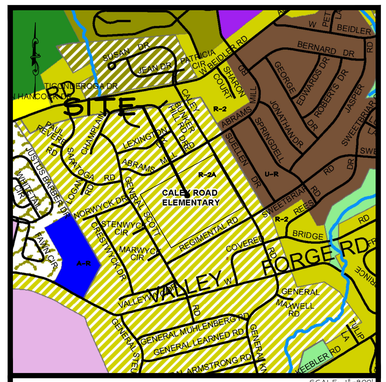
PRELIMINARY / FINAL LAND DEVELOPMENT PLANS
FOR
UPPER MERION AREA SCHOOL DISTRICT
CALEY ELEMENTARY SCHOOL

UPPER MERION TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

LOCATION MAP
SCALE: 1"=800'

TAX MAP
SCALE: 1"=800'



ZONING MAP
SCALE: 1"=800'

SHEET INDEX

LD - LAND DEVELOPMENT SHEET SET NUMBER
CD - CONSTRUCTION DOCUMENT SHEET SET NUMBER

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4	C1.1	DEMOLITION
5	C1.2	EXISTING FEATURES / DEMOLITION NOTES & DETAILS
6	C2.0	SITE
7	C2.1	SITE NOTES & DETAILS
8	C2.2	SITE NOTES & DETAILS
9	C3.0	GRADING & DRAINAGE
10	C3.1	GRADING & DRAINAGE DETAIL (NOT INCLUDED IN THIS SUBMISSION)
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12	C4.0	UTILITY
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19	C6.1	LANDSCAPE / LIGHTING NOTES & DETAILS
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22	C8.0	POST CONSTRUCTION STORM MANAGEMENT
23	C8.1	PCSM NOTES & DETAILS
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* NOT INCLUDED IN CCD SUBMISSION SET

SITE & ADJACENT PROPERTY OWNER'S LIST

PARCEL NO.	OWNER OF RECORD	DEED BK, PG
58-025L-001	RIGG, E HARRISON & ELIZABETH S	VOL. 4127, PG. 00518
58-025L-002	GLASGOW, CONCHITA Y & JOSEPH M	VOL. 5947, PG. 00280
58-025L-003	GRAB, GEOFFREY B & NINA L	VOL. 5799, PG. 00492
58-025L-004	SMITH, GLENN & MARISA	VOL. 5986, PG. 02707
58-025L-005	HOOVEN, JENNIFER MARIE	VOL. 5807, PG. 02873
58-025L-006	GARRISON, RUSSELL E	VOL. 5847, PG. 0937
58-025L-007	CHAPMAN, ROBERT J & JUDITH G	VOL. 5722, PG. 02345
58-025L-008	BECKER, STANLEY J & MILDRED E	VOL. 3392, PG. 00027
58-025L-009	KUPECKY, ROMAN & JULIA L	VOL. 5231, PG. 00585
58-025L-010	SHANNON, JOHN F & CHRISTINE	VOL. 4874, PG. 00721
58-025L-011	DEVONSHIRE, BRYAN & JANNE	VOL. 5330, PG. 01948
58-025Q-076	MARCHESE, KAMI R & WARREN E	VOL. 5779, PG. 02788
58-025Q-077	PATEL, RATILAL G & PRUDULA R	VOL. 4315, PG. 00024
58-025Q-078	CHU, EDWARD	VOL. 4769, PG. 01878
58-025Q-079	TAMANELLO, JOHN A & MARIANNE	VOL. 4013, PG. 00147
58-025Q-080	RADADS, EDWARD H & MARY P	VOL. 4042, PG. 00022
58-025Q-081	RHINDRESS, LIZA E & RICHARD J	VOL. 5424, PG. 02042
58-025Q-082	GRACE, JOHN J & JOANNE M	VOL. 4911, PG. 00296
58-025Q-083	LEHMAN, JOHN G JR & KAREN	VOL. 4776, PG. 01505
58-025Q-084	MCCAULEY JOHN L JR & LORETTA	VOL. 4044, PG. 00042
58-025Q-085	HALLS, SCOTT & HUNDER MEAGAN	VOL. 5901, PG. 01029
58-025Q-086	HARTON, RUTH	VOL. 5442, PG. 00120
58-025Q-029	CICHOWICZ, DAVID J & MELISSA B	VOL. 4849, PG. 00114
58-025Q-030	HINSON, CHARLES M & FELICIA M	VOL. 5774, PG. 02315
58-025Q-031	BARNADA, GENEROSA & ROSE	VOL. 3946, PG. 00001
58-025Q-032	TARONE, ANTHONY T JR	VOL. 4011, PG. 00455
58-025Q-033	DIPIETRO, ANTHONY P & MARY K	VOL. 3938, PG. 00023
58-025Q-034	APITACT, CATHERINE M	VOL. 5540, PG. 01754
58-025Q-035	GREENBAUM, HAROLD & MYRA	VOL. 4314, PG. 00550
58-025Q-036	KOFFS, STEVEN ERIC & CATHERINE K	VOL. 5016, PG. 00162
58-025Q-037	CHENG, HUI-MEN	VOL. 5752, PG. 02274
58-025Q-038	GINNONA, RONALD T & TRACI A	VOL. 5446, PG. 02332
58-025Q-039	WEAVER, JEFFREY L & SANDRA E	VOL. 4863, PG. 00969
58-025Q-040	WISNIEWSKI, MARK A & LAUREEN	VOL. 5407, PG. 02330
58-025R-063	BECATTINI, FERNANDO & MARY	VOL. 4043, PG. 00403

SITE & ADJACENT ZONING DISTRICTS

DESIGNATION	ZONING CLASSIFICATION
A-R	ADMINISTRATIVE & RESEARCH
R-2	RESIDENTIAL
R-2A	RESIDENTIAL
U-R	UNIT RESIDENTIAL

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO. 20161603196.

APPLICANT/OWNER:
UPPER MERION AREA SCHOOL DISTRICT
435 CROSSFIELD ROAD
KING OF PRUSSIA, PA 19406

ARCHITECT:
SCHRADERGROUP ARCHITECTURE, LLC
161 LEVERINGTON AVENUE, SUITE 105
PHILADELPHIA, PA 19127

SITE/CIVIL ENGINEER:
RENEW DESIGN GROUP
121 NORTH MAIN STREET, SUITE 301
SOUDERTON, PA 18964

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Structural:
SchraderGroup
1860 Charter Lane, Suite 206
Lancaster, Pennsylvania 17601
p: 717.299.8965

Owner:
Upper Merion Area School District
435 Crossfield Road
King of Prussia, PA 19406

New Construction of:
Caley Elementary School
725 Caley Road
King of Prussia, PA 19406

ISSUED FOR:

NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

Drawing Title:
COVER

Drawing Number: 1 of 25

ABRAMS MILLS ROAD
CALEY ROAD
REGIMENTAL ROAD
SWEETBRIAR ROAD
N60°55'30"E
(DEED N60°30'00"E)
1063.74'
S45°00'00"E
(MUNICIPAL ROAD)
(MUNICIPAL ROAD)
(MUNICIPAL ROAD)

BASE LEGEND

EXISTING SYMBOL	DESCRIPTION
340	INDEX CONTOUR
339	CONTOUR
+ 355.49	SPOT ELEVATION
BM=100.00	SITE BENCHMARK
	STEEP SLOPES (8 to 15%)
	STEEP SLOPES (15 to 25%)
	VERY STEEP SLOPES (> 25%)
	MAILBOX
	WALL
GeB2	SOIL NAME / BOUNDARY
PT PT PT PT PT PT	PERC TEST, TEST PIT, MONITORING WELL
	ADJOINING PROPERTY LINE
	PROPERTY LINE
	IRON PIN, MONUMENT, NAIL
	BUILDING
	DRIVEWAY
	CURB
	CARTWAY/EDGE OF PAVEMENT
	ROAD CENTERLINE
DTL	STRIPING
	ACCESSIBLE PARKING
	LEGAL RIGHT-OF-WAY
	ROAD SIGN
	WHEEL STOP
	SIDEWALK
	ACCESSIBLE CURB RAMP
	EASEMENT
OU OU	OVERHEAD WIRES
OE OE	OVERHEAD ELECTRIC
E E	UNDERGROUND ELECTRIC
OT OT	OVERHEAD TELEPHONE
T T	UNDERGROUND TELEPHONE
	UTILITY POLE
	GUY WIRE
	LIGHT POLE
G G	GAS MAIN
GV	GAS VALVE
SAN	SANITARY SEWER MAIN
CO	SANITARY SEWER CLEANOUT
	VENT
	STORM SEWER
RD	ROOF DRAINS
W W	WATER MAIN
WV	WATER VALVE
	FIRE HYDRANT
	TREE, SHRUB
	CHAIN LINK FENCE

EXISTING EASEMENT SCHEDULE

TITLE SEARCH; WILL BE SHOWN ON PLAN AS (X)

(A) 1964 STORM SEWER EASEMENT

(B) 1983 BELL OF PA., DEED BOOK 4724, PAGE 900; SEE PLAN FOR BELL BOX

(C) 1986 BELL OF PA., DEED BOOK 4899, PAGE 866; LINE ALONG SOUTHERN FENCE

(D) 1991 BELL OF PA., DEED BOOK 4969, PAGE 2064; RELEASE FROM ITEM B AS LISTED HERE

(E) 2007 RESOLUTION, DEED BOOK 20, PAGE 1645; ADMINISTRATIVE

(F) 1964 PLAN SHOWS 10 FOOT WIDE UTILITY AND DRAINAGE EASEMENT ALONG SOUTHERN PROPERTY LINE; REFERENCE PLAN AS STATED IN NOTE 7B. NO EVIDENCE IN TITLE SEARCH.

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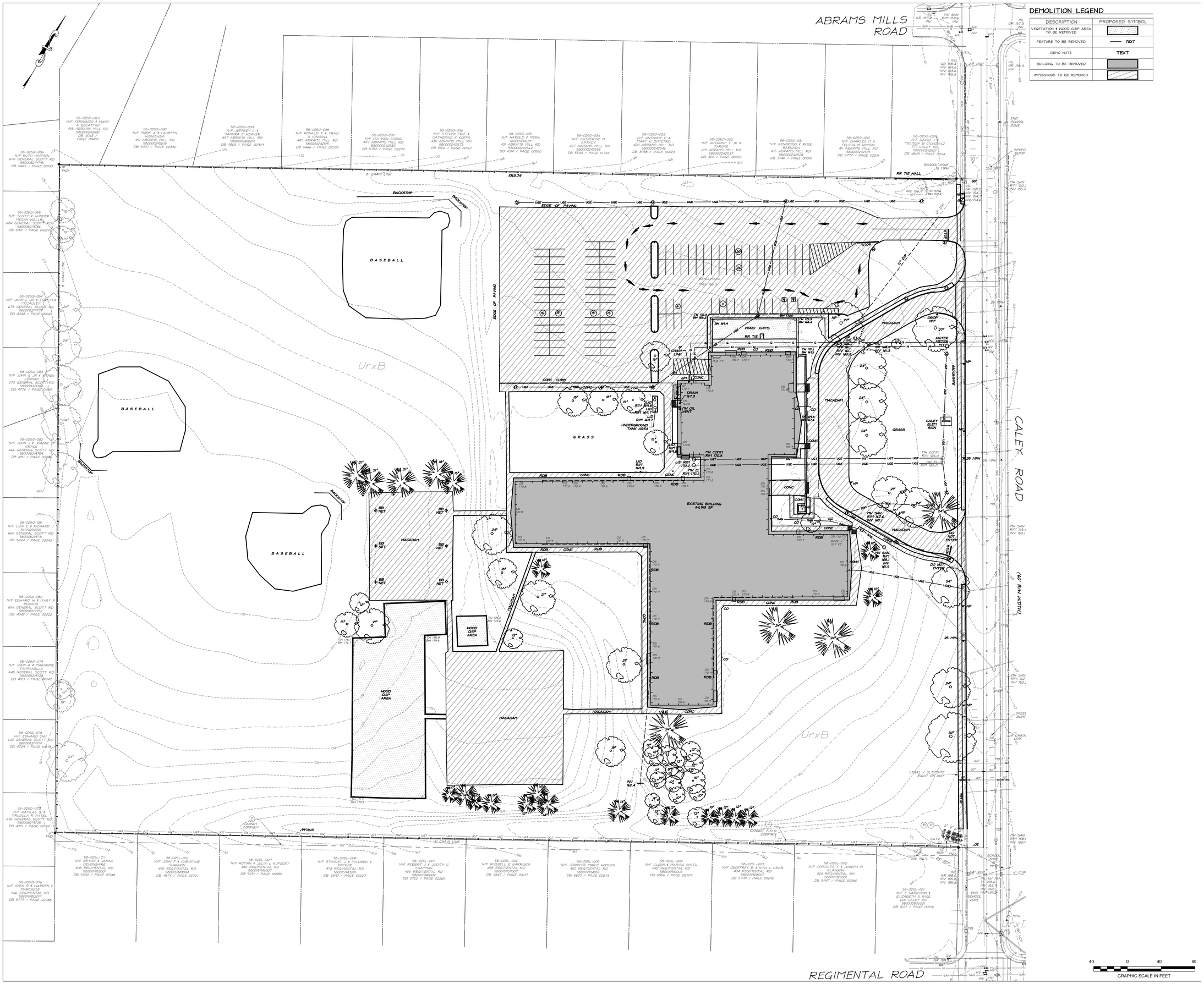
SGA PROJECT NUMBER: 15-022

Drawing Title:

EXISTING FEATURES

Drawing Number: 3 of 25

C1.0



DEMOLITION LEGEND

DESCRIPTION	PROPOSED SYMBOL
VEGETATION & WOOD CHIP AREA TO BE REMOVED	
FEATURE TO BE REMOVED	TEXT
DEMO NOTE	TEXT
BUILDING TO BE REMOVED	
IMPERVIOUS TO BE REMOVED	

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SGA PROJECT NUMBER: 15-022

Drawing Title:

DEMOLITION

Drawing Number: 4 of 25

C1.1

EXISTING DATA SOURCES

1. SURVEY DATA:

   BOUNDARY INFORMATION SHOWN HEREON IS TAKEN FROM A PLAN PREPARED BY TUNDILL LAND SURVEYING LLC DATED 6/22/16, AND IS BASED UPON A FIELD SURVEY PERFORMED IN JUNE 2016. BOUNDARY DELINEATION WAS BASED ON DEEDS, PLANS OF RECORD, & PHYSICAL EVIDENCE LOCATED AT THE TIME OF THE SURVEY AND WITHOUT THE BENEFIT OF A TITLE REPORT. THE PROPERTY IS SUBJECT TO ANY EASEMENT, RIGHT-OF-WAY, OR OTHER ENCUMBRANCE THAT A COMPREHENSIVE TITLE SEARCH MAY DISCLOSE. LOCATIONS OF EXISTING STRUCTURES AND FACILITIES SHOWN HEREON HAVE BEEN FIELD LOCATED. UNDERGROUND UTILITIES ARE SHOWN ONLY TO THE EXTENT OF VISIBLE SURFACE STRUCTURES THAT WERE EVIDENT AT THE TIME OF THE SURVEY.

   THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988.

   THE MERIDIAN UTILIZED FOR THIS PLAN IS BASED UPON THE PENNSYLVANIA STATE PLANE COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1983 - SOUTH ZONE.

2. WETLANDS / WATERS OF THE COMMONWEALTH / WATERS OF THE UNITED STATES:

   NO SUCH AREAS EXIST ON SITE.

3. FLOODPLAINS:

   AS DEPICTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM) #42091C0532G, EFFECTIVE DATE MARCH 2, 2016, 100-YEAR FLOOD LIMITS ARE NOT CONTAINED WITHIN THE SUBJECT TRACT.

4. GEOLOGIC FORMATIONS:

   AS DERIVED FROM HTTP://SOILMAP.PSU.EDU IN MARCH 2016, THE SUBJECT TRACT HAS BEEN DETERMINED TO CONTAIN THE FOLLOWING FORMATIONS:

   STOCKTON FORMATION

5. SOILS:

   SOILS DATA SHOWN HEREON TAKEN FROM THE SOIL SURVEY GEOGRAPHIC (SSURGO) COVERAGE FOR MONTGOMERY COUNTY, PENNSYLVANIA, AS PREPARED FOR THE U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, DATED JUNE 6, 2016. THE SOILS ON-SITE INCLUDE:

   UrvB - URBAN LAND - PENN COMPLEX
   UrvD - URBAN LAND - PENN COMPLEX

6. UTILITY OWNER ONE CALL RESPONDERS:

   AT&T ATLANTA
   COMCAST CABLEVISION
   UPPER MERION TWP
   UPPER MERION TWP MUNICIPAL UTIL AUTH
   COMCAST
   AQUA PENNSYLVANIA INC
   PECO ENERGY C/O USIC
   TERRADEX, INC
   VERIZON PENNSYLVANIA LLC

DEMOLITION NOTES

1. ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AS WELL AS ALL FEDERAL, STATE AND LOCAL REGULATIONS. ANY DISCREPANCIES OR DEVIATIONS IDENTIFIED BY THE CONTRACTOR SHALL BE REPORTED TO THE ENGINEER IN WRITING FOR RESOLUTION PRIOR TO INITIATION OF ACTIVITY.
2. THE firm OR ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. CONTRACTOR IS TO PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, FOLLOWING ALL THE OSHA REQUIREMENTS AND OTHER FEDERAL, STATE, AND LOCAL REGULATIONS, TO ENSURE THE PUBLIC AND CONTRACTOR SAFETY.
3. PRIOR TO STARTING ANY DEMOLITION CONTRACTOR IS RESPONSIBLE FOR/TO:
   A. ENSURE COPIES OF ALL PERMITS AND APPROVALS ARE ON SITE FOR REVIEW.
   B. THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO SITE DISTURBANCE.
   C. ALL EXISTING UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLES, ETC., WITHIN THE LIMITS OF DISTURBANCE, SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.
   D. PROTECT AND MAINTAIN IN OPERATION, ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED DURING DEMOLITION ACTIVITIES.
   E. FAMILIARIZE THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AND RELOCATION AS IDENTIFIED OR REQUIRED FOR PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.
   F. COORDINATE WITH UTILITY COMPANIES REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT OF THE AFFECTED PARTIES.
   G. A COMPLETE INSPECTION FOR CONTAMINANTS, BY A LICENSED ENVIRONMENTAL TESTING AGENCY, OF ALL BUILDINGS AND/OR STRUCTURES TO BE REMOVED SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL ENVIRONMENTAL REGULATIONS. ALL CONTAMINANTS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL, STATE, AND LOCAL REGULATIONS. ALL ENVIRONMENTAL WORK INCLUDING HAZARDOUS MATERIAL SOILS, ASBESTOS, OR OTHER REFERENCED OR IMPLIED HEREIN IS SOLELY THE RESPONSIBILITY OF THE OWNER'S ENVIRONMENTAL CONSULTANT.
4. THE CONTRACTOR SHALL PROVIDE ALL THE "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES AND ANY OTHER IMPROVEMENTS TO REMAIN ON OR OFF SITE.
5. IN ABSENCE OF SPECIFIC SPECIFICATION, THE CONTRACTOR SHALL PERFORM EARTH MOVING ACTIVITIES, DEMOLITION AND REMOVAL OF ALL FOUNDATION WALLS, FOOTINGS, AND OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH DIRECTION BY OWNER'S GEOTECHNICAL ENGINEER.
6. EXPLOSIVES SHALL NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF BOTH THE OWNER AND APPLICABLE GOVERNMENTAL AUTHORITIES. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL PROGRAMS ARE REQUIRED BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS SHALL BE IN PLACE PRIOR TO STARTING AN EXPLOSIVE PROGRAM. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES.
7. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL," AS WELL AS FEDERAL, STATE, AND LOCAL REGULATIONS WHEN DEMOLITION RELATED ACTIVITIES IMPACT ROADWAYS OR ROADWAY RIGHT-OF-WAYS.
8. CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND OTHER ADJACENT FACILITIES. STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY.
9. DEMOLITION ACTIVITIES AND EQUIPMENT SHALL NOT USE AREAS OUTSIDE THE DEFINED PROPERTY LINES, WITHOUT WRITTEN PERMISSION OF THE OWNER, AND/OR APPROPRIATE GOVERNMENT AGENCY.
10. USE DUST CONTROL MEASURES TO LIMIT THE AMOUNT OF AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR, TO WITHIN FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, ADJACENT STRUCTURES AND IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION" CONDITION.
11. CONTRACTOR IS RESPONSIBLE TO SAFEGUARD SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF PERSONS AT ANY TIME.
12. THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED AS PART OF THE PROJECT. THE CONTRACTOR IS TO ENSURE THAT ALL METHODS AND TOOLS ARE TO BE IN ACCORDANCE WITH STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.
13. THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF HIS ACTIVITIES. ALL REPAIRS SHALL USE NEW MATERIAL. THE REPAIRS SHALL RESTORE THE ITEM TO THE PRE-DEMOLITION CONDITION.
14. DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES. CONTRACTOR SHALL DETERMINE THE SITE(S) FOR DISPOSAL OF MATERIALS REMOVED FROM THE SITE OFFSITE IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, AND LAWS.
15. THE CONTRACTOR SHALL COORDINATE SERVICE SHUTOFF AND DISCONNECT/REMOVAL PROCEDURES WITH EACH RESPECTIVE UTILITY COMPANY FOR THE EXISTING UTILITIES SHOWN TO BE REMOVED.
16. THE DEMOLITION PLAN IS NOT INTENDED TO SHOW EROSION CONTROL MEASURES. FOR SUCH GUIDELINES AND DETAILS, SEE THE EROSION AND SEDIMENT CONTROL PLAN AND DETAILS.

TREE PROTECTION NOTES

1. GRADE CHANGES AND EXCAVATION SHALL NOT ENCROACH UPON THE TREE PROTECTION ZONE.
2. NO TOXIC MATERIALS SHALL BE STORED WITHIN ONE HUNDRED (100) FEET OF A TREE PROTECTION ZONE, INCLUDING PETROLEUM-BASED AND/OR -DERIVED PRODUCTS.
3. THE AREA WITHIN THE TREE PROTECTION ZONE SHALL NOT BE BUILT UPON, NOR SHALL ANY MATERIALS BE STORED THERE EITHER TEMPORARILY OR PERMANENTLY. VEHICLES AND EQUIPMENT SHALL NOT BE PARKED IN THE TREE PROTECTION ZONE.
4. WHEN TREE STUMPS ARE LOCATED WITHIN TEN (10) FEET OF THE TREE PROTECTION ZONE, THE STUMPS SHALL BE REMOVED BY MEANS OF A STUMP GRINDER TO MINIMIZE THE EFFECT ON SURROUNDING ROOT SYSTEMS.
5. TREE ROOTS WHICH MUST BE SEVERED SHALL BE CUT WITH HAND OR SHARP POWER SAW METHODS ALIGNED RADIALLY. THIS METHOD REDUCES THE LATERAL MOVEMENT OF THE ROOTS DURING EXCAVATION, WHICH IF DONE BY OTHER METHODS COULD DAMAGE THE INTERTWINED ROOTS OF ADJACENT TREES.
6. WITHIN FOUR (4) HOURS OF ANY SEVERANCE OF ROOTS, ALL TREE ROOTS THAT HAVE BEEN EXPOSED AND/OR DAMAGED SHALL BE TRIMMED CLEANLY AND COVERED TEMPORARILY WITH MOIST PEAT MOSS, MOIST BURLAP OR OTHER MOIST BIODEGRADABLE MATERIAL TO KEEP THEM FROM DRYING OUT UNTIL PERMANENT COVER CAN BE INSTALLED.
7. TREES SHALL NOT BE USED FOR ROPING, CABLES, SIGNS OR FENCING. NAILS AND SPIKES SHALL NOT BE DRIVEN INTO TREES.
8. PRIOR TO CONSTRUCTION, THE TREE PROTECTION ZONE SHALL BE DELINEATED BY THE FOLLOWING METHODS:
   A. THE TREE PROTECTION ZONE THAT IS DELINEATED ON THE SITE PRIOR TO CONSTRUCTION SHALL CONFORM TO THE APPROVED DEVELOPMENT PLANS.
   B. ALL TREES SCHEDULED TO REMAIN SHALL BE MARKED; WHERE GROUPS OF TREES EXIST, ONLY THE TREES ON THE EDGE NEED TO BE MARKED.
   C. A FORTY-EIGHT-INCH-HIGH ORANGE BARRIER FENCE MOUNTED ON POSTS, LOCATED EIGHT (8) FEET ON CENTER, SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE.
   D. IN ADDITION TO THE TREE PROTECTION ZONE, TREES MAY BE LEFT STANDING AS PROTECTION BETWEEN THE TRUNKS OF THE TREES TO BE RETAINED AND THE LIMITS OF GRADING. WHEN ADDITIONAL TREES ARE USED AS PROTECTION, THE TREE PROTECTION ZONE ON THE APPROVED PLAN SHALL BE MARKED IN THE FIELD SO THAT THE ADDITIONAL BUFFER AREA IS DELINEATED. WHEN THIS METHOD OF PROTECTION IS USED, THESE ADDITIONAL TREES SHALL BE REMOVED AT THE TIME OF COMPLETION OF THE PROJECT.
   E. WHEN THE BARRIER FENCE HAS BEEN INSTALLED, IT SHALL BE INSPECTED AND APPROVED BY THE MUNICIPAL ENGINEER PRIOR TO COMMENCING CLEARING AND CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE MAINTAINED UNTIL ALL WORK/CONSTRUCTION HAS BEEN COMPLETED. ANY DAMAGES TO THE FENCING DURING WORK SHALL BE REPAIRED OR REPLACED BEFORE FURTHER CONSTRUCTION OCCURS.
   F. TREES BEING REMOVED SHALL NOT BE FELLED, PUSHED OR PULLED INTO A TREE PROTECTION ZONE OR INTO TREES THAT ARE TO BE RETAINED.

