in the trench and back-filled in one working day. No more than 50 lineal feet of open trench should exist when utility line installation ceases at the end of the workday. Soil supplements, seed and much must be applied according to 25 Pa. Code §102.22. (Page 283 of E&S Manual)."

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	(2) REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION



Jeffrey E. Skinner
PE-042652-E
SU-052889-E

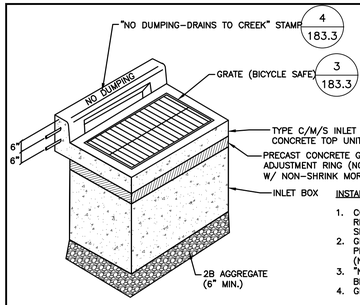
POST CONSTRUCTION STORMWATER MANAGEMENT NOTES

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For: TOWNSHIP OF CUMRU

Situate In: CUMRU TOWNSHIP, BERKS CO., PA.

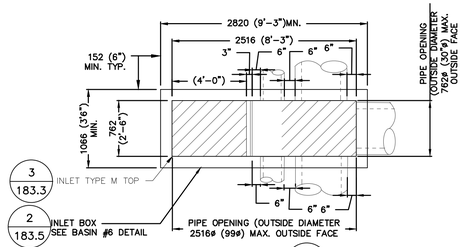
ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462



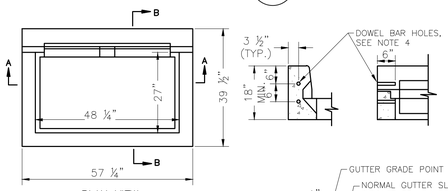
INSTALLATION NOTES:

1. CONSTRUCTION IN ACCORDANCE WITH REQUIREMENTS OF PUB. 408, SEC 605 FOR INLET ASSEMBLIES
2. GRADE ADJUSTMENT SHALL BE PRECAST CONCRETE CONSTRUCTION. (NO RED BRICK OR MASONRY BRICK)
3. "NO DUMPING-DRAINS TO CREEK" TO BE STAMPED IN INLET TOP.
4. GRATE TO BE BICYCLE SAFE.

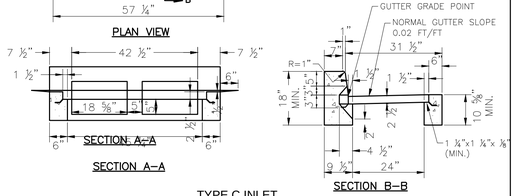
PRECAST STORM INLET - TYPE C/M/S (1 / 183.3)



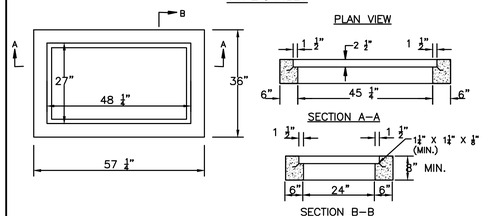
TYPE D-H INLET (2 / 183.3) N.T.S.



PLAN VIEW



TYPE C INLET

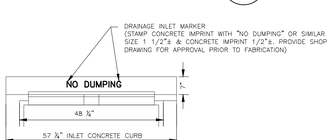


TYPE M INLET

NOTES:

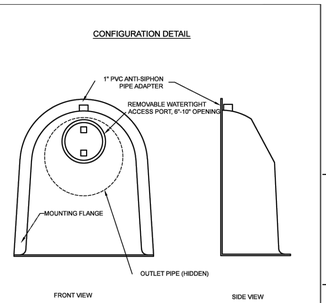
1. THESE DETAILS DEPICT THE SHAPE AND DIMENSIONS REQUIRED FOR UNIFORMITY AND COMPATIBILITY. THEY DO NOT INCLUDE DETAILS REQUIRED FOR MANUFACTURING AND HANDLING PRECAST TOP UNITS. ONLY TOP UNITS SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15 SHALL BE PERMITTED.
2. CAST-IN-PLACE TOP UNITS MAY BE MONOLITHIC WITH THE INLET BOX.
3. PROVIDE ANGLES EMBEDDED IN THE CONCRETE AS A BEARING AREA FOR THE GRATE FOR ALL TOP UNITS WHICH SEAT THE GRATE DIRECTLY WITHIN THE UNIT.
4. DOWEL TYPE C INLET TOP UNITS WITH 2 - #8 X 1'-0" DOWEL BARS AND PLACE ¼" PREMOLDED EXPANSION JOINT FILLER WHEN CONNECTING TO ADJACENT CURB SECTIONS.
5. PLACE A TYPE M INLET ADJACENT TO THE BACK EDGE OF THE CURB, FLUSH WITH THE PAVEMENT SURFACE, WHEN REQUIRED WITHIN A CONCRETE MOUNTABLE CURB SECTION.

INLET CONCRETE TOP DETAIL (3 / 183.3) N.T.S.



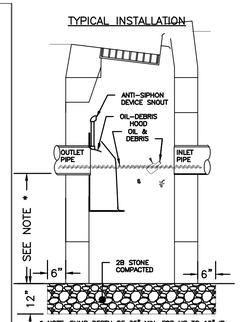
DRAINAGE INLET MARKING (4 / 183.3) N.T.S.

CONFIGURATION DETAIL



SNOUT OIL-WATER-DEBRIS SEPARATOR

TYPICAL INSTALLATION



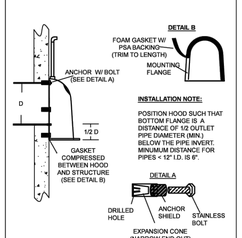
* NOTE: SUMP DEPTH OF 36" MIN. FOR UP TO 12" ID PIPE. OUTLET FOR PIPES 15" ID AND ABOVE SUMP OF 2.5 TO 3 TIMES PIPE ID RECOMMENDED (E.G. 5' DEEP FOR 24" PIPE)

NOTES:

1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY: BEST MANAGEMENT PRODUCTS, INC. 9 MATHEWS DRIVE, UNIT A1-A2. EAST HADDAM, CT 06423 TOLL FREE: (800) 504-8008 OR (888) 434-0277, FAX: (877) 434-3197 WEB SITE: www.bmpinc.com OR PRE-APPROVED EQUAL (8 / 183.3) (9 / 183.3)
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT PIPE AND ELBOW AS DRAWN. (SEE CONFIGURATION DETAIL)
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION (SNOUT SIZE ALWAYS LARGER THAN PIPE SIZE).
5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A MINIMUM DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 12" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL AND PIPE SHALL BE FINISHED FLUSH TO WALL.
8. ALL STRUCTURE JOINTS SHALL BE WATERTIGHT.
9. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH ¼" STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
10. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT
    INSTALLATION KIT SHALL INCLUDE:
    A. INSTALLATION INSTRUCTIONS
    B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
    C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
    D. 3/8" STAINLESS STEEL BOLTS
    E. ANCHOR SHIELDS

US Patent # 6126817, 7951294, 7857966, 8512556
Canada Patent # 2285146, 2690156, 2690156 others pending

INSTALLATION DETAIL

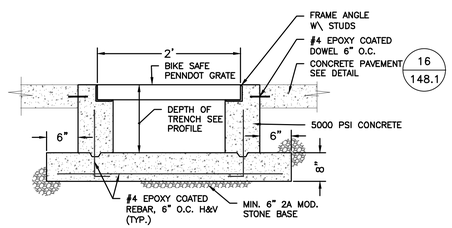


INSTALLATION NOTE:
POSITION HOOD SUCH THAT BOTTOM FLANGE IS A DISTANCE OF 1/2 OUTLET PIPE DIAMETER (MIN.) BELOW THE PIPE INVERT. MINIMUM DISTANCE FOR PIPES < 12" I.D. IS 6".

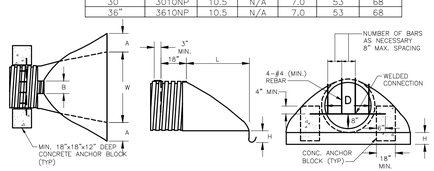
HOOD SPECIFICATION FOR CATCH BASINS AND WATER QUALITY STRUCTURES (5 / 183.3)

DESCRIPTION	DATE	SCALE
OIL- DEBRIS HOOD SPECIFICATION AND INSTALLATION (TYPICAL)	09/08/18	NONE
	DRAWING NUMBER	SP-SN

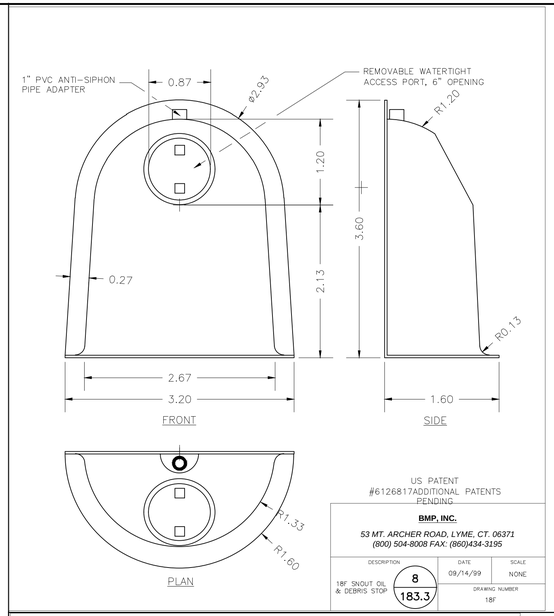
TRENCH DRAIN INSTALLATION DETAIL (6 / 183.3) N.T.S.



PIPE DIAMETER	DIMENSIONS (INCHES) PART NO.	A(±)	B MAX	H(±)	L(1/2±)	W(2±)
12" & 15"	1210NP	6.5	10	6.5	25	29
18"	1810NP	7.5	15	6.5	32	35
24"	2410NP	7.5	18	6.5	36	45
30"	3010NP	10.5	N/A	7.0	53	68
36"	3610NP	10.5	N/A	7.0	53	68



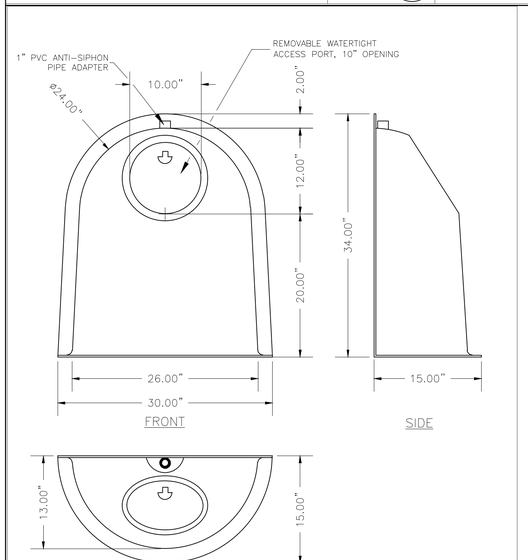
STANDARD STORMWATER FLARED END DETAIL (7 / 183.3)



US PATENT #6126817ADDITIONAL PATENTS PENDING

BMP, INC.
53 MT. ARCHER ROAD, LYME, CT. 06371
(800) 504-8008 FAX: (860)434-3195

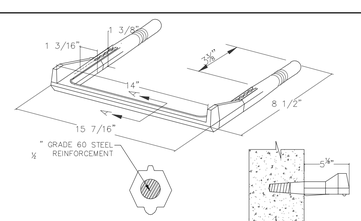
DESCRIPTION	DATE	SCALE
18F SNOUT OIL & DEBRIS STOP (8 / 183.3)	09/14/99	NONE
	DRAWING NUMBER	18F



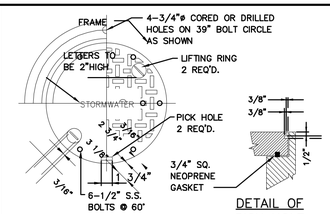
U.S.PATENT #6126817ADDITIONAL PATENTS PENDING

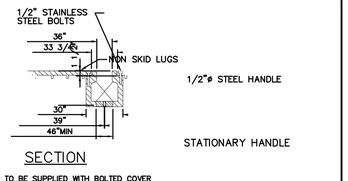
BMP, INC.
53 MT. ARCHER ROAD, LYME, CT. 06371
(800) 504-8008 FAX: (860)434-3195

DESCRIPTION	DATE	SCALE
24F SNOUT OIL & DEBRIS STOP (9 / 183.3)	09/20/99	NONE
	DRAWING NUMBER	24F

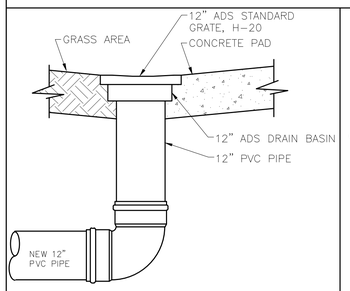


STEEL REINFORCED POLYPROPYLENE MANHOLE/INLET STEP (10 / 183.3)
NOT TO SCALE
TO BE IN ACCORDANCE WITH PA D.O.T. RC-39

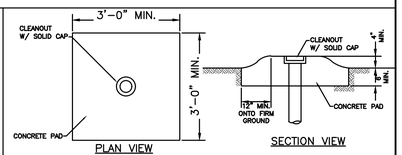




WATERTIGHT MANHOLE FRAME AND COVER DETAILS (11 / 183.3)

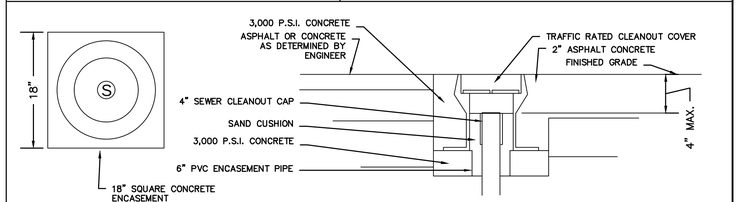


12" YARD DRAIN (12 / 183.3) NOT TO SCALE



NOTES:
1. PROVIDE CONCRETE PAD IF CLEANOUT IS LOCATED IN PAVED SIDEWALK AREA.
2. CLEANOUT SHALL BE INSTALLED 4" ABOVE FINAL GRADE IN LANDSCAPED AREA. CLEANOUT MAY BE INSTALLED FLUSH WITH SIDEWALK SURFACES ONLY UPON PRIOR APPROVAL OF THE TOWNSHIP AND ENGINEER.
3. CLEANOUTS SHALL NOT BE LOCATED IN DRAINAGE SWALES.

