PRELIMINARY/FINAL SUBDIVISION & LAND DEVELOPMENT PLANS

FOR

OXFORD VALLEY MALL MULTI-FAMILY REDEVELOPMENT

TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

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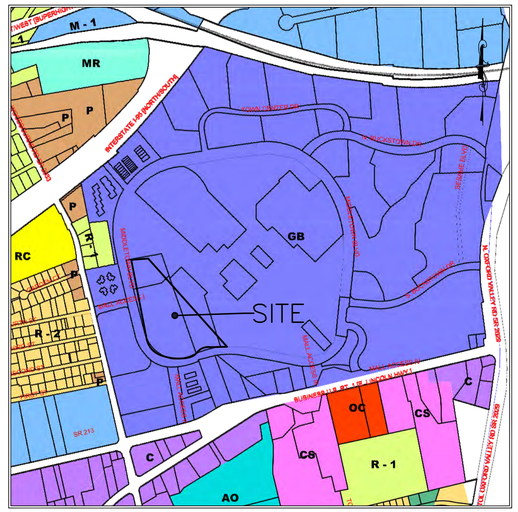
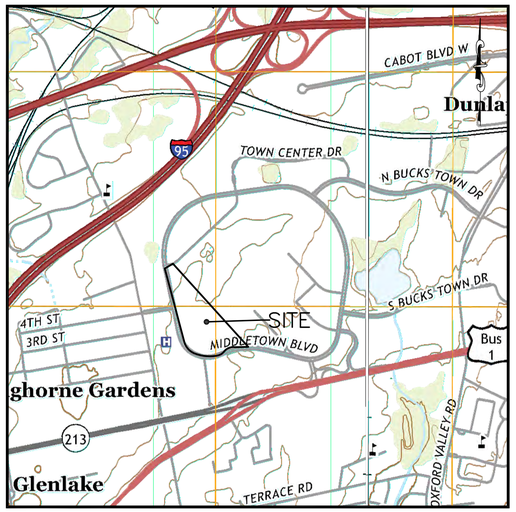
WAIVERS REQUESTED

1. A WAIVER FROM SECTION 440-301.E – TO PERMIT THE SUBMISSION OF A COMBINED PRELIMINARY AND FINAL LAND DEVELOPMENT PLAN.

LOCATION MAP
SCALE: 1"=800'



ZONING MAP
SCALE: 1"=800'
GB - GENERAL BUSINESS DISTRICT



USGS MAP
SCALE: 1"=1,000'
(LANGHORNE & TRENTON WEST USGS QUAD)

APPLICANT / EQUITABLE OWNER'S ACKNOWLEDGEMENT

COMMONWEALTH OF PENNSYLVANIA
) SS:
COUNTY OF BUCKS

ON THE _____DAY OF _____, 20_____, BEFORE ME, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED _____, WHO ACKNOWLEDGED HIM/HERSELF TO BE THE _____ OF _____, A CORPORATION, AND THAT HE/SHE AS SUCH _____, BEING AUTHORIZED TO SO DO, EXECUTED THE FOREGOING INSTRUMENT FOR THE PURPOSES THEREIN CONTAINED BY SIGNING THE NAME OF THE CORPORATION BY HIM/HERSELF AS _____.
IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND SEAL.

WITNESS MY HAND AND NOTARIAL SEAL THE DAY AND DATE ABOVE WRITTEN,

_____ _____
MY COMMISSION EXPIRES NOTARY PUBLIC

APPLICANT / EQUITABLE OWNER'S INTENT

I,_____, OF CRP/CT OXFORD VALLEY OWNER, LLC HAVE LAID OUT

UPON MY LAND, SITUATED IN THE TOWNSHIP OF MIDDLETOWN, COUNTY OF BUCKS, COMMONWEALTH OF PENNSYLVANIA, LOTS AND STREETS ACCORDING TO THIS PLAN WHICH IS INTENDED TO BE RECORDED.

WITNESS MY (OUR) HAND AND SEAL THIS __DAY OF _____, 20__.

OWNER_____,

WITNESS_____,

CRP/CT OXFORD VALLEY OWNER, LLC

OWNER'S ACKNOWLEDDGEMENT

COMMONWEALTH OF PENNSYLVANIA
) SS:
COUNTY OF BUCKS

ON THE _____DAY OF _____, 20_____, BEFORE ME, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED _____, WHO ACKNOWLEDGED HIM/HERSELF TO BE THE _____ OF _____, A CORPORATION, AND THAT HE/SHE AS SUCH _____, BEING AUTHORIZED TO SO DO, EXECUTED THE FOREGOING INSTRUMENT FOR THE PURPOSES THEREIN CONTAINED BY SIGNING THE NAME OF THE CORPORATION BY HIM/HERSELF AS _____.
IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND SEAL.

WITNESS MY HAND AND NOTARIAL SEAL THE DAY AND DATE ABOVE WRITTEN,

_____ _____
MY COMMISSION EXPIRES NOTARY PUBLIC

OWNER'S INTENT

I,_____, OF MCSTOME PARTNERSHIP HAVE LAID OUT

UPON MY LAND, SITUATED IN THE TOWNSHIP OF MIDDLETOWN, COUNTY OF BUCIKS, COMMONWEALTH OF PENNSYLVANIA, LOTS AND STREETS ACCORDING TO THIS PLAN WHICH IS INTENDED TO BE RECORDED.

WITNESS MY (OUR) HAND AND SEAL THIS __DAY OF _____, 20__.

OWNER_____,

WITNESS_____,

MCSTOME PARTNERSHIP

REVIEW BY THE BUCKS COUNTY PLANNING COMMISSION

THIS PLAN REVIEWED BY THE BUCKS COUNTY PLANNING COMMISSION ON THIS __DAY OF_____, 20___.

B.C.P.C REVIEW #:

CHAIRMAN_____.

DIRECTOR_____.

RECORDER OF DEEDS OFFICE

RECORDED IN THE OFFICE OF RECORDING OF DEEDS IN AND FOR THE COUNTY OF BUCKS AT DOYLESTOWN, PENNSYLVANIA THIS ____DAY OF 20___.

PLAN BOOK_____. VOLUME_____. PAGE_____.

RECORDER OF DEEDS_____.

TOWNSHIP CERTIFICATIONS

APPROVED BY THE BOARD OF SUPERVISORS OF MIDDLETOWN TOWNSHIP THIS _____DAY OF 20___.

_____.
_____.
_____.

REVIEWED BY THE MIDDLETOWN TOWNSHIP ENGINEER

TOWNSHIP ENGINEER _____ DATE:_____.

DESIGN ENGINEER'S CERTIFICATION

I, CHRISTOPHER JENSEN, ON THIS DATE_____, 20___, HEREBY CERTIFY THAT THE DRAINAGE PLAN MEETS THE DESIGN STANDARDS AND DRITERIA OF THE DELAWARE SOUTH RIVER WATERSHED ACT 167 STORMWATER MANAGEMENT ORDINANCE

CHRISTOPHER W. JENSEN, P.E.
PENNSYLVANIA LICENSE NO. PE-076464_____.

SURVEYOR'S CERTIFICATION

I, ROBERT O. PELKE, HEREBY CERTIFY THAT AN ACTUAL FIELD SURVEY FOR A PORTION OF TAX PARCELS 22-057-020-001, 22-040-029-002, 22-040-029-003 AND 22-040-041, WAS MADE BY ME OR UNDER MY SUPERVISION AND THIS PLAN CONFORMS IN ALL RESPECTS TO SAID SURVEY.

ROBERT O. PELKE, P.L.S.
PENNSYLVANIA LICENSE NO. SU-42306-E _____.

POST CONSTRUCTION STORMWATER MANAGEMENT ACKNOWLEDGEMENT

I,_____, OF MCSTOME PARTNERSHIP HEREBY ACKNOWLEDGE THAT ANY REVISION TO THE APPROVED STORMWATER MANAGEMENT SYSTEM FACILITIES, POST CONSTRUCTION STORMWATER MANAGEMENT SITE PLAN, OR EROSION AND SEDIMENT CONTROL PLAN MUST BE APPROVED BY THE MUNICIPALITY AND CONSERVATION DISTRICT.

WITNESS MY (OUR) HAND AND SEAL THIS __DAY OF _____, 20__.

OWNER_____,

WITNESS_____,

MCSTOME PARTNERSHIP

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811
ATTENTION: ALL CONTRACTORS' LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM A VISUAL SURVEY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON 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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS
CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

COVER SHEET

T AND M
YOUR GOALS. OUR MISSION.
1700 MARKET ST., SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459
www.tandmassociates.com
OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	COV
SHEET	1 OF 37

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PROJECT INFORMATION:
FILE PATH: G:\Projects\CRST\00004\Plans\
FILE NAME: CRST00004-SHT01-COVER.dwg
PLOTTED: DATE AND TIME: 17 Apr 2020, 9:17AM
LAST SAVED DATE AND TIME:
LAST SAVE BY: DMattson

LEGEND

(ORIENTATION & SIZE MAY VARY)

EXISTING CONCRETE CURB LINE
EXISTING INLET
EXISTING MANHOLE
EXISTING TREE
EXISTING WATER VALVE
EXISTING BORING TEST LOCATION
EXISTING TEST PIT
EXISTING VENT
EXISTING FENCE
EXISTING TREELINE
PROPERTY LINE
EXISTING ADJOINING PROPERTY LINE
EXISTING RIGHT-OF-WAY LINE
G — G — EXISTING GAS LINE
SAN — SAN — SAN — SAN — EXISTING SANITARY SEWER
W — W — W — W — EXISTING WATER LINE
CATV — CATV — EXISTING CABLE TELEVISION CONDUIT
UGE — UGE — UGE — UGE — EXISTING UNDERGROUND ELECTRIC
T — T — EXISTING UNDERGROUND TELEPHONE
EXISTING STORM SEWER

EXISTING SIGN
EXISTING LIGHT POLE
EXISTING FIRE HYDRANT
EXISTING POLE
100 — EXISTING CONTOUR
TC 343.02 G 342.52 — EXISTING SPOT ELEVATION
EXISTING BUILDING

TW343.5 BW343 — PROPOSED SPOT ELEVATION
PROPOSED STORM STRUCTURES
PROPOSED CONCRETE DRILL HOLE
PROPOSED MONUMENT
PROPOSED PK NAIL
PROPOSED IRON PIN
PROPOSED BOLLARD
PROPOSED CONCRETE CURB LINE
PROPOSED FENCE LINE
PROPOSED GUIDERAIL
PROPOSED TREELINE
340 — PROPOSED INDEX CONTOUR
334 — PROPOSED INTERMEDIATE CONTOUR
PROPOSED STORM PIPE
S — S — PROPOSED SANITARY PIPE
G — G — PROPOSED GAS SERVICE
W — W — PROPOSED WATER MAIN
WS — WS — PROPOSED DOMESTIC SERVICE
FS — FS — FS — FS — PROPOSED FIRE SERVICE

PROPOSED BUILDING
PROPOSED CONCRETE AREA
PROPOSED POROUS PAVEMENT

ZONING TABLE

REQUIREMENT	GB – REQUIRED/ ALLOWABLE	EXISTING	PROPOSED
MINIMUM SITE AREA	100 ACRES	135 ACRES	135 ACRES
MIN. FRONTAGE AT STREET LINE	300 FEET	> 300 FEET	530 FEET
MINIMUM BUILDING SETBACK:			
ALL STREET LINES (STREET & INTERNAL STREET)	10 FEET	> 10 FEET	15 FEET
OTHER INTERNAL LOT LINES	25 FEET	> 25 FEET	26.85 FEET
OTHER PROPERTY LINES	75 FEET	150 FEET	95 FEET
MINIMUM LOT WIDTH	100 FEET	> 100 FEET	±475 FEET
MAXIMUM BUILDING COVERAGE (BASED ON SITE AREA)	30%	13.7%	17.5%
MAXIMUM IMPERVIOUS COVERAGE (BASED ON BASE SITE AREA)	65%	91%*	85%*
MINIMUM BUILDING SPACING	30 FEET	> 30 FEET	140 FEET
MINIMUM BUILDING HEIGHT	2 STORIES	> 2 STORIES	> 2 STORIES
MAXIMUM BUILDING HEIGHT	100 FEET	< 100 FEET	< 100 FEET
MAXIMUM DENSITY (BASED ON SITE AREA)	5 DU/ACRE	0 D.U.	4.5 D.U./ACRE
REQUIRED OPEN SPACE	150,000 SF	N/A (0 DU)	152,460 SF

NOTE:
1. FIGURES DENOTED WITH AN ASTERISK (*) REPRESENT EXISTING NON-CONFORMITY.

PARKING CALCULATION

PARKING REQUIRED

REQUIREMENT: 1.5 SPACES/UNIT
BUILDING 1 = 391 UNITS
BUILDING 2 = 223 UNITS
TOTAL PARKING REQUIRED = 614 X 1.5 = 921 SPACES

PARKING PROVIDED

BUILDING 1 = 536 GARAGE SPACES + 51 SURFACE PARKING SPACES ON LOT
BUILDING 2 = 298 GARAGE SPACES + 40 SURFACE PARKING SPACES ON LOT
TOTAL PARKING PROVIDED = 925 SPACES

SITE STATISTICS

1. OWNER OF RECORD:
   MCSTOME PARTNERSHIP
   P.O. BOX 6120
   INDIANAPOLIS, IN 46206
2. EQUITABLE OWNER/APPLICANTS:
   CRP/CT OXFORD VALLEY OWNER, LLC
   775 EAST LANCASTER AVENUE, SUITE 210
   VILLANOVA, PA 19085
3. EXISTING PROPERTY IDENTIFICATION:
   TAX PARCEL NO. 22-040-029-002, 22-040-029-003, 22-057-020-0014
   22-057-042, 22-057-045, 22-057-047, 22-057-044, 22-040-041, 22-057-043
   22-040-029-009, 22-040-029-008, 22-057-020-005, 22-057-020-014,
   22-057-020-003, 22-057-046, 22-057-020-004

   TRACT LOCATION:
   2300 LINCOLN HIGHWAY
   LANGHORNE, PA 19047
   MIDDLETOWN TOWNSHIP, BUCKS COUNTY
4. UTILITY CONNECTIONS:
   SEWER SERVICE:
   EXISTING – PUBLIC SEWER SERVICE PROVIDED BY BUCKS COUNTY WATER & SEWER AUTHORITY.
   PROPOSED – PUBLIC SEWER SERVICE PROVIDED BY BUCKS COUNTY WATER & SEWER AUTHORITY.
   WATER SERVICE:
   EXISTING – PUBLIC WATER SERVICE PROVIDED BY AQUA PENNSYLVANIA.
   PROPOSED – PUBLIC WATER SERVICE PROVIDED BY AQUA PENNSYLVANIA.

Pennsylvania811 — PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 STOP – CALL BEFORE YOU DIG

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. 20200102050 WAS PLACED FOR SURVEY PURPOSES.

TREE PROTECTION NOTES:

1. NO MORE THAN THREE (3) INCHES OF SOIL SHALL BE PLACED AROUND THE TRUNKS OF TREES WHICH ARE TO REMAIN. FOR THOSE TREES WHICH ARE TO REMAIN, WHERE MORE THAN THREE (3) INCHES OF SOIL ARE TO BE PLACED, TREE WELLS SHALL BE CONSTRUCTED TO PRESERVE TREES.
2. TREES TO REMAIN SHALL BE PROTECTED BY WOODEN SLAT SNOW FENCING OR ORANGE SAFTY CONSTRUCTION FENCE, PLACED AROUND THE DRIP LINE OF SUCH TREES, AS SHOWN IN THE TREE PROTECTION DETAIL.
3. NO BOARDS OR OTHER MATERIAL SHALL BE NAILED TO TREES DURING CONSTRUCTION, AND NO TREES TO REMAIN SHALL BE SPRAYED WITH PAINT.
4. HEAVY EQUIPMENT OPERATORS SHALL AVOID DAMAGING EXISTING TREE TRUNKS AND ROOTS. FEEDER ROOTS OF TREES TO BE PRESERVED SHALL NOT BE CUT CLOSER THAN TWENTY-FIVE (25) FEET FROM TREE TRUNKS.
5. TREE TRUNKS AND EXPOSED ROOTS DAMAGED DURING CONSTRUCTION SHALL BE PROTECTED FROM FURTHER DAMAGE BY BEING PRUNED FLUSH, AND IF TRUNKS ARE SCARRED THEY SHALL BE TRACED OUT FOR PROPER HEALING.
6. TREE LIMBS DAMAGED DURING CONSTRUCTION SHALL BE SAWED FLUSH TO TREE TRUNKS AND TREATED WITH TREE PAINTS AS NECESSARY.
7. THE OPERATION OF HEAVY EQUIPMENT OVER ROOT SYSTEMS OF SUCH TREES SHALL BE MINIMIZED IN ORDER TO PREVENT SOIL COMPACTION.
8. DECIDUOUS TREES SHALL BE GIVEN A HEAVY APPLICATION OF FERTILIZER TO AID IN THEIR RECOVERY FROM POSSIBLE DAMAGE CAUSED BY CONSTRUCTION OPERATIONS.
9. CONSTRUCTION DEBRIS SHALL NOT BE DISPOSED OF NEAR OR AROUND THE BASES OF SUCH TREES.

STORMWATER MANAGEMENT NOTES:

INSPECTIONS

1. THE TOWNSHIP ENGINEER OR HIS DESIGNEE SHALL INSPECT ALL PHASES OF THE INSTALLATION OF THE PERMANENT BMPs AND/OR STORMWATER MANAGEMENT FACILITIES AS DEEMED APPROPRIATE BY THE TOWNSHIP ENGINEER.
2. DURING ANY STAGE OF THE WORK, IF THE TOWNSHIP ENGINEER OR HIS DESIGNEE DETERMINES THAT THE PERMANENT BMPs AND/OR STORMWATER MANAGEMENT FACILITIES ARE NOT BEING INSTALLED IN ACCORDANCE WITH THE APPROVED STORMWATER MANAGEMENT PLAN, THE TOWNSHIP MAY REVOKE ANY EXISTING PERMITS OR OTHER APPROVALS AND ISSUE A CEASE AND DESIST ORDER UNTIL A REVISED SWM SITE PLAN IS SUBMITTED AND APPROVED, AS SPECIFIED IN CHAPTER 430 OF THE MIDDLETOWN TOWNSHIP, BUCKS COUNTY CODE, AND UNTIL THE DEFICIENCIES ARE CORRECTED.
3. A FINAL INSPECTION OF ALL BMPs AND/OR STORMWATER MANAGEMENT FACILITIES SHALL BE CONDUCTED BY THE TOWNSHIP ENGINEER OR HIS DESIGNEE TO CONFIRM COMPLIANCE WITH THE APPROVED SWM SITE PLAN PRIOR TO ISSUANCE OF ANY OCCUPANCY PERMIT.

AS-BUILT PLANS, COMPLETION CERTIFICATE, AND FINAL INSPECTION

1. THE DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT PLANS OF ALL SWM BMPs INCLUDED IN THE APPROVED SWM PLAN. THE AS-BUILT PLANS AND ALL EXPLANATION OF ANY DISCREPANCIES WITH THE CONSTRUCTION PLANS SHALL BE SUBMITTED TO THE TOWNSHIP WITHIN THREE MONTHS OF THE COMPLETION OF CONSTRUCTION OF THE SWM BMPs.
2. THE AS-BUILT SUBMISSION SHALL INCLUDE A CERTIFICATION OF COMPLETION SIGNED BY A DESIGN PROFESSIONAL VERIFYING THAT ALL PERMANENT SWM BMPs HAVE BEEN CONSTRUCTED ACCORDING TO THE APPROVED PLANS AND SPECIFICATIONS.
3. THE TOWNSHIP WILL REVIEW THE AS-BUILT SUBMISSION FOR CONSISTENCY WITH THE APPROVED SWM SITE PLAN AS WELL AS ACTUAL CONDITIONS AT THE PROJECT SITE. AFTER RECEIPT OF THE COMPLETION CERTIFICATION BY THE TOWNSHIP, THE TOWNSHIP MAY CONDUCT A FINAL INSPECTION.

GENERAL 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 CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE, SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL USE AND COMPLY WITH THE 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 AND TOWNSHIP REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT OF THE AFFECTED PARTIES.
   G. ANY AND ALL CONTAMINANTS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. DOCUMENTATION OF ANY AND ALL ENVIRONMENTAL WORK INCLUDING HAZARDOUS MATERIAL, SOILS, ASBESTOS, OR OTHER WORK 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 WRITTEN 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 THE OWNER. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL MEASURES THAT 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. IT IS NOT INTENDED TO PROVIDE DIRECTION OTHER THAN THAT ALL METHODS AND MEANS 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 PROPERLY REMOVE AND DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL 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.
17. SEE APPENDIX F OF THE STORMWATER MANAGEMENT REPORT, PREPARED BY CHRISTOPHER JENSEN P.E., OF T&M ASSOCIATES, LAST REVISED 4/17/2020 FOR SPECIFIC DISPOSITION INSTRUCTIONS RELATED TO DEMOLITION OF THE EXISTING STORMWATER MANAGEMENT SYSTEM.

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 SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DRAWINGS AND DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO 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. PURSUANT TO REQUIREMENTS OF THE PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974, 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. SERIAL NO. 20200102050 WAS PLACED FOR SURVEY PURPOSES ONLY.
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 DIMENSION AND PLACEMENT.
7. THE BUILDING FOOTPRINTS DEPICTED HEREON HAVE BEEN TRANSPOSED FROM ARCHITECTURAL PLANS. FINAL BUILDING DIMENSIONS MAY VARY BUT SHALL ULTIMATELY CONFORM TO ALL APPLICABLE ZONING SETBACKS, IMPERVIOUS SURFACE COVERAGE RATIOS, ETC. FINAL BUILDING FOOTPRINTS WHICH SUBSTANTIALLY VARY FROM THE FOOTPRINTS HEREON SHALL BE SUBMITTED TO THE MUNICIPAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO REQUESTING A BUILDING PERMIT.
8. A PENNDOT HIGHWAY OCCUPANCY PERMIT IS REQUIRED FOR ALL ROAD ACCESSES, ROAD WIDENING, DRAINAGE IMPROVEMENTS AND UTILITY INSTALLATION WITHIN THE STATE LEGAL RIGHT-OF-WAY.
9. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH PENNDOT "PUBLICATION 408", LATEST EDITION, AND MUNICIPAL STANDARDS AND SPECIFICATIONS, WHICHEVER IS MORE RESTRICTIVE.
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 OWNERS, HEIRS, AND/OR ASSIGNS OF THE PROJECT SITE 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 ANY/ALL CERTIFICATIONS, INSPECTIONS, ETC. REQUIRED BY ALL GOVERNING JURISDICTIONAL AGENCIES DURING AND AFTER CONSTRUCTION FOR SIGN-OFF AND CERTIFICATE OF OCCUPANCY ISSUANCE INCLUDING BUT NOT LIMITED TO PROCUREMENT OF SERVICES, SCHEDULING OF FIELD OBSERVATIONS AND COORDINATION WITH REPRESENTATIVES OF THE APPROPRIATE PARTIES. CONTRACTOR IS RESPONSIBLE TO COORDINATE CERTIFICATIONS, SIGN-OFFS, ETC. NECESSARY FOR JOB CLOSEOUT AND ISSUANCE OF CERTIFICATE OF OCCUPANCY.
13. THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND IN CASE OF CONFLICT SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DISCREPANCY BETWEEN GEOTECHNICAL REPORT AND PLANS, ETC.
14. THE PROPERTY SURVEY AS CERTIFIED SHALL BE CONSIDERED A PART OF THESE PLANS.
15. THESE PLANS ARE BASED ON INFORMATION PROVIDED TO OUR OFFICE AT THE TIME OF PLAN PREPARATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY THE ENGINEER IN WRITING IF ACTUAL SITE CONDITIONS DIFFER FROM THAT SHOWN ON THE PLAN, OR IF THE PROPOSED WORK WOULD BE INHIBITED BY ANY OTHER EXISTING SITE FEATURES.
16. ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
17. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL/BUILDING PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS. THE CONTRACTOR SHALL REFER TO OWNER PROVIDED DOCUMENTS FOR SITE LIGHTING ELECTRICAL CONDUIT DESIGN AND LAYOUT.
18. DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL TOWN, COUNTY, STATE AND FEDERAL LAWS AND APPLICABLE CODES. CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES AND LAWS.
19. THE CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS, AS WELL AS ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE.
20. THE CONTRACTOR IS TO EXERCISE CARE WHEN PERFORMING WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES AND FACILITIES THAT ARE TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING THE APPROPRIATE MEASURES AS NECESSARY TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT TO REMAIN, AND PROVIDE A SAFE WORK AREA.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL REPLACE ALL SIGNAL INTERCONNECTION CABLE, CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION.
22. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO EXISTING ITEMS DURING CONSTRUCTION SUCH AS BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, SIDEWALK, ETC. REPAIR SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE TO PROVIDE DOCUMENTATION OF THE CONDITION OF EXISTING ITEMS TO THE OWNER'S DESIGNATED REPRESENTATIVE PRIOR TO CONSTRUCTION START.
23. CONCRETE SHALL HAVE THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS INDICATED IN SPECIFICATIONS AND REFERENCE DOCUMENTS UNLESS OTHERWISE NOTED ON THE DETAILS, PLANS, AND/OR GEOTECHNICAL REPORT.
24. THE ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION METHODS/MEANS FOR COMPLETION OF THE WORK DEPICTED ON THESE PLANS NOR ANY CONFLICTS/SCOPE REVISIONS WHICH RESULT FROM THE SAME. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING METHODS/MEANS FOR COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND NOTIFICATION OF OWNER AND ENGINEER OF RECORD IN WRITING WHEN A CONFLICT IS IDENTIFIED.
25. NEITHER THE PROFESSIONAL ACTIVITIES OF T&M ASSOCIATES NOR THE PRESENCE OF T&M ASSOCIATES OR ITS EMPLOYEES AND SUB-CONSULTANTS AT A CONSTRUCTION/PROJECT SITE, SHALL RELIEVE THE CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. T&M ASSOCIATES AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE CONTROL OVER THE CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE ENGINEER OF RECORD HEREIN IS NOT RESPONSIBLE FOR JOB SITE SAFETY NOR HAS HE BEEN RETAINED FOR SUCH PURPOSES. T&M ASSOCIATES SHALL BE INDEMNIFIED BY THE CONTRACTOR AND SHALL BE MADE AN ADDITIONAL INSURED UNDER THE CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE.
26. T&M ASSOCIATES SHALL REVIEW AND COMMENT OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN AND THE INFORMATION SHOWN IN THE CONSTRUCTION DOCUMENTS. COORDINATION OF THE WORK WITH OTHER TRADES AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. T&M ASSOCIATES REVIEW SHALL BE CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM SHALL NOT INDICATE THAT T&M ASSOCIATES HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. T&M ASSOCIATES SHALL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT BROUGHT TO THE ATTENTION OF T&M IN WRITING BY THE CONTRACTOR. T&M ASSOCIATES SHALL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OR CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
27. TRASH/RECYCLING RECEPTACLES SHALL BE PROVIDED THROUGHOUT THE PROJECT SITE FOR PUBLIC USAGE AND SHALL BE DESIGNED TO PRECLUDE DEPOSITED REFUSE FROM BLOWING THROUGHOUT THE SITE.
28. TWO SURVEYS BENCHMARKS SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
29. PRIOR TO THE START OF CONSTRUCTION, RETAINING WALL DESIGN PLANS AND CALCULATIONS, CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA, SHALL BE SUBMITTED TO AND APPROVED BY MIDDLETOWN TOWNSHIP, BUCKS COUNTY, PA
30. AREAS OF THE SITE TO BE CONVERTED FROM IMPERVIOUS TO PERVIOUS (EX: LAWN, PLANTING BEDS) SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 20" TO LOOSEN SUBSOIL. 12" OF TOPSOIL/COMPOST MIXTURE TO BE REPLACED IN THESE AREAS WITH SMALL EQUIPMENT TO MINIMIZE COMPACTION. SOIL MIX TO CONTAIN 2" OF COMPOST BLENDED WITH 10" OF TOPSOIL.
31. A BLANKET EASEMENT SHALL BE GRANTED TO MIDDLETOWN TOWNSHIP FOR THE PURPOSE OF INSPECTIONS OF STORMWATER MANAGEMENT FACILITIES.

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CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania811

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PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

LEGEND AND GENERAL NOTES

YOUR GOALS. OUR MISSION.
1700 MARKET ST., SUITE 3110
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DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	LEG
SHEET	2 OF 37

PROJECT INFORMATION:
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RELOCATE EXISTING UTILITY AS REQUIRED PER COORDINATION WITH UTILITY COMPANY

BUILDING TO BE DEMOLISHED

RELOCATE EXISTING UTILITY AS REQUIRED PER COORDINATION WITH UTILITY COMPANY

FIELD VERIFY DEPTH OF EXISTING WATER LINE AT CROSSING PRIOR TO CONSTRUCTION OF PROPOSED DRAINAGE PIPES IN THIS AREA

RELOCATE EXISTING UTILITY AS REQUIRED PER COORDINATION WITH UTILITY COMPANY

SHEET 4

SHEET 3

LEGEND

- DENOTES BUILDING TO BE DEMOLISHED
- DENOTES IMPACTED PAVEMENT TO BE REMOVED, RECONSTRUCTED, OR MODIFIED.
- (TBR) — TO BE REMOVED
- EXISTING CURB TO BE REMOVED
- EXISTING SEWER PIPING TO BE REMOVED
- EXISTING INLET TO BE REMOVED
- LIGHT FIXTURE TO BE IMPACTED
- EXISTING FEATURES TO REMAIN
- EXISTING FEATURE TO BE REMOVED (EXCEPT ELECTRIC, GAS, TELECOM, CABLE – REMOVALS, RELOCATIONS AND/OR ABANDONMENT TO BE COORDINATED WITH OWNER AND UTILITY PROVIDER
- E — EXISTING ELECTRIC LINE – IF REMOVAL, RELOCATION AND/OR ABANDONMENT IS REQUIRED, COORDINATE WITH OWNER AND UTILITY PROVIDER
- G — EXISTING GAS LINE – IF REMOVAL, RELOCATION AND/OR ABANDONMENT IS REQUIRED, COORDINATE WITH OWNER AND UTILITY PROVIDER
- CATV — EXISTING CABLE TV LINE – IF REMOVAL, RELOCATION AND/OR ABANDONMENT IS REQUIRED, COORDINATE WITH OWNER AND UTILITY PROVIDER
- W — EXISTING DOMESTIC WATER LINE – IF REMOVAL, RELOCATION AND/OR ABANDONMENT IS REQUIRED, COORDINATE WITH OWNER AND UTILITY PROVIDER
- S — EXISTING SANITARY LINE – IF REMOVAL, RELOCATION AND/OR ABANDONMENT IS REQUIRED, COORDINATE WITH OWNER AND UTILITY PROVIDER
- T — EXISTING TELECOM LINE – IF REMOVAL, RELOCATION AND/OR ABANDONMENT IS REQUIRED, COORDINATE WITH OWNER AND UTILITY PROVIDER
- TREE CANOPY TO BE PROTECTED
- TREE CANOPY TO BE REMOVED
- TREE TO BE REMOVED
- PAVEMENT TO BE REMOVED

SEE PLAN SHEET 2 OF 37 FOR GENERAL DEMOLITION NOTES

40' 20' 0 40' 80'

1" = 40'

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CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811

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SERIAL NO.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

EXISTING CONDITIONS/ DEMOLITION PLAN - 1

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DESIGNED BY	DFM
CHECKED BY	CWJ
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DATE	02/17/2020
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SHEET	3 OF 37

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LEGEND

	DENOTES BUILDING TO BE DEMOLISHED
	DENOTES IMPACTED PAVEMENT TO BE REMOVED, RECONSTRUCTED, OR MODIFIED.
(TBR)	TO BE REMOVED
	EXISTING CURB TO BE REMOVED
	EXISTING SEWER PIPING TO BE REMOVED
	EXISTING INLET TO BE REMOVED
	LIGHT FIXTURE TO BE IMPACTED
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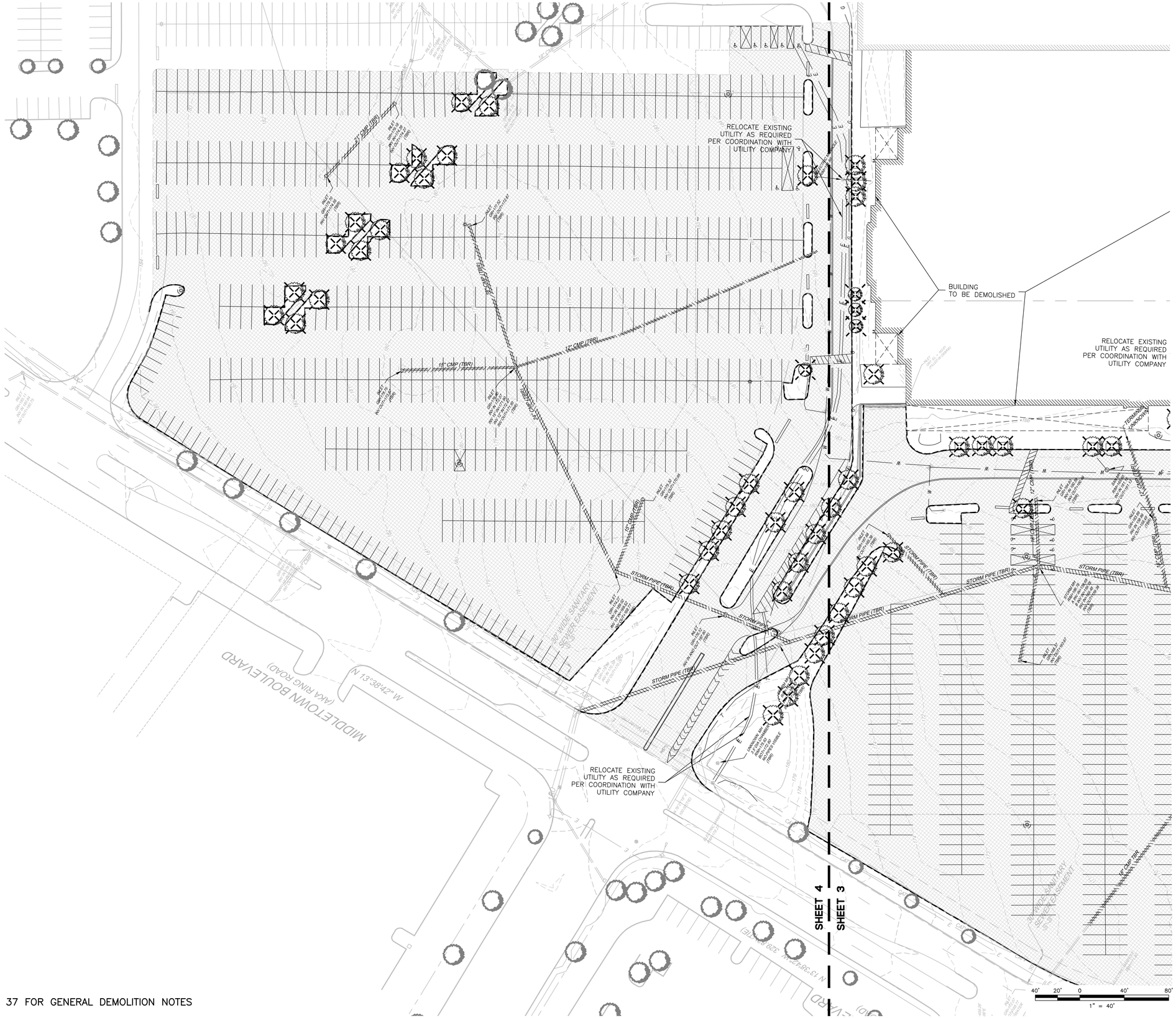
	TREE CANOPY TO BE PROTECTED
	TREE CANOPY TO BE REMOVED
	TREE TO BE REMOVED
	PAVEMENT TO BE REMOVED



SEE PLAN SHEET 2 OF 37 FOR GENERAL DEMOLITION NOTES

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EXISTING CONDITIONS/ DEMOLITION PLAN - 2

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SHEET	4 OF 37

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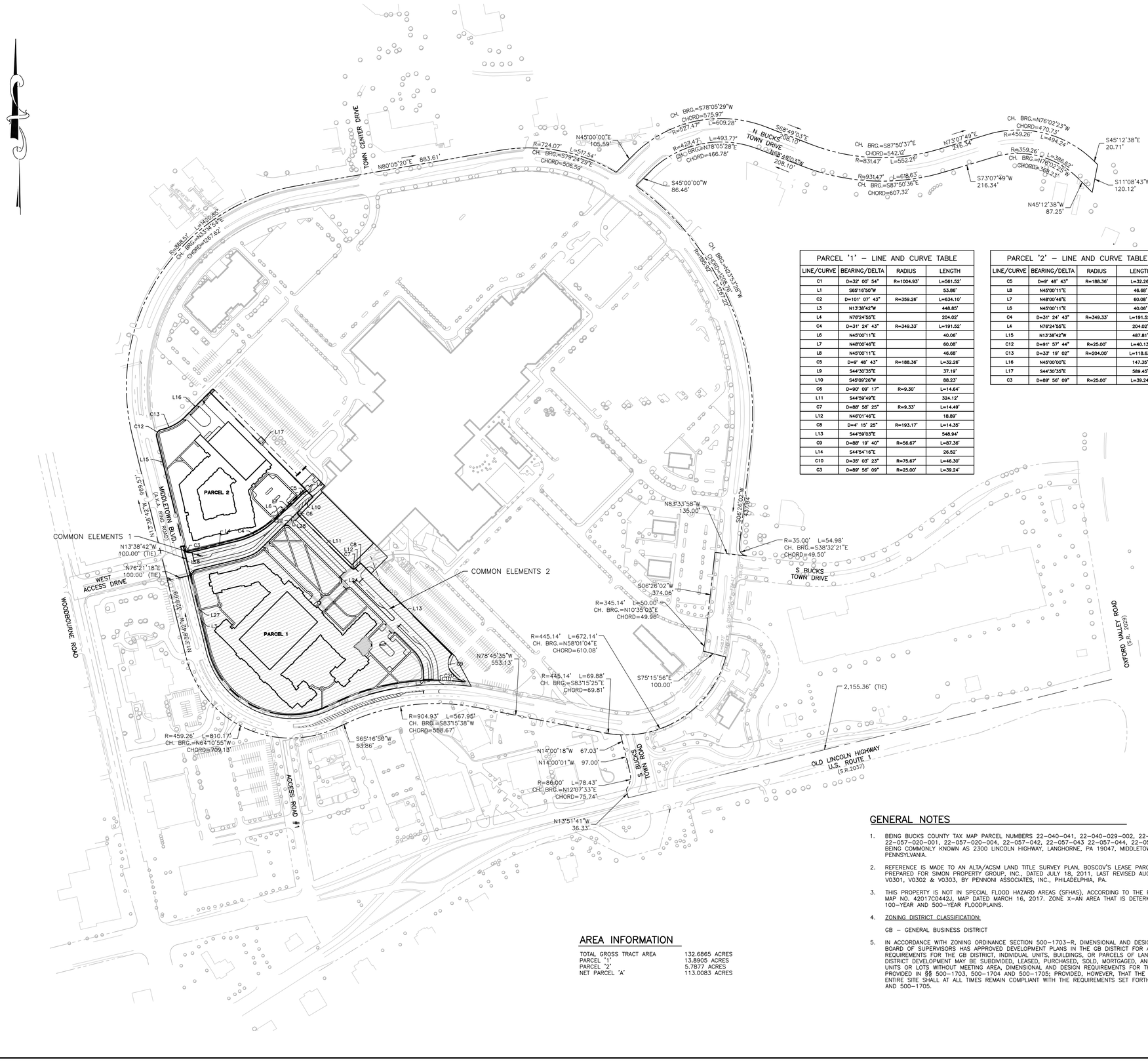

PARCEL '1' – LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	RADIUS	LENGTH
C1	D=32° 00' 54"	R=1004.93'	L=561.52'
L1	S65°16'50"W		53.86'
C2	D=101° 07' 43"	R=359.26'	L=634.10'
L3	N13°38'42"W		448.85'
L4	N76°24'55"E		204.02'
C4	D=31° 24' 43"	R=349.33'	L=191.52'
L6	N45°00'11"E		40.06'
L7	N48°00'46"E		60.08'
L8	N45°00'11"E		46.68'
C5	D=9° 48' 43"	R=188.36'	L=32.26'
L9	S44°30'35"E		37.19'
L10	S45°09'26"W		88.23'
C6	D=90° 09' 17"	R=9.30'	L=14.64'
L11	S44°59'49"E		324.12'
C7	D=88° 58' 25"	R=9.33'	L=14.49'
L12	N46°01'46"E		18.89'
C8	D=4° 15' 25"	R=193.17'	L=14.35'
L13	S44°59'03"E		548.94'
C9	D=88° 19' 40"	R=56.67'	L=87.36'
L14	S44°54'16"E		26.52'
C10	D=35° 03' 23"	R=75.67'	L=46.30'
C3	D=89° 56' 09"	R=25.00'	L=39.24'

PARCEL '2' – LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	RADIUS	LENGTH
C5	D=9° 48' 43"	R=188.36'	L=32.26'
L8	N45°00'11"E		46.68'
L7	N48°00'46"E		60.08'
L6	N45°00'11"E		40.06'
C4	D=31° 24' 43"	R=349.33'	L=191.52'
L4	N76°24'55"E		204.02'
L15	N13°38'42"W		487.81'
C12	D=91° 57' 44"	R=25.00'	L=40.13'
C13	D=33° 19' 02"	R=204.00'	L=118.63'
L16	N45°00'00"E		147.35'
L17	S44°30'35"E		589.45'
C3	D=89° 56' 09"	R=25.00'	L=39.24'

Common Elements 1 – LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	RADIUS	LENGTH
L22	N45°09'26"E		319.05'
C21	D=22° 09' 33"	R=100.00'	L=38.68'
L20	N76°22'38"E		175.09'
C16	D=90° 01' 30"	R=35.00'	L=54.99'
L18	N13°38'42"W		448.85'
L4	N76°24'55"E		204.02'
C4	D=31° 24' 43"	R=349.33'	L=191.52'
L6	N45°00'11"E		40.06'
L7	N48°00'46"E		60.08'
L8	N45°00'11"E		46.68'
C5	D=9° 48' 43"	R=188.36'	L=32.26'
L9	S44°30'35"E		37.19'
L10	S45°09'26"W		88.23'
C3	D=89° 56' 09"	R=25.00'	L=39.24'

Common Elements 2 – LINE AND CURVE TABLE			
LINE/CURVE	BEARING/DELTA	RADIUS	LENGTH
L24	S44°59'49"E		575.17'
C18	D=89° 50' 45"	R=19.33'	L=30.31'
L28	S45°09'26"W		90.03'
C6	D=90° 09' 17"	R=9.30'	L=14.64'
L11	S44°59'49"E		324.12'
C7	D=88° 58' 25"	R=9.33'	L=14.49'
L12	N46°01'46"E		18.89'
C8	D=4° 15' 25"	R=193.17'	L=14.35'
L13	S44°59'03"E		548.94'
C9	D=88° 19' 40"	R=56.67'	L=87.36'
L14	S44°54'16"E		26.52'
C10	D=35° 03' 23"	R=75.67'	L=46.30'
C20	D=32° 00' 54"	R=1004.93'	L=561.52'

AREA INFORMATION

TOTAL GROSS TRACT AREA	132.6865 ACRES
PARCEL '1'	13.8905 ACRES
PARCEL '2'	5.7877 ACRES
NET PARCEL 'A'	113.0083 ACRES

GENERAL NOTES

1. BEING BUCKS COUNTY TAX MAP PARCEL NUMBERS 22-040-041, 22-040-029-002, 22-040-029-003 22-057-020-001, 22-057-020-004, 22-057-042, 22-057-043 22-057-044, 22-057-045, & 22-057-047 AND BEING COMMONLY KNOWN AS 2300 LINCOLN HIGHWAY, LANGHORNE, PA 19047, MIDDLETOWN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA.
2. REFERENCE IS MADE TO AN ALTA/ACSM LAND TITLE SURVEY PLAN, BOSCOV'S LEASE PARCEL – OXFORD VALLEY MALL, PREPARED FOR SIMON PROPERTY GROUP, INC., DATED JULY 18, 2011, LAST REVISED AUGUST 9, 2011, DRAWING NO. V0301, V0302 & V0303, BY PENNONI ASSOCIATES, INC., PHILADELPHIA, PA.
3. THIS PROPERTY IS NOT IN SPECIAL FLOOD HAZARD AREAS (SFHAS), ACCORDING TO THE FLOOD INSURANCE RATE MAP, MAP NO. 42017C0442J, MAP DATED MARCH 16, 2017. ZONE X-AN AREA THAT IS DETERMINED TO BE OUTSIDE THE 100-YEAR AND 500-YEAR FLOODPLAINS.
4. ZONING DISTRICT CLASSIFICATION:

   GB – GENERAL BUSINESS DISTRICT
5. IN ACCORDANCE WITH ZONING ORDINANCE SECTION 500-1703-R, DIMENSIONAL AND DESIGN REQUIREMENTS: WHERE THE BOARD OF SUPERVISORS HAS APPROVED DEVELOPMENT PLANS IN THE GB DISTRICT FOR A SITE MEETING THE REQUIREMENTS FOR THE GB DISTRICT, INDIVIDUAL UNITS, BUILDINGS, OR PARCELS OF LAND WITHIN THE APPROVED GB DISTRICT DEVELOPMENT MAY BE SUBDIVIDED, LEASED, PURCHASED, SOLD, MORTGAGED, AND DEVELOPED AS INDIVIDUAL UNITS OR LOTS WITHOUT MEETING AREA, DIMENSIONAL AND DESIGN REQUIREMENTS FOR THOSE INDIVIDUAL LOTS AS PROVIDED IN §§ 500-1703, 500-1704 AND 500-1705; PROVIDED, HOWEVER, THAT THE DEVELOPMENT PLAN FOR THE ENTIRE SITE SHALL AT ALL TIMES REMAIN COMPLIANT WITH THE REQUIREMENTS SET FORTH IN §§ 500-1703, 500-1704 AND 500-1705.

LEGEND:

- PHASE 1
- TOTAL PARCEL LINE
- PROPOSED PARCEL LINE
- PROPOSED COMMON ELEMENT LINE

200' 100' 0 200' 400'
1" = 200'

NO.	BY	REVISIONS	DATE
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ROBERT O. PELKE, P.L.S.
LICENSED PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. SU 42306 E
DATE

Pennsylvania 811

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND FIELD SURVEY INFORMATION. THE ACCURACY OR COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATION ACT 187 AS AMENDED BY ACT 38 OF 2017, EFFECTIVE MAY 1ST 2018, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SUBDIVISION PLAN

YOUR GOALS. OUR MISSION.

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FAX 215-627-3459
www.tandmassociates.com

OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	RCD-1
SHEET	5 OF 37

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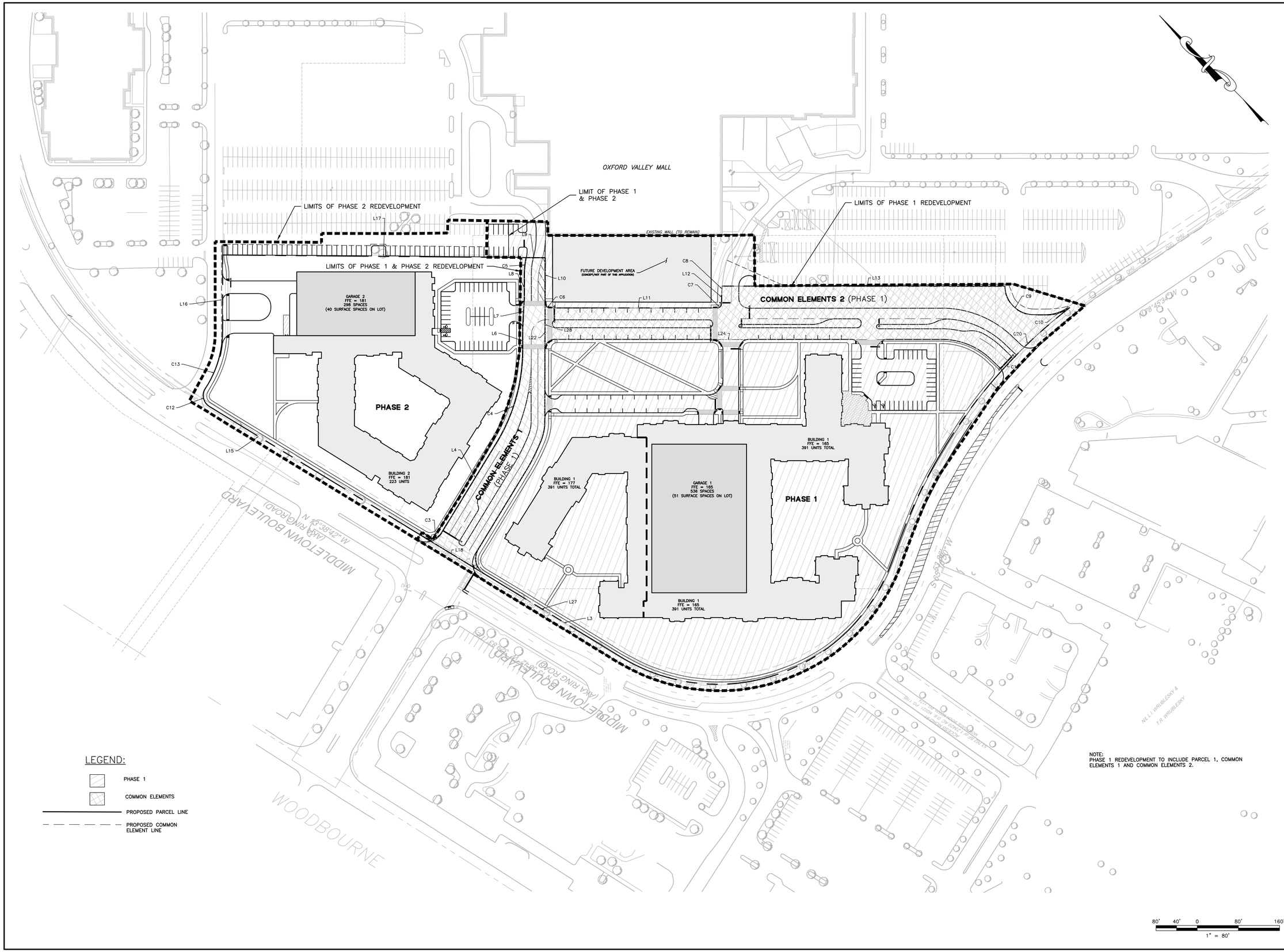
FILE NAME: CRST00004-SUBDIVISION PLAN.DWG
LAST SAVED DATE AND TIME: 17 Apr 2020, 12:47PM
LAST SAVE BY: DMattson



NOTE:
PHASE 1 REDEVELOPMENT TO INCLUDE PARCEL 1, COMMON ELEMENTS 1 AND COMMON ELEMENTS 2.