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King of Prussia, PA 19406

New Construction of:
Caley Elementary School
725 Caley Road
King of Prussia, PA 19406

ISSUED FOR:

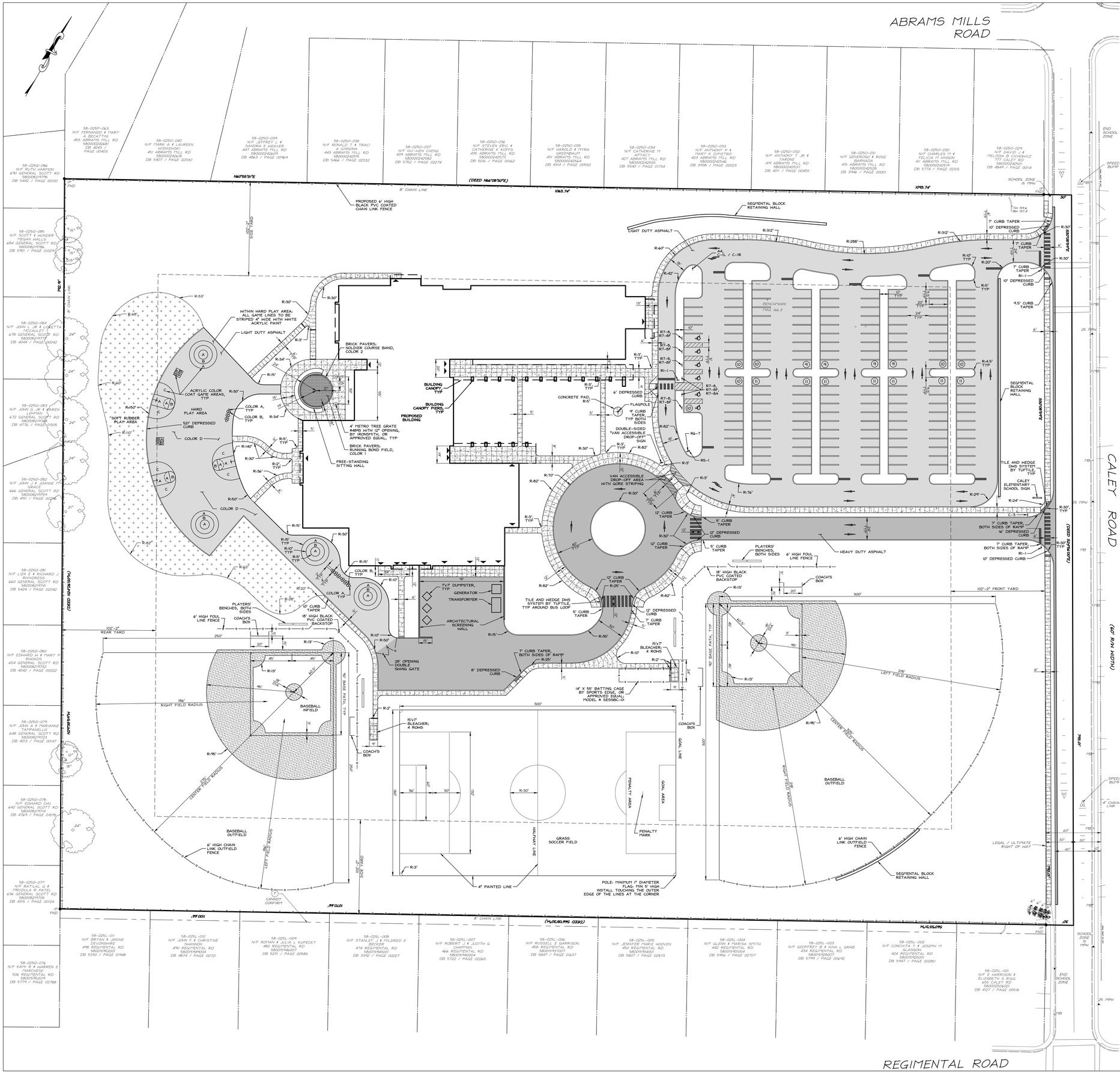
NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

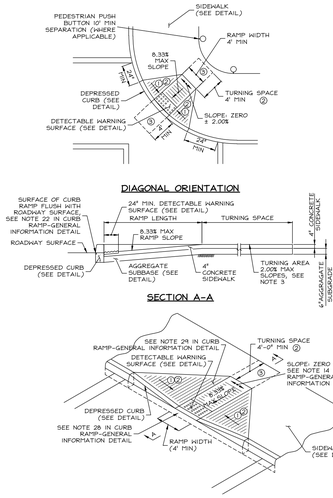
DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

Drawing Title:
EXISTING FEATURES / DEMOLITION NOTES & DETAILS

Drawing Number: 5 of 25

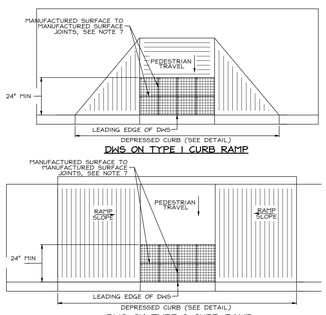
C1.2


ABRAMS MILLS ROAD
CALEY ROAD
REGIMENTAL ROAD
PROPOSED BUILDING
HARD PLAY AREA
BASEBALL INFIELD
BASEBALL OUTFIELD
GRASS SOCCER FIELD
PLAYERS' BENCHES, BOTH SIDES
COACH'S BOX
DUMPSTER, TYP
GENERATOR
TRANSFORMER
ARCHITECTURAL SCREENING WALL
LIGHT DUTY ASPHALT
HEAVY DUTY ASPHALT
SEGMENTAL BLOCK RETAINING WALL
PROPOSED 6' HIGH BLACK PVC COATED CHAIN LINK FENCE
6' HIGH CHAIN LINK OUTFIELD FENCE
28' OPENING DOUBLE SWING GATE
14' X 55' BATTING CAGE BY SPORTS EDGE, OR APPROVED EQUAL; MODEL # SES58C-01
POLE: MINIMUM 1" DIAMETER FLAG; MIN 5' HIGH INSTALL TOUCHING THE OUTER EDGE OF THE LINES AT THE CORNER
4" PAINTED LINE
PENALTY MARK
PENALTY AREA
GOAL AREA
GOAL LINE
HALFWAY LINE
CENTER FIELD RADIUS
RIGHT FIELD RADIUS
LEFT FIELD RADIUS
LEGAL / ULTIMATE RIGHT OF WAY
SCHOOL ZONE 15 MPH
END SCHOOL ZONE
SPEED BUMP
REAR YARD
FRONT YARD
SIDE YARD
102'-2" REAR YARD
102'-2" SIDE YARD
102'-2" FRONT YARD
N46°55'51"E
(DEED N46°08'30"E)
1063.74'
8' CHAIN LINK
4' CHAIN LINK
(60' R.O.W. WIDTH)
(VARIABLE WIDTH)
(VARIABLE WIDTH PER DEED)
(VARIABLE WIDTH PER DEED)
(VARIABLE WIDTH PER DEED



CURB RAMP - TYPE I

NOT TO SCALE

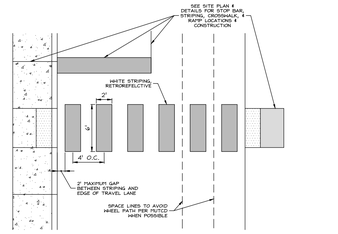


NOTES:

1. CONSTRUCT NOTCH AS SHOWN TO PROVIDE FULL THICKNESS SIDEWALK UNDER DETECTABLE WARNING.
2. THE "D" DIMENSION SHALL BE 60% TO 65% OF THE "B" DIMENSION.
3. DETECTABLE WARNING SURFACES SHALL COMPLY WITH ALL REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND PENNDOT PUBLICATION 72M - RCSTM.
4. DETECTABLE WARNINGS SHALL BE PROVIDED AT ALL LOCATIONS WHERE A PEDESTRIAN WALK CROSSES OR ADJOINS A VEHICULAR WAY AND THE WALKING SURFACES ARE NOT SEPARATED BY CURBS, RAILINGS, OR OTHER ELEMENTS.
5. DETECTABLE WARNINGS SHALL BE ARMOR-TILE (TM) TACTILE SYSTEM - CAST IN PLACE SYSTEM, OR APPROVED EQUAL (WWW.ARMOR-TILE.COM).
6. DETECTABLE WARNING SHALL BE RED IN COLOR NO. 36118. COLORS SHALL BE SUBMITTED FOR OWNER'S APPROVAL PRIOR TO ORDERING MATERIAL.
7. PLACE ADJACENT DWS TILES WITH MANUFACTURED SURFACE TO MANUFACTURED SURFACE. CUT TILES ALONG THE PERIMETER ONLY.

DETECTABLE WARNING SURFACE

NOT TO SCALE

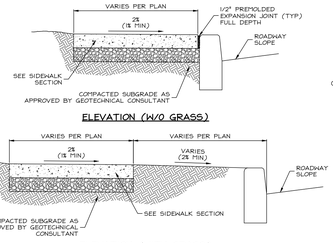


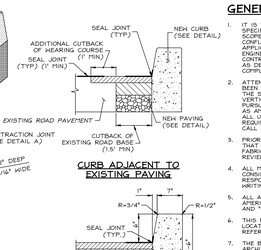
NOTES:

1. ALL DIMENSIONS AND LAYOUTS SHALL BE PER THE LATEST COPY OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

STRIPING - CROSSWALK

NOT TO SCALE



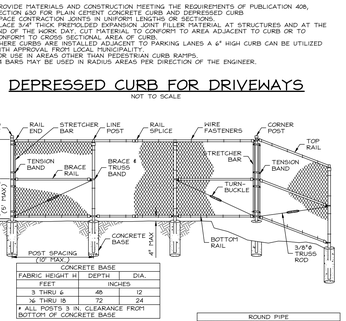


NOTES:

1. CONCRETE SHALL BE PENNDOT CLASS A - MINIMUM.
2. 3/4" PREMOLDED EXPANSION JOINTS SHALL BE PLACED AT STRUCTURES AND AT THE END OF THE WORK DAY.
3. FLEXIBLE FORMS SHALL BE REQUIRED FOR ALL CURB RADII WITH A RADIUS OF LESS THAN 150 FEET.
4. WHERE THE SUBGRADE IS SOFT OR SPONGY, AS DETERMINED BY THE MUNICIPAL ENGINEER, A LAYER OF CRUSHED STONE NOT LESS THAN 4" THICK SHALL BE PLACED UNDER THE CURB.
5. SEAL JOINT WITH 1" WIDE PG64-22 SEALANT OR APPROVED EQUAL (2" UP FACE OF CURB, 10" AWAY FROM CURB).
6. ALL EXPOSED CONCRETE SHALL BE SEALED WITH AQURON CPT-2000 OR APPROVED EQUAL.

CURB - CONCRETE

NOT TO SCALE



NOTES:

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 630 FOR PLAIN CEMENT CONCRETE CURB AND DEPRESSED CURB.
2. SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
3. PLACE 3/4" THICK PREMOLDED EXPANSION JOINT FILLER MATERIAL AT STRUCTURES AND AT THE END OF THE WORK DAY. CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS SECTIONAL AREA OF CURB.
4. WHERE CURBS ARE INSTALLED ADJACENT TO PARKING LANES A 6" HIGH CURB CAN BE UTILIZED WITH APPROVAL FROM LOCAL MUNICIPALITY.
5. FOR USE IN AREAS OTHER THAN PEDESTRIAN CURB RAMPS.
6. #4 BARS MAY BE USED IN RADIUS AREAS PER DIRECTION OF THE ENGINEER.

DEPRESSED CURB FOR DRIVEWAYS

NOT TO SCALE

NOTES:

1. ALL CONSTRUCTION, MATERIALS, METHODS OF CONSTRUCTION AND CONTROL OF WORK TO BE GOVERNED BY THE CURRENT EDITION OF PENNDOT SPECIFICATIONS, PUBLICATION 408.
2. PLACE 1/2" PREMOLDED EXPANSION JOINT MATERIAL FOR THE FULL DEPTH OF THE SIDEWALK AT 30' INTERVALS OPPOSITE EXPANSION JOINTS IN ADJACENT CURB, BETWEEN THE SIDEWALK AND CURB AND BETWEEN THE SIDEWALK AND ANY RIGID STRUCTURES.
3. FORMT TRANSVERSE CONTROL JOINTS AT 5 FOOT INTERVALS, APPROXIMATELY 1/8" WIDE AND AT LEAST 1" DEEP OR PER SCORING DETAIL PLANS WHEN PROVIDED.
4. ALL EXPOSED CONCRETE SHALL BE SEALED WITH AQURON CPT-2000 OR APPROVED EQUAL.
5. EXISTING CONCRETE TO BE REMOVED, ADJACENT TO EXISTING CONCRETE TO REMAIN, SHALL BE SAW CUT FULL DEPTH AT AN EXISTING CONTROL JOINT.
6. FOR USE WITHIN PEDESTRIAN TRAVEL AREAS.

SIDEWALK - CONCRETE

NOT TO SCALE

CONCRETE BASE		
FABRIC HEIGHT H	DEPTH	DIA.
FEET	INCHES	
3 THRU 6	48	12
36 THRU 18	72	24

* ALL POSTS 3 IN. CLEARANCE FROM BOTTOM OF CONCRETE BASE

ROLL-FORMED STEEL			
PART	SIZE	THICKNESS	WEIGHT
	INCHES	GAGE	LB./FT.
TOP & BRACE RAILS	1.250 x 1.625	14	2.0800
LINE POST (H = 3FT - 6FT)	1.875 x 1.625	12	2.7500
LINE POST (H = 7FT - 8FT)	1.875 x 1.625	11	3.3600
LINE POST (H = 10FT - 12FT)	2.250 x 1.625	11	4.0200
END, CORNER & LINE BRACE POSTS	3.50 x 3.50	10	7.5900

ROUND PIPE			
NOMINAL I.D.	O.D.	WALL THICK.	WEIGHT
INCHES			LB./FT.
1.2500	1.6600	0.1400	2.2700
1.5000	1.9000	0.1450	2.7200
2.0000	2.3750	0.1540	3.6500
2.5000	2.8750	0.2030	5.7900
3.0000	3.5000	0.2160	7.5800
3.5000	4.0000	0.2260	9.1000
4.0000	4.5000	0.2370	10.7900
5.0000	5.5630	0.2580	14.6200
6.0000	6.6250	0.2800	18.9700
8.0000	8.6250	0.3220	28.5500

FENCE MATERIAL								
FABRIC HEIGHT	END, CORNER & LINE BRACE POSTS		LINE POSTS		TOP & BRACE RAILS			
H	ROUND PIPE I.D.	ROLL-FORMED STEEL	ROUND PIPE I.D.	ROLL-FORMED STEEL	ROUND PIPE I.D.	ROLL-FORMED STEEL		
FEET	INCHES							
3 THRU 6	2.5000	3.5 x 3.5	1.5000	1.875 x 1.625	1.2500	1.25 x 1.625		
36 THRU 8	2.5000	3.5 x 3.5	2.0000	1.875 x 1.625	1.2500	1.25 x 1.625		
38 THRU 12	2.5000	3.5 x 3.5	2.0000	1.875 x 1.625	1.2500	1.25 x 1.625		

NOTES:

1. H (HEIGHT OF FABRIC) SHALL BE AS SHOWN ON THE PLANS.
2. CHAIN LINK FENCE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 181.
3. CHAIN LINK FABRIC SHALL BE 2" MESH NO. 9 GAGE GALVANIZED OR ALUMINUM COATED WIRE SECURELY FASTENED TO TENSION WIRE, LINE POSTS, RAILS, BRACES, AND STRETCHER BARS SPACED AS SHOWN HEREON. TENSION WIRE, FASTENERS, AND TIE CLIPS SHALL BE NO. 11 GAGE ALUMINUM WIRE, AND HOG RINGS SHALL BE NO. 9 GAGE, ALL IN CONFORMANCE WITH ASTM F 626.
4. ATTACH FABRIC TO ALL FENCE AND GATE STRUCTURES AT 12" INTERVALS VERTICALLY AND AT 20" HORIZONTALLY.
5. STEEL POSTS, RAILS, AND GATE FRAMES SHALL CONFORM TO AASHTO M 181 TYPE I, GRADE 1 OR GRADE 2.
6. TENSION WIRE SHALL BE CONTINUOUS BETWEEN END OR CORNER POST AND LINE BRACE POST. A TURNBUCKLE OR OTHER APPROVED TIGHTENING DEVICE SHALL BE USED FOR EACH CONTINUOUS SPAN OF TENSION WIRE.
7. TENSION WIRE SHALL BE AS SPECIFIED IN AASHTO M 181.
8. CONCRETE FOOTINGS SHALL HAVE TOPS CROWNED AT GROUND LEVEL AND SHALL BE PENNDOT CLASS B.
9. CHAIN LINK FABRIC SHALL BE KNUCKLED AT THE TOP AND BOTTOM SELVAGES.
10. BRACE RAIL WILL NOT BE REQUIRED FOR 36", 42" OR 48" FABRIC HEIGHTS. BRACE RAIL FOR FENCE WITH ROLL-FORMED STEEL ELEMENTS IS 12" BELOW THE TOP RAIL.
11. FENCE MAY BE CONSTRUCTED WITH EITHER ROUND PIPE OR ROLL-FORMED STEEL COMPONENTS.
12. FINISH (MESH, POSTS, AND RAIL): **THERMALLY FUSED & BONDED BLACK PVC COATED**.

FENCE - CHAIN LINK

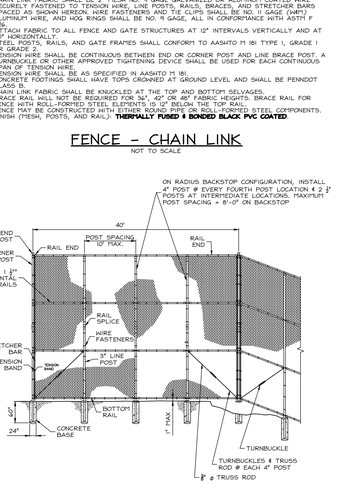
NOT TO SCALE

NOTES:

1. GRADING THROUGH A.D.A. PARKING AREAS SHALL NOT EXCEED 2% IN ANY DIRECTION.
2. CURB STOPS MAY NOT EXTEND INTO ANY PORTION OF THE PARKING SPACE OR ASSOCIATED ACCESS AISLE.
3. CURB RAMPS, PAVEMENT MARKINGS, AND APPLICABLE SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST A.D.A. ACCESSIBLE GUIDELINES.

PARKING SPACE

NOT TO SCALE



NOTES:

1. HEIGHT SHALL BE 18' HIGH, AS SHOWN ON PLANS.
2. CHAIN LINK FENCE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 181.
3. CHAIN LINK FABRIC SHALL BE 2" MESH NO. 9 GAGE GALVANIZED WIRE SECURELY FASTENED TO TENSION WIRE, LINE POSTS, RAILS, BRACES, AND STRETCHER BARS SPACED AS SHOWN HEREON. TENSION WIRE, FASTENERS, AND TIE CLIPS SHALL BE NO. 11 GAGE ALUMINUM WIRE, AND HOG RINGS SHALL BE NO. 9 GAGE, ALL IN CONFORMANCE WITH ASTM F 626.
4. ATTACH FABRIC TO ALL FENCE AND GATE STRUCTURES AT 12" INTERVALS VERTICALLY AND AT 20" HORIZONTALLY.
5. STEEL POSTS, AND RAILS SHALL CONFORM TO AASHTO M 181 TYPE I, GRADE 1 OR GRADE 2.
6. TENSION WIRE SHALL BE CONTINUOUS BETWEEN END OR CORNER POST AND LINE BRACE POST. A TURNBUCKLE OR OTHER APPROVED TIGHTENING DEVICE SHALL BE USED FOR EACH CONTINUOUS SPAN OF TENSION WIRE.
7. TENSION WIRE SHALL BE AS SPECIFIED IN AASHTO M 181.
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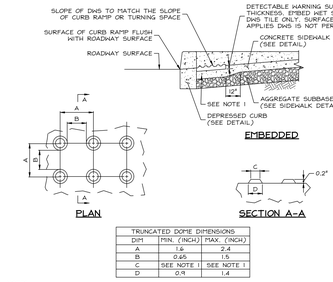
9. CHAIN LINK FABRIC SHALL BE KNUCKLED AT THE TOP AND BOTTOM SELVAGES.
10. FENCE MAY BE CONSTRUCTED WITH EITHER ROUND PIPE OR ROLL-FORMED STEEL COMPONENTS.
11. FINISH SHALL BE AS FOLLOWS PER SPECIFICATION (MESH, POSTS, RAIL): THERMALLY FUSED & BONDED BLACK PVC COATED.

BACKSTOP

NOT TO SCALE



TRUNCATED DOME DIMENSIONS		
DIM	MIN. (INCH)	MAX. (INCH)
A	1.6	2.4
B	0.65	1.5
C	SEE NOTE 1	SEE NOTE 1
D	0.9	1.4

NOTES:

1. CONSTRUCT NOTCH AS SHOWN TO PROVIDE FULL THICKNESS SIDEWALK UNDER DETECTABLE WARNING.
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4. DETECTABLE WARNINGS SHALL BE PROVIDED AT ALL LOCATIONS WHERE A PEDESTRIAN WALK CROSSES OR ADJOINS A VEHICULAR WAY AND THE WALKING SURFACES ARE NOT SEPARATED BY CURBS, RAILINGS, OR OTHER ELEMENTS.
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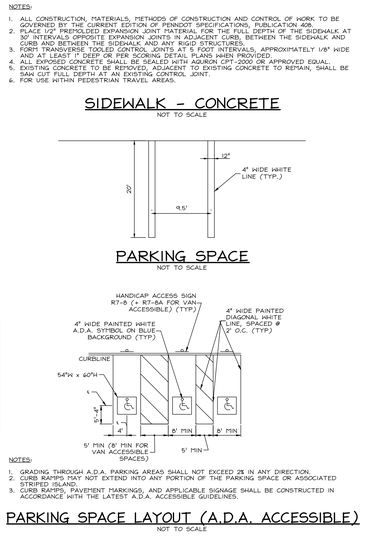
6. DETECTABLE WARNING SHALL BE RED IN COLOR NO. 36118. COLORS SHALL BE SUBMITTED FOR OWNER'S APPROVAL PRIOR TO ORDERING MATERIAL.
7. PLACE ADJACENT DWS TILES WITH MANUFACTURED SURFACE TO MANUFACTURED SURFACE. CUT TILES ALONG THE PERIMETER ONLY.

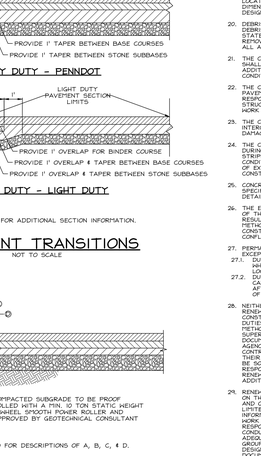


NOTES:

1. ALL DIMENSIONS AND LAYOUTS SHALL BE PER THE LATEST COPY OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
2. IF NO MARKED CROSS WALK IS TO BE INSTALLED, THE FRONT EDGE OF THE STOP BAR SHALL BE NO LESS THEN 4 FEET FROM THE NEAREST EDGE OF THE INTERSECTING TRAVELLED WAY.

STRIPING - STOP BAR

NOT TO SCALE

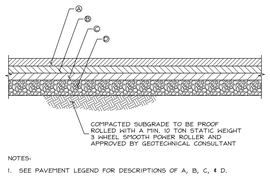


NOTES:

1. SEE DETAILED PAVEMENT SECTIONS FOR ADDITIONAL SECTION INFORMATION.

PAVEMENT TRANSITIONS

NOT TO SCALE



NOTES:

1. SEE PAVEMENT LEGEND FOR DESCRIPTIONS OF A, B, C, & D.

PAVEMENT - FLEXIBLE

NOT TO SCALE

RESIDENTIAL DRIVEWAYS:

- (A) SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 0.0 TO <0.3 MILLION DESIGN ESALS, 9.5 MM MIXTURE, 1 1/2" DEPTH, SRL L
- (B) SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BINDER COURSE, PG 64-22, 0.0 TO <0.3 MILLION DESIGN ESALS, 19.0 MM MIXTURE, 2" DEPTH
- (C) NOT APPLICABLE
- (D) SUBBASE (PENNDOT NO. 2A) 6" DEPTH OR MATCH EXISTING (WHICHEVER IS GREATER)

LIGHT-DUTY PAVING SECTION:

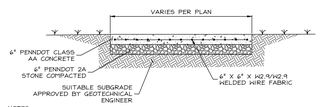
- (A) SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 0.0 TO <0.3 MILLION DESIGN ESALS, 9.5 MM MIXTURE, 1 1/2" DEPTH, SRL H
- (B) NOT APPLICABLE
- (C) SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 0.0 TO <0.3 MILLION DESIGN ESALS, 25 MM MIXTURE, 3" DEPTH OR MATCH EXISTING (WHICHEVER IS GREATER)
- (D) SUBBASE (PENNDOT NO. 2A) 6" DEPTH OR MATCH EXISTING (WHICHEVER IS GREATER)

HEAVY-DUTY PAVING SECTION / PAVING WITHIN MUNICIPAL ROW:

- (A) SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 0.0 TO <0.3 MILLION DESIGN ESALS, 9.5 MM MIXTURE, 1 1/2" DEPTH, SRL H
- (B) SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BINDER COURSE, PG 64-22, 0.0 TO <0.3 MILLION DESIGN ESALS, 19.0 MM MIXTURE, 2" DEPTH
- (C) SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 0.0 TO <0.3 MILLION DESIGN ESALS, 25 MM MIXTURE, 4" DEPTH OR MATCH EXISTING (WHICHEVER IS GREATER)
- (D) SUBBASE (PENNDOT NO. 2A) 6" DEPTH OR MATCH EXISTING (WHICHEVER IS GREATER)

PAVEMENT LEGEND

NOT TO SCALE

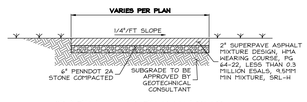


NOTES:

1. ALL CONSTRUCTION, MATERIALS, METHODS OF CONSTRUCTION AND CONTROL OF WORK TO BE GOVERNED BY THE CURRENT EDITION OF PENNDOT SPECIFICATIONS, PUBLICATION 408.
2. ALL EXPOSED CONCRETE SHALL BE SEALED WITH AQURON CPT-2000 OR APPROVED EQUAL.
3. FOR USE WITHIN VEHICULAR TRAVEL AREAS. CLASS AA MINIMUM.

PAVEMENT - CONCRETE

NOT TO SCALE



NOTES:

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3. FOR USE WITHIN VEHICULAR TRAVEL AREAS. CLASS AA MINIMUM.

PATH - BITUMINOUS

NOT TO SCALE

GENERAL NOTES

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS, SPECIFICATIONS, AND REFERENCED DOCUMENTS ASSOCIATED WITH THE PROJECT WORK. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION, FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS, SPECIFICATIONS, AND REFERENCED DOCUMENTS IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
2. ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVEGROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL AND VERTICAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. ACCORDING TO PENNSYLVANIA LAW, THE CONTRACTOR SHALL NOTIFY THE ONE CALL SYSTEM, AS AMENDED BY ACT 181 OF 2006, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. PA LAW REQUIRES THREE WORKING DAYS NOTICE FOR CONSTRUCTION PHASE. CALL THE PA ONE CALL SYSTEM AT 1-800-242-1776.
3. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS BY ALL OF THE PERMITTING AUTHORITIES.
4. ALL MATERIALS, PLANS, SPECIFICATIONS, AND REPORTS REFERENCED ARE TO BE CONSIDERED PART OF THE DESIGN DOCUMENTS. THE GENERAL CONTRACTOR IS RESPONSIBLE TO REVIEW ALL DOCUMENTS AND SHALL NOTIFY THE ENGINEER IMMEDIATELY IN WRITING IF ANY CONFLICTS OR DISCREPANCIES ARE DISCOVERED.
5. ALL APPLICABLE PROPOSED STRUCTURES AND FACILITIES SHALL COMPLY WITH "THE AMERICAN DISABILITIES ACT: "ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES", AND "THE PENNSYLVANIA UNIVERSAL ACCESSIBILITY ACT".
6. THIS PLAN SHALL NOT BE USED FOR BUILDING STAKEOUT PURPOSES. PROPOSED BUILDING LOCATION AS DEPICTED IS WITHIN ACCEPTABLE TOLERANCES FOR SITE WORK ONLY. PLEASE REFER TO ARCHITECTURAL/STRUCTURAL PLANS FOR EXACT BUILDING PLACEMENT.
7. THE BUILDING FOOTPRINTS DEPICTED HEREON HAVE BEEN TRANSFORMED FROM ARCHITECTURAL PLANS. FINAL BUILDING DIMENSIONS MAY VARY BUT SHALL ULTIMATELY CONFORM TO ALL APPLICABLE ZONING SETBACKS. IMPERVIOUS SURFACE COVERAGE RATIOS, ETC. FINALLY, BUILDING FOOTPRINTS MAY SUBSTANTIALLY VARY FROM FOOTPRINTS HEREON. SHOULD BE SUBMITTED TO THE MUNICIPAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO REQUESTING A BUILDING PERMIT.
8. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH PENNDOT "PUBLICATION 408", LATEST EDITION, AND TOWNSHIP, STANDARDS AND SPECIFICATIONS, WHICHEVER IS MORE RESTRICTIVE.
9. STRUCTURAL DESIGN CALCULATIONS AND CONSTRUCTION DETAILS OF PROPOSED RETAINING WALL(S) SHALL BE SUBMITTED TO AND APPROVED BY THE MUNICIPALITY PRIOR TO CONSTRUCTION.
10. CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS AND COMPLETE ALL WORK INDICATED OR IMPLIED ON THE PROJECT PLANS AND/OR SPECIFICATIONS THAT ARE NOT EXISTING ON THE PROJECT SITE AND THAT ARE NOT SPECIFICALLY NOTED AS "FUTURE" OR "NOT IN CONTRACT (NIC)", BY OTHERS, OR BY OTHER CONTRACTORS.
11. THE UPPER PERIOR AREA SCHOOL DISTRICT SHALL MAINTAIN OWNERSHIP OF AND BE RESPONSIBLE FOR THE MAINTENANCE OF THE STORM SEWER SYSTEM AND DETENTION FACILITY. IN THE EVENT SAID OWNERS, HEIRS, AND/OR ASSIGNS FAIL TO PROPERLY MAINTAIN SAID FACILITIES, THE MUNICIPALITY SHALL HAVE THE RIGHT TO PERFORM SAID MAINTENANCE AT THE EXPENSE OF THE OWNERS AFTER PROPER NOTIFICATION OF THE OWNERS.
12. THE OWNER/CONTRACTOR SHALL BE FAMILIAR WITH AND RESPONSIBLE FOR

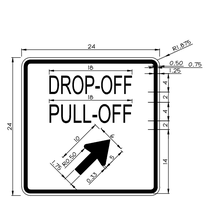
NOTES:
LEGEND & BORDER:
RED (NON-REFLECTORIZED)

BACKGROUND:
WHITE (REFLECTORIZED)

ALL DIMENSIONS ARE IN INCHES.

A-4 - BEGIN ONE WAY

NOT TO SCALE



NOTES:
LEGEND & BORDER:
RED (NON-REFLECTORIZED)

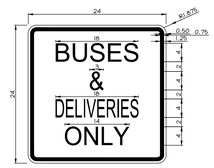
BACKGROUND:
WHITE (REFLECTORIZED)

ALL DIMENSIONS ARE IN INCHES.

*MIRROR ARROW FOR LEFT CONDITION

C-1L / C-1R - DROP-OFF AREA

NOT TO SCALE



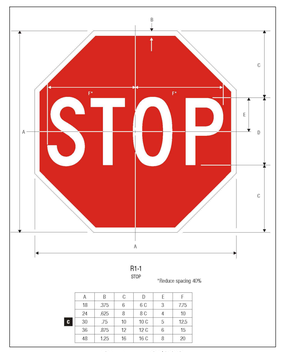
NOTES:
LEGEND & BORDER:
RED (NON-REFLECTORIZED)

BACKGROUND:
WHITE (REFLECTORIZED)

ALL DIMENSIONS ARE IN INCHES.

C-3 - BUSES & DELIVERIES ONLY

NOT TO SCALE

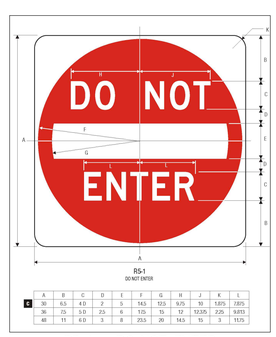


R1-1
STOP
*Reduce spacing 40%

	A	B	C	D	E	F
	18	.375	6	4.C	3	7.25
	24	.625	8	8.C	4	10
C	30	.75	10	10.C	5	12.5
	36	.875	12	12.C	6	15
	48	1.25	16	16.C	8	20

R1-1 - STOP

NOT TO SCALE



R5-1
DO NOT ENTER

	A	B	C	D	E	F	G	H	J	K	L
	30	6.5	4.0	2	5	14.5	12.5	9.75	10	1.875	7.875
C	36	7.5	5.0	2.5	6	17.5	15	12	12.375	2.25	9.813
	48	11	6.0	3	8	23.5	20	14.5	15	3	11.75

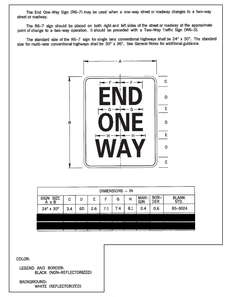
R5-1 - DO NOT ENTER

NOT TO SCALE

The End One-Way Sign (R6-7) may be used when a one-way street or roadway changes to a two-way street or roadway.