CLEANOUT IN LANDSCAPED & SIDEWALK AREAS DETAIL (13 / 183.3)
NOT TO SCALE



NOTE:
THE TRAFFIC RATED CLEANOUT DETAIL SHALL BE USED IN THE DRIVEWAYS AND PARKING LOTS.

TRAFFIC RATED CLEANOUT DETAIL (14 / 183.3) NOT TO SCALE

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JEFFREY E. SKINNER PE-042652-E

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 183.3
SHEET #: 18 Of 25

CONSTRUCTION DETAILS BELOW COVER THE FOLLOWING CONDITIONS:

(A) PIPE LYING ON TOP OF THE NATURAL GROUND, ROCK OR COMPACTED (97% SPD) FILL.

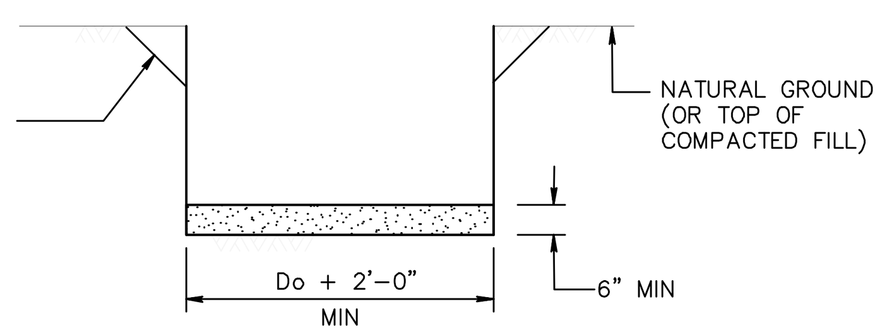
(B) THE EXISTING GROUND IS BETWEEN THE TOP AND THE BOTTOM OF THE PROPOSED PIPE AND THE PIPE IS TO BE COVERED WITH EARTH FILL.

(C) THE TOP OF PIPE IS BELOW THE LEVEL OF THE NATURAL GROUND OR COMPACTED FILL (TO MINIMUM 97% SPD) AND TO BE COVERED WITH EARTH FILL TO HEIGHTS ABOVE THE NATURAL GROUND.

STEP 1 : REMOVE TOPSOIL (COMPRESSIBLE LAYER, FOR EXAMPLE, ORGANIC MATERIAL) TO A WIDTH EQUAL TO 5 OUTSIDE DIAMETERS OF THE PIPE IN ALL FILL CONDITIONS ABOVE (A),(B)&(C). ALSO IF SPECIFIED ON THE CONTRACT DRAWING, UNDERCUT FOR THE DEPTH BELOW THE BEDDING AS SHOWN BY DESIGN (MAKE MIN WIDTH 3 DIAMETERS OF PIPE).

STEP 2 : CONSTRUCT THE EMBANKMENT TO 4'–0" ABOVE THE TOP OF PIPE OR TO THE SUBGRADE ELEVATION, WHICHEVER IS LESS. FOR PIPES 72" OR GREATER SEE NOTE 1.

STEP 3 : EXCAVATE THE TRENCH TO THE WIDTH OF THE OUTSIDE DIAMETER OF THE PIPE PLUS 2'–0" AND CREATE AN APPROPRIATE BEDDING 6" DEEP.

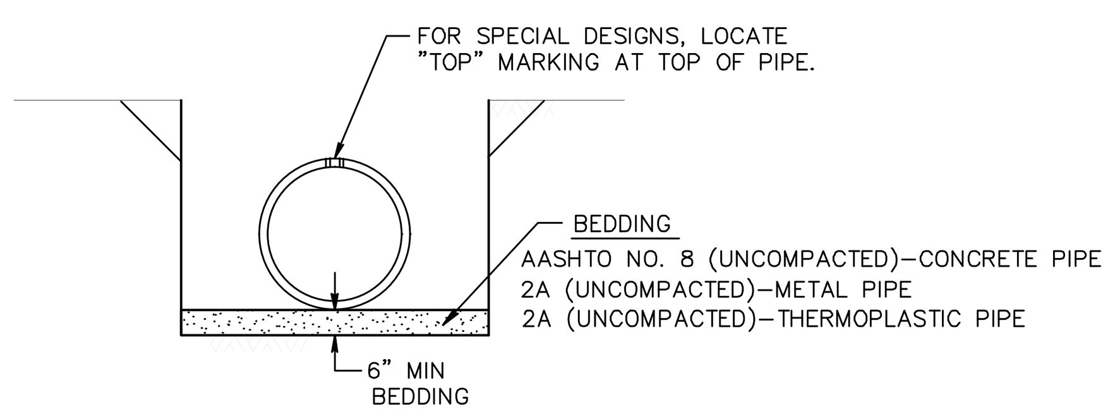


THOROUGH ROCK, OR HARD SHALE, OR IN AREAS OF UNDERCUT, PROVIDE 6"+ø" INCH/FT OF, Do+4'–0", BELOW

STEP 4 : FOR CONCRETE PIPE, IF THIS EXCAVATION IS THE INTENDED BOTTOM ELEVATION OF THE PIPE, 12" MAX.

NOTE: IF UNSUITABLE MATERIAL IS FOUND, UNDERCUT AS DIRECTED AND BACKFILL WITH SUITABLE MATERIAL TO BOTTOM OF BEDDING ELEVATION. (UNLESS OTHERWISE SPECIFIED.)

LAY PIPE ON APPROPRIATE BEDDING.



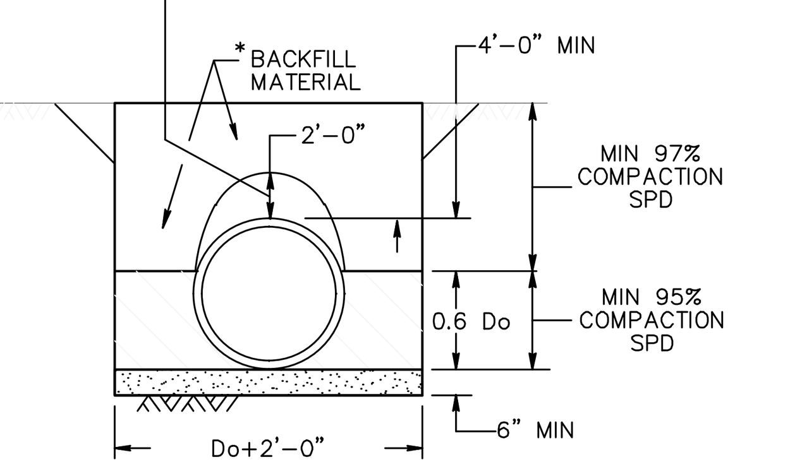
:FOR THERMOPLASTIC PIPE, SEE STEP 6B.

STEP 6 :FOR CONCRETE PIPE, SEE STEP 6A.

STEP 6A : CONCRETE PIPE

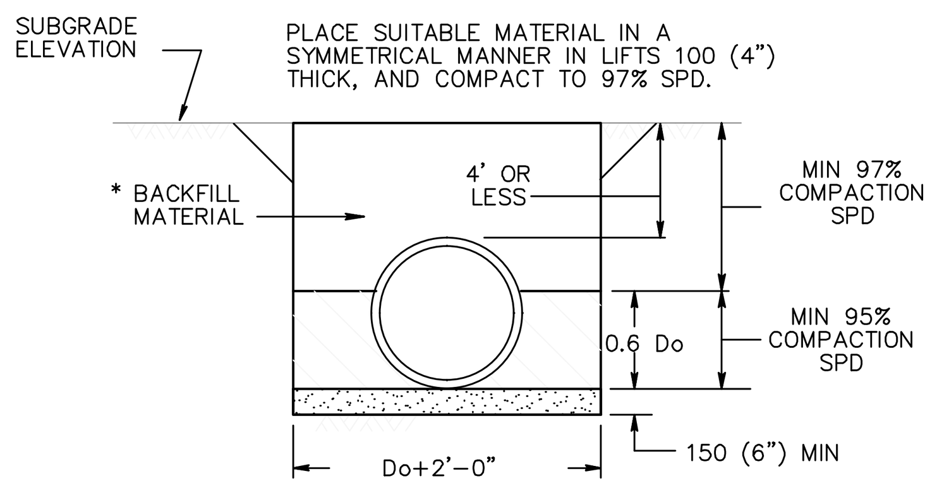
PLACE 2A COARSE AGGREGATE MATERIAL, IN LIFTS 4" THICK, ADJACENT TO THE LOWER HAUNCHES TO A HEIGHT OF 0.6 Do. COMPACT TO 95% SPD. TEST THE SIDE BACKFILL MATERIAL AND CONTINUE EMBANKMENT IN ACCORDANCE WITH SECTION 601.

PLACE UNCOMPACTED SUITABLE MATERIAL OVER PIPE. (DO NOT COMPACT.) BACKFILL SIDES AND COMPACT. CONTINUE EMBANKMENT.



DEEP FILLS OVER 4'–0"

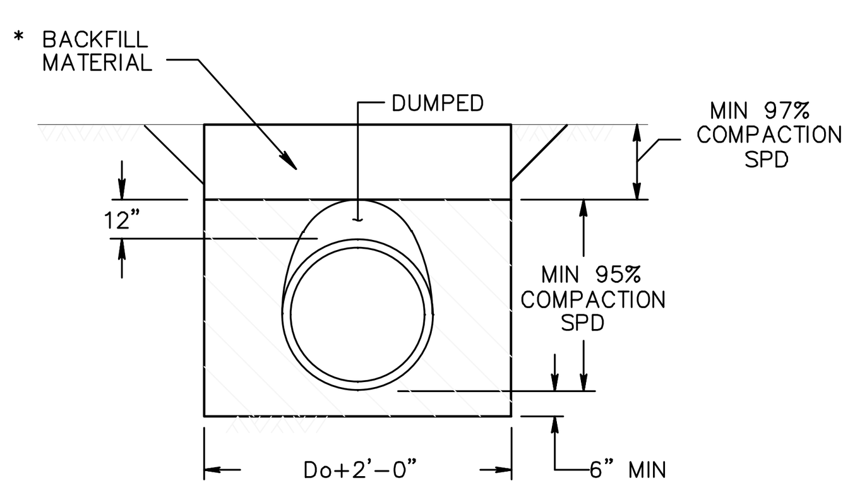
PLACE SUITABLE MATERIAL IN A SYMMETRICAL MANNER IN LIFTS 100 (4") THICK, AND COMPACT TO 97% SPD.



SHALLOW FILLS 4'–0" AND LESS

STEP 6B: THERMOPLASTIC PIPE (PVC, HDPE, SLCPP)

PLACE 2A COARSE AGGREGATE MATERIAL, IN LIFTS 4" THICK, ADJACENT TO THE LOWER HAUNCHES TO A HEIGHT OF 12" ABOVE TOP OF PIPE. COMPACT TO 95% SPD. TEST THE BACKFILL MATERIAL AND CONTINUE EMBANKMENT IN ACCORDANCE WITH SECTION 601.