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ROBERT O. PELKE, P.L.S.
LICENSED PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. SU 42306 E

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CORNERSTONE TRACY, LLC
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DRAWN BY JMH,ROP	SHEET 6 OF 37
DATE 02/17/2020	
SCALE AS NOTED	
PROJ. NO. CRST00004	

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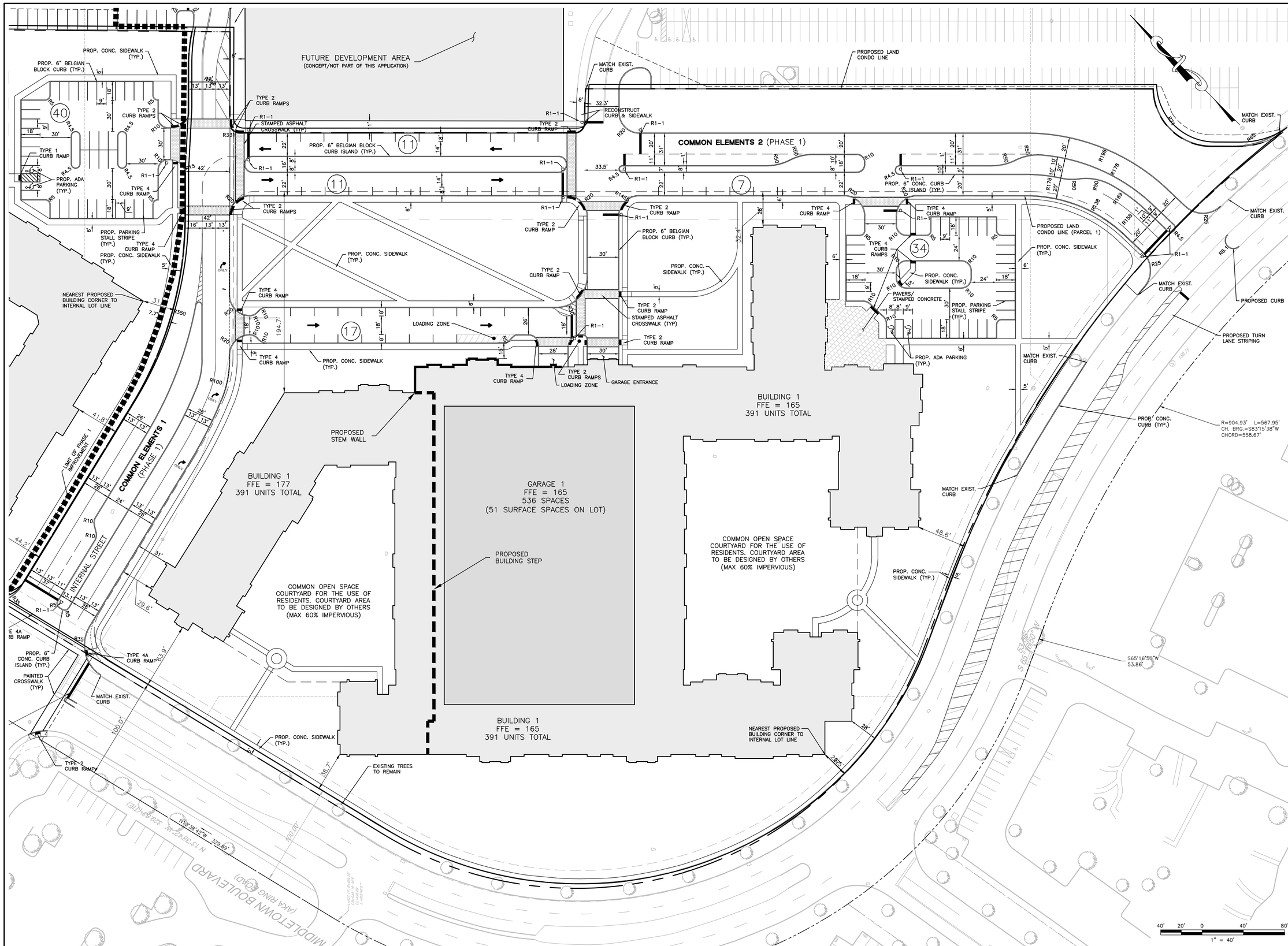

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CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464

DATE

Pennsylvania 811

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CORNERSTONE TRACY, LLC
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SITE RECORD PLAN - 1

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DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	STE-1
SHEET	7 OF 37

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GARAGE 2
FFE = 181
298 SPACES
(40 SURFACE SPACES ON LOT)

COMMON OPEN SPACE
COURTYARD FOR THE USE OF
RESIDENTS. COURTYARD AREA
TO BE DESIGNED BY OTHERS
(MAX 60% IMPERVIOUS)

BUILDING 2
FFE = 181
223 UNITS

FUTURE DEVELOPMENT AREA
(CONCEPT/NOT PART OF THIS APPLICATION)

BUILDING 1
FFE = 177
391 UNITS TOTAL

GARAGE 1
FFE = 165
536 SPACES
(51 SURFACE SPACES ON LOT)

COMMON OPEN SPACE
COURTYARD FOR THE USE OF
RESIDENTS. COURTYARD AREA
TO BE DESIGNED BY OTHERS
(MAX 60% IMPERVIOUS)

BUILDING 1
FFE = 165
391 UNITS TOTAL

MIDDLETOWN BLVD.
(STREET)

MIDDLETOWN BLVD.
(A.K.A. RING ROAD)

MIDDLETOWN BOULEVARD
(AKA RING ROAD)

INTERNAL STREET

LIMIT OF PHASE 1 IMPROVEMENT

PROPOSED LAND CONDO LINE

EXISTING WALL (TO REMAIN)

PROPOSED STEM WALL

PROPOSED BUILDING STEP

NEAREST PROPOSED BUILDING CORNER TO INTERNAL LOT LINE

LOADING ZONE

GARAGE ENTRANCE

EXISTING TREES TO REMAIN

MATCH EXIST. CURB

RECONSTRUCT CURB & SIDEWALK

TYPE 4 CURB RAMP

TYPE 2 CURB RAMPS

TYPE 1 CURB RAMP

TYPE 4A CURB RAMP

PROP. CONC. SIDEWALK (TYP.)

PROP. 6" BELGIAN BLOCK CURB (TYP.)

PROP. 6" BELGIAN BLOCK CURB ISLAND (TYP.)

PROP. CONC. CURB (TYP.)

PROP. ADA PARKING (TYP.)

PROP. PARKING STALL STRIPE (TYP.)

STAMPED ASPHALT CROSSWALK (TYP)

PAINTED CROSSWALK (TYP)

PROP. 6" CONC. CURB ISLAND (TYP.)

N13°38'42"W 969.57'

N13°38'42"W 100.00' (TIE)

N76°21'18"E 100.00' (TIE)

NO.	BY	REVISIONS	DATE
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CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811

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OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SITE RECORD PLAN - 2

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DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	STE-2
SHEET	8 OF 37

40' 20' 0 40' 80'
1" = 40'

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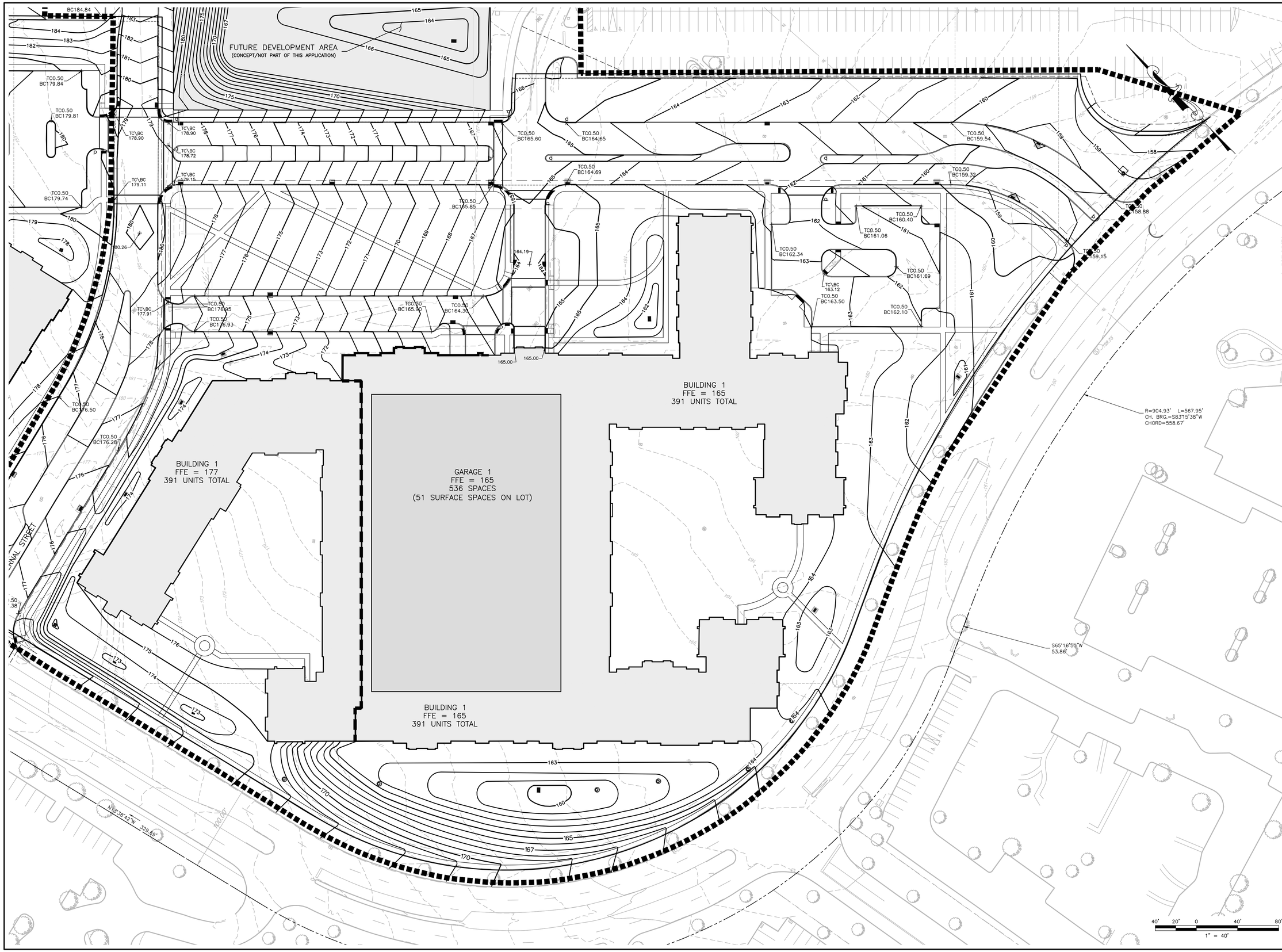

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PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
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TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

GRADING PLAN - 1

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SCALE	AS NOTED
PROJ. NO.	CRST00004
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SHEET	9 OF 37

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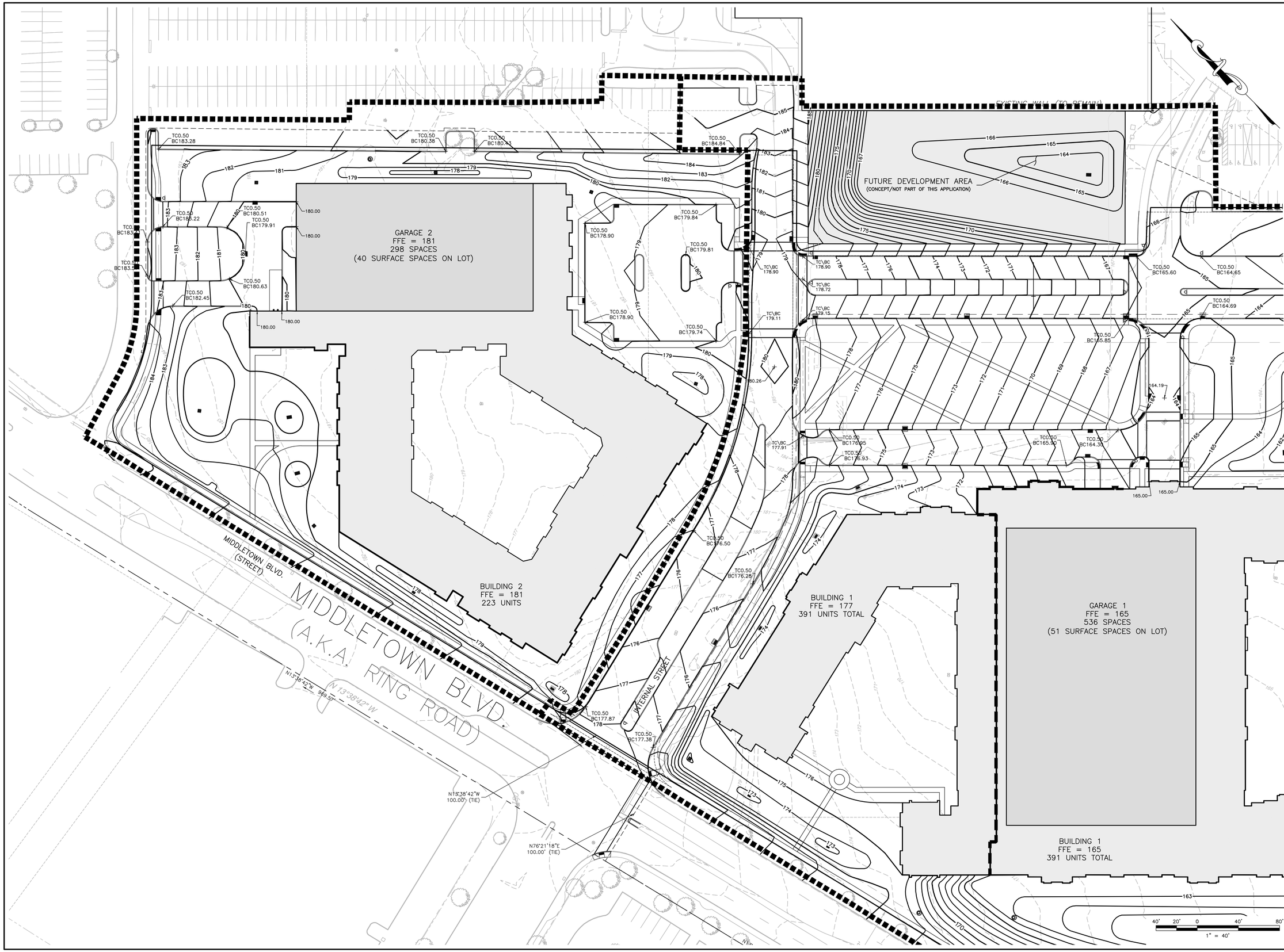

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GRADING PLAN - 2

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DRAWING	GRD-2
SHEET	10 OF 37

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INL A04C
TG=178.69
INV IN=171.50
INV OUT=171.40

INL A04B
TG=178.69
INV IN=171.00
INV OUT=170.90

24" Corrugated
HDPE Pipe L=28.2
LF S=3.20%

INL A04A
TG=178.33
INV IN=170.00
INV OUT=169.90

18" Corrugated
HDPE Pipe L=39.0
LF S=1.03%

24" Corrugated
HDPE Pipe L=60.0
LF S=2.50%

INL A04
TG=178.48
INV IN=168.40
INV OUT=168.15

INL A03A
=177.50
=173.75

INL A05
TG=172.59
INV IN=163.69
INV IN=163.54
INV OUT=163.44

18" Corrugated
HDPE Pipe L=87.2
LF S=0.70%

INL A06A
TG=166.03
INV IN=160.64
INV OUT=160.54

INL A06
TG=165.97
INV IN=159.31
INV IN=159.31
INV OUT=159.21

18" Corrugated
HDPE Pipe L=60.0
LF S=2.05%

INL A08
TG=164.63
INV IN=157.67
INV IN=157.20
INV OUT=157.10

INL A09A
TG=162.29
INV OUT=158.90

42" Corrugated
HDPE Pipe
L=193.0 LF
S=0.64%

15" Corrugated
HDPE Pipe L=60.0
LF S=1.00%

42" Corrugated HDPE Pipe
L=164.03 LF S=1.19%

INL A10
TG=159.57
INV IN=153.82
INV IN=156.60
INV OUT=153.82

42" Corrugated
HDPE Pipe L=74.4
LF S=1.45%

48" Corrugated Steel
=60.81 LF S=1.12%

EX STM MH
RIM=157
INV W=146.69

INL A11
TG=157.90
INV IN=152.74
INV OUT=152.64

INL A11B
TG=158.16
INV IN=152.11
INV OUT=152.01

STM MH 01
RIM=157.82
INV IN=151.25
INV IN=149.55
INV OUT=149.44

48" Corrugated
HDPE Pipe L=87.5
LF S=0.87%

30" Corrugated
HDPE Pipe
L=147.2 LF
S=3.03%

42" Corrugated
HDPE Pipe
L=154.3 LF
S=2.68%

42" Corrugated
HDPE Pipe L=74.8
LF S=2.06%

18" Corrugated
HDPE Pipe L=30.1
LF S=1.00%

24" Corrugated
HDPE Pipe L=80.7
LF S=0.56%

INL A08A
TG=163.89
INV IN=159.70
INV IN=157.75
INV OUT=157.65

INL A09
TG=162.30
INV IN=155.87
INV IN=158.30
INV OUT=155.77

18" Corrugated
HDPE Pipe L=39.0
LF S=1.03%

42" Corrugated
HDPE Pipe L=60.0
LF S=0.89%

INL A10A
TG=160.43
INV OUT=157.00

18" Corrugated
HDPE Pipe L=65.9
LF S=1.03%

INL A05A
TG=173.39
INV IN=165.35
INV OUT=165.25

INL A08C
TG=164.84
INV IN=160.88
INV OUT=160.78

36" Corrugated
HDPE Pipe
L=124.0 LF
S=1.38%

INL A08B
TG=163.89
INV IN=160.10
INV OUT=160.00

15" Corrugated
HDPE Pipe
L=114.6 LF
S=0.65%

36" Corrugated
HDPE Pipe L=34.2
LF S=0.88%

INL A05B
TG=173.37
INV IN=165.75
INV OUT=165.65

FIELD VERIFY DEPTH OF
EXISTING WATER LINE AT
CROSSING PRIOR TO
CONSTRUCTION OF
PROPOSED DRAINAGE
PIPES IN THIS AREA

48" Corrugated
HDPE Pipe
L=256.4 LF
S=1.15%

36" Corrugated
HDPE Pipe L=62.2
LF S=0.56%

INL A08E
TG=161.50
INV OUT=158.50

18" Corrugated
HDPE Pipe L=26.1
LF S=1.11%

36" Corrugated
HDPE Pipe L=50.9
LF S=0.79%

INL A05C
TG=175.35
INV IN=166.25
INV OUT=166.15

PROPOSED
STEM WALL

INL A08D
TG=164.98
INV OUT=161.17

INL B02
TG=161.00
INV IN=152.60
INV OUT=152.50

36" Corrugated
HDPE Pipe L=44.9
LF S=2.73%

INL A05D
TG=173.07
INV IN=166.70
INV OUT=166.60

36" Corrugated
HDPE Pipe
L=104.5 LF
S=0.98%

gated
=76.5
0.65%

INL A01
TG=175.19
INV IN=169.15
INV OUT=169.05

INL A05E
TG=173.10
INV IN=167.82
INV OUT=167.72

PROPOSED
BUILDING STEP

COMMON OPEN SPACE
COURTYARD FOR THE USE OF
RESIDENTS. COURTYARD AREA
TO BE DESIGNED BY OTHERS
(MAX 60% IMPERVIOUS)

COMMON OPEN SPACE
COURTYARD FOR THE USE OF
RESIDENTS. COURTYARD AREA
TO BE DESIGNED BY OTHERS
(MAX 60% IMPERVIOUS)

42" Corrugated
HDPE Pipe L=266.1
LF S=0.51%

INL B14
TG=172.75
INV OUT=169.54

INL B13
TG=172.75
INV IN=169.06
INV OUT=168.96

18" Corrugated
HDPE Pipe L=91.2
LF S=1.50%

INL B04
TG=162.75
INV IN=154.05
INV OUT=153.95

INL B09
TG=159.75
INV IN=156.50
INV OUT=156.40

30" Corrugated
HDPE Pipe L=63.3
LF S=0.55%

36" Corrugated
HDPE Pipe
L=109.8 LF
S=0.50%

INL B12
TG=172.75
INV IN=167.59
INV OUT=167.49

18" Corrugated
HDPE Pipe L=68.0
LF S=0.70%

30" Corrugated
HDPE Pipe L=60.1
LF S=0.50%

STM MH B05
TG=164.03
INV IN=154.70
INV OUT=154.60

18" Corrugated
HDPE Pipe
L=109.5 LF
S=1.70%

STM MH B11
RIM=173.36
INV IN=165.63
INV OUT=165.53

24" Corrugated
HDPE Pipe
L=155.0 LF
S=0.99%

24" Corrugated
HDPE Pipe L=56.9
LF S=0.53%

STM MH B06
RIM=164.83
INV IN=155.15
INV OUT=155.05

30" Corrugated
HDPE Pipe L=88.2
LF S=0.51%

18" Corrugated
HDPE Pipe L=92.4
LF S=8.00%

STM MH B07
RIM=161.96
INV IN=155.70
INV OUT=155.60

STM MH B10
RIM=163.57
INV IN=158.14
INV OUT=158.04

STM MH B08
RIM=160.88
INV IN=156.10
INV OUT=156.00

STORM SYSTEM A STRUCTURE TABLE

NAME	STRUCTURE DETAILS
EX INL 87	EXISTING INLET
EX STM MH 52	EXISTING MANHOLE
INL A01	PENNDOT TYPE C INLET / TYPE 4 BOX
INL A01A	PENNDOT TYPE C INLET / TYPE 4 BOX
INL A02	PENNDOT TYPE C INLET / STANDARD BOX
INL A02A	PENNDOT TYPE M INLET / STANDARD BOX
INL A02B	PENNDOT TYPE M INLET / STANDARD BOX
INL A02C	PENNDOT TYPE M INLET / STANDARD BOX
INL A02D	PENNDOT TYPE M INLET / STANDARD BOX
INL A03	PENNDOT TYPE C INLET / TYPE 4 BOX
INL A03A	PENNDOT TYPE M INLET / STANDARD BOX
INL A03B	PENNDOT TYPE C INLET / STANDARD BOX
INL A03C	PENNDOT TYPE C INLET / STANDARD BOX
INL A03D	PENNDOT TYPE M INLET / STANDARD BOX
INL A04	PENNDOT TYPE C INLET / TYPE 4 BOX
INL A04A	PENNDOT TYPE C INLET / STANDARD BOX
INL A04B	PENNDOT TYPE C INLET / STANDARD BOX
INL A04C	PENNDOT TYPE C INLET / STANDARD BOX
INL A05	PENNDOT TYPE C INLET / TYPE 4 BOX
INL A05A	PENNDOT TYPE C INLET / TYPE 4 BOX
INL A05B	PENNDOT TYPE C INLET / TYPE 4 BOX
INL A05C	PENNDOT TYPE M INLET / STANDARD BOX
INL A05D	PENNDOT TYPE M INLET / STANDARD BOX
INL A05E	PENNDOT TYPE M INLET / STANDARD BOX
INL A05F	PENNDOT TYPE M INLET / STANDARD BOX
INL A06	PENNDOT TYPE C INLET / TYPE 4 BOX
INL A06A	PENNDOT TYPE C INLET / STANDARD BOX
INL A06B	PENNDOT TYPE C INLET / STANDARD BOX
INL A08	PENNDOT TYPE C INLET / TYPE 5 BOX
INL A08A	PENNDOT TYPE C INLET / STANDARD BOX
INL A08B	PENNDOT TYPE C INLET / STANDARD BOX
INL A08C	PENNDOT TYPE C INLET / STANDARD BOX
INL A08D	PENNDOT TYPE S INLET / STANDARD BOX
INL A08E	PENNDOT TYPE C INLET / STANDARD BOX
INL A09	PENNDOT TYPE C INLET / TYPE 5 BOX
INL A09A	PENNDOT TYPE C INLET / STANDARD BOX
INL A10	PENNDOT TYPE C INLET / TYPE 5 BOX
INL A10A	PENNDOT TYPE C INLET / STANDARD BOX
INL A11	PENNDOT TYPE C INLET / TYPE 5 BOX
INL A11B	PENNDOT TYPE C INLET / STANDARD BOX
STM MH-A11A	MANHOLE / 5' DIA
STM MH 01	MANHOLE / TYPE 6 BOX

STORM SYSTEM B STRUCTURE TABLE

NAME	STRUCTURE DETAILS
INL B02	PENNDOT TYPE M INLET / TYPE 4 BOX
INL B04	PENNDOT TYPE M INLET / TYPE 4 BOX
INL B09	PENNDOT TYPE M INLET / STANDARD BOX
INL B12	2' X 2' YARD INLET
INL B13	2' X 2' YARD INLET
INL B14	2' X 2' YARD INLET
STM MH-01	MANHOLE / TYPE 6 BOX
STM MH B03	MANHOLE / 5' DIA
STM MH B05	MANHOLE / 4' DIA
STM MH B06	MANHOLE / 4' DIA
STM MH B07	MANHOLE / 4' DIA
STM MH B08	MANHOLE / 4' DIA
STM MH B10	MANHOLE / 4' DIA
STM MH B11	MANHOLE / 4' DIA

STORM SYSTEM C STRUCTURE TABLE

NAME	STRUCTURE DETAILS
INL C01A	PENNDOT TYPE M INLET / STANDARD BOX
INL C02	PENNDOT TYPE M INLET / STANDARD BOX
INL C03	PENNDOT TYPE C INLET / STANDARD BOX
INL C04	PENNDOT TYPE C INLET / STANDARD BOX
INL C05	PENNDOT TYPE C INLET / STANDARD BOX
STM MH C1	MANHOLE / 4' DIA

40' 20' 0 40' 80'
1" = 40'

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS WERE DEVELOPED FROM UTILITY COMPANY RECORDS AND FIELD SURVEY OBSERVATIONS. THE ACCURACY OR 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 187 OF 1996 AS AMENDED BY ACT 181 OF THE YEAR OF 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
SERIAL NO.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

DRAINAGE PLAN - 1

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OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	DRN-1
SHEET	11 OF 37

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FILE NAME: CRST00004-SHT11-DRN_Plan.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 2:42PM
LAST SAVE BY: DMattson

INL C02
TG=180.65
INV IN=175.35
INV OUT=175.25

18" Corrugated HDPE Pipe L=112.9 LF S=0.58%

STM MH C1
TG=179.91
INV IN=174.60
INV IN=174.60

INL A03D
TG=179.30
INV OUT=175.20

15" Corrugated HDPE Pipe L=27.6 LF S=1.02%

18" Corrugated HDPE Pipe L=135.4 LF S=0.63%

18" Corrugated HDPE Pipe L=18.8 LF S=1.01%

INL C03
TG=179.56
INV IN=175.64
INV OUT=175.54

18" Corrugated HDPE Pipe L=65.0 LF S=1.38%

INL C01A
TG=178.00
INV OUT=175.50

15" Corrugated HDPE Pipe L=51.5 LF S=0.59%

INL C04
TG=179.93
INV IN=176.04
INV OUT=175.94

15" Corrugated HDPE Pipe L=50.6 LF S=0.66%

INL A03C
TG=178.25
INV IN=174.92
INV IN=172.45
INV OUT=172.35

15" Corrugated HDPE Pipe L=132.0 LF S=0.53%

INL C05
TG=180.01
INV OUT=176.37

INL A04C
TG=178.69
INV IN=171.50
INV OUT=171.40

INL A04B
TG=178.69
INV IN=171.00
INV OUT=170.90

24" Corrugated HDPE Pipe L=28.2 LF S=3.20%

INL A04A
TG=178.33
INV IN=170.00
INV OUT=169.90

18" Corrugated HDPE Pipe L=39.0 LF S=1.03%

INL A04
TG=178.48
INV IN=168.40
INV OUT=168.15

INL A06B
TG=164.00
INV OUT=161.25

INL A06A
TG=166.03
INV IN=160.64
INV OUT=160.54

INL A05
TG=172.59
INV IN=163.69
INV IN=163.54
INV OUT=163.44

18" Corrugated HDPE Pipe L=87.2 LF S=0.70%

INL A06
TG=165.97
INV IN=159.31
INV IN=159.31
INV OUT=159.21

INL A08
TG=164.63
INV IN=157.6
INV IN=157.2
INV OUT=157.

18" Corrugated HDPE Pipe L=60.0 LF S=2.05%

24" Corrugated HDPE Pipe L=60.0 LF S=2.50%

INL A03B
TG=178.26
INV IN=173.25
INV OUT=173.15

15" Corrugated HDPE Pipe L=87.6 LF S=0.57%

INL A03A
TG=177.50
INV OUT=173.75

15" Corrugated HDPE Pipe L=87.5 LF S=0.46%

INL A02E
TG=177.37
INV IN=174.25
INV OUT=174.15

INL A02F
TG=179.30
INV OUT=174.65

18" Corrugated HDPE Pipe L=55.0 LF S=0.55%

INL A02D
TG=177.54
INV IN=173.85
INV OUT=173.75

18" Corrugated HDPE Pipe L=53.8 LF S=0.51%

INL A02C
TG=178.59
INV IN=173.47
INV OUT=173.37

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

30" Corrugated HDPE Pipe L=147.2 LF S=3.03%

42" Corrugated HDPE Pipe L=154.3 LF S=2.68%

42" Corrugated HDPE Pipe L=74.8 LF S=2.06%

24" Corrugated HDPE Pipe L=80.7 LF S=0.56%

18" Corrugated HDPE Pipe L=30.1 LF S=1.00%

18" Corrugated HDPE Pipe L=65.9 LF S=1.03%

INL A05A
TG=173.39
INV IN=165.35
INV OUT=165.25

36" Corrugated HDPE Pipe L=124.0 LF S=1.38%

INL A08C
TG=164.84
INV IN=160.88
INV OUT=160.78

INL A08A
TG=163.89
INV IN=159.70
INV IN=157.75
INV OUT=157.65

INL A08B
TG=163.89
INV IN=160.10
INV OUT=160.00

36" Corrugated HDPE Pipe L=34.2 LF S=0.88%

INL A05B
TG=173.37
INV IN=165.75
INV OUT=165.65

36" Corrugated HDPE Pipe L=62.2 LF S=0.56%

INL A05C
TG=175.35
INV IN=166.25
INV OUT=166.15
PROPOSED STEM WALL

36" Corrugated HDPE Pipe L=50.9 LF S=0.79%

18" Corrugated HDPE Pipe L=26.1 LF S=1.11%

INL A08E
TG=161.50
INV OUT=158.50

INL A08D
TG=164.98
INV OUT=161.17

INL A02
TG=175.12
INV IN=169.75
INV OUT=169.65

36" Corrugated HDPE Pipe L=122.1 LF S=0.53%

36" Corrugated HDPE Pipe L=44.9 LF S=2.73%

36" Corrugated HDPE Pipe L=104.5 LF S=0.98%

INL A05D
TG=173.07
INV IN=166.70
INV OUT=166.60

36" Corrugated HDPE Pipe L=76.5 LF S=0.65%

18" Corrugated HDPE Pipe L=164.2 LF S=0.58%

INL A02B
TG=177.60
INV IN=172.59
INV OUT=172.49

18" Corrugated HDPE Pipe L=116.4 LF S=0.67%

INL A02A
TG=178.00
INV IN=171.54
INV IN=170.50
INV OUT=170.40

EX INL B7
TG=179.02
INV OUT=176.72

30" Corrugated HDPE Pipe L=35.5 LF S=0.62%

INL A01
TG=175.19
INV IN=169.15
INV OUT=169.05

INL A05E
TG=173.10
INV IN=167.82
INV OUT=167.72

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

INL B14
TG=172.75
INV OUT=169.54

INL B13
TG=172.75
INV IN=169.06
INV OUT=168.96

18" Corrugated HDPE Pipe L=91.2 LF S=1.50%

INL B12
TG=172.75
INV IN=167.59
INV OUT=167.49

18" Corrugated HDPE Pipe L=68.0 LF S=0.70%

18" Corrugated HDPE Pipe L=109.5 LF S=1.70%

STM MH B11
RIM=173.36

INL B09
TG=159.75
INV IN=156.50
INV OUT=156.40

PROPOSED BUILDING STEP

MIDDLETOWN BLVD (STREET)

INTERNAL STREET

N 13°38'42" W

40' 20' 0 40' 80'
1" = 40'

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811

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. CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR TO EXCAVATION. THE EXACT LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTIZED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974, AMENDED BY ACT 121 OF 1996, YOU ARE REQUIRED TO CONTACT THE PA ONE CALL SYSTEM FOR LOCATION OF UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

DRAINAGE PLAN - 2

T AND M ASSOCIATES
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1700 MARKET ST., SUITE 3110
PHILADELPHIA, PA 19103
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FAX 215-627-3459
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OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	DRN-2
SHEET	12 OF 37

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FILE PATH: G:\Projects\CRST_DODGE\Plans\
FILE NAME: CRST00004_DRN-2.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 2:42PM
LAST SAVE BY: DMattson

FUTURE DEVELOPMENT AREA
(CONCEPT/NOT PART OF THIS APPLICATION)

WV
6" GATE

45° ELBOW
(CONNECT TO EXISTING FIRE LOOP)

10" CLDIP FIRE MAIN

CO
RIM=170.30
INV OUT=157.49

PROP SAN MH 5
RIM=178.20
INV OUT=166.20

8" L=55.9 LF S=1.00%

8" L=195.9 LF S=4.00%

PROP SAN MH 4
RIM=170.01
INV IN=158.36
INV IN=158.36
INV OUT=158.26

8" PVC L=244.3 LF S=1.50%

10X6 TEE
45° ELBOW
6" CLDIP
WV
6" GATE
45° ELBOW
PROPOSED HYDRANT

PROP SAN MH 3
RIM=163.63
INV IN=154.60
INV OUT=154.50

8" PVC L=159.8 LF S=1.03%

PROP SAN MH 2
RIM=161.87
INV IN=152.85
INV OUT=152.75

8" PVC L=224.7 LF S=0.55%

PROP SAN MH 1
RIM=161.14
INV IN=151.51
INV OUT=151.41

EX SAN MH 24
RIM=159.14
INV IN=150.82

PROPOSED HYDRANT
WV 6" GATE
6"X6" TEE

6" CLDIP FIRE SERVICE
2.5" DOMESTIC SERVICE

WV WV
2.5" GATE 6" GATE

PROPOSED STEM WALL

BUILDING 1
FFE = 177
391 UNITS TOTAL

GARAGE 1
FFE = 165
536 SPACES
(51 SURFACE SPACES ON LOT)

PROPOSED BUILDING STEP

BUILDING 1
FFE = 165
391 UNITS TOTAL

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

BUILDING 1
FFE = 165
391 UNITS TOTAL

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

WATER METER PIT

FINAL STREET

40' 20' 0 40' 80'
1" = 40'

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811

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PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

UTILITY PLAN - 1

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www.tandmassociates.com
OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	UTL-1
SHEET	13 OF 37

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FILE PATH: G:\Projects\CRST\00004\Plans\
FILE NAME: 00004-UTL1.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 2:23PM
LAST SAVE BY: DMattson

GARAGE 2
FFE = 181
298 SPACES
(40 SURFACE SPACES ON LOT)

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

BUILDING 2
FFE = 181
223 UNITS

FUTURE DEVELOPMENT AREA
(CONCEPT/NOT PART OF THIS APPLICATION)

EXISTING WALL (TO REMAIN)

PROPOSED HYDRANT
6"CLDIP
6" WET TAP
WV
6" GATE

45° ELBOW (CONNECT TO EXISTING FIRE LOOP)

CO
RIM=170.30
INV OUT=157.49

10" CLDIP FIRE MAIN

PROP SAN MH 5
RIM=178.20
INV OUT=166.20

8" L=55.9 LF S=1.00%

8" L=195.9 LF S=4.00%

8" PVC L=244.3 LF S=1.50%

10X6 TEE
45° ELBOW
6" CLDIP
WV
6" GATE
45° ELBOW
PROPOSED HYDRANT

PROP SAN MH 4
RIM=170.01
INV IN=158.36
INV IN=158.36
INV OUT=158.26

PROPOSED HYDRANT
WV 6" GATE
6 X6" TEE
6" CLDIP/ FIRE SERVICE
2.5" DOMESTIC SERVICE
WV WV
2.5" GATE 6" GATE

PROPOSED STEM WALL

PROPOSED BUILDING STEP

BUILDING 1
FFE = 177
391 UNITS TOTAL

GARAGE 1
FFE = 165
536 SPACES
(51 SURFACE SPACES ON LOT)

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

BUILDING 1
FFE = 165
391 UNITS TOTAL

WV
6" GATE
WV
2.5" GATE
6" CLDIP FIRE SERVICE
2.5" DOMESTIC SERVICE
WATER METER PIT
8" CLDIP WATER SERVICE
WV
8" GATE
8" WET TAP

MIDDLETOWN BLVD. (STREET)

N 13°38'42" W

INTERNAL STREET

WATER METER PIT
8" CLDIP WATER SERVICE
WV
8" GATE
8" WET TAP

40' 20' 0 40' 80'
1" = 40'

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811

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. COMMONWEALTH OF PENNSYLVANIA LAW REQUIRES THAT THE EXACT 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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

UTILITY PLAN - 2

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www.tandmassociates.com
OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	UTL-2
SHEET	14 OF 37

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PROJECT INFORMATION:
FILE PATH: C:\Projects\CRST\00004\Plans\
FILE NAME: CRST00004_UTL2_UTILITY PLAN - 2.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 2:23PM
LAST SAVE BY: DMattson

EXISTING WALL (TO REMAIN)

FUTURE DEVELOPMENT AREA
(CONCEPT/NOT PART OF THIS APPLICATION)

EROSION CONTROL BLANKET NAG S150 OR EQUAL

PROP. NPDES BOUNDARY
995,714 SF (22.86 Ac.)

PROP. LIMIT OF DISTURBANCE
982,506 SF (22.56 Ac.)

PROPOSED CONSTRUCTION FENCING

COMPOST FILTER SOXX #1 (18"ø)

STAGE 1 CONCRETE WASHOUT

STOCKPILE

BUILDING 1
FFE = 177
391 UNITS TOTAL

PROPOSED STEM WALL

GARAGE 1
FFE = 165
536 SPACES
(51 SURFACE SPACES ON LOT)

BUILDING 1
FFE = 165
391 UNITS TOTAL

"PARCEL 1"
SOUTH BUILDING
FFE = 165
±391 UNITS

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

PROPOSED BUILDING STEP

STREET

L=567.95'(D)
L=569.59'(S)

LEGEND:

- CONCRETE WASHOUT
- IP — INLET PROTECTION
- RCE-4 — ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- STOCKPILE
- SOXX24 — 1.1 — COMPOST FILTER SOCK AND IDENTIFIER
- LOD — LIMIT OF DISTURBANCE
- NPDES BOUNDARY
- UrB — SOIL TYPE LIMITS

NOTE:
THERE IS NO ANTICIPATED POTENTIAL FOR POLLUTION BECAUSE OF GEOLOGIC OR SOIL CONDITIONS.

THERE ARE NO SEDIMENT TRAP/BASIN OR CHANNELS PROPOSED FOR THIS PROJECT.

*THE EROSION AND SEDIMENTATION CONTROL PLAN AND CONSTRUCTION SEQUENCE WAS DESIGNED TO MINIMIZE THE EXTENT AND DURATION OF EARTH DISTURBANCE, MAXIMIZE PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION, MINIMIZE SOIL COMPACTION, UTILIZE MEASURES TO PREVENT OR MINIMIZE THE GENERATION OF INCREASED STORMWATER RUNOFF, MITIGATE THERMAL IMPACTS, AND MAINTAIN EXISTING WATER USE EQUAL OR BETTER TO CG1 DESIGN. OTHER ALTERNATIVES ARE NOT NECESSARY. PRIMARY CONTROLS INCLUDE: COMPOST SOCK BARRIER CONTROLS, ROCK CONSTRUCTION ENTRANCE, AND CONCRETE WASHOUT.

THERE ARE NO GEOLOGIC MAPPING FEATURES WHICH OTHERWISE WARRANT MEANINGFUL DESIGN CONSIDERATIONS.

SITE SOILS TABLE

SYMBOL	HYDROLIC SOILS GROUP	FULL NAME	SLOPE (PERCENT)	CAPABILITY UNIT
UfuB	C	URBAN LAND	0–8%	8s

1" = 40'

Pennsylvania 811

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. 20200102050 WAS PLACED FOR SURVEY PURPOSES.

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811

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PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SOIL EROSION & SEDIMENT CONTROL PLAN - 1

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1700 MARKET ST., SUITE 3110
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DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	SEP–1
SHEET	15 OF 37

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PROJECT INFORMATION:
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FILE NAME: CRST00004-SHT10-SEP-1.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 2:30PM
LAST SAVE BY: DMattson

PROP. LIMIT OF DISTURBANCE
982,506 SF (22.56 Ac.)

PROP. NPDES BOUNDARY
995,714 SF (22.86 Ac.)

PROPOSED CONSTRUCTION FENCING

EXISTING WALL (TO REMAIN)

FUTURE DEVELOPMENT AREA
(CONCEPT/NOT PART OF THIS APPLICATION)

EROSION CONTROL BLANKET NAG S150 OR EQUAL

STAGE 2 CONCRETE WASHOUT

STAGE 1 CONCRETE WASHOUT

GARAGE 2
FFE = 181
298 SPACES
(40 SURFACE SPACES ON LOT)

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

BUILDING 2
FFE = 181
223 UNITS

BUILDING 1
FFE = 177
391 UNITS TOTAL

GARAGE 1
FFE = 165
536 SPACES
(51 SURFACE SPACES ON LOT)

BUILDING 1
FFE = 165
391 UNITS TOTAL

PROPOSED STEM WALL

PROPOSED BUILDING STEP

COMMON OPEN SPACE COURTYARD FOR THE USE OF RESIDENTS. COURTYARD AREA TO BE DESIGNED BY OTHERS (MAX 60% IMPERVIOUS)

INTERNAL STREET

MIDDLETOWN BLVD. (STREET)

N 13°38'42"W

COMPOST FILTER SOXX #2 (8"ø)

EROSION CONTROL BLANKET NAG S150 OR EQUAL

STOCKPILE

LOD

SOXX18

SOXX24

RCE-2

RCE-1

IP

gb-101

gb-102

gb-103

gb-104

LEGEND:

- CONCRETE WASHOUT
- IP — INLET PROTECTION
- RCE-# — ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- STOCKPILE
- SOXX24 (1.1) — COMPOST FILTER SOCK AND IDENTIFIER
- LOD — LIMIT OF DISTURBANCE
- NPDES BOUNDARY
- UrB — SOIL TYPE LIMITS

NOTE:
THERE IS NO ANTICIPATED POTENTIAL FOR POLLUTION BECAUSE OF GEOLOGIC OR SOIL CONDITIONS.

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THERE ARE NO GEOLOGIC MAPPING FEATURES WHICH OTHERWISE WARRANT MEANINGFUL DESIGN CONSIDERATIONS.

SITE SOILS TABLE

SYMBOL	HYDROLIC SOILS GROUP	FULL NAME	SLOPE (PERCENT)	CAPABILITY UNIT
UfuB	C	URBAN LAND	0–8%	8s

PROJECT INFORMATION:
FILE PATH: C:\Projects\...\CRST\00004\...\Plans\
FILE NAME: CRST00004_SEP2_EROSION CONTROL.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 2:30PM
LAST SAVE BY: DMattson

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CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811

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PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

EROSION CONTROL PLAN

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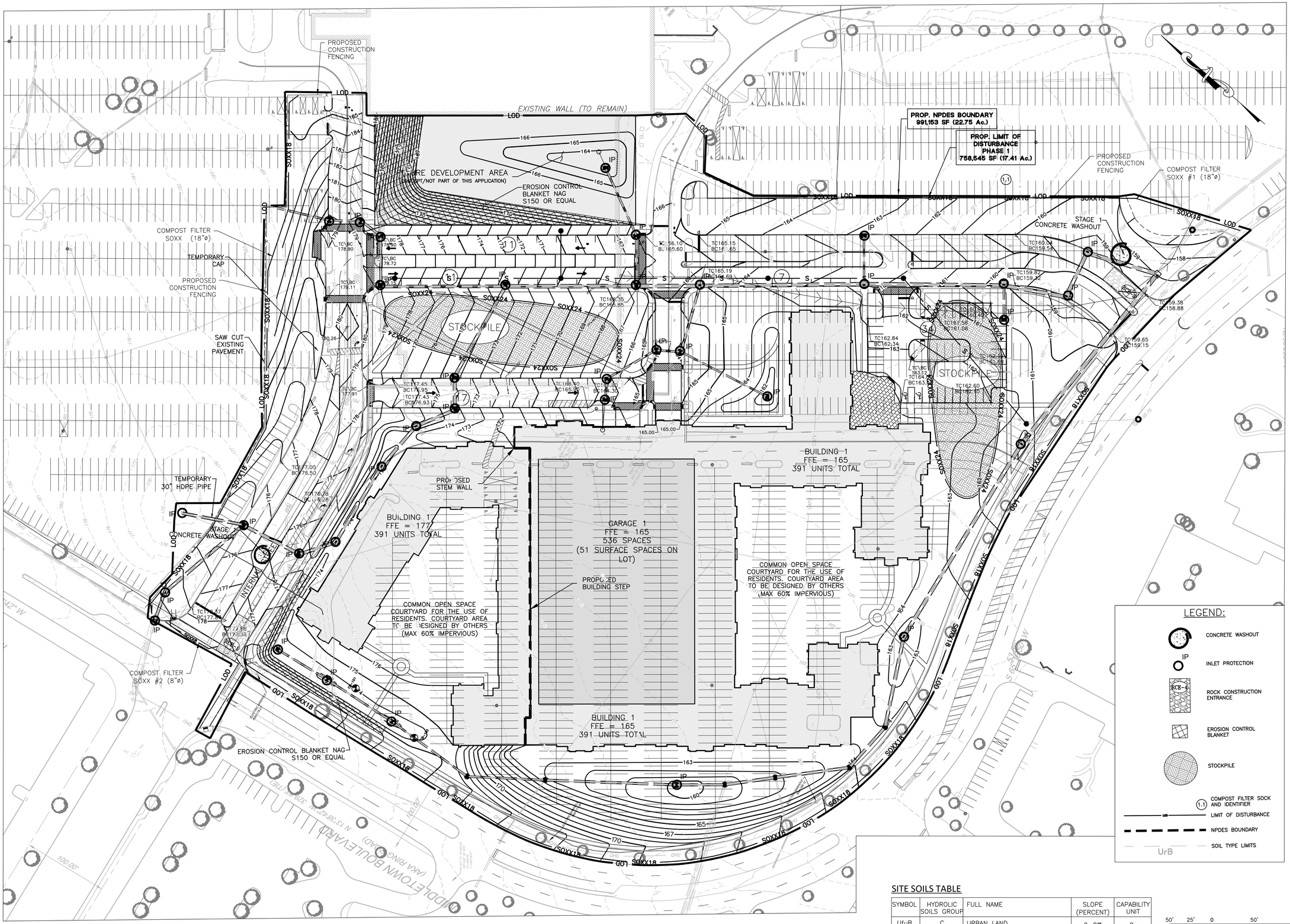
DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	SEP-2
SHEET	16 OF 37

1" = 40'



SITE SOILS TABLE

SYMBOL	HYDROLIC SOILS GROUP	FULL NAME	SLOPE (PERCENT)	CAPABILITY UNIT
UfuB	C	URBAN LAND	0–8%	8s

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464

DATE

Pennsylvania 811

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SERIAL NO.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SOIL EROSION & SEDIMENT CONTROL PHASE 1 PLAN

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DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	PH–1
SHEET	17 OF 37

PROJECT INFORMATION:
FILE PATH: G:\Projects\CRST\00004\Plans\
FILE NAME: CRST00004_SHT017_PH1.dwg
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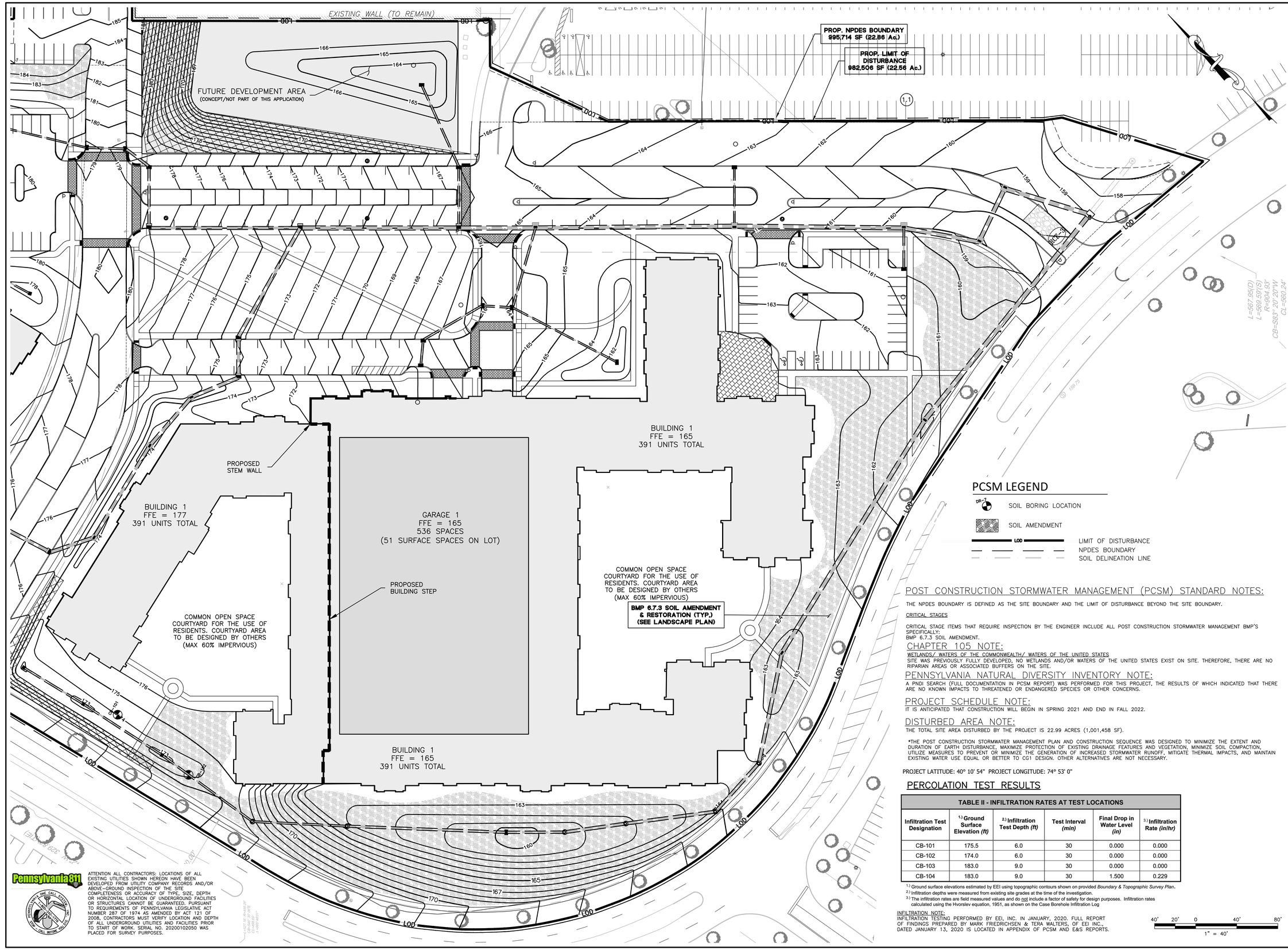

PCSM LEGEND

- DR-7 — SOIL BORING LOCATION
- SOIL AMENDMENT
- LOD — LIMIT OF DISTURBANCE
- NPDES BOUNDARY
- SOIL DELINEATION LINE

POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) STANDARD NOTES:

THE NPDES BOUNDARY IS DEFINED AS THE SITE BOUNDARY AND THE LIMIT OF DISTURBANCE BEYOND THE SITE BOUNDARY.