The R6-7 sign should be placed on both right and left sides of the street or roadway at the approximate point of change to a two-way operation. It should be preceded with a Two-Way Traffic Sign (W6-3).

The standard size of the R6-7 sign for single lane conventional highways shall be 24" x 30". The standard size for multi-lane conventional highways shall be 30" x 36". See General Notes for additional guidance.



DIMENSIONS - IN

SIGN SIZE A x B	C	D	E	F	G	H	MAIN BDR.	SIDE BDR.	BLANK OUT.
24" x 30"	3.4	4.0	2.6	7.1	7.4	8.1	0.4	0.6	R6-3024

COLOR:

LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)

BACKGROUND:
WHITE (REFLECTORIZED)

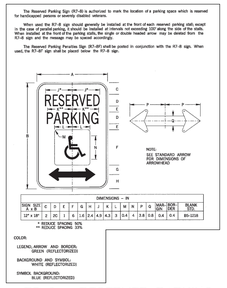
R6-7 - END ONE-WAY

NOT TO SCALE

The Reserved Parking Sign (R7-8) is authorized to mark the location of a parking space which is reserved for handicapped persons or severely disabled veterans.

When used the R7-8 sign should generally be installed at the front of each reserved parking stall, except in the case of parallel parking, it should be installed at intervals not exceeding 100' along the side of the stalls. When installed at the front of the parking stalls, the single or double headed arrow may be deleted from the R7-8 sign and the message may be spaced accordingly.

The Reserved Parking Penalties Sign (R7-8F) shall be posted in conjunction with the R7-8 sign. When used, the R7-8F sign shall be placed below the R7-8 sign.



DIMENSIONS - IN

SIGN SIZE A x B	C	D	E	F	G	H	J	K	L	M	N	P	Q	VAN BDR.	SIDE BDR.	BLANK OUT.
12" x 18"	2	.75	1	6	1.6	2.4	4.3	4.3	3	0.4	4	3.8	3.8	0.4	0.4	R9-101R

* INCREASE SPACING 50%
** REDUCE SPACING 33%

COLOR:

LEGEND, ARROW AND BORDER:
GREEN (NOT LISTED IN R2-510)

BACKGROUND AND SYMBOL:
WHITE (REFLECTORIZED)

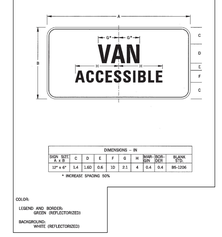
SYMBOL BACKGROUND:
BLUE (REFLECTORIZED)

R7-8 - RESERVED PARKING

NOT TO SCALE

The Van Accessible Sign (R7-8P) may be used as a supplemental sign to indicate that a parking space signed with the Reserved Parking Sign (R7-8) is of sufficient size for use by the disabled to accommodate vans displaying a handicapped or severely disabled veteran registration plate or placard.

One or, every eight reserved parking spaces for the disabled, but not less than one, shall be designated with the R7-8P sign. When used, the R7-8P sign shall be placed immediately below the Reserved Parking Sign (R7-8).



DIMENSIONS - IN

SIGN SIZE A x B	C	D	E	F	G	H	MAIN BDR.	SIDE BDR.	BLANK OUT.
12" x 6"	1.4	1.60	0.6	1.0	2.1	4	0.4	0.4	R9-101A

* INCREASE SPACING 50%

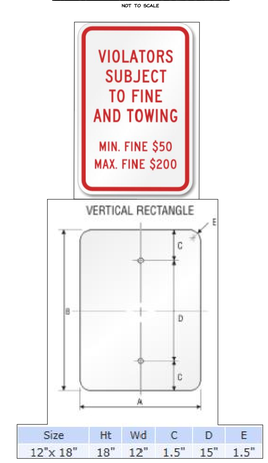
COLOR:

LEGEND AND BORDER:
GREEN (REFLECTORIZED)

BACKGROUND:
WHITE (REFLECTORIZED)

R7-8P - VAN ACCESSIBLE

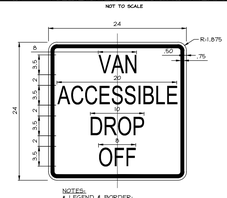
NOT TO SCALE



Size	Ht	Wd	C	D	E
12"x 18"	18"	12"	1.5"	15"	1.5"

R7-8F - RESERVED PARKING PENALTIES

NOT TO SCALE



NOTES:
• LEGEND & BORDER:
RED (NON-REFLECTORIZED)

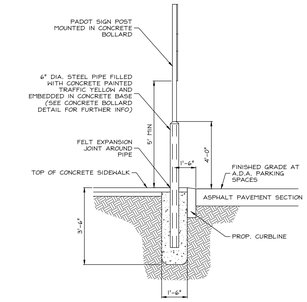
• BACKGROUND:
WHITE (REFLECTORIZED)

• ALL DIMENSIONS ARE IN INCHES

• TO BE DOUBLE MOUNTED

VAN ACCESSIBLE DROP OFF

NOT TO SCALE



NOTES:
1. REFER TO PLAN SET FOR LOCATIONS OF PROPOSED BOLLARDS.
2. BOLLARDS SHALL BE PAINTED TRAFFIC YELLOW AND MUST BE PERPETUALLY MAINTAINED/REPAINTED BY PROPERTY OWNER OR PARTY RESPONSIBLE FOR SITE MAINTENANCE.

"RESERVED PARKING" SIGN BOLLARD

NOT TO SCALE

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Structural:
SchraderGroup
1860 Charter Lane, Suite 206
Lancaster, Pennsylvania 17601
p: 717.299.8965

Owner:
Upper Merion Area School District
435 Crossfield Road
King of Prussia, PA 19406

New Construction of:
Caley Elementary School
725 Caley Road
King of Prussia, PA 19406

ISSUED FOR:

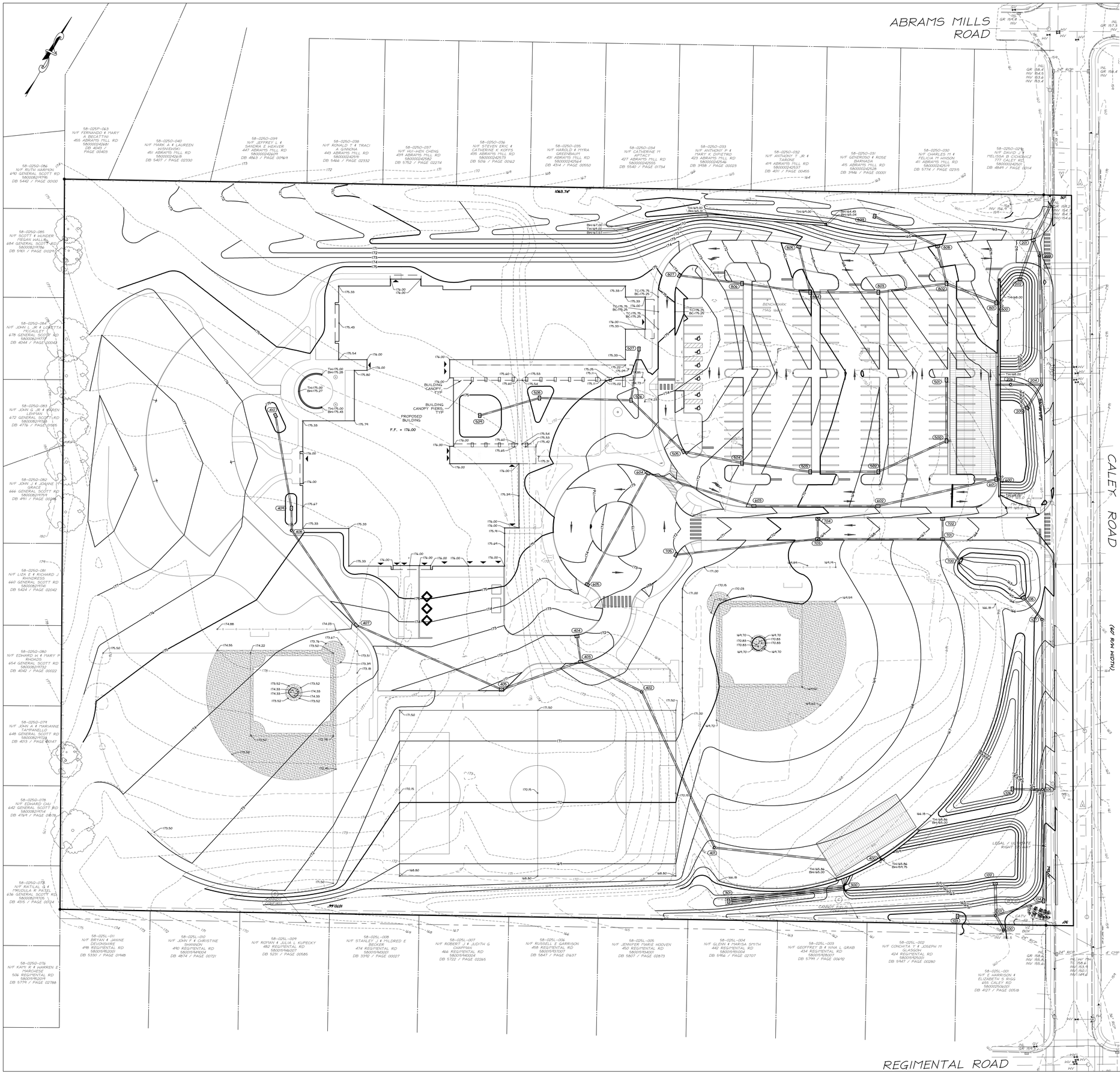
NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

Drawing Title:
SITE NOTES & DETAILS

Drawing Number: 8 of 25

C2.2



GRADING LEGEND

EXISTING SYMBOL	DESCRIPTION	PROPOSED SYMBOL
	STORM SEWER	
	UNDERDRAIN	UD UD
	FOUNDATION DRAIN	FD FD
	STORM INLET	
	STORM MANHOLE	
	ENDWALL	
	RIPRAP	
362	MAJOR CONTOUR	362
359	MINOR CONTOUR	366
x 355.69	SPOT ELEVATION	x 355.69
	DRAINAGE FLOW ARROW	
	SLOPE GRADE	3:1

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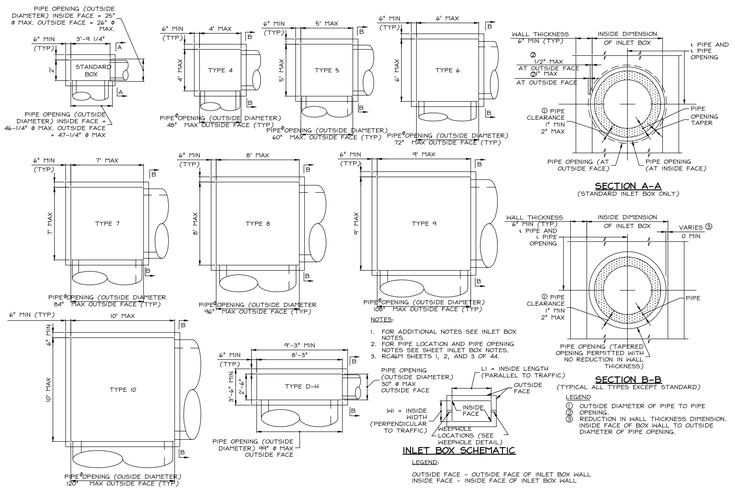
NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

Drawing Title:
GRADING & DRAINAGE

Drawing Number: 9 of 25

C3.0



INLET BOXES

NOT TO SCALE

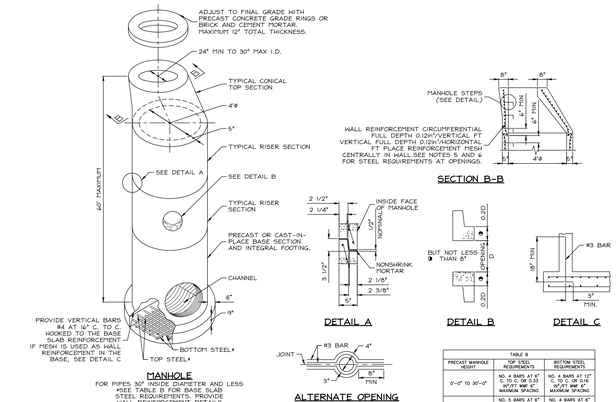


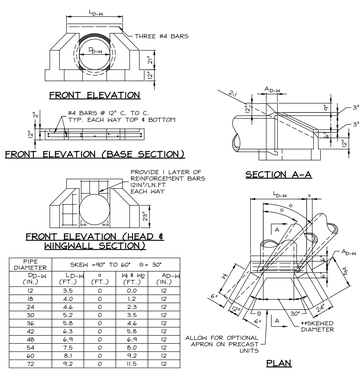
TABLE B		
PRECAST MANHOLE HEIGHT	WALL STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
0'-0" TO 30'-0"	VERT: #4 BARS AT 12" C. TO C. OR 0.33 IN²/FT MIN² MAXIMUM SPACING	HORIZ: #4 BARS AT 12" C. TO C. OR 0.14 IN²/FT MIN² MAXIMUM SPACING
> 30'-0" TO 60'-0"	VERT: #5 BARS AT 12" C. TO C. OR 0.58 IN²/FT MIN² MAXIMUM SPACING	HORIZ: #4 BARS AT 12" C. TO C. OR 0.27 IN²/FT MIN² MAXIMUM SPACING

NOTES:

1. PRECAST MANHOLES MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 714, MAY BE SUBSTITUTED FOR THE STANDARD CAST-IN-PLACE MANHOLE. FOR DEVIATION OR MODIFICATION OF THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
2. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION SO AS TO PROVIDE AN UNCUT WALL EQUAL TO 20% OF THE OPENING, BUT NO LESS THAN 8", BETWEEN THE OPENING AND THE CLOSEST JOINT BETWEEN RISERS - SEE DETAIL B.
3. FOR PRECAST RISER OR BASE SECTIONS WITH ONE OPENING LOCATED AT DEPTHS TO 60'. PROVIDE CIRCUMFERENTIAL REINFORCEMENT IN ACCORDANCE WITH SECTION B-B. FOR SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTH OF 10' AND LESS, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.14 IN²/VERTICAL FT. FOR THE HEIGHT OF RISER OR BASE SECTION.
4. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT A DEPTH GREATER THAN 10', BUT LESS THAN OR EQUAL TO 25', PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.44 IN²/VERTICAL FT. EACH FACE.
5. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 25', USE A 10" THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.22 IN²/VERTICAL FT. EACH FACE.
6. MARK RISERS OR BASE SECTIONS WITH HOLES CLEARLY WITH MAXIMUM ALLOWABLE DEPTH.
7. PROVIDE ADDITIONAL REINFORCEMENT BARS AROUND OPENINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS.
8. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 605.2(.). ALTERNATE CONFIGURATIONS AND DIMENSIONS, AS APPROVED BY THE ENGINEER, MAY BE USED.
9. PROVIDE MINIMUM 1" SECTION DIMENSION FOR METAL STEPS. PROVIDE MINIMUM 3/4" SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
10. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.
11. THE ALTERNATE OPENING REINFORCEMENT DETAIL IS NOT DESIRABLE BY DESIGN. USE IT TO MEET EXISTING PIPE ELEVATIONS.

MANHOLE - PRECAST

NOT TO SCALE



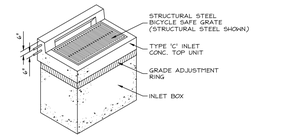
PIPE DIAMETER	SKEW =90° TO 60°		θ = 30°	
D_{D-H} (IN.)	L.D-W (FT.)	θ (FT.)	H & PD (FT.)	A_{D-W} (IN.)
12	3.5	0	0.0	12
18	4.0	0	1.2	12
24	4.6	0	2.3	12
30	5.2	0	3.5	12
36	5.8	0	4.6	12
42	6.3	0	5.8	12
48	6.9	0	6.9	12
54	7.5	0	8.0	12
60	8.1	0	9.2	12
72	9.2	0	11.5	12

NOTES:

1. ALL MATERIALS AND CONSTRUCTION METHODS TO MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408 AND 72I-M (RC-801 & RC-401), LATEST REVISION.
2. CHILD SAFETY GRATES SHALL BE PROVIDED ON ALL ENDWALLS. TRASH RACKS SHALL BE PROVIDED ON ALL HEADWALLS.

HEADWALL/ENDWALL - TYPE D-W

NOT TO SCALE

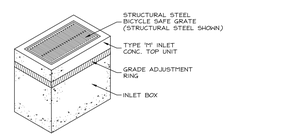


NOTES:

1. ALL MATERIALS AND CONSTRUCTION METHODS TO MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408 AND 72M (RC-801 & RC-401), LATEST REVISION.
2. ALL STRUCTURES AND ASSEMBLIES TO BE PRE-CAST, UNLESS OTHERWISE NOTED.

TYPE 'C' INLET

NOT TO SCALE

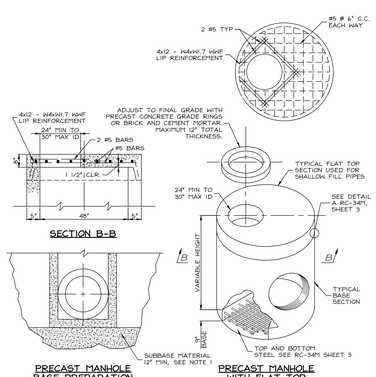


NOTES:

1. ALL MATERIALS AND CONSTRUCTION METHODS TO MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408 AND 72M (RC-801 & RC-401), LATEST REVISION.
2. ALL STRUCTURES AND ASSEMBLIES TO BE PRE-CAST, UNLESS OTHERWISE NOTED.

TYPE 'M' INLET

NOT TO SCALE

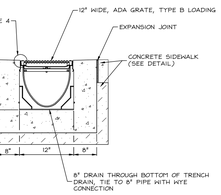


NOTES:

1. PLACE SUBBASE MATERIAL MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 350.2, IN LAYERS 4" THICK, COMPACTED TO A DENSITY SATISFACTORY TO THE ENGINEER AND INCIDENTAL TO THE MANHOLE PAY ITEM.
2. FOR ALL OTHER DESIGN REQUIREMENTS AND APPLICABLE NOTES, SEE PENNDOT RC-39M1.

STORM MANHOLE - PRECAST-FLAT TOP

NOT TO SCALE

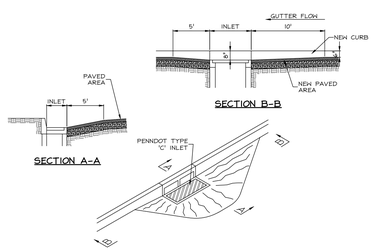


NOTES:

1. THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE K300 CHANNEL SYSTEM WITH GALVANIZED STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC., OR APPROVED EQUAL.
2. MINIMUM CONCRETE STRENGTH IS 4,000 PSI. CONCRETE SHALL BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT SHALL BE PROVIDED
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS.
6. INTERNAL SLOPE SHALL BE 0.5% MINIMUM.
7. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

TRENCH DRAIN

NOT TO SCALE



NOTES:

1. TOP OF GRATE ELEVATIONS, AS SHOWN ON THE PROJECTS PLANS, ARE MEASURED TO THE EXTENSION OF THE GUTTER LINE THROUGH THE GRATE AREA. TOP OF CURB OF INLET TOPS SHALL BE DETERMINED BY ADDING 6" TO THE TOP OF GRATE ELEVATION SHOWN.

INLET PAVING TAPER

NOT TO SCALE

GRADING NOTES

1. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS, PENNDOT PUBLICATION 408 AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT REFERENCED IN THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING WITH SUITABLE MATERIALS AS SPECIFIED IN THE GEOTECHNICAL REPORT, ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM TEST D-1557. MOISTURE CONTENT AT THE TIME OF COMPACTION SHALL BE WITHIN 2% OF OPTIMUM MOISTURE CONTENT. A GEOTECHNICAL ENGINEER REGISTERED WITH THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBBASE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT SHALL BE FREE OF ORGANIC AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE BY OWNER OR GEOTECHNICAL ENGINEER, REMOVE AND REPLACE WITH SUITABLE MATERIAL COMPACTED TO 95% OF THE MATERIAL COMPACTED TO 95% OPTIMUM DENSITY (AS DETERMINED BY MODIFIED PROCTOR METHOD).
2. PAVEMENT SHALL BE SAWCUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.
3. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. THE CONTRACTOR SHALL ADJUST ALL PROPOSED GRADES, INVERTS, HEADS, GUTTERS, AND CURBS TO ALLOW 1.0% ON ALL CONCRETE SURFACES, AND 1.5% MINIMUM ON ASPHALT, AND 2.0% MINIMUM IN LANDSCAPED AREAS TO PREVENT PONDING. ANY DISCREPANCIES THAT MAY AFFECT THE PUBLIC SAFETY OR PROJECT COST MUST BE IDENTIFIED TO THE ENGINEER IN WRITING IMMEDIATELY. PROCEEDING WITH CONSTRUCTION WITHOUT NOTIFICATION IS DONE SO AT THE CONTRACTOR'S OWN RISK.
4. THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 1.0% (5%) FOR A MINIMUM DISTANCE OF 10 FEET MEASURED PERPENDICULAR TO THE FACE OF THE WALL. IF PHYSICAL OBSTRUCTIONS OR LOT LINES PROHIBIT 10 FEET OF HORIZONTAL DISTANCE, A 5% SLOPE SHALL BE PROVIDED TO AN APPROVED ALTERNATIVE METHOD OF DIVERTING WATER FROM THE FOUNDATION. IMPERVIOUS SURFACES WITHIN 10 FEET OF THE BUILDING FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING. ANY PAVED SURFACE WITHIN 10 FEET OF THE BUILDING FOUNDATION, IMPERVIOUS SURFACES WITHIN 10 FEET OF THE BUILDING FOUNDATION SHALL BE SLOPED A MINIMUM OF 2% AWAY FROM THE BUILDING.
5. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 6" ABOVE EXISTING LOCAL ASPHALT GRADE UNLESS OTHERWISE NOTED. FIELD ADJUST TO CREATE A MINIMUM OF 0.75% GUTTER GRADE ALONG CURB FACE. ENGINEER TO APPROVE FINAL CURBING CUT SHEETS PRIOR TO INSTALLATION.
6. IN CASE OF DISCREPANCIES BETWEEN PLANS, THE SITE / RECORD PLAN WILL SUPERSEDE IN ALL CASES. THE ENGINEER OF RECORD MUST BE IMMEDIATELY NOTIFIED IN WRITING OF ANY CONFLICTS.
7. THE CONTRACTOR SHALL BE REQUIRED TO SECURE ALL NECESSARY PERMITS (INCLUDING DEP, ETC.) FOR ALL OFF-SITE HAUL AND/OR BORROW SITES. CONTRACTOR SHALL SUPPLY A COPY OF APPROVALS TO ENGINEER AND OWNER PRIOR TO INITIATING WORK.
8. BOTTOM OF WALL ELEVATIONS (BW) REPRESENT THE PROPOSED FINISHED GRADE AT THE FACE OF WALL AND DO NOT REPRESENT THE ACTUAL FOUNDATION GRADE OF THE PROPOSED WALL. ALL WALLS SHOWN HEREON MUST BE DESIGNED BY A STRUCTURAL ENGINEER AND APPROVED BY THE MUNICIPALITY PRIOR TO CONSTRUCTION.

STORMWATER NOTES

1. ROOF LEADERS SHALL BE CONNECTED DIRECTLY TO THE PROPOSED STORMWATER MANAGEMENT SYSTEM.
2. ALL DETENTION AND RETENTION BASIN EMBANKMENTS SHALL BE PLACED IN 8 INCH MAXIMUM LIFTS TO A MINIMUM 95% DRY DENSITY. PRIOR TO PROCEEDING TO THE NEXT LIFT, COMPACTION SHALL BE CHECKED BY THE MUNICIPAL ENGINEER OR AN APPROVED GEOTECHNICAL ENGINEER WHO SHALL PROVIDE THE MUNICIPAL ENGINEER WITH A WRITTEN REPORT. COMPACTION TESTS SHALL BE PERFORMED USING THE MODIFIED PROCTOR METHOD IN ACCORDANCE WITH ASTM D-4572-07. COMPACTION TESTS SHALL BE RUN ON THE LEADING AND TRAILING EDGE AS WELL AS THE TOP OF THE BERM.
3. ANTI-SEEP COLLARS SHALL BE INSTALLED AROUND THE PIPE BARREL WITHIN THE NORMAL SATURATION ZONE OF THE DETENTION BASIN BERMS. THE ANTI-SEEP COLLARS AND THEIR CONNECTIONS TO THE PIPE BARRELS SHALL BE WATERTIGHT. THE ANTI-SEEP COLLARS SHALL EXTEND THE MINIMUM PROJECTION OF THE COLLAR MEASURED PERPENDICULAR TO THE PIPE BARREL. THE MAXIMUM SPACING BETWEEN COLLARS SHALL BE FOURTEEN (14) TIMES THE MINIMUM PROJECTION OF THE COLLAR MEASURED PERPENDICULAR TO THE PIPE. A MINIMUM OF TWO (2) ANTI-SEEP COLLARS SHALL BE INSTALLED ON EACH OUTLET PIPE.
4. IF A CONFLICT ARISES DURING THE INSTALLATION OF ANY PART OF THE STORM SEWER SYSTEM THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY IN WRITING.

ADA ACCESSIBILITY NOTES

AREAS DESIGNATED AS ACCESSIBLE ON PLAN SHALL BE INSTALLED IN COMPLIANCE WITH THE ADA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES (ADAAG), LATEST REVISION, AND MAY BE EVALUATED FOR COMPLIANCE FOLLOWING CONSTRUCTION. ANY AREAS NOT BUILT TO COMPLIANCE SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. THE ITEMS DESCRIBED ARE GENERAL GUIDELINES AND ARE NOT ALL-INCLUSIVE. BUILDING CODES, ETC. STILL APPLY.

ACCESSIBLE ROUTE

1. AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 1:20 (5.0%) IS CONSIDERED A RAMP AND SHALL COMPLY WITH RAMP GUIDELINES AS LISTED BELOW.
2. NOWHERE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 1:48.

GROUND AND FLOOR SURFACES

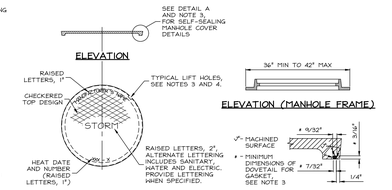
1. CHANGES IN LEVEL OF 1/4 INCH MAY BE VERTICAL AND WITHOUT EDGE TREATMENT. CHANGES IN LEVEL BETWEEN 1/4 INCH AND 1/2 INCH SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2 (50.0%).
2. IF GRATINGS ARE LOCATED IN WALKING SURFACES, THEN THEY SHALL HAVE SPACES NO GREATER THAN 1/2 INCH WIDE IN ONE DIRECTION. IF GRATINGS HAVE ELONGATED OPENINGS, THEN THE OPENINGS SHALL BE SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

PARKING AND PASSENGER LOADING ZONES

1. ACCESSIBLE PARKING SPACES SHALL HAVE A MINIMUM WIDTH OF 8 FT. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:48 (2.0%) IN ANY DIRECTION.
2. ACCESSIBLE PARKING SPACES SHALL BE DESIGNATED AS RESERVED BY A SIGN SHOWING THE SYMBOL OF ACCESSIBILITY. VAN ACCESSIBLE SPACES SHALL HAVE AN ADDITIONAL SIGN "VAN-ACCESSIBLE" MOUNTED BELOW THE SYMBOL OF ACCESSIBILITY. SUCH SIGNS SHALL BE LOCATED SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.
3. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SERVING PARKING SPACES OR LOADING ZONES AND ALONG AT LEAST ONE VEHICLE ACCESS ROUTE FROM SUCH AREAS FROM SITE ENTRANCE(S) AND EXIT(S), AT ACCESSIBLE PARKING SPACES, PROVIDE MINIMUM VERTICAL CLEARANCE OF 8.17 FT AT THE PARKING SPACE AND ALONG AT LEAST ONE VEHICLE ACCESS ROUTE TO SUCH SPACES FROM SITE ENTRANCE(S) AND EXIT(S).
4. PASSENGER LOADING ZONES SHALL PROVIDE AN ACCESS AISLE AT LEAST 5 FT WIDE AND 20 FT LONG ADJACENT AND PARALLEL TO THE VEHICLE PULL UP SPACE. IF THERE ARE CURBS BETWEEN THE ACCESS AISLE AND THE VEHICLE PULL-UP SPACE, THEN AN ACCESSIBLE CURB RAMP SHALL BE PROVIDED. VEHICLE STANDING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:48 IN ANY DIRECTION.

RAMP GUIDELINES

1. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 1:12 (8.3%).
2. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE RAMP SHALL BE 1:20 (5.0%). THE CROSS SLOPE SHALL BE EXCEED 1:50 (2%).
3. THE MINIMUM WIDTH OF A RAMP SHALL BE 36" MINIMUM WITHIN THE RAMP, EXCLUSIVE OF FLARED SIDES.
4. THE MAXIMUM SLOPE OF THE FLARE SHALL BE 1:10 (10.0%).
5. DETECTABLE WARNINGS SHALL BE PLACED ON ALL ACCESSIBLE CURB RAMPS. REFER TO DETAILS.

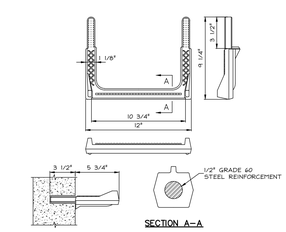


NOTES:

1. ALL MATERIALS AND CONSTRUCTION METHODS TO MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408 AND 72I-M (RC-34M1), LATEST REVISION.