THERMOPLASTIC PIPE

LEGEND

[dotted pattern]	AGGREGATE FOR BEDDING (AASHTO NO. 8), UNCOMPACTED
[blank pattern]	COARSE AGGREGATE (2A/2B)

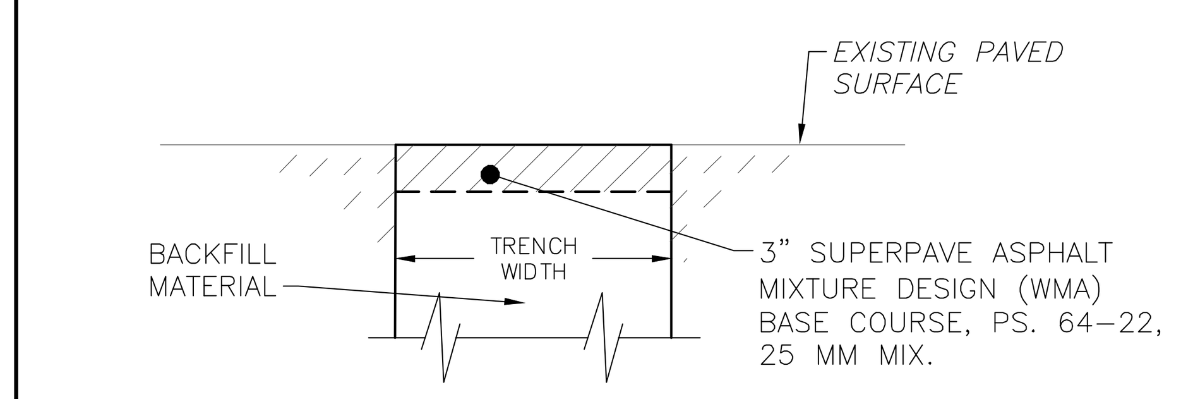
Do = OUTSIDE DIAMETER OF PIPE

SPD = STANDARD PROCTOR DENSITY

ID = INSIDE DIAMETER

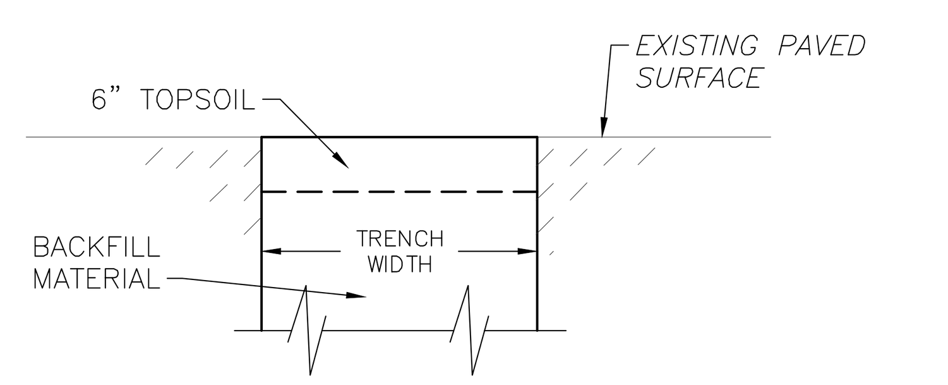
STORMWATER PIPE INSTALLATION PROCEDURES (1 / 183.4)

NOT TO SCALE



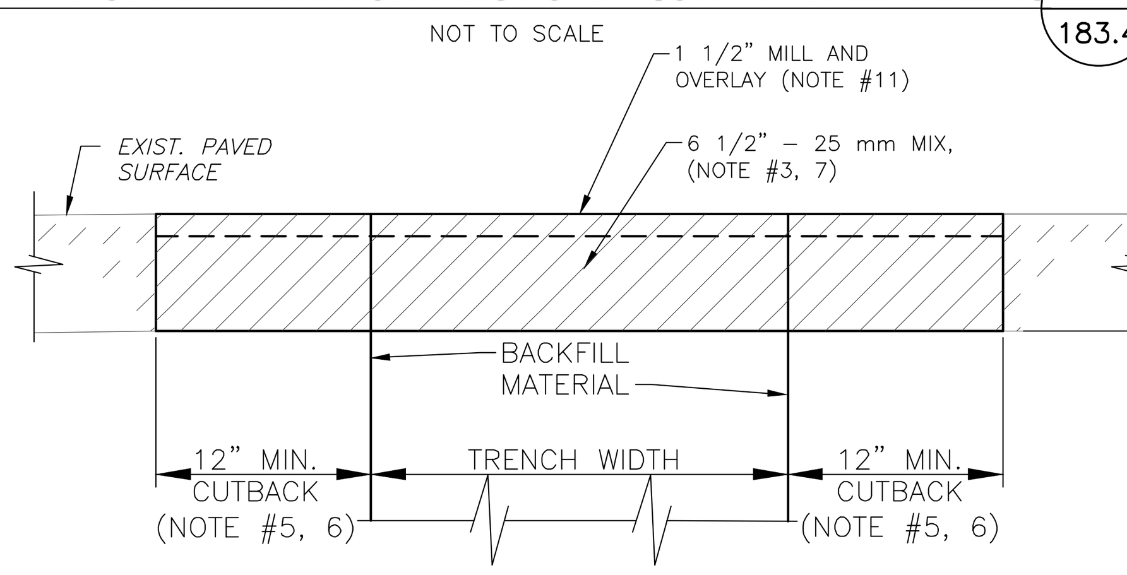
TEMPORARY TRENCH RESTORATION - PAVED AREAS (3 / 183.4)

NOT TO SCALE



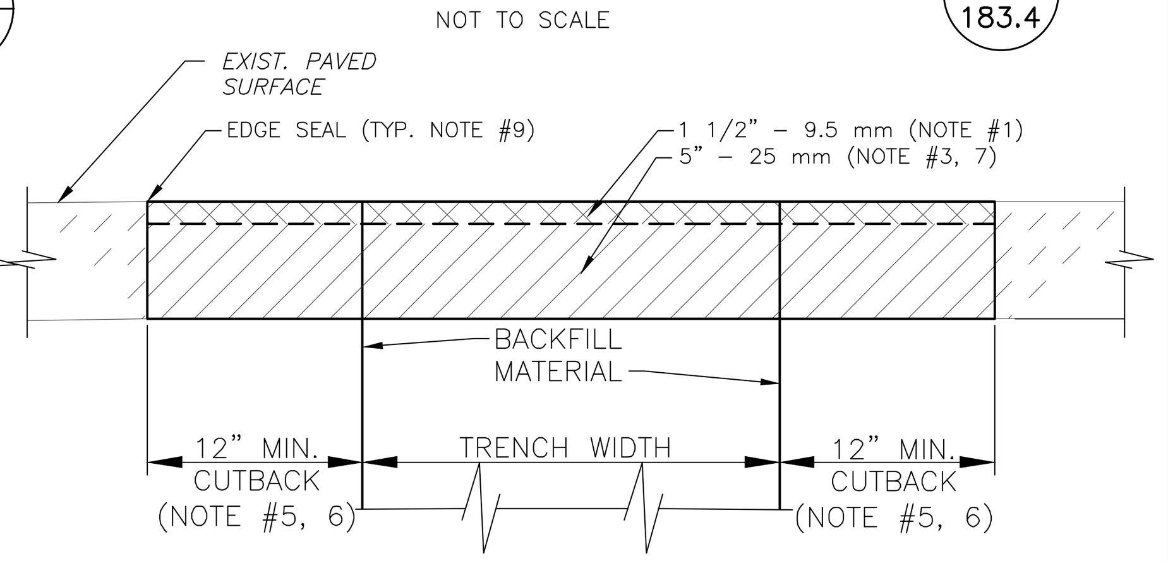
TRENCH RESTORATION - UNPAVED AREAS (4 / 183.4)

NOT TO SCALE



SEMI-PERMANENT TRENCH RESTORATION (9 / 183.4)

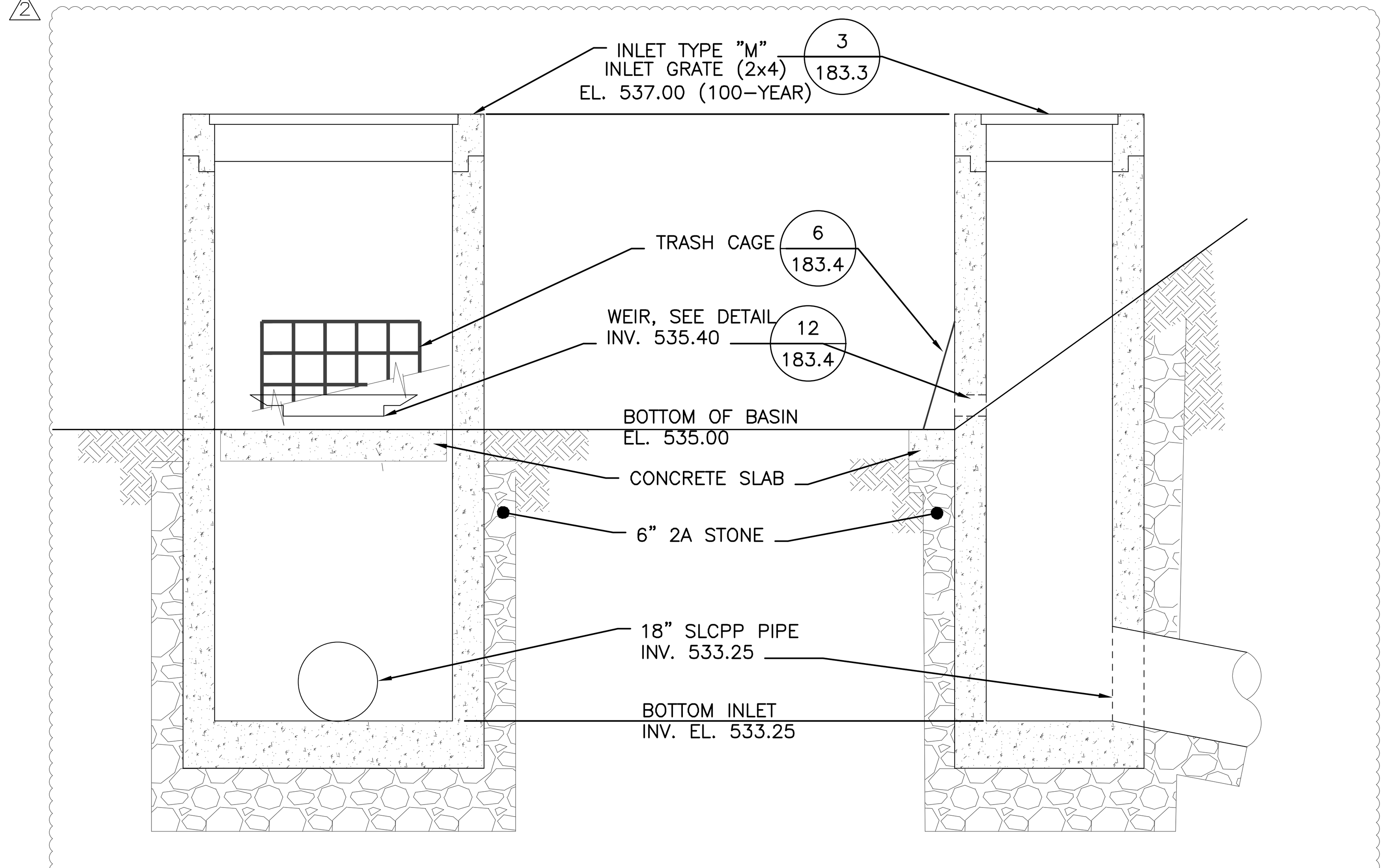
NOT TO SCALE



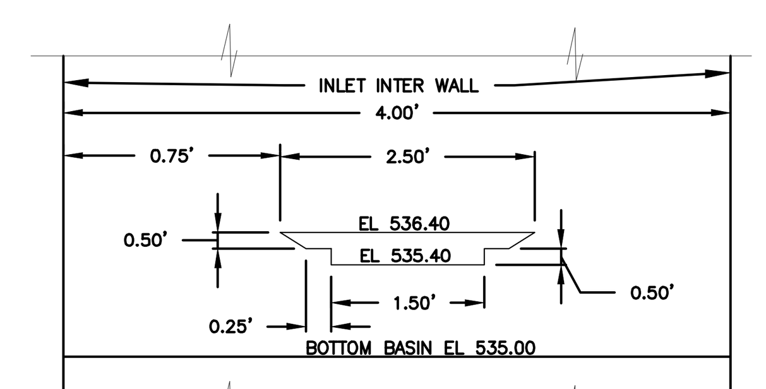
PERMANENT TRENCH RESTORATION (10 / 183.4)

DRIVEWAY & PARKING LOT RECONSTRUCTION NOTES:

1. 9.5 MM MIX SUPERPAVE ASPHALT MIXTURE DESIGN (WMA), WEARING COURSE, PG. 64–22, 3 TO 30 MILLION ESALS, DESIGN LEVEL 75 GYRATIONS.
2. 19.0 MM MIX SUPERPAVE ASPHALT MIXTURE DESIGN (WMA), BINDER COURSE, PG. 64–22, 3 TO 30 MILLION ESALS, DESIGN LEVEL 75 GYRATIONS.
3. 25.0 MM MIX SUPERPAVE ASPHALT MIXTURE DESIGN (WMA), BASE COURSE, PG. 64–22, 3 TO 30 MILLION ESALS, DESIGN LEVEL 75 GYRATIONS.
4. 2A MODIFIED AGGREGATE SUBBASE, COMPACTED TO 100% OF THE MAXIMUM DRY–WEIGHT DENSITY.
5. SUBGRADE TOPSOIL, LARGE ROCKS, AND OTHER TYPES OF LOW QUALITY, UNSUITABLE SOIL SHALL BE REMOVED AND REPLACED. THE EXPOSED SURFACE SHALL BE COMPACTED WITH SUITABLE EQUIPMENT (MINIMUM 10–TON ROLLER). SUBGRADE COMPACTION SHOULD BE TO A DRY DENSITY OF AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698).
6. MINIMUM 1' PAVEMENT CUTBACK, EXCAVATE EXISTING AND TEMPORARY PAVEMENT AND MATERIAL TO REQUIRED ELEVATION. RECOMPACT EXPOSED SUBGRADE, TACK COAT ALL VERTICAL PAVEMENT EDGES.
7. EXCAVATE AND REMOVE EXISTING PAVEMENT AND MATERIAL TO REQUIRED ELEVATION. RECOMPACT EXPOSED SUBGRADE. TACK COAT ALL EXPOSED VERTICAL EDGES.
8. INSTALL ONLY BASE COURSE AND BINDER COURSE IN ONE DAY.
9. SEAL ALL EDGE JOINTS WITH EXISTING PAVEMENTS, CURBS, DRAINAGE AND UTILITY STRUCTURES.
10. REPLACE AND REINSTALL ALL PAVEMENT MARKINGS.
11. 1 1/2" MILLING AND OVERLAY.
12. PROVIDE TEMPORARY PAVING TRANSITION FOR VEHICLE TRAFFIC BETWEEN EXISTING PAVEMENT ELEVATION AND PAVEMENT NOT AT FINAL ELEVATION.