CRITICAL STAGES

CRITICAL STAGE ITEMS THAT REQUIRE INSPECTION BY THE ENGINEER INCLUDE ALL POST CONSTRUCTION STORMWATER MANAGEMENT BMP'S SPECIFICALLY:
BMP 6.7.3 SOIL AMENDMENT.

CHAPTER 105 NOTE:

WETLANDS/ WATERS OF THE COMMONWEALTH/ WATERS OF THE UNITED STATES
SITE WAS PREVIOUSLY FULLY DEVELOPED, NO WETLANDS AND/OR WATERS OF THE UNITED STATES EXIST ON SITE. THEREFORE, THERE ARE NO RIPARIAN AREAS OR ASSOCIATED BUFFERS ON THE SITE.

PENNSYLVANIA NATURAL DIVERSITY INVENTORY NOTE:

A PNDI SEARCH (FULL DOCUMENTATION IN PCSM REPORT) WAS PERFORMED FOR THIS PROJECT, THE RESULTS OF WHICH INDICATED THAT THERE ARE NO KNOWN IMPACTS TO THREATENED OR ENDANGERED SPECIES OR OTHER CONCERNS.

PROJECT SCHEDULE NOTE:

IT IS ANTICIPATED THAT CONSTRUCTION WILL BEGIN IN SPRING 2021 AND END IN FALL 2022.

DISTURBED AREA NOTE:

THE TOTAL SITE AREA DISTURBED BY THE PROJECT IS 22.99 ACRES (1,001,458 SF).

*THE POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND CONSTRUCTION SEQUENCE WAS DESIGNED TO MINIMIZE THE EXTENT AND DURATION OF EARTH DISTURBANCE, MAXIMIZE PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION, MINIMIZE SOIL COMPACTION, UTILIZE MEASURES TO PREVENT OR MINIMIZE THE GENERATION OF INCREASED STORMWATER RUNOFF, MITIGATE THERMAL IMPACTS, AND MAINTAIN EXISTING WATER USE EQUAL OR BETTER TO CG1 DESIGN. OTHER ALTERNATIVES ARE NOT NECESSARY.

PROJECT LATITUDE: 40° 10' 54" PROJECT LONGITUDE: 74° 53' 0"

PERCOLATION TEST RESULTS

TABLE II - INFILTRATION RATES AT TEST LOCATIONS

Infiltration Test Designation	1.) Ground Surface Elevation *(ft)*	2.) Infiltration Test Depth *(ft)*	Test Interval *(min)*	Final Drop in Water Level *(in)*	3.) Infiltration Rate *(in/hr)*
CB-101	175.5	6.0	30	0.000	0.000
CB-102	174.0	6.0	30	0.000	0.000
CB-103	183.0	9.0	30	0.000	0.000
CB-104	183.0	9.0	30	1.500	0.229

1.) Ground surface elevations estimated by EEI using topographic contours shown on provided *Boundary & Topographic Survey Plan*.
2.) Infiltration depths were measured from existing site grades at the time of the investigation.
3.) The infiltration rates are field measured values and do not include a factor of safety for design purposes. Infiltration rates calculated using the Hvorslev equation, 1951, as shown on the Case Borehole Infiltration Log

INFILTRATION NOTE:
INFILTRATION TESTING PERFORMED BY EEI, INC. IN JANUARY, 2020. FULL REPORT OF FINDINGS PREPARED BY MARK FRIEDRICHSEN & TERA WALTERS, OF EEI INC., DATED JANUARY 13, 2020 IS LOCATED IN APPENDIX OF PCSM AND E&S REPORTS.

40' 20' 0 40' 80'
1" = 40'

Pennsylvania 811
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NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811
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PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN - 1

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DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	PCSM–1
SHEET	18 OF 37

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PROJECT INFORMATION:
FILE PATH: G:\Projects\CRST\00004\Plans\
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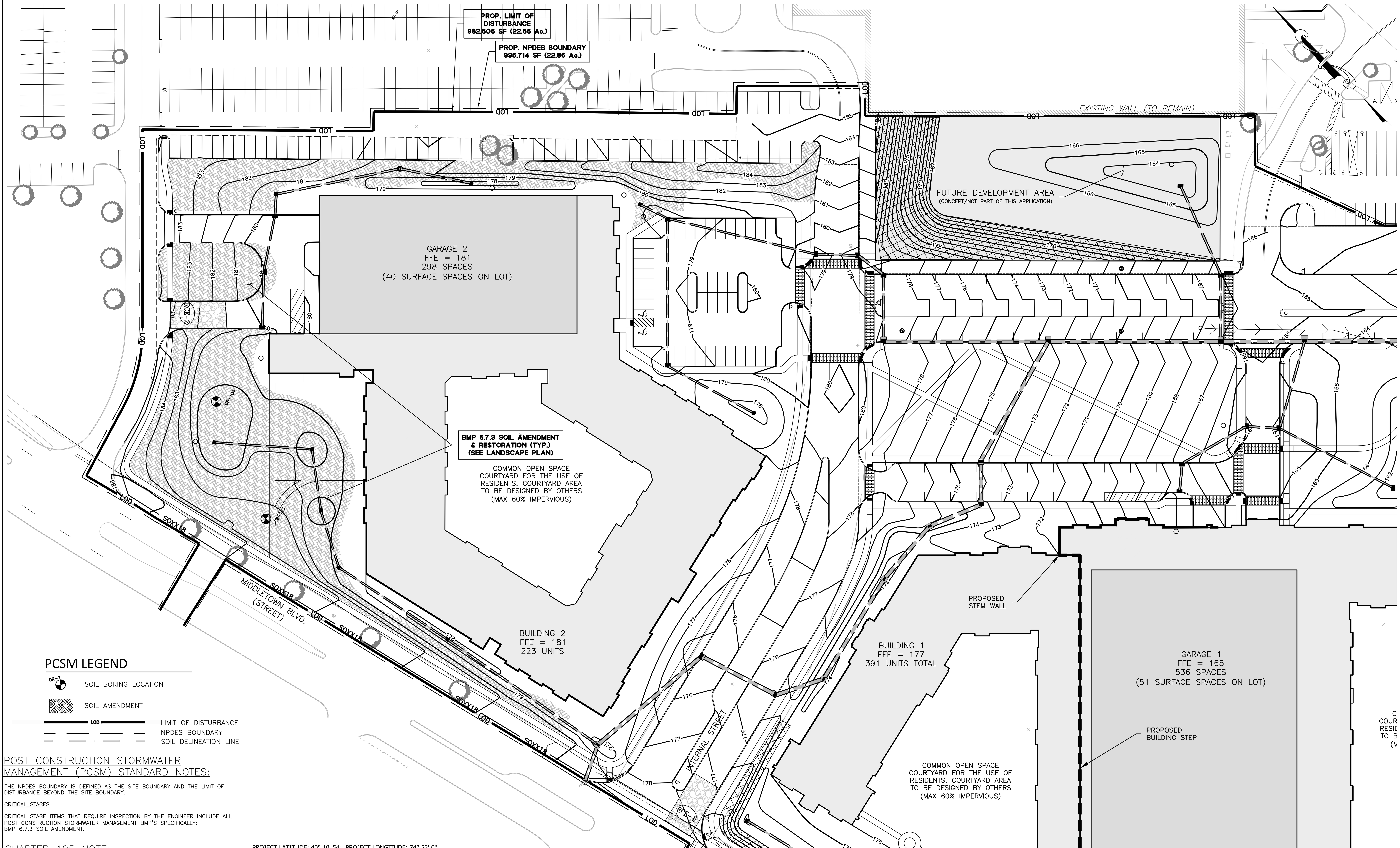
LAST SAVED DATE AND TIME: 17 Apr 2020, 2:38PM
LAST SAVE BY: DMattson



POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) STANDARD NOTES:

THE NPDES BOUNDARY IS DEFINED AS THE SITE BOUNDARY AND THE LIMIT OF DISTURBANCE BEYOND THE SITE BOUNDARY.

CRITICAL STAGES

CRITICAL STAGE ITEMS THAT REQUIRE INSPECTION BY THE ENGINEER INCLUDE ALL POST CONSTRUCTION STORMWATER MANAGEMENT BMP'S SPECIFICALLY: BMP 6.7.3 SOIL AMENDMENT.

CHAPTER 105 NOTE:

WETLANDS/ WATERS OF THE COMMONWEALTH/ WATERS OF THE UNITED STATES

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PENNSYLVANIA NATURAL DIVERSITY INVENTORY NOTE:

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PROJECT SCHEDULE NOTE:

IT IS ANTICIPATED THAT CONSTRUCTION WILL BEGIN IN SPRING 2021 AND END IN FALL 2022.

DISTURBED AREA NOTE:

THE TOTAL SITE AREA DISTURBED BY THE PROJECT IS 22.99 ACRES (1,001,458 SF).

*THE POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND CONSTRUCTION SEQUENCE WAS DESIGNED TO MINIMIZE THE EXTENT AND DURATION OF EARTH DISTURBANCE, MAXIMIZE PROTECTION OF EXISTING DRAINAGE FEATURES AND VEGETATION, MINIMIZE SOIL COMPACTION, UTILIZE MEASURES TO PREVENT OR MINIMIZE THE GENERATION OF INCREASED STORMWATER RUNOFF, MITIGATE THERMAL IMPACTS, AND MAINTAIN EXISTING WATER USE EQUAL OR BETTER TO CG1 DESIGN. OTHER ALTERNATIVES ARE NOT NECESSARY.

PROJECT LATITUDE: 40° 10' 54" PROJECT LONGITUDE: 74° 53' 0"

PERCOLATION TEST RESULTS

TABLE II - INFILTRATION RATES AT TEST LOCATIONS

Infiltration Test Designation	1.) Ground Surface Elevation *(ft)*	2.) Infiltration Test Depth *(ft)*	Test Interval *(min)*	Final Drop in Water Level *(in)*	3.) Infiltration Rate *(in/hr)*
CB-101	175.5	6.0	30	0.000	0.000
CB-102	174.0	6.0	30	0.000	0.000
CB-103	183.0	9.0	30	0.000	0.000
CB-104	183.0	9.0	30	1.500	0.229

1.) Ground surface elevations estimated by EEI using topographic contours shown on provided *Boundary & Topographic Survey Plan*.
2.) Infiltration depths were measured from existing site grades at the time of the investigation.
3.) The infiltration rates are field measured values and do not include a factor of safety for design purposes. Infiltration rates calculated using the Hvorslev equation, 1951, as shown on the Case Borehole Infiltration Log

INFILTRATION NOTE:
INFILTRATION TESTING PERFORMED BY EEI, INC. IN JANUARY, 2020. FULL REPORT OF FINDINGS PREPARED BY MARK FRIEDRICHSEN & TERA WALTERS, OF EEI INC., DATED JANUARY 13, 2020 IS LOCATED IN APPENDIX OF PCSM AND E&S REPORTS.

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PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN - 2

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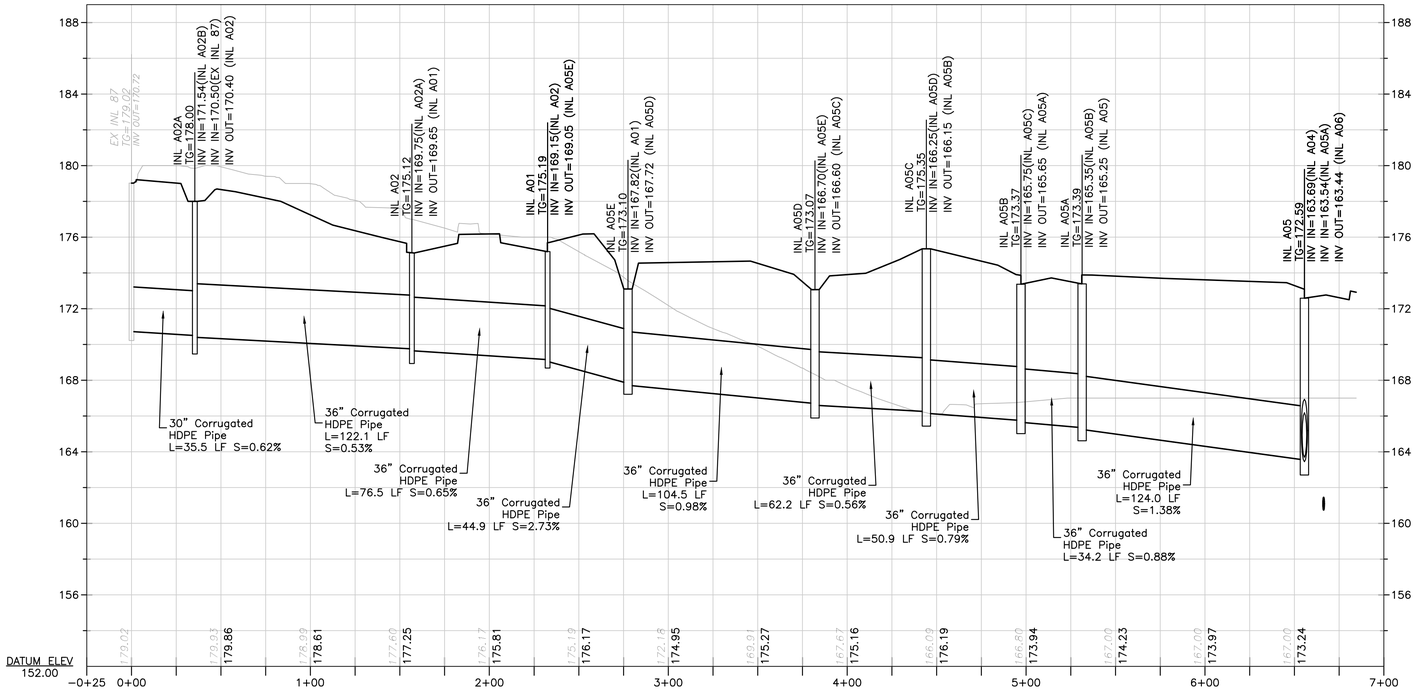
SHEET	19 OF 37



STM A
STA −0+25 TO 7+00

4' 2' 0 4' 8'
1" = 4' (VERTICAL)

40' 20' 0 40' 80'
1" = 40' (HORIZONTAL)

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DRAWN BY JMH,ROP	SHEET 20 OF 37
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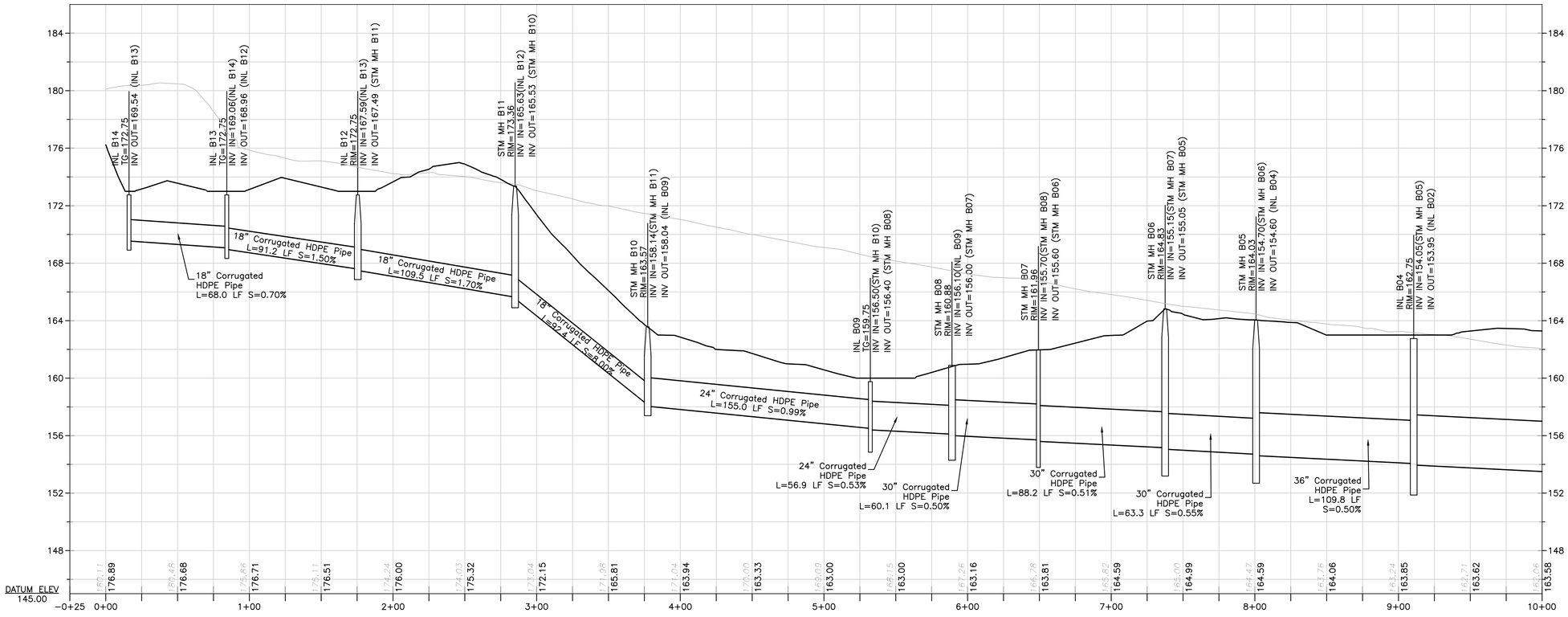

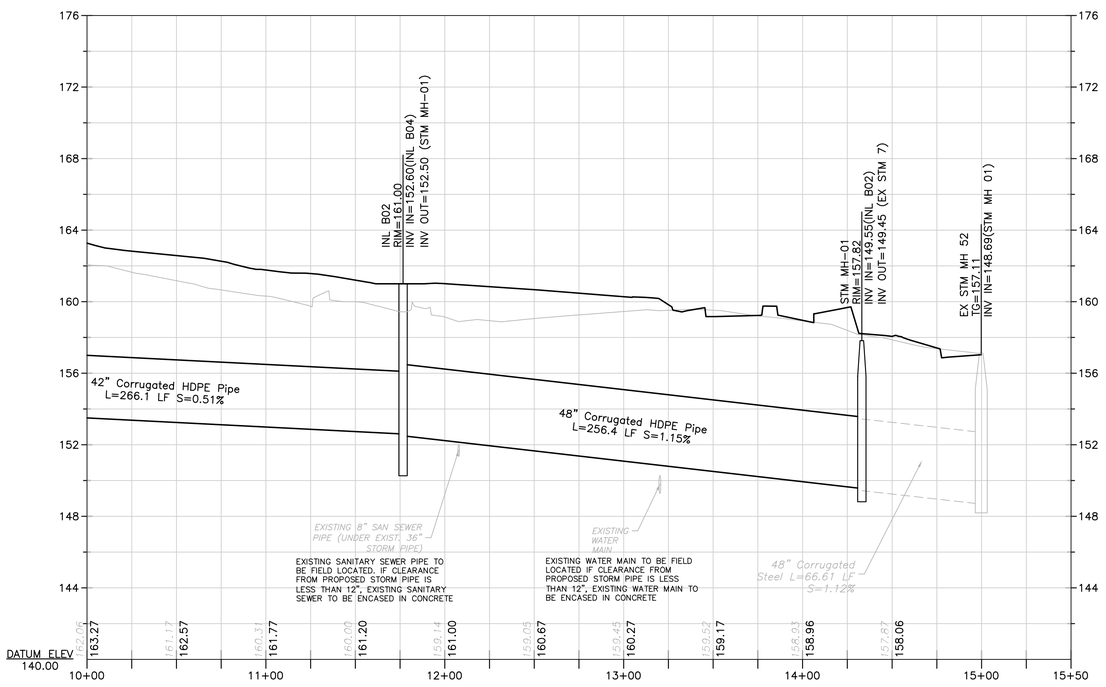

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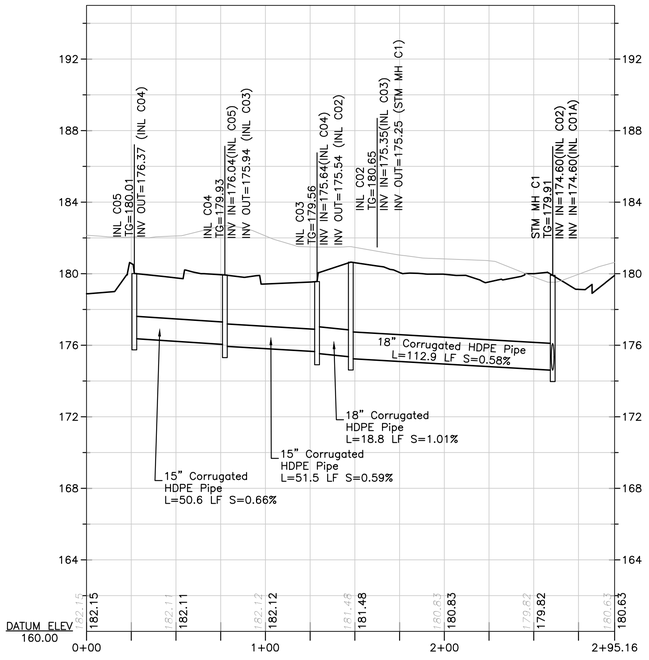
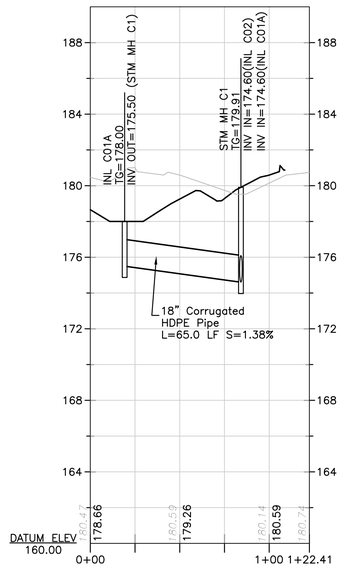
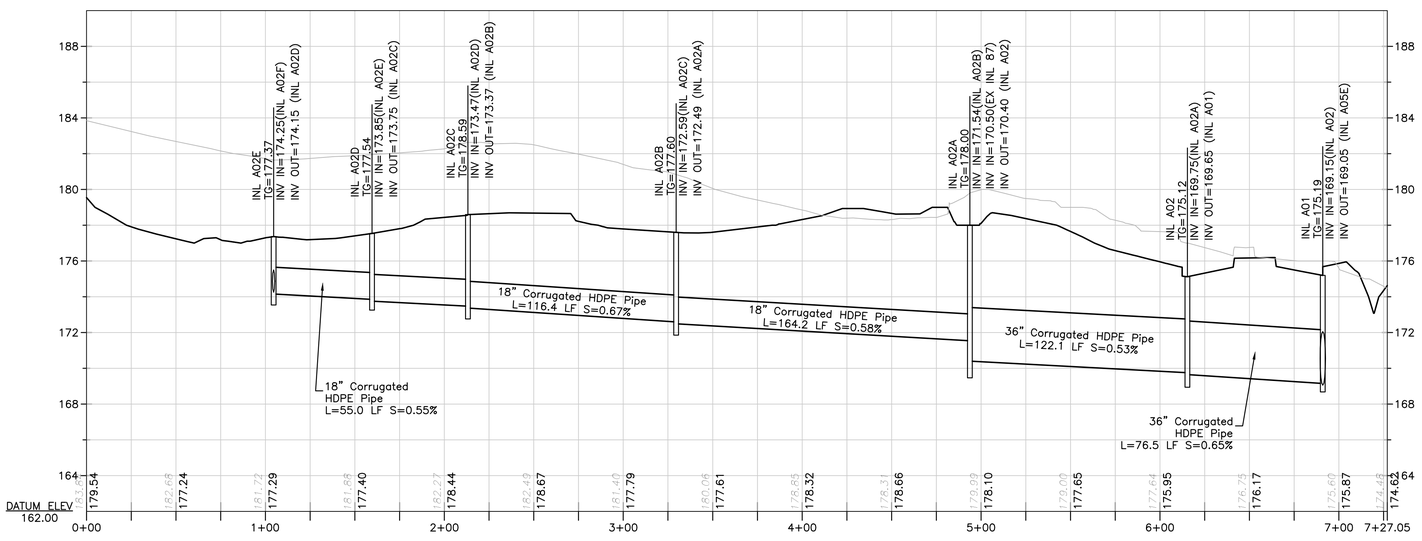


STM C
STA 0+00 TO 2+95



STM C1
STA 0+00 TO 1+22



STM A01
STA 0+00 TO 7+27

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1" = 4' (VERTICAL)

40' 20' 0 40' 80'
1" = 40' (HORIZONTAL)

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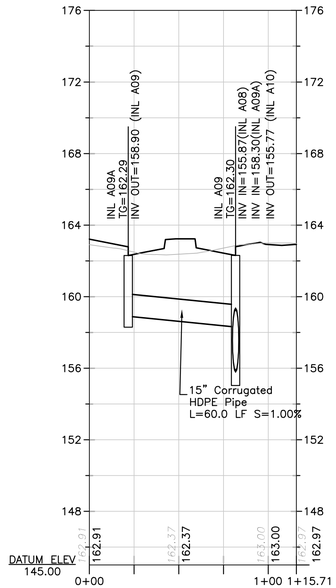

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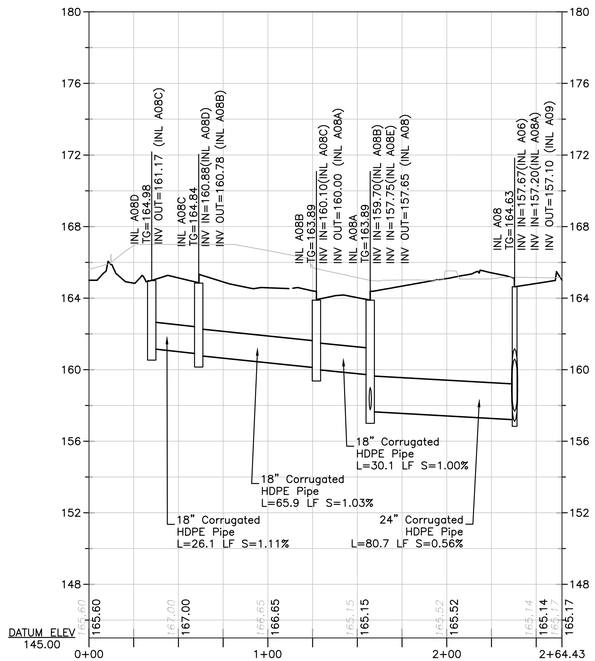
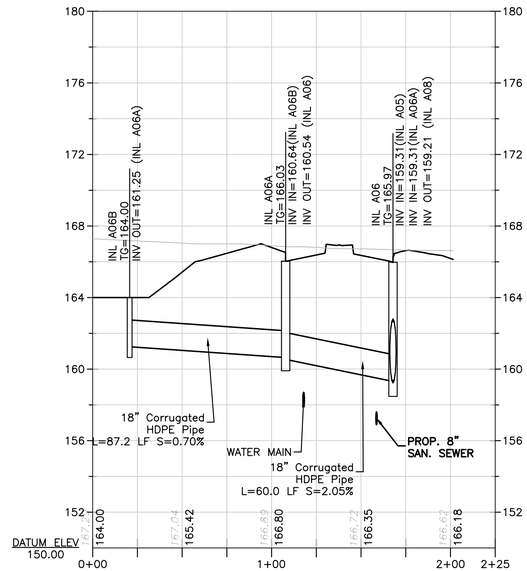
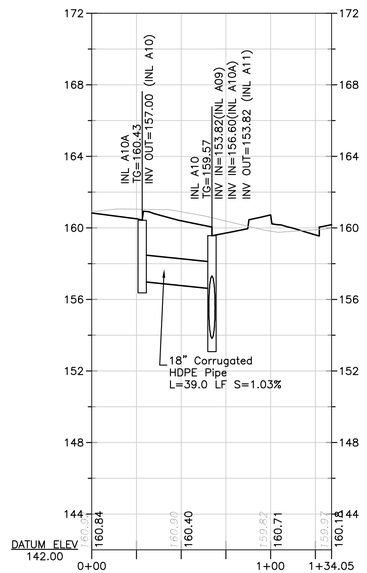


STM A08
STA 0+00 TO 2+64



STM A06
STA 0+00 TO 2+25



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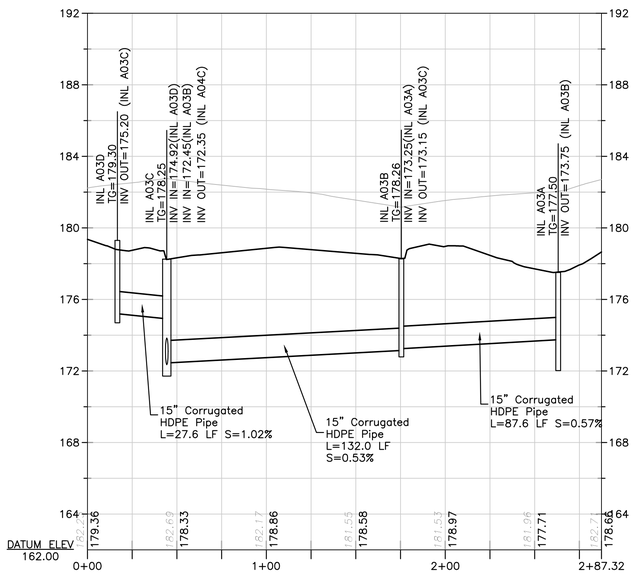

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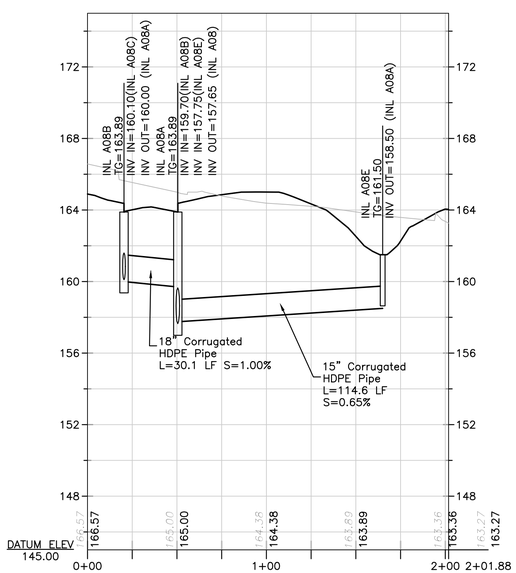

STM A08A

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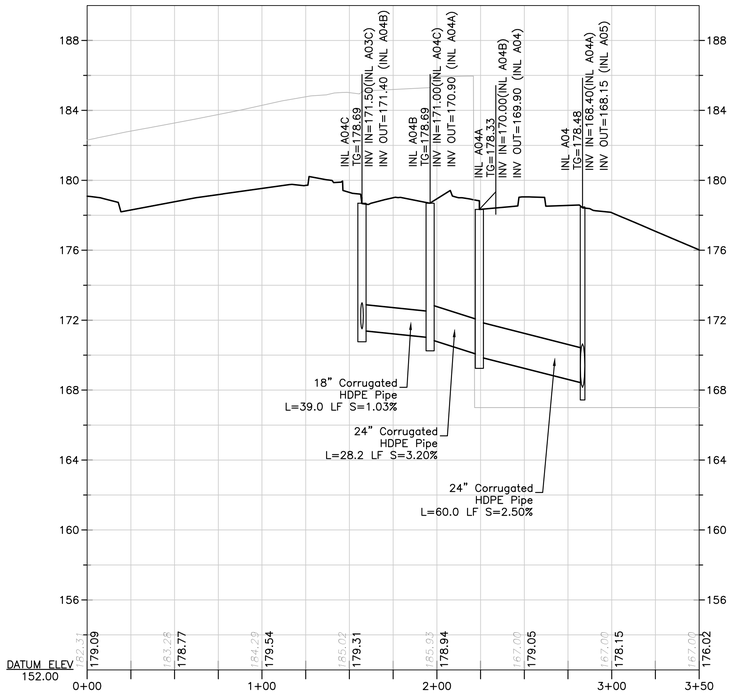

STM A04
STA 0+00 TO 3+50

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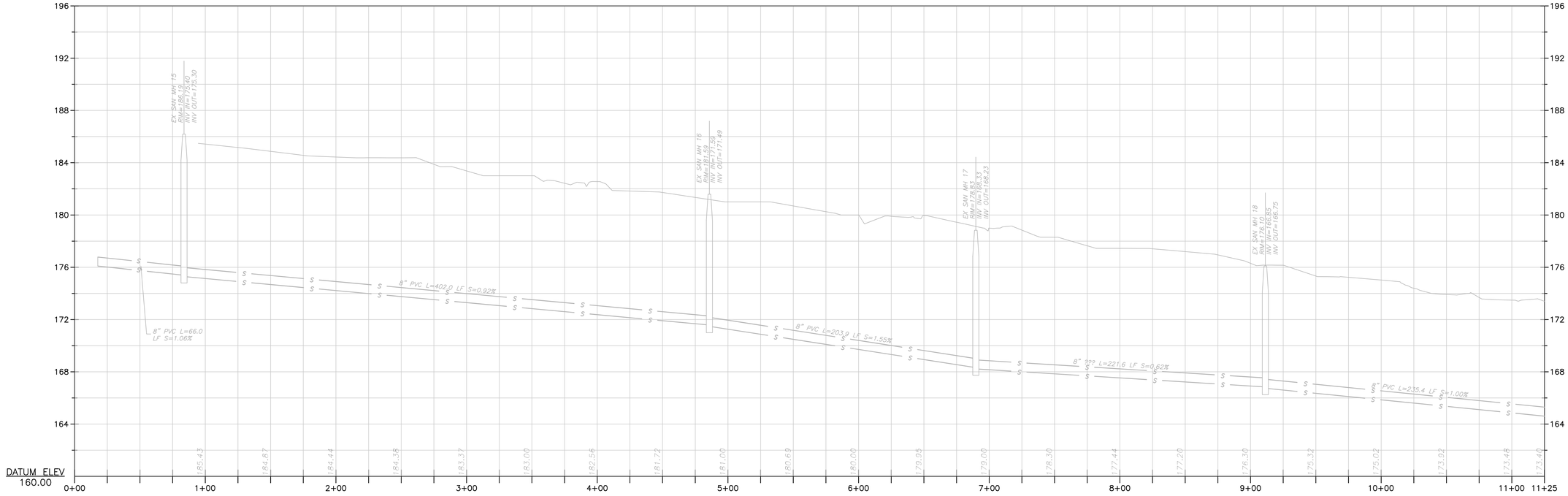
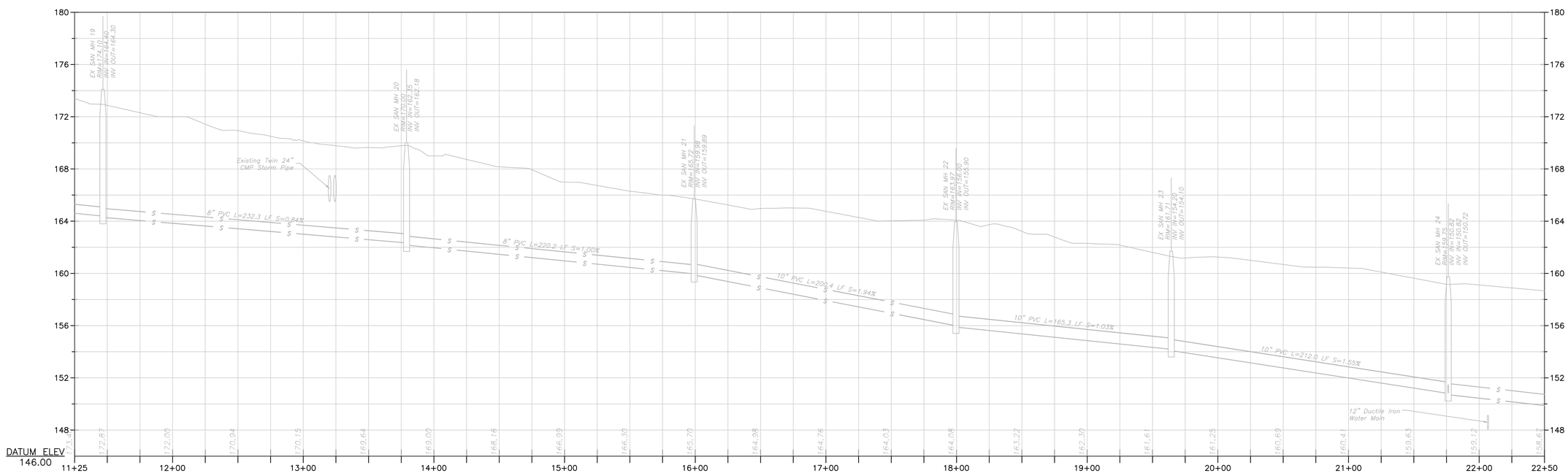


MIDDLETOWN BLVD EXISTING SANITARY SEWER
STA 0+00 TO 11+25



MIDDLETOWN BLVD EXISTING SANITARY SEWER
STA 11+25 TO 22+50

4' 2' 0 4' 8'
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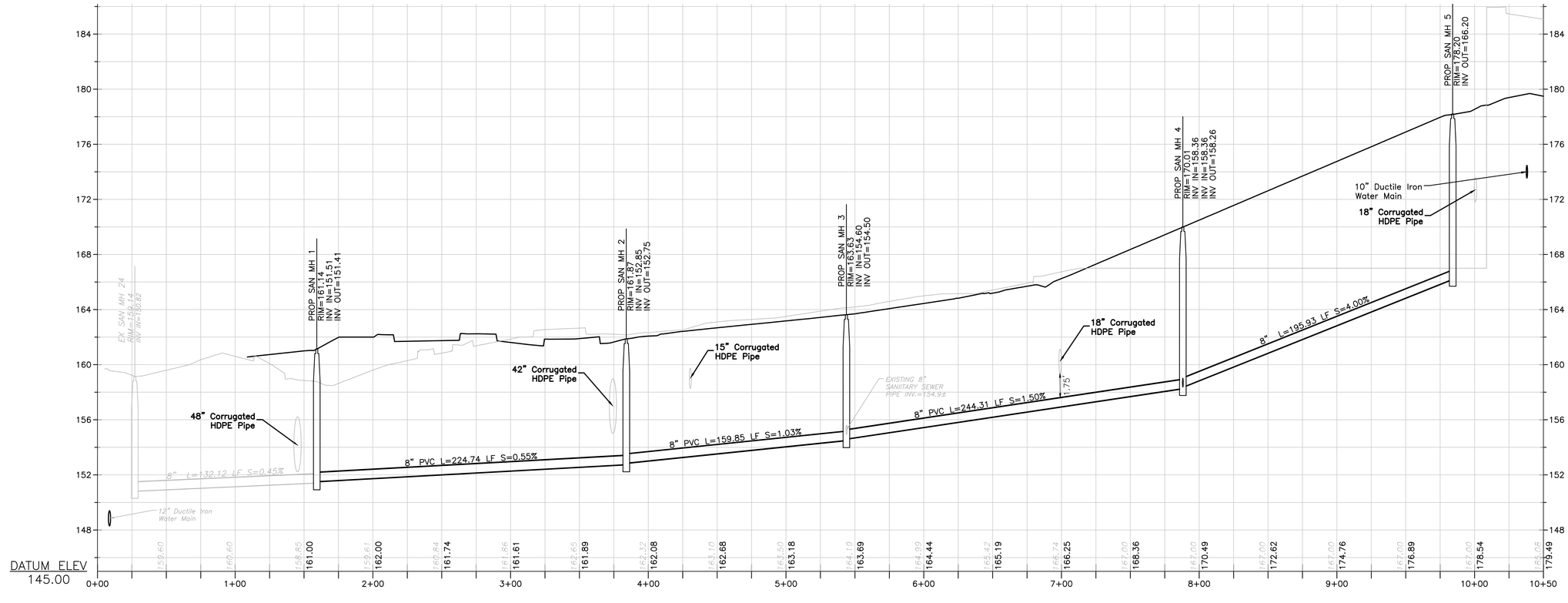
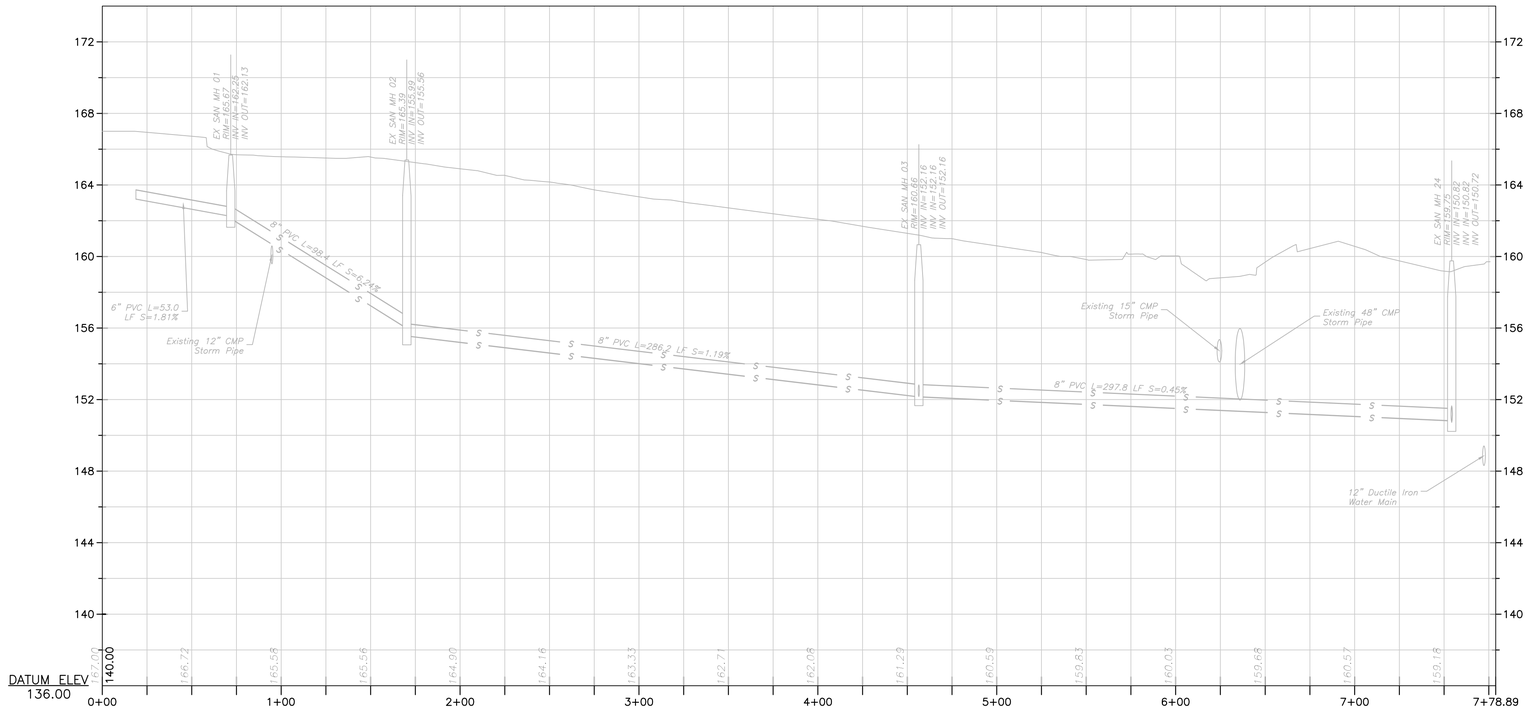


PROPOSED SANITARY SEWER
STA 0+00 TO 10+50



ON-SITE EXISTING SANITARY SEWER EX MH 05 TO EX SAN MH 08
STA 0+00 TO 7+79

4' 2' 0 4' 8'
1" = 4' (VERTICAL)

40' 20' 0 40' 80'
1" = 40' (HORIZONTAL)

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER

COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464

DATE

Pennsylvania 811

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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SANITARY SEWER PROFILES

YOUR GOALS. OUR MISSION.
1700 MARKET ST., SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459
www.tandmassociates.com
OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	SSWPRF2
SHEET	26 OF 37

PROJECT INFORMATION:
FILE PATH: G:\Projects\CRST\00004\Plans\
FILE NAME: CRST00004_SHT025_SSW_PRF.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 3:32PM
LAST SAVE BY: DMattson

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PROJECT INFORMATION:
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FILE NAME: CRST00009_SHT027_CSD.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 3:17PM
LAST SAVE BY: DMattson

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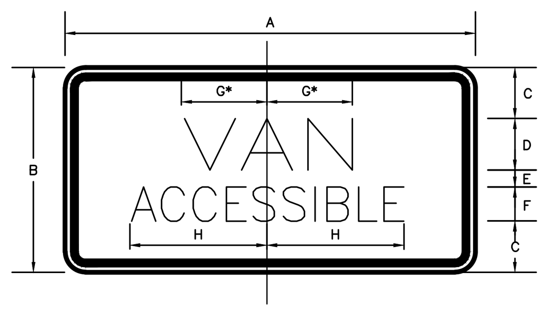
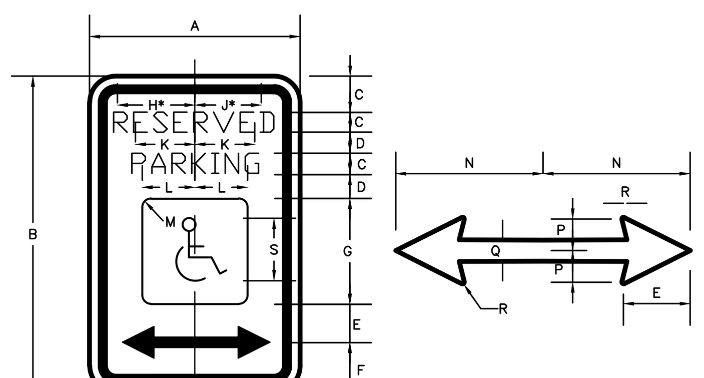


COLOR: LEGEND — GREEN (REFLECTORIZED)
BACKGROUND — WHITE (REFLECTORIZED)
* REDUCE LETTER SPACING 50%

SIGN SIZE	DIMENSIONS							
	A	B	C	D	E	F	G	H
12x6	12	6	1 1/2	1 1/2	1/2	1	2 1/2	4

SIGN SIZE	SERIES LINES		MAR-GIN	BOR-DER	BLANK STD.
	1	2			
12x6	D	D	3/8	3/8	B5–1206

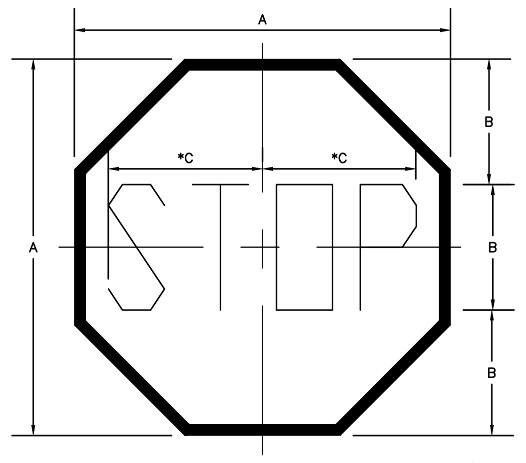
VAN ACCESSIBLE SIGN (PADOT R7–8A)
N.T.S.



COLOR: LEGEND AND BORDER — GREEN (NON–REFLECTORIZED)
BACKGROUND — WHITE (NON–REFLECTORIZED)
SYMBOL — WHITE (NON–REFLECTORIZED)
BACKGROUND — BLUE (NON–REFLECTORIZED)

SIGN SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	MARGIN	BORDER
12x18	12	18	2	1	1 1/2	2 1/2	6	4 1/8	5	4 1/4	3	1/2	3 7/8	7/8	3/4	1/8	4	3/8	3/8

RESERVED PARKING SIGN (R7–8)
N.T.S.



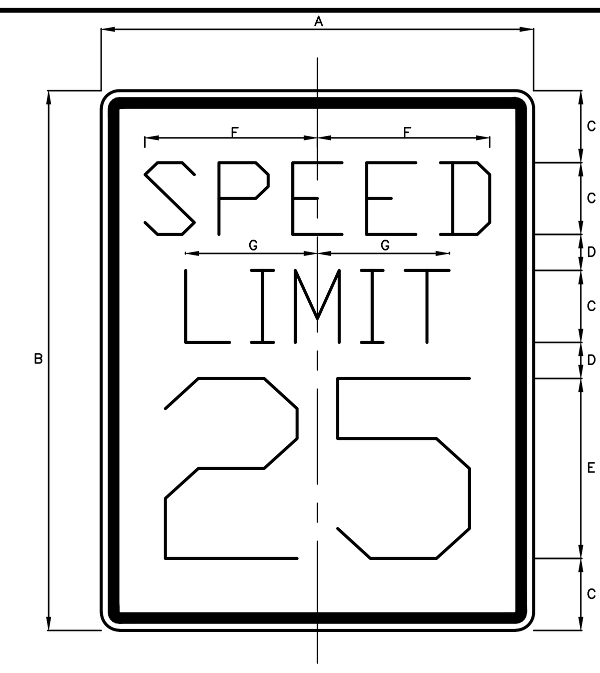
COLOR: LEGEND AND BORDER — WHITE (REFLECTORIZED)
BACKGROUND — RED (REFLECTORIZED)

SIGN SIZE	DIMENSIONS			SERIES LINE	BOR-DER	BLANK STD.
	A	B	C			
30x30	30	10	12 1/2	C	3/4	B1–30

NOT TO SCALE

NOTES:
1. MOUNTING HEIGHT TO BOTTOM OF SIGN SHALL BE 4'–0".
2. TO BE MOUNTED ON BREAKAWAY SIGN POST INSTALLED IN ACCORDANCE WITH PENNDOT PUB. 408, SECTION 931 AND SECTION 1103.08.