STORM MANHOLE COVER - CAST IRON-PLATEN

NOT TO SCALE

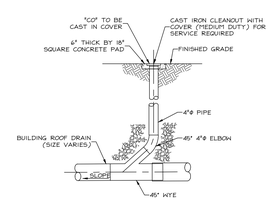


NOTES:

1. STEPS FOR ALL MANHOLES AND INLETS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC MODEL NO. PS-4-B AS MANUFACTURED BY M.A. INDUSTRIES INC. OR APPROVED EQUAL.
2. THE PORTION TO BE EMBEDDED IN THE CONCRETE SHALL BE IN ACCORDANCE WITH THE LATEST O.S.H.A. STANDARDS (3 1/2" MINIMUM EMBEDMENT).
3. ALL MANHOLE STEPS TO MEET OR EXCEED ASTM AND O.S.H.A. STANDARDS.
4. VERTICAL SPACING OF STEPS TO BE 1'.

MANHOLE STEP - STEEL REINFORCED POLYPROPYLENE

NOT TO SCALE



NOTES:

1. ALL PIPE AND JOINT MATERIAL TO MATCH TYPE OF ROOF DRAIN.

CLEANOUT - STORM

NOT TO SCALE

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Owner:
Upper Merion Area School District
435 Crossfield Road
King of Prussia, PA 19406

New Construction of:
Caley Elementary School
725 Caley Road
King of Prussia, PA 19406

ISSUED FOR:

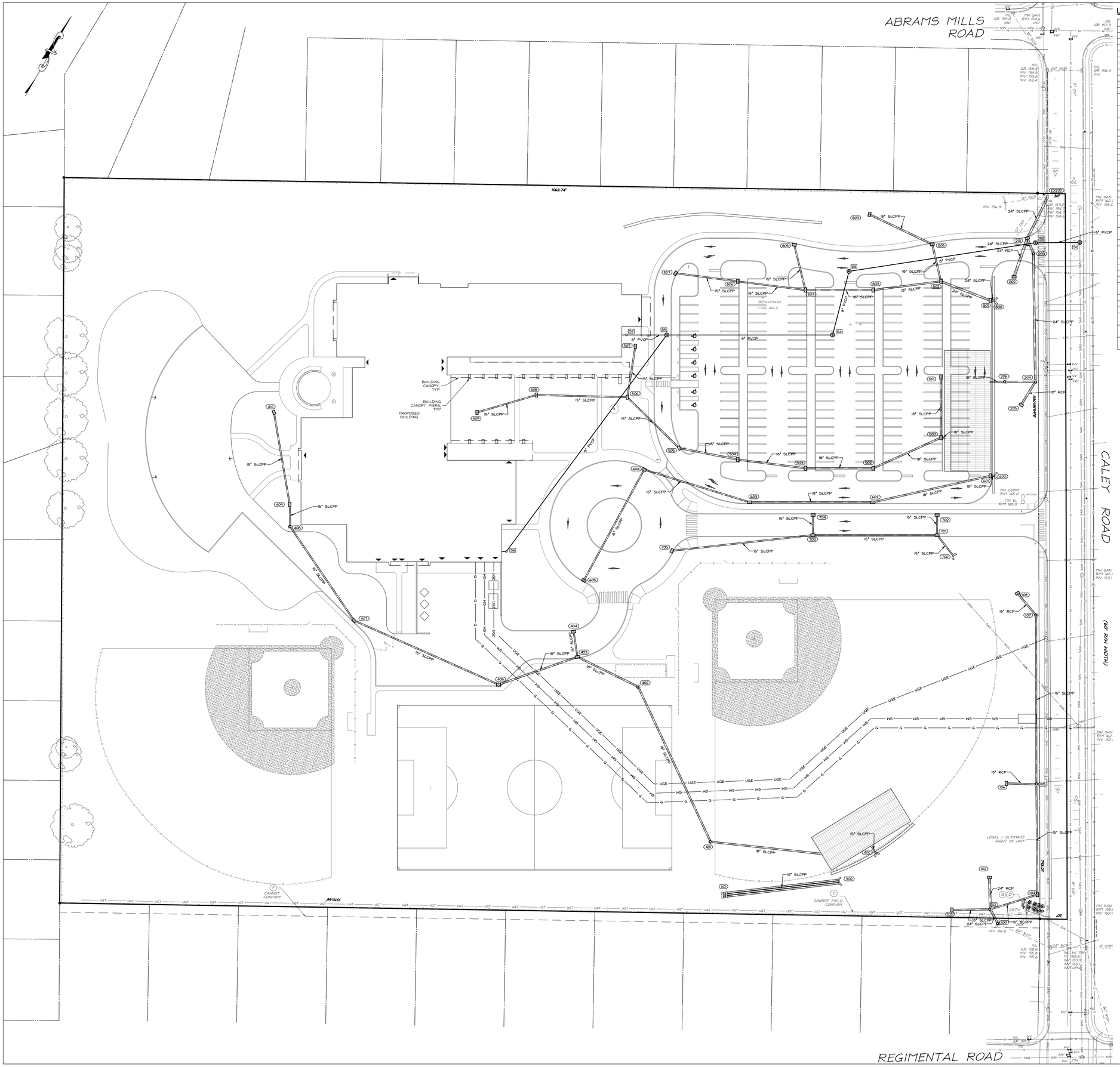
NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

Drawing Title:
GRADING & DRAINAGE NOTES & DETAILS

Drawing Number: 11 of 25

C3.2



UTILITY LEGEND

EXISTING SYMBOL	DESCRIPTION	PROPOSED SYMBOL
OU	OVERHEAD WIRES	OHU
U	UNDERGROUND WIRES	UGU
OE	OVERHEAD ELECTRIC	OHE
E	UNDERGROUND ELECTRIC	UGE
OT	OVERHEAD TELEPHONE	OHT
T	UNDERGROUND TELEPHONE	UGT
C	CABLE TV LINE	CATV
FO	FIBER OPTIC CABLE	FO
	UTILITY POLE	
	GUY WIRE	
	CABLE BOX	
	LIGHT POLE	(SEE LIGHTING PLAN)
E	ELECTRIC MANHOLE	E
T	TELEPHONE MANHOLE	T
G	GAS MAIN	G
GL	GAS SERVICE	GS
SAN	SANITARY SEWER MAIN	
SL	SANITARY SEWER LATERAL	SL
FM	SANITARY SEWER FORCEMAIN	FM
S	SANITARY SEWER MANHOLE	S
CO	SANITARY SEWER CLEANOUT	CO
	VENT	
	STORM SEWER	
UD	UNDERDRAIN	UD
FD	FOUNDATION DRAIN	FD
D	STORM MANHOLE	D
	STORM INLET	
	ENDWALL	
RD	ROOF DRAINS	
	ROCK APRON	
W	WATER MAIN	W
WL	WATER SERVICE	WS
FS	FIRE SERVICE	FS
WV	WATER VALVE	WV
W	WATER MANHOLE	W
WM	WATER METER	
CS	CURB STOP	CS
	WATER SHUT OFF	
	FIRE HYDRANT	
BOV	WATER BLOW-OFF VALVE	
	WELL	

40 0 40 80
GRAPHIC SCALE IN FEET

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Drawing Title:
UTILITY

Drawing Number: 12 of 25

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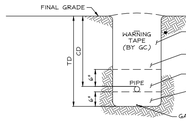
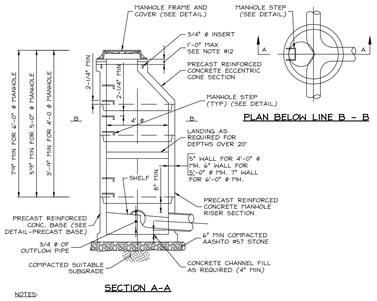


NOTES:
1. ALL BACKFILL AND BEDDING MATERIAL SHALL BE PROVIDED BY THE GENERAL CONTRACTOR (G.C.).
2. TRENCH DEPTH (TD) = COVER DEPTH (CD) + PIPE OD + 6".
3. COVER DEPTH (CD) > 24".

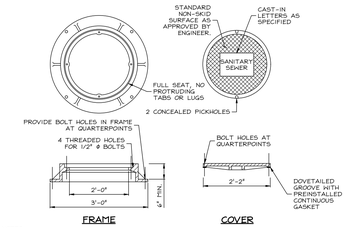
PIPE BEDDING - GAS
NOT TO SCALE



SECTION A-A

NOTES:
1. THE DEPTH OF THE INVERT CHANNEL SHALL BE EQUAL TO 3/4 OF THE DIAMETER OF THE SEWER.
2. THE SHELF SHALL SLOPE TOWARD THE INVERT CHANNEL AT A RATE OF 1" PER FOOT.
3. TYPE "B" MANHOLES (SHALLOW TYPE) TO BE PROVIDED WHERE REQUIRED BY DEPTH CONDITIONS.
4. FOR MANHOLES HAVING 5' DIA. AND 6' DIA. BASE, REDUCTION IN DIA. TO 4' SHALL START AT THE FIRST JOINT ABOVE THE UPPERMOST PIPE CONNECTION TO WALL WHERE DEPTH IS SUFFICIENT.
5. ALL MANHOLE FRAMES SHALL BE BOLTED TO THE CONE SECTION WITH FOUR 3/4" DIA. BOLTS WITH WASHERS AND NUTS. BOLTS TO BE AT 90° ON BOLT CIRCLE. FOR WATERTIGHT COVERS USE FOUR 3/4" DIA. BOLTS AT 90° ON THE BOLT CIRCLE.
6. ALL CONCRETE SHALL BE 4000 PSI MINIMUM, USING TYPE II PORTLAND CEMENT.
7. ENTIRE OUTSIDE SURFACE OF MANHOLE SHALL RECEIVE TWO COATS OF BITUMINOUS COATING. KOP-COAT, INC. BITUMASTIC No. 300-M, TNEMEC 46H-413 TNEME TAR OR APPROVED EQUAL APPLIED AT 20 MIL MINIMUM THICKNESS.
8. INSTALL 2 LAYERS OF PLASTIC PREFORMED JOINT SEALANT BETWEEN ALL SECTIONS & UNDER FRAME. "A" MANHOLE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ASTM C478.
10. STEPS TO BE STEEL REINFORCED POLYPROPYLENE. (SEE DETAIL)
11. 4' DIA. MANHOLE - 8" TO 10" PIPE; 5' DIA. MANHOLE - 12" TO 27" PIPE; 6' DIA. MANHOLE - 30" TO 48" PIPES.
12. PRECAST CONE MORE GRADE ADJUSTMENT RINGS ARE USED, A WATERTIGHT PVC CONNECTOR SHALL BE INSTALLED BETWEEN THE FRAME AND THE CONE. CONNECTOR SHALL BE WATER-LOK CONNECTOR BFA ANTI-FLOATING BY A-LOK PRODUCTS INC. OR APPROVED EQUAL. GRADE ADJUSTMENT RINGS SHALL NOT EXCEED 1'. THE EXTERIOR AND INTERIOR, WHERE APPROPRIATE, SHALL BE PARGED.
13. THE INTERIOR OF ALL MANHOLES SHALL BE EPOXY COATED IN ACCORDANCE WITH AUTHORITY SPECIFICATIONS. MANHOLES THAT RECEIVE FORCE MAIN DISCHARGE OR THAT ARE LOCATED ON INTERCEPTORS OR TRUNK SEWERS SHALL BE CONSTRUCTED WITH A PVC LINER.
14. MANHOLES EXCEEDING 20' DEEP SHALL BE A MINIMUM OF 5' DIAMETER, INCLUDE LANDING(S), AND BE FITTED WITH A 30" DIAMETER FRAME.

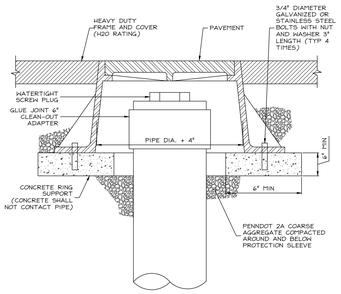
SANITARY MANHOLE - TYPE A
NOT TO SCALE



FRAME COVER

NOTES:
1. MANHOLE FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS PATTERN NO. 1045ZI (WATERTIGHT) WITH BOLT SHOWN COVER OR APPROVED EQUAL.
2. ALL MATERIAL SHALL BE GRAY CAST IRON, ASTM A48-83 CL35B.
3. CASTING SHALL BE DESIGNED FOR AASHTO HIGHWAY LOADING, CLASS HS-20.
4. PROVIDE FOUR (4) ANCHOR BOLT HOLES IN FRAME TO ACCOMMODATE 3/4" ANCHOR BOLTS.
5. FRAMES SHALL BE WATERTIGHT AND COVER SHALL BE BOLTED WITH FOUR (4) 1/2" COUNTERSUNK STAINLESS STEEL BOLTS, MAKING A SEAL WITH RUBBER "O" RING GASKET, OR EQUAL.
6. COVER SHALL HAVE THE WORDS "SANITARY SEWER" CAST THEREON, LETTERING MINIMUM 2" HIGH.

WATERTIGHT SANITARY MANHOLE FRAME AND COVER
NOT TO SCALE



NOTES:
1. FRAME AND COVER SHALL BE NEENAH FOUNDRY COMPANY MODEL R-1976 OR APPROVED EQUAL.
2. CLEAN-OUT PROTECTION SLEEVES ARE TO BE INSTALLED FOR CLEAN-OUTS LOCATED IN PAVED AREAS, OR LESS THAN 3 FEET FROM A PAVED AREA.

CLEAN-OUT PROTECTION SLEEVE - FOR USE IN OR NEAR PAVED AREAS
NOT TO SCALE

GENERAL UTILITIES NOTES

1. ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC. ARE TO BE INSTALLED UNDERGROUND. ALL NEW UTILITIES/SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE UTILITY/SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS.
2. THE LOCATION OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, REMOVAL OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINT CONFLICTS SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER.
3. ALL UTILITY EXTENSIONS FROM THE BUILDING BY OTHER TRADES SHALL BE CONNECTED TO THE CONTINUATION UTILITY LINES ON THE SITE. THE GENERAL CONTRACTOR SHALL MAKE THE CONNECTIONS AT A POINT 5' FROM THE BUILDING HALL. WHERE OTHER TRADES HAVE ENDED UTILITIES AT A POINT OUTSIDE THE BUILDING, THE GENERAL CONTRACTOR SHALL ASSIST OTHER TRADES TO ASSURE THE SYSTEM IS COMPLETE WHEN FLOW HALL BEGIN IN THE LINES.
4. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERCEPT POINTS (CROSSINGS) WITH EXISTING UTILITIES/SERVICES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. DEFINE AND LOCATE VERTICALLY AND HORIZONTALLY ALL ACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE NOT TO REMAIN. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.
6. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY WORK AS IDENTIFIED OR REQUIRED FOR PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH NOTIFICATIONS THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED OR ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.
7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, GREASE TRAP REQUIREMENTS, AND FOUNDATION PLAN TO ENSURE PROPER SEPARATION. PIPE DIAMETER SIZES ARE TO BE DETERMINED BY ARCHITECT. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES TO AVOID CONFLICTS AND ENSURE PROPER DEPTHS ARE ACHIEVED. IN ADDITION TO MEETING THE UTILITY OWNER REQUIREMENTS, THE UTILITY TIE-INS/CONNECTIONS SHALL BE COORDINATED. THIS SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF THE UTILITY/SERVICE. WHERE CONFLICTS EXISTS BETWEEN THESE PLANS, THE ENGINEER OF RECORD SHALL BE NOTIFIED IN WRITING TO RESOLVE SAID CONFLICTS PRIOR TO CONSTRUCTION.
8. THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS SHALL BE ADJUSTED, IF REQUIRED, TO MATCH THE GRADING AND UTILITY PLAN(S). THE SANITARY CLEANOUT TOPS SHALL BE REINSTALLED IN THE SAME MANNER AS THE ORIGINAL CLEANOUTS.

SANITARY SEWER NOTES

1. SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE UPPER MERION MUNICIPAL AUTHORITY ("SANITARY UTILITY OWNER") REQUIREMENTS, STANDARDS, AND SPECIFICATIONS. SANITARY UTILITY INSPECTION BY THE SANITARY UTILITY OWNER AND ITS ENGINEER. THE SANITARY UTILITY OWNER SHALL BE RESPONSIBLE FOR THE APPROVAL OF ALL MATERIALS IN CONNECTION WITH THE SANITARY SEWER.
2. SHOP DRAWINGS FOR ALL SANITARY SEWER APPURTENANCES HILL BE REQUIRED TO BE SUBMITTED FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL PROVIDE THE FOLLOWING:
   A. A LIST OF THE PROPOSED SUPPLIERS FOR ALL MATERIALS TO BE USED IN CONNECTION WITH THE SEWER CONSTRUCTION.
   B. SHOP DRAWINGS OF THE PRECAST MANHOLES, MANHOLE STEPS AND MANHOLE FRAMES AND COVERS TO BE USED.
   C. CERTIFICATION FROM THE PIPE MANUFACTURER THAT THE PIPE MEETS OR EXCEEDS THE REQUIREMENT OF THE SANITARY UTILITY OWNER'S SPECIFICATIONS.
3. CONTRACTOR TO ENSURE THAT ALL SANITARY MAINS AND LATERALS HAVE A MINIMUM OF 18-INCH VERTICAL CLEARANCE OR 10 FT HORIZONTAL CLEARANCE BETWEEN ANY OTHER UTILITY CROSSING. OTHERWISE CONTRACTOR SHALL ENCASE MAIN OR LATERAL IN CONCRETE WITH A MINIMUM OF 10 LF ON EACH SIDE OF THE CROSSING. CLEANOUTS ARE TO BE PLACED AT MAXIMUM INTERVALS OF 100-FT AND AT ALL BENDS.
4. ALL SANITARY SEWER MANHOLES PROPOSED TO BE INSTALLED OR ADJUSTED WITHIN ANY PAVED AREAS SHALL BE FITTED WITH ADJUSTABLE WATERTIGHT FRAMES AND COVERS. ANY MANHOLE TO BE INSTALLED OR ADJUSTED OUTSIDE OF PAVED AREAS SHALL BE INSTALLED 4" ABOVE FINISH GRADE.
5. CONTRACTOR SHALL VERIFY ALL SIZES, MATERIALS, AND CONDITION OF EXISTING PIPES, TO BE REPLACED OR CONNECTED TO, PRIOR TO ORDERING MATERIALS.
6. ALL EXISTING MANHOLES SHALL BE TESTED PER SANITARY UTILITY OWNER STANDARDS TO ASSURE NO LEAKS EXIST WITHIN THE STRUCTURES.

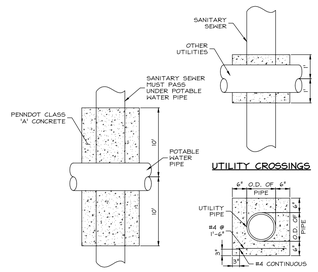
WATER LINE NOTES

1. CONTRACTOR SHALL VERIFY ALL SIZES OF EXISTING PIPES, TO BE REPLACED OR CONNECTED TO, PRIOR TO ORDERING MATERIALS.
2. ALL WATER MAINS MUST BE SURVEY STAKED PRIOR TO CONSTRUCTION, WITH STAKES PROVIDED AT INTERVALS OF 50 FEET, AS WELL AS AT ALL FITTING LOCATIONS AND UTILITY CROSSINGS. THE STAKES SHALL INDICATE THE TOP OF PIPE ELEVATION OF THE WATER PIPE (INCLUDES BOTTOM OF OTHER UTILITY PIPE ELEVATIONS AND PIPE SIZE AT ALL UTILITY CROSSINGS TO VERIFY CLEARANCE). FIRE HYDRANTS AND WATER SERVICE CURB STOPS MUST ALSO BE FIELD STAKED AND ELEVATIONS INDICATING TOP-OF-CURB OR FINISHED GRADE SHOWN ON THE PLANS.
3. ALL WATER LINE VALVES, FITTINGS, ETC. SHALL BE INSTALLED WITH MECHANICAL JOINTS AND MEGALUG RESISTANT GLANDS.
4. ALL WATER LINE CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH THE UTILITY OWNER'S LATEST STANDARDS AND SPECIFICATIONS.
5. ALL POTABLE WATER PIPES SHALL HAVE A MINIMUM COVER OF FOUR (4) FEET. POTABLE WATER AND SANITARY SEWER LINE CROSSINGS SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF EIGHTEEN (18) INCHES OR A MINIMUM HORIZONTAL SEPARATION OF TEN (10) FEET. IF THESE CLEARANCES CANNOT BE MET, THE WATER LINE MUST THEN BE ENCASED IN CONCRETE FOR 10 LF ON EACH SIDE OF THE CROSSING. IF THE POTABLE WATER PASSES UNDERNEATH THE SANITARY SEWER, THE SANITARY SEWER OR POTABLE WATER MUST BE ENCASED IN CONCRETE FOR 10 LF ON EACH SIDE OF THE CROSSING.
6. ALL WATER LINES ARE TO BE PRESSURE TESTED TO 1.5 TIMES THE WORKING PRESSURE OR 150 P.S.I., WHICHEVER IS GREATER, IN SECTIONS BETWEEN VALVES. THE TEST PRESSURE SHALL BE MAINTAINED FOR AT LEAST TWO HOURS. IF THE PIPELINE FAILS THE PRESSURE TEST, DISCLOSE AN INABILITY TO HOLD THE TEST PRESSURE, THE CONTRACTOR SHALL LOCATE AND CORRECT DEFECTS AND RETEST TO THE SATISFACTION OF THE UTILITY OWNER.
7. THE INSTALLATION OR REPAIR OF ANY UNDERGROUND FACILITIES OR PIPING WHICH CONNECTS TO PUBLIC POTABLE WATER FOR FIRE PROTECTION SPRINKLER SYSTEMS SHALL BE PERFORMED ONLY BY A LICENSED FIRE PROTECTION SPRINKLER SYSTEM INSTALLER CONTRACTOR, OR LICENSED PLUMBER. A COPY OF THE LICENSE OR CERTIFICATE OF COMPETENCY SHALL BE PROVIDED TO THE INSPECTOR AT THE FINAL INSPECTION.

PIPE MATERIALS

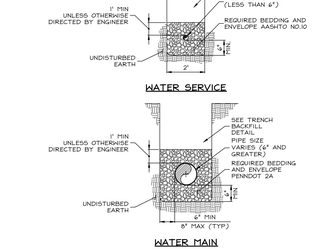
PIPE MATERIALS SHALL BE THE FOLLOWING, UNLESS OTHERWISE NOTED:

1. STORM SEWER
   1.1. PIPE DIAMETERS 12" AND GREATER:
      1.1.1. SMOOTH LINED CORRUGATED POLYETHYLENE PIPE (SLCPP), ASTM F2306 WITH SMOOTH LINED INTERIOR, AOS N12 ST IB, OR APPROVED EQUAL.
   1.2. PIPE DIAMETERS LESS THAN 12":
      1.2.1. SCHEDULE 40 PVC.
2. POTABLE WATER
   2.1. PIPE DIAMETERS GREATER THAN 2":
      2.1.1. DOUBLE CEMENT LINED, THICKNESS CLASS 52, DUCTILE IRON PIPE WITH TYTON JOINTS PER AWWA C151 WITH INTERNAL COAT AND EXTERNAL ASPHALT SEAL COAT IN ACCORDANCE WITH AWWA C104.
   2.2. PIPE DIAMETERS 2" AND SMALLER:
      2.2.1. TYPE K COPPER OR SIDR 7 POLYETHYLENE TUBING.
3. SANITARY SEWER
   3.1. PIPE DIAMETERS 8" AND GREATER:
      3.1.1. SDR-26 PVC.
   3.2. PIPE DIAMETERS LESS THAN 8":
      3.2.1. SCHEDULE 40 PVC.



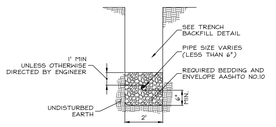
NOTES:
1. PROVIDE REINFORCEMENT AT UTILITY CROSSINGS OR AS DIRECTED BY THE MUNICIPALITY/ AUTHORITY HAVING JURISDICTION.

UTILITY CROSSING - CONCRETE ENCASEMENT
NOT TO SCALE



NOTES:
1. IF TRENCH IS EXTREMELY WET DUE TO HIGH GROUNDWATER, USE AASHTO #57 STONE UP TO THE HAUNCHES OF THE PIPE. REMAINDER OF BEDDING TO BE PENNDOT 2A.
2. FOLLOW PIPE INSTALLATION PROCEDURES PER PENNDOT PUBLICATION 72M - RC-3091.

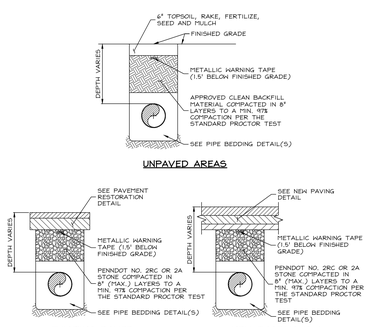
PIPE BEDDING - STORM SEWER
NOT TO SCALE



WATER SERVICE

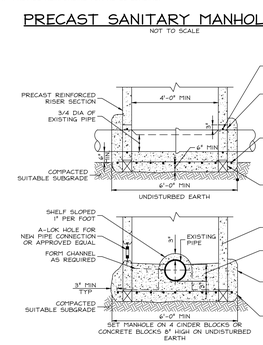
WATER MAIN

PIPE BEDDING - WATER MAIN AND SERVICE
NOT TO SCALE



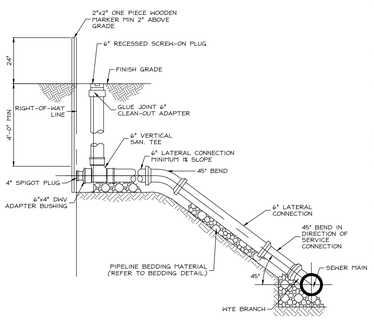
NOTES:
1. TRENCH COMPACTION TO BE TESTED, AT THE DEVELOPER'S EXPENSE, IN ACCORDANCE WITH PENNDOT PUB 408, LATEST REVISION, AS REQUIRED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION.
2. CLEAN FILL MUST BE APPROVED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION PRIOR TO PLACEMENT IN THE TRENCH.
3. AREAS AROUND MANHOLES, INLETS, AND OTHER APPURTENANCES SHALL BE HAND COMPACTED AS DIRECTED BY THE MUNICIPALITY/AUTHORITY HAVING JURISDICTION.
4. NO SLAG MATERIAL PERMITTED.
5. IF WATER IS ENCOUNTERED IN THE EXCAVATION TRENCH, AASHTO #57 AGGREGATE MUST BE USED.
6. ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, PUBLICATION 408 AND 67 PA CODE SECTION 459.
7. UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO COLLECT IN EXCAVATED TRENCHES. ANY WATER IN THE TRENCHES SHALL BE REMOVED THROUGH A PUMPED WATER FILTER BAG.

BACKFILL - TRENCH
NOT TO SCALE

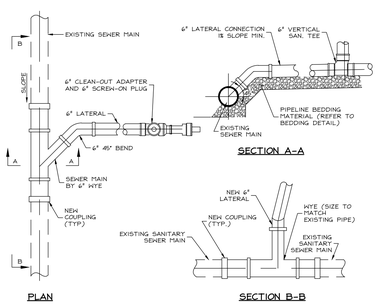


NOTES:
1. BASE SHALL BE MANUFACTURED TO ACCEPT EXISTING PIPE.
2. BEDDING UNDER THE EXISTING PIPE SHALL BE REMOVED TO THE FIRST JOINT AND REPLACED WITH CONCRETE EXTENDING TO BELL LINE.
3. EXISTING PIPE TO REMAIN UNTIL SATISFACTORY COMPLETION OF MANHOLE TESTING.
4. REMOVE CROWN OF EXISTING PIPE FLUSH WITH CONCRETE SHELF.

MANHOLE BASE - DOGHOUSE
NOT TO SCALE

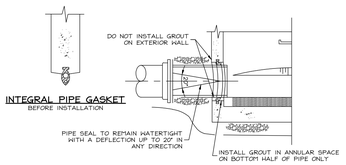


SANITARY DEEP LATERAL CONNECTION
NOT TO SCALE

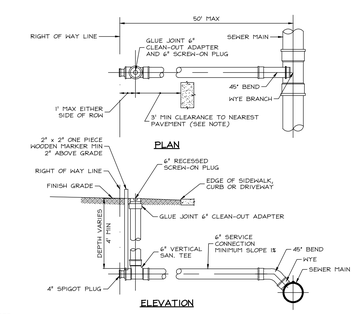


NOTES:
1. SANITARY SEWER SADDLES ARE NOT PERMITTED WITHOUT PRIOR APPROVAL FROM UTILITY OWNER.
2. PROVIDE BYPASS PUMPING AS REQUIRED FOR EXISTING SEWER MAIN.
3. PROVIDE NEW AGGREGATE BEDDING MATERIAL AS REQUIRED.
4. PROVIDE THROUGH COMPACTION OF BEDDING MATERIAL BENEATH ANY NEW SECTION OF PIPE OR FITTING.

SANITARY SEWER CUT-IN
NOT TO SCALE



PIPE GASKET - MANHOLE
NOT TO SCALE



NOTE:
1. CLEAN-OUT SHALL NOT NORMALLY BE LOCATED IN OR NEAR PAVED AREAS. UNDER SPECIAL CONDITIONS A CLEAN-OUT LOCATED IN, OR LESS THAN 3 FEET FROM, A PAVED AREA MAY BE ACCEPTABLE IF A PROTECTION SLEEVE AS SHOWN IN DETAIL CLEAN-OUT PROTECTION SLEEVE (FOR USE IN OR NEAR PAVED AREAS) IS PROVIDED.
2. LATERAL PIPE AND FITTINGS SHALL BE CONSTRUCTED OF SAME MATERIAL AS MAIN.