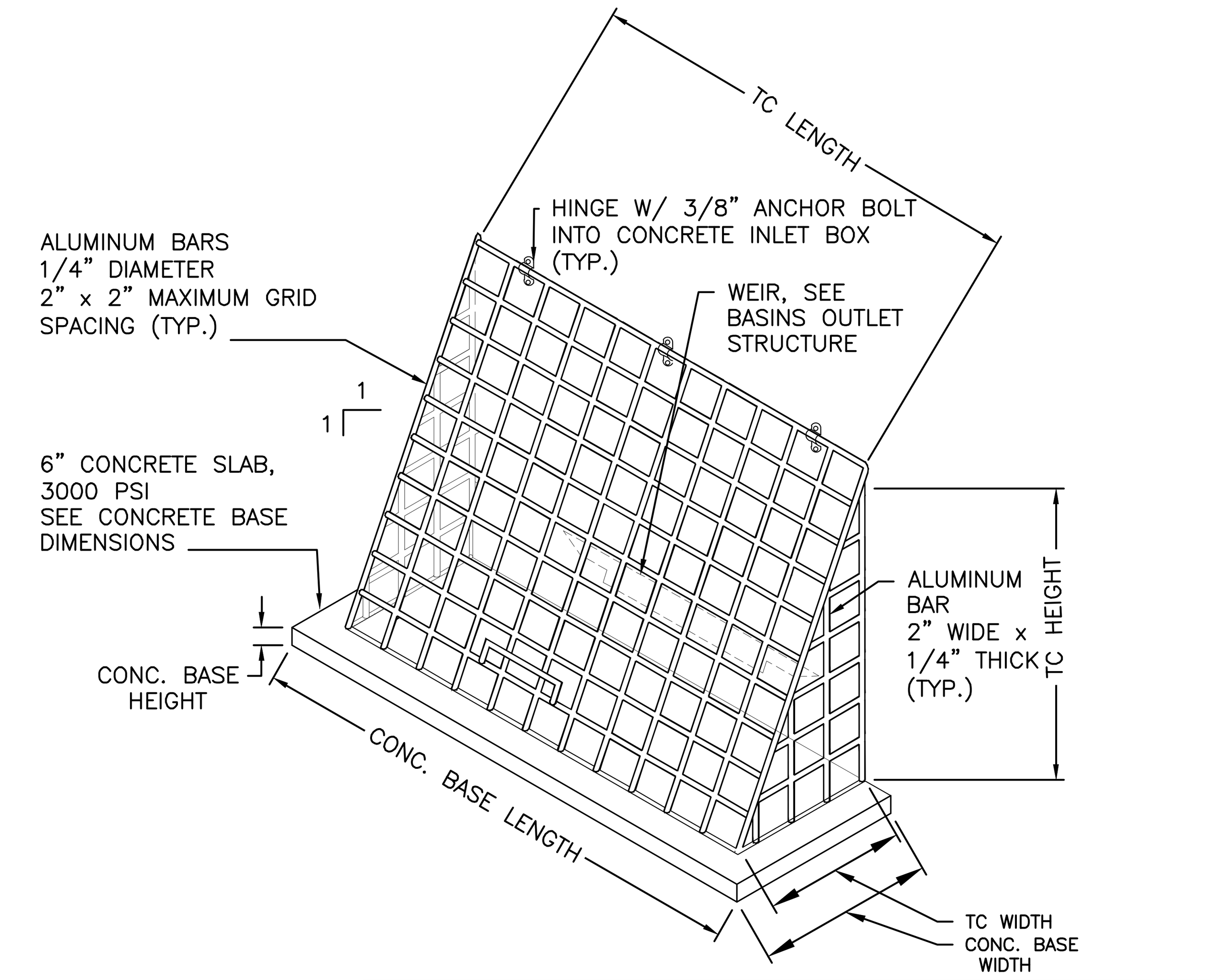


STORMWATER BASIN #5 OUTLET DETAIL (5 / 183.4)



STORMWATER BASIN #5 WEIR DETAIL (12 / 183.4)

NOT TO SCALE



BASIN'S TRASH RACK CAGE AND CONCRETE BASE						
LOCATION	TRASH CAGE (TC)			CONCRETE BASE DIMENSIONS		
	LENGTH (FT.)	HEIGHT (FT.)	WIDTH (FT.)	LENGTH (FT.)	WIDTH (FT.)	HEIGHT (FT.)
BASIN #5 (#50)	3.77	1.50	1.00	4.77	1.50	0.50

TRASH CAGE (6 / 183.4)

NOT TO SCALE

Construction Sequence For Basin #5 and All Swales (7 / 183.4)

1. Begin vegetated basin construction only when the upgradient temporary erosion and sediment control measures are in place. Vegetated basin should be constructed and stabilized early in the construction schedule, preferably before mass earthwork and paving increase the rate and volume of runoff.
2. Remove the top soil and storage as it is show on the plan.
3. Rough grade the vegetated basin. Equipment shall avoid excessive compaction and/or land disturbance. Excavating equipment should operate from the side of the basin and never on the bottom of the basin. No compacted soil is needed.
4. Install outlet structure and pipe as it show on the plan.
3. Fine grade the vegetated basin. Accurate grading is crucial for basin. Even the smallest nonconformities may compromise flow conditions.
4. Seed, vegetate and install protective lining as per approved plans and according to final planting list. Plant the basin at a time of the year when successful establishment without irrigation is most likely. However, temporary irrigation may be needed in periods of little rain or drought. Vegetation should be established as soon as possible to prevent erosion and scour.
5. Once all tributary areas are sufficiently stabilized, remove temporary erosion and sediment controls. It is very important that the basin be stabilized before receiving upland stormwater flow.
6. Follow maintenance guidelines, as discussed below.

Note: If a vegetated basin is used for runoff conveyance during construction, it should be regraded and reseeded immediately after construction and stabilization has occurred. Any damaged areas should be fully restored to ensure future functionality of the basin.

Maintenance Issues

Compared to other stormwater management measures, the required upkeep of vegetated basin is relatively low. In general, maintenance strategies for basin focus on sustaining the hydraulic and pollutant removal efficiency of the basin, as well as maintaining a dense vegetative cover. Experience has proven that proper maintenance activities ensure the functionality of vegetated basin for many years. The following schedule of inspection and maintenance activities is recommended:

Maintenance activities to be done annually and within 48 hours after every major storm event (> 1 inch rainfall depth):

- Inspect and correct erosion problems, damage to vegetation, and sediment and debris accumulation (address when > 3 inches at any spot or covering vegetation)
- Inspect vegetation on side slopes for erosion and formation of rills or gullies, correct as needed
- Inspect for pools of standing water; dewater and discharge to an approved location and restore to design grade
- Mow and trim vegetation to ensure safety, aesthetics, proper basin operation, or to suppress weeds and invasive vegetation; dispose of cuttings in a local composting facility; mow only when basin is dry to avoid rutting
- Inspect for litter; remove prior to mowing
- Inspect for uniformity in cross–section and longitudinal slope, correct as needed
- Inspect basin's inlet (curb cuts, pipes, etc.) and outlet for signs of erosion or blockage, correct as needed

Maintenance activities to be done as needed:

- Plant alternative grass species in the event of unsuccessful establishment
- Reseed bare areas; install appropriate erosion control measures when native soil is exposed or erosion are forming
- Rototill and replant basin if draw down time is more than 72 hours
- Inspect and correct of altered water flow (channelization, obstructions, erosion, etc.) are identified
- Water during dry periods, fertilize, and apply pesticide only when absolutely necessary

Most of the above maintenance activities are reasonably within the ability of individual owner. More intensive basin (i.e. more substantial vegetation, etc.) may warrant more intensive maintenance duties and should be vested with a responsible agency. A legally binding and enforceable maintenance agreement between the facility owner and the local review authority might be warranted to ensure sustained maintenance execution. Winter conditions also necessitate additional maintenance concerns, which include the following:

- Inspect basin immediately after the spring melt, remove residuals (e.g. sand) and replace damaged vegetation without disturbing remaining vegetation.
- If roadside or parking lot runoff is directed to the basin, mulching and/or soil aeration/manipulation may be required in the spring to restore soil structure and moisture capacity and to reduce the impacts of deicing agents.
- Use nontoxic, organic deicing agents, applied either as blended, magnesium chloride–based liquid products or as pretreated salt.
- Use salt–tolerant vegetation in basin.

Amendment Soil (8 / 183.4)

Construction Sequence

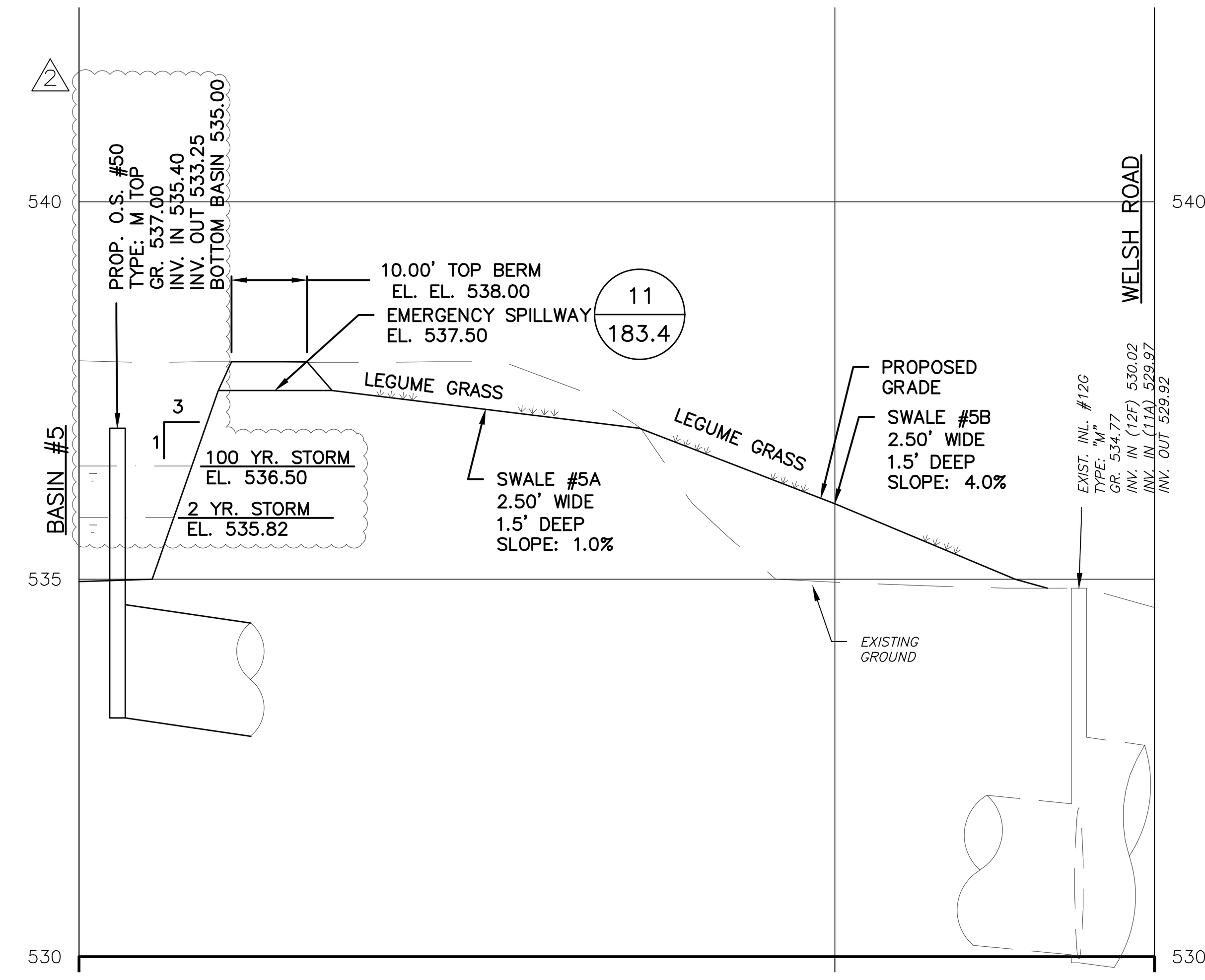
All construction should be completed and stabilized before beginning soil restoration.

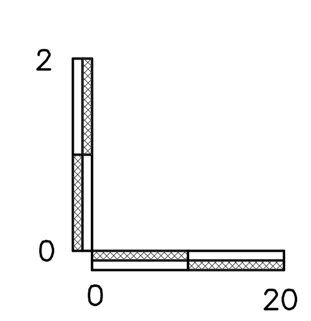
Maintenance Issues

The soil restoration process may need to be repeated over time, due to compaction by use and/or setting.