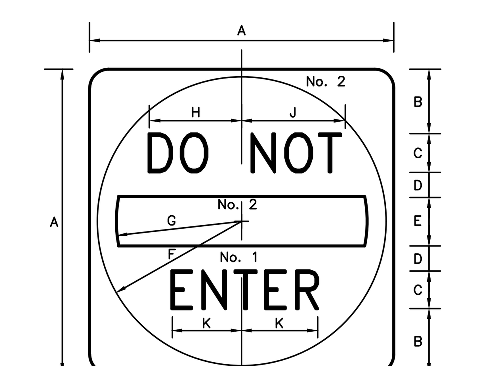
STOP SIGN (R1–1) DETAIL



COLOR: LEGEND AND BORDER — BLACK (NON–REFLECTORIZED)
BACKGROUND — WHITE (REFLECTORIZED)

SIGN SIZE	DIMENSIONS							SERIES LINES			MAR-GIN	BOR-DER	BLANK STD
	A	B	C	D	E	F	G	1	2	3			
24 x 30	24	30	4	2	10	9 9/16	7 5/16	E	E	E	3/8	5/8	B5–3024

SPEED LIMIT SIGN (PADOT R2–1)
N.T.S.

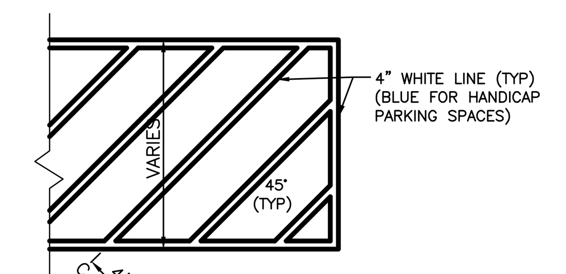


COLOR:
NO.1 – LEGEND – WHITE(REFLECTORIZED)
BACKGROUND – RED(REFLECTORIZED)
NO.2 – BACKGROUND – WHITE(REFLECTORIZED)

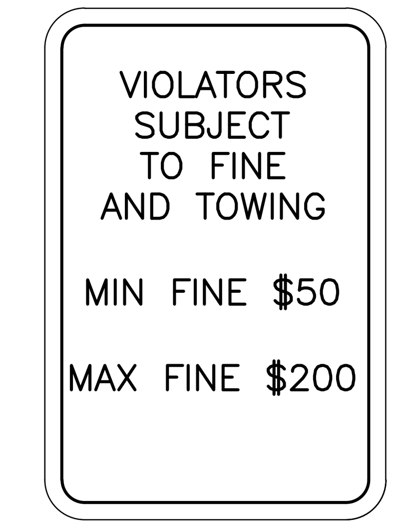
SIGN SIZE	DIMENSIONS (INCHES)										SERIES LINES		BLANK STD
	A	B	C	D	E	F	G	H	J	K	1	2	
30x30	30	6 1/2	4	2	5	14 1/2	12 1/2	9 3/4	10	7 7/8	D	D	B3–30

NOTE:
MOUNTING HEIGHT TO BOTTOM OF SIGN IS 5 FT. UNLESS SIGN IS ADJACENT AND PERPENDICULAR TO SIDEWALK, THEREBY, MOUNTING HEIGHT IS THEN 7 FT TO BOTTOM OF SIGN.
N.T.S.

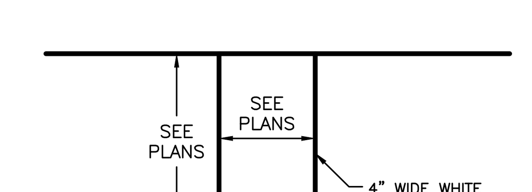
DO NOT ENTER SIGN (PADOT R5–1)



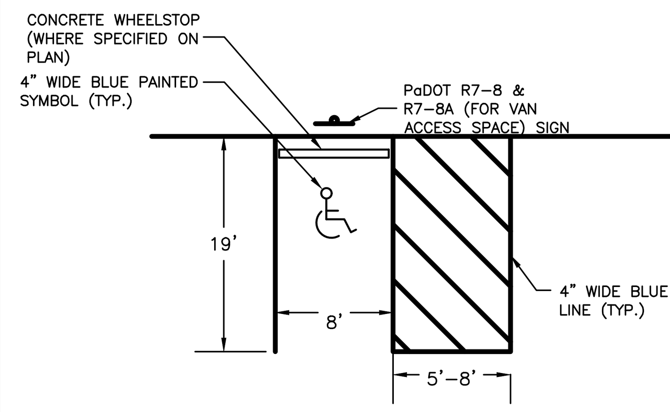
STRIPING DETAIL
NOT TO SCALE



12"x18"
R7–8F
NOT TO SCALE



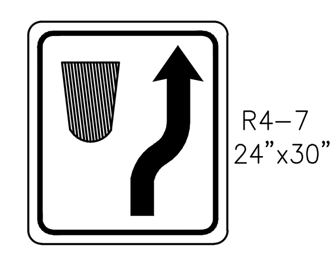
PARKING SPACE LAYOUT
N.T.S.



VAN ACCESSIBLE HANDICAP PARKING SPACE LAYOUT
N.T.S.

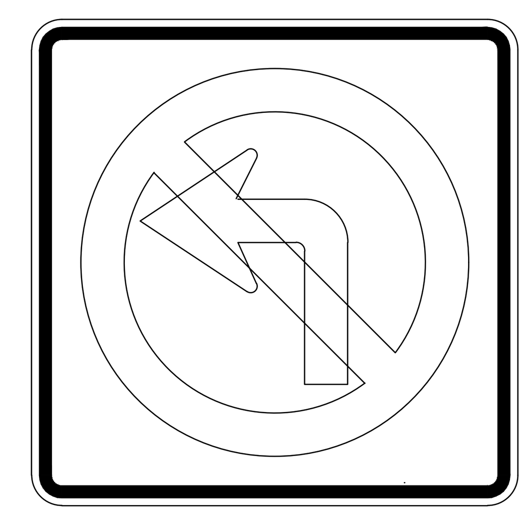
36"X12"
ONEWAY SIGN (R6–1R)
NOT TO SCALE

36"X12"
ONEWAY SIGN (R6–1L)

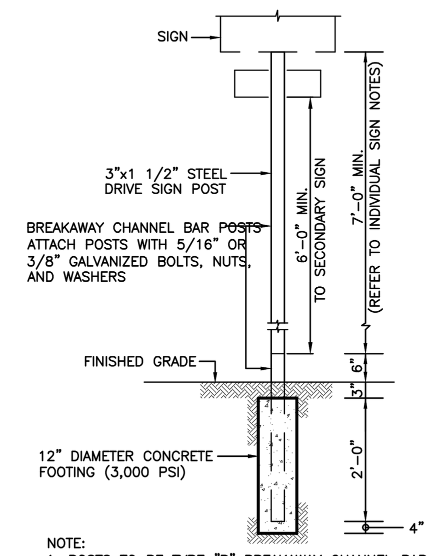


NOTE: FOR REGULATORY SIGNS, ALL COLORS, MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." ALL SIGN SYMBOLS AND LETTERING TO BE REFLECTORIZED.

KEEP RIGHT SIGN DETAIL
NOT TO SCALE

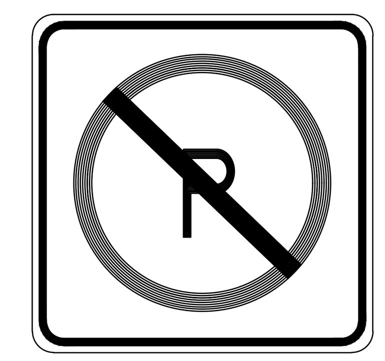


R3–2
30"x 30"
NO LEFT TURN SIGN (PADOT R3–2)
N.T.S.



NOTE:
1. POSTS TO BE TYPE "B" BREAKAWAY CHANNEL BAR POSTS. (SEE PENNDOT TRAFFIC CONTROL SIGNING STANDARDS TC– 7000 SERIES FOR INSTALLATION PROCEDURES.)
2. SIGN POST LOCATIONS TO BE SELECTED IN THE FIELD UNDER THE DIRECT SUPERVISION OF THE ENGINEER.

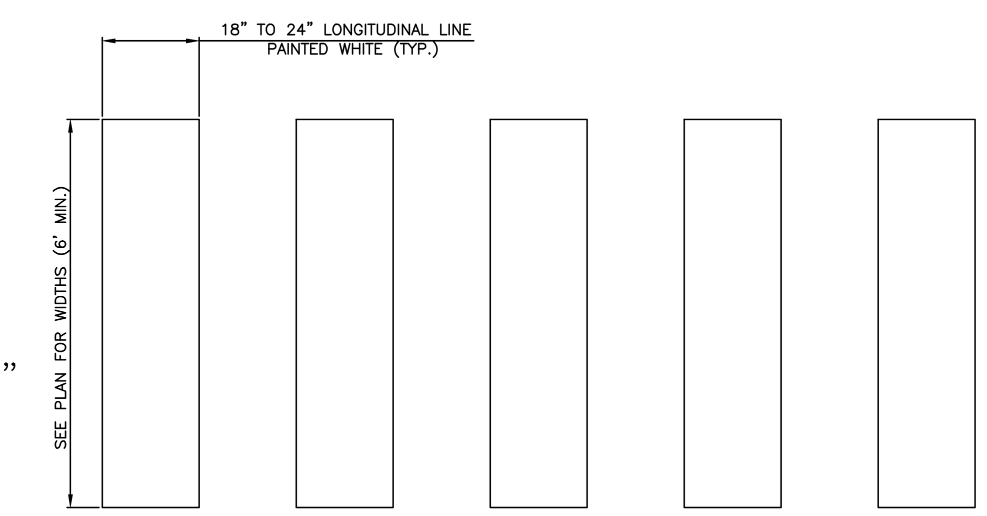
SIGN POST DETAIL
NOT TO SCALE

12"


12"
R8–3

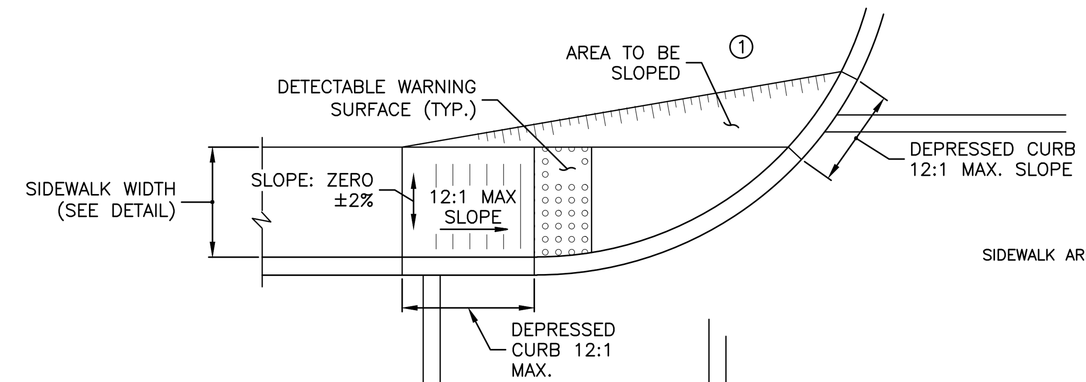
12"

6"
R8–3GP–1



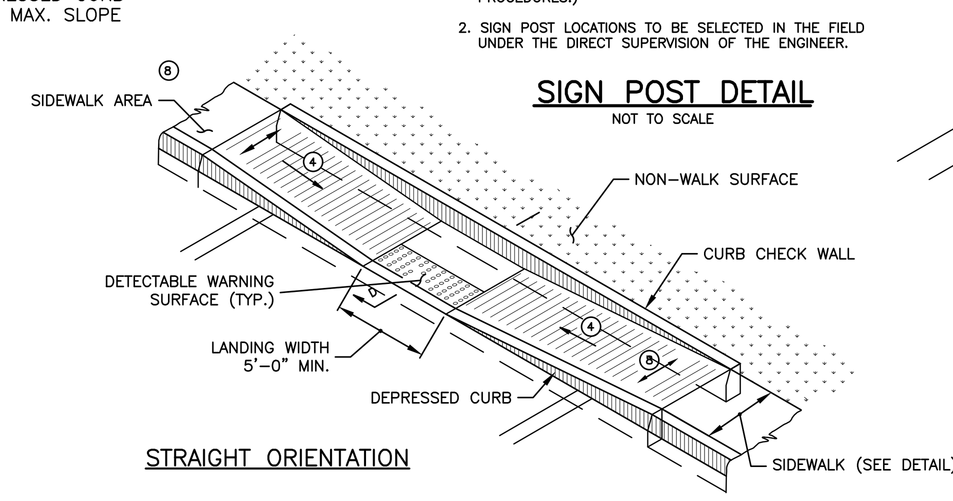
NOTES:
1. THIS TYPE OF MARKING SHOULD BE USED AT LOCATIONS WHERE SUBSTANTIAL NUMBERS OF PEDESTRIANS CROSS WITHOUT ANY OTHER TRAFFIC CONTROL DEVICE. AT LOCATIONS WHERE PHYSICAL CONDITIONS ARE SUCH THAT ADDED VISIBILITY OF THE CROSSWALK IS NECESSARY. OR AT PLACES WHERE PEDESTRIANS MIGHT NOT BE EXPECTED.
2. ALL CROSSWALKS SHALL COMPLY WITH THE FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), AS AMENDED.
3. LONGITUDINAL LINES SHALL BE PERPENDICULAR TO TRAVELED WAY THE EXTEND ACROSS THE FULL WIDTH OF PAVEMENT OR TO THE EDGE OF THE INTERSECTING CROSSWALK TO DISCOURAGE DIAGONAL WALKING BETWEEN CROSSWALKS.
4. ALL CROSSWALK LONGITUDINAL LINES SHALL BE WHITE THERMOPLAST, ALL LINES AND NEUTRAL AREAS SHALL BE OF EQUAL WIDTHS.
5. WARNING SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH MUTCD, AS AMENDED.
6. THE SPACING OF THE LINES SHALL BE SELECTED TO AVOID THE WHEEL PATH.

CROSSWALK STRIPING DETAIL
NOT TO SCALE

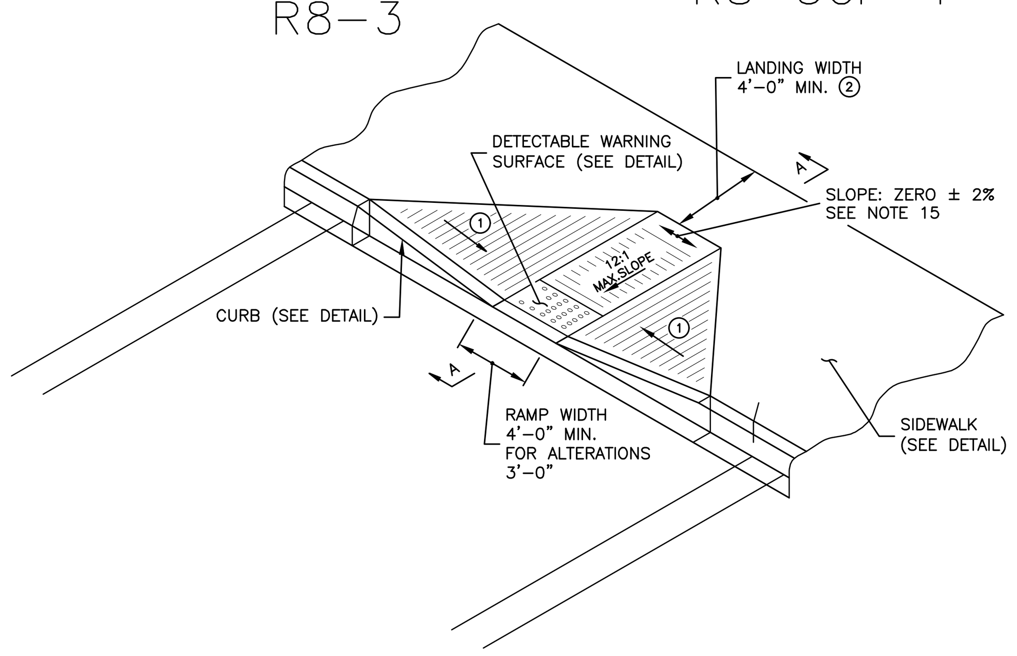


① OPTIONAL CURB RETURN OR ROLLED CONCRETE SURFACE CAN BE USED TO MEET THE ADJACENT SURFACES IN LIEU OF A REGRADED SLOPE AND DEPRESSED CURB.

CURB RAMP – TYPE 1A
NOT TO SCALE



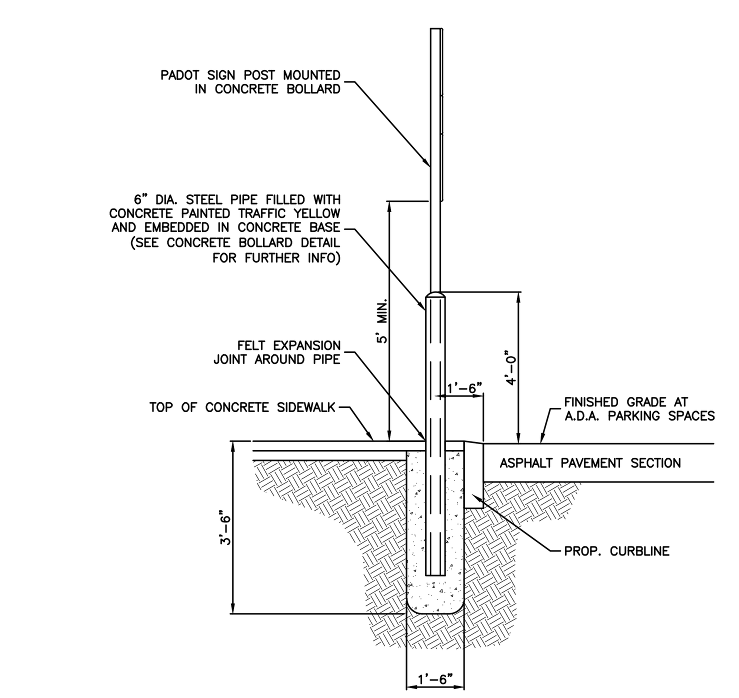
STRAIGHT ORIENTATION



STRAIGHT ORIENTATION

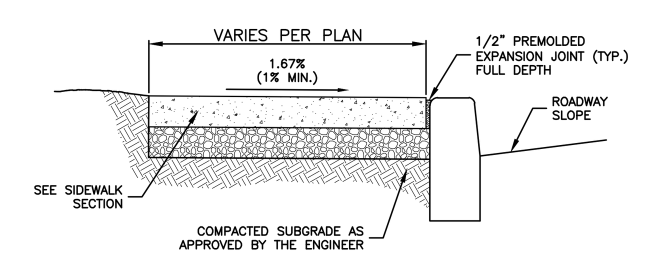
NOTES:
1. SIDE FLARES 10:1 MAX SLOPE.
2. SIDE FLARES 12:1 MAX FOR RAMPS WITH A LANDING LESS THAN 4'–0". FOR ALTERATIONS: IF TECHNICALLY FEASIBLE A LANDING IS REQUIRED. HOWEVER A LANDING IS NOT REQUIRED WHERE 12:1 SIDE FLARE SLOPES ARE PROVIDED AND RIGHT OF WAY OR OTHER STRUCTURAL FEATURES RESTRICT THE INSTALLATION OF A LANDING.
3. SEE "CURB RAMP – GENERAL INFORMATION" FOR ADDITIONAL NOTES AND DETAILS.

CURB RAMP – TYPE 1
NOT TO SCALE

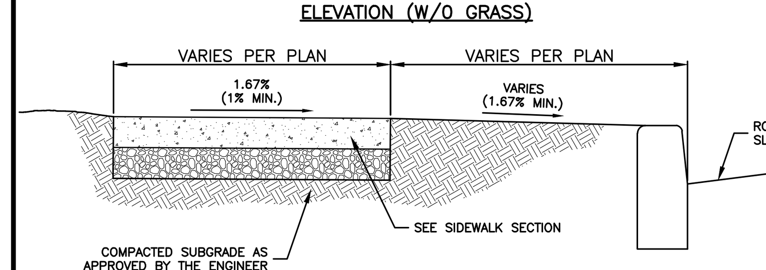


NOTES:
1. REFER TO PLAN SET FOR LOCATIONS OF PROPOSED BOLLARDS.
2. BOLLARDS SHALL BE PAINTED TRAFFIC YELLOW AND MUST BE PERPETUALLY MAINTAINED/REPAINTED BY PROPERTY OWNER OR PARTY RESPONSIBLE FOR SITE MAINTENANCE.

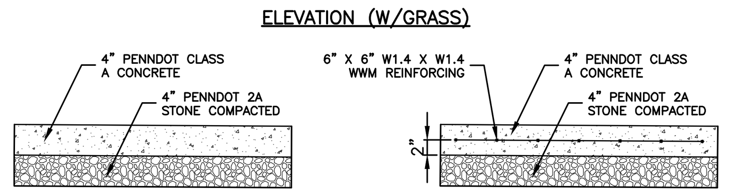
SIGN BOLLARD
NOT TO SCALE



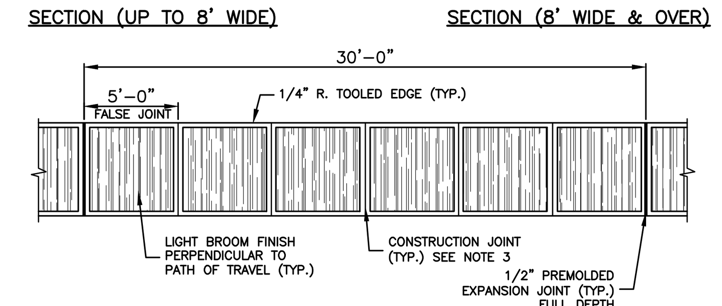
ELEVATION (W/O GRASS)



ELEVATION (W/GRASS)



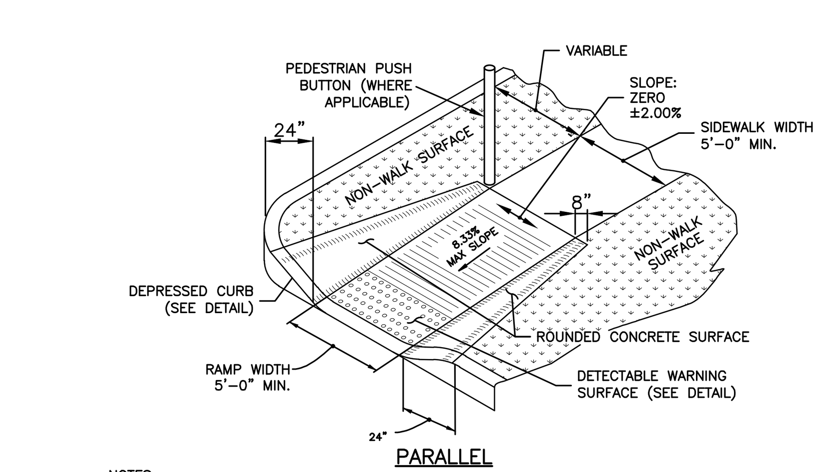
SECTION (UP TO 8' WIDE) — SECTION (8' WIDE & OVER)



PLAN

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. FORM TRANSVERSE CONSTRUCTION JOINTS AT 10 FOOT INTERVALS, APPROXIMATELY 1/8" WIDE AND AT LEAST 1" DEEP.
4. ALL EXPOSED CONCRETE SHALL BE SEALED WITH AQURON CPT–2000 OR APPROVED EQUAL.
5. FOR USE WITHIN PEDESTRIAN TRAVEL AREAS.
6. FOR SIDEWALK WIDTH LESS THAN 5'–0", A PASSING SPACE OF 5'–0" X 5'–0" MINIMUM SHALL BE PROVIDED AT A MINIMUM INTERVAL OF 200 FEET.

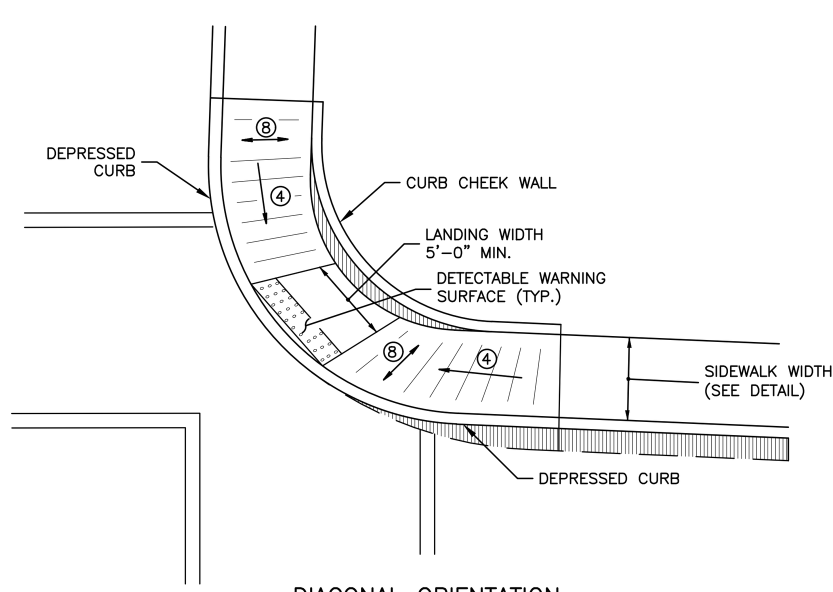
SIDEWALK – CONCRETE
NOT TO SCALE



PARALLEL

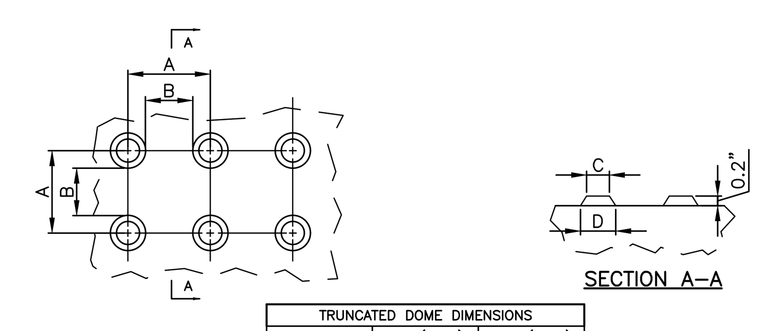
NOTES:
1. 12:1 (8.33%) MAX. RAMP SLOPE WHERE PRACTICAL.
2. CURB RAMP WIDTH IS EQUAL TO SIDEWALK WIDTH WHEN THE SIDEWALK WIDTH IS GREATER THAN OR EQUAL TO 4'–0".
3. CURB RAMPS REQUIRE A 4'–0" MIN. LANDING WITH A MAX. SLOPE OF 2.00% IN ALL DIRECTIONS WHERE PEDESTRIANS PERFORM TURNING MANEUVERS.
4. SEE "CURB RAMP – GENERAL INFORMATION DETAIL" FOR ADDITIONAL NOTES AND DETAILS.

TYPE 4A CURB RAMP – PARALLEL
NOT TO SCALE



DIAGONAL ORIENTATION

CURB RAMP – TYPE 2
NOT TO SCALE

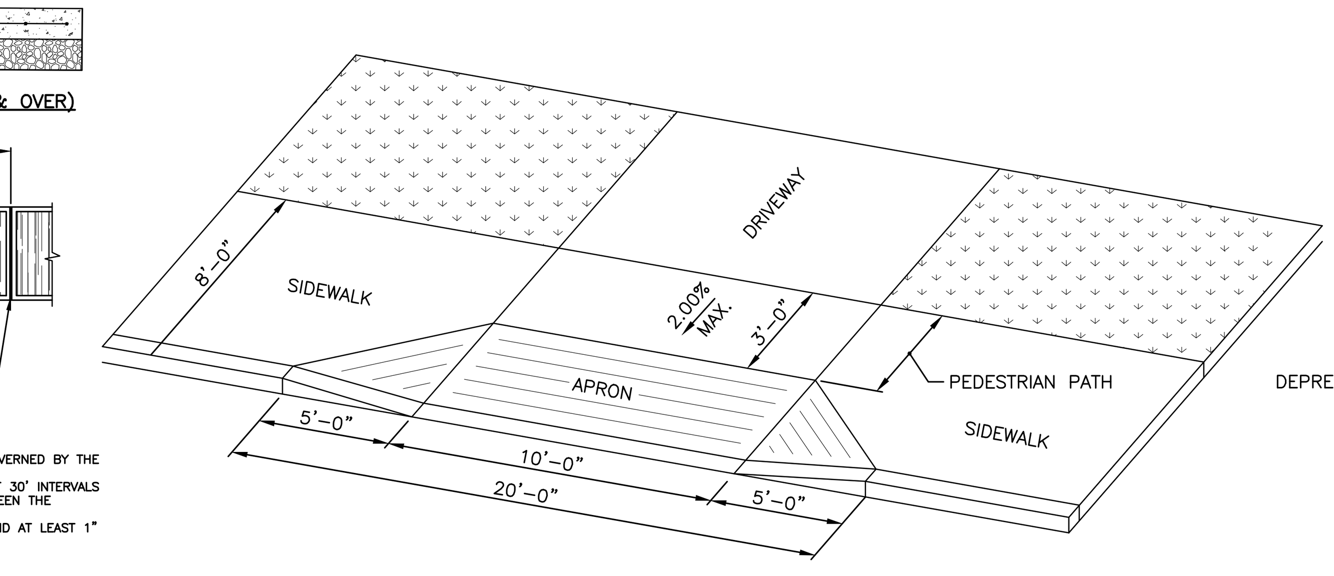


PLAN

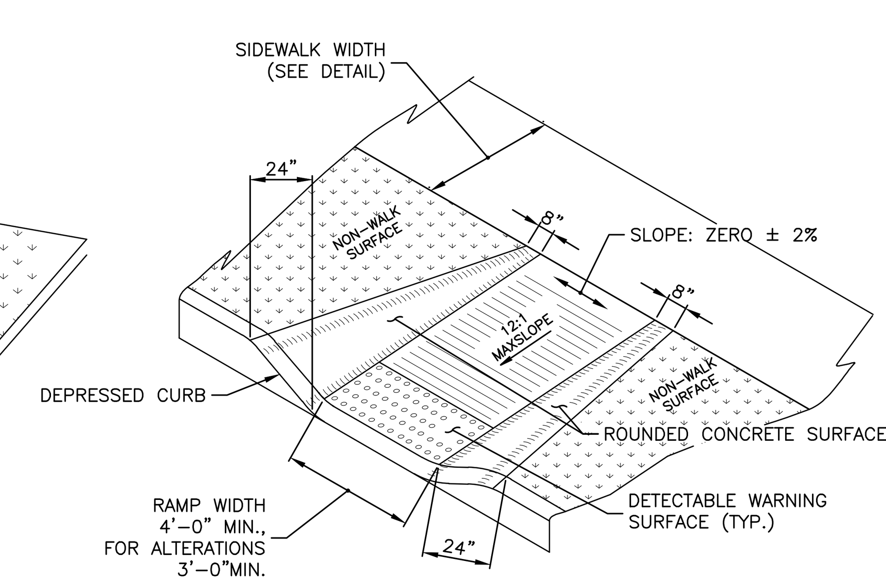
TRUNCATED DOME DIMENSIONS		
DIM	MIN (INCH)	MAX (INCH)
A	1.6	2.4
B	0.65	1.5
C	SEE NOTE 1	SEE NOTE 1
D	0.9	1.4

NOTES:
1. THE C DIMENSION SHALL BE 50% TO 65% OF THE D DIMENSION.
2. DETECTABLE WARNING SURFACES SHALL COMPLY WITH ALL REQUIREMENTS OF THE AMERICANS WITH DISABILITES ACT AND PENNDOT PUBLICATION 72M – RC67M.
3. 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.
4. DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE WALKING PATH AND BE A MINIMUM OF TWO FEET (2') IN DEPTH.
5. DETECTABLE WARNINGS SHALL BE ARMOR–TILE (TM) TACTILE SYSTEM – CAST IN PLACE SYSTEM, OR APPROVED EQUAL (WWW.ARMOR–TILE.COM).
6. COLOR SHALL BE DARK GRAY (FEDERAL COLOR NO. 36118). COLORS SHALL BE SUBMITTED FOR OWNER'S APPROVAL PRIOR TO ORDERING MATERIAL.

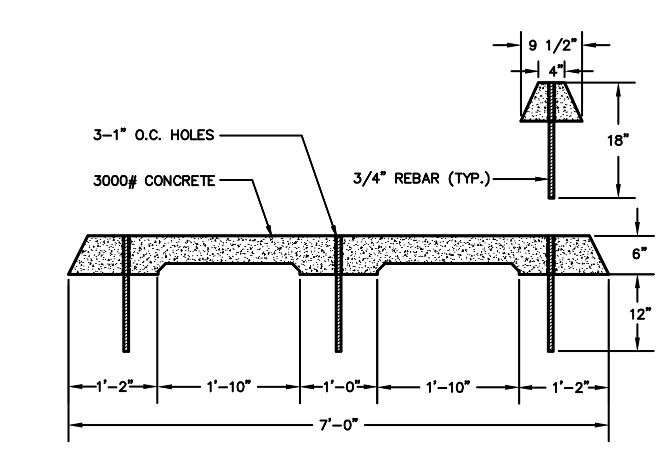
DETECTABLE WARNING SURFACE
NOT TO SCALE



DRIVEWAY APRON
NOT TO SCALE



PERPENDICULAR
CURB RAMP – TYPE 4A
NOT TO SCALE



CONCRETE WHEELSTOP
N.T.S.

PEDESTRIAN CROSSING (W11A–2) DETAIL

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania811
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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS
CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SITE CONSTRUCTION DETAILS - 1

YOUR GOALS. OUR MISSION.
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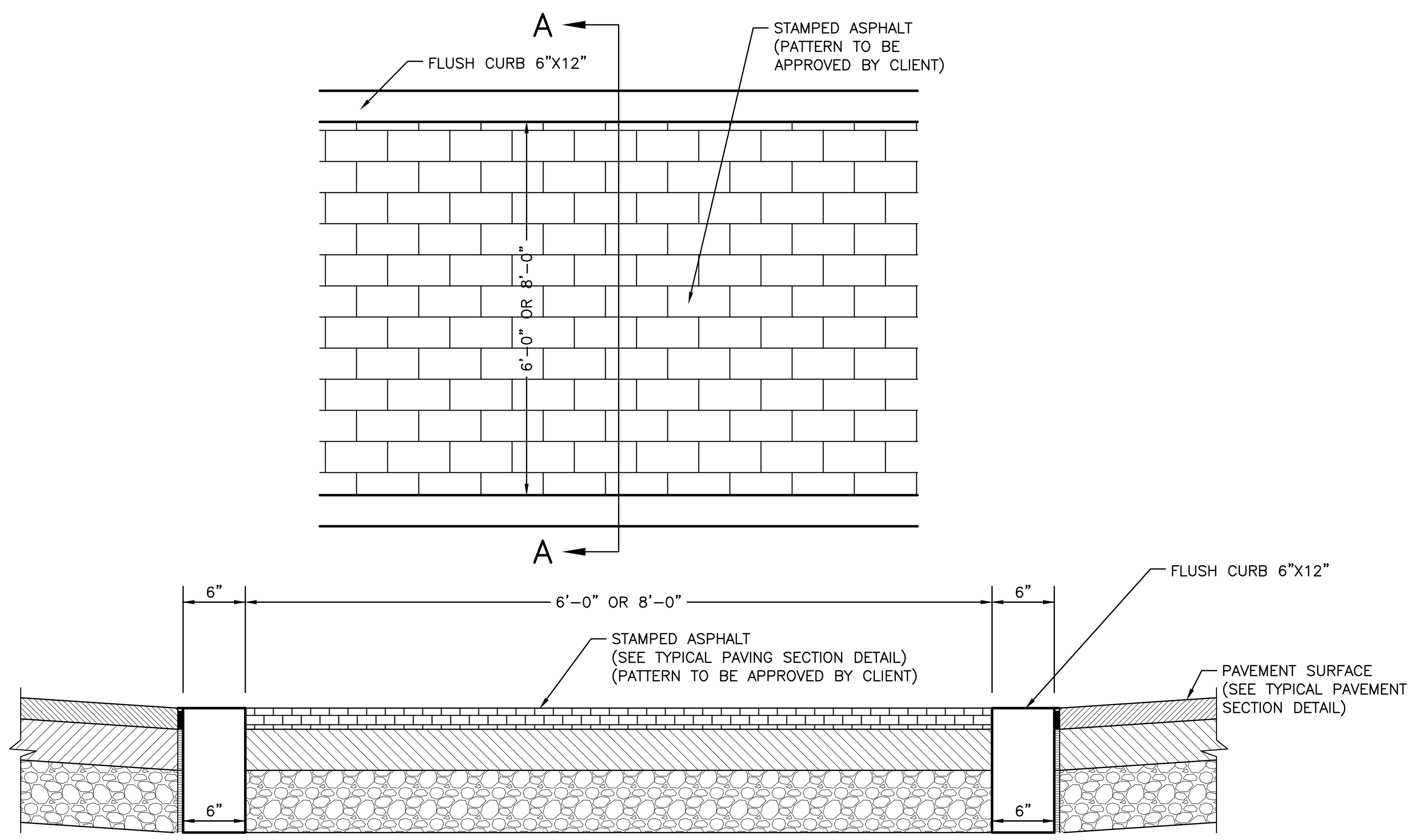
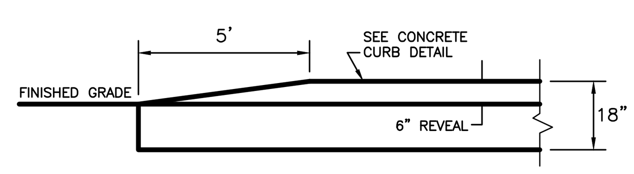
DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	STE–D1
SHEET	27 OF 37



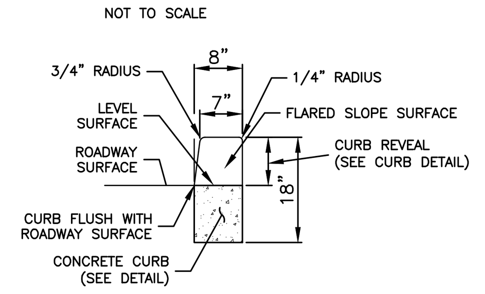
STAMPED ASPHALT CROSSWALK

N.T.S.



CURB TAPER DETAIL (ON SITE)

NOT TO SCALE



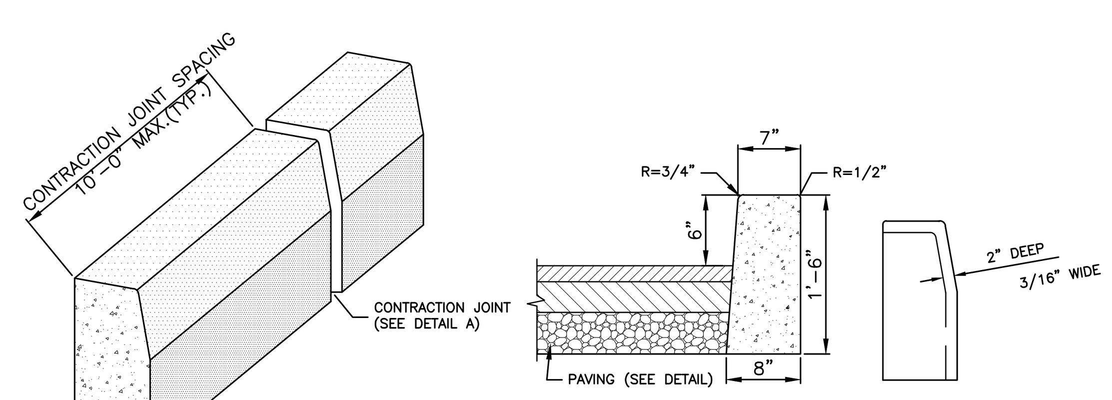
NOTE:

1. DIMENSIONS SHOWN ARE FOR 8" CONCRETE CURB. ALL DIMENSIONS SHALL BE ADJUSTED ACCORDINGLY FOR VARYING SIZE/TYPE OF CURB.
2. DEPRESSED CURB FOR CURB RAMPS MUST BE FLUSH TO ADJACENT ROADWAY. EDGE OF ROAD ELEVATIONS AT THE FLOW LINE SHALL BE GRADED TO ENSURE POSITIVE DRAINAGE AND PREVENT PONDING.

DEPRESSED CURB AT SIDEWALK CURB RAMPS

NOTES:

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PENNDOT PUBLICATION 408. SECTIONS 350, 409, 630, 676, AND 694.
2. PROVIDE EXPANSION JOINT MATERIAL 1/2" THICK WHERE CURB RAMP ADJOINS ANY RIGID PAVEMENT, SIDEWALK OR STRUCTURE WITH THE TOP OF JOINT FILLER FLUSH WITH ADJACENT CONCRETE SURFACE.
3. IF PEDESTRIAN CROSSWALKS ARE NOT WIDE ENOUGH TO PROVIDE MINIMUM 4'-0" X 4'-0" WIDE WHEELCHAIR OVERRUN ZONE AT THE BOTTOM OF THE RAMP, POSITION CROSSWALKS AS INDICATED IN PENNDOT PUBLICATION 72M – RC-67M – DETAIL A. ON SHEET 7.
4. SEAL JOINTS WITH AN APPROVED SEALING MATERIAL.
5. PROVIDE SLIP RESISTANT TEXTURE ON CURB RAMP BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP. EXTEND TEXTURE THE FULL WIDTH AND LENGTH OF CURB RAMP INCLUDING FLARED SIDE RAMPS.
6. MODIFY CONSTRUCTION DETAILS TO ADAPT DIMENSIONS TO EXISTING CURB ALTERATIONS WHERE THE CURB IS LESS THAN THE STANDARD 8" HEIGHT.
7. CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK SLOPE.
8. IT MAY BE NECESSARY TO LIMIT THE RUN OF A PARALLEL OR PERPENDICULAR CURB RAMP IN ORDER TO AVOID CHASING GRADE INDEFINITELY WHEN TRAVERSING THE HEIGHT OF CURB. RAMP LENGTH NOT TO EXCEED 15'-0", ADJUST RAMP SLOPE AS NEEDED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT POSSIBLE.
9. WHENEVER POSSIBLE, CONSTRUCT THE TRANSITION SLOPE FROM THE CURB RAMP AND FLARE SIDES TO ADJOINING SURFACES WITH A GRADUAL ROUNDED SHAPE RATHER THAN AN ABRUPT ANGLE. ENSURE CONSTRUCTION IS WITHIN MAXIMUM SLOPE.
10. ALIGN DETECTABLE WARNING DOMES ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF THE RAMP AND PERPENDICULAR TO CURB.
11. PROVIDE DETECTABLE WARNING SURFACES (DWS) 24" MINIMUM (IN THE DIRECTION OF PEDESTRIAN TRAVEL) ACROSS FULL WIDTH OF RAMP AT THE GRADE BREAK NEAR STREET EDGE. PROVIDE DWS THAT CONTRAST VISUALLY WITH ADJACENT WALKWAY SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP. DETECTABLE WARNING SURFACES SHALL COMPLY WITH THE REQUIREMENTS OF PENNDOT PUBLICATION 72M – RC-67M AND ADA REQUIREMENTS.
12. FOR NEW CONSTRUCTION, DO NOT EXCEED 2.0% CROSS SLOPE ON THE CURB RAMP OR ACCESSIBLE ROUTE.
13. CONSTRUCT RAMP AND FLARE SLOPES WITH THE FLATTEST SLOPE POSSIBLE. THE SLOPES INDICATED IN THE DETAILS SHOW THE MAX SLOPE ALLOWABLE. IT IS STRONGLY RECOMMENDED TO USE THE SLOPES LISTED ABOVE TO ALLOW FOR CONSTRUCTION TOLERANCES.

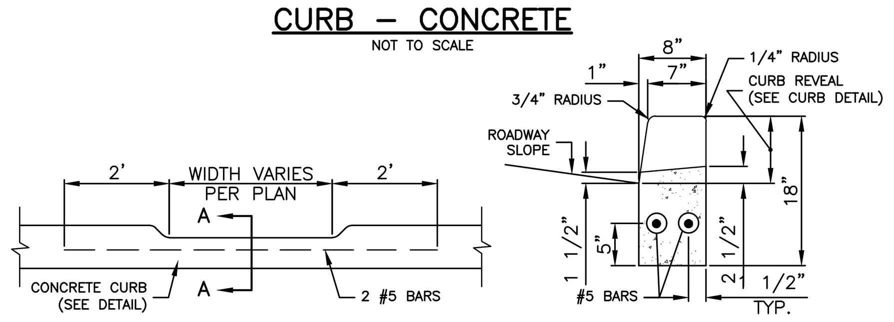


NOTES:

1. CONCRETE SHALL BE 3000 PSI COMPRESSIVE STRENGTH..
2. A PREMOLDED BITUMINOUS-IMPREGNATED ONE-HALF-INCH (1/2") EXPANSION JOINT SHALL BE PLACED BETWEEN SECTIONS OF CURBING AT INTERVALS OF NOT MORE THAN 30 FEET 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" THICKNESS SHALL BE PLACED UNDER THE CURB.
5. CURBS SHALL BE CONSTRUCTED IN 10 FOOT LENGTHS.
6. AC-20 OR EQUAL GUTTER/PAVEMENT JOINT SEALER TO BE PROVIDED 1 FOOT OUT AND 1" UP FACE OF CURB.

CURB – CONCRETE

NOT TO SCALE

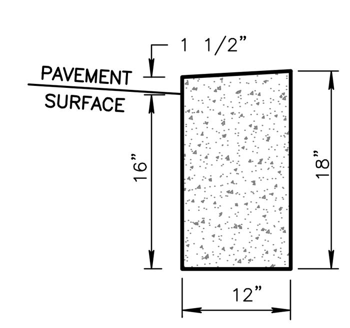


NOTES:

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 630 FOR PLAIN CEMENT CONCRETE CURB AND DEPRESSED CURB, SECTION 640 FOR PLAIN CEMENT CONCRETE GUTTER, AND SECTION 641 FOR PLAIN CEMENT CONCRETE CURB GUTTER.
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. SEE RC-50M FOR PLAIN CEMENT CONCRETE CURB SLOPED TOP TREATMENT AT END OF STRUCTURES.
5. FOR USE IN AREAS OTHER THAN PEDESTRIAN CURB RAMPS.

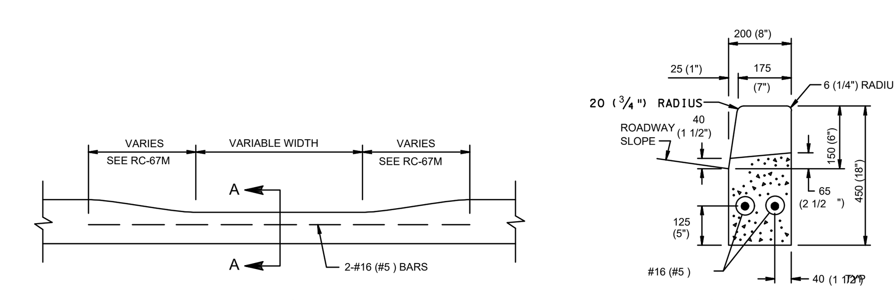
DEPRESSED CURB

NOT TO SCALE

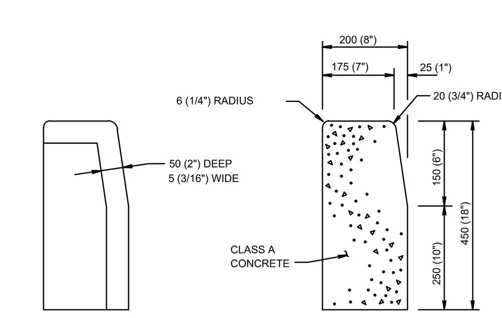


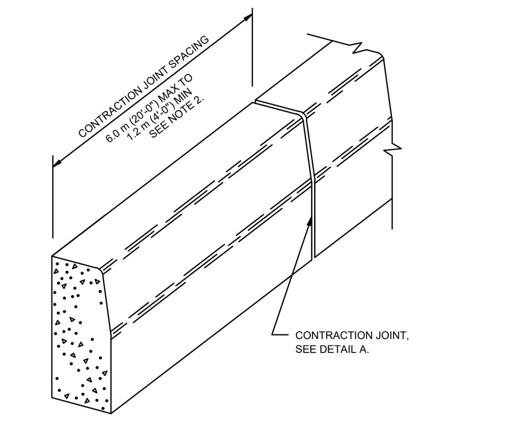
MOUNTABLE CONCRETE CURB

NOT TO SCALE

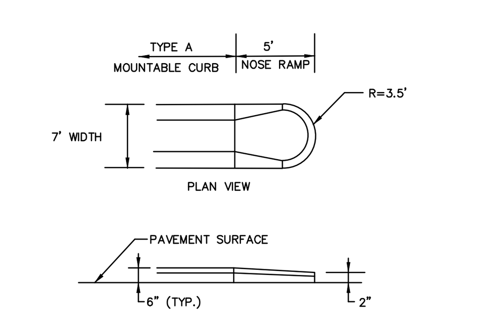


DEPRESSED CURB FOR DRIVEWAYS





PLAIN CEMENT CONCRETE CURB



NOSE RAMPING AT APPROACH END OF MEDIAN

N.T.S.