SANITARY LATERAL CONNECTION - SHALLOW SEWER
NOT TO SCALE

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1860 Charter Lane, Suite 206
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Owner:
Upper Merion Area School District
435 Crossfield Road
King of Prussia, PA 19406

New Construction of:
Caley Elementary School
725 Caley Road
King of Prussia, PA 19406

ISSUED FOR:

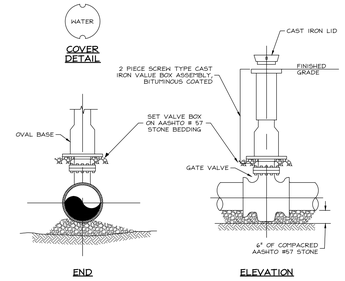
NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

Drawing Title:
UTILITY NOTES & DETAILS

Drawing Number: 13 of 25

C4.1



STANDARD GATE VALVE AND VALVE BOX

NOT TO SCALE

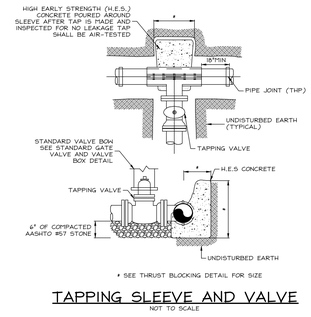
BEARING SURFACE REQUIRED - SQ.FT. HORIZONTAL THRUST BLOCKING @ VERTICAL THRUST DOWNWARD 125 P.S.I. WORKING PRESSURE															
PIPE SIZE	6" & 8"			10" & 12"				14" & 16" 20"				24"			
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	DEGREE OF BEND OR DEFLECTION														
	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E.
SAND 0.75 TON/SQFT	3.4	6.0	11.0	6.4	6.7	12.8	23.4	14.2	14.8	28.8	52.9	34.4	26.1	48.3	89.7	64.0
SOFT CLAY 1 TON/SQFT	2.6	4.6	8.2	4.8	5.0	9.6	17.5	10.7	11.2	21.7	39.7	28.2	19.6	36.3	67.3	48.0
SAND AND GRAVEL 2 TON/SQFT	1.3	2.3	4.1	2.4	2.5	4.8	8.8	5.3	5.6	10.8	20.0	14.1	9.8	13.1	33.6	24.0
CLAY 4 TON/SQFT	1.0	1.2	2.1	1.3	1.3	2.4	4.4	2.7	2.8	5.4	10.0	7.2	4.9	9.1	16.8	12.0
SOFT ROCK 5TON/SQFT	1.0	1.0	1.6	1.0	1.0	1.9	3.5	2.2	1.6	4.4	8.0	5.7	3.9	7.3	13.5	9.6
ROCK 15 TON/SQFT	-	-	1.0	0.4	-	1.0	1.2	0.8	1.0	1.4	2.6	1.9	1.3	2.4	4.5	3.2
PIPE SIZE	30"				36"				42"				48"			
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	DEGREE OF BEND OR DEFLECTION														
	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E.
SAND 0.75 TON/SQFT	40.3	76.5	139.0	99.1	55.5	107.5	197.5	140.0	74.3	144.3	266.5	188.7	83.2	162.3	336.2	238.0
SOFT CLAY 1 TON/SQFT	30.2	57.4	104.3	74.3	41.6	80.6	148.0	105.0	55.7	108.5	200.0	141.6	70.0	136.7	252.2	178.0
SAND AND GRAVEL 2 TON/SQFT	15.1	28.7	52.1	37.2	20.8	40.3	74.0	52.5	27.9	54.3	100.0	70.8	35.0	68.3	126.1	89.2
CLAY 4 TON/SQFT	7.6	14.6	26	18.6	10.4	20.2	37.0	26.3	14.0	27.0	50.0	35.3	17.5	34.2	63.0	44.6
SOFT ROCK 5TON/SQFT	6.0	11.5	20.9	14.9	8.3	16.1	29.6	21.0	11.2	21.7	40.0	28.3	14.0	27.3	50.4	35.7
ROCK 15 TON/SQFT	2.0	3.8	7.0	5.0	1.4	2.8	5.4	7.0	3.7	7.2	13.3	9.4	4.7	9.1	16.8	12.0

NOTES:

1. D.E. DENOTES DEAD END.

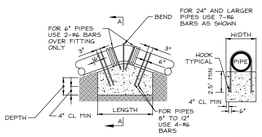
WATER-THRUST BLOCKING TABLE

NOT TO SCALE



TAPPING SLEEVE AND VALVE

NOT TO SCALE



TYPICAL SECTION - VERTICAL THRUST UPWARD

SECTION A-A

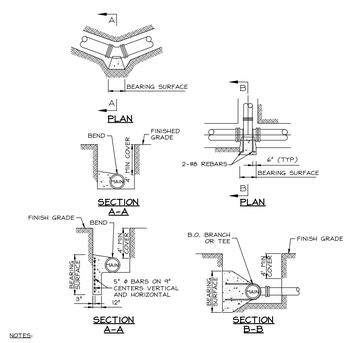
	CONCRETE BLOCKING DIMENSIONS, VERTICAL THRUST UPWARD 150 P.S.I. WORKING PRESSURE								
	LENGTH			WIDTH			DEPTH		
PIPE SIZES	11 1/4°	22 1/2°	45°	11 1/4°	22 1/2°	45°	11 1/4°	22 1/2°	45°
6" & 8"	3'	4'	6'	3'	3'	3'	2'	3'	4'
10" & 12"	3.5'	4'	7'	4'	4'	4'	2.5'	3'	4'
14" & 16"	4'	6'	9'	4.5'	4.5'	4.5'	3.5'	4'	5'
18" & 20"	5'	6.5'	11.5'	5'	5'	5'	4'	5'	5.5'
24"	5'	9'	12.5'	5'	5'	6'	4.5'	5'	6'
30"	5.5'	9'	13.5'	5.5'	6'	7'	5.5'	6'	7'
36"	6.5'	11'	14'	5.5'	6.5'	7'	6'	6.5'	7'
42"	9'	13.5'	15'	6'	7'	7'	6'	7'	7'
48"	10'	14'	16'	6'	7'	7'	6'	7'	7'

NOTES:

1. ALL CONC. SHALL HAVE MIN. COMPRESSIVE STRENTH OF 3000 PSI AT THE END OF 28 DAYS.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS. (ASTM GRADE 60)
3. ALL FITTINGS AND JOINTS SHALL BE COVERED WITH POLYETHELENE FILM BEFORE PLACING CONC.
4. PAINT ALL EXPOSED STEEL WITH TWO COATS OF VALDURA PAINT OR APPROVED EQUAL.
5. REINFORCING BARS SHALL BE U-SHAPE AROUND THE PIPE.

THRUST BLOCKING TABLE-VERTICAL-UPWARD

NOT TO SCALE



NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS (ASTM GRADE 60).
3. ALL FITTINGS AND JOINTS SHALL BE COVERED WITH POLYETHYLENE FILM BEFORE PLACING OF CONCRETE.
4. PAINT ALL EXPOSED STEEL WITH TWO COATS OF BITUMASTIC PAINT OR EPOXY COATING.
5. FOR THE REQUIRED BEARING SURFACE SEE STANDARD THRUST BLOCKING DETAIL.
6. BEARING SURFACE MUST BE UNDISTURBED EARTH.

WATER-HORIZONTAL THRUST BLOCKING

NOT TO SCALE

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ISSUED FOR:

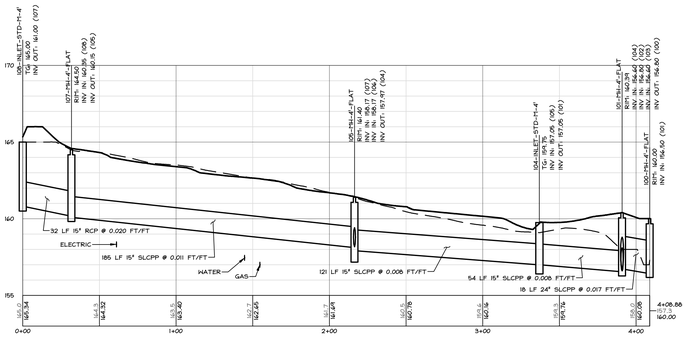
NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

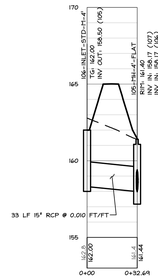
Drawing Title:
UTILITY NOTES & DETAILS

Drawing Number: 14 of 25

C4.2



108-100
SCALE: 1" = H:40', V:4'



106-105
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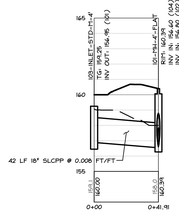

103-101
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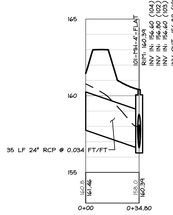

102-101
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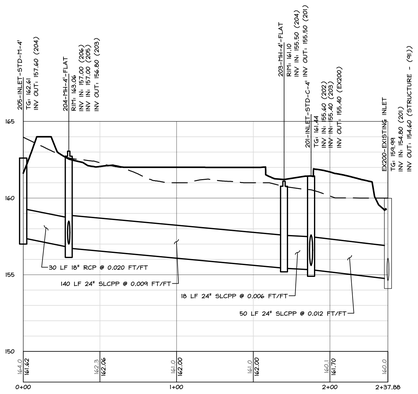
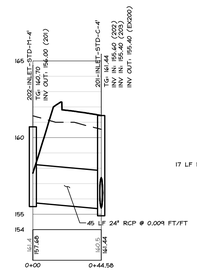


205-EX200
SCALE: 1" = H:40', V:4'

STRUCTURE LABEL LEGEND		
B-INLET-STD-T1-4' W/SNOUT		
1	2	3 4 5 6
1	STRUCTURE NUMBER	
2	STRUCTURE DESCRIPTION	
	INLET	INLET
	TSM	STANDARD MANHOLE
	DHPSM	DOGHOUSE MANHOLE
	DRPSM	DROP MANHOLE
	YD	YARD DRAIN
	TD	TRENCH DRAIN
	EH	ENDWALL
	HW	HEADWALL
	OS	OUTLET STRUCTURE
	CO	CLEANOUT
3	BOTTOM TYPE/SIZE	
	STD	STANDARD BOX
	STD T1	STANDARD TYPE 1 BOX
	STD T2	STANDARD TYPE 2 BOX
	STD T3	STANDARD TYPE 3 BOX
	MOD T1	MODIFIED TYPE 1 BOX
	MOD T2	MODIFIED TYPE 2 BOX
	T4	PADOT 4' X 4' BOX
	T5	PADOT 5' X 5' BOX
	T6	PADOT 6' X 6' BOX
	T7	PADOT 7' X 7' BOX
	T8	PADOT 8' X 8' BOX
	T9	PADOT 9' X 9' BOX
	T10	PADOT 10' X 10' BOX
	TDH	PADOT TYPE D-H
	4'	4' MANHOLE
	5'	5' MANHOLE
	6'	6' MANHOLE
	8'	8' MANHOLE
	MOD	MODIFIED MANHOLE
	DH	TYPE DH
	D	TYPE D
4	TOP TYPE	
	M	TYPE M
	C	TYPE C
	S	TYPE S
	DH LEV	TYPE D-H LEVEL
	CONE	CONIC
	FLAT	FLAT
5	GRATE SIZE	
	2'	2' X 2'
	4'	2' X 4'
	6'	2' X 6'
6	SNOUTS	
	-SNOUT	WITH SNOUT

IF NOT NOTED, INLET GRATE SIZE SHALL BE 4'.



202-201
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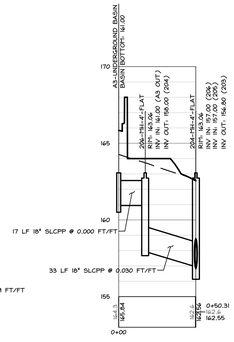

A3-204
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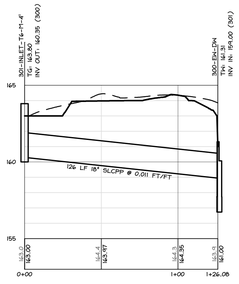

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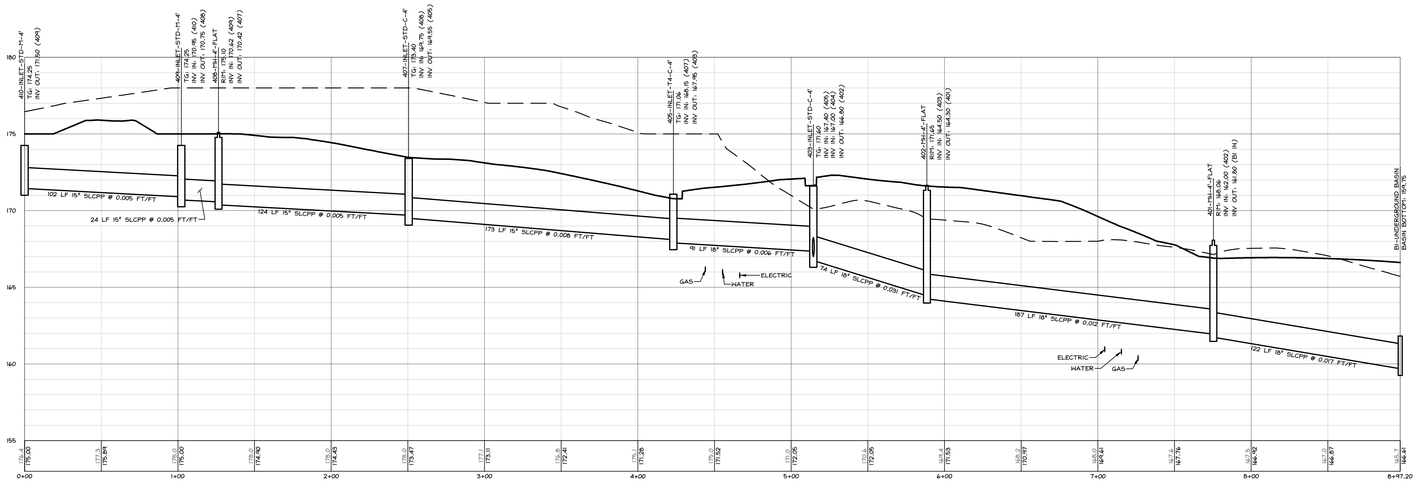

410-B1
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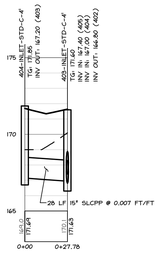

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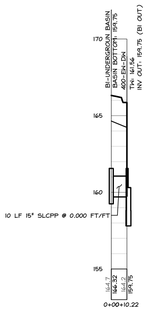

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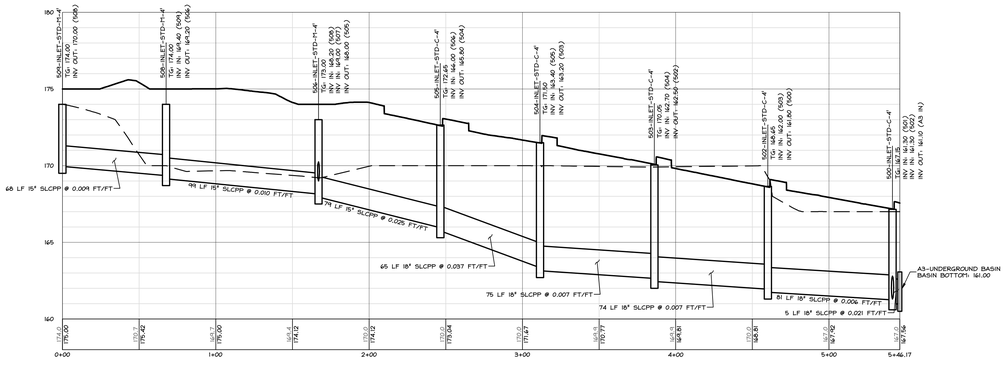

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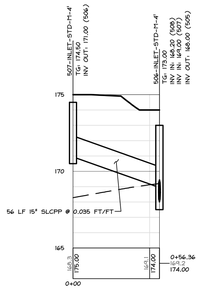

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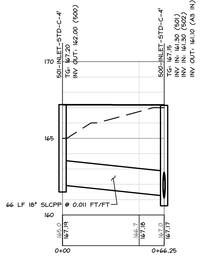

501-500
SCALE: 1" = H:40', V:4'

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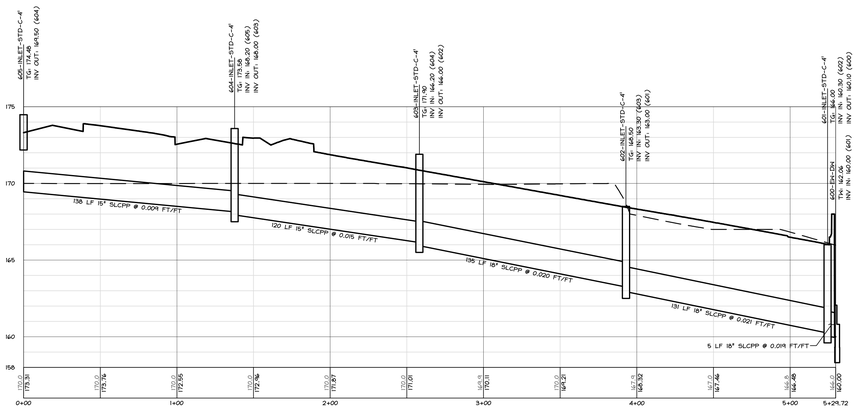
SGA PROJECT NUMBER: 15-022

Drawing Title:
PLAN & PROFILES

Drawing Number: 15 of 25

C5.0



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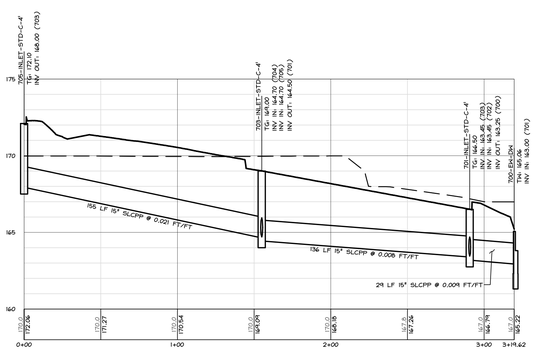

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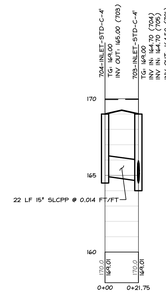

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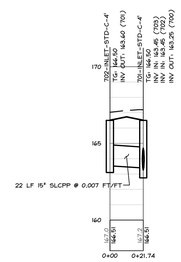

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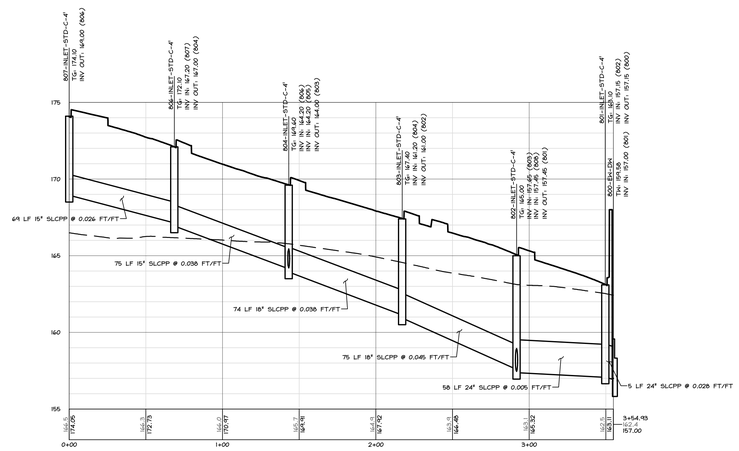

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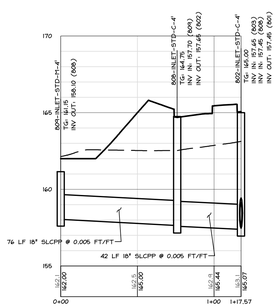

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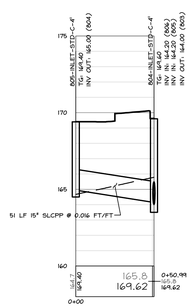

805-804
SCALE: 1" = H:40', V:4'

STRUCTURE LABEL LEGEND

B-INLET-STD-T1-4'-H/SNOUT
(1) (2) (3) (4) (5) (6)

1	STRUCTURE NUMBER	
2	STRUCTURE DESCRIPTION	
	INLET	INLET
	MH	STANDARD MANHOLE
	DHMH	DOGHOUSE MANHOLE
	DRMH	DROP MANHOLE
	YD	YARD DRAIN
	TD	TRENCH DRAIN
	EH	ENDWALL
	HW	HEADWALL
	OS	OUTLET STRUCTURE
	CO	CLEANOUT
3	BOTTOM TYPE/SIZE	
	STD	STANDARD BOX
	STD T1	STANDARD TYPE 1 BOX
	STD T2	STANDARD TYPE 2 BOX
	STD T3	STANDARD TYPE 3 BOX
	MOD T1	MODIFIED TYPE 1 BOX
	MOD T2	MODIFIED TYPE 2 BOX
	T4	PADOT 4' X 4' BOX
	T5	PADOT 5' X 5' BOX
	T6	PADOT 6' X 6' BOX
	T7	PADOT 7' X 7' BOX
	T8	PADOT 8' X 8' BOX
	T9	PADOT 9' X 9' BOX
	T10	PADOT 10' X 10' BOX
	TDH	PADOT TYPE D-H
	4'	4' MANHOLE
	5'	5' MANHOLE
	6'	6' MANHOLE
	8'	8' MANHOLE
	MOD	MODIFIED MANHOLE
	DH	TYPE DH
	D	TYPE D
4	TOP TYPE	
	M	TYPE M
	C	TYPE C
	S	TYPE S
	DH LEV	TYPE D-H LEVEL
	CONE	CONIC
	FLAT	FLAT
5	GRATE SIZE	
	2'	2' X 2'
	4'	2' X 4'
	6'	2' X 6'
6	SNOUTS	
	-SNOUT	WITH SNOUT

IF NOT NOTED, INLET GRATE SIZE SHALL BE 4'.

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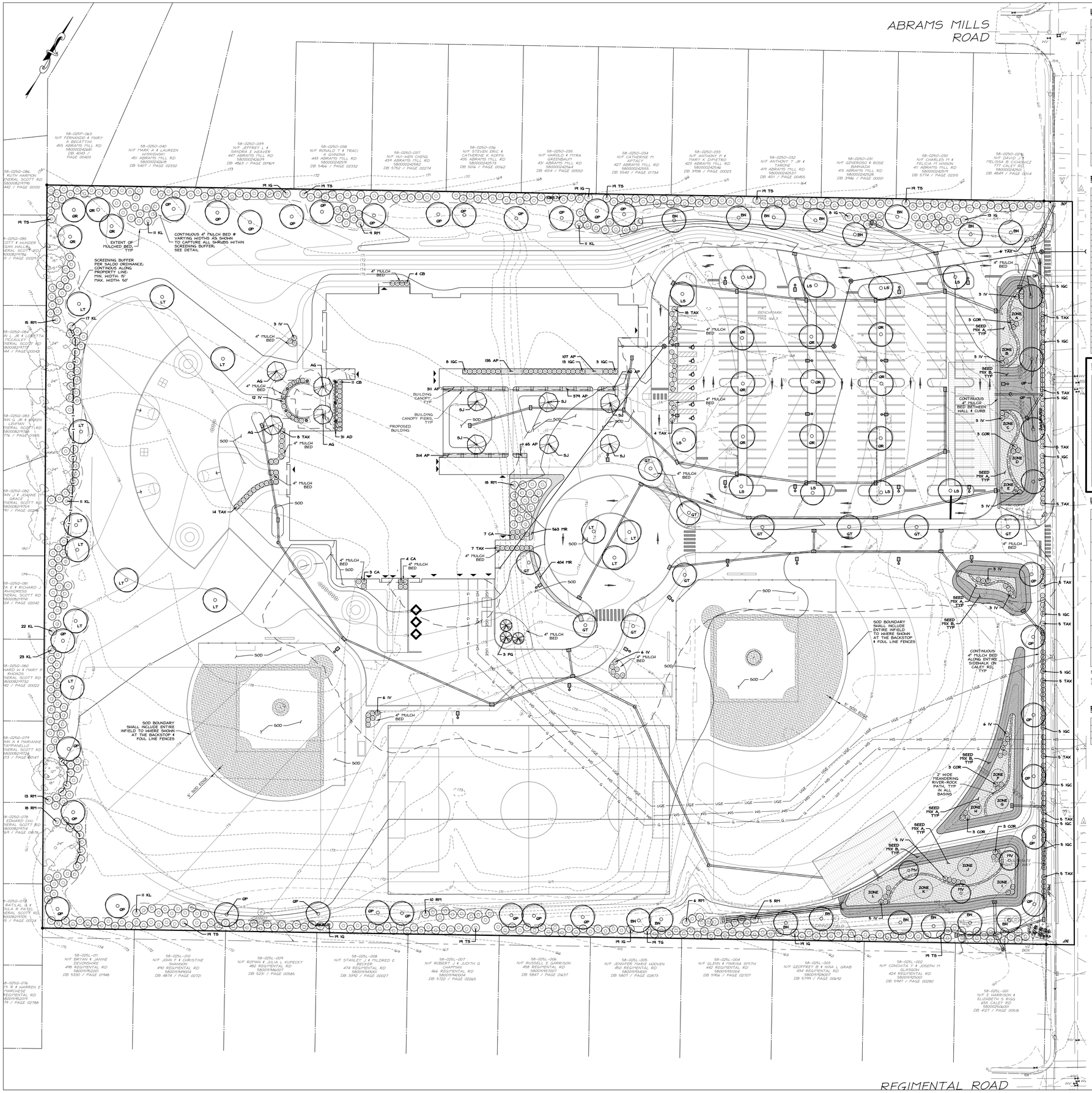
C5.1



LANDSCAPE LEGEND

DESCRIPTION	PROPOSED SYMBOL
TREE/SHRUB	
TREE CANOPY LINE	
BASIN PLUGS	
GROUNDCOVERS	
CONSERVATION SEED	
RIVER-ROCK	
TEMPORARY TREE PROTECTION FENCE	

PLANTING SCHEDULE

SYM	QTY	BOTANICAL NAME	COMMON NAME	MINIMUM SIZE	ROOT	REMARKS
TREES						
AG	4	AMELANCHIER x GRANDIFLORA 'AUTUMN BRILLIANCE'	APPLE SERVICEBERRY	1.5"-2" CAL	B&B	SINGLE STEM
BN	16	BETULA NIGRA	RIVER BIRCH	2.5"-3" CAL	B&B	SINGLE STEM
GT	10	GLEDITSIA TRIACANTHOS 'INERMIS'	THORNLESS HONEYLOCUST	2.5"-3" CAL	B&B	
LT	13	LIRIODENDRON TULIPIFERA	TULIP POPLAR	2.5"-3" CAL	B&B	
LS	10	LIQUIDAMBER STYRACIFLUA	SWEET GUM	2.5"-3" CAL	B&B	
MV	3	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	1.5"-2" CAL	B&B	
PG	3	PICEA GLAUCA	WHITE SPRUCE	8-10' HT	B&B	
QP	34	QUERCUS PHELLOS	WILLOW OAK	2.5"-3" CAL	B&B	
QR	13	QUERCUS RUBRA	RED OAK	2.5"-3" CAL	B&B	
SJ	6	STYRAX JAPONICA	JAPANESE SNOWBALL	1.5"-2" CAL	B&B	
MEDIUM SIZED SHRUBS						
CB	15	CALLICARPA BODINIERI x 'PROFUSION'	BEAUTY BERRY	24"-30"	#5 CONT.	
COR	15	CORNUS ALBA 'ELEGANTISSIMA'	RED TWIG DOGWOOD	24"-30"	#5 CONT.	
IGC	74	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	24"-30"	#5 CONT.	
TAX	107	TAXUS MEDIA DENSA	DENSE YEW	24"-30"	#5 CONT.	
LARGE SIZED SHRUBS						
CA	14	CLETHRA ACUMINATA	SUMMERSWEET	30"-36"	#7 CONT.	
IG	116	ILEX GLABRA	INKBERRY	48"	#7 CONT.	
IV	61	ILEX VERTICILATA	WINTERBERRY	30"-36"	#7 CONT.	
KL	106	KALMIA LATIFOLIA	MOUNTAIN LAUREL	48"	#7 CONT.	
RM	94	RHODODENDRON MAXIMUM	ROSEBAY RHODODENDRON	48"	#7 CONT.	
TS	152	THUJA SP.	ARBORVITAE	48"	#7 CONT.	
GROUND COVER & SMALL PLANTS						
AP	1,398	ADIANTUM PEDATUM	MAIDENHAIR FERN	FULL	1 GAL.	SPACED 12" O.C.
AD	31	ARUNCUS DIOICUS	GOAT'S BEARD	FULL	1 GAL.	
MR	947	MITCHELLA REPENS	PARTRIDGE BERRY	FULL	1 QT.	SPACED 12" O.C.