COMPOST SOIL AMENDMENT INSTALLATION

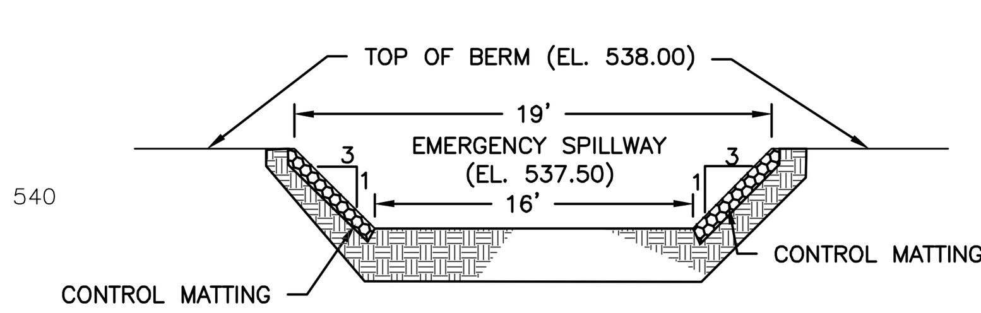
a. Amended soil to meet PADEP requirement of 20–30% organic content, clay content <10%, and Ph between 5.5 and 6.5.
b. Spread 2–3 inches of approved compost on existing soil. Till added soil into existing soil with a rotary tiller that is set to a depth of 6 inches. Add an additional 4 inches of approved compost to bring the area up to grade.
c. After permanent planting/seeding, 2–3 inches of compost blanket will be applied to a areas not protected by grass or other plants





PROPOSED EMERGENCY BASIN #5 SPILLWAY PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



BASIN #5 EMERGENCY SPILLWAY & INLET EMERGENCY FLOW (11 / 183.4)

NOT TO SCALE

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E–MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

POST CONSTRUCTION STORMWATER MANAGEMENT BASIN #5 DETAILS

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:

TOWNSHIP OF CUMRU

Situate In:

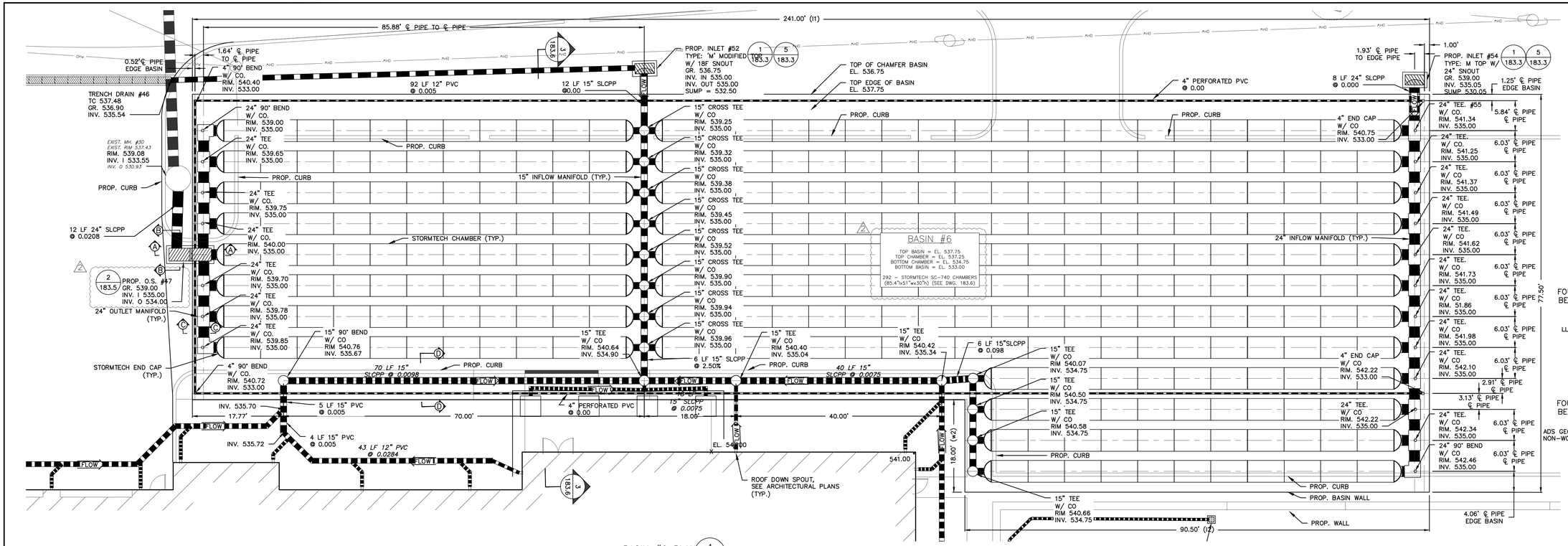
CUMRU TOWNSHIP, BERKS CO., PA.

Jeffrey E. Skinner
PE–042652–E
SU–052889–E

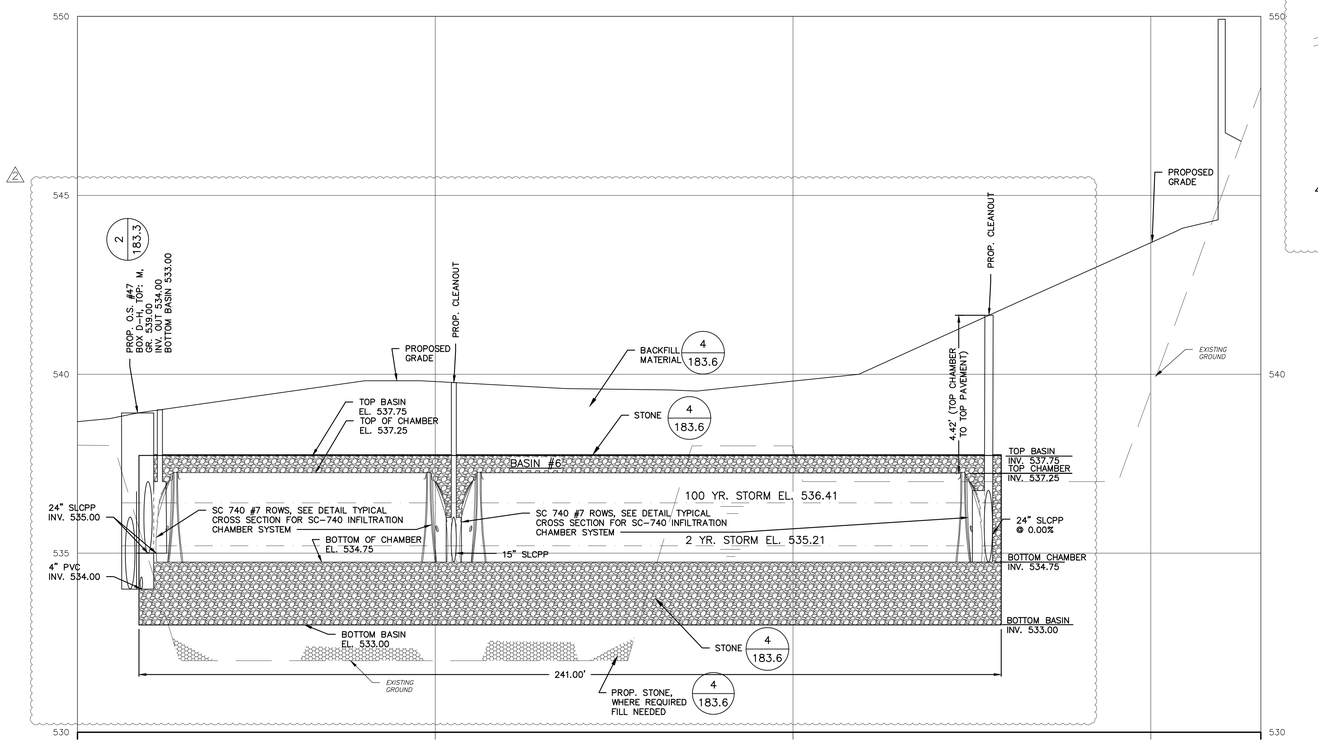
ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538

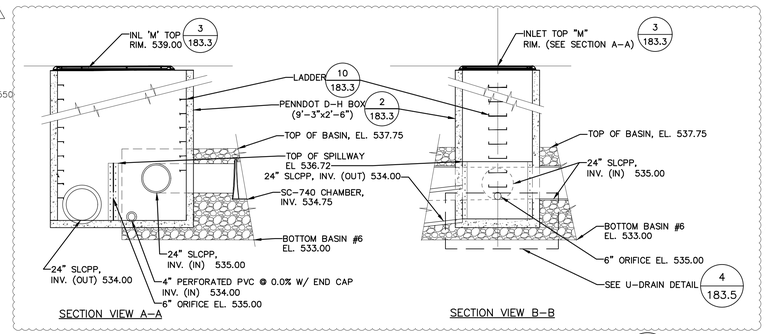
DRAWING #: 183.4



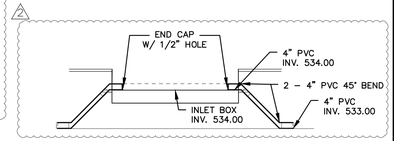
BASIN #6 PLAN (1 / 183.5)
SCALE: 1" = 10'



BASIN #6 PROFILE (3 / 183.5)
SCALE: V. 1" = 2'
H. 1" = 20'



BASIN #6 OUTLET STRUCTURAL (OS #47) DETAIL (2 / 183.5)
N.T.S.



BASIN #6 U–DRAIN & OUTLET STRUCTURAL (OS #47) DETAIL (4 / 183.5)
N.T.S.

BASIN #6 NOTES:

1. STORAGE SWM BASIN #6 TRENCH [(241.00'(I1)) x (59.59'(w1)) x (3.50' (h)) (8 ROWS) + (90.50' (I2)) x (18.00' (w2)) x (3.5' (h)) (4 ROWS) SEE PLAN]
2. 292 CHAMBERS – SC 740 CHAMBER (SEE BASIN #6 PLAN)
3. 4" PERFORATION PVC PIPES
4. SC 740 CHAMBER END CAPS W/ 15" SLCPP WELDED STUB
5. SC 740 CHAMBER END CAPS W/ 24" SLCPP WELDED STUB
6. 15" CROSS TEES W/ 6" RISER
7. 15" TEES W/ 6" RISER
8. 15" 90° BENDS W/ 6" RISER
9. 15" SLCPP (CUT LENGTH DETERMINED BY CONTRACTOR)
10. 15"x24" REDUCER
11. 24" TEES W/ 6" RISER
12. 24" 90° BENDS W/ 6" RISER
13. 24" SLCPP (CUT LENGTH DETERMINED BY CONTRACTOR)
14. 15" SOIL–TIGHT COUPLER
15. 24" SOIL–TIGHT COUPLER
16. 5/8" ALUM. WEIR PLATE W/ ORIFICE CUT IN
17. 4 – ALUM. ∠4"x4"x3/8", EACH SIDE (TYP.)
18. (3) 3/8" S.S. ADHESIVE ANCHORS (TYP.) @ 12" MAX. C/C, 3 1/2" EMBED.
19. 2 – HAND LIFT: 1/2" ø ALUM., SMOOTH BAR (WELDED TO PLATE)

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

Date	Draft	Chkd	
11/30/2023	RC	JES	ISSUED FOR BIDS
08/11/2023	RC	JES	2 REVISED DRAWINGS PER BCCD REVIEW E-MAIL, DATED 07/31/2023.
04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER PE-042652-E

Jeffrey E. Skinner
PE–042652–E
SU–052889–E

POST CONSTRUCTION STORMWATER MANAGEMENT BASIN #6 DETAIL

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200, PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 183.5
SHEET #: 20 Of 25

S:\ESTFILESERVER\Projects\Cumru\Z057000415 - Reed\FIRE STATION\DWG\FIRE STATION-PCSM.dwg, 11/29/2023 2:50:25 PM, AutoCAD PDF (General Documentation).pc3

SC-740 STORMTECH CHAMBER SPECIFICATIONS (1 / 183.6)

1. CHAMBERS SHALL BE STORMTECH SC-740.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   a. TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   b. TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   c. TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C). CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   a. THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   b. THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   c. THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT – NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-740 SYSTEM

1. STORMTECH SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   a. STONESHOOTER LOCATED OFF THE CHAMBER BED.
   b. BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   c. BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM – 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4"–2" (20–50 mm).
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-740 CHAMBERS IS LIMITED:
   a. NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   b. NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   c. WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

CONSTRUCTION SEQUENCE FOR BASIN #6 NOTES: (2 / 183.6)