NOTES

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 630 FOR PLAIN CEMENT CONCRETE CURB AND DEPRESSED CURB, SECTION 640 FOR PLAIN CEMENT CONCRETE GUTTER AND SECTION 641 FOR PLAIN CEMENT CONCRETE CURB GUTTER.
2. SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
3. PLACE 20 (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. SEE RC-50M FOR PLAIN CEMENT CONCRETE CURB SLOPED TOP TREATMENT AT END OF STRUCTURES.
5. WHERE CURBS ARE INSTALLED ADJACENT TO PARKING LANES A 150 (6") HIGH CURB CAN BE UTILIZED WITH APPROVAL FROM THE LOCAL MUNICIPALITY.
6. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN ( ) PARENTHESES.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

CURBS AND GUTTERS

RECOMMENDED JUN. 1, 2010 — CHIEF, HWY. QA DIVISION
RECOMMENDED JUN. 1, 2010 — DIRECTOR, BUREAU OF DESIGN
SHT OF 1
RC-64M

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SITE CONSTRUCTION DETAILS - 2

YOUR GOALS. OUR MISSION.
1700 MARKET ST., SUITE 3110
PHILADELPHIA, PA 19103
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FAX 215-627-3459
www.tandmassociates.com
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DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	STE-D2
SHEET	28 OF 37

PROJECT INFORMATION:
FILE PATH: G:\Projects\CRST\00004\Plans\
FILE NAME: CRST00009_SHT027_CSD.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 3:17PM
LAST SAVE BY: DMattson

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OPERATION & MAINTENANCE **STORMWATER MANAGEMENT & WATER QUALITY FACILITIES**

OPERATION & MAINTENANCE

CRP/CT OXFORD VALLEY OWNER, LLC, AS EQUITABLE OWNER/OPERATOR OF THE PROJECT SITE, ITS SUCCESSORS OR ASSIGNS SHALL BE RESPONSIBLE FOR THE PROPER MAINTENANCE OF ALL POST CONSTRUCTION STORMWATER MANAGEMENT FACILITIES AND RELATED ITEMS WITHIN THIS PLAN AND NARRATIVE. ALL STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES SHALL REMAIN IN PLACE AND SHALL BE MAINTAINED IN THE APPROVED DESIGN CONDITIONS.

IF RESTORATION ACTIVITIES ARE REQUIRED, A SCHEDULE INDICATING THE DATE WHEN THE RESTORATION ACTIVITIES WILL BE STARTED AND COMPLETED SHALL BE PREPARED AND SUBMITTED TO THE TOWNSHIP.

THE PERSON RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF A BMP OR CONVEYANCE SHALL MAKE RECORDS OF THE INSTALLATION AND OF ALL MAINTENANCE AND REPAIRS, AND SHALL RETAIN THE RECORDS FOR AT LEAST 10 YEARS. THESE RECORDS SHALL BE SUBMITTED TO THE TOWNSHIP, DELAWARE COUNTY CONSERVATION DISTRICT AND PADEP IF REQUESTED.

EACH BMP AND CONVEYANCE SHALL BE INSPECTED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA ON BEHALF OF THE APPLICANT OR RESPONSIBLE ENTITY (INCLUDING THE TOWNSHIP ENGINEER FOR DEDICATED FACILITIES) ANNUALLY FOR THE FIRST FIVE YEARS AND ONCE EVERY THREE YEARS THEREAFTER.

A BLANKET EASEMENT IS ESTABLISHED FOR ALL EXISTING AND PROPOSED PERMANENT STORMWATER MANAGEMENT FACILITIES TO GUARANTEE PRESERVATION AND MAINTENANCE OF SAID FACILITIES IN PERPETUITY.

THE TOWNSHIP RESERVES THE RIGHT, BUT NOT THE RESPONSIBILITY, TO CONDUCT SUCH INSPECTIONS AS WELL AS TO EXECUTE SUCH ACTIONS AS MAY BE NECESSARY TO ELIMINATE ANY IMMEDIATE THREAT TO THE PUBLIC HEALTH, SAFETY, OR WELFARE WITHOUT PRIOR NOTICE TO THE PROPERTY OWNER. THE TOWNSHIP FURTHER RESERVES THE RIGHT TO CHARGE THE PROPERTY OWNER FOR SUCH INSPECTIONS AND ACTIONS IN ACCORDANCE WITH THE DULY ENACTED FEE SCHEDULE.

THE PROFESSIONAL ENGINEER CONDUCTING THE INSPECTION SHALL BE REQUIRED TO SUBMIT A WRITTEN REPORT TO THE TOWNSHIP WITHIN ONE MONTH OF THE COMPLETION OF THE INSPECTION. THE REPORT WILL PRESENT DOCUMENTATION AND INCLUDE PICTURES REGARDING THE CONDITION OF THE FACILITY AND RECOMMEND NECESSARY REPAIRS, IF ANY ARE NEEDED. ANY SUCH REPAIRS SHALL BE COMPLETED BY THE OWNER WITHIN ONE MONTH OF THE DATE OF THE ISSUE OF THE REPORT.

THE OWNER OF EACH BMP AND CONVEYANCE SHALL KEEP ON FILE WITH THE TOWNSHIP THE NAME, ADDRESS, AND TELEPHONE NUMBER OF THE PERSON RESPONSIBLE FOR MAINTENANCE ACTIVITIES AND IMPLEMENTATION OF THE O&M PLAN. IN THE EVENT OF A CHANGE, NEW INFORMATION SHALL BE SUBMITTED BY THE BMP OR CONVEYANCE OWNER TO THE TOWNSHIP WITHIN 30 CALENDAR DAYS OF THE CHANGE.

INSPECTION ACTIVITIES SHALL, AT A MINIMUM, INCLUDE:

* INSPECTING FOR DAMAGE TO THE PCSM BMP FACILITIES
* INSPECTING BASIN EMBANKMENT AND EMERGENCY SPILLWAY FOR EROSION, SEEPS OR LEAKS, FAILURE OF SLOPE PROTECTION OR RIPRAP AND ADEQUATE GROUND COVER.
* ENSURE THE BASIN EMERGENCY SPILLWAY IS CLEAR OF OBSTRUCTIONS AND DEBRIS.
* MONITOR SEDIMENT ACCUMULATIONS IN ALL STORMWATER MANAGEMENT, STORMWATER CONVEYANCE AND WATER QUALITY FACILITIES.
* ENSURE INLET AND OUTLET DEVICES ARE FREE OF DEBRIS AND OPERATIONAL.
* INSPECT OUTFALLS FOR RIPRAP FAILURES AND SLOPE EROSION.
* INSPECT FACILITIES FOR UNDESIRABLE VEGETATIVE OR WOODY GROWTH.

THE LANDOWNER ACKNOWLEDGES THAT, PER THE PROVISIONS OF THE TOWNSHIP'S STORMWATER MANAGEMENT ORDINANCE, IT IS UNLAWFUL TO MODIFY, REMOVE, FILL, LANDSCAPE, ALTER OR IMPAIR THE EFFECTIVENESS OF, OR PLACE ANY STRUCTURE, OTHER VEGETATION, YARD WASTE, BRUSH CUTTINGS, OR OTHER WASTE OR DEBRIS INTO ANY PERMANENT STORMWATER MANAGEMENT BMP OR CONVEYANCE DESCRIBED IN THIS O&M PLAN OR TO ALLOW THE BMP OR CONVEYANCE TO EXIST IN A CONDITION WHICH DOES NOT CONFORM TO THIS O&M PLAN, WITHOUT WRITTEN APPROVAL FROM THE TOWNSHIP.

GENERAL MAINTENANCE PROCEDURES – ALL FACILITIES

OBSTRUCTIONS AND DEBRIS (ALL FACILITIES)

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 (ALL FACILITIES)

MONITOR SEDIMENT ACCUMULATIONS IN ALL STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES. REMOVE SEDIMENT IF STORAGE VOLUMES HAVE BEEN REDUCED SIGNIFICANTLY (HALF OF FOREBAY STORAGE) OR THE POOLS BECOME STAGNANT. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES ON A REGULAR BASIS (EVERY 2 TO 10 YEARS FOR BASINS) AND SHALL EITHER BE REMOVED FROM THE SITE OR DISPOSED OF ON-SITE AT AN APPROVED DISPOSAL AREA. CARE SHALL BE TAKEN NOT TO COMPACT THE UNDERLYING SOILS IN INFILTRATION BASIN AS PART OF ANY DESILTING ACTIVITIES. MAINTENANCE OF CATCH BASINS AND INLETS IS BEST DONE AT LEAST ANNUALLY OR AS NECESSARY WITH A VACUUM TRUCK. ALL COLLECTED WASTE MUST BE HANDLED AND DISPOSED OF ACCORDING TO LOCAL ENVIRONMENTAL REQUIREMENTS. PRIOR TO ON-SITE DISPOSAL OF SEDIMENT, THE OWNER SHALL ACQUIRE THE APPROPRIATE EARTH DISTURBANCE PERMITS FROM THE MUNICIPALITY AND/OR THE CONSERVATION DISTRICT.

CONSTRUCTED FILTERS FACILITIES

OBSERVATIONS SHALL BE MADE TO DETERMINE THE LENGTH OF TIME NEEDED FOR RETAINED WATER TO DRAWDOWN INTO THE SOIL MEDIA AFTER A STORM EVENT. THE OBSERVATIONS SHALL BE MADE BY READING THE WATER LEVEL IN THE DEPRESSION OF THE BIO-FILTRATION BED 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 EVENT OF 0.5-INCHES OR MORE, OR MONTHLY, AS DETERMINED BY LOCAL WEATHER CONDITIONS. AT A MINIMUM, OBSERVATIONS SHALL BE MADE TWICE THE FIRST YEAR AND YEARLY THEREAFTER.

AT A MINIMUM, OPERATION AND MAINTENANCE PROCEDURES FOR FILTRATION AREAS SHALL INCLUDE:

* THE OVERLYING VEGETATION OF SUBSURFACE BIO-FILTRATION FEATURES SHALL BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS POSSIBLE.
* MOWING AND/OR TRIMMING OF VEGETATION SHALL BE PERFORMED QUARTERLY TO SUSTAIN THE SYSTEM, BUT ALL DETRITUS SHOULD BE REMOVED FROM THE BASIN.
* VEGETATED AREAS SHALL BE INSPECTED QUARTERLY FOR EROSION.
* VEGETATED AREAS SHALL BE INSPECTED QUARTERLY FOR UNWANTED GROWTH OF EXOTIC/INVASIVE SPECIES.
* VEGETATIVE COVER SHALL BE MAINTAINED AT A MINIMUM OF 95 PERCENT. IF VEGETATIVE COVER HAS BEEN REDUCED BY 10%, VEGETATION SHOULD BE REESTABLISHED.
* ACCESS TO BIO-FILTRATION BASINS SHOULD BE PROHIBITED, AND CARE SHALL BE TAKEN TO AVOID COMPACTION OF FLOOR OF STORAGE AREA.
* SEDIMENT REMOVAL SHALL BE CONDUCTED WHEN THE BASIN IS COMPLETELY DRY. SEDIMENT SHALL BE DISPOSED OF PROPERLY AND ONCE SEDIMENT IS REMOVED, DISTURBED AREAS NEED TO BE IMMEDIATELY STABILIZED AND RE-VEGETATED, AS APPLICABLE.
* FENCES AND GATES SHALL BE INSPECTED FOR DAMAGE AND REPAIRED AS NECESSARY.
* ABRASIVES SUCH AS SAND OR CINDERS SHALL NOT BE APPLIED ON THE POROUS PAVEMENT AREA.
* SNOW PLOWING ON POROUS PAVEMENT IS ACCEPTABLE IF COMPLETED CAREFULLY (I.E. SETTING THE BLADE SLIGHTLY HIGHER THAN USUAL, ABOUT 1").
* SALT IS ACCEPTABLE FOR USE AS A DEICER ON THE POROUS PAVEMENT PAVEMENT, THOUGH NONTOXIC, ORGANIC DEICERS, APPLIED EITHER AS BLENDED, MAGNESIUM CHLORIDE-BASED LIQUID PRODUCTS OR AS PRETREATED SALT, ARE PREFERRED.

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. VEGETATED AREAS THAT WASH OUT MUST BE FILLED AND GRADED AS NECESSARY AND THEN RESEEDED. AN ANCHORING METHOD SHOULD THEN BE USED TO HOLD SEED AND MULCH IN PLACE; THIS IS ESPECIALLY IMPORTANT ON STEEP SLOPES.

AT A MINIMUM, OPERATION AND MAINTENANCE PROCEDURES FOR THE WHIP PLANTING AREAS SHALL INCLUDE:

* TREES AND SHRUBS SHOULD BE INSPECTED TWICE PER YEAR TO EVALUATE HEALTH.
* ADDITIONAL PLANTINGS PROVIDED AS NECESSARY TO MAINTAIN STABILIZATION.

OUTLET STRUCTURES (ALL FACILITIES):

DURING DRY CONDITIONS, CONCRETE SPILLWAY STRUCTURES SHALL BE INSPECTED TO DETERMINE IF WATER IS PASSING THROUGH ANY JOINTS OR OTHER STRUCTURE 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 ANY CIRCUMSTANCES. THE TRENCH SIDE SLOPES SHALL BE STEPPED BACK AT A 2:1 SLOPE, MINIMUM.

EARTH EMBANKMENTS (ALL FACILITIES):

ALL ANIMAL BURROWS SHALL BE BACKFILLED AND COMPACTED AND BURROWING ANIMALS SHALL BE REMOVED FROM THE AREA.

ALL SEEDLINGS NOT INDICATED ON LANDSCAPE PLANS SHALL BE REMOVED AT THE FIRST OPPORTUNITY. SIMILARLY, ANY VINE COVER AND BRUSH SHALL BE REMOVED FROM THE EMBANKMENT TO ALLOW FOR INSPECTIONS.

STREETSWEEPING:

THE ENTIRE SITE'S PAVEMENT AREAS MUST BE SWEPT TWICE A WEEK AT REGULAR INTERVALS

THE OWNERS, HEIRS, AND/OR ASSIGNS OF THE PROJECT SITE 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.

EROSION AND SEDIMENTATION POLLUTION CONTROL SPECIALISTS' CONTACTS:

BUCKS COUNTY CONSERVATION DISTRICT: (215) 345-7577

PADEP SOUTHEAST REGIONAL OFFICE: (484) 250-5900

FOR ADDITIONAL INFORMATION REGARDING MAINTENANCE OF SPECIFIC STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES, SEE THE 2006 PENNSYLVANIA STORMWATER BMP MANUAL.

BMP MAINTENANCE & INSPECTION

BMP 6.7.3 SOIL AMENDMENT

LONG TERM MAINTENANCE:

FIRST GROWING SEASON: WHEN OVERALL VEGETATION HEIGHT REACHES 18" – 24", USE A ROTARY MOWER OR STRING TRIMMER TO TRIM MEADOW TO A HEIGHT OF 8". MOWING SHOULD NOT BE DONE WITH A LAWN MOWER AS THE MOWER HEIGHT WILL BE TOO LOW AND NATIVE SEEDLINGS MAY BE KILLED. MOWING SHOULD CEASE BY MID-SEPTEMBER. SPOT TREAT WEEDS WITH GLYPHOSATE (ROUNDUP® OR RODEO®) OR HAND PULL.

SECOND GROWING SEASON: MOW MEADOW IN LATE WINTER/EARLY SPRING BEFORE NEW SEASON GROWTH OCCURS TO CLEAR OFF REMNANTS OF PREVIOUS YEARS GROWTH. IF THERE IS A HEAVY INFESTATION OF RAGWEED OR FOXTAIL DURING THE GROWING SEASON, TRIM THE MEADOW TO A HEIGHT OF 8". TRIMMING SHOULD CEASE BY MID-SEPTEMBER. CONTINUE TO SPOT TREAT WEEDS WITH GLYPHOSATE (ROUNDUP® OR RODEO®) OR HAND PULL.

THIRD GROWING SEASON AND ANNUALLY THEREAFTER: MOW MEADOW IN LATE WINTER/EARLY SPRING BEFORE NEW SEASON GROWTH OCCURS TO CLEAR OFF REMNANTS OF PREVIOUS YEARS GROWTH. SPOT TREAT ANY PERSISTENT WEEDS WITH GLYPHOSATE (ROUNDUP® OR RODEO®) OR HAND PULL.

A FAILURE INDICATOR CAN BE THE LACK OF GROWTH WITHIN A SOIL AMENDMENT AREA. THERE MAY BE AN ISSUE WITH THE ORGANIC CONTENT. A SOIL SAMPLE SHOULD BE TAKEN AND THE ORGANIC CONTENT TESTED. IF LOW, ADDITIONAL ORGANIC MATERIAL MAY NEED TO BE RE-TILLED INTO THE SOIL. IF THE REQUIRED ORGANIC CONTENT IS PROVIDED, SOIL AERATION MAY BE REQUIRED.

BMP CONSTRUCTION SEQUENCES

BMP 6.7.3 SOIL AMENDMENT:

1. ALL OTHER CONSTRUCTION WITHIN THE TRIBUTARY AREA TO THE AREA TO BE AMENDED SHALL BE COMPLETED AND STABILIZED BEFORE BEGINNING SOIL RESTORATION.
2. ELIMINATE ALL WEEDS AND/OR EXISTING VEGETATION PRIOR TO SEEDING. APPLY TWO APPLICATIONS OF GLYPHOSATE (ROUNDUP® OR RODEO®) TO THE AREA TO BE RESTORED AND SEEDED AT LEAST 2 WEEKS APART. 2 WEEKS AFTER THE SECOND APPLICATION PERFORM A CLOSE MOWING OF THE AREA FOLLOWED BY TILLING TO UPROOT WEED REMNANTS.
3. INITIAL SOIL DISTURBANCE – FOR HIGHLY COMPACTED SITE, PERFORMED WITH EQUIPMENT AS SPECIFIED ABOVE.
4. UNIFORMLY BREAK-UP SUBSOIL – AS SPECIFIED ABOVE.
5. ROCK REMOVAL – PERFORMED WITH A MECHANICAL PICKER.
6. SPREAD 2–3 INCHES OF APPROVED COMPOST ON EXISTING SOIL. TILL ADDED SOIL INTO EXISTING SOIL WITH A ROTARY TILLER THAT IS SET TO A DEPTH OF 6 INCHES. ADD AN ADDITIONAL 4 INCHES OF APPROVED COMPOST TO BRING THE AREA UP TO GRADE. AFTER PERMANENT PLANTING/SEEDING, 2–3 INCHES OF COMPOST BLANKET WILL BE APPLIED TO ALL AREAS NOT PROTECTED BY GRASS OR OTHER PLANTS. APPLICATION OF LIME AND FERTILIZER IS NOT RECOMMENDED AS IT WILL ENCOURAGE GROWTH OF WEEDS AND INVASIVES.
7. FINE GRADE AREA TO ACHIEVE A UNIFORMLY SMOOTH SITE SURFACE.
8. SEED AREA USING SEED FORMULA LISTED IN SEEDING SPECIFICATIONS USING EITHER BROADCAST SEEDER, HAND SEEDING OR DRILL SEEDER METHOD. FOLLOW BY ROLLING OR TRACKING THE AREA TO ACHIEVE GOOD SEED-TO-SOIL CONTACT. DO NOT ROLL OR TRACK THE SEED IF THE SOIL IS WET,
9. COVER SEEDED AREA WITH MULCH OR COMPOST AS SPECIFIED.
10. AT END OF CONSTRUCTION, CAREFULLY REMOVE ANY ACCUMULATED SEDIMENT FROM AREA, MOW SHORT, INSTALL NATURAL SEED AND 1-2" COMPOST OVER PERMANENT TURF REINFORCEMENT MAT AND STABILIZE WITH SECOND LAYER OF NAG S75 OR EQUAL.

ADDITIONAL NOTES:

1. ALL CONSTRUCTION ACTIVITIES FOR THE BMP AREAS SHALL OCCUR WITHIN A SHORT TIME PERIOD TO ENSURE THAT SILT AND SEDIMENT DO NOT ENTER THEM.
2. APPROPRIATE MEASURES ARE TO BE TAKEN IN THE EVENT OF SEDIMENT ENTERING AND CLOGGING THE BMP AREAS. SHOULD UNFAVORABLE CONDITIONS (i.e. GROUNDWATER AND/OR BEDROCK, ETC.) BE ENCOUNTERED DURING THE CONSTRUCTION PROCESS OF THE BMP AREAS, THE DESIGN ENGINEER SHALL BE CONTACTED TO ADDRESS SUCH ISSUES.
3. IF INSPECTION INDICATES THAT SOIL OR SEDIMENT HAS ENTERED ANY OF THE BMP AREAS, APPROPRIATE MEASURES (I.E. CLEARING THE SOIL SEDIMENT FROM BMP AREAS) SHALL BE ADDRESSED.
4. THE BMP AREAS SHALL BE CONSTRUCTED AS FOLLOWS:
   - 4.1. EXCAVATE SOIL TO 3-FT BELOW EXISTING GRADE, PLACING SOIL IN A STOCKPILE.
   - 4.2. INSTALL STONE BED. INSTALL 6" UNDERDRAIN ON STONE BED THEN BEGIN FILLING WITH MEDIA UNTIL FINAL SURFACE ELEVATION IS ACHIEVED. NO COMPACTION OF THE FILTER MEDIA SHALL OCCUR. FILTER MEDIA SHALL CONSIST OF 1/3 DOUBLE SHREDDED HARDWOOD MULCH, 1/3 COMPOST AND 1/3 SAND
   - 4.3. CONSTRUCT BERM/SPILLWAY AS SHOWN ON PLANS AND DETAIL.
   - 4.4. INSTALL PERMANENT VEGETATION AND IMMEDIATELY STABILIZE WITH TEMPORARY STABILIZATION.

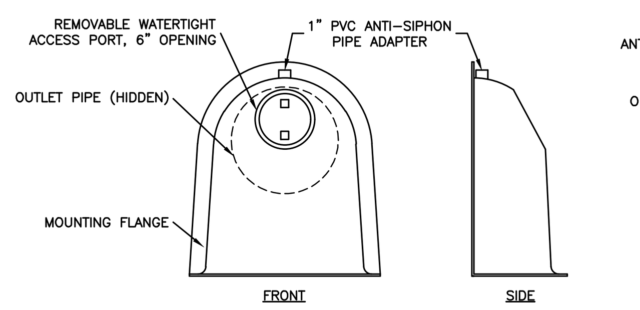
BMP SPECIFICATIONS

BMP 6.7.3 SOIL AMENDMENT:

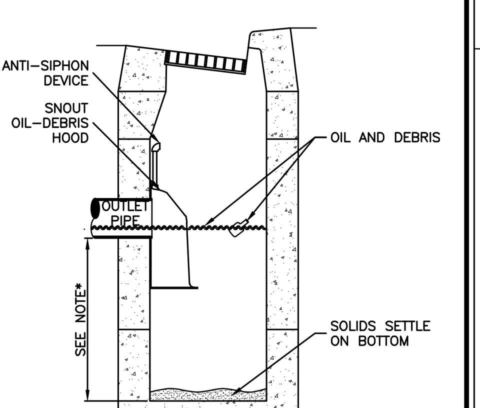
1. SCOPE
   - A. THIS SPECIFICATION COVERS THE USE OF COMPOST FOR SOIL AMENDMENT AND THE MECHANICAL RESTORATION OF COMPACTED, ERODED AND NON-VEGETATED SOILS. SOIL AMENDMENT AND RESTORATION IS NECESSARY WHERE EXISTING SOIL HAS BEEN DEEMED UNHEALTHY IN ORDER TO RESTORE SOIL STRUCTURE AND FUNCTION, INCREASE INFILTRATION POTENTIAL AND SUPPORT HEALTHY VEGETATIVE COMMUNITIES.
   - B. SOIL AMENDMENT PREVENTS AND CONTROLS EROSION BY ENHANCING THE SOIL SURFACE TO PREVENT THE INITIAL DETACHMENT AND TRANSPORT OF SOIL PARTICLES.
2. COMPOST MATERIALS
   - A. COMPOST PRODUCTS SPECIFIED FOR USE IN THIS APPLICATION ARE DESCRIBED IN TABLE 1. THE PRODUCT'S PARAMETERS WILL VARY BASED ON WHETHER VEGETATION WILL BE ESTABLISHED ON THE TREATED SLOPE.
   - B. ONLY COMPOST PRODUCTS THAT MEET ALL APPLICABLE STATE AND FEDERAL REGULATIONS PERTAINING TO ITS PRODUCTION AND DISTRIBUTION MAY BE USED IN THIS APPLICATION. APPROVED COMPOST PRODUCTS MUST MEET RELATED STATE AND FEDERAL CHEMICAL CONTAMINANT (E.G., HEAVY METALS, PESTICIDES, ETC.) AND PATHOGEN LIMIT STANDARDS PERTAINING TO THE FEEDSTOCKS (SOURCE MATERIALS) IN WHICH IT IS DERIVED.
   - C. VERY COARSE COMPOST SHOULD BE AVOIDED FOR SOIL AMENDMENT AS IT WILL MAKE PLANTING AND CROP ESTABLISHMENT MORE DIFFICULT.
   - D. NOTE 1 – SPECIFYING THE USE OF COMPOST PRODUCTS THAT ARE CERTIFIED BY THE U.S. COMPOSTING COUNCIL'S SEAL OF TESTING (STA) PROGRAM (WWW.COMPOSTINGCOUNCIL.ORG) WILL ALLOW FOR THE ACQUISITION OF PRODUCTS THAT ARE ANALYZED ON A ROUTINE BASIS, USING THE SPECIFIED TEST METHODS. STA PARTICIPANTS ARE ALSO REQUIRED TO PROVIDE A STANDARD PRODUCT LABEL TO ALL CUSTOMERS, ALLOWING EASY COMPARISON TO OTHER PRODUCTS.
3. SUB-SOILING TO RELIEVE COMPACTION
   - A. BEFORE THE TIME THE COMPOST IS PLACED AND PREFERABLY WHEN EXCAVATION IS COMPLETED, THE SUBSOIL SHALL BE IN A LOOSE, FRIABLE CONDITION TO A DEPTH OF 20 INCHES BELOW FINAL TOPSOIL GRADE AND THERE SHALL BE NO EROSION RILLS OR WASHOUTS IN THE SUBSOIL SURFACE EXCEEDING 3 INCHES IN DEPTH.
   - B. TO ACHIEVE THIS CONDITION, SUBSOILING, RIPPING, OR SCARIFICATION OF THE SUBSOIL WILL BE REQUIRED AS DIRECTED BY THE OWNERS S REPRESENTATIVE, WHEREVER THE SUBSOIL HAS BEEN COMPACTED BY EQUIPMENT OPERATION OR HAS BECOME DRIED OUT AND CRUSTED, AND WHERE NECESSARY TO OBLITERATE EROSION RILLS. SUB-SOILING SHALL BE REQUIRED TO REDUCE SOIL COMPACTION IN ALL AREAS WHERE PLANT ESTABLISHMENT IS PLANNED. SUB-SOILING SHALL BE PERFORMED BY THE PRIME OR EXCAVATING CONTRACTOR AND SHALL OCCUR BEFORE COMPOST PLACEMENT.
   - C. SUBSOILED AREAS SHALL BE LOOSENED TO LESS THAN 1400 KPA (200 PSI) TO A DEPTH OF 20 INCHES BELOW FINAL TOPSOIL GRADE. WHEN DIRECTED BY THE OWNER'S REPRESENTATIVE, THE CONTRACTOR SHALL VERIFY THAT THE SUB-SOILING WORK CONFORMS TO THE SPECIFIED DEPTH.
   - D. SUB-SOILING SHALL FORM A TWO-DIRECTIONAL GRID. CHANNELS SHALL BE CREATED BY A COMMERCIALLY AVAILABLE, MULTI-SHANKED, PARALLELOGRAM IMPLEMENT (SOLID-SHANK RIPPER). THE EQUIPMENT SHALL BE CAPABLE OF EXERTING A PENETRATION FORCE NECESSARY FOR THE SITE. NO DISC CULTIVATORS CHISEL PLOWS, OR SPRING-LOADED EQUIPMENT WILL BE ALLOWED. THE GRID CHANNELS SHALL BE SPACED A MINIMUM OF 12 INCHES TO A MAXIMUM OF 36 INCHES APART, DEPENDING ON EQUIPMENT, SITE CONDITIONS, AND THE SOIL MANAGEMENT PLAN. THE CHANNEL DEPTH SHALL BE A MINIMUM OF 20 INCHES OR AS SPECIFIED IN THE SOIL MANAGEMENT PLAN. IF SOILS ARE SATURATED, THE CONTRACTOR SHALL DELAY OPERATIONS UNTIL THE SOIL WILL NOT HOLD A BALL WHEN SQUEEZED. ONLY ONE PASS SHALL BE PERFORMED ON ERODIBLE SLOPES GREATER THAN 1 VERTICAL TO 3 HORIZONTAL. WHEN ONLY ONE PASS IS USED, WORK SHOULD BE AT RIGHT ANGLES TO THE DIRECTION OF SURFACE DRAINAGE, WHENEVER PRACTICAL.
   - E. EXCEPTIONS TO SUB-SOILING INCLUDE AREAS WITHIN THE DRIP LINE OF ANY EXISTING TREES, OVER UTILITY INSTALLATIONS WITHIN 30 INCHES OF THE SURFACE, WHERE TRENCHING/DRAINAGE LINES ARE INSTALLED, WHERE COMPACTION IS BY DESIGN (ABUTMENTS, FOOTINGS, OR IN SLOPES), AND ON INACCESSIBLE SLOPES, AS APPROVED BY THE OWNER'S REPRESENTATIVE. IN CASES WHERE EXCEPTIONS OCCUR, THE CONTRACTOR SHALL OBSERVE A MINIMUM SETBACK OF 20 FEET OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. ARCHEOLOGICAL CLEARANCES MAY BE REQUIRED IN SOME INSTANCES.

RECYCLING OR DISPOSAL METHODS

1. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTE IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENT AGENCY CURRENT REGULATIONS INCLUDING BUT NOT LIMITED TO: THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.
2. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED, OR OTHERWISE INDICATED TO REMAIN ON THE PROPERTY, DEMOLISHED OR EXCAVATED MATERIALS SHALL BE REMOVED FROM THE SITE. MATERIALS SLATED FOR REMOVAL FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENTAL AGENCY CURRENT REGULATIONS.
3. DEBRIS SHALL NOT BE PERMITTED TO ACCUMULATE ON THE JOB-SITE. DUST AND DIRT SHALL BE HELD TO A MINIMUM DURING DEMOLITION, BY WETTING DOWN, AS REQUIRED. ON SITE BURNING OF MATERIALS WILL NOT BE PERMITTED. AT THE COMPLETION OF WORK, THE ENTIRE AREA INVOLVED SHALL BE CLEAN AND LEFT IN A NEAT CONDITION, FREE OF RUBBISH AND DEBRIS.
4. RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THIS PROJECT SITE SHALL BE UNDERTAKEN IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION RULES AND REGULATIONS.
5. SEDIMENT REMOVED FROM CONTROL FACILITIES AS A PART OF REGULAR MAINTENANCE SHALL BE DISPOSED OF UPSLOPE OF CONTROL FACILITIES IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
6. REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.



SNOUT OIL-WATER-DEBRIS SEPARATOR

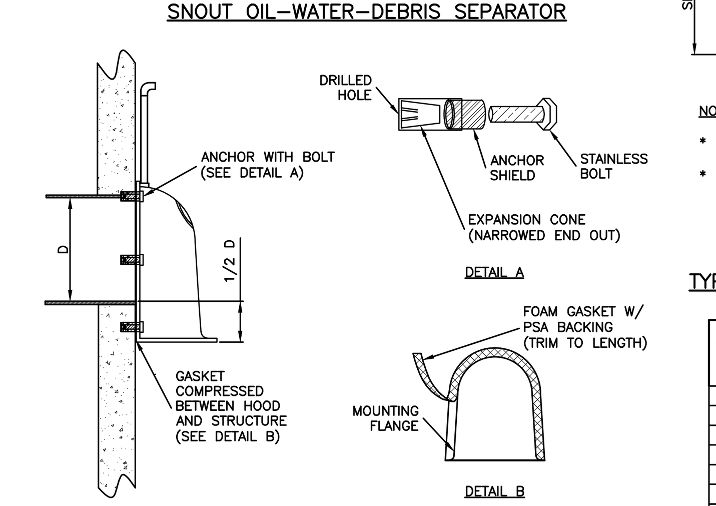


NOTES:

* SUMP DEPTH OF 36" MIN. FOR <OR=12" DIA. OUTLET.
* FOR OUTLETS >OR=15", DEPTH=2.5 TIMES DIA.

TYPICAL INSTALLATION

STRUCTURE NUMBER	SNOUT SIZE
IN#11	72F
IN#14	30F
IN#19	30F
IN#29	36F
IN#34	72F
IN#52	24F
IN#60	30F
IN#69	36F
IN#74	24F
IN#78	24F
IN#81	30F
IN#91	24F
IN#92	24F
IN#106	30F
MH#26	18R
MH#140	52RTB
JB#57.2	24F



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".

INSTALLATION DETAIL

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.
   LYME, CT 06371
   (860)434-0277, (860)434-3195 FAX
   TOLL FREE: (800)504-8008 OR (888)354-7585
   WEB SITE: www.bmpinc.com
   OR PRE-APPROVED EQUAL.
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 AN 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 BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
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 WITH MANUFACTURER SUPPLIED INSTALLATION KIT. INSTALLATION KIT SHALL INCLUDE:
    - A. INSTALLATION INSTRUCTIONS
    - B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
    - C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
    - D. 3/8" STAINLESS STEEL BOLTS
    - E. ANCHOR SHIELDS
10. 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

BMP, INC.

SBMP 6.6.4 SNOUT OIL-WATER-DEBRIS SEPARATOR INSTALLATION

NOT TO SCALE

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania811
PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 STOP – CALL BEFORE YOU DIG

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.: -

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN NOTES AND DETAILS

T AND M
YOUR GOALS. OUR MISSION.
1700 MARKET ST., SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459
www.tandmassociates.com
OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	PCSM-D1
SHEET	29 OF 37

PROJECT INFORMATION:
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LAST SAVED DATE AND TIME: 17 Apr 2020, 3:17PM
LAST SAVE BY: DMattson

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GENERAL EROSION & SEDIMENT CONTROL PROCEDURES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN PREPARED BY T&M ASSOCIATES. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST SEVEN (7) DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS INCLUDING TOWNSHIP ENGINEER, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE OF THE BUCKS COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST THREE (3) DAYS PRIOR TO THE START OF ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS UNLESS REQUIRED TO MINIMIZE DISTURBANCE.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN IN THE AMOUNTS NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND RECYCLED OR DISPOSED IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THIS SITE.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CERTIFIED CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.
14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM THE CONSTRUCTION SITE ONTO ANY PUBLIC ROAD. VEHICLES AND EQUIPMENT MAY ENTER AND EXIT THE CONSTRUCTION SITE ONLY VIA A STABILIZED ROCK CONSTRUCTION ENTRANCE.
15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. THE CONTRACTOR WILL MAINTAIN AND MAKE AVAILABLE TO BUCKS COUNTY CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
17. SEDIMENT TRACKED ONTO ANY ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND AS NEEDED THROUGHOUT THE WORKDAY OR AS DIRECTED BY CONSERVATION DISTRICT OR MUNICIPALITY AND DISPOSED AS A MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN A MANNER DESCRIBED ON PLAN DRAWINGS. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
19. UPON FINAL GRADING, AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM FOUR (4) INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 4 INCHES OF TOPSOIL.
20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
23. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
24. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
25. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
26. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT AND UPON RECEIPT OF CLEAN TEST SAMPLES, THE OPERATOR SHALL STABILIZE THOSE AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH OR OTHER PROTECTIVE BLANKETING SHALL BE APPLIED AT THE RECOMMENDED RATES AND METHODS. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN 1 YEAR SHALL BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY SEEDING MIXTURE AND MULCH. DISTURBED AREAS, WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE RE-DISTURBED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
27. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
28. EROSION AND SEDIMENT CONTROLS (BMP'S) MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE GENERAL SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE CONTROLS. EROSION AND SEDIMENT BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
29. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS. TEMPORARY CONTROLS MAY BE REMOVED ONLY UPON APPROVAL OF THE BUCKS COUNTY CONSERVATION DISTRICT.
30. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE CONTROLS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVALS/CONVERSIONS ARE TO BE DONE ONLY DURING GERMINATING SEASON.
31. FAILURE TO CORRECTLY INSTALL SEDIMENT CONTROL FACILITIES OR FAILURE TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTIONS TO RESOLVE FAILURES OF SEDIMENT CONTROL FACILITIES MAY RESULT IN ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION AS DEFINED IN SECTION 602 OF THE CLEAN STREAMS LAW OF PENNSYLVANIA. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
32. IN THE EVENT OF SINKHOLE DISCOVERY OR OCCURRENCE, A PROFESSIONAL GEOLOGIST OR ENGINEER SHALL BE CONTACTED CONCERNING MITIGATION. ADDITIONAL, THE BUCKS COUNTY CONSERVATION DISTRICT SHALL BE IMMEDIATELY MADE AWARE OF THE SINKHOLE DISCOVERY.
33. THE CONTRACTOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.
34. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.
35. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.
36. THE OPERATOR / PERMITTEE SHALL BE RESPONSIBLE FOR THE PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROLS (BMPS) AND RELATED ITEMS INCLUDED WITHIN THIS PLAN AND NARRATIVE.
40. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE CONTRACTOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE DELAWARE COUNTY CONSERVATION DISTRICT.
41. THE CONTRACTOR SHALL NOTIFY THE BUCKS COUNTY CONSERVATION DISTRICT PRIOR TO ANY CESSATION IN EARTHMOVING ACTIVITIES OF MORE THAN TWENTY (20) DAYS.
42. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE APPLICABLE COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
43. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER.
44. HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE.
45. CLEAN FILL AND TOPSOIL STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
46. SEDIMENT MUST BE REMOVED FROM STORM WATER INLET PROTECTION AFTER EACH RUNOFF EVENT.
47. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER, WITHIN 50 FEET OF A SURFACE WATER, AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
48. ALL VEGETATED AREAS IN UNDISTURBED SECTIONS WILL REMAIN FOR EROSION PROTECTION. CONTRACTORS AND EQUIPMENT WILL BE RESTRAINED FROM VENTURING INTO ALL AREAS NOT BEING GRADED. DISTURBED AREAS WILL REMAIN EXPOSED FOR THE SHORTEST TIME POSSIBLE.
49. METHODS FOR CONTROLLING DUST AND OTHER CONSTRUCTION-RELATED AIRBORNE MATERIALS SHALL BE EVALUATED BY THE CONTRACTOR FOR APPLICABILITY IN PREPARING A DUST CONTROL PLAN. THE METHOD(S) SELECTED IN DUST CONTROL PLAN SHALL BE BASED UPON PROJECT PARAMETERS, INCLUDING THE PROXIMITY TO OCCUPANTS OF NEARBY BUILDINGS, WITH THE HIGHEST LEVEL RESERVED FOR PARTICULARLY SENSITIVE POPULATIONS (E.G., PATIENT CARE AREAS, ESPECIALLY THOSE WITH IMMUNO-SUPPRESSED OR COMPROMISED CONDITIONS). CONTRACTORS SHALL MANAGE DUST THAT MAY CONTAIN HAZARDOUS MATERIALS WITH ADDITIONAL CARE TO MEET ALL APPLICABLE LAW AND INDUSTRY STANDARDS AND TO AVOID CONTAMINATION OF PERSONS OR PROPERTY.
50. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS HAS BEEN ACHIEVED ACROSS THE UPSLOPE AREAS.
52. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, WITH THE EXCEPTION OF REMEDIATION AREAS WITH PENDING TEST SAMPLE RESULTS, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION. (PLEASE NOTE THAT HYDROSEED IS NOT CONSIDERED STABILIZATION UNTIL IT GERMINATES). HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE.

RESPONSIBILITIES FOR FILL MATERIALS

1. THE OPERATOR MUST USE ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT ANY NECESSARY FILL MATERIAL ASSOCIATED WITH THIS PROJECT QUALIFIES AS CLEAN FILL. ALL FILL MATERIAL MUST BE USED IN ACCORDANCE WITH PADEP'S POLICY "MANAGEMENT OF FILL", DOCUMENT NUMBER 258-2182-773. A COPY OF THIS POLICY IS AVAILABLE ONLINE AT WWW.DEPWEB.STATE.PA.US.
2. CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSED, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM THE WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE).
3. CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN PADEP'S POLICY "MANAGEMENT OF FILL"
4. ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE PADEP FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL. A COPY OF FORM FP-001 CAN BE FOUND AT WWW.DEPWEB.STATE.PA.US.
5. ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREEN, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS.
6. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF PADEP'S POLICY "MANAGEMENT OF FILL".
7. FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE MUNICIPAL OR RESIDUAL WASTE REGULATIONS IN 25 PA CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE.
8. ALL FILLS SHALL BE COMPACTED SUFFICIENTLY FOR THEIR INTENDED PURPOSE AND AS REQUIRED TO REDUCE SUPPING, EROSION OR EXCESS SATURATION.
9. REFER TO SITE / RECORD PLAN FOR ADDITIONAL NOTES.

RECYCLING OR DISPOSAL METHODS

1. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTE IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENT AGENCY CURRENT REGULATIONS INCLUDING BUT NOT LIMITED TO: THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.
2. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED, OR OTHERWISE INDICATED TO REMAIN ON THE PROPERTY, DEMOLISHED OR EXCAVATED MATERIALS SHALL BE REMOVED FROM THE SITE. MATERIALS SLATED FOR REMOVAL FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENTAL AGENCY CURRENT REGULATIONS.
3. DEBRIS SHALL NOT BE PERMITTED TO ACCUMULATE ON THE JOB-SITE. DUST AND DIRT SHALL BE HELD TO A MINIMUM DURING DEMOLITION, BY WETTING DOWN, AS REQUIRED. ON SITE BURNING OF MATERIALS WILL NOT BE PERMITTED. AT THE COMPLETION OF WORK, THE ENTIRE AREA INVOLVED SHALL BE CLEAN AND LEFT IN A NEAT CONDITION, FREE OF RUBBISH AND DEBRIS.
4. RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THIS PROJECT SITE SHALL BE UNDERTAKEN IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION RULES AND REGULATIONS.
5. SEDIMENT REMOVED FROM CONTROL FACILITIES AS A PART OF REGULAR MAINTENANCE SHALL BE DISPOSED OF UPSLOPE OF CONTROL FACILITIES IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
6. REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.

UTILITY TRENCH EXCAVATION/DISTURBANCE GUIDELINES

1. LIMIT ADVANCED CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE (1) DAY.
2. LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY. DAILY BACKFILLING MAY BE DELAYED A MAXIMUM OF SIX (6 DAYS IF PRESSURE TESTING IS REQUIRED.
3. WATER WHICH ACCUMULATES IN THE OPEN TRENCH SHALL BE COMPLETELY REMOVED BY PUMPING BEFORE PIPE PLACEMENT AND / OR BACKFILLING BEGINS. WATER REMOVED FROM THE TRENCH SHALL BE PUMPED THROUGH A FILTRATION DEVICE SUCH AS A PUMPED WATER FILTER BAG.
4. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA SHALL BE GRADED TO FINAL CONTOURS.
5. SEE SPECIFICATIONS AND DETAILS FOR BACKFILLING AND COMPACTION REQUIREMENTS IN UTILITY TRENCH. ALL FILL, COMPACTION, AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION SHALL BE AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND SHALL BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS.
6. THE CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF OSHA DIRECTIVES, OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE "MEANS AND METHODS" REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES.
7. SEEDING AND MULCHING OF ALL DISTURBED AREAS SHALL BE DONE WITHIN TWO (2) CALENDAR DAYS.

MAINTENANCE OF EROSION CONTROL FACILITIES

1. THE OPERATOR SHALL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION, STABILIZATION AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROLS AND RELATED ITEMS INCLUDED WITHIN THE PLAN HEREWITH. THE CONTRACTOR SHALL SCHEDULE AND CONDUCT HIS OPERATIONS TO MINIMIZE EROSION OF SOILS AND TO PREVENT SILTING AND MUDDYING OF STREAMS, RIVERS AND DRAINAGE SYSTEMS.
2. EROSION AND SEDIMENTATION POLLUTION CONTROL SPECIALISTS' CONTACTS:
   BUCKS COUNTY CONSERVATION DISTRICT: (215) 345-7577
   PADEP SOUTHEAST REGIONAL OFFICE: (484) 250-5900
3. ALL EROSION AND SEDIMENTATION POLLUTION CONTROL MEASURES MUST REMAIN IN PLACE UNTIL THE SITE IS STABILIZED, REGARDLESS IF CONSTRUCTION IS TAKING PLACE OR NOT.
4. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT POLLUTION CONTROLS (BMPS) MUST BE PROPERLY MAINTAINED. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT CONTROLS OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
5. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
6. SEEDED AREAS THAT WASH OUT MUST BE FILLED AND GRADED AS NECESSARY, AND THEN RESEEDED, AN ANCHORING METHOD SHOULD THEN BE USED TO HOLD SEED AND MULCH IN PLACE; THIS IS ESPECIALLY IMPORTANT AROUND WATER COURSES, IN SWALES, AND AREAS OF CONCENTRATED FLOWS, AND ON SLOPES.
7. IN THE EVENT OWNERS OF THE PROPERTY OR THE OPERATOR FAILS TO PROPERLY MAINTAIN THE CONTROL FACILITIES, THE TOWNSHIP SHALL HAVE THE RIGHT TO ENTER SAID AREA AND PERFORM THE REQUIRED MAINTENANCE AFTER PROPER NOTIFICATION OF THE OWNERS.
8. IN THE EVENT THAT THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE BUCKS COUNTY CONSERVATION DISTRICT, THE MUNICIPALITY OR THE DESIGN ENGINEER OR THEIR AGENTS DEEM THAT ADDITIONAL CONTROLS, MEASURES OR PROCEDURES BEYOND THOSE SHOWN OR DESCRIBED ARE NECESSARY TO CONTROL OR CORRECT CONDITIONS WHICH WERE UNFORESEEN DURING THE DESIGN STAGE, THE CONTRACTOR SHALL BE RESPONSIBLE TO IMPLEMENT ADDITIONAL CONTROLS, MEASURES OR PROCEDURES AS IS DEEMED REASONABLY NECESSARY AND WARRANTED.
9. NO SEDIMENT, STONES OR DEBRIS SHALL BE TRACKED ON TO SURROUNDING ROADS. ANY SEDIMENT THAT IS TRACKED ONTO THE SURROUNDING ROADS MUST BE CLEANED OFF BEFORE THE END OF THE DAY UTILIZING MECHANICAL METHODS OR VIA HAND SWEEPING TO THE SATISFACTION OF THE DELAWARE COUNTY CONSERVATION DISTRICT AND TOWNSHIP ENGINEER.
10. ANY FILTER FABRIC FENCE, WHICH HAS BEEN UNDERMINED OR TOPPED, MUST BE REPLACED IMMEDIATELY WITH ROCK FILTER OUTLETS.
11. ANY SOIL BORROW OR SPOIL SITES, ON OR OFFSITE SHALL HAVE AN APPROVED AND IMPLEMENTED EROSION CONTROL PLAN BY THE DELAWARE COUNTY CONSERVATION DISTRICT. TRANSPORTATION OF ANY EXCESS MATERIALS SHALL BE SUCH THAT SPILLAGE, TRACKING OFF SITE AND OTHER DISTURBANCES ARE KEPT TO A MINIMUM.
12. THE CONTRACTOR SHALL PERIODICALLY AND ESPECIALLY AFTER HEAVY RAINFALL, INSPECT ALL CONTROL FACILITIES FOR PROPER FUNCTION. FACILITIES SHALL BE REPAIRED IF DAMAGES OR MALFUNCTIONING OR REPLACED AS NECESSARY. MAINTENANCE OF ALL CONTROL FACILITIES SHALL CONTINUE UNTIL THE ENTIRE AREA TRIBUTARY TO THE FACILITY IS STABILIZED.
13. THE DELAWARE COUNTY CONSERVATION DISTRICT MUST BE CONTACTED PRIOR TO REMOVAL OF ANY EROSION AND SEDIMENTATION CONTROL DEVICE SUCH AS FILTER FABRIC FENCES, ROCK FILTERS, INLET PROTECTION, TEMPORARY CHANNELS, ETC. TEMPORARY CONTROLS MAY BE REMOVED ONLY AFTER A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION HAS BEEN ACHIEVED ACROSS THE UPSLOPE AREAS.

MONITORING, INSPECTION, AND REPORTING REQUIREMENTS

VISUAL INSPECTIONS

THE PERMITTEE AND CO-PERMITTEE(S) MUST ENSURE THAT VISUAL SITE INSPECTIONS ARE CONDUCTED WEEKLY, AND WITHIN 24 HOURS AFTER EACH MEASURABLE RAINFALL EVENT THROUGHOUT THE DURATION OF CONSTRUCTION AND UNTIL THE RECEIPT AND ACKNOWLEDGEMENT OF THE NOTICE OF TERMINATION (NOT) BY THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT. THE VISUAL SITE INSPECTIONS AND REPORTS SHALL BE COMPLETED IN A FORMAT PROVIDED BY THE DEPARTMENT, AND CONDUCTED BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL, TO ASCERTAIN THAT E&S BMPS AND PCSM BMPS ARE PROPERLY CONSTRUCTED AND MAINTAINED TO EFFECTIVELY MINIMIZE POLLUTION TO THE WATERS OF THIS COMMONWEALTH. A WRITTEN REPORT OF EACH INSPECTION SHALL BE KEPT AND INCLUDE AT A MINIMUM:

1) A SUMMARY OF SITE CONDITIONS, E&S BMP AND PCSM BMP, IMPLEMENTATION AND MAINTENANCE AND COMPLIANCE ACTIONS; AND
2) THE DATE, TIME, NAME AND SIGNATURE OF THE PERSON CONDUCTING THE INSPECTION.