RAIN GARDEN PLUG & SEED SCHEDULE

ZONE	APPLICATION	SPECIES
PLUG PLANTS (2 Species within each zone - all plugs to be distributed equally between each species)		
A	143 SF/ 105 PLUGS @ 15" O.C.	MONARDA DIDYMA (BEE BALM) & JUNCUS TENUIS (DWARF SOFT RUSH)
B	143 SF/ 105 PLUGS @ 15" O.C.	ASTER LAEVIS 'BLUEBIRD' (SMOOTH ASTER) & CAREX APPALACHICA (APPALACHIAN SEDGE)
C	143 SF/ 105 PLUGS @ 15" O.C.	MONARDA DIDYMA (BEE BALM) & JUNCUS TENUIS (DWARF SOFT RUSH)
D	143 SF/ 105 PLUGS @ 15" O.C.	ASTER LAEVIS 'BLUEBIRD' (SMOOTH ASTER) & CAREX APPALACHICA (APPALACHIAN SEDGE)
E	143 SF/ 105 PLUGS @ 15" O.C.	MONARDA DIDYMA (BEE BALM) & JUNCUS TENUIS (DWARF SOFT RUSH)
F	143 SF/ 105 PLUGS @ 15" O.C.	SOLIDAGO RUGOSA 'FIREWORKS' (ROUGH GOLDENROD) & SCHIZACHYRIUM SP. (LITTLE BLUE STEM)
G	143 SF/ 105 PLUGS @ 15" O.C.	ASTER NOVAE-ANGLIAE (NEW ENGLAND ASTER) & ANDROPOGON GERARDII (BIG BLUE STEM)
H	143 SF/ 105 PLUGS @ 15" O.C.	SOLIDAGO RUGOSA 'FIREWORKS' (ROUGH GOLDENROD) & SCHIZACHYRIUM SP. (LITTLE BLUE STEM)
I	314 SF/ 201 PLUGS @ 15" O.C.	EUPATORIUM DUBIUM 'LITTLE JOE' (JOE PYE WEED) & JUNCUS TENUIS (DWARF SOFT RUSH)
J	314 SF/ 201 PLUGS @ 15" O.C.	ASTER LAEVIS 'BLUEBIRD' (SMOOTH ASTER) & SCHIZACHYRIUM SP. (LITTLE BLUE STEM)
K	314 SF/ 201 PLUGS @ 15" O.C.	ASTER LAEVIS 'BLUEBIRD' (SMOOTH ASTER) & SCHIZACHYRIUM SP. (LITTLE BLUE STEM)
L	314 SF/ 201 PLUGS @ 15" O.C.	EUPATORIUM DUBIUM 'LITTLE JOE' (JOE PYE WEED) & JUNCUS TENUIS (DWARF SOFT RUSH)
SEED MIXES		
A	11,200 SF @ ½ LB PER 1000 SF	ERNMX-138 (WILDLIFE FOOD AND SHELTER MIX)
B	14,884 SF @ 1 LB PER 1000 SF	ERNMX-181 (NATIVE STEEP SLOPE MIX W/ ANNUAL RYEGRASS)

LANDSCAPE COMPLIANCE SCHEDULE

ORDINANCE CATEGORY	PLANTS REQUIRED	PLANTS PROVIDED	DIFFERENCE	TREE CREDITS	TREE BALANCE	REMARKS
PROPERTY SCREENING BUFFER (SEE ORDINANCE SECTION 145-241.6(3))	CANOPY TREES- 114	CANOPY TREES- 50	-(64)	40	-(24)	PARTIAL WAIVER; SEE ATTACHED WAIVER REQUEST LETTER
	UPRIGHT EVERGREEN SHRUBS- 570	UPRIGHT EVERGREEN SHRUBS- 450	-(120)	N/A	N/A	
STREET TREES (SEE ORDINANCE SECTION 145-241.E)	STREET TREES- 20	STREET TREES- 10	-(10)	10	0	
PARKING LOT ISLANDS (SEE ORDINANCE SECTION 145-241.D(2))	SHADE TREES- 18	SHADE TREES- 19	+(1)	0	+(1)	
PARKING LOT SCREENING (SEE ORDINANCE SECTION 145-241.D(5))	CANOPY TREES- 18	CANOPY TREES- 18	0	0	0	PARTIAL WAIVER; SEE ATTACHED WAIVER REQUEST LETTER
	UPRIGHT EVERGREEN SHRUBS- 90	UPRIGHT EVERGREEN SHRUBS- 22	-(68)	N/A	N/A	
STORMWATER BASINS AND ASSOCIATED FACILITIES (SEE ORDINANCE SECTION 145-241.F(1))	TREES- 32	TREES- 3	-(29)	8	-(21)	PARTIAL WAIVER; SEE ATTACHED WAIVER REQUEST LETTER
	SHRUBS- 159	SHRUBS- 52	-(107)	N/A	N/A	
STORMWATER BASIN SCREENING (SEE ORDINANCE SECTION 145-241.F(3))	CANOPY TREES- 48	CANOPY TREES- 0	-(48)	0	-(48)	WAIVER; SEE ATTACHED WAIVER REQUEST LETTER
	UPRIGHT EVERGREEN SHRUBS- 477	UPRIGHT EVERGREEN SHRUBS- 0	-(477)	N/A	N/A	
TREE REPLACEMENT (SEE ORDINANCE SECTIONS 145-241.C (4))	TREES- 57	TREES- 17	-(40)	N/A	-(40)	SEE NOTE 2 BELOW; PARTIAL WAIVER; SEE ATTACHED WAIVER REQUEST LETTER

NOTES:

1. IN THE "DIFFERENCE" COLUMN ABOVE, (+) INDICATES A SURPLUS AND (-) INDICATES A DEFICIENCY
2. IN THE "TREE REPLACEMENT CATEGORY," PLANTS PROVIDED (IN ADDITION TO ORDINANCE REQUIRED LANDSCAPING) WERE TABULATED AS FOLLOWS:
   2.1. ONE 2.5"-3" CALIPER TREE = 1 TREE REPLACEMENT
   2.2. TWO 1.5"-2" CALIPER TREES = 1 TREE REPLACEMENT

PRESERVED TREE CREDIT SCHEDULE

EXISTING TREES PRESERVED	SIZE RANGE (DBH)	TREE CREDITS (2.5" CALIPER)	TOTAL TREE CREDITS
7	18-35"	6	42
4	12-17"	4	16
			58

40 0 40 80
GRAPHIC SCALE IN FEET

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C6.0

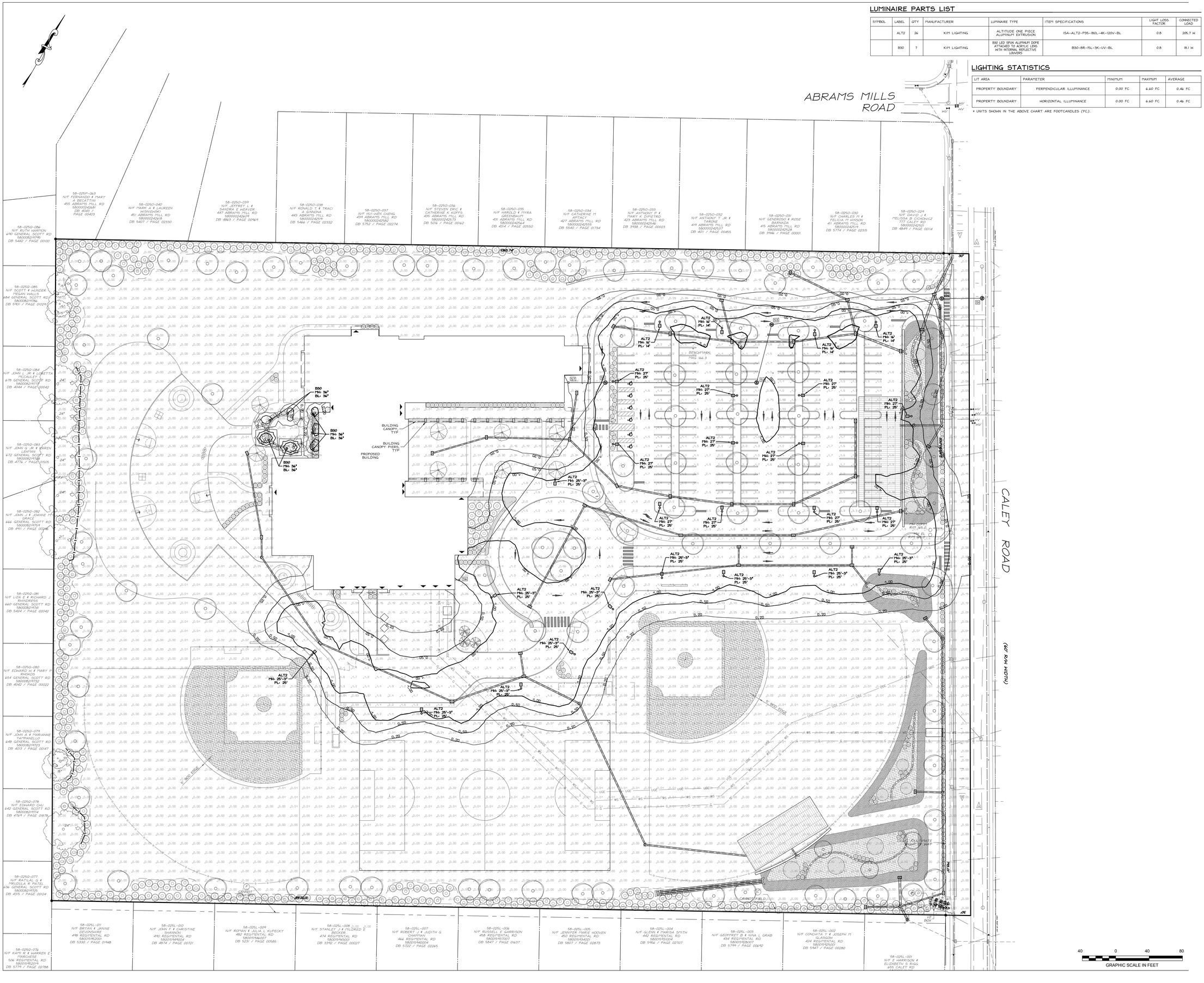
LUMINAIRE PARTS LIST

SYMBOL	LABEL	QTY	MANUFACTURER	LUMINAIRE TYPE	ITEM SPECIFICATIONS	LIGHT LOSS FACTOR	CONNECTED LOAD
	ALT2	26	KIM LIGHTING	ALTITUDE ONE PIECE ALUMINUM EXTRUSION	15A-ALT2-P35-180L-4K-120V-BL	0.8	205.7 W
	B30	7	KIM LIGHTING	B30 LED SPUN ALUMINUM DOME ATTACHED TO ACRYLIC LENS WITH INTERNAL REFLECTIVE LOUVERS	B30-8R-15L-3K-UV-BL	0.8	18.1 W

LIGHTING STATISTICS

LIT AREA	PARAMETER	MINIMUM	MAXIMUM	AVERAGE
PROPERTY BOUNDARY	PERPENDICULAR ILLUMINANCE	0.00 FC	6.60 FC	0.46 FC
PROPERTY BOUNDARY	HORIZONTAL ILLUMINANCE	0.00 FC	6.60 FC	0.46 FC

* UNITS SHOWN IN THE ABOVE CHART ARE FOOTCANDLES (FC).



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LIGHTING

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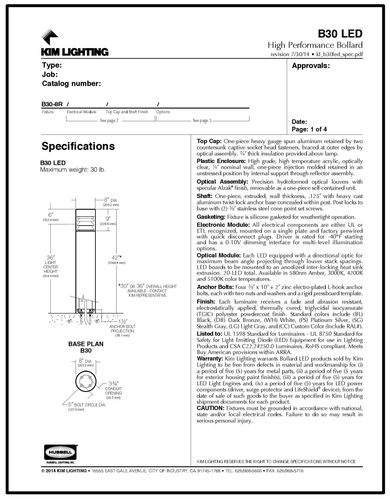
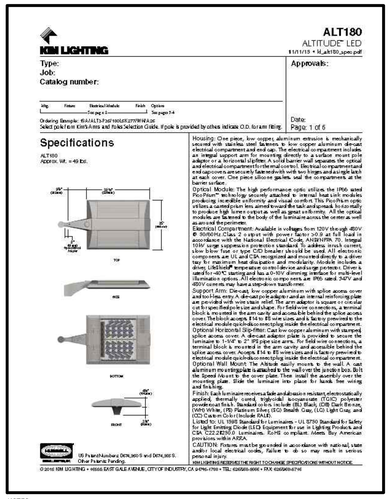


NOTES:

1. ALL PROPOSED LIGHT FIXTURES SHALL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.

BOLLARD LIGHT SPECIFICATIONS

NOT TO SCALE

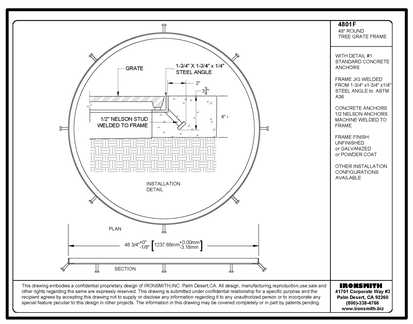


NOTES:

1. ALL PROPOSED LIGHT FIXTURES SHALL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.

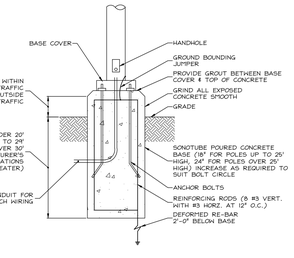
POLE LIGHT SPECIFICATIONS

NOT TO SCALE



TREE GRATE INSTALLATION

NOT TO SCALE

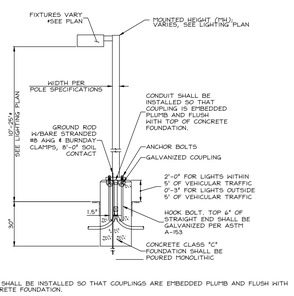


NOTES:

1. ALL CONDUIT SHALL BE INSTALLED SO THAT COUPLINGS ARE EMBEDDED PLUMB AND FLUSH WITH TOP OF CONCRETE FOUNDATION.

LIGHT BASE

NOT TO SCALE

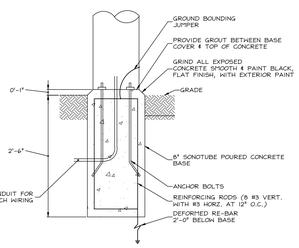


NOTES:

1. ALL CONDUIT SHALL BE INSTALLED SO THAT COUPLINGS ARE EMBEDDED PLUMB AND FLUSH WITH TOP OF CONCRETE FOUNDATION.

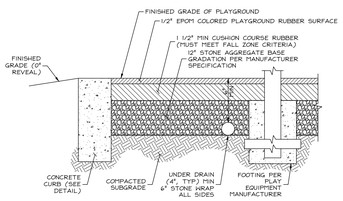
LIGHT POLE

NOT TO SCALE



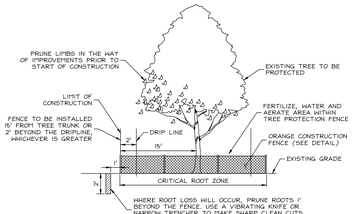
BOLLARD LIGHT BASE

NOT TO SCALE



PLAY AREA - RUBBER

NOT TO SCALE

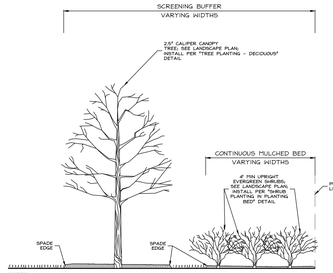


NOTES:

1. NO ENTRY, STORAGE, DISTURBANCE OR ALTERATION SHALL OCCUR IN AREA WITHIN TREE PROTECTION FENCE.

TREE PROTECTION AND PRUNING

NOT TO SCALE

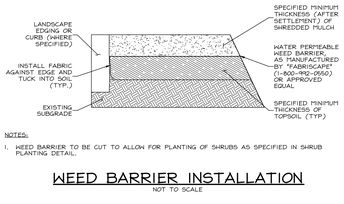


NOTES:

1. THE CONTRACTOR SHALL INSTALL A WEED BARRIER THROUGHOUT THE ENTIRE CONTINUOUS MULCHED BED SHOWN ABOVE AND ON THE LANDSCAPE PLAN.
2. SEE THE LANDSCAPE PLAN, PLANTING SCHEDULE, AND COMPLIANCE SCHEDULE FOR ALL PLANT LOCATIONS, SPECIES, AND QUANTITIES.
3. SEE THE LANDSCAPE PLAN FOR EXTENTS OF MULCHED BED WITHIN THE PROPERTY LINE SCREENING BUFFER

PROPERTY LINE SCREENING BUFFER

NOT TO SCALE

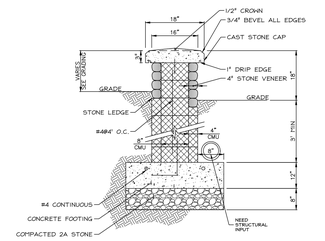


NOTES:

1. WEED BARRIER TO BE CUT TO ALLOW FOR PLANTING OF SHRUBS AS SPECIFIED IN SHRUB PLANTING DETAIL.

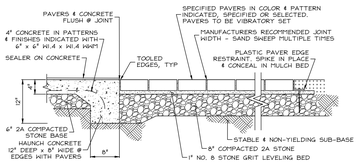
WEED BARRIER INSTALLATION

NOT TO SCALE



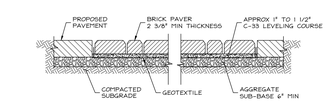
SITTING WALL

NOT TO SCALE



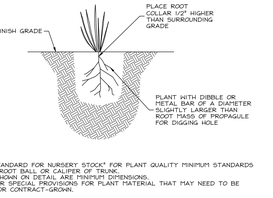
TRANSITION - CONCRETE TO PAVER

NOT TO SCALE



PAVER - BRICK

NOT TO SCALE

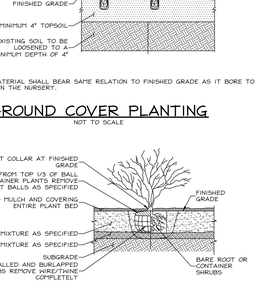


NOTES:

1. SEE "AMERICAN STANDARD FOR NURSERY STOCK" FOR PLANT QUALITY MINIMUM STANDARDS SUCH AS SIZE OF ROOT BALL OR CALIPER OF TRUNK.
2. ALL DIMENSIONS SHOWN ON PLANS ARE MINIMUM DIMENSIONS.
3. SEE PLANT LIST OR SPECIAL PROVISIONS FOR PLANT MATERIAL THAT MAY NEED TO BE HELD-COLLECTED OR CONTRACT-GROWN.

PLUG PLANTING

NOT TO SCALE

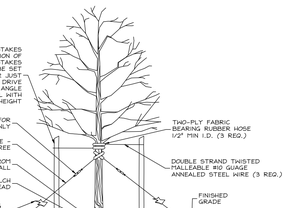


NOTES:

1. GROUND COVER MATERIAL SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE IN THE NURSERY.

GROUND COVER PLANTING

NOT TO SCALE

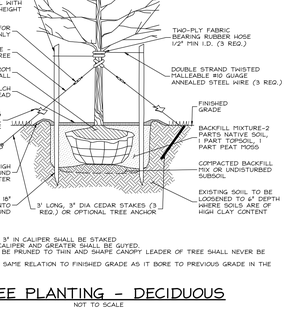


NOTES:

1. DO NOT PRUNE EVERGREENS EXCEPT TO REMOVE DEAD AND BROKEN BRANCHES.
2. THIN BRANCHES AND FOLIAGE (NOT ALL BRANCH TIPS) BY 1/3, RETAINING NORMAL PLANT SHAPE (EXCEPT EVERGREEN).
3. SHRUBS SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE IN THE NURSERY.

SHRUB PLANTING IN PLANTING BED

NOT TO SCALE

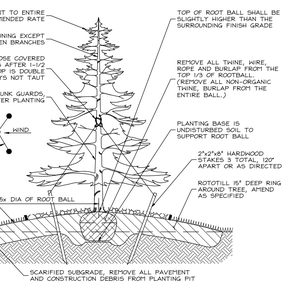


NOTES:

1. ALL TREES UNDER 3" IN CALIPER SHALL BE STAKED
2. ALL TREES 3" IN CALIPER AND GREATER SHALL BE GUYED.
3. ALL TREES SHALL BE PRUNED TO THIN AND SHAPE CANOPY LEADER OF TREE SHALL NEVER BE CUT.
4. TREE SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE IN THE NURSERY.

TREE PLANTING - DECIDUOUS

NOT TO SCALE



NOTES:

1. DO NOT FERTILIZE UNTIL LATE SPRING OF 2ND YEAR FOLLOWING PLANTING.
2. PLANTING SOIL AND MIX AND MULCH AS SPECIFIED. MULCH SHALL BE PLACED AT A DISTANCE EQUAL TO THE WIDTH OF THE DRIPLINE.
3. ON windy SITES 2 STAKES SHALL BE ON PREVAILING WIND SIDE.

TREE PLANTING - EVERGREEN

NOT TO SCALE

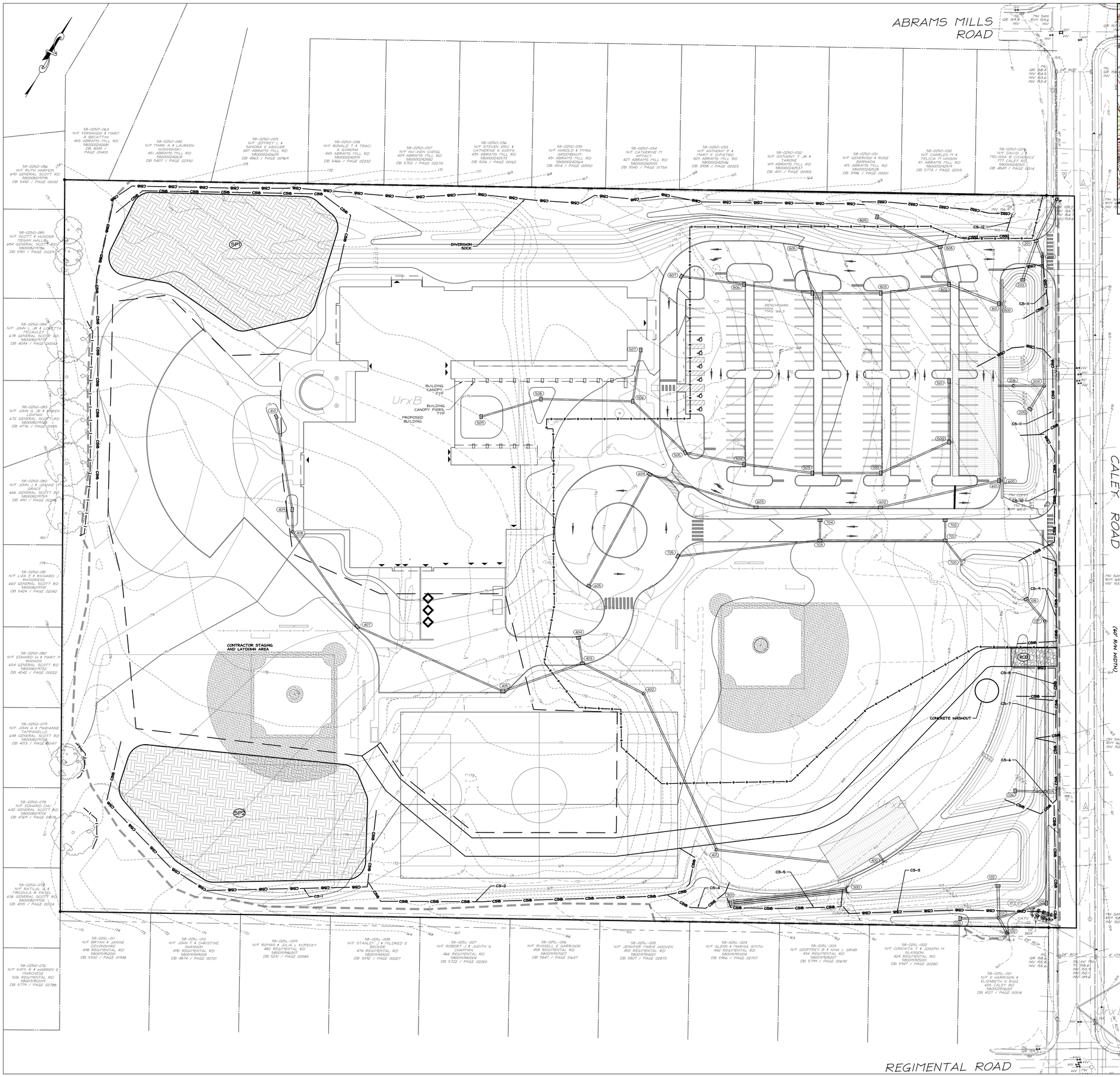
LANDSCAPE NOTES

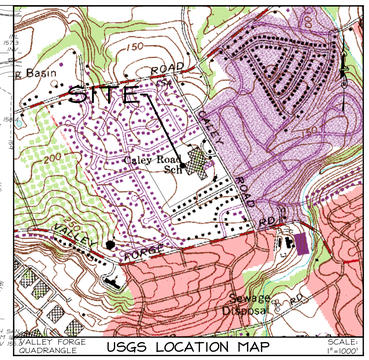
1. GRADE CHANGES AND EXCAVATION SHALL NOT ENCROACH UPON TREE PROTECTION ZONES.
2. ALL EQUIPMENT AND TOOLS SHALL BE PLACED SO AS NOT TO INTERFERE OR HINDER THE PEDESTRIAN AND VEHICULAR TRAFFIC FLOW.
3. THE CONTRACTOR SHALL COORDINATE WITH LIGHTING AND/OR IRRIGATION CONTRACTORS REGARDING TIMING OF INSTALLATION OF PLANT MATERIAL.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING WHERE THE UNDERGROUND UTILITIES EXIST ON-SITE.
5. THE CONTRACTOR SHALL CALL THE PENNSYLVANIA ONE CALL SYSTEM (1-800-242-1776) A MINIMUM OF THREE DAYS PRIOR TO ANY EXCAVATION. THE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES ON THE SITE. THEIR EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR WITH THE ASSISTANCE OF THE UTILITY COMPANIES OF ANY DIGGING OPERATIONS. IN THE EVENT THEY ARE UNCOVERED, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO UTILITIES AND SUCH DAMAGE SHALL NOT RESULT IN ANY ADDITIONAL EXPENSES TO THE OWNER. ANY DAMAGE OF UNREPORTED LINES SHALL NOT BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. IF UTILITY LINES ARE ENCOUNTERED IN EXCAVATION OF TREE PITS, OTHER LOCATIONS FOR TREES SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION.
7. EXCAVATION NEAR EXISTING UTILITIES TO BE CAREFULLY PERFORMED BY HAND. ALL TREES SHALL NOT BE LOCATED CLOSER THAN 10' TO ANY EXISTING OR PROPOSED UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED ON THE PLANS.
8. THIS PLAN IS TO BE USED FOR LANDSCAPING PURPOSES ONLY. THE CONTRACTOR SHALL EXAMINE ALL ENGINEERING DRAWINGS AND FIELD CONDITIONS FOR EXACT LOCATIONS OF UTILITIES, DRAINS ETC., AND NOTIFY THE OWNER ABOUT ANY DISCREPANCIES OR CONFLICTS BEFORE STARTING WORK.
9. LANDSCAPE PLANS SHALL NOT BE UTILIZED TO DETERMINE LOCATIONS, DIMENSIONS OR MEASUREMENTS OF OTHER PROPOSED SITE STRUCTURES. REFER TO APPROPRIATE DRAWINGS (ENGINEERING, ETC.) FOR OTHER INFORMATION.
10. EVERY POSSIBLE SAFEGUARD SHALL BE TAKEN TO PROTECT BUILDING SURFACES, EQUIPMENT, AND FURNISHINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSONS OR PROPERTY WHICH MAY OCCUR AS A RESULT OF HIS NEGLIGENCE IN THE EXECUTION OF THE WORK.
11. IN THE EVENT OF VARIATIONS BETWEEN WRITTEN QUANTITIES SHOWN ON THE PLAN AND THE PLANT LIST, THE PLANS SHALL CONTROL. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES PRIOR TO THE COMMENCEMENT OF WORK. SOD AND SEED QUANTITY TAKE-OFFS ARE THE RESPONSIBILITY OF THE CONTRACTOR. ALL DISCREPANCIES SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT FOR CLARIFICATION PRIOR TO BIDDING. THE CONTRACTOR SHALL FURNISH PLANT MATERIAL IN SIZES AS SPECIFIED IN PLANT LIST.
12. PLANTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS OR AS DESIGNATED IN THE FIELD. THE CONTRACTOR SHALL STAKE ALL MATERIAL LOCATED ON THE SITE FOR REVIEW. ALL LOCATIONS ARE TO BE REVIEWED BY LANDSCAPE ARCHITECT BEFORE EXCAVATION.
13. FIELD ADJUST PROPOSED PLANTING LOCATIONS WHERE NEEDED TO AVOID ANY DAMAGE TO EXISTING FACILITIES, AS WELL AS VEGETATION.
14. PLANTS SHALL CONFORM TO THE CURRENT "AMERICAN STANDARD FOR NURSERY STOCK" AND Z60.1-1996, APPROVED NOVEMBER 6, 1996, OR LATEST REVISION, PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION, (FORMERLY AMERICAN ASSOCIATION OF NURSERYMEN) AND SHALL BEAR THE SEAL OF THE ASSOCIATION. SIZES SHALL BE THE MINIMUM DENSITY OF BRANCH STRUCTURE. PLANT MATERIAL SHALL BE TAGGED AT THE SOURCE BY THE LANDSCAPE ARCHITECT UNLESS THIS REQUIREMENT IS SPECIFICALLY WAIVED. LOOSE, BROKEN, OR MANUFACTURED BALLS WILL BE REJECTED.
15. ALL PLANT MATERIALS USED SHALL BE TRUE TO NAME AND SIZE IN CONFORMITY WITH THE AMERICAN STANDARDS OF NURSERY STOCK (LATEST VERSION) AND SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY. ALL PLANTS SHALL HAVE NORMAL, WELL-DEVELOPED BRANCHES & VIGOROUS ROOT SYSTEMS. THEY SHALL BE SOUND, HEALTHY, VIGOROUS, FREE FROM DEFECTS, DISFIGURING KNOTS, ABRASIONS OF THE BARK, SUNSCALD INJURIES, PLANT DISEASES, INSECT EGGS, BORERS AND ALL OTHER FORMS OF INFECTION. ALL PLANTS SHALL BE NURSERY GROWN. ALL PLANTS SHALL BE GRADE "A" NURSERY STOCK, WHICH HAVE BEEN NURSERY GROWN UNDER THE SAME CLIMATIC CONDITIONS AS PROJECT SITE.
16. PLANT NAMES SHALL AGREE WITH THE NOMENCLATURE "STANDARD PLANT NAMES" AS ADOPTED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURE NOMENCLATURE.
17. ALL PLANTING PROCEDURES SHALL CONFORM TO PENNDOT SPECIFICATIONS WHERE APPLICABLE.
18. ALL PLANTS (B&B OR CONTAINER) SHALL BE PROPERLY IDENTIFIED BY WEATHER-PROOF LABELS SECURELY ATTACHED THERETO BEFORE DELIVERY TO PROJECT SITE. LABELS SHALL IDENTIFY PLANTS BY NAME, SPECIES, AND SIZE. LABELS SHALL NOT BE REMOVED UNTIL THE FINAL INSPECTION BY THE LANDSCAPE ARCHITECT OR AGENT IN CHARGE.
19. BALLED AND BURLAPPED, AND BALLED AND PLATFORM PLANTS, SHALL HAVE SOLID BALL OF EARTH SECURELY HELD IN PLACE BY BURLAP AND STOUT ROPE. MINIMUM BALL SIZES SHALL BE SPECIFIED IN THE "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMAN.
20. THE LANDSCAPE ARCHITECT OR OWNER SHALL HAVE THE RIGHT, AT ANY STAGE OF THE OPERATIONS, TO REJECT ANY AND ALL WORK AND MATERIAL WHICH, IN HIS OPINION, DOES NOT MEET THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS. ALL REJECTED MATERIALS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
21. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE LANDSCAPE ARCHITECT.
22. THE CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR STABILITY AND CONDITIONS OF ALL PLANTS FOR A PERIOD OF ONE (1) YEAR AFTER THE FINAL ACCEPTANCE OF THE WORK. THE INSTABILITY OF ANY PLANT MATERIALS, STANDING OF ALL TREES SHALL BE DONE AS INDICATED ON THE DOCUMENTS OR BY UTILIZING A METHOD APPROVED BY THE LANDSCAPE ARCHITECT.
23. ALL DISTURBED AREAS OF THE SITE NOT PLANTED WITH SHRUBS OR GROUND COVER SHALL BE FINE GRADED AND SEEDED OR SODDED.
24. ALL DISTURBED AREAS TO BE TOPSOILED SHALL HAVE A MINIMUM TOPSOIL DEPTH OF 4", SHALL BE FERTILIZED, SEEDED AND MULCHED WITH SMALL GRAIN STRAW. TOPSOIL SHALL BE NATURAL, FRIABLE, FERTILE SOIL CHARACTERISTIC OF PRODUCTIVE SOIL IN THE VICINITY. IT SHALL BE FREE OF LUMPS OF CLAY, STONES, ROOTS AND OTHER FOREIGN MATTER.
25. MULCH, 4" IN DEPTH, SHALL BE EITHER WOOD CHIPS, PINE BARK OR SHREDDED HARDWOOD BARK NOT EXCEEDING 2" IN GREATEST DIMENSION. A WEED RETARDANT BARRIER SHALL BE USED IN ALL NON-GRASSED AREAS.
26. ALL PLANT MATERIALS SHALL BEAR THE SAME RELATION TO FINISH GRADE AS IT BORE TO EXISTING GRADE AT THE NURSERY. ADJUST AS NEEDED TO MEET GRADE AT ROOT COLLAR. THE ROOT COLLAR SHALL NOT BE COVERED BY SOIL OR MULCH.
27. PLANTING SHALL BE CONDUCTED UNDER SEASONS WHICH ARE NORMAL FOR SUCH WORK. AT ANY TIME DURING THE PLANTING OPERATIONS, IF CONDITIONS ARE ABNORMAL, PLANTING OPERATIONS MAY BE CONDUCTED UNDER UNREASONABLE CONDITIONS. PLANTS SHALL ONLY BE INSTALLED WHEN THE SOIL IS FROST FREE. IN GENERAL, PLANT DURING THE FOLLOWING SEASONS UNLESS OTHERWISE APPROVED BY THE LANDSCAPE ARCHITECT:

    DECIDUOUS TREES AND SHRUBS:
    WHEN PLANTS ARE DORMANT (FALL AND EARLY SPRING).