1. CHAMBER SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S LATEST INSTALLATION GUIDELINES.
2. FOUNDATIONS: TRENCH BOTTOMS WITH UNSTABLE OR UNYIELDING MATERIAL SHALL BE EXCAVATED TO A DEPTH DIRECTED BY THE ENGINEER AND REPLACED WITH SUITABLE MATERIAL. FOR UNSTABLE MATERIALS, GEOTEXTILE MAY BE USED TO STABILIZE THE TRENCH BOTTOM, IF DIRECTED BY THE ENGINEER. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING FOUNDATION SUITABILITY.
3. GEOTEXTILE: A 6oz. NON-WOVEN GEOTEXTILE FILTER FABRIC (AASHTO M288 CLASS 2) SHOULD BE USED TO PREVENT SOIL FROM MIGRATING INTO THE INITIAL BACKFILL MATERIAL. THE NON-WOVEN GOTEXTILE FILTER FABRIC TO BE INSTALL ALL ROUND THE BASIN #6. ALL SEAMS SHOULD HAVE 2 FOOT OVERLAPPING OF GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE A 3/4 – 2 INCH, CLEAN, CRUST ANGULAR STONE, OR AASHTO M43 SIZES (3, 357, 4, 467, 5, 56,57) WITH CLEAN, CRUSHED, ANGULAR STONE ADDED TO THE GRADATION, e.g., CLEAN, CRUSHED, ANGULAR #3 (AASHTO M43) STONE. MINIMUM BEDDING THICKNESS SHALL BE 6 INCHES. COMPACTION SHOULD BE DONE IN LIFTS OF NO MORE THEN 9 INCHES TO A DENSITY OF 95% STANDARD PROCTOR DENSITY.
5. EMBEDMENT BACKFILL: SUITABLE MATERIAL SHALL BE 3/4 – 2 INCH, CLEAN, CRUSHED ANGULAR STONE, OR AASHTO M43 SIZES (3, 357, 4, 467, 5, 56,57) WITH CLEAN, CRUSHED, ANGULAR STONE ADDED TO THE GRADATION, e.g., CLEAN, CRUSHED, ANGULAR #3 (AASHTO M43) STONE. EMBEDMENT BACKFILL SHALL EXTEND FROM TOP OF BEDDING TO NOT LESS THAN 6 INCHES ABOVE THE TOP OF THE CHAMBER. NO COMPACTION IS REQUIRED BUT AN EFFORT SHOULD BE MADE TO HAND KNIFE STONE INTO ALL CORRUGATIONS.
6. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE A GRANULAR, WELL GRADED SOIL WITH LESS THAN 35% FINES OR AASHTO M43 SIZES (3, 357, 4, 467, 5, 56, 6, 67, 68, 7, 78, 8, 89, 9, 10) WITH CLEAN, CRUSHED, ANGULAR STONE ADDED TO THE GRADATION. INITIAL BACKFILL SHALL EXTEND FROM TOP OF EMBEDMENT BACKFILL TO NOT LESS THEN 18 INCHES ABOVE THE TOP OF THE CHAMBER. COMPACTION SHOULD BE BROUGHT TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY.
7. FINAL BACKFILL: SUITABLE MATERIALS SHALL BE ANY SOIL DIRECTED BY THE ENGINEER. FINAL BACKFILL SHALL EXTENDED FROM TOP OF THE INITIAL BACKFILL TO NO MORE THAN 96 INCHES ABOVE THE TOP OF THE CHAMBER COMPACTION LEVELS SHOULD FOLLOW ENGINEERS RECOMMENDATIONS.
8. MINIMUM COVER: FOR UP TO H-25 TRAFFIC APPLICATIONS A MINIMUM COVER OF 18 INCHES IS REQUIRED, MEASURED FROM THE TOP OF THE CHAMBER TO THE BOTTOM OF THE FLEXIBLE PAVEMENT. ADDITIONAL COVER MAY BE REQUIRED FOR CONSTRUCTION LOADS OR WHERE RUTTING MAY TAKE PLACE.
9. MAXIMUM COVER: A COVER HEIGHT OF OVER THE 96 INCHES IS NOT RECOMMENDED COVER HEIGHT IS MEASURED FROM THE TOP OF THE CHAMBER TO THE TOP OF THE PAVEMENT.

INSPECTION & MAINTENANCE (3 / 183.6)

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

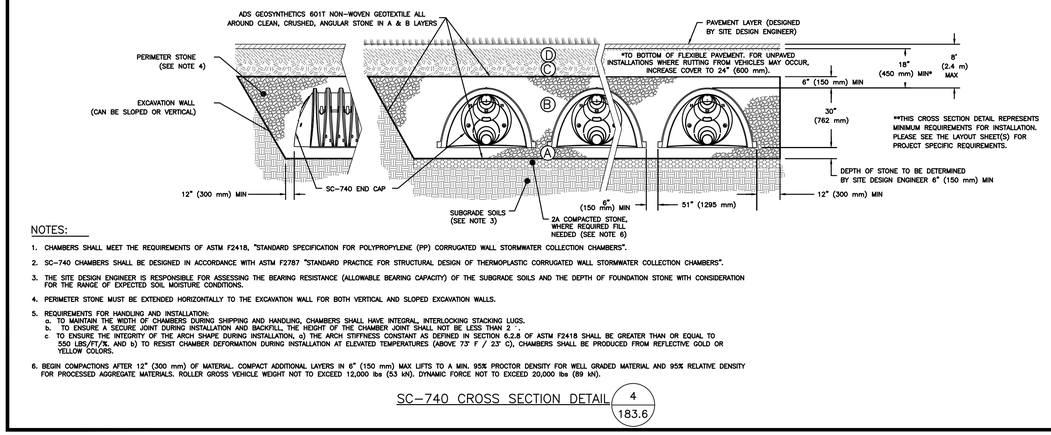
NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VECTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

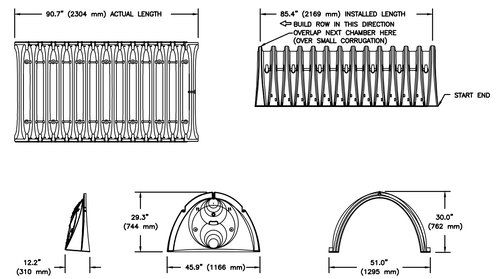
MATERIAL LOCATION		DESCRIPTION	CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.2,3

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   a. TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   b. TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   c. TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/% AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C). CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
6. BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).

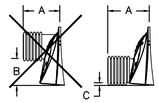
SC-740 CROSS SECTION DETAIL (4 / 183.6)



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4" (1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET (1.30 m³)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET (2.12 m³)
WEIGHT	75.0 lbs. (33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

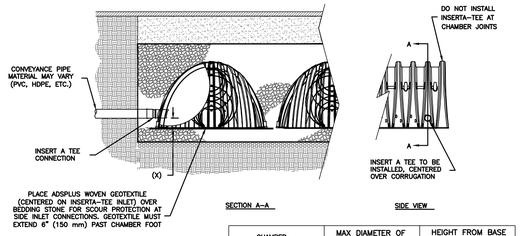
PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)
SC740EPE24BR*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B/SC740EPE24BR ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B/SC740EPE24BR THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

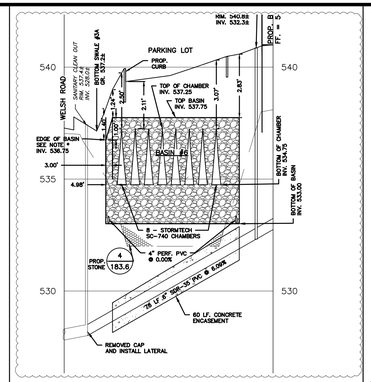
SC-740 TECHNICAL SPECIFICATIONS (5 / 183.6)



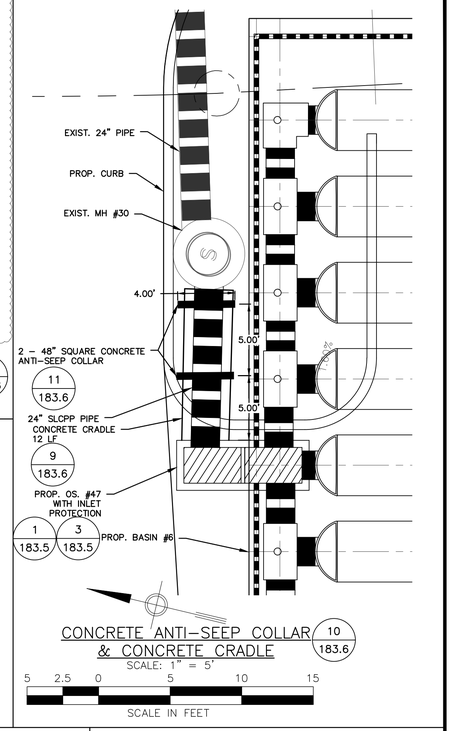
CHAMBER	MAX DIAMETER OF INSERT A TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
MC-7200	12" (300 mm)	8" (200 mm)
INSERT A TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTES:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.
CONTACT ADS ENGINEERING SERVICES IF INSERTA TEE INLET MUST BE RAISED AS NOT ALL INVERTS ARE POSSIBLE.

INSERT A-TEE SIDE INLET DETAIL (7 / 183.6)

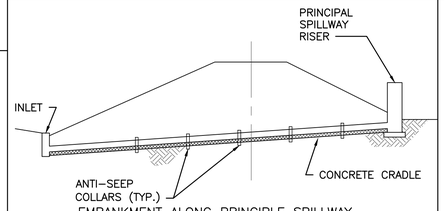


SC-740 CROSS SECTION AT BASIN #6 (8 / 183.6)
SCALE: V. 1" = 2'
H. 1" = 20'

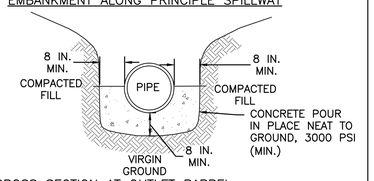


CONCRETE ANTI-SEEP COLLAR & CONCRETE CRADLE (10 / 183.6)
SCALE: 1" = 5'

5 2.5 0 5 10 15
SCALE IN FEET



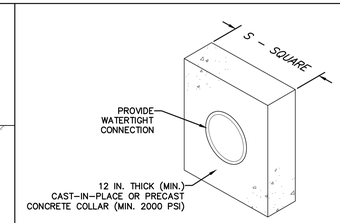
EMBANKMENT ALONG PRINCIPLE SPILLWAY



CROSS SECTION AT OUTLET BARREL

NOTES:
A CONCRETE CRADLE MAY BE USED IN CONJUNCTION WITH ANTI-SEEP COLLARS AND/OR FILTER DIAPHRAGM.
ANTI-SEEP COLLAR NUMBER, SIZE AND SPACING SHALL BE AS SHOWN ELSEWHERE IN PLAN.

STANDARD CONSTRUCTION DETAIL #7-17 CONCRETE CRADLE FOR BASIN OR TRAP OUTLET BARREL (9 / 183.6)
NOT TO SCALE



BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
#6	24	48	2	5	10

NOTES:
ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

CONCRETE ANTI-SEEP COLLAR FOR PERM. BASINS OR TRAPS (SCD 7-16) (11 / 183.6)
N.T.S

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POST CONSTRUCTION STORMWATER MANAGEMENT BASIN #6 DETAILS

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER ENGINEER

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 183.6
SHEET #: 21 Of 25

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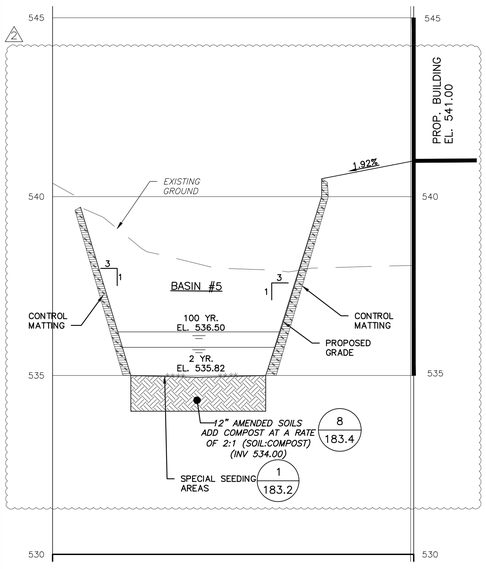
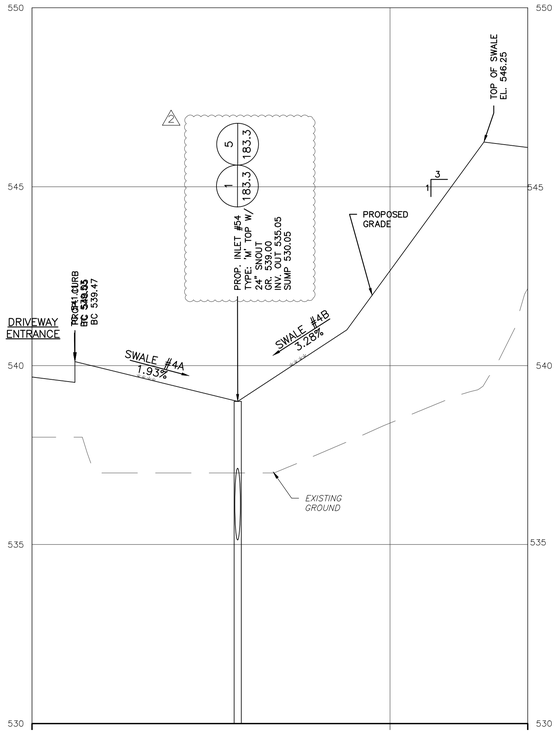


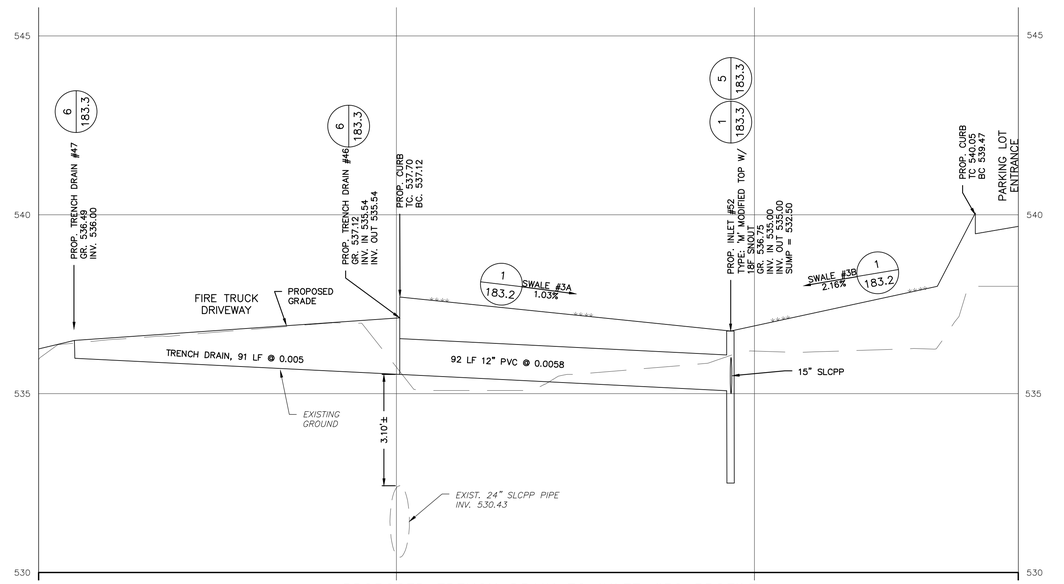
PROPOSED BASIN #5 TO CROSS SECTION PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