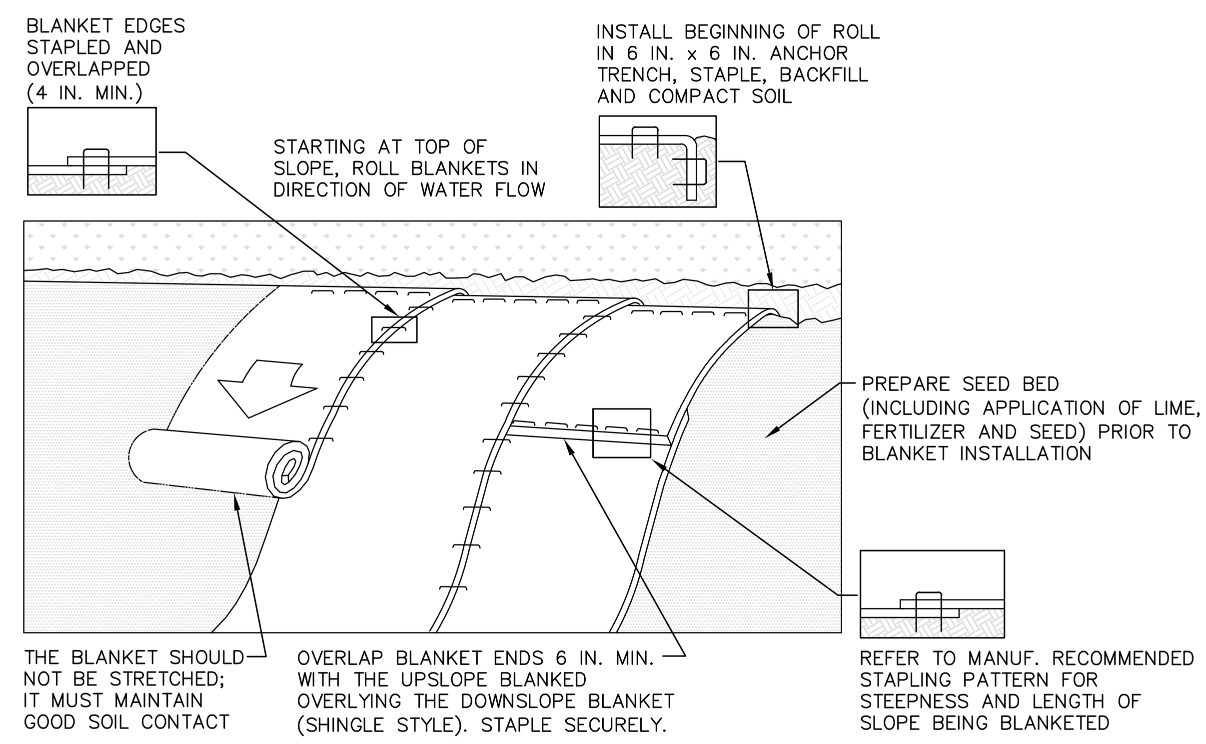
NONCOMPLIANCE REPORTING

WHERE E&S, PCSM OR PPC BMPS ARE FOUND TO BE INOPERATIVE OR INEFFECTIVE DURING AN INSPECTION, OR ANY OTHER TIME, THE PERMITTEE AND CO-PERMITTEE(S) SHALL, WITHIN 24 HOURS, CONTACT THE DEPARTMENT OR AUTHORIZED CONSERVATION DISTRICT, BY PHONE OR PERSONAL CONTACT, FOLLOWED BY THE SUBMISSION OF A WRITTEN REPORT WITHIN 5 DAYS OF THE INITIAL CONTACT. NONCOMPLIANCE REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:

1) ANY CONDITION ON THE PROJECT SITE WHICH MAY ENDANGER PUBLIC HEALTH, SAFETY, OR THE ENVIRONMENT, OR INVOLVE INCIDENTS WHICH CAUSE OR THREATEN POLLUTION;
2) THE PERIOD OF NONCOMPLIANCE, INCLUDING THE EXACT DATES AND TIMES AND/OR ANTICIPATED TIME WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE;
3) STEPS BEING TAKEN TO REDUCE, ELIMINATE, AND PREVENT RECURRENCE OF THE NONCOMPLIANCE; AND
4) THE DATE OR SCHEDULE OF DATES, AND IDENTIFYING REMEDIES FOR CORRECTING NONCOMPLIANCE CONDITIONS.

REDUCTION, LOSS, OR FAILURE OF THE BMPS

UPON REDUCTION, LOSS, OR FAILURE OF THE BMPS, THE PERMITTEE AND CO-PERMITTEE(S) SHALL TAKE IMMEDIATE ACTION TO RESTORE THE BMPS OR PROVIDE AN ALTERNATE METHOD OF TREATMENT. SUCH RESTORED BMPS OR ALTERNATE TREATMENT SHALL BE AT LEAST AS EFFECTIVE AS THE ORIGINAL BMPS.



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

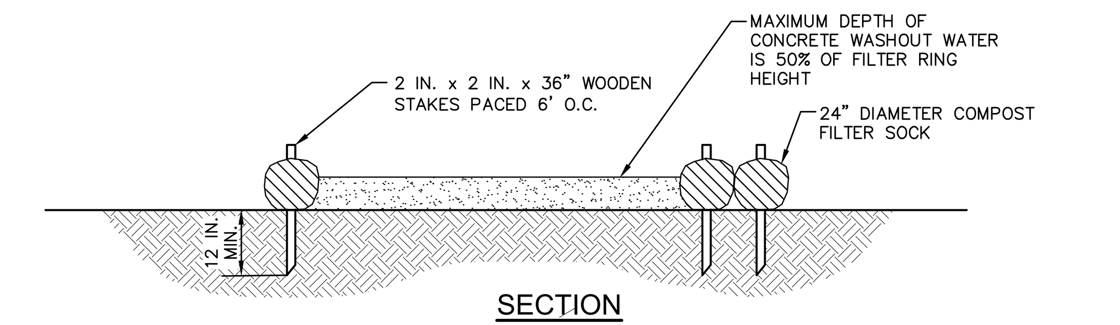
BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

STANDARD CONSTRUCTION DETAIL #11-1
EROSION CONTROL BLANKET INSTALLATION

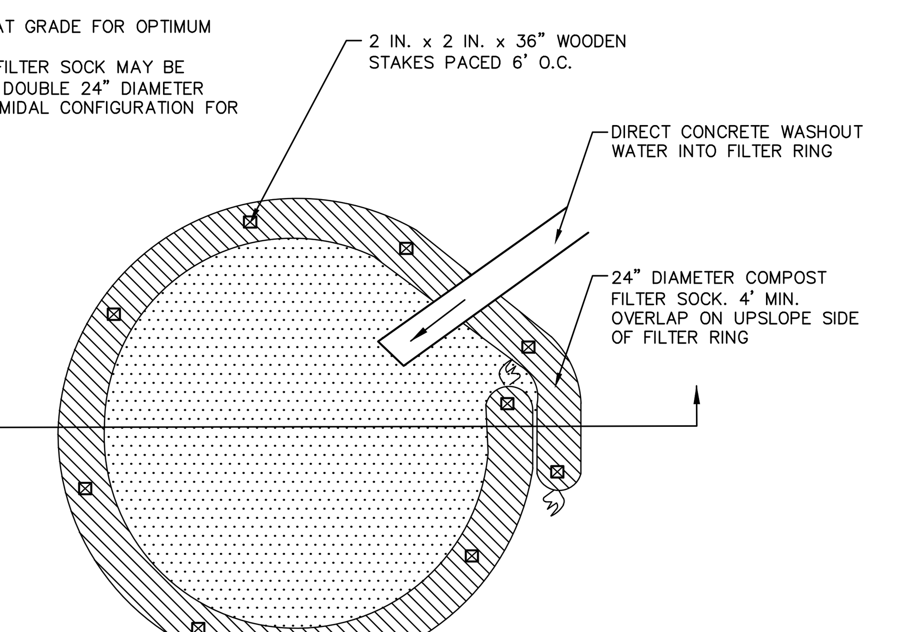
NOT TO SCALE



SECTION

NOTES:

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



PLAN VIEW

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

MAINTENANCE

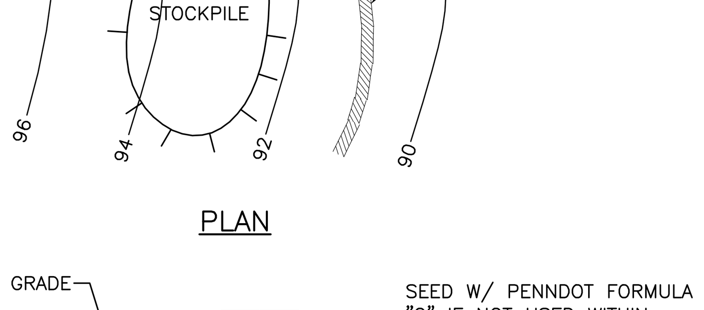
ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY.

ACCUMULATED MATERIAL SHOULD BE REMOVED WHEN THEY REACH 75% CAPACITY.

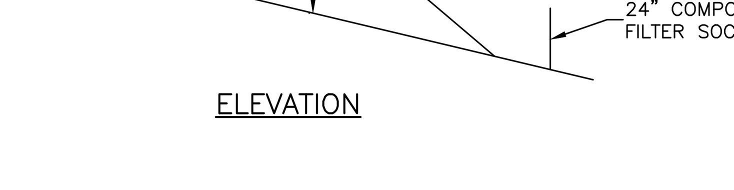
PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.

TYPICAL COMPOST SOCK
CONCRETE WASHOUT INSTALLATION

NOT TO SCALE



PLAN



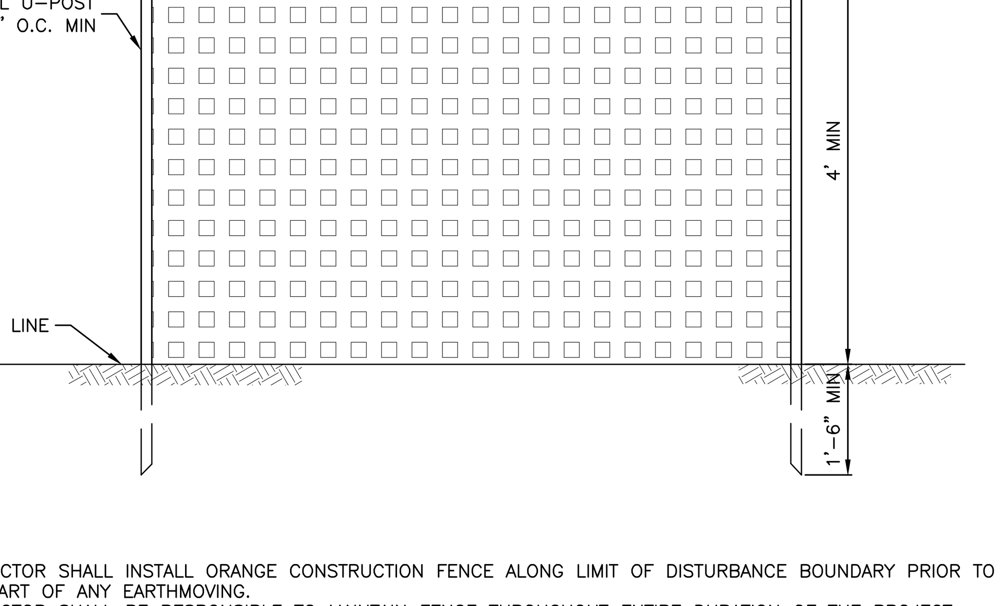
ELEVATION

NOTES:

1. INSTALL COMPOST FILTER 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. SEED IMMEDIATELY WITH PENNDOT SEEDING FORMULA "C" IF MATERIAL IS NOT TO BE USED WITHIN 20 DAYS. FOLLOW "SEEDING, FERTILIZATION SCHEDULE & SPECIFICATIONS."

TOPSOIL STOCKPILE AND MAINTENANCE

NOT TO SCALE



NOTES:

1. CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCE ALONG LIMIT OF DISTURBANCE BOUNDARY PRIOR TO THE START OF ANY EARTHMOVING.
2. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN FENCE THROUGHOUT ENTIRE DURATION OF THE PROJECT.

ORANGE CONSTRUCTION FENCE

NOT TO SCALE

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania811

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SERIAL NO.:
-

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SOIL EROSION AND SEDIMENT CONTROL DETAILS

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DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	E&S-D1

PROJECT INFORMATION:
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FILE NAME: CRST00009_SHT027_CSD.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 3:17PM
LAST SAVE BY: DMattson

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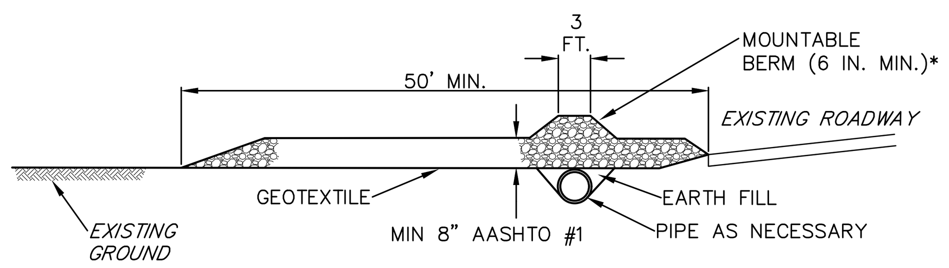

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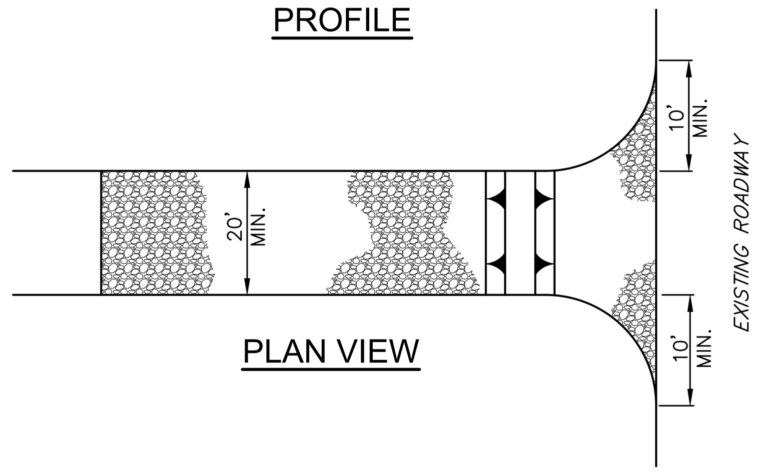


PLAN VIEW

* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

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

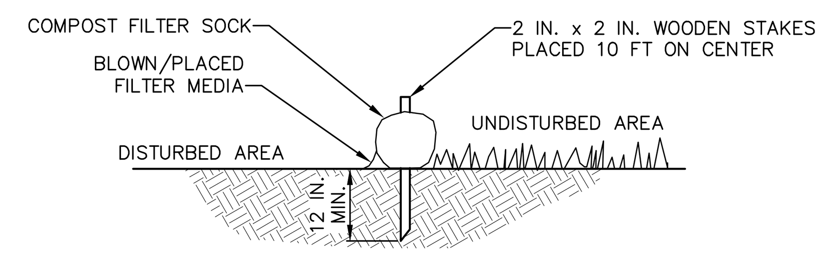
RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

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

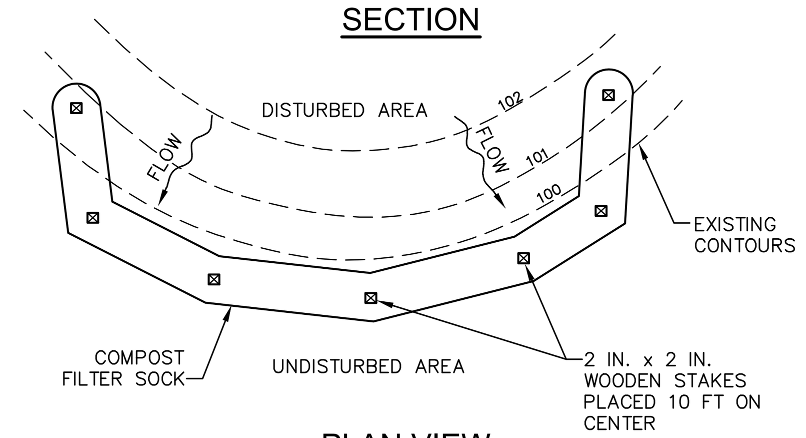
MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 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.

STANDARD CONSTRUCTION DETAIL #3-1
ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



SECTION



PLAN VIEW

NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

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.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

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.

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

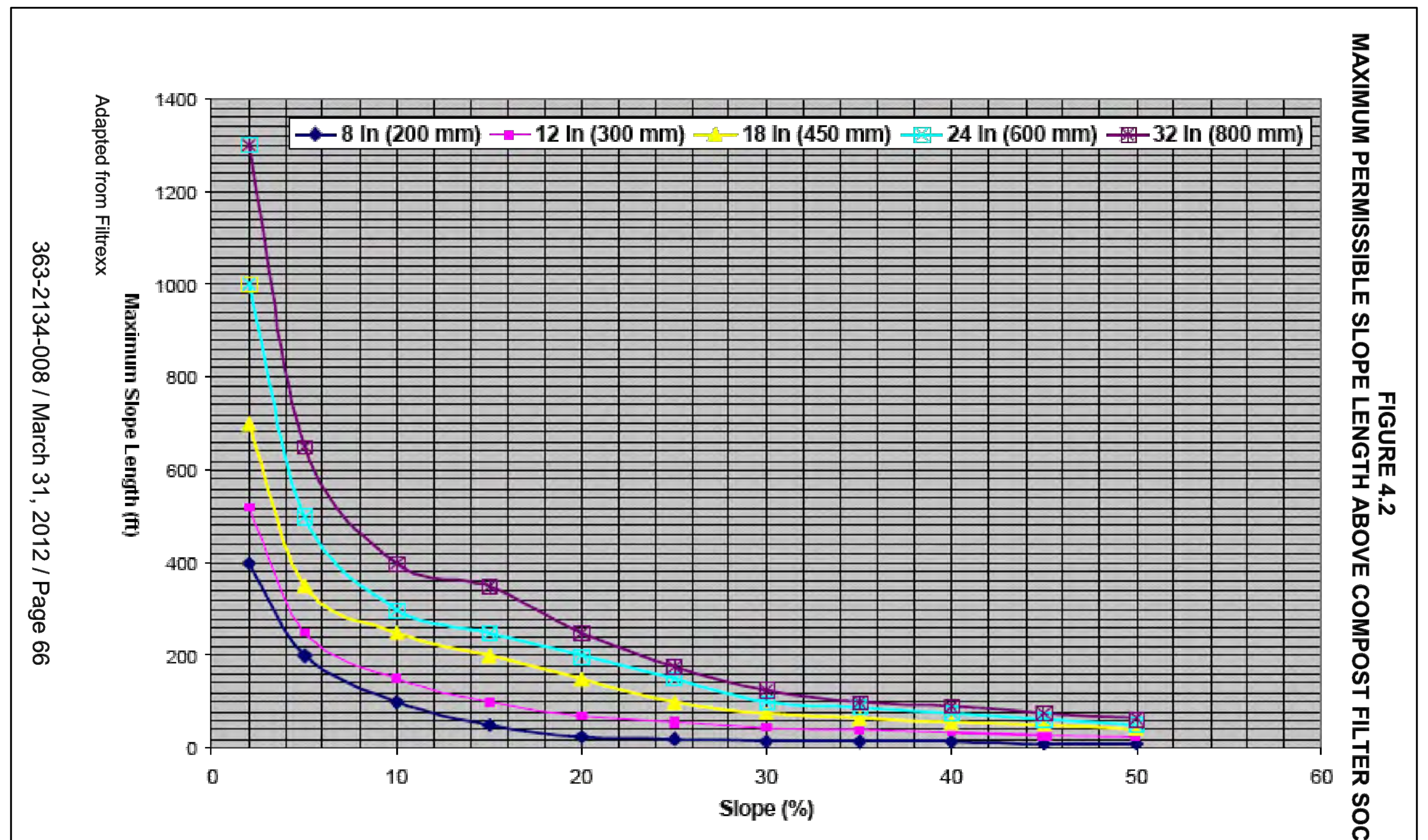
BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

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

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK

NOT TO SCALE

FIGURE 4.2
MAXIMUM PERMISSIBLE SLOPE LENGTH ABOVE COMPOST FILTER SOCKS



Adapted from Filtrexx
363-2134-008 / March 31, 2012 / Page 66

NOTE: 8" diameter socks should only be used to control small (≤ ¼ acre) disturbed areas on individual house lots).

TABLE 4.1
Compost Sock Fabric Minimum Specifications

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
Two-ply systems					
Inner Containment Netting			HDPE biaxial net Continuously wound Fusion-welded junctures 3/4" X 3/4" Max. aperture size		
Outer Filtration Mesh			Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch) 3/16" Max. aperture size		
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					

Filtrexx & JMD

SOCK NO.	DIAMETER (IN.)	LOCATION	AVG. SLOPE (%)	FIG 4.2 ALLOWABLE SLOPE LENGTH	SLOPE LENGTH ABOVE BARRIER (FT.)
1	18	PER PLAN	1.34	730	680

NO.	BY	REVISIONS	DATE
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LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania811

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DESIGNED BY DFM	DRAWING E&S-D2
CHECKED BY CWJ	
DRAWN BY JMH,ROP	SHEET 31 OF 37
DATE 02/17/2020	
SCALE AS NOTED	
PROJ. NO. CRST00004	

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GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN ( ) PARENTHESIS.

2. METRIC UNITS INDICATED ARE SOFT CONVERTED FROM U.S. CUSTOMARY UNITS.

3. DESIGN SPECIFICATIONS:
   AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND AS SUPPLEMENTED BY THE DESIGN MANUAL, PART 4, STRUCTURES.

   DESIGN IS IN ACCORDANCE WITH THE LOAD AND RESISTANCE FACTOR DESIGN METHOD (LRFD).

4. CONSTRUCTION SPECIFICATIONS:
   PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE CURRENT VERSION OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION PUBLICATION 408, AASHTO/AWS BRIDGE WELDING CODE AND THE CONTRACT SPECIAL PROVISIONS.

5. SHOP DRAWINGS FOR INLET TOPS, GRATES, FRAMES, AND GRADE ADJUSTMENT RINGS ARE NOT REQUIRED IF THE ITEM IS CONSTRUCTED/FABRICATED IN ACCORDANCE WITH THIS STANDARD.

6. IF A REQUIRED DETAIL IS NOT FOUND IN THIS STANDARD OR ON THE CONTRACT DRAWINGS A SPECIAL SUBMISSION REQUESTING ACCEPTANCE FOR SPECIFIC DETAILS MUST BE MADE TO THE BUREAU OF DESIGN HIGHWAY QUALITY ASSURANCE DIVISION CHIEF.

7. FOR INLET BOX DETAILS REFER TO RC-46M.

PLACEMENT NOTES:

1. EACH TYPE OF CONCRETE TOP UNIT OR FRAME IS SUITED FOR A PARTICULAR SITUATION AS FOLLOWS:
   TYPE C CONCRETE TOP UNIT AND TYPE C ALTERNATE CONCRETE TOP UNIT WITH A TYPE C FRAME ARE DESIGNATED FOR INSTALLATION WITH NON-MOUNTABLE CURBS.
   TYPE M CONCRETE TOP UNIT AND TYPE M FRAMES ARE DESIGNATED FOR INSTALLATION IN AREAS ADJACENT TO MEDIANS AND MOUNTABLE CURBS.
   TYPE S CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN SHOULDER SWALE AREAS.
   TYPE D-H CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN SHOULDER SWALE AREAS WITH A TYPE D-H INLET BOX.
   TYPE D-H LEVEL CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN AREAS ADJACENT TO MEDIANS WITH A TYPE D-H INLET BOX.

2. PLACEMENT OF CONCRETE TOP UNITS:
   TYPE C AND TYPE C ALTERNATE:
   DOWEL THE TOP UNIT INTO THE ADJACENT CURB SECTIONS WITH 2-#25 X 300 mm (2-#9 x 1'-0") DOWEL BARS. PLACE 20 mm (3/4") WIDE PREMOLDED EXPANSION JOINT FILLER BETWEEN THE TOP UNIT AND ADJACENT CURB.
   TYPE M:
   PLACE THE TOP UNIT OR FRAME ADJACENT TO THE BACK EDGE OF THE CURB, FLUSH WITH THE PAVEMENT SURFACE, WHEN REQUIRED WITHIN A CONCRETE MOUNTABLE CURB SECTION.
   TYPE S:
   THE PLACEMENT OF THE TOP UNIT IS DEPENDENT ON THE GUTTER ELEVATION AND THE RATE OF THE BACK SLOPE.
   FOR BACK SLOPES GREATER THAN 1:2 (2:1), LOCATE THE INLET TOP WHERE THE BACK SLOPE LINE INTERSECTS THE BACK, TOP, OUTSIDE CORNER OF THE INLET TOP.
   FOR BACK SLOPES LESS THAN 1:2 (2:1), LOCATE THE INLET WHERE THE BACK SLOPE LINE INTERSECTS THE EDGE OF THE INLET GRATE.
   TYPE D-H:
   PLACE THE TOP UNIT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

3. THE SELECTION OF COMPONENTS TO ACHIEVE A SPECIFIED INLET ASSEMBLY IS THE CONTRACTOR'S RESPONSIBILITY, UNLESS OTHERWISE INDICATED ON THE CONTRACT DOCUMENTS.

4. SET THE PRECAST CONCRETE TOP UNITS ON A NON-SHRINK GROUT PAD TO PROVIDE FULL BEARING ON THE SUPPORTING SURFACE. NON-SHRINK GROUT IS ALSO PERMITTED FOR CROSS SLOPE AND LONGITUDINAL GRADE ADJUSTMENTS.
   PROVIDE NON-SHRINK GROUT IN ACCORDANCE WITH PUBLICATION 408, SECTION 1001.2(d).
   MINIMUM GROUT DEPTH = 13 mm (")
   MAXIMUM GROUT DEPTH = 25 mm (1") .
   FOR ALTERNATE GRADE ADJUSTMENT SYSTEMS, WHICH DO NOT REQUIRE NON-SHRINK GROUT, REFER TO NOTE 5 UNDER THE GRADE ADJUSTMENT RING GENERAL NOTES ON SHEET 12.

5. BRICK OR BRICK AND MORTAR ARE NOT ALLOWED FOR GRADE ADJUSTMENTS FOR NEW OR REHABILITATION PROJECTS.

GENERAL GRATE NOTES:

1. THE FOLLOWING TWO DIFFERENT GRATE DEPTHS ARE SPECIFIED ON THIS STANDARD:
   STRUCTURAL STEEL GRATES = 89 mm (3 ½") DEPTH WITH 64 mm (2 ½") PERIMETER DEPTH
   CAST IRON GRATES = 64 mm (2 ½") DEPTH (MINIMUM)

2. THE SELECTION OF THE TYPE OF GRATE MATERIAL IS THE CONTRACTOR'S RESPONSIBILITY, UNLESS OTHERWISE INDICATED ON THE CONTRACT DOCUMENTS.

CONCRETE TOP UNIT NOTES:

1. SHEETS 2 THRU 6 AND 18 THRU 20 DEPICTS THE DIMENSIONS REQUIRED FOR UNIFORMITY AND INTERCHANGEABILITY. IT DOES NOT INCLUDE DETAILS REQUIRED FOR FABRICATION OR MANUFACTURING. FOR DEVIATIONS OR MODIFICATIONS OF THE STANDARDS, SUBMIT SHOP DRAWINGS TO THE BUREAU OF DESIGN HIGHWAY QUALITY ASSURANCE DIVISION CHIEF FOR REVIEW AND ACCEPTANCE.

2. PROVIDE PRECAST CONCRETE TOP UNITS SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15.

3. PROVIDE WELDED INLET ANGLE ASSEMBLIES SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15.

4. CAST-IN-PLACE TOP UNITS MAY BE MONOLITHIC WITH THE INLET BOX.

5. PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE PUBLICATION 408, SECTIONS 605 AND 714, AASHTO/AWS BRIDGE WELDING CODE AND THE CONTRACT SPECIAL PROVISIONS.

6. THE SIZE OF THE INLET TOP UNITS IS BASED ON THE MINIMUM DIMENSIONS INDICATED FOR THE STANDARD INLET BOX AS SHOWN ON RC-46M.

7. PROVIDE A TOP SLAB TO SUPPORT THE INLET TOP UNITS IF A STANDARD INLET BOX IS NOT SPECIFIED. REFER TO RC-46M FOR ADDITIONAL INFORMATION.

8. FABRICATOR IS RESPONSIBLE FOR LIFTING, HANDLING AND TRANSPORTATION STRESSES.

9. LIFTING DEVICES (IF REQUIRED):
   PROVIDE GALVANIZED STEEL OR PLASTIC LIFTING DEVICES FOR HANDLING AND INSTALLATION.
   LIFTING HOLES, WITH A MAXIMUM OUTSIDE DIAMETER EQUAL TO 41 mm (1 ½", ARE PERMITTED IN THE SIDEWALLS. LOCATE LIFTING HOLES BASED ON THE CENTER OF GRAVITY OF THE FABRICATED INLET TOP.
   FILL LIFTING DEVICES WITH NON-SHRINK GROUT AFTER INSTALLATION IF THE LIFTING DEVICE IS LOCATED ON THE TOP SURFACE. HOLES IN THE SIDEWALLS ARE NOT REQUIRED TO BE FILLED WITH NON-SHRINK GROUT.
   PROVIDE LIFTING DEVICES WITH A MINIMUM CAPACITY OF AT LEAST FOUR TIMES THE CALCULATED LOAD ON THE DEVICE.

10. PROVIDE THE FOLLOWING CONCRETE CLASS:
    CAST-IN-PLACE: CLASS A CEMENT CONCRETE [DESIGN COMPRESSIVE STRENGTH, f'_c = 21 MPa (3,000 PSI)].
    PRECAST: CLASS AA CEMENT CONCRETE, MODIFIED [DESIGN COMPRESSIVE STRENGTH, f'_c = 28 MPa (4,000 PSI)].

11. A HIGHER STRENGTH OF CONCRETE MAY BE SUBSTITUTED FOR A LOWER STRENGTH OF CONCRETE AT NO ADDITIONAL COST TO THE DEPARTMENT. SUBMIT MIX DESIGN TO THE DEPARTMENT FOR REVIEW AND ACCEPTANCE.

12. PROVIDE GRADE 420 (GRADE 60) DEFORMED REINFORCEMENT BARS THAT MEET THE REQUIREMENTS OF ASTM A615M (A615) OR ASTM A706M (A706). DO NOT WELD REINFORCEMENT BARS WITHOUT A PENNDOT APPROVED WELDING PROCEDURE.

13. CLEAR COVER FOR STEEL:
    PRECAST: 38 mm (1 ½") MIN.
    CAST-IN-PLACE: 50 mm (2") MIN.

14. PROVIDE STRUCTURAL STEEL (ANGLES AND PLATES) CONFORMING TO AASHTO M270M (M270) GRADE 250 (36) [ASTM A709M (A709), GRADE 250 (36)].

15. ANCHORING OF ANGLES AND PLATES: PROVIDE EITHER STUDS OR BENT BAR ANCHORS IN ACCORDANCE WITH THE FOLLOWING DETAILS.
    ATTACH PROVIDE STUDS CONFORMING TO AASHTO M169 (ASTM A108). WELD STUDS TO ANGLES OR PLATES.
    BENT BAR ANCHORS: PROVIDE GRADE 420 (GRADE 60) DEFORMED REINFORCEMENT BARS THAT MEET THE REQUIREMENTS OF ASTM A615M (A615) OR ASTM A706M (A706). WELD BARS TO ANGLES OR PLATES USING A PENNDOT APPROVED WELDING PROCEDURE.

16. GALVANIZE PLATES, ANGLES AND STUDS OR BENT BAR ANCHORS (AFTER FABRICATION AND BEFORE INSTALLATION IN FORMS) IN ACCORDANCE WITH PUBLICATION 408, SECTION 1105.02(e).

17. CHAMFER EXPOSED CONCRETE EDGES 12 mm x 12 mm (" x "), EXCEPT AS NOTED. (CHAMFERS ARE NOT SHOWN ON THE DETAILS)

18. PRECAST TOP UNITS: TAPERS MAY BE PROVIDED ON THE INSIDE AND/OR OUTSIDE VERTICAL FACES OF THE INLET TOPS TO FACILITATE FORM STRIPPING. TAPERS MAY RESULT IN BOTTOM DIMENSIONS THAT VARY TO A MAXIMUM 50 mm (2").

19. REHABILITATION PROJECTS:
    PROVIDE CONCRETE TOP UNITS IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEETS 18 THRU 20 IF THE AVAILABLE DEPTH IS LESS THAN THE DEPTHS DETAILED ON SHEETS 2 THRU 4.
    PROVIDE CONCRETE TOP UNITS IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEETS 2 THRU 4 IF THE AVAILABLE DEPTH IS GREATER THAN THE DEPTHS DETAILED ON SHEETS 2 THRU 4.
    CONTRACTOR TO REMOVE THE EXISTING TOP UNIT AND ANY GRADE ADJUSTMENT DEVICES, INCLUDING BRICK AND MORTAR AND GRADE ADJUSTMENT RINGS, DOWN TO THE TOP OF THE EXISTING INLET BOX. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE REQUIRED DEPTH OF THE NEW CONCRETE TOP UNIT BASED ON THE AVAILABLE DEPTH. COST OF THIS WORK IS INCIDENTAL TO THE COST OF THE CONCRETE TOP UNIT.
    THE DEPTH OF THE CONCRETE TOP UNIT MUST ALWAYS BE MAXIMIZED.
    FOR % PRECAST CONCRETE TOP UNIT THE CONTRACTOR MUST PROVIDE THE AVAILABLE DEPTH TO THE FABRICATOR FOR FABRICATION IN ACCORDANCE WITH THIS STANDARD.
    FOR % CAST-IN-PLACE CONCRETE TOP UNIT THE CONTRACTOR IS TO CONSTRUCT THE NEW TOP IN ACCORDANCE WITH THIS STANDARD.

INDEX OF SHEETS

SHEET NO.	SHEET TITLE
1	GENERAL NOTES
2	CONCRETE TOP UNITS - TYPE M AND TYPE S
3	CONCRETE TOP UNITS - TYPE C
4	CONCRETE TOP UNITS - TYPE C ALTERNATE
5	CONCRETE TOP UNITS - TYPE D-H
6	CONCRETE TOP UNITS - TYPE D-H LEVEL
7	STRUCTURAL STEEL GRATE
8	STRUCTURAL STEEL GRATE - BICYCLE SAFE
9	CAST IRON GRATES - 1
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11	CAST IRON VANE GRATE
12	GRADE ADJUSTMENT RINGS - 1
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14	TYPE C FRAME
15	TYPE M FRAME
16	TYPE M PLACEMENT AT MEDIAN - 1
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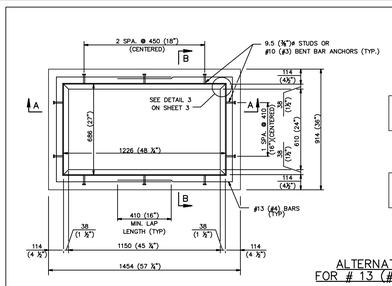
18	CONCRETE TOP UNITS - TYPE M AND TYPE S FOR REHABILITATION PROJECTS
19	CONCRETE TOP UNITS - TYPE C FOR REHABILITATION PROJECTS
20	CONCRETE TOP UNITS - TYPE C ALTERNATE FOR REHABILITATION PROJECTS

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

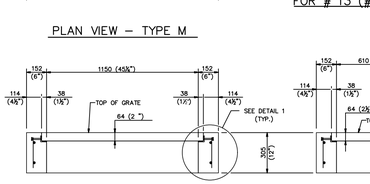
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET TOPS, GRATES, AND FRAMES
GENERAL NOTES

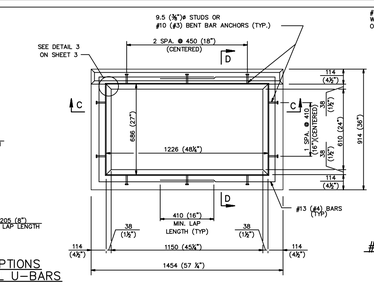
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 1 OF 20
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-45M



PLAN VIEW – TYPE M



ALTERNATE ONE BAR OPTIONS FOR # 13 (#4) HORIZONTAL U-BARS



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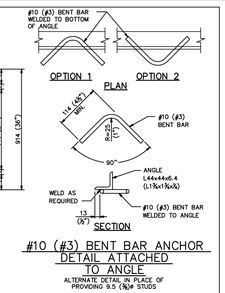
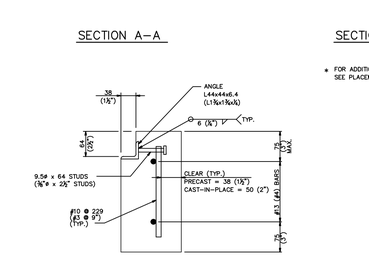
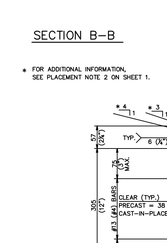
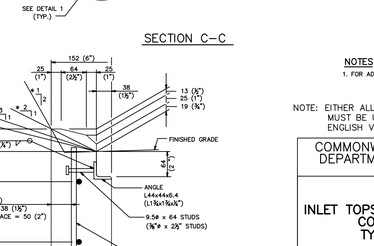


#10 (#3) BENT BAR ANCHOR DETAIL ATTACHED TO ANGLE
ALTERNATE DETAIL IN PLACE OF PROVIDING 9.5 (⅜)ø STUDS

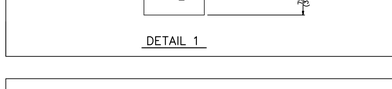


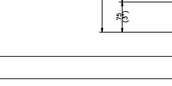




NOTES
1. FOR ADDITIONAL NOTES, SEE SHEET 1.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.





* FOR ADDITIONAL INFORMATION, SEE PLACEMENT NOTE 2 ON SHEET 1.

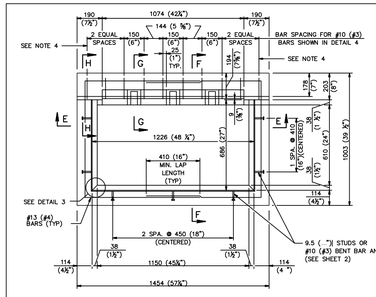
NOTES
1. FOR ADDITIONAL NOTES, SEE SHEET 1.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

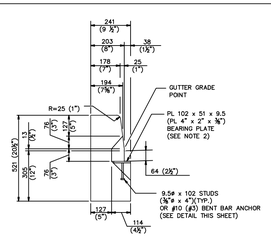
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET TOPS, GRATES, AND FRAMES
CONCRETE TOP UNITS
TYPE M AND TYPE S

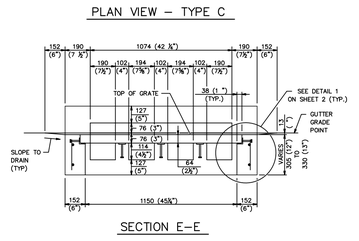
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 2 OF 20
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-45M

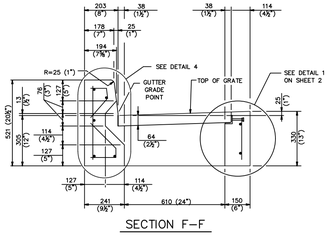


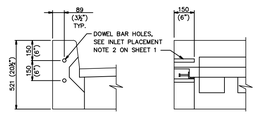
PLAN VIEW – TYPE C



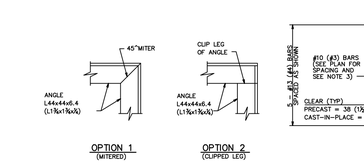
#10 (#3) BENT BAR ANCHOR DETAIL ATTACHED TO BEARING PLATE
ALTERNATE DETAIL IN PLACE OF PROVIDING 9.5 (⅜)ø STUD

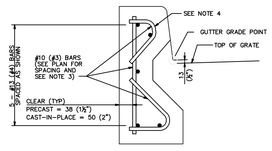






NOTES
1. FOR ADDITIONAL NOTES, SEE SHEET 1.
2. A MAXIMUM OF TWO HOLES ARE PERMITTED IN THE PLATE TO POSITION AND HOLD THE PLATE IN PLACE DURING FABRICATION. HOLES ARE NOT PERMITTED TO BE GREATER THAN 6 mm (¼") DIAMETER.
3. FABRICATOR TO DETERMINE NUMBER OF BARS REQUIRED TO MATCH SHAPE INDICATED. PROVIDE ONE, TWO, OR THREE BARS AS REQUIRED.
4. BEND OUTSIDE STIRRUP TO ACCOMMODATE DOWEL BARS AND STILL MAINTAIN CLEARANCE REQUIREMENTS.





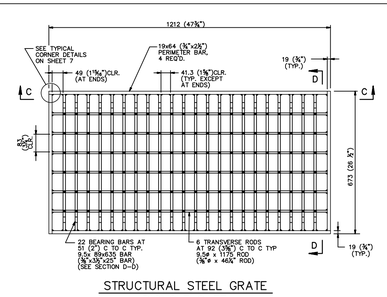
NOTES
1. TYPE "C" INLETS WITH 6" CURB REVEAL TO BE USED IN INTERNAL SITE AREAS OUTSIDE OF ROAD RIGHT-OF-WAYS.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

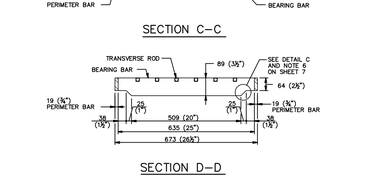
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

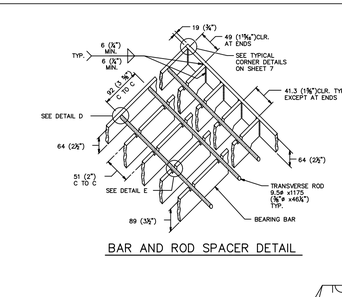
INLET TOPS, GRATES, AND FRAMES
CONCRETE TOP UNITS
TYPE C

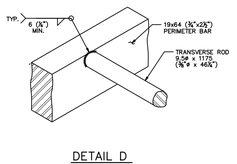
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 3 OF 20
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-45M

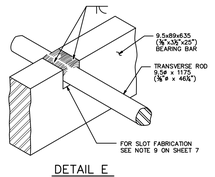


STRUCTURAL STEEL GRATE
BICYCLE SAFE









NOTES
1. FOR ADDITIONAL NOTES, SEE SHEET 1.
2. FOR STRUCTURAL STEEL GRATE NOTES, SEE SHEET 7.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET TOPS, GRATES, AND FRAMES
STRUCTURAL STEEL GRATE
BICYCLE SAFE

RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 8 OF 20
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-45M

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LAST SAVED DATE AND TIME: 1:7 Apr 2020, 3:17PM
LAST SAVE BY: DMattson

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
DATE
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464

Pennsylvania 811
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 UTILITIES 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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

STORM SEWER DETAILS

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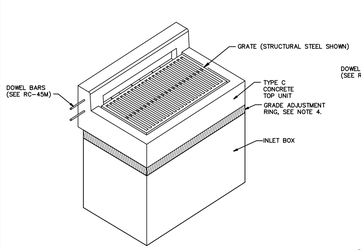
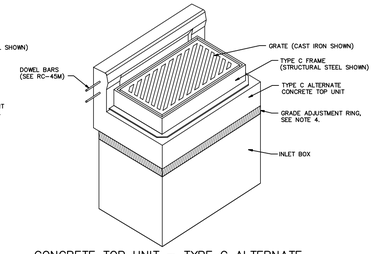
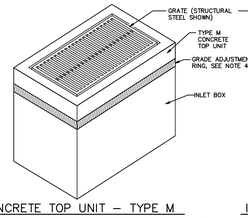
DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	STM-D1
SHEET	32 OF 37



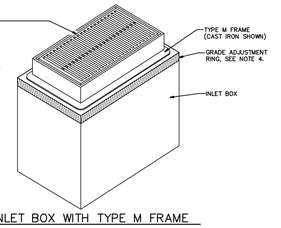
CONCRETE TOP UNIT – TYPE C



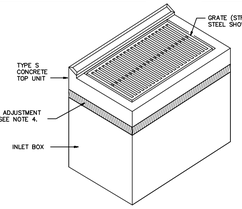
CONCRETE TOP UNIT – TYPE C ALTERNATE WITH TYPE C FRAME



CONCRETE TOP UNIT – TYPE M



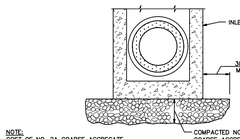
INLET BOX WITH TYPE M FRAME



CONCRETE TOP UNIT – TYPE S

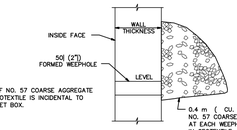
NOTES:

1. FOR ADDITIONAL NOTES, SEE SHEETS 1 – 3.
2. STANDARD INLET BOXES SHOWN, PROVIDE TOP SLABS FOR OTHER INLET BOX TYPES.
3. SEE RC-45M FOR DETAILS FOR THE CONCRETE TOP UNITS, FRAMES, AND GRATES.
4. PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED. SEE RC-45M FOR DETAILS.



NOTE:
COST OF NO. 2A COARSE AGGREGATE IS INCIDENTAL TO THE INLET BOX.

INLET BOX SUBBASE PREPARATION DETAIL
(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)



NOTE:
COST OF NO. 57 COARSE AGGREGATE AND GEOTEXTILE IS INCIDENTAL TO THE INLET BOX.

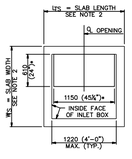
WEEPHOLE DETAIL
(SEE GENERAL NOTE 15 ON SHEET 1)

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

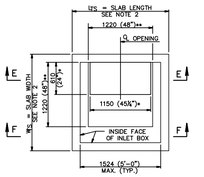
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET BOXES
INLET ASSEMBLIES – 1

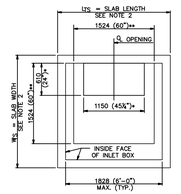
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 4 OF 45
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-46M



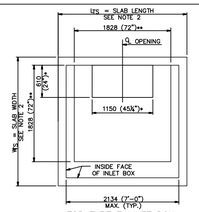
FOR TYPE 4 INLET BOX



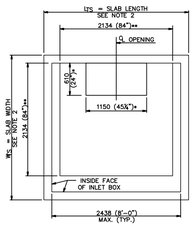
FOR TYPE 5 INLET BOX



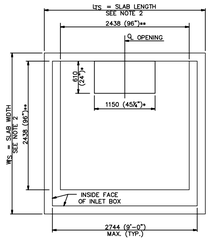
FOR TYPE 6 INLET BOX



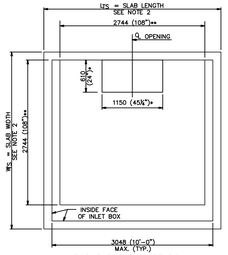
FOR TYPE 7 INLET BOX



FOR TYPE 8 INLET BOX



FOR TYPE 9 INLET BOX



FOR TYPE 10 INLET BOX

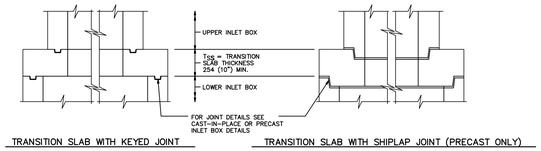
PLAN – TRANSITION SLABS

* MIN. OPENING – SIZED FOR STANDARD INLET BOX

** MAX. OPENING – SIZED FOR NEXT SMALLER INLET BOX

NOTES:

1. FOR ADDITIONAL NOTES, SEE SHEETS 1 – 3.
2. OUT TO OUT DIMENSIONS OF TRANSITION SLAB TO MATCH SIZE OF LOWER INLET BOX.
3. SET EDGE OF OPENING AT INSIDE FACE OF INLET BOX FOR ACCESS, IF POSSIBLE.
4. FOR SECTION F–F AND REINFORCEMENT REQUIREMENTS, SEE SHEET 12.
5. FOR ADDITIONAL REINFORCEMENT AROUND OPENINGS, SEE SHEET 12.