    BROADLEAF EVERGREEN TREES AND SHRUBS:
    WHEN THE FROST LEAVES THE GROUND UNTIL NEW GROWTH IS HELL DEVELOPED (SPRING).

    GROUNDCOVER:
    AFTER THE DANG





EROSION & SEDIMENT CONTROL LEGEND

EXISTING SYMBOL	DESCRIPTION	PROPOSED SYMBOL
360	INDEX CONTOUR	360
358	CONTOUR	358
GeB2	SOIL NAME / BOUNDARY	
	ROCK APRON	
	ROCK ACCESS DRIVE	
	TOPSOIL STOCKPILE	
	INLET PROTECTION	IP
	ROCK CONSTRUCTION ENTRANCE	
	EROSION CONTROL BLANKET (NORTH AMERICAN GREEN S75 OR APPROVED EQUAL) (ECB)	
	TURF REINFORCEMENT MATTING (NORTH AMERICAN GREEN C350 OR APPROVED EQUAL) (TRM)	
	SILT FENCE (18")	SF18 SF18
	SILT FENCE (30")	SF30 SF30
	SILT FENCE (SUPER)	SSF SSF
	COMPOST SOCK (12")	CS12 CS12
	COMPOST SOCK (18")	CS18 CS18
	COMPOST SOCK (24")	CS24 CS24
	COMPOST SOCK (32")	CS32 CS32
	COMPOST SOCK TRAP	CST CST
	NPDES BOUNDARY/ LIMIT OF DISTURBANCE	
	TEMPORARY CONTOURS	358 360
	DRAINAGE AREA LINE	
	TREE PROTECTION FENCE	

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 OF 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO. 20161603146.

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1860 Charter Lane, Suite 206
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p: 717.299.8965

Owner:
Upper Merion Area School District
435 Crossfield Road
King of Prussia, PA 19406

New Construction of:
Caley Elementary School
725 Caley Road
King of Prussia, PA 19406

ISSUED FOR:

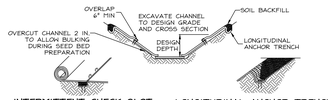
NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

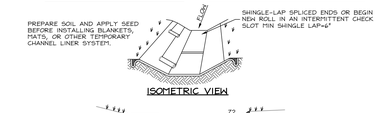
Drawing Title:
EROSION & SEDIMENT CONTROL

Drawing Number: 20 of 25

C7.0



INTERMITTENT CHECK SLOT LONGITUDINAL ANCHOR TRENCH



ISOMETRIC VIEW

CHANNEL CROSS-SECTION

(LOOKING DOWNSTREAM)

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

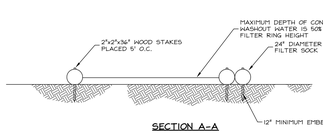
CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	LINING*
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

NOTES:

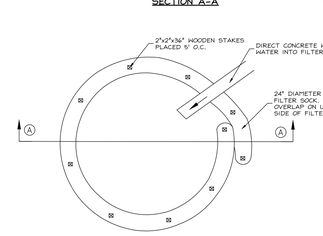
1. ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.
2. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS EXCEEDED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHOULD BE REMOVED 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.
3. ALL DEBRIS AND ANY OVERGROWTH (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.

VEGETATED CHANNEL

NOT TO SCALE



SECTION A-A



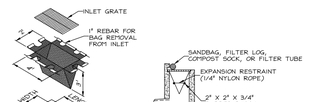
PLAN

NOTES:

1. HASHOUT SHALL BE INSTALLED ON FLAT GRADE.
2. 18" DIAMETER FILTER SOCK MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.
3. ALTERNATE CONCRETE WASHOUTS (AS SHOWN IN THE PA DEP EROSION AND SEDIMENT CONTROL PROGRAM MANUAL) MAY BE USED WITH CONSERVATION DISTRICT/DEP APPROVAL.

CONCRETE WASHOUT

NOT TO SCALE



INSTALLATION DETAIL

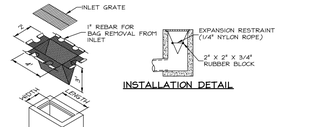
ISOMETRIC VIEW SECTION VIEW PLAN VIEW

NOTES:

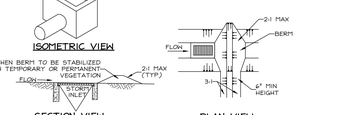
1. MAXIMUM DRAINAGE AREA = 1/2 ACRE.
2. INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.
3. ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. 50X WIDE MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PERMANENTLY VEGETATED.
4. 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.
5. 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 IMMEDIATELY. ACCUMULATED SEDIMENT SHALL BE REMOVED OR REPLACEMENT OF BAGS. ALL NECESSARY REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS HELLI AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.
6. DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

FILTER BAG INLET PROTECTION - TYPE C INLET

NOT TO SCALE



INSTALLATION DETAIL



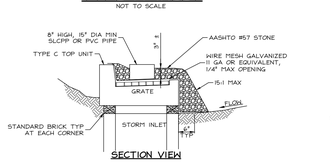
ISOMETRIC VIEW SECTION VIEW PLAN VIEW

NOTES:

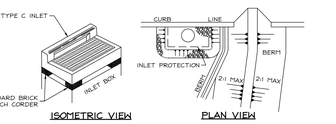
1. MAXIMUM DRAINAGE AREA = 1/2 ACRE.
2. INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.
3. ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM SHEET PILE SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR RETAIN PERMANENT.
4. 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.
5. 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 IMMEDIATELY. ACCUMULATED SEDIMENT SHALL BE REMOVED OR REPLACEMENT OF BAGS. ALL NECESSARY REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS HELLI AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.
6. DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

FILTER BAG INLET PROTECTION - TYPE M INLET

NOT TO SCALE



SECTION VIEW



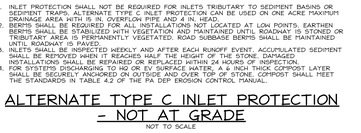
ISOMETRIC VIEW PLAN VIEW

NOTES:

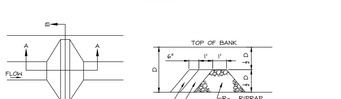
1. INLET PROTECTION SHALL NOT BE REQUIRED FOR INLETS TRIBUTARY TO SEDIMENT BASINS OR SEDIMENT TRAPS. ALTERNATE TYPE C INLET PROTECTION CAN BE USED ON ONE ACRE MAXIMUM DRAINAGE AREA WITH 15 IN. OVERFLOW PIPE AND 4 IN. HEAD.
2. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS NOT LOCATED AT LOW POINTS. EARTHEN BERMS SHALL BE STABILIZED WITH VEGETATION AND MAINTAINED UNTIL ROADWAY IS STONED OR TRIBUTARY AREA IS PERMANENTLY VEGETATED. ROAD SUBBASE BERMS SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED.
3. INLET SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED INSTALLATIONS SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION.
4. FOR SYSTEMS DISCHARGING TO HQ OR EV SURFACE WATER, A 6 INCH THICK COMPOST LAYER SHALL BE SECURELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE. COMPOST SHALL MEET THE STANDARDS IN TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

ALTERNATE TYPE C INLET PROTECTION - NOT AT GRADE

NOT TO SCALE



PLAN VIEW



ELEVATION VIEW

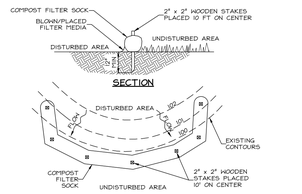
PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

NOTES:

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 NOT LARGER THAN 2MM. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILE MATERIAL MEETING THE ABOVE MINIMUM STANDARDS.
2. 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 ROCK PAD MAY BE REQUIRED TO PREVENT SCOUR OR RILLING. TO AVOID REDUCING 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 DOWNSLOPE 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.

PUMPED WATER FILTER BAG

NOT TO SCALE



SECTION

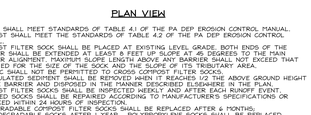
PLAN VIEW

NOTES:

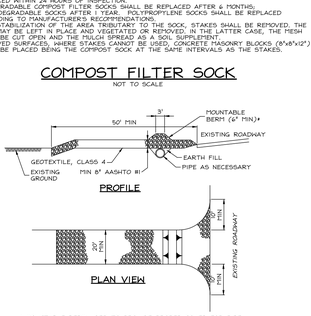
1. FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.
2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 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. MAINTENANCE SHALL BE PERFORMED ACCORDING TO MANUFACTURER'S SPECIFICATIONS 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'S RECOMMENDATIONS.
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 FILLER SPREADS AS A SOIL SUPPLEMENT.
8. ON PAVED SURFACES, WHERE STAKES CANNOT BE USED, CONCRETE FOUNDATION BLOCKS (16"x8"x12") SHALL BE PLACED BENEATH THE COMPOST SOCK AT THE SAME INTERVALS AS THE STAKES.

COMPOST FILTER SOCK

NOT TO SCALE



PROFILE



PLAN VIEW

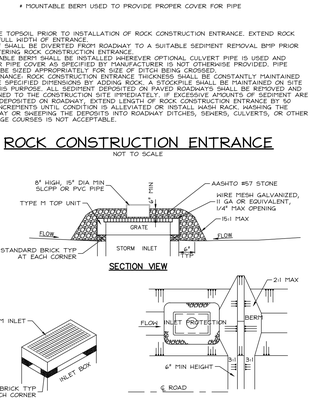
* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

1. REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.
2. RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.
3. 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.
4. MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE SUFFICIENT TO ADD ROCK AS NECESSARY. ALL SEDIMENT SPILLED, DROPPED, OR WASHED ONTO AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 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.

ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



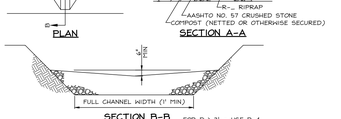
SECTION VIEW ISOMETRIC VIEW PLAN VIEW

NOTES:

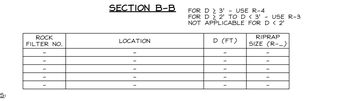
1. INLET PROTECTION SHALL NOT BE REQUIRED FOR INLETS TRIBUTARY TO SEDIMENT BASINS OR SEDIMENT TRAPS. ALTERNATE TYPE C INLET PROTECTION CAN BE USED ON ONE ACRE MAXIMUM DRAINAGE AREA WITH 15 IN. OVERFLOW PIPE AND 4 IN. HEAD.
2. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS NOT LOCATED AT LOW POINTS. EARTHEN BERMS SHALL BE STABILIZED WITH VEGETATION AND MAINTAINED UNTIL ROADWAY IS STONED OR TRIBUTARY AREA IS PERMANENTLY VEGETATED. ROAD SUBBASE BERMS SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED.
3. INLET SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED INSTALLATIONS SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION.
4. FOR SYSTEMS DISCHARGING TO HQ OR EV SURFACE WATER, A 6 INCH THICK COMPOST LAYER SHALL BE SECURELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE. COMPOST SHALL MEET THE STANDARDS IN TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

ALTERNATE TYPE M INLET PROTECTION - NOT AT GRADE

NOT TO SCALE



PLAN SECTION A-A



SECTION B-B

FOR D ≥ 3' - USE R-4
FOR D ≥ 2' TO D < 3' - USE R-3
NOT APPLICABLE FOR D < 2'

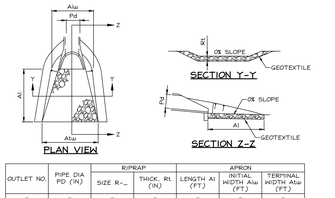
ROCK FILTER NO.	LOCATION	D (FT)	RIPRAP SIZE (R-__)
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

NOTES:

1. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS.
2. IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.

ROCK FILTER

NOT TO SCALE



PLAN VIEW SECTION Y-Y SECTION Z-Z

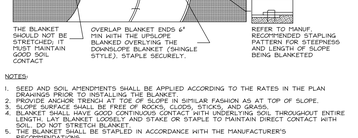
OUTLET NO.	PIPE DIA PD (IN)	RIPRAP SIZE R-__	THICK, R1 (IN)	LENGTH A1 (FT)	APRON INITIAL WIDTH Atw (FT)	TERMINAL WIDTH Atw (FT)
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

NOTES:

1. ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.
2. 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 OULET W FLARED END SECTION OR ENDWALL

NOT TO SCALE

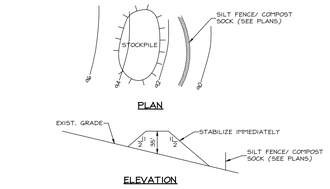


NOTES:

1. SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN PREPARED, APPROVED BY THE CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
2. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART I, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.

EROSION CONTROL BLANKET

NOT TO SCALE



PLAN ELEVATION

NOTES:

1. INSTALL SILT FENCE/COMPOST SOCK DOWNSLOPE OF AREA OF STOCKPILE.
2. PLACE STOCKPILE IN AREAS SHOWN ON EROSION CONTROL PLAN WITHOUT BLOCKING NATURAL DRAINAGE PATTERNS.
3. FOLLOW DIMENSIONS SHOWN ABOVE. HEIGHT SHOULD NOT EXCEED 35 FT. SIDE SLOPES SHOULD NOT BE STEEPER THAN 2(H):1(V).
4. STABILIZE IMMEDIATELY PER THE "SEEDING SPECIFICATIONS."
5. LOCATION(S) AND SIZE(S) OF SOIL STOCKPILES ARE APPROXIMATE AND SHALL BE ADJUSTED PER FIELD AND CONSTRUCTION SEQUENCE CONDITIONS. CONTRACTOR SHALL VERIFY REQUIRED SIZE(S). REQUIREMENTS FROM THE STANDARDS DETAIL MUST BE FOLLOWED FOR STOCKPILES.

TOPSOIL STOCKPILE AND MAINTENANCE

NOT TO SCALE

TEMPORARY SEEDING	
TYPE OF COVER AND SPECIES OR MIXTURES	AMOUNT PER 1,000 SF
50% ANNUAL RYE	5.0 LB
50% WINTER RYE	5.0 LB
TOTAL	10 LB

PERMANENT SEEDING	
TYPE OF COVER AND SPECIES OR MIXTURES	AMOUNT PER 1,000 SF
30% PENNFINE PERENNIAL RYEGRASS	1.2 LB
50% KENTUCKY BLUEGRASS	3.0 LB
30% PENNLAWN FESCUE	1.8 LB
TOTAL	6 LB

RECOMMENDED FERTILIZATION RATE	
LIME	1 TON PER ACRE
FERTILIZER	150 LBS 10-10-10 PER ACRE
MULCH	3 TONS PER ACRE

RECOMMENDED FERTILIZATION RATE	
LIME	4 TONS PER ACRE
FERTILIZER	500 LBS 10-20-20 PER ACRE
MULCH	3 TONS PER ACRE

NOTES:

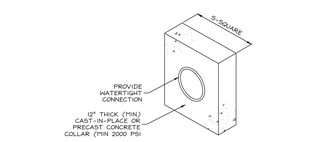
1. SEED SHALL BE A MINIMUM 90% PURITY AND 85% GERMINATION.
2. LIME SHALL BE AGRICULTURAL LIMESTONE AT 90% MINIMUM OF CARBONATES.

TOPSOIL APPLICATION:

1. GRADED AREAS SHALL BE SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREAS AND THE PROVIDE A ROUGHENED SURFACE TO PREVENT TOPSOIL FROM SLIDING DOWN SLOPES.
2. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED ACROSS THE DISTURBED AREA TO A DEPTH SPECIFIED ON THE PLAN. TOPSOIL SHALL BE PLACED AND SPREAD IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL PREPARATION OR TILLAGE. IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOIL PLACEMENT SHALL BE CORRECTED IN ORDER TO PREVENT FORMATION OF DEPRESSIONS UNLESS SUCH DEPRESSIONS ARE PART OF THE PCSM.
3. TOPSOIL SHALL NOT BE PLACED WHILE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

TOPSOIL APPLICAITON & SEEDING SPECS

NOT TO SCALE



BASIN OR TRAP NO.	PIPE SIZE (IN)	δ (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
-	-	-	-	-	-
-	-	-	-	-	-

NOTES:

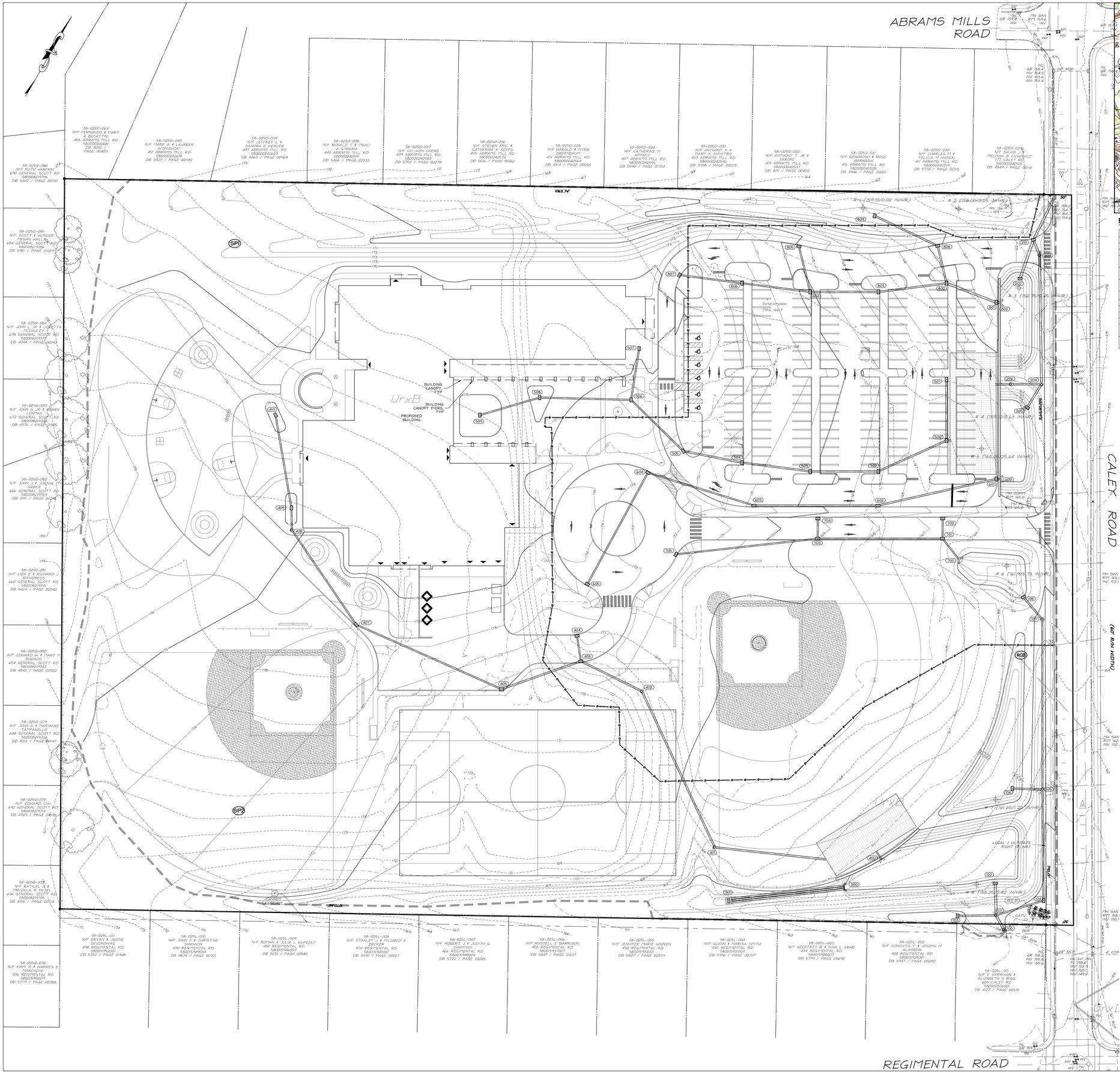
1. ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
2. COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

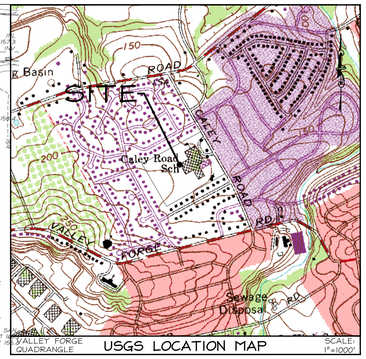
CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS

NOT TO SCALE

SOILS RESOLUTIONS

1. LOW PH: FOR SOILS WITH PH VALUES LOWER THAN 5.5, ADJUST PH BY APPLYING LIME AT RATES DETERMINED BY SOILS TESTING IN COMBINATION WITH SELECTING AND PLANTING VEGETATIVE SPECIES TOLERANT OF ACIDIC CONDITIONS.
2. LOW FERTILITY: INCORPORATE ADDITIONAL SOIL NUTRIENTS AT RATES DETERMINED BY SOIL TESTING IN COMBINATION WITH SELECTING AND PLANTING VEGETATIVE SPECIES TOLERANT OF LOW FERTILITY CONDITIONS.
3. DRY OR DROUGHT SOILS: SELECT VEGETATIVE AND PLANT SPECIES TOLERANT OF DRY CONDITIONS.
4. HIGH WATER TABLE OR WET/HYDRIC SOILS PRONE TO FLOODING:SELECT VEGETATIVE AND PLANT SPECIES TOLERANT OF WET CONDITIONS. IF BUILDINGS ARE LOCATED IN SUCH SOILS, PROVIDE SUMP PUMPS WITH BACK FLOW PREVENTION DEVICES IN BASEMENTS. IF HIGH WATER TABLE CONDITIONS EXIST, PROVIDE FOR ADEQUATE DRAINAGE OR OTHER SUITABLE WATER FILTRATION METHODS (I.E. DIRT BAG). FOR BASIN CONSTRUCTION IN AREAS OF WET SOILS, PREFERABLY RELOCATE STORMWATER AND SEDIMENT BASINS AND FACILITIES IN SOILS MORE CONDUCIVE TO SUCH FACILITIES. IF FACILITIES CAN NOT BE RELOCATED, PROVIDE PUMPED WATER SEDIMENT REMOVAL FACILITIES FOR BASIN CONSTRUCTION, LIMIT RESERVOIR DEPTHS, AND LIMIT CLEAN OUT ELEVATIONS.
5. ERODIBLE SOILS TYPES: FOR SOILS WITH ERODIBILITY VALUES HIGHER THAN 0.36, CONTRACTOR SHOULD INCORPORATE SOME OR ALL OF THE FOLLOWING STABILIZATION TECHN





PCSM LEGEND

EXISTING SYMBOL	DESCRIPTION	PROPOSED SYMBOL
	STORM SEWER	
	UNDERDRAIN	UD UD
	FOUNDATION DRAIN	FD FD
	STORM INLET	
	STORM MANHOLE	
	ENDWALL	
	RIPRAP	
360	MAJOR CONTOUR	360
358	MINOR CONTOUR	366
x 355.69	SPOT ELEVATION	x 355.69
	DRAINAGE FLOW ARROW	
	SLOPE GRADE	3:1
	NPDES BOUNDARY/ LIMIT OF DISTURBANCE	

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Consultants:

Civil:
renew design group
LAND DEVELOPMENT SOLUTIONS
design the future :: www.renewdesigngroup.com

MEP:
Brinjac Engineering
701 Market Street, Suite 6000
Philadelphia, PA 19106
p: 215.592.9611

Structural:
SchraderGroup
1860 Charter Lane, Suite 206
Lancaster, Pennsylvania 17601
p: 717.299.8965

Owner:
Upper Merion Area School District
435 Crossfield Road
King of Prussia, PA 19406

New Construction of:
Caley Elementary School
725 Caley Road
King of Prussia, PA 19406

ISSUED FOR:

NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

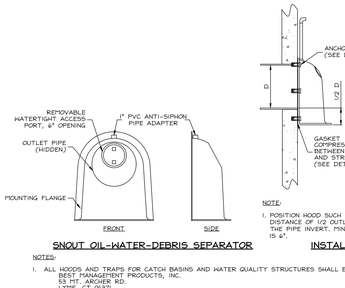
DATE:	SEPTEMBER 15, 2016
RDG PROJECT NUMBER:	15057
SGA PROJECT NUMBER:	15-022

Drawing Title:
POST CONSTRUCTION STORM MANAGEMENT

Drawing Number: 22 of 25

C8.0

40 0 40 80
GRAPHIC SCALE IN FEET



NOTE:

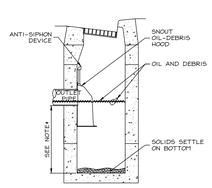
1. POSITION HOOD SUCH THAT BOTTOM FLANGE IS A DISTANCE OF 1/2 OUTLET PIPE DIAMETER(MIN.) BELOW THE PIPE INVERT. MINIMUM DISTANCE FOR PIPES 12" I.D. IS 6".

SNOUT OIL-WATER-DEBRIS SEPARATOR

NOTES:

1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY:
   BEST MANAGEMENT PRODUCTS, INC.
   53 MT. ARCHER RD.
   LITTLE, CT 06375
   (860)434-0277, (860)434-3195 FAX
   TOLL FREE: (800)504-0008 OR (800)354-7585
   WEB SITE: www.bmpinc.com
   OR EQUAL APPROVED BY EOR
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 PLACED OVER THE OUTLET PIPE OF THE NOTED STRUCTURES.
4. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
5. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION.
6. THE FRONT OF THE HOOD SHALL EXTEND BELOW THE WATER SURFACE A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR SMALL PIPES.
7. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
8. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
9. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8" STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
10. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED BY MANUFACTURER SUPPLIED INSTALLATION KIT. INSTALLATION KIT SHALL INCLUDE:
    A. INSTALLATION INSTRUCTIONS
    B. ANCHOR BOLTS, GASKETS AND ADAPTER
    C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
    D. 3/8" STAINLESS STEEL BOLTS
    E. ANCHOR SHIELD
11. US PATENT # 6126817
11. CONTRACTOR SHALL SEQUENCE INSTALLATION OF SNOUTS WITH STORM STRUCTURES AND REQUIRED AS-BUILT SURVEYS ACCORDINGLY.
12. CONCRETE (TO SHAPE BOTTOM) SHALL NOT BE PROVIDED IN SUMPS OF STRUCTURES WITH SNOUTS

INSTALLATION DETAIL



NOTES:

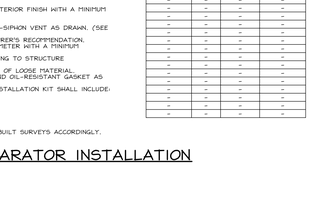
* SUMP DEPTH OF 36" MIN. FOR 12"-12" DIAM. OUTLET.
* FOR OUTLETS >12"-15", DEPTH=2.5 TIMES DIAM.