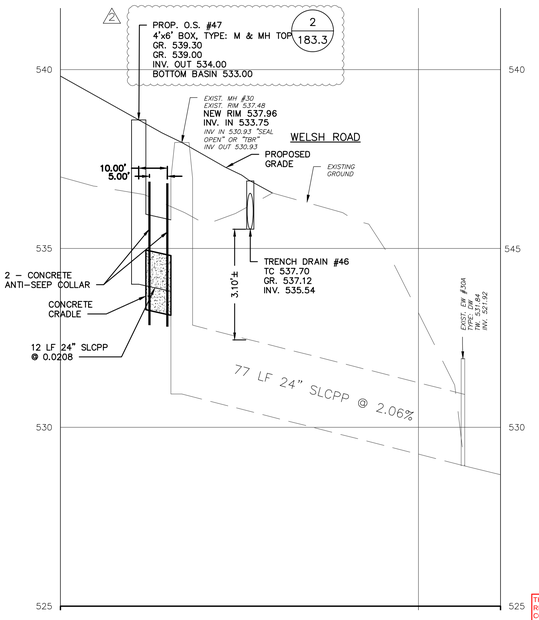
PROPOSED SWALE #4A TO SWALE #4B PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



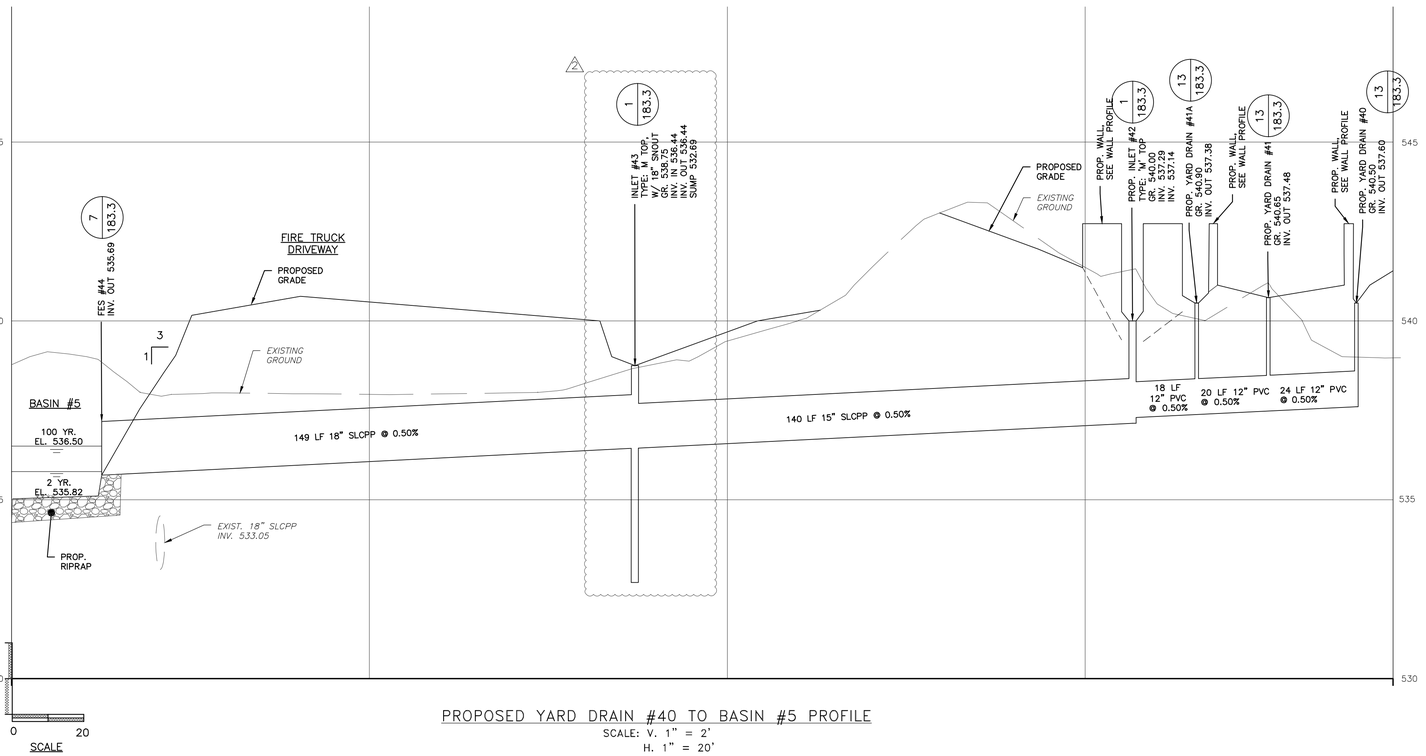
PROPOSED TRENCH DRAIN TO INLET #52 PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



PROPOSED OS #47 TO EXIST. ENDWALL #30A PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



PROPOSED YARD DRAIN #40 TO BASIN #5 PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'

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04/20/2023	RC	JES	NPDES PERMIT #PAD060047, PHASE #2 SUBMISSION

COMMONWEALTH OF PENNSYLVANIA
JEFFREY E. SKINNER
REGISTERED PROFESSIONAL ENGINEER
No. 052889-E

Jeffrey E. Skinner
PE–042652–E
SU–052889–E

POST CONSTRUCTION STORMWATER MANAGEMENT PROFILES

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 183.7
SHEET #: 22 Of 25

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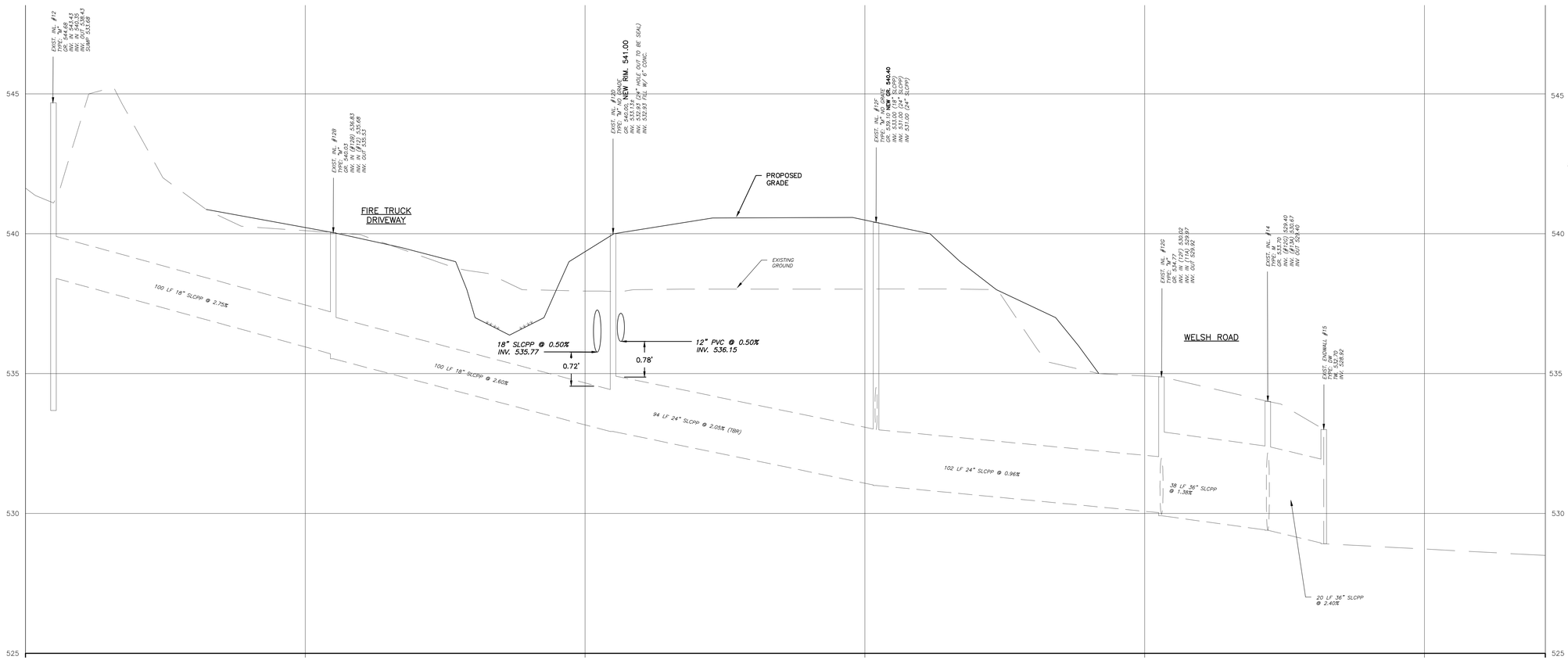
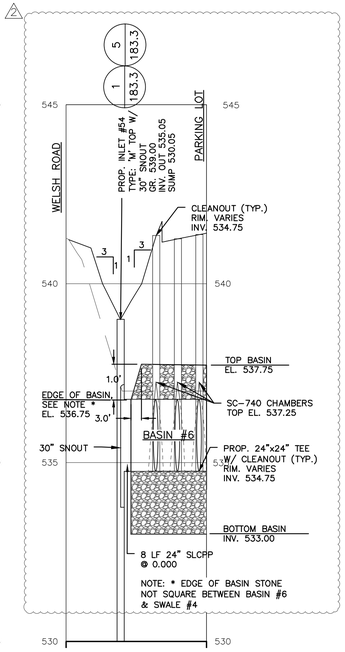


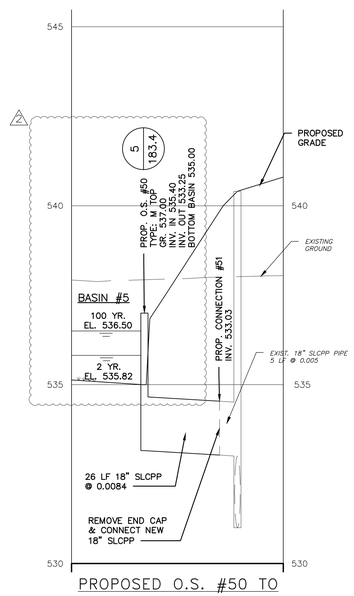
EXISTING INLET #12 TO EXISTING ENDWALL #15 (PHASE #1) PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



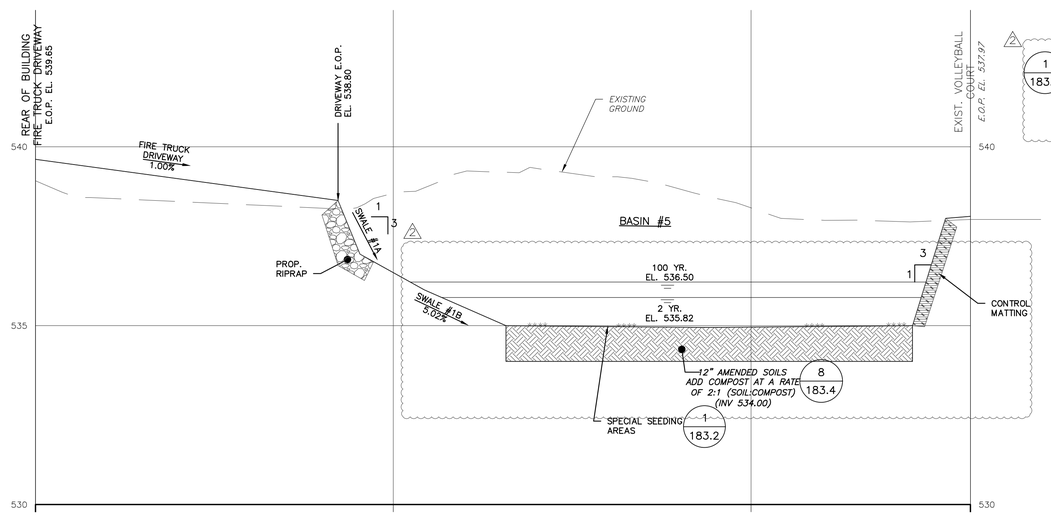
PROPOSED INLET #54 TO BASIN #6 PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



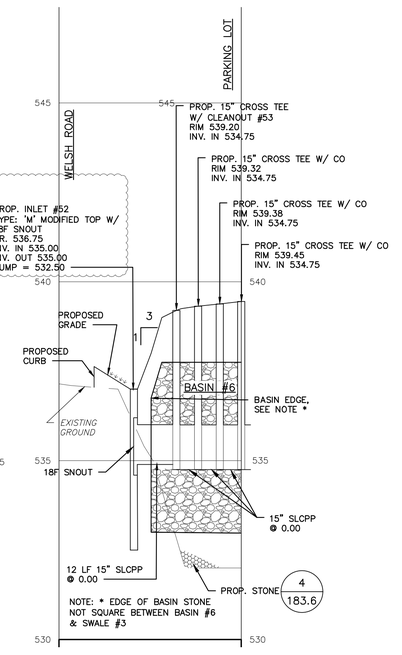
PROPOSED O.S. #50 TO EXIST. INLET #12F PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



PROPOSED REAR OF BUILDING DRIVEWAY TO BASIN #5 PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'



PROPOSED INLET #52 TO BASIN #6 PROFILE

SCALE: V. 1" = 2'
H. 1" = 20'