TRANSITION SLAB WITH KEYED JOINT

TRANSITION SLAB WITH SHIPLAP JOINT (PRECAST ONLY)

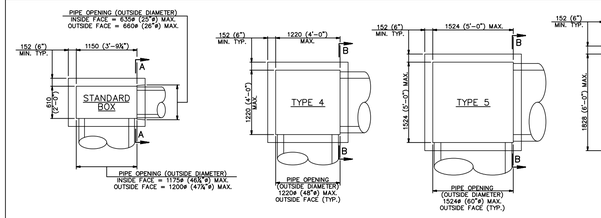
SECTION E–E
(TYPICAL)

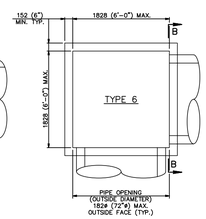
NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

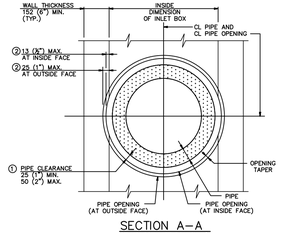
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET BOXES
TRANSITION SLABS – 1

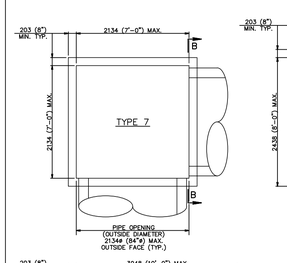
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 11 OF 45
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-46M

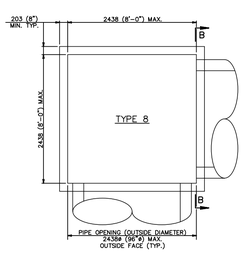


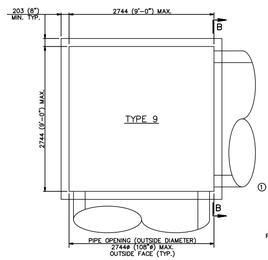


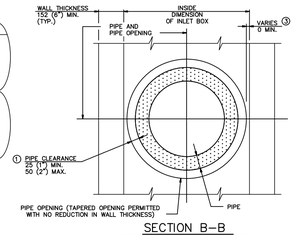


SECTION A–A
(STANDARD INLET BOX ONLY)

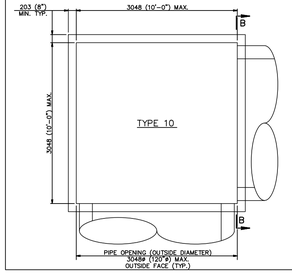




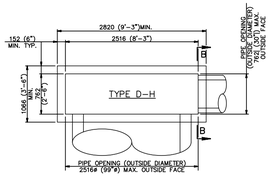




SECTION B–B
(TYPICAL ALL TYPES EXCEPT STANDARD)

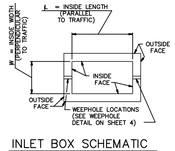


PLAN – INLET BOXES



NOTES

1. FOR ADDITIONAL NOTES, SEE SHEETS 1 – 3.
2. FOR PIPE LOCATION AND PIPE OPENING NOTES, SEE SHEET 2.



INLET BOX SCHEMATIC

LEGEND
OUTSIDE FACE – OUTSIDE FACE OF INLET BOX WALL
INSIDE FACE – INSIDE FACE OF INLET BOX WALL

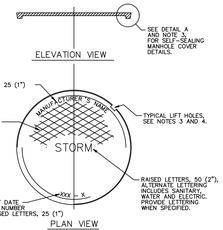
LEGEND
① OUTSIDE DIAMETER OF PIPE TO PIPE OPENING
② REDUCTION IN WALL THICKNESS DIMENSION
③ INSIDE FACE OF BOX WALL TO OUTSIDE DIAMETER OF PIPE OPENING

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

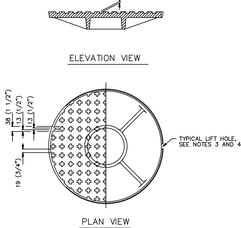
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET BOXES
INLET BOX TYPES

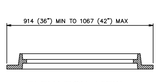
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 6 OF 45
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-46M



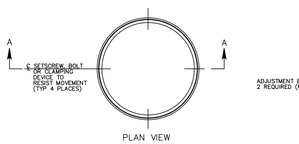
CAST IRON MANHOLE COVER
(PLATEN COVER)

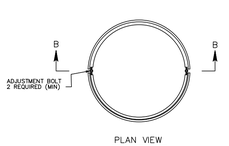


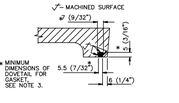
CAST IRON MANHOLE COVER
(STANDARD COVER)



ELEVATION VIEW
OF MANHOLE FRAME







DETAIL A
GASKET SEALING SYSTEM

ADJUSTMENT RISERS

NOTES

1. PROVIDE MANHOLE FRAMES AND COVERS MEETING THEREQUIREMENTS OF PUBLICATION 408, SECTION 605.2(b). DESIGN MANHOLE FRAME, COVER AND GRADE ADJUSTMENT RINGS FOR PHL 93 (H25) LIVE LOAD. MANHOLES ARE NOT IN OR ADJACENT TO ROADWAY; DESIGN FOR ALL POSSIBLE LIVE LOADS AS APPROVED BY THE DEPARTMENT.
2. PROVIDE MANHOLE FRAMES, COVERS AND GRADE ADJUSTMENT RISERS SUPPLIED BY A MANUFACTURER AS LISTED IN BULLETIN 15. FOR DEVIATION OR MODIFICATION TO THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
3. PROVIDE A GASKET SEALING SYSTEM, DOVETAIL GROOVE AND CONTINUOUS GASKET, AS INDICATED IN DETAIL A, TO PREVENT INFLOW THROUGH THE BEARING SURFACES, OF SURFACE RUNOFF WATER INTO THE MANHOLE SYSTEM. WHEN SPECIFIED, PROVIDE 6 (1/4") DIA ONE PIECE SELF-SEAL POLYISOPRENE ROUND GASKET, 40 DUROMETER GLUED IN PLACE. PROVIDE TWO (2) LIFT HOLES AT 180° TO FACILITATE COVER REMOVAL FOR SELF-SEALING MANHOLE COVER.
4. PROVIDE ONE LIFT HOLE TO FACILITATE COVER REMOVAL FOR NON-SEALING MANHOLE COVER.
5. FRAME AND GRADE ADJUSTMENT RISER TO HAVE A MINIMUM BEARING SEAT OF 25 (1") FOR COVER.
6. LOCATE TOP OF FRAME OR ADJUSTMENT RISER 3 (1/8") BELOW THE TOP OF ROADWAY SURFACE.
7. PROVIDE GRADE ADJUSTMENT RISERS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 606, AND AS MODIFIED HEREIN:
   A. CUSTOM FABRICATE EACH ADJUSTMENT RISER FROM MEASUREMENTS PROVIDED WITH EACH ORDER.
   B. MANUFACTURE BAR STOCK AND RETAINER CLIP FROM U.S. MADE CARBON STEEL MEETING OR EXCEEDING THE MINIMUM REQUIREMENTS OF ASTM A-36M.
   C. REQUIRE FULL CIRCUMFERENTIAL WELDS ON BOTH TOP AND BOTTOM RINGS, MAKE THE INNER WELD A BEVEL GROOVE WELD (FLUSH FINISH) FOR PROPER SEATING OF MANHOLE LID AND MAKE THE OUTER WELD A FILLET WELD.
   D. MAKE THE MINIMUM WIDTH OF BOTTOM AND TOP BAR STOCK 25 (1") AND 10 (3/8"), RESPECTIVELY.
   E. TAP THE BOTTOM BAR STOCK FOR MULTI-PIECE ADJUSTMENT RISER FOR M14 ADJUSTMENT BOLT.
   F. REINFORCE THE ADJUSTMENT RISER ADEQUATELY TO PREVENT BENDING.
   G. PROVIDE AN ADJUSTMENT RISER WHICH IS FLUSH WITH COVER AND DOES NOT ALLOW EXCESSIVE MOVEMENT. PROVIDE AN ADJUSTMENT RISER WHICH CONFORMS TO THE SHAPE OF THE ORIGINAL FRAME.
8. ATTACH FRAME AND/OR PRECAST CONCRETE GRADE RINGS RIGIDLY TO TOP OF MANHOLE, USE 3–M14 (1/2") THREADED STUDS WITH HEX HEAD NUTS AND WASHERS, INSERTED THROUGH AT 18 (5/8") DIA HOLES THROUGH FRAME AND/OR RINGS. SPACE HOLES AT 120° AND 50 (2") FROM OUTSIDE EDGE OF FRAME. EMBED STUDS 102 (4") MINIMUM INTO MANHOLE. GROUT STUDS INTO MANHOLE.
9. SET THE BASE OF THE FRAME AND/OR PRECAST CONCRETE GRADE RINGS IN A BED OF CEMENT MORTAR.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

STANDARD MANHOLES
COVERS, FRAMES AND
ADJUSTMENT RISERS

RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 5 OF 6
CHIEF, HWY. QA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-39M

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811
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. IN ACCORDANCE WITH THE 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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

STORM SEWER DETAILS

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CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	STM-D2
SHEET	33 OF 37

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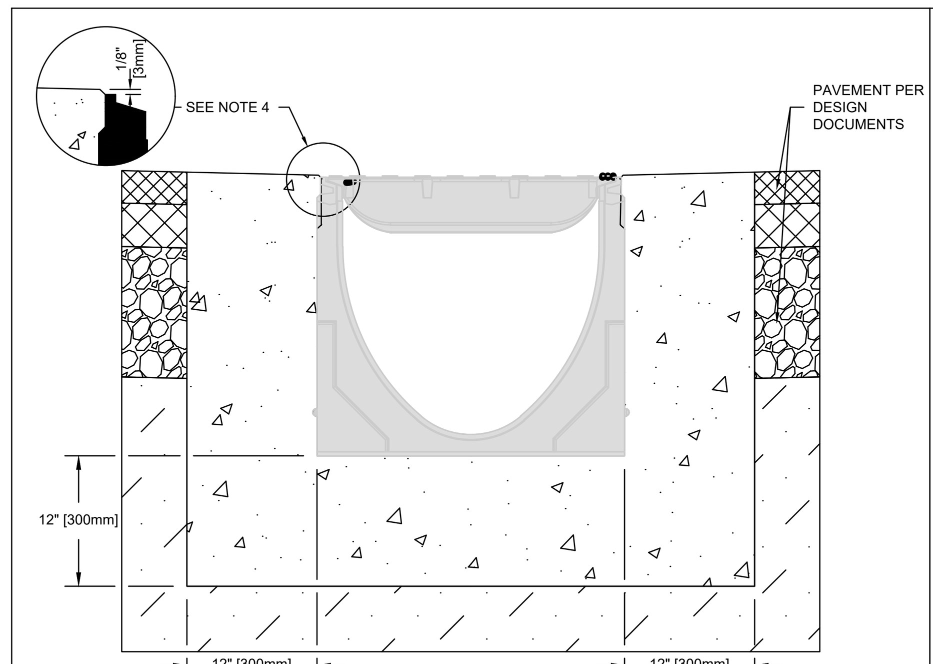
SK3-F-EAP



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

S300K POWERDRAIN - LOAD CLASS F

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE S300K CHANNEL SYSTEM WITH DUCTILE IRON EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN DUCTILE IRON EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
DILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

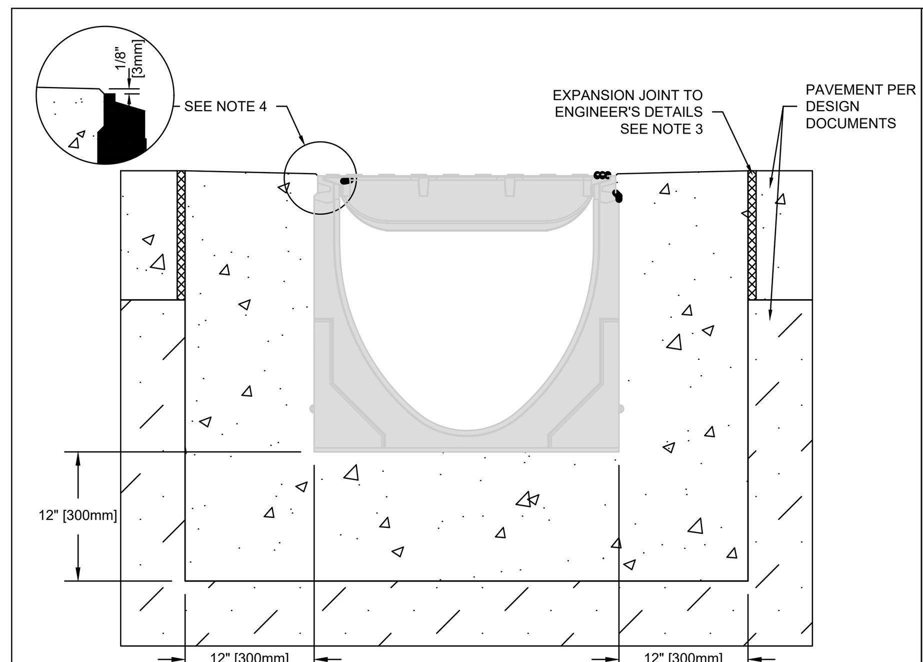
THE SYSTEM SHALL BE 12" (300mm) NOMINAL INTERNAL WIDTH WITH A 14.2" (390mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'POWERLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

ASPHALT PAVEMENT EDGE

SK3-F-ECP



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

S300K POWERDRAIN - LOAD CLASS F

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE S300K CHANNEL SYSTEM WITH DUCTILE IRON EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN DUCTILE IRON EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:
COMPRESSIVE STRENGTH: 14,000 PSI
FLEXURAL STRENGTH: 4,000 PSI
TENSILE STRENGTH: 1,500 PSI
WATER ABSORPTION: 0.07%
FROST PROOF YES
DILUTE ACID AND ALKALI RESISTANT YES
B117 SALT SPRAY TEST COMPLIANT YES

THE SYSTEM SHALL BE 12" (300mm) NOMINAL INTERNAL WIDTH WITH A 14.2" (390mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

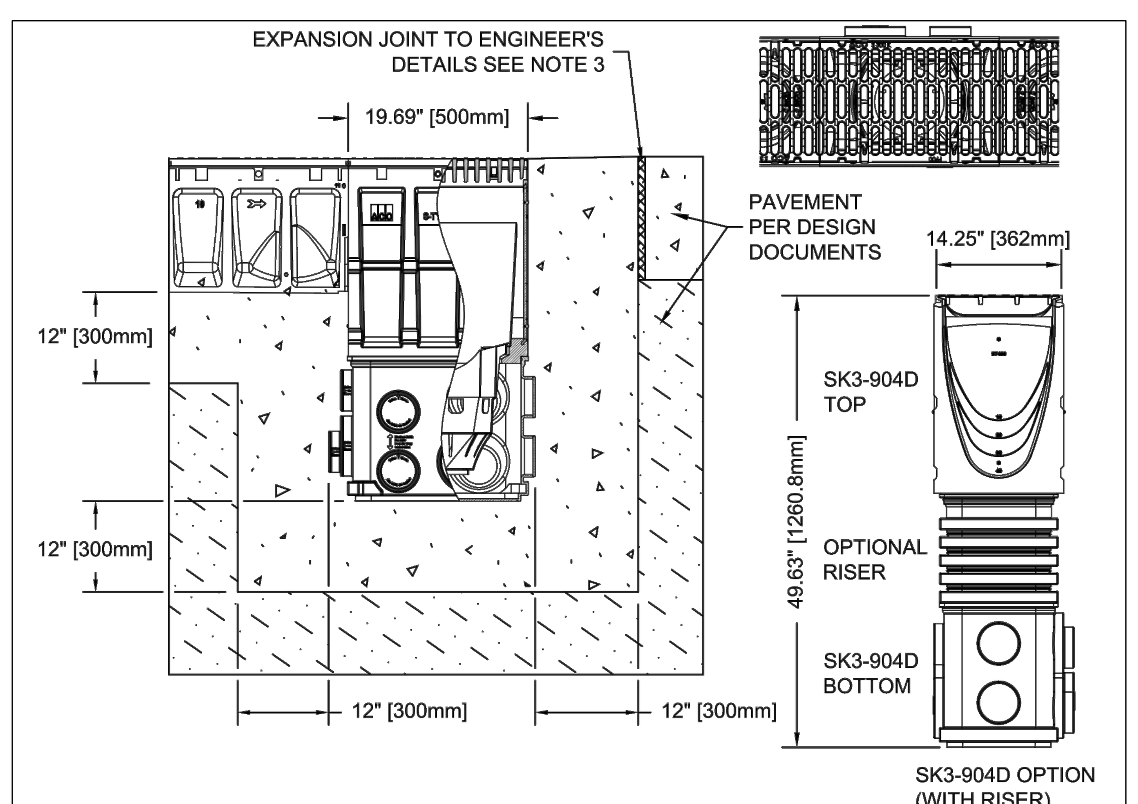
THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'POWERLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

CONCRETE PAVEMENT EDGE

TRENCH DRAIN DETAILS

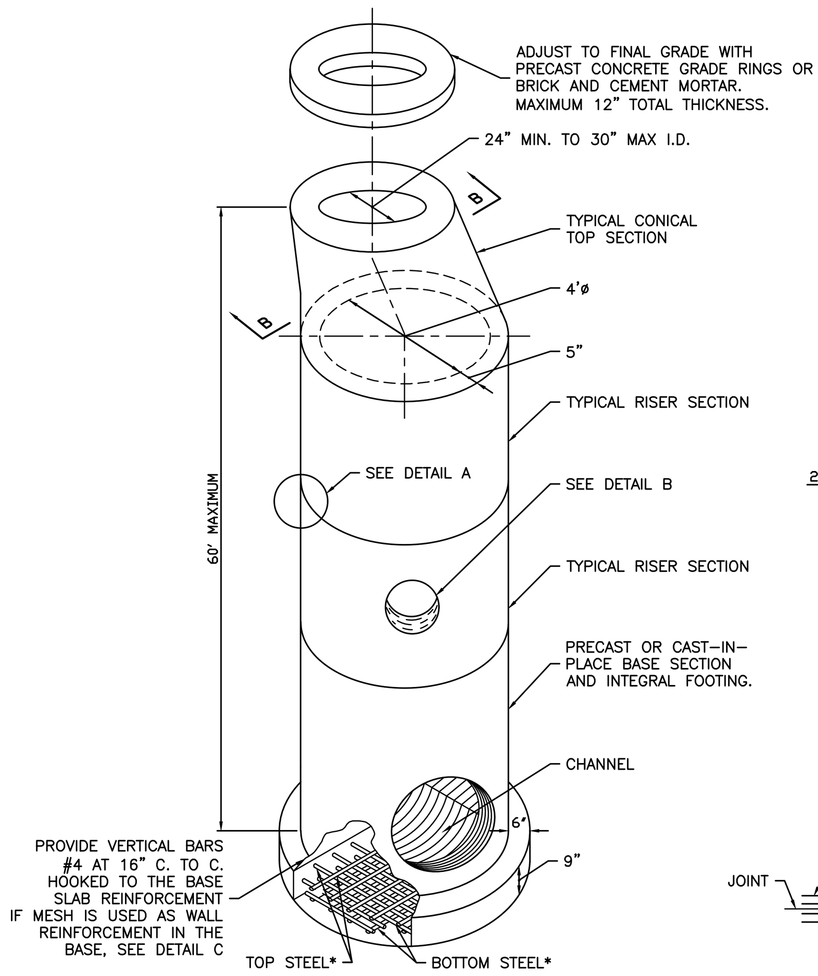
ACO S300K OR EQUAL



NOTES:
1. IT IS NECESSARY TO ENSURE THE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR THE EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. A MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. THE CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT THE CATCH BASIN AND THE CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE TOP OF CATCH BASIN EDGE.
5. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.
6. CONCRETE BASE THICKNESS SHOULD MATCH THE SLAB THICKNESS.
7. REBAR OR STEEL MESH REINFORCEMENT MAY BE REQUIRED. *ENGINEERING ADVICE MAY BE REQUIRED.*

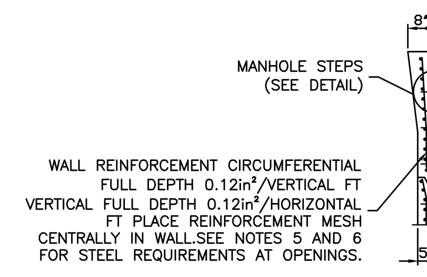
TRENCH DRAIN CATCH BASIN DETAILS

ACO SK3-903D CATCH BASIN – LOAD CLASS F OR EQUAL

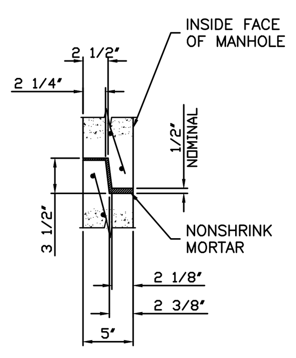


MANHOLE

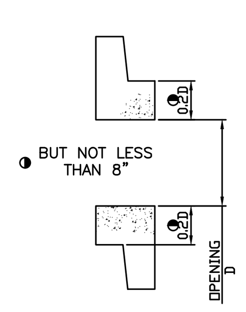
FOR PIPES 30" INSIDE DIAMETER AND LESS *SEE TABLE B FOR BASE SLAB STEEL REQUIREMENTS. PROVIDE WALL REINFORCEMENT DETAILS AT BASE SLAB TYPICAL OF CAST-IN-PLACE MANHOLE.



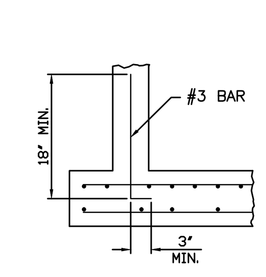
SECTION B–B



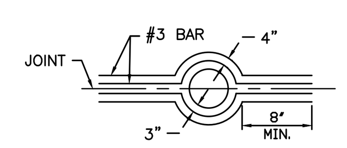
DETAIL A



DETAIL B



DETAIL C



ALTERNATE OPENING REINFORCEMENT

SEE NOTE 11

TABLE B

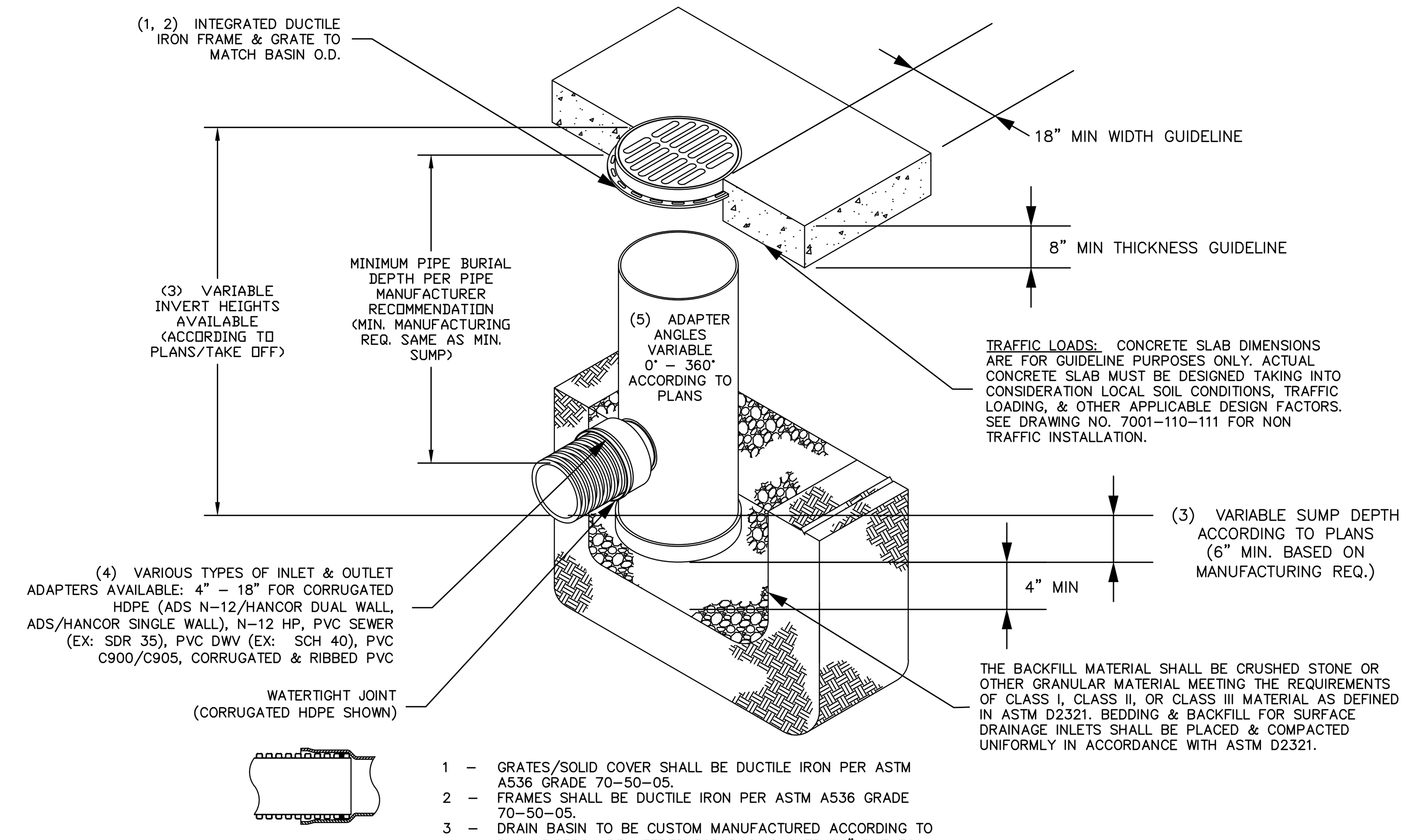
PRECAST MANHOLE HEIGHT	TOP STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
0'-0" TO 30'-0"	NO. 4 BARS AT 6" C. TO C. OR 0.33 IN²/FT WWF 6" MAXIMUM SPACING	NO. 4 BARS AT 12" C. TO C. OR 0.16 IN²/FT WWF 6" MAXIMUM SPACING
> 30'-0" TO 60'-0"	NO. 5 BARS AT 6" C. TO C. OR 0.56 IN²/FT WWF 6" MAXIMUM SPACING	

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 0.16 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. FOR THE HEIGHT OF THE RISER OR BASE SECTION.
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(c). 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)

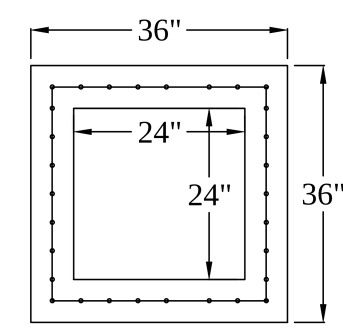
NOT TO SCALE



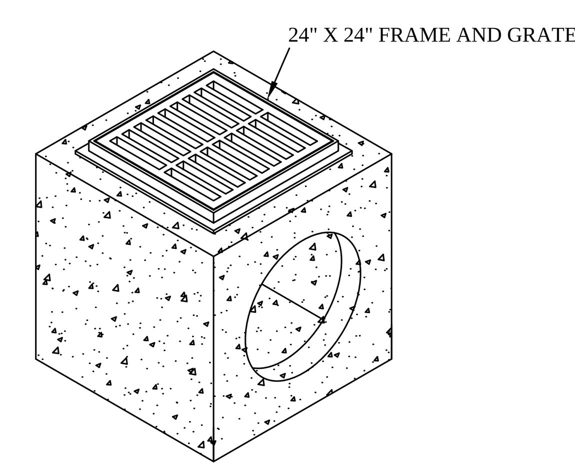
1 – GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05.
2 – FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05.
3 – DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001–110–065.
4 – DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N–12/HANCOR DUAL WALL), N–12 HP, & PVC SEWER.
5 – ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001–110–012.

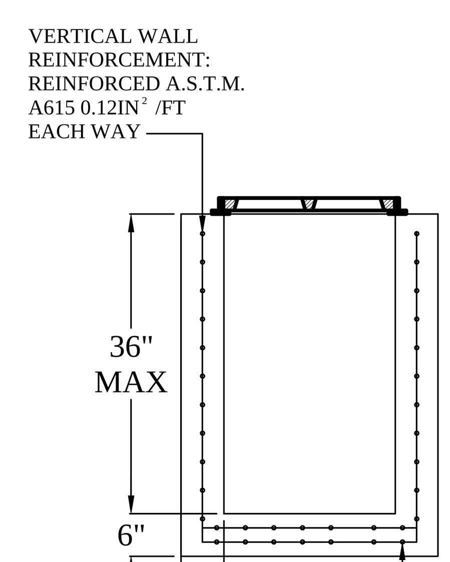
NYLOPLAST 18" DRAIN BASIN

NOT TO SCALE

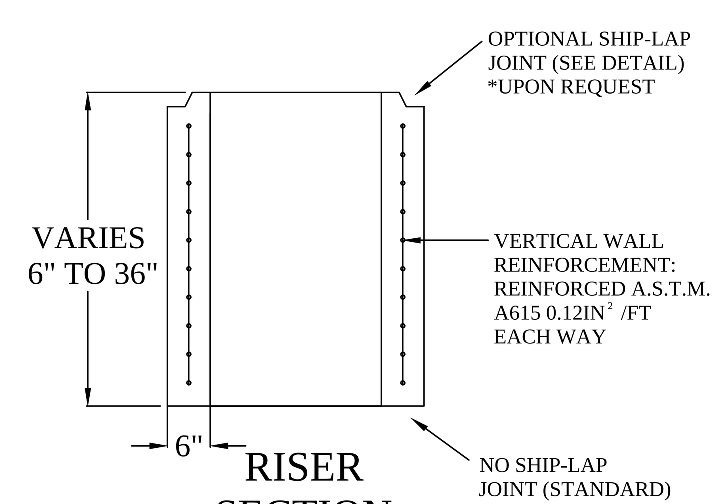


PLAN

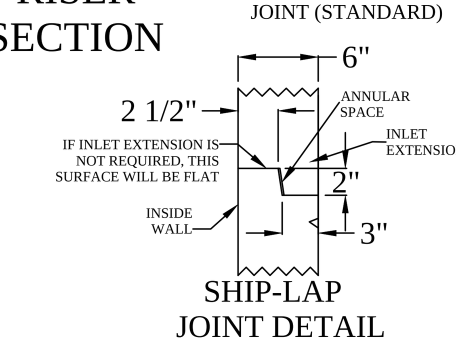




BASE SECTION



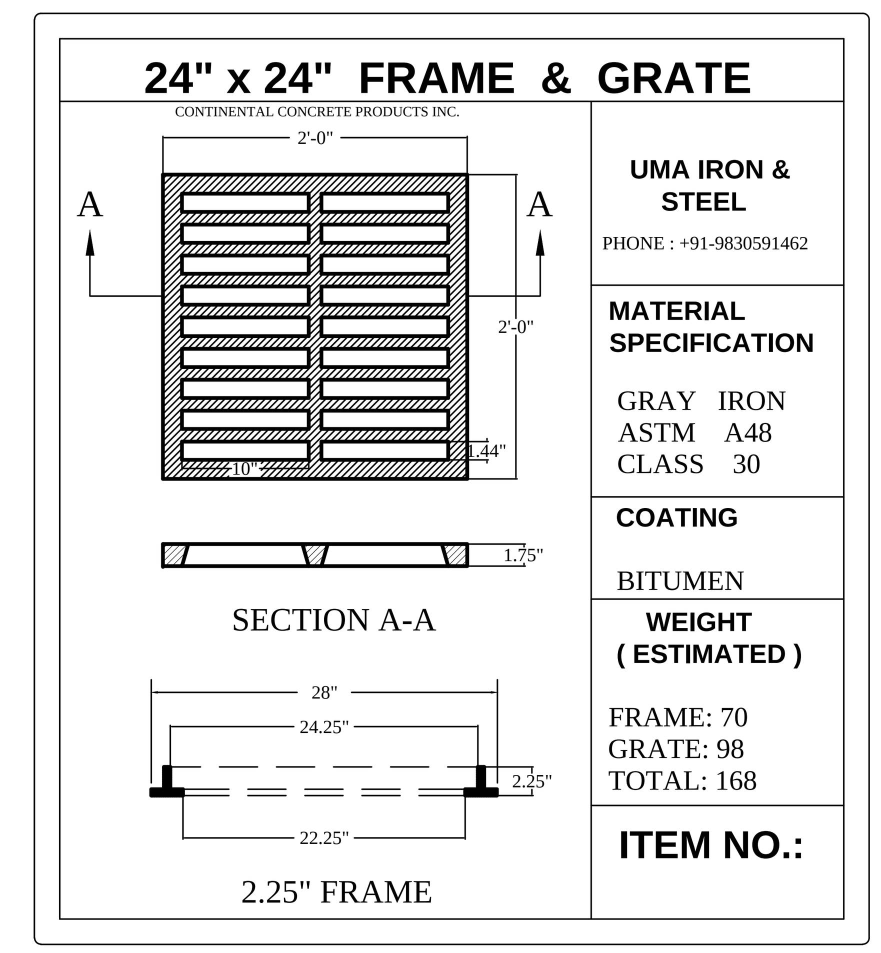
RISER SECTION



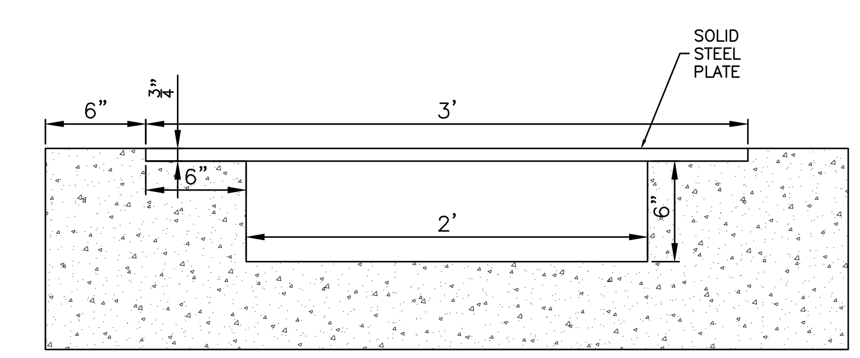
SHIP-LAP JOINT DETAIL

STANDARD 2' X 2' INLET BOX & RISER SECTION

NOT TO SCALE



STRUCTURAL STEEL BICYCLE SAFE GRATE



CONCRETE REINFORCEMENT DESIGN CALCULATIONS TO BE PROVIDED DEMONSTRATING H–25 LOADING.

SURFACE DRAIN DETAIL

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania811

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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS
CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

STORM SEWER DETAILS

YOUR GOALS. OUR MISSION.

1700 MARKET ST., SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459
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OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004

DRAWING STM–D3

PROJECT INFORMATION:
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FILE NAME: CRST00009_SHT027_CSD.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 3:17PM
LAST SAVE BY: DMattson

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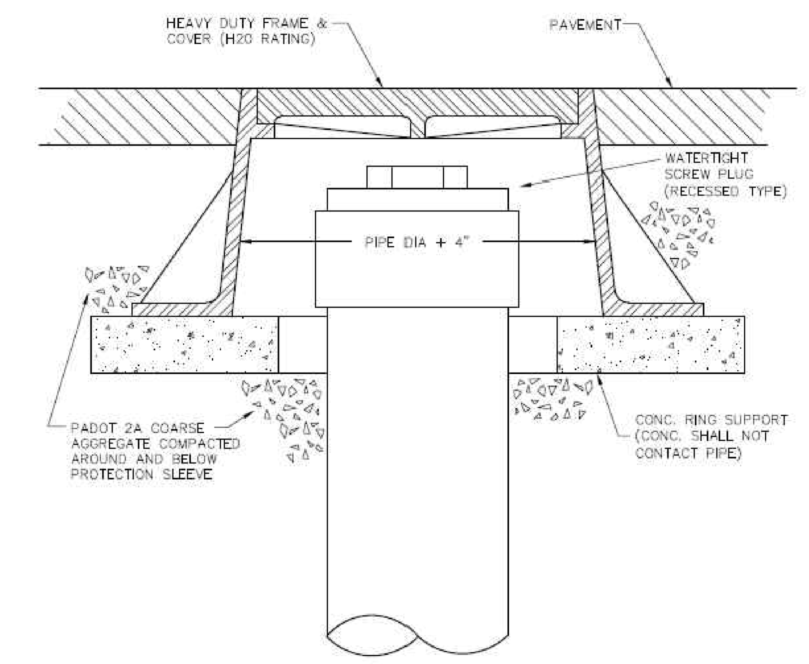


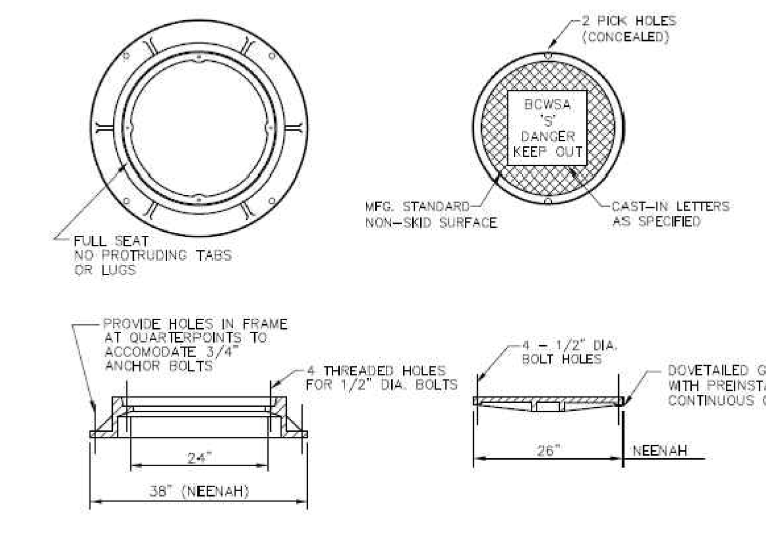
NOTES:

1. FRAME AND COVER SHALL BE NEENAH FOUNDRY COMPANY MODEL R–1976 OR APPROVED EQUAL
2. CLEANOUT PROTECTION SLEEVES ARE TO BE INSTALLED FOR CLEANOUTS LOCATED IN PAVED AREAS, OR LESS THAN 3 FEET FROM A PAVED AREA.

CLEANOUT PROTECTION SLEEVE

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	CLEANOUT PROTECTION SLEEVE (FOR USE IN OR NEAR PAVED AREAS)
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL S–12



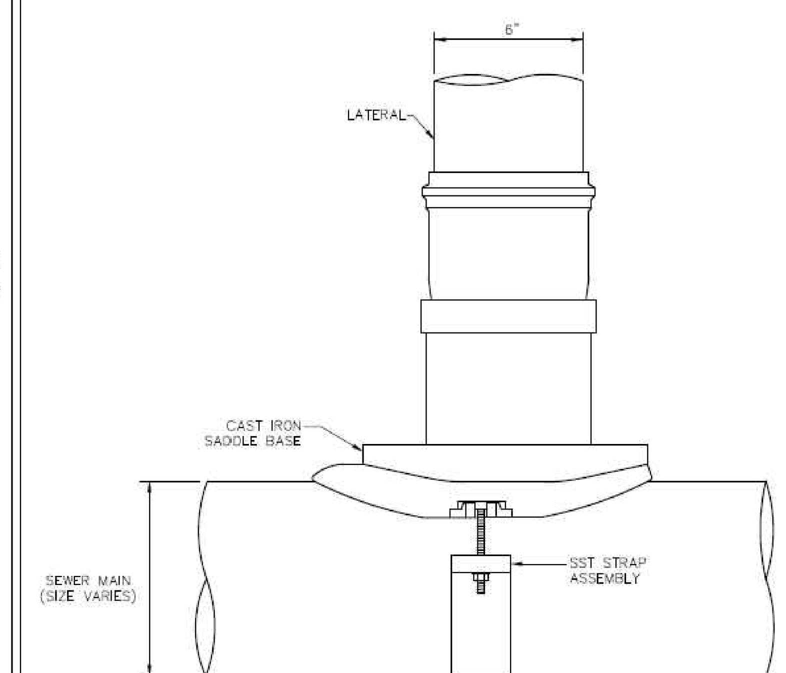
NOTES:

1. MANHOLE FRAME AND COVER SHALL BE NEENAH FOUNDRY CO. MODEL R–1916–F (OR APPROVED EQUAL).
2. ALL MATERIALS TO BE GRAY CAST IRON ASTM A–48, CLASS 35.
3. FRAME AND COVER SHALL BE FOR HEAVY DUTY TRAFFIC, AASHTO HS–20.
4. BOLT COVER TO FRAME WITH FOUR (4) 1/2" COUNTERSUNK STAINLESS STEEL BOLTS WHICH MAKE A SEAL WITH A RUBBER "O" RING GASKET.
5. PROVIDE FOUR (4) STAINLESS STEEL ANCHOR BOLTS, 3/4" DIA. MINIMUM.
6. COVER SHALL HAVE THE WORDS "BCWSA SANITARY SEWER" OR "BCWSA 'S' DANGER KEEP OUT" CAST THEREON IN 2" LETTERS.
7. FRAME AND COVER SHALL BE COATED WITH BLACK ASPHALTIC PAINT.

WATERTIGHT MANHOLE FRAME AND COVER

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	WATERTIGHT MANHOLE FRAME AND COVER
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL S–6



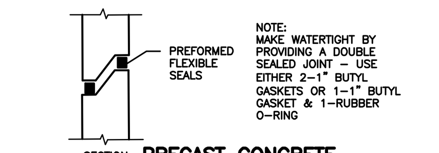
NOTES:

1. SEWER PIPE SADDLE, MANUFACTURED BY ROMAC INDUSTRIES, INC (MODEL CB) OR APPROVED EQUAL.
2. PLACE SADDLE SO THAT LATERAL CONNECTS TO TOP OF MAIN AT A 45° VERTICAL ANGLE.

SEWER SADDLE

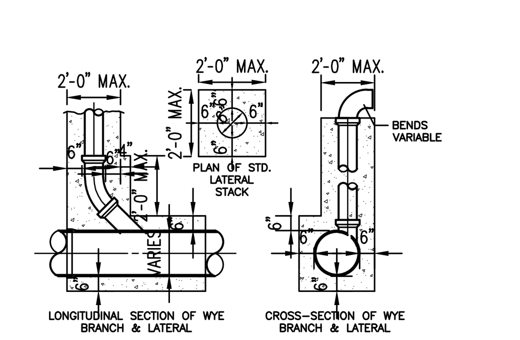
NTS

BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	SEWER SADDLE
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL S–13



PRECAST CONCRETE MANHOLE GASKETS

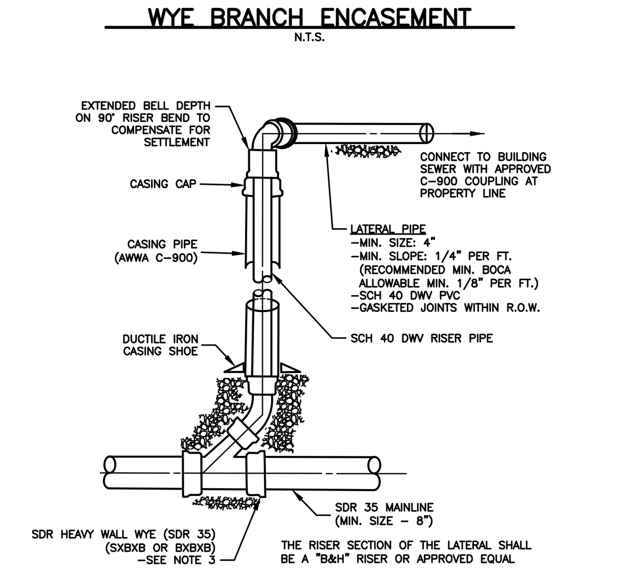
N.T.S.



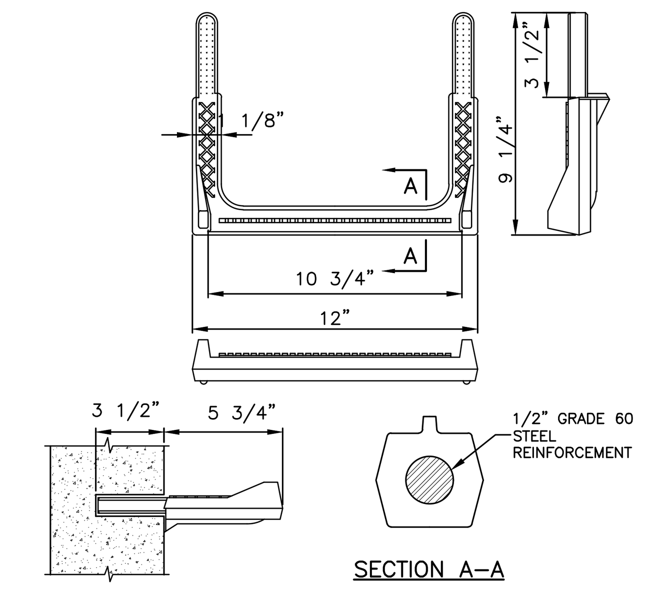
NOTES:
1. WHERE THE SEWER MAIN IS NOT ENCASED IN CONCRETE, AND AN ENCASED LATERAL MUST BE PROVIDED, THE MAIN SEWER SECTION OF THE WYE BRANCH SHALL BE ENCASED FOR THE ENTIRE LENGTH THE WYE'S MAIN SEWER SECTION, IN CONFORMITY TO THE SHOWN CROSS–SECTIONS.

WYE BRANCH ENCASEMENT

N.T.S.



DEEP CUT LATERAL

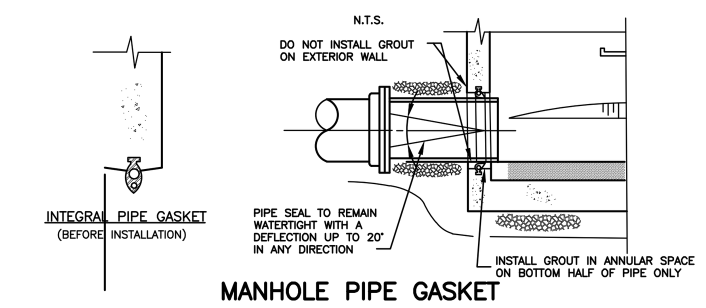


NOTES:

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'.

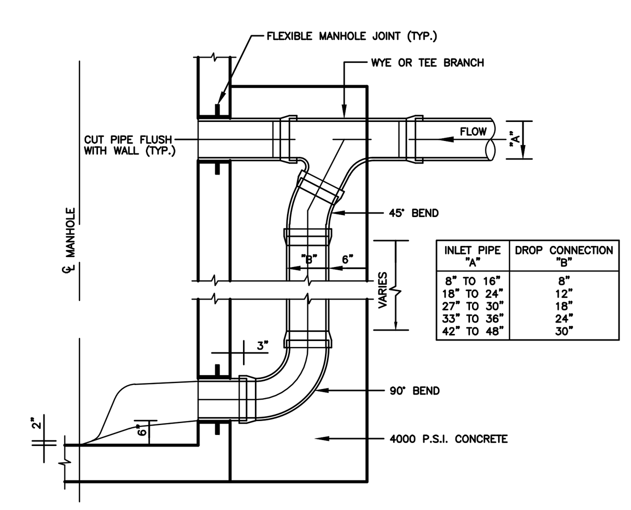
MANHOLE STEP (STEEL REINFORCED POLYPROPYLENE)

NOT TO SCALE



MANHOLE PIPE GASKET

N.T.S.

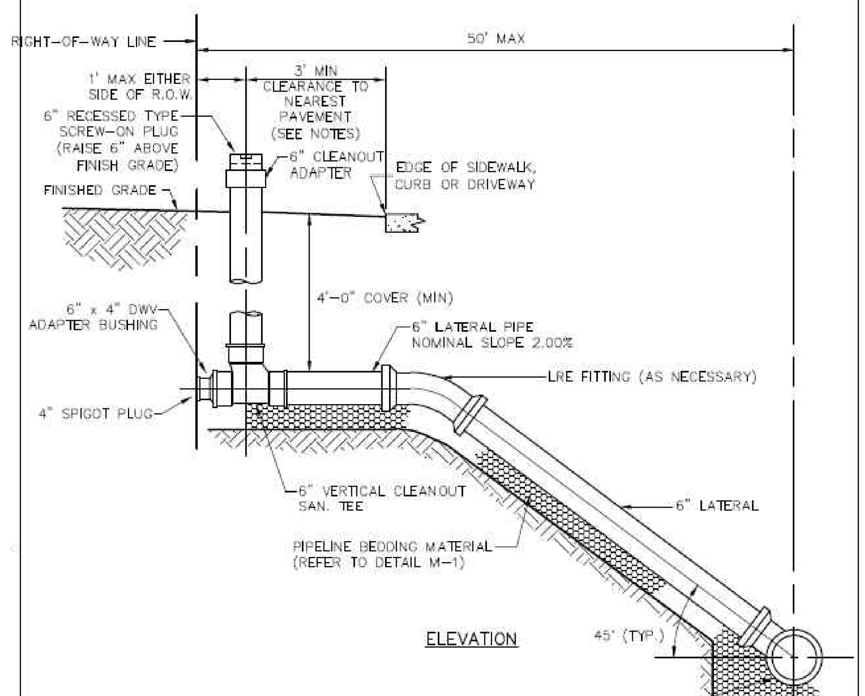


INLET PIPE "A"	DROP CONNECTION "B"
8" TO 16"	8"
18" TO 24"	12"
27" TO 30"	18"
33" TO 36"	24"
42" TO 48"	30"

NOTE:
DROP PIPE TO BE USED IN ALL CASES WHERE DIFFERENCE BETWEEN INLET AND LOWEST OUTLET INVERT IS 2.0 FEET OR GREATER

OUTSIDE DROP MANHOLE CONNECTION

N.T.S.



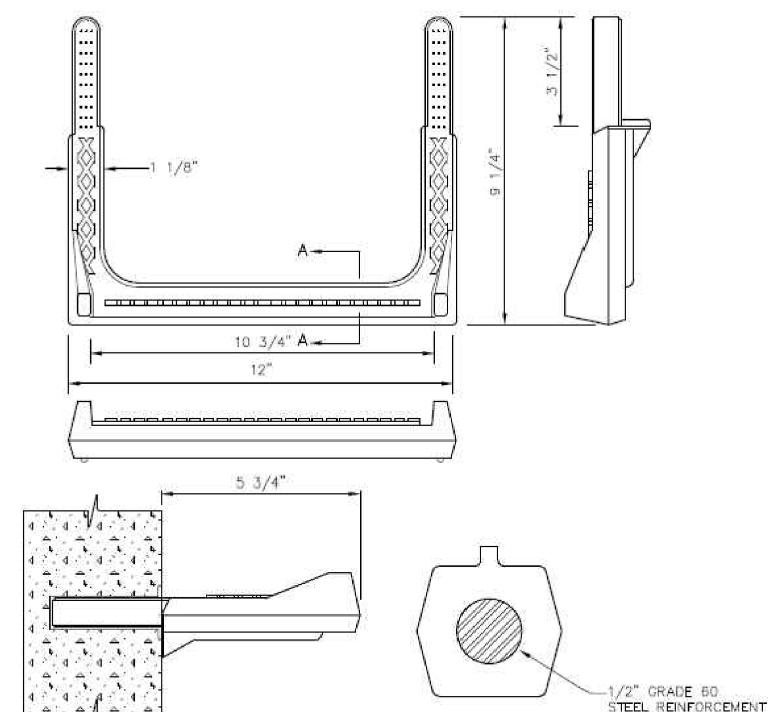
NOTE

1. CLEANOUTS SHOULD NOT TYPICALLY BE INSTALLED IN OR NEAR PAVED AREAS. UNDER SPECIAL CONDITIONS, A CLEANOUT LOCATED IN, OR LESS THAN 3 FEET FROM, A PAVED AREA MAY BE INSTALLED IF A PROTECTION SLEEVE AS SHOWN IN DETAIL S–12 IS PROVIDED.
2. THIS DETAIL APPLIES WHEN THE SEWER MAIN IS 10' DEEP OR GREATER.

LATERAL CONNECTION DEEP SEWER

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	LATERAL CONNECTION DEEP SEWER
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL S–10



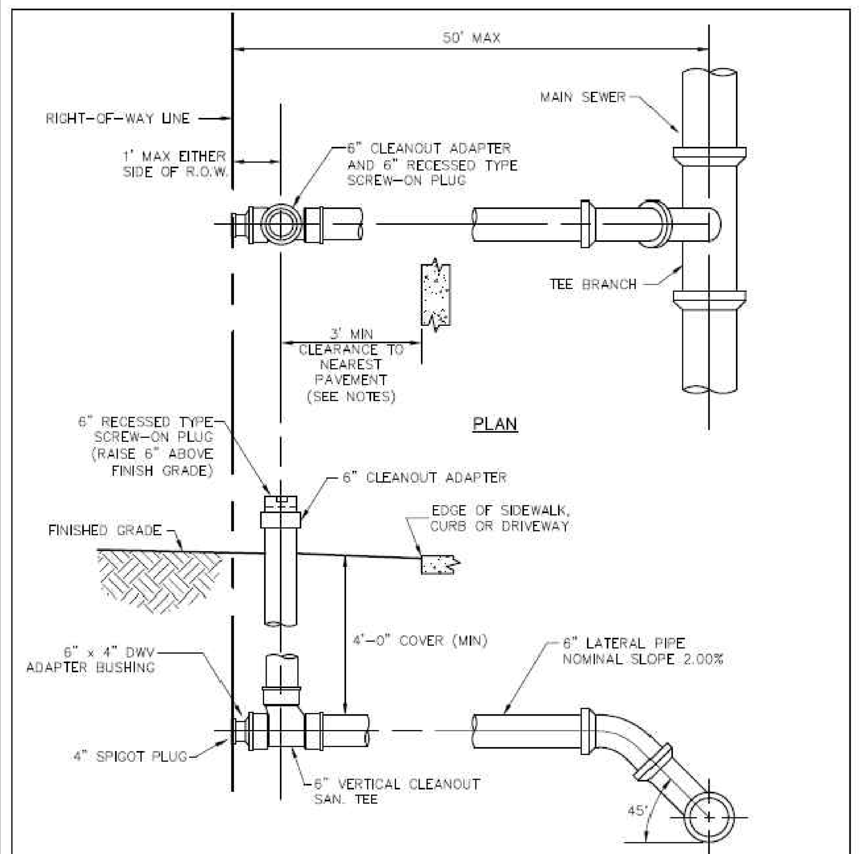
NOTE:

STEPS TO BE FABRICATED FROM COPOLYMER POLYPROPYLENE PLASTIC.