TYPICAL INSTALLATION

STRUCTURE NUMBER	SNOUT SIZE	SUMP ELEVATION	STRUCTURE TYPE
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

SNOUT OIL-WATER-DEBRIS SEPARATOR INSTALLATION

NOT TO SCALE



CHANNEL CROSS-SECTION

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

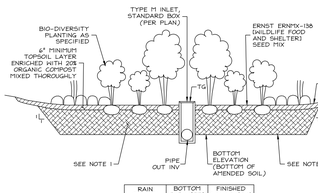
CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	LINING*
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

NOTES:

1. ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.
2. 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.
3. ALL DISTURBED AREAS SHALL BE MULCHED. 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.

VEGETATED CHANNEL

NOT TO SCALE



NOTES:

1. THE BERM SHALL BE TESTED FOR STRUCTURAL SOUNDNESS MEETING THE REQUIREMENTS SET FORTH BY THE MUNICIPAL ENGINEERS' OFFICE.
2. THE MINIMUM TOP WIDTH OF THE DETENTION/RETENTION BASIN BERM SHALL AS NOTED. A CUTOFF TRENCH (KEY-WAY) OF IMPERVIOUS MATERIAL SHALL BE PROVIDED UNDER ALL EMBANKMENTS. THE CUTOFF TRENCH SHALL BE EXCAVATED AS NOTED. TRENCH SIZED AS NOTED.
3. ALL DETENTION/RETENTION BASIN EMBANKMENTS SHALL BE PLACED IN MAXIMUM EIGHT (8) INCH LIFTS AND COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY AS ESTABLISHED BY ASTM D-1557. PRIOR TO PROCEEDING TO THE NEXT LIFT, THE COMPACTION SHALL BE CHECKED BY THE MUNICIPAL ENGINEER OR SOILS ENGINEER. COMPACTON TESTS WILL BE RUN ON THE LEANING AND THE TRAILING EDGE OF THE BERM ALONG WITH THE TOP OF THE BERM. INTERIOR SLOPES AND EXTERIOR SLOPES ARE TO MATCH EXISTING GRADE.

BASIN BERM - PERMANENT

NOT TO SCALE

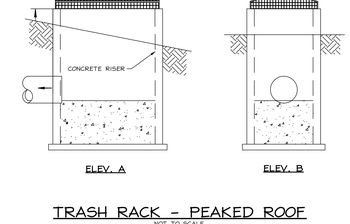
RAIN GARDEN	BOTTOM ELEV. (FT.)	FINISHED GRADE (FT.)
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

NOTES:

1. SELECT WELL DRAINING SOIL MIX 2'-0" DEPTH THROUGHOUT. ORGANIC SOIL MIX SEE SPECS FOR SOIL COMPOSITIONS. FILL MATERIAL AND COMPACTION OR FILL SHALL BE LIMITED TO 85% OF PROCTOR DRY WEIGHT.
2. EXISTING GRATE AT BIO-RETENTION AREA SHALL BE PROTECTED FROM ANY SITE COMPACTION. STRIP EXISTING TOPSOIL ONLY.

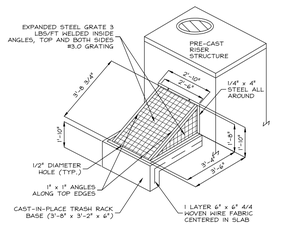
BIORETENTION BASIN - RAIN GARDEN

NOT TO SCALE



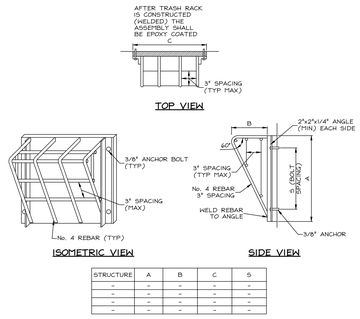
TRASH RACK - PEAKED ROOF

NOT TO SCALE



TRASH RACK - EXPANDED METAL

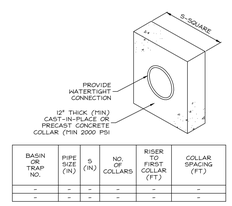
NOT TO SCALE



STRUCTURE	A	B	C	S
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

TRASH RACK - PERMANENT

NOT TO SCALE



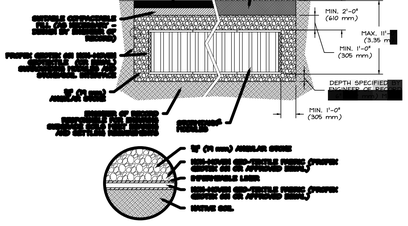
BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
-	-	-	-	-	-
-	-	-	-	-	-

NOTES:

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

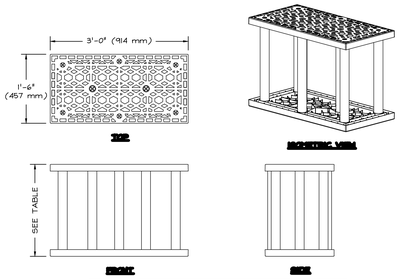
CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS

NOT TO SCALE



SINGLE STACK STORMTANK DETENTION BASIN

N.T.S



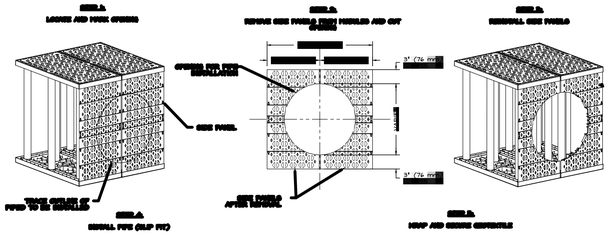
STORMTANK MODULES				
DESCRIPTION	HEIGHT in.	CAPACITY cf	NOMINAL VOID RATIO	WEIGHT lbs.
ST-36	36	13.10	97.0%	33.10

NOTES:

1. FOLLOW MANUFACTURER'S ASSEMBLY & INSTALLATION INSTRUCTIONS FOR PROPER IMPLEMENTATION.

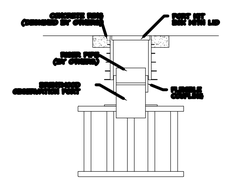
MODULE DETAIL

N.T.S



LARGE DIAMETER PIPE CONNECTION

N.T.S



OBSERVATION PORT DETAIL

N.T.S

PCSM AS-BUILT CONDITIONS

1. PCSM REPORTING AND RECORDKEEPING. THE PCSM PLAN, INSPECTION REPORTS AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.
2. LICENSED PROFESSIONAL OVERSIGHT OF CRITICAL STAGES. A LICENSED PROFESSIONAL OR A DESIGNEE SHALL BE PRESENT ONSITE AND BE RESPONSIBLE DURING CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN. THE CRITICAL STAGES MAY INCLUDE THE INSTALLATION OF UNDERGROUND TREATMENT OR STORAGE BMPS, STRUCTURALLY ENGINEERED BMPS, OR OTHER BMPS AS DEEMED APPROPRIATE BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.
3. FINAL CERTIFICATION. THE CONTRACTOR SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" AND A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS:

   "I (NAME) DO HEREBY CERTIFY PERSUANT TO THE PENALTIES OF 18 PA. C.S.A. §4904 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN. ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES."

SOIL USE LIMITATIONS

THE INFORMATION LISTED BELOW WAS OBTAINED FROM THE USDA - NRCS, WEB SOIL SURVEY AVAILABLE AT WEBSOILSURVEY.NRCS.USDA.GOV. THIS INFORMATION WAS NOT OBTAINED FROM FIELD INVESTIGATION.

SOIL SYM	SOIL NAME			SLOPE (%)	HSG	HYDRIC
UrvB	URBAN LAND - PENN COMPLEX			0-8	B	YES
UrvD	URBAN LAND - PENN COMPLEX			8-25	B	YES
	RESTRICTIVE LAYER		REPRESENT. VALUE			
	DEPTH TO (IN)	TYPE	$ SILT	$ CLAY		
UrvB	43	2	20-40	LITHIC BEDROCK	30.1	54.9	15.0
UrvD	43	2	20-40	LITHIC BEDROCK	30.1	54.9	15.0

SOIL SYM	DWELLINGS WITHOUT BASEMENTS	DWELLINGS WITH BASEMENTS	SMALL COMMERCIAL BUILDINGS	LOCAL ROADS AND STREETS	SHALLOW EXCAVATIONS	LAWNS AND LANDSCAPING
UrvB	SOMEWHAT LIMITED	VERY LIMITED	SOMEWHAT LIMITED	VERY LIMITED	VERY LIMITED	SOMEWHAT LIMITED
UrvD	VERY LIMITED	VERY LIMITED	VERY LIMITED	VERY LIMITED	VERY LIMITED	VERY LIMITED

SOIL SYM	EMBANKMENTS, DIKES, AND LEVEES	PLAYGROUNDS	PATHS AND TRAILS	SEPTIC TANK ABSORPTION FIELDS	POTENTIAL AS A SOURCE OF ROADFILL	POTENTIAL AS A SOURCE OF TOPSOIL
UrvB	SOMEWHAT LIMITED	VERY LIMITED	SOMEWHAT LIMITED	VERY LIMITED	POOR	POOR
UrvD	VERY LIMITED	VERY LIMITED	SOMEWHAT LIMITED	VERY LIMITED	POOR	POOR

SOILS NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	FACILITY PROBLEM	FLOODING	DEPTH TO SATURATED ZONE SEASONAL HIGH	HYDRIC / HYDRIC INCLUSIONS	LOW STRENGTH LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF FILL	FROST ACTION	SHRINK - SWELL POTENTIAL	PONDING	HAZARDS	HETNESS
URBAN LAND-PENN COMPLEX	X	C	X	-	-	-	X	X	-	X	X	X	-	-	-

OPERATION & MAINTENANCE

UPPER MERION AREA SCHOOL DISTRICT, AS OWNER OF THE SITE, ITS SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE PROPER MAINTENANCE OF ALL POST CONSTRUCTION STORMWATER MANAGEMENT BMPS, AS DETAILED ON THE APPROVED PCSM PLAN AND NARRATIVE. ALL STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES SHALL REMAIN IN PLACE AND SHALL BE MAINTAINED IN THE APPROVED DESIGN CONDITIONS. FACILITIES SHALL BE INSPECTED QUARTERLY AND AFTER ALL MAJOR STORM EVENTS. ADDITIONALLY, A DETAILED INSPECTION BY A QUALIFIED INSPECTOR SHALL OCCUR AT LEAST ANNUALLY. "MONTHLY" INSPECTIONS SHALL BE MADE AFTER THE SITE HAS BEEN STABILIZED IS RECOMMENDED. IF RESTORATION ACTIVITIES ARE ANTICIPATED, A SCHEDULE INDICATING THE DATE WHEN THE RESTORATION ACTIVITIES WILL BE STARTED AND COMPLETED SHALL BE COMPLETED. INSPECTIONS SHALL, AT A MINIMUM, INCLUDE:

- INSPECTING FOR DAMAGE TO THE FACILITY.
- INSPECTING EMBANKMENT AND EMERGENCY SPILLWAY FOR EROSION, SEEPS OR LEAKS, FAILURE OF SLOPE PROTECTION OR REPRAP AND ADEQUATE GROUND COVER.
- ENSURE THE EMERGENCY SPILLWAY IS CLEAR OF OBSTRUCTIONS AND DEBRIS.
- NOTE SIGNS OF HYDROCARBON BUILD-UP AND ADDRESS APPROPRIATELY.
- MONITOR SEDIMENT ACCUMULATIONS IN ALL STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES.
- ENSURE OUTLET OUTLET DEVICES ARE FREE OF DEBRIS AND OPERATIONAL.
- INSPECT OUTFALLS FOR REPRAP FAILURES AND SLOPE EROSION.
- INSPECT FACILITIES FOR UNDESIRABLE VEGETATIVE OR HOODY GROWTH.

OBSTRUCTIONS AND DEBRIS

ALL STORMWATER MANAGEMENT FACILITIES SHALL BE CLEARED OF ALL DEBRIS AND LITTER ON A REGULAR BASIS AND AFTER ALL MAJOR STORM EVENTS. ADDITIONALLY, FLOATING DEBRIS SHALL BE REMOVED, AND THE FACILITY SHALL BE INSPECTED FOR VISIBLE POLLUTION OR SHORELINE PROBLEMS. ERODED CHANNELS OR AREAS OF EXCESSIVE EROSION NEAR THE FACILITY SHALL BE BACKFILLED AND STABILIZED IMMEDIATELY.

SEDIMENT ACCUMULATION

MONITOR SEDIMENT ACCUMULATIONS IN ALL STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES. REMOVE SEDIMENT IF STORAGE VOLUMES HAVE BEEN REDUCED SIGNIFICANTLY, OR THE POOLS BECOME STAGNANT. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE BASIN BOTTOM WHEN ACCUMULATED SEDIMENT REACHES 10 PERCENT OF THE BASIN VOLUME 2 TO 10 YEARS FOR DRY DETENTION BASINS AND EVERY 5 TO 15 YEARS FOR WET POND FACILITIES AND SHALL EITHER BE REMOVED FROM THE SITE OR DISPOSED OF ON-SITE AT AN APPROVED DISPOSAL AREA. MAINTENANCE OF CATCH BASINS AND INLETS IS BEST DONE MONTHLY WITH A VACUUM TRUCK. ALL COLLECTED WASTE MUST BE HANDLED AND DISPOSED OF ACCORDING TO PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION. PRIOR TO ON-SITE DISPOSAL OF SEDIMENT, THE OWNER SHALL ACQUIRE THE APPROPRIATE EARTH DISTURBANCE PERMITS FROM THE MUNICIPALITY AND/OR THE CONSERVATION DISTRICT.

INFILTRATION FACILITIES

OBSERVATIONS SHALL BE MADE TO DETERMINE THE LENGTH OF TIME NEEDED FOR RETAINED WATER TO INFILTRATE INTO THE SOIL AFTER A STORM EVENT. THE OBSERVATIONS SHALL BE MADE BY READING THE WATER LEVEL IN THE OUTLET BOX(ES) OF THE UNDERGROUND SYSTEM(S) SEVERAL TIMES OVER A PERIOD OF TWO (2) DAYS AFTER A LARGE STORM EVENT. THE FIRST OF THESE OBSERVATIONS SHALL PROVIDE A RECORD OF HOW WELL THE SYSTEM IS WORKING WHEN COMPARING FUTURE OBSERVATIONS. MEASUREMENTS SHOULD BE TAKEN AFTER EACH RAIN FALL UNTIL THE WATER HAS BEEN GONE FOR AT LEAST TWO (2) DAYS UNDER DRY CONDITIONS. AT A MINIMUM, OBSERVATIONS SHALL BE MADE TWICE THE FIRST YEAR AND YEARLY THEREAFTER.

AT A MINIMUM, OPERATION AND MAINTENANCE PROCEDURES FOR INFILTRATION BEDS SHALL INCLUDE:

- ALL CATCH BASINS AND INLETS SHOULD BE INSPECTED AND CLEANED AT LEAST 2 TIMES PER YEAR.
- THE OVERLYING VEGETATION OF SUBSURFACE INFILTRATION FEATURES SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS POSSIBLE.
- VEHICULAR ACCESS ON SUBSURFACE INFILTRATION AREAS SHOULD BE PROHIBITED, AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS. IF ACCESS IS NEEDED, USE OF PERMEABLE, TURF REINFORCEMENT SHOULD BE CONSIDERED.

WATER QUALITY INSERTS

TO MAINTAIN THE SNOUT® HOODS THEMSELVES, AN ANNUAL INSPECTION OF THE ANTI-SIPHON VENT AND ACCESS HATCH ARE RECOMMENDED. A SIMPLE FLUSHING OF THE ANTI-SIPHON VENT OR GENTLE PRODDING WITH A FLEXIBLE WIRE IS TYPICALLY NEEDED TO MAINTAIN THE ANTI-SIPHON PROPERTIES. OPENING AND CLOSING THE ACCESS HATCH ONCE A YEAR HELPS ENSURE TROUBLE-FREE SERVICE. REMOVE SEDIMENT FROM THE CATCH BASIN SUMP AS NEEDED.

VEGETATED AREAS

VEGETATED AREAS SHALL BE MAINTAINED WITH A MINIMUM UNIFORM VEGETATIVE 70% PERENNIAL VEGETATIVE COVER WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION. ANY PART OF THE SITE THAT FAILS TO ACHIEVE A GOOD STAND SHALL BE REGRADED AS NECESSARY AND THEN REVEGETATED. AN ANCHORING METHOD SHOULD THEN BE USED TO HOLD SEED AND MULCH IN PLACE. THIS IS ESPECIALLY IMPORTANT AROUND WATER COURSES, IN SWALES, IN AREAS OF CONCENTRATED FLOWS, AND ON STEEP SLOPES.

VEGETATED SWALES

AT A MINIMUM, THE FOLLOWING SCHEDULE OF OPERATION AND MAINTENANCE PROCEDURES FOR VEGETATED SWALES SHALL BE FOLLOWED:

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 ACCUMULATION >3 INCHES AT ANY SPOT OR COVERING VEGETATION).
- INSPECT VEGETATION ON SIDE SLOPES FOR EROSION AND FORMATION OF RILLS OR GULLIES. REPAIR 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 SWALE OPERATION, AND TO SUPPRESS WEEDS AND INVASIVE VEGETATION; DISPOSE OF CUTTINGS IN A LOCAL COMPOSTING FACILITY; MOW ONLY WHEN SWALE 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 SWALE 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 MEASURE WHEN NATIVE SOIL IS EXPOSED OR EROSION CHANNELS ARE FORMING.
- REPAIR ERODED AREAS WITHIN 2 WEEKS OF DISCOVERY, NO MORE THAN 48 HOURS.
- INSPECT AND CORRECT CHECK DAMS WHEN SIGNS OF ALTERED WATER FLOW (CHANNELIZATION, OBSTRUCTIONS, EROSION, ETC.) ARE IDENTIFIED.
- WATER DURING DRY PERIODS, FERTILIZE, AND APPLY PESTICIDE ONLY WHEN ABSOLUTELY NECESSARY.

ADDITIONAL MAINTENANCE ACTIVITIES TO BE DONE DURING WINTER CONDITIONS:

- INSPECT SWALE 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 SWALE, MULCHING AND/OR SOIL AERATION/MANIPULATION MAY BE REQUIRED IN THE SPRING TO RESTORE SOIL.
- USE NON-TOXIC, ORGANIC DEICING AGENTS. APPLIED EITHER AS BLENDED, PAGNESIUM CHLORIDE-BASED LIQUID PRODUCTS OR AS PRETREATED SALT.
- USE SALT-TOLERANT VEGETATION IN SWALES.

DETENTION BASINS

AT A MINIMUM, THE FOLLOWING OPERATION AND MAINTENANCE PROCEDURES FOR DETENTION BASINS SHALL BE PERFORMED QUARTERLY:

- BASIN STRUCTURES (BASIN BOTTOMS, TRASH RACKS, OUTLET STRUCTURES, RIPRAP, INLETS, GABION STRUCTURES) EXPECTED TO RECEIVE AND/OR TRAP DEBRIS AND SEDIMENT SHOULD BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT AT LEAST ONCE A MONTH AND AT LEAST FOUR TIMES PER YEAR, AS WELL AS AFTER EVERY STORM GREATER THAN 1 INCH.
- SEDIMENT REMOVAL SHOULD BE CONDUCTED WHEN THE BASIN IS COMPLETELY DRY. SEDIMENT SHOULD BE DISPOSED OF PROPERLY AND ONCE SEDIMENT IS REMOVED, DISTURBED AREAS NEED TO BE IMMEDIATELY STABILIZED AND REVEGETATED.
- MOWING AND/OR TRIMMING OF VEGETATION SHOULD BE PERFORMED QUARTERLY TO SUSTAIN THE SYSTEM, BUT ALL DETRITUS SHOULD BE REMOVED FROM THE BASIN. MOWING SHOULD BE DONE WHEN THE SOIL IS DRY TO AVOID RUTTING.
- VEGETATED AREAS SHOULD BE INSPECTED QUARTERLY FOR UNWANTED GROWTH OF EXOTIC/INVASIVE SPECIES.
- VEGETATIVE COVER SHOULD BE MAINTAINED AT A MINIMUM OF 95 PERCENT. IF VEGETATIVE COVER HAS BEEN REDUCED BY 10%, VEGETATION SHOULD BE REESTABLISHED.
- FENCES AND GATES SHALL BE INSPECTED FOR DAMAGE AND REPAIRED AS NECESSARY.

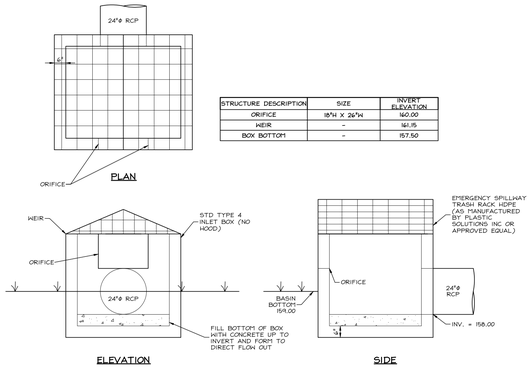
RAIN GARDENS

AT A MINIMUM, OPERATION AND MAINTENANCE PROCEDURES FOR THE RAIN GARDENS SHALL INCLUDE:

- WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED.
- DETRITUS MAY ALSO NEED TO BE REMOVED EVERY YEAR. PERENNIAL PLANTINGS MAY BE CUT DOWN AT THE END OF THE GROWING SEASON.
- MULCH SHOULD BE RE-SPREAD WHEN EROSION IS EVIDENT AND BE REPLENISHED AS NEEDED. EVERY 2 TO 3 YEARS THE ENTIRE AREA MAY REQUIRE MULCH REPLACEMENT.
- BIORETENTION AREAS SHOULD BE INSPECTED AT LEAST TWO TIMES PER YEAR FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, ETC.
- DURING PERIODS OF EXTENDED DROUGHT, BIORETENTION AREAS MAY REQUIRE WATERING.
- TREES AND SHRUBS SHOULD BE INSPECTED TWICE PER YEAR TO EVALUATE HEALTH.

OUTLET STRUCTURE:

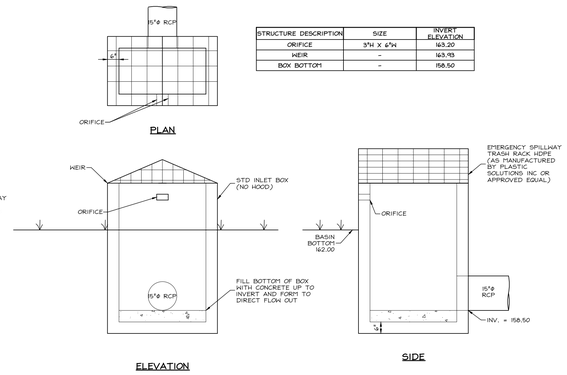
- DURING LOW WATER CONDITIONS, CONCRETE SPILLWAY STRUCTURES SHALL BE INSPECTED FOR CRACKS, SPALLING, BROKEN OR LOOSE SECTIONS. ANY CRACKS SHALL BE SEALED TO PREVENT CONTACTS AND TO IDENTIFY ANY CRACKS, SPALLING, BROKEN OR LOOSE SECTIONS. ANY CRACKED, SPALLED, BROKEN OR LOOSE SECTIONS SHALL BE CLEANED AND REFILLED WITH AN APPROPRIATE CONCRETE PATCHING MATERIAL. A PROFESSIONAL ENGINEER SHALL BE CONSULTED TO REPAIR EXTENSIVE LEAKAGE, SPALLS OR FRACTURES.
- ANY REPAIRS MADE TO THE PRINCIPAL SPILLWAY (RISER OR BARREL) SHALL BE REVIEWED BY A PROFESSIONAL ENGINEER. VERTICAL TRENCHING TO EXPOSE THE BARREL SHALL NOT BE ALLOWED UNDER AN



STRUCTURE DESCRIPTION	SIZE	INVERT ELEVATION
ORIFICE	18"H X 26"W	160.00
WEIR	-	161.15
BOX BOTTOM	-	157.50

PROPOSED BASIN B1 - STRUCTURE 102

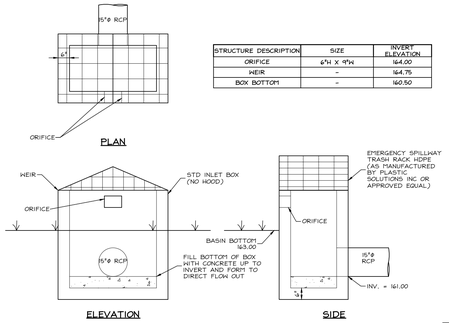
NOT TO SCALE



STRUCTURE DESCRIPTION	SIZE	INVERT ELEVATION
ORIFICE	3"H X 6"W	163.20
WEIR	-	163.93
BOX BOTTOM	-	158.50

PROPOSED BASIN B2- STRUCTURE 106

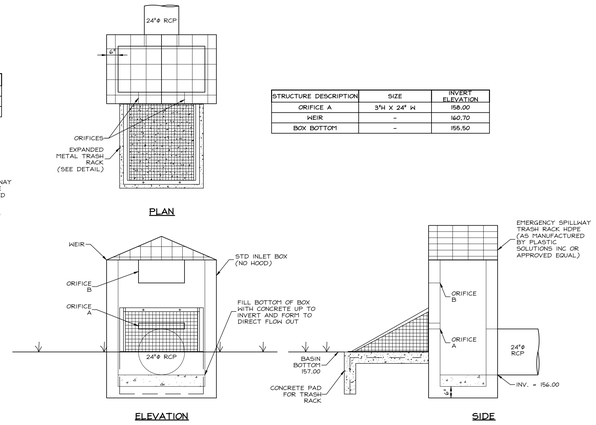
NOT TO SCALE



STRUCTURE DESCRIPTION	SIZE	INVERT ELEVATION
ORIFICE	6"H X 9"W	164.00
WEIR	-	164.75
BOX BOTTOM	-	160.50

PROPOSED BASIN B3- STRUCTURE 108

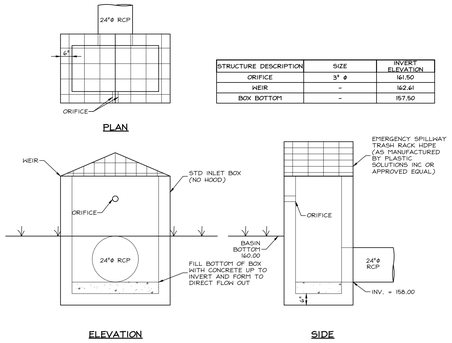
NOT TO SCALE



STRUCTURE DESCRIPTION	SIZE	INVERT ELEVATION
ORIFICE A	3"H X 24" W	158.00
WEIR	-	160.70
BOX BOTTOM	-	155.50

PROPOSED BASIN A1- STRUCTURE 202

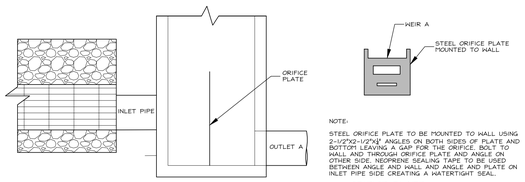
NOT TO SCALE



STRUCTURE DESCRIPTION	SIZE	INVERT ELEVATION
ORIFICE	3" ø	161.50
WEIR	-	162.41
BOX BOTTOM	-	157.50

PROPOSED BASIN A2 - STRUCTURE 205

NOT TO SCALE



NOTE:

STEEL ORIFICE PLATE TO BE MOUNTED TO WALL USING 2-1/2"X2-1/2"X1/4" ANGLES ON BOTH SIDES OF PLATE AND BOTTOM LEAVING A GAP FOR THE ORIFICE. BOLT TO ANGLE ATTACHED TO WALL ON ONE SIDE AND WELD TO OTHER SIDE. NEOPRENE SEALING TAPE TO BE USED BETWEEN ANGLE AND WALL AND ANGLE AND PLATE ON INLET PIPE SIDE CREATING A WATERTIGHT SEAL.

STRUCTURE DESCRIPTION	SIZE	INVERT ELEVATION
WEIR A	4" W	164.75
ORIFICE A	6"H X 19"W	162.00
ORIFICE B	12"H X 24" W	163.00
ORIFICE PLATE	7.25" H	-
OUTLET PIPE	24"	158.00
TOP OF GRATE	-	166.00

UNDERGROUND BASIN UG2 - STRUCTURE UG2-OS

NOT TO SCALE

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Owner:

Upper Merion Area School District
435 Crossfield Road
King of Prussia, PA 19406

New Construction of:

Caley Elementary School

725 Caley Road
King of Prussia, PA 19406

ISSUED FOR:

NO.	DESCRIPTION	DATE
1	MUNICIPAL SUBMISSION	9/16/2016

DATE: SEPTEMBER 15, 2016
RDG PROJECT NUMBER: 15057
SGA PROJECT NUMBER: 15-022

Drawing Title:

PCSM NOTES & DETAILS

Drawing Number: 24 of 25

C8.2