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POST CONSTRUCTION STORMWATER MANAGEMENT PROFILES

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:

TOWNSHIP OF CUMRU

Situate In:

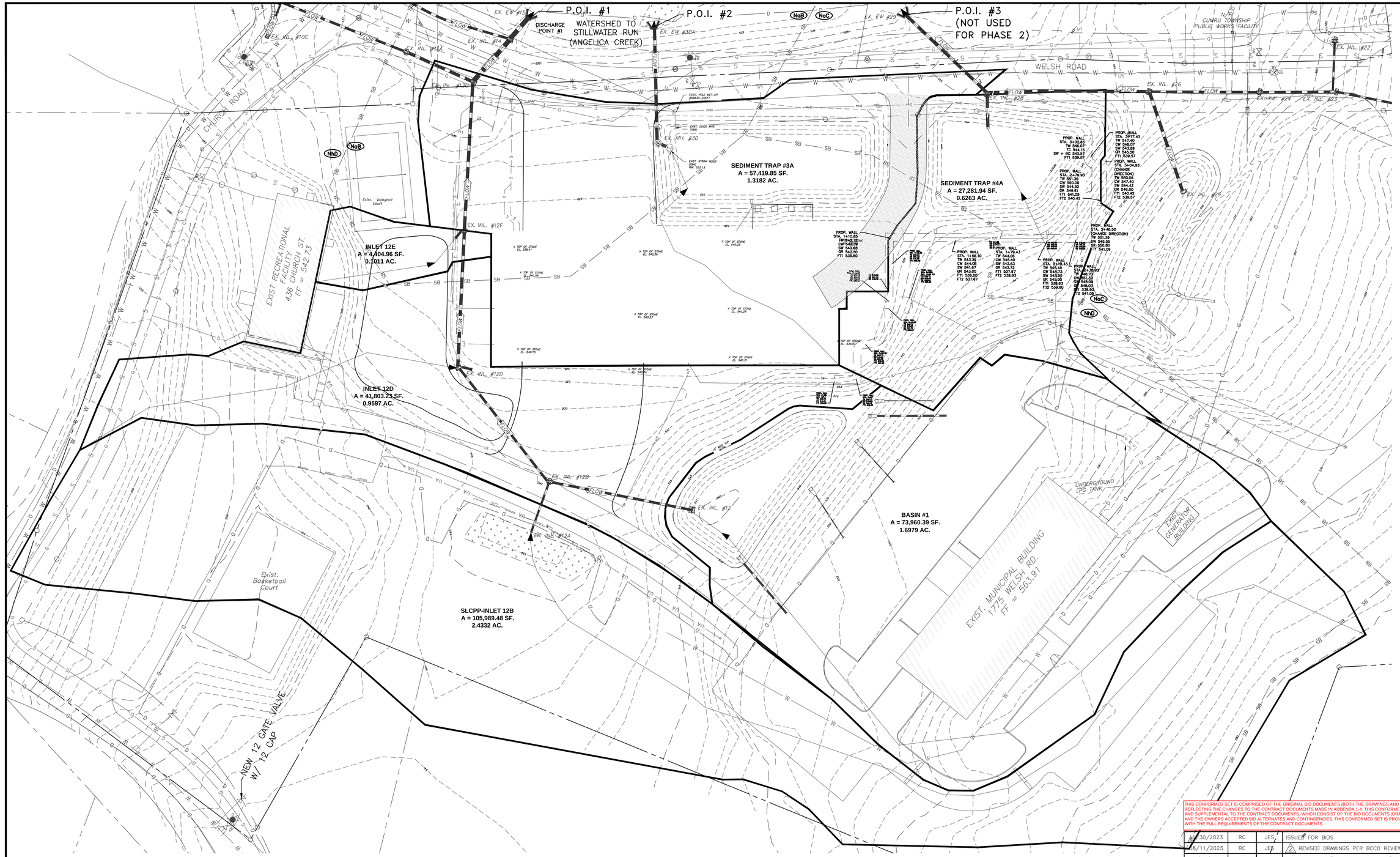
CUMRU TOWNSHIP, BERKS CO., PA.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED
PROFESSIONAL
JEFFREY E. SKINNER
ENGINEER
No. 052889-E

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 183.8
SHEET #: 23 Of 25



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PRE-DEVELOPMENT PHASE #2 DRAINAGES

CUMRU FIRE DEPARTMENT NEW BUILDING

Prepared For:
TOWNSHIP OF CUMRU

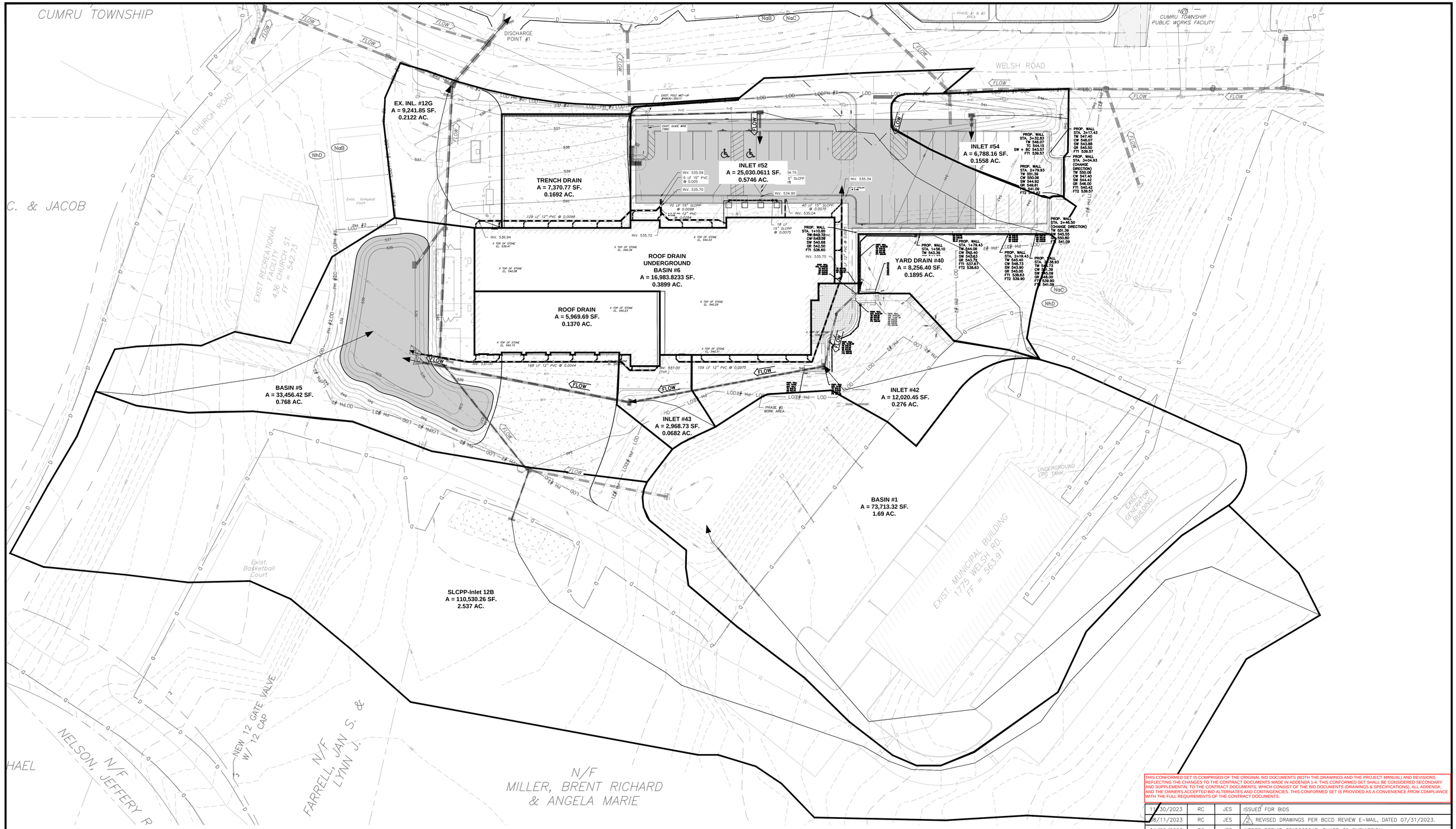
Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL JEFFREY E. SKINNER CIVIL ENGINEER

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 184
SHEET #: 24 Of 25



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CUMRU FIRE DEPARTMENT NEW BUILDING

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TOWNSHIP OF CUMRU

Situate In:
CUMRU TOWNSHIP, BERKS CO., PA.

COMMONWEALTH OF PENNSYLVANIA
JEFFREY E. SKINNER
PROFESSIONAL ENGINEER

Jeffrey E. Skinner
PE-042652-E
SU-052889-E

ATLAS
920 GERMANTOWN PIKE, SUITE 200,
PLYMOUTH MEETING, PA 19462

PROJECT #: Z057000538
DRAWING #: 184.1
SHEET #: 25 Of 25

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GENERAL SITE NOTES	
NOTE #	NOTE
1	SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
2	SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION. MECHANICAL UNIT SLABS HAVE BEEN INDICATED FOR SIZE & LOCATION AND SHALL BE THE RESPONSIBILITY OF 1A CONTRACTOR. CONTRACTOR SHALL COORDINATE FINAL POSITION & LOCATION OF EQUIPMENT TO ENSURE ALL CLEARANCES AND ACCESS POINTS TO MECHANICAL / ELECTRICAL EQUIPMENT HAVE BEEN SATISFIED.
3	ALL EDGES OF NEW PAVING SHALL MEET EXISTING PAVING TIE-IN POINTS IN ELEVATION AND GRADE.
4	TOP COURSE OF BITUMINOUS PAVING SHALL BE LAID ONLY AFTER HEAVY CONSTRUCTION PROCEDURES HAVE BEEN COMPLETED. PATCHES IN NEW BITUMINOUS / CONCRETE PAVING WILL NOT BE ACCEPTABLE.

EXISTING TOWNSHIP BUILDING

EXISTING PARKING LOT

EXISTING ROAD

EXISTING LAWN TO REMAIN. WHERE TRENCHING / EARTH WORK OCCURS, EXISTING LAWN SHALL BE BACK FILLED, COMPACTED, AND RESEEDED. AREAS OF BACK FILL TO CONTAIN A MIN. OF 3" OF TOP SOIL PRIOR TO RESEEDING, TYP.

CONCRETE APPARATUS APRON, TYP.

CONTROL JOINTS, TYP.

LANDSCAPE RIVER ROCK PLANTER BED OVER WEED BARRIER FABRIC, TYP.

10 / A111

4 / A111

BLUESTONE PAVER, TYP.

CAST-IN-PLACE CONCRETE STAIRS, TYP.

DN

PROPOSED BUILDING
F.F.E. = 541.00

ACCU UNIT MOUNTED TO CONCRETE PAD BY MECHANICAL PRIME CONTRACTOR, TYP.

VINYL FENCE ENCLOSURE, TYP.

CONCRETE EQUIPMENT PAD BY ELECTRICAL PRIME CONTRACTOR, TYP.

EXISTING LAWN TO REMAIN. WHERE TRENCHING / EARTH WORK OCCURS, EXISTING LAWN SHALL BE BACK FILLED, COMPACTED, AND RESEEDED. AREAS OF BACK FILL TO CONTAIN A MIN. OF 3" OF TOP SOIL PRIOR TO RESEEDING, TYP.

GAS METER, TYP.

RETAINING WALL, REFER TO CIVIL DWGS, TYP.

SIGHT LIGHTING AND LIGHT POLE MOUNTED TO CONCRETE BASE BY ELECTRICAL PRIME CONTRACTOR, TYP.

LANDSCAPE RIVER ROCK PLANTER BED, TYP.

CONCRETE SIDEWALK, TYP.

1 / A111

LANDSCAPE RIVER ROCK PLANTER BED, TYP.

OIL / WATER SEPARATOR BY PLUMBING PRIME CONTRACTOR, TYP.

REFLECTIVE STRIPING, TYP.

(15) PARKING SPACES EQUALLY SPACED

NEW BITUMINOUS PAVING, TYP.

PARKING LOT STRIPING, TYP.

(11) PARKING SPACES EQUALLY SPACED

(7) PARKING SPACES EQUALLY SPACED

(6) PARKING SPACES EQUALLY SPACED

CONCRETE APPARATUS APRON, TYP.

CONTROL JOINTS, TYP.

TRANSFORMER AND PAD BY ELECTRICAL PRIME CONTRACTOR, TYP.

TRENCH DRAIN BY 1a GENERAL PRIME CONTRACTOR, TYP.

WATER METER PIT BY 1A GENERAL PRIME CONTRACTOR, TYP.

ADA PARKING SIGNAGE, TYP.

WELSH ROAD

1 SITE DIAGRAM
1/16" = 1'-0"

STUDIOS
ARCHITECTURE + MASTER PLANNING
10839-D PHILADELPHIA RD
WHITE MARSH, MD 21162
(P) 410-344-1460
(F) 443-403-2460
(E) INFO@MWSARCH.COM
WWW.MWSARCH.COM

SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA.
LICENSE NUMBER: #RA405311
EXPIRATION DATE: 6-30-2023

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CUMRU FIRE DEPARTMENT
1775 WELSH ROAD
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER: 18-036
PROJECT SET: BID SET
DATE ISSUED: 11/30/2023

DRAWING TITLE: ARCHITECTURAL SITE DIAGRAM

SHEET NUMBER: A100

11/29/2023 11:40:14 AM