POLYPROPYLENE MANHOLE STEP

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	POLYPROPYLENE MANHOLE STEP
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL S–8



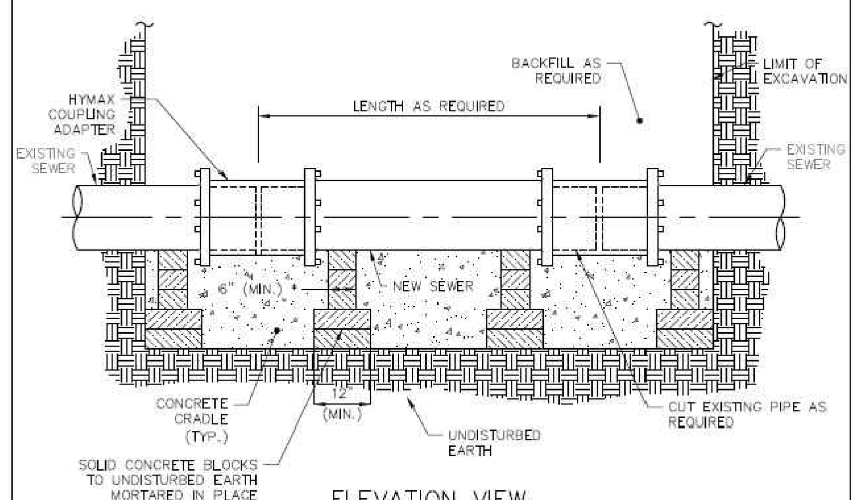
NOTE

CLEANOUTS SHOULD NOT TYPICALLY BE INSTALLED IN OR NEAR PAVED AREAS. UNDER SPECIAL CONDITIONS, A CLEANOUT LOCATED IN, OR LESS THAN 3 FEET FROM, A PAVED AREA MAY BE INSTALLED IF A PROTECTION SLEEVE AS SHOWN IN DETAIL S–12 IS PROVIDED.

LATERAL CONNECTION SHALLOW SEWER

NTS

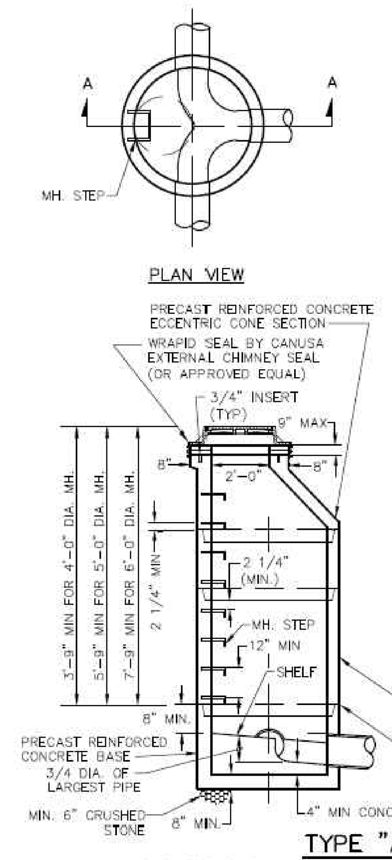
BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	LATERAL CONNECTION SHALLOW SEWER
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL S–9



REPLACEMENT OF EXISTING SEWER

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	REPLACEMENT OF EXISTING SEWER
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL S–14



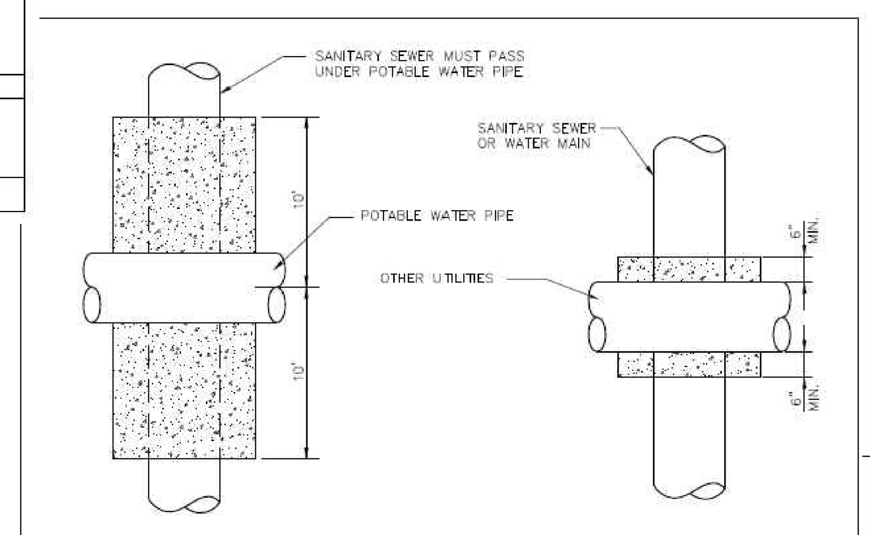
NOTES:

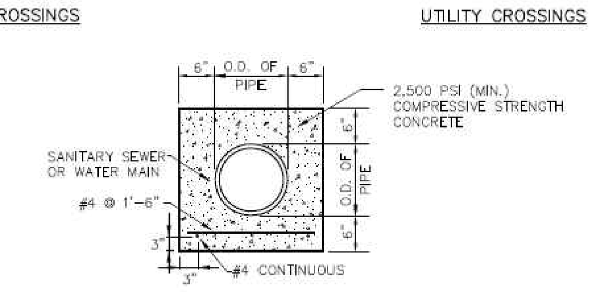
1. THE DEPTH OF THE INVERT CHANNEL SHALL BE EQUAL TO 3/4 OF THE DIAMETER OF THE SEWER.
2. THE SHELF SHALL SLOPE TOWARD THE INVERT CHANNEL AT A RATE OF 1" PER FOOT.
3. TYPE "B" MANHOLES (SHALLOW TYPE) TO BE PROVIDED WHERE REQUIRED BY DEPTH CONDITIONS. ALL OTHER MANHOLES TO BE TYPE "A".
4. FOR MANHOLES HAVING 5' DIA. AND 6' DIA. BASE, REDUCTION IN DIAMETER 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 OR CONCRETE SLAB WITH (4)–3/4" DIA. BOLTS WITH WASHERS AND NUTS. BOLTS TO BE AT 90° ON THE BOLT CIRCLE.
6. SEE THE SPECIFICATIONS FOR LENGTH OF PIPE CONNECTIONS TO MANHOLES.
7. ALL CONCRETE SHALL BE 4000 PSI MINIMUM.
8. ENTIRE OUTSIDE SURFACE OF MANHOLE SHALL RECEIVE TWO COATS OF BITUMINOUS COATING, COAL TAR EPOXY, OR APPROVED EQUAL.
9. INSTALL DOUBLE RING OF PLASTIC BUTYL JOINT SEALANT BETWEEN ALL SECTIONS AND UNDER FRAME.
10. MANHOLE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ASTM C478.
11. PROVIDE A RESILIENT PIPE CONNECTION GASKET CAST INTEGRALLY IN MANHOLE WALL AT ALL PIPE CONNECTIONS. GASKET SHALL BE A–LOK CONNECTOR, OR APPROVED EQUAL. GROUT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
12. 4' DIA. MANHOLE – 8" TO 16" PIPES
5' DIA. MANHOLE – 18" TO 27" PIPES
6' DIA. MANHOLE – 30" TO 48" PIPES
13. AN EXTERNAL CHIMNEY SEAL SHALL BE INSTALLED OVER FRAME AND GRADE RINGS. CHIMNEY SEAL SHALL BE WRAPID SEAL BY CANUSA OR APPROVED EQUAL.
14. MANHOLES THAT RECEIVE FORCE MAIN DISCHARGE OR THAT ARE LOCATED ON INTERCEPTORS OR TRUNK SEWERS SHALL BE CONSTRUCTED WITH A SPRAY–ON POLYMETRIC LINING SYSTEM, SPECTRASHIELD, OBIC, OR APPROVED EQUAL.
15. SEE DETAIL S–7 OR S–8 FOR MANHOLE STEP REQUIREMENTS.

TYPE "A" STANDARD MANHOLE

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	TYPE "A" STANDARD MANHOLE
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL S–1





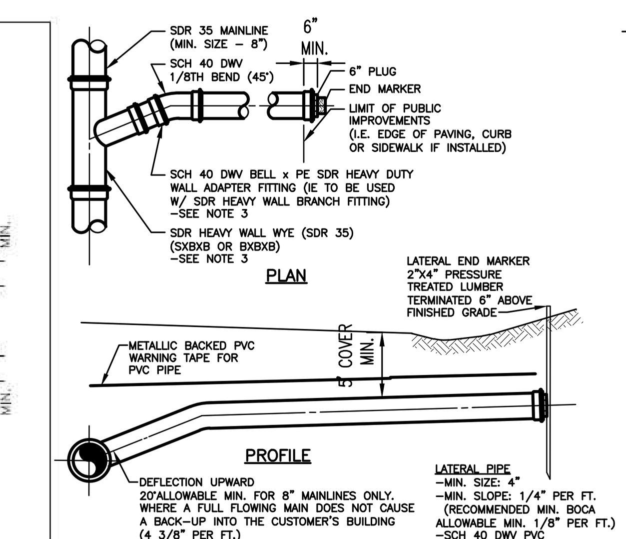
NOTE:

PROVIDE REINFORCEMENT AT UTILITY CROSSINGS OR AS DIRECTED BY AUTHORITY'S ENGINEER.

CONCRETE ENCASEMENT

NTS

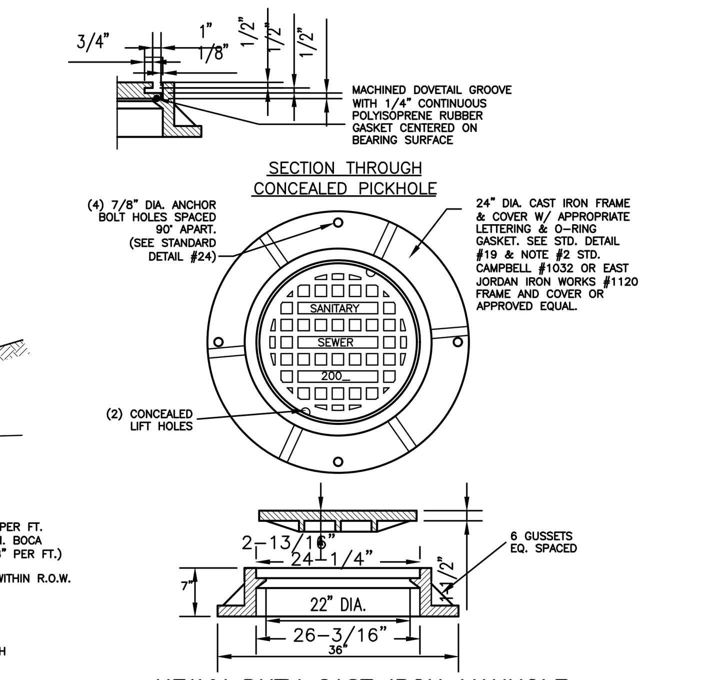
BUCKS COUNTY WATER & SEWER AUTHORITY		
DWG. BY: TSB	CKD. BY:	CONCRETE ENCASEMENT
DATE: 7–24–19	SCALE: None	
REVISION	DATE	
		STANDARD DETAIL M–2



NOTES:
1. MAINLINE SEWER TO BE SDR 35 MEETING ASTM D–3034.
2. ALL PIPE & FITTING JOINTS TO HAVE GASKETED JOINTS MEETING ASTM F–477.
3. RE: WYE OR TEE FITTINGS OR SADDLES–IN LIEU OF USING A STANDARD SDR HEAVY WALL FITTING W/SCH. 40 DWV x SDR HW ADAPTER, A SDR HW x SCH 40 DWV BRANCH FABRICATED FITTING MAY BE USED.
4. APPROVED SDR HW MANUFACTURERS–HARCO & GPK.
5. 1"/FT = 83.3mm/m.

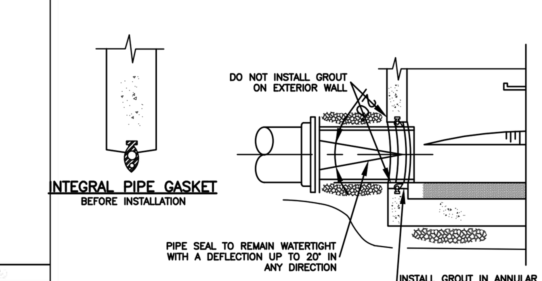
PVC SANITARY WYE BRANCHES & LATERAL CONNECTION

N.T.S.



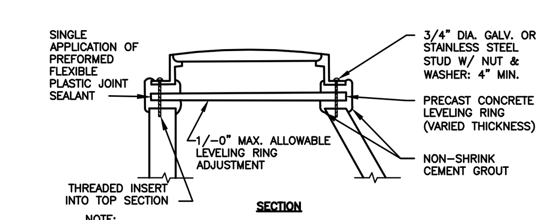
HEAVY DUTY CAST IRON MANHOLE FRAME AND SELF–SEALING COVER

N.T.S.



PIPE GASKET (MANHOLE)

NOT TO SCALE



NOTE:
1. ALL NON–SHRINK CEMENT GROUT SHALL BE TROWLED SMOOTH.
2. EXCESS PREFORMED FLEXIBLE PLASTIC JOINT SEALANT SHALL BE NEATLY TRIMMED FOR ALL JOINTS.

MANHOLE GASKETS, LEVELING RINGS, AND BOLTED FRAME DETAIL

N.T.S.

NO.	REVISIONS	BY	DATE
1	REVISED PER TWP ENG'S LTR DATED 3/24/2020	ROP	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania811

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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

SANITARY SEWER DETAILS

YOUR GOALS. OUR MISSION.

1700 MARKET ST., SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459
www.tandmassociates.com

OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY DFM	DRAWING SS–D1
CHECKED BY CWJ	
DRAWN BY JMH,ROP	SHEET 35 OF 37
DATE 02/17/2020	
SCALE AS NOTED	
PROJ. NO. CRST00004	

PROJECT INFORMATION:
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FILE NAME: CRST00009_SHT027_CSD.dwg
LAST SAVED DATE AND TIME: 17 Apr 2020, 3:17PM
LAST SAVE BY: DMattson

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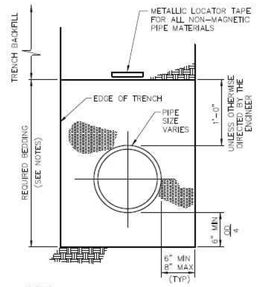


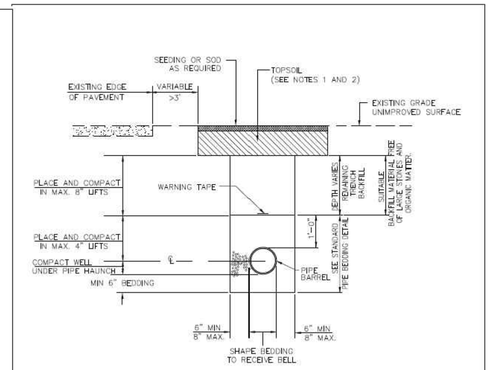
NOTES:

1. AASHTO NO. 8 (#8) COARSE AGGREGATE FOR PVC PIPE.
2. PADOT 2A MODIFIED AGGREGATE FOR DUCTILE IRON PIPE.

STANDARD PIPE BEDDING

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY			
DWG. BY: TSB	CKD. BY:		STANDARD PIPE BEDDING
DATE: 7-24-19	SCALE: None		
REVISION		DATE	
			STANDARD DETAIL M-1



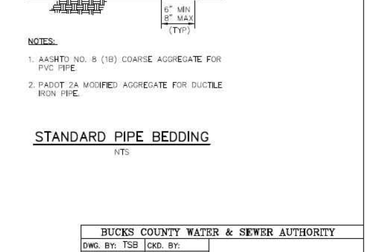
NOTES:

1. THE TOP 6" OF ALL TRENCHES IN NON-WETLAND AREAS SHALL BE BACKFILLED WITH TOPSOIL.
2. THE TOP 18" OF ALL TRENCHES IN WETLANDS SHALL BE BACKFILLED WITH PREVIOUSLY STRIPPED TOPSOIL.
3. ALL RESTORATION SHALL BE IN ACCORDANCE WITH PENNDOT PUBLICATION 408 AND PA CODE TITLE 67 CHAPTER 459.
4. SPECIAL CONDITION OF OCCUPANCY PERMIT MAY SUPERSEDE THIS DETAIL.

TRENCH RESTORATION FOR UNIMPROVED SHOULDER OF STATE HIGHWAY, TOWNSHIP ROADS OR IN EASEMENT

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY			
DWG. BY: TSB	CKD. BY:		TRENCH RESTORATION FOR UNIMPROVED SHOULDER OF STATE HIGHWAY, TOWNSHIP ROAD, OR IN EASEMENT
DATE: 7-24-19	SCALE: None		
REVISION		DATE	
			STANDARD DETAIL TR-1



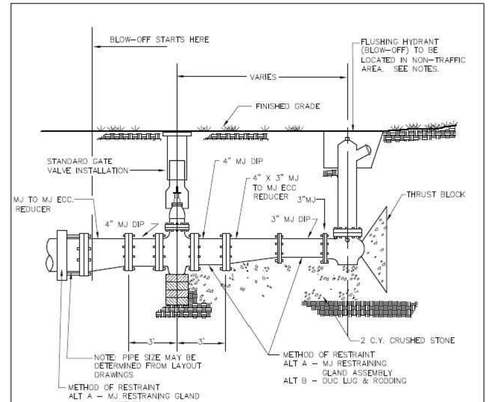
NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 3,000 P.S.I.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS U-SHAPED AROUND PIPE.
3. ALL FITTINGS AND JOINTS SHALL BE ENVELOPED WITH 8 MIL POLYETHYLENE FILM BEFORE PLACING CONCRETE.
4. PAINT ALL EXPOSED STEEL WITH TWO COATS OF ASTM D1187 ASPHALT EMULSION.
5. FOR THE REQUIRED BEARING SURFACE AREAS SEE STANDARD DETAIL M-6.

HORIZONTAL THRUST BLOCK

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY			
DWG. BY: TSB	CKD. BY:		HORIZONTAL THRUST BLOCK
DATE: 7-24-19	SCALE: None		
REVISION		DATE	
			STANDARD DETAIL M-3



ELEVATION
END OF RUN INSTALLATION

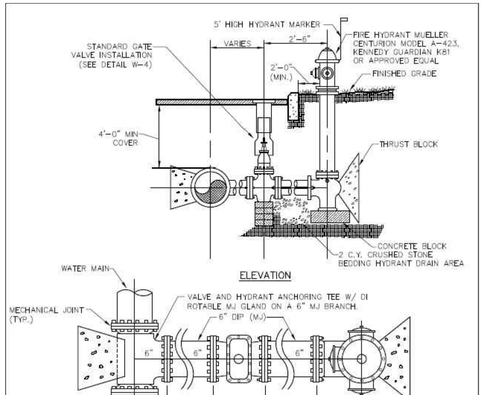
NOTES:

1. FLUSHING HYDRANT SHALL BE MUELLER MODEL A-412, SIZE 2 1/8", WITH (1) 2" NOZZLE AND CAP CHAIN FURNISHED WITH WRENCH CAT. NO. A-313 OR APPROVED EQUAL. INLET 3" MECHANICAL JOINT.
2. WHERE A FLUSHING HYDRANT IS LOCATED ON A BRANCH MAIN, THE INSTALLATION SHALL BE SIMILAR TO THE STANDARD FIRE HYDRANT DETAILS.
3. FIRE HYDRANTS TO BE PROVIDED IN LIEU OF BLOW-OFF ASSEMBLIES WHERE POSSIBLE.

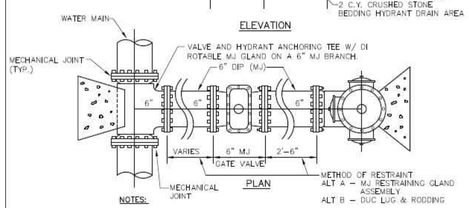
BLOW OFF ASSEMBLY

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY			
DWG. BY: TSB	CKD. BY:		BLOW-OFF ASSEMBLY
DATE: 7-24-19	SCALE: None		
REVISION		DATE	
			STANDARD DETAIL W-9



ELEVATION



PLAN

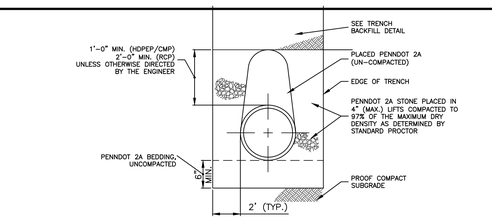
NOTES:

1. A MIN. COVER OF FIVE FEET WITH RESPECT TO HYDRANT LOCATION SHALL BE PROVIDED WITH THE NECESSARY BENDS, FITTINGS AND RESTRAINTS AS DIRECTED BY THE AUTHORITY'S ENGINEER.
2. THRUST BLOCKS TO BE PROVIDED IN ADDITION TO MECHANICAL RESTRAINTS.

FIRE HYDRANT CONNECTION

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY			
DWG. BY: TSB	CKD. BY:		FIRE HYDRANT CONNECTION
DATE: 7-24-19	SCALE: None		
REVISION		DATE	
			STANDARD DETAIL W-3

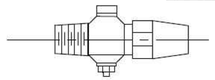


NOTES:

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-30M.

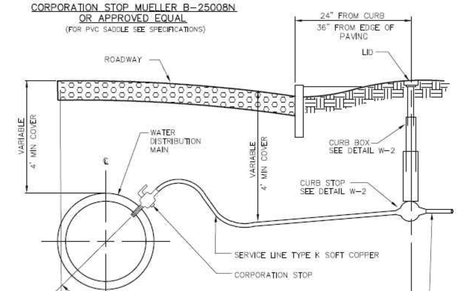
PIPE BEDDING (STORM SEWER)

NOT TO SCALE



CORPORATION STOP MUELLER B-25008N OR APPROVED EQUAL

(FOR PVC SADDLE SEE SPECIFICATIONS)



NOTES:

FOR STANDARD 3/4" CONNECTION, INSERT A TAPPED COUPLING WITH THREADED INSERT OR DOUBLE-STRAPPED SADDLE CLAMP ON THE WATER MAIN.

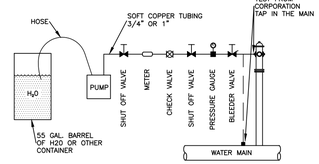
SERVICE CONNECTION

NTS

BUCKS COUNTY WATER & SEWER AUTHORITY			
DWG. BY: TSB	CKD. BY:		SERVICE CONNECTION
DATE: 7-24-19	SCALE: None		
REVISION		DATE	
			STANDARD DETAIL W-1

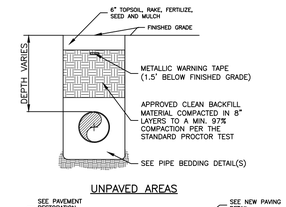
WATER LINE NOTES

1. CONTRACTOR SHALL VERIFY ALL SIZES OF EXISTING PIPES, TO BE REPLACED OR CONNECTED TO, PRIOR TO ORDERING MATERIALS.
2. ALL WATER LINES 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. STAKES SHALL BE MARKED WITH WRITTEN ELEVATIONS FOR BOTTOM OF 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 MAINS MUST BE CONSTRUCTED WITH AWWA C900 PVC PIPE.
4. NEW WATER SERVICE(S) SHALL BE TYPE K COPPER PIPE OR SIDR 7 POLYETHYLENE TUBING.
5. ALL WATER LINE VALVES, FITTINGS, ETC. SHALL BE INSTALLED WITH MECHANICAL JOINTS AND MEGALUG RESISTANT GLANDS.
6. ALL WATER LINE CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH THE UTILITY OWNER'S LATEST STANDARDS AND SPECIFICATIONS.
7. 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 BENEATH THE SANITARY, NO MATTER HOW MUCH CLEARANCE, THE POTABLE WATER MUST BE ENCASED IN CONCRETE FOR 10 LF ON EACH SIDE OF THE CROSSING.
8. 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 A PERIOD NOT LESS THAN 2 HOURS. SHOULD ANY 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.
9. THE INSTALLATION OR REPAIR OF ANY UNDERGROUND FACILITIES OR PIPING WHICH CONNECTS TO OR FURNISHES WATER FOR THE FIRE PROTECTION SPRINKLER SYSTEM SHALL BE PERFORMED ONLY BY A LICENSED UTILITY CONTRACTOR, FIRE PROTECTION SPRINKLER CONTRACTOR, OR LICENSED PLUMBER. A COPY OF THE LICENSE OR CERTIFICATE OF COMPETENCY SHALL BE PROVIDED TO THE INSPECTOR AT THE FINAL INSPECTION.
10. REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.

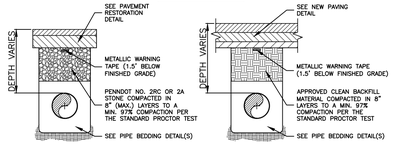


HYDROSTATIC PRESSURE TEST CONFIGURATION

NOT TO SCALE



UNPAVED AREAS



EXISTING PAVED AREAS

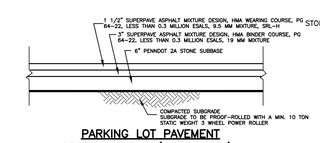
NEW ROADWAYS & PARKING AREAS

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.

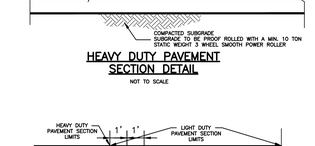
BACKFILL (TRENCH)

NOT TO SCALE



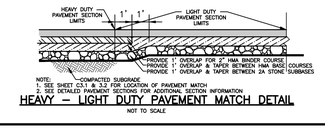
PARKING LOT PAVEMENT SECTION DETAIL (LIGHT DUTY)

NOT TO SCALE



HEAVY DUTY PAVEMENT SECTION DETAIL

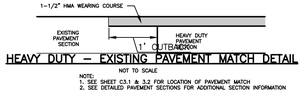
NOT TO SCALE



NOTE:
1. SEE SHEET C3.1 & 3.2 FOR LOCATION OF PAVEMENT MATCH
2. SEE DETAILED PAVEMENT SECTIONS FOR ADDITIONAL SECTION INFORMATION

HEAVY DUTY — PENNDOT PAVEMENT MATCH DETAIL

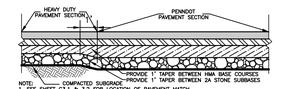
NOT TO SCALE



HEAVY DUTY — EXISTING PAVEMENT MATCH DETAIL

NOT TO SCALE

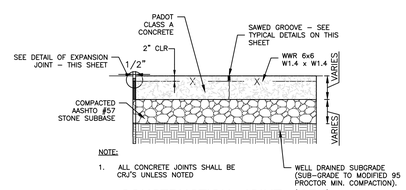
NOTE:
1. SEE SHEET C3.1 & 3.2 FOR LOCATION OF PAVEMENT MATCH
2. SEE DETAILED PAVEMENT SECTIONS FOR ADDITIONAL SECTION INFORMATION



NOTE:
1. SEE SHEET C3.1 & 3.2 FOR LOCATION OF PAVEMENT MATCH
2. SEE DETAILED PAVEMENT SECTIONS FOR ADDITIONAL SECTION INFORMATION

HEAVY DUTY — PENNDOT PAVEMENT MATCH DETAIL

NOT TO SCALE

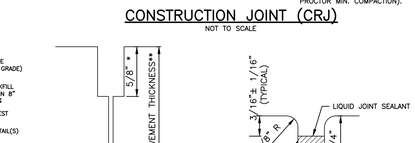


NOTE:

1. ALL CONCRETE JOINTS SHALL BE CRJ'S UNLESS NOTED

CONSTRUCTION JOINT (CRJ)

NOT TO SCALE



NOTES:

1. EXPOSED VERTICAL AND HORIZONTAL SURFACES SHALL BE PREPARED AS STATED IN PENNDOT PUB. 408, SECT. 401.3(I).
2. TACK COAT MATERIAL SHALL BE APPLIED TO THE ENTIRE SURFACE PRIOR TO APPLICATION OF THE WEARING SURFACE UNLESS WAIVED BY PENNDOT.
3. ALL MATERIAL AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, PUBLICATION 408, LATEST REVISION.
4. IF WORK IS COMPLETED WITHIN PENNDOT RIGHT OF WAY, SPECIAL CONDITIONS OF THE HIGHWAY OCCUPANCY PERMIT SHALL SUPERCEDE THIS DETAIL.
5. REFER TO TYPICAL STREET CROSS SECTION FOR DESCRIPTIONS OF A,B,C AND D.

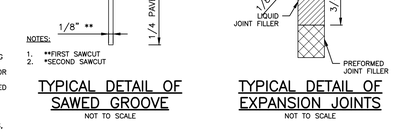
PAVEMENT RESTORATION (BITUMINOUS)

NOT TO SCALE

Ⓐ SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 0 TO <0.3 MILLION DESIGN ESALS, 9.5 MM MIXTURE, 1 1/2" DEPTH, SRL H

Ⓑ SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 0 TO <0.3 MILLION DESIGN ESALS, 25 MM MIXTURE, 4 1/2" DEPTH

Ⓒ SUBBASE (PENNDOT. 2A) 6" DEPTH



NOTES:

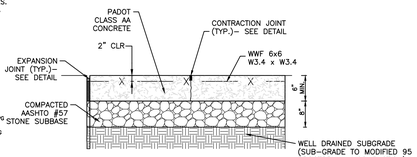
1. **FIRST SAWCUT
2. *SECOND SAWCUT

TYPICAL DETAIL OF SAWED GROOVE

NOT TO SCALE

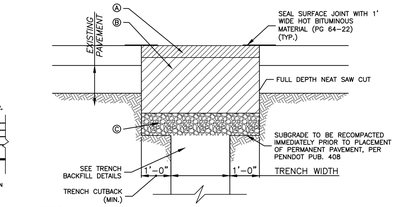
TYPICAL DETAIL OF EXPANSION JOINTS

NOT TO SCALE



HEAVY DUTY CONCRETE PAVEMENT DETAIL

NOT TO SCALE



NOTES:

1. EXPOSED VERTICAL AND HORIZONTAL SURFACES SHALL BE PREPARED AS STATED IN PENNDOT PUB. 408, SECT. 401.3(I).
2. TACK COAT MATERIAL SHALL BE APPLIED TO THE ENTIRE SURFACE PRIOR TO APPLICATION OF THE WEARING SURFACE UNLESS WAIVED BY PENNDOT.
3. ALL MATERIAL AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, PUBLICATION 408, LATEST REVISION.
4. IF WORK IS COMPLETED WITHIN PENNDOT RIGHT OF WAY, SPECIAL CONDITIONS OF THE HIGHWAY OCCUPANCY PERMIT SHALL SUPERCEDE THIS DETAIL.
5. REFER TO TYPICAL STREET CROSS SECTION FOR DESCRIPTIONS OF A,B,C AND D.

PAVEMENT RESTORATION (BITUMINOUS)

NOT TO SCALE

Ⓐ SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 0 TO <0.3 MILLION DESIGN ESALS, 9.5 MM MIXTURE, 1 1/2" DEPTH, SRL H

Ⓑ SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 0 TO <0.3 MILLION DESIGN ESALS, 25 MM MIXTURE, 4 1/2" DEPTH

Ⓒ SUBBASE (PENNDOT. 2A) 6" DEPTH

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

Pennsylvania 811 — 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 AND ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND UTILITIES SHOWN ON THESE PLANS 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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

WATER LINE / PAVEMENT / UTILITY BEDDING DETAILS

T AND M
YOUR GOALS. OUR MISSION.
1700 MARKET ST., SUITE 3110
PHILADELPHIA, PA 19103
TEL 215-282-7850
FAX 215-627-3459
www.tandmassociates.com
OFFICES LOCATED IN:
DELAWARE, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	UTL-D1
SHEET	36 OF 37

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PROJECT INFORMATION:
FILE PATH: G:\Projects\CRST\00004\Plans\
FILE NAME: UTL-D1 WATER LINE DETAILS.DWG
LAST SAVED DATE AND TIME: 17 Apr 2020, 3:17PM
LAST SAVE BY: DMattson

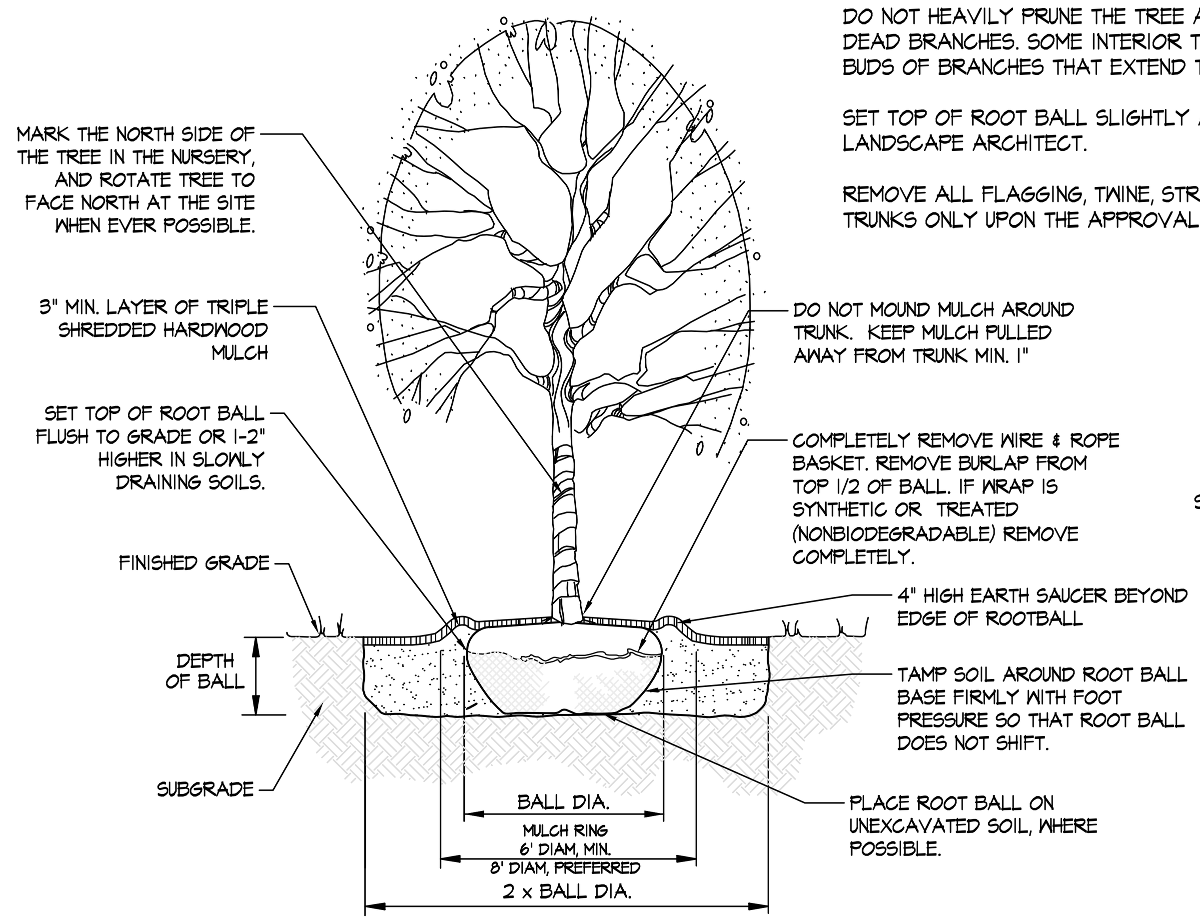
PLANTING NOTES:

SET PLANTS PLUMB AND FACE TO GIVE THE BEST APPEARANCE OR RELATIONSHIP TO ADJACENT AREAS.

DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.

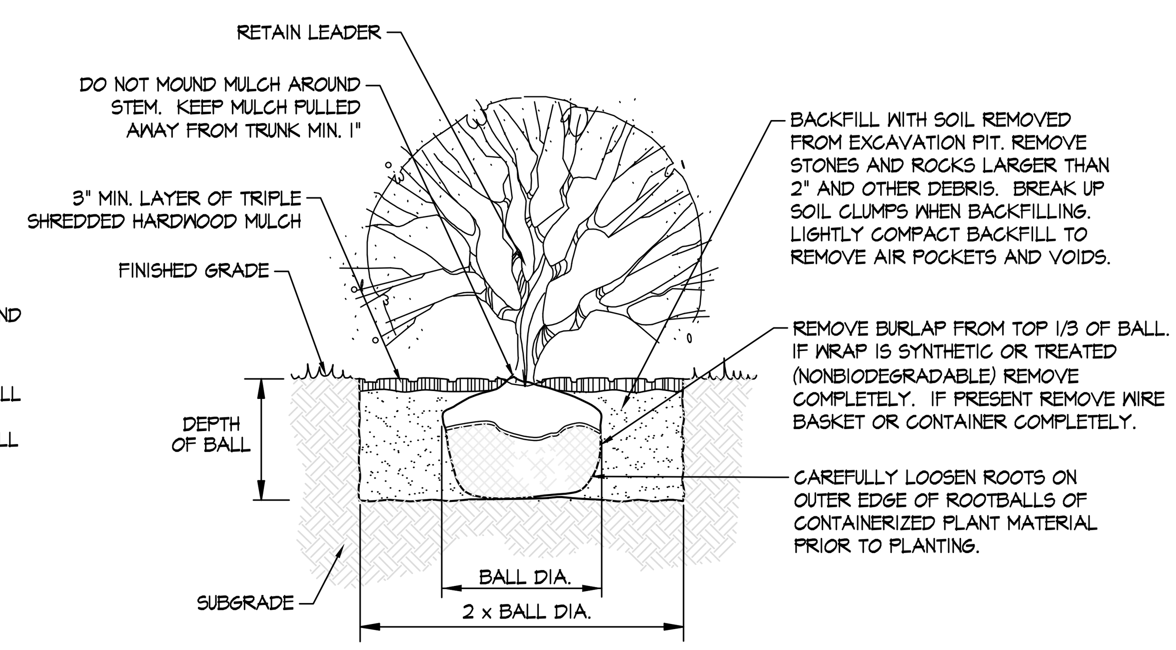
SET TOP OF ROOT BALL SLIGHTLY ABOVE ADJACENT FINISHED GRADE. STAKE TREES ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT.

REMOVE ALL FLAGGING, TWINE, STRING, TAGS, ETC., FROM BRANCHES AND LIMBS/TRUNKS FOLLOWING PLANTING. WRAP TREE TRUNKS ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT.



DECIDUOUS / EVERGREEN TREE PLANTING

NOT TO SCALE

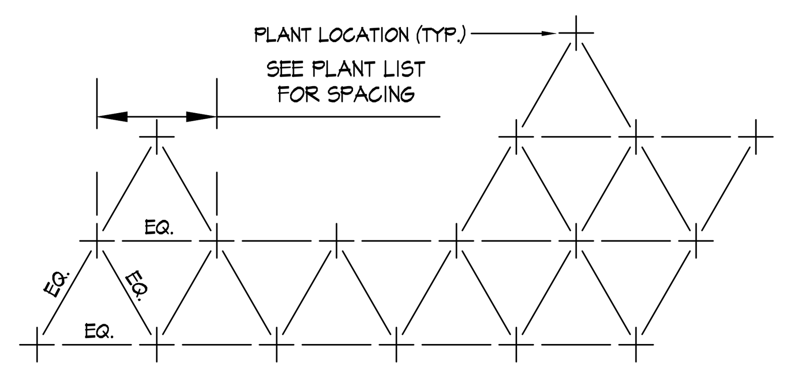


SHRUB PLANTING

NOT TO SCALE

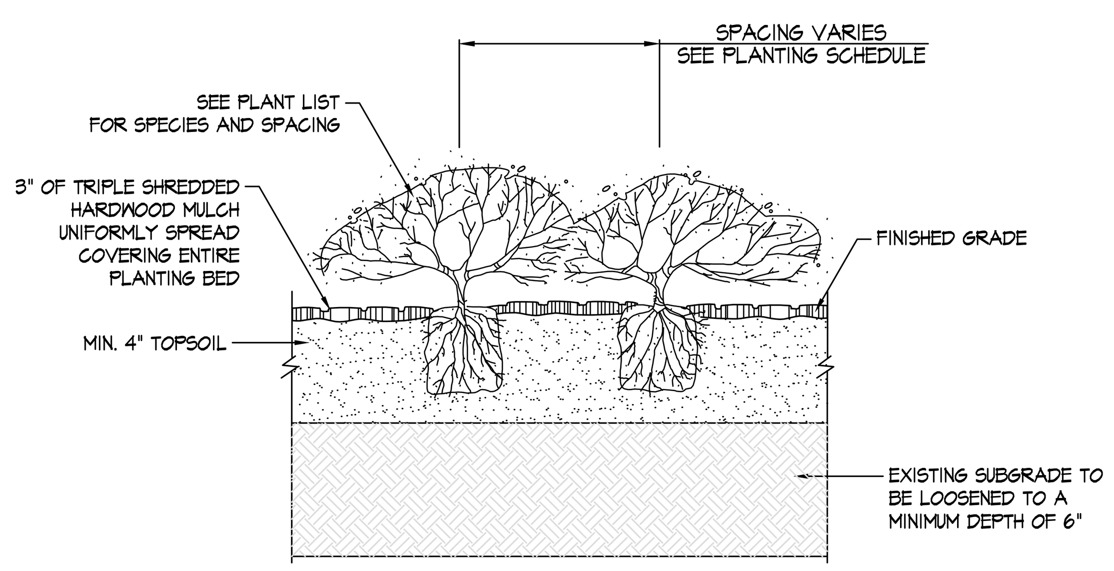
NOTES:

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



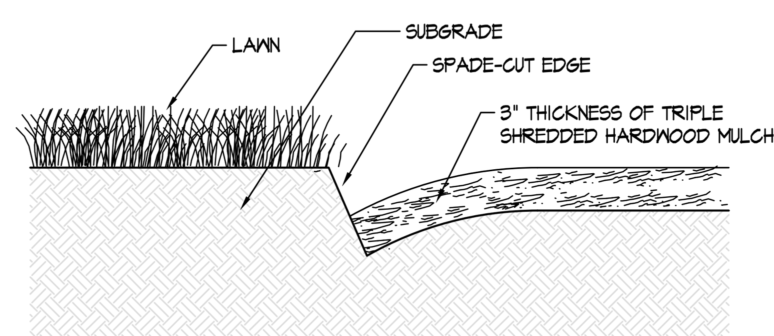
PLANT SPACING DIAGRAM

NOT TO SCALE



PLUG AND PERENNIAL PLANTING

NOT TO SCALE



EDGING AT MULCH BED

NOT TO SCALE

LANDSCAPE PLANTING NOTES AND SPECIFICATIONS:

1. ALL PLANT MATERIAL SHALL BE PROVIDED AND INSTALLED IN STRICT CONFORMANCE WITH USDA STANDARDS FOR NURSERY STOCK AND THE "AMERICAN NURSERY AND LANDSCAPE ASSOCIATION" STANDARDS LATEST EDITIONS.

2. THE CONTRACTOR SHALL VERIFY ALL UTILITIES WITHIN WORK AREA PRIOR TO COMMENCING WITH ANY EXCAVATIONS AND SHALL BE RESPONSIBLE FOR THEIR PROTECTION.

3. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS SHOWN ON THE DRAWINGS, AS SPECIFIED, AND IN QUANTITIES INDICATED ON THE PLANT LIST. IF A DISCREPANCY SHOULD ARISE BETWEEN THE AMOUNT OF PLANTS SHOWN ON THE PLAN VS. THE PLANT SCHEDULE, THE PLAN SHALL GOVERN.

4. ALL PLANTS SHALL BE NURSERY GROWN.

5. ALL PLANTS SHALL BE HARDY UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT.

6. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OR GROWTH. THEY SHALL BE SOUND, HEALTHY AND VIGOROUS WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF THEY SHALL BE FREE OF DISEASE AND INSECT PESTS, EGGS OR LARVAE. THEY SHALL HAVE HEALTHY WELL-DEVELOPED ROOT SYSTEMS.

7. SUBSTITUTIONS: WHEN PLANTS OF A SPECIFIED KIND OR SIZE ARE NOT AVAILABLE WITHIN A REASONABLE DISTANCE, SUBSTITUTIONS MAY BE MADE UPON REQUEST BY THE CONTRACTOR IF APPROVED BY THE LANDSCAPE ARCHITECT OR HIS/HER REPRESENTATIVE AND THE TOWNSHIP AND/OR ITS REPRESENTATIVE.

8. ALL AREAS TO BE SHOWN AS LAWN SHALL BE SEEDED, AS SPECIFIED, AND WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.

9. TREE LOCATIONS MAY NEED TO BE ADJUSTED BASED ON LOCATIONS OF UTILITIES, FIELD CONDITIONS, OR FINAL GRADING. THE CONTRACTOR SHALL NOTIFY THE OWNER AND/OR THEIR REPRESENTATIVE IF ADJUSTMENTS ARE NECESSARY.

10. ALL PLANTING AREAS AND PARKING ISLANDS TO RECEIVE A MINIMUM OF 3" TRIPLE SHREDDED HARDWOOD MULCH, UNLESS OTHERWISE NOTED OR INDICATED.

11. ROOT BALLS OF ALL PLANTS SHALL BE ADEQUATELY PROTECTED AT ALL TIMES FROM SUN AND DRYING WINDS OR FROST.

12. PLANTS WITH BROKEN ROOT BALLS, TRUNK AND BARK DAMAGE OR EXCESSIVE DAMAGE TO THE CROWN SHALL BE REPLACED PRIOR TO PLANTING.

13. ROPES AT TOP OF BALL SHALL BE CUT. REMOVE TOP 1/3 OF BURLAP. ALL NON- BIODEGRADABLE MATERIAL SHALL BE TOTALLY REMOVED. WIRE BASKETS SHALL BE CAREFULLY REMOVED ENTIRELY AT THE TIME OF PLANTING, PREFERABLY AFTER THE ROOT BALL HAS BEEN INSTALLED IN THE PLANTING PIT.

14. PREPARATION OF PLANTING: CLEAN SOIL EXCAVATED FROM PLANTING PIT OF ROOTS, PLANTS, STONES LARGER THAN 2", CLAY LUMPS, AND OTHER EXTRANEOUS MATERIALS HARMFUL OR TOXIC TO PLANT GROWTH.

15. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING.

16. NO PLANT SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR HIS/HER EQUAL.

17. ALL TREES PLANTED WITIHIN TEN FEET OF ANY PAVING MATERIAL SHALL REQUIRE ROOT BARRIER MATERIAL AS PER THE RECOMMENDATIONS OF THE MANUFACTURER.

18. INSTALL ALL PLANTS SO THAT THE TOP OF THE ROOTBALL IS SLIGHTLY ABOVE FINISHED GRADE. IN NO CASE SHALL THE PLAN BE INSTALLED WITH NO LESS THAN THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL ROOT CROWN. EXCESS SOIL MAY EXIST AROUND THE ROOT CROWN FROM NURSERY OPERATIONS. THIS EXCESS MATERIAL SHALL BE REMOVED PRIOR TO PLANTING TO DETERMINE THE PROPER BALL INSTALLATION DEPTH.

19. ALL EXISTING TREES THAT ARE TO BE SAVED AS DETERMINED BY LANDSCAPE ARCHITECT SHALL BE PROTECTED UNTIL CONSTRUCTION HAS BEEN COMPLETED. AREA WITHIN DRIPLINE SHALL NOT BE TRAVELED ACROSS BY CONSTRUCTION TRAFFIC.

20. TREES PLANTED ALONG STREETS SHALL HAVE A SINGLE STRAIGHT TRUNK THAT DOES NOT FORK BELOW 6'.

21. ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL NON-BIODEGRADEABLE ROOT WRAPPING MATERIAL SHALL BE REMOVED AT TIME OF PLANTING.

22. WITH CONTAINER GROWN STOCK, THE CONTAINER SHALL BE REMOVED AND THE CONTAINER BALL CUT THROUGH THE SURFACE IN TWO VERTICAL LOCATIONS MINIMUM.

23. THE CONTRACTOR SHALL LAYOUT WITH IDENTIFIABLE STAKES INDIVIDUAL TREE AND SHRUB LOCATIONS AND AREAS FOR MULTIPLE PLANTING ALONG WITH THE ARRANGEMENTS AND OUTLINE OF PLANTING BEDS AS INDICATED ON DRAWING. THE LAYOUT OF PLANTING WILL THEN BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO ANY EXCAVATION OF PLANT PITS OR PLANT BEDS.

24. AT PLANTING TIME, ALL PLANT MATERIAL SHALL TRIMMED TO REMOVE BROKEN AND/OR DEAD VEGETATIVE MATERIAL.

24. ALL PLANTS SHALL BE INSTALLED AS PER THE PLANTING DETAILS AND THE CONTRACT SPECIFICATIONS, WHERE APPLICABLE.

25. ALL PLANTS SHALL BE INSTALLED PLUMB UNLESS OTHERWISE SPECIFIED.

26. ALL PLANTS SHALL BE THOROUGHLY WATERED TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON.

27. CONDITIONS DETRIMENTAL TO PLANTS: THE CONTRACTOR SHALL NOTIFY THE PROJECT REPRESENTATIVE IN WRITING OF ALL SOIL OR DRAINAGE CONDITIONS WHICH THE CONTRACTOR CONSIDERS DETRIMENTAL TO THE GROWTH OF PLANTS. HE SHALL STATE THE CONDITIONS AND SUBMIT A PROPOSAL FOR CORRECTING THE CONDITIONS INCLUDING ANY CHANGE IN COST FOR REVIEW AND ACCEPTANCE BY THE PROJECT REPRESENTATIVE.

28. WARRANT TREES AND SHRUBS FOR A MINIMUM PERIOD OF ONE (1) YEAR AFTER DATE OF WRITTEN FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT AND/OR THE OWNERS AUTHORIZED REPRESENTATIVE AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MONITOR THE PROJECT PLANTINGS DURING THE WARRANTY PERIOD AND NOTIFY THE OWNER IF PROBLEMS DEVELOP. PLANTS THAT DIE DURING THE WARRANTY PERIOD SHALL BE REMOVED IMMEDIATELY AND REPLACED.

29. ALL LANDSCAPE AREAS AND STORMWATER MANAGEMENT FACILITIES SHALL BE MAINTAINED IN PERPETUITY BY THE DEVELOPER.

NO.	BY	REVISIONS	DATE
1	ROP	REVISED PER TWP ENG'S LTR DATED 3/24/2020	4/1/2020

CHRISTOPHER W. JENSEN, P.E.
LICENSED PROFESSIONAL ENGINEER
COMMONWEALTH OF PENNSYLVANIA
LICENSE NO. 076464
DATE

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.:

PRELIMINARY/FINAL SUBDIVISION LAND DEVELOPMENT PLANS

CORNERSTONE TRACY, LLC
OXFORD VALLEY MALL
MULTI-FAMILY REDEVELOPMENT
TOWNSHIP OF MIDDLETOWN, BUCKS COUNTY, PENNSYLVANIA

LANDSCAPING AND LIGHTING DETAILS

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DESIGNED BY	DFM
CHECKED BY	CWJ
DRAWN BY	JMH,ROP
DATE	02/17/2020
SCALE	AS NOTED
PROJ. NO.	CRST00004
DRAWING	LS-D1
SHEET	37 OF 37

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